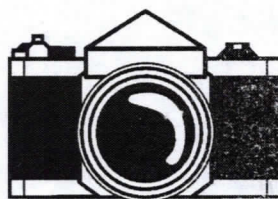


KALART

Service and Repair



K A L A R T
SERVICE and REPAIR
MANUAL

Prepared
by
THE KALART COMPANY, INC.
Plainville, Conn.

For the Guidance and Instruction of its
Authorized Service Stations.

This Manual contains technical and engineering data pertaining to the construction, maintenance and repair of Kalart precision products. Instruction booklets for use and adjustment of Kalart equipment will be found in the front and back cover pockets. As additional data is issued, it can be inserted into its proper place in the Manual.

NOTE:

DO NOT HESITATE TO WRITE US FOR ASSISTANCE OR INFORMATION ON ANY SPECIFIC PROBLEM. WE ARE GLAD TO COOPERATE WITH YOU IN EVERY WAY WE CAN.

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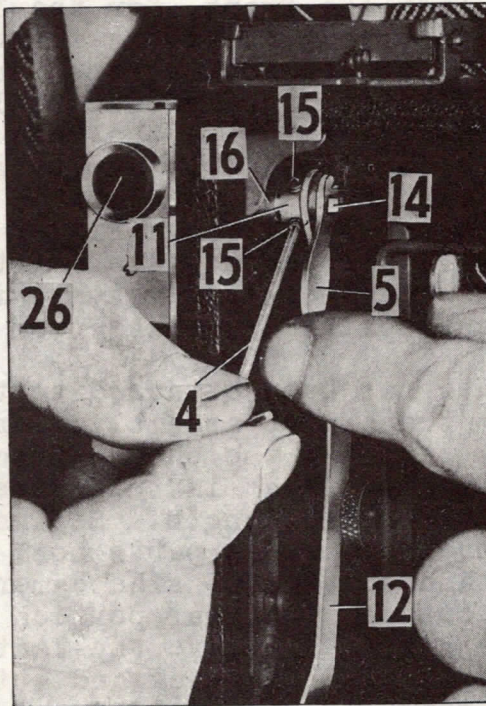
DO NOT HESITATE TO WRITE US FOR ASSISTANCE OR INFORMATION ON ANY SPECIFIC PROBLEM. WE ARE GLAD TO COOPERATE WITH YOU IN EVERY WAY WE CAN.

INSTALLING THE KALART LENS COUPLED RANGE FINDER ON
ANNIVERSARY MODELS $3\frac{1}{4} \times 4\frac{1}{4}$ AND 4×5 SPEED GRAPHIC CAMERAS

All Anniversary Model Speed Graphics, have the hole for accommodating the Range Finder shaft already drilled through the camera box and it is only necessary to cut through the leather covering this hole.

Remove the two screws which fasten the Range Finder Housing and carefully lift the cover off. After this is done the Range Finder is fastened securely to the camera body with four wood screws. Later Models of this camera with Serial No. 345630 and up, have two threaded inserts at the bottom covered by leather. Use 1-64 machine screws instead of wood screws fastening the Housing to these cameras.

After the Range Finder has been attached to the outside of the camera, slip the hub 11 of the coupling arm 12 over the transmission shaft 14 of the Range Finder inside the camera. See illustration.



Set the camera at infinity and with the Finder Coupling held in position against the eccentric screw (a rubber band looped around the coupling arm 12, and the front of the camera bed will take care of this) wind the shaft 14 with the key 5, and in this position tighten permanently the two Bristow screws 15 set in the hub of the coupling arm 11, using the Bristow wrench 4.

Remove the rubber band and set lens at infinity locking it at this point.

Now focus through the Range Finder at some object approximately $3/4$ mile distant. If the two images do not coincide, rack the track forward thus exposing the eccentric screw. Turn this screw slightly with a coin to bring the images into coincidence at infinity. Don't forget to reset the lens for infinity each time you check through the Range Finder.

See instruction manual "How to Adjust."

INSTALLING THE KALART LENS COUPLED RANGE FINDER ON
PRE-ANNIVERSARY MODELS $3\frac{1}{4} \times 4\frac{1}{4}$ AND 4x5 SPEED GRAPHIC CAMERAS

Later models of the Old Style Speed Graphic Cameras, $3\frac{1}{4} \times 4\frac{1}{4}$ and 4x5 sizes, left the Graflex factory with all the necessary holes drilled and tapped to accommodate the Range Finder. However, it may be necessary to enlarge the hole for the Range Finder bushing since in some cases the housing will interfere with either the focal plane shutter plate, or the extension eyetube will interfere with the winding knob of the focal plane shutter.

First operation is to spot the position of the hole for the Range Finder transmission shaft. This position is $43/64$ " from the top and $1-1/16$ " from the front, for the $3\frac{1}{4} \times 4\frac{1}{4}$ size camera, and $43/64$ " from the top and 1" from the front, for the 4x5 size camera. Level the camera and support the inside of the camera box with a block of wood to prevent the drill from pushing through to the bellows. Then drill the hole with a #2 drill and redrill it with a $17/64$ " drill. Remove any rough edges on the inside of the camera and touch up with a coat of black paint. Insert the shaft bearing of the Range Finder through this hole and attach the Range Finder to the camera with four wood screws. If the speed indicator plate interferes, it may be removed and located in a different position to make room for the Range Finder.

After the Range Finder has been attached to the outside of the camera, separate the track part assembly, Part Nos. 6, 7, and 8 from the coupling by removing the shoulder screw, No. 9, shown in Figure A. You will note that in this assembly, Part No. 8, rides smoothly for its entire length. Separate the track part assembly into its three component parts Nos. 6, 7, and 8. Unhook the bed brace, and on the 4x5 size camera only, remove the kick-out spring and cut off the rear portion as shown in Figure A. Then replace the spring. Remove the last three screws on the left side of the camera bed track and attach the plate No. 6 with the three flat head screws provided. Be certain that the screw heads are flush with the surface of that plate. Part No. 6 is drilled and the holes are countersunk to fit the Speed Graphic cameras, but there may be a slight difference among the older cameras as regards the spacing of the three holes. In that case drill another hole to complete the attachment of Part No. 6.

Lay the sliding rod, Part No. 8 down and cover it with Part No. 7, attaching it with the three screws to plate No. 6. The sliding rod should move freely without any friction. Turn the camera focusing knob as far back as it will go. Lay the L stop with its edge against the track, as shown in Figure B, with a space of $3/32$ " between the track assembly and the L stop. Mark the spots on the camera yoke for the position of the screws locating the holes in the center of the slots. Make sure that this part is flush against the camera track. Drill two holes with a No. 57 drill and tap with a #590 for the screws supplied. Attach the L stop with those screws.

INSTALLING THE KALART LENS-COUPLED RANGE FINDER
ON THE 2 $\frac{1}{4}$ x 3 $\frac{1}{4}$ MODEL C BUSCH PRESSMAN CAMERA

Remove the moving track from the camera bed and drill and tap as shown in the diagram on the reverse side of this page.

Locate and drill hole for the Range Finder shaft in the wall of the camera. See diagram.

Remove the two screws which fasten the Range Finder Housing and carefully lift the cover off. Place the Range Finder with the shaft in the hole and parallel to the edge of the camera, and spot the four holes with a #48 drill. Drill through these holes with a #53 drill. Fasten the Range Finder into position with the wood screws supplied.

Screw the hex stud in the tapped hole of the camera track with the small L tension spring looped around the threaded part of the stud. Attach the fork to the stud with the small shoulder screw supplied and locate the end of the L spring in the small hole of the fork. Tighten all parts and check for movement of the fork. This part should move freely and the position of the spring should be set so as to exert downward pressure of the fork against the stationary track guide.

Slip the hub of the coupling arm over the Range Finder shaft and locate the arm until the fork is in position with the groove in the arm stud.

Set the camera at infinity and with the Range Finder coupling held in position against the fork (a rubber band looped around the arm and the front of the camera will do the trick) wind the Range Finder shaft with the key supplied and tighten the two Allen Screws with the Allen Wrench. Remove the rubber band and bring the images into coincidence by turning the screw located at the top of the arm. This screw is adjusted in a similar manner to Screw #13, diagram D, on Page 6 of the instruction booklet.

After all adjustments have been completed this screw should be set so it will not turn easily (a small drop of shellac on the thread only or a small indentation on the material surrounding the thread will keep this screw from turning).

Instructions for the adjustment of the Range Finder to the lens are similar to those given in the instruction booklet, "How To Adjust and Use The KALART Range Finder."

There is a small screw located on the front edge of the Range Finder which limits the travel of the Range Finder to 3 $\frac{1}{2}$ ft.. This is necessary to keep the arm in position to re-engage the fork when the camera is set in the drop-bed position.

INSTALLING THE KALART LENS-COUPLED RANGE FINDER ON THE 2 1/2" x 3 1/4" BUSCH PRESSMAN CAMERA

Remove the moving bracket from the camera bed and drill and tap as shown in the diagram on the reverse side of this page.

Locate and drill hole in the Range Finder shaft in the wall of the camera. See diagram.

Remove the lens which fastens the Range Finder Housing and carefully lift the cover off. Place the Range Finder with the shaft in the hole and parallel to the edge of the camera, and spot the lower hole with a #48 drill. Drill through these holes with a #48 drill. The Range Finder into position with the wood screws supplied.

Screw the hex nut in the tapped hole of the camera track with the small L term spring loaded around the threaded part of the stud. Attach the fork to the stud with the small shoulder screw supplied and locate the end of the L spring in the wall hole of the fork. Tighten all parts and check for movement of the fork. This part should move freely and the position of the spring should be so as to exert downward pressure on the fork against the stationary track guide.

Slip the end of the coupling arm over the Range Finder and locate the arm until the fork is in position with the groove in the arm stud.

Get the camera at right angles with the Range Finder coupling held in position against the fork (a rubber band looped around the arm and the front of the camera will do the trick) with the Range Finder shaft with the key supplied and tighten the two Allen screws with the Allen Wrench. Remove the rubber band and bring the images into coincidence by turning the screw located at the top of the arm. This screw is adjusted in a similar manner to screw #13, diagram D, on Page 6 of the instruction booklet.

After all adjustments have been completed this screw should be set so it will not turn by a small drop of shellac on the thread only or a small dab of material on the material surrounding the thread will keep this screw from turning.

Instructions for the adjustment of the Range Finder to the lens are similar to those given in the instruction booklet, "How To Adjust and Use The KALART Range Finder."

There is a small screw located on the front edge of the Range Finder which limits the travel of the Range Finder to 2 1/2". This is necessary to keep the arm in position to re-engage the fork when the camera is set in the bed position.

2 1/4" x 3 1/4" BUSCH PRESSMAN MODEL C

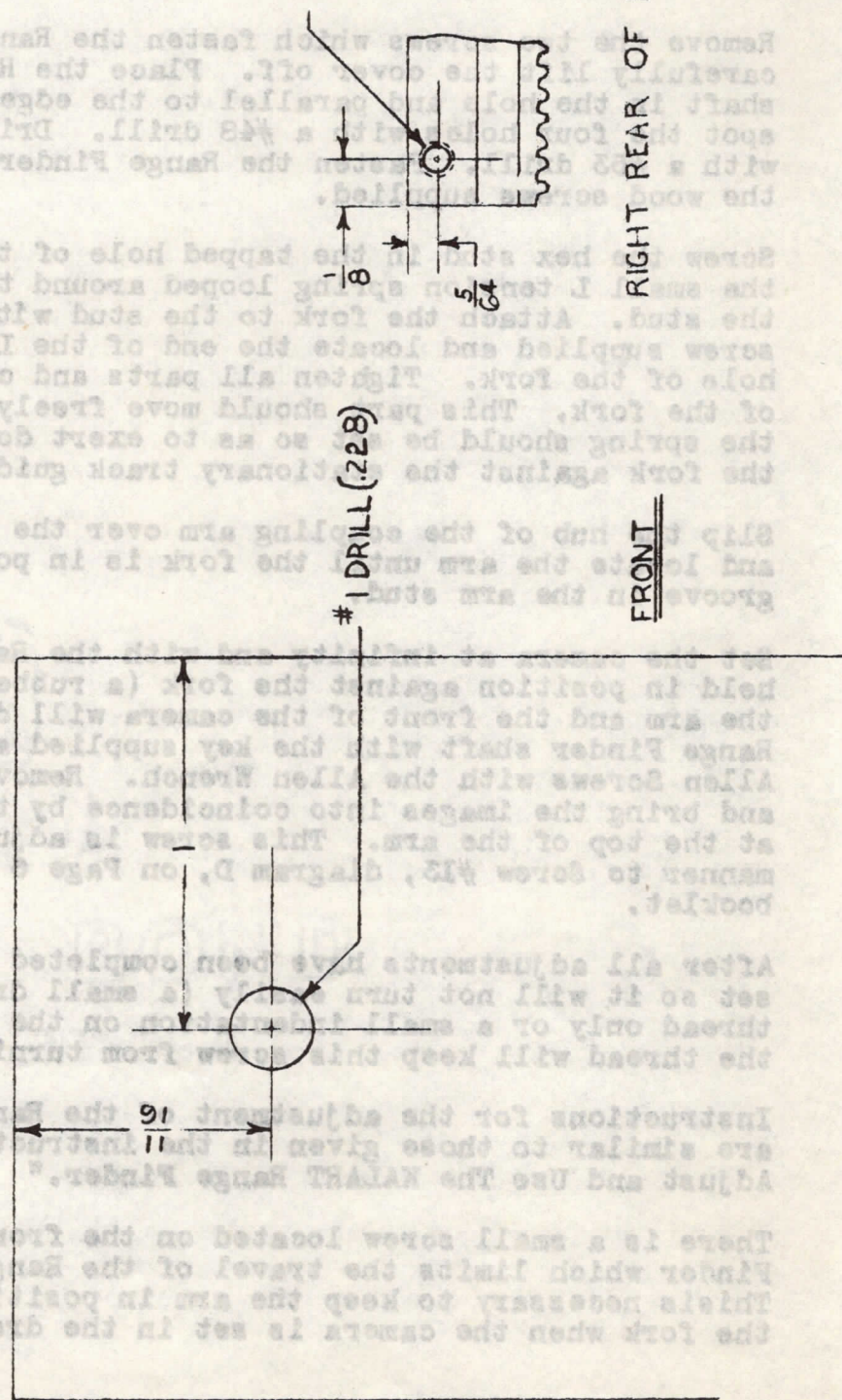
TOP

DRILL #45(.082)
TAP 3-56
C'S SINK .005

#1 DRILL (.228)

RIGHT REAR OF RUNNER

FRONT



REPAIR AND SERVICING OF THE KALART

DELUXE E (E-1) AND PRISM MODEL (E-2) RANGE FINDERS

The Range Finder consists of three basic sub-assemblies: the housing, the mounting block, and the main plate.

The Model E-1 and E-2 Range Finders are built upon a suspension principle, that is, the main plate assembly is held to the mounting block at one point so that if there is any movement or strain of the camera body to which the Range Finder is attached, this movement will not be transmitted to the main plate mechanism and, therefore, will not affect the alignment of the optical elements.

The following repair procedure is used only when necessary to remove the entire Range Finder from the camera. In most cases, however, it will be necessary only to remove the housing assembly and make adjustments on the Range Finder mechanism which may be removed from the mounting block, thus leaving all parts open for inspection. Service troubles and methods of repair are given at the end of the following instructions.

The Prism Model (E-2) Range Finder

Remove the Range Finder arm by loosening the set screws, MS21, holding the arm to the Range Finder shaft and slide the arm off the Range Finder. Remove the four screws, MS27, which attach the Range Finder housing to the camera case. Lift the housing off carefully.

Remove the four wood screws, MS27, holding the mounting block and mounting plate assemblies to the camera.

THE HOUSING ASSEMBLY, A500

In case of damage to the window assembly, A233-A, it may be removed by pressure from the inside of the housing and may be replaced by pressing it into the housing and peening it into position from the inside.

The glass disc, E117-1, located in the recessed portion at the top of the housing beneath the cover, is cemented into position and may be removed by pressure from the inside of the housing. The rear eyepiece assembly, E116-1, may be removed by prying the split washer, E122-3, which is soldered to the eyepiece on the inside of the housing and this procedure is reversed in replacing that member.

MOUNTING BLOCK ASSEMBLY, A502

Remove the round head screw, MS44, holding the mounting block assembly to the main plate assembly. Pry the retaining spring, E122-3, holding the cam shaft assembly, A248, and file the burr caused by the arm set screws, MS21, on this assembly, and force the cam shaft assembly out of position. Remove the cam spring, E121. The procedure for assembling the mounting block assembly is the reverse of disassembling. Before inserting the cam shaft assembly into the mounting block, lubricate the shaft with a light film of graphite grease over the surface of the shaft.

The tension of the cam spring, E121, should be as strong as possible and may be increased by opening the ends of the spring. Care should be exercised in inserting the spring so that the tension is not lost by forcing the spring past its limit.

MAIN PLATE ASSEMBLY, A501

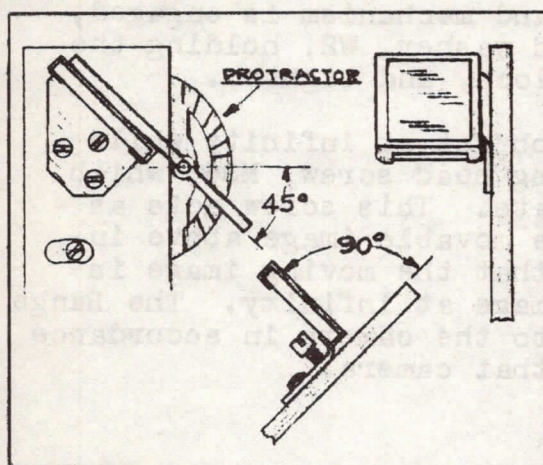
- a. Remove the lever assembly, A245-1A, by loosening the screw clamping this assembly to the special head screw, MS72. Remove MS72.
- b. Remove the two fillister head screws, MS17-1, which hold the mirror assembly, A245-1, to the mounting plate, and lift this assembly from the plate.
- c. Remove the two tension spring screws freeing the tension spring, E119-1, noting that the shorter screw, MS17-1, holds the spring, and the longer one, MS17-4, guides the spring.
- d. Remove the binding head screw, MS6, and lift the prism assembly, A235-1, from the prism stud.
- e. In the event of replacement of the prism, remove the two screws, MS17-1, holding the prism assembly, A235-1B, to the lever assembly E105-1. The prism assembly may be removed from the prism lever and may be replaced by a new prism assembly.
- f. Remove the two screws, MS17-4, freeing the pressure plate, E126, and the indicator assembly, A232-1, from the main plate.
- g. Remove the compensator assembly, A234-1A, by disengaging the loop of the spring from the pin mounted in the main plate.
- h. Remove the shoulder screw, MS63, freeing the fulcrum bar assembly, A231-1, from the main plate.
- i. Remove the clamp screw, MS17-4, holding the compensator guide, E113, to the plate.
- j. Remove the segment lever screw, MS4, holding the lever, E106.
- k. Remove the filed head screw, MS17-2, and the binding head adjusting screw, MS6, from the main plate.

ASSEMBLING THE MAIN PLATE

The procedure for assembling the main plate assembly, A501, is the reverse of disassembling.

All parts of the Range Finder mechanism should move freely but without excess play.

In replacing the top mirror assembly, it should be set in position on the main plate so that its face is 45° to the edge of the plate and tighten the two fillister head screws MS17-1 holding this assembly. This position can be determined with a protractor



Insert the special head screw, MS72, and turn this screw until the mirror is at right angles to the main plate. This may be determined by placing a straight edge with one edge against the main plate and the other against the mirror.

After all the parts have been positioned on the main plate, the following adjustments have to be made before the main plate assembly can be assembled to the mounting block assembly. Turn screw, MS17-2 so that its filed sides are parallel

to the long axis of the Range Finder. Hold the mounting plate assembly so that the fulcrum bar assembly Part No. A231-1 is drawn back with the finger as far as possible and sight at a clearly defined vertical object. The lateral adjustment may be made by turning screw, MS72, until the images merge. With the Range Finder still held in the same position, the images may be brought into horizontal coincidence by turning screw, MS67, mounted on the prism bracket, A235-1.

The Range Finder is now set so that when the fulcrum bar assembly No. A231-1 is drawn back, the images are merged both horizontally and vertically at infinity. The following adjustment is necessary to set the front indicator so that the moving image will not shift at infinity when adjustments are made in setting the Range Finder for short distances. Hold the Range Finder as described in the previous paragraph, loosen the two screws MS17-4 holding the front indicator assembly, A232-1, and move the indicator assembly throughout its range from 1 to 9. If there is an appreciable horizontal change in the image when the indicator assembly is moved, it should be replaced with a new assembly and the small adjusting screw in the slot of the indicator should be turned until there is no further movement of the image when this assembly is moved throughout its range.

Tighten the two screws MS17-4, holding the indicator assembly at the approximate point of adjustment for the lens. (See table in booklet "How to Adjust.") File the head of the adjusting screw on the indicator assembly so that it is flush.

Due to the above adjustments, the images may have gone out of horizontal coincidence when the Range Finder arm is drawn back and should be brought back into coincidence by adjusting screw, MS67. After this adjustment is completed, turn the filed head screw so that its filed sides are at right angles to the long axis of the Range Finder. The Range Finder main plate may now be assembled to the mounting block assembly by placing it so that the dowel pins of the mounting block enter the dowel holes of the main plate. Actuate the cam shaft assembly with the Range Finder key tool and if the movement is free and mechanism is engaged, insert the round head screw, MS44, and washer, W2, holding the main plate assembly to the mounting block, and tighten.

Sight through the Range Finder at an object at infinity while depressing the key and insert a binding head screw, MS6, which is located on the side of the main plate. This screw acts as a stop and regulates the height of the movable image above infinity. This screw should be set so that the moving image is slightly higher than the stationary image at infinity. The Range Finder is now ready for installation to the camera in accordance with the applicable instructions for that camera.

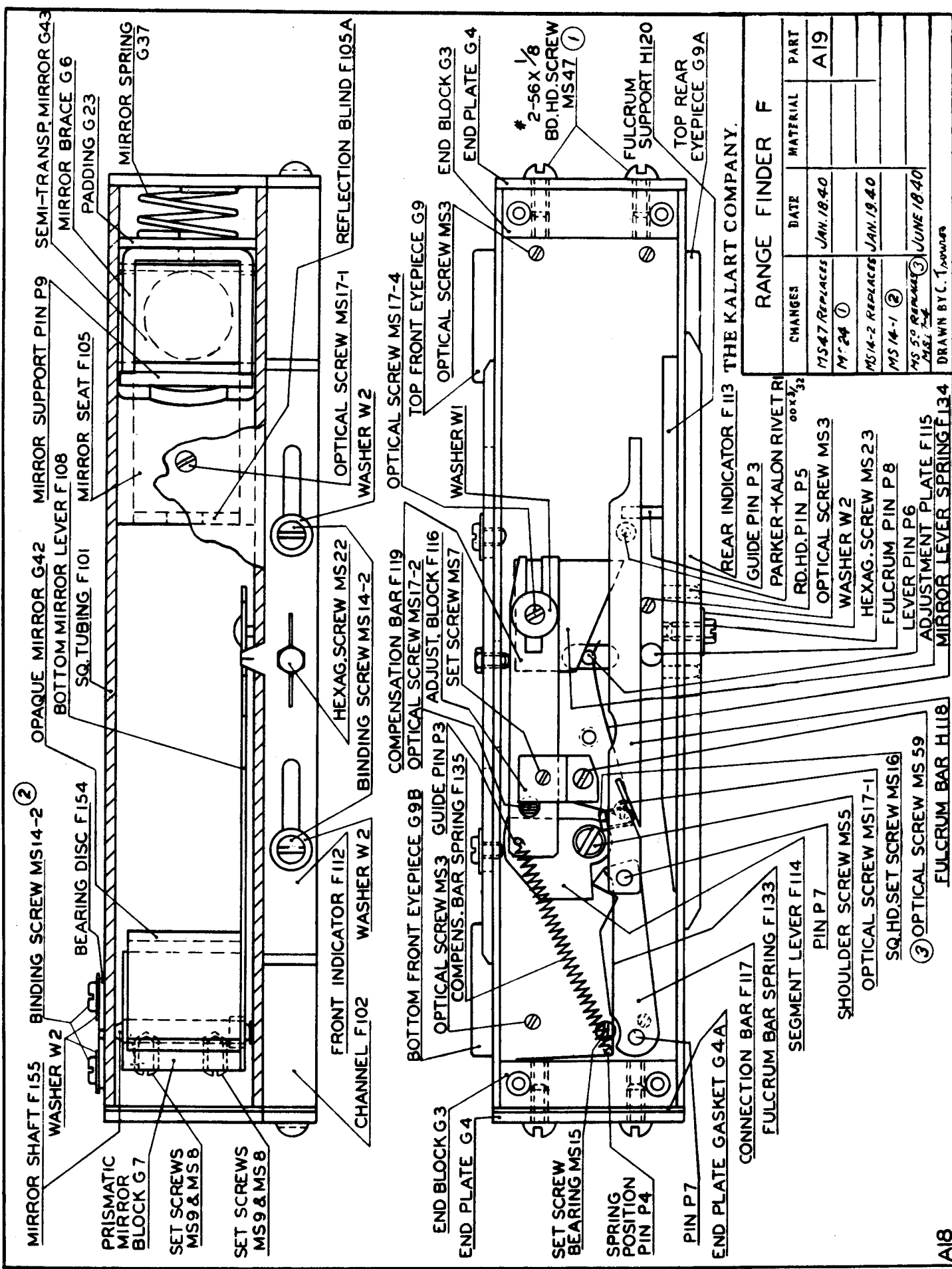
THE DELUXE MODEL E (E-1) RANGE FINDER

The Model E-1 Range Finder is similar in construction to the E-2 Range Finder with the following exceptions:

The housing has the lateral image adjusting screw MS73 on the rear of the housing.

The front indicator assembly, A232, is part of the mounting block assembly A247, and is held in place by the tension of spring E118. This tension must be as strong as possible to hold the indicator so that it will not shift upon jar or vibration.

The main plate assembly contains a bottom mirror assembly, A235 which rides between two pivots MS62. One pivot is mounted permanently in the main plate and the other pivot, which screws into the bearing bracket, E107 is used as an adjustment for controlling the movement of the bottom mirror assembly. The mirror actuating spring E119 is mounted to the bearing bracket E107. The screw MS67 at the rear of the bottom mirror lever E105 is used for merging the images at infinity in the assembly of the Range Finder.



RANGE FINDER F

CHANGES	DATE	MATERIAL	PART
MS47 REPLACES	JAN. 18.40		A19
MS24 ①			
MS14-2 REPLACES	JAN. 19.40		
MS14-1 ②			
MS59 REPLACES ③	JUNE 18.40		
MS17-4			
DRAWN BY C. T. ADAMS			

SERVICE TROUBLES AND REMEDIES

TROUBLE	CAUSE	REMEDY
Side or lateral image	Loose Top mirror	Replace top mirror assembly
	Loose bottom mirror (E1) or prism assembly (E2)	Replace bottom mirror assembly or prism assembly
	Excessive play between pivots (E1)	Adjust pivot screw #MS62
	Lateral adjusting screw #MS73 touches lateral adjusting lever	Back out lateral adjusting screw #MS73 one quarter turn
	Cover touches main plate assembly	Provide clearance at point of interference
Change in horizontal image	Loose top mirror	Replace top mirror assembly
	Loose bottom mirror (E1) or prism assembly (E2)	Replace bottom mirror assembly or prism assembly
	Main plate assembly loose from mounting block	Tighten center screw MS44
	Loose mirror adjusting screw MS67	Shellac or peen adjusting screw MS67 after adjustment
Change in adjustment or setting	Loose front indicator	Tighten screws holding indicator (E2) Increase spring tension on front indicator (E1)
	Loose rear indicator	Tighten holding screws
	Loose front indicator adjusting screw MS64	Peen indicator adjusting screw MS64

TROUBLE	CAUSE	REMEDY
Lag or lost motion	Mechanism binds	Provide for free movement of parts
	Tight bottom mirror (E1)	Loosen adjusting pivot MS62
	Dirt between pivots (E1)	Clean pivots
	Tight prism assembly	Provide for free movement of prism assembly
	Weak spring tension on bottom mirror or prism assembly	Increase tension of bottom mirror or prism spring
Circle not in center of eyepiece	Top mirror not set at correct angle	Set to correct angle

NOTE:

Some adjustment for lateral image on the prism range finder may be had by gently prying the prism assembly from the side. On the E1 range finder adjustments can be made by rotating the bearing bracket, E107, before tightening the two screws MS17-4 holding that part.

ALLOWANCES:
UNLESS OTHERWISE SPECIFIED
DECIMALS + .002 FRACTIONS + .006

PART	NAME	Q	PART	NAME	Q	PART	NAME	Q
E-100-1A	MOUNTING BLOCK	1	E-120	SPRING, COMPENSATOR	1	MS-64	SET SCREW #0-80 X 5/64	1
E-101-1B	HOUSING	1	E-121	SPRING, CAM	1	MS-66	PARK. KAL. SCR. #1 X 3/16	2
E-102-1	PLATE, MOUNTING	1	E-122-1	SPRING, EYEPIECE	3	MS-67	FIL. HD. SCR. #590 X 3/16	1
E-103	BAR, FULCRUM	1	E-122-3	WASHER, FLAT, SPLIT	1	MS-72	SPEC. HD. SCR. #590 X 3/32	1
E-104	COMPENSATOR	1	E-123	SHAFT, CAM	1	MS-73-1	SPECIAL SCR. #8-32 X 19/32	1
E-105-1	LEVER, PRISM	1	E-124	HOLDER, BATTERY	1	MS-102	OVAL HD. SCR. #1-64 X 1/4	3
E-105-2	HOLDER, PRISM	1	E-125	PRISM	1	MS-87-1	ADJUST. SCREW #1-72	1
E-105-4	SHIM, PRISM	1	E-126	PLATE, PRESSURE	1			
E-106	LEVER, SEGMENT	1	E-127	SPRING, RETAINER	1			
E-107-1A	STUD, PRISM LEVER	1						
E-108-1	INDICATOR	1				P-7	PIN, .0625 X 5/32	2
E-109	FULCRUM, BAR ADJUST.	1				P-27	PIN, CAM SPRG. .0625 X 7/64	1
E-110	CAM	1	G-43	MIRROR, SEMI-TRANSPAR.	1	P-28	PIN, COMPEN. .052 X 3/32	1
E-111	SUPPORT, TOP MIRROR	1				P-29	PIN, COMP. SPRG. .0625 X 13/64	1
E-111-5	CLIP, TOP MIRROR	2	MS-4	SHOULDER SCR. #0-80 X 5/64	1			
E-112	LEVER, LAT. ADJUSTMENT	1	MS-5-1	SHOULDER SCR. #0-80 X 1/16	1	R-19	RIVET, 3/32 X 7/32 FLAT HD.	3
E-113	GUIDE, COMPENSATOR	1	MS-6	BIND. HD. SCR. #0-80 X .063	2			
E-114-1	EYEPIECE, UPPER FRONT	2	MS-17-1	FIL. HD. SCR. #593 X 5/64	5			
E-115	COVER	1	MS-17-2	SPEC. HD. SCR. #593 X 5/64	1	RA-302-	WRENCH	1
E-116-1	EYEPIECE, REAR	1	MS-17-4	FIL. HD. SCR. #593 X 1/8	5			
E-117	DISC, GLASS	3	MS-27	OVAL HD. SCR. #1 X 3/8 WOOD	8			
E-117-1	DISC, GLASS	1	MS-44	RD. HD. SCR. #1-72 X 7/32	1	W-32-1	WASHER .032 X 5/32	1
E-119-1	SPRING	1	MS-63	SHOULDER SCR. #0-80 X 5/64	1			

THE KALART COMPANY INC. STANFORD CONN

RANGE		FINDER		E-2	
CHANGES	DATE	MATERIAL	PART		
				QUAN	
				PLATING	
				SCALE	
DRAWN BY BC		CHECKED		DATE 1-17-46	

E-2 RANGE FINDER

ASSEMBLING CHART

- 8 - MS-27 #1 x 3/8 Oval Head Wood Screw
 2 - MS-89 #1 x 1/4 Reed & Prince Screw
 1 - RA-302-1 Wrench
 3 - MS-102 #1-64 x 1/4 Oval Head Screw

- 1 - A-500 Complete Housing Assembly
- 1 - E-115 Cover
 - 1 - E-117 Disc - Glass
 - 1 - E-117-1 Disc - Glass
 - 1 - E-122-1 Spring, Eyepiece
 - 1 - MS-5-1 #0-80 x 1/16 Shoulder Screw
 - 1 - MS-73-1 #8-32 x 19/32 Lateral Adjustment Screw
 - 1 - MS-82 #2-56 x 1/8 Fillister Head Screw (Special - Graflex)

- 2 - A-233a Eyepiece, Front, Assem.
- 1 - E-114-1 Eyepiece, Upper Front
 - 1 - E-117 Disc - Glass
 - 1 - E-122-1 Spring, Eyepiece

- 1 - A-504 Housing, Sub Assem.
- 1 - E-124 Holder, Battery
 - 3 - R-33 Rivet, 3/32 x 1/4 Flat Head

- 1 - A-503 Housing & Rear Eyepiece Assem.
- 1 - E-101-1B Housing
 - 1 - E-116-1 Eyepiece, Rear
 - 1 - E-122-3 Washer, Flat, Split

- 1 - MS-44 #1-72 x 7/32 Round Head Screw
 1 - MS-81 #1-72 x 15/64 Set Screw (Special - Graflex)

- 1 - E-106 Lever, Segment
- 1 - E-113 Guide, Compensator
- 1 - E-119-1 Spring
- 1 - E-126 Plate, Pressure
- 1 - MS-4 #0-80 x 5/64 Shoulder Screw
- 1 - MS-6 #0-80 x .063 Binding Head Screw
- 3 - MS-17-1 #593 x 5/64 A. O. Fillister Head Screw
- 4 - MS-17-4 #593 x 1/8 A. O. Fillister Head Screw
- 1 - MS-63 #0-80 x 5/64 Shoulder Screw

- 1 - A-230-1 Mount. Plate Sub Assembly
- 1 - E-102-1 Mounting Plate
 - 1 - E-107-1A Stud, Prism Lever
 - 1 - MS-6 #0-80 x .063 Binding Head Screw
 - 1 - MS-17-2 #593 x 5/64 Special Head Screw
 - 1 - P-29 Pin, Compensator Spring

- 1 - A-231-1 Fulcrum Bar Assembly
- 1 - E-103 Fulcrum Bar
 - 1 - E-109 Fulcrum Bar Adjustment
 - 1 - MS-87-1 #1-72 Adjusting Screw
 - 1 - W-32-1 Washer, .032 x 5/32

- 1 - A-232-1 Indicator Assembly
- 1 - E-108-1 Indicator
 - 1 - MS-64 #0-80 x 5/64 Set Screw

- 1 - A-234-1A Compensator Assembly
- 1 - E-104 Compensator
 - 1 - E-120 Compensator Spring
 - 1 - P-28 Pin, Compensator

- 1 - A-501 Main Plate Assembly

- 1 - A-235-1 Prism Assembly
- 2 - MS-17-1 #593 x 5/64 A. O. Fillister Head Screw
 - 1 - A-235-1A Prism Lever Assembly
 - 1 - E-105-1 Prism Holder
 - 1 - MS-67 #590 x 3/16 A.O. Fill. Hd. Screw

- 1 - A-235-1B Prism Holder Assembly
- 1 - E-105-2 Prism Holder
 - 1 - E-105-4 Shim
 - 1 - E-125 Prism

- 1 - A-512 Mounting Block & Main Plate Assembly

- 1 - A-245-1 Mirror Assembly
- 1 - G-43 Mirror, Semi-transparent
 - 1 - A-245-2 Bracket Assem.
 - 1 - E-111-1 Support, Top Mirror
 - 1 - MS-72 #590 x 3/32 Spec. Hd. Screw

- 1 - A-245-1A Lever Assem.
- 1 - E-112 Lateral Adj. Lever
 - 1 - MS-17-4 #593 x 1/8 A. O. Fillister Head Screw

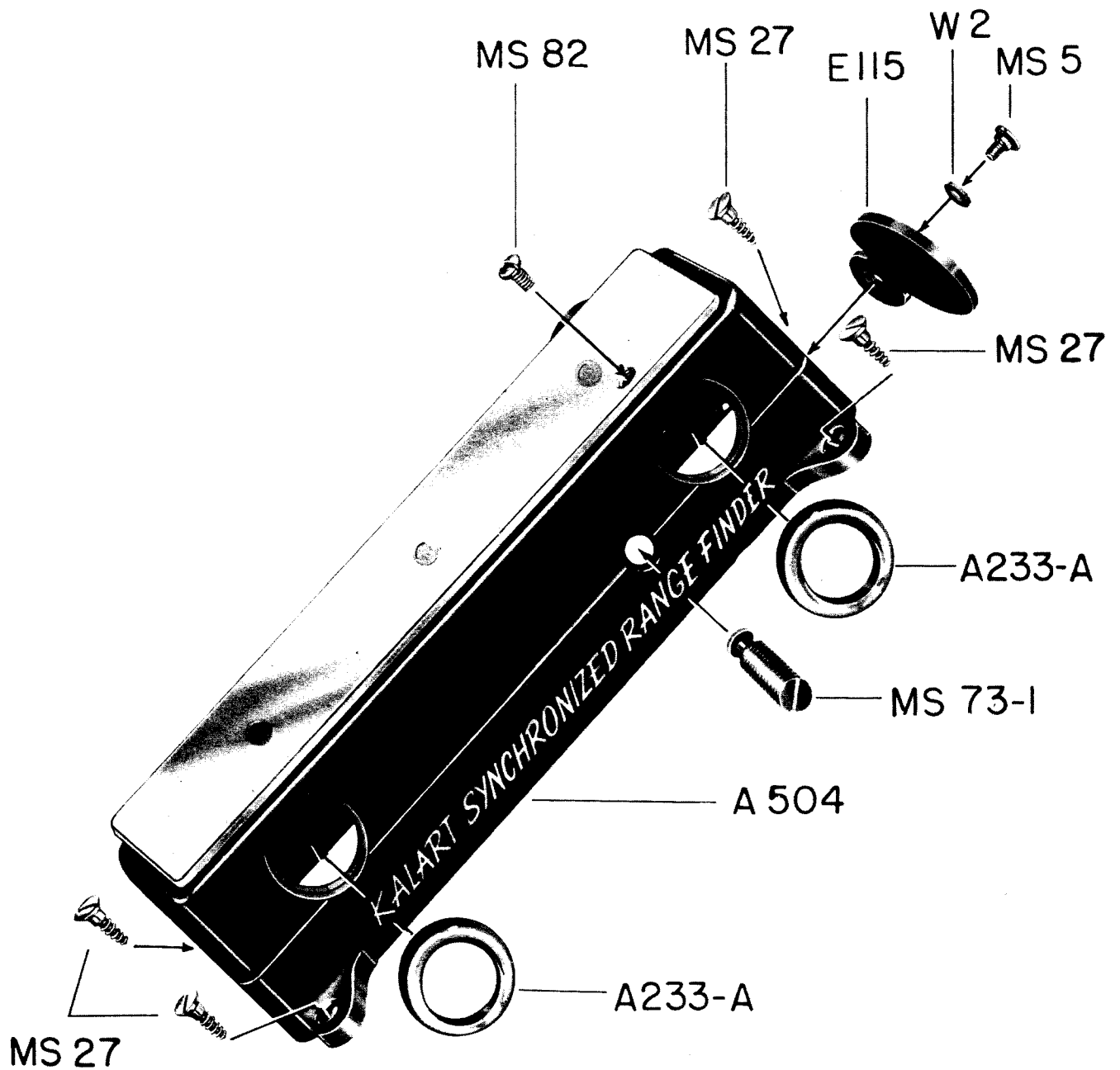
- 1 - A-244 Mount. Block Sub Assem.
- 1 - E-100-1 Mounting Block
 - 2 - P-7 Pin

- 1 - A-502 Mounting Block Assembly
- 1 - A-248 Cam Shaft Assembly
 - 1 - E-110 Cam
 - 1 - E-123 Cam Shaft
 - 1 - P-27 Pin

- 1 - E-121 Cam Spring
- 1 - E-127 Retainer Spring, Lock

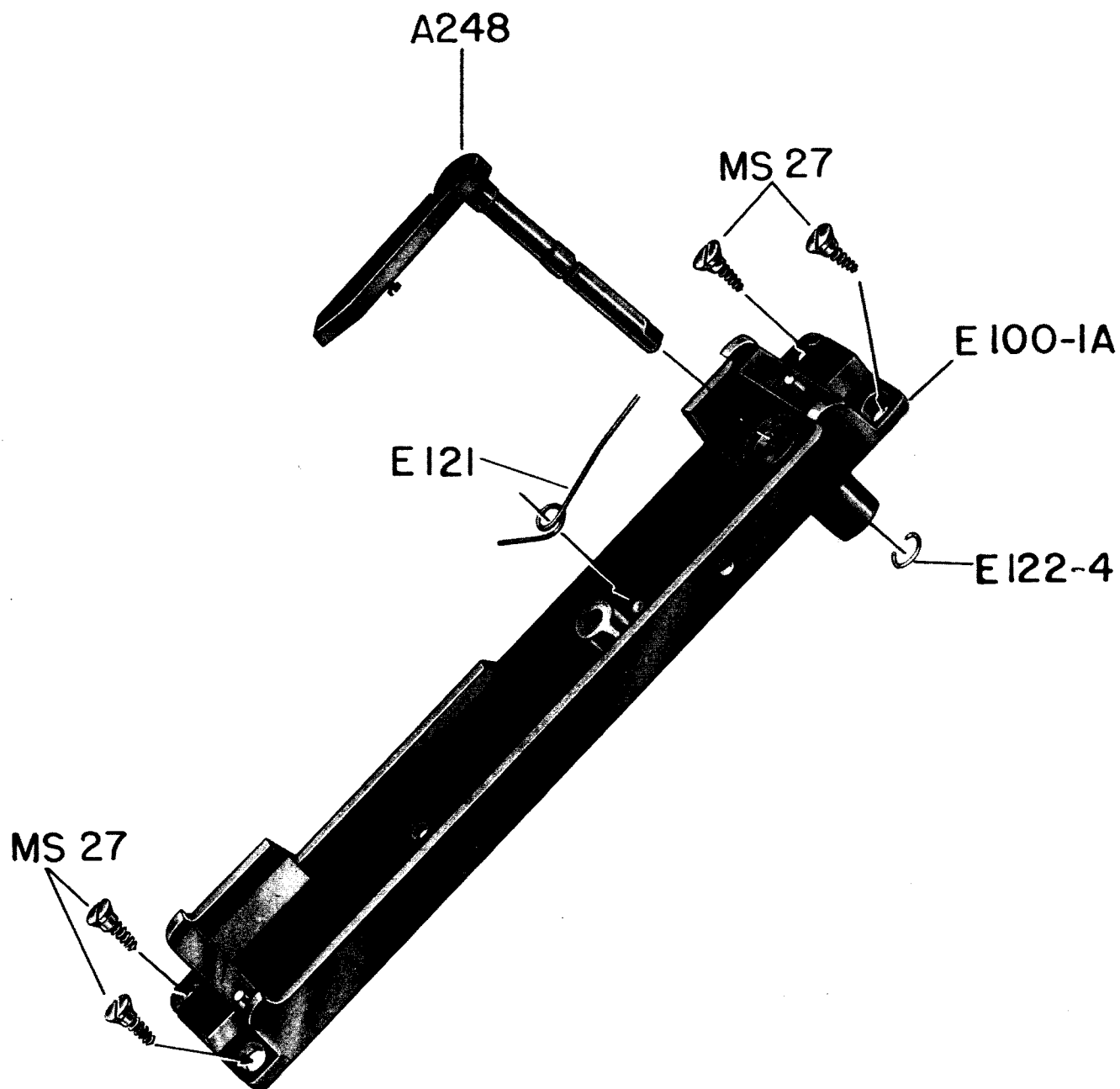
- A-266 Eyepiece, Rear, Assem. Field Replacement Assembly

- 1 - E-116-1 Eyepiece, Rear
- 1 - E-117 Disc - Glass
- 1 - E-122-1 Spring, Eyepiece
- 1 - E-122-3 Washer, Split, Flat



KALART Synchronized Prism Range Finder

A500



***KALART Synchronized Prism* Range Finder**

A 502

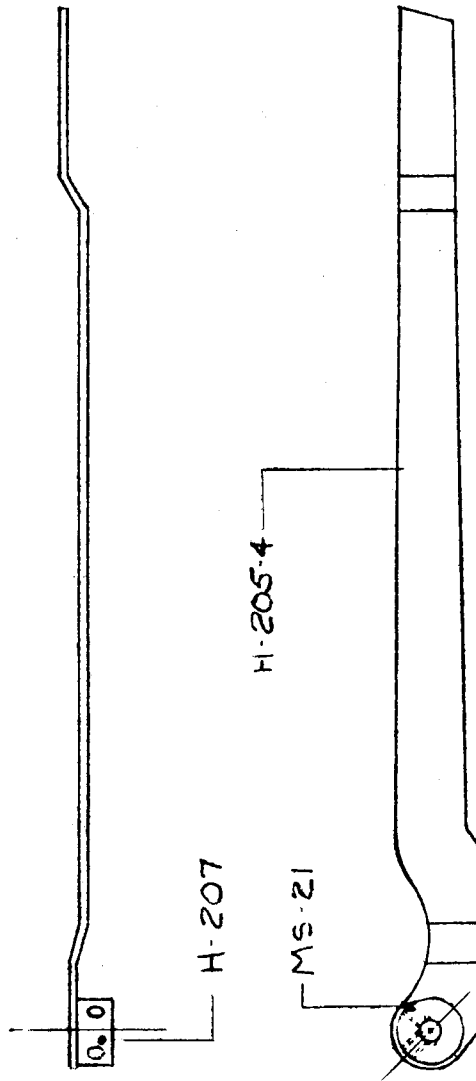
3

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STAMFORD, CONN.



PART	NAME	Q
H-205-A	ARM	1
H-207	HUB	1
MS-21	"5-40 x 1/8 BUSHING SET SCW	1

ALBANY, N.Y. 12205 K&E CO., N.Y. 8

A-6-2

TOLERANCE
UNLESS SPECIFIED
DECIMALS $\pm .002$
FRACTIONS $\pm .006$
ANGLE $\pm 1^{\circ}$

NOTES

$$\underline{3\frac{1}{4} \times 4\frac{1}{4}}$$

ANNIVERSARY
CAMERA

PERTAINS TO

SALES #	AGC
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99	99
100	100

RANGE FINDER ARM ASSEMBLY

REVISION	DATE	BY	MATERIAL
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FINISH

SCALE 1: }

12-7-45

12-7-45

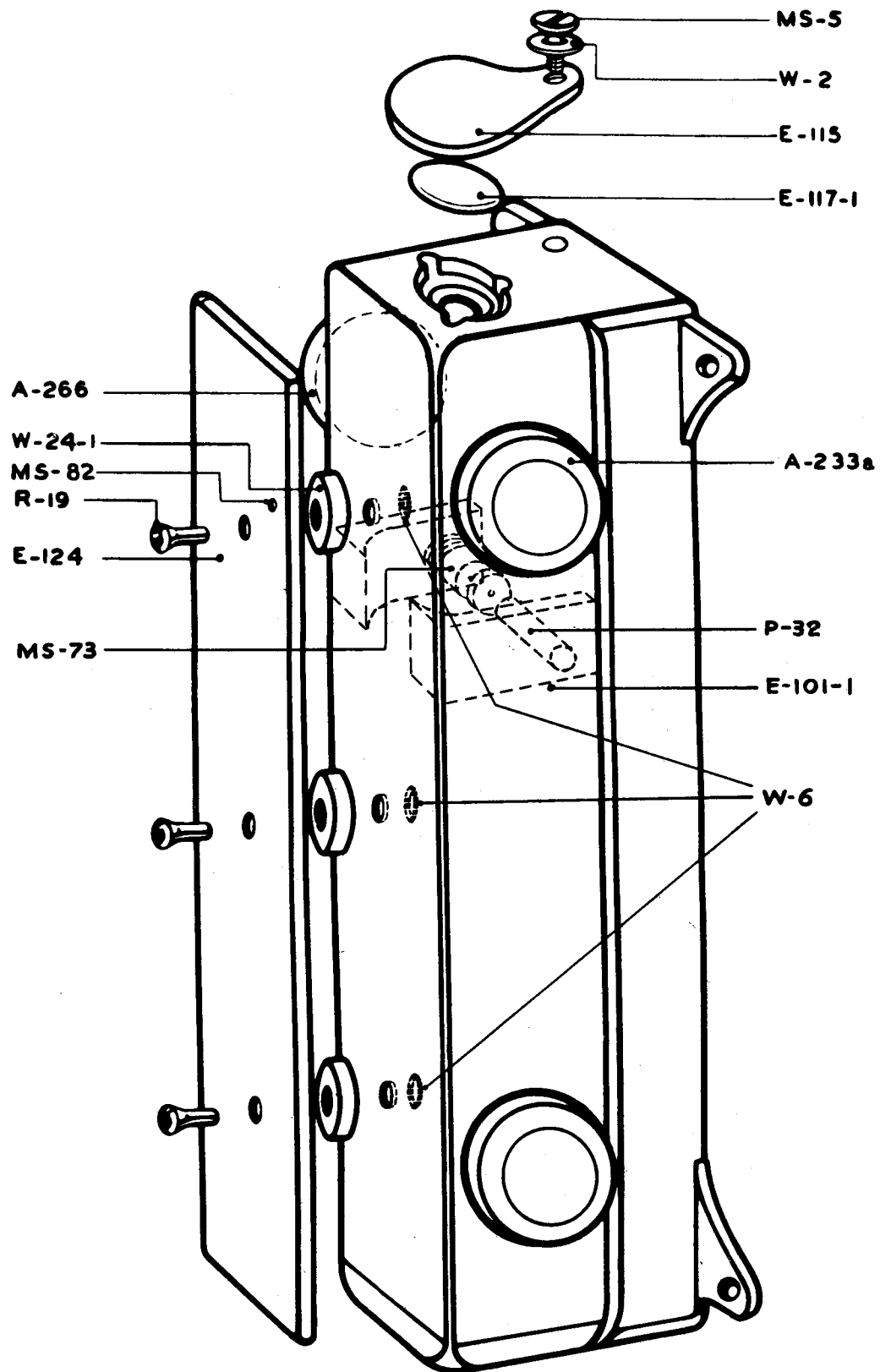
12-7-45

KALART RANGE FINDER MODEL E-1 COMPLETE PARTS LIST

<u>Part No.</u>	<u>Part Name</u>	<u>Drawing No.</u>	<u>Number Required</u>
A-267	RANGEFINDER		1
A-268	<u>Housing Assembly</u>	1	1
A-266	Eyepiece Assembly, Rear	1	1
E-116-1	Eyepiece, Rear	1	1
E-117	Disc, Glass	1	1
E-122	Spring, Eyepiece	1	1
A-233a	Eyepiece Assembly, Front	1	2
E-114	Eyepiece, Front	1	1
E-117	Disc, Glass	1	1
E-122	Spring, Eyepiece	1	1
MS-73	Screw, Lateral Adjusting	1	1
E-124	Plate, Battery Case Mounting	1	1
MS-82	Stop Screw	1	1
E-101-1	Housing	1	1
P-32	Pin, Stop	1	1
R-19	Rivet	1	3
W-24-1	Spacer	1	3
E-117-1	Disc, Glass	1	1
E-122-3	Ring, Retaining	1	1
W-6	Spacer	1	3
E-115	Cover	1	1
MS-5	#O-80 Shoulder Screw	1	1
W-2	Washer	1	1
A-247	<u>Block Assembly Mounting</u>	4	1
A-232	Indicator Assembly	4	1
E-108	Indicator	4	1
MS-64	Screw - Headless	4	1
A-248	Cam Assembly	4	1
E-123	Shaft, Cam	4	1
P-27	Pin, Cam Spring	4	1
E-110	Cam	4	1
E-122-4	Retaining Spring	4	1
E-100	Block Mounting	4	1
E-118	Spring, Indicator	4	1
P-7	Pin Guide	4	2
MS-17-1	Screw - Filister Head	4	1
E-121	Spring Cam	4	1
A-230	<u>Plate Assembly Mounting</u>	2	1
A-245-1	Mirror Assembly, Top	2	1
G-43	Mirror, Semi-transparent	2	1
E-111	Support, Top Mirror	2	1
E-111-3	Mirror Clip, Top	2	1
E-111-4	Mirror Clip, Top	2	1
MS-72	Screw, Special Head	2	1
A-235	Mirror Assembly, Bottom	2	1
G-42	Mirror, Opaque	2	1
E-111-2	Mirror Clip, Bottom	2	2
E-105	Lever, Bottom Mirror	2	1
MS-67	Screw - Filister Head	2	1

KALART MODEL E-1 RANGE FINDER COMPLETE PARTS LIST

<u>Part No.</u>	<u>Part Name</u>	<u>Drawing No.</u>	<u>Number Required</u>
A-231	Bar Assembly, Fulcrum	3	1
E-103	Bar - Fulcrum	3	1
E-109	Bar Adjustment Fulcrum	3	1
MS-31	Screw - Hexagonal Head	3	1
W-2	Washer	3	1
A-234a	Pin Assembly, Compensator	3	1
E-104	Compensator	3	1
P-28	Pin Compensator	3	1
MS-17-1	Screw - Filister Head	2,4	3
E-102	Plate, Mounting	2	1
E-112	Lever, Lateral Adjusting	2	1
E-107	Bracket, Bearing	2	1
E-119	Spring, Bottom Mirror	2	1
MS-17-4	Screw - Filister Head	2,3	4
MS-62	Screw - Set	2	2
MS-6	Screw - Binding Head	3	1
P-29	Pin, Compensator Spring	3	1
E-120	Spring, Compensator	3	1
E-113	Guide, Compensator	3	1
E-106	Lever, Segment	3	1
MS-4	Screw - Shoulder	3	1
MS-17-2	Screw - Special Head	3	1
MS-63	Screw - Shoulder	3	1
MS-44	Screw - Round Head	2	1
W-2	Washer	2	1
RA-302-1	Key Combination		1

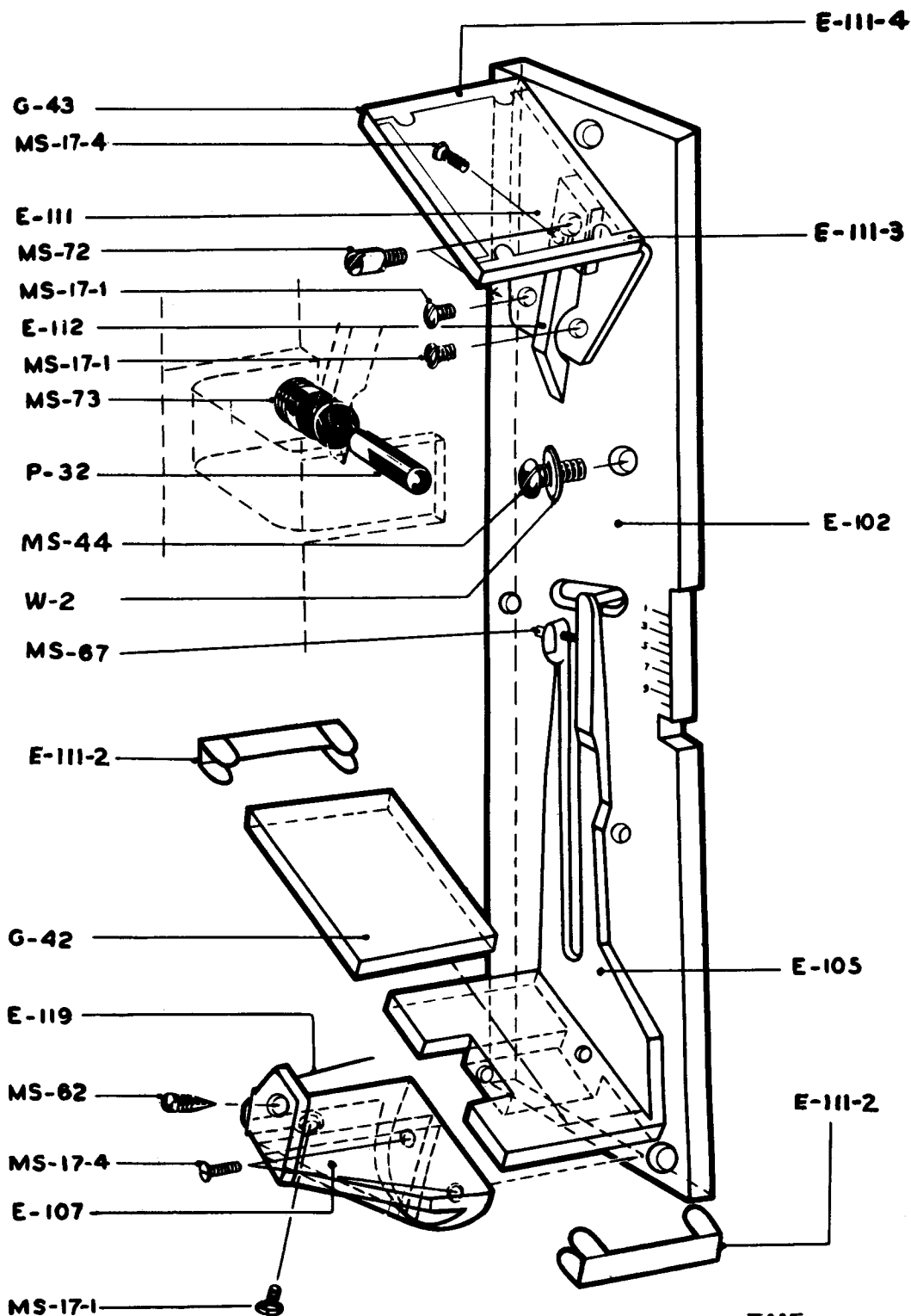


RANGE FINDER E-1

THE
KALART
COMPANY Inc.

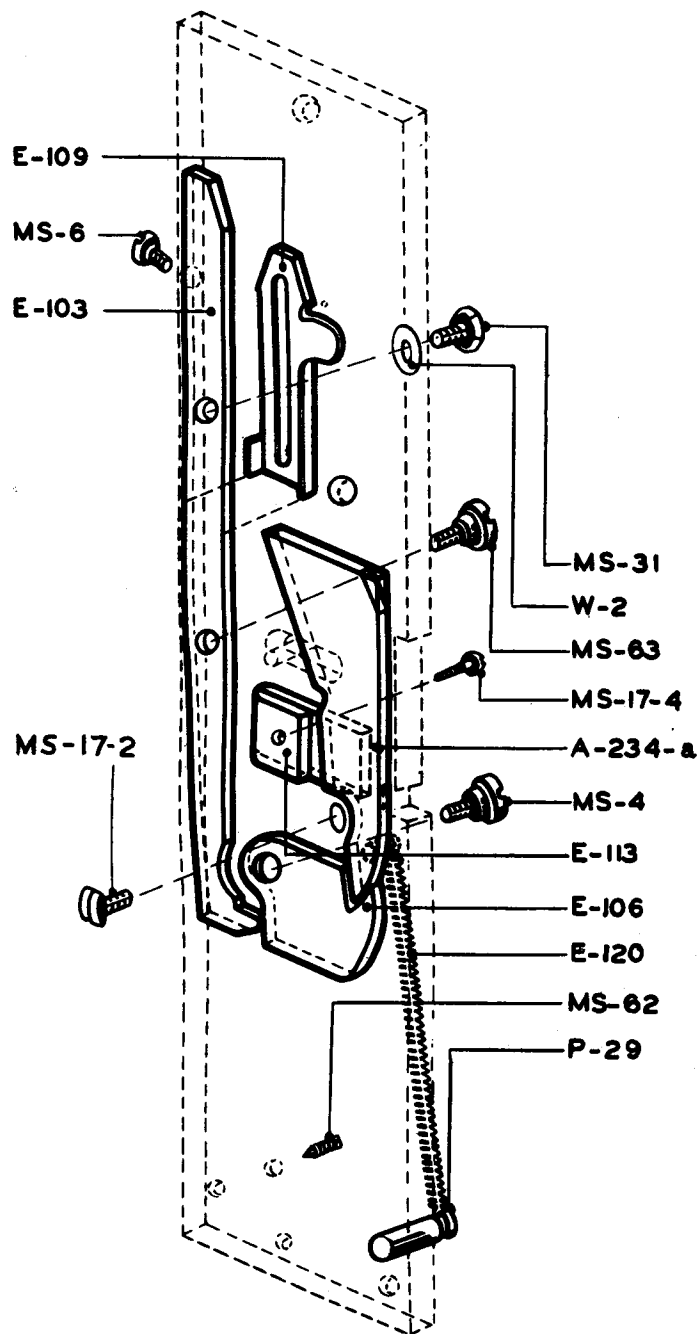
STAMFORD, CONN.

DRAWING NO. 1



RANGE FINDER E-1

THE
KALART
 COMPANY Inc
 STAMFORD, CONN.

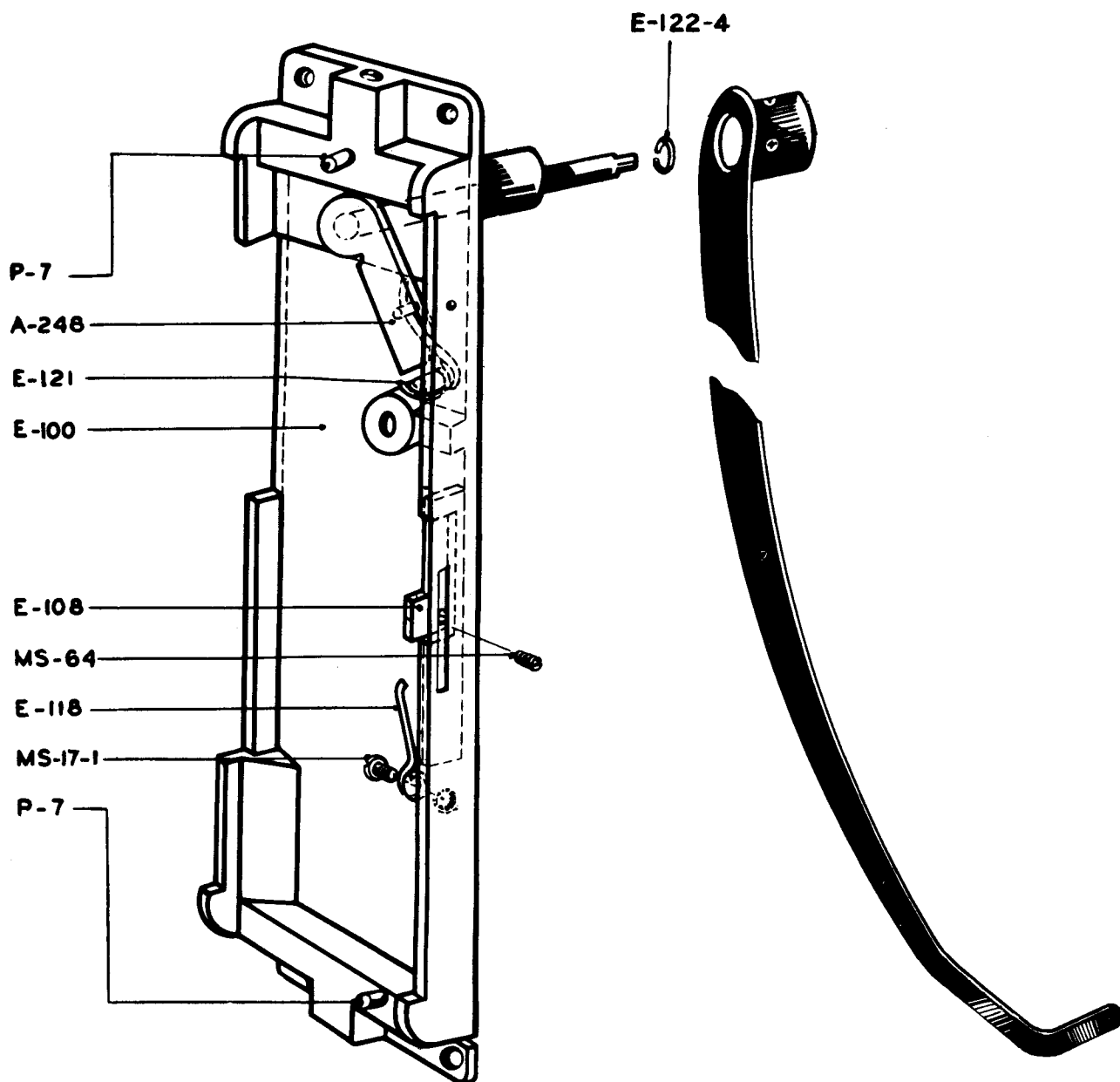


RANGE FINDER E-1

DRAWING NO. 3

THE
KALART
COMPANY Inc.

STAMFORD, CONN.

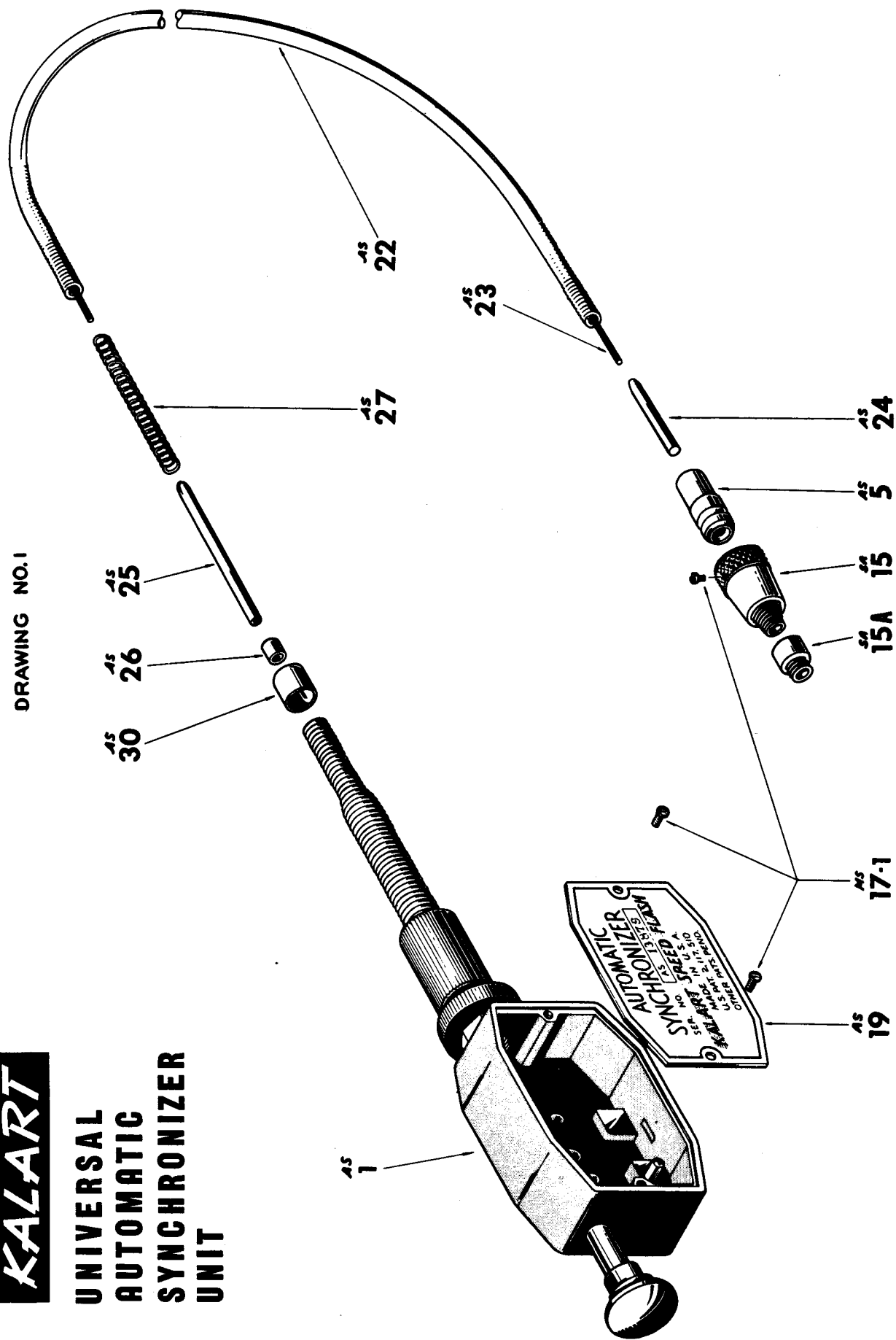


RANGE FINDER E-1

KALART

**UNIVERSAL
AUTOMATIC
SYNCHRONIZER
UNIT**

DRAWING NO.1

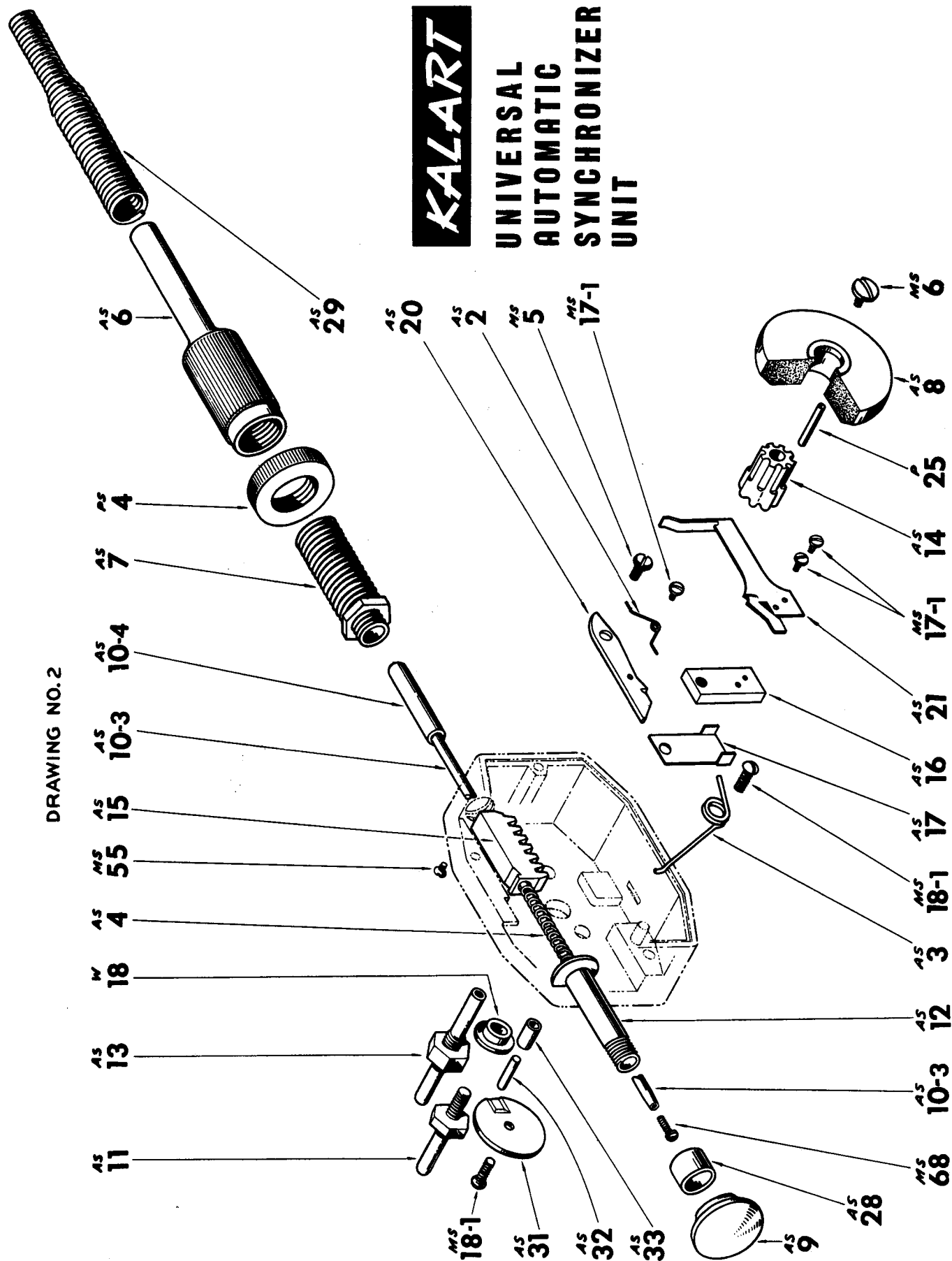




DRAWING NO.2

KALART

UNIVERSAL AUTOMATIC SYNCHRONIZER UNIT



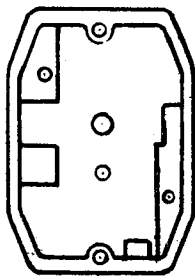
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ALLOWANCES:
UNLESS OTHERWISE SPECIFIED
DECIMALS = .002 FRACTIONS = .006



AS-1



AS-2



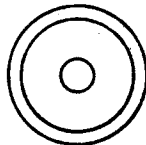
AS-3



AS-4



AS-7



AS-8



AS-9



AS-10



AS-11



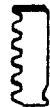
AS-12



AS-13



AS-14



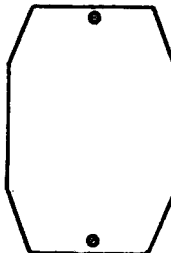
AS-15



AS-16



AS-17



AS-19



AS-20



AS-21



AS-31



AS-28



AS-32



P-25



PS-4

NO.	NAME	Q	NO.	NAME	Q	NO.	NAME	Q
AS-1	HOUSING	1	AS-13	COMBINATION PLUG	1	AS-33	ADJ. PIN SLEEVE	1
2	PAWL SPRING	1	14	PINION	1	W-36	WASHER	1
3	PLUNGER CONT. SPR.	1	15	GEAR RACK	1	MS-51	0-80 SHOULDER SCREW	1
4	PLUNGER SPRING	1	16	CONTACT SHOE	1	6	0-80 FILL. HD.	1
7	INNER ADJ. SLEEVE	1	17	CONT. SHOE INSULATION	1	17-1	593X5/64 FILL. HD.	4
8	FLY WHEEL	1	19	COVER	1	218-1	1-72X5/32 BND. HD.	2
9	PLUNGER CAP	1	20	PAWL	1	55	590X3/32 FLAT HD.	1
10	CABLE REL. PIN	1	21	CONTACT SPRING	1	88	590 SCREW.	1
13-1	COMB. PLUG	1	28	RUBBER CUSHION	1	P-25	.040 D. X.295	1
11	PLUG	1	31	ADJUSTMENT DISC.	1	PS-4	LOCK NUT	1
12	PLUNGER SLEEVE	1	32	ADJUSTMENT PIN	1	W-18	SHOULDER WASHER	1
						R-24	RIVET .054 X.0626	1

THE KALART COMPANY INC. STANFORD CONN.

AUTOMATIC SYNCHRONIZER

CHANGES	DATE	MATERIAL	PART
1	10-2-45		
2	10-17-45		
			QUAN.
			PLATING
			SCALE

DRAWN BY T.O. CHECKED DATE 2-2-45

AUTOMATIC SYNCHRONIZER ASSEMBLING CHART

AS-291
Complete
Automatic
Synchronizer
Assembly

1 - AS-1	Housing
1 - AS-3	Plunger Contact Spring
1 - AS-7	Inner Adjusting Sleeve
1 - AS-9	Plunger Cap
1 - AS-11	Plug
1 - AS-13	Combination Plug
1 - AS-16	Contact Shoe
1 - AS-17	Contact Shoe Insulation
1 - AS-19	Cover
1 - AS-21	Contact Spring
1 - AS-28	Rubber Cushion
1 - AS-31	Adjustment Disc
1 - AS-32	Adjustment Pin
1 - AS-33	Adjustment Pin Sleeve

1 - MS-5-1	#0-80 Shoulder Screw
1 - MS-6	#0-80 x .063 Binding Head Screw
4 - MS-17-1	#593 x 5/64 Fillister Head Screw
2 - MS-18-1	#1-72 x 5/32 Binding Head Screw
1 - MS-55	#590 x 3/32 Flat Head Screw
1 - PS-4	#1/4-20 Lock Nut
1 - W-36	Washer, .032 x 3/16
1 - W-18	Washer, Shoulder

1 - A-292
Plunger &
Rack
Assembly

1 - AS-4	Plunger Spring
1 - AS-10	Cable Release Pin
1 - AS-12	Plunger Sleeve
1 - AS-15	Gear Rack
1 - MS-88	#590 x 3/32 Fillister Head Screw

1 - A-293
Pawl Assem.

1 - AS-2	Pawl Spring
1 - AS-20	Pawl
1 - R-24	Rivet, .054 dia. x .0625

1 - A-294
Flywheel
Assembly

1 - AS-8	Flywheel
1 - AS-14	Pinion
1 - P-25	Pin, .1040 dia. x .295

Automatic Synchronizer Assembly Chart

AS-291
Complete
Automatic
Synchronizer
Assembly

- 1 - AS-33
- 1 - AS-32
- 1 - AS-31
- 1 - AS-28
- 1 - AS-21
- 1 - AS-19
- 1 - AS-17
- 1 - AS-16
- 1 - AS-13
- 1 - AS-11
- 1 - AS-9
- 1 - AS-7
- 1 - AS-3
- 1 - AS-1

- Adjustment Pin Sleeve
- Adjustment Pin
- Adjustment Disc
- Rubber Gasket
- Contact Spring
- Cover
- Contact Shoe Insulation
- Contact Shoe
- Combination Plug
- Plug
- Plunger Gap
- Inner Adjusting Sleeve
- Plunger Contact Spring
- Housing

- 1 - W-18
- 1 - W-36
- 1 - P-4
- 1 - MS-25
- 2 - MS-18-1
- 1 - MS-17-1
- 1 - MS-6
- 1 - MS-5-1

- Washer, Shoulder
- Washer, .032 x 3/16
- 1/4"-20 Lock Nut
- #290 x 3/32 Flat Head Screw
- #1-12 x 5/32 Binding Head Screw
- #293 x 5/32 Phillips Head Screw
- #0-30 x .063 Binding Head Screw
- #0-30 Shoulder Screw

1 - A-292
Plunger &
Back
Assembly

- 1 - MS-88
- 1 - AS-15
- 1 - AS-12
- 1 - AS-10
- 1 - AS-4

- Head Screw
- #290 x 3/32 Phillips
- Gear Rack
- Plunger Sleeve
- Cable Release Pin
- Plunger Spring

1 - A-293
Pawl Assembly

- 1 - R-24
- 1 - AS-20
- 1 - AS-2

- Rivet, .054 dia. x .0625
- Pawl
- Pawl Spring

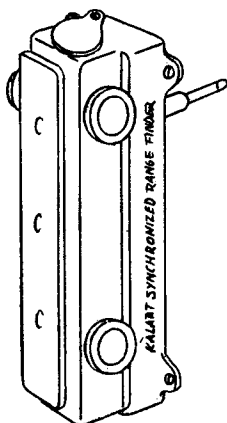
1 - A-294
Flywheel
Assembly

- 1 - P-25
- 1 - AS-14
- 1 - AS-3

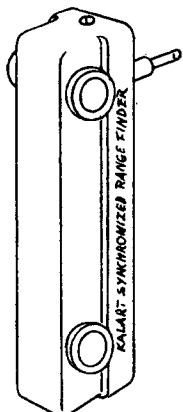
- Pin, 1040 dia. x .295
- Pinion
- Flywheel

RANGE FINDERS AND ACCESSORIES

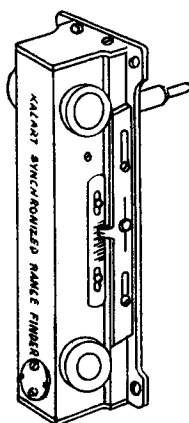
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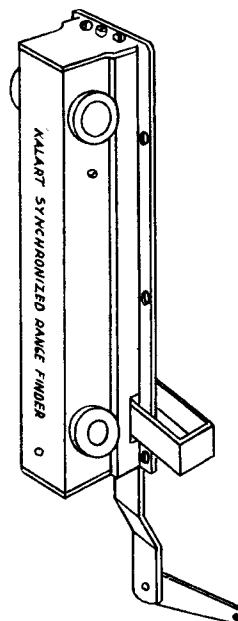
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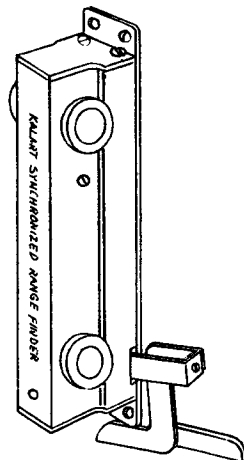
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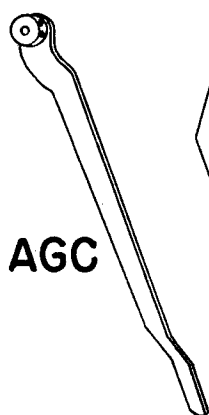
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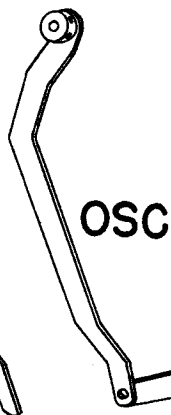
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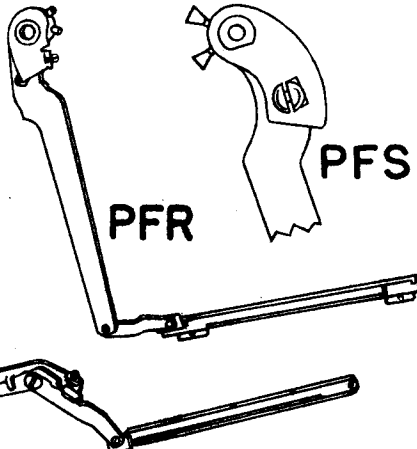
COUPLINGS



AGC



OSC



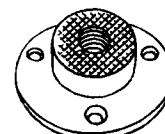
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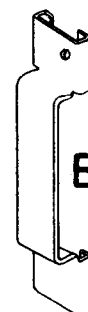
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RAF

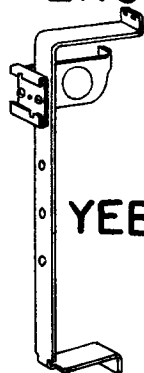


B 40

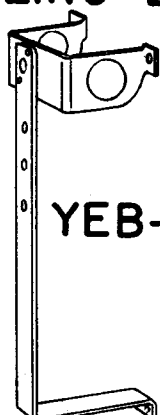


BSA

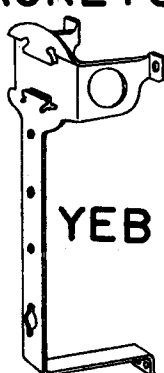
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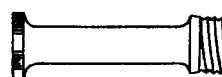
YEB-2



YEB-1



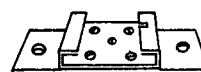
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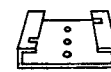
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RETS

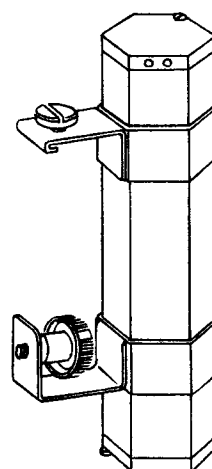


MSS

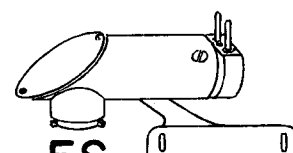


USS

FOCUSPOT



FSB



FS



FB2

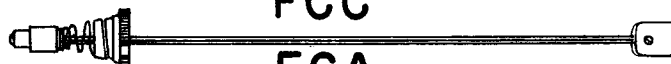


FB 3

MISCE. CORDS



FCC



FCA



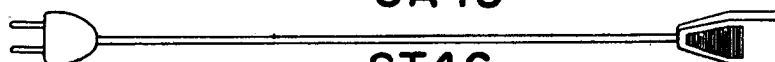
PU3-1



SA44



SA45



ST46

SYNCHRONIZERS AND ADAPTERS

SYNCHRONIZERS

ASU Automatic Synchronizer Unit, (Universal model has small dial on back)
MSU Micromatic Synchronizer Unit
PSU Passive Synchronizer Unit
PSW Passive Synchronizer Unit for Wollensak Shutters (not illustrated)
JSU Junior Synchronizer Unit
SIS Sistogun

AUTOMATIC SYNCHRONIZER COUPLING ENDS

ACK Coupling for Compur and Kodak shutters
ARA Coupling for the Automatic Rolleiflex (not illustrated)
ARC Coupling for the Standard Rolleiflex and Rolleicord, Ikoflex, Superb and Brilliant
AWC Coupling for Wollensak Shutters
ABC Coupling (ARC with No. 4 fitting) for Bantam F 4.5 and F 5.6 (not illustrated)

AUTOMATIC SYNCHRONIZER FITTINGS

#0 Long tapered fitting, Compur
#1 Short tapered fitting, Compur
#2 Short straight fitting, Kodak
#4 Long straight fitting, Kodak
#3 No. 3 bushing, converts tapered thread to straight thread

AUTOMATIC SYNCHRONIZER ADAPTERS

ACA Adapter for Contax 1, Contaflex and Dekrullo Nettel
ACA-2 Adapter for Contax 11 and 111, Nettax and Super Nettel
ALA Adapter for Leica and Perfex (pre-war models)
AAA Adapter for Argus C-2 (serial number below 47,201)

PASSIVE SYNCHRONIZER ADAPTERS

PWA Adapter for Argoflex and Ciroflex with Alphax shutters, and Ansco Viking cameras.
PBA Adapter for Bantam (discontinued)
PKA Adapter for Korelle (discontinued)

PERMANENT SHUTTER ADAPTERS

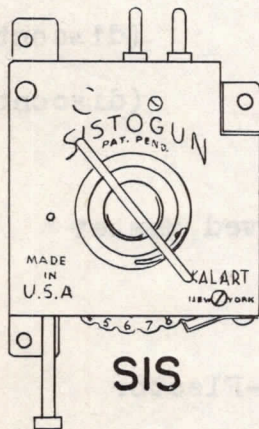
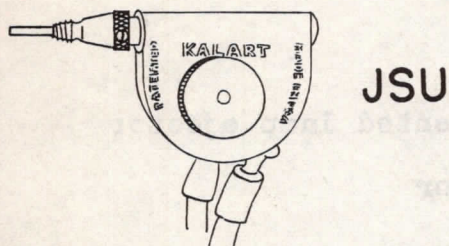
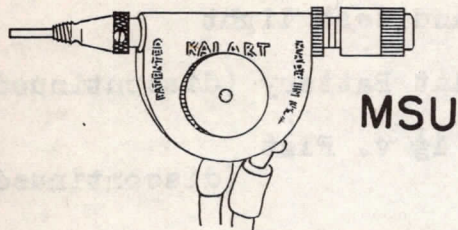
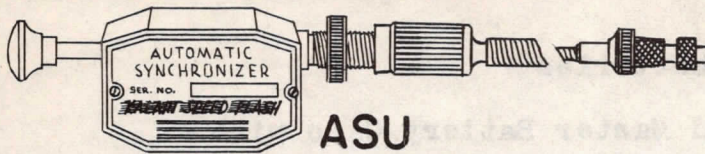
A107 Permanent Shutter Adapter parts for Compur (not available)
A108 Permanent Shutter Adapter parts for Compur Rapid (not available)

BATTERIES

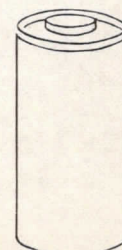
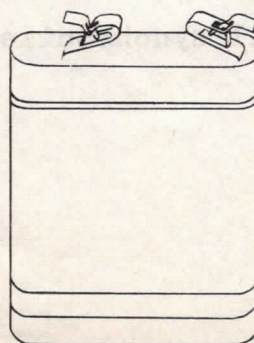
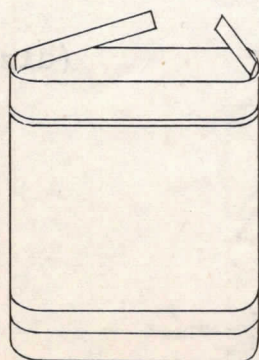
AC4 4.5 volt battery, spring terminals for Standard and Senior Battery Cases
AC4-1 4.5 volt battery, clip terminals for some senior and Multiflash battery cases (not available)
AC4-2 1.5 volt, round, medium cell, size C, for Master and Compak battery cases.

SYNCHRONIZERS AND ADAPTERS

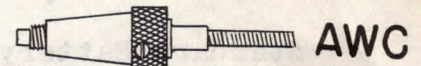
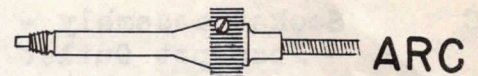
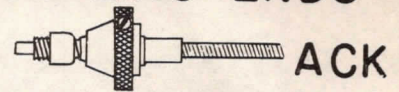
SYNCHRONIZERS



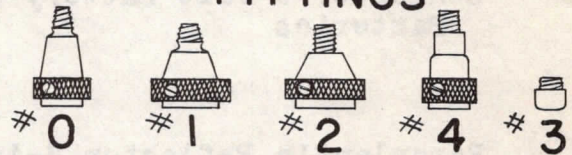
BATTERIES



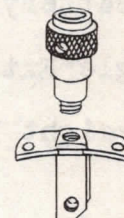
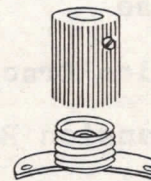
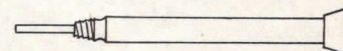
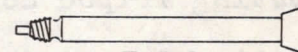
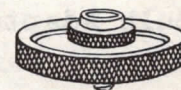
COUPLING ENDS



FITTINGS



ADAPTERS



BATTERY CASES AND ACCESSORIES

MBC	Master Batter Case, with batteries	
MHC	Socket assembly - Improved Master Battery Case with Focuspot Outlet	
CBS	Compak Battery-Flector with batteries and test light	
SBC	Standard Battery Case with one $4\frac{1}{2}$ v. Flat Battery (discontinued)	
Y9V	Senior or 9-volt Battery Case with two $4\frac{1}{2}$ v. Flat Batteries	(discontinued)
A1	Paraplantic Reflector 6-inch	
YKR	Kalart Concentrating Reflector with patented lamp ejector	
YMA	Midget Bulb Adapter with patented ejector	
MEB-1	Encircling Band for Improved Master Battery Case	
MEB	Encircling Band for Master Battery Case, Old Style (discontinued)	
RTSS	Rotating Tripod Screw with slide mount	(discontinued)
RTS	Rotating Tripod Screw with dovetail mount	(discontinued)
YLBS	Angle Extension Bracket, with slide for Improved Master Battery Case	
YLB	Angle Extension Bracket, Old Style	
PEB	Straight Extension Bracket for Compak Battery-Flector	
YSC	Suede Carrying Case for Speed Flash	
SYNCH	Synchroscope, a visual synchronizer tester	(discontinued)