

OPERATION OF OPTICAL SYSTEM

THE SPOT SIZE CONTROL (ZOOM) is located on the right side of the optical system protruding from a slot in the spotlight housing. A variation of spot sizes from full flood to a small spot can be obtained by moving the zoom control from one extreme to the other. Beam intensity is increased by this optical system when reducing from flood to spot, and maximum intensity is reached when the zoom is in the extreme forward position. Depressing a thumb lever adjacent to the control permits free movement forward and back, and releasing the thumb lever locks the control in position.

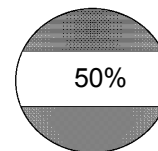
ROTATING THE ZOOM KNOB operates the spot focus control. When making an adjustment, rotate the focus control until the sharpest edge is obtained on the projected spot. Moving the large lens to its center of travel and then adjusting for a sharp edge should give satisfactory results for the full movement of the lens system.

THE THREE BEAM-SHAPING CONTROL LEVERS are located immediately in front of the fade-out lever and project through the top of the optical system housing. The iris control is the center lever. When this lever is to the left (viewing the spotlight from the rear), the largest aperture is provided. Smaller apertures are obtained as the lever is moved to the right. The iris can be readily removed from the spotlight for service or replacement by pulling the lever upward and lifting the iris assembly out of the unit.

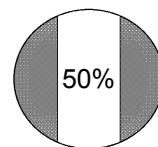
THE MAXIMUM FLOOD SPOT is obtained with the iris control lever to the left (away from operating side) for the large aperture and with the zoom control moved as far as possible toward the rear. Smaller sized spots are projected as the zoom control is moved forward. Most of the spot sizes needed will be produced with the iris in its maximum open position.

FOR A "HEAD SPOT," or any spot size smaller than can be obtained with the zoom control in its extreme forward position, shift the iris control lever to the right (toward operating side) for a smaller aperture. The iris control lever should always be returned to its extreme left position before the zoom control is again moved to obtain larger spots.

THE HORIZONTAL MASKING SHUTTER LEVER is the second (from the rear) lever projecting through the top of the optical system housing. The horizontal masking shutter blades are operated by this lever to shape the projected spot to a rectangle, strip spot, or for dousing.



THE VERTICAL MASKING SHUTTER LEVER is the lever in front of the iris control. The vertical masking shutter blades are operated by this lever to narrow the projected spot from full width to complete douse.



OPERATION OF OPTICAL SYSTEM (continued)

THE DISENGAGED, or fully *open* position of both masking shutter levers is to the extreme left (away from operating side). Varying degrees of masking, from fully open to complete cutoff, are obtained by moving the levers to the right (toward operating side).

THE ANGLE OF THE MASKING SHUTTER BLADES can be adjusted to compensate for the horizontal and vertical projection angle. If the spotlight is installed at an extreme house-right or house-left position, the projected edges of the masking blades may not align horizontally with the apron, or vertically with the proscenium. Remove the top access covers to expose the horizontal (rear) and vertical (front) masking blade assemblies. When the blades are in their full “open” positions, adjusting tabs are accessible above and below the horizontal blades, and to the left and right of the vertical blades. Move these tabs to position the masking blades at the desired angle.

THE FADE-OUT MECHANISM AND DOUSER CONTROL is the single lever projecting through the top of the optical system housing near the back of the unit. This lever controls the amount of light from full intensity when the lever is to the left, to complete fadeout and douse when the lever is to the extreme right.

CAUTION



ULTRAVIOLET RADIATION is emitted when the metal halide lamp is operating. Wear protective clothing and goggles or glasses when adjusting the shutter blades or performing any service with the lamphouse or optical system covers removed.



HANDLING THE FOLLOW SPOT

GENERALLY THE BEST POSITION for the operator to stand is near the center of the follow spot, on the right hand side, although the angle of tilt and the size of porthole may alter the position for the most convenient operation.

EACH OPERATOR will, after a few minutes of operation, generally develop his or her own system and preferred position for operating the follow spot.

THE VERTICAL TILT TENSION KNOB is located on the side of the housing adjacent to the fade-out lever. Counterclockwise rotation of the knob frees the tilt tension, and clockwise rotation applies tension. The individual operator can set his or her desired degree of tension.

OPERATION OF COLOR BOOMERANG

SEE THE “SETTING UP SPOTLIGHT” SECTION in the preceding pages of this manual for details of the “Stowed” and “Deployed” configurations of the Radiance boomerang. It is recommended to “stow” the color frames whenever transporting the spotlight.

THE COLOR BOOMERANG is supplied with six color holders and a “starter” set of color gels: (1) Amber, (2) Flesh Pink, (3) Daylight Blue, (4) Light Sky Blue, (5) Primary Blue, (6) Light Red. To prolong gel life, keep the darkest or most dense colors (red, green, dark blue) to the *front* of the boomerang, farthest from the bulb.

THE SIX COLOR ARMS are mounted to the side of the boomerang. To insert a color disc in the light beam, move the proper color arm downward until the latch engages. To release a color disc, raise the color release lever, or engage another color, thereby canceling the previous color.

TO REMOVE A COLOR DISC ASSEMBLY, release the arm and lift the color holder ring from the arm bracket. Install a nine-inch square section of color gel between the ring with the slide channel and the cover plate and secure using the brass fasteners supplied. Trim the excess gel material and install the assembled color frame into the boomerang. Only the six above-noted colors are supplied with the boomerang; additional colors, and color temperature reduction filters, are available from theatrical supply dealers. Specify RoscoLux® (or equivalent) high-temperature gels.

MAINTENANCE

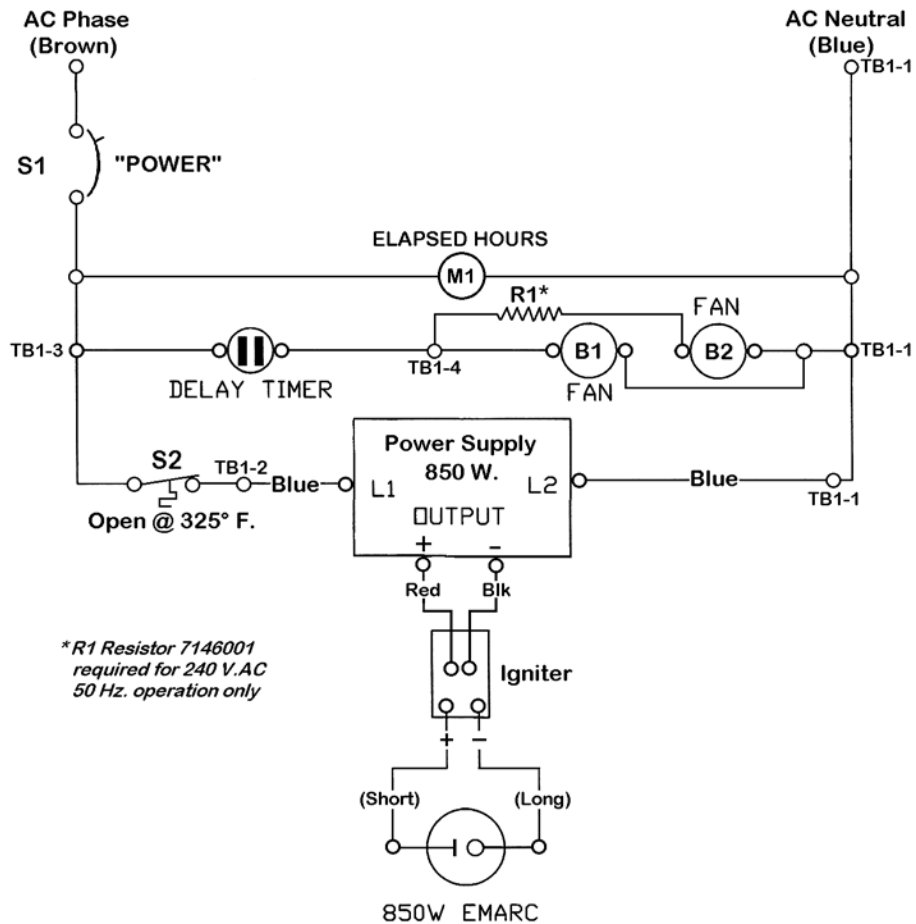
REMOVABLE COVERS, secured with quarter-turn fasteners, are located above the lamphouse and optical system. To clean the lenses, remove the two front optical system top covers. The center lens, the back surface of the large lens, and the heat filter glass can be cleaned easily through this opening. Using a good grade of alcohol and piece of lens tissue (facial tissue can be used as a substitute), gently wipe both sides of each lens until the surfaces are clean. To clean the front surface of the large lens, slide the lens carriage to the full forward position. The front surface is then readily accessible through the front of the housing.

THE REFLECTOR should be cleaned periodically with a clean, soft lint-free cloth to remove any dust from the reflecting surface. USE NO ABRASIVES. Clean the envelope of the lamp in the same manner before replacing the lamphouse cover.

THE INSIDE of the lamphouse, lens mechanism and the fan should be cleaned periodically, depending on the dust conditions at each installation. The fan impeller blades and inlet grilles need cleaning to remove the dust buildup that accumulates over a period of time.

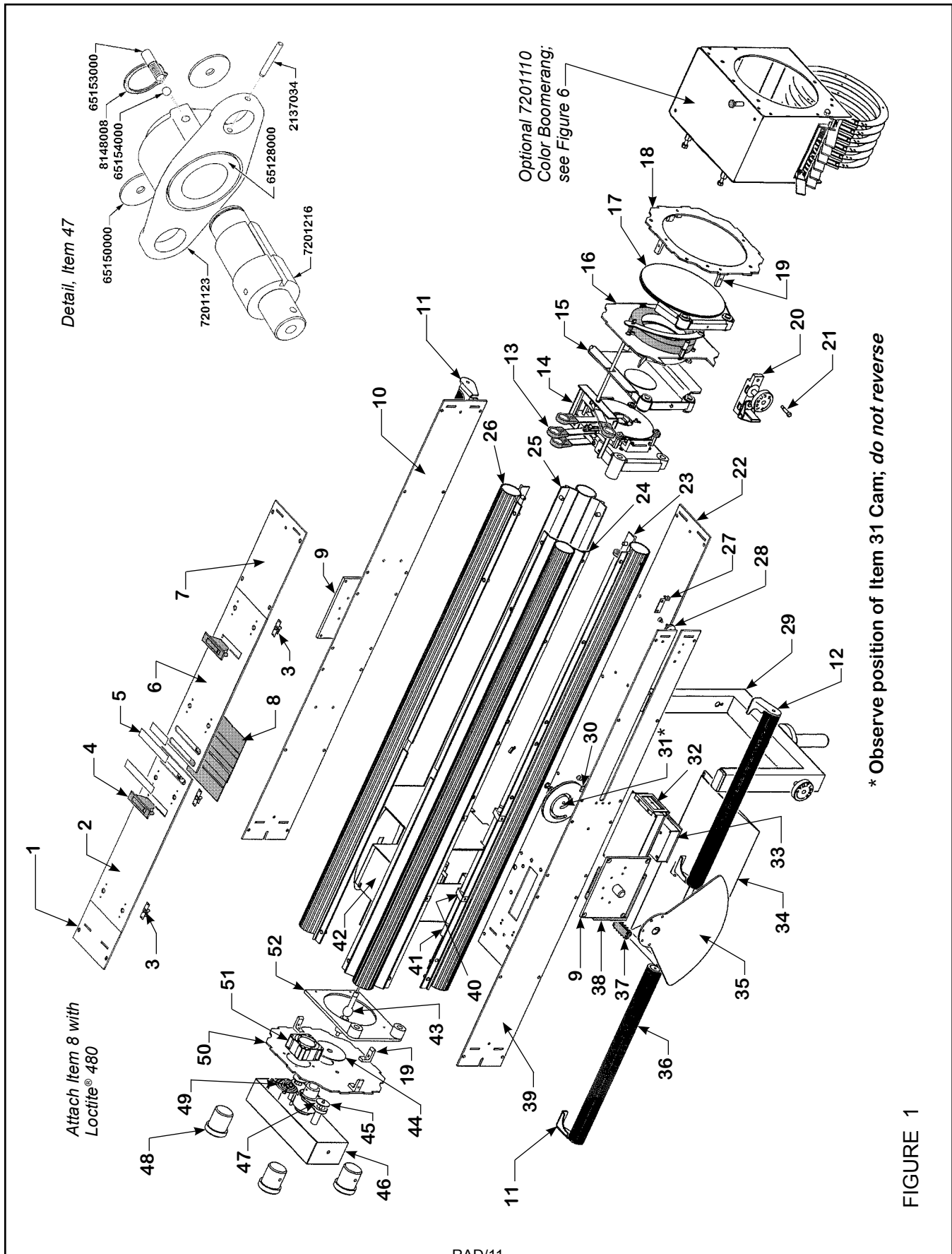
THE FRAMING SHUTTER DRIVE DISCS (see Figure 3, Items 12 & 13) and the roller bearings (Item 11) are lubricated with white lithium-base grease. If replacing the grease, use a similar type (typical drop point 380° F/190° C). Do not overlubricate since excessive grease will attract dust and other contaminants.

LAMPHOUSE SCHEMATIC DIAGRAM



Ref.

<u>Desig.</u>	<u>Part No.</u>	<u>Description</u>
B1	72424000	Lamp Blower, 115 V.AC, 50/60 Hz.
-	7145000	Delay Timer, 115 V.AC
B1	7102002	Lamp Blower, 230 V.AC, 50/60 Hz. (Export)
-	7145001	Delay Timer, 230 V.AC
B2	7102003	Exhaust Blower, 115 V.AC, 50/60 Hz.
M1	7132003	Hour Meter
S1	7161004	Switching Circuit Breaker, 15 A.
S1	7164003	Switching Circuit Breaker, 10 A. (Export)
S2	3161134	Thermal Switch
TB1	2162003	Barrier Strip, (4) Terminal
-	7175000	Igniter
-	7201176	Negative Lead to Bulb
-	7201177	Positive Lead to Bulb
-	7198023	Power Supply
-	3140016	Power Cord, 115 V.AC, 15 A. (Domestic)



* Observe position of Item 31 Cam; do not reverse

FIGURE 1

PARTS LIST

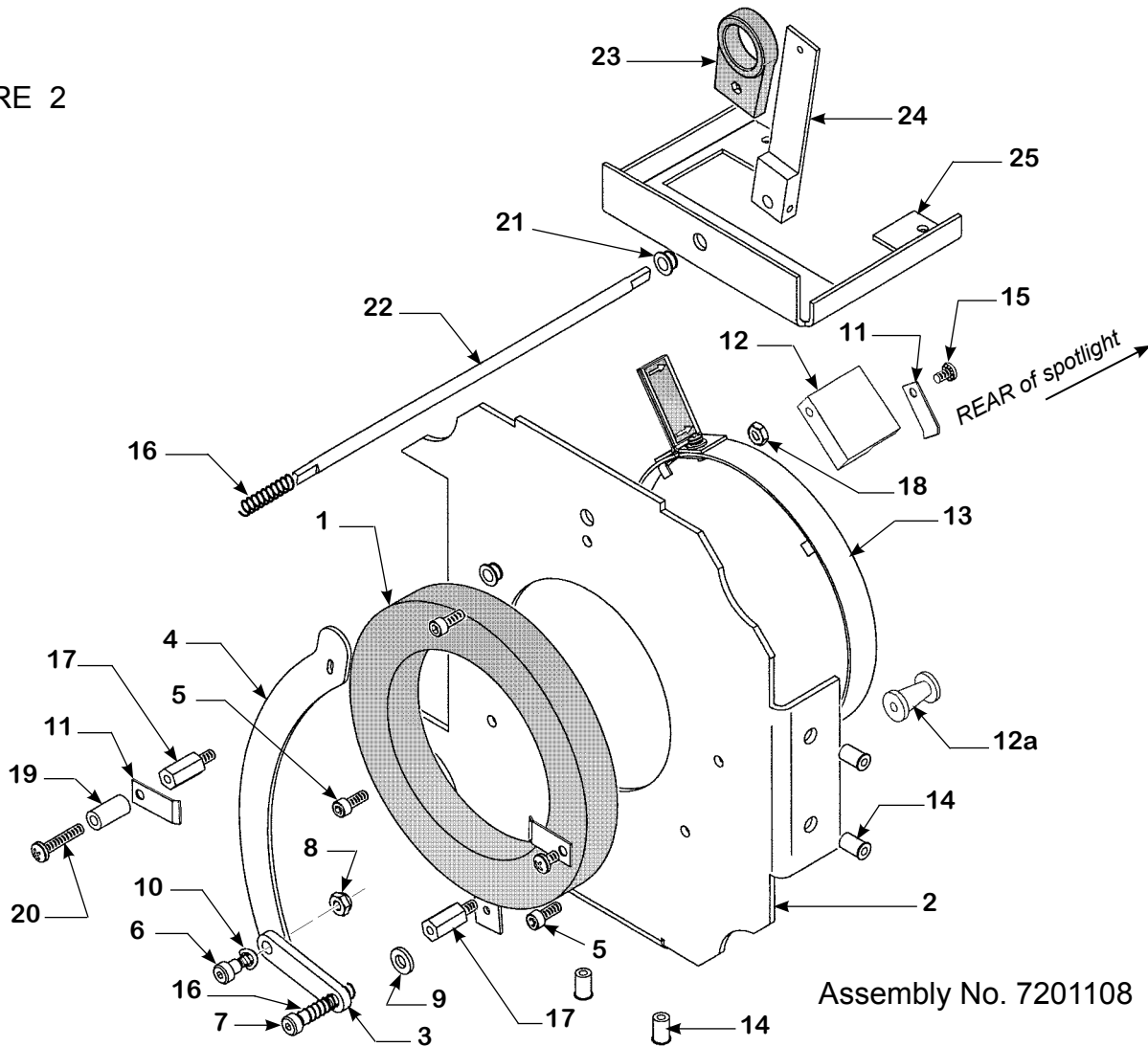
Figure 1

<u>Item</u>	<u>Part No.</u>	<u>Description</u>
1	7201094	Rear Top Cover Plate
-	4100621	Mounting Screw, 10-32 x 5/8" Pan Head
2	7201095	Lamphouse Top Cover Plate
3	5198423	Spring Cam Latch (8 req'd.)
4	23833000	Concealed Pull (2 req'd.)
5	7134002	Decal, Optical Controls
6	7201096	Optical System Top Cover Plate
7	7201097	Front Top Cover Plate
8	51371000	Light Baffle, Black Rubber (6 req'd.)
9	7201102	Yoke Pivot Bracket (2 req'd.)
10	7201099	Cover Panel, Off-Operator Side
-	4100621	Mounting Screw, 10-32 x 5/8" Pan Head
11	7201198	Handle Bracket, Left
12	7201199	Handle Bracket, Right
-	7201200	Handle Shaft
-	7198025	Handle Grip, Black Rubber (see Item 36)
13	7201109	Beam Shape Control Assembly (see Figure 3)
14	7201197	Lever Support Bracket (see Figure 2)
15	7201103	Rear Lens Assembly (see Figure 4)
16	7201108	Fade-Out/Douser Assembly (see Figure 2)
17	7201104	Front Lens Assembly (see Figure 5)
18	7201086	Front Cover Plate
19	7200799	End Cover Bracket (8 req'd.)
20	7201106	Zoom/Focus Control Assembly (see Figure 7)
21	5151011	Shoulder Screw, 1/4" x 3/4" Thrd. 10-24
22	7201100	Bottom Cover Panel
23	7201092	Extrusion, Operator Side, Bottom
24	7201091	Extrusion, Operator Side, Top
25	7201093	Extrusion, Off-Operator Side, Bottom
26	7201090	Extrusion, Off-Operator Side, Top
27	7201065	Cable Stop Bracket
28	25062000	Nylon Pulley, Focus Cable (2 req'd.)
-	5220506	Shoulder Screw, Pulley Axle
29	7201105	Yoke Assembly (see Figure 8)
30	7200967	Mounting Plate, Rear Pulley
-	7201181	Focus Cable & Spring Assembly (see Page 23)
31	7201088	Focus Cam
-	7201170	Cam Spacer Mount (Axle Bushing)
32	7198023	Metal Halide Power Supply, 850 Watt; 115/230 V.AC, 50/60 Hz.

PARTS LIST, Figure 1 (continued)

<u>Item</u>	<u>Part No.</u>	<u>Description</u>
33	7175000	Igniter Assembly
-	7201319	Igniter Mounting Bracket
34	7201144	Power Supply Housing, Welded Assembly
-	7161004	Switching Circuit Breaker (S1), 115 V.AC, 15 A.
-	7161003	Switching Circuit Breaker (S1), 230 V.AC, 10 A. (export)
-	7132003	Hour Meter (M1)
-	3140007	AC Power Cord
-	1410041	Cord Grip
35	7201087	Tilt Lock Quadrant
-	4100629	Mounting Screw, 10-32 x 5/8" Button Head
36	7198025	Handle Grip, Black Rubber (order 5.25 feet)
37	2162003	Barrier Strip, (4) Terminal (TB1)
38	72424000	Blower (B1), 115 V.AC, 50/60 Hz.
-	7145000	Delay Timer, 115 V.AC
38	7102002	Blower (B1), 230 V.AC, 50/60 Hz. (Export)
-	7145001	Delay Timer, 230 V.AC
-	7201068	Blower Mounting Bracket
-	88253000	Blower Power Cord
39	7201098	Cover Panel, Operator Side
-	4100621	Mounting Screw, 10-32 x 5/8" Pan Head
40	7200797	Slide Rod Mounting Bracket (4 req'd.)
41	7201084	Slide Rod (2 req'd.)
42	7201083	Lamp Heat Shield, Top
-	4151425	Thumbscrew Knob
-	4100750	Screw, 10-32 x 3/4" Socket Head
-	7201067	Lamp Heat Shield, Right
-	7201066	Lamp Heat Shield, Left (not shown)
-	3161134	Thermal Switch (S2; not shown)
43	7130000	Metal Halide Lamp, 850 Watt EmArc®
44	7201196	Rear Heat Shield
45	65197000	Spacer Washer (2 req'd.)
46	7201078	Cover, Lamp Adjust Mechanism
-	31875000	Thumbscrew (not shown; 2 req'd.)
47	7201107	Lamp Positioning Control Assembly
48	7201071	Counterweight (4 req'd.)
49	5102003	Grille, Blower Guard
50	7201085	Rear Cover Plate
51	7102003	Exhaust Blower (B2), 115 V.AC, 50/60 Hz.
52	7201122	Reflector Mounting Plate
-	7201157	Reflector, 5" Diameter (not shown)

FIGURE 2

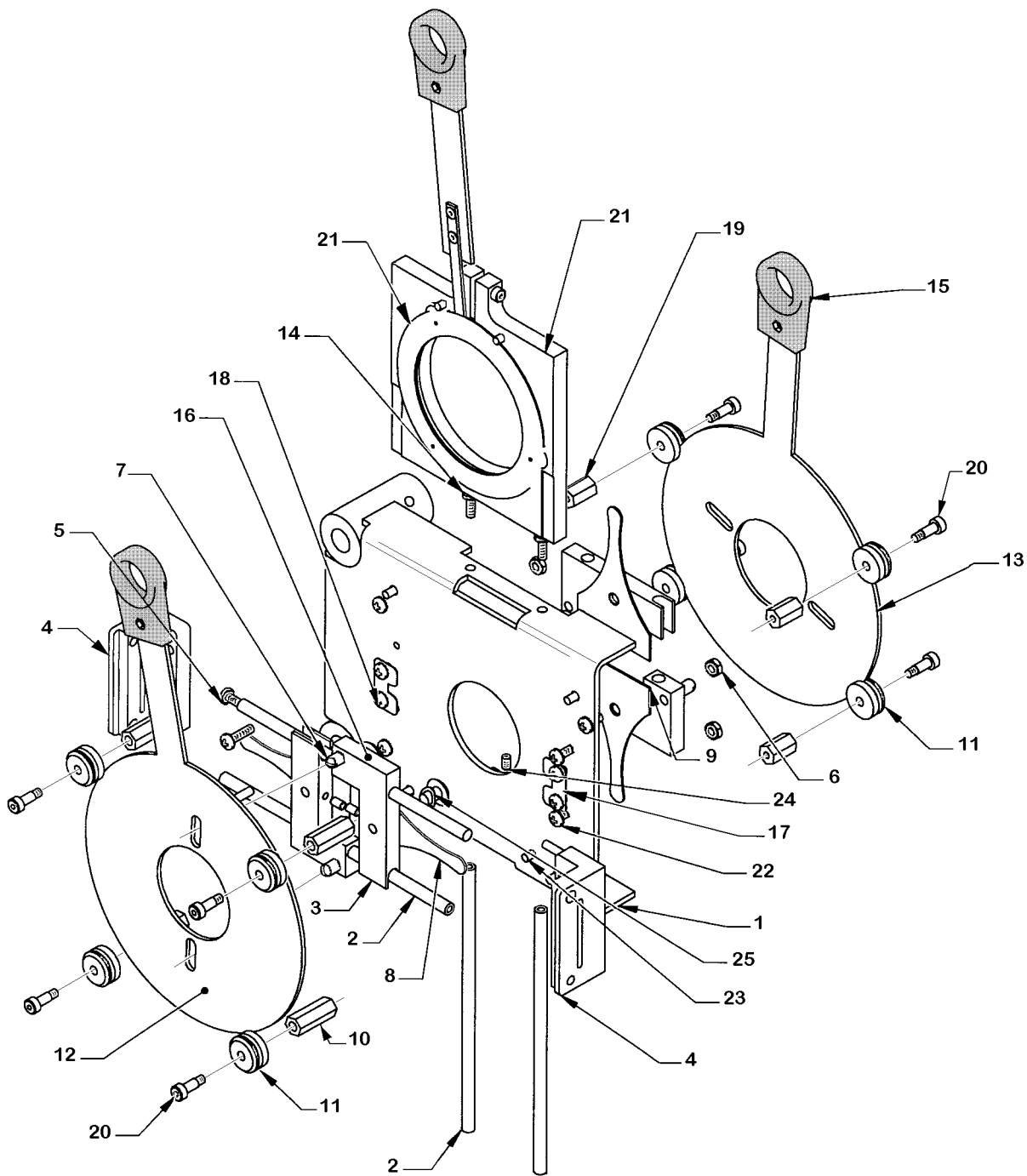


Assembly No. 7201108

Item	Part No.	Description	Item	Part No.	Description
1	7200969	Dimming Iris	14	3135012	Nutsert, 10-32 (4 req'd.)
2	7201077	Dimmer Support Plate	15	4100310	Screw, 10-32 x 5/16" (2 req'd.)
3	7200972	Linkage Arm	16	5158029	Compression Spring (2 req'd.)
4	7201076	Operating Lever	17	4198096	Standoff, 3/8" Hex (2 req'd.)
5	4100500	Screw, 10-32 x 1/2" (3 req'd.)	18	4108007	Hexnut, 10-32 (2 req'd.)
6	2151032	Shoulder Screw, 1/4"	19	7156001	Spacer, 3/8" Dia. x 3/4"
7	5151011	Shoulder Screw, 3/4"	20	4101004	Screw, 10-32 x 1"
8	4118002	Hexnut, 10-24 FlexLoc	21	7104000	Nylon Bearing, 1/4" (2 req'd.)
9	4257104	Flatwasher, 1/4" (4 req'd.)	22*	7201264	Transfer Shaft
10	5158041	Spring Washer, 1/4"	23*	7128001	Handle Grip
11	5240137	Spring Clip (3 req'd.)	24*	7201265	Dimmer Operating Lever
12	7201268	Standoff, Upper	25*	7201197	Lever Mounting Bracket
12a	7201267	Standoff, Lower (2 req'd.)			
13	7200504	Heat Filter & Ring Assembly			

* not included with 7201108; order separately

FIGURE 3



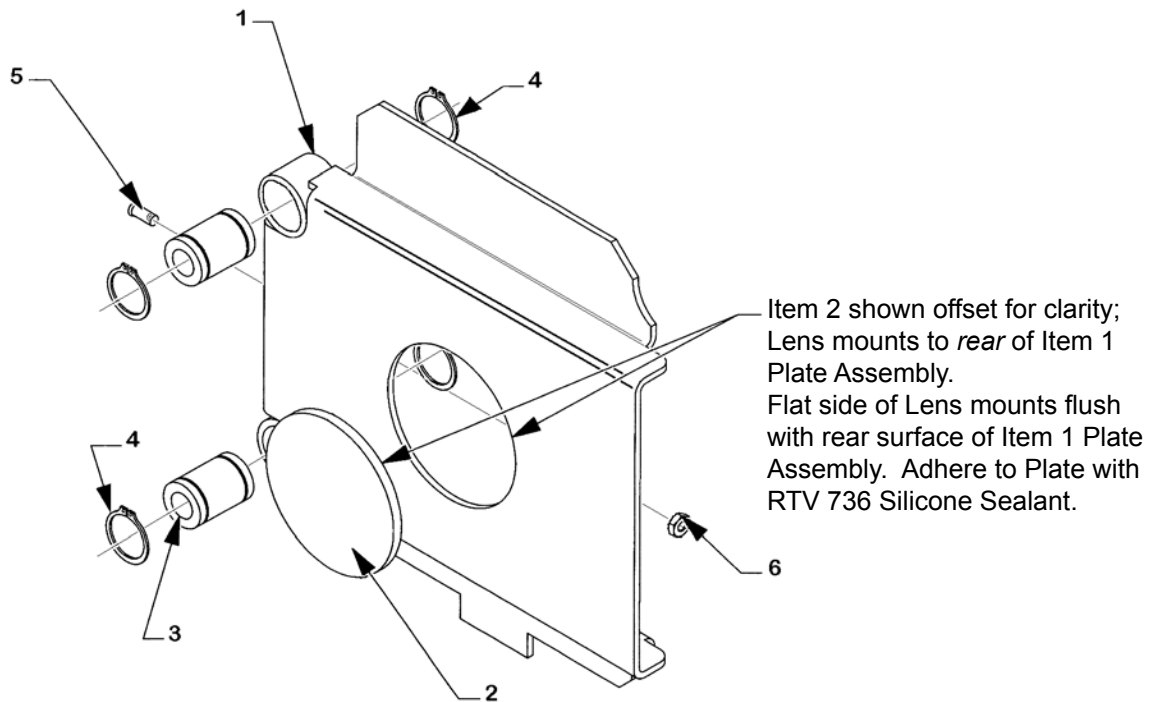
Assembly No. 7201109

PARTS LIST

Figure 3

<u>Item</u>	<u>Part No.</u>	<u>Description</u>
1	7201130	Mounting Bracket, Welded Assembly
2	7201131	Chopper Slide Rod (4 req'd.)
3	7201132	Framer Slide Block (4 req'd.)
4	7201133	Framer Shaft Bracket (2 req'd.)
5	4080624	Screw, 8-32 x 5/8" Pan Head (4 req'd.)
6	4088007	Hexnut, 8-32 K-Lock (4 req'd.)
7	7201112	Threaded Pin, 1/4" Dia. (4 req'd.)
8	7201135	Chopper Blade, Vertical (2 req'd.)
9	7201136	Chopper Blade, Horizontal (2 req'd.)
10	7198905	Standoff, 1-3/8" Long, Thrd. 8-32 (4 req'd.)
11	7201142	Roller Bearing (8 req'd.)
12	7201137	Framer Disc, Vertical
13	7201138	Framer Disc, Horizontal
14	4080506	Screw, 8-32 x 1/2" (2 req'd.)
15	7128001	Handle Grip (2 req'd.)
16	4250374	Screw, 1/4-20 x 3/8" Pan Head (4 req'd.)
17	5110004	Retaining Clamp (2 req'd.)
18	4080181	Screw, 8-32 x 3/16" Pan Head, Self-Tapping (4 req'd.)
19	7198904	Standoff, 5/8" Long, Thrd. 8-32 (4 req'd.)
20	7151007	Shoulder Screw, 3/16" x 3/8" Thrd. 8-32 (8 req'd.)
21	7201169	Iris & Mounting Plate Assembly
-	7200548	Iris (only)
22	4080754	Screw, 8-32 x 3/4" Pan Head (2 req'd.)
23	4080375	Screw, 8-32 x 3/8" Pan Head (10 req'd.)
24	4080316	Set Screw, 8-32 x 3/16" (4 req'd.)
25	5158041	Spring Washer, 1/4" (4 req'd.)

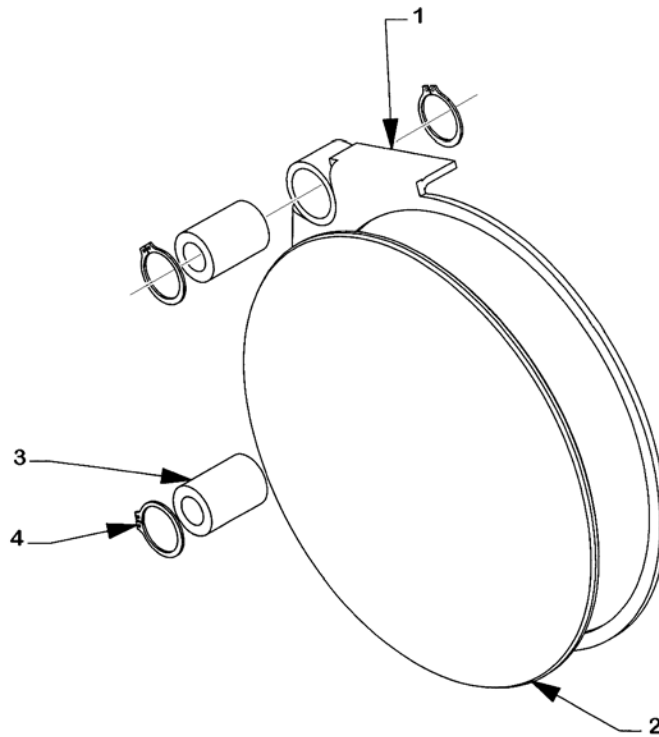
FIGURE 4



Assembly No. 7201103

<u>Item</u>	<u>Part No.</u>	<u>Description</u>
1	7201113	Plate, Welded Assembly
2	7200774	Small Lens
3	24059000	Linear Bearing (2 req'd.)
4	8148008	Retaining Ring (4 req'd.)
5	7201179	Cam Pin
6	4108007	Hexnut, 10-32 K-Lock

FIGURE 5

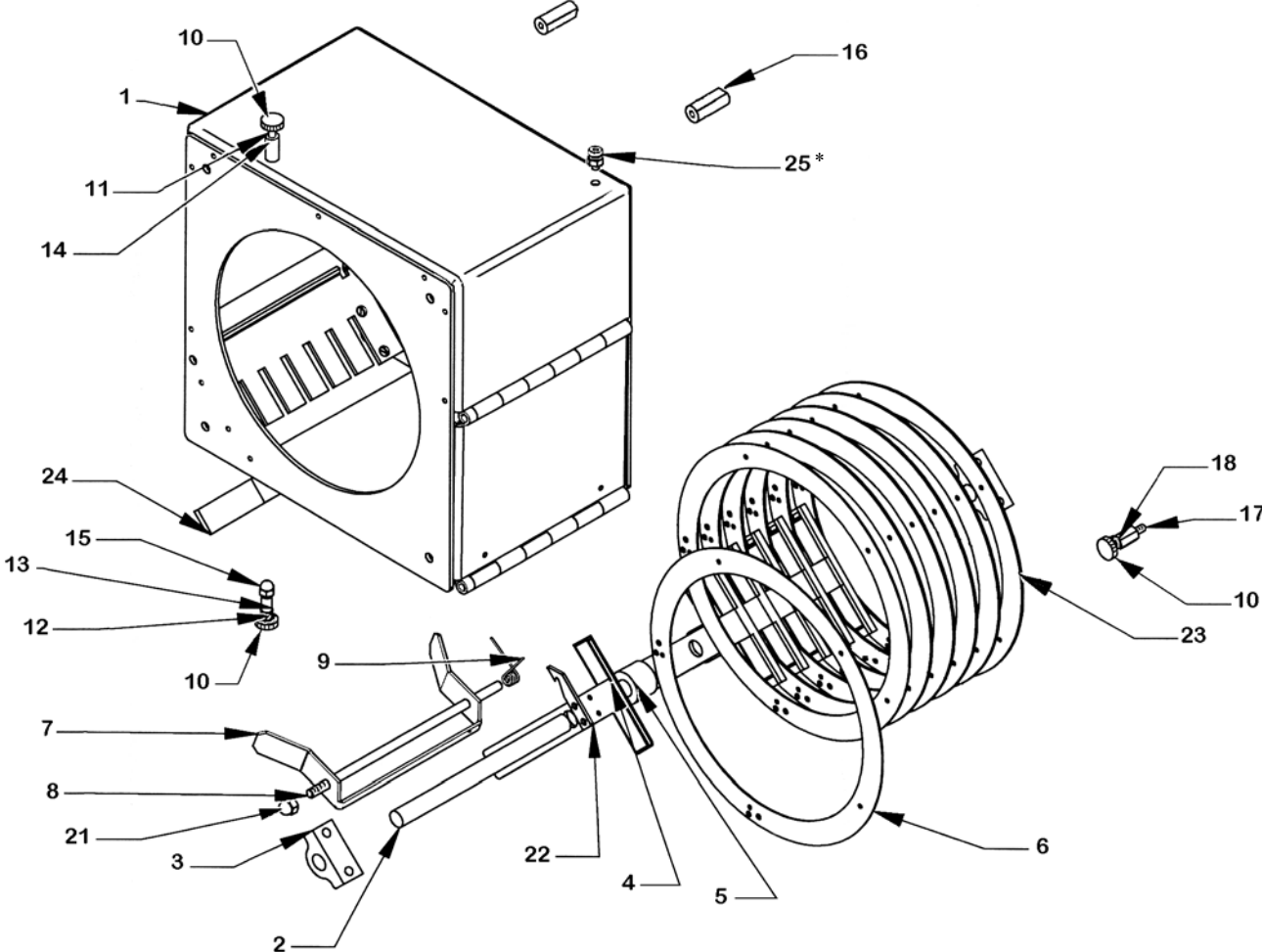


Assembly No. 7201104

<u>Item</u>	<u>Part No.</u>	<u>Description</u>
1*	7201115	Flange, Welded Assembly
2*	41305000	Large Lens
3	5104004	Linear Bearing (2 req'd.)
4	8148008	Retaining Ring (4 req'd.)

* Order 7201104 Assembly

FIGURE 6



* Safety Cable not shown; see Parts List

Assembly No. 7201110

PARTS LIST

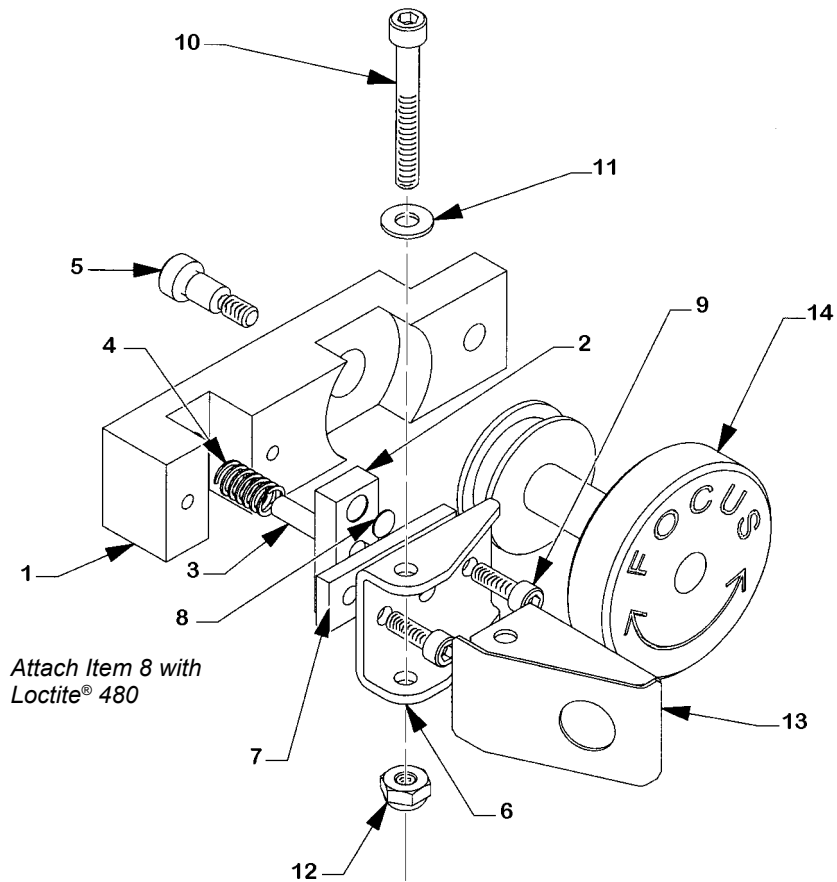
Figure 6

<u>Item</u>	<u>Part No.</u>	<u>Description</u>
1	7201058	Boomerang Housing Assembly
2	7201062	Color Arm Pivot Shaft
3	7200713	Bearing Block (2 req'd.)
4	7201061	Color Arm (6 req'd.)
5	7200911	Spacer (5 req'd.)
6	51376000	Color Disc Cover Plate (6 req'd.)
-	1456000	Brass Fastener, 1/2" (30 req'd.)
7	7200905	Color Release Lever
8	7200930	Release Lever Pivot Shaft
9	7158004	Torsion Spring
10	4151425	Thumb Screw Knob (3 req'd.)
11	4101501	Screw, 10-32 x 1-1/2" Socket Head
12	4101000	Screw, 10-32 x 1" Socket Head
13	3135012	Nutsert, 10-32 (2 req'd.)
14	7156001	Spacer, 3/8" Dia. x 3/4" Long
15	4088008	Acorn Nut, 10-32 (3 req'd.)
16	4198099	Hex Standoff, 1" Long, Thrd. 1/4-20 (3 req'd.)
-	4250508	Screw, 1/4-20 x 1/2" Pan Head
-	4258001	Lock Nut, 1/4-20
17	4198098	Standoff, 3/8" Hex, Thrd. 10-32 (Old Style; replaced by Item 16)
18	4107106	Bolt Retainer Push Nut (Old Style; replaced by Item 16)
19	4100374	Screw, 10-32 x 3/8" Socket Head
20	3135014	Nutsert, 1/4-20
21	4258008	Acorn Nut, 1/4-20
22	51396000	Color Arm Catch Hook (6 req'd.)
-	4080250	Mounting Screw, 8-32 x 1/4" Pan Head (12 req'd.)
23	51928000	Color Disc Slide Channel (6 req'd.)
24	51505000	Rocker Pad (2 req'd.)
25	4100371	Screw, 10-32 x 3/8" Pan Head
26	4250508	Screw, 1/4-20 x 1/2" Pan Head (4 req'd.)

NOT SHOWN

7201220	Safety Cable (see Figure 1, Item 18)
3198643	Carabiner Clip, Safety Cable

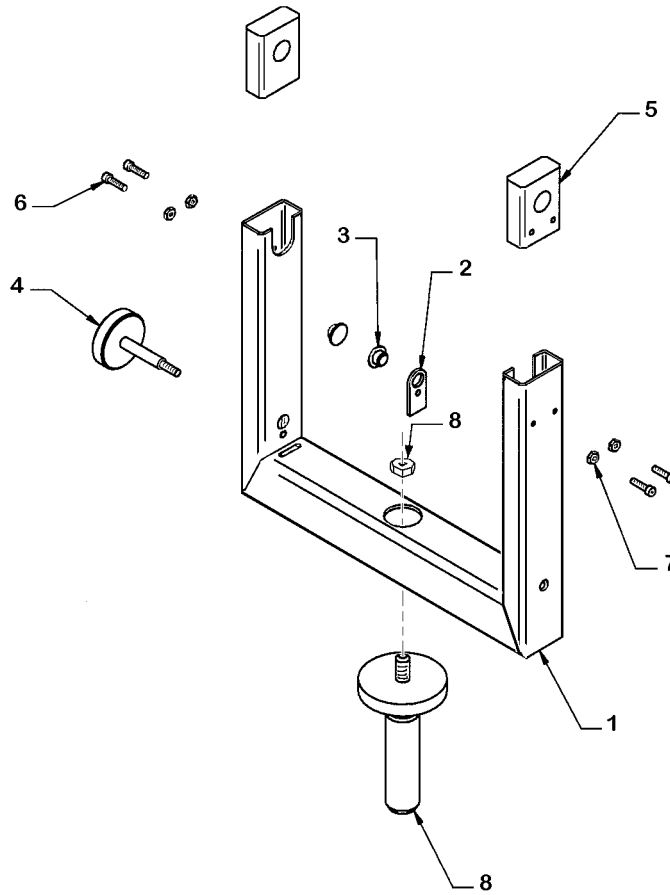
FIGURE 7



Assembly No. 7201106

<u>Item</u>	<u>Part No.</u>	<u>Description</u>	<u>Item</u>	<u>Part No.</u>	<u>Description</u>
1	7201116	Lock Carriage	8	4198128	Bumpon (2 req'd.)
2	7200857	Brake Block	9	4080502	Screw, 8-32 x 1/2" (2 req'd.)
3	2137014	Dowel Pin, 1-1/4" x 3/16" Dia.	10	4102500	Lock Release Pivot Bolt
4	2158040	Compression Spring	11	4107100	Flatwasher, #10 SAE
5	4151755	Shoulder Screw, 3/8"	12	4108002	Hexnut, 10-32 NyLoc
6	7200854	Lens Lock Bracket	13	7200962	Release Lever Assembly
7	7200963	Spacer	14	7201117	Focus Knob

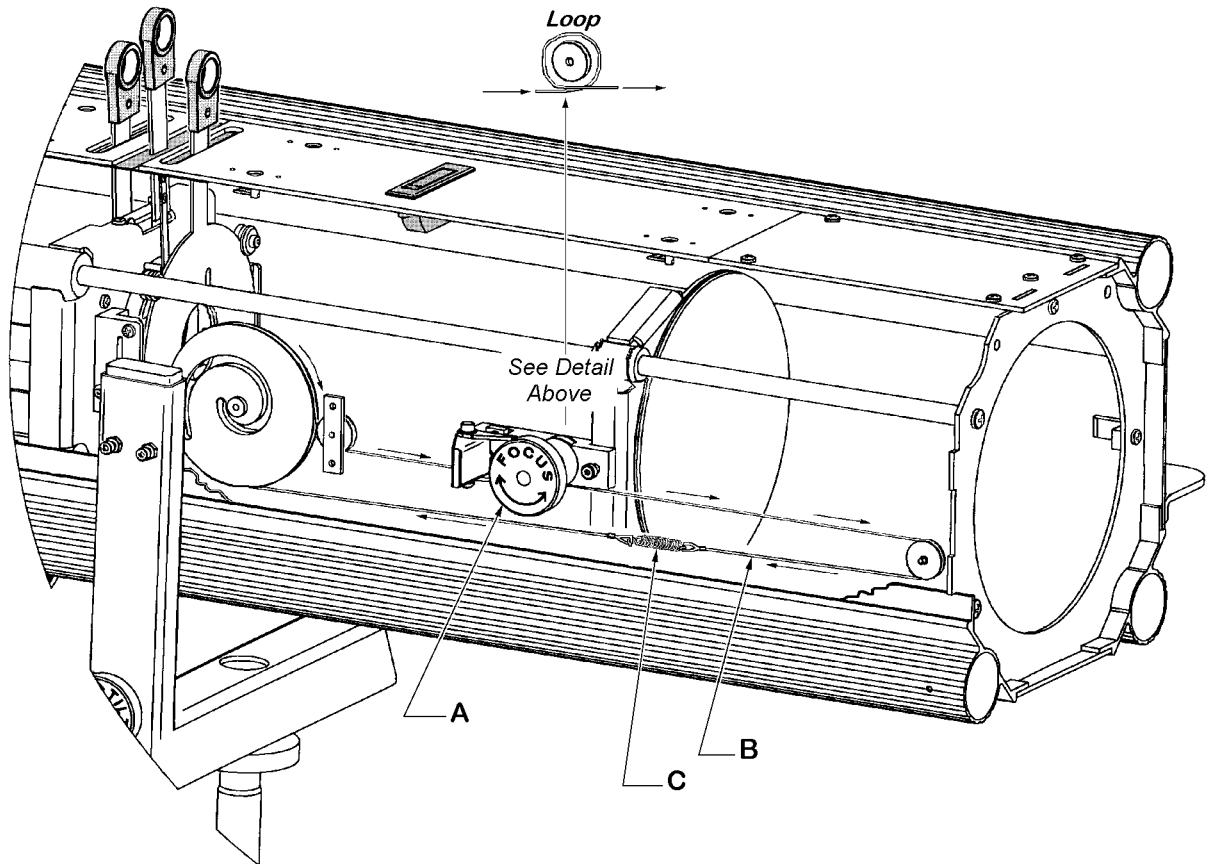
FIGURE 8



Assembly No. 7201105

<u>Item</u>	<u>Part No.</u>	<u>Description</u>
1	7201158	Yoke, Welded Assembly
2	7201162	Brake Shoe
3	7201163	Brake Plug (2 req'd.)
4	7201164	Locking Knob Assembly
5	7201072	Bearing Block, Nylon (2 req'd.)
6	7200854	Lens Lock Bracket
7	7200963	Spacer
8	7201161	Spigot & Hexnut

REPLACEMENT OF FOCUS CABLE ASSEMBLY



The Focus Cable Assembly 7201181 consists of the wire rope (B) cut to length and terminated with loops, and the expansion spring (C).

1. Dismount the knob and pulley assembly (A) from 7201106 Zoom/Focus Assembly (see Figure 7, Item 14). Loop the wire rope (B) around the pulley as shown, and replace the knob and pulley.
2. Route the wire rope as shown. Connect loops using the expansion spring (C) and pull wire rope over front pulley. Position the spring near center of loop to prevent its riding over pulley or cam.

