"F" SERIES CIRCUIT BOARD RAM UPGRADE **TECHNICAL NOTE**

Periodically, enhancements to the HandKey or HandPunch are introduced that offer added functionality and performance. Should it be necessary to incorporate the enhancements into the "F" series circuit board (HP2000, 3000, 4000, HandKey2 and HandKey CR), use the following procedures.

PROCEDURE

CAUTION: This procedure requires erasing the existing hand templates. Save the existing hand templates before proceeding.

1. Unlock the reader and open the unit.

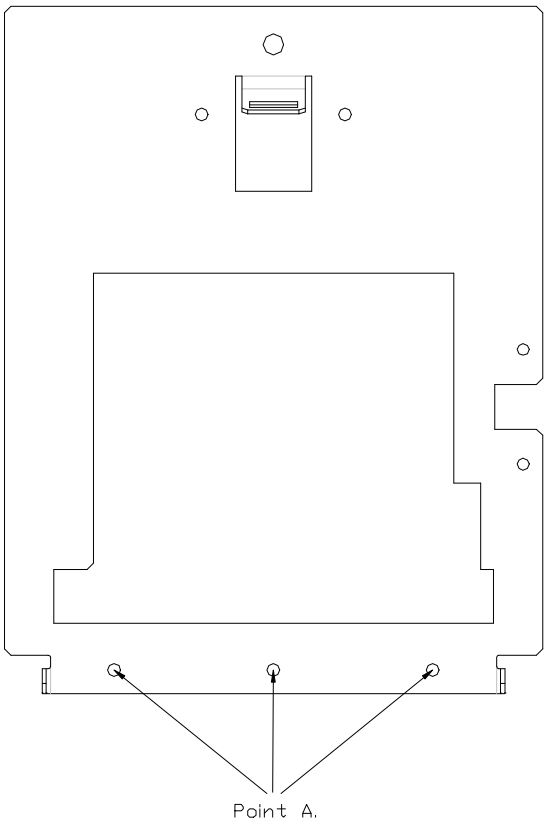
CAUTION: If the unit is equipped with an optional battery back up, remove the J7 jumper before proceeding. See figure number 7.

2. Disconnect the power supply from the power source.

3. Remove and tag all external connections to insure correct re-attachment.

4. Remove hand reader from wall by loosening the three screws that secure the hinge assembly to the wall mounting plate. Then slide the reader upwards until the screws can pass through the slotted holes in the hinge assembly. See Figure #1, point A. below.

Figure 1.



CAUTION: DO NOT allow the rear panel ground lug to contact any components on the Main Logic Board.

5. Set the unit on a firm surface such as a table. Remove the four screws that secure the back plate to the HandKey. See figure # 2 below.

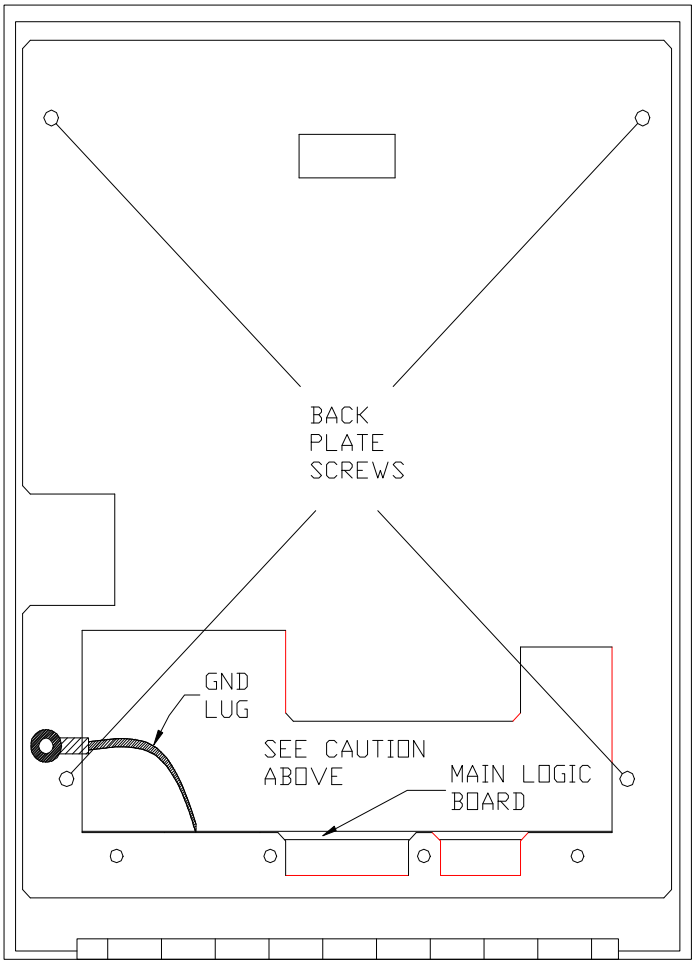


Figure 2.

6. Remove the back plate.

7. Remove and discard the foam insert that is placed over the camera assembly

8. Locate the cable that runs from the top panel circuit board to the main circuit board. Disconnect this cable from J9 on the main circuit board. See "1" on figure #4. To remove the (J9) connector on the main circuit board (lower board), depress the retaining clip on the connector and pull upwards. See figure #5 on the following page.

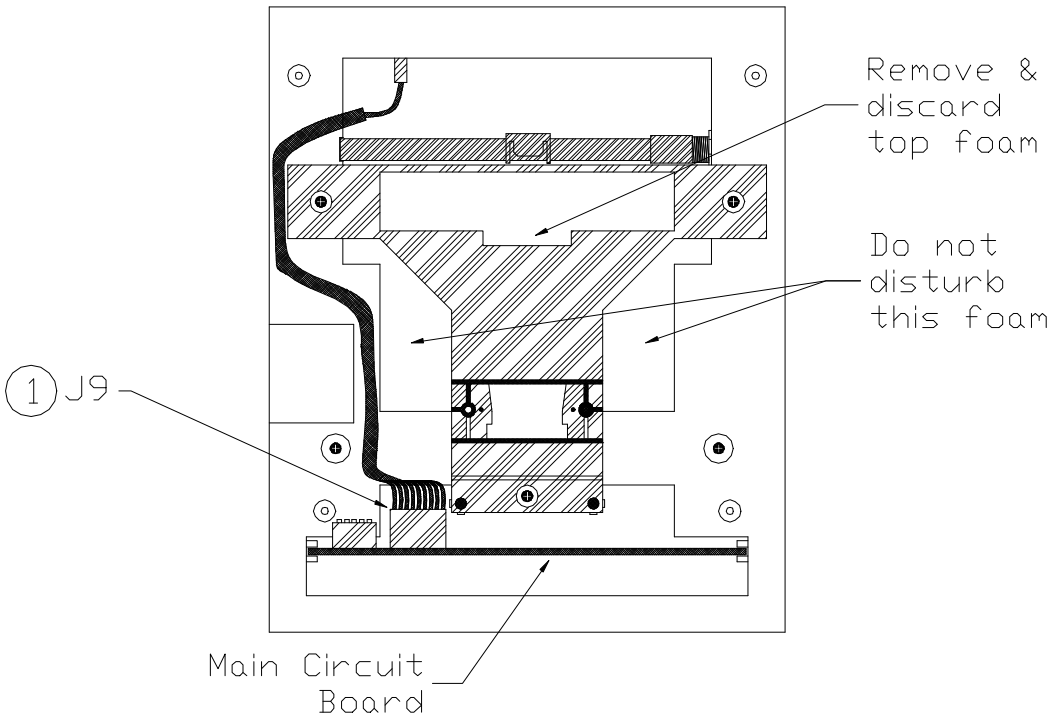


Figure 4.

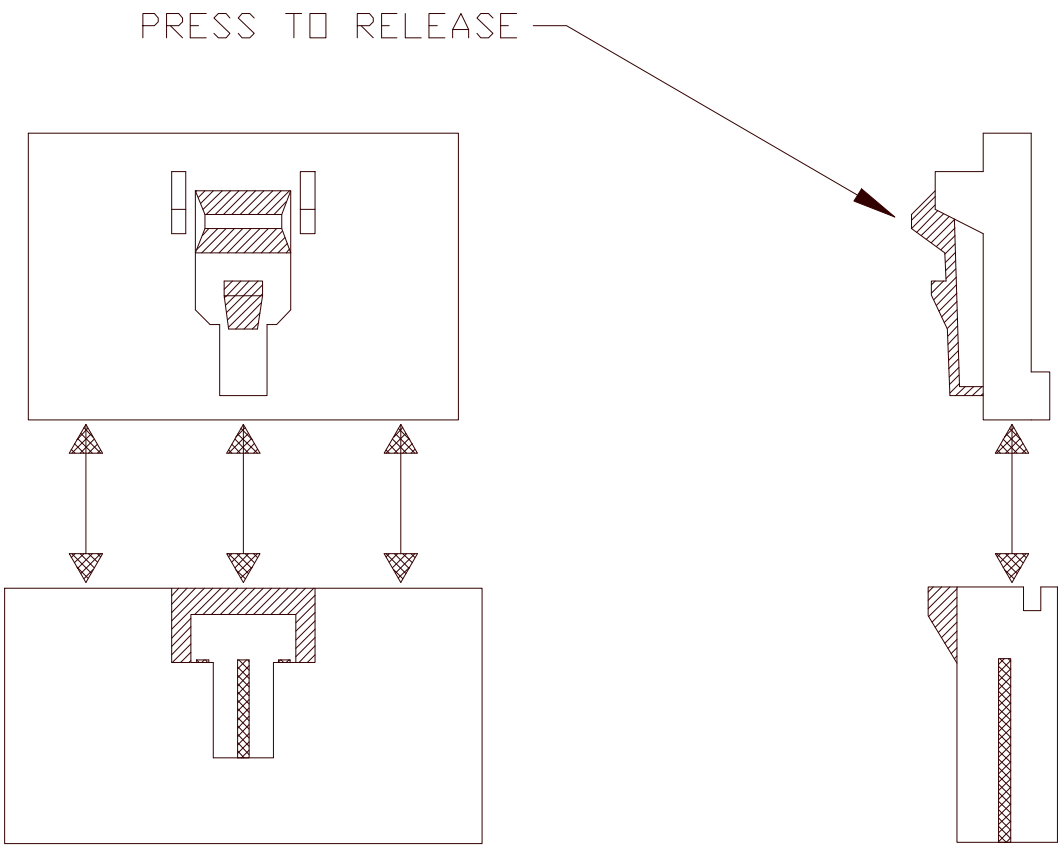


Figure 5.

9. Carefully slide the main circuit board out until the ribbon cable between the camera assembly and J2 on the main circuit board can be detached from J2. Gently pull up on this cable, being careful not to pull down as damage may occur to the camera assembly. See "3" on figure #6.

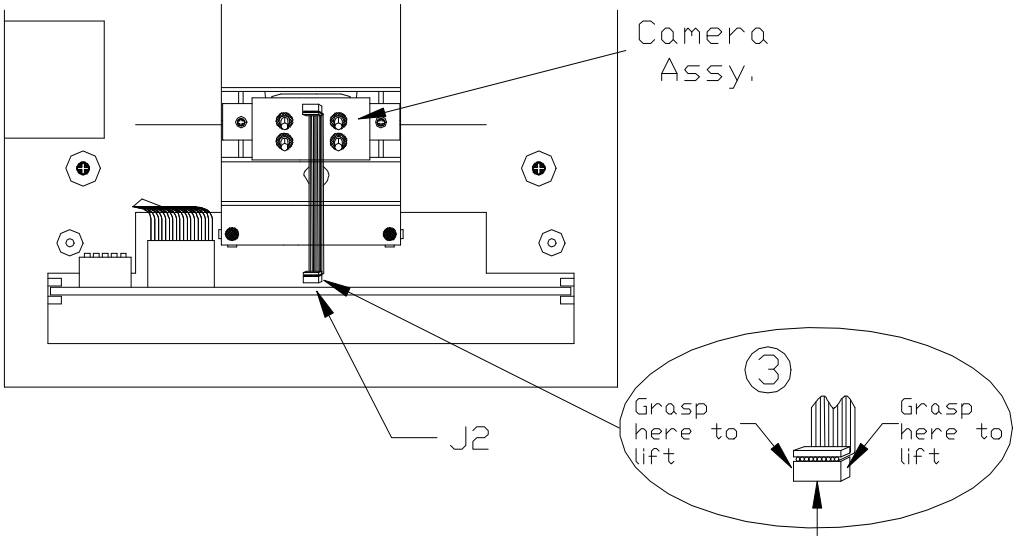


Figure 6.

10. Carefully remove the main circuit board by sliding it free from the chassis.

11. Locate the RAM socket labeled U18. Please take notice that there is a notch located in the upper
side of the IC socket. This notch will align with a notch on the RAM. See figure #7 below.

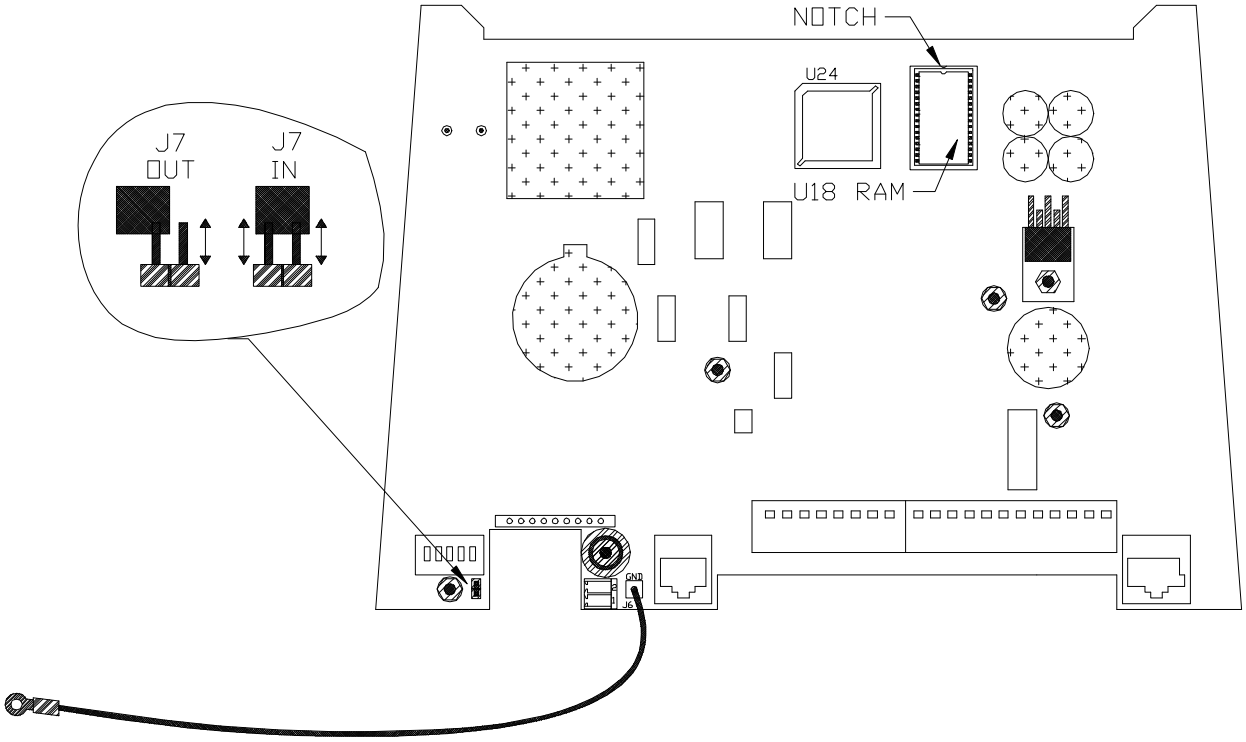


Figure 7.

12. Remove the retaining ring and RAM (if installed) from the U18 RAM socket using one of the procedures below:

    12.1 INSTRUCTIONS FOR THE **ROBINSON-NUGENT** S/M IC SOCKET. IT CAN BE IDENTIFIED BY ITS LIGHT TAN COLOR RETAINING RING. THERE IS ALSO A "RN" MARKING ON THE SOCKET.

    12.1a. Using a pair of tweezers, gently insert one point between the RAM and the retaining ring. See figure #8, drawing number 1 below for details.

    12.1b. Carefully pry the retaining ring up and over the RAM, and then remove the retaining ring. See figure #8, drawing number 2 below for details.

    12.1c. Remove the RAM (if installed).

    12.1d. Inspect the RAM socket and socket pins for any damage or misalignment.

    12.1e. Store the original RAM (if any) so it does not get confused with the new RAM.

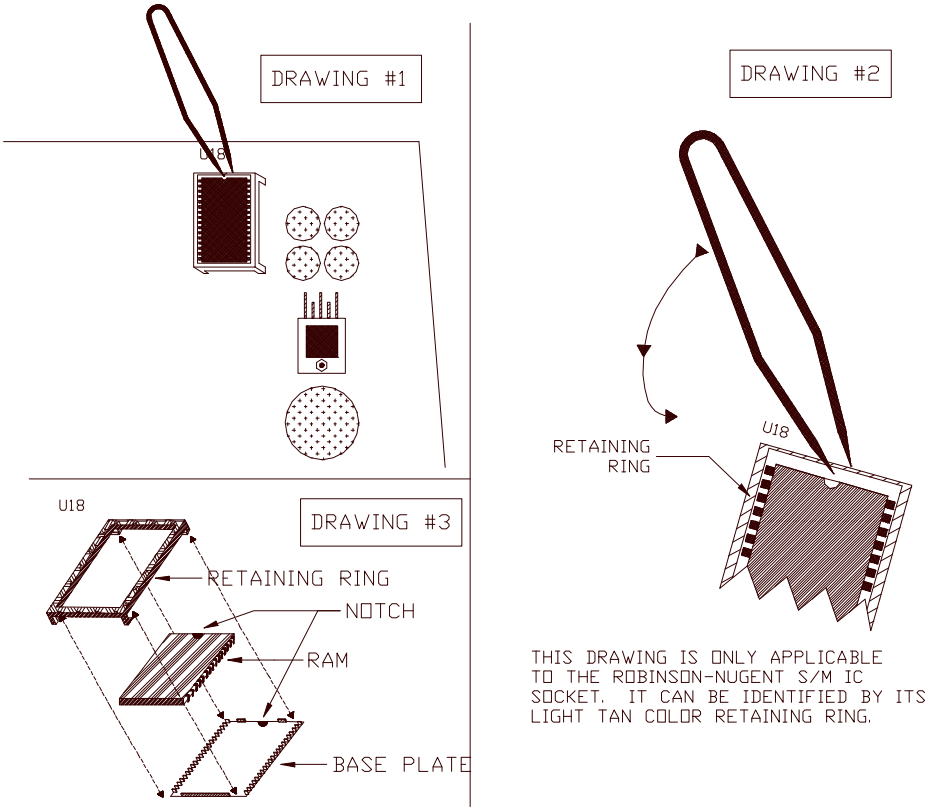


Figure 8.

12.2 INSTRUCTIONS FOR THE **YAMAICHI** S/M IC SOCKET. IT CAN BE IDENTIFIED BY ITS BLACK COLOR RETAINING RING, AND THE ARROW IN THE UPPER LEFT CORNER.

12.2a. Press the retaining ring in the direction of the arrow on the upper left corner of the socket. See figure #9, drawing #1 below for details.

12.2b. Lift the retaining ring off the socket.

12.2c. Remove the RAM (if installed).

12.2d. Inspect the RAM socket and socket pins for any damage or misalignment.

12.2e. Store the original RAM (if any) so it does not get confused with the new RAM.

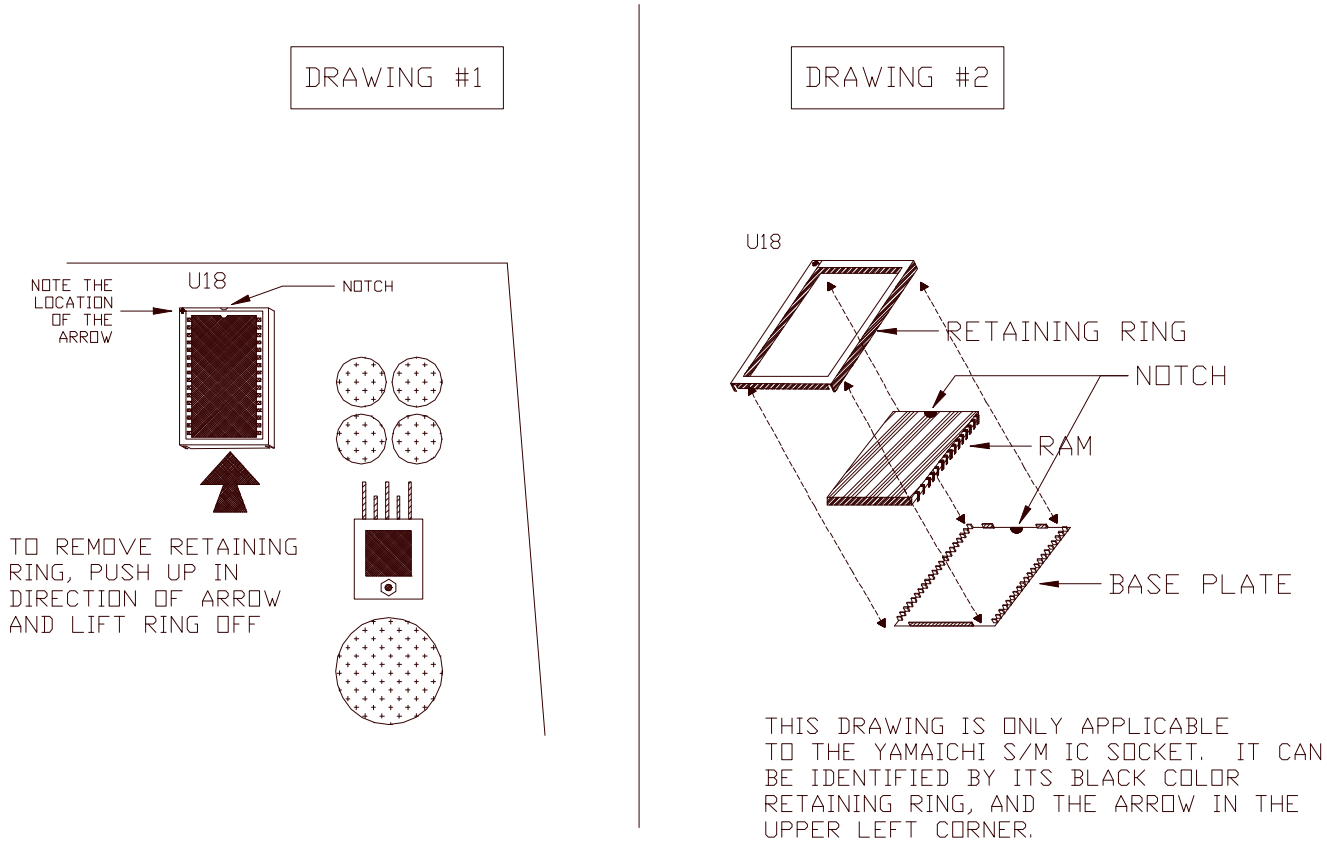


Figure 9.

13. Install the new RAM in the U18 RAM socket using the steps below.

a. Inspect the pins of the new RAM for bent or misaligned pins.
b. Place the new RAM over the socket, aligning the notch of the RAM with the notch on the socket. For both socket types, the retaining ring must be aligned exactly with the socket. See figure #8, drawing number 3, or figure #9, drawing #2 for details.
c. Place the retaining ring over the RAM chip and gently press the ring down on all four corners of the socket until it snaps into place.
d. Inspect the RAM to insure that it has been fully seated in the socket.
e. To test the retaining ring, try to lift it off again by hand using a gentle upward force.

Re-installing

14. Carefully slide circuit board back into the chassis, using the circuit board guides to locate the circuit board correctly, until the camera's ribbon cable can be inserted. See figure 10 below.

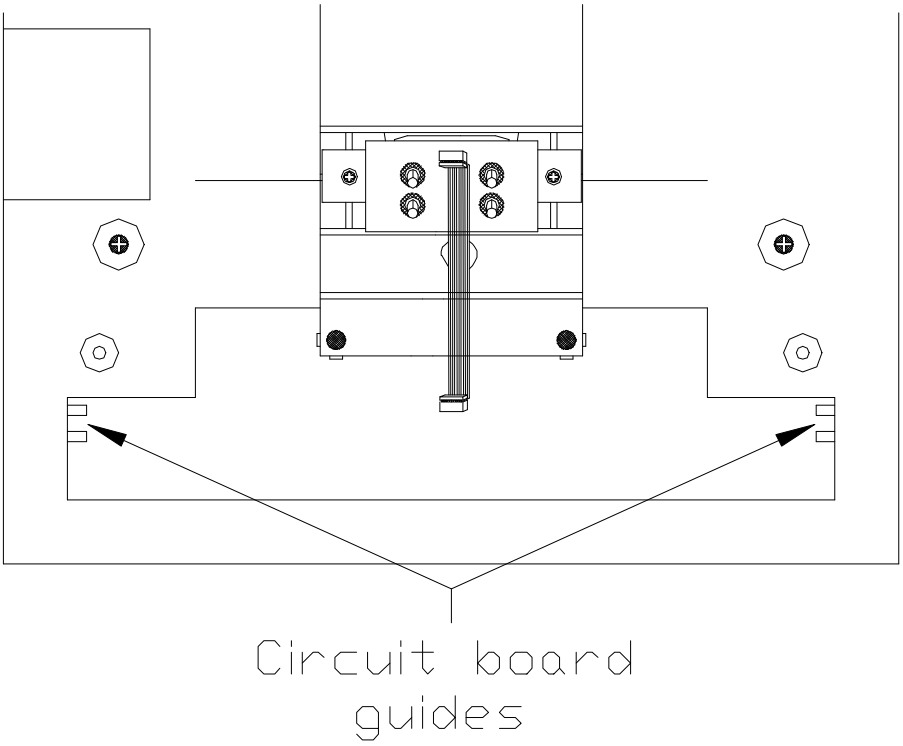


Figure 10.

15. Being careful to align all pins, attach the camera cable to J2 on the main circuit board.

16. Locate the cable that runs from the top panel circuit board to the main circuit board. Connect this cable to J9 on the main circuit board. Make sure the connector "snaps" into J9.

17. Install jumper J7 on the main PCB. See figure #7 for details.

18. Install the back plate onto the chassis (Attach the grounding strap on the circuit board to the lower left back plate screw).

19. Attach unit to the wall plate and hinge assembly and tighten three hinge screws.

20. Place dip switch #4 and #5 in the "On" position. This will cause a full reset when powered up.

21. Reconnect all external connections removed in step #3.

22. Power up the unit. Once unit has booted up move dip switches #4 and #5 to the "Off" position.

23. Secure the unit to wall mount. Upgrade is completed.