

## INSTRUMENT DISASSEMBLY

### Speaker Grille Removal/Convergence Control Access

- 1a. Pull the lower edge of the speaker grille out and down to remove. (46GW940/950, P46100/150)
- 1b. Pull the metal tabs located along the upper edge of the speaker grille out to remove the grille. (P52150)
- 1c. Pull upper edge of speaker grille out and up to remove. (46GW951/952, P46101/130/151/159/160, P52151, P60152/153)
2. All convergence controls can be adjusted through the control panel using a standard alignment tool. Refer to the **Convergence Alignment** procedure in the **Alignment Procedures** section.

### Screen Assembly Removal

(46GW950, P46100/150, P52150)

1. Identify the two metal retaining tabs (A), located along the bottom edge of the cabinet top rail (see Fig. 1a).
2. Insert a small flat-blade screwdriver between the screen and cabinet top rail to release the metal retaining tabs (see Fig. 2a).
3. Tilt the top edge of the screen out and lift to remove.

### Screen Assembly Removal

(46GW940/951/952, P46101/130/151/159/160, P52151, P60152/153)

- 1a. Remove speaker grille (see procedure).
- 1b. To remove wooden rail at bottom edge of screen, grasp on both sides and pull out (P60152/153).
2. Loosen screws A and pull slide tab down (Fig. 1b.).
3. Pull screen out from bottom and drop down to remove.

### Backcover Removal

1. Remove eight screws to release the backcover.
2. Lift the backcover up and out to remove.

### Front Panel Circuit Board Removal

#### Button Assembly Removal

(46GW950, P46100/150, P52150)

1. Remove the screen assembly.
2. Remove four screws (A) to release the front panel assembly (see Fig. 1).

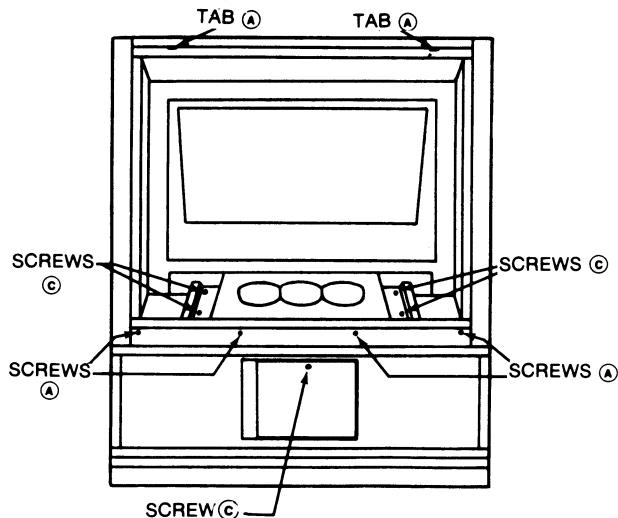


Fig. 1a - Cabinet Front View (Speaker Grille and Screen Removed) Models: 46GW950, P46100/150, P52150

3. Release six tabs to remove the keyboard retaining plate and release the Front Panel circuit board.
4. Release four tabs to remove the button assembly.
5. To replace the Front Panel circuit board, remove the backcover, slide the Main Circuit Board out slightly, and disconnect P3001 from the Main Circuit Board.

### Front Panel Assembly Removal

(46GW951/952, P46101/151/159, P52151)

1. Remove Speaker Grille (see procedure).
2. Remove screen assembly (see procedure).
3. Remove two (2) screws B and remove FPA.

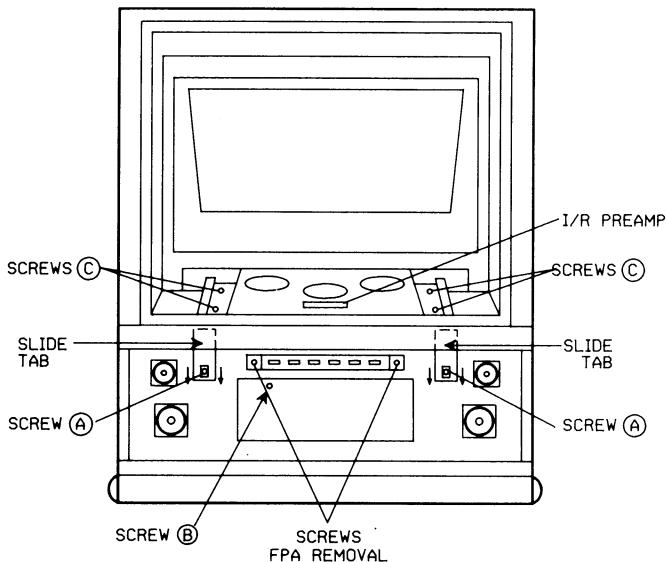


Fig. 1b - Cabinet Front View (Speaker Grille and Screen Removed) (46GW951/952, P46101/151/159, P52151)

### Picture Tube Removal

#### Yoke Assembly Removal

1. Remove the backcover.
2. Disconnect the deflection yoke cable (P7009, P7010 or P7011, depending upon the picture tube being removed) from the PTV Auxiliary circuit board. Remove the yoke cable from the wire guide at the rear of the PTV Auxiliary circuit board.
3. Disconnect the convergence yoke cable (P7016, P7017 or P7018, depending upon the picture tube being removed) from the PTV Auxiliary circuit board. Remove the yoke cable from the wire guides along the side of the PTV Auxiliary circuit board.
4. Remove the speaker grille.
5. Remove one screw (B) to release the convergence control panel and gain access to the picture tubes and HV Splitter assembly (see Fig. 1).
6. Remove the deflection yoke cable and convergence yoke cable from the wire guide near the Kine Driver circuit board.
7. Disconnect the picture tube ground cable (P5002) from the Kine Driver circuit board.
8. Disconnect the anode lead and the picture tube ground lead from the HV Splitter assembly.

## INSTRUMENT DISASSEMBLY (Continued)

**Caution:** The picture tube anode cups provide shielding to prevent exposure to x-ray emissions, and are not meant to be replaced by the servicer. **DO NOT REMOVE THE ANODE CUP FROM THE PICTURE TUBE ASSEMBLY.** Replacement part picture tube assemblies include an anode lead.

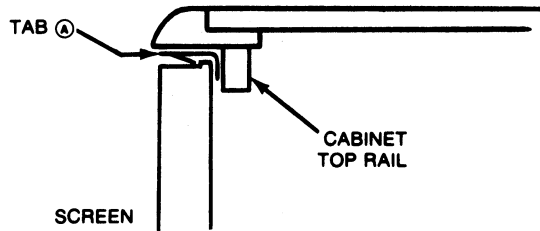


Fig. 2a - Cabinet Detail (Screen Removal) Models: 46GW950, P46100/150, P52150

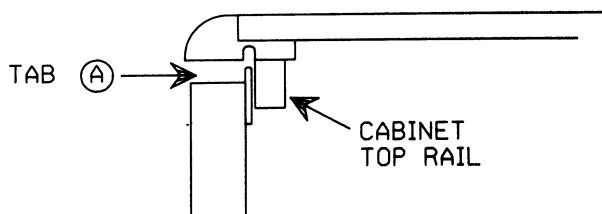


Fig. 2b - Cabinet Detail (Screen Removal) (46GW940/951/952, P46101/130/151/159/160, P52151, P60152/153)

**Caution:** To remove the anode lead, release the tab on the HV Splitter housing, then pull the lead and collar out of the HV Splitter housing. To reinstall the cable, first slide the collar into the HV Splitter housing until the first "click" is heard. Then insert the lead through the collar into the HV Splitter housing until the wire tie contacts the collar (see Fig. 3). Finally, slide the collar (and lead) into the HV Splitter housing until a second "click" is heard.

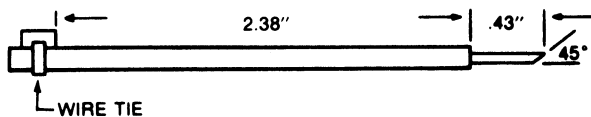


Fig. 3 - HV Cable Reassembly

9. Remove the screen assembly.
10. Remove four screws (C) to release the top lens barrier (see Fig. 1).
11. Remove four screws to release the picture tube/lens assembly from the optics frame.
12. Carefully lift the picture tube/lens assembly up and out of the cabinet.
13. Loosen the yoke clamp and carefully slide the yoke off of the picture tube neck.
14. Remove four Phillips-head screws to release the lens assembly from the picture tube assembly.

### Chassis/Optics Kit Removal

1. Remove the screen assembly.
2. Release the Front Panel circuit board and rest it on the top lens barrier.

3. Remove the backcover.
4. Disconnect the speaker cable assembly (P1904) from the Digital Audio circuit board.
- 5a. Remove two screws (D) and two bolts (A) to release the cabinet back brace (see Fig. 4). (46" models only)
- 5b. Remove six screws (D) to release the cabinet back brace (see Fig. 4). (52" models)
6. Remove four screws (E) to release the chassis/optics kit (see Fig. 4).
7. Lift the rear edge of the chassis/optics kit slightly, then slide out to remove.

### Convergence Control Panel Release

#### Convergence Generator Circuit Board Access/Removal

1. Remove the speaker grille.
2. Remove one screw (B) (see Fig. 1). Slide the convergence panel to the left and out to release.
3. Remove four screws to access the component side of the Convergence Generator circuit board.
4. Disconnect cable assemblies P8104, P8202 and P8203 from the Convergence Generator circuit board to remove.

### Focus/Screen Assembly Removal

1. Remove the speaker grille.
2. Release the convergence control panel.
3. Disconnect the red, green and blue focus and screen cables and the dynamic focus cable from the Focus/Screen assembly.
4. Disconnect the ground lead from the Focus/Screen assembly.
5. Disconnect the HV focus cable from the HV Splitter assembly.

**Caution:** To remove the HV focus cable, release the tab on the HV Splitter housing, then pull the lead and collar out of the HV Splitter housing. To reinstall the cable, first slide the collar into the HV Splitter housing until the first "click" is heard. Then insert the lead through the collar into the HV Splitter housing until the wire tie contacts the collar (see Fig. 3). Finally, slide the collar (and lead) into the HV Splitter housing until a second "click" is heard.

6. Remove two screws to release the Focus/Screen assembly.

### Kine Driver Circuit Board Removal

1. Remove the speaker grille.
2. Release the convergence control panel.
3. Carefully pull the Kine Driver circuit board off the picture tube and remove cable assemblies from wire guides as necessary to access both sides of the circuit board.
4. Disconnect cable assemblies P5001 and P5002 from the Kine Driver circuit board and disconnect the focus and screen cables from the Focus/Screen assembly to remove the circuit board.

## INSTRUMENT DISASSEMBLY (Continued)

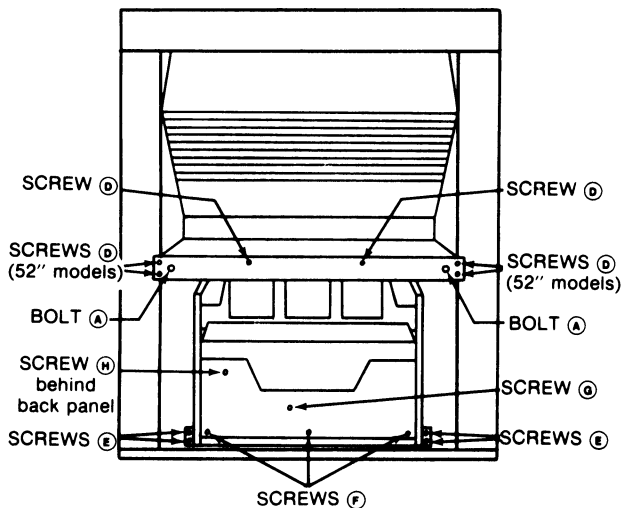


Fig. 4a - Cabinet Rear View (Backcover Removed) Models: 46GW950, P46100/150, P52150

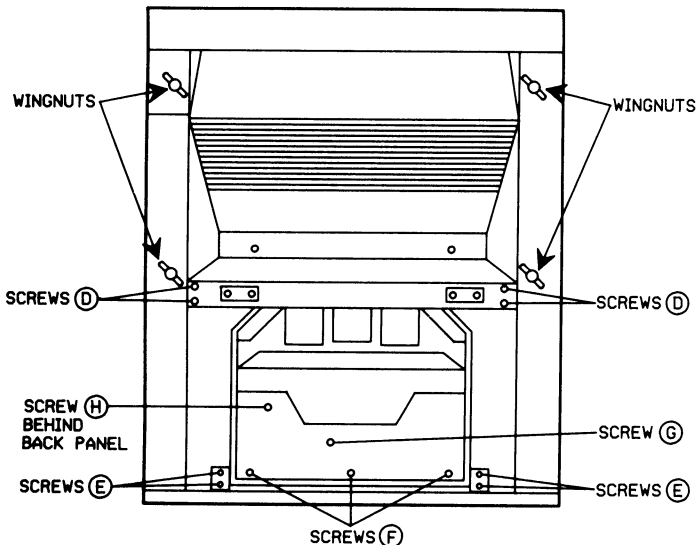


Fig. 4b - Cabinet Rear View (Back Cover Removed) (46GW940/951/952, P46101/130/151/159/160, P52151/152, P60152/153)

**Lens Assembly Removal**

1. Remove the screen assembly.
2. Remove the top lens barrier.
3. Remove four Phillips-head screws to release the lens assembly.

**Yoke Assembly Removal**

1. Remove the backcover.
2. Disconnect the deflection yoke cable (P7009, P7010 or P7011, depending upon the picture tube being removed) from the PTV Auxiliary circuit board. Remove the yoke cable from the wire guide at the rear of the PTV Auxiliary circuit board.
3. Disconnect the convergence yoke cable (P7016, P7017 or P7018, depending upon the picture tube being removed) from the PTV Auxiliary circuit board. Remove the yoke cable from the wire guides along the side of the PTV Auxiliary circuit board.

4. Remove the speaker grille.
5. Release the convergence control panel.
6. Remove the deflection yoke cable and convergence yoke cable from the wire guide near the Kine Driver circuit board.
7. Carefully pull the Kine Driver circuit board off the picture tube.
8. Loosen the yoke clamp and carefully slide the yoke off the picture tube neck.

**HV Splitter Assembly Removal**

1. Remove the speaker grille.
2. Release the convergence control panel.
3. Remove the screen assembly.
4. Remove the top lens barrier.
5. Disconnect the three picture tube anode leads, the HV focus cable and the chassis HV cable from the HV Splitter assembly.

**Caution:** To remove a HV cable, release the tab on the HV Splitter housing, then pull the lead and collar out of the HV Splitter housing. To reinstall the cable, first slide the collar into the HV Splitter housing until the first "click" is heard. Then insert the lead through the collar into the HV Splitter housing until the wire tie contacts the collar (see Fig. 3). Finally, slide the collar (and lead) into the HV Splitter housing until a second "click" is heard.

6. Disconnect the six ground leads from the HV Splitter assembly.
7. Disconnect cable assembly P4751 from the HV Splitter circuit board.
8. Remove two screws to release the HV Splitter assembly.

**Chassis Rear Panel Removal**

1. Remove the backcover.
2. Remove three screws (F) to release the chassis back panel from the PTV kit frame (see Fig. 4).
3. Remove one screw (G) to release the chassis rear panel from the AC Line Input assembly (see Fig. 4).
4. Slide the Main circuit board out (with the chassis rear panel) and remove one screw (H) to release the chassis rear panel from the External Speaker Jack assembly (see Fig. 4).

**PTV Auxiliary Circuit Board Access/Removal**

1. Remove the backcover.
2. Remove the chassis rear panel.
3. Remove cable assemblies from wire guides as necessary to allow the PTV Auxiliary circuit board to slide out of the chassis frame.
4. Tilt the rear edge of the PTV Auxiliary circuit board up to access the copper side of the board.
5. Disconnect cable assemblies P7001, P7005, P7006, P7007, P7009, P7010, P7011, P7012, P7013, P7014, P7015, P7016, P7017, P7018 and P7019 to remove the PTV Auxiliary circuit board.

## INSTRUMENT DISASSEMBLY (Continued)

### Main Circuit Board Service Position

1. Remove the backcover.
2. Remove the chassis rear panel.
3. Remove cable assemblies from the wire guides located on the chassis/optics barrier.
4. Remove four screws to release the chassis/optics barrier.
5. Remove cable assemblies from wire guides as necessary to allow the Main circuit board to slide out of the chassis frame.
6. Tilt the rear edge of the Main circuit board up to access the copper side of the board. Tilt the rear edge of the board down to access all areas of the component side of the board.

### HV Regulator Circuit Board Access/Removal

1. Remove the backcover.
2. Remove the chassis rear panel.
3. Place the Main circuit board in the service position.
4. Release four tabs and tilt the HV Regulator circuit board to access the copper side of the board.
5. To remove the HV Regulator circuit board, disconnect cable assembly P4701 from the HV Regulator circuit board, disconnect four interconnect wires from the HV Regulator board and cut the HV return wire at the splice.

**Caution:** When replacing the HV Regulator circuit board (or T4751), be sure to add sleeving to the splice in the HV return wire.

### Digital Audio Circuit Board Access/Removal

1. Remove the backcover.
2. Remove the chassis rear panel.
3. Place the Main circuit board in the service position (copper side up).
4. Twist one tab to release the audio heatsink from the Main circuit board.
5. Turn the Main circuit board over to access the component side of the board.
- 6a. Twist one tab to release the audio heatsink from the Digital Comb circuit board. (CTC169BL,BP)
- 6b. Twist one tab to release the audio heatsink from the PIP Adapter circuit board. (CTC169BM,BN)
7. Remove cable assembly P1903 from the wire tie located on the system control shield.
8. Remove the External Speaker Jack assembly wires from the wire ties located along the top edge of the Digital Audio circuit board.
9. Remove one screw to release the Digital Audio circuit board from the External Speaker Jack assembly.
10. Using a small pair of wire cutters, carefully cut the break-away sections along the bottom edge of the

Digital Audio circuit board. Take care to avoid cutting the jumper wires which connect the Digital Audio circuit board to the Main circuit board.

11. Carefully tilt the Digital Audio circuit board out from the Main circuit board to gain access to all areas of the component side of the board.

**Caution:** Do not allow the audio heatsink to contact component leads on the copper side of the Digital Comb (or PIP Adapter) circuit board.

12. To remove the Digital Audio circuit board, disconnect cable assemblies J1903 and J1904 from the Digital Audio circuit board and unsolder the jumper wires at JS1900 from the Main circuit board.

### Digital Comb Circuit Board Removal (CTC169BL,BP)

1. Remove the backcover.
2. Remove the chassis rear panel.
3. Place the Digital Audio circuit board in the service position.
4. Remove three screws to release the section of audio heatsink located behind the Digital Comb circuit board.
5. To remove the Digital Comb circuit board, disconnect cable assemblies P6401, P6402, P6403 and P6404 from the Digital Comb board and unsolder the jumper wires at JS6400 from the Main circuit board.

### PIP Adapter Circuit Board Removal (CTC169BM,BN)

1. Remove the backcover.
2. Remove the chassis rear panel.
3. Place the Digital Audio circuit board in the service position.
4. Remove three screws to release the section of audio heatsink located behind the PIP Adapter circuit board.
5. To remove the PIP Adapter circuit board, disconnect cable assemblies P6401, P6402, P6403 and P6404 from the PIP Adapter board and unsolder the jumper wires at JS6400 from the Main circuit board.

### Pix-In-Pix Module Removal (CTC169BM,BP)

1. Remove two screws holding the Pix-In-Pix module.
2. Disconnect cable assemblies P8001, P8002 and P8003 from the Pix-In-Pix module.

### Speaker Removal

1. Remove the speaker grille.
2. Remove the speaker wires from the wire guides located just below the Convergence Control panel cutout.
3. Remove the backcover.
4. Remove four screws to release each speaker assembly.

## INSTRUMENT DISASSEMBLY (Continued)

### Screen Removal

Note: This procedure applies to the following models-

46GW940	P46729	P46738	P52753
46GW941	P46730	P52730	P52100*
P46130	P46731	P52731	P60100*
P46728	P46732	P52750	

\* In the wall units, omit Step 1.

1. Remove the grille cloth, pull away from the instrument to release from velcro.
2. Loosen both screws securing the screen holding brackets, slide the brackets down.
3. Pull the screen out at the bottom and let it slide down gently until there is enough space at the top to get hold of it.
4. Secure screen with both hands and remove.
5. To install the screen, make sure that the long side with slots is at the bottom. Reverse removal instructions.

Note: For access to convergence adjustments follow Step 1.

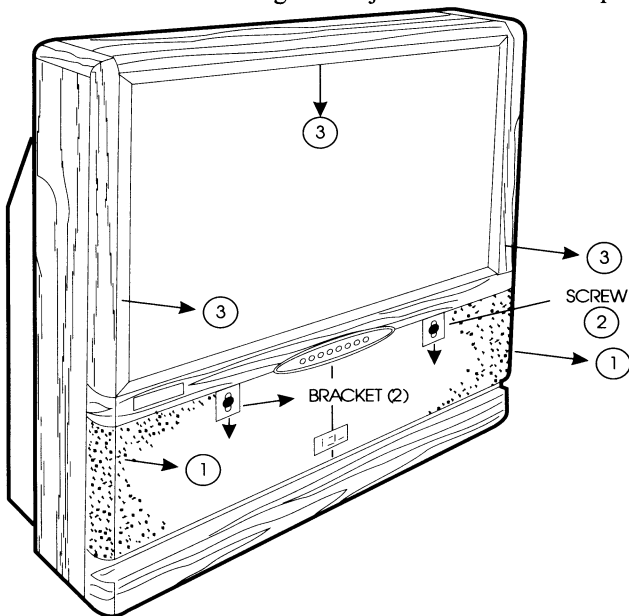


Fig. 6- Screen Removal multiple models.

### Screen Removal

Note: This procedure applies to the following model-

P46770

1. Open glass doors and remove two (2) screws and screen holding brackets.
2. Pull screen out at bottom and let it slide down gently until there is enough space at the top to get a hold of it.
3. Grasp screen securely with both hands and remove.
4. To install, make sure that the long side with slots is at the bottom. Reverse removal instructions.

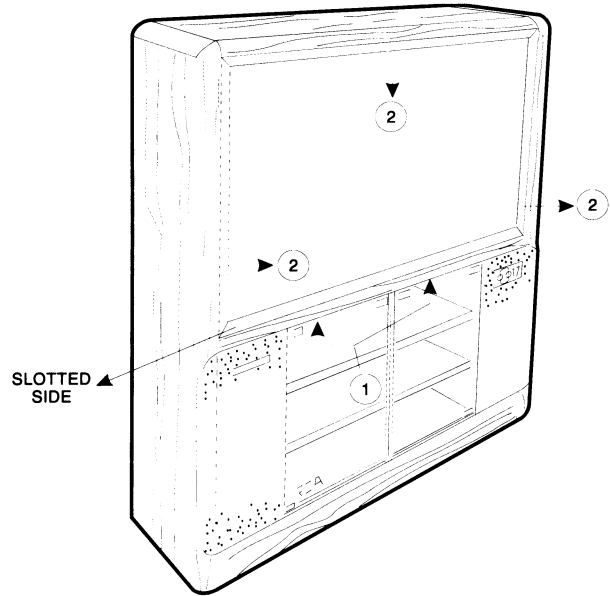


Fig. 7- Screen removal Model P46770

### Screen Removal

Note: This procedure applies to the following model-

P52756

1. Remove grille cloth from each side by pulling away from instrument to release from velcro.
2. Remove four (4) screws from each side of the plastic front bottom half (Do Not remove speaker mounting screws).
3. Remove plastic front bottom half.  
Caution: FPA is attached to plastic front, tilt top of plastic front outward to gain access to the FPA. Release the PC Board snaps and remove plastic front bottom half.
4. Remove three (3) screws securing the lower flange of the screen.
5. Remove the back cover (15 screws).
6. Remove three (3) screws at the top and two (2) screws from each side.
7. Grasp screen frame with both hands and pull straight away from instrument.
8. To install, reverse removal instructions.

Note: For access to convergence adjustments follow Steps 1, 2 and 3.

## INSTRUMENT DISASSEMBLY (Continued)

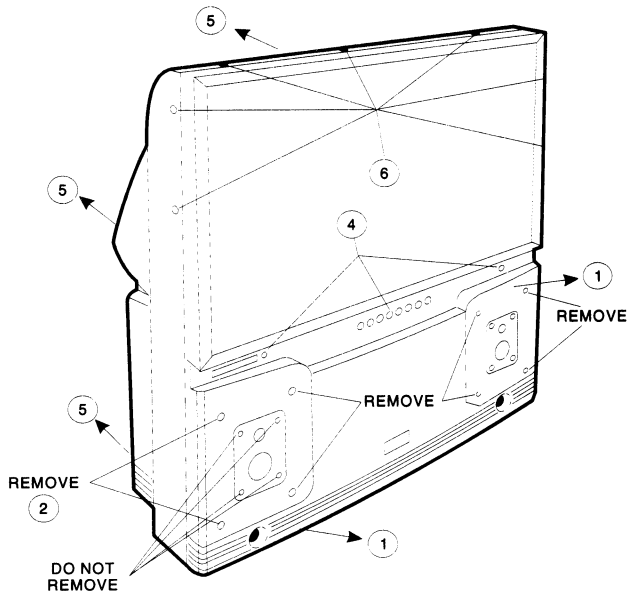


Fig. 8- Screen Removal Model P52756

### Screen Removal

Note: This procedure applies to the following model-  
P52770

1. Remove speaker grille(s) and front plastic panel(s). Pull them out and away from instrument to release from velcro.
2. Remove screws and holding brackets, three (3) along bottom of screen and one (1) on each side of screen.
3. Pull screen out at bottom and let it slide down gently until there is enough space at the top to grasp the screen firmly for removal.

Note: This model does not have a screen frame.

4. To install, reverse removal instructions.

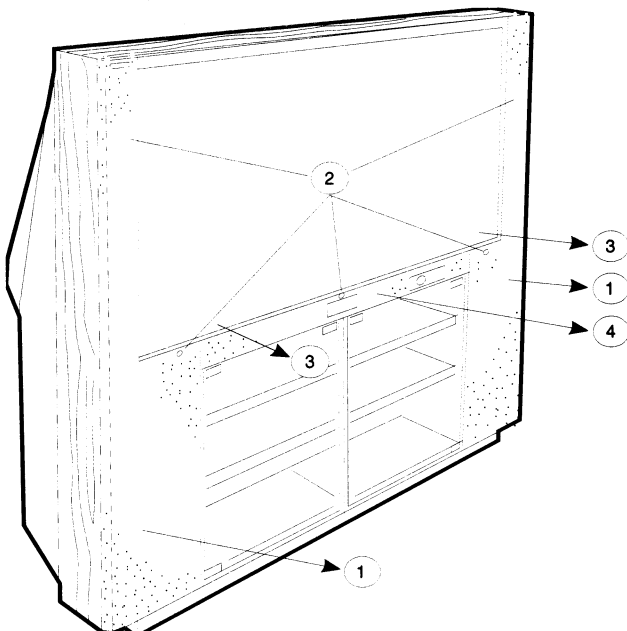


Fig. 9- Screen Removal Model P52770

### Screen Removal

Note: This procedure applies to the following model-  
P60752

1. Remove cloth grille from both side, pull away from instrument to release from velcro.
2. Remove four (4) screws from each side of plastic front bottom half (DO NOT remove screws from speaker mounting).
3. Remove plastic front bottom half.
- CAUTION: FPA is attached to plastic front, tilt top of plastic front outward to gain access to the FPA. Release the PC Board snaps and remove the plastic front bottom half.
4. Remove three (3) screws that secure the lower screen flange.
5. Pull the screen out at the bottom and push it up approximately 1 inch to release it from the top holding bracket.
6. Grasp screen with both hands and remove.
7. To install, reverse removal procedure.

CAUTION: Be careful not to scratch the screen on the top holding bracket.

Note: For access to the convergence adjustments follow Steps 1, 2 and 3.

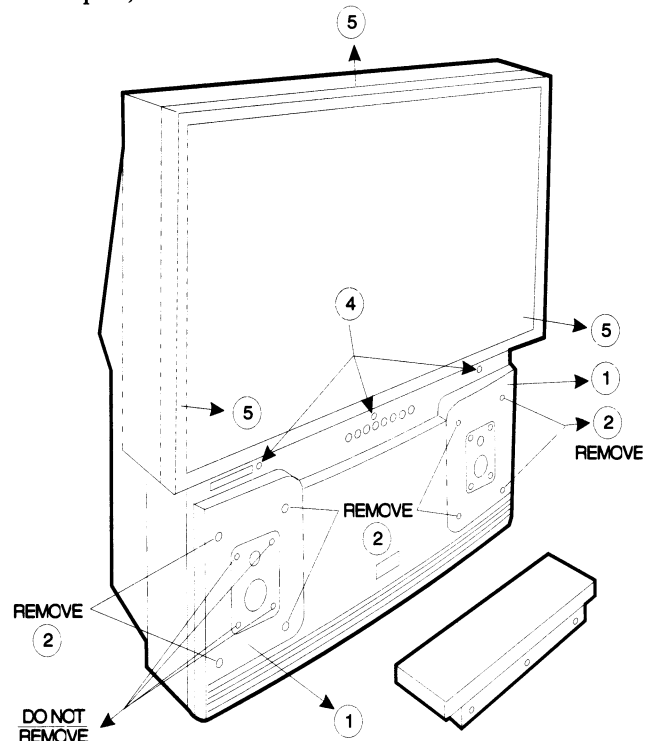


Fig. 10- Screen Removal Model P60752