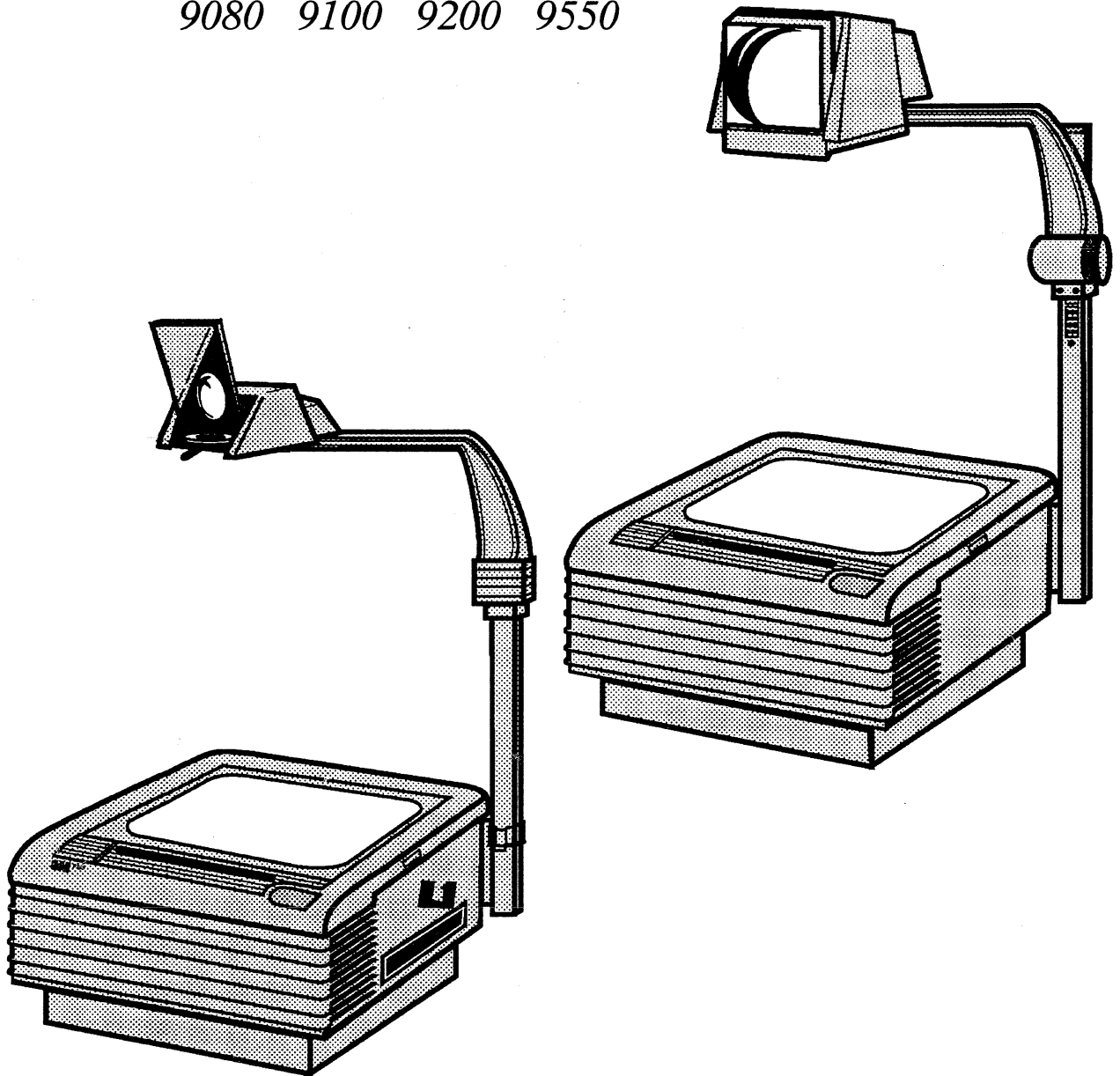


3M **9000 Series** **Overhead Projector**

Service Manual

For: 9050 9060 9070 9075,
9080 9100 9200 9550



3M Visual Systems Division

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Austin, Texas 78726-9000

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1-1. Overview

This service manual is written for the service technician who has basic electrical knowledge and technical skills. It contains projector specifications, servicing instructions, operating instructions, assembly and disassembly of parts instructions, a troubleshooting guide and electrical and wiring diagrams.

Refer to the Illustrated Parts Breakdown (Publication 78-6970-4919-1) to cross-reference part numbers required to order replacement parts. Common hardware parts are available in a kit (M9000 Series Hardware Repair Kit 78-8054-1818-9) or can be purchased at your local hardware store.

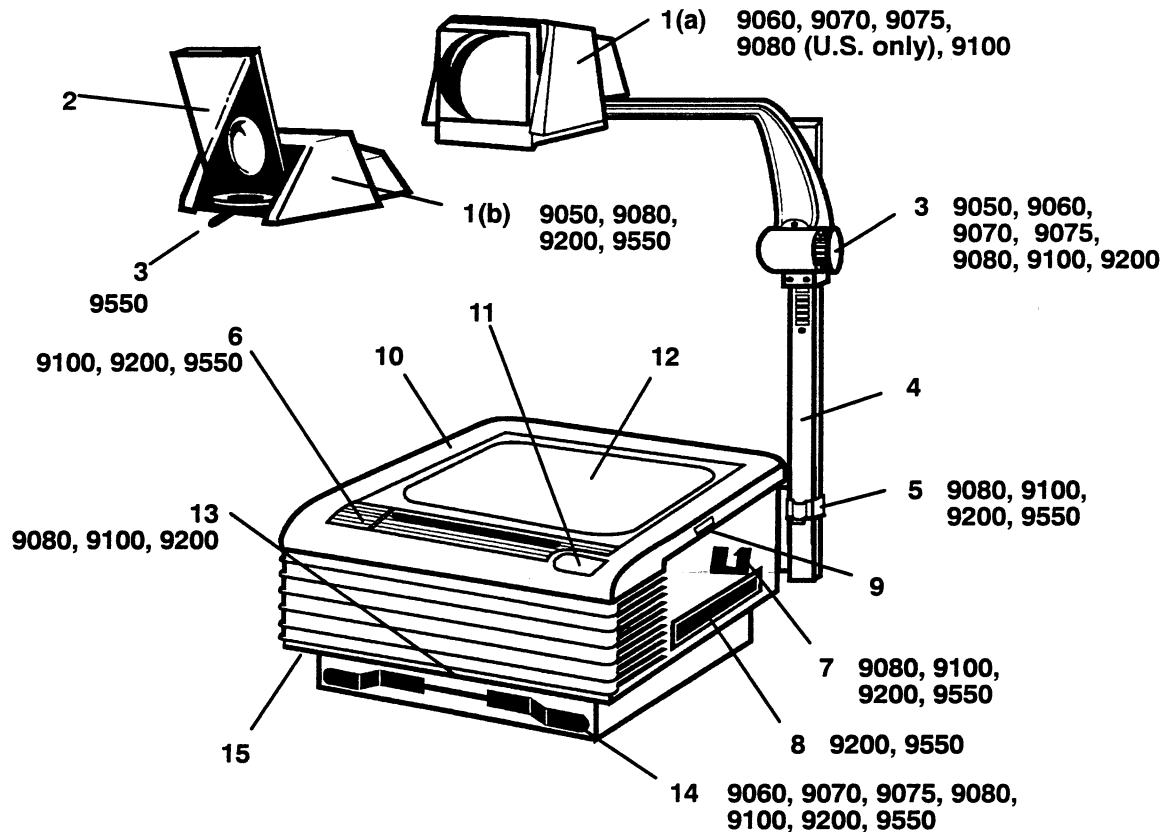


Figure 1-1. 9000 Projector

1-1-1. Parts Identification

- | | |
|--|---------------------------------------|
| 1. Projection Head | 7. Post Cradle |
| a. Open Head (singlet, triplet, varifocal) | 8. Carry Handle |
| b. Articulate Closed Head (singlet, double) | 9. Top Cover Release (with interlock) |
| 2. Projection Mirror | 10. Top Cover |
| 3. Focus Knob | 11. On/Off Power Switch |
| 4. Post Assembly | 12. Stage Glass |
| 5. Post Lock | 13. Color Tuning Adjustment |
| 6. Control Panel (with lamp interrupt switch) | 14. Cord Wrap |
| a. Lamp Changer | 15. Machine Identification Plate |
| b. High/Low Lamp Switch (On some A-4 models, switch is located inside the top cover) | |

1-1-2. Physical Dimensions

The following dimensions and weights listed below are approximate.

Width: (Body only)	14.25 in.	362mm
(Body & post)	16.25 in.	413mm
Depth: (Post up)	16.75 in.	495mm
(Post down)	25.50 in.	648mm
Height: (Body only)	8.50 in.	216mm
(Top of head)	28.00 in.	711mm
Weight: 9050 ENX	18.0 lbs	8.2 kg
9050 FNT	22.0 lbs	10 kg
9060, 9070 ENX	18.0 lbs	8.2 kg
9075 ENX	17.8 lbs.	8.1 kg
9080 ENX	18.5 lbs	8.4 kg
9080 FNT	22.5 lbs	10.4 kg
9100 ENX	18.5 lbs	8.4 kg
9100 FNT	22.5 lbs	10.2 kg
9200 FXL	19.0 lbs	8.6 kg
9200 FNT	23.0 lbs	10.4 kg
9550 EVD	29.0 lbs	13.2 kg

1-1-3. Safety Features

All versions of the 9000 projectors include:

- Interlock – Shuts off power to projector when the top cover is opened.
- Thermostat – Shuts off power to the lamp if unsafe operating temperature should occur.

1-2. Principles of Operation

The 9000 series projector is a transmissive projector. The light source (lamp) is located in the base of the projector where light is directed through an optical path of reflectors, lenses and mirrors to produce the projected image. *Proper alignment of optical components is essential for attaining maximum resolution and brightness.*

1-2-1. Optical Components

The following optical components (Figure 1-2) are found in 9000 Series projectors:

- Lamp
- Reflector
- Condenser Lens (EVD, FNT only)
- Body Mirror
- Fresnel Lens
- Stage Glass
- Projection Lens
- Projection Mirror

Lamps

Light illuminates from the lamp and is reflected along the optical path. There are four different lamp types for the 9000 projector:

- ENX 360W 82V, Tungsten Halogen Lamp
- FXL 410W 82V, Tungsten Halogen Lamp (used only in 9075 & 9200)
- EVD 400W 36V, Tungsten Halogen Lamp (used only in 9550)
- FNT 275W 24V, Tungsten Halogen Lamp

Avoid excessive vibration or jarring of the projector when the lamp is on. Because the lamp filament becomes more brittle at the operating temperature, shocks may cause premature failure of the lamp.

For maximum lamp life, the glass envelope should not be touched by the fingers during replacement. The oils on the skin may combine with the glass to form blisters and shorten the life of the lamp.

Reflector

The reflector collects the light and directs it into the body mirror. For lamp types ENX and FXL, the reflector is built into the lamp. For lamp types EVD and FNT, the reflector is a separate component. This reflector is positioned behind the lamp and directs light through a condenser lens and then to the body mirror. See Condenser Lens.

Condenser Lens

The condenser lens (EVD and FNT only) collects the light from the lamp and directs it to the body mirror.

Body Mirror

The body mirror receives light from the reflector or condenser lens and directs it upward through the Fresnel lens.

Fresnel Lens

The Fresnel lens bends the light from the body mirror and passes it through the stage glass into the projector lens. Because the Fresnel lens is made of plastic, it can be severely damaged if the fan is stopped or the paths of cooling air are blocked.

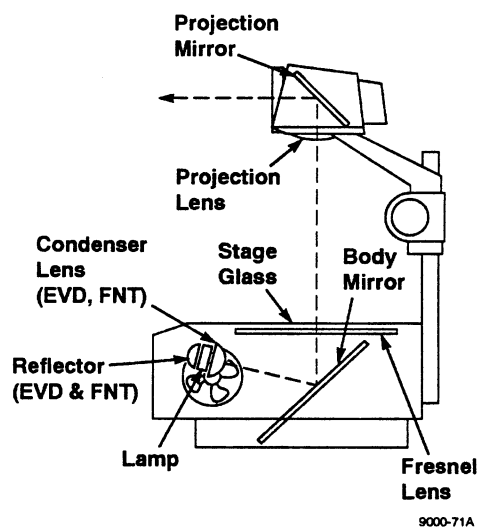
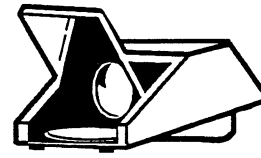


Figure 1-2. 9000 Optical Properties

Stage

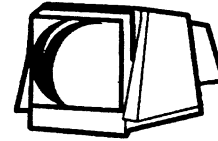
The stage glass keeps the Fresnel lens clean and protects the lens surface from scratches. It also provides a convenient flat surface for placing transparencies and other materials to be projected. The stage glass is transparent to allow the light to pass through and project the images on the glass surface.



Singlet (open) Lens
Projection Head
FL=11.5 in. (293mm)

Projection Lens

The projection lens collects the light and images transmitted from the Fresnel lens and projects them onto the surface of the projection mirror. The projection lens is raised or lowered by the focus mechanism to obtain the sharpest projected image. On the 9550, the image is focused by sliding the lever on the Varifocal Lens.

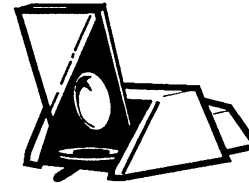


Singlet (closed) Lens
Projection Head
FL=11.5 in. (293mm)

Doublet (closed) Lens
Projection Head
FL=14 in. (355mm)

There are four different projection heads available for the 9000 series projector. Figure 1-3.

- Open Singlet Head (singlet lens, front surface mirror)
- Closed Singlet Head (singlet lens, exit glass, front surface mirror)
- Closed Doublet Head (two condensing lenses, front surface mirror)
- Open Triplet Head (triplet lens, varifocal triplet lens on 9550 only, front surface mirror)



Triplet (open) Lens
Projection Head
FL=13.5 in.(342mm)

Varifocal (open) Lens
Projection Head (9550 only)
280–320 mm
275–320 mm (Dr Optics)

Projection Mirror

The projection mirror redirects the light from the projection lens to the projection screen. The angle of the mirror determines the height of the projected image on the projection screen. The distance from the projection mirror to the screen determines the size of the projected image.

Figure 1-3. Types of Projection Heads

1-2-2. Cooling

Cooling of the overhead projector is accomplished by a motor-driven fan located inside the projector body. The cooling air enters the projector through opening A and exits through opening B. Figure 1-4.

It is important not to restrict the flow of cooling air by placing the projector too close to the wall (leave approximately one foot clearance) or placing objects too close to the ventilation slots or under the projector or by leaving foreign objects inside the projector.

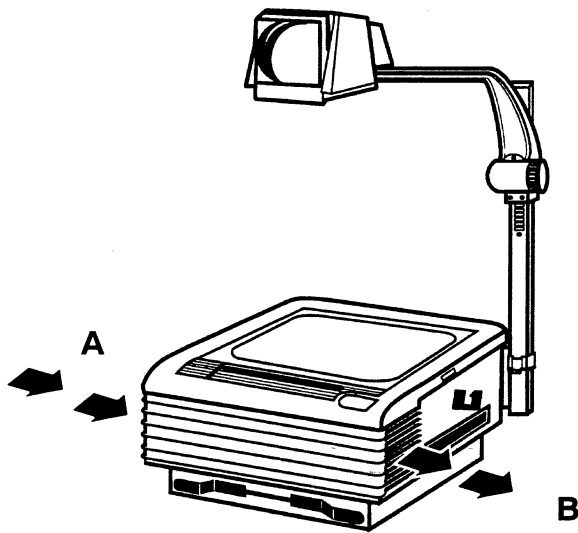


Figure 1-4. Cooling

1-2-3. Lamp Changer and High/Low Controls

Lamp Changer

The 9080, 9100, 9200 and 9550 projectors have a lamp changer feature. The Lamp Changer dial is accessed by lifting the control panel door, or on some versions of 9080, by raising the top cover. Rotate the Lamp Changer dial left or right to select the alternate lamp.

Note

The Control Panel door or Top Cover must be closed to illuminate the lamp.

High/Low Lamp Brightness Control

The High/Low lamp brightness dial/switch * is located under the Control Panel door. "High" is recommended for LCD projection panels and "Low" is recommended for normal use.

Note

Use the "Low" setting to extend lamp life.

** Beginning with serial number 842644 (9000 Series domestic) and 823582 (9550 includes international), a switch has replaced the dial.*

1-2-4. Calculating Projector to Screen Distance For Desired Image Size

The size of the projected image is determined by the following factors:

- Projector to Screen Distance
- Focal Length of Projection Head
- Stage Aperture Size
- Screen Size (Image Size)

For a given screen size, use the following formula or refer to Tables A and B to calculate the projector to screen distance needed to fill the screen.

$$D = F \left(\frac{S}{A} + 1 \right)$$

- D** = PROJECTOR TO SCREEN DISTANCE
- F** = FOCAL LENGTH OF HEAD
- S** = SCREEN SIZE
- A** = STAGE APERTURE SIZE

For example: To fill a 152 cm x 152 cm (60 in. x 60 in.) screen, how far from the screen should you position a 267 mm (10.5 in.) stage projector with an 292 mm (11.5 in.) focal length.

$$D = 292 \text{ cm} \left(\frac{152 \text{ cm}}{26.7 \text{ cm}} + 1 \right)$$

$$D = 1954 \text{ cm (77 in.)}$$

To use Tables A and B, locate the specific projector model in Table A and read across to the Table B reference. Go to that row in Table B to find the projector to screen distance for the various screen sizes at the top of each column.

For example: To fill a 152 cm x 152 cm (60 in. x 60 in.) screen for a 9050 projector, what is the projector to screen distance? Go to 9050 in Table A and cross-reference row B1. Go to Table B, Row B1 and under 60" x 60" the answer is a projector to screen distance of 77 inches.

TABLE A

Model	Table B	Stage Aperture	Head Focal Length
9050	B1	10.5" x 10.5"	11.5"
9060	B5	10.5" x 10.5"	14"
9070	B1	10.5" x 10.5"	11.5"
9075	B1	10.5" x 10.5"	11.5"
9080	B1	10.5" x 10.5"	11.5"
9100	B5	10.5" x 10.5"	14"
9200	B3	10.5" x 10.5"	13"
9550	B2	11.2" x 11.2"	280-315mm

TABLE B

Screen Size	50"x50"	60"x60"	70"x70"	7'x7'	8'x8'	9'x9'	10'x10'
B1	66"	77"	88"	103"	117"	130"	143"
B2	70"	72"	84"	101"	124"	144"	170"
B3	74"	86"	98"	116"	130"	145"	160"
B5	78"	91"	105"	123"	139"	155"	171"

Note

Table B shows the image size relative to the distance of the projector from the screen. Focusing an overhead projector at extreme distances (near or far) may result in poor overall image quality and require a Color Tuning adjustment. See 1-2-5.

1-2-5. Color Tuning

Color tuning adjusts the distance between the lamp and the Fresnel lens to remove yellow/brown or blue colors from the corners of projected images. See section 4-2-5 for instructions.

Each projector is adjusted at the factory to provide optimum performance for a 152 cm x 152 cm (60 in. x 60 in.) image size. For very small or very large projected images, a color tuning adjustment may be necessary.

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2-1. Set-Up Procedure

1. Release post cradle latch and lift the post until it locks into place. On the 9050, 9060, 9070 and 9075, a carriage bolt secures the post.

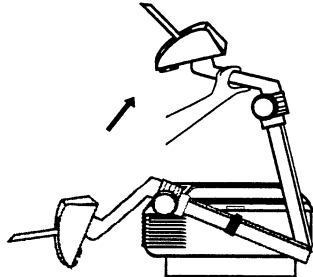


Figure 2-1. Lift Post

2. Plug power cord into an electric outlet.
3. Push power switch to the "On" position.
4. Adjust mirror (A) to position image on screen and rotate focus knob (B) or slide focus lever for clearest image.

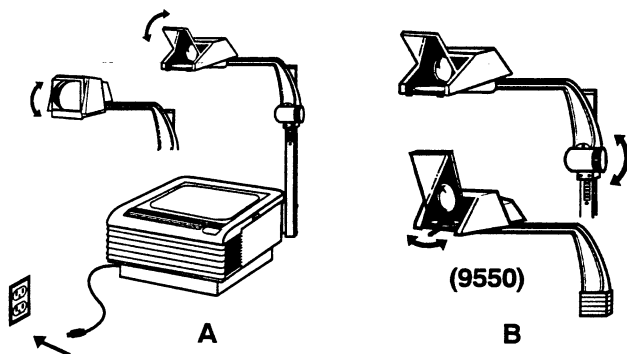


Figure 2-2. Adjust Mirror and Focus

2-2. Fold Down Procedure

1. Unplug power cord from electric outlet.
2. Lower projection mirror to closed position.
3. Raise projection head upward to the maximum height (except 9550).

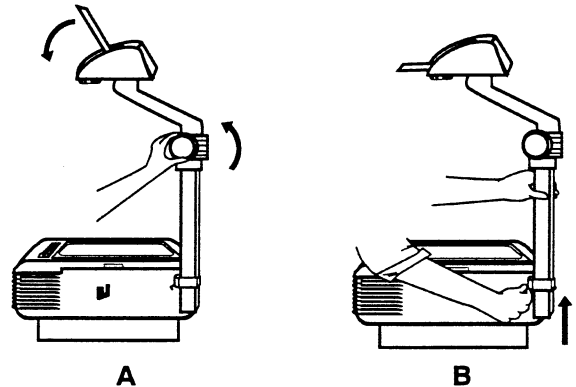


Figure 2-3. Raise Head and Lower Mirror

4. Release post latch and lower post until it rests and locks in the post cradle.

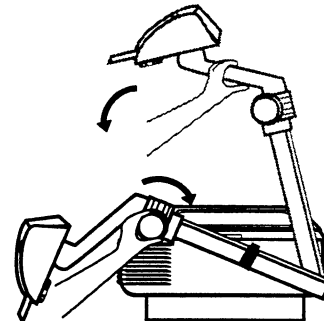


Figure 2-4. Fold Post and Rotate Focus

5. Rotate focus knob to minimum. Stop when head contacts projector body.
6. Hold projector body from bottom to lift or move.

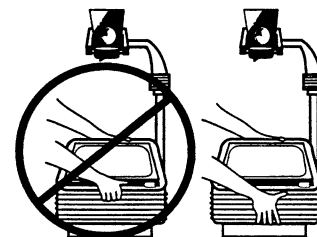


Figure 2-5. Lift Projector From Bottom

2-3. Operating Instructions

1. Position projector in front of projection screen. The distance from the screen controls the size of the projected image.
2. Plug power cord into an electric outlet.
3. Push power switch to “On” to illuminate lamp.
4. Rotate projector (1) until projected light beam is perpendicular (90°) to the screen surface. The height at the left and right sides of the projected image should be equal. Figure 2-6.

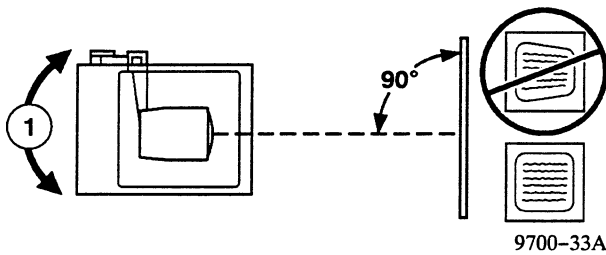


Figure 2-6. Position Projector To Screen

5. Adjust angle of projection mirror (2) to raise or lower the image on the screen. Figure 2-7.

6. For best results, tilt projection screen (3) toward projector until the top and bottom of the projected image appear square and without distortion. Figure 2-7.
7. Place film transparency or LCD projection panel on the stage glass (4).
8. Set “High/Low” lamp brightness (if equipped) for best results. See High/Low Lamp Setting.
9. Rotate focus knob (5) or focus lever (6) for clearest image.

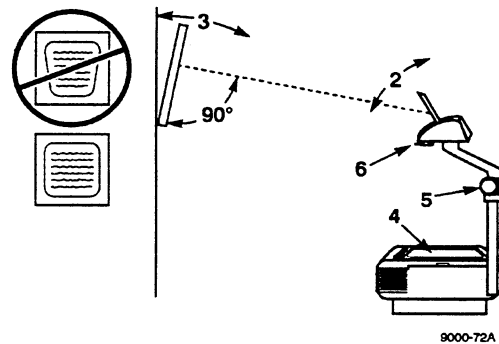


Figure 2-7. Operating The 9000

2-4. Lamp Changer System

The 9080, 9100, 9200 and 9550 have a lamp changer control. When a lamp burns out, use the Lamp Changer Dial to select the alternate lamp. Figure 2-8.

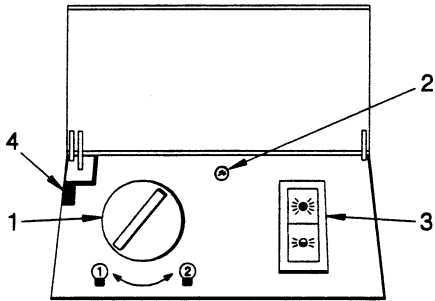


Figure 2-8. Control Panel

1. Open Control Panel door. Power to lamp is disconnected by lamp interrupt switch (4) in door.

Note

9080 only: To access the 9080 lamp changer control, raise the top cover.

2. Rotate the lamp changer dial (1) to position 1 or 2.

Note

9550 only: A red LED lamp (2) will light to indicate when one or both projection lamps are burned out and need to be replaced.

3. Close control panel door to restore power and illuminate selected lamp.

Important

Lamp will not illuminate unless control panel door or top cover (9080) is closed.

2-5. High/Low Lamp Setting

Use the High/Low dial or switch to select normal or bright lamp illumination. Figure 2-8 shows the switch.

1. Open control panel door. Power to lamp is disconnected by interlock (4) in door.

Note

On some A-4 models: To access the High/Low control, raise the stage cover.

2. Turn or press the High/Low dial or switch (3) to desired brightness.
 - a. Low – film transparency image
 - b. Hi – LCD projection panel image

Note

Operating the projector in the Low setting will extend lamp life.

3. Close control panel door to test lamp brightness.

Important

Lamp will not illuminate unless control panel door or top cover (A-4 models) is closed.

2-6. Lamp Replacement



-or-



ENX – 82V, 360W
 9050, 9060, 9070,
 9080, 9100
 FXL – 82V, 410W
 9075, 9200

FNT – 24V, 275W
 EVD – 36V, 400W
 9550 (only)

Figure 2-9. Lamp Types: ENX, FXL, FNT and EVD

To replace a lamp:

1. Push power switch to “Off” and unplug projector.
2. Press the release latch and lift to open the top cover. Figure 2-10.

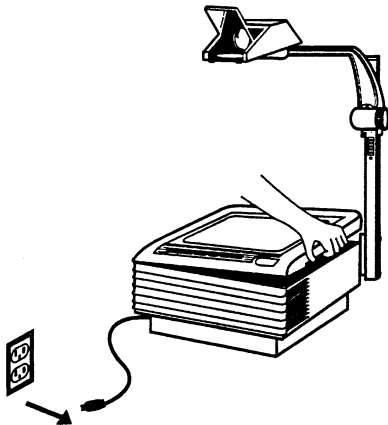


Figure 2-10. Stage Cover Latch

3. Allow lamp to cool before replacing.

⚠ WARNING

Lamp and adjacent metal parts are hot. Allow lamp to cool before replacing.

4. Remove old lamp and discard.
 - a. ENX, FXL Lamps: Pull back on lamp ejection lever to release. Pull lamp out.
 - b. EVD, FNT Lamps: Lift spring catch to open condenser lens frame. Pull lamp out.

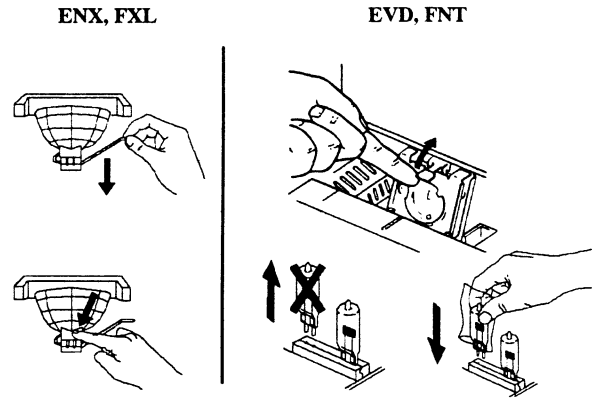


Figure 2-11. Removing Lamps

5. Install new lamp. Push new lamp fully and squarely into socket.

For EVD or FNT lamps, *do not touch bulb glass with fingers*. Close condenser lens frame and secure with spring catch.
6. Close stage cover and plug power cord into outlet.

Important

Lamp will not illuminate unless top cover is closed.

3-1. Cleaning

For best performance, the optical surfaces of the 9000 projector must be free of excess dust and surface dirt. The following procedures for cleaning optical surfaces are covered in this section:

- Projection Mirror
- Projection Head Lens, Stage Glass, Body Mirror
- Fresnel Lens

Note

Use 3M™ Overhead Cleaner 676 (Figure 3-1) to remove surface dirt from the stage glass and projector lens.

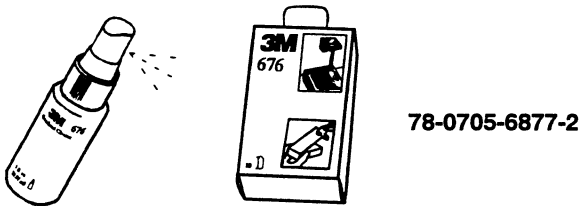


Figure 3-1. 3M™ Overhead Cleaner 676

Projection Mirror

1. To remove surface dirt, use a soft brush or compressed air. Figure 3-2.
2. To remove smudges or fingerprints, dampen a cotton ball or soft, lint-free cloth with 3M overhead cleaner and gently rub mirror surface. Figure 3-3.

⚠ Caution

The projection mirror is a front surface mirror. Hard rubbing will damage the mirror surface.

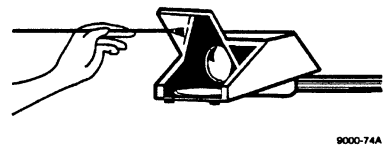


Figure 3-2. Removing Surface Dirt

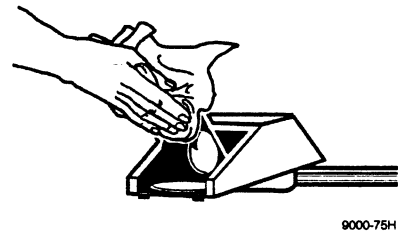


Figure 3-3. Removing Smudges or Fingerprints

Projection Head Lens, Stage Glass, Body Mirror

⚠ Caution

Never use paper lens tissues on projection lenses because they may damage the lens surface.

1. Use 3M overhead cleaner and a soft, lint-free cloth to clean the surfaces of the head lenses, stage glass and body mirror. Figure 3-4.
2. Dampen a soft, lint-free cloth with 3M overhead cleaner and gently rub surface.
3. Remove excess cleaner and dry surface with a clean, soft, lint-free cloth.

⚠ Caution

The body mirror on the 9550 is a front surface mirror. Hard rubbing will damage the mirror surface.

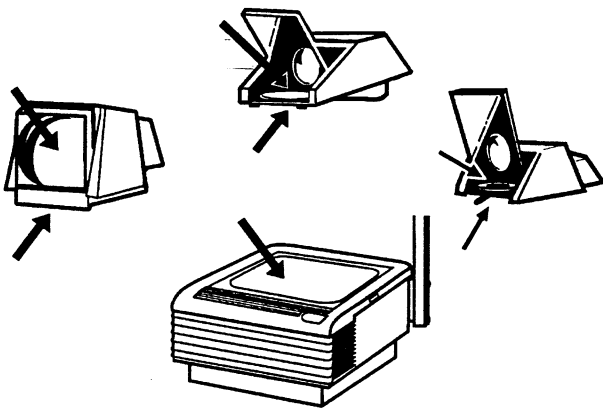


Figure 3-4. Cleaning Lens, Stage Glass, Body Mirror

Fresnel Lens

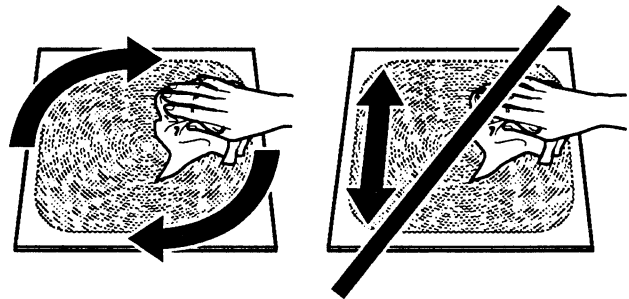
1. Remove the Fresnel lens (see Section 5-3-2 for instructions).
2. Dampen a lint-free cloth with a liberal amount of 3M brand lens cleaner or equivalent (25% Isopropyl alcohol and water).
3. Apply light pressure and wipe the Fresnel lens in a circular motion.
4. Blow dry with compressed air or flush with warm water and let air dry.

Note

For really dirty lenses, apply lens cleaner with one cloth and remove with a different clean cloth.

⚠ Caution

Always wipe the surface of a Fresnel lens in a circular motion around the center of the lens. Wiping back and forth across the lens surface can damage the optical ridges.



4400-49A

Figure 3-5. Cleaning Fresnel Lens

4-1. Setting Up A Test Facility

Reliable check-out and optical alignment of overhead projectors can be accomplished only if proper testing facilities are available. The following items are required to provide proper testing:

- Permanent viewing screen (60" by 60")
- Permanent test stand or bench
- Required Tools

A permanent viewing screen with a flat non-reflective white surface can be provided by applying a flat white paint to a 152 cm x 152 cm (60 in. x 60 in.) area of a smooth wall. If a smooth wall is not available, a piece of wallboard painted white, or a white window shade of the proper size, can be mounted in the test area. A portable screen may also be used.

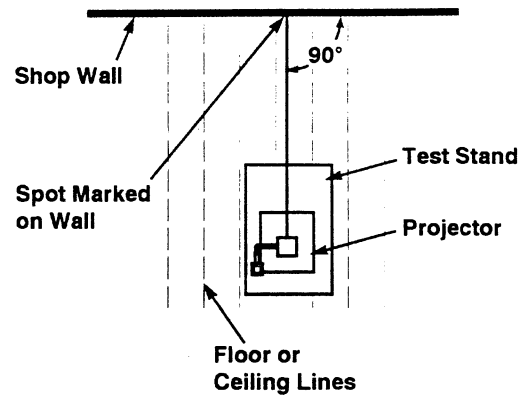
A test stand or bench should be permanently located about eight feet from the screen. It should be high enough to provide easy access to all parts of the overhead projector when it is placed on the stand for testing. An electrical outlet and a switch should be built into the test stand to facilitate making electrical connections to the projector.

Test Facility Layout

To eliminate vertical and horizontal keystoneing, it is very important to align the projector to be perfectly square with the viewing screen. Keystoneing will result in unequal focusing of projected images at the four corners, and will especially affect resolution.

Use the steps below to set up a test facility that will provide the proper screen to projector relationships.

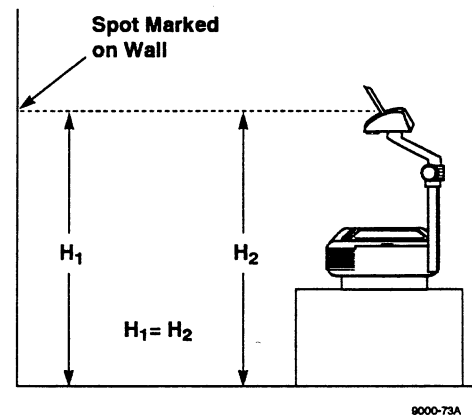
1. Select a smooth wall with a 152 cm x 152 cm (60 in. x 60 in.) area and place a sturdy bench or test stand about eight feet away from the wall (Figure 4-1).
2. Set the overhead projector on the test stand so that it points towards the wall.



9000-70A

Figure 4-1. Test Facility Layout

3. Measure the vertical distance from the floor to the center of the front projection lens (Figure 4-2).
 - a. Follow a floor or ceiling tile from the projector to the wall or stretch a string from the center of the projection lens to the wall and use a carpenter's square to find the point at which the string is perpendicular to the wall.
 - b. Mark a spot on the wall that is the same distance (height) from the floor as the center of the projection lens.



9000-73A

Figure 4-2. Projector to Screen Alignment

4. Mark the position of the stand legs on the floor and the position of the projector base on the stand.

5. Using the mark on the wall (see step 3) as a reference point, measure 762 mm (30 in.) up, down, to the left and to the right. Mark the edges of the 60 inch square and paint the enclosed area with a flat white paint or cover with a window shade.
6. Turn the projector on and focus an image on the screen. Move the projector forward or backward, maintaining the image in focus at all times, until the projected light just fills the 152 cm x 152 cm (60 in. x 60 in.) screen. Be sure the image is in focus.
7. With all adjustments completed, the image should be perfectly square and focused in all corners. Figure 4-3.

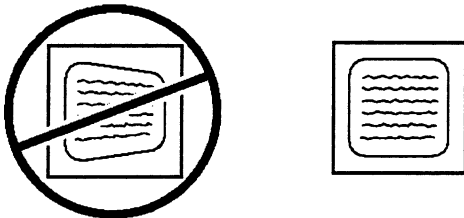


Figure 4-3. Square and Focused Image

Repeat steps 3–6 as needed until the image is perfectly aligned and focused.

- a. Mark the exact location of the test stand on the floor with permanent marker.
- b. For a permanent test facility, securely attach the stand to the floor.
- c. Mark the exact position of the projector base on the test stand. Use this mark to properly position the projector each time it is checked.

Required Tools

The following tools are required to service 9000 Series Overhead Projectors:

1. Screwdriver (standard and #2 Phillips)
2. Box-End Wrench, 11mm (7/16 in.)
3. Carpenter's Square
4. Feeler Gage .5 mm-.76 mm (.20 to .30)

4-2. Optical Alignment

Proper alignment of the optical system is essential for good resolution and uniform illumination. Poor resolution in one corner and either red or blue in the corners of the projected image are indications of poor alignment. The following components should be checked and adjusted to correct any alignment problems:

- Lamp Position
- Post Alignment
- Head Alignment
 - Square Image
 - Centered Image
- Color Tuning

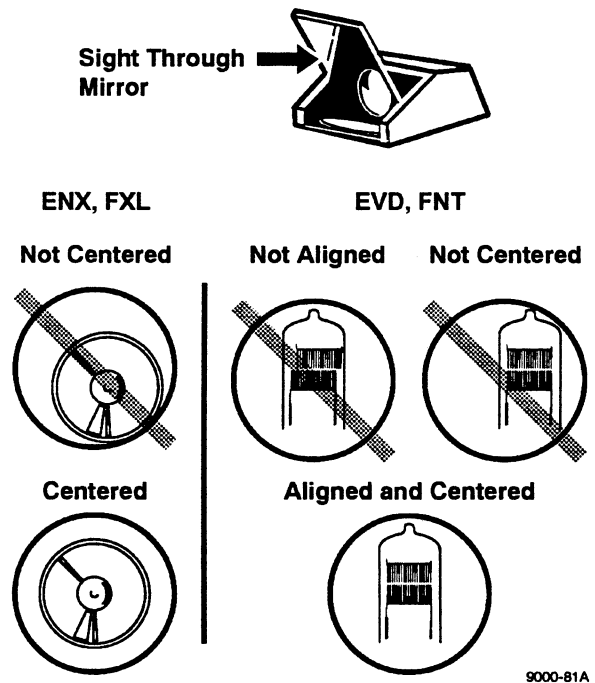
4-2-1. Lamp Position

Check the lamp position to verify it is aligned and centered in the optical path.

1. Push power switch On then Off again to illuminate lamp.
2. As the lamp image fades out, look in the projection mirror. The lamp filament and its reflection should be aligned (EVD, FNT only) and centered squarely in the optical path. Figure 4-4.

⚠ WARNING

Do not look directly into the projection mirror when the lamp is fully illuminated. Wait until the lamp image has faded.



9000-81A

Figure 4-4. Lamp Aligned In Center of Optical Path

3. If the EVD or FNT lamp filaments are not aligned, seat the lamp squarely against the lamp socket and check the alignment again.
4. If the lamp cannot be centered, by reseating it, check the post and head alignment.

4-2-2. Post Alignment

If the post is loose, it may not be perpendicular to the body of the projector. Follow the procedure below to tighten and align the post.

Note

The post on the 9080, 9100, 9200 or 9550 needs no adjusting.

1. Loosen carriage bolt attaching the post to the base. Figure 4-5.
2. Use a carpenter's square to align the post to the projector body in both directions.
3. Tighten the carriage bolt to secure the post.

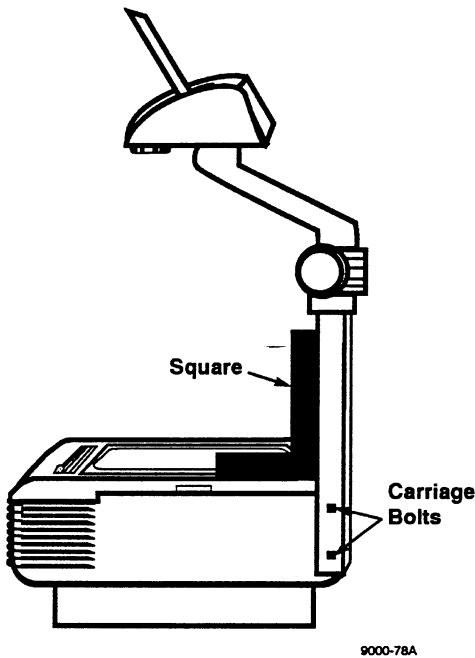


Figure 4-5. Post Alignment

4-2-3. Head Alignment (Square Image)

If the image is not square and focused in all four corners, the projection head could be out of alignment.

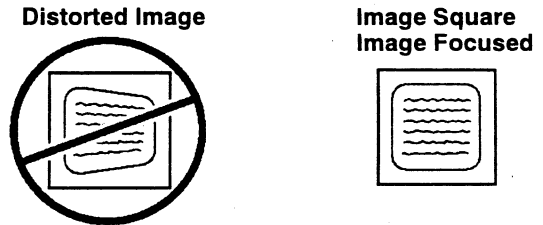


Figure 4-6. Square and Focused Image

The axis of the projected image must be perpendicular to the screen surface to check the head alignment.

1. Set the projector on a test stand or bench. (see Section 4-1 for details).
2. Turn the projector on and focus an image on the screen. Check to see that the sides of the projected image are square. Figure 4-6.
3. If the image is not square, loosen the head cover screw and remove the cover. Figure 4-7.
4. Loosen the head fastening screws (B), for closed or open projection heads, and move the projection head left/right or forward/backward.

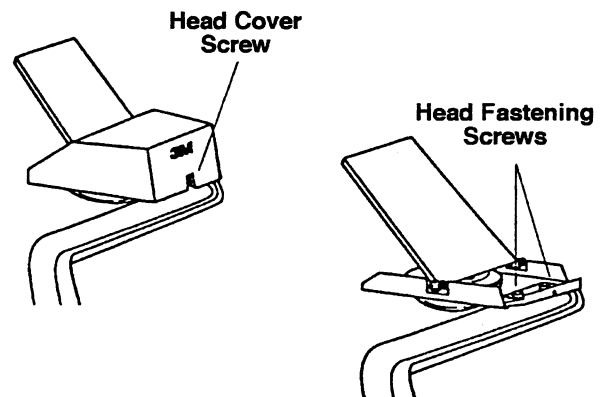


Figure 4-7. Adjusting the Head

5. When the sides of the image are square and the corners are in focus, tighten the head fastening screws.
6. Replace head cover and secure with screw.

4-2-4. Head Alignment – Centered Image

The projection head needs alignment when yellow/orange to brown or blue colors appear in one or two (but not all four) of the corners of a sharply focused image with properly adjusted color tuning.

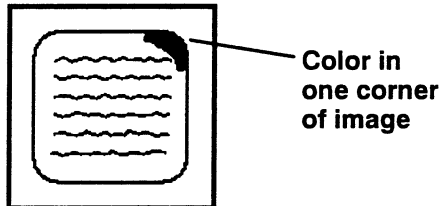


Figure 4-8. Colors in Corners of Image

1. Turn the projector on to illuminate the lamp.

2. Push the power switch on and off to illuminate the lamp.
3. As the image of the lamp fades out, look in the projection mirror to check the position of the lamp filament. It should be centered in the projection lens.

⚠ WARNING

Do not look directly into the projection mirror when the lamp is fully illuminated. Wait until the lamp image has faded.

4. If the lamp filament is not centered in the lens, loosen the head fastening screws and rotate the projection head as needed to center the lamp. Figure 4-4.
5. After the projection head is aligned, check for a square image that is focused in all corners. Figure 4-6.

4-2-5. Color Tuning Adjustment

A color tuning adjustment is needed if there are yellow/orange to brown or blue colors in all four corners of a projected image.

This adjustment is used to improve the image quality of very small or very large projected images that fall outside of the Color Free Range. Figure 4-9.

Note

Each projector is adjusted at the factory to provide optimum performance for a 60 in. x 60 in. image size. See Section 1-2-4 for an explanation of the projector to screen distance.

Model	Fixed Color Free Range	Adjustable Color Free Range	Color Tuning
9050	55-65 in.	45-75 in.	Internal
9060	55-60 in.	45-70 in.	Internal
9070	55-65 in.	45-80 in.	Internal
9075	55-65 in.	45-80 in.	Internal
9080	55-65 in.	45-75 in.	External
9100	55-60 in.	45-70 in.	External
9200	45-70 in.	45-120 in.	External
9550	35-95 in.	--	Internal

Figure 4-9. Color Free Range Table

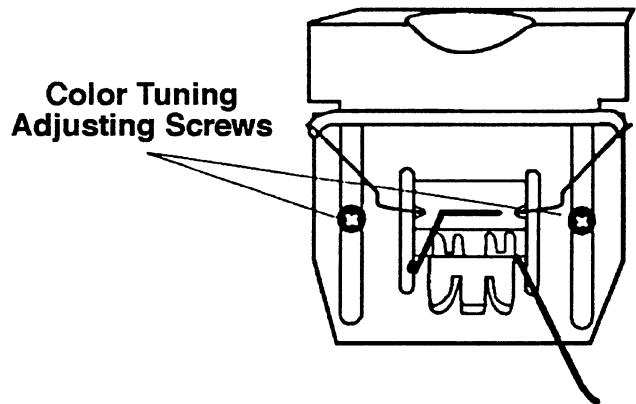
Single Lamp Projector (includes 9550)

1. Open the Top Cover.
2. Loosen the color tuning adjustment screws (Figure 4-10).

Note

The FNT and EVD versions have only one adjusting screw on the right side.

3. Move the Lamp Assembly forward or backward until image is free of any yellow or blue corners.
 - a. To remove blue corners, move assembly forward.
 - b. To remove yellow corners, move assembly backward.
4. Re-tighten the adjustment screws and replace the stage cover.



Single Lamp Versions

9000-77H

Figure 4-10. Color Tuning Adjustment

Dual Lamp Projector (except 9550)

1. Rotate the exterior Color Tuning dial.
 - a. To remove blue corners, rotate dial to the left.
 - b. To remove yellow corners, rotate dial to the right.

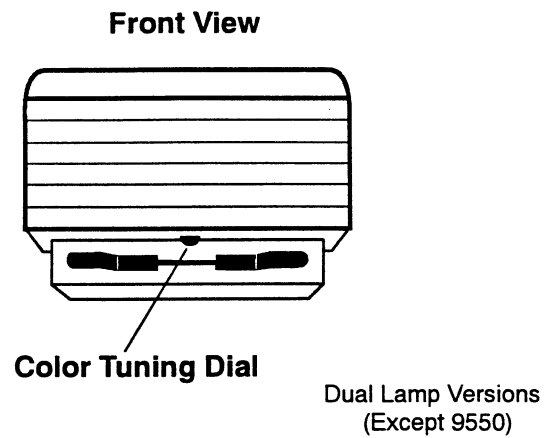


Figure 4-11. Color Tuning Dial

4-3. Focus Mechanism

If the focus knob does not hold its position or turns very hard, adjust the focus knob slide tension screws.

1. Unscrew focus cover retaining screws and remove the access cover. Figure 4-12.
2. Turn adjustment screws clockwise to tighten or counterclockwise to loosen the tension. Figure 4-13.

Note

Tighten or loosen both screws with equal pressure.

3. Replace focus cover and secure with retaining screws.

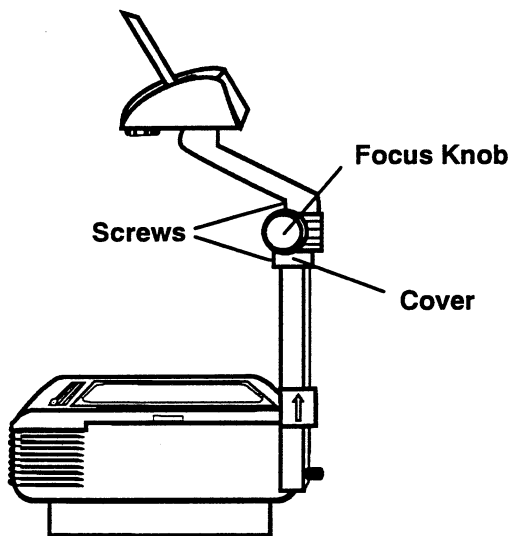


Figure 4-12. Adjusting Focus Mechanism

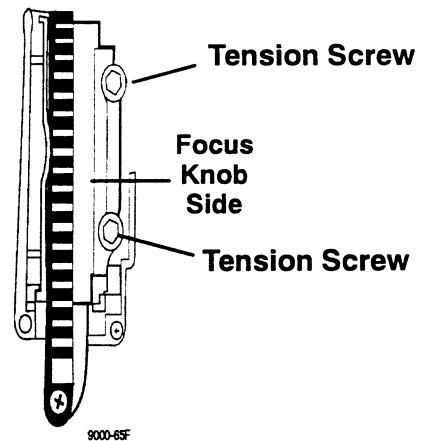
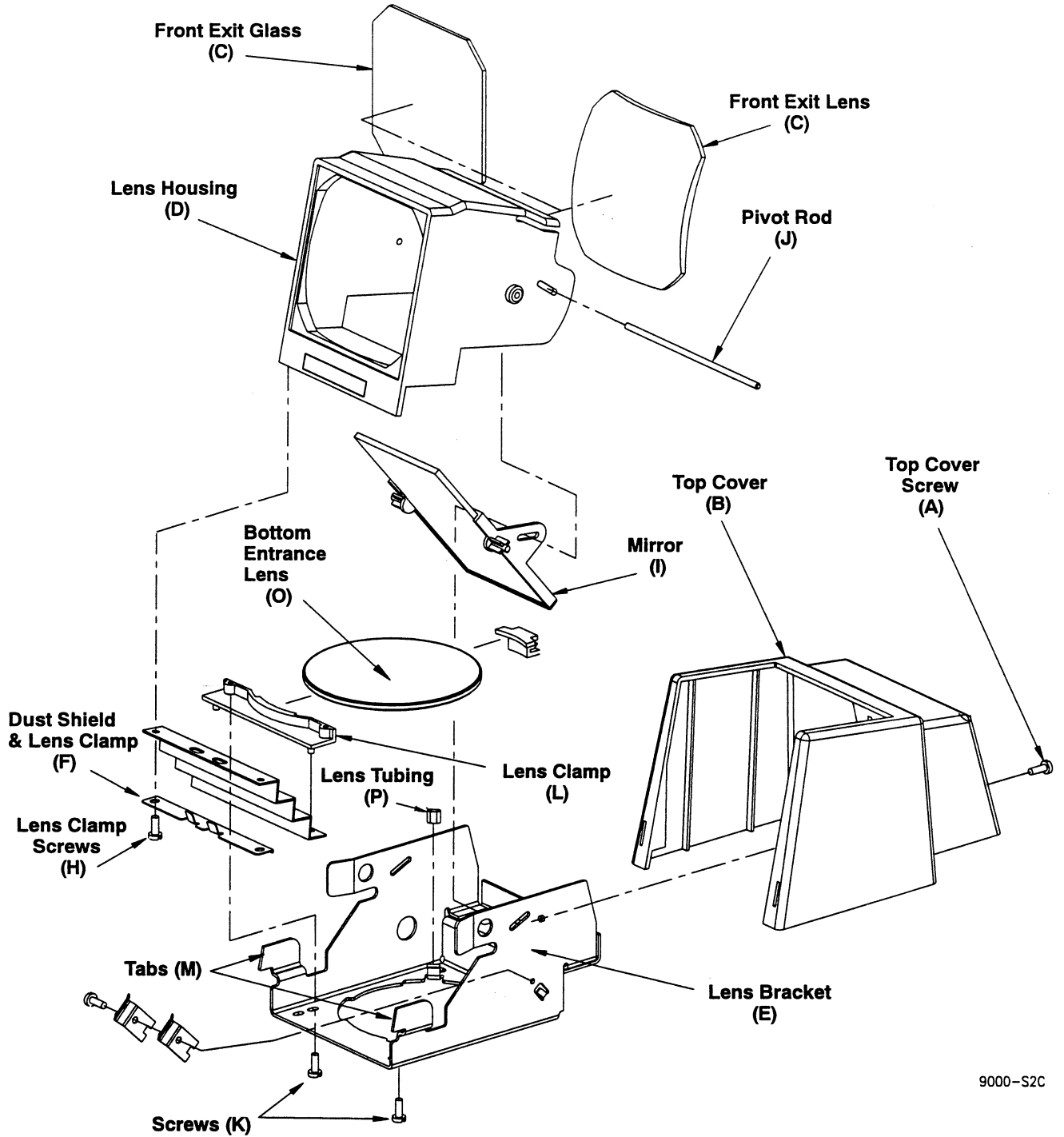


Figure 4-13. Focus Knob Slide

5-1. Closed Projection Head Assembly



9000-S2C

Figure 5-1. Closed Head

5-1-1. How to Replace the Front (Exit) Lens or Glass

1. Place protective cover on stage glass.
2. Tilt lens housing (D) up. Figure 5-2.

Front Exit Lens or Glass

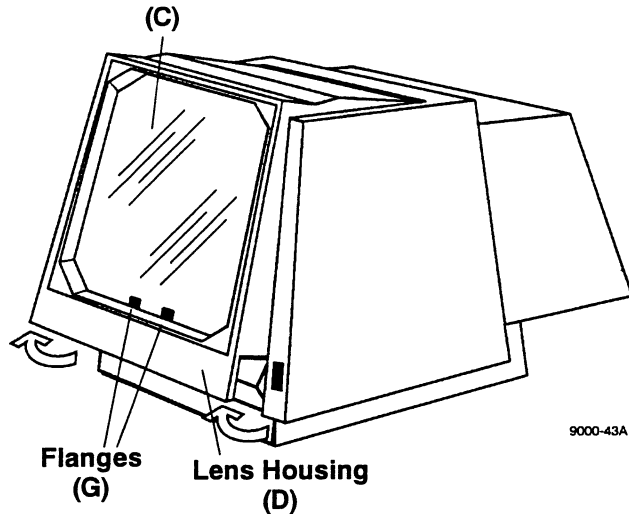


Figure 5-2. Replacing Front Lens or Glass

3. Remove lens clamp screws (H). Figure 5-1.
4. Remove lens or Glass (C) – clean out the inside if necessary.
5. Insert the new lens or glass.

Note

Be certain the lens or glass (C) is fully seated toward the front of the lens housing (it will snap into place).

6. Clean the inside surfaces of the entrance and exit lenses.
7. Reinstall the lens clamp (F). Figure 5-1.

Note

The flanges (G) on the dust shield and lens clamp (F) must hold the lens/glass (C) in place. Figure 5-2.

Note

When replacing the top cover (B), be certain the tabs (M) on the front of the lens bracket (E) are inserted into the slots (N) on the front of the top cover (B). Figure 5-1.

5-1-2. How to Replace the Bottom Entrance Lens

1. Remove the two screws (K). Figure 5-1.
2. Tilt the lens housing up. Figure 5-2.
3. Remove the bottom entrance lens (O) from the front.
4. Install new lens.

Caution

Take care not to scratch the lens.

- a. Insert replacement lens and lens clamp.
- b. Start screws (K).
- c. Push the lens clamp (L) toward the back of the head while tightening screws.
- d. Check lens to verify that it is properly seated and secure within retainer tabs.

Note

The lens tubing (P) on each retainer tab should be replaced if it is damaged or missing. Figure 5-1.

5-1-3. How to Replace the Mirror Assembly**⚠ Caution**

Do not remove the protective film until the Mirror is installed. This is a front-surface mirror and should not be touched.

⚠ Caution

Be careful not to damage the inside of the lens while installing the mirror.

1. Remove screw (A) from the top cover (B) rear. Figure 5-1.
2. Tilt lens housing (D) up. Figure 5-2.
3. Remove pivot rod (J) by pulling out.
4. Slide out lens housing (D) while spreading the sides of lens bracket (E). Figure 5-1.
5. Spread the sides of lens bracket (E) out and remove the mirror assembly (I). Figure 5-3.

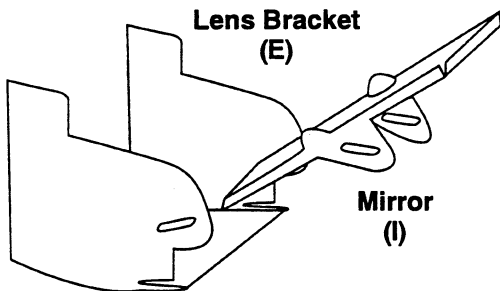


Figure 5-3. Removing the Mirror

6. Reassemble in reverse order.

Note

When reattaching the lens housing to the lens bracket, use a screwdriver to pry out the tension spring. Figure 5-4.

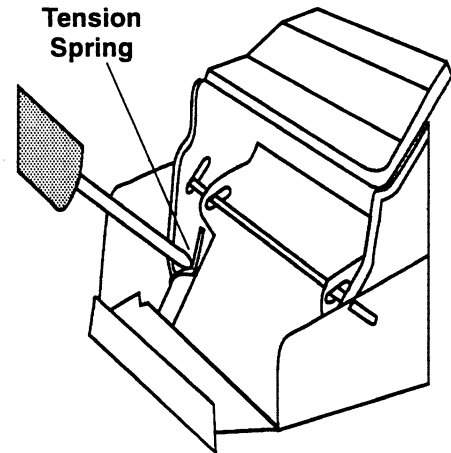


Figure 5-4. Attaching Lens Housing to Lens Bracket

Note

When replacing the cover, make sure the lens housing (D) is tilted up! Figure 5-2. Be certain the tabs (M) on the front of the lens bracket (E) are inserted into the slots (N) on the front of the top cover (B). Figure 5-1.

5-2. Open Projection Head

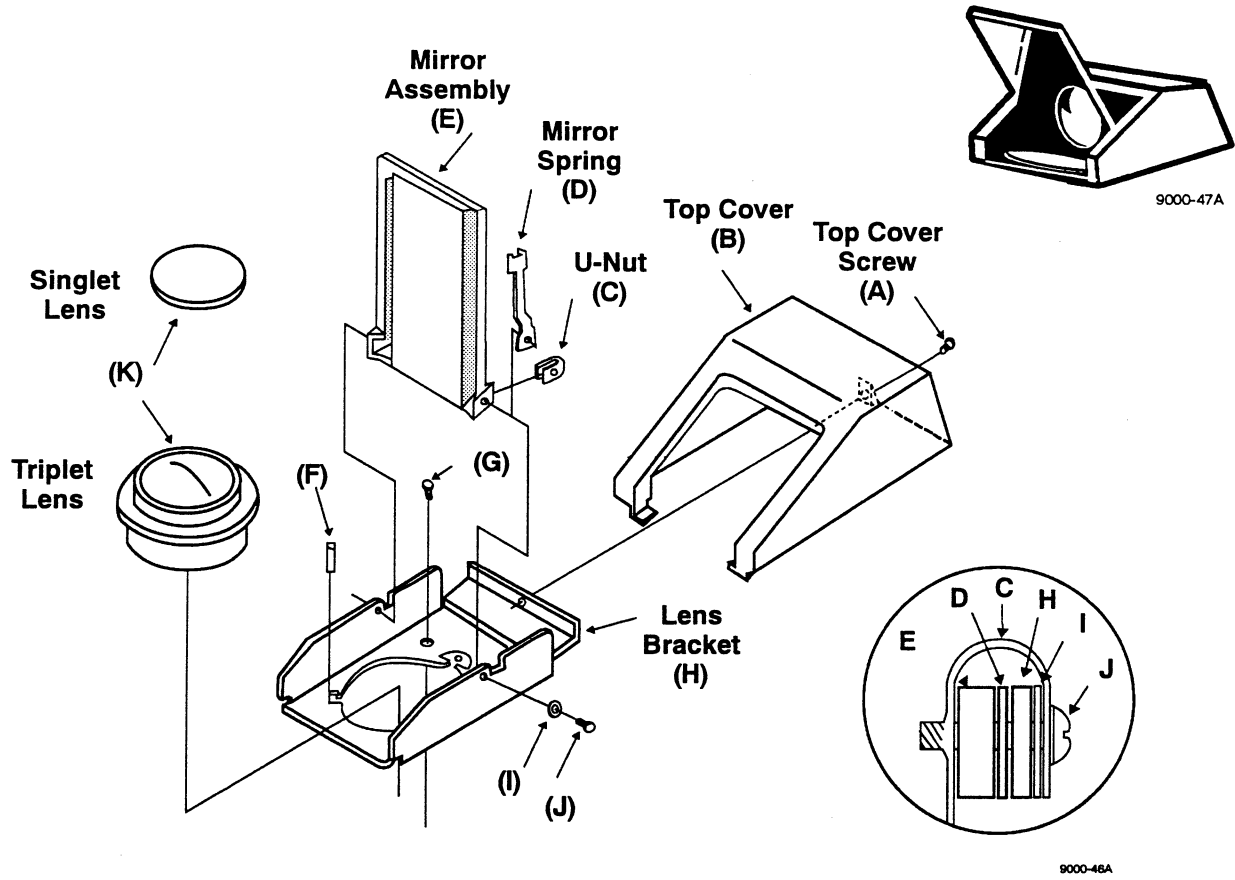


Figure 5-5. Open Projection Head—Exploded View

5-2-1. How to Replace the Mirror Assembly

⚠ Caution
Do not remove the protective film until the Mirror is installed. This is a Front Surface Mirror and should not be touched.

⚠ Caution
Do not damage the inside of the Lens while installing the Mirror Assembly.

1. Remove screw (A) from top cover (B) rear. Figure 5-5.
2. Remove screw (J) on the side of lens bracket (H).

Important

Note the position of the washer, clip, and dampening spring.

3. Remove mirror assembly.
4. Reassemble in the reverse order.

Note

Do not over tighten screw (J)!

5. Remove protective film from the Mirror.

5-2-2. How to Replace the Singlet Lens

1. Insert a probe into lens retainer tab. Figure 5-6.

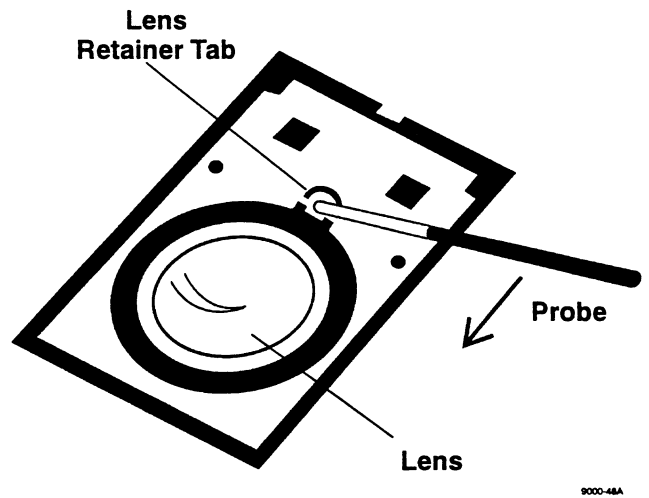


Figure 5-6. Replacing Singlet Lens

2. Bend probe toward the front of the head to release the lens.
3. Remove the lens from the top.

⚠ Caution
Take care not to scratch the lens.

4. Insert the replacement lens and bend the lens retainer tab backward just enough to hold the lens in place. *The lens should remain slightly loose after installation.*

Note

The lens tubing (F) on each retainer tab should be replaced if it is damaged or missing. Figure 5-5.

5-2-3. How to Replace the Triplet or Varifocal Lens

1. Remove screw (A) and lift top cover (B) off head assembly. Figure 5-1.
2. Remove projection mirror. Section 5-2-1.
3. Remove retaining screws securing triplet lens (Figure 5-7) or varifocal lens (Figure 5-8).
4. Insert replacement lens and secure with retaining screws.

⚠ Caution

Take care not to scratch the lens.

5. Attach mirror and top cover by assembling in reverse order.

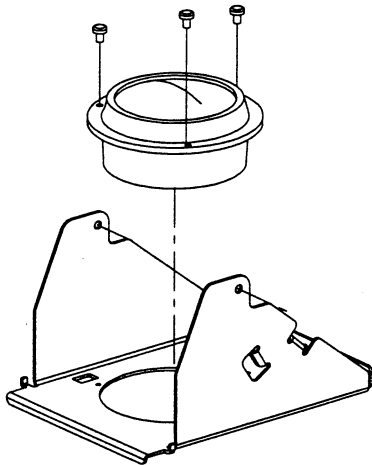


Figure 5-7. Triplet Lens

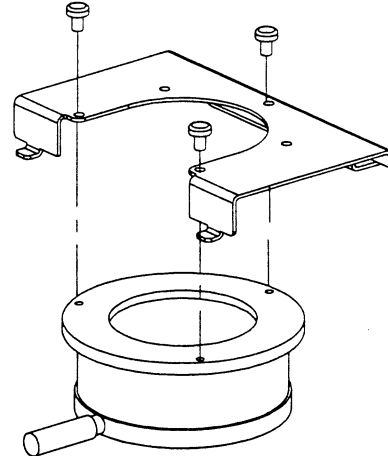


Figure 5-8. Varifocal Lens

5-3. Stage Assembly (All Versions)

5-3-1. How to Remove the Top Cover

1. Open top cover.
2. Remove the front hinge screw. Figure 5-9.

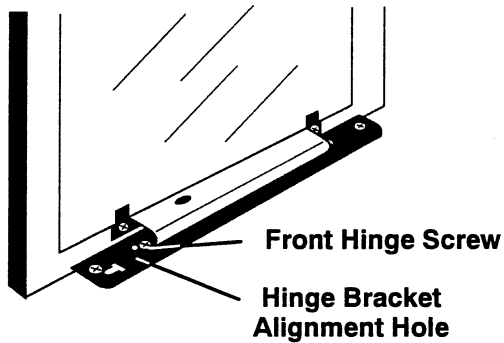


Figure 5-9. Removing Top Cover

3. While supporting the cover, lower it partway and slide it forward to remove.

Note

When replacing the hinge bracket, be certain the button on the bracket is fitted inside the hole in the base. Figure 5-9.

5-3-2. How to Replace the Fresnel Lens

1. Remove the top cover. Section 5-3-1.
2. Cut CAUTION label on dotted line. Figure 5-10.

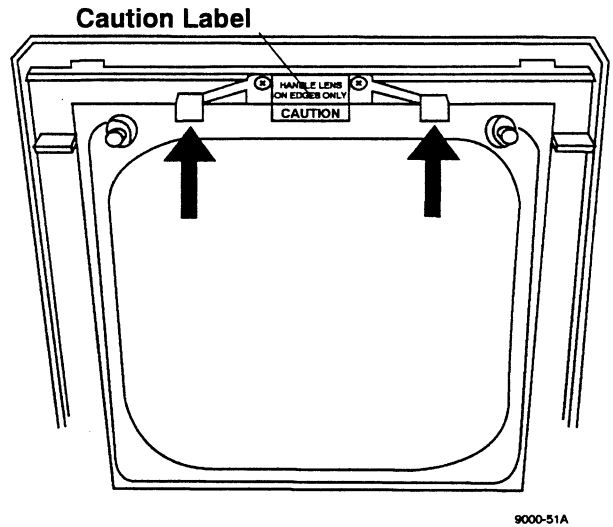


Figure 5-10. Fresnel Lens-Caution Label

Caution
<p>Both sides of the Fresnel Lens are easily scratched. Remove with care!</p>

3. Unscrew retaining screws and remove heat shield. Figure 5-11.

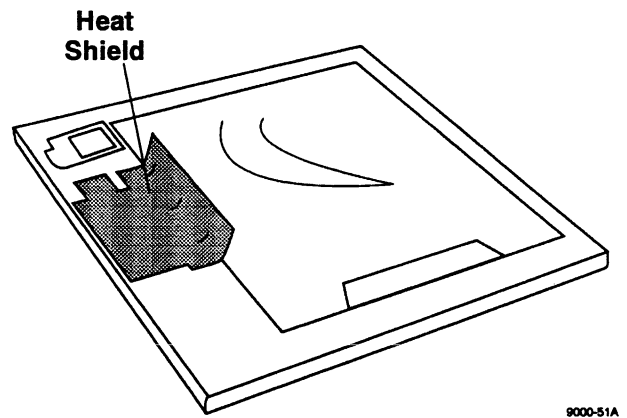



Figure 5-11. Fresnel Lens-Heat Shield

4. Push on two retainer tabs to free Fresnel Lens and carefully remove. Figure 5-10.

5. Assemble in the reverse order.

Note

When replacing the Fresnel Lens, install it with the bowed side toward the stage glass. Figure 5-12.

 Caution
Handle the Fresnel Lens by the edges ONLY!

Important

When replacing the Fresnel lens, seat it between the tabs on all four sides and with the bowed side toward the stage glass.

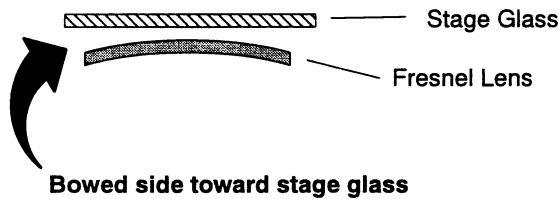


Figure 5-12. Fresnel Lens Orientation

5-3-3. How to Replace the Top Cover Latch

1. Open top cover.
2. Use a screwdriver to gently spread apart the hinge holders securing the top cover latch. Figure 5-13.
3. Pull latch out to remove.
4. To insert latch, align tension spring and slip one side of the latch into hinge holder. Use a screw driver to gently spread apart the other hinge holder and snap the other side of the latch into place.

Note

There is a tension spring (not shown) attached to the plastic peg on the back side of the latch.

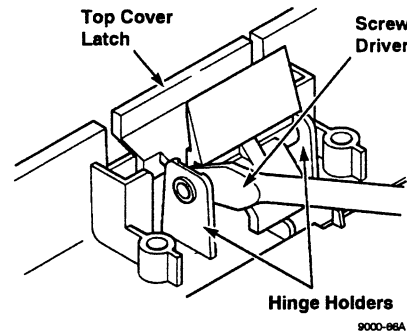


Figure 5-13. Top Cover Latch

5-3-4. How to Replace the Stage Glass

1. Remove the Fresnel Lens. Section 5-3-2.
2. Carefully remove the damaged glass.
3. Remove the metal retainer to free the glass. Figure 5-10.
4. When replacing the stage glass, make sure the beveled edges are under the plastic nibs on the top side of the top cover. Figure 5-14.

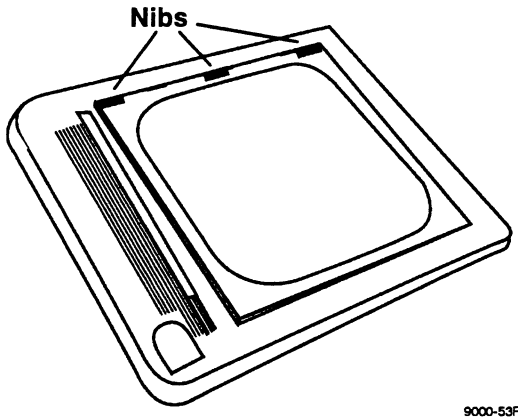


Figure 5-14. Replacing Stage Glass

5. Stand the top cover on edge and attach the metal retainer.
6. Clean the underside glass surface before reinstalling the Fresnel Lens.

5-3-5. How to Replace the Condenser Lens

1. Insert a probe (i.e. small drill bit or nail) into the hole in the Tab. Figure 5-15 .
2. Release the condenser lens by bending the tab away from the lens.
3. Install the new condenser lens and bend the tab back into place.
4. Using a Feeler Gage, set the spacing between the lens and condenser bracket from .20 to .30 gap.

Caution
Do not over tighten the tab. To prevent cracking the lens, it must have enough clearance for expansion.

Caution
Handle the lens carefully to prevent chipping or scratching the lens surface during installation.

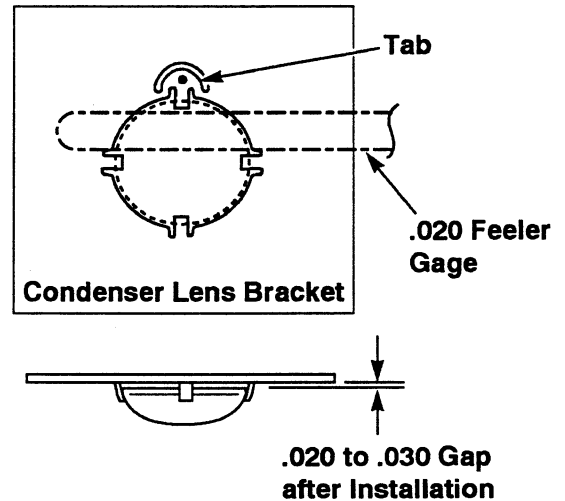


Figure 5-15. Condenser Lens

5-3-6. How to Replace the Power Switch Button

1. Open the top cover.
2. Remove the power switch button by spreading apart the hinge holders. Figure 5-16.

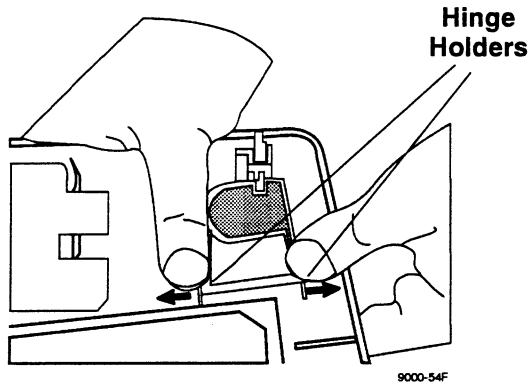


Figure 5-16. Replacing Power Switch

5-3-7. How to Replace the On/Off Switch Actuator

1. Open the top cover.
2. Remove the red or purple power switch button by spreading apart the hinge holders. Figure 5-16.
3. Carefully pry open the clip holding the actuator in place and remove. Figure 5-17.

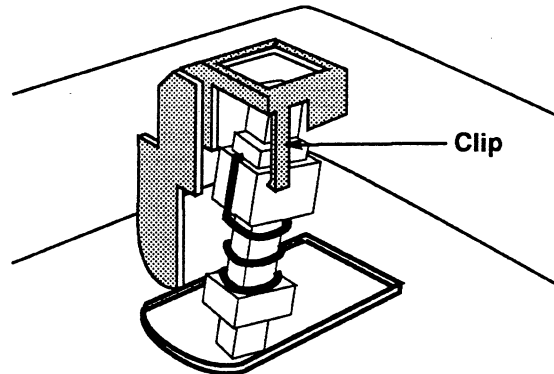


Figure 5-17. Actuator Clip

4. Insert the new actuator. Figure 5-18 for correct orientation.

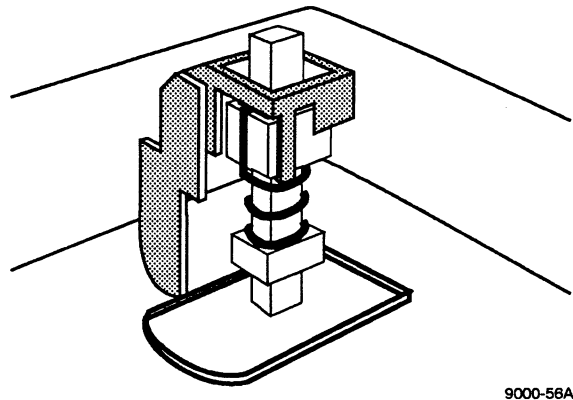


Figure 5-18. Correct Actuator Orientation

5-4. Lamp/Fan Assembly

▲ WARNING

Unplug projector power cord before performing any maintenance to electrical components.

Electrical components are located in the lamp/fan assembly. Figure 5-19. Remove the top cover and disassemble the lamp/fan assembly to perform maintenance on the following electrical components:

- Lamp Socket
- Thermostat
- Resistor
- Diode
- Fan Motor & Interlock
- Lamp Control Module

5-4-1. How to Disassemble the Lamp/Fan Assembly

▲ WARNING

Unplug projector power cord before performing any maintenance to electrical components.

1. Unplug the projector from the outlet.
2. Remove the top cover. Section 5-3-1.
3. Remove three retaining screws. Figure 5-19.

Set this surface on table top.

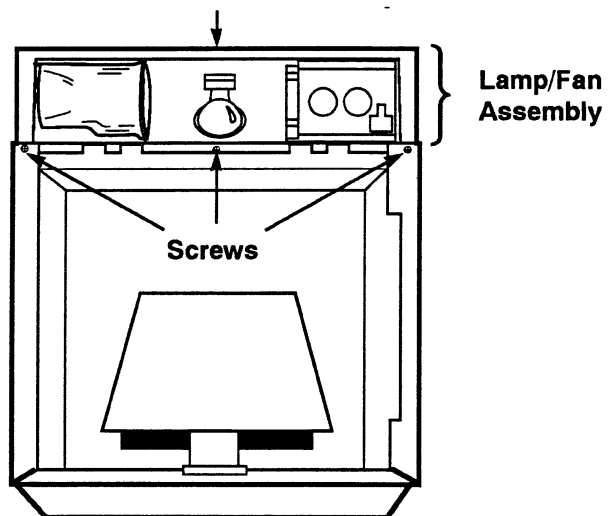


Figure 5-19. Top View Lamp/Fan Assembly

4. Carefully separate lamp/fan assembly from the projector body and set it down on the table top.
5. Disconnect wire connections, as needed, to completely separate the assembly from the projector body.

5-4-2. How to Replace the Single Lamp Socket (FNT/EVD Lamps)

⚠ WARNING

Unplug projector power cord before performing any maintenance to electrical components.

1. Remove the top cover. Section 5-3-1.
2. Disconnect the black wire from the fuse holder.
3. Remove three screws holding the Lamp/Fan Housing to the base. Figure 5-19.

Note

When removing the lamp housing from projectors equipped with a transformer, the mirror assembly must be removed in order to disconnect the wires leading to the transformer. Use precautions to protect the mirror, especially the front surface mirror in the 9550.

If projector is equipped with an interlock switch, the wires attached to the switch must also be disconnected.

4. Lay the Lamp/Fan Housing on its back in front of the overhead projector base.
5. Remove the Top Fan Housing by removing the Screw. Figure 5-21.

Note

This is the only fine threaded screw.

6. Remove six screws holding the Lamp/Fan Assembly to the housing.
7. Remove the Lamp/Fan motor assembly from the housing.
8. To replace the lamp socket, remove the left clip. Figure 5-20.

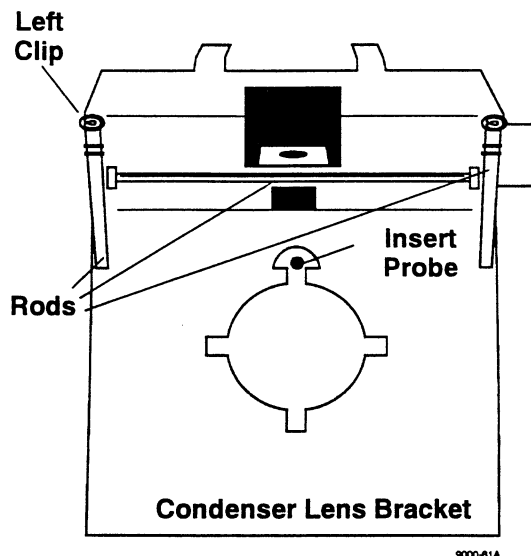


Figure 5-20. Single Lamp Socket

9. Remove the rods. Figure 5-20.
10. Remove the condenser lens bracket. Figure 5-20.
11. Remove the lamp socket.
12. Reassemble in reverse order.

5-4-3. How to Replace the Dual Lamp Socket

⚠ WARNING

Unplug projector power cord before performing any maintenance to electrical components.

1. Remove the fan/lamp assembly. Section 5-4-1.
2. Remove the top fan housing screw. Figure 5-21.

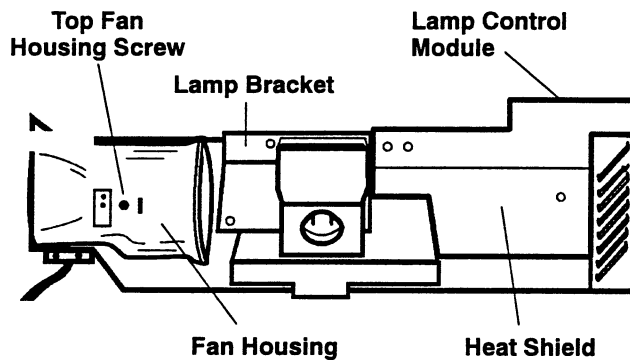


Figure 5-21. Lamp/Fan Assembly Removed

Note

This is the only fine threaded screw.

3. Remove the screws holding the heat shield and lamp bracket in place. Figure 5-21.
4. Pull out and remove the Lamp/Fan Assembly.

Note

Steps 5, 6, 7 are for 9080, 9100 and 9200 projectors with external color tuning. Refer to Sections 9 & 12 in the Illustrated Parts Breakdown manual.

5. Turn color tuning knob clockwise as far as it will go.
6. Remove color tuning knob from the shaft.
7. Remove shaft.
8. Remove retaining screw(s) securing lamp socket.
9. Remove damaged lamp socket and note the routing path of the wire.
10. Install new lamp socket and rewire.
11. Assemble in reverse order.

5-4-4. How to Replace the Dual Lamp Socket (FNT/EVD Lamps)

⚠ WARNING

Unplug projector power cord before performing any maintenance to electrical components.

1. Follow instructions in Section 5-4-2.
2. Unscrew two retaining screws to free dual lamp socket.
3. Reassemble in reverse order.

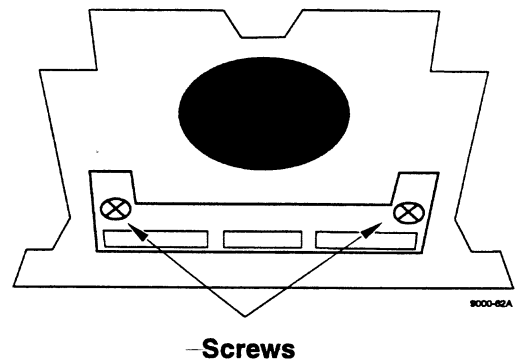


Figure 5-22. Dual Lamp Socket Screws

5-4-5. How to Replace the Thermostat (ENX single lamp)

⚠ WARNING

Unplug projector power cord before performing any maintenance to electrical components.

The thermostat is attached to the ENX mounting bracket.

1. Remove the fan/lamp assembly. Section 5-4-1.
2. Remove the retaining screws securing the bracket support. Figure 5-23.
3. Remove two screws securing thermostat and disconnect wire connectors. Figure 5-24.

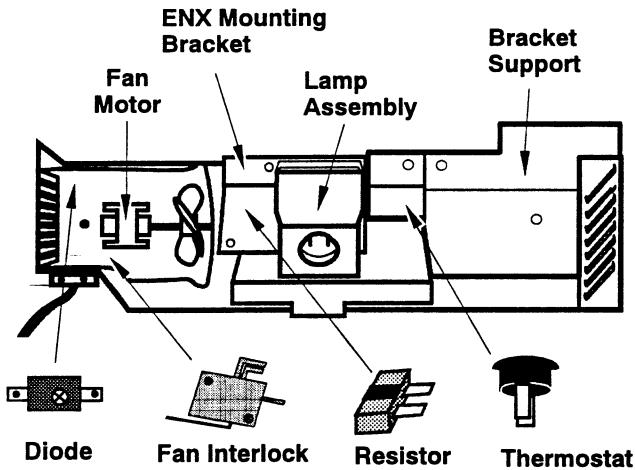


Figure 5-23. Location of Electrical Components

4. Install new thermostat.
5. Reassemble in reverse order.

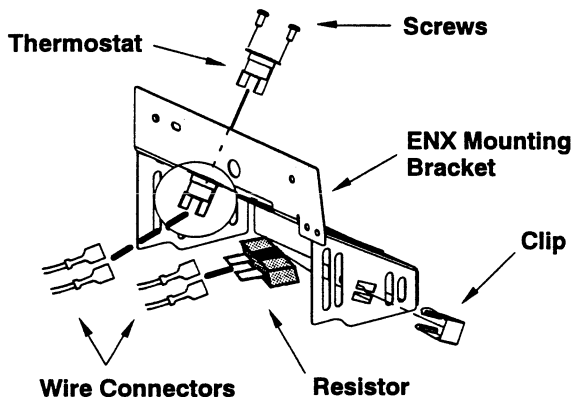


Figure 5-24. ENX Mounting Bracket

5-4-6. How to Replace the Thermostat (Dual Lamp & FNT Single Lamp)

⚠ WARNING

Unplug projector power cord before performing any maintenance to electrical components.

1. Unplug power cord from electrical outlet.
2. Remove the lamp/fan housing. Section 5-4-1.
3. Remove the top fan housing screw. Figure 5-21.
4. Remove screws securing the heat shield, lamp bracket & fan housing to the front projector panel. Figure 5-21.
5. Locate the thermostat. It is attached to the heat shield under the lamp control module. Figure 5-25.
6. Disconnect wire connectors and unscrew retaining screws to free thermostat.

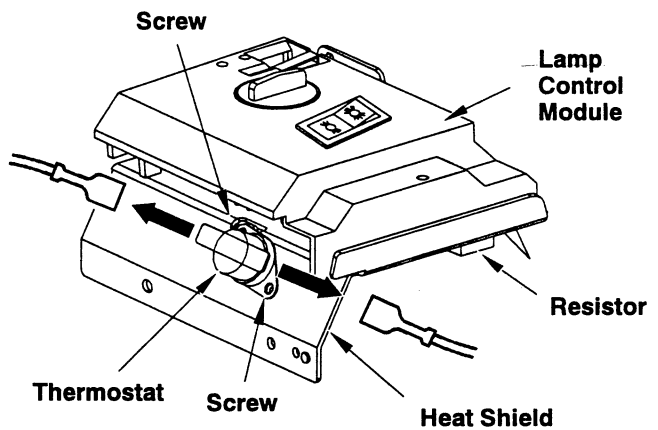


Figure 5-25. Lamp Control Module

7. Reassemble in reverse order.

5-4-7. How to Replace the Resistor (if equipped)

⚠ WARNING

Unplug projector power cord before performing any maintenance to electrical components.

1. Unplug power cord from electrical outlet.
2. Disassemble the lamp/fan housing. Section 5-4-1.
3. Remove the top fan housing screw. Figure 5-21.
4. Remove the screws securing the heat shield, lamp bracket & fan housing to the front projector panel. Figure 5-21.
5. Locate the resistor. It is attached to the heat shield under the lamp control module. Figure 5-25.

For ENX single lamp, it is located under the ENX mounting bracket. Figure 5-23.

6. Remove the metal clip securing the resistor. Figure 5-26.

For ENX single lamp, remove the metal clip. Figure 5-24.

7. Disconnect wire connectors.

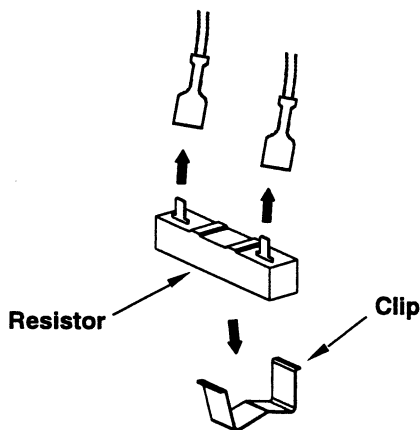


Figure 5-26. Resistor

8. Install new resistor.
9. Reassemble in reverse order.

5-4-8. How to Replace the Diode

⚠ WARNING

Unplug projector power cord before performing any maintenance to electrical components.

1. Follow disassembly instruction from Section 5-4-1.
2. Remove three screws holding heat shield in place. Figure 5-21.
3. Remove top fan housing. Figure 5-21.
4. Remove lower fan housing screw. Figure 5-27.

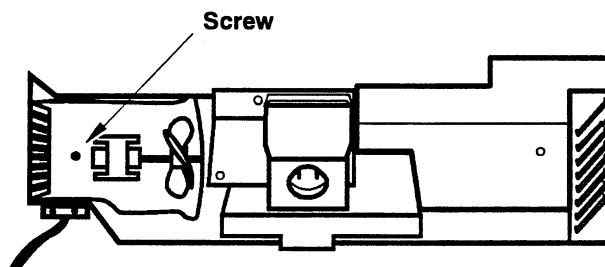


Figure 5-27. Lower Fan Housing Screw

5. Remove two remaining screws holding the lamp bracket. Figure 5-21.
6. Turn over lamp motor assembly.
7. Disconnect wires and unscrew diode retaining screw. When replacing diode, make sure orientation is correct. Figure 5-28.
8. Reassemble in reverse order.

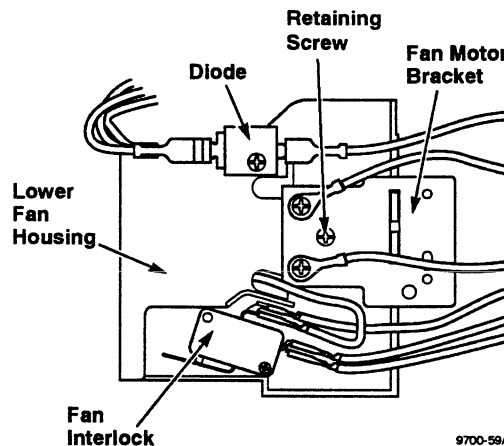


Figure 5-28. Bottom View – Fan Motor

5-5. Fan/Motor (All Versions)

⚠ WARNING

Unplug projector power cord before performing any maintenance to electrical components.

5-5-1. How to replace the Fan Motor

1. Follow disassembly instructions from Section 5-4-1. Follow instructions from 5-4-3 (steps 1, 2, & 3).
2. Remove the Fan Blade by sliding off end of shaft.

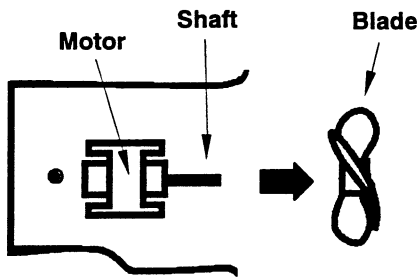


Figure 5-29. Fan Blade

3. Remove the piggyback wire connector from the Diode. Figure 5-28.
4. Separate the piggyback connection.
5. Remove the piggyback from On/Off Switch. Figure 5-28.
6. Disconnect the piggyback connection.
7. Remove two Screws from the Fan Motor Bracket. Figure 5-30.
8. Install new motor and reassemble in reverse order.

⚠ Caution

Be sure that wires are not pinched when reassembling.

Note

When attaching the top fan housing to the lower fan housing, be sure the interlocking tabs fit securely and are properly aligned.

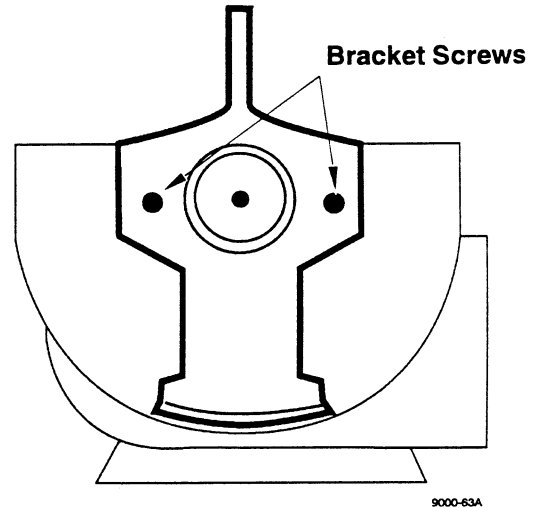


Figure 5-30. Fan Motor Bracket

5-6. Transformers (All FNT/EVD Versions)**⚠ WARNING**

Unplug projector power cord before performing any maintenance to electrical components.

5-6-1. How to Replace the Transformer

1. Make sure the orientation of the transformer on the transformer bracket is correct. The input terminals face the back of the machine base.


Note

There is only one star washer used when attaching the transformer to the bracket.

5-7. Post/Lock Assembly (Folding Post Versions)

5-7-1. How to Remove Post Assembly

1. Remove post nut. Figure 5-31.
2. Lift latch and remove the post.
3. Reassemble in reverse order.

 Caution
When reassembling, be sure a washer is placed on each side of the post.

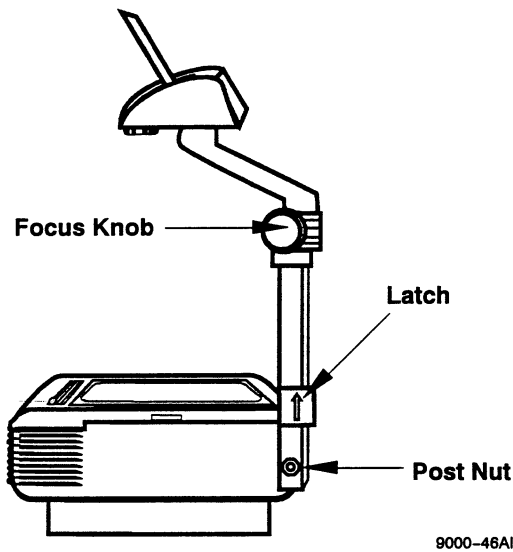


Figure 5-31. Post Lock Assembly

5-7-2. How to Disassemble the Folding Post Lock Assembly

1. Remove post assembly. Figure 5-31.
2. Unscrew stop screw and slide lock and spring off bottom of post. Figure 5-32.
3. To remove post-mount pivot and bracket pivot, unscrew post-mount screw.
4. Reassemble in reverse order.

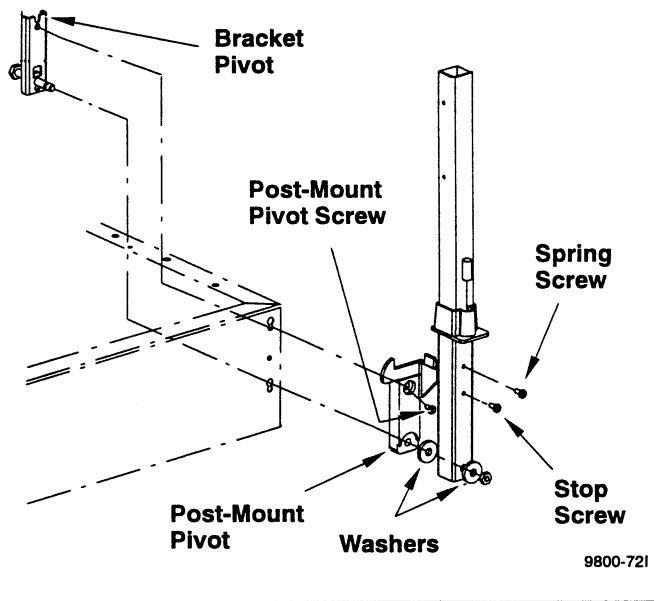


Figure 5-32. Exploded View of Post Lock Assembly

5-8. Focus Assembly (all versions except the 9550)**5-8-1. How to Disassemble the Focus Assembly**

1. To remove the focus knob, pull it straight off.
2. To replace any other focus assembly parts, rest the overhead projector on its back. Figure 5-31.
3. Refer to Section 4 in the Illustrated Parts Breakdown manual for parts detail.

Note

If the rack is replaced, be certain that the open side faces the direction of the knob. Figure 5-33.

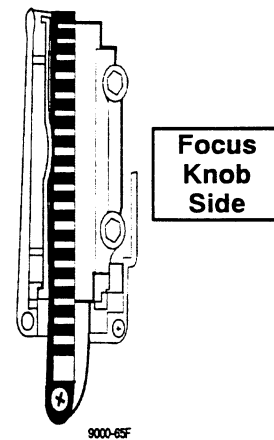


Figure 5-33. Focus Assembly

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6-1. Troubleshooting Matrix

The Troubleshooting Matrix below is organized in the manner:

- **Symptom:** Describes typical projector malfunctions.
- **Things To Check:** Describes things to check to isolate the cause of the problem.
- **Solution:** Identifies corrective actions required to overcome each problem.
- **Section:** Specifies the *section numbers* in this manual describing the corrective procedure.

Symptom	Things To Check	Solution	Section
<i>After replacing a burned out lamp, the new lamp fails.</i>	a. Is diode working? (See 6-2.)	a. Replace defective Diode.	5-4-8
	b. Is transformer delivering correct voltage to lamps?	b. Replace defective transformer.	5-6
	c. Is lamp defective?	c. If lamp fails immediately some other factor may be causing lamps to fail. See Short Lamp Life (below).	--
<i>Short lamp life. Lamps seem to fail before expected life span.</i>	a. Is lamp defective? Check lamp filament for the type of failure.	a. Monitor actual lamp life to note type of lamp failure. See Reoccurring Lamp Failure.	--
	b. Is there High line voltage?	b. Adjust incoming power source to deliver correct line voltage.	7-1
<i>Reoccurring Lamp Failure.</i>	a. Is there arcing failure?	a. Check for diode failure or high voltage.	6-2
	b. Is a piece of the filament missing?	b. Replace lamp. Normal end of lamp life or jarring when lamp is hot can cause this failure.	2-6
	c. Is bulb lamp darkened on inside due to leaking seal? Test with Ohm meter. An open reading indicates a bad seal.	c. Check vents and fan to verify proper cooling. Excess heat may be causing seal to leak.	1-2-2
<i>Neither lamp nor fan will energize.</i>	a. Is there power at wall outlet? Is projector plugged into outlet?	a. Verify unit is plugged into outlet with power. Replace defective power cord.	--
	b. Is stage cover closed?	b. Close stage cover to engage interlock.	2-6
	c. Is power switch working? Is interlock working?	c. Replace defective switch. Replace defective interlock.	5-3-6 5-3-7

Symptom	Things To Check	Solution	Section
<i>Lamp does not illuminate but fan motor runs.</i>	<ul style="list-style-type: none"> a. Is lamp fully seated in socket? b. Is lamp burned out? c. Is control panel door closed? d. Is there resistor failure? (Check for 1.2 Ohms)? 	<ul style="list-style-type: none"> a. Seat lamp squarely into socket. b. Replace defective lamp. c. Close door, check interlock switch. d. Replace defective resistors. 	<p>2-6</p> <p>2-6</p> <p>2-6</p> <p>5-4-7</p>
<i>Lamp does not come on when lamp changer dial is rotated from burned out lamp to good lamp.</i>	<ul style="list-style-type: none"> a. Are there any loose wire connections? b. Is lamp changer switch actuating properly? 	<ul style="list-style-type: none"> a. Trace wires and tighten loose connections. b. Replace defective lamp changer switch. 	<p>7</p> <p>5-4-1</p>
<i>Both lamps, if equipped, illuminate at the same time.</i>	<ul style="list-style-type: none"> a. Are wires to lamps crossed and touching? b. Is lamp changer switch actuating properly? 	<ul style="list-style-type: none"> a. Trace lamp connections and separate touching wires. b. Replace defective lamp changer switch. 	<p>5-4-1</p> <p>5-4-1</p>
<i>Corners of projected image appear red (brown) or blue.</i>	<ul style="list-style-type: none"> a. Misaligned Optics. b. Misadjusted Color Tuning. c. Is lamp of proper type? Open stage cover and check label. d. Is lamp squarely seated in socket? e. Is lamp changer dial fully engaged? 	<ul style="list-style-type: none"> a. Realign Optics. b. Adjust Color Tuning. c. Use lamp type specified on label. d. Fully seat lamp in socket to center filament in optical path. e. Rotate lamp changer dial fully into left or right position. 	<p>4-2</p> <p>4-2-5</p> <p>2-6</p> <p>4-2-1</p> <p>2-4</p>
<i>Top, bottom, or sides of the projected image are not focused.</i>	<ul style="list-style-type: none"> a. Is lamp of proper type? Open stage cover and check label. b. Is lamp seated in socket? c. If unit is equipped with lamp changer, is dial or tab fully seated in left or right position? d. Do optical components appear damaged or out of alignment? 	<ul style="list-style-type: none"> a. Use correct lamp type. b. Fully seat lamp in socket to center filament in optical path. c. Rotate lamp changer dial or slide tab fully into left or right position. d. Align optical components. Replace damaged components. 	<p>2-6</p> <p>4-2-1</p> <p>2-4</p> <p>4-2</p>
<i>Vertical Keystoning: Projected image is wider at the top than at the bottom.</i>	<ul style="list-style-type: none"> a. Image is being projected upward and screen is not aligned at 90° angle to light beam? 	<ul style="list-style-type: none"> a. Tilt projection screen towards projector until the image width is equal at the top and bottom. 	<p>2-3</p>

Symptom	Things To Check	Solution	Section
<i>Horizontal Keystoning: Projected image is higher on one side than the other.</i>	a. Image is offset because light beam is not projected at 90° angle to screen?	a. Rotate projector left or right until image height is equal on both sides.	2-3
	b. Are optical components in proper alignment?	b. Align optical components to obtain the best image.	4-2
<i>Projected image is dim.</i>	a. Dirty stage glass, projection lenses or mirror.	a. Clean projector optics.	3-1
	b. Condenser lens bracket not closed.	b. Close condenser lens and secure with retaining clip.	2-6
<i>Image is vibrating.</i>	a. Is fan blade balanced?	a. Replace defective blades.	5-5
	b. Is fan motor running properly?	b. Replace defective motor.	5-5
	c. Is fan blade or motor hitting an obstruction?	c. Remove foreign objects from inside projector.	1-2-2
<i>Projected image does not have uniform brightness.</i>	a. Is lamp alignment correct?	a. Seat lamp squarely on lamp socket. Fully engage lamp changer control.	4-2-1 2-4
<i>Fan motor does not run but lamp illuminates.</i>	a. Is fan blade or motor hitting obstruction?	a. Remove foreign objects from inside projector. Replace broken fan blade.	5-5
	b. Is fan motor burned out?	b. Replace defective motor.	5-5

6-2. How To Determine If You Have A Short Circuited Diode

A diode is working properly if it will pass current in the forward direction and block current in the reverse direction.

1. Unplug the projector.
2. Remove the lamp/fan assembly and the fan motor to gain access to the electrical components. Follow the instructions in Section NO TAG.
3. Determine the cathode and anode ends as marked on the diode. Figure 6-1.

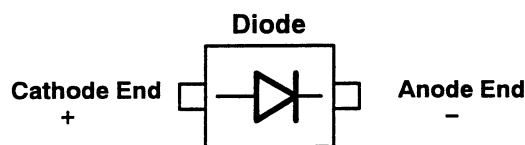


Figure 6-1. Cathode and Anode End

4. Test the forward direction. Figure 6-2.
 - a. Set analog ohmmeter to 1K range.
 - b. Connect the negative ohmmeter lead to the cathode and the positive lead to the anode.
 - c. Check for a low resistance reading.
5. Test the reverse direction. Figure 6-2.
 - a. Set analog ohmmeter to a high resistance scale.
 - b. Connect the negative ohmmeter lead to the anode and the positive lead to the cathode.
 - c. Check for a high resistance reading.

Note

If you are using a digital ohmmeter, set it to "Diode Test" mode and measure the voltage drop in the forward direction. A reading from .4V to .6V indicates conduction. If the voltage is the same in the reverse direction, the diode junction is probably shorted.

6. Replace the diode if the meter reads the same in both directions or does not show any conductivity.

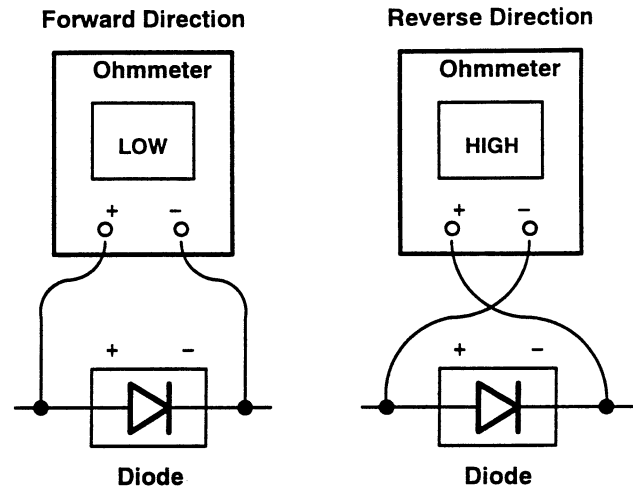


Figure 6-2. Ohmmeter Test Connections

6-3. Technical Assistance

For technical assistance call:

U.S. and Canada: (7:30 am to 5:30 pm central time)

800-328-1371

In other locations: Contact your local 3M Sales Office.

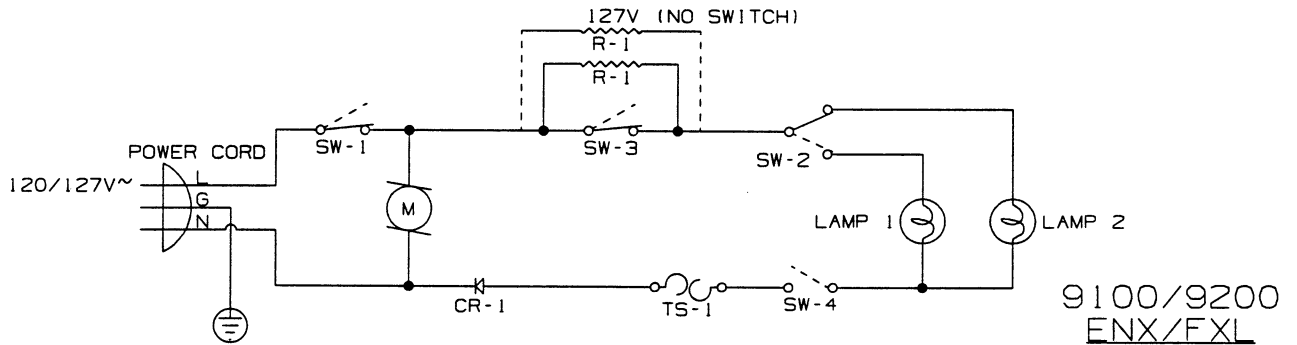
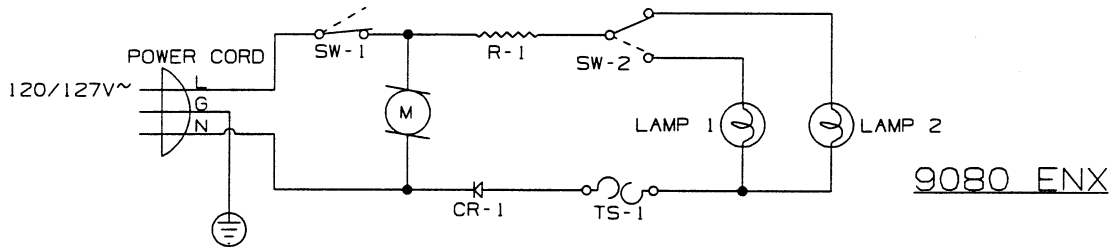
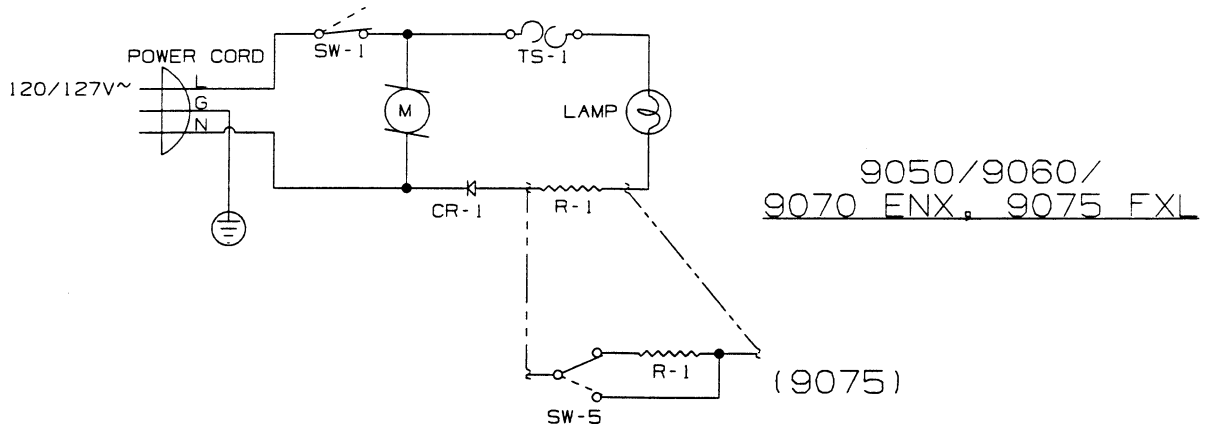
Technical Assistance Center:

For information or technical support on any 3M Visual Systems Division product, contact the Technical Assistance Center via telephone, fax, Profs or Internet.

- Telephone: 1-800-328-1371
- Fax: 512-984-5105
- Profs: VSD EPS SERVICE CENTER
- Internet: scvsdeps@mmm.com

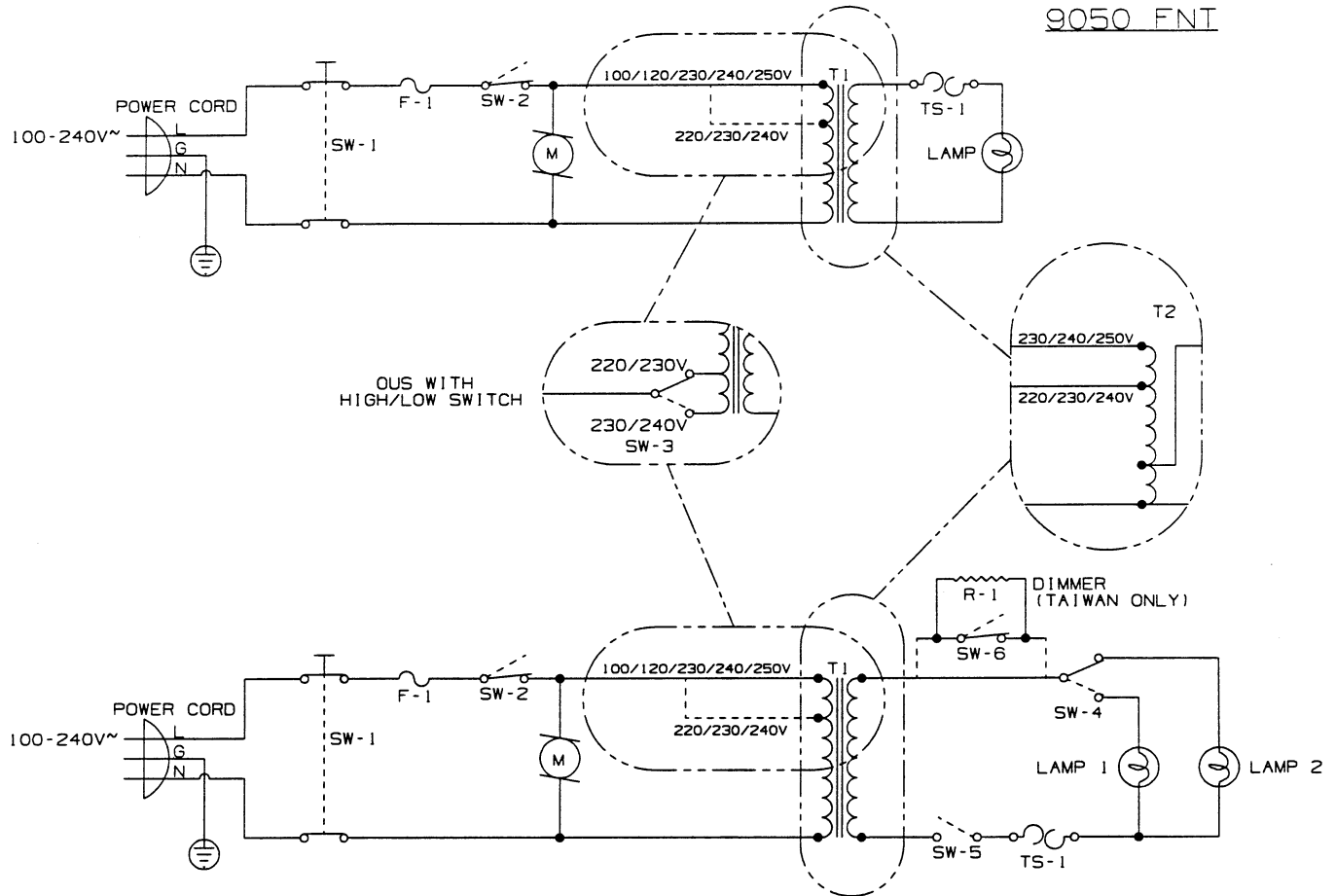
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7-1. Electrical Schematics



- LEGEND**
- SW-1 — SWITCH-ON/OFF
 - SW-2 — SWITCH-LAMP CHANGER
 - SW-3 — SWITCH-HIGH/LOW
 - SW-4 — SWITCH-LAMP INTERRUPT
 - SW-5 — SWITCH-DIMMER
 - TS-1 — THERMOSTAT
 - CR-1 — DIODE
 - R-1 — RESISTOR
 - M — FAN MOTOR

9050/9080/9100/9200 FNT – Electrical

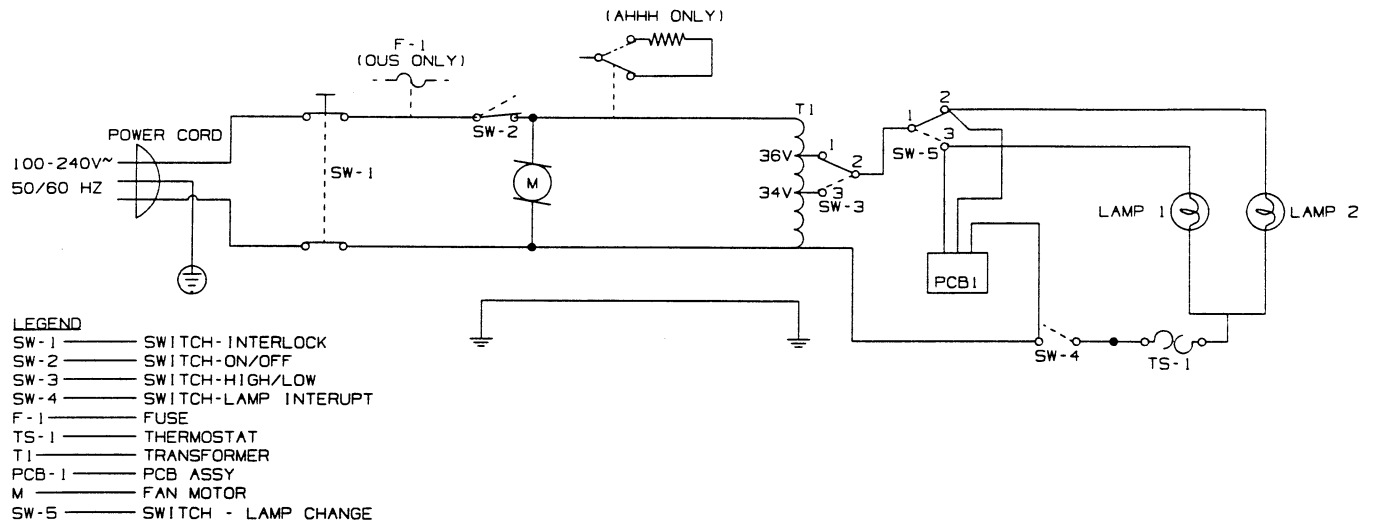


9050 FNT

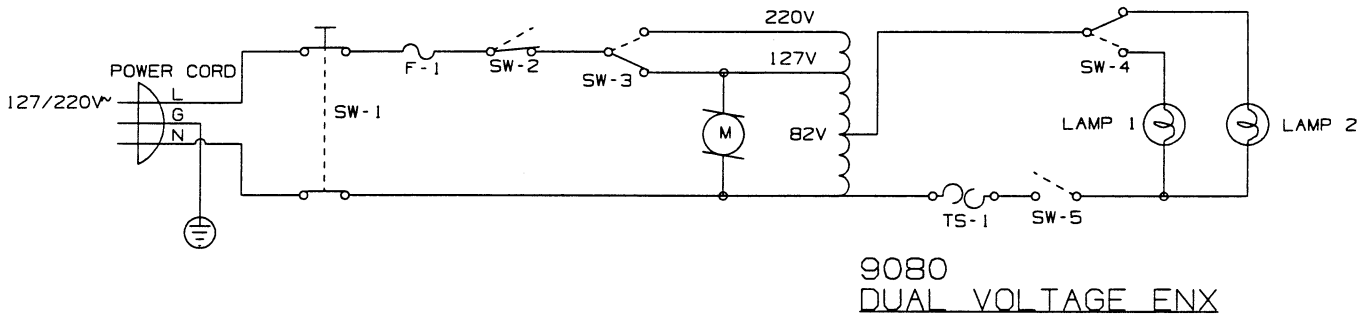
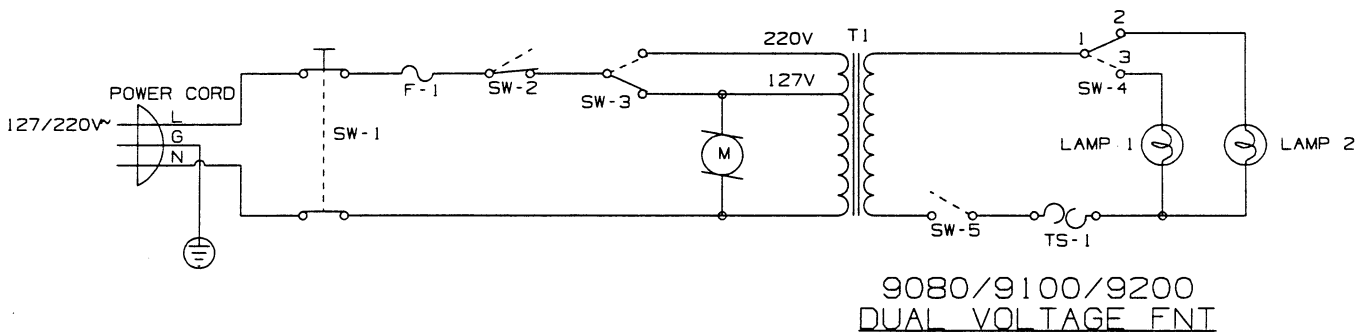
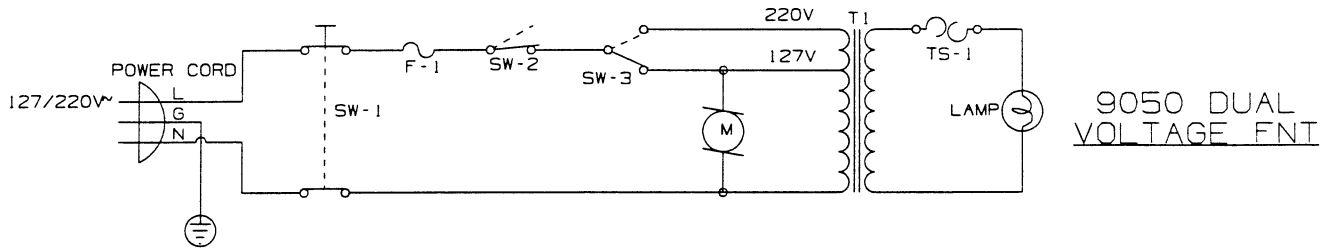
9080/9100/9200 FNT

- LEGEND**
- SW-1 — SWITCH-INTERLOCK
 - SW-2 — SWITCH-ON/OFF
 - SW-3 — SWITCH-VOLTAGE
 - SW-4 — SWITCH-LAMP CHANGER
 - SW-5 — SWITCH-LAMP INTERRUPT
 - SW-6 — SWITCH-HIGH/LOW
 - F-1 — FUSE
 - TS-1 — THERMOSTAT
 - T1 — TRANSFORMER, ISOLATION
 - R-1 — RESISTOR
 - M — FAN MOTOR
 - T2 — TRANSFORMER, AUTO

9550 SCHEMATIC DIAGRAM



SCHEMATIC DIAGRAM

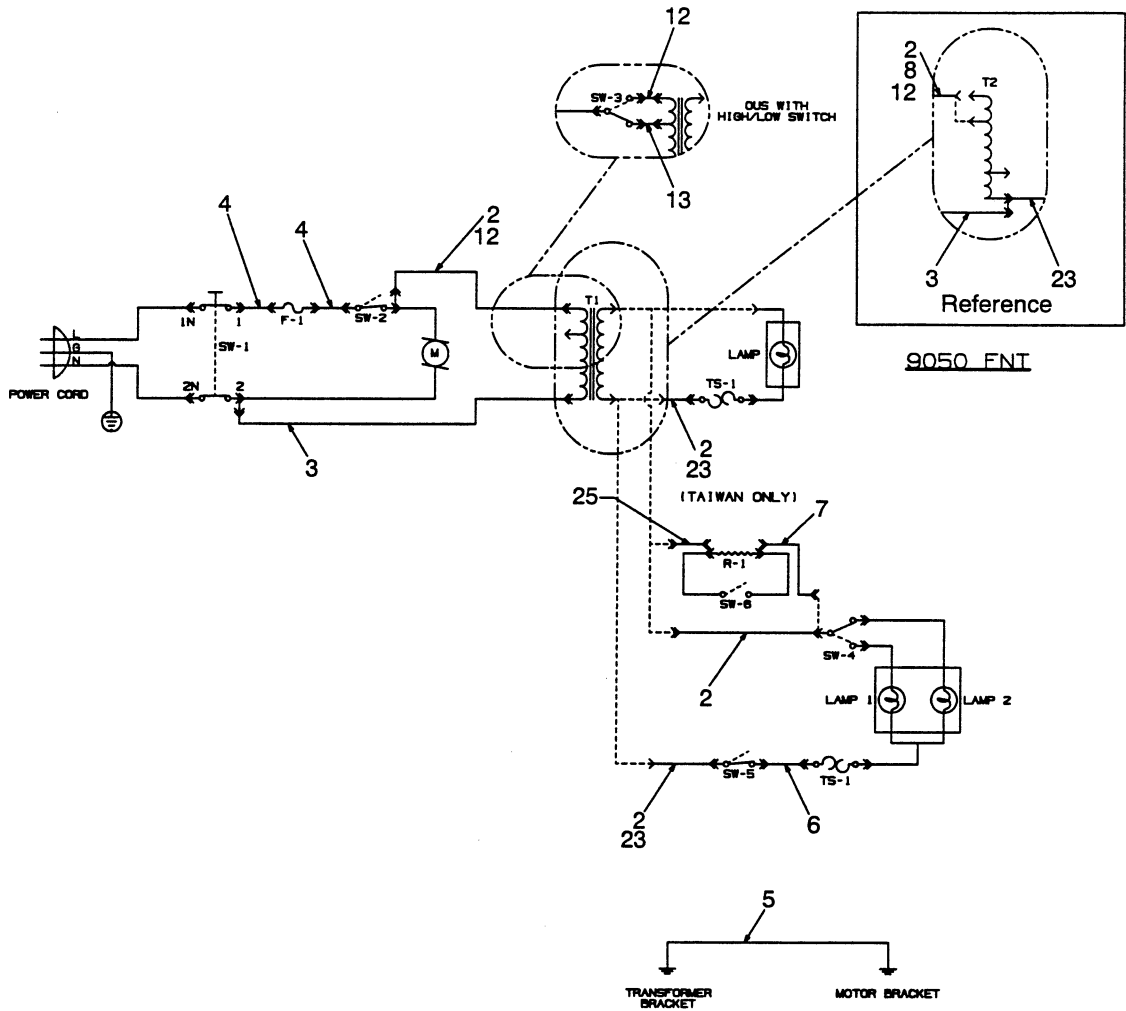


- LEGEND**
- SW-1 — SWITCH- INTERLOCK
 - SW-2 — SWITCH- ON/OFF
 - SW-3 — SWITCH- VOLTAGE
 - SW-4 — SWITCH- LAMP CHANGER
 - SW-5 — SWITCH- LAMP INTERUPT
 - F-1 — FUSE
 - TS-1 — THERMOSTAT
 - T-1 — TRANSFORMER - ISOLATION
 - M — FAN MOTOR
 - T-2 — TRANSFORMER - AUTO

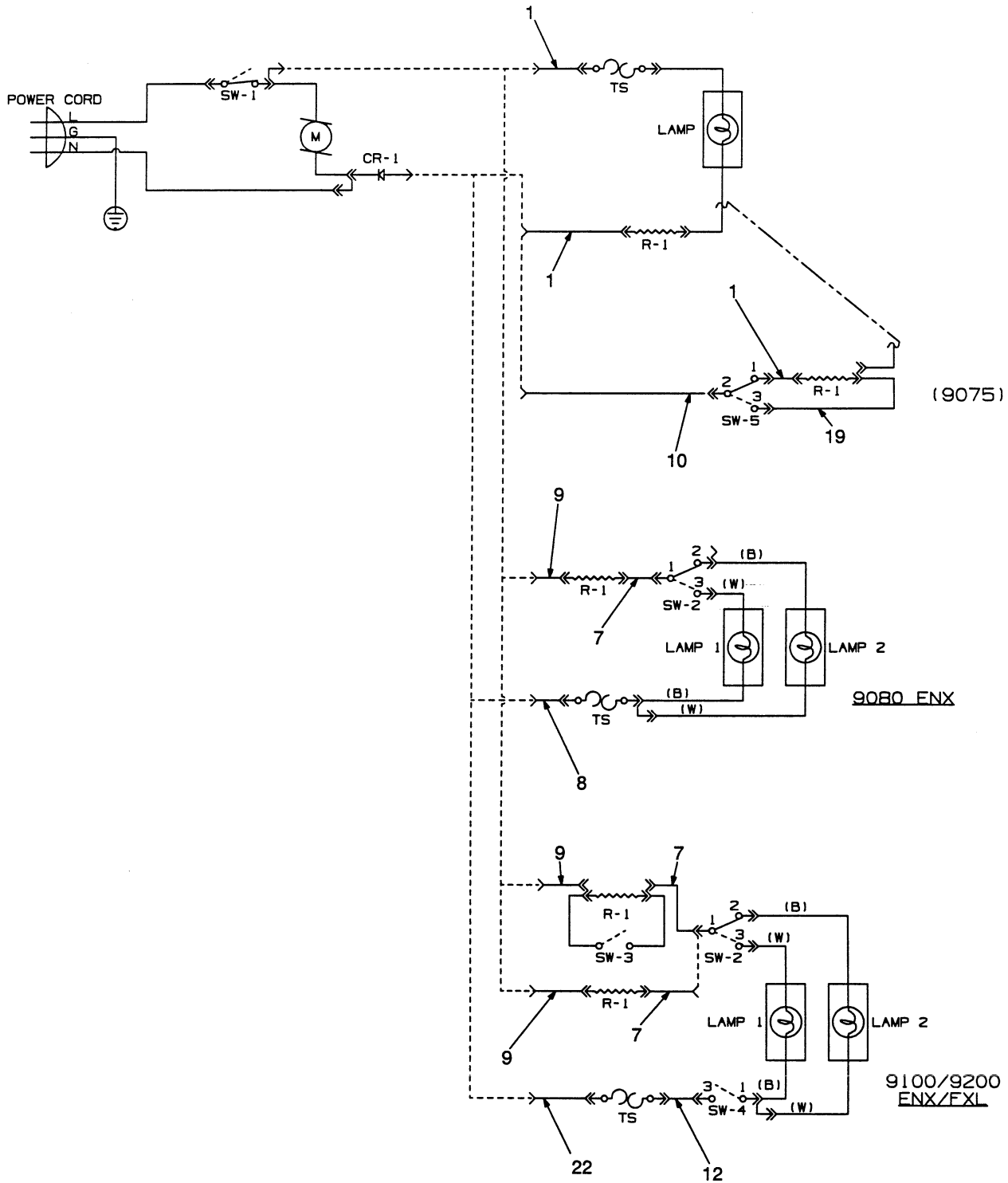
7-2. Wiring Schematics

Wire jumpers are identified by numbered callouts. Refer to the 9000 Illustrated Parts Breakdown manual for the corresponding part number.

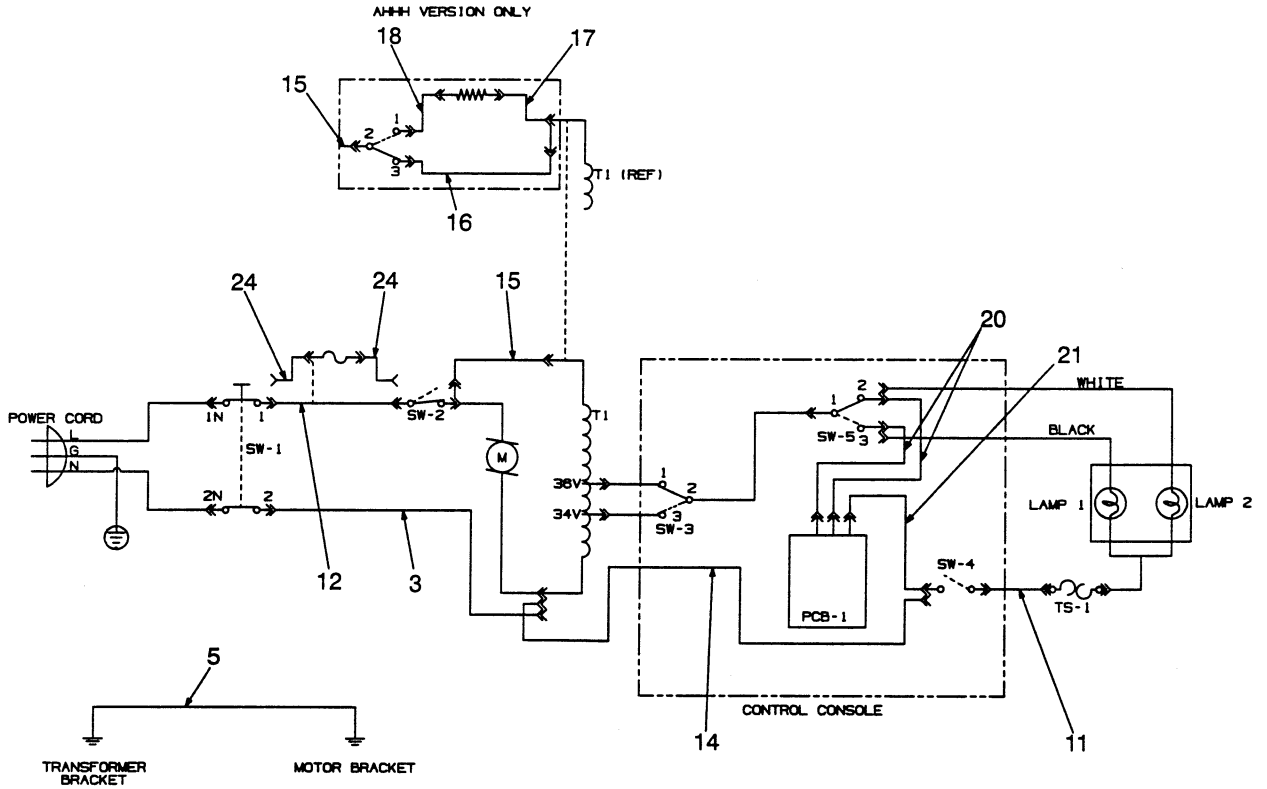
9080/9100/9200 FNT



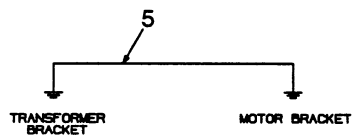
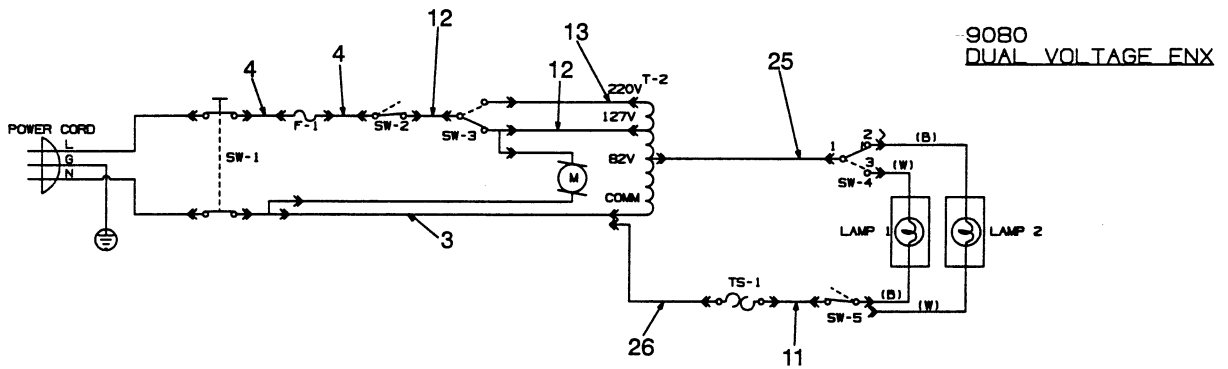
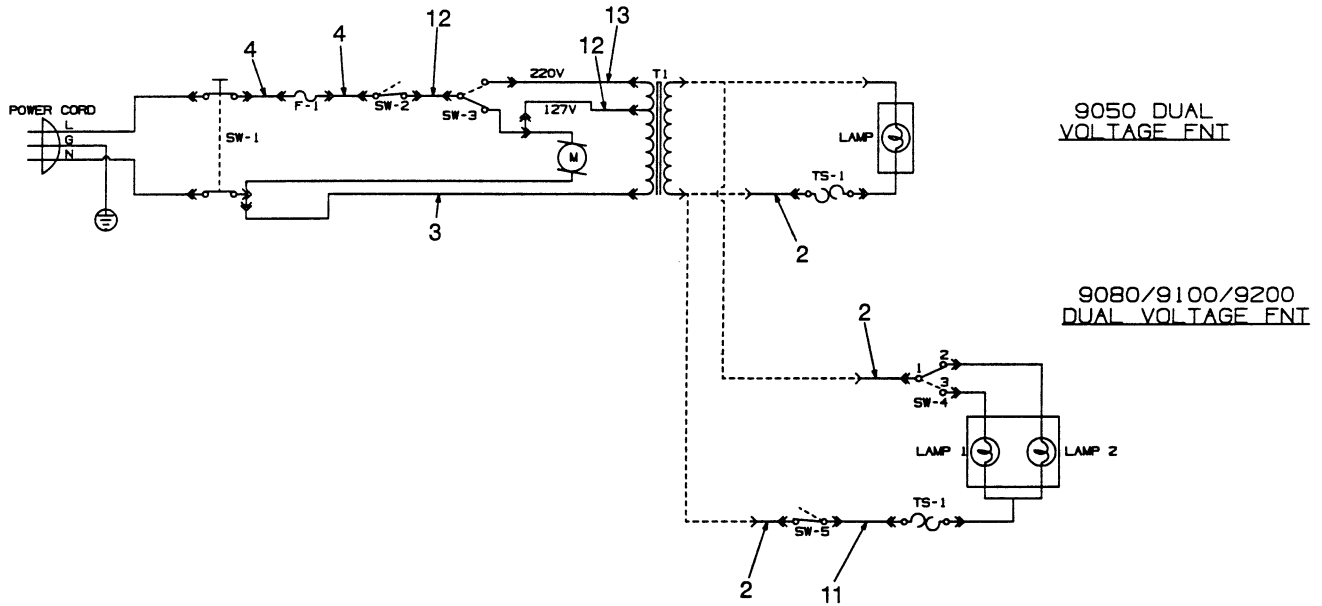
9050/9060/9070 ENX, 9075 FXL



9550



(DUAL VOLTAGE)

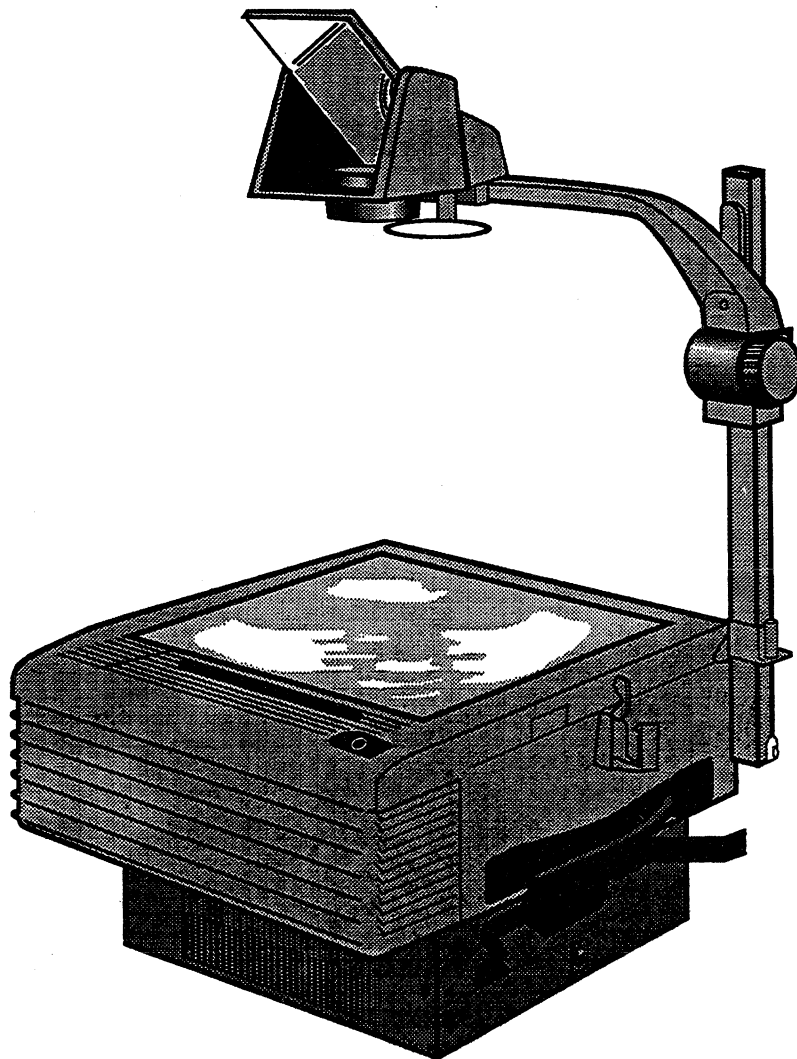


3M

9000 Series Overhead Projector

Illustrated Parts Breakdown

For: 9050 9060 9070 9075
9080 9100 9200 9550



Printed in U.S.A.

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Revision History

Revision bars placed in the margins (|) indicate where additions or changes to a parts identification list occurred. Items deleted from a parts identification list are indicated on this page only. Changes to illustrations are not indicated by revision bars, nor shown in this revision history.

The original issue of this manual and subsequent revisions are identified as follows:

Issue date: 4/94

Revision	Date	Page(s) Changed	Change
Original	April 1994	All pages	
	August 1994	All pages	
	July 1995	All pages	
	July 1996	All pages	Globally deleted all hardware part numbers and placed the M9000 Hardware Repair Kit (78-8054-1818-9) at the bottom of each affected page.
		Page 7	Deleted the following: item 6B (78-8073-3286-7), 6C (78-8079-9028-4). Changed item 8 from 26-1005-9570-5 to 26-1005-9570-6. Added the following: item 6B (78-8073-2994-7), item 11 (JV-0890-0185-1).
		Page 9	Added the following: item 0B (78-8073-3115-8), item 4B (78-8073-2982-2), item 14C (78-8073-2980-6), item 18 (JV-0890-0185-1).
		Page 11	Deleted the following: item 4A (78-8079-7291-3), item 8D (78-8079-9036-7). Changed item 8C from 78-8073-3287-5 to 78-8073-2995-4.
		Page 13	Changed item 9 from 26-1003-6669-4 to 26-1009-9749-8. Added the following: item 0B (78-8073-2952-5), item 3B (26-1009-4445-8), item 12B (78-8073-3289-1), item 19 (JV-0890-0183-6), item 20 (78-8054-1713-2).

Revision History (Continued)

Revision	Date	Page(s) Changed	Change
	July 1996	Page 15	Deleted the following: item 3B (78-8079-8035-9), item 4B (78-8079-9069-8), item 7D (78-8079-9038-3), item 7J (78-8079-9034-2), 7R (78-8079-9039-1). Changed the following: item 3A from 78-8079-8892-4 to 78-8073-2955-8, item 7S from 78-8079-9216-5 to 78-8073-2993-9, item 7T from 78-8073-3283-4 to 78-8073-2991-3, item 7U from 78-8073-3284-2 to 78-8073-2992-1, item 7V from 78-8079-9215-7 to 78-8079-8910-4. Added the following: item 7R (78-8073-3106-7), item 7S (78-8073-3107-5), item 7T (78-8073-3108-3). Added item 8B (78-8095-8353-3).
		Page 17	Deleted the following: item 13D (78-8073-3288-3), item 13E (78-8079-9029-2). Changed item 16 from 78-8079-9223-1 to item 17 78-8073-2965-7. Added item 19 (JV-0890-0183-6).
		Page 19	Deleted the following: item 1A (78-8079-9093-8), item 1B (78-8079-9094-6), item 1C (78-8079-9095-3), item 1D (78-8079-8758-7), item 1E (78-8079-9030-0), item 1F (78-8079-9032-6). Added item 1A (78-8073-2976-4), item 1B (78-8073-2977-2), item 1C (78-8073-2978-0), item 16L (78-8079-9231-4). Changed item 16H from 78-8079-8859-3 to 78-8073-3009-3, item 16J from 78-8079-8860-1 to 78-8073-3010-1, item 16K from 78-8079-8861-9 to 78-8073-3011-9, item 18A from 78-8073-3007-7 to 78-8079-9087-0, item 18B from 78-8073-3008-5 to 78-8079-9139-9.
		Page 20	Deleted the following: item 26B (26-1009-8679-8), item 26C (26-1009-7379-8), item 37K (78-8079-9212-4).
		Page 21	Added the following: item 54 (JV-0890-0183-6), item 55 (26-1005-7810-8), item 56 (78-8079-9138-1), item 57 (78-8073-2972-3).

Revision History (Continued)

Revision	Date	Page(s) Changed	Change
	July 1996	Page 23	Deleted the following: item 8G (78-8079-9026-8), item 8H (78-8079-9027-6), item 8J (78-8079-9031-6), item 19 (78-8006-8611-1). Changed item 8H from 78-8073-3282-8 to 78-8073-3282-6. Added the following: item 8I (JV-0891-0182-6), item 8J (78-8079-9232-2), item 19 (70-0000-2356-7).
		Page 25	Deleted item 9B (78-8073-6931-5). Added the following: item 2B (78-8073-2975-6), item 12B (78-8073-2986-3).
		Page 27	Deleted item 11 (78-8079-8995-5) and item 12 (78-8079-8932-8) and replace them with item 11 (78-8073-3017-6). Deleted item 13C (78-8079-9040-9) Added 18B 78-8073-3005-1.
		Page 31	Added the following: item 0B (78-8073-3002-8), item 20 (78-8097-3649-5), item 21 (78-8079-8928-6), item 22 (78-8079-8866-8), item 23 (See Note), item 24 (See Note), item 25 (78-8079-8912-0). Deleted the following: item 1 (78-8079-9037-5), item 19 (78-8095-8336-8). Changed Item 9 from 78-8079-8819-7 to 78-8073-3015-0, Changed item 20 from 78-8097-3652-9 to 78-8097-3649-5.
		Page 33	Deleted all parts from 11A. Changed item 4 from 78-8079-8885-8 to 78-8073-2961-6.
		Page 37	Added item 5C (78-8079-8899-9). Changed item 9 from 78-8079-8819-7 to 78-8073-3015-0.
		Page 39	Added the following: item 9B (78-8073-2962-4), item 10C (78-8073-2963-2), item 10D (78-8073-2964-1), item 12B (78-8073-2987-1) item 12C (78-8073-3012-7).
		Page 41	Added the following: item 18B (78-8073-2961-6), item 20B (78-8073-3105-9).

Revision History (Continued)

Revision	Date	Page(s) Changed	Change
	July 1996	Page 48	<p>Changed the following: item 6 from 78-8079-8968-2 to 78-8073-3297-4, item 7 from 78-8079-8970-8 to 78-8073-3102-6, item 8 from 78-8079-8967-4 to 78-8073-3018-4, item 9 from 78-8079-8982-3 to 78-8073-3019-2. item 21 from 78-8057-4267-9. Deleted the following: item 10 (78-8079-8990-6), item 15 (78-8079-8024-3), item 17 (78-8079-9050-8). Added the following: item 19 (78-8073-3103-4), item 20 (78-8073-3013-5), item 21 (78-8073-2973-1), item 22 (78-8073-3018-4), item 23 (78-8097-3548-9), item 24 (78-8079-8973-2), item 25 (78-8095-8299-8), item 26 (78-8097-3550-5).</p>
		Pages 49–53	<p>Deleted the following models: 9050 AJAL, 9200 AJCL, 9550 AJHL. Added the following models: 9050 AAAM, 9100 AABM, 9200 AACM, 9550 AAHB, 9200 BGC, 9080 ABDB.</p>

Introduction

This Illustrated Parts Breakdown (IPB) contains the information necessary to locate and identify specific parts of the 9000 Series Overhead Projectors (except 9600, 9700, 9800 and 9850).

Part Numbers

All components available on a replacement basis are listed with their 3M identification number. The parts identification list opposite each illustration provides the description adequate to identify components.

Locating and Identifying a Part

If physical appearance and general location of an item are known:

1. Use the Overview illustration to determine which section includes the item.
2. Refer to the section and locate the item on the exploded view illustration.

The part identification numbers provided in this manual are from the most current data available. Make sure part identification numbers for your component have not been amended by changes and updates made to your Series 9000 Overhead Projector.

Machine Identification Plate

The Machine Identification Plate is located on the bottom side of each projector and lists specific information that is needed when calling for technical assistance or ordering parts.

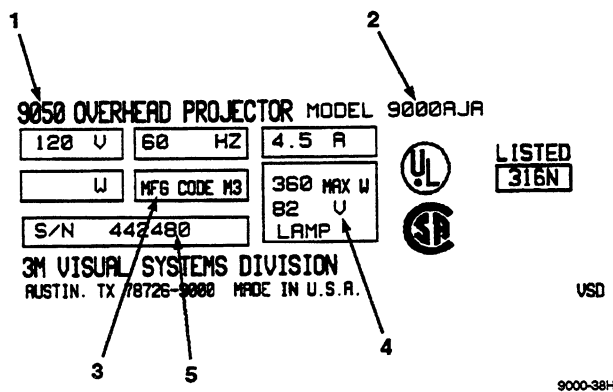


Figure 1-1. Machine Identification Plate

Ordering Parts

When ordering parts, include part identification number, description, quantity and the following information:

1. Product Name: The specific version number of the projector.
2. Model Number/Alpha Code: The series number of the projector followed by a three or four character alpha code identifier. The Alpha Code indicates the design level, specific product characteristics, power cord or distribution specific to a country. A three character alpha code indicates this distribution is only for USA and Canadian distribution.
3. MFG Code: The date the projector was manufactured. See example below:

MFG Code			
Letter		Digit	
M	1993	1	Jan – Mar
A	1994	2	Apr – Jun
C	1995	3	Jul – Sep
D	1996	4	Oct – Dec

4. Lamp: The electrical rating of the lamp.
5. S/N: The serial number assigned to this projector.

Revision Bars

Revision bars placed in the margins indicate where additions or changes occurred. Refer to the Revision History to identify specific additions and changes.

For part orders contact:

Dealers:	Refer to Dealers Guide
3M Subsidiaries:	Contact Export Operations
Retail Customers:	
FAX:	1-800-852-3917
Telephone:	1-800-328-2883

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4	Arm and Focus Assembly	12
5	Top Cover	14
6	Base Enclosure	18
7	Cooling Fan	22
8	Lamp Housing – ENX Single Lamp	24
9	Lamp Housing – ENX/FXL Dual Lamp	26
10A	Lamp Housing – EVD Dual Lamp - M9550 (Mfg Code A3 and earlier)	28
10B	Lamp Housing – EVD Dual Lamp - M9550 (Mfg Code A3 and later)	30
11	Lamp Housing – FNT Single Lamp	32
12A	Lamp Housing – FNT Dual Lamp (Mfg Code A3 and earlier)	34
12B	Lamp Housing – FNT Dual Lamp (Mfg Code A3 and later)	36
13	Lampchanger and Hi/Lo Lamp Control Module (Dual Lamp Versions)	38
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IMPORTANT NOTICE

**3M reserves the right to sell or furnish NEW OR RECONDITIONED PARTS.
New and reconditioned parts are covered by the same 3M new parts limited warranty.**

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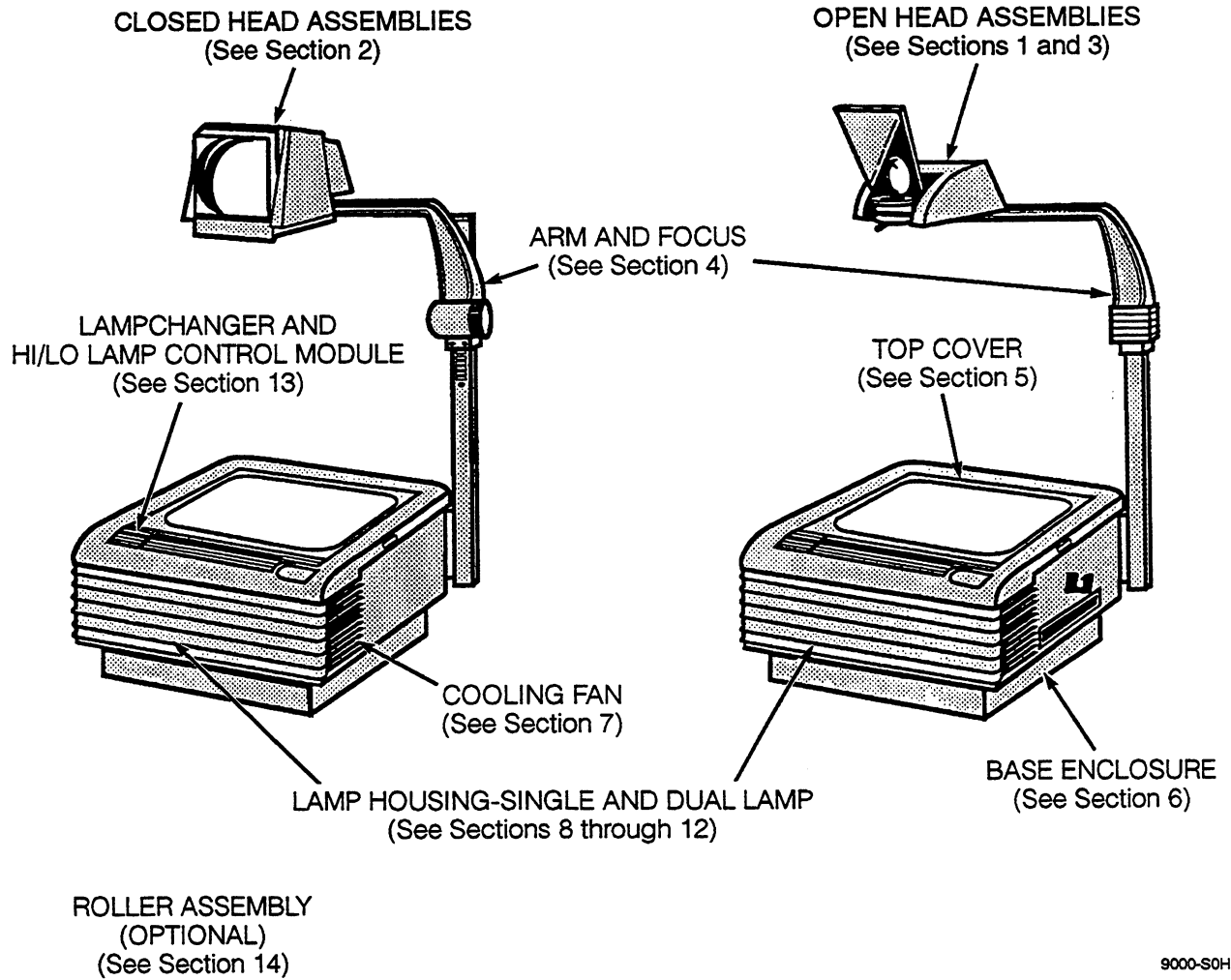
Quick Reference Parts Index

Description	Part Number	Section Item	
		No.	No.
BLADE, Fan, Tech Air (Black)	78-8079-9194-4	7	5
CRADLE, Post (Folding Post)	78-8079-8890-8	6	24
DIODE, Inline	78-8064-1834-5	7	16
FOOT	26-1008-5211-5	6	41
FRESNEL LENS, Single Element, Glare Free, 182.9 mm (M9050, M9060, 9070, M9080, M9100 AABD, AJB, AJBW, AJBX, M9200 AACD AKC AMD)	78-8064-1645-5	5	8A
FRESNEL LENS, Dual Element, Europe Glare Free, 174 mm (M9550 ABHJ)	78-8079-9176-1	5	8B
FRESNEL LENS, Dual Element, Glare Free, 182.5 mm (M9100 except AABD, AJB, AJBW and AJBX, M9200 except AACD and AJC)	78-8054-1236-4	5	8C
FRESNEL LENS, Dual Element, Clear, 174 mm (M9550 except ABAJ)	78-8079-9045-8	5	8D
FRESNEL LENS, Dual Element, Clear, 182.5mm (9075 AJG only)	78-8095-8353-3	5	8E
GLASS, Exit, Articulate (293 mm Singlet Head)	78-8064-1650-5	2	4A
GLASS, Coated, Articulate (9075 AJG)	78-8073-2982-2	2	4B
GLASS, Stage (M9050, M9060, M9070, M9075 M9080, M9100, M9200, M9550 Europe	78-8064-1473-2	5	6A
GLASS, Stage (M9550)	78-8079-8975-7	5	6B
KNOB, Focus	78-8064-1601-8	4	16
LAMP SOCKET ASSEMBLY, Dual	78-8079-8819-7	10A	8
LAMP, Projection, ENX, 82V, 360W	78-8011-1186-1	8	9A
LAMP, Projection Kit, ENX, Xerox	78-6969-8096-6	8	9B
LAMP, FXL (M9200)	78-8073-7100-6	9	13C
LAMP, Projection Kit, FXL, Xerox	78-6969-8097-4	9	13D
LATCH, Top Cover	78-8079-8768-6	5	12
LENS, Triplet, (342 mm) (M9200)	78-8064-1833-7	3	3
LENS, Varifocal, (270-325 mm)	78-8073-3296-6	3	4
LENS, Meniscus (355 mm)	78-8011-1440-2	2	14B
LENS, Exit, Articulate (355 mm Doublet Head)	78-8014-8812-9	2	5
LENS, Condenser (60 mm)	78-8079-9025-0	10A	12
MIRROR ASSEMBLY (Open Singlet)	78-8057-4230-7	1	3
MIRROR ASSEMBLY (Doublet)	78-8064-1457-5	2	17
MIRROR ASSEMBLY, Triplet (M9550 – Dark Grey 4mm)	78-8079-9227-2	3	12A
MIRROR ASSEMBLY, Triplet (M9200 – Black 3mm)	78-8079-9156-3	3	12B
MOTOR, Fan (120Volt)	78-8079-8787-6	7	15A
MOTOR, Fan (230 Volt)	78-8079-8936-9	7	15B
MOTOR, Fan (120 Volt) (M9550)	78-8079-9020-1	7	15C
MOTOR, Fan (100 Volt)	78-8079-8937-7	7	15D
MOTOR, Fan, (120Volt (Brazil)	78-8079-9133-2	7	15E
RESISTOR, 1.2 Ohm (M9050, M9060, M9070)	78-8073-7127-9	8	14
SOCKET, Single lamp (ENX)	78-8079-8820-5	8	8
SWITCH, Micro	78-8079-8823-9	7	7A
SWITCH, Micro (Long actuator M9550)	78-8079-9199-3	7	7B
SWITCH, Lampchanger/Hi/Lo, Dimmer	78-8079-8855-1	13	8
THERMOSTAT, Safety (ENX)	78-8079-8872-6	8	5
THERMOSTAT (M9080/ENX, M9100/ENX, M9200/ENX, M9550)	78-8079-8933-6	13	2
TRANSFORMER, Japanese EVD (M9550) (100V)	78-8079-9056-5	6	16A

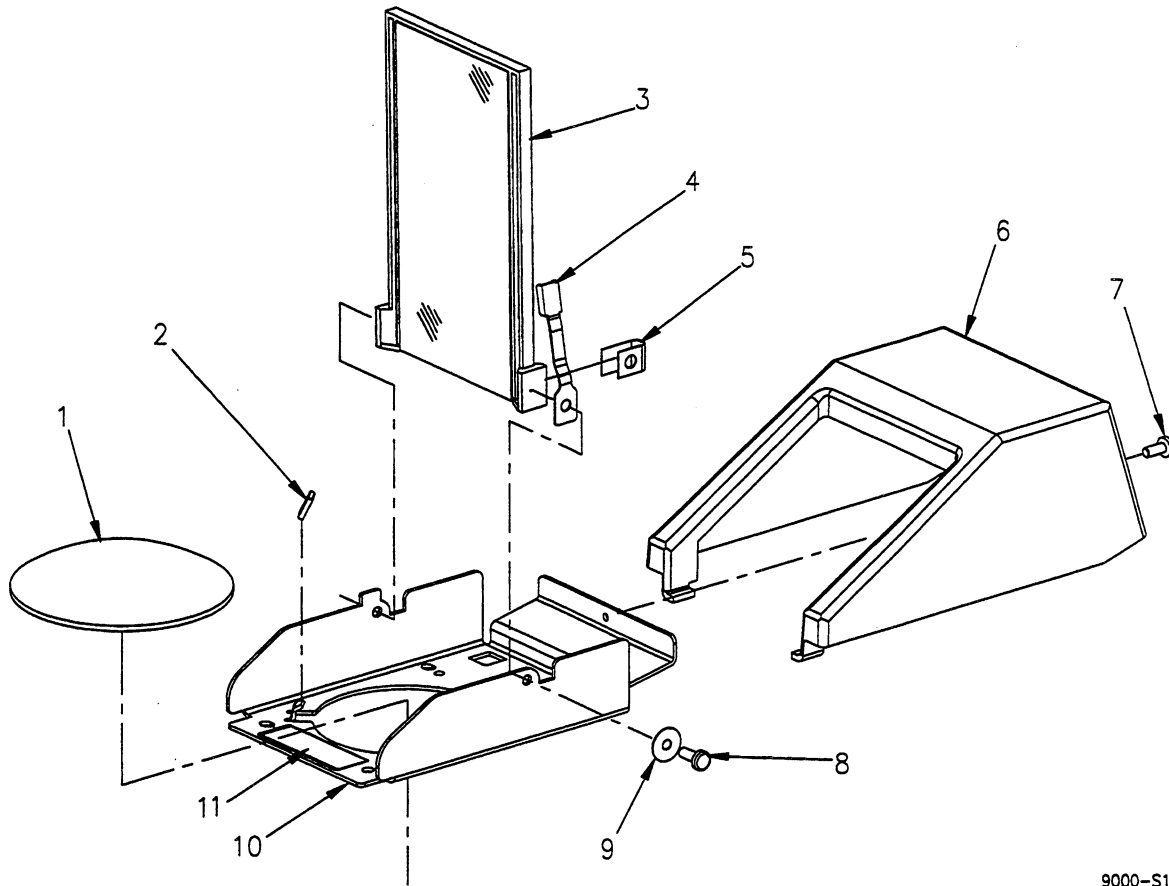
Quick Reference Parts Index (Continued)

Description	Part Number	Section No.	Item No.
TRANSFORMER, Auto, EVD (120V)	78-8079-9079-7	.. 6	.... 16B
TRANSFORMER, EVD (220V)	78-8079-8991-4	.. 6	.... 16C
TRANSFORMER, Auto, EVD (M9550) (230/240V)	78-8079-9091-2	.. 6	... 16D
TRANSFORMER, FNT (100V)	78-8079-8921-1	.. 6	.... 16E
TRANSFORMER, FNT Taiwan (120V)	78-8079-9070-6	.. 6	.... 16F
TRANSFORMER, FNT, Indonesia (127/220V)	78-8079-8920-3	.. 6	... 16G
TRANSFORMER, Auto, Hong Kong, Thailand (220/230V)	78-8073-3009-3	.. 6	... 16H
TRANSFORMER, Auto, (230/240)	78-8073-3010-1	.. 6	.... 16J
TRANSFORMER, Auto, Australia, India, New Zealand, South Africa, (240/250)	78-8073-3011-9	.. 6	... 16K
TRANSFORMER, Brazil, (127/220V) (M9080 ABDB)	78-8079-9231-4	.. 6	.... 16L

Section 0
OVERVIEW



Section 1
WIDE ANGLE (OPEN) 293 mm HEAD ASSEMBLY



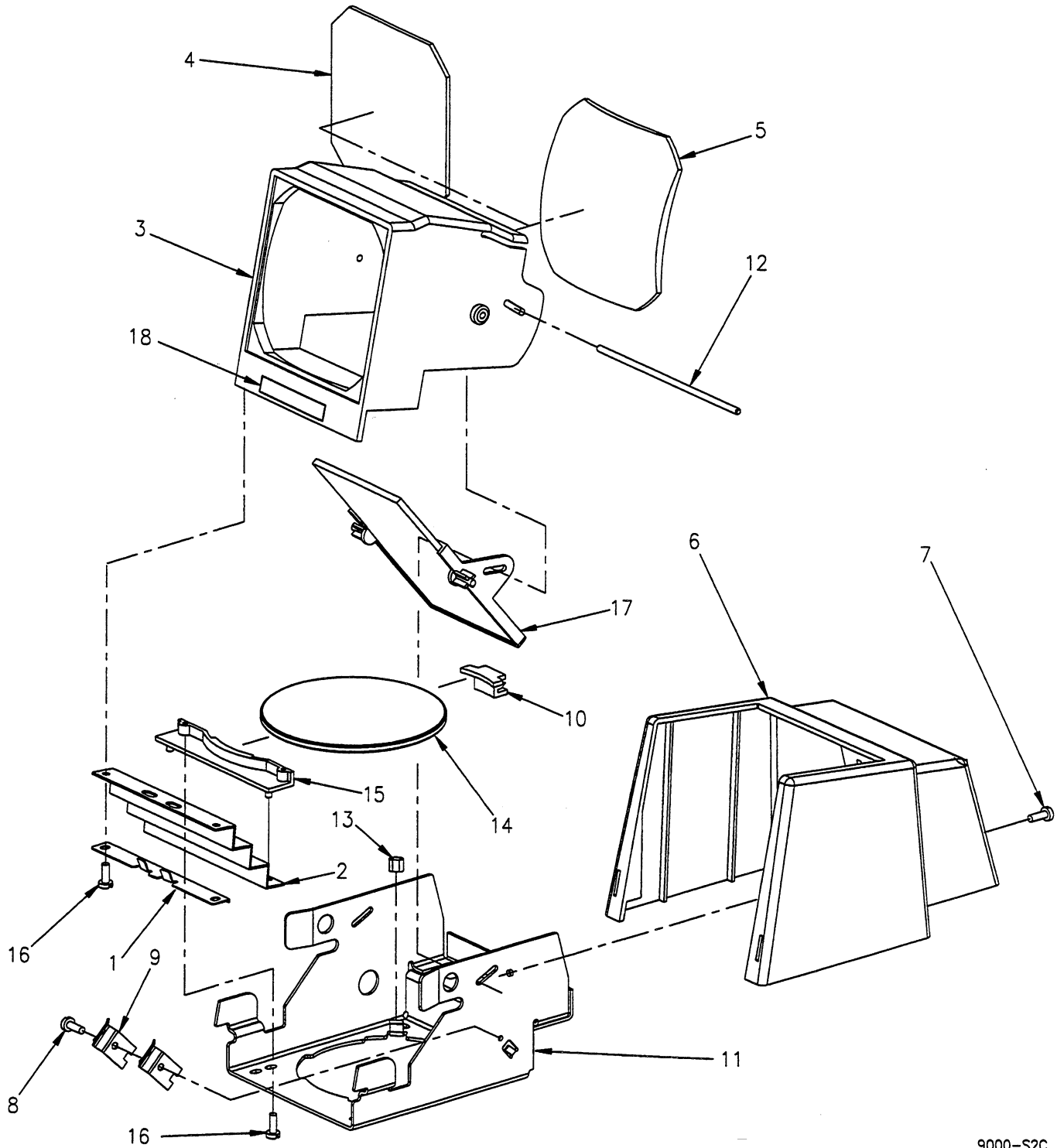
9000-S1C

Section 1
WIDE ANGLE (OPEN) 293 mm HEAD ASSEMBLY

Item No.	Part Number	Description	Qty
0	78-8079-9151-4	HEAD ASSEMBLY, Wide Angle (Open), 293 mm Singlet	3
1	78-8014-8951-5	LENS, Wide Angle (293 mm)	1
2	78-8064-1646-3	TUBING, Lens	3
3	78-8057-4230-7	MIRROR ASSEMBLY (Open Singlet)	1
4	78-8064-1605-9	SPRING, Mirror Damping (Used on M9050 and M9080, except M9080AJD)	1
5	(See Note 1)	NUT, U-Type, 8-32	1
6A	78-8079-8802-3	COVER, Head, Singlet	1
6B	78-8073-2994-7	COVER, Head, Singlet, Red (Xerox) (M9080 AHTS, AHTU, AHTZ)	1
7	(See Note 1)	SCREW, Taptite, M3.5 X 8	1
8	(See Note 1)	SCREW, Mach. 8-32 X 7/16	1
	(See Note 1)	WASHER, Plain Nylon	1
10	78-8079-8803-1	BRACKET, Lens, Singlet	1
11	JV-0890-0185-1	LABEL, Caution, Japan (M9050 ABAJ, 9080 ABDJ, 9200 ABCJ)	1

Note 1. Order M9000 Series Hardware Repair Kit (78-8054-1818-9). This kit contains a complete set of hardware for the M9000 Series O.H.P.

Section 2
ARTICULATE (CLOSED) HEAD ASSEMBLIES



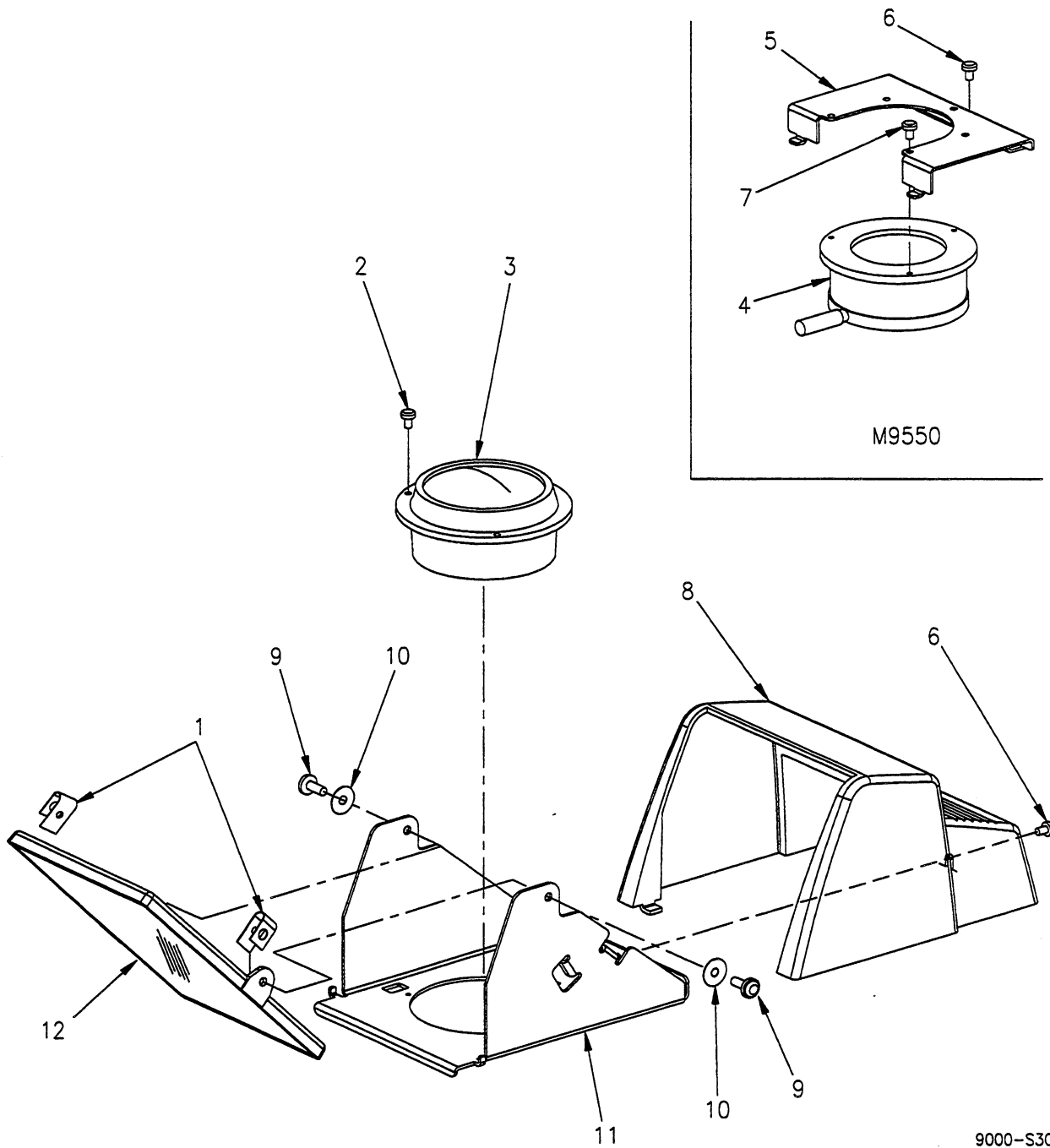
9000-S2C

Section 2
ARTICULATE (CLOSED) HEAD ASSEMBLIES

Item			
No.	Part Number	Description	Qty
0A	78-8079-9152-2	HEAD ASSEMBLY, Articulate (Closed), 293 mm Singlet, Wide Angle	1
0B	78-8079-9153-0	HEAD ASSEMBLY, Articulate (Closed), 355 mm Doublet	1
0C	78-8073-3115-8	HEAD ASSEMBLY, Articulate (Closed), Coated, 293 mm Singlet, Wide Angle (9075 AJG)	1
1	78-8064-1602-6	CLAMP, Dust Shield and Lens	1
2	78-8064-1797-4	SHIELD, Dust (Short)	1
3	78-8064-1562-2	HOUSING, Exit Lens	1
4A	78-8064-1650-5	GLASS, Exit, Articulate (293 mm Singlet Head)	1
4B	78-8073-2982-2	GLASS, Coated, Articulate (9075 AJG)	1
5	78-8014-8812-9	LENS, Exit, Articulate (355 mm Doublet Head)	1
6A	78-8079-8805-6	COVER, Head, Doublet	1
6B	78-8079-9229-8	COVER, Head, Doublet, Xerox	1
7	(See Note 1)	SCREW, Taptite, M3.5 X 8	1
8	(See Note 1)	SCREW, Taptite, M3 X 6	1
9	78-8014-8817-8	SPRING, Tension	2
10	78-8064-1643-0	MOUNT, Lens (293 mm Singlet Wide Angle)	1
11	78-8079-8804-9	BRACKET, Lens, Doublet	1
12	78-8011-1445-1	PIVOT	1
13	78-8064-1646-3	TUBING, Lens	2
14A	78-8014-8951-5	LENS, Wide Angle (293 mm)	1
14B	78-8011-1440-2	LENS, Meniscus (355 mm)	1
14C	78-8073-2980-6	LENS, Wide Angle (9075 AJG)	1
15A	78-8064-1596-0	CLAMP, Lens (293 mm Singlet Head)	1
15B	78-8064-1595-2	CLAMP, Lens (355 mm Doublet Head)	1
16	(See Note 1)	SCREW, Plastite, 4-20 X 1/4	2
17	78-8064-1457-5	MIRROR ASSEMBLY (Doublet)	1
18	JV-0890-0185-1	LABEL, Caution, Japan (9050 ABAJ, 9080 ABDJ, 9200 ABCJ)	1

Note 1. Order M9000 Series Hardware Repair Kit (78-8054-1818-9). This kit contains a complete set of hardware for the M9000 Series O.H.P.

Section 3
TRIPLET & VARIFOCAL (OPEN) HEAD ASSEMBLIES

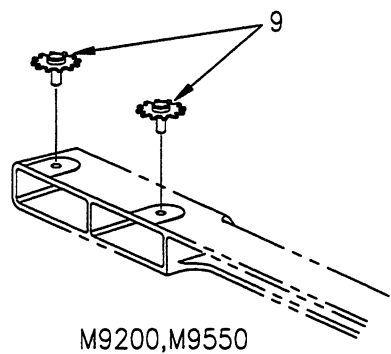


Section 3
TRIPLER & VARIFOCAL (OPEN) HEAD ASSEMBLIES

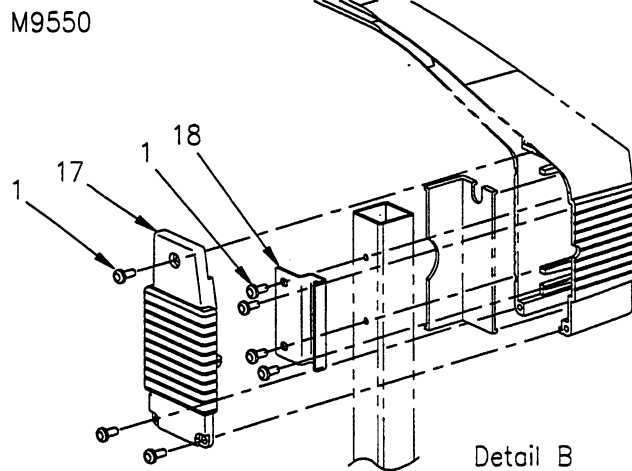
Item No.	Part Number	Description	Qty
0A	78-8079-9154-8	HEAD ASSEMBLY, Triplet, (Open), (M9200)	1
0B	78-8079-9155-5	HEAD ASSEMBLY, Varifocal, (Open), (M9550)	1
1	(See Note 1)	NUT, U-Type, 8-32	1
2	(See Note 1)	SCREW, Taptite, M3 X 6 mm, Black, Zinc	3
3	78-8064-1833-7	LENS, Triplet, (342 mm) (M9200)	1
4	78-8073-3296-6	LENS, Varifocal, (270-325 mm)	1
5	78-8079-9014-4	ADAPTER, Lens (M9550)	1
6	(See Note 1)	SCREW, Taptite, M3.5 X 8	2
7	(See Note 1)	SCREW, Taptite, M3 X 8, Metal	3
8A	78-8079-9015-1	COVER, Head (M9200)	1
8B	78-8079-9017-7	COVER, Head (M9550)	1
8C	78-8073-2995-4	COVER, Head, Red (Xerox) (M9200, 9550)	1
9	(See Note 1)	SCREW, Mach. 8-32 X 7/16	1
10	(See Note 1)	WASHER, Plain, Nylon	1
11	78-8079-9012-8	BRACKET, Lens (M9550)	1
12A	78-8079-9227-2	MIRROR ASSEMBLY, Triplet (M9550 – Dark Grey 4mm)	1
12B	78-8079-9156-3	MIRROR ASSEMBLY, Triplet (M9200 – Black 3mm)	1

Note 1. Order M9000 Series Hardware Repair Kit (78-8054-1818-9). This kit contains a complete set of hardware for the M9000 Series O.H.P.

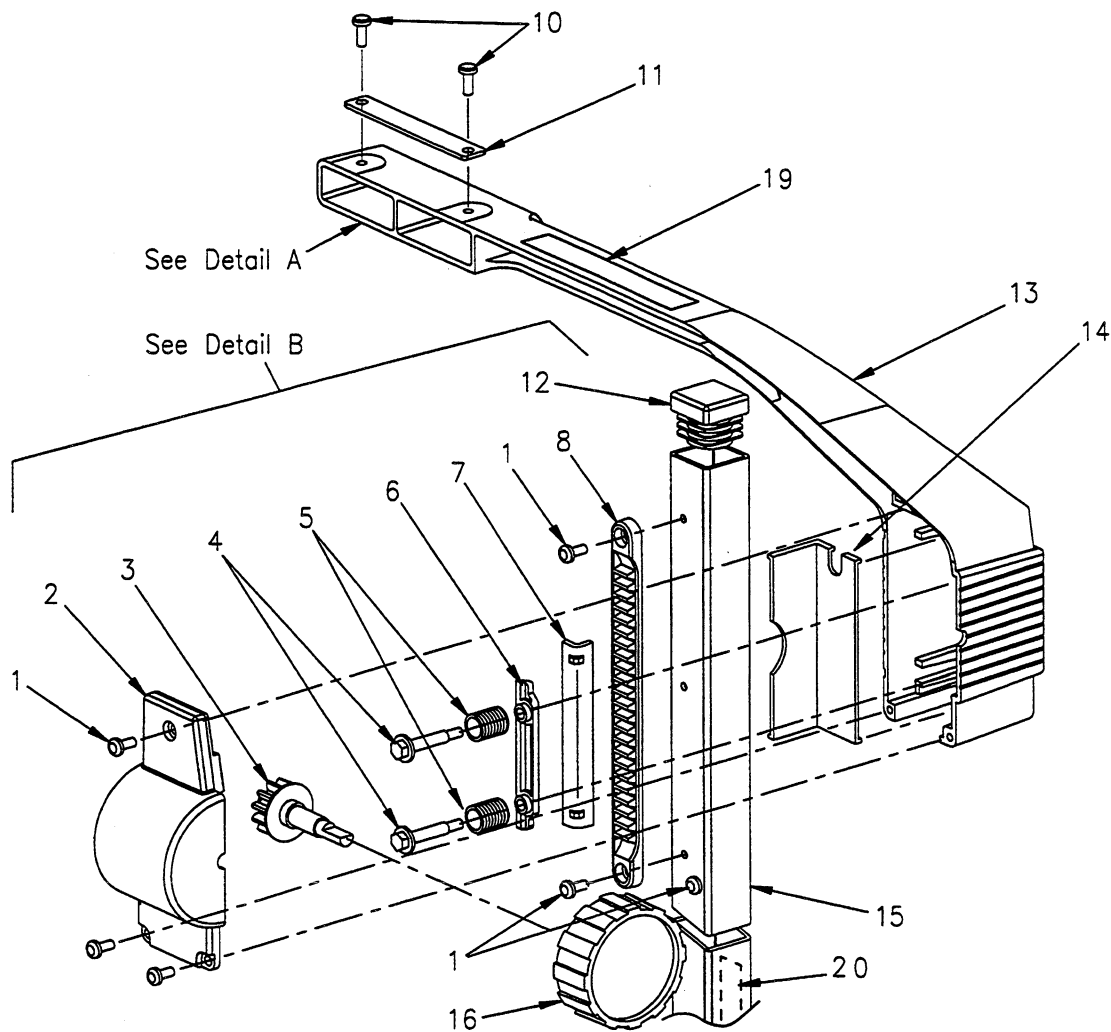
Section 4
ARM AND FOCUS ASSEMBLY



Detail A



Detail B

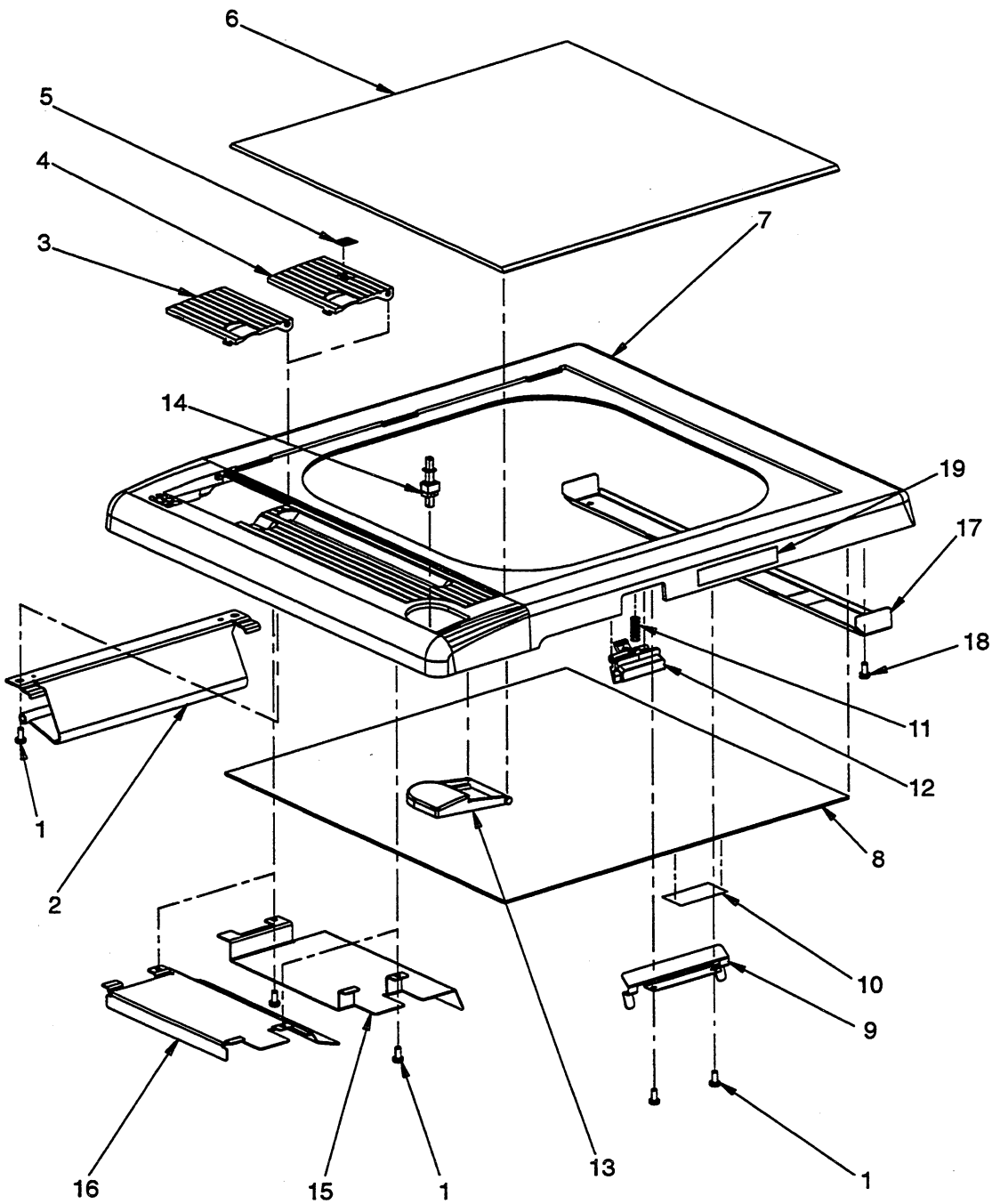


Section 4
ARM AND FOCUS ASSEMBLY

Item No.	Part Number	Description	Qty
0A	78-8073-2951-1	ARM AND FOCUS ASSEMBLY (M9550)	1
0B	78-8073-2952-5	ARM AND FOCUS ASSEMBLY (M9200)	1
1	(See Note 1)	SCREW, Taptite, M3.5 X 8 (M9550, qty 7)	5
2A	78-8079-8742-1	CAP, Focus Arm (All Models Except Xerox)	1
2B	78-8073-3289-1	CAP, Focus Arm (Xerox)	1
3A	78-8079-8745-4	GEAR, Focus	1
3B	26-1009-4445-8	LUBRICANT (All Models)	A/R
4	(See Note 1)	SCREW, Shoulder	2
5	26-1009-4515-8	SPRING, Compression	2
6	78-8079-8747-0	BAR, Pressure	1
	78-8079-8743-9	CLAMP, Friction	1
o	78-8079-8744-7	RACK, Focus	1
9	(See Note 1)	SCREW, Taptite, M4 X 10	1
10	(See Note 1)	SCREW, Sems, Taptite, M4 X 16	2
11	78-8079-8798-3	PLATE, Washer	1
12A	26-1009-3653-8	CAP, Post (22 mm Square)	1
12B	78-8073-3289-1	CAP, Focus Arm (Xerox 9080, 9200)	1
13A	78-8079-8741-3	ARM, Focus (All Models Except M9550)	1
13B	78-8079-8960-9	ARM, Focus (M9550)	1
14	78-8011-1220-8	PAD, Wear	1
A	78-8079-8759-5	POST, Fixed (M9050, M9060, M9070, M9075)	1
15B	78-8079-9088-8	POST, Folding, Long (M9080, M9100, M9200)	1
15C	78-8079-9089-6	POST, Folding, Long (M9550)	1
16	78-8064-1601-8	KNOB, Focus	1
17	78-8079-8919-5	COVER, Arm (M9550)	1
18	78-8079-8942-7	CLAMP, Post (M9550)	1
19	JV-0890-0183-6	LABEL, Caution, Japan (M9050 ABAJ, M9080 ABDJ, M9200 ABCJ, M9550 ABHJ)	1
20	78-8054-1713-2	LABEL, Post, Japan (M9050 ABAJ, M9080 ABDJ, M9550 ABHJ)	1

Note 1. Order M9000 Series Hardware Repair Kit (78-8054-1818-9). This kit contains a complete set of hardware for the M9000 Series O.H.P.

Section 5
TOP COVER



Section 5
TOP COVER

Item No.	Part Number	Description	Qty
1	(See Note 1)	SCREW, Plastite, 6-19 X 5/16	6
2A	78-8079-8827-0	BRACKET, Hinge, Fresnel Lens, Dual Element (M9550, M9075 M9100/FNT, M9200/FNT,)	1
2B	78-8079-8818-9	BRACKET, Hinge Fresnel Lens, Single Element (M9050, M9060, M9070, M9080, M9100/ENX, M9200/ENX)	1
3	78-8073-2955-8	DOOR, Lamp Changer (M9080, M9100, M9200)	1
4	78-8073-2956-6	DOOR, Lamp Changer (M9550)	1
5	78-8079-9022-7	LABEL, Lamp Indicator (M9550)	1
6A	78-8064-1473-2	GLASS, Stage (M9050, M9060, M9070, M9075, M9080, M9100, M9200, M9550 Europe)	1
B	78-8079-8975-7	GLASS, Stage (M9550)	1
A	78-8079-8749-6	TOP COVER, 10.5" (267 mm) (M9050)	1
7B	78-8079-8901-3	TOP COVER, 10.5" (M9060)	1
7C	78-8079-8902-1	TOP COVER, 10.5" (M9070)	1
7D	78-8073-2974-9	TOP COVER, 10.5" (M9075)	1
7E	78-8079-8903-9	TOP COVER, 10.5" (M9080)	1
7F	78-8079-8904-7	TOP COVER, 10.5" (M9100)	1
7G	78-8079-9228-0	TOP COVER, 10.5" (M9100 Xerox)	1
7H	78-8079-8905-4	TOP COVER, 10.5" (M9200 AACM, BGC)	1
7I	78-8079-8891-6	TOP COVER, A4 (M9050)	1
J	78-8079-8907-0	TOP COVER, A4 (M9080)	1
K	78-8079-8908-8	TOP COVER, A4 (M9100)	1
7L	78-8079-8909-6	TOP COVER, A4 (M9200)	1
7M	78-8079-9215-7	TOP COVER, A4 (all M9550 except M9550 AAHD, AAHT and AHHM, AJH)	1
7N	78-8079-8910-4	TOP COVER, A4 (M9550 AAHD, AAHT and AHHM, AJH)	1
7O	78-8073-2991-3	TOP COVER, A4 (M9080 Xerox)	1
7P	78-8073-2992-1	TOP COVER, A4 (M9200 Xerox)	1
7Q	78-8073-2993-9	TOP COVER, A4 (M9550 Xerox)	1
7T	78-8073-3108-3	TOP COVER, A4 (M9080 Indonesia)	1
7R	78-8073-3106-7	TOP COVER, A4 (M9100 Indonesia)	1
S	78-8073-3107-5	TOP COVER, A4 (M9200 Indonesia)	1
/T	78-8073-3004-4	TOP COVER, A4 (M9400 Korea)	1
7U	78-8079-9178-7	TOP COVER, A4, Kit (M9550 Outside U.S.)	1
8A	78-8064-1645-5	FRESNEL LENS, Single Element, Glare Free, 182.9 mm (M9050, M9060, 9070, M9080, M9100 AABD, AJB, AJBW, AJBX, M9200 AACD AKC AMD)	1
8B	78-8095-8353-3	FRESNEL LENS, Dual Element, Clear, 182.5mm (9075 AJG only)	1
8C	78-8054-1236-4	FRESNEL LENS, Dual Element, Glare Free, 182.5 mm) (M9100 except AABD, AJB, AJBW and AJBX, M9200 except AACD and AJC)	1
8D	78-8079-9045-8	FRESNEL LENS, Dual Element, Clear, 174 mm (M9550 except ABHJ)	1
8E	78-8079-9176-1	FRESNEL LENS, Dual Element, Europe Glare Free, 174 mm (M9550 ABHJ)	1
9A	78-8079-8828-8	RETAINER, Fresnel Lens, Single Element	1
9B	78-8079-8830-4	RETAINER, Fresnel Lens, Dual Element	1
10	78-8079-8939-3	LABEL, Caution (Lens)	1

Note 1. Order M9000 Series Hardware Repair Kit (78-8054-1818-9). This kit contains a complete set of hardware for the M9000 Series O.H.P.

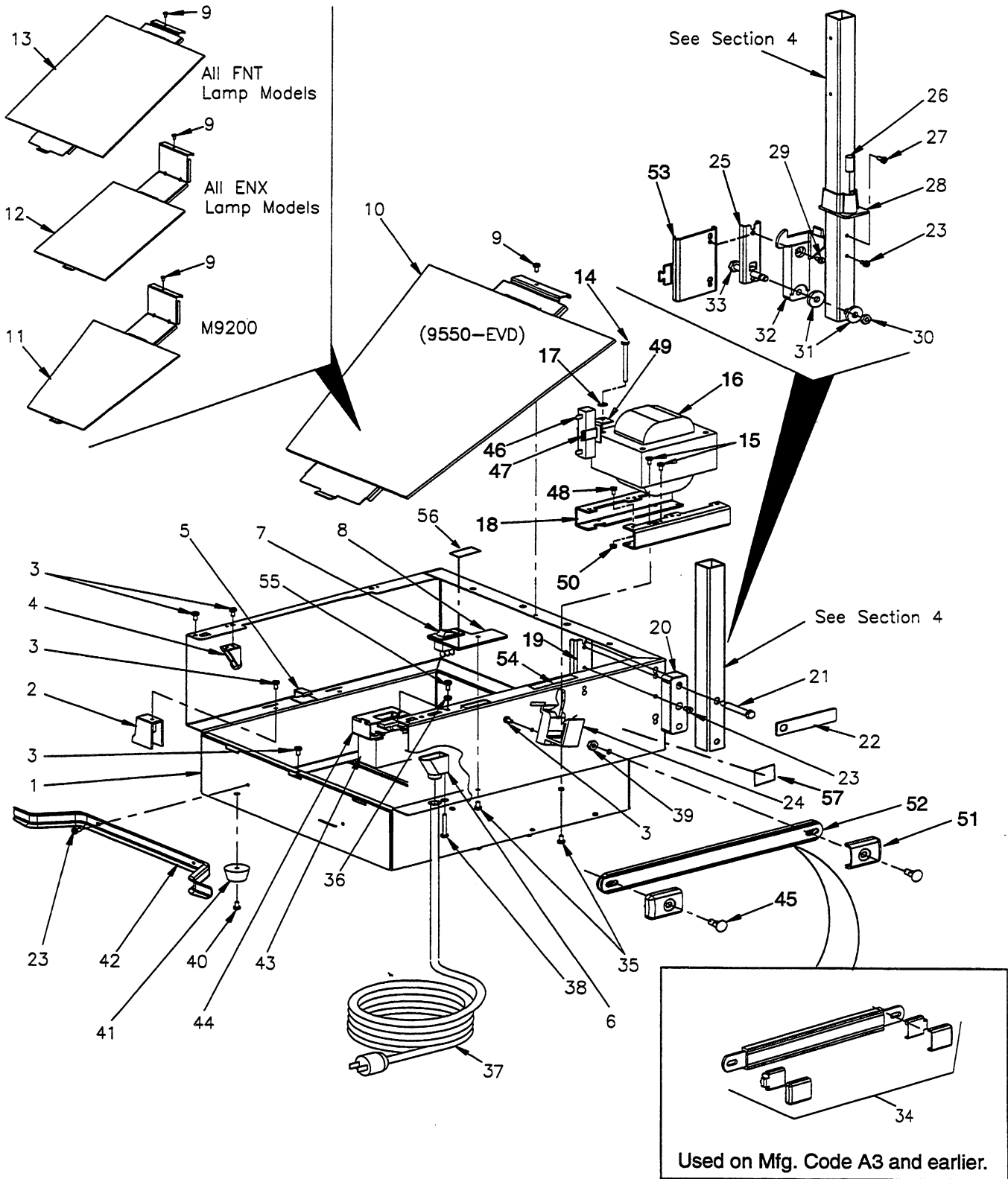
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Section 5
TOP COVER (Continued)

Item No.	Part Number	Description	Qty
11	78-8005-0481-9	SPRING	1
12	78-8079-8768-6	LATCH, Top Cover	1
13A	78-8079-8748-8	BUTTON, Power Switch, RED (All versions except M9550)	1
13B	78-8079-8974-0	BUTTON, Power Switch, PLUM (M9550 except for AHHK)	1
13C	78-8079-9165-4	BUTTON, Power Switch, Korea (M9550 AHHK)	1
14	78-8064-1515-0	ACTUATOR, Switch Button	1
15	78-8079-8924-5	SHIELD, Heat, ENX Lamp	1
16A	78-8079-8918-7	SHIELD, Heat, FNT/EVD Lamp (all FNT and EVD versions including M9550 AAHD, AAHT, AJH)	1
16B	78-8095-8339-2	SHIELD, Heat, EVD Lamp (M9550 except AAHD, AAHT, AJH)	1
17	78-8073-2965-7	BRACKET, Airflow (M9550)	1
18	(See Note 1)	SCREW, Plastite, 6-19 X 3/8	2
19	JV-0890-0183-6	LABEL, Caution, Japan (M9050, M9080, M9200, M9550)	1

Note 1. Order M9000 Series Hardware Repair Kit (78-8054-1818-9). This kit contains a complete set of hardware for the M9000 Series O.H.P.

Section 6
BASE ENCLOSURE



Section 6
BASE ENCLOSURE

Item	Part Number	Description	Qty
1A	78-8073-2976-4	BASE, Post, Fixed (M9550, M9060 AAEM, AJE, M9070 AJF, M9075 AJG)	1
1B	78-8073-2977-2	BASE, Post, Folding (M9080, M9100)	1
1C	78-8073-2978-0	BASE, Carrying Handle (M9200, M9550)	1
2	78-8079-9066-4	FOOT, Support, Side	1
3	(See Note 1)	SCREW, Plastite, 6-19 X 5/16	7
4	78-8079-8817-1	PIVOT, Cover	2
5	26-1004-9859-6	CLAMP	1
6	DY-1160-2020-6	STRAIN RELIEF	1
7A	78-8073-7212-9	SWITCH, Hi/Lo (M9050 AHAF, AHAS, AHAZ, M9075 AJG, M9080 AHDF, AHDS, AADZ, AHBC, AHBF, AHBS, AHBZ, M9200 AHCC, AHCF, AACs, AHCZ AHMZ, M9550 AHHH)	1
7B	78-8079-9134-0	SWITCH, 127V (Brazil)	1
8	78-8079-9007-8	BRACKET, Voltage Select Switch	1
9	(See Note 1)	SCREW, Thread Cutting, 8-18 X 5/16	1
10	78-8079-9143-1	MIRROR BRACKET ASSEMBLY, First Surface (M9550-EVD)	1
11	78-8079-9150-6	MIRROR BRACKET ASSEMBLY, (M9200)	1
12	78-8079-9141-5	MIRROR BRACKET ASSEMBLY, (All ENX Lamp Versions)	1
13	78-8079-9142-3	MIRROR BRACKET ASSEMBLY, (All FNT Lamp Versions)	1
14A	(See Note 1)	SCREW, Taptite, M4 X 60	1
15	(See Note 1)	SCREW, Taptite, M3.5 X 6	5
16A	78-8079-9056-5	TRANSFORMER, Japan EVD (M9550) (100V)	1
16B	78-8079-9079-7	TRANSFORMER, Auto, EVD (120V)	1
16C	78-8079-8991-4	TRANSFORMER, EVD (220V)	1
16D	78-8079-9091-2	TRANSFORMER, Auto, EVD (M9550) (230/240V)	1
16E	78-8079-8921-1	TRANSFORMER, FNT (100V)	1
16F	78-8079-9070-6	TRANSFORMER, FNT Taiwan (120V)	1
16G	78-8079-8920-3	TRANSFORMER, FNT, Indonesia (127/220V)	1
16H	78-8073-3009-3	TRANSFORMER, Auto, Hong Kong, Thailand (220/230V)	1
16J	78-8073-3010-1	TRANSFORMER, Auto, (230/240)	1
16K	78-8073-3011-9	TRANSFORMER, Auto, Australia, India, New Zealand, South Africa, (240/250)	1
16L	78-8079-9231-4	TRANSFORMER, Brazil, (127/220V) (M9080 ABDB)	1
17A	(See Note 1)	WASHER, Lock #8, Int/Ext Tooth, #8	2
17B	(See Note 1)	WASHER, Ext Tooth, Lock, #10	1
18A	78-8073-3007-7	BRACKET, Transformer	1
18B	78-8073-3008-5	BRACKET, Transformer, Small	2
19	78-8079-8810-6	BRACKET, Backup (Fixed Post)	1
20	78-8079-8809-8	BLOCK, Post (Fixed Post)	1
21	(See Note 1)	BOLT, Post (Fixed Post)	2
22	78-8011-1485-7	WRENCH	1
23	(See Note 1)	SCREW, Taptite, M3.5 X 8	2
24	78-8079-8890-8	CRADLE, Post (Folding Post)	1
25	78-8079-8846-0	BRACKET, Pivot (Folding Post) (All folding post versions except M9550 ABHJ)	1

Note 1. Order M9000 Series Hardware Repair Kit (78-8054-1818-9). This kit contains a complete set of hardware for the M9000 Series O.H.P.

**Section 6
BASE ENCLOSURE (Continued)**

Item No.	Part Number	Description	Qty
26A ...	(See Note 1)	SPRING, Compression	1
27 ...	(See Note 1)	SCREW, Latch (Folding Post)	1
28 ...	78-8079-8852-8	POST LOCK (Folding Post)	1
29 ...	(See Note 1)	SCREW, TT, Pan Head, 10-32 X 5/8 L	1
30 ...	(See Note 1)	NUT, Hex, 1/4 – 20, Elastic	1
31 ...	(See Note 1)	WASHER	2
32 ...	78-8079-8875-9	PIVOT, Post Mount (Folding Post)	1
33A ...	(See Note 1)	BOLT, Pivot (Folding Post) (All folding post versions except M9550 ABHJ)	1
33B ...	(See Note 1)	BOLT, Pivot (Folding Post) (M9550 ABHJ)	1
34 ...	78-8079-8943-5	HANDLE ASSEMBLY (Mfg. Code A3 and earlier)	1
35 ...	(See Note 1)	SCREW, Sems, Taptite, M4 X 8	2
36 ...	(See Note 1)	LOCKWASHER, #6	1
37A ...	78-8079-8951-8	POWER CORD, Australia, 10 Ft.	1
37B ...	78-8079-8950-0	POWER CORD, Australia, 15 Ft.	1
37C ...	78-8079-8947-6	POWER CORD, Europe, 10 Ft.	1
37D ...	78-8079-8946-8	POWER CORD, Europe, 15 Ft.	1
37E ...	78-8079-9214-0	POWER CORD, 2 Blade, with ground (M9050 AAAT, ABAJ, ARAP)	1
37F ...	78-8079-9213-2	POWER CORD, 2 Blade, 15 Ft. (M9050 AAAB, M9080 AADB, AADT, ABDJ, ARDP, M9100 AABT, ABBJ, ARBB, M9200 AACT, ABCJ, M9550 AAHT and ARHP)	1
37G ...	78-8079-8956-7	POWER CORD, Hong Kong, 15 Ft.	1
37H ...	78-8079-9167-0	POWER CORD, Italy	1
37I ...	78-8079-8949-2	POWER CORD, United Kingdom, 10 Ft.	1
37J ...	78-8079-8948-4	POWER CORD, United Kingdom, 15 Ft.	1
37K ...	78-8079-8822-1	POWER CORD, U.S. (120V) 10 Ft. (M9050, M9060, M9070, M9075)	1
37L ...	78-8079-8934-4	POWER CORD, U.S. (120V) 15 Ft. (M9100, M9200 ENX and FXL)	1
37M ...	78-8079-9023-5	POWER CORD, 120V, (M9550)	1
37N ...	78-8079-8955-9	POWER CORD, South Africa, 10 Ft.	1
37O ...	78-8079-8954-2	POWER CORD, South Africa, 15 Ft.	1
37P ...	78-8079-8952-6	POWER CORD, Swiss, 15 Ft.	1
38A ...	(See Note 1)	SCREW, Plastite, 6-19 X 1	1
38B ...	(See Note 1)	SCREW, Plastite, 6-19 X 1, Torx	1
39A ...	(See Note 1)	NUT, Keps, 10-32, External, Lock Wash (Mfg. Code A3 and earlier)	2
39B ...	(See Note 1)	NUT, Keps, 12–24 (Mfg. Code A3 and later)	2
40 ...	(See Note 1)	SCREW, Foot	4
41 ...	26-1008-5211-5	FOOT	4
42 ...	78-8079-8897-3	WRAP, Cord	1
43 ...	78-8015-5038-1	SWITCH, Interlock	1
44 ...	78-8079-8795-9	BRACKET, Interlock Switch	1

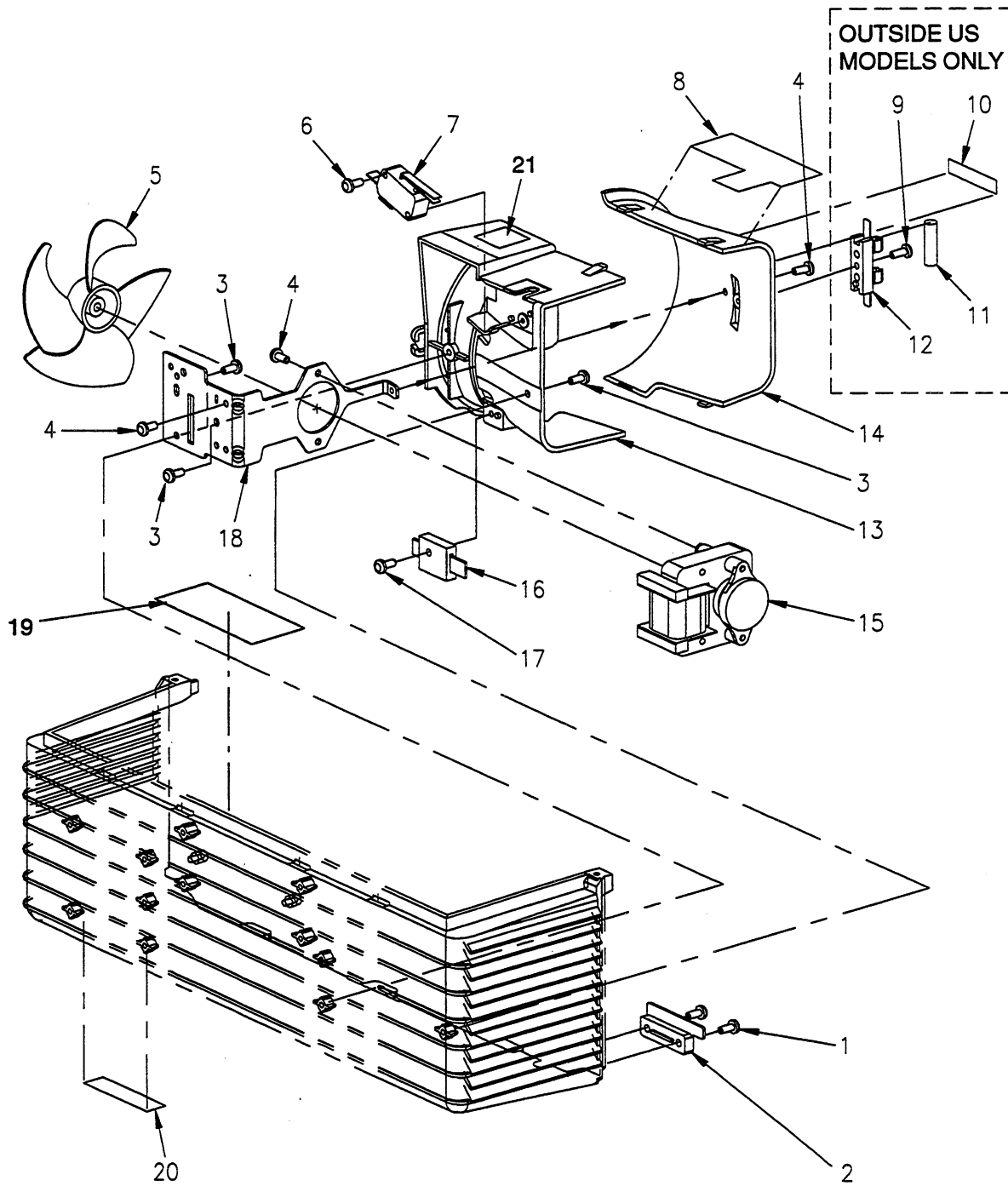
Note 1. Order M9000 Series Hardware Repair Kit (78-8054-1818-9). This kit contains a complete set of hardware for the M9000 Series O.H.P.

Section 6
BASE ENCLOSURE (Continued)

Item No.	Part Number	Description	Qty
45	.... (See Note 1)	SCREW, End Cap (Mfg. Code A3 and later)	2
46	.... 78-8054-1456-8	RESISTOR, 220/240V (9550 AHHH)	1
47	.... 78-8033-1666-6	CLIP, Tinnerman	1
48	.... (See Note 1)	SCREW, Mach, M3 X 16	4
49	.... 78-8064-1830-3	BRACKET, Resistor	1
50	.... (See Note 1)	NUT, Keps, M3	4
51	.... 78-8079-9218-1	STRAP, Handle (Mfg. Code A3 and later)	1
52	.... 78-8079-9217-3	CAP, End (Mfg. Code A3 and later)	2
53	.... 78-8095-8354-1	BRACE, Post (M9550 ABHJ)	1
54	.... JV-0890-0183-6	LABEL, Caution, Japan (M9050 ABAJ, M9080 ABDJ, 9100 ABBJ 9200 ABCJ, 9550 ABHJ)	1
55	.... (See Note 1)	SCREW, Taptite, M3.5 X 6, Zinc	1
56	.... 78-8079-9138-1	LABEL, Switch, Brazil	1
57	.... 78-8073-2972-3	LABEL, Nom, Mexico (Short) (M9050 AAAM, M9060 AAEM, 9100 AABM, 9200 AACM, 9550 AHHM)	1

Note 1. Order M9000 Series Hardware Repair Kit (78-8054-1818-9). This kit contains a complete set of hardware for the M9000 Series O.H.P.

Section 7
COOLING FAN



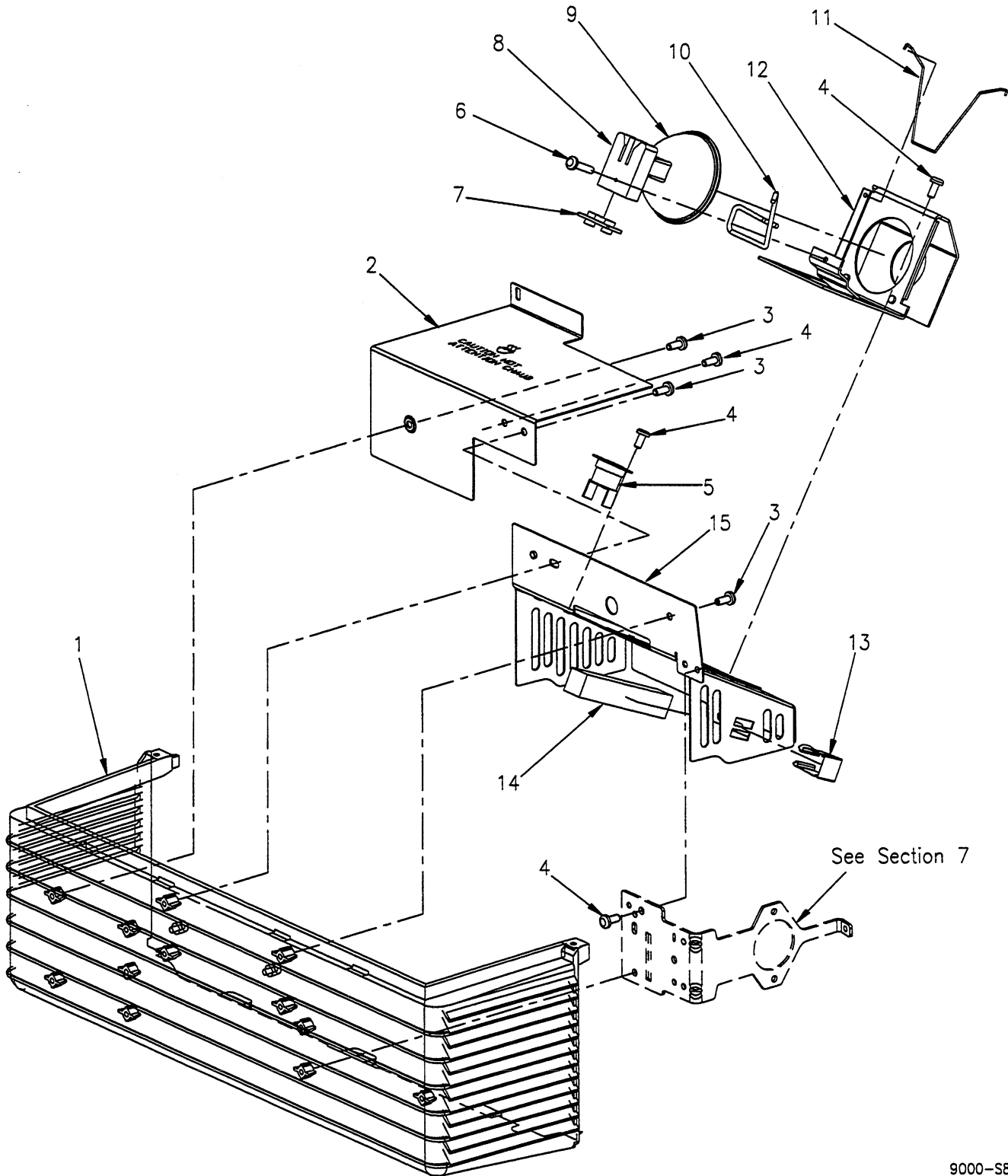
9000-S7C

Section 7
COOLING FAN

Item	Part Number	Description	Qty
1	(See Note 1)	SCREW, 6-19 X 3/8 L, Plastite	1
2A	78-8079-8796-7	PLATE, Cord, Large (Black)	1
2B	78-8079-8797-5	PLATE, Cord, Small (Gray)	1
3	(See Note 1)	SCREW, Plastite, 6-19 X 5/16	3
4	(See Note 1)	SCREW, Taptite, M3.5 X 6	5
5	78-8079-9194-4	BLADE, Fan, Tech Air (Black)	1
6	(See Note 1)	SCREW, Type BT, 4-24 X 5/8	1
7A	78-8079-8823-9	SWITCH, Micro (All Models Except M9550)	1
7B	78-8079-9199-3	SWITCH, Micro (Long actuator M9550)	1
8A	78-8079-8878-3	LABEL, Lamp Replacement (ENX)	1
8B	78-8079-8977-3	LABEL, Lamp Replacement (FXL) (M9075, M9200)	1
8C	78-8079-8979-9	LABEL, Lamp Replacement (EVD International)	1
8D	78-8079-8978-1	LABEL, Lamp Replacement (FNT)	1
8E	78-8079-8980-7	LABEL, Lamp Replacement (EVD - U.S.)	1
8F	78-8079-9084-7	LABEL, Lamp Replacement (Japan)	1
8G	78-8073-3281-8	LABEL, Lamp Replacement (FNT-Xerox)	1
8H	78-8073-3282-6	LABEL, Lamp Replacement (EVD-Xerox)	1
8I	JV-0890-0189-3	LABEL, Lamp Replacement, Japan (M9050 ABAJ, M9080 ABDJ 9100 ABBJ 9200 ABCJ, 9550 ABHJ)	1
8J	78-8079-9232-2	LABEL, Lamp Replacement (ENX-Xerox)	1
9	(See Note 1)	SCREW, Plastite, 4-20 X 1/4	1
10A	78-8057-4184-6	LABEL, Fuse, 5 Amp	1
10B	78-8079-9057-3	LABEL, Fuse, Japan	1
10C	78-8079-9018-5	LABEL, Fuse, 4 Amp	1
11A	26-1005-9599-5	FUSE, 5 Amp (100/120 Volt Versions)	1
11B	26-1008-6347-6	FUSE, 4 Amp	1
11C	26-1003-4526-8	FUSE, 10 Amp, FST (9550 ABHJ)	1
12	26-1005-6624-4	FUSEHOLDER	1
13	78-8079-8874-2	DUCT, Fan, Forward	1
14	78-8079-8873-4	DUCT, Fan, Rear	1
15A	78-8079-8787-6	MOTOR, Fan (120 Volt) (9075 AJG)	1
15B	78-8079-8936-9	MOTOR, Fan (230 Volt)	1
15C	78-8079-9020-1	MOTOR, Fan (120 Volt) (M9550)	1
15D	78-8079-8937-7	MOTOR, Fan (100 Volt)	1
15E	78-8079-9133-2	MOTOR, Fan, (120 Volt) (Brazil)	1
16	78-8064-1834-5	DIODE, Inline	1
17	(See Note 1)	SCREW, Plastite, 6-19 X 1/2	1
18	78-8079-8869-2	BRACKET, Motor	1
19	70-0000-2356-7	TAPE, Reflective (M9080, M9100, M9200, M9550)	AR
20	78-8064-1809-7	LABEL, Caution (Australia)	1
21A	78-8073-3292-5	LABEL, Service (New Zealand)	1
21B	78-8079-9201-7	LABEL, Service (Australia)	1
21C	JV-0891-0182-6	LABEL, Japan (M9050 ABAJ, M9080 ABDJ, 9100 ABBJ 9200 ABCJ, 9550 ABHJ)	1
22	78-8003-8335-4	WIRE, Tie, Panduit (Not Shown)	AR

Note 1. Order M9000 Series Hardware Repair Kit (78-8054-1818-9). This kit contains a complete set of hardware for the M9000 Series O.H.P.

Section 8
LAMP HOUSING - ENX SINGLE LAMP



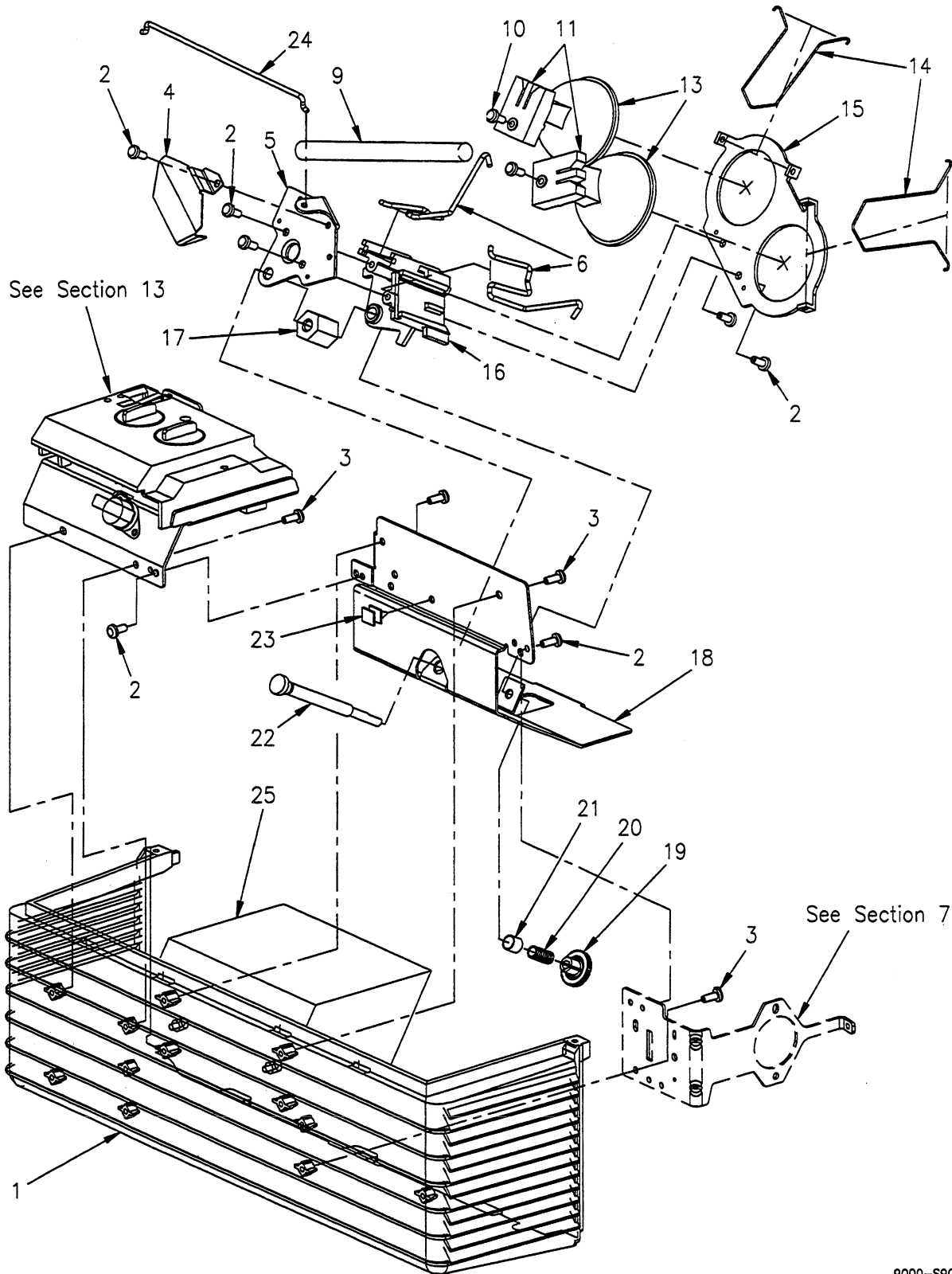
9000-S8C

Section 8
LAMP HOUSING – ENX SINGLE LAMP

Item No.	Part Number	Description	Qty
0	78-8079-9157-1	LAMP MODULE, ENX Single (120V) (Complete Assembly)	1
1	78-8079-8752-0	HOUSING, Lamp Module	1
2A	78-8079-8840-3	BRACKET, Support (All Models Except 9075 AJG)	1
2B	78-8073-2975-6	BRACKET, Switch, Hi/Low (9075 AJG only)	1
3	(See Note 1)	SCREW, Plastite, 6-19 X 5/16	3
4	(See Note 1)	SCREW, Taptite, M3.5 X 6	4
5	78-8079-8872-6	THERMOSTAT, Safety (ENX)	1
6	(See Note 1)	SCREW, Taptite, M3 X 16	1
7	78-8064-1509-3	COVER, Wire	1
8	78-8079-8820-5	SOCKET, Single lamp (ENX)	1
9A	78-8011-1186-1	LAMP, Projection, ENX, 82V, 360W	1
9B	78-6969-8096-6	LAMP, Projection Kit, ENX, Xerox	1
10	78-8064-1491-4	WIREFORM, Lampholder	1
11	78-8064-1510-1	SPRING, Retainer	1
12A	78-8073-7208-7	BRACKET, Socket (All Models Except 9075 AJG)	1
12B	78-8073-2986-3	LAMP HOLDER (9075 AJG only)	1
13	78-8033-1666-6	CLIP, Tinnerman	1
14	78-8073-7127-9	RESISTOR, 1.2 Ohm (M9050, M9060, M9070)	1
15	78-8079-8895-7	MOUNT, ENX – Single Lamp	1

Note 1. Order M9000 Series Hardware Repair Kit (78-8054-1818-9). This kit contains a complete set of hardware for the M9000 Series O.H.P.

Section 9
LAMP HOUSING - ENX/FXL DUAL LAMP



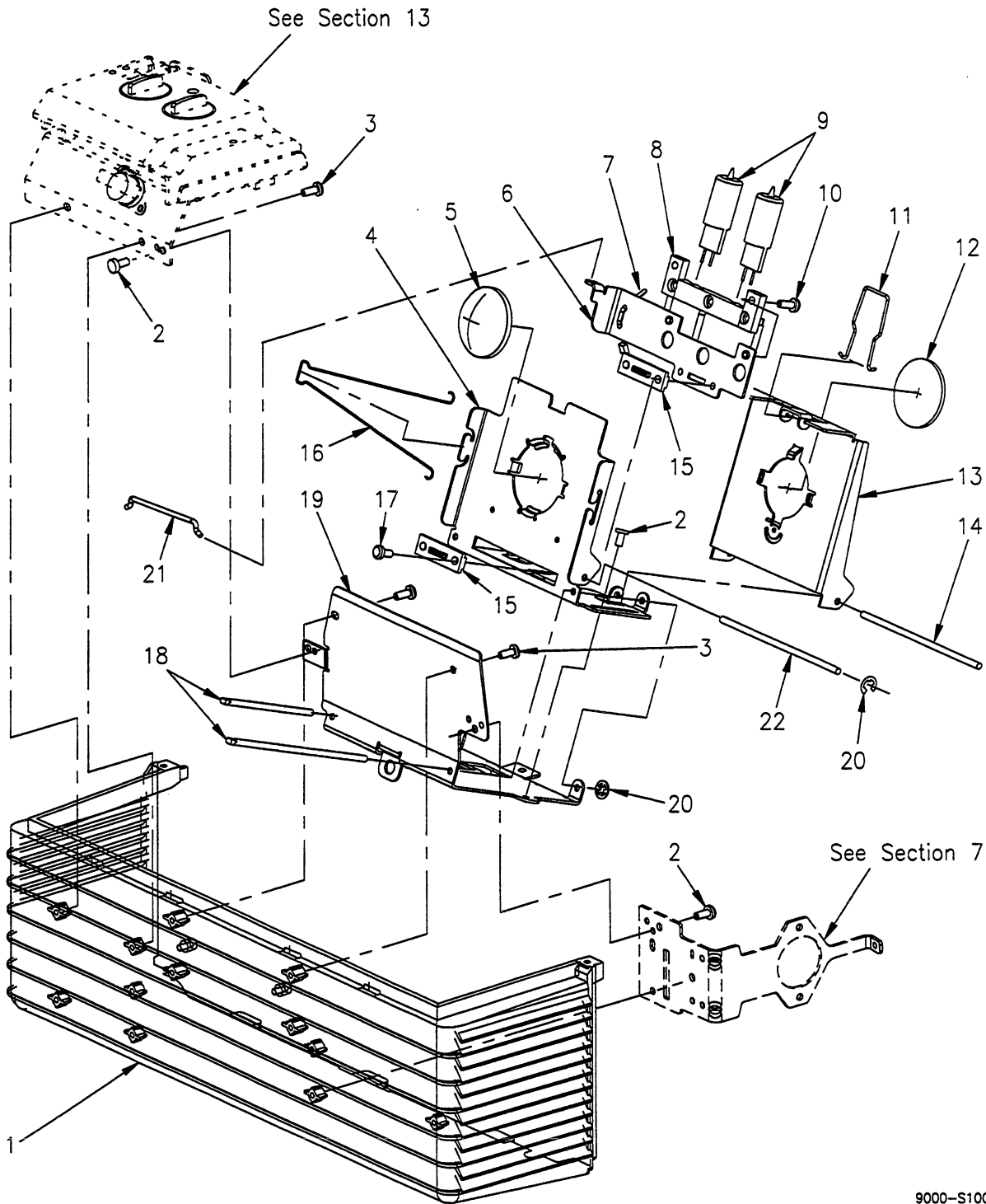
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Section 9
LAMP HOUSING – ENX/FXL DUAL LAMP

Item				
No.	Part Number	Description		Qty
0A	78-8079-9158-9	LAMP MODULE, without Dimmer (120V) (M9080) (Complete Assembly)		1
0B	78-8079-9159-7	LAMP MODULE, with Dimmer (120V) (M9100, M9200) (Complete Assembly)		1
1	78-8095-8343-4	HOUSING, Lamp Module		1
2	(See Note 1)	SCREW, Taptite, M3.5 X 6		6
3	(See Note 1)	SCREW, Plastite, 6-19 X 5/16		3
4	78-8079-8923-7	BRACKET, Wire Cover		1
5	78-8079-8858-5	PLATE, Socket, ENX D		1
6	78-8079-8862-7	EJECTOR, Lamp		2
7-8	Not Used			
9	78-8079-8984-9	SLEEVE, Insulator		1
10	(See Note 1)	SCREW, Taptite, M3 X 12		2
11	78-8073-3017-6	SOCKET, Lamp, Dual		1
12	Not Used			
13A	78-8011-1186-1	LAMP, ENX (M9080, M9100)		1
13B	78-6969-8096-6	LAMP, Projection Kit, ENX, Xerox		1
13C	78-8073-7100-6	LAMP, FXL (M9200)		1
13D	78-6969-8097-4	LAMP, Projection Kit, FXL, Xerox		1
14	78-8079-8863-5	RETAINER, Lamp		1
15	78-8079-8856-9	PLATE, Lamp, ENX D		1
16	78-8079-8857-7	PIVOT, Lamp Mount, ENX D		1
17	78-8079-8866-8	SLEEVE, Color Tuning		1
18A	78-8079-8865-0	BRACKET, Lamp Mount (used on models prior to and including serial no. 842643)		1
18B	78-8073-3005-1	BRACKET, Lamp Mount, ENX (used on all models after serial no. 842643)		1
19	78-8079-8912-0	KNOB, Color Tuning		1
20	26-1009-7485-1	SPRING		1
21	(See Note 1)	CLIP, Tinnerman		1
22	78-8079-8893-2	SHAFT, Color Tuning		1
23	(See Note 1)	CLIP/Clamp, Cable Clamp Acc.		1
24	78-8079-8887-4	ROD, Lamp Changer		1
25	78-8079-9021-9	TAPE, Reflective		1

Note 1. Order M9000 Series Hardware Repair Kit (78-8054-1818-9). This kit contains a complete set of hardware for the M9000 Series O.H.P.

Section 10A
LAMP HOUSING – EVD DUAL LAMP (M9550)
(Mfg Code A3 and earlier)



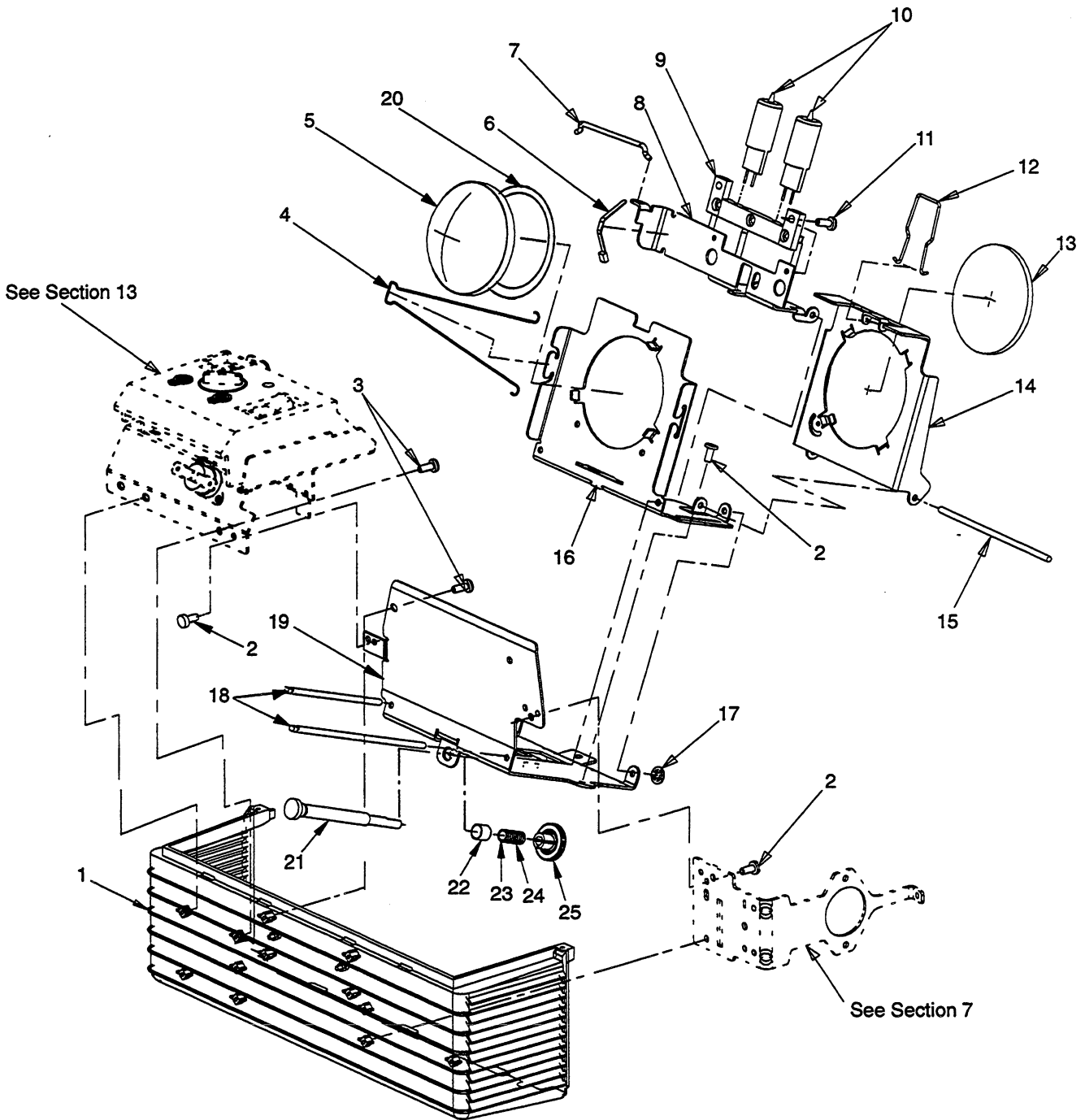
9000-S10C

Section 10A
LAMP HOUSING – EVD DUAL LAMP (M9550)
(Mfg Code A3 and earlier)

Item No.	Part Number	Description	Qty
0	78-8079-9162-1	LAMP MODULE, EVD Dual (120V) (Complete Assembly)	1
1	78-8079-8752-0	HOUSING, Lamp Module	1
2	(See Note 1)	SCREW, Taptite, M3.5 X 6	3
3	(See Note 1)	SCREW, Plastite, 6-19 X 5/16	4
4	78-8079-8837-9	HOLDER, Reflector (EVD)	1
5	78-8079-8899-9	REFLECTOR, (60 mm)	1
6	78-8079-8983-1	BRACKET, Dual Lamp (EVD)	1
7	78-8003-8335-4	WIRE, Tie, Panduit	1
8	78-8079-8819-7	LAMP SOCKET ASSEMBLY, Dual	1
	78-8079-8791-8	LAMP, EVD	1
10	(See Note 1)	SCREW, Taptite, M3 X 10	2
11	78-8079-9053-2	SPRING, Catch	1
12	78-8079-9025-0	LENS, Condenser (60 mm)	1
13	78-8079-8836-1	BRACKET, Lens (Large Condenser)	1
14	78-8079-8930-2	ROD, Center	1
15	78-8079-9008-6	SLIDE, Lamp Change	1
16	78-8079-8896-5	SPRING, Retaining, Reflector (EVD)	1
17	(See Note 1)	SCREW, Taptite, M3.5 X 12	2
18	78-8079-8931-0	ROD, Slide	2
	78-8079-8814-8	MOUNT, Lamp Holder (FNT/EVD)	2
20	(See Note 1)	RING, Push-on, Truarc	1
21	78-8079-8988-0	ROD, Lamp Change	1
22	78-8079-9097-9	ROD, Slide	1

Note 1. Order M9000 Series Hardware Repair Kit (78-8054-1818-9). This kit contains a complete set of hardware for the M9000 Series O.H.P.

Section 10B
LAMP HOUSING – EVD DUAL LAMP (M9550)
(Mfg Code A3 and later)



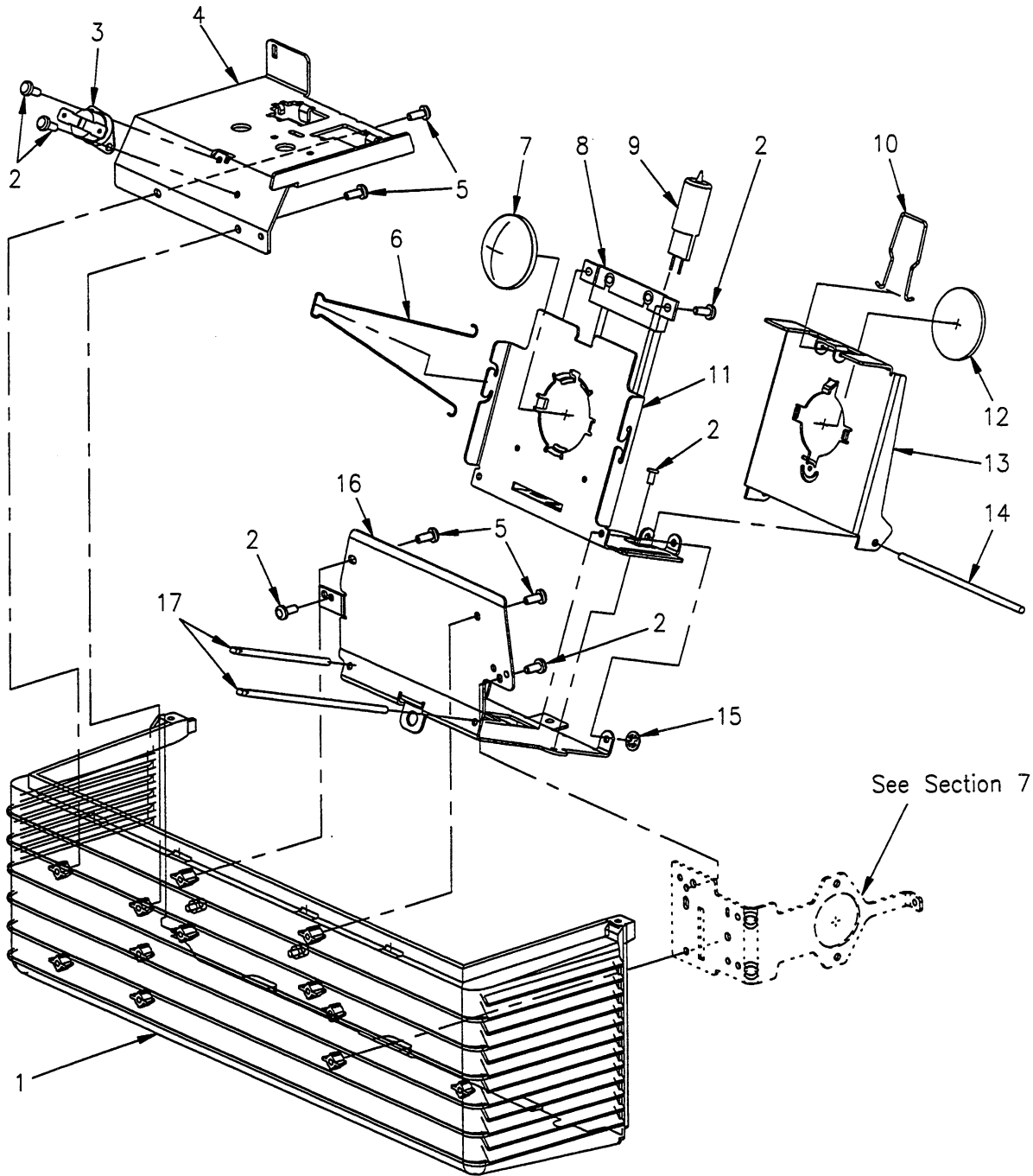
Section 10B
LAMP HOUSING – EVD DUAL LAMP (M9550)
 (Mfg Code A3 and later)

Item No.	Part Number	Description	Qty
0A	78-8079-9162-1	LAMP MODULE, EVD Dual (120V) (Complete Assembly)	1
0B	78-8073-3002-8	LAMP MODULE, EVD Dual (M9400 Korea) (Complete Assembly) (See Note 2)	1
1A	78-8079-8752-0	HOUSING, Lamp Module (used on all models except M9400 Korea) (See Note 2)	1
1B	78-8095-8343-4	HOUSING, Lamp Module, (M9400 Korea only) (See Note 2)	1
2	(See Note 1)	SCREW, Taptite, M3.5 X 6	3
3	(See Note 1)	SCREW, Plastite, 6-19 X 5/16	4
4	78-8079-8896-5	SPRING, Retaining, Reflector (EVD)	1
5	78-8079-8899-9	REFLECTOR, (60 mm)	1
6	78-8003-8335-4	WIRE, Tie, Panduit	1
7	78-8079-8988-0	ROD, Lamp Change	1
8	78-8079-9203-3	BRACKET, Dual Lamp (EVD)	1
9	78-8073-3015-0	SOCKET ASSEMBLY, Dual	1
10	78-8079-8791-8	LAMP, EVD	1
11	(See Note 1)	SCREW, Taptite, M3 X 10	2
12	78-8079-9053-2	SPRING, Catch	1
13	78-8079-9025-0	LENS, Condenser (60 mm)	1
14	78-8079-8836-1	BRACKET, Lens (Large Condenser)	1
15	78-8079-8930-2	ROD, Center	1
16	78-8079-9206-6	HOLDER, Reflector (EVD)	1
17	(See Note 1)	RING, Push-on, Truarc	1
18	78-8079-8931-0	ROD, Slide	2
19	78-8079-8814-8	MOUNT, Lamp Holder (FNT/EVD)	1
20	78-8097-3649-5	SPACER, Reflector	1
21	78-8079-8928-6	SHAFT, Color Tune International (M9400 Korea only) (See Note 2)	1
22	78-8079-8866-8	SLEEVE, Color Tune (M9400 Korea only) (See Note 2)	1
23	(See Note 1)	WASHER, Spring (M9400 Korea only) (See Note 2)	1
24	(See Note 1)	CLIP, Speed, Knob to Shaft (M9400 Korea only) (See Note 2)	1
25	78-8079-8912-0	KNOB, Color Tuning (M9400 Korea only) (See Note 2)	1

Note 1. Order M9000 Series Hardware Repair Kit (78-8054-1818-9). This kit contains a complete set of hardware for the M9000 Series O.H.P.

Note 2. The M9400 Korean version does not have a specific alpha designator.

Section 11
LAMP HOUSING - FNT SINGLE LAMP

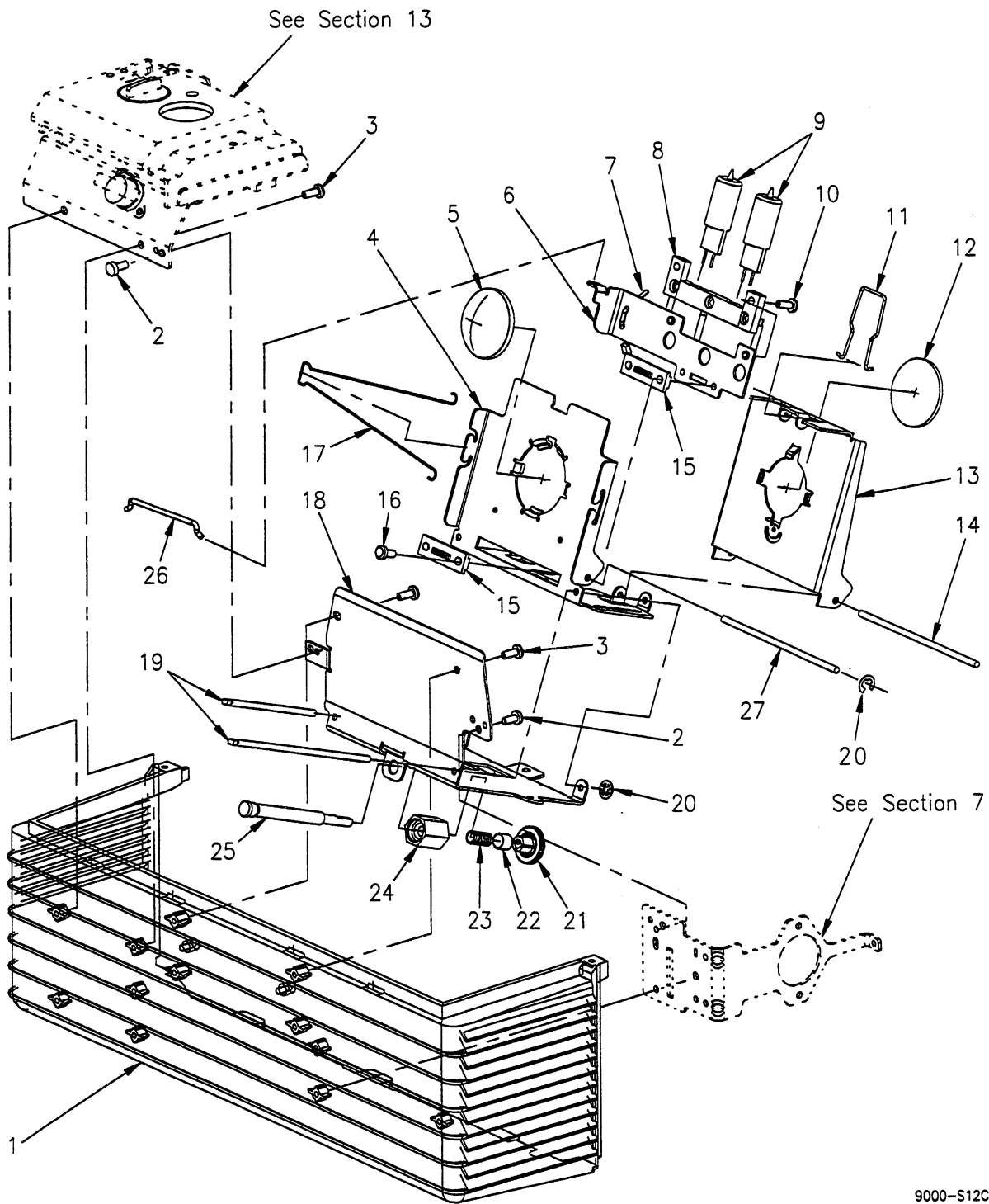


Section 11
LAMP HOUSING – FNT SINGLE LAMP

Item No.	Part Number	Description	Qty
0	78-8079-9160-5	LAMP MODULE, FNT Singlet (230V) (Complete Assembly)	1
1A	78-8079-8752-0	HOUSING, Lamp Module	1
1B	78-8095-8343-4	HOUSING, Lamp Module	1
2	(See Note 1)	SCREW, Taptite, M3.5 X 6	8
3	78-8079-9010-2	THERMOSTAT, Safety (FNT)	1
4	78-8073-2961-6	BRACKET, Lamp Change	1
5	(See Note 1)	SCREW, Plastite, 6-19 X 5/16	1
6	78-8079-8896-5	SPRING, Retaining, Reflector (EVD)	1
7	78-8079-8829-6	REFLECTOR, Metal (32 mm)	1
8	78-8079-8841-1	LAMP SOCKET ASSEMBLY, Single	1
9	78-8054-1175-4	LAMP, FNT	1
10	78-8079-9053-2	SPRING, Catch	1
11	78-8079-9205-8	HOLDER, Reflector (FNT)	1
12	78-8012-7827-2	LENS, Condenser	1
13	78-8079-8834-6	BRACKET, Lens (Small Condenser)	1
14	78-8079-8930-2	ROD, Center	1
15	(See Note 1)	RING, Push-on, Truarc	2
16	78-8079-8814-8	MOUNT, Lamp Holder (FNT/EVD)	1
17	78-8079-8931-0	ROD, Slide	2

Note 1. Order M9000 Series Hardware Repair Kit (78-8054-1818-9). This kit contains a complete set of hardware for the M9000 Series O.H.P.

Section 12A
LAMP HOUSING - FNT DUAL LAMP
(Mfg. Code A3 and earlier)



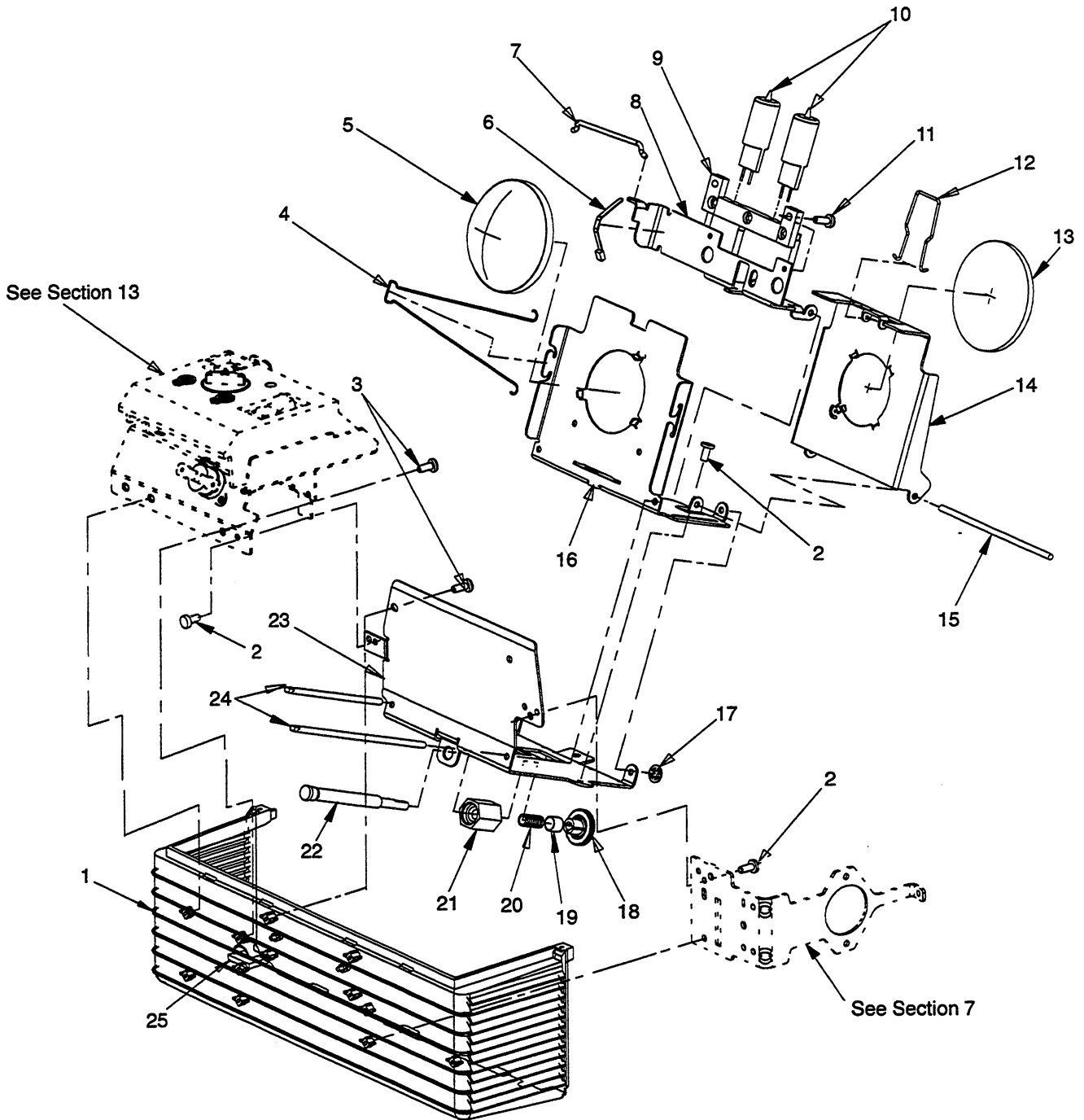
9000-S12C

Section 12A
LAMP HOUSING – FNT DUAL LAMP
 (Mfg. Code A3 and earlier)

Item No.	Part Number	Description	Qty
0	78-8079-9161-3	LAMP MODULE, FNT Lamp Changer (230V) (Complete Assembly)	1
1	78-8079-8927-8	HOUSING, Lamp Module	1
2	(See Note 1)	SCREW, Taptite, M3.5 X 6	2
3	(See Note 1)	SCREW, Plastite, 6-19 X 5/16	4
4	78-8079-8835-3	HOLDER, Reflector (FNT)	1
5	78-8079-8829-6	REFLECTOR, Metal (32 mm)	1
6	78-8079-8838-7	BRACKET, Dual Lamp (FNT)	1
7	78-8003-8335-4	WIRE, Tie – Panduit	1
8	78-8079-8819-7	LAMP SOCKET ASSEMBLY, Dual	1
	78-8054-1175-4	LAMP, FNT	1
10	(See Note 1)	SCREW, Taptite, M3 X 10	2
11	78-8079-9053-2	SPRING, Catch	1
12	78-8012-7827-2	LENS, Condenser	1
13	78-8079-8834-6	BRACKET, Lens (Small Condenser)	1
14	78-8079-8930-2	ROD, Center	1
15	78-8079-9008-6	SLIDE, Lamp Change	1
16	(See Note 1)	SCREW, Taptite, M3.5 X 12	1
17	78-8079-8896-5	SPRING, Retaining, Reflector (EVD)	1
18	78-8079-8814-8	MOUNT, Lamp Holder (FNT/EVD)	1
	78-8079-8931-0	ROD, Slide	2
20	(See Note 1)	RING, Push-on, Truarc	2
21	78-8079-8912-0	KNOB, Color Tuning	1
22	(See Note 1)	CLIP, Tinnerman	1
23	26-1008-5200-8	SPRING, Compression.	1
24	78-8079-8866-8	SLEEVE, Color Tuning	1
25	78-8079-8928-6	SHAFT, Color Tuning (International)	1
26	78-8079-8988-0	ROD, Lamp Change	1
27	78-8079-9097-9	ROD, Slide	1

Note 1. Order M9000 Series Hardware Repair Kit (78-8054-1818-9). This kit contains a complete set of hardware for the M9000 Series O.H.P.

Section 12B
LAMP HOUSING - FNT DUAL LAMP
(Mfg. Code A3 and later)



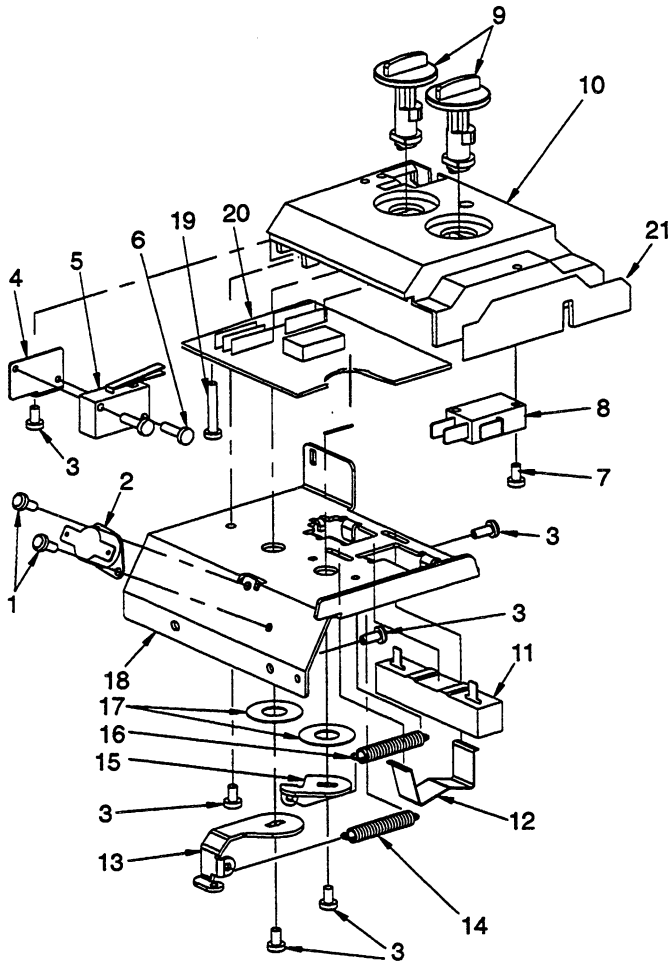
Section 12B
LAMP HOUSING – FNT DUAL LAMP
 (Mfg. Code A3 and later)

Item No.	Part Number	Description	Qty
0	78-8079-9161-3	LAMP MODULE, FNT Lamp Changer (230V) (Complete Assembly)	1
1	78-8095-8343-4	HOUSING, Lamp Module	1
2	(See Note 1)	SCREW, Taptite, M3.5 X 6	3
3	(See Note 1)	SCREW, Plastite, 6-19 X 5/16	4
4	78-8079-8896-5	SPRING, Retaining, Reflector (EVD)	1
5A	78-8079-8829-6	REFLECTOR, Metal (32 mm) (M9050, M9080, M9100)	1
5B	78-8079-9202-5	REFLECTOR, Metal (60 mm) (M9200)	1
5C	78-8079-8899-9	REFLECTOR, 60mm (M9550)	1
6	78-8003-8335-4	WIRE, Tie, Panduit	1
	78-8079-8988-0	ROD, Lamp Change	1
7	78-8079-9204-1	BRACKET, Dual Lamp (FNT)	1
9	78-8073-3015-0	SOCKET ASSEMBLY, Dual	1
10	78-8054-1175-4	LAMP, FNT	1
11	(See Note 1)	SCREW, Taptite, M3 X 10	2
12	78-8079-9053-2	SPRING, Catch	1
13A	78-8012-7827-2	LENS, Condenser	1
13B	78-8079-9025-0	LENS, Condenser (60 mm)	1
14A	78-8079-8834-6	BRACKET, Lens (Small Condenser)	1
14B	78-8079-8836-1	BRACKET, Lens (Large Condenser)	1
	78-8079-8930-2	ROD, Center	1
16	78-8079-9205-8	HOLDER, Reflector (FNT)	1
17	(See Note 1)	RING, Push-on, Truarc	1
18	78-8079-8912-0	KNOB, Color Tune	1
19	(See Note 1)	CLIP, Speed, Knob to Shaft	1
20	26-1008-5200-8	SPRING, Compression	1
21	78-8079-8866-8	SLEEVE, Color Tune	1
22	78-8079-8928-6	SHAFT, Color Tune	1
23	78-8079-8814-8	MOUNT, Lamp Holder (FNT/EVD)	1
24	78-8079-8931-0	ROD, Slide	2
	(See Note 1)	CLIP, Clamp, .310 Max (M9050 ABAJ, M9080 ABDJ, M9100 ABBJ, M9200 ABCJ, M9550 ABHJ)	1

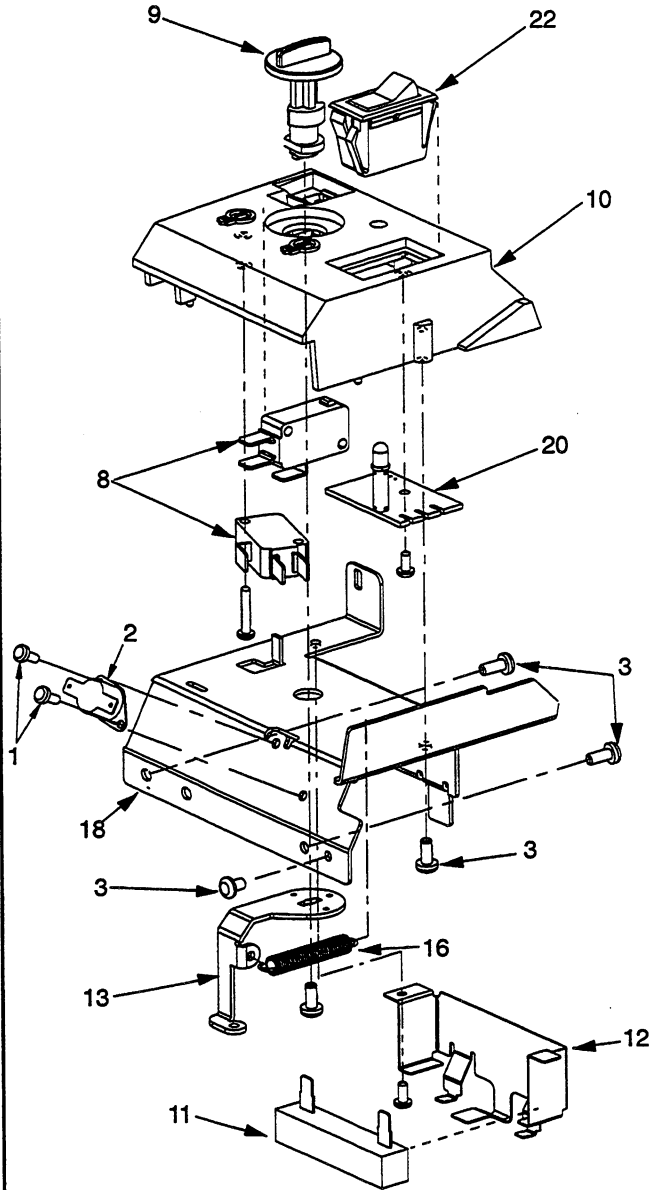
Note 1. Order M9000 Series Hardware Repair Kit (78-8054-1818-9). This kit contains a complete set of hardware for the M9000 Series O.H.P.

Section 13
LAMPCHANGER & HI/LO LAMP CONTROL MODULE (Dual Lamp Versions)

Used on M9000 series serial no. 842643 and earlier.
Used on M9550 serial no. 823581 and earlier.



Used on M9000 series serial no. 842644 and up.
Used on M9550 serial no. 823582 and up.



Section 13
LAMPCHANGER & HI/LO LAMP CONTROL MODULE (Dual Lamp Versions)

Item	Part Number	Description	Qty
0A	78-8079-9147-2	LAMP CHANGER and Hi/Lo Control Module ENX (Complete Assembly) (used on M9000 series serial no. 842643 and earlier)	1
0B	78-8079-9149-8	LAMP CHANGER and Hi/Lo Control Module EVD (Complete Assembly) (used on M9000 series serial no. 842643 and earlier) (used on M9550 serial number 823581 and earlier)	1
0C	78-8079-9148-0	LAMP CHANGER and Hi/Lo Control Module FNT (Complete Assembly) (used on M9000 series serial no. 842643 and earlier)	1
1	(See Note 1)	SCREW, Taptite, M3.5 X 6	3
2	78-8079-8933-6	THERMOSTAT (M9080/ENX, M9100/ENX, M9200/ENX, M9550)	1
3	(See Note 1)	SCREW, Plastite, 6-19 X 5/16	1
	78-8079-8886-6	ADAPTER, Switch, Interlock	1
	78-8079-8823-9	SWITCH, Micro	1
6	(See Note 1)	SCREW, Taptite, M3 X 12	2
7	(See Note 1)	SCREW, Type BT, 4-24 X 5/8	1
8	78-8079-8855-1	SWITCH, Lampchanger/Hi/Lo, Dimmer	2
9A	78-8079-8880-9	KNOB, Lamp Changer/Hi/Lo Lamp (Some M9080 versions, qty 1) (used on M9000 series serial no. 842643 and earlier) (used on M9550 serial number 823581 and earlier)	2
9B	78-8073-2962-4	KNOB, Lamp Change (used on M9000 series serial no. 842644 and up) (used on M9550 serial no. 823582 and up)	1
A	78-8079-8879-1	HOUSING, Control, 2 Hole (M9100, M9200) (used on M9000 series serial no. 842643 and earlier) (used on M9550 serial number 823581 and earlier)	1
10B	78-8079-8965-8	HOUSING, Control, 1 Hole (M9080 Brazil kit)	1
10C	78-8073-2963-2	HOUSING, Lamp Change, 1 Hole (M9200, most M9080 and M9100) (used on M9000 series serial no. 842644 and up) (used on M9550 serial no. 823582 and up)	1
10D	78-8073-2964-1	HOUSING, Lamp Change, (M9550, M9080 AADT, AHDG, M9100 AABT, AJB, AJBC, AJBW, AJBX) (used on M9000 series serial no. 842644 and up) (used on M9550 serial no. 823582 and up)	1
A	78-8073-7127-9	RESISTOR, 1.2 Ohm (M9080, M9100, M9200 ENX versions)	1
11B	78-8079-9196-9	RESISTOR, .11 Ohm (M9080 AADT, AHDG, M9100 AABT and M9200 AACT)	1
12A	78-8079-8925-2	RETAINER, Resistor (M9080, M9100, M9200 ENX versions) (used on M9000 series serial no. 842643 and earlier)	1
12B	78-8073-2987-1	COVER, Resistor (M9080 AADD, AJD, M9200 AACD, AACM, AJC, BGC) (used on M9000 series serial no. 842644 and up)	1
12C	78-8073-3012-7	COVER, Resistor (M9100 AABD, AABM, AJB, AJBC, AJBW, AJBX) (used on M9000 series serial no. 842644 and up)	1

Note 1. Order M9000 Series Hardware Repair Kit (78-8054-1818-9). This kit contains a complete set of hardware for the M9000 Series O.H.P.

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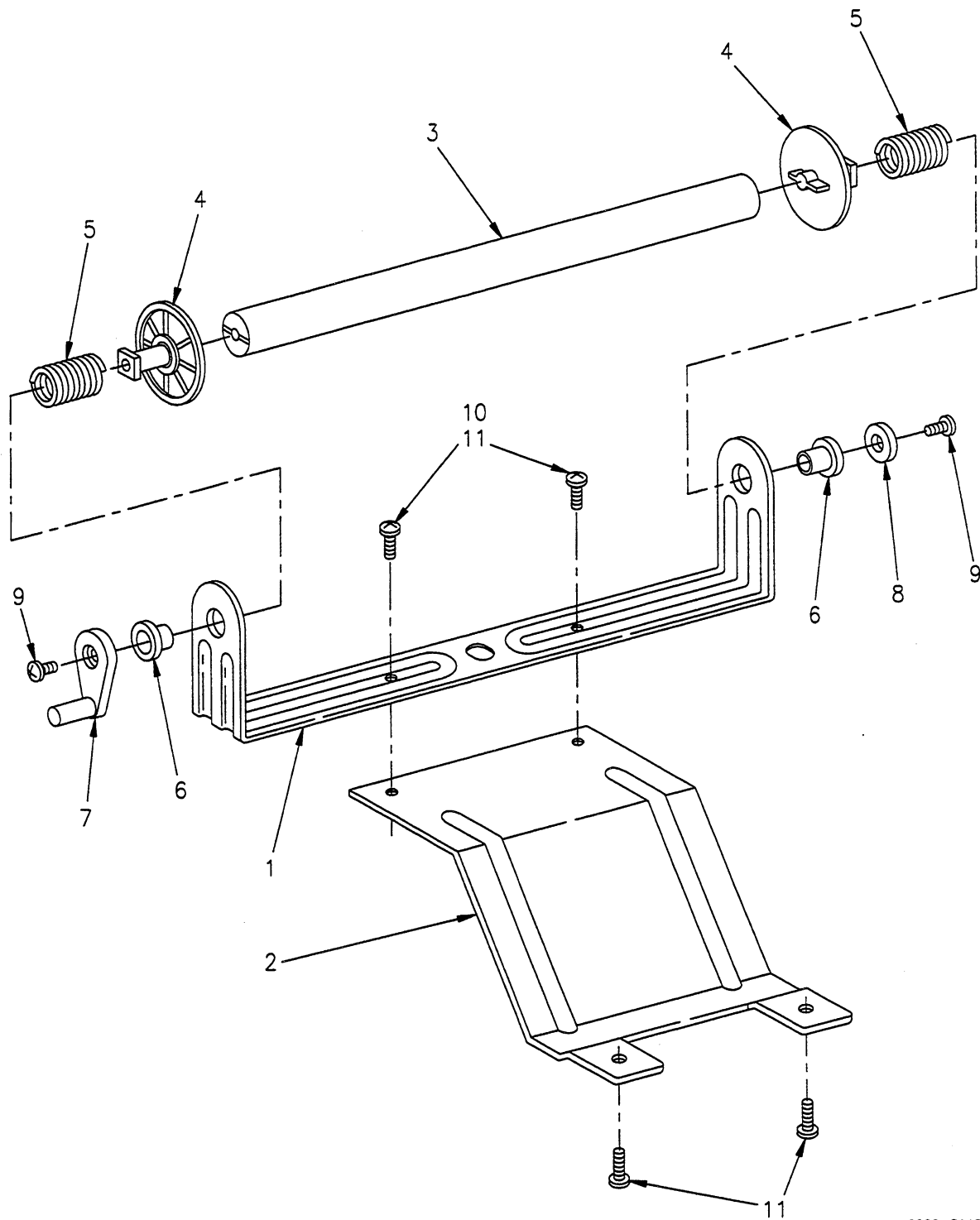
Section 13

LAMPCHANGER & HI/LO LAMP CONTROL MODULE (Dual Lamp Versions) (Continued)

Item No.	Part Number	Description	Qty
13A	78-8079-8881-7	LEVER, Lamp Changer, ENX/FXL	1
13B	78-8079-8987-2	LEVER, Lamp Changer, EVD/FNT	1
14	26-1009-7377-0	SPRING (used on M9000 series serial no. 842643 and earlier)	1
15	78-8079-8882-5	LEVER, Switch, Lamp Hi/Lo, Intensity	1
16	12-7995-0850-7	SPRING	1
17	(See Note 1)	WASHER, Lamp Changer (M9080, qty 1)	2
18A	78-8079-8885-8	BRACKET, Lamp Changer (used on M9000 series serial no. 842643 and earlier) (used on M9550 serial number 823581 and earlier)	1
18B	78-8073-2961-6	BRACKET, Lamp Changer (used on M9000 series serial no. 842644 and up) (used on M9550 serial no. 823582 and up)	1
	(See Note 1)	SCREW, Taptite, 4-24 X 3/4	2
19A	78-8079-8889-0	PCB ASSEMBLY, Lamp Changer (used on M9550 serial number 823581 and earlier)	1
20B	78-8073-3105-9	PCB ASSEMBLY, Lamp Changer (M9550) (used on M9550 serial no. 823582 and up)	1
21	78-8095-8339-2	TAPE, Heat Shield, EVD	1

Note 1. Order M9000 Series Hardware Repair Kit (78-8054-1818-9). This kit contains a complete set of hardware for the M9000 Series O.H.P.

Section 14
ROLLER ASSEMBLY



9000-S14C

Section 14
ROLLER ASSEMBLY

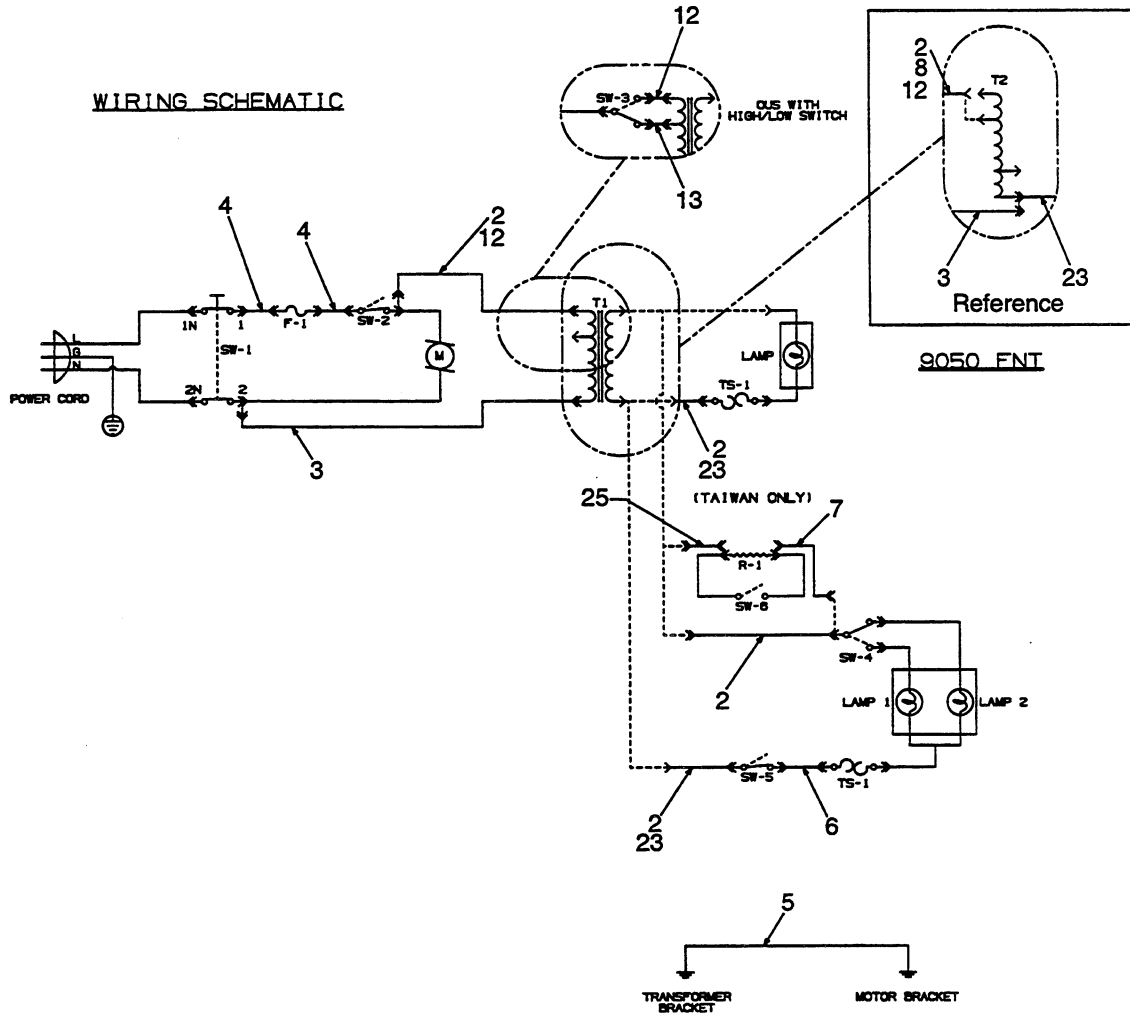
Item No.	Part Number	Description	Qty
1A	78-8064-1794-1	BRACKET, Roller, 10 1/4"	2
1B	78-8064-1808-9	BRACKET, Roller, 11 1/4" (A4)	2
2	78-8064-1582-0	BRACE, Roller (For front to rear installation, use only one.)	2
3A	78-8052-8348-4	ROLL, Takeup, 10 1/4"	1
3B	78-8052-8347-6	ROLL, Takeup, 11 1/4" (A4)	1
4	78-8064-1801-4	SPINDLE, Driver	4
5	78-8015-2206-7	SPRING	4
6	78-8161-4222-4	BEARING	4
7	78-8064-1802-2	CRANK	2
8	12-7991-1737-4	WASHER, Plain, No. 8, Zinc Plate	2
	26-1002-5091-4	SCREW, Taptite, Pan Head, Phillips, 6-32 X 1/4L	4
10	(See Note 1)	SCREW, Plastite, Pan Head, Phillips, 6-19 X 3/8L (See Note 2)	2
11	26-1005-7800-9	SCREW, Metric, Pan Head, Phillips, M3.5 X 0.6 X 8L, Taptite	8

Note 1. Order M9000 Series Hardware Repair Kit (78-8054-1818-9). This kit contains a complete set of hardware for the M9000 Series O.H.P.

Note 2. Only used when the second bracket is used for a side-to-side installation.

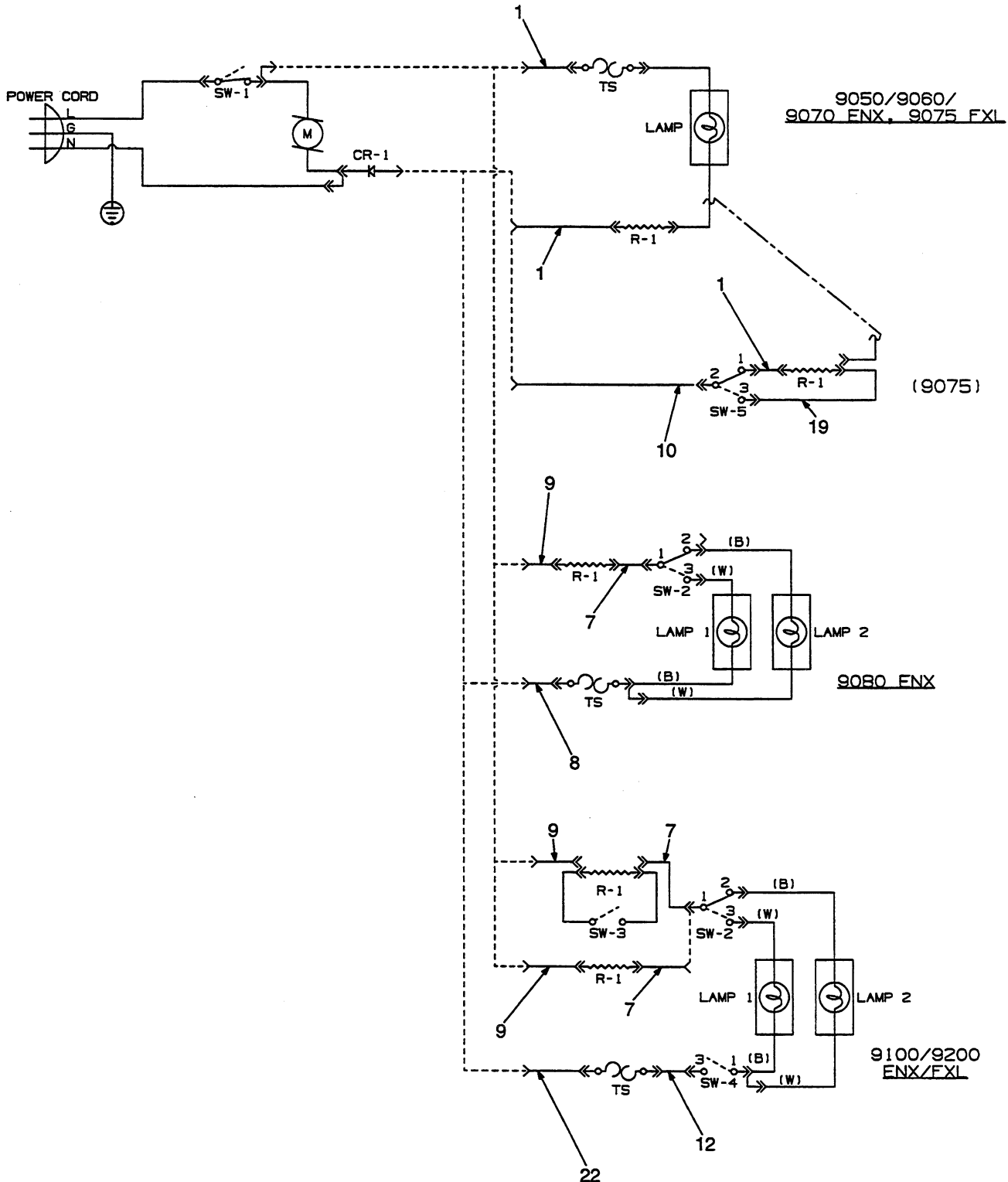
Section 15
WIRE JUMPERS (1 of 4)

9080/9100/9200_FNT



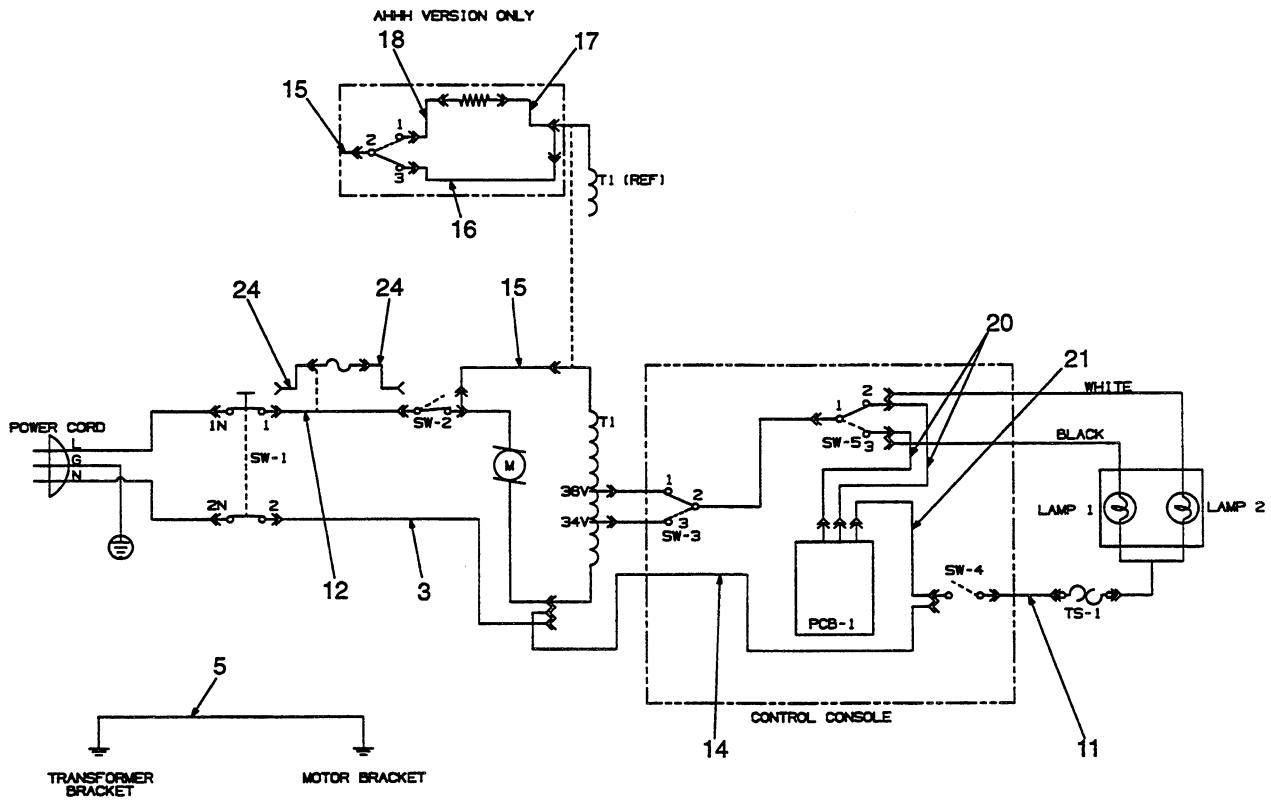
Section 15
WIRE JUMPERS (2 of 4)

WIRING SCHEMATIC



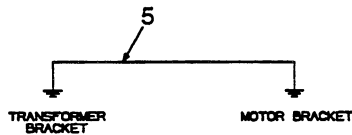
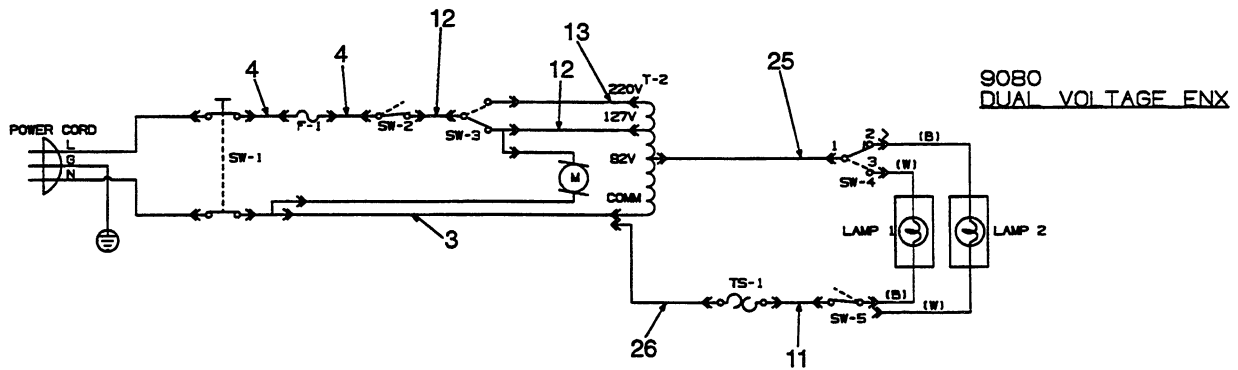
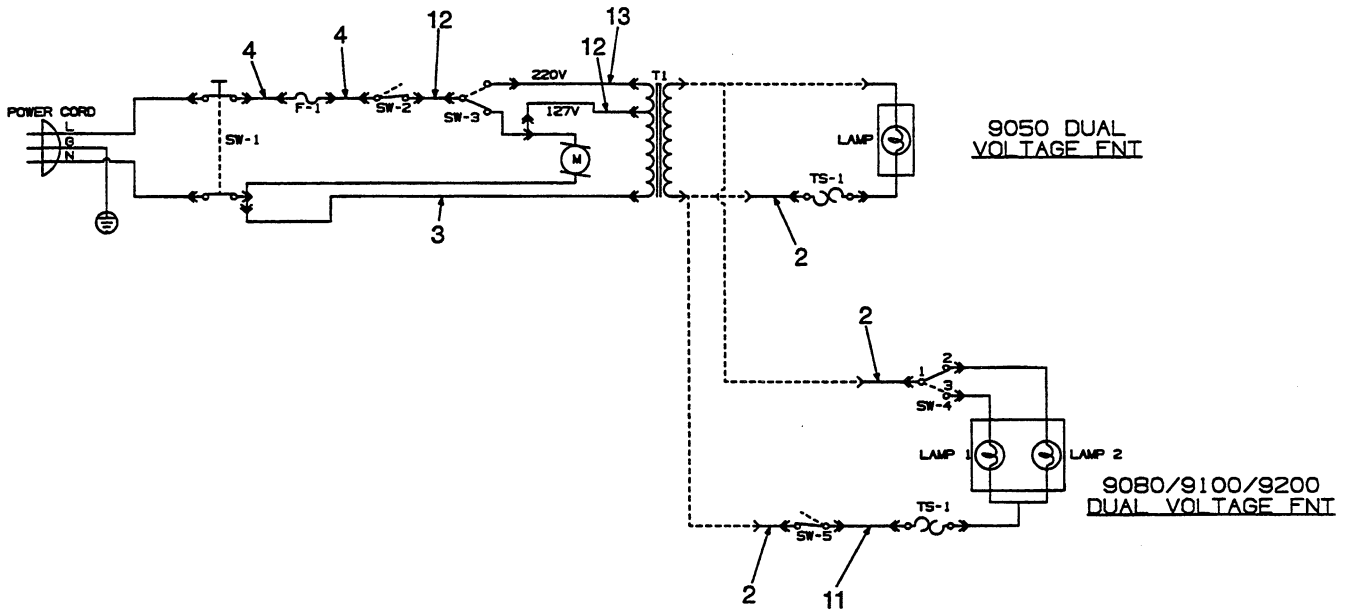
Section 15
WIRE JUMPERS (3 of 4)

9550 WIRING SCHEMATIC



Section 15
WIRE JUMPERS (4 of 4)

WIRING SCHEMATIC (DUAL VOLTAGE)



Section 15
WIRE JUMPERS

Item No.	Part Number	Description	Qty
1	78-8079-8913-8	JUMPER, Diode to Resistor and Micro Switch to Thermostat	2
2	78-8079-8971-6	JUMPER, 22"	2
3	78-8079-8972-4	JUMPER, 17" (Blue)	1
4	78-8079-8973-2	JUMPER, Switch to Lampholder	2
5	78-8064-1792-5	JUMPER, Ground (Green/Yellow) (Not used on Japan machines)	1
6	78-8073-3297-4	JUMPER, 3.5" (Brown)	1
7	78-8073-3102-6	JUMPER, Resistor, 4.5" (Quantity 1 on some models)	2
8	78-8073-3018-4	JUMPER, 8.75"	1
9	78-8073-3019-2	JUMPER, 12"	1
10	78-8079-8992-2	JUMPER, 9.75" (9075 AJG only)	1
11	78-8073-3297-4	JUMPER, 3.5" (Brown)	1
12	78-8079-9005-2	JUMPER, 12.5" (Black)	1
13	78-8079-9006-0	JUMPER, 12.5" (White)	1
14	78-8073-3014-3	JUMPER, 26" (Yellow)	1
15	78-8079-9180-3	JUMPER, 21" (Brown)	1
16	78-8097-3545-5	JUMPER, 7" (Blue)	1
17	78-8065-8479-9	WIRE, Lead, Diode	1
18	78-8065-8268-6	LEAD ASSEMBLY, Fuse, Kill Switch	1
19	78-8073-3103-4	JUMPER, 7" (9075 AJG only)	1
20	78-8073-3013-5	JUMPER, PCB Switch	2
21	78-8073-2973-1	JUMPER, PCB Switch, 5"	1
22	78-8073-3018-4	JUMPER, 8.75"	1
23	78-8097-3548-9	JUMPER, 25" (White)	1
24	78-8079-8973-2	JUMPER, 10", Switch/Fuse, (Black)	1
25	78-8095-8299-8	JUMPER, Power Switch to Power Supply, (9080 ABDB)	1
26	78-8097-3550-5	JUMPER, 23" (Black)	1

3M™ Overhead Projector 9000 Series

Appendix A
SPECIFICATIONS

Model Description	Country	Power Cord	Model Alpha	Stock Number	Voltage/Hz	Agency	Stage Size	Head Type	Lamp Changer	Color Tuning	Post Type	Lamp Type	Handle	Lamp Control	Lamps Installed	Fresnel	Power	Fuse	Amps	Cord Storage
9000 Overhead Projector	Australia	Australian	9050 AHAA	78-9236-5681-9	230/50	SAA	A4	Open Singlet	No	Internal	Fixed	FNT	No		1	9000 Single Element Glare Free	Transformer		1.7	
9000 Overhead Projector	Australia	Australian	9080 AHDA	78-9236-5667-8	240/50	SAA	A4	Open Singlet	Yes	External	Folding	FNT	No		1	9000 Single Element Glare Free	Transformer		1.7	
9000 Overhead Projector	Australia	Australian	9100 AHBA	78-9236-5655-3	240/50	SAA	A4	Art Doublet	Yes	External	Folding	FNT	No		1	2100 Dual Element Glare Free	Transformer		1.7	
9000 Overhead Projector	Australia	Australian	9200 AHCA	78-9236-5643-9	240/50	SAA	A4	Open Triplet	Yes	External	Folding	FNT	Yes	Other	2	2100 Dual Element Glare Free	Transformer		1.7	
9000 Overhead Projector	Australia	Australian	9550 AHHA	78-9236-5634-8	240/50	SAA	A4	Varifocal	Yes	Internal	Folding	EVD	Yes	Dimmer Switch	2	9550 Dual Element Clear	Transformer		2.5	
9000 Overhead Projector	Brazil	United States	9080 AADB	78-9236-5668-6	127/50/60		10.5	Open Singlet	Yes	External	Folding	ENX	No	Resistor	1	9000 Single Element Glare Free	Diode		3	
9000 Overhead Projector	Brazil	United States 15'	9550 AAHB	78-9236-6180-1	127/60	None	A4	Varifocal	Yes	Internal	Folding	EVD	Yes	Dimmer Switch	2	9550 Dual Element Clear	Transformer	5A	4.5	Yes
9000 Overhead Projector	Chile	Italian	9100 AHBC	78-9236-5830-2	230/50		A4	Art Doublet	Yes	External	Folding	FNT	No	Dimmer Switch	2	2100 Dual Element Glare Free	Transformer		1.7	Yes
9000 Overhead Projector	Chile	Italian	9200 AHCC	78-9236-5828-6	230/50		A4	Open Triplet	Yes	External	Folding	FNT	Yes		2	2100 Dual Element Glare Free	Transformer	T4A	1.7	Yes
9000 Overhead Projector	Chile	Italian	9550 AHHC	78-9236-5829-4	230/50		A4	Varifocal	Yes	Internal	Folding	EVD	Yes	Dimmer Switch	2	9550 Dual Element Clear	Transformer	T4A	2.5	Yes
9000 Overhead Projector	Europe Std.	European	9050 ABAS	78-9236-5684-3	127/220/50		A4	Open Singlet	No	Internal	Fixed	FNT	No		1	9000 Single Element Glare Free	Transformer		3	
9000 Overhead Projector	Europe Std.	European	9050 AHAS	78-9236-5682-7	230/50	European	A4	Open Singlet	No	Internal	Fixed	FNT	No	Voltage Switch	1	9000 Single Element Glare Free	Transformer		1.7	
9000 Overhead Projector	Europe Std.	European	9080 ABDS	78-9236-5721-3	127/220/50		A4	Open Singlet	Yes	External	Folding	FNT	No	Voltage Switch	1	9000 Single Element Glare Free	Transformer		3	Yes
9000 Overhead Projector	Europe Std.	European	9080 AHDS	78-9236-5669-4	230/50	European	A4	Open Singlet	Yes	External	Folding	FNT	No		2	9000 Single Element Glare Free	Transformer		1.7	
9000 Overhead Projector	Europe Std.	European	9080 AHTS	78-9236-5870-8	230 /50	European	A4	Open Singlet	Yes	External	Folding	FNT	No	Voltage Switch	2	9000 Single Element Glare Free	Transformer	T4A	1.7	Yes
9000 Overhead Projector	Europe Std.	European	9100 ABBS	78-9236-5722-1	127/220/50		A4	Art Doublet	Yes	External	Folding	FNT	No	Voltage Switch	1	2100 Dual Element Glare Free	Transformer		3	Yes
9000 Overhead Projector	Europe Std.	European	9100 AHBS	78-9236-5656-1	230/50	European	A4	Art Doublet	Yes	External	Folding	FNT	No	Voltage Switch	2	2100 Dual Element Glare Free	Transformer		1.7	
9000 Overhead Projector	Europe Std.	European	9200 ABCS	78-9236-5723-9	127/220/50		A4	Open Triplet	Yes	External	Folding	FNT	Yes	Voltage Switch	2	2100 Dual Element Glare Free	Transformer		3	Yes
9000 Overhead Projector	Europe Std.	European	9200 AHCS	78-9236-5644-7	230/50	European	A4	Open Triplet	Yes	External	Folding	FNT	Yes	Voltage Switch	2	2100 Dual Element Glare Free	Transformer		1.7	
9000 Overhead Projector	Europe Std.	European	9200 AHMS	78-9236-5873-2	230/50	European	A4	Open Triplet	Yes	External	Folding	FNT	Yes	Voltage Switch	2	2100 Dual Element Glare Free	Transformer	T4A	1.7	Yes

Model Description	Country	Power Cord	Model Alpha	Stock Number	Voltage/Hz	Agency	Stage Size	Head Type	Lamp Changer	Color Tuning	Post Type	Lamp Type	Handle	Lamp Control	Lamps Installed	Fresnel	Power	Fuse	Amps	Cord Storage
9000 Overhead Projector	Europe Std.	European	9550 AHHS	78-9236-5635-5	230/50	European	10.5	Varifocal	Yes	Internal	Folding	EVD	Yes	Dimmer Switch	2	9550 Dual Element Glare Free	Transformer	T4A	2.5	
9000 Overhead Projector	Europe Std.	European	9550 AHSS	78-9236-5876-5	230/50	European	A4	Varifocal	Yes	Internal	Folding	EVD	Yes	Dimmer Switch	2	9550 Dual Element Glare Free	Transformer		1.7	Yes
9000 Overhead Projector	Hong Kong	United Kingdom	9050 AHAH	78-9236-5683-5	220/50		A4	Open Singlet	No	Internal	Fixed	FNT	No		1	9000 Single Element Glare Free	Transformer		1.7	
9000 Overhead Projector	Hong Kong	United Kingdom	9080 AHDH	78-9236-5670-2	220/50		A4	Open Singlet	Yes	External	Folding	FNT	No		1	9000 Single Element Glare Free	Transformer		1.7	
9000 Overhead Projector	Hong Kong	United Kingdom	9100 AHBH	78-9236-5657-9	220/50		A4	Art Doublet	Yes	External	Folding	FNT	No		1	2100 Dual Element Glare Free	Transformer		1.7	
9000 Overhead Projector	Hong Kong	United Kingdom	9200 AHCH	78-9236-5645-4	220/50		A4	Open Triplet	Yes	External	Folding	FNT	Yes		2	2100 Dual Element Glare Free	Transformer		1.7	
9000 Overhead Projector	Hong Kong	United Kingdom	9550 AHHH	78-9236-5636-3	220/50		A4	Varifocal	Yes	Internal	Folding	EVD	Yes	Dimmer Switch	2	9550 Dual Element Clear	Transformer		2.5	
9000 Overhead Projector	India	Other	9080 AHDG	78-9236-5962-3	230/50		A4	Open Singlet	Yes	External	Folding	FNT	No		1	9000 Single Element Glare Free	Transformer	T4A	1.7	Yes
9000 Overhead Projector	Japan	Japan	9050 ABAJ	78-9236-5685-0	100/50/60	MITI	A4	Open Singlet	No	Internal	Fixed	FNT	No		1	9000 Single Element Glare Free	Transformer			
9000 Overhead Projector	Japan	Japan	9080 ABDJ	78-9236-5671-0	100/50/60	MITI	A4	Open Singlet	Yes	External	Folding	FNT	No		1	9000 Single Element Glare Free	Transformer			
9000 Overhead Projector	Japan	Other—Two Blade 15'	9080 ABDB	78-9236-6165-2	120/220/60	None	10.5	Open Singlet	Yes	External	Folding	ENX	No	Voltage Switch	1	9000 Single Element Glare Free	Transformer	5A	4.5	No
9000 Overhead Projector	Japan	Japan	9100 ABBJ	78-9236-5658-7	100/50/60	MITI	A4	Art Doublet	Yes	External	Folding	FNT	No		1	2100 Dual Element Glare Free	Transformer			
9000 Overhead Projector	Japan	Japan	9200 ABCJ	78-9236-5646-2	100/50/60	MITI	A4	Open Triplet	Yes	External	Folding	FNT	Yes		2	2100 Dual Element Glare Free	Transformer			
9000 Overhead Projector	Japan	Japan	9550 ABHJ	78-9236-5705-6	100/50/60	MITI	A4	Varifocal	Yes	Internal	Folding	EVD	Yes	Dimmer Switch	2	9550 Dual Element Glare Free	Transformer			Yes
9000 Overhead Projector	Korea	European	9550 AHHK	78-9236-5810-4	220/60		A4	Varifocal	Yes	Internal	Folding	EVD	Yes	Dimmer Switch	2	9550 Dual Element Clear	Transformer	T5A	2.5	Yes
9000 Overhead Projector	Mexico	United States 10'	9050 AAAM	78-9236-6177-7	127/60	None	10.5	Open Singlet	No	None	Fixed	ENX	No	Dimmer Switch	1	9000 Single Element Glare Free	Line, Diode	None	4.5	No
9000 Overhead Projector	Mexico	United States 15'	9100 AABM	78-9236-6178-5	127/60	None	10.5	Art Doublet	Yes	External	Folding	ENX	No	Voltage Switch	1	9000 Single Element Glare Free	Line, Diode	None	4.5	Yes
9000 Overhead Projector	Mexico	United States 15'	9200 AACM	78-9236-6179-3	127/60	None	10.5	Open Triplet	Yes	External	Folding	FXL	Yes	Voltage Switch	2	9000 Single Element Glare Free	Line, Diode	None	4.5	Yes
9000 Overhead Projector	Mexico	United States 15'	9550 AHHM	78-9236-5637-1	127/50/60	None	A4	Varifocal	Yes	Internal	Folding	EVD	Yes	Dimmer Switch	2	9550 Dual Element Clear	Transformer	5A	4.5	Yes
9000 Overhead Projector	New Zealand	Australian	9050 AHAN	78-9236-5686-8	230/50		A4	Open Singlet	No	Internal	Fixed	FNT	No		1	9000 Single Element Glare Free	Transformer		1.7	

Model Description	Country	Power Cord	Model Alpha	Stock Number	Voltage/Hz	Agency	Stage Size	Head Type	Lamp Changer	Color Tuning	Post Type	Lamp Type	Handle	Lamp Control	Lamps Installed	Fresnel	Power	Fuse	Amps	Cord Storage
9000 Overhead Projector	New Zealand	Australian	9080 AHDN	78-9236-5672-8	240/50		A4	Open Singlet	Yes	External	Folding	FNT	No		1	9000 Single Element Glare Free	Transformer		3	
9000 Overhead Projector	New Zealand	Australian	9100 AHBN	78-9236-5659-5	240/50		A4	Art Doublet	Yes	External	Folding	FNT	No		1	2100 Dual Element Glare Free	Transformer		1.7	
9000 Overhead Projector	New Zealand	Australian	9200 AHCN	78-9236-5647-0	240/50		A4		Yes	External	Folding	FNT	Yes		2	2100 Dual Element Glare Free	Transformer		1.7	
9000 Overhead Projector	New Zealand	Australian	9550 AHHN	78-9236-5638-9	240/50		A4	Varifocal	Yes	Internal	Folding	EVD	Yes	Dimmer Switch	2	9550 Dual Element Clear	Transformer		2.5	
9000 Overhead Projector	Philippines	United States	9050 ARAP	78-9236-5687-6	240/60		A4	Open Singlet	No	Internal	Fixed	FNT	No		1	9000 Single Element Glare Free	Transformer		1.7	
9000 Overhead Projector	Philippines	United States	9080 ARDP	78-9236-5673-6	240/60		A4	Open Singlet	Yes	External	Folding	FNT	No		1	9000 Single Element Glare Free	Transformer		1.7	
9000 Overhead Projector	Philippines	United States	9100 ARBP	78-9236-5660-3	240/60		A4	Art Doublet	Yes	External	Folding	FNT	No		1	2100 Dual Element Glare Free	Transformer		1.7	
9000 Overhead Projector	Philippines	United States	9200 ARCP	78-9236-5648-8	240/60		A4	Open Triplet	Yes	External	Folding	FNT	Yes		2	2100 Dual Element Glare Free	Transformer		1.7	
9000 Overhead Projector	Philippines	Other-Two Blade 15'	9550 ARHP	78-9236-5639-7	240/60	None	A4	Varifocal	Yes	Internal	Folding	EVD	Yes	Dimmer Switch	2	9550 Dual Element Clear	Transformer	5A	2.5	Yes
9000 Overhead Projector	Saudi Arabia	United States	9050 AAAD	78-9236-5689-2	127/60		10.5	Open Singlet	No	Internal	Fixed	ENX	No	Resistor	1	9000 Single Element Glare Free	Diode		4.5	
9000 Overhead Projector	Saudi Arabia	European	9050 AHAD	78-9236-5694-2	230/50		A4	Open Singlet	No	Internal	Fixed	FNT	No		1	9000 Single Element Glare Free	Transformer		1.7	
9000 Overhead Projector	Saudi Arabia	European	9080 AHDD	78-9236-5680-1	230/50		A4	Open Singlet	Yes	External	Folding	FNT	No		1	9000 Single Element Glare Free	Transformer		1.7	
9000 Overhead Projector	Saudi Arabia	United States	9080 AADD	78-9236-5675-1	127/60		10.5	Open Singlet	Yes	External	Folding	ENX	No	Resistor	1	9000 Single Element Glare Free	Diode		4.5	
9000 Overhead Projector	Saudi Arabia	United States	9100 AABD	78-9236-5662-9	127/60		10.5	Art Doublet	Yes	External	Folding	ENX	No	Dimmer Switch	1	9000 Single Element Glare Free	Diode		4.5	
9000 Overhead Projector	Saudi Arabia	United States	9200 AACD	78-9236-5650-4	127/60		10.5	Open Triplet	Yes	External	Folding	FXL	Yes	Dimmer Switch	2	9000 Single Element Glare Free	Diode		4.5	
9000 Overhead Projector	Saudi Arabia	United States	9550 AAHD	78-9236-5725-4	127/60		A4	Varifocal	Yes	Internal	Folding	EVD	Yes	Dimmer Switch	2	9550 Dual Element Clear	Transformer		4.5	Yes
9000 Overhead Projector	South Africa	South Africa	9050 AHAR	78-9236-5688-4	240/50	SABS	A4	Open Singlet	No	Internal	Fixed	FNT	No		1	9000 Single Element Glare Free	Transformer		1.7	
9000 Overhead Projector	South Africa	South Africa	9080 AHDR	78-9236-5674-4	240/50	SABS	A4	Open Singlet	Yes	External	Folding	FNT	No		1	9000 Single Element Glare Free	Transformer		1.7	
9000 Overhead Projector	South Africa	South Africa	9100 AHBR	78-9236-5661-1	240/50		A4	Art Doublet	Yes	External	Folding	FNT	No		1	2100 Dual Element Glare Free	Transformer		1.7	
9000 Overhead Projector	South Africa	South Africa	9200 AHCR	78-9236-5649-6	240/50		A4	Open Triplet	Yes	External	Folding	FNT	Yes		2	2100 Dual Element Glare Free	Transformer		1.7	
9000 Overhead Projector	South Africa	South Africa	9550 AHHR	78-9236-5640-5	240/50	SABS	10.5	Varifocal	Yes	Internal	Folding	EVD	Yes	Dimmer Switch	2	9550 Dual Element Clear	Transformer		2.5	

Model Description	Country	Power Cord	Model Alpha	Stock Number	Voltage/Hz	Agency	Stage Size	Head Type	Lamp Changer	Color Tuning	Post Type	Lamp Type	Handle	Lamp Control	Lamps Installed	Fresnel	Power	Fuse	Amps	Cord Storage
9000 Overhead Projector	Switzerland	Swiss	9050 AHAZ	78-9236-5690-0	230/50	SEV	A4	Open Singlet	No	Internal	Fixed	FNT	No	Voltage Switch	1	9000 Single Element Glare Free	Transformer		1.7	
9000 Overhead Projector	Switzerland	Swiss	9080 AHDZ	78-9236-5676-9	230/50	SEV	A4	Open Singlet	Yes	External	Folding	FNT	No	Voltage Switch	2	9000 Single Element Glare Free	Transformer		1.7	
9000 Overhead Projector	Switzerland	Swiss	9080 AHTZ	78-9236-5872-4	220/50	SEV	A4	Open Singlet	Yes	External	Folding	FNT	No	Voltage Switch	2	9000 Single Element Glare Free	Transformer	T4A	1.7	Yes
9000 Overhead Projector	Switzerland	Swiss	9100 AHBZ	78-9236-5663-7	230/50	SEV	A4	Art Doublet	Yes	External	Folding	FNT	No	Voltage Switch	2	2100 Dual Element Glare Free	Transformer		1.7	
9000 Overhead Projector	Switzerland	Swiss	9200 AHCZ	78-9236-5651-2	230/50	SEV	A4	Open Triplet	Yes	External	Folding	FNT	Yes	Voltage Switch	2	2100 Dual Element Glare Free	Transformer		1.7	
9000 Overhead Projector	Switzerland	Swiss	9200 AHMZ	78-9236-5875-7	230/50	SEV	A4	Open Triplet	Yes	External	Folding	FNT	Yes	Voltage Switch	2	2100 Dual Element Glare Free	Transformer	T4A	1.7	Yes
9000 Overhead Projector	Switzerland	Swiss	9550 AHHZ	78-9236-5724-7	230/50	SEV	A4	Varifocal	Yes	Internal	Folding	EVD	Yes	Dimmer Switch	2	9550 Dual Element Glare Free	Transformer		2.5	Yes
9000 Overhead Projector	Switzerland	Swiss	9550 AHSZ	78-9236-5878-1	230/50	SEV	A4	Varifocal	Yes	Internal	Folding	EVD	Yes	Dimmer Switch	2	9550 Dual Element Glare Free	Transformer	T4A	1.7	Yes
9000 Overhead Projector	Taiwan	Japan	9050 AAAT	78-9236-5691-8	120/60		A4	Open Singlet	No	Internal	Fixed	FNT	No		1	9000 Single Element Glare Free	Transformer		3	
9000 Overhead Projector	Taiwan	Japan	9080 AADT	78-9236-5677-7	120/60		A4	Open Singlet	Yes	External	Folding	FNT	No		1	9000 Single Element Glare Free	Transformer		3	
9000 Overhead Projector	Taiwan	Japan	9100 AABT	78-9236-5664-5	120/60		A4	Art Doublet	Yes	External	Folding	FNT	No		1	2100 Dual Element Glare Free	Transformer		3	
9000 Overhead Projector	Taiwan	Japan	9200 AACT	78-9236-5652-0	120/60		A4	Open Triplet	Yes	External	Folding	FNT	Yes		2	2100 Dual Element Glare Free	Transformer		3	
9000 Overhead Projector	Taiwan	Japan	9550 AAHT	78-9236-6022-5	120/60		A4	Varifocal	Yes	Internal	Folding	EVD	Yes	Dimmer Switch	2	9550 Dual Element Clear	Transformer		4.5	No
9000 Overhead Projector	Thailand	European	9050 AHAF	78-9236-5834-4	220/50		A4	Open Singlet	No	Internal	Fixed	FNT	No		1	9000 Single Element Glare Free	Transformer	T4A	1.7	No
9000 Overhead Projector	Thailand	European	9080 AHDF	78-9236-5835-1	220/50		A4	Open Singlet	Yes	External	Folding	FNT	No	Dimmer Switch	1	9000 Single Element Glare Free	Transformer	T4A	1.7	Yes
9000 Overhead Projector	Thailand	European	9100 AHBF	78-9236-5836-9	220/50		A4	Art Doublet	Yes	External	Folding	FNT	No	Dimmer Switch	1	2100 Dual Element Glare Free	Transformer	T4A	1.7	Yes
9000 Overhead Projector	Thailand	European	9200 AHCF	78-9236-5837-7	220/50		A4	Open Triplet	Yes	External	Folding	FNT	Yes	Dimmer Switch	2	2100 Dual Element Glare Free	Transformer	T4A	1.7	Yes
9000 Overhead Projector	Thailand	European	9550 AHHF	78-9236-5833-6	220/50		A4	Varifocal	Yes	Internal	Folding	EVD	Yes	Dimmer Switch	2	9550 Dual Element Clear	Transformer	T4A	2.5	Yes
9000 Overhead Projector	United Kingdom	United Kingdom	9050 AHAU	78-9236-5692-6	240/50	European	A4	Open Singlet	No	Internal	Fixed	FNT	No		1	9000 Single Element Glare Free	Transformer		1.7	
9000 Overhead Projector	United Kingdom	United Kingdom	9080 AHDU	78-9236-5678-5	240/50	European	A4	Open Singlet	Yes	External	Folding	FNT	No		2	9000 Single Element Glare Free	Transformer		1.7	
9000 Overhead Projector	United Kingdom	United Kingdom	9080 AHTU	78-9236-5871-6	240/50	European	A4	Open Singlet	Yes	External	Folding	FNT	No	Voltage Switch	2	9000 Single Element Glare Free	Transformer	T4A	1.7	Yes
9000 Overhead Projector	United Kingdom	United Kingdom	9100 AHBU	78-9236-5665-2	240/50	European	A4	Art Doublet	Yes	External	Folding	FNT	No		2	2100 Dual Element Glare Free	Transformer		1.7	

Model Description	Country	Power Cord	Model Alpha	Stock Number	Voltage/Hz	Agency	Stage Size	Head Type	Lamp Changer	Color Tuning	Post Type	Lamp Type	Handle	Lamp Control	Lamps Installed	Fresnel	Power	Fuse	Amps	Cord Storage
9000 Overhead Projector	United Kingdom	United Kingdom	9200 AHCU	78-9236-5653-8	240/50	European	A4	Open Triplet	Yes	External	Folding	FNT	Yes		2	2100 Dual Element Glare Free	Transformer		1.7	
9000 Overhead Projector	United Kingdom	United Kingdom	9200 AHMU	78-9236-5874-0	240/50	European	A4	Open Triplet	Yes	External	Folding	FNT	Yes	Voltage Switch	2	2100 Dual Element Glare Free	Transformer	T4A	1.7	Yes
9000 Overhead Projector	United Kingdom	United Kingdom	9550 AHHU	78-9236-5641-3	240/50	European	A4	Varifocal	Yes	Internal	Folding	EVD	Yes	Dimmer Switch	2	9550 Dual Element Glare Free	Transformer		2.5	
9000 Overhead Projector	United Kingdom	United Kingdom	9550 AHSU	78-9236-5877-3	240/50	European	A4	Varifocal	Yes	Internal	Folding	EVD	Yes	Dimmer Switch	2	9550 Dual Element Glare Free	Transformer	T4A	1.7	Yes
9000 Overhead Projector	United States	United States	9050 AJA	78-9236-5693-4	120/60	UL/CSA	10.5	Open Singlet	No	Internal	Fixed	ENX	No	Resistor	1	9000 Single Element Glare Free	Diode		4.5	
9000 Overhead Projector	United States	United States	9060 AJE	78-9236-5695-9	120/60	UL/CSA	10.5	Art Doublet	Yes	Internal	Fixed	ENX	No	Resistor	1	9000 Single Element Glare Free	Diode		4.5	
9000 Overhead Projector	United States	United States	9070 AJF	78-9236-5696-7	120/60	UL/CSA	10.5	Closed Singlet	No	Internal	Fixed	ENX	No	Resistor	1	9000 Single Element Glare Free	Diode		4.5	
9000 Overhead Projector	United States	United States	9080 AJD	78-9236-5679-3	120/60	UL/CSA	10.5	Closed Singlet	Yes	External	Folding	ENX	No	Resistor	1	9000 Single Element Glare Free	Diode		4.5	
9000 Overhead Projector	United States	United States	9100 AJB	78-9236-5666-0	120/60	UL/CSA	10.5	Art Doublet	Yes	External	Folding	ENX	No	Dimmer Switch	1	9000 Single Element Glare Free	Diode		4.5	
9000 Overhead Projector	United States	United States	9100 AJBX	78-9236-6049-8	120/60	UL/CSA	10.5	Art Doublet	Yes	External	Folding	ENX	No	Dimmer Switch	1	9000 Single Element Glare Free	Diode	None	4.5	Yes
9000 Overhead Projector	United States	United States	9200 AJC	78-9236-5654-6	120/60	UL/CSA	10.5	Open Triplet	Yes	External	Folding	FXL	Yes	Dimmer Switch	2	9000 Single Element Glare Free	Diode		4.5	
9000 Overhead Projector	United States/Canada	United States 15'	9075 AJG	78-9236-6164-2	120/60	UL/CSA	10.5	Closed Singlet	No	Internal	Fixed	ENX	No	Voltage Switch	1	9000 Dual Element Clear	Diode	None	4.5	No
9000 Overhead Projector	United States	United States 15'	9200 BGC	78-9236-6187-6	120/60	UL	10.5	Closed Singlet	Yes	External	Folding	FXL	Yes	Dimmer Switch	2	9000 Single Element Glare Free	Line Diode	None	4.5	Yes
9000 Overhead Projector	United States	United States 15'	9550 AJH	78-9236-5642-1	120/60	UL/CSA	A4	Varifocal	Yes	Internal	Folding	EVD	Yes	Dimmer Switch	2	9550 Dual Element Clear	Transformer	None	4.5	Yes

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