

Procedure 7.1 - Replacing a Cover

Cover Removal

1. Remove two screws, one each side, from the front of the top cover. Remove the top cover. See Diagram 7.1.

Diagram 7.1 - RBK 815 Covers



2. Remove three screws from the right side cover, remove the left side cover.
3. Remove three screws from the left side cover, remove the right side cover
4. Remove three screws, one each side and one in the rear, from the rear cover. Remove the rear cover
5. Remove three screws from the seat frame cover. Remove the seat frame cover. See Diagram 7.2.

Diagram 7.2 - RBK 815 Covers



6. Slide the kick plate forward and remove it from the frame.

Cover Replacement

7. Set the kick plate in its mounting position on the frame and slide it back into place.
8. Set the seat frame cover in its mounting position and fasten it with the screws removed in step 5, torque to 20 inch pounds.
9. Set the rear cover in its mounting position and fasten it with the three screws removed in step 4, torque to 20 inch pounds.
10. Set the right frame cover in its mounting position and fasten it with the screws removed in step 2, torque to 20 inch pounds.
11. Slide the connector assembly into the slot in the lower front portion of the right side cover. See Diagram 7.3.

Diagram 7.3 - CAT5, Coax Connector Assembly

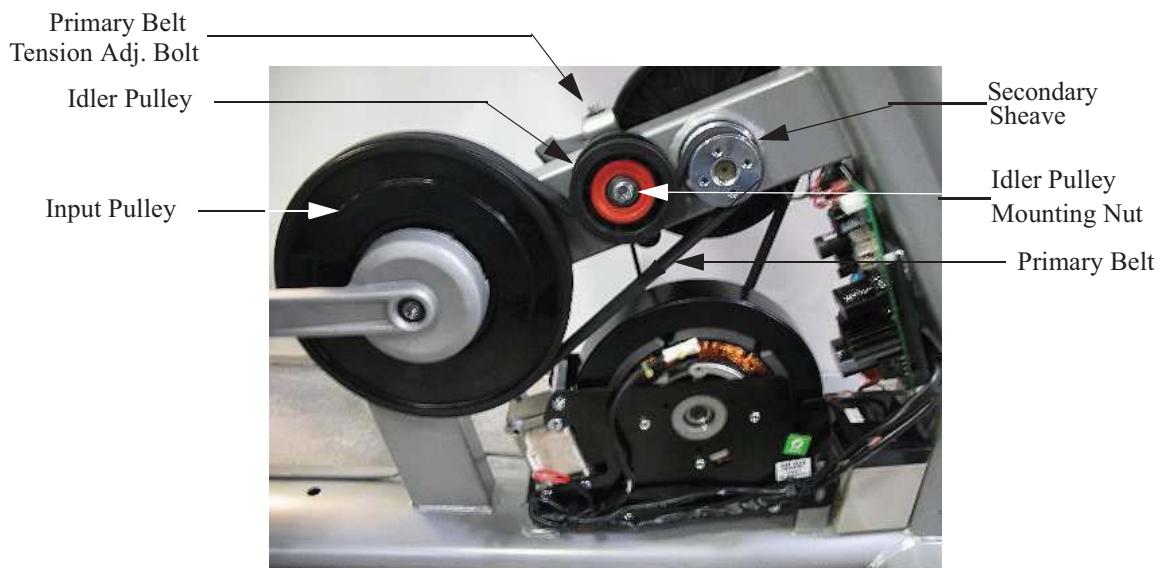


12. Set the left side cover in its mounting position, with the connector assembly in its slot in the left side cover and fasten it with the screws removed in step 3, torque to 20 inch pounds.
13. Set the top cover in its mounting position and fasten it with the screws removed in step 1, torque to 20 inch pounds.

Procedure 7.2 - Replacing a Primary Belt

1. Remove the top, rear, left and right covers per procedure 7.1.
2. Loosen but do not remove the idler pulley mounting nut.
3. Loosen the primary belt tension adjustment bolt to remove tension from the primary belt. See Diagram 7.4.
4. Remove and discard the primary belt.

Diagram 7.4 - Primary Belt

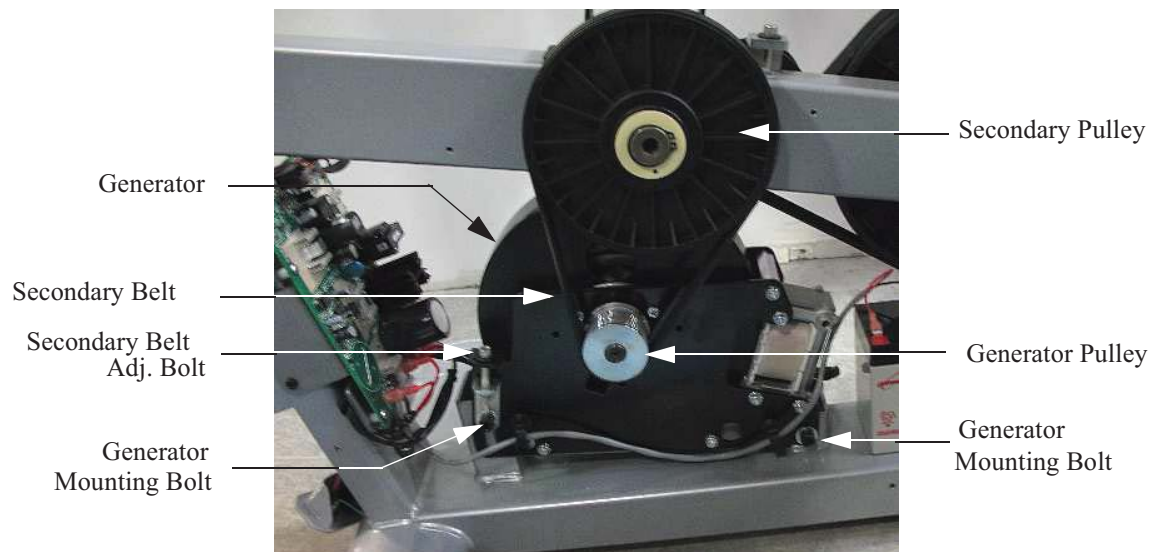


5. Place the replacement primary belt in its mounting position around the input pulley, under the idler pulley and around the secondary sheave.
6. Tension the primary belt per Procedure 5.1. When the belt tension is correct, torque the idler pulley mounting nut to 120 inch pounds (10 foot pounds).
7. Replace the covers per procedure 7.1.

Procedure 7.3 - Replacing a Secondary Belt

1. Remove the top, rear, left and right covers per procedure 7.1.
2. Loosen but do not remove the four generator mounting bolts.
3. Remove tension from the secondary belt by loosening the secondary belt adjustment bolt mounted on the generator. See Diagram 7.5.

Diagram 7.5 - Secondary Belt



4. Lift the generator, it will pivot on the rear mounting bolts, to remove the generator's weight from the secondary belt then remove and discard the secondary belt.
5. Lift the generator and place the replacement secondary belt in its mounting position around the generator and secondary pulleys.
6. Tension the secondary belt per Procedure 5.2.
7. Torque the four generator mounting bolts to 100 inch pounds. Recheck the belt tension, if it is no longer correct, slightly loosen the four generator mounting bolts and return to step 6.
8. Replace the covers per Procedure 7.1.

Procedure 7.4 - Replacing a Crankarm

1. Using an 15mm open end wrench, remove the pedal from the crankarm being replaced.
2. A Park Tool CCP-22 crankarm puller will be used to remove the crankarms.

Diagram 7.6 - Park Tool CCP-22 Crankarm Puller



3. Using an 8mm allen wrench, remove the crankarm mounting bolt.
4. Remove the nut from the crankarm puller. Thread the nut fully into the crankarm, until the bottoms out. See Diagram 7.7.

Note: If the nut is not fully threaded into the crankarms, the crankarm's threads may be destroyed when the crankarm is removed.

5. Thread the crankarm puller into the nut removed from the crankarm puller. See Diagram 7.7. When the crankarm puller tightens in the crankarm, continue rotating the crankarm tool clockwise until the crankarm is removed.

Diagram 7.7 - Crankarm with Crankarm Puller



Step 3



Step 4

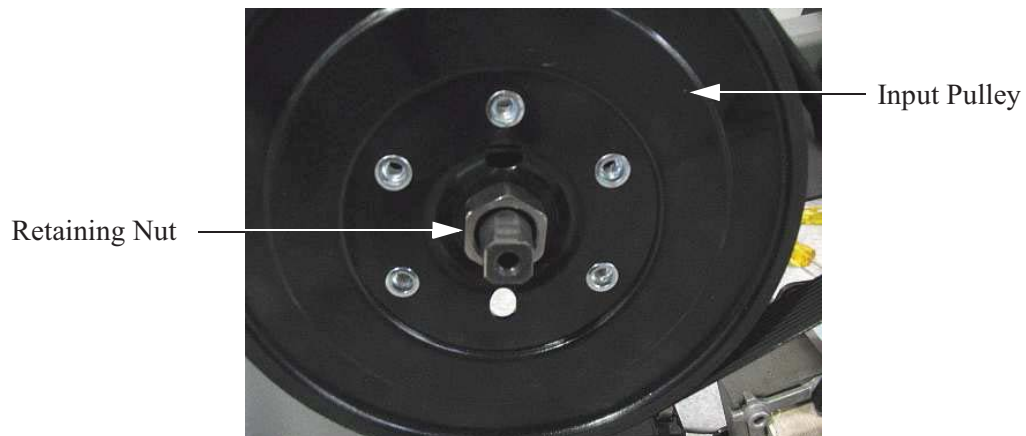
6. The right hand crankarm has a pin on the rear that fits into the input pulley. The left hand crankarm does not have a pin on the rear.
7. Set the replacement crankarm in its mounting position, ensuring that the pin (right hand crankarm only) on the crankarm is inserted in its mating hole in the input pulley.

8. Thread the crankarm mounting bolt, removed in step 2 into the crankarm until it is finger tight. Torque the crankarm bolt to 360 inch pounds (30 foot pounds).
9. The right hand pedal threads onto the crankarm in a normal (clockwise) direction, the left hand crankarm is reverse (counter-clockwise) threaded.
10. Install the pedal, removed in step 1, on the replacement crankarm and torque it to 800 inch pounds (67 foot pounds).
11. Pedal the bike for 1 minute and then re-torque left and right crankarms to the specification indicated in steps 8 and 9.

Procedure 7.5 - Replacing the Input Pulley

1. Remove the top, rear, left and right covers per procedure 7.1.
2. Remove the right crankarm per Procedure 7.4.
3. Loosen, but do not remove the idler pulley mounting nut.
4. Remove tension from the primary belt by turning the primary belt tension adjustment bolt counter-clockwise. See Diagram 7.4.
5. Remove the primary belt.
6. Remove the retaining nut from the center of the input pulley while holding the opposite end of the input axle with an open end wrench, turning clockwise. See Diagram 7.8.

Diagram 7.8 - Input Pulley



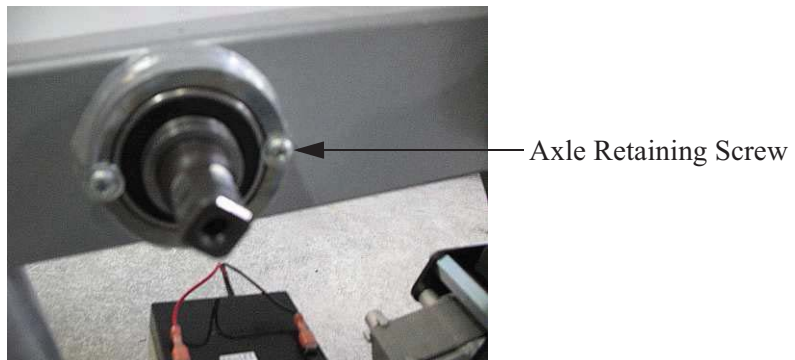
7. Remove the input pulley and discard.
8. Slide the replacement input pulley onto the input axle, ensuring that the spacer is still in place behind the input pulley.
9. Thread the retaining nut, removed in step 6. onto to the input axle, finger tight only at this time.
10. Place the primary belt in its mounting position around the input pulley, under the idler pulley and around the secondary sheave.
11. Replace the right crankarm per procedure 7.4, steps 6 to 8.
12. Using the thin 1-1/8 inch end wrench, reach behind the crankarm and securely tighten (counter-clockwise) the input pulley's retaining nut.
13. Tension the primary belt per procedure 5.1.

14. Replace the covers per Procedure 7.1.

Procedure 7.6 - Replacing the Input Axle Assembly

1. Remove the top, rear, left and right covers per procedure 7.1.
2. Remove both crankarms per Procedure 7.4.
3. Loosen, but do not remove the idler pulley mounting nut.
4. Remove tension from the primary belt by turning the primary belt tension adjustment bolt counter-clockwise. See Diagram 7.4.
5. Remove the primary belt.
6. Remove the retaining nut from the center of the input pulley.
7. Slide the input pulley off of the input axle assembly and remove spacer.
8. Remove the two small screws and washers that retain the input axle assembly. See Diagram 7.9.

Diagram 7.9 - Input Axle Assembly



9. Slide the input axle assembly out of the frame and discard.
10. Slide the replacement input axle assembly into its mounting position in the frame.
11. Slide spacer onto axle assembly.
12. Fasten the input axle assembly with the screws and washers remove in step 8.
13. Slide the input pulley, removed in step 7, onto the input axle assembly. Thread the nut, removed in step 6, onto the input axle assembly. Finger tight only at this time.
14. Place the primary belt in its mounting position around the input pulley, under the idler pulley and around the secondary sheave.
15. Replace the right crankarm per procedure 7.4, steps 6 to 8.
16. Using the thin 1-1/8 inch end wrench, reach behind the crankarm and securely

tighten (counter-clockwise) the input pulley's retaining nut.

17. Tension the primary belt per Procedure 5.1.
18. Replace the left crankarm per procedure 7.4.
19. Replace the covers per Procedure 7.1.

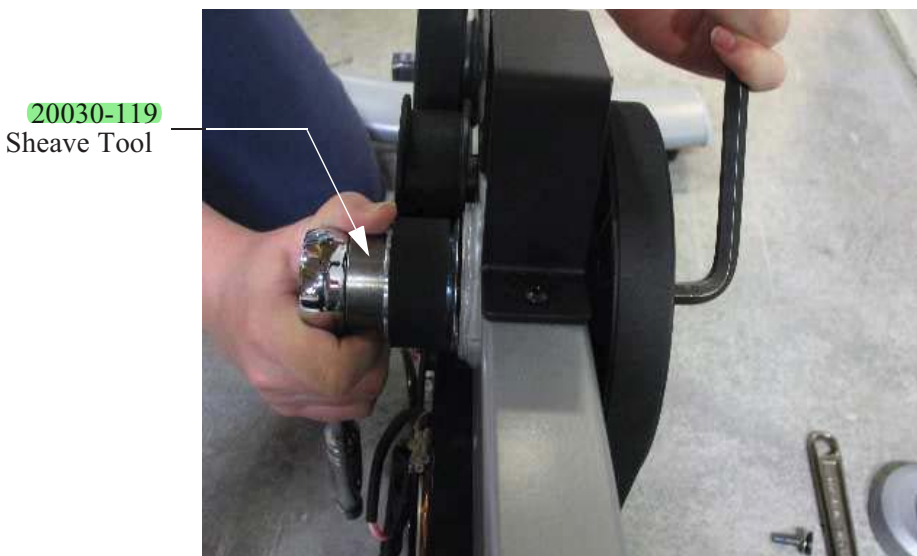
Procedure 7.7 - Replacing the Idler Pulley

1. Remove the top, rear, left and right covers per procedure 7.1.
2. Loosen, but do not remove the idler pulley mounting nut.
3. Remove tension from the primary belt by turning the primary belt tension adjustment bolt counter-clockwise. See Diagram 7.4.
4. Remove the primary belt.
5. Remove the idler pulley by removing the idler pulley mounting nut. Discard the idler pulley.
6. Mount the replacement idler pulley using the nut removed in step 5. The idler pulley mounting nut should only be finger tight at this time.
7. Replace the primary belt and tension the primary belt per Procedure 5.1.
8. Torque the idler pulley mounting nut to 120 inch pounds (10 foot pounds).
9. Replace the covers per Procedure 7.1.

Procedure 7.8 - Replacing the Secondary Sheave

1. Remove the top, rear, left and right covers per procedure 7.1.
2. Loosen, but do not remove the idler pulley mounting nut.
3. Remove tension from the primary belt by turning the primary belt tension adjustment bolt counter-clockwise. See Diagram 7.4.
4. Remove the primary belt.
5. Insert a 1/4 inch allen wrench into the primary pulley, the allen wrench will keep the secondary axle from turning and allow the secondary sheave to be removed.
6. While holding the secondary axle with a 3/8 inch allen wrench, use the **20030-119** sheave removal tool and a 1/2 inch drive socket wrench to remove the secondary sheave. See Diagram 7.10.

Diagram 7.10 - Secondary Sheave Removal

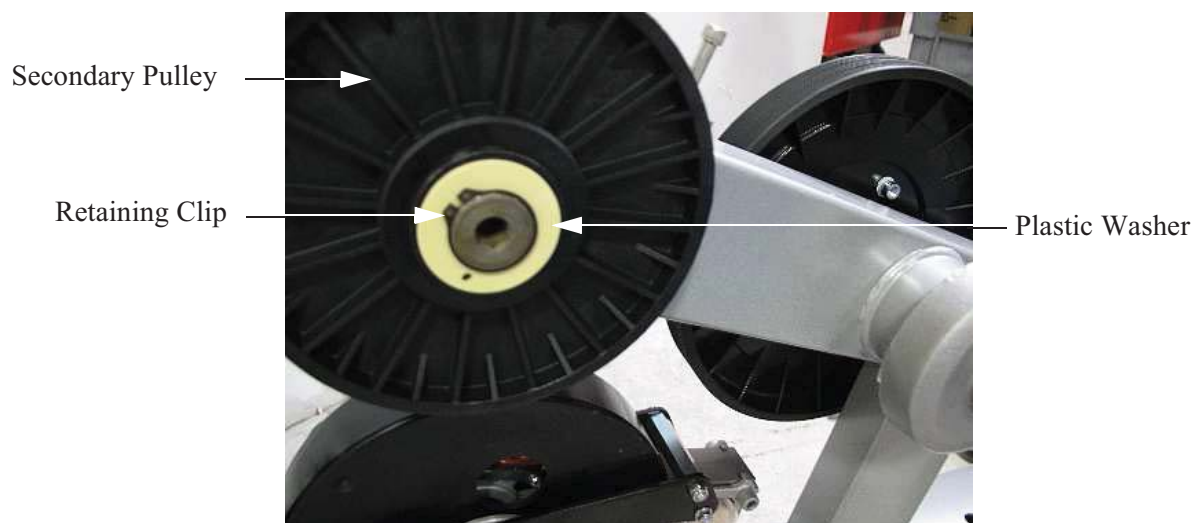


7. Thread the replacement sheave onto the secondary axle assembly. Using the allen wrench, **20030-119** sheave tool and socket wrench securely tighten the secondary sheave.
8. Replace the primary belt and tension the primary belt per Procedure 5.1.
9. Torque the idler pulley mounting bolt to 120 inch pounds (10 foot pounds).
10. Replace the covers per Procedure 7.1.

Procedure 7.9 - Replacing the Secondary Pulley

1. Remove the top, rear, left and right covers per procedure 7.1.
2. Loosen, but do not remove the generator screws and tension bracket mounting bolt, thread the tension adjustment bolt counter-clockwise to remove tension from the secondary belt. See Diagram 7.13.
3. Remove the retaining clip from the secondary axle. See Diagram 7.11.

Diagram 7.11 - Secondary Pulley



4. Remove the plastic washer and the secondary pulley. Discard the secondary pulley.
5. Slide the replacement secondary pulley onto the secondary axle. Slide the plastic washer, removed in step 4 onto the secondary axle. fasten the secondary pulley with the retaining clip removed in step 4.
6. Replace the secondary belt and tension it per Procedure 5.2.
7. Replace the covers per procedure 7.1.

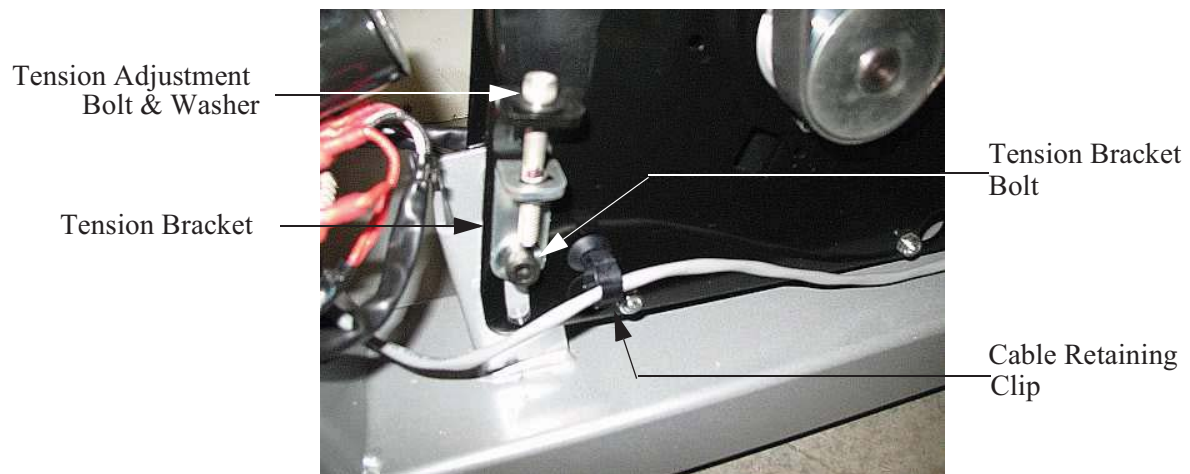
Procedure 7.10 - Replacing the Secondary Axle Assembly

1. Remove the top, rear, left and right covers per procedure 7.1.
2. Loosen, but do not remove the idler pulley mounting nut.
3. Remove tension from the primary belt by turning the primary belt tension adjustment bolt counter-clockwise. See Diagram 7.4.
4. Loosen, but do not remove the generator screws and tension bracket mounting bolt, thread the tension adjustment bolt counter-clockwise to remove tension from the secondary belt. See Diagram 7.13.
5. Remove the secondary sheave per Procedure 7.8.
6. Remove the secondary pulley per Procedure 7.9.
7. Remove a second plastic washer from the secondary pulley side of the secondary axle.
8. Remove a retaining clip and from the secondary sheave side of the secondary axle.
9. Remove a large retaining clip from the secondary pulley side of the secondary axle.
10. Remove the secondary axle from the frame and discard.
11. Slide the replacement secondary axle into its mounting position in the frame. Fasten the secondary axle with the large retaining clip removed in step 9. Inspect the retaining clip to insure that it is securely snapped in.
12. Replace the retaining clip removed in step 8.
13. Slide a plastic washer, removed in step 7, onto the secondary pulley side of the secondary axle.
14. Replace the secondary pulley per Procedure 7.9.
15. Replace the secondary sheave per procedure 7.8.
16. Tension the secondary belt per Procedure 5.2.
17. Tension the primary belt per Procedure 5.1.
18. Replace the covers per Procedure 7.1.

Procedure 7.11 - Replacing a Generator

1. Remove the top, rear, left and right covers per procedure 7.1.
2. Disconnect the two generator cables from the lower PCA. The cables are connected to M1, M2 and M3, M4, M5 on the lower PCA. See Diagram 6.1. Remove the generator clips from their cable retaining clips. See Diagram 7.13.
3. Remove the tension adjustment bolt and washer, remove the tension bracket mounting bolt, washer and tension bracket. See Diagram 7.13.
4. Loosen the three generator mounting bolts, one front and two rear.
5. Lift the generator, it will pivot on the rear mounting bolts, to remove the generator's weight from the secondary belt then remove the secondary belt.

Diagram 7.13 - Generator Tension Adjustment Hardware



6. Remove three generator mounting bolts, one front and two rear.
7. Remove and discard the generator.
8. Set the replacement generator in its mounting position. Hand start and hand tighten the three generator mounting bolts removed in step 6.
9. Place the tension adjustment bolt and washer in its mounting position on the replacement generator.
10. Thread the adjustment bolt into the tension bracket. Fasten the tension bracket with the bolt and washer removed in step 3. The bolt should only be hand tight.
11. Replace the secondary belt.
12. Tension the secondary belt per Procedure 5.2.
13. Torque the three generator mounting bolts and the tension bracket bolt to 100

inch pounds.

14. Reconnect the two generator cables, removed in step 2 to the lower PCA. Connect the two red magnet wires to terminals M1 & M2, the order does not matter. Connect the red generator wire to M3, the white generator wire to M4 and the black generator wire to M5. Check cable routing to insure cables will not rub on generator. See Diagram 7.14.
15. Replace the covers per Procedure 7.1.

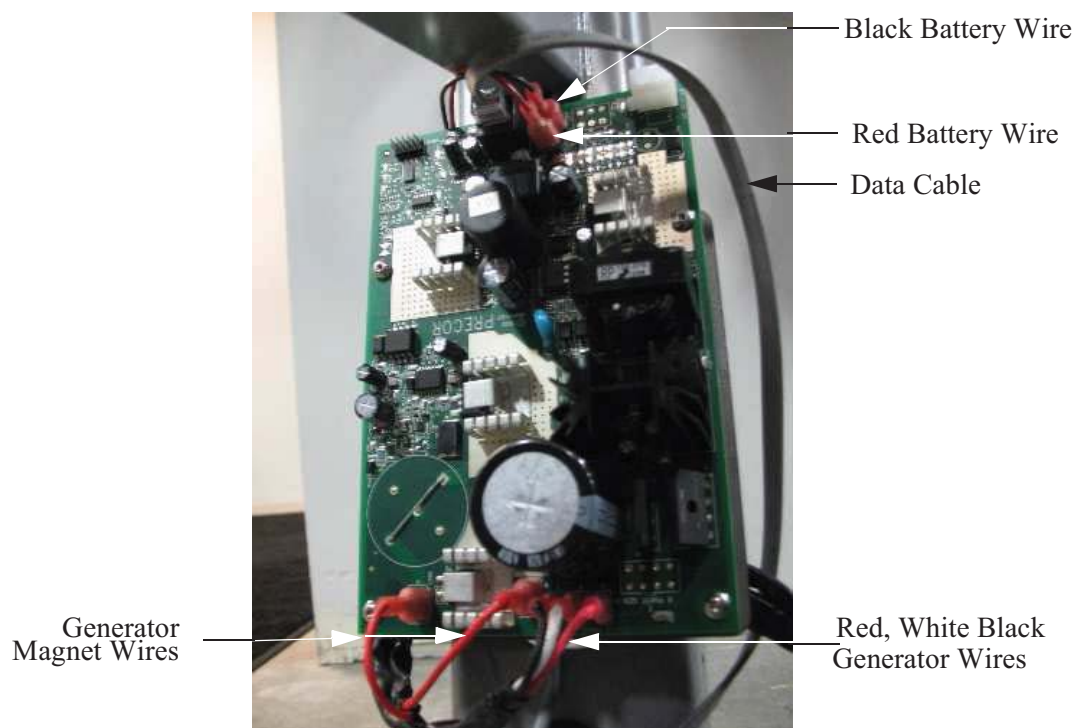
Procedure 7.12 - Replacing a Battery

1. Remove the top rear, top main and left side covers per Procedure 7.1.
2. The battery is held in place by the covers.
3. Remove the red and black wires from the battery.
4. Remove the battery and properly dispose of the battery.
5. Set the battery on the frame near its mounting position with the positive terminal (red dot) to the left.
6. If the battery does not have a wire clip on the left side, positive side of the battery, add one at this time.
7. Connect the black wire to the battery's negative terminal and the red wire to the battery's positive (red dot) terminal.
8. Route the cables to left side and run them through the wire clip. Ensure cable is not run near the primary pulley.
9. Slide the battery in into the battery pocket in the right hand cover, the battery must be oriented with its long axis side to side and the wire harness must be run to left side of the bike. If the battery orientation is incorrect, the covers will not fit.
10. Replace the covers per Procedure 7.1.

Procedure 7.13 - Replacing the Lower PCA

1. Remove the top, rear, left and right covers per procedure 7.1.
2. Disconnect all of the wires from the lower PCA.
3. Remove the four screws that fasten the lower PCA. Remove and discard the lower PCA.
4. Set the replacement lower PCA in its mounting position and fasten it with the four screws removed in step 3.
5. Reconnect the wiring to the lower PCA as follows: two red generator magnet wires to M1, M2; red generator wire to M3, white generator wire to M4, black generator wire to M5; red battery wire to M6, Black battery wire to M7; the data cable to connector J2. See Diagram 7.14.

Diagram 7.14 - Lower PCA



6. Replace the covers per Procedure 7.1.

Procedure 7.14 - Replacing a Display Front Panel, Upper PCA, Metrics PCA or HR PCA

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

Removing the display Front Panel

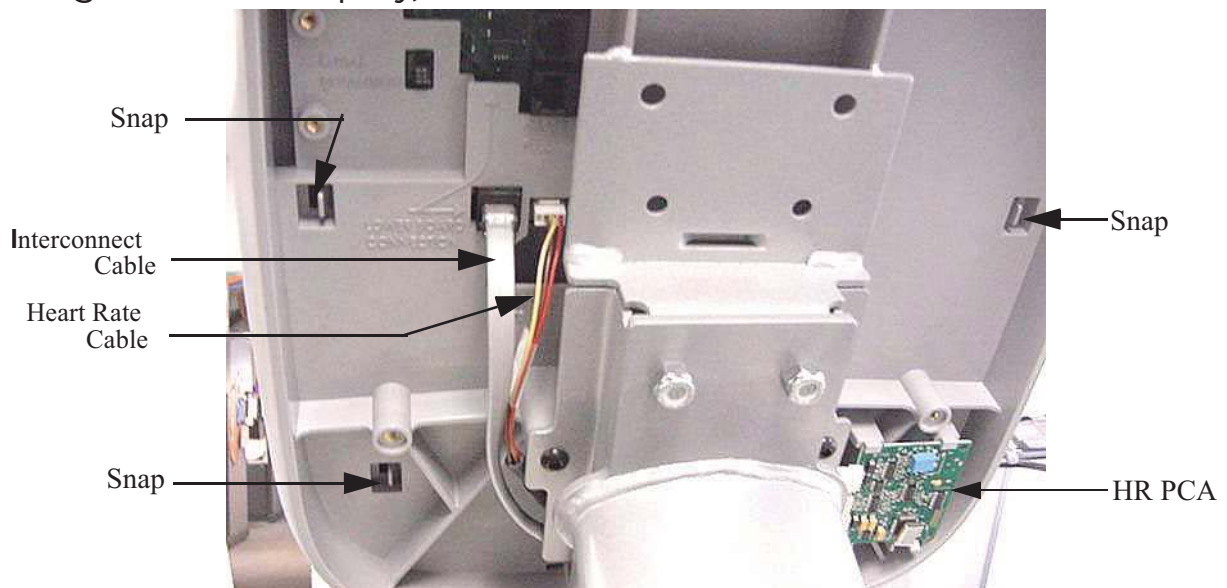
1. Remove the top rear, top main and right side covers and disconnect the red battery wire from the battery.

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. Disconnect the interconnect cable and heart rate cable from the upper PCA.

Diagram 7.15 - Display, with Rear Cover Removed



5. 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 7.15.
6. Proceed to the upper PCA, metrics PCA, HR PCA, D-Pad or display front panel

replacement procedure as required.

Removing and Replacing the Upper PCA

7. Carefully disconnect the keyboard cable from the upper PCA. See Diagram 6.3.
8. Disconnect the cables from the metrics PCA and the and the D-pad PCA. See Diagram 6.3.
9. Unsnap the upper PCA from the display front panel.

Note:

Package the upper PCA in an anti-static bag and document the problem as described in Procedure 3.4, Documenting Software Problems.

10. Position the upper PCA at its mounting location on the display front panel and snap it into place (refer to Diagram 6.3).
11. Reconnect the keyboard cable, D-pad cable and metrics PCA cable to the upper PCA. See Diagram 6.3.
12. Skip to step 33.

Replacing a Metrics PCA

13. Disconnect the metrics cable from the metrics PCA. See Diagram 6.3.
14. Unsnap the metrics PCA from the display front panel and discard.
15. Place the replacement metrics PCA in its mounting position on the display front panel and snap it into place.
16. Reconnect the metrics cable to the metrics PCA.
17. Skip to step 33.

Replacing a HR PCA

18. Disconnect the HR PCA to UPCA cable and HR PCA to hand grips cable from the HR PCA. See Diagram 7.16
19. Unsnap the HR PCA from the display front panel and discard.
20. Place the replacement HR PCA in its mounting position on the display front panel and snap it into place.
21. Reconnect the HR PCA to UPCA cable and HR PCA to hand grips cable to the HR PCA.
22. Skip to step 33.

Replacing a D-Pad Assembly

23. Disconnect the D-pad cable from the D-pad assembly. See Diagram 6.3.
24. Unsnap the D-pad assembly from the display front panel and discard.
25. Place the replacement D-pad assembly in its mounting position on the display front panel and snap it into place.
26. Reconnect the D-pad cable to the D-pad assembly
27. Skip to step 33.

Replacing a Display Front Panel

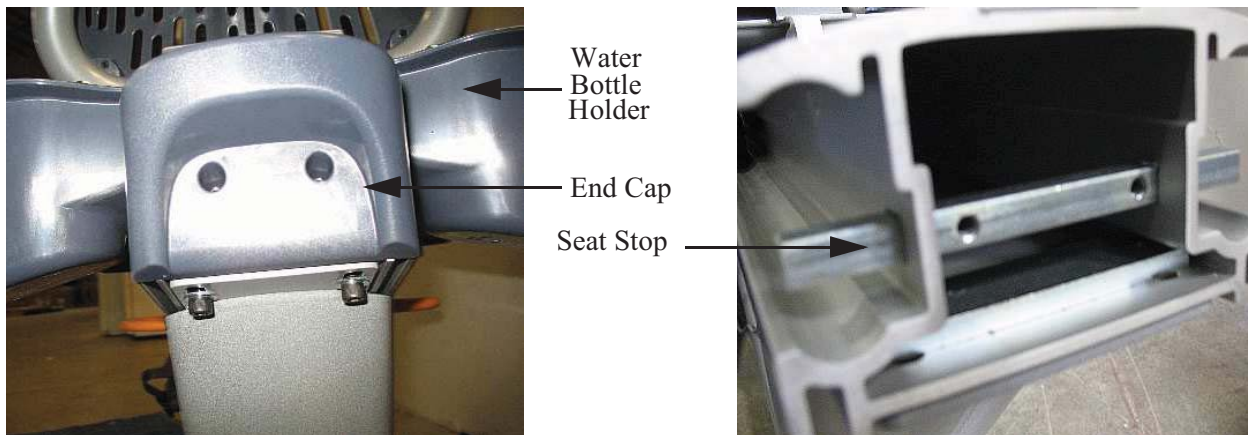
28. Remove the keypad cable from the upper PCA. Remove the metrics cable from the upper PCA and metrics PCA. Remove the D-pad cable from the upper PCA and D-pad assembly. See Diagram 6.3.
29. Remove the upper PCA, metrics PCA, and D-pad assembly from the display front panel as described in the above procedures.
30. Snap the upper PCA, metrics PCA and D-pad assembly onto the replacement display front panel.
31. Reconnect the keypad cable to the upper PCA. Reconnect the metrics cable to the upper PCA and metrics PCA. Reconnect the D-pad cable to the upper PCA and the D-pad assembly.
32. Starting from the bottom and working upward, snap the display front panel onto the display back panel.
33. Reconnect the interconnect and heart rate cables to the upper PCA.
34. Remove the ground wire of the wrist strap from the bicycle frame, then remove the wrist strap from your arm.
35. Position the display's rear cover on the display back panel. Replace and tighten the display mounting screws.
36. Replace the red battery wire removed in step 1.
37. Replace the covers per Procedure 7.1.
38. Check unit operation as described in Section Four.

Procedure 7.15 - Replacing All or Part of a Seat Carriage

Removing the Seat Carriage

1. There is a heart rate cable that connects the heart rate hand grips in the seat carriage to the heart rate cable in the seat rail. Care must be taken when removing the seat carriage to avoid damaging the heart rate cables.
2. Move the seat carriage to its most forward position. Carefully unsnap the water bottle holder from the rear of the seat carriage.
3. Remove the two screws that fasten the end cap in the seat rail. remove the end cap. Slide the seat stop out of the seat rail. See Diagram 7.16.

Diagram 7.16 - Seat Rail End Cap and Seat Stop



4. Remove the cable cover and disconnect the heart rate cables. See Diagram 7.17.