

Source Four™

Assembly Guide

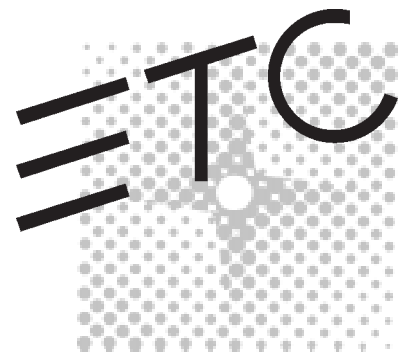


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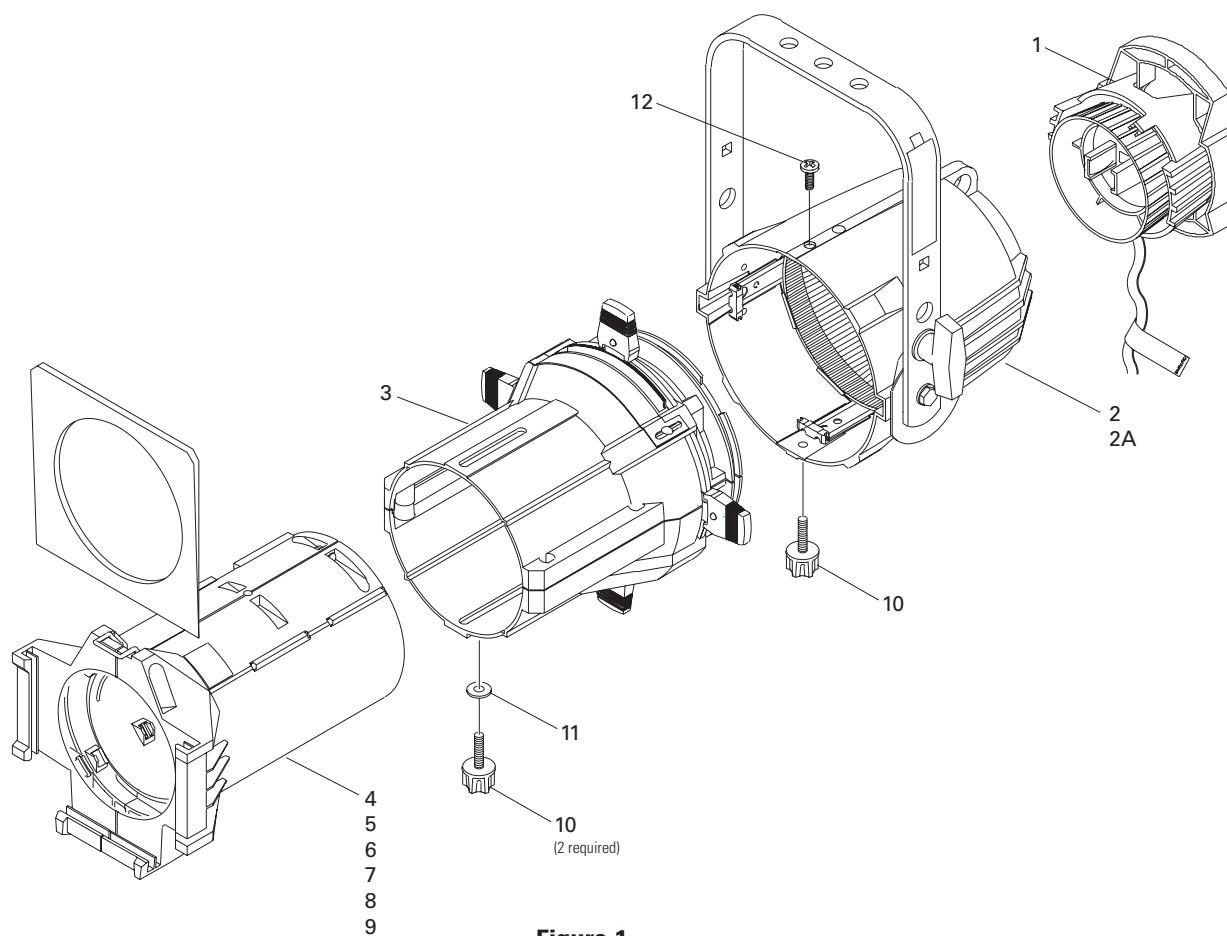


Figure 1

Final assembly

Reference Number	Part Number	Description	Quantity Required
1	7060A2008	Lamp socket assembly	1
2	7060A2011	Rear housing assembly, single clutch	1
2A	7060A2020	Rear housing assembly, double clutch	1
3	7060A2012	Front barrel assembly	1
4	7060A2000-K	5° lens tube, with knob (See page 14)	1
5	7060A2001-K	10° lens tube, with knob (See page 13)	1
6	7060A2002-K	19° lens tube (6 x 16), with knob	1
7	7060A2003-K	26° lens tube (6 x 12), with knob	1
8	7060A2004-K	36° lens tube (6 x 9), with knob	1
9	7060A2005-K	50° lens tube (4.5 x 6), with knob	1
10	7060A4008-01	Knob set with male insert	2
11	HW5143	Washer, flat fiber	1
Optional equipment			
12	HW5197	Screw, 1/4-20 x 5/8, black zinc	1

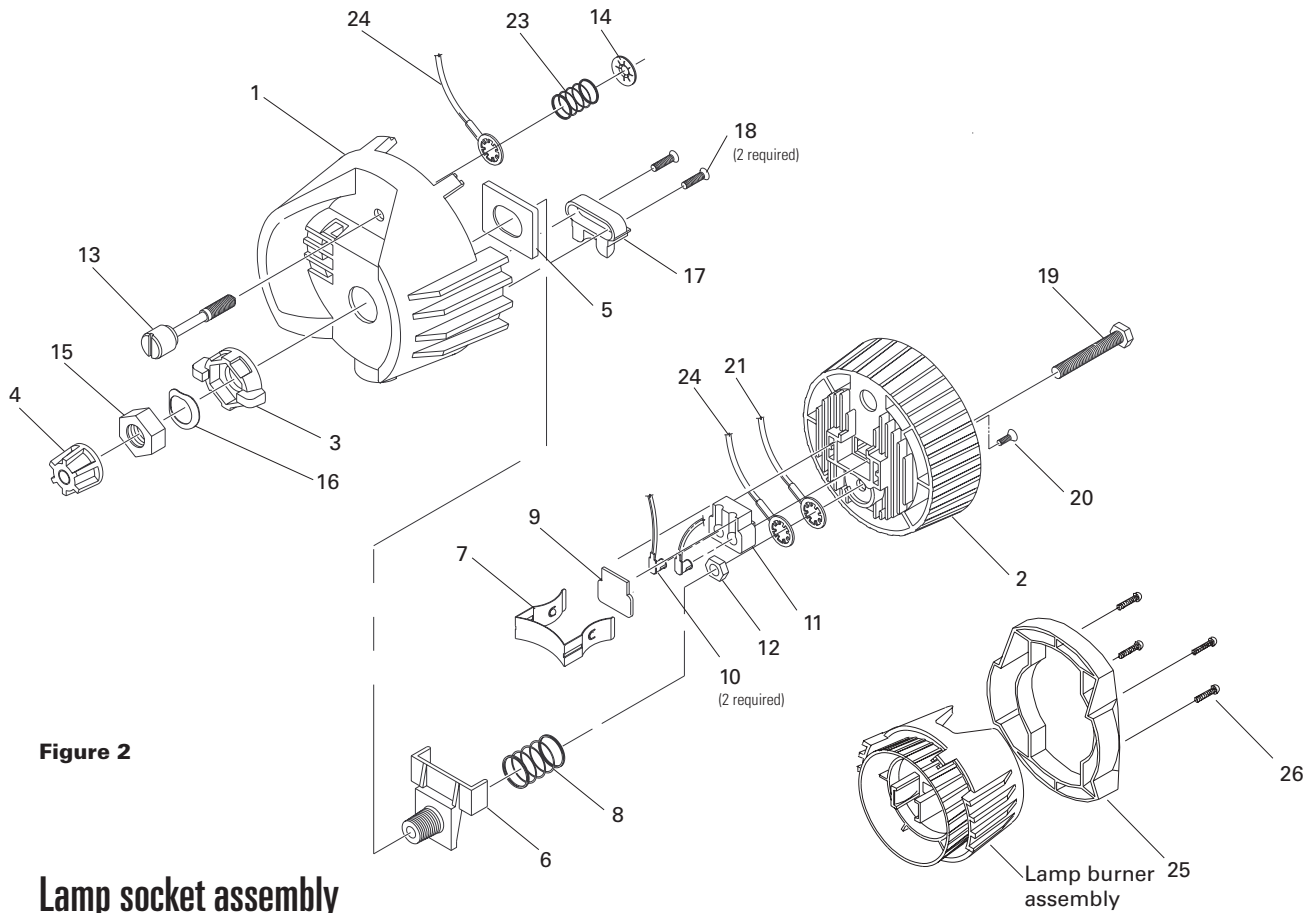


Figure 2

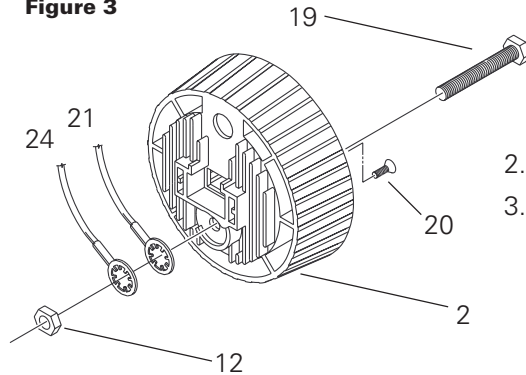
Lamp socket assembly

Reference Number	Part Number	Description	Quantity Required
1	7060A3055	Housing, socket, casting, painted	1
2	7060A3057	Socket, light baffle casting, painted	1
3	7060A4007	Knob, X-Y, lamp set	1
4	7060A4008-02	Knob, Z, lamp set w/female insert	1
5	7060A4011	Bushing, cup	1
6	7060A3011	Hub, index, casting	1
7	7060A3012	Spring, lamp retainer	1
8	HW748	Spring, compression	1
9-11	M718	Complete TP22 CLCM assembly	1
9	W330-03	TP22 CLCM assembly, mica	1
10	W330-04	TP22 CLCM 16-gauge, 1/4" semi-striped, Ni-gold contacts, 600V, 450°C	2
11	W330-02	TP22 CLCM assembly, ceramic	1
12	HW534	Nut, hex, 1/4-20, black zinc	1
13	7060A3025	Screw, 1/4-20 knurled head	1
14	HW746	Retaining ring, flat, Southco	1
15	HW5123	Nut, hex, 9/16-18, black zinc	1
16	HW747	Washer, wave	1
17	7060A3056	Clamp, strain relief, painted	1
18	HW3103	Screw, 8-32 x 5/8 PhFHMS, black zinc	2
19	HW5122	Bolt, 1/4-20 x 1.75, full thread, black zinc	1
20	HW2125	Screw, self tap, 6-32 x 1/4, black zinc	1
21	7060B7003	48" W420 wire, 16 gauge, 200° C/300V, green, UL 1180/CSA AWM with lug J490T installed	1
22	W689	36" sleeve, fiberglass (not pictured)	1
23	HW749	Spring, ground	1
24	7060B7007	4" W420 wire, 16 gauge, 200° C/300V, green, UL 1180/CSA AWM with two J490T lugs installed	1
25	7060A4037	Handle, insulated rear, black	1
26	HW2181	Screw, 6-32 x 3/4, Taptite	4

Lamp socket assembly

Tools required: Open-end adjustable wrench or a 7/16" socket, needle-nose pliers, screwdriver.

Figure 3

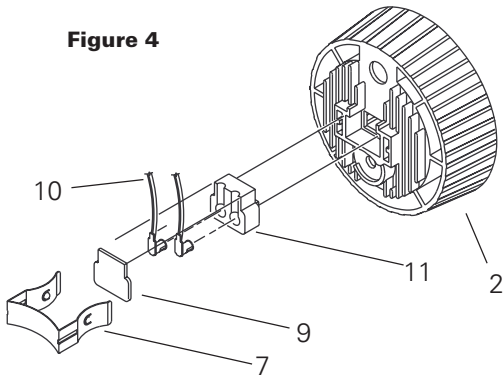


1. Install the screw (20) into the light socket baffle casting as shown in figure 3. (Also see figure 10 on page 9.)

Note: Do not install the screw if the fixture will be used with 77V lamps and ETC's Dimmer Doubler. This screw prevents 77V lamps from being installed.

2. Insert the bolt (19) through the light baffle socket casting (2).
3. Install the green ground wire assemblies (21 and 24) on the bolt (19) with the prongs on the crimped connectors toward the casting. Run both wires through the indent in the lip around the bolt hole. Secure with nut (12) and torque to 60 inch pounds.

Figure 4

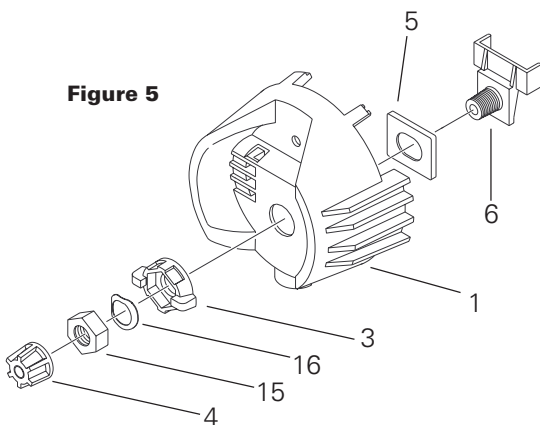


4. Place the ceramic TP22 socket (11) into the light baffle socket casting (2) as shown in figure 6. Be sure it is well seated. Firmly push the connectors on the white TP22 leads (10) into the grooves in the socket.

5. Place the TP22 mica (9) over the leads, then install the lamp retainer spring (7). The lamp retainer spring secures the mica. Insert the spring one end at a time, making sure the rectangular slot in each side of the spring seats on the corresponding tab in the casting.

Important: If the spring does not seat correctly, coax it into place with a screwdriver or needle-nose pliers.

Figure 5



6. Install the bushing cup (5) into the housing socket casting (1) as shown in figure 5. The cup should slide smoothly up and down, but not side to side.

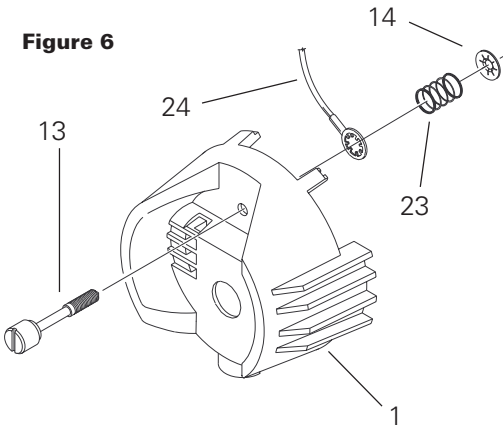
7. Insert the threaded end of the index hub (6) through the holes in the bushing cup and the back of the housing socket casting (1).

8. Slide the X-Y knob (3) over the exposed index hub bolt (6), then insert the wave washer (16) on the bolt and secure with the 9/16 hex nut (15). Hand tighten the X-Y knob (3).

Note: Install the wave washer with the upward curve toward the hex nut.

9. Lay the leads in the bottom half of the cable clamp, making sure that the fiberglass sleeving extends slightly past the screw holes in the housing socket casting, (install new sleeving if necessary)

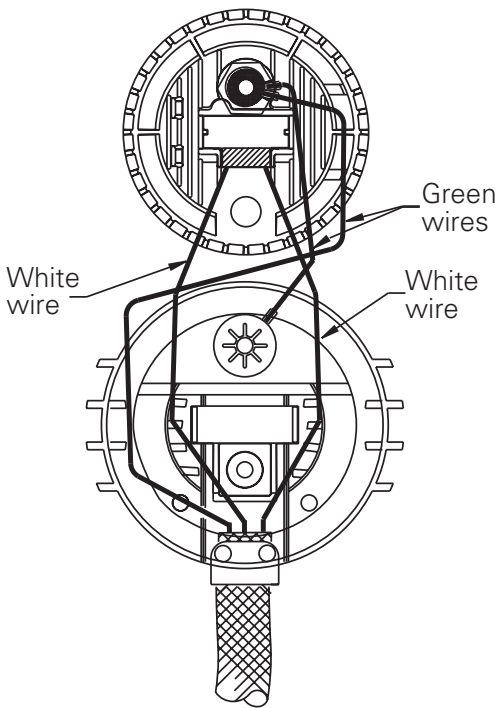
Figure 6



10. Insert the knurled head screw (13) through the housing socket casting (1) as shown in figure 6.
11. Install the shorter green ground wire (24) with the prongs on the crimped connector toward the casting onto the screw.
12. Install the ground spring (23) onto the screw and secure it with the Southco flat retaining ring (14). Install the Southco ring with its prongs away from the casting.

Note: Use pliers to straighten the Southco retaining ring (14) if it bends when you install it on the bolt.

Figure 7



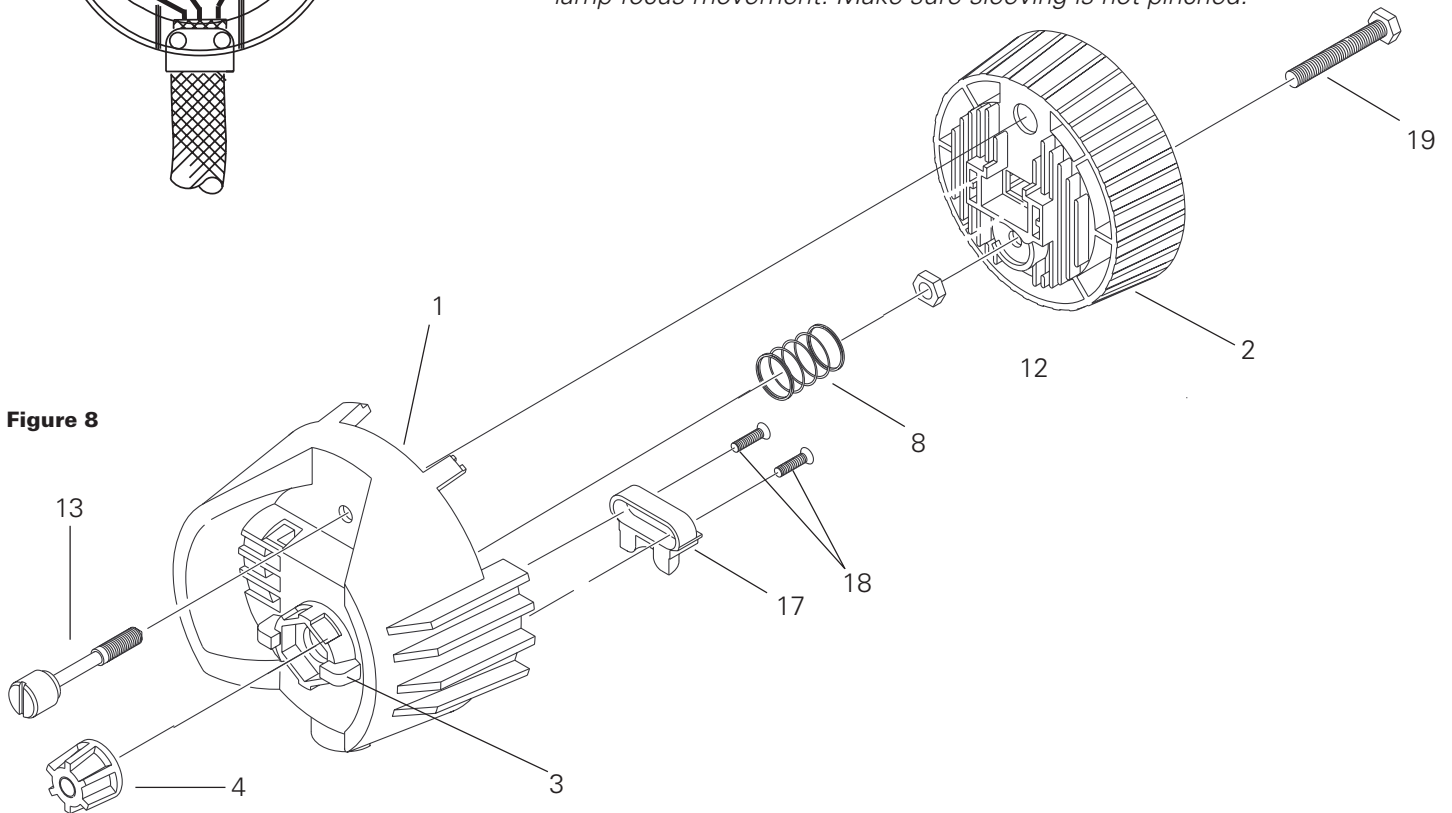
13. Lay the leads in the bottom half of the cable clamp, making sure that the fiberglass sleeving extends slightly past the screw holes in the housing socket casting. Install new sleeving if necessary. Then, route the wires as shown in figure 7.

Important: You must follow the wire routing diagram to ensure that the socket leads do not interfere with the lamp focus mechanism.

14. Install the top half of the cable clamp (17) and secure it with the two screws (18) as shown in figure 8. Tighten the screws alternately to ensure a solid connection.

Note: To ensure that the clamp holds the cable tightly, flatten the cable, then fold over the sleeving before you install the top half of the clamp. Make sure the top edge of the cable clamp is even with the edge of the socket to prevent interference with lamp focus movement. Make sure sleeving is not pinched.

Figure 8



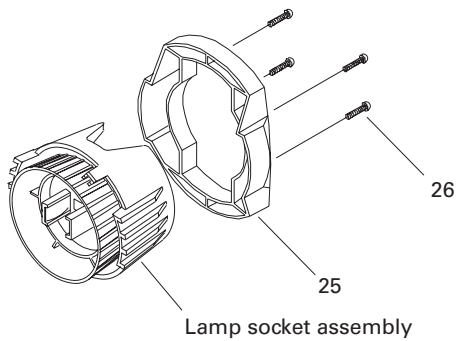


Figure 9

15. Using the four screws (25), attach the handle (26) to the lamp socket assembly. See figure 9.
 16. Place the spring (8) on the protrusion on the inside of the index hub (6).
 17. Insert bolt (19) through the light socket baffle (2), thread nut (12), through spring (8) and through the index hub (6) of the housing socket (1), joining the two castings. Make sure wires are not pinched between the two pieces.
 18. Before proceeding, check again to make sure the wires are still positioned as indicated in figure 7. Adjust if necessary.
 19. Press the two castings together firmly so the bottom of the light baffle (2) sits on top of the cable clamp (17), then install the X-Y lampset (3) and Z lamp knob (4). Hand tighten the knob all the way to the right.
- Important:** You must install Z knob as described above to ensure proper lamp focus travel.
20. Set the crossbar of the retainer clip (27) under the two hooks on the clip bracket as shown in figure 10.
 21. Place the Tinnerman clip (28) over the retainer clip crossbar between the two hooks and press it down firmly until it snaps into place.

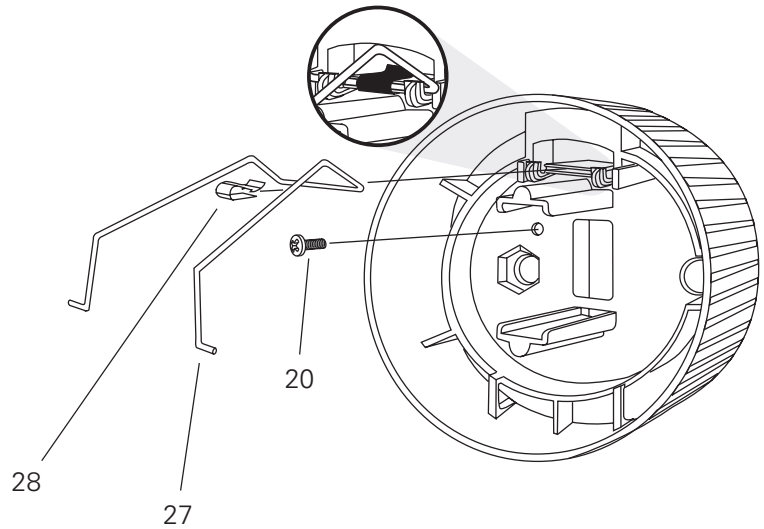


Figure 10

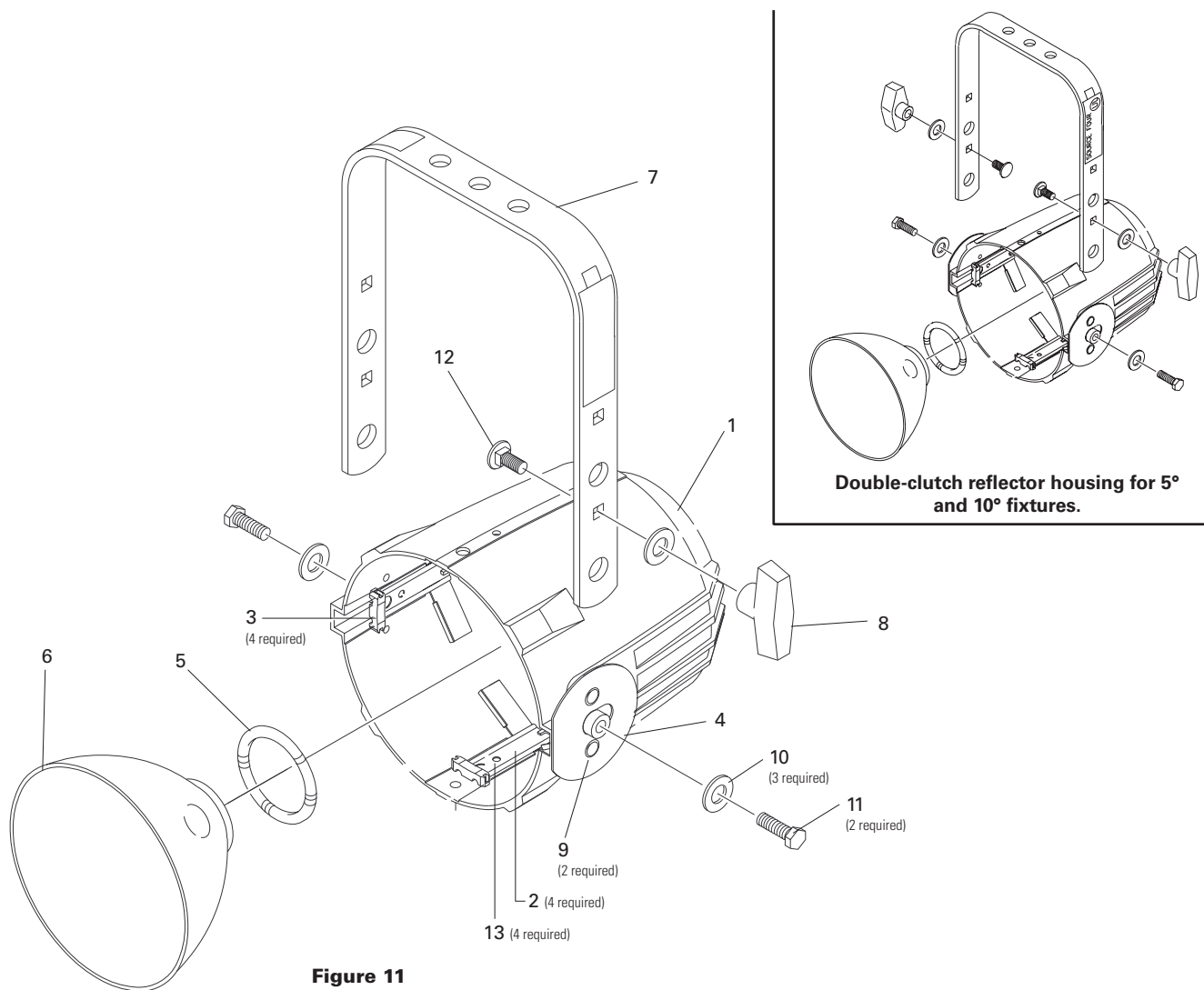


Figure 11

Reflector housing assembly

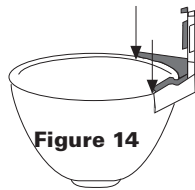
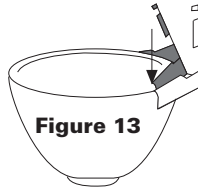
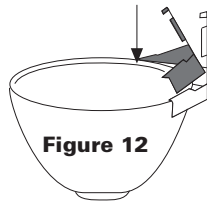
Reference Number	Part Number	Description Required	Quantity
1	7060A3054	Housing, reflector casting, painted black	1
2	7060A3006	Clip, reflector retainer	4
3	7060A4010	Bushing, gate	4
4	7060A3016	Plate, clutch	1
5	7060A3019	Spring, reflector support	1
6	7060A4015	Reflector, molded glass, coated	1
7	7060A3058	Bracket, yoke, painted	1
8	HW8144	Handle, yoke knob, 5/16 - 18	2
9	HW753	Rivet, machine, 3/16 x .720, flat head, black zinc	2
10	HW5126	Washer, flat, 5/16, black zinc	4
11	HW372	Screw, 8-32X1/4, PHPHMS B/Z	2
12	HW5125	Bolt, carriage, 5/16-18 x .75, black zinc	2
13	HW752	Rivet machine, 3/16 x 5/16, black zinc	4

Optional equipment

HW5127 Nut, hex 5/16-18 (can be used with (11) hex bolt)

To remove a reflector

Tools required: Two spare reflector retainer clips (2).



1. Wedge one arm of a spare retainer clip between the lip of one of the installed clips and the rim of the reflector, then slide the arm down between the installed clip and the reflector as shown in figure 12.
2. Insert the other arm of the spare clip between the other arm of the installed clip and the reflector, as shown in figure 13.
Warning: Do not slide the spare clip all the way in or it will be very difficult to remove...leave at least a quarter inch exposed.
3. Now slide the entire clip between the reflector and the installed clip as shown in figure 14. Remember, do not slide it all the way in.
4. Repeat this procedure with the second spare clip, inserting it between an adjacent installed clip and the reflector.
5. Turn the reflector housing casting over, so that the rear of the reflector is in view. Gently push on the reflector, toward the side of the housing where the extra clips were placed. The reflector will slip off to the side at an angle.
6. Turn the reflector housing casting back over and gently slide the reflector out from under the retaining clips.

To install a reflector

Note: The following assumes all four reflector retainer clips (2) have already been riveted to the reflector housing casting (1) and the gate bushings (3) installed on the retainer clips.

1. Place the reflector housing casting (1) on a flat work surface with the large opening facing up.
2. Install the reflector support spring (5) in the circular opening at the base of the casting.
3. Insert the reflector (6) at an angle, under any three legs of the reflector's clips.
4. Gently press down on the reflector until it snaps into place under the clips.

Note: If the reflector does not snap in, turn the casting over. Gently pull on the side of the reflector that has not snapped in until the rest of the reflector slides into place.

To clean the reflector

Remove dust with a blast of oil-free air or wipe with a clean, lint-free cloth using alcohol or distilled water (alcohol is recommended).

Warning: Do not use glass and window cleaners on the reflector. Chemicals in these cleaners will stain the reflector.

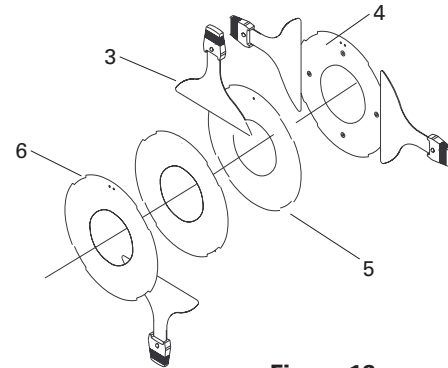
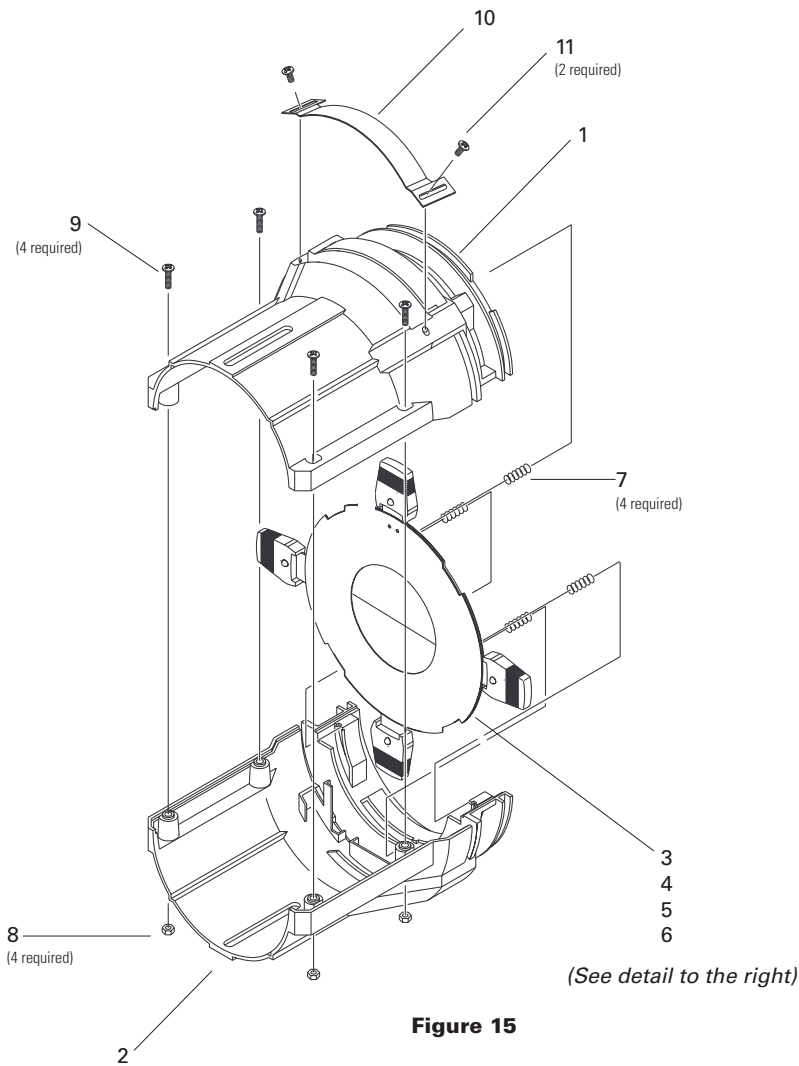


Figure 16

Note: The bottom divider plate (4) has four dimples punched into the surface; the top plate (6) has none. The middle divider plates (5) are noticeably thinner-gauge metal than the other two.

Front barrel assembly

Reference Number	Part Number	Description	Quantity Required
1	7060A3052	Front barrel, top casting, painted	1
2	7060A3053	Front barrel, bottom casting, painted	1
3	7060A2025	Shutter blade assembly, 22 gauge	4
4	7060A3001-01	Plate, divider with dimples (bottom)	2
5	7060A3003	Plate, gate (middle)	1
6	7060A3001-02	Plate, divider (top)	1
7	HW754	Shutter spring	4
8	HW370	Nut, Ny-lok, 8/32, black zinc	4
9	HW3154	Screw, 8/32 x 5/8, Taptite	4
10	7060A3045	Cover, iris slot	1
11	HW232	Screw, 6-32 x 1/4, black zinc	2

Front barrel assembly

Tools required: Phillips head screwdriver.

1. Stand the top and bottom front barrel castings (1 and 2) upright with the shutter openings down.
Note: *The top front barrel casting contains the iris slot.*
2. Slide in the bottom divider plate (4). The dimples on the divider plate must point down.
Note: *The notches on the divider plates must fit snugly against the flanges in the casting so the plates do not move.*
Warning: *Divider plate edges are sharp. Handle with caution!*
3. With the bottom barrel to your left, place two shutter blades (3) on top of dimple plate (4), handles facing outward, up and down.
Note: *Install shutter blades with the rounded side facing up toward the front of the casting.*
4. Place a divider plate (5) on top of the two shutter blades.
5. Place another shutter blade on top of the middle divider plates. Then place another divider plate on top.
6. Place the fourth shutter blade on top of the divider. Pull the blade and plate assembly slightly forward to allow the handle to slip through the slot in the bottom casting.
7. Place the top divider plate (6) on top of the fourth shutter blade.
Note: *Make sure no shutter assembly components are under the pattern holder guides.*
8. With both front barrel castings still standing upright, join the two halves, sliding the handle of the top shutter blade through the slot in the top front barrel casting (1).
9. Starting at the bottom of the castings (closest to the shutters), use four PHMS screws (9) and Ny-lok nuts (8) to fasten the front barrel casting halves together, as shown. Hold the Ny-lok nuts tight against the casting while tightening the screws. Torque the screws to 25 inch/pounds.
Note: *The tops of the two front barrel castings must be even. Adjust as necessary before completely tightening the nuts and screws. Failure to do this could interfere with the barrel rotation.*
10. Turn the front barrel assembly over so that the narrower end is on your work surface.
11. Install the four shutter springs (7) between the four dimples in the shutter plate and the tabs in the lip of the casting.
Note: *Install the springs at the joints in the castings on either of the tabs at the joint. Once they are installed, the springs at the joints will sit at a slight angle.*
Caution: *During assembly, the shutter springs can pop out of place. Always wear protective eyewear during this procedure.*
12. Place iris slot cover (10) over the iris slot. Use two screws (11) to secure the cover.

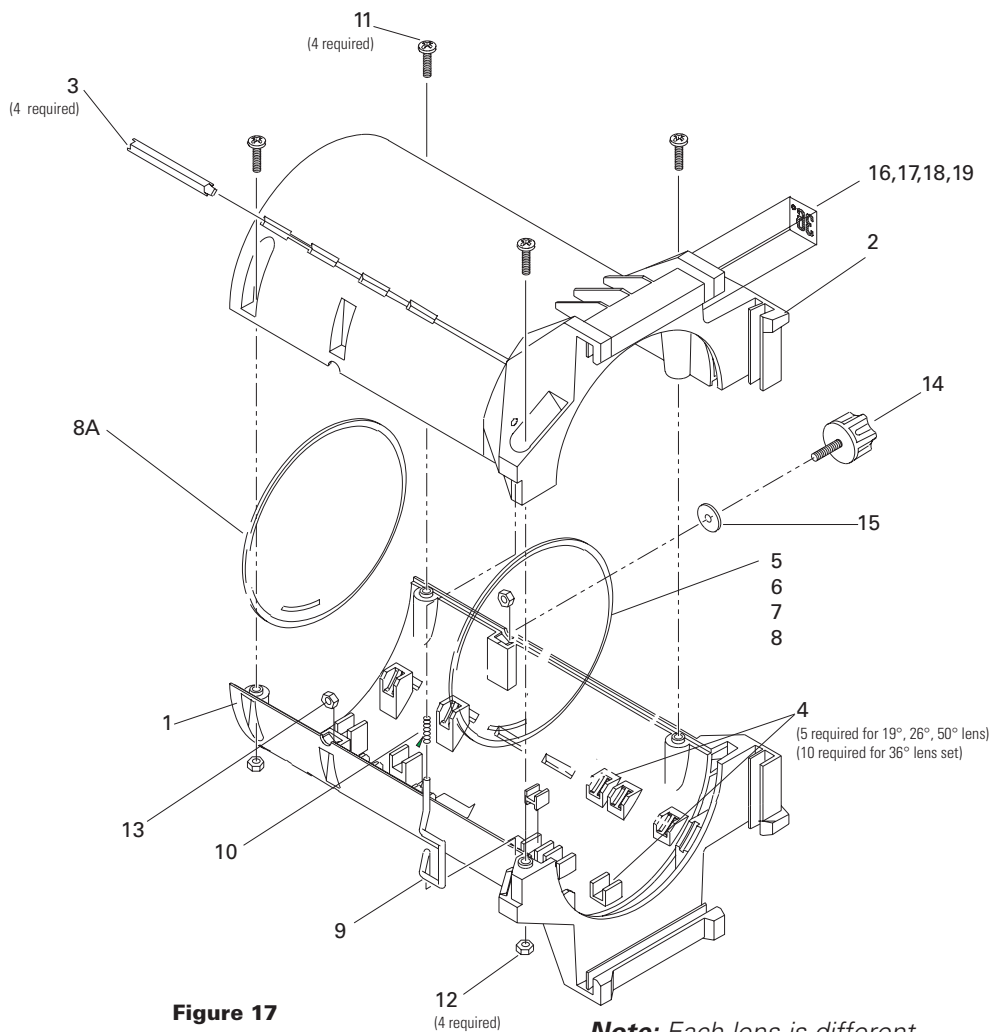
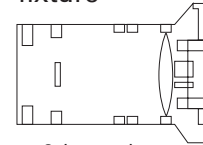


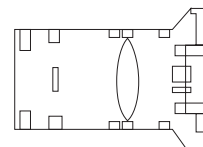
Figure 17

Note: Each lens is different. Do not interchange. i.e., do not place a 19° lens in a 26° slot.

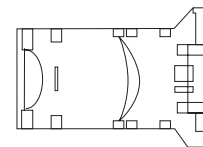
Place side of lens with painted dot toward front of fixture



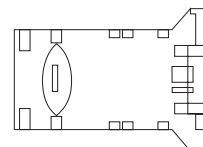
19° (6x16)
Red dot



26° (6x12)
Black dot



36° (6x19)
No dots



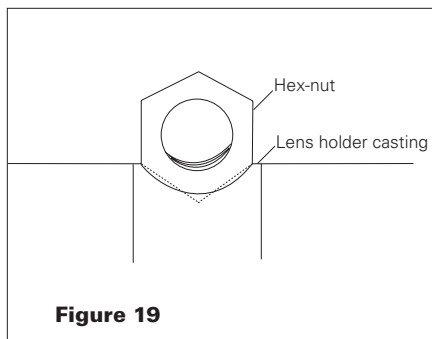
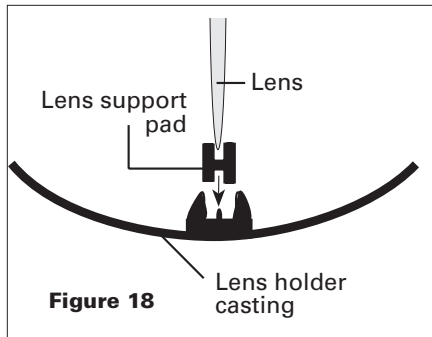
50° (4.5x6)
Yellow dots

19°, 26°, 36°, and 50° lens tubes

Reference Number	Part Number	Description	Quantity Required
1	7060A3102	Lens tube, left, painted	1
2	7060A3104	Lens tube, right, painted	1
3	7060A4009	Bushing, guide	4
4	7060A4012	Pad lens support - asphere	5
		Pad lens support - meniscus set	10
5	7060A4002	Aspheric lens, 19°	1
6	7060A4001	Aspheric lens, 26°	1
7	7060A4004	Aspheric lens, 50°	1
8	7060A4020	Meniscus lens, 36° set, front	1
8A	7060A4021	Bi-convex lens, 36° set, rear	1
9	7060A3079	Clip, gel retainer, 90° bend	1
10	HW750	Spring, retainer	1
11	HW369	Screw, PHMS, 8-32 x 3/4, black zinc	4
12	HW370	Nut, Ny-Lok, 8/32, black zinc	4
13	HW534	Nut, hex, 1/4-20, black zinc	1
14	7060A4008-01	Knob set with male insert	1
15	HW5134	Washer, flat, 1/4	1
16	7060A4033	19° lens tube label	1
17	7060A4034	26° lens tube label	1
18	7060A4035	36° lens tube label	1
19	7060A4036	50° lens tube label	1

19°, 26°, 36°, and 50° lens tube assembly

Tools required: Phillips head screwdriver.



1. Place the left and right lens holder castings (1 and 2) face up on your work surface with the colorframe grooves to your left.
2. Install lens support pads (4) as required inside both lens holder castings. Four pads are required per lens.

Note: Pads must be inserted short side down as shown.

3. Install the 1/4-20 hex nut (13) in the left lens holder casting as shown.
4. Install the short end of the gel retainer clip (9) in the left lens holder casting (1).
5. Position the clip in the forward, locked position, then install the retainer spring (10) on the clip.
6. Install the required lens (or lenses) (5,6,7, 8 or 8A) as shown on page 10.

Note: 19°, 26° and 50° aspheric lenses have painted dots to orient the lens in the tube. Install the lens with the painted dot facing the front of the tube. Seat the lens in the support pads so the dot remains visible.

7. Fit the clip (9) and spring (10) into the right lens casting (2). Gently place the right lens casting onto the left lens casting, making sure that the 1/4-20 hex nut and retaining clip assembly stay properly seated.

Note: Look into the lens holder while placing the castings together. Make sure the lens stays straight and that the top edge seats properly into the support pads.

8. Install the PHMS screws (11) and Ny-lok nuts (12) in four locations. Hold the nuts tight against the casting and torque the screws to 25 inch pounds.
9. Install the six bushing guides (3). Point the narrow tab on the bottom toward the back of the casting; point the square tab toward the front. Squeeze the guides slightly so they bend in the middle then snap into place.

Note: If there is a curve in the top of the guide, install the guide so that the flat portion is towards the back of the tube.

Cleaning 19°, 26°, 36°, and 50° glass lenses

1. Dampen a clean, lint-free cloth with vinegar or household ammonia. You may use water, but it leave spots. You can remove the spots by polishing the lens gently with a clean, dry cloth.

Warning: Never use glass and window cleaner or any abrasive material to clean the lens. Glass and window cleaners will stain the lens surface. Abrasive materials (such as steel wool) will damage the surface of the lens.

2. Starting from the center, gently wipe the lens.

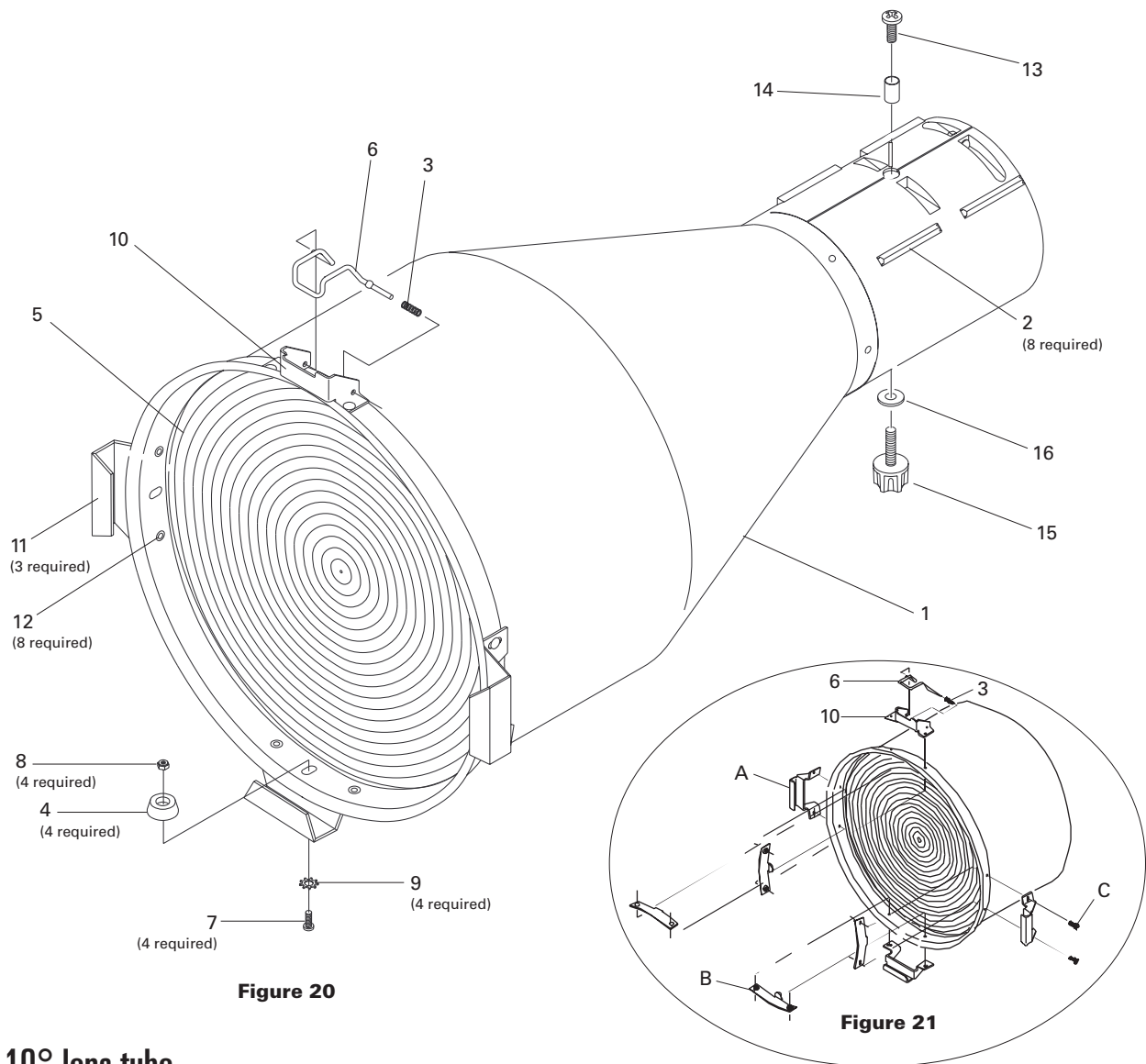


Figure 20

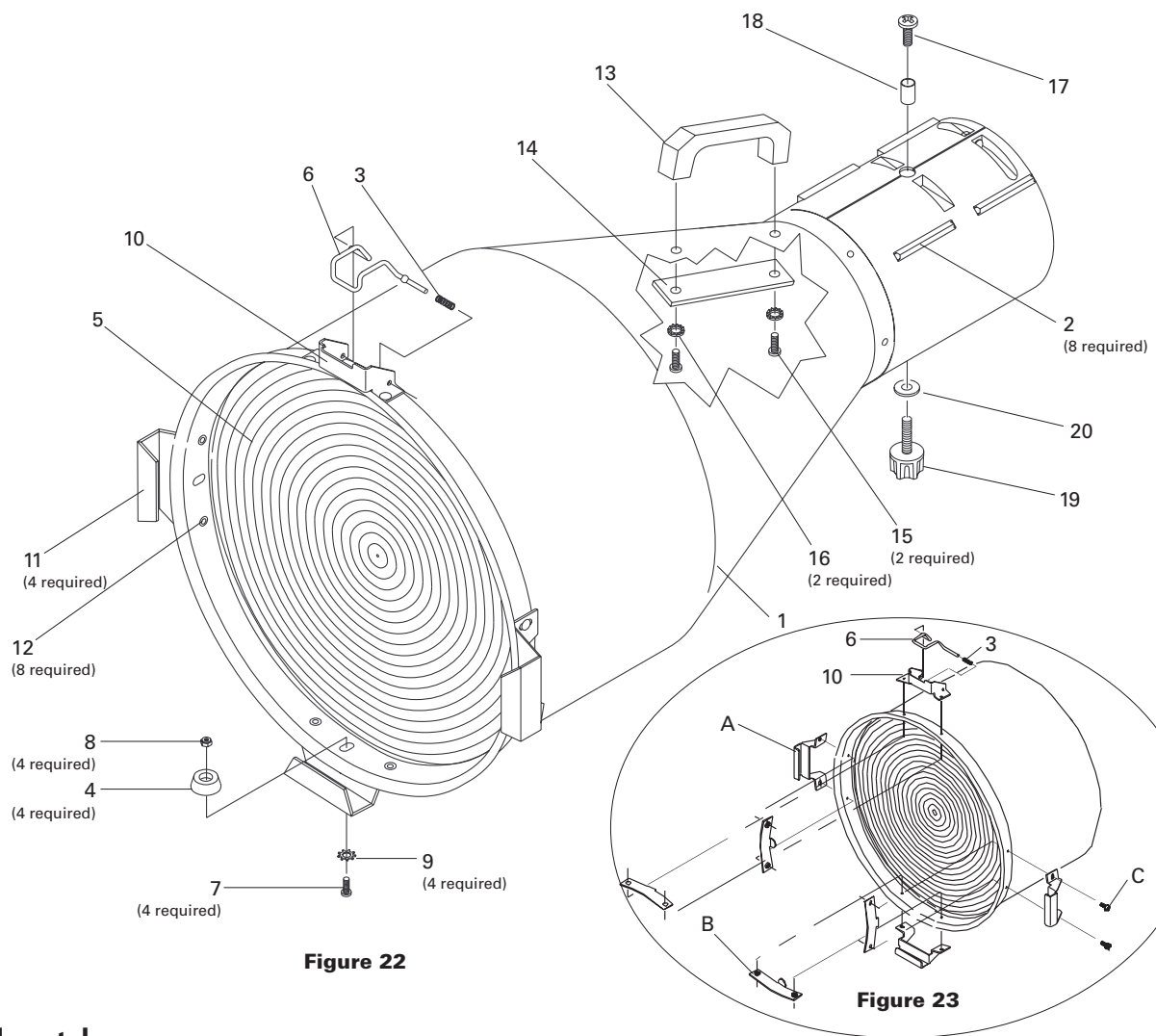
Figure 21

10° lens tube

Reference Number	Part Number	Description	Quantity Required
1	7060A3096	10° lens tube assembly, painted	1
2	7060A4009	Bushing, guide	8
3	HW750	Spring, retainer	1
4	HW6122	Bumper, recess rubber	4
5	7060A4025	Lens, 10°, 10"	1
6	7060A3079	Clip, gel retainer	1
7	HW307	Screw, 8-32 x .38 lg, SPHMS, black zinc	4
8	HW370	Nut, 8-32, 3/8, 1/4, black zinc	4
9	HW3104	Washer, .170 x .381 x .023, black zinc	4
10	7060A3066	Bracket, gel clip	1
11	7060A3086	Clip, gel holder	3
12	HW759	Rivet, .125 x .125 lg. oval head	8
13	HW5197	Screw, 1/4, 20x58 PHRMS, black zinc	1
14	HW5200	Washer, SH, .253 x .281 x .438, black zinc	1
15	7060A4008	Knob, Z lamp, with male insert	1
16	HW5143	Washer, Flt. 1/4, .252 x .500 x .060, FL	1

10° lens tube prior to 3/96

A	7060A3065	Clip, gel holder	3
B	7060A3081	Gel ear mounting bracket with inserts	4
C	HW396	Screw, 8-32 x 3/8, pan hd sems, black oxide	8



5° lens tube

Reference Number	Part Number	Description	Quantity Required
1	7060A3095	5° lens tube assembly, painted	1
2	7060A4009	Bushing, guide	8
3	HW750	Spring, retainer	1
4	HW6122	Bumper, recess rubber	4
5	7060A4024	Lens, 5°, 12"	1
6	7060A3079	Clip, gel retainer	1
7	HW307	Screw, 8-32 x .38 lg, SPHMS, black zinc	4
8	HW370	Nut, 8-32, 3/8, 1/4, black zinc	4
9	HW3104	Washer, .170 x .381 x .023, black zinc	4
10	7060A3066	Bracket, gel clip	1
11	7060A3086	Clip, gel holder	3
12	HW759	Rivet, .125 x .125 lg. oval head	8
13	HW8170	Handle, 10-32 inserts	1
14	7060A3073	Handle backing plate	1
15	HW467	Screw, 10-32 x 1/2 PHTRMS	2
16	HW443	Washer, .195 x .410 x .025 black zinc	2
17	HW5197	Screw, 1/4, 20x58 PHRMS, black zinc	1
18	HW5200	Washer, SH, .253 x .281 x .438, black zinc	1
19	7060A4008	Knob, Z lamp, with male insert	1
20	HW5143	Washer, Fit. 1/4, .252 x .500 x .060, FL	1
5° lens tube prior to 3/96			
A	7060A3065	Clip, gel holder	3
B	7060A3081	Gel ear mounting bracket with inserts	4
C	HW396	Screw, 8-32 x 3/8, pan hd sems, black oxide	8

5° and 10° lens tube assembly

Tools required: Phillips head screwdriver.

1. Place the lens tube assembly (1) on your work surface with the colorframe grooves to your left.
2. If you are assembling a 5° tube, attach the handle (14) as shown on page 14, using the screws (15), washers (16) and backing plate (18) indicated.
3. Install the required lens as shown on page 13 or 14 and tube using required bumpers (4), screws (7), nuts (8), and washers (9) as indicated.

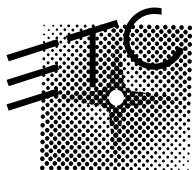
Note: *The side of lens with fresnel grooves should face the front of the tube. The smooth lens surface should face the rear.*

Cleaning 5° and 10° polymer lenses

Caution: *Handle polymer lenses by their edges only. Never rub anything dry on a polymer lens. Do not use glass and window cleaners on the lens.*

Remove dust with a blast of oil-free air. If this is not sufficient, follow the instructions below.

1. Dip lens in clean alcohol/water mixture (10% alcohol).
2. Use a moistened nylon bristle brush to wash the smooth side in a straight motion.
3. Use the same moistened brush to clean the ridged side, following the ridges, without hand pressure.
4. Dip lens in clean alcohol/water mixture (10% alcohol).
5. Use air gun to dry the smooth surface.
6. Use air gun to dry the ridged surface. Use air stream to move the liquid away from you. Continue to remove as much liquid as possible.
7. Inspect the lens for dirt. Repeat the entire process, as necessary.



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Source Four™ is protected by US patent number 5,268,613; 5,345,37; 5,446,637 and 5,544,029. Japan patent number 2,501,772. US and International patents pending.

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Revised 02/01. 7060M1003 Rev. C