

## Procedure 7.1 - Replacing the Display Enclosure or Upper PCA

Anti-static kits (part number 20024-101) can be ordered from Precor.

The keyboard is part of the display housing front panel. If the keyboard is not functioning properly, replace the display housing front panel.

### Removing the Display Housing Front Panel

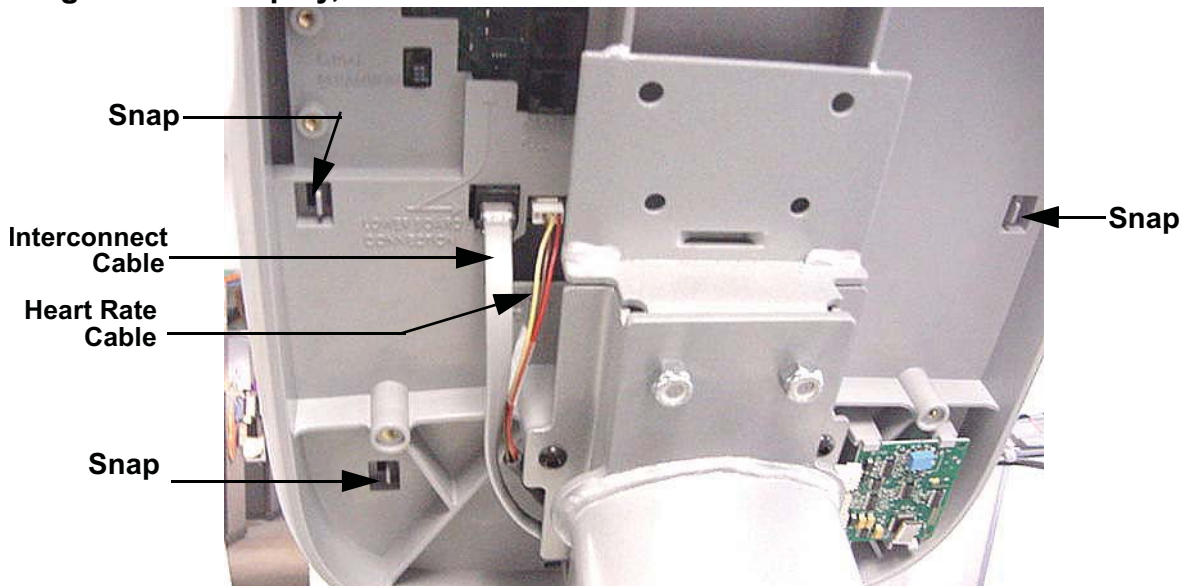
1. Remove the right side cover and disconnect the red battery wire from the lower PCA.

#### WARNING

Before continuing with this procedure, review the Warning and Caution statements listed in Section One, Things You Should Know.

2. Attach the anti-static wrist strap to your arm, then connect the ground wire of the wrist strap to the units frame.
3. Remove the four screws that secure the display's rear cover.
4. Attach the wrist strap to your arm, then connect the ground wire of the wrist strap to the C100i frame.
5. Disconnect the interconnect cable and heart rate cable from the upper PCA.

### Diagram 7.1 - Display, with Rear Cover Removed



6. Starting from the top and working downward, unsnap the display front panel from the display. There are six snaps retaining the display front panel. See Diagram 7.1.

## Removing and Replacing the Upper PCA

7. Carefully disconnect the keyboard cable from the upper PCA. See Diagram 6.1.
8. Disconnect the cables from the matrix PCA and the and the D-pad PCA. See Diagram 7.1.
9. Unsnap the upper PCA from the display housing front panel.

### Note:

Package the upper PCA in an anti-static bag and document the problem as described in Procedure 3.6, Documenting Software Problems.

10. Position the upper PCA at its mounting location on the display housing front panel and snap it into place (refer to Diagram 6.1).
11. Reconnect the keyboard cable, D-pad cable and matrix PCA cable to the upper PCA. See Diagram 6.1
12. Starting from the bottom and working upward, snap the display front panel onto the display housing.
13. Reconnect the interconnect and heart rate cables to the upper PCA.
14. Remove the ground wire of the wrist strap from the C100i frame, then remove the wrist strap from your arm.
15. Position the display's rear cover on the display housing. Replace and tighten the display mounting screws.
16. Replace the red battery wire removed in step 1 and check unit operation as described in Section Four.

## Procedure 7.2 - Replacing the Lower PCA

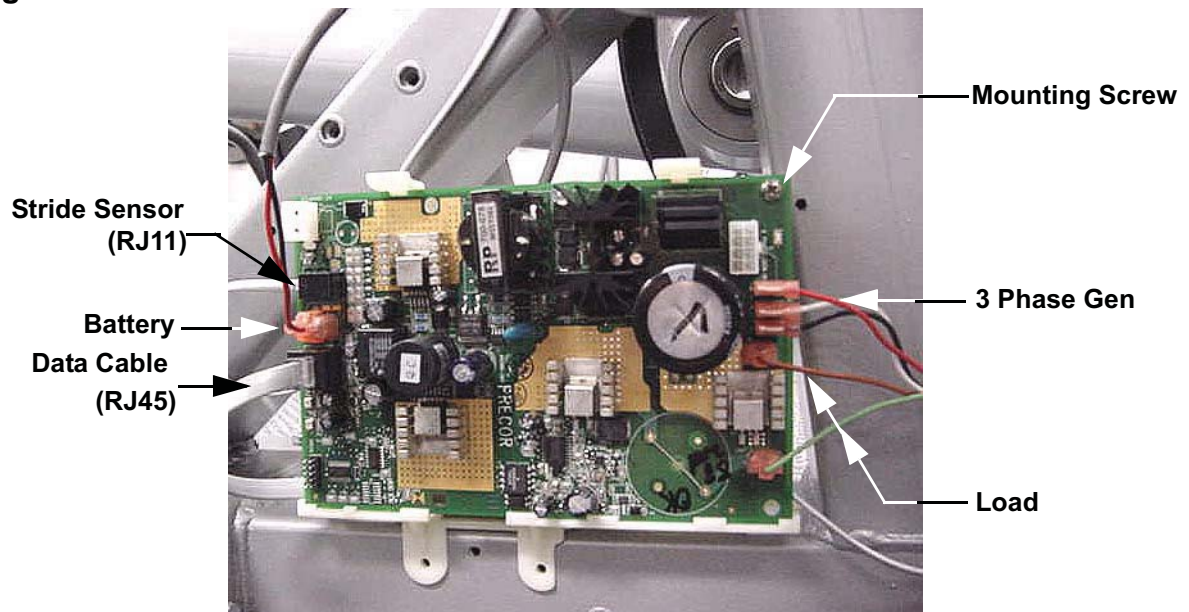
1. Remove the right side cover.

### WARNING

Before continuing with this procedure, review the Warning and Caution statements listed in Section One, Things You Should Know.

2. Attach the wrist strap to your arm, then connect the ground wire of the wrist strap to the C100i frame.
3. Disconnect the battery, 3 Phase Gen and load wires from the lower PCA.
4. Remove the screw from the upper right corner the lower PCA, see Diagram 7.2.

**Diagram 7.2 - Lower PCA**



5. Unsnap the lower PCA from its mounting bracket.
6. Position the replacement lower PCA at its mounting position and snap it into its mounting bracket. Fasten it with the screw removed in step 4.
7. Reconnect the lower PCA wires as follows. The battery wires are polarized to prevent them from being connected incorrectly. Connect the black wire to the battery terminal nearest to the edge of the lower PCA and the red wire to the remaining battery terminal of the lower PCA. Reconnect the 3 Phase Gen wires to the terminals shown in Diagram 7.2, the wires may be connected in any order. Reconnect the load wires to the terminals shown in Diagram 7.2, the wires may be connected in any order.

8. Remove the ground wire of the wrist strap from the C100i frame, then remove the wrist strap from your arm.
9. Re-install the right side cover, then check the operation of the C100i as described in Section Four.

## Procedure 7.3 - Replacing the Interconnect Cable

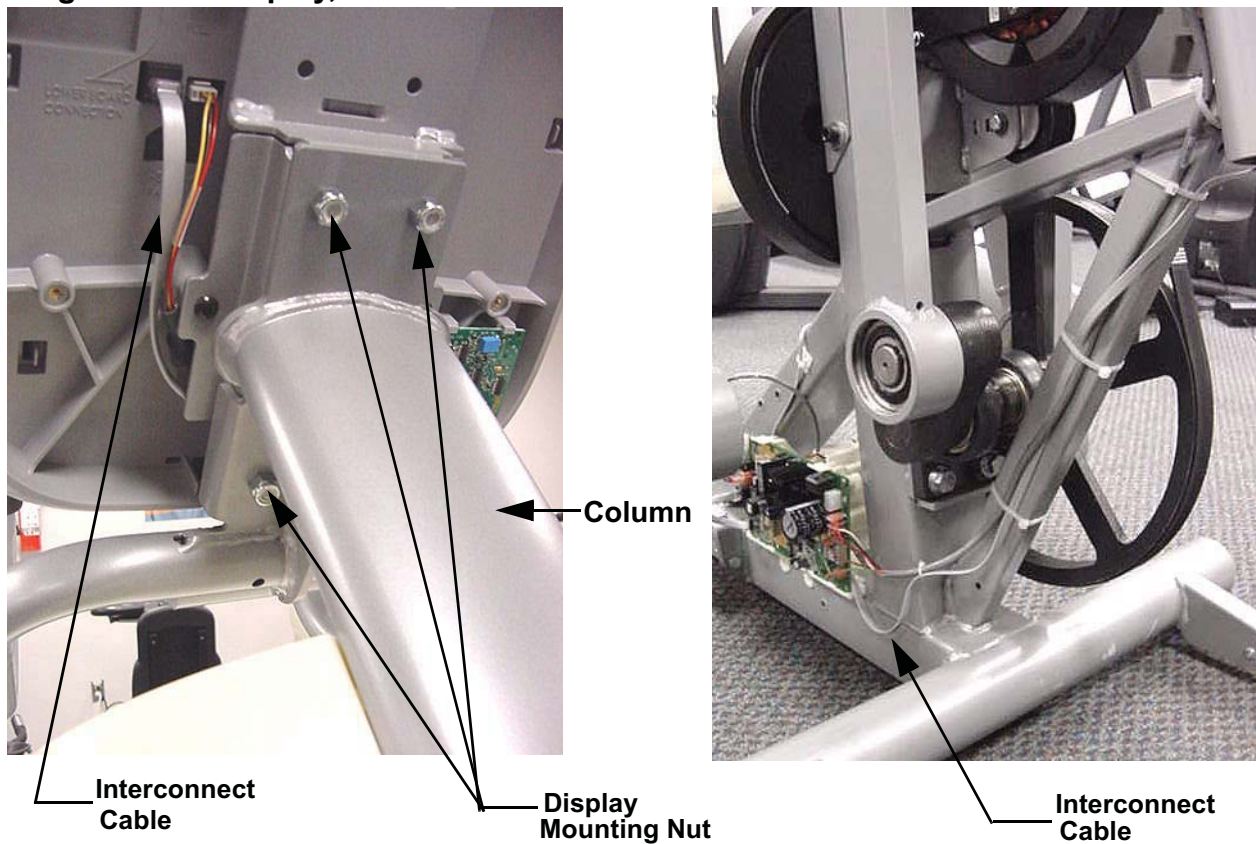
Before you install a new interconnect cable, ensure that the interconnect cable is defective as described in Procedure 6.1.

### WARNING

Before continuing with this procedure, review the Warning and Caution statements listed in Section One, Things You Should Know.

1. Remove the four screws from the display rear cover and remove the display rear cover.
2. Disconnect the interconnect cable from the upper PCA. See Diagram 7.3.

**Diagram 7.3 - Display, Rear View**



3. Remove the four nuts that fastens the display to the column. Remove the display and set it aside. See Diagram 7.3.
4. Remove the right side cover.
5. Carefully, cut and remove the tie wraps that fasten the interconnect cable to the frame.

6. Disconnect the interconnect cable from the lower PCA.
7. Remove the interconnect cable from the column.
8. Slide the replacement interconnect cable down the column so that approximately 6 inches of remains at the top of the column.
9. Set the display at its mounting position and fasten it with the four nuts removed in step 3.
10. Connect the interconnect cable to the upper PCA and to the lower PCA as shown in Diagram 7.3.
11. Dress the interconnect cable along the frame as shown in Diagram 7.3 and secure it with four tie wraps.
12. Replace the display rear cover and the right side cover.
13. Check the operation of the C100i as described in Section Four

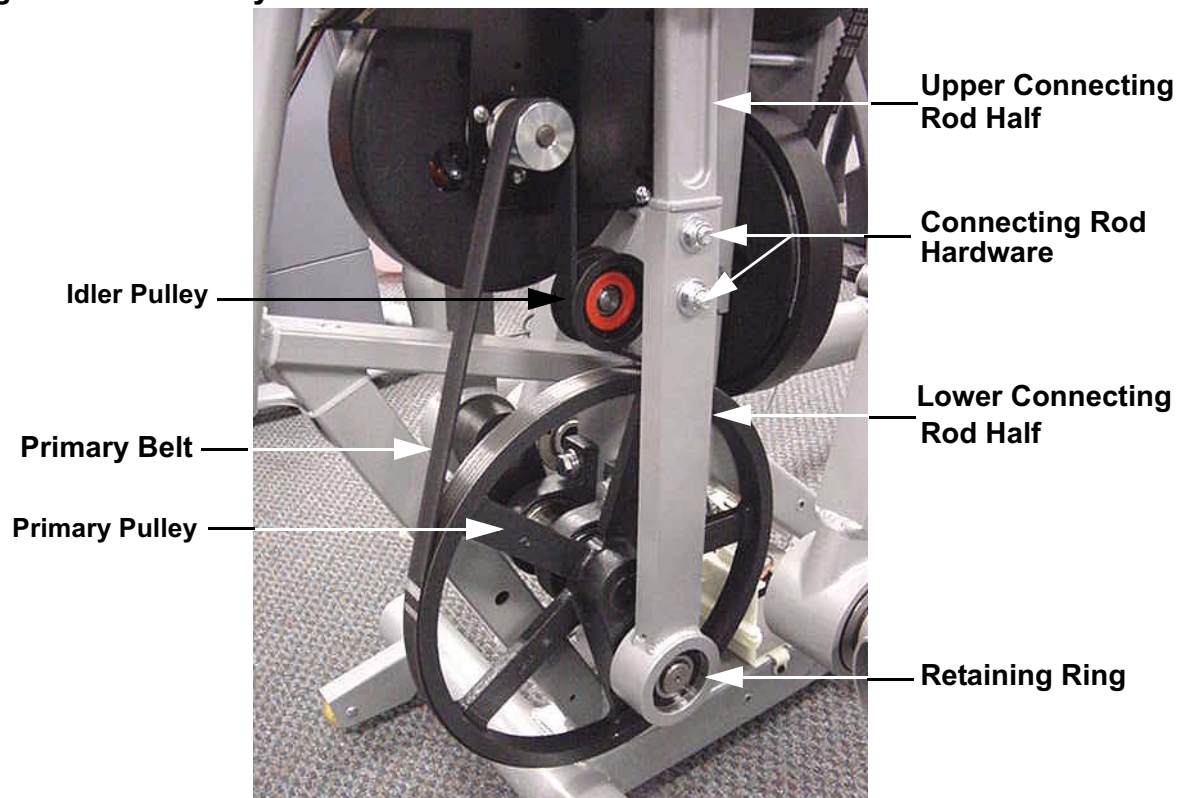
## Procedure 7.4 - Replacing Primary Belt

### WARNING

Before continuing with this procedure, review the Warning and Caution statements listed in Section One, Things You Should Know.

1. Remove the left side cover.
2. Remove the bolt that fastens the left side upper arm weldment. Remove the handlebar from its mount and lower the assembly to the floor. See Diagram 7.7.
3. Loosen, but do not remove the bolt that fastens the idler pulley and remove tension from the primary belt. See Diagram 7.4.

**Diagram 7.4 - Primary Belt**



4. Remove the hardware that fasten the upper and lower connecting rod halves together. Separate the lower connecting rod half from the upper connecting rod half. See Diagram 7.4.
5. Remove and discard the primary belt.
6. Set the replacement primary belt in its mounting position with it routed around the front of the idler pulley.

7. Tension the primary belt per Procedure 5.2.
8. Slide the upper connecting rod half into the lower connecting rod half and fasten them with the hardware removed in step 4. Torque the connecting rod bolts to 17 - 21 foot pounds (200 - 250 inch pounds).
9. Raise and insert the left side handlebar on its mount and fasten it with the hardware removed in step 2.
10. Replace the left side cover.



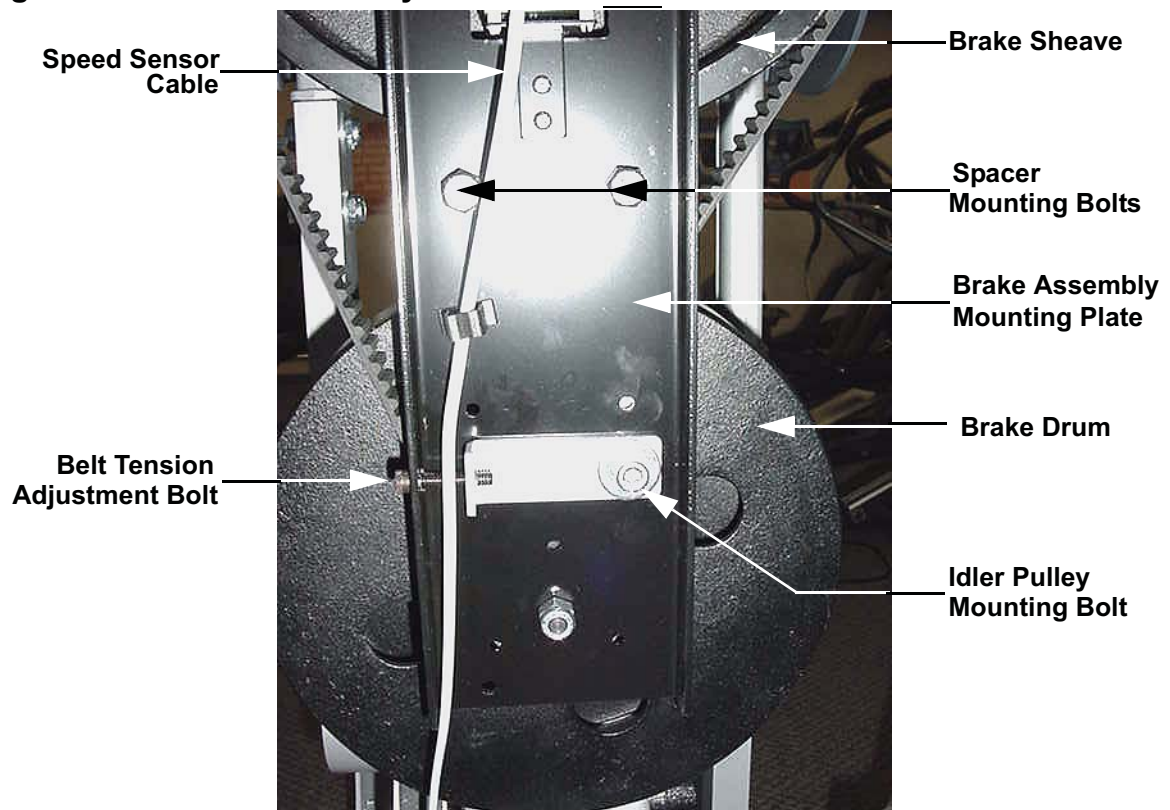
## Procedure 7.5 - Replacing Brake Belt

### WARNING

Before continuing with this procedure, review the Warning and Caution statements listed in Section One, Things You Should Know.

1. Remove the rear covers, and the left and right side covers.
2. Remove the hardware that fastens the connecting rods to the brake sheave and remove the connecting rods from the brake assembly.
3. Disconnect the speed sensor cable from the speed sensor PCA.
4. Loosen but do not remove the two bottom brake assembly mounting bolts. Remove the two upper brake assembly mounting bolts. Carefully remove the brake assembly and place it on a flat solid work surface.
5. Loosen, the belt tension adjustment bolt. Remove the idler pulley mounting bolt and the idler pulley. See Diagram 7.5.
6. Remove the hardware that fasten the two spacers in the center of the brake assembly, remove the spacers.

**Diagram 7.5 - Brake Assembly**



7. Remove the four screws from the belt bracket and remove the belt bracket. Remove the brake belt by lifting it over the top and bottom edges of the brake assembly mounting bracket.
8. Set the replacement belt on the brake assembly, with the four holes in the belt aligned with the four holes in the brake sheave, by lifting the belt over the bottom and top edges of the brake assembly mounting plate. Replace the belt attachment bracket and fasten it with the four screws removed in step 7.
9. Replace the two spacers and fasten them with the hardware removed in step 6.
10. Replace the idler pulley, with the belt on the left side of the idler pulley and fasten it with the hardware removed in step 5.
11. Carefully set brake assembly its two lower mounting bolts, left in the frame in step 4, and hand start the upper brake assembly mounting bolts. Torque the four brake assembly mounting to 17 - 21 foot pounds (200 - 250 inch pounds).
12. Reconnect the speed sensor cable to the speed sensor PCA. Dress the speed sensor cable into its cable clip.
13. Rotate the brake sheave into position, with the brake attachment bracket on top. Insert the connecting rods into brake sheave and fasten them with the hardware removed in step 2. Torque the connecting rod bolts to 50 - 55 foot pounds (600 - 660 inch pounds).
14. Tension the brake belt per Procedure 5.2.
15. Replace the left and right side covers, then replace the rear covers.

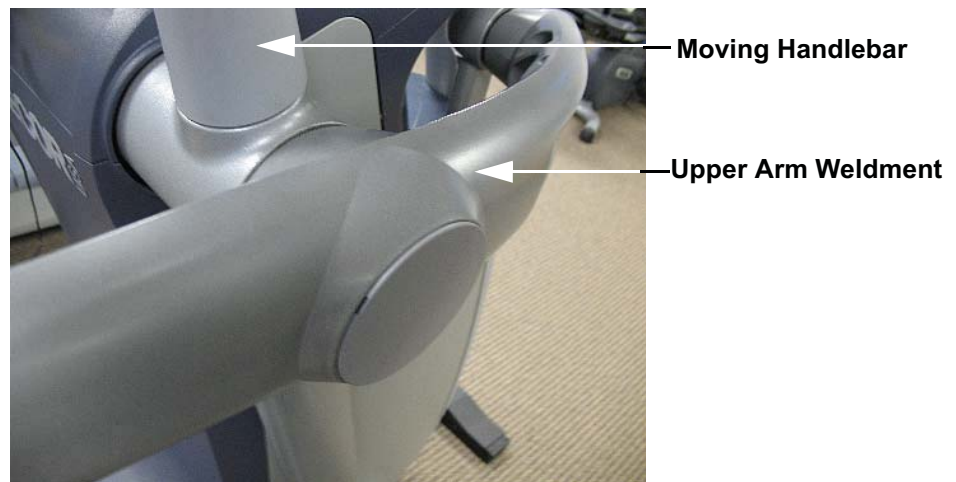
## Procedure 7.6 - Replacing the Primary Pulley Assembly

### WARNING

Before continuing with this procedure, review the Warning and Caution statements listed in Section One, Things You Should Know.

1. Remove the left and right side covers and the front cover.
2. This step removes most of the weight from the primary pulley connecting rods and makes the subsequent steps in this procedure easier and safer. Remove the bolt that fasten one of the upper arm weldments. Remove the upper arm weldment from its mounting and lower the assembly to the floor. Repeat this procedure with the remaining upper arm weldment. See Diagram 7.7.

**Diagram 7.7 - Stairarm Rear Link Assemblies**



3. Loosen, but do not remove the idler pulley mounting bolt. See Diagram 7.4.
4. Remove the retaining clip from the lower end of the of the lower connecting rod half. See Diagram 7.4
5. Remove the hardware that fasten the upper connecting rod half to the lower connecting rod half.
6. Separate the upper and lower connecting rod halves and remove the lower connecting rod half from the primary pulley.
7. Repeat steps 4 to 6 on the remaining connecting rod.
8. Remove the primary belt.
9. Remove the four bolts that fasten the primary pulley assembly to the frame. Remove the primary pulley assembly.

10. Set the replacement primary pulley assembly in its mounting position and fasten it with the hardware removed in step 9.
11. Set the primary belt in its mounting location with the belt routed in front of the idler pulley.
12. Tension the primary belt per Procedure 5.2.
13. Slide one of the tie lower connecting rod halves onto the primary pulley and fasten it with the retaining clip removed in step 4.
14. Slide the upper connecting rod half into the lower connecting rod half and fasten it with the hardware removed in step 5.
15. Repeat steps 13 and 14 with the remaining connecting rod halves.
16. Raise one of the upper arm weldments and attach it to the upper arm casting and fasten it with the bolt removed in step 2. Repeat this procedure with the remaining upper arm weldment.
17. Replace the front cover. Replace the left and right side covers.

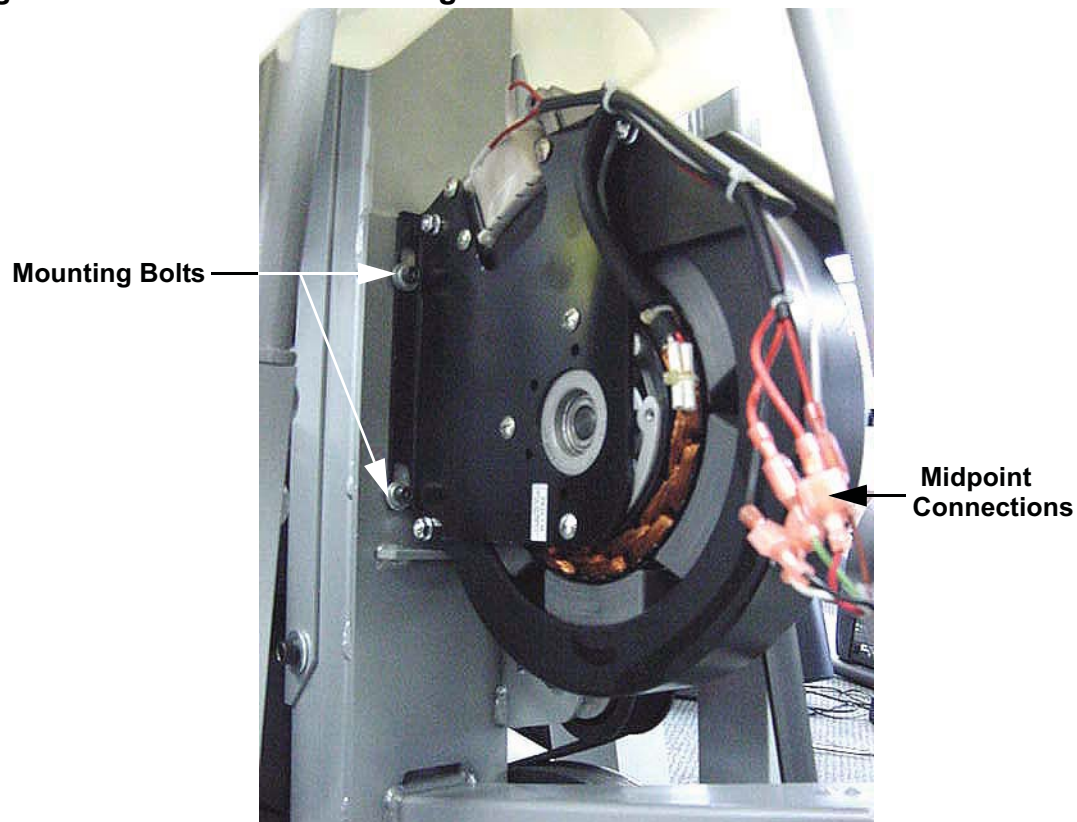
## Procedure 7.7 - Replacing a Generator

### WARNING

When the unit is used, stairarms are in motion or the generator is rotated by any means, the generator will produce potentially hazardous voltages even when the battery is disconnected.

1. Remove the left and right side covers. Remove the front cover.
2. Loosen but do not remove the primary belt idler pulley mounting bolt. See Diagram 7.4.
3. Remove the primary belt from the generators pulley.
4. Disconnect the generator wires at the midpoint connection. See Diagram 7.8.

**Diagram 7.8 - Generator Mounting**



5. Remove the four generator mounting bolts and remove the generator.
6. Set the replacement generator in its mounting position and fasten it with the hardware removed in step 5. Torque the generator mounting bolts to 100-110 inch pounds.
7. Place the primary belt on the generators pulley and tension the belt per Procedure 5.2.

8. Reconnect the generator midpoint connections as follows. Connect the two red wires from the generators eddy current magnet to the green and brown wires in the midpoint cable, the order does not matter. Connect the red, white and black wires from the generator to the red, white and black wires in the midpoint cable.
9. Replace the front cover. Replace the left and right side covers.

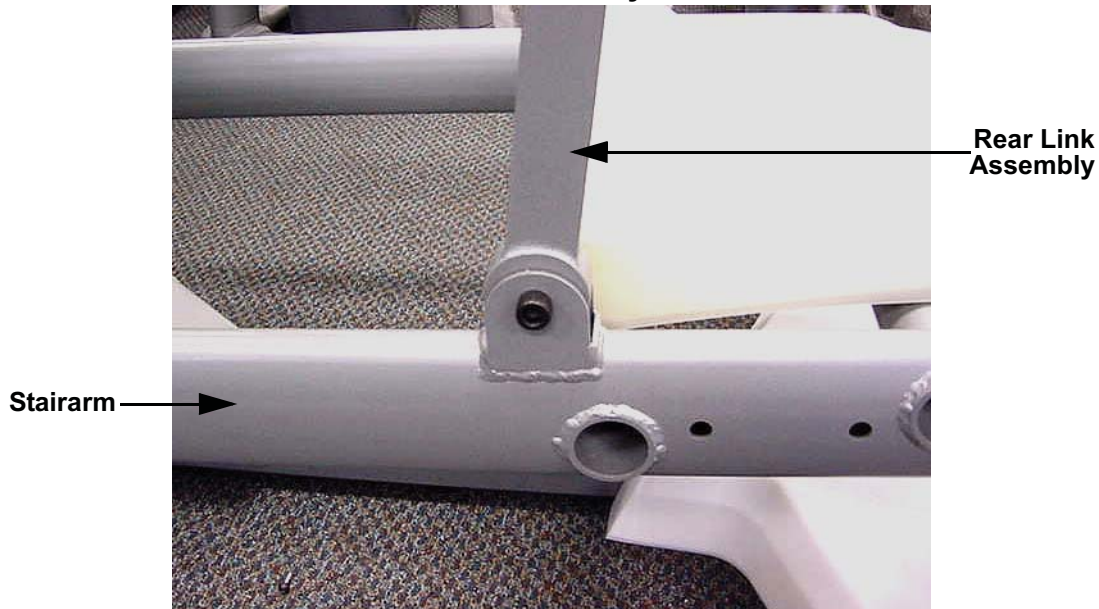
## Procedure 7.8 - Replacing a Battery

1. Remove the left side cover.
2. Disconnect the red and black wires from the battery.
3. Gently expand the plastic battery bracket and slide the battery out of the bracket.
4. Slide the replacement battery into the plastic battery bracket so that the positive terminal (red dot) is on the right side and the negative terminal is on the left side.
5. Connect the red wire removed in step 2 to the positive terminal (red dot) of the battery and the black wire removed in step 2 to the negative terminal of the battery.
6. Replace the left side cover.
7. Test the C100i per Procedure 4.

## Procedure 7.9 - Replacing a Stairarm

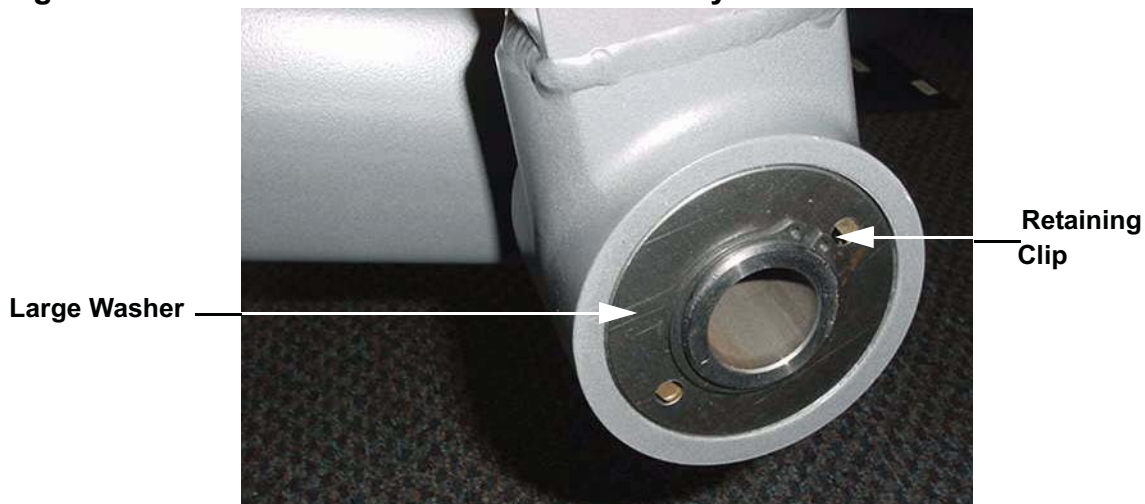
1. Use a flat bladed screwdriver to depress the tab in the lower cover and slide the lower cover up on the rear link. See Diagram 7.25.
2. Remove the two bolts that fasten the stairarm to the rear link assembly. Lower the stairarm to the floor. See Diagram 7.9.

**Diagram 7.9 - Stairarm and Rear Link Assembly**



3. Remove the retaining clip and large washer that fastens the front of the stairarm to the front arm assembly. See Diagram 7.10.

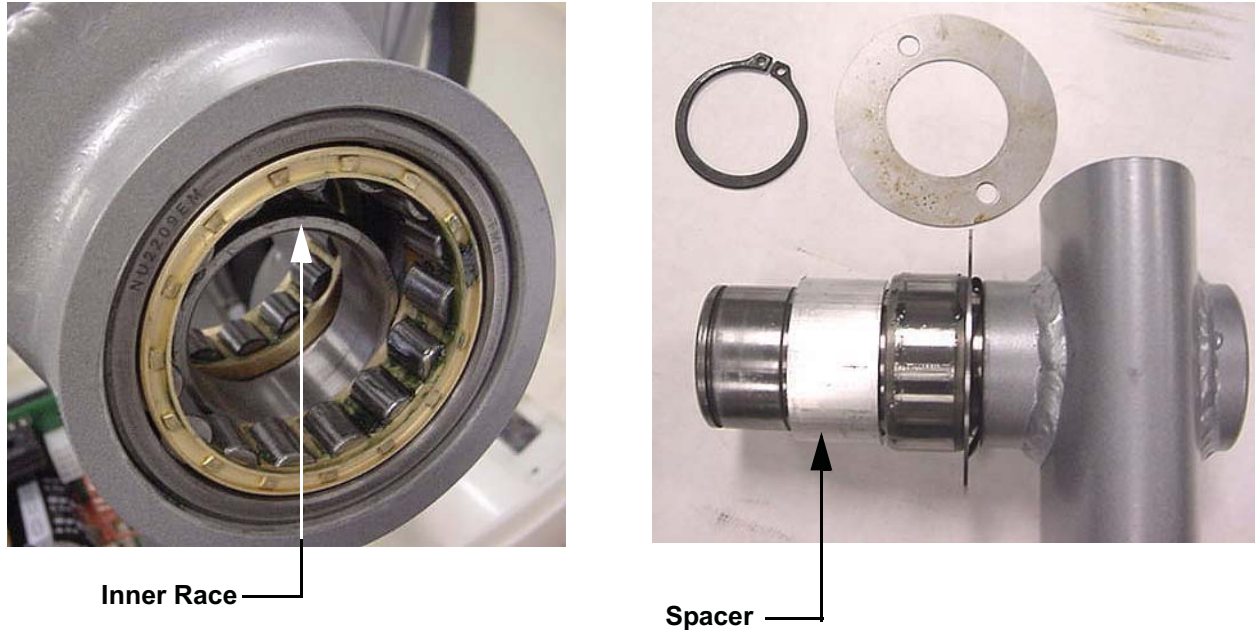
**Diagram 7.10 - Stairarm and Front Arm Assembly**





4. Remove the stairarm from the front arm assembly.
5. Remove the two screws that fasten the foot pedal to the stairarm and remove the foot pedal.
6. There are two bearings in the front arm assembly. The inner race of the bearings is not attached to the bearings and will come loose when the stairarm is removed. See Diagram 7.11.

**Diagram 7.11 - Front Brace Bearings**



7. Left hand view of Diagram 7.11 shows that the inner race of the far bearing has fallen into the space between the bearings. This race must be slid back into the far bearing. The right hand view of Diagram 7.11 shows that the inner race of the near bearing has stayed on the stairarm. This arrangement is typically what happens when the stairarm is removed.
8. Remove the spacer, the inner race, two large washers and a wave washer from the stairarm. The clearance between the stairarm shaft and the inner race is very small. It is very easy to jam the inner race on the stairarm shaft.
9. Slide the wave washer and two large washers on to the stairarm shaft. Carefully, slide the inner race all of the way onto the shaft and against the large washers. Slide the spacer onto the shaft of the stairarm. The arrangement should be as shown in Diagram 7.11, above.
10. Slide the inner race that is in the front arm assembly into the far bearing.

11. Carefully, slide the stairarm into the front arm assembly. The inner race of the far bearing will probably slide part way out of the bearing. Using a small blunt tool, gently tap the race back into the bearing.
12. Set the foot pedal in its mounting position and fasten it with the hardware removed in step 4.
13. Lift the stairarm and fasten it to the rear link assembly with the hardware removed in step 1. Torque the rear links assembly hardware to 100 - 110 inch pounds.

## Procedure 7.10 - Replacing a Upper Arm Casting

**Note:** This procedure was for use on older AMT's that have a two piece upper. See Procedure 7.14 for replacing a two piece upper arm with a one piece upper arm.

## **Procedure 7.11 - Reserved for Future Use**

## Procedure 7.12 - Replacing a Cover

### Cover Removal

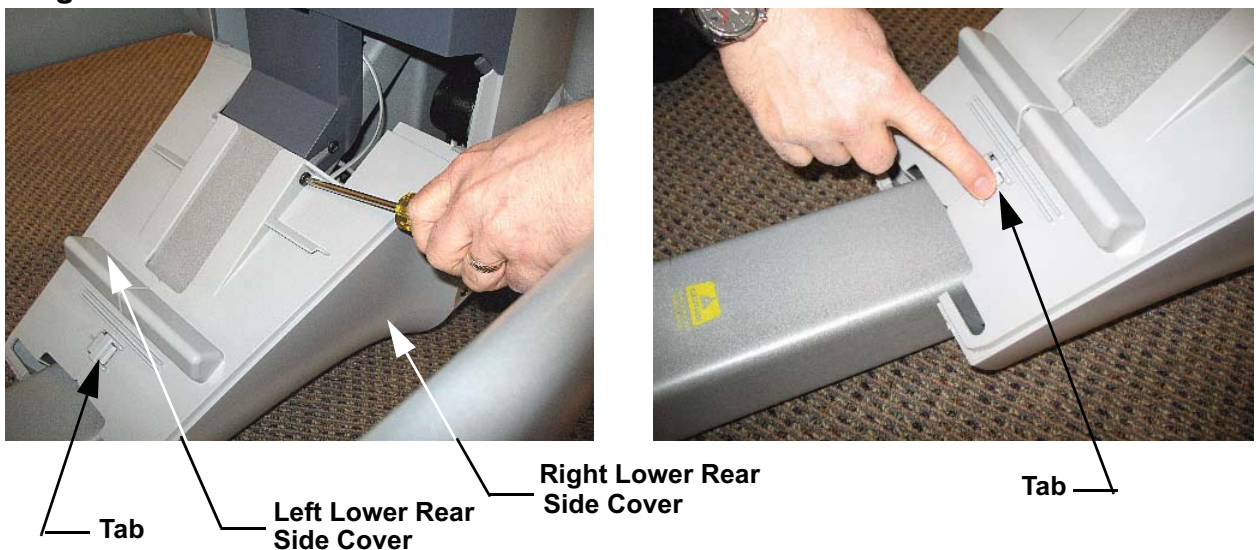
1. Using a flat bladed screwdriver, carefully pry both sides of the lower rear cover loose from its mounting. See Diagram 7.16. Remove the lower rear cover.

Diagram 7.16 - Lower Rear Cover



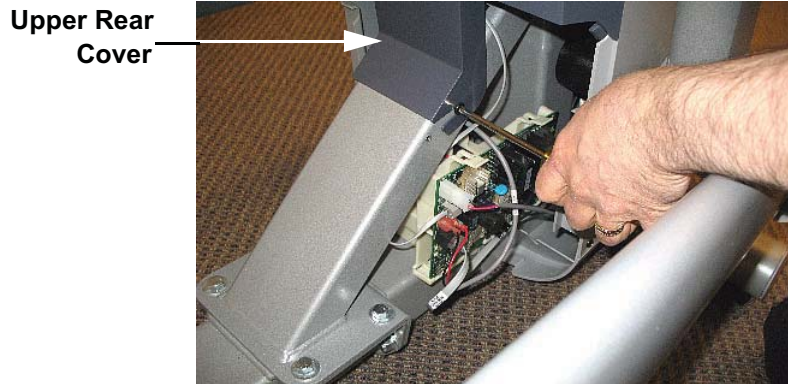
2. Remove two screws, one each side, from left and right lower rear side covers. See Diagram 7.17. Depress the tab at the rear of the covers and remove the left and right rear side covers.

Diagram 7.17 - Lower Rear Side Covers



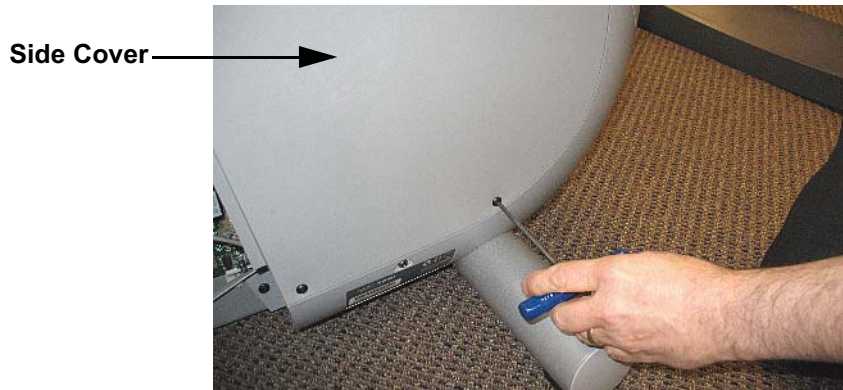
3. Support the upper rear cover and remove both screws from the bottom of the cover. See Diagram 7.18. Remove the upper rear cover.

**Diagram 7.18 - Upper Rear Cover**



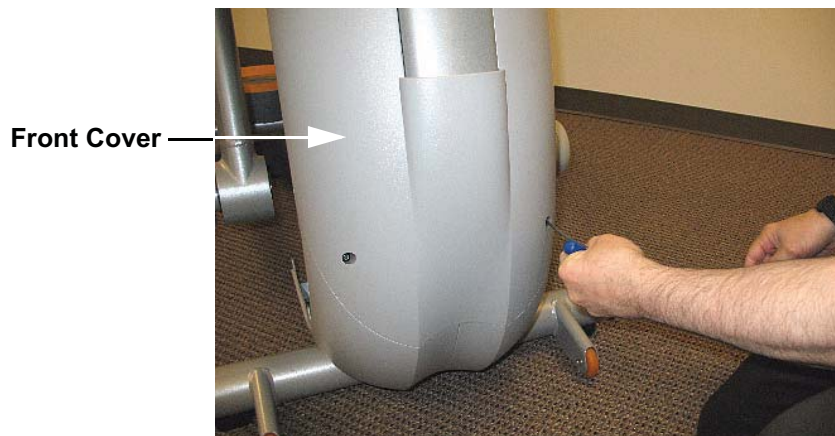
4. Remove two screws from the bottom edge of both side covers and remove both covers. See Diagram 7.19.

**Diagram 7.19 - Side Covers**



5. Remove two screws from the lower portion of the front cover. Grasp the lower portion of the front cover and remove the front cover. See Diagram 7.20.

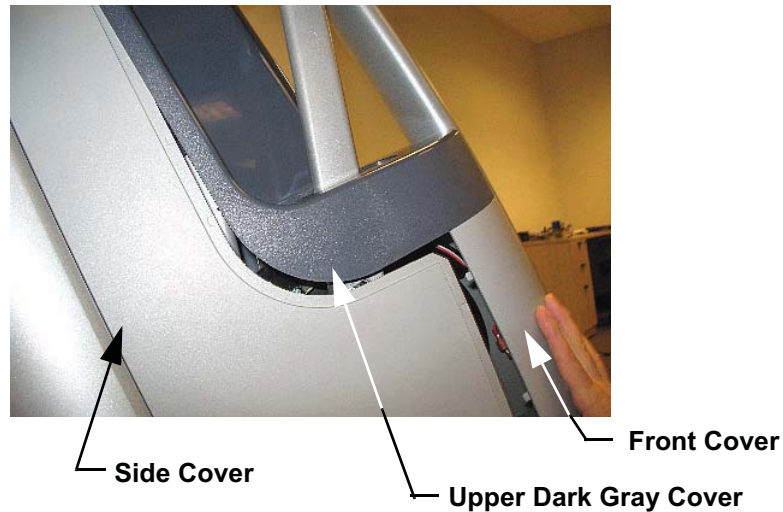
**Diagram 7.20 - Front Cover**



## Cover Installation

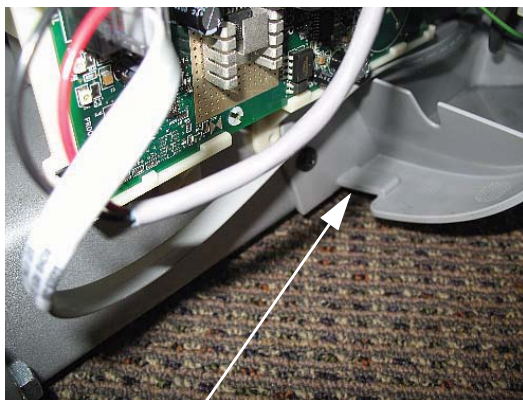
6. Slide the front cover into its mounting position and fasten it with the two screws removed in step 5.
7. Slide the right side cover into its mounting position with the lip on the cover behind the upper dark gray cover, behind the front cover and the tab at the bottom of the side cover into the clip in the lower cover. See Diagram 7.21. Fasten the cover with the screws removed in step 4.
8. Replace the left side cover using the procedure described in step 7.

**Diagram 7.21 - Side Covers**



9. Set the right rear side cover in its mounting position and engage the tab at the front of the cover in the clip in the lower cover. Set the left rear side cover in its mounting position and engage the tab at the front of the cover in the clip in the lower cover. Engage the tab and clip at the rear of the left and right rear side covers. See Diagram 7.22. Fasten the left and right rear side covers with the screws removed in step 2.

**Diagram 7.22 - Lower Rear Side Covers**



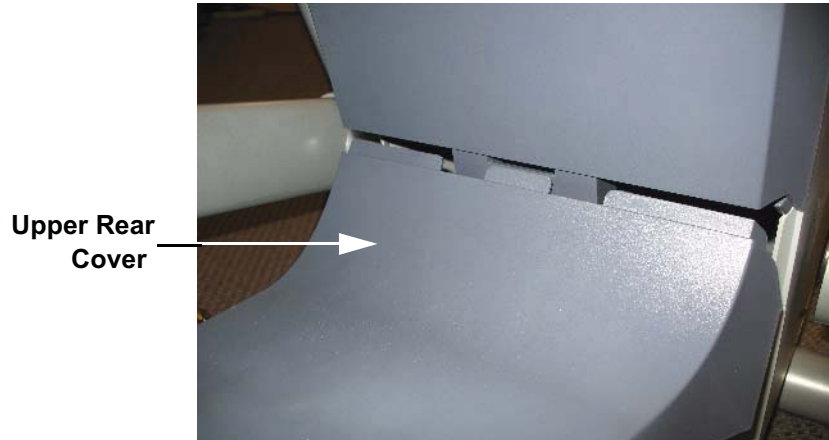
Clip in Lower Cover



Tab and Clip  
Lower Rear Covers

10. Set the upper rear cover in its mounting position. First, slide the upper portion of the cover into place. See Diagram 7.23. Press downward on the rear portion of the cover and snap it into place.

**Diagram 7.23 - Upper Rear Cover**

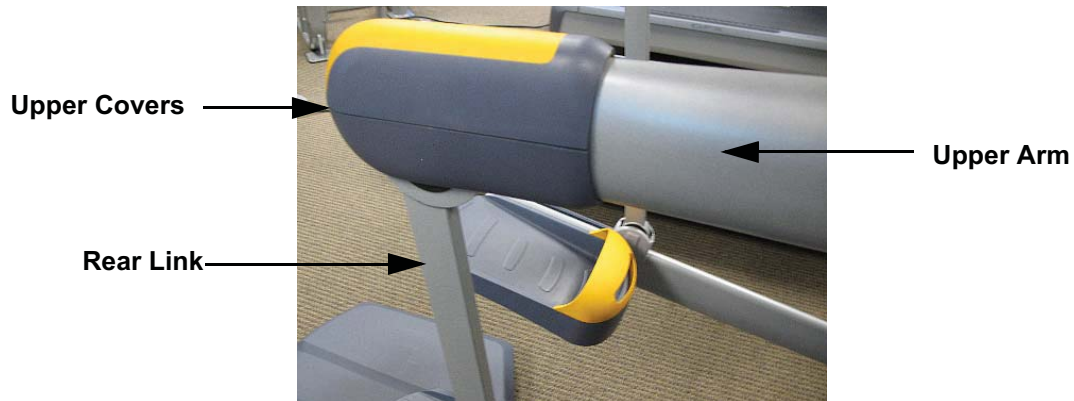




## Procedure 7.13 - Replacing a Rear Link

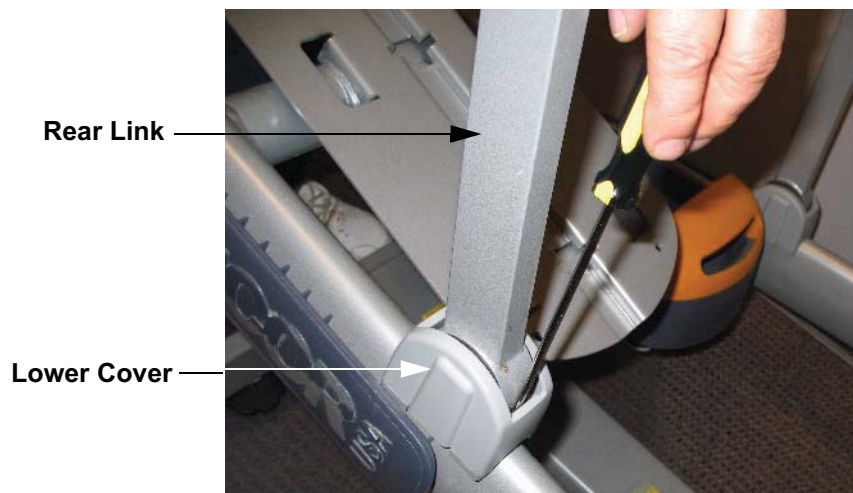
1. Remove the screws from the lower half of the upper cover. Remove the upper half of the upper cover. The lower half of the upper cover will be removed later. See Diagram 7.24.

**Diagram 7.24 - Upper Arm**



2. Use a flat bladed screwdriver to depress the tab in the lower cover and slide the lower cover up on the rear link. See Diagram 7.25.

**Diagram 7.25 - Releasing the Lower Cover**

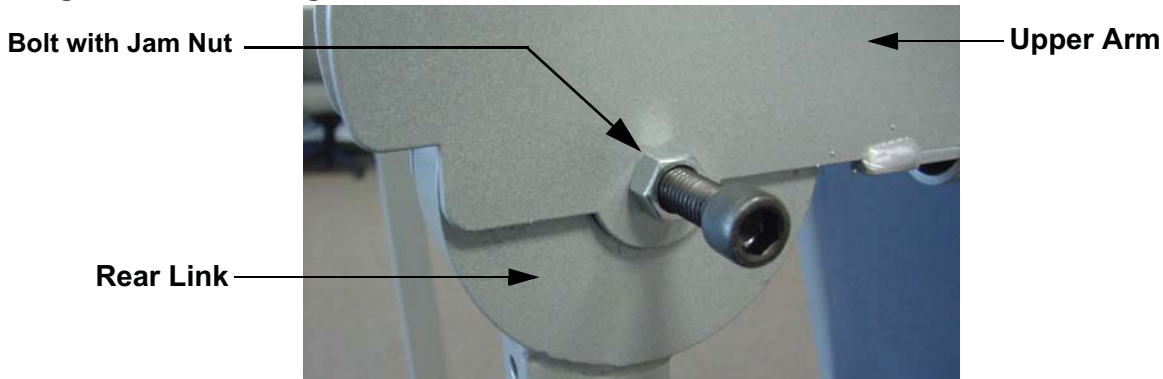


3. Place a 9/16" end wrench on each of the hex head bolts that fasten the upper arm to the rear link. These bolts thread into a free floating shaft, remove one of the two bolts.
4. Visually, inspect the shaft where the bolt was removed in step 3. If a 1/4" hex slot is visible, hold the shaft with a 1/4" allen wrench and remove the remaining bolt, skip step 5. If the 1/4" hex slot is not visible, continue with step 5.
5. Place a 9/16" end wrench on each of the hex head bolts that fasten the upper arm to

the rear link. These bolts thread into a free floating shaft, remove one of the two.

6. Thread a 3/8 X 16 bolt that is approximately 2 inches long with jam nut, not provided, into the hole that the bolt was just removed from and tighten the jam nut. The bolt and jam nut will hold the shaft in place and allow removal of the remaining mounting bolt. Remove the remaining mounting bolt. Loosen the jam and remove the bolt with jam nut. See Diagram 7.26.

#### Diagram 7.26 - Using a Bolt and Jam Nut

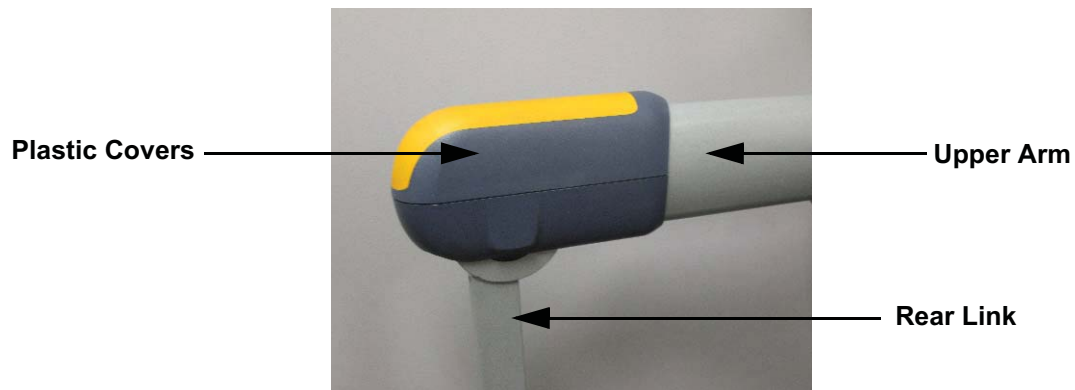


7. Separate the upper arm from the rear link. Slide the lower half of the upper cover and the lower cover off of the rear link.
8. Remove the lower end of the rear link from the stairarm using a similar procedure as in steps 3 to 6.
9. If you are reusing the rear link mounting hardware, apply blue loctite to the bolts and allow sufficient time for the loctite to cure. New replacement hardware does not need to have loctite applied because it utilizes a loctite patch.
10. Set the replacement rear link in its mounting position on the stairarm. Use a quarter inch allen wrench to hold the free floating shaft, thread one of the mounting bolts into the other side of the free floating shaft and torque it to 100 to 110 inch pounds. Thread another mounting bolt into the free floating shaft and torque it to 100 to 110 inch pounds.
11. Slide the lower cover onto the rear link and snap it into place. Slide the lower half of the plastic cover onto the rear link.
12. Fasten the rear link to the upper arm using the procedure in step 10.
13. Place the upper half of the upper cover in its mounting position, slide the lower half of the upper cover up to its mounting position and fasten it with the hardware removed in step 1.

## Procedure 7.14 - Upper Arm Replacement

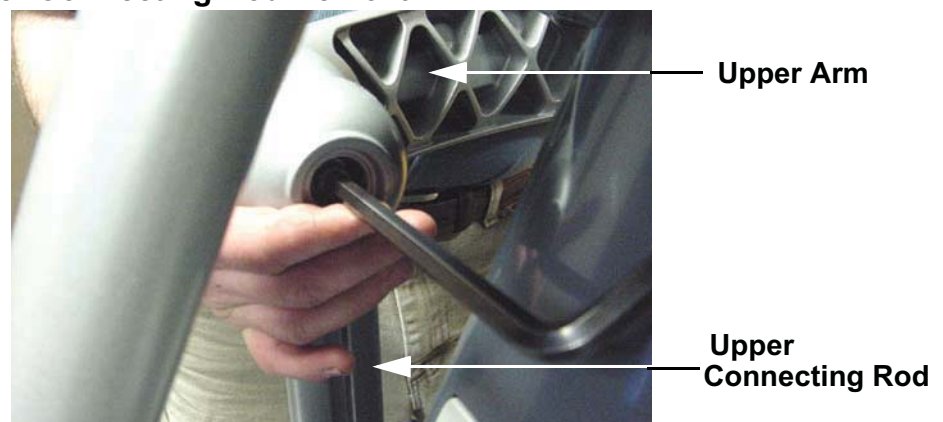
1. Remove the two screws that fasten the plastic covers on the end of the upper arm. Remove the top cover and slide the bottom cover down the rear link to the stairarm.

**Diagram 7.27 - Upper Arm Cover**



2. Place a 9/16" end wrench on each of the hex head bolts that fasten the upper arm to the rear link. These bolts thread into a free floating shaft, remove one of the two bolts.
3. Visually, inspect the shaft where the bolt was removed in step 2. There is a 1/4" hex slot in the shaft, hold the shaft with a 1/4" allen wrench and remove the remaining bolt.
4. Separate the upper arm from the rear link.

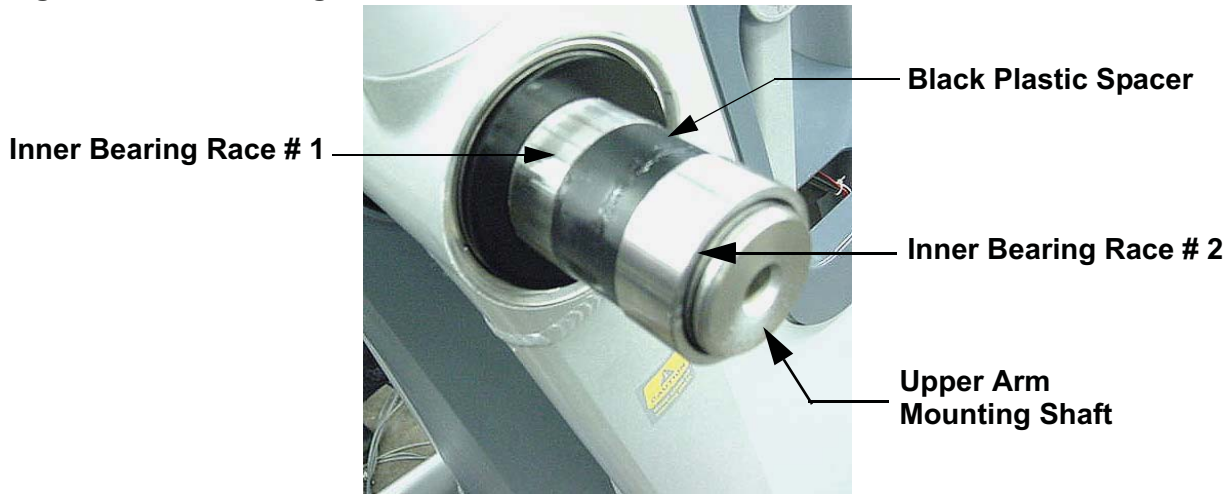
**Diagram 7.29 - Upper Connecting Rod Removal**



5. Remove the large end cap from the center of the upper.

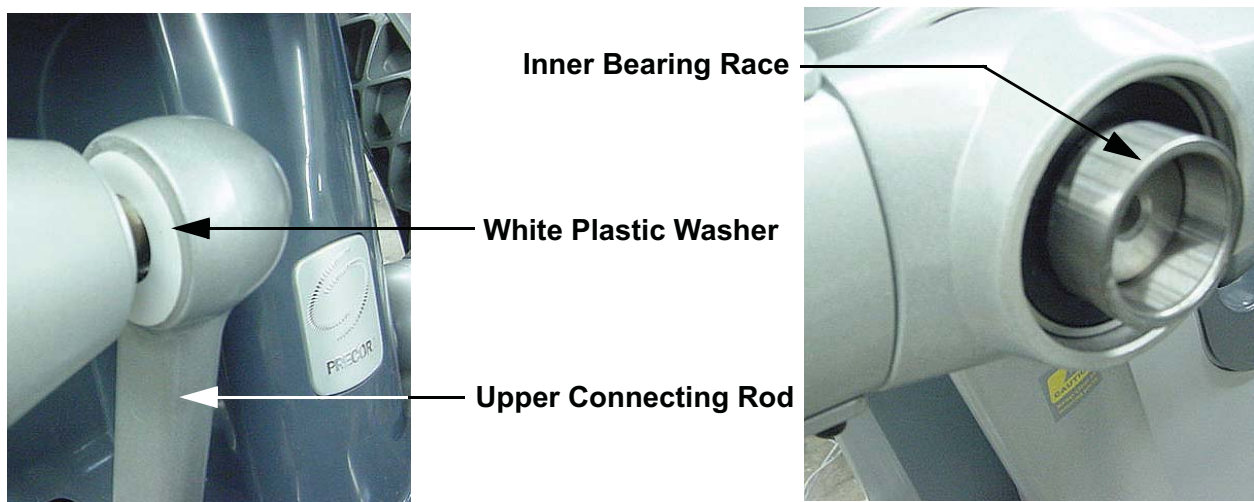
6. Remove, and retain for later use, the large snap ring from the center of the upper arm and remove and save the large black plastic washer. Remove the upper arm from AMT and discard.
7. Slide both of the inner bearing races and black plastic spacer off of the upper arm mounting shaft and discard. See Diagram 7.30. Retain the black plastic spacer for later use.

**Diagram 7.30 - Bearing Removal.**



8. Slide inner bearing race #1 onto the upper arm mounting shaft.
9. Ensure that the white plastic washer is on the upper arm, see Diagram 7.31, slide the replacement upper arm onto inner bearing race #1 and into the upper connecting rod.
10. Slide the black plastic spacer and inner bearing race # 2 into the upper arm. If necessary, carefully tap it into place with a rubber mallet. See Diagram 7.31.

**Diagram 7.31 - Bearing Replacement**

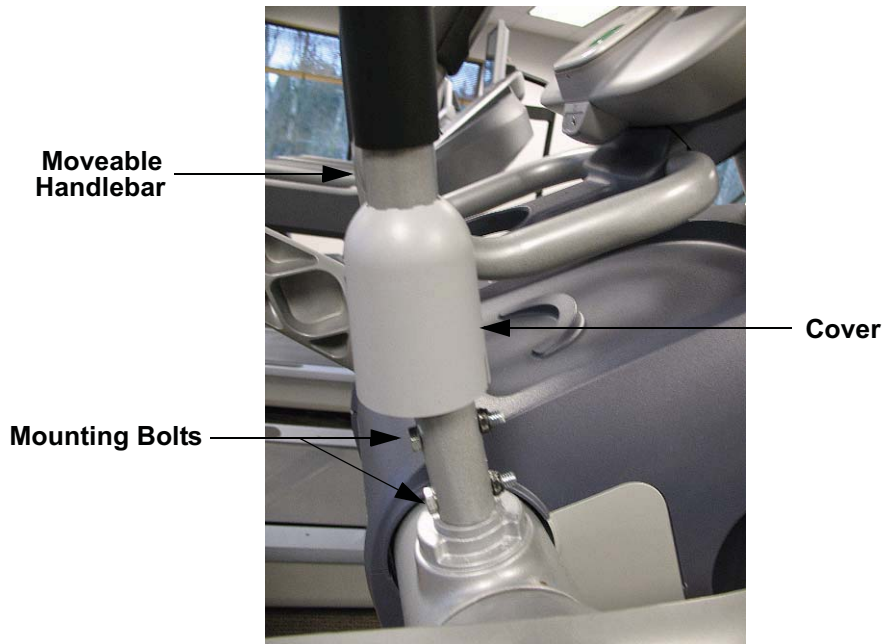


11. Slide the large black washer, removed in step 8, onto the upper arm mounting shaft and fasten the upper arm with the snap ring removed in step 8. replace the large end cap removed in step 6. It may be necessary to replace the large end cap if it no longer fits securely in the upper arm.
12. Fasten the upper arm to the upper connecting rod with the bolt removed in step 5. Torque the bolt to 17 - 21 foot pounds (200 - 250 inch pounds).
13. If you are reusing the rear link mounting hardware, apply loctite accelerator and blue loctite to the bolts. New replacement hardware does not need to have loctite applied because it utilizes a loctite patch.
14. Set the replacement rear link in its mounting position on the upper arm. Use a quarter inch allen wrench to hold the free floating shaft or the bolt and jam nut as described in step 4, thread one of the mounting bolts into the other side of the free floating shaft and torque it to 100 to 110 inch pounds. Thread another mounting bolt into the free floating shaft and torque it to 100 to 110 inch pounds.
15. Set the upper arm's top cover in place and slide the bottom cover up the rear link. Fasten the covers with the screws removed in step 1.
16. Repeat steps 1 through 16 with the remaining upper arm.
17. Thoroughly test all AMT functions.

## Procedure 7.15 - Front Arm Replacement

1. Slide the cover up on the moveable handlebar, remove the two bolts that fasten the moveable handlebar to front arm. Remove the moveable handlebar from the front arm. See Diagram 7.32.

**Diagram 7.32 - Moveable Handlebar**



2. Follow Procedure 7.9, steps 1-4. Remove the stairarm from the front arm.
3. There are four bearings in the front arm assembly. The inner races of the bearings are not attached to the bearings and may come loose when the stairarm is removed. See Diagram 7.11.
4. Remove the upper arm per Procedure 7.14, steps 1 to 9.
5. Slide the inner bearing race and black plastic spacer off of the upper arm mounting shaft and retain for later use. See Diagram 7.30.
6. Slide the front arm off of the upper arm mounting shaft.
7. Clean the upper arm mounting shaft to remove any dried grease, dirt or debris.
8. Slide the replacement front arm into place on the upper arm mounting shaft.
9. Replace the upper arm per Procedure 7.14, steps 10-19.

10. Remove the spacer, the inner race, two large washers and a wave washer from the stairarm. The clearance between the stairarm shaft and the inner race is very small. It is very easy to jam the inner race on the stairarm shaft.
11. Carefully, clean the stairarm shaft to remove any dried grease, dirt or debris.
12. Slide the wave washer and two large washers on to the stairarm shaft. Carefully, slide the inner race all of the way onto the shaft and against the large washers. Slide the spacer onto the stairarm shaft. The arrangement should be as shown in Diagram 7.36, above.
13. Carefully, slide the stairarm onto the inner race on the front arm assembly.
14. Slide the remaining inner race that is in the arm into the far bearing and secure with the snap ring.
15. Lift the stairarm and fasten it to the rear link assembly with the hardware removed in step 1. Torque the rear links assembly hardware to 100 - 110 inch pounds.
16. Set the moveable handlebar in its mounting position on the front arm and fasten it with the hardware removed in step 1. Slide its cover down into place.
17. Thoroughly test all AMT functions.