

NO. 257

NOVEMBER 1986

SERVICE MANUAL

TRANSVIDEO TRV-35

1. For disassembly and reassembly, also refer to the "PARTS LIST, TRANSVIDEO TRV-35 (No. 280)".
2. The essential adjusting points at the time of reassembly have been described in detail in the "IV. DISASSEMBLY AND REASSEMBLY".
3. Should any trouble occur, use the "TABLE FOR TROUBLESHOOTING HINTS" at the beginning of this volume.

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ELMO CO., LTD.

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I. GENERAL INTRODUCTION

I — 1 Features

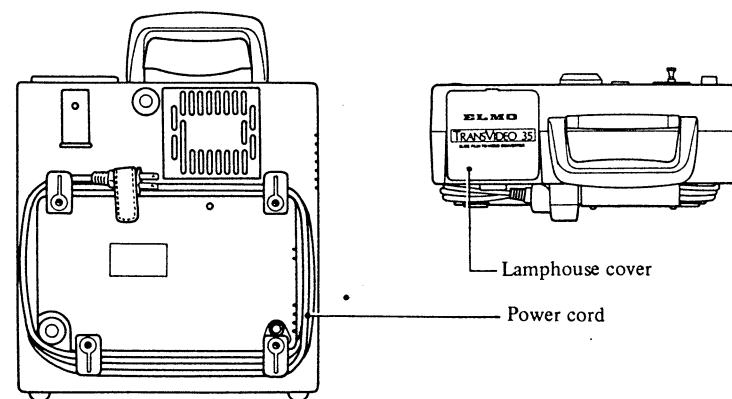
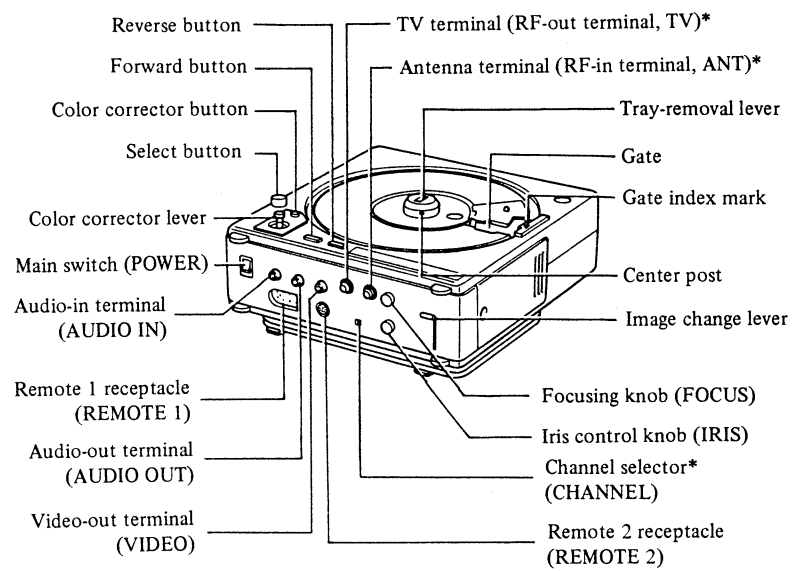
The ELMO TRANSVIDEO 35 permits direct transfer of 35 mm slide film image into video signal. The built-in video camera is equipped with 1/2 inch CCD (Charge Coupled Device) as an image pick-up element. Thanks to the superb features of the CCD, reliable performance will be assured for a long period of use.

I — 2 Specifications

*General	Power source:	AC 120V/60 Hz for U.S.A./Canada
	Power consumption:	80 W
	Dimensions:	284 x 292 x 126 mm (11.2 x 11.5 x 5.0 in.)
	Weight:	Approx. 6.3 kgs (Approx. 13.9 lbs)
*Film Transportation	Film:	35 mm slide film (2 x 2 mount slide)
	Slide tray:	Standard circular tray
	Slide capacity:	80 slides
	Slide transportation system:	Gate-in system
	Reverse playback:	Standard
	Remote playback:	Possible with optional remote control
*Video	Image change lever:	Provided
	Television system:	NTSC compatible
	Image pick-up element:	CCD (Charge Coupled Device)
	Color corrector:	Joy-stick type control
	Video output:	1.0 Vp-p/75 ohms
	Resolution:	240 TV lines
	S/N ratio:	More than 46 dB
	Input/output terminals:	Video-in/out terminals, Audio-in/out terminals

*Optics	Projection lens:	F1.4, 16 mm
	Iris adjustment:	Manual with fine adjustment
	Focusing:	Manual with fine adjustment
	Light source:	12V-6W lamp (Code 8592)
*Supplied Accessories		Video cable

I - 3 Major Parts Descriptions



- | | |
|---|--|
| (1) Forward button: | Press this button for forward playback. |
| (2) Reverse button: | Press this button for reverse playback. |
| (3) Select button: | With the Main switch ON, press this button. When this button is pressed, a lever pushes up a slide from the gate to the tray and the tray can be freely turned by hand. |
| (4) Color corrector button: | With this button pressed, adjust color tones as you desired by operating the color corrector lever. With the button OFF, color tones are adjusted at factory pre-set position. |
| (5) Color corrector lever: | With the color corrector button ON, desired color tone adjustment can be carried out by operating this lever. |
| (6) Main switch (POWER): | When this switch is turned ON, CCD camera, lamp and motor start operation. |
| (7) Audio-in terminal (AUDIO IN): | When using tape recorder for playback, audio signals are input by this terminal. |
| (8) Audio-out terminal (AUDIO OUT): | When using tape recorder for playback, audio signals are output through this terminal to monitor TV. |
| (9) Video-out terminal (VIDEO): | Video signals are output through this terminal to monitor TV. |
| *(10) TV terminal (RF-out terminal, TV): | When using a monitor TV without video/audio terminal for playback, connect this terminal and antenna terminal of the TV with RF cable. |
| *(11) Antenna terminal (RF-in terminal, ANT): | If antenna line is connected to this terminal, a TV programme can be watched through a monitor TV by turning off the TRV-35. |
| (12) Remote 1 receptacle (REMOTE 1): | Optional remote control is to be connected to this receptacle for forward/reverse playback. |
| (13) Remote 2 receptacle (REMOTE 2): | Optional interval timer is to be connected to this receptacle for automatic interval playback. |
| *(14) Channel selector (CHANNEL): | Set this selector either to channel 1 or 2 which is not used in your area for playback on monitor TV. |
| (15) Focusing knob (FOCUS): | Adjust focus by using this knob. |

- | | |
|--------------------------------|---|
| (16) Iris control knob (IRIS): | Adjust brightness of image by using this knob. |
| (17) Image change lever: | Set this lever in accordance with the format of the slide to be converted in order to change the frame size of a played back image. |
| (18) Tray-removal lever: | When pushing this lever, tray can be detached at any time. |
| (19) Gate index mark: | This mark indicates the slide to be played back at that time. |
| (20) Lamphouse cover: | Open this cover when replacing projection lamp. |
| (21) Power cord: | The power is supplied with this cord. |

NOTE: * marked parts are for Japanese market only.

I — 4 Operating Procedures

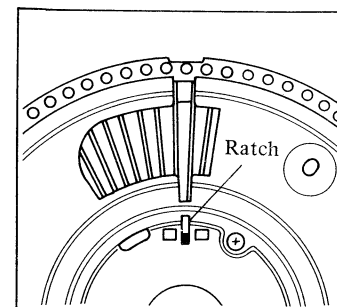
○ Condensed Operating Procedures

1. Unwind the power cord from the cord strage wrap on the bottom of the TRV-35, and plug the cord into the AC outlet.
2. Install a loaded slide tray on the TRV-35.
3. Connect the TRV-35 and a monitor TV with the supplied video cable.
4. Turn on the main switch.
5. Press the forward button, and a slide in the tray drops into the gate for playback.

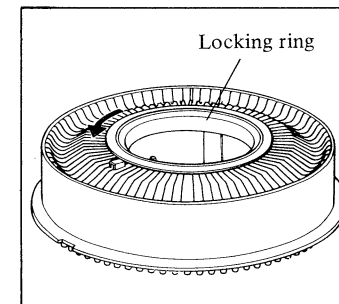
○ Setting Slide Tray

* Loading slides

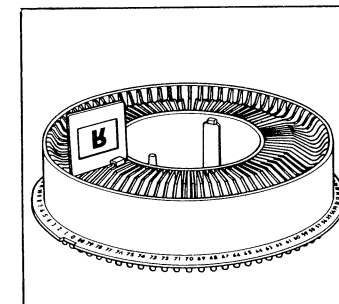
1. Make sure that the bottom plate of the slide tray is locked the ratch.
If unlocked, rotate the bottom plate of the slide tray so that ratch will properly engage with the bottom plate notch.



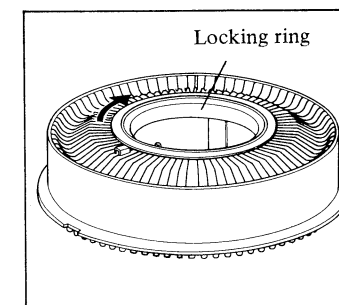
2. Turn the locking ring on the slide tray counterclockwise, and take it out.



3. Put slides into the slots of the tray in order, according to the numbers on the tray, referring to the illustration. For example, put a slide into the tray so that "R" letter on the slide film can be seen as illustrated.



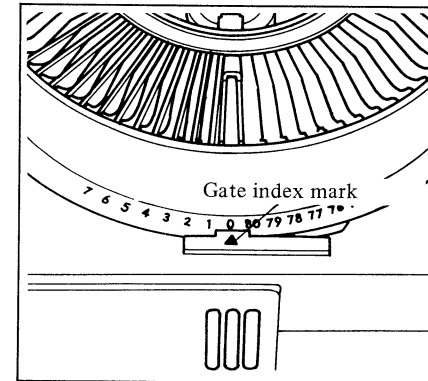
4. When all slides are loaded into the tray, attach the locking ring onto the tray and turn the locking ring clockwise until it locks.



***Installing slide tray**

Position a loaded slide tray over the center post of the TRV-35, and rotate the tray until it fits snugly at the position where the “O” mark slot of the tray meets the gate index mark.

NOTE: Do not use damaged slide mounts because they may cause some troubles such as a jam in slide transport.



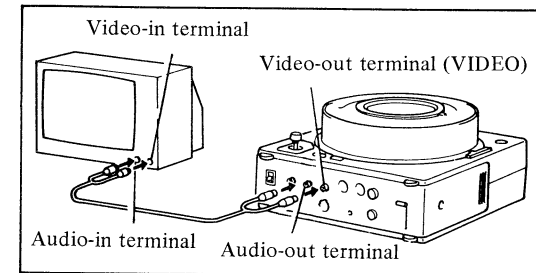
○ Connection to Monitor TV

***Connection to a TV with video/audio terminals**

Use the supplied video/audio cable.

Connect the video-out terminal (VIDEO) of the TRV-35 and the video-in terminal of a TV.

When a tape recorder is not connected as a sound source, no sound is reproduced.



***Connection to a TV without video/audio terminals**

(The model for the use in Japan only.)

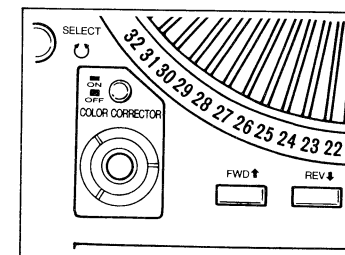
Use the RF cable.

Connect the TV terminal (TV) of the TRV-35 and the antenna terminal of a TV.

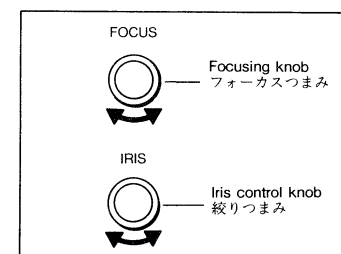
If the antenna line is connected to the antenna terminal (ANT) of the TRV-35, a TV programme can be watched through a monitor TV by turning off the TRV-35. Set the channel selector either to channel 1 or 2 which is not used in your area.

○ Playback on Monitor TV

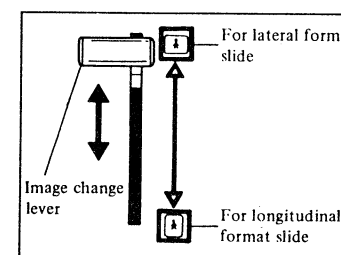
1. Press the forward button and the No. 1 slide loaded in the tray drops into the gate to start playback of the slide image on a monitor TV.
For reverse playback, press the reverse button and the tray turns clockwise to start reverse playback.



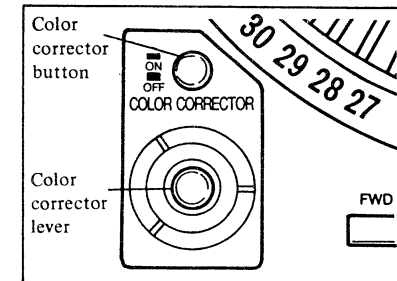
2. Adjust focus with focusing knob and brightness with the iris control knob respectively.



3. Set the image change lever in accordance with the format of the slide to be converted in order to change the frame size of played-back image.

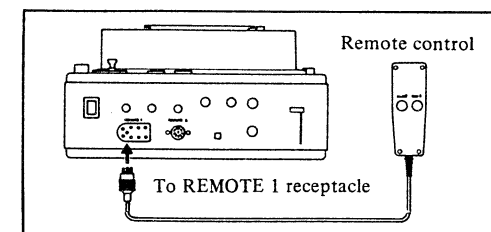


4. Adjust color tones as you desire by operating the color corrector lever with the color corrector button on. With the color correct button off, color tones are adjusted at factory pre-set position.



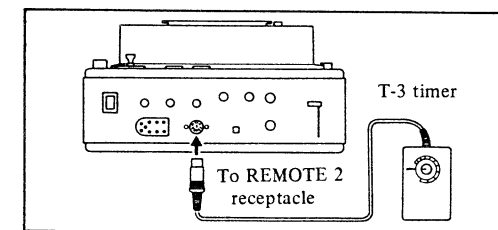
○ Remote Control

By using the optional remote control, both forward playback and reverse playback are remotely controlled.



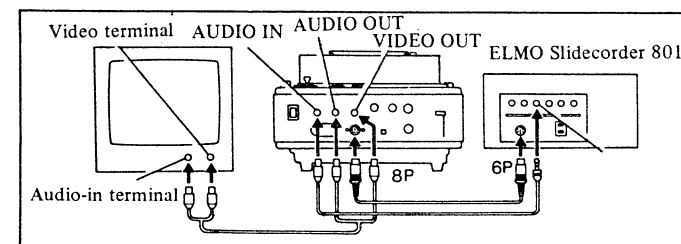
○ Playback with Timer

By using optional interval timer, T-3, the automatic interval playback is possible. The interval time is varied from approx. 2 seconds to 30 seconds as desired.



○ Sync-sound Playback with Tape Recorder

By using the optional ELMO Slidecorder 801, the sync-sound playback is possible to add background music or narration to played-slide image.



- Recording with VCR

Connect the TRV-35 and a video cassette recorder (VCR) with the supplied video/audio cable.

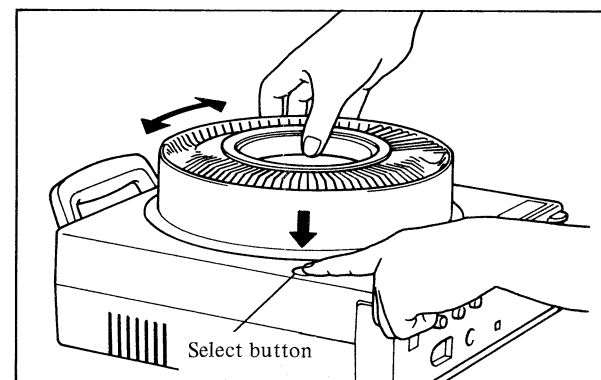
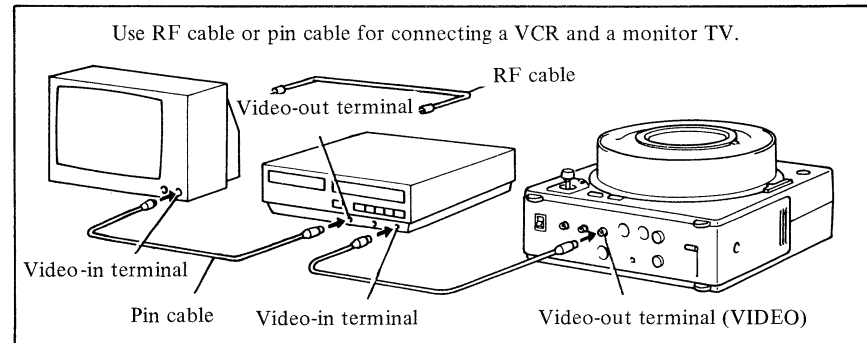
- Removing Slide Tray

When the “O” mark of the tray meets the gate index mark, the tray will be taken out easily.

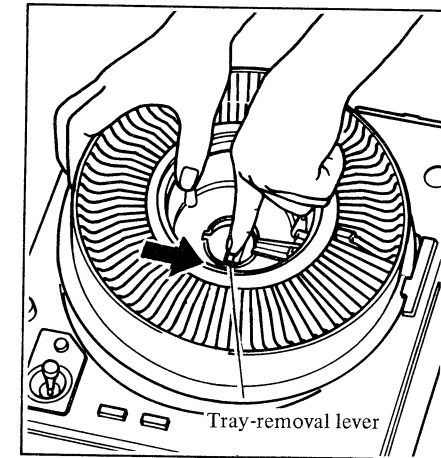
In case the playback is over with the “O” mark slot out of the gate index mark, use the select button to remove the tray. When the select button is pressed, a lever pushes up a slide from the gate to the tray and the tray can be freely turned. Therefore, in such a case as above or if you want to remove the tray during midway playback, rotate the tray until the “O” mark slot is aligned with the gate index mark while pressing the select button. Then remove the tray.

NOTE: Press the select button with the main switch on.

In case a slide mount is caught in the gate and the tray jams, remove the tray by the following steps.

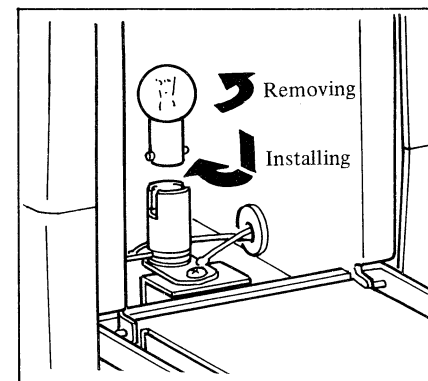
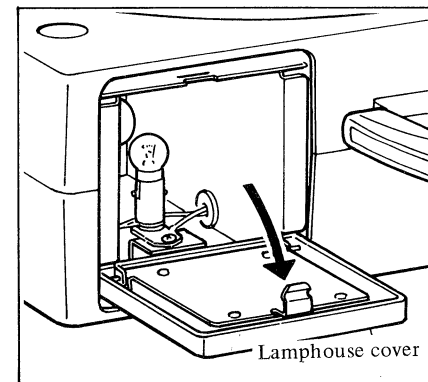


1. While pushing the tray-removal lever in the groove of the inter post, lift off the tray.
2. Take out the jammed slide in the gate.
3. Make sure the tray's locking ring is tightly closed. Invert the tray and turn the bottom plate until it locks.
4. Turn the tray upright and take out the locking ring.
5. If the slide is not damaged, put it back and attach the locking ring.
While pressing the select button, rotate the tray so that the slide which you want to playback is aligned with the gate index mark.



1 — 5 Replacing Projection Lamp

1. Open the lamphouse cover.
2. Remove the lamp from the lamp socket by turning the lamp counterclockwise.
3. Insert a new lamp to the lamp socket and turn the lamp clockwise until it locks while pressing it.
Use ELMO 12V-16W lamp (Code 8592).
4. Close the lamphouse cover.



I — 6 Before Calling for Assistance

- Q. When the fan motor/drive motor fail to turn;
 - A. Check if the power cord is properly plugged into the AC outlet.
- Q. When the lamp fails to light;
 - A. Check if the lamp is inserted to lamp socket firmly.
 - A. Check the lamp for blowout.
- Q. When the tray fails to turn;
 - A. Check if the tray is properly installed on the TRV-35.
- Q. When the slide mount fails to drop into the gate;
 - A. Check if the slide mount is not damaged.
- Q. When no playback picture is reproduced;
 - A. Check the video cable for proper connection.
 - A. Check if the brightness is properly adjusted with the iris control knob.

After checking the above items, if your trouble still persists, consult your nearest photo dealer or an authorized ELMO service center.

II. CCD CAMERA SECTION

II – 1 Outline of CCD:

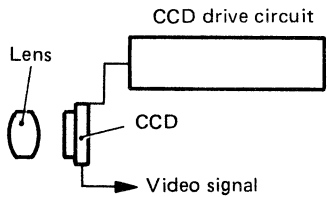
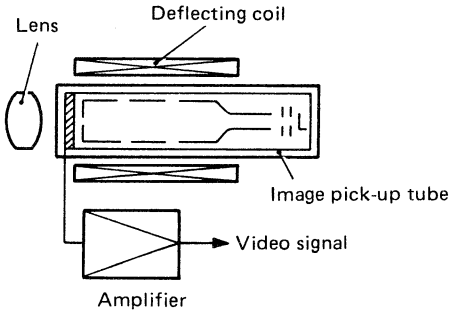
The CCD (Charge Coupled Device) is a semiconductor image pick-up element applying the latest technology of large scale integrated circuit (LSI), and is used as a substitute for the image pick-up tube. In other words, it is one of the solid image pick-up elements. This image pick-up element is made by arranging numerous picture elements on the silicon substructure board by using the semiconductor technology.

The solid image pick-up element generates charges in proportion to the quantity of incident light due to photoelectric effect, the charges are accumulated in the “potential well” formed by applying voltage to the CCD. The accumulated charges have a property to flow into the deeper neighboring “potential well.” Hence, the charges are transferred in a “bucket relay” form in accordance with the voltage applied to the electrodes of CCD one after another. In other words, the CCD is capable of carrying out three functions, namely photoelectric conversion due to light, accumulation of signal charges and transfer of signal charges. This transfer system is called “charge transfer system.” There are other solid image pick-up elements also, such as MOS, CPD, etc.

The TRANSVIDEO series uses Toshiba CCD (TCD 2040), with the number of picture elements being 398 (W) x 492 (H) = 200,000 pieces, and the size of the image pick-up section being 6.39 x 4.88 mm (equivalent to 1/2 inch).

* Comparison between solid image pick-up element (CCD) and image pick-up tube camera:

	CCD	Image pick-up tube camera
1. Life	The CCD, being equivalent to the semiconductors such as transistor and IC, has long life and high reliability.	Like the vacuum tube, the image pick-up tube camera has economical deterioration of the heater due to beam radiation.
2. Residual image and seizure	The CCD has less residual image, and has no seizure even when the same object is photographed for a long time or when extremely strong light (such as spot light) is applied.	The residual image and seizure can not be avoided because of the property of photoelectric conversion film. Should the extremely strong light (such as sunrays) be mistakenly photographed, the image pick-up tube may have to be changed. Hence, due care is necessary.
3. Pattern distortion	With the picture elements properly arranged and the signals read out by scanning these elements, there is no pattern distortion.	Since the scanning is carried out by means of the electronic beam, it is difficult to scan correctly both the center and peripheral sections, resulting in color shading, etc.
4. Resistance against vibration and shock	Being a semiconductor, it has excellent resistance against vibration and shock.	Composed of glass tubes, filaments, electrodes, etc., it is vulnerable to vibration and shock.

5. Picture appearing time	Since there is no heater, the picture appears immediately after turning the power to ON.	The picture does not appear till the heater gets warmed up.
6. Size and weight	<p>It is small in size and light in weight.</p> <p>* External dimension: 25 mm (D) x 19 mm (W) x 10 mm (H) (including lead wire leg length)</p> <p>* Weight: 5 g</p>	<p>The length for sending out electronic beam and the space for deflecting coil are needed.</p> <p>* For ½" image pick-up tube for EC-10:</p> <p>Tube dia.: 13.5 mm Total length: 92 mm Weight: 3 g (with coil:) 5.1 g Coil dia.: 22 mm</p>
7. When used in electro-magnetic field	It is not affected.	The electronic beam being likely to get affected, there are pattern distortion, color shade, etc.
8. Power consumption	<p>Being a semiconductor, the power consumption is small, amounting to 1.5 – 2 W for the camera section only.</p> 	<p>The power consumption is 2.5 – 4 W because of the heater, deflecting coil, high voltage, etc.</p> 

II – 2 Principle of Function

(1) Basic Structure:

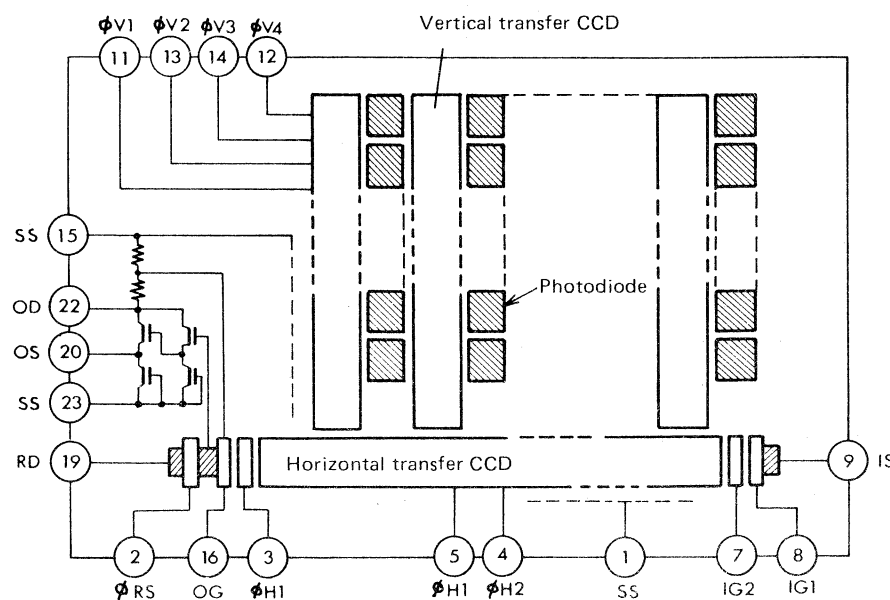
The color CCD (TCD 204C), adopted in TRV series, has a total number of 200,000 picture elements – 398 in horizontal direction and 492 in vertical direction – are properly arranged, with each element formed by photodiode photographic element. The picture elements generate signal charges in proportion to the intensity of light. Furthermore, each picture element is pasted with color filter to correspond with each other.

Vertical transfer CCD:

The vertical transfer CCD is located adjacent to each picture element in order to carry out vertical transfer. The signal charges generated by photodiode every 1/60 second in the picture elements are all shifted simultaneously into vertical transfer CCD. The transfer is thus repeated till the signal charges are transferred to the horizontal transfer CCD at the final stage.

Horizontal transfer CCD:

The signal charges, equivalent to the signal of 1 scanning line, are shifted from vertical transfer CCD, transferring the signal charges at a high speed, and reading them out through the output stage.



Transfer drive:

Vertical transfer: $\phi V_1 - \phi V_4$ 4-phase drive

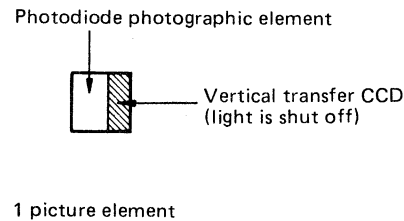
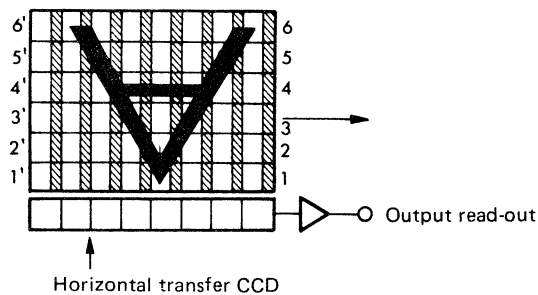
Horizontal transfer: $\phi H_1 / \phi H_2$ 2-phase drive

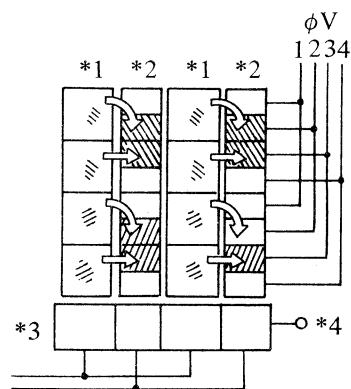
(2) Transfer System:

The signal charges are basically read out in the following manner.

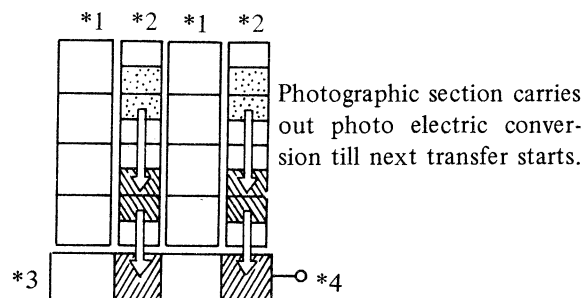
- 1) First of all, the signal charges, generated in the picture elements in proportion to the quantity of light, are all simultaneously shifted into vertical transfer CCD, with the voltage applied to the electrodes of vertical transfer CCD to prevent the signal charges from getting mixed up. The picture elements, with no signal charges, accumulate new signal charges until the next transfer starts.
- 2) The signal charges, transmitted to the vertical transfer CCD, are shifted to the horizontal transfer CCD by changing the voltage to the electrodes. The signal charges in 1 — 1' are shifted to the horizontal transfer CCD, and the signal charges in 2 — 2' to the vertical transfer CCD. In this way, the signal charges successively shift in the direction of the horizontal transfer CCD.
- 3) The signal charges in 1 — 1', transferred to the horizontal transfer CCD, are read out as output by changing the voltage to the electrodes. This read-out output becomes the signal of 1 scanning line.
- 4) After reading the signal charges in 1 — 1', the signal charges in 2 — 2' are shifted to the empty horizontal transfer CCD in the manner mentioned above.
- 5) The operations in items 2) — 4) are continuously made to repeat the transfer in item 1) after the horizontal and vertical transfer CCDs become empty.

Since the signal charges of all picture elements are read out by one vertical scanning, the signal charges are shifted by applying the CCD drive pulse of $\phi V_1 - \phi V_4$ to the vertical transfer CCD, carrying out operations in items 1) — 4) per 1/60 second (field accumulation), and the pulse of $\phi H_1/\phi H_2$ to the horizontal transfer CCD.

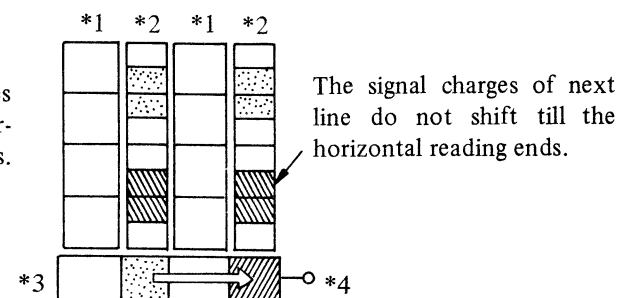




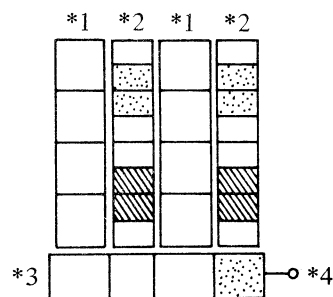
(1) From photographic section to vertical transfer CCD.



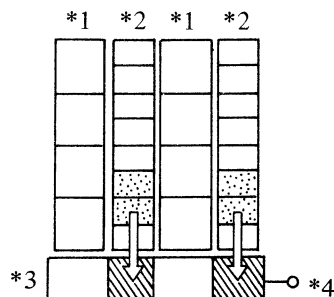
(2) From vertical transfer CCD to horizontal transfer CCD.



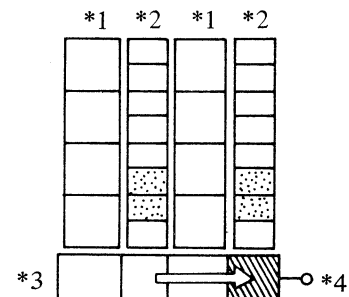
(3) Read out of one scanning line signal



(4) End of one scanning line



(5) Transfer of next line signal charges



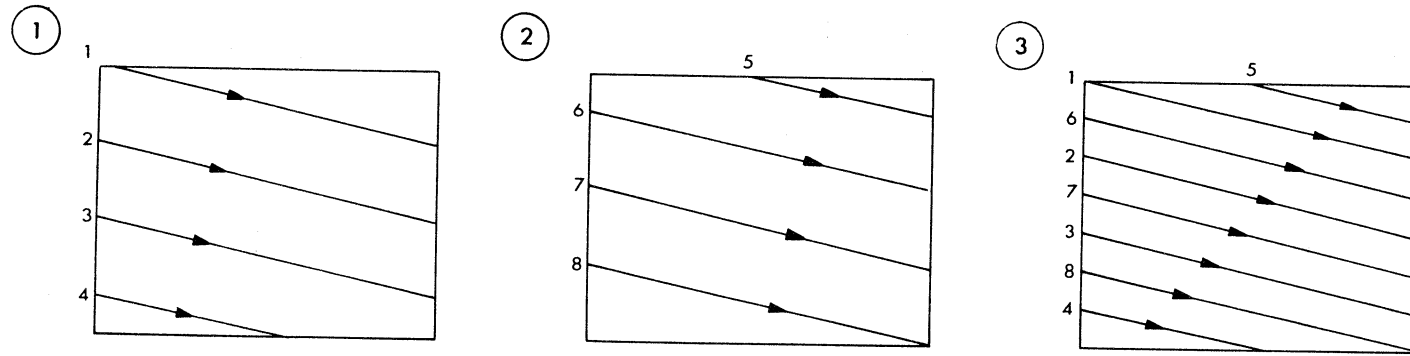
(6) Read out of next one scanning line signal

Remarks, *1: photographic section
 *2: vertical transfer CCD
 *3: horizontal transfer CCD
 *4: read out

* The standard television system in Japan consists of a total number of 525 scanning lines and 30 pieces of pictures per second, with the aspect ratio of the picture being 3 : 4.

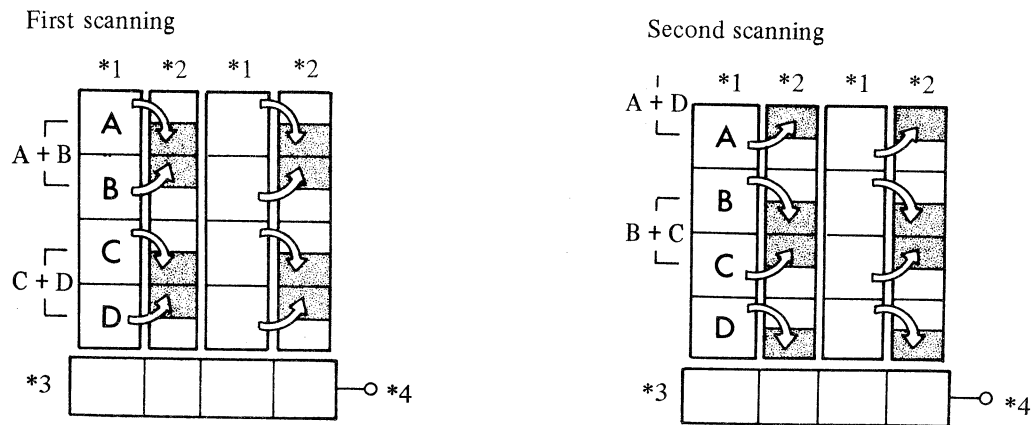
The scanning system is the interlaced scanning of 2 : 1. As shown in the Figs., scanning is first carried out by skipping 1 – 4, and then between 5 – 8 and section of preceding scanning till the scanning of the whole picture is completed. At the first scanning, 262.5 pieces of scanning lines are scanned while the remaining 262.5 are scanned at the second scanning, the scanning time in both cases being $1/60$ second. In other words, 2 pieces of rough pictures have to be piled to complete one piece of picture, with the needed for this being $1/60 \times 2 = 1/30$ second.

The rough picture after 1 vertical scanning is called 1 field, and the picture completed by 2 vertical scanning is called 1 frame.



In CCD, this interlaced scanning is taken into consideration, and the photographic signal charges are read out.

In TRV-series, CCD is used at field accumulation mode, that is, 2 neighboring picture elements are simultaneously added to produce the signal corresponding to one horizontal scanning line, and the interlaced scanning is carried out by changing the simultaneously added vertical picture elements at the first and second vertical scanning as shown in the Figs.

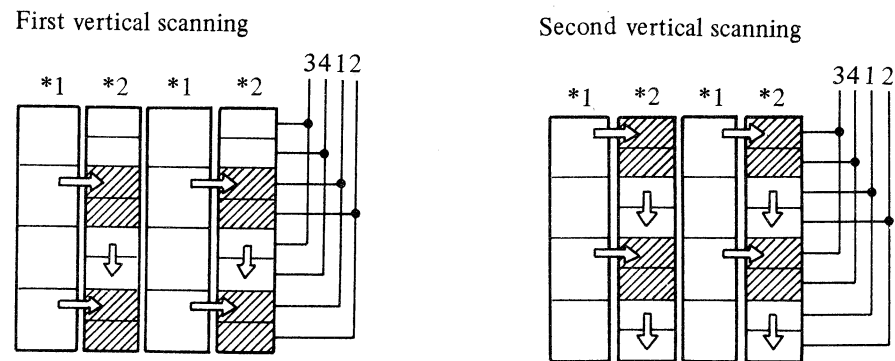


remarks, *1: photographic section
*2: vertical transfer CCD
*3: horizontal transfer CCD
*4: read out

Supplementary explanation

- Frame accumulation:

There is also the signal charge read-out system as shown in the Figs. below in order to carry out interlaced scanning. This system is adopted in ELMO's CCD monochromatic (black & white) camera 8400.

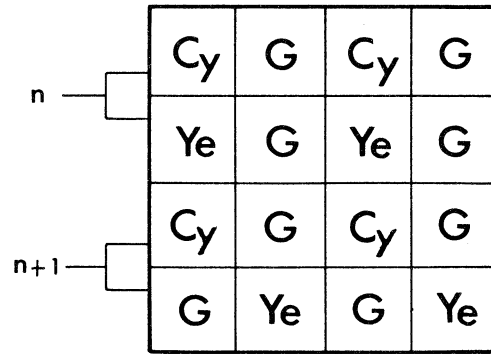


Remarks, *1: photographic section
 *2: vertical transfer CCD

(3) Color CCD Camera Main Body:

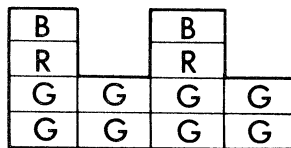
The monoplate type color CCD camera has color filters piled on the chip in mosaic form. There are various types of color systems such as frequency separation system, Bayer system, color difference succession system, etc.

The TRV series uses the frequency separation system with the features such as excellent resolution of brightness signal, high sensitivity, easier signal processing circuit, etc. Furthermore, the color filters are piled on the picture elements of CCD, and are arranged to correspond with the elements. Below is shown the arrangement of color filters.

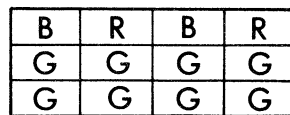


	Color	Feature
Cy :	Cyanic (bluish green)	The filter eliminates the red component of light, letting the blue and green components pass (permeate).
Ye :	Yellow	The filter eliminates the blue component of light, letting the red and green components pass.
G :	Green	The filter permeates the green component of light.

When shooting white color by using the CCD color camera, the light components passing through the filters are as shown below.



(a) n-line



(b) n + 1 line

Expressing these components by formulas (equations);

$$S_n = \frac{1}{2} \left\{ 4G + B + R + \frac{4}{\pi} (B + R) \sin \omega t \right\} \quad (A)$$

ω : Repeated space frequency of the color filter

$$S_{n+1} = \frac{1}{2} \left\{ 4G + B + R + \frac{4}{\pi} (B - R) \sin \omega t \right\} \quad (B)$$

The brightness signal Y_H is obtained by passing the DC components of both equations through the LPF (low-pass filter), and the green (color) signal Y_L by limiting the bands of these DC components.

$$Y_H = \frac{1}{2} (4G + B + R)$$

Next, the signal with red or blue component can be obtained by adding/subtracting the AC components of the above equations.

B		B	
B		B	
R	R	R	R
2 G	2 G	2 G	2 G
2 G	2 G	2 G	2 G

(a) + (b)

R		R	
	R		R

(a) - (b)

$$n = \frac{1}{2} \left\{ \frac{4}{\pi} (B + R) \sin \omega t \right\}$$

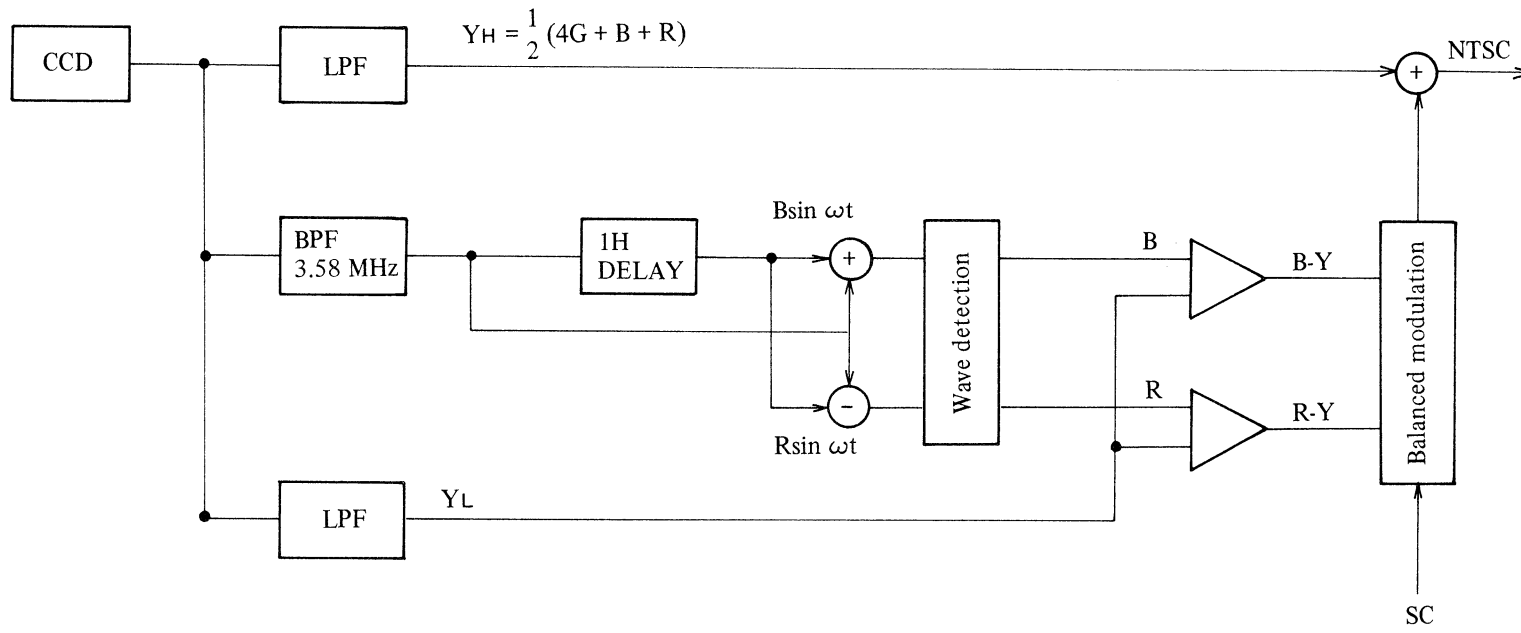
$$n + 1 = \frac{1}{2} \left\{ \frac{4}{\pi} (B + R) \sin \omega t \right\}$$

$$\therefore n + (n + 1) = \frac{4}{\pi} B \sin \omega t$$

$$n - (n + 1) = \frac{4}{\pi} R \sin \omega t$$

Here, $\omega = 3.58$ MHz due to the arrangement of picture elements. Hence, the carrier waves of 3.58 MHz are multiplexed with R and B signals, which are amplitude-modulated $(B + R)$ and $(B - R)$, in the form of frequency interleaf in the DC component composed of $\frac{1}{2} (4G + B + R)$.

The circuit structure is shown below.



III. FUNCTIONS OF MECHANISM SECTION

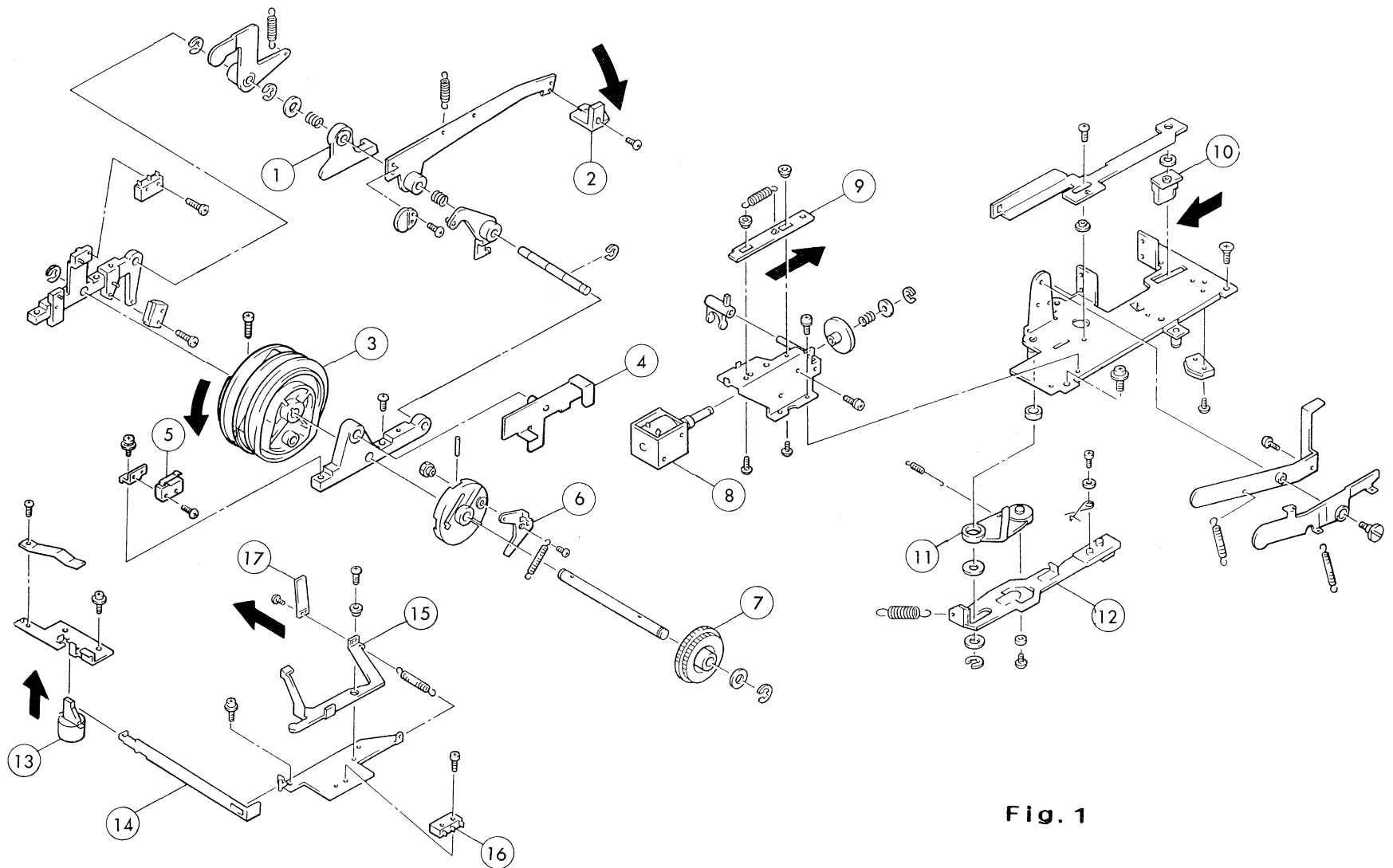
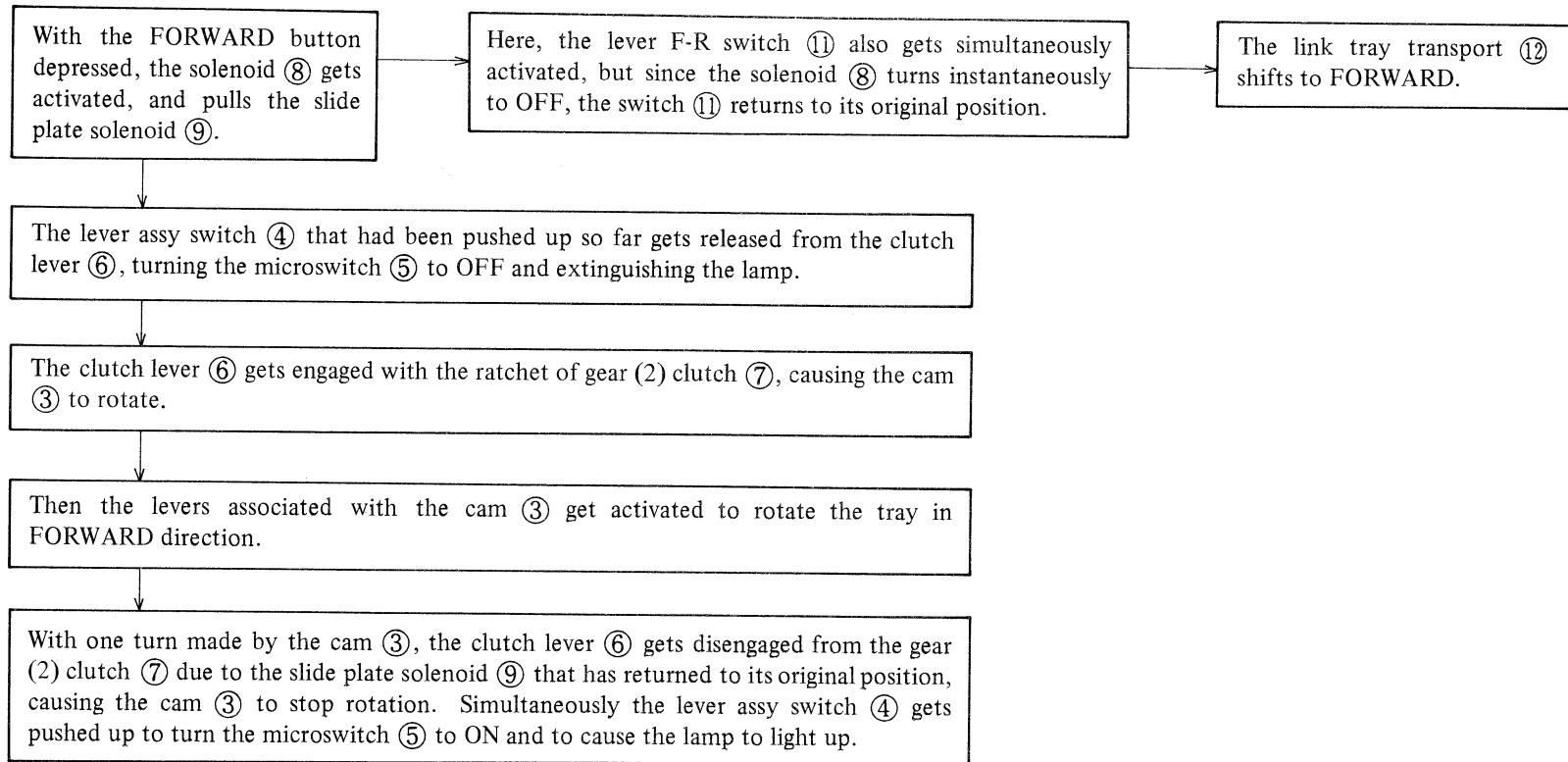


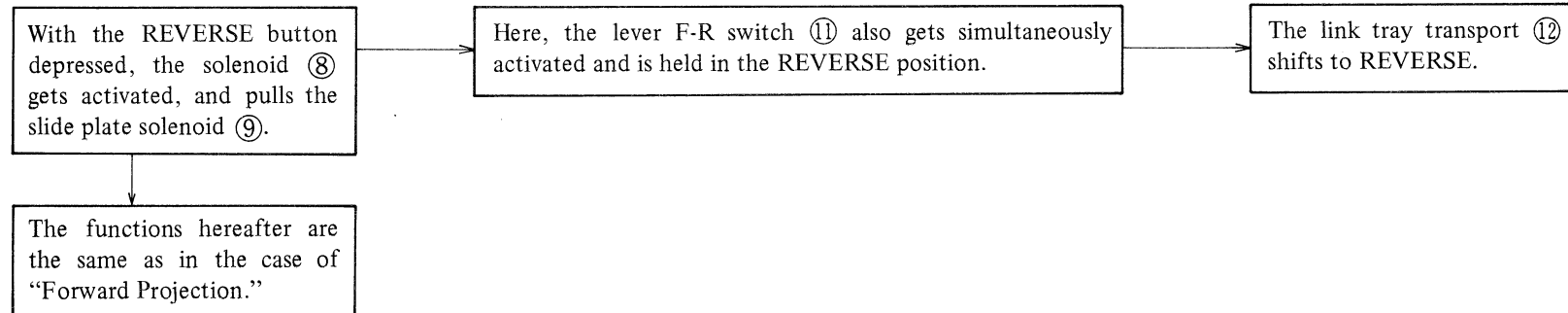
Fig. 1

III. FUNCTIONS OF MECHANISM SECTION

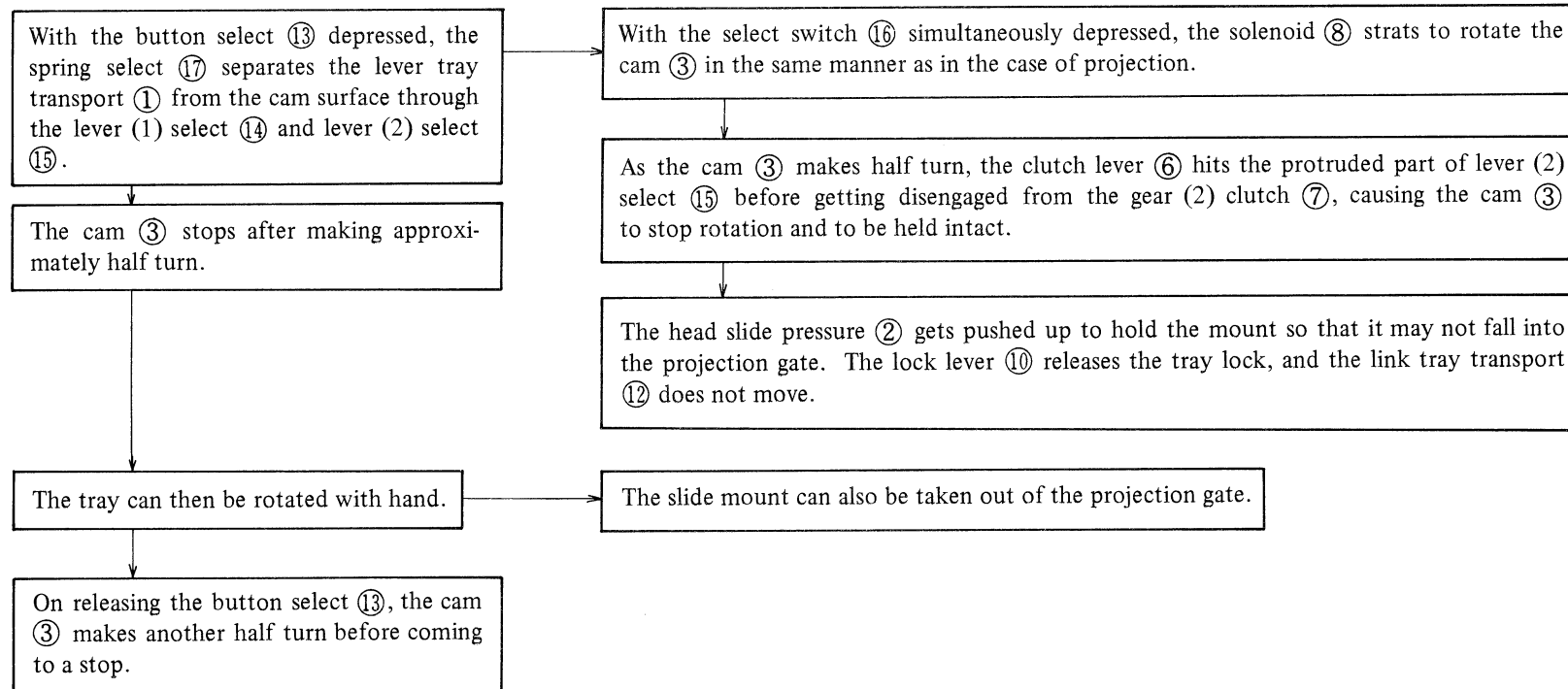
III – 1 Functions of Forward Projection

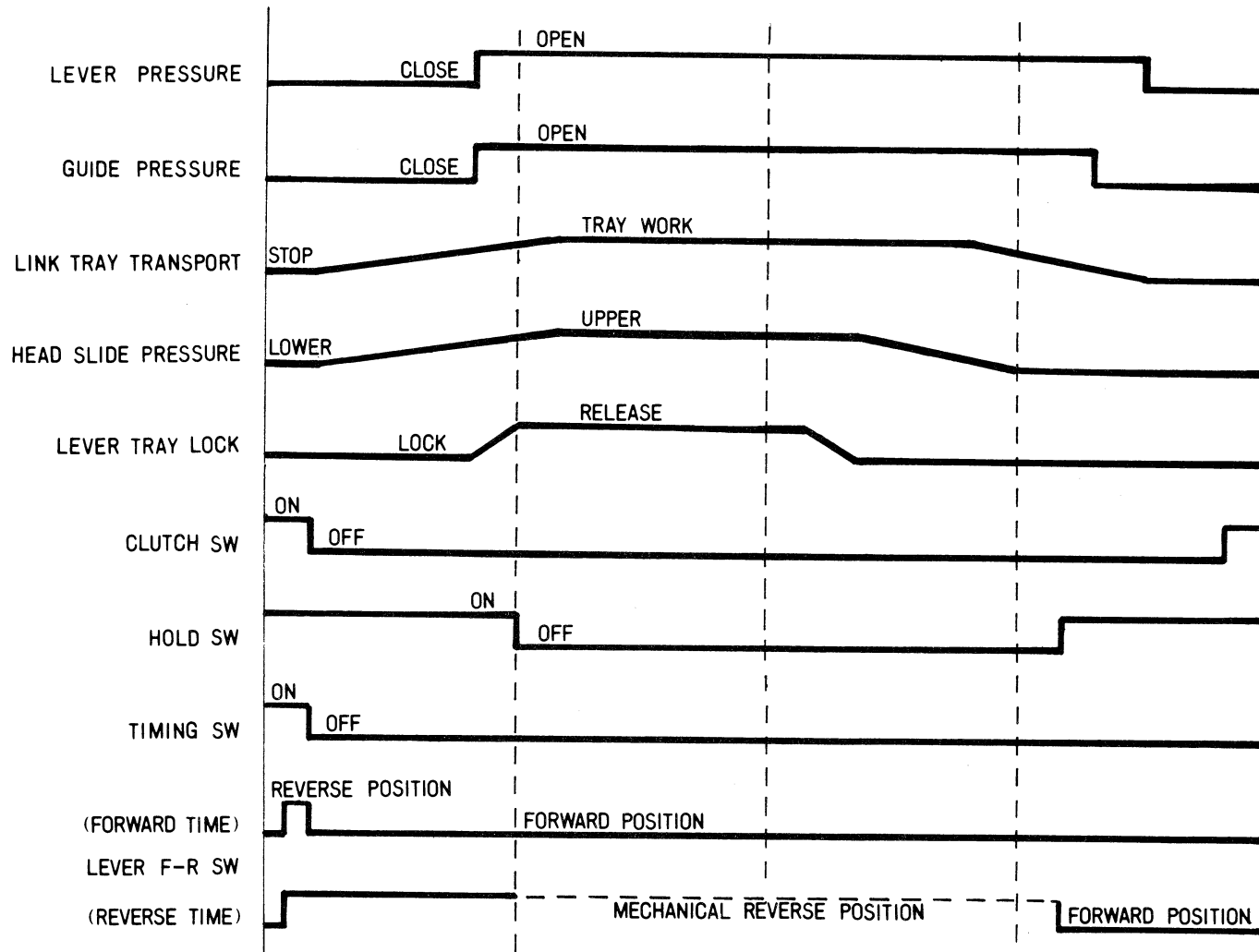


III – 2 Functions of Reverse Projection



III – 3 Functions of Select Control





IV. DISASSEMBLY AND REASSEMBLY

IV - 1 Film Feeding Section

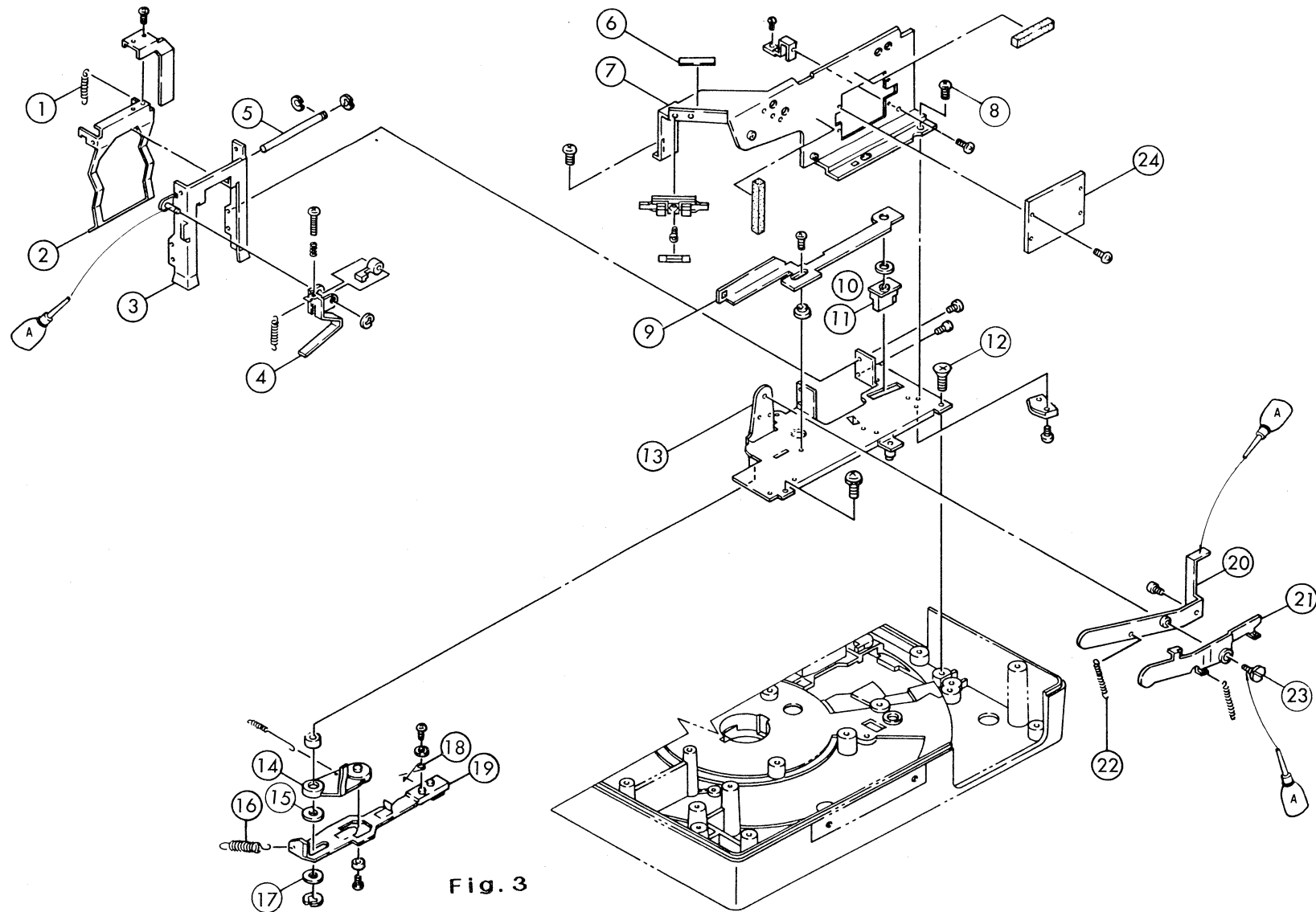


Fig. 3

IV. DISASSEMBLY AND REASSEMBLY

IV — 1 Film Feeding Section (See Fig. 3)

Functions of Main Components

Transport Base P. Assy ⑬ : All parts shown in Fig. 3 are installed.

Projection Gate Assy ③ : It holds the slide mount to the specified position, with ② controlling the slide mount in front and rear directions and ④ in left and right directions. The ② is activated by means of the cam (1) shutter ⑦ (Fig. 18) through ⑳, while the ④ is activated by means of the cam (1) shutter ⑦ (Fig. 6) through ㉑. As for the opening/closing timing of ② and ④, the ④ closes first, then the ②.

Link Tray Transport ⑲ : Activated by the cam (2) tray transport ⑫ (Fig. 6) through the lever tray transport ⑰ (Fig. 6), it rotates the tray.

Lever F-R Switch ⑭ : Activated by the boss magnet shaft ⑤ (Fig. 4), installed to the solenoid ① (Fig. 4), it decides the traveling direction of ⑲ and determines the forward/reverse direction of tray rotation.

Lock Lever ⑪ : Activated by cam (3) ⑬ (Fig. 6) through the lever slide plate ⑨ and lock lever slide P. assy ㉒ (Fig. 6), it controls the tray rotation.

Disassembly, Reassembly and Troubleshooting Hints

Troubleshooting Hints:

Symptoms	Causes
Tray fails to rotate or does not function normally.	Unsmooth function of ①⑨, deformation and wear of ①④, defective fixing position of ①⑧, or/and unsmooth function of ⑨
Defective fall down and return of mount to the tray	Defective alignment of ② and ④, and ②⑩ and ②⑪, defective alignment of ②⑩ and ②⑪ with the cam, or/and improper transport (amount) of ①⑨
Mount fails to fall down.	Defective installation or spring tension of ②②, or/and improper transport amount of ①⑨
Film is transported (fed) in reverse direction even when FORWARD button is depressed.	The A-portion of ①⑨ gets caught before the B-portion of ①④ has returned to the original position. (See Fig. 3).
Mount fails to close fit to the projection gate, making focusing impossible.	Defective adjustment for the extension allowance of ④

Disassembly:

1. Remove springs from (7).
2. Unscrew ⑧ x 3 pcs. to remove ⑦.
3. Remove ②② before unscrewing ①② x 5 pcs. to take out assy parts of ①③.
4. See Fig. 3 for the disassembly of parts at the top of ①③.
5. Remove ①⑥ before disassembly ①④ ~ ①⑨.
6. See Fig. 3 for further disassembly.

Reassembly:

1. Carry out reassembly in the reverse order of disassembly.
2. Check ⑪, ⑰, ⑱ and ⑲ for wear and deformation; replace if worn out or/and deformed.
3. Be sure to use the “specified” ⑮ and ⑰.
4. Touch ⑨, ⑭ and ⑳ with finger to see that they move lightly, and confirm that ② moves due to self-weight.
5. After reassembly, make sure that the projection gate width is 50.5 mm by using the standard mount gauge, and that the extension allowance of side pressure is 0.8 ~ 1 mm by using a side pressure gauge.
6. Take due care when handling ㉔, since antistatic agent is applied to it. Replace if ㉔ has scratches or stain, and clean the dust (if any) off by using the supplied brush.

IV - 2 Trigger Solenoid Section

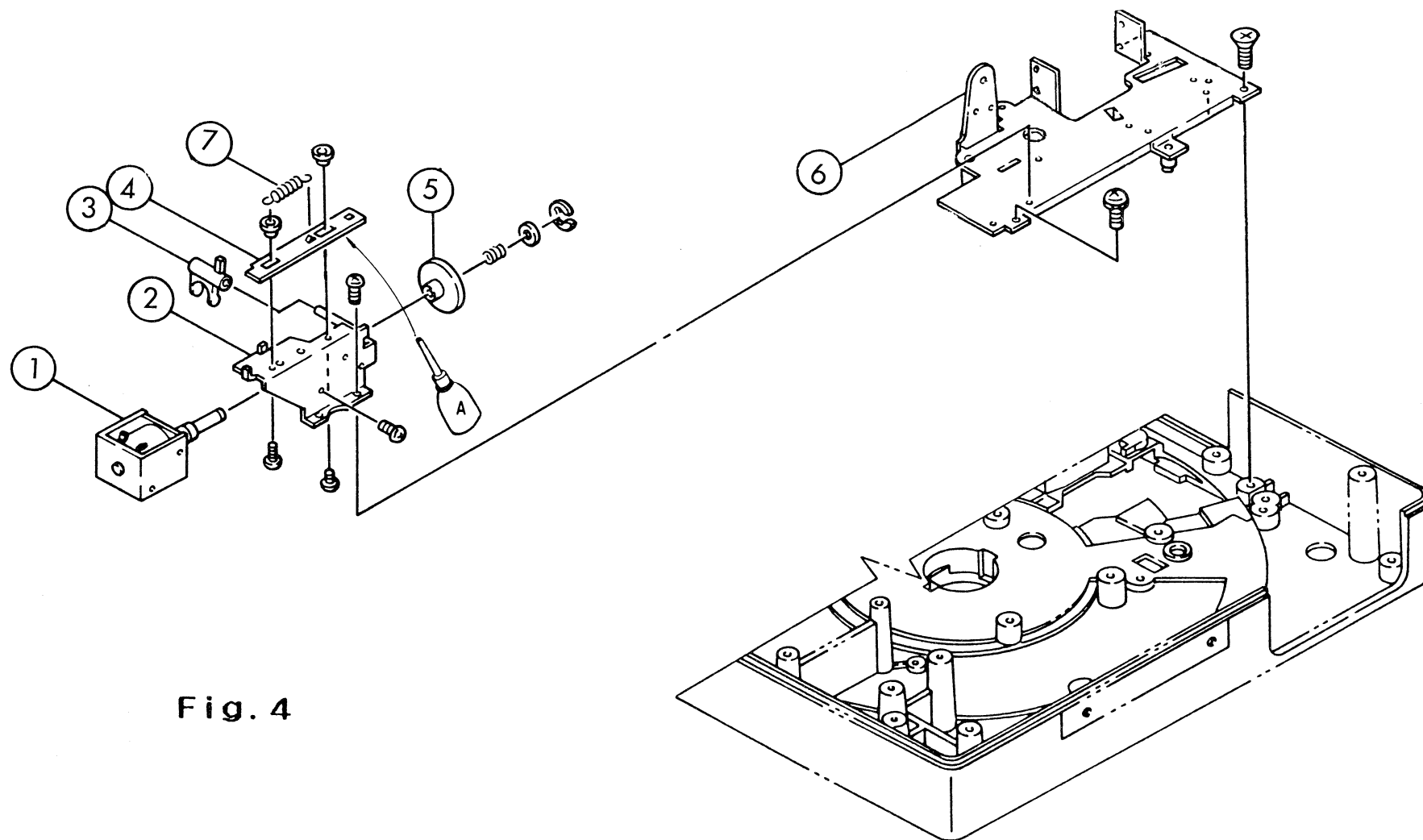


Fig. 4

IV – 2 Trigger Solenoid Section (See Fig. 4)

Functions of Main Components

- Holder Solenoid Assy ② : All parts shown in Fig. 4 are attached to it before being installed to (6).
Solenoid ① : It activates ④ through ③, and ⑦ through ⑤.
Slide Solenoid ④ : It controls ②④ in Fig. 6.

Disassembly, Reassembly and Troubleshooting Hints

Troubleshooting Hints:

Symptoms	Causes
Fails to function even by depressing the TRANSPORT button, and ① has dull movement.	Adhesion of dust and dirt to the hole of the plunger
Cam keeps on rotating, and ④ has dull movement.	Inadequate spring tension of ⑧

Disassembly:

See Fig. 4 for disassembly.

Reassembly:

1. Carry out reassembly in the reverse order of disassembly.
2. Clean the solenoid section where plunger fits in.
3. Make sure, at the time of solenoid installation, that the plunger moves lightly due to ⑧.
4. Apply MOLYCOTE EP grease to the contact section of slide section of ④ and ②④ in Fig. 6.

IV — 3 Select Control Section

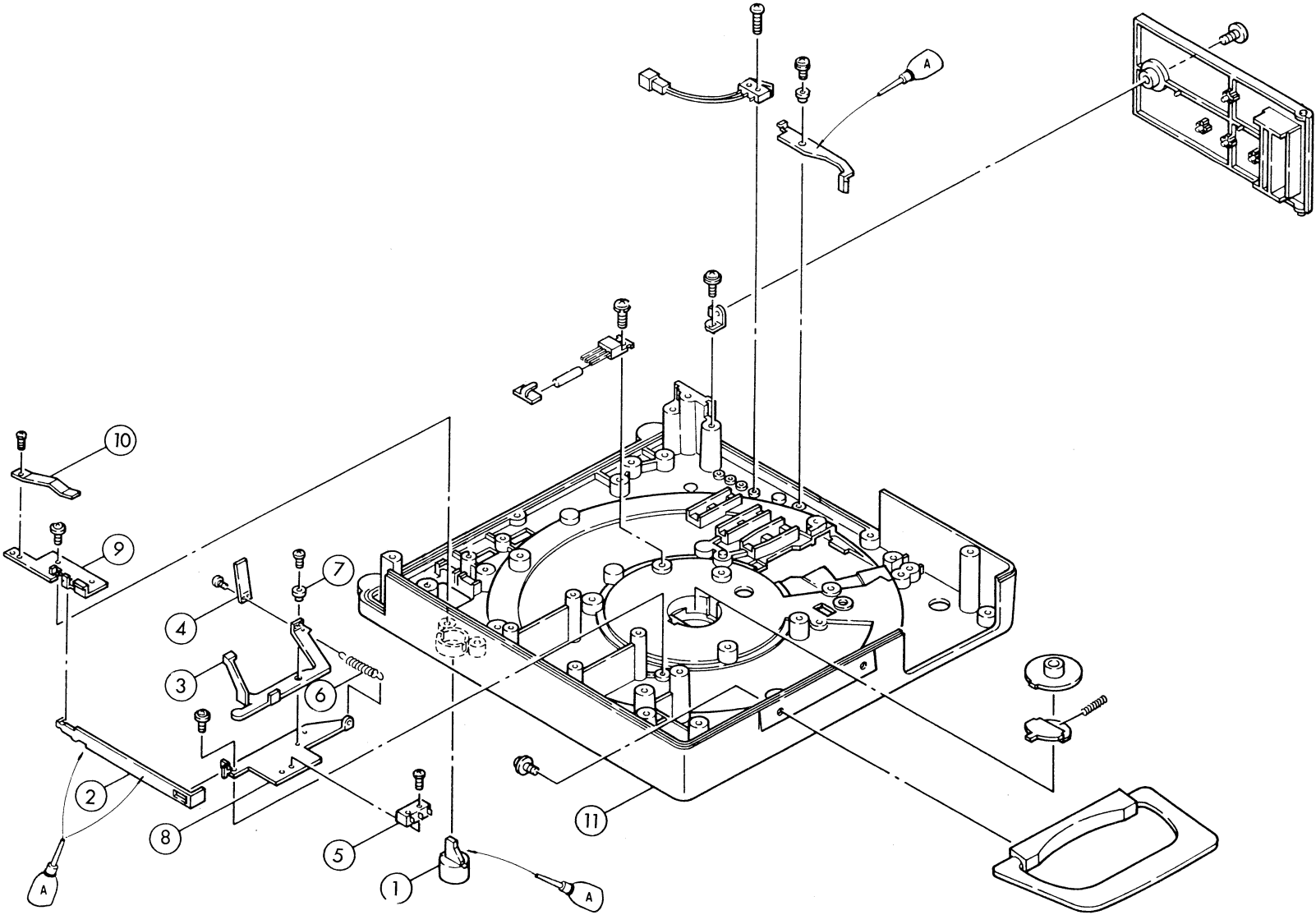


Fig. 5

IV — 3 Select Control Section (See Fig. 5)

Functions of Main Components

- Spring Select ④ : Installed to ③ and activated by ① through ②, it separates the lever tray transport ⑰ (Fig. 6) from the cam surface of the cam (2) ⑫ (Fig. 6).
- Lever (2) Select ③ : Activated by ① through ②, it pushes ⑤ and stops the cam at approximately half-turned position.
- Button Select ⑤ : On turning this switch to ON, the cam starts rotating. The switch ⑤ is so installed as to turn to ON after the lever tray transport ⑰ (Fig. 6) is activated by ④.

Disassembly, Reassembly and Troubleshooting Hints

Troubleshooting Hints:

Symptoms	Causes
Failure in select operation	Malfunction of ①, ② and ③, or/and excessive slackness of ④
Cam stops at “select” position at transport operation.	Defective return of ②
Tray fails to function normally.	Deformation of ⑪

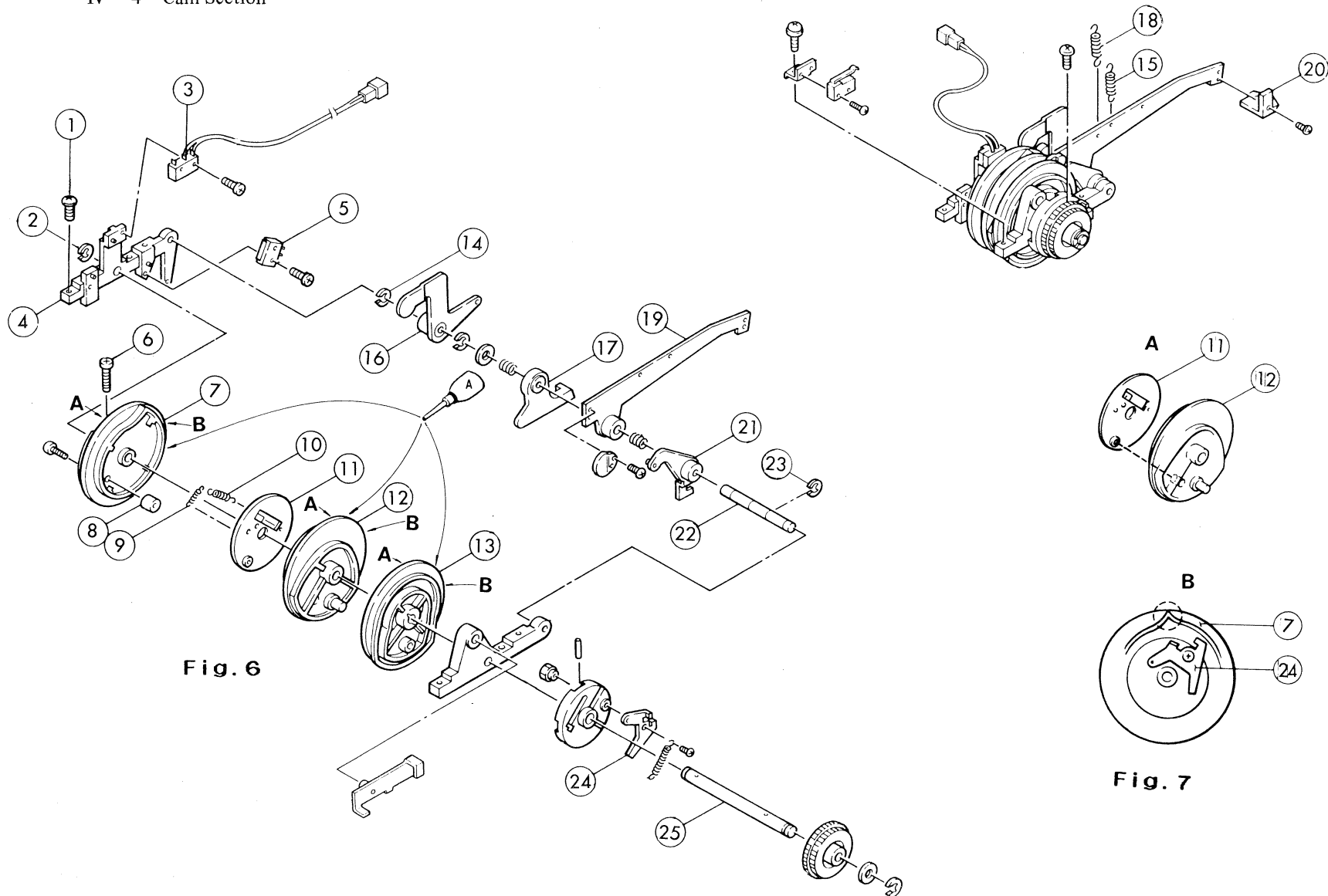
Disassembly:

1. First remove the cam drive unit, trigger solenoid and cam from the main body (before disassembly).
2. Remove ⑥ before taking out ③.
3. See Fig. 5 for further disassembly.

Reassembly:

1. Carry out reassembly in the reverse order of disassembly.
2. Check ⑦ for slackening, and after reassembly, make sure that it has normal function.
3. Apply MOLYCOTE EP grease to the sliding section.

IV - 4 Cam Section



IV — 4 Cam Section (See Fig. 6)

Function of Main Components

- Cam (1) Shutter ⑦: A-surface activates the switching of ③ and ⑤, while B-surface activates Fig. 3 ⑳ → Fig. 3 ㉒ → Fig. 3 ㉓ → Fig. 3 ㉔.
- Cam (2) Tray Transport ⑫: A-surface activates ⑪ → Fig. 3 ⑲, while B-surface activates ⑲.
- Cam (3) Tray Lock ⑬: B-surface activates ㉑ → Fig. 3 ⑪, while A-surface has no parts alignment.
- Bearing (2) ④: Installed with ③ and ⑤, it holds ㉕.
- Clutch Switch ③: It controls the holding (retaining) time of solenoid ① (Fig. 4) at the time of forward transport.
- Hold Switch ⑤: It controls the holding (retaining) time of solenoid ① (Fig. 4) at the time of reverse transport.
- Holder Safety Assy ⑪: This is a device to bring the cam to safety stop when abnormal load is applied during operation of the machine.
- Head Slide Pressure ㉒: Installed to ⑲, it moves the slide mount up and down.

Disassembly, Reassembly and Troubleshooting Hints

Troubleshooting Hints:

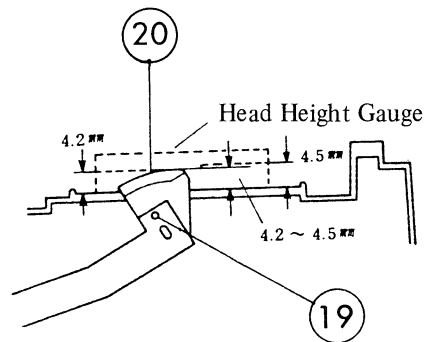
Symptoms	Causes
Tray fails to carry out normal function.	Defective fixing position of ㉒ (See Fig. 8), wear of contact surface and defective aligning position of ⑫ and ⑪, deformation of ㉑ and defective alignment with ㉑ in Fig. 3, or/and defective ⑪ (stops during rotation, producing a 'click' sound.)
Slide mount fails to fall down.	Defective fitting of ⑲ and ㉒ or/and contact with ⑨ and other parts.

Disassembly:

1. Remove the trigger solenoid, cam drive unit and ⑦ (Fig. 2) before disassembly.
2. Remove ⑮ and ⑱.
3. Remove ⑳ and pull out ㉒ before removing the assy parts of ⑨. Carry out further disassembly referring to Fig. 6.
4. Unscrew ① and ② to remove ④.
5. Loosen ⑥ to remove the cam. See Fig. 6 for further disassembly.

Reassembly:

1. Carry out reassembly in the reverse order of disassembly.
2. Check ⑰ and ㉓ for wear, and replace if they are worn out.
3. Check the cam for worn out sliding surface; replace if the surface is worn out.
4. Take care of the following items when reassembling the cam.
 - a) See to it that the protruded portion of ⑪ firmly into the hole of ㉒. (See Fig. 7-A)
 - b) See to it that the ⑧, fixed to ⑦ with screw, has no slackening.
 - c) When fixing ⑦ to ㉓, take care of the position of ⑦ and ㉒. (See Fig. 7-B)
5. Confirmation of the function of safety device ⑪;
After the reassembly of cam, see to it that the cam, when rotated clockwise (⑦, ㉒ and ⑬ seen from ④), has fairly large resistance and produces a 'click' sound before carrying out free rotation. Also confirm that the cam does not make reverse rotation at the position where it has stopped after making one turn. (Do not rotate the cam intentionally or forcibly).
Should abnormality be found, make confirmations as in the previous items a) and b), and replace ⑨ and ⑩.
6. Apply MOLYCOTE EP grease to the cam sliding surface and other sliding surfaces as well.
7. After reassembly, operate to make sure that there is no abnormality.



IV — 5 Cam Drive Section

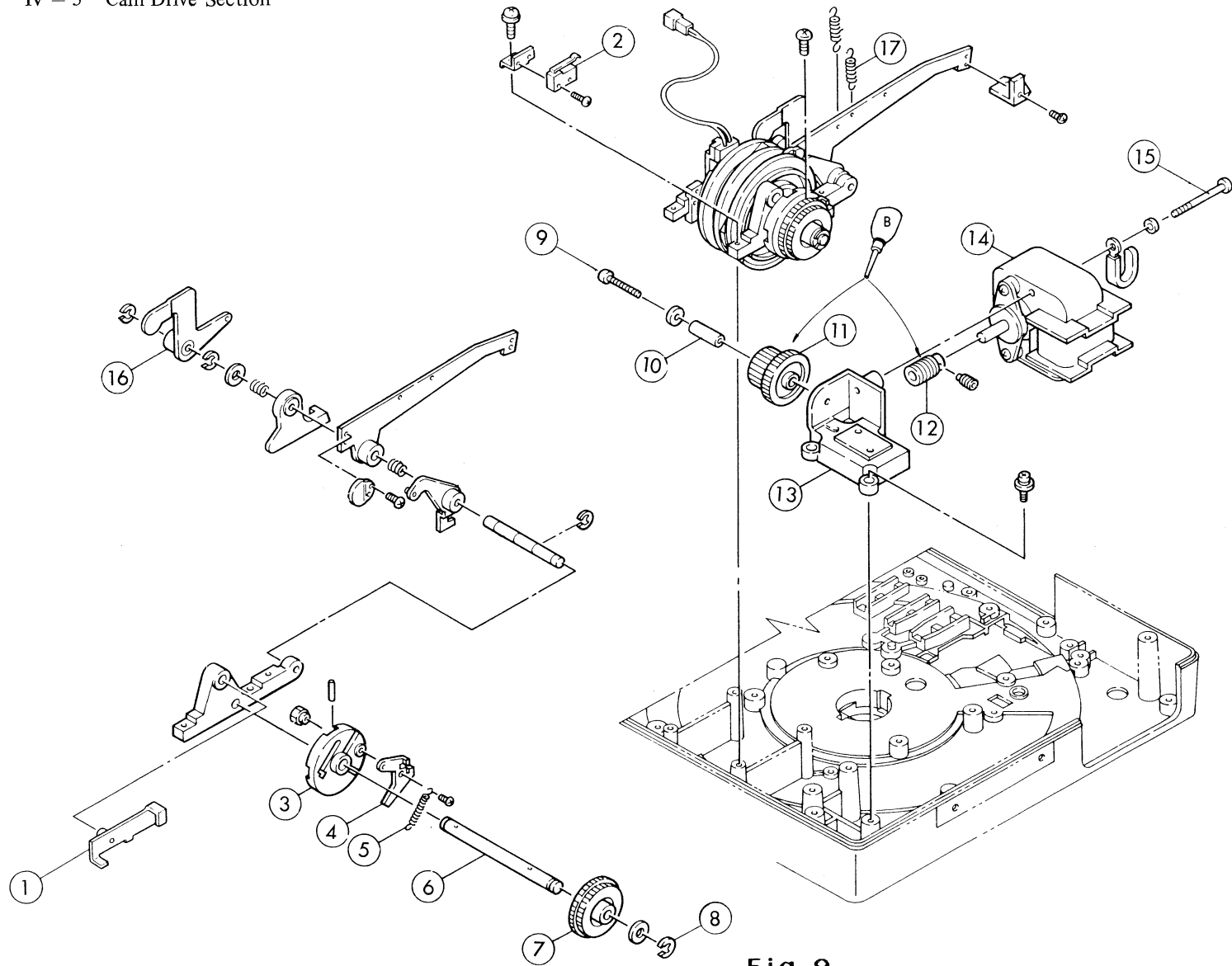


Fig. 9

IV – 5 Cam Drive Section (See Fig. 9)

Functions of Main Components

- Drive Motor ⑭: This is the driving source for driving the cam.
- Gear (2) Clutch ⑦: With the rotation transmitted through ⑭ → ⑫ → ⑪ → ⑦, it carries out free rotation against ⑥.
- Clutch Lever ④: It rotates and stops the cam. With the escape of ④ (Fig. 4), the clutch lever ④ gets engaged with the ratchet tooth of ⑦, transmitting the rotation of ⑦ to ④ → ⑥ → cam. Furthermore, when ④ (Fig. 4) returns, the clutch lever ④ gets disengaged from the ratchet tooth of ⑦, causing the cam to stop rotating.
- Lever Assy Switch ①: It temporarily extinguishes the lamp at the time of slide mount exchange, and prevents the projection light from entering the camera. With ① pushed up by ④ during the time ④ is stopped by ④ (Fig. 4), the switch ② is turned to ON and the lamp is lit up. When ④ starts rotating, ① gets released, the switch is turned to OFF and the lamp is extinguished. When ④ makes one turn and pushes ① up again, the switch turns to ON and the lamp is lit up.
- Clutch Lever Assy ⑬: With ④ disengaged from ⑦, ④ is still in the position to touch ratchet tooth tip of ⑦ and is likely to grind off the ratchet. In order to prevent this, the cam is slightly rotated by the force of ⑰ through ⑬ to keep ④ fairly apart from the ratchet tooth tip of ⑦.

Disassembly, Reassembly and Troubleshooting Hints

Troubleshooting Hints:

Symptoms	Causes
Abnormal noise is heard.	Defective engagement of ⑦, ⑪ and ⑫
Irregular rotation of cam.	Defective fixing position of ④, inadequate spring tension of ⑤, or/and wear of ⑦

Disassembly:

1. Unscrew ⑮ to remove ⑭.
2. Unscrew ⑨ to remove ⑪ before pulling out ⑩.
3. Remove ⑧ to pull out ⑦.
4. See Fig. 9 for further disassembly.

Reassembly:

1. Carry out reassembly in the reverse order of disassembly.
2. Check ⑦, ⑪ and ⑫ for wear; replace if abnormal or excessively worn out.
3. Move the whole assy of ⑬ to adjust the engagement of ⑪ and ⑫.
4. In case backlash can not be provided, adjust by inserting washer under the fixing face of ⑬ to the main body.
5. Apply grease (FL OIL G-488) to the gear tooth surface.

IV — 6 CCD Camera Head Section

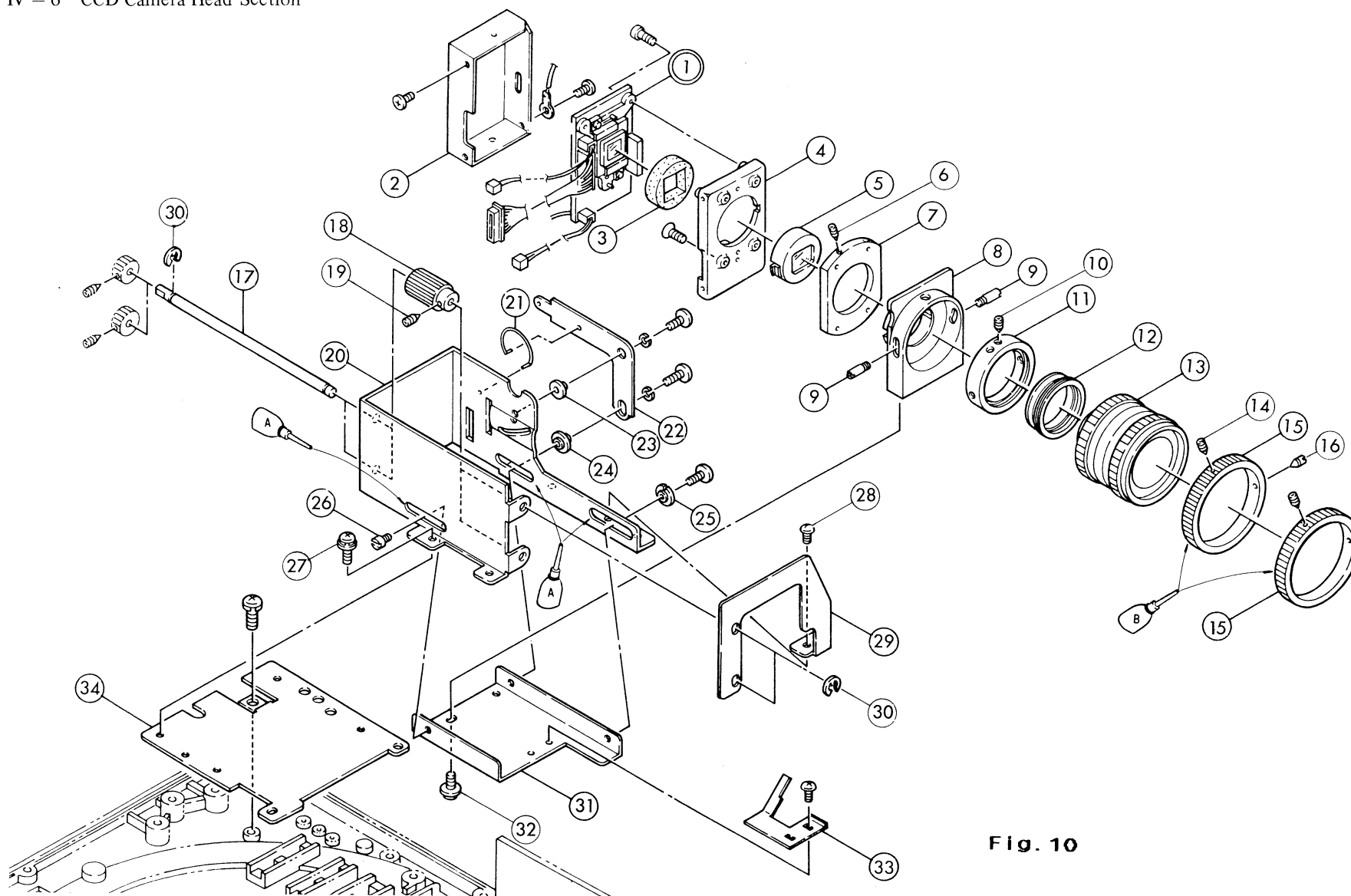


Fig. 10

IV — 6 CCD Camera Head Section (See Fig. 10)

Functions of Main Components

- Gear (1) Focus ⑮ & Gear (2) Focus ⑱: With the FOCUS IRIS knob rotated externally, the force transmitted from ⑱ causes the focus ring ⑬ and the ⑮ installed to the iris ring to rotate.
- Lever Picture Change ⑳: The CCD Camera moves back and forth when this lever is moved up and down. This causes the camera to correspond with the lateral slide and vertical slide.
- Color CCD Block ㉑: It is used for carrying out adjustment by turning ① ~ ④, ⑥ and ⑦ in order to correct the inclination of camera against the slide mount on the screen of TV monitor.

Disassembly, Reassembly and Troubleshooting Hints

Troubleshooting Hints:	Symptoms	Causes
	Lever picture change fails to function. Focus/iris can not be adjusted. Exposure and picture missing	Defective engagement and fixing position of ⑮ and ⑱, or/and malfunction of ⑧ ~ ⑪ Defective fixing position of ⑮ and ⑱ Defective installation of ① ~ ⑬

- Disassembly:
1. Unscrew ㉓ and ㉔ to remove the camera from the main body.
 2. Remove ⑯ and ㉕, and loosen ⑲ to pull out ⑰ before removing ⑱.
 3. Unscrew ㉖ to remove the assy parts ① ~ ⑬. Carry out further disassembly of ㉗ assy parts referring to Fig. 10.
 4. Unscrew ⑭ and ⑯ to remove ⑮.
 5. Carry out further disassembly in ① ~ ⑦ and ⑧ ~ ⑪ assy parts.
Take particular care, since ⑧ ~ ⑪ are fixed by using adhesives and, therefore, can not be disassembled.

Reassembly:

1. Be sure to take antistatic measures by using antistatic mat, wrist straps, etc. when carrying out repair or replacement of PC boards and electric parts.
2. Take care so that the glass and lens of ①, ⑤ and ⑬ may not have stain, dust, etc. on them.
3. Refer to "Connecting Diagram for CCD Camera (E-32551)" for connecting the connectors, taking due care of the directions and number of pins, etc.
4. See to it that ⑮ and ⑱ carry out picture change operation and do have the engagement of approximately 3 mm both in vertical and lateral positions. Adjust by shifting the position of ⑱ if the engagement is excessively large and deviated. Furthermore, install ⑮ to a position, so that ⑥ may not touch ⑱ and ⑳, even though the lever picture change has normal function. Adjust the backlash by loosening ㉔.
5. Install ㉓ to the position just under ⑬ in order to support the ⑬ from below. See to it that the front and rear directions of ㉓ are as shown in Fig. 11, with the lens at the front. After installation, make sure that the functions of iris ring and focus ring are not adversely affected.

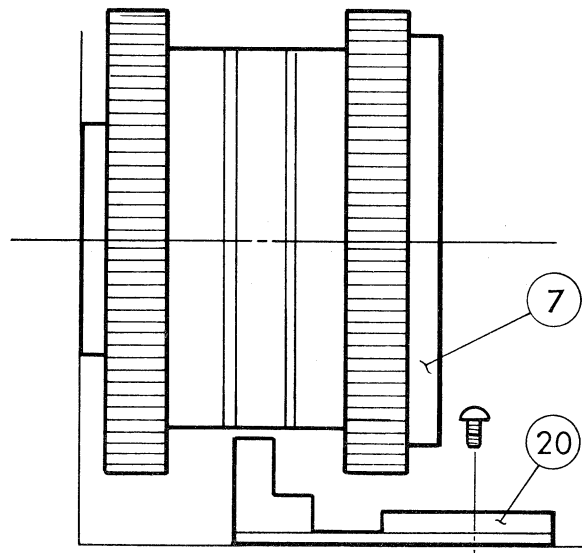


Fig. 11

* Focus adjustment (See Fig. 10)

1. Unscrew ⑭, ⑯ and ⑩ × 2 pcs. (the ones at lateral and vertical positions can be removed).
2. Close the iris ring from the opened state to 3-steps of click.
3. Set the lens focus ring to 1 m.
4. Project the test mount, and carry out focusing by rotating the lens, while observing the monitor.
5. After focusing, fix with ⑩ × 2 pcs.

○ Scale ring adjustment: Turn the ring to make sure that the focus surface gets parted and changes before getting focused nearly at the center.

* Adjustment of played-back picture inclination (See Fig. 10)

1. Replay the test mount, and let the horizontal and vertical lines be produced simultaneously by using the cross line generator to pass through the center of the picture. See to it that the lever picture change is at lateral position during the adjustment.
2. Carry out adjustment by turning ⑦ and ⑧ so that the horizontal (cross) line of test mount and the horizontal line passing through the center of picture are parallel to each other.
3. Fix with ⑥ after confirming that the two lines are parallel.
4. Coincide the test mount horizontal line with the horizontal line passing through the center of picture by turning ②⑤, and then fix with screw.
5. Coincide the test mount vertical line with the vertical line passing through the center of picture by loosening ②⑦ and ②⑧ and moving the whole camera unit left and right, then fix.
6. After reassembly, replay the test mount, and carry out pictures change operation to make sure that there is no large deviation, and that the deviation within the range given in the “VI. TOLERANCE”.

IV - 7 Camera Box Section

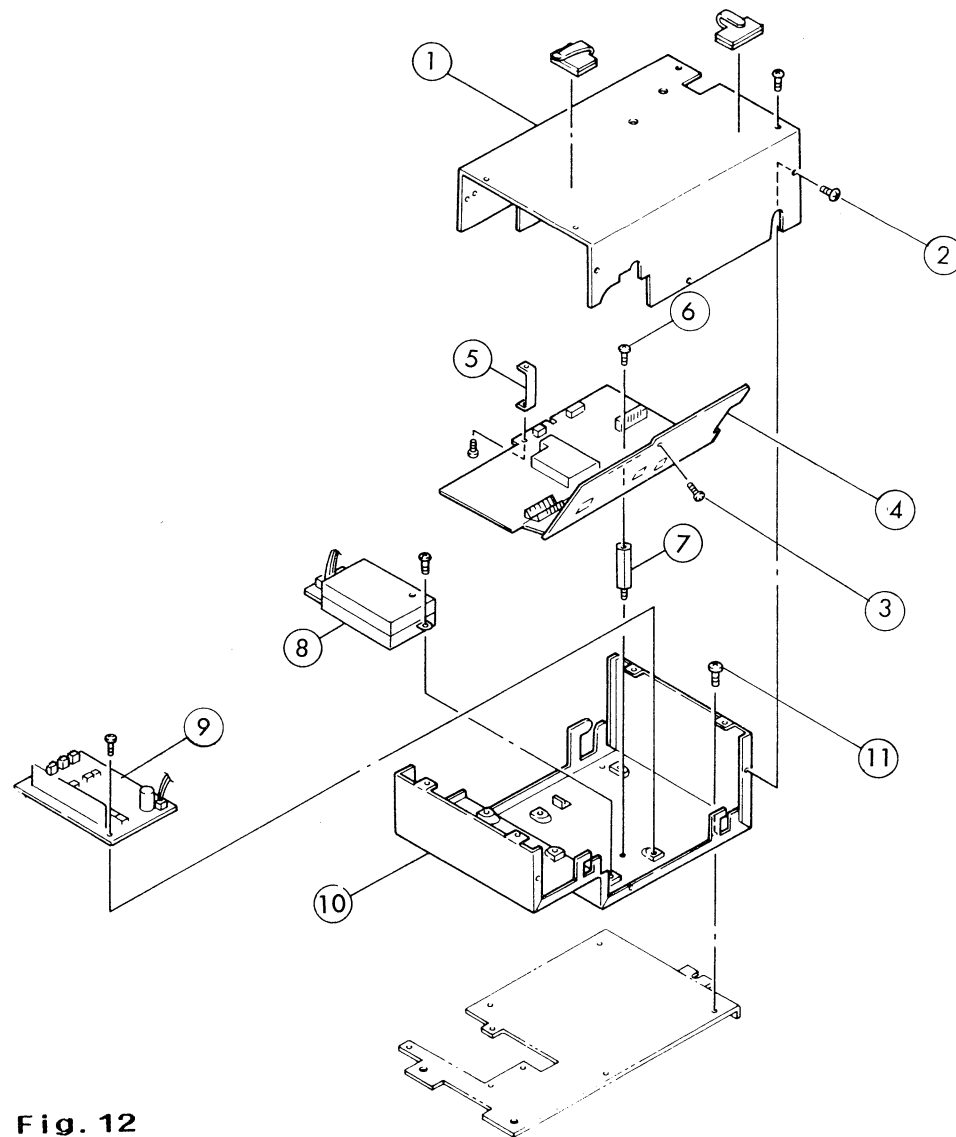


Fig. 12

IV — 7 Camera Box Section (See Fig. 12)

- Disassembly:
1. Be sure to take antistatic measures such as using the antistatic mat, wrist straps, etc. in order to prevent destruction due to static electricity.
 2. Unscrew ② to remove ①.
 3. Unscrew ③ to open ④; also disconnect the connector.
 4. Unscrew ⑥ to take out ④.
 5. See Fig. 12 for further disassembly.

- Reassembly:
1. Carry out reassembly in the reverse order of disassembly.
 2. Take utmost care when mounting/demounting the PC board so that the parts installed to the board may not get detached.
 3. Refer to “Connecting Diagram For CCD Camera (E32551)” for connecting the connectors, taking due care of the directions and number of pins, etc.
 4. Tie the lead wire preferably in bundles, extending them out from the notches of ① and ⑩.

Note: Should some trouble occur in the electric circuits and optical systems of CCD camera, send the whole camera unit (camera head and camera box) exclusively to the following addresses for replacement or adjustment.

U.S.A.: Elmo Mfg. Corp.

70 New Hyde Park Road, New Hyde Park NY 11040

TEL: 516-775-3200 FAX: 516-775-3297

21720 Nordhoff St. Chatsworth, CA 91311

TEL: 818-346-4500 FAX: 818-998-4186

Canada: Elmo Canada Mfg. Corp.

44 West Drive, Brampton, Ontario L6T 3T6

TEL: 416-453-7880 FAX: 416-453-2391

IV — 8 Transformer Section

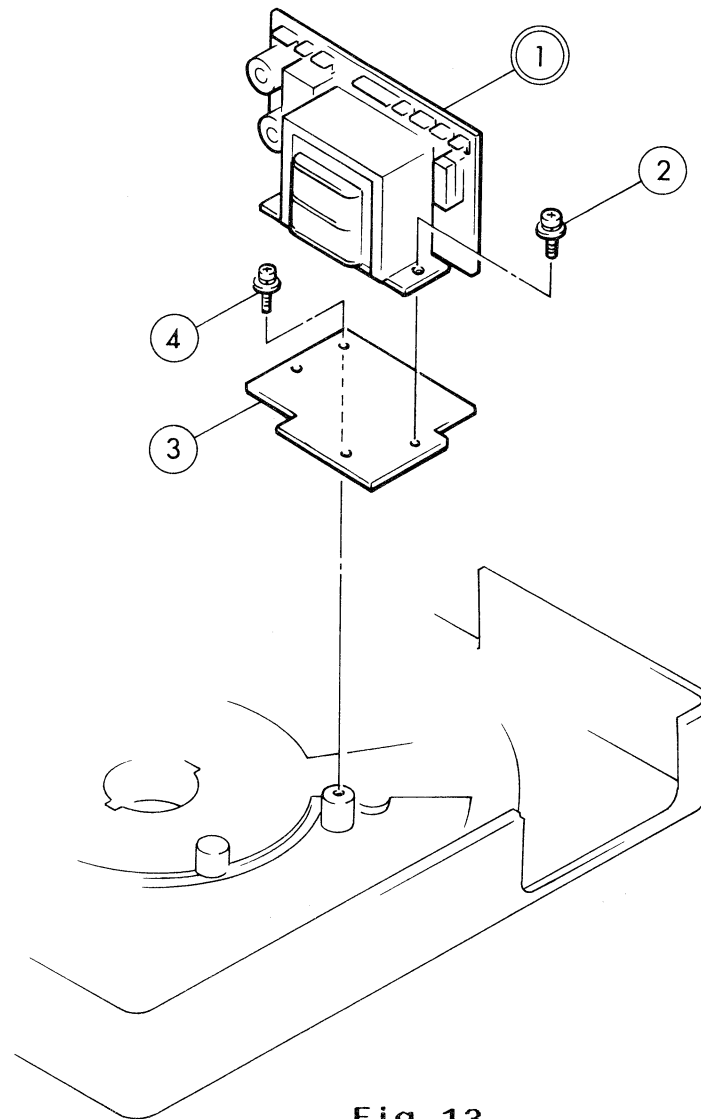


Fig. 13

IV — 8 Transformer Section (See Fig. 13)

Disassembly:

1. Disconnect the connectors before carrying out disassembly.
2. Unscrew ② × 2 pcs. to take out ①.
3. Unscrew ④ × 2 pcs. to remove ③ from the main body.

Reassembly:

1. Carry out reassembly in the reverse order of disassembly.
2. Refer to “Schematic Diagram for Machine (E32740)” for connecting the connectors, taking due care of the directions and number of pins, etc. The “Schematic Diagram for Machine (E32740)” has voltages entered in the check points for reference at the time of trouble, etc.
3. Tie the lead wires preferably in bundles.

IV — 9 Lamp Case Section

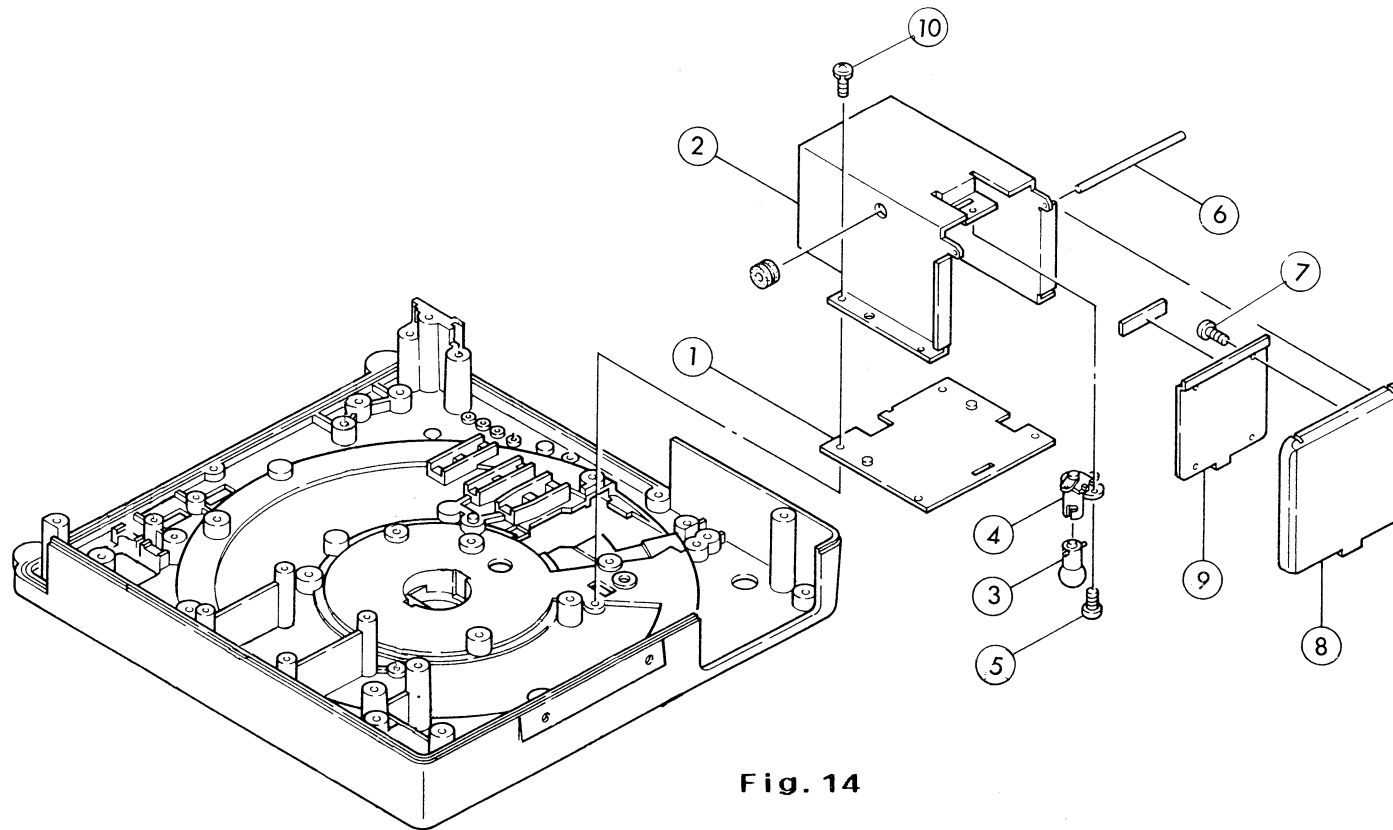


Fig. 14

IV – 9 Lamp Case Section (See Fig. 14)

Functions of Main Components

- Lamp ③: This lamp is lit up during projection and is extinguished during mount exchange.
 Cover Lamp Case ⑨: This case is opened to exchange the lamp.

Disassembly, Reassembly and Troubleshooting Hints

Troubleshooting Hints	Symptoms	Causes
	Lamp fails to light up. Exposure	Defective contact and disconnection of ④ Defective fixing position of ②, ⑧ and ⑨

- Disassembly:
1. Unscrew ⑩ x 4 pcs. to remove ② from the main body.
 2. Unscrew ⑦ x 4 pcs. to remove ⑥, ⑧ and ⑨.
 3. See Fig. 14 for further disassembly.
- Reassembly:
1. Carry out reassembly in the reverse order of disassembly.
 2. See to it that there are no stains, scratches, etc. on the inner surface of the lamp case.
 3. After reassembly, make sure that ① and ⑧ are mutually supported by each other.

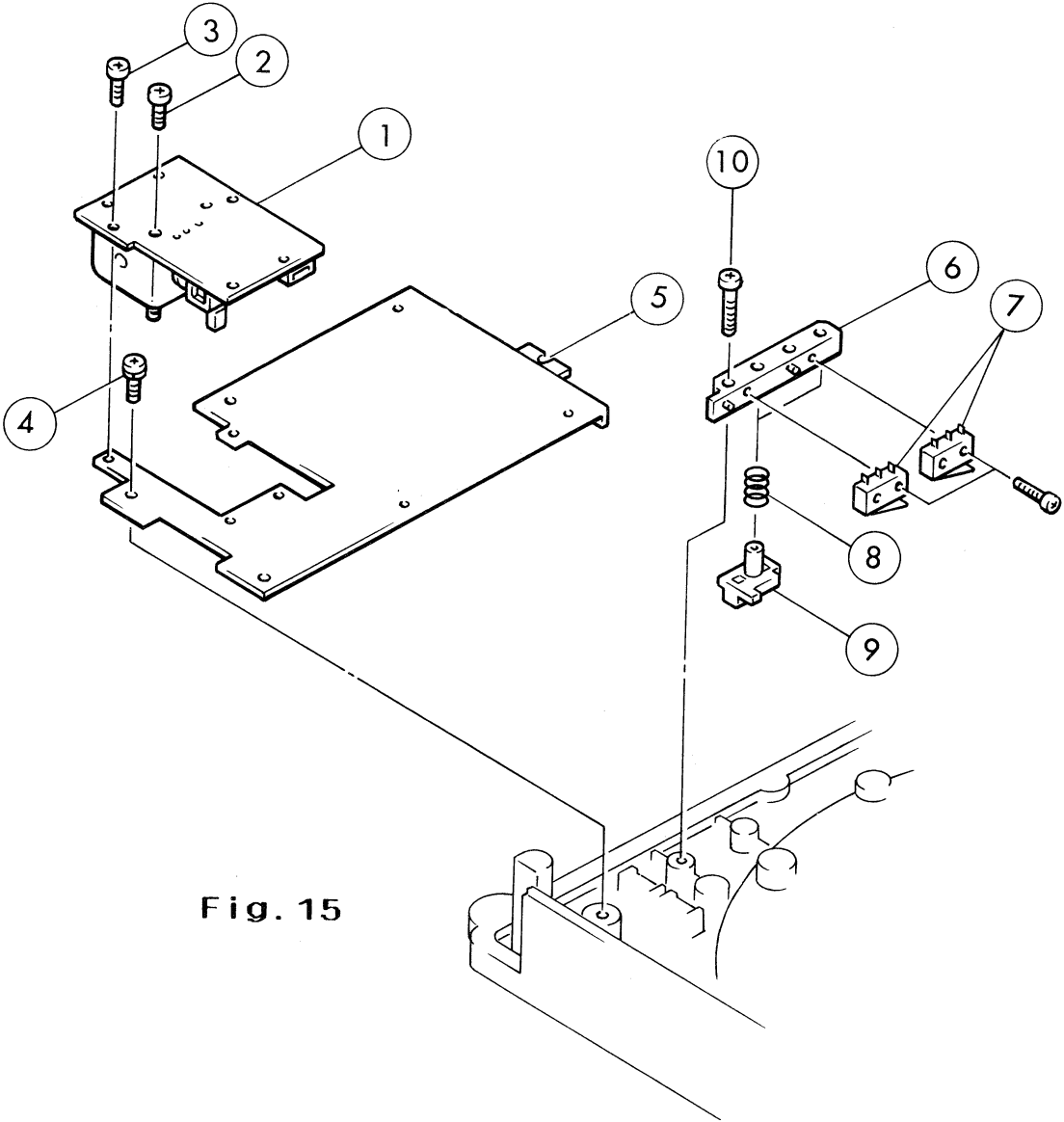


Fig. 15

IV — 10 Knob Transport Section and PC Plate Assy Stick Controller (See Fig. 15)

Functions of Main Components

Knob Transport Switch ⑨: This switch is used to set the machine for forward or reverse rotation.

Disassembly, Reassembly and Troubleshooting Hints

Troubleshooting Hints

Symptoms	Causes
The switch ⑨ fails to activate even when depressed.	Defective fixing position of ⑧ and ⑨
Color adjustment can not be made.	Defective ①

Disassembly:

1. Unscrew ③ to remove ①.
2. Unscrew ⑩ to remove ⑥ from the main body.
3. See Fig. 15 for further disassembly.

Reassembly:

1. Should the color adjustment be normally carried out with the switch ① at OFF and be impossible when the switch is turned to ON, the switch ① is likely to be defective.
2. Make connection, so that the lead wires from ⑦ pass under ④ and the lead wires from ① pass through the gap between ① and ④. Furthermore, tie the lead wires preferably in bundles.
3. Since camera box is also mounted on ⑤, see to it at the time of installation that ①, ⑦, etc. do not come in touch with the camera box, and that no excessive force is exerted on the lead wires.
4. After reassembly, operate the machine to make sure that all switches have normal functions.

IV – 11 Rear Panel Section

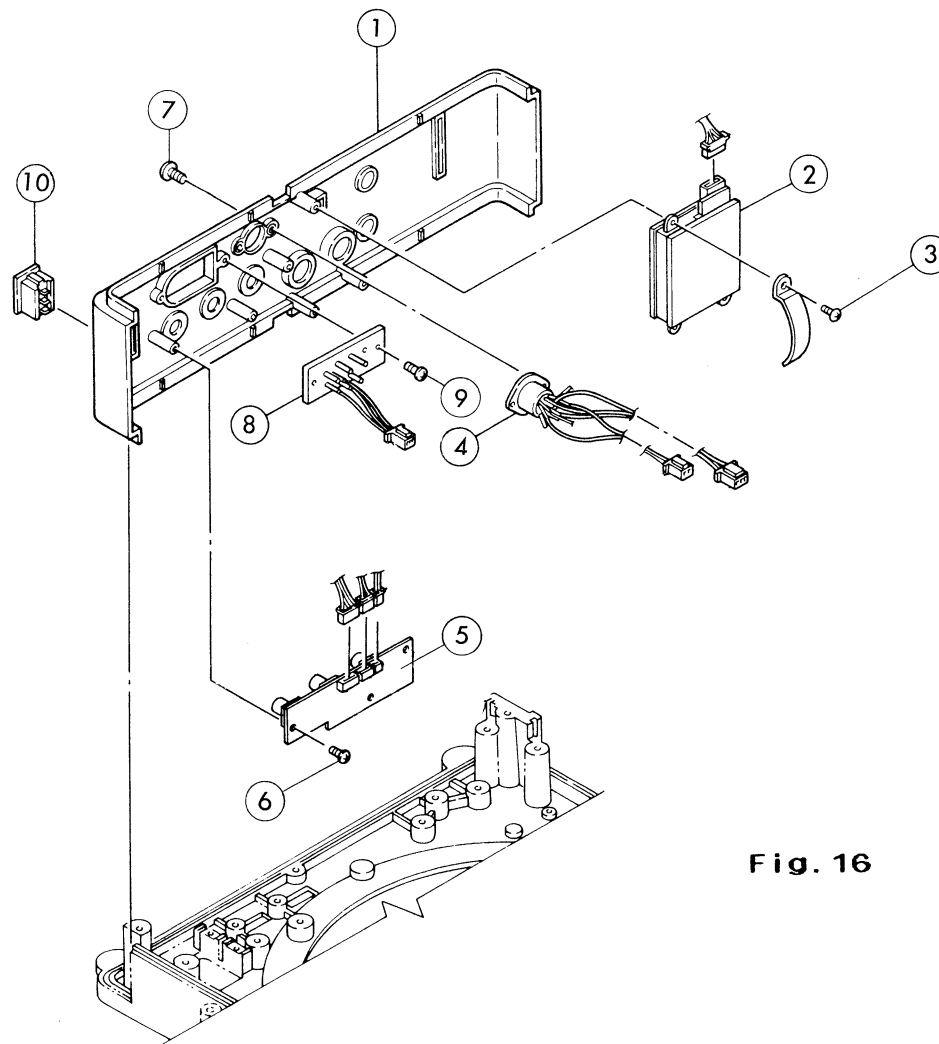


Fig. 16

IV — 11 Rear Panel Section (See Fig. 16)

Functions of Main Components

- See-saw Switch ⑩: This turns the power supply to the projector main body to ON or OFF.
 PC Plate Assy Back Cover ⑤: The cover transmits video signals from the yellow pin jack and audio signals from the red pin jack.

Disassembly, Reassembly and Troubleshooting Hints

Troubleshooting Hints:

Symptoms	Causes
Cables and input/output pins can not be connected properly.	Defective installation of ⑤
Remote control/timer fails to activate.	Defective ④ and ⑧

Disassembly:

1. Remove all the connected connectors preferably before disassembly.
2. Unscrew ③ × 3 pcs. to remove ②.
3. Unscrew ⑥ × 3 pcs. to remove ⑤.
4. See Fig. 16 for further disassembly.

Reassembly:

1. Carry out reassembly in the reverse order of disassembly.
2. Connect the connectors firmly, referring to the “Connecting Diagram for Machine (E44226)”.
3. Remote jack : Remote receptacle 7P
 Between terminals 2-5 Forward
 Between terminals 3-5 Reverse

: DIN 8P

Between terminals 1-3 Shortcircuited with tray at positions other than "0."

Between terminals 6-8 Forward

Between terminals 2-8 Reverse

4. Take due care at the time of installation to the back cover assy so as not to make mistakes in directions, and see to it that there is no excessive deviation from the hole in the back cover assy.
5. After reassembly, operate the machine to make sure that it has correct functions.

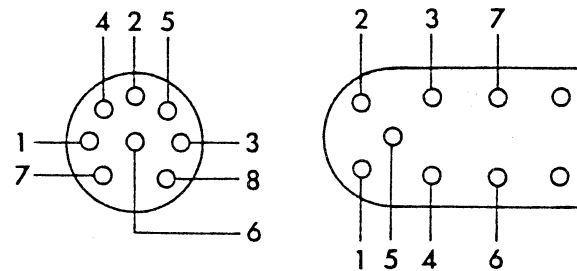
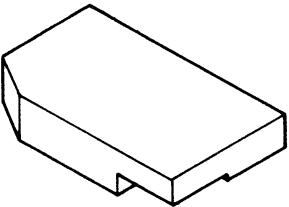
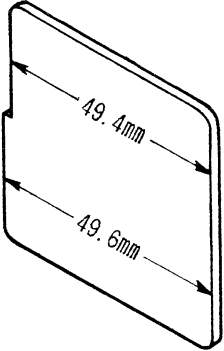
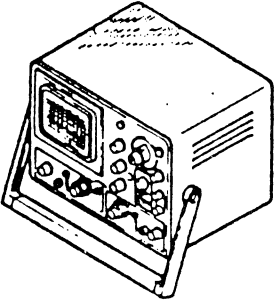
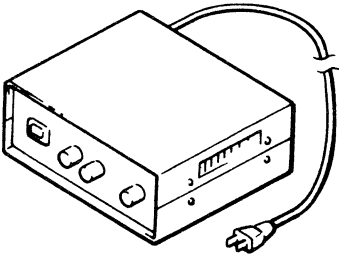




Fig. 17

V. TESTING INSTRUMENTS, TOOLS AND GREASE

Testing Instruments and Tools:

	<p>Code No.: P094</p> <p>Name: Head Height Gauge</p> <p>Use: Height adjustment of Head slide pressure</p> <p>Page: 38</p> <p>Weight: 30 g</p> <p>Dimensions: 50 × 35 × 10 mm</p>		<p>Code No.: P104</p> <p>Name: Side Pressure Gauge</p> <p>Use: Protrusion adjustment of Side pressure</p> <p>Page: 31</p> <p>Weight: 6 g</p> <p>Dimensions: 50 × 50 × 1 mm</p>
	<p>Code No.: P801</p> <p>Name: Oscilloscope</p> <p>Use: To check the wave form</p> <p>Page: 47, 49</p> <p>Weight: 4 kg</p> <p>Dimensions: 150 × 300 × 400 mm</p>		<p>Code No.: P110</p> <p>Name: Cross-line Generator</p> <p>Use: To check inclination of playback image</p> <p>Page: 34</p> <p>Weight: 2 kg</p> <p>Dimensions: 80 × 200 × 180 mm</p>

Grease: In the figure, there is the mark  which shows the point to be lubricated and the kind of grease by letters, A or B in the mark.

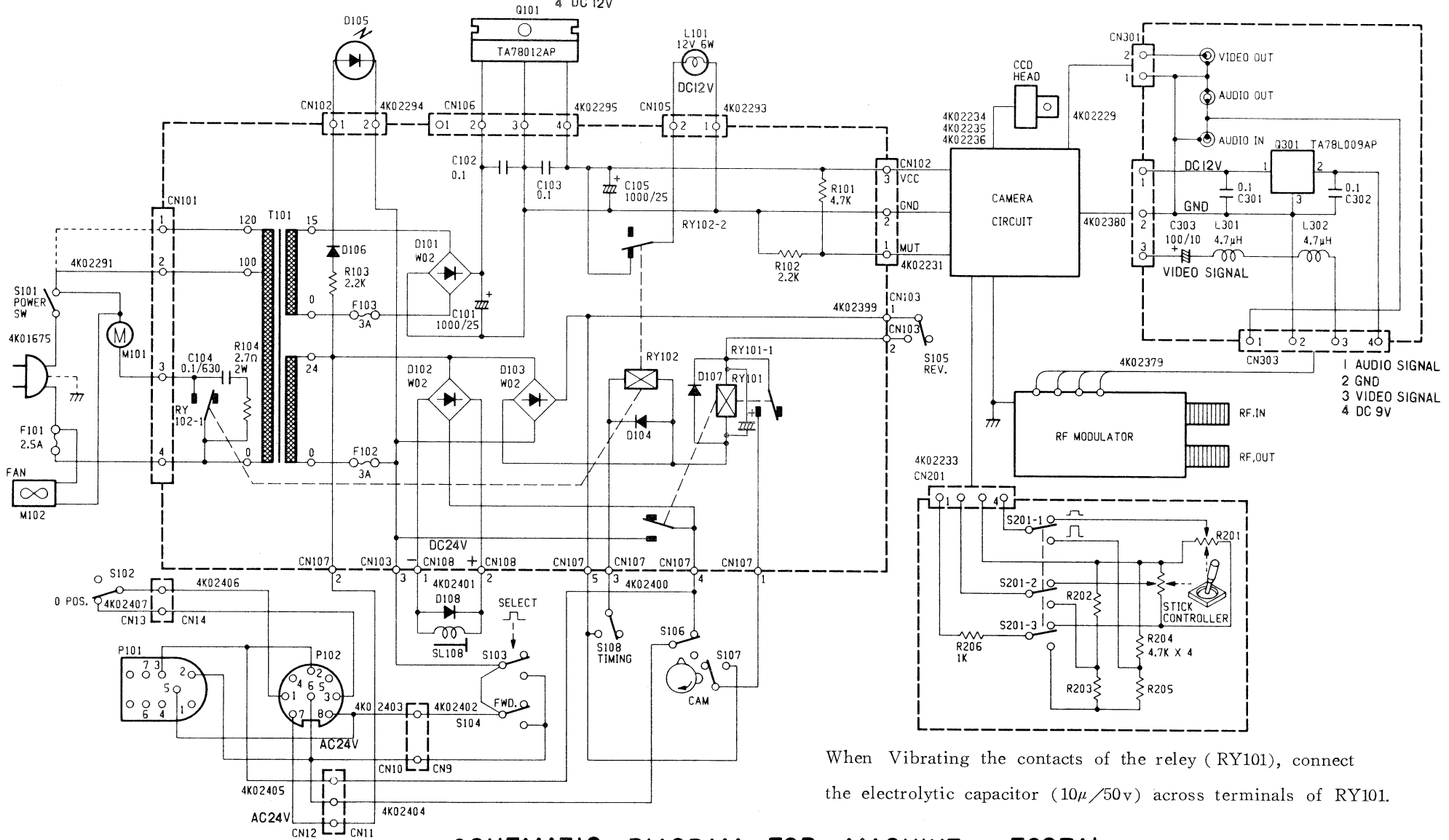
MARK		BRAND NAME
	A	MOLYCOTE EP
	B	FL OIL G-488 or ALVANIA GREASE 2

VI. TOLERANCE

Item	Aimed value	Inspection method
Inclination of played-back picture	Less than 0.8°	Refer to P. 45. Generate cross lines on the monitor TV, mark the electric center line, and measure at both ends of TV screen the deviation from the center line of registration mount. Supposing the deviation to be “a” and the both ends of TV screen to be “b,” find the picture (screen) inclination by $\tan^{-1} \left(\frac{a}{b} \right)$.
Center offset of played-back picture	Below 0.5 mm	Convert the deviation between the electric center, obtained in the same manner as above, and the registration mount center into mount dimensions (horizontal and vertical), with the picture angle change lever set to lateral position.
Center offset due to picture angle change	Below 1 mm	The deviation, observed when the image change lever is set to vertical position with the lateral position as the standard, and then converted into mount dimensions in the same manner as in the above case.
Deviation due to impact	Below 0.5 mm from from initial value	The one, measured with the picture angle change lever set to lateral position, and then converted into mount dimensions in the same manner as in the above case.
Video output level	$1.0V_{p-p} \pm 4 \text{ dB}$	Measure by using the synchroscope.
Brightness S/N ratio	Over 45 dB	100 K HPF, 42 MLPF, SC ON, UNWTC, with no film and brightness of 50% when noise meter is used.

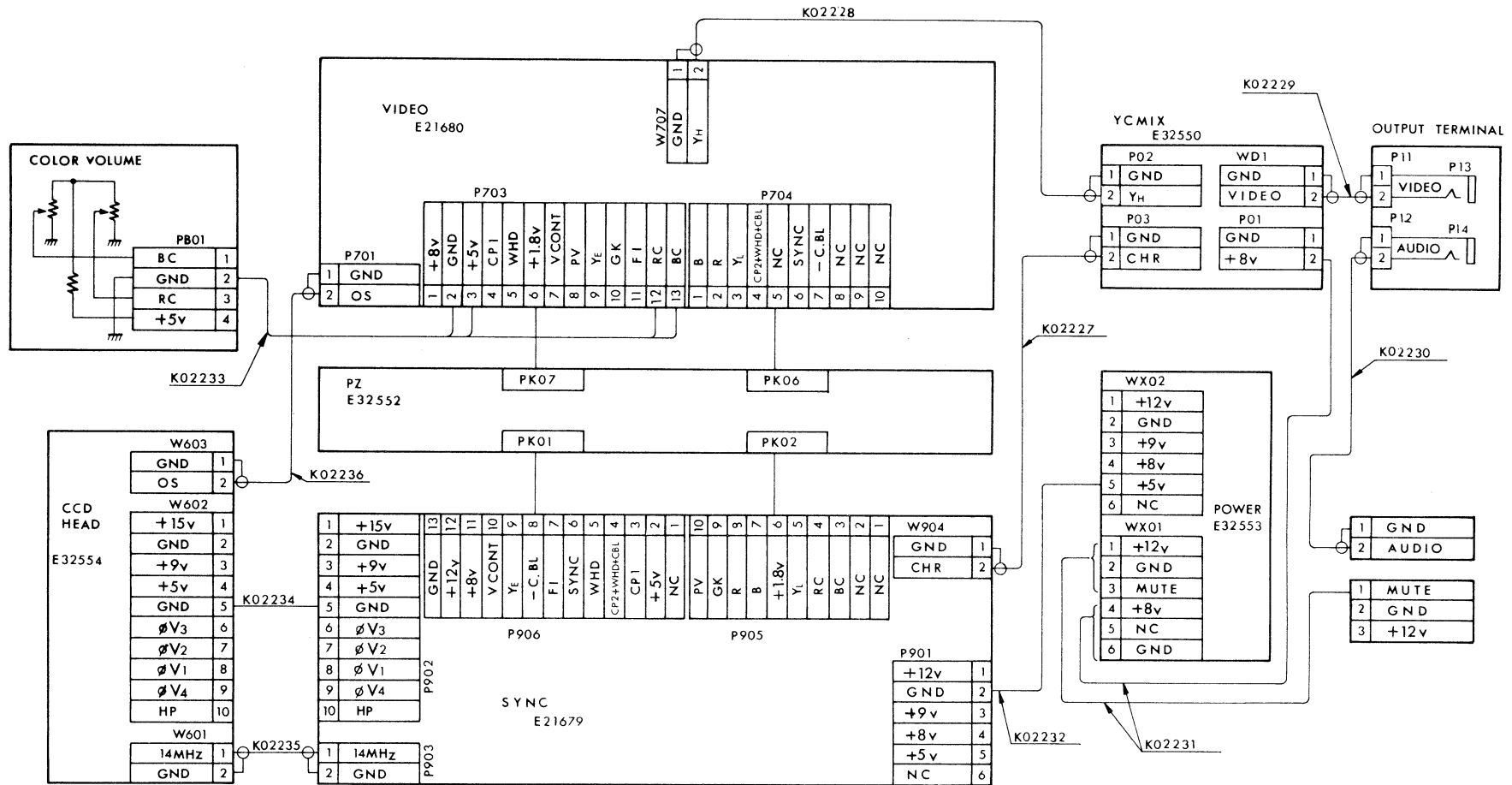
Item	Aimed value	Inspection method
Resolution	200 TV lines	Horizontal resolving power with black-and-white monitor
Illumination irregularity	Max. 15%	Measure by using the brightness component of video signal at replay without film. The illumination irregularity is supposed to be equivalent to (max. value – min. value) % with the max. brightness at iris being 100%.
Confirmation of R-F (for Japanese use only)	Make sure that there are no noise, beat, etc. affecting the image; check both 1 CH and 2 CH. For test mount, instructions shall be given separately.	
Remote jacks	Remote receptacle 7P: Between terminals 2-5 Forward Between terminals 3-5 Reverse DIN 8P: Between terminals 1-3 Shortcircuit for tray positions other than “0” Between terminals 6-8 Forward Between terminals 2-8 Reverse Make sure by using remote control and inspection jigs.	

VII. DIAGRAMS
2 DC 18V
3 GND
4 DC 12V

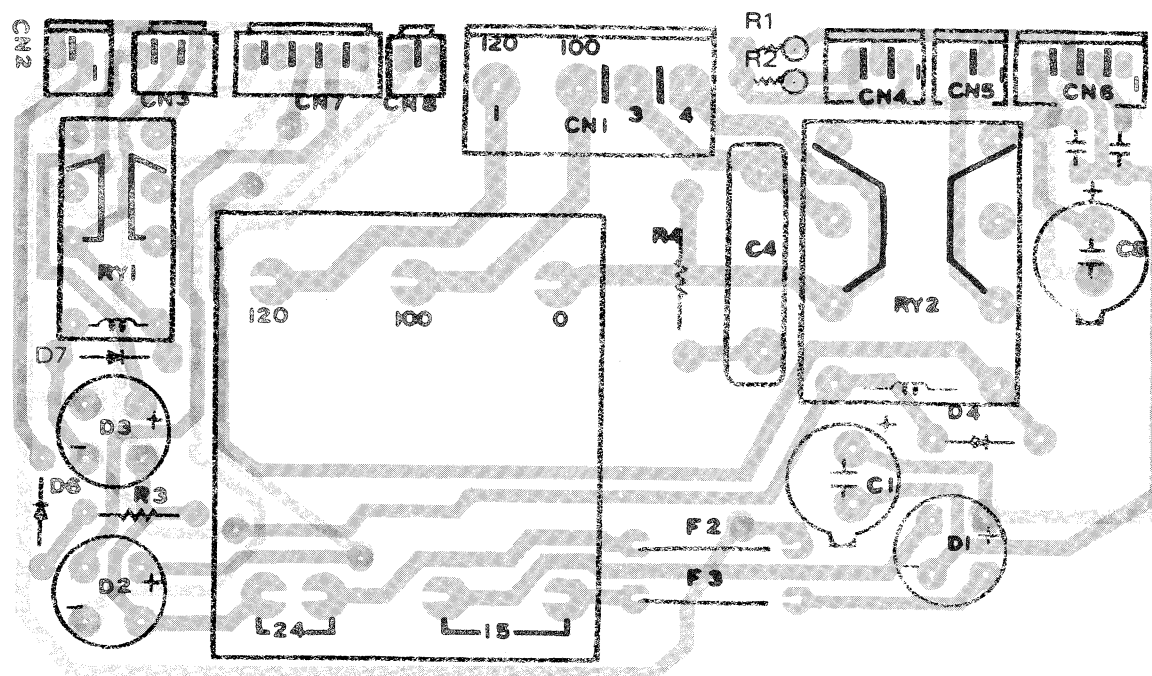


When Vibrating the contacts of the relay (RY101), connect the electrolytic capacitor (10 μ /50v) across terminals of RY101.

SCHEMATIC DIAGRAM FOR MACHINE E3274I



CONNECTING DIAGRAM FOR CCD CAMERA (E32551)



SETTING DIAGRAM FOR AMPLIFIER E32737

PARTS LIST

TRANSVIDEO TRV-35

No. 285

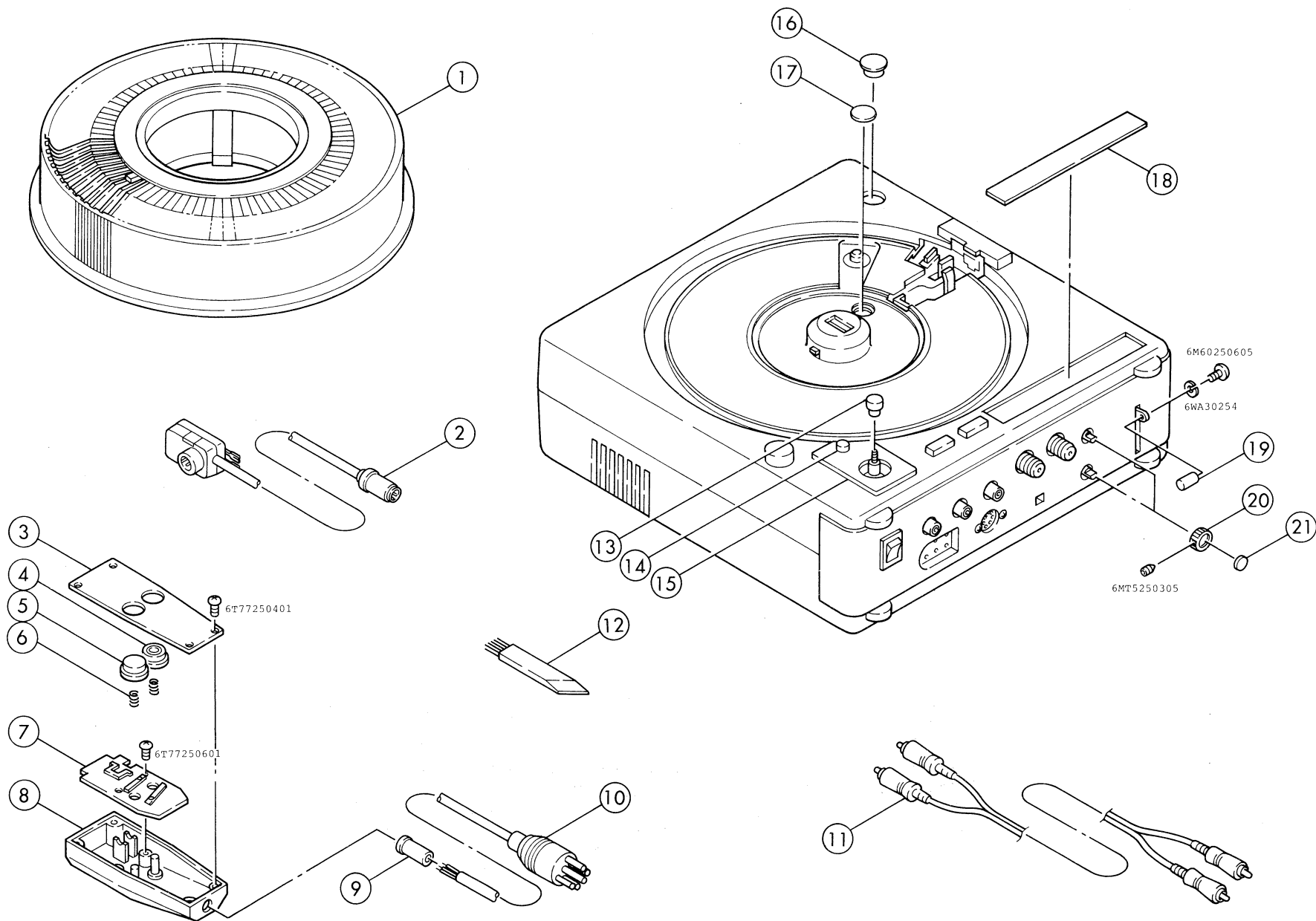
NOVEMBER 1986

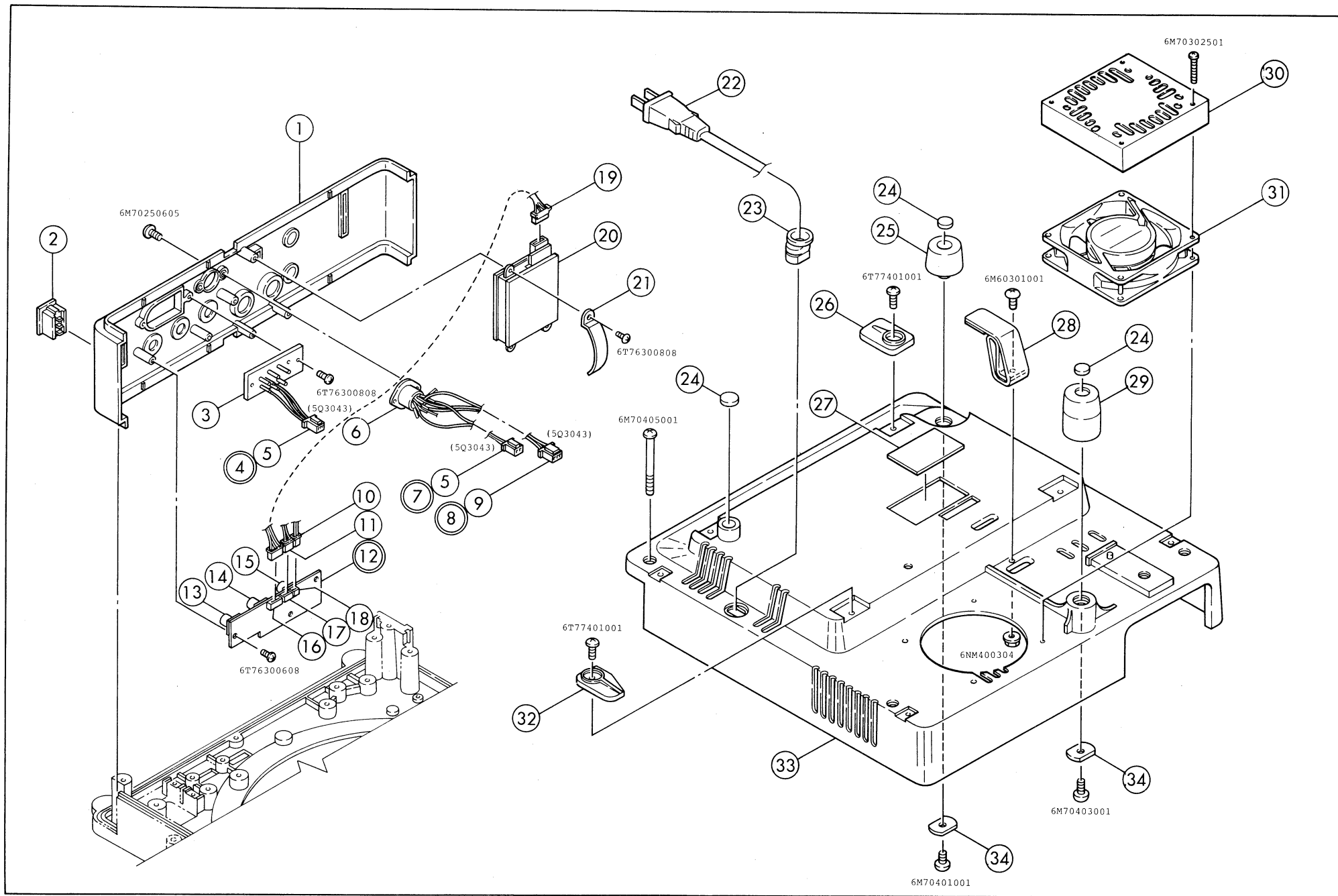
INTRODUCTION

は じ め に

1. The spare parts marked with double-encircled illustration number can be supplied as the assembly shape.
2. The spare parts number for readily-available parts such as screws, nuts, washers, E-rings and connector pins are indicated in the illustration.
3. The spare parts number encircled with a circlet in the column 'Illustration No.' is for Japanese market use. For your market use, please refer to Pages 8 and 9.
4. The model name marked with ※ in the column 'Common use model' indicates an improved model.
5. The spare parts index is on page 10.
6. The schematic diagram and its details are shown on page 11.

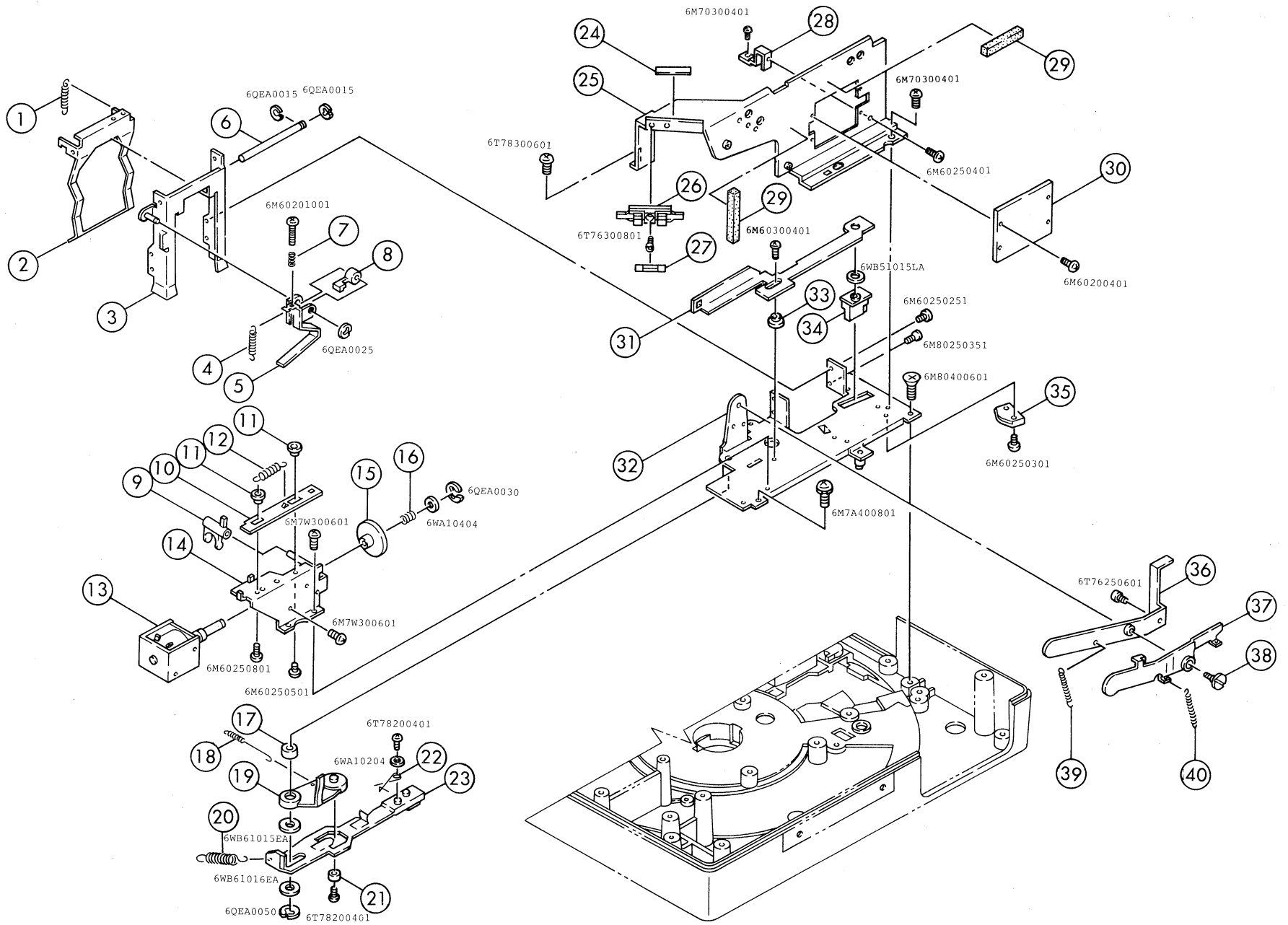
1. イラスト番号が2重丸で表示してある部品は、組立品として供給出来ます。
2. ネジ・ナット・Eリング等基本部品の部品番号は、図中に直接表示してあります。
(コネクタ横、カッコ内の数字は、そこに使用されているコネクタピン)の部品番号です。
3. イラスト番号欄に○印が付記されている部品は、国内用とは異なる国外用部品があり、8ページにまとめてあります。また国外のみ使用する部品は、9ページに表示してあります。
4. 共用機種欄の※印は、その機種の改訂機との共用を表しています。
5. 部品番号索引は、10ページにあります。
6. 機体結線図は、そこに使用されている部品の明細と共に、11ページにあります。



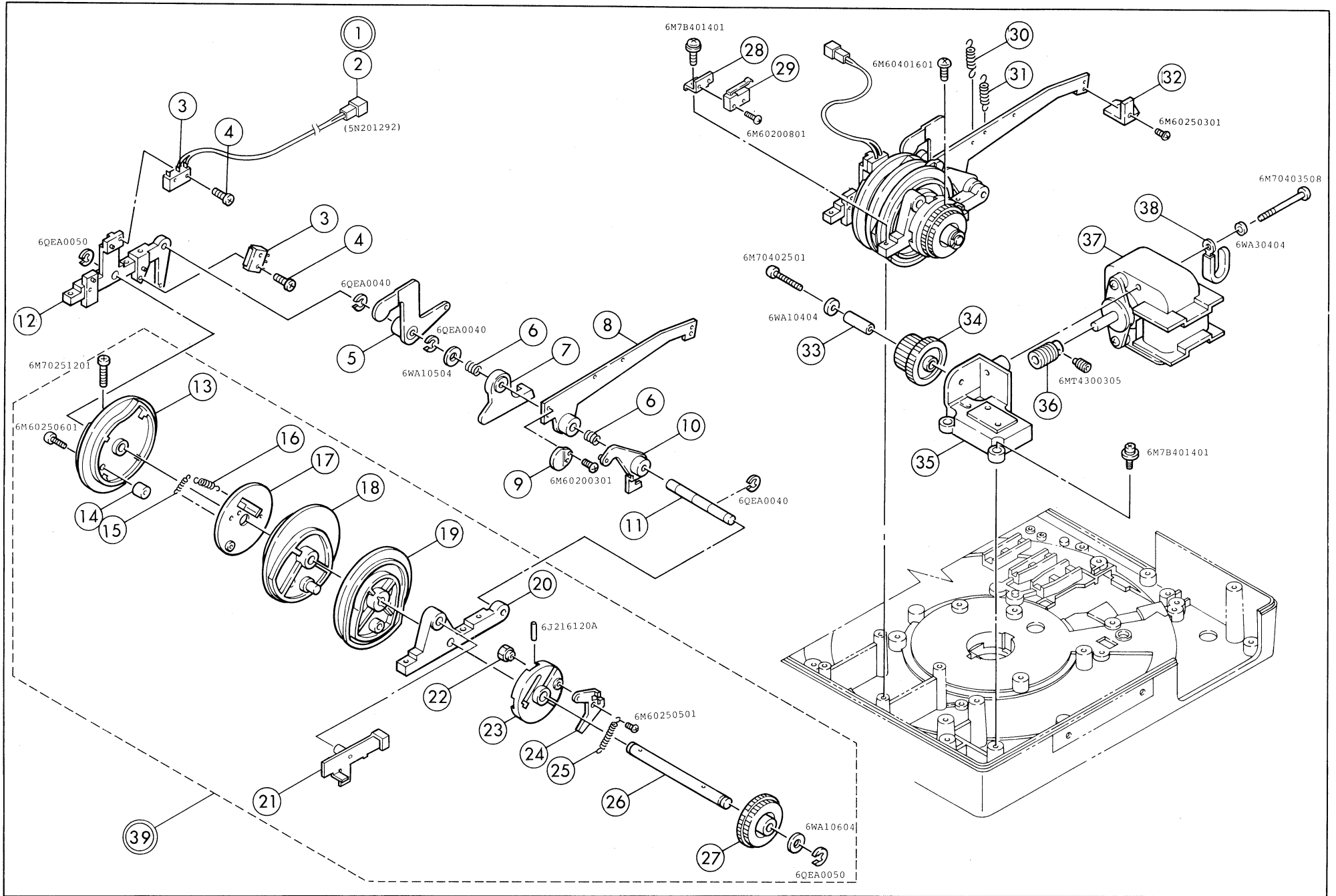


ILLUST NO.	PART NO.	PART NAME		COMMON USE MODEL	ILLUST NO.	PART NO.	PART NAME		COMMON USE MODEL
(1)	4 M 2 0 7 5 1	背面パネル	BACK PANEL		(3 1)	5 V 2 0 8 0	ファンモータ VU55D4	FAN MOTOR (VU55D4)	
2	5 E 6 0 4 3	シーソスイッチ JWZ1120-0201	SEESAW SWITCH (JWZ1120)	TRV-S8	3 2	4 M 4 5 7 6 7	コード巻(2)	CORD REEL 2	
3	5 N 2 0 7 1 6 2	7P・コネクタ 185651	7-P CONNECTOR (185651)	OMNI 300	3 3	4 M 1 0 1 3 6	下カバー	BOTTOM COVER	
4	4 K 0 2 4 0 3	CN10 コネクタ組立品	CN10 CONNECTION CORD		3 4	4 M 4 0 3 3 5	座金(1)	WASHER 1	OMNI 252
5	5 N 2 0 2 6 4 2	2P・ソケットハウジング 5102-02	2-P CONNECTOR 2 (5102-02)	OMNI 300					
6	5 N 2 0 8 1 8 2	8P・DINソケット TCS0284	8-P DIN SOCKET (TCS0284)	OMNI 300					
7	4 K 0 2 4 0 7	CN14 コネクタ組立品	CN14 CONNECTION CORD						
8	4 K 0 2 4 0 5	CN12 コネクタ組立品	CN12 CONNECTION CORD						
9	5 N 2 0 3 5 2 2	3P・ソケットハウジング 5102-03	3-P CONNECTOR 2 (5102-03)	OMNI 300					
1 0	4 K 0 2 2 2 9	2P・コネクタ組立品(3)	2-P CONNECTOR ASSY 3	TRV-S8					
1 1	4 K 0 2 3 8 0	RF 接続コード(2)	RF CONNECTION CORD 2						
1 2	4 P 8 T L S 0 1 0	PC板組立 背面パネル	PC PLATE ASSY BACK COVER						
1 3	5 N 5 0 8 5 2	ピンジャック SQ-3012 (黒)	JACK (SQ-3012 BLACK)						
1 4	5 N 5 0 8 3 2	ピンジャック SQ-3012 (赤)	JACK (SQ-3012 RED)	TRV-S8					
1 5	5 N 5 0 8 4 2	ピンジャック SQ-3012 (黄)	JACK (SQ-3012 YELLOW)	TRV-S8					
1 6	5 N 2 0 4 6 5 1	4P・ウエハ 5268-04A	4-P WAFER 1 (5268-04A)						
1 7	5 N 2 0 3 6 7 1	3P・ウエハ 5268-03A	3-P WAFER 1 (5268-03A)						
1 8	5 N 2 0 2 9 3 1	2P・アングルピンヘッダ S2L2-EF	2-P CONNECTOR (S2L2-EF)	TRV-S8					
1 9	4 K 0 2 3 7 9	RF 接続コード(1)	RF CONNECTION CORD 1						
2 0	5 Z 0 0 7 1	RF モジュレータ MDF7	RF MODULATOR (MDF7)						
2 1	4 M 4 5 7 9 7	板バネ アース	SPRING EARTH						
(2 2)	4 K 0 1 6 7 5	電源コード(1)	POWER CORD 1	OMNI 300					
2 3	5 G 5 0 5 9	ストレイニリリーブッシング SR-5N-5	CORD BUSH (SR-5N-5)	OMNI 300					
2 4	4 M 4 0 7 2 5	足 下カバー	LEG LOWER COVER	OMNI 252					
2 5	4 M 4 5 5 9 3	足(1) 下カバー	LEG(1) LOWER COVER						
2 6	4 M 4 0 7 2 3	コード巻	CORD REEL	OMNI 300					
(2 7)	4 N 4 0 8 0 9	定格銘板	RATING PLATE						
2 8	4 K 0 1 3 7 8	NAS(1)型用コードバンド	CORD BAND	OMNI 300					
2 9	4 M 4 5 5 9 4	足(2) 下カバー	LEG(2) LOWER COVER						
3 0	4 M 3 1 9 6 6	カバー ファン	COVER FAN						

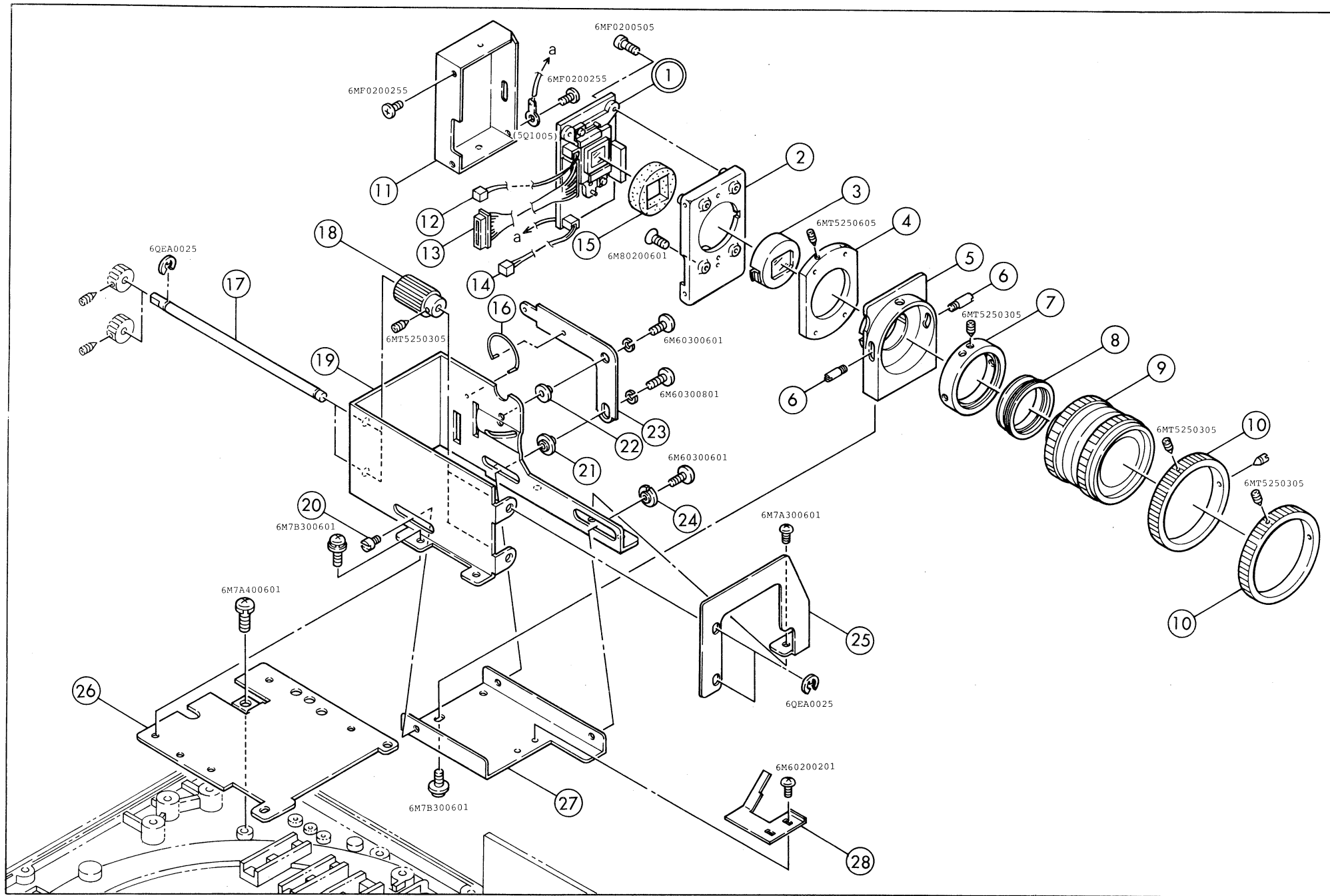
ILLUST NO.	PART NO.	PART NAME		COMMON USE MODEL	ILLUST NO.	PART NO.	PART NAME		COMMON USE MODEL
1	4P8TLS911	組立PC板 スティックコントローラ	PC PLATE ASSY STICK C.		31	4M31715	取付板 ランプケース	HOLDER LAMP CASE	
2	5Z0070	スティックコントローラ UBJXB	STICK CONTROLLER (UBJXB)		32	4M30211	カバー 集光系	COVER LIGHT SOURCE	
3	5N204681	4P・アングルピンヘッダ S2L2-EF	4-P CONNECTOR 1	TRV-S8	33	4M45260	軸 ランプケースカバー	SHAFT LAMP CASE COVER	
4	5E2115	プッシュスイッチ SPEC12	PUSH SWITCH (SPEC12)		34	4N40806	銘板 ランプ表示	PLATE LAMP	
5	4M31897	取付板 カメラコントロールユニット	HOLDER CAMERA CONTROLLER		35	4M45261	ロックネバ ランプハウス	LOCK SPRING LAMP CASE	
6	4K02233	4P・コネクタ組立品	4-P CONNECTOR ASSY	TRV-S8	36	4M45262	カバー ランプケース	COVER LAMP CASE	
7	4M40737	パネ セレクトボタン	SPRING SELECT BUTTON	OMNI 252	37	5N1046	ランプソケット 09A47	LAMP SOCKET (09A47)	
8	4M40738	プレート(1) セレクト	PLATE(1) SELECT	OMNI 252	38	5L11200601	ランプ A12 6W	LAMP (A12 6W)	
9	4M40741	パネ セレクト	SPRING SELECT	OMNI 252	39	4M40703	ボス 基板位置決メ	BOSS BASE PLATE LOCATION	OMNI 252
10	4M43617	レバー(2) セレクト	LEVER(2) SELECT	OMNI 252	40	4M40702	ストッパ トレー押エ	STOPPER TRAY HOLDER	OMNI 252
11	4M50358	間座 セレクト	WASHER SELECT	OMNI 252	41	4M50065	パネ ストッパ	SPRING STOPPER	OMNI 252
12	4M50355	パネ ロックレバー	SPRING LOCK LEVER	OMNI 252	42	6Y94199006	吊手	HANDLE	OMNI 252
13	4M40739	レバー(1) セレクト	LEVER(1) SELECT	OMNI 252	43	4M10135	上カバー	UPPER COVER	
14	4M40742B	プレート(2) セレクト	PLATE(2) SELECT	OMNI 252					
15	5E1016	マイクロスイッチ SS-5	MICRO SWITCH (SS-5)	OMNI 252					
16	4M40734	ボタン セレクト	BUTTON SELECT	OMNI 252					
17	4M40709	ホルダ スイッチ	HOLDER SWITCH	OMNI 252					
18	4M50070	パネ 送りツマミ	SPRING TRANSPORT KNOB	OMNI 252					
19	4M40710	ツマミ 送りスイッチ	KNOB TRANSPORT SWITCH	OMNI 252					
20	5G6030	ステッカ T-23	STICKER (T-23)	TRV-S8					
21	5G4020010	スミチューブ F-2×20	ISOLATOR TUBE (F-2×20)						
22	4K02402	CN9 コネクタ組立品	CN9 CONNECTION CORD						
23	5N202651	2P・ミニスボックプラグ 5240-021	2-P CONNECTOR 1 5240-021	TRV-S8					
24	5E1025	マイクロスイッチ SS-5GL	MICRO SWITCH (SS-5GL)	OMNI 252					
25	4K02406	CN13 コネクタ組立品	CN13 CONNECTION CORD						
26	4M50067	ガイド 摺動プレート	WASHER	OMNI 252					
27	4M40765B	レバー ゼロ位置検出	0-POSITION SENSING LEVER	OMNI 252					
28	4M40712	プレート(1) 取付ネジ	MOUNTING PLATE(1) SCREW	OMNI 252					
29	4M45775	組立ランプケース	LAMP CASE ASSY						
30	4E42016	防震ゴム モータ	VIBRATION PROOF RUBBER	TRV-16					



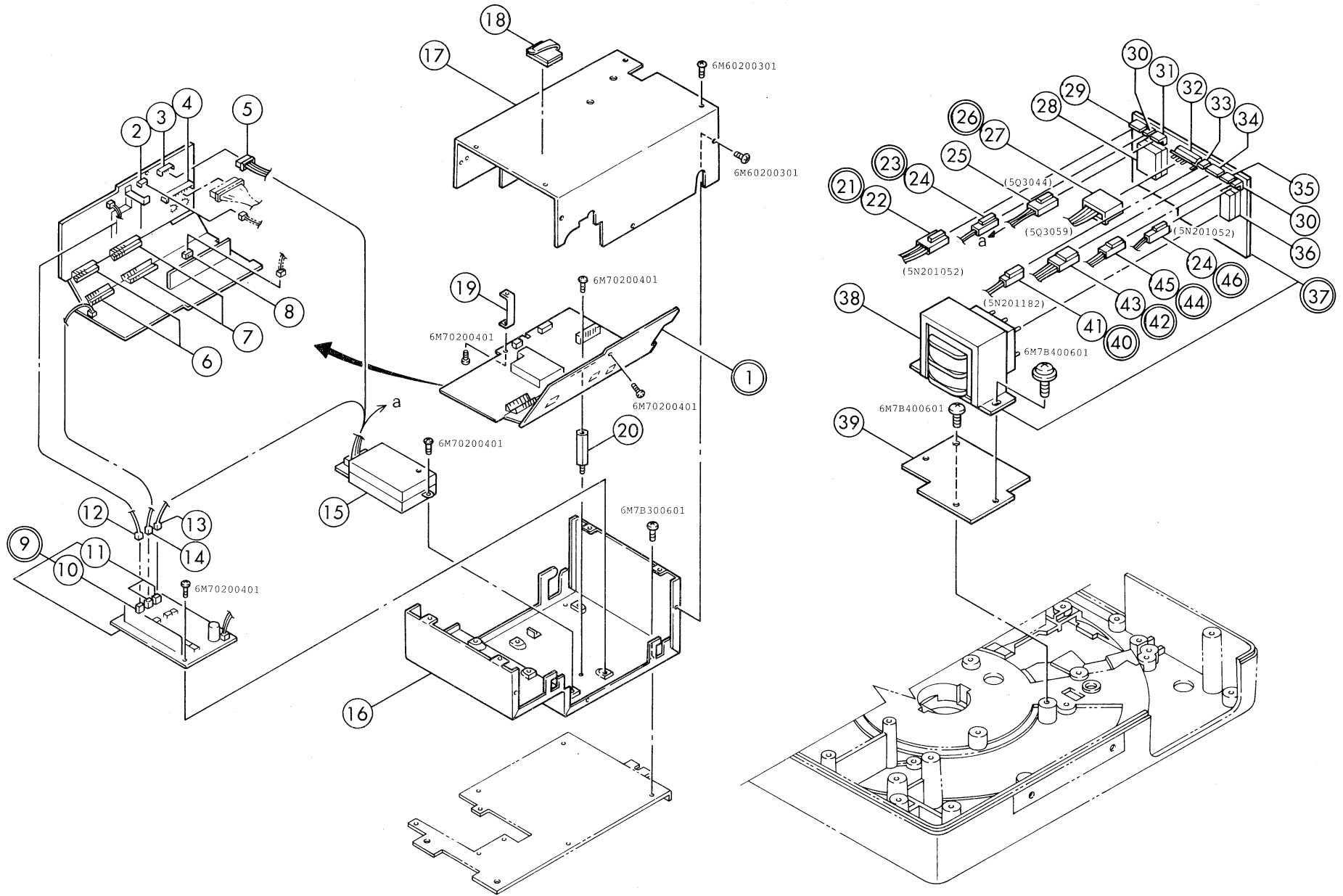
ILLUST NO.	PART NO.	PART NAME		COMMON USE MODEL	ILLUST NO.	PART NO.	PART NAME		COMMON USE MODEL
1	4M50469	バネ スライド押エ	SPRING SLIDE PRESS	OMNI 252	31	4M43616	摺動板 ロックレバー	LEVER SLIDE PLATE	OMNI 252
2	4M31293	レバー スライド押エ	LEVER SLIDE PRESS	OMNI 252	32	4M43628B	組立給送部基板	TRANSPORT BASE P. ASSY	OMNI 252
3	4M44439	組立映写ゲート	PROJECTION GATE ASSY	OMNI 252	33	4M50337	間座 摺動プレート	WASHER SLIDE PLATE	OMNI 252
4	4M50465	バネ(1) サイドプレッシャ	SPRING(1) SIDE PRESSURE	OMNI 252	34	4M43610	ロックレバー	LOCK LEVER	OMNI 252
5	4M44414	レバー(1) サイドプレッシャ	LEVER(1) SIDE PRESSURE	OMNI 252	35	4M43606	ガイド板 リンクトレー送り	GUIDE PLATE LINK TRAY	OMNI 252
6	4M40753	軸 スライド押エレバー	SHAFT SLIDE PRESS LEVER	OMNI 252	36	4M44438	組立レバー プレッシャ	LEVER PRESSURE ASSY	OMNI 252
7	4P53365	エキサイタランプソケットスリーブピンバネ	SPRING SLEEVE PIN	OMNI 252	37	4M44440	組立レバー(2) サイドプレッシャ	LEVER(2) S. PRESSURE ASSY	OMNI 252
8	4M44589	調整板 サイドプレッシャ	PLATE SIDE PRESSURE	OMNI 252	38	4M50468	段付ネジ レバー(2)	SCREW LEVER 2	OMNI 252
9	4M43612	レバー ソレノイド	LEVER SOLENOID	OMNI 300	39	4M50064	バネ プレッシャレバー	SPRING PRESSURE LEVER	OMNI 252
10	4M43627	摺動板 ソレノイド	SLIDE SOLENOID	OMNI 300	40	4M50466	バネ(2) サイドプレッシャ	SPRING(2) SIDE PRESSURE	OMNI 252
11	4M50340	ボス 摺動板	BOSS SLIDE	OMNI 300					
12	4M50058	バネ サイドプレッシャ	SPRING SIDE PRESSURE	OMNI 300					
13	5J10022	DCソレノイド TDS-08B	SOLENOID (TDS-08B)	OMNI 252					
14	4M43811	組立取付板 ソレノイド	HOLDER SOLENOID ASSY	OMNI 300					
15	4M40726	ボス マグネット軸	BOSS MAGNET SHAFT	OMNI 252					
16	4M50052	バネ 正逆切換マグネット	SPRING F-R SWITCH MAGNET	OMNI 252					
17	4M50413	間座 レバー正逆切換	WASHER LEVER F-R SWITCH	OMNI 252					
18	4M40757	バネ 正逆切換レバー	SPRING F-R SWITCH LEVER	OMNI 252					
19	4M40755B	レバー 正逆切換	LEVER F-R SWITCH	OMNI 252					
20	4M50062	バネ トレー送りリンク	SPRING TRAY LINK	OMNI 252					
21	4M50066B	ローラ 正逆切換	ROLLER F-R SWITCH	OMNI 252					
22	4M43604	ガイドバネ リンクトレー送り	GUIDE SPRING LINK TRAY	OMNI 252					
23	4M43626	リンク トレー送り	LINK TRAY TRANSPORT	OMNI 252					
24	4N02623	銘板 ヒューズ 2.5A	FUSE PLATE (2.5A)	35-FT					
25	4M45256	ホルダ(2) シャッタ	HOLDER(2) SHUTTER						
26	5H2026	ヒューズホルダ UH031-5001	FUSE HOLDER (UH031-5001)	OMNI 250					
27	5H1025002	ヒューズ T2.5A 250V	MIDGET FUSE (2.5A)	35-FT					
28	4M43624	押エ金具 トレーロック	PRESSURE PLATE TRAY LOCK	OMNI 252					
29	4M40800	遮光材 基板	LIGHT SHIELD BASE PLATE	OMNI 252					
30	4M45257	拡散板	DIFFUSE PLATE						



ILLUST NO.	PART NO.	PART NAME		COMMON USE MODEL	ILLUST NO.	PART NO.	PART NAME		COMMON USE MODEL
1	4K02404	CN11 コネクタ組立品	CN11 CONNECTION CORD		31	4M50430	バネ レバースライド押上ゲ	SPRING SLIDE PRESSURE	OMNI 252
2	5N203511	3P・ピンハウジング 5240-031	3-P CONNECTOR 1 (5240-031)	OMNI 300	32	4M43729	ヘッド スライド押上ゲ	HEAD SLIDE PRESSURE	OMNI 252
3	5E1025	マイクロスイッチ SS-5GL	MICRO SWITCH (SS-5GL)	OMNI 252	33	4M50359	軸 ギヤ(1)	SHAFT GEAR 1	OMNI 252
4	4M50352	特殊タッピンネジ 2.3×12	SPECIAL SCREW (2.3×12)	OMNI 252	34	4M30998	ギヤ(1) クラッチ	GEAR(1) CLUTCH	OMNI 252
5	4M44072	組立レバー クラッチ	CLUTCH LEVER ASSY	OMNI 252	35	4M30999B	ホルダ 駆動モータ	HOLDER DRIVE MOTOR	OMNI 252
6	4M50051B	バネ クラッチマグネット	SPRING CLUTCH MAGNET	OMNI 252	36	4M40701B	ウォーム	WORM	OMNI 252
7	4M40745	レバー トレー送り	LEVER TRAY TRANSPORT	OMNI 252	37	5V2084	モータ C25 100Vタイプ	MOTOR (C25 100V TYPE)	
8	4M40903B	組立スライド押上ゲ	SLIDE PRESSURE ASSY	OMNI 252	38	6Z0046	リード押エ A	CORD SUPPORTER	OMNI 252
9	4M41835B	摺動子 カムフォロア	SLIDER CAM FOLLOWER	OMNI 252	39	4P8T1S901	組立カム 安全装置	CAM SAFETY ASSY	
10	4M43609	組立ロックレバー 摺動板	LOCK LEVER SLIDE P. ASSY	OMNI 252					
11	4M50054	軸 フォロアレバー	SHAFT FOLLOWER LEVER	OMNI 252					
12	4M40749C	軸受(2) カム軸	HOLDER(2) CAM SHAFT	OMNI 252					
13	4M31001B	カム(1) シャッタ	CAM(1) SHUTTER	OMNI 252					
14	4M50471	ピン カム(1)	PIN CAM 1	OMNI 252					
15	4M50474	バネ クリック爪(2)	SPRING CLICK CLAW 2	OMNI 252					
16	4M50473	バネ クリック爪(1)	SPRING CLICK CLAW 1	OMNI 252					
17	4M44590	組立ホルダ 安全装置	HOLDER SAFETY ASSY	OMNI 252					
18	4M31002B	カム(2) トレー送り	CAM(2) TRAY TRANSPORT	OMNI 252					
19	4M31003B	カム(3) トレーロック	CAM(3) TRAY LOCK	OMNI 252					
20	4M45936	軸受(3) カム軸	HOLDER(3) CAM SHAFT						
21	4M45607	組立レバー スイッチ	LEVER ASSY SWITCH						
22	4M50341	軸 クラッチレバー	SHAFT CLUTCH	OMNI 252					
23	4M31000	クラッチ板	CLUTCH PLATE	OMNI 252					
24	4M43611	クラッチレバー	CLUTCH LEVER	OMNI 252					
25	4M50345	バネ(2) クラッチ	SPRING(2) CLUTCH	OMNI 252					
26	4M43614C	軸 カム	CAM SHAFT	OMNI 252					
27	4M43613B	ギヤ(2) クラッチ	GEAR(2) CLUTCH	OMNI 252					
28	4M45604	取付板 スイッチ	HOLDER SWITCH						
29	5E1018	マイクロスイッチ SS-5GL-13	MICRO SWITCH (SS-5GL-13)	OMNI 550 XENON DS					
30	5M50355	バネ ロックレバー	SPRING LOCK LEVER	OMNI 252					



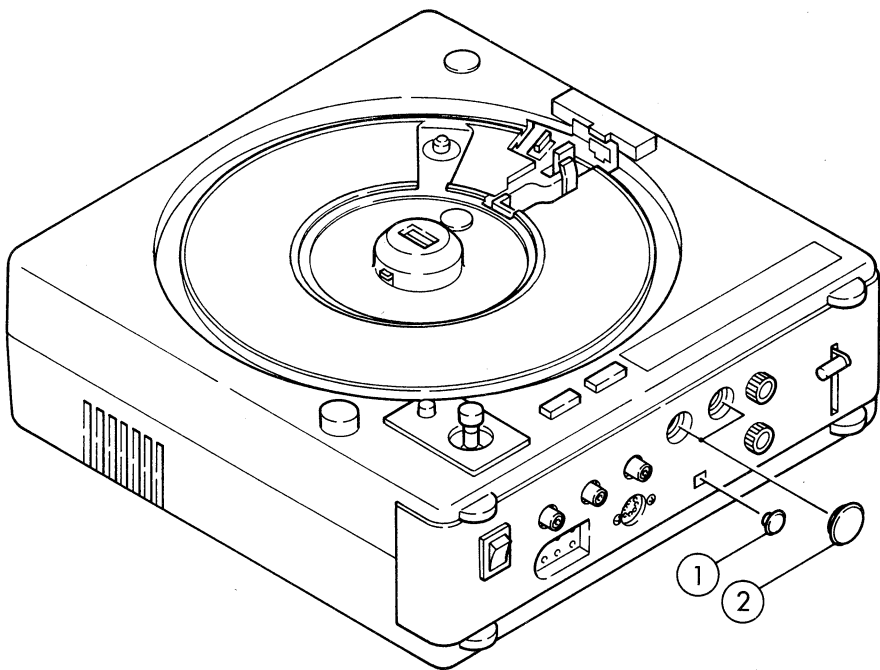
ILLUST NO.	PART NO.	PART NAME		COMMON USE MODEL	ILLUST NO.	PART NO.	PART NAME		COMMON USE MODEL
1	4 P 8 T R V 0 2 5	CCD カメラヘッド組立品	CAMERA HEAD ASSY CCD	TRV-S8					
2	4 M 3 1 9 7 2	CCD 取付ベース	BASE CCD	※TRV-S8					
3	7 0 1 5 3 1 6 1	組立光学水晶フィルタ	OPTICAL FILTER ASSY	TRV-S8					
4	4 M 4 5 7 7 3	調整カラー CCDブロック	COLLAR CCD BLOCK						
5	4 M 3 1 8 9 6	ホルダ カメラヘッド	HOLDER CAMERA HEAD						
6	4 M 5 0 5 5 0	ガイドピン 移動枠	GUIDE PIN MOVEMENT FRAME						
7	4 M 4 5 6 0 3	移動枠 レンズ	MOVEMENT FRAME LENS						
8	4 M 4 5 6 0 2	固定枠 レンズ	FIX FRAME LENS						
9	6 Z 0 1 6 8	レンズ f16 F1.4	LENS (f16 F1.4)						
1 0	4 M 4 5 6 0 0 B	ギヤ(1) フォーカス	GEAR(1) FOCUS						
1 1	7 0 8 5 1 4 4 1	CCD シールドケース組立品	SHIELD CASE ASSY CCD	TRV-S8					
1 2	4 K 0 2 2 3 5	2P・コネクタ組立品(5)	2-P CONNECTOR ASSY 5	TRV-S8					
1 3	4 K 0 2 2 3 4	10P・コネクタ組立品	10-P CONNECTOR ASSY	TRV-S8					
1 4	4 K 0 2 2 3 6	2P・コネクタ組立品(6)	2-P CONNECTOR ASSY 6	TRV-S8					
1 5	7 0 3 8 2 0 1 0	遮光枠	SHADE FRAME	TRV-S8					
1 6	4 M 5 0 5 5 6	クリックバネ	CLICK SPRING						
1 7	4 M 4 5 5 9 9	軸 フォーカス	SHAFT FOCUS						
1 8	4 M 4 5 6 0 1	ギヤ(2) フォーカス	GEAR(2) FOCUS						
1 9	4 M 3 1 8 9 8	ガイド板 カメラ	GUIDE PLATE CAMERA						
2 0	4 M 5 0 5 5 1	ガイドピン 摺動板	GUIDE PIN SLIDE PLATE						
2 1	4 M 5 0 5 4 8	間座(2)	WASHER 2						
2 2	4 M 5 0 5 4 9	間座(3)	WASHER 3						
2 3	4 M 4 5 5 9 2	レバー 画面切換	LEVER PICTURE CHANGE						
2 4	4 M 4 5 7 8 6	偏心間座	ECCENTRIC WASHER						
2 5	4 M 4 5 8 5 8	補強板 ガイド板カメラ	REINFORCE GUIDE PLATE						
2 6	4 M 4 5 6 1 0	基板 カメラ	HOLDER GUIDE PLATE						
2 7	4 M 4 5 6 0 9	摺動板 カメラ	SLIDE PLATE CAMERA						
2 8	4 M 4 5 7 8 7	バネ レンズ押エ	SPRING LENS PRESS						



ILLUST NO.	PART NO.	PART NAME		COMMON USE MODEL	ILLUST NO.	PART NO.	PART NAME		COMMON USE MODEL
1	4 P 8 T R V 0 2 9	VIDEO PZ SYNC 基板組立品	VIDEO PZ SYNC CIRCUIT	TRV-S8	3 1	5 N 2 0 3 2 3 1	3P・ピンヘッダ 1L-3P-S3EN2	3-P CONNECTOR	TRV-S8
2	2 3 1 6 4 4 7 7	2P・プラグ	2-P PLUG	TRV-S8	3 2	5 N 2 0 4 6 0 1	4P・ウエハ 5289-4A	4-P WAFER 1 (5289-04A)	CAP-35C
3	2 3 1 6 4 4 7 3	6P・プラグ	6-P PLUG	TRV-S8	3 3	5 N 2 0 2 6 0 1	2P・ウエハ 5045-02A	2-P WAFER 1 (5045-02A)	CAP-35C
4	2 3 1 6 4 4 6 9	10P・プラグ	10-P PLUG	TRV-S8	3 4	5 N 2 0 5 5 0 1	5P・ウエハ 5045-05A	5-P WAFER 1 (5045-05A)	CAP-35C
5	4 K 0 2 2 3 2	6P・コネクタ組立品(2)	6-P CONNECTOR ASSY 2	TRV-S8	3 5	5 N 2 0 3 3 2 1	3P・ウエハ 5045-03A	3-P CONNECTOR 1 (5045-03A)	OMNI 250
6	2 3 3 6 4 1 8 7	10P・プラグ B/B 2.0mm	10-P CONNECTOR (BB 2.0mm)	TRV-S8	3 6	5 E 7 1 3 8	リレー G2VN-237P 24V	RELAY (G2VN-237P 24V)	
7	2 3 3 6 4 1 8 8	13P・プラグ B/B 2.0mm	13-P CONNECTOR (BB 2.0mm)	TRV-S8	3 7	4 P 8 T L S 0 0 5	組立トランス基板 TLS	TRANSFORMER CIRCUIT ASSY	
8	2 3 1 6 4 4 1 0	2P・プラグ GRN	2-P PLUG GREEN	TRV-S8	3 8	5 V 3 0 4 2	トランス TLS	TRANSFORMER TLS	
9	4 P 8 T R V 0 2 8	YCMIX 基板組立品	YCMIX CIRCUIT ASSY	TRV-S8	3 9	4 M 4 5 6 0 8	取付板 トランス	HOLDER TRANSFORMER	
1 0	5 N 2 0 2 9 1 1	2P・ピンヘッダ赤 1L-S-2P-S2T2EFR	2-P CONNECTOR 1 RED	TRV-S8	4 0	4 K 0 2 4 0 1	CN8 コネクタ組立品	CN8 CONNECTION CORD	
1 1	5 N 2 0 2 6 8 1	2P・ピンヘッダ 1L-S-2P-S2T2-EF	2-P CONNECTOR 1	TRV-S8	4 1	5 N 2 0 2 4 3 2	2P・ソケットハウジング 5251-02	2-P HOUSING 2 (5251-02)	CAP-35C
1 2	4 K 0 2 2 2 7	2P・コネクタ組立品(1)	2-P CONNECTOR ASSY 1	TRV-S8	4 2	4 K 0 2 4 0 0	CN7 コネクタ組立品	CN7 CONNECTION CORD	
1 3	4 K 0 2 2 3 1	6P・コネクタ組立品(1)	6-P CONNECTOR ASSY	TRV-S8	4 3	5 N 2 0 5 3 0 2	5P・ソケットハウジング 5251-05	5-P HOUSING 2 (5251-05)	CAP-35C
1 4	4 K 0 2 2 2 8	2P・コネクタ組立品(2)	2-P CONNECTOR ASSY 2	TRV-S8	4 4	4 K 0 2 3 9 9	CN3 コネクタ組立品	CN3 CONNECTION CORD	
1 5	4 P 8 T R V 0 2 7	POWER 基板組立品	POWER CIRCUIT ASSY	TRV-S8	4 5	5 N 2 0 3 4 4 2	3P・ソケットハウジング 5251-03	3-P HOUSING 2 (5251-03)	CAP-35C
1 6	4 M 3 1 7 4 8	シャーシ カメラコントロールユニット	CHASSIS CONTROL UNIT	TRV-S8	4 6	4 K 0 2 2 9 4	2P・コネクタ組立品	2-P CONNECTION CORD	
1 7	4 M 3 1 7 4 9	カバー カメラコントロールユニット	COVER CONTROL UNIT	TRV-S8					
1 8	5 G 6 0 3 0	ステッカ T-23	STICKER (T-23)	TRV-S8					
1 9	7 0 8 4 2 4 1 6	ビデオ連結金具	CONNECT METAL VIDEO	TRV-S8					
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2 2	5 N 2 0 4 1 5 2	4P・ソケットハウジング1L-4S-S3LN	4-P CONNECTOR 2						
2 3	4 K 0 2 2 9 3	2P・ランプコネクタ組立品	2-P LAMP CONNECTION CORD						
2 4	5 N 2 0 2 3 5 2	2P・ソケットハウジング1L-2S-S3LN	2-P CONNECTOR 2	TRV-S8					
2 5	5 N 2 0 3 2 5 2	3P・ソケットハウジング1L-3S-S3LN	3-P CONNECTOR 2	TRV-S8					
(2 6)	4 K 0 2 2 9 1	パワーコネクタ組立品	POWER CONNECTION CORD						
2 7	5 N 2 0 4 6 0 2	4P・ソケットハウジング 5199-04	4-P HOUSING 2 (5199-04)	CAP-35C					
2 8	5 E 7 0 8 0	リレー G4D-212P 24V	RELAY (G4D-212P 24V)	OMNI 550 XENON					
2 9	5 N 2 0 4 1 5 1	4P・ピンヘッダ 1L-4P-S3EN2	4-P CONNECTOR 1	35-FT					
3 0	5 N 2 0 2 3 6 1	2P・ピンヘッダ 1L-2P-S3EN2	2-P CONNECTOR 1	TRV-S8					

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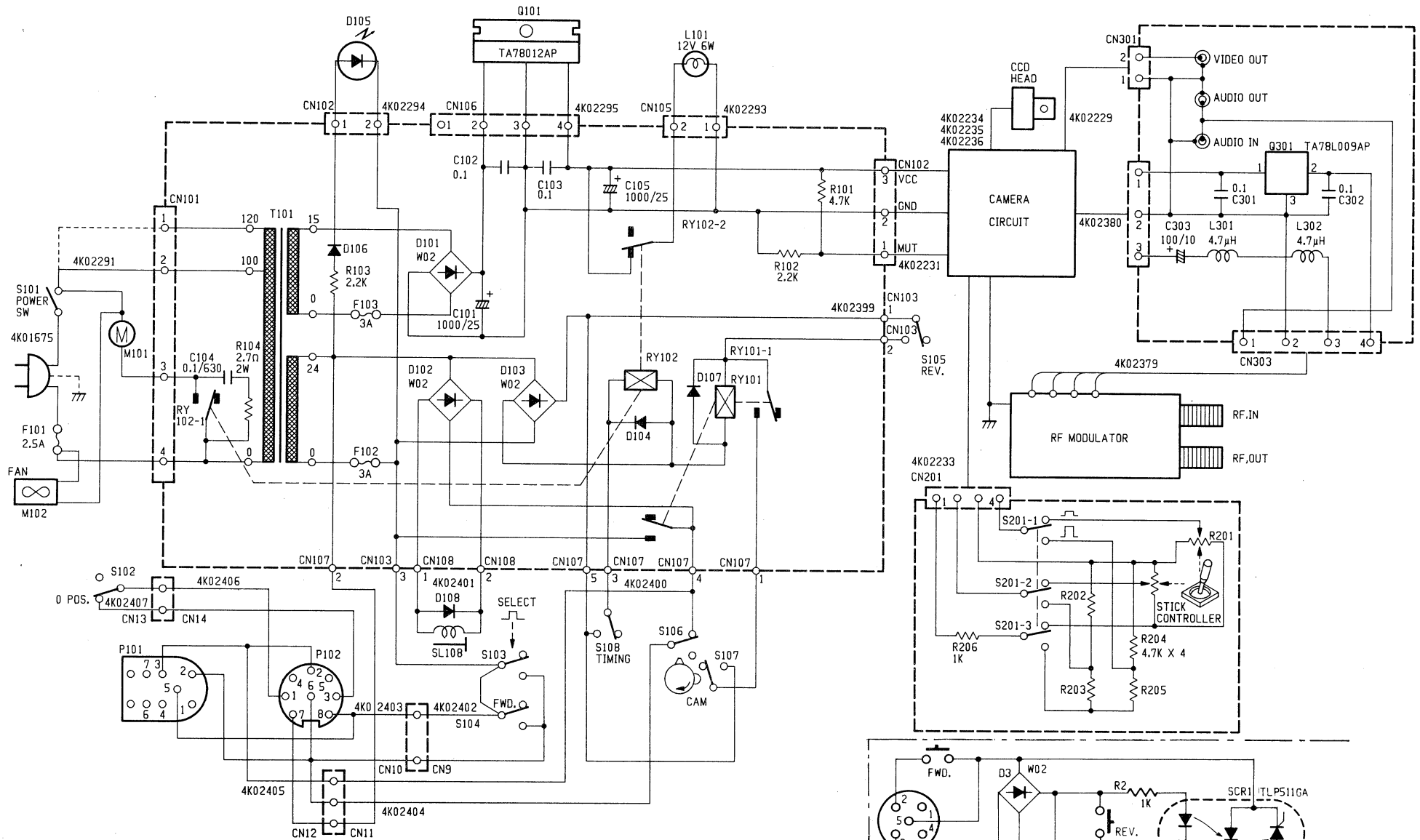
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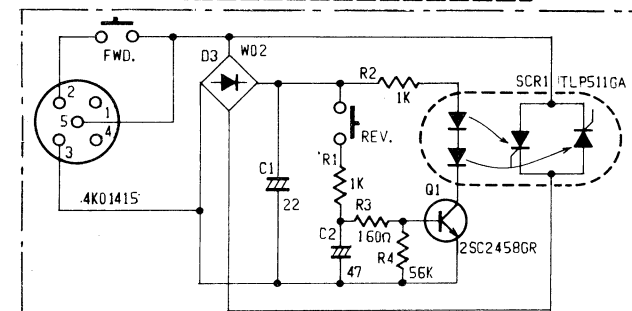
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SCHEMATIC DIAGRAM FOR MACHINE (E32740)



REMOTE CONTROL (E44230)

FOR REMOTE CONTROL

—11A—

ELMO 株式会社 エルモ社

本 社 工 場 名古屋市瑞穂区神穂通1丁目6番地 ☎(052)811-5131 〒467
エルモ視聴覚センター 東京都港区三田3丁目7番16号 第2八幡ビル ☎(03)453-6471 〒108
東 京 営 業 所 東京都港区三田3丁目7番16号 第2八幡ビル ☎(03)453-6471 〒108
横 浜 営 業 所 横浜市保土ヶ谷区岩井町11番地 ダイアナプラザ保土ヶ谷4階 ☎(045)333-9142 〒240
大 阪 営 業 所 大阪市東区高麗橋詰町1番地 ☎(06)942-3221 〒540
名古屋営業所 名古屋市瑞穂区神穂通1丁目6番地 ☎(052)824-1571 〒467
九 州 営 業 所 福岡市博多区下川端町10番10号 ☎(092)281-4131 〒812
北海道営業所 札幌市北区北12条西2丁目4番地 ☎(011)717-7221 〒001
仙 台 営 業 所 仙台市中央4丁目10番14号 エノトセーフビル1階 ☎(022)266-3255 〒980
広 島 営 業 所 広島市中区中町8番12号 広島グリービル5階 ☎(082)248-4800 〒730

ELMO ELMO CO., LTD.

6, Kamiho-dori 1-chome, Mizuho-ku,
Nagoya, 467 Japan

OVERSEAS SUBSIDIARY COMPANIES

U.S.A. **Elmo Mfg. Corp.**
70 New Hyde Park Road, New Hyde Park, NY 11040
Tel. (516) 775-3200

21720 Nordhoff Street, Chatsworth, CA 91311
Tel. (818) 346-4500

Canada **Elmo Canada Mfg. Corp.**
44 West Drive, Brampton, Ontario L6T 3T6
Tel. (416) 453-7880

West Germany **Elmo (Europe) G.m.b.H.**
Karl-Rudolf-Str.178
4000 Düsseldorf
Tel.(0211)376051