

PAILLARD S.A.

CH-1450 STE - CROIX / SUISSE



SERVICE APRES-VENTE BOLEX

BOLEX AFTER-SALES SERVICE

BOLEX-KUNDENDIENST

PIECES DE RECHANGE ET INSTRUCTIONS TECHNIQUES

ERSATZTEILE UND TECHNISCHE ANLEITUNGEN

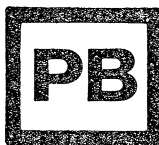
SPARE PARTS AND SERVICE INSTRUCTIONS

PROJECTEUR

PROJEKTOR

**SM8**

PROJECTOR



EDITION 1967



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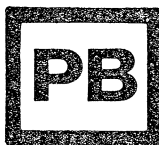
SPARE PARTS AND SERVICE INSTRUCTIONS

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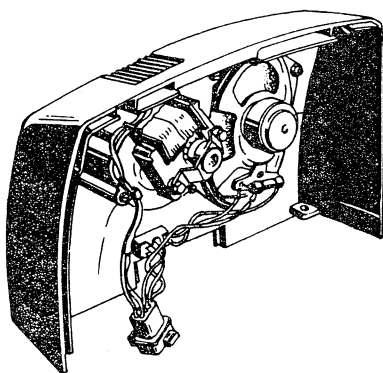
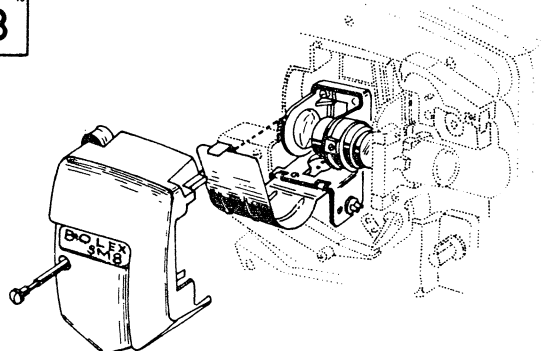
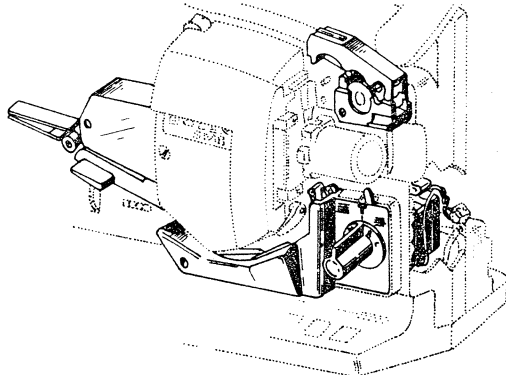
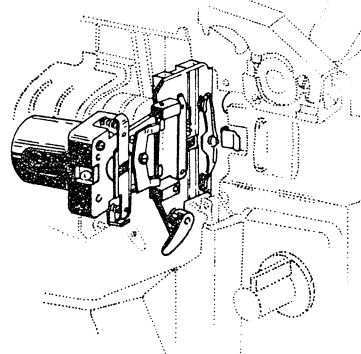
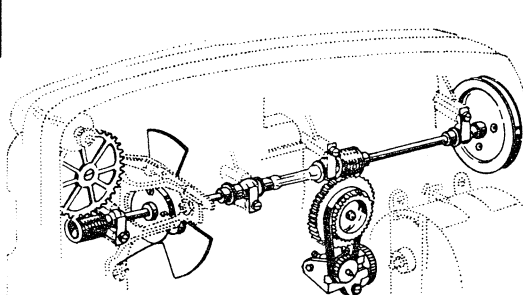
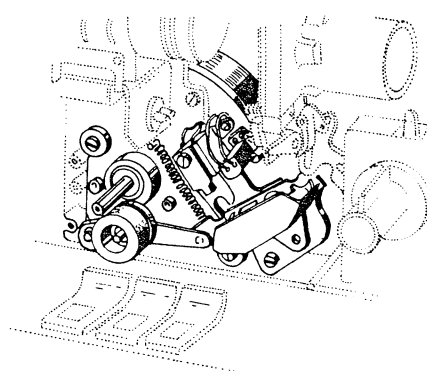
EDITION 1967





**TM**

# Table des matières Inhaltsverzeichnis Index

**SM8**50 Hz: 100 001  
60 Hz: 130 001**INTRODUCTION**Tenue à jour du catalogue . . . I  
Signes conventionnels . . . II**EINFÜHRUNG**Einordnen der Katalog-Blätter . . . I  
Gebräuchliche Zeichen . . . II**INTRODUCTION**Keeping the catalog up-to-date . . . I  
Conventional signs . . . II**A****B****C****D****E****F****PB**

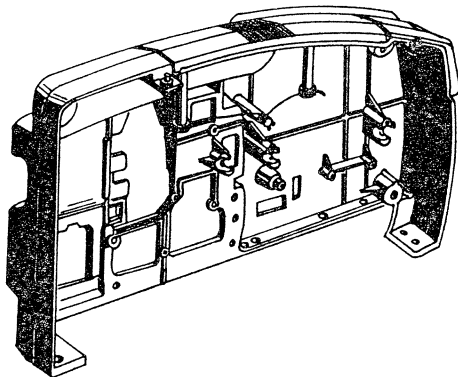
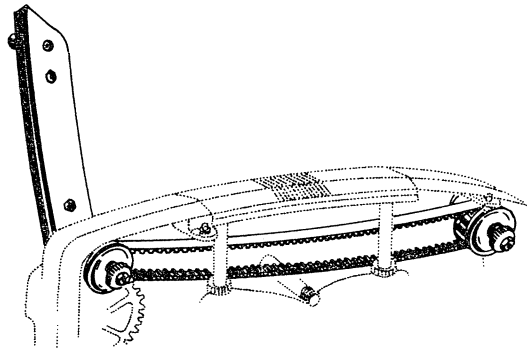
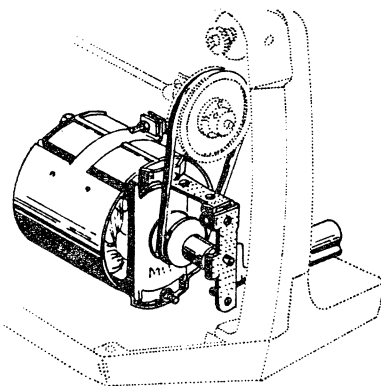
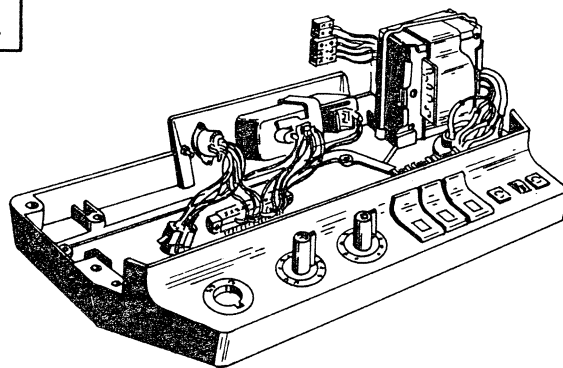
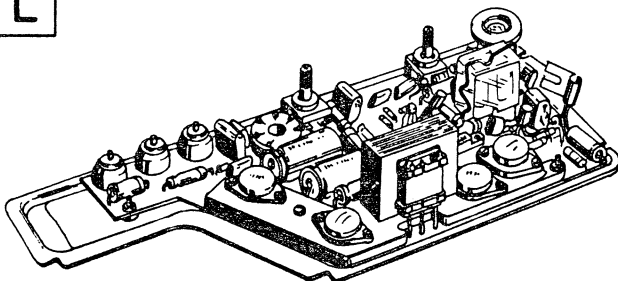
02.67

\*

**1**

**TM**

# Table des matières Inhaltsverzeichnis Index

**SM8**50 Hz : 100 001  
60 Hz : 130 001**G****H****J****K****L****M**Accessoires  
Zubehör  
Accessories**N**Schémas électriques  
Elektrische Schaltbilder  
Electric diagrams**O**Plan de câblage  
Verdrahtungsschema  
Wiring diagram**P**Composants électriques  
Elektrische Bestandteile  
Electrical components**PB**

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**2**



You are requested to file in this service manual all the corresponding printed matters which you will receive henceforward and to check the information contained therein whenever you wish to compile a spare parts order.

All technical documentation is supplied to your service department on a loan basis and must by no means be handed over to third parties.

PAILLARD S. A.  
BOLEX After-Sales Service

CH-1450 Ste-Croix / Switzerland

Every document of this catalogue is composed of numbered "boxes" respectively "columns" containing the following information :

Box No. 1 : The type of document, i.e.

TM = index : white paper

INTRODUCTION : white paper

PD = spare parts sheet : white paper

IT = technical instructions : salmon-pink paper

FM = modification sheet : blue paper.

Filing order :

TM are filed at the beginning of the catalogue, just after the cover sheet.

IT are filed after the corresponding spare parts sheets. If there are several versions of the same subject, additional PD may be issued. If no special IT are elaborated, the technical instructions belonging to the original PD are also valid for the additional PD.

FM are filed so as to face the corresponding PD or IT, according to the indication in box 9. \*\*

Box No. 2 : The name of the subject treated.

Box No. 3 : The product to which the treated subject belongs.

Box No. 4 : The serial number indicating the introduction of the subject treated.(Approx.)

Box No. 5 : The trade mark of the manufacturer. All INTRODUCTION sheets bear the trade mark PAILLARD BOLEX.

Box No. 6 : The name of the catalogue (see also label on back of folder).

Box No. 7 : The issuing date of the document.

Filing order :

- INTRODUCTION sheets : Of all the INTRODUCTION sheets bearing the same indications in boxes 1 - 6 - 11 - 14, only the sheet with the latest issuing date must be kept.



- TM, PD and IT : Of all the sheets bearing the same indications in boxes 1 - 6 - 10 - 11 (1 - 6 - 11 for TM), only the sheet with the latest issuing date must be kept.

ATTENTION : When discarding a superseded sheet, be sure that the corresponding FM are eliminated at the same time !

- FM : Of all the FM bearing the same indications in boxes 1 - 6 - 9 - 11, only the sheet with the latest issuing date must be kept.

Box No. 8 : The language in which the document is printed :

\* = trilingual

F = French

D = German

E = English.

Box No. 9 : Space reserved for special indications.

On the FM, this space contains the specifications in boxes 1 - 10 - 11 - 7 of the PD or IT for which the FM is valid.

Box No. 10 : Letter of tab under which the PD and IT are filed.

On the IT this section is divided into two parts, the lower showing the page number of the PD whereafter the IT are filed.

Box No. 11 : The page number.

Filing order :

- TM, INTRODUCTION sheets, PD and FM : Arabic numerals in numerical order.
- IT : Roman numerals in numerical order.

Box No. 12 : - On INTRODUCTION sheets : miscellaneous

- On PD : "exploded view" drawings with part numbers

- On IT : text.

Box No. 13 : Sketches illustrating the technical instructions.

Box No. 14 : Roman tab number of the INTRODUCTION sheets.

Column No. 15 : The number of the respective modification.

Column No. 16 : The old parts, valid before the introduction of the modification.

Column No. 17 : The new parts, valid after the introduction of the modification.

Column No. 18 : Explanatory notes.

Column No. 19 : Alphabetical list in French of the respective subjects treated shown on the different PD.

Column No. 20 : idem, in German.

Column No. 21 : idem, in English.

\*\*) On receipt of a FM, you should rectify immediately the corresponding document.

SignSignification

As a rule, compound parts which have only one or no symbol at all, cannot be dismantled. Their components are, consequently, not available separately.



Design available.



Part not available.



Superseded design. Available as stock lasts.



Faulty parts, to be returned for exchange. Cheap parts may be destroyed.  
Moreover, this sign constrains the repairman to fit the new version on any apparatus equipped with the old one, no matter for which reason the apparatus is submitted to him.



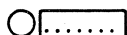
Available for fully equipped service stations.



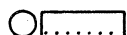
Parts appearing in the dotted field are available as an assembly.  
The respective reference is to be found in a corner of the field.



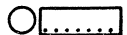
Quantity of identical parts going with the assembly.



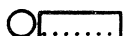
○ = numbering of the designs (to designate interchangeability).



Part interchangeable.  
Design ② may be fitted instead of ① and ③.



Part not interchangeable.  
Design ① cannot be mounted instead of ②.



Design ② is not interchangeable with ① but with ③.



d=...  
e=...

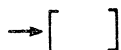
Mechanical characteristics (thickness, diameter, size, length, appearance, colour, etc...) enabling you to distinguish the old version from the new one.

# INTRODUCTION

## Conventional signs



II



The bracketed parts make the new version interchangeable with the former one.



Number of teeth of a gear.



Parts to be mounted according to need (for adjustment).



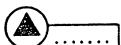
Design valid up to serial number. (Approximative)



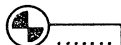
Design valid from serial number. (Approximative)



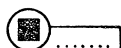
Glue



Grease



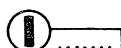
Mastic



Oil



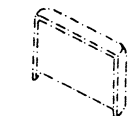
Paint



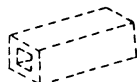
Solid lubricant



Thinner



Part shown on another page or in another catalogue.



Part not available.  
If shown in a screened area it will be included in the corresponding assembly.

The above mentioned signs do not belong to the spare parts number and may, therefore, be omitted when placing an order.

PB

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E

2

# INTRODUCTION EINFÜHRUNG

## Signes conventionnels Gebräuchliche Zeichen Conventional signs



- F) Code de couleurs des fils électriques et gaines isolantes.  
D) Farbcode für elektrische Drähte und Isolierhüllen.  
E) Colour code for electric wires and insulating tubing.

| <u>Code</u> | <u>Couleur / Farbe / Colour</u>                                                                              |
|-------------|--------------------------------------------------------------------------------------------------------------|
| (a)         | Jaune / Gelb / Yellow                                                                                        |
| (b)         | Noir / Schwarz / Black                                                                                       |
| (c)         | Rouge / Rot / Red                                                                                            |
| (d)         | Vert / Grün / Green                                                                                          |
| (e)         | Blanc / Weiss / White                                                                                        |
| (f)         | Bleu / Blau / Blue                                                                                           |
| (g)         | Orange / Orange / Orange                                                                                     |
| (h)         | Beige / Beige / Beige                                                                                        |
| (i)         | Rose / Rosa / Pink                                                                                           |
| (k)         | Violet / Violett / Purple                                                                                    |
| (l)         | Brun / Braun / Brown                                                                                         |
| (m)         | Gris / Grau / Grey                                                                                           |
| (n)         | Non isolé<br>Nicht isoliert<br>Not insulated                                                                 |
| (o)         | Aluminium (gainage transparent)<br>Aluminium (durchsichtige Isolation)<br>Aluminium (transparent insulation) |
| (p)         | Cuivre (gainage transparent)<br>Kupfer (durchsichtige Isolation)<br>Copper (transparent insulation)          |

- F) Afin d'en faciliter la lecture, nous vous recommandons de retracer sur les plans de câblage les fils avec leur couleur correspondante.  
D) Wir empfehlen Ihnen, zwecks besserer Lesbarkeit die Drähte auf den Verdrahtungsschema mit den entsprechenden Farben nachzuziehen.  
E) For better intelligibility it is recommended to trace the wires on the wiring diagrams with their respective colours.





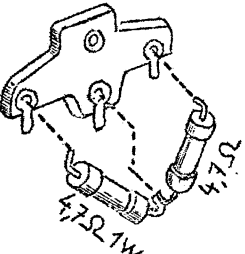
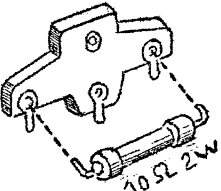
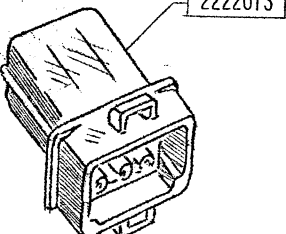
**FM**

Fond  
Hinterer Deckel  
Rear lid

SM8

50 Hz: 100 001 →  
60 Hz: 130 001 →

**BOLEX**

| 15<br>Anciennes pièces<br>Alte Teile<br>Former parts | 16<br>Nouvelles pièces<br>Neue Teile<br>New parts                                                                                                                                 | 17<br>Observations<br>Bemerkungen<br>Remarks                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1<br>[3510821]<br>2X [2502105]                       | ① (3510821 <sup>†</sup> ) 50 Hz : → 100 999<br>2X [2502105] 60 Hz : → 130 320 NI 1/2<br>② [3510824] 50 Hz : 101 000 →<br>2X [2515702] 60 Hz : 130 321 → I 2/1                     | (F) Introduction d'une fixation du commutateur HP par deux écrous.<br>(D) Einführung einer Befestigung des Lautsprecher-schalters mittels zweier Muttern.<br>(E) Introduction of fitting the loudspeaker switch by means of two nuts.<br>(02.67)                                                                                                                                                                                                                               |
| 2<br>[2271100]                                       | ① (2271100 <sup>†</sup> ) 50 Hz : → 101 671 NI 1/2<br>② 2X [2271112] 50 Hz : 101 672 → I 2/1<br> | (F) Pour éviter la surcharge du bobinage du HP incorporé, introduction de 2 résistances de 4,7Ω, 1 W, branchées contre le point central.<br>(D) Um die Wicklung des eingebauten Lautsprechers nicht zu überlasten, wurden 2 Widerstände à 4,7Ω, 1 W, eingebaut, welche am Mittelpunkt angeschlossen sind.<br>(E) In order not to overload the winding of the built-in loudspeaker, 2 resistances, 4.7Ω, 1 W each and connected to the center point were introduced.<br>(02.67) |
| 3<br>2X [2271112]                                    | ② 2X(2271112 <sup>†</sup> ) 50 Hz : → 101 972 I 2/3<br>③ [2271100] 50 Hz : 101 973 → I 3/2<br> | (F) Réintroduction de la résistance 10Ω 2W unique.<br>(D) Wiedereinführung eines <u>einzigen</u> Widerstandes, 10Ω 2W.<br>(E) Reintroduction of a <u>single</u> resistance, 10Ω, 2 W.<br>(02.67)                                                                                                                                                                                                                                                                               |
| 4<br>[3803800]                                       |                                                                                                | (F) Maintenant livrable comme pièce de rechange.<br>(D) Jetzt als Ersatzteil verfügbar.<br>(E) Now available as spare part.<br>(11.67)                                                                                                                                                                                                                                                                                                                                         |
|                                                      |                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |

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PD - A - 1 - 02.67

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**FM**

Fond  
Hinterer Deckel  
Rear lid

SM8

50 Hz: 100 001 →  
60 Hz: 130 001



| 15<br>Anciennes pièces<br>Alte Teile<br>Former parts | 16<br>Nouvelles pièces<br>Neue Teile<br>New parts                                                                                                                                     | 17<br>Observations<br>Bemerkungen<br>Remarks                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 5<br>3820040<br>2X 2515002<br>3551581<br>3803610     | 16<br>① 3820040+<br>2X 2515002+ NI 1/2<br>3551581+<br>3803610+<br><br>② 3800041<br>2X 2590309<br>2X 2515202 I 2/1<br>3551583<br>3803611<br><br>50 Hz : 107 254 →<br>60 Hz : 131 932 → | 17<br>(F) Introduction d'un moteur de ventilateur plus puissant et plus silencieux. Cette modification peut être apportée sur les projecteurs précédant ces no. d'introduction à condition que l'interchangeabilité se fasse en bloc.<br>(D) Einführung eines stärkeren und leiseren Ventilatormotors. Diese Aenderung kann auch bei Geräten mit niedrigerer Seriennummer vorgenommen werden, falls die Teile als Ganzes ausgetauscht werden.<br>(E) Introduction of a more powerful and less noisy fan motor. Projectors with lower serial numbers can also be modified, provided the parts are exchanged as a whole.<br><br>(11.67) |
| 6<br>3800041                                         | 16<br>3820041                                                                                                                                                                         | 17<br>(F) Erreur d'impression (voir modification 5).<br>(D) Druckfehler (siehe Aenderung 5).<br>(E) Misprint (see modification 5).<br><br>(01.68)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|                                                      |                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |

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PD - A - 1 - 02.67

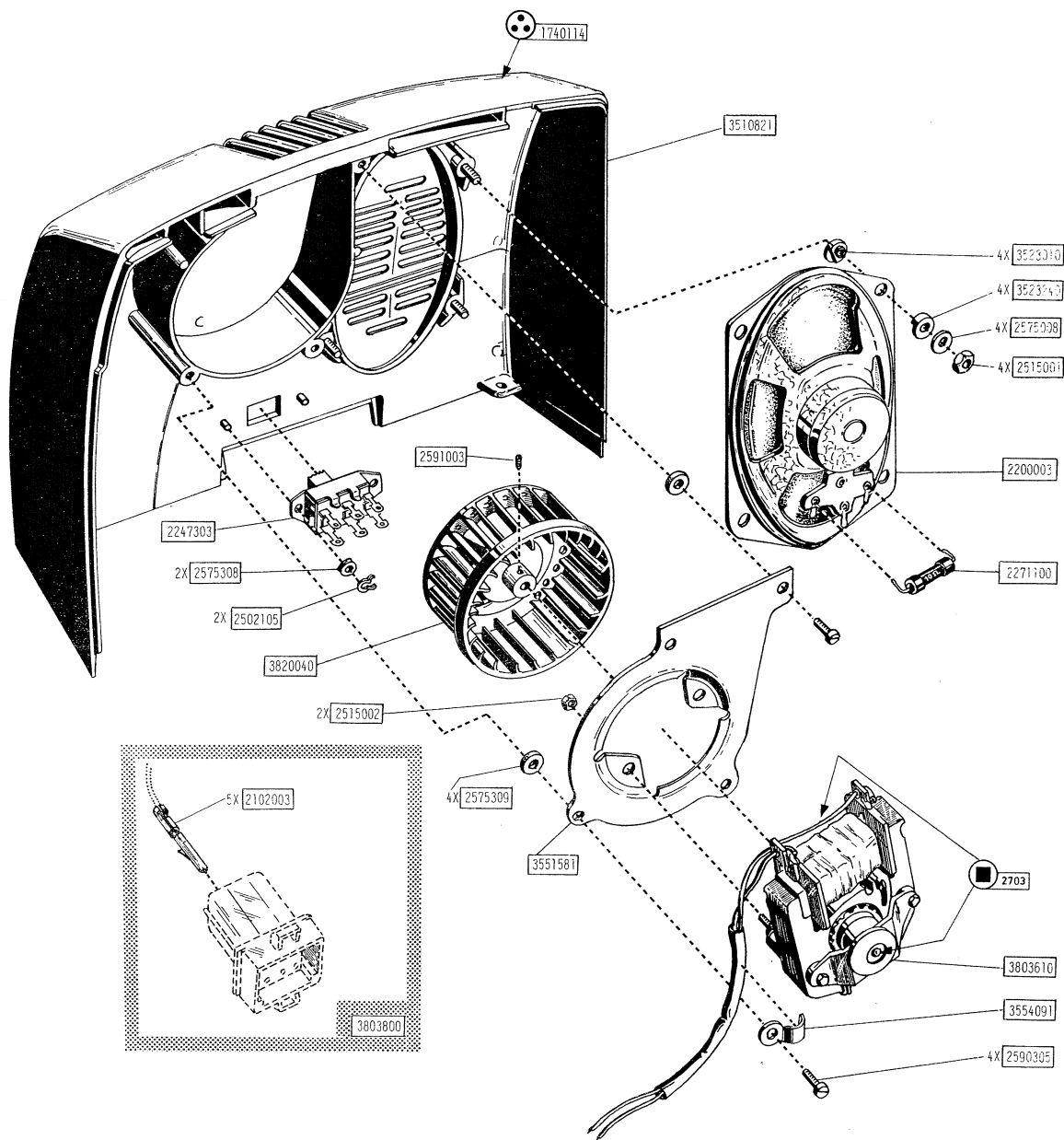
2

**PD**

Fond  
Hinterer Deckel  
Rear lid

**SM 8**

50 Hz: 100 001  
60 Hz: 130 001

**PB**

02.67

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**A****1**



IT

# Fond Hinterer Deckel Rear lid

SM8

50 Hz: 100 001

60 Hz: 130 001

(F) 1. Ventilateur

Centrer correctement le ventilateur sur son arbre pour éviter qu'il touche le flasque support ou le fond lors du remontage.

2. Haut-parleur

Lors du remontage du haut-parleur, s'assurer que les rondelles isolantes soient bien en place et que le haut-parleur ne soit pas mis à la masse.

(D) 1. Ventilator

Der Ventilator muss auf seiner Welle richtig zentriert werden, damit er nicht nach dem Zusammenbau an den Halteflansch oder den hinteren Deckel stösst.

2. Lautsprecher

Beim Wiedereinbau des Lautsprechers ist darauf zu achten, dass die Isolierunterlegscheiben richtig eingesetzt werden und der Lautsprecher nicht an Masse liegt.

(E) 1. Fan

The fan must be properly centered on its shaft, lest it might not touch the flange or rear lid after re-assembly.

2. Loudspeaker

When mounting the loudspeaker again, make sure to properly place the insulating washers, so that it is not connected to ground.

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A

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I



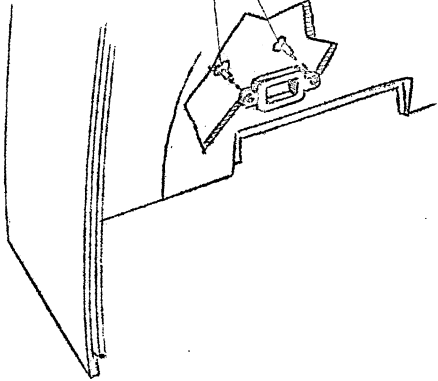
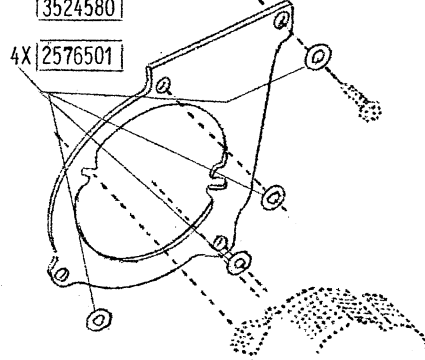
FM

Fond  
Hinterer Deckel  
Rear lid

SM8

50 Hz: 107 254  
60 Hz: 131 932 →

BOLEX

| 1<br>Anciennes pièces<br>Alte Teile<br>Former parts | 10<br>Nouvelles pièces<br>Neue Teile<br>New parts                                                                                                  | 17<br>Observations<br>Bemerkungen<br>Remarks                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|-----------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1<br>2X 2575308<br>3510824                          | 2X 2590702<br>3510825<br>50 Hz : 108 250<br>60 Hz : 133 100 →<br> | (F) Introduction d'une nouvelle fixation de l'interrupteur. Adjonction d'un apport de métal au moulage pour réduire le dépassement du doigt de l'interrupteur du fond.<br>(E) Neue Befestigung des Schalters durch nach Herstellung des Deckels angeschraubte metallene Unterlage, damit der Schalterfinger weniger vorsteht.<br>(E) New fixing of switch : After manufacture of the lid, a metal support is screwed on to it, in order to reduce the projection of the switch button.<br>(02.68)                                                                            |
| 2<br>3551583                                        | 3524580<br>4X 2576501<br>                                        | (F) Changement de symbole de la plaque support moteur. Introduction de 4 rondelles entre la plaque 3524580 et ses vis de fixation.<br>(Valable uniquement pour la version scandinave).<br>(D) Halteplatte des Motors hat andere Teilnummer. Einführung von 4 Unterlegscheiben zwischen Platte 3524580 und deren Befestigungsschrauben.<br>(Gilt nur für die skandinavische Version).<br>(E) Different part number of supporting plate for motor. Introduction of 4 washers between plate 3524580 and its fixing screws.<br>(Refers to Scandinavian version only).<br>(04.68) |
| 3<br>3524580<br>4X 2576501                          | 3551583                                                                                                                                            | (F) Suppression de la modification no. 2 et retour à l'ancienne plaque support moteur.<br><u>Valable uniquement pour la version scandinave.</u><br>(D) Die Aenderung Nr. 2 wird rückgängig gemacht und die frühere Halteplatte für den Motor verwendet.<br><u>Gilt nur für die skandinavische Version.</u><br>(E) Modification No. 2 is cancelled, and the former motor supporting plate used again.<br><u>Refers to Scandinavian version only.</u><br>(11.69)                                                                                                               |

11.69



PD - A - 1.1 - 01.68

1





**FM**

Fond  
Hinterer Deckel  
Rear lid

SM 8

**BOLEX**

Anciennes pièces  
Alte Teile  
Former parts

Nouvelles pièces  
Neue Teile  
New parts

Observations  
Bemerkungen  
Remarks

3510825

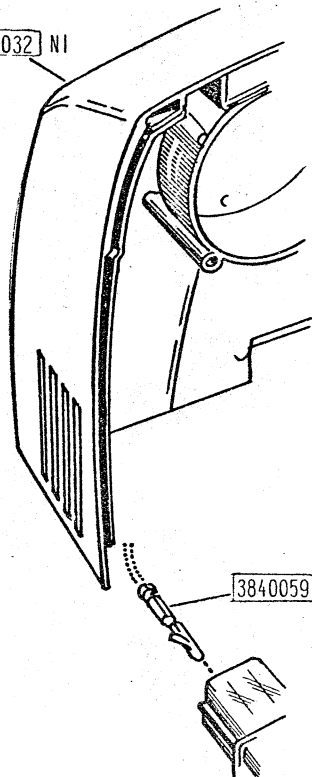
2247303

2X 2590702

2X 2515702

4X 2102003

3510032 NI



3840059

F) Introduction d'ouïes de ventilation supplé-  
mentaires et suppression de l'interrupteur  
du haut-parleur.

D) Einführung zusätzlicher Belüftungsöffnungen  
und wegfall des Lautsprecherschalters.

E) Introduction of supplementary ventilation  
openings and suppression of the loudspeaker  
switch.

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204 000 →

**PB**

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PD - A - 1.1 - 01.68

**2**

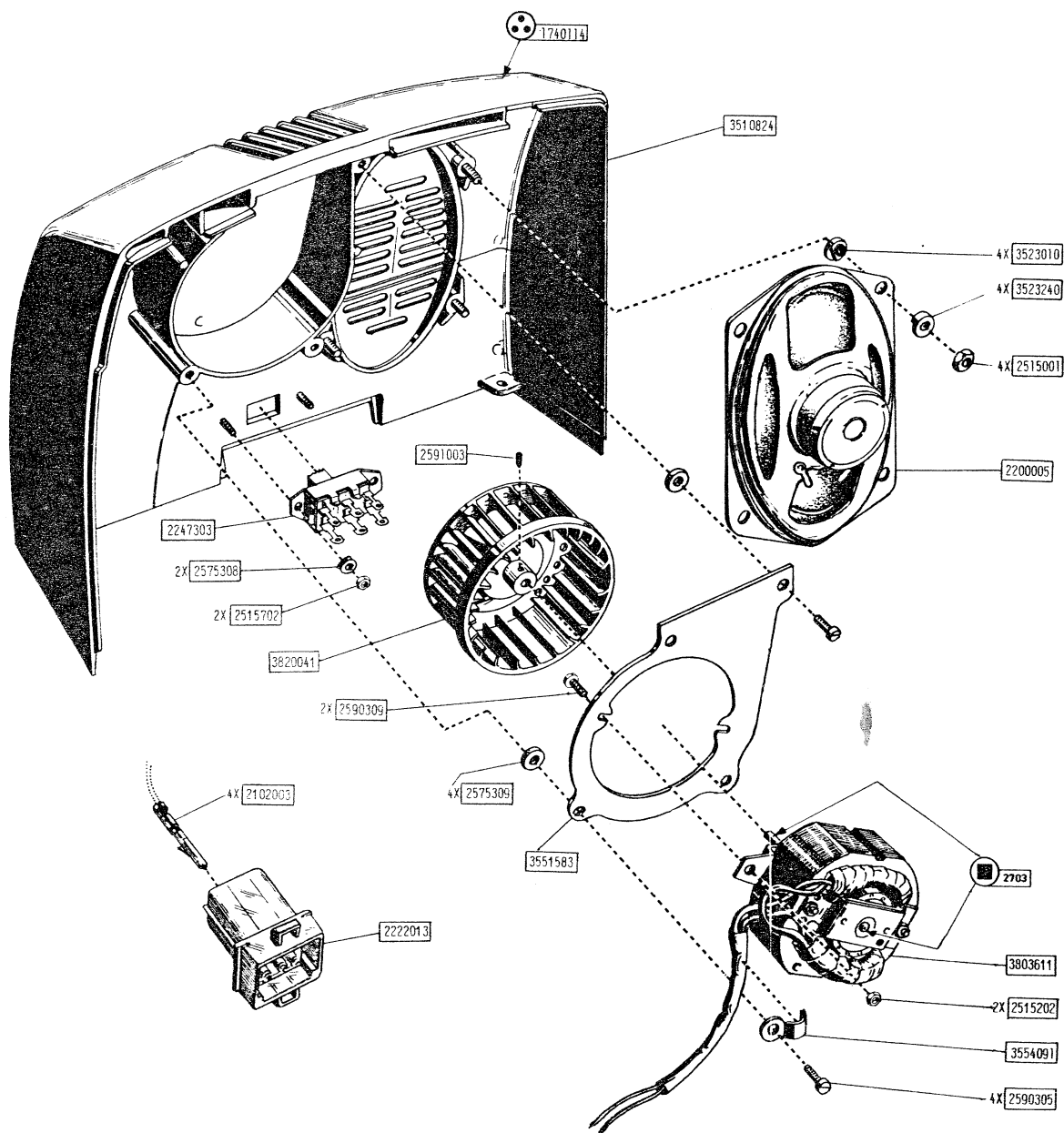


**PD**

Fond  
Hinterer Deckel  
Rear lid

**SM 8**

50 Hz : 107 254  
60 Hz : 131 932

**PB****01.68****\*****A****1.1**

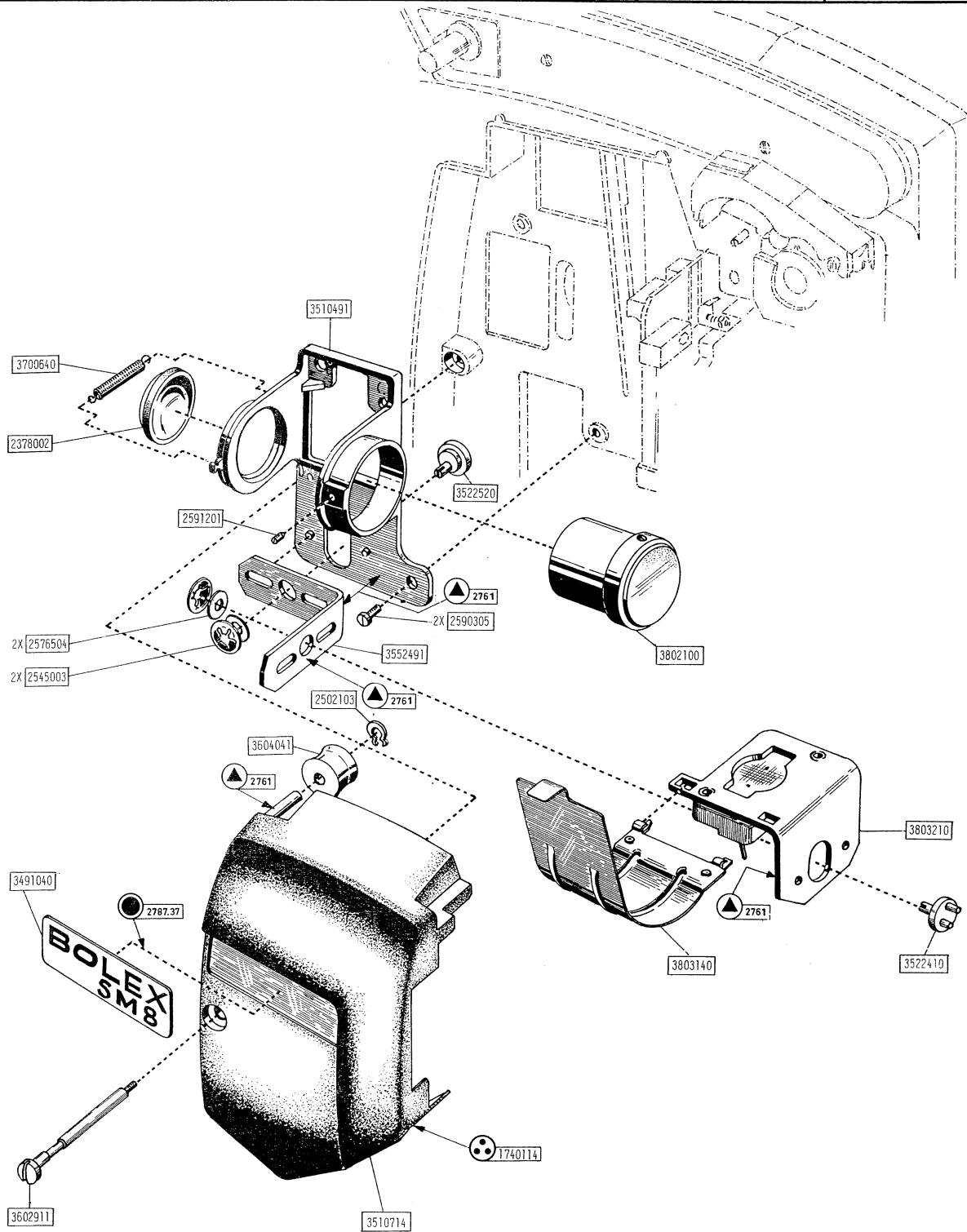


PD

Lanterne  
Lampengehäuse  
Lamp housing

SM 8

50 Hz : 100 001  
60 Hz : 130 001



PB

02.67

\*

B

1

FM

Lanterne  
Lampengehäuse  
Lamp housing

SM8

50 Hz : 100 001 →  
60 Hz : 130 001 →

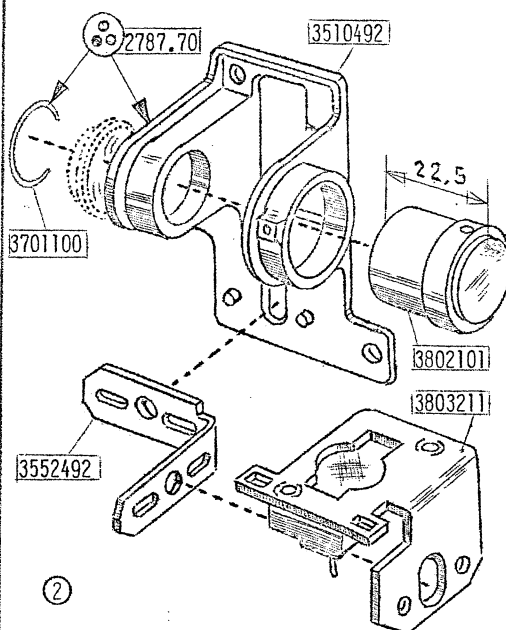
BOLEX

Anciennes pièces  
Alte Teile  
Former parts

Nouvelles pièces  
Neue Teile  
New parts

Observations  
Bemerkungen  
Remarks

1 ① 3802100  
3803210  
3510491  
3700640  
3552491  
50 Hz: → 100 130  
60 Hz: → 130 015 NI 1/2



50 Hz: 100 131 →  
60 Hz: 130 016 →

1 2/1 { (F) en bloc  
(D) als Ganzes  
(E) as a whole

(F) Pour augmenter la luminosité, le condenseur optique, ainsi que le système de fixation de celui-ci et du miroir réfléchissant a été modifié.  
(D) Um die Lichtstärke zu erhöhen, wurde der Kondensor sowie die Befestigung desselben und des Reflektorspiegels geändert.  
(E) The optical condenser, its fitting and that of the reflecting mirror have been modified, in order to improve luminosity.

(02.67)

PB

02.67



PD - B - 1 - 02.67

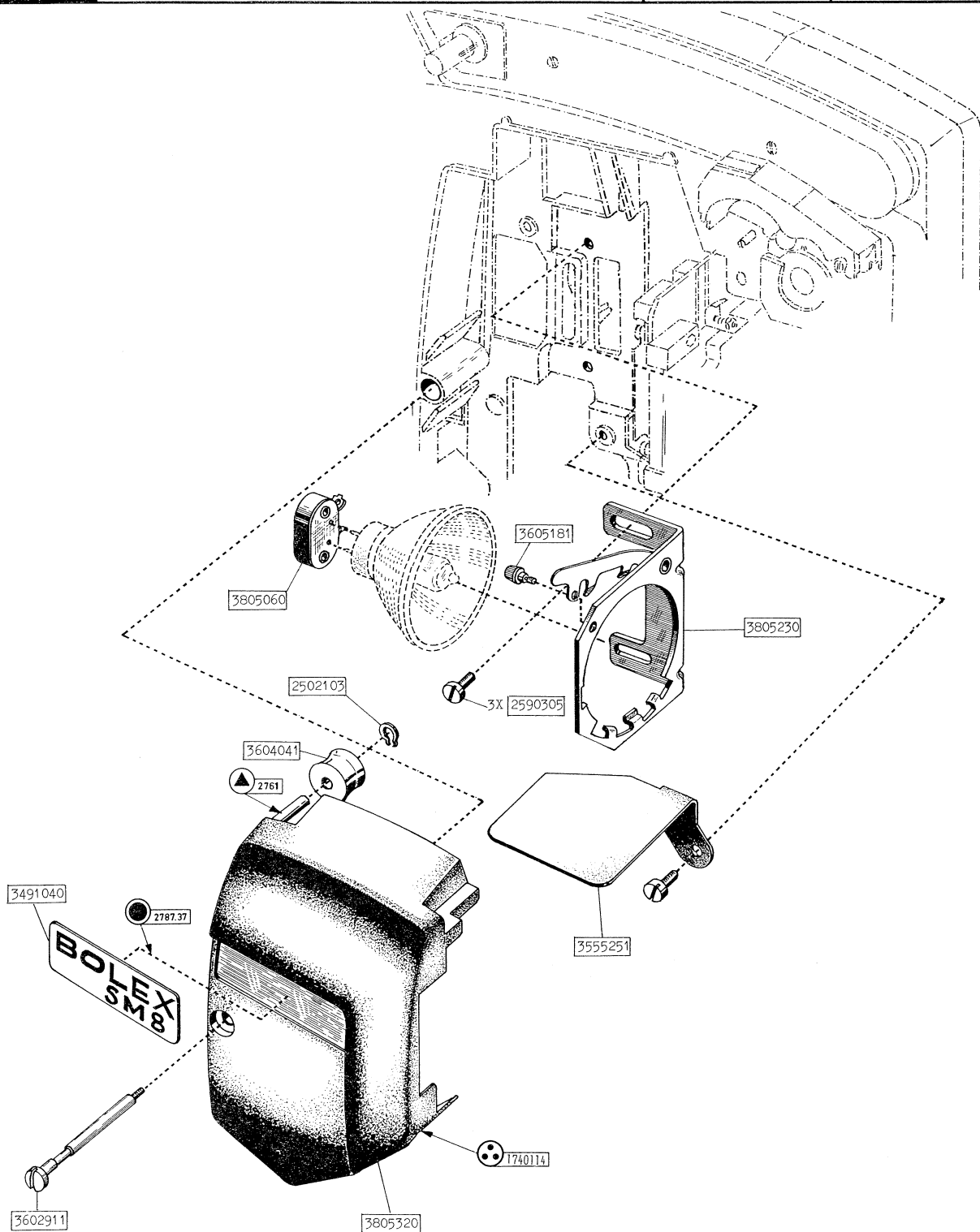
1

**PD**

Lanterne  
Lampengehäuse  
Lamp housing

**SM 8**

50 Hz : 114 451  
60 Hz : 135 001



**PB**

10.68

\*

**B**

**1.1**

**IT**

# Lanterne Lampengehäuse Lamp housing

**S M 8**
 50 Hz: 114 451  
 60 Hz: 135 001


(F) 1. Support lampe, fig. 1

- Débloquer les deux vis (c) de manière à ce que le support lampe puisse bouger librement.
- Prérégler le support lampe (a) en laissant entre celui-ci et le guide-film (b) une cote (e) de :

~ 29,5 mm

- Mettre le commutateur principal sur position L.
- Contrôle visuel de la luminosité en tenant compte des chutes centre-bord.  
Veuillez, soit avancer, soit reculer le support lampe (a) comme la flèche l'indique pour obtenir le minimum de chutes sur les bords.
- Le réglage terminé, bloquer les vis (c).

(D) 1. Halterung der Lampe, Abb. 1

- Die beiden Schrauben (c) lösen, so dass die Lampenhalterung frei bewegt werden kann.
- Halterung (a) vorjustieren, indem man zwischen diesem Teil und der Filmführung (b) einen Abstand (e) von

~ 29,5 mm

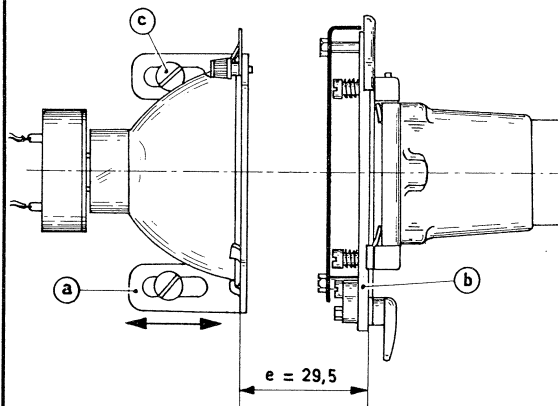
- lässt.
- Zentralschalter auf L stellen.
- Ausleuchtung der Bildfläche unter Berücksichtigung des Helligkeitsabfalls Mitte zu Rand visuell prüfen.  
Lampenhalterung (a) wie durch den Doppelpfeil angegeben nach vorn oder nach hinten verschieben, bis der Helligkeitsabfall am geringsten ist.
- Nach Justierung die beiden Schrauben (c) anziehen.

(E) 1. Lamp support, fig. 1

- Loosen the two screws (c) so that the lamp support can be shifted freely.
- Preadjust support (a) so as to have a distance (e) of

~ 29.5 mm

- between that part and film guide (b).
- Set master switch to position L.
- Check screen brightness visually, considering brightness loss towards the edge.  
Shift support (a) as indicated by the double arrow forward or backward so as to get a minimum loss of brightness.
- Tighten the two screws (c) after adjustment.



**Fig.1**

**PB**

10.68

\*

**B**  
 1.1
**I**



**FM**

Lanterne  
Lampengehäuse  
Lamp housing

SM8

50 Hz : 114 451  
60 Hz : 135 001

**BOLEX**

| 15<br>Anciennes pièces<br>Alte Teile<br>Former parts                                      | 16<br>Nouvelles pièces<br>Neue Teile<br>New parts                                                                                                                                                                                                                                                                              | 17<br>Observations<br>Bemerkungen<br>Remarks                                                                                                              |
|-------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>1</p> <div> <div>380 5230</div> <div>363 5181</div> </div> | <div> <div>① (380 5230 + )</div> <div>(360 5181 + )</div> <div>I 1/2</div> </div> <div> <div>② 355 7551</div> <div>370 2090</div> <div>I 2/1</div> <div>50 Hz : 168 813</div> <div>60 Hz : 139 951</div> <div>→</div> </div> <div> </div> | <p>F) Introduction d'un nouveau support de lampe.<br/>D) Einführung eines neuen Lampensockels.<br/>E) Introduction of a new lamp socket.</p> <p>05.72</p> |
|                                                                                           |                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                           |

PB

05.72



PD - B 1.1 - 10.68

4

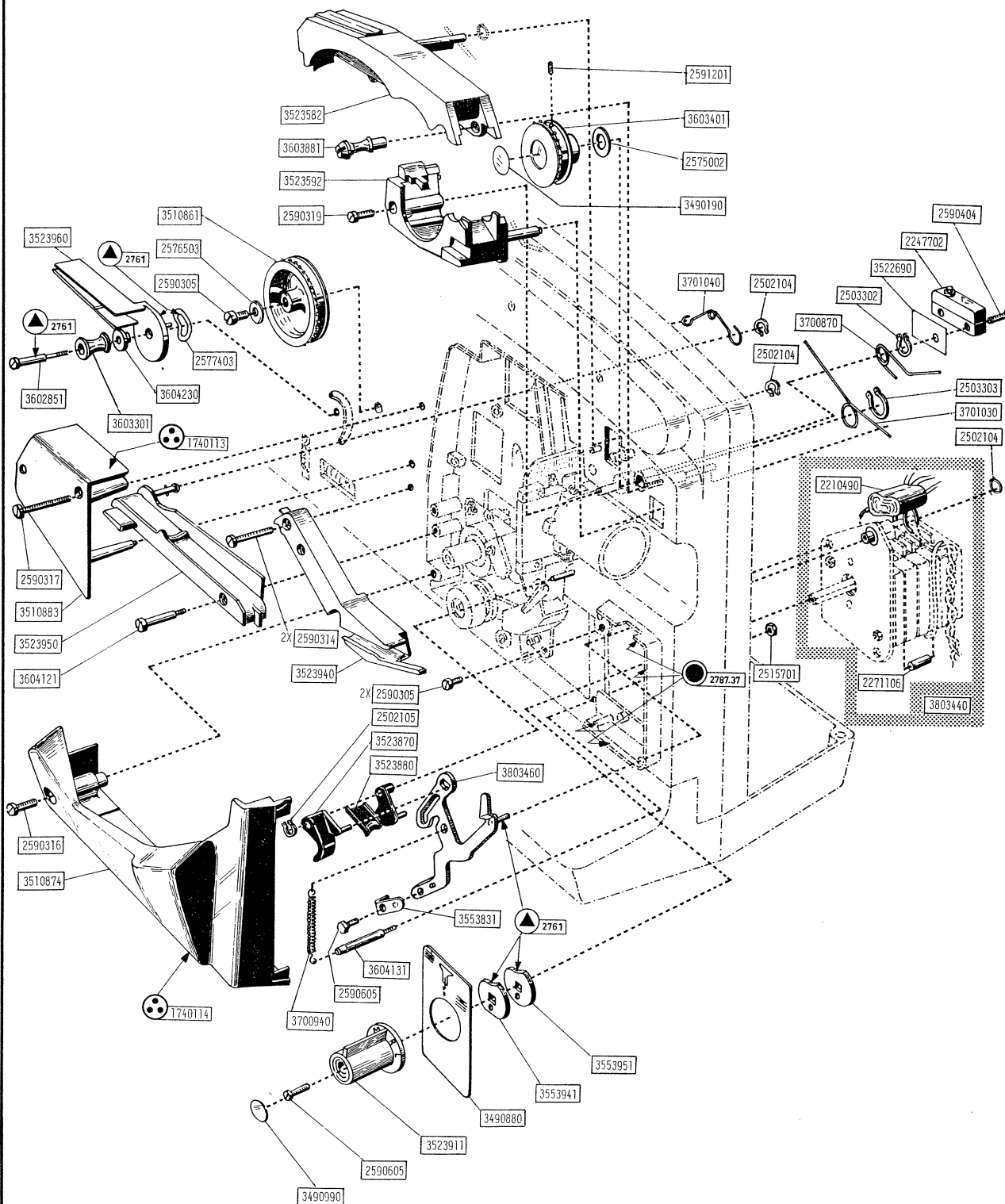


**PD**

Chargement automatique  
Automatische Ladevorrichtung  
Automatic loading

**SM8**

50 Hz : 100 001  
60 Hz : 130 001

**PB**

02.67

\*

**C****1**

FM

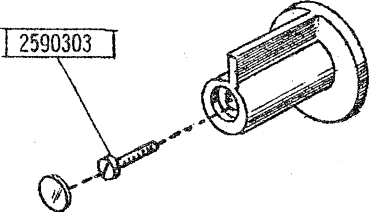
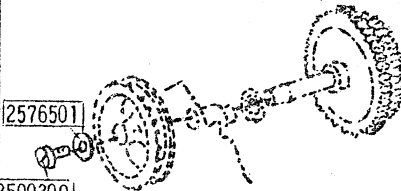
Chargement automatique  
Automatische Ladevorrichtung  
Automatic loading

SM8

50 Hz: 100 001 →

60 Hz: 130 001 →



| 15<br>Anciennes pièces<br>Alte Teile<br>Former parts | 16<br>Nouvelles pièces<br>Neue Teile<br>New parts                                                                                                                                                                                                                                     | 17<br>Observations<br>Bemerkungen<br>Remarks                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1<br>2590605                                         |  <p>2590303</p>                                                                                                                                                                                      | <p>(F) Erreur d'impression.<br/>(D) Druckfehler.<br/>(E) Misprint.</p> <p>(04.67)</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| 2<br>2576503<br>2590305                              | <p>① (2576503<sup>+</sup>) 50 Hz : 103 364<br/>(2590305) 60 Hz : 130 700 NI 1/2</p> <p>② 2576501 50 Hz : 103 365<br/>2590309 60 Hz : 130 701 →</p> <p>I 2/1 3820402</p>  <p>2576501<br/>2590309</p> | <p>(F) Pour des raisons de normalisation modification de ces pièces (voir aussi FM-PD-E-1-02.67, modification no. 1, page 1).<br/>(D) Aus Normalisierungsgründen wurden diese Teile geändert (siehe auch FM-PD-E-1-02.67, Änderung Nr. 1, Seite 1).<br/>(E) These parts have been modified for reasons of standardization (see also FM-PD-E-1-02.67, modification No. 1, page 1).</p> <p>(05.67)</p>                                                                                                                                               |
| 3<br>3523911                                         | <p>3523912 50 Hz : 103 265<br/>60 Hz : 130 401 →</p>                                                                                                                                                                                                                                  | <p>(F) Amélioration de l'aspect du bouton de commande du commutateur principal.<br/>(D) Verbessertes Aussehen des Bedienungsknopfes für den Zentralschalter.<br/>(E) Improved finish of the control knob for the master switch.</p> <p>(05.67)</p>                                                                                                                                                                                                                                                                                                 |
| 4<br>3803440                                         | <p>① (3803440<sup>+</sup>) 50 Hz : 100 548<br/>60 Hz : 130 170 NI 1/2</p> <p>② 3803441 50 Hz : 100 549<br/>60 Hz : 130 171 → I 2/1</p>                                                                                                                                                | <p>(F) Pour diminuer le ronflement lorsque le projecteur est à l'arrêt, la résistance montée sur le commutateur a été changée de place (voir modification no. 3, onglet 0).<br/>(D) Um das Brummen bei nicht laufendem Projektor zu vermindern, wurde der Platz des am Schalter montierten Widerstandes geändert (siehe Änderung Nr. 3, Abschnitt 0).<br/>(E) In order to reduce humming when the projector is not running, the resistance at the switch has been mounted to a different place (see modification No. 3, tab 0).</p> <p>(05.67)</p> |
|                                                      |                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |

PB

05.67



PD - C - 1 - 02.67

1

**FM**

Chargement automatique  
Automatische Ladevorrichtung  
Automatic loading

Sti8

50 Hz: 100 001  
60 Hz: 130 001 →

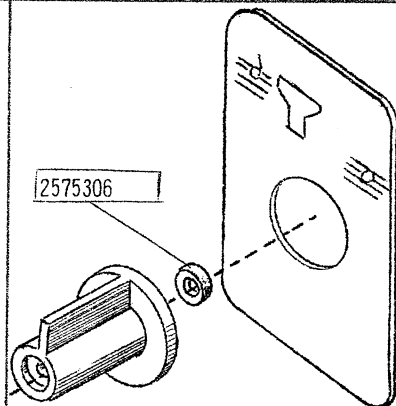
**BOLEX**

15  
Anciennes pièces  
Alte Teile  
Former parts

16  
Nouvelles pièces  
Neue Teile  
New parts

17  
Observations  
Bemerkungen  
Remarks

5



50 Hz : 106 454  
60 Hz : 131 633 →

(F) Adjonction d'une rondelle en caoutchouc entre le bouton du commutateur et les cames pour éliminer des différences éventuelles entre le bouton et les cames. Il est possible de monter la rondelle sur les projecteurs précédant la modification.  
(D) Einführung einer Gummi-Unterlegscheibe zwischen Schaltknopf und Kurvenscheiben, zum Ausgleich eventueller Massunterschiede zwischen Schaltknopf und Kurvenscheiben. Die Unterlegscheibe kann auf Geräte mit niedrigerer Seriennummer montiert werden.  
(E) Introduction of a rubber washer between switch knob and cams, in order to compensate possible differences in dimension between switch knob and cams. The modification can be introduced on projectors with lower serial number. (06.67)

**PB**

06.67



PD - C - 1 - 02.67

2



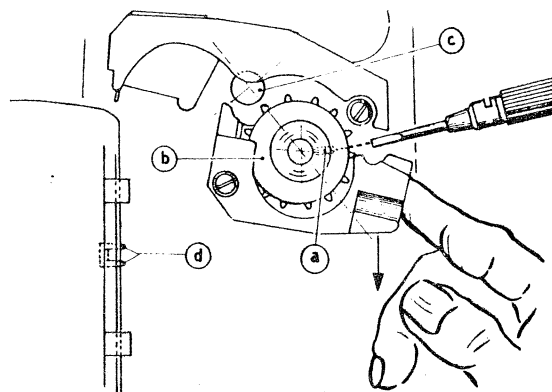
**IT**

# Chargement automatique Automatische Ladevorrichtung Automatic loading

**SM 8**50 Hz 100 001  
60 Hz 130 001 →

## 5. Synchronism between upper sprocket and claw, fig. 4

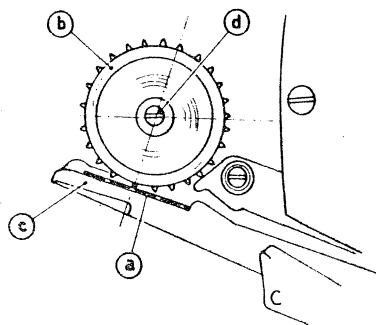
- Loosen screw (a) which fastens the upper sprocket (b) on its shaft.
- Turn the motor shaft by hand, so as to bring the claw (d) to its upper dead center. This is reached once the claw is about equidistant from the point where it appears and the point where it starts its descending movement.
- Leave the claw (d) now precisely in that position, and turn sprocket (b) so that one of its teeth points exactly to the center of fixed film guide (c).

**Fig. 4**

## 6. Synchronism between lower sprocket and claw, fig. 5

- Loosen sprocket (b) from its conical shaft by unscrewing screw (d) by a few turns. Tap slightly against that screw so that the sprocket is freed and can be turned on its shaft.
- Transport the film with the aid of the loop former contact until it appears at the exit of the sprocket.
- Depress flap (c) so that the sprocket teeth are no longer engaged in the perforation, but make sure that the film remains as near as possible to the teeth.
- Adjust sprocket (b) so that the tooth that is perpendicular to a perforation hole is exactly centered with respect to it.

Adjust so long as to have flap (c) no longer pushed back at the moment the film passes due to a wrong alignment.

**Fig. 5****PB**

06.68

**E****C**  
1**II**

IT

# Chargement automatique Automatische Ladevorrichtung Automatic loading

SM 8

50 Hz:100 001  
60 Hz:130 001



## 1. Master switch, fig. 1 and 2

- After having fitted again the master switch, push it towards the exterior (direction of arrow) right to the stop. Then tighten the two screws (a), and mount lever (c), fig. 1.
- Insert the two cams (b). Make sure the one that is slightly smaller is at the rear, and that the flattened part is at the left hand side. The round holes in both cams must coincide and be situated in the lower part of the cams (master switch in position "STOP").
- Switch being set to "forward motion", fig. 2, loosen screw (d) and pivot plate (f) so that between that plate and guide element (g), pressed against its stop at the upper left hand side, there is a play (e) of

0.2...0.5 mm

Use a feeler gauge, if necessary.

## 2. Film guiding channel, fig. 2

- Loosen both screws (d).
- Insert a double layer of film between sprocket (c) and film guide (a).
- Press movable film guide (a) upwards against fixed film guide, until the double film layer is correctly positioned at the sprocket (c).
- Tighten again the two screws (d).

**Attention :** The teeth of sprocket (c) must be absolutely faultless, lest disturbances of sound might occur during recording or playback, resp. See also point 6 !

## 3. Micro switch of the automatic loading device

Fit that switch so that it is switched on when the upper loop former touches its stop.

## 4. Upper sprocket

The axial play of the upper sprocket must at least amount to

~ 0.05 mm

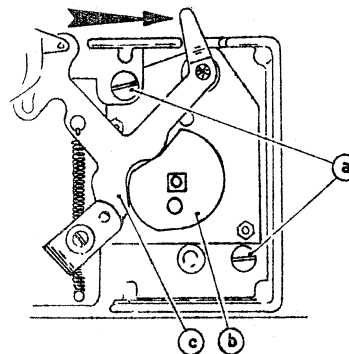


Fig.1

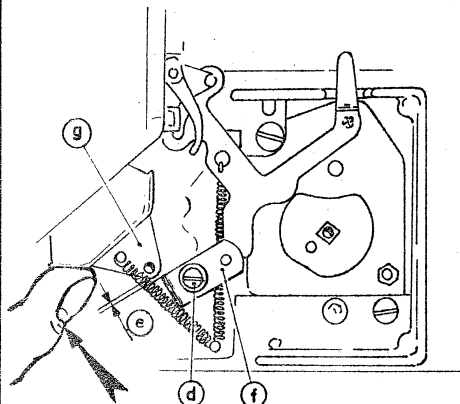


Fig.2

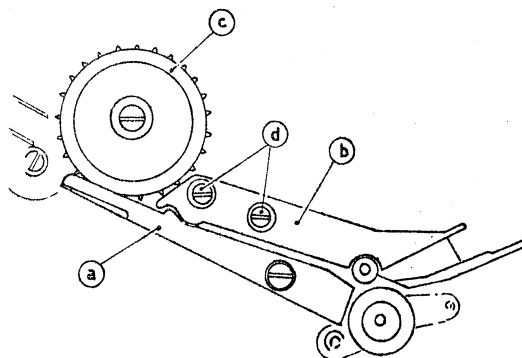


Fig.3

PB

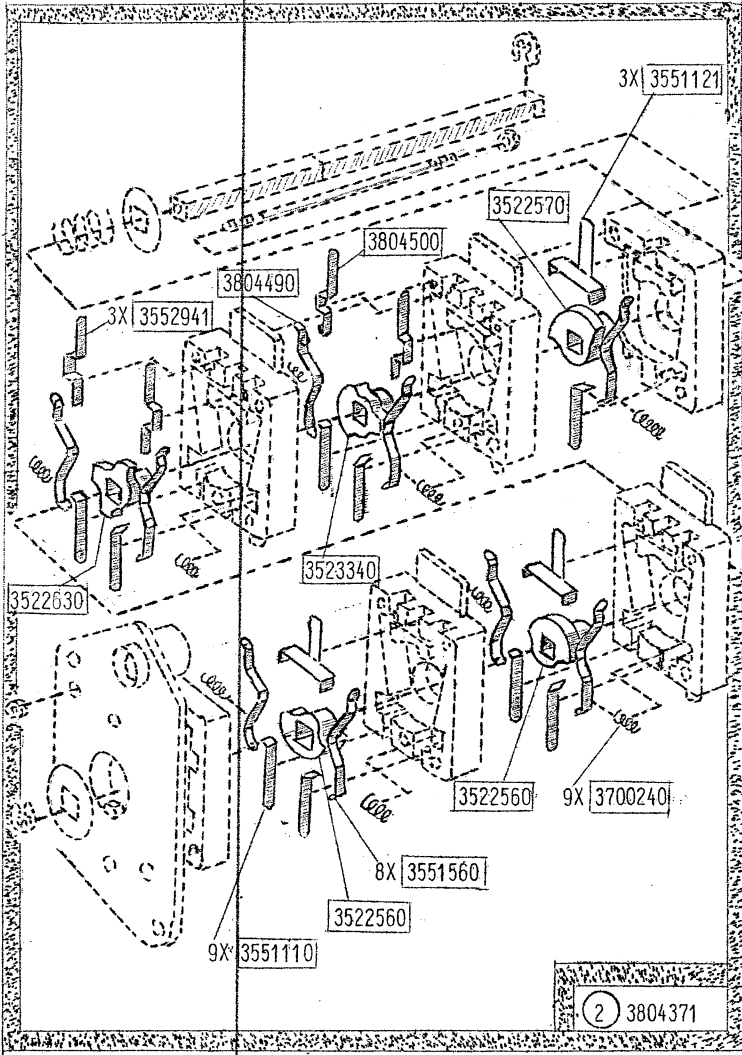
10.68

E

C  
1

I



| 15 | Anciennes pièces<br>Alte Teile<br>Former parts | 16                                                        | Nouvelles pièces<br>Neue Teile<br>New parts                                        | 17                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Observations<br>Bemerkungen<br>Remarks | 18 |
|----|------------------------------------------------|-----------------------------------------------------------|------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|----|
| 1  | 3804370                                        | ① (3804370) → 107 600 (50 Hz)<br>→ 132 732 (60 Hz) NI 1/2 |  | <p>(F) Modification du commutateur principal pour assurer un bon contact dans le circuit lampe de projection. Ce commutateur est pourvu de contacts rivés en argent massif ainsi que de nouvelles cames assurant une distance de 4 mm entre l'axe et les contacts.</p> <p>N.B.: Les nouvelles cames ne sont interchangeables par rapport aux anciennes qu'en bloc! Les anciennes cames ne sont pas livrables.</p> <p>Pour les positions correspondantes des cames lors du remontage, prière de consulter le schéma de principe.</p> <p>(D) Änderung des Hauptschalters, um einen guten Kontakt im Stromkreis der Projektionslampe zu haben. Der neue Schalter hat genietete Kontakte aus massiven Silber, sowie neue Kurvenscheiben, die einen Abstand von 4 mm zwischen der Achse und den Kontakten sicherstellen.</p> <p>N.B.: Die neuen Kurvenscheiben sind gegen die alten nur als Ganzes austauschbar! Die alten Kurvenscheiben sind nicht lieferbar.</p> <p>Wegen der entsprechenden Stellungen der Kurvenscheiben beim Zusammenbau, siehe Basisschaltbild.</p> <p>(E) Modification of the master switch, in order to have a good contact in the circuit of the projection lamp. The new switch has riveted contact of solid silver, as well as new cams, guaranteeing a distance of 4 mm between axle and contacts.</p> <p>N.B.: The new cams are interchangeable against the old ones only as a whole! The old cams are not available. Regarding the respective positions of the cams for assembly, please refer to the basic diagram.</p> <p>P.S. :</p> <p>(F) Les lames de contact de la nouvelle exécution sont interchangeables avec celles de l'ancienne.</p> <p>(D) Die Kontaktlamellen der neuen Ausführung sind mit denen der alten austauschbar.</p> <p>(E) The contact blades of the new switch are interchangeable with the ones of the former version.</p> |                                        |    |
|    |                                                | 107 601 → (50 Hz)<br>132 733 → (60 Hz) I 2/1              |                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                        |    |
| 2  | 3523912                                        | 3523913                                                   | 50 Hz : 107 554<br>60 Hz : 132 500 →                                               | <p>(F) Nouveau bouton du commutateur avec lettres-en noir.</p> <p>(D) Neuer Knopf des Zentralschalters mit schwarzen Buchstaben.</p> <p>(E) New knob of the master switch with black letters</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                        |    |

(03.68)

**FM**

Chargement automatique  
Automatische Ladevorrichtung  
Automatic loading

SM8

50 Hz: 107 254  
60 Hz: 131 932 →

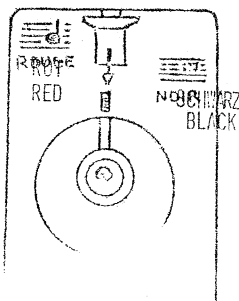


**Anciennes pièces**  
**Alte Teile**  
**Former parts**

**Nouvelles pièces**  
**Neue Teile**  
**New parts**

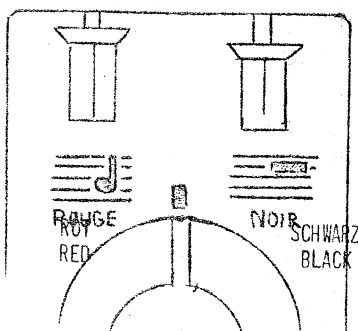
**Observations**  
**Bemerkungen**  
**Remarks**

3 3490880



3490881

50 Hz : 107 554  
60 Hz : 132 500 →



(F) Changement du graphisme de la plaquette du commutateur.  
(D) Andere Symbole auf der Plakette unter dem Knopf des Zentralschalters.  
(E) Other symbols on the plate underneath the knob of the master switch.  
(03.68)

4 2590303



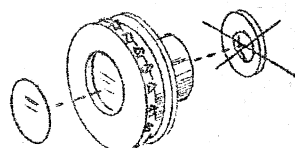
2590309

50 Hz : 107 554  
60 Hz : 132 500 →



(F) Introduction d'une vis plus longue pour la fixation du bouton du commutateur.  
(D) Einführung einer längeren Befestigungsschraube für den Knopf des Zentralschalters.  
(E) Introduction of a longer fixing screw for the knob of the master switch.  
(03.68)

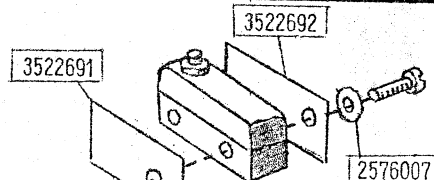
5 2575692



50 Hz : 107 554  
60 Hz : 132 500 →

(F) Suppression de cette rondelle qui sera remplacée par une autre et qui changera aussi de position. (Voir FM2-PD-E-1-02.67, mod. no. 5).  
(D) Diese Unterlegscheibe wird durch eine andere ersetzt, welche sich auch an einer anderen Stelle befindet. (Siehe FM2-PD-E-1-02.67, Änderung Nr. 5).  
(E) That washer is replaced by a different one, located at a different place. (See FM2-PD-E-1-02.67, mod. No. 5).  
(05.68)

6 3522690



50 Hz : 118 001  
60 Hz : 132 251 →

(F) Modification de l'isolation du microswitch. Valable uniquement pour les versions scandinave et Canada.  
(D) Geänderte Isolierung des Mikroschalters. Gilt nur für die Versionen für Skandinavien und Canada.  
(E) Modified insulation of the microswitch. Only refers to the versions for Scandinavia and Canada.  
(05.68)

7 3523913

3523910

50 Hz : 118 001 →

(F) Introduction d'un bouton sans revêtement métallisé. Valable uniquement pour la version scandinave.  
(D) Einführung eines Knopfes ohne metallisierte Oberfläche. Gilt nur für die skandinavische Version.  
(E) Introduction of a knob without metallized surface. Only refers to the version for Scandinavia.  
(05.68)

PB

05.68



PD - C - 1.1 - 11.67

2

FM

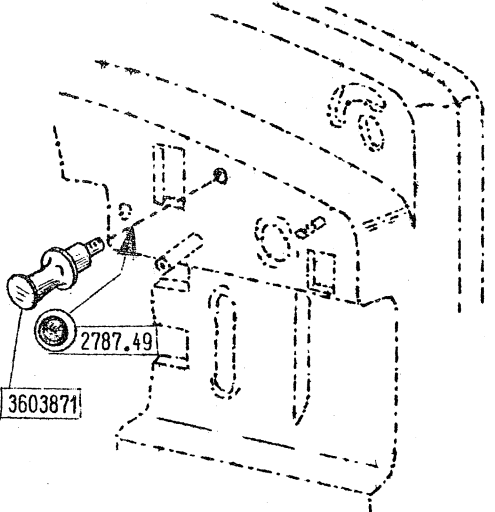
Chargement automatique  
Automatische Ladevorrichtung  
Automatic loading

SM8

50 Hz : 107 254

60 Hz : 131 932 →



| 15<br>Anciennes pièces<br>Alte Teile<br>Former parts | 16<br>Nouvelles pièces<br>Neue Teile<br>New parts                                                                                                                               | 17<br>Observations<br>Bemerkungen<br>Remarks                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 8                                                    |                                                                                                | <p>(F) Ce guide-film est maintenant livrable.<br/>S'il y a usure du guide-film, veuillez le chasser par l'intérieur de la platine avec un chasse goupille, puis assurer le nouveau avec de l'ARALDITE.</p> <p>(D) Diese Filmführung ist jetzt als Ersatzteil lieferbar. Die abgenutzte Filmführung ist von innen her mittels Durchschlag auszutreiben, die neue wird dann durch ARALDIT gesichert.</p> <p>(E) This film-guide is now available as spare part. Remove the worn film-guide from the inside of the plate with the aid of a piercer and secure the fresh one with ARALDITE cement.</p> <p>(09.68)</p>                                        |
| 9                                                    | <p>2208105</p>                                                                                                                                                                  | <p>(F) Le commutateur 3804371 qui jusqu'à maintenant était livré avec ses fils de câblage est désormais à votre disposition dans une version supplémentaire sans fil sous le symbole ci-contre d'où un prix bien inférieur.</p> <p>(D) Der bisher nur mit Verdrahtung lieferbare Schalter 3804371 ist jetzt auch zusätzlich ohne Drähte verfügbar, unter der nebenstehenden Teilnummer, wodurch der Preis beträchtlich niedriger wird.</p> <p>(E) Switch 3804371, so far available complete with wiring only, has now additionally been introduced without cables, as per opposite part number, which considerably reduces the price.</p> <p>(03.69)</p> |
| 10                                                   | <p>3523913</p> <p>① (3523913+) NI 1/2</p> <p>② 3523914</p> <p>I 2/1 →</p> <p>2X 3523894<br/>3523903<br/>3525361<br/>3X 3523753</p> <p>50 Hz : 119 099<br/>60 Hz : 136 271 →</p> | <p>(F) Suite à de multiples difficultés de fabrication, introduction d'un nouveau bouton de commutateur chromé brillant.</p> <p>(D) Wegen verschiedener Fabrikationsschwierigkeiten wurde ein blank verchromter Schalterknopf eingeführt.</p> <p>(E) Because of various manufacturing difficulties, a bright chromium plated switch knob has been introduced.</p> <p>(03.69)</p>                                                                                                                                                                                                                                                                         |
| 11                                                   | <p>3804371</p> <p>2208116</p> <p>50 Hz : 118 201 →</p>                                                                                                                          | <p>(F) Introduction d'un commutateur spécial avec isolation interne.<br/><u>Valable uniquement pour la version scandinave.</u></p> <p>(D) Einführung eines speziellen neuen Schalters mit Innenisolation.<br/><u>Gilt nur für Skandinavienausführung.</u></p> <p>(E) Introduction of a special new switch with internal insulation.<br/><u>Valid for Scandinavian version only.</u></p> <p>(03.69)</p>                                                                                                                                                                                                                                                   |

PB

03.69



PD - C - 1.1 - 11.67

3

FM

Chargement automatique  
Automatische Ladevorrichtung  
Automatic loading

SM8

50 Hz: 107 254  
60 Hz: 131 932 →



| 15<br>Anciennes pièces<br>Alte Teile<br>Former parts | 16<br>Nouvelles pièces<br>Neue Teile<br>New parts                                                                                                                                 | 17<br>Observations<br>Bemerkungen<br>Remarks                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 12                                                   | <div>3525380</div> <p>50 Hz : 118 201 →</p>                                                                                         | <p>(F) Adjonction d'une plaque isolante en carton sur les sorties du commutateur pour protection.<br/><u>Valable uniquement pour la version scandinave.</u></p> <p>(D) Einbau eines Schutzplättchens aus Isolierkarton an den Ausgängen des Schalters.<br/><u>Gilt nur für Skandinavienausführung.</u></p> <p>(E) Introduction of a protective insulating cardboard plate at the secondary switch terminals.<br/><u>Valid for Scandinavian version only.</u> (03.69)</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| 13                                                   | <div>16X1632604</div> <p>50 Hz : 118 201 →</p>                                                                                      | <p>(F) Adjonction de capuchons plastiques isolants sur les cosses de branchement 2102007 et 2102008 du commutateur.<br/><u>Valable uniquement pour la version scandinave.</u></p> <p>(D) Einführung von "Kontakthütchen" an den Schaltklemmen 2102007 und 2102008.<br/><u>Gilt nur für Skandinavienausführung.</u></p> <p>(E) Introduction of contact "hats" at switch terminals 2102007 and 2102008.<br/><u>Valid for Scandinavian version only.</u> (03.69)</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| 14                                                   | <div>3603871</div> <div>3603873</div> <p>50 Hz : 120 392<br/>60 Hz : 137 021 →</p> | <p>(F) Afin d'améliorer le transport du film au débiteur supérieur, introduction d'un nouveau guide-film d'un diamètre supérieur à l'ancien. L'enroulement sera ainsi effectué sur 4 dents au minimum. (Nous vous signalons que le guide-film 3603871 avait été rendu livrable par la modification 8, FM3 - PD - C - 1.1 - 11.67.)</p> <p>(D) Einführung einer neuen Filmführung mit grösserem Durchmesser, zwecks besseren Filmtransports an der oberen Wickeltrommel, von der mindestens 4 Zähne eingreifen. (Wir machen darauf aufmerksam, dass die Filmführung 3603871 seit Bekanntgabe der Aenderung 8, FM3 - PD - C - 1.1 - 11.67 lieferbar ist.)</p> <p>(E) Introduction of a new film guide with larger diameter, for improving film transport at the upper sprocket, 4 teeth of which engage now at least. (Kindly note that film guide 3603871 is available since publication of modification 8, FM3 - PD - C - 1.1 - 11.67.) (09.69)</p> |
|                                                      |                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |

PB

09.69

\*

PD - C - 1.1 - 11.67

4

**FM**

Chargement automatique  
Automatische Ladevorrichtung  
Automatic loading

SMS

50 Hz: 107 254  
60 Hz: 131 932 →

**BOLEX**

Anciennes pièces  
Alte Teile  
Former parts

Nouvelles pièces  
Neue Teile  
New parts

Observations  
Bemerkungen  
Remarks

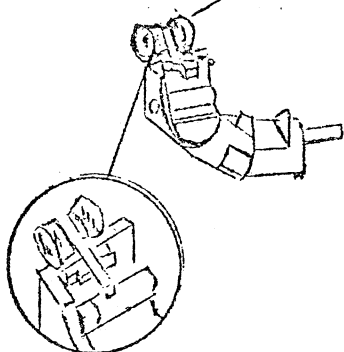
3523592

3606620

50 Hz 125 543 →

60 Hz 139 021 →

3606051



- F) Introduction d'un nouveau guide-film afin de supprimer tout frottement sur celui-ci et d'éviter toute rayure de film.  
D) Einführung einer neuen Filmführung, um Reibung an diesem Teil und Verkratzen des Films zu vermeiden.  
E) Introduction of a new film guide, in order to avoid friction on it and to protect the film against scratching.

01.70

3523950

① (3523950+)

NI 1/2

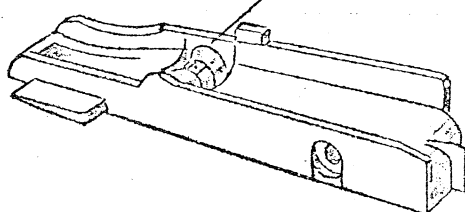
② 3523951

I 2/1

50 Hz : 127 163

60 Hz : 139 021 →

3606051



- F) Introduction d'un nouveau guide-film afin de supprimer tout frottement sur celui-ci et d'éviter toute rayure de film.  
D) Einführung einer neuen Filmführung, um Reibung an diesem Teil und Verkratzen des Films zu vermeiden.  
E) Introduction of a new film guide, in order to avoid friction on it and to protect the film against scratching.

05.70

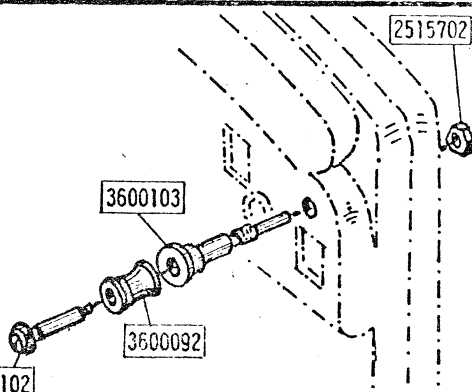
3603881

2515702

3600103

3600092

3600102



- F) Remplacement du guide par un galet.  
D) Einführung einer Rolle anstelle der Führung.  
E) Replacement of the guide by a roller.

04.75

**PB**

04.75

\*

PD - C - 1.1 - 11.67

**5**

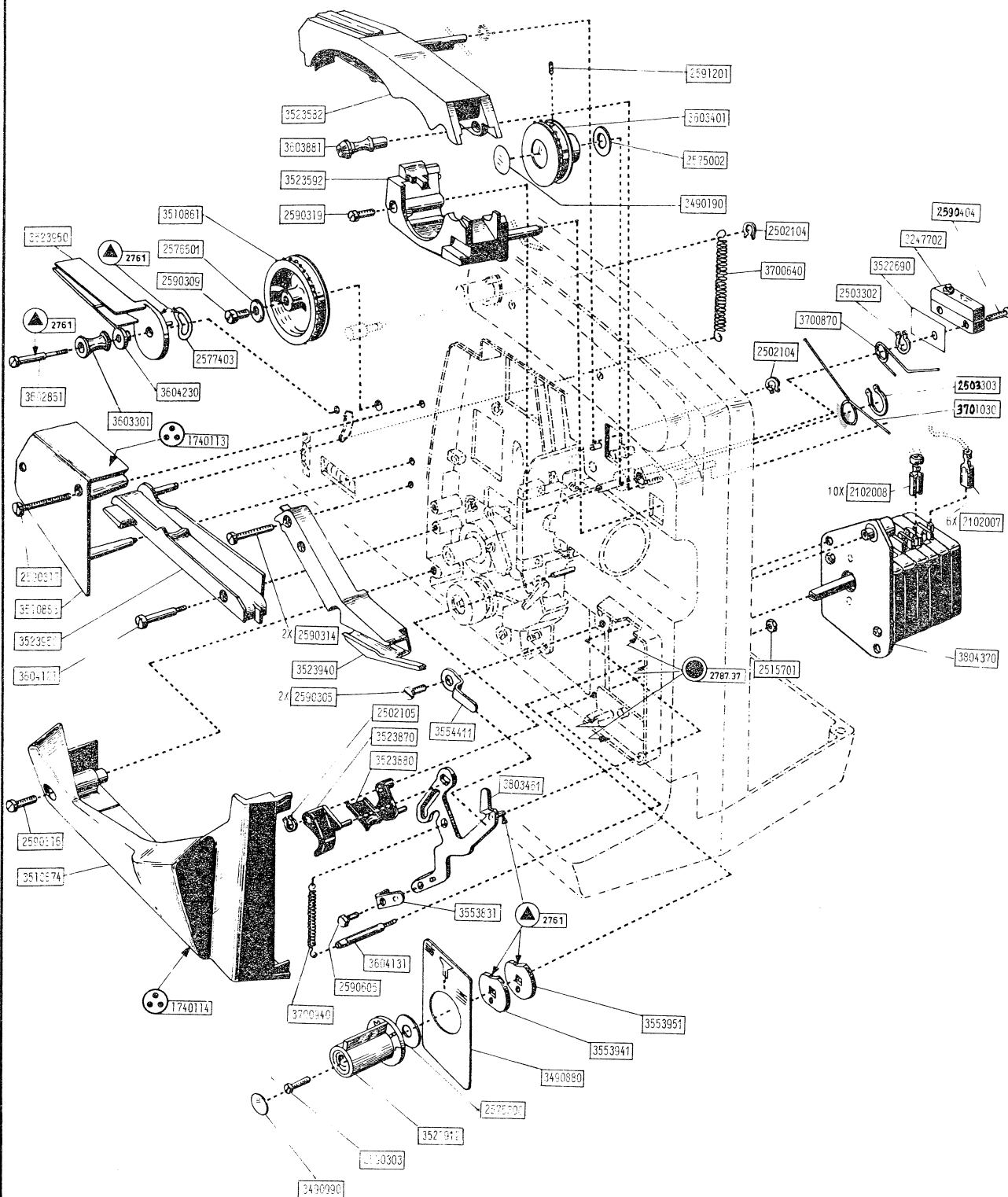
|                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                          |                                                                                                                                                                                |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <div style="border: 1px solid black; padding: 5px; text-align: center;"> <b>FM</b> </div>                                                                                                                                                                                                                                                       | <div style="display: flex; justify-content: space-between;"> <div> Chargement automatique<br/> Automatische Ladevorrichtung<br/> Automatic loading </div> <div> <div>2</div> <div>3</div> </div> </div>                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | <div style="display: flex; justify-content: space-between;"> <div> SM8<br/> 50 Hz: 107 254<br/> 60 Hz: 131 932 → </div> <div>4</div> </div>              | <div style="display: flex; justify-content: space-between;"> <div></div> <div>5</div> </div> <div style="text-align: center; font-weight: bold; font-size: 1.2em;">BOLEX</div> |
|                                                                                                                                                                                                                                                                                                                                                 | <div style="display: flex; justify-content: space-between;"> <div>15</div> <div>16</div> </div> <div style="display: flex; justify-content: space-between;"> <div> Anciennes pièces<br/> Alte Teile<br/> Former parts </div> <div> Nouvelles pièces<br/> Neue Teile<br/> New parts </div> </div> | <div style="display: flex; justify-content: space-between;"> <div>17</div> <div></div> </div> <div style="text-align: center;"> Observations<br/> Bemerkungen<br/> Remarks </div>                                                                                                                                                                                                                                                                                            |                                                                                                                                                          |                                                                                                                                                                                |
| <div style="display: flex; justify-content: space-between;"> <div>18</div> <div></div> </div> <div style="display: flex; justify-content: space-between;"> <div> <div style="border: 1px solid black; padding: 2px;">352 3582</div> NI 1/2 </div> <div> <div style="border: 1px solid black; padding: 2px;">352 0072</div> NI 2/1 </div> </div> |                                                                                                                                                                                                                                                                                                  | <div style="display: flex; justify-content: space-between;"> <div></div> <div> F) Nouveau guide-film, suite à l'introduction<br/> du galet 360 0101 (voir modification no 17).<br/> D) Neue Filmführung infolge der Einführung der<br/> Rolle 360 0101 (siehe Änderung Nr. 17).<br/> E) New film guide following the introduction<br/> of roller 360 0101 (see modification No. 17). </div> <div></div> </div> <div style="text-align: right; margin-top: 10px;">04.75</div> |                                                                                                                                                          |                                                                                                                                                                                |
|                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                          |                                                                                                                                                                                |
| <div style="display: flex; justify-content: space-between;"> <div>6</div> <div></div> </div> <div style="text-align: center; font-weight: bold; font-size: 1.5em;">PB</div>                                                                                                                                                                     | <div style="display: flex; justify-content: space-between;"> <div>7</div> <div></div> </div> <div style="text-align: center;">04.75</div>                                                                                                                                                        | <div style="display: flex; justify-content: space-between;"> <div>8</div> <div></div> </div> <div style="text-align: center; font-size: 2em;">*</div>                                                                                                                                                                                                                                                                                                                        | <div style="display: flex; justify-content: space-between;"> <div></div> <div>9</div> </div> <div style="text-align: center;">PD - C - 1.1 - 11.67</div> | <div style="display: flex; justify-content: space-between;"> <div></div> <div>11</div> </div> <div style="text-align: center; font-weight: bold; font-size: 2em;">6</div>      |

**PD**

Chargement automatique  
Automatische Ladevorrichtung  
Automatic loading

**SM8**

50 Hz : 107 254  
60 Hz : 131 932

**PB**

11.67

\*

**C****1.1**





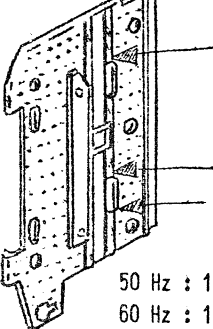
**FM**

Platine transversale  
Querwerkplatte  
Transversal plate

SMB

50 Hz: 100 001  
60 Hz: 130 001 →

**BOLEX**

| 15<br>Anciennes pièces<br>Alte Teile<br>Former parts | 16<br>Nouvelles pièces<br>Neue Teile<br>New parts                                                                                                     | 17<br>Observations<br>Bemerkungen<br>Remarks                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1<br>2X [2576501]                                    | 2X [2576007]<br><br>50 Hz : 106 454<br>60 Hz : 131 633 →                                                                                              | (F) Changement des 2 rondelles de friction fixant le couloir mobile afin d'augmenter la distance entre les rondelles et les bords intérieurs de la lanterne. Cette modification peut être apportée sur les projecteurs inférieurs à ces numéros.<br>(D) Aenderung der beiden Friktionsunterlegscheiben für die Befestigung der beweglichen Filmbühne, um den Abstand zwischen den Unterlegscheiben und den inneren Rändern des Lampengehäuses zu vergrößern. Diese Aenderung kann an Projektoren mit niedrigeren Fabrikationsnummern vorgenommen werden.<br>(E) Modification of the two friction washers for fixing the movable gate, in order to increase the distance between the washers and the interior edges of the lamp housing. Projectors with lower serial numbers can be modified that way. (06.67) |
| 2<br>[3803230]                                       | (3803230†)<br>[3803231]<br><br>50 Hz : 114 646<br>60 Hz : 135 201 → | (F) Allongement des patins de glissement pour éviter toute rayure de film.<br>(D) Verlängerung der Gleitschuhe, um ein Verkratzen des Films zu vermeiden.<br>(E) Longer slide bars, in order to avoid scratching of the film.<br><br>(09.68)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| 3<br>[3803580]                                       | ① (3803580†)<br>② [3803581] 1 2/1 [3603633]<br><br>50 Hz : 114 361<br>60 Hz : 135 201 →                                                               | (F) Amélioration du volet presseur en modifiant l'épaisseur de celui-ci de 0,8 à 1 mm. Par la même occasion, la hauteur de la butée a été modifiée ce qui nécessite un changement en bloc.<br>(D) Verbesserung der Andruckplatte durch Erhöhung der Stärke (von 0,8 auf 1 mm). Gleichzeitig wurde die Höhe des Anschlages geändert, weshalb ein Austausch nur insgesamt möglich ist.<br>(E) Improvement of the pressure pad by increasing its thickness from 0.8 to 1 mm. The height of the stop has been modified at the same time, so that the unit is only interchangeable as a whole. (09.68)                                                                                                                                                                                                              |
| 4<br>[3603633]                                       | [3603833]                                                                                                                                             | (F) Nomenclature modifiée (voir modification no. 3).<br>(D) Teilnummernänderung (siehe Aenderung Nr. 3).<br>(E) Part-number modification (see modification No. 3).<br><br>(05.69)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |

PB

05.69

\*

PD - Q - 1 - 02.67

1

**FM**Platine transversale  
Querwerkplatte  
Transversal plate

SM8

50 Hz: 100 001  
60 Hz: 130 001 →**BOLEX**

| 15<br>Anciennes pièces<br>Alte Teile<br>Former parts                                 | 16<br>Nouvelles pièces<br>Neue Teile<br>New parts                                                                                                                                                                                                                                                                                     | 17<br>Observations<br>Bemerkungen<br>Remarks                                                                                                                                                                                                                                                                                                                                                                                 |
|--------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 5<br><div>3803581</div>                                                              | ① (3803581) NI 1/2<br>② <div>3820730</div> <div>3603633</div><br>50 Hz: 122 458<br>60 Hz: 138 121 →                                                                                                                                                                                                                                   | (F) Introduction d'un nouveau volet presseur en plastique facilitant le chargement et diminuant le bruit de claquement de la griffe.<br>(D) Einführung einer neuen Andruckplatte aus Kunststoff, zwecks leichterer Filmeinführung und Verringerung des Greifgeräusches.<br>(E) Introduction of a new plastic pressure pad, with a view to facilitating film threading and to reducing claw noise.<br>(11.69)                 |
| 6<br><div>380 3570</div>                                                             | ① (380 3570+) NI 1/2<br>② <div>810 0731</div> I 2/1<br><br>50 Hz: 163 017<br>60 Hz: 150 050 →                                                                                                                                                                                                                                         | F) Introduction d'un nouveau porte-objectif de Ø 32.5 mm.<br>D) Einführung eines neuen Objektiv-träger Ø 32,5 mm.<br>E) Introduction of a new lens holder Ø 32.5 mm.<br><br>03.72                                                                                                                                                                                                                                            |
| 7<br><div>380 3740</div> <div>380 3231</div> <div>360 3831</div> <div>355 3611</div> | ① (380 3740+)<br>(380 3231+)<br>(360 3831+)<br>(355 3611+) NI 1/2<br><br>② <div>380 9081</div> <div>380 8221</div> <div>360 3833</div> <div>355 3610</div> I 2/1<br><br>F) Interchangeable en bloc seulement.<br>D) Nur als Ganzes austauschbar.<br>E) Parts interchangeable as whole only.<br><br>50 Hz: 161 595<br>60 Hz: 139 951 → | F) Adjonction d'une butée sur le couloir pour limiter le déplacement du guide-film de façon à améliorer le chargement.<br>D) Anbringen eines Anschlagstiftes auf die Filmkanalplatte, um die Bewegung der Filmführung zu begrenzen und den Ladevorgang somit zu verbessern.<br>E) Introduction of a stop on the film gate plate to restrict the movement of the film guide, thus improving the loading process.<br><br>03.72 |
|                                                                                      |                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                              |

**PB**

03.72

\*

PD - D - 1 - 02.67

2

**FM**

Platine transversale  
Querwerkplatte  
Transversale plate

SM8

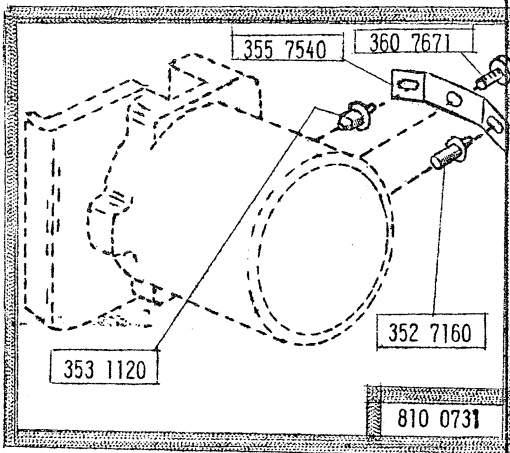
50 Hz: 100 001  
60 Hz: 130 001 →

**BOLEX**

Anciennes pièces  
Alte Teile  
Former parts

Nouvelles pièces  
Neue Teile  
New parts

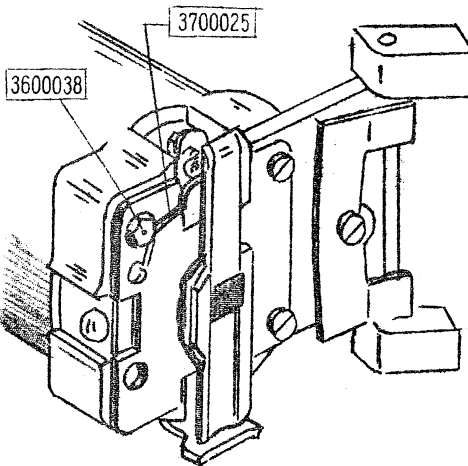
Observations  
Bemerkungen  
Remarks



178 000 →

- F) Modification du système de retenue de l'objectif dans le porte-objectif.
- D) Änderung des Objektivhalters um die Halterung des Objektives zu verbessern.
- E) Modification of the lens holder to improve the holding of the lens.

05.73



195000 →

- F) Introduction d'un ressort d'appui du volet presseur pour améliorer la fixité.
- D) Einführung einer Druckfeder an der Andruckplatte, um den Bildstand zu verbessern.
- E) Introduction of a pressure spring on the pressure plate to improve the picture steadiness.

06.74

**PB**

06.74



PD - D - 1 - 02.67

**3**

**FM**

Platine transversale  
Querwerkplatte  
Transversal plate

SM 8

50 Hz: 100 001  
60 Hz: 150 001

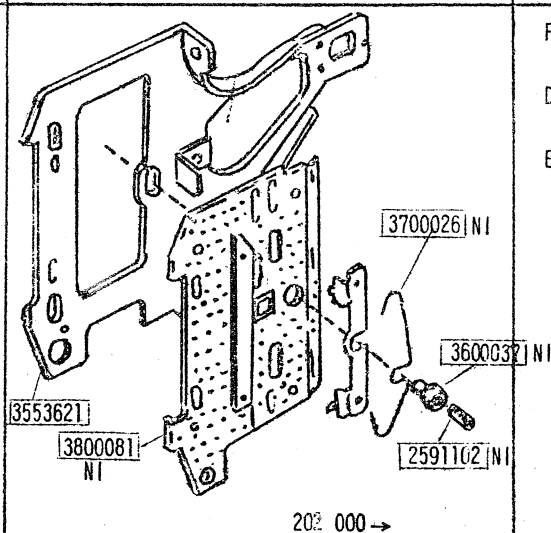
**BOLEX**

Anciennes pièces  
Alte Teile  
Former parts

Nouvelles pièces  
Neue Teile  
New parts

Observations  
Bemerkungen  
Remarks

10  
3803260  
3808221  
3700890  
3603833



F) Introduction d'une butée réglable pour le porte-objectif.  
D) Einführung eines verstellbaren Anschlags für den Objektivräger.  
E) Introduction of an adjustable stop for the lens holder.

12.74

**PB**

12.74

\*

PD - D - 1 - 02.67

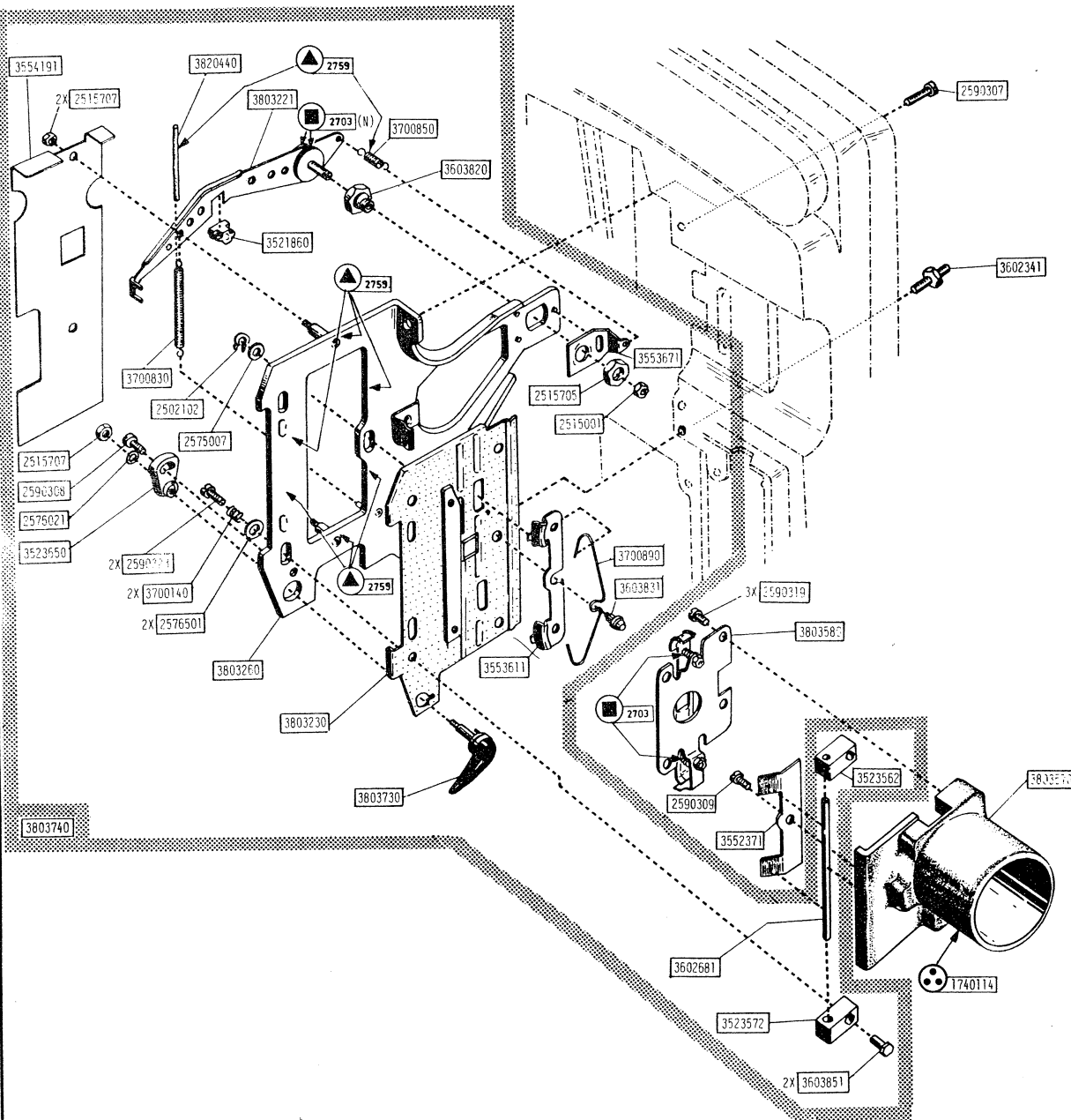
4

PD

Platine transversale  
Querwerkplatte  
Transversal plate

SM 8

50 Hz : 100 001  
60 Hz : 130 001



PB

02.67

\*

D

1

**IT**

# Platine transversale Querwerkplatte Transversal plate

**SM 8**
 50 Hz: 100 001  
 60 Hz: 130 001


## 1. Lens support, fig. 1

- Center the mounting plate of the pressure pad with respect to lens support by means of tool BJ 1195.
- Prior to tightening the 3 screws (a), make sure that the edge of the mounting plate of the pressure pad is parallel with the edge of the lens support.

## 2. Gate, fig. 2

- 2.1 When fitting the gate, fix first stud (a) with its washer and circlip, then tighten the 2 screws (b) until the windings of the springs slightly touch each other. Loosen screws then by 1/2 turn.
- 2.2 In case the framing should not be evenly distributed above and below the image, loosen screw (c) and adjust by pivoting part (d) towards the left hand or right hand side, resp.

## 3. Claw, fig. 3

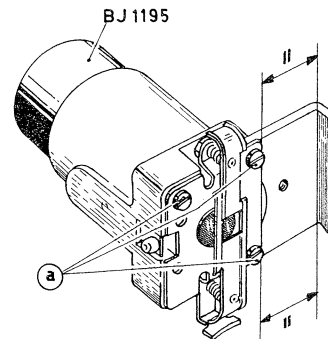
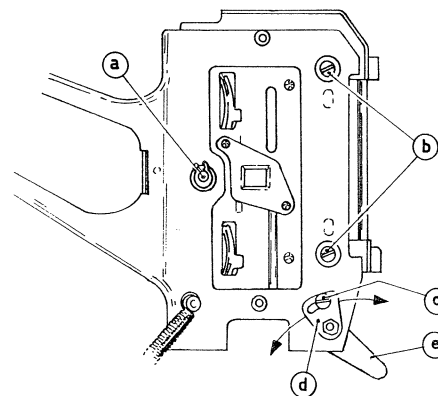
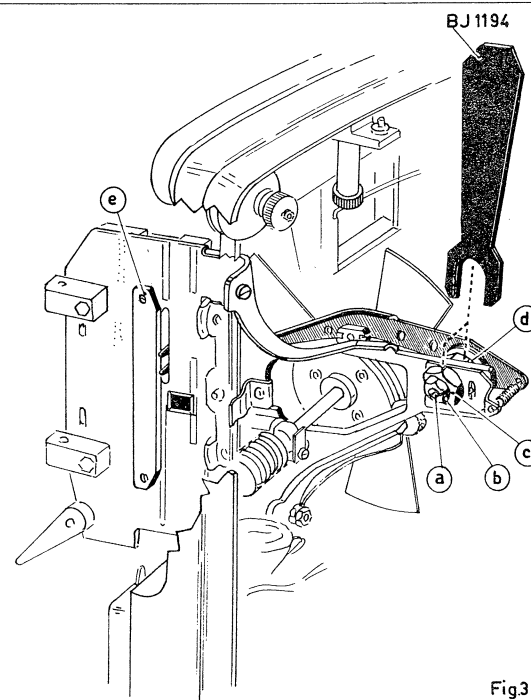
Center course of claw first.

### 3.1 Centering

Loosen lock-nut (c). Turn nut with eccentric (d) clockwise or anticlockwise with the aid of spanner BJ 1194. Check centering of the course of the claw using a length of film.

### 3.2 Penetration

Bring claw into position of max. penetration. Loosen lock-nut (b) and turn axle of claw until it is level with half the height of the fix film guide (e).

**Fig.1****Fig.2****Fig.3****PB**

10.68

**E****D****1****I**

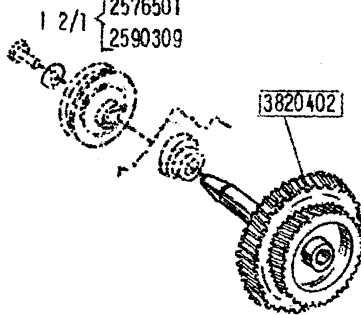
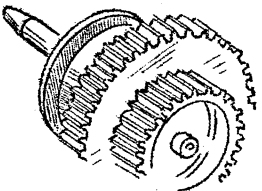
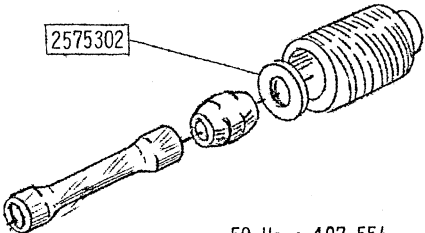
FM

Mécanisme  
Mechanismus  
Mechanism

SM8

50 Hz: 100 001  
60 Hz: 130 001 →

BOLEX

| 15<br>Anciennes pièces<br>Alte Teile<br>Former parts | 16<br>Nouvelles pièces<br>Neue Teile<br>New parts                                                                                                                                                                               | 17<br>Observations<br>Bemerkungen<br>Remarks                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1<br>3820401                                         | ① (3820401†) 50 Hz : → 103 364 NI 1/2<br>60 Hz : → 130 700<br>② 3820402 50 Hz : 103 365 →<br>60 Hz : 130 701<br>1 2/1 { 2576501<br>2590309<br> | (F) Pour des raisons de normalisation modification de cette pièce (voir aussi FM-PD-C-1-02.67, page 1, modification no. 2).<br>(D) Aus Normalisierungsgründen wurden diese Teile geändert (siehe auch FM-PD-C-1-02.67, Seite 1, Aenderung Nr. 2).<br>(E) These parts have been modified for reasons of standardization (see also FM-PD-C-1-02.67, page 1, modification No. 2).<br>(05.67)                                                                                                                                                                                                                                                                                                                                                                                          |
| 2<br>3820402                                         | ② (3820402†) 50 Hz : → 107 253 NI 2/3<br>60 Hz : → 131 931<br>③ 3820501 50 Hz : 107 254 →<br>60 Hz : 131 932 → 1 3/2<br>                     | (F) Adjonction d'une poulie sur l'ensemble engrenages pour le nouvel entraînement par courroie ronde de l'arbre bobine réceptrice. L'ensemble poulie/engrenages de la nouvelle série de projecteurs est utilisable sur les anciens appareils comprenant l'entraînement par courroie dentée.<br>(D) Dem Getriebe wurde eine Riemenscheibe für den neuen Antrieb der Welle der Aufnahmespule mittels rundem Riemen hinzugefügt. Die Baugruppe Riemenscheibe/Getriebe der neuen Projektorserie kann für die alten Geräte mit Zahnriemen verwendet werden.<br>(E) A pulley for the new drive of the take-up spool shaft by round belt has been added to the gear. The assembly pulley/gear of the new projector series can be used for the old projectors with dented belt.<br>(11.67) |
| 3<br>5X 2576504<br>4X 2575302                        | 4X 2576504<br>5X 2575302                                                                                                                                                                                                        | (F) Erreur d'impression. La quantité indiquée à ces deux rondelles est à inverser.<br>(D) Druckfehler. Die genannten Mengenangaben sind auszutauschen.<br>(E) Misprint. The quantities indicated are to be inverted.<br>(02.68)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 4                                                    | <br>50 Hz : 107 554<br>60 Hz : 132 500 →                                                                                                     | (F) Cette rondelle est maintenant positionnée entre le coussinet et la vis sans fin.<br>(D) Diese Unterlegscheibe kommt jetzt zwischen die Lagerbüchse und die Schnecke.<br>(E) This washer is now placed between the bearing and the worm gear.<br>(02.68)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |

PB

02.68



PD - E - 1 - 02.67

1

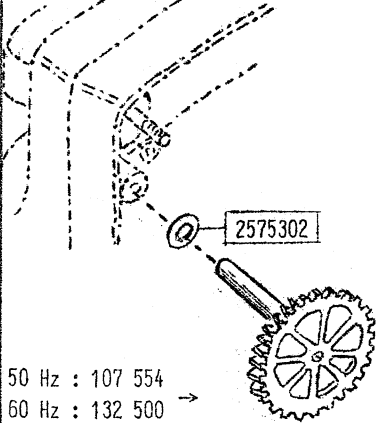
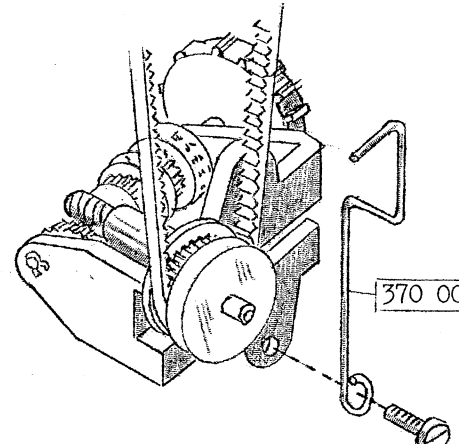
FM

Mécanisme  
Mechanismus  
Mechanism

SM8

50 Hz : 100 001  
60 Hz : 130 001 →

BOLEX

| 15<br>Anciennes pièces<br>Alte Teile<br>Former parts | 16<br>Nouvelles pièces<br>Neue Teile<br>New parts                                                                              | 17<br>Observations<br>Bemerkungen<br>Remarks                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 5                                                    |  <p>50 Hz : 107 554<br/>60 Hz : 132 500 →</p> | <p>(F) Introduction d'une nouvelle rondelle entre la platine principale et l'engrenage 3820010 en remplacement de la rondelle 2575002. (Voir FM2-PD-C-1.1-11.67, mod. no. 5).</p> <p>(D) Einführung einer neuen Unterlegscheibe zwischen Hauptwerkplatte und Zahnrad 3820010, als Ersatz für Unterlegscheibe 2575002. (Siehe FM2-PD-C-1.1-11.67, Aenderung Nr. 5).</p> <p>(E) Introduction of a new washer between main mounting plate and toothed wheel 3820010, replacing washer 2575002. (See FM2-PD-C-1.1-11.67, mod. No. 5).</p> <p>(05.68)</p> |
| 6                                                    | <p>3820010</p> <p>(3820010†)</p> <p>3820011</p>                                                                                | <p>(F) Introduction d'un nouvel engrenage percé d'un trou afin de faciliter le réglage du micro-switch du chargement automatique.</p> <p>(D) Das Zahnrad hat jetzt ein Loch, um die Justierung des Microschalters für die automatische Ladevorrichtung zu erleichtern.</p> <p>(E) The gear has now a hole, with a view to facilitating the adjustment of the microswitch at the automatic loading device.</p> <p>(03.69)</p>                                                                                                                         |
| 7                                                    | <p>3602470</p> <p>① (3602470†) NI 1/2</p> <p>② 3602471 I 2/1</p> <p>50 Hz : 122 100<br/>60 Hz : 137 846 →</p>                  | <p>(F) Introduction d'une nouvelle vis sans fin pour diminuer le bruit du projecteur.</p> <p>(D) Einführung einer neuen Schnecke, um das Laufgeräusch zu vermindern.</p> <p>(E) Introduction of a new worm gear with a view to reducing projector noise.</p> <p>(11.69)</p>                                                                                                                                                                                                                                                                          |
| 8                                                    |  <p>370 0006</p> <p>185 500 →</p>           | <p>(F) Introduction d'un ressort pour éviter que la courroie du compteur ne tombe.</p> <p>(D) Einführung einer Feder, um den Zählerriemen festzuhalten.</p> <p>(E) Introduction of a spring to maintain the counter belt in position.</p> <p>01.74</p>                                                                                                                                                                                                                                                                                               |

PB

01.74

\*

PD - E - 1 - 02.67

2

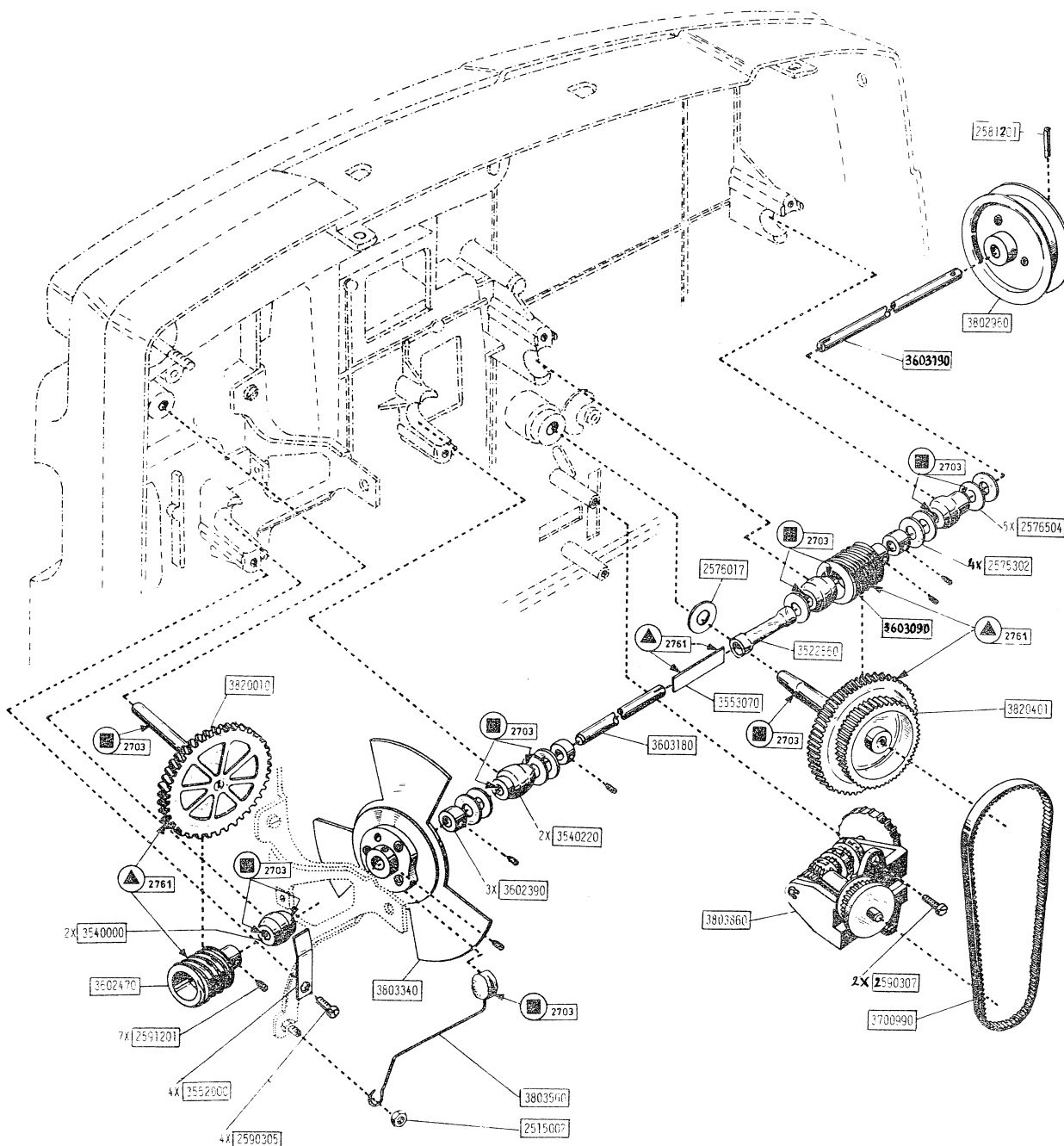


PD

Mécanisme  
Mechanismus  
Mechanism

SM 8

50 Hz: 100 001  
60 Hz: 130 001



PB

02.67

\*

E

1



(P) Arbre de transmission fig. 1

- Lors du remontage des 2 demi-arbres de transmission, ne pas bloquer les bagues et vis sans fin.
- Faire attention que la rondelle acier soit placée près du coussinet et la rondelle plastique à l'extérieur. Serrer les brides (h) de fixation des coussinets.
- Régler alors les jeux en commençant depuis la poulie d'entraînement (a); entre coussinet et rondelles

0,05 mm

- Centrer ensuite la vis sans fin (b) sur l'engrenage d'entraînement du compteur (c).
- La plaquette de liaison (d) doit avoir un jeu longitudinal de

0,5...1 mm ;

serrer la bague (e), mettre un jeu de 0,05 entre rondelles et coussinet.

- Entre l'ensemble came-obturateur et coussinet (f) il doit y avoir une cote de

14,5 mm

(jauge BJ 1198).

- La vis sans fin (g) doit être centrée sous l'engrenage du débiteur supérieur.

(D) Hauptwelle Abb. 1

- Beim Einbau der zweigeteilten Hauptwelle die Ringe und Schnecken nicht festschrauben.
- Darauf achten, dass die stählerne Unterlegscheibe jeweils an der Lagerbuchse und die Plastikscheibe nach aussen hin sitzt. Befestigungsbügel (h) an den Lagerbuchsen anziehen.
- Dann das Spiel einstellen, beginnend an der Antriebsriemenscheibe (a); zwischen Lagerbuchse und Unterlegscheiben

0,05 mm

- Jetzt Schnecke (b) auf das Schneckenrad (c) des Zählers zentrieren.
- Das Verbindungsstück (d) muss in Längsrichtung ein Spiel von

0,5...1 mm

haben; Ring (e) anziehen, Spiel zwischen Unterlegscheiben und Lagerbuchse auf 0,05 mm justieren.

- Zwischen dem Bauteil Kurvenscheibe/Umlaufblende und der Lagerbuchse (f) muss der Abstand

14,5 mm

(Lehre BJ 1198).

- Die Schnecke (g) muss auf das Schneckenrad der oberen Wickeltrommel zentriert werden.

(E) Transmission shaft fig. 1

- When installing the bipartite transmission shaft, do not fix the rings and worm gears.
- Make sure that the steel washer is always towards the bearings and the plastic washer outside. Fix hoops (h) at the bearings.
- Then adjust play, starting at pulley (a), between bearing and washers

0,05 mm

- Now center worm gear (b) to worm wheel (c) of the counter.
- Connecting piece (d) must have a longitudinal play of

0,5...1 mm ;

Tighten ring (e), and adjust play between washers and bearing to 0,05 mm.

- The distance between the cam/rotary shutter-assembly and bearing (f) must amount to

14,5 mm

(gauge BJ 1198).

- Center worm gear (g) to the worm wheel of the upper sprocket.

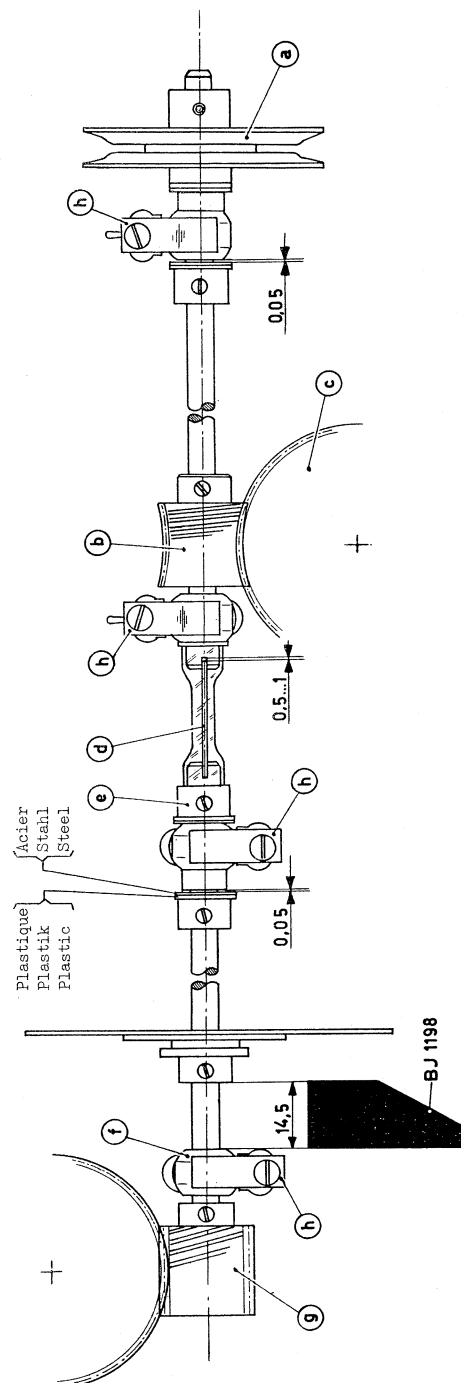


Fig.1

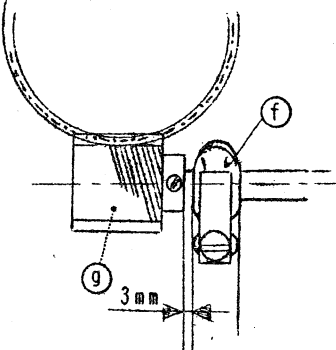
**FM**

Mécanisme  
Mechanismus  
Mechanism

SM8

50 Hz: 100 001  
60 Hz: 130 001 →

**BOLEX**

| <p>15</p> <p>Anciennes pièces<br/>Alte Teile<br/>Former parts</p> | <p>16</p> <p>Nouvelles pièces<br/>Neue Teile<br/>New parts</p>                    | <p>17</p> <p>Observations<br/>Bemerkungen<br/>Remarks</p>                                                                                                                                                                                                                                                                                                                                                                                                 |
|-------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>1</p>                                                          |  | <p>(F) Suite à l'introduction de la nouvelle vis sans fin, il doit y avoir entre celle-ci (g) et le coussinet (f), un jeu de 3 mm. (Voir modification no. 7, FM2-PD-E-1).</p> <p>(D) Das Spiel zwischen der neuen Schnecke (g) und dem Lager (f) muss 3 mm betragen. (Siehe Aenderung Nr. 7, FM2-PD-E-1).</p> <p>(E) The play between the new worn gear (g) and bearing (f) must amount to 3 mm. (See modification No. 7, FM2-PD-E-1).</p> <p>(11.69)</p> |
|                                                                   |                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                           |

PB

11.69

\*

IT - E1 - I - 06.67

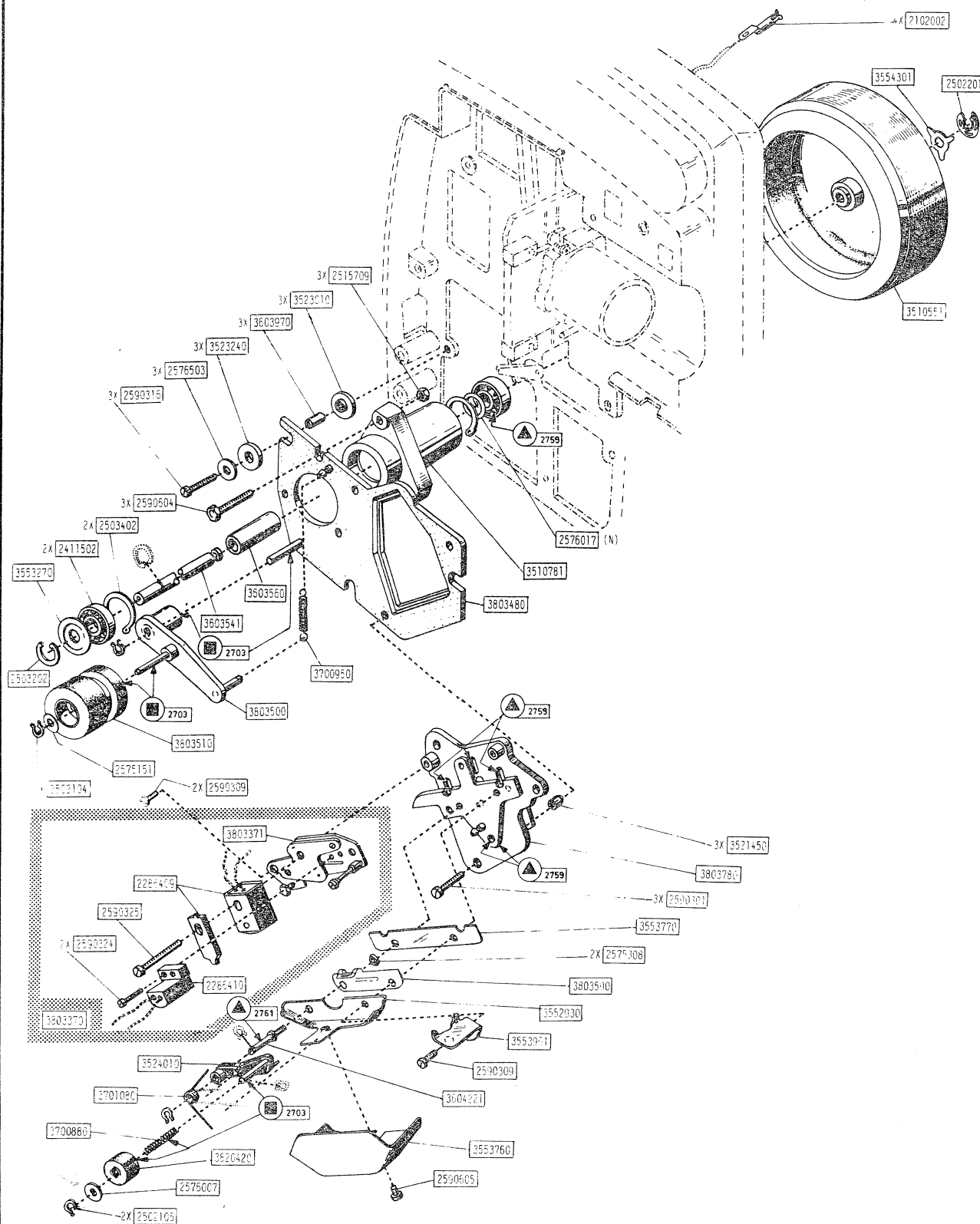
1

PD

Têtes magnétiques  
Magnettonköpfe  
Magnetic sound heads

SM 8

50 Hz: 100 001  
60 Hz: 130 001



PB

02.67

\*

F

1



**FM**

Têtes magnétiques  
Magnettonköpfe  
Magnetic sound heads

SM8

**BOLEX**

50 Hz: 100 001 →

60 Hz: 130 001 →

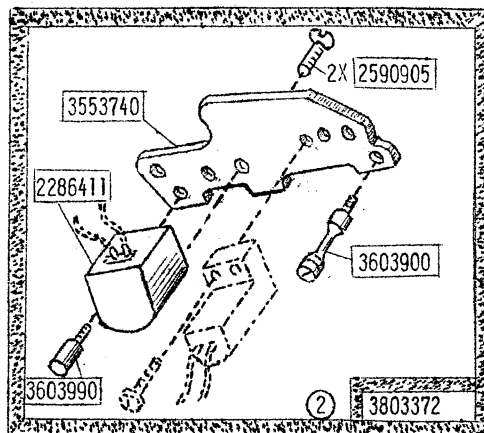
Anciennes pièces  
Alte Teile  
Former parts

Nouvelles pièces  
Neue Teile  
New parts

Observations  
Bemerkungen  
Remarks

1  
2590325  
2286409  
3803371

① 3803370



① (3803370) 50 Hz : → 100 130 NI 1/2

② 3803372 50 Hz : 100 131 →  
60 Hz : 130 001 → NI 2/1

ampli  
1 2/1 [3803654] Verstärker  
amplifier

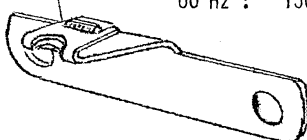
(F) Introduction d'une nouvelle tête magnétique en VACODUR pour augmenter sa durée de vie.  
(D) Einführung eines neuen Magnettonkopfes aus VACODUR um dessen Lebensdauer zu verlängern.  
(E) Introduction of a new magnetic sound head\* of VACODUR in order to increase its durability.

\*) made

(02.67)

2  
3803590

① (3803590) 50 Hz : → 100 900  
60 Hz : → 130 320 NI 1/2  
② 3803591 50 Hz : 100 901 →  
60 Hz : 130 321 → 1 2/1

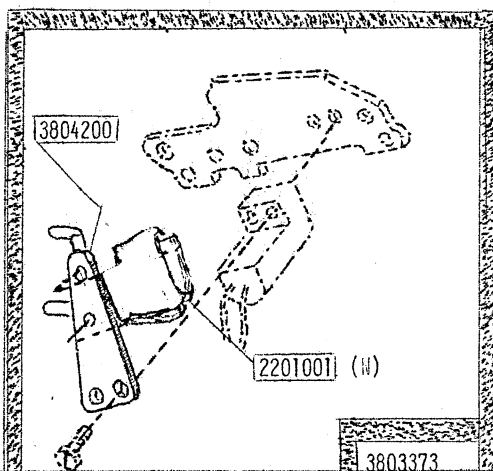


(F) Introduction d'un nouveau presseur de façon à garantir une pression correcte sur la tête magnétique.  
(D) Einführung eines neuen Andruckschuhs, um den richtigen Druck auf den Tonkopf zu gewährleisten.  
(E) Introduction of a new pressure shoe in order to ensure correct pressure on the sound head.

(02.67)

3  
3803372

② (3803372) 50 Hz : → 103 263 NI 2/3  
60 Hz : → 130 400



(F) Introduction d'une bobine antironflement, montée dans le circuit de la tête d'enregistrement et lecture. Orienter cette bobine pour atténuer le plus possible le ronflement de l'amplificateur.  
(D) Einführung einer Anti-Brummspule im Stromkreis des Aufnahme-/Wiedergabe-Tonkopfes. Diese Spule ist so auszurichten, dass das Brummen des Verstärkers so weit wie möglich gedämpft wird.  
(E) Introduction of an anti-buzzing coil in the circuit of the recording-playback sound head. That coil has to be directed such as to attenuate as much as possible the humming of the amplifier.

(03.67)

50 Hz : 103 264 → 1 3/2  
60 Hz : 130 401 →

**PB**

03.67

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PD - F - 1 - 02.67

1

**FM**

Têtes magnétiques  
Magnettonköpfe  
Magnetic sound heads

SM8

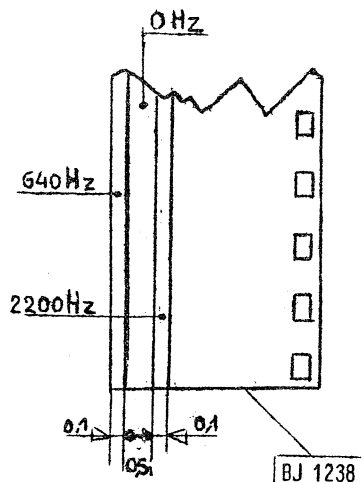
50 Hz : 100 001  
60 Hz : 130 001 →

**BOLEX**

15 Anciennes pièces  
Alte Teile  
Former parts

16 Nouvelles pièces  
Neue Teile  
New parts

17 Observations  
Bemerkungen  
Remarks



(F) Pour l'alignement de la tête magnétique, nous introduisons un nouveau film de contrôle, comportant sur la piste magnétique un signal de 640 Hz et un de 2200 Hz. Ces deux traces ainsi enregistrées se trouvent chacune sur un bord extérieur de la piste. Lors du passage de ce film sur le projecteur à régler, la tête du lecteur ne doit lire aucun signal si elle est bien centrée.

(D) Für die Justierung des Tonkopfes wurde ein neuer Testfilm eingeführt, auf dessen Tonspurrändern ein Signal von 640 bzw. 2200 Hz aufgezeichnet ist. Beim Durchlauf des Filmes durch den zu justierenden Projektor darf der Wiedergabetonkopf bei richtiger Justierung keines der beiden Signale reproduzieren.

(E) A new test film has been introduced for facilitating alignment of the sound head. Signals of 640 and 2200 Hz resp., are recorded at either margin of the sound track. When running through the projector to be checked, none of those signals must be played back.

(05.68)

PB

05.68



IT - F1 - I - 01.68

1



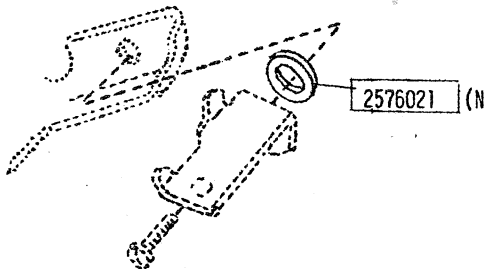
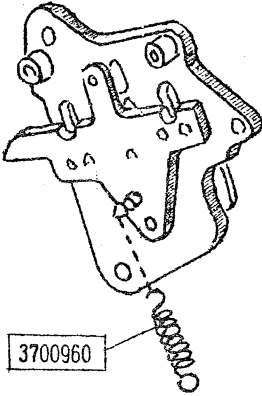
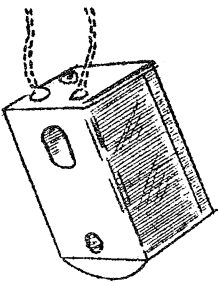
FM

Têtes magnétiques  
Magnettonköpfe  
Magnetic sound heads

SM8

50 Hz: 100 001 →  
60 Hz: 130 001 →

BOLEX

| Anciennes pièces<br>Alte Teile<br>Former parts | Nouvelles pièces<br>Neue Teile<br>New parts                                                                                 | Observations<br>Bemerkungen<br>Remarks                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 4 <span>3820420</span>                         | 17 <span>3820421</span>                                                                                                     | 18<br>(F) Nomenclature modifiée.<br>(D) Teilnummernänderung.<br>(E) Part-number modification. (04.67)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| 5                                              |                                            | (F) Rondelle supplémentaire pour permettre le réglage latéral du guide.<br>(D) Zusätzliche Unterlegscheibe, um die seitliche Einstellung der Führung zu ermöglichen.<br>(E) Additional washer to enable the lateral adjustment of the guide. (04.67)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| 6                                              |                                           | F<br>(F) Mise à jour de la PD.<br>(D) Nachführung des PD-Blattes.<br>(E) Keeping up-to-date the PD. (11.67)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| 7 <span>2286409</span>                         | <span>2286416</span> 50 Hz → 100 130<br> | (F) <u>Pour service après-vente seulement</u><br>Pour le remplacement des têtes en MU-métal 2286409 usées, il vous est mis à disposition une nouvelle tête en VACODUR 2286416 (et non 2286413 comme indiqué par erreur dans la lettre circulaire SDR à distribution limitée (PB) de février 1968 concernant l'usure des têtes magnétiques), plus résistante à l'usure et ne nécessitant pas le changement de l'amplificateur.<br>Ceci est valable pour les projecteurs 50 Hz → 100 130. Nous vous signalons également que cette tête n'est pas interchangeable avec celle existant actuellement 2286411.<br>Recontrôler, si nécessaire, le réglage des potentiomètres.<br>(D) <u>Nur für Kundendienst</u><br>Für den Ersatz von Tonköpfen aus MU-Metall, 2286409, steht Ihnen ein neuer Tonkopf aus VACODUR, 2286416, (und nicht 2286413, wie irrtümlich in unserem |

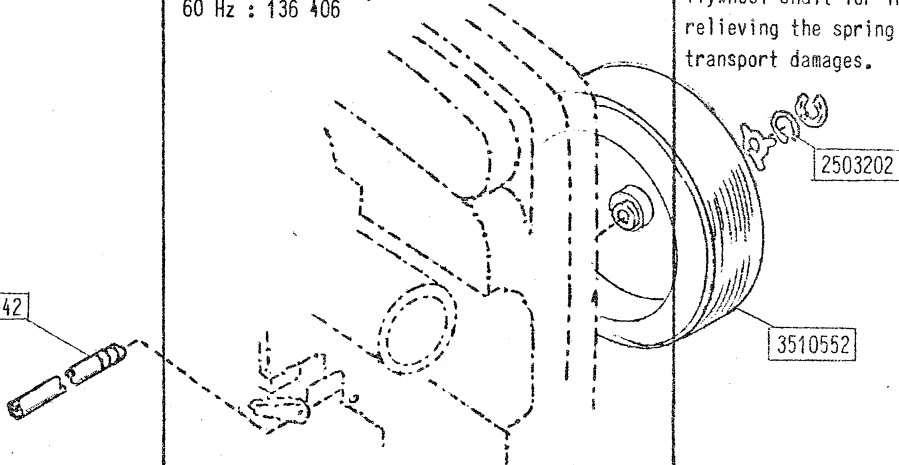
PB

02.68



PD - F - 1 - 02.67

2

|                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                             |                                              |
|--------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------|----------------------------------------------|
| <div>FM</div>                                                                                                   | <div> Têtes magnétiques<br/> Magnettonköpfe<br/> Magnetic sound heads </div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <div>SM8</div> <div> 50 Hz: 100 001<br/> 60 Hz: 130 001 → </div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | <div>BOLEX</div>              |                                              |
| <div> Anciennes pièces<br/> Alte Teile<br/> Former parts </div>                                                | <div> Nouvelles pièces<br/> Neue Teile<br/> New parts </div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <div> Observations<br/> Bemerkungen<br/> Remarks </div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                             |                                              |
| <div>7</div>                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | <p>Rundschreiben SDRX, beschränkte Auflage (PB) vom Februar 1968, betreffend die Abnützung der Magnettonköpfe, angegeben), zur Verfügung, welcher abriebfester ist und <u>nicht</u> das Auswechseln des Verstärkers erfordert.</p> <p>Dies gilt für Projektoren 50 Hz → 100 130.</p> <p>Dieser Tonkopf ist nicht austauschbar mit dem jetzigen Modell 2286411.</p> <p>Falls notwendig, ist die Justierung der Potentiometer zu überprüfen.</p> <p>(E) <u>For after-sales service only :</u></p> <p>For replacing worn sound heads of MU-metal, 2286409, we have at your disposal a new sound head, made of VACODUR, 2286416, (and not 2286413 as indicated erroneously in our circular letter SDRX, limited edition (PB) of February 1968, regarding wear of magnetic sound heads), less abrasive, and which does <u>not</u> require the exchange of the amplifier.</p> <p>Valid for projectors 50 Hz → 100 130.</p> <p>That sound head is not interchangeable with the actual model 2286411.</p> <p>If necessary, check the adjustment of the potentiometers.</p> <p style="text-align: right;">(02.68)</p> |                                                             |                                              |
| <div>8</div> <div>3510551</div> <div>3603541</div> | <div>① (3510551†) NI 1/2</div> <div>② 3510552 1 2/1</div> <div> <div>3603542</div> <div>2503202</div> </div> <div>① (3603541†) NI 1/2</div> <div>② 3603542 1 2/1</div> <div> <div>3510552</div> <div>2503202</div> </div> <div>50 Hz : 119 099</div> <div>60 Hz : 136 406 →</div> <div>3603542</div>  | <p>(F) Afin de soulager la rondelle ressort 2502201 et pour éviter tout ennui durant le transport du projecteur, adjonction d'un clip sur l'axe support volant afin d'en améliorer la fixation.</p> <p>(D) Einführung eines Seegerringes auf der Achse des Sicherungsrades, um die Befestigung desselben zu verbessern, die federnde Unterlegscheibe 2502201 zu entlasten, und Transportschäden vorzubugen.</p> <p>(E) Introduction of a spring clip at the end of the flywheel shaft for improving the fixing of that wheel, relieving the spring loaded washer and preventing transport damages.</p> <p style="text-align: right;">(04.69)</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                             |                                              |
| <div>PB</div>                                                                                                | <div>04.69</div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | <div>*</div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | <div>PD - F - 1 - 02.67</div> | <div>3</div> |

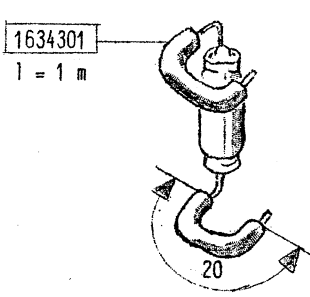
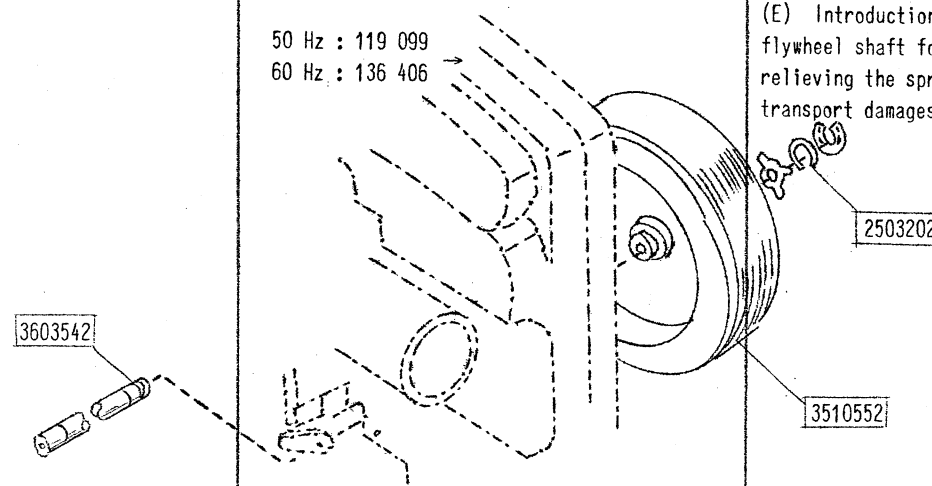
**FM**

Têtes magnétiques  
Magnettonköpfe  
Magnetic sound heads

SM8

50 Hz: 110 311  
60 Hz: 133 977 →

**BOLEX**

| 15<br>Anciennes pièces<br>Alte Teile<br>Former parts | 16<br>Nouvelles pièces<br>Neue Teile<br>New parts                                                                                                                                                                                       | 17<br>Observations<br>Bemerkungen<br>Remarks                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1                                                    | <p>50 Hz : 114 451<br/>60 Hz : 135 001 →</p>                                                                                                           | <p>(F) Après l'introduction de la nouvelle lampe et pour éviter tout court-circuit avec le cache chaleur 3555251, il est nécessaire d'ajouter un morceau de gaine sur les fils de la bobine d'antironflement. Nous vous signalons que sous le symbole 1634301, il vous sera livré un mètre de gaine.</p> <p>(D) Um nach Einführung der neuen Lampe jede Kurzschlussmöglichkeit mit dem Wärmeschutz 3555251 zu vermeiden, ist es nötig, über die Drähte der Antibrummspule ein Stück Isolierschlauch zu ziehen. Unter der Bestell-Nr. 1634301 wird 1 m solchen Schlauches geliefert.</p> <p>(E) In order to avoid after the introduction of the new lamp any possibility of a short-circuit with heat shield 3555251, it is necessary to pull a piece of insulating sleeve over each wire of the anti-humming coil.</p> <p>No. 1634301 is the symbol for 1 m of such sleeve.</p> <p>(01.69)</p> |
| 2                                                    | <p>① (3510551) NI 1/2</p> <p>② (3510552) 1 2/1</p> <p>① (3603541) NI 1/2</p> <p>② (3603542) 1 2/1</p> <p>50 Hz : 119 099<br/>60 Hz : 136 406 →</p>  | <p>(F) Afin de soulager la rondelle ressort 2502201 et pour éviter tout ennui durant le transport du projecteur, adjonction d'un clips sur l'axe support volant pour améliorer sa fixation.</p> <p>(D) Einführung eines Seegerringes auf der Achse des Sicherungsrades, um die Befestigung desselben zu verbessern, die federnde Unterlegscheibe 2502201 zu entlasten, und Transportschäden vorzubugen.</p> <p>(E) Introduction of a spring clip at the end of the flywheel shaft for improving the fixing of that wheel, relieving the spring loaded washer and preventing transport damages.</p> <p>(04.69)</p>                                                                                                                                                                                                                                                                              |

**PB**

04.69

\*

PD - F - 1.1 - 10.68

1

FM

Têtes magnétiques  
Magnettonköpfe  
Magnetic sound heads

SM8

50 Hz : 110 311

60 Hz : 133 977 →



| Anciennes pièces<br>Alte Teile<br>Former parts | Nouvelles pièces<br>Neue Teile<br>New parts                                                                                                                                                                                                                                   | Observations<br>Bemerkungen<br>Remarks                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>3</p> <p>2286414</p> <p>3804222</p>         | <p>① (2286414+) NI 1/2</p> <p>② 2286419 I 2/1</p> <p>R22 - 2270700 - 1,5 kΩ<br/>R53 - 2270720 - 3,3 kΩ</p> <p>① (3804222+) NI 1/2</p> <p>② <del>3804222</del> I 2/1</p> <p>R22 - 2270700 - 1,5 kΩ<br/>R53 - 2270720 - 3,3 kΩ</p> <p>50 Hz : 119 941<br/>60 Hz : 137 014 →</p> | <p>(F) Introduction d'une nouvelle tête magnétique "Photovox" ayant une durée de vie plus longue. Nous vous signalons que pour l'interchangeabilité de l'ancienne tête ① par la nouvelle ② et en plus du changement des résistances R22 et R53, il est nécessaire d'inverser le branchement de cette nouvelle tête, c'est-à-dire le fil bleu soudé à gauche (à la place du blanc) et vice versa. (Voir modification 1, FM1-PD-N-1.2-11.68, FM1-PD-N-1.2.1-01.69 et FM1-PD-N-1.3-01.69).</p> <p>(D) Einführung eines neuen Magnettonkopfes "Photovox" mit längerer Lebensdauer. Beim Austausch des alten Tonkopfes ① gegen den neuen ② sind nicht nur die Widerstände R22 und R53 auszuwechseln, sondern es ist auch notwendig, die Anschlüsse des neuen umzukehren, d.h. der blaue Draht ist links anzulöten, an Stelle des weissen, und umgekehrt. (Siehe Aenderung 1, FM1-PD-N-1.2-11.68, FM1-PD-N-1.2.1-01.69 und FM1-PD-N-1.3-01.69).</p> <p>(E) Introduction of a new magnetic sound head "Photovox" with increased service life. When exchanging the former sound head ① against the new model ②, it is not only necessary to exchange resistances R22 and R53, but also to <u>invert connections</u>, i.e. to solder the blue wire at the left hand side, in lieu of the white one, and vice versa. (See modification 1, FM1-PD-N-1.2-11.68, FM1-PD-N-1.2.1-01.69 and FM1-PD-N-1.3-01.69).</p> |
| <p>4</p> <p>3803591</p>                        | <p>① (3803591) NI 1/2</p> <p>② 3556220 I 2/1</p> <p>50 Hz : 127 163<br/>60 Hz : 139 021 →</p>                                                                                                                                                                                 | <p>(F) Introduction d'un nouveau patin d'appui du film avec rigidité accrue afin de remédier à une fréquence très élevée dans le haut-parleur par suite des vibrations que pouvait provoquer l'ancien modèle trop souple.</p> <p>(D) Einführung eines neuen Filmandruckschubes mit erhöhter Starrheit, da die bisherige, zu biegsame Ausführung Schwingungen hervorrufen konnte, die eine sehr hohe Frequenz im Lautsprecher verursachten.</p> <p>(E) Introduction of a new pressure device with increased rigidity in order to remedy a very high frequency in the loudspeaker in consequence of the vibrations that could be caused by the former, too flexible execution.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|                                                |                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |

**FM**

Têtes magnétiques  
Magnettonköpfe  
Magnetic sound heads

SM8

50 Hz : 110 311

60 Hz : 133 977

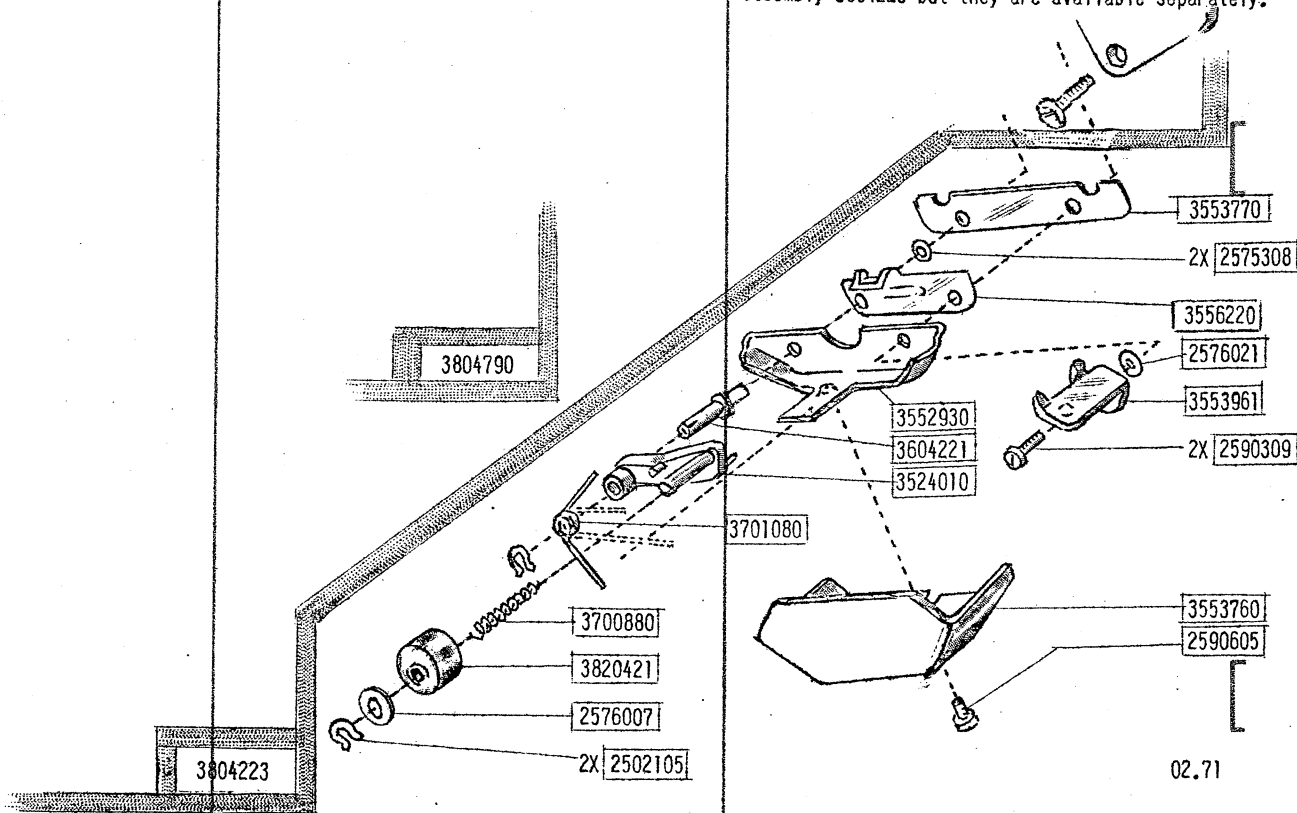
**BOLEX**

15 Anciennes pièces  
Alte Teile  
Former parts

16 Nouvelles pièces  
Neue Teile  
New parts

17 Observations  
Bemerkungen  
Remarks

(F) Pour des raisons d'approvisionnement, ces pièces ne sont plus livrées montées sur l'ensemble têtes magnétiques 3804223, mais restent livrables séparément.  
(D) Aus Versorgungsgründen können diese Teile nicht mehr auf der montierten Magnettonköpfen-Einheit 3804223, sondern einzeln geliefert werden.  
(E) For reasons of supplies, these parts can no longer be supplied as a whole with the magnetic sound heads assembly 3804223 but they are available separately.



355 6220

380 3591

F) Erreur d'impression  
D) Druckfehler  
E) Misprint

06.72

**PB**

06.72

\*

PD - F - 1.1 - 10.68

3

**FM**

Têtes magnétiques  
Magnettonköpfe  
Magnetic sound heads

SMB

50 Hz: 110 311 →

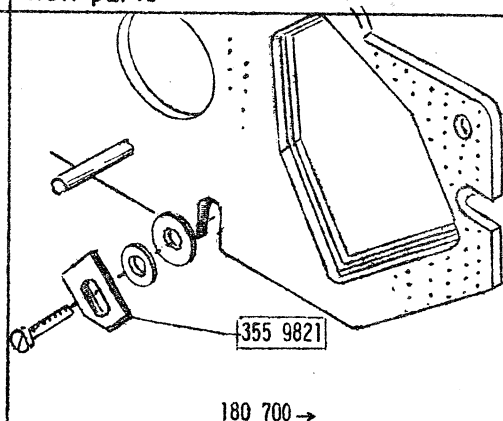
60 Hz: 133 977

**BOLEX**

Anciennes pièces  
Alte Teile  
Former parts

Nouvelles pièces  
Neue Teile  
New parts

Observations  
Bemerkungen  
Remarks



F) Introduction d'une butée pour limiter la course de l'ensemble têtes magnétiques.  
D) Einführung eines Anschlag um die Bewegung der Tonkopfeinheit zu begrenzen.  
E) Introduction of a stop plate to limit the travel of the sound heads assembly.

05.73

**PB**

05.73

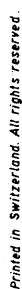
\*

PD - F 1.1 - 10.68

4

Têtes magnétiques  
Magnettonköpfe  
Magnetic sound heads

50 Hz: 110 311  
60 Hz: 133 977



✱

11





IT

# Têtes magnétiques Magnettonköpfe Magnetic sound heads

SM 8

50 Hz : 100 001  
60 Hz : 130 001



## (E) Adjustment of the sound heads

(For projectors 50 Hz No. 100 131 → and 60 Hz No. 130 001 →, only sections 1 and 2 are valid)

### 1. Mounting of the workplates fig. 1

Prior to mounting workplate (a), make sure that part (e) slides freely and without play. If necessary, adjust by means of nut and flat spring at the rear.

- Mount workplate (a) to plate (b). Make sure that under each one of the screws (c) there remains a clearance of

2.5 mm

- Then mount the assembly, consisting of parts (a) and (b) into the projector and tighten screws (d).

### 2. Alignment of sound heads fig. 2

- Drive stop (b) fully home, in order to make room.
- Insert gauge BJ 1199 into the cut-out of stud (a) and press it against recording and playback heads. Screw stud (a) in and out such as to have both edges (c) and (d) of the gauge exactly parallel with those of the sound heads.
- Adjust stop (b) such as to have it flush with the lower edge (e) of gauge BJ 1199.
- Lock parts (a) and (b) (see arrows) - either by destroying the thread with a pair of pincers, or by using screw locking paint BJ 1075.
- Mount assembly to workplate (a), fig. 1.

### 3. Adjustment of sound heads and of the azimuth fig. 3

(Only valid for 50 Hz projectors → No. 100 130)

- Use a film prerecorded with a 1000 Hz signal on an other well adjusted projector.
- While having that film running through the projector, adjust simultaneously sound head and azimuth, such as to obtain a max. result.

#### 3.1 Adjustment of the sound head

Slightly loosen screw (a) and adjust sound head in direction of arrow (x).

#### 3.2 Azimuth

Adjust by driving screw (b) in and out, so that the sound head is pivoted in direction of arrow (y).

### 4. Aligning the pressure device and film guide fig. 4

When driving screw (a) and stud (b) in or out, the position of the pressure device with respect to the playback head is modified, as well as that of the film guide at the entry of the sound heads.

### 5. Pressure of pressure device (c) against playback sound head fig. 4

It should amount to

140 ± 25 g

and is to be measured with a dynamometer BJ 1581. Adjust by bending the part accordingly, so as to be within tolerance.

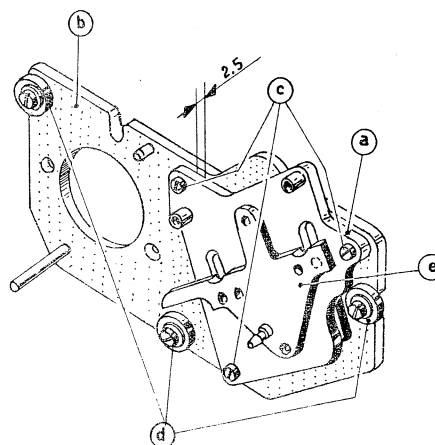


Fig. 1

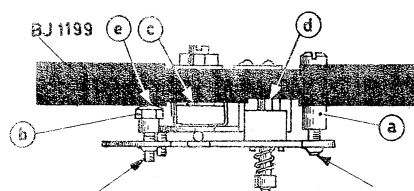


Fig. 2

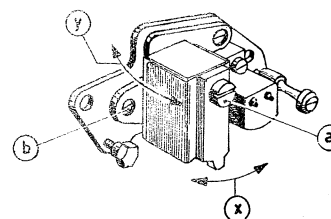


Fig. 3

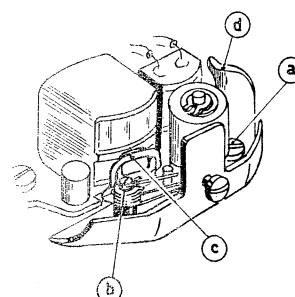


Fig. 4

PB

01.68

E

F

1

I



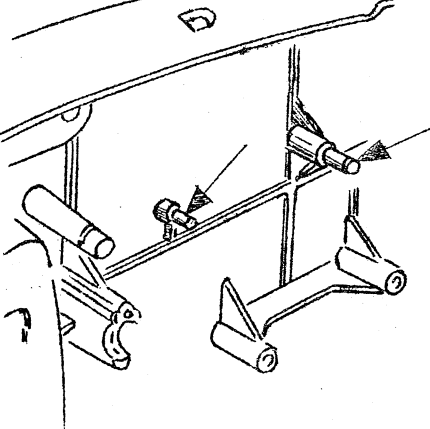
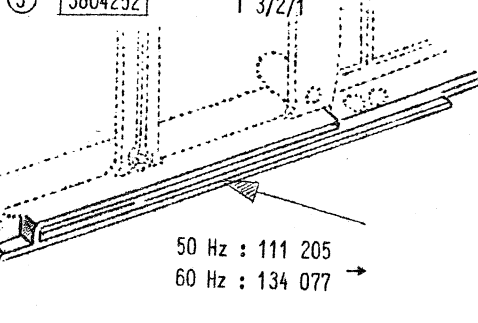
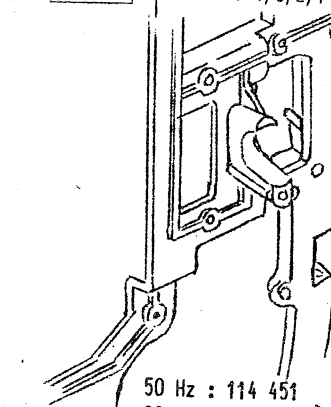
**FM**

Platine principale  
Hauptwerkplatte  
Main mounting plate

SM8

50 Hz: 100 001  
60 Hz: 130 001 →



| Anciennes pièces<br>Alte Teile<br>Former parts | Nouvelles pièces<br>Neue Teile<br>New parts                                                                                                                                                                          | Observations<br>Bemerkungen<br>Remarks                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 3804250                                      | <p>① (3804250 †) 50 Hz : → 107 253<br/>60 Hz : → 131 931 NI 1/2</p> <p>② 3804251 50 Hz : 107 254 →<br/>60 Hz : 131 932 → I 2/1</p>  | <p>(F) Adjonction sur la platine principale</p> <p>1) d'un téton de fixation du ressort de rappel du guide de sortie mobile</p> <p>2) d'un support pour la poulie de déviation de la courroie d'entraînement de la friction réceptrice.</p> <p>(D) Die Hauptwerkplatte hat jetzt :</p> <p>1) Einen Zapfen, um die Rückholfeder der Filmführung an der Nachwickeltrommel zu befestigen.</p> <p>2) Eine Achse für die Umlenkrolle des Antriebsriemens der Aufwickelfriction.</p> <p>(E) The main mounting plate is now fitted with :</p> <p>1) A stud for fixing the recuperating spring of the film guide at the lower sprocket</p> <p>2) An axle for the deflection pulley of the drive for the take-up friction.</p> <p>(11.67)</p> |
| 2 ② 3804251                                    | <p>② (3804251 †) NI 2/3</p> <p>③ 3804252 I 3/2/1</p>  <p>50 Hz : 111 205<br/>60 Hz : 134 077 →</p>                                | <p>(F) Introduction d'une nouvelle platine principale renforcée auprès du complexe volant.</p> <p>(D) Einführung einer neuen, in der Nähe der Baugruppe Schwungrad verstärkten Hauptwerkplatte.</p> <p>(E) Introduction of a new main mounting plate, reinforced in the vicinity of the flywheel assembly.</p> <p>(09.68)</p>                                                                                                                                                                                                                                                                                                                                                                                                        |
| 3 ③ 3804252                                    | <p>③ (3804252 †) NI 3/4</p> <p>④ 3804253 I 4/3/2/1</p>  <p>50 Hz : 114 451<br/>60 Hz : 135 001 →</p>                              | <p>(F) Introduction d'une nouvelle platine principale suite à l'introduction du nouveau support de lampe iodine.</p> <p>(D) Nach Einführung der Halogenlampe Verwendung einer neuen Hauptwerkplatte.</p> <p>(E) Following to the introduction of a QI lamp, a modified main mounting plate is used.</p> <p>(09.68)</p>                                                                                                                                                                                                                                                                                                                                                                                                               |

PB

09.68



PD - G - 1 - 02.67

1

**FM**

Platine principale  
Hauptwerkplatte  
Main mounting plate

SME

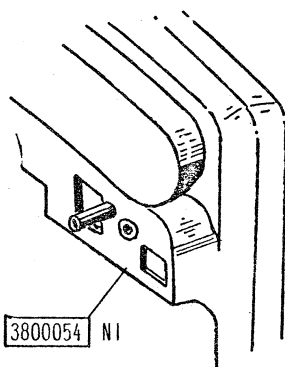
**BOLEX**

Anciennes pièces  
Alte Teile  
Former parts

Nouvelles pièces  
Neue Teile  
New parts

Observations  
Bemerkungen  
Remarks

4 3804253 (+)



202 887 →

- F) Nouvelle platine avec axe du galet du débiteur supérieur rivé.
- D) Einführung einer neuen Hauptwerkplatte mit vernieteter Rollenachse der oberen Zahntrommel.
- E) Introduction of a new main plate with riveted roller shaft of the upper sprocket.

12.74

**PB**

12.74

\*

PD - G - 1 - 02.67

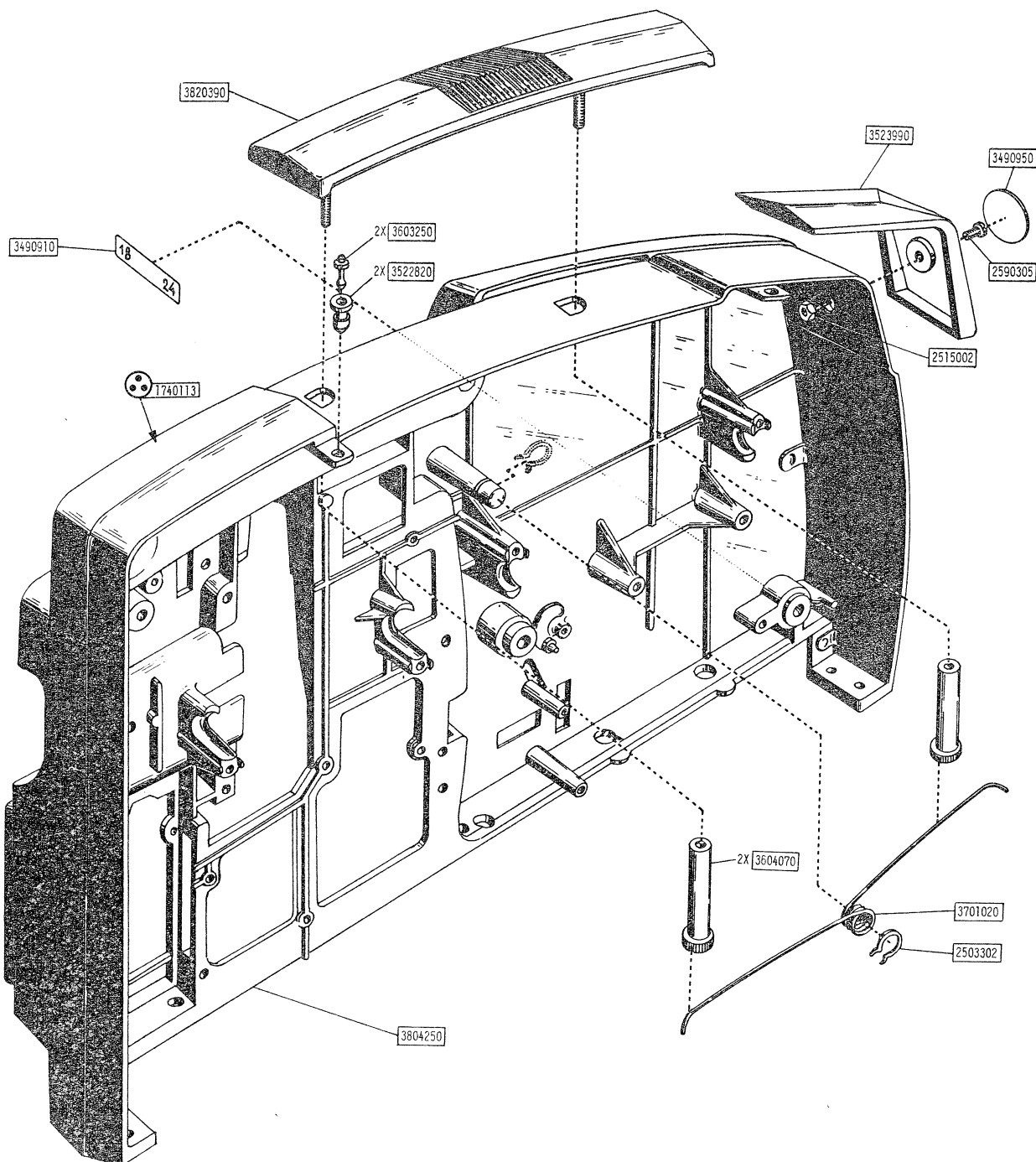
2

**PD**

Platine principale  
Hauptwerkplatte  
Main mounting plate

**SM 8**

50 Hz : 100 001  
60 Hz : 130 001

**PB**

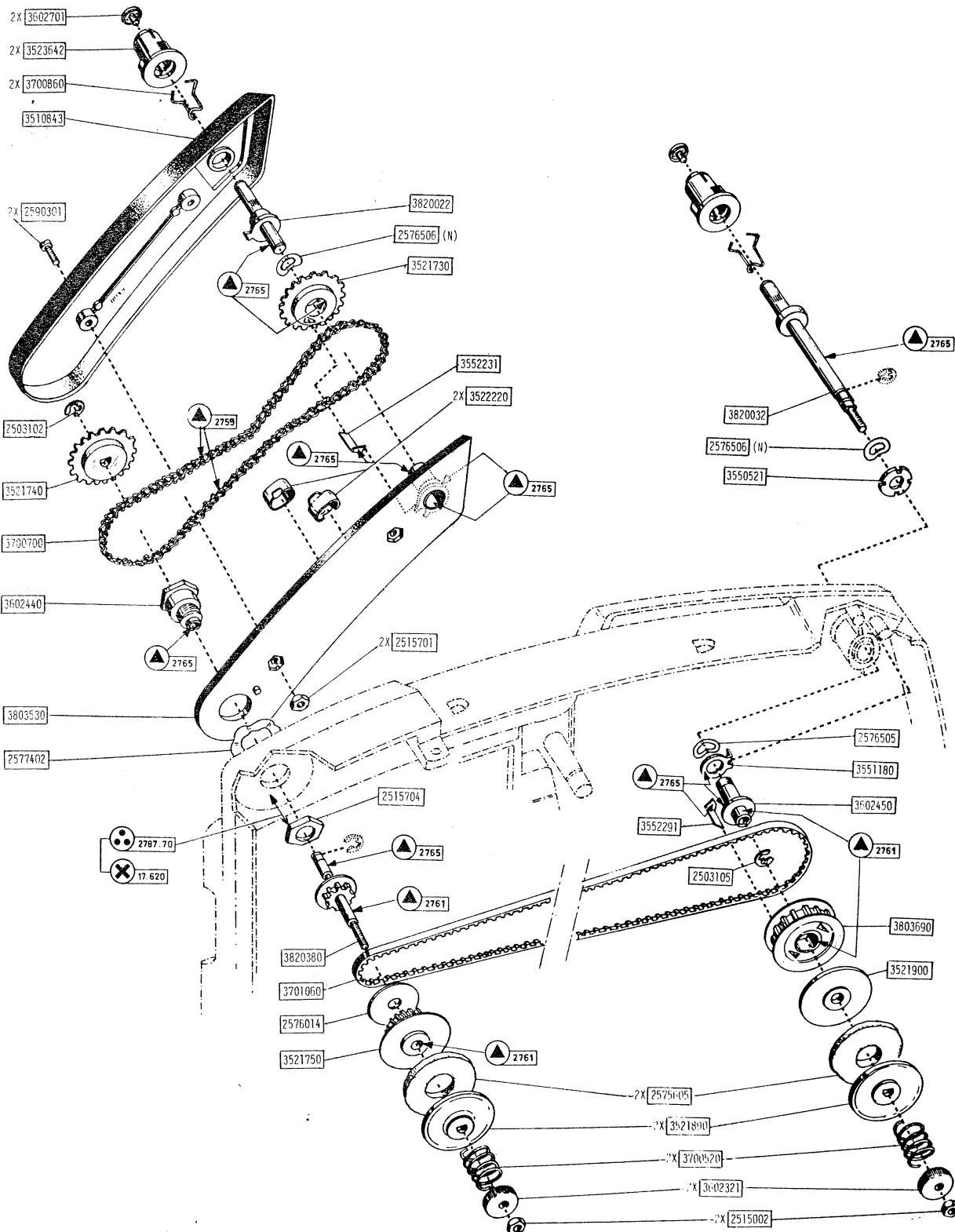
02.67

\*

**G****1**

**Bras - bobine  
Spulenarme  
Spool Arms**

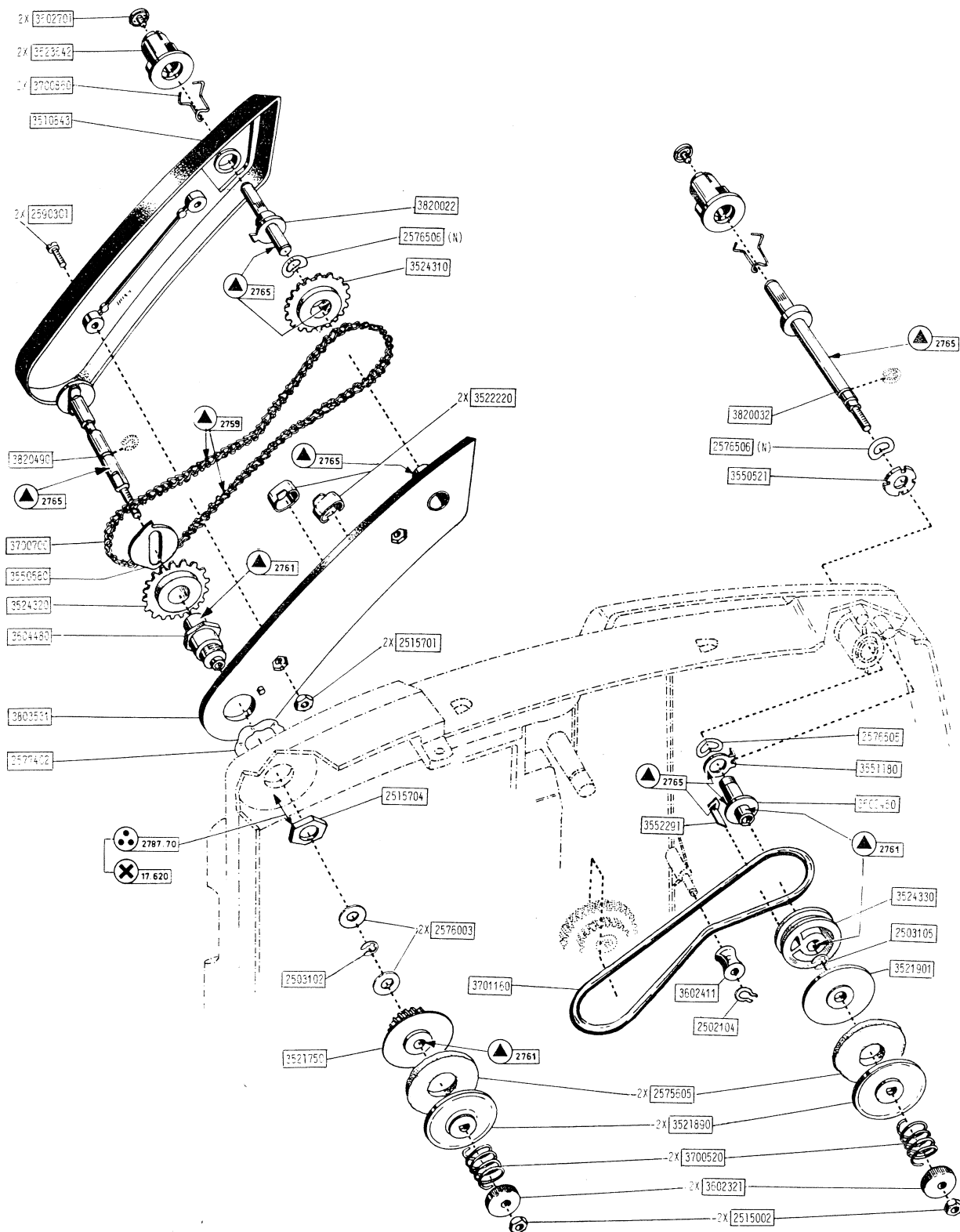
50 Hz: 100 001  
60 Hz: 130 001



1

**PD**

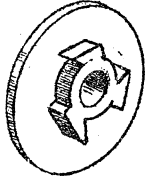
# Bras-bobine Spulenarme Spool Arms

**SM8**50 Hz: 107 254  
60 Hz: 131 932**PB**

11.67

\*

**H****1.1**

|                                                                           |                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                    |                         |
|---------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|
| <b>FM</b>                                                                 | 1<br>Bras-bobine<br>Spulenarme<br>Spool arms                                                                             | 2<br>3<br>SMB<br>50 Hz: 100 001<br>60 Hz: 130 001 →                                                                                                                                                                                                                                                                                                | 4<br>5<br><b>BOLEX</b>  |
| 15<br><b>Anciennes pièces</b><br><b>Alte Teile</b><br><b>Former parts</b> | 16<br><b>Nouvelles pièces</b><br><b>Neue Teile</b><br><b>New parts</b>                                                   | 17<br><b>Observations</b><br><b>Bemerkungen</b><br><b>Remarks</b>                                                                                                                                                                                                                                                                                  |                         |
| 1<br>3521900                                                              | ① (3521900 †)<br>② 3521901<br>1 2/1<br> | (F) La nouvelle pièce comporte 3 dents pour permettre un entraînement plus rapide lors de l'inversement de marche.<br>(D) Das neue Teil hat 3 Zähne, um bei Umkehrung der Bewegungsrichtung einen rascheren Antrieb zu gestatten.<br>(E) The new part has 3 dents, in order to permit quicker drive when changing the sens of rotation.<br>(11.67) |                         |
|                                                                           |                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                    |                         |
| 6<br><b>PB</b>                                                            | 7<br>11.67                                                                                                               | 8<br>*                                                                                                                                                                                                                                                                                                                                             | 9<br>PD - H - 1 - 02.67 |
|                                                                           |                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                    | 10<br><b>1</b>          |



**FM**Bras-bobine  
Spulenarme  
Spool arms

SM8

50 Hz : 100 001  
60 Hz : 130 001 →**BOLEX**15  
Anciennes pièces  
Alte Teile  
Former parts16  
Nouvelles pièces  
Neue Teile  
New parts17  
Observations  
Bemerkungen  
Remarks

374...442 gcm

270...340 gcm

44...52 g

32...40 g

50 Hz : 112 035  
60 Hz : 134 302 →

(F) Le couple de la friction de l'axe bobine avant est réduit pour éviter l'arrachage des perforations sur le débiteur supérieur.

(D) Das Drehmoment der Friktion an der vorderen Spulenachse wird verringert, um das Ausreißen der Perforation an der oberen Wickeltrommel zu verhindern.

(E) The torque of the friction at the front spool axle is reduced, with a view to avoiding that the perforation is torn at the upper sprocket. (05,68)

**PB**

05.68

\*

IT - H1 - 1 - 06.67

**1**

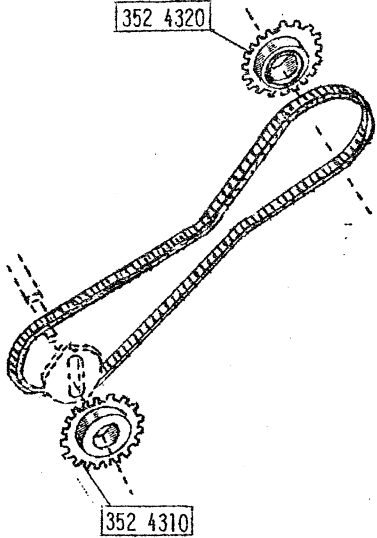
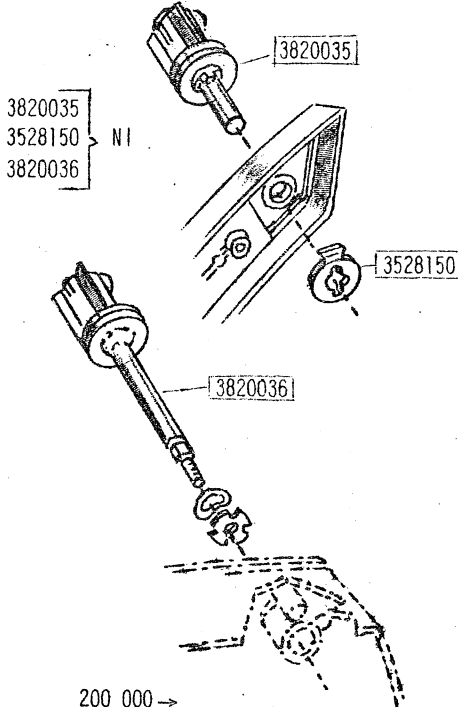
**FM**

Bras bobine  
Spulenarm  
Spool Arms

SM8

50 Hz: 107 254  
60 Hz: 131 932

**BOLEX**

| <p>15</p> <p>Anciennes pièces<br/>Alte Teile<br/>Former parts</p>             | <p>16</p> <p>Nouvelles pièces<br/>Neue Teile<br/>New parts</p>                     | <p>17</p> <p>Observations<br/>Bemerkungen<br/>Remarks</p>                                                                                   |
|-------------------------------------------------------------------------------|------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|
| <p>1</p> <p>352 4310</p> <p>352 4320</p>                                      |   | <p>F) Erreur d'impression.<br/>D) Druckfehler.<br/>E) Misprint.</p> <p>02.73</p>                                                            |
| <p>2</p> <p>2X 3602701</p> <p>2X 3523642</p> <p>2X 3700860</p> <p>3820032</p> |  | <p>F) Introduction de nouveaux axes bobines.<br/>D) Einführung neuer Spulenachsen.<br/>E) Introduction of new spool axles.</p> <p>11.74</p> |
|                                                                               |                                                                                    |                                                                                                                                             |

**PB**

12.74

\*

PD - H - 1.1 - 11.67

**1**

IT

# Bras - bobine Spulenarme Spool Arms

SM 8

50 Hz: 100 001  
60 Hz: 130 001(F) 1. Friction axes bobines

Le couple sur la bobine avant est compris entre

374...442 gcm

celui de la bobine arrière entre

255...323 gcm

Pour mesurer, utiliser une bobine de film 120 m pleine et le dynamomètre BJ 483 (voir fig. 1).

Couple sur la bobine avant (projecteur en marche arrière):

44...52 g

couple sur la bobine arrière (projecteur en marche avant):

30...38 g

Pour régler le couple, agir sur l'écrou moleté (a) fig. 2, bloquer avec contre-écrou. (Attention: Les feutres des frictions doivent être secs et propres).

Pour démonter les axes de bobines, utiliser la clé BJ 1196.

(D) 1. Friktion der Spulenachsen

Das Drehmoment der vorderen Spule muss zwischen

374...442 gcm

liegen, dasjenige der hinteren Spule zwischen

255...323 gcm

Gemessen wird mit einer vollen 120-m-Spule und dem Dynamometer BJ 483 (siehe Abb. 1).

Bremskraft an der vorderen Spule (Projektor rückwärts laufend):

44...52 g

an der hinteren Spule (Projektor vorwärts laufend):

30...38 g

Zum Justieren wird die Rändelmutter (a) verstellt, (Abb. 2), welche durch eine Gegenmutter gesichert ist. (Achtung: Die Friktionsscheiben aus Filz müssen sauber und trocken sein). Bei der Demontage der Spulenachsen ist der Schlüssel BJ 1196 zu verwenden.

(E) 1. Friction of spool axes

The torque of the front spool must be between

374...442 gcm

that of the rear spool between

255...323 gcm

Measure with a full 400' (120 m) spool and dynamometer BJ 483 (see fig. 1).

Brake force at the front spool (projector running backward):

44...52 g

at the rear spool (projector running forward):

30...38 g

Adjust by turning milled nut (a) (fig. 2), that is secured by a lock-nut. (Attention: The felt friction disks must be clean and dry).

When stripping the spool axes, use key BJ 1196.

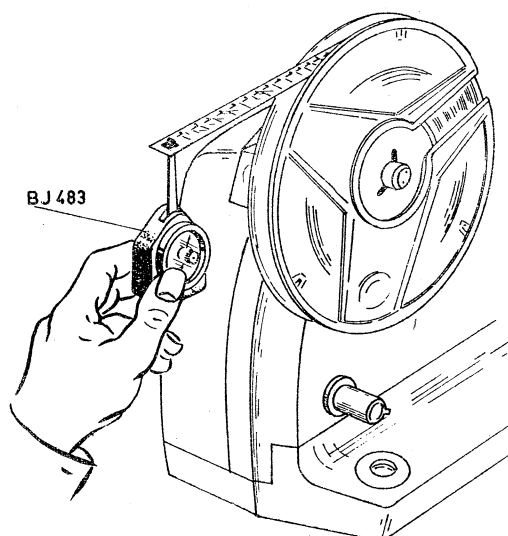


Fig. 1

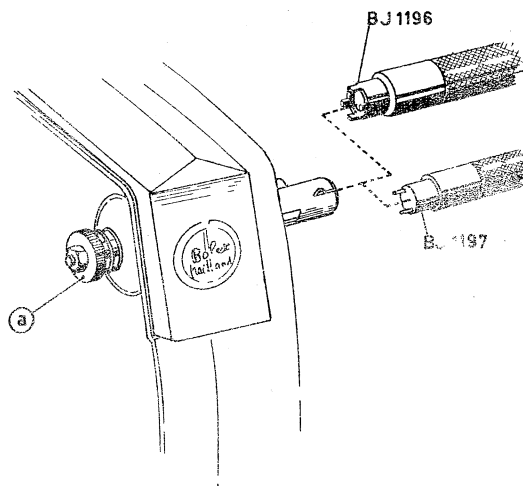


Fig. 2

PB

06.67

\*

H  
1

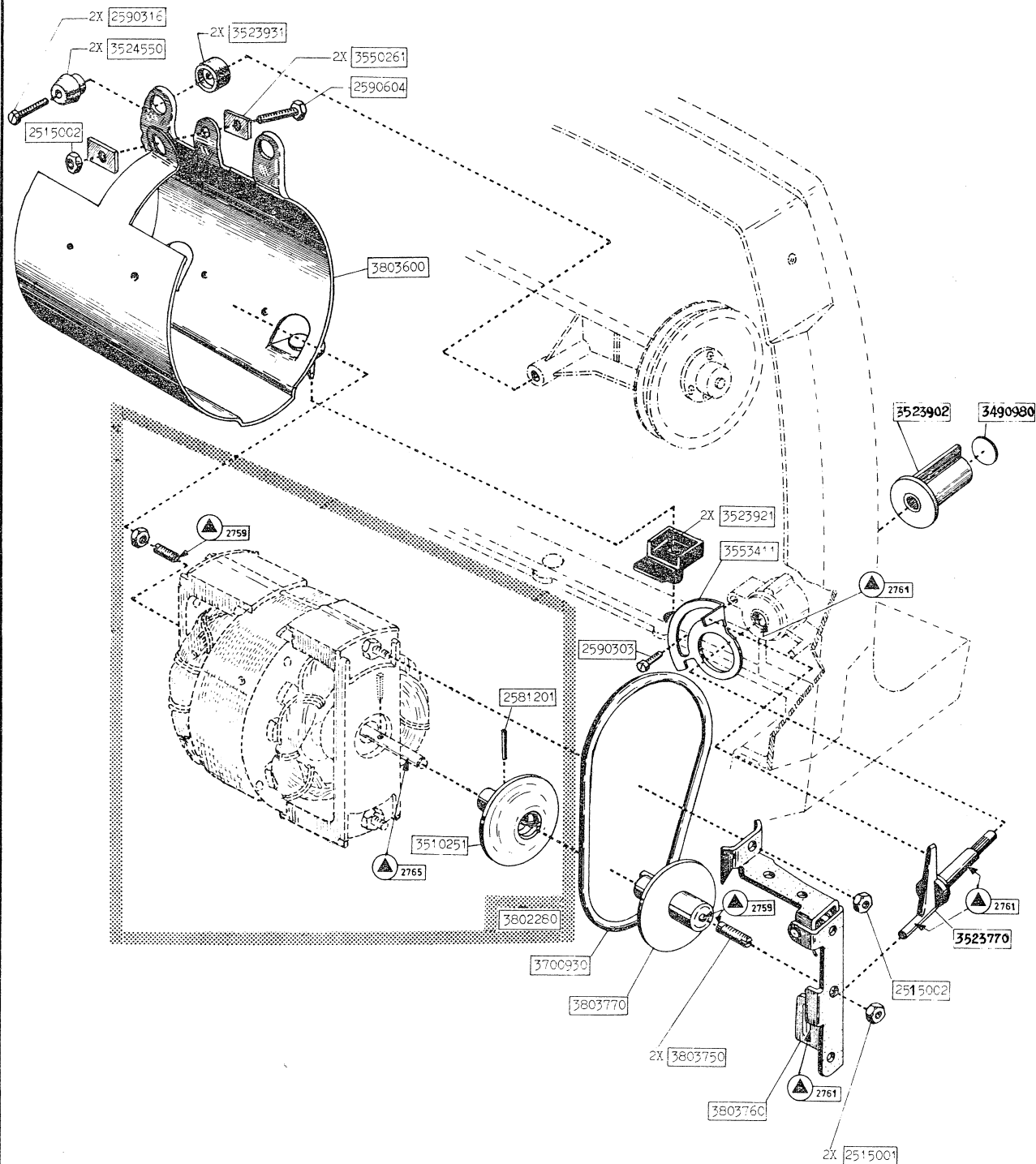
I

PD

Moteur  
Motor  
Motor

SM8

50 Hz : 100 001  
60 Hz : 130 001



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PB

10.68

\*

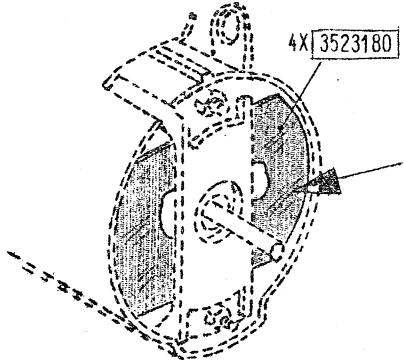
J

1

**FM**Moteur  
Motor  
Motor

SM8

50 Hz: 100 001  
60 Hz: 130 001 →**BOLEX**

| 15<br>Anciennes pièces<br>Alte Teile<br>Former parts | 16<br>Nouvelles pièces<br>Neue Teile<br>New parts                                                                                                                                                    | 17<br>Observations<br>Bemerkungen<br>Remarks                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1                                                    |                                                                                                                     | <p>(F) Adjonction de 4 plaquettes isolantes (<u>valable uniquement pour la version Canada</u>).</p> <p>(D) Einführung von 4 Isolierplättchen (<u>nur für Canada-Ausführung gültig</u>).</p> <p>(E) Introduction of 4 insulating plates (<u>for Canadian version only</u>).</p> <p>(01.69)</p>                                                                                                                                                                                                  |
| 2                                                    | <p>① (3523902) NI 1/2</p> <p>② 3523903</p> <p>I 2/1</p> <div><p>3523914<br/>2X 3523894<br/>3525361<br/>3X 3523753</p></div> <p>50 Hz : 119 099<br/>60 Hz : 136 271 →</p> | <p>(F) Introduction d'un bouton 18/24 i./s chrome brillant.</p> <p>(D) Einführung eines blankverchromten Knopfes 18/24 B./s.</p> <p>(E) Introduction of a bright chromium plated setting knob 18/24 f./s.</p> <p>(04.69)</p>                                                                                                                                                                                                                                                                   |
| 3                                                    | <p>3802280</p> <p>3802283</p> <p>50 Hz : 118 201 →</p>                                                                                                                                               | <p>(F) Introduction d'un moteur avec isolation supplémentaire des fils de sorties.</p> <p><u>Valable uniquement pour la version scandinave.</u></p> <p>(D) Einführung eines Motors mit zusätzlicher Isolierung der Ausgangsdrähte.</p> <p><u>Nur gültig für die Skandinavien-Ausführung.</u></p> <p>(E) Introduction of a motor with supplementary insulation of the secondary wires.</p> <p><u>Valid for Scandinavian version only.</u> (04.69)</p>                                           |
| 4                                                    | <p>3524650</p> <p>50 Hz : 118 201 →</p>                                                                                                                                                              | <p>(F) Introduction d'une plaque isolante qui sera glissée entre le flasque du moteur et la platine principale.</p> <p><u>Valable uniquement pour la version scandinave.</u></p> <p>(D) Einführung einer Isolierplatte zwischen dem Motorflansch und der Hauptwerkplatte.</p> <p><u>Nur gültig für die Skandinavien-Ausführung.</u></p> <p>(E) Introduction of an insulating plate between motor flange and main working plate.</p> <p><u>Valid for Scandinavian version only.</u> (04.69)</p> |
|                                                      |                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| 6<br>PB                                              | 7<br>04.69                                                                                                                                                                                           | 8<br>*<br>9<br>PD - J - 1 - 10.68<br>1                                                                                                                                                                                                                                                                                                                                                                                                                                                         |

|                                                                                           |                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                         |
|-------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|
| <div style="border: 1px solid black; padding: 5px; text-align: center;"> <b>FM</b> </div> | 1<br>Moteur<br>Motor<br>Motor                                                                   | 2<br>SM8<br>50 Hz: 100 001<br>60 Hz: 130 001 →                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 3<br><b>BOLEX</b>       |
| 15<br>Anciennes pièces<br>Alte Teile<br>Former parts                                      | 16<br>Nouvelles pièces<br>Neue Teile<br>New parts                                               | 17<br>Observations<br>Bemerkungen<br>Remarks                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                         |
| 5                                                                                         | 2X <span style="border: 1px solid black; padding: 2px;">3605700</span><br><br>60 Hz : 138 121 → | (F) Introduction d'un canon d'épaisseur entre les rondelles en "Viola" 3523931 et les bossages de la platine principale pour éviter que la courroie moteur frotte contre le bâti.<br>(Valable uniquement pour la version 60 Hz, mais peut être également introduit sur 50 Hz, si nécessaire).<br>(D) Einführung einer Abstandshülse zwischen den "Viola"-Scheiben 3523931 und den Vorsprüngen der Hauptwerkplatte, damit der Motortreibriemen nicht am Gehäuse schleift.<br>(Gilt nur für die Ausführung 60 Hz, kann jedoch auch bei 50 Hz-Projektoren angebracht werden, falls sich derartige Schwierigkeiten ergeben sollten).<br>(E) Introduction of a spacer sleeve between the "Viola"-disks 3523931 and the bosses at the mounting plate in order to avoid that the motor belt rubs at the casing.<br>(Only valid for the 60 Hz version, can however also be fitted on 50 Hz projectors in case similar problems should arise).<br><div style="text-align: right;">(11.69)</div> |                         |
|                                                                                           |                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                         |
| 6<br><b>PB</b>                                                                            | 7<br>11.69                                                                                      | 8<br>*                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 9<br>PD - J - 1 - 10.68 |

**FM**

Moteur  
Motor  
Motor

SMB

50 Hz: 100 001  
60 Hz: 130 001 →

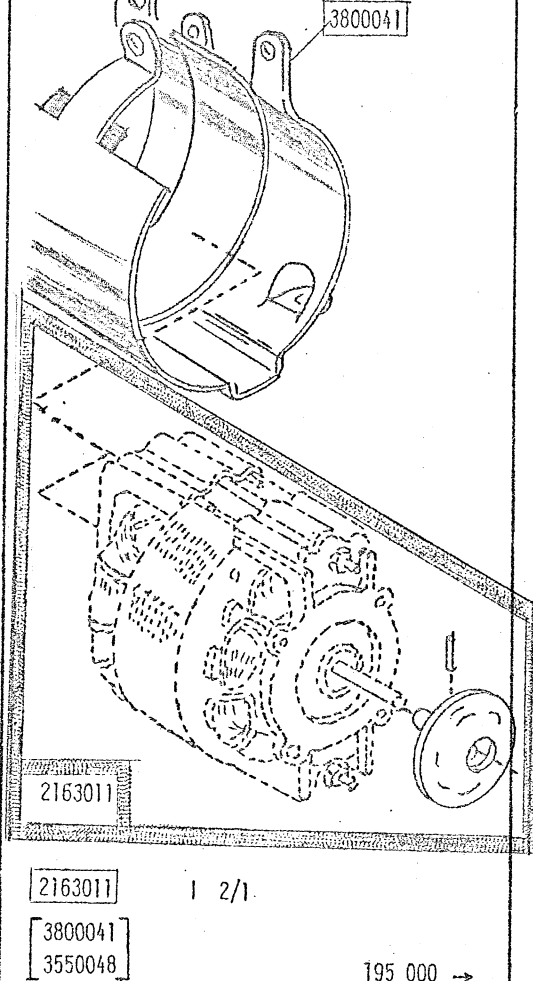
**BOLEX**

15  
**Anciennes pièces**  
**Alte Teile**  
**Former parts**

16  
**Nouvelles pièces**  
**Neue Teile**  
**New parts**

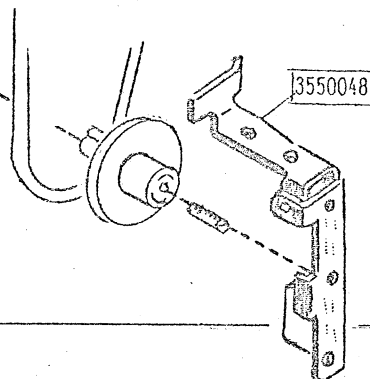
17  
**Observations**  
**Bemerkungen**  
**Remarks**

6  
(3802280 †)  
(3802283 †)  
(3803600 †)  
(3803760 †)

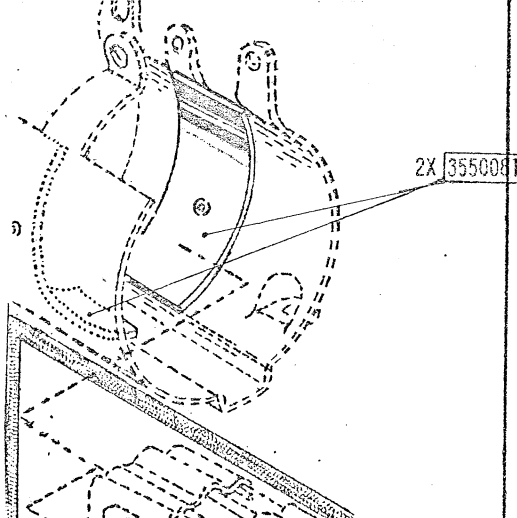


F) Introduction d'un nouveau moteur pour des raisons d'approvisionnement.  
D) Aus Versorgungsgründen wird ein neuer Motor eingeführt.  
E) Introduction of a new motor for reasons of supplies.

07.74



7  
(3800041 †)



F) En cas de remplacement du moteur 3802280 par le 2163011, ajouter seulement 2X 3550081 dans le support 3803600.  
D) Beim Ersetzen des Motors 3802280 durch 2163011 nur 2X 3550081 in die Halterung 3803600 beifügen.  
E) In case of replacement of motor 3802280 by the new type 2163011 add two blades 3550081 in shielding 3803600.

09.75

**PB**

08.75

\*

PD - J - 1 - 10.68

**3**

IT

# Moteur Motor Motor

SM 8

 50 Hz:100 001  
 60 Hz:130 001


## (E) Adjustment of Running Speeds fig. 1

Prior to adjusting speeds, always warm the projector up during 5 minutes, lamp normally switched on.  
 Always start with adjusting the 24 f./s speed.  
 When doing that, turn knob (b) to its stop (f) and set screw (a).  
 For the adjustment of the 18 f./s speed, turn knob (b) to its stop at sector (c), slightly loosen screw (d), and move sector in direction of arrow (x).

Note : Running speeds can be checked with the aid of revolution counter BJ 1056 or Strobotac BJ 1166.

The adjustment is done at the upper sprocket.

### 1) With revolution counter BJ 1056

|         |           |           |
|---------|-----------|-----------|
| 24 f./s | . . . . . | 90 r.p.m. |
| 18 f./s | . . . . . | 70 r.p.m. |

### 2) With Strobotac BJ 1166

|         |           |             |
|---------|-----------|-------------|
| 24 f./s | . . . . . | 1440 r.p.m. |
| 18 f./s | . . . . . | 1080 r.p.m. |

### 3) Tolerances

|         |                        |
|---------|------------------------|
| 24 f./s | $\pm 0.5 \text{ f./s}$ |
| 18 f./s | $\pm 0.5 \text{ f./s}$ |

If the motor has too much axial play correct by acting on screw (e), but the motor must, of course, always run freely.

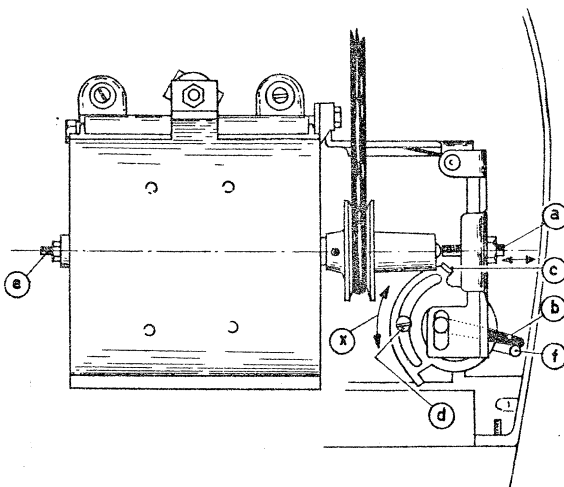


Fig.1

PB

06.67

E

J

1

I

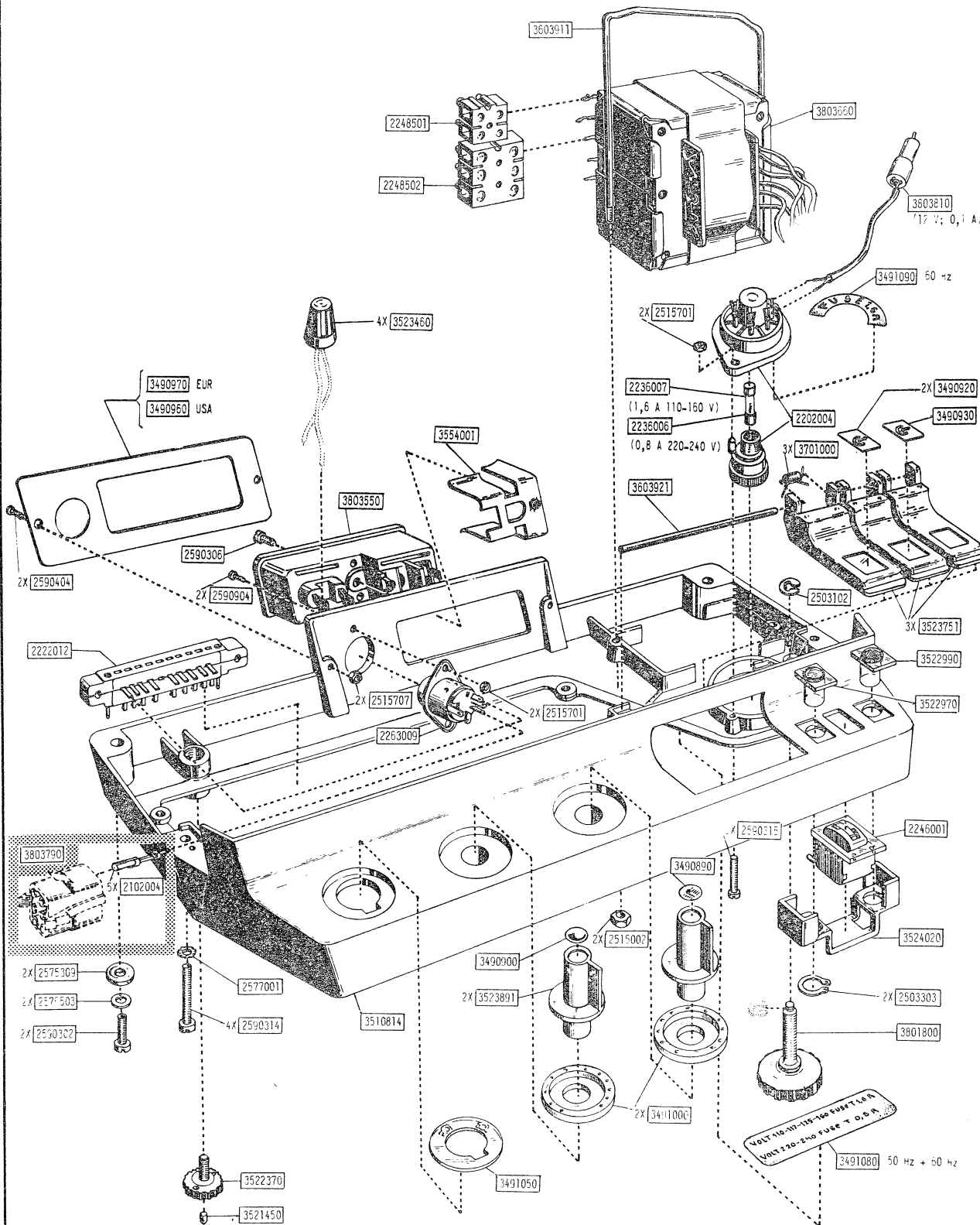


PD

Socle  
Socket  
Base

SM 8

50 Hz : 100 001  
60 Hz : 130 001



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PB

02.67

\*

K

1

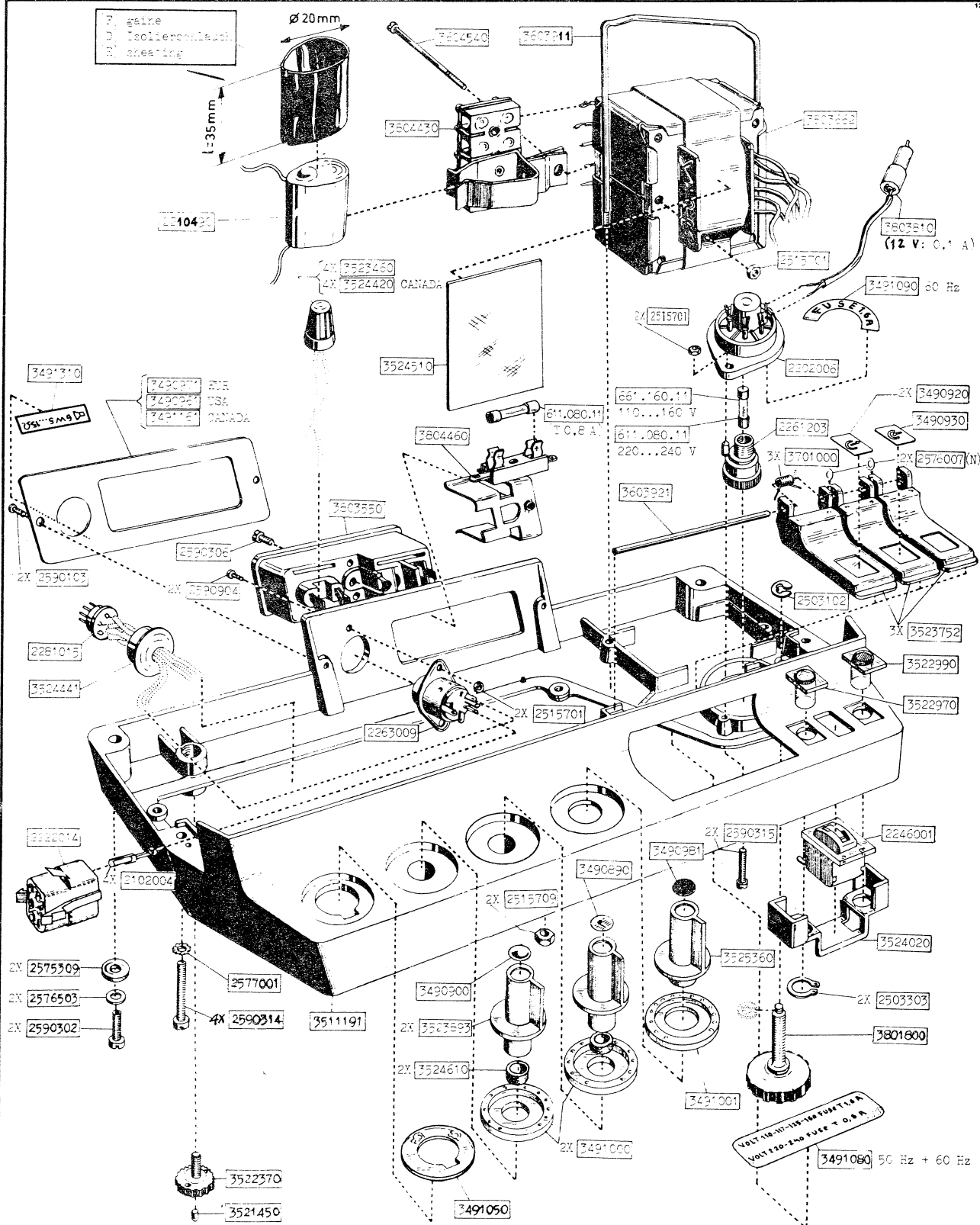


**PD**

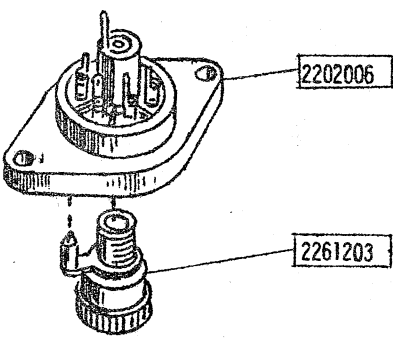
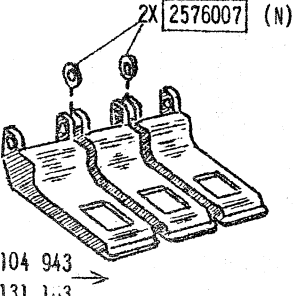
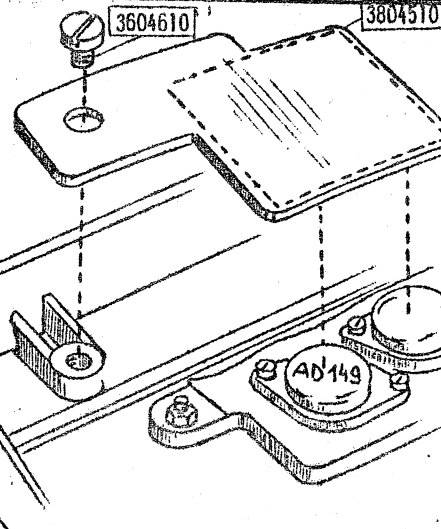
Socle  
Sockel  
Base

**SM 8**

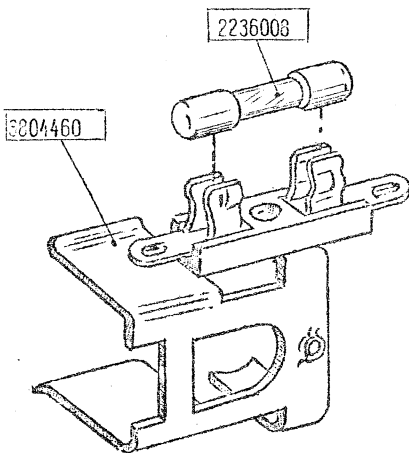
50 Hz: 114 646  
60 Hz: 135 201





| <div>1</div> <div>FM</div>                                                                                                                                                                                                                                                                                                                                                         | <div>Socle<br/>Sockel<br/>Base</div>                                                | <div>2</div> <div>3</div> <div>SM8</div> <div>4</div> <div>50 Hz: 100 001 →<br/>60 Hz: 130 001 →</div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | <div>5</div> <div>BOLEX</div> |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|
| <div>15</div> <div>Anciennes pièces<br/>Alte Teile<br/>Former parts</div>                                                                                                                                                                                                                                                                                                          | <div>16</div> <div>Nouvelles pièces<br/>Neue Teile<br/>New parts</div>              | <div>17</div> <div>Observations<br/>Bemerkungen<br/>Remarks</div> <div>18</div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                               |
| <div>1</div> <div>2202004</div>                                                                                                                                                                                                                                                                                                                                                    |    | <div>(F) Pièces livrables séparément maintenant.<br/>(D) Teile sind jetzt getrennt lieferbar.<br/>(E) Parts are available separately now.</div> <div>(04.67)</div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                               |
| <div>2</div>                                                                                                                                                                                                                                                                                                                                                                       |   | <div>(F) Montage selon nécessité de rondelles entre les touches pour corriger l'écartement.<br/>(D) Falls erforderlich werden Distanzscheiben zwischen den Tasten montiert, um die Abstände auszugleichen.<br/>(E) In case of necessity, distance washers are fitted between keys, in order to compensate for distances.</div> <div>(05.67)</div>                                                                                                                                                                                                                                                                                                                                                       |                               |
| <div>3</div> <div>3X 3523751<br/>2X 3523891</div>                                                                                                                                                                                                                                                                                                                                  | <div>3X 3523752<br/>2X 3523892</div> <div>50 Hz: 103 265<br/>60 Hz: 130 401 →</div> | <div>(F) Amélioration de l'aspect des touches de commande d'enregistrement/lecture et des boutons de tonalité et de volume.<br/>(D) Verbessertes Aussehen der Tasten für Aufnahme/Wiedergabe und der Knöpfe für Tonblende, bzw. Lautstärke.<br/>(E) Improved finish of the recording/playback keys and of the control knobs for tons and volume control, resp.</div> <div>(05.67)</div>                                                                                                                                                                                                                                                                                                                 |                               |
| <div>4</div> <div>(F) <u>ATTENTION</u> : Plaque 3804510 doit bien s'appuyer sur les 2 Transistors. La plier un peu si nécessaire !<br/>(D) <u>ACHTUNG</u> : Die Platte 3804510 muss gut auf beiden Transistoren aufliegen. Falls notwendig, Platte leicht biegen!<br/>(E) <u>ATTENTION</u> : Sheet 3804510 must rest properly on both transistors. Bend sheet if necessary !</div> |  | <div>(F) <u>Pour service après-vente seulement</u> :<br/>Introduction d'une plaque de refroidissement pour les transistors de sortie I et II pour éviter leur surchauffement et par la suite la détérioration du haut-parleur incorporé.<br/><u>ATTENTION</u> : Il est <u>OBLIGATOIRE</u> d'ajouter cette plaque à tous les projecteurs neufs de votre stock, ainsi que sur tous les projecteurs vous parvenant pour une raison ou une autre !<br/>(D) <u>Nur für den Kundendienst</u> :<br/>Einführung einer Alu-Platte zur Ableitung der Wärme von den Ausgangstransistoren I und II, damit diese nicht überhitzen und in der Folge der eingebaute Lautsprecher beschädigt wird.</div> <div>./.</div> |                               |
| <div>6</div> <div>PB</div>                                                                                                                                                                                                                                                                                                                                                         | <div>7</div> <div>06.67</div>                                                       | <div>8</div> <div>*</div> <div>PD - K - 1 - 02.67</div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | <div>9</div> <div>1</div>     |

50 Hz: 100 001 →  
60 Hz : 100 001 →

|    |                                                |    |                                                                                                                                 |    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |    |
|----|------------------------------------------------|----|---------------------------------------------------------------------------------------------------------------------------------|----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|
| 15 | Anciennes pièces<br>Alte Teile<br>Former parts | 16 | Nouvelles pièces<br>Neue Teile<br>New parts                                                                                     | 17 | Observations<br>Bemerkungen<br>Remarks                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 18 |
| 4  |                                                |    |                                                                                                                                 |    | <p>ACHTUNG : Diese Alu-Platte <u>muss</u> in sämtliche neue, in Ihrem Lager befindlichen, sowie auf allen Projektoren die Ihnen aus irgend einem Grunde in die Hände gelange eingebaut werden !</p> <p>(E) <u>For after-sales service only :</u></p> <p>Introduction of an aluminium sheet for dissipation of excessive heat on output transistors I and II, lest they do not get overheated, as a consequence of which the built-in loudspeaker would be damaged.</p> <p><u>ATTENTION :</u> It is <u>OBLIGATORY</u> to mount this aluminium sheet into all new projectors being in your stock and into all projectors reaching your premises for one reason or another ! (06.67)</p>                                                                                                                                                                                                                                                                                                                              |    |
| 5  | 3554001                                        |    |  <p>50 Hz : 106 454<br/>60 Hz : 131 633 →</p> |    | <p>(F) Introduction d'un fusible à action semi-retardée, sur le retour de l'alimentation à basse tension de l'ampli dans le but de protéger le transformateur d'alimentation et les diodes dans le cas de court-circuit prolongés. Pour modifier les projecteurs inférieurs à ces no. d'introduction, consulter les onglets N3 et 01.</p> <p>(D) Einführung einer halbträgen Sicherung auf der Niederspannungsrückleitung des Verstärkers, damit der Netztransformator und die Dioden bei längeren Kurzschlüssen geschützt sind. Wegen der Änderung von Projektoren deren Seriennummer unter den nebenstehenden Einführungsnummern liegt, siehe Abschnitte N3 und 01.</p> <p>(E) Introduction of a semi-retarded fuse on the low voltage return conductor of the amplifier, in order to protect the mains transformer and the diodes in case of longer short-circuits. For modification of projectors with serial numbers lower than the ones given as introduction limits, consult sections N3 and 01 (06.67)</p> |    |
| 6  | 2X 2515002                                     |    | 2X 2515709<br><p>50 Hz : 106 454<br/>60 Hz : 131 633 →</p>                                                                      |    | <p>(F) L'épaisseur des écrous a été augmentée pour diminuer la saillie de la bride de maintien du transformateur en relation avec les écrous.</p> <p>(D) Die Stärke der Muttern ist erhöht worden, damit die Befestigungsschelle des Transformators nicht so weit herausragt.</p> <p>(E) Thickness of nuts increased, lest the fixing clamp of the transformer does not protrude so much. (06.67)</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |    |

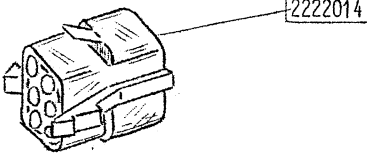
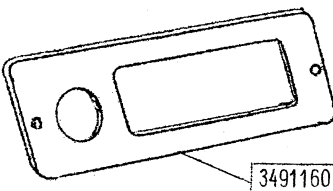
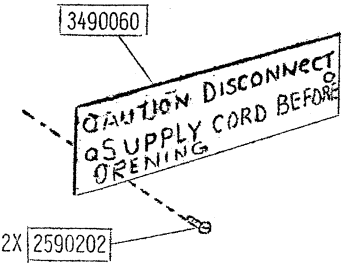
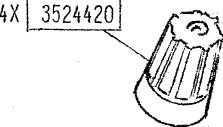
FM

Socle  
Socket  
Base

SM8

50 Hz: 100 001  
60 Hz: 130 001 →

BOLEX

| Anciennes pièces<br>Alte Teile<br>Former parts | Nouvelles pièces<br>Neue Teile<br>New parts                                          | Observations<br>Bemerkungen<br>Remarks                                                                                                                                                                                                                                                                                                                                             |
|------------------------------------------------|--------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 7 3803790                                      |     | (F) Maintenant livrable comme pièce de rechange.<br>(D) Jetzt als Ersatzteil verfügbar.<br>(E) Now available as spare part.<br><br>(11.67)                                                                                                                                                                                                                                         |
| 8                                              |     | (F) Introduction d'une plaquette signalétique valable pour le Canada.<br>(D) Einführung eines Typenschildes für Kanada.<br>(E) Introduction of a type plate for Canada.<br><br>(11.67)                                                                                                                                                                                             |
| 9                                              |    | (F) Pour la version Canada :<br>Introduction d'une plaquette de sécurité fixée sur le fond avec 2 vis.<br>(D) Für Version Kanada :<br>Einführung eines am Boden mit 2 Schrauben befestigten Warnschildes.<br>(E) For version Canada :<br>Introduction of a warning plate, fixed with 2 screws at the bottom.<br><br>(11.67)                                                        |
| 0                                              |   | (F) Introduction de capuchons de connexions, valables pour l'exécution Canada + USA.<br>(D) Einführung von in den USA und Kanada genehmigten "Kontakthütchen".<br>(E) Introduction of connecting "hats" approved in the USA and Canada.<br><br>(11.67)                                                                                                                             |
| 1                                              | 3604610 3604620                                                                      | (F) Erreur d'impression. (Voir position 4)<br>(D) Druckfehler. (Siehe Position 4).<br>(E) Misprint. (See position 4)<br><br>(11.67)                                                                                                                                                                                                                                                |
| 12                                             | 2236007<br>2236006<br>2236008<br>} 2X 611.160.11 (T 1,6 A)<br>} 611.080.11 (T 0,8 A) | (F) Nomenclature modifiée pour les fusibles.<br>Le fusible de protection de l'amplificateur a été changé en 0,8 A retardé.<br>(D) Geänderte Bezeichnung der Sicherungen.<br>Die Schutzsicherung des Verstärkers ist in 0,8 A träge geändert.<br>(E) Modified nomenclature of fuses.<br>The fuse protecting the amplifier has been changed to 0.8 A, delayed action.<br><br>(10.67) |

PB

11.67

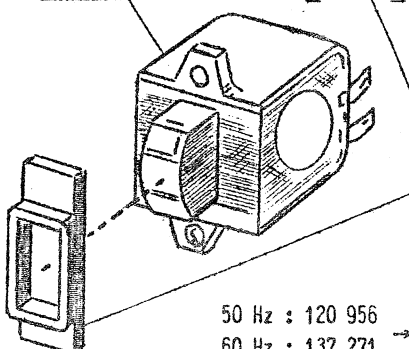
\*

PD - K - 1 - 02.67

3

|                                                                                                                                                     |                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                               |                                              |
|-----------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------|----------------------------------------------|
| <div>FM</div>                                                                                                           | <div>           Socle<br/>           Socket<br/>           Base         </div>                                                      | <div>SM8</div> <div>           50 Hz: 100 001<br/>           60 Hz: 130 001 →         </div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | <div>BOLEX</div>                |                                              |
| <div>           15<br/>           Anciennes pièces<br/>           Alte Teile<br/>           Former parts         </div> | <div>           16<br/>           Nouvelles pièces<br/>           Neue Teile<br/>           New parts         </div>                | <div>           17<br/>           Observations<br/>           Bemerkungen<br/>           Remarks         </div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                               |                                              |
|                                                                                                                                                     | <div>           Projecteurs : 50 Hz 107 254<br/>           Projektoren : 60 Hz 131 932 →<br/>           Projectors :         </div> | <div>           (F) Suite à l'introduction d'un nouveau ventilateur, une modification du câblage lors du changement de fréquence de 50 Hz à 60 Hz ou vice-versa n'est plus nécessaire.<br/>           (D) Im Anschluss an die Einführung eines neuen Ventilators braucht bei einer Frequenzänderung von 50 Hz auf 60 Hz oder umgekehrt die Verdrahtung nicht mehr geändert zu werden.<br/>           (E) Following to the introduction of a new fan, it is no longer necessary to modify the wiring in case of a change of frequency from 50 Hz to 60 Hz or vice-versa.<br/>           (12.67)         </div> |                                                               |                                              |
|                                                                                                                                                     |                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                               |                                              |
| <div>PB</div>                                                                                                         | <div>12.67</div>                                                                                                                  | <div>*</div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | <div>IT - K1 - 1 - 06.67</div> | <div>1</div> |



|                                                |  |                                                                                                                                                                                               |  |                                                                                                                                                                                                                                                                                     |  |                    |  |
|------------------------------------------------|--|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--------------------|--|
| 1                                              |  | 2                                                                                                                                                                                             |  | 3                                                                                                                                                                                                                                                                                   |  | 5                  |  |
| FM                                             |  | Socle<br>Sockel<br>Base                                                                                                                                                                       |  | SM8<br>50 Hz : 100 001<br>60 Hz : 130 001 →                                                                                                                                                                                                                                         |  | BOLEX              |  |
| 15                                             |  | 16                                                                                                                                                                                            |  | 17                                                                                                                                                                                                                                                                                  |  | 18                 |  |
| Anciennes pièces<br>Alte Teile<br>Former parts |  | Nouvelles pièces<br>Neue Teile<br>New parts                                                                                                                                                   |  | Observations<br>Bemerkungen<br>Remarks                                                                                                                                                                                                                                              |  |                    |  |
| 13 2X [611.080.11]<br>(T 0,8 A)                |  | 2X [611.080.12]<br>(T 0,8 A)                                                                                                                                                                  |  | (F) Nomenclature modifiée (voir aussi modification pos. 12).<br>(D) Teilnummernänderung (siehe auch Aenderung Pos. 12).<br>(E) Part-number modification (see also modification pos. 12).<br>(01.69)                                                                                 |  |                    |  |
| 14 [2246001]                                   |  | <p>① (2246001†) NI 1/2</p> <p>② [2246003] I 2/1 [3525690]</p>  <p>50 Hz : 120 956<br/>60 Hz : 137 271 →</p> |  | (F) Pour des raisons d'approvisionnement, introduction d'un nouveau vu-mètre.<br>(D) Einführung eines neuen Aussteuerungs-Anzeigers aus beschaffungstechnischen Gründen.<br>(E) Introduction of a new vu-meter, for reasons of procurement.<br>(08.69)                              |  |                    |  |
| 15 [3801800]                                   |  | <p>① (3801800†) NI 1/2</p> <p>② [3805363] I 2/1</p> <p>50 Hz : 120 803<br/>60 Hz : 137 271 →</p>                                                                                              |  | (F) Introduction d'un nouveau pied support afin d'augmenter la stabilité du projecteur.<br>(D) Einführung eines neuen Stützfusses, um die Stabilität des Gerätes zu verbessern.<br>(E) Introduction of a new support in order to improve the stability of the projector.<br>(08.69) |  |                    |  |
|                                                |  |                                                                                                                                                                                               |  |                                                                                                                                                                                                                                                                                     |  |                    |  |
| 6                                              |  | 7                                                                                                                                                                                             |  | 8                                                                                                                                                                                                                                                                                   |  | 9                  |  |
| PB                                             |  | 08.69                                                                                                                                                                                         |  | *                                                                                                                                                                                                                                                                                   |  | PD - K - 1 - 02.67 |  |
|                                                |  |                                                                                                                                                                                               |  |                                                                                                                                                                                                                                                                                     |  | 4                  |  |

|                                                |  |                                                                                                                                                                             |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  |                                    |  |    |  |       |  |
|------------------------------------------------|--|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|------------------------------------|--|----|--|-------|--|
| 1                                              |  | Socle<br>Sockel<br>Base                                                                                                                                                     |  | 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  | SM8                                |  | 3  |  | BOLEX |  |
|                                                |  |                                                                                                                                                                             |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  | 50 Hz: 107 254<br>60 Hz: 131 932 → |  | 4  |  |       |  |
| 15                                             |  | 16                                                                                                                                                                          |  | 17                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  |                                    |  | 18 |  |       |  |
| Anciennes pièces<br>Alte Teile<br>Former parts |  | Nouvelles pièces<br>Neue Teile<br>New parts                                                                                                                                 |  | Observations<br>Bemerkungen<br>Remarks                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  |                                    |  |    |  |       |  |
| 1                                              |  | <div><div>3490060</div><div>CAUTION DISCONNECT<br/>SUPPLY CORD BEFORE<br/>OPENING</div><div>2X 2590202</div></div>                                                          |  | (F) Pour la version Canada :<br>Introduction d'une plaquette de sécurité fixée sur le fond avec 2 vis aux côtés du sélecteur de tension.<br>(D) Für Version Kanada :<br>Einführung eines am Boden mit 2 Schrauben befestigten Warnschildes neben dem Spannungswähler.<br>(E) For version Canada :<br>Introduction of a warning plate, fixed with 2 screws at the bottom next to the voltage selector. (03.68)                                                                                                                                   |  |                                    |  |    |  |       |  |
| 2                                              |  | <div><div>2X 2590404</div><div>2X 2515707</div><div>3510814</div></div> <div><div>2X 2590103</div><div>3510815</div></div> <div>50 Hz : 111 542<br/>60 Hz : 132 250 →</div> |  | (F) Changement de fixation de la plaque des données signalétiques.<br>Suppression des vis et écrous remplacés par des vis autofiletantes, ce qui nécessite donc un changement de symbole du socle.<br>(D) Geänderte Befestigung des Typenschildes.<br>Schrauben und Muttern entfallen und werden durch Parker schrauben ersetzt, was eine Änderung des Symbols für den Sockel erfordert.<br>(E) Modified fixing of the type plate.<br>Bolts and nuts are replaced by Parker screws, which necessitates a different symbol for the base. (05.68) |  |                                    |  |    |  |       |  |
| 3                                              |  | <div><div>2X 3523892</div><div>2X 3523893</div><div>2X 3524610</div></div> <div><div>3523893</div><div>3524610</div></div> <div>50 Hz : 111 407<br/>60 Hz : 132 250 →</div> |  | (F) Introduction d'un nouveau bouton avec anneau en Vipla pour une amélioration de fixation du bouton sur la tige du potentiomètre.<br>(D) Einführung eines neuen Knopfes mit Vipla-Einsatz, um eine bessere Befestigung auf der Potentiometerachse zu erzielen.<br>(E) Introduction of a new knob with Vipla inset in order to get a better fixing on the axle of the potentiometer. (05.68)                                                                                                                                                   |  |                                    |  |    |  |       |  |
| 4                                              |  | <div><div>705.10.15</div><div>4P</div></div>                                                                                                                                |  | (F) Introduction d'une fiche 4 poles volante, ajoutée à chaque projecteur permettant de brancher celui-ci sur une installation sonore (ex.: chaîne Hi-Fi) existante.<br>(D) Einführung eines jedem Projektor mitgegebenen losen 4-poligen Steckers, wodurch ersterer an eine vorhandene Ausrüstung angeschlossen werden kann, z.B. Hi-Fi-Anlage.<br>(E) Introduction of a 4-pole plug, separately supplied with each projector, and permitting to connect the latter to an existing installation, e.g. a Hi-Fi system. (06.68)                  |  |                                    |  |    |  |       |  |
| 6                                              |  | 7                                                                                                                                                                           |  | 8                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  | 9                                  |  |    |  |       |  |
| PB                                             |  | 06.68                                                                                                                                                                       |  | *                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  | PD - K - 1.1 - 01.68               |  |    |  | 11    |  |

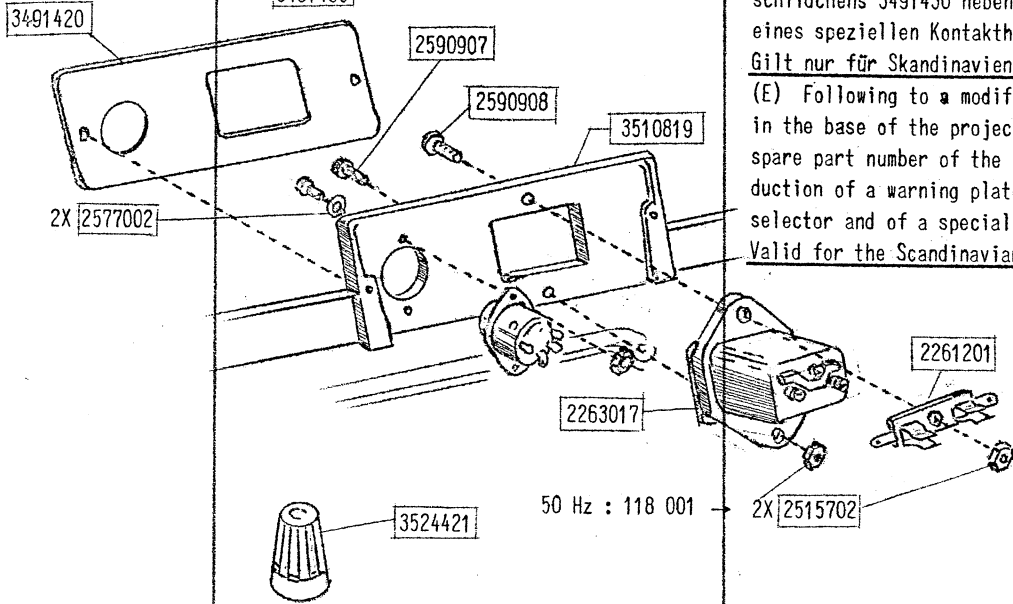
FM

Socle  
Sockel  
Base

SM8

50 Hz : 107 254  
60 Hz : 131 932 →

BOLEX

| 15<br>Anciennes pièces<br>Alte Teile<br>Former parts                                                                                                                                                                                                                                                                               | 16<br>Nouvelles pièces<br>Neue Teile<br>New parts                                                                                          | 17<br>Observations<br>Bemerkungen<br>Remarks                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>5</p> <p>3510815<br/>3803550<br/>2590306<br/>3904460</p>  <p>3491420</p> <p>2590907</p> <p>2590908</p> <p>3510819</p> <p>2X 2577002</p> <p>2263017</p> <p>2261201</p> <p>3524421</p> <p>50 Hz : 118 001</p> <p>2X 2515702</p> <p>(09.68)</p> | <p>3510819<br/>2263017<br/>2590908<br/>2590907<br/>2261201<br/>3524421<br/>3491420<br/>2X 2577002<br/>2X 2515702<br/>3491430</p>           | <p>(F) Le socle du projecteur change de symbole après modification de la prise de courant (voir fig. ci-contre). Adjonction d'une plaquette d'avertissement 3491430 près du sélecteur de tension et d'un capuchon spécial de connexion 3524421.<br/><u>Valable uniquement pour la version scandinave.</u><br/>(D) Wegen geänderter Anschlussdose im Projektorsockel (siehe nebenstehende Zeichnung) wird die Ersatzteilnummer des letzteren geändert. Einführung eines Warnschildchens 3491430 neben dem Spannungswähler sowie eines speziellen Kontakthütchens 3524421.<br/><u>Gilt nur für Skandinavienausführung.</u><br/>(E) Following to a modified connecting socket in the base of the projector (see drawing), the spare part number of the base is modified. Introduction of a warning plate 3491430 next to the voltage selector and of a special contact cap 3524421.<br/><u>Valid for the Scandinavian version only.</u></p> |
| <p>6</p> <p>611.080.11<br/>(T 0,8 A)</p>                                                                                                                                                                                                                                                                                           | <p>611.080.12<br/>(T 0,8 A)</p>                                                                                                            | <p>(F) Nomenclature modifiée.<br/>(D) Teilnummernänderung.<br/>(E) Part-number modification.</p> <p>(01.69)</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <p>2X 3523893</p>                                                                                                                                                                                                                                                                                                                  | <p>① 2X(3523893) NI 1/2<br/>② 2X 3523894<br/>3523914<br/>3523903<br/>3X 3523753<br/>1 2/1</p> <p>50 Hz : 119 099<br/>60 Hz : 136 271 →</p> | <p>(F) Introduction de nouveaux boutons volume et tonalité chromé brillant.<br/>(D) Einführung blankverchromter Knöpfe für Tonblende und Lautstärke.<br/>(E) Introduction of bright chromium plated tone and volume control knobs.</p> <p>(04.69)</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |

**FM**Socle  
Seckel  
Base

SMB

50 Hz : 107 254

60 Hz : 131 932 →

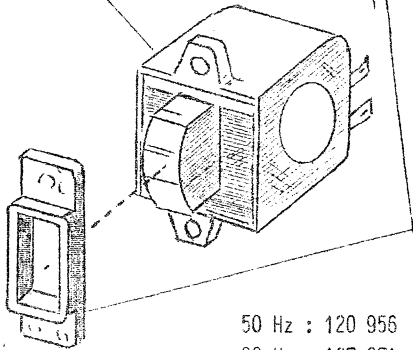
**BOLEX**

| 15<br>Anciennes pièces<br>Alte Teile<br>Former parts | 16<br>Nouvelles pièces<br>Neue Teile<br>New parts                                                                                             | 17<br>Observations<br>Bemerkungen<br>Remarks                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 3X <u>3523752</u>                                    | <p>① 3X(3523752) NI 1/2<br/>3523914<br/>3523903<br/>2X 3523894</p> <p>② 3X <u>3523753</u> I 2/1<br/>50 Hz : 119 099<br/>60 Hz : 136 271 →</p> | <p>(F) Introduction de nouvelles touches de commande chromé brillant.<br/>(D) Einführung blankverchromter Tasten.<br/>(E) Introduction of bright chromium plated keys.<br/>(04.69)</p>                                                                                                                                                                                                                                                                                                                                                                                                                         |
| 9                                                    | <p><u>3803663</u></p> <p>50 Hz : 118 201 →</p>                                                                                                | <p>(F) Introduction d'un transformateur avec isolations supplémentaires.<br/><u>Valable uniquement pour la version scandinave.</u><br/>(D) Einführung eines Transformators mit zusätzlicher Isolation.<br/><u>Nur gültig für die Skandinavien-Ausführung.</u><br/>(E) Introduction of a transformer with supplementary insulation.<br/><u>Valid for Scandinavian version only.</u><br/>(04.69)</p>                                                                                                                                                                                                             |
| 10                                                   | <p><u>3491081</u> 50 Hz : 118 201 →</p> <div>VOLT 110 - 117 - 125 Fuse T2 A<br/>VOLT 220 - 240 Fuse T1 A</div>                                | <p>(F) Introduction d'une plaquette autocollante à côté du sélecteur de tension.<br/><u>Valable uniquement pour la version scandinave.</u><br/>(D) Einführung eines Selbstklebeetiketts neben dem Spannungswähler.<br/><u>Nur gültig für die Skandinavien-Ausführung.</u><br/>(E) Introduction of a self-adhesive label next to the voltage selector.<br/><u>Valid for Scandinavian version only.</u><br/>(04.69)</p>                                                                                                                                                                                          |
| 11                                                   | <p><u>3491430</u> 50 Hz : 118 201 →</p> <div>Avlägsna stickproppen<br/>ur vägguttaget, innan<br/>Spänningsomkoppling företages</div>          | <p>(F) Introduction d'une plaquette autocollante d'avertissement pour les changements de tensions placée à côté de la plaquette de sélection de tension.<br/><u>Valable uniquement pour la version scandinave.</u><br/>(D) Einführung eines selbstklebenden Warnschildchens (Anweisung für Spannungswechsel) neben dem Etikett am Spannungswähler.<br/><u>Nur gültig für die Skandinavien-Ausführung.</u><br/>(E) Introduction of a self-adhesive warning label (instructions for changing voltage) besides the label at the voltage selector.<br/><u>Valid for Scandinavian version only.</u><br/>(04.69)</p> |
| 12                                                   | <p><u>3524471</u> 50 Hz : 118 201 →</p>                                                                                                       | <p>(F) Introduction d'une plaquette isolante entre la barrette de connexion et sa fixation.<br/><u>Valable uniquement pour la version scandinave.</u><br/>(D) Einführung eines Isolierplättchens zwischen dem Anschlussklemmenblock und seiner Halterung.<br/><u>Nur gültig für die Skandinavien-Ausführung.</u><br/>(E) Introduction of an insulating plate between the terminal block and its fixture.<br/><u>Valid for Scandinavian version only.</u><br/>(04.69)</p>                                                                                                                                       |

**FM**Socle  
Socket  
Base

SM8

50 Hz : 114 646  
60 Hz : 135 201 →**BOLEX**

| 15 | Anciennes pièces<br>Alte Teile<br>Former parts | 16 | Nouvelles pièces<br>Neue Teile<br>New parts                                                                                                                                                    | 17 | Observations<br>Bemerkungen<br>Remarks                                                                                                                                                                                                                       | 18 |
|----|------------------------------------------------|----|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|
| 1  | 611.080.11<br>(T 0,8 A)                        |    | 611.080.12<br>(T 0,8 A)                                                                                                                                                                        |    | (F) Nomenclature modifiée.<br>(D) Teilnummernänderung.<br>(E) Part-number modification. (01.69)                                                                                                                                                              |    |
| 2  | 2X [3523893]                                   |    | ① 2X(3523893 <sup>+</sup> ) NI 1/2<br>② 2X [3523894]<br>I 2/1<br>3523914<br>3523903<br>3X 3523753<br>3525361<br>50 Hz : 119 099<br>60 Hz : 136 271 →                                           |    | (F) Introduction de nouveaux boutons volume et tena-<br>lité chromé brillant.<br>(D) Einführung blankverchromter Knöpfe für Tonblende<br>und Lautstärke.<br>(E) Introduction of bright chromium plated tone and<br>volume control knobs. (04.69)             |    |
| 3  | 3X [3523752]                                   |    | ① 3X(3523752 <sup>+</sup> ) NI 1/2<br>② 3X [3523753]<br>I 2/1<br>3523914<br>3523903<br>2X 3523894<br>3525361<br>50 Hz : 119 099<br>60 Hz : 136 271 →                                           |    | (F) Introduction de nouvelles touches de comman-<br>de chromé brillant.<br>(D) Einführung blankverchromter Tasten.<br>(E) Introduction of bright chromium plated keys. (04.69)                                                                               |    |
| 4  | [3525360]                                      |    | ① (3525360 <sup>+</sup> ) NI 1/2<br>② [3525361]<br>I 2/1<br>3523914<br>3523903<br>2X 3523894<br>3X 3523753<br>50 Hz : 119 099<br>60 Hz : 136 271 →                                             |    | (F) Introduction d'un nouveau bouton de commande chro-<br>mé brillant.<br>(D) Einführung eines blankverchromten Knopfes.<br>(E) Introduction of a bright chromium plated knob. (04.69)                                                                       |    |
| 5  | [2246001]                                      |    | ① (2246001 <sup>+</sup> ) NI 1/2<br>② [2246003] I 2/1 [3525690]<br><br>50 Hz : 120 956<br>60 Hz : 137 271 → |    | (F) Pour des raisons d'approvisionnement, introduction<br>d'un nouveau vu-mètre.<br>(D) Einführung eines neuen Aussteuerungs-Anzeigers<br>aus beschaffungstechnischen Gründen.<br>(E) Introduction of a new vu-meter, for reasons of<br>procurement. (08.69) |    |

**PB**

08.69

\*

PD - K - 1.2 - 09.68

**1**

**FM**Socle  
Sockel  
Base

SM8

50 Hz: 114 646  
60 Hz: 135 201 →**BOLEX**

| 15<br>Anciennes pièces<br>Alte Teile<br>Former parts | 16<br>Nouvelles pièces<br>Neue Teile<br>New parts                                                                                                                                                                                                                                                                                   | 17<br>Observations<br>Bemerkungen<br>Remarks                                                                                                                                                                                                                                                                                                                                                                                                          |
|------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 6<br><div>3801800</div>                              | <div>① (3801800+) NI 1/2</div> <div>② <div>3805363</div> I 2/1</div> <div>50 Hz : 120 803</div> <div>60 Hz : 137 271 →</div>                                                                                                                                                                                                        | (F) Introduction d'un nouveau pied support afin d'augmenter la stabilité du projecteur.<br>(D) Einführung eines neuen Stützfußes, um die Stabilität des Gerätes zu verbessern.<br>(E) Introduction of a new support in order to improve the stability of the projector. (08.69)                                                                                                                                                                       |
| 7<br><div>380 3550</div> <div>380 4460</div>         | <div>(380 3550+) NI 1/2</div> <div>(380 4460+)</div> <div><div>386 2021</div> I 2/1 *</div> <div><div>386 2031</div></div> <div>50 Hz : 149 308 →</div> <div>60 Hz : 139 421</div>                                                                                                                                                  | (F) Changement de la prise pour des raisons de normalisation.<br>* Nécessite nouvelle fiche sur le câble d'alimentation.<br>(D) Aus Gründen der Normalisierung wird ein neuer Stecker eingeführt.<br>* dies erfordert den Austausch des Steckers am Netzanschlusskabel.<br>(E) Introduction of a modified mains connection socket for reasons of standardization.<br>* This necessitates the adaptation of a new plug at the mains lead.<br><br>08.71 |
| 8<br><div>220 2006</div> <div>226 1203</div>         | <div>① (220 2006+) NI 1/2</div> <div>(226 1203+)</div> <div>② <div>220 2021</div> I 2/1</div> <div><div>226 1206</div></div> <div>F) Interchangeable en bloc seulement.</div> <div>D) Nur als ganzes austauschbar.</div> <div>E) Parts interchangeable as whole only.</div> <div>50 Hz : 146 564</div> <div>60 Hz : 139 421 →</div> | F) Introduction d'un nouveau porte-fusible.<br>D) Einführung eines neuen Sicherungshalters.<br>E) Introduction of a new fuse holder.<br><br>07.72                                                                                                                                                                                                                                                                                                     |
|                                                      |                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                       |

PB

07.72

\*

PD - K - 1.2 - 09.68

2

FM

Socle  
Sockel  
Base

SM8

BOLEX

Anciennes pièces  
Alte Teile  
Former parts

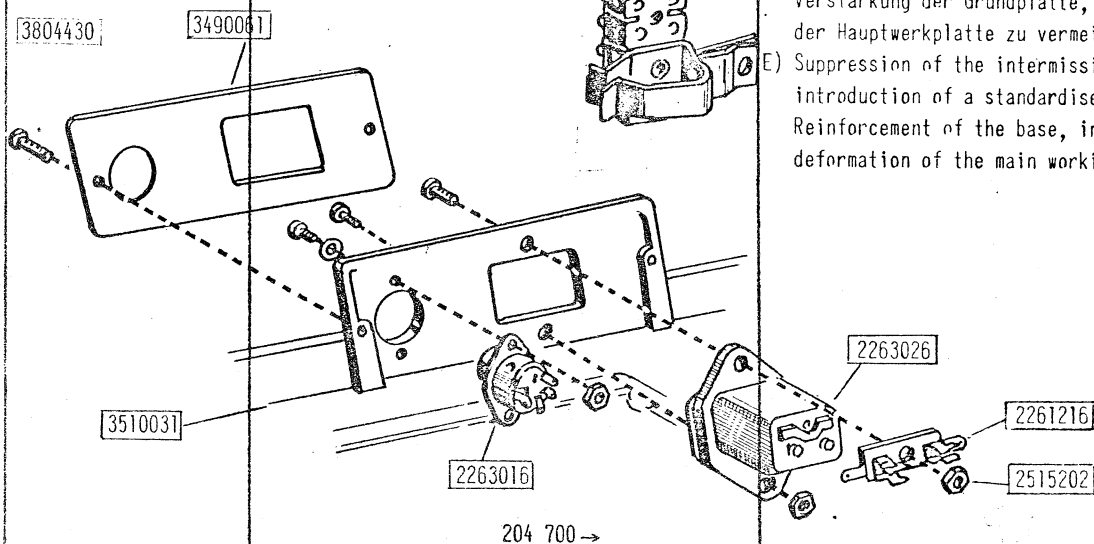
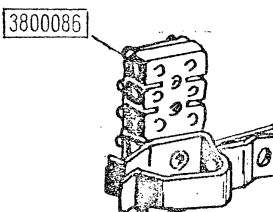
Nouvelles pièces  
Neue Teile  
New parts

Observations  
Bemerkungen  
Remarks

3510031  
3862021  
2263009  
3490971  
3490961  
3491161  
3804430

3800086  
3490061  
3510031  
2263026  
2263016

NI



F) Suppression de la prise pour la lampe d'entracte et introduction d'une prise haut-parleur normalisée. Renforcement de la base pour éviter la déformation de la platine principale.  
D) Wegfall der Steckbuchse für Pausenlampe und Einführung eines normalisierten Lautsprechersteckers. Verstärkung der Grundplatte, um eine Verformung der Hauptwerkplatte zu vermeiden.  
E) Suppression of the intermission lamp socket and introduction of a standardised loudspeaker socket. Reinforcement of the base, in order to avoid a deformation of the main working plate.

12.74

PB

12.74

\*

PD - K 1.2 - 09.68

3

**IT****Socle  
Socket  
Base****S M 8**50 Hz : 100 001  
60 Hz : 130 001

(F) Changement de fréquence

Lors d'une modification d'un projecteur de 50 en 60 Hz ou inversement, déplacer le fil noir se trouvant à la partie supérieure du transformateur d'alimentation (fig. 1) et réajuster les vitesses selon IT onglet J.

(D) Frequenzänderung

Bei einer Frequenzumstellung des Projektors von 50 auf 60 Hz - oder umgekehrt - ist der schwarze Draht oben am Netztrafo gemäss Abb. 1 anders anzuschliessen und die Laufgeschwindigkeiten sind laut IT - J neu zu justieren.

(E) Change of frequency

When changing the frequency of a projector from 50 to 60 Hz - or vice versa - connect the black wire at the upper part of the mains transformer as per fig. 1 and readjust running speeds as per IT - J.

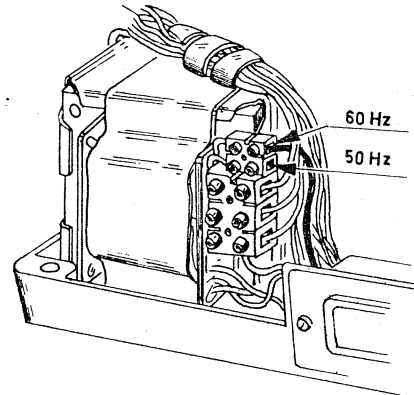


Fig. 1

**PB****06.67****\*****K****1****I**

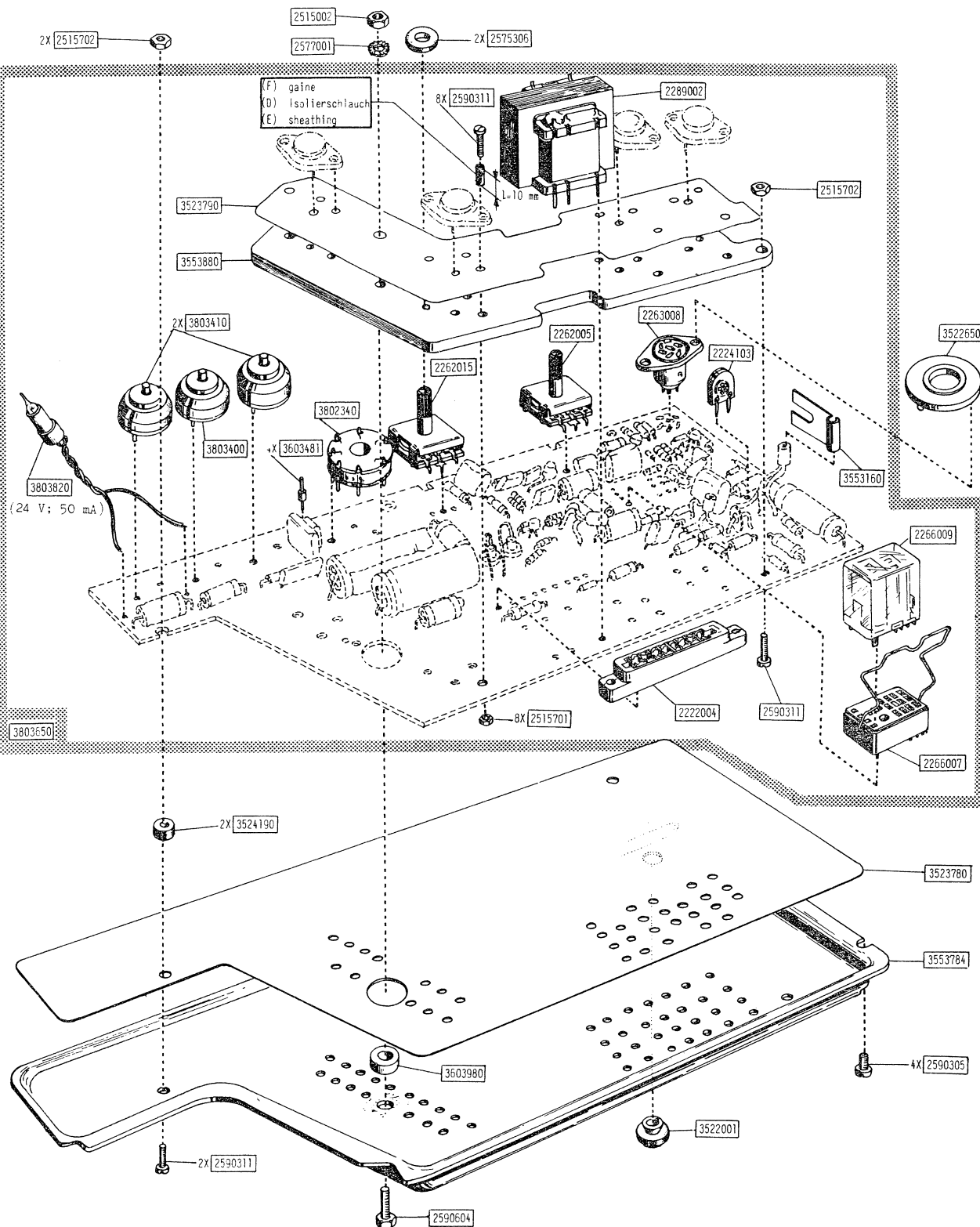


PD

# Amplificateur Verstärker Amplifier

SM 8

50 Hz : 100 001  
60 Hz : 130 001



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PB

02.67

\*

L

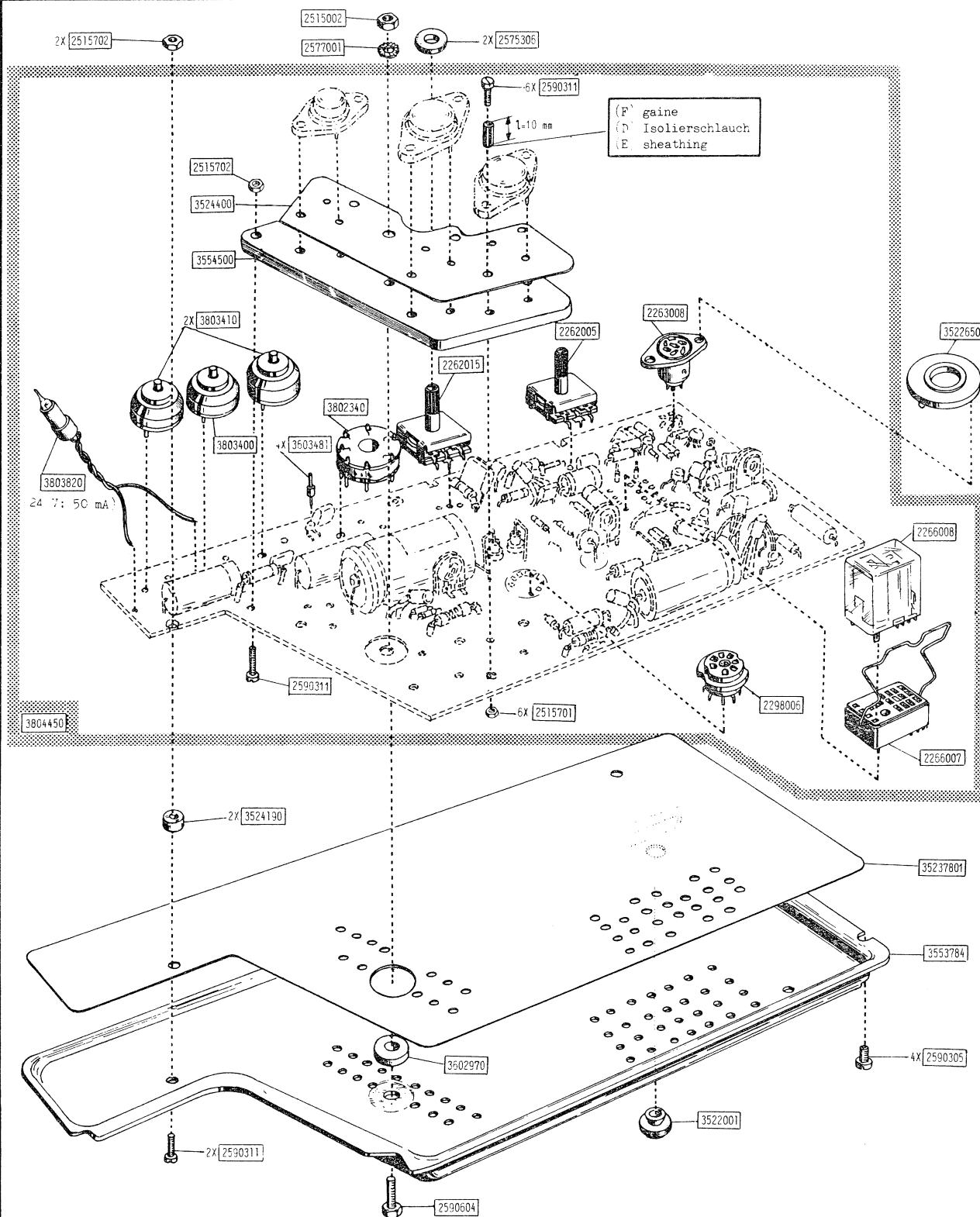
1

PD

# Amplificateur Verstärker Amplifier

SM 8

50 Hz : 107 254  
60 Hz : 131 932



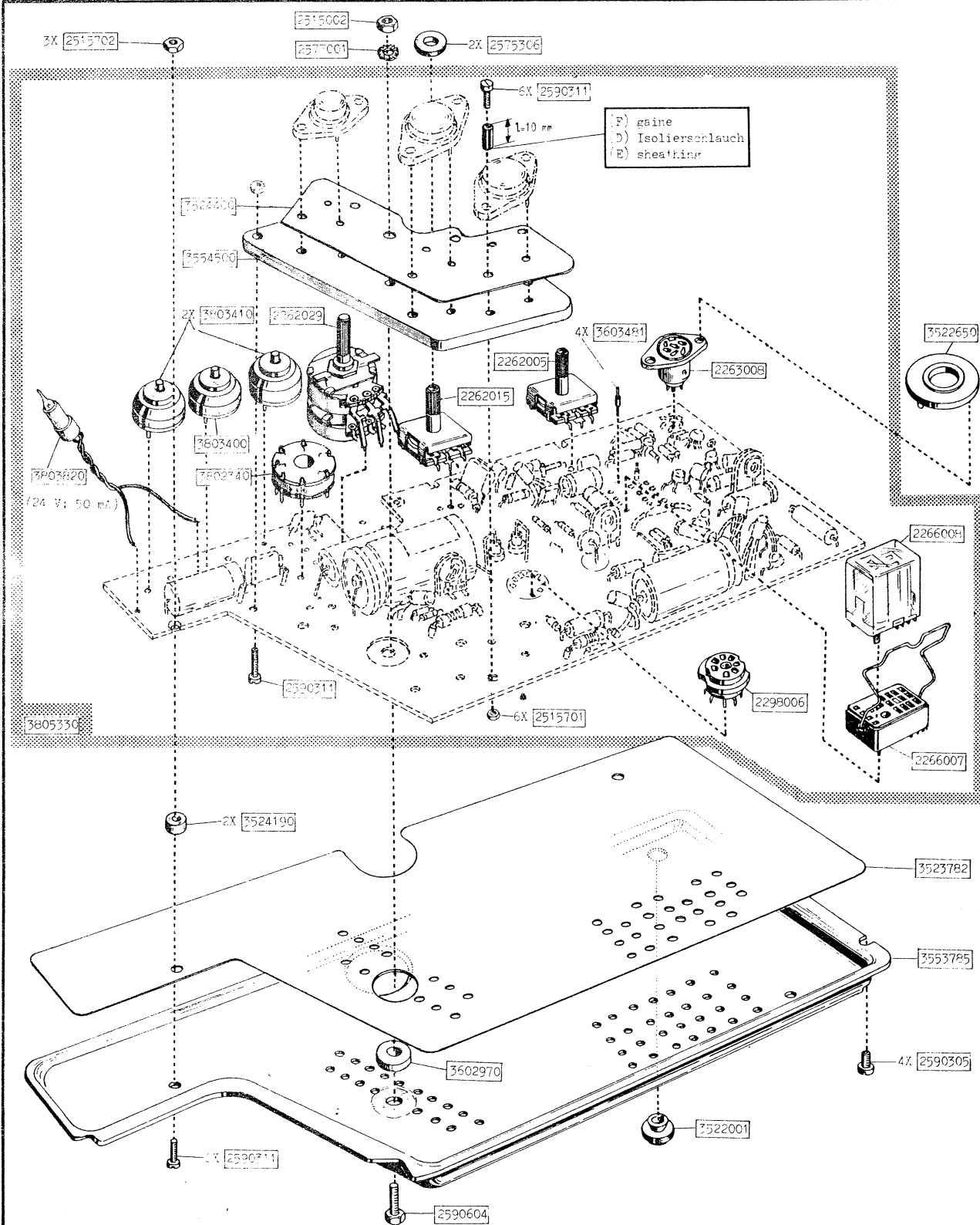
PB

10.67

\*

L

1.1



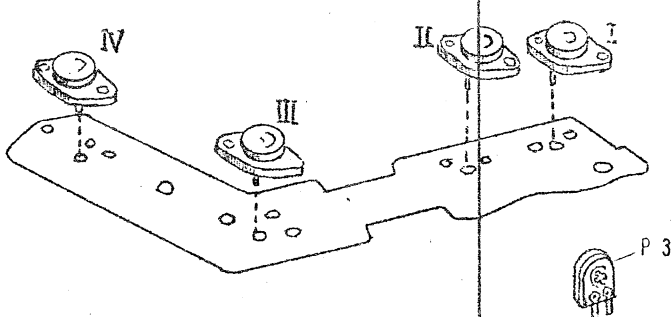


| 1<br>FM                                                                                      | 2<br>Amplificateur<br>Verstärker<br>Amplifier                                                                                                                                                                                                                                                                    | 3<br>SM8<br>50 Hz: 100 001 →<br>60 Hz: 130 001 →                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 4<br>BOLEX                   |
|----------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|
| 15<br>Anciennes pièces<br>Alte Teile<br>Former parts                                         | 16<br>Nouvelles pièces<br>Neue Teile<br>New parts                                                                                                                                                                                                                                                                | 17<br>Observations<br>Bemerkungen<br>Remarks                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                              |
| 1<br>3803650                                                                                 | ① (3803650) 60 Hz : →130 015 NI 1/2<br>② 3803651 50 Hz : 100 001 →<br>60 Hz : 130 016 → 1 2/1                                                                                                                                                                                                                    | (F) Amélioration de l'ampli. Pour tous les détails, voir <u>modification no. 1</u> du schéma de l'amplificateur s.v.p.<br>(D) Verbesserung des Verstärkers : Einzelheiten siehe <u>Aenderung Nr. 1</u> im Schaltbild des Verstärkers.<br>(E) Modification of the amplifier : For details please refer to <u>modification No. 1</u> of the wiring diagram of the amplifier. (02.67)                                                                                                                                                                                                                                          |                              |
| 2<br>3803651                                                                                 | ② (3803651) 50 Hz : →100 123 NI 2/3<br>③ 3803652 50 Hz : 100 124 →<br>60 Hz : 130 001 → 1 3/2                                                                                                                                                                                                                    | (F) Amélioration de l'ampli. Pour tous les détails, voir <u>modifications no. 2</u> des tables des condensateurs et résistances de l'ampli s.v.p.).<br>(D) Verbesserung des Verstärkers : Einzelheiten siehe <u>Aenderungen Nr. 2</u> der Tabellen der Kondensatoren und Widerstände des Verstärkers.<br>(E) Modification of the amplifier : For details please refer to <u>modifications No. 2</u> of the lists of capacitors and resistors of amplifier. (02.67)                                                                                                                                                          |                              |
| 3<br>3803652                                                                                 | ③ (3803652) 50 Hz : →100 748 NI 3/4<br>④ 3803653 50 Hz : 100 749 →<br>60 Hz : 130 001 → 1 4/3                                                                                                                                                                                                                    | (F) Amélioration de l'ampli. Pour tous les détails, voir <u>modification no. 2</u> du schéma de l'amplificateur s.v.p.<br>(D) Verbesserung des Verstärkers : Einzelheiten siehe <u>Aenderung Nr. 2</u> im Schaltbild des Verstärkers.<br>(E) Modification of the amplifier : For details please refer to <u>modification No. 2</u> of the wiring diagram of the amplifier. (02.67)                                                                                                                                                                                                                                          |                              |
| 4<br>3803653                                                                                 | ④ (3803653) 50 Hz : →101 663<br>60 Hz : →130 170 NI 4/5<br>⑤ 3803654 50 Hz : 101 664 →<br>60 Hz : 130 171 → 1 5/4                                                                                                                                                                                                | (F) Amélioration de l'ampli. Pour tous les détails, voir <u>modification no. 4</u> de la table des résistances de l'ampli et <u>modification no. 1</u> de la table des transistors de l'ampli s.v.p.<br>(D) Verbesserung des Verstärkers : Einzelheiten siehe <u>Aenderung Nr. 4</u> der Tabelle der Widerstände des Verstärkers und <u>Aenderung Nr. 1</u> der Tabelle der Transistoren des Verstärkers.<br>(E) Modification of the amplifier : For details please refer to <u>modification No. 4</u> of the list of resistors of amplifier and <u>modification No. 1</u> of the list of transistors of amplifier. (02.67) |                              |
| 5<br>2266009<br>(F)contacts argentés<br>(D)versilberte Kontakte<br>(E)silver plated contacts | ① (2266009) 50 Hz : →101 663<br>60 Hz : →130 299 NI 1/2<br>② 2266008 50 Hz : 101 664 →<br>60 Hz : 130 300 → 1 2/1<br>(F) contacts dorés <u>Distinctif</u> : bobinage rouge<br>(D) vergoldete Kontakte <u>Kennzeichen</u> : rote Relaispule<br>(E) gold plated contacts <u>Distinction mark</u> : red relais coil | (F) Pour améliorer le fonctionnement du relais, la qualité des contacts a été changée.<br>(D) Um das Arbeiten des Relais zu verbessern, wurde die Qualität der Kontakte geändert.<br>(E) Better quality of contacts, in order to improve functioning of the relay. (02.67)                                                                                                                                                                                                                                                                                                                                                  |                              |
| 6<br>PB                                                                                      | 7<br>02.67                                                                                                                                                                                                                                                                                                       | 8<br>*                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 9<br>PD - L - 1 - 02.67<br>1 |

**FM**Amplificateur  
Verstärker  
Amplifier

SM8

50 Hz: 100 001  
60 Hz: 130 001 →**BOLEX**

| 15<br>Anciennes pièces<br>Alte Teile<br>Former parts | 16<br>Nouvelles pièces<br>Neue Teile<br>New parts                                                                                                                                                                                                     | 17<br>Observations<br>Bemerkungen<br>Remarks                                                                                                                                                                                                                                                                                                        |
|------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                      | <p>P1 : 2262005 (10 kΩ linéaire - linear)<br/>P2 : 2262015 (50 kΩ logarithmique - logarith-<br/>misch - logarithmic)<br/>P3 : 2224103 (5 kΩ linéaire - linear)</p>  | <p>(F) Complément d'information.<br/>(D) Ergänzung.<br/>(E) Complement.</p> <p>(05.67)</p>                                                                                                                                                                                                                                                          |
| 7<br>3803654                                         | <p>⑤ (3803654+) 50 Hz : 103 804<br/>60 Hz : → 130 700 NI 5/6</p> <p>⑥ 3803655 50 Hz : 103 805<br/>60 Hz : 130 701 → I 6/5</p>                                                                                                                         | <p>(F) Amélioration de l'ampli. Pour tous détails, voir modification no. 3 du schéma de l'ampli.<br/>(D) Verbesserung des Verstärkers. Alle Einzelheiten sind in der Aenderung Nr. 3 zum Verstärkerschaltbild vermerkt.<br/>(E) Improvement of amplifier. All details are specified in modification no. 3 of the amplifier diagram.<br/>(05.67)</p> |
| 8<br>3803655                                         | <p>⑥ (3803655+) 50 Hz : 104 013<br/>60 Hz : → 131 030 NI 6/7</p> <p>⑦ 3803656 50 Hz : 104 014<br/>60 Hz : 131 031 → I 7/6</p>                                                                                                                         | <p>(F) Amélioration de l'ampli. Pour tous détails, voir modification no. 4 du schéma de l'ampli.<br/>(D) Verbesserung des Verstärkers. Alle Einzelheiten sind in der Aenderung Nr. 4 zum Verstärkerschaltbild vermerkt.<br/>(E) Improvement of amplifier. All details are specified in modification no. 4 of the amplifier diagram.<br/>(05.67)</p> |
|                                                      |                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                     |

**PB**

05.67



PD - L - 1 - 02.67

**2**

**FM**Amplificateur  
Verstärker  
Amplifier

SMB

**BOLEX**50 Hz: 114 646  
60 Hz: 135 201 →

| 15<br>Anciennes pièces<br>Alte Teile<br>Former parts | 16<br>Nouvelles pièces<br>Neue Teile<br>New parts                                                                                                                                                                           | 17<br>Observations<br>Bemerkungen<br>Remarks                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1<br>3805330                                         | <p>① (3805330 †)</p> <p>② 3805331 1 2/1</p> <p>1 1/2 <math>\begin{bmatrix} R22 - 2270700 - 1,5 \text{ k}\Omega \\ R53 - 2270720 - 3,3 \text{ k}\Omega \end{bmatrix}</math></p> <p>50 Hz : 119 941<br/>60 Hz : 137 014 →</p> | <p>(F) Introduction d'un nouvel amplificateur suite à l'introduction de la nouvelle tête magnétique "Photovox". Nous vous signalons qu'il s'agit d'une simple modification concernant le changement de valeur de deux seules résistances R22 et R53.<br/>(Voir aussi modification 3, FM2-PD-F-1.1-10.68).</p> <p>(D) Nach Einführung des neuen Tonkopfes "Photovox" Einführung eines neuen Verstärkers. Es handelt sich um eine einfache Änderung, die nur die Werte der beiden Widerstände R22 und R53 betrifft.<br/>(Siehe auch Änderung 3, FM2-PD-F-1.1-10.68).</p> <p>(E) Introduction of a new amplifier after having introduced the new "Photovox" sound head. It is a simple modification that concerns only the two resistances R22 and R53. [</p> <p>(See also modification 3, FM2-PD-F-1.1-10.68). (09.69)</p> |
|                                                      |                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |

PB

09.69



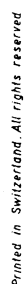
PD - L - 1.2 - 09.68

1





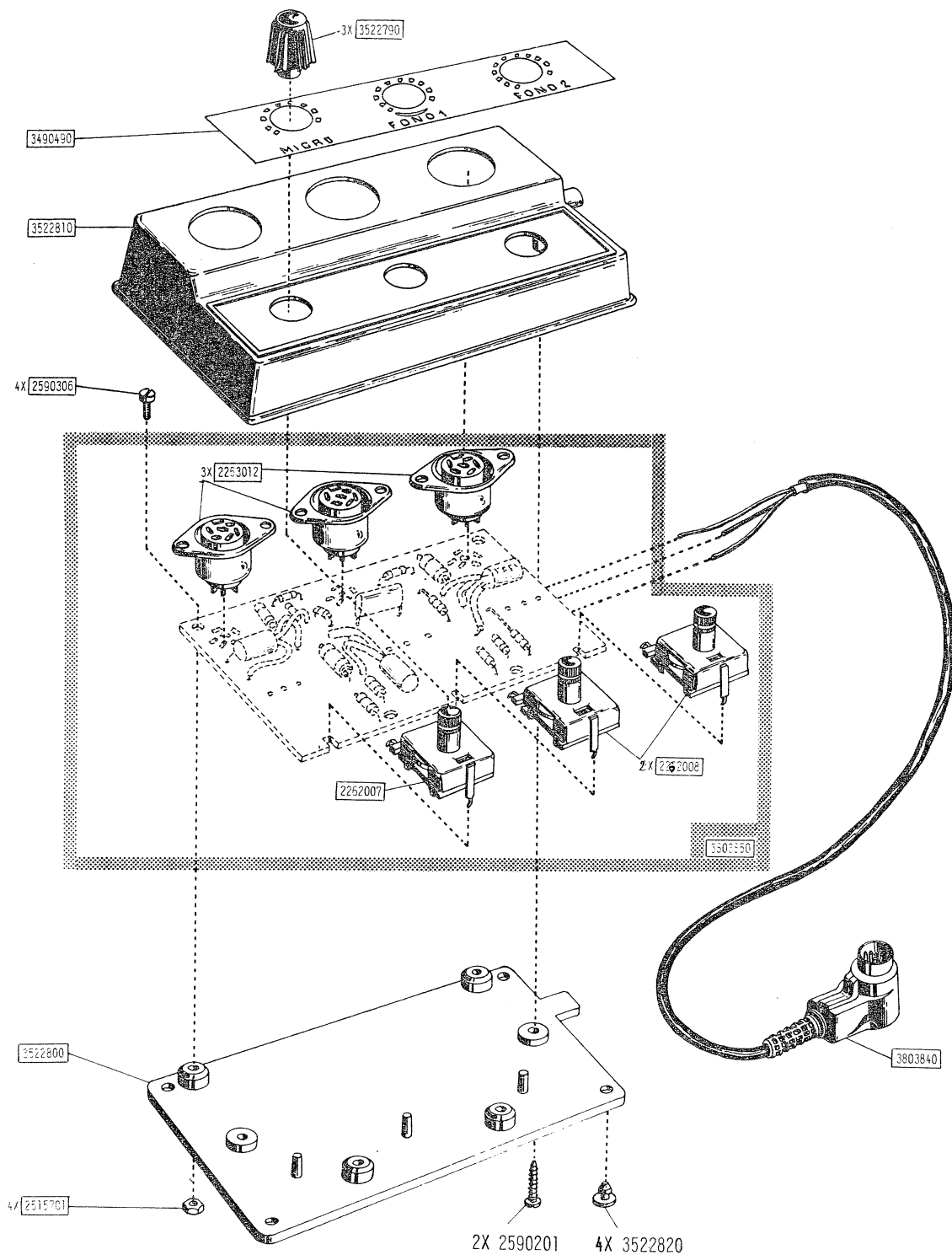
Microphone  
Mikrophon  
Microphone



PD

Mélangeur  
Mischpult  
Mixing box

SM 8



PB

02.67

\*

M

2

**FM**Mélangeur  
Mischpult  
Mixing box

SM8

50 Hz: 100 001

60 Hz: 130 001 →

**BOLEX**

| 15<br>Anciennes pièces<br>Alte Teile<br>Former parts                  | 16<br>Nouvelles pièces<br>Neue Teile<br>New parts                                                  | 17<br>Observations<br>Bemerkungen<br>Remarks                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|-----------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 -                                                                   | <u>P1</u> : 2262007 (500 Ω)<br><u>P2, P3</u> : 2262008 (1 M Ω)                                     | (F) Complément d'information.<br>(D) Ergänzung.<br>(E) Complement. (04.67)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| 2 <span style="border: 1px solid black; padding: 2px;">3803850</span> | ① (3803850†) NI 1/2<br>② <span style="border: 1px solid black; padding: 2px;">3803851</span> I 2/1 | <p>(F) Pour augmenter le filtrage de la tension d'alimentation, modification de la valeur du condensateur C5, (d'où modification du symbole du circuit imprimé) pour permettre l'emploi du mélangeur avec le nouvel ampli.<br/><u>N.B.</u>: Les <u>nouveaux</u> mélangeurs ont comme signe distinctif 1 point rouge sur une des vis fixant la base. Ils sont aussi utilisables avec des projecteurs équipés d'anciens amplis, mais pas inversement sans modifier la valeur du C5.<br/>(Voir aussi FM1-PD-P4-03.67, position 1).</p> <p>(D) Um die Filterung der Speisespannung zu verbessern wurde der Wert des Kondensators C5 geändert (daher Änderung des Symbols der gedruckten Schaltung), um die Verwendung des Mischpultes mit dem neuen Verstärker zu ermöglichen.<br/><u>N.B.</u>: Die <u>neuen</u> Mischpulte haben als Unterscheidungsmerkmal einen roten Punkt auf einer der Schrauben, mit denen die Grundplatte befestigt ist. Sie können auch mit Projektoren verwendet werden, die den <u>alten</u> Verstärker haben, jedoch muss zuerst der Wert des Kondensators C5 geändert werden.<br/>(Siehe auch FM1-PD-P4-03.67, Position 1).</p> <p>(E) In order to improve filtering of the feeding voltage, the value of capacitor C5 has been modified (therefore modification of the symbol in the printed circuit), so that the mixing box can be used with the new amplifier.<br/><u>N.B.</u>: The <u>new</u> mixing boxes are marked by a red dot on one of the screws with which their base plate is fixed. They can also be used with projectors fitted with the <u>old</u> amplifier, but not without having modified the value of capacitor C5.<br/>(See also FM1-PD-P4-03.67, position 1). (11.67)</p> |
| 3                                                                     | <span style="border: 1px solid black; padding: 2px;">3491130</span>                                | (F) Adjonction d'une étiquette autocollante comportant l'inscription : MADE IN ITALY.<br>(D) Einführung eines Selbstklebetiketts mit dem Aufdruck : MADE IN ITALY.<br>(E) Introduction of a self-adhesive label, printed : MADE IN ITALY. (11.67)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|                                                                       |                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |

PB

11.67

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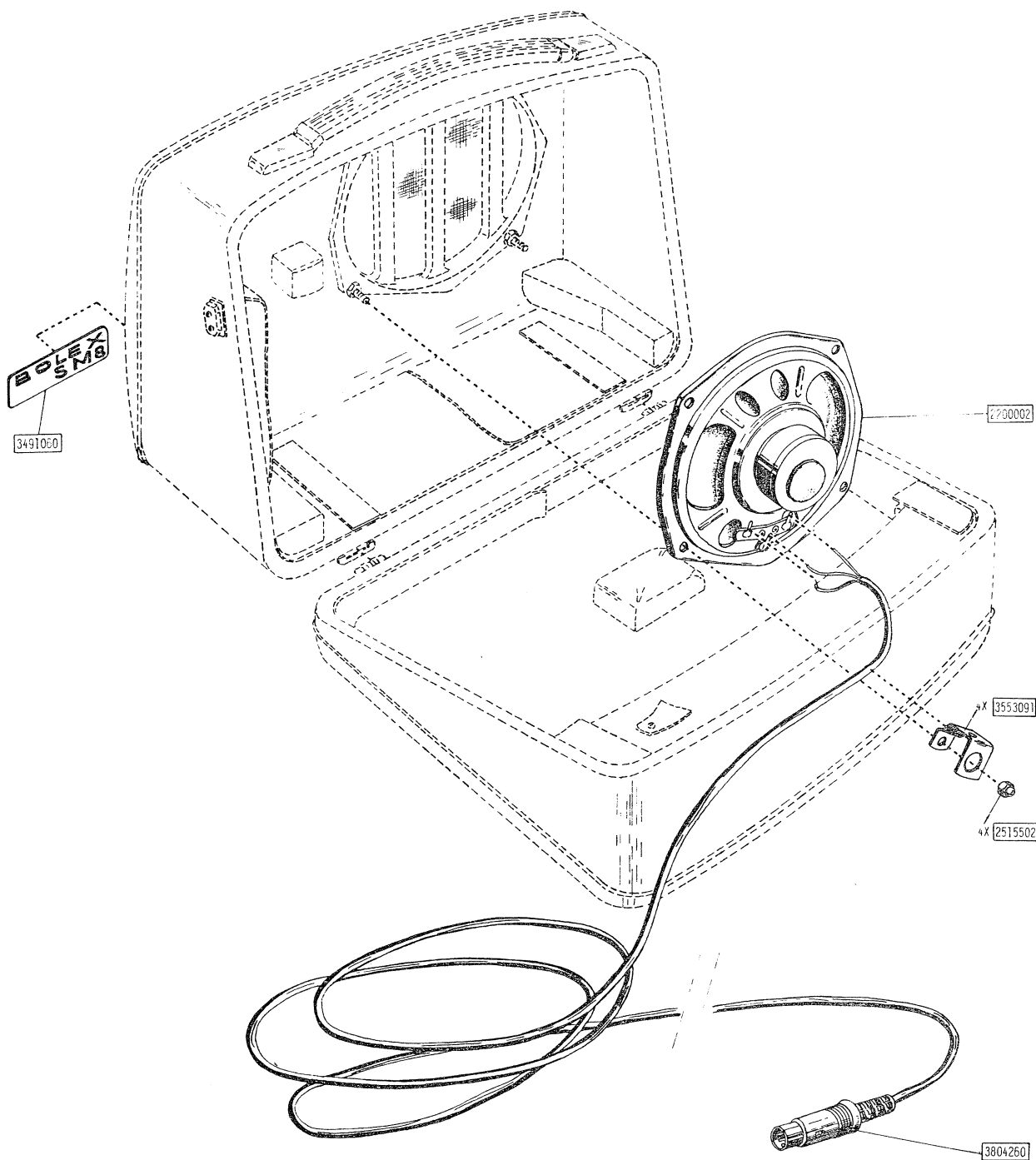
PD - M - 2 - 02.67

1

PD

Mallette de transport avec haut-parleur  
Transportkoffer mit Zusatzlautsprecher  
Carrying case with loudspeaker

SM8



PB

02.67

\*

M

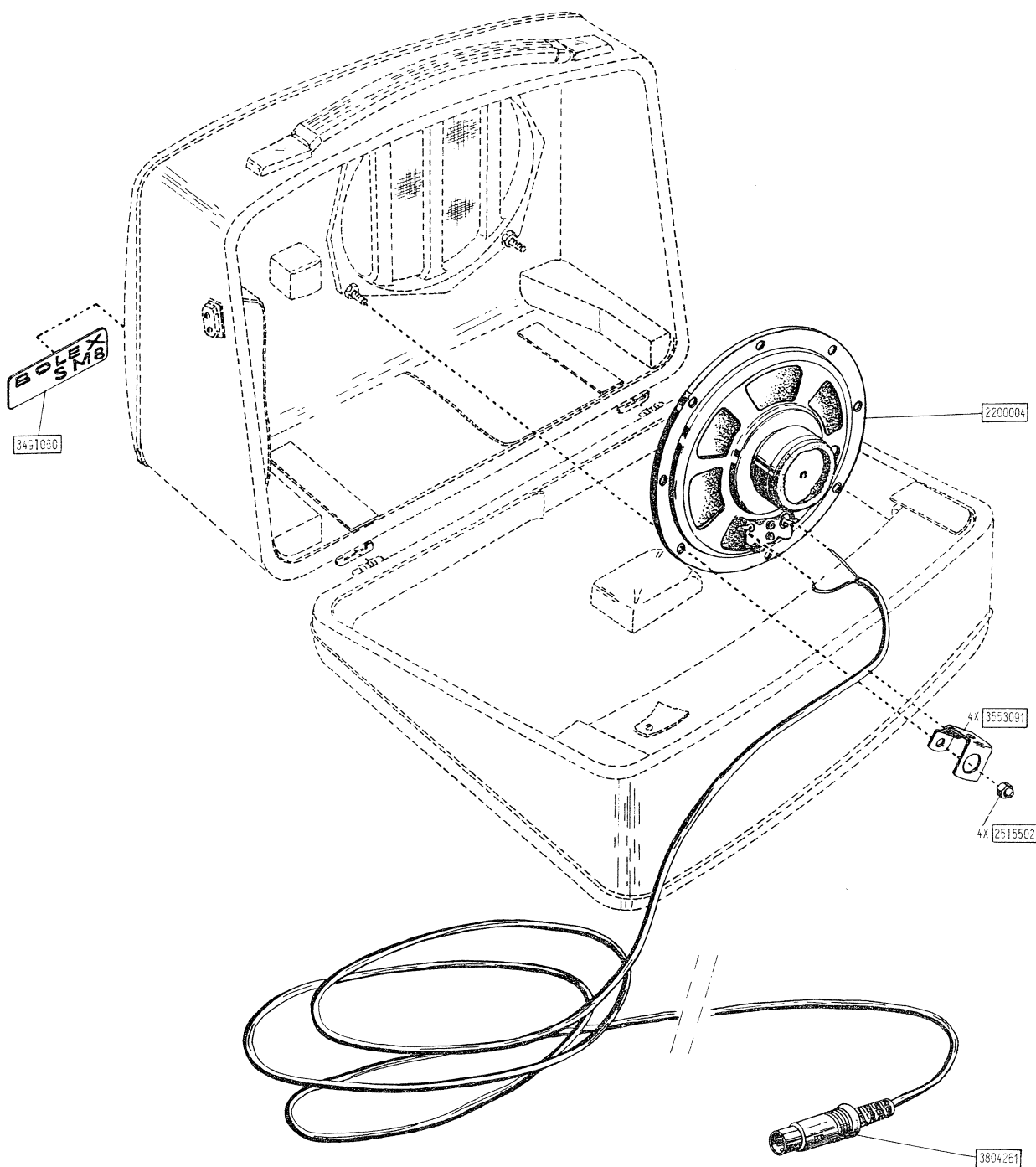
3

PD

Mallette de transport avec haut-parleur  
Transportkoffer mit Zusatzlautsprecher  
Carrying case with loudspeaker

SM8

2301



PB

11.67

\*

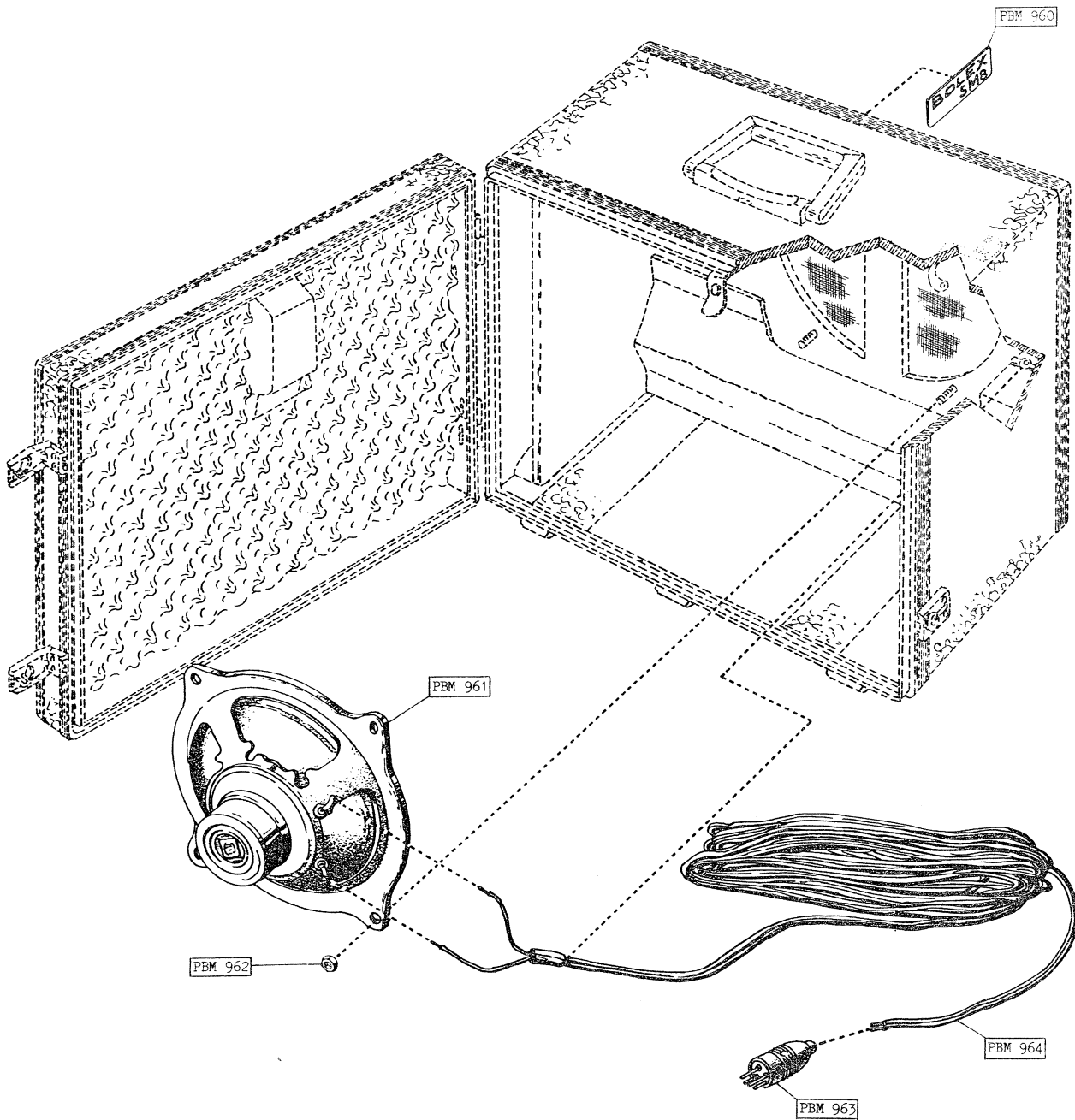
M

3.1

**PD**

Mallette de transport avec haut-parleur  
Transportkoffer mit Zusatzlautsprecher  
Carrying case with loudspeaker

**S M 8**



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**P B**

01.68

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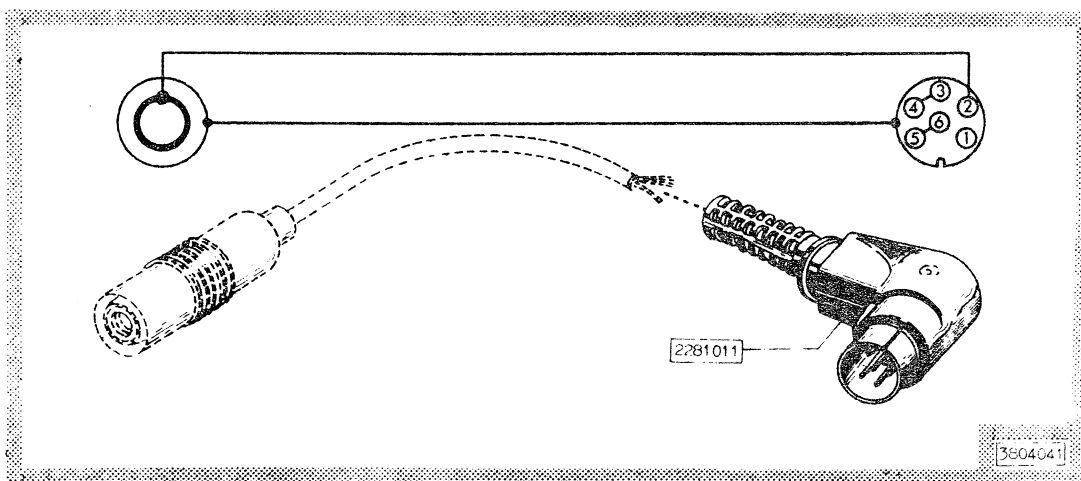
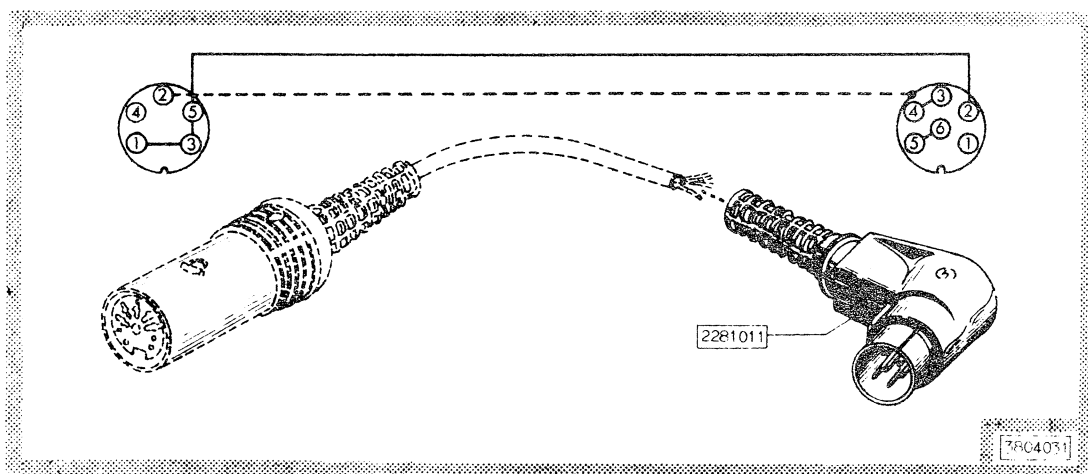
**M**

**3.2**

**PD**

Câbles de raccord  
Verbindungskabel  
Connecting cables

SM8



**P B**

01.70

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**M**

**4**



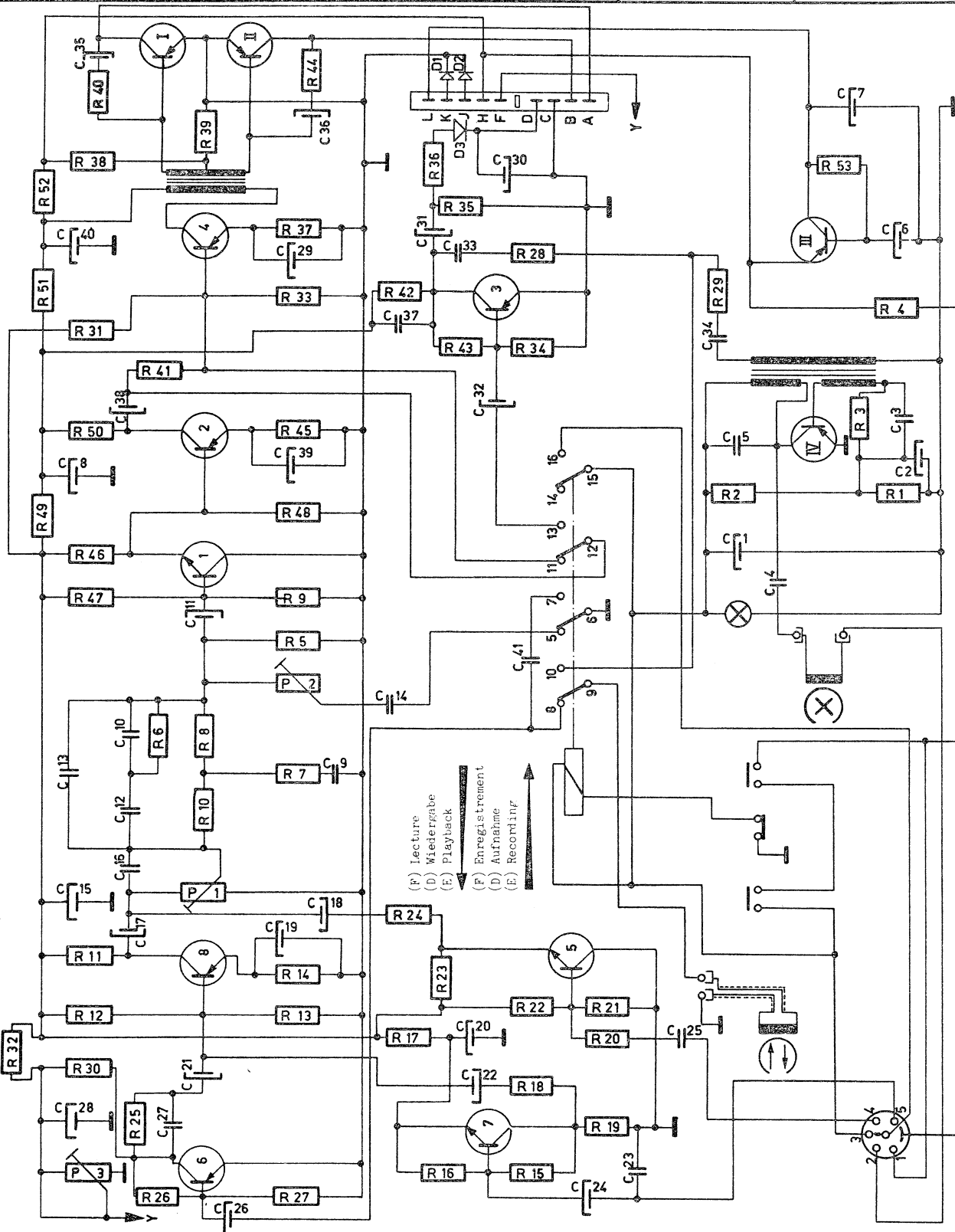


PD

# Schéma de l'amplificateur Schaltbild des Verstärkers Diagram of amplifier

SM 8

50 Hz: 100 001  
60 Hz: 130 001



(P) Lecture  
(D) Wiedergabe  
(E) Playback  
(P) Enregistrement  
(D) Aufnahme  
(E) Recording

PB

02.67

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- (F) Des petites modifications de valeur peuvent être apportées aux composants électriques sans avis préalable du fabricant.  
(D) Wir behalten uns das Recht vor, die Daten der elektrischen Bauelemente ohne vorherige Ankündigung geringfügig zu ändern.  
(E) We reserve the right to introduce slight modifications of the data of electrical components, without previous notice.

N

1

FM

Schéma de l'amplificateur  
Schaltbild des Verstärkers  
Diagram of amplifier

SM8

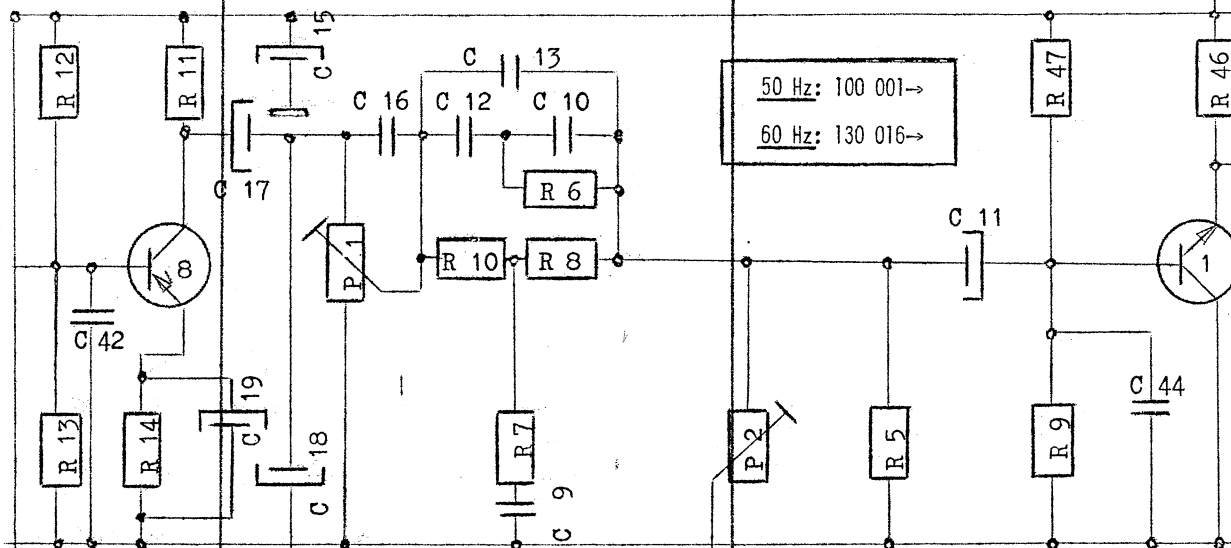
BOLEX

50 Hz: 100 001 →  
60 Hz: 130 001 →

15 Anciennes pièces  
Alte Teile  
Former parts

16 Nouvelles pièces  
Neue Teile  
New parts

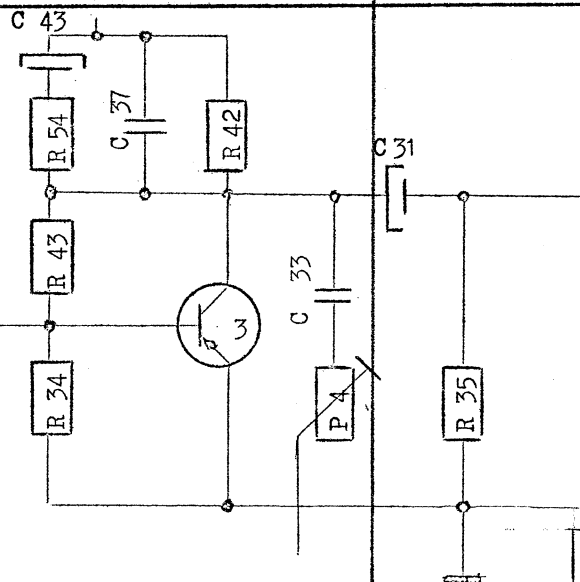
17 Observations  
Bemerkungen  
Remarks



(F) Pour maintenir constant le niveau indiqué par le Vu-mètre, projecteur se trouvant en marche ou à l'arrêt, un filtre a été introduit sur l'amplificateur pour supprimer la fréquence 50 kHz dans les différents étages. (Pour la modification de valeur de la R41 et l'adjonction des C42 et C44, voir onglet "P").

(D) Um das Niveau des Aussteuerungs-Anzeigers bei laufendem oder stehendem Projektor konstant zu halten, wurde im Verstärker ein Filter eingebaut, welches die Frequenz 50 kHz in den verschiedenen Stufen eliminiert. (Was die Wertänderung des R41 und die zusätzlichen C42 und C44 anbelangt, siehe unter "P").

(E) In order to keep the level indicated by the V.U. meter steady, projector running or not, a filter has been introduced in the amplifier for eliminating the frequency of 50 kHz in the various stages. (As far as the modification of value of R41 is concerned and to find the additional C42 and C44, see tab "P"). (02.67)



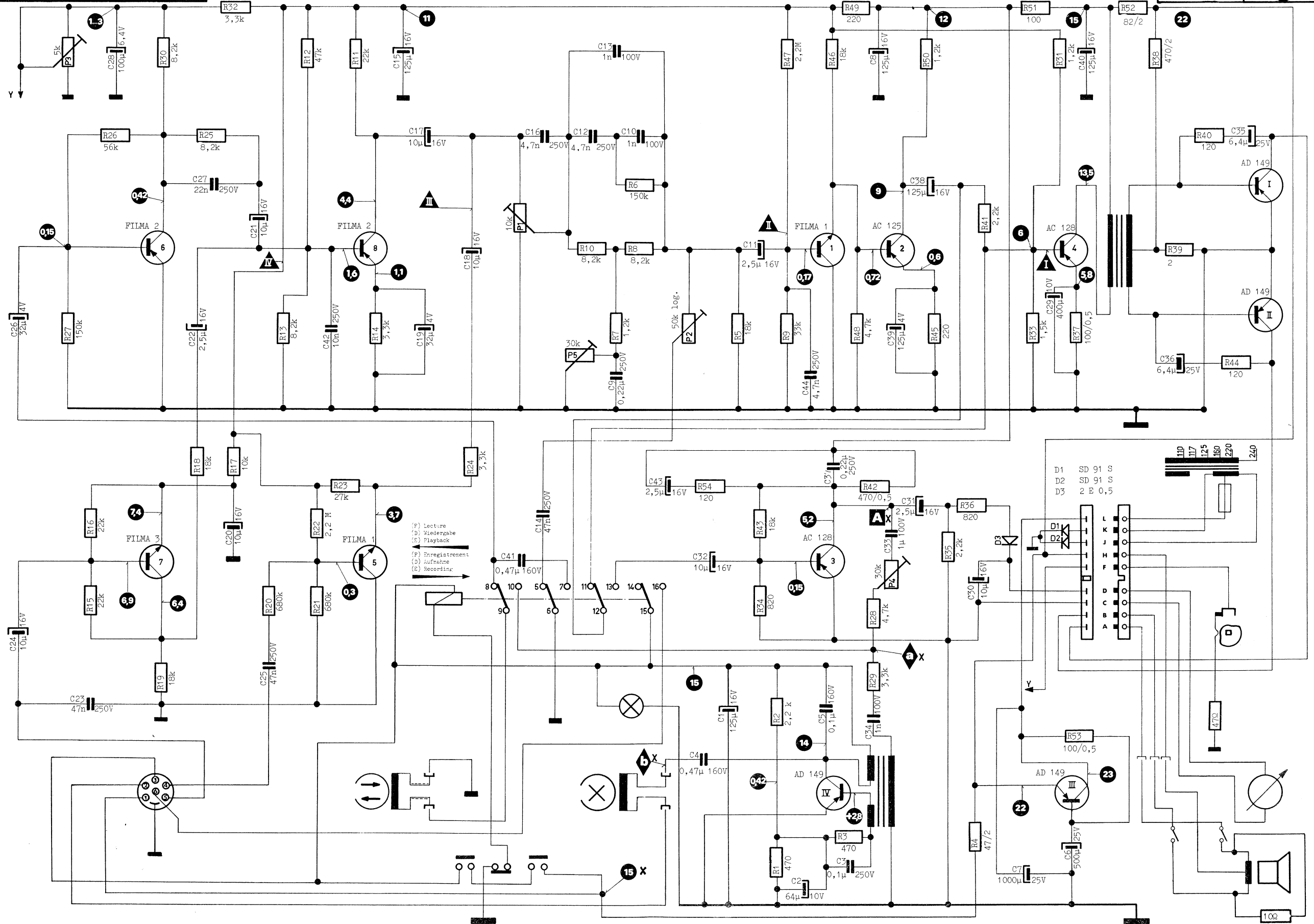
50 Hz : 100 749 →  
60 Hz : 130 001 →

|    |   |   |   |   |   |    |    |    |
|----|---|---|---|---|---|----|----|----|
| 12 | 9 | 2 | 3 | 7 | 8 | 10 | 11 | 11 |
|    |   |   |   |   |   |    |    |    |
|    |   |   |   |   |   |    |    |    |
|    |   |   |   |   |   |    |    |    |
|    |   |   |   |   |   |    |    |    |
| 12 | 9 | 2 | 3 | 7 | 8 | 10 | 11 | 11 |
|    |   |   |   |   |   |    |    |    |
|    |   |   |   |   |   |    |    |    |
|    |   |   |   |   |   |    |    |    |
|    |   |   |   |   |   |    |    |    |
| 12 | 9 | 2 | 3 | 7 | 8 | 10 | 11 | 11 |
|    |   |   |   |   |   |    |    |    |
|    |   |   |   |   |   |    |    |    |
|    |   |   |   |   |   |    |    |    |
|    |   |   |   |   |   |    |    |    |
| 12 | 9 | 2 | 3 | 7 | 8 | 10 | 11 | 11 |
|    |   |   |   |   |   |    |    |    |
|    |   |   |   |   |   |    |    |    |
|    |   |   |   |   |   |    |    |    |
|    |   |   |   |   |   |    |    |    |
| 12 | 9 | 2 | 3 | 7 | 8 | 10 | 11 | 11 |
|    |   |   |   |   |   |    |    |    |
|    |   |   |   |   |   |    |    |    |
|    |   |   |   |   |   |    |    |    |
|    |   |   |   |   |   |    |    |    |
| 12 | 9 | 2 | 3 | 7 | 8 | 10 | 11 | 11 |
|    |   |   |   |   |   |    |    |    |
|    |   |   |   |   |   |    |    |    |
|    |   |   |   |   |   |    |    |    |
|    |   |   |   |   |   |    |    |    |
| 12 | 9 | 2 | 3 | 7 | 8 | 10 | 11 | 11 |
|    |   |   |   |   |   |    |    |    |
|    |   |   |   |   |   |    |    |    |
|    |   |   |   |   |   |    |    |    |
|    |   |   |   |   |   |    |    |    |
| 12 | 9 | 2 | 3 | 7 | 8 | 10 | 11 | 11 |
|    |   |   |   |   |   |    |    |    |
|    |   |   |   |   |   |    |    |    |
|    |   |   |   |   |   |    |    |    |
|    |   |   |   |   |   |    |    |    |
| 12 | 9 | 2 | 3 | 7 | 8 | 10 | 11 | 11 |
|    |   |   |   |   |   |    |    |    |
|    |   |   |   |   |   |    |    |    |
|    |   |   |   |   |   |    |    |    |
|    |   |   |   |   |   |    |    |    |
| 12 | 9 | 2 | 3 | 7 | 8 | 10 | 11 | 11 |
|    |   |   |   |   |   |    |    |    |
|    |   |   |   |   |   |    |    |    |
|    |   |   |   |   |   |    |    |    |
|    |   |   |   |   |   |    |    |    |
| 12 | 9 | 2 | 3 | 7 | 8 | 10 | 11 | 11 |
|    |   |   |   |   |   |    |    |    |
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|    |   |   |   |   |   |    |    |    |
|    |   |   |   |   |   |    |    |    |
| 12 | 9 | 2 | 3 | 7 | 8 | 10 | 11 | 11 |
|    |   |   |   |   |   |    |    |    |
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|    |   |   |   |   |   |    |    |    |
|    |   |   |   |   |   |    |    |    |
| 12 | 9 | 2 | 3 | 7 | 8 | 10 | 11 | 11 |
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|    |   |   |   |   |   |    |    |    |
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|    |   |   |   |   |   |    |    |    |
| 12 | 9 | 2 | 3 | 7 | 8 | 10 | 11 | 11 |
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|    |   |   |   |   |   |    |    |    |
|    |   |   |   |   |   |    |    |    |
| 12 | 9 | 2 | 3 | 7 | 8 | 10 | 11 | 11 |
|    |   |   |   |   |   |    |    |    |
|    |   |   |   |   |   |    |    |    |
|    |   |   |   |   |   |    |    |    |
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|    |   |   |   |   |   |    |    |    |
| 12 | 9 | 2 | 3 | 7 | 8 | 10 | 11 | 11 |
|    |   |   |   |   |   |    |    |    |
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| 12 | 9 | 2 | 3 | 7 | 8 | 10 | 11 | 11 |
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| 12 | 9 | 2 | 3 | 7 | 8 | 10 | 11 | 11 |
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| 12 | 9 | 2 | 3 | 7 | 8 | 10 | 11 | 11 |
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|    |   |   |   |   |   |    |    |    |
| 12 | 9 | 2 | 3 | 7 | 8 |    |    |    |

Schéma de l'amplificateur  
Schaltbild des Verstärkers  
Diagram of amplifier

SM 8

50 Hz: 104014  
60 Hz: 131031



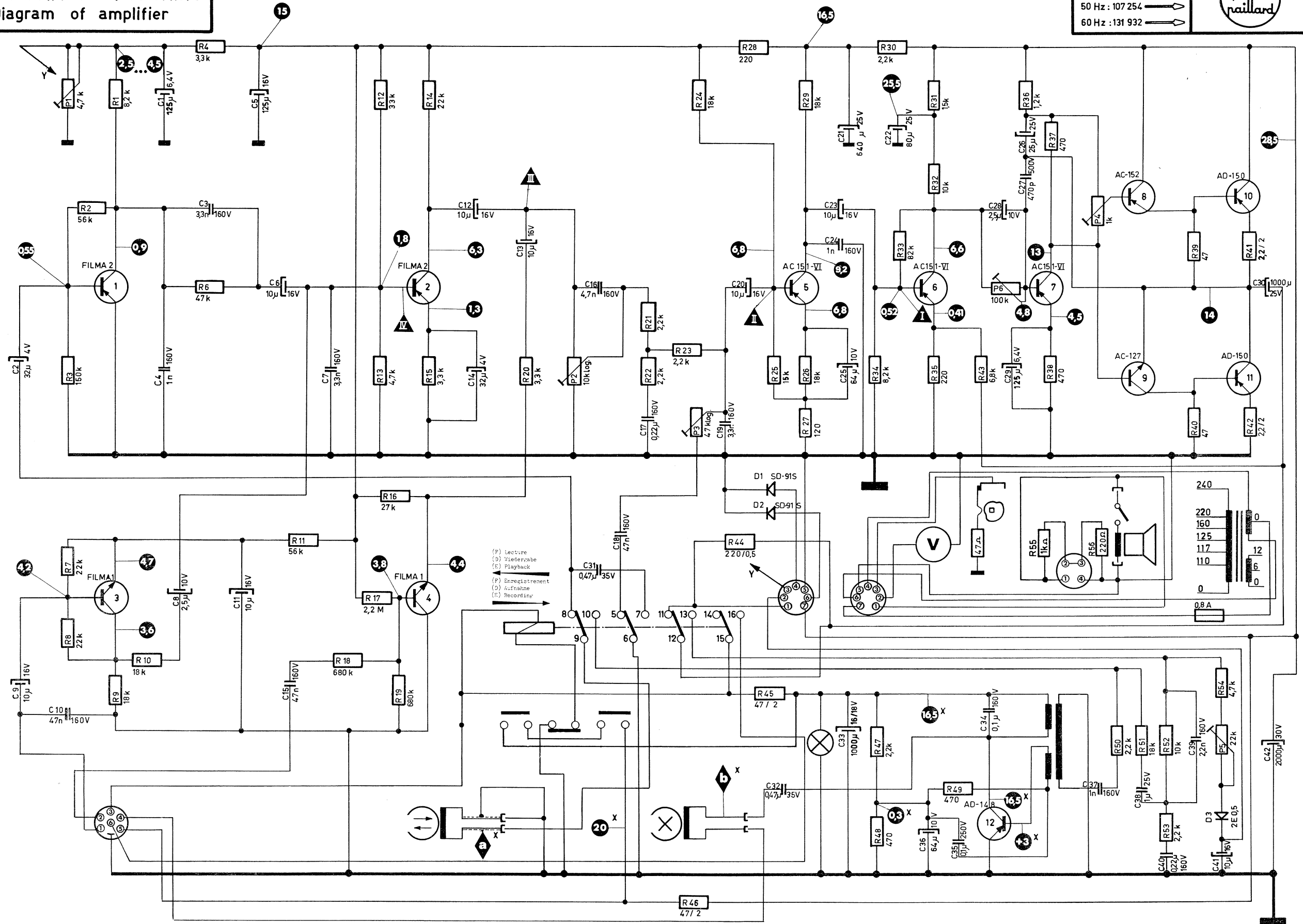
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|-----------------------------------------------------------------------------------------------------------------------------|--|-------------------------------------------------------------------------------------------------------------------------------|--|---------------------------------------------------------------------------------------------------------------------------|--|------------------------------------------------------------------------------------------|
| <div>PD</div>                                                                                                               |  | <div>Schéma de l'amplificateur</div> <div>Schaltbild des Verstärkers</div> <div>Diagram of amplifier</div>                    |  | <div>50Hz:107 254</div> <div>60Hz:131 932</div>                                                                           |  | <div>SM 8</div> <div><div>Bolex</div><div>mailand</div></div>                            |
| (F) Résistances sans indications spéciales : valeur en $\Omega$ ; puissance 0,25 W                                          |  | Abbreviations :                                                                                                               |  | $\mu$ = $\mu F$                                                                                                           |  | $p$ = $pF$                                                                               |
|                                                                                                                             |  |                                                                                                                               |  | $n$ = $nF$ = 1000 $pF$                                                                                                    |  | $k$ = $k\Omega$                                                                          |
|                                                                                                                             |  |                                                                                                                               |  | $M$ = $M\Omega$                                                                                                           |  |                                                                                          |
| Alimentation :                                                                                                              |  | 21,5 V ~                                                                                                                      |  | Tensions continues en volt mesurées avec un instrument dont la résistance interne est de 20000 $\Omega/V$ .               |  | Ces tensions sont négatives par rapport à la masse.                                      |
|                                                                                                                             |  | Tolérance : $\pm 10\%$                                                                                                        |  | Tension HF pour les têtes magnétiques :                                                                                   |  | Tête d'enregistrement : 10...12 V                                                        |
|                                                                                                                             |  |                                                                                                                               |  | Tête d'éfacement : 10...12 V                                                                                              |  | Points de mesure pour la sensibilité des différents étages de l'amplificateur (voir IT). |
| Amplificateur sur position "Enregistrement".                                                                                |  |                                                                                                                               |  |                                                                                                                           |  |                                                                                          |
| (D) Widerstandswerte ohne besondere Angaben : Wert in $\Omega$ ; Stärke 0,25 W                                              |  | Abkürzungen :                                                                                                                 |  | $\mu$ = $\mu F$                                                                                                           |  | $p$ = $pF$                                                                               |
|                                                                                                                             |  |                                                                                                                               |  | $n$ = $nF$ = 1000 $pF$                                                                                                    |  | $k$ = $k\Omega$                                                                          |
|                                                                                                                             |  |                                                                                                                               |  | $M$ = $M\Omega$                                                                                                           |  |                                                                                          |
| Speisung :                                                                                                                  |  | 21,5 V ~                                                                                                                      |  | Gleichspannungen in Volt, gemessen mit einem Instrument dessen innerer Widerstand 20000 $\Omega/V$ beträgt.               |  | Diese Spannungen sind in Bezug auf Masse negativ.                                        |
|                                                                                                                             |  | Tolérance : $\pm 10\%$                                                                                                        |  | HF-Spannung für die Tonköpfe :                                                                                            |  | Aufnahmestonkopf : 10...12 V                                                             |
|                                                                                                                             |  |                                                                                                                               |  | Löschtonkopf : 10...12 V                                                                                                  |  | Messpunkte für die Empfindlichkeit der verschiedenen Verstärkerstufen (siehe IT).        |
| Verstärker auf Stellung "Aufnahme".                                                                                         |  |                                                                                                                               |  |                                                                                                                           |  |                                                                                          |
| (E) Resistors without special indications : value in $\Omega$ ; power 0,25 W                                                |  | Abbreviations :                                                                                                               |  | $\mu$ = $\mu F$                                                                                                           |  | $p$ = $pF$                                                                               |
|                                                                                                                             |  |                                                                                                                               |  | $n$ = $nF$ = 1000 $pF$                                                                                                    |  | $k$ = $k\Omega$                                                                          |
|                                                                                                                             |  |                                                                                                                               |  | $M$ = $M\Omega$                                                                                                           |  |                                                                                          |
| Operating voltage :                                                                                                         |  | 21,5 V ~                                                                                                                      |  | DC voltages measured with an instrument having an internal resistance of 20000 $\Omega/V$ .                               |  | Those voltages are negativ with respect to ground.                                       |
|                                                                                                                             |  | Tolerance : $\pm 10\%$                                                                                                        |  | HF-voltage for sound heads :                                                                                              |  | Recording head : 10...12 V                                                               |
|                                                                                                                             |  |                                                                                                                               |  | Erasing head : 10...12 V                                                                                                  |  | Measuring-points for the sensitivity of the various amplifier stages (see IT).           |
| Amplifier on position "Recording".                                                                                          |  |                                                                                                                               |  |                                                                                                                           |  |                                                                                          |
| (F) Des petites modifications de valeur peuvent être apportées aux composants électriques sans avis préalable du fabricant. |  | (D) Wir behalten uns das Recht vor, die Daten der elektrischen Bestandteile ohne vorherige Ankündigung geringfügig zu ändern. |  | (E) We reserve the right to introduce slight modifications of the data of electrical components, without previous notice. |  |                                                                                          |
| PB                                                                                                                          |  | 11.68                                                                                                                         |  | *                                                                                                                         |  | N                                                                                        |
| 1.2                                                                                                                         |  |                                                                                                                               |  |                                                                                                                           |  |                                                                                          |

Schéma de l'amplificateur  
Schaltbild des Verstärkers  
Diagram of amplifier

SM 8

50 Hz : 107 254

60 Hz : 131 932





**IT**

Schéma de l'amplificateur  
Schaltbild des Verstärkers  
Diagram of amplifier

**S M 8**

50 Hz: 107 254  
60 Hz: 131 932

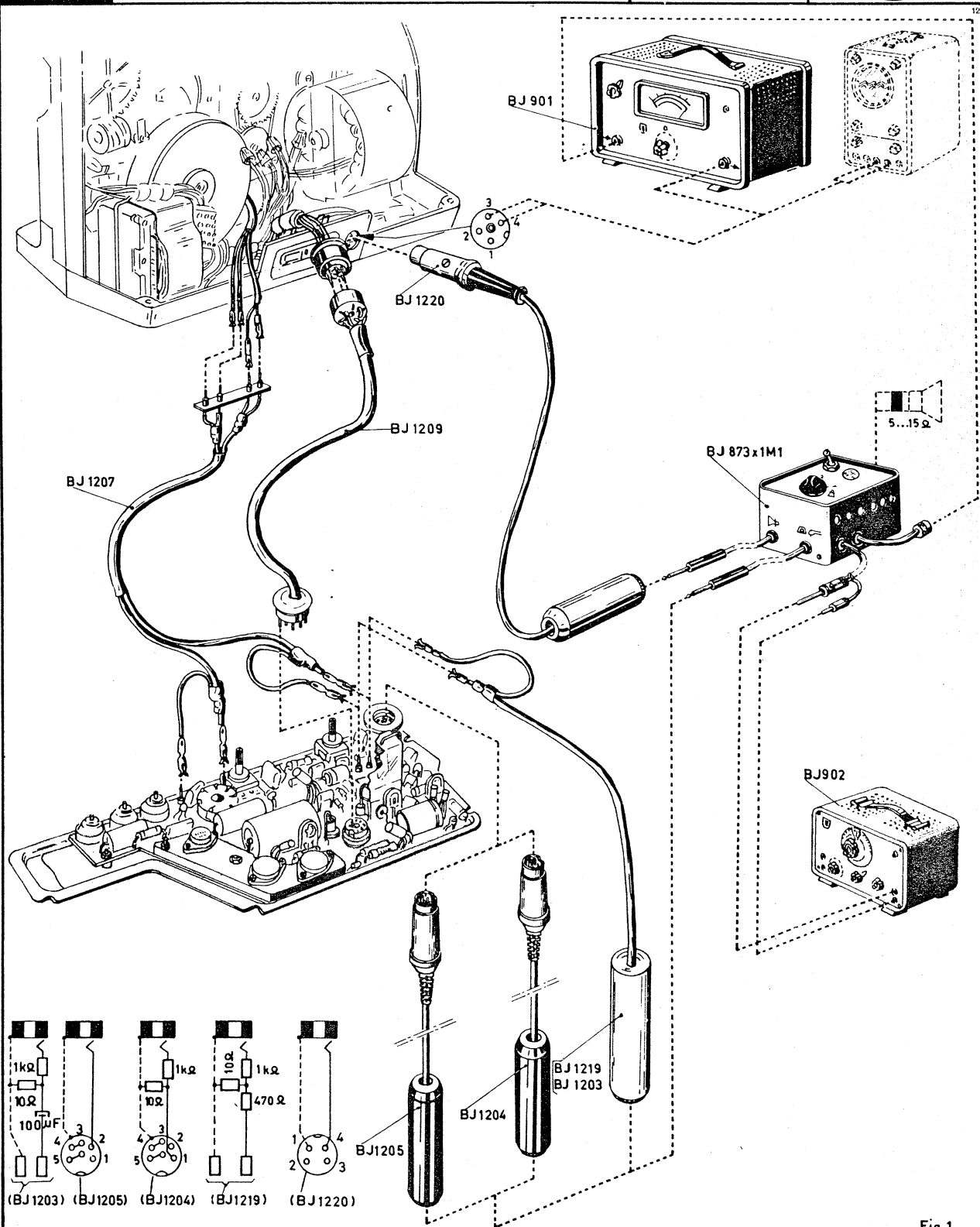


Fig.1

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**PB**

11.67

\*

**N**  
1.2

**II**

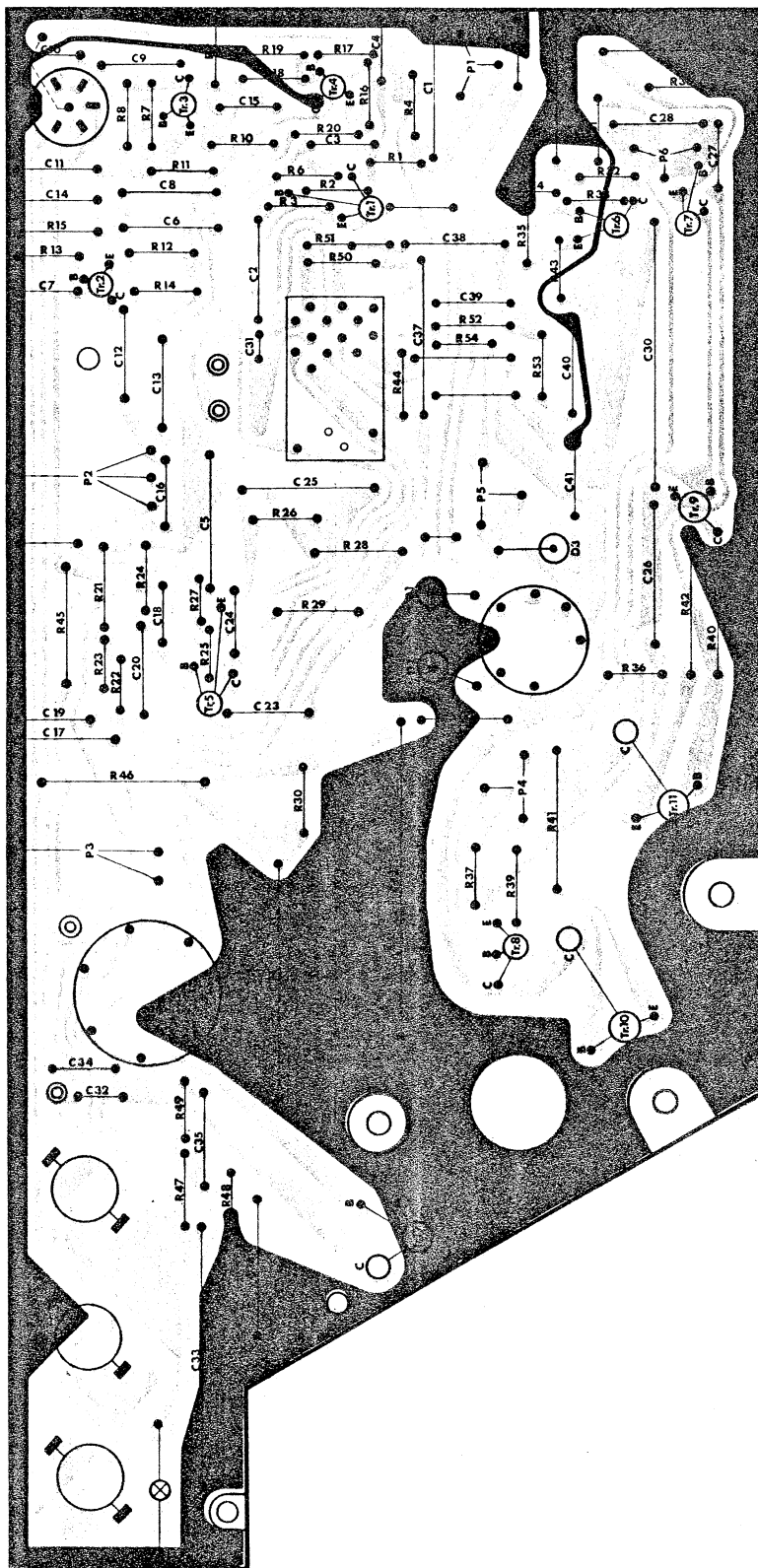


**IT**

# Schéma de l'amplificateur Schaltbild des Verstärkers Diagram of amplifier

**SM8**

50 Hz: 107 254  
60 Hz: 131 932



autres connexions  
andere Verbindungen  
other connections

masse  
Masse  
ground

vue côté éléments  
Seite der elektrischen Komponenten  
side where electrical components are fixed

Fig. 2

**P B**

11.67

\*

**N**  
1.2

**III**

**FM**

Schéma de l'amplificateur  
Schaltbild des Verstärkers  
Diagram of amplifier

SM8

50 Hz: 100 00  
60 Hz: 130 00 →

**BOLEX**

15  
Anciennes pièces  
Alte Teile  
Former parts

16  
Nouvelles pièces  
Neue Teile  
New parts

17  
Observations  
Bemerkungen  
Remarks

(F) Par l'introduction du correcteur P4, l'ampli a été modifié pour :

- 1) augmenter le rendement du cycle enregistrement-lecture aux fréquences basses
- 2) atténuer le bruit de fond
- 3) augmenter le rendement de la tête d'enregistrement-lecture.

(Pour la modification de valeur des C12, C37 et C39, ainsi que pour l'adjonction des C43, R54 et P4 voir onglet "P").

(D) Mit der Einführung des Korrektionspotentiometers P4 wurde der Verstärker im Hinblick auf folgende Punkte geändert :

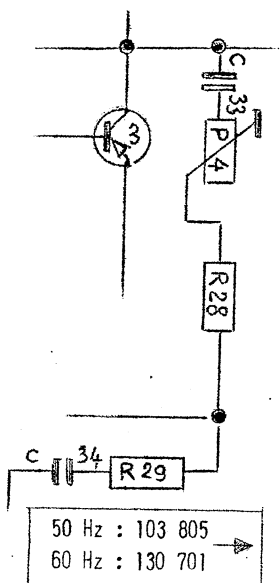
- 1) Um die Leistung Aufnahme-Wiedergabe bei den niedrigen Frequenzen zu verbessern
- 2) Um das Grundgeräusch zu dämpfen
- 3) Um die Leistung des Aufnahme-/Wiedergabetonkopfes zu verbessern.

(Was die Wertänderung der C12, C37 und C39, und die zusätzlichen C43, R54 und P4 anbelangt, siehe unter "P").

(E) Correction potentiometer P4 has been introduced to modify the amplifier with respect to the following points :

- 1) To have a better performance recording-playback at the low frequencies
- 2) To attenuate the ground noise
- 3) To improve the performance of the recording-playback sound head.

(As far as the modification of value of C12, C37 and C39 is concerned and to find the additional C43, R54 and P4, see tab "P"). (02.67)



(F) 1. Réintroduction de la R28 pour empêcher le P4 de descendre à zéro et de trop saturer la tête d'enregistrement aux basses fréquences.

2. Pour limiter la puissance du haut-parleur témoin la valeur de R41 a changé (voir onglet P pour les valeurs de R28 + R41).

(D) 1. Wiedereinführung des R28, damit P4 nicht auf Null abfallen kann und dadurch der Aufnahmekopf bei den niedrigen Frequenzen zu sehr gesättigt wird.

2. Um die Leistungsaufnahme des eingebauten Lautsprechers zu begrenzen, wurde der Wert des R41 geändert (Werte R28 + R41 siehe unter "P").

(E) 1. Re-introduction of R28, in order to prevent P4 from dropping to zero and thus the recording head does not get too saturated at low frequencies.

2. In order to limit the power consumption of the built-in loudspeaker, the value of R41 has been modified (values of R28 + R41 see under tab P). (05.67)

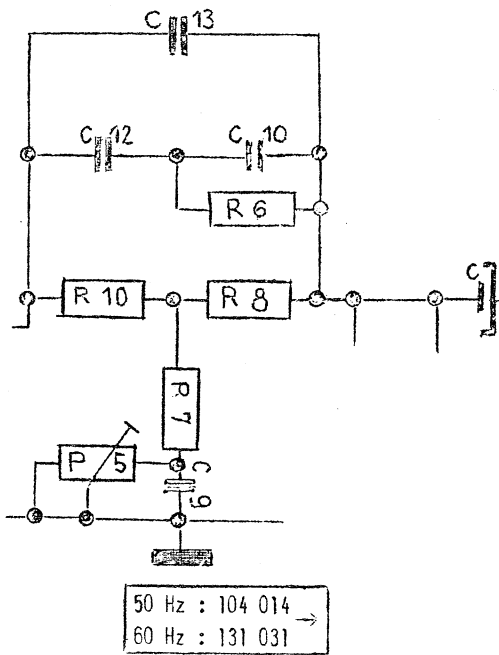
**FM**

Schéma de l'amplificateur  
Schaltbild des Verstärkers  
Diagram of amplifier

SM8

50 Hz: 100 001  
60 Hz: 130 001

**BOLEX**

| <p>15<br/>Anciennes pièces<br/>Alte Teile<br/>Former parts</p> | <p>16<br/>Nouvelles pièces<br/>Neue Teile<br/>New parts</p>                                                                     | <p>17<br/>Observations<br/>Bemerkungen<br/>Remarks</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|----------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                |  <p>50 Hz : 104 014<br/>60 Hz : 131 031 →</p> | <p>(F) Introduction du P5 servant à régler le niveau des basses fréquences (100 Hz) du cycle d'enregistrement et modification des valeurs de R25, R26, R27, R30, R41, C27 et du transistor 6 (voir onglet P).</p> <p>(D) Einführung des Potentiometers P5 um das Niveau der niederen Frequenzen (100 Hz) im Aufnahmezyklus einstellen zu können und Änderung der Werte von R25, R26, R27, R30, R41, C27 und des Transistors Nr. 6 (siehe auch unter Ziffer P).</p> <p>(E) Introduction of potentiometer P5 in order to allow adjustment of low frequencies (100 Hz) in recording and modification of values of R25, R26, R27, R30, R41, C27 and transistor No. 6 (please refer to tab P too). (05.67)</p> |
|                                                                |                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |

PB

05.67

\*

PD. - N - 1 - 02.67

3

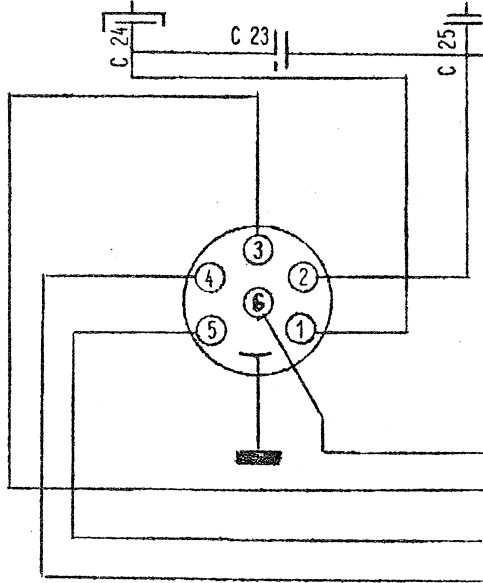
**FM**

Schéma de l'amplificateur  
Schaltbild des Verstärkers  
Diagram of amplifier

SM8

50 Hz: 104 014  
60 Hz: 131 031 →

**BOLEX**

| <p>15<br/>Anciennes pièces<br/>Alte Teile<br/>Former parts</p> | <p>16<br/>Nouvelles pièces<br/>Neue Teile<br/>New parts</p>                       | <p>17<br/>Observations<br/>Bemerkungen<br/>Remarks</p>                                                                                                                       |
|----------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                |  | <p>(F) Erreur dans la numérotation de la prise d'entrée.<br/>(D) Fehlerhafte Numerierung der Steckbuchse.<br/>(E) Erroneous numbering of socket contacts.</p> <p>(08.67)</p> |
|                                                                |                                                                                   |                                                                                                                                                                              |

PB

08.67

\*

PD - N - 1.1 - 07.67

9

**FM**

Schéma de l'amplificateur  
Schaltbild des Verstärkers  
Diagram of amplifier

SM8

**BOLEX**

50 Hz: 107 254

60 Hz: 134 932 →

| 15<br>Anciennes pièces<br>Alte Teile<br>Former parts | 16<br>Nouvelles pièces<br>Neue Teile<br>New parts | 17<br>Observations<br>Bemerkungen<br>Remarks                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|------------------------------------------------------|---------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1                                                    |                                                   | <p>(F) Pour éviter tout malentendu, les 2 dernières lignes du 2ème paragraphe devraient se lire :<br/>Une connection à bas niveau (500 mV, 200 Ω) destinée à la liaison avec l'entrée d'un amplificateur extérieur est possible entre les bornes 2 et 4 ou 3 et 4. La borne 4 est mise à la masse.</p> <p>(D) Um jedes Missverständnis auszuschliessen, müssen die beiden letzten Zeilen des Absatz 2 lauten :<br/>Ein niederwertiger Anschluss (500 mV, 200 Ω) für die Verbindung mit dem Eingang eines getrennten Verstärkers ist möglich zwischen den Klemmen 2 und 4, oder 3 und 4. Klemme 4 liegt an Masse.</p> <p>(E) In order to avoid any possible misunderstanding, the last two lines of paragraph 2 should read :<br/>A low value connection (500 mV, 200 Ω) for connecting the entry of a separate amplifier, is possible between terminals 2 and 4, or 3 and 4. Terminal 4 is connected to ground.</p> <p>(12.67)</p> |
|                                                      |                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |

**PB**

12.67



1 - N1.2 - 1 - 11.67

**1**

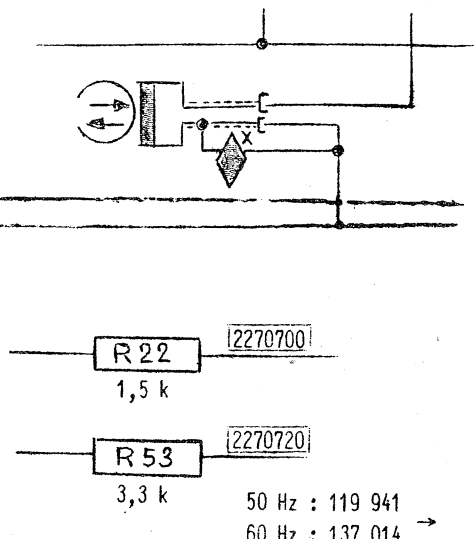
**FM**

Schéma de l'amplificateur  
Schaltbild des Verstärkers  
Diagram of amplifier

SM8

50 Hz : 107 254  
60 Hz : 131 932 →

**BOLEX**

| 15<br>Anciennes pièces<br>Alte Teile<br>Former parts | 16<br>Nouvelles pièces<br>Neue Teile<br>New parts                                                                                                                                        | 17<br>Observations<br>Bemerkungen<br>Remarks                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1                                                    |  <p>R22 2270700<br/>1,5 k</p> <p>R53 2270720<br/>3,3 k</p> <p>50 Hz : 119 941<br/>60 Hz : 137 014 →</p> | <p>(F) Pour monter la nouvelle tête magnétique "Photovox" 2286419, il est nécessaire d'inverser le branchement de la tête, ainsi que le changement des résistances R22 et R53.<br/>(Voir modification 3, FM2 - PD - F - 1.1 - 10.68).<br/>(D) Beim Einbau des neuen Tonkopfes "Photovox" 2286419 ist es erforderlich die Anschlüsse umzukehren und die Widerstände R22 und R53 auszutauschen.<br/>(Siehe Änderung 3, FM2 - PD - F - 1.1 - 10.68).<br/>(E) When mounting the new "Photovox" sound head 2286419, it is necessary to invert the connections, and to replace resistances R22 and R53.<br/>(See also modification 3, FM2 - PD - F - 1.1 - 10.68).<br/>(08.69)</p> |
|                                                      |                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |

IT

# Schéma de l'amplificateur Schaltbild des Verstärkers Diagram of amplifier

SM 8

 50 Hz: 100 001  
 60 Hz: 130 001


## B. Amplifier only

### 1. Measuring the sensitivity

- 1.1. Connect cables BJ 1206, BJ 1205 (for checking phono input), BJ 1204 (for checking micro input), BJ 1203 (for checking sound head input), as well as output transformer BJ 1208, switch box BJ 873x1 M1 (with resistance 10  $\Omega$ ), voltmeter BJ 901, and low frequency generator BJ 902.

If the amplifier is not separated from the projector, cable BJ 1206 is not needed.

- 1.2. Set both potentiometers, tone control and volume control, to maximum position.  
 1.3. Feed successively a voltage with a frequency of

500 Hz

into the various inputs of the amplifier, so that the output voltage measured at pos. 2 of switchbox BJ 871x1 M1 is always

2.75 V

Position 1 permits to read off the input voltages that must be below the following figures :

|                  |                    |                                        |
|------------------|--------------------|----------------------------------------|
| Input phono      | $\leq 250$ mV      |                                        |
| Input micro      | $\leq 350$ $\mu$ V | (reading at voltmeter 35 $\mu$ V) *    |
| Input sound head | 40...60 $\mu$ V    | (reading at voltmeter 4...6 $\mu$ V) * |

\*(In order to permit reading very low values at the micro and sound head inputs, cables BJ 1203 and BJ 1204 are fitted with a voltage divider 100:1).

- 1.3.1. It is possible to adjust the sensitivity of the amplifier at the sound head input by means of potentiometer P3. When doing this, check at the oscilloscope that the amplifier does not have too much distortion.  
 1.3.2. If the sensitivity at the phono and micro inputs is not sufficient, the transistors ought to be checked.  
 1.3.3. To facilitate trouble-shooting, check the amplifier stage by stage, as per section 3, and also check the D.C. voltages as per section 6.

PB

07.67

E

N  
1

III

**IT**

# Schéma de l'amplificateur Schaltbild des Verstärkers Diagram of amplifier

**SM 8**50 Hz: 100 001  
60 Hz: 130 001

12

## A. General remarks

### 1. Tooling equipment

|             |                                                                    |
|-------------|--------------------------------------------------------------------|
| BJ 1215     | Processed film with magnetic track.                                |
| BJ 1203     | Connecting cable for input sound heads with voltage divider 100:1. |
| BJ 1204     | Connecting cable for micro input with voltage divider 100:1.       |
| BJ 1205     | Connecting cable for phono input.                                  |
| BJ 1206     | Connecting cable between amplifier and projector.                  |
| BJ 1207     | Connecting cable between sound heads and amplifier.                |
| BJ 1208     | Output transformer (replaces the loudspeaker).                     |
| BJ 1167     | Special screwdriver, Philips PB No. 190.                           |
| BJ 1199     | Gauge for adjusting sound heads.                                   |
| BJ 873xl M1 | Switchbox with resistance 10 Ω.                                    |
| BJ 901      | Electronic voltmeter.                                              |
| BJ 902      | Low frequency generator.                                           |

Fig. 1 shows how to connect the various cables and instruments.

### 2. Precautions

The output being taken directly from the push-pull stage, i.e. the two output transistors (I and II, in the diagram), it is very important to observe the following precautions, lest there is a risk of over-heating and finally burning out the transistors, so that amplifier and loudspeaker may get damaged.

- 2.1. Avoid all short-circuits and earth faults of the loudspeaker connections.
- 2.2. The 4-pole output socket can only be used for the extension loudspeaker and the output transformer BJ 1208 supplied by us. Measuring attempts, made with a view to connect other installations may have a fatal effect on the final stage of the amplifier.
- 2.3. Always use transformer BJ 1208 for measurements. Never connect transformer BJ 1208 to the projector without having previously connected it to switchbox BJ 873xl M1.
- 2.4. Use the output of the projector with care. When measuring with a sinusoidal signal, do not use the full output (4 W) for more than 1 minute.
- 2.5. Prior to connecting transformer BJ 1208, set the loudspeaker switch to position "large loudspeaker symbol".

### 3. Replacing output transformers I and II

The two transistors I and II of the push-pull stage must be matched, which has been done by the manufacturer with all transistors having the same identification letter. When replacing a defect transistor, always take a fresh one with the same letter, or replace both.

**PB****07.67****E****N****1****I**



**IT**

# Schéma de l'amplificateur Schaltbild des Verstärkers Diagram of amplifier

**SM 8**50 Hz: 107 254  
60 Hz: 131 932

## A. General remarks

### 1. Tooling equipment

|             |                                                                        |
|-------------|------------------------------------------------------------------------|
| BJ 1203     | Connecting cable with voltage divider 100:1                            |
| BJ 1204     | Connecting cable for micro input, with voltage divider 100:1           |
| BJ 1205     | Connecting cable for phono input                                       |
| BJ 1207     | Connecting cable between sound heads and amplifier                     |
| BJ 1209     | Connecting cable between amplifier and projector                       |
| BJ 1215     | Processed film with magnetic track                                     |
| BJ 1219     | Connecting cable for input sound heads, with voltage divider 100:1     |
| BJ 873x1 M1 | Switchbox                                                              |
| BJ 901      | Electronic voltmeter                                                   |
| BJ 902      | Low frequency generator                                                |
| -           | Voltmeter for D.C. voltages, internal resistance $\geq 20000 \Omega/V$ |
| -           | Oscilloscope                                                           |
| BJ 1220     | Connecting cable between switchbox BJ 873x1 M1 and loudspeaker output  |

Fig. 1 shows how to connect the various cables and instruments.

2. Much as amplifiers with series connected push-pull final stage are considerably sturdier, it nevertheless ought to be avoided to connect the loudspeaker output (terminal 1 of the output socket) to ground for any appreciable time. The load may be between 5 and 15  $\Omega$ . When making measurements, set switchbox BJ 873x1 M1 to position 6  $\Omega$ .

The output of an external speaker, 5  $\Omega$ , without any stronger distortion, is 6 W, while the impedancy of the monitor speaker amounts to 15  $\Omega$ , 3 W. Terminals 2 and 3 of the output socket are low-value points (500 mV, 200  $\Omega$ ) for connection with the input of a separate amplifier. Terminal 4 is connected to ground.

### 3. Replacing transistors

The two pairs of transistors 8 and 9, as well as 10 and 11, respectively are matched. When replacing a defective transistor, always take a fresh one marked with the same letter - or replace both.

**PB**

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IT

# Schéma de l'amplificateur Schaltbild des Verstärkers Diagram of amplifier

SM 8

50 Hz: 100 001

60 Hz: 130 001



## 2. Checking the frequency response of the amplifier

- 2.1. Connect BJ 901, BJ 902, BJ 873xl M1, BJ 1205 and in case the amplifier has been separated from the projector, also BJ 1208. Introduce a voltage of

0.5 V, 500 Hz → 103804 (50 Hz)  
→ 130700 (60 Hz)

0.5 V, 1000 Hz 103805 → (50 Hz)  
130701 → (60 Hz)

into the phono input, and set tone control potentiometer to max. position, volume control potentiometer so as to have an output voltage of

0.77 V = 0 dB

Leave the potentiometers in that position.  
Feed successively a voltage of

0.5 V

with various frequencies. The output voltages must correspond to the following values with a tolerance of

± 3.5 dB

| f [Hz] | → 100130 (50 Hz)<br>Mu-metal sound head |      | 50 Hz : 100131 → 103804<br>60 Hz : 130001 → 130700<br>VACODUR sound head |      | 50 Hz : 103805 →<br>60 Hz : 130701 →<br>modified amplifier<br>(basic frequency = 1000 Hz) |      |
|--------|-----------------------------------------|------|--------------------------------------------------------------------------|------|-------------------------------------------------------------------------------------------|------|
|        | [dB]                                    | [V]  | [dB]                                                                     | [V]  | [dB]                                                                                      | [V]  |
| 100    | + 4.5                                   | 1.30 | + 10                                                                     | 2.44 | + 9                                                                                       | 2.17 |
| 300    | 0                                       | 0.77 | + 3                                                                      | 1.09 | + 5                                                                                       | 1.37 |
| 500    | 0                                       | 0.77 | 0                                                                        | 0.77 | + 2                                                                                       | 0.97 |
| 1000   | + 1                                     | 0.86 | - 1                                                                      | 0.69 | 0                                                                                         | 0.77 |
| 2000   | + 4                                     | 1.22 | + 3.5                                                                    | 1.16 | + 3                                                                                       | 1.09 |
| 3000   | + 7                                     | 1.72 | + 6.5                                                                    | 1.64 | + 6                                                                                       | 1.54 |
| 5000   | + 11.5                                  | 2.90 | + 9.5                                                                    | 2.32 | + 9.5                                                                                     | 2.32 |
| 8000   | + 15                                    | 4.36 | + 11                                                                     | 2.75 | + 11.5                                                                                    | 2.90 |
| 10000  | + 16                                    | 4.86 | + 14                                                                     | 3.85 | + 11.5                                                                                    | 2.90 |

PB

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1

IV

3. Measuring the sensitivity of the various amplifier stages  
(pos. I...IV on the diagram)

3.1. Feed into pos. I...IV a voltage with a frequency of

500 Hz

so that the output voltage, measured at switching position 2 of switchbox BJ 873x1 M1 is

2.75 V

The input impedance amounts to

10...20 Ω

Use cable BJ 1203 (with voltage divider 100:1) for that operation.

The input voltages must be below :

3.1.1. Position I :

≅ 30 mV (≅ 3 V, if BJ 1203 is used)

Potentiometer "volume control" set to 0  
Potentiometer "tone control" set to 0

(see fig. 3).

3.1.2. Position II :

≅ 2.4 mV (≅ 240 mV, if BJ 1203 is used)

Potentiometer "volume control" set to 0  
Potentiometer "tone control" set to 0

(see fig. 4).

3.1.3. Position III :

≅ 27 mV (≅ 2.7 V, if BJ 1203 is used)

Potentiometer "volume control" set to maxi  
Potentiometer "tone control" set to maxi

(see fig. 5).

3.1.4. Position IV :

≅ 1.4 mV (≅ 140 mV, if BJ 1203 is used)

Potentiometer "volume control" set to maxi  
Potentiometer "tone control" set to maxi

(see fig. 6).

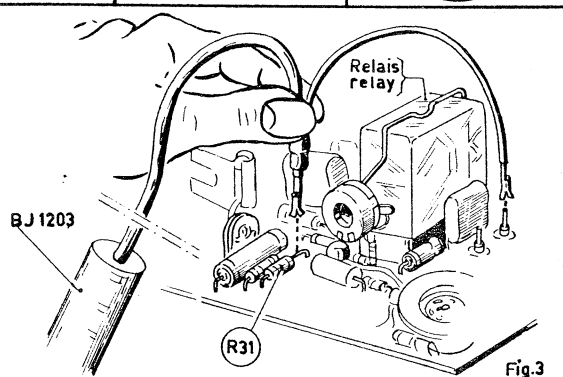


Fig. 3

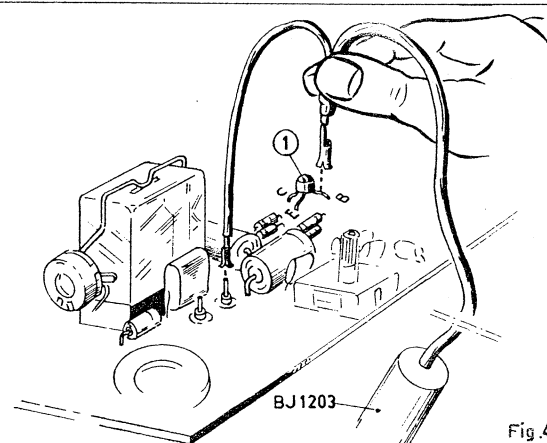


Fig. 4

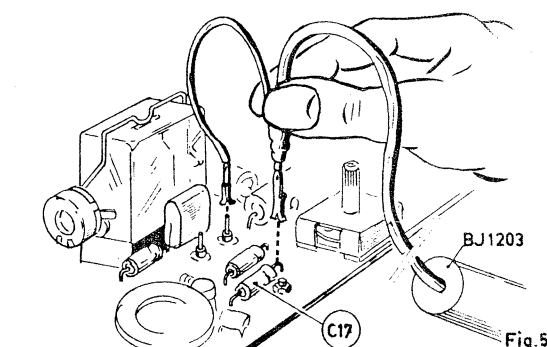


Fig. 5

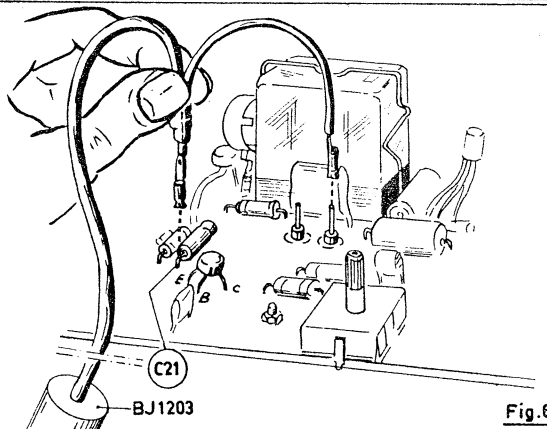


Fig. 6

4. HF voltage for sound heads

Connect both sound heads by means of cable BJ 1207 and set the amplifier to "recording".

In order that it remains in that position, connect cable BJ 1205.

Volume control potentiometer set to zero, measure the HF voltage at the terminals of the sound heads with the aid of the electronic voltmeter.

Voltage at the recording head **a** : 7...9 V

Voltage at the erasing head **b** : 13...15 V

5. Checking the V.U. meter level

Amplifier switched to recording, sound heads connected. Introduce into the phono input a voltage of

0.5 V at 500 Hz

Set tone control potentiometer to max. position, volume control potentiometer so as to get a voltage of

$1 \pm 0.25$  V at point **A**

measured with an electronic voltmeter. The V.U. meter needle must then be at the beginning of the red zone (see fig. 7).

6. Checking the D.C. voltages (see measuring points **135**, **11**, ... in the amplifier diagram).

Those voltages are negativ with respect to ground and are measured with a voltmeter having an internal resistance of

$\geq 20000 \text{ } \Omega/\text{V}$

Tolerance, unless otherwise stated,

$\pm 10 \%$

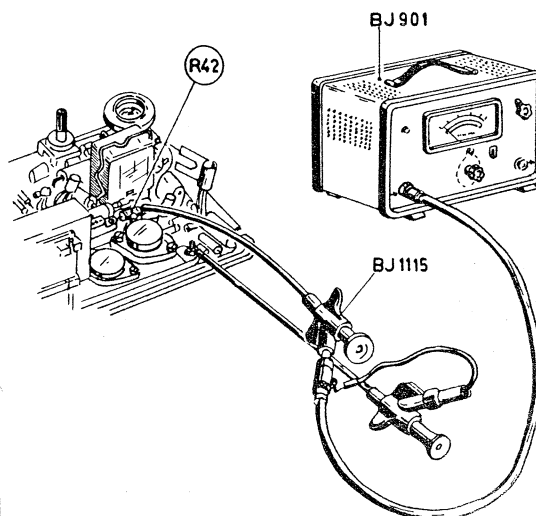


Fig.7

**IT**

# Schéma de l'amplificateur Schaltbild des Verstärkers Diagram of amplifier

**SM 8**50 Hz:100 001  
60 Hz:130 001

## C. Recording-Playback cycle

### 1. Checking the recording-playback diagram

- 1.1. Projector assembled, sound heads adjusted as per IT.  
Mechanical adjustments made.  
Load projector with striped film BJ 1215. Connect BJ 901, BJ 902, BJ 873xl M1, BJ 1208 and BJ 1205.  
Switch amplifier to recording.  
Introduce a voltage of

0.5 V at 5000 Hz

into the phono input and set volume control potentiometer so as to have the needle of the V.U. meter at the beginning of the red zone, drive motor not running.

Leaving the volume control potentiometer in that position, introduce successively a voltage of

0.5 V

at various frequencies, as per table below, and record them with

24 f./s

- 1.2. Projectors -- 103804 (50 Hz) and -- 130700 (60 Hz)

Set tone control potentiometer to max. position and switchbox BJ 873xl M1 to pos. 2.

Play the recorded signal of

500 Hz

back, and set the volume control potentiometer so as to get an output voltage of

0.77 V = 0 dB

Play the other frequencies back, leaving in the same position the volume control potentiometer.  
The output voltages must correspond to the values given below, with a tolerance of

± 3.5 dB

| f [Hz] | Mu-metal sound head<br>-- 100130 (50 Hz) |      | VACODUR sound head<br>50 Hz : 100131 -- 103804<br>60 Hz : 130001 -- 130700 |      |
|--------|------------------------------------------|------|----------------------------------------------------------------------------|------|
|        | 24 f./s                                  |      | 24 f./s                                                                    |      |
|        | [dB]                                     | [V]  | [dB]                                                                       | [V]  |
| 500    | 0                                        | 0.77 | 0                                                                          | 0.77 |
| 100    | - 6.5                                    | 0.37 | 0                                                                          | 0.77 |
| 200    | - 2.5                                    | 0.59 | + 2                                                                        | 0.97 |
| 300    | - 2                                      | 0.61 | + 1                                                                        | 0.86 |
| 400    | - 1                                      | 0.69 | 0                                                                          | 0.77 |
| 1000   | + 3                                      | 1.09 | - 2                                                                        | 0.61 |
| 2000   | + 6                                      | 1.54 | 0                                                                          | 0.77 |
| 3000   | + 8.5                                    | 2.04 | + 1                                                                        | 0.86 |
| 4000   | + 9.5                                    | 2.32 | + 2                                                                        | 0.97 |
| 5000   | + 10                                     | 2.44 | + 2                                                                        | 0.97 |
| 6000   | + 10                                     | 2.44 | 0                                                                          | 0.77 |
| 7000   | + 9                                      | 2.17 | - 3                                                                        | 0.53 |
| 8000   | + 7.5                                    | 1.82 | - 5                                                                        | 0.43 |

**PB**

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1**VII**

1.3. Projectors 103805 -- (50 Hz) and 130701 -- (60 Hz)

Recording as per 1.1, for 24 and 18 f./s. Playback as per 1.2, however a signal of

1000 Hz

is to be used for setting the volume control potentiometer.

The output voltages must correspond to the following figures, with a tolerance of

$\pm 3.5$  dB

| r [Hz] | 50 Hz : 103805 --<br>60 Hz : 130701 -- |      |         |      |
|--------|----------------------------------------|------|---------|------|
|        | 24 f./s                                |      | 18 f./s |      |
|        | [dB]                                   | [V]  | [dB]    | [V]  |
| 1000   | 0                                      | 0.77 | 0       | 0.77 |
| 100    | - 1                                    | 0.69 | 0       | 0.77 |
| 200    | + 2                                    | 0.97 | + 1.5   | 0.92 |
| 300    | 0                                      | 0.77 | + 0.5   | 0.81 |
| 400    | - 1.5                                  | 0.64 | - 0.5   | 0.72 |
| 500    | - 1.5                                  | 0.64 | - 1     | 0.69 |
| 2000   | + 7                                    | 1.72 | + 4     | 1.22 |
| 3000   | + 9.5                                  | 2.32 | + 7.5   | 1.82 |
| 4000   | + 10.5                                 | 2.60 | + 7.5   | 1.82 |
| 5000   | + 10                                   | 2.44 | + 6.5   | 1.64 |
| 6000   | + 9                                    | 2.17 | + 4     | 1.22 |
| 7000   | + 8                                    | 1.97 | + 1     | 0.86 |
| 8000   | + 5                                    | 1.37 | - 3     | 0.53 |

1.4. Adjusting potentiometer P4 : (Projectors 100749 -- (50 Hz) and 130001 -- (60 Hz)

The potentiometer P4, series-connected with the recording head, is adjusted in order to play back a sinusoidal curve without too much distortion (observe on the oscilloscope).

1.5. Adjusting potentiometer P5 : (Projectors 104014 -- (50 Hz) and 131031 -- (60 Hz)

It is possible to correct the cycle for the low frequencies by means of potentiometer P5. By increasing the resistance the basses are increased, but care has to be taken not to get too much ground noise (see section 2).

**IT**

# Schéma de l'amplificateur Schaltbild des Verstärkers Diagram of amplifier

**S M 8**50 Hz:100 001  
60 Hz:130 001

12

## 2. Ground noise

2.1 Record a frequency of

**1000 Hz**

on film BJ 1215.

Tension at the phono input

**0.5 V at 24 f./s**

V.U. meter needle at the beginning of the red zone.

2.2 When playing back, set the volume control potentiometer so as to get an output voltage of

**2.75 V**

(Pos. 2 of switchbox BJ 873x1 M1). The tone control potentiometer must be in max. position.

2.3 The ground noise, measured when the motor is running and with unrecorded film, must not exceed

**120 mV**

When doing this measurement, set switchbox BJ 873x1 M1 to pos. 2 and the two potentiometers for volume control and tone control, resp., as per 2.2.

2.4 An anti-buzzing coil is recommended in some cases in order to reduce the humming of the amplifier. Section F "Magnetic sound heads" explains how to mount and align it.

## 3. Voltage level of the built-in loudspeaker

Insert a voltage of

**0.5 V at 500 Hz**

into the phono input. The projector must be switched to recording, and the lower edge of the V.U. meter needle has to be lead to the lower limit of the red zone.

Switchbox BJ 873x1 M1 set to position 2. Now the output voltage must be

 **$\geq 100$  mV**

Do not switch on the built-in loudspeaker for that measurement.

## 4. V.U. meter

4.1 Insert into the phono input (cable BJ 1205) a voltage with a frequency of

**500 Hz**

Set the volume control potentiometer to its max. position and the amplifier to recording. Increase the input voltage until the needle of the V.U. meter reaches the limit of the recording level (beginning of the red zone). The fed in voltage must then be

 **$\leq 200$  mV**

4.2 Check correct operation of the V.U. meter by slowly increasing and decreasing the input voltage.

**PB****07.67****E****N  
1****IX**

IT

# Schéma de l'amplificateur Schaltbild des Verstärkers Diagram of amplifier

SM 8

 50 Hz: 100 001  
 60 Hz: 130 001


## 5. Superimposition

Record for checking a

1000 Hz

signal at the limit of the recording level, and at 24 f./s. Make a superimposition with the aid of the microphone, volume control potentiometer set to "0" (to avoid recording a signal).

When playing back, set the level of the original recording to

0.77 V = 0 dB

and the tonal control potentiometer to its max. position. Partial erasing, with respect to the original recording is then at

- 5 dB ... - 15 dB

or 0.43 V ... 0.136 V

## 6. Flutter test

Flutter is to be checked at the oscilloscope.

6.1 Feed a voltage of

0.5 V at 5000 Hz

into the phono input. Record that frequency at 18 f./s on film BJ 1215 with magnetic track. Keep the needle of the V.U. meter at the beginning of the red zone.

6.2 Check the variations of amplitude at the oscilloscope when playing back. In order to cut out the interfering frequencies due to induction of the mains on the sound head, insert between the output of the projector and the input of the oscilloscope a high-pass filter the dip frequency of which has been set to  $f_0 = 500$  Hz. See fig. 8.

6.3 Rapid variations of amplitude must not exceed

30 %

with a BJ 1215 film, the sound track of which is of good quality, at 18 f./s.

Slow variations of amplitude, under the same conditions, must not be greater than

20 %

6.4 In case flutter attains a higher level, modify the pressure on the sound head by slightly loosening screws (a) and (b) and pressing pressure device (c) against the sound head (fig. 9).

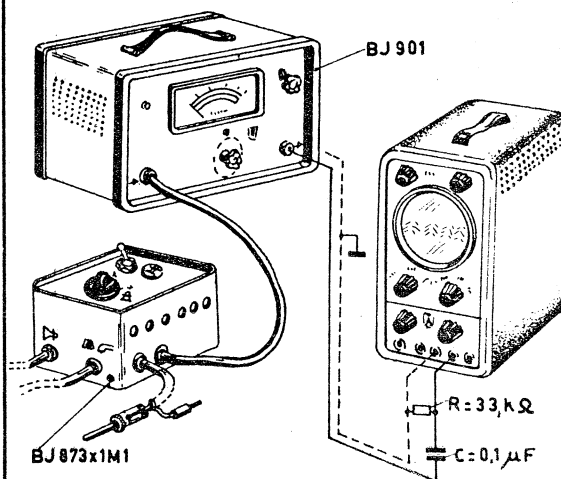


Fig. 8

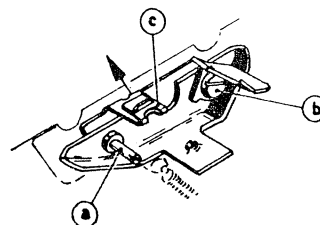


Fig. 9

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X



**IT**

# Schéma de l'amplificateur Schaltbild des Verstärkers Diagram of amplifier

**SM 8**50 Hz: 107 254  
60 Hz: 131 932 →**B. Amplifier only****1. Measuring the sensitivity**

- 1.1 Connect BJ 901, BJ 902, BJ 873x1 M1 (position 6 Q), BJ 1209, BJ 1220, as well as cable BJ 1205 for checking phono input, or BJ 1204 for checking micro input, or BJ 1219 for checking sound head input.

If the amplifier is not separated from the projector, cable BJ 1209 is not needed.

- 1.2 Set both potentiometers, tone control and volume control, to maximum position.

- 1.3 Feed successively a voltage with a frequency of

**1000 Hz**

into the various inputs of the amplifier, so that the output voltage measured at position 2 of switchbox BJ 873x1 M1 (load 6 Q!) is always

$$2.12 \text{ V} = 0.75 \text{ W}$$

Position 1 of switchbox BJ 873x1 M1 permits to read off the input voltages that must be below the following figures :

Input phono

**≤ 150 mV**

Input micro

**≤ 200 μV**

(reading at voltmeter 20 mV)\*

Input sound head

**≤ 11Q μV**

(reading at voltmeter 11 mV)\*

\*(In order to permit reading very low values at the micro and sound head inputs, cables BJ 1204 and BJ 1219 are fitted with a voltage divider 100:1, see diagram fig. 1).

Note : The figure of 100 μV, given for the sensitivity of the sound head input is a maximum value and depends on the adjustment of potentiometer P1. As to that adjustment, please refer to section 6 - Adjustment of potentiometers.

- 1.4 If the sensitivity is not sufficient, check the transistors.
- 1.5 To facilitate trouble-shooting, check the amplifier stage by stage, as per section 3, and also check the D.C. voltages, as per section 5.

**PB****11.67****E****N****1.2****IV**

**IT**

# Schéma de l'amplificateur Schaltbild des Verstärkers Diagram of amplifier

**S M 8**50 Hz: 107 254  
60 Hz: 131 932

## 2. Checking the frequency response of the amplifier

2.1 Connect BJ 873x1 M1 (Position 6  $\Omega$ ), BJ 901, BJ 902, BJ 1205, BJ 1220 and, in case the amplifier has been separated from the projector, also BJ 1209.

2.2 Feed into the phono input a voltage of

**0.5 V, 1000 Hz**

2.3 Set the tone control potentiometer to maximum position and the volume control potentiometer so as to have an output voltage of

**0.77 V = 0 dB**

Leave the potentiometers in that position !

2.4 Feed successively a voltage of

**0.5 V**

with various frequencies. The output voltages must correspond to the following values, with a tolerance of

 **$\pm 3.5$  dB**

| f [Hz] | [dB]  | [V]  |
|--------|-------|------|
| 100    | + 3.5 | 1.16 |
| 300    | + 1.5 | 0.92 |
| 500    | + 0.5 | 0.81 |
| 1000   | 0     | 0.77 |
| 2000   | + 0.5 | 0.81 |
| 3000   | + 1.5 | 0.92 |
| 5000   | + 3.5 | 1.16 |
| 8000   | + 4.5 | 1.30 |
| 10000  | + 5   | 1.37 |

**PB****11.67****E****N****1.2****V**

3. Measuring the sensitivity of the various amplifier stages  
(Pos. **I** ... **IV** on the diagram)3.1 Feed into positions **I** ... **IV** a voltage with a frequency of

1000 Hz

so that the output voltage, measured at switching position 2 of switchbox BJ 873x1 M1 (position 6  $\Omega$ ) is

2.12 V

The input impedance amounts to

10...20  $\Omega$ 

Use cable BJ 1203 (with voltage divider 100:1) for that operation.

The input voltages are with a tolerance of

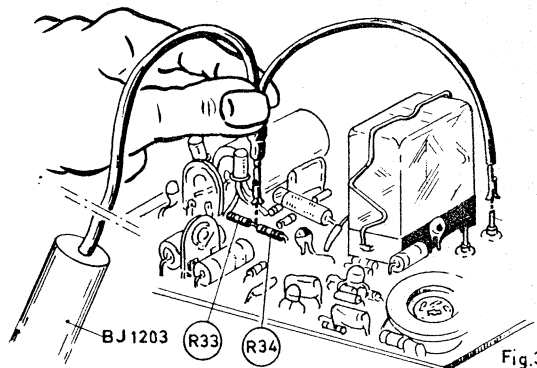
 $\pm 50\%$ 3.1.1 Position **I**:51 mV ( $\cong 5.1$  V, if BJ 1203 is used)Potentiometer "volume control" set to 0  
Potentiometer "tone control" set to 0  
(See fig. 3).3.1.2 Position **II**:2.5 mV ( $\cong 250$  mV, if BJ 1203 is used)Potentiometer "volume control" set to 0  
Potentiometer "tone control" set to 0  
(See fig. 4).3.1.3 Position **III**:8 mV ( $\cong 0.8$  V, if BJ 1203 is used)Potentiometer "volume control" set to maxi  
Potentiometer "tone control" set to maxi  
(See fig. 5).3.1.4 Position **IV**:370  $\mu$ V ( $\cong 37$  mV, if BJ 1203 is used)Potentiometer "volume control" set to maxi  
Potentiometer "tone control" set to maxi  
(See fig. 6).

Fig. 3

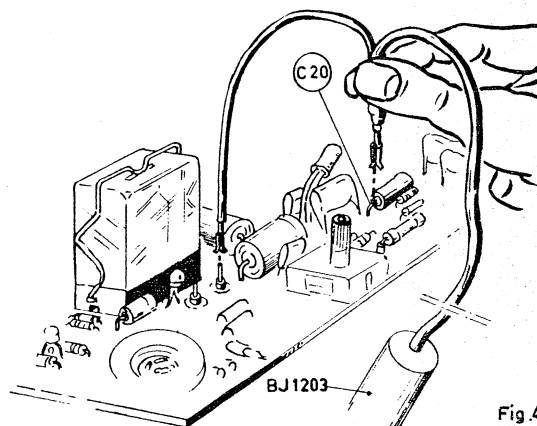


Fig. 4

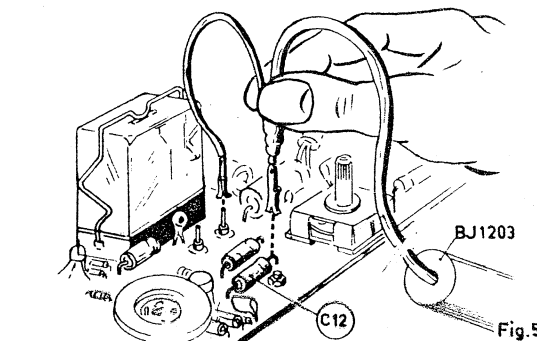


Fig. 5

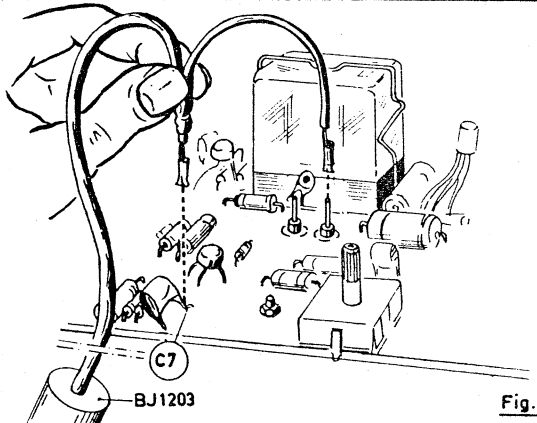


Fig. 6

(P) 4. Tension HF pour les têtes magnétiques

4.1 Si l'amplificateur est séparé du projecteur, brancher les 2 têtes magnétiques moyennant le câble BJ 1207.

4.2 Mettre l'amplificateur sur position enregistrement. Pour que l'amplificateur reste en position enregistrement, brancher le câble BJ 1205.

4.3 Potentiomètre "volume" à zéro, mesurer la tension HF avec un voltmètre électronique aux bornes des têtes magnétiques.

Tension tête enregistrement **a**: 10...12 V  
Tension tête effacement **b**: 10...12 V

5. Contrôle des tensions continues (voir points de mesure 135, 11... sur le schéma de l'amplificateur)

Ces tensions sont négatives par rapport à la masse et sont à mesurer avec un voltmètre ayant une résistance interne  $\geq 20000 \Omega/V$ . Tolérance de

$\pm 10 \%$

si aucune autre indication n'est mentionnée.

(D) 4. HF-Spannung für die Tonköpfe

4.1 Ist der Verstärker vom Projektor getrennt, so sind die 2 Tonköpfe mittels Kabel BJ 1207 anzuschliessen.

4.2 Verstärker auf "Aufnahme" stellen. Damit er so bleibt, Kabel BJ 1205 anschliessen.

4.3 Bei Lautstärkepotentiometer in Nullstellung ist die HF-Spannung mittels elektronischem Voltmeter an den Anschlüssen der Tonköpfe zu messen.

Spannung Aufnahmetonkopf **a**: 10...12 V  
Spannung Löschtonkopf **b**: 10...12 V

5. Kontrolle der Gleichspannungen (siehe Messpunkte 135, 11... im Schaltbild des Verstärkers)

Diese Spannungen sind in Bezug auf die Masse negativ und werden mit einem Voltmeter gemessen, das einen inneren Widerstand von  $\geq 20000 \Omega/V$  hat. Toleranz, falls nicht anders angegeben :

$\pm 10 \%$

(E) 4. HF voltage for sound heads

4.1 If the amplifier is separated from the projector, connect both sound heads by means of cable BJ 1207.

4.2 Set amplifier to "Recording" and, in order to keep it in that position, connect cable BJ 1205.

4.3 Volume control potentiometer set to zero, measure the HF voltage at the terminals of the sound heads with the aid of an electronic voltmeter.

Voltage at recording head **a**: 10...12 V  
Voltage at erasing head **b**: 10...12 V

5. Checking the D.C. voltages (see measuring points 135, 11... in the amplifier diagram)

These voltages are negative with respect to ground and are measured with a voltmeter having an internal resistance of  $\geq 20000 \Omega/V$ . Tolerance, unless otherwise stated,

$\pm 10 \%$

## 6. Adjustment of potentiometers

An oscilloscope is indispensable for adjusting the potentiometers. Warm the amplifier up for about 5 minutes before starting with that job.

The oscilloscope can directly be connected to terminals 1 and 4 (ground) of the output socket for extension loudspeaker, in order to avoid possible distortions, caused by voltmeter BJ 901.

## 6.1 Potentiometer P6

Feed into the phono input (cable BJ 1205) a voltage of

$$0.5 \text{ V, } 1000 \text{ Hz}$$

Set tone control potentiometer to maximum position, and adjust the one for volume control so as to obtain an oscillogram with slightly flattened upper and lower amplitudes (a), as per fig. 7. The output is about

$$6 \text{ W} = 6 \text{ V}$$

at position 2 of switchbox BJ 873x1 M1, resistance 6  $\Omega$ .

Adjust the potentiometer so as to have equal flattenings on top and below, as per fig. 8.

**Attention** : It should be avoided to use during a longer period the maximum output, since this entails the risk of overheating the transistors.

## 6.2 Potentiometer P4

Set potentiometer, as per fig. 9, in clockwise direction to maximum position.

Feed into phono input (cable BJ 1205) a voltage of

$$0.5 \text{ V, } 1000 \text{ Hz}$$

Set tonal control potentiometer to maximum position, and adjust the one for volume control such as to get an output of

$$0.5 \text{ W} = 1.9 \text{ V}$$

at position 2 of switchbox BJ 873x1 M1 (resistance 6  $\Omega$ ).

The oscillogram will then show a very slight shifting of the curve.

Adjust then potentiometer P4 until the said shifting is compensated, as per fig. 11, but do not overcompensate. If you go too far, the curve will not be displaced in the opposite direction, but the no-load current increases dangerously.

**Note** : Potentiometer P6 has a bearing on the adjustment of potentiometer P4 and should, therefore, be adjusted first.

The potentiometers being zeroized, the D.C. feeding the amplifier must not exceed

$$100 \text{ mA}$$

When measuring, replace the internal fuse by an ammeter.

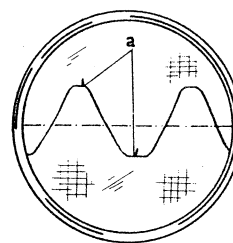


Fig. 7

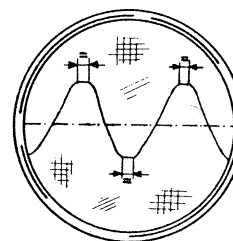


Fig. 8

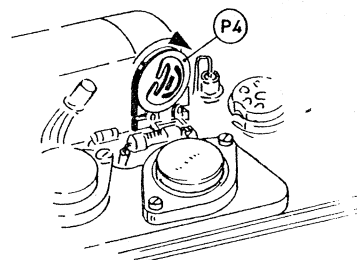


Fig. 9

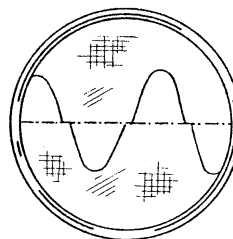


Fig. 10

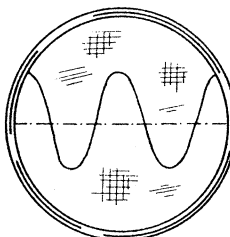


Fig. 11

IT

# Schéma de l'amplificateur Schaltbild des Verstärkers Diagram of amplifier

S M 8

50 Hz: 107 254  
60 Hz: 131 932

## 6.3 Potentiometer P1 (Adjusting the sensitivity of the sound head input)

Feed into the sound head input (cable BJ 1219) a voltage of

100  $\mu$ V, 1000 Hz (reading at voltmeter : 10 mV)

Set tonal control and volume potentiometers to maximum position. Adjust potentiometer P1 so as to obtain a voltage of

2.12 V = 0.75 W

measured at position 2 of switchbox BJ 873x1 M1 (load 6  $\Omega$ ).

In case the signal should be too feeble at the occasion of a check of the recording-playback cycle (section C), the sensitivity of the amplifier can be slightly increased (e.g. 90  $\mu$ V input for an output of 0.75 W). Make, however, sure that the ground noise level does not get too high !

## 6.4 Potentiometer P5 (V.M. meter)

6.4.1 Projector assembled, sound heads adjusted and connected as per IT, mechanical adjustments made.

Feed into the phono input a voltage of

0.5 V, 1000 Hz

Make a few sound recordings, setting the volume control potentiometer successively from 5 to 12 (fig. 12).

Note every time the counter reading, in order to know which adjustment is related to which recording.

When playing back, set the volume control potentiometer so as to have a mean output voltage of about 2 V at position 2 of switchbox BJ 873x1 M1 (resistance 6  $\Omega$ ).

Observe at the oscilloscope the frequencies of the different recordings, until you find the first one with distortion.

Take note of the volume control potentiometer setting at which the recording in question has been made. Set then the potentiometer back by one step and feed anew a voltage of

0.5 V, 1000 Hz

into the phono input. Projector set to "Recording", adjust the potentiometer so as to lead the pointer of the V.M. meter to the limit of the red zone.

**Example :** The recording made with volume control potentiometer set to 7 is allright, while the one where the potentiometer was set to 8 shows distortion. Return to position 7, feed 0.5 V, 1000 Hz, and lead the pointer of the V.M. meter to the limit of the red zone.

6.4.2 **Checking :** Feed into phono input (cable BJ 1205) a voltage with a frequency of

1000 Hz

Set the volume control potentiometer to maximum position, and switch amplifier to "Recording". Increase input voltage until the pointer of the V.M. meter is led to the limit of the recording level (limit of the red zone). The voltage fed into the phono input must then be

$\leq 150$  mV

Check correct operation of the V.M. meter by slowly increasing and decreasing the input voltage.

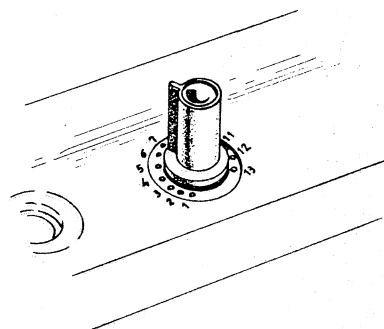


Fig.12

PB

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E

N  
1.2

IX

IT

# Schéma de l'amplificateur Schaltbild des Verstärkers Diagram of amplifier

SM 8

50 Hz: 107 254  
60 Hz: 131 932(F) 7. Efficacité du potentiomètre de la tonalité

Injecter à l'entrée "phono" (câble BJ 1205) une tension de

0,5 V à 8000 Hz

Potentiomètre "tonalité" au minimum, régler le potentiomètre de "volume" pour avoir une tension de sortie de

0 dB = 0,77 V

(position 2 du BJ 873x1 M1).

En tournant le potentiomètre "tonalité" au maximum, l'amplificateur doit avoir à

$\pm 3$  dB

près un gain de

+ 13 dB = 3,45 V

(D) 7. Wirksamkeit des Potentiometers für die Tonblende

In den Phono-Eingang (Kabel BJ 1205) eine Spannung von

0,5 V bei 8000 Hz

einspeisen. Potentiometer für die Tonblende in Minimalstellung, das Lautstärkepotentiometer so justieren, dass die Ausgangsspannung

0 dB = 0,77 V

(Position 2 des Schaltkästchens BJ 873x1 M1) beträgt. Durch Drehen des Potentiometers für die Tonblende auf Maximalstellung muss sich bei einer Toleranz von

$\pm 3$  dB

für den Verstärker eine Erhöhung von

+ 13 dB = 3,45 V

ergehen.

Efficiency of tonal control potentiometer

Feed into the phono input (cable BJ 1205) a voltage of

0.5 V, 8000 Hz

Tonal control potentiometer in minimum position, adjust the one for volume control so as to have an output voltage of

0 dB = 0.77 V

(position 2 of switchbox BJ 873x1 M1).

When setting the tonal control potentiometer to maximum position, an increase of

+ 13 dB = 3.45 V

must result for the amplifier, tolerance

$\pm 3$  dB

PB

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**IT**

# Schéma de l'amplificateur Schaltbild des Verstärkers Diagram of amplifier

**SM 8**50 Hz: 107 254  
60 Hz: 131 932

12

## 2. Signal recording-playback

2.1 Feed into the phono input a voltage of

**0.5 V, 1000 Hz**

2.2 Set projector to "Recording", and the volume control potentiometer so as to have the pointer of the V.U. meter at the limit of the red zone. Record.

2.3 Set BJ 873x1 M1 (position 6 Q) to position 2 and the volume and tonal control potentiometers to maximum position. The voltage measured when playing back must then amount to

 **$\geq 4.5 \text{ V} = 4 \text{ W}$** 

## 3. Ground noise

3.1 Record a frequency of

**1000 Hz**

on film BJ 1215.

Tension at the phono input

**0.5 V at 24 f./s**

V.U. meter needle at the beginning of the red zone.

3.2 When playing back, set the volume control potentiometer so as to get an output voltage of

**3 V**

(Position 2 of switchbox BJ 873x1 M1). The tone control potentiometer must be in maximum position.

3.3 The ground noise, measured when the motor is running and with unrecorded film, must not exceed

**150 mV**

When doing this measurement, set switchbox BJ 873x1 M1 to position 2 (6 V) and the two potentiometers for volume control and tone control, resp., as per 3.2.

3.4 An anti-buzzing coil is recommended in some cases in order to reduce the humming of the amplifier. Section F "Magnetic sound heads" explains how to mount and align it.

**PB****11.67****E****N****1.2****XII**



4. Voltage level of the built-in loudspeaker

Insert a voltage of

0.5 V at 500 Hz

into the phono input. The projector must be switched to recording, and the V.U. meter needle has to be led to the limit of the red zone.

Switchbox BJ 873x1 M1 (6  $\Omega$ ) set to position 2. Now the output voltage must be about

100 mV

The level of the built-in loudspeaker (when monitoring) can easily be lifted or lowered by modifying resistance R44.

When increasing its value, the voltage of the built-in resistance is lowered, when decreasing the value of the resistance, the voltage becomes higher.

5. Superimposition

Record for checking a

0.5 V, 1000 Hz

voltage at the limit of the recording level (limit of the red zone), and at 24 f./s. Make a superimposition with the aid of the microphone, volume control potentiometer set to "0" (to avoid recording a signal).

When playing back, set the level of the original recording to

0.77 V = 0 dB

and the tonal control potentiometer to its maximum position.

Partial erasing, with respect to the original recording is then at

- 5 dB ... - 15 dB

or

0.43 V ... 0.136 V

6. Flutter test

Flutter is to be checked at the oscilloscope.

## 6.1 Feed a voltage of

0.5 V at 5000 Hz

into the phono input. Record that frequency at 18 f./s on film BJ 1215 with magnetic track. Keep the needle of the V.U. meter at the beginning of the red zone.

6.2 Check the variations of amplitude at the oscilloscope when playing back. In order to cut out the interfering frequencies due to induction of the mains on the sound head, insert between the output of the projector and the input of the oscilloscope a high-pass filter the dip frequency of which has been set to  $f_0 = 500$  Hz. See fig. 13.

6.3 Rapid variations of amplitude, (fig. 14), must not exceed

30 %

with a BJ 1215 film, the sound track of which is of good quality, at 18 f./s.

Slow variations of amplitude, (fig. 15), under the same conditions, must not be greater than

20 %

6.4 In case flutter attains a higher level, modify the pressure on the sound head by slightly bending pressure device (a) against the sound head (fig. 16).

Note : The oscilloscope can be connected directly to terminals 1 and 4 (ground) of the output for loudspeaker, in order to avoid possible distortions caused by voltmeter BJ 901.

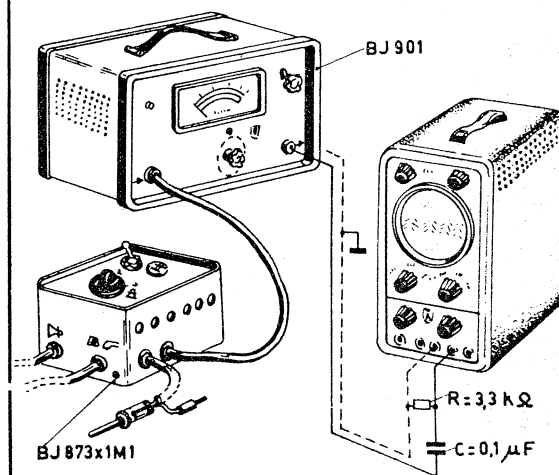


Fig. 13

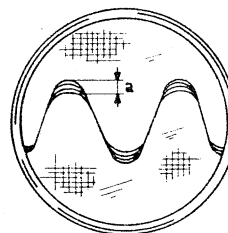


Fig. 14

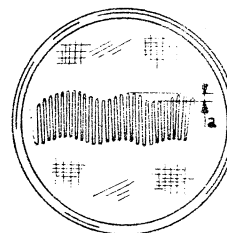


Fig. 15

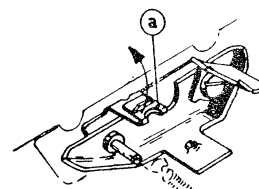


Fig. 16

**FM**

Schéma de l'amplificateur avec SR 1202 incorporé  
Schaltbild des Verstärkers mit eingebauten SR 1202  
Diagram of amplifier with built-in SR 1202

SM8

50 Hz: 107254 → 114645  
60 Hz: 131932 → 135200

**BOLEX**

**Anciennes pièces**  
**Alte Teile**  
**Former parts**

**Nouvelles pièces**  
**Neue Teile**  
**New parts**

**Observations**  
**Bemerkungen**  
**Remarks**

(F) Erreur d'impression dans le paragraphe 7 :  
Il faut lire : "... spécifiées dans les IT-N-1.2, pa-  
ges I...XIII restent...".  
(D) Druckfehler im Abschnitt 7 :  
Es muss heissen : "... alle in den IT-N-1.2. Seiten  
I...XIII genannten...".  
(E) Misprint in paragraph 7 :  
The correct text reads : "... indicated in IT-N-1.2,  
pages I...XIII remain...". (04.69)

PB

04.69

\*

IT - N - 1.2 - XIV - 01.69

1

**IT**

Schéma de l'amplificateur avec SR 1202 incorporé  
Schaltbild des Verstärkers mit eingebauten SR-1202  
Diagram of amplifier with built-in SR 1202

**S M 8**

50 Hz : 107 254 → 114 645  
60 Hz : 131 932 → 135 200



D. Suppression of the clicking noise when switching from recording to playback or when superimposing : Installation of the additional printed circuit SR 1202 (see also circular letter SDRS, limited edition (PB), August 1968 and electric diagram PD - N - 1.2.1)

1. Components to be removed from the printed circuit of the amplifier

- R45 / 47  $\Omega$  2 W
- R48 / 470  $\Omega$  0,25 W.

2. Components to be replaced

- Remove C33 / 1000  $\mu$ F 16 V and replace it by C77 / 100  $\mu$ F 25 V.

3. Modifications to be made at the printed circuit of the amplifier

- It is necessary to make additional connections and to cut out the printed circuit at certain spots - see fig. 18.

4. Installation of the additional printed circuit SR 1202 (fig. 17)

- Drill two holes, 1mm  $\varnothing$ , into the printed circuit at points A and B of the amplifier, in order to fix the additional printed circuit SR 1202 by soldering it.
- Solder then the 3 wires, white (e), red (c) and violet (k) to the former - see fig. 18.

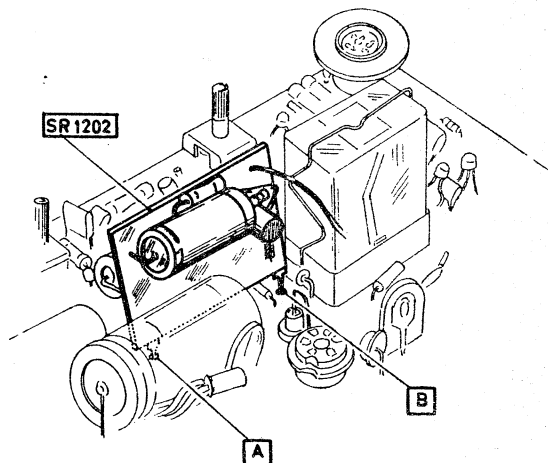
5. Electrical parts of printed circuit SR 1202

| No.  | Part       | Reference-No. | Rating       | Type or output or operating voltage |
|------|------------|---------------|--------------|-------------------------------------|
| Tr13 | transistor | 692.015.102   | -            | ASY 80                              |
| C75  | capacitor  | 661.167.064   | 160 $\mu$ F  | 25 V                                |
| C76  | "          | 221.1028      | 1000 $\mu$ F | 25 V                                |
| R71  | resistance | 625.102.12    | 1 k $\Omega$ | 0,5 W                               |
| R70  | "          | 227.1106      | 47 $\Omega$  | 2 W                                 |

6. New parts of the amplifier

| No. | Part      | Reference-No. | Rating      | Operating voltage |
|-----|-----------|---------------|-------------|-------------------|
| C77 | capacitor | 661.107.064   | 100 $\mu$ F | 25 V              |

7. Even after introduction of the printed circuit SR 1202 all data indicated in PD - N - 1.2.1 remain the same.



**Fig.17**

**PB**

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**E**

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**1.2**

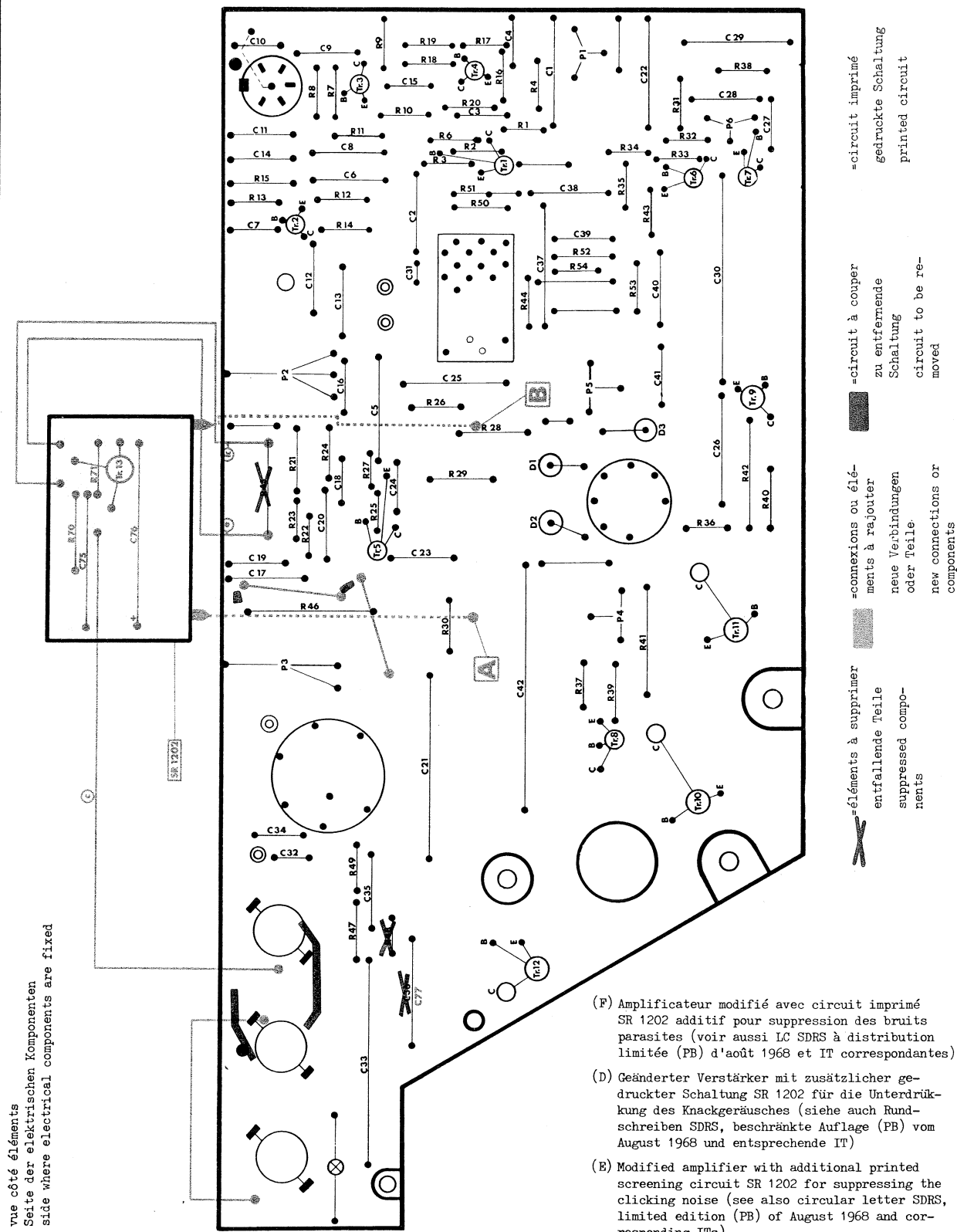
**XIV**

# IT

Schéma de l'amplificateur avec SR 1202 incorporé  
Schaltbild des Verstärkers mit eingebautem SR-1202  
Diagram of amplifier with built-in SR 1202

## SM8

50 Hz: 107 254 — 114 645  
60 Hz: 131 932 — 135 200



vue côté éléments  
Seite der elektrischen Komponenten  
side where electrical components are fixed

- (F) Amplificateur modifié avec circuit imprimé SR 1202 additif pour suppression des bruits parasites (voir aussi LC SDRS à distribution limitée (PB) d'août 1968 et IT correspondantes)
- (D) Geänderter Verstärker mit zusätzlicher gedruckter Schaltung SR 1202 für die Unterdrückung des Knackgeräusches (siehe auch Rundschreiben SDRS, beschränkte Auflage (PB) vom August 1968 und entsprechende IT)
- (E) Modified amplifier with additional printed screening circuit SR 1202 for suppressing the clicking noise (see also circular letter SDRS, limited edition (PB) of August 1968 and corresponding ITs)

Fig. 18

# PB

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N  
1.2

# XV

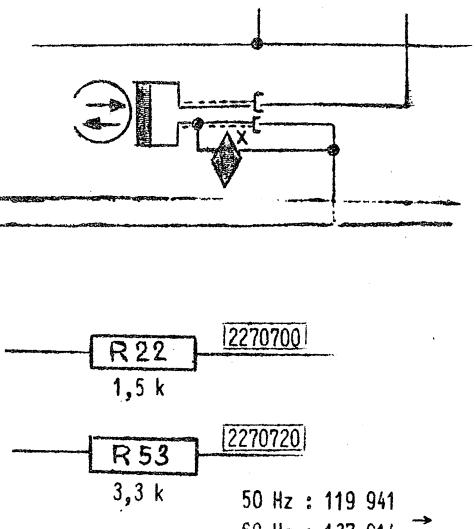
**FM**

Schéma de l'amplificateur  
Schaltbild des Verstärkers  
Diagram of amplifier

SM8

50 Hz: 107254 → 114645  
60 Hz: 131932 → 135200

**BOLEX**

| 15<br>Anciennes pièces<br>Alte Teile<br>Former parts | 16<br>Nouvelles pièces<br>Neue Teile<br>New parts                                                                              | 17<br>Observations<br>Bemerkungen<br>Remarks                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1                                                    |  <p>50 Hz : 119 941<br/>60 Hz : 137 014 →</p> | <p>(F) Pour monter la nouvelle tête magnétique "Photovox" 2286419, il est nécessaire d'inverser le branchement de la tête, ainsi que le changement des résistances R22 et R53.<br/>(Voir modification 3, FM2 - PD - F - 1.1 - 10.68).<br/>(D) Beim Einbau des neuen Tonkopfes "Photovox" 2286419 ist es erforderlich die Anschlüsse umzukehren und die Widerstände R22 und R53 auszutauschen.<br/>(Siehe Änderung 3, FM2 - PD - F - 1.1 - 10.68).<br/>(E) When mounting the new "Photovox" sound head 2286419, it is necessary to invert the connections, and to replace resistances R22 and R53.<br/>(See also modification 3, FM2 - PD - F - 1.1 - 10.68).<br/>(08.69)</p> |
|                                                      |                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |

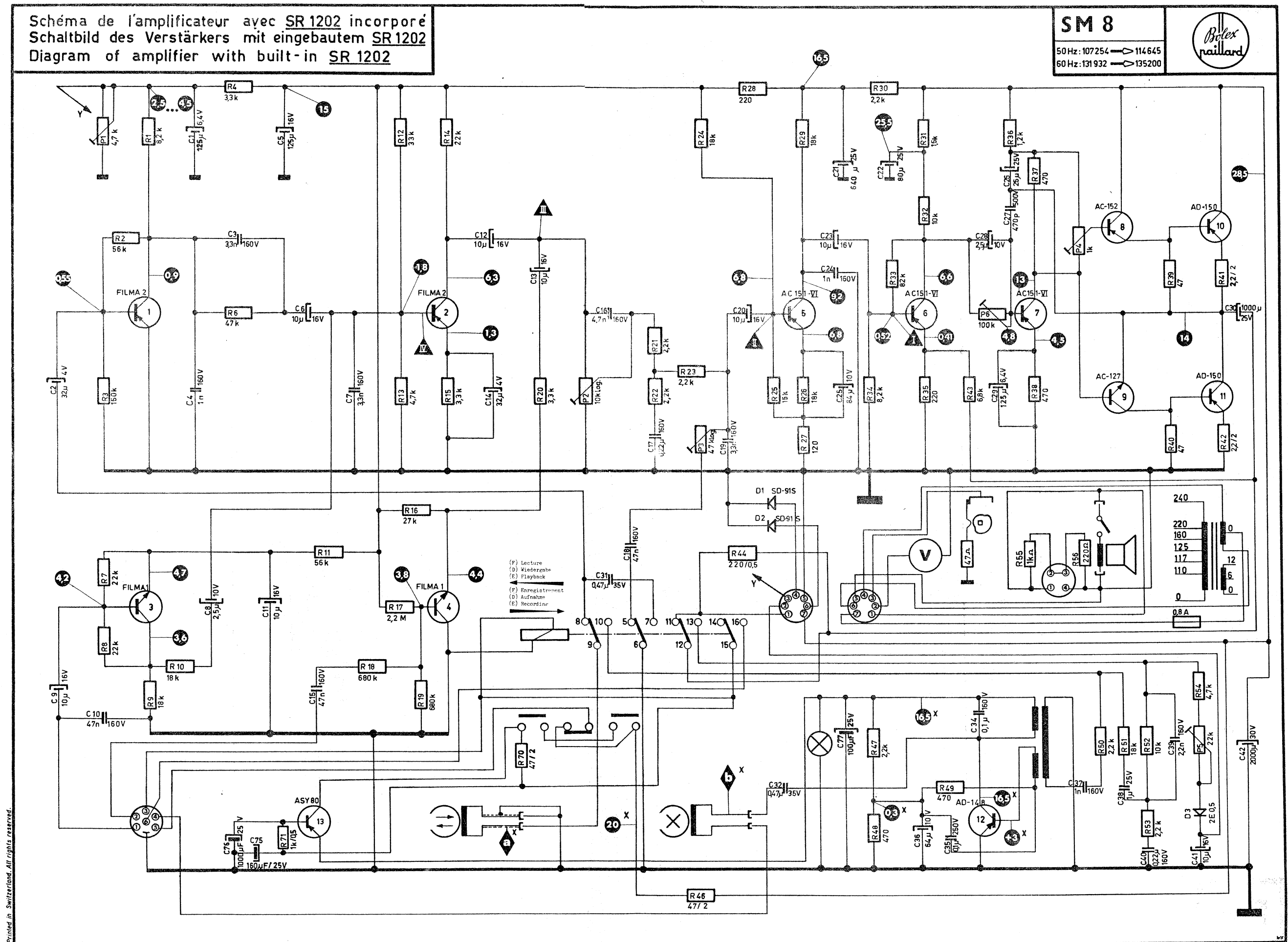


|   |                                                                                                                           |   |   |   |                                                                                |
|---|---------------------------------------------------------------------------------------------------------------------------|---|---|---|--------------------------------------------------------------------------------|
| X | (F) Résistances sans indications spéciales : valeur en Ω; puissance 0,25 W                                                | ● | ◆ | ▼ | Alimentation :                                                                 |
|   | u = 110V                                                                                                                  |   |   |   | n = 1000 pF                                                                    |
|   | p = 1000 pF                                                                                                               |   |   |   | k = 1000                                                                       |
|   | M = 1000                                                                                                                  |   |   |   |                                                                                |
| X | (D) Widerstandswerte ohne besondere Angaben : Wert in Ω; Stärke 0,25 W                                                    | ● | ◆ | ▼ | Abkürzungen :                                                                  |
|   | u = 110V                                                                                                                  |   |   |   | n = 1000 pF                                                                    |
|   | p = 1000 pF                                                                                                               |   |   |   | k = 1000                                                                       |
|   | M = 1000                                                                                                                  |   |   |   |                                                                                |
| X | (B) Measurements without special indications : value in Ω; power 0,25 W                                                   | ● | ◆ | ▼ | Abbreviations :                                                                |
|   | u = 110V                                                                                                                  |   |   |   | n = 1000 pF                                                                    |
|   | p = 1000 pF                                                                                                               |   |   |   | k = 1000                                                                       |
|   | M = 1000                                                                                                                  |   |   |   |                                                                                |
| X | (E) Resistors without special indications : value in Ω; power 0,25 W                                                      | ● | ◆ | ▼ | Measuring-points for the sensitivity of the various amplifier stages (see IT). |
|   | Measuring-points for the sensitivity of the various amplifier stages (see IT).                                            |   |   |   | Measuring-point on position "Recording".                                       |
|   | Measuring-point on position "Recording".                                                                                  |   |   |   | Measuring-point on position "Recording".                                       |
|   | Measuring-point on position "Recording".                                                                                  |   |   |   | Measuring-point on position "Recording".                                       |
| X | (F) Des petites modifications de valeur peuvent être apportées aux données électriques sans avis préalable du fabricant.  | ● | ◆ | ▼ | Measuring-point on position "Recording".                                       |
|   | Measuring-point on position "Recording".                                                                                  |   |   |   | Measuring-point on position "Recording".                                       |
|   | Measuring-point on position "Recording".                                                                                  |   |   |   | Measuring-point on position "Recording".                                       |
|   | Measuring-point on position "Recording".                                                                                  |   |   |   | Measuring-point on position "Recording".                                       |
| X | (G) We reserve the right to introduce slight modifications of the data of electrical components, without previous notice. | ● | ◆ | ▼ | Measuring-point on position "Recording".                                       |
|   | Measuring-point on position "Recording".                                                                                  |   |   |   | Measuring-point on position "Recording".                                       |
|   | Measuring-point on position "Recording".                                                                                  |   |   |   | Measuring-point on position "Recording".                                       |
|   | Measuring-point on position "Recording".                                                                                  |   |   |   | Measuring-point on position "Recording".                                       |

Schéma de l'amplificateur avec SR 1202 incorporé  
Schaltbild des Verstärkers mit eingebautem SR 1202  
Diagram of amplifier with built-in SR 1202

SM 8

50 Hz: 107254  
60 Hz: 131932





**FM**

Schéma de l'amplificateur  
Schaltbild des Verstärkers  
Diagram of amplifier

SM8

50 Hz : 114 646  
60 Hz : 135 201 →



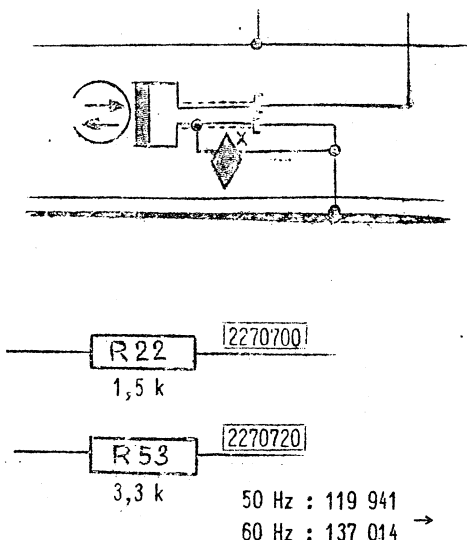
| <p>15<br/>Anciennes pièces<br/>Alte Teile<br/>Former parts</p> | <p>16<br/>Nouvelles pièces<br/>Neue Teile<br/>New parts</p>                       | <p>17<br/>Observations<br/>Bemerkungen<br/>Remarks</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|----------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>1</p>                                                       |  | <p>(F) Pour monter la nouvelle tête magnétique "Photovox" 2286419, il est nécessaire d'inverser le branchement de la tête, ainsi que le changement des résistances R22 et R53.<br/>(Voir modification 3, FM2 - PD - F - 1.1 - 10.68).<br/>(D) Beim Einbau des neuen Tonkopfes "Photovox" 2286419 ist es erforderlich die Anschlüsse umzukehren und die Widerstände R22 und R53 auszutauschen.<br/>(Siehe Aenderung 3, FM2 - PD - F - 1.1 - 10.68).<br/>(E) When mounting the new "Photovox" sound head 2286419, it is necessary to invert the connections, and to replace resistances R22 and R53.<br/>(See also modification 3, FM2 - PD - F - 1.1 - 10.68).<br/><br/>(08.69)</p> |
| <p>2<br/>R41/2,2Ω<br/>R42/2,2Ω</p>                             | <p>R41/0,47 Ω<br/>R42/0,47 Ω</p> <p>50 Hz : 145 600<br/>60 Hz : 150 650 →</p>     | <p>(F) Afin d'augmenter la puissance de sortie de l'ampli de 6 à 8 W. la valeur de R41 et R42 a été modifiée.<br/>(D) Aenderung des Wertes der Widerstände R41 und R42, um die Ausgangsleistung des Verstärkers von 6 auf 8 W zu erhöhen.<br/>(E) To increase the output of the amplifier from 6 to 8 W, the value of R41 and R42 has been modified.<br/><br/>08.71</p>                                                                                                                                                                                                                                                                                                            |
|                                                                |                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |



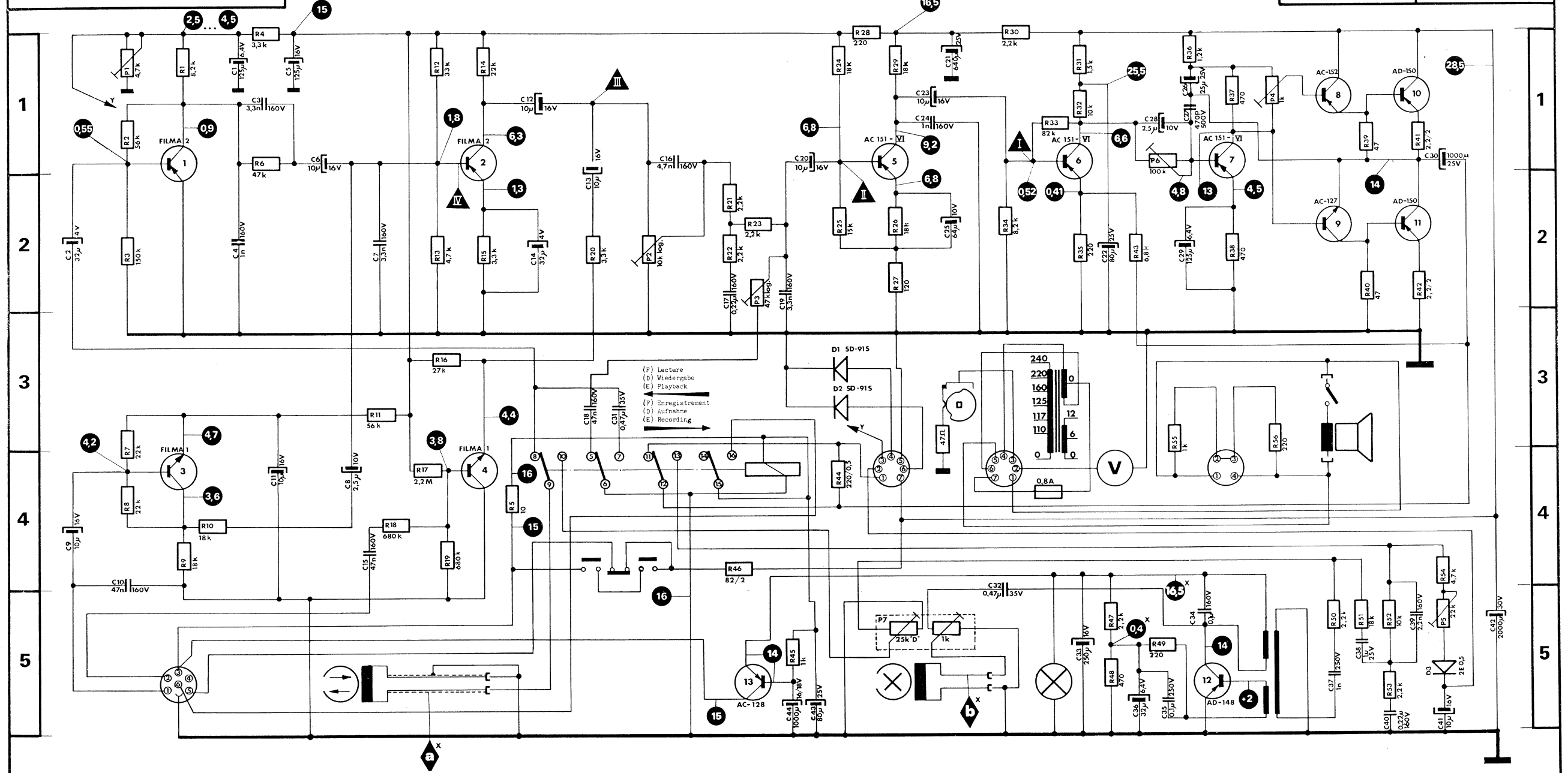


Schéma de l'amplificateur  
Schaltbild des Verstärkers  
Diagram of amplifier

SM8

50 Hz: 114 646

60 Hz: 135 201



|   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| R | 1 | 2 | 1 | 4 | 6  | 12 | 14 | 20 | 21 | 22 | 23 | 24 | 28 | 29 | 30 | 33 | 31 | 32 | 43 | 36 | 37 | 39 | 41 |
| C | 2 | 3 | 7 | 9 | 10 | 11 | 18 | 17 | 19 | 5  | 46 | 45 | 44 | 20 | 24 | 23 | 21 | 22 | 47 | 48 | 49 | 50 | 51 |
| T | 1 | 2 | 3 | 4 | 5  | 6  | 7  | 8  | 15 | 16 | 17 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 |
| P | 1 | 2 | 3 | 4 | 5  | 6  | 7  | 8  | 9  | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |

(F) R, C, T et P : Coordonnées des éléments électriques (R = résistances; C = condensateurs; T = transistors; P = potentiomètres)

(D) R, C, T, und P : Koordinaten der elektrischen Komponenten (R = Widerstände; C = Kondensatoren; T = Transistoren; P = Potentiometer)

(E) R, C, T, and P : Co-ordinates of electrical components (R = resistors; C = capacitors; T = transistors; P = potentiometers)

**IT**

# Schéma de l'amplificateur Schaltbild des Verstärkers Diagram of amplifier

**SM 8**50 Hz: 114 646  
60 Hz: 135 201**A. GENERAL REMARKS**

The ITs issued for the previous amplifier model, i.e. serial numbers 50 Hz 107 254 ... 114 646, and 60 Hz 131 932 ... 135 200 resp., also refer without restriction to all measurements, ratings and checks of the new amplifier. Exception: Paragraph 5, section C (IT - PB - N - 1.2 - XIII), which is superseded by section B as given below.

**B. SUPERIMPOSITION**

Record for checking a

**0.5 V, 1000 Hz**

voltage at the limit of the recording level (limit of the red zone), and at 24 f./s, the knob for superimposition in its maximum position in clockwise direction. Length of recording: About 4.5 ft (1.5 m) of film. After rewinding, let about 20 inches (50 cm) of the film pass again, without erasing. Set the knob for superimposition to its medium position for the rest of the recorded film, i.e. about to the 7th point, counted from the left hand side, the volume potentiometer being set to zero. See fig. 1.

Set the level of the original recording during playback to

**0.77 V = 0 dB**

the tone control potentiometer being set to its maximum position.

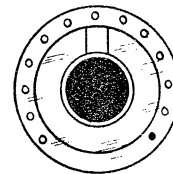
Erasing of the second part ought to be between

**- 7 dB ... - 20 dB**

or **320 mV ... 77 mV**

After this test, a practical superimposition test with microphone ought to be made: The superimposition knob being set to zero, i.e. at the stop in anticlockwise direction.

Check then partial erasing, setting the superimposition knob first to the 7th point, then to its maximum position in clockwise direction.

**Fig. 1****PB**

03.69

**E****N**  
**1.3****I**

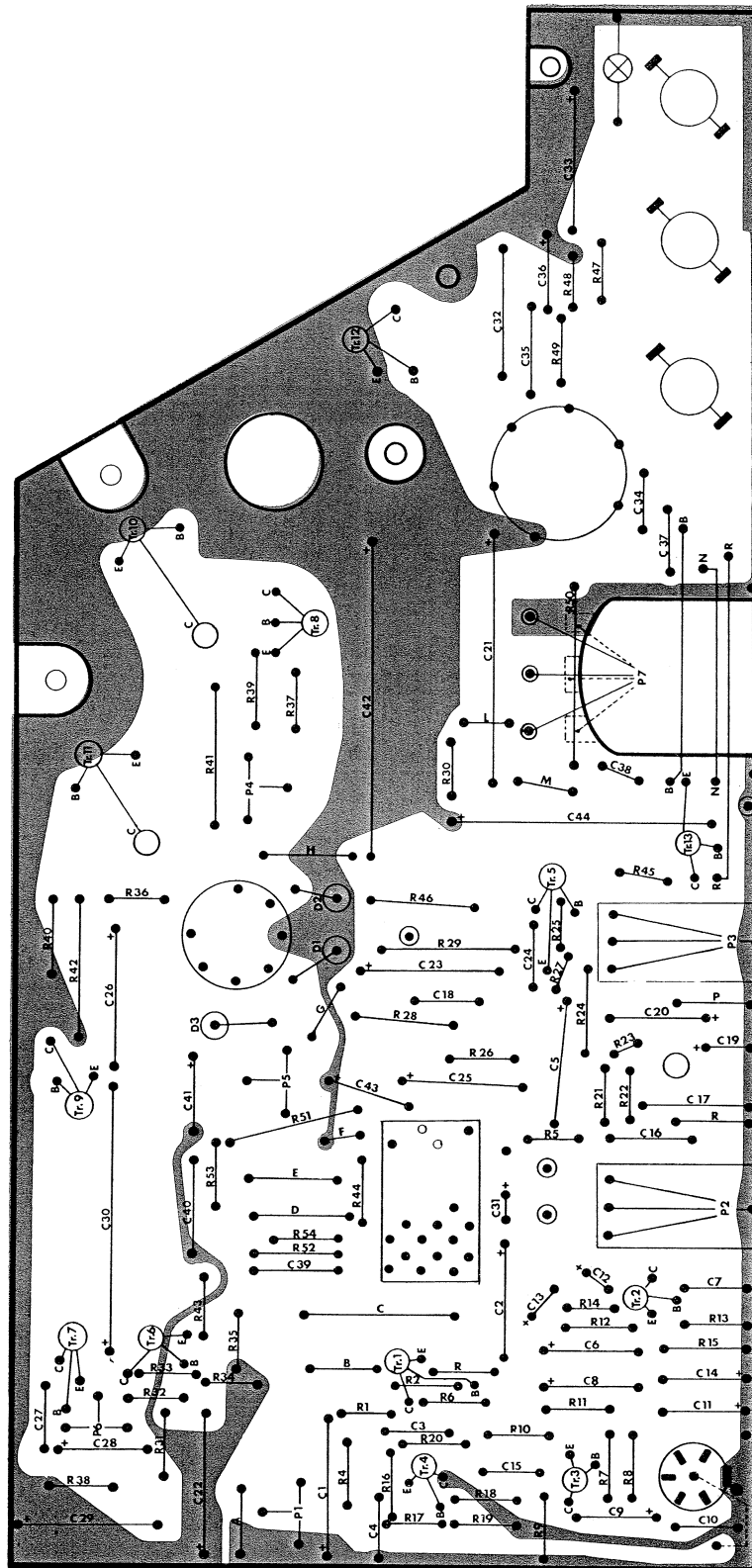
IT

Schéma de l'amplificateur  
Schaltbild des Verstärkers  
Diagram of amplifier

SM 8

50 Hz : 114 646

60 Hz : 135 201



= autres connexions  
= übrige Verbindungen  
= other connections

= + = masse  
= Masse  
= ground

vue côté éléments  
Seite der elektrischen Komponenten  
side where electrical components are fixed

PB

01.69

\*

N  
1.3

II

|                                                                                                                                                                                                                                                                                                                   |                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                    |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <div> <div> <div>FM</div> <div> <div>Schémas accessoires</div> <div>Schaltbilder für Zubehör</div> <div>Diagrams of accessories</div> </div> </div> <div> <div>2</div> <div>3</div> <div>5</div> <div> <div>SM8</div> <div>50 Hz: 100 001</div> <div>60 Hz: 130 001 →</div> </div> <div>BOLEX</div> </div> </div> |                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                    |
| <div>15</div> <div> <div>Anciennes pièces</div> <div>Alte Teile</div> <div>Former parts</div> </div>                                                                                                                                                                                                              | <div>16</div> <div> <div>Nouvelles pièces</div> <div>Neue Teile</div> <div>New parts</div> </div> | <div>17</div> <div> <div>Observations</div> <div>Bemerkungen</div> <div>Remarks</div> </div>                                                                                                                                                                                                                                                                                       |
| <div>1</div>                                                                                                                                                                                                                                                                                                      |                                                                                                   | <div> <div>(F) Erreur de câblage sur le schéma. Les fils aboutissant sur les bornes 3 et 4 sont à inverser.</div> <div>(D) Irrtum hinsichtlich der Verdrahtung im Schaltbild. Die an den Klemmen 3 und 4 endenden Drähte sind auszutauschen.</div> <div>(E) Wiring error in the diagram. The wires ending at terminals 3 and 4 are to be inverted.</div> </div> <div>(11.67)</div> |
|                                                                                                                                                                                                                                                                                                                   |                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                    |
| <div>6</div> <div>7</div> <div>8</div> <div>9</div> <div> <div>PB</div> <div>11.67</div> <div>*</div> <div>PD - N - 2 - 02.67</div> <div>1</div> </div>                                                                                                                                                           |                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                    |



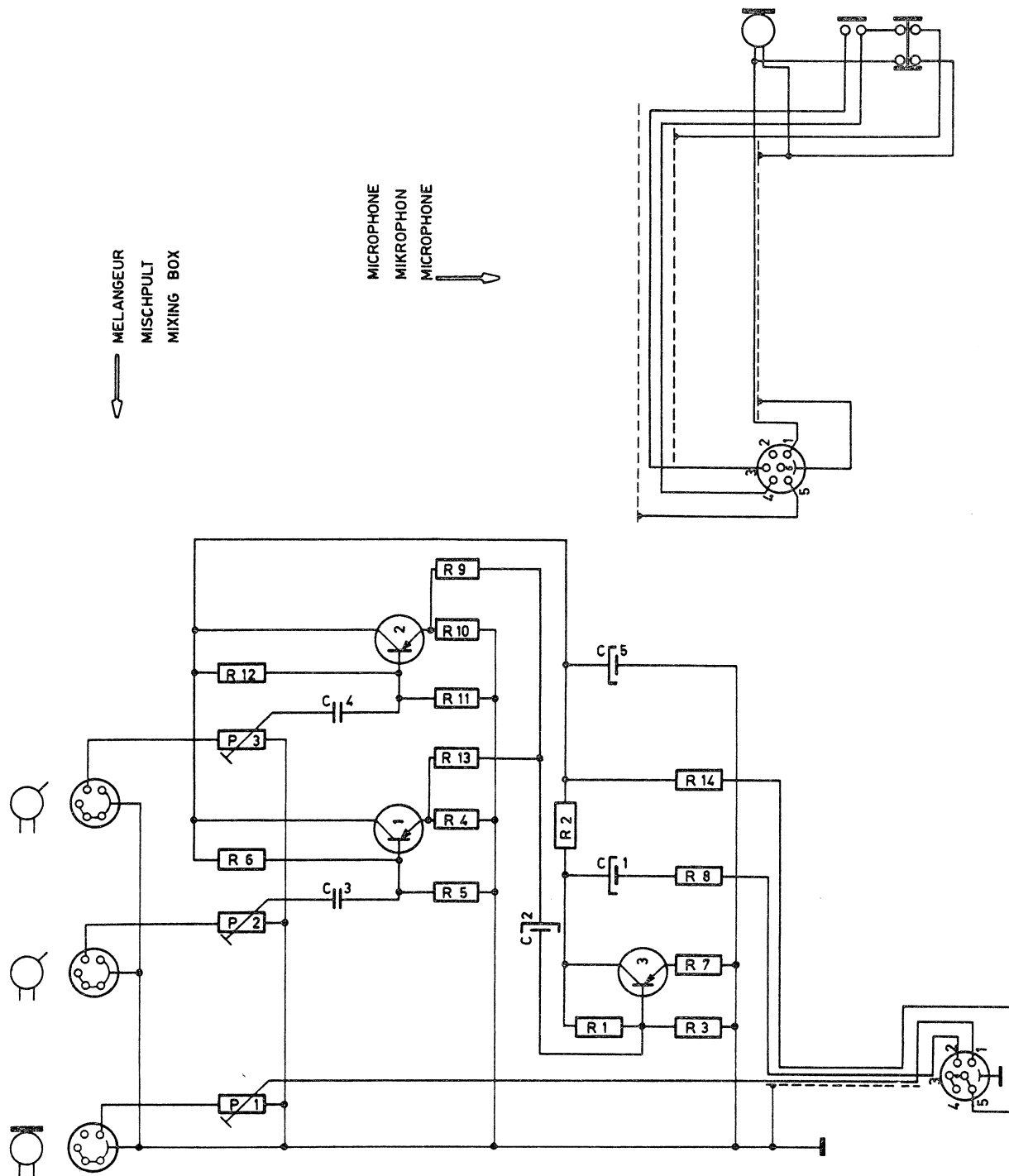


PD

# Schémas accessoires Schaltbilder für Zubehör Diagrams of accessories

SM8

50 Hz: 100 001  
60 Hz: 130 001



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PB

02.67

\*

(F) Des petites modifications de valeur peuvent être apportées aux composants électriques sans avis préalable du fabricant.  
(D) Wir behalten uns das Recht vor, die Daten der elektrischen Bestandteile ohne vorherige Ankündigung geringfügig zu ändern.  
(E) We reserve the right to introduce slight modifications of the data of electrical components, without previous notice.

N

2

**PD**

# Schéma de principe Basisschaltbild Basic diagram

**SM 8**

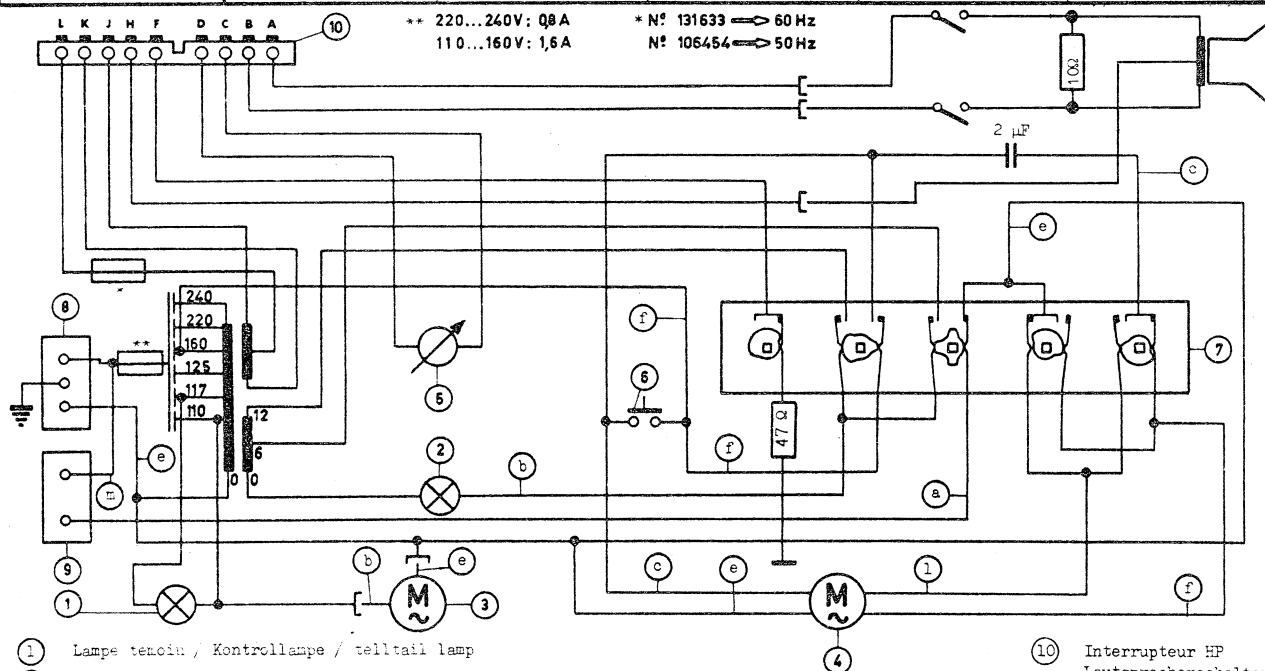
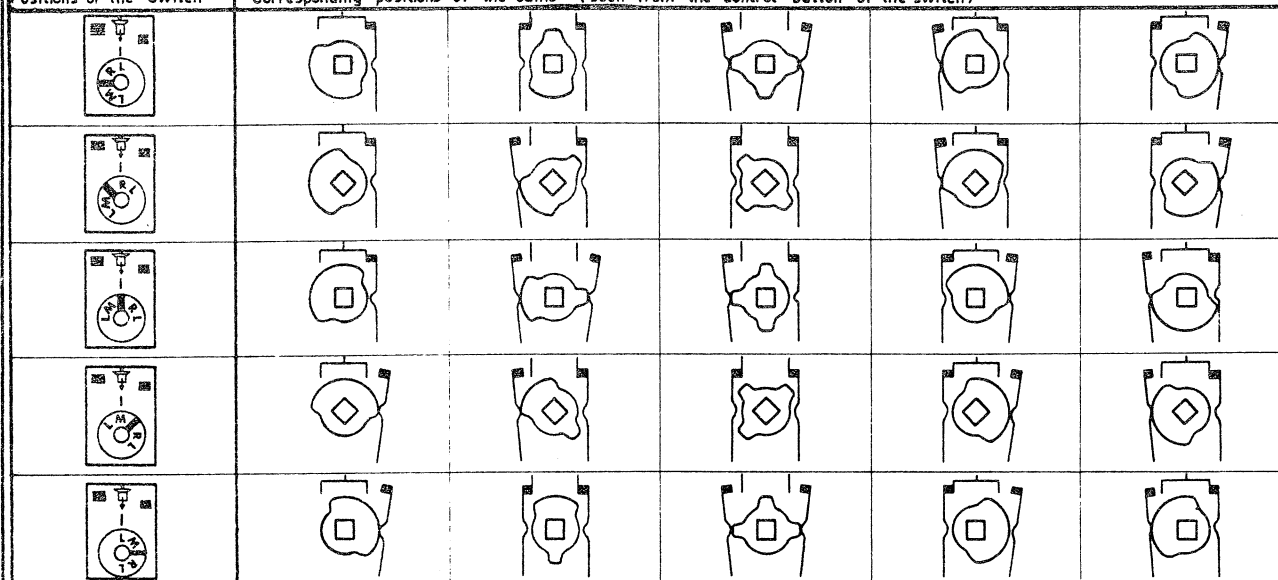
50 Hz: 100 001

60 Hz: 130 001



Positions du commutateur  
Schalterstellungen  
Positions of the Switch

Positions correspondantes des cames (vue du côté bouton de commande)  
Entsprechende Stellungen der Kurvenscheiben (vom Schalterknopf aus gesehen)  
Corresponding positions of the cams (seen from the control button of the switch)



① Lampe témoin / Kontrollampe / tell-tail lamp

② Lampe de projection / Projektionslampe / projection lamp

③ Moteur ventilateur / Motor für Ventilator / fan motor

④ Moteur principal / Hauptmotor / main motor

⑤ Vu-mètre / Aussteuerungs-Anzeiger / V.U. meter

⑥ Interrupteur chargement automatique / Schalter für automatisches Laden / switch for automatic loading

⑦ Commutateur principal / Hauptschalter / main switch

⑧ Prise secteur / Netzanschlussteckdose / mains connection socket

⑨ Prise pour lampe d'entracte / Pausenlampenanschluss / intermission light socket

⑩ Fiche de connexion projecteur-ampli / Verbindungsstecker zwischen Projektor und Verstärker  
Connection plug between projector and amplifier⑩ Interrupteur HP  
Lautsprecherschalter  
Loudspeaker switch**PB****07.67****\*****N****3**

**PD**

# Schéma de principe Basisschaltbild Basic diagram

**SM8**

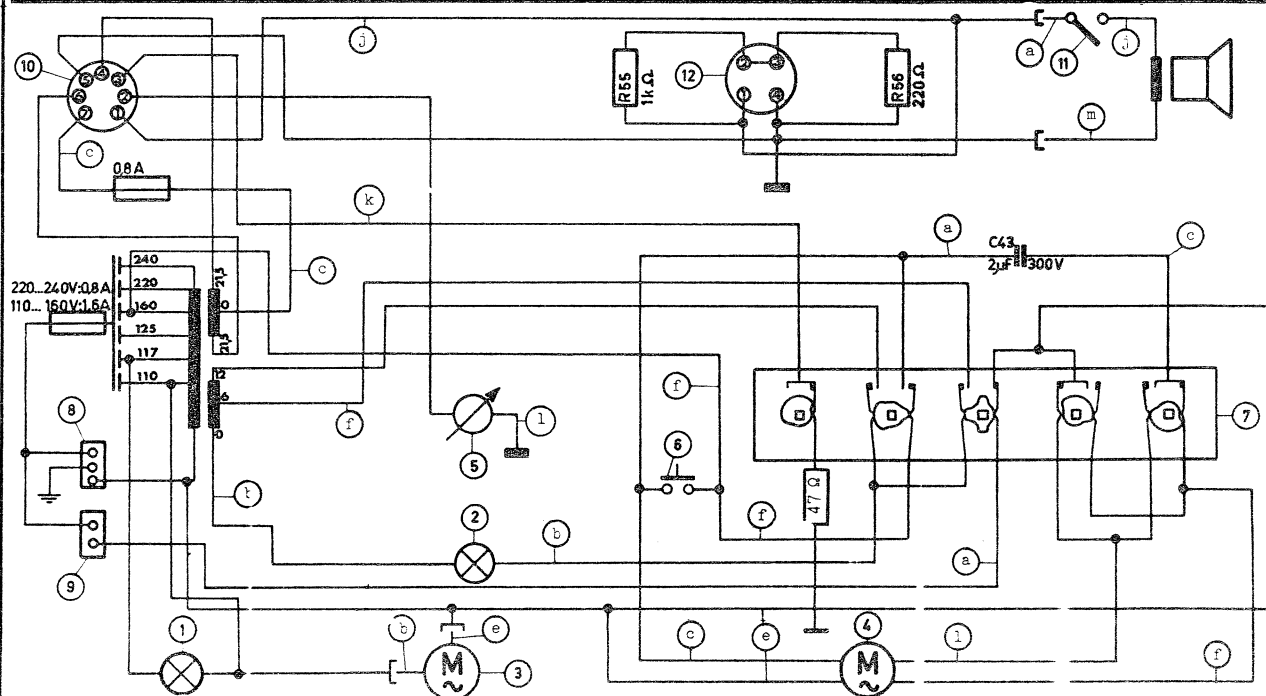
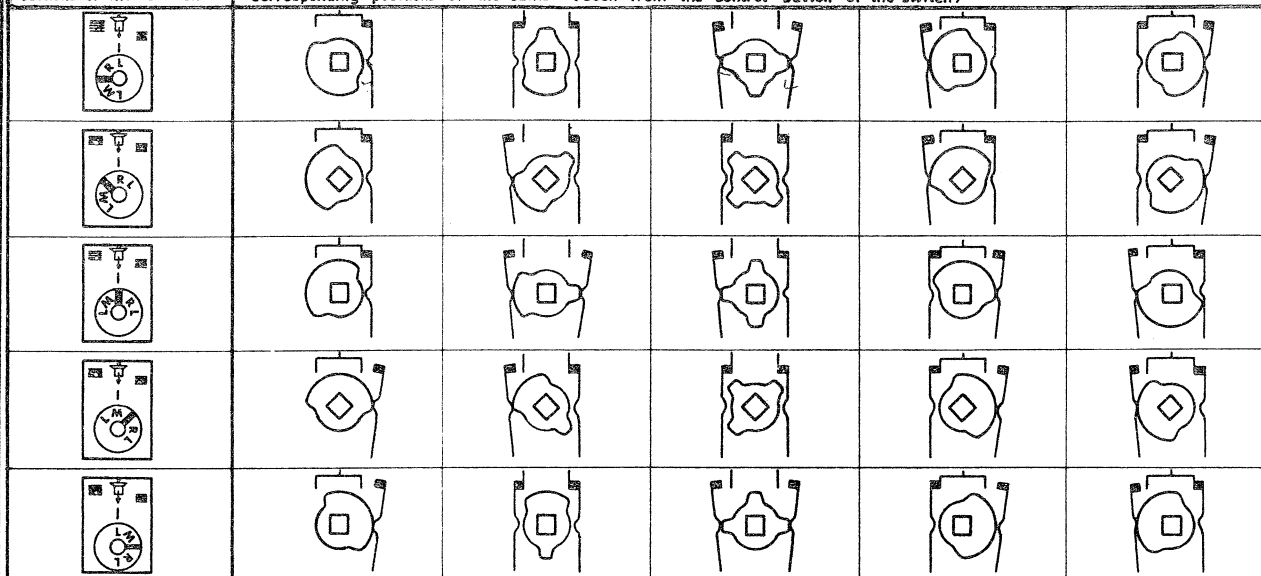
50 Hz: 107 254

60 Hz: 132 932



Positions du commutateur  
Schalterstellungen  
Positions of the Switch

Positions correspondantes des cames (vue du côté bouton de commande)  
Entsprechende Stellungen der Kurvenscheiben (vom Schalterknopf aus gesehen)  
Corresponding positions of the cams (seen from the control button of the switch)



- |                                                                                                          |                                                                                                                                                  |
|----------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|
| ① Lampe témoin / Kontrolllampe / telltale lamp                                                           | ⑦ Commutateur principal / Hauptschalter / main switch                                                                                            |
| ② Lampe de projecteur / Projektionslampe / projection lamp                                               | ⑧ Prise secteur / Netzanschlusstecke / mains connection socket                                                                                   |
| ③ Moteur ventilateur / Motor für Ventilator / fan motor                                                  | ⑨ Prise pour lampe d'entracte / Pausenlamperanschluss / intermission light socket                                                                |
| ④ Moteur principal / Hauptmotor / main motor                                                             | ⑩ Fiche de connexion projecteur-ampli<br>Verbindungsstecker zwischen Projektor und Verstärker<br>Connection plug between projector and amplifier |
| ⑤ V.U.-mètre / Aussteuerungs-Anzeiger / V.U. meter                                                       | ⑪ Interrupteur HP / Lautsprecherschalter / Loudspeaker switch                                                                                    |
| ⑥ Interrupteur chargeant automatique<br>Schalter für automatischen Laden<br>Switch for automatic loading | ⑫ Prise pour haut-parleur accessoire / Steckdose für Zusatzlautsprecher /<br>Socket for extension loudspeaker                                    |

**PB****09.67****\*****N****3.1**

**PD**

# Schéma de principe Version Scandinave

## Basisschaltbild Ausführung Skandinavien

### Basic diagram Scandinavian version

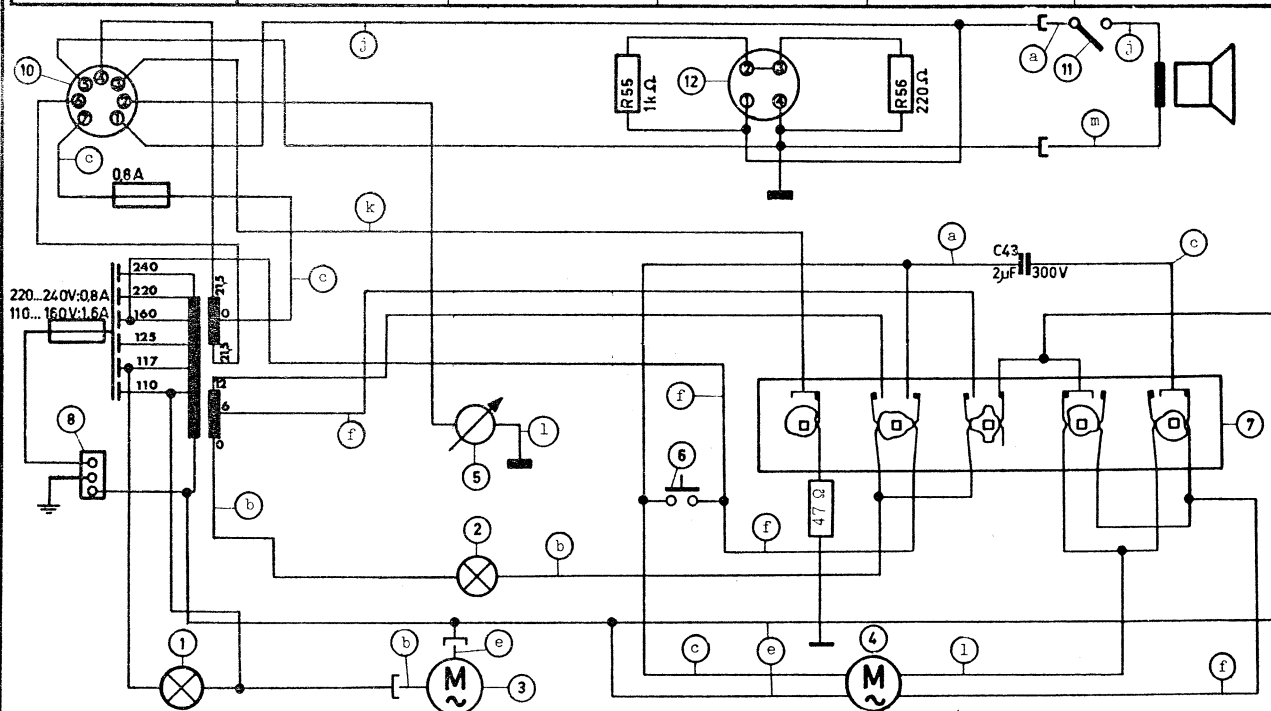
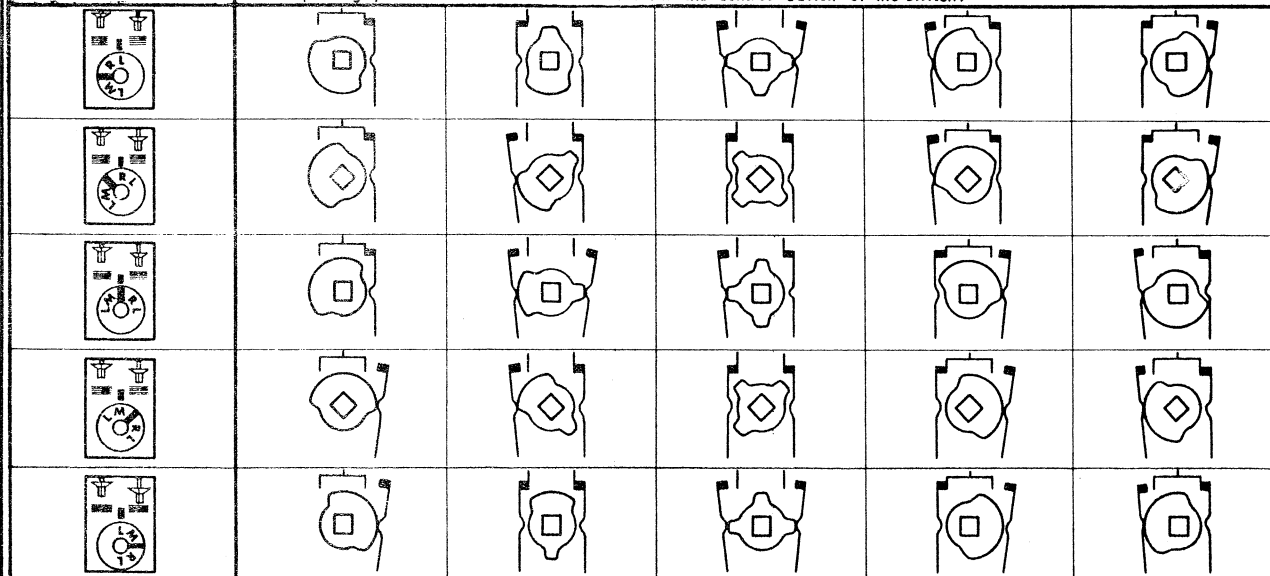
**SM 8**

50 Hz: 118001



Positions du commutateur  
Schalterstellungen  
Positions of the Switch

Positions correspondantes des cames (vue du côté bouton de commande)  
Entsprechende Stellungen der Kurvenscheiben (vom Schalterknopf aus gesehen)  
Corresponding positions of the cams (seen from the control button of the switch)



- |                                                                                                           |                                                                                                                                                  |
|-----------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|
| ① Lampe témoin / Kontrollampe / telltale lamp                                                             | ⑦ Commutateur principal / Hauptschalter / main switch                                                                                            |
| ② Lampe de projection / Projektionslampe / projection lamp                                                | ⑧ Prise secteur / Netzanschlussteckdose / mains connection socket                                                                                |
| ③ Moteur ventilateur / Motor für Ventilator / fan motor                                                   | ⑩ Fiche de connexion projecteur-ampli<br>Verbindungsstecker zwischen Projektor und Verstärker<br>Connection plug between projector and amplifier |
| ④ Moteur principal / Hauptmotor / main motor                                                              | ⑪ Interrupteur HP / Lautsprecherschalter / Loudspeaker switch                                                                                    |
| ⑤ Vu-mètre / Aussteuerungs-Anzeiger / V.M. meter                                                          | ⑫ Prise pour haut-parleur accessoire / Steckdose für Zusatzlautsprecher /<br>Socket for extension loudspeaker                                    |
| ⑥ Interrupteur chargement automatique<br>Schalter für automatisches Laden<br>Switch for automatic loading |                                                                                                                                                  |

**PB****11.68****\*****N****3.2**

**PD**

# Schéma de principe Basisschaltbild Basic diagram

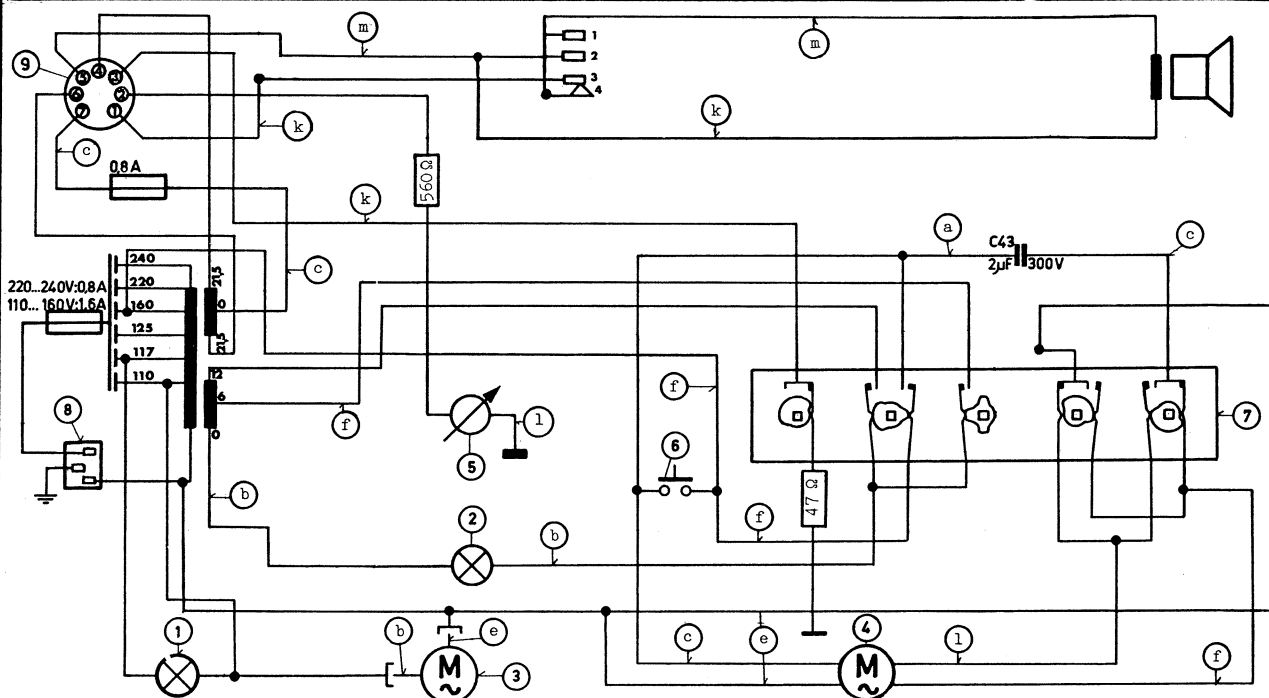
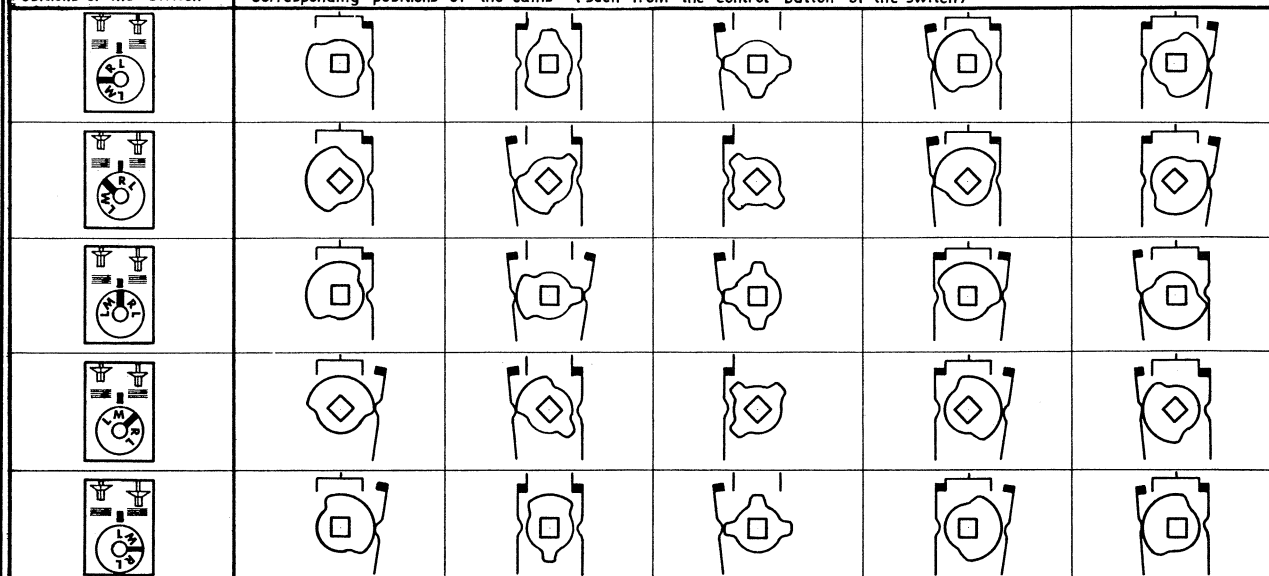
**SM 8**

203 000 →

**BOLEX**

Positions du commutateur  
Schalterstellungen  
Positions of the Switch

Positions correspondantes des cames (vue du côté bouton de commande)  
Entsprechende Stellungen der Kurvenscheiben (vom Schalterknopf aus gesehen)  
Corresponding positions of the cams (seen from the control button of the switch)



- |                                                                                                           |                                                                                                                                                  |
|-----------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|
| ① Lampe témoin / Kontrollampe / telltale lamp                                                             | ⑦ Commutateur principal / Hauptschalter / main switch                                                                                            |
| ② Lampe de projection / Projektionslampe / projection lamp                                                | ⑧ Prise secteur / Netzanschlussteckdose / mains connection socket                                                                                |
| ③ Moteur ventilateur / Motor für Ventilator / fan motor                                                   | ⑨ Fiche de connexion projecteur-ampli<br>Verbindungsstecker zwischen Projektor und Verstärker<br>Connection plug between projector and amplifier |
| ④ Moteur principal / Hauptmotor / main motor                                                              |                                                                                                                                                  |
| ⑤ Vu-mètre / Aussteuerungs-Anzeiger / V.U. meter                                                          |                                                                                                                                                  |
| ⑥ Interrupteur chargement automatique<br>Schalter für automatisches Laden<br>Switch for automatic loading |                                                                                                                                                  |

**PB**

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**N****3.3**



**FM**

Plan de câblage  
Verdrahtungsschema  
Wiring diagram

SM8

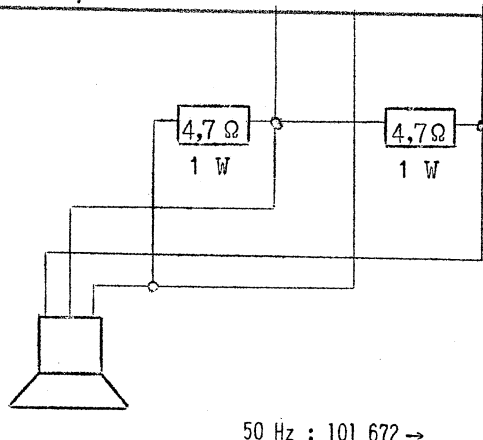
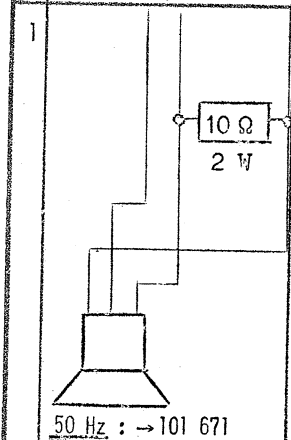
50 Hz: 100 001 →  
60 Hz: 130 001 →

**BOLEX**

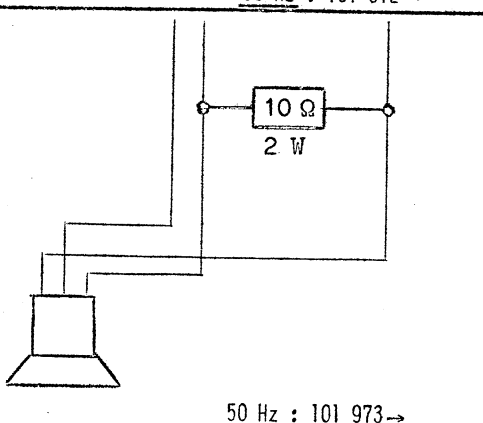
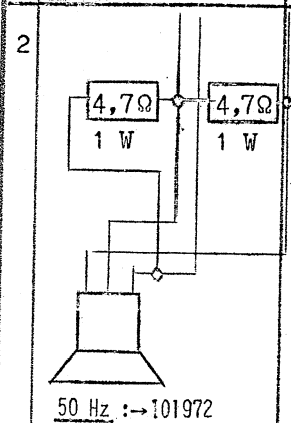
**Anciennes pièces**  
**Alte Teile**  
**Former parts**

**Nouvelles pièces**  
**Neue Teile**  
**New parts**

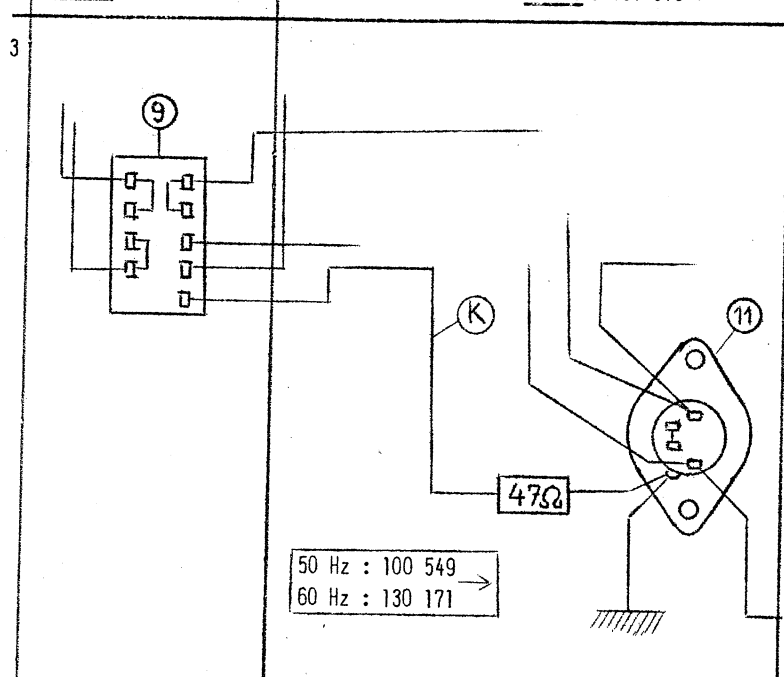
**Observations**  
**Bemerkungen**  
**Remarks**



(F) Pour éviter la surcharge du bobinage du HP incorporé, introduction de 2 résistances de 4,7Ω, 1 W, branchées contre le point central.  
(D) Um die Wicklung des eingebauten Lautsprechers nicht zu überlasten, wurden 2 Widerstände à 4,7 Ω, 1 W, eingebaut, welche am Mittelpunkt angeschlossen sind.  
(E) In order not to overload the winding of the built-in loudspeaker, 2 resistances, 4.7 Ω, 1 W each and connected to the center point were introduced.  
(02.67)



(F) Réintroduction de la résistance 10Ω 2W unique.  
(D) Wiedereinführung eines einzig Widerstandes, 10 Ω 2W.  
(E) Reintroduction of a single resistance, 10Ω 2W.  
(02.67)



(F) Voir motif de modification sous onglet C, modification no. 2.  
(D) Siehe Beschreibung der Änderung Nr. 2 unter Ziffer C.  
(E) Please refer to modification No. 2 of tab C and read the respective remark.  
(05.67)

**PB**

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PD - 0 - 1 - 02.67

1

**FM**

Plan de câblage  
Verdrahtungsschema  
Wiring diagram

SM8

50 Hz: 100 001  
60 Hz: 130 001 →

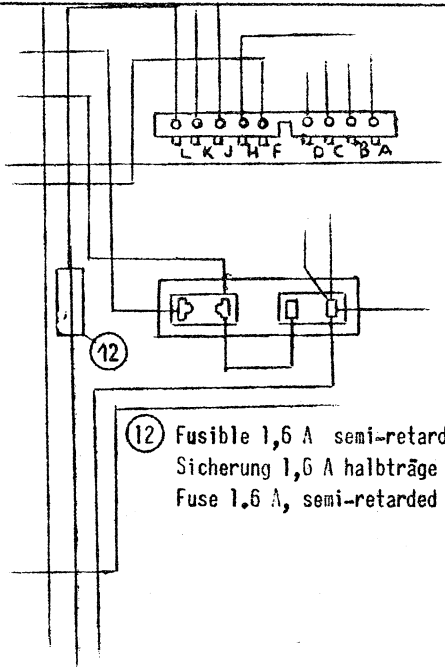
**BOLEX**

Anciennes pièces  
Alte Teile  
Former parts

Nouvelles pièces  
Neue Teile  
New parts

Observations  
Bemerkungen  
Remarks

4



(F) Introduction d'un fusible (voir motif sous onglet K1 modification no. 5).  
(D) Einführung einer Sicherung (Begründung siehe Abschnitte K1, Änderung Nr. 5).  
(E) Introduction of a fuse (reason see section K1, modification No. 5).

(06.67)

**PB**

06.67



PD - 0 - 1 - 02.67

**2**

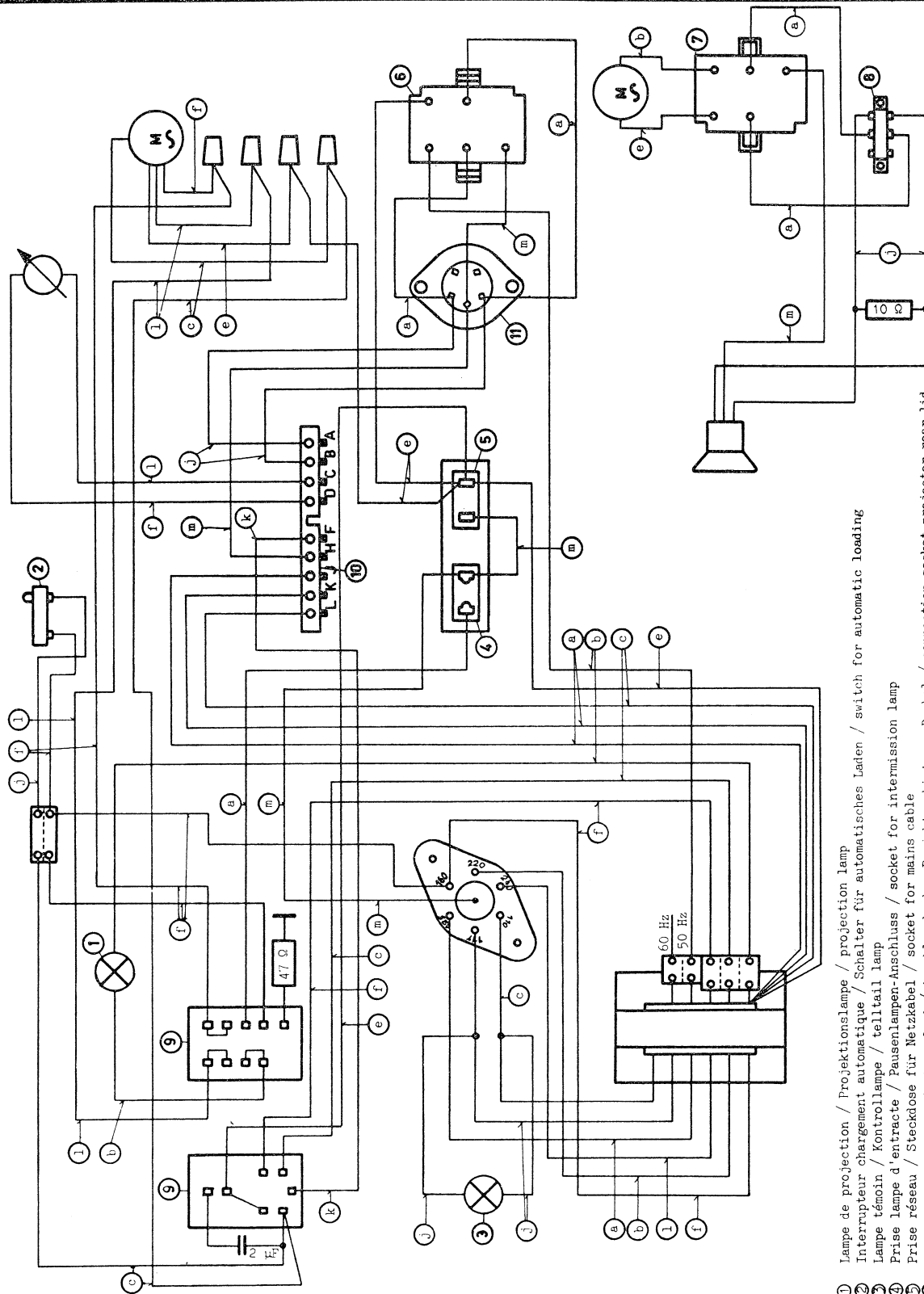


**PD**

# Plan de câblage Verdrahtungsschema Wiring diagram

**S M 8**

50 Hz: 100 001  
60 Hz: 130 001



- ① Lampe de projection / Projektionslampe / projection lamp
- ② Interrupteur chargeur automatique / Schalter für automatisches Laden / switch for automatic loading
- ③ Lampe témoin / Kontrolllampe / telltail lamp
- ④ Prise lampe d'entracte / Pausenlampen-Anschluss / socket for intermission lamp
- ⑤ Prise réseau / Steckdose für Netzkabel / socket for mains cable
- ⑥ Prise de connexion projecteur-fond / Anschlussbuchse Projektor-hinterer Deckel / connection socket projector-rear lid
- ⑦ Fiche de connexion fond-projecteur / Verbindungstecker hinterer Deckel-Projektor / connection plug rear lid-projector
- ⑧ Commutateur haut-parleurs / Schalter für Lautsprecher / switch for loudspeakers
- ⑨ Commutateur principal / Hauptschalter / main switch
- ⑩ Fiche de connexion projecteur-ampli / Verbindungstecker zwischen Projektor und Verstärker / connection plug between projector and amplifier
- ⑪ Prise haut-parleur accessoire / Steckbuchse für Zusatzlautsprecher / connection for external loudspeaker

**PB**

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**O**

**1**

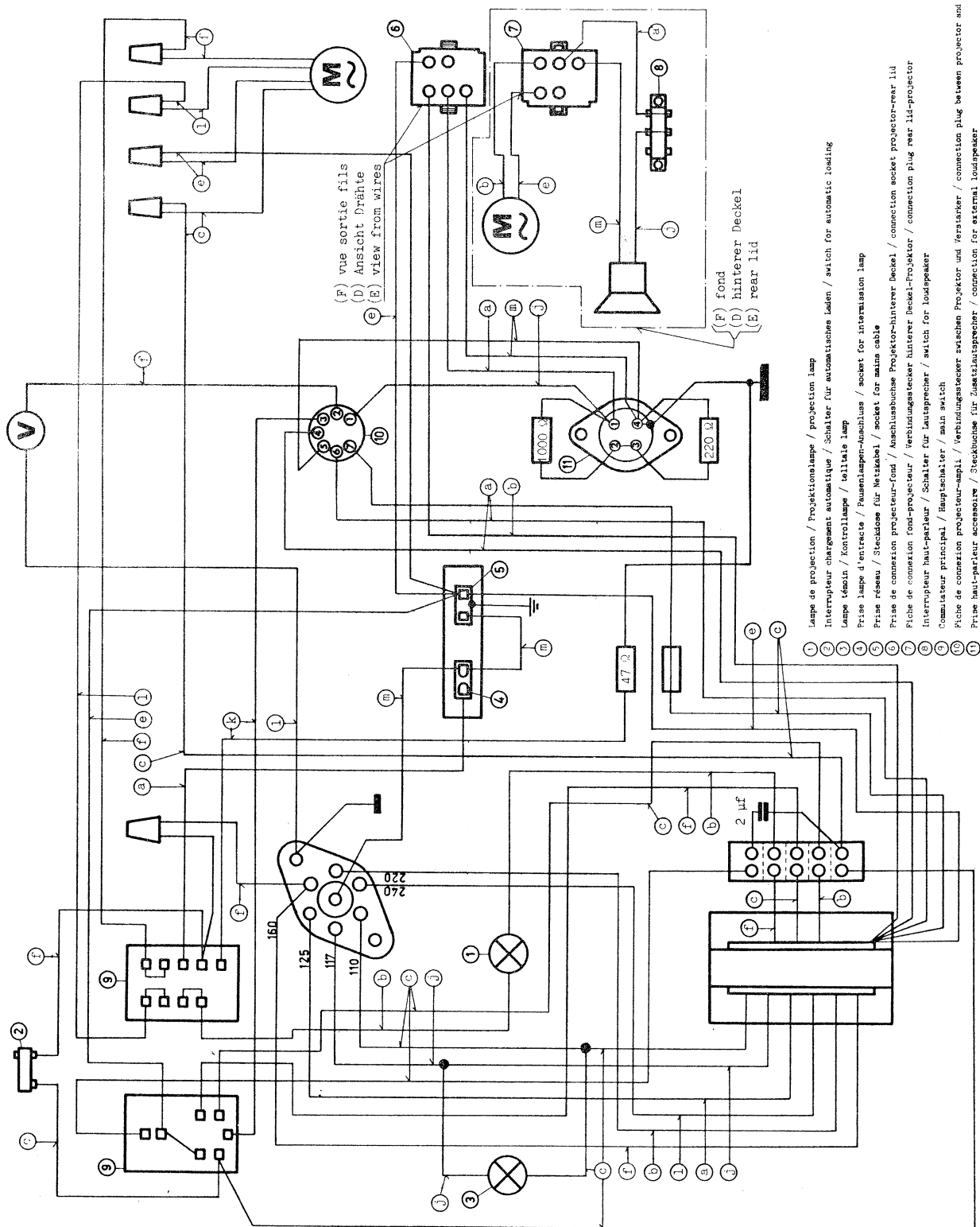
**PD**

# Plan de câblage Verdrahtungsschema Wiring diagram

**SM 8**

50 Hz: 107254

60 Hz: 131932

**PB**

12.67

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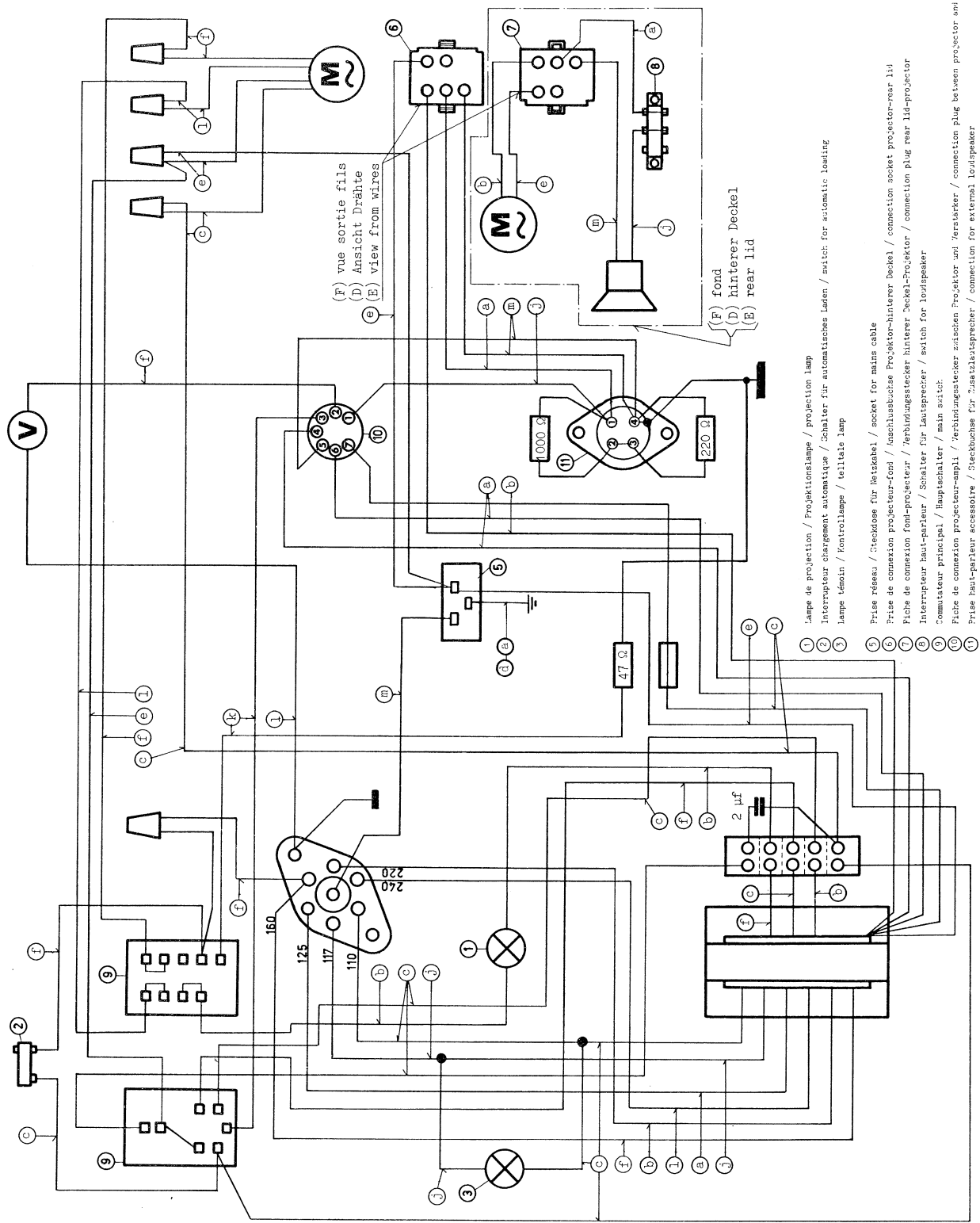
**O****1.1**

PD

Plan de câblage version scandinave  
Verdrahtungsschema skandinavische Ausführung  
Wiring diagram scandinavian version

S M 8

50 Hz: 118001



(F) vue sortie fils  
(D) Ansicht Drähte  
(E) view from wires

(F) fond  
(D) hinterer Deckel  
(E) rear lid

1 Lampe de projection / Projektionslampe / projection lamp  
2 Interrupteur chargeur automatique / Schalter für automatisches Laden / switch for automatic loading  
3 Lampe témoin / Kontrolllampe / teillamp  
4 Prise réseau / Steckdose für Netzkabel / socket for mains cable  
5 Prise de connexion projecteur-fond / Anschlussbuchse Projektor-hinterer Deckel / connection socket projector-rear lid  
6 Fiche de connexion fond-projecteur / Verbindungstecker hinterer Deckel-Projektor / connection plug rear lid-projector  
7 Interrupteur haut-parleur / Schalter für Lautsprecher / switch for loudspeaker  
8 Commutateur principal / Hauptschalter / main switch  
9 Fiche de connexion projecteur-amplifier / Verbindungstecker zwischen Projektor und Verstärker / connection plug between projector and amplifier  
10 Prise haut-parleur accessoire / Steckbuchse für Zusatzlautsprecher / connection for external loudspeaker  
11

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PB

10.68

\*

O

1.2



**FM**

1 Plan de câblage  
Verdrahtungsschema  
Wiring diagram

2 SM8

50 Hz : 118 101 →

**BOLEX**

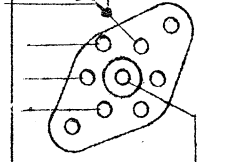
15 Anciennes pièces  
Alte Teile  
Former parts

16 Nouvelles pièces  
Neue Teile  
New parts

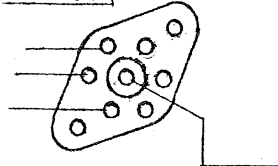
17 Observations  
Bemerkungen  
Remarks

18

160



160



- (A) Erreur de câblage.
- (D) Irrtum im Verdrahtungsschema.
- (E) Error in the wiring diagram.

07.69

**PB**

07.69

\*

PD - 0 - 1.2.1 - 03.69

**1**

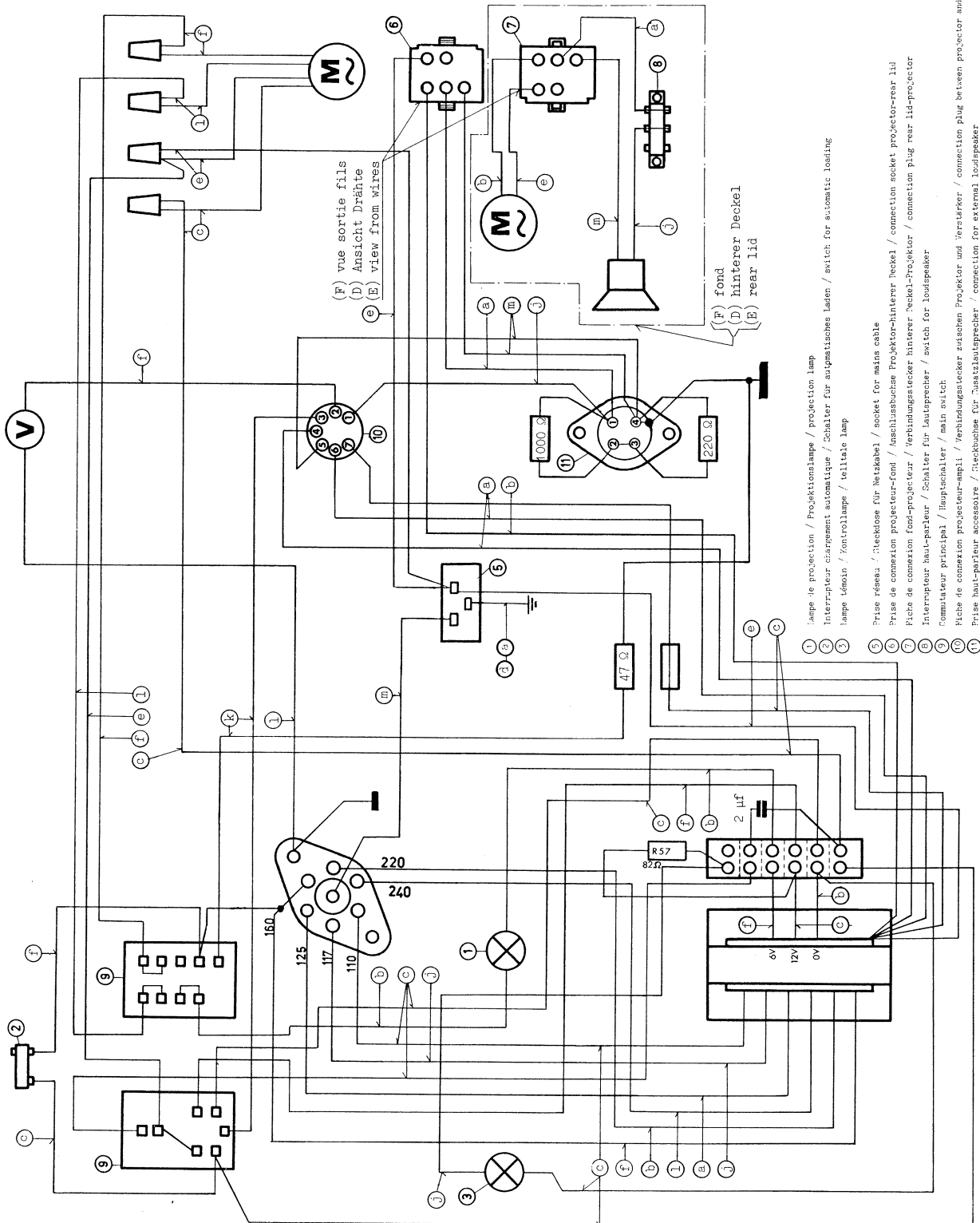


**PD**

Plan de câblage version scandinave  
Verdrahtungsschema skandinavische Ausführung  
Wiring diagram scandinavian version

**S M 8**

50 Hz: 118 101

**PB**

03.69

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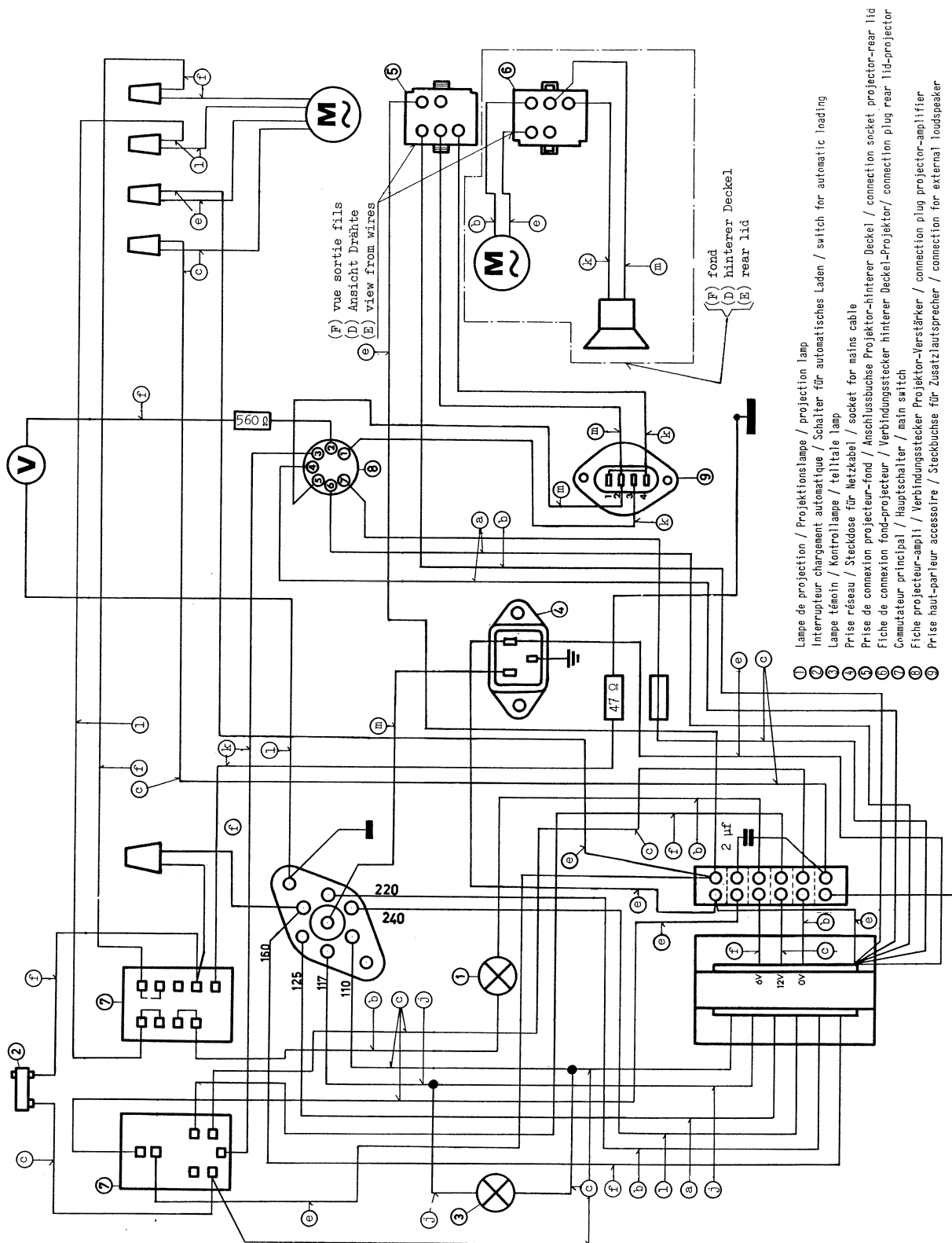
**O****1.2.1**

**PD**

# Plan de câblage Verdrahtungsschema Wiring diagram

**S M 8**

203 000

**BOLEX****PB**

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**O****1.3**



**FM**

Résistances de l'amplificateur  
Widerstände des Verstärkers  
Resistors of amplifier

SM8

50 Hz: 100 001 →  
60 Hz: 130 001 →

**BOLEX**

| 15                                                                                                                                                                                                                                                                                                                                                                       | 16                                                                                                                                                                                                                              | 17                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 18 |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|
| Anciennes pièces<br>Alte Teile<br>Former parts                                                                                                                                                                                                                                                                                                                           | Nouvelles pièces<br>Neue Teile<br>New parts                                                                                                                                                                                     | Observations<br>Bemerkungen<br>Remarks                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |    |
| 1<br><u>R41/2271103/</u><br>6,8kΩ /0,25W<br><br>* (F) (Pour l'adjonction des C42 et C44, voir FMI-PD-P-1-03.67, pos. 1 s.v.p.)<br>* (D) (Was die zusätzlichen C42 und C44 anbelangt, siehe FMI-PD-P-1-03.67, Pos. 1)<br>* (E) (As far as the additional C42 and C44 are concerned, see FMI-PD-P-1-03.67, pos. 1)<br><br><div>50 Hz : 100 001→<br/>60 Hz : 130 016→</div> | <u>R41/2270690/1kΩ /0,25W</u><br><br><br><br><br><br><br><br><br><br><div>50 Hz : 100 001→<br/>60 Hz : 130 016→</div>                                                                                                           | (F) Pour maintenir constant le niveau indiqué par le Vu-mètre, projecteur se trouvant en marche ou à l'arrêt, un filtre a été introduit sur l'amplificateur pour supprimer la fréquence 50 kHz dans les différents étages.<br>(D) Um das Niveau des Aussteuerungs-Anzeigers bei laufendem oder stehendem Projektor konstant zu halten, wurde im Verstärker ein Filter eingebaut, welcher die Frequenz 50 kHz in den verschiedenen Stufen eliminiert.<br>(E) In order to keep the level indicated by the V.U. meter steady, projector running or not, a filter has been introduced in the amplifier for eliminating the frequency of 50 kHz in the various stages (02.67)                                                                                                                                                                                                                                                                                    |    |
| 2<br><u>R5/2270720/</u><br>3,3kΩ /0,25W<br><u>R6/2270790/</u><br>33kΩ /0,25W<br><u>R12/2270980/</u><br>27kΩ /0,25W<br><u>R13/2270740/</u><br>4,7kΩ /0,25W<br><u>R25/2270710/</u><br>2,2kΩ /0,25W                                                                                                                                                                         | <u>R5/2270590/18kΩ /0,25W</u><br><u>R6/2270840/150kΩ /0,25W</u><br><u>R12/2270800/47kΩ /0,25W</u><br><u>R13/2270750/8,2kΩ /0,25W</u><br><u>R25/2270740/4,7kΩ /0,25W</u><br><br><div>50 Hz : 100 124→<br/>60 Hz : 130 001→</div> | (F) Pour améliorer le rendement du cycle enregistrement-lecture aux fréquences élevées, l'amplificateur a été modifié. (Pour la modification des condensateurs respectifs voir FMI-PD-P-1-03.67, pos. 2 s.v.p.).<br>(D) Um die Leistung Aufnahme-Wiedergabe bei den hohen Frequenzen zu verbessern, wurde der Verstärker geändert. (Für die Änderung der entsprechenden Kondensatoren siehe FMI-PD-P-1-03.67, Pos. 2).<br>(E) In order to have a better performance recording-playback of the high frequencies, the amplifier has been modified. (For the modification of the respective capacitors, please refer to FMI-PD-P-1-03.67, pos. 2). (02.67)                                                                                                                                                                                                                                                                                                     |    |
| 3<br><u>R28/2271103/</u><br>6,8kΩ /0,25W                                                                                                                                                                                                                                                                                                                                 | <u>P4/2224106/30kΩ linéaire-linear</u><br><u>R54/2271110/120Ω /0,25W</u><br><br><br><br><br><br><div>50 Hz : 100 749→<br/>60 Hz : 130 001→</div>                                                                                | (F) Pour 1) augmenter le rendement du cycle enregistrement-lecture aux fréquences basses<br>2) atténuer le bruit de fond<br>3) augmenter le rendement de la tête d'enregistrement-lecture, l'amplificateur a été modifié. (Pour la modification des condensateurs respectifs voir FMI-PD-P-1-03.67, pos. 3 s.v.p.).<br>(D) Um 1) die Leistung Aufnahme-Wiedergabe bei den niedrigen Frequenzen zu verbessern<br>2) das Grundgeräusch zu dämpfen<br>3) die Leistung des Aufnahme-Wiedergabekopfes zu verbessern, wurde der Verstärker geändert. (Für die Änderung der entsprechenden Kondensatoren siehe FMI-PD-P-1-03.67, pos. 3).<br>(E) To 1) have a better performance recording-playback at the low frequencies<br>2) attenuate the ground noise<br>3) improve the performance of the recording-playback sound head, the amplifier has been modified. (For the modification of the resp. capacitors, please refer to FMI-PD-P-1-03.67, pos. 3). (02.67) |    |

PB

03.67

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PD - P - 2 - 03.67

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**FM**

Condensateurs de l'amplificateur  
Kondensatoren des Verstärkers  
Capacitors of amplifier

SM8

50 Hz: 100 001 →  
60 Hz: 130 001

**BOLEX**

| 15<br>Anciennes pièces<br>Alte Teile<br>Former parts | 16<br>Nouvelles pièces<br>Neue Teile<br>New parts | 17<br>Observations<br>Bemerkungen<br>Remarks                                                                                                                                                                                   |
|------------------------------------------------------|---------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 4<br>C27/2210310/<br>33nF/160V =                     | C27/2211004/22nF/250V =                           | (F) Voir motif de modification sous onglet N1, modification no. 4.<br>(D): Siehe Beschreibung der Aenderung Nr. 4 unter Ziffer N1.<br>(E) Please refer to modification No. 4 of tab N1 and read the respective remark. (05.67) |
|                                                      |                                                   |                                                                                                                                                                                                                                |

|         |            |        |                         |         |
|---------|------------|--------|-------------------------|---------|
| 6<br>PB | 7<br>05.67 | 8<br>* | 9<br>PD - P - 1 - 03.67 | 11<br>2 |
|---------|------------|--------|-------------------------|---------|

**PD****Condensateurs de l'amplificateur**  
**Kondensatoren des Verstärkers**  
**Capacitors of amplifier****SM 8**50 Hz: 100 001  
60 Hz: 130 001

Tolérances : 1) Condensateurs électrolytiques  
Toleranzen : Elektrolytkondensatoren  
Tolerances : Electrolytical capacitors

+ 100 %  
- 20 %

2) tous les autres  
alle anderen  
all the others

± 20 %

| No.<br>Nr.<br>No. | No. de commande<br>Ersatzteil-Nr.<br>Part no. | Valeur<br>Wert<br>Value | Tension de service<br>Betriebsspannung<br>Operating voltage | [V]= | Observations<br>Bemerkungen<br>Remarks                |
|-------------------|-----------------------------------------------|-------------------------|-------------------------------------------------------------|------|-------------------------------------------------------|
| C1                | 2210450                                       | 125 $\mu$ F             | 16                                                          |      |                                                       |
| C2                | 2210430                                       | 64 $\mu$ F              | 10                                                          |      |                                                       |
| C3                | 2210320                                       | 0,1 $\mu$ F             | 250                                                         |      | exécution longue - lange Ausführung - long execution  |
| C4                | 2211011                                       | 0,47 $\mu$ F            | 160                                                         |      | " courte - kurze " - short "                          |
| C5                | 2210460                                       | 0,1 $\mu$ F             | 160                                                         |      | " " - " " - " "                                       |
| C6                | 2210260                                       | 500 $\mu$ F             | 25                                                          |      |                                                       |
| C7                | 2210250                                       | 1000 $\mu$ F            | 25                                                          |      |                                                       |
| C8                | 2210450                                       | 125 $\mu$ F             | 16                                                          |      |                                                       |
| C9                | 2210330                                       | 0,22 $\mu$ F            | 250                                                         |      |                                                       |
| C10               | 2210840                                       | 3,3 nF                  | 250                                                         |      |                                                       |
| C11               | 2210850                                       | 2,5 $\mu$ F             | 16                                                          |      |                                                       |
| C12               | 2210290                                       | 15 nF                   | 250                                                         |      |                                                       |
| C13               | 2210760                                       | 470 pF                  | 500                                                         |      |                                                       |
| C14               | 2210300                                       | 47 nF                   | 250                                                         |      | exécution courte - kurze Ausführung - short execution |
| C15               | 2210450                                       | 125 $\mu$ F             | 16                                                          |      |                                                       |
| C16               | 2210630                                       | 4,7 nF                  | 250                                                         |      |                                                       |
| C17               | 2210380                                       | 10 $\mu$ F              | 16                                                          |      |                                                       |
| C18               | 2210380                                       | 10 $\mu$ F              | 16                                                          |      |                                                       |
| C19               | 2210410                                       | 32 $\mu$ F              | 4                                                           |      |                                                       |
| C20               | 2210380                                       | 10 $\mu$ F              | 16                                                          |      |                                                       |
| C21               | 2210380                                       | 10 $\mu$ F              | 16                                                          |      |                                                       |
| C22               | 2210850                                       | 2,5 $\mu$ F             | 16                                                          |      |                                                       |
| C23               | 2210300                                       | 47 nF                   | 250                                                         |      | exécution courte - kurze Ausführung - short execution |
| C24               | 2210380                                       | 10 $\mu$ F              | 16                                                          |      |                                                       |
| C25               | 2210300                                       | 47 nF                   | 250                                                         |      | " " - " " - " "                                       |
| C26               | 2210410                                       | 32 $\mu$ F              | 4                                                           |      |                                                       |
| C27               | 2210290                                       | 15 nF                   | 250                                                         |      |                                                       |
| C28               | 2210440                                       | 100 $\mu$ F             | 6,4                                                         |      |                                                       |
| C29               | 2210460                                       | 400 $\mu$ F             | 10                                                          |      |                                                       |
| C30               | 2210380                                       | 10 $\mu$ F              | 16                                                          |      |                                                       |
| C31               | 2210850                                       | 2,5 $\mu$ F             | 16                                                          |      |                                                       |
| C32               | 2210380                                       | 10 $\mu$ F              | 16                                                          |      |                                                       |
| C33               | 2210350                                       | 1 $\mu$ F               | 100                                                         |      |                                                       |
| C34               | 2210270                                       | 1 nF                    | 100                                                         |      |                                                       |
| C35               | 2210370                                       | 6,4 $\mu$ F             | 25                                                          |      |                                                       |
| C36               | 2210370                                       | 6,4 $\mu$ F             | 25                                                          |      |                                                       |
| C37               | 2210480                                       | 0,1 $\mu$ F             | 160                                                         |      | exécution courte - kurze Ausführung - short execution |
| C38               | 2210450                                       | 125 $\mu$ F             | 16                                                          |      |                                                       |
| C39               | 2210440                                       | 100 $\mu$ F             | 6,4                                                         |      |                                                       |
| C40               | 2210450                                       | 125 $\mu$ F             | 16                                                          |      |                                                       |
| C41               | 2211011                                       | 0,47 $\mu$ F            | 160                                                         |      | " " - " " - " "                                       |

**PB**

03.67

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**P****1**

**PD**

# Condensateurs de l'amplificateur Kondensatoren des Verstärkers Capacitors of amplifier

**SM 8**50 Hz: 107 254  
60 Hz: 131 932

Tolérances : 1) Condensateurs électrolytiques  
Toleranzen : Elektrolytkondensatoren  
Tolerances : Electrolytical capacitors

+ 100 %  
- 20 %

2) tous les autres  
alle anderen  
all the others

± 20 %

| No.<br>Nr.<br>No. | No. de commande<br>Ersatzteil-Nr.<br>Part no. | Valeur<br>Wert<br>Value | Tension de service<br>Betriebsspannung [V]=<br>Operating voltage | Observations<br>Bemerkungen<br>Remarks |
|-------------------|-----------------------------------------------|-------------------------|------------------------------------------------------------------|----------------------------------------|
| C1                | 2210440                                       | 125 µF                  | 6,4                                                              |                                        |
| C2                | 2210410                                       | 32 µF                   | 4                                                                |                                        |
| C3                | 2210840                                       | 3,3 nF                  | 160                                                              |                                        |
| C4                | 2211003                                       | 1 nF                    | 160                                                              |                                        |
| C5                | 2210450                                       | 125 µF                  | 16                                                               |                                        |
| C6                | 2210380                                       | 10 µF                   | 16                                                               |                                        |
| C7                | 2210840                                       | 3,3 nF                  | 160                                                              |                                        |
| C8                | 2210850                                       | 2,5 µF                  | 10                                                               |                                        |
| C9                | 2210380                                       | 10 µF                   | 16                                                               |                                        |
| C10               | 2210300                                       | 47 nF                   | 160                                                              |                                        |
| C11               | 2210380                                       | 10 µF                   | 16                                                               |                                        |
| C12               | 2210380                                       | 10 µF                   | 16                                                               |                                        |
| C13               | 2210380                                       | 10 µF                   | 16                                                               |                                        |
| C14               | 2210410                                       | 32 µF                   | 4                                                                |                                        |
| C15               | 2210300                                       | 47 nF                   | 160                                                              |                                        |
| C16               | 2210630                                       | 4,7 nF                  | 160                                                              |                                        |
| C17               | 2210330                                       | 0,22 µF                 | 160                                                              |                                        |
| C18               | 2210300                                       | 47 nF                   | 160                                                              |                                        |
| C19               | 2210840                                       | 3,3 nF                  | 160                                                              |                                        |
| C20               | 2210380                                       | 10 µF                   | 16                                                               |                                        |
| C21               | 2211029                                       | 640 µF                  | 25                                                               |                                        |
| C22               | 2211026                                       | 80 µF                   | 25                                                               |                                        |
| C23               | 2210380                                       | 10 µF                   | 16                                                               |                                        |
| C24               | 2211003                                       | 1 nF                    | 160                                                              |                                        |
| C25               | 2210430                                       | 64 µF                   | 10                                                               |                                        |
| C26               | 2211017                                       | 25 µF                   | 25                                                               |                                        |
| C27               | 2210760                                       | 470 pF                  | 500                                                              |                                        |
| C28               | 2210850                                       | 2,5 µF                  | 10                                                               |                                        |
| C29               | 2210440                                       | 125 µF                  | 6,4                                                              |                                        |
| C30               | 2210250                                       | 1000 µF                 | 25                                                               |                                        |
| C31               | 2211023                                       | 0,47 µF                 | 35                                                               |                                        |
| C32               | 2211023                                       | 0,47 µF                 | 35                                                               |                                        |
| C33               | 2211028                                       | 1000 µF                 | 16/18                                                            |                                        |
| C34               | 2210480                                       | 0,1 µF                  | 160                                                              |                                        |
| C35               | 2210320                                       | 0,1 µF                  | 250                                                              |                                        |
| C36               | 2210430                                       | 64 µF                   | 10                                                               |                                        |
| C37               | 2210270                                       | 1 nF                    | 160                                                              |                                        |
| C38               | 2211024                                       | 1 µF                    | 25                                                               |                                        |
| C39               | 2210820                                       | 2,2 nF                  | 160                                                              |                                        |
| C40               | 2210330                                       | 0,22 µF                 | 160                                                              |                                        |
| C41               | 2210380                                       | 10 µF                   | 16                                                               |                                        |
| C42               | 2211022                                       | 2000 µF                 | 30                                                               |                                        |
| C43               | 2210490                                       | 2 µF                    | 300                                                              |                                        |

**PB**

10.67

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**P****1.1**

**PD**

# Condensateurs de l'amplificateur

## Kondensatoren des Verstärkers

### Capacitors of amplifier

**SM 8**50 Hz: 114 646  
60 Hz: 135 201

Tolérances : 1) Condensateurs électrolytiques  
Toleranzen : Elektrolytkondensatoren  
Tolerances : Electrolytical capacitors

+ 100 %  
- 20 %

2) tous les autres  
alle anderen  
all the others

+ 20 %

| No.<br>Nr.<br>No. | No. de commande<br>Ersatzteil-Nr.<br>Part no. | Valeur<br>Wert<br>Value | Tension de service<br>Betriebsspannung<br>Operating voltage [V] | Observations<br>Bemerkungen<br>Remarks |
|-------------------|-----------------------------------------------|-------------------------|-----------------------------------------------------------------|----------------------------------------|
| 01                | 2210440                                       | 125 µF                  | 6,4                                                             |                                        |
| 02                | 2210410                                       | 32 µF                   | 4                                                               |                                        |
| 03                | 2210340                                       | 3,3 nF                  | 160                                                             |                                        |
| 04                | 2211023                                       | 1 nF                    | 160                                                             |                                        |
| 05                | 2210350                                       | 125 µF                  | 16                                                              |                                        |
| 06                | 2210380                                       | 10 µF                   | 16                                                              |                                        |
| 07                | 2210440                                       | 3,3 nF                  | 160                                                             |                                        |
| 08                | 2210350                                       | 2,5 µF                  | 10                                                              |                                        |
| 09                | 2210380                                       | 10 µF                   | 16                                                              |                                        |
| 010               | 2210360                                       | 47 nF                   | 160                                                             |                                        |
| 011               | 2210360                                       | 10 µF                   | 16                                                              |                                        |
| 012               | 2210360                                       | 10 µF                   | 16                                                              |                                        |
| 013               | 2210380                                       | 10 µF                   | 16                                                              |                                        |
| 014               | 2210410                                       | 32 µF                   | 4                                                               |                                        |
| 015               | 2210360                                       | 47 nF                   | 160                                                             |                                        |
| 016               | 2210360                                       | 4,7 nF                  | 160                                                             |                                        |
| 017               | 2210330                                       | 0,22 µF                 | 160                                                             |                                        |
| 018               | 2210300                                       | 47 nF                   | 160                                                             |                                        |
| 019               | 2210840                                       | 3,3 nF                  | 160                                                             |                                        |
| 020               | 2210380                                       | 10 µF                   | 16                                                              |                                        |
| 021               | 2211029                                       | 640 µF                  | 25                                                              |                                        |
| 022               | 2211026                                       | 50 µF                   | 25                                                              |                                        |
| 023               | 2210380                                       | 10 µF                   | 16                                                              |                                        |
| 024               | 2211003                                       | 1 nF                    | 160                                                             |                                        |
| 025               | 2210430                                       | 64 µF                   | 10                                                              |                                        |
| 026               | 2211017                                       | 25 µF                   | 25                                                              |                                        |
| 027               | 2210760                                       | 470 pF                  | 500                                                             |                                        |
| 028               | 2210550                                       | 2,5 µF                  | 10                                                              |                                        |
| 029               | 2210440                                       | 125 µF                  | 6,4                                                             |                                        |
| 030               | 2210250                                       | 1000 µF                 | 25                                                              |                                        |
| 031               | 2211023                                       | 0,47 µF                 | 35                                                              |                                        |
| 032               | 2211023                                       | 0,47 µF                 | 35                                                              |                                        |
| 033               | 2211001                                       | 250 µF                  | 16                                                              |                                        |
| 034               | 2210480                                       | 0,1 µF                  | 160                                                             |                                        |
| 035               | 2210320                                       | 0,1 µF                  | 250                                                             |                                        |
| 036               | 2210410                                       | 32 µF                   | 6,4                                                             |                                        |
| 037               | 2211003                                       | 1 nF                    | 250                                                             |                                        |
| 038               | 2211024                                       | 1 nF                    | 25                                                              |                                        |
| 039               | 2210620                                       | 2,2 nF                  | 160                                                             |                                        |
| 040               | 2210330                                       | 0,22 µF                 | 160                                                             |                                        |
| 041               | 2210360                                       | 10 µF                   | 16                                                              |                                        |
| 042               | 2211022                                       | 2000 µF                 | 30                                                              |                                        |
| 043               | 2211026                                       | 50 µF                   | 25                                                              |                                        |
| 044               | 2211026                                       | 1000 µF                 | 16/18                                                           |                                        |

**PB**

10.68

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**P****1.2**



FM

Résistances de l'amplificateur  
Widerstände des Verstärkers  
Resistors of amplifier

SMB

50 Hz: 100 001 →

60 Hz: 130 001 →



| Anciennes pièces<br>Alte Teile<br>Former parts                                                                                                                                                                                                                                                                                                                                                               | Nouvelles pièces<br>Neue Teile<br>New parts                                                                                                                                                                                                                                     | Observations<br>Bemerkungen<br>Remarks                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>1 <u>R41/2271103/</u><br/>6,8kΩ /0,25W</p> <p>* (F) (Pour l'adjonction des C42 et C44, voir FM1-PD-P-1-03.67, pos. 1 s.v.p.)</p> <p>* (D) (Was die zusätzlichen C42 und C44 anbelangt, siehe FM1-PD-P-1-03.67, Pos. 1)</p> <p>* (E) (As far as the additional C42 and C44 are concerned, see FM1-PD-P-1-03.67, pos. 1)</p> <div> 50 Hz : 100 001→<br/>60 Hz : 130 016→ </div> | <p><u>R41/2270690/1kΩ /0,25W</u></p>                                                                                                                                                                                                                                            | <p>(F) Pour maintenir constant le niveau indiqué par le Vu-mètre, projecteur se trouvant en marche ou à l'arrêt un filtre a été introduit sur l'amplificateur pour supprimer la fréquence 50 kHz dans les différents étages.</p> <p>(D) Um das Niveau des Aussteuerungs-Anzeigers bei laufendem oder stehendem Projektor konstant zu halten, wurde im Verstärker ein Filter eingebaut, welcher die Frequenz 50 kHz in den verschiedenen Stufen eliminiert.</p> <p>(E) In order to keep the level indicated by the V.U. meter steady, projector running or not, a filter has been introduced in the amplifier for eliminating the frequency of 50 kHz in the various stages (02.67)</p>                                                                                                                                                                                                                                                                                           |
| <p>2 <u>R5/2270720/</u><br/>3,3kΩ /0,25W<br/><u>R6/2270790/</u><br/>33kΩ /0,25W<br/><u>R12/2270980/</u><br/>27kΩ /0,25W<br/><u>R13/2270740/</u><br/>4,7kΩ /0,25W<br/><u>R25/2270710/</u><br/>2,2kΩ /0,25W</p>                                                                                                                                                                                                | <p><u>R5/2270590/18kΩ /0,25W</u></p> <p><u>R6/2270840/150kΩ /0,25W</u></p> <p><u>R12/2270800/47kΩ /0,25W</u></p> <p><u>R13/2270750/8,2kΩ /0,25W</u></p> <p><u>R25/2270740/4,7kΩ /0,25W</u></p> <div> 50 Hz : 100 124→<br/>60 Hz : 130 001→ </div> | <p>(F) Pour améliorer le rendement du cycle enregistrement-lecture aux fréquences élevées, l'amplificateur a été modifié. (Pour la modification des condensateurs respectifs voir FM1-PD-P-1-03.67, pos. 2 s.v.p.)</p> <p>(D) Um die Leistung Aufnahme-Wiedergabe bei den hohen Frequenzen zu verbessern, wurde der Verstärker geändert. (Für die Änderung der entsprechenden Kondensatoren siehe FM1-PD-P-1-03.67, Pos. 2).</p> <p>(E) In order to have a better performance recording-playback of the high frequencies, the amplifier has been modified. (For the modification of the respective capacitors, please refer to FM1-PD-P-1-03.67, pos. 2). (02.67)</p>                                                                                                                                                                                                                                                                                                            |
| <p>3 <u>R28/2271103/</u><br/>6,8kΩ /0,25W<br/>-</p>                                                                                                                                                                                                                                                                                                                                                          | <p><u>P4/2224106/30kΩ linéaire-linear</u></p> <p><u>R54/2271110/120Ω /0,25W</u></p> <div> 50 Hz : 100 749→<br/>60 Hz : 130 001→ </div>                                                                                                            | <p>(F) Pour 1) augmenter le rendement du cycle enregistrement-lecture aux fréquences basses<br/>2) atténuer le bruit de fond<br/>3) augmenter le rendement de la tête d'enregistrement-lecture, l'amplificateur a été modifié. (Pour la modification des condensateurs respectifs voir FM1-PD-P-1-03.67, pos. 3 s.v.p.).</p> <p>(D) Um 1) die Leistung Aufnahme-Wiedergabe bei den niedrigen Frequenzen zu verbessern<br/>2) das Grundgeräusch zu dämpfen<br/>3) die Leistung des Aufnahme-Wiedergabekopfes zu verbessern, wurde der Verstärker geändert. (Für die Änderung der entsprechenden Kondensatoren siehe FM1-PD-P-1-03.67, Pos. 3).</p> <p>(E) To 1) have a better performance recording-playback at the low frequencies<br/>2) attenuate the ground noise<br/>3) improve the performance of the recording-playback sound head, the amplifier has been modified. (For the modification of the resp. capacitors, please refer to FM1-PD-P-1-03.67, pos. 3). (02.67)</p> |

PB

03.67

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PD - P - 2 - 03.67

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|                                                                                                     |                                                                                                                                                        |                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |              |
|-----------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|
| <b>FM</b>                                                                                           |                                                                                                                                                        | Résistances de l'amplificateur<br>Widerstände des Verstärkers<br>Resistors of amplifier                                                                                                                                                                           | SM8<br>50 Hz: 100 001 →<br>60 Hz: 130 001 →                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | <b>BOLEX</b> |
| 15                                                                                                  | Anciennes pièces<br>Alte Teile<br>Former parts                                                                                                         | Nouvelles pièces<br>Neue Teile<br>New parts                                                                                                                                                                                                                       | Observations<br>Bemerkungen<br>Remarks                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |              |
| 4                                                                                                   | R3/2270970/<br>680Ω/0,25W                                                                                                                              | R3/2270670/470Ω/0,25W<br><br><div>           50 Hz : 101 664 →<br/>           60 Hz : 130 171 →         </div>                                                                                                                                                    | (F) Il était nécessaire de rendre plus stable l'oscillateur à 50 kHz et d'augmenter la sensibilité à l'entrée micro. (Pour la modification du transistor no. voir FM1-PD-P-3-03.67, pos. 1 s.v.p.).<br>(D) Es war erforderlich, den Oscillator bei 50 kHz stabiler zu machen und die Mikro-Eingangsempfindlichkeit zu erhöhen. (Für die Aenderung des Transistors Nr. 7 siehe FM1-PD-P-3-03.67, Pos. 1).<br>(E) It was necessary to stabilize the oscillator at 50 kHz, and to increase the sensibility of the input for mike. (For the modification of the transistor No. please refer to FM1-PD-P-3-03.67, pos. 1). (03.67) |              |
| 5                                                                                                   | R41/2270690/<br>1kΩ/0,25W                                                                                                                              | R28/2270740/4,7kΩ/0,25W<br>R41/2270720/3,3kΩ/0,25W<br><br><div>           50 Hz : 103 805 →<br/>           60 Hz : 130 701 →         </div>                                                                                                                       | (F) Réintroduction de R28 et changement de la valeur de R41 (voir motif 1) sur FM, onglet N1, modification no. 3).<br>(D) Wiedereinführung des R28 und Aenderung des Wertes R41 (siehe Beschreibung 1) auf FM, Ziffer N1, Aenderung Nr. 3).<br>(E) Re-introduction of R28 and modification of value of R41 (please refer to pos. 1) on FM, tab N1, modification No. 3). (05.67)                                                                                                                                                                                                                                               |              |
| 6                                                                                                   | R26/2270750/<br>8,2kΩ/0,25W<br>R27/2270800/<br>47kΩ/0,25W<br>R30/2270710/<br>2,2kΩ/0,25W<br>R25/2270740/<br>4,7kΩ/0,25W<br>R41/2270720/<br>3,3kΩ/0,25W | R26/2270810/56kΩ/0,25W<br>R27/2270840/150kΩ/0,25W<br>R30/2270750/8,2kΩ/0,25W<br>R25/2270750/8,2kΩ/0,25W<br>R41/2270710/2,2kΩ/0,25W<br><br>P5/2224106/30kΩ<br>linéaire - linear<br><div>           50 Hz : 104 014<br/>           60 Hz : 131 031 →         </div> | (F) Voir motif de modification sous onglet N1, modification no. 4.<br>(D) Siehe Beschreibung der Aenderung Nr. 4 unter Ziffer N1.<br>(E) Please refer to modification no. 4 of tab N1 and read the respective remark. (05.67)                                                                                                                                                                                                                                                                                                                                                                                                 |              |
| <div> <div>PB</div> <div>05.67</div> <div>*</div> <div>PD - P - 2 - 03.67</div> <div>2</div> </div> |                                                                                                                                                        |                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |              |



**PD****Résistances de l'amplificateur**  
**Widerstände des Verstärkers**  
**Resistors of amplifier****S M 8**50 Hz: 100 001  
60 Hz: 130 001Tolérance générale  
Allgemeine Toleranz  
General tolerance $\pm 10 \%$ 

| No.<br>Nr.<br>No. | No. de commande<br>Ersatzteil-Nr.<br>Part no. | Valeur<br>Wert<br>Value | Puissance<br>Leistung<br>Power | [W] | Observations<br>Bemerkungen<br>Remarks |
|-------------------|-----------------------------------------------|-------------------------|--------------------------------|-----|----------------------------------------|
| R1                | 2270670                                       | 470 $\Omega$            | 0,25                           |     |                                        |
| R2                | 2270710                                       | 2,2 k $\Omega$          | "                              |     |                                        |
| R3                | 2270970                                       | 680 $\Omega$            | "                              |     |                                        |
| R4                | 2271106                                       | 47 $\Omega$             | 2                              |     |                                        |
| R5                | 2270720                                       | 3,3 k $\Omega$          | 0,25                           |     |                                        |
| R6                | 2270790                                       | 33 k $\Omega$           | "                              |     |                                        |
| R7                | 2270350                                       | 1,2 k $\Omega$          | "                              |     |                                        |
| R8                | 2270750                                       | 8,2 k $\Omega$          | "                              |     |                                        |
| R9                | 2270790                                       | 33 k $\Omega$           | "                              |     |                                        |
| R10               | 2270750                                       | 8,2 k $\Omega$          | "                              |     |                                        |
| R11               | 2270600                                       | 22 k $\Omega$           | "                              |     |                                        |
| R12               | 2270980                                       | 27 k $\Omega$           | "                              |     |                                        |
| R13               | 2270740                                       | 4,7 k $\Omega$          | "                              |     |                                        |
| R14               | 2270720                                       | 3,3 k $\Omega$          | "                              |     |                                        |
| R15               | 2270600                                       | 22 k $\Omega$           | "                              |     |                                        |
| R16               | 2270600                                       | 22 k $\Omega$           | "                              |     |                                        |
| R17               | 2270760                                       | 10 k $\Omega$           | "                              |     |                                        |
| R18               | 2270590                                       | 18 k $\Omega$           | "                              |     |                                        |
| R19               | 2270590                                       | 18 k $\Omega$           | "                              |     |                                        |
| R20               | 2271105                                       | 680 k $\Omega$          | "                              |     |                                        |
| R21               | 2271105                                       | 680 k $\Omega$          | "                              |     |                                        |
| R22               | 2270870                                       | 2,2 M $\Omega$          | "                              |     |                                        |
| R23               | 2270980                                       | 27 k $\Omega$           | "                              |     |                                        |
| R24               | 2270720                                       | 3,3 k $\Omega$          | "                              |     |                                        |
| R25               | 2270710                                       | 2,2 k $\Omega$          | "                              |     |                                        |
| R26               | 2270750                                       | 8,2 k $\Omega$          | "                              |     |                                        |
| R27               | 2270800                                       | 47 k $\Omega$           | "                              |     |                                        |
| R28               | 2271103                                       | 6,8 k $\Omega$          | "                              |     |                                        |
| R29               | 2270720                                       | 3,3 k $\Omega$          | "                              |     |                                        |
| R30               | 2270710                                       | 2,2 k $\Omega$          | "                              |     |                                        |
| R31               | 2270350                                       | 1,2 k $\Omega$          | "                              |     |                                        |
| R32               | 2270720                                       | 3,3 k $\Omega$          | "                              |     |                                        |
| R33               | 2270700                                       | 1,5 k $\Omega$          | "                              |     |                                        |
| R34               | 2270680                                       | 820 $\Omega$            | "                              |     |                                        |
| R35               | 2270710                                       | 2,2 k $\Omega$          | "                              |     |                                        |
| R36               | 2270680                                       | 820 $\Omega$            | "                              |     |                                        |
| R37               | 2270250                                       | 100 $\Omega$            | 0,5                            |     |                                        |
| R38               | 2271107                                       | 470 $\Omega$            | 2                              |     |                                        |
| R39               | 2270220                                       | 2 $\Omega$              | 0,25                           |     |                                        |
| R40               | 2271110                                       | 120 $\Omega$            | "                              |     |                                        |
| R41               | 2271103                                       | 6,8 k $\Omega$          | "                              |     |                                        |
| R42               | 2270990                                       | 470 $\Omega$            | 0,5                            |     |                                        |
| R43               | 2270590                                       | 18 k $\Omega$           | 0,25                           |     |                                        |
| R44               | 2271110                                       | 120 $\Omega$            | "                              |     |                                        |
| R45               | 2270650                                       | 220 $\Omega$            | "                              |     |                                        |
| R46               | 2270590                                       | 18 k $\Omega$           | "                              |     |                                        |
| R47               | 2270870                                       | 2,2 M $\Omega$          | "                              |     |                                        |
| R48               | 2270740                                       | 4,7 k $\Omega$          | "                              |     |                                        |
| R49               | 2270650                                       | 220 $\Omega$            | "                              |     |                                        |
| R50               | 2270350                                       | 1,2 k $\Omega$          | "                              |     |                                        |
| R51               | 2270640                                       | 100 $\Omega$            | "                              |     |                                        |
| R52               | 2271109                                       | 82 $\Omega$             | 2                              |     |                                        |
| R53               | 2270250                                       | 100 $\Omega$            | 0,5                            |     |                                        |

**P B**

03.67

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**P****2**



**FM**

Résistances de l'amplificateur  
Widerstände des Verstärkers  
Resistors of amplifier

SM8

50 Hz : 107 254  
60 Hz : 131 932 →

**BOLEX**

| 15<br>Anciennes pièces<br>Alte Teile<br>Former parts | 16<br>Nouvelles pièces<br>Neue Teile<br>New parts                                                            | 17<br>Observations<br>Bemerkungen<br>Remarks                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1<br><u>R22/2270710</u><br><u>R53/2270710</u>        | <u>R22/2270700/1,5kΩ/0,25W</u><br><u>R53/2270720/3,3kΩ/0,25W</u><br><br>50 Hz : 119 941<br>60 Hz : 137 014 → | (F) Pour monter la nouvelle tête d'enregistrement "Photovox", changement de valeur des résistances R22 et R53.<br>(Voir modification 3, FM2 - PD - F - 1.1 - 10.68).<br>(D) Aenderung der Werte der beiden Widerstände R22 und R53, wenn der neue "Photovox"-Tonkopf eingebaut wird.<br>(Siehe Aenderung 3, FM2 - PD - F - 1.1 - 10.68).<br>(E) Modification of rating of the two resistances R22 and R53, when fitting the new "Photovox" sound head.<br>(See modification 3, FM2 - PD - F - 1.1 - 10.68).<br>(08.69) <b>F</b> |
|                                                      |                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |

PB

08.69

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PD - P - 2.1 - 10.67

1

**PD**

# Résistances de l'amplificateur Widerstände des Verstärkers Resistors of amplifier

**SM8**50 Hz: 107 254  
60 Hz: 131 932

Tolérance générale  
Allgemeine Toleranz  
General tolerance

± 10 %

| No.<br>Nr.<br>No. | No. de commande<br>Ersatzteil-Nr.<br>Part no. | Valeur<br>Wert<br>Value | Puissance<br>Leistung [W]<br>Power | Observations<br>Bemerkungen<br>Remarks |
|-------------------|-----------------------------------------------|-------------------------|------------------------------------|----------------------------------------|
| R1                | 2270750                                       | 8,2 kΩ                  | 0,25                               |                                        |
| R2                | 2270810                                       | 56 kΩ                   | "                                  |                                        |
| R3                | 2270840                                       | 150 kΩ                  | "                                  |                                        |
| R4                | 2270720                                       | 3,3 kΩ                  | "                                  |                                        |
| R6                | 2270800                                       | 47 kΩ                   | "                                  |                                        |
| R7                | 2270600                                       | 22 kΩ                   | "                                  |                                        |
| R8                | 2270600                                       | 22 kΩ                   | "                                  |                                        |
| R9                | 2270590                                       | 18 kΩ                   | "                                  |                                        |
| R10               | 2270590                                       | 18 kΩ                   | "                                  |                                        |
| R11               | 2270810                                       | 56 kΩ                   | "                                  |                                        |
| R12               | 2270790                                       | 33 kΩ                   | "                                  |                                        |
| R13               | 2270740                                       | 4,7 kΩ                  | "                                  |                                        |
| R14               | 2270600                                       | 22 kΩ                   | "                                  |                                        |
| R15               | 2270720                                       | 3,3 kΩ                  | "                                  |                                        |
| R16               | 2270980                                       | 27 kΩ                   | "                                  |                                        |
| R17               | 2270870                                       | 2,2 MΩ                  | "                                  |                                        |
| R16               | 2271105                                       | 680 kΩ                  | "                                  |                                        |
| R19               | 2271105                                       | 680 kΩ                  | "                                  |                                        |
| R20               | 2270720                                       | 3,3 kΩ                  | "                                  |                                        |
| R21               | 2270710                                       | 2,2 kΩ                  | "                                  |                                        |
| R22               | 2270710                                       | 2,2 kΩ                  | "                                  |                                        |
| R23               | 2270710                                       | 2,2 kΩ                  | "                                  |                                        |
| R24               | 2270590                                       | 18 kΩ                   | "                                  |                                        |
| R25               | 2270770                                       | 15 kΩ                   | "                                  |                                        |
| R26               | 2270590                                       | 18 kΩ                   | "                                  |                                        |
| R27               | 2271110                                       | 120 Ω                   | "                                  |                                        |
| R28               | 2270650                                       | 220 Ω                   | "                                  |                                        |
| R29               | 2270590                                       | 18 kΩ                   | "                                  |                                        |
| R30               | 2270710                                       | 2,2 kΩ                  | "                                  |                                        |
| R31               | 2270700                                       | 1,5 kΩ                  | "                                  |                                        |
| R32               | 2270760                                       | 10 kΩ                   | "                                  |                                        |
| R33               | 2271030                                       | 82 kΩ                   | "                                  |                                        |
| R34               | 2270750                                       | 8,2 kΩ                  | "                                  |                                        |
| R35               | 2270650                                       | 220 Ω                   | "                                  |                                        |
| R36               | 2270350                                       | 1,2 kΩ                  | "                                  |                                        |
| R37               | 2270670                                       | 470 Ω                   | "                                  |                                        |
| R38               | 2270670                                       | 470 Ω                   | "                                  |                                        |
| R39               | 2270610                                       | 47 Ω                    | "                                  |                                        |
| R40               | 2270610                                       | 47 Ω                    | "                                  |                                        |
| R41               | 2271029                                       | 2,2 Ω                   | 2                                  | ± 20 %                                 |
| R42               | 2271029                                       | 2,2 Ω                   | "                                  | ± 20 %                                 |
| R43               | 2271103                                       | 6,8 kΩ                  | 0,25                               |                                        |
| R44               | 2270930                                       | 220 Ω                   | 0,5                                | ± 20 %                                 |
| R45               | 2271106                                       | 47 Ω                    | 2                                  |                                        |
| R46               | 2271106                                       | 47 Ω                    | "                                  |                                        |
| R47               | 2270710                                       | 2,2 kΩ                  | 0,25                               |                                        |
| R48               | 2270670                                       | 470 Ω                   | "                                  |                                        |
| R49               | 2270670                                       | 470 Ω                   | "                                  |                                        |
| R50               | 2270710                                       | 2,2 kΩ                  | "                                  |                                        |
| R51               | 2270590                                       | 18 kΩ                   | "                                  |                                        |
| R52               | 2270760                                       | 10 kΩ                   | "                                  |                                        |
| R53               | 2270710                                       | 2,2 kΩ                  | "                                  |                                        |
| R54               | 2270740                                       | 4,7 kΩ                  | "                                  |                                        |
| R55               | 2270690                                       | 1 kΩ                    | "                                  |                                        |
| R56               | 2270650                                       | 220 Ω                   | "                                  |                                        |

**PB**

10.67

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**P****2.1**

FM

Résistances de l'amplificateur  
Widerstände des Verstärkers  
Resistors of amplifier

SM8

50 Hz : 114 646  
60 Hz : 135 201 →



| 15<br>Anciennes pièces<br>Alte Teile<br>Former parts | 16<br>Nouvelles pièces<br>Neue Teile<br>New parts                                                                                                     | 17<br>Observations<br>Bemerkungen<br>Remarks                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1                                                    | <u>R57/2271009/820/2W</u><br><br>50 Hz : 118 201 →                                                                                                    | (F) Introduction d'une résistance sur le circuit lampe témoin. Voir PD - 0 - 1.2.1 - 03.69.<br><u>Valable uniquement pour la version scandinave.</u><br>(D) Einführung eines Widerstandes im Stromkreis der Kontrolllampe. Siehe PD - 0 - 1.2.1 - 03.69.<br><u>Nur gültig für die Skandinavien-Ausführung.</u><br>(E) Introduction of a resistor in the signal lamp circuit. See PD - 0 - 1.2.1 - 03.69.<br>Valid for Scandinavian version only. (04.69)                                                               |
| 2                                                    | <u>R22/2270710</u><br><u>R53/2270710</u><br><br>R22/2270700/1,5kΩ/0,25W<br><u>R53/2270720/3,3kΩ/0,25W</u><br><br>50 Hz : 119 941<br>60 Hz : 137 014 → | (F) Pour monter la nouvelle tête d'enregistrement "Photovox", changement de valeur des résistances R22 et R53.<br>(Voir modification 3, FM2 - PD - F - 1.1 - 10.68).<br>(D) Aenderung der Werte der beiden Widerstände R22 und R53, wenn der neue "Photovox"-Tonkopf eingebaut wird.<br>(Siehe Aenderung 3, FM2 - PD - F - 1.1 - 10.68).<br>(E) Modification of rating of the two resistances R22 and R53, when fitting the new "Photovox" sound head.<br>(See modification 3, FM2 - PD - F - 1.1 - 10.68).<br>(08.69) |
| 3                                                    | <u>R41/2271029</u><br><u>R42/2271029</u><br><br>R41/2271048/047 Ω<br><u>R42/2271048/047 Ω</u><br><br>50 Hz : 145 600<br>60 Hz : 150 650 →             | (F) Afin d'augmenter la puissance de sortie de l'ampli de 6 à 8 W, la valeur de R41 et R42 a été modifiée.<br>(D) Aenderung des Wertes der Widerstände R41 und R42, um die Ausgangsleistung des Verstärkers von 6 auf 8 W zu erhöhen.<br>(E) To increase the output of the amplifier from 6 to 8 W, the value of R41 and R42 has been modified.<br>08.71                                                                                                                                                               |
|                                                      |                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |

PB

08.71



PD - P - 2,2 - 10.68

1

**PD****Résistances de l'amplificateur**  
**Widerstände des Verstärkers**  
**Resistors of amplifier****S M 8**50 Hz: 114 646  
60 Hz: 135 201Tolérance générale  
Allgemeine Toleranz  
General tolerance $\pm 10 \%$ 

| No.<br>Nr.<br>No. | No. de commande<br>Ersatzteil-Nr.<br>Part no. | Valeur<br>Wert<br>Value | Puissance<br>Leistung [W]<br>Power | Observations<br>Bemerkungen<br>Remarks |
|-------------------|-----------------------------------------------|-------------------------|------------------------------------|----------------------------------------|
| R1                | 2270750                                       | 8,2 k $\Omega$          | 0,25                               |                                        |
| R2                | 2270810                                       | 56 k $\Omega$           | "                                  |                                        |
| R3                | 2270840                                       | 150 k $\Omega$          | "                                  |                                        |
| R4                | 2270720                                       | 3,3 k $\Omega$          | "                                  |                                        |
| R5                | 2271016                                       | 10 $\Omega$             | "                                  |                                        |
| R6                | 2270800                                       | 47 k $\Omega$           | "                                  |                                        |
| R7                | 2270600                                       | 22 k $\Omega$           | "                                  |                                        |
| R8                | 2270600                                       | 22 k $\Omega$           | "                                  |                                        |
| R9                | 2270590                                       | 18 k $\Omega$           | "                                  |                                        |
| R10               | 2270590                                       | 18 k $\Omega$           | "                                  |                                        |
| R11               | 2270810                                       | 56 k $\Omega$           | "                                  |                                        |
| R12               | 2270790                                       | 33 k $\Omega$           | "                                  |                                        |
| R13               | 2270740                                       | 4,7 k $\Omega$          | "                                  |                                        |
| R14               | 2270600                                       | 22 k $\Omega$           | "                                  |                                        |
| R15               | 2270720                                       | 3,3 k $\Omega$          | "                                  |                                        |
| R16               | 2270960                                       | 27 k $\Omega$           | "                                  |                                        |
| R17               | 2270870                                       | 2,2 k $\Omega$          | "                                  |                                        |
| R18               | 2271105                                       | 680 k $\Omega$          | "                                  |                                        |
| R19               | 2271105                                       | 680 k $\Omega$          | "                                  |                                        |
| R20               | 2270720                                       | 3,3 k $\Omega$          | "                                  |                                        |
| R21               | 2270710                                       | 2,2 k $\Omega$          | "                                  |                                        |
| R22               | 2270710                                       | 2,2 k $\Omega$          | "                                  |                                        |
| R23               | 2270710                                       | 2,2 k $\Omega$          | "                                  |                                        |
| R24               | 2270590                                       | 18 k $\Omega$           | "                                  |                                        |
| R25               | 2270770                                       | 15 k $\Omega$           | "                                  |                                        |
| R26               | 2270590                                       | 18 k $\Omega$           | "                                  |                                        |
| R27               | 2271110                                       | 120 $\Omega$            | "                                  |                                        |
| R28               | 2270650                                       | 220 $\Omega$            | "                                  |                                        |
| R29               | 2270590                                       | 18 k $\Omega$           | "                                  |                                        |
| R30               | 2270710                                       | 2,2 k $\Omega$          | "                                  |                                        |
| R31               | 2270700                                       | 1,5 k $\Omega$          | "                                  |                                        |
| R32               | 2270760                                       | 10 k $\Omega$           | "                                  |                                        |
| R33               | 2271030                                       | 82 k $\Omega$           | "                                  |                                        |
| R34               | 2270750                                       | 8,2 k $\Omega$          | "                                  |                                        |
| R35               | 2270650                                       | 220 $\Omega$            | "                                  |                                        |
| R36               | 2270350                                       | 1,2 k $\Omega$          | "                                  |                                        |
| R37               | 2270670                                       | 470 $\Omega$            | "                                  |                                        |
| R38               | 2270670                                       | 470 $\Omega$            | "                                  |                                        |
| R39               | 2270610                                       | 47 $\Omega$             | "                                  |                                        |
| R40               | 2270610                                       | 47 $\Omega$             | "                                  |                                        |
| R41               | 2271029                                       | 2,2 $\Omega$            | 2                                  | $\pm 20 \%$                            |
| R42               | 2271029                                       | 2,2 $\Omega$            | "                                  | $\pm 20 \%$                            |
| R43               | 2271103                                       | 6,8 k $\Omega$          | 0,25                               |                                        |
| R44               | 2270930                                       | 220 $\Omega$            | 0,5                                | $\pm 20 \%$                            |
| R45               | 2270690                                       | 1 k $\Omega$            | 0,25                               |                                        |
| R46               | 2271105                                       | 82 $\Omega$             | 2                                  |                                        |
| R47               | 2270710                                       | 2,2 k $\Omega$          | 0,25                               |                                        |
| R48               | 2270670                                       | 470 $\Omega$            | "                                  |                                        |
| R49               | 2270650                                       | 220 $\Omega$            | "                                  |                                        |
| R50               | 2270710                                       | 2,2 k $\Omega$          | "                                  |                                        |
| R51               | 2270590                                       | 18 k $\Omega$           | "                                  |                                        |
| R52               | 2270760                                       | 10 k $\Omega$           | "                                  |                                        |
| R53               | 2270710                                       | 2,2 k $\Omega$          | "                                  |                                        |
| R54               | 2270740                                       | 4,7 k $\Omega$          | "                                  |                                        |
| R55               | 2270690                                       | 1 k $\Omega$            | "                                  |                                        |
| R56               | 2270650                                       | 220 $\Omega$            | "                                  |                                        |

**PB**

10.68

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**P****2.2**

**FM**

Diodes et transistors de l'amplificateur  
Dioden und Transistoren des Verstärkers  
Diodes and Transistors of amplifier

SM8

50 Hz: 100 001 →  
60 Hz: 130 001 →

**BOLEX**

| 15<br>Anciennes pièces<br>Alte Teile<br>Former parts | 16<br>Nouvelles pièces<br>Neue Teile<br>New parts                                                           | 17<br>Observations<br>Bemerkungen<br>Remarks                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1<br>No. 7/2287024/<br>FILMA 1                       | No. 7/2287030/FILMA 3<br><br><div>50 Hz : 101 664 →<br/>60 Hz : 130 171 →</div> | (F) Il était nécessaire de rendre plus stable l'oscillateur à 50 kHz et d'augmenter la sensibilité à l'entrée micro. (Pour la modification de la résistance R 3, voir FM2-PD-P-2-03.67, pos. 4 s.v.p.).<br>(D) Es war erforderlich, den Oscillator bei 50 kHz stabiler zu machen und die Mikro-Eingangsempfindlichkeit zu erhöhen. (Für die Aenderung des Widerstandes R 3, siehe FM2-PD-P-2-03.67, Pos. 4).<br>(E) It was necessary to stabilize the oscillator at 50 kHz, and to increase the sensibility of the input for mike. (For the modification of the resistor R 3 please refer to FM2-PD-P-2-03.67, pos. 4). (03.67) |
| 2<br>No. 6/2287001/OC44                              | No. 6/2287025/FILMA 2                                                                                       | (F) Voir motif de modification sous onglet N1, modification no. 4.<br>(D) Siehe Beschreibung der Aenderung Nr. 4 unter Ziffer N1.<br>(E) Please refer to modification No. 4 of tab N1 and read the respective remark. (05.67)                                                                                                                                                                                                                                                                                                                                                                                                   |
| 3<br>I/2287006<br>II/ "<br>III/2287005<br>IV/ "      | I/2287035<br>II/ "<br>III/ "<br>IV/ "                                                                       | (F) Nomenclature modifiée. Nous vous signalons également que sous ce symbole, il pourrait vous être livrés alternativement soit des transistors AD 149 ou AD 150 étant donné leur interchangeabilité par paire.<br>(D) Teilnummernänderung. Da die Transistoren AD 149 und AD 150 jeweils paarweise austauschbar sind, kann Ihnen unter diesem Symbol die eine oder die andere Type geliefert werden.<br>(E) Part-number modification. Matched transistors AD 149 and AD 150, resp., being interchangeable, it may happen that one or the other type is supplied under the same symbol.                                         |

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PD - P - 3 - 03.67

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**PD**

**Diodes et transistors de l'amplificateur**  
**Dioden und Transistoren des Verstärkers**  
**Diodes and Transistors of amplifier**

**S M 8**50 Hz:100 001  
60 Hz:130 0011) Diodes - Dioden - Diodes

| No.<br>Nr.<br>No. | No. de commande<br>Ersatzteil-Nr.<br>Part no. | Type<br>Typ<br>Type | Observations<br>Bemerkungen<br>Remarks |
|-------------------|-----------------------------------------------|---------------------|----------------------------------------|
| D1                | 2232104                                       | SD 91 S             |                                        |
| D2                | "                                             | "                   |                                        |
| D3                | 2232111                                       | 2 E 0,5             |                                        |

2) Transistors - Transistoren - Transistors

| No.<br>Nr.<br>No. | No. de commande<br>Ersatzteil-Nr.<br>Part-no. | Type<br>Typ<br>Type | Observations<br>Bemerkungen<br>Remarks |
|-------------------|-----------------------------------------------|---------------------|----------------------------------------|
| 1                 | 2287024                                       | FILMA 1             |                                        |
| 2                 | 2287003                                       | AC 125              |                                        |
| 3                 | 2287004                                       | AC 128              |                                        |
| 4                 | "                                             | "                   |                                        |
| 5                 | 2287024                                       | FILMA 1             |                                        |
| 6                 | 2287001                                       | OC 44               |                                        |
| 7                 | 2287024                                       | FILMA 1             |                                        |
| 8                 | 2287025                                       | FILMA 2             |                                        |
| I                 | 2287006                                       | AD 149              |                                        |
| II                | "                                             | "                   |                                        |
| III               | 2287005                                       | "                   |                                        |
| IV                | "                                             | "                   |                                        |

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**P****3**



**FM**

Diodes et transistors de l'amplificateur  
Dioden und Transistoren des Verstärkers  
Diodes and transistors of amplifier

SM8

50 Hz: 107 254  
60 Hz: 131 932 →

**BOLEX**

Anciennes pièces  
Alte Teile  
Former parts

Nouvelles pièces  
Neue Teile  
New parts

Observations  
Bemerkungen  
Remarks

10/  
11/ 2287035

(F) Nous vous signalons que sous ce symbole, il pourrait vous être livrés soit des transistors AD 149 ou AD 150 étant donné leur interchangeabilité par paire.  
(D) Da die Transistoren AD 149 und AD 150 jeweils paarweise austauschbar sind, kann Ihnen unter diesem Symbol die eine oder die andere Type geliefert werden.  
(E) Matched transistors AD 149 and AD 150, resp., being interchangeable, it may happen that one or the other type is supplied under the same symbol. (06,68)

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PD - P - 3.1 - 10,67

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**PD****Diodes et transistors de l'amplificateur**  
**Dioden und Transistoren des Verstärkers**  
**Diodes and Transistors of amplifier****S M 8**50 Hz: 107 254  
60 Hz: 131 9321) Diodes - Dioden - Diodes

| No.<br>Nr.<br>No. | No. de commande<br>Ersatzteil-Nr.<br>Part no. | Type<br>Typ<br>Type | Observations<br>Bemerkungen<br>Remarks |
|-------------------|-----------------------------------------------|---------------------|----------------------------------------|
| D1                | 2232104                                       | SD 91 S             |                                        |
| D2                | 2232104                                       | SD 91 S             |                                        |
| D3                | 2232111                                       | 2 E 0,5             |                                        |

2) Transistors - Transistoren - Transistors

| No.<br>Nr.<br>No. | No. de commande<br>Ersatzteil-Nr.<br>Part no. | Type<br>Typ<br>Type | Observations<br>Bemerkungen<br>Remarks                                  |
|-------------------|-----------------------------------------------|---------------------|-------------------------------------------------------------------------|
| 1                 | 2287025                                       | FILMA 2             |                                                                         |
| 2                 | 2287025                                       | FILMA 2             |                                                                         |
| 3                 | 2287024                                       | FILMA 1             |                                                                         |
| 4                 | 2287024                                       | FILMA 1             |                                                                         |
| 5                 | 2287036                                       | AC 151-VI           |                                                                         |
| 6                 | 2287036                                       | AC 151-VI           |                                                                         |
| 7                 | 2287036                                       | AC 151-VI           |                                                                         |
| 8                 | 2287034                                       | AC 152              | } Transistors appariés - abgestimmte Transistoren - matched transistors |
| 9                 |                                               | AC 127              |                                                                         |
| 10                |                                               | AD 150              |                                                                         |
| 11                | 2287035                                       | AD 150              | " " - " " - " "                                                         |
| 12                | 2287033                                       | AD 148              |                                                                         |

3) Potentiomètres - Potentiometer - Potentiometers

| No.<br>Nr.<br>No. | No. de commande<br>Ersatzteil-Nr.<br>Part no. | Valeur<br>Wert<br>Value | Observations<br>Bemerkungen<br>Remarks |
|-------------------|-----------------------------------------------|-------------------------|----------------------------------------|
| P1                | 2224107                                       | 4,7 kΩ                  |                                        |
| P2                | 2262005                                       | 10 kΩ                   | log.                                   |
| P3                | 2262015                                       | 47 kΩ                   | "                                      |
| P4                | 2224104                                       | 1 kΩ                    |                                        |
| P5                | 2224111                                       | 22 kΩ                   |                                        |
| P6                | 2224112                                       | 100 kΩ                  |                                        |

**PB****10.67****\*****P****3.1**

**PD**

**Diodes et transistors de l'amplificateur**  
**Dioden und Transistoren des Verstärkers**  
**Diodes and Transistors of amplifier**

**SM 8**50 Hz: 114 646  
60 Hz: 135 2011) Diodes - Dioden - Diodes

| No.<br>Nr.<br>No. | No. de commande<br>Ersatzteil-Nr.<br>Part no. | Type<br>Typ<br>Type           | Observations<br>Bemerkungen<br>Remarks |
|-------------------|-----------------------------------------------|-------------------------------|----------------------------------------|
| D1<br>D2<br>D3    | 2232104<br>2232104<br>2232111                 | SD 91 S<br>SD 91 S<br>2 E 0,5 |                                        |

2) Transistors - Transistoren - Transistors

| No.<br>Nr.<br>No.                                                 | No. de commande<br>Ersatzteil-Nr.<br>Part no                                                                          | Type<br>Typ<br>Type                                                                                                                         | Observations<br>Bemerkungen<br>Remarks                                                   |
|-------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|
| 1<br>2<br>3<br>4<br>5<br>6<br>7<br>8<br>9<br>10<br>11<br>12<br>13 | 2287025<br>2287025<br>2287024<br>2287024<br>2287036<br>2287036<br>2287036<br>2287034<br>2287035<br>2287033<br>2287004 | FILMA 2<br>FILMA 2<br>FILMA 1<br>FILMA 1<br>AC 151-VI<br>AC 151-VI<br>AC 151-VI<br>AC 152<br>AC 127<br>AD 150<br>AD 150<br>AD 148<br>AC 128 | Transistors appariés - abgestimmte Transistoren - matched transistors<br>" " - " " - " " |

3) Potentiomètres - Potentiometer - Potentiometers

| No.<br>Nr.<br>No.                      | No. de commande<br>Ersatzteil-Nr.<br>Part no.                             | Valeur<br>Wert<br>Value                                                      | Observations<br>Bemerkungen<br>Remarks |
|----------------------------------------|---------------------------------------------------------------------------|------------------------------------------------------------------------------|----------------------------------------|
| P1<br>P2<br>P3<br>P4<br>P5<br>P6<br>P7 | 2224107<br>2262005<br>2262015<br>2224104<br>2224111<br>2224112<br>2262029 | 4,7 kΩ<br>10 kΩ<br>47 kΩ<br>1 kΩ<br>22 kΩ<br>100 kΩ<br>1kΩ 1 W<br>25 kΩ 0,25 | log.<br>"<br>D                         |

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**P****3.2**

**FM**

Composants électriques du mélangeur  
Elektrische Bestandteile des Mischpults  
Electrical components of mixing box

SM8

**BOLEX**

| 15<br>Anciennes pièces<br>Alte Teile<br>Former parts | 16<br>Nouvelles pièces<br>Neue Teile<br>New parts                                                                                                                                                                                                                                                                                                                                           | 17<br>Observations<br>Bemerkungen<br>Remarks                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| C5/2210380/10 $\mu$ F-16 V                           | <p>Mélangeur utilisé avec projecteurs<br/>50 Hz <math>\rightarrow</math> 107 253<br/>60 Hz <math>\rightarrow</math> 132 931</p> <p>C5/2210380/10 <math>\mu</math>F-16 V<br/>Mélangeur utilisé avec projecteurs<br/>50 Hz 107 254 <math>\rightarrow</math><br/>60 Hz 132 932 <math>\rightarrow</math></p> <p>C5/2210400/25 <math>\mu</math>F-6 V<br/>C6/2210400/25 <math>\mu</math>F-6 V</p> | <p>(F) Suite à la modification de l'amplificateur, le condensateur C5 de 10 <math>\mu</math>F est remplacé par deux de 25 <math>\mu</math>F (C5 et C6).</p> <p>(D) Infolge der Aenderung des Verstärkers wird der Kondensator C5 (10 <math>\mu</math>F) durch 2 Kondensatoren zu je 25 <math>\mu</math>F (C5 und C6) ersetzt.</p> <p>(E) Following the modification of the amplifier, capacitor C5 (10 <math>\mu</math>F) is replaced by 2 capacitors of 25 <math>\mu</math>F each (C5 and C6).</p> <p>(10.67)</p> |
|                                                      |                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |

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PD - P - 4 - 03.67

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**PD****Composants électriques du mélangeur**  
**Elektrische Bestandteile des Mischpults**  
**Electrical components of mixing box****SM 8**

Tolérances : Voir condensateurs respectivement résistances de l'amplificateur  
Toleranzen : Siehe Kondensatoren bzw. Widerstände des Verstärkers  
Tolérances : See capacitors resp. resistors of amplifier

1) Condensateurs - Kondensatoren - Capacitors

| No.<br>Nr.<br>No. | No. de commande<br>Ersatzteil-Nr.<br>Part no. | Valeur<br>Wert<br>Value | Tension de service<br>Betriebsspannung<br>Operating voltage | Observations<br>Bemerkungen<br>Remarks                                  |
|-------------------|-----------------------------------------------|-------------------------|-------------------------------------------------------------|-------------------------------------------------------------------------|
| C1                | 2210380                                       | 10 $\mu$ F              | 16                                                          | exécution longue - lange Ausführung - long execution<br>" " - " " - " " |
| C2                | "                                             | "                       | "                                                           |                                                                         |
| C3                | 2210320                                       | 0,1 $\mu$ F             | 250                                                         |                                                                         |
| C4                | "                                             | "                       | "                                                           |                                                                         |
| C5                | 2210380                                       | 10 $\mu$ F              | 16                                                          |                                                                         |

2) Résistances - Widerstände - Resistors

| No.<br>Nr.<br>No. | No. de commande<br>Ersatzteil-Nr.<br>Part no. | Valeur<br>Wert<br>Value | Puissance<br>Leistung<br>Power | Observations<br>Bemerkungen<br>Remarks |
|-------------------|-----------------------------------------------|-------------------------|--------------------------------|----------------------------------------|
| R1                | 2270480                                       | 180 k $\Omega$          | 0,25                           |                                        |
| R2                | 2270740                                       | 4,7 k $\Omega$          | "                              |                                        |
| R3                | 2270800                                       | 47 k $\Omega$           | "                              |                                        |
| R4                | 2270980                                       | 27 k $\Omega$           | "                              |                                        |
| R5                | 2271105                                       | 680 k $\Omega$          | "                              |                                        |
| R6                | 2270860                                       | 1 M $\Omega$            | "                              |                                        |
| R7                | 2270640                                       | 100 $\Omega$            | "                              |                                        |
| R8                | 2270750                                       | 8,2 k $\Omega$          | "                              |                                        |
| R9                | "                                             | "                       | "                              |                                        |
| R10               | 2270980                                       | 27 k $\Omega$           | "                              |                                        |
| R11               | 2271105                                       | 680 k $\Omega$          | "                              |                                        |
| R12               | 2270860                                       | 1 M $\Omega$            | "                              |                                        |
| R13               | 2270750                                       | 8,2 k $\Omega$          | "                              |                                        |
| R14               | 2270600                                       | 22 k $\Omega$           | "                              |                                        |

3) Transistors - Transistoren - Transistors

| No.<br>Nr.<br>No. | No. de commande<br>Ersatzteil-Nr.<br>Part no. | Type<br>Typ<br>Type | Observations<br>Bemerkungen<br>Remarks |
|-------------------|-----------------------------------------------|---------------------|----------------------------------------|
| 1                 | 2287002                                       | OC 71               |                                        |
| 2                 | "                                             | "                   |                                        |
| 3                 | "                                             | "                   |                                        |

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**P****4**

