

Service Manual

AMT12 Base

AMT800-16/18 Base

AMT700-16/18 Base



Open Stride and Fixed Stride

Table of Contents

FIGURE 174

TABLE OF CONTENTS	2
ABOUT THIS DOCUMENT	6
THINGS YOU SHOULD KNOW	7
Right, Left, Front, and Back Conventions	7
System Operation Overview	7
Tools Required	7
Parts and Exploded View Diagrams	8
Drive Belt Gauge Instructions	9
How to the Drive Belt Gauge.....	9
Procedure	9
WARNING AND CAUTION STATEMENTS AND GENERAL SAFETY GUIDELINES	11
Warning and Caution Statements	11
Safety	11
CHECKING THE AMT OPERATION.....	13
Procedure	13
ADJUSTMENT PROCEDURES	14
H-brake Belt Tension Adjustment	14
Procedure	14
Generator Belt Tension Adjustment	16
Procedure	16
Drive Input Belt Tension Adjustment	18
Procedure	18
Lift Motor Calibration Adjustment	21
Issues/symptoms.....	21
Tools required	21
Procedure	21

REPLACEMENT PROCEDURES.....	28
Cover Replacement	28
Top Cover Removal	28
Front Cover Removal.....	30
Center Beam Cover Removal.....	31
Back Cover Removal.....	32
Left and Right Side Cover Removal.....	33
Left and Right Side Bottom Cover Removal	33
Left and Right Bottom Cover Assembly.....	34
Left and Right Side Cover Assembly	34
Back Cover Assembly	35
Center Beam Cover Assembly	36
Front Cover Assembly	36
Upper Arm Cover Replacement	36
Rear Flat Belt Terminal Cover Replacement.....	38
Upper Arm Cam Cover Replacement	39
Top Cover Assembly	39
Replacing the Belt Guard	40
Finger Guard Replacement Procedure	40
Replacing the Upper Arm Grip	43
Upper Arm Grip Replacement Procedure	43
Replacing a Flat Belt Terminal.....	49
Flat Belt Terminal Replacement Procedure.....	49
Rear	49
Replacing a Upper Arm Flat Belt Pulley.....	53
Replacing a Stairarm	60
Stairarm Replacement Procedure	61
Replacing the Flat Belts.....	66
Belt Replacement & Odometer Tracking Codes	68
Flat Belt Installation - Front Clamp	74
Outside Flat Belt Replacement.....	76
Replacing the Front Arm Assemblies - With Flat Belts and Press Fit Cams (After 4/3/2013).....	91
Replacing a Front Arm Assembly – Without Flat Belts and Non-Press Fit Cams (Prior to 4/3/2013).....	114
Replacing the Lower Board	127
Replacing the Lower PCA and Battery Bracket.....	128
Replacing the Battery	130
Replacing the Generator Belt	131
Replacing the Generator	132
Replacing the Drive Input Pulley Belt	133

Replacing the Step-Up pulley	135
Replacing the Crank Arm.....	136
Replacing the Drive Input Pulley	141
Replacing the Lift Arm Housing	147
Replacing the drive input housing	161
Replacing a Tie Rod.....	176
Replacing the Stride Dial Sensor.....	177
Replacing the H-Brake Belt	179
Replacing the H-Brake Cam Assembly	182
Replacing the H-Brake Drum Assembly	187
Replacing the Gas Spring	196
Replacing the lift motor.....	199
TROUBLESHOOTING	205
Troubleshooting the Generator	205
Generator Operation Verification Test.....	205
Procedure	205
Troubleshooting the Incline System	207
Troubleshooting the COMM Data Cable.....	210
PREVENTIVE MAINTENANCE.....	211
Regular Preventive Maintenance (Owner)	211
After Each Use	211
Daily Maintenance.....	211
Weekly Maintenance.....	211
Quarterly Maintenance	211
On-Site Preventive Maintenance (Service Technician).....	212
SYSTEM BLOCK DIAGRAM	213
WIRING DIAGRAM	214

AMT 12 Wiring Diagram..... 214

About This Document

Warning: This service manual is for use by Precor trained service providers only.

If you are not a Precor Trained Servicer, you must not attempt to service any Precor Product; Call your dealer for service.

This document contains information required to perform the majority of troubleshooting, and replacement procedures required to repair and maintain this product.

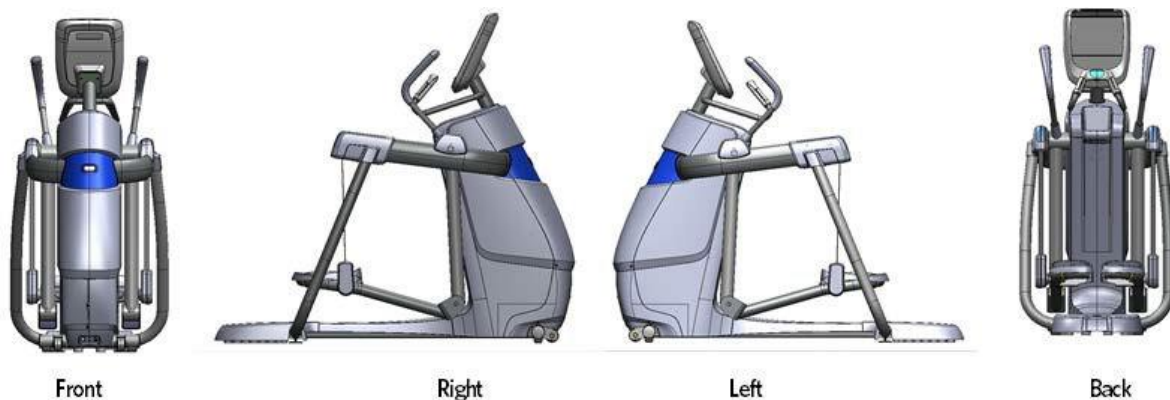
Document PN: 20039-172 Rev A17

Things you should know

Right, Left, Front, and Back Conventions

In this manual, right, left, front, and back are from the perspective of a user standing on the AMT facing the console display.

Figure 1: Front, Back, Left, Right Conventions



System Operation Overview

The generator performs three functions in the AMT. First, by controlling the amount of electrical current applied from the generator to a load circuit, the user's pedaling resistance is controlled. Second, the generator is used to charge the AMT's internal battery. Lastly, one of the generator's three phase output windings is monitored to determine when the unit is in use and when it is idle. This system also determines the step rate by determining the operating speed (output frequency) of the monitored generator winding. There is also a magnetic brake that applies resistance to horizontal motion and a sensor that measures horizontal motion (stride length).

Tools Required

- Multimeter
- Allen wrench set
- Anti-static kit
- Screwdriver set
- US and metric end wrench set
- US and metric socket wrench set
- Torque wrench, 200 in./lbs.
- Torque wrench, 200 ft./lbs

OTC 6673 Universal Belt
Tension Gauge

4 - 6 gear puller



Parts and Exploded View Diagrams

For the latest exploded view, part number and part pricing information, visit the Precor Partner Website at <http://www.precorconnect.com/>.

Drive Belt Gauge Instructions

How to the Drive Belt Gauge

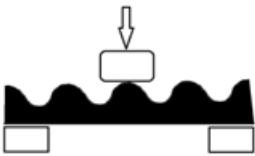
The following instructions will describe how to use the SP6673 belt tension gauge. Deviating from the instructions may result in inaccurate readings and may potentially cause premature failure to the drive belt or damage to the machine.

Procedure

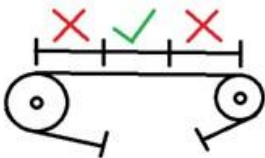
1 Fully depress the ball so the hook engages the belt.

2 Hold the gauge square to the edge of the belt, and release the ball using a quick, snapping motion.

a) Gear belt tension gauge position: Tension gauge finger must land on top peak of gear belt tooth, not in valley between.



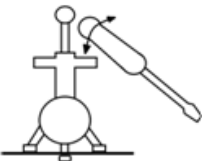
b) Tension gauge should be in the middle 1/3 of the free span of belt, not too near to either fixed point.



c) Tension gauge must be pressed up against edge of belt.



d) Tension gauge has some internal friction and can show incorrect results. To overcome this- once the gauge is in place on the belt, tap on the back of the gauge with a small hand tool (screwdriver, wrench, etc) 5-8 times before reading.



3 Read tension on the dial face, across from the indicator on the gauge body.

4 If the belt tension is within manufacture's specifications, seat the belt. Run the machine for approximately 1-2 minutes and then re- check the tension. This will allow the belt to seat itself in the grooves of the pulley, and ensure tension is set correctly.

If the tension is not set to the manufactures specifications, remove the tension gauge and adjust the belt tension. Repeat steps 1 through 4 until specifications are met.

Warning and Caution Statements and General Safety Guidelines

Warning and Caution Statements

Warning statements indicate a particularly dangerous activity that could cause personal injury. Warning statements you will find in this manual include:

- Because this is a self-powered unit, it will either be necessary to either equip the unit with the optional external power supply or have an assistant pedal on the unit while voltage measurements are being taken. Because of the danger of working on the unit while it is in motion using the optional external power supply is strongly recommended.
- When the unit is used, stairarms are in motion; the generator will operate and produce potentially hazardous voltages even when the battery is disconnected.
- Caution statements are intended to prevent damage to the AMT as a result of the current activity. Caution statements included in this manual are listed below:
 - When it is necessary to lift or move the AMT, ensure that the AMT has adequate support and that you use proper lifting techniques. When the rear platform is removed, the AMT may be lifted from the rear and moved like a wheelbarrow.
 - To remove power from the AMT, the optional external power supply (when equipped) must be disconnected from the wall outlet and the red (positive) wire must be disconnected from the battery. Always ensure that the AMT external power supply is unplugged from the wall outlet and the red (positive) wire is removed from the battery when you inspect or adjust the AMT, or when you isolate, remove, or replace an AMT component.
 - Removing the covers exposes high voltage components and potentially dangerous machinery. Exercise extreme caution when you perform maintenance procedures with the cover(s) removed.
- During service operations you will be very close to moving machinery and voltage bearing components. When you perform maintenance procedures with the covers removed, remove jewelry (especially from ears and neck), tie up long hair, remove neck ties, and do not wear loose clothing.
- Exercise caution when touching any wire or electrical component during AMT operation.
- A pinching hazard exists when the unit is operated. It is possible to seriously pinch a finger. The AMT can be mechanically locked by inserting a screwdriver through the primary sheave and frame. See the illustration below. Locking the AMT will prevent accidental pinching.



A pinching hazard exists when the unit is operated. It is possible to seriously pinch a finger. The AMT can be made immobile by lift the stairarm pedals and removing the tension from stairarm flat belts. Removing the tension from the flat belts will prevent accidental pinching.

Safety

Safety guidelines you should know and follow include:



Read the owner's manual and follow all operating instructions.

- Operate the AMT on a solid, level surface with the unit properly leveled. The AMT is properly leveled when all five feet are in contact with the floor. Visually check the AMT before beginning service or maintenance operations. If it is not completely assembled or is damaged in any way, exercise extreme caution while operating and checking the AMT.
- When operating the AMT, do not wear loose clothing. Do not wear shoes with heels or leather soles. Check the soles of your shoes and remove any embedded stones. Tie long hair back.
- Do not rock the unit. Do not stand or climb on the handlebars, display enclosure, or cover.
- Do not set anything on the handlebars, display enclosure, or cover.
- Never place liquids on any part of the AMT, while performing service.
- To prevent electrical shock, keep all electrical components away from water and other liquids.
- Do not use accessory attachments that are not recommended by the manufacturer-such attachments might cause injuries.
- AMT's equipped with Cardio Theater PVS units will have external power supply and coaxial cable routed through the bottom of the unit to the top of the display console. Cord management must be maintained.

Checking the AMT Operation

This section provides you with a quick method of checking AMT operation. Check the operation of the AMT at the end of most maintenance procedures.

Procedure

- 1 Start striding on the AMT or plug the optional external power supply (when available) into the AMT and the AC outlet.
- 2 When the PRECOR banner displayed, press **QUICK START**.
- 3 Select Resistance Level 1 and press **ENTER**.
- 4 Operate the AMT for 4–5 minutes. As you operate the AMT, concentrate on the operating sounds made by the unit. Be on the alert for unusual rubbing, hitting, grinding, or squeaking noises.
- 5 Ensure that the AMT is properly leveled, that the two "feet" are in contact with the floor and there is no side to side rocking.
- 6 If the AMT makes unusual noises or the electronic display does not change appropriately, troubleshoot per Section, ***AMT Base Troubleshooting Procedures***. 147).
- 7 Press the **RESISTANCE**  key until you reach Resistance Level 10. Operate the AMT for another 2–3 minutes.
- 8 If the AMT resistance does not change or the operation of the AMT feels inconsistent compared with Resistance Level 1, troubleshoot per Section, ***AMT Base Troubleshooting Procedures***. 147).
- 9 Press the **RESISTANCE**  key until you reach Resistance Level 20. Operate the AMT for another 2–3 minutes.
- 10 If the resistance of the AMT does not change or the AMT operation feels inconsistent with Resistance Levels 1 and 10, troubleshoot per ***AMT Base Troubleshooting Procedures***. 147).
- 11 Check the LED's mounted on the upper PCA and the function keys displayed on the electronic console by performing Procedure, ***Accessing the P30 Diagnostic Software***. and ***P80 System Settings*** (on page 58).
- 12 Check stride indicator for proper operation.
- 13 Check wireless and hand held heart rate functions.

Adjustment Procedures

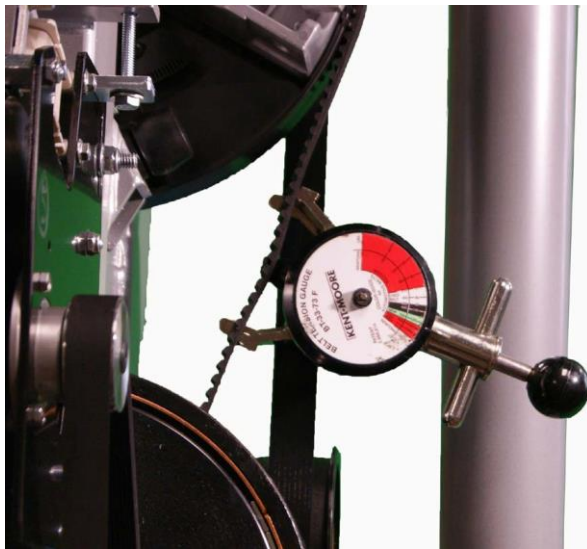
H-brake Belt Tension Adjustment

WARNING: Before continuing with this procedure, review the Warning and Caution statements listed in the Warning and Caution Statements and General Safety Guidelines Section, Things You Should Know.

Procedure

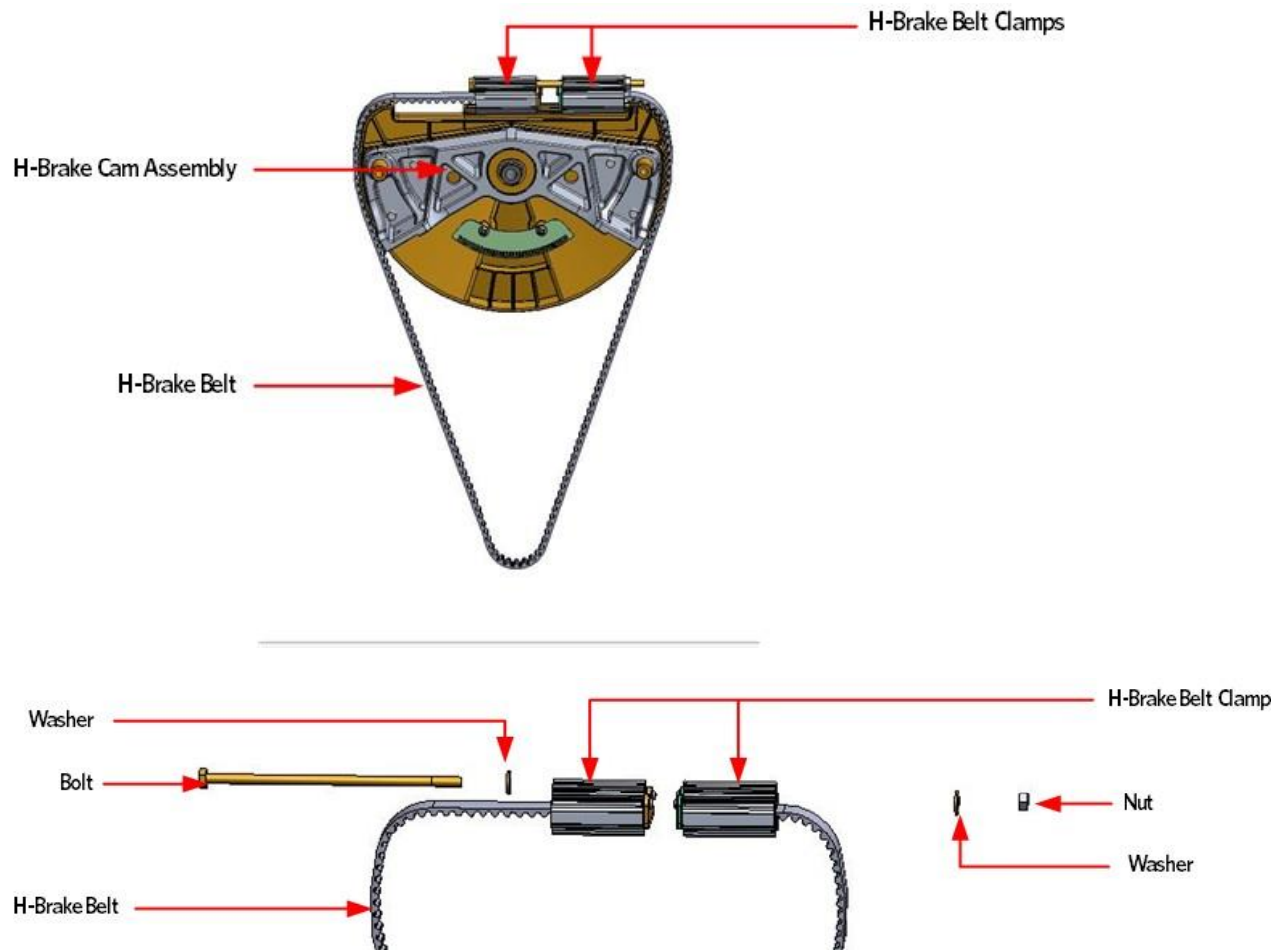
- 1 Remove the gasket, top, front, rear, left and right side covers per, *Cover Replacement* Procedure.
- 2 Place a belt gauge on the H-brake belt.

Figure 50: H-Brake Belt Tension Gauge



- 3 The belt gauge should read approximately 130-140 lbs. If the belt tension is significantly high or low the belt tension may be adjusted by loosening or tightening the H-Brake adjustment bolt.

Figure 51: H-Brake Belt and H-Brake Cam



Generator Belt Tension Adjustment

WARNING: Before continuing with this procedure, review the Warning and Caution statements listed in the Warning and Caution Statements and General Safety Guidelines Section, Things You Should Know..

Procedure

- 1 Remove the gasket, top, front, rear, left and right side covers per procedure, [Cover Replacement](#).
- 2 Place a belt gauge on the generator belt.



- 3 Check the generator belt tension, if not within specification continue with the following adjustment steps. See [Drive Belt Gauge Instructions](#).

Generator Belt Tension Specification

Generat	Tension
new	85 +/- 5 lbs (38.6 +/- 2.3 kgs)
used*	60 - 75 lbs (27.2 - 34 kgs)

Note: * More than 1 hour of use.

- a. Loosen or tighten the generator adjustment nut and bolt until the belt gauge reading is within specification.
- b. Tighten the two bolts that secure the generator mounting bracket to the frame. Torque to 160 inch pounds.

4 Select the QUICKSTART program and adjust the resistance \uparrow key until resistance level 10 is displayed. Pedal the AMT for approximately one minute.



9 Recheck the drive input belt and the generator belt tension, readjust if out-of-spec. See [Drive Belt Gauge Instructions](#).

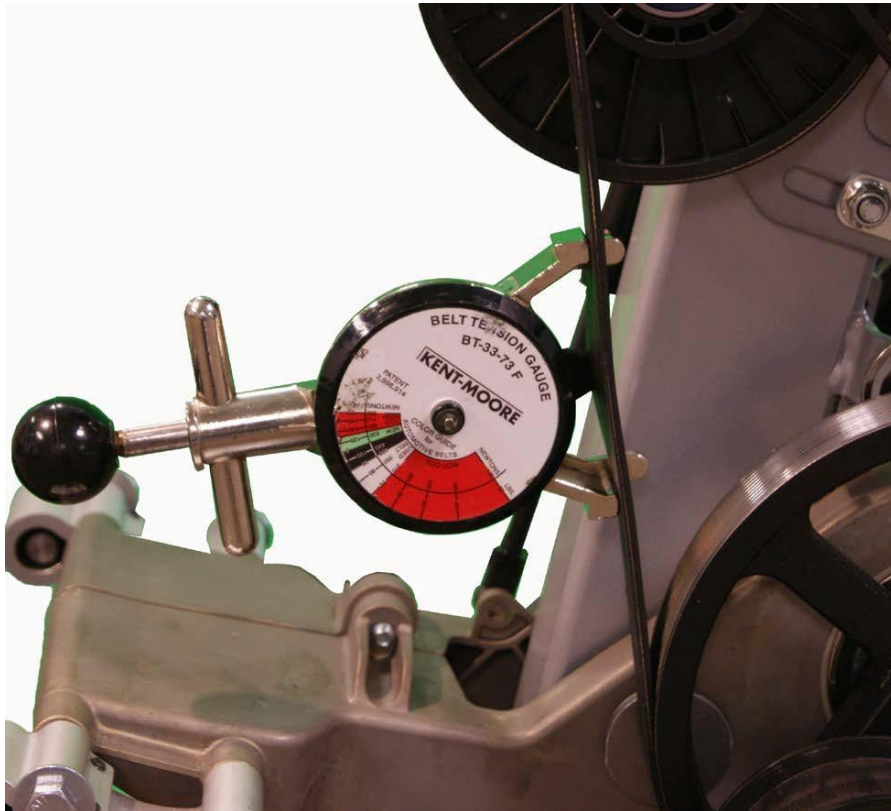
10 Replace the covers per procedure, [Cover Replacement](#).

Drive Input Belt Tension Adjustment

WARNING: Before continuing with this procedure, review the Warning and Caution statements listed in the Warning and Caution Statements and General Safety Guidelines Section, Things You Should Know.

Procedure

- 1 Remove the gasket, top, front, rear, left and right side covers per procedure, [Cover Replacement](#).
- 2 Place a belt gauge on the drive input belt as shown below.



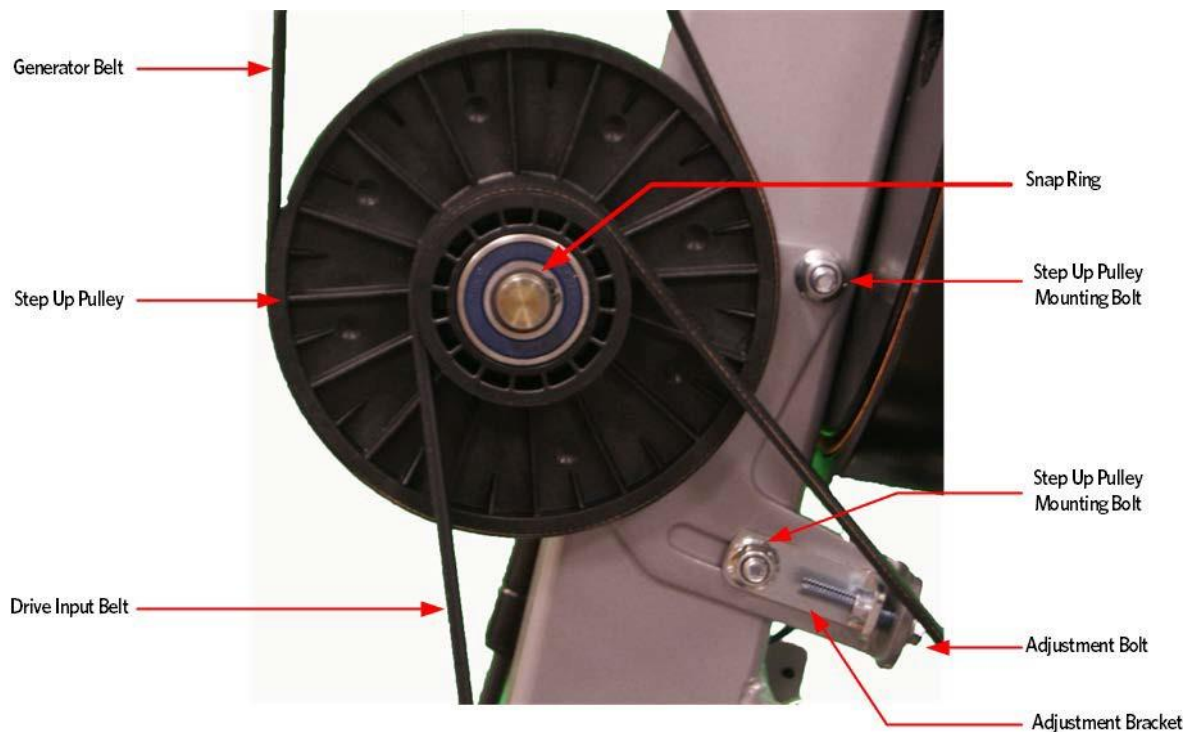
- 3 Check the drive input belt tension, if not within specification continue with the following adjustment steps. See [Drive Belt Gauge Instructions](#).

Drive Belt Tension Specification

Drive Belt	Tension
new	135 +/- 5 lbs (61.2 +/- 2.3 kgs)
used*	100 - 125 lbs (45.4 - 56.7 kgs)

Note: * More than 1 hour of use.

- a Loosen the generator mounting bolts.
- b Loosen the generator adjustment bolt.
- c Loosen or tighten the Step-Up pulley adjustment bolt until the drive belt tension is within specification. See *Drive Belt Gauge Instructions*).



- d Tighten the two Step-Up pulley mounting bolts. Torque to 160 inch pounds.
- e Select the QUICKSTART program and adjust the resistance \square key until resistance level 10 is displayed. Pedal the AMT for approximately one minute.
- f Recheck the drive belt tension, readjust if needed.

4 Place the belt gauge on the generator belt.




5 Check the generator belt tension, if not within specification continue with the following adjustment steps. See [Drive Belt Gauge Instructions](#).

Generator Belt Tension Specification

Generat	Tension
new	85 +/- 5 lbs (38.6 +/- 2.3 kgs)
used*	60 - 75 lbs (27.2 - 34 kgs)
Note: * More than 1 hour of use.	

a Loosen or tighten the generator adjustment nut and bolt until the belt gauge reading is within specification.

b Tighten the two bolts that secure the generator mounting bracket to the frame. Torque to 160 inch pounds.

c Select the QUICKSTART program and adjust the resistance  key until resistance level 10 is displayed. Pedal the AMT for approximately one minute.

f Recheck the generator belt tension, readjust if out-of-spec.

10 Replace the covers as per procedure, [Cover Replacement](#).

Lift Motor Calibration Adjustment

(Open Stride™ models only)

Perform a lift motor calibration whenever the AMT exhibit any out-of-cal issues/symptoms or anytime the lift motor or gas spring are removed or replaced.

Issues/symptoms

Incorrect calibration of the lift motor can cause the lift arm assembly to bottom or top out (hit hard stops) before reaching the commanded incline level. This can cause the lift motor to continue in an operating state (as it is unable to reach the commanded level) or cause the lift arm assembly to jam. The lift fuse and/or battery can also be damaged.

Tools required

- #2 Philips screwdriver
- Painter's tape
- Measuring tape
- Ratchet strap (1" W x 8' L)

Procedure

Lift Motor Calibration Check

1. This procedure assumes that the lift motor system and console stride height control is operating correctly.
2. Remove the front, left/right side, left/right bottom, Center beam, and back covers, see *Cover Replacement*.
3. Remove the LPCA cover.
4. Access the **Hardware Validation** diagnostics menu (51765761), select **CROSSRAMP TEST**, and set the **CROSSRAMP** (stride height) to level 5.



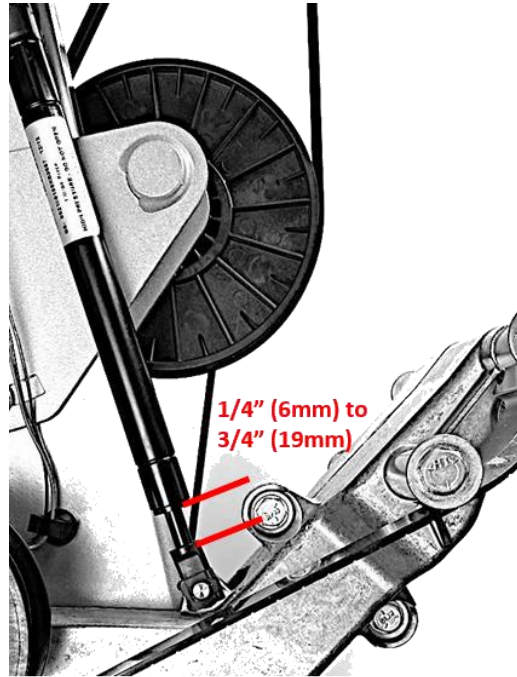
Note: The AMT **CROSSRAMP** level is equivalent to the Stride Height level.

5. Disconnect the COMM Data cable from the LPCA.



Warning: Failure to disconnect the COMM Data cable can result in unexpected lift motor movement during the calibration process. This could result in personal injury to hands or other appendages.

6. Verify that the gas spring level 5 Clearance Gap (measured from the bottom of gas spring outer housing to top of the shaft rod end) is between **¼ to ¾ inches (6mm to 19mm)**, see figure *Level 5 Clearance Verification* below.
 - a. If the level 5 Clearance Gap is NOT within specification the lift motor needs to be calibrated, go to the *Lift Motor Calibration* procedure below.
 - b. If the level 5 Clearance Gap is within specification, continue with the next step.



Level 5 Clearance Verification

7. Reconnect the COMM Data cable from the LPCA.
8. Verify the CROSSRAMP TEST A/D values at **CROSSRAMP** levels 5 and 1.
 - a Set the **CROSSRAMP** to **level 5** and verify the Level 5 A/D values:
 - **212 – 216**: machines with LPCA PNs 305476-101/102 or with mfg. dates 3 June 2019 and earlier.
 - **3392 – 3456**: machines with LPCA PNs **305476-103** and later or with mfg. dates later than 3 June 2019.
 - b Set the **CROSSRAMP** to **level 1** and verify the Level 1 A/D values:
 - **38 – 42**: machines with LPCA PNs 305476-101/102 or with mfg. dates 3 June 2019 and earlier.
 - **608 - 672**: machines with LPCA PNs **305476-103** and later or with mfg. dates 4 June 2019 and later.
9. If the level 1 or level 5 A/D values are NOT within the specified limits the lift motor needs to be calibrated, continue with the *Lift Motor Calibration* procedure below. If the level 1 or level 5 A/D values are within the specified limits, the lift motor does not need to be calibrated.



Note: If the A/D values are slightly out-of-range but the gas spring level 5 Clearance Gap is within the specified limits $\frac{1}{4}$ to $\frac{3}{4}$ inch [6mm to 19mm]), there is no need to do a lift motor calibration.

10. Reinstall the LPCA cover.

11. Reinstall the front, left/right side, left/right bottom, center beam, and back covers, see *Cover Replacement*.
12. Verify operation and return to service.

Lift Motor Calibration procedure

13. If not already removed, remove the front, left/right side, left/right bottom, center beam, and back covers, see *Cover Replacement*.
14. Remove the LPCA cover.
15. Access the **Hardware Validation** diagnostics menu (51765761), select the **CROSSRAMP TEST**, and set the CROSSRAMP (stride height) to **level 1**. This sets the lift motor jack screw to the level 1 stride height position.



Note: The CROSSRAMP level MUST be set to level 1 (full extension of the gas spring shaft) or the calibration will be invalid. To ensure the lift motor reaches the minimum level 1 position, hold the CROSSRAMP (or stride height) control paddle until the lift no longer moves.

16. Disconnect the COMM Data cable from the LPCA.



Caution: Failure to disconnect the COMM Data cable can result in the lift motor automatically resetting to the level 2 "Home" position, which will invalidate the calibration.



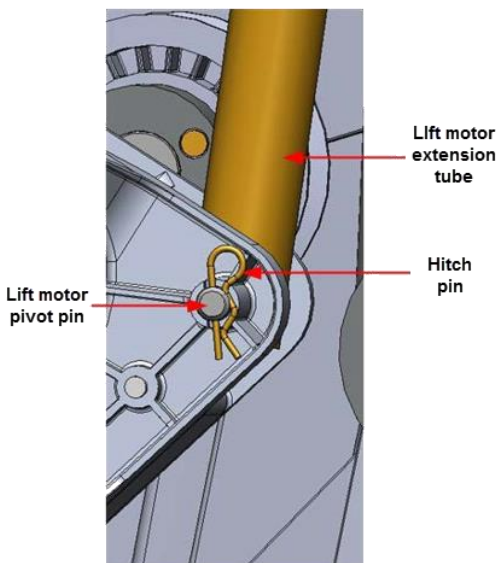
Warning: Failure to disconnect the COMM Data cable can result in unexpected lift motor movement during the calibration process. This could result in personal injury to hands or other appendages.

17. Remove the left and right stairarm flat belts off the lower stairarm pulleys and then gently setting the stairarm on the floor.



Warning: Failure to remove the stairarm flat belts could result in personal injury. Removing the stairarm flat belts will help to prevent yourself or others from stepping onto the stairarm causing unexpected machine movement while working on the lift system hardware.

18. Remove the lift motor extension tube from the lift arm assembly bracket. Remove the hitch pin and lift pivot pin, see the following figure *Lift Motor Extension Tube Connection*.

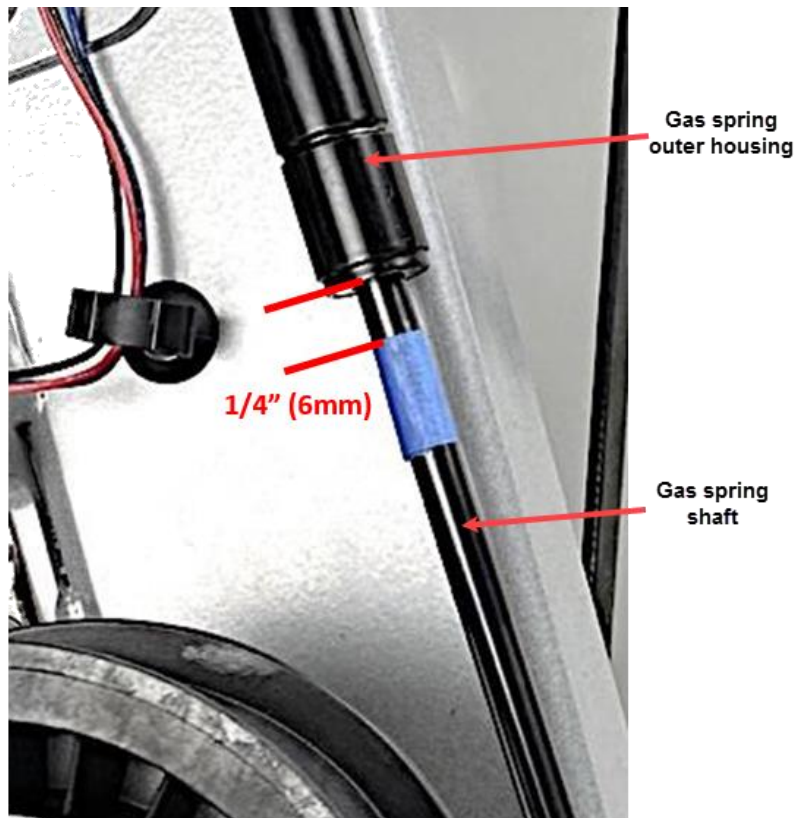


Lift Motor Extension Tube Connection

19. Make sure that the front of the lift arm assembly is setting on the lower frame weldment stops. Then measure $\frac{1}{4}$ inch (6mm) down along the gas spring shaft from the bottom of the gas spring housing marking the location with blue painter's tape (or equivalent), see the following figure *Level 1 Calibration Reference*.



Caution: Do not scratch, write on the gas spring shaft, or use tape that leaves a sticky residue to prevent damaging the housing inner shaft seal.



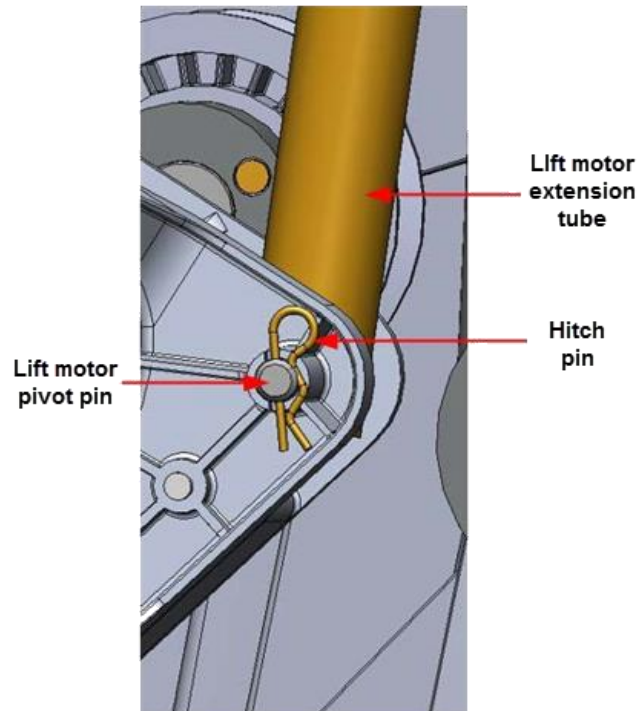
Level 1 Calibration Reference

20. Manually raise and hold the front of the lift arm assembly at the gas spring $\frac{1}{4}$ " inch calibration reference mark:
 - a. Use a ratchet strap to manually raise the front of the lift arm assembly (which compresses the shaft into the gas spring) so that the top edge of the blue painter's tape ($\frac{1}{4}$ inch (6mm) reference mark) reaches the bottom of the gas spring outer housing.

TIP: Wrap the ratchet strap over the top of the left arm weldment and the front of the lift arm assembly (this will avoid interference with the LPCA and battery covers).
21. Reinstall the lift extension tube to the lift arm assembly.
 - a. Rotate the lift extension tube so that the extension tube and lift arm assembly bracket bolt holes align. Hold the jack screw with one hand (to keep the jack screw from rotating) while rotating the extension tube with the other hand. Insert the extension tube mount into the lift arm assembly bracket and secure using the lift pivot pin and hitch pin, see *Lift Arm Extension Tube Connection* below.

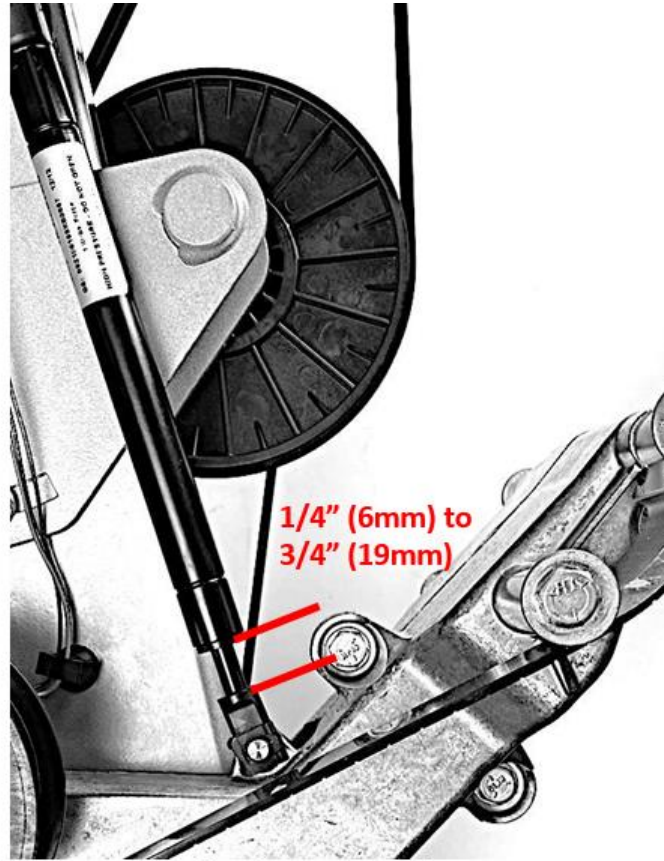


Caution: When adjusting (rotating) the lift extension tube, do not allow the jack screw to rotate. Allowing the jack screw to rotate will change the jack screw level 1 position and invalidate the calibration.



Lift Motor Extension Tube Connection

22. Remove the painter's tape from the gas spring shaft and wipe clean.
23. Reinstall the left/right flat belts.
24. Reconnect the COMM Data cable to the LPCA.
25. Access the **Hardware Validation** diagnostics menu (51765761), select the **CROSSRAMP TEST**, and set the CROSSRAMP (stride height) to **level 5**.
26. Verify that the gas spring outer housing to shaft rod end clearance is between **¼ to ¾ inches (6mm to 19mm)**, see the following figure *Level 5 Clearance Verification*.
 - a. If less than ¼ inch, remove the lift motor clevis pin and rotate the lift motor actuator tube ½ turn **counterclockwise**. Reinstall the motor clevis pin and verify the clearance is correct.
 - b. If greater than ¾ inch, remove the lift motor clevis pin, rotate the lift motor actuator tube ½ turn **clockwise**. Reinstall the motor clevis pin and verify the clearance is correct.



Level 5 Clearance Verification

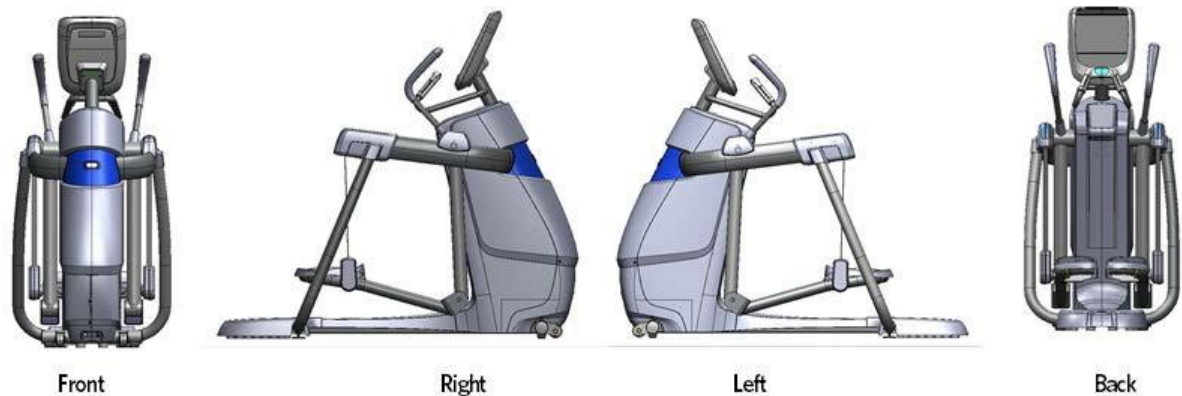
- b. Verify the calibration adjustment, do the *Lift Motor Calibration Check* above.
- c. Reinstall the LPCA cover
- d. Reinstall the front, left/right side, left/right bottom, center beam, and back covers, see *Cover Replacement*.
- e. Verify operation and return to service.

Replacement Procedures

Cover Replacement

When replacing the covers, right, left, front, and back are from the perspective of a user standing on the AMT facing the consoles display.

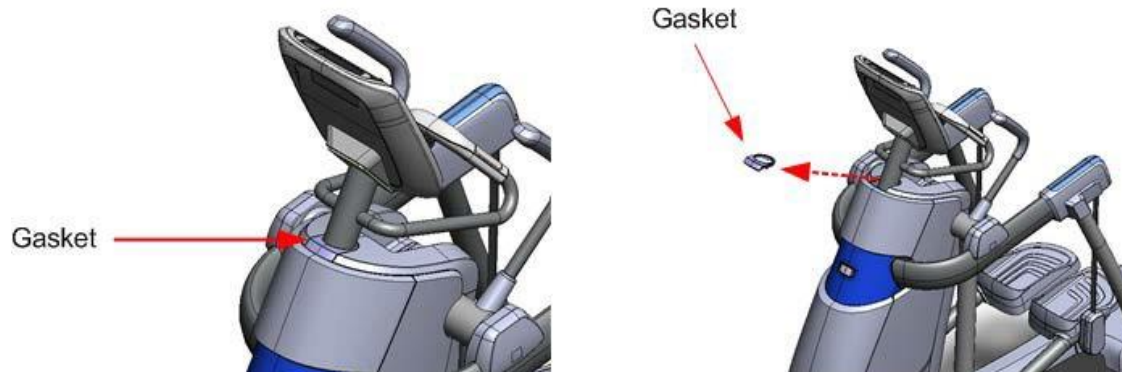
Figure 64: Front, Back, Left, Right Conventions



Top Cover Removal

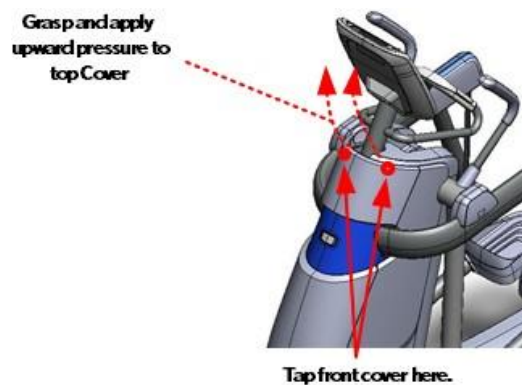
1 Standing at the front of the AMT, push in and then downward on the cover gasket with your thumbs until the gasket locking tabs are free of the top cover, grasp the gasket and remove. The gasket is split

Figure 65: Cover Gasket



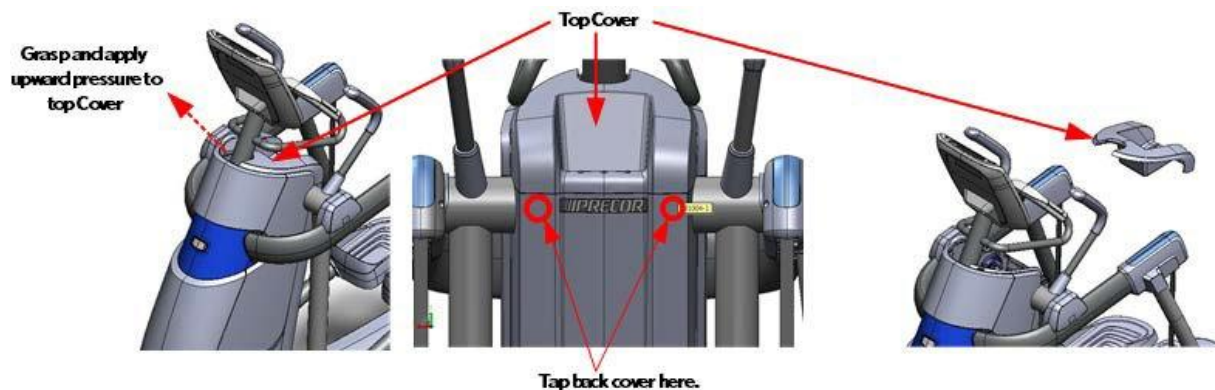
2 Grasp the top cover at the gasket opening and pull upward to apply pressure to the locking tabs. While pressure is applied to the top cover gently tap the front cover just below the top cover with the heel of your hand. See figure below.

Figure 66: Front Top Cover Release



3 Standing at the side of the AMT, pull the loose end of the top cover up to apply slight pressure on the locking tabs. With the heel of your hand, gently tap the back cover just below the top cover, see figure below. The top cover should release from the back cover, remove the top cover and set aside.

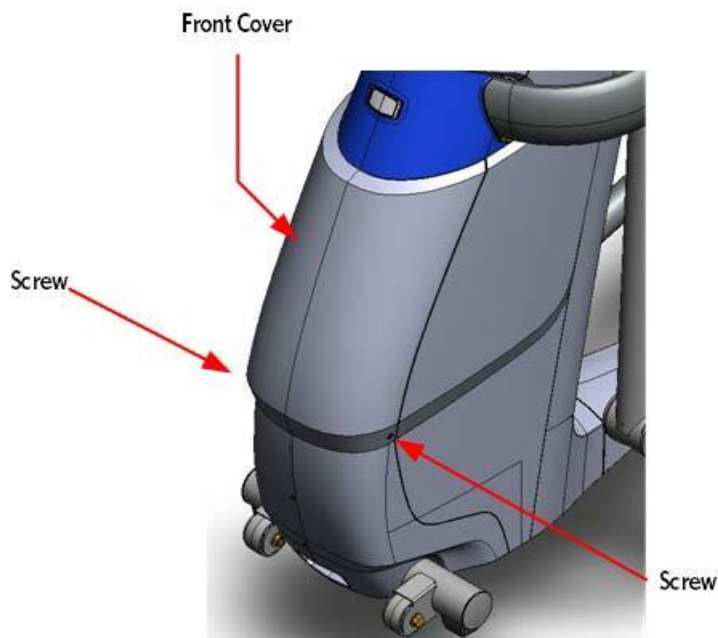
Figure 67: Top Cover



Front Cover Removal

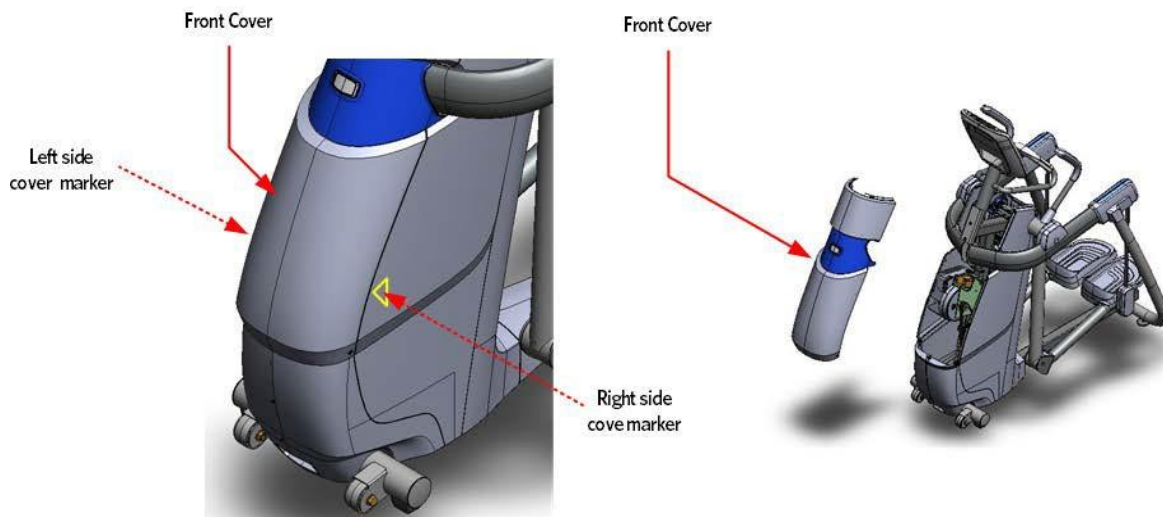
1 Remove the two #10 x ¾ inch screws located at the bottom corners of front cover.

Figure 68: Front Cover - Screw Locations



2 There are two triangle markers embossed into the left and right side covers, the markers indicate locking joints. Place the heels of your hands just above the left and right side triangle markers. Gently tap the triangle markers with the palm of your hand, the locking tabs will release and the front can be removed.

Figure 69: Side Cover Markers and Front Cover

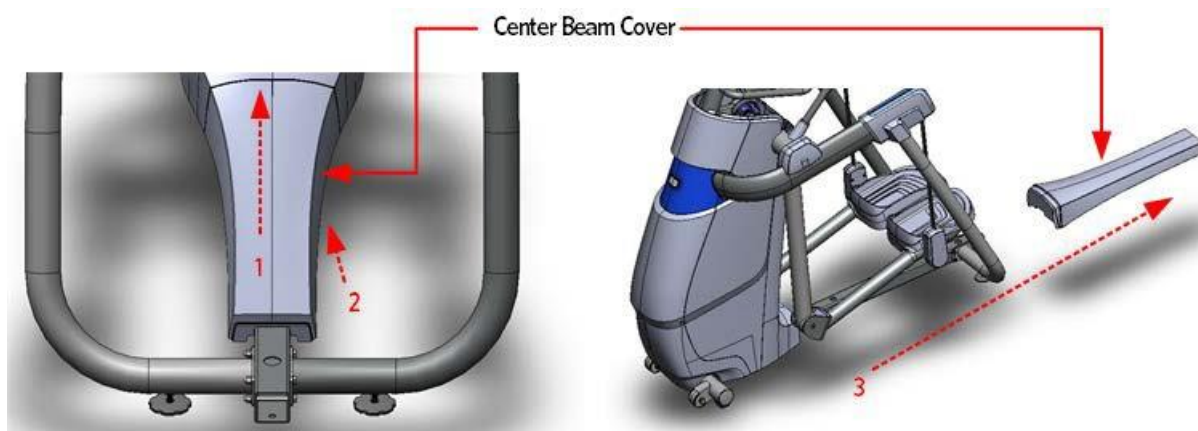


Center Beam Cover Removal

- 1 Remove the platform.
- 2 Apply forward pressure at the base of center beam cover, lift the cover up slightly until the locking tab is clear of the frame.
- 3 Pull the center beam cover back toward you until the cover is free from the frame.

Note: Do not lift the cover up right after the front cover tab releases, lifting up the cover too quickly may not allow the middle center beam tabs to clear the frame slots, damaging the tabs.

Figure 70: Center Beam Cover Removal

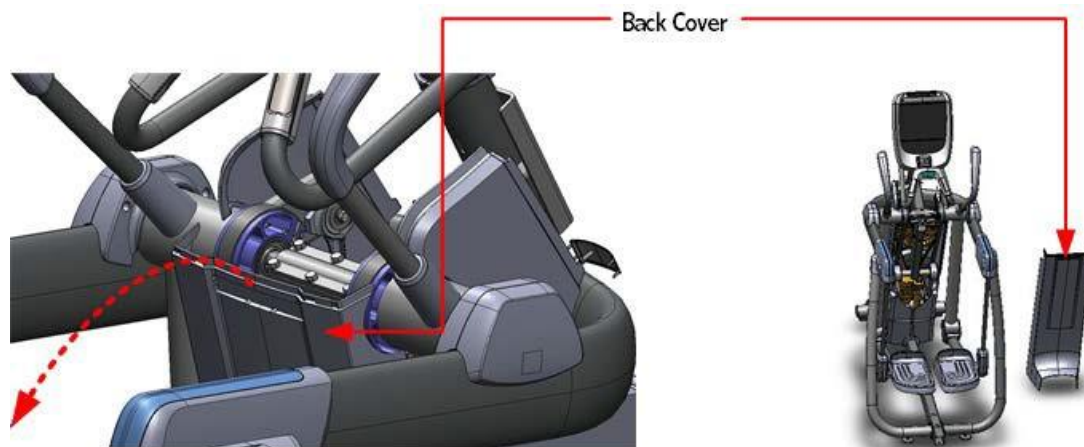


1. Press forward
2. Then pull up Slightly
3. Slide Center Beam Cover out.

Back Cover Removal

1 Grasp the top of the rear cover and pull back, the back cover will release from the locking tab and then the cover can be lifted out of the slots in the bottom covers.

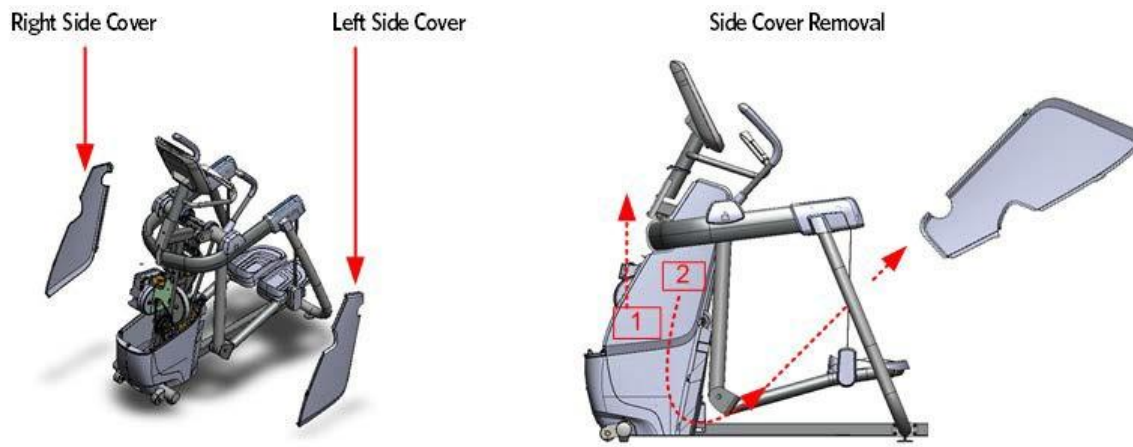
Figure 71: Back Cover Removal



Left and Right Side Cover Removal

- 1 Grasp each side of the left side cover, near the bottom, lift up and then pull the bottom of the cover out and away from the frame. The cover will release from the locking tabs.
- 2 Rotate the bottom of the side cover towards the back of the AMT to remove.
- 3 Repeat steps 1 and 2 to remove the right side cover.

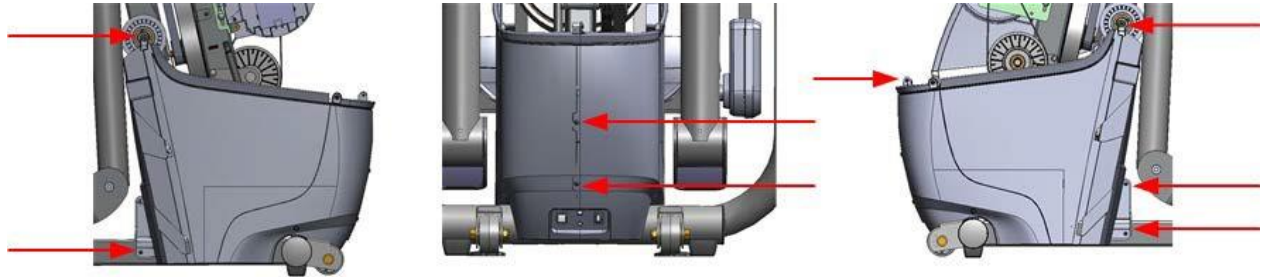
Figure 72: Side Cover Removal



Left and Right Side Bottom Cover Removal

- 1 Remove the eight #10 x ¾ inch screws that fasten the bottom covers to the frame.

Figure 73: Left and Right Side Cover Screw Locations



2 The left and right side bottom covers can now be removed by lifting them up and out.

Figure 74: Bottom Covers Removed



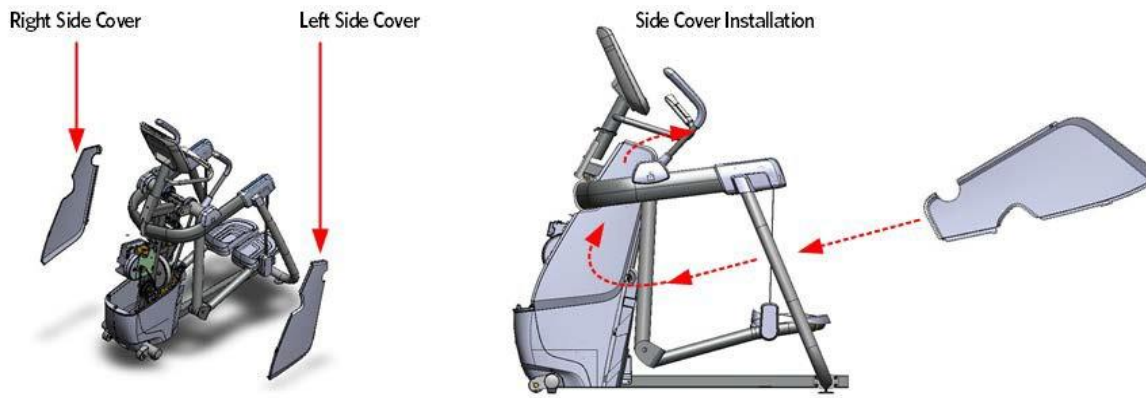
Left and Right Bottom Cover Assembly

- 1 Set the left and right bottom covers in place, align the cover mounting holes.
- 2 Fasten the two covers together with the 8 #10 x ¾ inch screws.

Left and Right Side Cover Assembly

- 1 Grasp the side cover near the bottom, rotate the side cover so that the top of the side cover points toward the front of the AMT and the round cover notch points up.
- 2 Thread the top of the side cover under the upper arm weldment and toward the front of the AMT.
- 3 Rotate the top of the side cover up until the round notch of the side cover meets the upper arm.
- 4 Push the bottom of the side cover in until the tabs of the side cover rest in the notches on the bottom cover.
- 5 Repeat the *Side Cover Assembly* procedure for the right side cover.

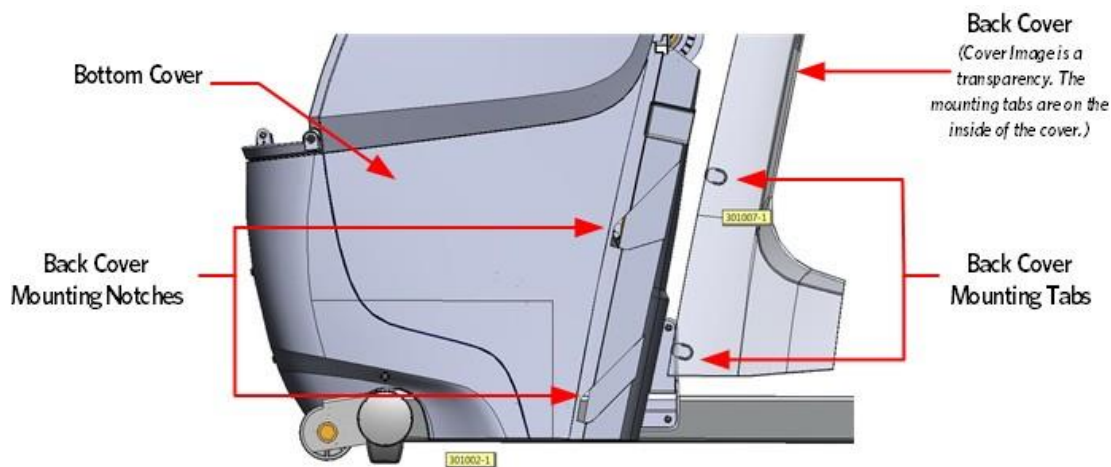
Figure 75: Side Cover Assembly



Back Cover Assembly

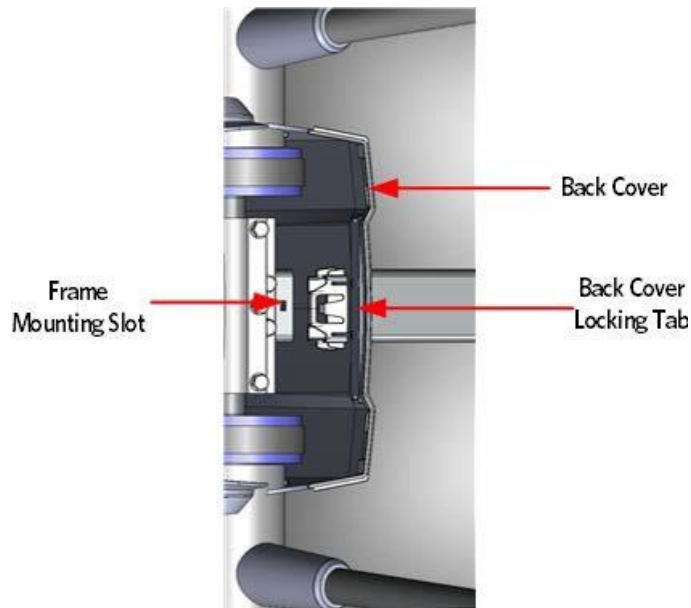
- 1 Hold the back cover up against the frame of the AMT in the approximate final position.
- 2 Slide the bottom of the back cover in until the tabs of the back cover rest in the notches of the bottom covers.

Figure 76: Back and Bottom Cover Assembly



- 3 Rotate the back cover forward until the locking tab of the back cover is aligned with cover mounting slot of the frame, push against the top of the back cover until the locking tab and slot are engaged.

Figure 77: Back Cover Locking Tab



Center Beam Cover Assembly

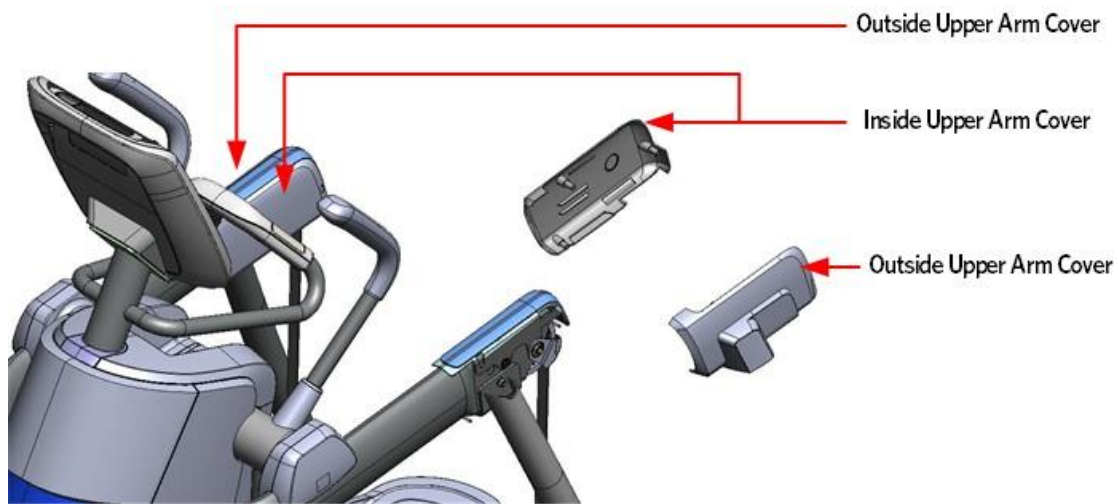
- 1 Set the center beam cover over the frame beam so that the front of the center beam cover is about 3 inches away from the bottom of the back cover.
- 2 Slide the center beam cover forward until the front of the center beam cover has engaged into the back cover.
- 3 Push down on the back of the center beam cover until the locking tab of the cover has engaged with mounting slot of the frame beam.
- 4 Replace the platform.

Front Cover Assembly

- 1 Guide the arm openings in the front cover around the arms of the AMT, taking care that the tabs at the bottom corners of both openings are inside the two side covers. Then guide the front cover into place until the latches on the side covers click into place.
- 2 Fasten the two #10 x $\frac{3}{4}$ inch screws at the bottom corners of the front cover. Tighten the screws completely.

Upper Arm Cover Replacement

Figure 78: Upper Arm Covers

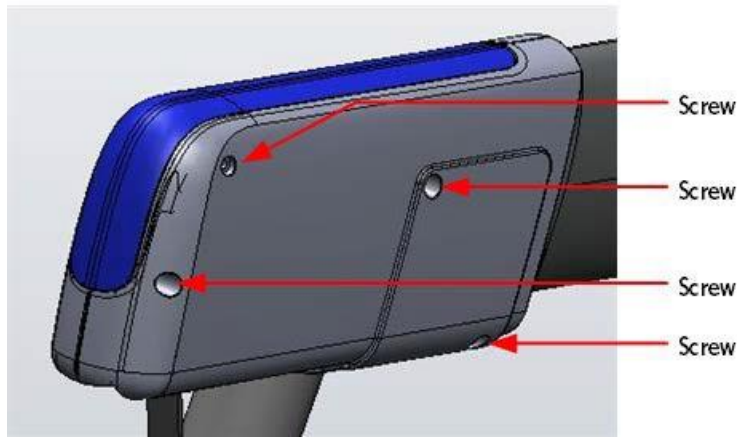


Procedure:

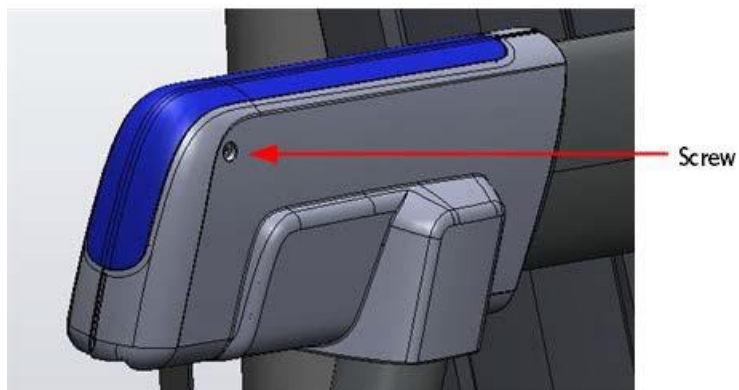
- 1 Remove the four screws that fasten the inside upper arm covers to the upper arm.
- 2 Remove the screws that fasten the outside upper arm covers to the upper arm.
- 3 Remove the inside and outside covers from the upper arm.
- 4 Secure the replacement cover to the arm using the five screws removed in step 1. Finger Tighten screws in all locations before fully tightening screws.

Figure 79: Upper Arm Cover Screw Locations

Upper Arm Cover - Inside



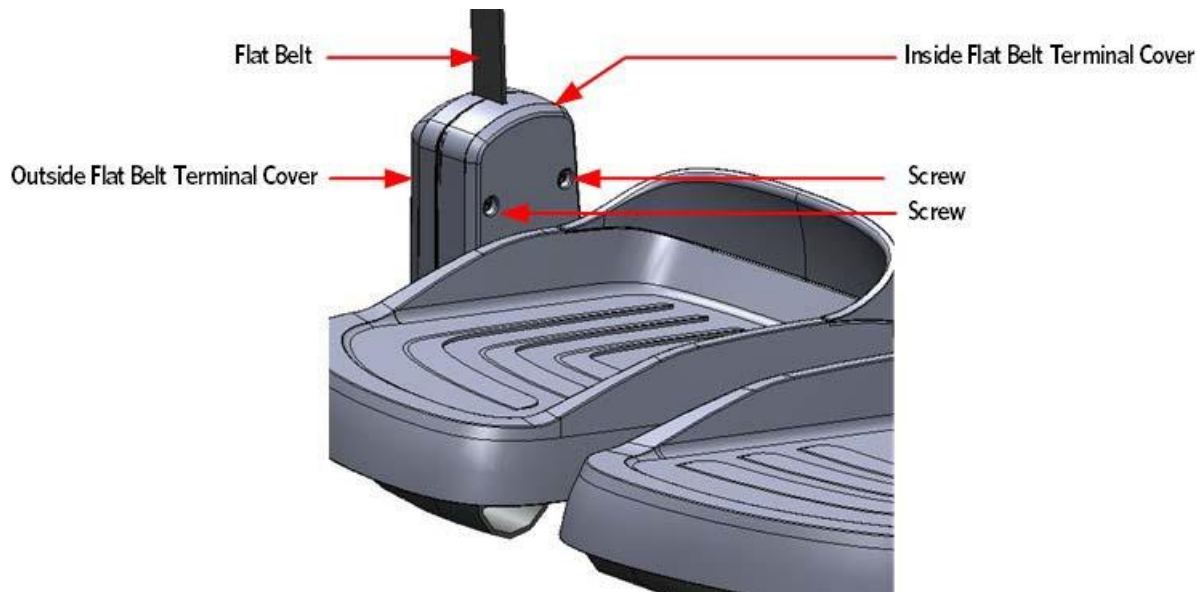
Upper Arm Cover - Outside



Rear Flat Belt Terminal Cover Replacement

- 1 Remove the two screws that secure the flat belt covers to the flat belt terminal, remove the outside terminal cover.
- 2 Rotate the inside terminal cover down until it is below the stairarm pedal, pull to remove.
- 3 Align the top of the replacement inside cover so that it is pointing toward the floor. Place the bottom of the cover in between the flat belt terminal and the stairarm pedal. Rotate the top of the cover up and in to place.
- 4 Fasten the outside and inside terminal cover to the flat belt terminal using the two #10-24 X 1.25 screws.

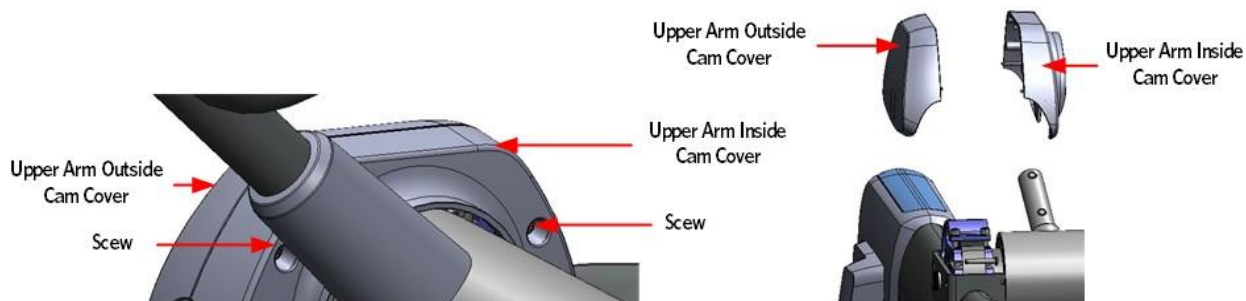
Figure 80: Flat Belt Terminal Covers



Upper Arm Cam Cover Replacement

- 1 Slide the vertical handlebar boot cover up the handlebar to gain access to the upper arm cam cover screws.
- 2 Remove the two screws that secure the upper arm cam covers to the upper arm, remove the covers.
- 3 Secure the replacement upper arm cam covers to the upper arm using the two screws removed in step 2.

Figure 81: Upper Arm Cam Covers



Top Cover Assembly

Important: In the following steps, do not apply excessive force to seat the cover.

- 1 Position the rear edge of the top cover so that the clips on the top and back covers are engaged securely.
- 2 Gently snap the front edge of the top cover into place, using the heel of your hand if necessary.

3 Wrap the gasket around the center frame column below the heart rate sensor grips, then fit it into the top cover. Make sure that the surfaces and edges of the gasket are flush with those on the top cover.

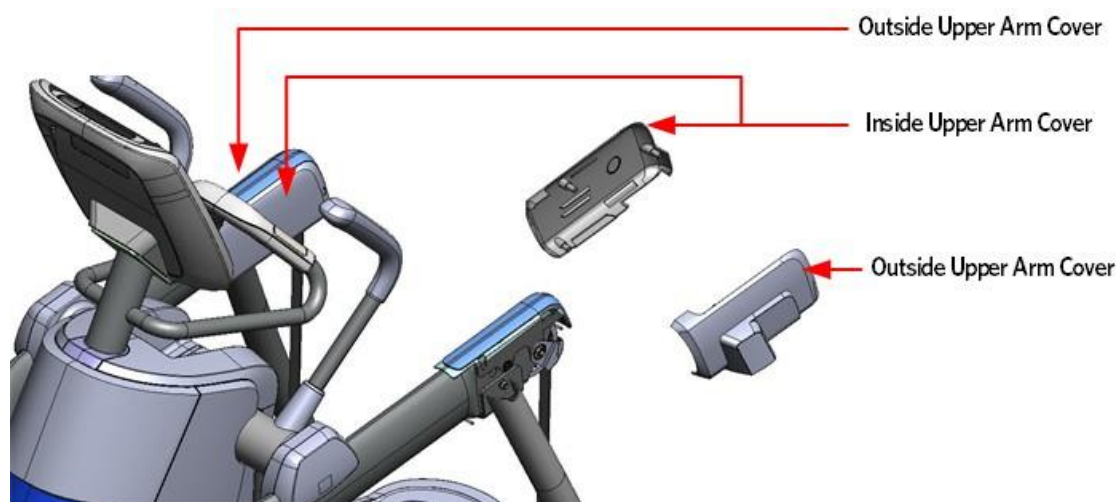
Replacing the Belt Guard

Finger Guard Replacement Procedure

I

Upper Arm Cover Removal

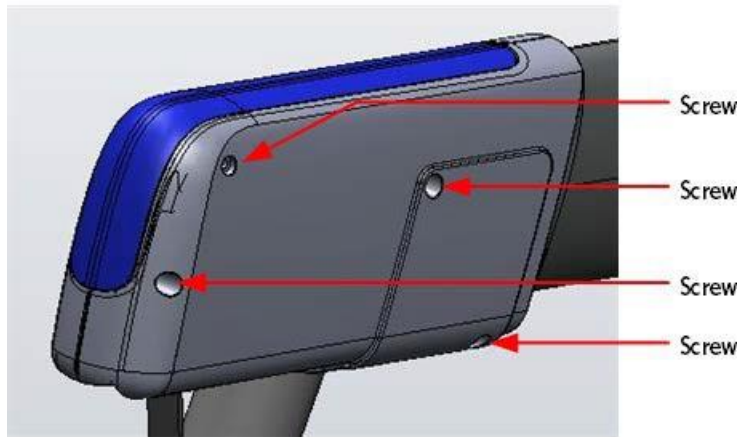
Figure 82: Upper Arm Covers



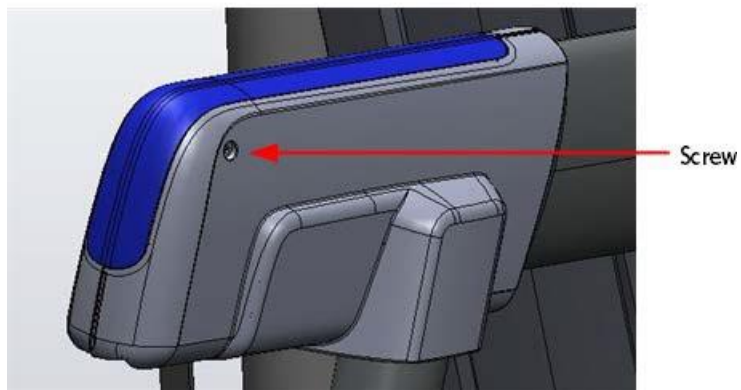
- 1 Remove the four screws that fasten the inside upper arm covers to the upper arm.
- 2 Remove the screw that fastens the outside upper arm covers to the upper arm.
- 3 Remove the inside and outside covers from the upper arm.
- 4 Repeat the process for the remaining upper arm covers.

Figure 83: Upper Arm Cover Screw Locations

Upper Arm Cover - Inside



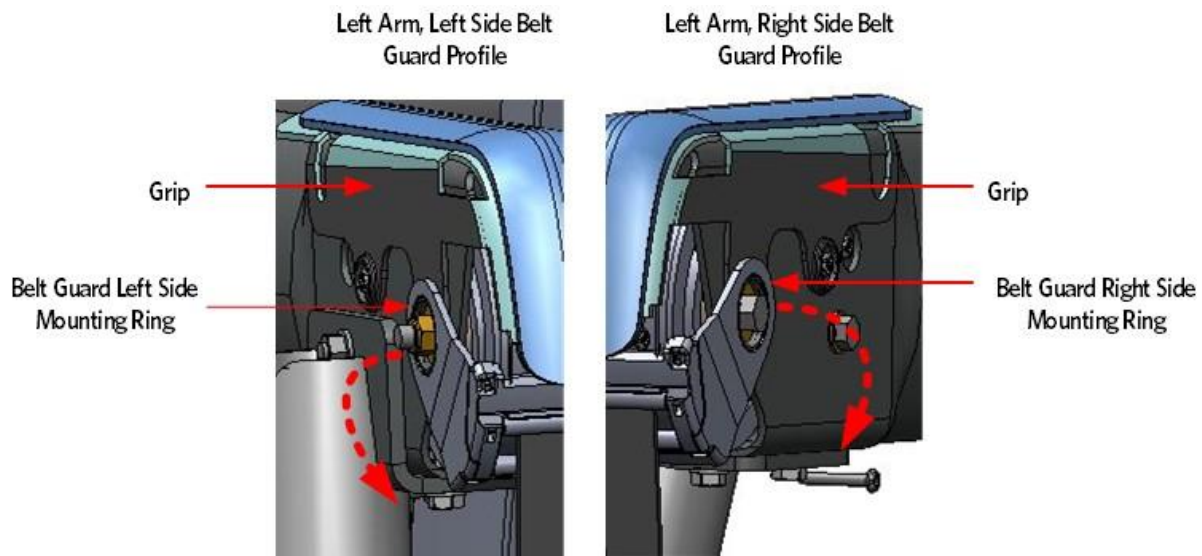
Upper Arm Cover - Outside



Belt Guard Removal

5 Grasp the belt guard mounting ring's located on each side of the upper arm. Gently pull out and away from the grip connection ring's just enough to extend past the mounting bolt.

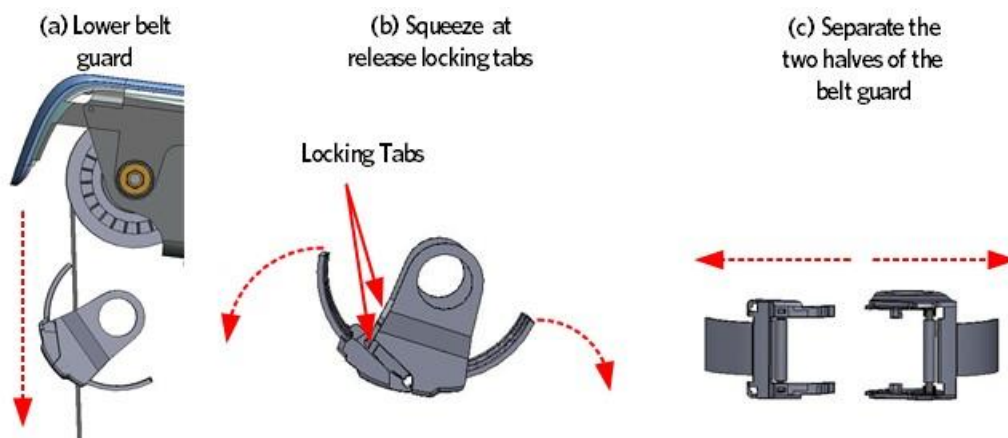
Figure 84: Belt Guard and Upper Arm



6 The belt guard assembly is two interlocking pieces and needs to be separated before it can be removed from flat the belt:

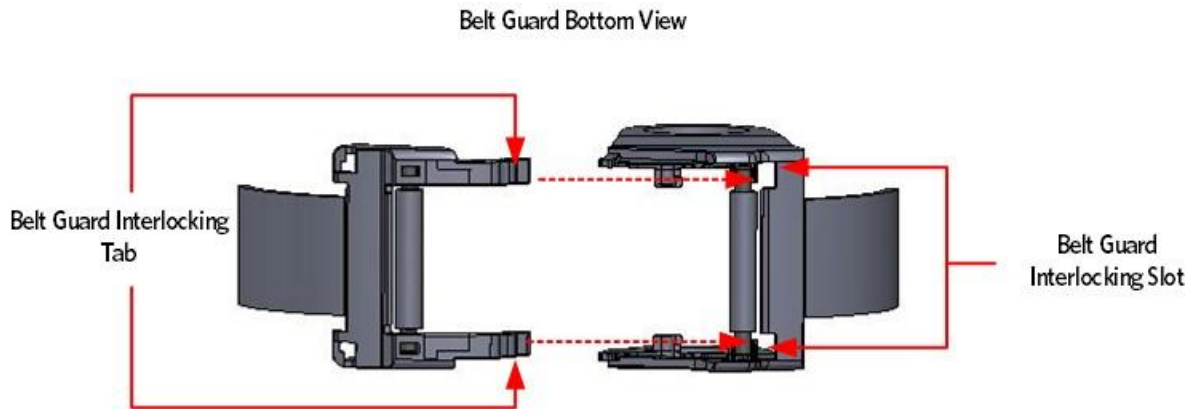
- a) Lower the belt guard down just below the upper arm.
- b) Squeeze the belt guard near the base to release locking tabs and rotate two halves down.
- c) Taking care to not lose the rollers inside the belt guard, pull the two belt guard halves away from each other to separate.

Figure 85: Belt Guard Removal



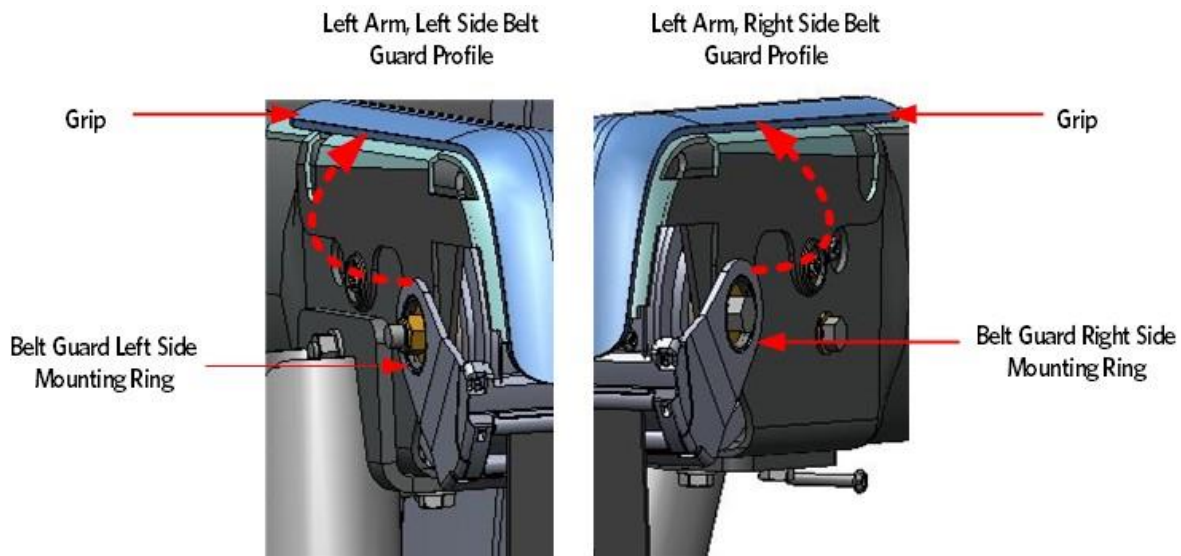
7 Place the two sections of the replacement belt guard so they are positioned around the flat belt just below the upper arm. The front belt guard should be positioned so that the interlocking tabs are pointing toward the front of the machine, and the guard toward the back. The rear belt guard should be positioned with the guard toward the front. Align the interlocking tabs of the front belt guard with the slots of the rear belt guard; rotate the halves together around the flat belt until the locking tabs are locked.

Figure 86: Belt Guard Interlocking Tabs and Slots



8 Grasp each belt guard mounting ring, lift the belt guard into position over the upper arm mounting bolts, and then secure each mounting ring to the connection ring.

Figure 87: Belt Guard Mounting



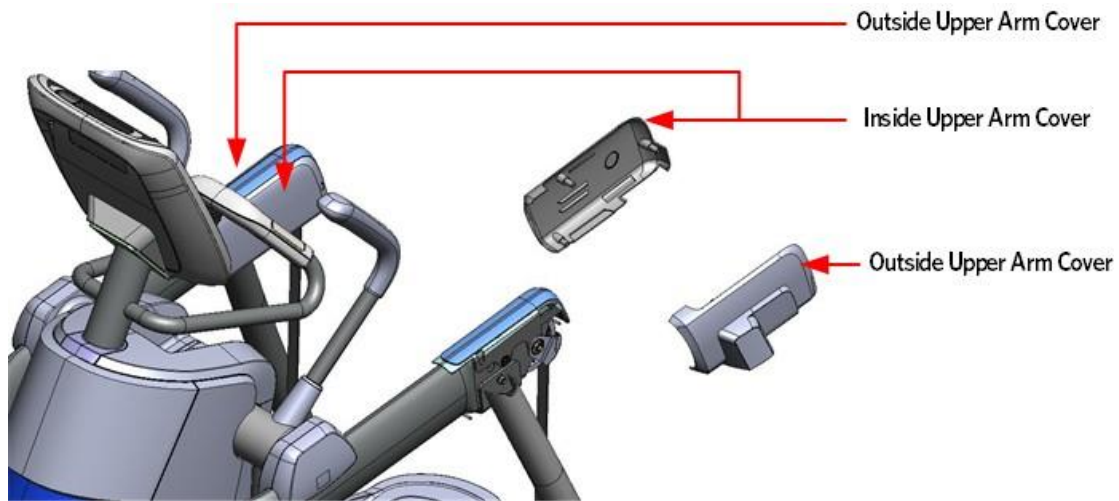
9 Replace the upper arm covers as per procedure, [Upper Arm Cover Replacement](#).

Replacing the Upper Arm Grip

Upper Arm Grip Replacement Procedure

Upper Arm Cover Removal

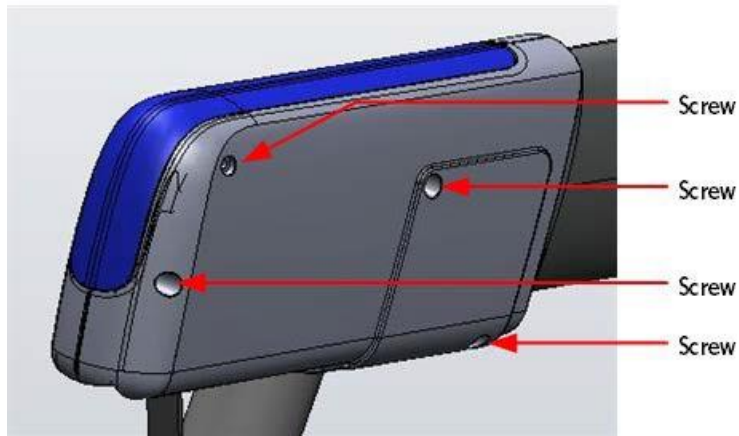
Figure 88: Upper Arm Covers



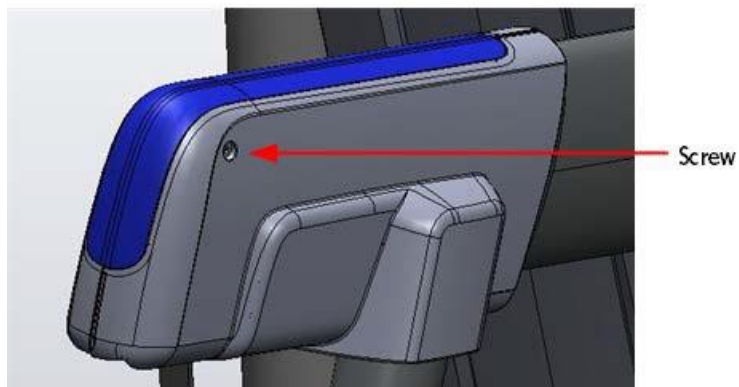
- 1 Remove the four screws that fasten the inside upper arm covers to the upper arm.
- 2 Remove the screw that fasten the outside upper arm covers to the upper arm.
- 3 Remove the inside and outside covers from the upper arm.
- 4 Repeat the process for the remaining upper arm covers.

Figure 89: Upper Arm Cover Screw Locations

Upper Arm Cover - Inside



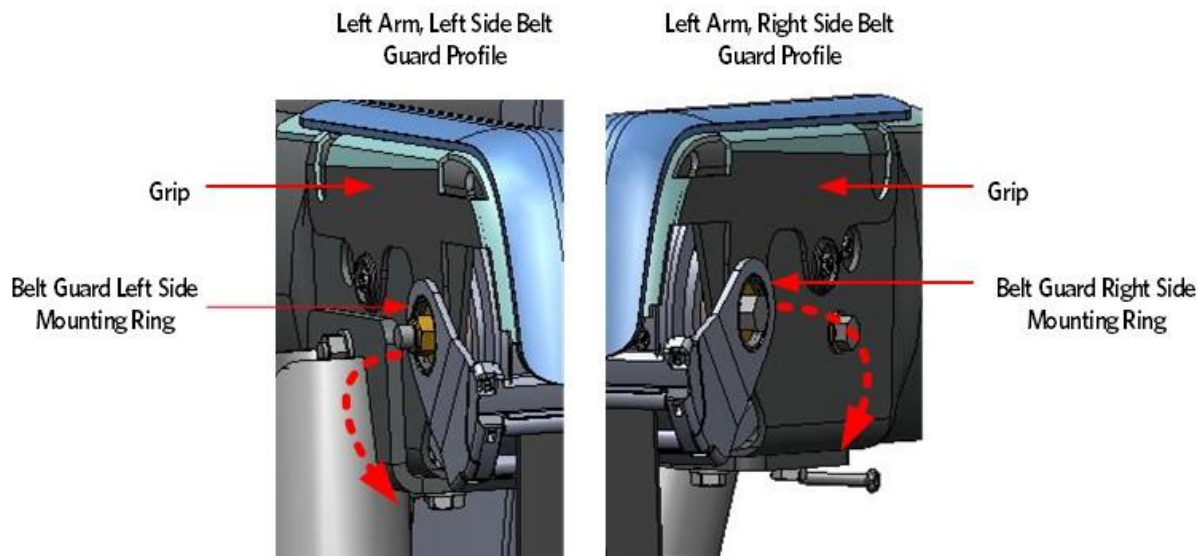
Upper Arm Cover - Outside



Belt Guard Removal

5 Grasp the belt guard mounting ring's located on each side of the upper arm. Gently pull out and away from the grip connection ring's just enough to extend past the mounting bolt.

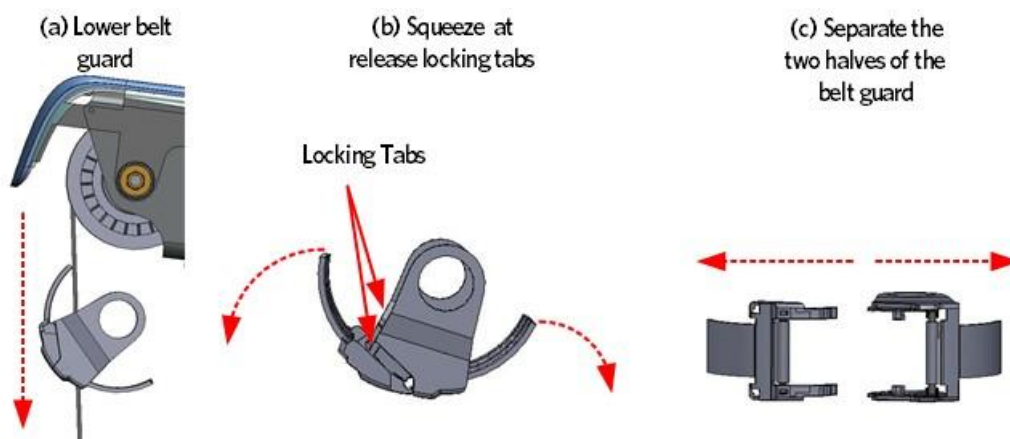
Figure 90: Belt Guard and Upper Arm



6 The belt guard assembly is two interlocking halves and needs to be separated before it can be removed from flat belt:

- a) Lower the belt guard down just below the upper arm.
 - b) Squeeze the belt guard near the base to release locking tabs and rotate the two halves down.
 - c) Taking care to not lose the rollers inside the belt guard, pull the two belt guard halves away from each other to separate.
- 7 Repeat the process for the remaining belt guard.

Figure 91: Belt Guard Removal

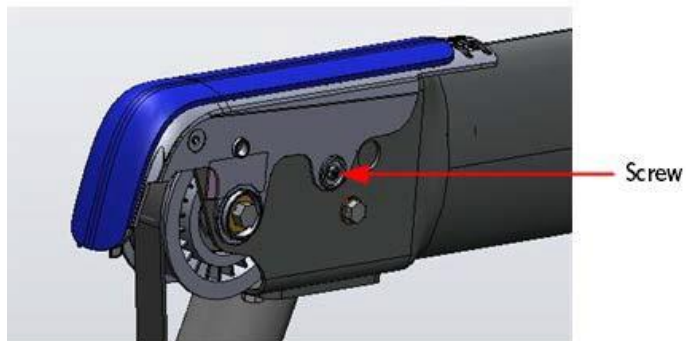


Upper Arm Grip Removal

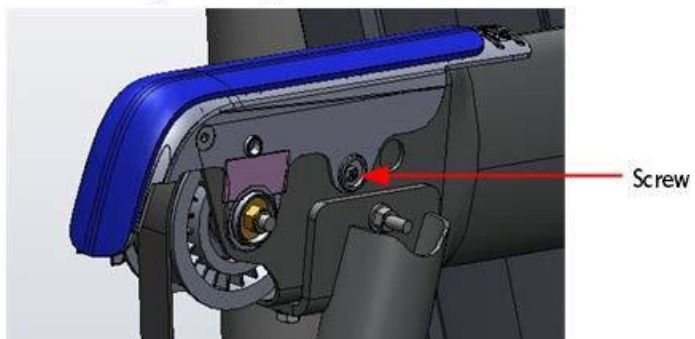
8 Remove the two #10-24X.75 screws that secure the grip to the upper arm, there is one screws on each side of the upper arm.

Figure 92: Upper Arm Grip Screw Locations

Upper Arm Grip - Inside

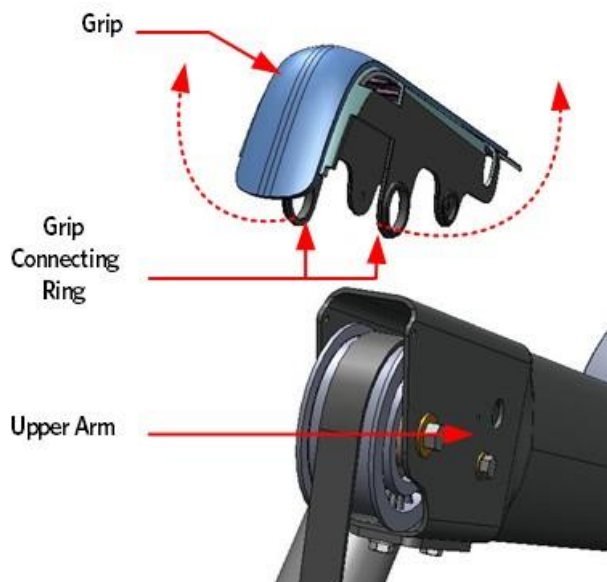


Upper Arm Grip - Outside



9 Grasp the grip connecting ring located on each side of the upper arm, pull up and over the flat belt pulley mounting bolt to remove the grip.

Figure 93: Upper Arm Grip Removal



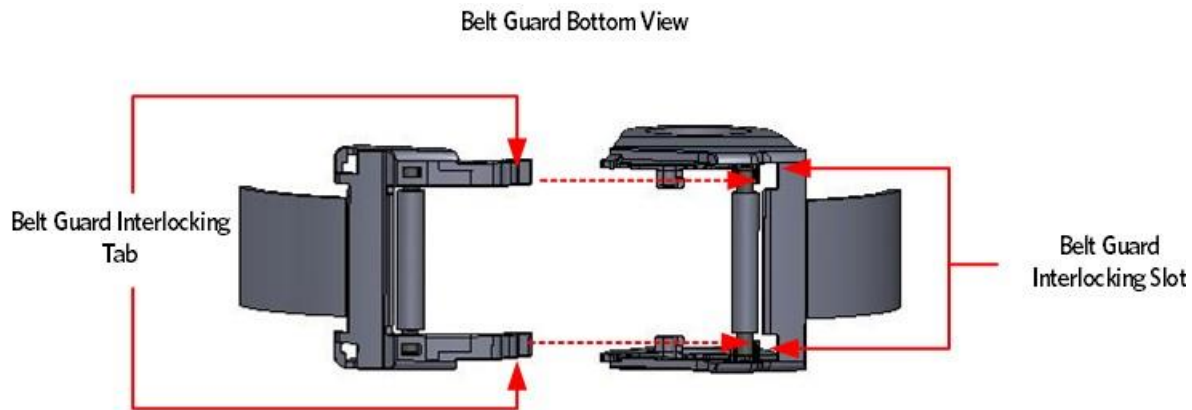
Upper Arm Grip Installation

- 10 Grasp the grip connecting ring located on each side of the upper arm grip, pull out and place the grip over the flat belt pulley mounting bolt.
- 11 Secure the upper arm grip to the upper arm using the two #10-24X.75 screws.
- 12 Repeat the process for the remaining upper arm grip.

Belt Guard Installation

- 12 Place the two halves of the belt guard so they are positioned around the flat belt just below the upper arm. The smaller half should be positioned so that the interlocking tabs are pointing toward the front of the machine, and the guard toward the back. The larger half should be positioned with the guard toward the front. Align the interlocking tabs of the smaller half with the slots of the larger half; rotate the halves together around the flat belt until the locking tabs are locked.

Figure 94: Belt Guard Interlocking Tabs and Slots



13 Grasp each belt guard mounting ring, lift the belt guard into position over the upper arm mounting bolts, and then secure each mounting ring to the connection ring.

14 Replace the upper arm covers as per procedure, *Upper Arm Cover Replacement*.

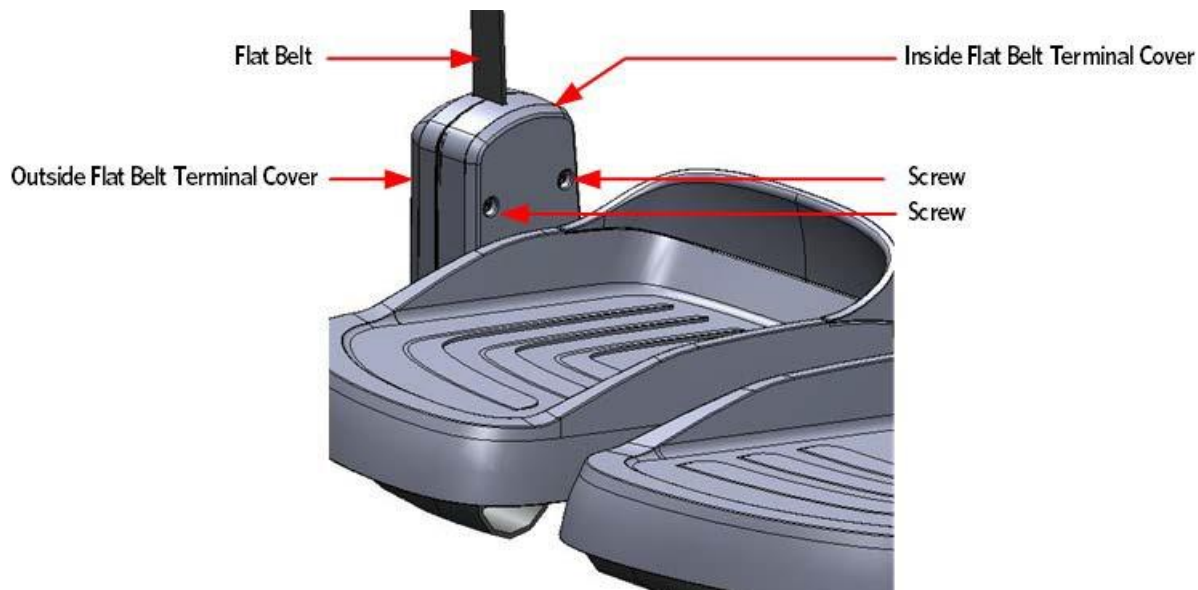
Replacing a Flat Belt Terminal

Flat Belt Terminal Replacement Procedure

Rear Flat Belt Terminal Cover Removal

- 1 Remove the two #10-24 X 1.25 screws that secure the flat belt terminal covers to the flat belt terminal, remove the outside terminal cover.
- 2 Rotate the top of the inside terminal cover down until it is below the stairarm pedal, pull to remove.
- 3 Repeat the process for the remaining rear flat belt terminal cover.

Figure 95: Flat Belt Terminal Covers

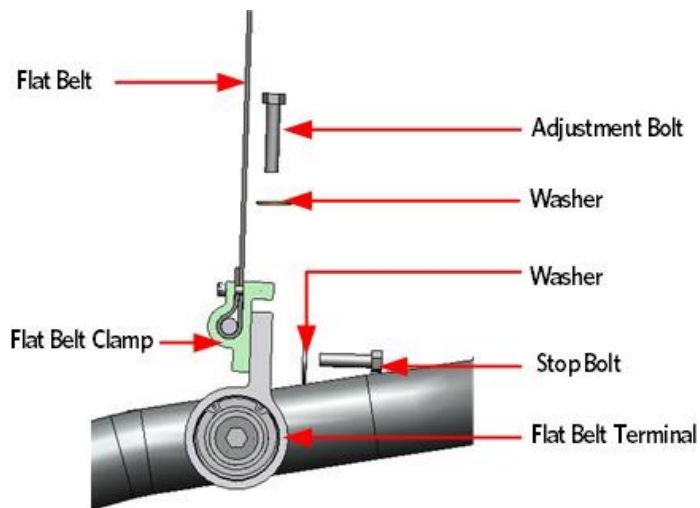


4 Remove the tension from the inner flat belt pulleys by lifting up on the stairarms, pulling the flat belts off the flat belt pulleys, and then gently setting the stairarm down.

5 Remove the flat belt terminal stop bolt and washer.

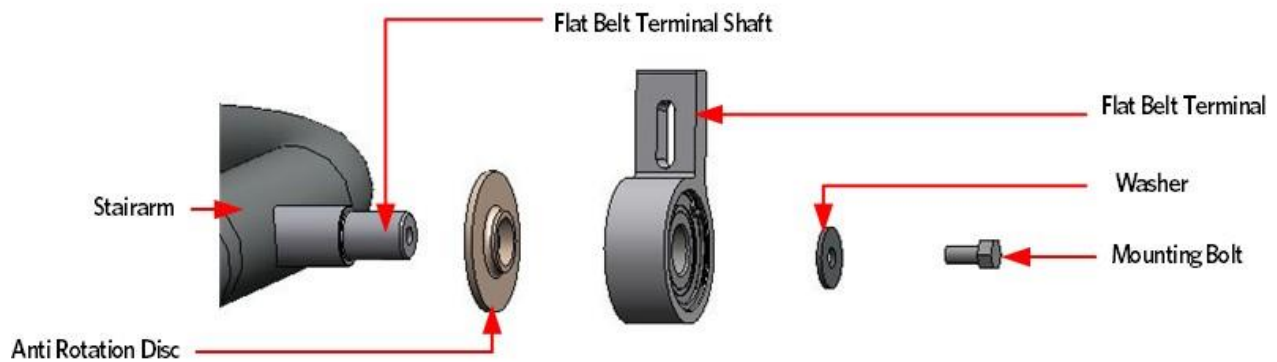
6 Remove the flat belt terminal adjustment bolt and washer.

Figure 96: Flat Belt Clamp and Flat Belt Terminal



7 Remove the mounting bolt and washer that secure the flat belt terminal to the stairarm, remove the flat belt terminal and anti-rotation disc.

Figure 97: Flat Belt Terminal Removal



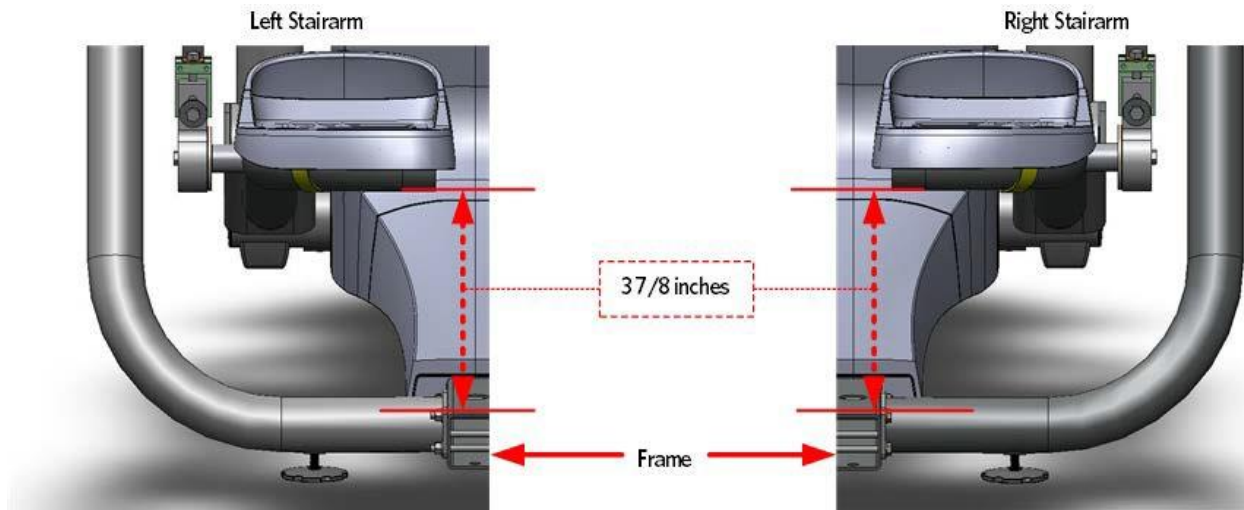
Flat Belt Terminal Installation

- 8 Apply a thin layer of AMSOIL GPOR1 synthetic polymeric grease to the flat belt terminal shaft.
- 9 Carefully slide on the anti-rotation disc and flat belt terminal. Do not use excessive force. Fasten the anti-rotation disc and replacement flat belt terminal onto the stairarm using the washer and mounting bolt removed in step 5, torque to 300 inch pounds (25 ft-lbs) or 25 foot pounds.
- 10 Fasten the stop bolt and washer to the flat belt clamp, but do not fully tighten at this time.
- 11 Thread the adjustment bolt through the washer, flat belt clamp and into the flat belt terminal.
- 12 Lift the stairarms and then thread the flat belts over the flat belt pulleys.

Adjusting the Stairarm Pedal Height

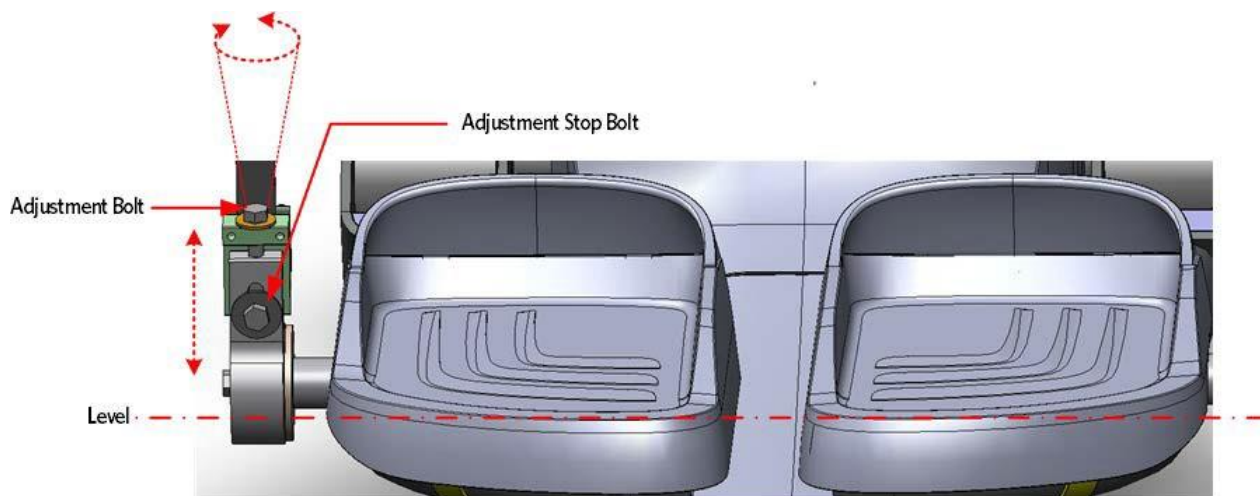
- 13 Loosen, but do not remove the stairarm adjustment stop bolt.
- 14 Push one of the stairarm pedal's down to its lowest level. Measure the distance from the bottom of the stairarm tube to the top of the center beam frame, the distance between the stairarm tube and the center beam frame should be 3 7/8 inches.

Figure 98: Stairarm Height Measurement



15 If the measurement is too low or too high, tighten or loosen the adjustment bolt until the 3 7/8 inch measurement is achieved.

Figure 99: Flat Belt Terminal Adjustment



16 Repeat the process for the remaining stairarm.

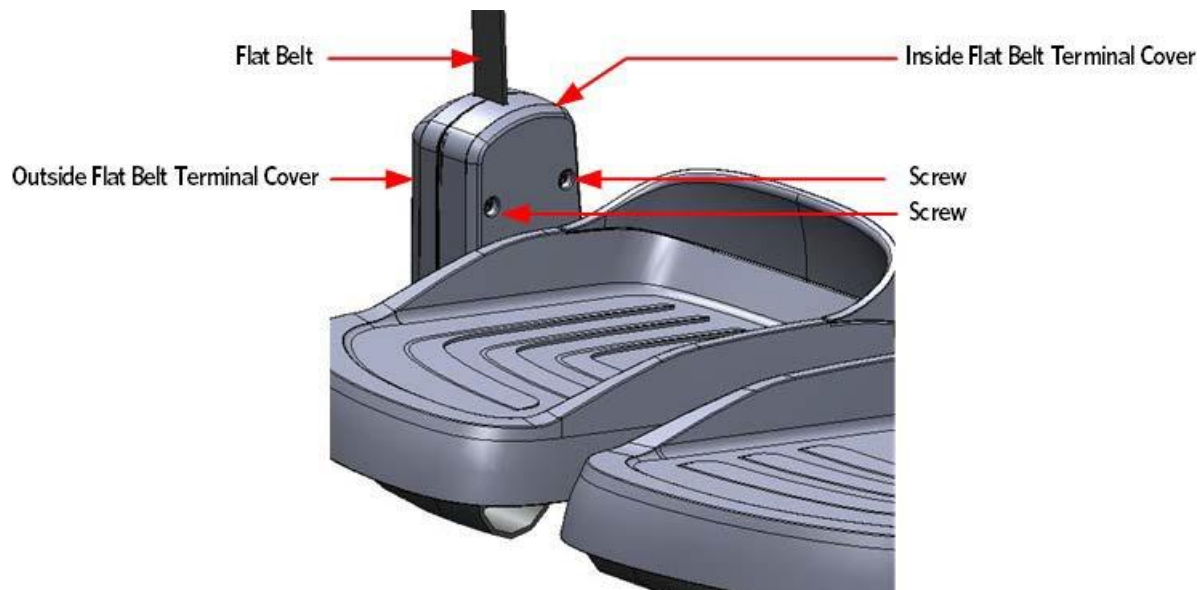
17 Fully tighten the stop bolt, torque to 300 inch pounds (25 ft-lbs) or 25 foot pounds.

Rear Flat Belt Terminal Cover Installation

1 Align the top of the replacement inside cover so that it is pointing toward the floor. Place the bottom of the cover in between the flat belt terminal and the stairarm pedal. Rotate the top of the cover up and in to place.

2 Fasten the outside and inside terminal cover to the flat belt terminal using the two #10-24 X 1.25 screws.

Figure 100: Flat Belt Terminal Covers



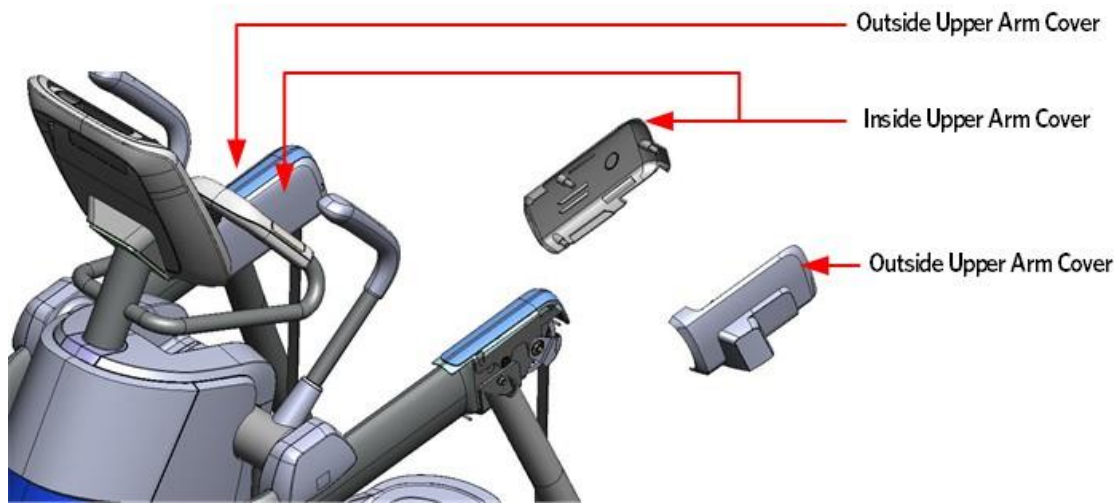
Replacing a Upper Arm Flat Belt Pulley

Upper Arm Flat Belt Pulley Replacement Procedure

- 1 Remove the main body covers as per procedure, *Cover Replacement*.
- 2 Remove the tension from the inner flat belt pulleys by lifting up on the stairarms, pulling the flat belts off the flat belt pulleys, and then gently setting the stairarm down.

Upper Arm Cover Removal

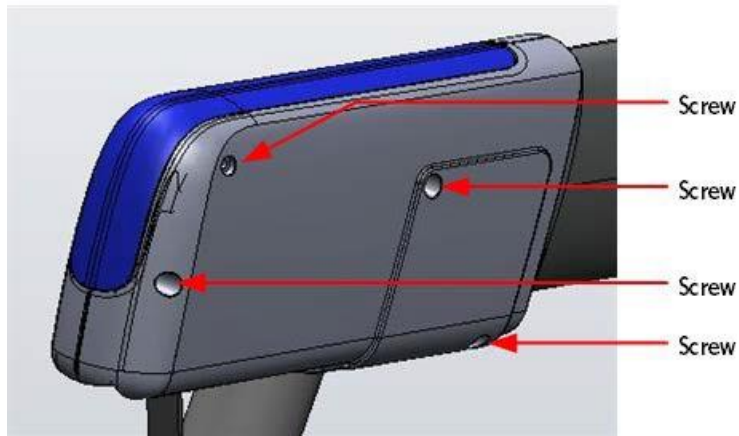
Figure 101: Upper Arm Covers



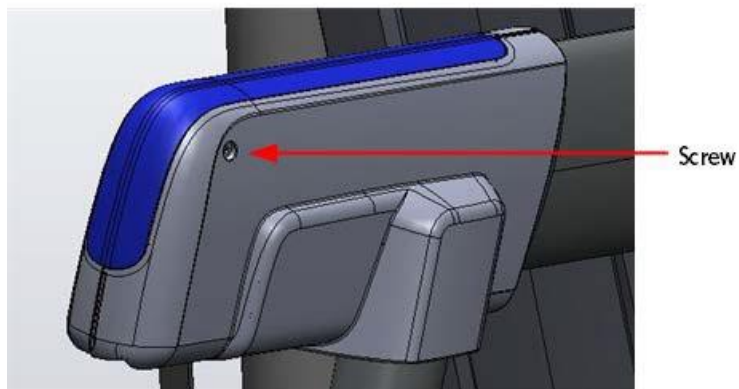
- 3 Remove the four screws that fasten the inside upper arm covers to the upper arm.
- 4 Remove the screw that fastens the outside upper arm covers to the upper arm.
- 5 Remove the inside and outside covers from the upper arm.
- 6 Repeat the process for the remaining upper arm covers.

Figure 102: Upper Arm Cover Screw Locations

Upper Arm Cover - Inside



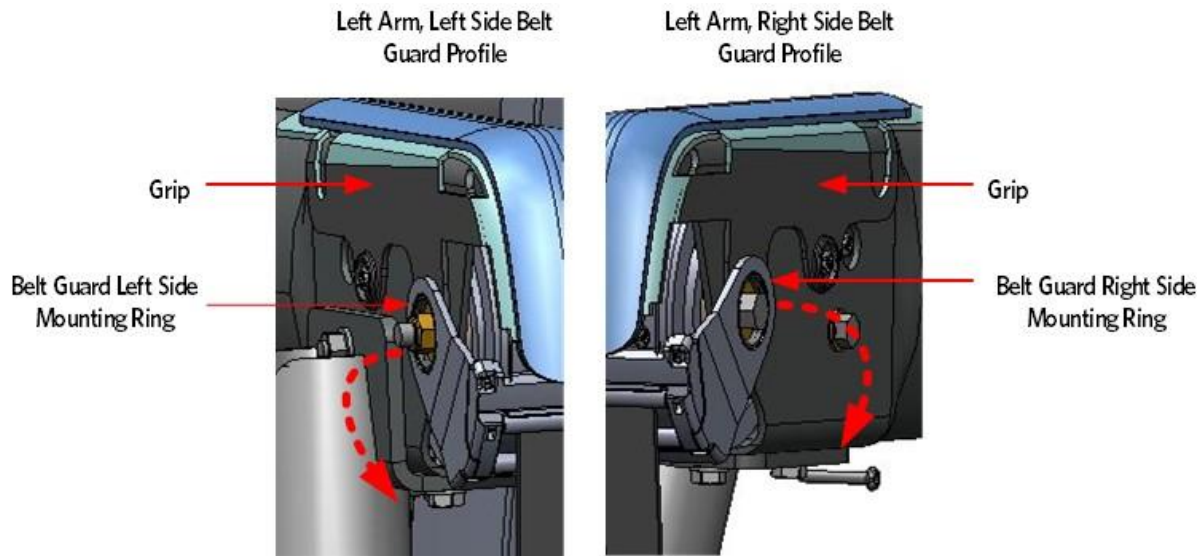
Upper Arm Cover - Outside



Belt Guard Removal

7 Grasp the belt guard mounting ring's located on each side of the upper arm. Gently pull out and away from the grip connection ring's just enough to extend past the mounting bolt.

Figure 103: Belt Guard and Upper Arm

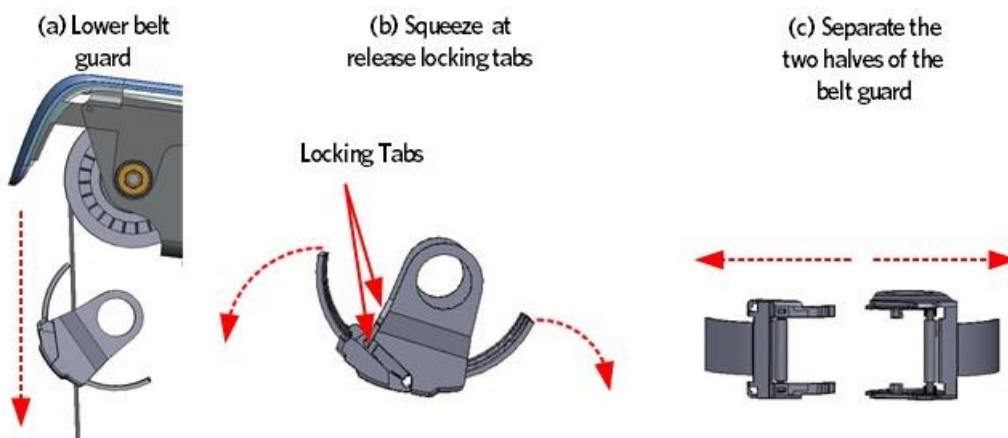


8 The belt guard assembly is two interlocking halves and needs to be separated before it can be removed from flat belt:

- a) Lower the belt guard down just below the upper arm.
- b) Squeeze the belt guard near the base to release locking tabs and rotate the two halves down.
- c) Taking care to not lose the rollers inside the belt guard, pull the two belt guard halves away from each other to separate.

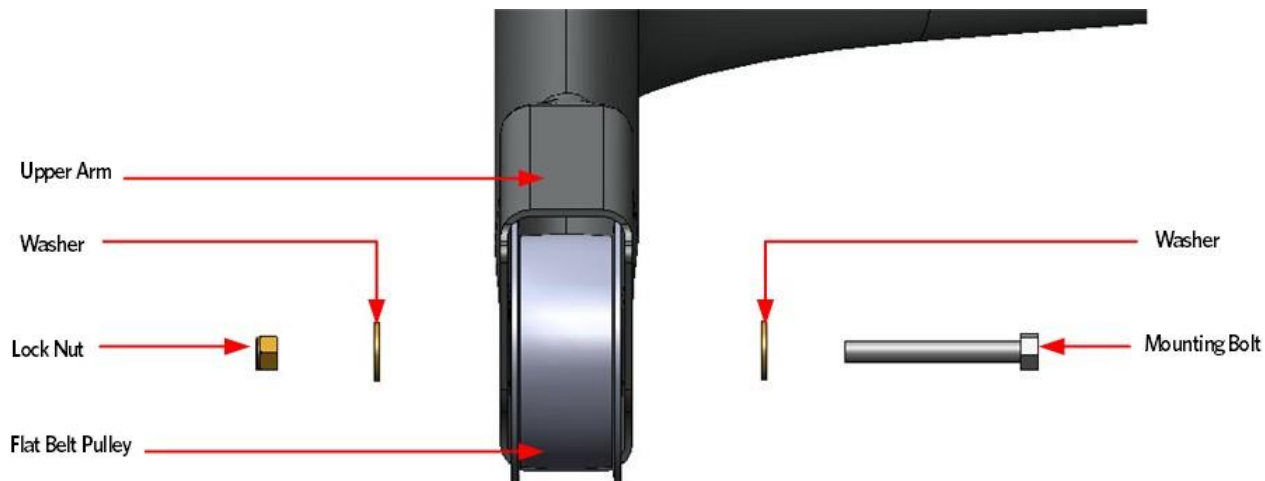
9 Repeat the process for the remaining belt guard.

Figure 104: Belt Guard Removal



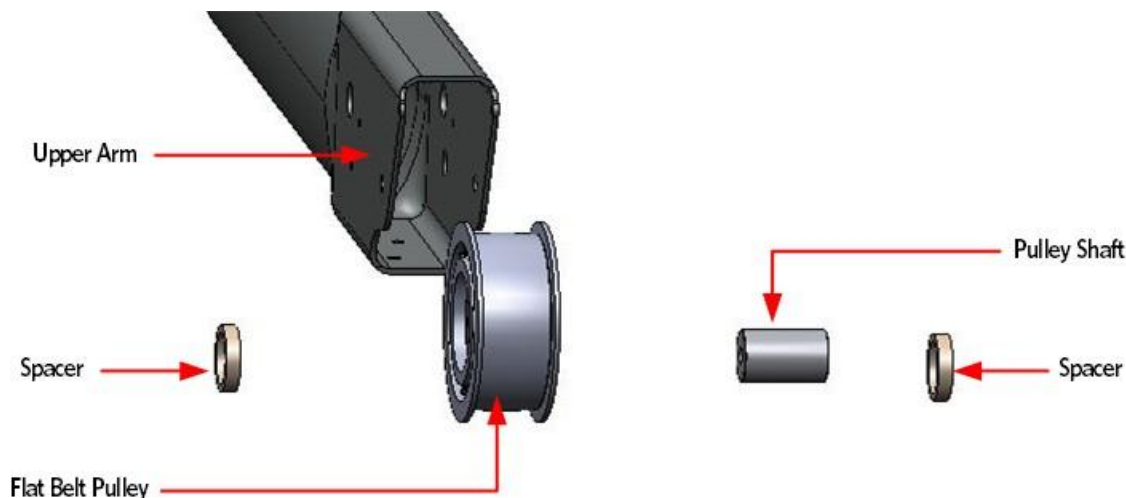
10 Remove the 3/8-16 X 3 mounting bolt, the two washers and the 3/8-16 lock nut that secure the upper arm pulley to the upper arm.

Figure 105: Upper Arm Flat Belt Pulley Mounting



11 Slide out the upper arm pulley, the two spacers, and the pulley shaft from the upper arm.

Figure 106: Upper Arm Flat Belt Pulley Removed



12 Slide the pulley shaft into the flat belt pulley, place one spacer on each side of the flat belt pulley. Ensure the belt goes over the top of the pulley. Insert the assembly into the upper arm.

13 Secure the flat pulley assembly to the upper arm using the mounting bolt, washers and lock nut. Thread the mounting bolt from the inside of the upper arm towards the outside of the upper arm, torque to 300 inch pounds (25 ft-lbs) or 25 foot pounds.

Note: Lock nut should be on the outside of the upper arm.

Upper Arm Grip Installation

14 Grasp the grip connecting ring located on each side of the upper arm grip, pull out and place the grip over the flat belt pulley mounting bolt.

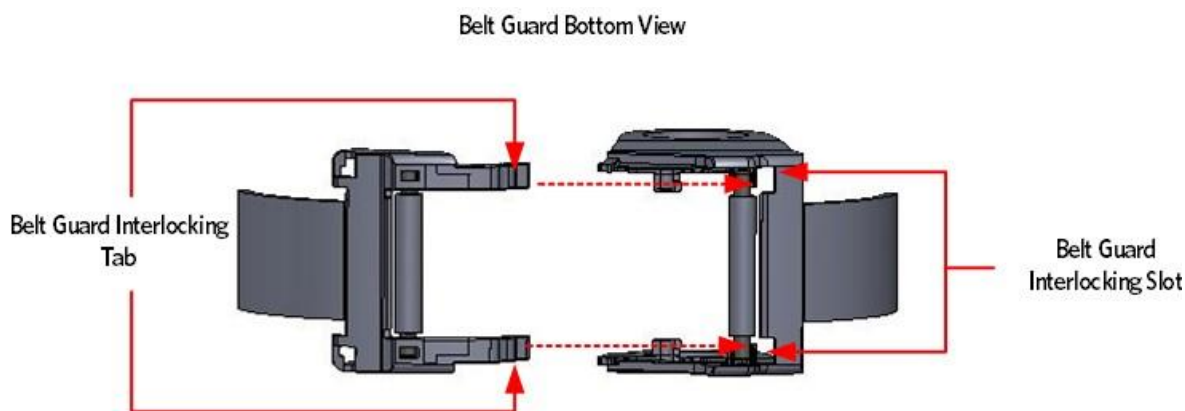
15 Secure the upper arm grip to the upper arm using the two #10-24X.75 screws.

Repeat the process for the remaining upper arm grip.

Belt Guard Installation

16 Place the two halves of the belt guard so they are positioned around the flat belt just below the upper arm. The smaller half should be positioned so that the interlocking tabs are pointing toward the front of the machine, and the guard toward the back. The larger half should be positioned with the guard toward the front. Align the interlocking tabs of the smaller half with the slots of the larger half; rotate the halves together around the flat belt until the locking tabs are locked.

Figure 107: Belt Guard Interlocking Tabs and Slots



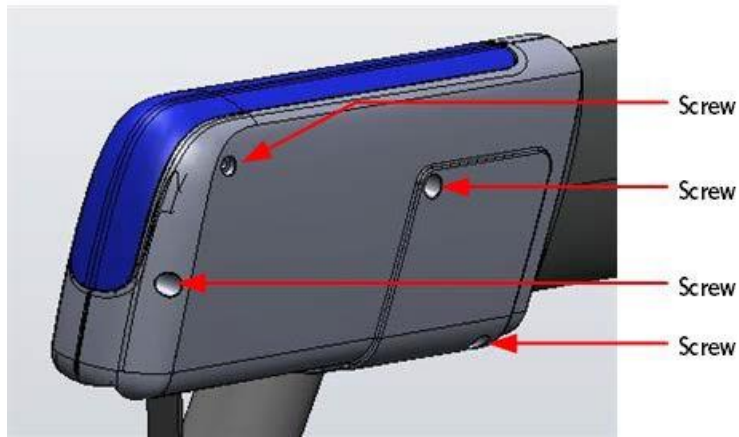
17 Grasp each belt guard mounting ring, lift the belt guard into position over the upper arm mounting bolts, and then secure each mounting ring to the connection ring.

Upper Arm Cover Installation

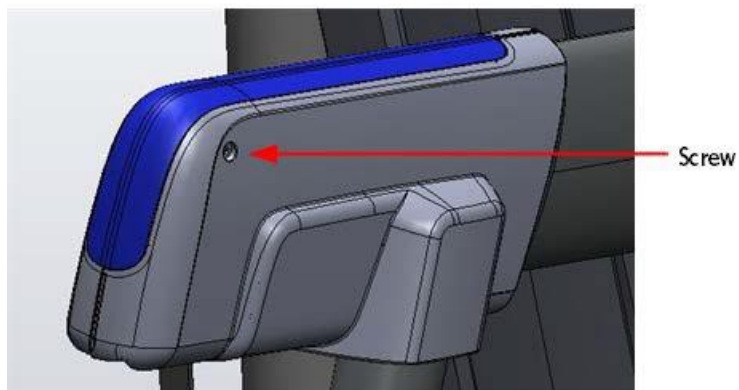
18 Secure the upper arm covers to the arm weldment using the five #10-24X1.25 screws.

Figure 108: Upper Arm Cover Screw Locations

Upper Arm Cover - Inside



Upper Arm Cover - Outside

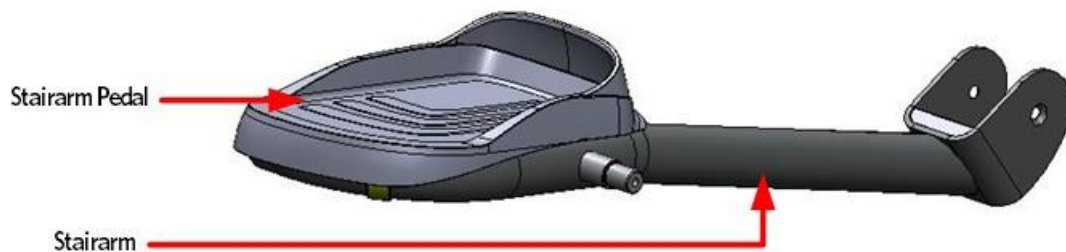


19 Lift the stairarms and then thread the flat belts over the flat belt pulleys.

20 Replace the main body covers as per procedure, [Cover Replacement](#).

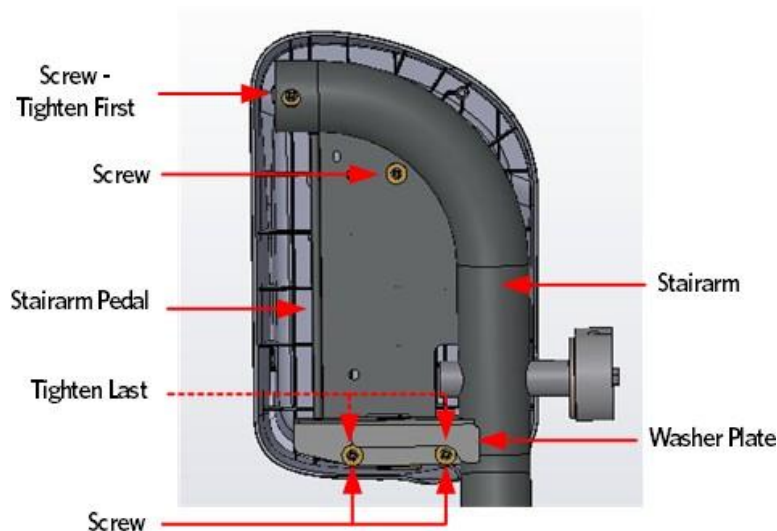
Replacing a Stairarm Pedal

Figure 109: Stairarm and Stairarm Pedal



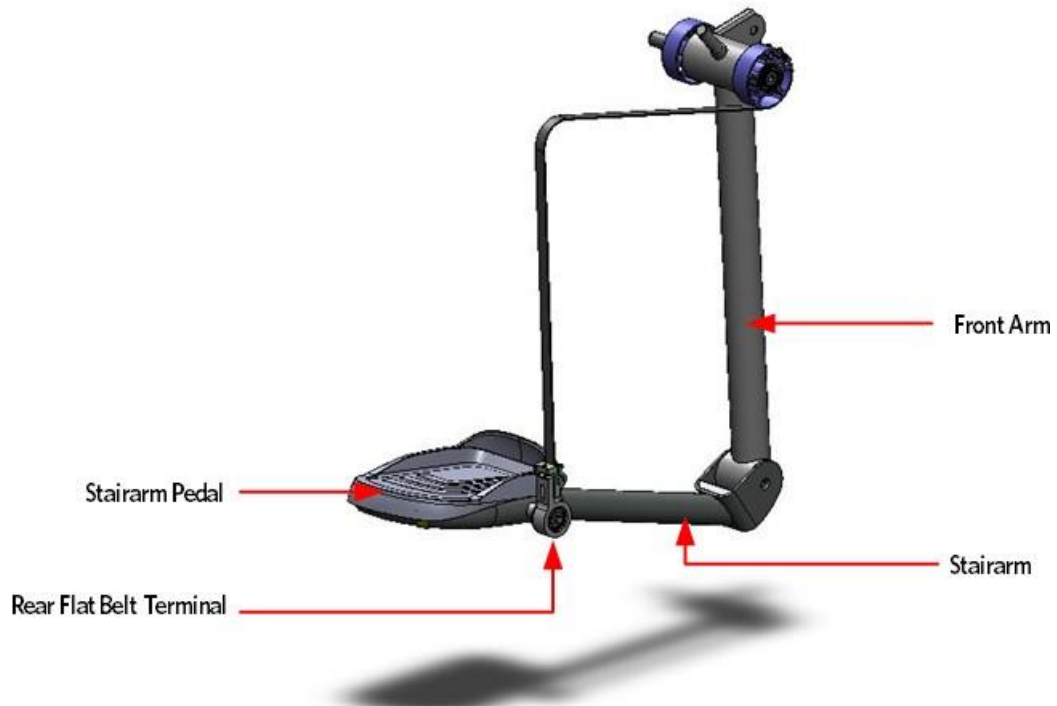
Stairarm Pedal Replacement Procedure

- 1 Pivot the stairarm up into a vertical position. Note: The following procedure will be much more efficient if a assistant holds the stairarm up.
 - 2 Remove the four screws, washers and washer plate that secure the stairarm pedal to the stairarm, remove the stairarm pedal.
 - 3 Fasten the replacement stairarm pedal to the stairarm using the four screws, washers and washer plate removed in step 2.
 - 4 Torque the screws to 15 inch pounds, starting from the single screw at the end of the stairarm, then screw mounted in the middle, finally the two rear pedal screws.
- Figure 110: Stairarm and Stairarm Pedal Screw Locations



Replacing a Stairarm

Figure 111: Stairarm and Front Arm

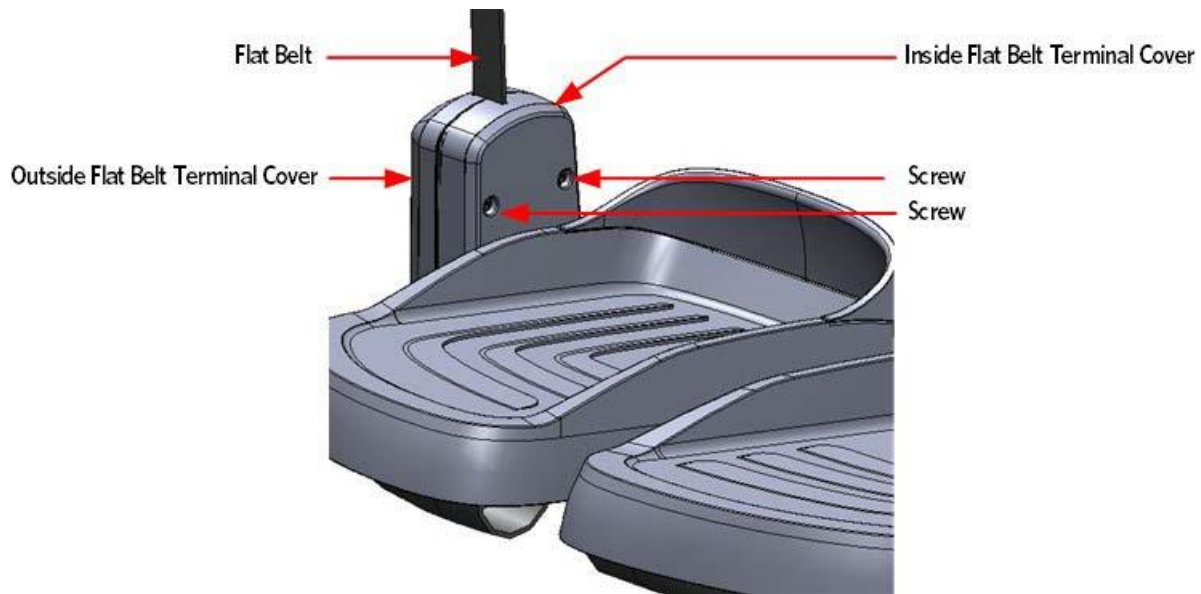


Stairarm Replacement Procedure

Rear Flat Belt Terminal Cover Removal

- 1 Remove the two #10-24 X 1.25 screws that secure the flat belt terminal covers to the flat belt terminal, remove the outside terminal cover.
- 2 Rotate the top of the inside terminal cover down until it is below the stairarm pedal, pull to remove.
- 3 Repeat the process for the remaining rear flat belt terminal cover.

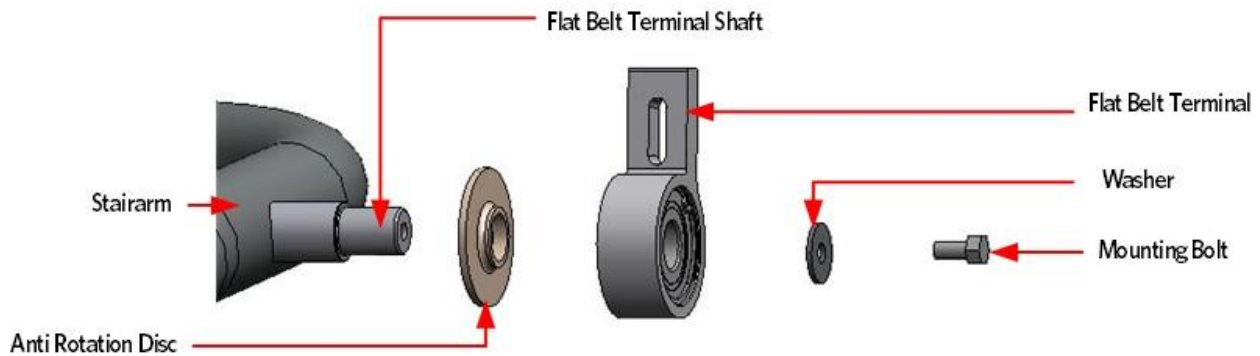
Figure 112: Flat Belt Terminal Covers



Flat Belt Terminal Removal

4 Remove the mounting bolt and washer that secure the flat belt terminal to the stairarm, remove the flat belt terminal and anti-rotation disc.

Figure 113: Flat Belt Terminal Removal

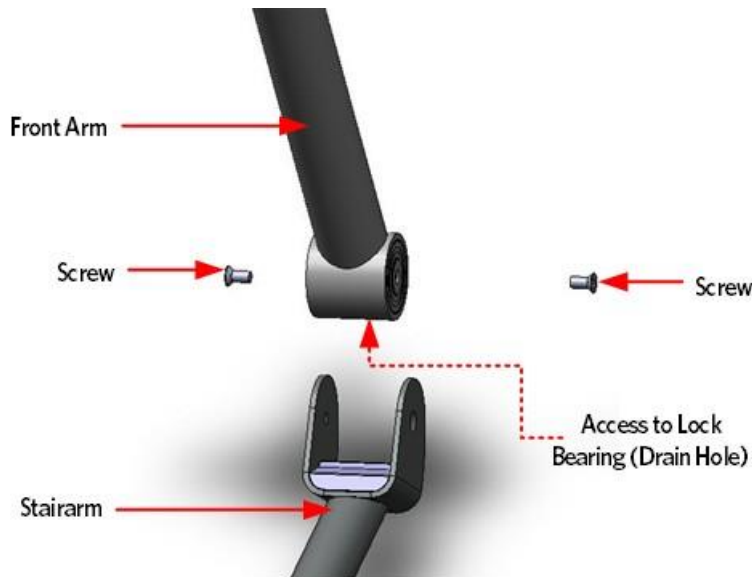


Stairarm Removal

5 Place the shaft of a Philips screw driver into the drain hole on the bottom of the front arm. Rotate the front arm bearing by turning the outside mounting bolt that secures the front arm to the stairarm, until the screw driver engages into the bearing and locks it. You may have to rotate the bearing one full turn to align the bearing lock hole with drain hole.

6 Once the screwdriver has locked the bearing preventing further rotation, fully remove the inside and outside mounting bolts. Remove the stairarm.

Figure 114: Stairarm and Front Arm Screw Locations

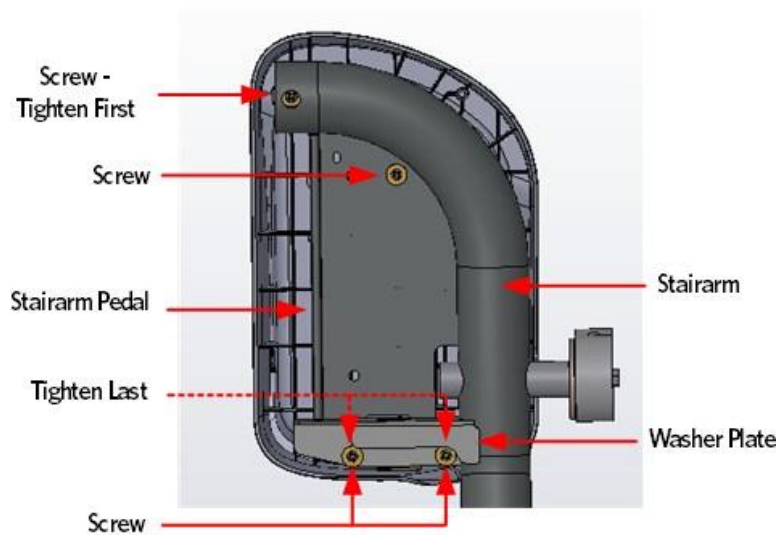


Stairarm Pedal Removal

7 Pivot the stairarm up into a vertical position. Note: The following procedure will be much more efficient if a assistant holds the stairarm up.

8 Remove the Five screws and washers that secure the stairarm pedal to the stairarm, remove the stairarm pedal.

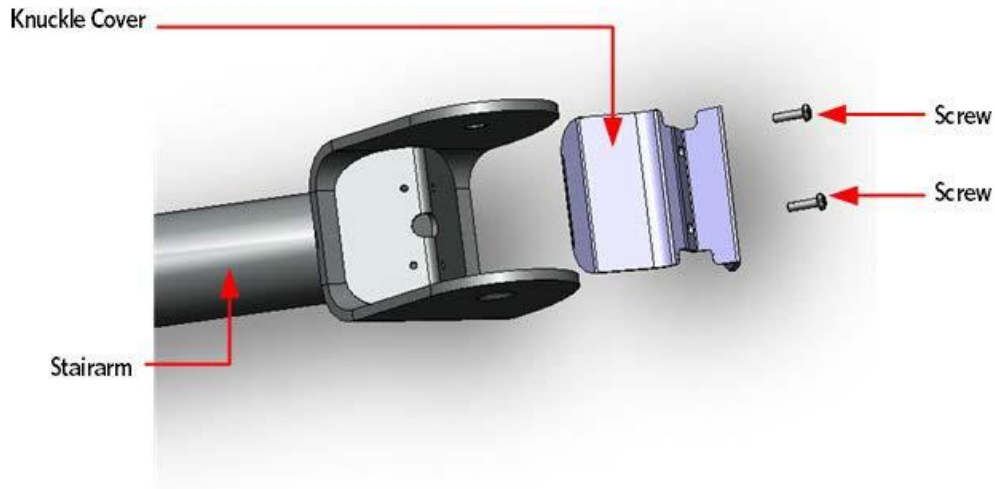
Figure 115: Stairarm and Stairarm Pedal Screw Locations



Stairarm Knuckle Cover Removal

9 Remove the two #10-24 X.75 screws that secure the stairarm knuckle cover to the stairarm and set aside the knuckle cover.

Figure 116: Stairarm Knuckle Cover Screw Locations



Stairarm Knuckle Cover Installation

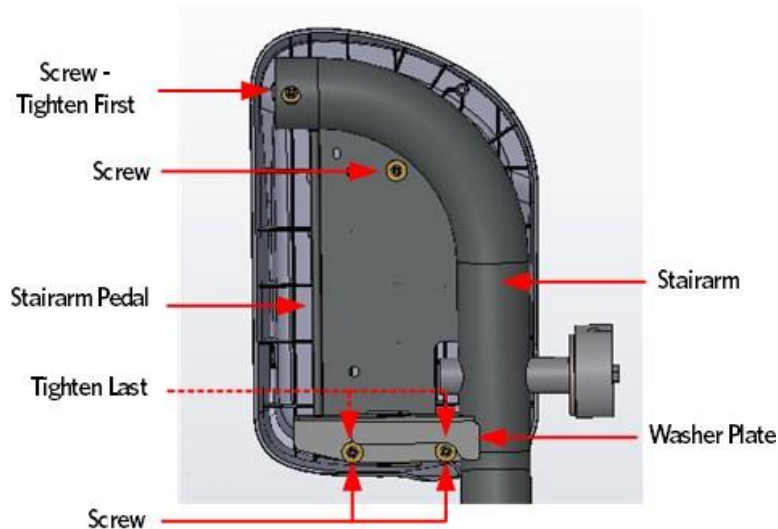
10 Secure the knuckle cover to the replacement stairarm using the two #10-24 X.75.

Stairarm Pedal Installation

11 Fasten the replacement stairarm pedal to the stairarm using the five screws and washers removed in step 2.

12 Torque the screws to 25 inch pounds, starting from the single screw at the end of the stairarm, then the two camp screws, finally the two rear pedal screws.

Figure 117: Stairarm and Stairarm Pedal Screw Locations



13 Position the stairarm in the front arm.

14 Place the shaft of a Philips screw driver into the drain hole on the bottom of the front arm and thread one of the two 1/2-13X1 screws into stairarm. Using the installed screw, rotate the front arm bearing until the screw driver engages into the bearing, locking the bearing. You may have to rotate the bearing one full turn to align the bearing lock hole with drain hole.

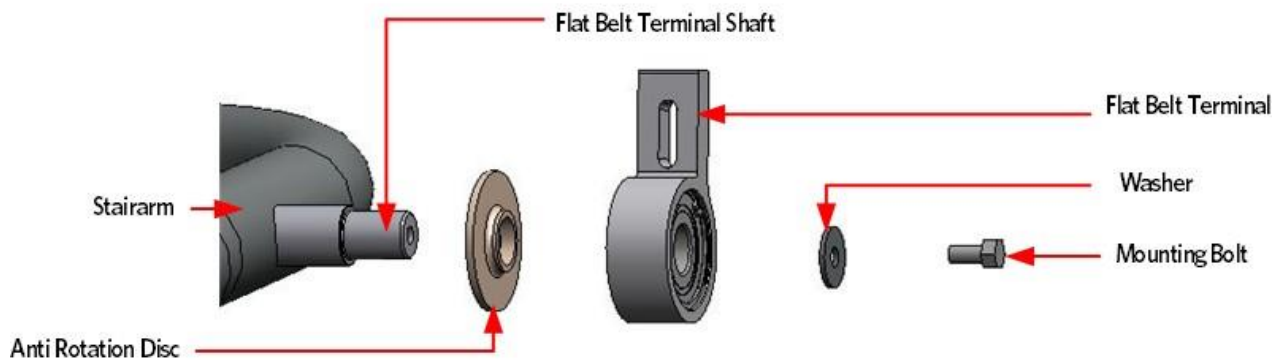
15 Once the screwdriver has locked the bearing preventing further rotation, fully tighten the inside and outside mounting bolts, torque to 83 foot pounds or 1000 inch pounds.

16 Remove the screwdriver from the drain hole.

Rear Flat Belt Terminal Installation

17 Carefully slide on the anti-rotation disc and flat belt terminal. Do not use excessive force. Fasten the anti-rotation disc and flat belt terminal onto the stairarm using the washer and mounting bolt, torque to 300 inch pounds (25 ft-lbs) or 25 foot pounds.

Figure 118: Flat Belt Terminal Removal

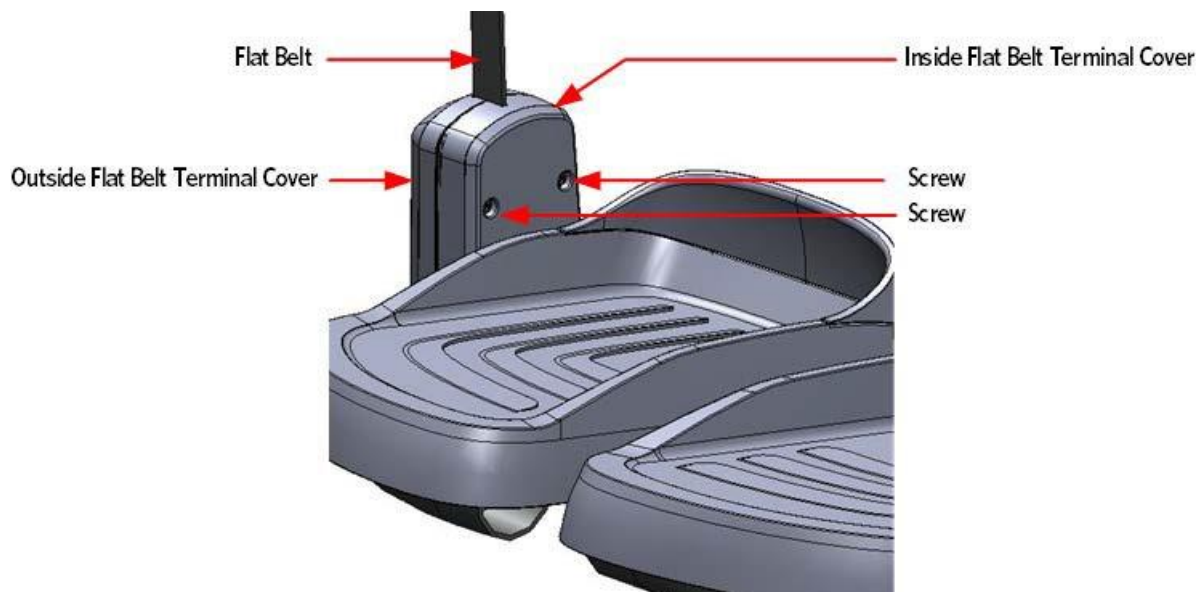


Rear Flat Belt Terminal Cover Installation

18 Align the top of the replacement inside cover so that it is pointing toward the floor. Place the bottom of the cover in between the flat belt terminal and the stairarm pedal. Rotate the top of the cover up and in to place.

19 Fasten the outside and inside terminal cover to the flat belt terminal using the two #10-24 X 1.25 screws.

Figure 119: Flat Belt Terminal Covers



Lift the stairarms and then thread the flat belts over the flat belt pulleys.

Replacing the Flat Belts

WARNING: Before continuing with this procedure, review the Warning and Caution statements listed in the Warning and Caution Statements and General Safety Guidelines Section, *Things You Should Know*.

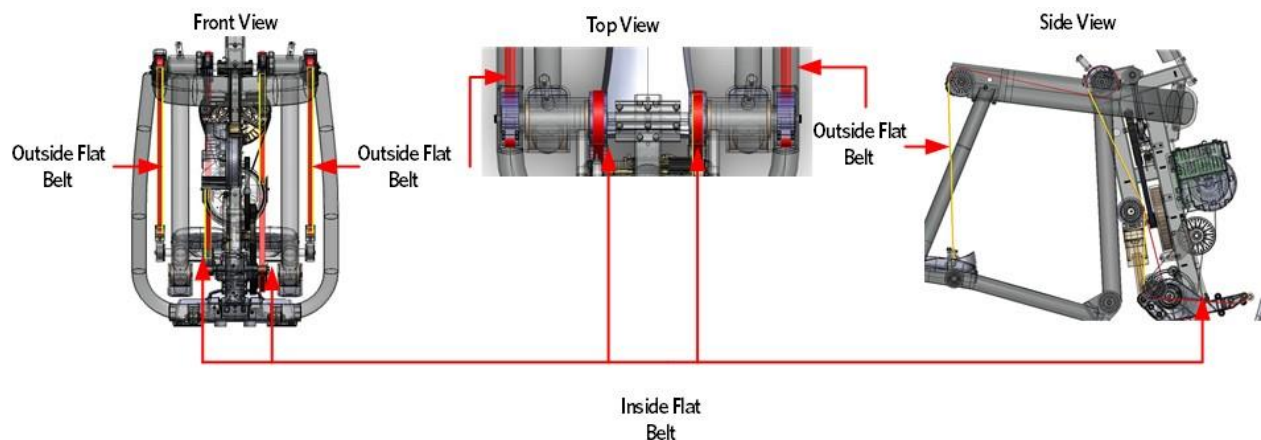
The AMT utilizes a four flat belt system that provides support to the stairarms and allows fluid movement. There are two outside flat belts and two inside flat belts. The two outside flat belts are routed from the stairarm terminals, up over a flat belt pulley and through the upper arm, terminating at the upper arm cams. The inside flat belts are routed from the platform through a series of pulleys, terminating at the upper arm cams.

The flat belt system has a predetermined life span of 100,000,000 strides, which will be monitored through the AMT's software. When the stride count reaches 90,000,000, a message will be displayed on the console, warning that the flat belts will need to be replaced. If the belts have not been replaced by the time the stride count has reached 100,000,000 and a stride count reset has not been issued through software diagnostics, the AMT will lock out the display with an out of service, replace flat belts message.

The stride count odometer is now stored on both the upper PCA and Lower PCA. The dual memory locations allow the stride count to be transferred in the event that an upper PCA or lower PCA is replaced. If the upper PCA is replaced, the stride count stored on the lower PCA will be written to the new upper PCA. If the lower PCA is replaced, the stride count stored on the upper PCA will be written to the new lower PCA.

Note: When the belts are replaced, it is required that all 4 flat belts be replaced at the same time.

Figure 120: Flat Belts



Precor recommends not swapping lower and upper PCA boards to troubleshoot, but if swapping is the only option to isolate a problem, swap only one PCA board at a time.

If you are swapping a PCA board to perform troubleshooting, note the process below to prevent the stride count odometer from being prematurely overwritten.

- ◆ When you stop pedaling the AMT, the AMT will pause for 20 seconds, and then give a 10 second workout summary (which is when the records are written). After the PCA board is replaced and testing the AMT is complete you will need to unplug the data cable within the 20 second pause period to prevent the summary from happening. If the AMT is prevented from going into the summary, the stride count will not be overwritten.
- ◆ When testing is complete make sure that each PCA board is replaced in the original unit from which it was removed. The only exception to this would be if you find a bad board that needs to be replaced.
- ◆ All of these functions will place a code (70-79) in the error log, and they should be cleared before returning the unit to use.

The following table shows the possible belt and PCA board swapping event codes.

Belt Replacement & Odometer Tracking Codes

Tracking And Writing the Stride Count			
W h e n	E v e n t	Event Description	Direction Of Write Operation
A t s t a r t u p	7 1	Virgin Lower Board Detected	The UPCA stride count record is written to the
	7 2	Bad "version" byte	The UPCA stride count record is written to the
	7 3	Bad "size" byte	The UPCA stride count record is written to the
D u r i n g t h e w o r k o u t s u e	7 4	LPCA stride count is less than that of the UPCA, and the UPCA is less than 30,000 strides	The LPCA stride count record is written to the UPCA
	7 5	LPCA stride count is less than 30,000 strides, and is	The UPCA stride count record is written to the LPCA
	7 6	LPCA stride count is greater than that of the UPCA, and UPCA stride count is greater than	The UPCA stride count record is written to the LPCA
	7 7	UPCA stride count is greater than that of the LPCA, and LPCA stride count is greater than	The LPCA stride count record is written to the UPCA
Tracking Belt Replacement			
A t	7 8	Stride count greater than 90 million strides	Display "Belts Must Be Replaced Soon"
	7 9	Stride count greater than 100 million strides	Display "Belts Change Required"

Inside Flat Belt Replacement

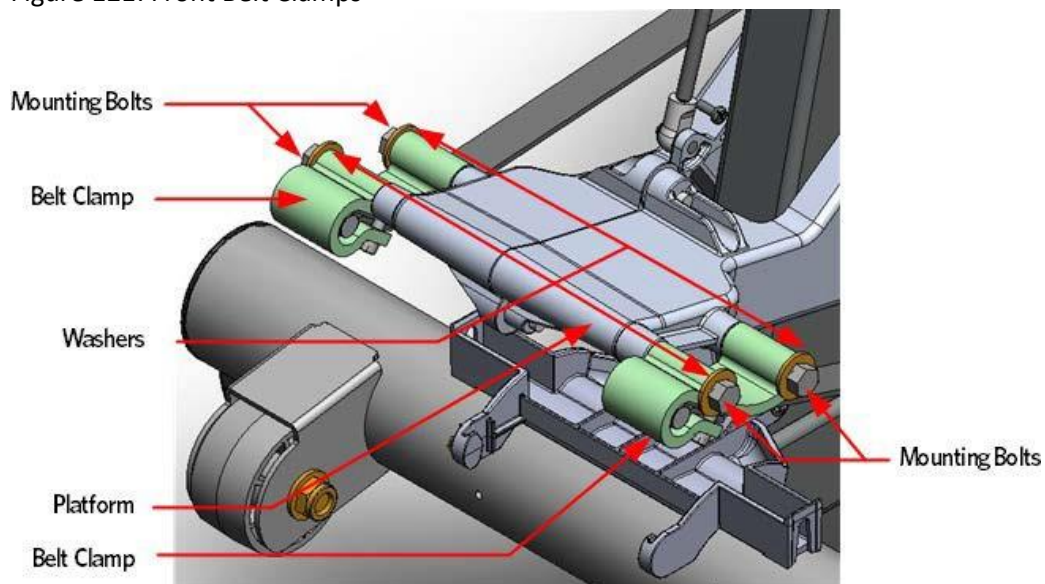
- 1 Remove the main body covers as per procedure, [Cover Replacement](#).

- 2 Remove the screw that secures the belt keeper to the frame and remove the belt keeper.
- 3 Remove the tension from the inner flat belt pulleys by lifting up on the stairarms, pulling the flat belts off the flat belt pulleys, and then gently setting the stairarm down.

Flat Belt Removal - Front Clamp

- 4 Remove the two mounting bolts and washers that secure the front flat belt clamp to the platform.

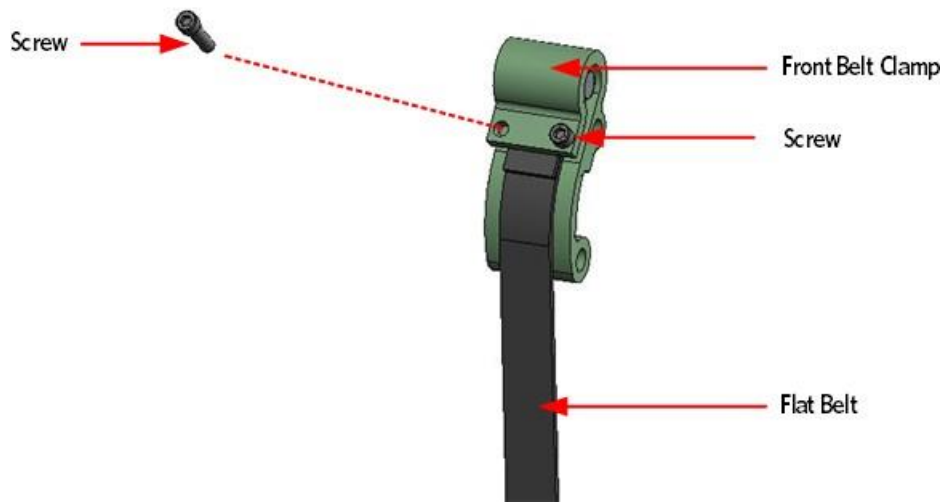
Figure 121: Front Belt Clamps



Note: Any time the flat belt terminal screws are removed from the flat belt clamp or cams, the screws must be discarded and replaced with new screws

- 5 Temporarily reinstall the two belt clamp mounting bolts without the washers. Having the belt clamp installed without the washers will help ease the removal and installation of the flat belts.
- 6 Remove and discard the two 1/4-20X1 flat belt clamp screws and shims that secure the flat belt to the clamp.

Figure 122: Front Belt Clamp Screw Removal

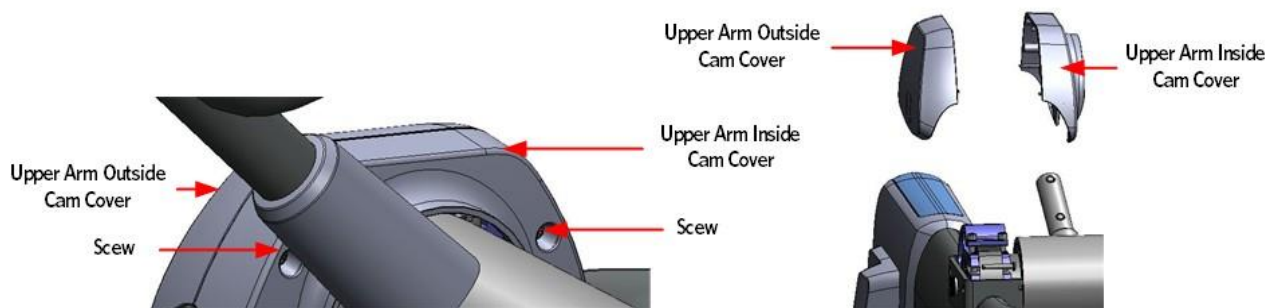


7 Using a screwdriver tip, push out the pin from the flat belt loop and clamp and then slide the flat belt out of the clamp.

Upper Arm Cam Cover Removal

8 Remove the two #10-24X1.25 screws that secure the upper arm cam covers to the upper arm, then remove the covers. It may be necessary to adjust the position of the vertical handlebar to gain access to the upper arm cam cover screws.

Figure 123: Upper Arm Cam Covers

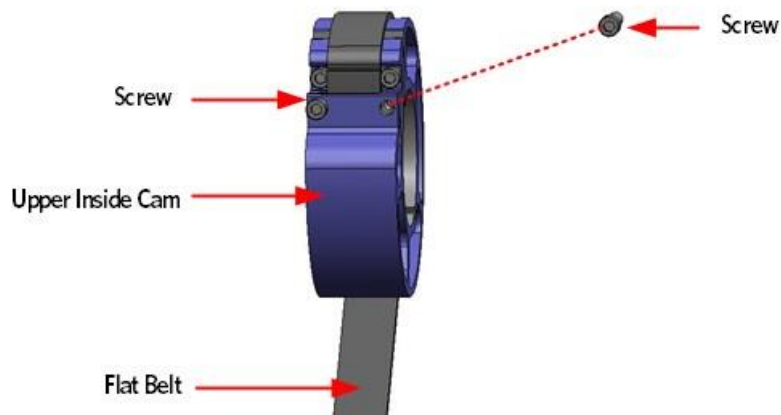


Flat Belt Removal - Upper Arm Cam

Note: Any time the flat belt terminal screws are removed from the flat belt clamp or cams, the screws must be discarded and replaced with new screws.

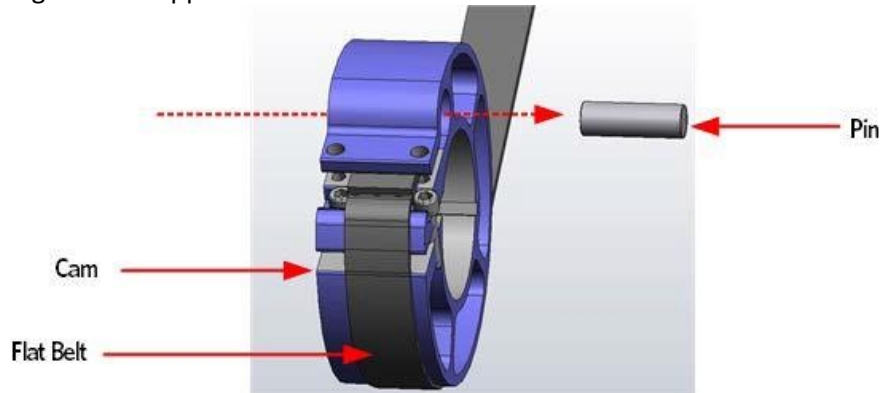
9 Remove and discard the two 1/4-20X1 flat belt cam clamp screws and shims that secure the flat belt to the clamp.

Figure 124: Upper Inside Cam Screw Removal



10 Using a screw driver tip, push out the pin from the flat belt loop and cam clamp and then slide the flat belt out of the cam clamp. Remove the flat belt.

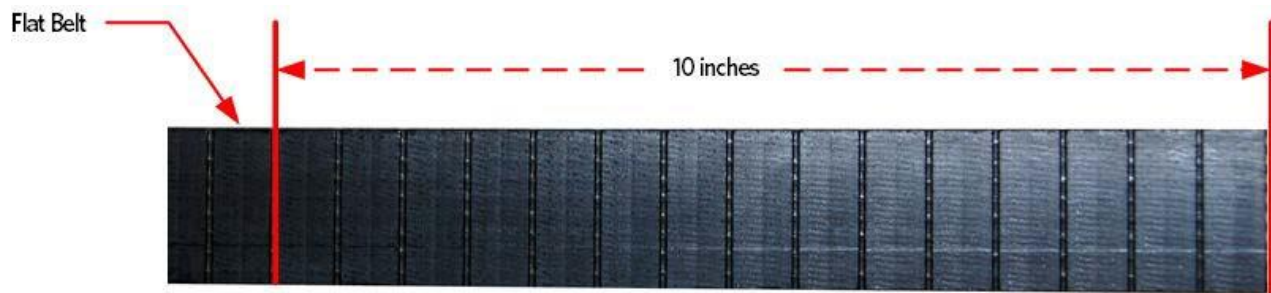
Figure 125: Upper Inside Cam Pin Removal



Flat Belt Installation - Upper Arm Cam

11 Lay the replacement flat belt on a flat surface with the flat belt segments facing up. Measure the distance in from the end of the flat belt 10 inches. Using a straight edge and permanent marker draw a line across the flat belt at 10 inches. Repeat this process for the other end of the flat belt.

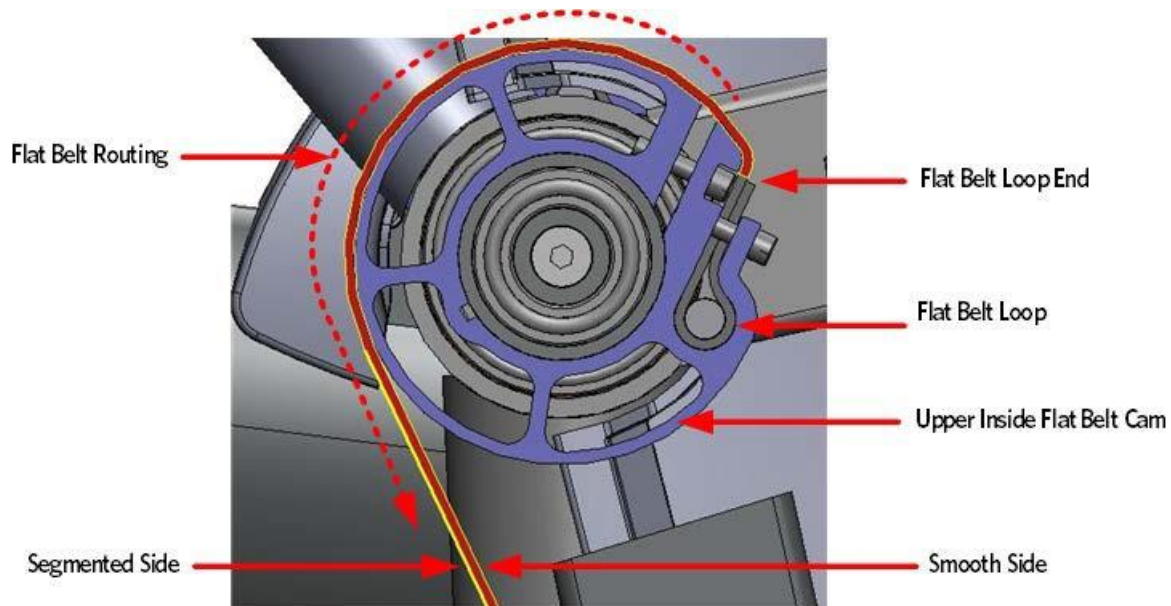
Figure 126: Flat Belt End Measurement



12 Place the inside flat belt on the cam so the length of the flat belt is draped towards the back of the AMT. Make sure the smooth side of the flat belt contacts the cam and the segmented side is facing up.

13 Install a replacement 1/4-20X1 screw and shim in one of the cam clamp screw holes, do not fully tighten at this time.

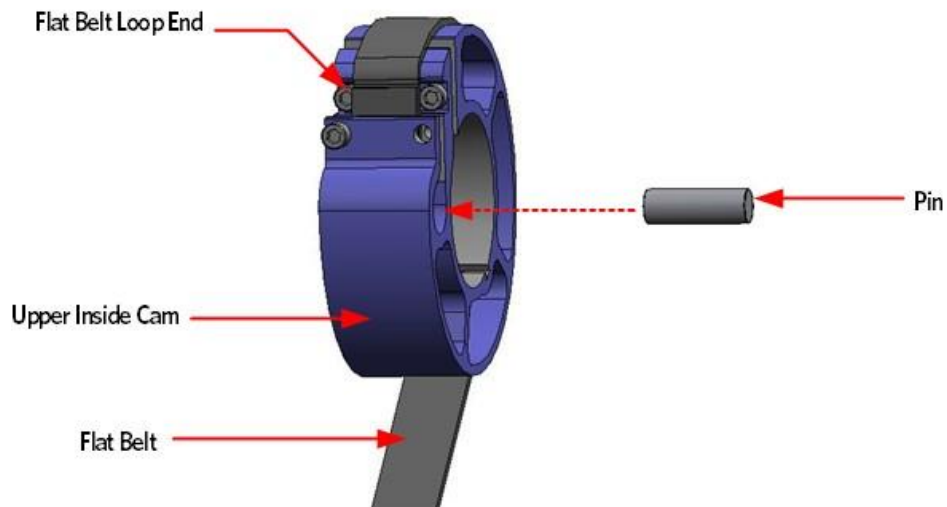
Figure 127: Upper Inside Cam Flat Belt Routing



14 Loop the end of the flat belt back to the 10 inch mark. While holding the flat belt end on the 10 inch mark, work the loop into the cam clamp. A 1/2 inch deep set socket can be used to assist in pushing the belt into place. When the flat belt loop is about half way into the cam clamp, push the pin into the flat belt loop.

15 Continue to work the flat belt loop and pin into the cam clamp until the side of the flat belt is resting next to the clamp screw. Ensure the pin is centered within the cam clamp.

Figure 128: Upper Inside Cam Pin Install

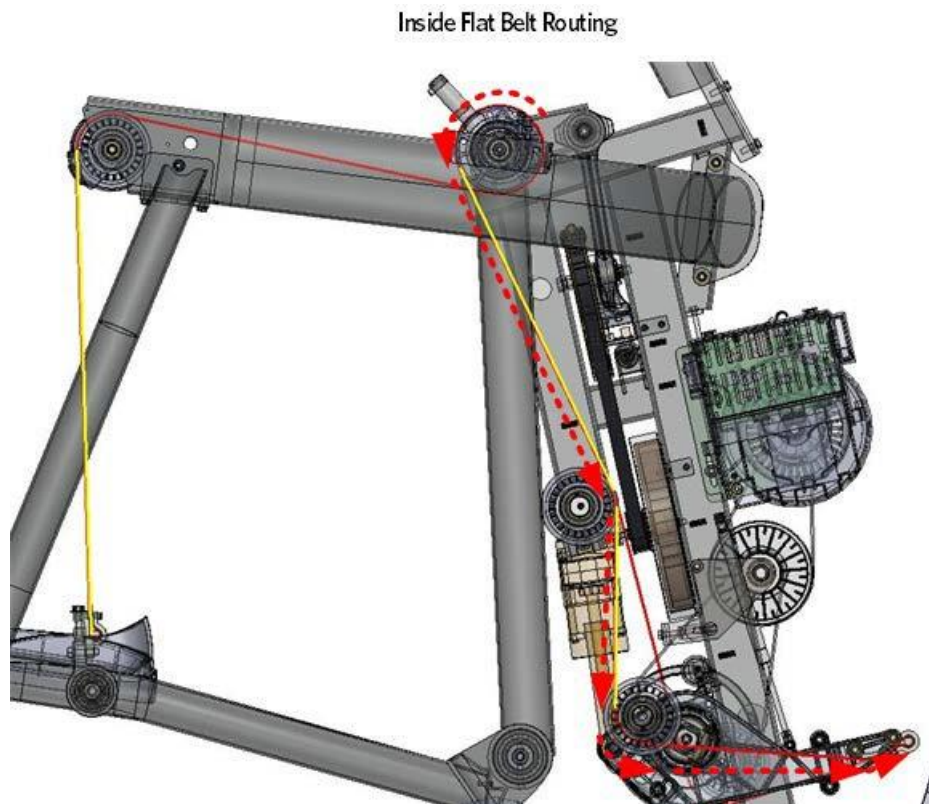


16 Install the second 1/4-20X1 screw and shim, but do not fully tighten at this time.

Inside Flat Belt Routing

17 Route the flat belt over the top of the cam towards the back of the AMT and down, over the first flat belt pulley, then under the second flat belt pulley to the front belt clamp. If the flat belts are not long enough to route through the pulley's, skip the belt routing until the belt flat belt installation is completed

Figure 129: Inside Flat Belt Routing



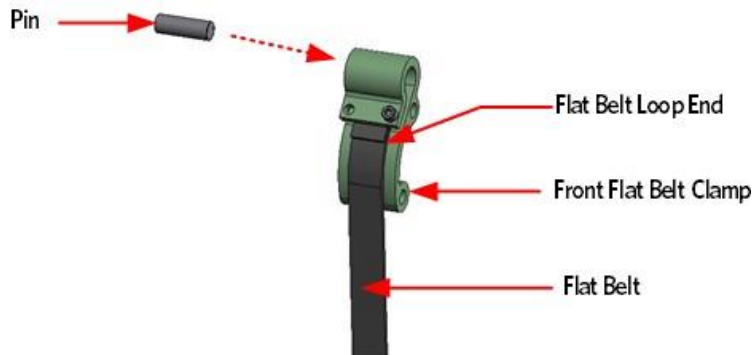
Flat Belt Installation - Front Clamp

18 Install a replacement 1/4-20X1 screw and a shim in one of the clamp screw holes, do not fully tighten at this time.

19 Loop the end of the flat belt to the 10 inch mark. While holding the flat belt end on the 10 mark, work the loop into the terminal belt clamp. A 1/2 inch deep set socket can be used to assist in pushing the belt into place. When the flat belt loop is about half way into the terminal clamp, push the pin into the flat belt loop.

20 Continue to work the flat belt loop and pin into the terminal clamp until the side of the flat belt is resting next to the clamp screw. Ensure the pin is centered within the terminal clamp.

Figure 130: Front Flat Belt Clamp Pin Mounting



21 Install the second 1/4-20X1 screw and shim that secure the flat belt to the clamp, do not fully tighten at this time.

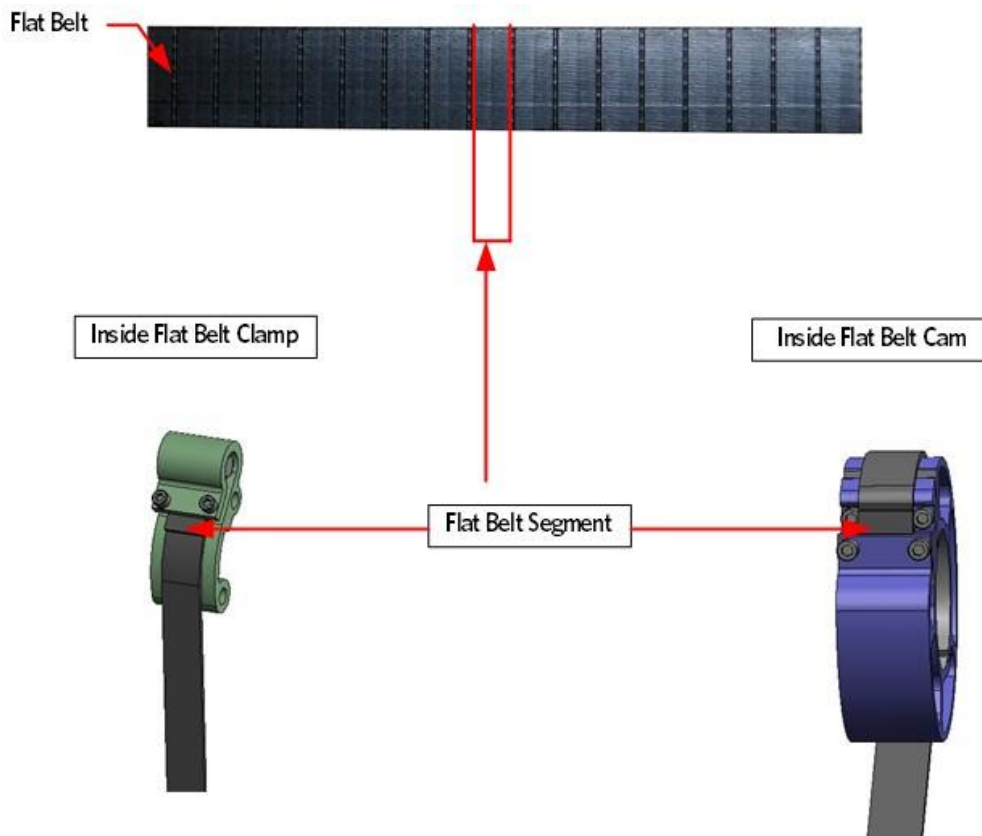
Inside Flat Belt Alignment

22 The flat belts ends will now need to be adjusted to their final position before the flat belt clamp screws can be tightened. Gently press downward on the stairarm pedal that corresponds to the replacement belt.

23 Gradually increasing downward pressure on the stairarm pedal while closely monitoring the flat belt ends for movement through the belt clamps.

24 Monitor the movement of the belt through the clamps until one or both ends of the flat belt has one belt segment extending beyond the flat belt clamp.

Figure 131: Flat Belt End Alignment



25 If one of the flat belt ends reaches the one segment measurement before the other end, stop the downward pressure on the stairarm pedal and tighten the flat belt clamp screws on the flat belt end that has reached the one segment measurement. Torque to 120 inch pounds.

26 Resume applying downward pressure to the stairarm pedal until the remaining flat belt end reaches the one segment measurement. Tighten the two flat belt screws and torque to 120 inch pounds.

27 Remove the mounting bolts that secure the inside flat belt clamp to the frame, replace the washers and reinstall the mounting bolts. Torque to 300 inch pounds (25 ft-lbs).

28 If the flat belt was not re-routed through the pulley's in step 17, route them at this time.

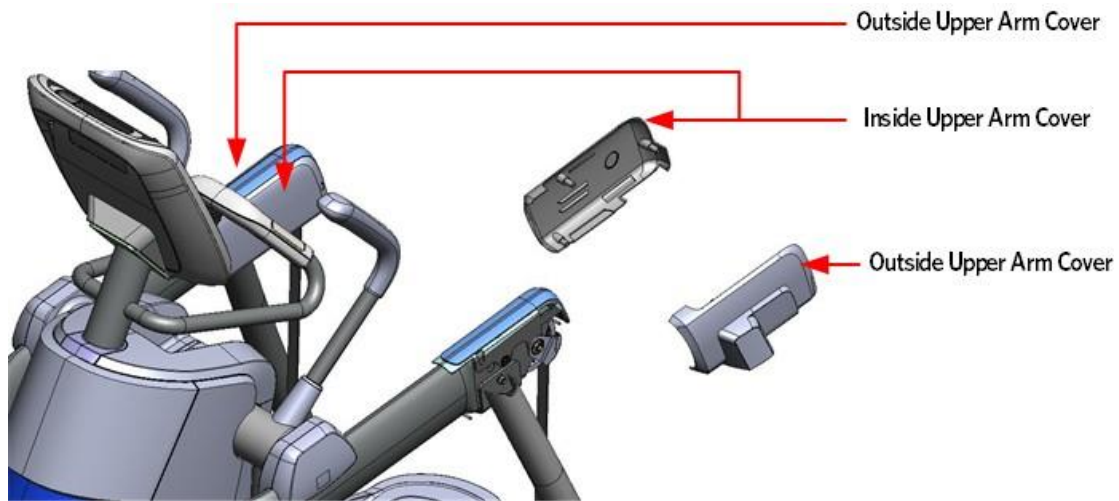
29 Repeat the procedure for the remaining inside flat belt replacement.

30

Outside Flat Belt Replacement

Upper Arm Cover Removal

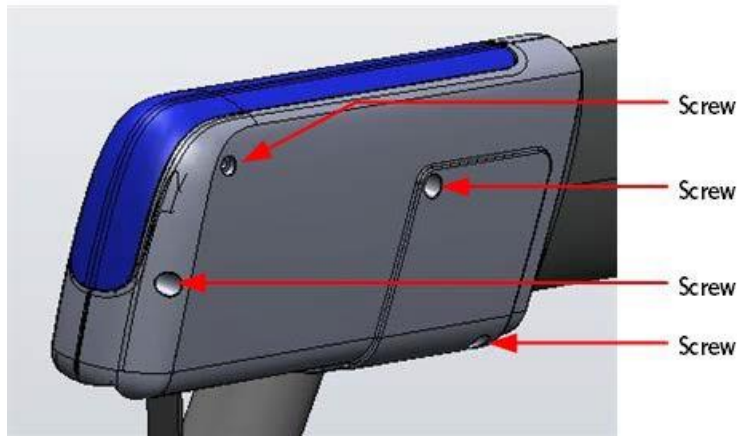
Figure 132: Upper Arm Covers



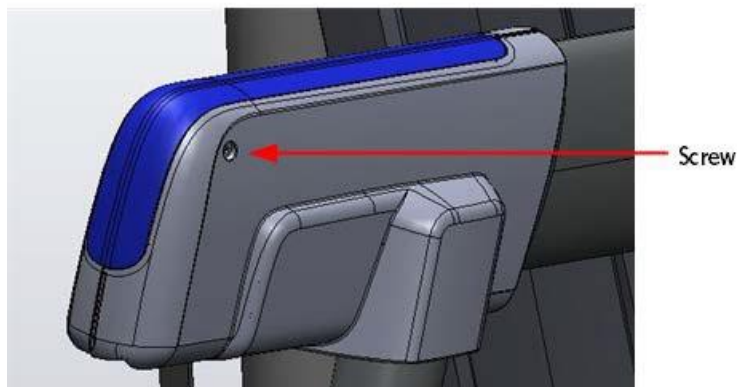
- 1 Remove the four screws that fasten the inside upper arm covers to the upper arm.
- 2 Remove the screw that fasten the outside upper arm covers to the upper arm.
- 3 Remove the inside and outside covers from the upper arm.
- 4 Repeat the process for the remaining upper arm covers.

Figure 133: Upper Arm Cover Screw Locations

Upper Arm Cover - Inside



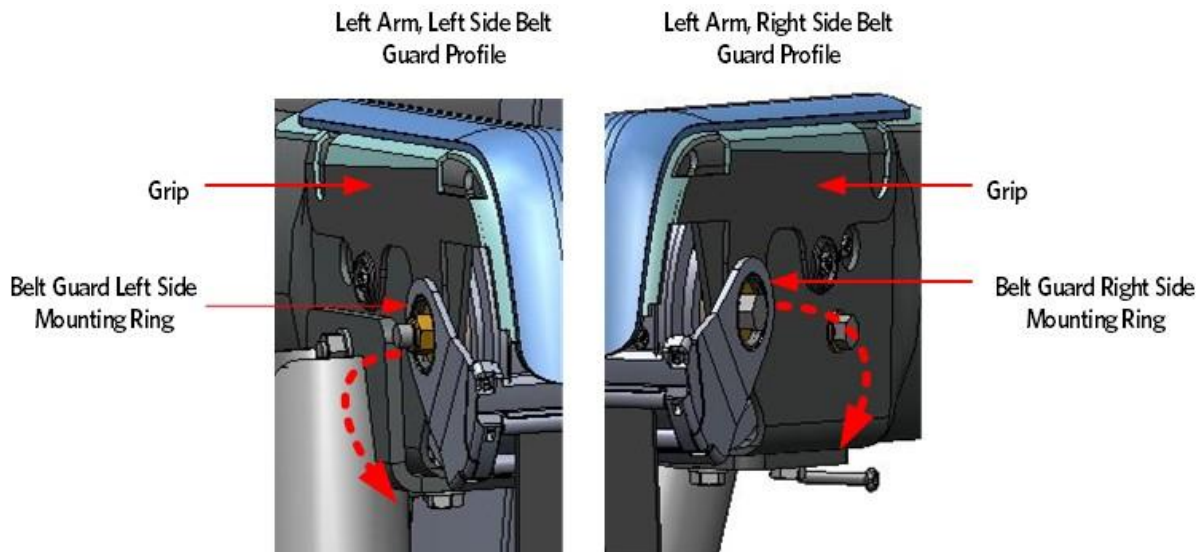
Upper Arm Cover - Outside



Belt Guard Removal

- 1 Grasp the belt guard mounting ring's located on each side of the upper arm. Gently pull out and away from the grip connection ring's just enough to extend past the mounting bolt.

Figure 134: Belt Guard and Upper Arm

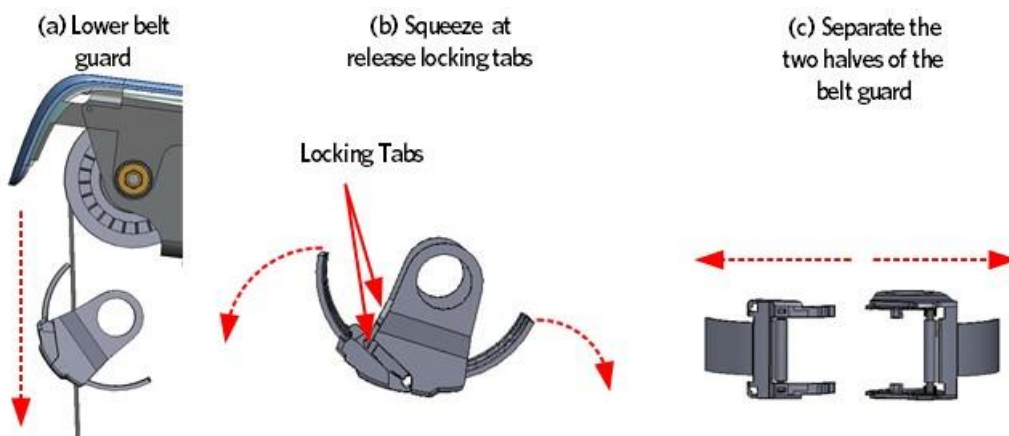


2 The belt guard assembly is two interlocking halves and needs to be separated before it can be removed from flat belt:

- a) Lower the belt guard down just below the upper arm.
- b) Squeeze the belt guard near the base to release locking tabs and rotate the two halves down.
- c) Taking care to not lose the rollers inside the belt guard, pull the two belt guard halves away from each other to separate.

3 Repeat the process for the remaining belt guard.

Figure 135: Belt Guard Removal

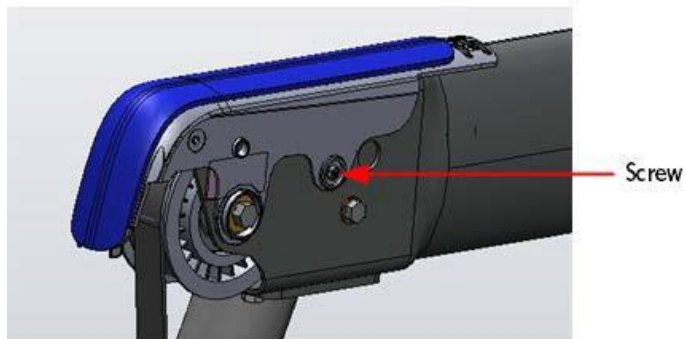


Upper Arm Grip Removal

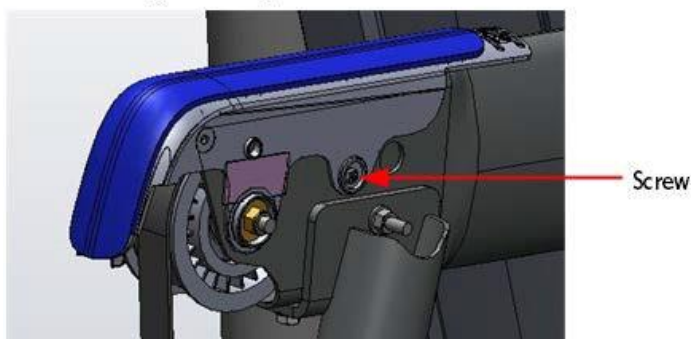
4 Remove the two screws that secure the grip to the upper arm, there is one screw on each side of the upper arm.

Figure 136: Upper Arm Grip Screw Locations

Upper Arm Grip - Inside

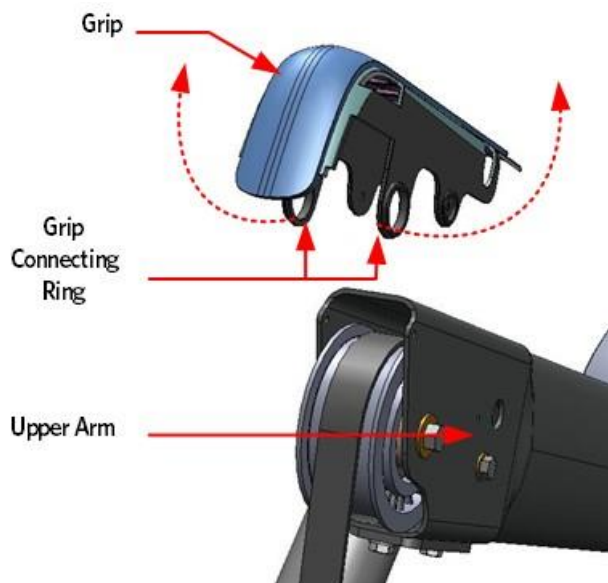


Upper Arm Grip - Outside



5 Grasp the grip connecting ring located on each side of the upper arm, pull up and over the flat belt pulley mounting bolt to remove the grip.

Figure 137: Upper Arm Grip Removal



6 Repeat the process for the remaining upper arm grip.

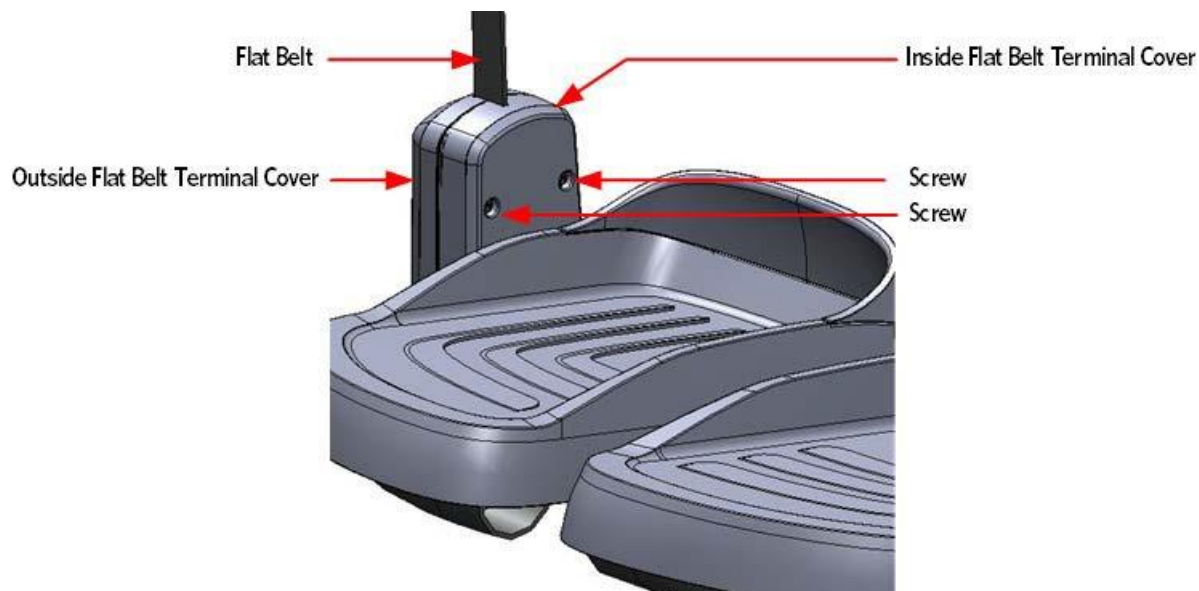
Rear Flat Belt Terminal Cover

7 Remove the two #10-24 X 1.25 screws that secure the flat belt terminal covers to the flat belt terminal, remove the outside terminal cover.

8 Rotate the top of the inside terminal cover down until it is below the stairarm pedal, pull to remove.

9 Repeat the process for the remaining rear flat belt terminal cover.

Figure 138: Flat Belt Terminal Covers

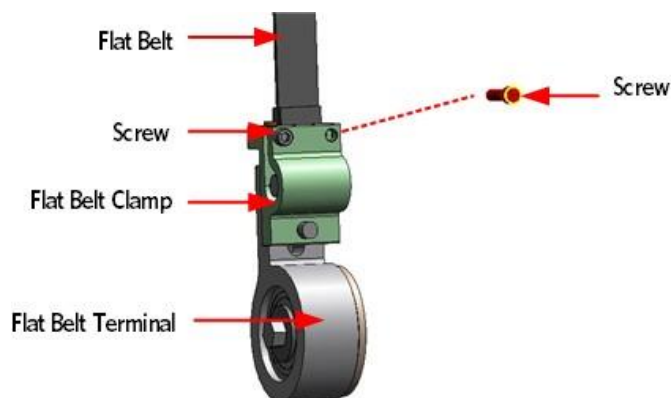


Flat Belt Removal - Rear Terminal

Note: Any time the flat belt terminal screws are removed from the flat belt clamp or cams, the screws must be discarded and replaced with new screws.

10 Remove and discard the two 1/4-20X1 screws and shims that secure the flat belt to the clamp.

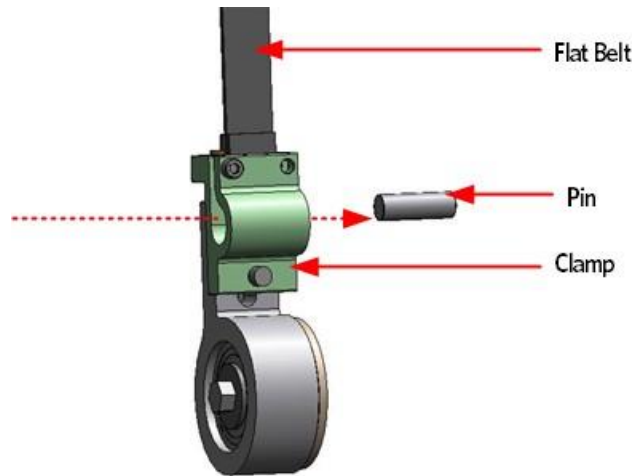
Figure 139: Flat Belt Removal - Terminal



11 Using a screwdriver, push out the pin from the flat belt loop and clamp and then slide the flat belt

out of the clamp. A 1/2 inch socket will fit the inside diameter of the flat belt clamp and can be used to push the flat belt out of the flat belt clamp.

Figure 140: Flat Belt Pin Removal



Upper Arm Flat Belt Pulley Removal

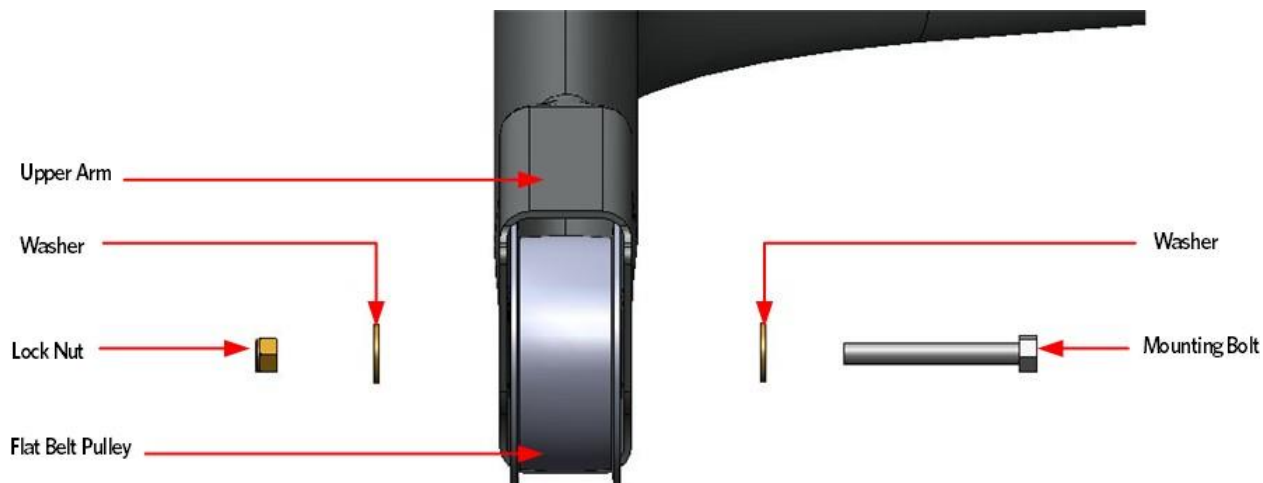
TIP: Time Saver Tip: When installing the replacement flat belt, tape the end of the replacement belt to the old flat belt at the cam side and then pull the new belt through the upper arm as the old belt is removed.

TIP: If the belt has already been removed, you can use a fish tape or coat hanger to pull the belt through the upper arm. Ensure the flat belt is routed over the top of any hardware that may be crossing the inside of the upper arm.

12 If the flat belt cannot be pulled through the upper arm by taping a new belt to the old belt or with a fish tape, continue with the next steps, otherwise skip to the Flat Belt Removal - Upper Arm Cam procedure.

13 Remove the mounting bolt, the two washers and the nut that secure the upper arm pulley to the upper arm.

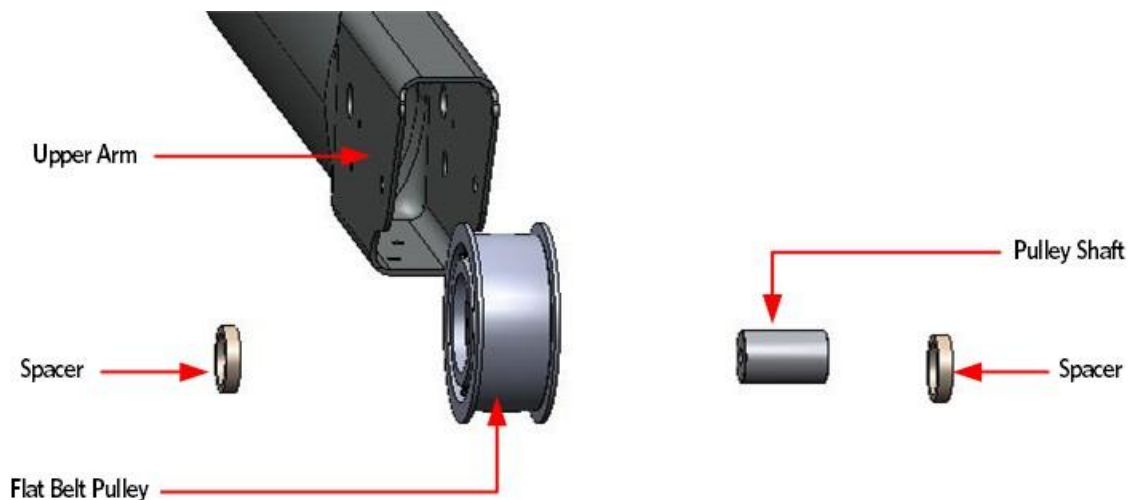
Figure 141: Upper Arm Flat Belt Pulley Mounting



14 Slide out the upper arm pulley, the two spacers, and the pulley shaft from the upper arm.

15 Repeat the process for the remaining flat belt pulley.

Figure 142: Upper Arm Flat Belt Pulley Removed

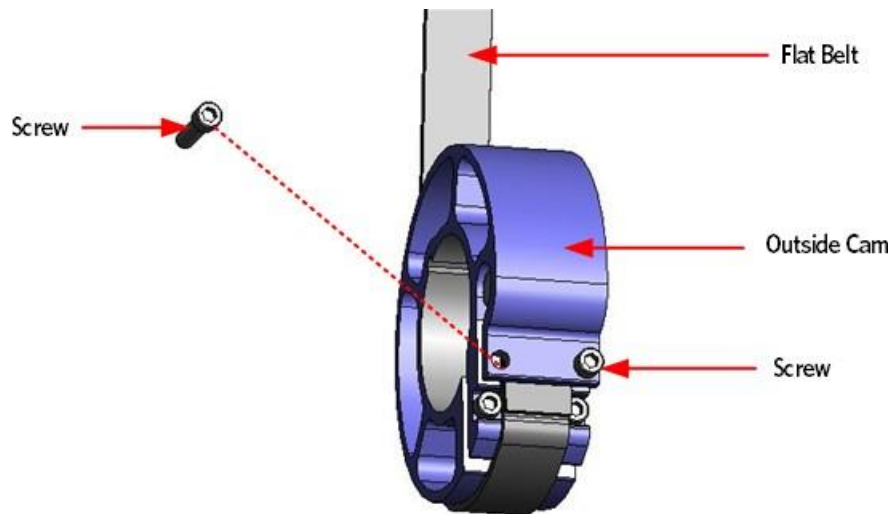


Flat Belt Removal - Upper Arm Cam

Note: Any time the flat belt terminal screws are removed from the flat belt clamp or cams, the screws must be discarded and replaced with new screws.

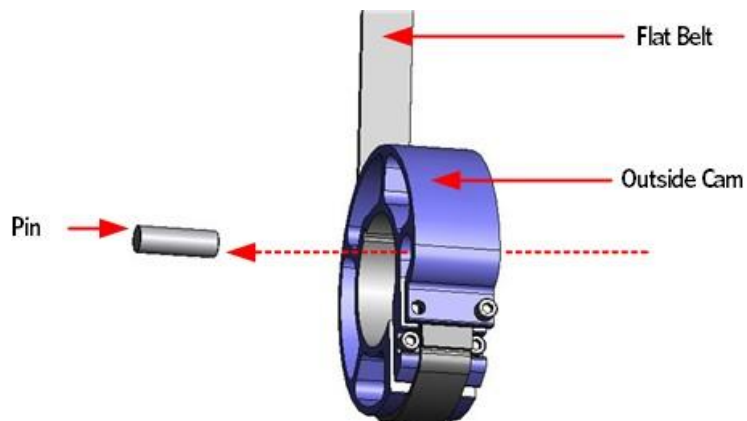
16 Remove and discard the two 1/4-20X1 screws and shims that secure the flat belt to the cam clamp.

Figure 143: Upper Outside Cam Screw Removal



17 Using a screwdriver, push out the pin from the flat belt loop and cam clamp and then slide the flat belt out of the cam clamp.

Figure 144: Upper Outside Cam Pin Removal



TIP: Time Saver Tip: When installing the replacement flat belt, tape the end of the replacement belt to the old flat belt at the cam side and then pull the new belt through the upper arm as the old belt is removed.

TIP: If the belt has already been removed, you can use a fish tape or coat hanger to pull the belt through the upper arm. Ensure the flat belt is routed over the top of any hardware that may be crossing the inside of the upper arm.

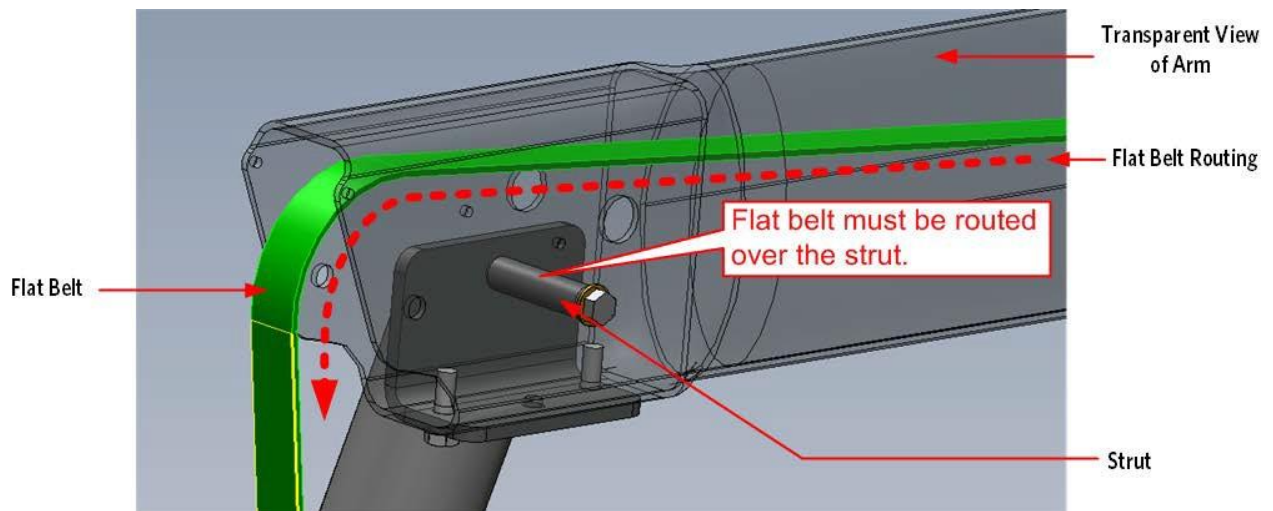
e belt has already been removed, you can use a fish tape or coat hanger to pull the belt through the upper arm. Ensure the flat belt is routed over the top of any hardware that may be crossing the inside of the upper arm.

18 Grasp the loose end of the flat belt from the back end of the upper arm and then pull the belt

through the arm to remove.

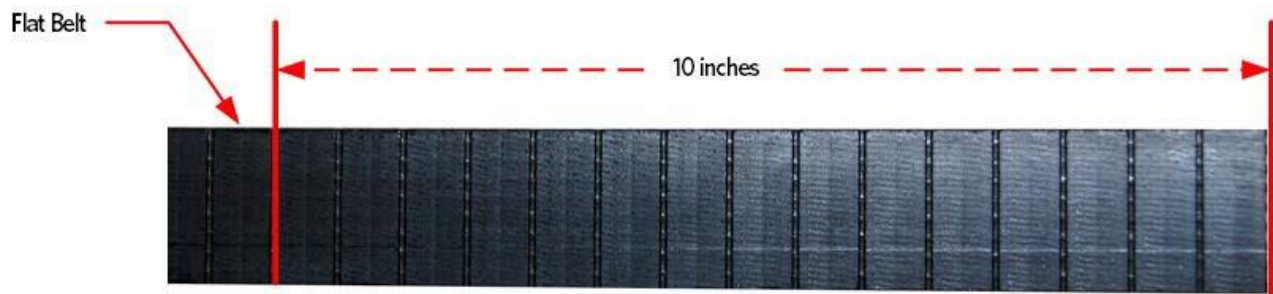
Note: the flat belt must be routed over the strut in the front arm assembly. Failure to route the flat belt over the strut will cause severe damage to the flat belt. The Figure below illustrates the correct flat belt routing.

Figure 145: Flat Belt Routing - Transparent View of Arm



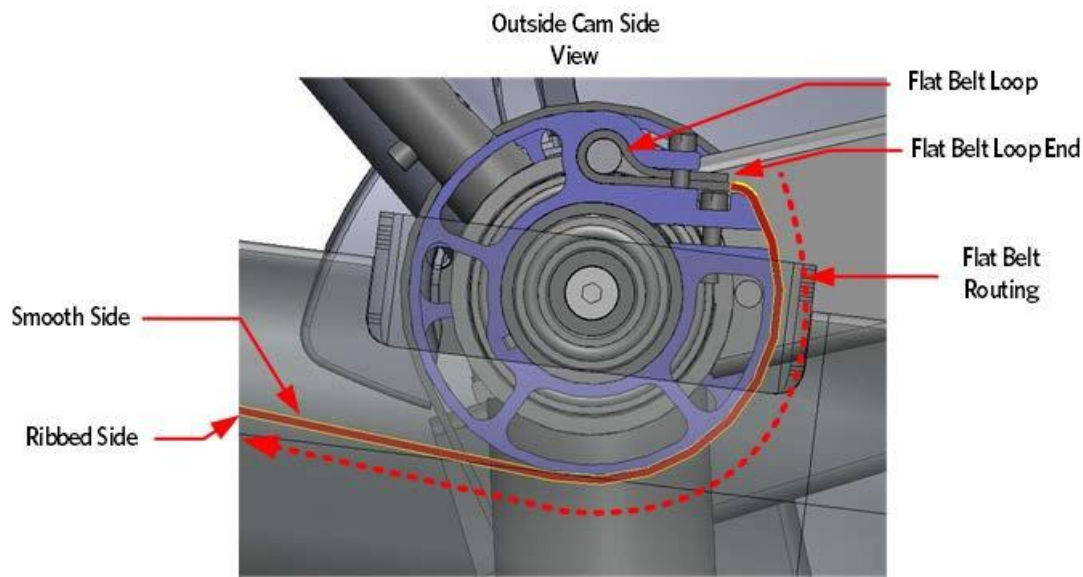
Flat Belt Installation - Upper Arm Cam

19 Lay the replacement flat belt on a flat surface with the flat belt segments facing up. Measure the distance in from the end of the flat belt 10 inches, using a straight edge and permanent marker draw a line across the flat belt at 10 inches. Repeat this process for the other end of the flat belt.



20 Place the inside flat belt on the cam so the length of the flat belt is draped towards the back of the AMT. Make sure the smooth side of the flat belt contacts the cam and the segmented side is facing up.

Figure 146: Outside Flat belt Routing - Cam



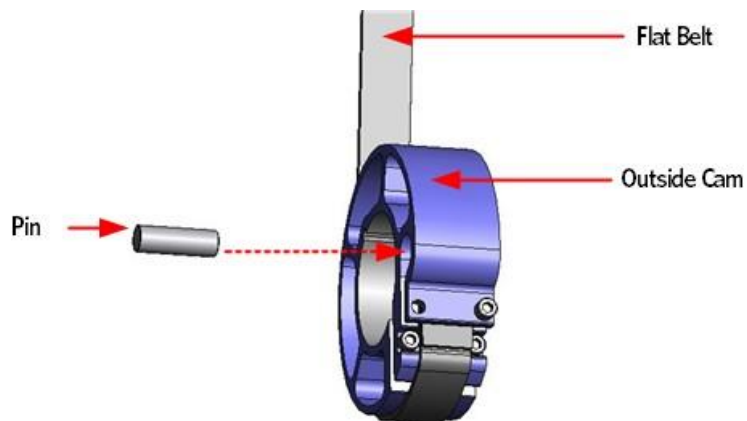
21 Install a replacement 1/4-20X1 screw and shim in one of the cam clamp screw holes, do not fully tighten at this time.

22 Loop the end of the flat belt to the 10 inch mark. While holding the flat belt end on the 10 mark, work the loop into the cam clamp. A

1/2 inch deep set socket can be used to assist in pushing the belt into place. When the flat belt loop is about half way into the cam clamp, push the pin into the flat belt loop.

23 Continue to work the flat belt loop and pin into the cam clamp until the side of the flat belt is resting next to the clamp screw.

Figure 147: Upper Outside Cam Pin



24 Install the second 1/4-20X1 replacement screw and shim that secures the flat belt to the cam. Do not tighten fully at this time.

Flat Belt Pulley Installation

25 Slide the pulley shaft into the flat belt pulley and place one spacer on each side of the flat belt pulley. Ensure the belt goes over the top of the pulley. Insert the assembly into the upper arm.

26 Secure the flat belt pulley assembly to the upper arm using the mounting bolt, washers and lock nut. Thread the mounting bolt from the inside of the upper arm towards the outside of the upper arm, torque to 300 inch pounds (25 ft-lbs) or 25 foot pounds.

Note: Lock nut should be on the outside of the upper arm.

Flat Belt Installation - Rear Terminal

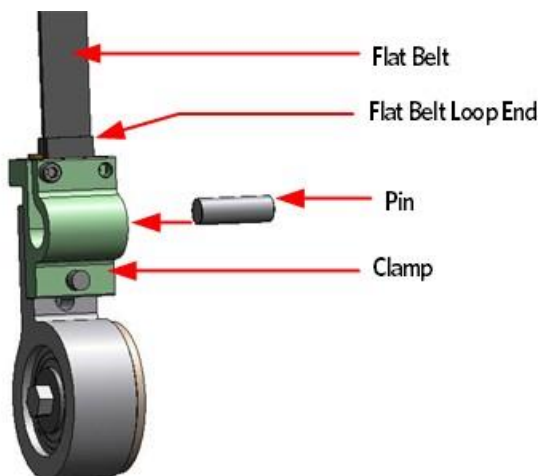
27 Install a replacement 1/4-20X1 screw and a shim in one of the clamp screw holes; do not fully tighten at this time.

28 To ease the installation of the flat belt to the flat belt terminal clamp, have an assistant hold the stairarm up or block up the stairarm so that the flat belt will have a sufficient amount of slack.

29 Loop the end of the flat belt to the 10 inch mark. While holding the flat belt end on the 10 inch mark, work the loop into the terminal belt clamp. A 1/2 inch deep set socket can be used to assist in pushing the belt into place. When the flat belt loop is about half way into the terminal clamp, push the pin into the flat belt loop.

30 Continue to work the flat belt loop and pin into the terminal clamp until the side of the flat belt is resting next to the clamp screw. Ensure the pin is centered within the terminal clamp.

Figure 148: Flat Belt Terminal Pin



31 Install the second 1/4-20X1 replacement screw and shim that secure the flat belt to the terminal clamp. Do not fully tighten at this time.

Outside Flat Belt Alignment

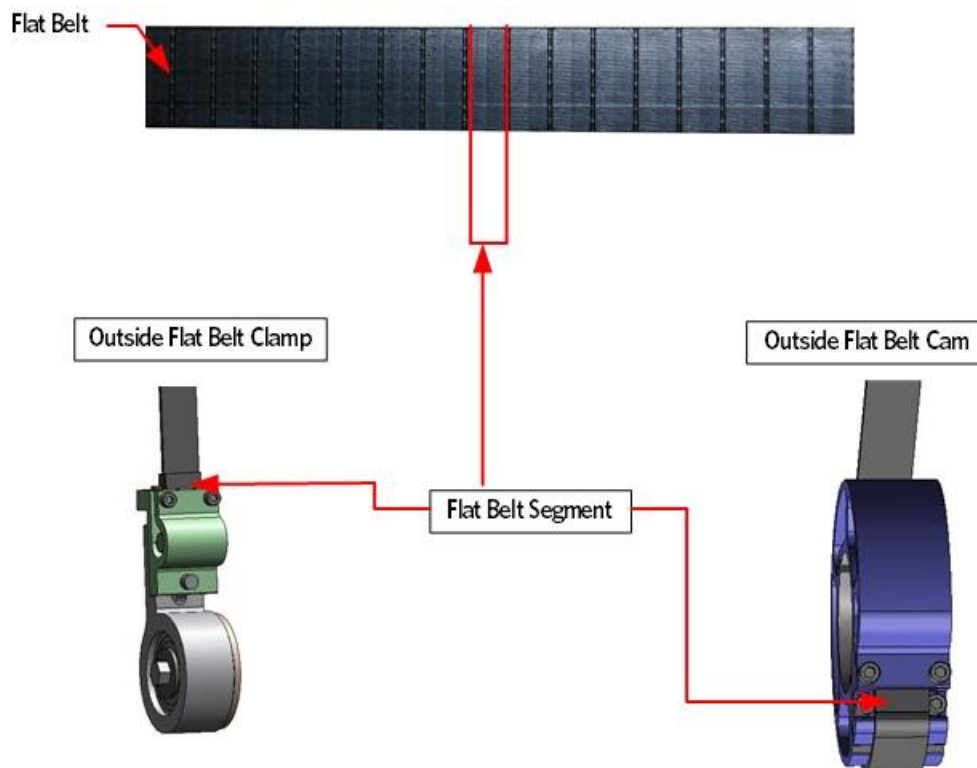
32 The flat belts ends will now need to be adjusted to their final position before the flat belt clamp

screws can be fully tightened. Gently press down on the stairarm pedal that corresponds to the replacement belt.

33 Gradually increase downward pressure on the stairarm pedal while closely monitoring the flat belt ends for movement through the belt clamps.

34 Monitor the movement of the belt through the flat belt clamps until one or both ends of the flat belt has one belt segment extending beyond the flat belt clamp.

Figure 149: Outside Flat Belt Alignment



35 If one of the flat belt ends reaches the one segment measurement before the other end, stop the downward pressure on stairarm pedal and tighten the flat belt clamp screws on the flat belt end that has reached the one segment measurement. Torque to 120 inch pounds.

Resume applying downward pressure to the stairarm pedal until the remaining flat belt end reaches the one segment measurement. Tighten the two flat belt screws and torque to 120 inch pounds.

36 Repeat the procedure for the remaining outside flat belt replacement.

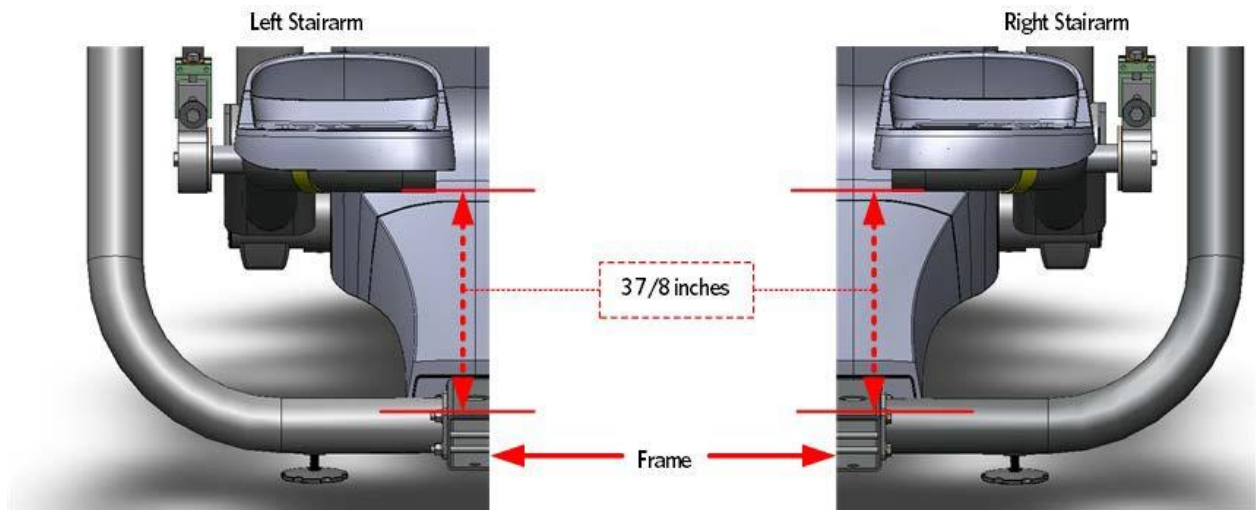
Adjusting the Stairarm Pedal Height

37 Loosen, but do not remove the stairarm adjustment stop bolt.

38 Push one of the stairarm pedal's down to its lowest level. Measure the distance from the bottom of the stairarm tube to the top of the center beam frame, the distance between the stairarm tube and the

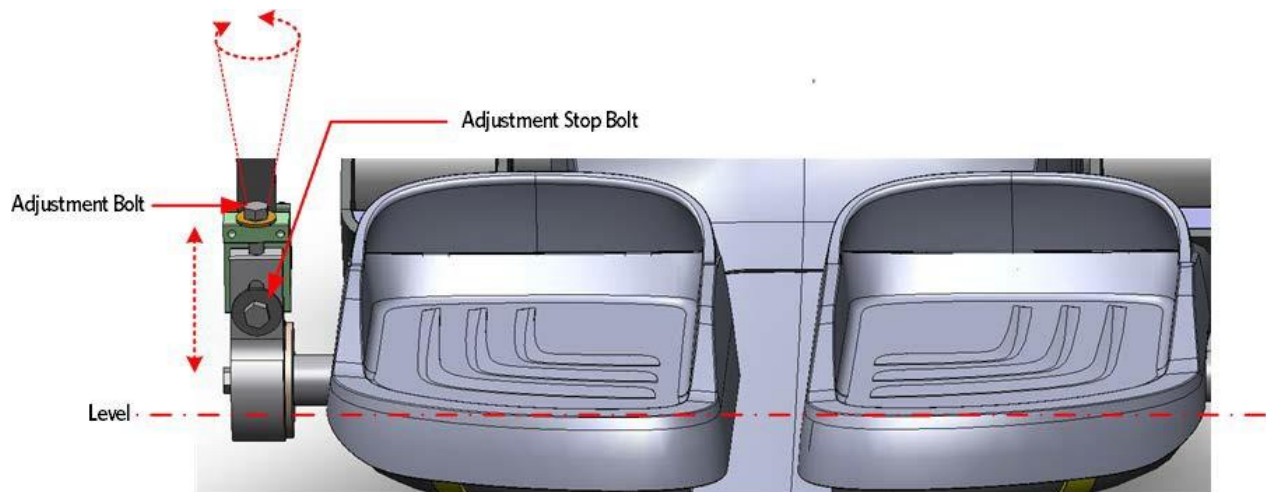
center beam frame should be 3 7/8 inches.

Figure 150: Stairarm Height Measurement



39 If the measurement is too low or too high, tighten or loosen the adjustment bolt until the 3 7/8 inch measurement is achieved.

Figure 151: Flat Belt Terminal Adjustment



40 Repeat the process for the remaining stairarm.

41 Fully tighten the stop bolt, torque to 300 inch pounds (25 ft-lbs) or 25 foot pounds.

Upper Arm Grip Installation

42 Grasp the grip connecting ring located on each side of the upper arm grip, pull out and place the grip over the flat belt pulley mounting bolt.

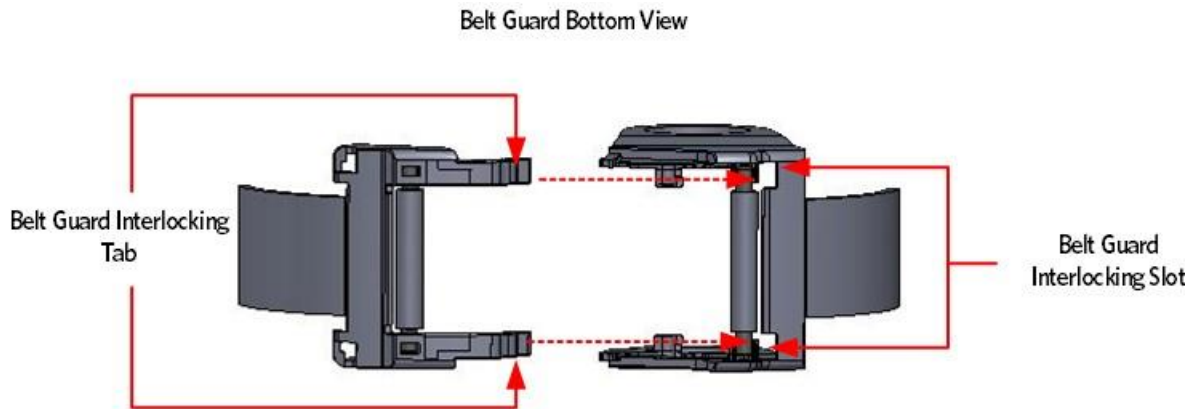
43 Secure the upper arm grip to the upper arm using the two #10-24X.75 screws.

44 Repeat the process for the remaining upper arm grip.

Belt Guard Installation

44 Place the two halves of the belt guard so they are positioned around the flat belt just below the upper arm. The smaller half should be positioned so that the interlocking tabs are pointing toward the front of the machine, and the guard toward the back. The larger half should be positioned with the guard toward the front. Align the interlocking tabs of the smaller half with the slots of the larger half; rotate the halves together around the flat belt until the locking tabs are locked.

Figure 152: Belt Guard Interlocking Tabs and Slots



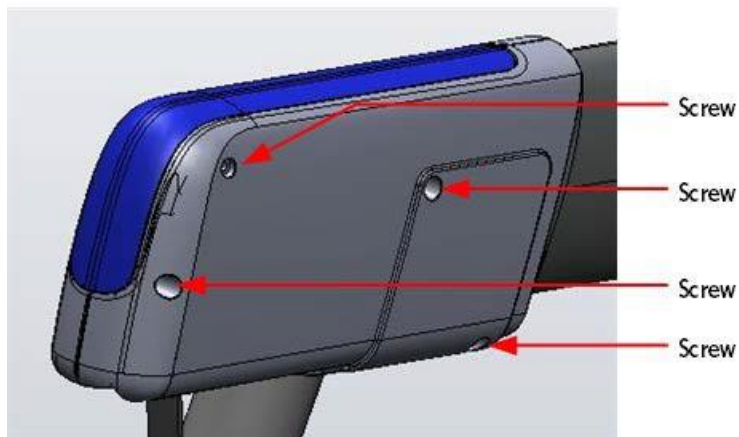
45 Grasp each belt guard mounting ring, lift the belt guard into position over the upper arm mounting bolts, and then secure each mounting ring to the connection ring.

Upper Arm Cover Installation

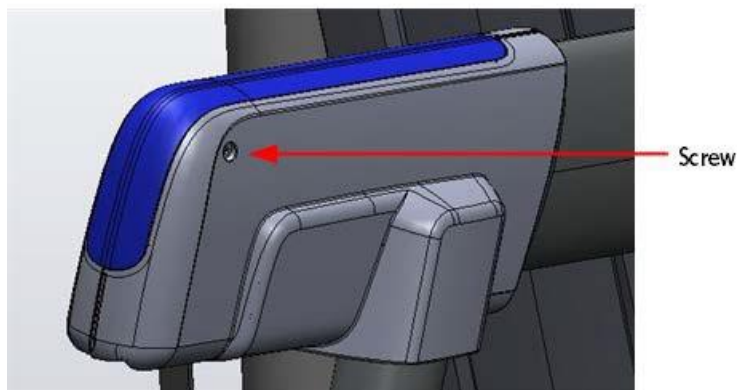
46 Secure the upper arm covers to the arm weldment using the five #10-24X1.25 screws.

Figure 153: Upper Arm Cover Screw Locations

Upper Arm Cover - Inside



Upper Arm Cover - Outside



47 Replace the Upper Arm Cam Covers as per procedure, *Upper Arm Cam Cover Replacement* (on page 163) .

48 Secure the belt keeper to the frame.

49 At the console enter the access code PAUSE,5,1,7,6,5,7,6,1, to enter into the diagnostics software. Navigate to the STRIDE COUNT RESET section and reset the flat belt stride count.

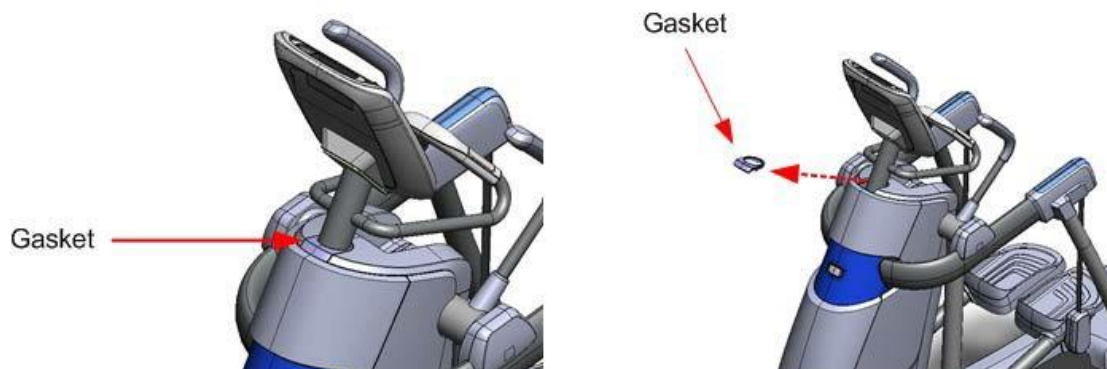
50 Replace the main body covers as per procedure, *Cover Replacement*.

51 Check the operation of the AMT12.

Replacing the Front Arm Assemblies - With Flat Belts and Press Fit Cams (After 4/3/2013)

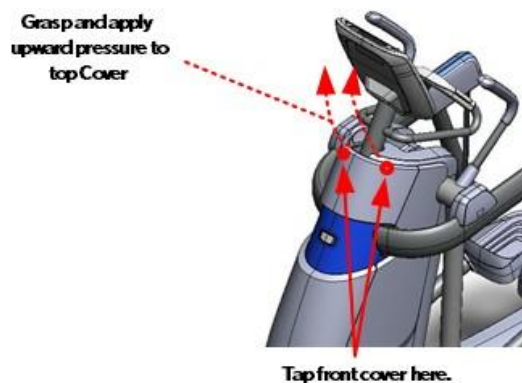
1 Standing at the front of the AMT, push in and then downward on the cover gasket with your thumbs until the gasket locking tabs are free of the top cover, grasp the gasket and remove. The gasket is split at the back to facilitate removal.

Figure 154: Cover Gasket



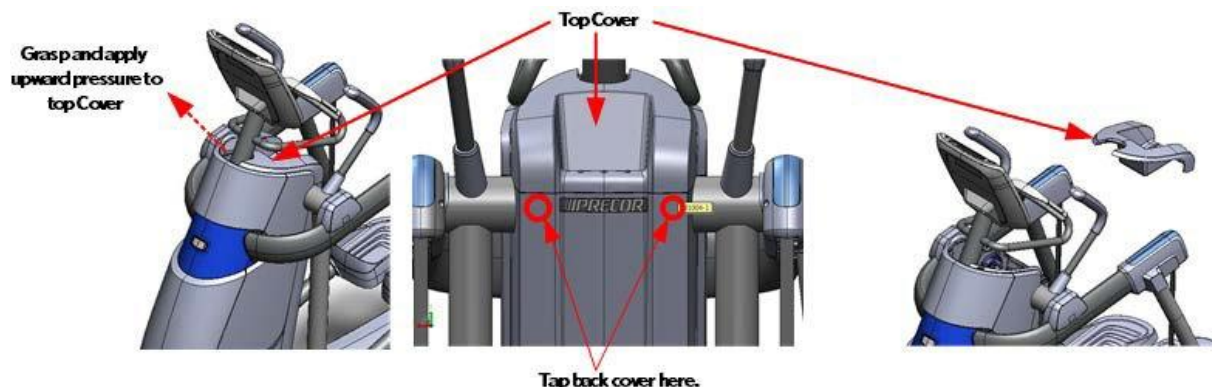
2 Grasp the top cover at the gasket opening and pull upward to apply pressure to the locking tabs. While pressure is applied to the top cover gently tap the front cover just below the top cover with the heel of your hand. See figure below.

Figure 155: Front Top Cover Release



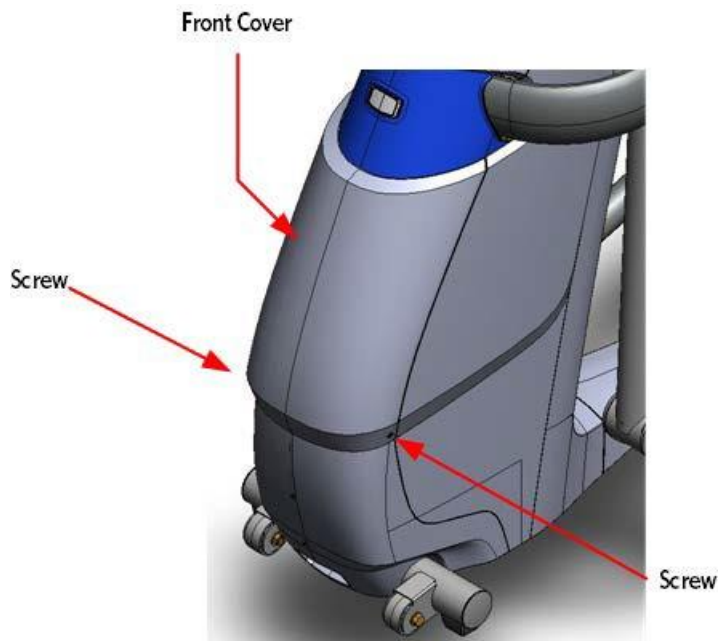
3 Standing at the side of the AMT, pull the loose end of the top cover up to apply slight pressure on the locking tabs. With the heel of your hand, gently tap the back cover just below the top cover, see figure below. The top cover should release from the back cover, remove the top cover and set aside.

Figure 156: Top Cover

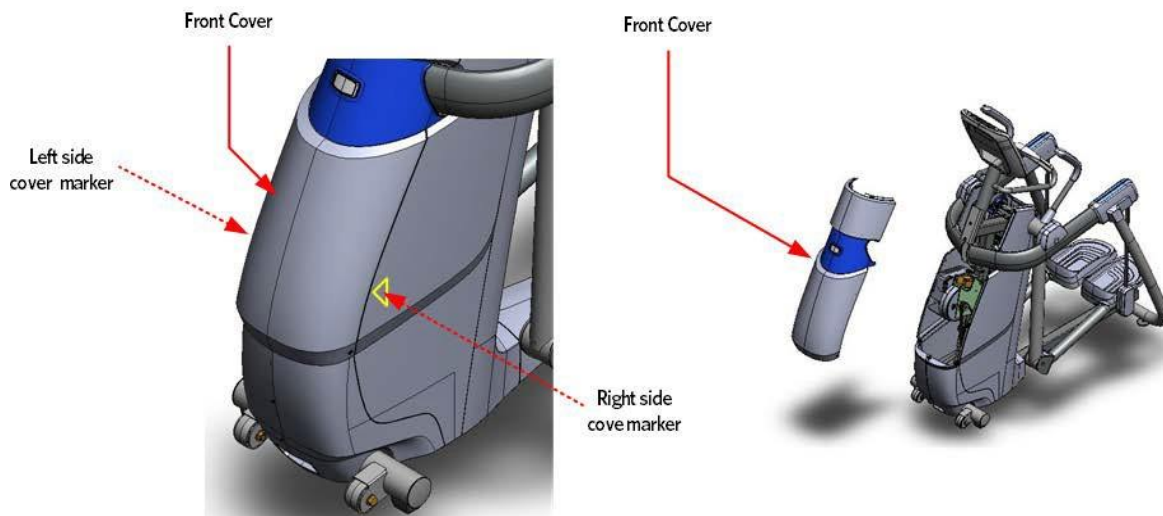


1 Remove the two #10 x 3/4 inch screws located at the bottom corners of front cover.

Figure 157: Front Cover - Screw Locations



2 There are two triangle markers embossed into the left and right side covers, the markers indicate locking joints. Place the heels of your hands just above the left and right side triangle markers. Gently tap the triangle markers with the palm of your hand, the locking tabs will release and the front can be removed.



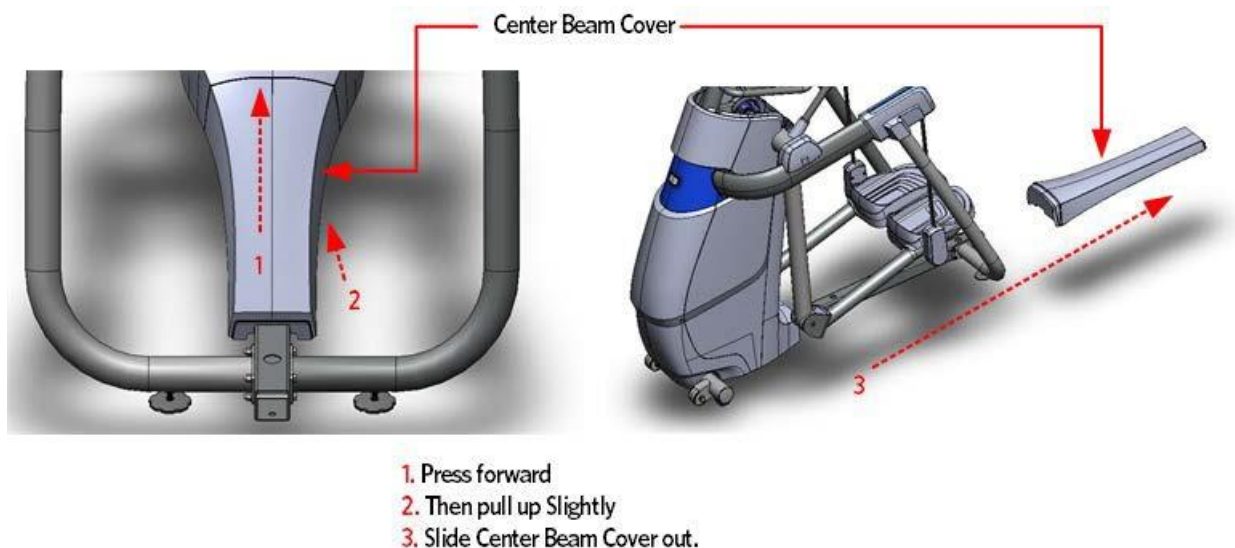
3 Remove the platform.

4 Apply forward pressure at the base of center beam cover, lift the cover up slightly until the locking tab is clear of the frame.

5 Pull the center beam cover back toward you until the cover is free from the frame.

Note: Do not lift the cover up right after the front cover tab releases, lifting up the cover too quickly

may not allow the middle center beam tabs to clear the frame slots, damaging the tabs.



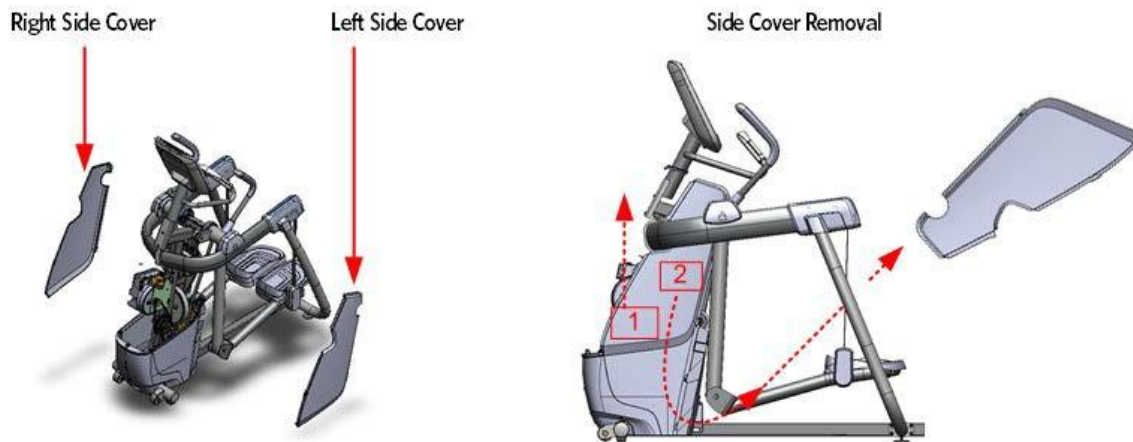
6 Grasp the top of the rear cover and pull back, the back cover will release from the locking tab and then the cover can be lifted out of the slots in the bottom covers.



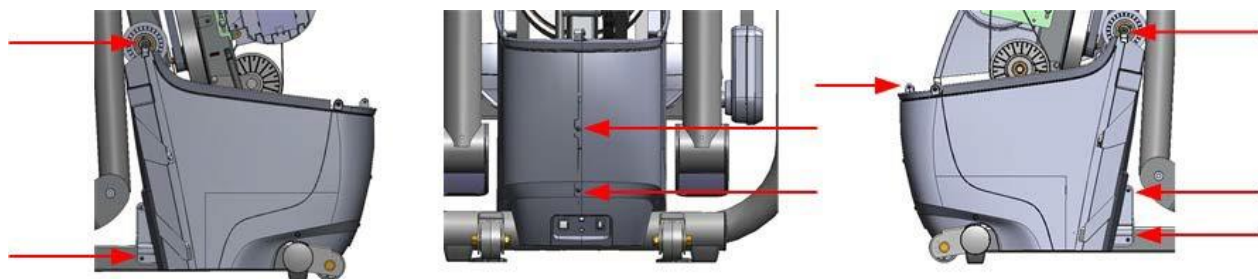
7 Grasp each side of the left side cover, near the bottom, lift up and then pull the bottom of the cover out and away from the frame. The cover will release from the locking tabs.

8 Rotate the bottom of the side cover towards the back of the AMT to remove.

9 Repeat steps 1 and 2 to remove the right side cover.



10 Remove the eight #10 x ¾ inch screws that fasten the bottom covers to the frame.
Figure 158: Left and Right Side Cover Screw Locations



11 The left and right side bottom covers can now be removed by lifting them up and out.

Figure 159: Bottom Covers Removed



12 Remove the screw that secures the belt keeper to the frame and remove the belt keeper.

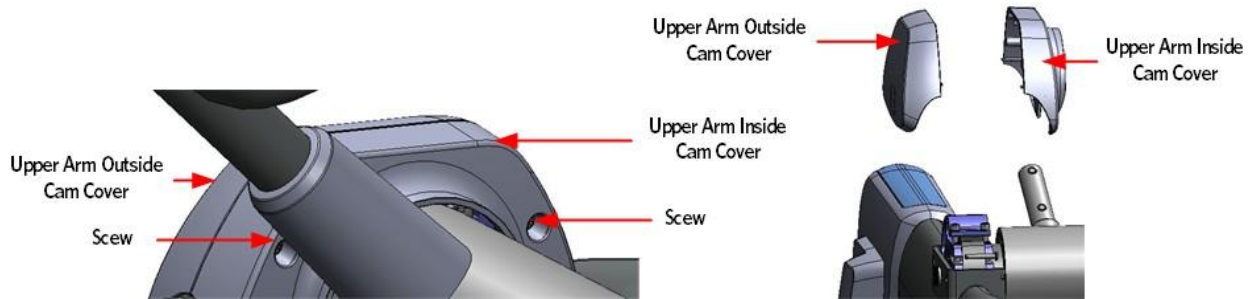
13 Remove the tension from the inner flat belt pulleys by lifting up on the stairarms, pulling the flat belts off the flat belt pulleys, and then gently setting the stairarm down.

Upper Arm Cam Cover Removal

14 Remove the two #10-24X1.25 screws that secure the upper arm cam covers to the upper arm, then remove the covers. It may be necessary to adjust the position of the vertical handlebar to gain access to the upper arm cam cover screws.

15 Repeat the steps for the remaining upper arm cam cover.

Figure 160: Upper Arm Cam Covers



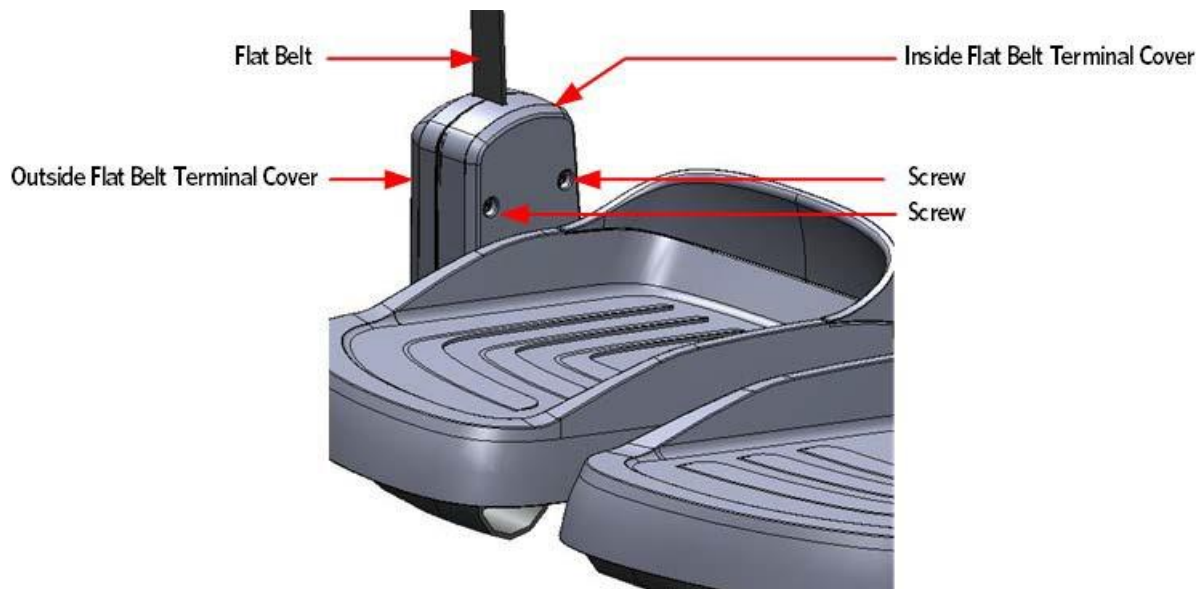
Rear Flat Belt Terminal Cover Removal

16 Remove the two #10-24 X 1.25 screws that secure the flat belt terminal covers to the flat belt terminal, remove the outside terminal cover.

17 Rotate the top of the inside terminal cover down until it is below the stairarm pedal, pull to remove.

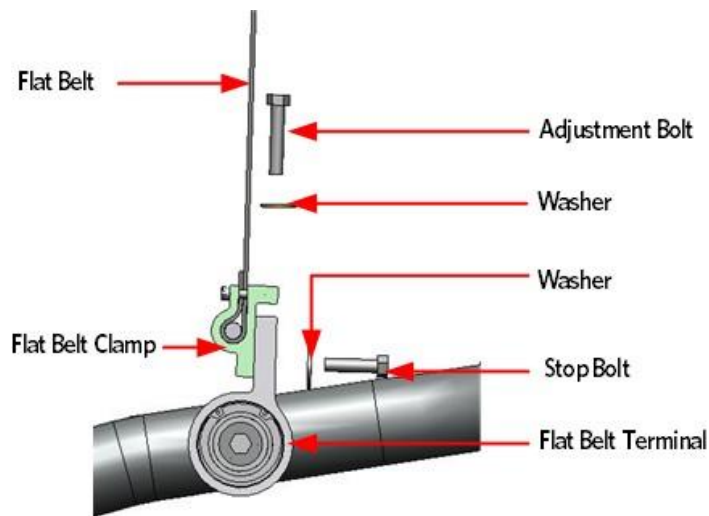
18 Repeat the steps for the remaining rear flat belt terminal covers.

Figure 161: Flat Belt Terminal Covers



1 Remove the two bolts that adjust and secure the flat belt clamps to the flat belt terminals.

Figure 162: Flat Belt Clamp and Flat Belt Terminal

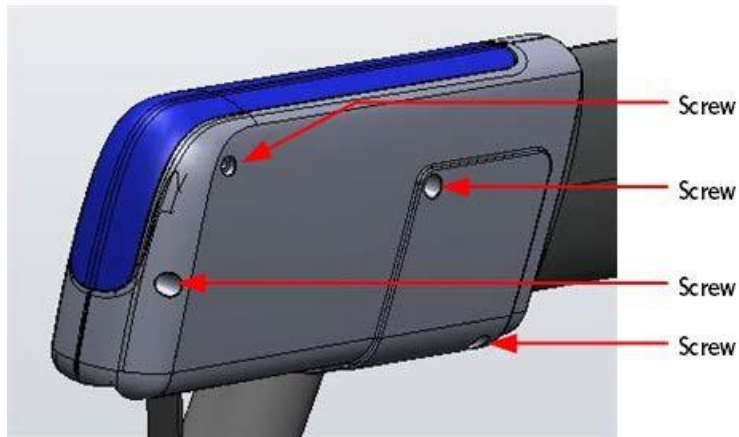


Upper Arm Cover Removal

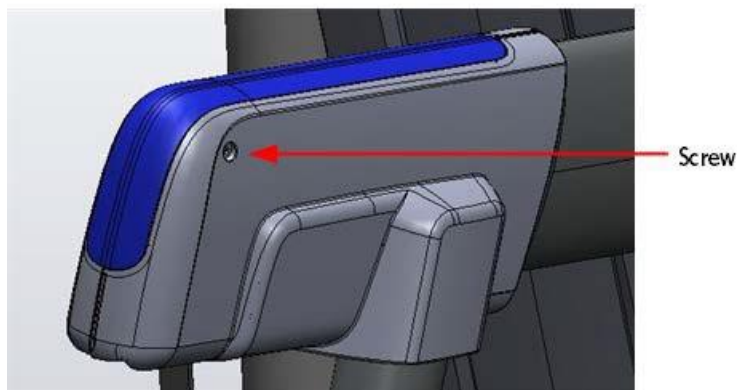
- 2 Remove the four screws that fasten the inside upper arm covers to the upper arm.
- 3 Remove the screw that fasten the outside upper arm covers to the upper arm.
- 4 Remove the inside and outside covers from the upper arm.

Figure 163: Upper Arm Cover Screw Locations

Upper Arm Cover - Inside



Upper Arm Cover - Outside



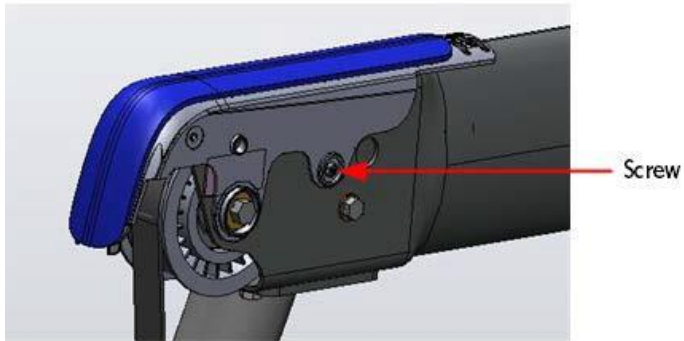
1 Repeat the steps for the remaining front arm covers.

Upper Arm Grip Removal

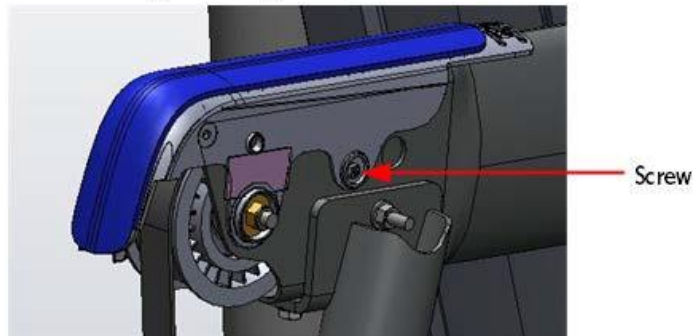
2 Remove the two screws that secure the grip to the upper arm, there is one screw on each side of the upper arm.

Figure 164: Upper Arm Grip Screw Locations

Upper Arm Grip - Inside

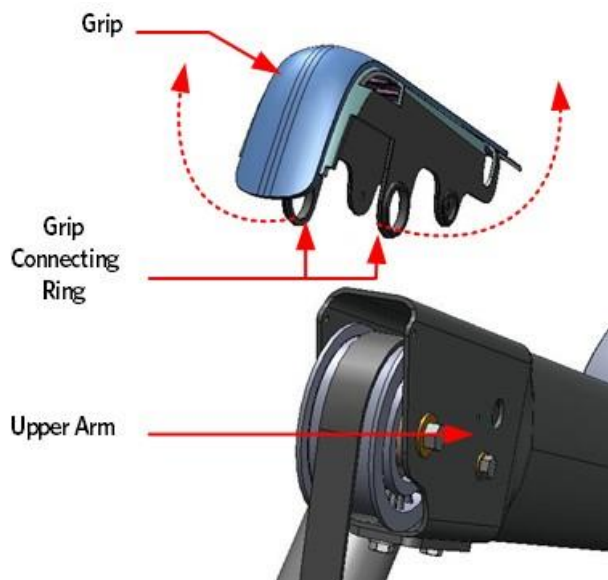


Upper Arm Grip - Outside



3 Grasp the grip connecting ring located on each side of the upper arm, pull up and over the flat belt pulley mounting bolt to remove the grip.

Figure 165: Upper Arm Grip Removal

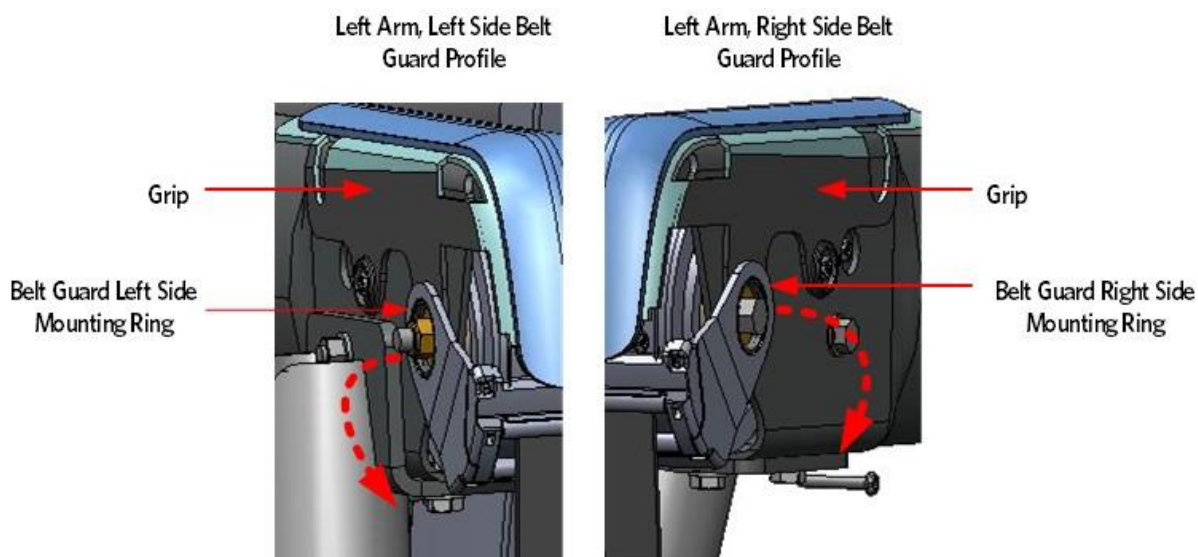


4 Repeat the steps for the remaining front arm grip.

Belt Guard Removal

5 Grasp the belt guard mounting ring's located on each side of the upper arm. Gently pull out and away from the grip connection ring's just enough to extend past the mounting bolt.

Figure 166: Belt Guard and Upper Arm

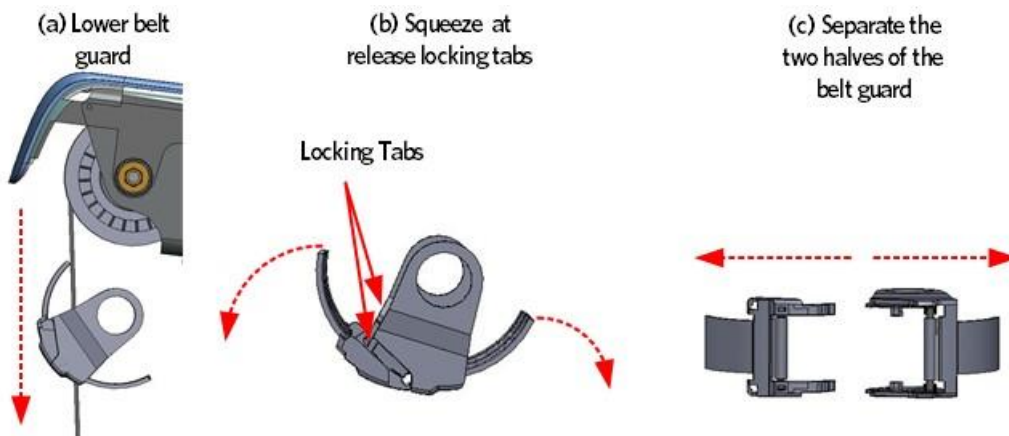


6 The belt guard assembly is two interlocking halves and needs to be separated before it can be removed from flat belt:

a) Lower the belt guard down just below the upper arm.

- b) Squeeze the belt guard near the base to release locking tabs and rotate the two halves down.
- c) Taking care to not lose the rollers inside the belt guard, pull the two belt guard halves away from each other to separate.

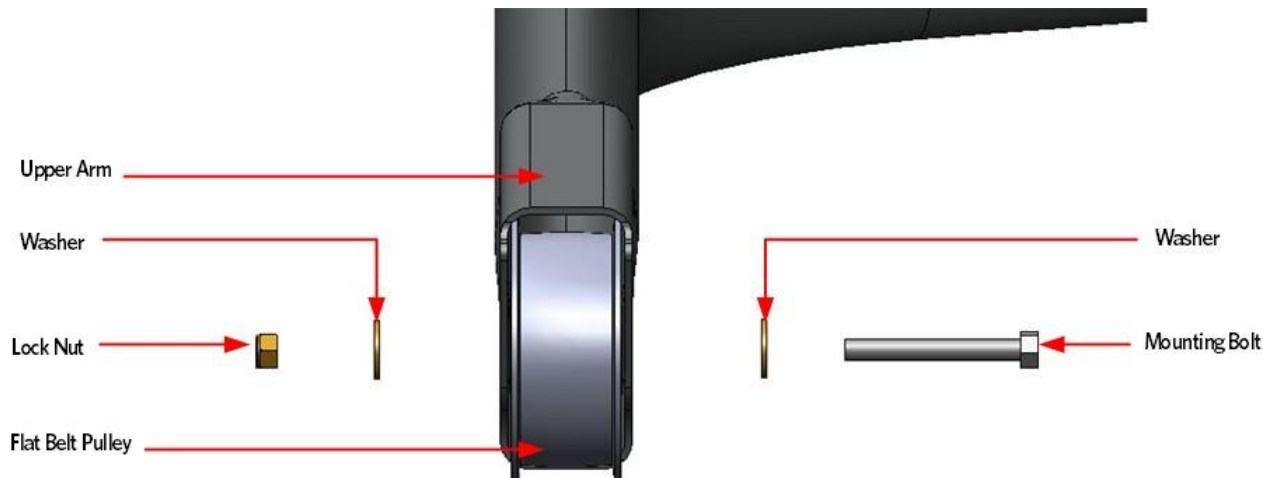
Figure 167: Belt Guard Removal



Upper Arm Flat Belt Pulley Removal

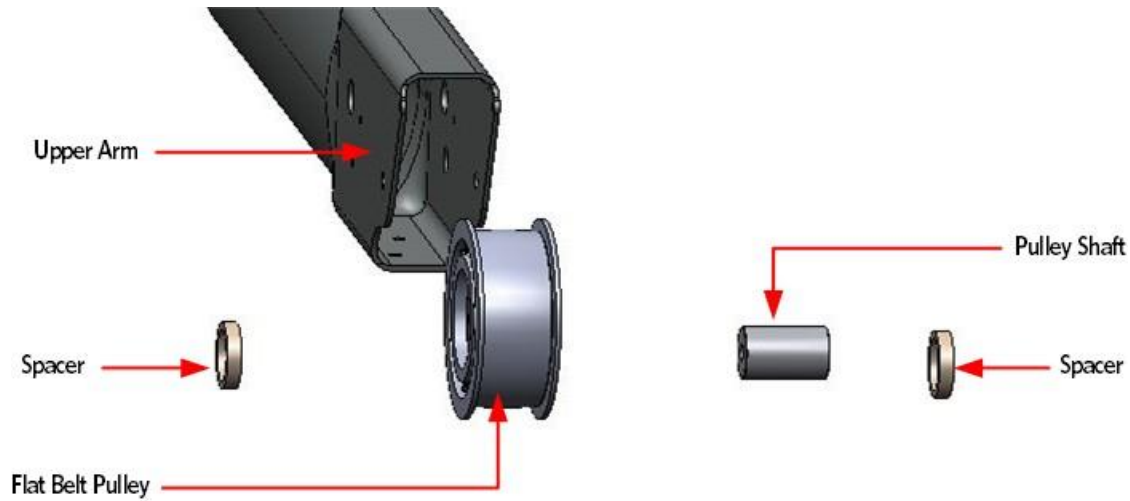
- 7 Remove the mounting bolts, the two washers and the nut that secure the upper arm pulleys to the upper arms.

Figure 168: Upper Arm Flat Belt Pulley Mounting



- 8 Slide out the upper arm pulleys, the two spacers, and the pulley shaft from the upper arms.

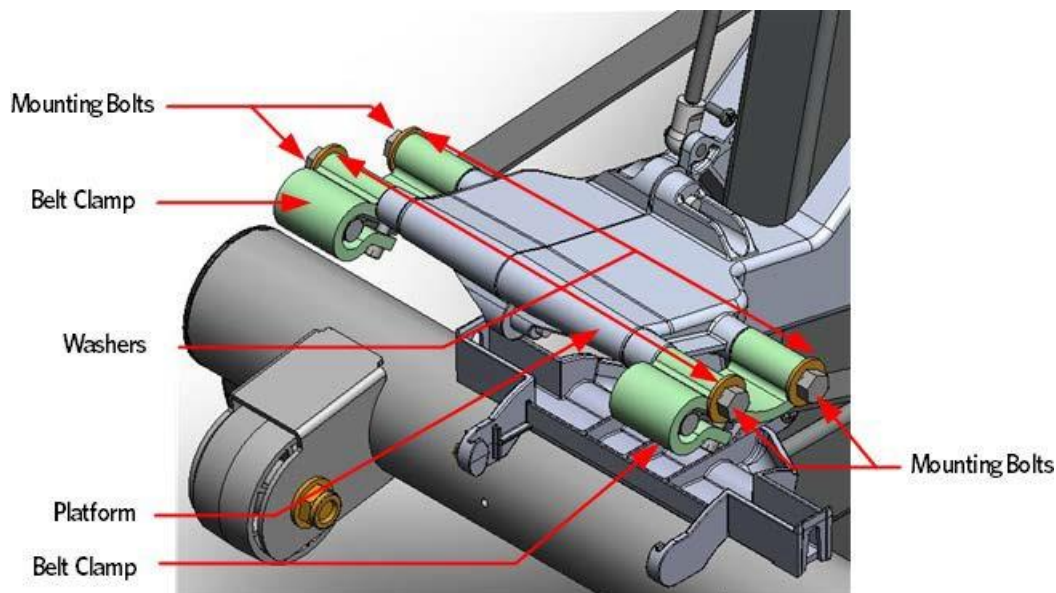
Figure 169: Upper Arm Flat Belt Pulley Removed



Front Flat Belt Terminal Removal

9 Remove the bolts and washers that secure the front flat belt clamps to the lift platform

Figure 170: Front Belt Clamps



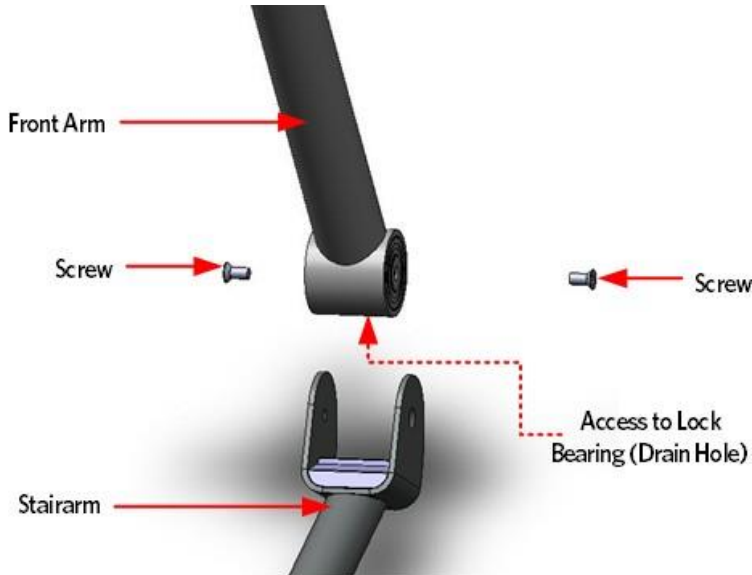
Stairarm Removal

10 Place the shaft of a Philips screw driver into the drain hole on the bottom of the front arm. Rotate the front arm bearing by turning the outside mounting bolt that secures the front arm to the stairarm until the screw driver engages into the bearing and locks it. You may have to rotate the bearing one full turn to align the bearing lock hole with drain hole.

11 Once the screwdriver has locked the bearing preventing further rotation, fully remove the inside and outside mounting bolts. Remove the stairarm.

12 Repeat the steps for the remaining stairarm.

Figure 171: Stairarm and Front Arm Screw Locations

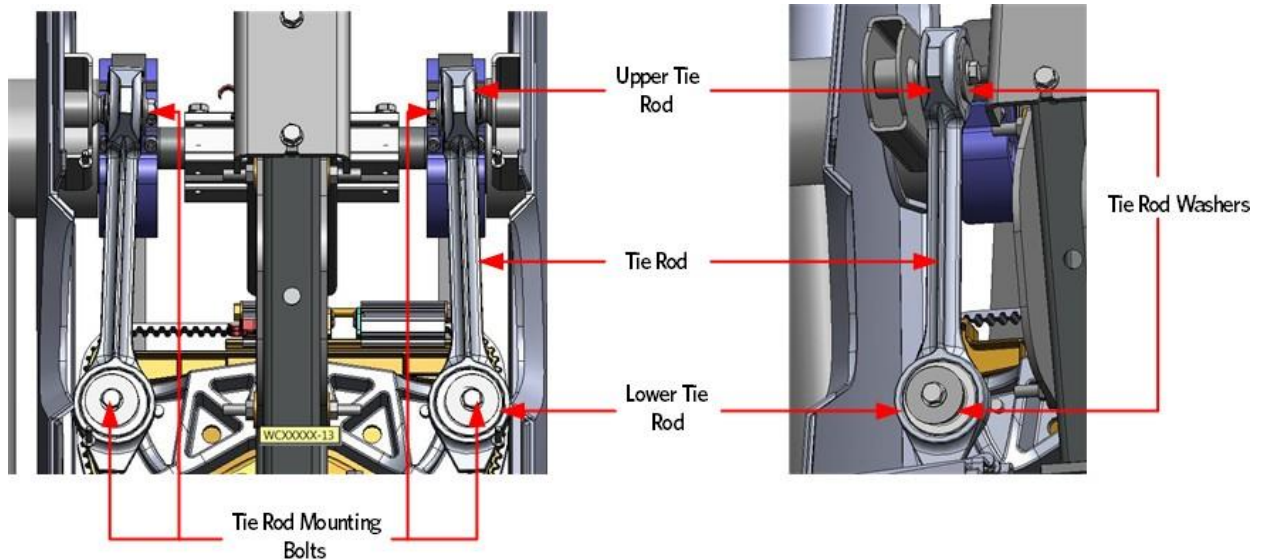


13 Remove the vertical handle bars.

Tie Rod Removal

14 Remove the tie rod mounting bolts and washers that secure each upper tie rod end to the front arm assemblies.

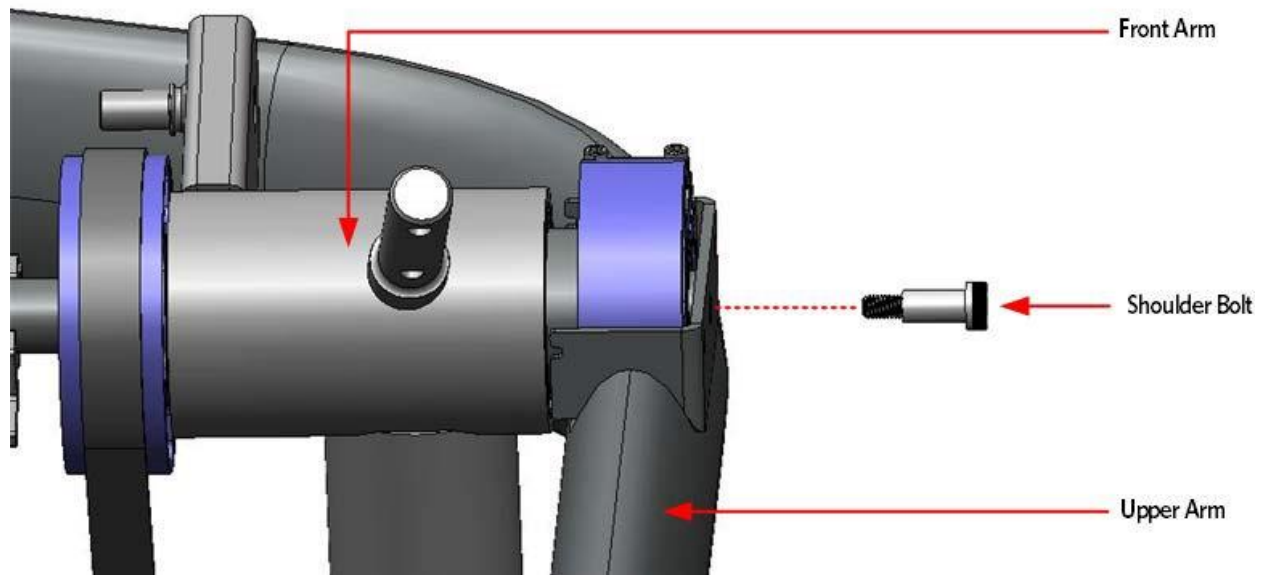
Figure 172: Tie Rods



Front Arm Removal

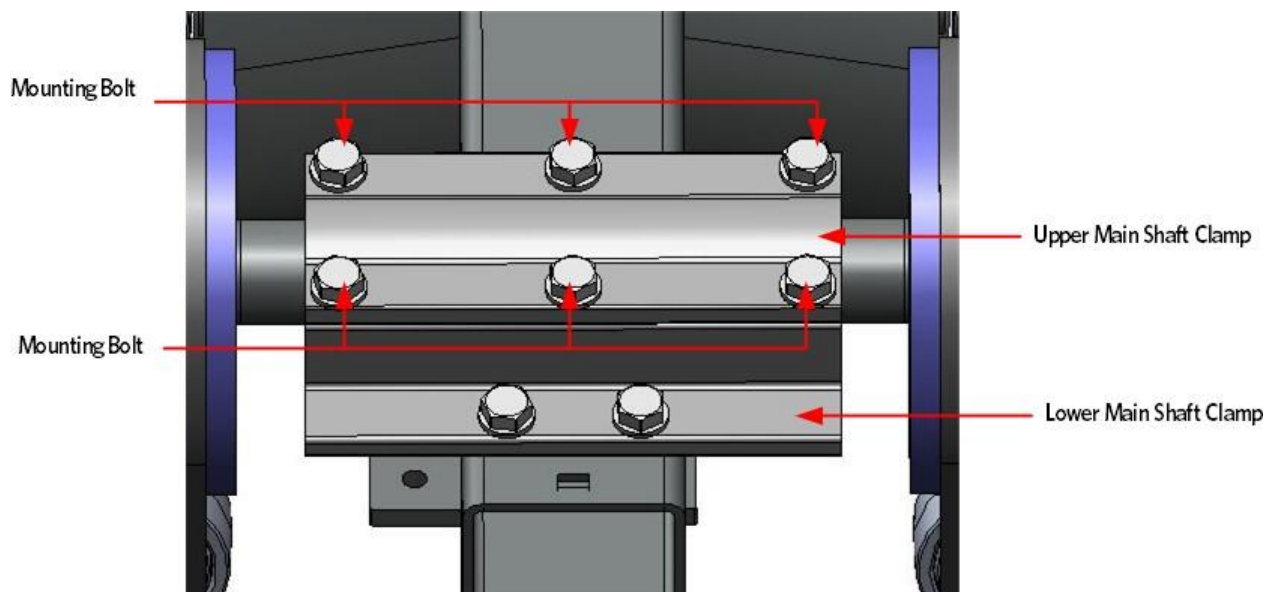
15 Remove the shoulder bolts that secure the outside cam tubes to the upper arms. **Note:** This step must be performed before the main shaft clamp is removed, otherwise the shaft will rotate when the bolt is turned and you will not be able to be remove the bolt.

Figure 173: Front Arm Mounting Bolt



16 Remove the six bolts that secure the upper main shaft clamp to the lower main shaft clamp. Remove the top main shaft clamp.

Figure 174: Main Shaft Clamp Bolts



Caution: It is recommended to have assistance available for the following step(s).

TIP: Time Saver Tip: When installing the replacement flat belt, tape the end of the replacement belt to the old flat belt at the cam side and then pull the new belt through the upper arm as the old belt is removed.

TIP: If the belt has already been removed, you can use a fish tape or coat hanger to pull the belt through the upper arm. Ensure the flat belt is routed over the top of any hardware that may be crossing the inside of the upper arm.

- 17 With assistance, lift the front arm and flat belts out of the lower main shaft clamp and upper arm.
- 18 Remove the other front arm and flat belts.

Figure 175: Front Arm and Belts

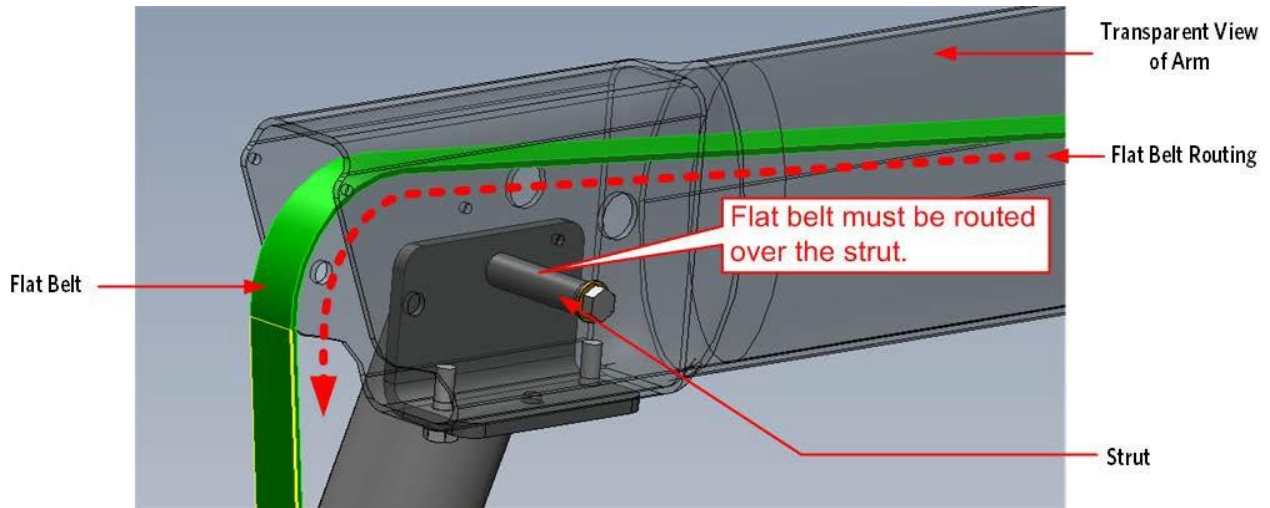


19 Set and support the right front arm assembly next to one of the front arms while feeding the outside flat belt through the upper arm.

Note: the flat belt must be routed over the strut in the front arm assembly. Failure to route the flat belt over the strut will cause severe damage to the flat belt. The Figure below illustrates the correct flat belt routing.

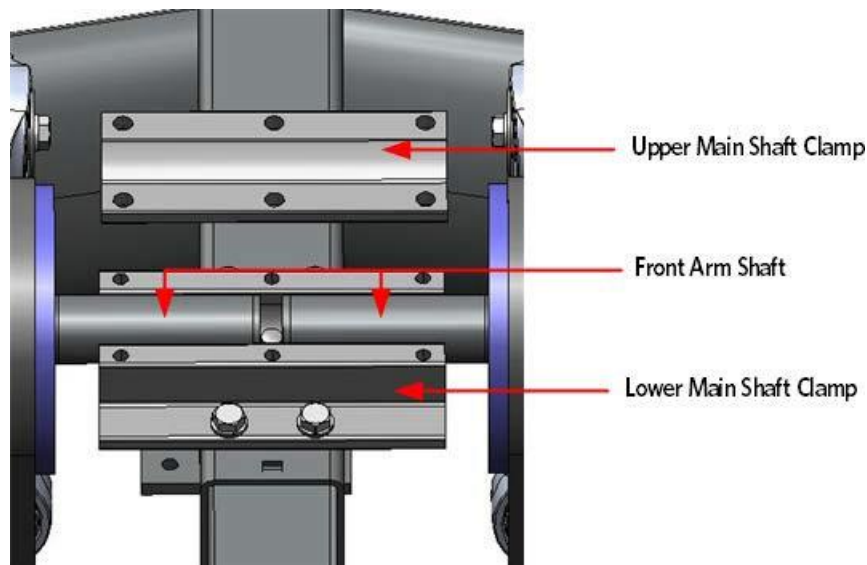
Note: the flat belt must be routed over the strut in the front arm assembly. Failure to route the flat belt over the strut will cause severe damage to the flat belt. The Figure below illustrates the correct flat belt routing.

Figure 176: Flat Belt Routing - Transparent View of Arm



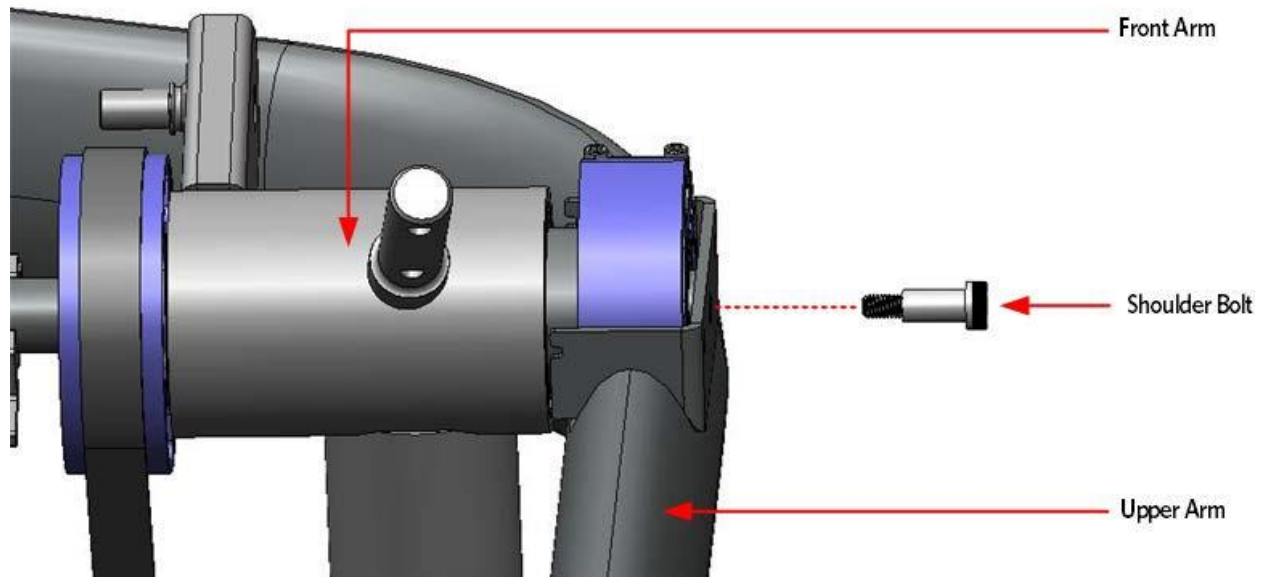
20 With assistance, lift the front arm and place it into the main shaft clamp and upper arm. Repeat the process for the remaining front arm assembly.

Figure 177: Front Arm Shaft and Main Clamp



21 Insert and finger tighten the shoulder bolts that secure the outside cam tubes to the upper arms.

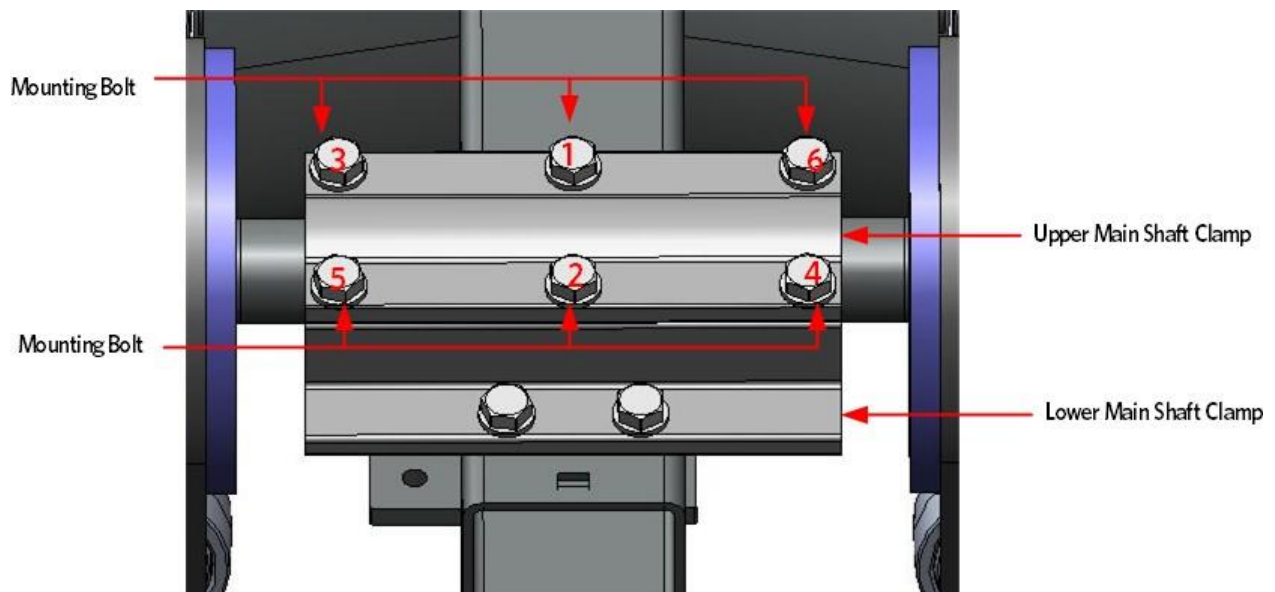
Figure 178: Front Arm Mounting Bolt



22 Insert and finger tighten the six main arm shaft bolts that secure the main shaft clamp to the lower main shaft clamp.

23 Use the following sequence to ensure the upper arm main shaft is properly secured to the front arm shaft; torque the bolts to 160 inch pounds.

Figure 179: Main Shaft Clamp Bolts- Torque Sequence



24 Fully tighten the shoulder bolts that secure front arm shaft to the upper arm, torque to 300 inch pounds (25 ft-lbs) or 25 foot pounds.

Flat Belt Pulley Installation

25 Slide the pulley shaft into the flat belt pulley and place one spacer on each side of the flat belt

pulley. Ensure the belt goes over the top of the pulley. Insert the pulley assembly into the upper arm.

26 Secure the flat belt pulley assembly to the upper arm using the mounting bolt, washers and lock nut. Thread the mounting bolt from the inside of the upper arm towards the outside of the upper arm, torque to 300 inch pounds (25 ft-lbs) or 25 foot pounds.

27 Repeat the steps for the remaining flat belt pulley.

Note: The lock nut should be on the outside of the upper arm

Upper Arm Grip Installation

28 Grasp the grip connecting ring located on each side of the upper arm grip, pull out and place the grip over the flat belt pulley mounting bolt.

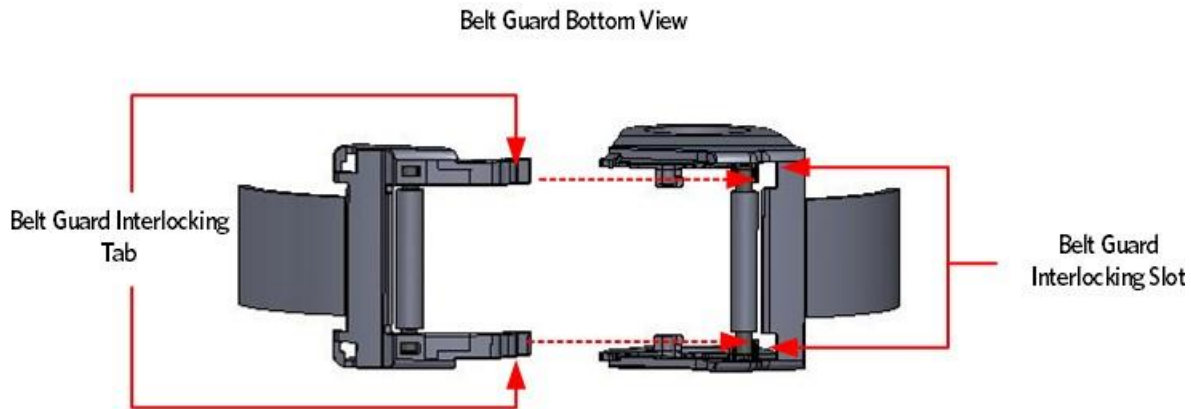
29 Secure the upper arm grip to the upper arm using the two #10-24X.75 screws.

30 Repeat the steps for the remaining arm grip.

Belt Guard Installation

31 Place the two halves of the belt guard so they are positioned around the flat belt just below the upper arm. The smaller half should be positioned so that the interlocking tabs are pointing toward the front of the machine, and the guard toward the back. The larger half should be positioned with the guard toward the front. Align the interlocking tabs of the smaller half with the slots of the larger half; rotate the halves together around the flat belt until the locking tabs are locked.

Figure 180: Belt Guard Interlocking Tabs and Slots



32 Grasp each belt guard mounting ring, lift the belt guard into position over the upper arm mounting bolts, and then secure each mounting ring to the connection ring.

33 Repeat the steps for the remaining belt guard.

34 Install the upper arm covers.

Stairarm Installation

35 Position the stairarm in the front arm.

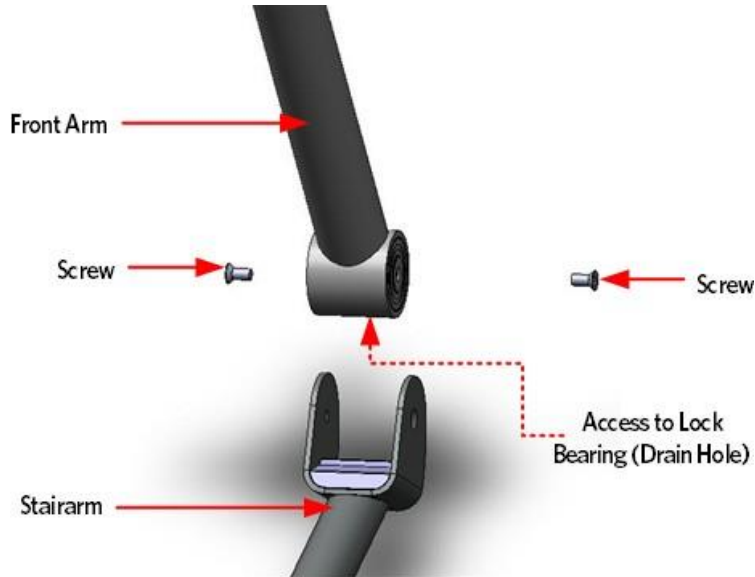
36 Place the shaft of a Philips screw driver into the drain hole on the bottom of the front arm and thread one of the two 1/2-13X1 screws into stairarm. Using the installed screw, rotate the front arm bearing until the screw driver engages into the bearing, locking the bearing. You may have to rotate the bearing one full turn to align the bearing lock hole with drain hole.

37 Once the screwdriver has locked the bearing preventing further rotation, fully tighten the inside and outside mounting bolts, torque to 83 foot pounds or 1000 inch pounds.

38 Remove the screwdriver from the drain hole.

39 Repeat the steps for the remaining stairarm.

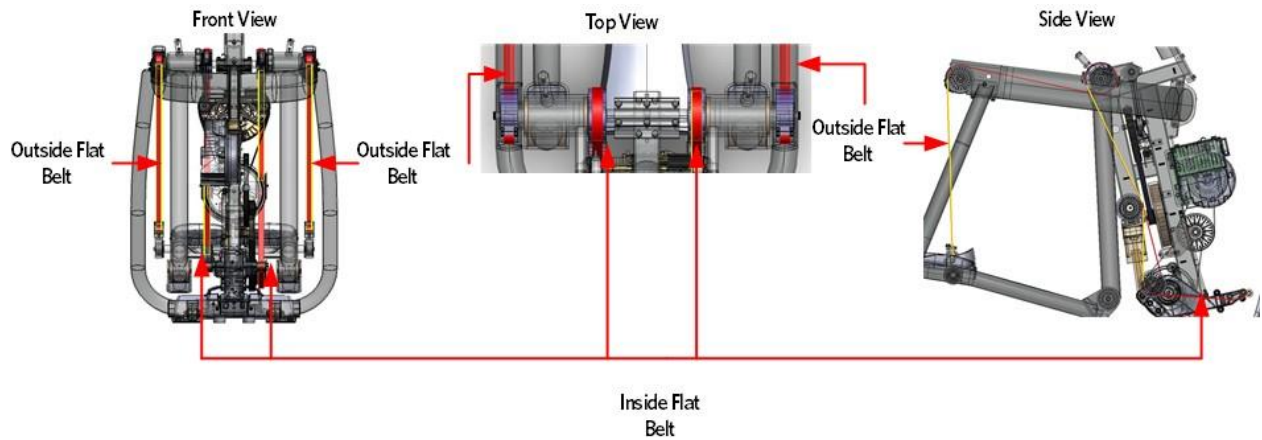
Figure 181: Stairarm and Front Arm Screw Locations



Flat Belt Routing

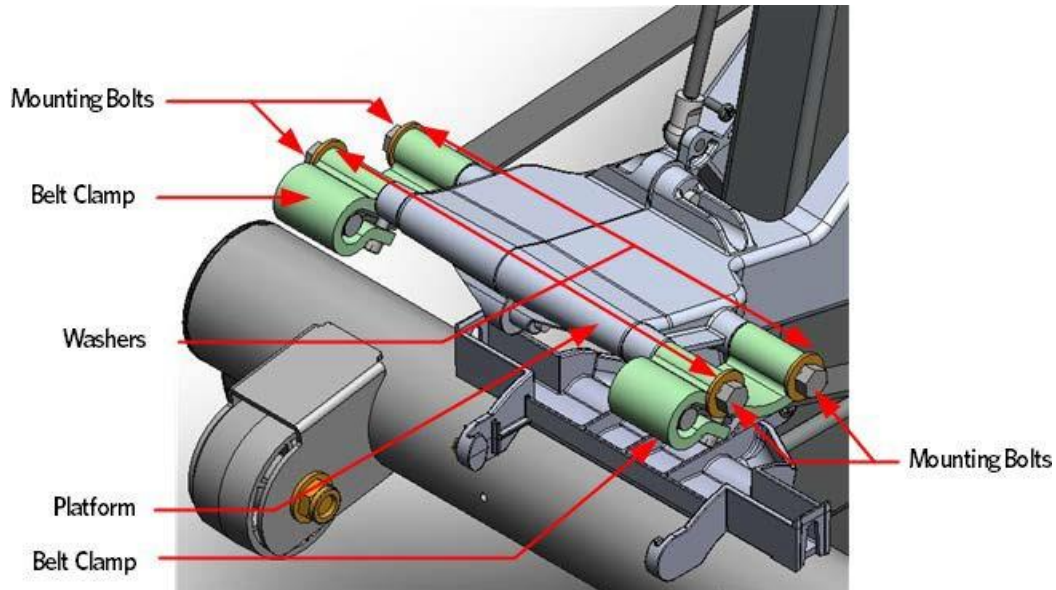
40 Ensure the flat belts are routed correctly through the pulleys. See illustration below for proper flat belt routing.

Figure 182: Flat Belts



41 Secure the front flat belts terminals to platform.

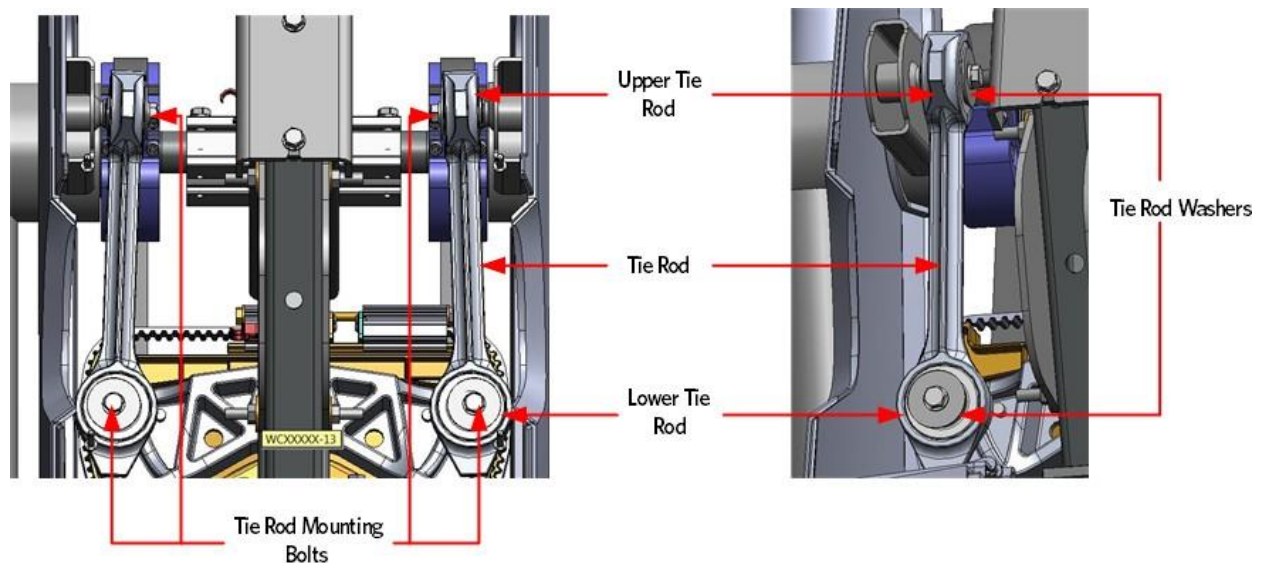
Figure 183: Front Belt Clamps



Tie Rod Installation

42 Fasten each upper tie rod end to the cam assembly using the bolts and washers, torque the bolt to 300 inch pounds (25 ft-lbs).

Figure 184: Tie Rods

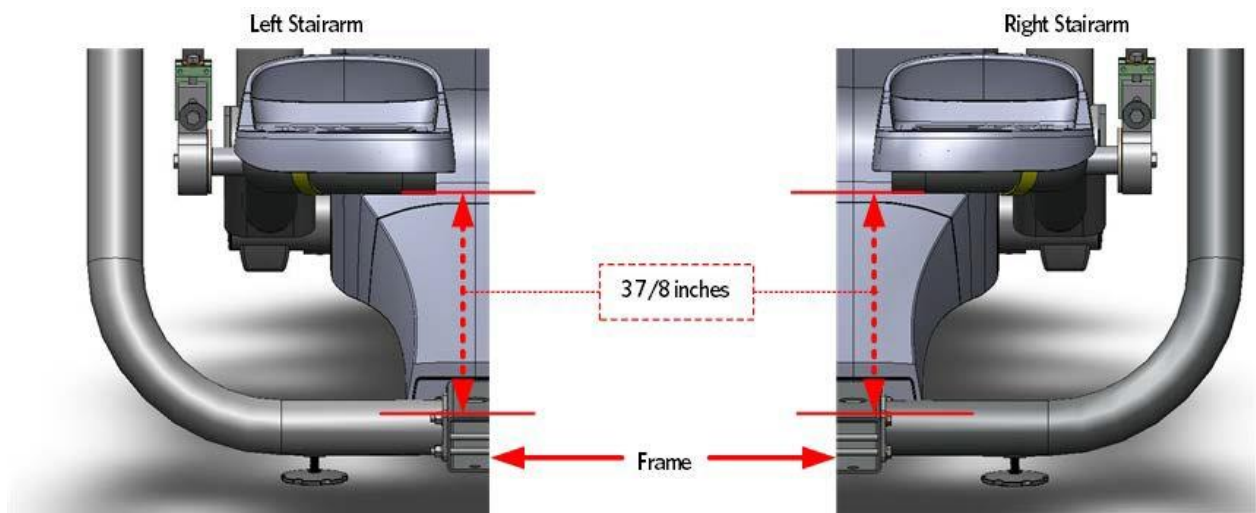


Adjusting the Stairarm Pedal Height

43 Hand tighten the two bolts and washers that adjust and secure the flat belt clamp to the flat belt terminal.

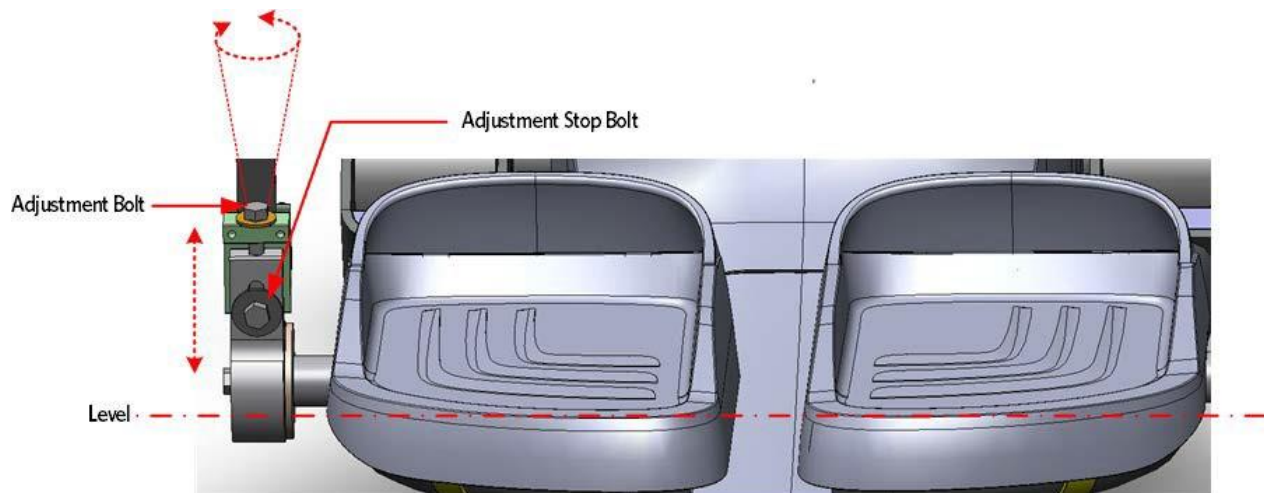
44 Push one of the stairarm pedal's down to its lowest level. Measure the distance from the bottom of the stairarm tube to the top of the center beam frame, the distance between the stairarm tube and the center beam frame should be $3 \frac{7}{8}$ inches.

Figure 185: Stairarm Height Measurement



45 If the measurement is too low or too high, tighten or loosen the adjustment bolt until the $3 \frac{7}{8}$ inch measurement is achieved.

Figure 186: Flat Belt Terminal Adjustment



46 Fully tighten the stop bolt, torque to 300 inch pounds (25 ft-lbs) or 25 foot pounds.

47 Replace the flat belt guard.

48 Replace the cam covers.

49 Replace the body covers.

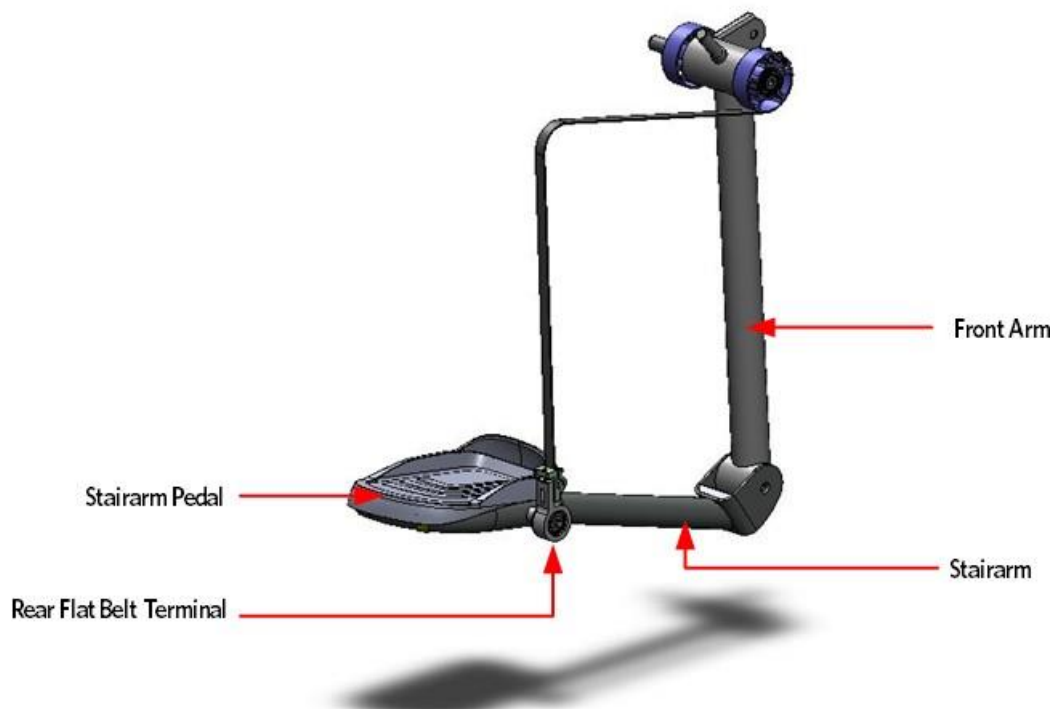
50 Replace the vertical handle bars.

51 At the console enter the access code PAUSE,5,1,7,6,5,7,6,1, to enter into the diagnostics software. Navigate to the STRIDE COUNT RESET section and reset the flat belt stride count.

52 Fully check the operation of the AMT.

Replacing a Front Arm Assembly – Without Flat Belts and Non-Press Fit Cams (Prior to 4/3/2013)

Caution: Replace only one front arm at a time. The cams of the two front arms are in opposing positions from one another replacing one front arm at time will prevent the cams from being incorrectly positioned.



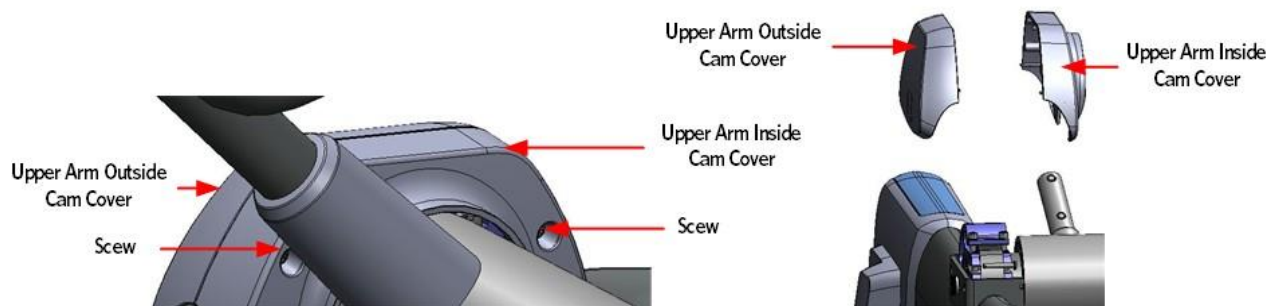
Front Arm and Cam Replacement Procedure Front Arm Removal

- 1 Remove the main body covers as per procedure, [Cover Replacement](#)
- 2 Remove the tension from the inner flat belt pulleys by lifting up on the stairarms, pulling the flat belts off the flat belt pulleys, and then gently setting the stairarm down.

Upper Arm Cam Cover Removal

- 3 Remove the two #10-24X1.25 screws that secure the upper arm cam covers to the upper arm, then remove the covers. It may be necessary to adjust the position of the vertical handlebar to gain access to

the upper arm cam cover screws.

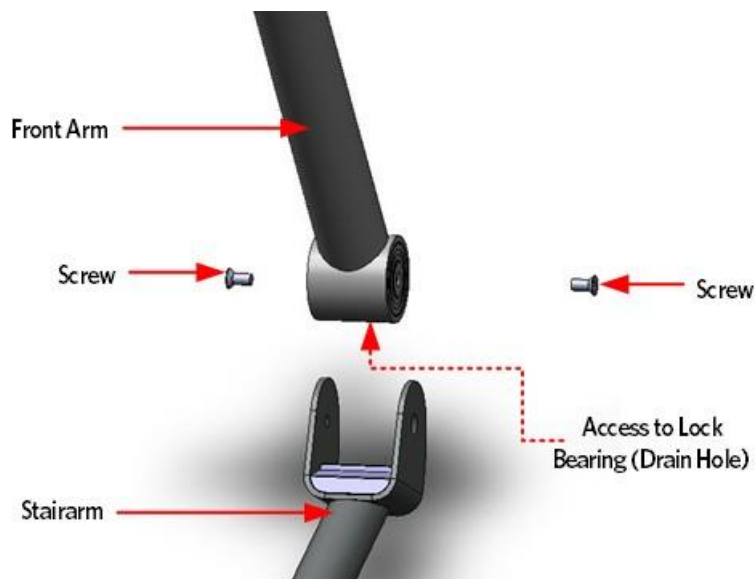


Stairarm Removal

4 Place the shaft of a Philips screw driver into the drain hole on the bottom of the front arm. Rotate the front arm bearing by turning the outside mounting bolt that secures the front arm to the stairarm, until the screw driver engages into the bearing and locks it. You may have to rotate the bearing one full turn to align the bearing lock hole with drain hole.

5 Once the screwdriver has locked the bearing preventing further rotation, fully remove the inside and outside mounting bolts. Remove the stairarm.

Figure 187: Stairarm and Front Arm Screw Locations



6 Remove the vertical handle bar.

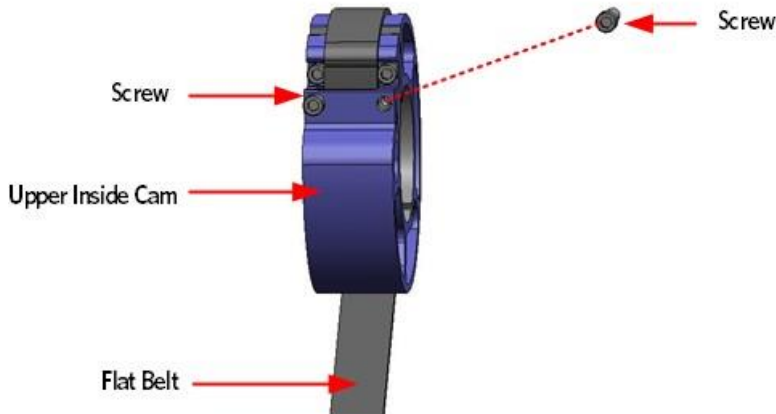
Flat Belt Removal - Upper Arm Cam

Note: Any time the flat belt terminal screws are removed from the flat belt clamp or cams, the screws must be discarded and replaced with new screws.

7 Remove and discard the two 1/4-20X1 flat belt cam clamp screws and shims that secure the flat belt

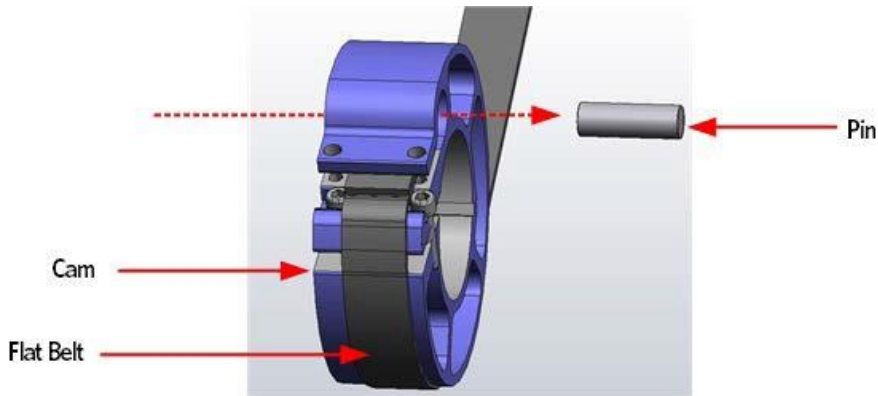
to the clamp.

Figure 188: Upper Inside Cam Screw Removal



8 Using a screw driver tip, push out the pin from the flat belt loop and cam clamp and then slide the flat belt out of the cam clamp. Remove the flat belt.

Figure 189: Upper Inside Cam Pin Removal

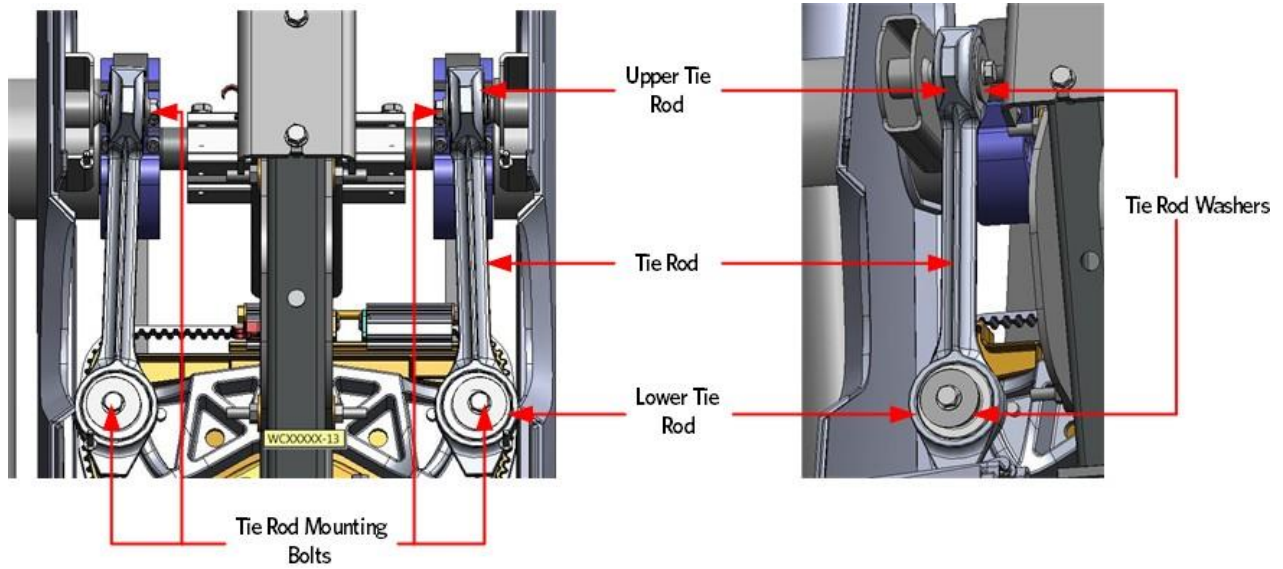


9 Repeat the process to remove the outside flat belt from the front arm cam.

Tie Rod Removal

10 Remove the tie rod mounting bolt and washer that secures the upper tie rod end to the upper arm axle.

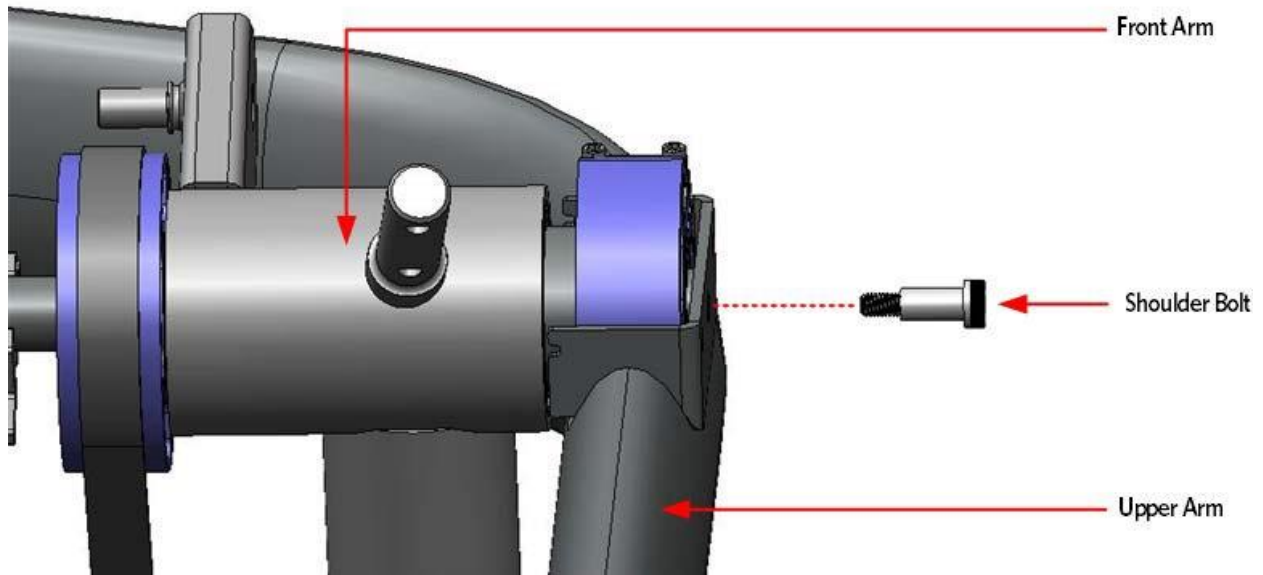
Figure 190: Tie Rods



Front Arm Removal

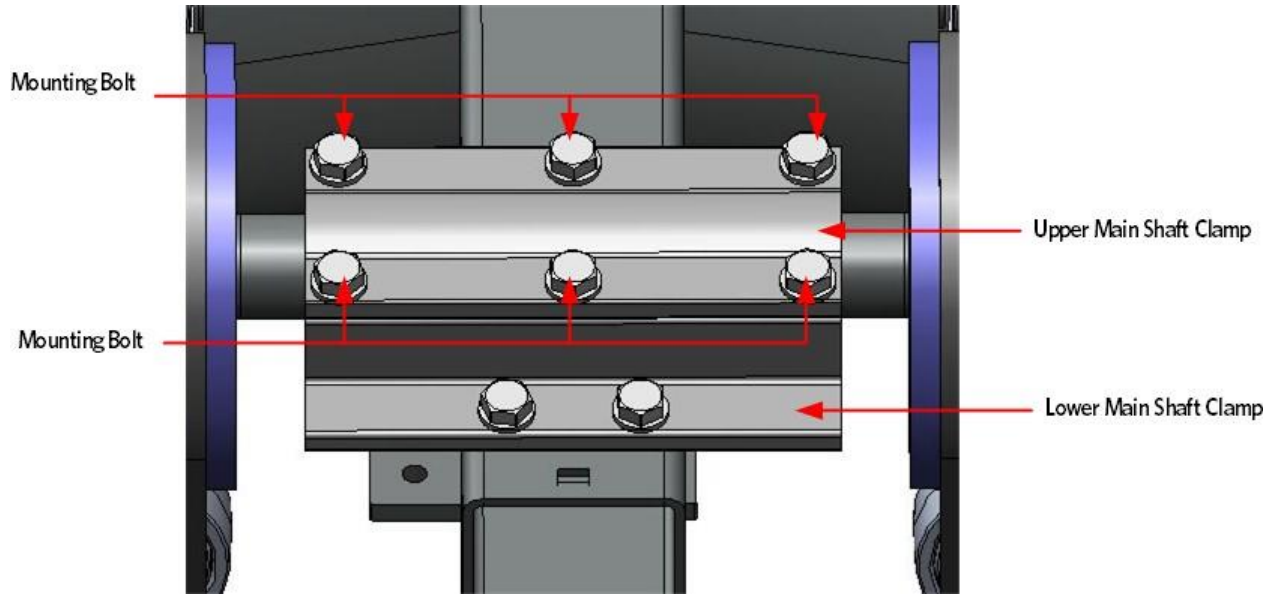
11 Remove the shoulder bolt that secures the outside cam tube to the upper arm.

Figure 191: Front Arm Mounting Bolt



12 Remove the six bolts that secure the upper main shaft clamp to the lower main shaft clamp. Remove the top main shaft clamp.

Figure 192: Main Shaft Clamp Bolts



Caution: It is recommended to have assistance available for the following step(s).

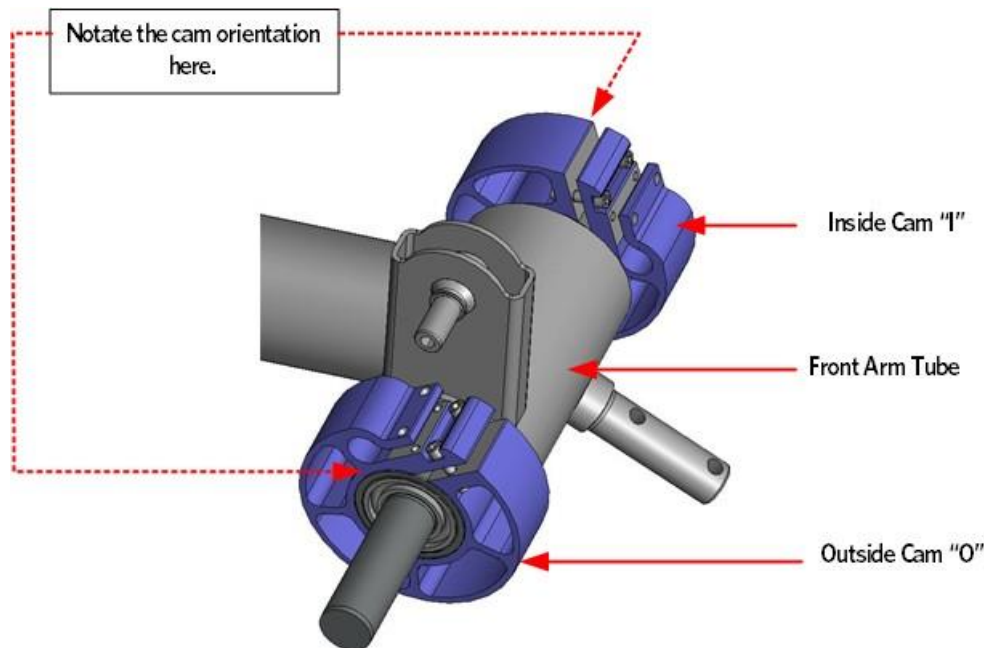
13 With assistance, lift the front arm out of the lower main shaft clamp and upper arm, gently set the front arm on a flat work surface.

Note: On April 3, 2013 the front arms and cams were redesigned so that the cams are pressed onto the front arm axle. If you are servicing a AMT12 that has this configuration, skip the cam removal steps.

Important: Before removing the cams, note the orientation on the front arm

Mark the sides of the inside and outside cams with a notation to indicate the sides facing away from the front arm tube. For example, mark the outside cam with a "O" and the inside with a "I".

Figure 193: Front Arm Cam Orientation



Note: Any time the flat belt terminal screws are removed from the flat belt clamp or cams, the screws must be discarded and replaced with new screws.

- 2 Remove and discard the four screws and shims that secure the two flat belt cams to the front arm tube, slide the cams off the front arm tube.
- 3 Remove the two square keys that align the cam to the front arm tube.

Front Arm Installation

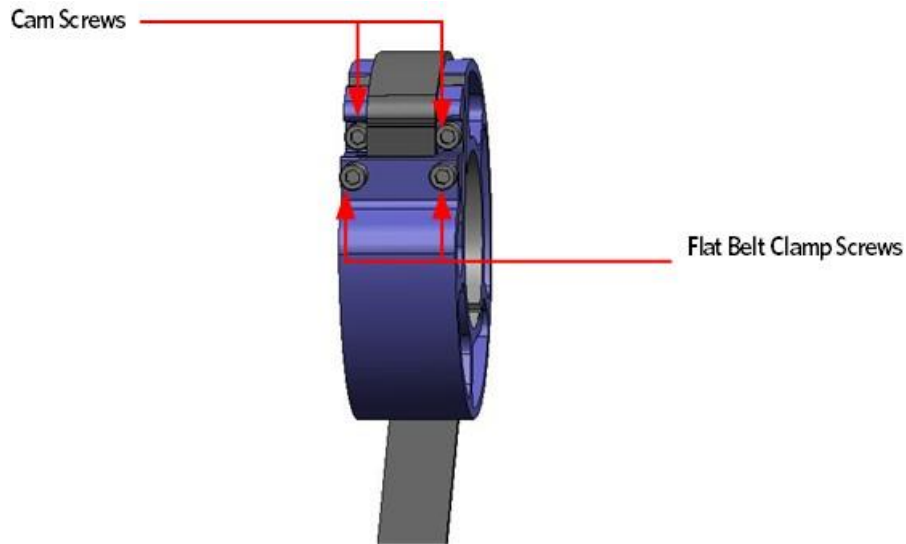
Note: On January 20 2013 the front arms and cams were redesigned so that the cams are pressed onto the front arm axle. If you are servicing a AMT12 that has this configuration, skip the cam installation steps.

- 1 Place an square key in a alignment slot on one sides of the front arm tube. Align the flat belt cam alignment slot with the square key mounted in the front arm tube, slide the flat belt cam onto the front arm tube. Do not use excessive force to install the cams.

Note: Ensure that the cam is fully seated so that the side of the cam is flush with the side of the front arm tube.

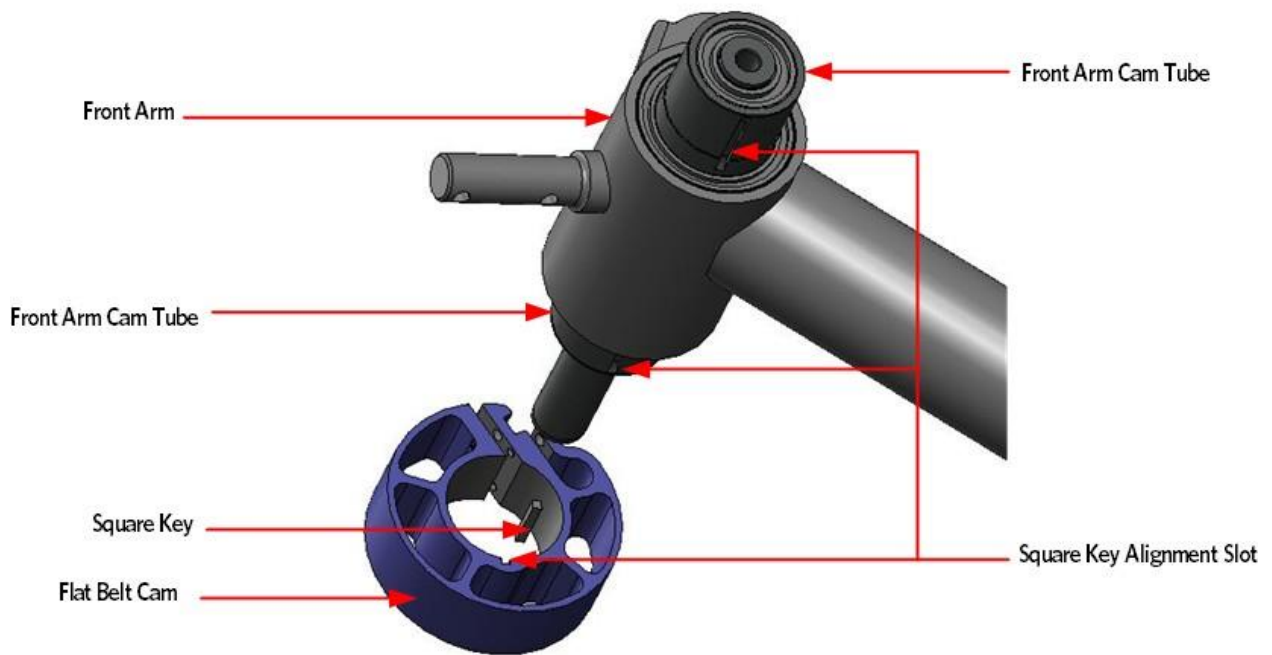
- 2 Fasten the flat belt cam to the front arm tube using the two replacement screws and shims, torque to 120 in pounds or 10 foot pounds.

Figure 194: Flat Belt Cam Screws & Cam Screws



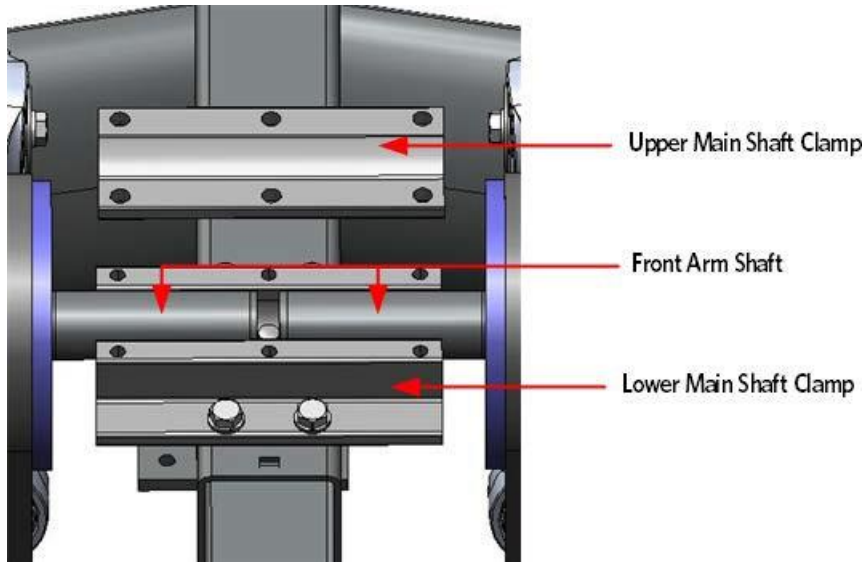
3 Repeat the process for the other side of the front arm.

Figure 195: Front Arm and Cam Square Keys



4 Note: ensure the flat belts are positioned correctly before installing the front arm. With assistance, lift the front arm and then set the front arm into the lower main shaft clamp and upper arm.

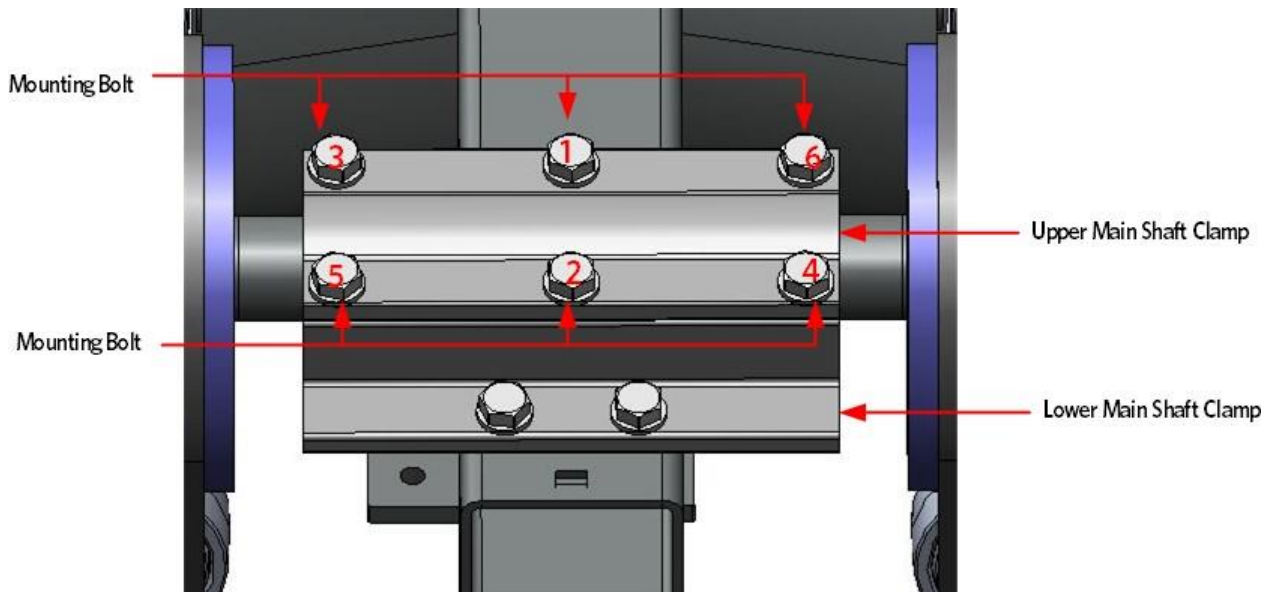
Figure 196: Front Arm Shaft and Main Clamp



5 Insert and finger tighten the bolt for the outside cam tube to the upper arm.

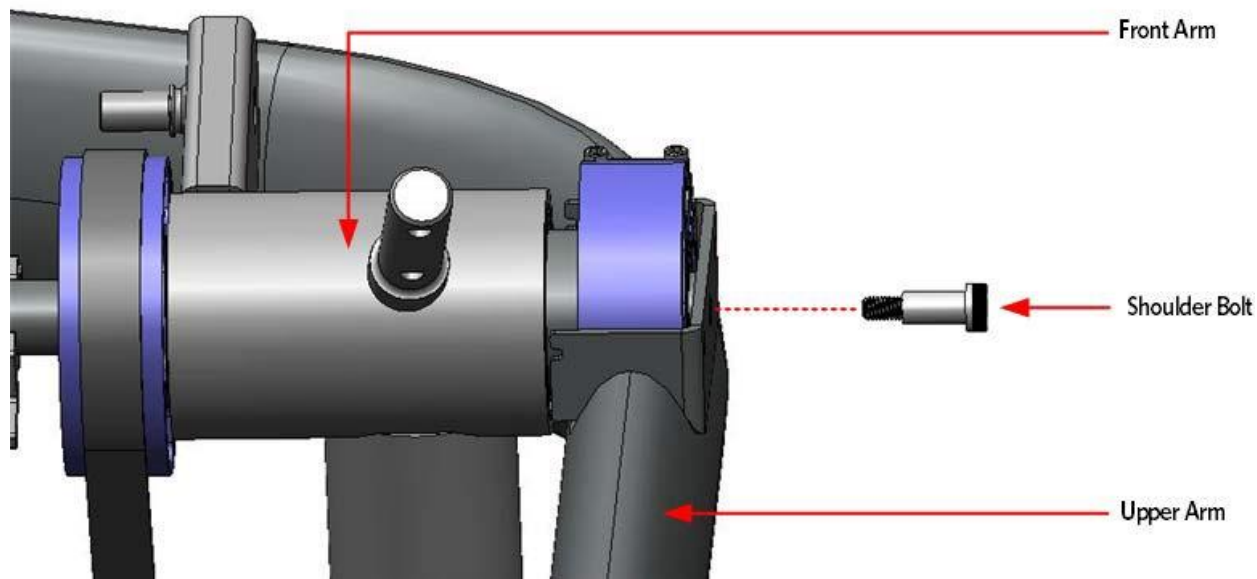
6 Use the following sequence to ensure the upper arm main shaft is properly secured to the front arm shaft; torque the bolts to 160 inch pounds.

Figure 197: Main Shaft Clamp Bolts- Torque Sequence



7 Secure the front arm shaft to the upper arm using the shoulder bolt, torque to 300 inch pounds (25 ft-lbs) or 25 foot pounds.

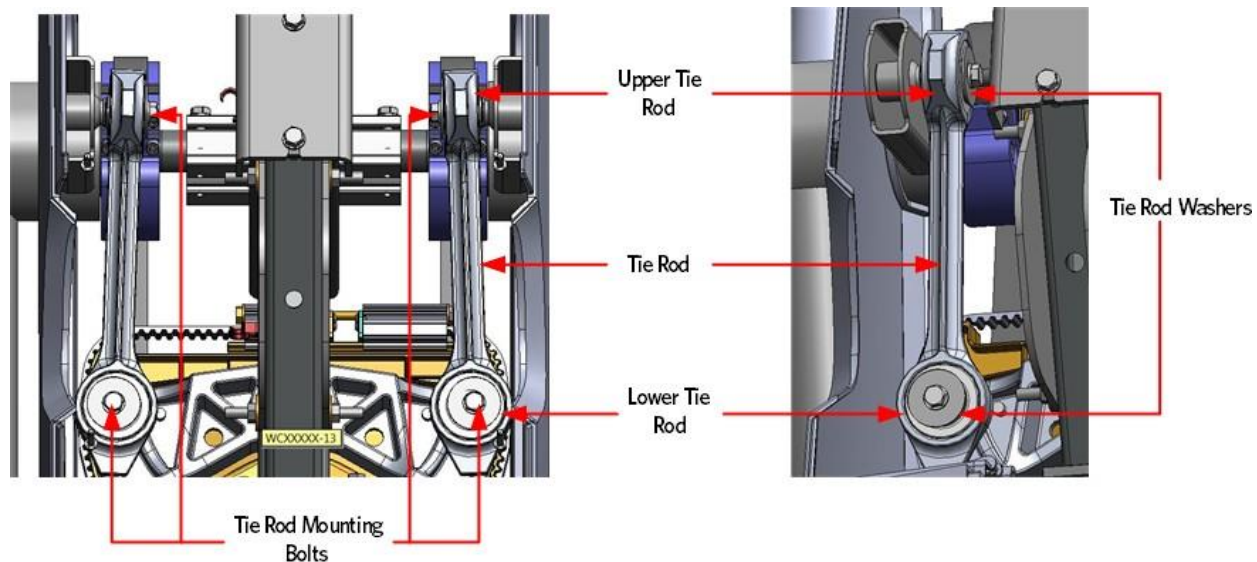
Figure 198: Front Arm Mounting Bolt



Tie Rod Installation

8 Fasten upper tie rod end to the cam assembly with the bolt and washer, torque the bolt to 300 inch pounds (25 ft-lbs).

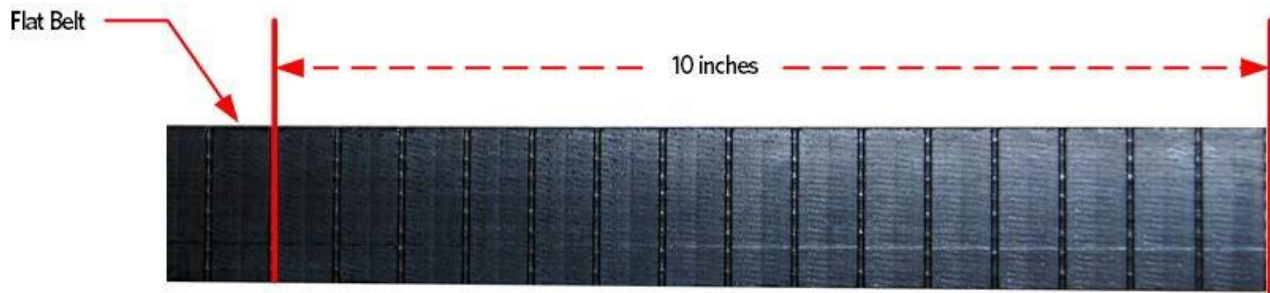
Figure 199: Tie Rods



Flat Belt Installation - Upper Arm Cam

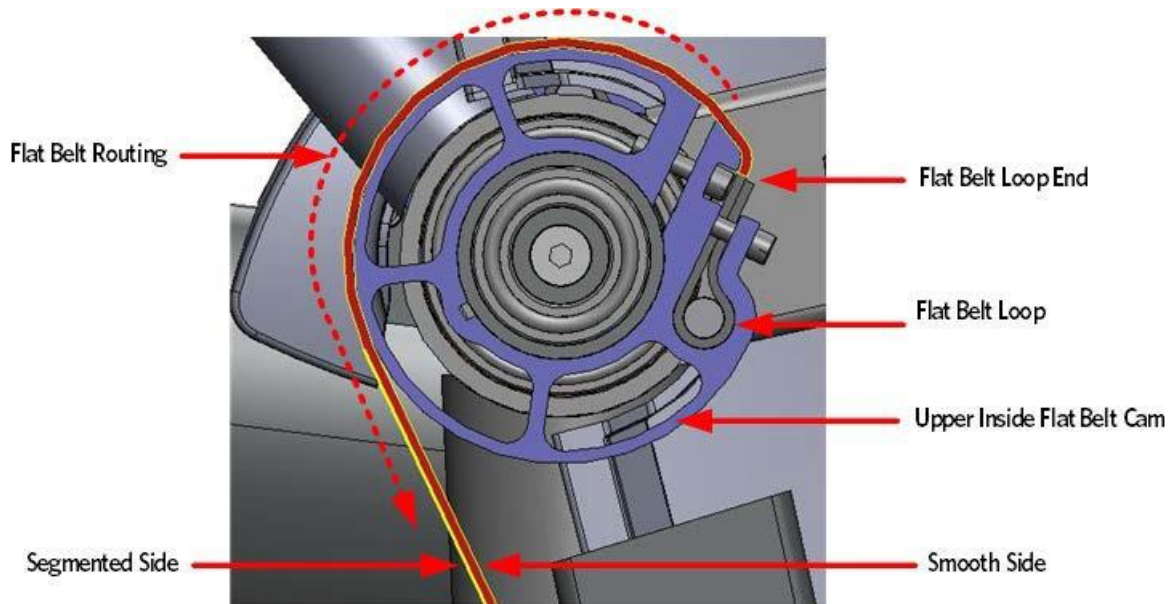
1 Lay the replacement flat belt on a flat surface with the flat belt segments facing up. Measure the distance in from the end of the flat belt 4 1/2 inches. Using a straight edge and permanent marker draw a line across the flat belt at 4 1/2 inches. Repeat this process for the other end of the flat belt.

Figure 200: Flat Belt End Measurement



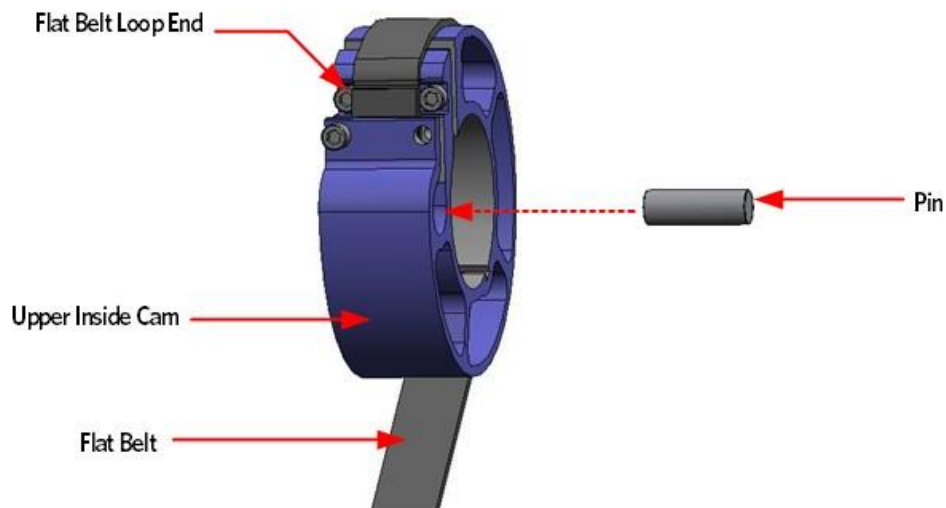
- 2 Apply a thin layer of Dow Corning 7 to the surface of the cam the flat belt will contact.
- 3 Place the inside flat belt on the cam so the length of the flat belt is draped towards the back of the AMT. Make sure the smooth side of the flat belt contacts the cam and the segmented side is facing up.
- 4 Install a replacement 1/4-20X1 screw and shim in one of the cam clamp screw holes, do not fully tighten at this time.

Figure 201: Upper Inside Cam Flat Belt Routing



- 5 Loop the end of the flat belt back to the 4 1/2 inch mark. While holding the flat belt end on the 4 1/2 inch mark, work the loop into the cam clamp. A 1/2 inch deep set socket can be used to assist in pushing the belt into place. When the flat belt loop is about half way into the cam clamp, push the pin into the flat belt loop.
- 6 Continue to work the flat belt loop and pin into the cam clamp until the side of the flat belt is resting next to the clamp screw. Ensure the pin is centered within the cam clamp.

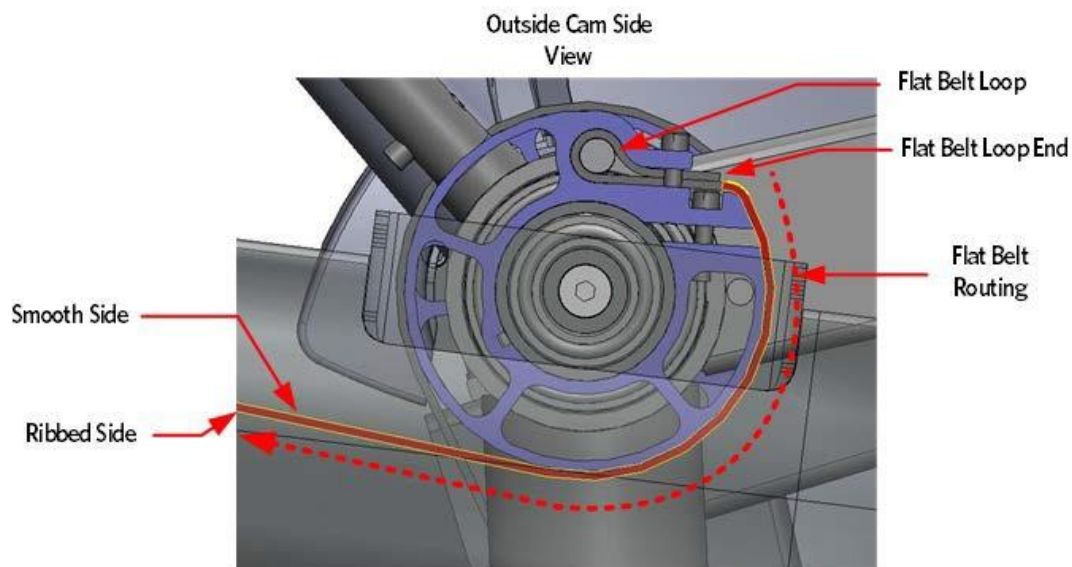
Figure 202: Upper Inside Cam Pin Install



7 Install the second 1/4-20X1 screw and shim that secures the flat belt to the cam, tighten and torque both screws to 120 inch pounds.

8 Thread the outside flat belt so that the belt is routed from under the cam toward the front of the AMT and then up, ensure the flat belt loop end is facing up.

Figure 203: Outside Flat belt Routing - Cam

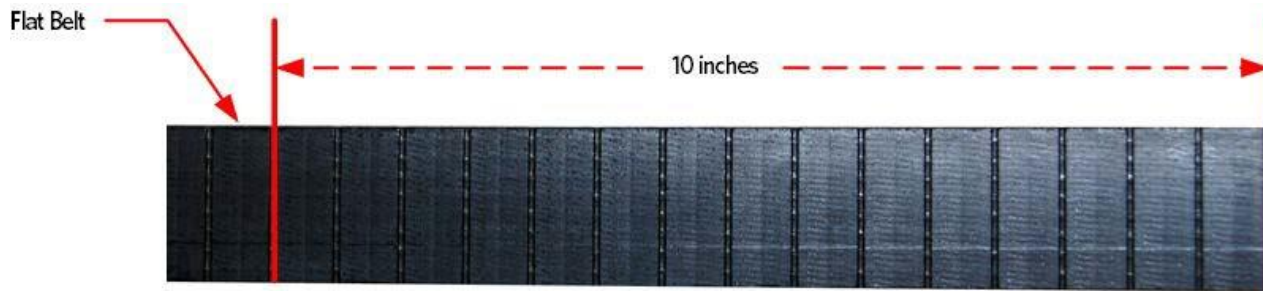


9 Fasten a replacement 1/4-20X1 screw and shim in one of the cam clamp screw holes, do not fully tighten at this time.

10 Slide the flat belt loop into the cam clamp until the side of the flat belt is resting next to the clamp screw. Push the pin into the flat belt loop; ensure the pin is centered within the cam clamp.

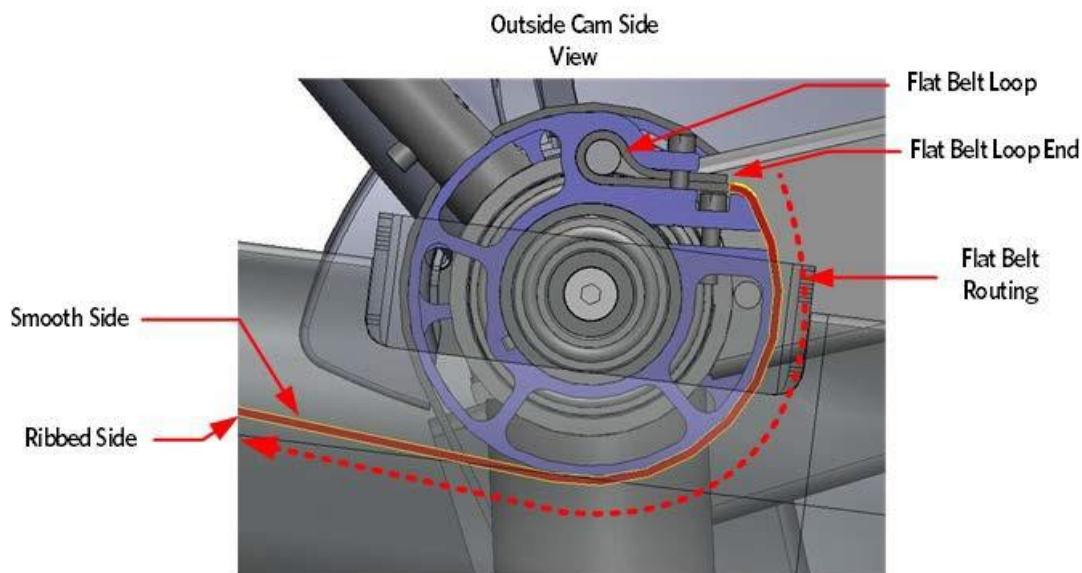
Flat Belt Installation - Upper Arm Cam

11 Lay the replacement flat belt on a flat surface with the flat belt segments facing up. Measure the distance in from the end of the flat belt 10 inches, using a straight edge and permanent marker draw a line across the flat belt at 10 inches. Repeat this process for the other end of the flat belt.



12 Place the inside flat belt on the cam so the length of the flat belt is draped towards the back of the AMT. Make sure the smooth side of the flat belt contacts the cam and the segmented side is facing up.

Figure 204: Outside Flat belt Routing - Cam



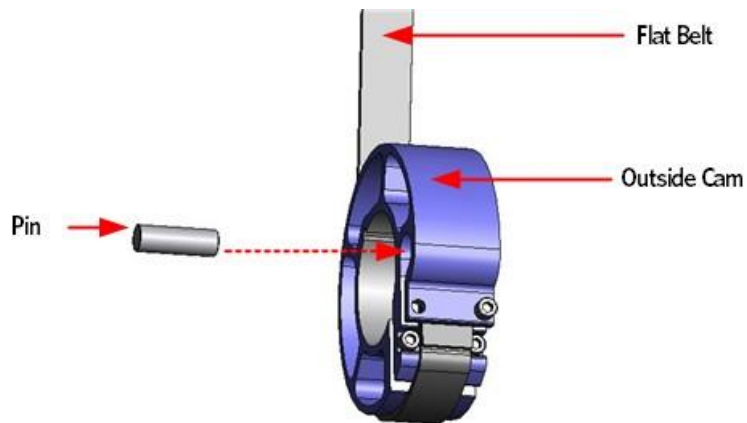
13 Install a replacement 1/4-20X1 screw and shim in one of the cam clamp screw holes, do not fully tighten at this time.

14 Loop the end of the flat belt to the 10 inch mark. While holding the flat belt end on the 10 mark, work the loop into the cam clamp. A

1/2 inch deep set socket can be used to assist in pushing the belt into place. When the flat belt loop is about half way into the cam clamp, push the pin into the flat belt loop.

15 Continue to work the flat belt loop and pin into the cam clamp until the side of the flat belt is resting next to the clamp screw.

Figure 205: Upper Outside Cam Pin



16 Install the second 1/4-20X1 replacement screw and shim that secures the flat belt to the cam. Do not tighten fully at this time.

Stairarm Installation

17 Position the stairarm in the front arm.

18 Place the shaft of a Philips screw driver into the drain hole on the bottom of the front arm and thread one of the two 1/2-13X1 screws into stairarm. Using the installed screw, rotate the front arm bearing until the screw driver engages into the bearing, locking the bearing. You may have to rotate the bearing one full turn to align the bearing lock hole with drain hole.

19 Once the screwdriver has locked the bearing preventing further rotation, fully tighten the inside and outside mounting bolts, torque to 83 foot pounds or 1000 inch pounds.

20 Remove the screwdriver from the drain hole.

Figure 206: Stairarm and Front Arm Screw Locations



21 Lift the stairarm and then thread the flat belts over the flat belt pulleys.

- 22 Replace the upper arm cam covers.
- 23 Attach the vertical handle bar to the front arm.
- 24 Replace the main body covers as per procedure, [Cover Replacement](#).

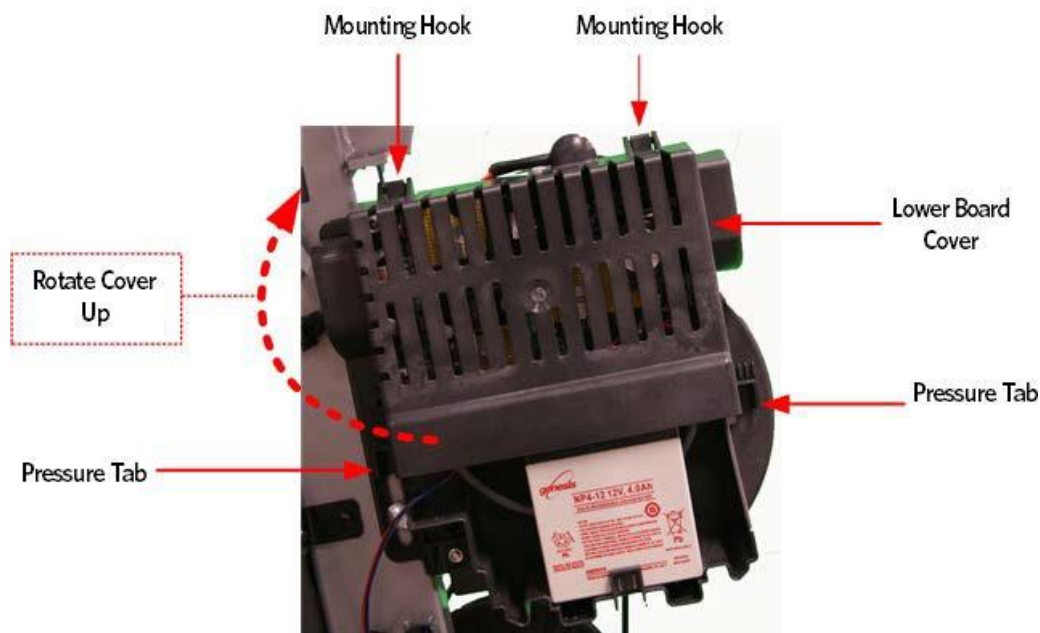
Replacing the Lower Board

WARNING: Before continuing with this procedure, review the Warning and [Caution](#) statements listed in Section One, Things You Should Know.

Removing the Lower PCA Cover

- 1 Remove the main body covers as per procedure, [Cover Replacement section](#) (see "[Cover Replacement](#)").
- 2 There are two interlocking pressure tabs located on each side of the lower PCA cover, push the two locking tabs outward and pull up the bottom of the lower PCA cover.
- 3 Rotate the bottom of the lower PCA cover up until the two hooks of the cover disengage from the lower PCA bracket.

Figure 207: Lower PCA Cover



Removing the Lower PCA

- 1 Attach the wrist ESD strap to your arm, and then connect the ground wire of the wrist strap to a

grounding spot on the AMT frame.

2 Disconnect the data cable, lift motor cable (Open Stride only), generator cable, load cable, stride dial cable, battery cables, and vertical sensor cable from the lower PCA.

3 Remove the two #10-24X.075 top corner screws that fasten the lower board to the lower PCA bracket.

4 Lift the lower PCA up and out of the slots of the lower PCA bracket.

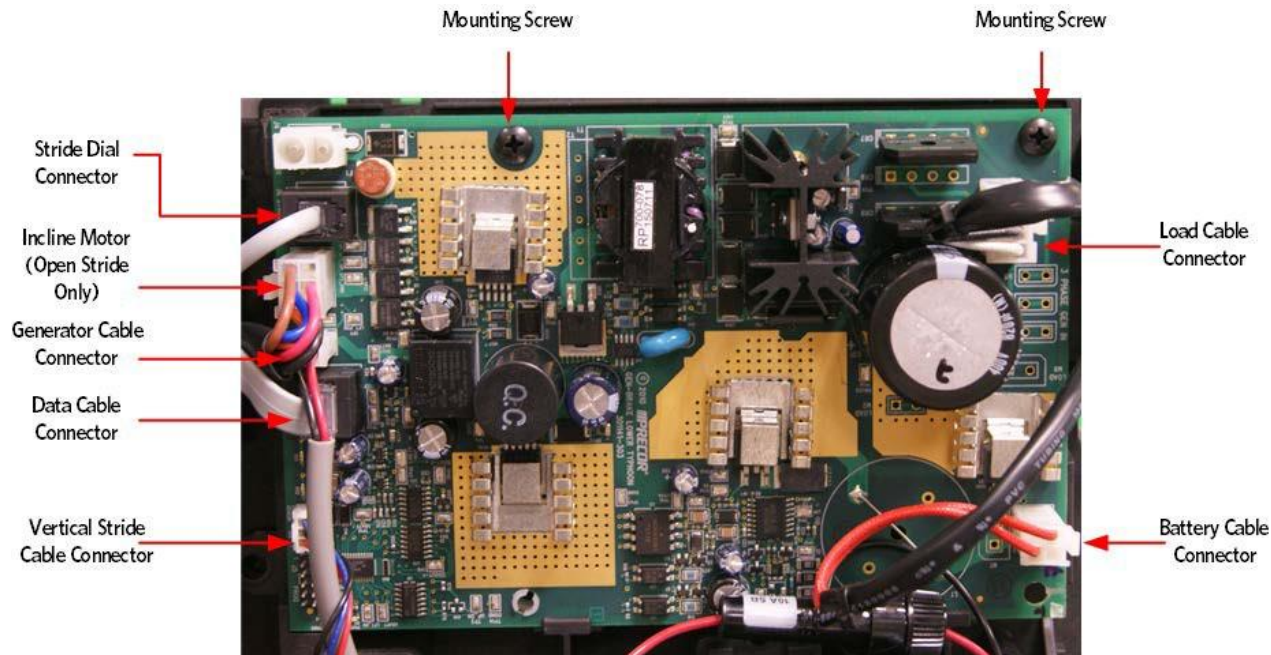
5 Slide the new lower PCA into the slots of the lower PCA bracket.

6 Fasten the lower PCA to the PCA bracket using the two #10-24X.075 screws removed in step 3. Do not over tighten.

7 Connect the data cable, lift motor cable (Open Stride only), generator cable, load cable, stride dial cable, battery cables, and vertical sensor cable from the lower PCA...

8 Reinstall the lower PCA cover by interlocking the PCA cover hooks and the PCA bracket hangers, lower the cover until the locking tabs engage.

Figure 208: Lower PCA



Replacing the Lower PCA and Battery Bracket

Procedure

1 Remove the main body covers as per procedure, [Cover Replacement](#).

2 Remove the lower PCA cover as per procedure, **Lower PCA Cover** (see "Removing the Lower PCA Cover").

3 Disconnect the data cable, lift motor cable (Open Stride only), generator cable, load cable, stride dial cable, battery cables, and vertical sensor cable from the lower PCA

4 Remove the lower PCA as per procedure, **Lower PCA** (see "**Removing the Lower PCA**").

5 Remove the #10-24X.75 screw located at the bottom left corner that secures the bracket to the frame.

6 Carefully disengage wires from the securing clips on the lower PCA battery bracket.

Figure 209: Lower PCA and Battery Bracket



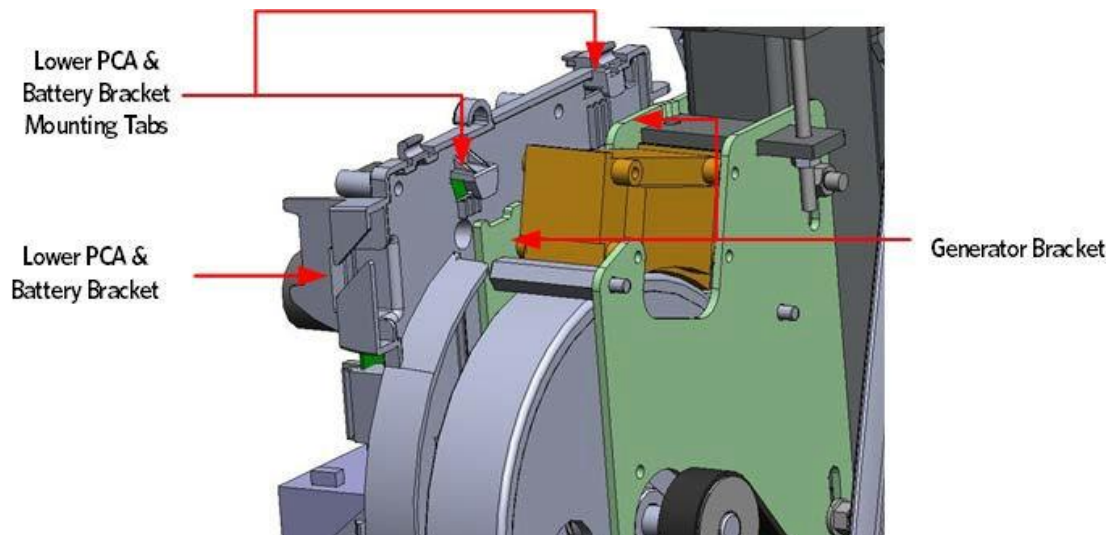
7 Lift the bracket up and off the generator bracket.

Battery Bracket Installation

8 Align the Lower PCA mounting tabs with the generator bracket, then slide the bracket down onto the generator bracket.

Note: Ensure that the wires are not pinched between the generator bracket and the lower PCA battery bracket.

Figure 210: Lower PCA & Battery Bracket Mounting



- 9 Fasten the #10-24X.75 screw that secures the bracket to the frame that was removed in step 5.
- 10 Replace the lower PCA as per procedure, ***Removing the Lower PCA Cover***.
- 11 Disconnect the data cable, lift motor cable (Open Stride only), generator cable, load cable, stride dial cable, battery cables, and vertical sensor cable from the lower PCA.
- 12 Secure the cables wires into the mounting clamps on the lower PCA battery bracket.

Note: Ensure that the wires are not pinched between the lower PCA bracket cover and the lower PCA battery bracket.

- 13 Replace the lower PCA cover as per procedure, ***Lower PCA Cover*** (see "Removing the Lower PCA Cover").
- 14 Replace the covers as per procedure, ***Cover Replacement***.

Replacing the Battery

Procedure

- 1 Remove the covers as per procedure, ***Cover Replacement***.
- 2 Remove the lower PCA cover. ***Lower PCA Cover*** (see "Removing the Lower PCA Cover")
- 3 Disconnect the two battery cable connectors from the battery terminals.
- 4 Set the replacement battery in the lower PCA bracket with the battery terminals facing out.
- 5 Connect the red wire battery cable to the terminal on the battery marked with a (+) or red square.
- 6 Connect the black wire battery cable to the terminal on the battery marked with a (-) or black square.

7 Replace the lower PCA cover.

8 Replace the covers as per procedure, *Cover Replacement*.

Figure 211: Battery



Replacing the Generator Belt

Procedure

1 Remove the covers as per procedure, *Cover Replacement*.

2 Remove the tension from the inner flat belt pulleys by lifting up on the stairarms, pulling the flat belts off the flat belt pulleys, and then gently setting the stairarm down.

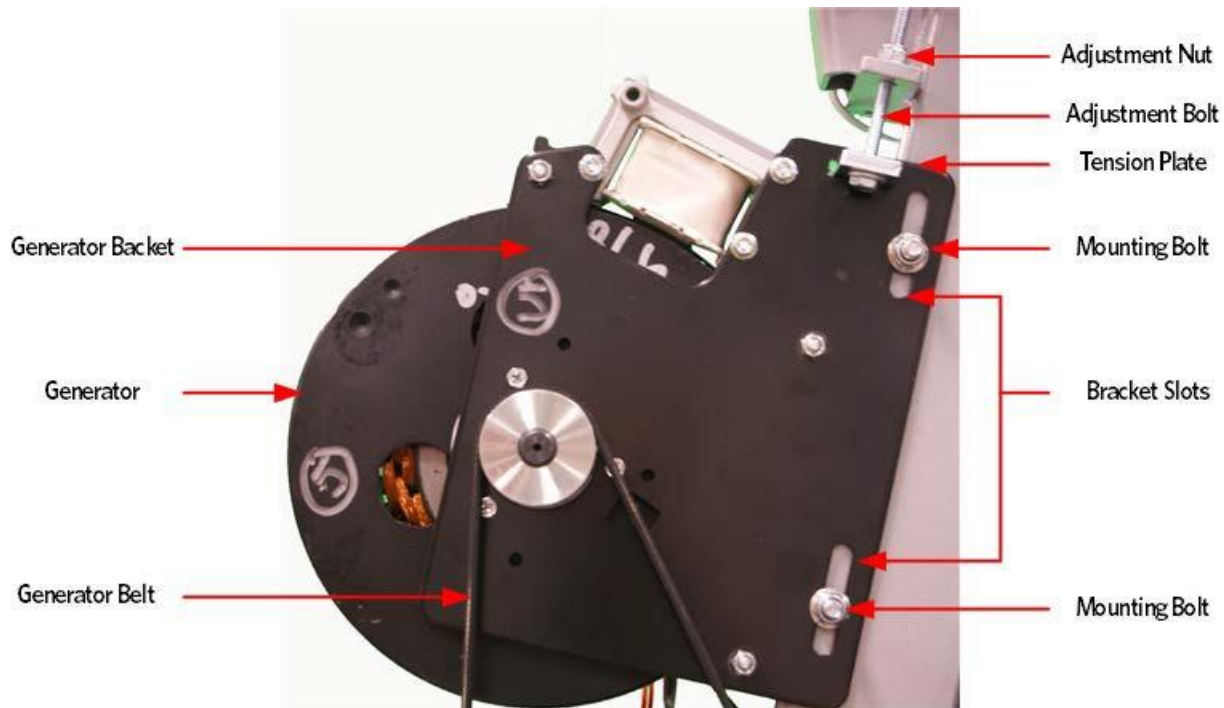
3 Loosen the generator mounting bolts.

4 Loosen the generator adjustment bolt until the top of the bracket slots are resting on the generator mounting bolts.

5 Loosen the Step-Up pulley mounting bolt.

6 Loosen the Step-Up pulley adjustment bolt until tension has been removed from the input pulley belt and has sufficient slack so that the belt may be removed from the Step-Up pulley.

Figure 212: Generator



7 Remove the drive input belt from the Step-Up pulley.

8 Remove the generator belt and discard.

9 Place the replacement generator belt over the larger Step-Up pulley and the generator, ensure the belt is seated in the groove of the pulley's.

10 Replace the input drive belt over the smaller pulley on the Step-Up pulley.

11 Go to "[Inspecting and Adjusting the Drive Input Belt Tension](#)" procedure and tension the drive and generator belts to the specified tension.

12 Lift the stairarms and then thread the flat belts over the flat belt pulleys.

13 Replace the covers as per procedure, [Cover Replacement](#).

Replacing the Generator

Procedure

1 Remove the covers as per procedure, see [Cover Replacement](#).

2 Remove the lower PCA cover as per procedure, [Lower PCA Cover](#) (see "[Removing the Lower PCA Cover](#)").

3 Disconnect the cables from the lower PCA and then remove the lower PCA and battery bracket as per procedure, [Replacing the Lower PCA and Battery Bracket](#).

4 Remove the generator tension adjustment bolt, washer, lock nut and tension plate.

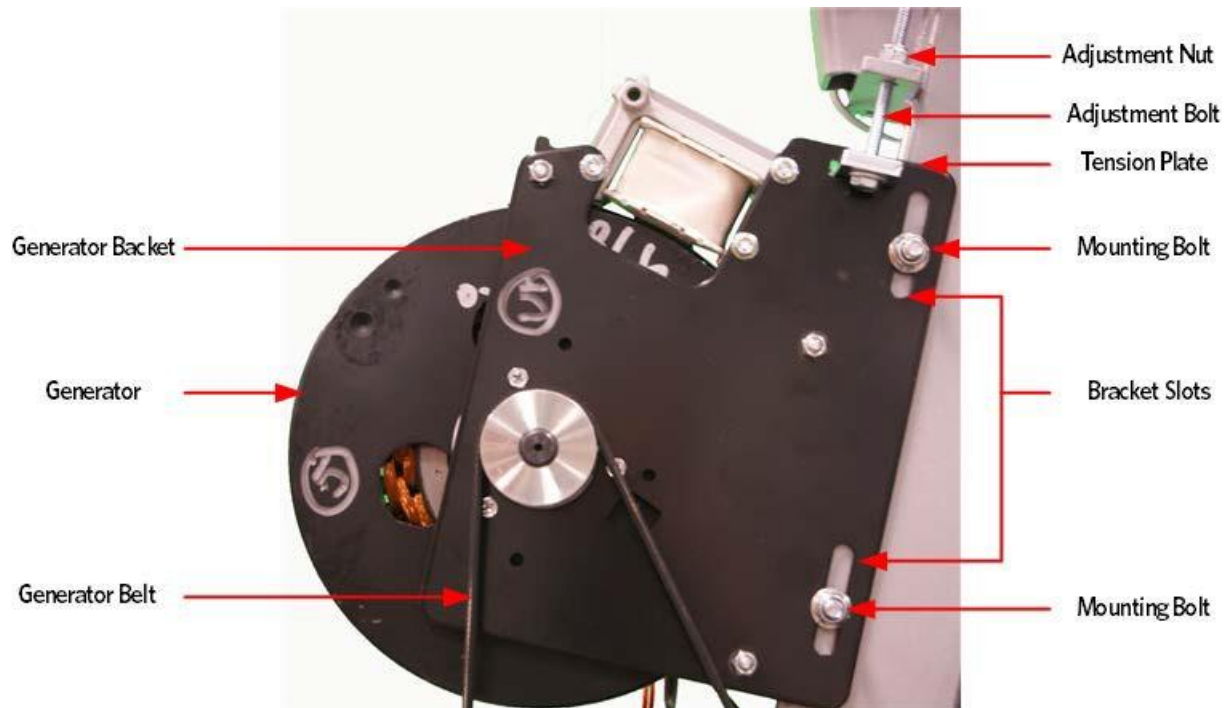
- 5 Loosen the two generator mounting bolts and nuts, remove the generator belt from the generator pulley.
- 6 Remove the two generator mounting bolts and remove generator.
- 7 Secure the replacement generator using the two generator mounting bolts removed in the previous step, do not fully tighten at this time.
- 8 Replace the tension plate in the mounting slot in the generator.
- 9 Thread the tension bolt and washer through the frame mount bracket and generator tension plate, then fasten the washer and lock nut to the tension mounting bolt.
- 10 Go to "[Inspecting and Adjusting the Generator Belt Tension](#)" procedure and tension the generator belt to the specified tension.
- 11 Replace the lower PCA and battery bracket and connect the cables as per procedure, [Replacing the Lower PCA and Battery Bracket](#).
- 12 Replace the lower PCA cover as per procedure, [Lower PCA Cover](#) (see "Removing the Lower PCA Cover").
- 13 Replace the covers as per procedure, [Cover Replacement](#) (on page.

Replacing the Drive Input Pulley Belt

Drive Input Pulley Belt Replacement Procedure

- 1 Remove the covers as per procedure, [Cover Replacement](#).
- 2 Remove the tension from the inner flat belt pulleys by lifting up on the stairarms, pulling the flat belts off the flat belt pulleys, and then gently setting down the stairarm.
- 3 Loosen the generator mounting bolts.
- 4 Loosen the generator adjustment bolt until the top of the bracket slots are resting on the generator mounting bolts.
- 5 Loosen the Step-Up pulley mounting bolt.

Figure 212: Generator



6 Remove the drive input belt from the Step-Up pulley and discard.

7 Replace the input drive belt over the smaller pulley on the Step-Up pulley

8 Go to "[Inspecting and Adjusting the Drive Input Belt Tension](#)" procedure and tension the drive and generator belts to the specified tension.

4 Lift the stairarms and then thread the flat belts over the flat belt

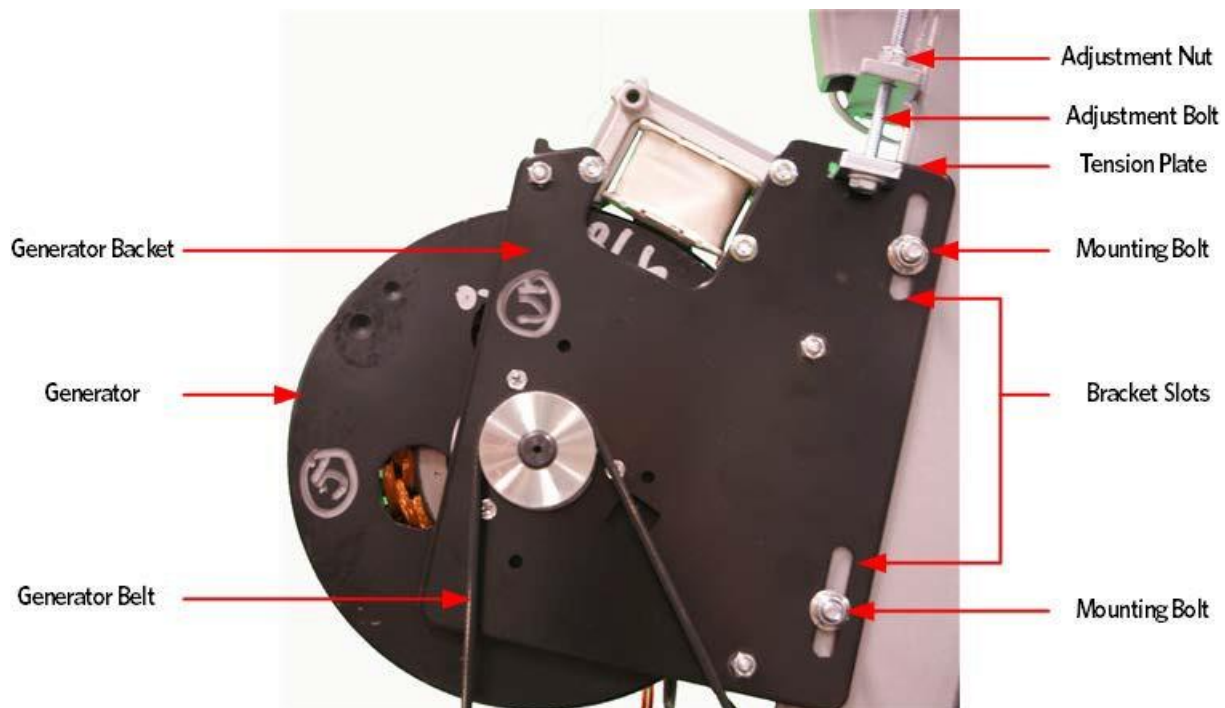
5 Replace the covers as per procedure, [Cover Replacement](#)

Replacing the Step-Up pulley

Procedure

- 1 Remove the covers as per procedure, *Cover Replacement*.
- 2 Remove the tension from the inner flat belt pulleys by lifting up on the stairarms, pulling the flat belts off the flat belt pulleys, and then gently setting the stairarm down.
- 3 Loosen the two generator mounting bolts.
- 4 Loosen the generator adjustment bolts until the top of the bracket slots are resting on the generator mounting bolts.

Figure 224: Generator

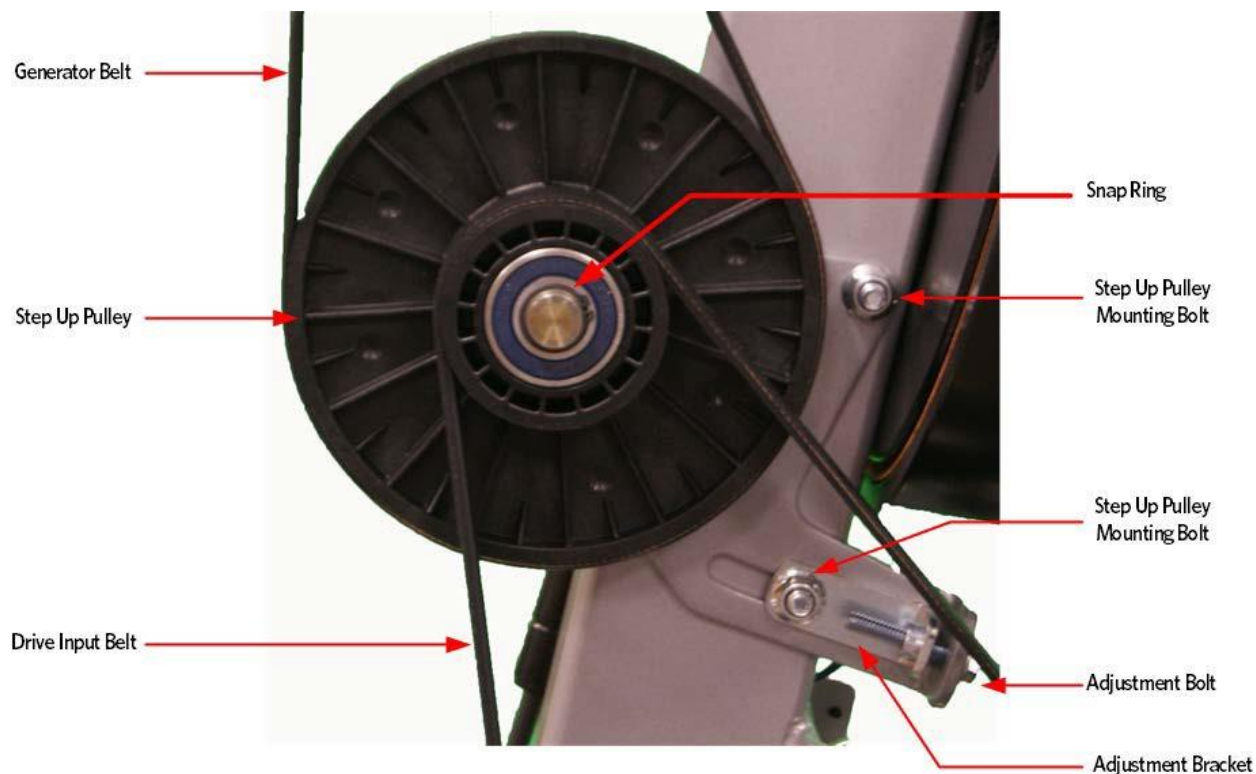


- 5 Loosen the two Step-Up pulley mounting bracket bolts.
- 6 Loosen the Step-Up pulley adjustment bolt until tension has been removed from the input pulley belt and sufficient slack in the belt so that it may be removed from the pulleys.
- 7 Remove the generator and drive input pulley belts from the Step-Up pulley.
- 8 Remove the snap ring that secures the Step-Up pulley to the axle, remove the Step-Up pulley and wave washer.
- 9 Place the wave washer on the axle and then the replacement Step-Up pulley, secure the Step-Up

pulley to the axle with the snap ring.

10 Place the generator and input pulley belts over the Step-Up pulley.

Figure 225: Step-Up pulley



11 Lift the stairarms and then thread the flat belts over the flat belt pulleys.

12 Go to "[Inspecting and Adjusting the Drive Input Belt Tension](#)" procedure and tension the drive and generator belts to the specified tension.

13 Recheck the drive input belt tension and the generator belt

14 Replace the covers as per procedure, [Cover Replacement](#).

Replacing the Crank Arm

Crank Arm Replacement Procedure

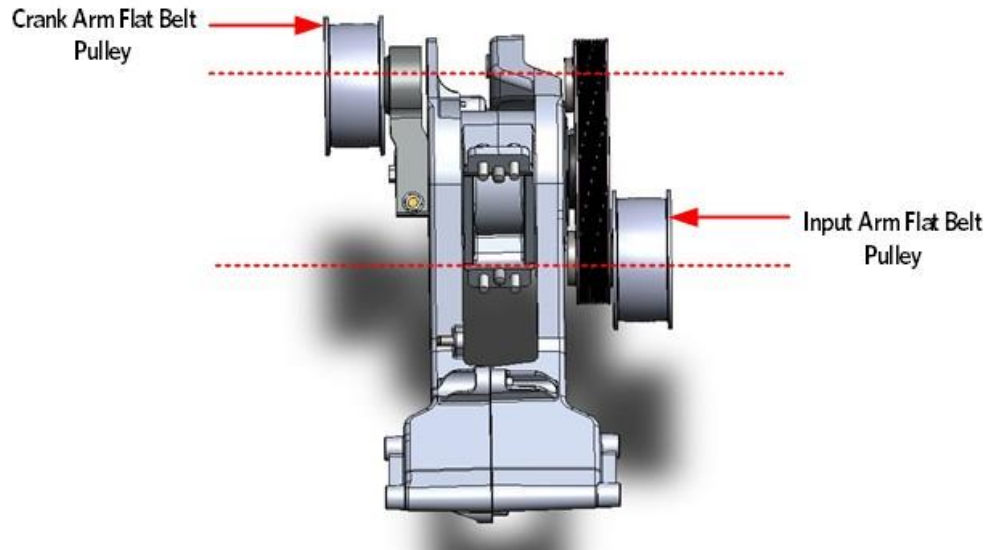
1 Remove covers as per procedure, [Cover Replacement](#).

2 Remove the tension from the inner flat belt pulleys by lifting up on the stairarms, pulling the flat belts off the flat belt pulleys, and then gently setting the stairarm down.

3 Place the crank arm on the shaft and secure the crank arm with mounting bolt and washer. To tighten the crank arm mounting bolt, insert a socket extension about twelve inches long or equivalent in the drive input housing cavity, just below the crank arm to prevent rotation. Remove the crank arm bolt, washer and crank arm. Torque the mounting bolt to 300 inch pounds (25 ft-lbs) or 25 foot pounds.

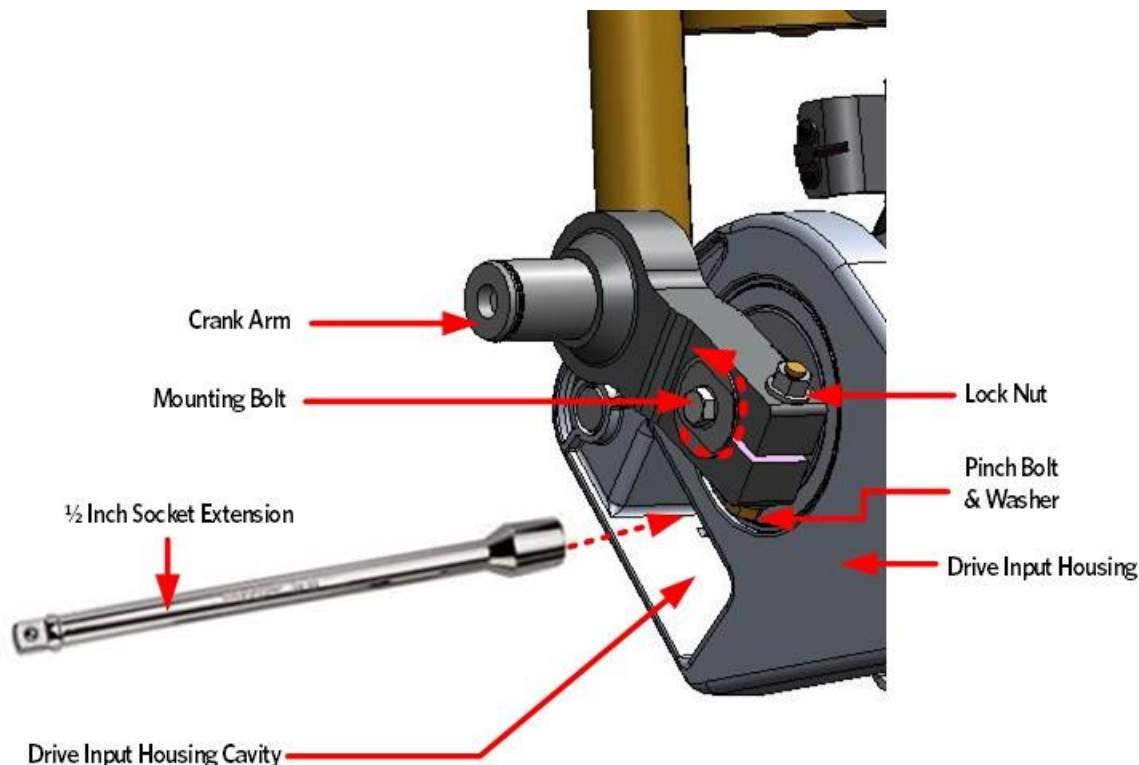
Note The position of the flat belt pulley on the crank arm and the flat belt pulley on the input pulley. When the crank arm is replaced, the flat belt pulleys must be positioned so that they are 180 degrees opposing.

Figure 230: Crank Arm Alignment



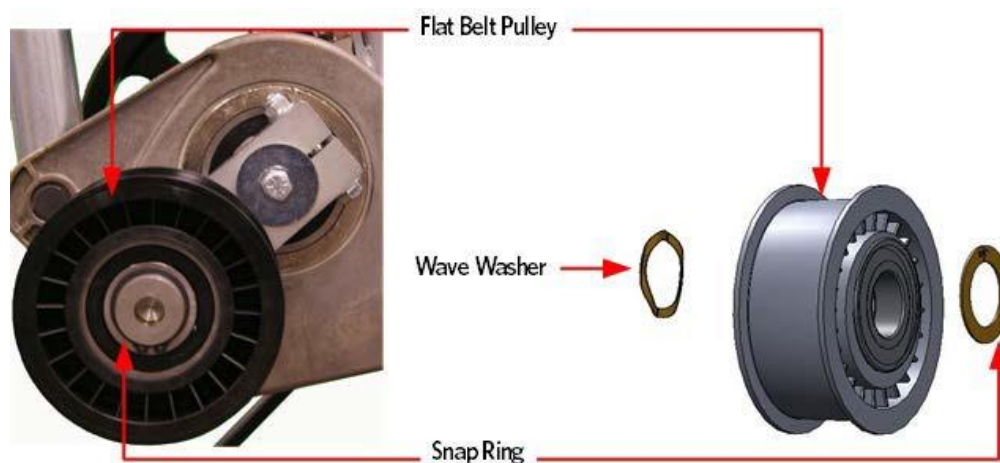
4 Install the crank arm pinch bolt, washer and lock nut. Torque the pinch bolt and lock nut to 300 inch pounds (25 ft-lbs) or 25 foot pounds.

Figure 231: Crank Arm Bolt Removal/ Installation



5 Replace the wave washer and flat belt pulley onto the crank arm shaft and secure with the snap ring. Make sure the snap ring is fully seated into the shaft groove.

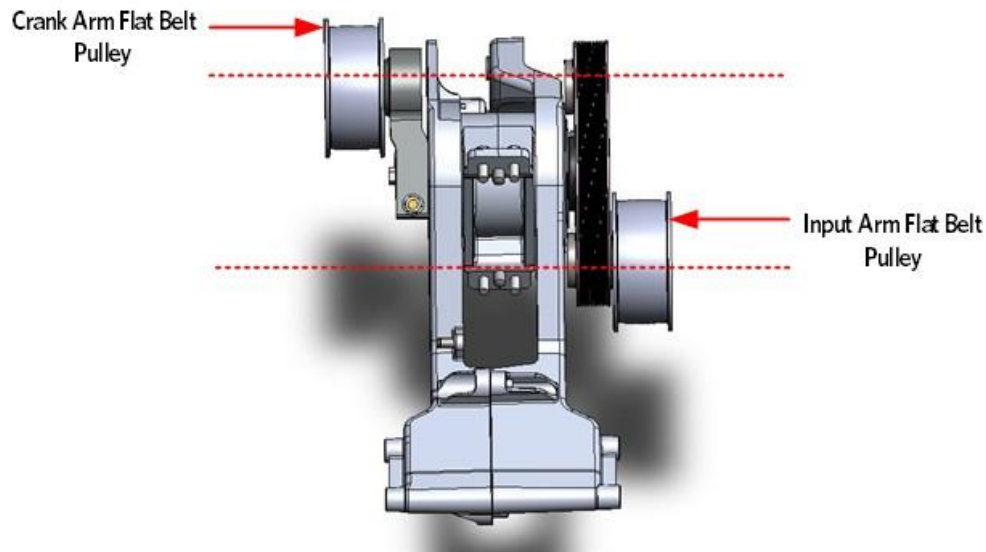
Figure 232: Crank Arm Flat Belt Pulley



6 Place the crank arm on the shaft and secure the crank arm with mounting bolt and washer. To tighten the crank arm mounting bolt, insert a socket extension about twelve inches long or equivalent in the drive input housing cavity, just below the crank arm to prevent rotation. Remove the crank arm bolt, washer and crank arm. Torque the mounting bolt to 300 inch pounds (25 ft-lbs) or 25 foot pounds.

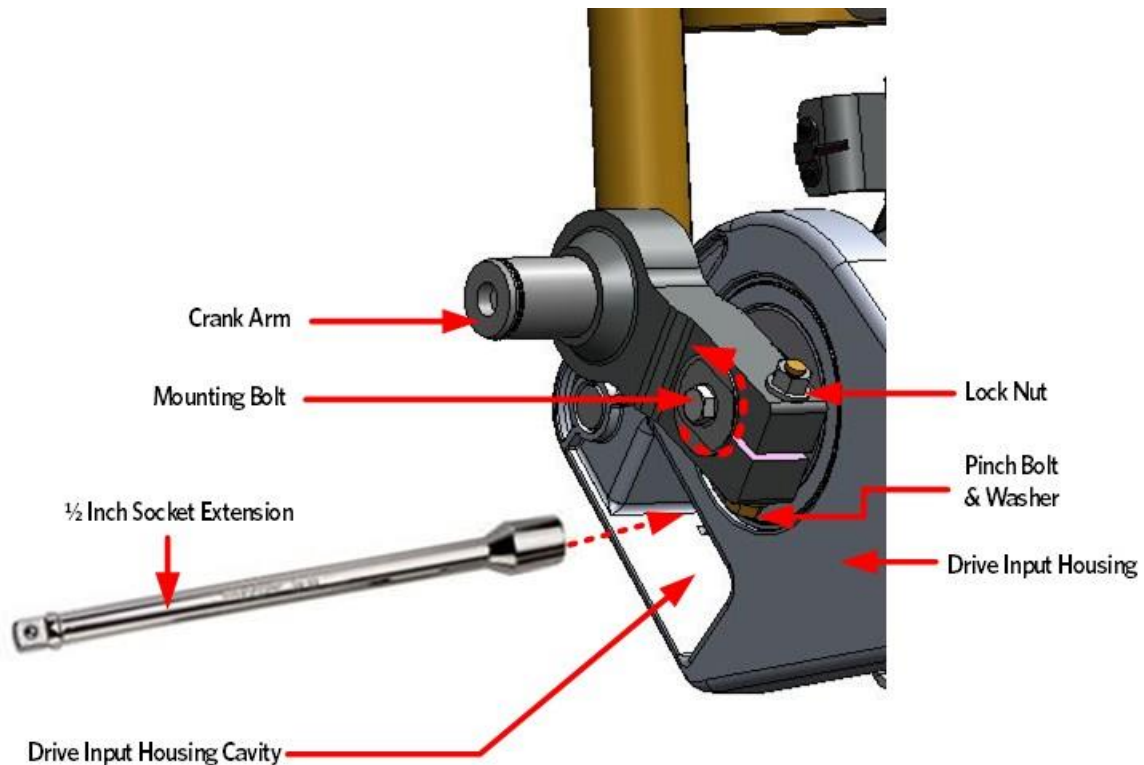
Note the position of the flat belt pulley on the crank arm and the flat belt pulley on the input pulley. When the crank arm is replaced, the flat belt pulleys must be positioned so that they are 180 degrees opposing.

Figure 233: Crank Arm Alignment



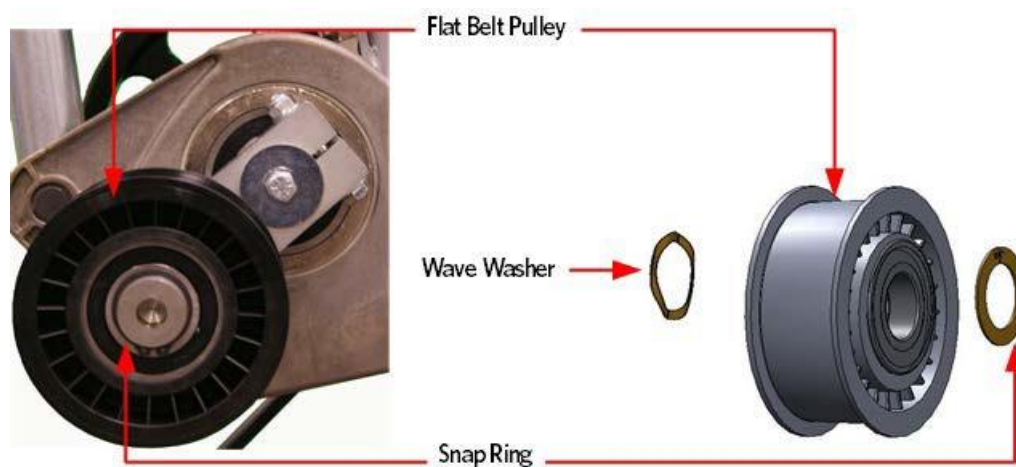
7 Install the crank arm pinch bolt, washer and lock nut. Torque the pinch bolt and lock nut to 300 inch pounds (25 ft-lbs) or 25 foot pounds.

Figure 234: Crank Arm Bolt Removal/ Installation



8 Replace the wave washer and flat belt pulley onto the crank arm shaft and secure with the snap ring. Make sure the snap ring is fully seated into the shaft groove.

Figure 235: Crank Arm Flat Belt Pulley



9 Lift the stairarms and thread the flat belts through the pulleys.

10 Replace the covers as per procedure, [Cover Replacement](#).

Replacing the Drive Input Pulley

Procedure

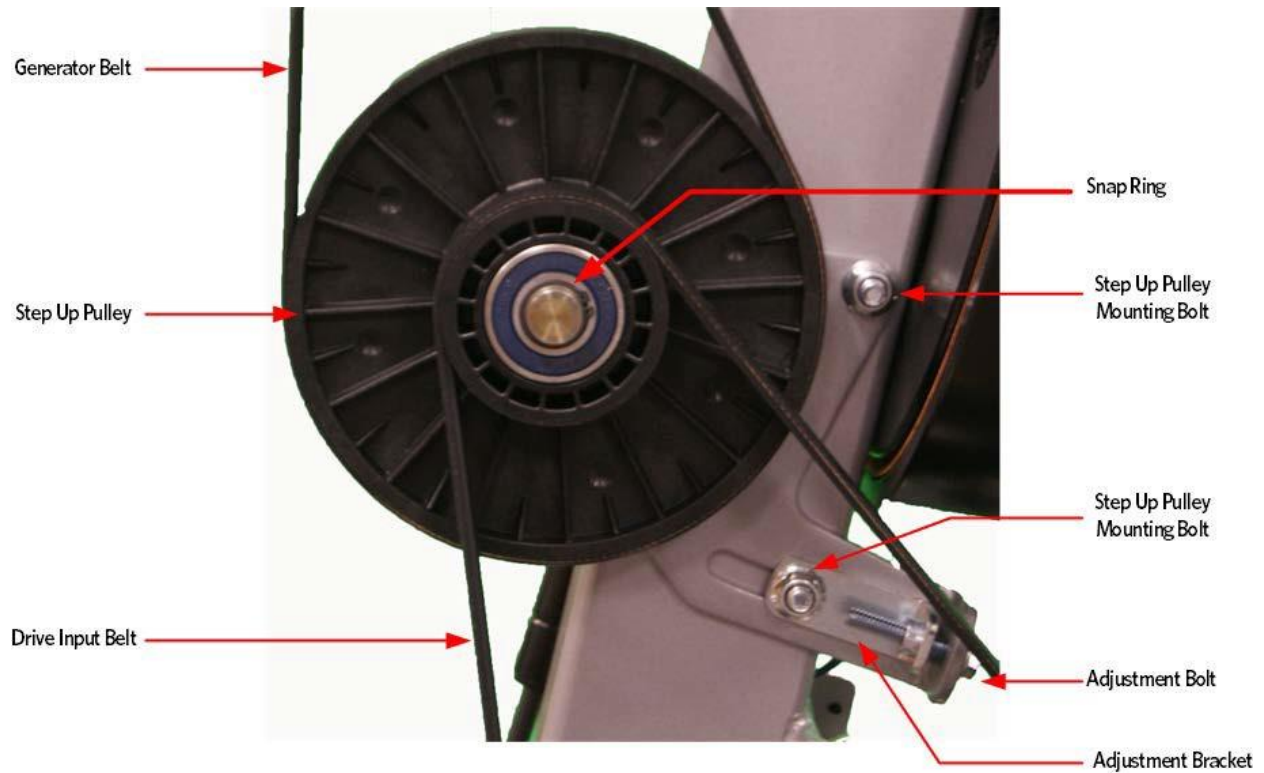
- 1 Remove the covers as per procedure, *Cover Replacement*.
- 2 Remove the tension from the inner flat belt pulleys by lifting up on the stairarms, **pulling the flat belts off the flat belt pulleys, and then gently setting the stairarm down.**
- 3 Loosen the two generator mounting bolts.
- 4 Lower the generator by loosening the generator adjustment bolts until the top of the bracket slots are resting on the generator mounting bolts.

Figure 236: Generator



- 5 Loosen the two bolts that secure the Step-Up pulley mounting bracket bolts to the frame.
- 6 Loosen the adjustment bolt for the Step-Up pulley until tension has been removed from the input pulley belt and it can be removed from the pulleys.

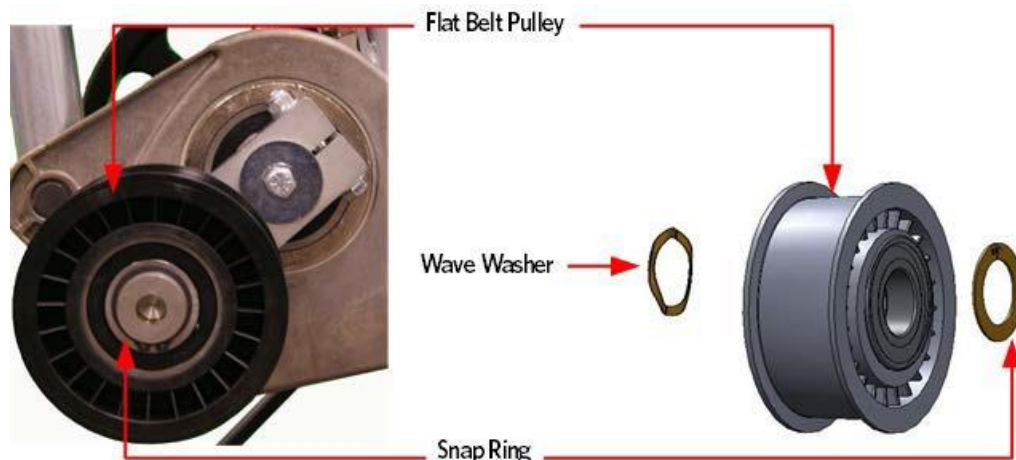
Figure 237: Step-Up pulley



7 Remove the snap ring from the flat belt pulley shaft located on the drive input pulley. Remove the pulley and wave washer.

8 On the crank arm side of the drive input, remove the snap ring from the flat pulley shaft located on to the drive input pulley, remove the pulley and wave washer.

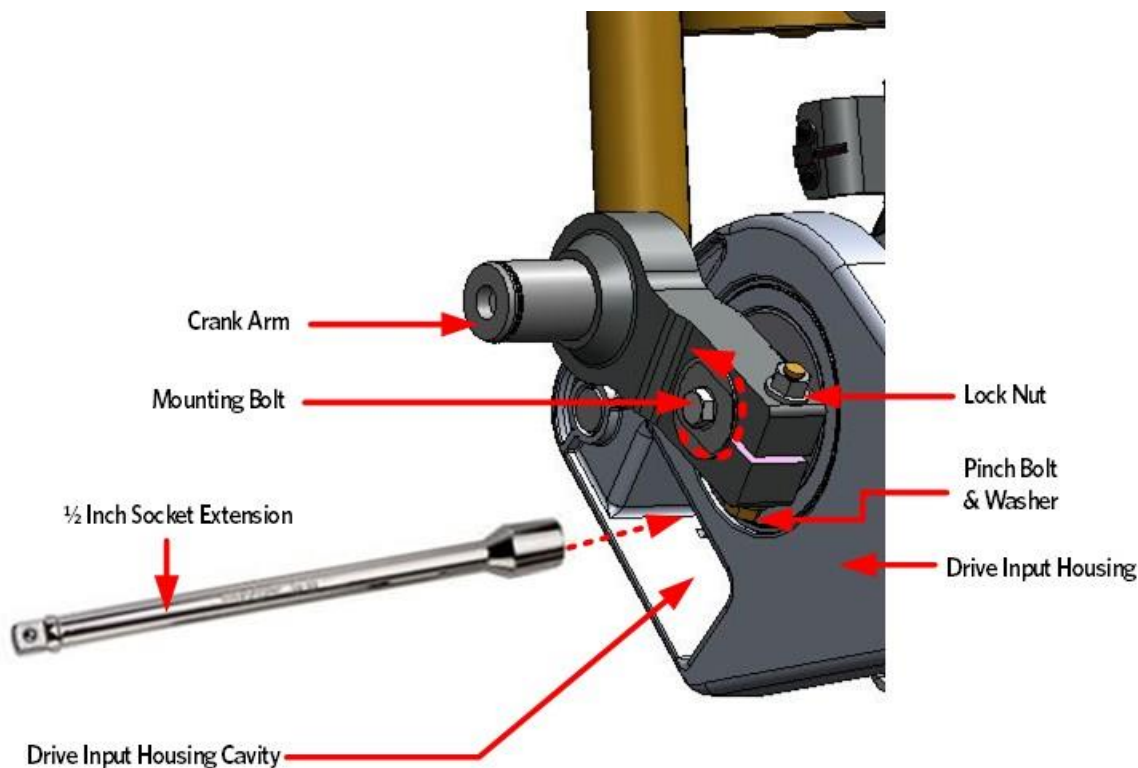
Figure 238: Crank Arm Flat Belt Pulley



9 Loosen the crank arm pinch bolt, washer and lock nut.

10 To loosen the crank arm mounting bolt, insert a socket extension about twelve inches long or equivalent in the drive input housing cavity, just below the crank arm to prevent rotation. Remove the crank arm bolt, washer and crank arm. It may be necessary to use a Pitman arm puller or a 4 to 6 inch gear puller to remove the crank arm. Do not use a hammer or mallet to remove the crank arm.

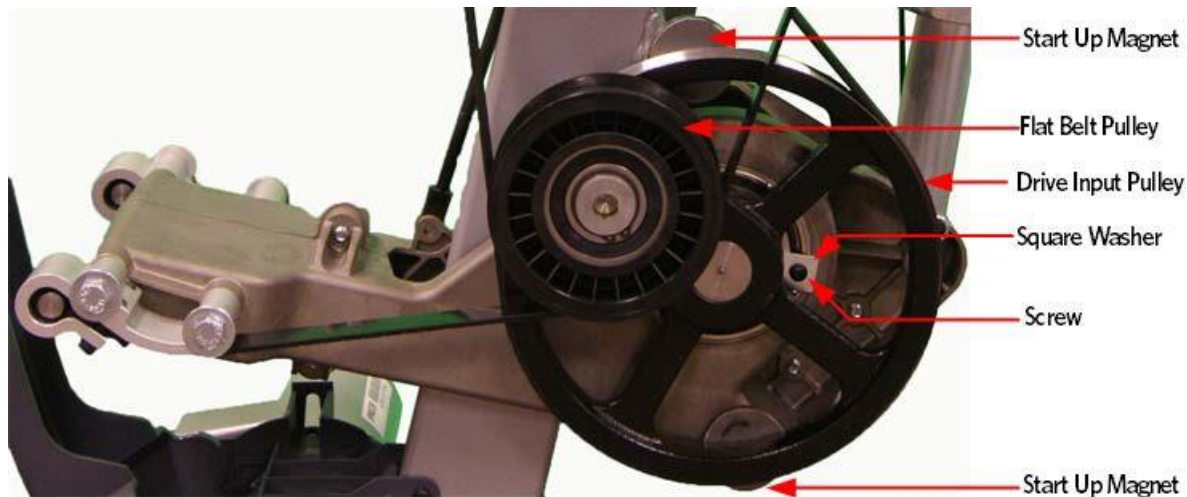
Figure 239: Crank Arm Bolt Removal/ Installation



11 Remove the screw and square washer that secures the drive input pulley assembly to the drive input housing. Pull the drive input pulley out of the housing.

Note: If necessary a rubber mallet can be used to dislodge the input pulley assembly from the housing by tapping on the input shaft from the crank arm side.

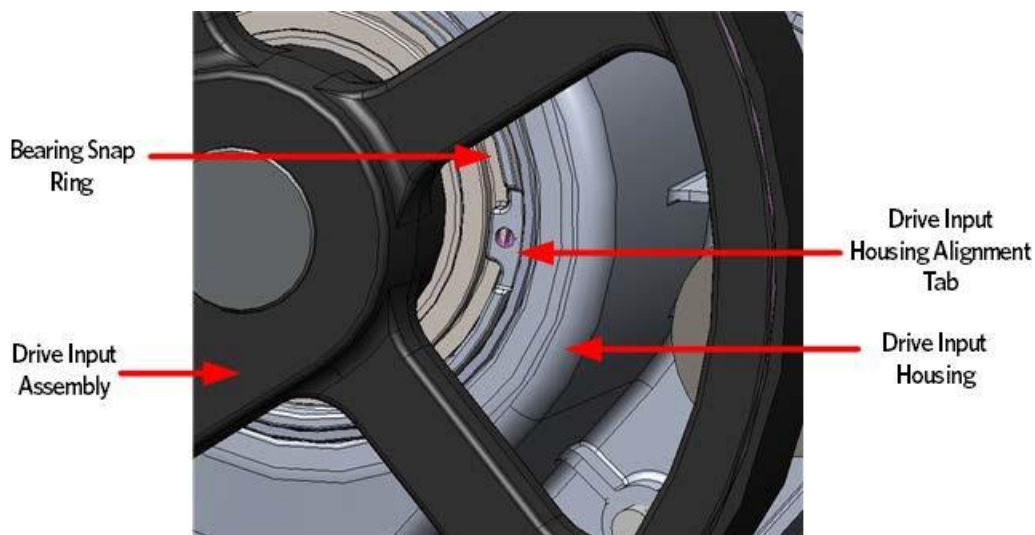
Figure 240: Drive Input Assembly



12 Install the replacement drive input assembly by aligning the bearing snap ring opening with tab of the drive input housing.

13 Fasten the drive input assembly to the drive input housing using the screw and square washer. Make sure that the square washer does not contact the drive input pulley after installation, test by spinning the drive input pulley through its full range.

Figure 241: Drive Input Assembly Alignment



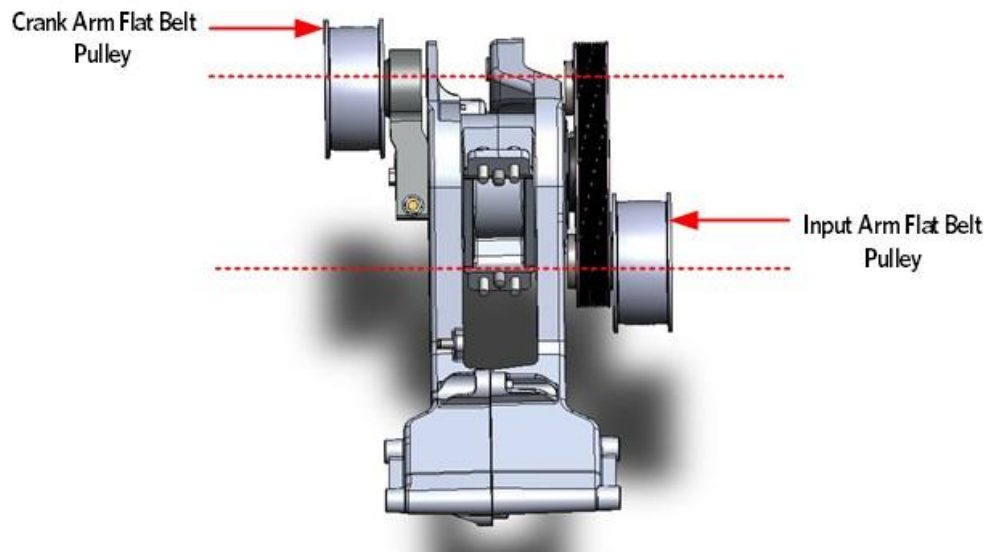
14 Replace the drive input belt over the drive input pulley and the Step-Up pulley.

15 Place the crank arm on the shaft and secure the crank arm with mounting bolt and washer. To tighten the crank arm mounting bolt, insert a socket extension about twelve inches long or equivalent in the drive input housing cavity, just below the crank arm to prevent rotation. Remove the crank arm.

bolt, washer and crank arm. Torque the mounting bolt to 300 inch pounds (25 ft-lbs) or 25 foot pounds.

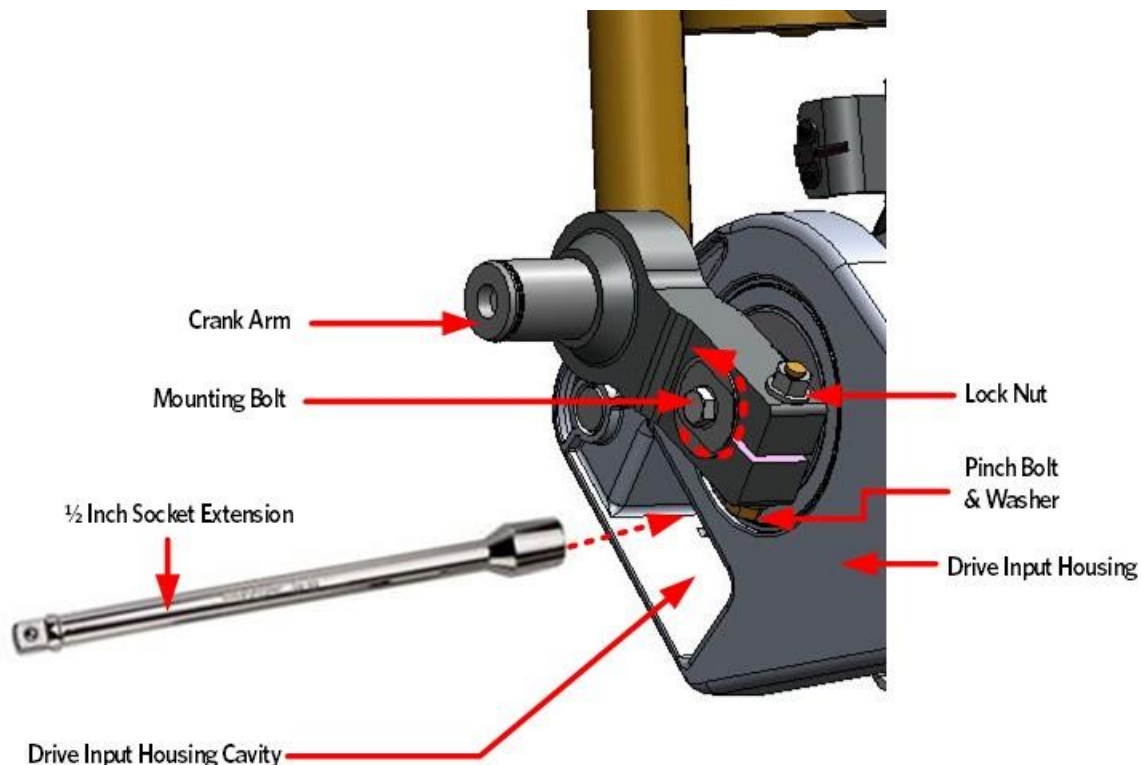
Note the position of the flat belt pulley on the crank arm and the flat belt pulley on the input pulley. When the crank arm is replaced, the flat belt pulleys must be positioned so that they are 180 degrees opposing.

Figure 242: Crank Arm Alignment



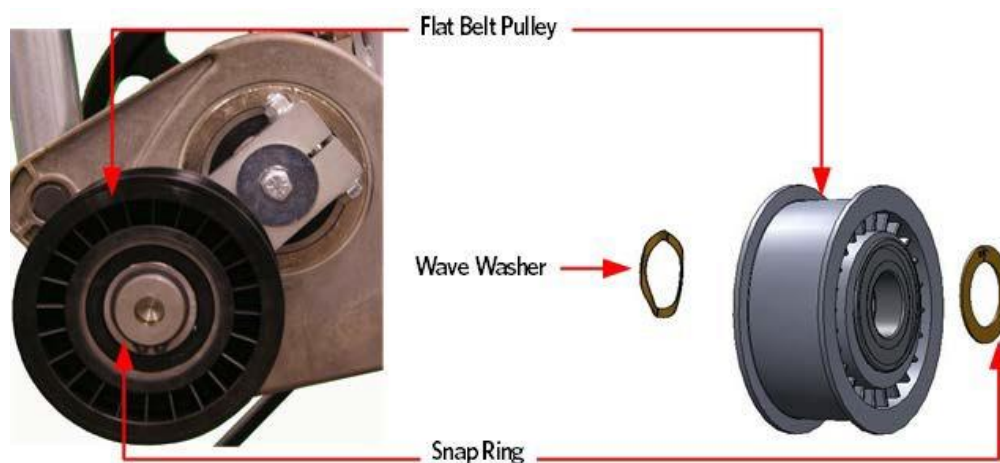
16 Install the crank arm pinch bolt, washer and lock nut. Torque the pinch bolt and lock nut to 300 inch pounds (25 ft-lbs) or 25 foot pounds.

Figure 243: Crank Arm Bolt Removal/ Installation



17 Replace the wave washer and flat belt pulley onto the crank arm shaft and secure with the snap ring. Make sure the snap ring is fully seated into the shaft groove.

Figure 244: Crank Arm Flat Belt Pulley



18 Replace the wave washer and flat belt pulley onto the drive input pulley shaft and secure with the snap ring. Make sure the snap ring is fully seated into the shaft groove.

19 Lift the stairarms and then thread the flat belts over the flat belt pulleys.

20 Go to "[Inspecting and Adjusting the Drive Input Belt Tension](#)" procedure and tension the

drive and generator belts to the specified tension.

21 Replace the covers as per procedure, **Cover Replacement**

22 Lift the stairarms and thread the flat belts through the pulleys.

23 Replace the covers as per procedure, **Cover Replacement**.

Replacing the Lift Arm Housing

Lift Arm Housing Replacement Procedure

1 Remove the covers as per procedure, **Cover Replacement**.

2 Remove the tension from the inner flat belt pulleys by lifting up on the stairarms, pulling the flat belts off the flat belt pulleys, and then gently setting the stairarm down.

3 Loosen the two generator mounting bolts.

4 Lower the generator by loosening the generator adjustment bolts until the top of the bracket slots are resting on the generator mounting bolts.

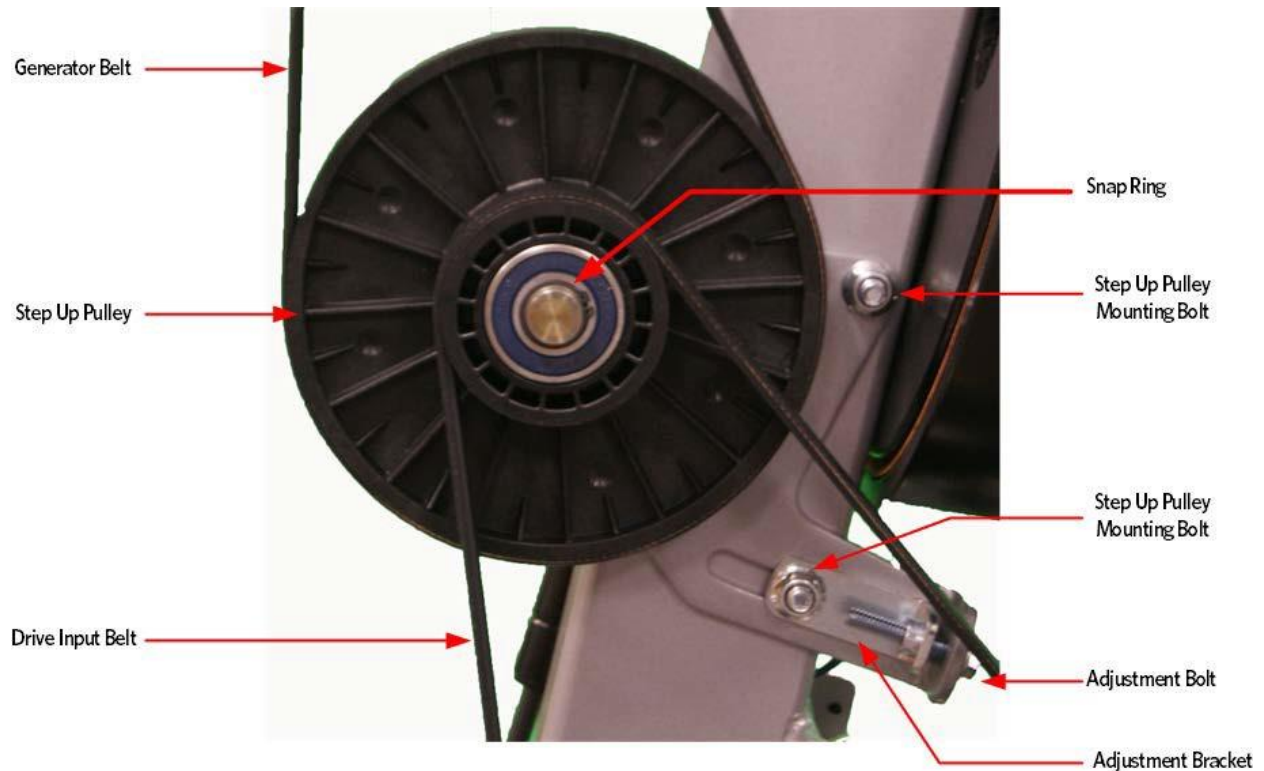
Figure 249: Generator



5 Loosen the two bolts that secure the Step-Up pulley mounting bracket bolts to the frame.

6 Loosen the adjustment bolt for the Step-Up pulley until tension has been removed from the input pulley belt and it can be removed from the pulleys.

Figure 250: Step-Up pulley



Gas Spring Removal

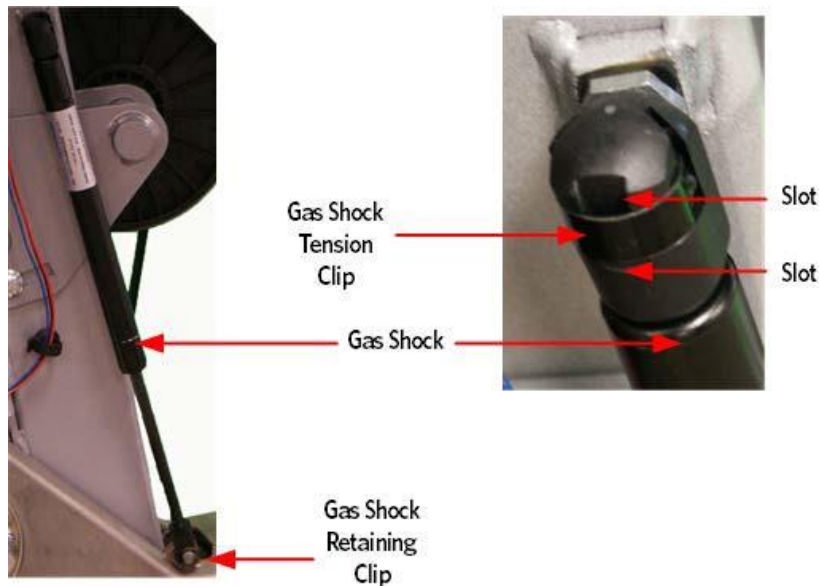
7 Release tension from the top of the gas spring by pushing a # 1 flat top screw driver in the slot under the tension clip. Do not completely remove the retaining clip as it is difficult to reinstall.

Tip: If the lift motor is jammed at full elevation, remove the lower retaining clip to facilitate the gas spring removal.

8 Using another flat head screw driver as a pry bar, place the screw driver head between the frame and the top of the gas spring and pry the shock off the upper mounting stud.

9 Rotate the gas spring down and out of the way of the lift motor.

Figure 251: Gas Spring



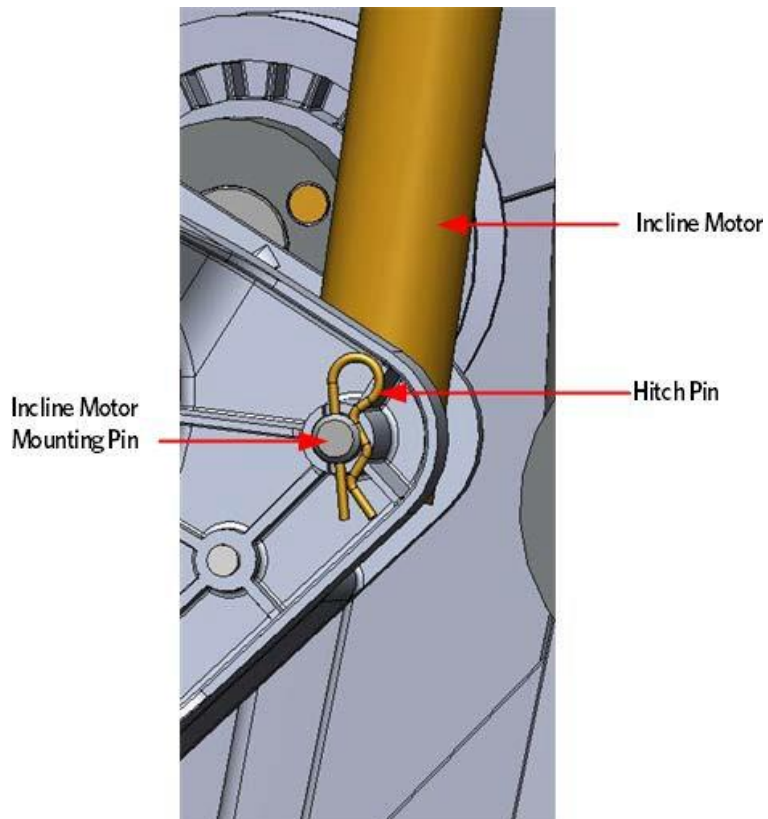
10 Using needle nosed pliers, pull the retaining clip off the lower gas mounting stud and remove shock.

lift motor Removal

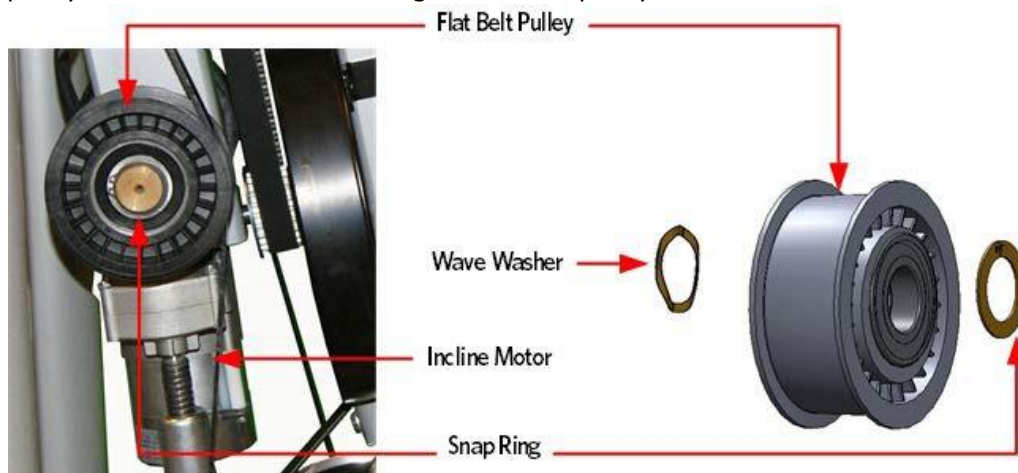
11 Remove the hitch pin from the lift motor mounting pin.

12 Remove the lift motor mounting pin. If the Incline is jammed or has excessive pressure on the pin, it may be necessary to drive the pin out of the lift motor tube and lift arm assembly using a punch and rubber mallet.

Figure 252: lift motor Hitch Pin and Mounting Pin

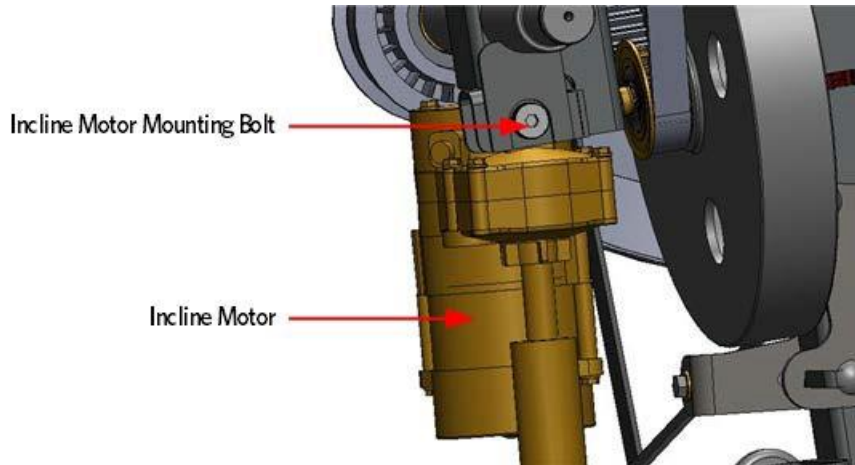


13 Remove the snap ring from the flat belt pulley shaft located next to the lift motor..Remove the pulley and wave washer. Removing the flat belt pulley will allow access to the lift motor mounting bolt.



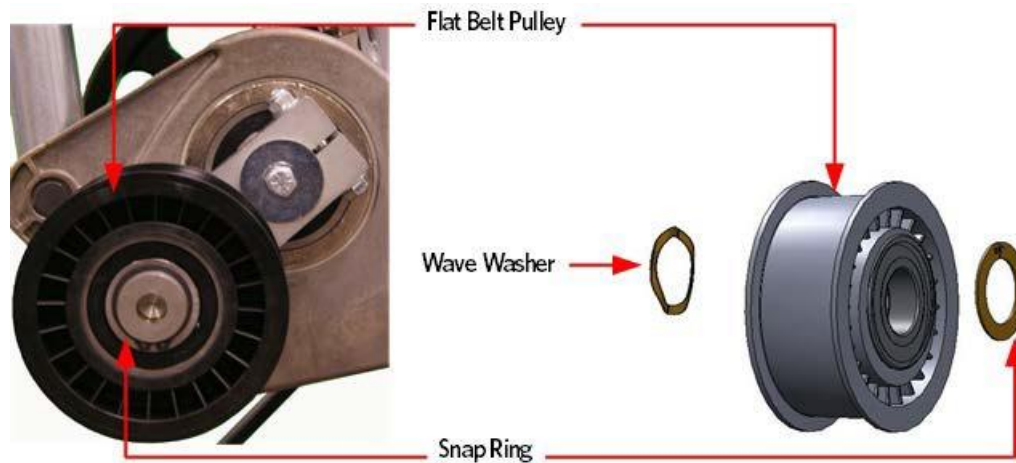
14 Remove the lift motor mounting bolt and remove the lift motor.

Figure 253: lift motor Mounting



15 On the crank arm side of the drive input, remove the snap ring from the flat pulley shaft located on to the drive input pulley, remove the pulley and wave washer.

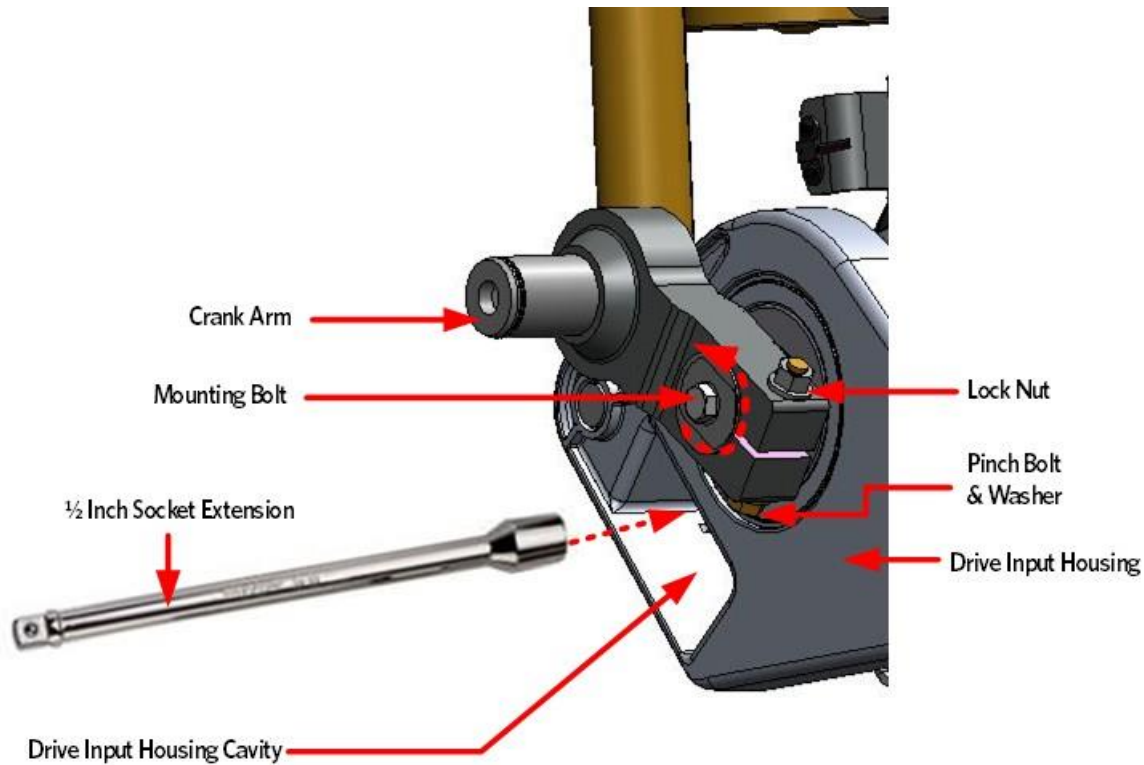
Figure 254: Crank Arm Flat Belt Pulley



16 Loosen the crank arm pinch bolt, washer and lock nut.

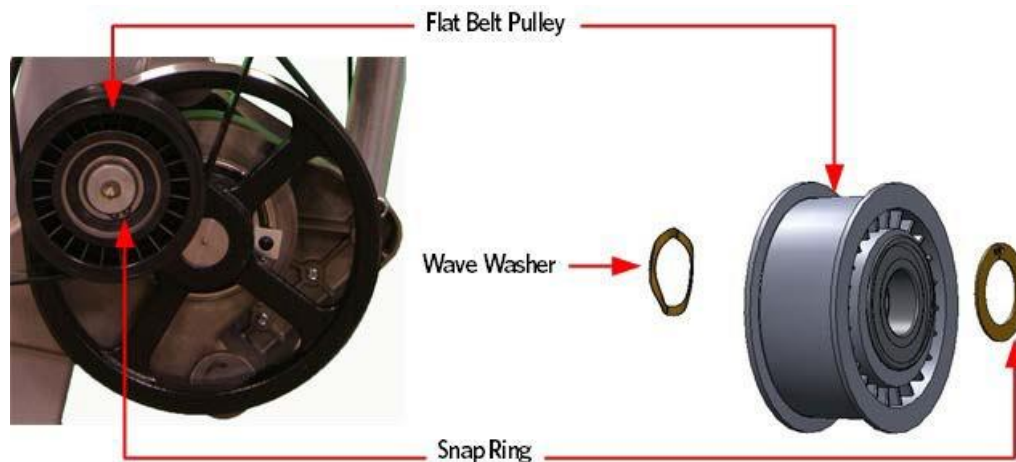
17 To loosen the crank arm mounting bolt, insert a socket extension about twelve inches long or equivalent in the drive input housing cavity, just below the crank arm to prevent rotation. Remove the crank arm bolt, washer and crank arm. It may be necessary to use a Pitman arm puller or a 4 to 6 inch gear puller to remove the crank arm. Do not use a hammer or mallet to remove the crank arm.

Figure 255: Crank Arm Bolt Removal/ Installation



18 Remove the snap ring from the flat pulley shaft located on to the drive input pulley, remove the pulley and wave washer.

Figure 256: Drive Input Flat Belt Pulley



19 Remove the screw and square washer that secures the drive input pulley assembly to the drive input housing. Pull the drive input pulley out of the housing.

Note: If necessary a rubber mallet can be used to dislodge the input pulley assembly from the housing by tapping on the input shaft.

Figure 257: Drive Input Assembly

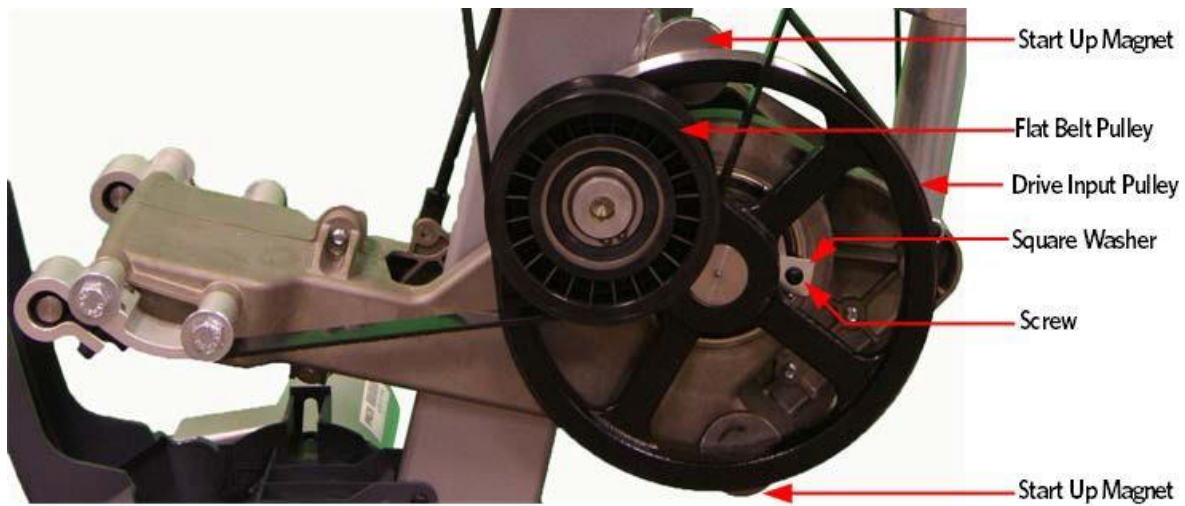
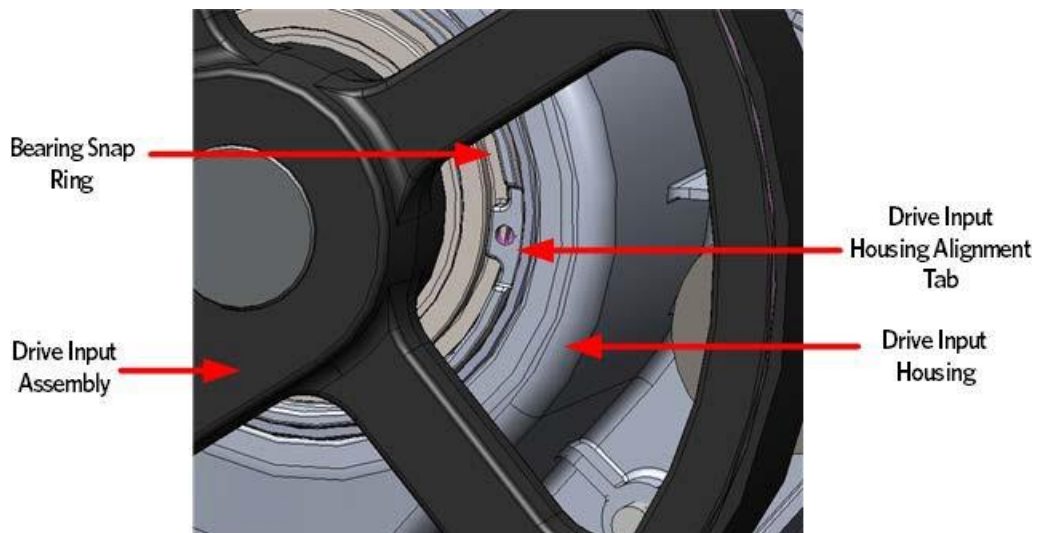
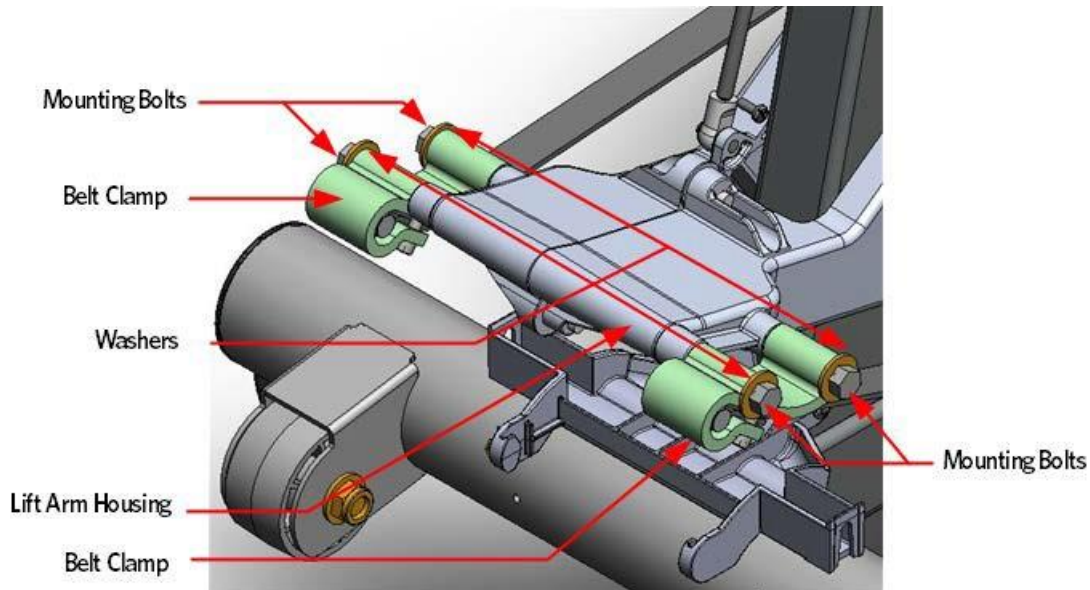


Figure 258: Drive Input Assembly Alignment



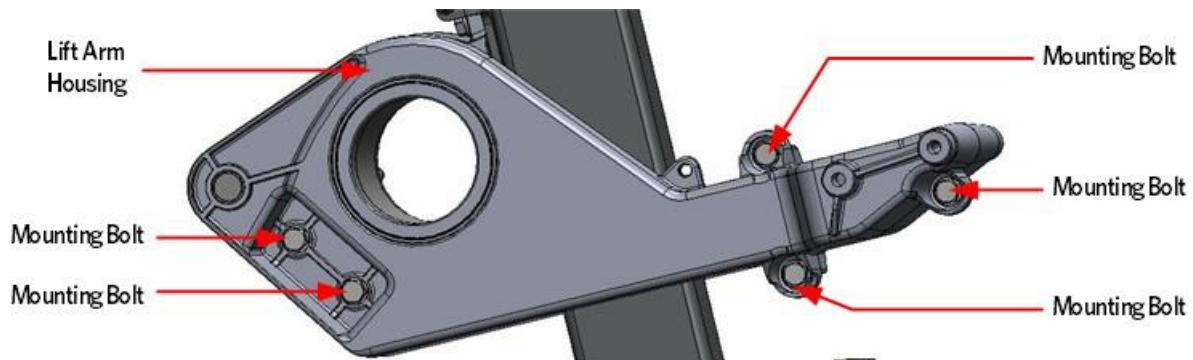
20 Remove the four mounting bolts and washers that secure the flat belt clamps to the Lift Arm.

Figure 259: Lift Arm and Belt Clamps



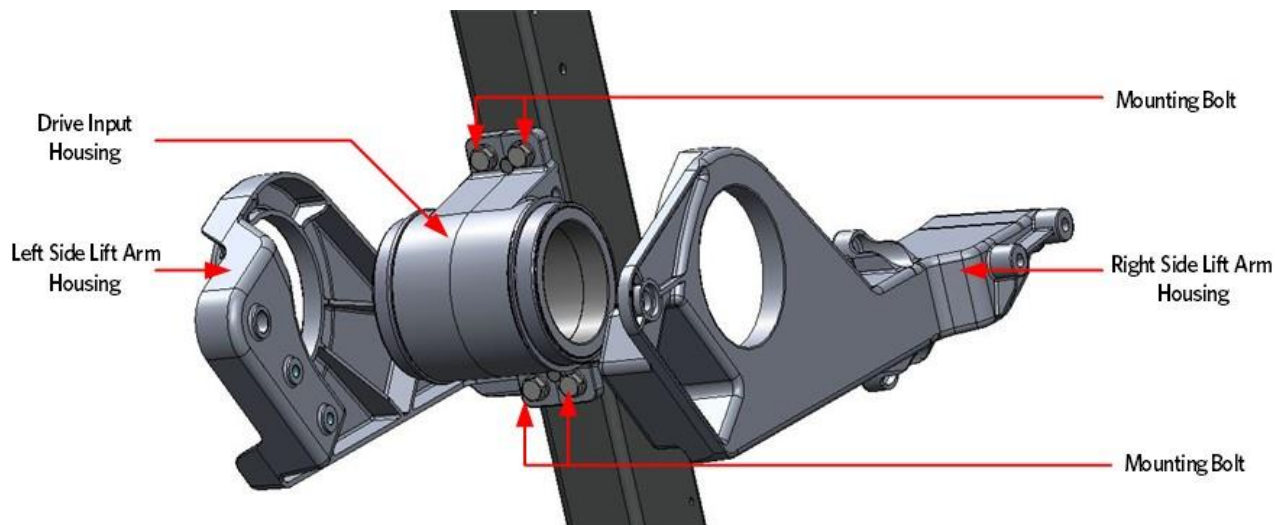
21 Remove the five mounting bolts that secure the left and right side arm housings to the input housing.

Figure 260: Lift Arm Mounting Bolts



22 Separate the left and right side arm housings from the input housing.

Figure 261: Lift Arm Housing and Drive Input Housing

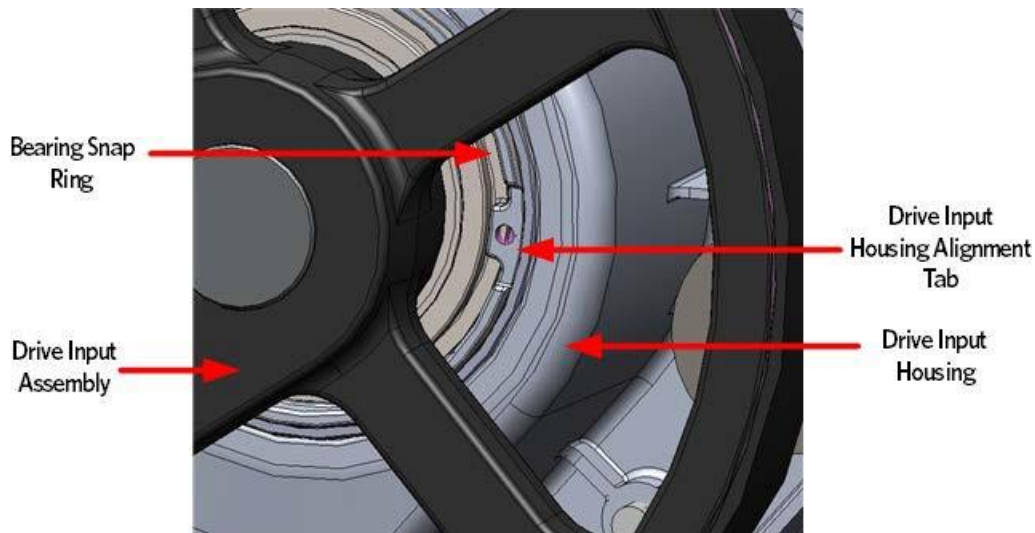


23 Assemble the left and right side arm housings on the drive input housing and secure with the five mounting bolts, torque the bolts to 160 inch pounds.

24 Install the drive input assembly by aligning the bearing snap ring opening with tab of the drive input housing.

25 Fasten the drive input assembly to the drive input housing using the screw and square washer. Make sure that the square washer does not contact the drive input pulley after installation, test by spinning the drive input pulley through its full range.

Figure 262: Drive Input Assembly Alignment

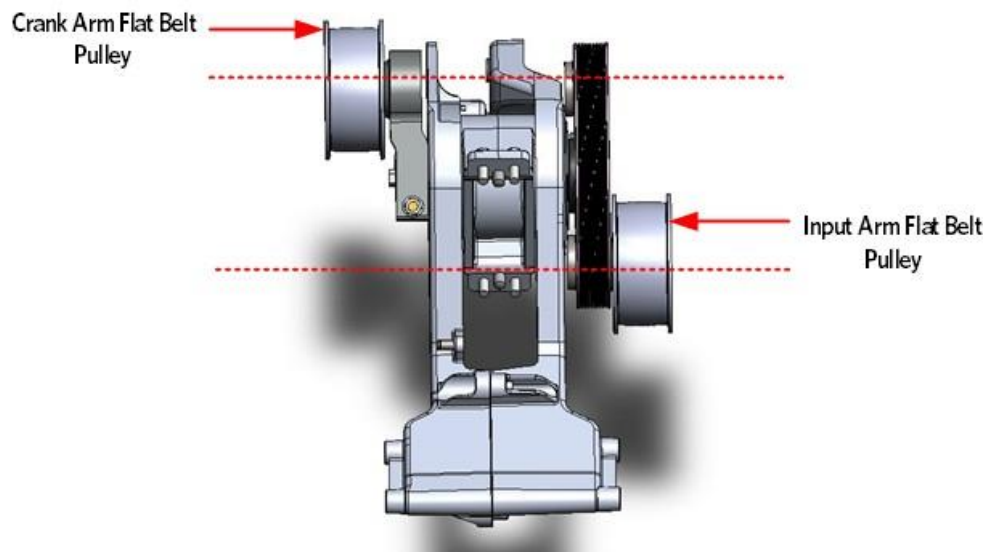


26 Replace the drive input belt over the drive input pulley and the Step-Up pulley.

27 Place the crank arm on the shaft and secure the crank arm with mounting bolt and washer. To tighten the crank arm mounting bolt, insert a socket extension about twelve inches long or equivalent in the drive input housing cavity, just below the crank arm to prevent rotation. Remove the crank arm bolt, washer and crank arm. Torque the mounting bolt to 300 inch pounds (25 ft-lbs) or 25 foot pounds.

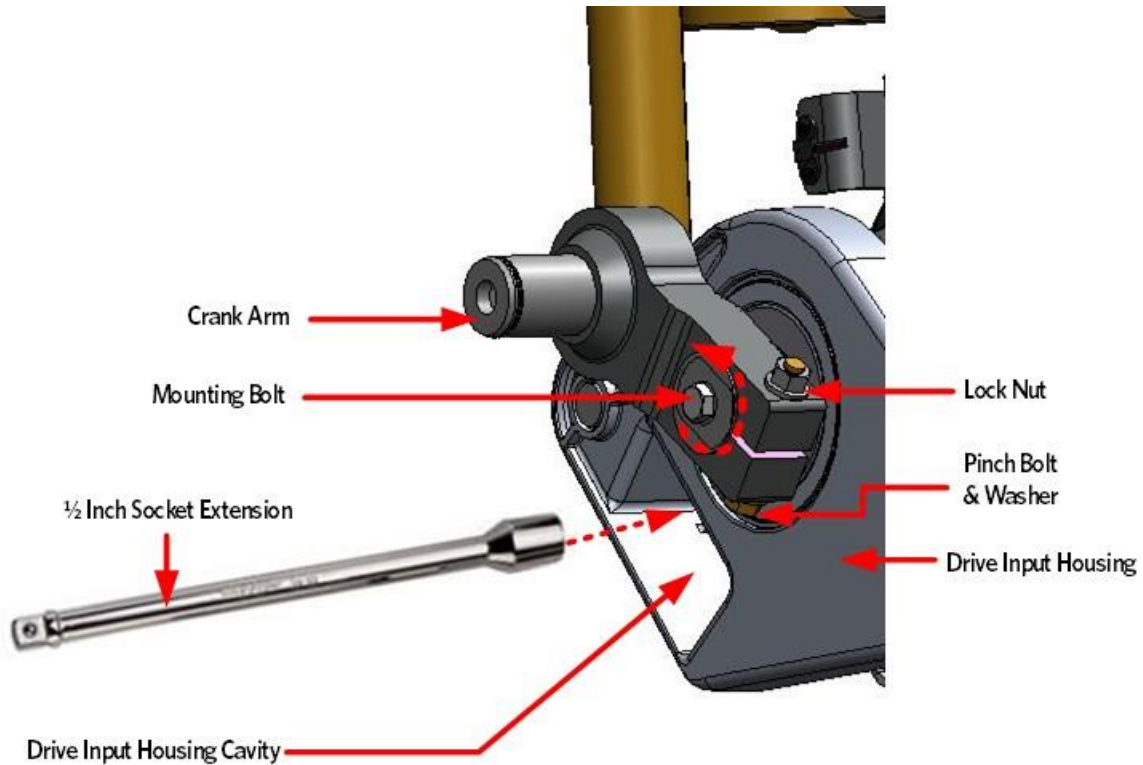
Note The position of the flat belt pulley on the crank arm and the flat belt pulley on the input pulley. When the crank arm is replaced, the flat belt pulleys must be positioned so that they are 180 degrees opposing.

Figure 263: Crank Arm Alignment



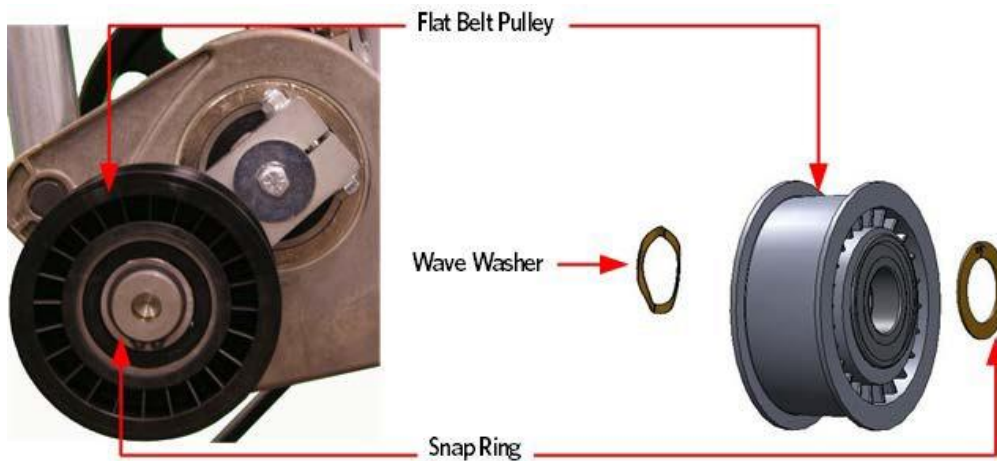
28 Install the crank arm pinch bolt, washer and lock nut. Torque the pinch bolt and lock nut to 300 inch pounds (25 ft-lbs) or 25 foot pounds.

Figure 264: Crank Arm Bolt Removal/ Installation



29 Replace the wave washer and flat belt pulley onto the crank arm shaft and secure with the snap ring. Make sure the snap ring is fully seated into the shaft groove.

Figure 265: Crank Arm Flat Belt Pulley



35 Install the generator and input drive belts.

36 Lift the stairarms and then thread the flat belts over the flat belt pulleys.

37 Go to "[Inspecting and Adjusting the Drive Input Belt Tension](#)" procedure and tension the drive and generator belts to the specified tension.

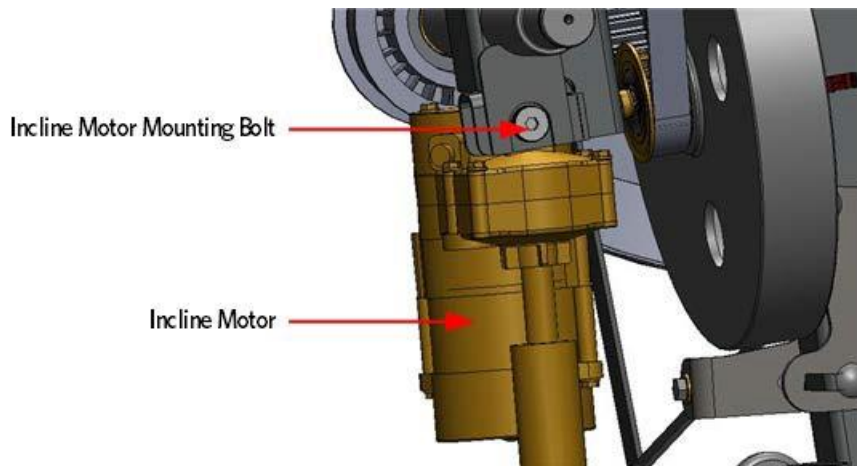
38 Replace the covers as per procedure, *Cover Replacement*

39 Replace the covers as per procedure, *Cover Replacement*.

lift motor Installation

42 Attach the replacement lift motor to the frame using the 3/8-16 mounting bolt.

Figure 270: lift motor Mounting



43 Connect the lift motor cable connector to the lower PCA and replace the lower PCA cover as per procedure, ***Replacing the Lower PCA and Battery Bracket.***

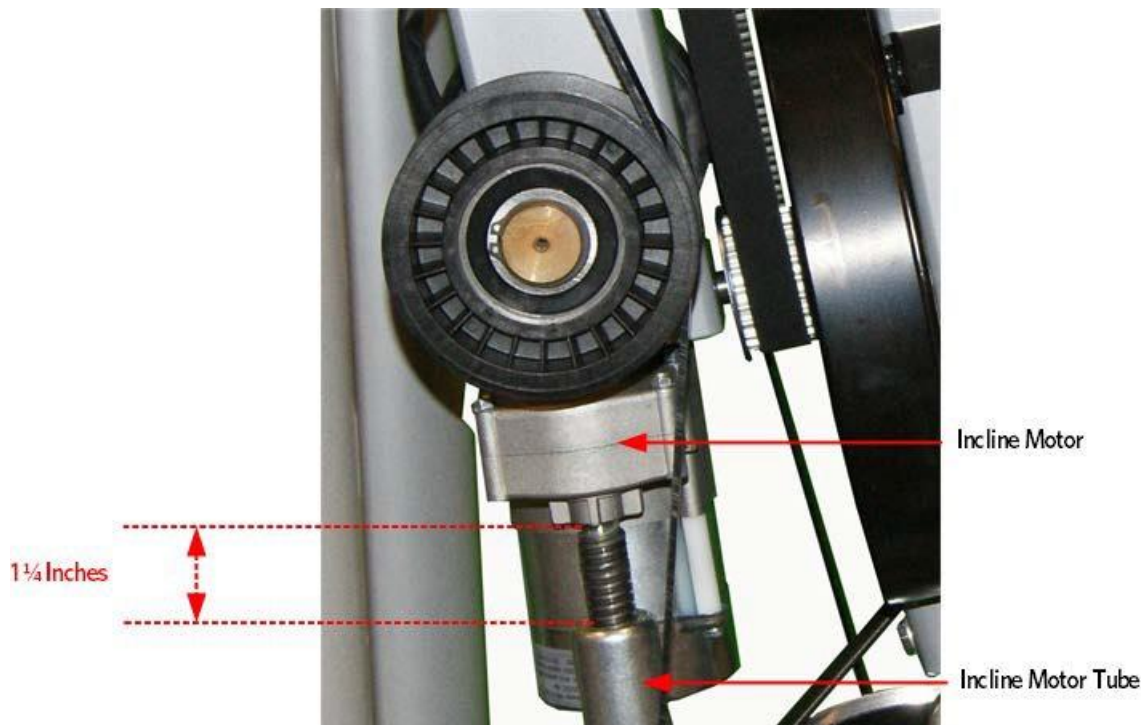
44 Access the incline Lift Test portion of the Diagnostic Program, see Accessing the P30 Diagnostic Software (on page 13) , P80 Settings .

45 With the lift incline number displayed, set the incline to level 2 using the STRIDE HEIGHT **↑** and STRIDE HEIGHT **↓** keys

46 Rotate the lift motor tube on the lift motor drive screw until the measurement between the top of the incline nut and the end of the lift motor drive screw is 1-1/4 inches.

Note: When rotating the lift motor tube, do not allow the lift motor drive screw to rotate. If the lift motor drive screw rotates, the lift level number will change. The lift level number must be 2 and the physical measurement must be 1-1/4 inches for the calibration to be correct.

Figure 271: lift motor Calibration Measurement



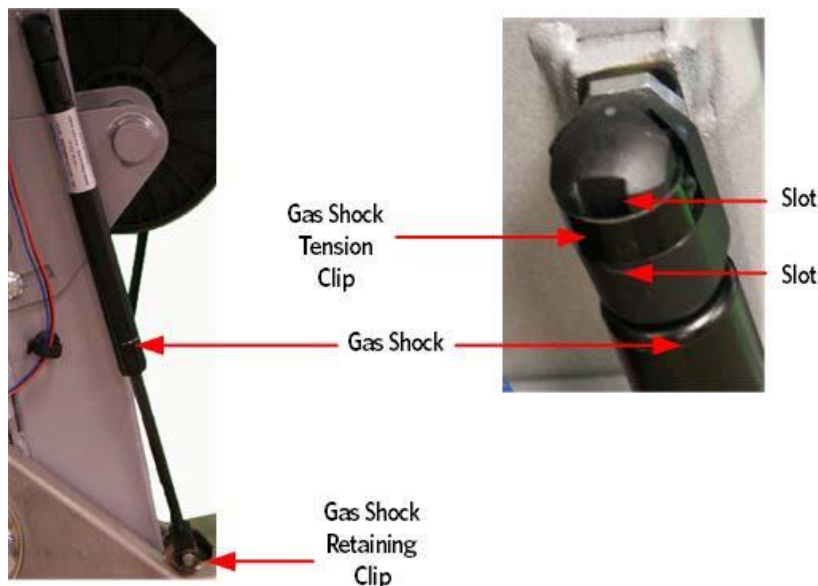
Gas Spring Installation

47 Rotate the gas spring up.

48 Adjust the height of the gas spring by lowering or raising the front of the lift arm assembly until the gas spring and the upper mounting stud align.

49 Press the gas spring onto the mounting stud and secure the gas spring to the upper mounting stud by pushing in on the tension clip.

Figure 272: Gas Spring



TIP: It is recommended to have assistance available for following step(s).

50 With the assistance, lift the front of the lift arm assembly until the lift motor extension fube mounting holes align with the lift arm assembly mounting holes.

51 Replace the lift motor mounting pin through the lift motor extension fube and lift arm assembly and attach the hitch pin.

52 Replace the wave washer and flat belt pulley, secure the flat belt pulley with the snap ring.

53 Secure the flat belt clamps the lift arm housing using the four 3/8-16 X 3 mounting bolts and washers.

54 Lift the stairarms and thread the flat belts through the pulleys.

55 Replace the covers as per procedure, [Cover Replacement](#).

Replacing the drive input housing

Drive Input Housing Replacement Procedure

1 Remove the covers as per procedure, [Cover Replacement](#).

2 Remove the tension from the inner flat belt pulleys by lifting up on the stairarms, pulling the flat belts off the flat belt pulleys, and then gently setting the stairarm down.

3 Loosen the two generator mounting bolts.

4 Lower the generator by loosening the generator adjustment bolts until the top of the bracket slots are resting on the generator mounting bolts.

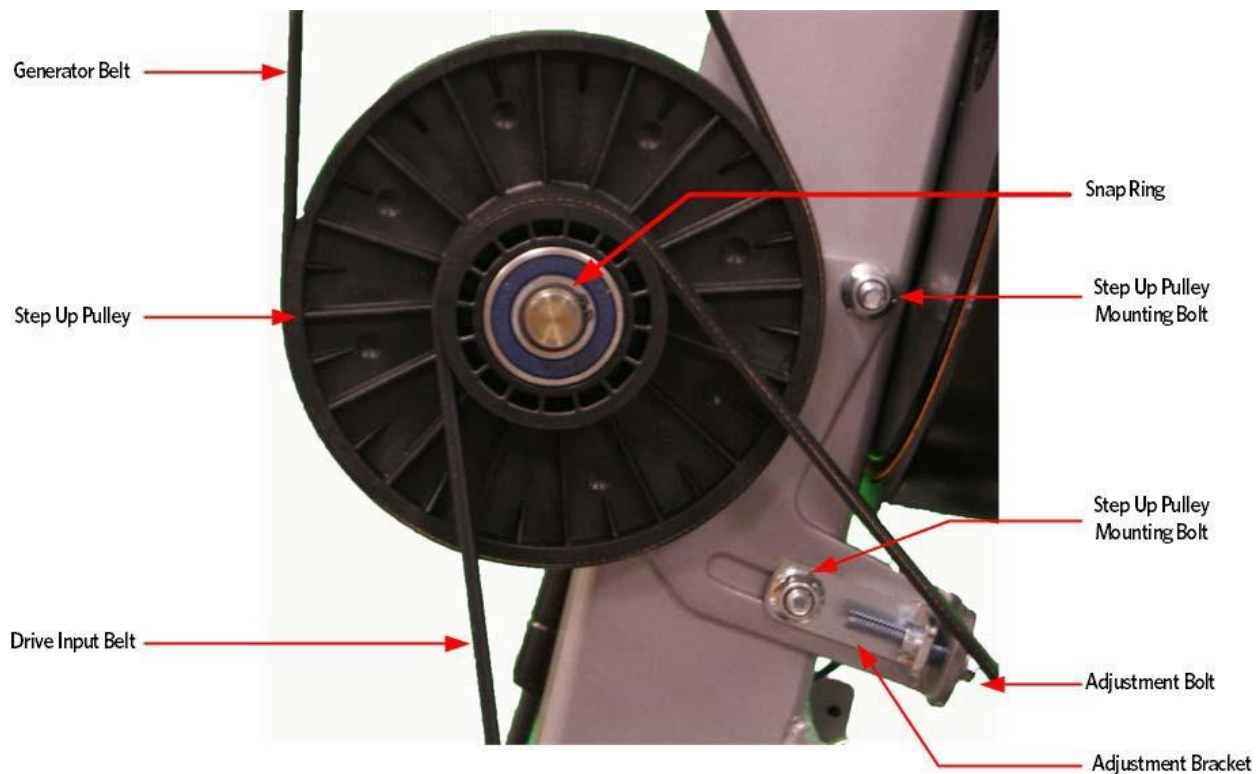
Figure 273: Generator



5 Loosen the two bolts that secure the Step-Up pulley mounting bracket bolts to the frame.

6 Loosen the adjustment bolt for the Step-Up pulley until tension has been removed from the input pulley belt and it can be removed from the pulleys.

Figure 274: Step-Up pulley



Gas Spring Removal

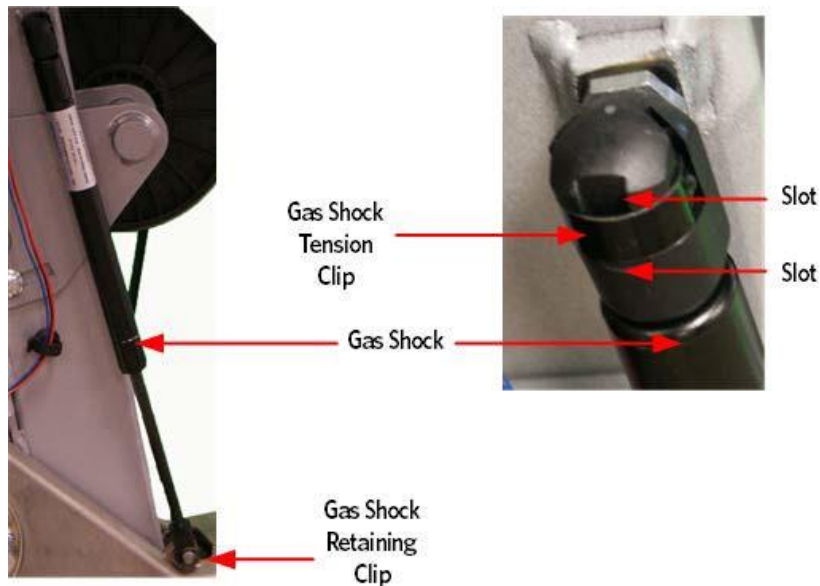
7 Release tension from the top of the gas spring by pushing a # 1 flat top screw driver in the slot under the tension clip. Do not completely remove the retaining clip as it is difficult to reinstall.

Tip: If the lift motor is jammed at full elevation, remove the lower retaining clip to facilitate the gas spring removal.

8 Using another flat head screw driver as a pry bar, place the screw driver head between the frame and the top of the gas spring and pry the shock off the upper mounting stud.

9 Rotate the gas spring down and out of the way of the lift motor.

Figure 275: Gas Spring



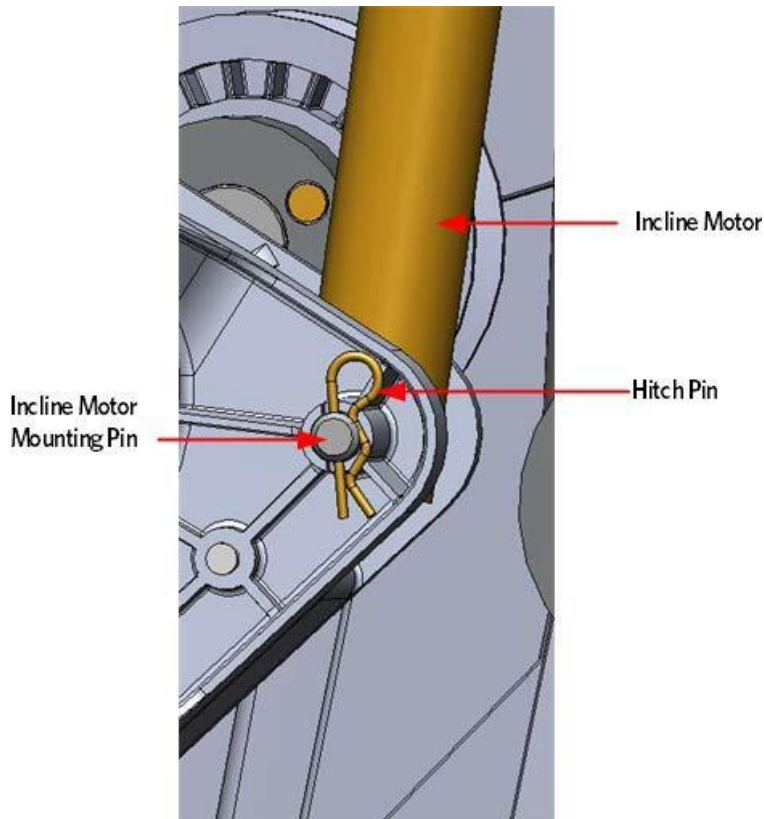
10 Using needle nosed pliers, pull the retaining clip off the lower gas mounting stud and remove shock.

lift motor Removal

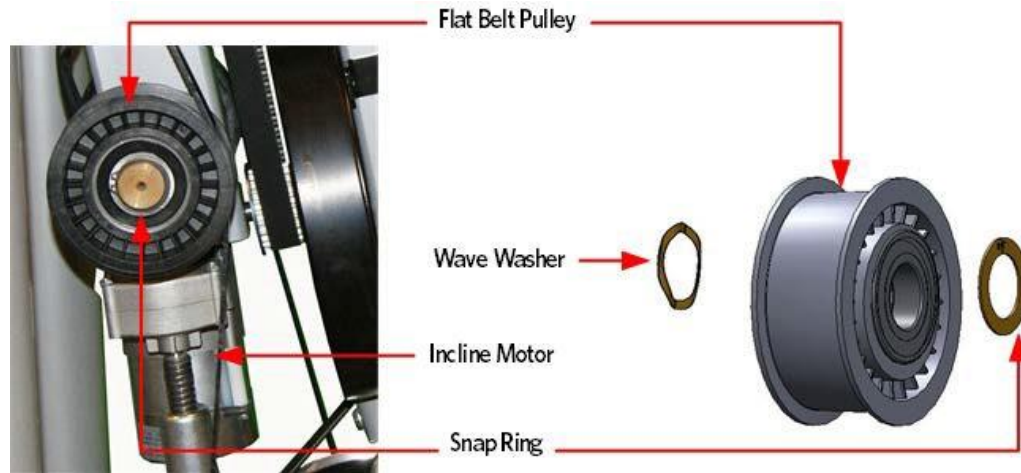
11 Remove the hitch pin from the lift motor mounting pin.

12 Remove the lift motor mounting pin. If the Incline is jammed or has excessive pressure on the pin, it may be necessary to drive the pin out of the lift motor tube and lift arm assembly using a punch and rubber mallet.

Figure 276: lift motor Hitch Pin and Mounting Pin

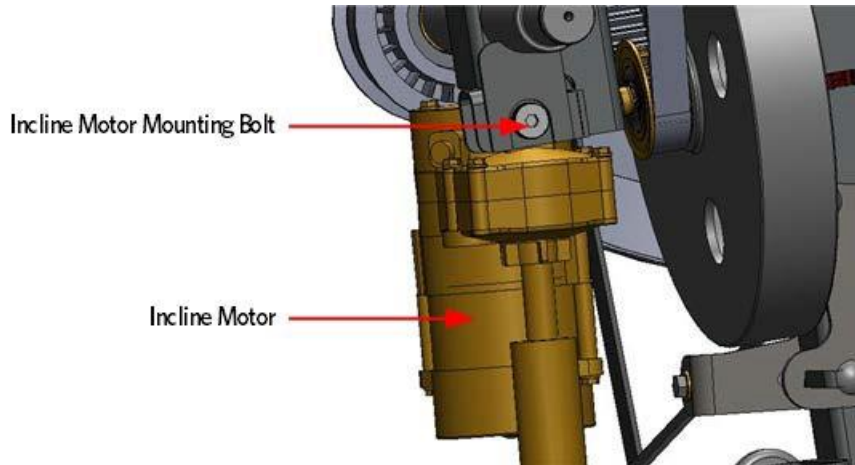


13 Remove the snap ring from the flat belt pulley shaft located next to the lift motor. Remove the pulley and wave washer. Removing the flat belt pulley will allow access to the lift motor mounting bolt.



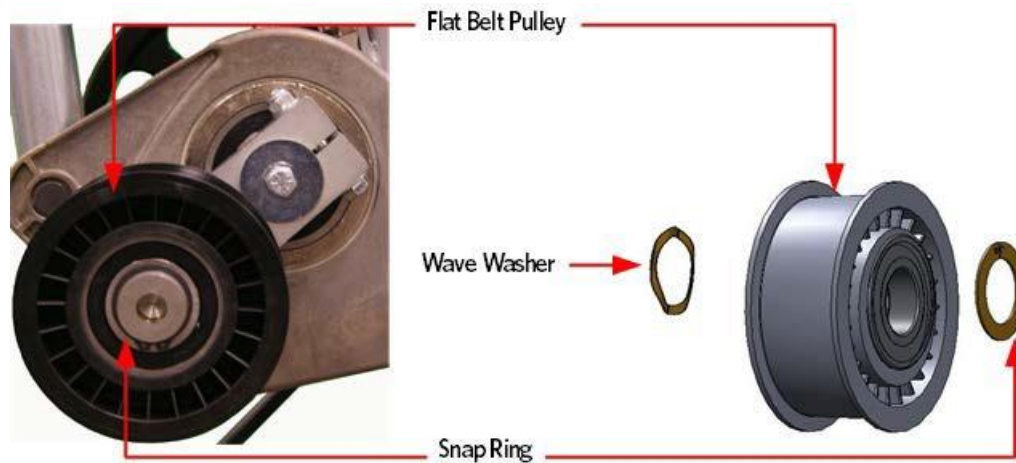
14 Remove the lift motor mounting bolt and remove the lift motor.

Figure 277: lift motor Mounting



15 On the crank arm side of the drive input, remove the snap ring from the flat pulley shaft located on to the drive input pulley, remove the pulley and wave washer.

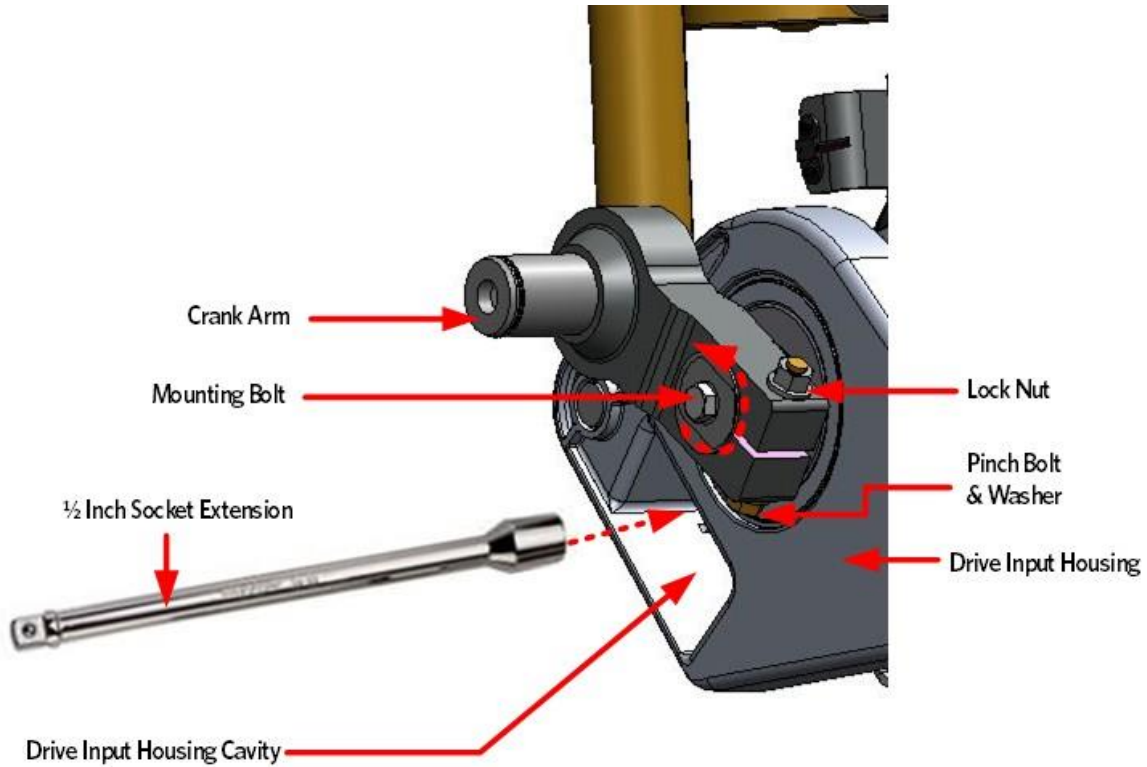
Figure 278: Crank Arm Flat Belt Pulley



16 Loosen the crank arm pinch bolt, washer and lock nut.

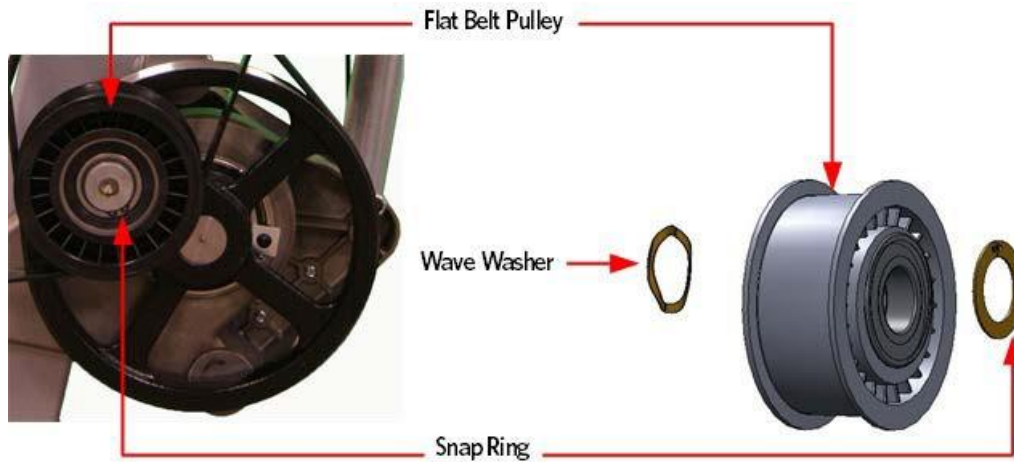
17 To loosen the crank arm mounting bolt, insert a socket extension about twelve inches long or equivalent in the drive input housing cavity, just below the crank arm to prevent rotation. Remove the crank arm bolt, washer and crank arm. It may be necessary to use a Pitman arm puller or a 4 to 6 inch gear puller to remove the crank arm. Do not use a hammer or mallet to remove the crank arm.

Figure 279: Crank Arm Bolt Removal/ Installation



- 18 Drive Input Housing Cavity
- 19 Remove the snap ring from the flat pulley shaft located on to the drive input pulley, remove the pulley and wave washer.

Figure 280: Drive Input Flat Belt Pulley



- 20 Remove the screw and square washer that secures the drive input pulley assembly to the drive input housing. Pull the drive input pulley out of the housing.

Note: If necessary a rubber mallet can be used to dislodge the input pulley assembly from the housing by tapping on the input shaft.

Figure 281: Drive Input Assembly

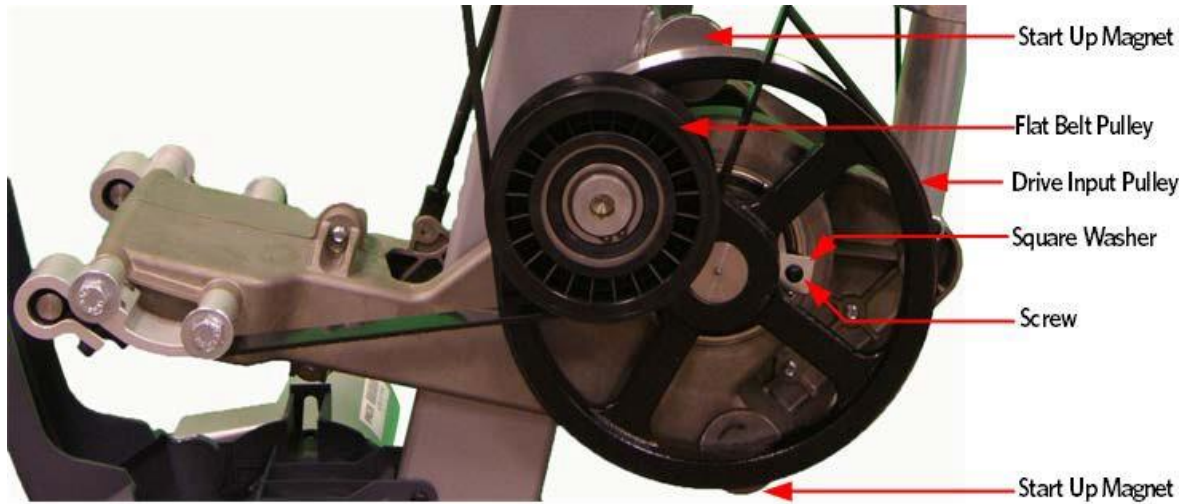
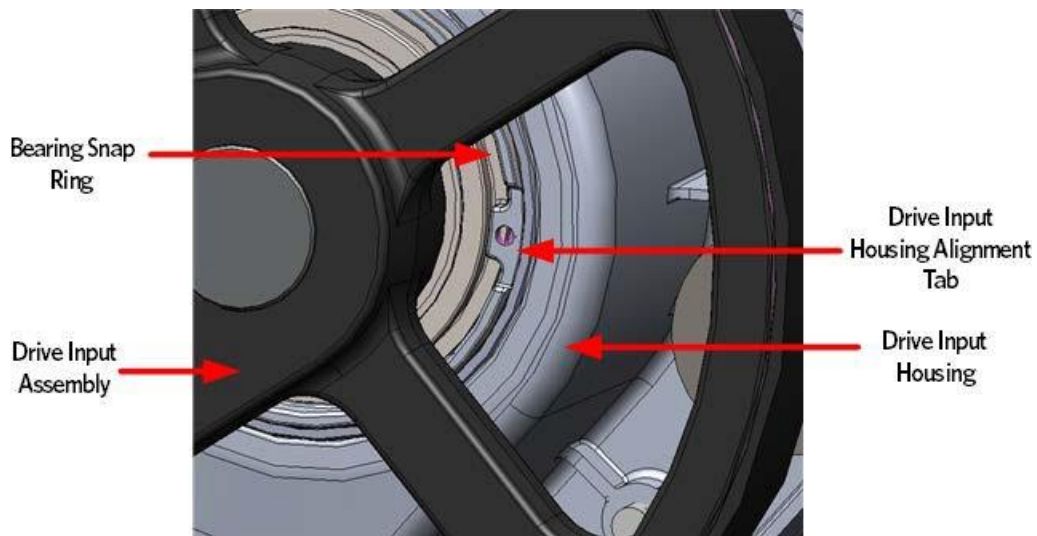
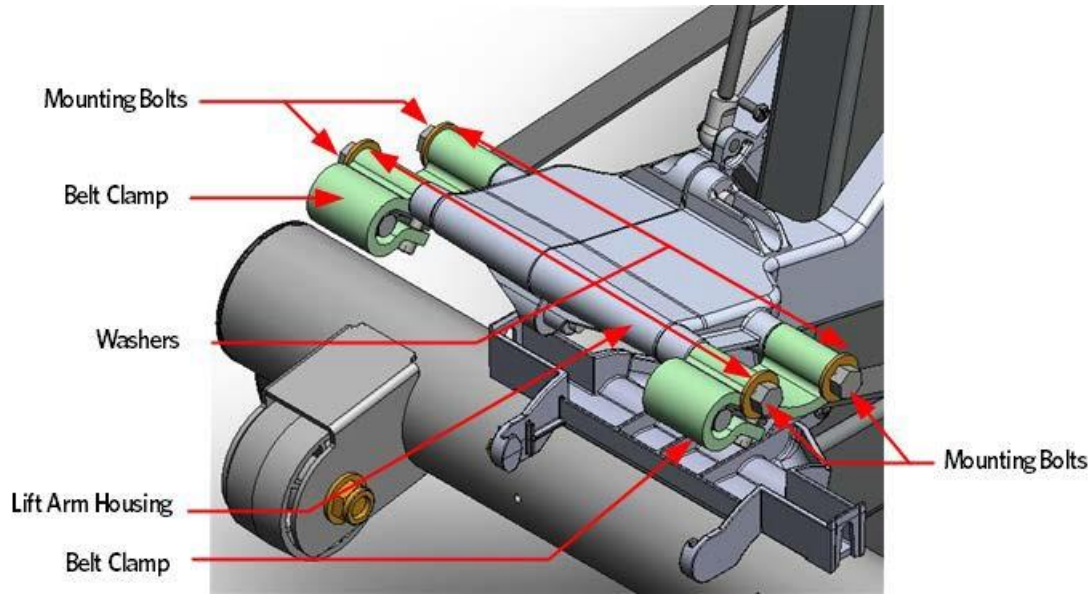


Figure 282: Drive Input Assembly Alignment



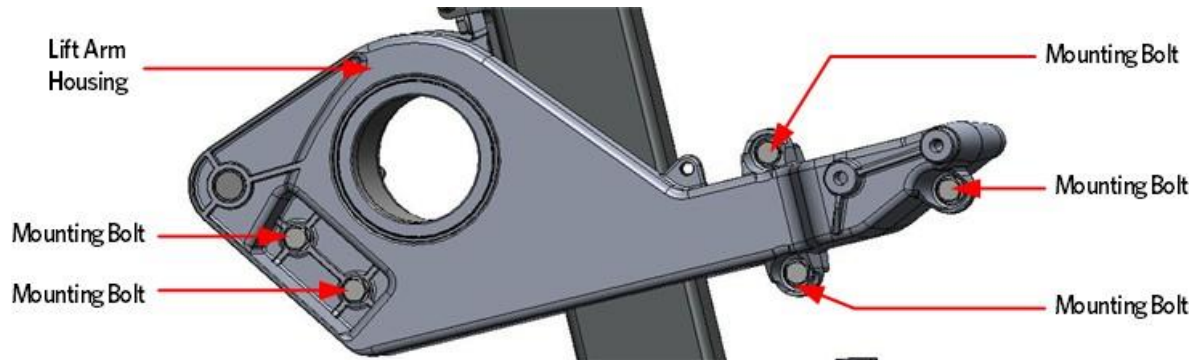
21 Remove the four 3/8-16 X 3 mounting bolts and washers that secure the flat belt clamps to the Lift Arm.

Figure 283: Lift Arm and Belt Clamps



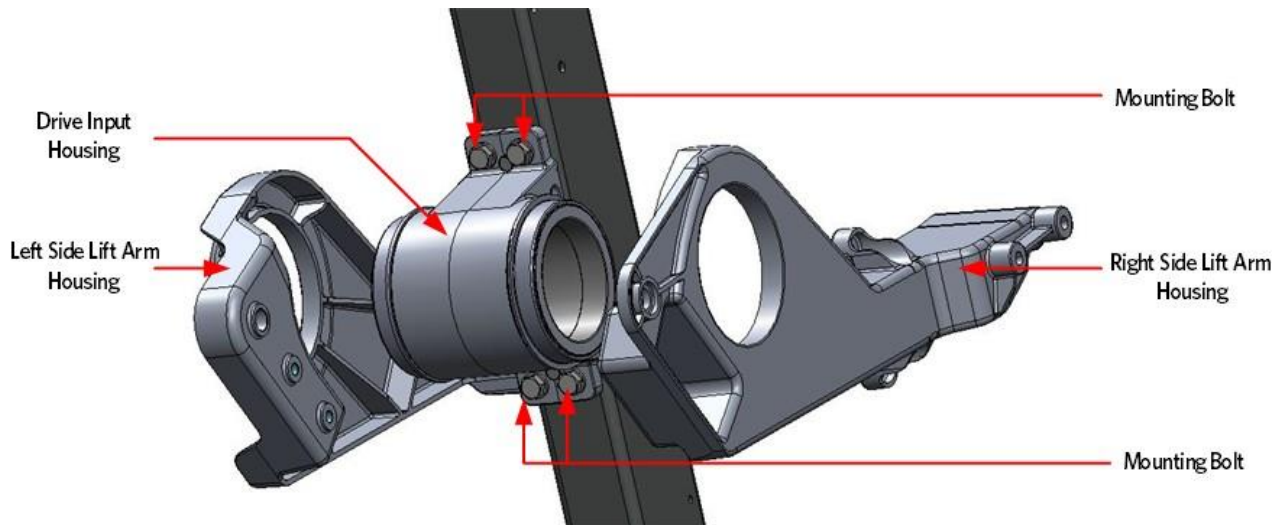
22 Remove the five 5/16-18X1 mounting bolts that secure the left and right side arm housings to the input housing.

Figure 284: Lift Arm Mounting Bolts



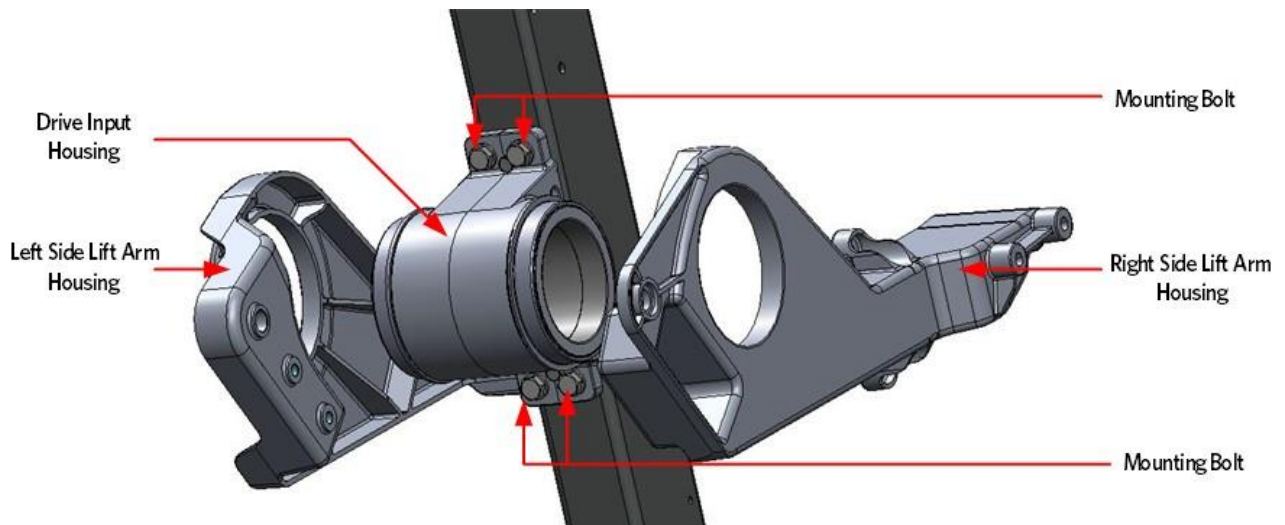
23 Separate the left and right side arm housings from the input housing.

Figure 285: Lift Arm Housing and Drive Input Housing



24 Remove the 4 mounting bolts that secure the drive input housing to the frame.

Figure 286: Lift Arm Housing and Drive Input Housing

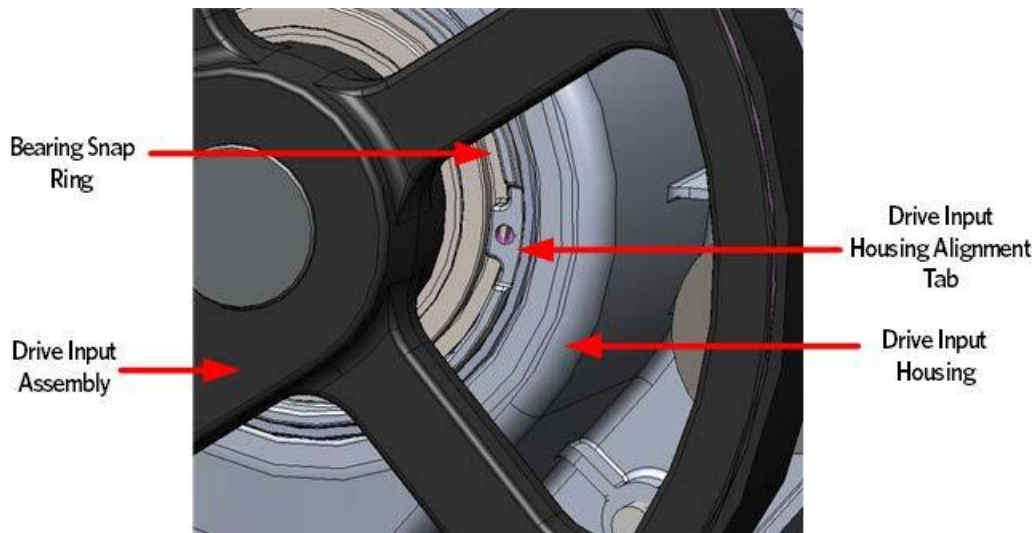


25 Fasten the replacement drive input housing to the frame using the four mounting bolts removed in step 9, torque to 160 inch pounds.

N

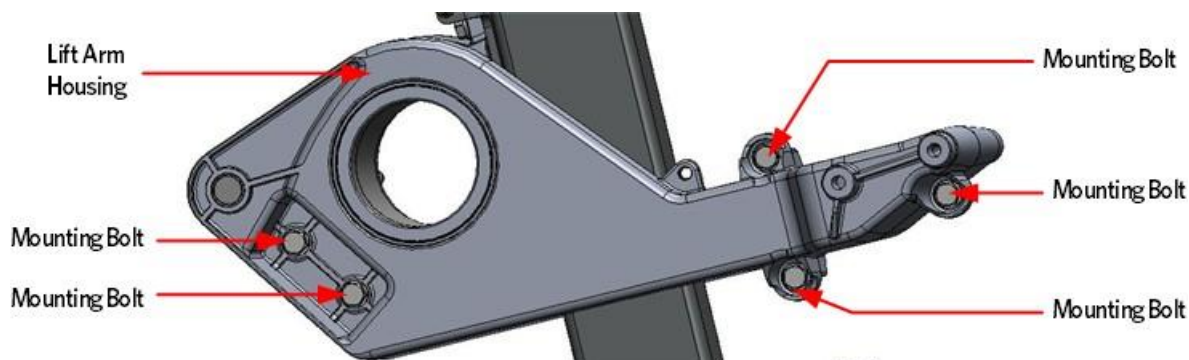
Note: Ensure the drive input alignment tab is position to the left side.

Figure 287: Drive Input Assembly Alignment



26 Assemble the left and right side arm housings on the drive input housing and secure with the five 5/16-18X1 mounting bolts.

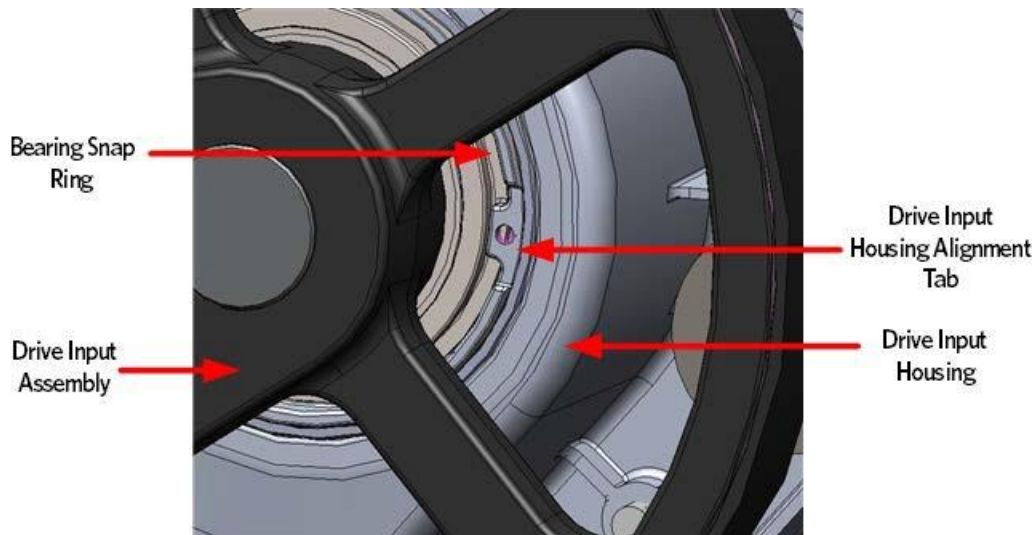
Figure 288: Lift Arm Mounting Bolts



27 Install the drive input assembly by aligning the bearing snap ring opening with tab of the drive input housing.

28 Fasten the drive input assembly to the drive input housing using the screw and square washer. Make sure that the square washer does not contact the drive input pulley after installation, test by spinning the drive input pulley through its full range.

Figure 289: Drive Input Assembly Alignment

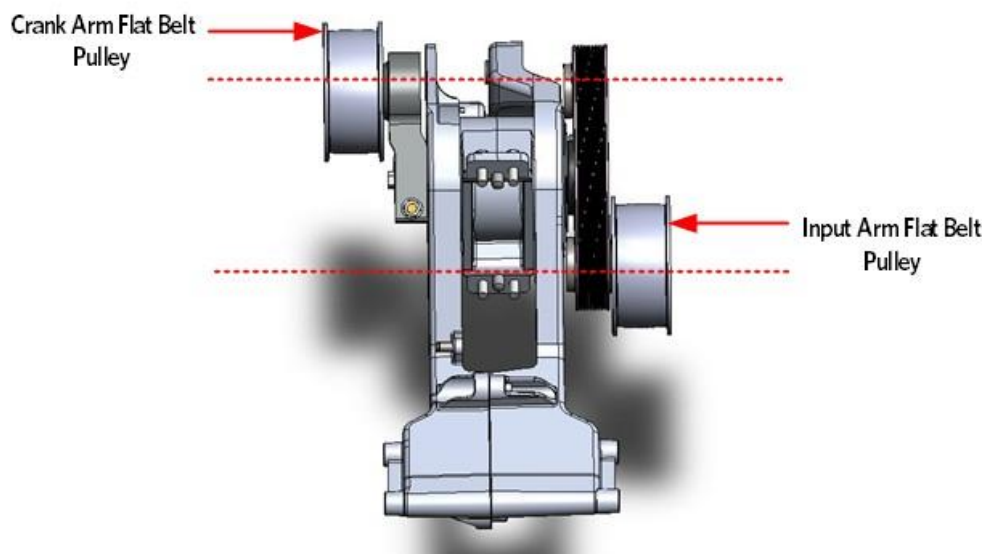


29 Replace the drive input belt over the drive input pulley and the Step-Up pulley.

30 Place the crank arm on the shaft and secure the crank arm with mounting bolt and washer. To tighten the crank arm mounting bolt, insert a socket extension about twelve inches long or equivalent in the drive input housing cavity, just below the crank arm to prevent rotation. Remove the crank arm bolt, washer and crank arm. Torque the mounting bolt to 300 inch pounds (25 ft-lbs) or 25 foot pounds.

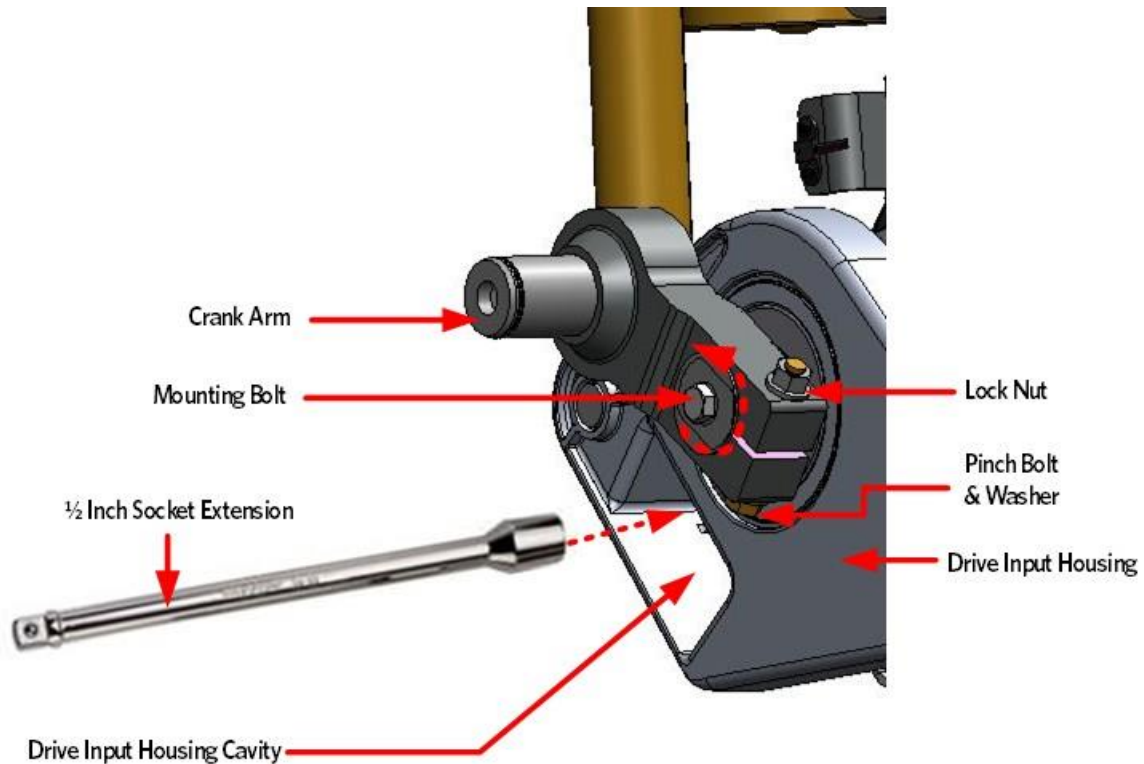
Note the position of the flat belt pulley on the crank arm and the flat belt pulley on the input pulley. When the crank arm is replaced, the flat belt pulleys must be positioned so that they are 180 degrees opposing.

Figure 290: Crank Arm Alignment



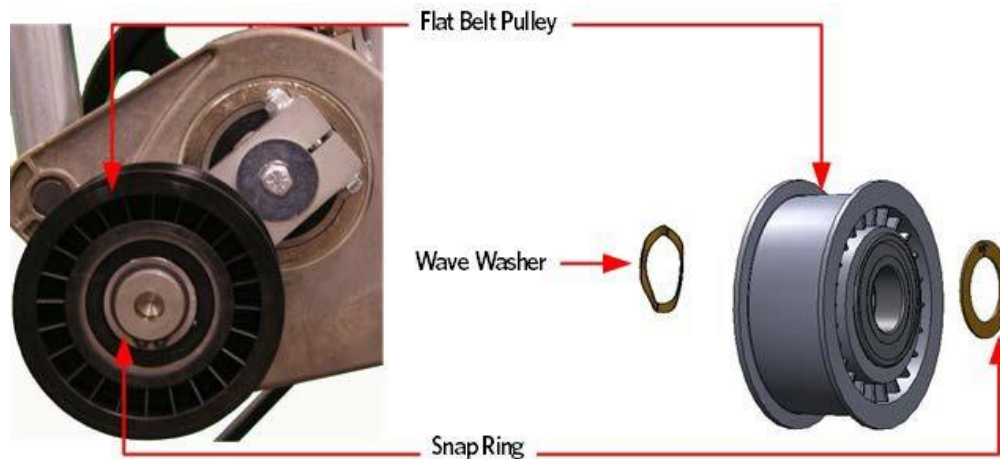
31 Install the crank arm pinch bolt, washer and lock nut. Torque the pinch bolt and lock nut to 300 inch pounds (25 ft-lbs) or 25 foot pounds.

Figure 291: Crank Arm Bolt Removal/ Installation



32 Replace the wave washer and flat belt pulley onto the crank arm shaft and secure with the snap ring. Make sure the snap ring is fully seated into the shaft groove.

Figure 292: Crank Arm Flat Belt Pulley

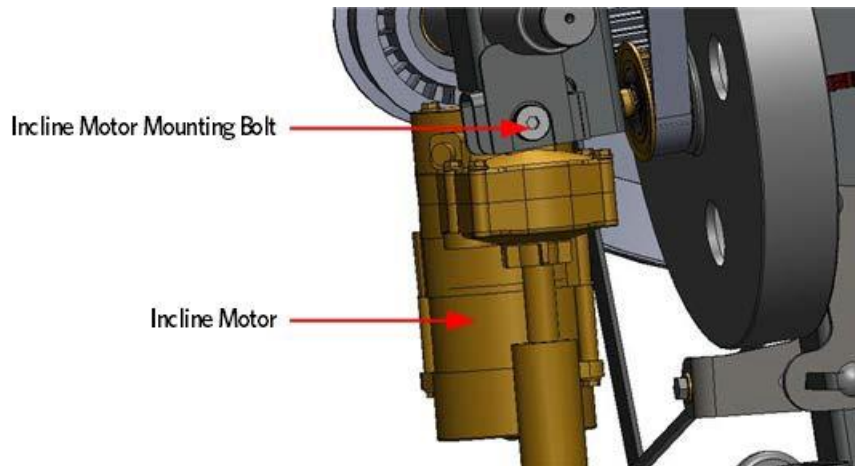


36 Lift the stairarms and then thread the flat belts over the flat belt pulleys.

37 Go to "[Inspecting and Adjusting the Drive Input Belt Tension](#)" procedure and tension the drive and generator belts to the specified tension.

37 Attach the lift motor to the frame using the 3/8-16 mounting bolt.

Figure 297: lift motor Mounting



38 Connect the lift motor cable connector to the lower PCA and replace the lower PCA cover as per procedure, [Replacing the Lower PCA and Battery Bracket](#).

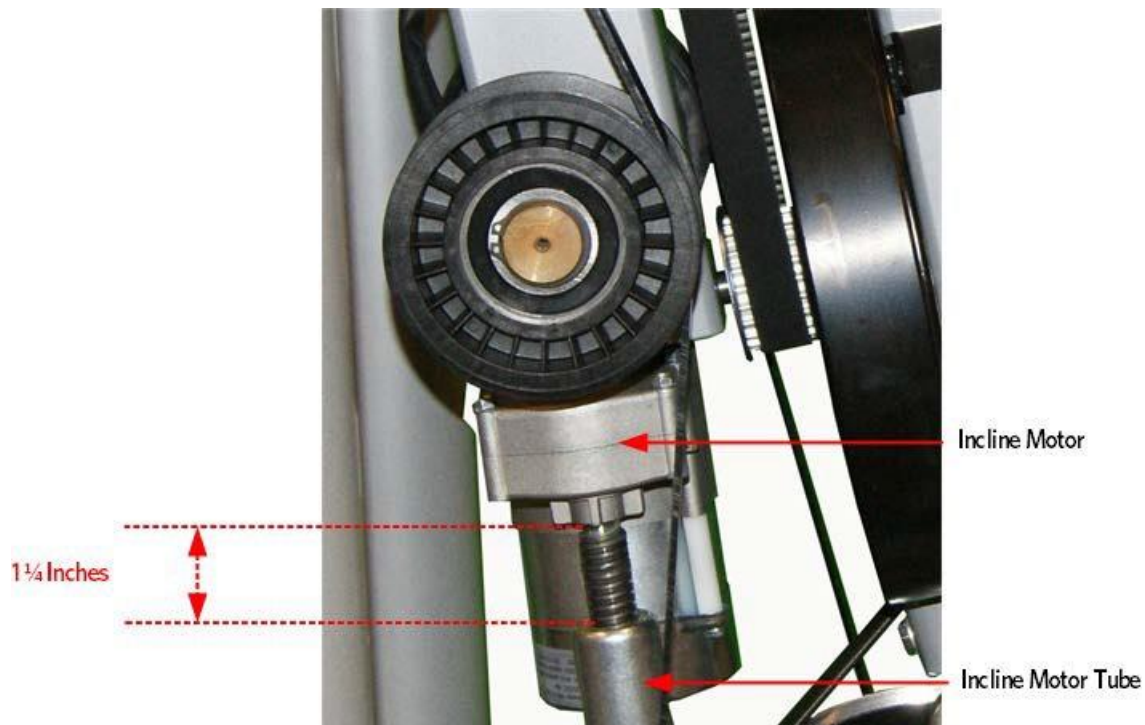
39 Access the incline Lift Test portion of the Diagnostic Program, see [Accessing the P30 Diagnostic Software, P80 Settings](#).

40 With the lift incline number displayed, set the incline to level 2 using the STRIDE HEIGHT **↑** and STRIDE HEIGHT **↓** keys

41 Rotate the lift motor tube on the lift motor drive screw until the measurement between the top of the incline nut and the end of the lift motor drive screw is 1-1/4 inches.

Note: When rotating the lift motor tube, do not allow the lift motor drive screw to rotate. If the lift motor drive screw rotates, the lift level number will change. The lift level number must be 2 and the physical measurement must be 1-1/4 inches for the calibration to be correct.

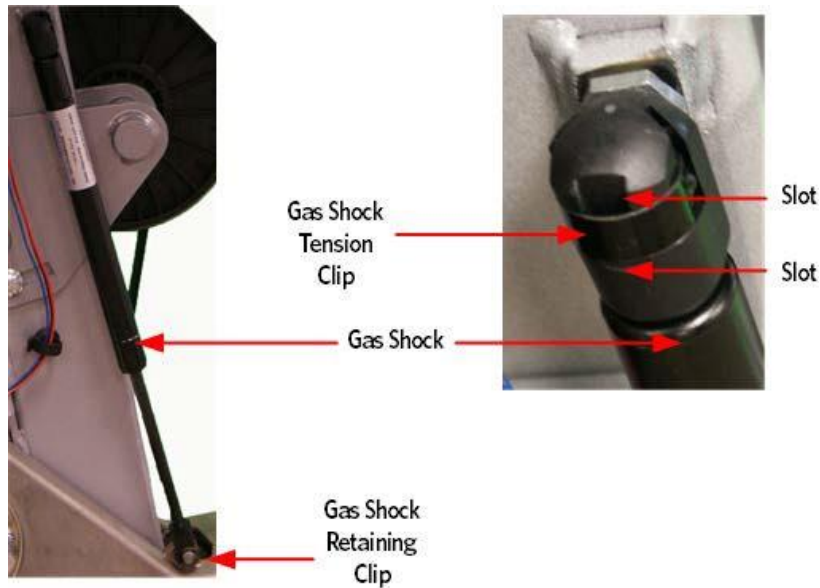
Figure 298: lift motor Calibration Measurement



Gas Spring Installation

- 42 Rotate the gas spring up.
- 43 Adjust the height of the gas spring by lowering or raising the front of the lift arm assembly until the gas spring and the upper mounting stud align.
- 44 Press the gas spring onto the mounting stud and secure the gas spring to the upper mounting stud by pushing in on the tension clip.

Figure 299: Gas Spring



TIP: It is recommended to have assistance available for following step(s).

45 With the assistance, lift the front of the lift arm assembly until the lift motor extension fube mounting holes align with the lift arm assembly mounting holes.

46 Replace the lift motor mounting pin through the lift motor extension fube and lift arm assembly and attach the hitch pin.

47 Secure the flat belt clamps the lift arm housing using the four 3/8-16 X 3 mounting bolts and washers.

48 Lift the stairarms and thread the flat belts through the pulleys.

49 Replace the covers as per procedure, ***Cover Replacement***.

Replacing a Tie Rod

Procedure

1 Remove the covers as described per procedure, ***Cover Replacement***.

2 Remove the tie rod mounting bolt and washer that secures the lower tie rod end to the cam assembly.

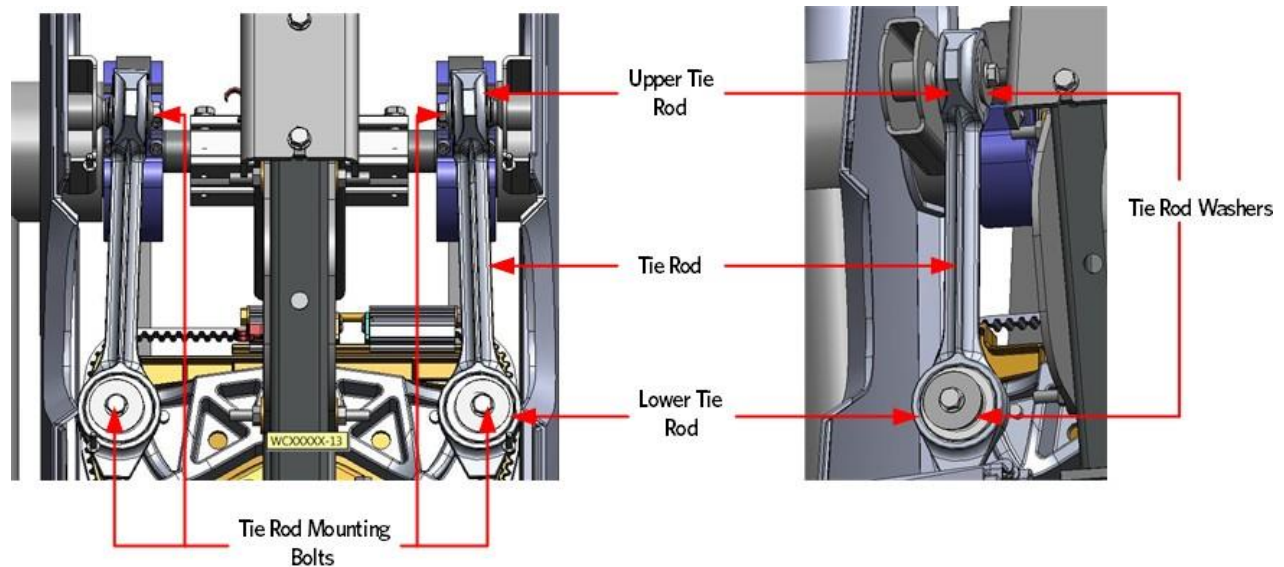
3 Remove the tie rod mounting bolt and washer that secures the upper tie rod end to the upper arm axle.

4 Fasten the replacement upper tie rod end to the upper arm axle using the bolt and washer removed in step 3, torque the bolt to 300 inch pounds (25 ft-lbs).

5 Fasten the replacement lower tie rod end to the cam assembly using the bolts and washer removed in step 2, torque the bolt to 300 inch pounds (25 ft-lbs).

6 Replace the covers as described per procedure, ***Cover Replacement***.

Figure 300: Tie Rods



Replacing the Stride Dial Sensor

Procedure

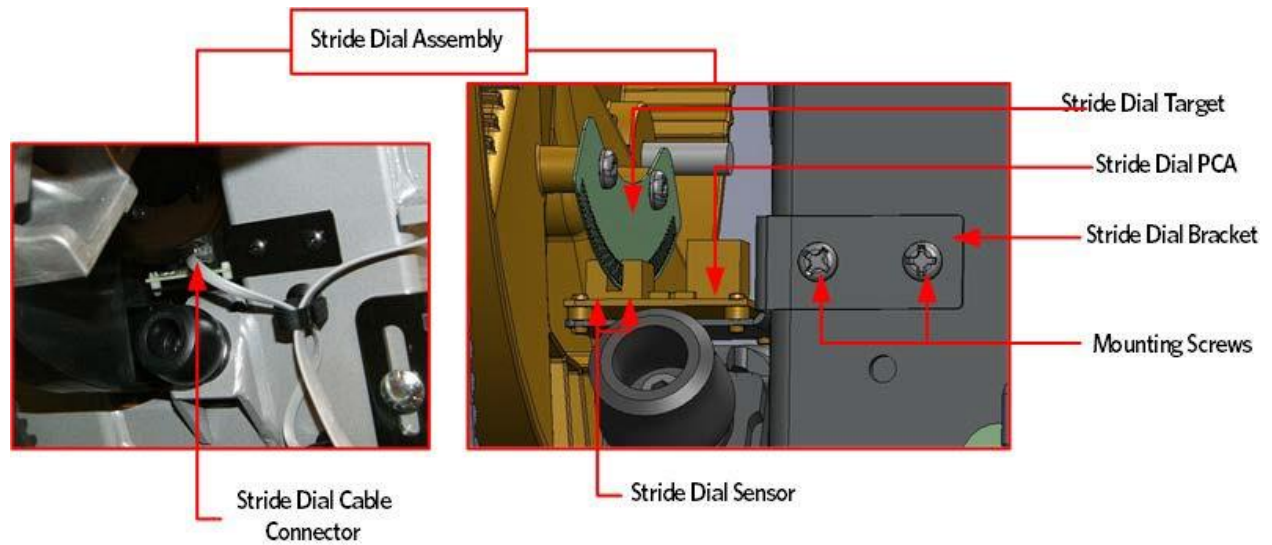
1 Remove the covers as described per procedure, ***Cover Replacement***.

Stride Dial Removal

2 Disconnect the stride dial cable connector from the stride dial PCA.

3 Remove the two screws that secure the stride bracket to the frame and then remove the stride dial assembly.

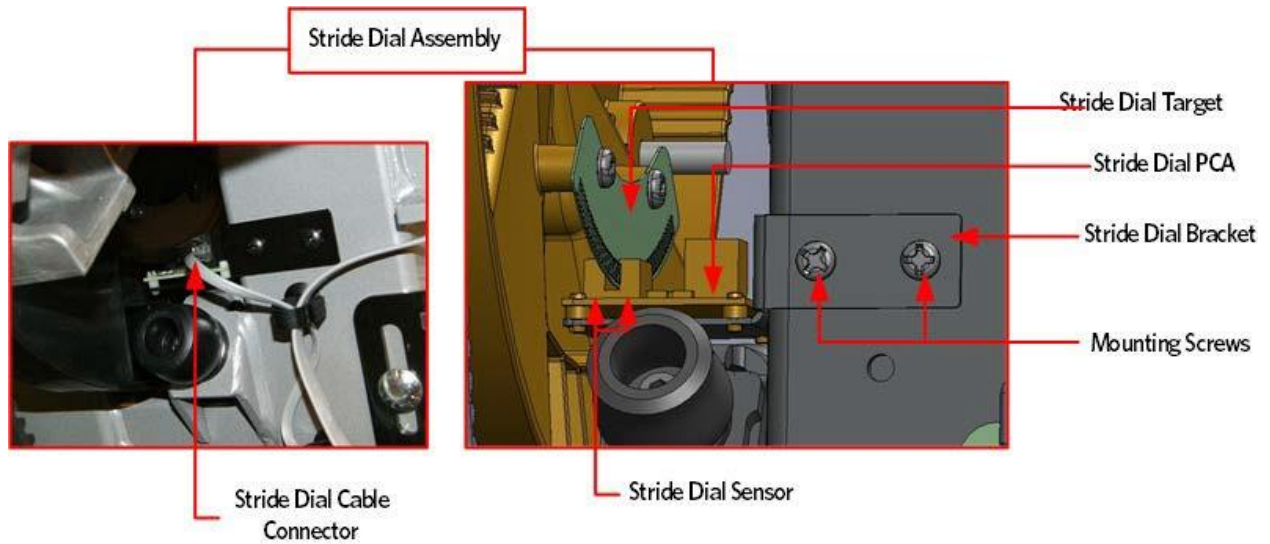
Figure 301: Stride Dial Assembly



Stride Dial Assembly Installation

- 4 Secure the stride dial assembly to the frame with the two screws, do not fully tighten the screws.
- 5 Adjust the stride dial bracket until the stride dial target is centered between the two stride sensors on the stride dial PCA.
- 6 Fully tighten the two screws that secure the stride dial sensor to the frame.
- 7 Reconnect the stride dial cable connector to the stride dial sensor, ensure the cable is routed and secured away from the H-Brake cam stops.

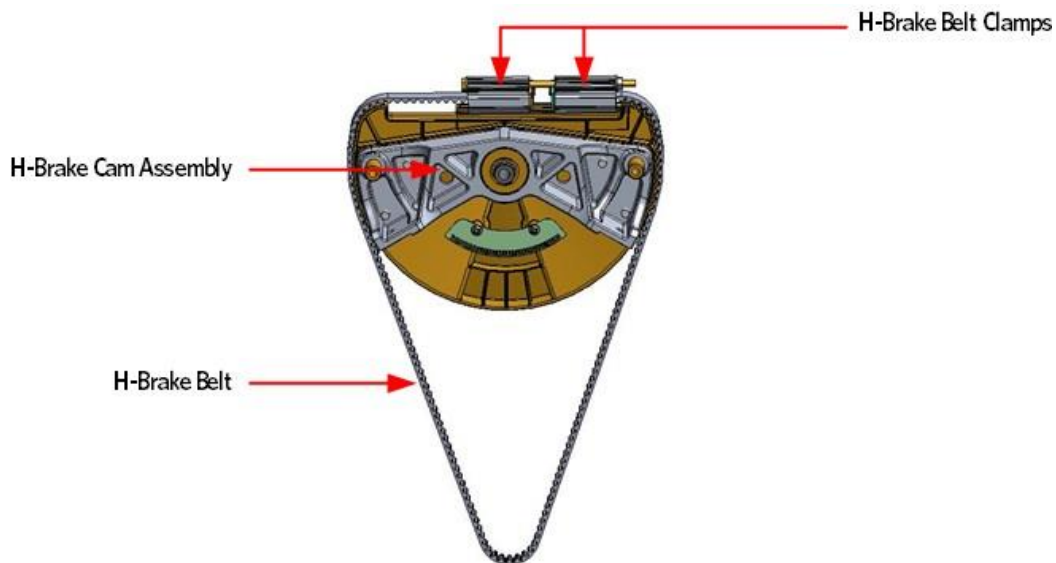
Figure 302: Stride Dial Assembly



8 Replace the covers as described per procedure, *Cover Replacement*.

Replacing the H-Brake Belt

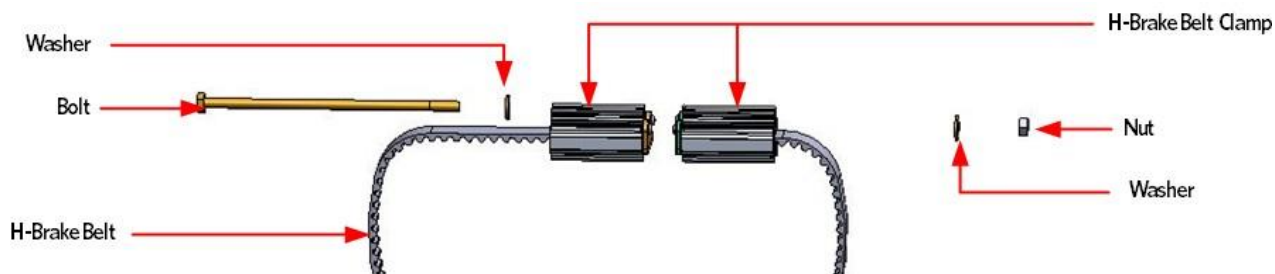
Figure 303: H-Brake Belt and H-Brake Cam



Procedure

- 1 Remove the covers per procedure, *Cover Replacement*.
- 2 Remove the Brake tension bolt, the two washers and nut.

Figure 304: H-Brake Belt Assembly



- 3 Slide the right side belt clamp off the cam towards the right, thread the clamp under the cam and out to the left side of the AMT.
- 4 Slide the left side belt clamp off the cam towards the right and remove.

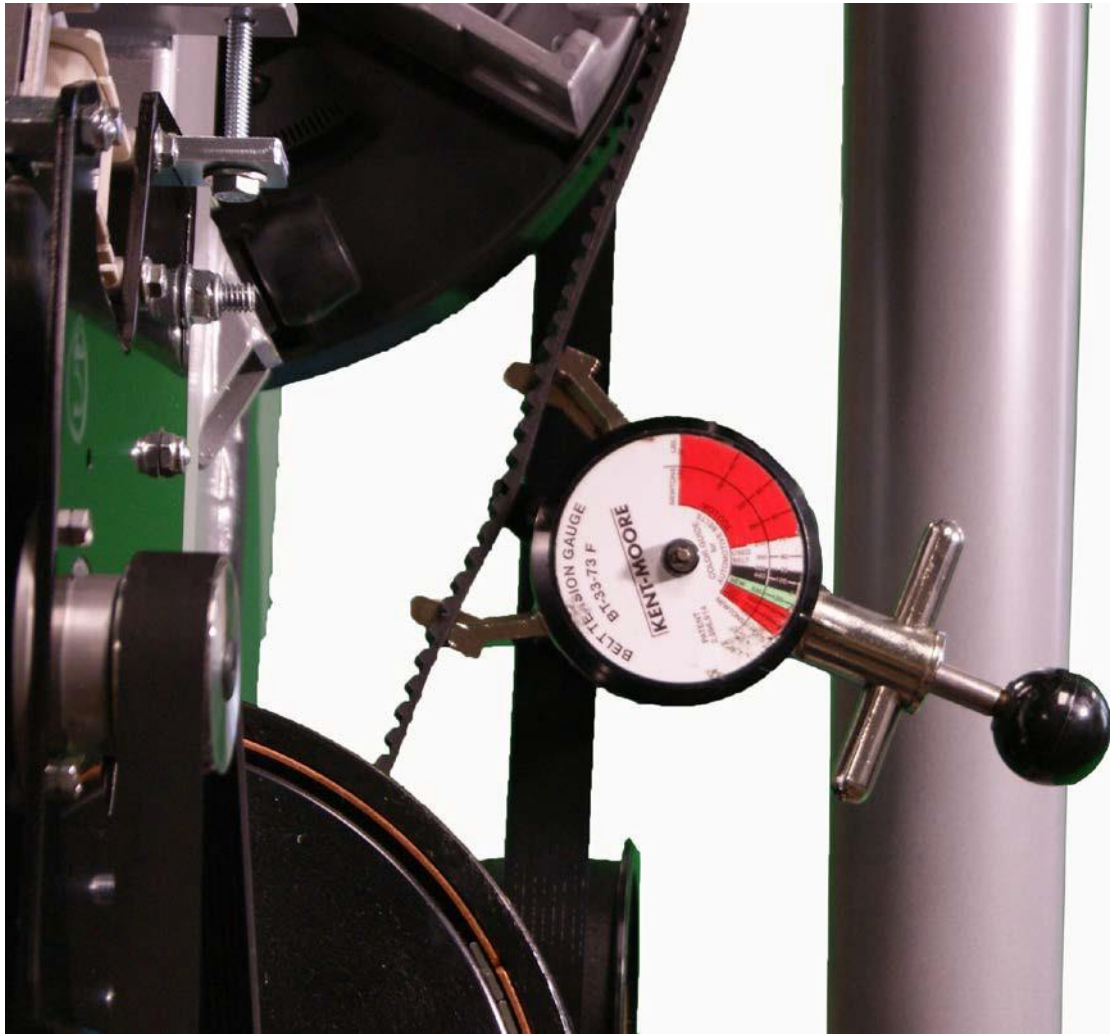
H-Brake Belt Installation

- 5 Apply a thin layer of AMSOIL GPOR1 synthetic polymeric grease along the cam clamp track.
- 6 Position one of the belt clamps over the cam so that the length of the belt is hanging down the left side of the AMT and then slide the clamp onto the cam from right to left, until clamp hits the stop.
- 7 Feed the belt through frame and under the H-brake pulley.
- 8 Slide the clamp onto the cam and fasten the clamps together using the H-Brake tension bolt, washers and nut.

H-Brake Belt Tensioning

- 9 Place a belt gauge on the H-brake belt.

Figure 305: H-Brake Belt Tension Gauge

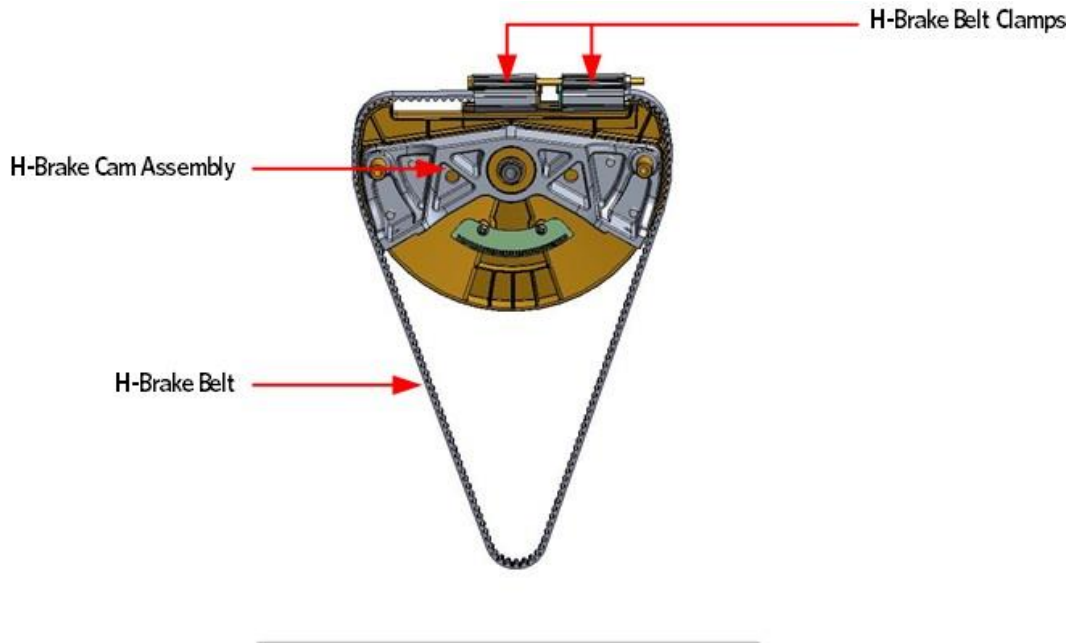


10 The belt gauge should read approximately 130-140 lbs. If the belt tension is significantly high or low the belt tension may be adjusted by loosening or tightening the H-Brake adjustment bolt.

11 Replace the covers per procedure, [*Cover Replacement*](#).

Replacing the H-Brake Cam Assembly

Figure 306: H-Brake Belt and H-Brake Cam



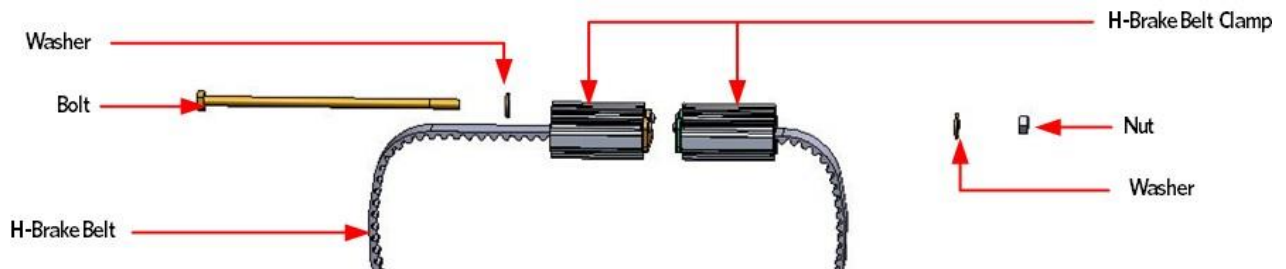
Procedure

- 1 Remove the covers as described per procedure, [Cover Replacement](#).

H-Brake Belt Removal

- 2 Remove the H-Brake tension bolt, the two washers and nut.

Figure 307: H-Brake Belt Assembly



- 3 Slide the right side belt clamp off the cam towards the right, thread the clamp under the cam and out to the left side of the AMT.

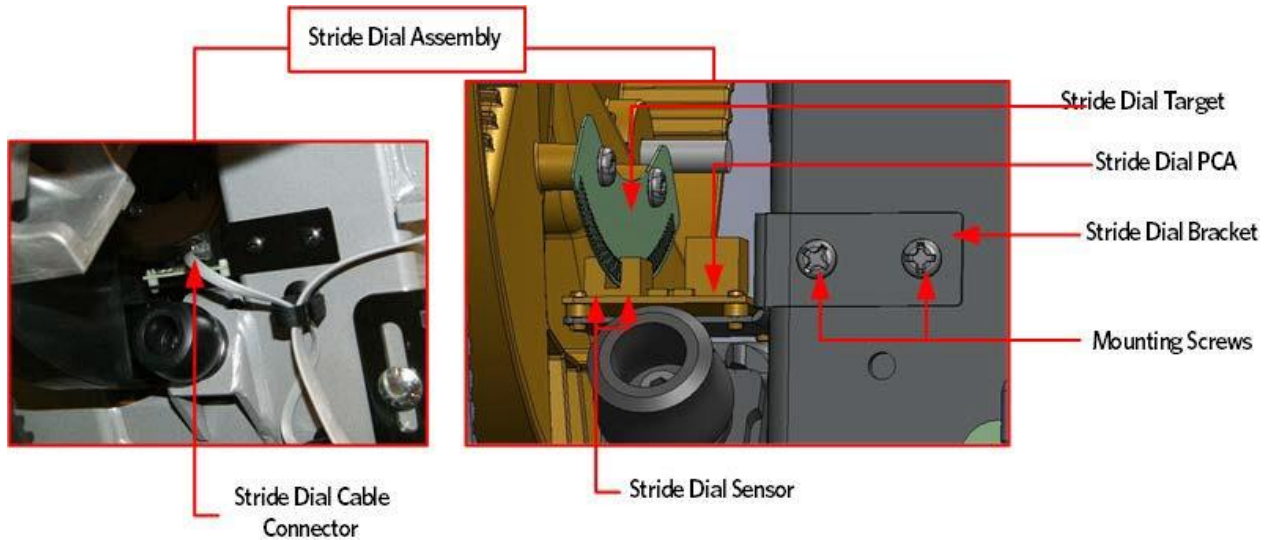
- 4 Slide the left side belt clamp off the cam towards the right and remove.

Stride Dial Removal

- 5 Disconnect the stride dial cable connector from the stride dial PCA.

6 Remove the two screws that secure the stride dial to the frame and then remove the stride dial assembly.

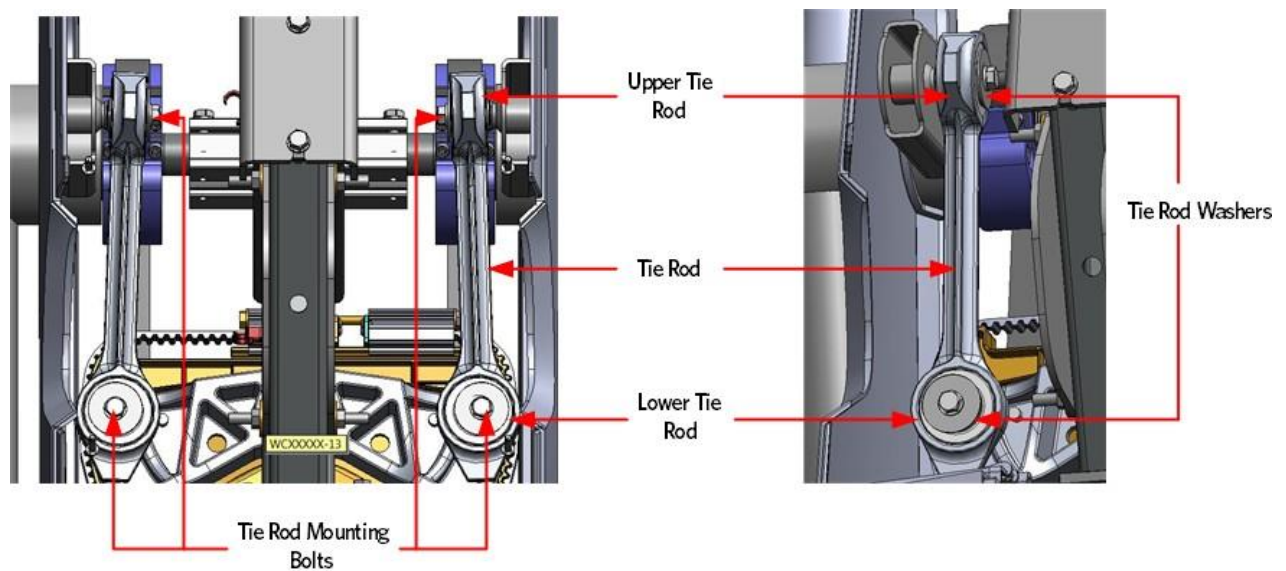
Figure 308: Stride Dial Assembly



Tie Rod Removal

7 Remove the tie rod mounting bolts and washers that secure each lower tie rod end to the cam assembly.

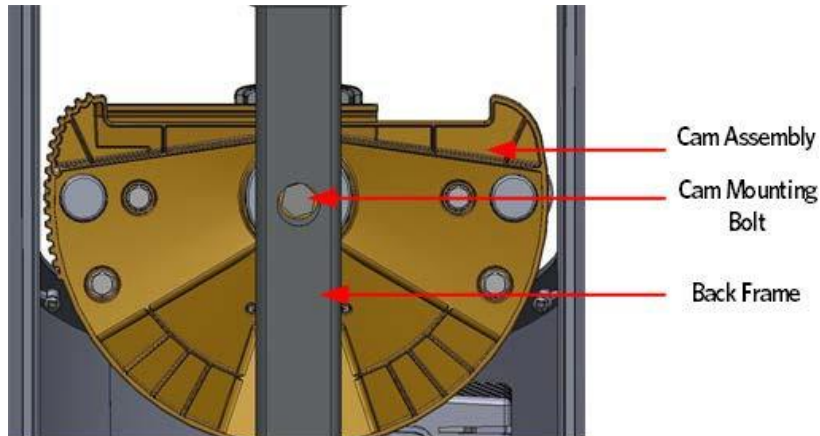
Figure 309: Tie Rods



H-Brake Cam Removal and Installation

8 Remove the bolt and washer that secures the cam assembly to the frame.

Figure 310: Cam Assembly

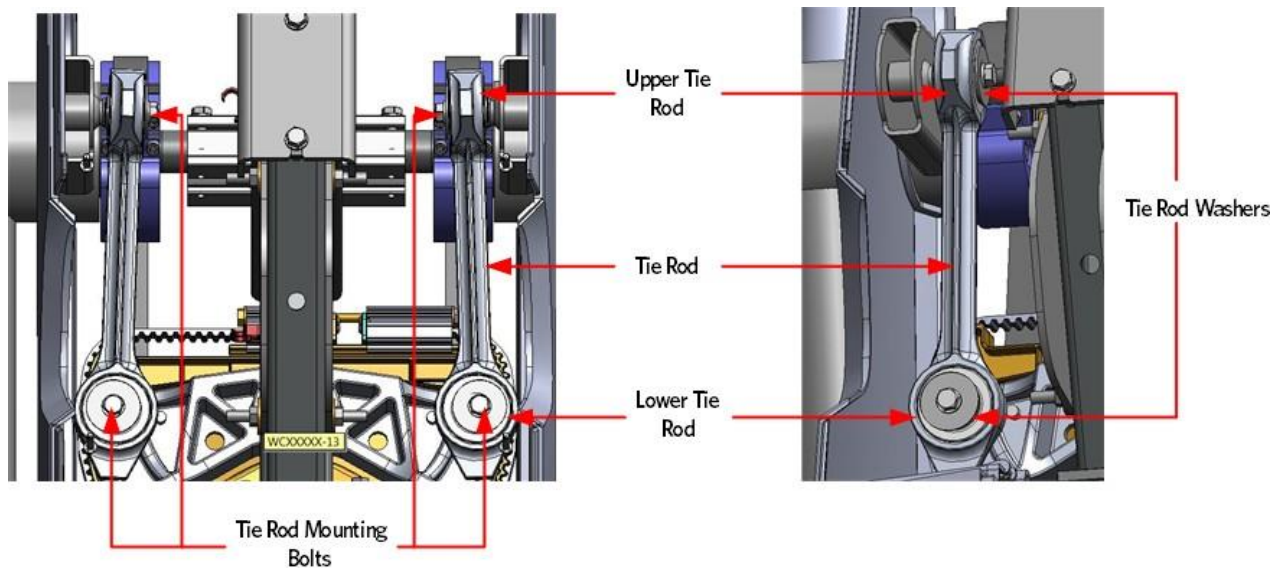


9 Secure the cam assembly to the frame using the bolt and washer, torque the H-Brake bolt to 600 inch pounds (50 ft-lbs).

Tie Rod Installation

10 Fasten each lower tie rod end to the cam assembly using the bolts and washers, torque the bolt to 300 inch pounds (25 ft-lbs).

Figure 311: Tie Rods



Stride Dial Assembly Installation

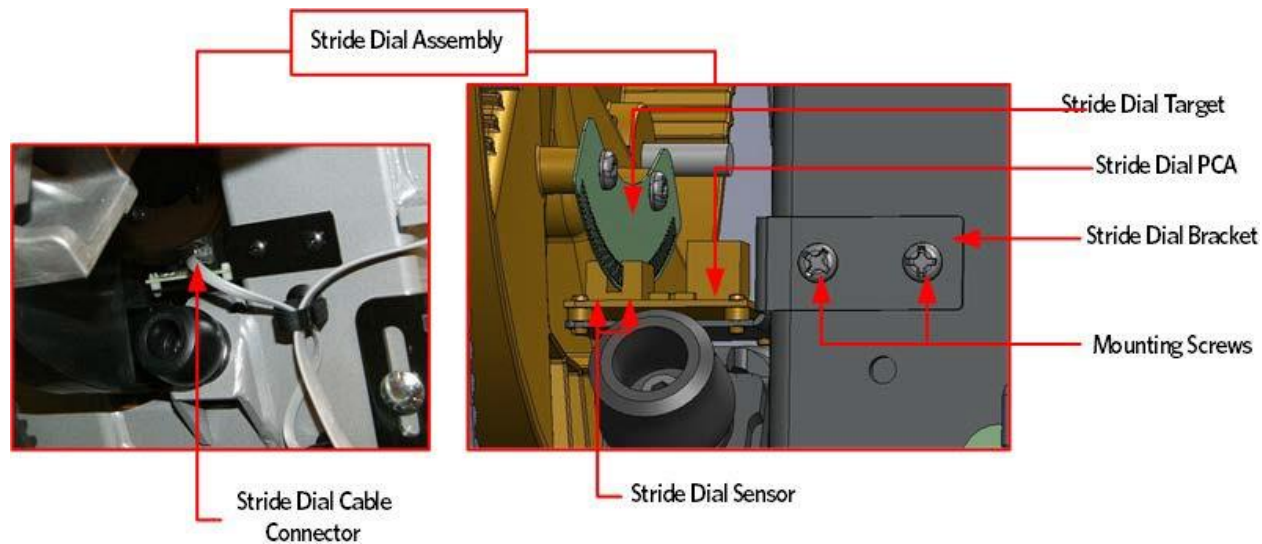
11 Secure the stride dial assembly to the frame with the two screws, do not fully tighten the screws.

12 Adjust the stride dial bracket unit the stride dial target is centered between the two stride sensors on the stride dial PCA.

13 Fully tight in the two screws that secure the stride dial sensor to the frame.

14 Reconnect the stride dial cable connector to the stride dial sensor, ensure the cable is routed and secured away from the H-Brake cam stops.

Figure 312: Stride Dial Assembly



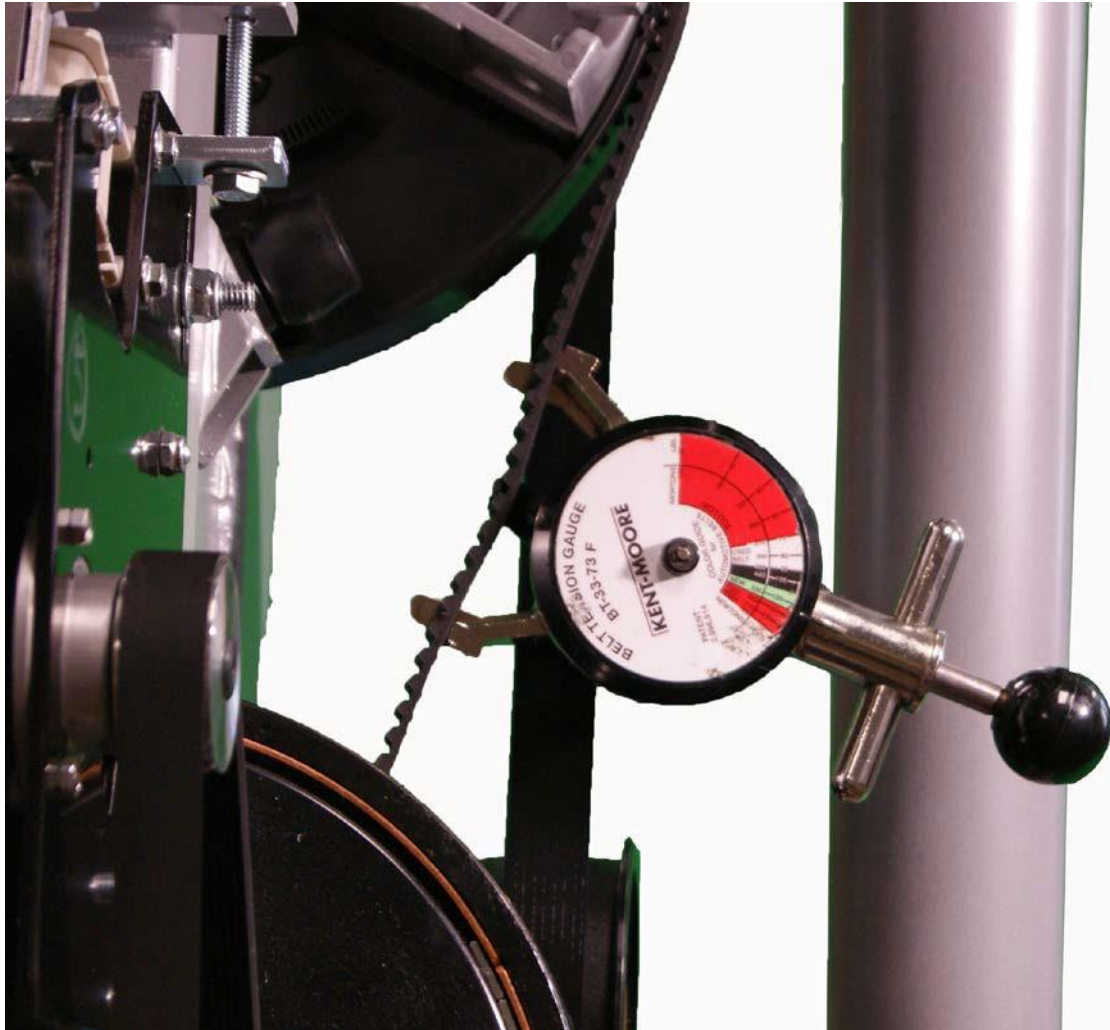
H-Brake Belt Installation

- 15 Apply a thin layer of AMSOIL GPOR1 synthetic polymeric grease along the cam clamp track.
- 16 Position one of the belt clamps over the cam so that the length of the belt is hanging down the left side of the AMT and then slide the clamp onto the cam from right to left, until clamp hits the stop.
- 17 Feed the belt through frame and under the H-brake pulley.
- 18 Slide the clamp onto the cam and fasten the clamps together using the H-Brake tension bolt, washers and nut.

H-Brake Belt Tensioning

- 19 Place a belt gauge on the H-brake belt.

Figure 313: H-Brake Belt Tension Gauge



20 The belt gauge should read approximately 130-140 lbs. If the belt tension is significantly high or low the belt tension may be adjusted by loosening or tightening the H-Brake adjustment bolt.

21 Replace the covers as described per procedure, *Cover Replacement*.

Replacing the H-Brake Drum Assembly

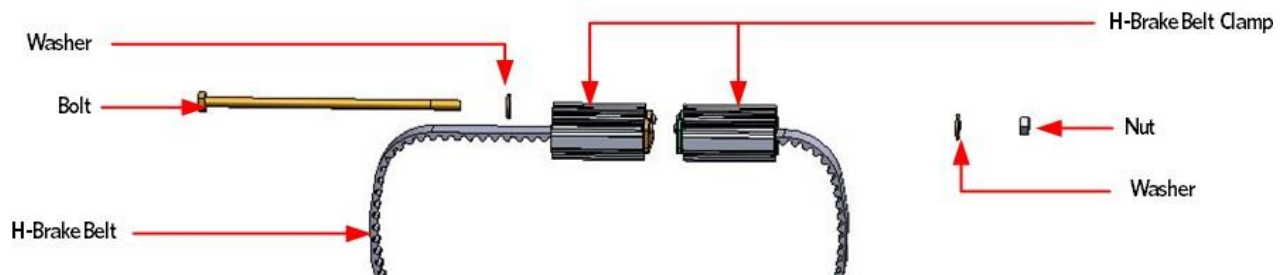
Procedure

1 Remove the covers as described per procedure, Cover *Replacement*.

H-Brake Belt Removal

2 Remove the H-Brake tension bolt, the two washers and nut.

Figure 314: H-Brake Belt Assembly



3 Slide the right side belt clamp off the cam towards the right, thread the clamp under the cam and out to the left side of the AMT.

4 Slide the left side belt clamp off the cam towards the right and remove.

Gas Spring Removal

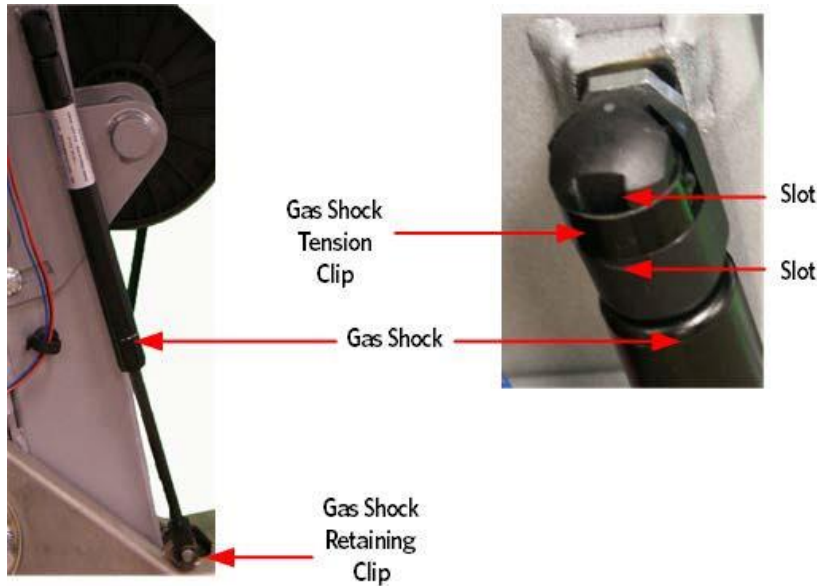
5 Release tension from the top of the gas spring by pushing a # 1 flat top screw driver in the slot under the tension clip. Do not completely remove the retaining clip as it is difficult to reinstall.

Tip: If the lift motor is jammed at full elevation, remove the lower retaining clip to facilitate the gas spring removal.

6 Using another flat head screw driver as a pry bar, place the screw driver head between the frame and the top of the gas spring and pry the shock off the upper mounting stud.

7 Rotate the gas spring down and out of the way of the lift motor.

Figure 315: Gas Spring



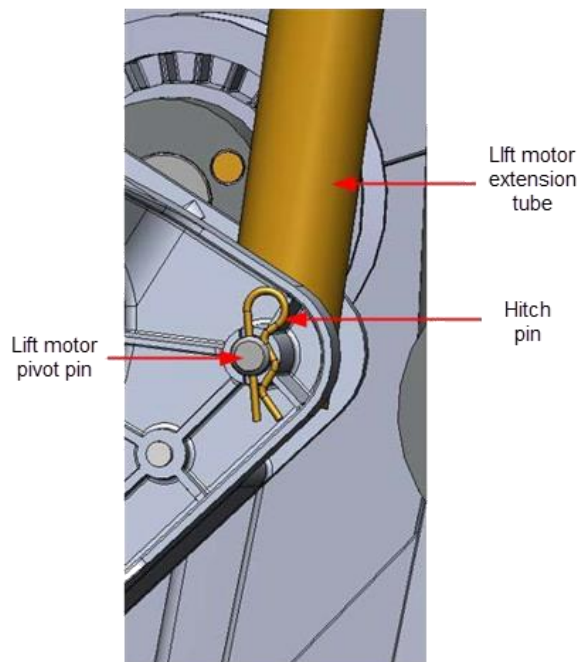
8 Using needle nosed pliers, pull the retaining clip off the lower gas mounting stud and remove shock.

lift motor Removal

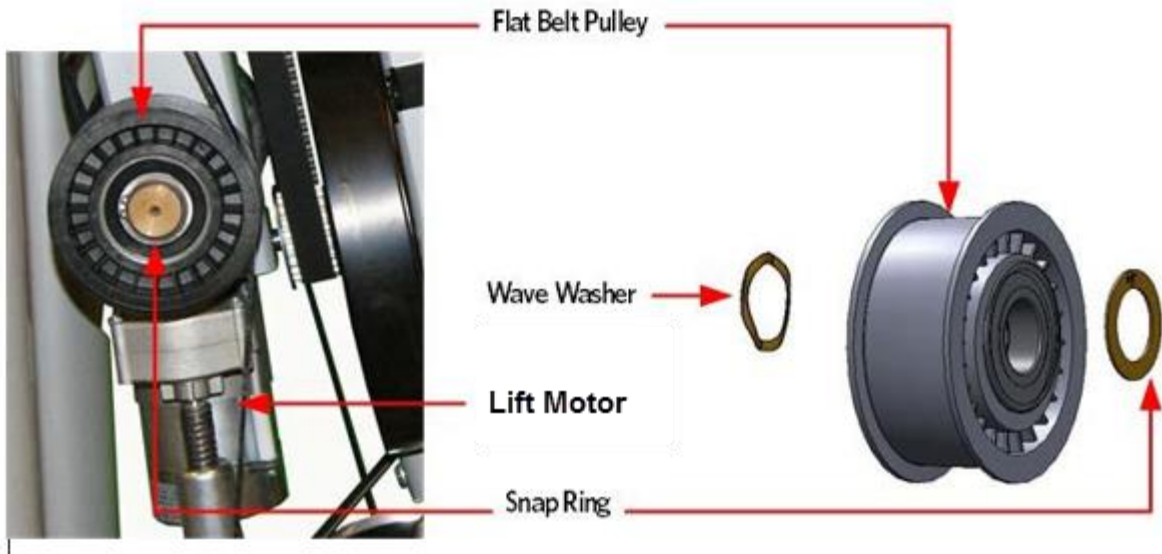
9 Remove the hitch pin from the lift motor mounting pin.

10 Remove the lift motor mounting pin. If the Incline is jammed or has excessive pressure on the pin, it may be necessary to drive the pin out of the lift motor tube and lift arm assembly using a punch and rubber mallet.

Figure 316: lift motor Hitch Pin and Pivot Pin

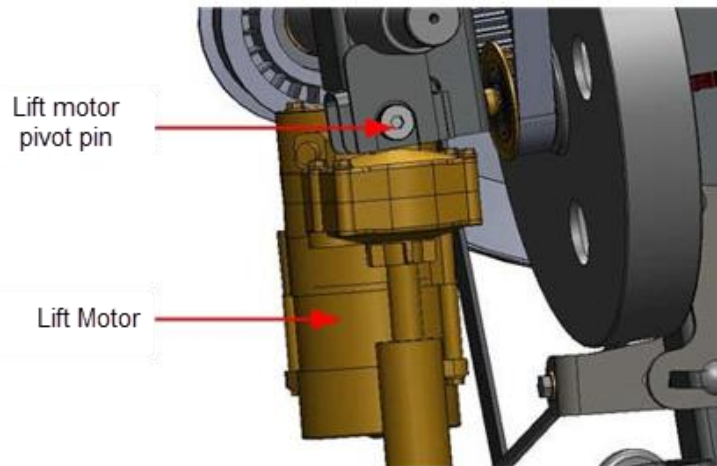


11 Remove the snap ring from the flat belt pulley shaft located next to the lift motor. Remove the pulley and wave washer. Removing the flat belt pulley will allow access to the lift motor mounting bolt.



12 Remove the lift motor mounting bolt and remove the lift motor.

Figure 317: lift motor Mounting

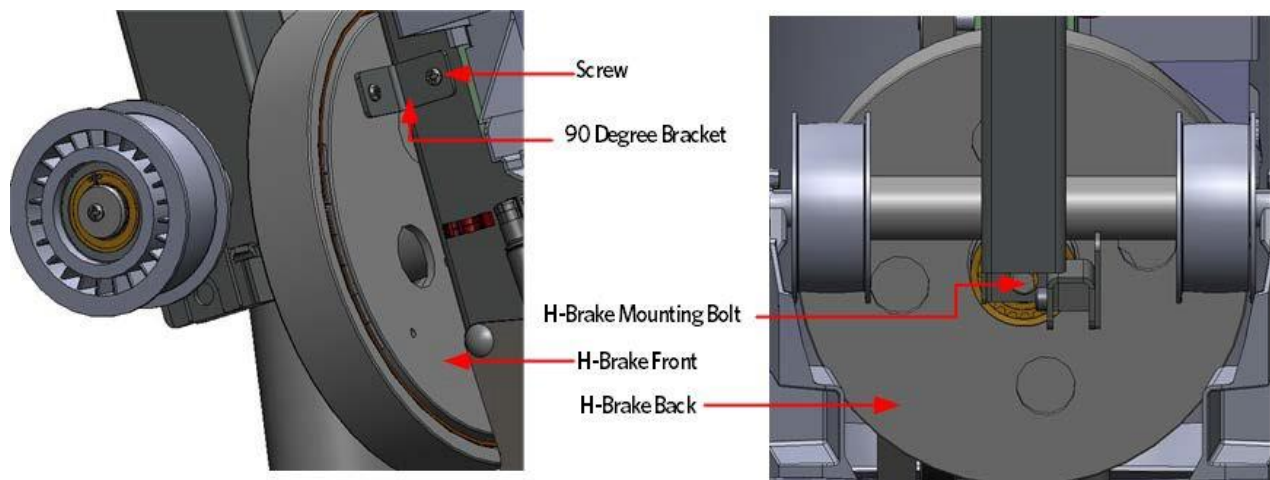


Note: On 10/1/2012 the H-Brake 90 degree mounting bracket was removed from the front side of the H-Brake Drum. The H-Brake Drum was then secured with a single screw through the front side of the H-Brake into the frame. The following steps will describe the removal and installation of the H-Brake Drum for both configuration.

H-Brake Drum Removal and Installation - Units Built Prior to 10/1/2012

- 13 Remove the screw that secures the H-Brake drum assembly to the 90 degree bracket mounted on the frame.
- 14 Remove the 5/16-18 X 4 bolt and washer that secure the H-Brake assembly drum to the frame and then remove the H-Brake drum assembly.
- 15 Hand Tighten the replacement H-Brake assembly to the frame using the 5/16-18 X 4 bolt and washer removed in the previous step.
- 16 Fasten the screw that secures the H-Brake drum assembly to the 90 degree bracket mounted on the frame.
- 17 Torque the H-Brake mounting bolt to 600 inch pounds (50 ft-lbs).

Figure 318: H-Brake Assembly

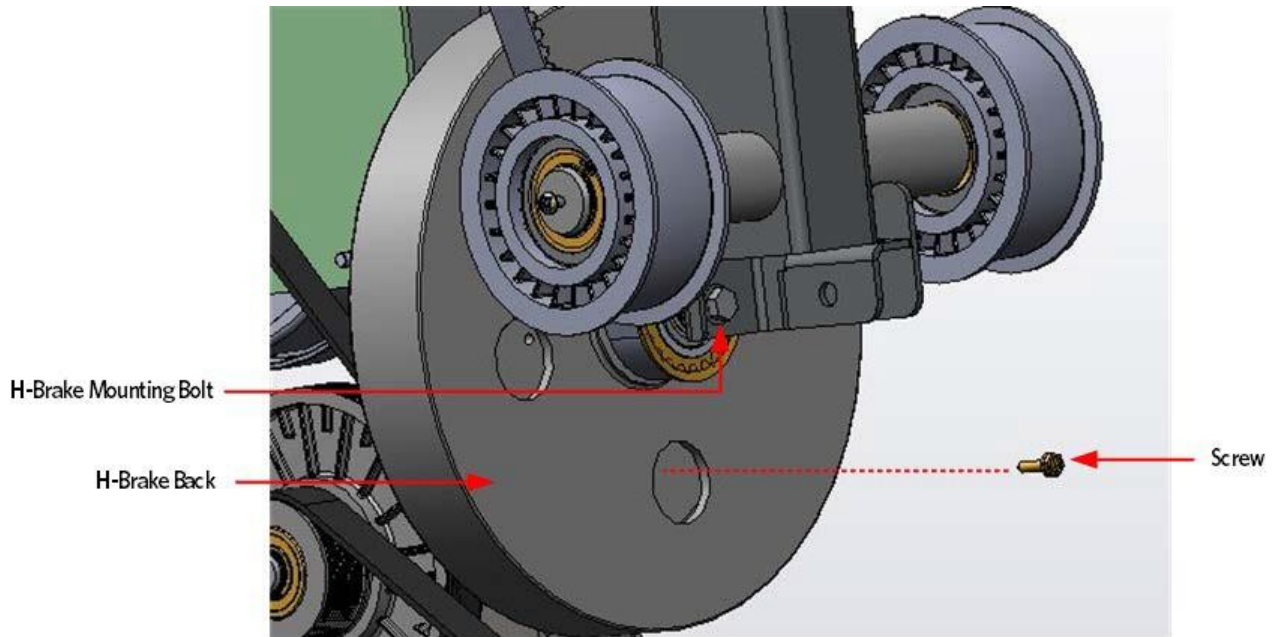


H-Brake Drum Removal and Installation - Units Built After 10/1/2012

- 18 Rotate the H-Brake Drum until one of the round cut outs on the back of the H-Brake is at the bottom. The H-brake mounting screw can be accessed inside the H-Brake Drum through the round cut out.
- 19 Remove the screw that secures the H-Brake drum assembly to the frame.
- 20 Remove the 5/16-18 X 4 bolt and washer that secure the H-Brake assembly drum to the frame and then remove the H-Brake drum assembly.
- 21 Hand tighten the replacement H-Brake assembly to the frame using the 5/16-18 X 4 bolt and washer removed in the previous step.
- 22 Fasten the screw that secures the H-Brake drum assembly to the frame.

23 Torque the H-Brake mounting bolt to 600 inch pounds (50 ft-lbs).

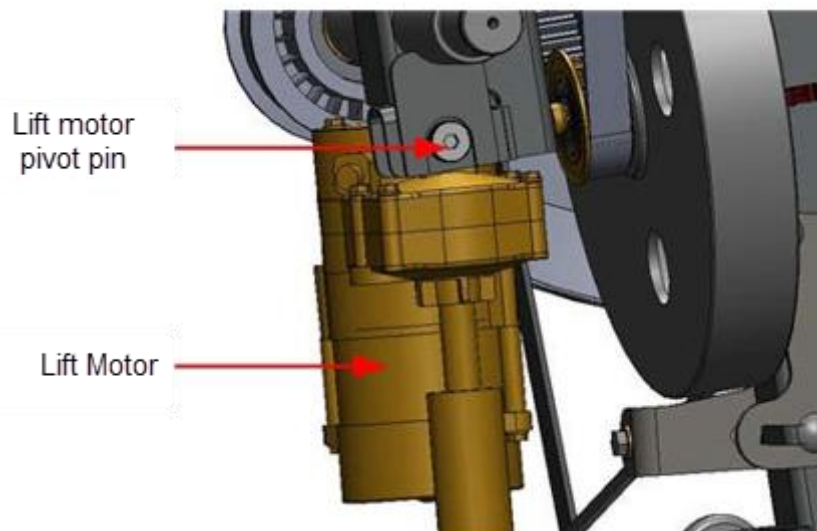
Figure 319: H-Brake Drum - Units Built After 10-1-1012



lift motor Installation

- 1 Attach the replacement lift motor to the frame using the 3/8-16 mounting bolt.

Figure 320: lift motor Mounting



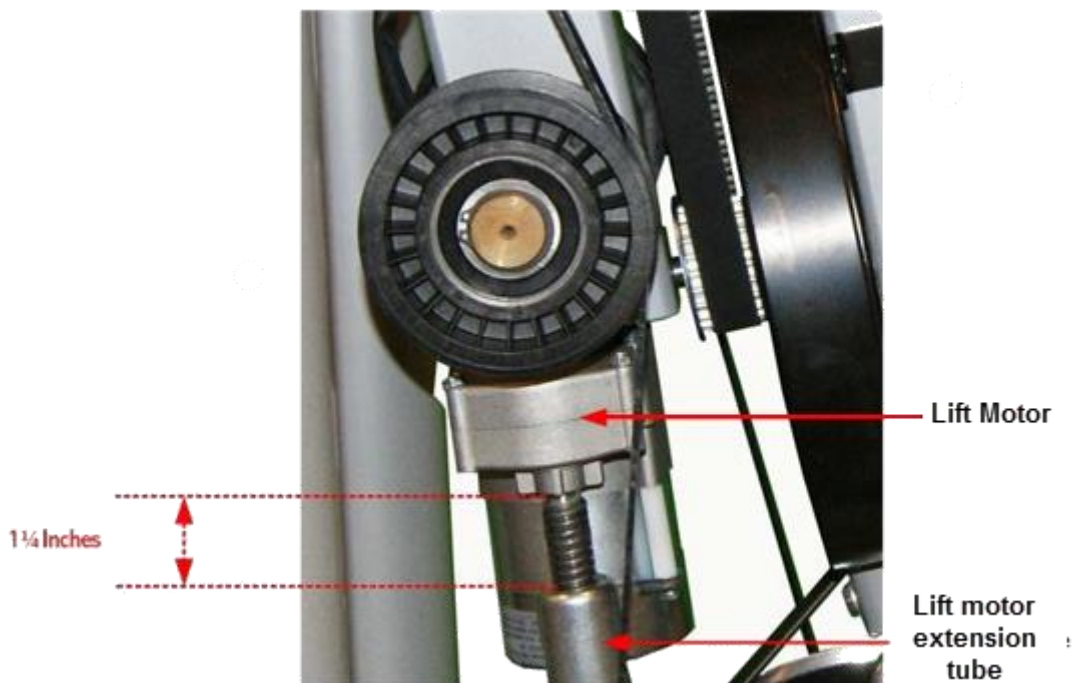
- 2 Connect the lift motor cable connector to the lower PCA and replace the lower PCA cover as per procedure, ***Replacing the Lower PCA and Battery Bracket.***
- 3 Access the incline Lift Test portion of the Diagnostic Program, see ***Accessing the P30 Diagnostic Software., P80 Settings.***

4 With the lift incline number displayed, set the incline to level 2 using the STRIDE HEIGHT \uparrow and STRIDE HEIGHT \downarrow keys

5 Rotate the lift motor tube on the lift motor drive screw until the measurement between the top of the incline nut and the end of the lift motor drive screw is 1-1/4 inches.

Note: When rotating the lift motor tube, do not allow the lift motor drive screw to rotate. If the lift motor drive screw rotates, the lift level number will change. The lift level number must be 2 and the physical measurement must be 1-1/4 inches for the calibration to be correct.

Figure 321: lift motor Calibration Measurement



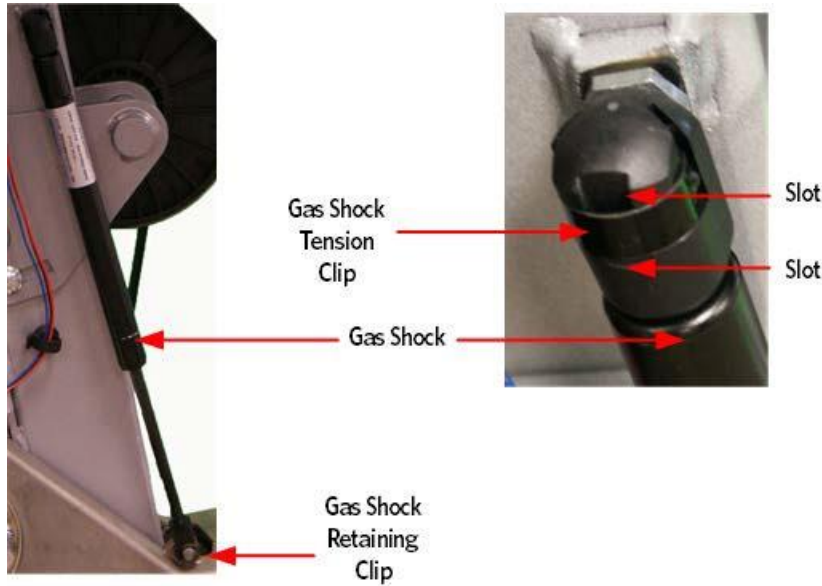
Gas Spring Installation

6 Rotate the gas spring up.

7 Adjust the height of the gas spring by lowering or raising the front of the lift arm assembly until the gas spring and the upper mounting stud align.

8 Press the gas spring onto the mounting stud and secure the gas spring to the upper mounting stud by pushing in on the tension clip.

Figure 322: Gas Spring



TIP: It is recommended to have assistance available for following step(s).

9 With the assistance, lift the front of the lift arm assembly until the lift motor extension fube mounting holes align with the lift arm assembly mounting holes.

10 Replace the lift motor mounting pin through the lift motor extension fube and lift arm assembly and attach the hitch pin.

11 Replace the wave washer and flat belt pulley, secure the flat belt pulley with the snap ring.

H-Brake Belt Installation

12 Apply a thin layer of AMSOIL GPOR1 synthetic polymeric grease along the cam clamp track.

13 Position one of the belt clamps over the cam so that the length of the belt is hanging down the left side of the AMT and then slide the clamp onto the cam from right to left, until clamp hits the stop.

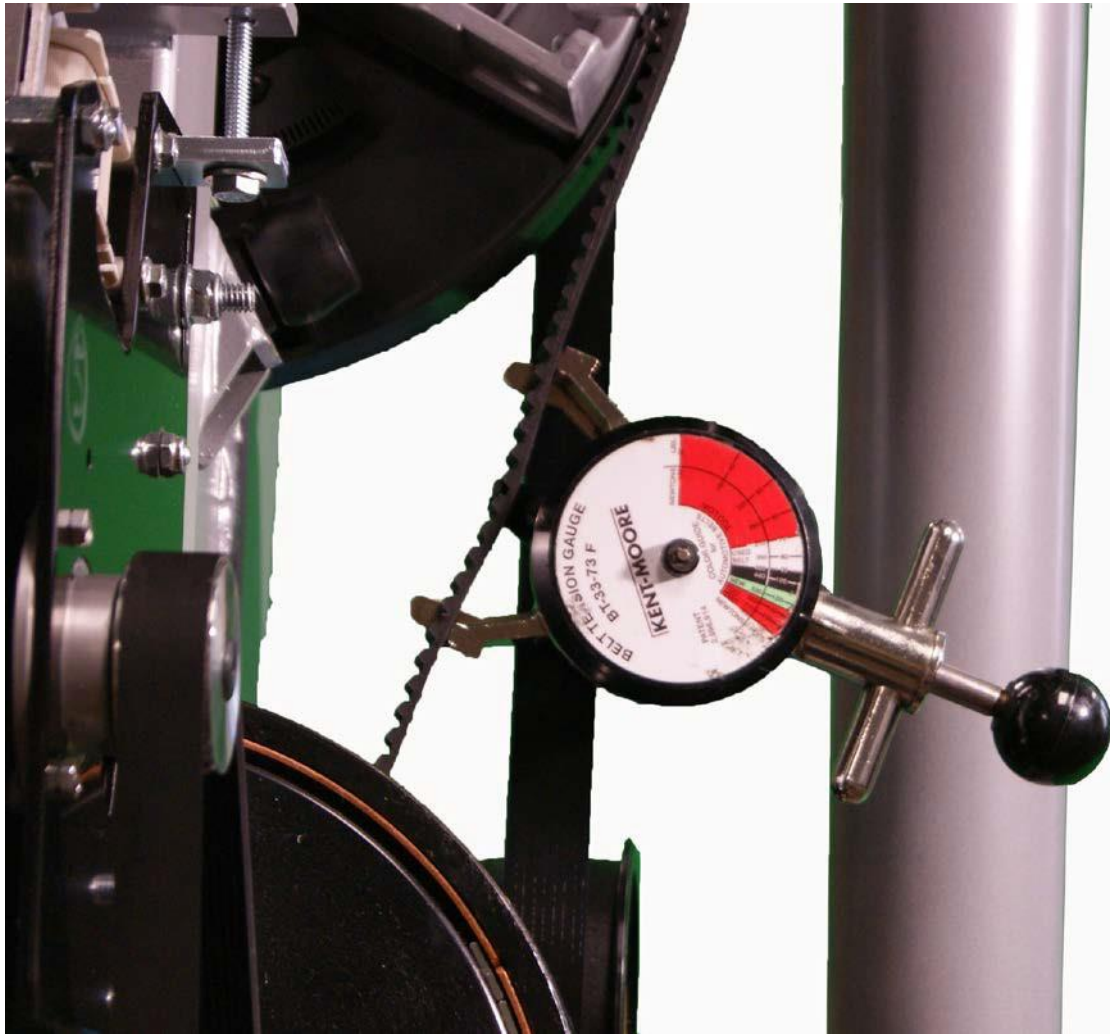
14 Feed the belt through frame and under the H-brake pulley.

15 Slide the clamp onto the cam and fasten the clamps together using the H-Brake tension bolt, washers and nut.

H-Brake Belt Tensioning

16 Place a belt gauge on the H-brake belt.

Figure 323: H-Brake Belt Tension Gauge



17 The belt gauge should read approximately 130-140 lbs. If the belt tension is significantly high or low the belt tension may be adjusted by loosening or tightening the H-Brake adjustment bolt.

18 Replace the covers as described per procedure, [Cover Replacement](#).

Replacing the Gas Spring

1. If not already removed, remove the front, left/right side, left/right bottom, Center beam, and back covers, see [Cover Replacement](#).
2. Access the **Hardware Validation** diagnostics menu (51765761), select the **CROSSRAMP TEST**, and set the CROSSRAMP (or stride height) to **level 1**.
3. Remove the LPCA cover.
4. Disconnect the lift motor power cable from the LPCA board.



Warning: Failure to disconnect the lift motor power cable may result in unexpected lift motor movement during the replacement procedure, which could result in personal injury to hands or other appendages.

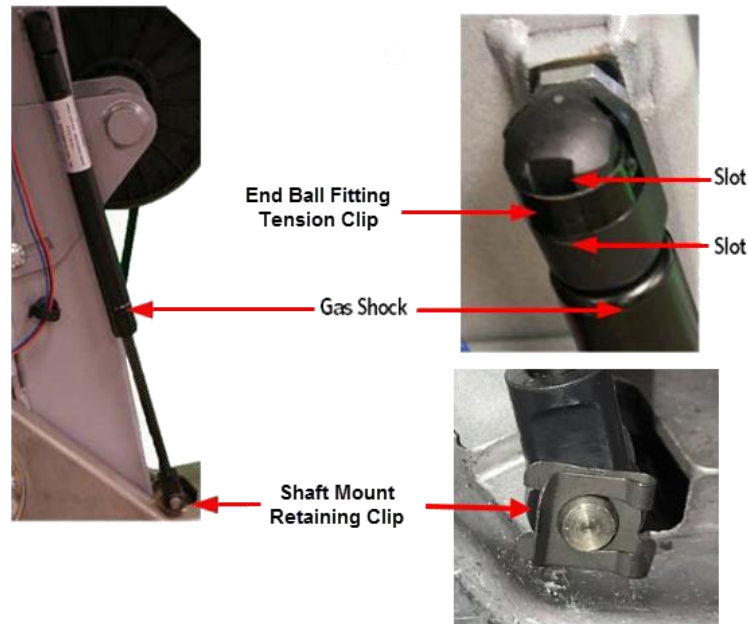
5. Remove the left and right stairarm flat belts off the lower stairarm pulleys. Use one hand to raise the stairarm while using the other hand to remove the flat belt off the lower stairarm pulley and then gently setting the stairarm on the floor.



Warning: Failure to remove the stairarm flat belts could result in personal injury. Removing the stairarm flat belts will help to prevent yourself or others from stepping onto the stairarm causing unexpected machine movement while working on the lift system hardware.

Gas Spring Removal

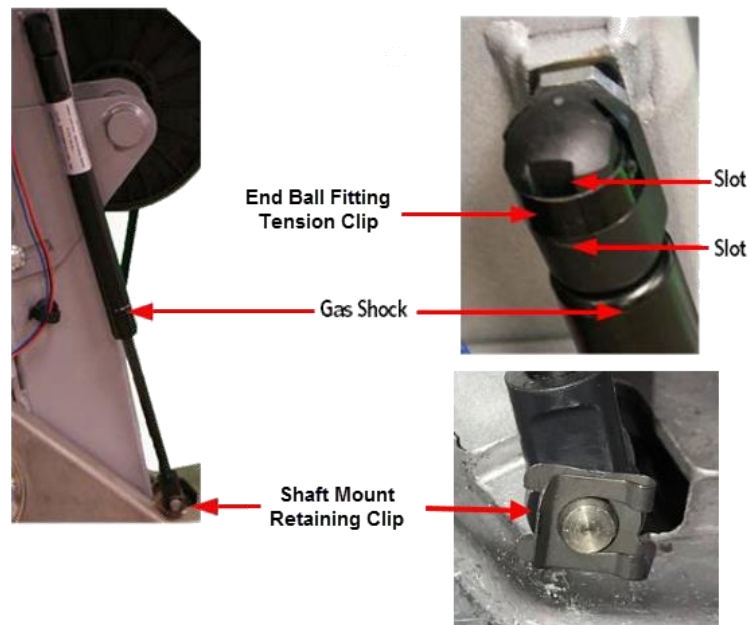
6. Use a #1 standard screwdriver to remove the gas spring shaft mount retaining clip and gas spring off the frame mounting stud.



7. Remove the gas shock end ball fitting from the frame mounting stud:
 - a. Release tension from the gas spring end ball fitting by inserting a #1 standard screwdriver into the slot beneath the tension clip. Insert the screwdriver just enough to release tension but **NOT** remove the retaining clip as it is difficult to reinstall.
 - b. Use another standard screwdriver as a pry bar to remove the end ball fitting from the frame mounting stud. Insert the screwdriver flat-blade between the gas spring end ball fitting and the frame mounting stud and pry the end ball fitting off the frame mounting stud. It may help to wiggle and rotate the gas shock while removing.

Gas Spring Installation

1. Place the gas spring shaft mount onto the frame mounting stud. Secure using the shaft mount retaining clip.



2. Adjust the gas spring height to align the gas shock end ball fitting with the frame ball stud. Then press the gas shock end ball fitting onto the frame ball stud. Secure by pressing the tension clip until it snaps in place.
3. Lift the stairarms and thread the inside flat belts through the lower flat belt pulleys.
4. Reconnect the lift motor power cable to the LPCA board.



Warning: When the lift power cable is reconnected, the lift motor may reset the stride height to level 2 causing unexpected lift assembly hardware movement which could result in personal injury.

5. Access the **Hardware Validation** diagnostics menu (51765761), select the **CROSSRAMP TEST** and set the CROSSRAMP (stride height) to level to 2 "Home" position.
6. Verify that the lift motor system is properly calibrated, do the *Lift Motor Calibration Adjustment* procedure.
7. Reinstall the LPCA cover.
8. If the covers were removed, reinstall all removed covers.
9. Verify machine operation and return to service.

Replacing the lift motor

Procedure

1. Remove the front, left/right side, eft/right bottom, Center beam, and back covers, see Cover Replacement.
2. If the lift motor system is working,, access the **Hardware Validation** diagnostics menu (51765761), select the **CROSSRAMP TEST**, and set the CROSSRAMP (or stride height) to **level 1**.
3. Remove the LPCA cover, see *Replacing the Lower PCA and Battery*.
4. Disconnect the lift motor cable connector from the lower PCA and remove the cable from the frame lower PCA battery bracket cable clamp.

Disconnecting the Gas Spring Shaft Mount

5. Use a screwdriver to remove the shaft retaining clip and remove the gas spring shaft from the lift arm assembly mounting stud, see figure: *Gas Spring Shaft Mount Removal* below.



Warning: Be aware that the gas spring shaft could be under compression (level 1 least compression, Level 5 most compression) and expand when disconnected from the lift arm assembly mounting stud.

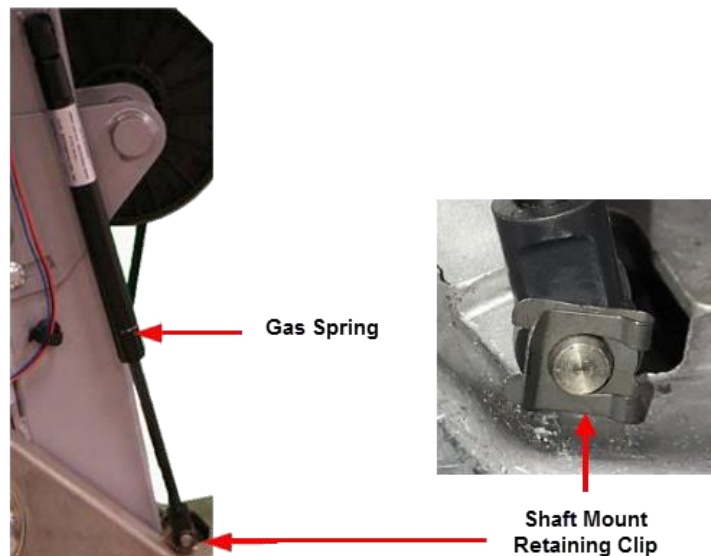


Figure: Gas Spring Shat Mount Removal

Lift Motor Removal

6. Remove the hitch pin and the lift motor pivot pin and then remove the lift motor extension tube from the lift arm assembly bracket, See figure: *lift Motor Extension Tube Removal* below.
 - a. If the pin is jammed or has excessive pressure on the pivot pin, it may be necessary to use a rubber mallet and pin punch to drive the pin out of the lift arm assembly bracket.

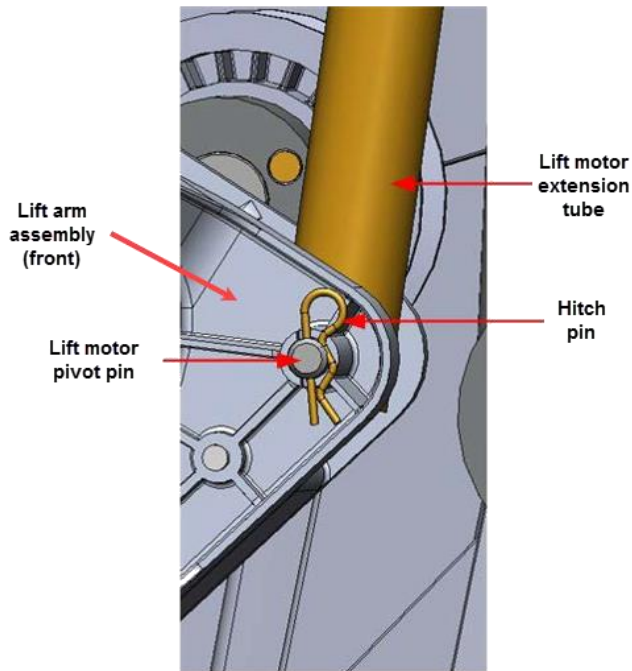


Figure: lift Motor Extension Tube/Arm Assembly Connection

7. Remove the snap ring from the left upper flat pulley shaft located next to the lift motor. Remove the pulley and wave washer. Removing the flat pulley will allow access to the lift motor upper mounting bolt.

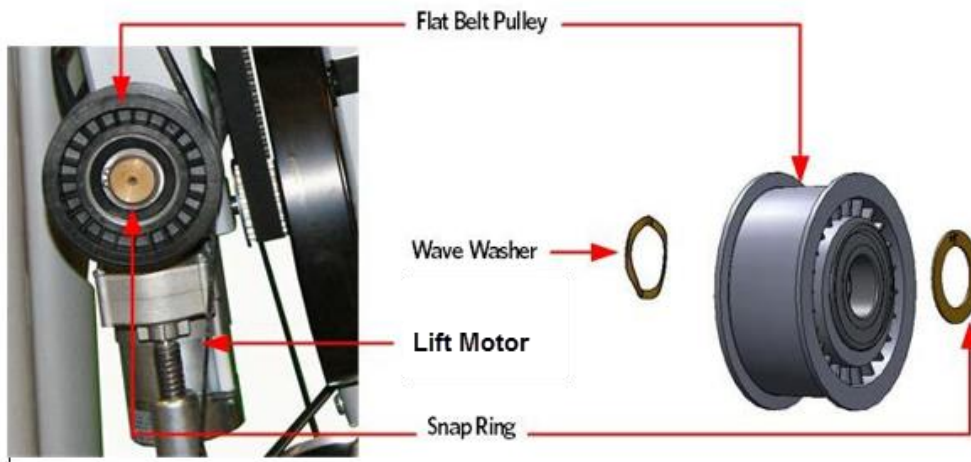


Figure: Lift Motor Flat Belt Pulley

8. Remove the lift motor 1/2" hex head mounting bolt and remove the lift motor, see *Lift Motor Mounting Bolt* below.

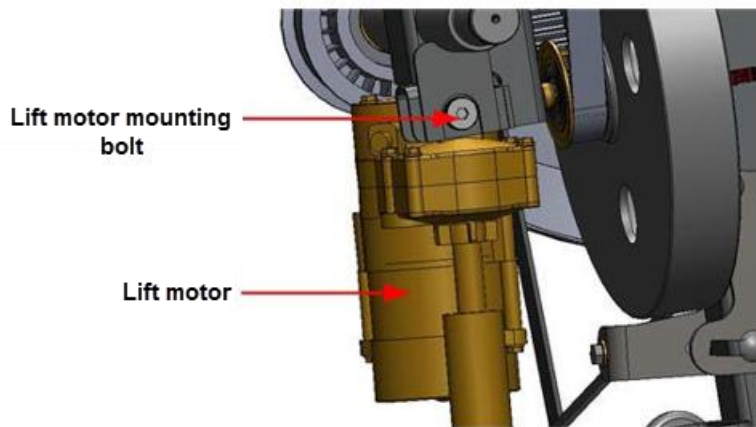
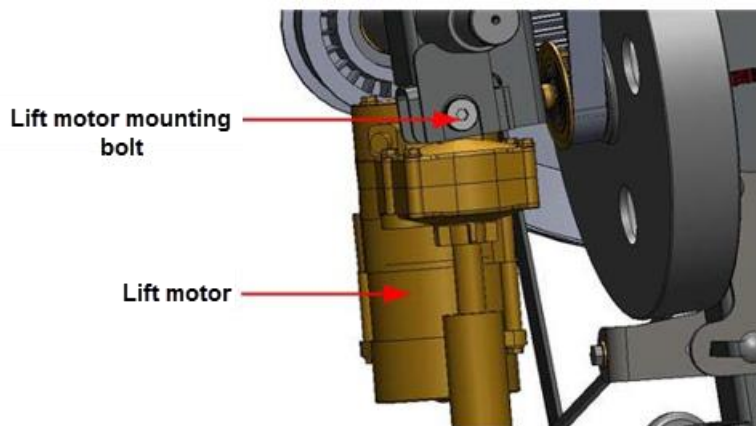


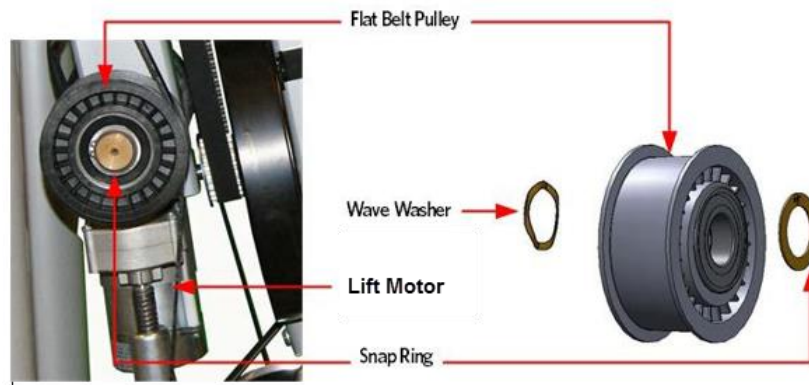
Figure: Lift Motor Mounting bolt

Lift Motor Installation

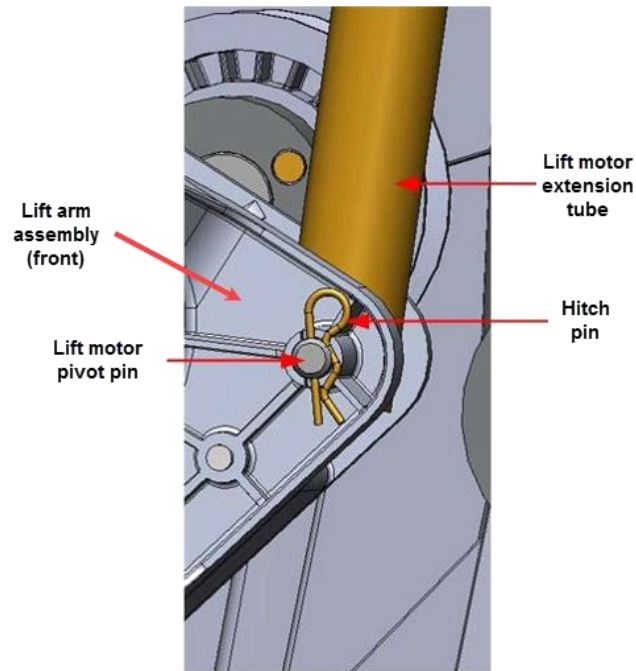
1. Install the top of the lift motor into the frame weldment bracket and secure using the 1/2" hex head mounting bolt. Fully tighten the bolt.



2. Reinstall the left upper flat pulley. Reinstall the wave washer, flat belt pulley, and secure using the snap ring.

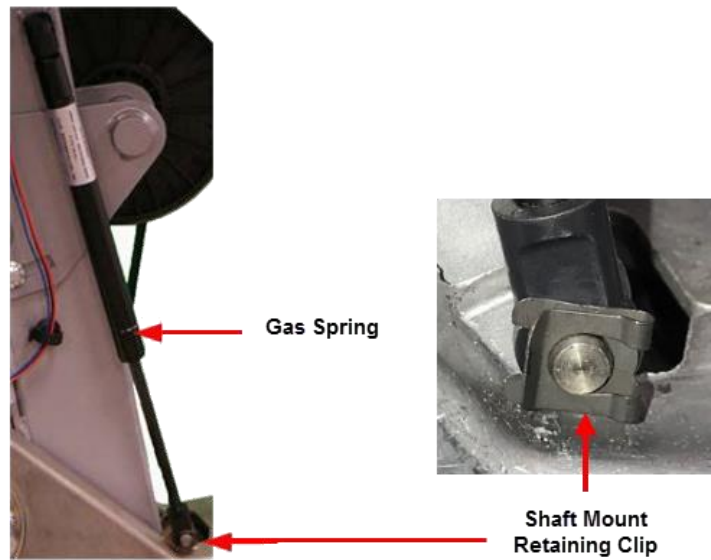


3. Reinstall the lift motor extension tube into the lift arm assembly bracket and secure using the lift motor pivot pin and hitch pin, See figure: *lift Motor Extension Tube Removal* below.



Reconnect the Gas Spring Shaft Mount

4. Reinstall the gas spring shaft mount onto the lift arm assembly mounting stud and secure using the retaining clip, see figure: *Gas Spring Shaft Mount Removal* below.



Jack Screw calibration adjustment

5. Connect the lift motor cable to the LPCA board and attach the cable to the battery bracket cable clamp, see *Replacing the Lower PCA and Battery Bracket* procedure.
6. Access the **Hardware Validation** diagnostics menu (51765761), select **CROSSRAMP TEST**, and set the **CROSSRAMP** (or stride height) to **level 2**. This positions the jack screw to the correct level 2 calibration length.

7. Hold the jack screw with one hand and use the other hand to rotate the lift motor extension tube until the extension tube calibration gap (measured between the bottom of the lift motor jack screw nut and the top of the extension tube) is **1-1/4 inches**, see figure: *Level 2 Lift Motor Calibration* below.

Note: When rotating the lift motor extension tube, do not allow the lift motor jack screw to rotate. If the jack screw rotates, the calibration will be invalid. If the jack screw is rotated, reset the level 2 jack screw calibration position, repeat *Jack Screw calibration adjustment*.

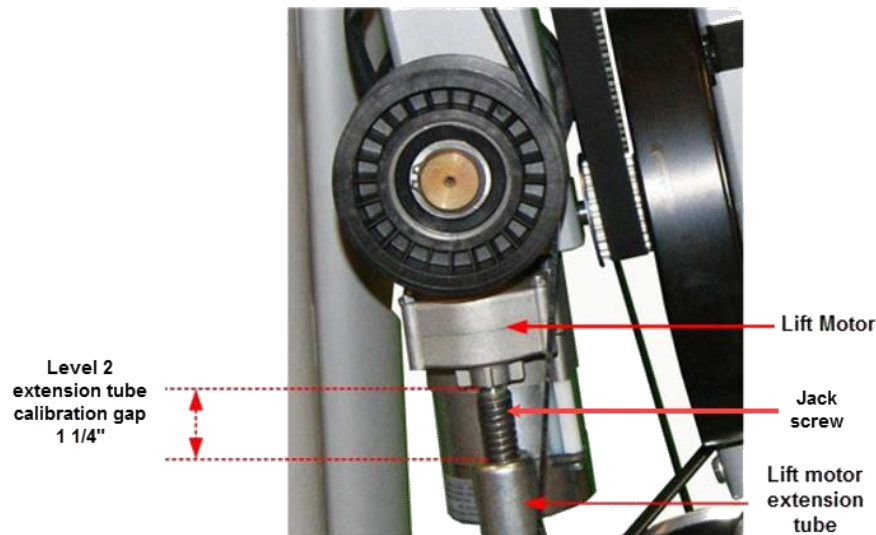


Figure: Level 2 Lift Motor Calibration

Figure: Level 2 Lift Motor Calibration

8. Attach the lift motor extension tube to the lift arm assembly bracket:
 - a. Use a ratchet strap (wrapped around the left side of the front arm weldment and the left front of the lift arm assembly) to raise/lower/hold the lift arm assembly as needed to align the lift arm assembly bracket bolt holes with the lift motor extension tube bolt holes.
 - b. Insert the extension tube mount into the lift arm assembly bracket and secure using the lift pivot pin and hitch pin. You may need to make a small adjustment (rotation) to the extension tube to allow the tube mount to be inserted into the lift arm assembly bracket. Choose the adjustment rotation direction (CW or CCW) that results in the final installation closest to the extension tube calibration gap 1 1/4" specification.
 - c. Remove the ratchet strap.

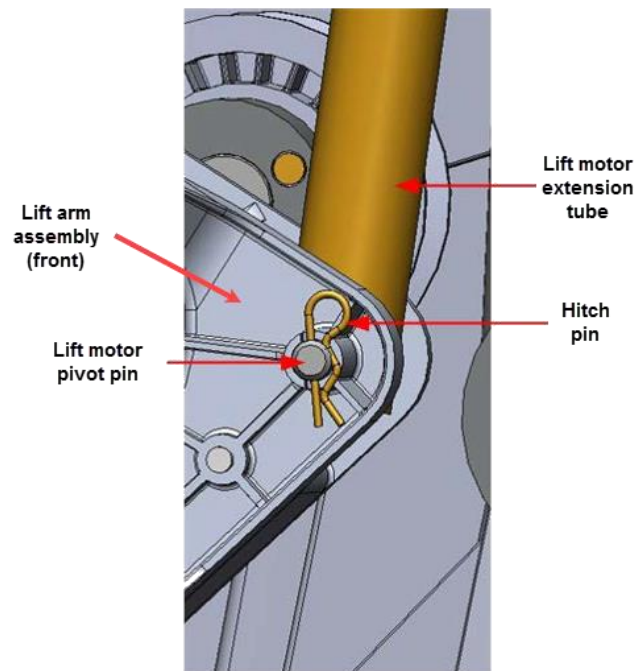


Figure: lift Motor Extension Tube/Arm Assembly Connection

9. Reinstall the left and right flat belt pulleys. Lift the stairarms and thread the inside flat belts through the flat belt pulleys.
10. Verify the lift motor calibration, do the *Lift Motor Calibration Adjustment* procedure.
11. Reinstall the LPCA cover, see Replacing the Lower PCA and Battery.
12. Reinstall the front, left/right side, eft/right bottom, Center beam, and back covers, see Cover Replacement.
13. Verify operation and return to service.

Troubleshooting

Troubleshooting the Generator

The generator performs three functions in the AMT. First, by controlling the amount of electrical load applied to the generator, the user's pedaling resistance is controlled. Second, the generator is used to charge the AMT's internal battery. Lastly, one of the generator's six phase output windings is monitored to determine when the unit is in use and when it is idle. This system also determines the stride rate by determining the operating speed (output frequency) of the monitored generator winding.

WARNING: Before continuing with this procedure, review the Warning and Caution statements listed in the Warning and Caution Statements and General Safety Guidelines Section, Things You Should Know.

- 1 Perform the generator resistance test per, *Measuring the Resistance of a Generator*. If any of the resistance measurements are significantly high or significantly low, replace the generator.
- 2 The following voltage reading must be taken while the unit is in motion. Extreme care must be taken to keep meter wires, hands, etc. clear of all moving parts. Using an AC voltmeter, measure the voltage between red and black, red and white and black and white wires at 3 Phase Gen In of the lower PCA. AC voltage readings will vary depending on the unit's stride rate at the time the measurement is taken. At a stride rate of 50 strides per minute, all three voltage readings will be approximately 40 VAC - 45 VAC.
- 3 If any of the readings in step 2 are significantly low, replace the generator. If you have performed all of the above tests and are unable to resolve the problem, contact Precor customer support.

Generator Operation Verification Test

Use this procedure to verify the generator operating condition.

Caution: If an external power supply is connected to the AMT, disconnect the external power supply from the AMT before continuing with this procedure.

Procedure

- 1 Remove the right side cover as per Procedure, *Cover Replacement*.
- 2 Remove the positive battery wire from the lower PCA.

Figure 49: Battery



3 Set the ohmmeter to a range that will conveniently read up to 50 Ω (Ohms).

4 Remove the two wires from the LOAD terminals of the lower PCA.

5 With an ohmmeter, read between the wires removed in step 4. The reading should be approximately 10 Ω (Ohms). Replace the two wires removed in step 4.

6 Remove the three wires from the 3 PHASE GEN IN terminals of the lower PCA.

7 With an ohmmeter, read between the red & white, red & black and white & black wires. Each reading should be approximately 25 Ω (Ohms). Reconnect the wires removed in step 6.

8 If the readings are still incorrect, replace the three phase generator.

9 Reconnect the red battery wire removed in step 3.

10 Replace the right side cover as per, [Cover Replacement](#)

Troubleshooting the Incline System

The lift motor is a 12 Vdc motor with an internally driven 1K Ω (Ohms) potentiometer used to track ramp position. Because the lift motor is a DC motor, direction is controlled by the polarity applied to the lift motor. When a positive voltage is applied to the motor, the motor will move upward. When a negative voltage is applied to the motor, the motor will move downward. As the motor moves, the 1 K Ω (Ohms) potentiometer is rotated via an internal gear drive system. The potentiometer's changing resistance is fed to the incline control system and converted to an A/D (analog to digital) number that is used in the to indicate ramp position.

The operating system has a battery monitoring system. If the battery voltage falls below 11 Vdc when stride height movement is initiated or the battery voltage falls below 10 Vdc after the ramp movement has been initiated, ramp movement will be stopped and the message **ERROR 46** will be displayed. Stride Height motion will not be enabled until such time as the battery voltage exceeds the above limits. The battery voltage must be raised to correct this condition either by battery charging or battery replacement. This is strictly a battery problem and not a incline system or lift motor problem.

1 If an Error 40 (no incline movement) is being displayed continue with step 2. If an Error 42 is being displayed (incline out of range) skip to step 12.

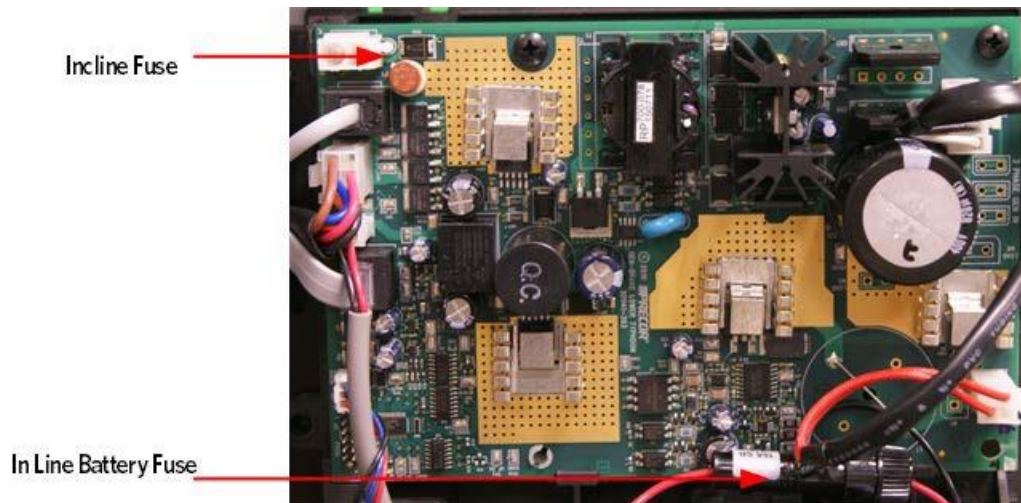
2 If the incline moves briefly and then displays an Error 40, skip to step 12. If the incline does not move prior to displaying the Error 40 continue with step 3.

3 Remove the gasket, top cover, front cover, back cover, center beam cover, back cover and right side cover. Check the battery voltage which should be approximately 12 vdc. Remove the in-line 10 amp slow blow 3AG fuse and check with the ohms setting on the multi-meter. The fuse should read 1 ohm or less.

4 Remove the F1 fuse (6.3 amps) from the lower PCA. See Diagram 6.4.

Check the fuses resistance using an ohmmeter. The fuse should read 1 ohm or less. If the reading is significantly high, replace the fuse. If the fuse is good or replacing the fuse does not correct the problem, continue with step 5.

Figure 63: Lower PCA Fuse Locations



5 Enter the diagnostic program per procedure, [P80 Settings. 51](#)) or [Accessing the P30 Diagnostic Software.](#) Using the diagnostic program allows you to test the incline system without continuously pedaling the unit if you have an external power supply. Otherwise, you will need to continue to pedal the unit. Connect a DC volt meter to the J3 connector on the lower PCA as follows: voltmeter common lead to terminal 3 (black wire) and voltmeter "hot" lead to terminal 2 (red wire). Using the **STRIDE HEIGHT** \uparrow, \downarrow keys operate the incline. The voltmeter should read +12 Vdc approximately when the incline is instructed to move upward and -12 Vdc approximately when the incline is instructed to move downward.

6 If when the **STRIDE HEIGHT** keys are pressed, the display does not indicate that the incline is moving or the A/D numbers are not changing, troubleshoot the upper PCA and keypad per procedure [P80 Troubleshooting. 106](#)), or [P30 Troubleshooting. 41](#)).

7 If the voltage measurements in step 5 are correct continue with step 8. If the either voltage measurement in step 5 is significantly low, replace the battery.

8 If voltage is significantly low, verify that all of the wires in the cable inserted in to J3 of the lower PCA are securely inserted into the connector housing and providing a good electrical connection.

9 If the voltage measurements in step 5 are correct and the motor does not move replace the lift motor. If the either voltage measurement in step 5 is significantly low, replace the motor.

10 If you have performed all of the above tests and are unable to resolve the problem, contact Precor customer support

11 Enter the diagnostic program per [P80 System Tests. 63](#)), or [Accessing the P30 Diagnostic Software.](#) and advance to the **STRIDE HEIGHT**. If the A/D reading is either 0 or 255, skip to step 15.

12 Using the **STRIDE HEIGHT** \uparrow, \downarrow keys operate the incline. If the A/D reading tracks the incline movement smoothly without skips, calibrate the lift motor per, [Calibrating the lift motor. 137](#)) and re-test incline functions in a normal operating mode.

13 If the A/D reading was erratic and did not smoothly follow incline motion, visually check the connections between the intermediate cable and the J3 connector on the lower PCA.

14 Exit the diagnostics program, and leave the unit idle long enough for it to "shut off". Disconnect the red battery lead from terminal M6 of the lower PCA. Remove the intermediate cable from the J3 connector of the lower PCA. Using an ohmmeter, test between terminal 4 (brown wire) and terminal 6 (orange wire) of the cable. The ohmmeter should read approximately 1000 ohms (+/- 20 percent).

15 Test between terminal 4 (brown wire) and terminal 5 (blue wire) of the intermediate cable and between terminal 5 (blue wire) and terminal 6 (orange wire) of the intermediate cable. These two readings should total approximately 1000 ohms (+/- 20 percent).

16 If the readings in steps 14 and 15 are significantly high or low, replace the lift motor. Calibrate the lift motor per, *Calibrating the lift motor*.

Troubleshooting the COMM Data Cable

- 1 Remove the Consoles access cover.
- 2 Remove the right side cover as per procedure, *Cover Replacement*.
- 3 Disconnect the COMM Data cable from the upper PCA and the lower PCA.
- 4 External of the upper column, connect a replacement COMM Data cable to the lower PCA and the upper PCA.
- 5 Check operation as described in *Checking AMT Operation*
If the unit works properly, replace the interconnect cable.
- 6 If you have performed all of the procedures above and have been unable to correct the problem, call Precor customer support.

Preventive Maintenance

Preventive maintenance measures are either scheduled or unscheduled. Scheduled preventive maintenance activities are included here so that you are aware of preventive measures performed on a regular basis.

Regular Preventive Maintenance (Owner)

Cleanliness of the AMT and its operating environment will keep maintenance problems and service calls to a minimum. Precor recommends that you perform the following preventive maintenance schedule.

After Each Use

- ◆ Wipe down the covers, handlebars and stairarms with a damp cloth.

Daily Maintenance

Clean the AMT's frame, covers, stairarms and foot pedals using water or a 30:1 solution of Simple Green® and water. Wipe the surface of the electronic console with a damp sponge or soft cloth. Dry with a clean towel. A 30:1 solution of Simple Green® and water or Contec Athletix® wipes are the only cleaning products that have been tested and approved for use on the AMT. The use of an acid (citric) based cleaner is not authorized by Precor.

Weekly Maintenance

- ◆ Vacuum underneath the AMT, following these steps:
 1. Unplug the optional external power supply (when equipped) from the AC outlet
 2. Remove the platform at the rear of the AMT.
 3. Carefully lift the rear of the AMT and move it to a temporary location.
 4. Vacuum the rug or damp mop the floor.
 5. Make sure that the floor is dry before returning the AMT to its original position and replacing the platform.
- ◆ Re-level the AMT to ensure that the two leveling feet are in contact with the floor.
- ◆ Thoroughly test the AMT per, ***Checking the AMT Operation***, including heart rate.
- ◆ Cardio Theater cord management must be observed.

Quarterly Maintenance

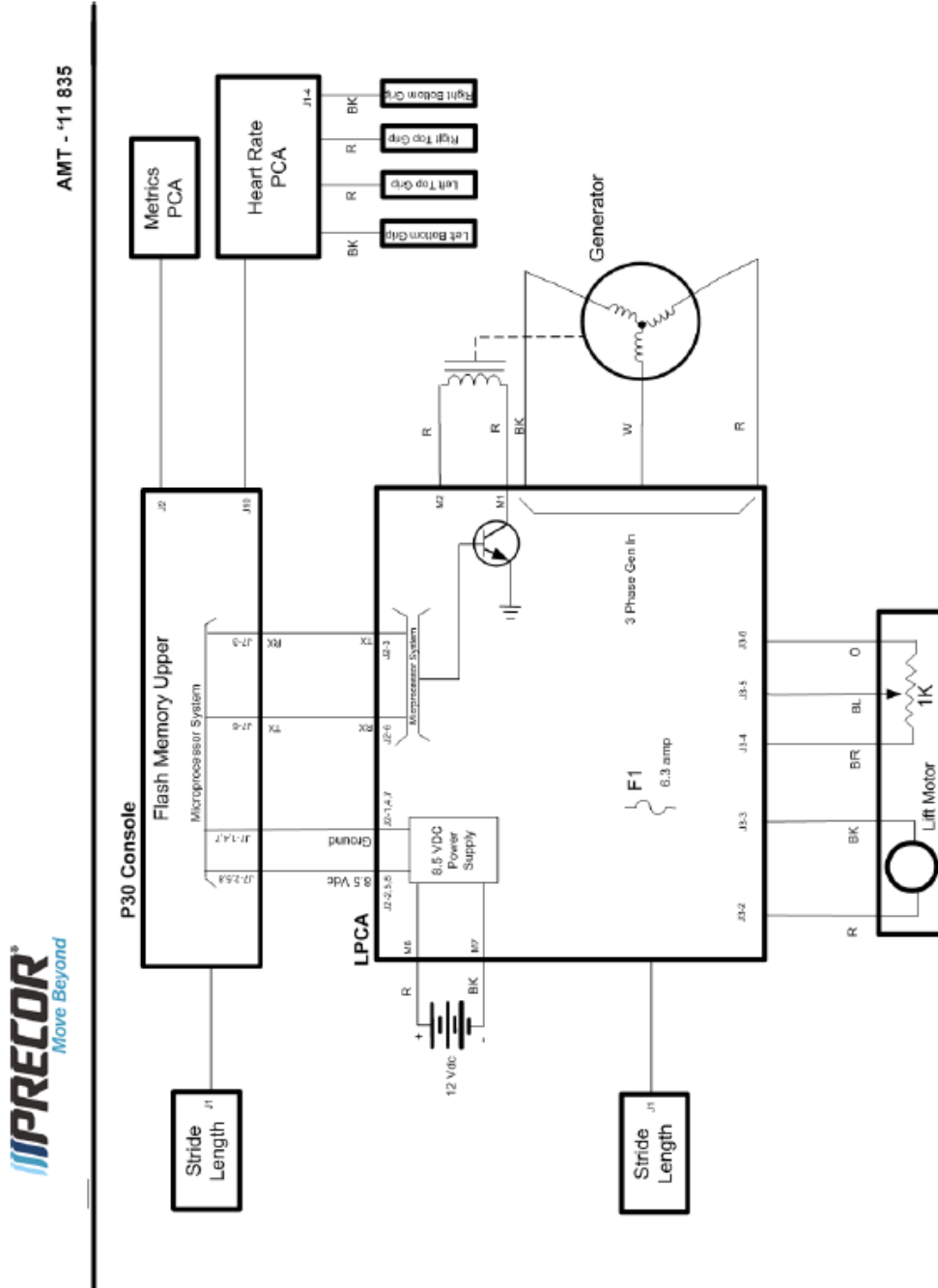
1. Remove the side covers per, ***Cover Replacement*** procedure.

2. Check the belt alignment and tension as in *Inspection and Adjustment Procedures*.
3. Clean the inside of the AMT.
4. Inspect fasteners for proper tightness and torque.
5. Check for excessive noise during vertical and horizontal operation.
6. Replace the side covers.
7. Re-level the AMT to ensure that the two leveling "feet" are in contact with the floor.

On-Site Preventive Maintenance (Service Technician)

- ◆ When you are called to service a AMT, perform these preventive maintenance activities:
 - ◆ Perform the software diagnostics. Check LED and keypad function. Record the odometer reading.
 - ◆ Check stride rate and stride length sensor function (is the stride rate and stride length displayed when the unit is in operation?).
 - ◆ Visually inspect the drive belts and flat belts for cracks, fraying or excessive wear.
- ◆ When furnished, inspect the optional power supply cords. If a power supply cord(s) is damaged, install a new power supply.
- ◆ Visually examine all wires and check connectors and wire connections. Secure connections and replace wiring as necessary.
- ◆ Cardio Theater cord management must be observed.

System Block Diagram



Wiring Diagram

AMT 12 Wiring Diagram

