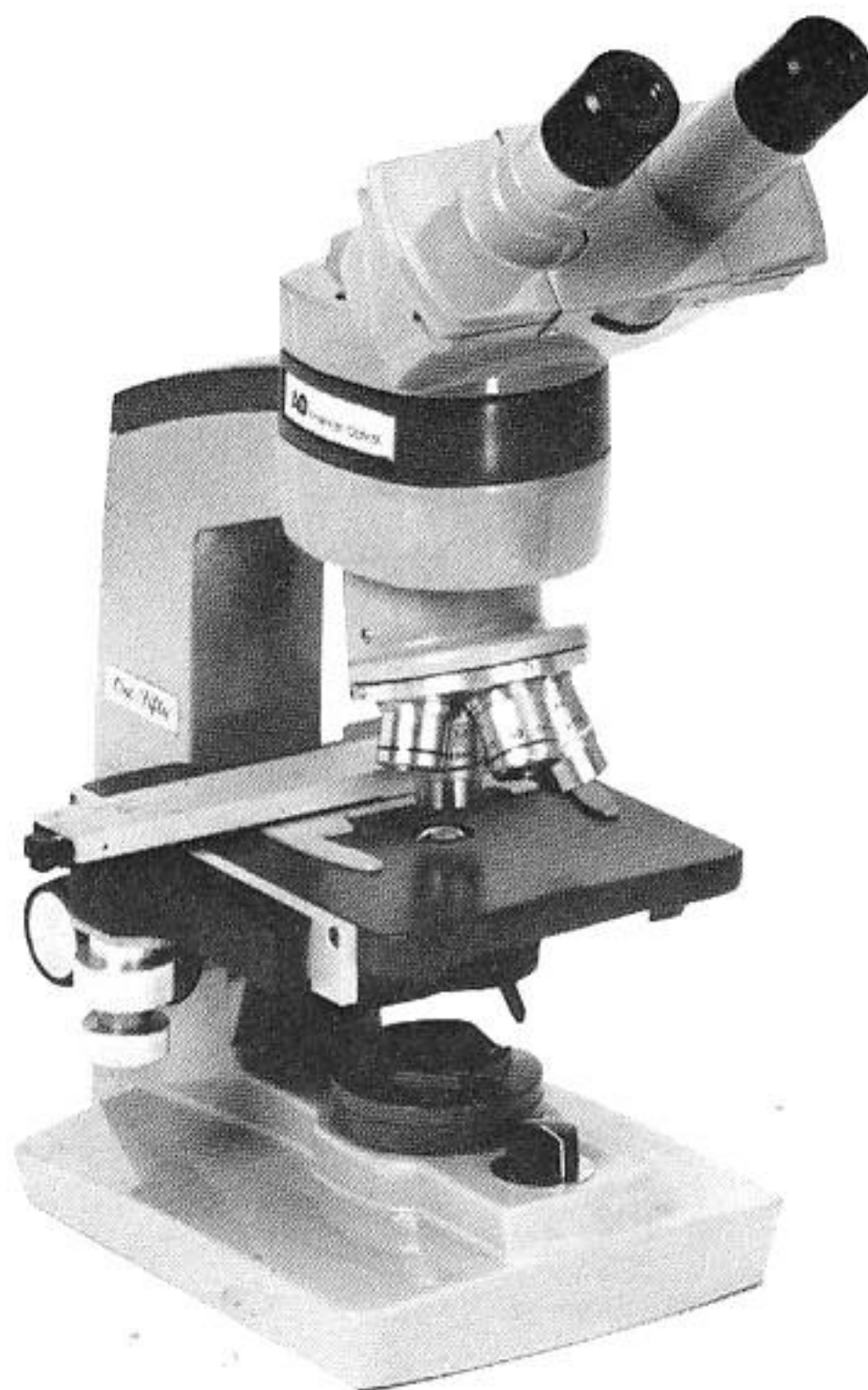


PARTS MANUAL

AO[®] SERIES ONE-FIFTY

Standard Laboratory Microscopes



This Parts Manual does not necessarily contain all changes that have occurred to the subject instrument since the manual's date of issue. It was prepared for the use of American Optical factory-trained service personnel who are kept up to date through a program of Service Bulletins and Training Seminars.

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BUFFALO, NY 14215

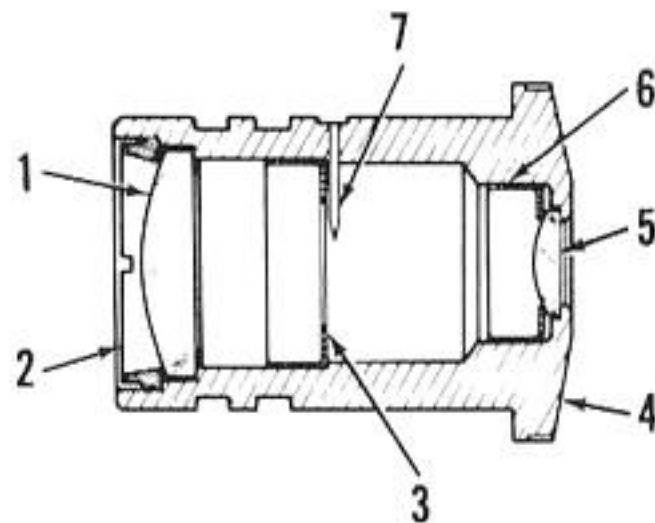
SERIES ONE-FIFTY PARTS LIST

Illustrations are used to identify and locate parts of the equipment and are keyed to the parts list by the use of index numbers. To order a part, identify and locate the part by using the illustrations. Note the index number for the part and cross-reference it to the parts list. The part number, description, and quantity required will be found opposite the index number.

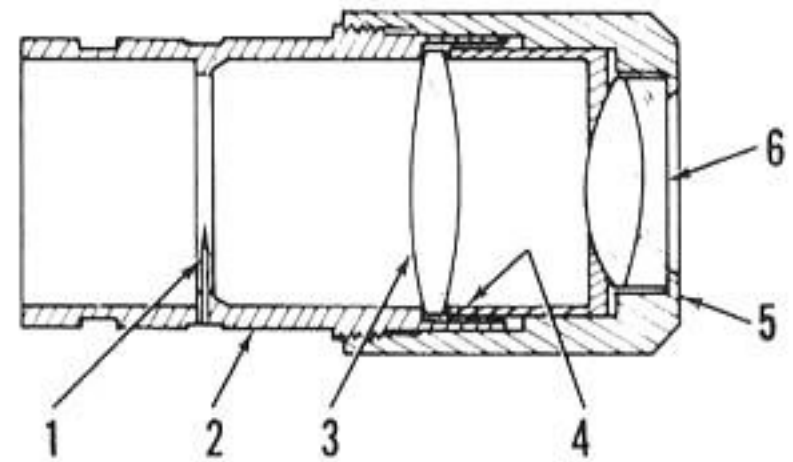
In certain cases, it may be desirable to replace a complete assembly in lieu of overhauling or

rebuilding with detail parts. Where complete assemblies are available, they are indicated by a note in the description column to show which parts they include.

Parts or assemblies should be ordered directly from your authorized AO Supplier or American Optical Corporation. When ordering parts, be sure to include a complete description, part number, and correct quantity.



Cat. No. 139 10X Huygenian Eyepiece
with Pointer



Cat. No. 138 10X Wide Field Eyepiece
with Pointer

Figure 1. Eyepieces

Index No.	Part No.	Description	Qty
	Cat. No. 139	10X Huygenian Eyepiece with Pointer	
1	163-601	Field Lens	1
2	163-3	Retainer	1
3	139-12	Diaphragm	1
4	139-15	Body	1
5	139-605	Front Lens	1
6	139-13	Retainer	1
7	139-14	Pointer	1
	Cat. No. 138	10X Wide Field Eyepiece with Pointer	
1	164-4	Pointer	1
2	138-8	Tube	1
3	63-613	Eyepiece Crown	1
4	138-10	Separator	1
5	138-9	Cap	1
6	63-705	Eyepiece Doublet	1

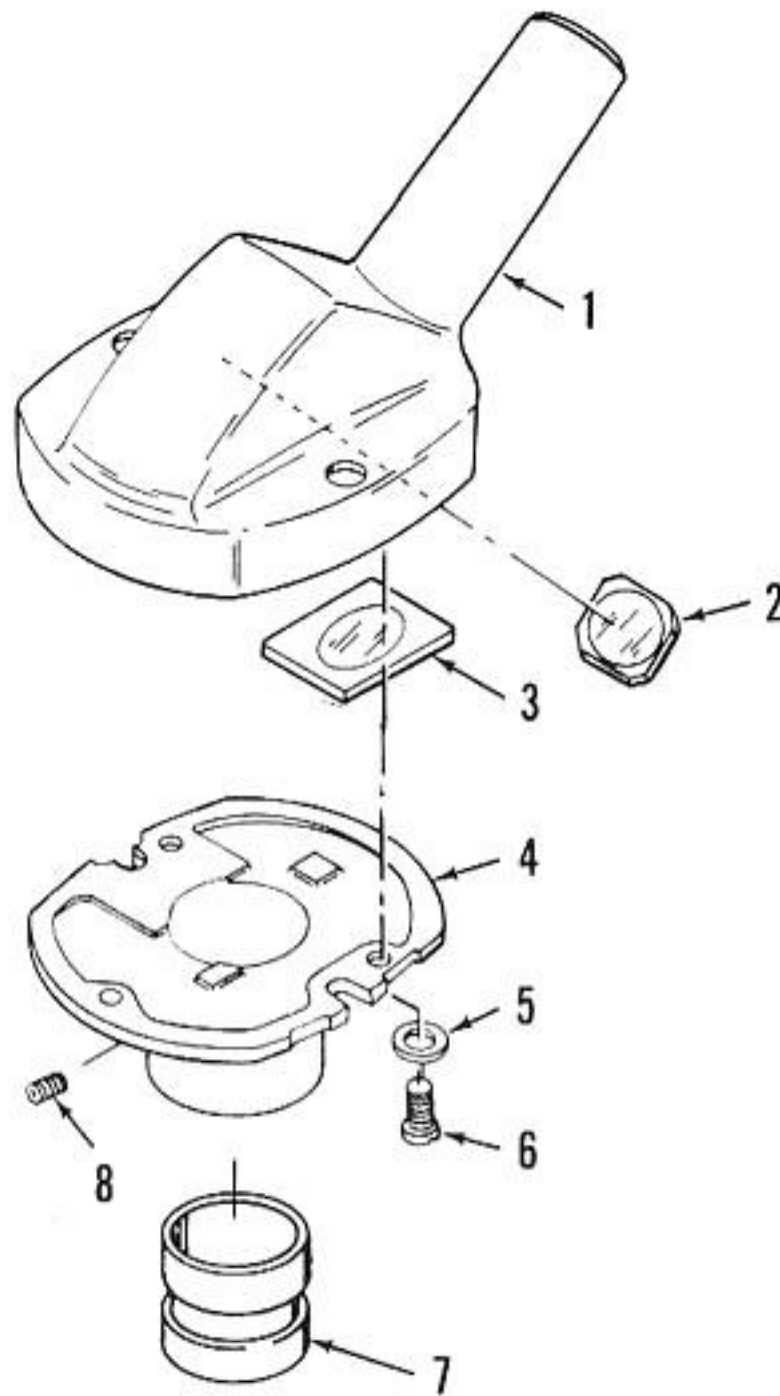


Figure 2. Monocular Body Assembly

Index No.	Part No.	Description	Qty
	Cat. No. 76	Monocular Body	
1	60-396	Body	1
2	63-629	Mirror, top	1
3	60-609	Mirror, lower	1
4	60-271	Plate	1
5	X-51616	Washer	3
6	60-57	Screw	3
7	60-856	Telescope Cell Assembly	1
8	X-25706	Screw	1

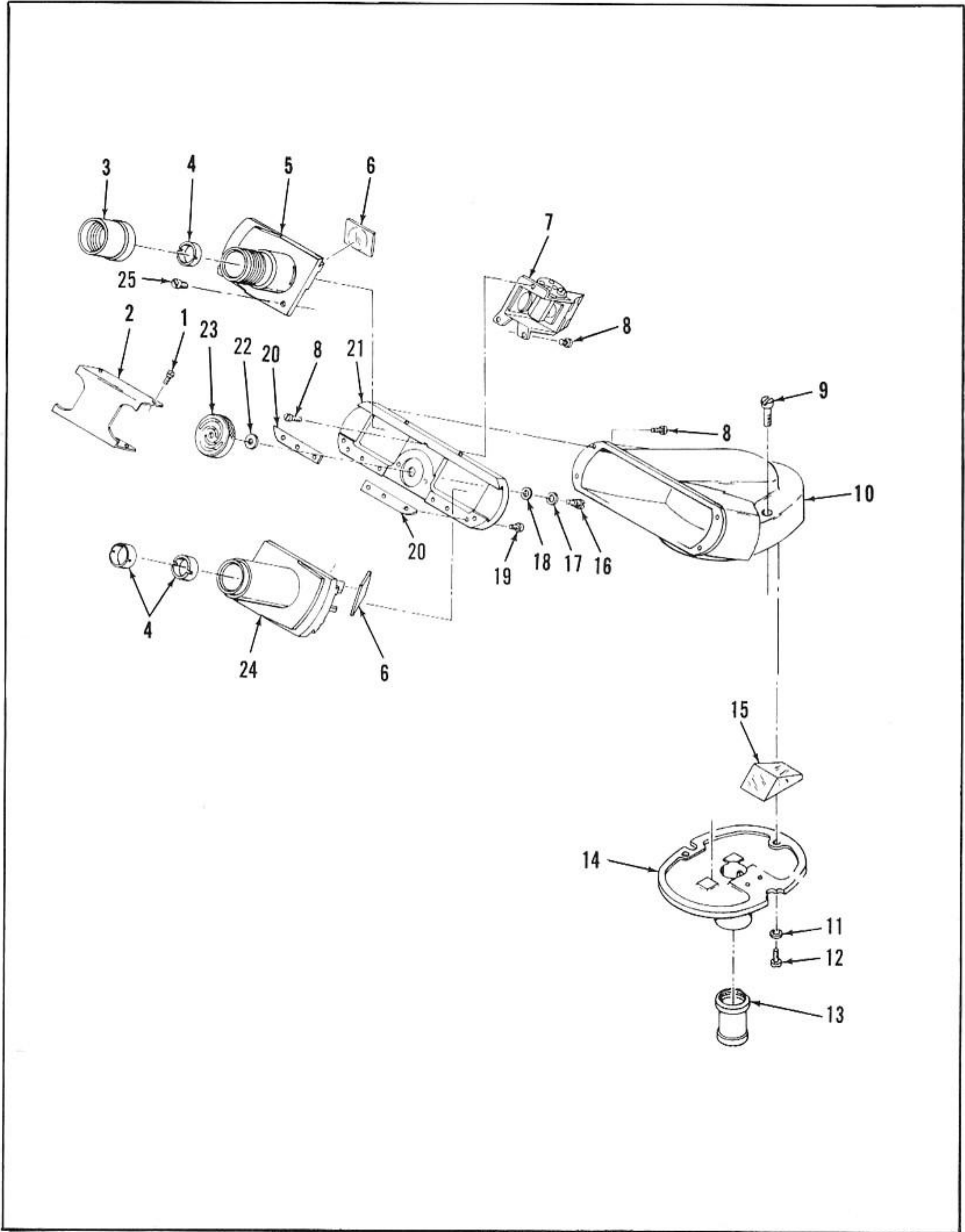


Figure 3. Binocular Body Assembly

Figure 3. Binocular Body Assembly

Index No.	Part No.	Description	Qty
	Cat. No. 77	Binocular Body	
1	X-34598-3	Screw	4
2	1042-3	Cover, dust	1
3	60-267	Cap, focusing	1
4	1042-58	Diaphragm	3
5	60-425	Slide, machine, left hand	1
6	60-614	Mirror	2
7	77-860	Prism and Mount Assembly	1
8	1042-52	Screw	7
9	X-32571-22	Screw	2
10	60-252	Body	1
11	01219	Washer	3
12	60-57	Screw	3
13	60-853	Telescope Assembly	1
14	60-254	Plate	1
15	60-612	Prism	1
16	1042-54	Screw	1
17	01293	Washer	1
18	X-50695	Washer, spring	3
19	0458	Screw	6
20	1042-48	Gib, left hand	1
	1042-49	Gib, right hand	1
21	1042-10	Slideway	1
22	X-51368	Washer	1
23	1042-81	Wheel, thumb	1
24	60-423	Slide, right hand	1
25	1042-51	Screw	2

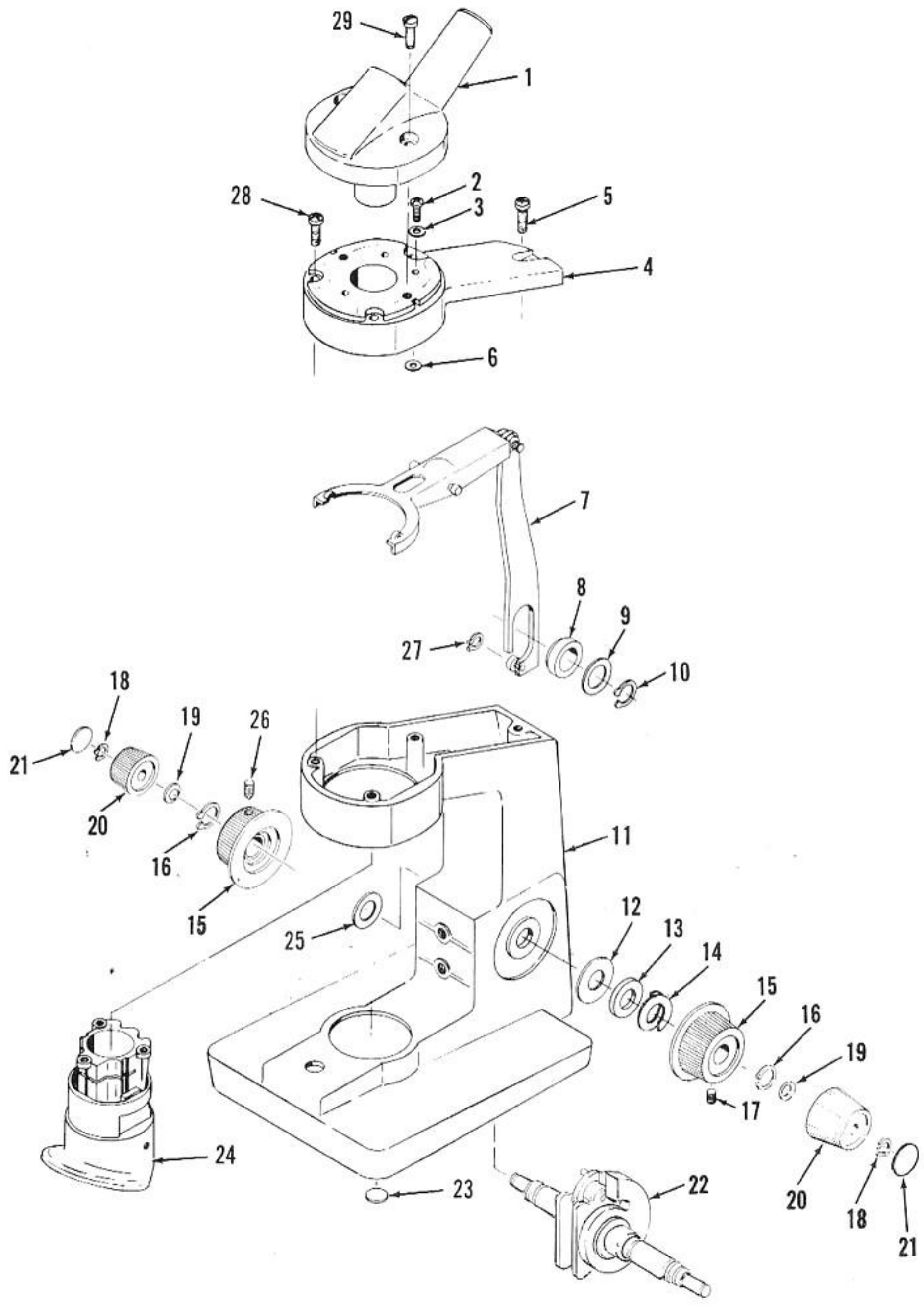


Figure 4. Stand

Figure 4. Stand

Index No.	Part No.	Description	Qty
1		Monocular Body Assembly (See figure 2 for breakdown)	1
2	X-53457	Screw	3
3	01030-1	Washer	3
4	60-373	Cover, machined	1
5	X-27453-11	Screw	1
6	01030-1	Washer	3
7	60-876	Lever Assembly	1
8	32-19	Spacer	1
9	32-83	Washer	1
10	32-72	Retaining Ring	1
11	60-419	Arm	1
12	32-56	Washer	1
13	60-228	Washer	1
14	X-51623	Washer, lock.	2
15	32-39	Knob, coarse adj.	2
16	X-50370	Retaining Ring	2
17	60-358	Setscrew	1
18	X-50972	Retaining Ring	2
19	X-50584	Washer, spring	2
20	32-40	Knob, fine adj.	2
21	32-41	Disc	2
22	32-865	Coarse and Fine Adj. Assembly	1
23	2-52	Base Foot	4
24	60-873	Nosepiece & Sleeve Bearing (See Figure 10 for breakdown)	1
25	32-55	Washer	1
26	60-357	Setscrew	1
27	X-51404	Retaining Ring	1
28	X-27863	Screw	3
29	X-32570-22	Screw	2

Cam only that goes on
 #22 - 32-865 is # 32-13 at about 4⁰⁰
 ordering 32-865 ~~does not include~~
does not include 32-13 Cam

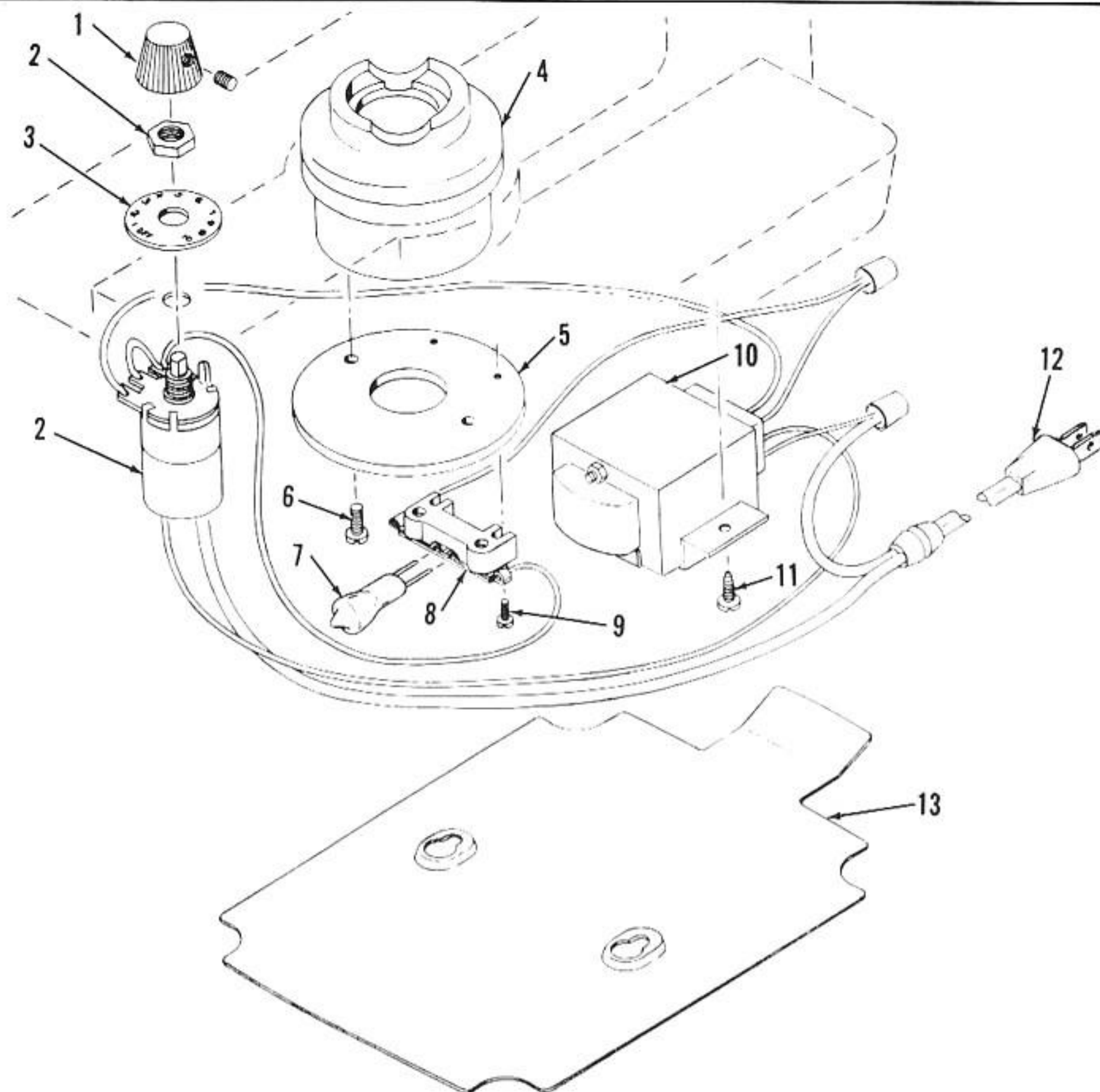


Figure 5. Illuminator Assembly

Index No.	Part No.	Description	Qty
	Cat. No. 623	Illuminator & Transformer Assembly (for Binocular Models)	
1	623-25	Knob	1
2	623-22	Control	1
3	623-24	Dial	1
4	623-856	Condensing Lens Assembly	1
5	623-18	Socket Mounting Plate	1
6	0862-2	Screw	2
7	624	Lamp, Tungsten Halogen, 6V, 10 watt (Phillips No. 7387)	1
8	623-859	Socket, ceramic (includes items 2, 10, and 12)	1
9	0858-2	Screw	2
10	623-13	Transformer	1
11	X30764-2	Screw	2
12	X53031	Power Supply Cord	1
13	623-34	Cover, base	1

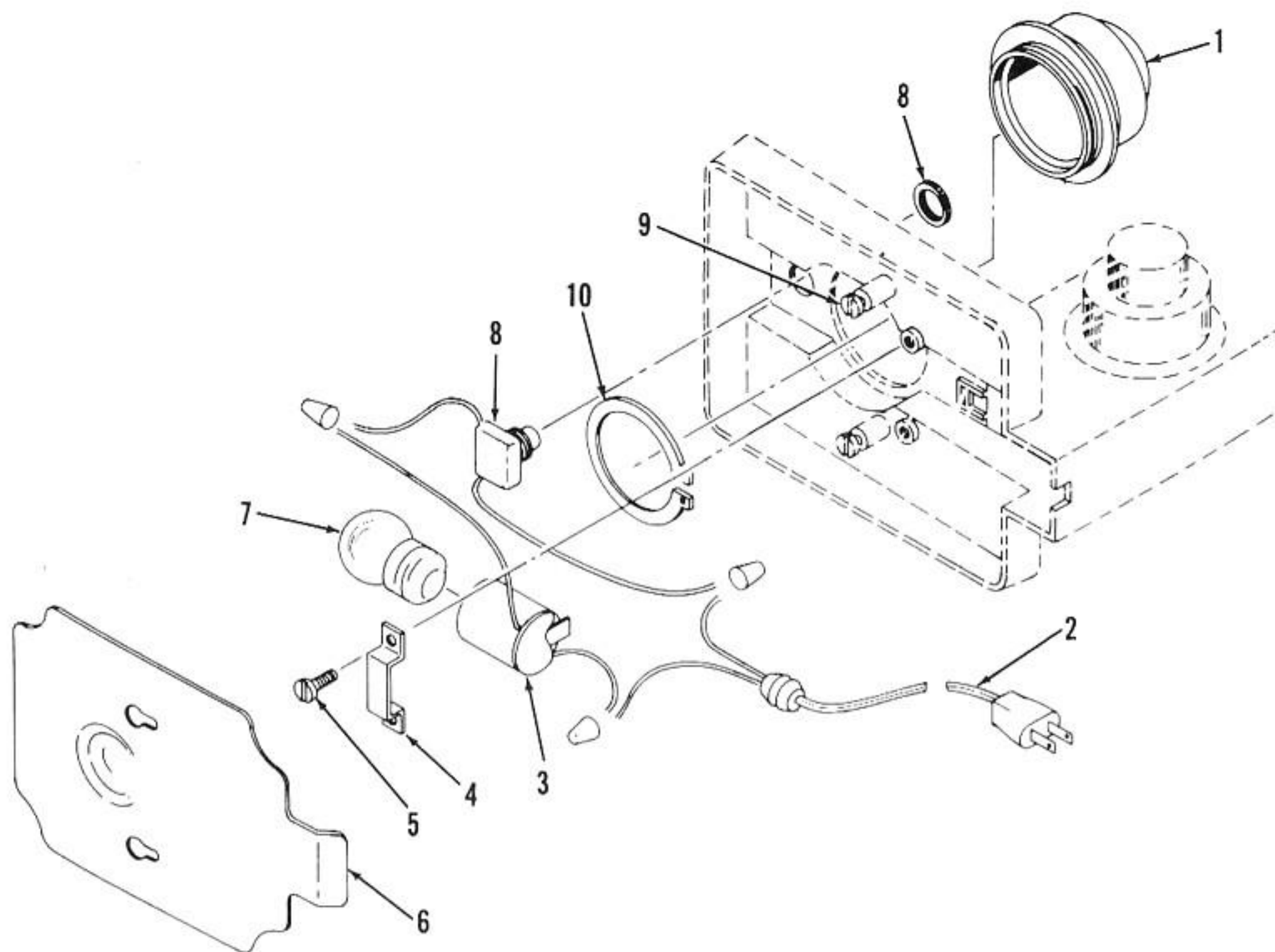


Figure 6. Illuminator Assembly

Index No.	Part No.	Description	Qty
	Cat. No. 605B	Illuminator Assembly (for Binocular Models)	
	Cat. No. 614A	Illuminator Assembly (for Monocular Models)	
1	632-852	Condensing Lens Assembly w/blue glass filter (for 614A)	1
1	605-850	Condensing Lens Assembly w/blue glass filter (for 605B)	1
2	X-53031	Cord Set	
3	632-1	Socket, lamp	1
4	60-389	Bracket, socket	1
5	X-30764-2	Screw	2
6	60-390	Cover Plate	1
7	611	Lamp, 15W, 115V (mfrs. designation 15S11/102)	1
8	632-2	Switch, pushbutton	1
9	X-30765-2	Screw	2
10	632-6	Retaining Ring	1
	Cat. No. 613	Lamp, 15W, 230V (mfrs. designation 15S11/101 with medium screw base)	1

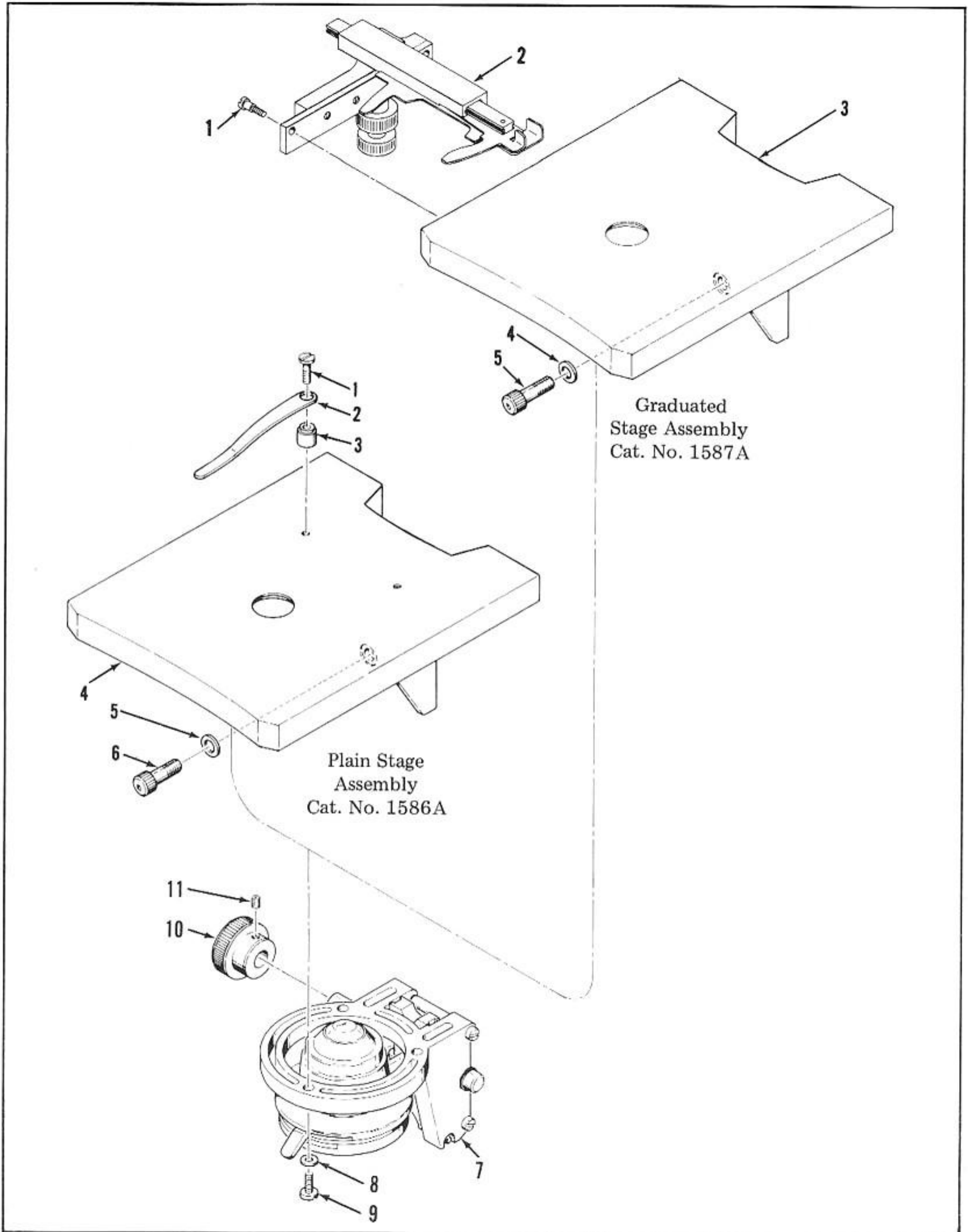


Figure 7. Stage Assemblies

Figure 7. Stage Assemblies

Index No.	Part No.	Description	Qty
	Cat. No. 1586A	Plain Stage Assembly	
1	X-30750	Screw	2
2	60-25	Clip, stage	2
3	60-24	Bushing, stage clip	2
*	1586-856	Stage Assembly (includes items 4 thru 12)	1
4	60-311	Stage	1
5	X-16090	Washer	2
6	X-36089	Screw	2
7	1586-855	Rack & Pinion Assembly (see Figure 8 for breakdown) . .	1
8	220-5	Washer	3
9	X-30750	Screw	3
10	60-310	Knob	1
11	X-51772	Screw	1
	Cat. No. 1587A	Mechanical Stage Assembly	
1	1580-2	Screw	2
2	Cat. No. 1534	Mechanical Attachment (see Figure 9 for breakdown) . .	1
*	1586-856	Stage Assembly (includes items 3 thru 12)	1
3	60-311	Stage	1
4	X-16090	Washer	2
5	X-36089	Screw	2
6	1586-855	Rack & Pinion Assembly (see Figure 8 for breakdown) . .	1
7	220-5	Washer	3
8	X-30750	Screw	3
9	60-310	Knob	1
10	X-51772	Screw	1

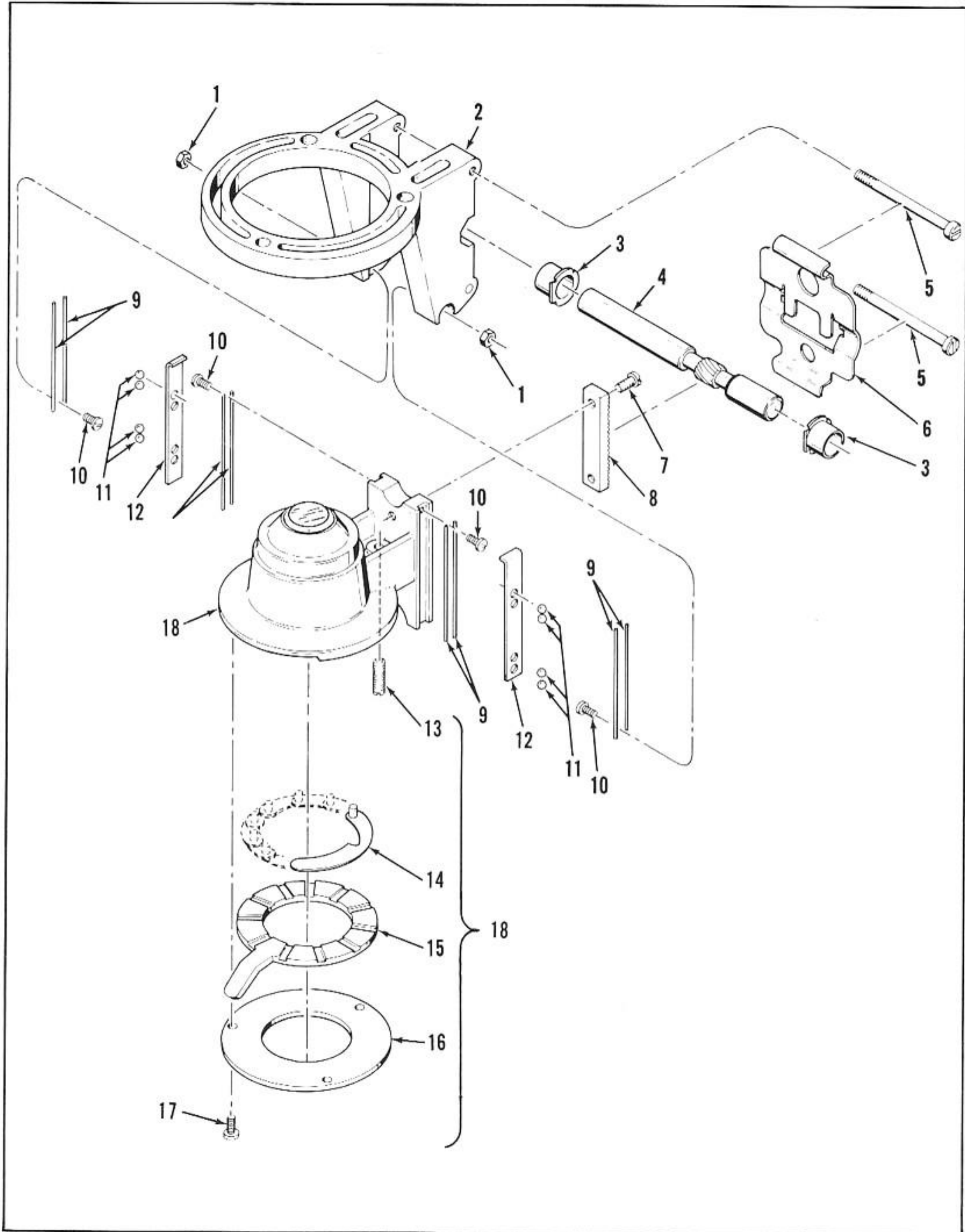
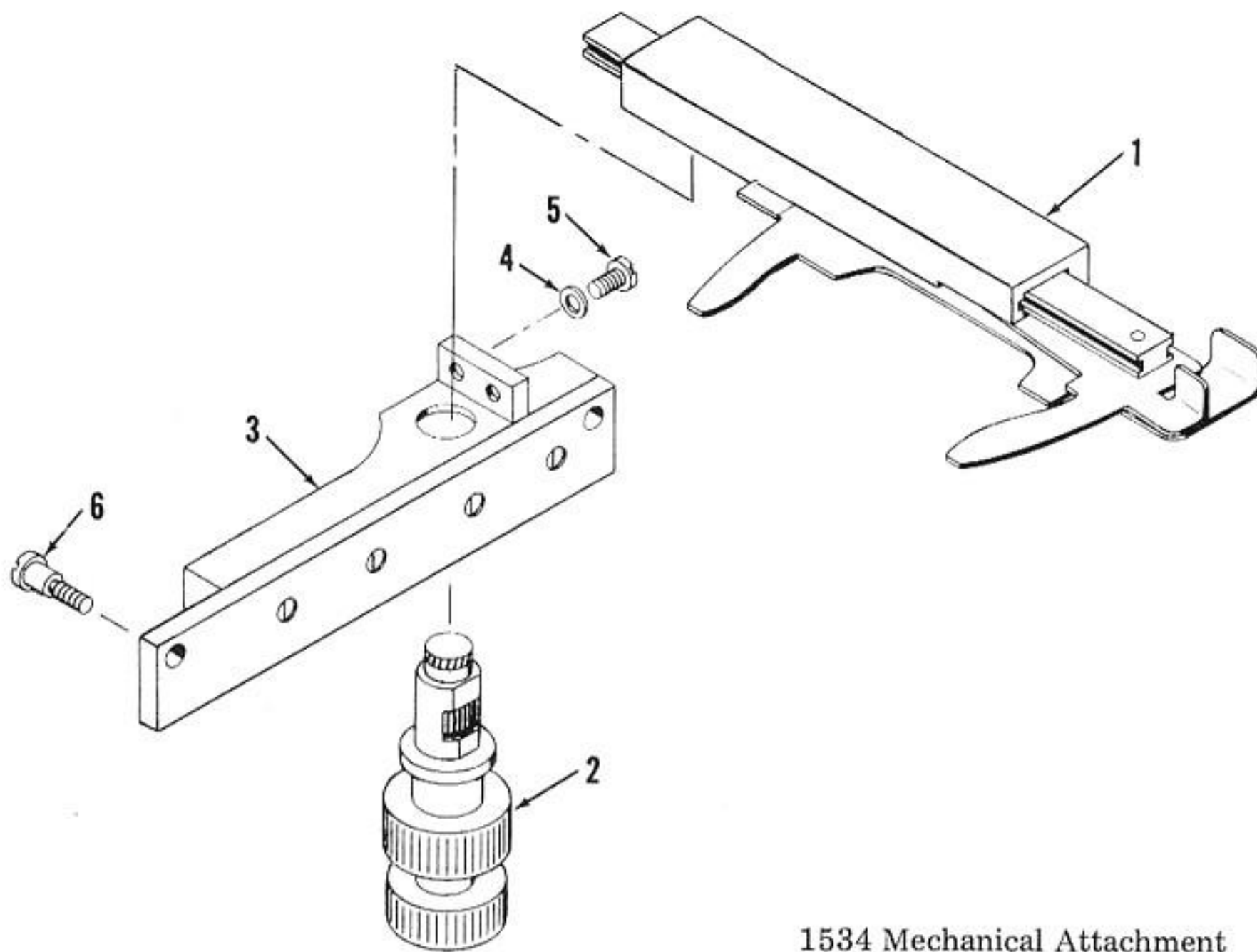


Figure 8. Rack and Pinion Assembly

Figure 8. Rack and Pinion Assembly

Index No.	Part No.	Description	Qty
	1586-855	Rack and Pinion Assembly - includes Condenser	
1	X-8074	Hex Nut	2
2	60-303	Arm, stage	1
3	60-314	Bearing	2
4	60-305	Pinion, adjusting	1
5	60-313	Screw, tension	2
6	60-307	Spring, tension	1
7	0863-1	Screw	2
8	60-306	Rack, substage	1
9	60-309	Track	8
10	60-312	Screw	4
11	10-6	Ball	8
12	60-308	Separator	2
13	X-51911	Stopscrew	1
14	1092-851	Iris Leaf Assembly	11
15	1092-3	Ring, shifting	1
16	223-4	Retainer	1
17	X-38001	Screw	3
18	1586-857	Condenser Assembly (includes items 13, 14, 15, 16 and 17)	1



1534 Mechanical Attachment

Index No.	Part No.	Description	Qty
	Cat. No. 1534	Mechanical Attachment (includes items 1, 2, 3, 4, and 5)	
1	1534-861	Slide and Finger Assembly	1
2	1534-856	Control Assembly	1
3	1534-864	Frame Assembly	1
4	X-16332	Washer	2
5	1534-40	Screw	2
6	1580-2	Screw	2

Figure 9. Mechanical Stage

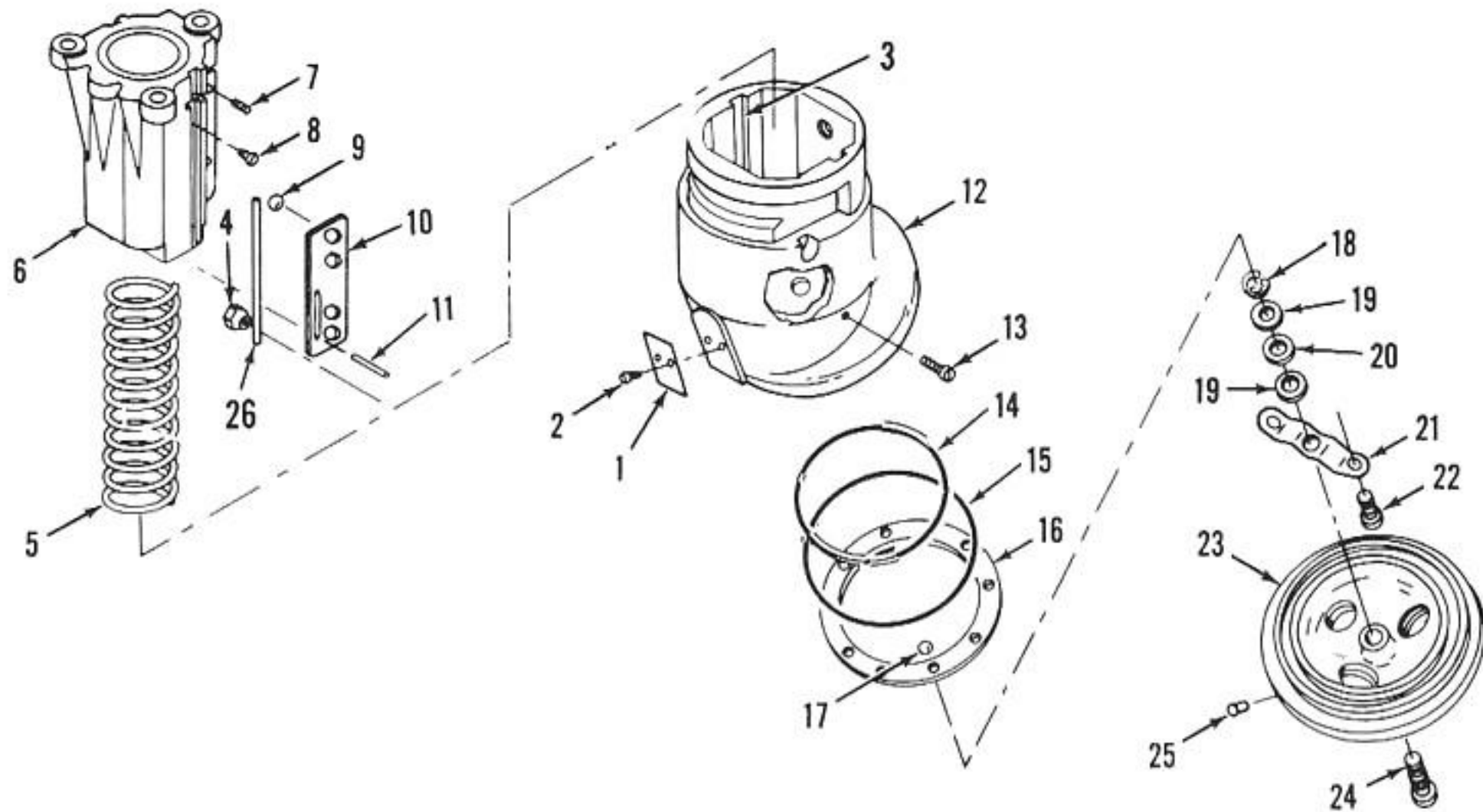
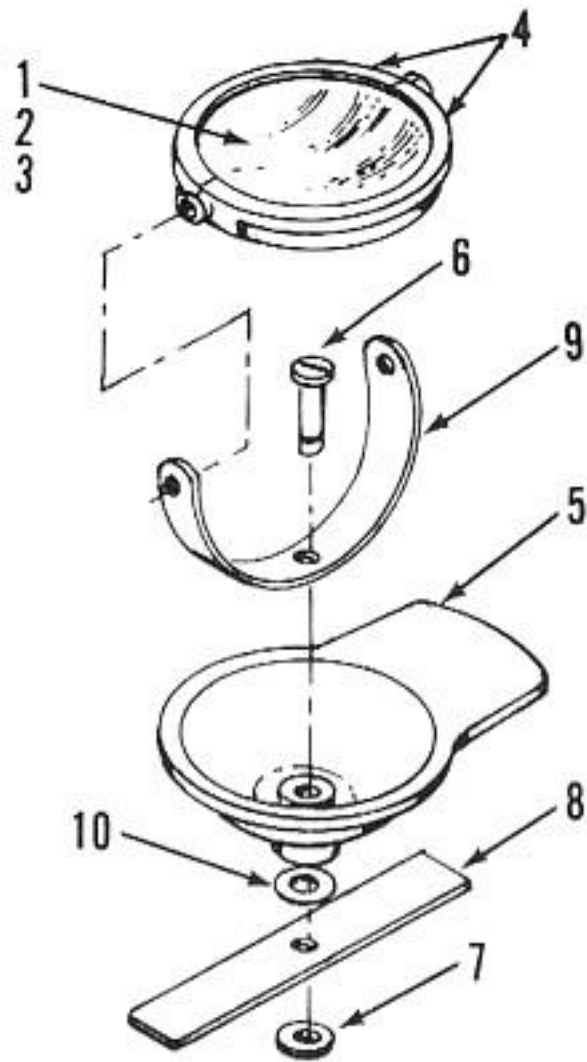
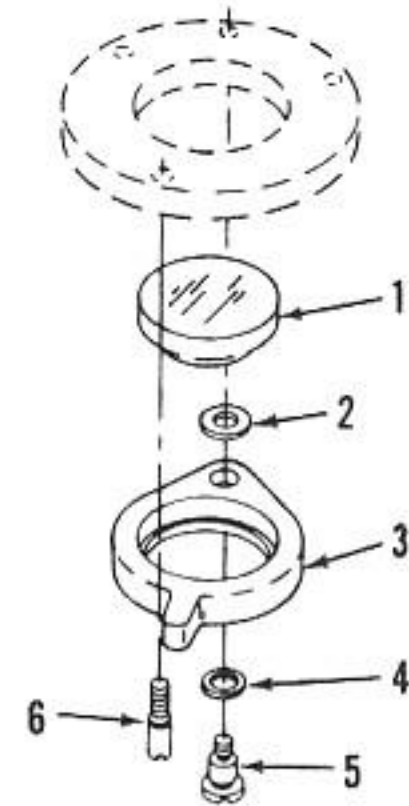


Figure 10. Nosepiece and Sleeve Bearing Assembly

Index No.	Part No.	Description	Qty
1	253-6	Spring, index	1
2	X-34590	Screw	2
3	60-41	Rod, bearing	4
4	60-32	Nut, taper	2
5	60-410	Spring	1
6	60-42	Bearing, sleeve	1
7	X-51578	Screw	2
8	63-39	Screw, rod	2
9	60-377	Bearing, ball	8
10	60-29	Retainer, bearing	2
11	32-69	Pin, roll	2
12	60-385	Nosepiece, upper	1
13	X-738-2	Screw	2
14	60-36	Race, ball, inner	2
15	60-45	Race, ball, outer	2
16	60-40	Spacer, bearing	1
17	B35-14	Bearing, ball	10
18	B-3801-59	Ring, Truarc	1
19	60-53	Washer, retaining	2
20	60-54	Spacer, nylon	1
21	60-44	Retainer	1
22	60-20	Screw	2
23	32-46	Nosepiece, bottom, triple (includes item 25)	1
24	60-142	Pin, nosepiece axle	1
25	X-10014	Pin	3
26	63-41	Rod Bearing	4



Plano-Concave
Mirror Assembly
Cat. No. 217A



Auxiliary Swing-In
Condenser Assembly
Cat. No. 224

Figure 11. Mirror and Condenser Assemblies

Index No.	Part No.	Description	Qty
1	630-602	Mirror, concave	1
2	630-5	Spacer	1
3	630-601	Mirror, plano	1
4	630-1	Mirror Mount	2
5	630-10	Mount	1
6	630-6	Screw, pivot	1
7	B-3801-59	Ring, retaining	1
8	630-7	Plate	1
9	630-2	Mirror Fork	1
10	X16010-3	Washer	1
	Cat. No. 224	Auxiliary Swing-in Condenser	
	230-851	Lens Assembly (includes items 1 and 3)	1
1	231-602	Lens	1
2	01012-1	Washer	1
3	230-2	Cell	1
4	01224	Washer	1
5	224-2	Screw, pivot	1
6	224-1	Screw, stop	1