

Section 7: Mechanical Adjustments

A-P PLATE Removal Procedure

Do the following steps to remove the A-P PLATE. This allows you to adjust or install new components inside the CAMERA. If it is necessary to disconnect any wires during a service procedure, record the colors and locations of the wires **before** you disconnect them.

Removing the A-P PLATE provides access to:

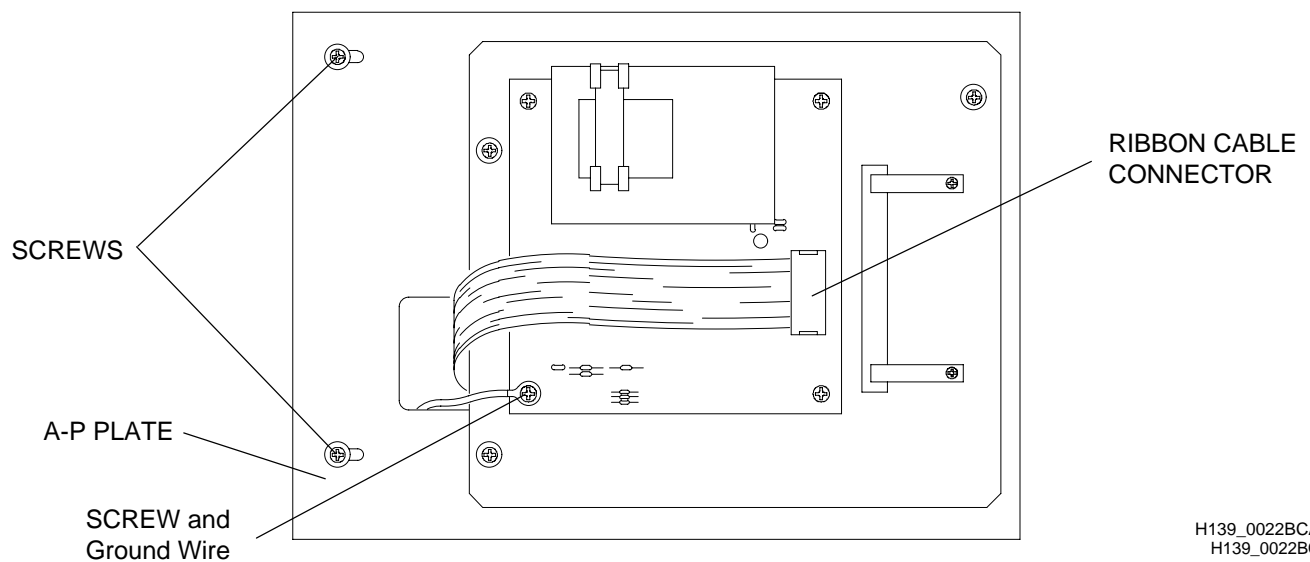
- LENSES and LENS TRAVELLER ASSEMBLY
- LENS DRIVE MOTOR
- LENS PLACEMENT SWITCHES
- MIRROR
- MIRROR DRIVE MOTOR
- MIRROR PLACEMENT SWITCHES



Warning

Dangerous Voltage

Figure 7-1 Removal of the A-P PLATE



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[1] Do the "COVER Removal Procedure" on Page [6-1](#).



Caution

Prevent damage to the RIBBON CABLE.

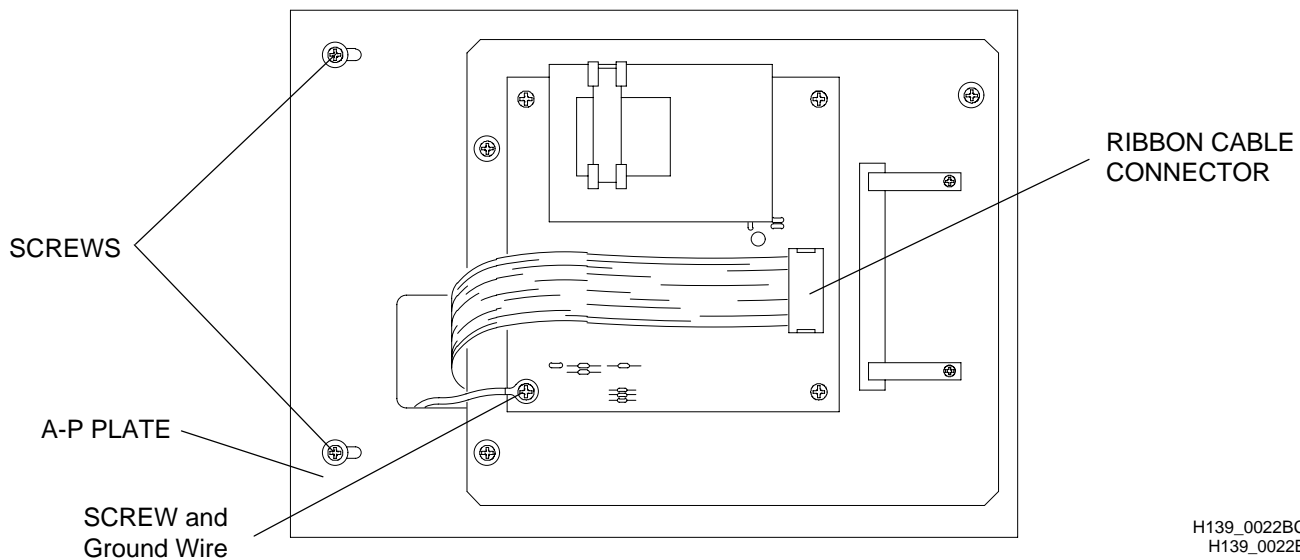
[2] Loosen the 2 SCREWS. Move the A-P PLATE back and then lift to remove it.



Important

To obtain access to the components within the UPPER HOUSING ASSEMBLY, the A-P PLATE does not have to be removed completely. Do not disconnect the RIBBON CABLE CONNECTOR or the ground wire unless you are completely removing the A-P PLATE.

Figure 7-2 Removal of the A-P PLATE



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[3] Remove the SCREW for the ground wire.

[4] Carefully disconnect the RIBBON CABLE CONNECTOR from the A-P PLATE ASSEMBLY.

[5] Remove the A-P PLATE.

[6] To assemble the A-P PLATE, reverse the steps and the "COVER Removal Procedure" on Page [6-1](#).

UPPER HOUSING ASSEMBLY Removal Procedure

Do the following steps to remove the UPPER HOUSING ASSEMBLY. This will allow you to adjust or install new components inside the CAMERA. If it is necessary to disconnect any wires during a service procedure, record the colors and locations of the wires **before** you disconnect them.

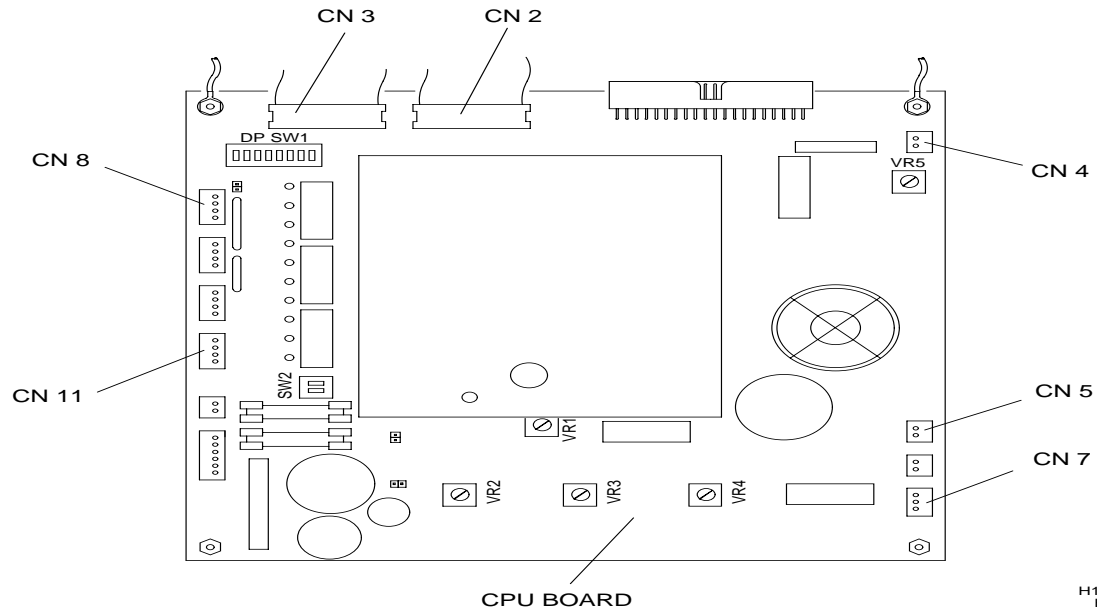
Removing the UPPER HOUSING ASSEMBLY provides access to:

- DRIVE MOTOR
- CARRIAGE ASSEMBLY
- ACTUATOR
- SHUTTLE SWITCHES
- CASSETTE POSITIONING SWITCHES X and Y
- TRANSFORMER ASSEMBLY
- FUSE HOLDER/INPUT ADJUSTMENT ASSEMBLY



Warning
Dangerous Voltage

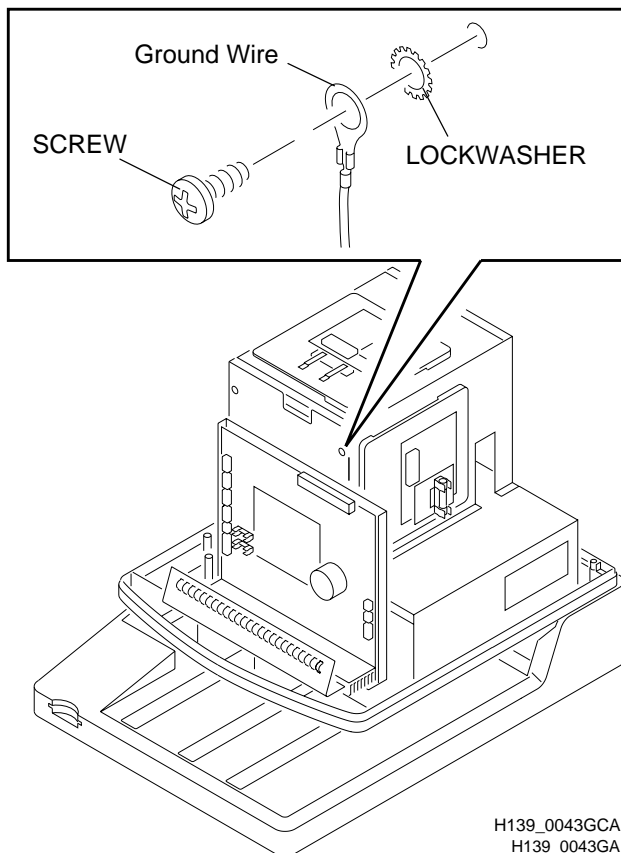
Figure 7-3 Removing the CONNECTORS from the CPU BOARD



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H139_0044HC

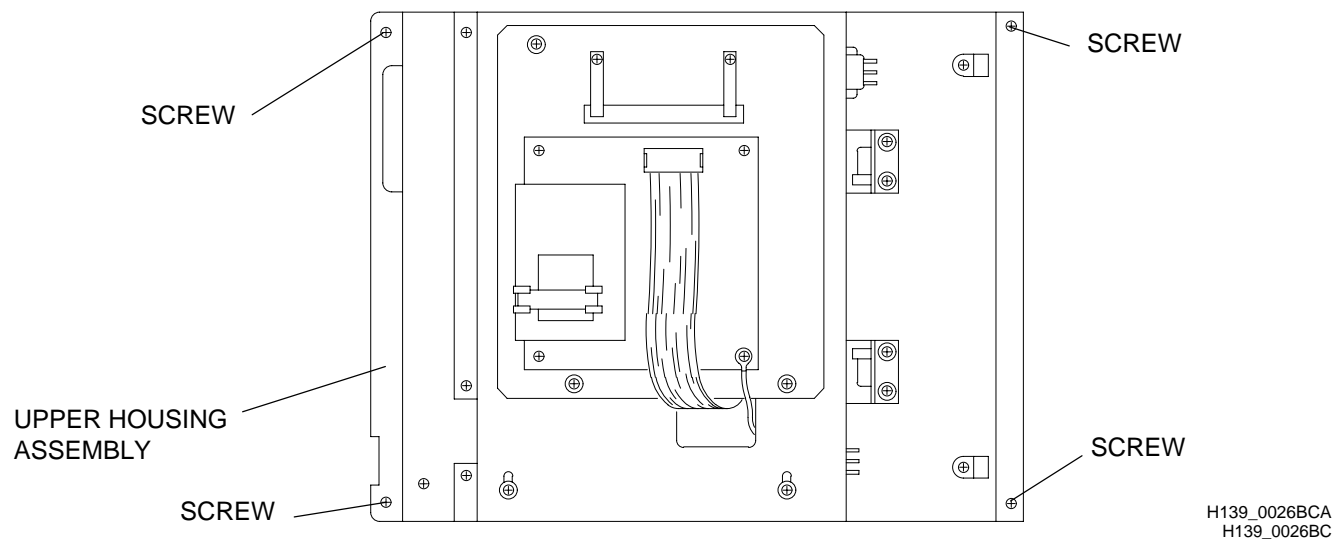
- [1] Do the "COVER Removal Procedure" on Page [6-1](#).
- [2] Carefully remove CONNECTORS CN 2, CN 3, CN 4, CN 5, CN 7, CN 8, and CN 11 from the CPU BOARD.

Figure 7-4 Removing the ground wires from the UPPER HOUSING ASSEMBLY



[3] Remove the SCREW, LOCKWASHER and the 2 ground wires from each side of the UPPER HOUSING ASSEMBLY.

Figure 7-5 Removal of the UPPER HOUSING ASSEMBLY - top view



[4] Remove the 4 SCREWS and lift the UPPER HOUSING ASSEMBLY.

[5] To assemble, reverse the procedure and the "COVER Removal Procedure" on Page [6-1](#).

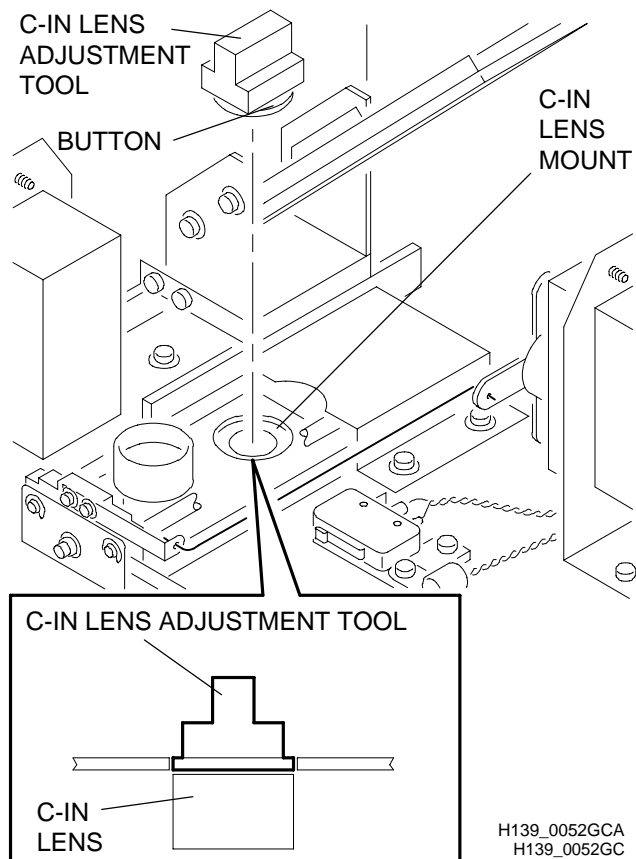
Adjusting the LENSES



Caution

This procedure is used by service center personnel only.

Figure 7-6 Adjusting the Lens



Special Tools:

C-1 LENS ADJUSTMENT TOOL
C-1N LENS ADJUSTMENT TOOL
LOCTITE 242 TL-2390

Note

The C-1 and C-1N LENS ADJUSTMENT TOOLS are only available to Service Centers.

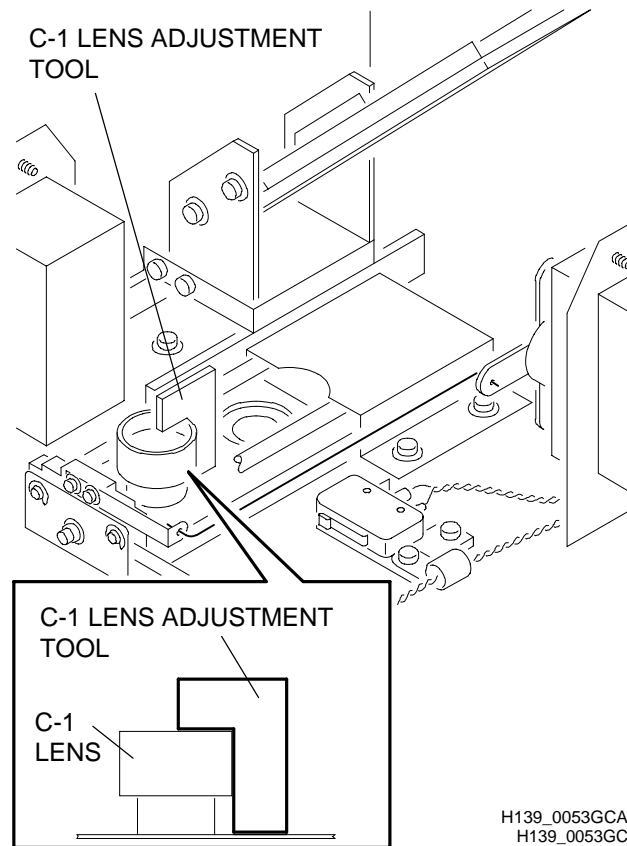
- [1] Do the "COVER Removal Procedure" on Page [6-1](#).
- [2] Do the "A-P PLATE Removal Procedure" on Page [7-1](#).
- [3] For the C-1N LENS, place the white plastic BUTTON of the C-1N LENS TOOL into the top of the C-1N LENS MOUNT.
- [4] Rotate the C-1N LENS until it touches the tool.
- [5] Remove the tool and apply LOCTITE 242 TL-2390 to the C-1N LENS.

Note

Use ACETONE to remove excess LOCTITE 242 TL-2390.

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Figure 7-7 Adjusting the LENS

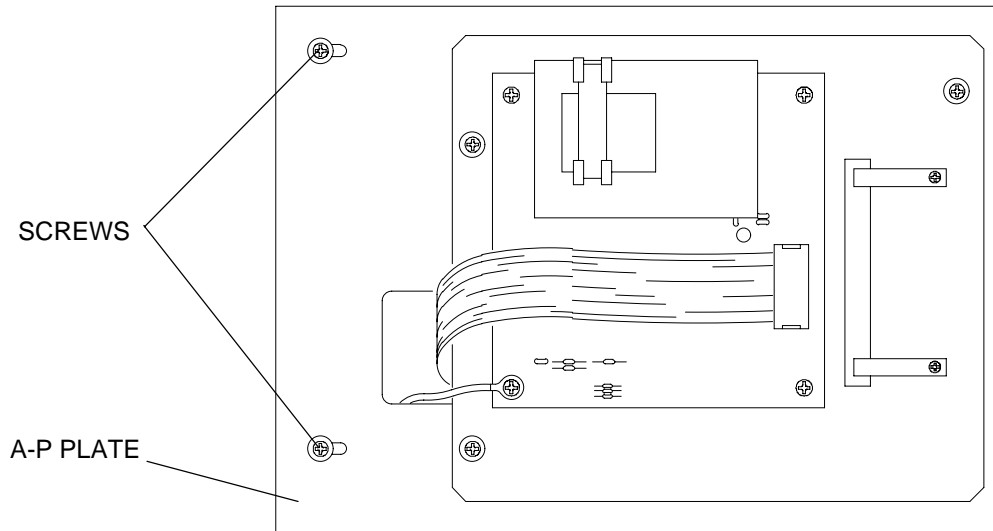


- [6] For the C-1 LENS, place the C-1 LENS ADJUSTMENT TOOL on the C-1 LENS MOUNT.
- [7] Rotate the C-1 LENS up or down, as necessary.
- [8] When the C-1 LENS is flush with the tool, apply LOCTITE 242 TL-2390 to the C-1N LENS.
- [9] To complete the assembly of the CAMERA, reverse the "A-P PLATE Removal Procedure" on Page [7-1](#) and the "COVER Removal Procedure" on Page [6-1](#).

Adjusting the A-P MIRROR SWITCH SW1 and P-A MIRROR SWITCH SW2

This procedure describes how to adjust the A-P MIRROR IN/MIRROR OUT SWITCH SW1 so that the A-P MIRROR is in the correct position, and how to adjust the P-A MIRROR IN/MIRROR OUT SWITCH SW2 so that the P-A MIRROR is in the correct position.

Figure 7–8 **Lifting off the A-P PLATE**

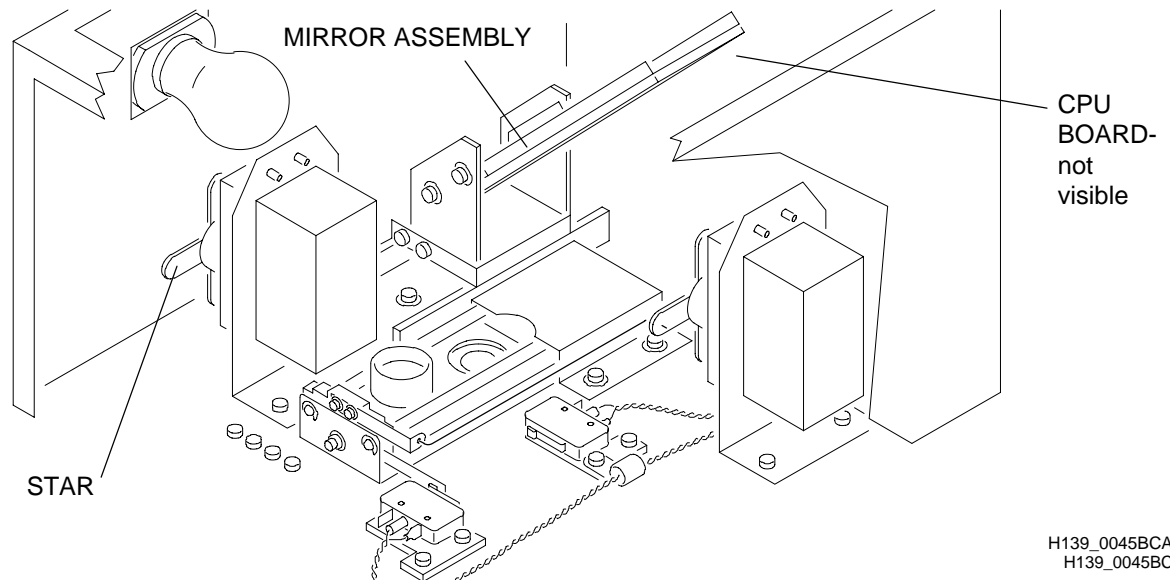


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[1] Do the “COVER Removal Procedure” on Page [6–1](#).

[2] Loosen the 2 SCREWS and move, then lift, the A-P PLATE back to obtain access to the MIRROR SWITCH.

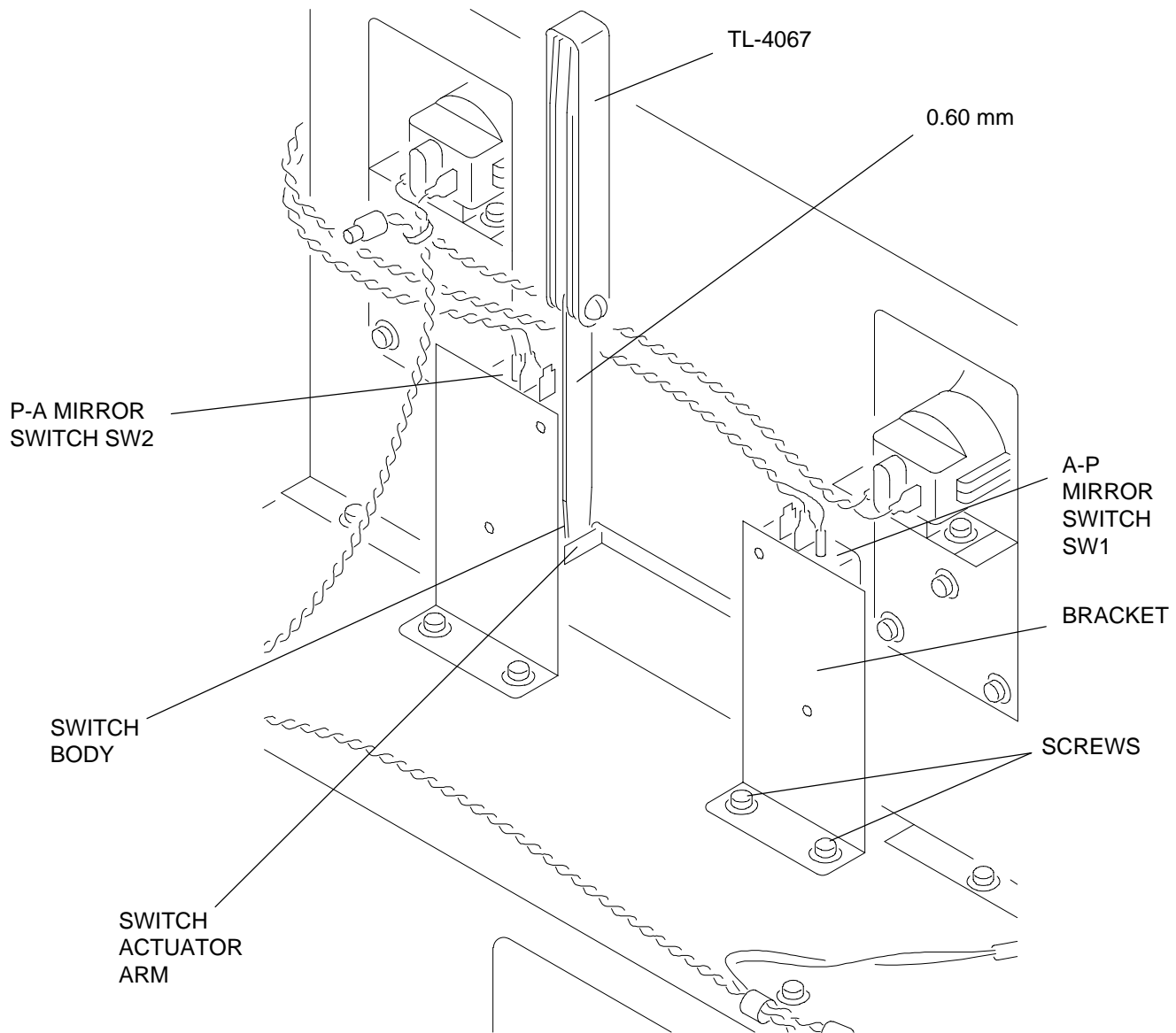
Figure 7–9 **Moving the MIRROR ASSEMBLY**



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[3] For the A-P MIRROR SWITCH SW1, move the MIRROR ASSEMBLY the maximum travel distance toward the CPU BOARD by rotating the white plastic STAR. For the P-A MIRROR SWITCH SW2, move the MIRROR ASSEMBLY the maximum travel distance away from the CPU BOARD by rotating the white plastic STAR.

Figure 7-10 Adjusting the A-P MIRROR SWITCH SW1 or P-A MIRROR SWITCH SW2

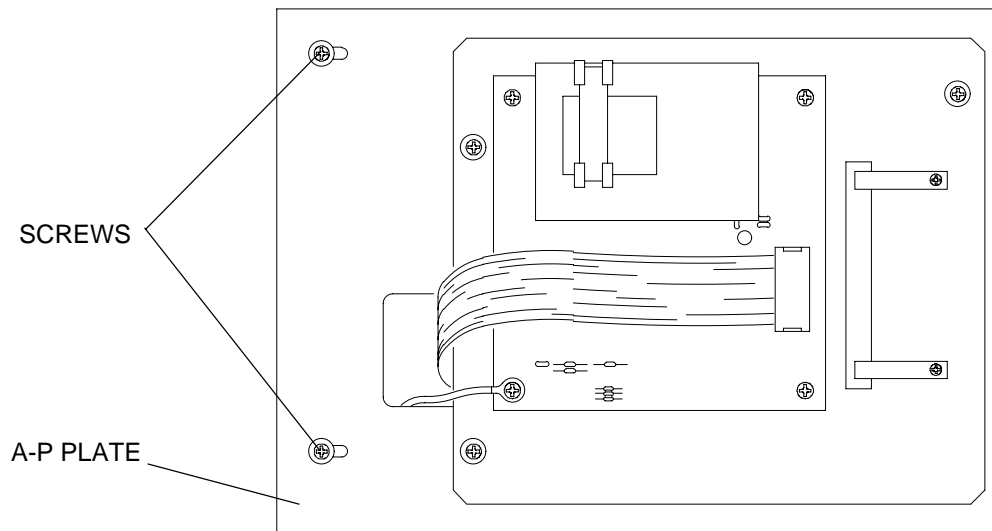
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H139_0051DC

- [4] Insert THICKNESS GAUGE METER TL-4067 (0.60 mm) between the SWITCH ACTUATOR ARM and the SWITCH BODY to assure that the tool just passes.
- [5] If not, adjust by loosening the 2 SCREWS on the BRACKET and adjust to allow passage of the tool.
- [6] Tighten the 2 SCREWS.
- [7] To complete the assembly of the CAMERA, install the A-P PLATE and reverse the "COVER Removal Procedure" on Page [6-1](#).

Adjusting the C-1 Lens Switch SW7 and C-1N Lens Switch SW8

This procedure describes how to adjust the C-1 LENS SWITCH, normal in SW7 and the C-1N LENS SWITCH, MIN-R in SW8. The LENS SWITCHES SW7 and SW8 indicate when the LENSES are in the correct position.

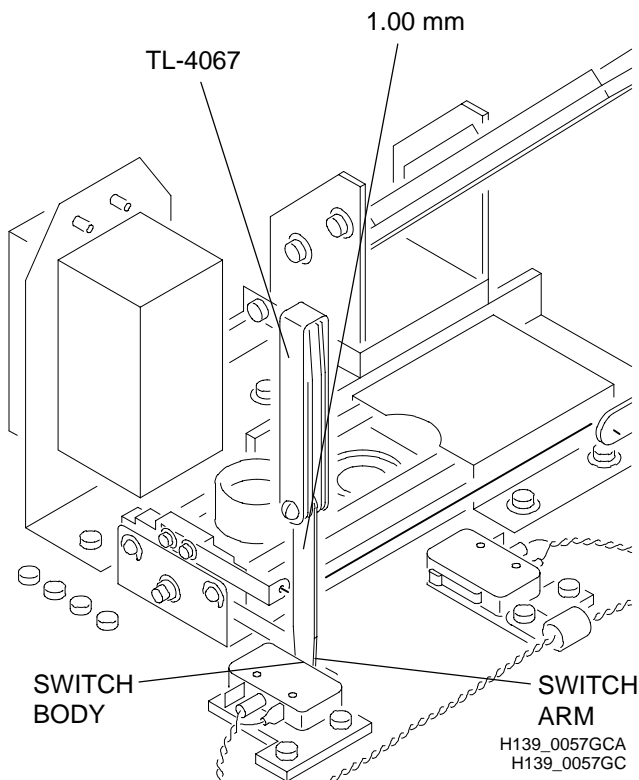
Figure 7-11 Lifting the A-P PLATE



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- [1] Do the "COVER Removal Procedure" on Page [6-1](#).
- [2] Loosen the 2 SCREWS and move, then lift, the A-P PLATE back to obtain access to the LENS SWITCH.

Figure 7-12 Inserting the Tool for the LENS SWITCH



[3] Place THICKNESS GAUGE METER TL-4067 (1.00 mm) between the SWITCH ARM and SWITCH BODY so that the tool just passes.

[4] For the C-1 LENS SWITCH SW7, move the LENS ASSEMBLY the maximum travel distance toward the CPU BOARD. For the C-1N LENS SWITCH SW8, move the LENS ASSEMBLY the maximum travel distance away from the CPU BOARD.

Note

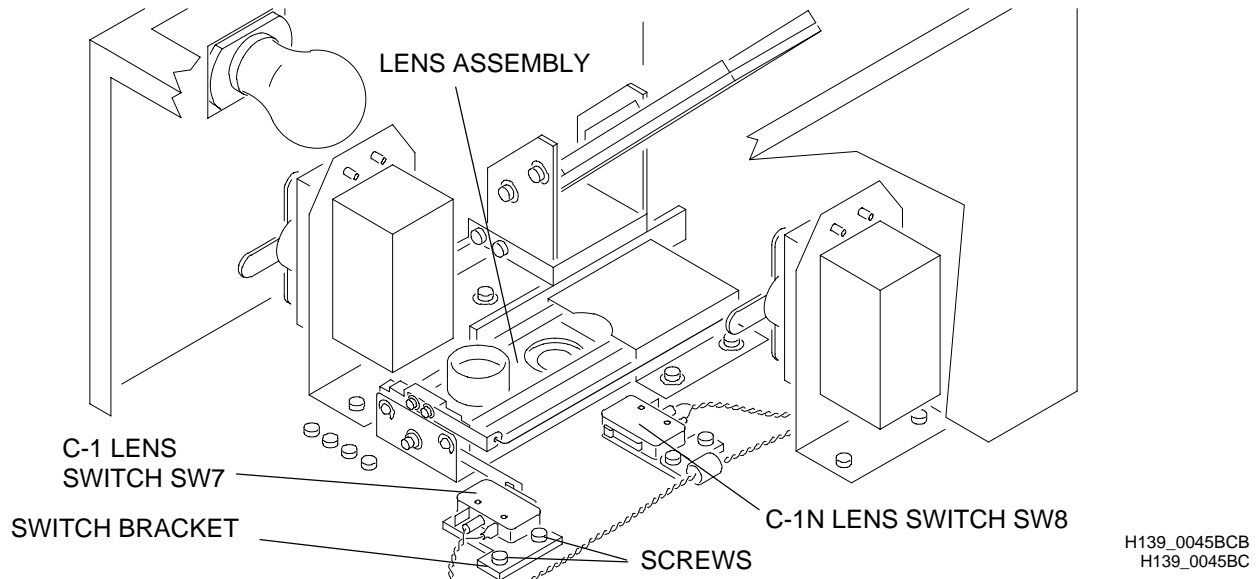
In MODELS 4L and 4SL, the C-1 LENS SWITCH SW7 is located in a different position. The illustrations show the position of the C-1 LENS SWITCH for the MODEL 4.

[5] If the tool does not fit, adjust by loosening the 2 SCREWS on the SWITCH BRACKET and adjust to allow passage of the tool between the SWITCH ARM and the SWITCH BODY.

[6] Tighten the 2 SCREWS.

[7] To complete the assembly of the CAMERA, install the A-P PLATE and tighten the 2 SCREWS, and reverse the "COVER Removal Procedure" on Page 6-1.

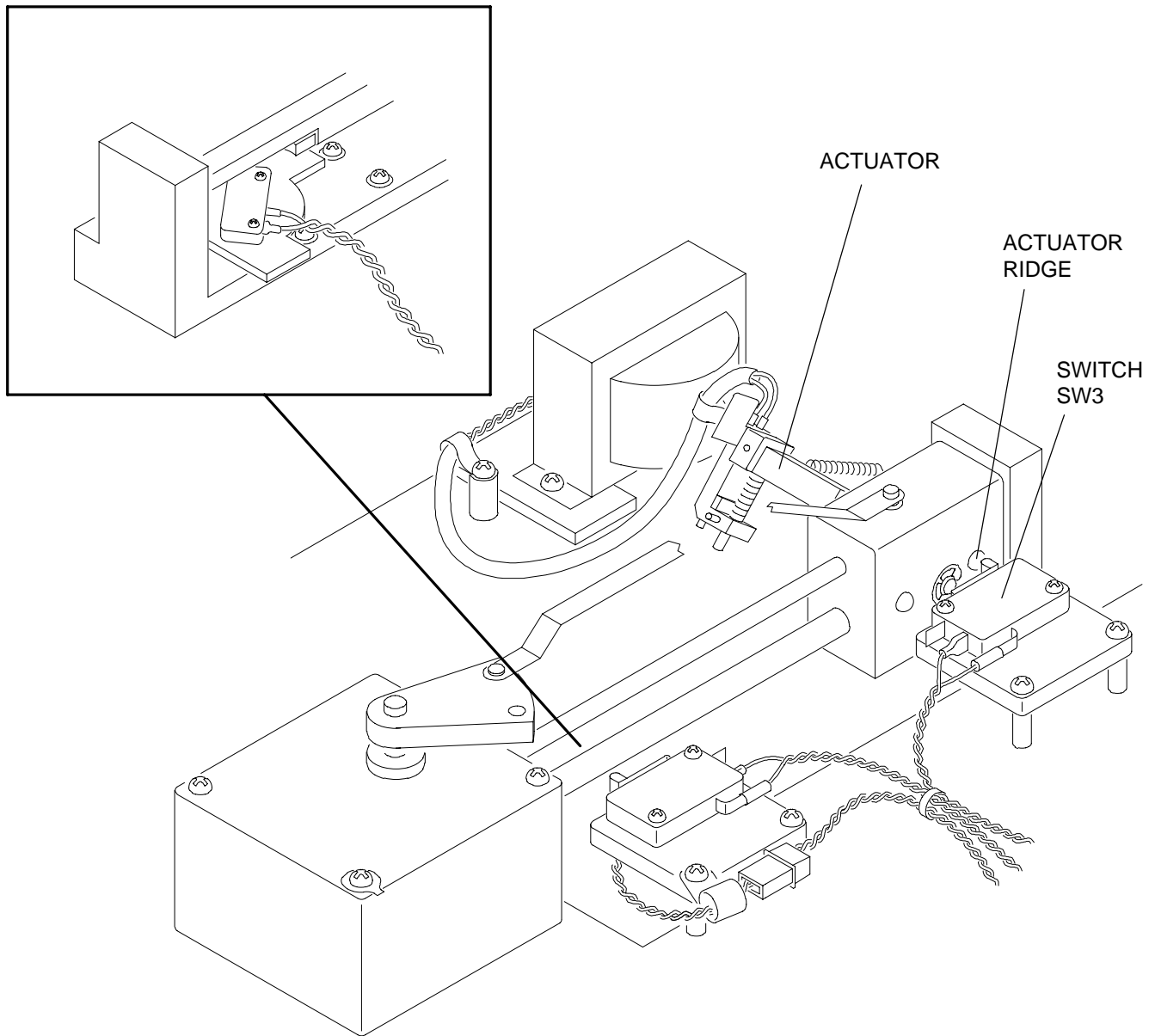
Figure 7-13 Adjusting the C-1 LENS SWITCH SW7 or C-1N LENS SWITCH SW8



Adjusting the ACTUATOR HOME SWITCH SW3

This procedure describes how to adjust the ACTUATOR HOME (Window Closed) SWITCH SW3. Correct adjustment of the ACTUATOR HOME SWITCH indicates when the ACTUATOR is in the home position and the CASSETTE WINDOW is closed correctly.

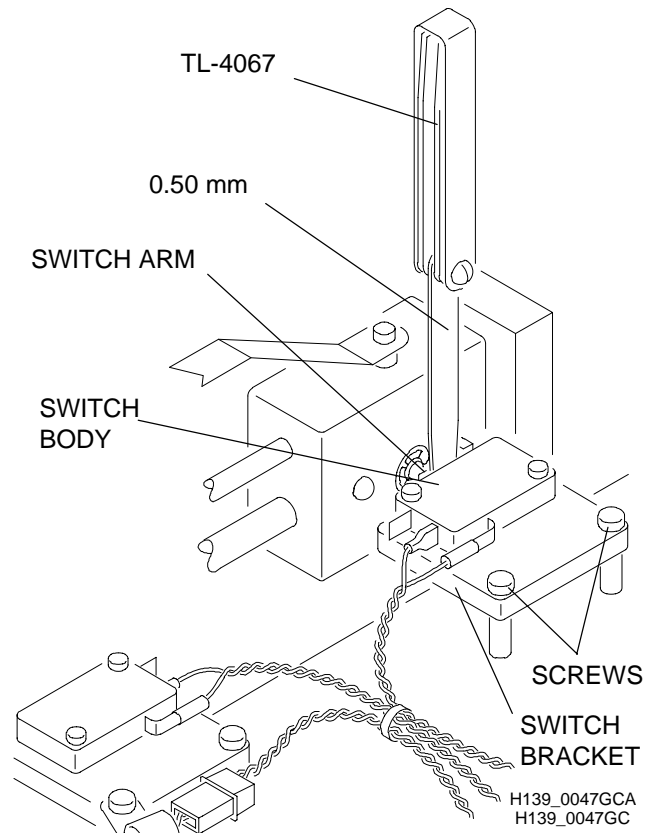
Figure 7-14 **Actuator in the Up, or home position**



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H139_0027DC

- [1] Do the "COVER Removal Procedure" on Page [6-1](#).
- [2] Do the "UPPER HOUSING ASSEMBLY Removal Procedure" on Page [7-1](#).
- [3] With the ACTUATOR in the up, or home position, SWITCH SW3 will be centered on the ACTUATOR RIDGE.

Figure 7-15 Adjusting the ACTUATOR HOME SWITCH SW3

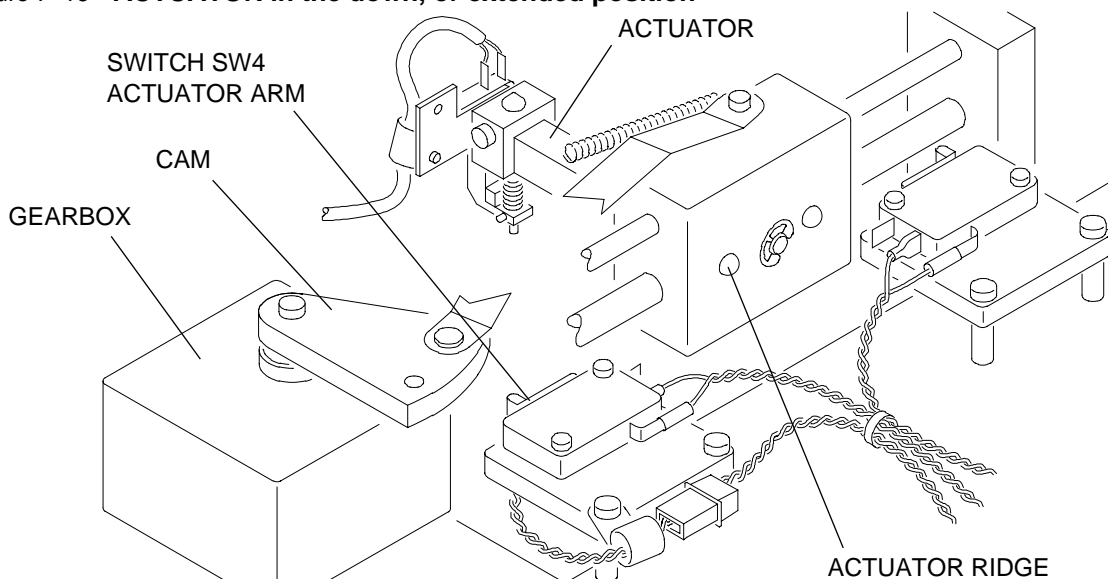


- [4] THICKNESS GAUGE METER TL-4067 (0.50 mm) should just pass between the SWITCH ARM and the SWITCH BODY.
- [5] If not, adjust by loosening the 2 SCREWS on the SWITCH BRACKET, and adjust to allow passage of TL-4067 (0.50 mm) between the SWITCH ARM and the SWITCH BODY.
- [6] Tighten the 2 SCREWS.
- [7] To complete the assembly of the CAMERA, reverse the "UPPER HOUSING ASSEMBLY Removal Procedure" on Page [7-2](#) and the "COVER Removal Procedure" on Page [6-1](#).

Adjusting the ACTUATOR EXTENDED SWITCH SW4

This procedure describes how to adjust the ACTUATOR EXTENDED (WINDOW OPEN) SWITCH SW4. Correct adjustment of the ACTUATOR EXTENDED SWITCH SW4 allows the CASSETTE WINDOW to be completely open so that the EXPOSURE LAMPS are actuated and the image is correctly placed on the film.

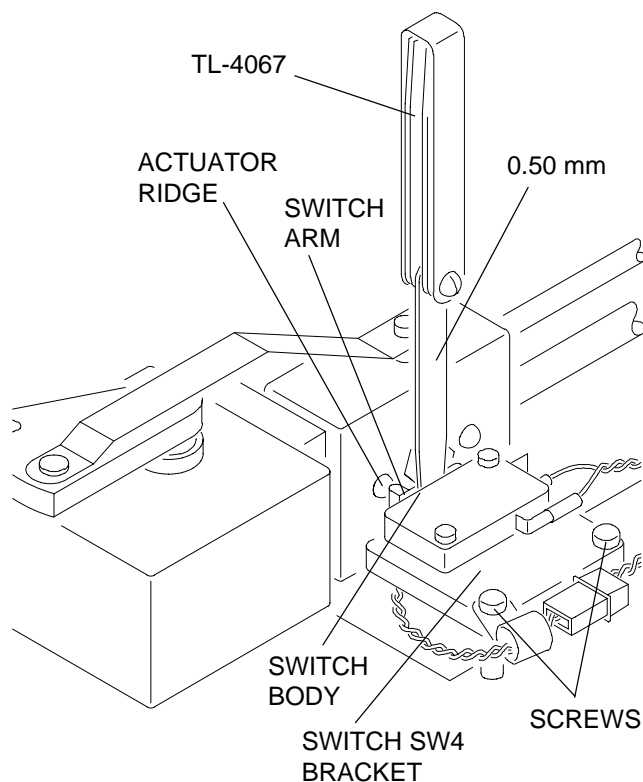
Figure 7-16 **ACTUATOR in the down, or extended position**



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- [1] Do the "COVER Removal Procedure" on Page [6-1](#).
- [2] Do the "UPPER HOUSING ASSEMBLY Removal Procedure" on Page [7-2](#).
- [3] Rotate the CAM to move the ACTUATOR toward the GEARBOX until the SWITCH SW4 ACTUATOR ARM is centered on the ACTUATOR RIDGE.

Figure 7-17 **Adjusting the ACTUATOR EXTENDED SWITCH SW4**



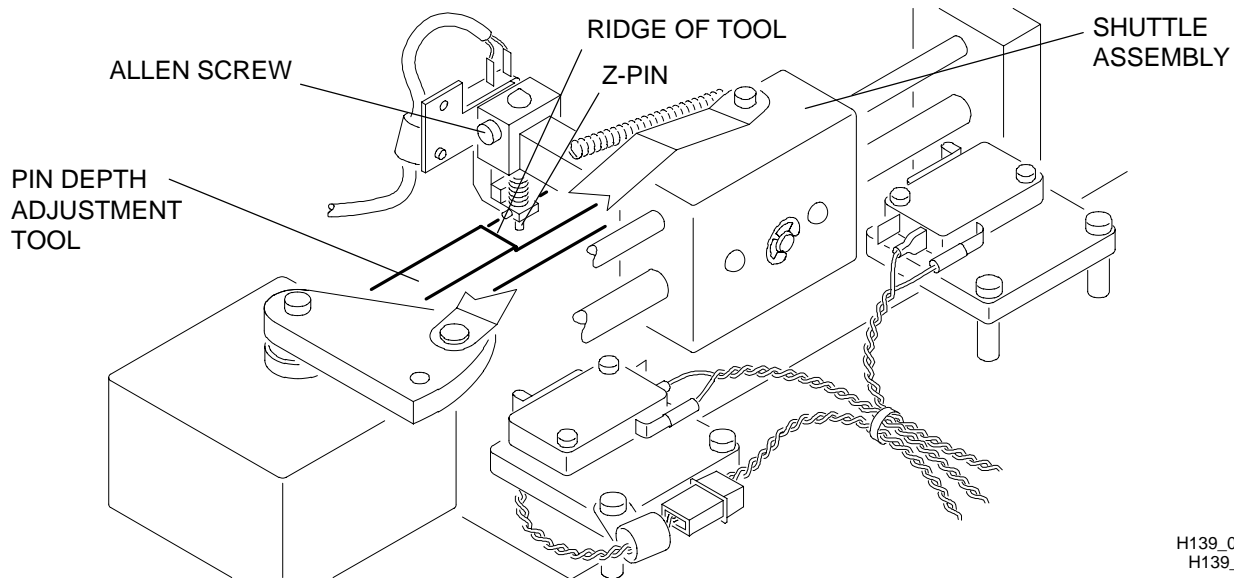
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- [4] If not, adjust by loosening the 2 SCREWS on the SWITCH SW4 BRACKET and adjust to allow passage of THICKNESS GAUGE METER TL-4067 between the SWITCH ARM and the SWITCH BODY.
- [5] Tighten the 2 SCREWS.
- [6] To complete the assembly of the CAMERA, reverse the "UPPER HOUSING ASSEMBLY Removal Procedure" on Page [7-2](#) and the "COVER Removal Procedure" on Page [6-1](#).

Adjusting the Depth of the CARRIAGE Z-PIN

This procedure describes how to adjust the depth of the CARRIAGE Z-PIN. The correct depth setting of the Z-PIN allows the WINDOW of the CASSETTE to be opened correctly.

Figure 7-18 **Adjusting the Depth of the CARRIAGE Z-PIN**



- [1] Do the "COVER Removal Procedure" on Page [6-1](#).
- [2] Do the "UPPER HOUSING ASSEMBLY Removal Procedure" on Page [7-2](#).
- [3] Insert the PIN DEPTH ADJUSTMENT TOOL, Part No. 1C0071.
- [4] Move the SHUTTLE ASSEMBLY until the Z-PIN stops at the RIDGE OF TOOL.
- [5] If the Z-PIN does not stop at the RIDGE of the PIN DEPTH ADJUSTMENT TOOL or moves too tightly along the TOOL, adjust by loosening the ALLEN SCREW and allow the Z-PIN to drop down or move up so it stops at the RIDGE of the TOOL.
- [6] Tighten the ALLEN SCREW.
- [7] To complete the assembly of the CAMERA, reverse the "UPPER HOUSING ASSEMBLY Removal Procedure" on Page [7-2](#) and the "COVER Removal Procedure" on Page [6-1](#).

Adjusting the MIRROR Tilt

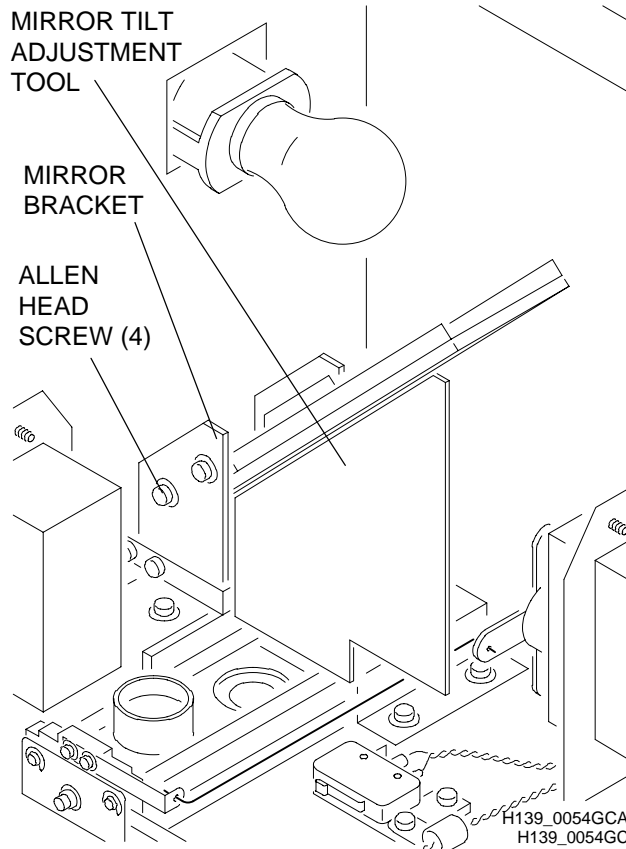


Caution

This procedure is used by service center personnel only.

This procedure describes how to adjust the alignment of the MIRROR.

Figure 7-19 Adjusting the MIRROR Tilt



- [1] Do the "COVER Removal Procedure" on Page [6-1](#).
- [2] Do the "A-P PLATE Removal Procedure" on Page [7-1](#).
- [3] Check the alignment using the MIRROR TILT ADJUSTMENT TOOL.

Note

The MIRROR TILT ADJUSTMENT TOOL is only available to Service Centers.

- [4] If not aligned correctly, loosen the 4 ALLEN HEAD SCREWS supporting the MIRROR BRACKET by using an ALLEN WRENCH.
- [5] Use the MIRROR TILT ADJUSTMENT TOOL to check the alignment.
- [6] Tighten the 4 ALLEN HEAD SCREWS for the MIRROR BRACKET.
- [7] To complete the assembly of the CAMERA, reverse the "A-P PLATE Removal Procedure" on Page [7-1](#) and the "COVER Removal Procedure" on Page [6-1](#).

