PRECOR®

Service Manual



Experience™ Series 600 line Elliptical Fitness CrossTrainer EFX600-18 Base

Moving Arms

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Introduction

Only Precor certified technicians are authorized to service Precor equipment. If you are not a Precor certified servicer, you must not attempt to service any Precor product. Call your dealer for service information

WARNING: This service documentation is for use by Precor certified servicer providers only. Personal injury can result from electrical shock and/or mechanical moving parts.

This service manual applies to the Experience™ Series 600 Line **EFX**[1]® models with the EFX600-18 Base.



EFX600 Line Elliptical

Model	EFX600-18 Configuration
EFX633	Fixed Arms, Moving CrossRamp, and P30 **LED**[2] console
EFX635	Moving Arms, Moving CrossRamp, and P30 LED console
EFX663	Fixed Arms, Moving CrossRamp, and P62 touchscreen console
EFX683	Fixed Arms, Moving CrossRamp, and P82 touchscreen console

[1]Elliptical Fitness Crosstrainer

[2]light-emitting diodes.

Model	EFX600-18 Configuration
EFX665	Moving Arms, Moving CrossRamp, and P62 touchscreen console
EFX685	Moving Arms, Moving CrossRamp, and P82 touchscreen console

Service manual contents

The service manual contains information to service, repair, troubleshoot, and maintain the machine base.

This manual does not include console service and repair information, for console service and repair information, refer to the console service manual.

However, the service manual does include information about how to use the console standard service menus, diagnostic tests and error code log to help troubleshoot and repair machine issues.

Additional Service Documentation and Videos

There are additional literature and video resources available that can help you to use, service, troubleshoot, and repair the machine. Refer to *Product Literature & Videos* topic:

- "Product Literature & Videos" on page 256

.

See Also

"General Information" on page 6

"Operation Verification" on page 20

"Standard Service Menus" on page 23

"Adjustment/Calibration Procedures" on page 52

"Replacement Procedures" on page 72

"Troubleshooting" on page 213

"Preventive Maintenance (PM)" on page 232

"Electrical Systems" on page 236

"Parts" on page 243

Service Safety Guidelines

WARNING: Only Precor certified servicers and technicians are permitted to service Precor products. Personal injury can result from electrical shock and/or mechanical moving parts.

Review the following safety information prior to servicing the equipment. This safety information will help to prevent personal injury or damage to the equipment while servicing the equipment.

Safety guideline you need to know and follow:

- Read and follow all **Warning** notices to protect yourself from personal injury.
- Read and follow all **Caution** notices to prevent damage to the equipment.
- Read the owner's manual and follow all operating instructions.
- Operate the equipment on a solid, level surface.
- Visually check the equipment before beginning service or maintenance operations. If it is not completely assembled or is damaged in anyway, do not attempt to operate the equipment.
- Never place liquids on any part of the equipment 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. Non-OEM accessories can cause injuries.
- Do not stand or climb on the handlebars, display enclosure or cover.
- On 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.
- On **AMT**[1] units when the stairarms are in motion; the generator will operate and produce potentially hazardous voltages even when the battery is disconnected.
- On AMT units with Cardio Theater **PVS**[2] 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
- On AMT units, 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.

[1]Adaptive Motion Trainer

[2]Personal Viewing System display.

- On treadmills, removing the hood exposes high voltage components and potentially dangerous machinery. Exercise extreme caution when you perform maintenance procedures with the hood removed.

When servicing the equipment:

- During service operations you will be very close to moving machinery and voltage bearing components:
  - Remove jewelry (especially from ears and neck).
  - Tie up long hair.
  - Remove neck ties.
  - Do not wear loose clothing.

See Also

"Notices and Safety" on page ii

"Safety Notices" on page iii

General Information

General equipment and service information that will help you to repair and maintain the machine.

Features

The equipment operating specifications.

Feature	Specification
Consoles	LED[1] consoles: P30, P30i and P31 Touchscreen consoles: P62 and P82
Movable CrossRamp®	Models with moving crossramp option: levels 1 - 20 range: 10° - 35° incline Stairarm wheel: Single polyurethane wheel with over-sized axle and sealed bearings.
Upper Arms	Fixed and movable arm options.
Resistance	The machine can be installed with either a Single Stage Input drive (single drive belt hybrid generator/eddy brake system) or a Dual Stage input drive (dual belt 3-phase generator/eddy brake input drive system) to control the applied resistance levels. The resistance specifications are different depending on the type of input drive system. Dual Stage Input Drive: Levels: 1 - 20 Resistance min/max specification: • min 18 W (level 1 at 40 SPM[2]) • max 720 W (level 20 at 200 SPM) Single Stage Hybrid Input Drive: Levels: 1 - 20 Resistance min/max specification: • min 7 W (level 1 & 40 SPM) • max 534 W (level 20 & 200 SPM) Maximum SPM resistance levels: SPM > 96, max level 20 SPM 92 - 96, max level 19

[1]light-emitting diodes.

[2]steps per minute

Feature	Specification
	SPM 82 - 92, max level 18 SPM 72 - 82, max level 14 SPM 60 - 72, max level 10 SPM < 60, max level 5
Heart Rate	• Touch Handheld handlebar mounted heart rate sensors. • Telemetry Equipped for wireless heart rate monitoring using a chest strap.
Max User Weight	Maximum exerciser weight: 350 lbs (159 kgs)
Dimension/Weight	Length 82 in / 208 cm Width 30 in / 76 cm Height 72 in / 183 cm Weight 315 lbs / 143 kgs
(1) The maximum resistance level is strides per minute (SPM) dependent. For SPM rates 100 SPM or greater, the pedal resistance matches the resistance level setting. As the SPM drops below 100 SPM, the maximum allowable pedal resistance will incrementally decrease regardless of the resistance level setting. As the SPM increases to 100 SPM, the pedal resistance will also increase to the control level setting.	

Model and Serial Numbers

Model Numbers

The product model number is a six digit alphanumeric code "AAAXXX" containing the product type, product line, console type, and feature level designator:

- "AAA" - three alpha character PRODUCT TYPE designator
- "X" – 1 digit numeric PRODUCT LINE designator
- "X" – one digit numeric CONSOLE type designator
- "X" – one digit numeric FEATURE LEVEL designator

Example

Product model number: TRM[1]833

- TRM – Treadmill
- 8 – Experience Line

[1]Treadmill

- 3 – P30 console
- 3 – Fixed ramp

Product Model Number Designator Definitions

PRODUCT TYPE	PRODUCT LINE	CONSOLE	FEATURE LEVEL	
TRM: treadmill **EFX**[1]: elliptical **AMT**[2]: AMT **UBK**[3]: Upright **RBK**[4]: Recumbent **SCL**[5] StairClimber	**8**-Experience Premium **7**-Experience *Standard* **6**-Experience *Good* **6**-Assurance *Standard* **4**-Precision, *Consumer* **2**-Energy, *Consumer*	**8**-P80, P82 **6**-P62 **4**-R40 **3**-P30, P31 **2**-P20/R20 **1**-P10	**7**	EFX: Mov Ramp/Cnvrt Arms
			5	TRM: High Speed/Decline AMT: Moving Step Height EFX: Mov Ramp/Mov Arms RBK: Standard features UBK: Standard features **SBK**[6] Standard features
			3	TRM: Fixed Ramp AMT: Fixed Step Height EFX: Moving Ramp/Fixed Arms
			2	EFX: Man Ramp/Mov Arms
			1	EFX: Fixed Ramp/Moving Arms

Serial Numbers

About

The serial number uniquely identifies each machine. The serial number is an alphanumeric code comprised of a four character model designator, a 1 letter build month code, a 2 digit day built, a 2 digit year built and a four digit consecutive daily build number.

[1]Elliptical Fitness Crosstrainer
[2]Adaptive Motion Trainer
[3]Upright Bike
[4]Recumbent Bike
[5]StairClimber
[6]Spinner Indoor Cycle

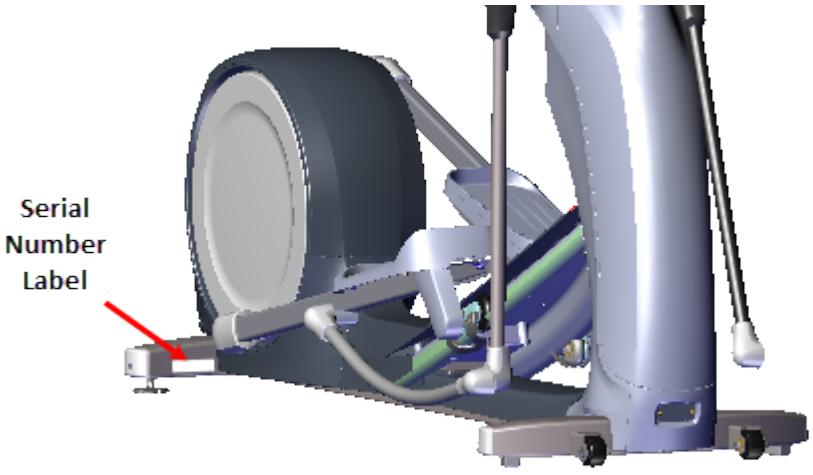


PART	MEANING
AGNB	Model
F	Month built
17	Day built
14	Last 2 digits of year built
0021	Consecutive daily build number

A	January
B	February
C	March
D	April
E	May
F	June
G	July
H	August
I	September
J	October
K	November
L	December

Serial Number Label Location

The serial number label is located on the front right side of the rear stabilizer.



Orientation

The equipment orientation (front, right, left, back) is referenced to an exerciser standing on the equipment facing the console.



Tools and Supplies

Tools and supplies required to complete the machine service and repair.

Tools

- US and Metric Hex Key set
- US SAE and Metric Wrench set
- **Torque**[1] wrench
- US SAE and Metric socket set
- US SAE and Metric Hex Key Socket Bit set
- Standard and Phillips screw driver set
- T25 6-star Torx wrench
- External 0.047" Retaining Ring Pliers
- Belt Tension Gauge (recommended Kent-Moore BT-33-73-F)
- **DVM**[2] Multimeter

Supplies

[1]Torque is a measure of the force that can cause an object to rotate about an axis. Bolt/nut example: 5 NM torque is equivalent to 5 newton's of force applied one meter from the center of the bolt, 6 ft-lb is equivalent to 6 lbs of force applied 1 foot away from the center of the bolt.
[2]digital volt meter

Super Lube Gel with Teflon by Permatex	Cleaning rags
Mobil 1, NLGI 2 Teflon Synthetic Grease	Cleaner Degreaser (Simple Green)
Loctite 243 Blue Medium Strength Thread-locker	Cable ties (1- 3/4", 3", 4" lengths)

Specifications

Fastener Torque Specification

System component fastener torque specification:

System Component	Specification
RF[1] coax connector	2.4 in-lbs (0.271 Nm)
Display fasteners	180 in-lbs (20 Nm
Set screws	300 in-lbs (34 Nm)
Self-tapping screws	35 in-lbs (4 Nm)
Plastite screw fasteners	20 in-lbs (2.3 Nm)
Phillips flathead screws	25 in-lbs (2.8 Nm)
Hex key flathead screws	100 in-lbs (11.3 Nm)
Input Drive Assembly fastener	180 in-lbs (20.3 Nm)
Step-up Pulley and Tension Assy fasteners	180 in-lbs +/- 54 (20.3 +/_ 4.5 Nm)
Generator and Eddy Brake Assy fasteners	180 in-lbs +/- 54 (20.3 +/_ 4.5 Nm)
Linkarm fasteners	300 +/- 90 in-lbs (34 +/- 10 Nm)
Crank Retention Plate Fastener	30 +/- 9 in-lbs (3.4 +/- 1 Nm)
Ramp Yoke bolts	330 in-lbs (27.5 ft-lbs or 37.2 Nm)
Ramp Pivot Mounting Bolts	1080 in-lbs (90 ft-lbs or 122 Nm)
Ramp Pivot Assembly Mounting Bolts	96 in-lbs (8 ft-lbs or 10.8 Nm)
Forward Ramp Cover fasteners (*Do not over tighten screws.)	30 +/- 9 in-lbs (3.4 +/- 1 Nm)

[1]Radio Frequency: Identifies electromagnetic signals with frequency spectrum between the 3 kHz (3,000 hertz) to 300 GHz (300 billion hertz) range.

Belt Tension Specification

.Drive belt tension specification:

Belt	Specification
single stage input drive Belt Tension	93-100 lbs (42- 45.4 kgs)
Dual Stage Input Drive: First Stage Drive Belt Tension - **New Belt**	140-150 lbs (63.5 - 68 kgs)
Dual Stage Input Drive: First Stage Drive Belt Tension - **Used Belt**	125 - 135 lbs (56.7 - 61 Kgs)
Dual Stage Input Drive: Second Stage Drive Belt Tension - **New Belt**	110-120 lbs (50- 54.4 kgs)
Dual Stage Input Drive: Second Stage Drive Belt Tension - **Used Belt**	92 - 105 lbs (43 - 47.6 kgs)

Bolt Grade Identification

Bolt grade markings are used to categorize bolts according to the bolt material, manufacturing process, and mechanical properties. The grade of the bolt is stamped on the head of the bolt.

US SAE bolts: The bolt grade markings are determined by the number of the lines stamped on the head of the bolt. The number of lines is always two less than the grade of the bolt. Count the lines, add two, and you can determine the grade of the bolt.

Metric bolts: On metric bolts, the bolt grade is identified by a bolt grade number stamped on the head of the bolt.



CAUTION: Always replace bolts with the same grade bolt. If you don't know the grade of the replacement bolt – DO NOT USE THE BOLT.

Bolt Grade Markings Chart

Example bolt grades used on Precor equipment (may not represent all bolt grades). Always match the replacement bolt grade marking to the removed bolt grade marking.

GRADE	SAE BOLT LINES	BOLT MARKINGS Metric	SAE
Grade 2 Metric 5.8	No Radial Lines		
Grade 5 Metric 8.8	3 Radial lines		
Grade 8 Metric 10.9	6 Radial Lines		

Parts

Parts

IMPORTANT: Always purchase OEM replacement parts and hardware from Precor. If you use parts not approved by Precor, you could void the Precor Limited Warranty. Use of parts not approved by Precor may cause injury.

There is a copy of the parts *Exploded View Diagram* and *Parts Identification List* included in the Parts chapter (see "Parts" on page 243)that you can use as a quick reference. It is recommended that you go to the servicer partners Precor Connect (or Precor Connection) website to view the most current parts information including the *Exploded View Diagram* and *Parts Identification List*.

Online parts information using Precor Connect

- Precor Connect Partner website

Local hard copies

- Exploded View Diagram and Parts List, see "Parts" on page 243.

Lubricants

Only use products from the following list of approved lubricants:

Lubricant	Description
Grease	Use only NLGI class 2 PTFE synthetic grade grease. Use of unapproved lubricants may void the product warranty. Recommended brands (or equivalent): • Mobil 1® synthetic grease • Super Lube® with Teflon

CAUTION: Do not use petroleum based lubricants on mechanical components such as the lift, as this may result in degradation of nylon gearing mechanisms. Use only synthetic lubricants such as "Super Lube with Teflon" or "Mobile One Synthetic" grease (RED).

Cleaning Procedure

Only use the following approved cleaning products and procedures to safely clean and prevent damage to the machine surfaces.

Approved Cleaning Products

Approved equipment and console cleaning products:

- **General Equipment Surfaces**:
  - 1 part mild soap to 30 parts water (recommend Simple Green® cleaner or equivalent).
  - Athletic equipment cleaner, 9x7 pre-saturated wipes (ATHLETIX PRODUCTS).
  - Enivir O Safe oxygen enhanced cleaner or Enviro Safe glass and multitask cleaner concentrate.
- **Consoles and PVS[1] displays**: a diluted solution of one part 91% Isopropyl alcohol to one part water.

Cleaning Procedure

Generic cleaning procedure applicable to all Precor equipment:

TIP: There are many product specific **PREVENTATIVE MAINTENANCE** cleaning videos available on the Precor Connect **SERVICE VIDEOS** web page. Log in to

[1]Personal Viewing System display.

your Precor Connect servicer account and select SERVICE VIDEOS, see 

SERVICE VIDEOS.

1. Wipe down equipment using a soft lint-free cloth using only the recommended cleaning solution. Always spray cleaning solution directly onto the cleaning cloth and not directly onto the equipment surface to avoid equipment damage due to excessive moisture.



CAUTION: Do not use acidic cleaners and do not spray directly onto the equipment surfaces.

2. Rinse surfaces using a clean lint-free cloth dampened with water only.
3. Then completely dry with another clean lint-free cloth.

Power Requirements

Equipment Power Requirements

This is a self-powered machine that does not require an external power source to operate. Starting a workout spins the generator which generates the power necessary to operate the machine electrical components including: the system electronics, the eddy brake resistance current, battery charging, and LED (P10, P30, P30i and P31) console power.

The battery is used to supply power to operate the lift motor and to maintain system and LED console power for approximately 90 seconds after the workout has stopped.

Console & PVS Display Power Requirements

LED consoles (P10, P30, P30i and P31)

LED console power is supplied by the machine. An external power supply is not required.

- Self-powered machines: The machine generator and/or battery is used to power the console. The machine must be continuously operated to power ON and use the console functions.
- Powered machines: The machines internal power supply is used to power the console. The machine power cord must be plugged in and switched ON to power up and use the console. The console power is independent of the machine workout operation.

Touchscreen consoles (P62, P80, and P82)

Touchscreen consoles use an **AC**[1]/**DC**[2] power adapter to supply the console input power.

- Self-power machines: the AC/DC adapter input power cord is plugged into the facility wall outlet. Up to ten consoles can be connected to the same 20 amp individual branch circuit. Only touchscreen consoles can share the same individual branch circuit, no other devices can be connected to this circuit.
- Powered machines: the AC/DC adapter is powered by the machines internal power supply which is hardwired to the machine input power circuit.

AC/DC adapter specification:

AC/DC Adaptor	Specification
input voltage	100v-240v
output power rating	60W/12Vdc/5A

PVS Display

PVS displays use an AC/DC power adapter to power the display.

- On treadmills, the PVS display can be plugged into the same individual branch circuit outlet as the treadmill.
- On self-powered equipment, up to 10 PVS displays can be connected to the same 20A branch circuit. No other devices except PVS displays can be connected to this circuit.

PVS display specification:

PVS Display	Specification
input power	43 W max

AC/DC adapter specification:

AC/DC Adaptor	Specification
input voltage	100v-240v
output power rating	60W/12Vdc/5A

[1]Alternating Current: electric current which periodically reverses direction between positive and negative polarity.
[2]Direct Current: electrical current that only flows in one direction.

Cable TV RF Power Requirements

There is a minimum Cable TV "**CATV**[1]" RF signal input power level requirement for the touchscreen (P62, P80, and P82) consoles and PVS displays. There are also RF signal power requirements at the facility RF cable wall outlet coax connector:

Touchscreen consoles (P62, P80, and P82)

Touchscreen console RF Input Power specification

Touchscreen	RF Input Power
Analog video power	- 30 **dB**[2] to +20 dB RF power with a (+40 dB **C/N**[3] (Channel to Noise ratio)
Digital RF power	-5 dB to 0 dB

MYE - PVS displays

MYE display RF Input Power specification

PVS	RF Input Power
Analog video power	+5 dB to +10 dB RF power with a +40 dB minimum channel to noise ratio (*at each console)
Digital RF power	-5 dB to 0 dB (*at each console)

RF cable TV wall outlet power requirements

When a RF cable TV wall outlet is used to power several equipment consoles in series, there is a minimum RF power requirement of +35 dB at +40 dB minimum channel to noise ratio for analog video and a +25 dB for Digital video.

An RF signal strength of +35 dB can power 17 to 19 consoles connected in series using properly connected splitters tapped to each individual console.

[1]Cable Television (aka Community Access Television) is a system of transmitting television programming to consumers via radio frequency (RF) signals transmitted through coaxial cables

[2]1) Dynaamic Brake or 2) Decibel (dB): In electronic systems, the decibel (dB) is a of measurement used to express the system power gain (+dB) or loss (-dB) in decibels (dB). dB (power) = 10Log Pout/Pin) or, in terms of voltage, dB (power) = 20Log (Vout/Vin).

[3]carrier-to-noise ratio: The ratio of power in an RF carrier to the noise power in the channel. CNR is defined as the ratio of the received modulated carrier signal power C to the received noise power N after the receiver filters: in terms of power: CNR = C/N, in terms of decibels CNR (dB) = 10Log(C/N) = C (dBm) – N (dBm).

Ethernet (LAN) Input Signal Requirements

Precor recommends a dedicated CAT6 Ethernet feed to each equipment location.

Communication Requirements:

Ethernet (LAN[1])	Specification
upload bit rate	512 Kbps min upload
download bit rate	5-10 Mbps min download
switch ports	80, 123, 443

*Touchscreen (*P62, P80, and P82*) console Preva PBS[2] communication protocol*

The touchscreen consoles P62, P80, and P82) use a security token for communication to the Precor servers. The security token is a hash string that is sent with every API call from the FE's to the Amazon Cloud. The security token originates after the equipment is registered at the location. The console issues a 'Call' which returns the registration token and the fitness equipment URL. Every event after that uses the URL and the token to validate/authenticate communication with the Amazon servers and Preva Business Suite (PBS).

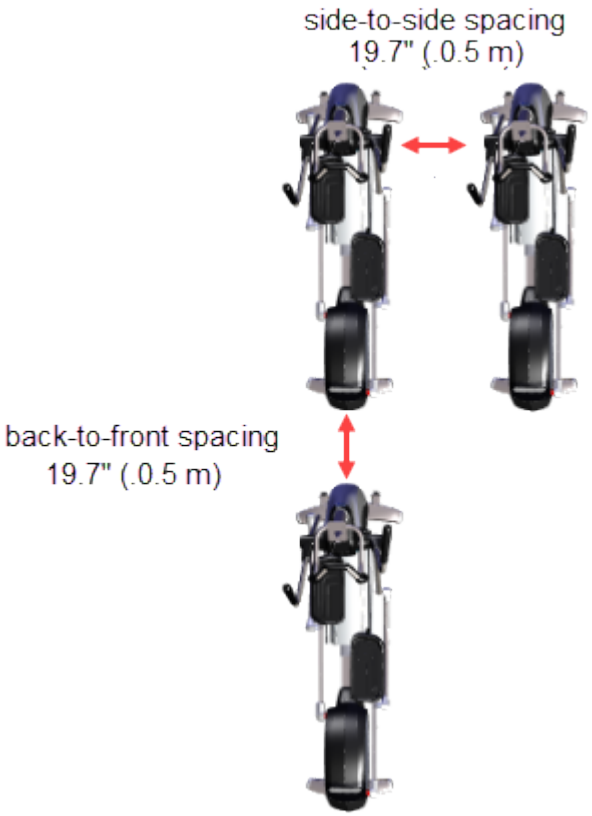
All communication with Precor servers is currently done via outgoing (originating from the console) HTTPS sessions. The console utilizes NTP[3] to set its clock and for synchronization. At no time is Precor connecting to the customers facility network to "push" any data. The console initiates all data requests.

Equipment Spacing Requirements

The minimum side to side spacing between elliptical trainers is 19.7 in (0.5 m) and the minimum front to back spacing is 19.7 in (0.5 m).

[2]Preva Business Suite

[3]Network Time Protocol (NTP) is a networking protocol for clock synchronization between computer systems over packet-switched, variable-latency data networks.


side-to-side spacing
19.7" (.0.5 m)
back-to-front spacing
19.7" (.0.5 m)

Operation Verification

The Operation Verification tests verify that the machine is operating correctly and, upon successful completion of each test, can be returned to service. Do these operation verification tests at the end of a maintenance procedure or whenever it is necessary to ensure that the machine is operating properly.

Operation Verification Tests

☐ **Error Code Verification Test**
Verify that there are no current active logged error codes:

1. Access either the Error Log (**LED**[1] consoles) or **CPA**[2] Event Log (touchscreen consoles) and record any current active logged error codes:
   - On P10, P30, P30i and P31 LED consoles, Press & hold down the **PAUSE** key for 6 seconds minimum to access the Error Log.
   - On P62, P80, and P82 touchscreen consoles, access **Service menu (51765761)**, select **About** > **CPA Event Log**.
2. Resolve any current active logged error code issues.
3. Delete resolved error codes:
   - On P10, P30, P30i and P31 LED consoles, access the **Information Display (65)** > scroll to **Error Log**.> select **OK** hardkey to view the Error Log. To remove an error code, press/hold down the **QUICK START** key until the "NO ERRORS" message shows.
   - . On P62, P80, and P82 touchscreen consoles, access the **CPA Event Log** (access the **Service menu (51765761)** > select **About** > **CPA Event Log**). Then select the **CLEAR** softkey to remove all error codes.

☐ **Console Verification Tests**
Verify the LED console or touchscreen console operation.
LED consoles (P10, P30, P30i and P31) only

1. Access the Hardware Validation Diagnostic Test menu (51765761) and run the following tests:
   - **KEYPAD or KEYBOARD TEST**: Select KEYPAD TEST and follow prompts to run test.
   - **DISPLAY TEST**: Select DISPLAY TEST and follow prompts to run test.
2. Exit the Diagnostic Test menu, press the **STOP** key.

Touchscreen consoles (P62, P80, and P82) only

[1]light-emitting diodes.

[2]Touchscreen console Control Processing Assembly.

1. Access the Service menu (51765761) and perform the following console System Tests (**Settings** > **System Settings** > **System Tests**):
    - **Touchscreen Calibration**: Follow screen prompts to complete test. When the test is completed the console will automatically exit and return to the System Tests menu.
    - **Touchscreen Test**: Verify that there is a trace created that follows your finger movement across the touchscreen surface. Select **Finish** to exit. move your finger and verify that a trace follows
    - **Backlight Test**: Tests the display backlight brightness. Follow prompts to complete test.
    - **RGB Test**: Touch the screen to cycle through the test colors: Red, Green, Blue, White, & Black. Returns to the System Tests menu when completed.
    - **Numeric Backlight Test**: Tests the controls numeric display brightness. Returns to the System Tests menu when completed.
    - **Numeric Display Test**: Tests the controls numeric display. Returns to the System Tests menu.
2. Exit the Diagnostic Test menu. (press **Back** to exit & return to the banner screen)

☐ **Machine Operation Test**

This test verifies the console motion controls, metric indicators and machine operation:

1. Select **QUICKSTART** to begin a manual workout. Do this test while pedaling and the **INCLINE** set to 0% incline:
2. Operate the **RESISTANCE** motion control from minimum to maximum range while verifying the machine operation:
    - During the operation of this test, make sure that the pedal stairarms, moving arms (moving arm models only) an input drive are operating smoothly and that there are no unusual noises.
    - Make sure that the console **RESISTANCE** paddle control operation is smooth and working correctly.
    - Vary the RESISTANCE from minimum to maximum and back to minimum while pedaling, verify that the pedal resistance increases and decreases as expected.
    - Verify that there were no unusual noises during this test.
    - Verify that the console RESISTANCE indicators and workout displays are showing correct information.
3. On machines with the adjustable CrossRamp, While pedaling operate the **INCLINE** motion control from minimum to maximum levels. Verify the following machine operation criteria.
    - During the operation of this test, make sure that the pedal stairarms, moving arms (moving arm models only) an input drive are operating smoothly and that there are no unusual noises.
    - Make sure that the console **INCLINE** paddle control operation is smooth and working correctly.

- Vary the INCLINE from minimum to maximum and back to minimum, Verify that the crossramp raises smoothly to the maximum level and returns smoothly to the minimum level.
- Verify that the console INCLINE indicators and workout displays are showing correct information.

☐ **Heart Rate Monitor Test**

Verify both the Handheld Handlebar Heart Rate (**HHHR**[1]) and wireless **HR**[2] monitor operation.

1. **Handheld Handlebar Heart Rate (HHHR) monitor verification**

   LED consoles (P10, P30, P30i and P31) only: Access the Diagnostic menu (51765761) > select **HEART RATE TEST** and follow prompts to run the test:

   Touchscreen consoles (P62, P80, and P82) only: Access the Service menu (51765761), select **System Settings** > **System Tests** > **HEART RATE TEST** and follow prompts to run the test.

2. **Wireless Heart Rate monitor verification**.

   Use a wireless heart rate monitor chest strap (pn PPP000000038819103 or **ANT+**[3] wireless compatible HR chest strap) and verify that the console heart rate icon is flashing, and the HR indicator is showing the heart rate beats per minute (bpm).

☐ **Return to service**

1. Make sure that the machine is setting level and stable.

   
   MACHINE LEVELING PROCEDURE

2. Make sure that any external power cords or interface cables are properly routed, connected, and safe from being damaged.
3. On successful completion of all verification tests, return to service.

[1]Handheld Handlebar Heart Rate

[2]Heart Rate

[3]ANT+ (pronounced ant plus) is a wireless protocol for monitoring sensor data such as a person's heart rate or a bicycle's tire pressure

Standard Service Menus

About

There is a set of equipment Standard Service Menus that are supported across Precor cardio product lines designed to allow servicers and clubs to manage, configure/setup, and maintain/test the equipment: The service menus are grouped into functional service categories depending on the console type as follows:

On **LED**[1] consoles (P30, P30i and P31), there are three service menus:

- **Hardware Validation (51765761)** menu provides a set of automated diagnostic tests used to troubleshoot, calibrate, and verify machine operation.
- **Club Settings (5651565)** menu is used to configure the equipment workout settings.
- **Information Display (65)** menu provides information about the equipment hardware, software, usage, and error log data.

On touchscreen consoles (P62, P80, and P82), there are two service menus:

- **Service Settings (51765761)** menu intended for service technicians. The Service Settings menu provides access to all available equipment service menus used by service technicians to service and maintain the equipment.
- **Club Settings (5651565)** intended for club operators. The Club Settings menu is a subset of service menus used by club operators to manage, configure, and maintain the equipment.

Steps to access the Standard Service Menus:

On LED consoles you first press a specific sequence of console hardkeys and then quickly type in the Service Menu Access code. The access code will show on the console display as you type. The console hardkey sequence varies between console models, see (see "How to Access the Standard Service Menus" on page 25).

On Touchscreen consoles you press a specific sequence of console hardkeys which opens the Service Access Code login screen. Then type in the Service Menu Access Code to open the service menu (see "How to Access the Standard Service Menus" on page 25).

Service Menu Access Codes

Service Menu Access Codes

[1] light-emitting diodes.

LED Consoles: P10, P30, P30i and P31

SERVICE MENU ACCESS CODE	SERVICE MENU	FUNCTION
51765761	**Hardware Validation**	Set of automated diagnostic tests used to troubleshoot, calibrate, and verify machine operation.
5651565	**Club Settings**	Used to customize the equipment user interface localization, Workouts configuration, and maintenance default settings.
65	**Information Display**	Used to access the equipment usage, hardware, software, error code, and maintenance information.

Touchscreen Consoles: P62, P80, and P82

SERVICE ACCESS CODE	SERVICE MENU	FUNCTION
51765761	**Service Settings**	Service Menu access code provide access to all available equipment service menus used to service, configure, test, and maintain the equipment including the legacy Information Display, Club Settings, and Hardware Validation Diagnostic Tests menus.
5651565	**Club Settings**	Club Settings access code is a subset of service menus directed toward club operation, used by club operators to manage, configure, and maintain the equipment.
Note: Service access code 65 "Information Display" is not used on touchscreen consoles. The Information Display menus are integrated into the Service Settings menus.		

How to Access the Standard Service Menus

P10, P30, P30i and P31 LED consoles

CONSOLE		HARDKEY	
 P10 Console	Press & Release	 PAUSE	Type in the Access Code
 P30 Console	Press & Release	 PAUSE	Type in the Access Code
 P30i Console	Press & Release	 PAUSE	Type in the Access Code
 P31 Console (*except StairClimber)	Press & Release	 PAUSE	Type in the Access Code
 P31 "StairClimber" Console	Press & Release	 STOP	Type in the Access Code

CONSOLE	STEPS
P10/P30/P31 consoles*	1. Press (2-3 sec) and release the **PAUSE** hardkey. 2. Immediately type in the access code.
P30i consoles:	1. Press (2-3 sec) and release the **PAUSE** hardkey. 2. Immediately use the **INCLINE** number keys to type in the access code.
P31 StairClimber consoles**	1. Press (2-3 sec) and release the console **STOP** hardkey. 2. Immediately type in the access code.
Notes: *Except for P31 StairClimber machines. **On SCL800 StairClimber P31 consoles, the console PAUSE key is replaced with a STOP key.	

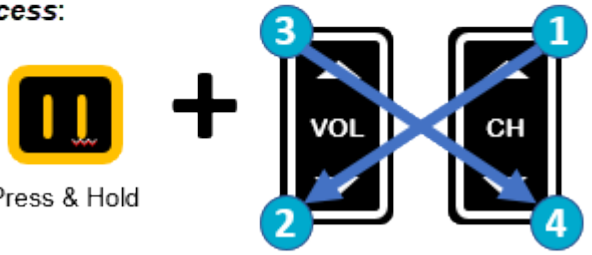
P80 touchscreen console

Have the service access code ready and then use the following instructions to access the standard service menu:

P80 console



Menu access:



Steps

1. Make sure the P80 is set to the Welcome home page.
2. Press and hold the **Pause** key while pressing **CH up >VOL down > VOL up > CH down**:
3. Use the touch keypad to type in the service access code.

P62 and P82 touchscreen consoles

Diagnostics menu access

Have the service access code ready and then use the following instructions to access the standard service menu:

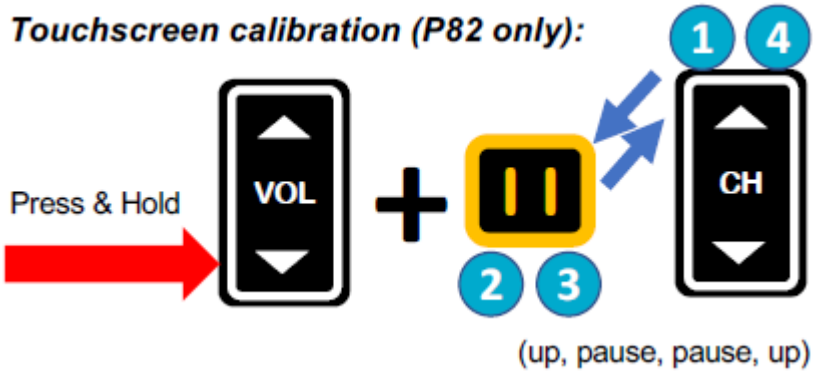


Steps

1. Make sure the console is set to the Welcome banner.
2. Press and hold the **VOL down** key while pressing **CH up >CH down > CH down > CH up**:
3. At the Sign-In screen, type in the service access code.

Touchscreen Display Calibration shortcut

Console shortcut to access the **Touchscreen Calibration** test.

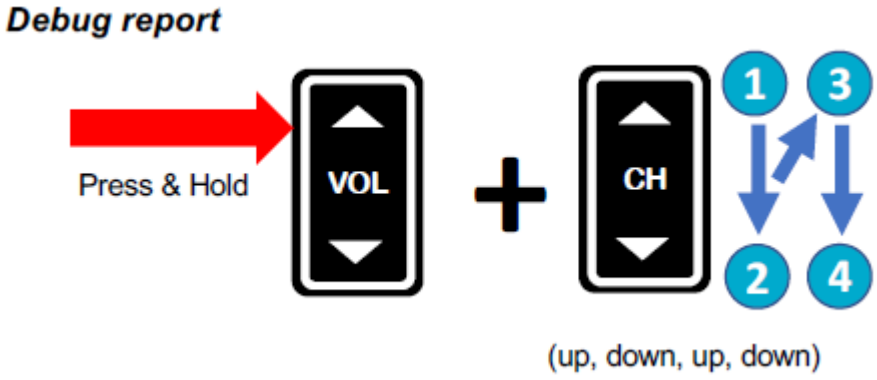


Steps

1. Make sure the console is set to the Welcome banner.
2. Press and hold the **VOL down** hardkey while pressing **CH up > Pause > Pause > CH up**:
3. Touch the designated display positions and follow prompts to complete the touch-screen calibration.

Debug Information Report shortcut

Console shortcut to download an event log debug information report.



Steps

1. Make sure the console is set to the Welcome banner.
2. Insert a **USB**[1] flash drive into the Chin USB port.
3. Press and hold the **VOL up** hardkey while pressing **CH up > CH down > CH down > CH up**:
4. Wait for the download to finish and then remove the USB drive.

[1]Short for Universal Serial Bus, is an industry standard developed in the mid-1990s that defines the cables, connectors and communications protocols used in a bus for connection, communication, and power supply between computers and electronic devices.

IMPORTANT: Do not remove the USB drive until the "Report was successful" message is shown, (approx. 1 min).

Navigating the Service Menus

P10, P30, P30i and P31 LED consoles

LED console service menus are organized in a sequential top-menu to sub-menu item architecture. Select the top level menu and sequentially navigate through the sub-menus until the particular operation is found. Then return to the top-level menu to select a different menu item. Refer to the following tables for console hardkey and keypad functions.

P10, P30 and P31 consoles

CONSOLE KEY	FUNCTION/DESCRIPTION
Up/Down	Scrolls up and down through the current menu.
OK	Selects the current menu item or confirms settings.
BACK/CLEAR	• Returns to the previous menu level without saving changes. • Hold **BACK** to exit the **DISPLAY** test.
PAUSE (STOP[3])	• Press **PAUSE** once to pause a workout session. • (SCL800 StairClimber*) Press **STOP** once to pause a workout and stop the stairs, except for the fitness tests WFI and CPAT, where pressing **STOP** terminates the workout. • Access Service menus: Press/Release **PAUSE** (**STOP** for StairClimber*) and type in the access code • Press and hold **PAUSE** (**STOP** for StairClimber*) for greater than 6 sec will open the Error Log or show the "Stuck Key" message when there are no logged errors.
Numeric Keypad[1]	Use to type in numeric inputs (e.g. access codes).
INCLINE Keypad[2]	On P3oi consoles, use the INCLINE keys to type in numeric inputs (e.g. access codes).

1. On all consoles, except the P30i console, use the Numeric keypad to enter numeric inputs.
2. On P30i console, use the INLINE keys to enter numeric inputs.
3. On P31 SCL800 StairClimber consoles, the PAUSE key is replaced with the STOP key. There is also an additional handlebar grip Remote STOP key that performs the same functions.

P30i consoles

Available exclusively on the 700 Line Treadmill, the P30i Interval Console is an easy-to-use console that facilitates interval training with one-touch speed and incline keys.

CONSOLE KEY	FUNCTION/DESCRIPTION
SPEED 1/2 - DWN/UP (US std) **SPEED 2/4 - DWN/UP (metric)**	Use the SPEED numeric 1 & 2 keys to scroll up and down through the current menu.
OK or **INCLINE 0**	Selects the current menu item or confirms settings.
INCLINE 0	Returns to the previous menu level without saving changes.
PAUSE	• Exits service mode • Press and hold PAUSE for greater than 6 sec will open the Error Log or show the "Stuck Key" message when there are no logged errors.
INCLINE numeric keys	Use as the numeric keypad to type in numeric inputs (access codes etc.).

P80 and P82 touchscreen consoles

The P80 and P82 consoles use the touch sensitive touchscreen controls to select items and navigate the service menus. Only one hardkey "Pause" is used to stop a running diagnostic test.

Follow the on-screen prompts to run the diagnostic tests.

CONSOLE KEY	FUNCTION/DESCRIPTION
Touchscreen controls	There is various touch sensitive softkey controls (OK. START, STOP, BACK, etc.) and icon controls (image boxes, buttons, etc.) used to control and operate the console. Make selection by touching the softkey control or icon.
Scroll Up/Dwn	Use your finger to swipe the touchscreen up or down to scroll through menu items. Some menus provide a vertical scroll bar on the screen right side to scroll Up/Dwn.
BACK softkey	• Use the touchscreen **BACK** softkey to return to the previous menu display. • Continue selecting the **BACK** softkey to exit the service software.
PAUSE hardkey	Stop a running diagnostic test.

P62 touchscreen consoles

The P62 console uses a combination of touchscreen softkeys/icons and keypad hardkeys to select and navigate thru the service and diagnostics menus. The P62 uses the **BACK** keypad button to return to the previous menu and the **PAUSE** hardkey to stop a running diagnostic test.

Follow the on-screen prompts run the diagnostic tests.

CONSOLE KEY	FUNCTION/DESCRIPTION
Touchscreen controls	There is various touch sensitive softkey controls (OK. START, STOP, BACK, etc.) and icon controls (image boxes, buttons, etc.) used to control and operate the console. Make selection by touching the softkey control or icon.
Scroll Up/Dwn	Use your finger to select while swiping your finger Up/Dwn to scroll through menu lists. Some menus provide an on-screen scroll bar to scroll Up/Dwn.
BACK	• On P62 consoles, use the control keypad **BACK** button to go back or return to the previous menu. • Continue selecting the **BACK** hardkey to exit the service software.  P62 Console
PAUSE hardkey	Stop a running diagnostic test.

LED Console Standard Service Menus

Standard service menus for LED consoles (P10, P30, P30i and P31).

Hardware Validation Diagnostics Tests Menu (51765761)

Service Access Code: 51765761 (see "Service Menu Access Codes" on page 23)

menu: **Access code (51765761) > Hardware Validation Tests**.

The Hardware Validation menu provides a set of automated hardware diagnostic tests and calibration procedures used to troubleshoot, calibrate, and verify machine operation. The diagnostic tests are customized for the particular equipment type and console configuration.

DIAGNOSTIC TEST	TEST DESCRIPTION
DISPLAY TEST	Tests the console LEDs. Successively press the **OK** key to verify each group of LEDs and verify that all LEDs illuminate. Press **Back** to exit the test.
KEYBOARD TEST	An illuminated LED map of the function keys will be shown. Press each individual key and verify that the corresponding LED extinguishes. Press and hold **BACK** to exit the test.
HEART RATE	Tests the Unfiltered and Filtered pulse heart rate. Grasp the grips to test the handheld heart rate. Use a Polar heart rate simulator to test the wireless heart rate. Press the **BACK** button to exit this test. Results: F xxx U xxx (F-filtered, U-unfiltered)
ACTIVE STATUS LIGHT (1)(2)(3)	(Located in the Information Display on some models) The current **ASL**[1] light state (blue. pulsing blue, yellow, pulsing yellow) or switched OFF on some models.
AS LIGHT BRIGHTNESS (1)(2)(4)	(Located in Club Settings > SET ASL BRIGHTNESS on some models) Sets the ASL light brightness level and ON/OFF state: HIGH. MED, LOW, and OFF on selected models.
RPM TEST	(**EFX**[2] only) menu: **MACHINE TEST** > **RPM TEST** The current RPM (revolutions per Minute) value. The **SPM**[3] (strides per minute) is equal to 2 X RPM.
CROSSRAMP TEST	menu: **MACHINE TEST** > **CROSSRAMP TEST**

[1]Active Status Light: Service and maintenance status light.

[2]Elliptical Fitness Crosstrainer

[3]steps per minute

DIAGNOSTIC TEST	TEST DESCRIPTION
	(EFX, **AMT**[1] Only) Allows lift command operation during an active lift error condition (E40, E42, E45, E46) even if the lift is out of range, jammed, or otherwise disabled due to an error condition. **CAUTION**: DO NOT jam the crossramp while operating in error mode - There are no software position limit stops in this mode.
(1) Only included on products that have the ASL feature. (2) Not included on the EFX600 series or TRM600 series products. (3) Moved to the Information Display on some models. (4) Moved to the Club Settings on SCL800 StairClimber.	

Club Settings Menu (5651565)

Service Access Code: 5651565 (see "Service Menu Access Codes" on page 23)

Used to customize the equipment user interface localization, Workouts configuration, and maintenance default settings.

menu: **Club Settings (51765761) > DIAGS - CLUB SETTINGS**

CLUB SETTINGS	DESCRIPTION
SAFETY CODE	Enabled or disabled. When enabled, a user password (xxxx) is required to use the machine. Factory default: Disabled. Default safety code: 1234 When the equipment is shipped from the factory, the safety code feature is disabled. An enabled safety code requires users to enter the code 1 2 3 4 to use the equipment.
SELECT LANGUAGE	Sets the default language for all workouts on this machine. Language for single use workouts can also be set by the user from the workout options. Default: English
SET UNITS **or** **SELECT UNITS**	Sets the measurement units to U.S. Standard or Metric. Default: U.S.
SET MAX WORKOUT TIME	Specifies the maximum workout time per session. Range: 1 to 240 minutes (or NO LIMIT)

[1]Adaptive Motion Trainer

CLUB SETTINGS	DESCRIPTION
	Default: 60 minutes
SET MAX PAUSE TIME	Limits how long equipment remains paused during a workout before it resets to the Welcome banner. Range: 1 to 60 seconds (1 to 120 seconds for treadmills). Default 120 seconds for treadmills and 60 seconds for all other equipment.
SET COOL DOWN TIME	Sets the amount of time that a cool down period will occur at the end of every workout. Range: 0 to 5 minutes in 1 minute increments. Default: 5 min
SET METRICS DEFAULT	Sets a metric that may be of specific importance to the specific facility or fitness trainer. The selected metric will scroll across the screen at regular intervals during the workout. Default: OFF
SET CROSSRAMP AUTO-LEVEL	Sets the crossramp default "Home" incline auto-level. The crossramp will moive to the default incline level after 60 sec of non-use. Range: 0 - 20 Default: 1 **WARNING**: The crossramp will automatically drive to the Default incline level after 90 sec of non-use.
SET CUSTOM PROGRAM 1/2 or SET CUSTOM WORKOUTS 1 AND 2	You can create and save two custom workouts on your treadmill and one custom workout on your other Precor equipment. Range: ON/OFF Default: OFF Note: The Total Body Workout can only be turned on in this Club Settings menu.
MAINT CONFIG or MAINTENANCE CONFIGURE or MANINTENANCE COUNTER	(ASL equipped machines only) Switch ON or OFF the ASL pulsing blue light maintenance counter reminder function: Range: ON - Enable, OFF - Disable Default: ON
SET DISPLAY BRIGHTNESS	(not available on all models) Sets the display light brightness level. Settings: Low, Medium, High Default: HIGH

CLUB SETTINGS	DESCRIPTION
SET ASL BRIGHTNESS	(Located in Hardware Validation > AS LIGHT BRIGHTNESS on some models) Sets the ASL light brightness level. Settings: Low, Medium, High, (EFX includes OFF) Default: Medium
(1) Only used on products that have the ASL feature. (2) Not included on all equipment models.	

Information Display (65)

Service Access Code: 65 (see "Service Menu Access Codes" on page 23)

Provides the equipment usage, hardware, software, error code, and maintenance information.

INFORMATION DISPLAY	DESCRIPTION
ODOMETER	The odometer provides the accumulated machine usage to date in units applicable to the type of equipment being used. • **TRM**[1] / AMT: Cumulative units logged to date. AMT also displays vertical strides. • EFX: Strides logged to date • Bike: Revolutions logged to date • Climber/**SCL**[2]: Floors climbed
HOUR METER	The total number of hours that the unit took to accumulate unit miles (Steps on SCL800 StairClimbers) . This value is stored in the upper **PCA**[3] in the console so if that PCA is replaced the hours of use would start again from "0".
U-BOOT SW **or** **BOOT LOADER SW***	The console upper boot software version information. *P31 console only.
U-BASE SW **or**	The console upper base software version information.

[1]Treadmill

[2]StairClimber

[3]Printed circuit assembly, generally referred to as either an upper PCA or lower PCA.

INFORMATION DISPLAY	DESCRIPTION
MAIN CONSOLE SW*	*P31 console only.
SER NUMBER **or** **SERIAL NUMBER**	Shows the serial number of the machine if input. The base serial number can be set using the WinCSAFE computer software. Factory default: NONE.
USAGE LOG	Provides the total number of times a particular workout has been used and the total elapsed Time used for the workout. Use the up/down arrows to scroll thru the available workouts.
Error Log	Table of stored error event codes, see "Error Log & CPA Event Log" on page 223. **TIP**: You can quickly access the Error log by holding down the **PAUSE** key. Will show the **STUCK KEY** message when there are no logged error codes.
MODEL	Machine detected model. Result: SCL800
ACTIVE STATUS LIGHT	(Located in the Hardware Validation menu on some models) Showa the current ASL state color (blue. pulsing blue, yellow, pulsing yellow) or switched OFF on some models:
(1) ASL equipped machines only. (2) TRM600 series treadmills only. (3) SCL800 StairClimber only. (4) Not used on SCL800 models.	

Touchscreen Console Standard Service Menus

Standard service menus for Touchscreen consoles (P62, P80, and P82).

Touchscreen Console Standard Service Menus

Service Settings Menu ((51765761)

Service Access Code: 51765761

Service Settings menu access code (51765761) opens to the Settings menu which is the top level service menu providing access to all the equipment service submenus.

menu: **Service Access code (51765761) > Settings**

The Settings menu is the top level service menu providing access to all available equipment service information, diagnostic tests, and maintenance submenus.

SETTINGS MENU	DESCRIPTION
"About menu" on page 40	menu: **Settings > About** General information about the machine (serial number, name, type, location, software versions, internet & **Wi-Fi**[1] connectivity, and the error codes (Event Log or CPA Event Log)
Safety Code menu:	menu: **Settings > Safety Code** (SW version 8.2 and later) A 4-Digit PIN safety code that must be entered to use the equipment. Settings: • OFF (default): Does NOT require safety code PIN to use the machine • ON: Does require safety PIN code to use the machine. Default PIN: 1234 The default PIN can be changed and user specified. If the PIN is forgotten, you can go to the Safety Code menu and switch OFF the feature or create a new PIN without knowing the current PIN.
"" on page 42	menu: **Settings > Equipment Usage**

[1]Wireless Fidelity - a term defined and Trademarked by the Wi-Fi Open Alliance. Wireless LAN equipment carrying the Wi-Fi logo have been interoperability tested for compatibility with one (or more) 802.11 standards, and certified by the Wi-Fi Alliance to be sold under the Wi-Fi brand.

SETTINGS MENU	DESCRIPTION
	Machine workout usage information (total workout time & distance, last work start/stop times).
"" on page 42 (1)	menu: **Settings > Maintenance** (ASL equipped products only) Provides the machine maintenance and operating ASL status information.
"" on page 44	menu: **Settings > System Settings** Provides settings to configure the console and machine. Also includes the service diagnostic tests.
Software Downloads	menu: **Settings > Software Downloads** Settings: ON, OFF Enables automatic operating system software downloads: • ON: Enables automatic operating system software downloads. • OFF: Disables automatic operating system software downloads. Note: Must be connected to the internet and register with **PBS**[1] (Preva® Business Suite).
Partition Configuration	menu: **Settings > Partition Configuration** OEM use only, contact Precor Customer Service for information.

[1]Preva Business Suite

SETTINGS MENU	DESCRIPTION
(No) Available Updates	menu: **Settings > No Available Updates** or **Available Updates** • **No Available Updates**: No available software updates can be read from the USB flash drive. • **Available Updates**: List of available software updates read from the USB flash drive. Used to update the operating system software. The console reads a software update USB flash drive and then changes the menu from **No Available Updates** to **Available Updates**. Select **Available Updates** to view, select, and upload the software, see How to Update the console operating system software.

(1) Not included on elliptical or treadmill products that do not have the maintenance and ASL features. Not included on the EFX600 series, the TRM600 series, or the **TRM800-10**[1] (**TRM10**[2]/GEN06) series products.

About menu

About menu

menu: **Service Setting menu (51765761) > Settings > About**

General information about the machine (serial number, name, type, location, software versions, internet & Wi-Fi connectivity, and the event and error codes (Event Log or CPA Event Log).

ABOUT MENU	DESCRIPTION
Event Log	menu: **About > Event Log** The Event Log contains all connectivity errors and service maintenance error codes. .Note: For maintenance service and troubleshooting, use the CPA Event Log and not the Event Log to find the machine maintenance error event codes.
CPA Event Log	menu: **About > CPA Event Log** The CPA Event Log only contains the machine maintenance and troubleshooting error event codes that are described in the "*Error Code Troubleshooting Guide*", see Error Code Troubleshooting

[1]TRM800 version 1 treadmills mfg. dates 2010 thru 2014.
[2]TRM800 version 1 treadmills mfg. dates 2010 thru 2014.

ABOUT MENU	DESCRIPTION
	Guide. .Note: Use the CPA Event Log and not the Event Log to find the machine maintenance and troubleshooting error event codes.
Console Serial Number	menu: **About > Serial Number** Console serial number.
Lower Serial Number	menu: **About > Serial Number** Base serial number.
Friendly Name	menu: **About > Friendly Name** Friendly name assigned to the equipment by the facility.
Location	menu: **About > Location** Facility location code.
Release Bundle Version	menu: **About > Release Bundle Version** Console System Operating software version. Select to show the component system software versions including: the CPA Software, **LPCA**[1], Qt App, Boot Kernel, and File System software versions.
Heartbeat Interval	menu: **About > Heartbeat Interval** OEM use only.
Wired MAC Address	menu: **About > Wired MAC Address** Wired **LAN**[2] MAC address
WI-FI MAC Address	menu: **About > Wi-Fi MAC Address** Wireless Wi-Fi MAC address
Network Time Server1	menu: **About > Network Time Server1** **NTP**[3] server address
Machine Type	menu: **About > Machine Type** Specifies the detected machine type: TRED, AMT, EFX, **UBK**[4],

[1]Lower Printed Circuit Assembly board; also refered to as the Lower PCA or simply as the lower board. On treadmills, it is the console to base function interface and the motor controller unit (MCU). On self-powered units, it is the lower PCA console to base function interface.
[2]Local Area Network: A communications network that serves users within a local geographical area, typically over distances of around 100m. Wireless LANs use wireless communications to network devices so there is no need for data cabling.
[3]Network Time Protocol (NTP) is a networking protocol for clock synchronization between computer systems over packet-switched, variable-latency data networks.
[4]Upright Bike

ABOUT MENU	DESCRIPTION
	RBK[1].
Legal Notices	menu: **About > Legal Notices** Specifies the trademarks. trade names, etc.

Equipment Usage menu

menu: **Service menu (51765761) > Settings > Equipment Usage**.

Machine workout usage information: cumulative hours & distance, number of workout sessions, & last work start/stop times.

EQUIPMENT USAGE MENU	DESCRIPTION
Cumulative Workout Hours	menu: **Equipment Usage > Cumulative Workout Distance** Machine total workout hours.
Cumulative Workout Distance	menu: **Equipment Usage > Cumulative Workout Distance** Machine total workout distance.
Cumulative Workout Sessions	menu: **Equipment Usage > Cumulative Workout Sessions** Machine total number of workout sessions.
Last Workout Start Timestamp	menu: **Equipment Usage > Last Workout Start Timestamp** The most recent workout start time.
Last Workout End Timestamp	menu: **Equipment Usage > Last Workout End Timestamp** The most recent workout end time.

Maintenance menu(1)

Menu: **Service menu (51765761) > Settings > Maintenance(1)**

Provides machine maintenance related information including: routine maintenance due status, machine operating condition, and ASL state.

[1]Recumbent Bike

MAINTENANCE MENU[(1)]	DESCRIPTION
Recommended Action menu[(1)]	menu: **Maintenance > Recommended Action** Range: None, Inspect • None: No maintenance required. • Inspect: Maintenance action required. Used to report that there is a maintenance issue that requires attention; it could indicate routine maintenance is due or that a machine failure (error code) has occurred that required attention.
» Operating Condition[(1)]	menu: **Maintenance > Operating Condition** Range: Normal, Inspect • Normal: No maintenance required. • Inspect: There is a routine maintenance issue or failure condition (error code) that requires immediate attention. .***Important***: Reset the ASL light state and Motor Controller (**MC**[1]) status light after repairs a completed.
» Belt Rating[(1)]	(Treadmills only, not supported on TRM600) menu: **Maintenance > Belt Rating** Range: 10 - 0 (10 - New condition, ≤ 1 - Replace running belt) (ASL equipped products only) A belt rating of 0 or 1 will cause a blue pulsing ASL light indicating that there is a problem with the running belt/deck and requires servicing or replacement. ***Important***: Reset the Belt Rating after replacing with a new running belt and deck (select **Replace**).
» Next Maintenance Due[(1)]	menu: **Maintenance > Next Maintenance Due** Provides machine next maintenance due remaining mileage or hours. Perform preventative maintenance when the maintenance counter reaches 0. ***Important***: Reset the maintenance interval after completing routine maintenance service, (select **Reset**). Treadmills reset to 1000 miles, ellipticals reset to 250 Hrs.
Active Status Light (ASL menu)[(1)]	menu: **Maintenance > Active Status Light** Indicates the machine operating and maintenance status. **Blue Solid**: Normal operation Indicates that the ASL has not detected any logged error codes. **Blue Pulsing**: Preventative maintenance reminder.

[1]Motor controller, motor controller unit, or motor controller module: used on treadmills, contains the LPCA and motor controller functionality.

MAINTENANCE MENU(1)	DESCRIPTION
	• Treadmills: A belt rating of 0 or 1 will cause a blue pulsing ASL light indicating that there is a problem with the running belt/-deck and is in need of servicing or replacement. • ALL: The maintenance counter starts at 1000 hours counting down to active use hours to 0 indicating preventative maintenance is due. **Yellow Solid**: Indicates an error has occurred, was self-corrected and the machine can be used. The fault can be cleared. **Yellow Pulsing** There is a current non-recoverable fault condition, there is a loss of a major function and the machine id out-of-service. Machine service is required.
» AS light Brightness (1)	menu: **Maintenance > AS Light Brightness** Range: Low, Medium, High Set the ASL brightness level.
» Maintenance Reminder(1)	menu: **Maintenance > Maintenance Reminder** Range: OFF, ON (default) Switch the maintenance reminder function ON or OFF.
(1) Not included on elliptical or treadmill products that do not have the maintenance and ASL features. Not included on the EFX600 series, the TRM600 series, or the TRM800-10 (TRM10/GEN06) series products.	

System Settings menu

menu: **Service menu (51765761) > Settings > System Settings**.

Provides settings to configure the console and machine. Also includes the service diagnostic tests.

SYSTEM SETTINGS MENU	DESCRIPTION
System Tests menu	menu: **System Settings > System Tests** Machine diagnostics tests to verify system hardware operation, see "System Tests menu" on page 48.
Connectivity menu	menu: **System Settings >Connectivity** Connectivity includes Internet network and Preva® Server setup and configuration.
» Network Type	menu: **System Settings > Connectivity > Network Type** Settings: Wired, Wi-Fi

SYSTEM SETTINGS MENU	DESCRIPTION
	Default: Wired To connect to a network: 1. Select **Network Type** > **Wired** (or Wi-Fi) > **Go**. 2. Select **Configure** > **Configuration** > select a network from the list and enter your credentials to access that network. 3. Select **Back** to save settings and return to the Connectivity screen.
» Configuration	menu: **System Settings > Connectivity> Configuration** Settings: Automatic (recommended), Manual Default: Automatic Specifies internet connection mode.
» Status	menu: **System Settings > Connectivity > Status** Range: Connected, Not Connected Specifies internet connection status.
» IP Address	menu: **System Settings > Connectivity> IP Address** Specifies console internet IP address.
» Preva® Server	menu: **System Settings > Connectivity> Preva® Server** Specifies Precor Preva server URL (na.preva.com).
Display menu	menu: **System Settings > Display** Console default display configuration settings: language, units, standby delay, .browser and news reader on/off.
» Default Language	menu: **System Settings > Display > Default Language** Default: English Specifies the default language.
» Measurement Units	menu: **System Settings > Display > Measurement Units** Range: US Standard, Metric Default: US Standard Specifies the default measurement units.
» Standby Mode Delay	menu: **System Settings > Display > Standby Mode Delay** Range: 5, 10, 15. 30, 60 minutes Default: 15 minutes Specifies the idle wait time before entering standby mode.
» Browser	menu: **System Settings > Display > Browser** Range: ON/OFF Default: ON Show (enable) the Browser app.

SYSTEM SETTINGS MENU	DESCRIPTION
» News Reader	menu: **System Settings > Display > News Reader** Range: ON/OFF Default: ON Show (enable) the News Reader app.
TV Settings menu	menu: **System Settings > TV Settings** Configuration TV settings and channel guide.
» Channel Guide	menu: **System Settings > TV Settings > Channel Guide** TV channel configuration.
» TV Source	menu: **System Settings > TV Settings > TV Source** Default: Internal Tuner TV input signal source
» Region	menu: **System Settings > TV Settings > Region** Specifies the TV input signal modulation format for a particular geographical region.
» Default Channel	menu: **System Settings > TV Settings > Default Channel** Default: Not set TV default channel.
» Skip Unnamed Channel	menu: **System Settings > TV Settings > Skip Unnamed Channels** Default: ON Skips over unnamed channels.
» Skip Encrypted Channel	menu: **System Settings > TV Settings > Skip Encrypted Channels** Default: ON Skips over encrypted channels.
» Analog Channels Aspect Ratio	menu: **System Settings > TV Settings > Analog Channels Aspect Ratio** Range: 4:3, 16:9 Select the analog channel aspect ratio.
» Extensive Scan	menu: **System Settings > TV Settings > Extensive Scan** Default: OFF Searches all available channel sources.
» Closed Captioning	menu: **System Settings > TV Settings > Closed Captioning** Default: On Switches close caption feature ON/OFF.
» Export/Import Channels	menu: **TV Settings > Export/Import Channels** Export/Import channel mapping using a USB .flash drive.

SYSTEM SETTINGS MENU	DESCRIPTION
Audio Settings menu	menu: **System Settings > Audio Settings** Specify the workout duration and equipment Limits for your facility.
» Default Wired Headphone Volume	menu: **System Settings > Audio Settings > Default Wired Headphone Volume** Range: 1 to 15 Default: 6 Sets the default wired headphone jack volume level.
» Default Bluetooth[1] Headphone Volume	menu: **System Settings > Audio Settings > Default Bluetooth Headphone Volume** Range: 1 to 15 Default: 11 Sets the default bluetooth headphone jack volume level.
Workout Limits menu	menu: **System Settings > Workout Limits** Specify the workout duration and equipment Limits for your facility.
» Maximum Workout Duration	menu: **System Settings > Workout Limits > Maximum Workout Duration** Range: 1 to 240 min, NO LIMIT Default: 60 min Sets the maximum allowable user workout time per session.
» Maximum Pause	menu: **System Settings > Workout Limits > Maximum Pause** Range: 1 to 300 sec Default: 30 sec Sets how long the equipment remains in a paused banner during a workout before resetting.
» Summary Time Out	menu: **System Settings > Workout Limits > Summary Time Out** Sets the time to view the Workout Summary data. Range: 1 to 120 sec Default: 60 sec
» CrossRamp Auto-Level	menu: **System Settings > Workout Limits > CrossRamp Auto-Level**

[1]Bluetooth is a wireless technology standard for exchanging data over short distances (using short-wavelength UHF radio waves in the ISM band from 2.4 to 2.485 GHz from fixed and mobile devices, and building personal area networks (PANs).

SYSTEM SETTINGS MENU	DESCRIPTION
	Range: 1 - 20 Default: 1 Sets the ramp default incline level:
GEM Settings menu	menu: **System Settings > GEM Settings** Enable/Disable Apple® Gymkit™ Smart Watch connectivity.
» GEM Module	menu: **System Settings > GEM Settings > Gem Module** Range: ON/OFF Default: OFF ON: Enables the GEM module and Smart Watch connectivity for the Apple Watch®.
» Enable Developer	menu: **System Settings > GEM Settings > Enable Developer** OEM use only.
Register Equipment menu	menu: **System Settings > Register Equipment** Register console and equipment with Precor Preva® Business Suite "PBS". Required information to register the equipment: • Location code • Precor technician account name and password • Serial number from the base • Friendly name assigned to the equipment by the facility (Example: Equipment Type-Floor-Row-Number) To complete registration for Preva-networked facilities: 1. Enter the Preva server name (na.preva.com for all sites). 2. Enter the assigned account name and password. 3. Follow the onscreen instructions to register the product.
Manage Settings	menu: **System Settings > Manage Settings** Save and restore the Connectivity, Display, Media, and Workout Limits settings.

System Tests menu

System Tests menu

menu: **Service menu (51765761) > System Settings > System Tests**.

Machine diagnostics tests to verify system hardware operation.

SYSTEM TESTS MENU	TEST DESCRIPTION
Brake Test	menu: **System Tests > Brake Test** If the brake is operational, provides the following operating information: • PWRB XXX: The current power bits. • RPM: Brake generator RPM. • VBUS XX: Bus Voltage used to drive the brake. • M-AMPS XX: **DC**[1] brake current.
Battery Test	menu: **System Tests > Battery Test** Shows the current battery voltage level as "XX.X VDC Y". Where: XX.X is the measured DC battery voltage (nominal 12.6 - 14.6 Vdc). There can be an additional "Y" suffix indicating the following condition: "C" an external **AC**[2] charger is connected. "L" the battery is low (less than 11.5 Vdc). "CL" charger is connected and the battery is low.
SPM Test	(EFX, AMT only) menu: **System Tests > SPM Test** SPM "Strides per Minute" test metrics: • Pulse: current pulse count. • Minimum: minimum pulse count. • Maximum: maximum pulse count.
CrossRamp Test	(EFX, AMT only) menu: **System Tests > CrossRamp Test** Manually run the lift motor to raise/lower the crossramp through full range, levels 1 to 20. • **A/D**[3]: Lift potentiometer analog to digital voltage value. • Glitches: number of sticking lift motion. • Volts (DC): lift motor voltage.
USB Test	menu: **System Tests** > **USB Test**

[1]Direct Current: electrical current that only flows in one direction.

[2]Alternating Current: electric current which periodically reverses direction between positive and negative polarity.

[3]analog to digital converter

SYSTEM TESTS MENU	TEST DESCRIPTION
	List the active USB ports.
Touchscreen Test	menu: **System Tests** > **Touchscreen Test** Verify touchscreen display.
Touchscreen Calibration	menu: **System Tests** > **Touchscreen Calibration** Calibrates touchscreen finger press operation.
Backlight Test	menu: **System Tests** > **Backlight Test** Tests the display backlight performance.
RGB Test	menu: **System Tests** > **RGB Test** Tests the display color performance.
Numeric Backlight Test	menu: **System Tests** > **Numeric Backlight Test** Tests the movement controls **LCD**[1] numeric displays backlight brightness level.
Numeric Display Test	menu: **System Tests** > **Numeric Display Test** Tests the movement controls LCD numeric displays.
Heart Rate Test	menu: **System Tests** > **Heart Rate Test** Tests the handlebar unfiltered and filtered pulse heart rate. Grasp the grips to test the handheld heart rate. Use a Polar heart rate simulator to test the wireless heart rate. Press the back button to exit this test.

(1) Not included on elliptical or treadmill products that do not have the maintenance and ASL features. Not included on the EFX600 series, the TRM600 series, or the TRM800-10 (TRM10/GEN06) series products.

Club Settings (5651565)

Service Access Code: 5651565

On P62, P80, and P82 touchscreen consoles, Club Settings menu is used localize the console user interface (language, measurement units, etc.), customize the equipment workout parameters (workout times and limits), and to help manage equipment service.

Club Settings Menus

- **About menu**, see "About menu" on page 40.
- **Equipment Usage menu**, see "" on page 42.

[1]liquid crystal display.

- **Maintenance menu**(1), see "" on page 42.
- **System Settings menu**, see "" on page 44.
- **(No) Available Updates**, see "(No) Available Updates" on page 40.

(1) Not supported on EFX600 or TRM600 product lines.

Information Display (65)

Information Display (65): Not supported

The Information Display (65) service menu found on LED consoles (P10, P30, P30i and P31) is **NOT** supported on touchscreen consoles (P62, P80, and P82).

Refer to the following touchscreen console service menus for similar equipment information:

- **About** menu, see "About menu" on page 40.
- **Equipment Usage**, menu see "" on page 42.
- **Maintenance** menu, see "" on page 42.

Adjustment/Calibration Procedures

Adjustment procedures provide step-by-step instructions to bring system components into specification tolerances. Perform the adjustment procedures whenever an equipment issue symptom points to a particular component and after a major component is removed/replaced.

Available Adjustment/Calibration Procedures

Single Stage Input Drive

- "Single Stage Input Drive Belt Tension Adjustment" on the facing page

Dual Stage Input Drive

- "First Stage Drive Belt Tension Adjustment" on page 58
- "Second Stage Drive Belt Tension Adjustment" on page 62

Lift Motor Calibration

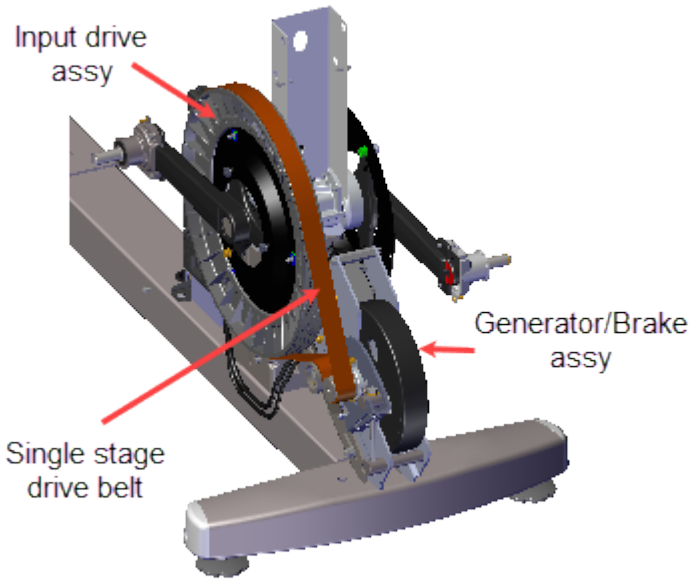
- "Lift Motor Calibration" on page 66

Single Stage Input Drive Belt Tension Adjustment

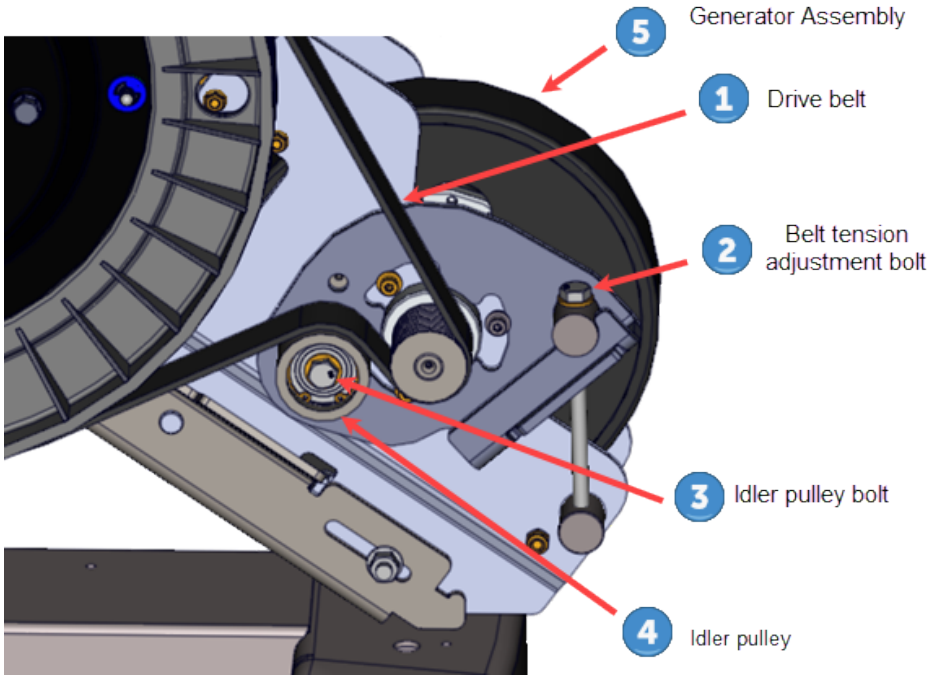
Applies To: Single Stage Input Drive

About

This procedure applies to single stage Input Drives and provides instructions to adjust the Input Drive belt tension.



Exploded View



ID	Cover
1	Drive Belt
2	Belt Tension Adjustment Bolt
3	Idler Pulley Bolt
4	Idler Pulley
5	Generator Assembly

Specifications

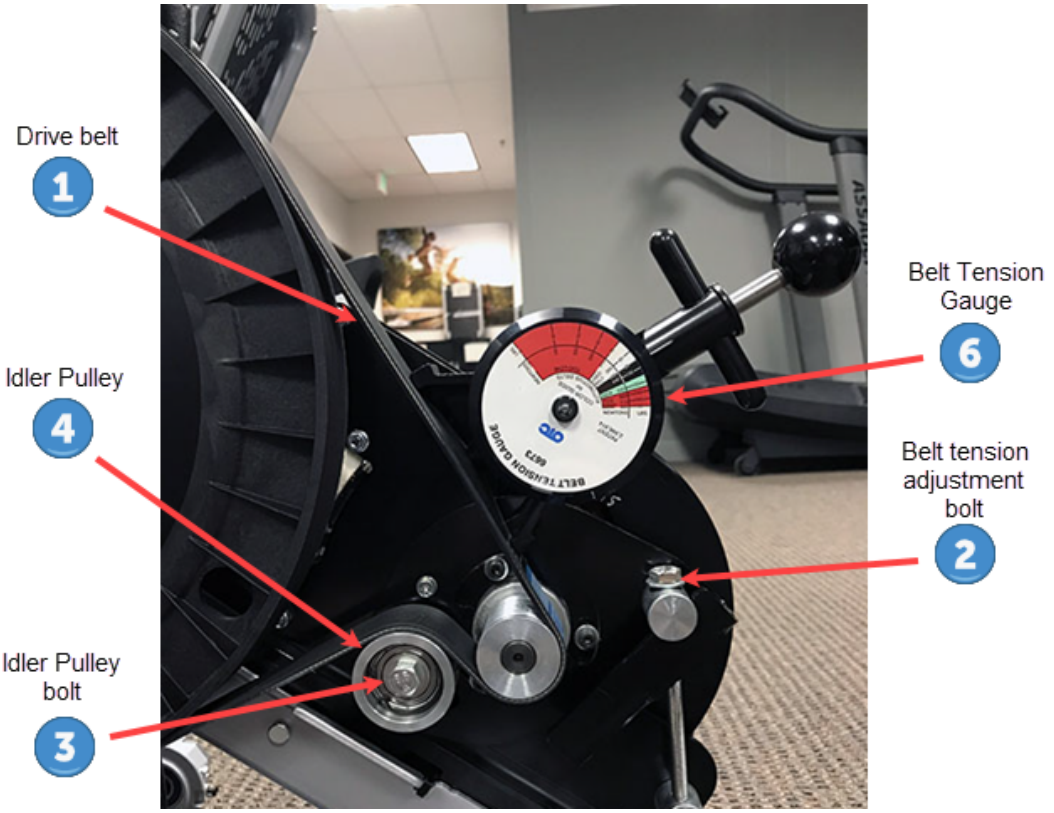
Single Stage Input Drive	Specification
Single Stage Drive Belt Tension	93-100 lbs (42- 45.4 kgs)

Procedure

Review entire procedure before starting.

1. Remove the Drive Housing Covers, see "Drive Housing Covers Replacement" on page 95.
2. Place the belt tension gauge onto the drive belt (1) midway between the drive and generator pulleys and measure the belt tension. If the tension is within specification

93-100 lbs (42- 45.4 kgs), belt tension adjustment is not required. If the tension is not within specification, continue with the belt tension adjustment.



3. Use a 1/2" socket to loosen the idler pulley bolt 3.
4. Adjust the drive belt tension to the OEM specification.
   a. Use the belt tension gauge to measure the belt tension.
   b. Then remove the belt tension gauge.
   c. Make small adjustments (1/4 turn increments) to the 1/2" belt tension adjustment bolt 2 to either increase or decrease the tension as needed.
   d. Use the Crank to move and seat the belt to the new tension adjustment.
   e. Install the belt tension gauge and remeasure the belt tension.
   f. Repeat steps until the belt tension is within specification.

IMPORTANT: The belt tension gauge must be removed while making tension adjustments or the measurement will be invalid.

Single Stage Input Drive	Specification
Single Stage Drive Belt Tension	93-100 lbs (42- 45.4 kgs)

5. Fully tighten the idler pulley bolt 3. Then manually rotate the Input Drive pulley to seat the belt. If the belt tension is not within specification, repeat the belt tension adjustment steps.
6. Reinstall the Drive Housing Covers and any other removed covers, see "Drive Housing Covers Replacement" on page 95.
7. Verify operation and return to service, see "Operation Verification" on page 20.

See Also

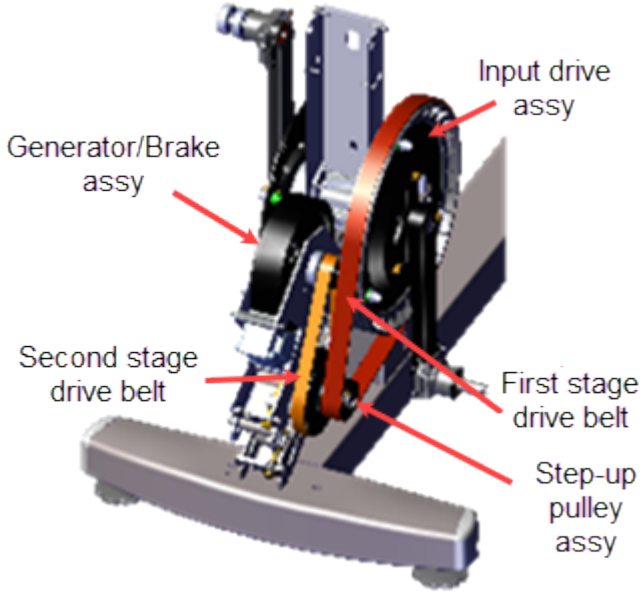
"Second Stage Drive Belt Tension Adjustment" on page 62

Dual Stage Input Drive Belt Tension Adjustment Procedures

Applies To: Dual Stage Input Drive

About

A Dual Stage Input Drive system uses a first-stage drive belt and second-stage drive belt system to connect the Input Drive assembly pulley to the generator/brake assembly pulley. Always adjust the first stage drive belt first and then the second stage drive belt.



IMPORTANT: Adjust the first stage drive belt tension prior to adjusting the second stage drive belt tension.

Videos

	Service Video	Link
	EFX600/700/800 Dual Stage Input Drive Belt Tension Verification	EFX600/700/800 Dual Stage Input Drive Belt Tension Verification

Procedures

- "First Stage Drive Belt Tension Adjustment" on the next page
- "Second Stage Drive Belt Tension Adjustment" on page 62

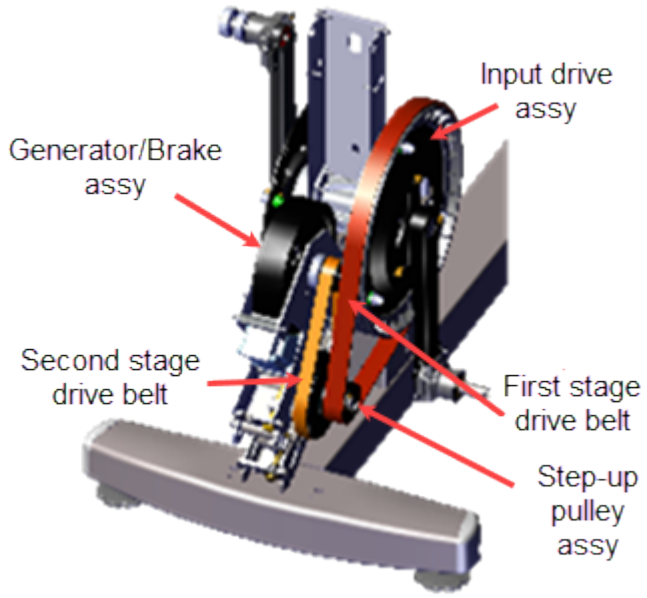
First Stage Drive Belt Tension Adjustment

Applies To: Dual Stage Input Drive

About

This procedure applies to Dual Stage Input Drives and provides instruction to adjust the First Stage Drive Belt tension.

A Dual Stage Input Drive system uses a first-stage drive belt and second-stage drive belt system to connect the Input Drive assembly pulley to the generator/brake assembly pulley. Always adjust the first stage drive belt first and then the second stage drive belt.



Specifications

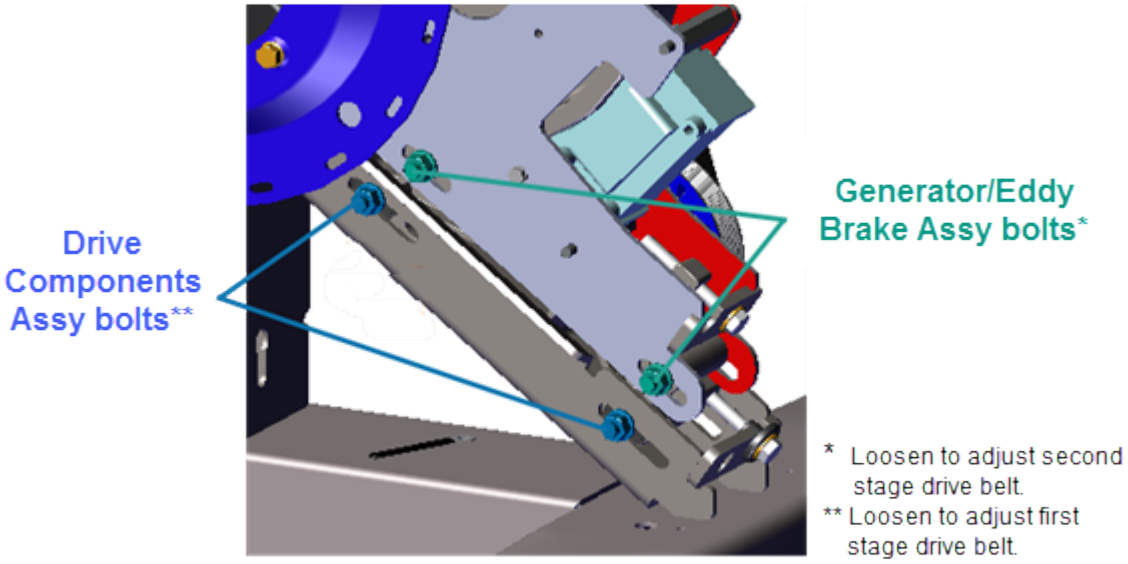
Single Stage Input Drive	Specification
Drive Belt Tension - **New**(1)	140-150 lbs (63.5 - 68 kgs)
Drive Belt Tension - **Used**(1)	125 - 135 lbs (56.7 - 61 Kgs)
Drive Component Assy Carriage Bolts	180 in-lbs +/- 54 (20.3 +/_ 4.5 Nm)
(1) New belt tension applies to new belt first time installations. Used belt tension applies to reinstalling an existing belt or re-tensioning an existing used belt.	

Procedure

Review entire procedure before starting.

IMPORTANT: Adjust the first stage drive belt tension prior to adjusting the second stage drive belt tension.

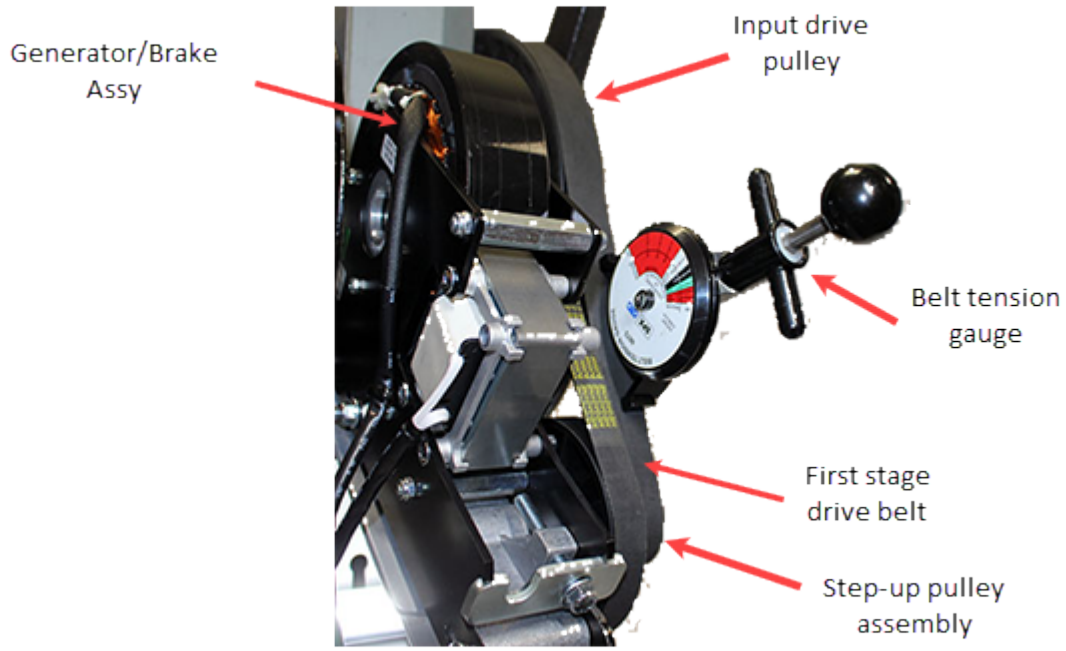
1. Remove the left and right Drive Housing Covers, see "Drive Housing Covers Replacement" on page 95.
2. Use a 1/2" socket to loosen the two first stage Drive Components assembly carriage bolt nuts (left side) just enough to allow assembly movement. Do not remove the carriage bolt nuts.



CAUTION: Make sure that the two Drive Components assembly bolts are loosened before adjusting the first stage belt tensioner. The tensioner hardware can be damaged and the belt cannot be tensioned if the Drive Components assembly bolts are not loosened.

3. Place the belt tension gauge onto the first stage drive belt midway between the Input Drive pulley and smaller Step-up Assembly pulley and measure the tension. Record

the measured belt tension.



4. Compare the measured belt tension to the first stage drive belt tension specification.

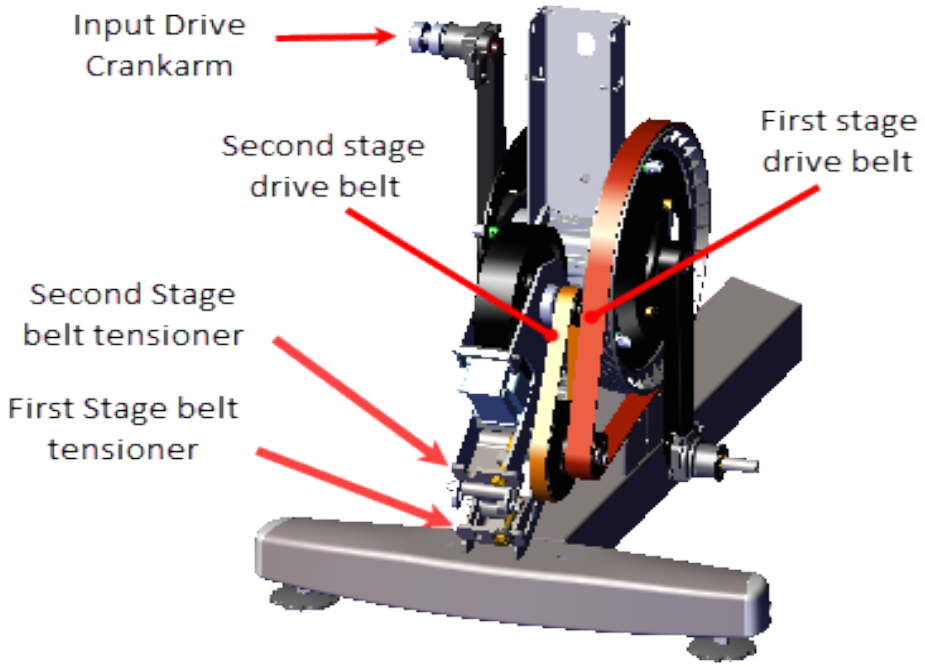
Single Stage Input Drive	Specification
Drive Belt Tension - New(1)	140-150 lbs (63.5 - 68 kgs)
Drive Belt Tension - Used(1)	125 - 135 lbs (56.7 - 61 Kgs)
(1) New belt tension applies to new belt first time installations. Used belt tension applies to reinstalling an existing belt or re-tensioning an existing used belt.	

5. If the tension is NOT within the specified limits, do the following tension adjustment steps to bring the tension within specification:
   a. Remove the belt tension gauge.

      IMPORTANT: The belt tension gauge must be removed while making tension adjustments or the measurement will be invalid.

   b. Make a small incremental adjustment to the 1/2" First Stage Belt Tensioner bolt as needed (loosen or tighten) to bring the belt tension into specification.

      Note: Belt tension adjustment is an iterative process, only make small tension changes per adjustment. Be careful to NOT over tension the belt, which could result in damaging the belt or pulley hardware.



c. Then use the Crank to rotate the input pulley a couple of rotations to seat the belt and remeasure the belt tension.
d. If the belt tension is not within specification, repeat the tension adjustment process until the belt tension is correctly tensioned.

6. Use a 1/2" socket to tighten the two Drive Components assembly carriage bolts (left side), torque bolts to 180 in-lbs +/- 54 (20.3 +/_ 4.5 Nm).
7. Measure and verify that the second-stage drive belt is within specification, re-tension the belt as needed, see "Second Stage Drive Belt Tension Adjustment" on the next page.
8. Reinstall the left and right Drive Housing Covers and any other removed covers, see "Drive Housing Covers Replacement" on page 95.
9. Verify machine operation and return to service.

See Also

"Second Stage Drive Belt Tension Adjustment" on the next page

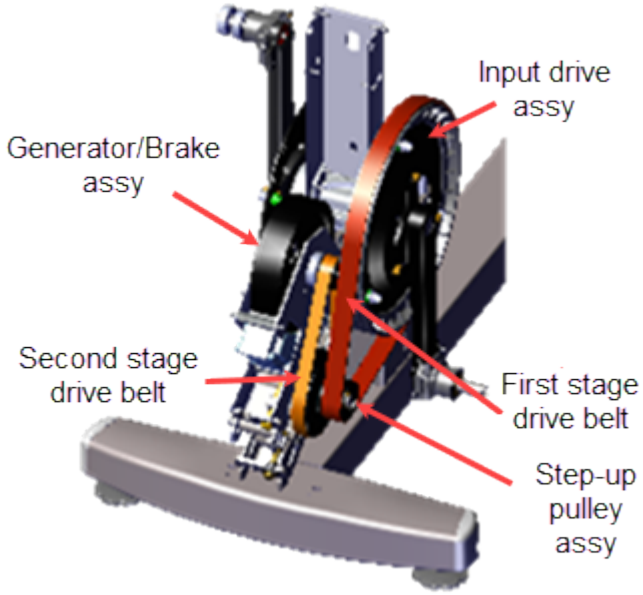
Second Stage Drive Belt Tension Adjustment

Applies To: Dual Stage Input Drive

About

This procedure applies to Dual Stage Input Drives and provides instruction to adjust the Second Stage Drive Belt tension.

A Dual Stage Input Drive system uses a first-stage drive belt and second-stage drive belt system to connect the Input Drive assembly pulley to the generator/brake assembly pulley. Always adjust the first stage drive belt first and then the second stage drive belt.



Specifications

Dual Stage Input Drive	Specification
Second Stage Drive Belt Tension - **New**	110-120 lbs (50- 54.4 kgs)
Second Stage Drive Belt Tension - **Used**	92 - 105 lbs (43 - 47.6 kgs)
Drive Component Assy Carriage Bolts	180 in-lbs (20.3 Nm)
Note: New belt tension applies to new belt first time installations. Used belt tension applies to reinstalling an existing belt or re-tensioning an existing used belt.	

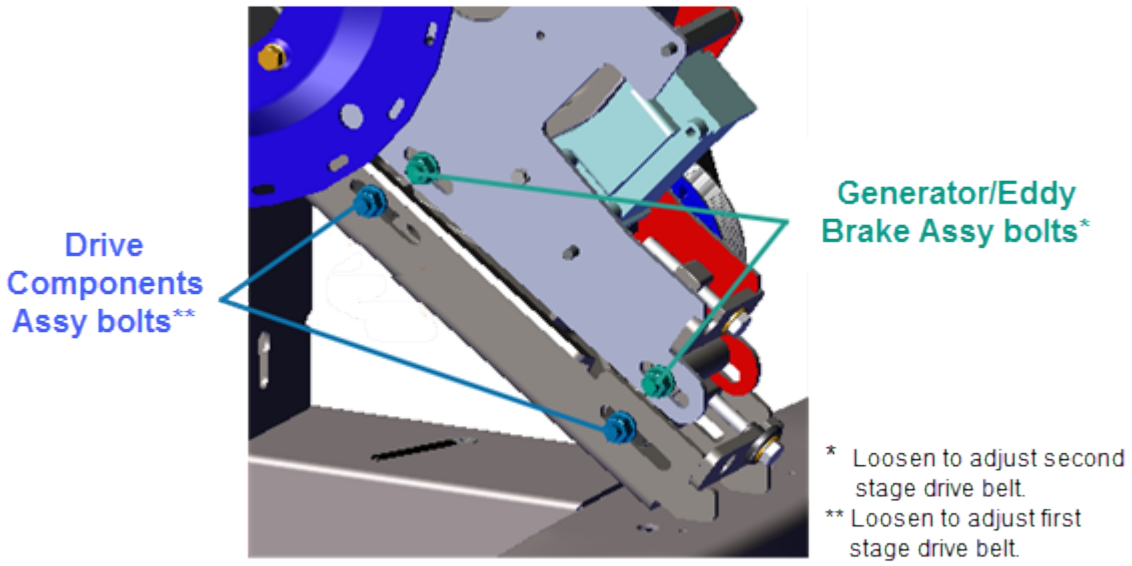
Procedure

Review entire procedure before starting.

1. Remove the left and right Drive Housing covers, see "Drive Housing Covers Replacement" on page 95.
2. Measure and verify that the first stage drive belt tension is within specification, see "First Stage Drive Belt Tension Adjustment" on page 58. If the belt tension is not within specification, re-tension the belt.

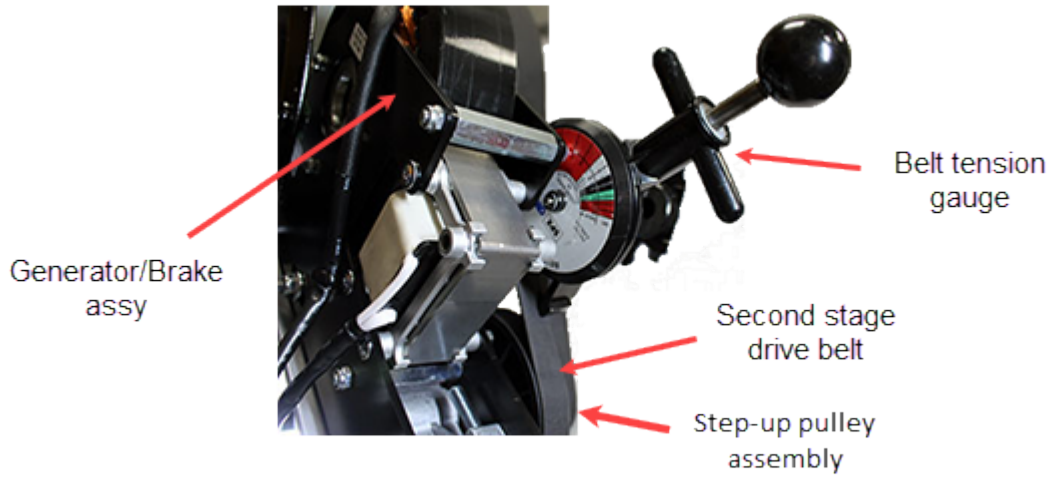
IMPORTANT: Adjust the first stage drive belt tension prior to adjusting the second stage drive belt tension.

3. Use a 1/2" socket to loosen the two Generator/Brake assembly bolt nuts (left side) just enough to allow assembly movement. Do not remove the carriage bolt nuts.



CAUTION: Make sure that the two Generator/Brake assembly carriage bolts are loosened before adjusting the second stage belt tensioner. The tensioner hardware can be damaged and the belt cannot be tensioned if the Generator/Brake assembly are not loosened.

4. Place the belt tension gauge onto the Second Stage Drive Belt midway between the Generator/Brake pulley and larger Step-up Assembly pulley and measure the tension. Record the measured belt tension.

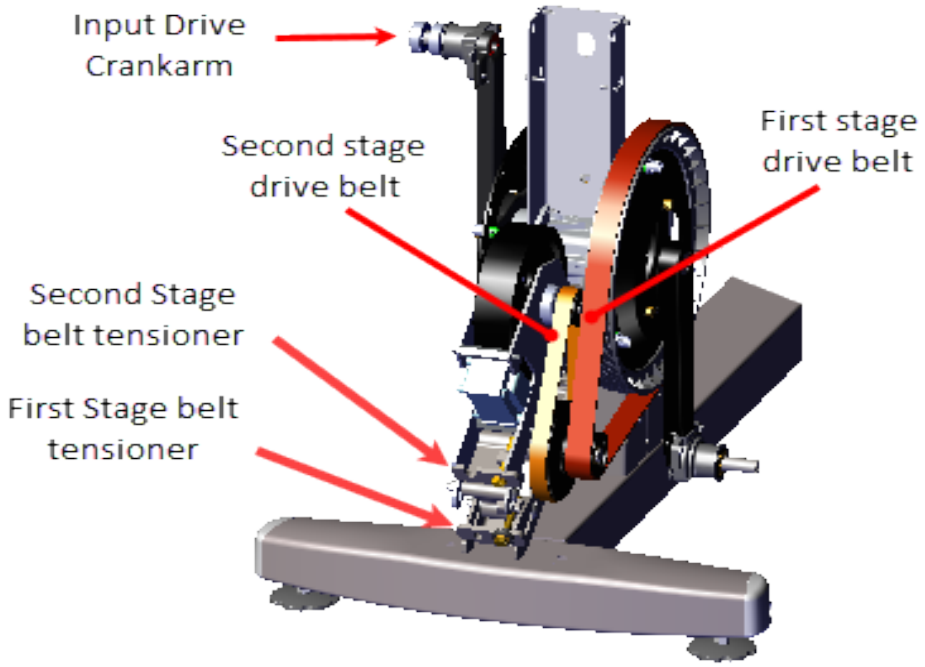


5. Compare the measured belt tension to the second stage drive belt tension specification.

Dual Stage Input Drive	Specification
Second Stage Drive Belt Tension - **New**	110-120 lbs (50- 54.4 kgs)
Second Stage Drive Belt Tension - **Used**	92 - 105 lbs (43 - 47.6 kgs)
Note: New belt tension applies to new belt first time installations. Used belt tension applies to reinstalling an existing belt or re-tensioning an existing used belt.	

6. If the tension is not within the specified limits, do the following tension adjustment steps to bring the tension within specification:
   a. Remove the belt tension gauge.
   b. Make a small incremental adjustment to the 1/2" Second Stage Belt Tensioner bolt as needed (loosen or tighten) to bring the belt tension into specification.

Note: Belt tension adjustment is an iterative process, only make small tension changes per adjustment. Be careful to NOT over tension the belt, which could result in damaging the belt or pulley hardware.



c. Then use the Crank to rotate the input pulley a couple of rotations to seat the belt and remeasure the belt tension.

d. If the belt tension is not within specification, repeat the tension adjustment process until the belt tension is correctly tensioned.

7. Use a 1/2" socket to fully tighten the two Generator/Brake assembly carriage bolts (left side), torque bolts to 180 in-lbs (20.3 Nm).
8. Reinstall the left and right Drive Housing covers and any other removed covers, see "Drive Housing Covers Replacement" on page 95.
9. Verify machine operation and return to service "Operation Verification" on page 20.

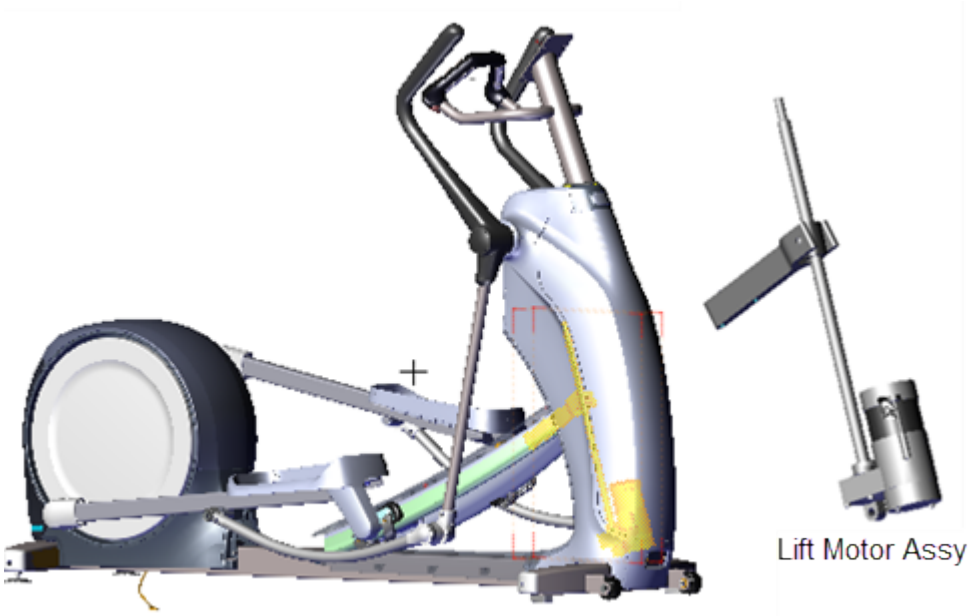
See Also

"First Stage Drive Belt Tension Adjustment" on page 58

Lift Motor Calibration

About

This procedure provides instruction to verify and calibrate the Lift Motor Incline system. The Lift Motor calibration should be verified anytime the Lift Motor fuse fails or is replaced, or any incline system component is replaced.



Specifications

System Component	Specification
Lift Motor Calibration Distance*	9" +/- 1/4" (23 cm +/- 0.6 cm
Yoke/Ramp Fasteners	330 in-lbs (27.5 ft-lbs or 37.2 Nm)
Note: * Calibration distance is set at incline level 10.	

Procedure

TIP: To help keep your hands clean while doing this procedure, it is advised to wear general purpose mechanics gloves. You will be handling the jackscrew which is coated with a thin layer of grease.

Review entire procedure before starting.

Lift Motor Calibration Verification

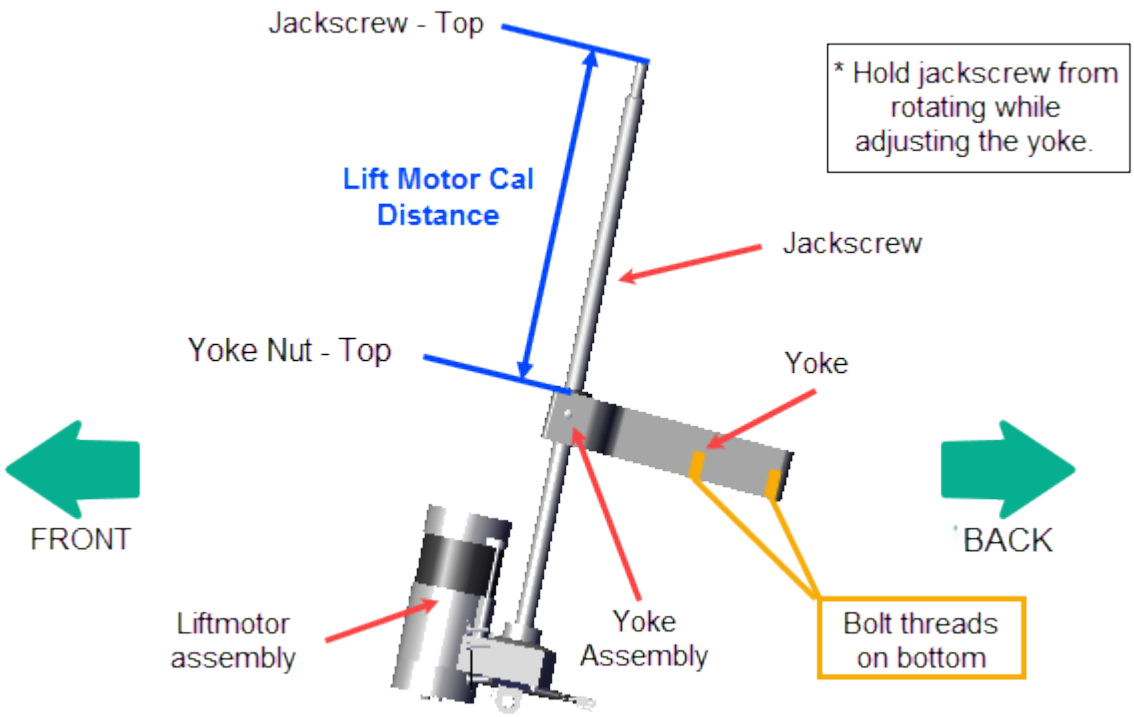
1. Remove the Goose Neck cover and Gasket, Lift Front cover (see "Lift Front Cover Replacement" on page 79), Lift Interface Plate cover (see "Lift Interface Plate Cover Replacement" on page 83), Accessory Tray cover (see "Accessory Tray Cover Replacement" on page 84), and Rear Lift cover (see "Lift Rear Cover Replacement " on page 84).
2. .Access the **CROSSRAMP TEST** diagnostic test and raise the crossramp incline to level **10**.
   - On **LED**[1] (P10, P30, P30i and P31) consoles: Access diagnostic test menu (51765761) and select **MACHINE TEST** > **CROSSRAMP TEST**.
   - On touchscreen (P62, P80, and P82) consoles: Access the Service menu (51765761) and select **System Settings > Systems Test** > **CrossRamp Test**.
3. Then disconnect the Lift Motor input power cable to prevent accidental lift motor ramp movement.



WARNING: Make sure to disconnect the Lift Motor input power/control cable or it is possible for the crossramp to automatically lower to level 1 under certain circumstances, such as, if the CrossRamp Test is exited or the console powers down and then the arms or pedals are moved. This unexpected action could cause personal injury.

4. Measure and verify that the Lift Motor Cal Distance (distance from the top of the jackscrew to the top of the yoke nut) is 9" +/- 1/4" (23 cm +/- 0.6 cm.

[1]light-emitting diodes.

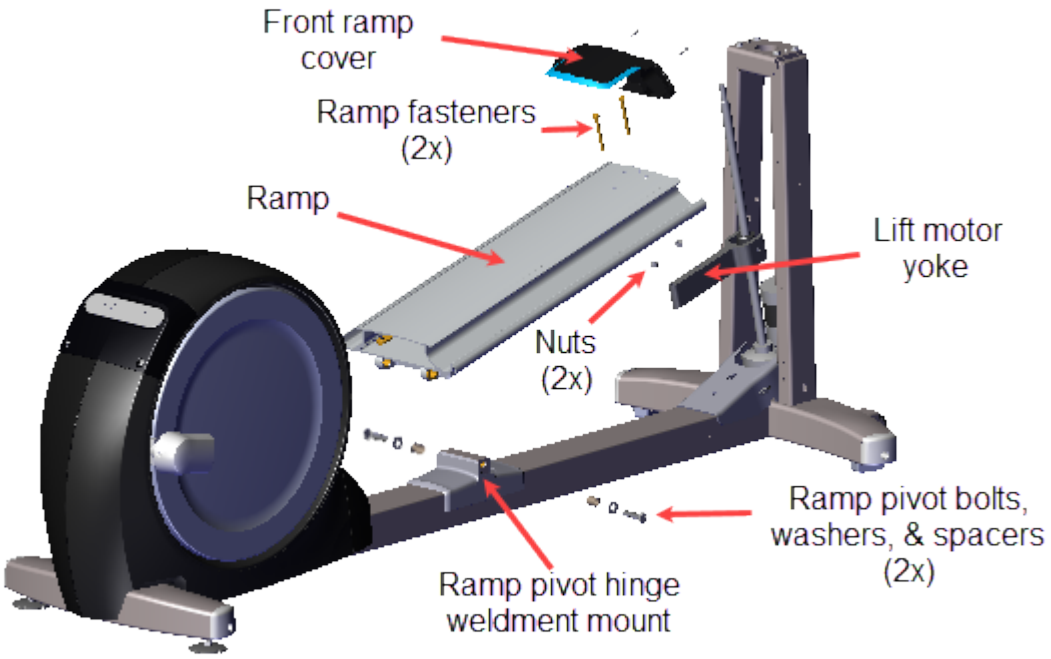


5. If the calibration distance is not to specification (lift motor calibration distance: 9" +/- 1/4" (23 cm +/- 0.6 cm), continue procedure to adjust the Lift Motor Cal Distance.

Lift Motor Calibration

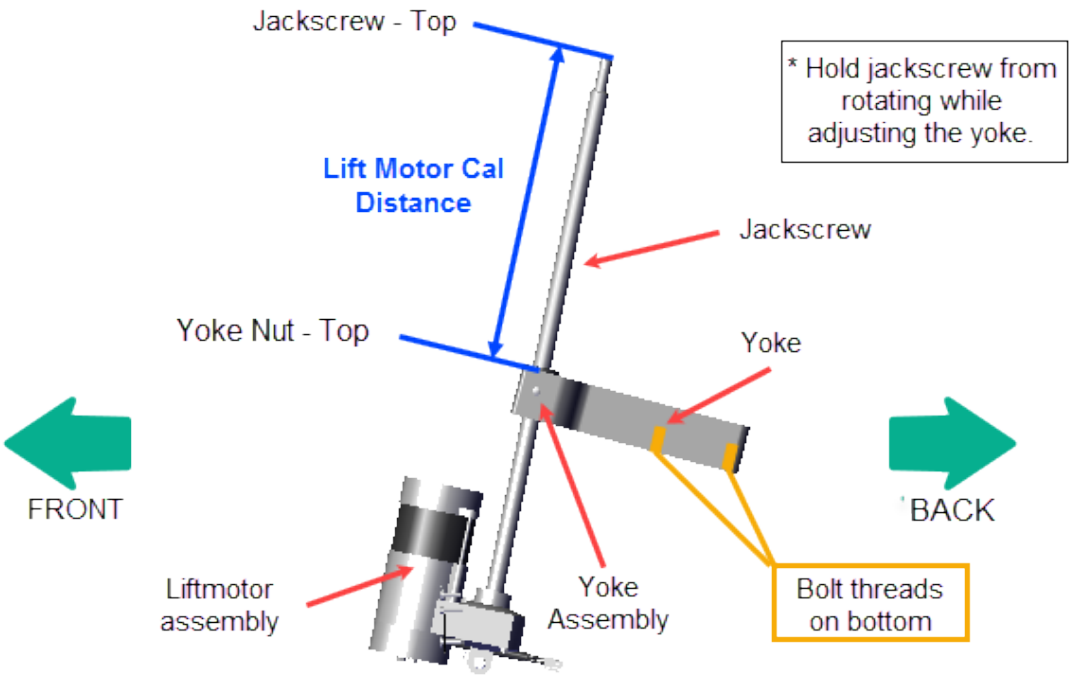
6. Remove the Ramp, see "Ramp Assembly Replacement" on page 195. Do not change the incline level during the ramp removal, maintain the incline level at 10.

Note: The ramp and ramp front cover must be removed to disconnect the ramp from the lift motor yoke.

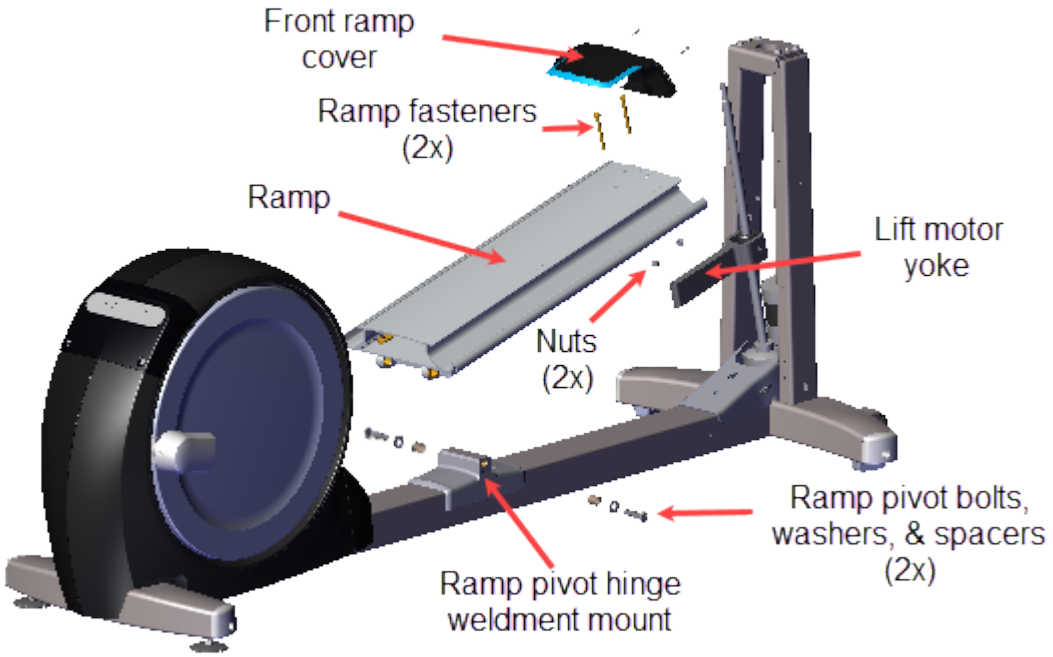


7. Tilt the jackscrew forward out of the front tower weldment. Then use one hand hold the jackscrew fixed and the other hand to rotate the yoke nut around the jackscrew in one full turn increments to raise or lower as needed to adjust the Lift Motor Cal Distance to 9" +/- 1/4" (23 cm +/- 0.6 cm. Make sure that the yoke is pointing to the back of the machine (opposite the lift motor) when measuring the Lift Motor Cal Distance.

IMPORTANT: It is important to keep the jackscrew fixed (not allowed to rotate) as the yoke nut is being adjusted. If the jackscrew does rotate during the adjustment, the lift motor will need to be reset at level 10 and then the Lift Motor Cal Distance re calibrated.



8. Tilt the jackscrew rearward into the front tower weldment.
9. Then reinstall the ramp to reconnect the ramp to the lift motor yoke, see "Ramp Assembly Replacement" on page 195.



10. Reconnect the lift motor input power cable.

11. .Verify the crossramp incline operation through the full range of motion from the minimum to maximum ranges. Access the service **CROSSRAMP TEST** diagnostic test and raise/lower the incline level several times from the minimum to maximum levels.
    - .On LED (P10, P30, P30i and P31) consoles: Access diagnostic test menu (51765761) and select **MACHINE TEST** > **CROSSRAMP TEST**.
    - .On touchscreen (P62, P80, and P82) consoles: Access the Service menu (51765761) and select **System Settings > Systems Test** > **CrossRamp Test**.
12. Reinstall the Rear Lift cover (see "Lift Rear Cover Replacement " on page 84), the Accessory Tray cover (see "Accessory Tray Cover Replacement" on page 84), the Lift Interface Plate cover (see "Lift Interface Plate Cover Replacement" on page 83), the Lift Front cover, the Goose Neck cover and gasket (see "Lift Front Cover Replacement" on page 79).
13. Verify elliptical operation and return to service, see "Operation Verification" on page 20.

Replacement Procedures

Replacement procedures provide you with the step-by-step instructions to remove and install system components

Available Replacement Procedures

"Battery Replacement" on the facing page

"Covers and Panels Replacement" on page 76

"Input Drive Belt Replacement" on page 110

"Removal Instructions" on page 143

"Input Drive Assembly Replacement" on page 156

"Lift Motor Replacement" on page 169

"LPCA (Lower PCA) Board Replacement" on page 178

"Fixed Arms Replacement" on page 186

"Moving Arms Replacement" on page 189

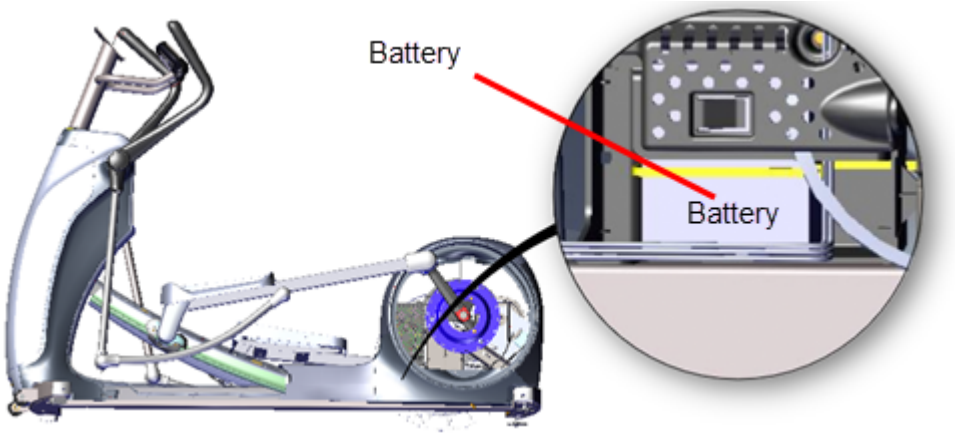
"Ramp Assembly Replacement" on page 195

"Stairarm Assembly Replacement" on page 205

Battery Replacement

About

This procedure provides instruction to determine the condition of the battery to remove and install the Battery.



Determining the battery condition

Use the System Tests menu **BATTERY TEST** to measure the battery voltage and determine the battery condition.

BATTERY TEST

Format	XX.X VDC YY
where	XX.X is the measured battery voltage in VDC (nominal 12.6 - 14.6 Vdc). VDC: **DC**[1] volts Y is the information suffix: C: external **AC**[2] charger connected. L: Battery is low (less than 11.4 volts). CL: Charger is connected and battery is low.

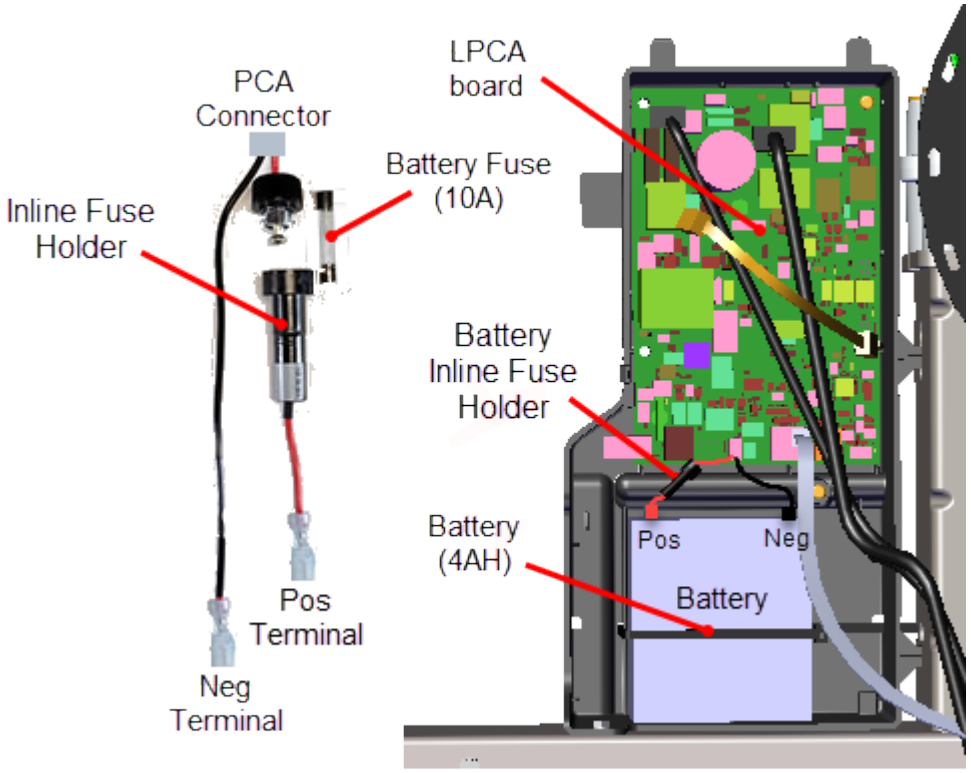
Battery Fuse

The battery inline fuse holder is part of the battery assembly cable attached to the battery positive terminal. To remove the fuse, twist the fuse holder top cap and remove.

Fuse Type: Inline 10 Amp slow blow fuse, .25" diameter

[1]Direct Current: electrical current that only flows in one direction.

[2]Alternating Current: electric current which periodically reverses direction between positive and negative polarity.

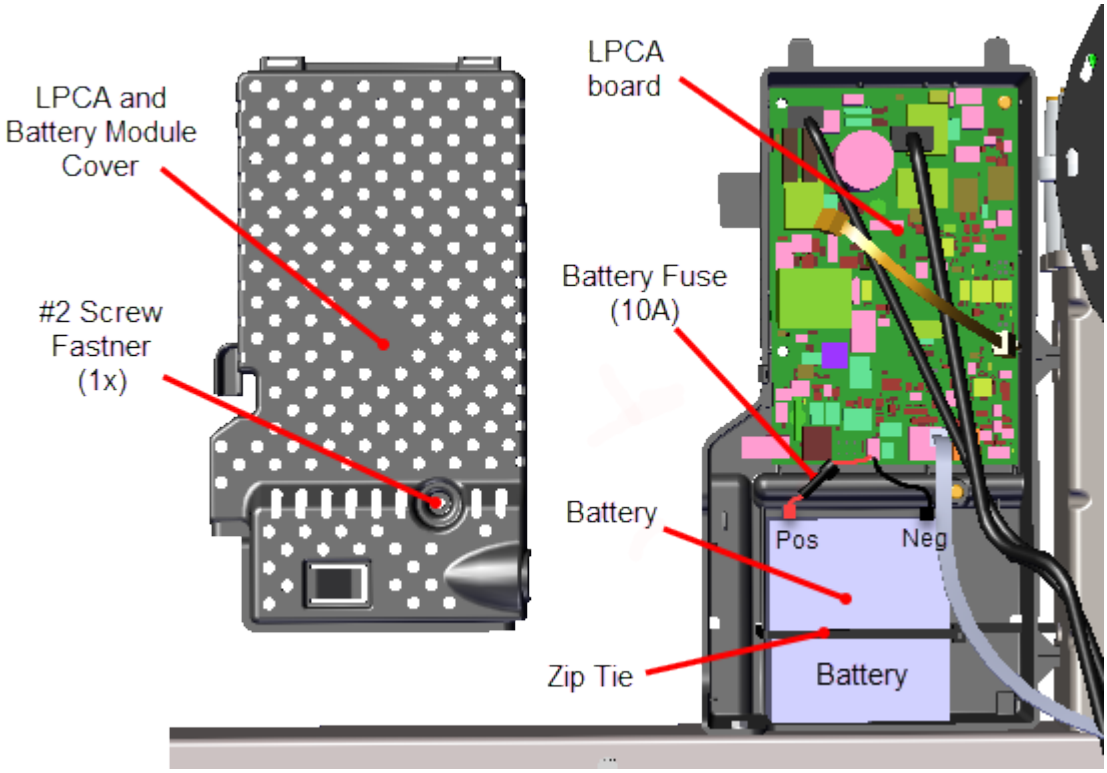


Removal Instructions

Review entire procedure before starting.

1. Remove the left Drive Disk cover, see "Drive Disk Covers Replacement" on page 91.
2. Remove the one #2 Phillips screw fastener and **LPCA**[1]/Battery Module cover. Retain part(s) and/or fastener(s) for installation.

[1]Lower Printed Circuit Assembly board; also refered to as the Lower PCA or simply as the lower board. On treadmills, it is the console to base function interface and the motor controller unit (MCU). On self-powered units, it is the lower PCA console to base function interface.



3. Disconnect the negative battery cable (black terminal) and then the positive battery cable (red terminal).
4. If installed, cut the zip tie.
5. Remove the battery.

Installation Instructions

1. Reconnect the positive cable to the positive terminal (red) and then the negative battery cable to the negative terminal (black).
2. Reinstall the battery and secure with a cable zip tie.
3. Connect the positive cable to the battery red terminal. Make sure the positive cable remains securely connected thru the inline fuse to the LPCA board.
4. Connect the negative cable to the battery black terminal. Make sure the negative wire remains securely connected to the frame weldment.
5. Reinstall the LPCA/Battery module cover using the one #2 Phillips screw.
6. Reinstall the left Drive Disk cover, see "Drive Disk Covers Replacement" on page 91.
7. Verify machine operation and return to service, see "Operation Verification" on page 20.

Covers and Panels Replacement

About

These procedures provide instructions to remove and install the **EFX**[1] covers and panels.

[1]Elliptical Fitness Crosstrainer



ID	Cover	Remove/Install Procedure
1	Goose Neck Gasket	"Lift Front Cover Replacement" on page 79

ID	Cover	Remove/Install Procedure
2	Goose Neck Cover	"Lift Front Cover Replacement" on the facing page
3	Top Lift Cover	"Lift Front Cover Replacement" on the facing page
4	Lift Front Cover	"Lift Front Cover Replacement" on the facing page
5	Lift Interface Plate Cover	"Lift Interface Plate Cover Replacement" on page 83
6	Accessory Tray	"Accessory Tray Cover Replacement" on page 84
7	lift Rear Cover	"Lift Rear Cover Replacement " on page 84
8	Forward Frame Filler Cover	"Forward Frame Filler Cover Replacement " on page 86
9	Lift Side Cover - Right	"Lift Side Cover Replacement " on page 87
10	Lift Side Cover - Left	"Lift Side Cover Replacement " on page 87
11	Drive Access Panel	"Drive Access Panel Replacement" on page 90
12	Drive Disk Cover (2x)	"Drive Access Panel Replacement" on page 90
13	Transition Cover	"Drive Housing Covers Replacement" on page 95
14	Drive Housing Cover - Right	"Drive Housing Covers Replacement" on page 95
15	Drive Housing Cover - Left	"Drive Housing Covers Replacement" on page 95
16	Ramp Pivot Cover	"" on page 103

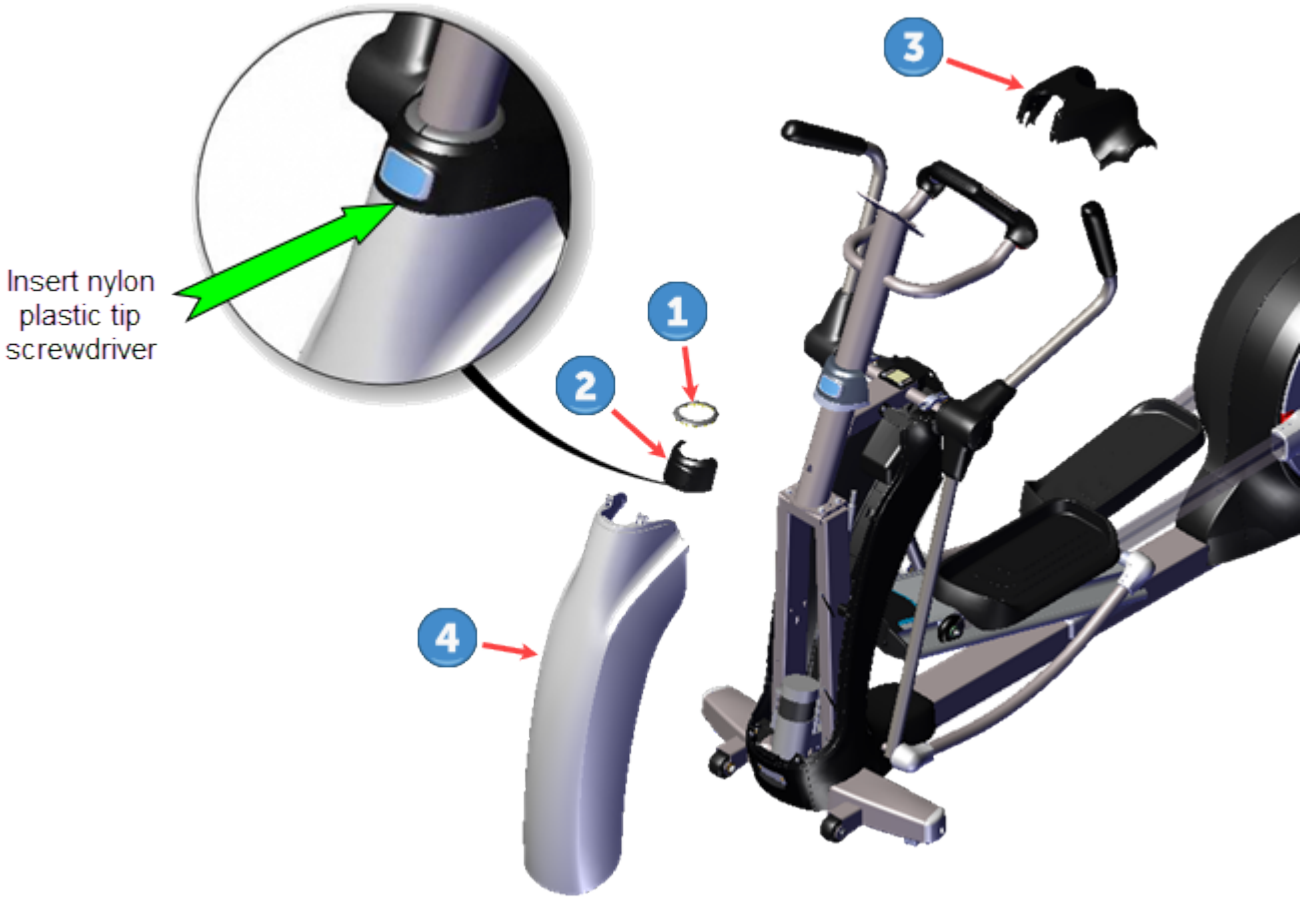
Videos

	Service Video	Link
	EFX600/700/800 Rear Covers Replacement	EFX Rear Drive Covers Removal

Cover Replacement Procedures

Lift Front Cover Replacement

Lift Front Cover Replacement



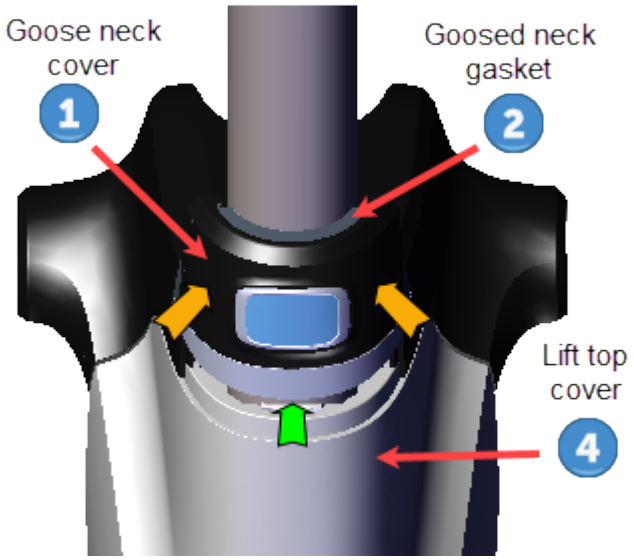
ID	Description
1	Goose Neck Gasket
2	Goose Neck Cover
3	Lift Top Cover
4	Lift Front Cover

Removal Instructions

1. Carefully insert the tip of a nylon or plastic tipped standard flat screwdriver (or similar plastic tool) at the front center seam between the Goose Neck cover (2) and the Lift Front cover (4). While inserting the nylon tip, apply upward pressure to unsnap the Goose Neck cover and gasket from the tubular goose neck weldment. Retain Goose Neck cover and gasket for installation.

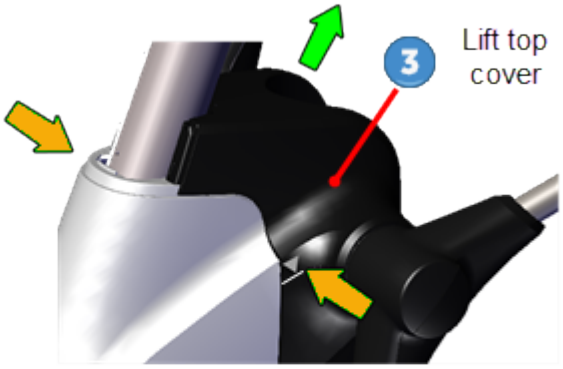
   Alternative method

   You can strike the front of the Goose Neck cover in an upward motion with the palm of your hand to unsnap the cover from the tubular goose neck weldment. Then remove the Goose Neck Gasket and cover.



CAUTION: Only use nylon tipped screwdrivers (or similar plastic device) to pry and unsnap the Goose Neck cover. Metal tipped devices will scratch the surfaces and damage the covers.

2. Unsnap the Lift Top cover (3) from the left and right Lift Side cover ((9) & (10)) attachment tabs to remove. Simultaneously press the left and right tab marker location arrows while lifting the top cover upward and rearward to remove.



Press inward at the left/right side tab marker arrow location while lifting upward to release cover.

3. Slightly tilt the top of the Lift Front cover (4) forward and lift upward to remove.

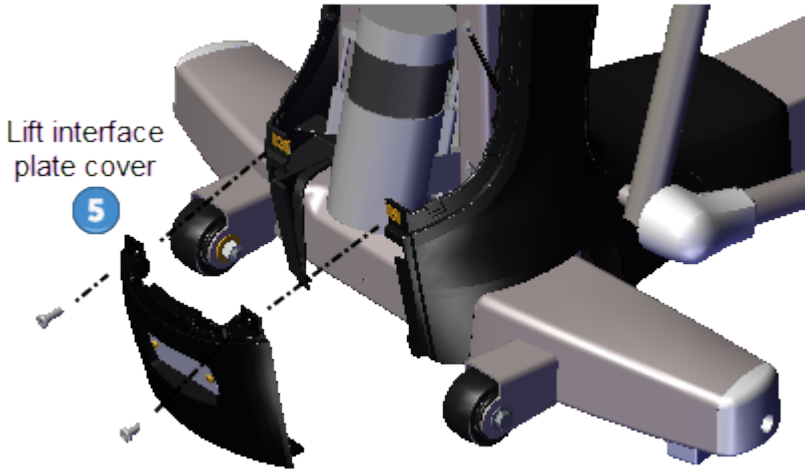


Installation Instructions

1. Set the bottom of the Lift Front cover (4) onto the lift interface plate (5) and right/left Lift Side covers ((9) & (10)) making sure the clips fit over the top edge of the covers. Then press the front cover into onto the right and left Lift Side covers making sure the cover tabs lock in place.
2. Position the Lift Top cover (3) into position on top of the Accessory Tray and press to lock tabs in place.
3. Position the Goose Neck cover (2) into position on top of the Lift Front cover (4) and press to lock tabs in place.
4. Reinstall the Goose Neck Gasket (1) around the goose neck weldment and press to snap in place. Start at the front and alternately work your way around the weldment tube finishing at the back.

Lift Interface Plate Cover Replacement

Lift Interface Plate Cover Replacement



ID	Description
5	Lift Interface Plate Cover

Removal Instructions

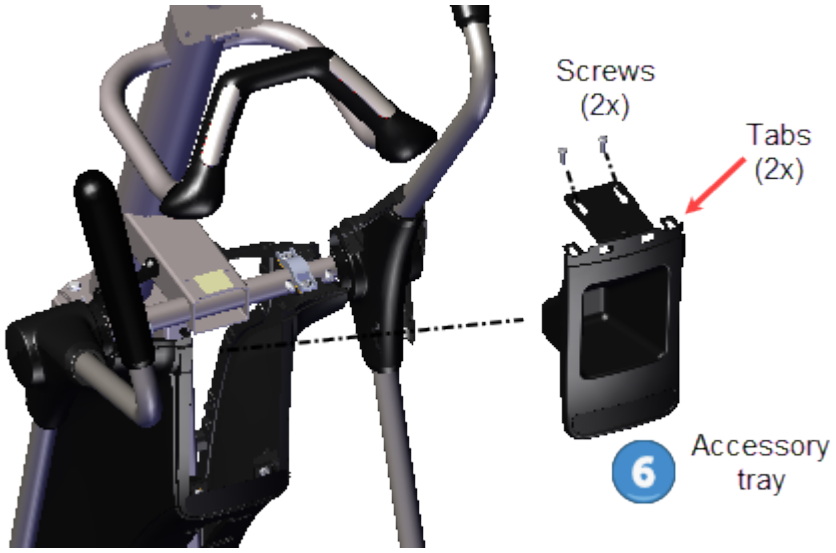
1. Remove the Lift Front cover 4, see "Lift Front Cover Replacement" on page 79.
2. Remove the two #3 Phillips screws and remove the Lift Interface Plate cover 5. Retain part(s) and/or fastener(s) for installation.

Installation Instructions

1. Reinstall the Lift Interface Plate cover 5, snap the lower tabs in place and align the two fastener bolt holes. Secure with two #3 Phillips screws.
2. Reinstall the Lift Front cover 4, see "Lift Front Cover Replacement" on page 79.

Accessory Tray Cover Replacement

Accessory Tray Cover Replacement



ID	Description
6	Accessory Tray Cover

Removal Instructions

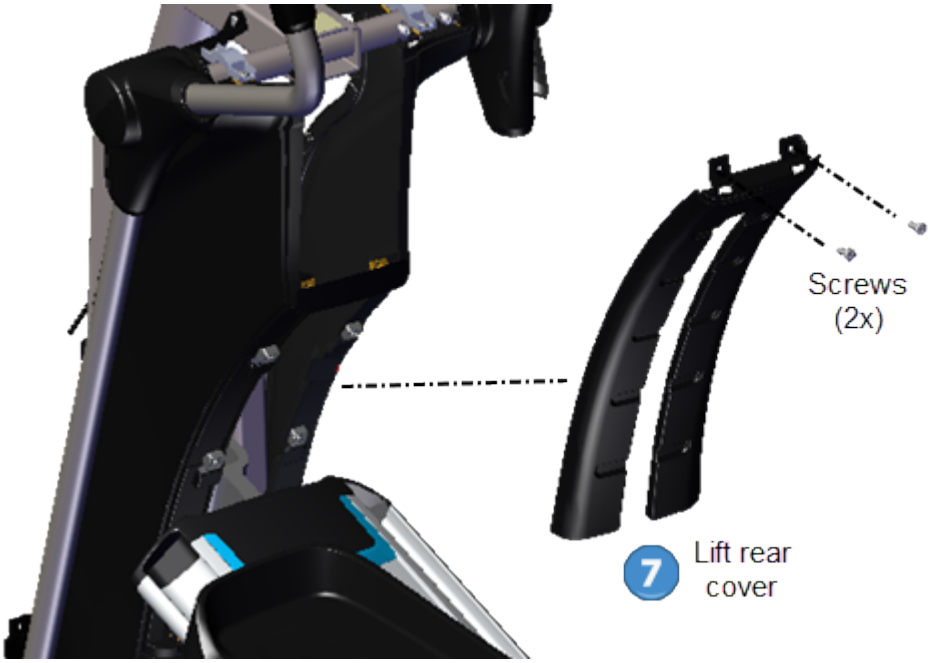
1. Remove the Goose Neck Gasket 1, Goose Neck cover 2, and Lift Top cover 3, see "Lift Front Cover Replacement" on page 79.
2. Remove the two #3 Phillips fasteners, Then lift the two top left and right tabs and remove the Accessory Tray 6. Retain part(s) and/or fastener(s) for installation.

Installation Instructions

1. Reinstall the Accessory Tray 6, press to snap the top two left and right tabs in place and secure with the two #3 Phillips screws.
2. Reinstall the Goose Neck Gasket 1, Goose Neck cover 2, and Lift Top cover 3, see "Lift Front Cover Replacement" on page 79.

Lift Rear Cover Replacement

Lift Rear Cover Replacement





ID	Description
7	Lift rear Cover

Removal Instructions

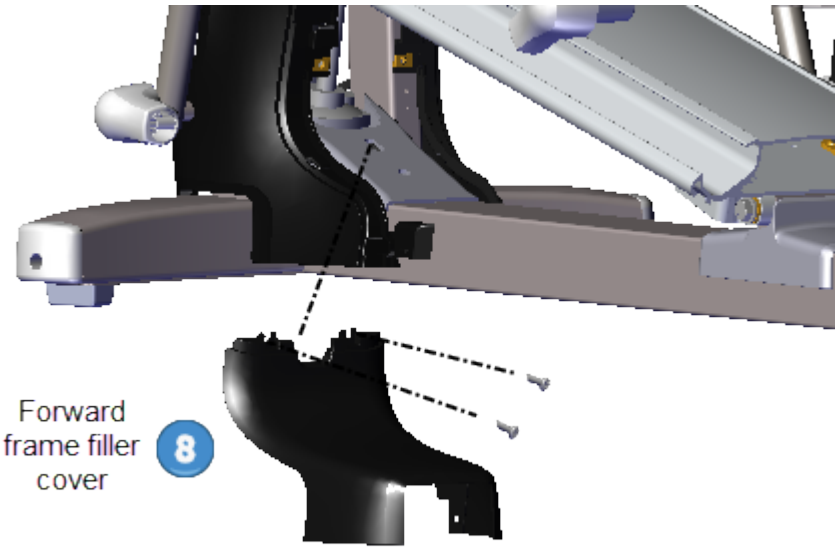
1. Remove the Goose Neck Gasket 1, Goose Neck cover 2, and Lift Top cover 3, see "Lift Front Cover Replacement" on page 79.
2. Remove the Accessory Tray 6, see "Accessory Tray Cover Replacement" on the previous page.
3. Remove the two #3 Phillips fasteners, Then lift the Lift Rear cover 7 upward and rearward to remove. Retain part(s) and/or fastener(s) for installation.

Installation Instructions

1. Slide the Lift Rear cover 7 downward onto the top of the Forward Frame Filler cover 8 while lightly pressing forward to engage the six cover attachment clips.
2. Secure using the two #3 Phillips fasteners.
3. Reinstall the Accessory Tray 6, see "Accessory Tray Cover Replacement" on the previous page.
4. Reinstall the Goose Neck Gasket 1, Goose Neck cover 2, and Lift Top cover 3, see "Lift Front Cover Replacement" on page 79.

Forward Frame Filler Cover Replacement

Forward Frame Filler Cover Replacement



ID	Description
8	Forward Frame Filler Cover

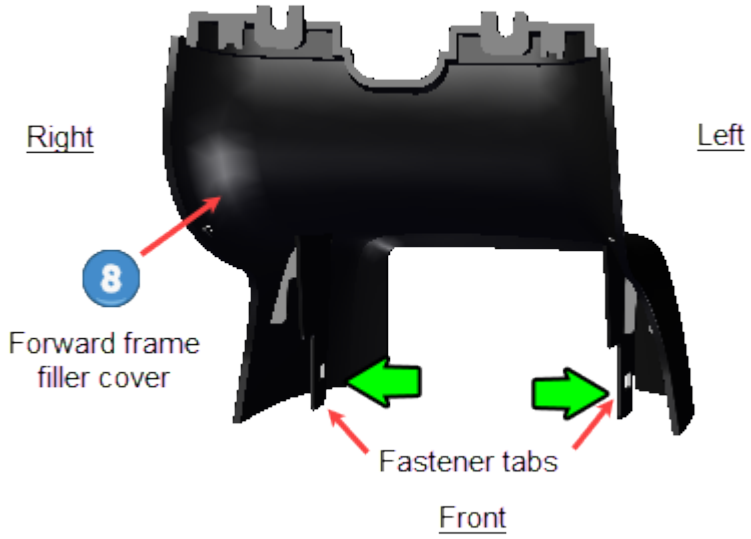
Removal Instructions

1. Remove the Goose Neck Gasket 1, Goose Neck cover 2, and Lift Top cover 3, see "Lift Front Cover Replacement" on page 79.
2. Remove the Accessory Tray cover 6, see "Accessory Tray Cover Replacement" on page 84.
3. Remove the Lift Rear cover 7, see "Lift Rear Cover Replacement " on page 84.
4. Raise the crossramp to maximum using the System Tests - CrossRamp Test.

CAUTION: Do not raise the crossramp from within a workout. The crossramp will automatically lower to the default level when the workout times out. This unexpected action could cause personal injury to extremities underneath the crossramp or the area around the lift motor.

1. Remove the two #3 Phillip Forward Frame Filler cover 8 screws.
2. Then pull outward on the left and right frame weldment tabs located at the rear bottom

edges and lift upward to remove the cover.



Installation Instructions

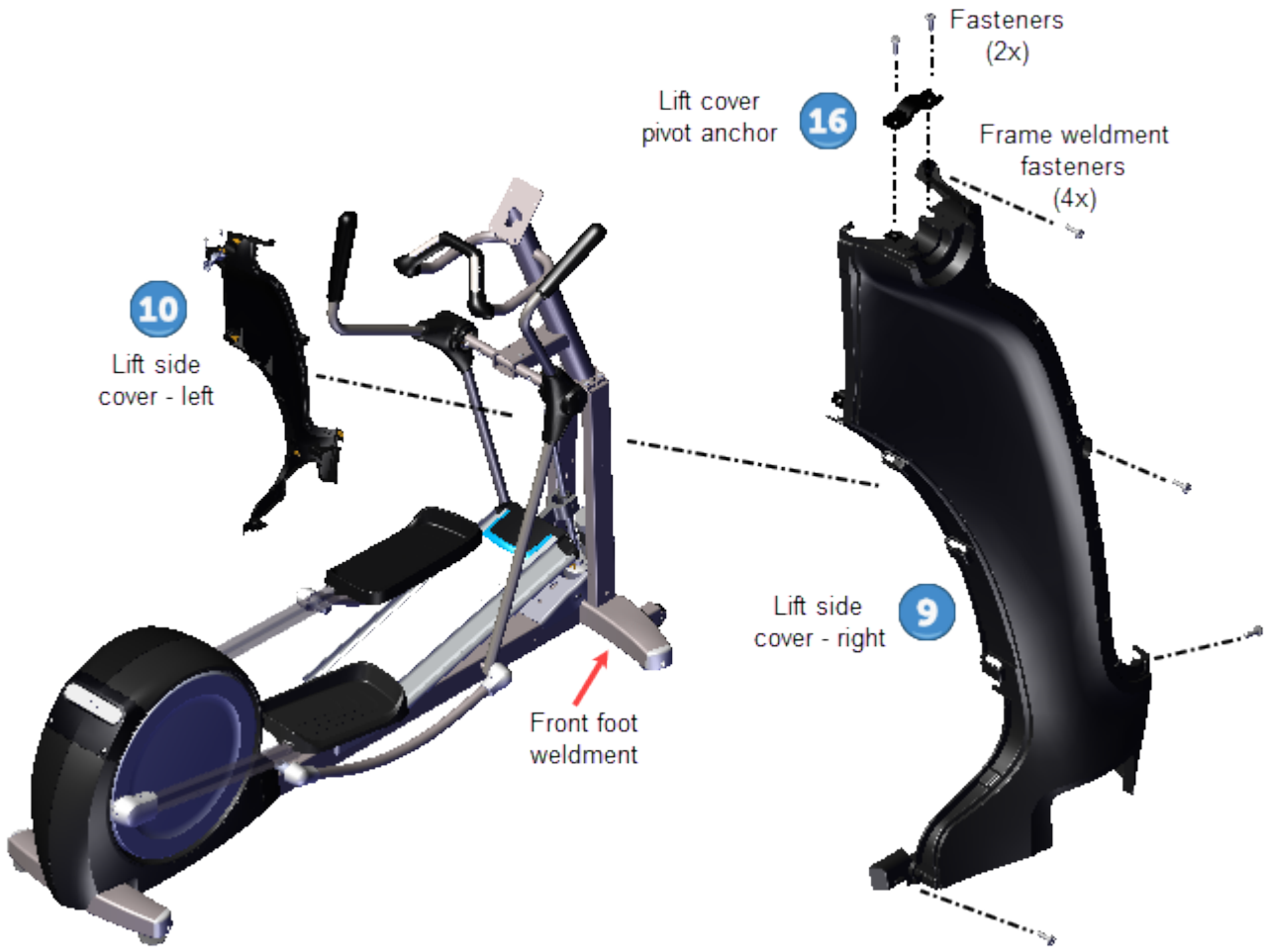
1. Raise the crossramp to maximum incline using the System Tests - CrossRamp Test.

CAUTION: Do not raise the crossramp from within a workout. The crossramp will automatically lower to the default level when the workout times out. This unexpected action could cause personal injury to extremities underneath the crossramp or the area around the lift motor.

2. Position the Forward Frame Filler cover 8 onto the frame weldment and press to lock the fastener tabs in place. Secure using the two #3 Phillip screws.
3. Lower the crossramp to the default incline level using the System Tests - CrossRamp Test
4. Reinstall the Lift Rear cover 7, see "Lift Rear Cover Replacement " on page 84.
5. Reinstall the Accessory Tray cover 6, see "Accessory Tray Cover Replacement" on page 84.
6. Reinstall the Goose Neck Gasket 1, Goose Neck cover 2, and Lift Top cover 3, see "Lift Front Cover Replacement" on page 79.

Lift Side Cover Replacement

Lift Side Cover Replacement



ID	Description
9	Lift Side Cover - Right
10	Lift Side Cover - Right
16	Lift cover pivot anchor

Removal Instructions

This procedure applies to both the left or right Lift Side covers.

1. Remove the Goose Neck Gasket 1, Goose Neck cover 2, Lift Top cover 3, and Lift Front cover 4, see "Lift Front Cover Replacement" on page 79.
2. Remove the Lift Interface Plate cover 5, see "Lift Interface Plate Cover Replacement" on page 83.

3. Remove the Accessory Tray cover 6, see "Accessory Tray Cover Replacement" on page 84.
4. Remove the Lift Rear cover 7, see "Lift Rear Cover Replacement " on page 84.
5. Remove the Forward Frame Filler cover 8, see "Forward Frame Filler Cover Replacement " on page 86.
6. Remove the four #3 Phillips Lift Side cover (right side 9 or left side 10) frame weldment attachment screws.
7. Remove the two #3 Phillips screws and remove the Lift Cover Pivot Anchor 16 bracket.
8. Remove the four #3 Lift Side cover frame tower weldment screws (1 top front, 1 half way down the front edge, ! lower front, and 1 lower back).
9. Then Carefully remove the Lift Side cover from the frame. You may need to slightly bend the cover to lift the cover bottom edge over the front foot weldment to remove.

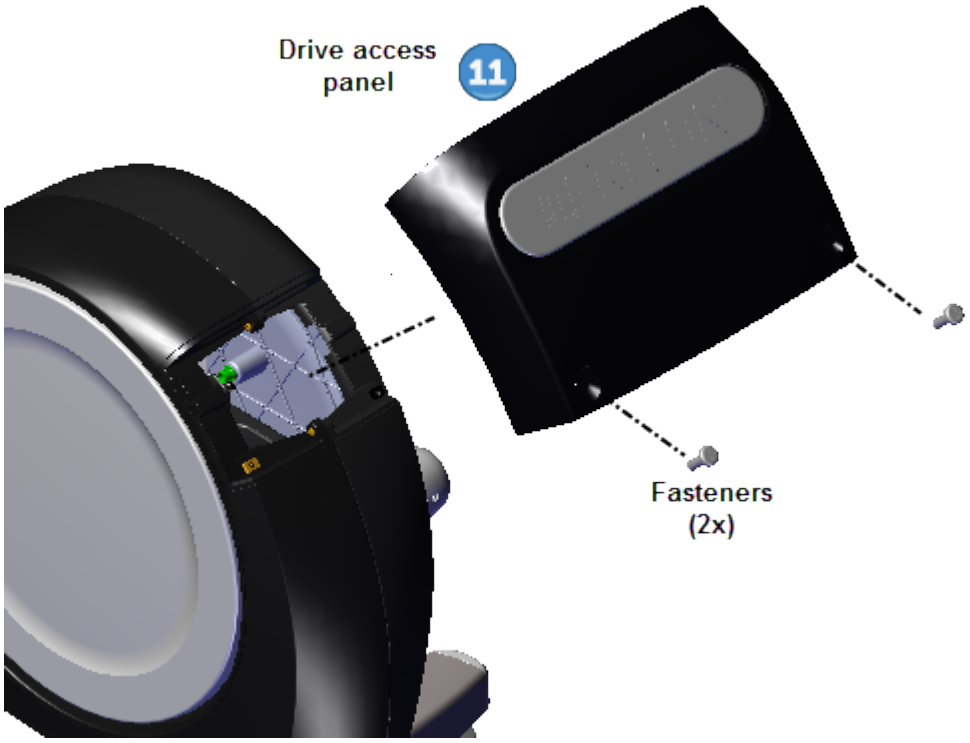
Installation Instructions

This procedure applies to both the left or right Lift Side covers.

1. Reinstall the Lift Side cover (right side 9 or left side 10) and secure to the frame weldment using the four #3 Phillips screws. Start by inserting the top of the cover underneath the arm weldment and then slightly bend the cover and lift the cover bottom edge over the front foot weldment to install.
2. Reinstall the Lift Cover Pivot Anchor 16 bracket and secure using two #3 Phillips screws.
3. Reinstall the Forward Frame Filler cover 8, see "Forward Frame Filler Cover Replacement " on page 86.
4. Reinstall the Lift Rear cover 7, see "Lift Rear Cover Replacement " on page 84.
5. Reinstall the Accessory Tray 6, see "Accessory Tray Cover Replacement" on page 84.
6. Reinstall the Lift Interface Plate cover 5, see "Lift Interface Plate Cover Replacement" on page 83.
7. Reinstall the Lift Interface Plate cover 5, see "Lift Interface Plate Cover Replacement" on page 83.
8. Reinstall the Goose Neck Gasket 1, Goose Neck cover 2, Lift Top cover 3, and Lift Front cover 4, see "Lift Front Cover Replacement" on page 79.

Drive Access Panel Replacement

Drive Access Panel Replacement



ID	Description
11	Drive Access Panel

Removal Instructions

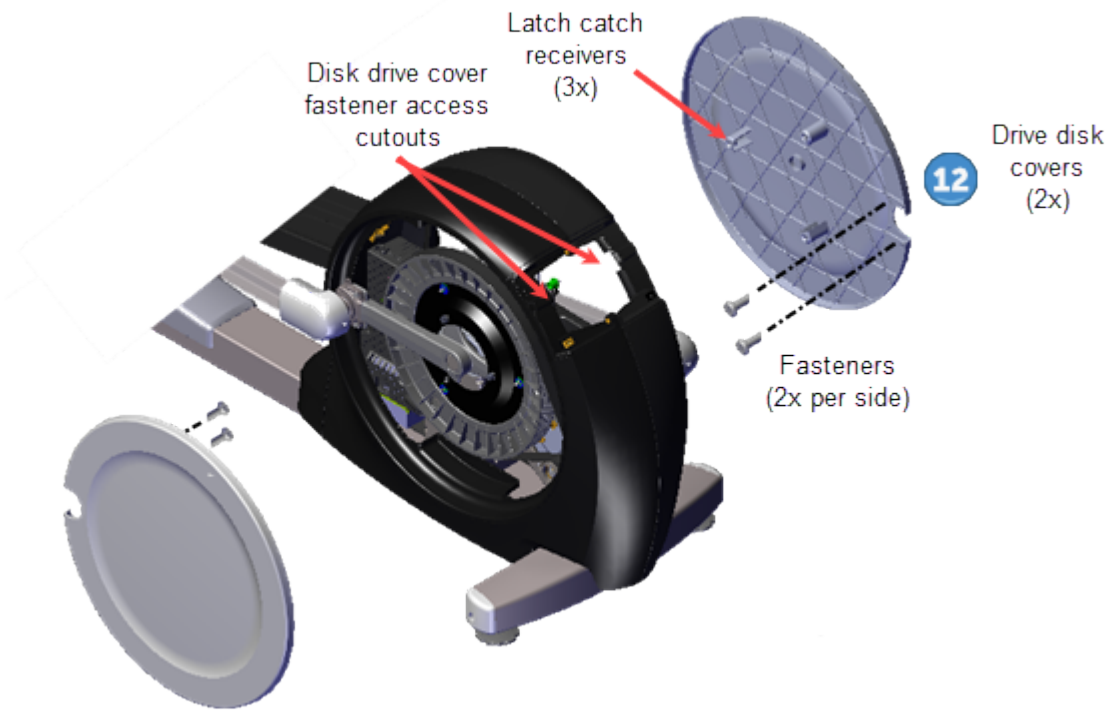
1. Use a #3 Phillips screwdriver to remove the two fasteners located at the bottom of the Drive Access panel 6. Slide the Drive Access panel downward and upward away from the Drive Housing covers to remove. Retain part(s) and/or fastener(s) for installation.

Installation Instructions

1. Slide the top of the Drive Access panel 6 under the top lip of the Drive Housing covers and then press down on the bottom edge of the Drive Access panel to snap in place.
2. Secure Drive Access panel using the two # 3 Phillips screws.

Drive Disk Covers Replacement

Drive Disk Covers Replacement



ID	Description
12	Drive Disk Cover (2x)

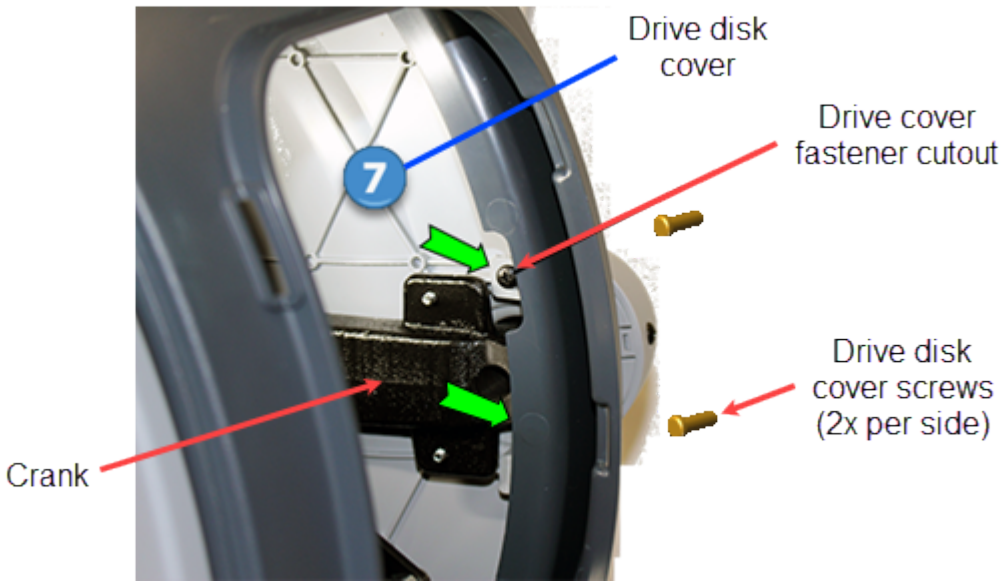
Removal Instructions

Repeat this procedure for both the right and left Drive Disk covers.

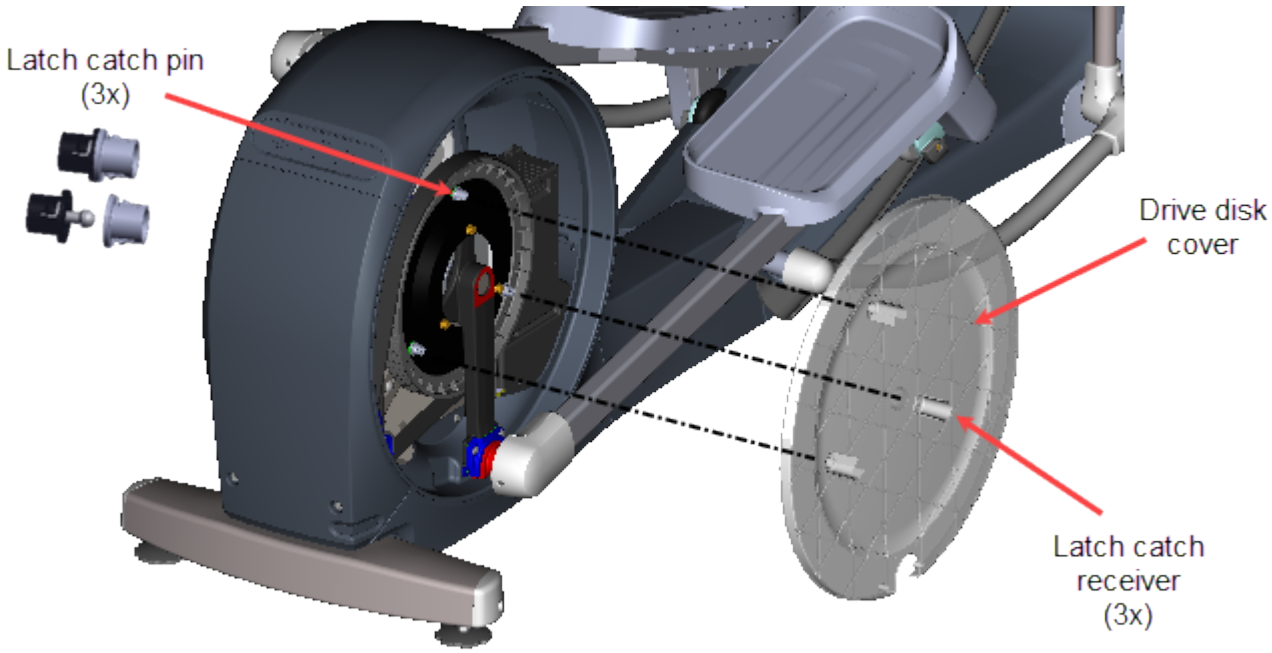
1. Remove the Drive Access panel, see "Drive Access Panel Replacement" on the previous page.
2. Rotate the Input Crank until the upper Drive Disk cover 12 attachment screw can be seen through the Drive Housing cover fastener cutout. Use a #2 Phillips screw drive to remove the screw. Then slowly move the Input Crank upward until the second screw can be seen and remove if installed (there may only be one Drive Disk cover attachment screw installed. However, two screws are required for installation, order any missing screws.). Retain part(s) and/or fastener(s) for installation.

Note: Some early production units were shipped with only one disk cover crank attachment screw. When reinstalling the disk cover, order two additional screws and use two crank attachment crews per disk cover, see Exploded View Diagrams, bubble # 155.

IMPORTANT: Take your time when removing the drive disk mounting screws. The access area is small and it is very easy to accidentally drop the screws down into the drive housing area. If this happens, the Drive Housing covers will need to be removed to retrieve the screw.



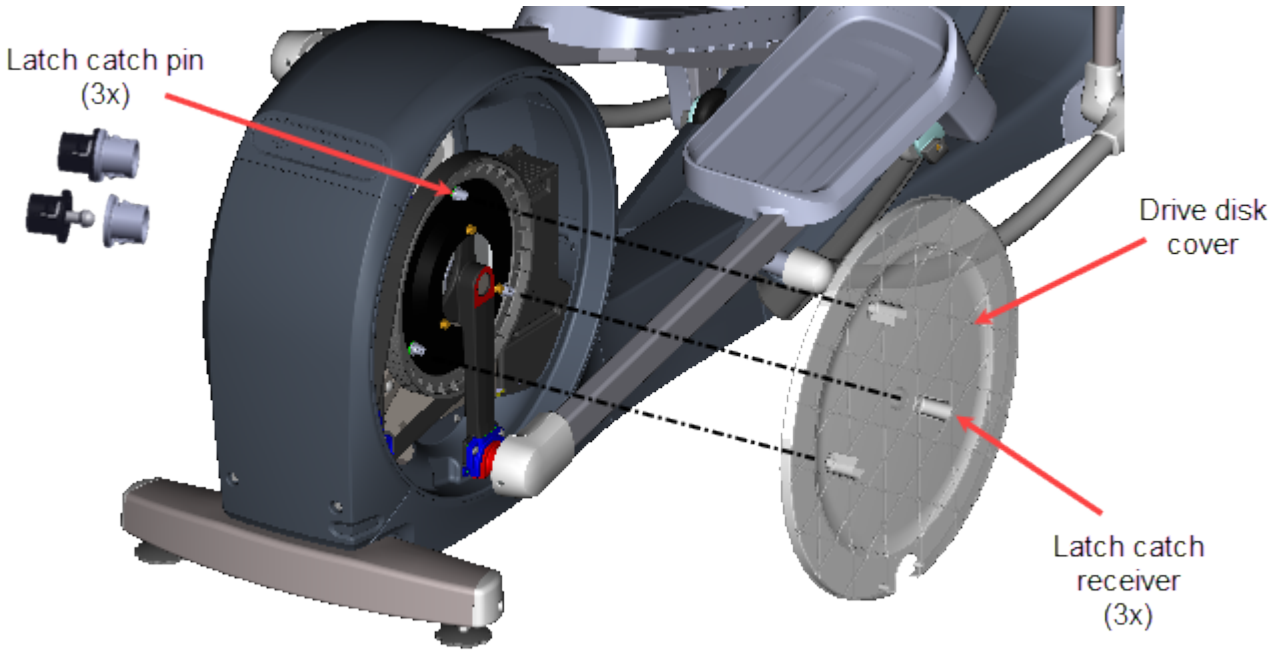
3. Use your hand to lightly strike the inside of the drive disk to unsnap the disk from the three latch catch pins and remove. Rotate the drive disk to position one of the three latch catch pins at the rear of the housing and then use your hand to strike the inside of the drive disk to unsnap the disk from the latch catch pin, Repeat for the two remaining latch catch pins and remove the cover.



Installation Instructions

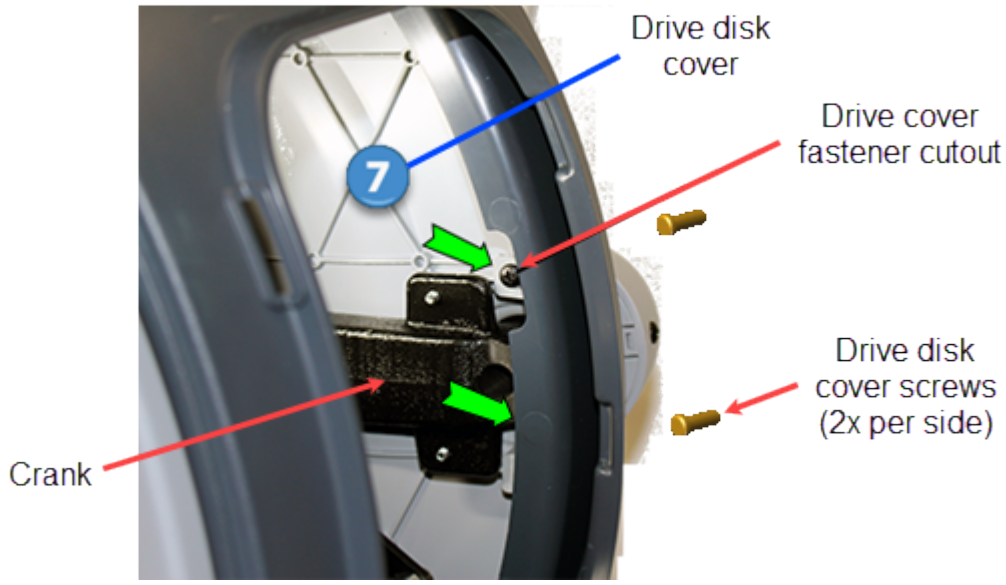
Repeat this procedure for both the right and left Drive Disk covers.

1. Position the Drive Disk cover over the Crank aligning the three latch catch receivers over the latch catch pins. Then lightly strike the Drive Disk cover at each latch catch pin location to snap in place. Make sure all three latch catch pins are secure.



2. Rotate the crank until one of the Drive Disk cover (12) attachment screw can be seen through the drive cover fastener cutout. Then install the #2 Phillips screw and fully tighten. Move the crank to the second attachment screw hole and install the second screw. If the second screw is missing, order a new screw and install (two fastener screws per side are required)

Note: Some early production units were shipped with only one disk cover attachment screw. When reinstalling the disk cover, order two additional screws and use two attachment crews per disk cover.



3. Reinstall the Drive Access panel, see "Drive Access Panel Replacement" on page 90.

Drive Housing Covers Replacement

Drive Housing Covers Replacement

Use this procedure to remove both the left and right drive covers.

Tools

- 5/16" socket drive
- T rx T25 screwdriver
- #2 & #3 Phillips screw driver
- 0 47" external retaining ring pliers

Exploded View

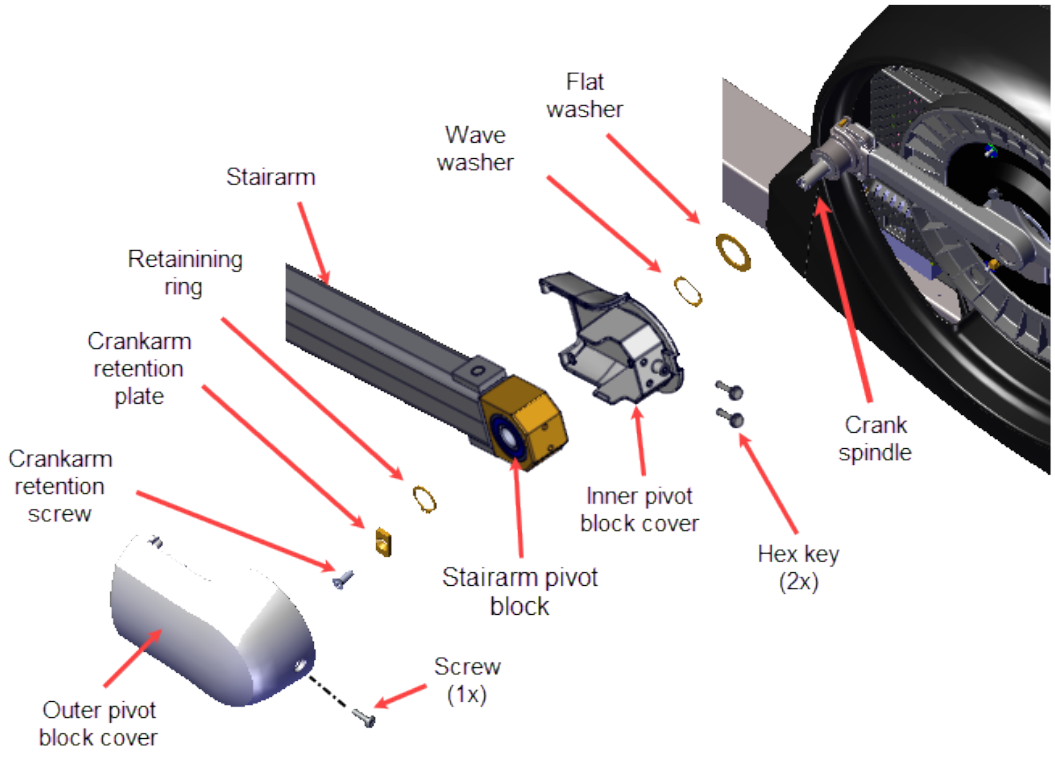


ID	Description
13	Transition Cover
14	Drive Cover - Right
15	Drive Cover - Left

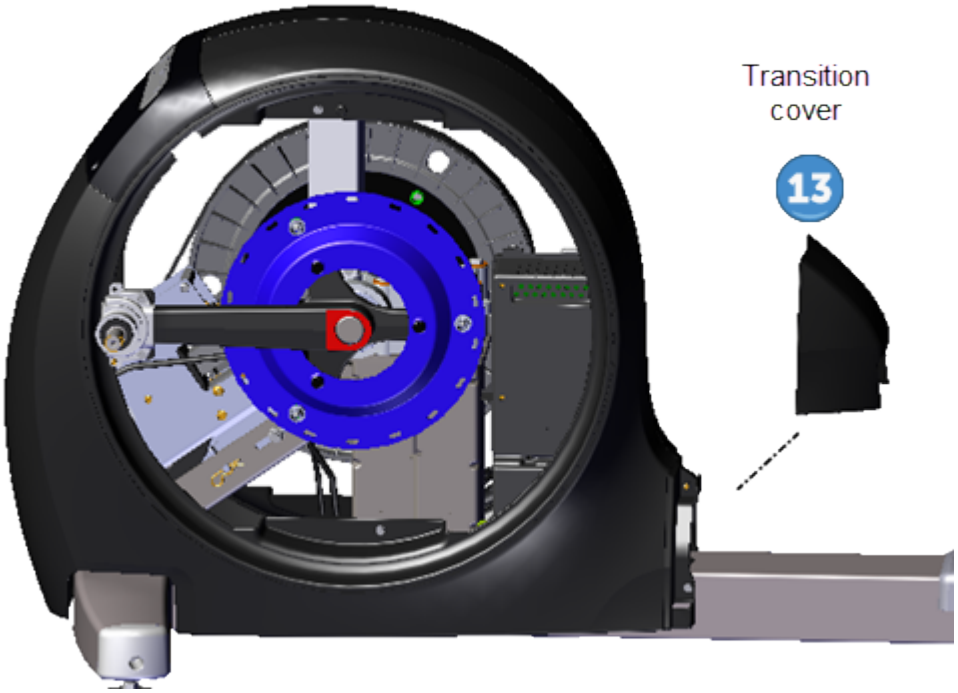
Removal Instructions

Remove the left and right Stairarms from the Crank Spindle:

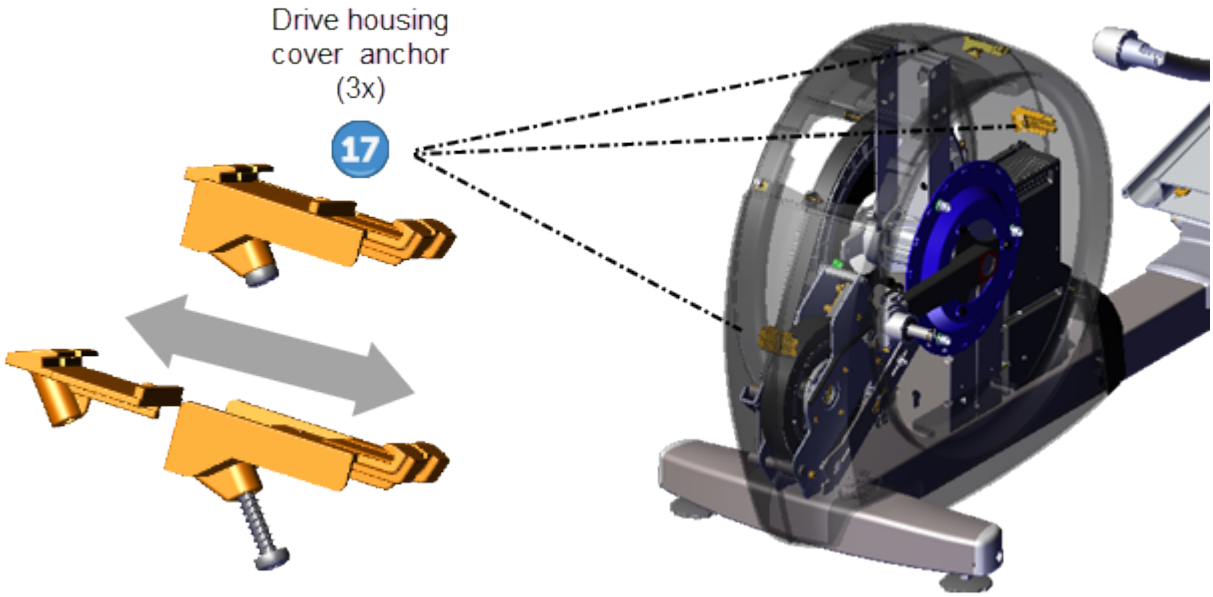
1. Remove the Drive Access panel, see "Drive Access Panel Replacement" on page 90.
2. Remove the left and right Drive Disk covers, see "Drive Disk Covers Replacement" on page 91.
3. Remove the left and right Stairarms off the Input Drive Crank, see "Stairarm Input Crank Removal" on page 207.



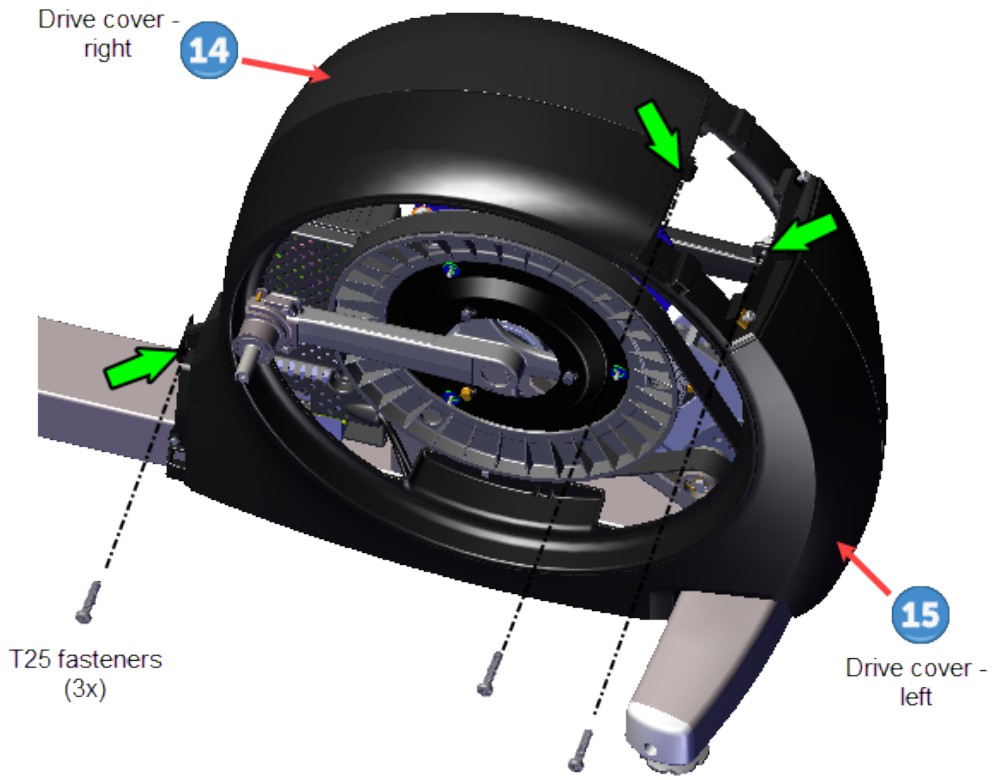
4. Remove the Transition cover (13) from the frame weldment. Pull the bottom edges slightly apart and lift upward to remove.



5. Remove the three drive cover anchors. Loosen, but do not remove, the #2 Phillips screw fastener enough to slide the drive anchor assembly apart and remove from the left/right drive cover anchor brackets.

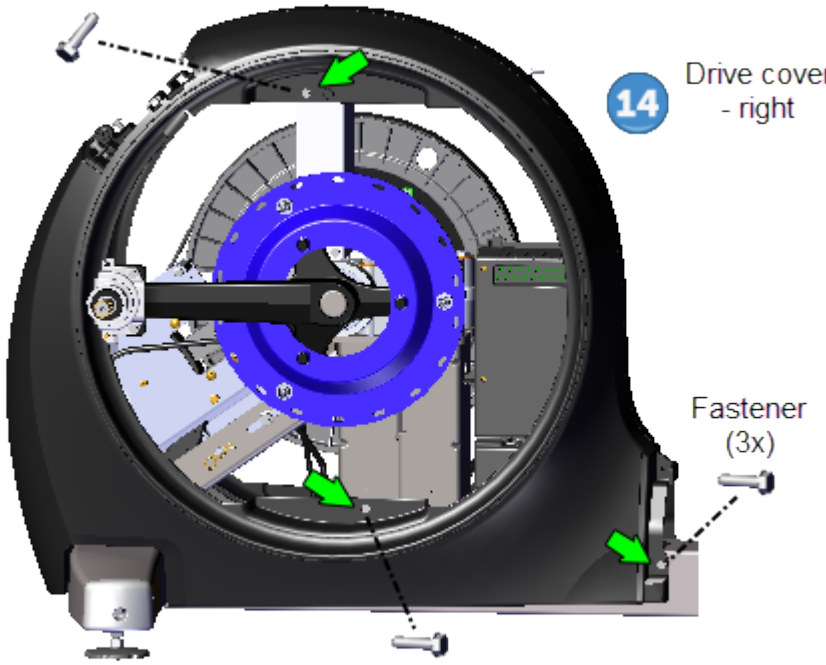


6. Remove the three T25 Torx screws that secure the right and left drive covers together. Remove the screws from the right side. Retain part(s) and/or fastener(s) for installation.



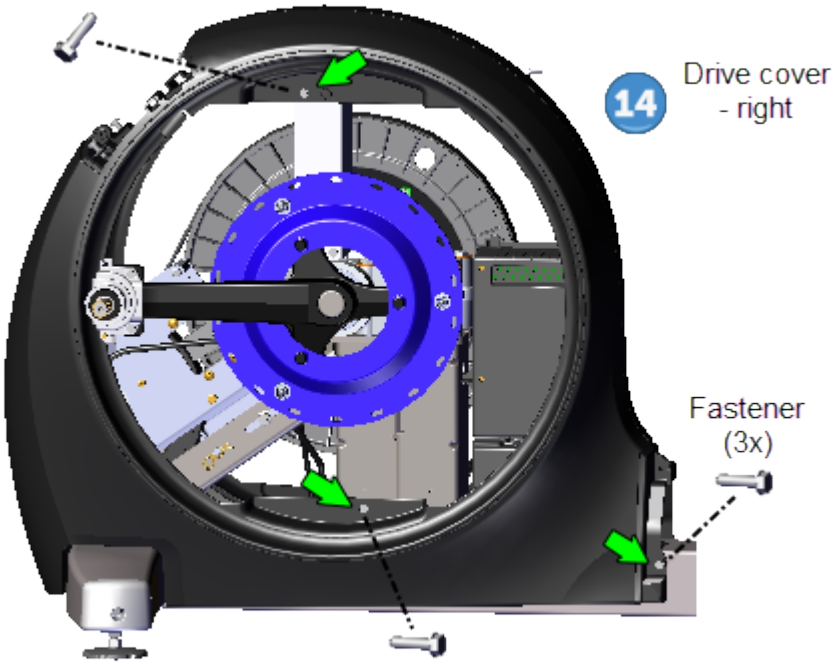
7. Remove the three 5/16" drive cover weldment screws and remove the right drive cover 14. Carefully remove the drive cover from the frame. Repeat step and remove

the left drive cover 15.

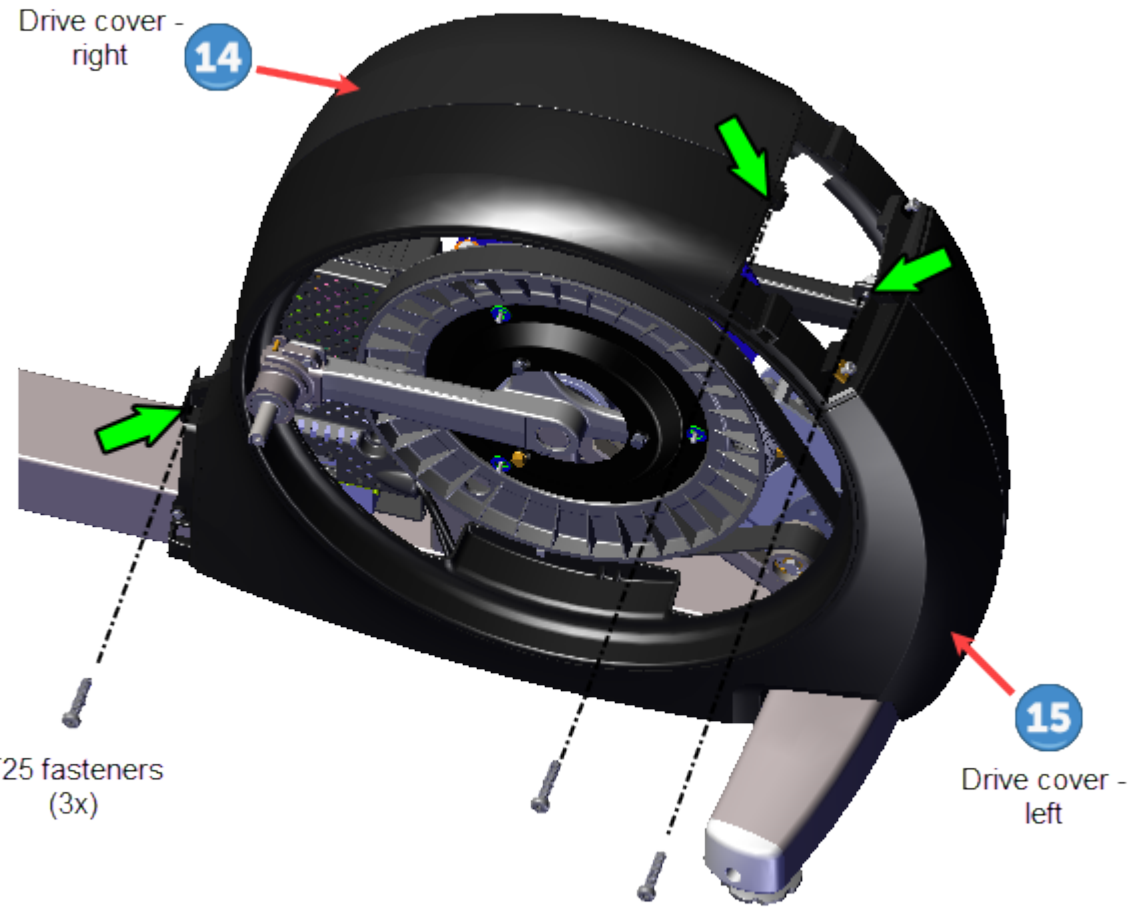


Installation Instructions

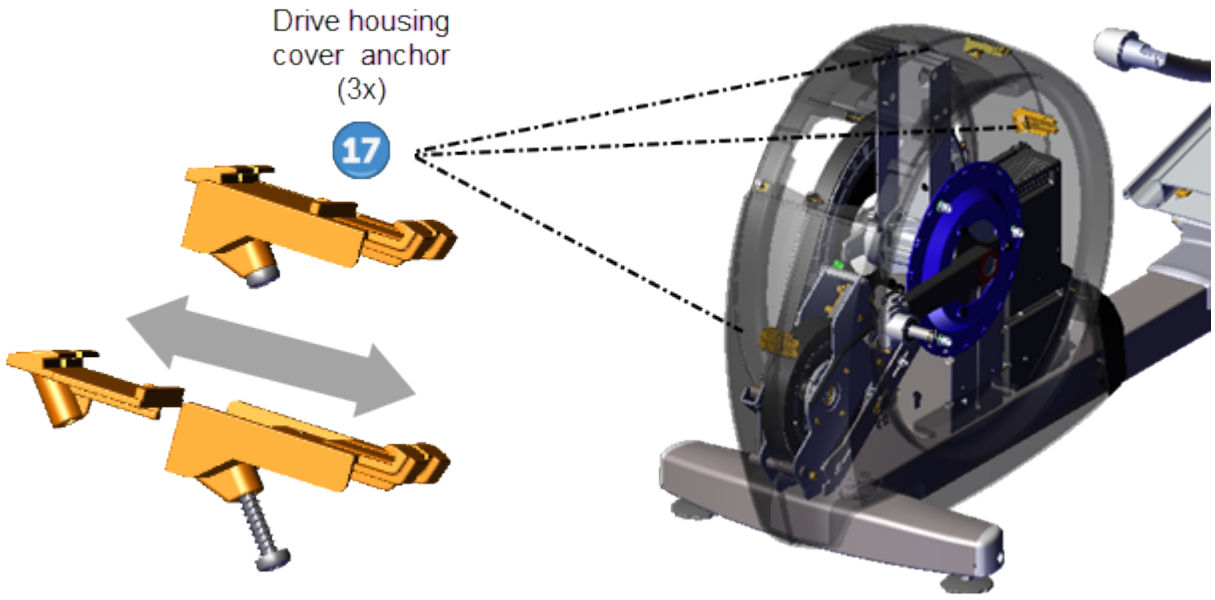
1. Position the right drive cover 14 onto the frame weldment and secure using the three 5/16" screws. Repeat step and install the left drive cover 15.



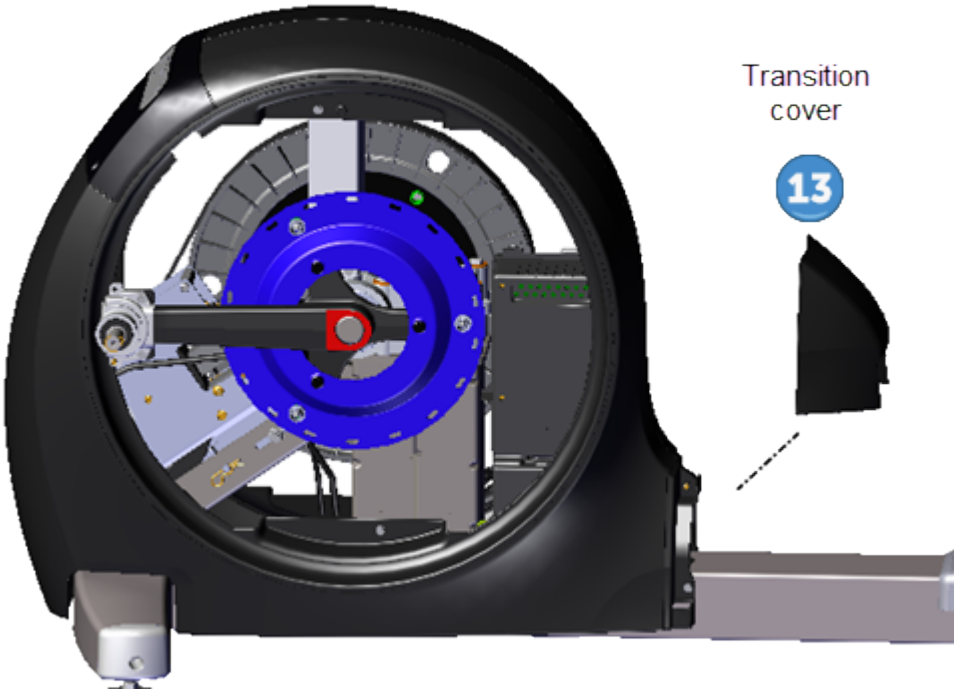
2. Secure the right and left drive covers together using the three T25 Torx screws. Install the screws from the right side.



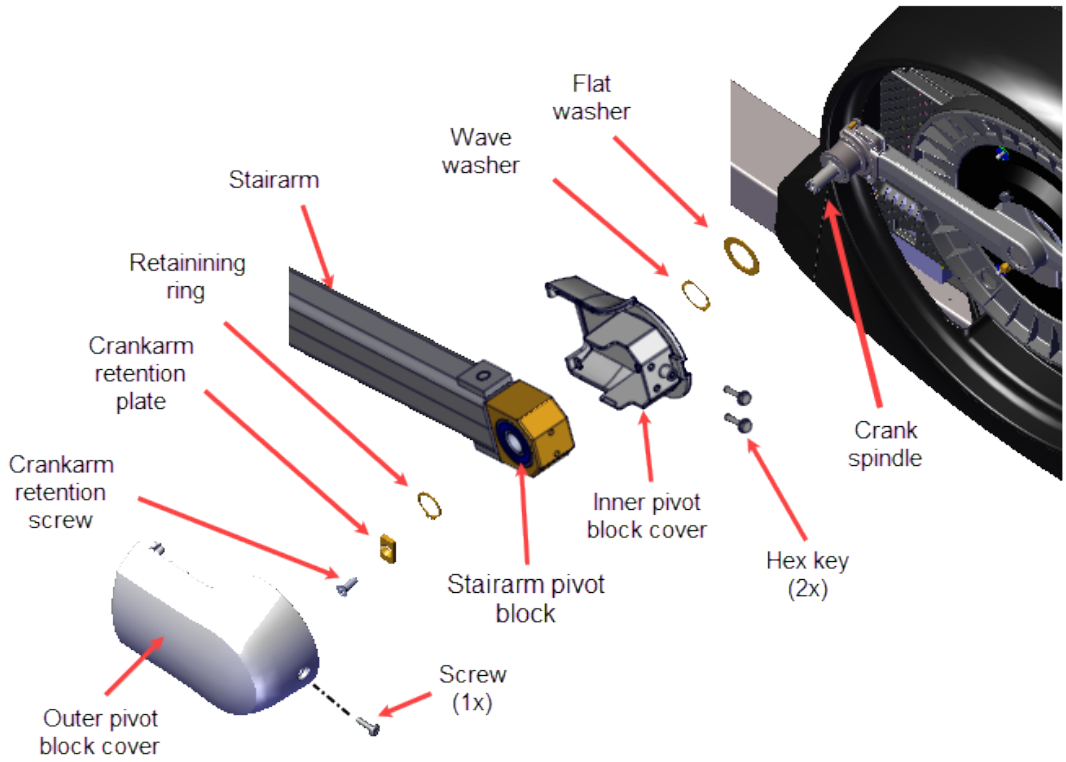
3. Reinstall the three drive cover anchors. Assemble the drive anchor assemble, keep the #2 Phillips screw fastener loose enough so that the left and right anchor parts can move. Slide the anchor parts wide as possible. Then position the drive anchor assemble over the left/right drive cover anchor brackets making sure the hook ends catch the bracket edges. Squeeze the assembly together and fully tighten the T25 screw fastener. Repeat for all three anchor assemblies.



4. Reinstall the Transition cover 13. Position the cover over the frame and press down to snap in place.



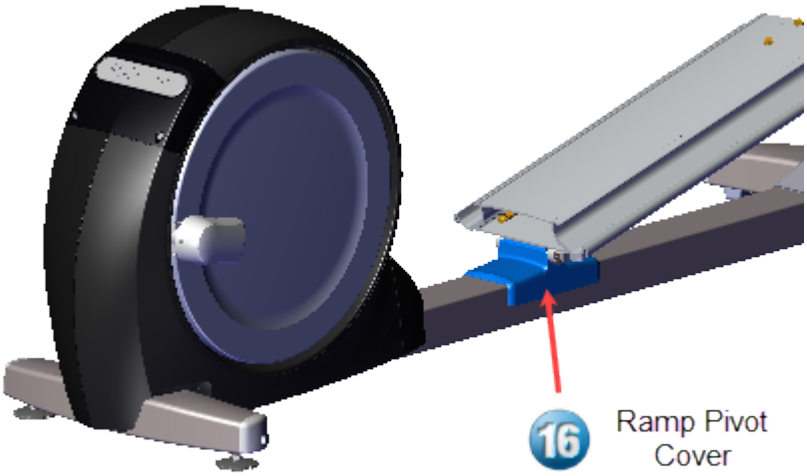
5. Reinstall the left and right Stairarms onto the Crank, see "Stairarm Input Crank Installation" on page 211. Repeat procedure for both the left and right Stairarms.



6. Reinstall the left and right Drive Disk covers, see "Drive Disk Covers Replacement" on page 91.
7. Reinstall the Drive Access panel, see "Drive Access Panel Replacement" on page 90.
8. Verify machine operation and return to service, see "Standard Service Menus" on page 23.

Ramp Pivot Cover Replacement

This procedure provides instruction to remove and install the Ramp Pivot Cover.



ID	Description
16	Ramp Pivot Cover

Specifications

System Component	Specification
Ramp Hinge Pivot Bolts	1080 in-lbs (90 ft-lbs or 122 Nm)

Procedure

Review entire procedure before starting.

Removal Instructions

This procedure will require a fully charged good battery to operate the lift motor.

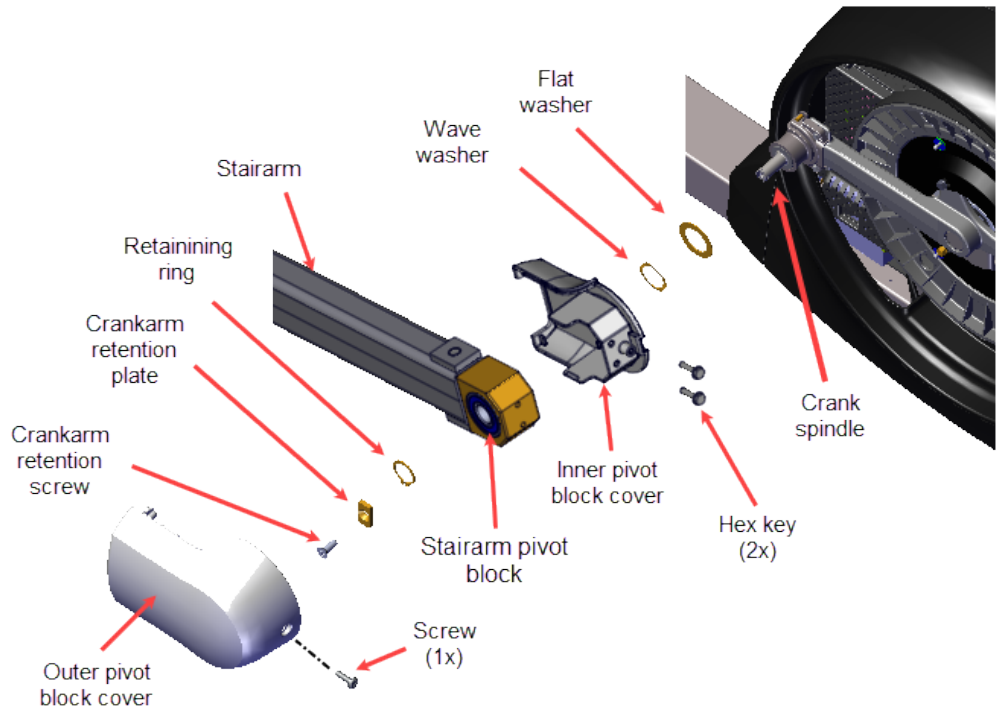
IMPORTANT: It's important to follow the removal steps in sequence to successfully remove the ramp.

1. Access the service menu diagnostic **CrossRamp Test** and set the incline level to 1.
   a. On **LED**[1] P10, P30, P30i and P31 consoles: (**Service menu (51765761)** > **MACHINE TEST** > **CROSSRAMP TEST** and set the **INCLINE LEVEL** to 1).
   b. On P62, P80, and P82 consoles: (**Service menu (51765761)** > **System Settings** > **System Tests** > **CrossRamp Test** and set the **INCLINE** level to 1).
2. Disconnect the Lift Motor input power/control cable connector.

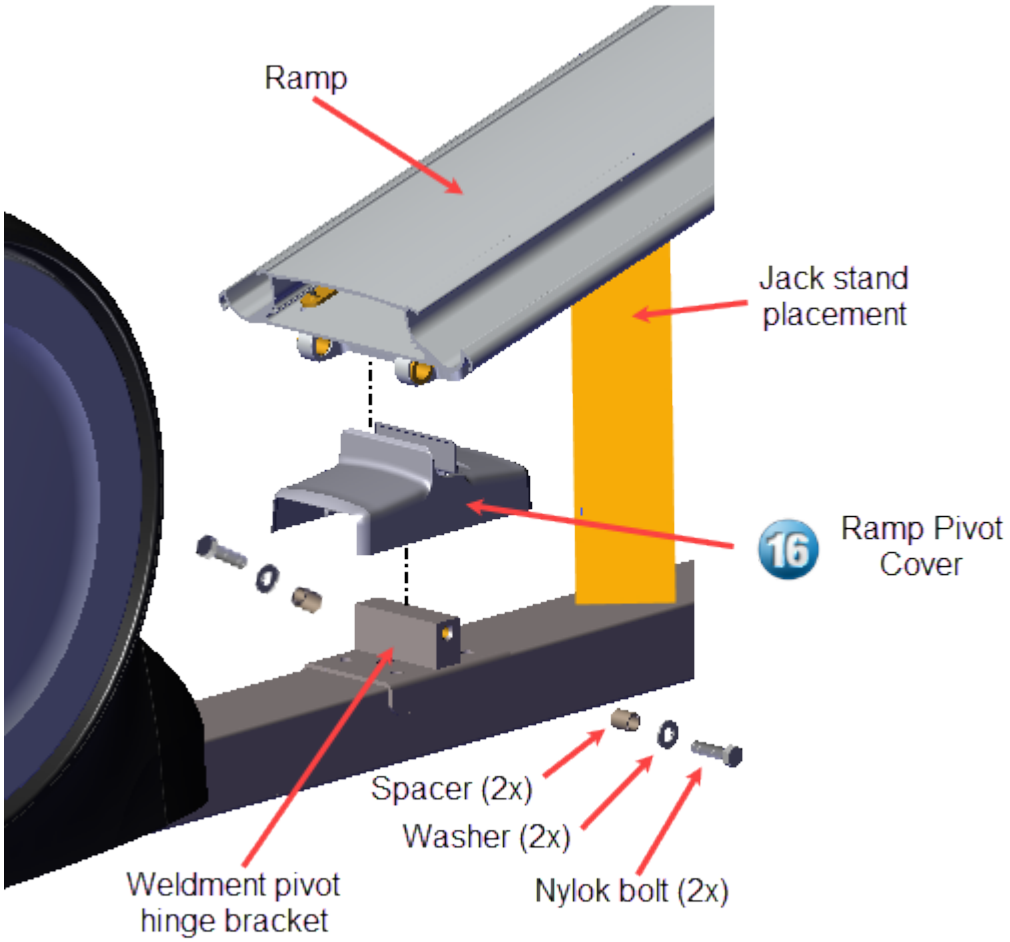
[1]light-emitting diodes.

WARNING: Make sure to disconnect the Lift Motor input power/control cable or it is possible for the crossramp to automatically lower to level 1 under certain circumstances, such as, if the CrossRamp Test is exited or the console powers down. This unexpected action could cause personal injury.

3. Remove the left and right Stairarms from the respective input Crank Spindle, see "Stairarm Input Crank Removal" on page 207. Repeat procedure for the left and right Stairarms.



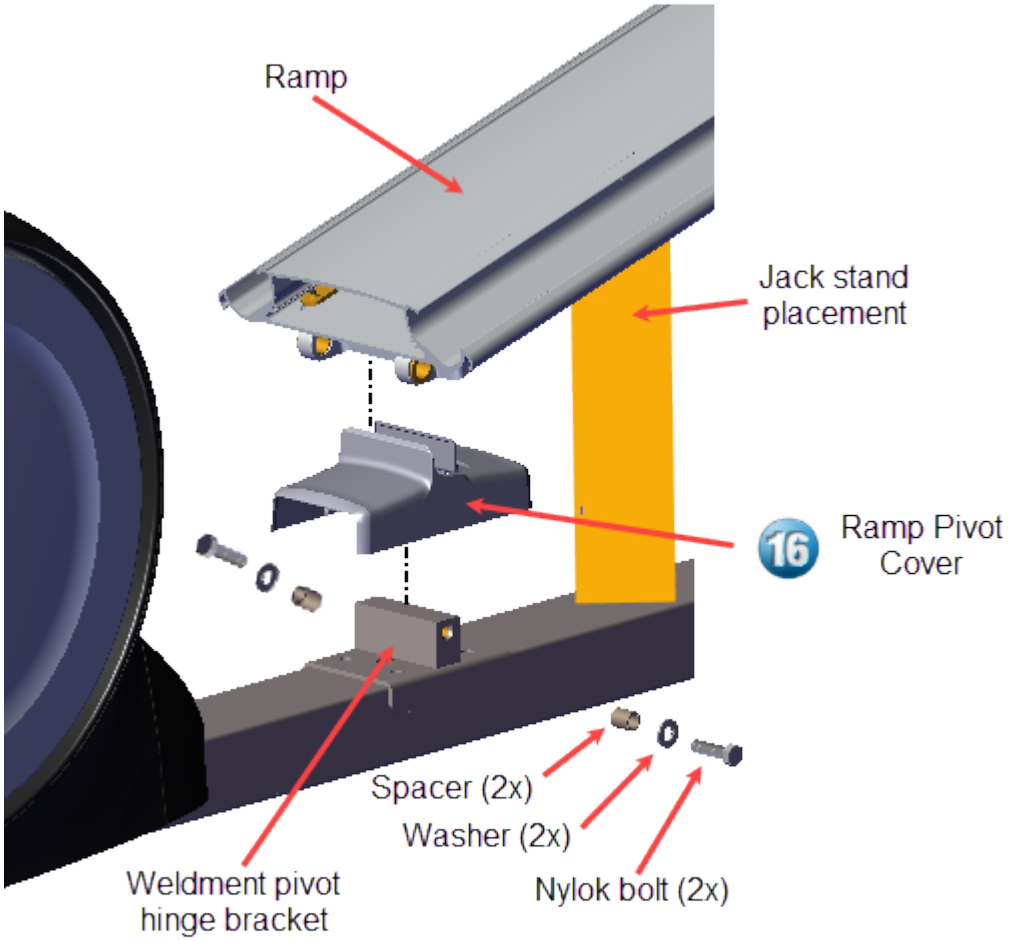
4. Remove the left and right Stairarm wheels from the ramp. Roll the Stairarm wheel down and off the back of the ramp track. Carefully lay the Stairarm onto the floor.
5. Remove the left and right 3/4" (19 mm) ramp pivot bolts, flat washers, and spacers.
6. Then carefully lift the ramp up and place a jack stand (or blocking material) to securely hold the ramp above the Ramp Pivot cover (16). Note that the ramp can move side-to-side when removed from the weldment pivot hinge bracket.



7. Remove the Ramp Pivot cover off the frame weldment pivot hinge bracket.

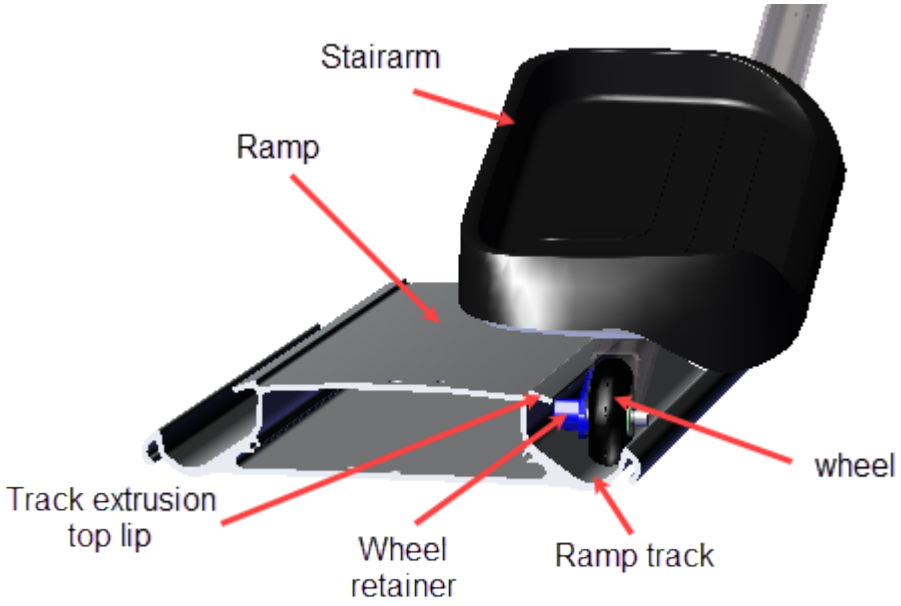
Installation Instructions

1. Reinstall the Ramp Pivot cover 16 onto the frame weldment pivot hinge bracket.

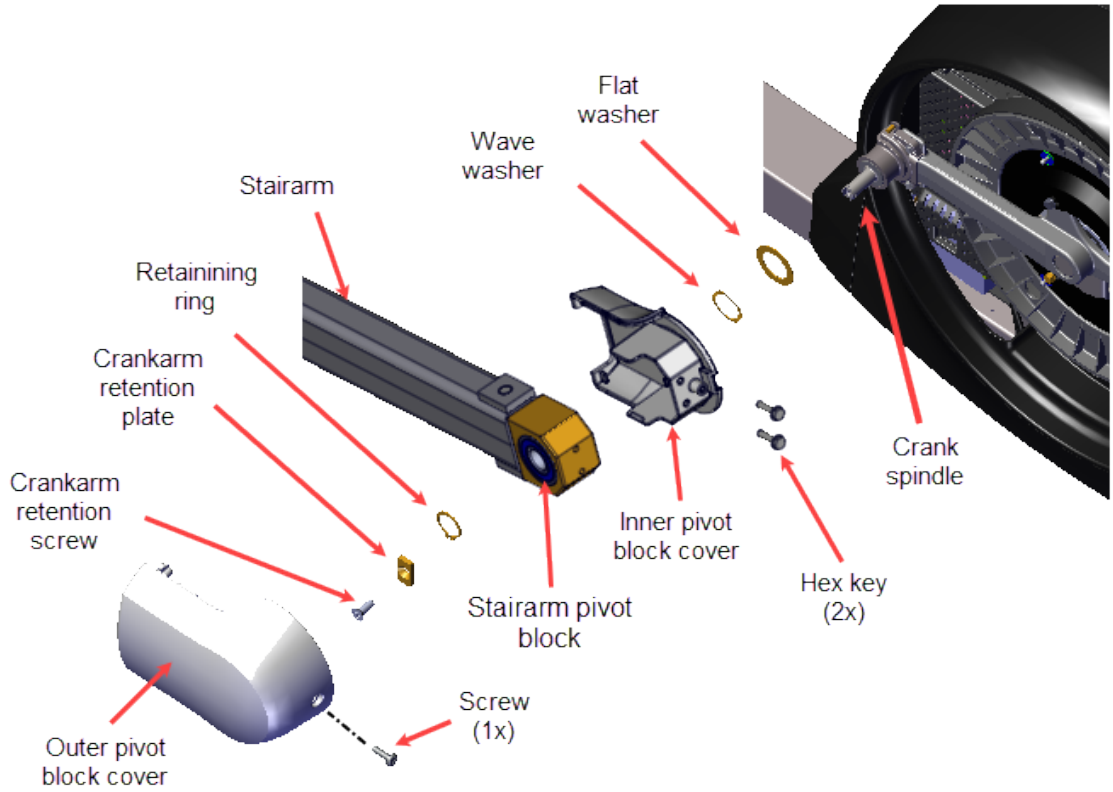


2. Carefully remove the jack stand (or blocking material) and place the ramp onto the weldment pivot hinge bracket.
3. Align the pivot bolt mounting holes and secure using the two 3/4" (19 mm) ramp pivot bolts, flat washers, and spacers. **Torque**[1] bolts to 1080 in-lbs (90 ft-lbs or 122 Nm).
4. Reinstall the left and right Stairarm wheels onto the ramp. Insert the wheel from the bottom of the track making sure that the wheel retainer is positioned underneath the ramp track extrusion top lip. Verify that the Stairarm wheel is correctly installed by attempting to pull the Stairarm upward off the track.

[1]Torque is a measure of the force that can cause an object to rotate about an axis. Bolt/nut example: 5 NM torque is equivalent to 5 newton's of force applied one meter from the center of the bolt, 6 ft-lb is equivalent to 6 lbs of force applied 1 foot away from the center of the bolt.



5. Reinstall the left and right Stairarms onto the respective Crank. Repeat procedure for both the left and right Stairarms.



6. Reconnect the Lift Motor input power/control cable connector.

7. Exit the service diagnostic test menu.
8. Select **QUICKSTART** and start a manual workout. Operate the machine at the following conditions to verify the Stairarm and ramp incline operation. Make sure that the Stairarms and ramp movement is smooth and that there are no unusual noises:
   - . Raise and lower the **INCLINE** from minimum to maximum range while varying the Stairarm speed from 50 to > 150 **SPM**[1].
   - Repeat this test for several incline cycles.
9. Verify machine operation and return to service, see "Standard Service Menus" on page 23.

Note: This procedure may have generated lift motor related error codes. Check the error log and resolve any active error codes (for LED consoles, clear the error log.

[1] steps per minute

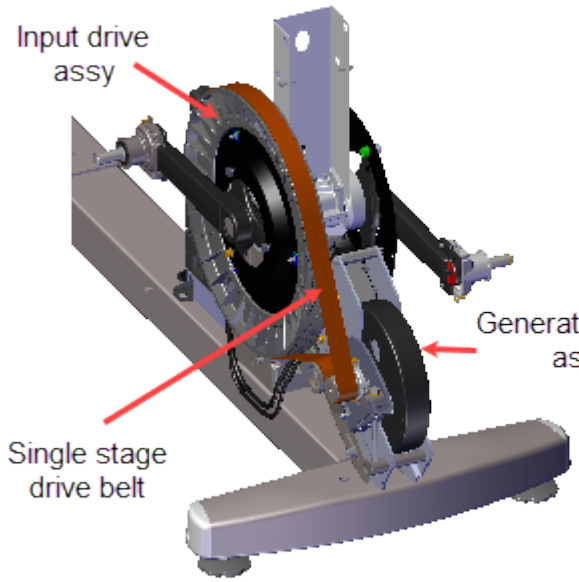
Input Drive Belt Replacement

About

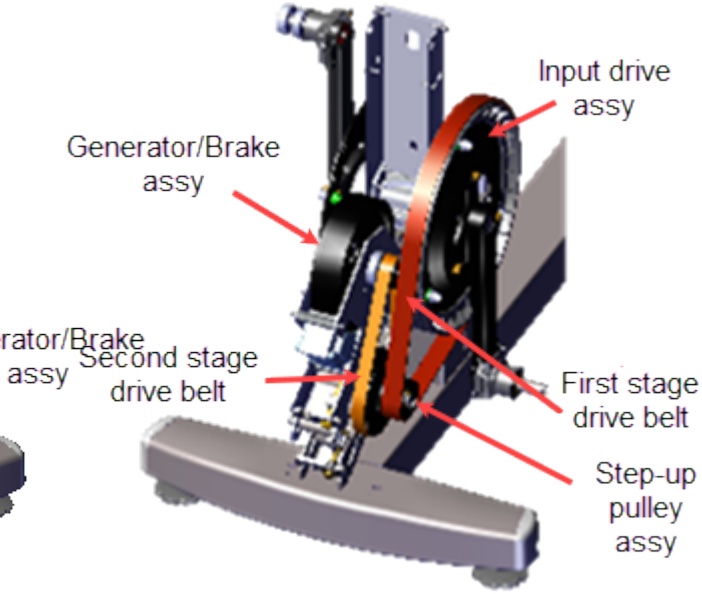
The EFX600 ellipticals can be installed with either a single stage or a dual stage Input drive system. This procedure provides instructions to remove/install drive belts for either the single stage or dual stage input drive systems.

Single Stage Input Drive System: A single stage input drive system utilize a single stage drive belt system. One drive belt to connect the input drive assembly to the generator/brake assembly.

Dual Stage Input Drive System: A dual stage input drive system utilizes a two stage drive belt system. The first stage drive belt connects the input drive to the smaller pulley on the step-up pulley assembly. Then the second stage drive belt connects the larger pulley on the step-up pulley assembly to the generator/brake assembly.



Single Stage Input Drive System



Dual Stage Input Drive System

Single Stage Input Drive

- "Single Stage Input Drive Belt Replacement" on the facing page

Dual Stage Input Drive

- "First Stage Input Drive Belt Replacement" on page 114
- "Specifications" on page 118

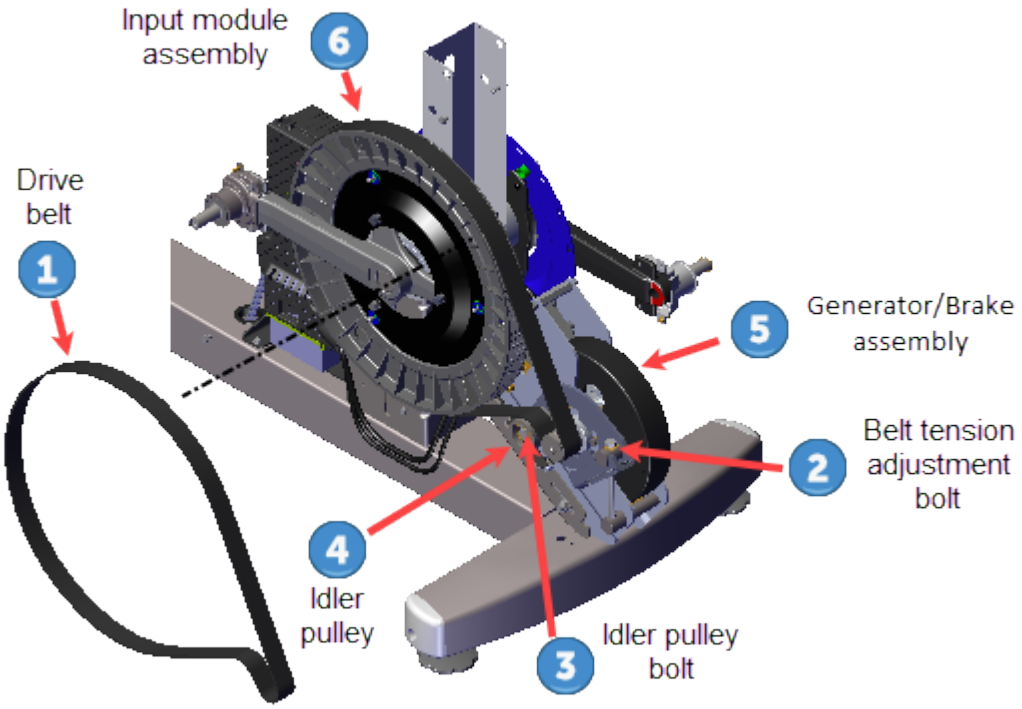
Single Stage Input Drive Belt Replacement

Applies To: Single Stage Input Drive

About

This procedure provides instructions to replace the drive belt for a Single Stage Input Drive system. A single stage drive uses only one drive belt connecting the input drive to the generator/brake assembly.

Single Stage Input Drive



ID	Cover
1	Drive Belt
2	Belt Tension Adjustment Bolt
3	Idler Pulley Bolt
4	Idler Pulley
5	Generator/Brake assembly
6	Input Drive Assembly

Specifications

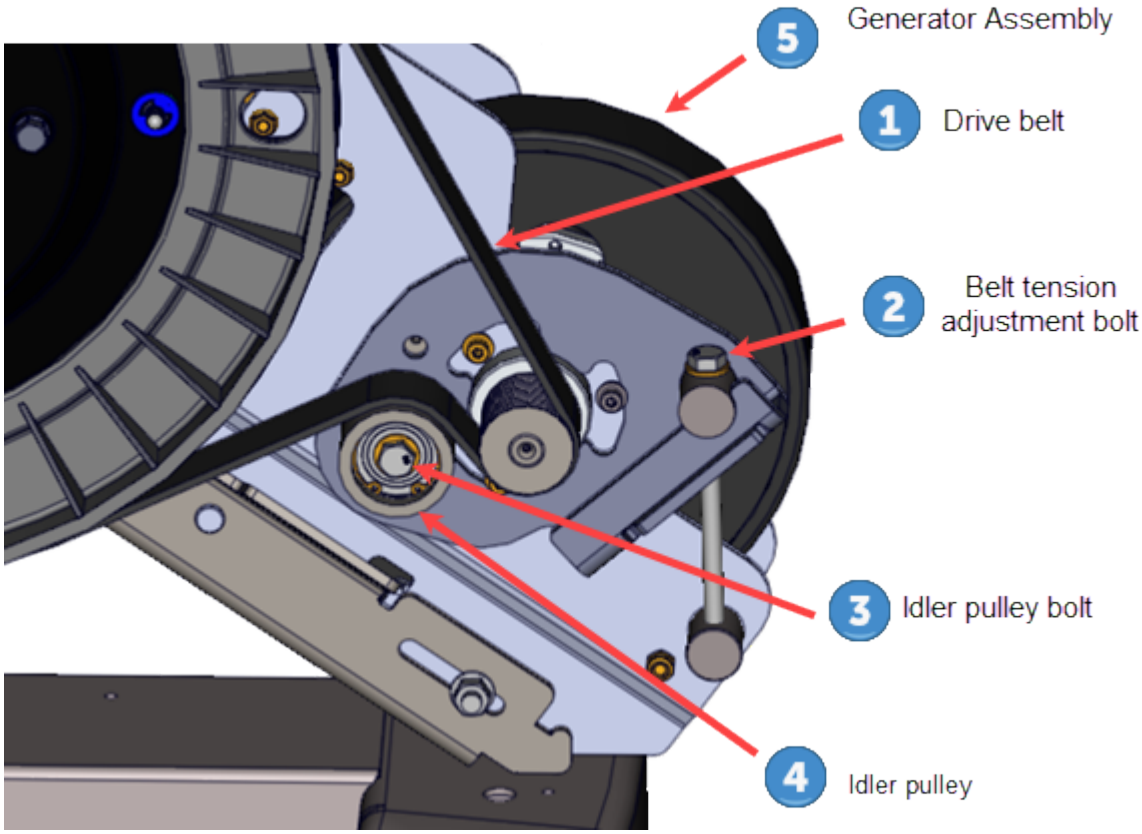
Single Stage Input Drive	Specification
Single Stage Belt Drive Tension	93-100 lbs (42- 45.4 kgs)

Procedures

Review entire procedure before starting.

Removal Instructions

1. Remove the left and right Drive Housing Covers, see "Drive Housing Covers Replacement" on page 95.
2. Use a 1/2" socket to loosen the idler pulley bolt 3.



3. Loosen the 1/2" belt tension adjustment bolt 2 to relax the belt tension.
4. Then walk the drive belt off the input module pulley and remove.

Installation Instructions

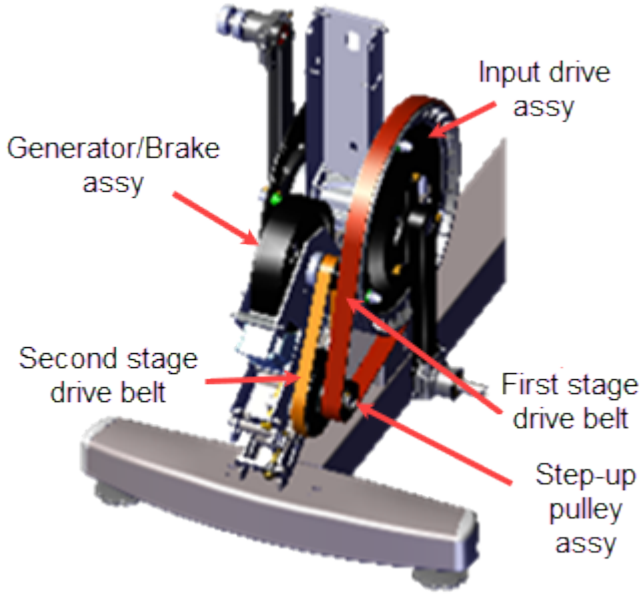
1. Route the drive belt (1) around the idler pulley (3) and generator pulley (5). Then walk the drive belt onto the input module pulley (6).
2. Spin the Crank a couple of rotations to move and seat the drive belt. Make sure that the belt is centered and that the belt grooves are properly seated onto input module pulley (6) and generator pulley (5).
3. Adjust the drive belt tension to specification, see "Single Stage Input Drive Belt Tension Adjustment" on page 53.
4. Make sure the idler pulley bolt (3) is fully tightened.
5. Reinstall the Drive Housing Covers, see "Drive Housing Covers Replacement" on page 95.
6. Verify operation and return to service, see Operation Verification.

First Stage Input Drive Belt Replacement

Applies To: Dual Stage Input Drive

About

This procedure provides instruction to remove and install the First Stage Drive Belt on a Dual Stage Input Drive system. The first stage drive belt connects the input drive to the smaller pulley on the step-up pulley assembly.



Specifications

Dual Stage Input Drive	Specification
First Stage Belt Drive Tension - New	140-150 lbs (63.5 - 68 kgs)
First Stage Belt Drive Tension - Used	125 - 135 lbs (56.7 - 61 Kgs)
Drive Component Assy Carriage Bolts	180 in-lbs (20.3 Nm)

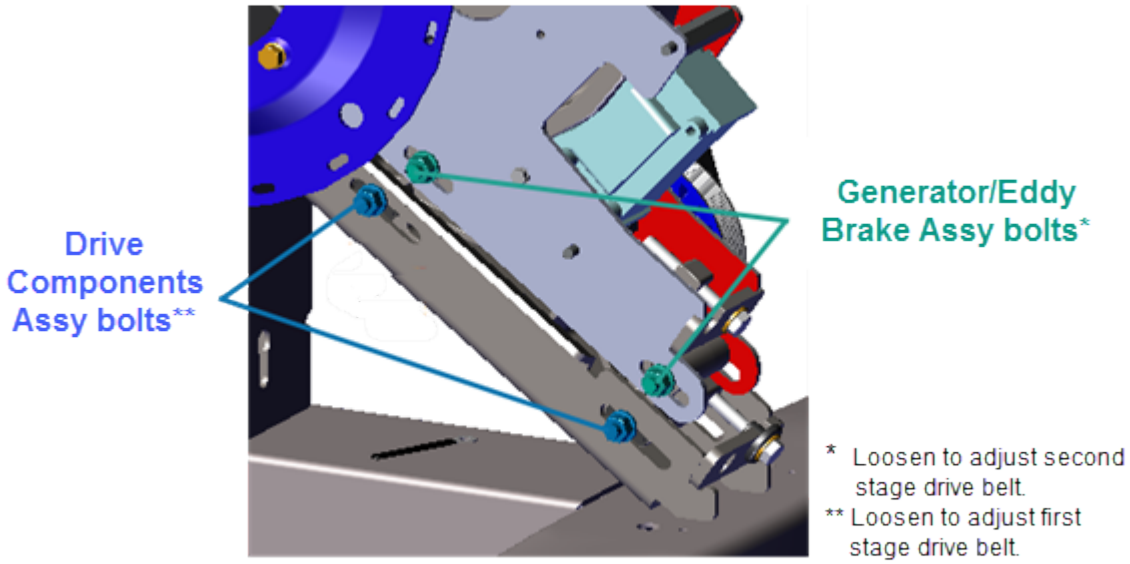
Procedure

Review entire procedure before starting.

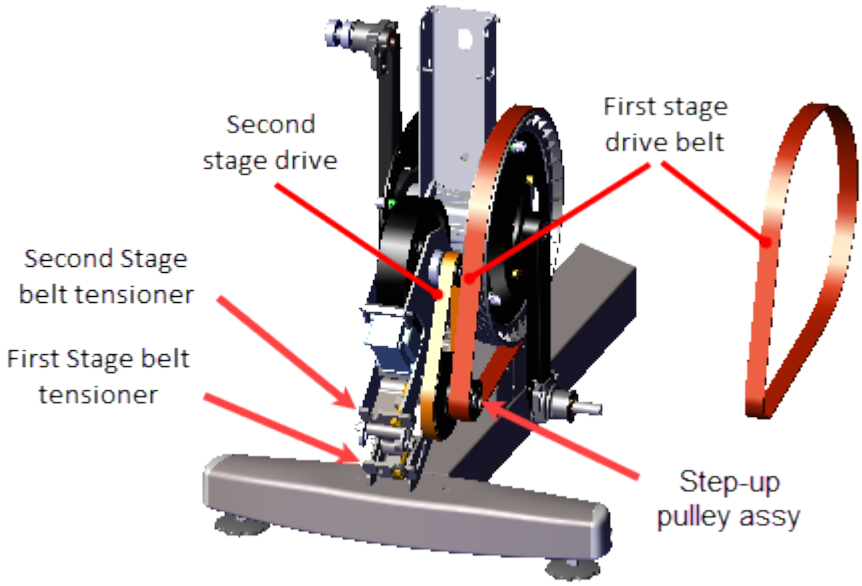
Removal Instructions

1. Remove the left and right Drive Housing covers (includes removing the Stairarms from the Input Drive Cranks), see "Drive Housing Covers Replacement" on page 95.
2. Use a 1/2" socket to loosen the two Drive Components assembly carriage bolt nuts

(left side) just enough to allow movement. Do not remove the fastener nuts.

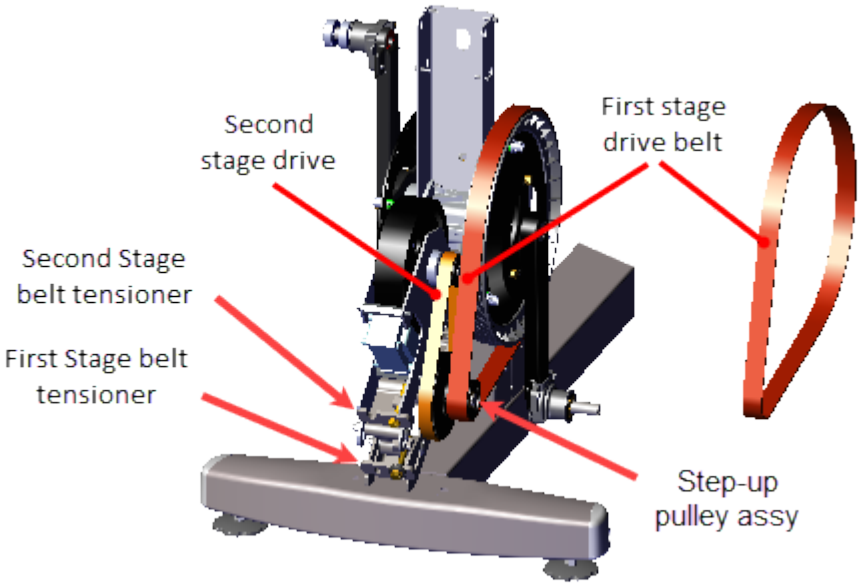


3. Use a 1/2" socket to loosen the first stage belt tensioner and walk the first stage drive belt off the Input Drive and smaller Step-up Pulley assembly pulleys. Remove the first stage drive belt.

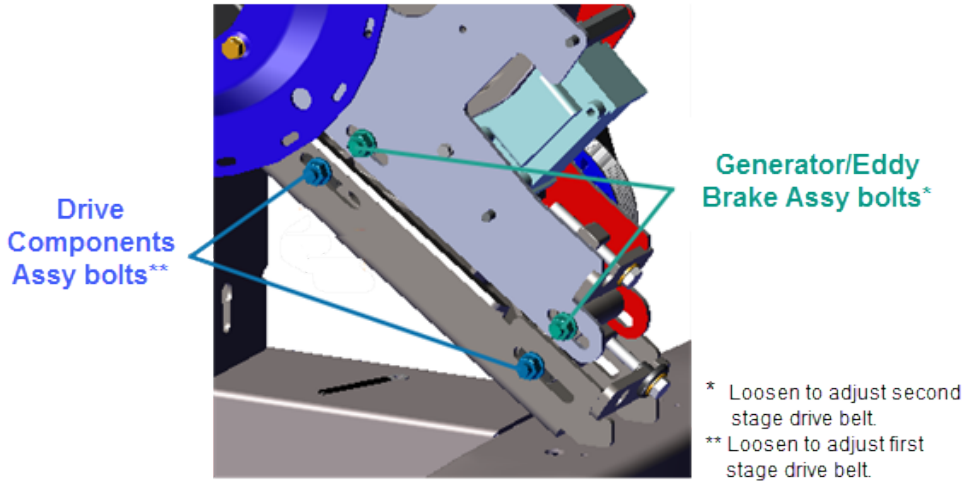


Installation Instructions

1. Install the first stage drive belt by walking the belt onto the Input Drive and the smaller first stage Step-up Pulley assembly pulleys. Adjust the First Stage Tensioner enough to hold the tensioner mechanism and belt in place. Rotate the crank and make sure that the belt is properly aligned and seated in the pulley grooves.



2. Tension the first stage drive belt to either the new or used belt specification, see "First Stage Drive Belt Tension Adjustment" on page 58.
3. Use a 1/2" socket to fully tighten the two Drive Components assembly bolts. **Torque**[1] bolts to 180 in-lbs +/- 54 (20.3 +/_ 4.5 Nm).



4. Verify that the second stage drive belt is within the new or used belt specified tension, see "Second Stage Drive Belt Tension Adjustment" on page 62. Retention the belt if not within specification.

[1]Torque is a measure of the force that can cause an object to rotate about an axis. Bolt/nut example: 5 NM torque is equivalent to 5 newton's of force applied one meter from the center of the bolt, 6 ft-lb is equivalent to 6 lbs of force applied 1 foot away from the center of the bolt.

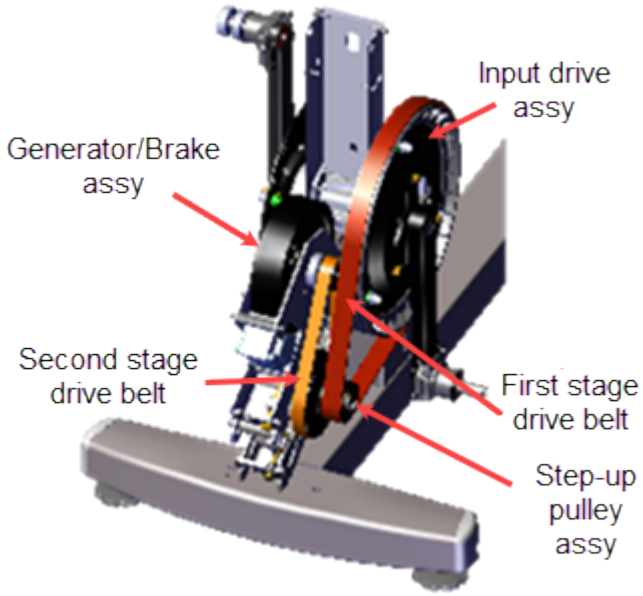
5. Reinstall the left and right Drive Housing covers (includes reinstalling the Stairarms), see "Drive Housing Covers Replacement" on page 95. Reinstall all other removed covers.
6. Verify machine operation and return to service, see "Operation Verification" on page 20.

Second Stage Input Drive Belt Replacement

Applies To: Dual Stage Input Drive

About

This procedure provides instruction to remove and install the Second Stage Drive Belt on a Dual Stage Input Drive system. The second stage drive belt connects the larger pulley on the step-up pulley assembly to the generator/brake assembly.



Specifications

Dual Stage Input Drive	Specification
Second Stage Belt Drive Tension	110-120 lbs (50- 54.4 kgs)
Second Stage Belt Drive Tension - Used	92 - 105 lbs (43 - 47.6 kgs)
Drive Component Assy Carriage Bolts	180 in-lbs (20.3 Nm)

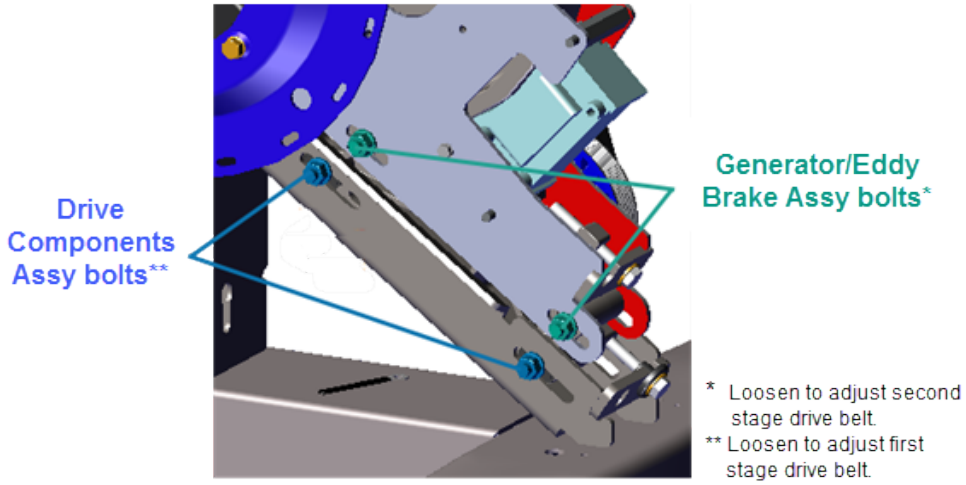
Procedure

Review entire procedure before starting.

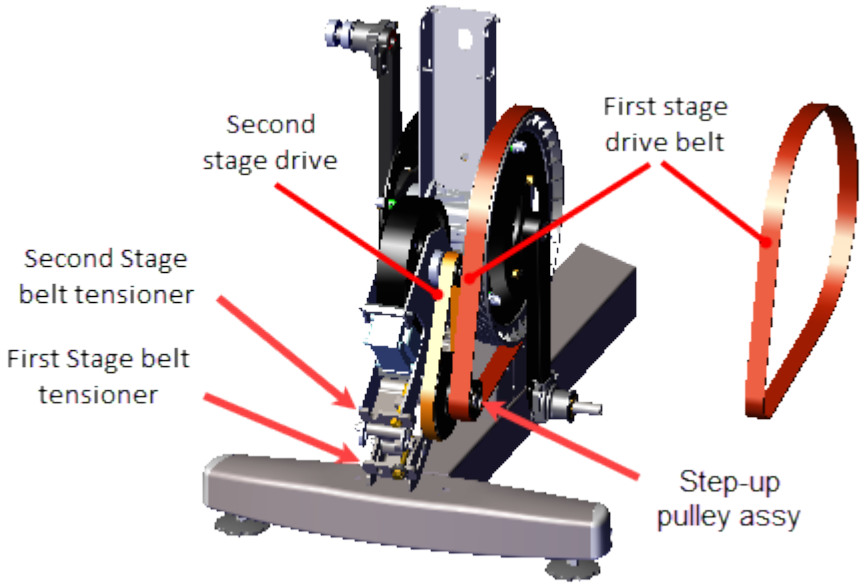
Removal Instructions

1. Remove the left and right Drive Housing covers (includes removing the Stairarms from the Input Drive Cranks), see "Drive Housing Covers Replacement" on page 95.
2. Use a 1/2" socket to loosen the two Generator/Brake assembly and the two Drive Components assembly carriage bolt nuts (left side). Loosen the nuts just enough to

allow movement but keep the carriage bolt heads inserted into the adjustment slots. Do not remove the fastener nuts.

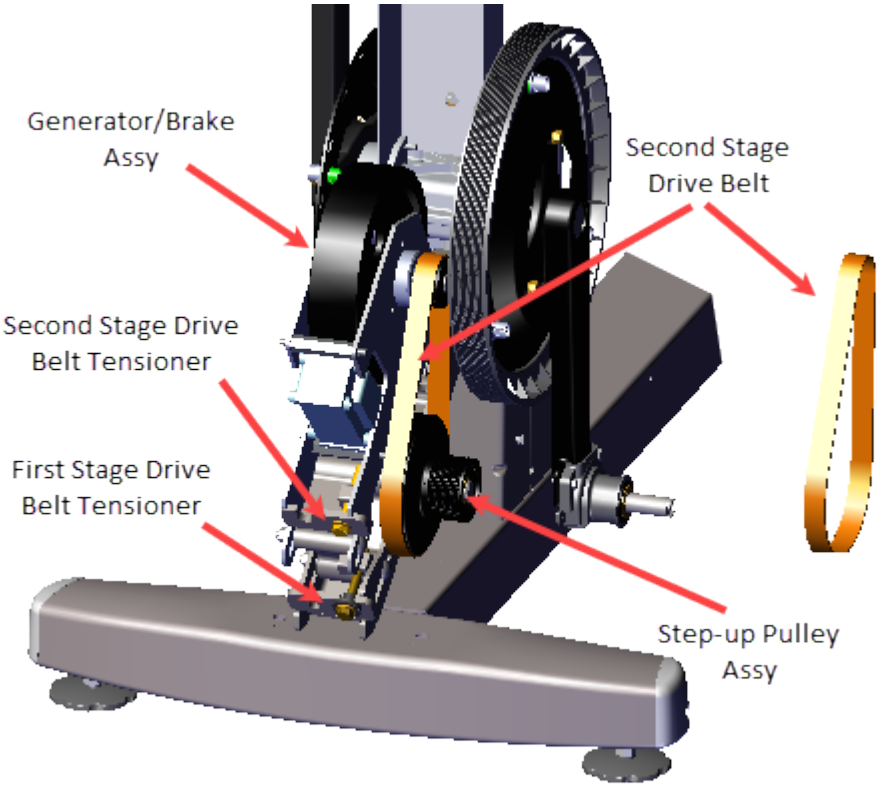


3. Use a 1/2" socket to loosen the first stage belt tensioner and walk the first stage drive belt off the Input Drive and smaller Step-up Pulley assembly pulleys. Remove the first stage drive belt.



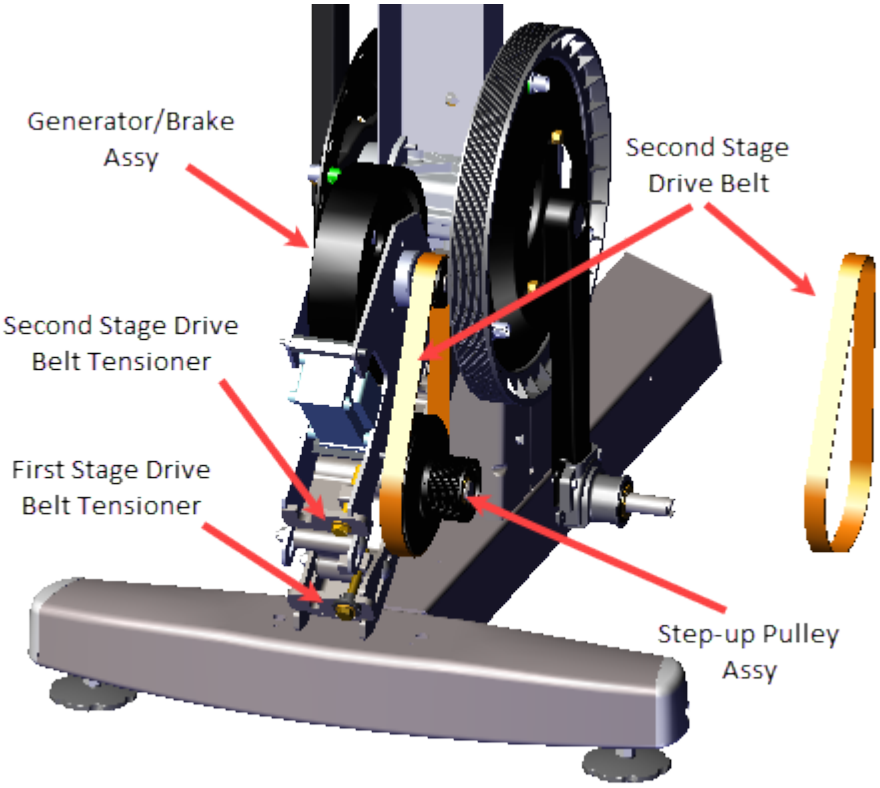
4. Use a 1/2" socket to loosen the second stage belt tensioner and walk the second stage drive belt off the generator/brake assembly pulley and larger Step-up pulley.

Remove the second stage drive belt.

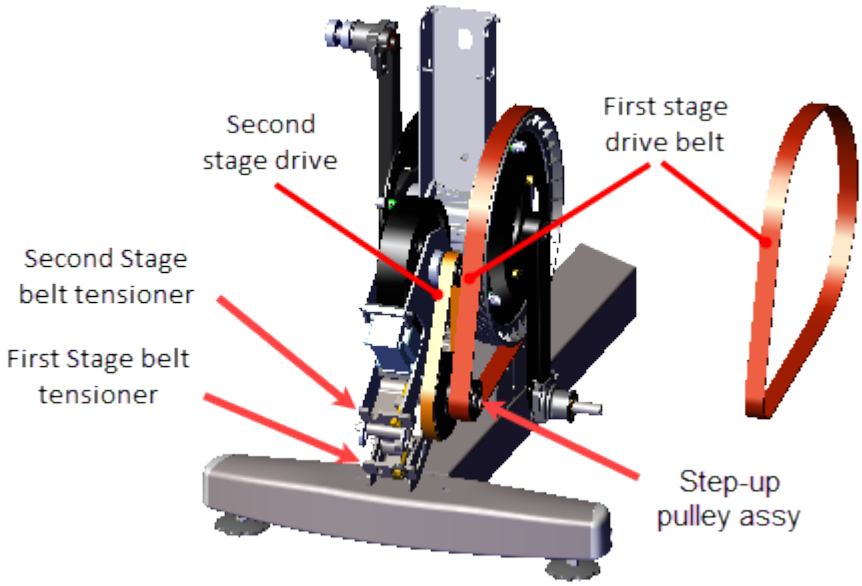


Installation Instructions

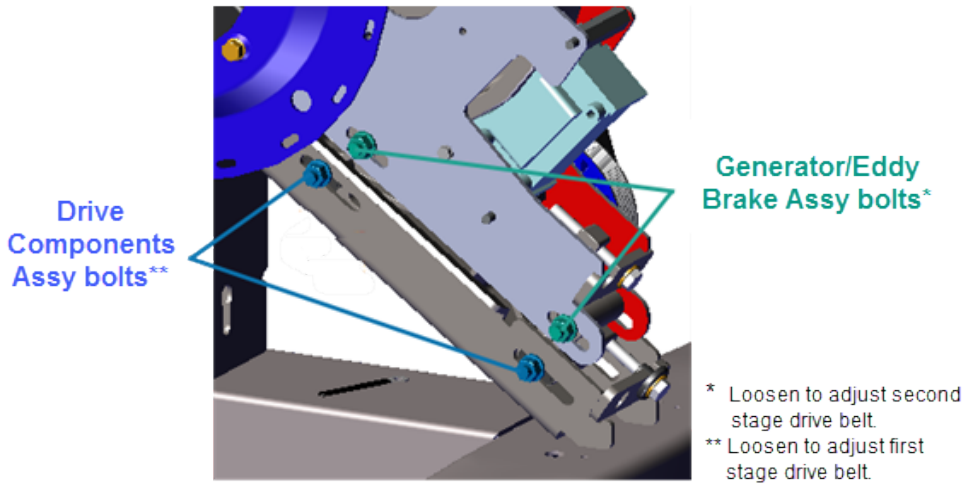
1. Install the second stage drive belt by walking the belt onto the Generator/Brake assembly and larger Step-up Pulley assembly pulleys. Rotate the crank and make sure that the belt is properly aligned and seated on both pulley grooves. Adjust the second stage tensioner just enough to hold the tensioner mechanism and belt in place.



2. Install the first stage drive belt by walking the belt onto the Input Drive and smaller Step-up Pulley assembly pulleys. Rotate the crank and make sure that the belt is properly aligned and seated in the pulley grooves. Adjust the first stage tensioner just enough to hold the tensioner mechanism and belt in place.



3. Adjust the first stage drive belt tension to specification, see "First Stage Drive Belt Tension Adjustment" on page 58 .
4. Use a 1/2" socket to fully tighten the two Drive Components assembly bolts. **Torque**[1] bolts to 180 in-lbs +/- 54 (20.3 +/_ 4.5 Nm).



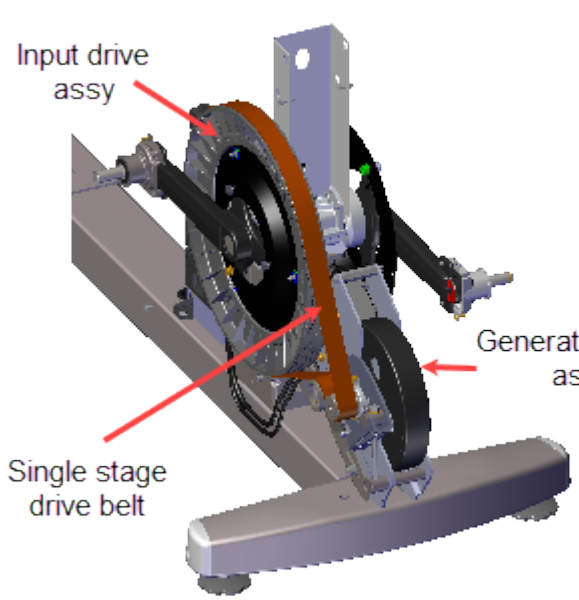
5. Adjust the second stage drive belt tension to specification, see "Second Stage Drive Belt Tension Adjustment" on page 62.
6. Use a 1/2" socket to fully tighten the two Generator/Brake assembly carriage bolts. Torque both bolts to 180 in-lbs +/- 54 (20.3 +/_ 4.5 Nm).
7. Reinstall the left and right Drive Housing covers (includes reinstalling the Stairarms), see "Drive Housing Covers Replacement" on page 95. Reinstall any other removed covers.
8. Verify machine operation and return to service, see "Operation Verification" on page 20.

[1]Torque is a measure of the force that can cause an object to rotate about an axis. Bolt/nut example: 5 NM torque is equivalent to 5 newton's of force applied one meter from the center of the bolt, 6 ft-lb is equivalent to 6 lbs of force applied 1 foot away from the center of the bolt.

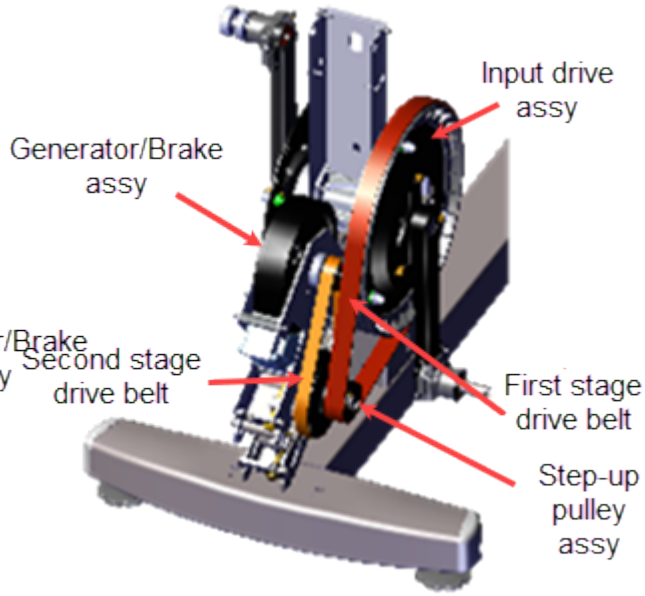
Generator/Brake Assembly Replacement

About

The EFX600 ellipticals can be installed with either a single stage or a dual stage Input drive system. This procedure provides instructions to remove/install the Generator/Brake Assembly for either input drive system.



Single Stage Input Drive System



Dual Stage Input Drive System

Single Stage Input Drive

- "Generator/Brake assembly Replacement" on page 129

Dual Stage Input Drive

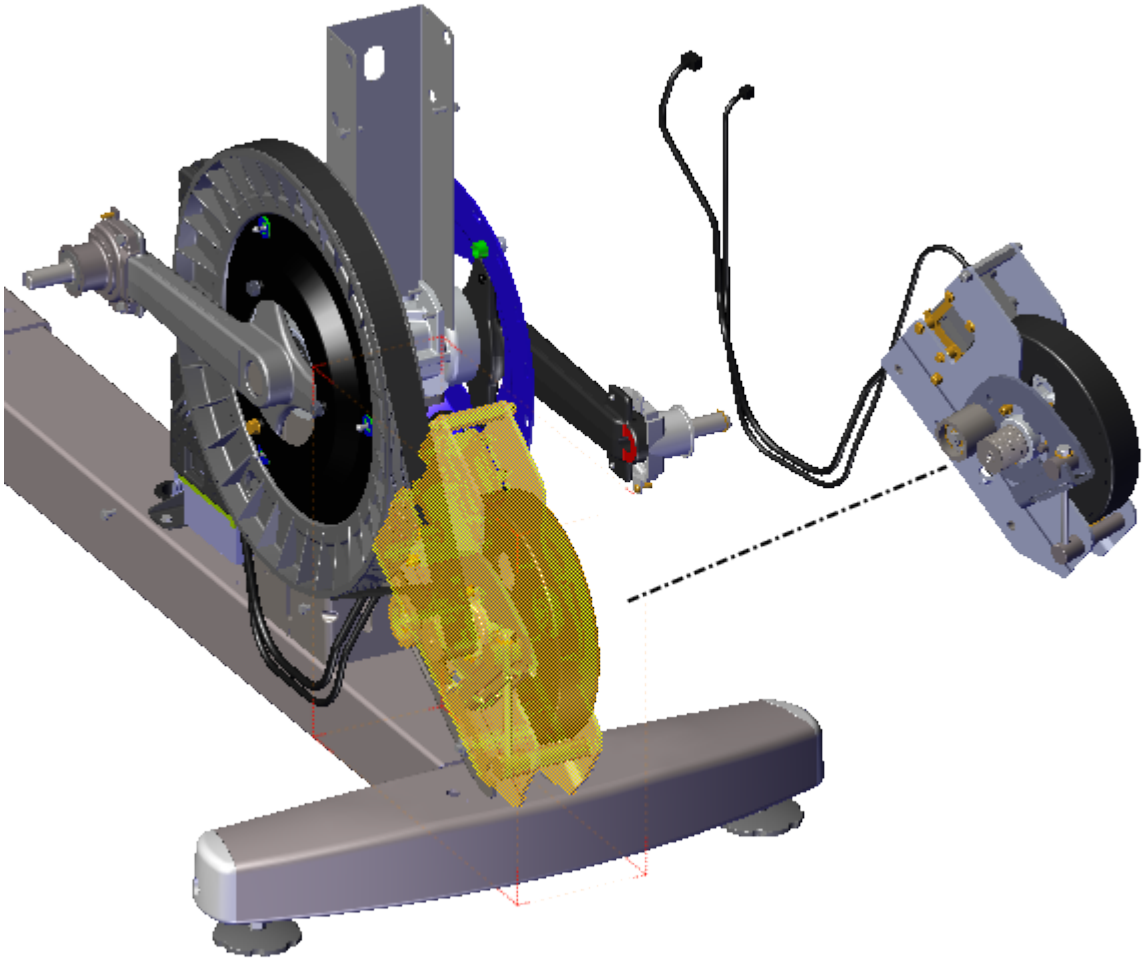
- "Drive Components assembly Replacement" on page 135
- "Removal Instructions" on page 143
- "Step-up Pulley/Tensioner assembly Replacement" on page 151

Generator/Brake assembly Replacement

Applies To: Single Stage Input Drive

About

This procedure provides instruction to remove and install the Generator/brake assembly for a single stage input drive system.



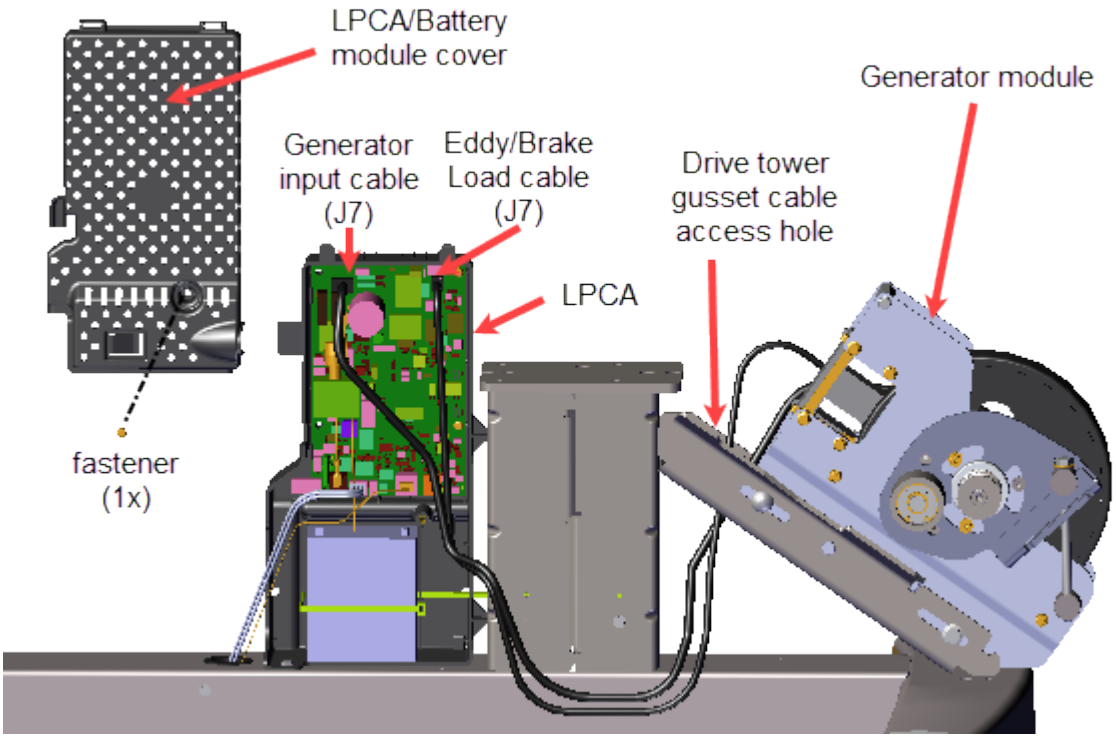
Procedure

Review entire procedure before starting.

Removal Instructions

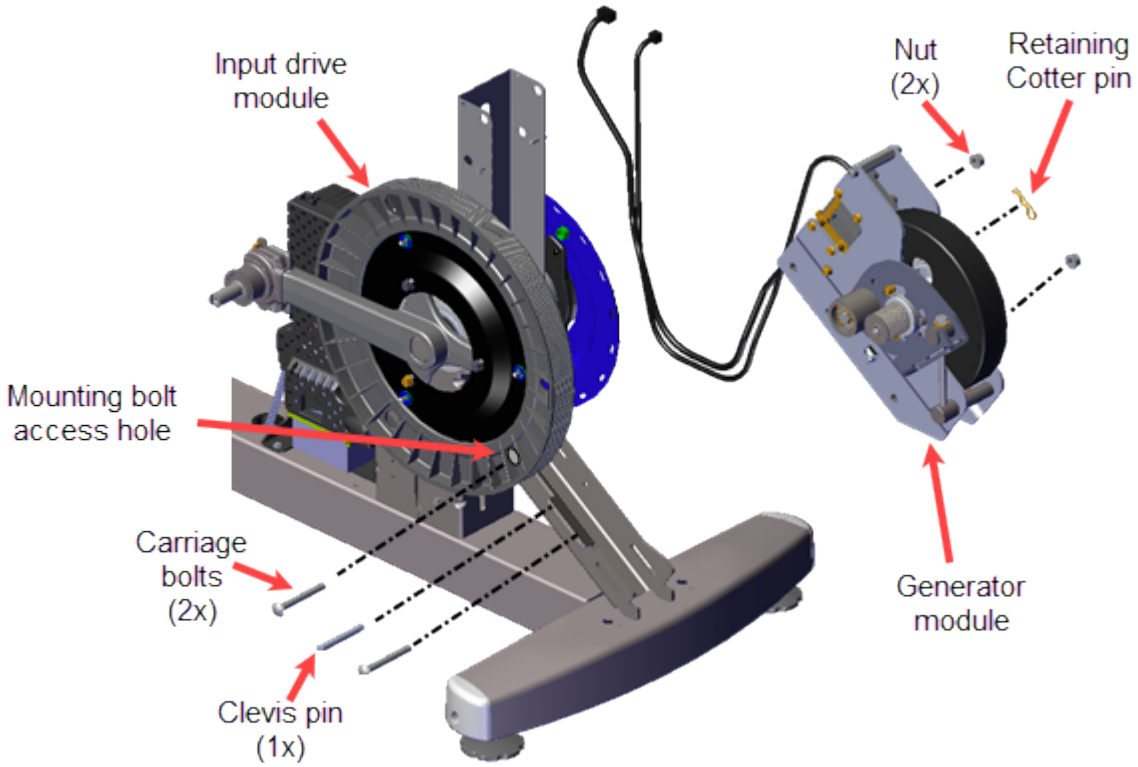
1. Remove the left and right Drive Housing covers, see "Drive Housing Covers Replacement" on page 95.
2. Remove the Input Drive belt, see "Single Stage Input Drive Belt Replacement" on page 111.

3. Remove the one #2 Phillips screw fastener and **LPCA**[1]/Battery module cover. Retain part(s) and/or fastener(s) for installation.
4. Disconnect the Generator input cable (J1) and Eddy Brake load cable (J7) from the LPCA board. Starting from the LPCA board, feed both cables through the drive tower gusset access hole and out of the frame.



5. Remove the two 1/2" to generator assembly carriage bolt fasteners. To access the upper generator carriage bolt, rotate the Input Drive pulley until the access hole is positioned over the generator assembly upper carriage bolt.

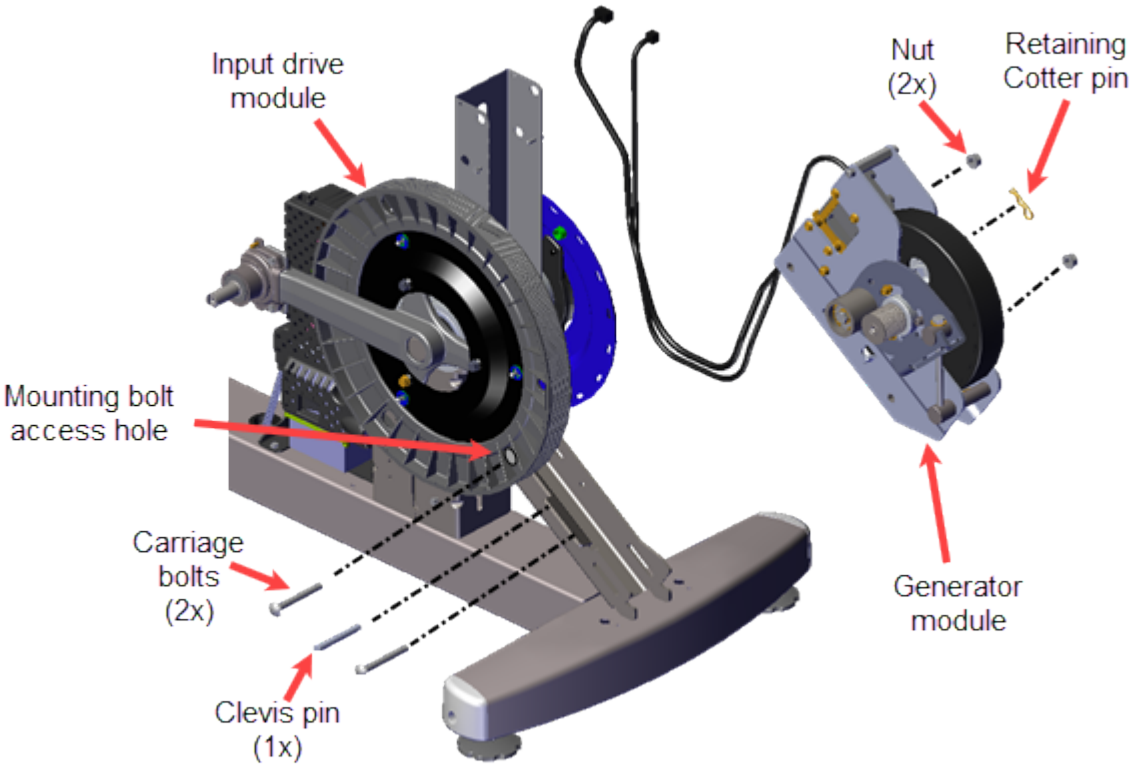
[1]Lower Printed Circuit Assembly board; also refered to as the Lower PCA or simply as the lower board. On treadmills, it is the console to base function interface and the motor controller unit (MCU). On self-powered units, it is the lower PCA console to base function interface.



6. Use a pair of needle nose pliers to remove the retaining cotter pin.
7. Grasp and hold the generator assembly. Then remove the clevis pin and generator assembly.

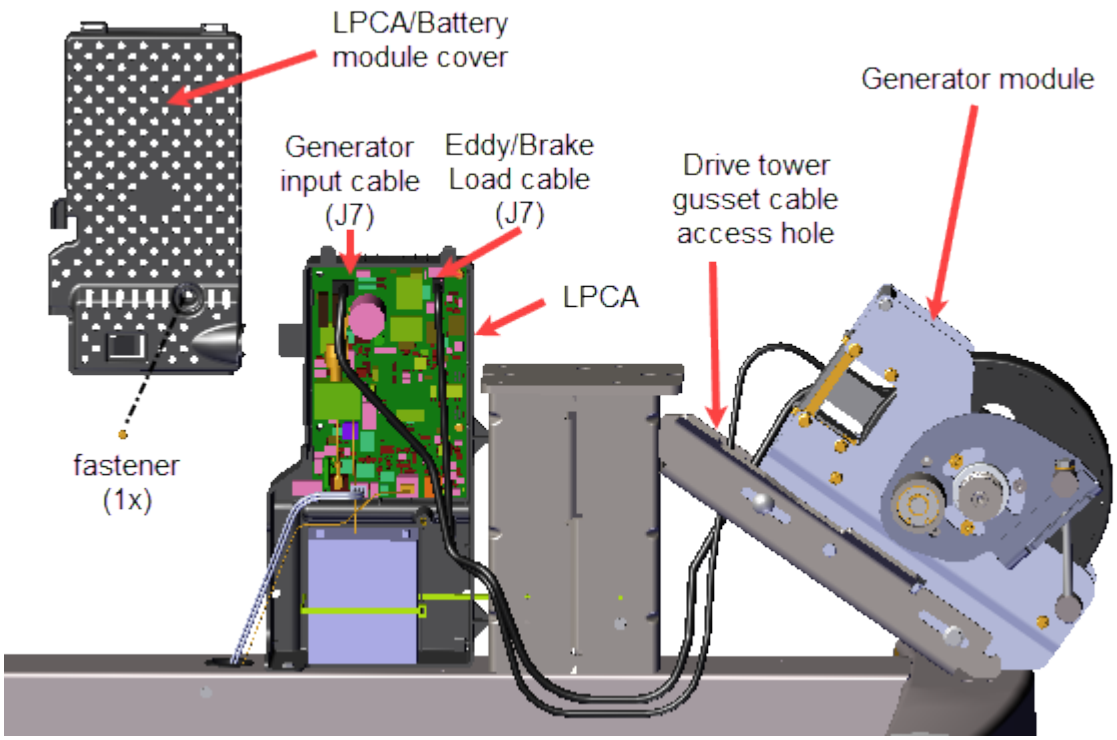
Installation Instructions

1. Reinstall the generator assembly onto the drive tower gusset weldment and align the mounting bolt holes.



2. Reinstall the two 1/2" carriage mounting bolts. To access the upper generator carriage mounting bolt hole, rotate the Input Drive pulley until the access hole aligns with the frame generator assembly upper carriage bolt hole. Fully tighten nuts to 180 in-lbs +/- 54 (20.3 +/_ 4.5 Nm).
3. Reinstall the clevis pin and secure using the retaining cotter pin.
4. Starting from the generator assembly, route the generator input and Eddy Brake load cables through the drive tower gusset access hole across the outside left side of the frame to the LPCA board. Reconnect the Generator input cable and Eddy Brake load cable to the LPCA (J1) and (J7) **I/O**[1] ports respectively.

[1]Input and Output Interface.



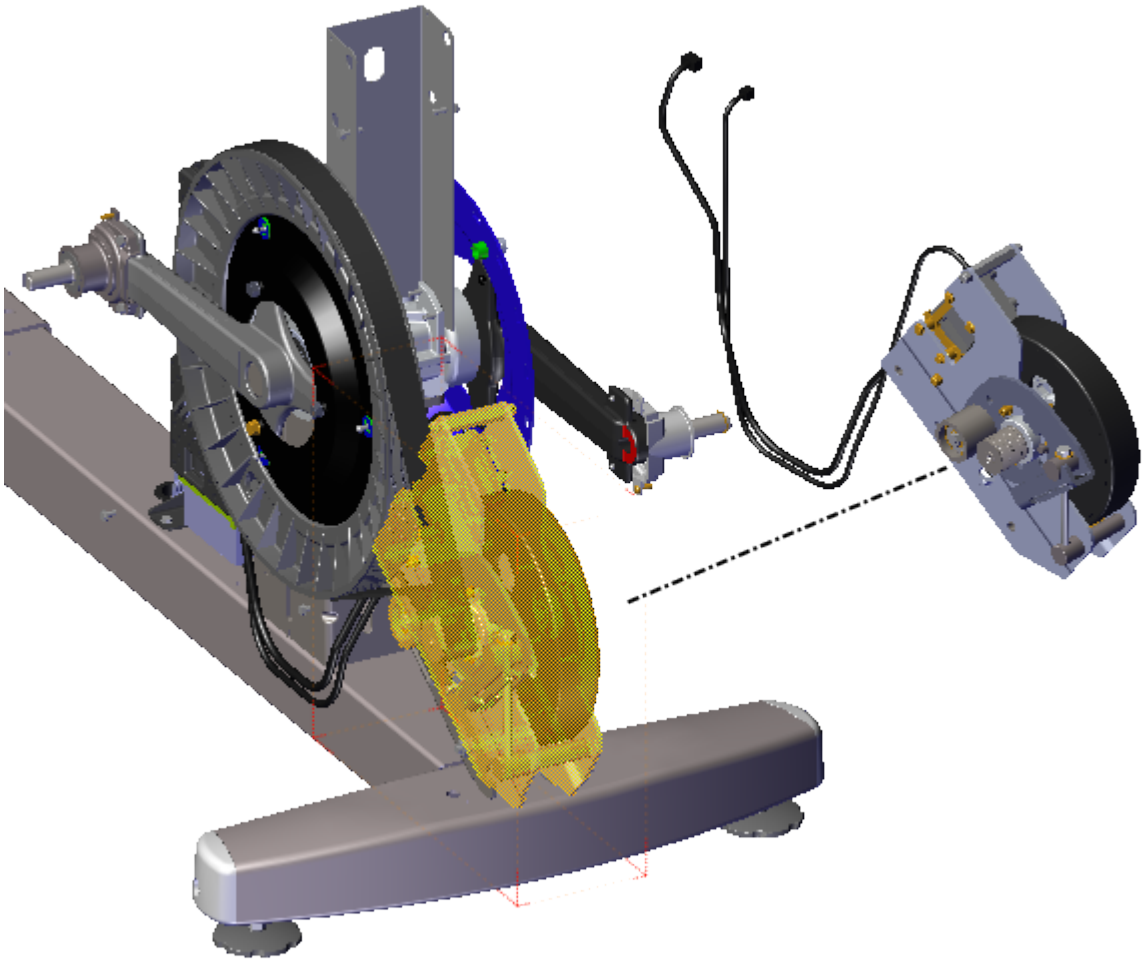
5. Reinstall the LPCA/Battery module cover and secure using the one #2 Phillips screw fastener.
6. Reinstall the Input Drive belt and adjust tension, see "Single Stage Input Drive Belt Replacement" on page 111.
7. Reinstall the left and right Drive Housing covers, see "Drive Housing Covers Replacement" on page 95.
8. Verify machine operation and return to service, see "Operation Verification" on page 20.

Generator/Brake assembly Replacement

Applies To: Single Stage Input Drive

About

This procedure provides instruction to remove and install the Generator/brake assembly for a single stage input drive system.



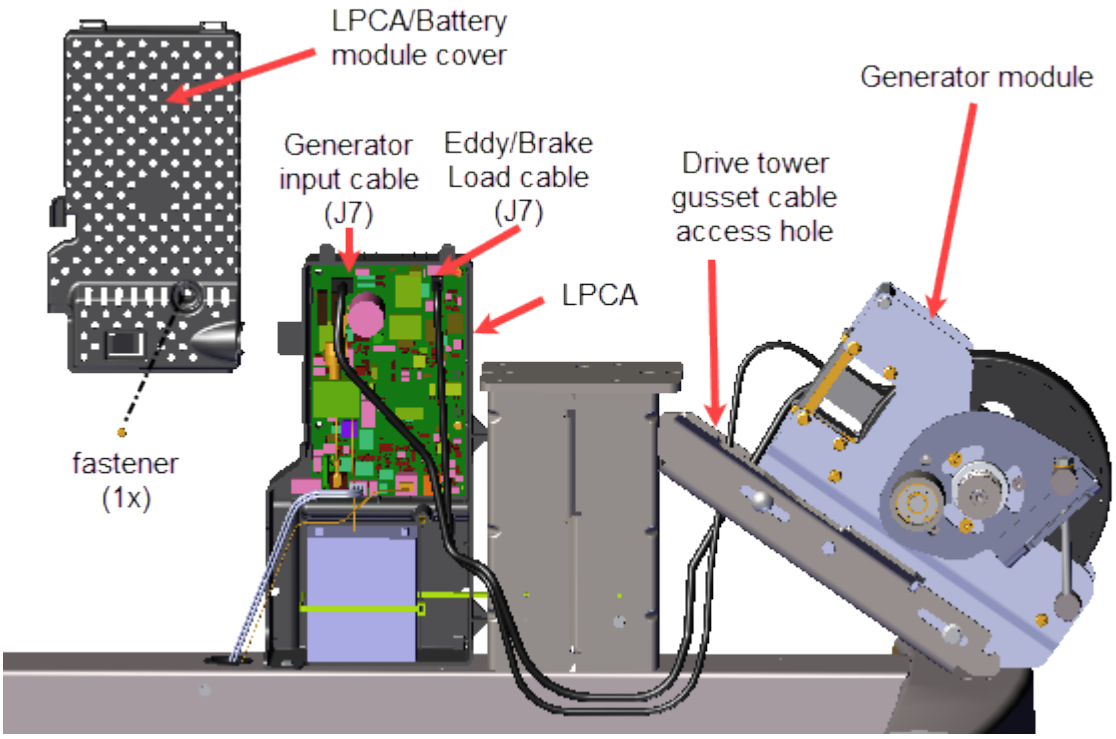
Procedure

Review entire procedure before starting.

Removal Instructions

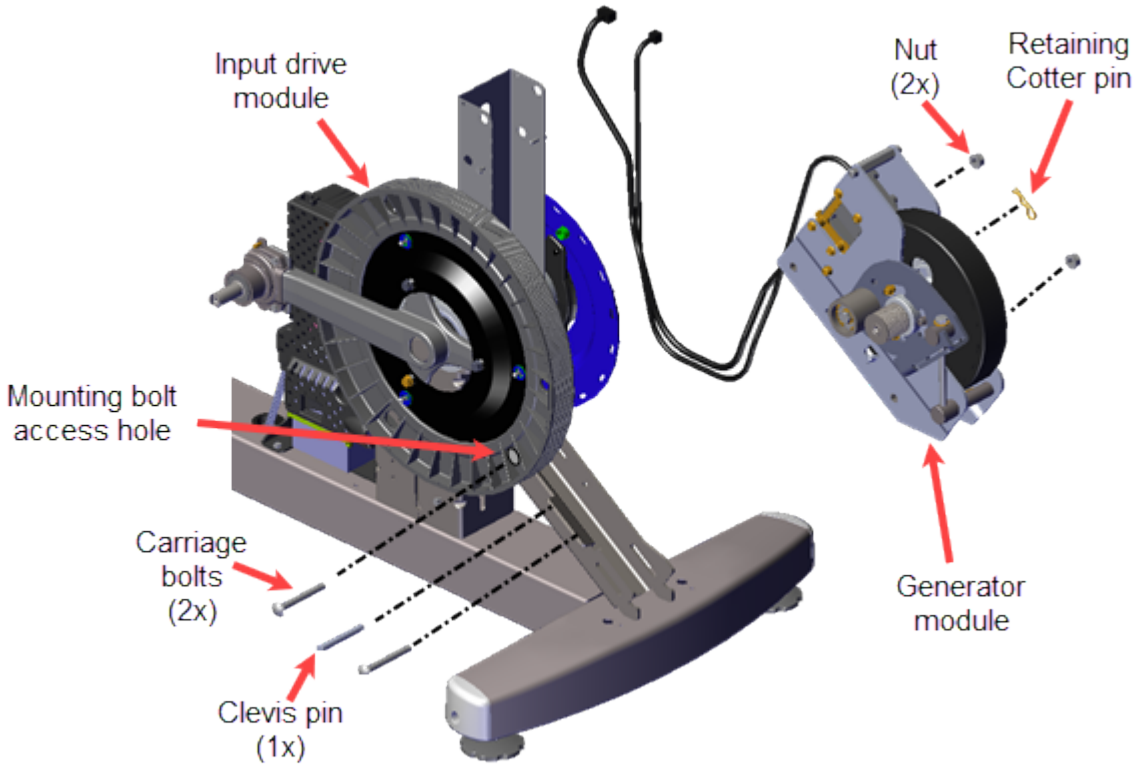
1. Remove the left and right Drive Housing covers, see "Drive Housing Covers Replacement" on page 95.
2. Remove the Input Drive belt, see "Single Stage Input Drive Belt Replacement" on page 111.

3. Remove the one #2 Phillips screw fastener and **LPCA**[1]/Battery module cover. Retain part(s) and/or fastener(s) for installation.
4. Disconnect the Generator input cable (J1) and Eddy Brake load cable (J7) from the LPCA board. Starting from the LPCA board, feed both cables through the drive tower gusset access hole and out of the frame.



5. Remove the two 1/2" to generator assembly carriage bolt fasteners. To access the upper generator carriage bolt, rotate the Input Drive pulley until the access hole is positioned over the generator assembly upper carriage bolt.

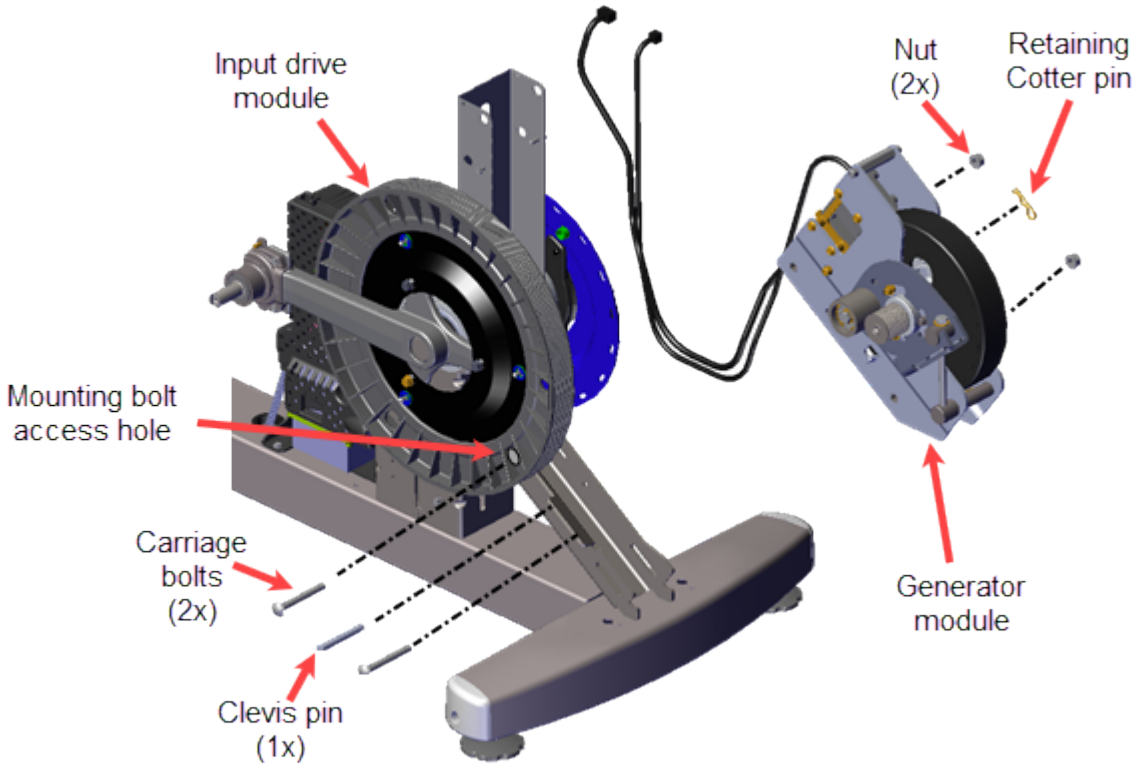
[1]Lower Printed Circuit Assembly board; also refered to as the Lower PCA or simply as the lower board. On treadmills, it is the console to base function interface and the motor controller unit (MCU). On self-powered units, it is the lower PCA console to base function interface.



6. Use a pair of needle nose pliers to remove the retaining cotter pin.
7. Grasp and hold the generator assembly. Then remove the clevis pin and generator assembly.

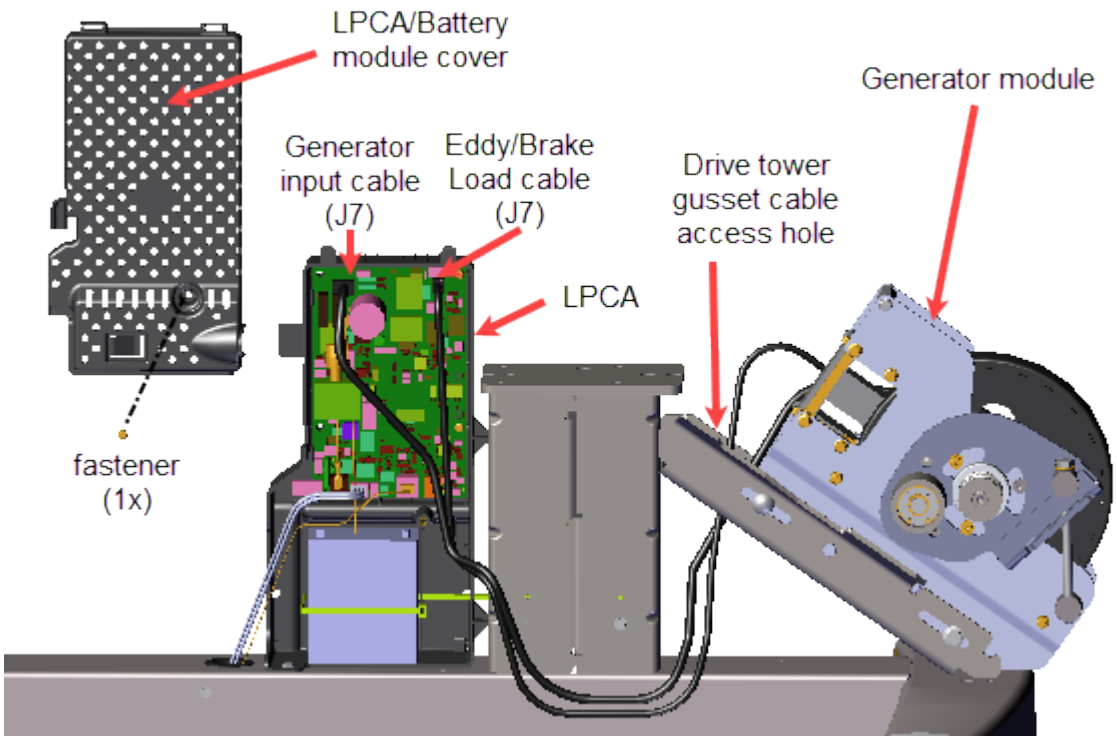
Installation Instructions

1. Reinstall the generator assembly onto the drive tower gusset weldment and align the mounting bolt holes.



2. Reinstall the two 1/2" carriage mounting bolts. To access the upper generator carriage mounting bolt hole, rotate the Input Drive pulley until the access hole aligns with the frame generator assembly upper carriage bolt hole. Fully tighten nuts to 180 in-lbs +/- 54 (20.3 +/_ 4.5 Nm).
3. Reinstall the clevis pin and secure using the retaining cotter pin.
4. Starting from the generator assembly, route the generator input and Eddy Brake load cables through the drive tower gusset access hole across the outside left side of the frame to the LPCA board. Reconnect the Generator input cable and Eddy Brake load cable to the LPCA (J1) and (J7) **I/O**[1] ports respectively.

[1]Input and Output Interface.



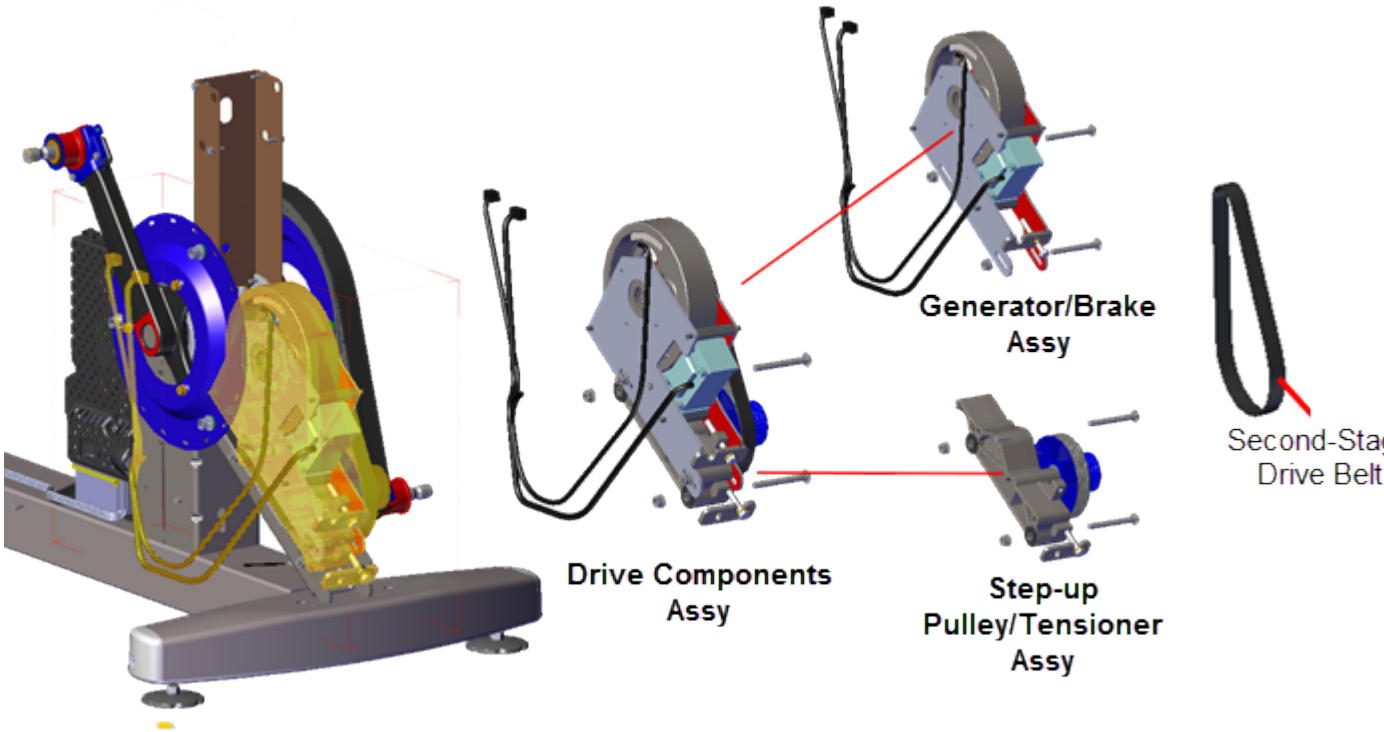
5. Reinstall the LPCA/Battery module cover and secure using the one #2 Phillips screw fastener.
6. Reinstall the Input Drive belt and adjust tension, see "Single Stage Input Drive Belt Replacement" on page 111.
7. Reinstall the left and right Drive Housing covers, see "Drive Housing Covers Replacement" on page 95.
8. Verify machine operation and return to service, see "Operation Verification" on page 20.

Dual Stage Generator/Brake Assy Replacement

Applies To: Dual Stage Input Drive

About

On dual stage input drive systems, the Drive Components assembly comprises the Generator/Brake assembly and the Step-up Pulley/Tensioner assembly. The complete Drive Components assembly can be removed or the individual Generator/Brake assembly or the Step-up Pulley/Tensioner assembly can be replaced. Select the removal procedure for the component you want to replace.



Dual Stage Generator/Brake assembly Replacement Procedures

- "Drive Components assembly Replacement" on the facing page
- "Removal Instructions" on page 143
- "Step-up Pulley/Tensioner assembly Replacement" on page 151

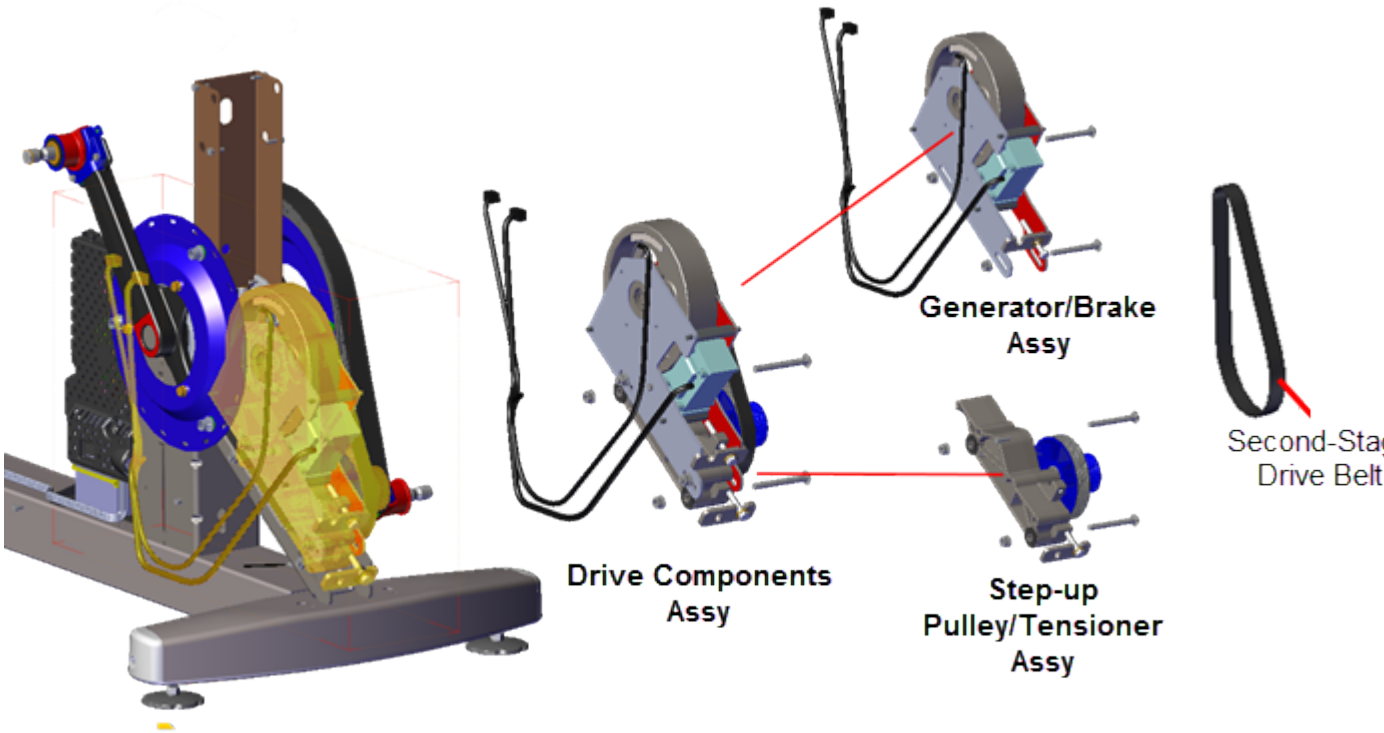
Drive Components assembly Replacement

Applies To: Dual Stage Input Drive

About

This procedure provides instruction to remove and install the Drive Components assembly for a dual stage input drive system.

The Drive Components assembly consists of the Generator/Brake assembly and Step-up Pulley/Tensioner assembly.



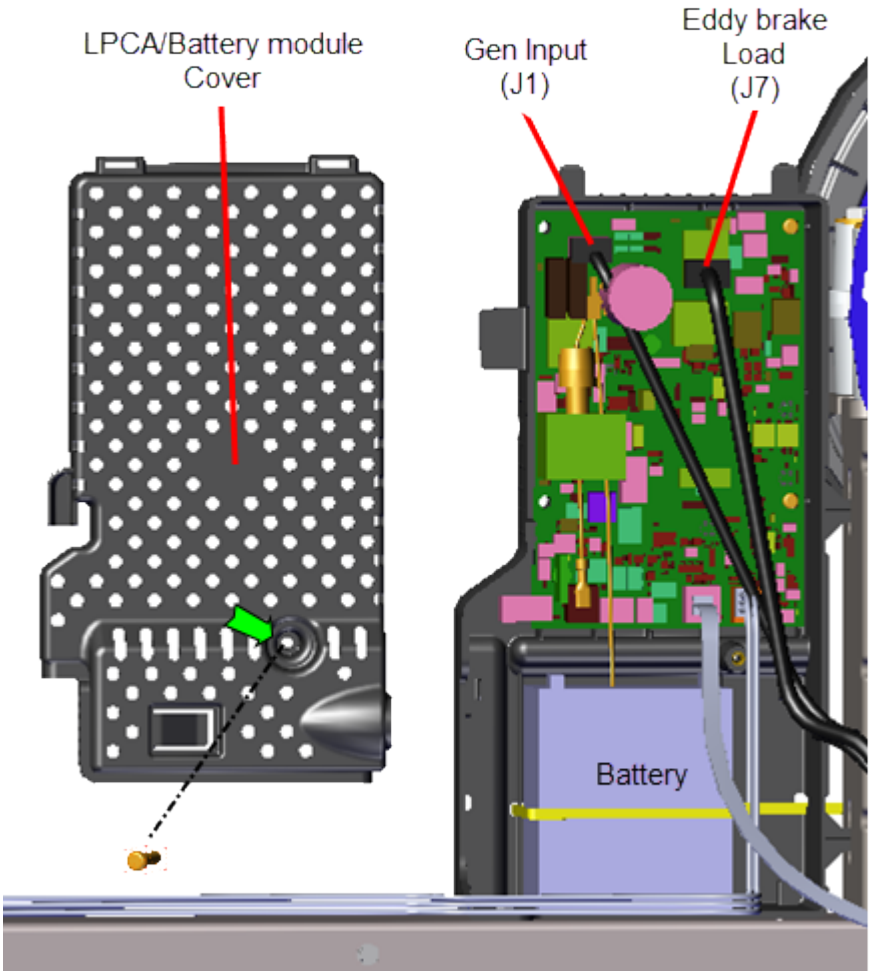
Procedure

Review entire procedure before starting.

Removal Instructions

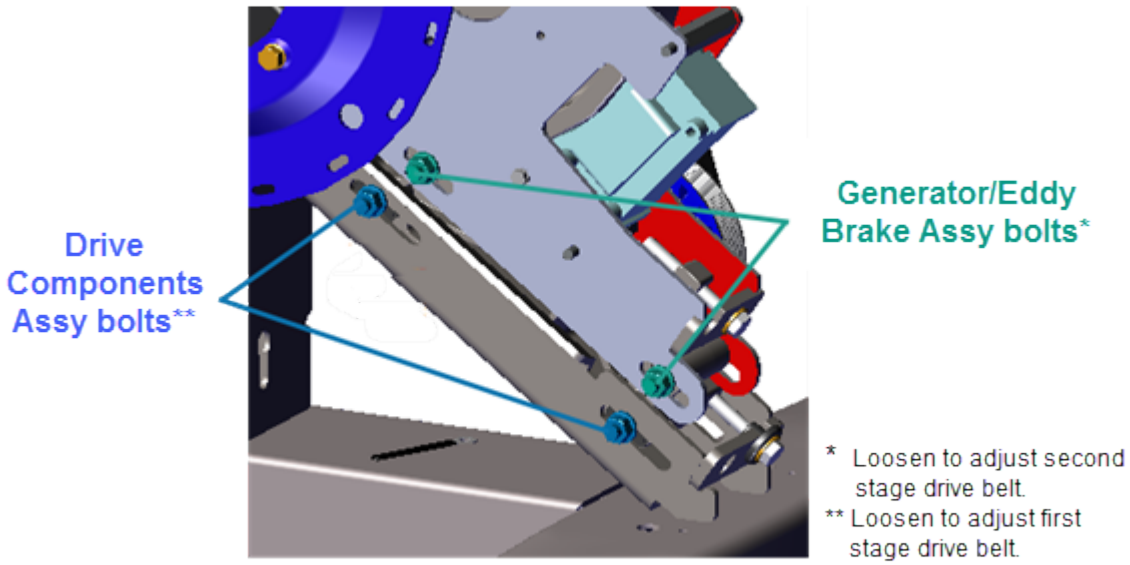
1. Remove the left and right Drive Housing covers (includes removing the Stairarms from the Input Drive Cranks), see "Drive Housing Covers Replacement" on page 95.

2. Remove the one #2 Phillips screw fastener and **LPCA**[1]/Battery module cover. Disconnect the Generator input cable (J1, 8 pin conn) and Eddy Brake Load cable (J7, 4 pin conn) from the LPCA board. Retain part(s) and/or fastener(s) for installation.

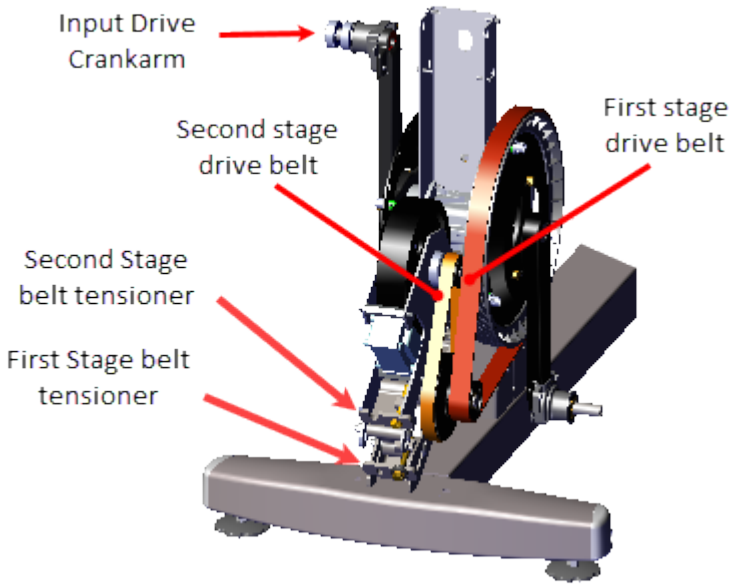


3. Use a 1/2" socket to loosen the two Generator/Brake assembly and the two Drive Components assembly carriage bolt nuts (left side). Do not remove the carriage bolt nuts.

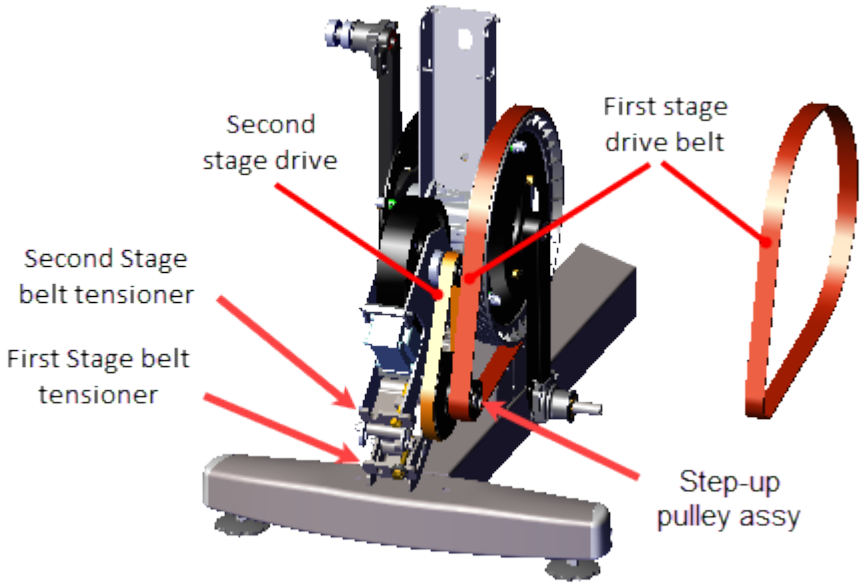
[1]Lower Printed Circuit Assembly board; also refered to as the Lower PCA or simply as the lower board. On treadmills, it is the console to base function interface and the motor controller unit (MCU). On self-powered units, it is the lower PCA console to base function interface.



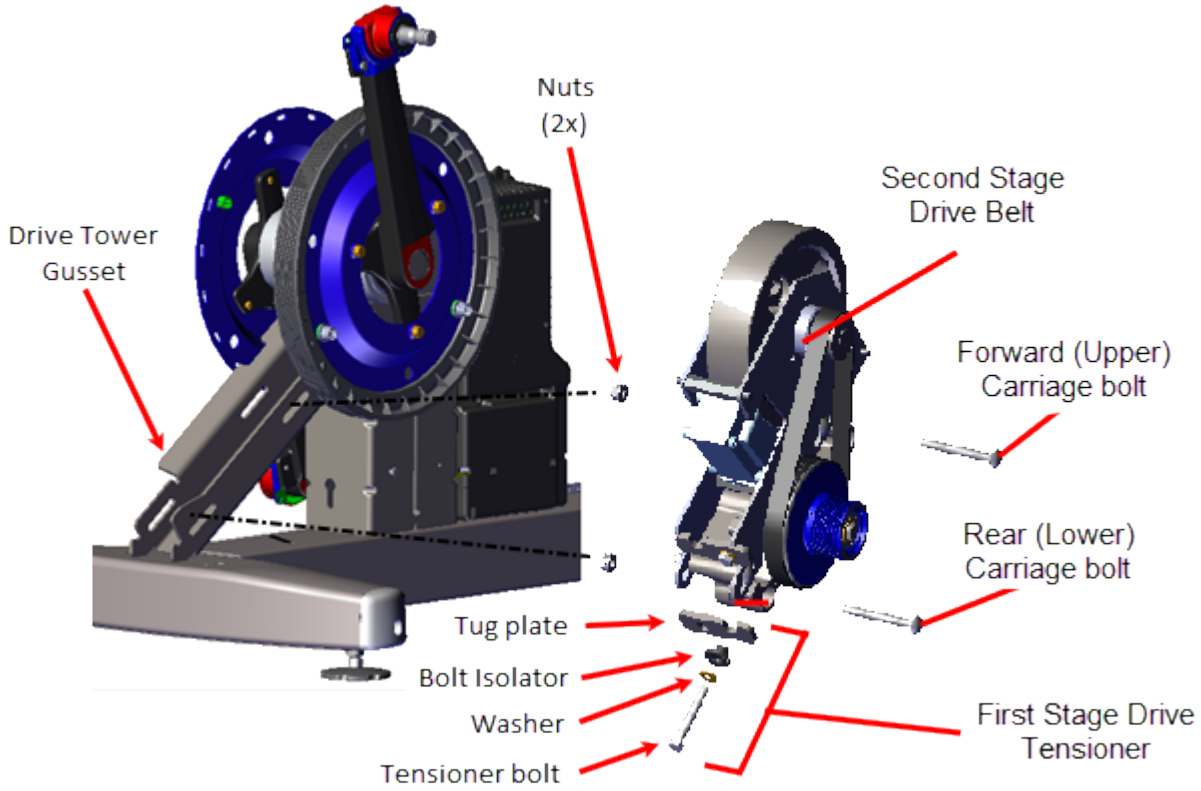
4. Remove the second stage belt tension.by loosening the 1/2" second stage drive belt tensioner bolt.



5. Use a 1/2" socket to loosen the first stage belt tensioner and walk the first stage drive belt off the Input Drive pulley and smaller first stage Step-up Pulley assembly pulley. Remove the first stage drive belt. Retain belt for installation.



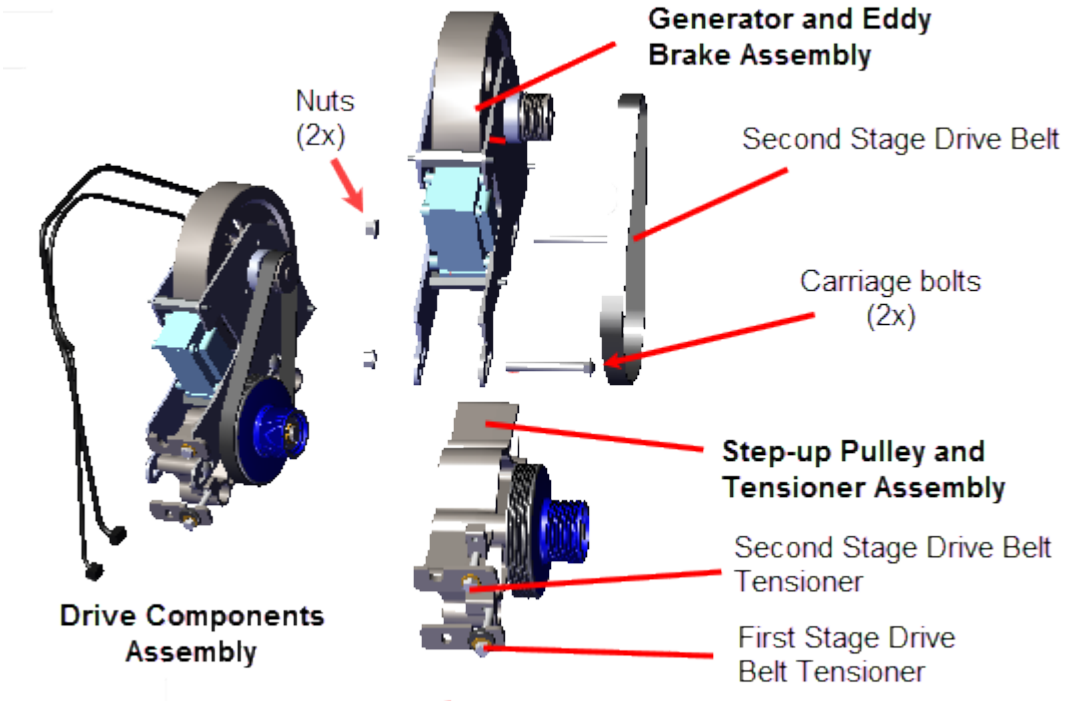
6. Use a 1/2" socket to remove the First Stage Tensioner hardware: the adjustment bolt (1x), washer (1x), bolt isolator (1x), and tug plate (1x). Retain part(s) and/or fastener (s) for installation.



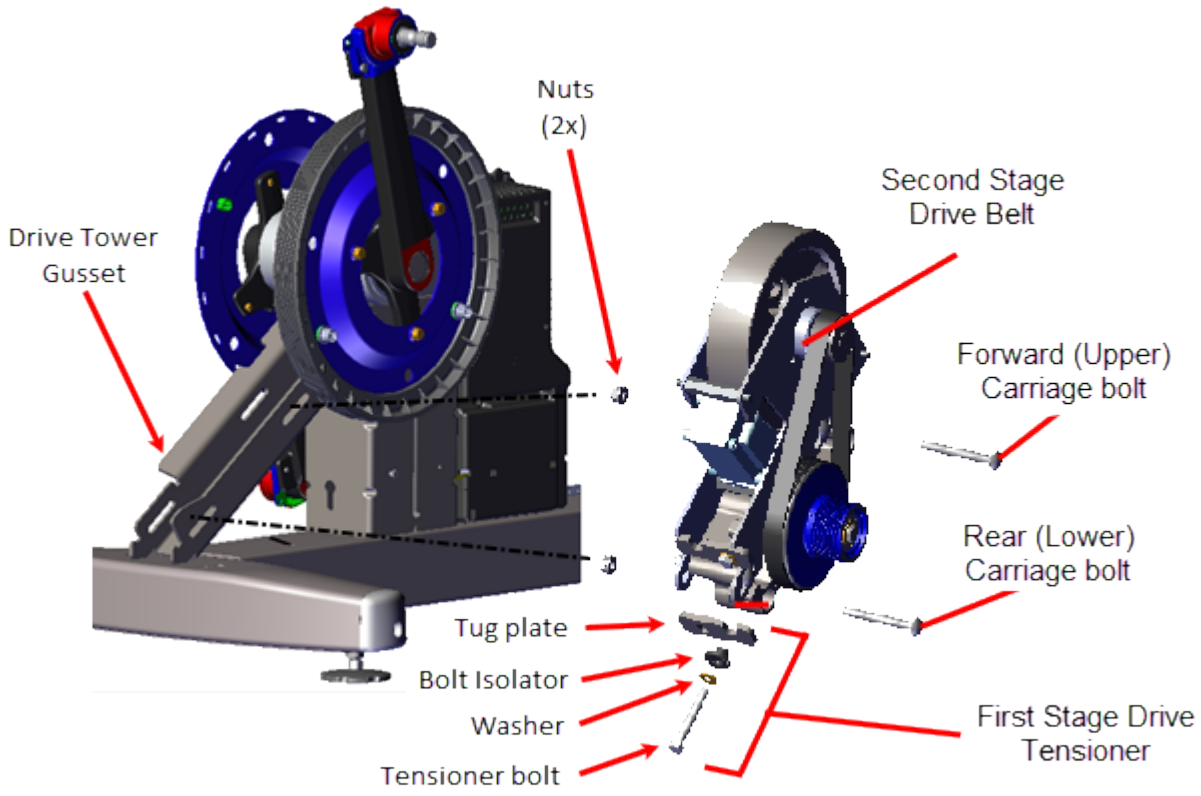
7. Use a 1/2" socket to remove the two Drive Components assembly carriage bolts (2x) and nuts (2x). Remove the rear (lower) bolt first and then slide the Drive Components assembly downward to create room to remove the forward (upper) carriage bolt. Remove the Drive Components assembly. Retain part(s) and/or fastener(s) for installation.

Installation Instructions

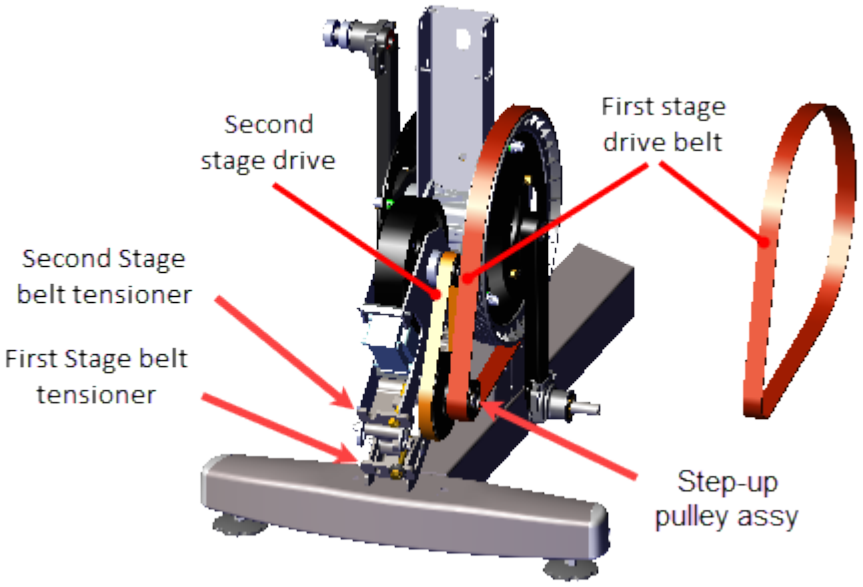
1. If the Drive Components assembly is disassembled, reassemble as follows:
   a. Install the Generator/Brake assembly onto the Step-up Pulley/Tensioner assembly and secure using the two 1/2" Carriage bolts and nuts.
   b. Tighten the carriage bolts just enough to keep the carriage bolt heads inserted into the mounting slot but do not fully tighten.
   c. Walk the second stage drive belt onto the Generator/Brake assembly pulley and the larger second stage Step-up Pulley/Tensioner assembly pulley. Tighten the second stage tensioner just enough to hold the tensioner hardware and belt in position. The belt will be properly tensioned after the Drive Components assembly is installed.



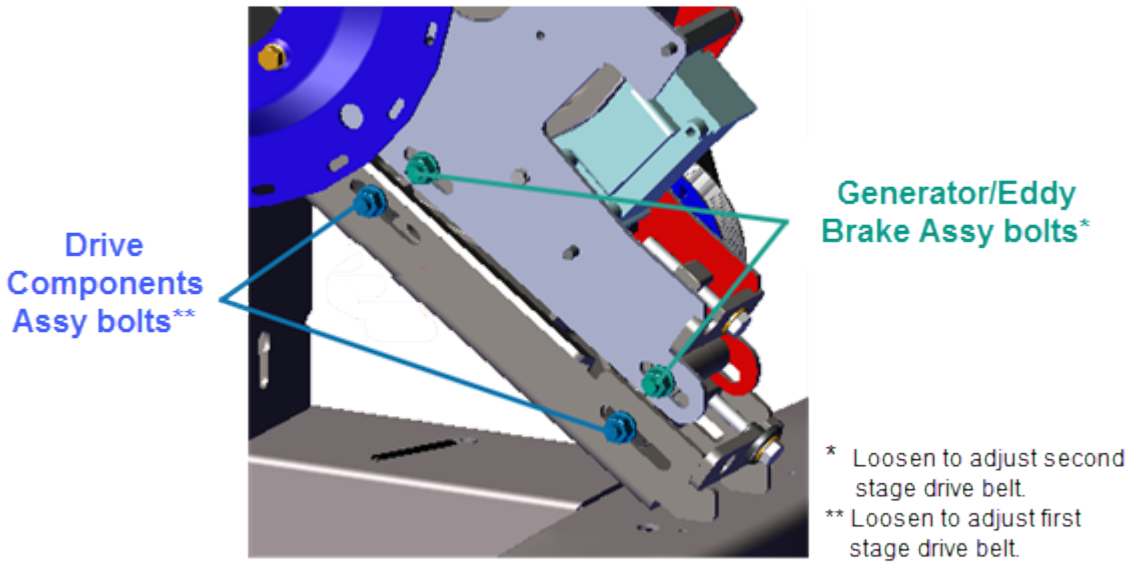
2. Position the Drive Components assembly onto the Drive Tower Gusset.



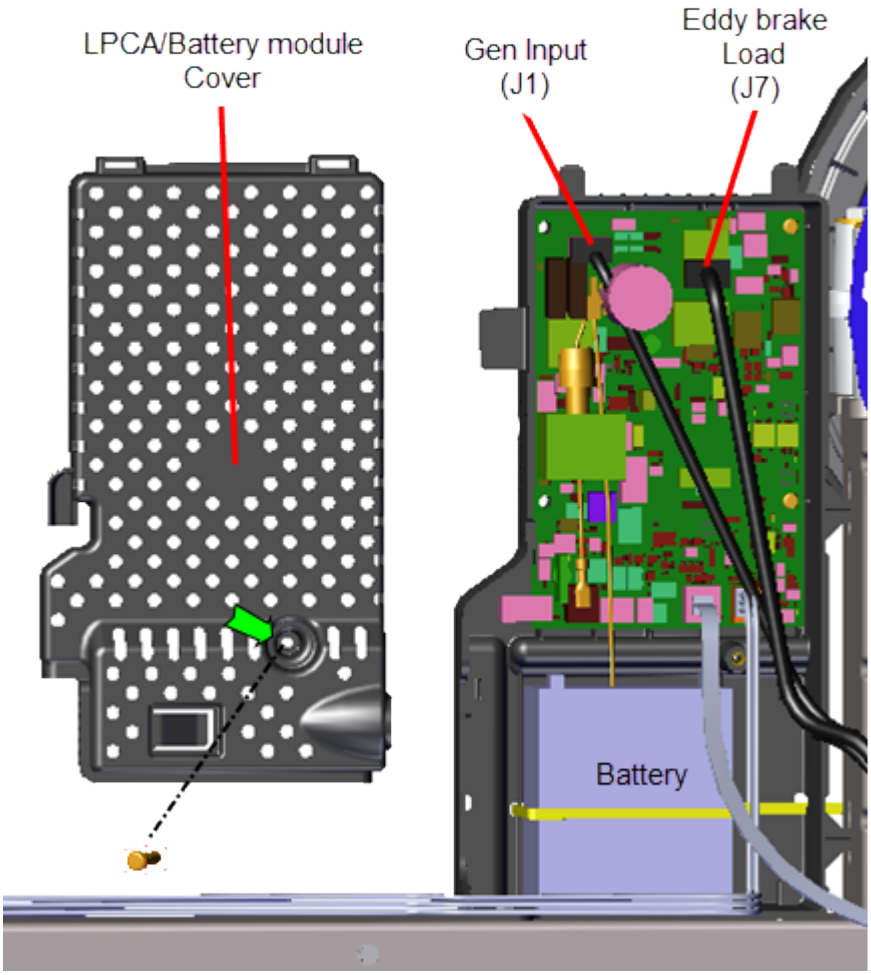
3. Slide the Drive Components assembly downward and install the upper (forward) carriage bolt and then slide the Drive Components assembly upward and install the lower (rear) carriage bolt. Tighten the carriage bolt nuts just enough to keep the carriage bolt heads inserted into the mounting slot but do not fully tighten.
4. Use a 1/2" socket to install the First Stage Tensioner hardware: the adjustment bolt (1x), washer (1x), bolt isolator (1x), and tug plate (1x). Tighten the tensioner bolt just enough to hold the tensioner hardware in place.
5. Install the first stage drive belt by walking the belt onto the Input Drive pulley and the smaller first stage Step-up Pulley/Tensioner assembly pulley. Rotate the crank and make sure that the belt is properly centered and seated in the pulley grooves.



6. Tension the first stage drive belt, see "First Stage Drive Belt Tension Adjustment" on page 58.
7. Tension the second stage drive belt, see "Second Stage Drive Belt Tension Adjustment" on page 62.
8. Tighten the two Generator/Brake assembly and two Drive Components assembly carriage bolt fasteners, torque to 180 in-lbs (20.3 Nm).



9. Reconnect the Generator input cable (J1) and Eddy Brake load cable (J7) on the LPCA board. Reinstall the LPCA/Battery module cover and secure with the #2 Phillips screw fastener.



10. Reinstall the left and right Drive Housing covers (includes reinstalling the Stairarms), see "Drive Housing Covers Replacement" on page 95. Reinstall any other removed covers.
11. Verify machine operation and return to service, see "Operation Verification" on page 20.

See Also

"Second Stage Drive Belt Tension Adjustment" on page 62

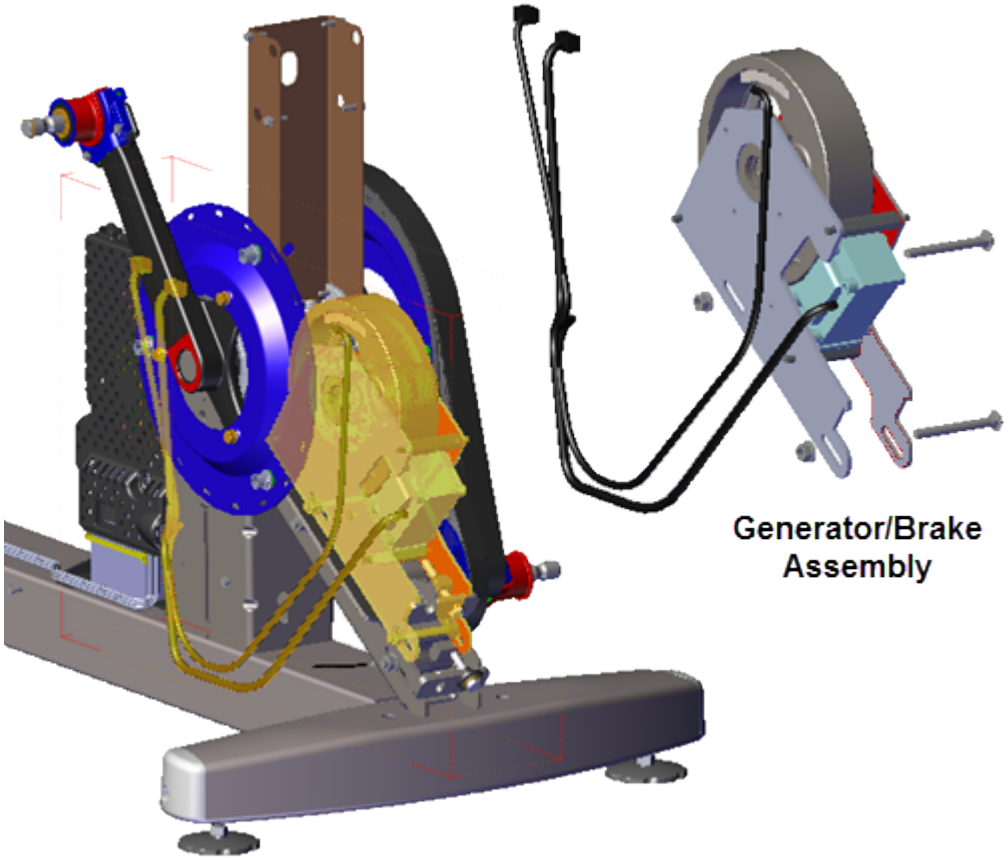
"First Stage Drive Belt Tension Adjustment" on page 58

Generator/Brake assembly Replacement

Applies To: Dual Stage Input Drive

About

This procedure provides instruction to remove and install the Generator/Brake assembly for dual stage input drive assembly.



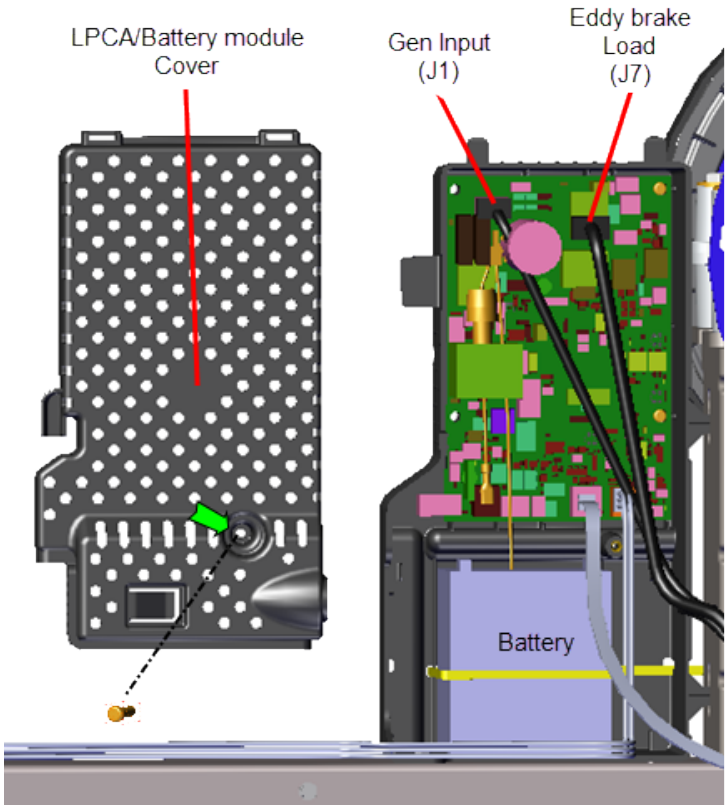
Procedure

Review entire procedure before starting.

Removal Instructions

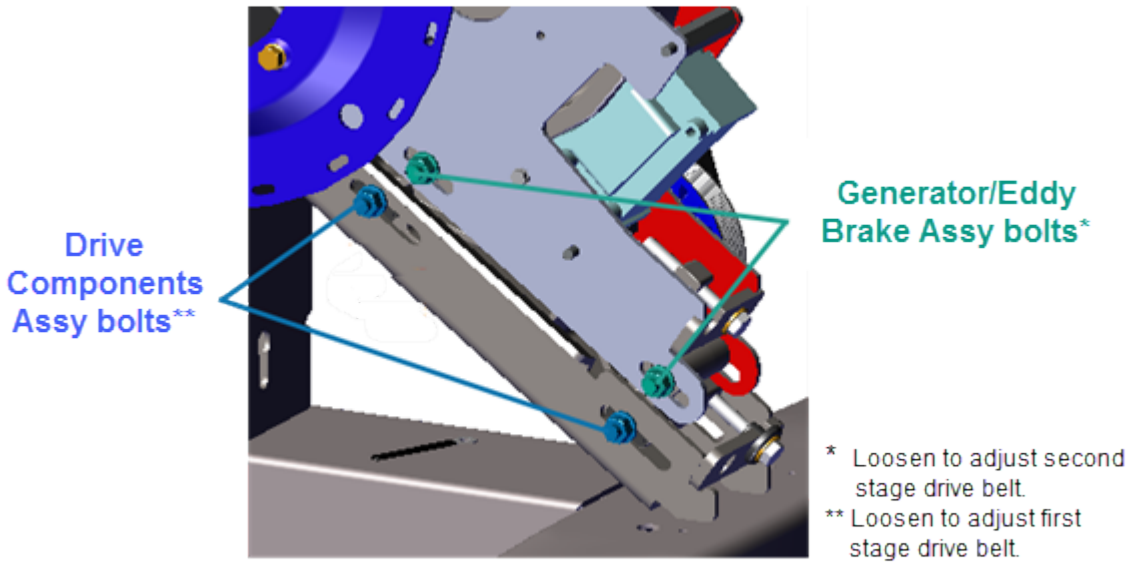
1. Remove the left and right Drive Housing Covers (includes removing the Stairarms from the Input Drive Cranks), see "Drive Housing Covers Replacement" on page 95.

2. Remove the one #2 Phillips screw fastener and **LPCA**[1]/Battery module cover. Disconnect the Generator input cable (J1) and Eddy Brake load cable (J7) from the LPCA board. Retain part(s) and/or fastener(s) for installation.

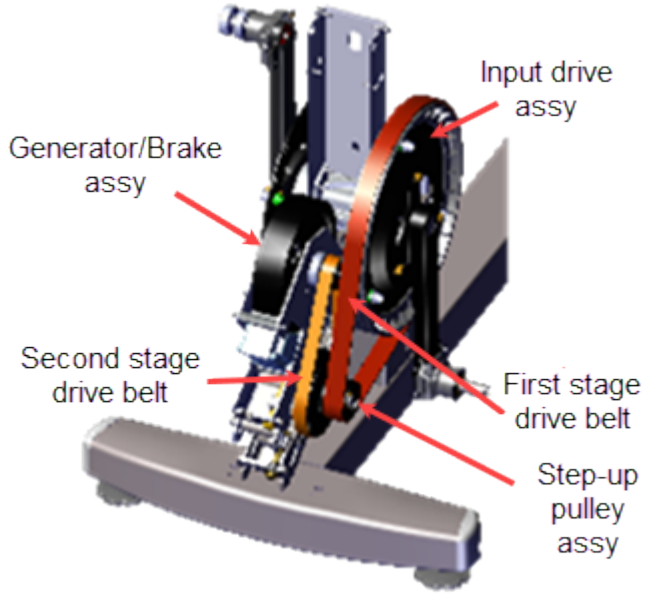


3. Use a 1/2" socket to loosen the two Generator/Eddy Brake assembly carriage bolt nuts and the two Drive Components assembly carriage bolt nuts (left side). Do not remove the fastener nuts.

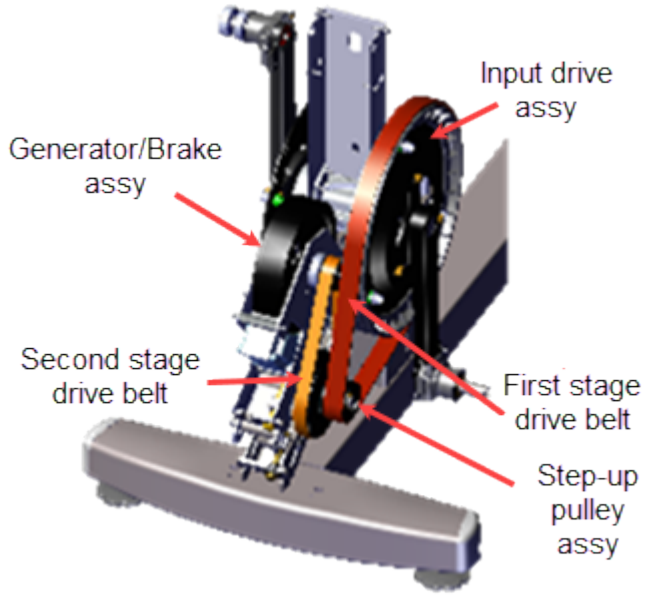
[1]Lower Printed Circuit Assembly board; also refered to as the Lower PCA or simply as the lower board. On treadmills, it is the console to base function interface and the motor controller unit (MCU). On self-powered units, it is the lower PCA console to base function interface.



4. Use a 1/2" socket to loosen the first stage belt tensioner and walk the first stage drive belt off the smaller first stage Step-up Pulley. Rest the belt on the Input Drive pulley, it is not necessary to remove the belt from the Input Drive.

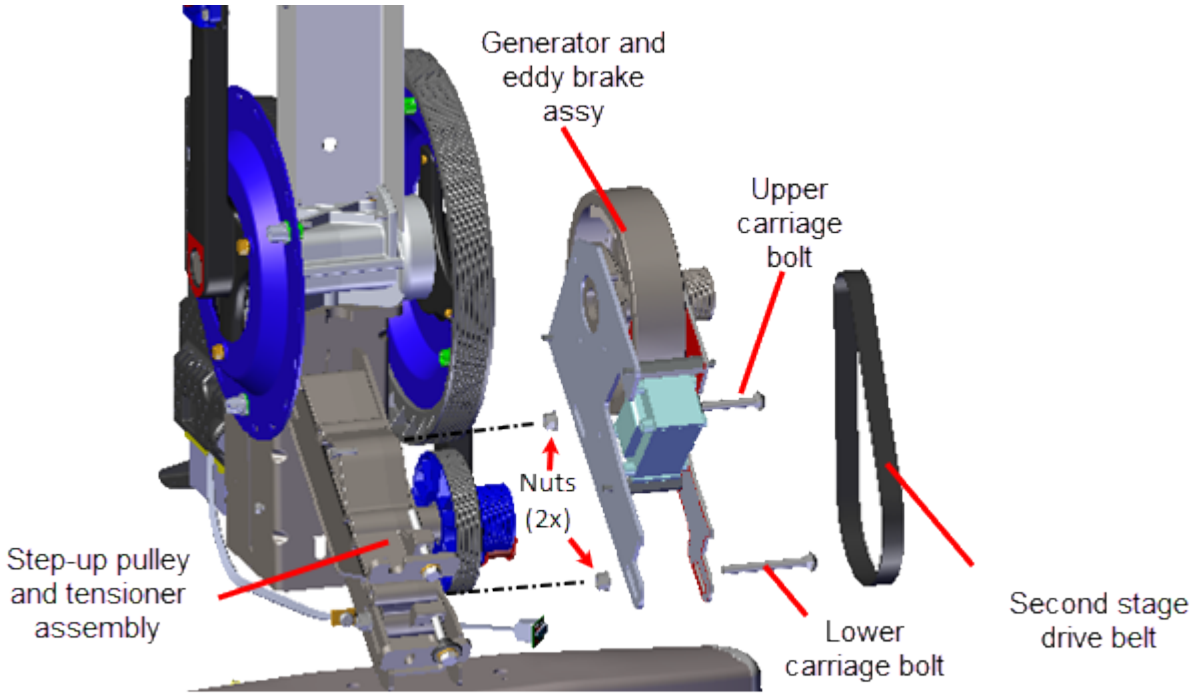


5. Use a 1/2" socket to loosen the second stage belt tensioner and walk the second stage drive belt off the Generator/Eddy Brake assembly pulley and larger second stage Step-up Pulley/Tensioner assembly pulley. Remove the second stage drive belt. Retain belt for installation.



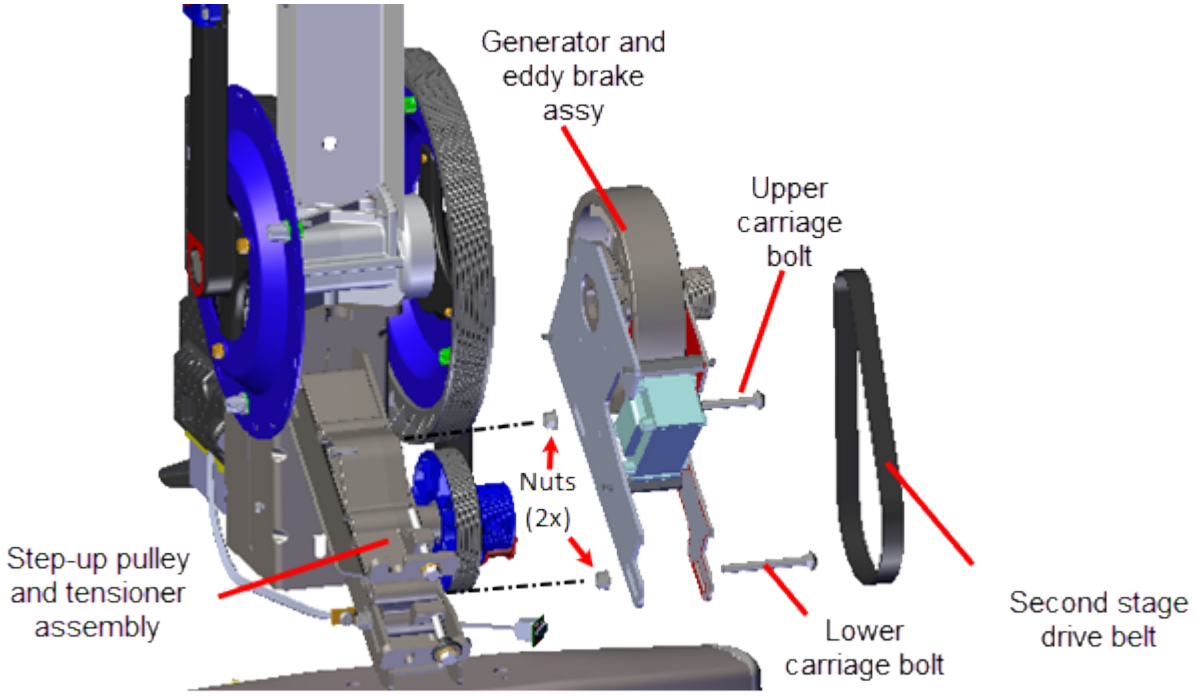
6. Use a 1/2" socket to remove the Generator/Eddy Brake assembly lower carriage bolt. Then slide the Generator/Eddy Brake assembly downward and remove the upper carriage bolt. Remove the Generator/Eddy Brake assembly from the Step-up Pulley/Tensioner assembly. Retain part(s) and/or fastener(s) for installation.

TIP: Remove the lower carriage bolt fastener first and then the upper. The upper bolt cannot be removed while the lower bolt is installed.



Installation Instructions

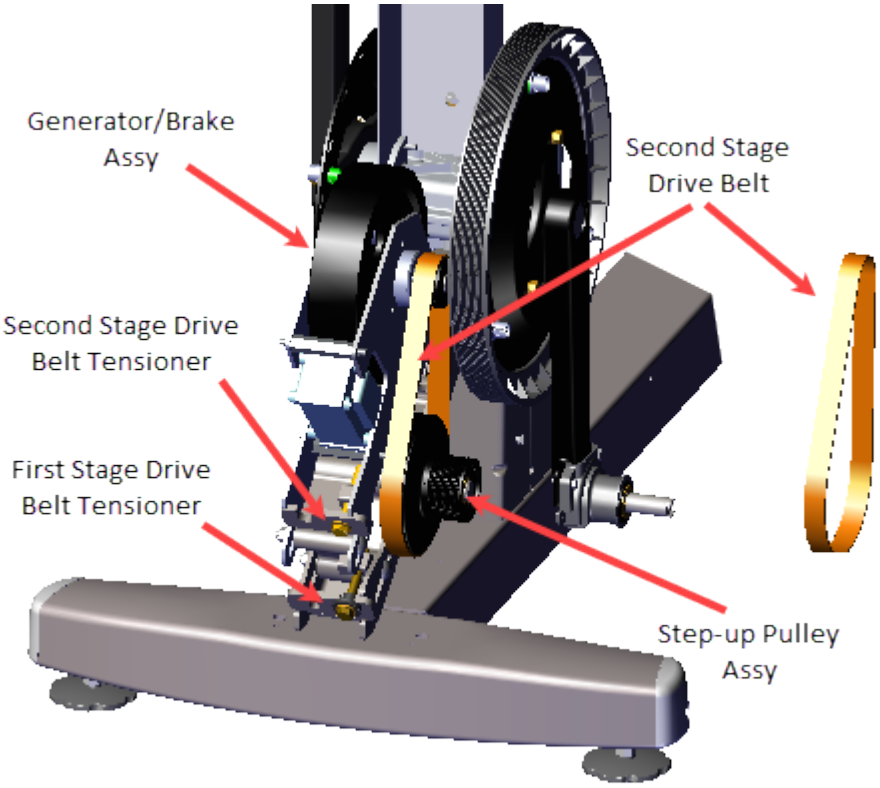
1. Reinstall the Generator/Brake assembly onto the Step-up pulley/Tensioner assembly.



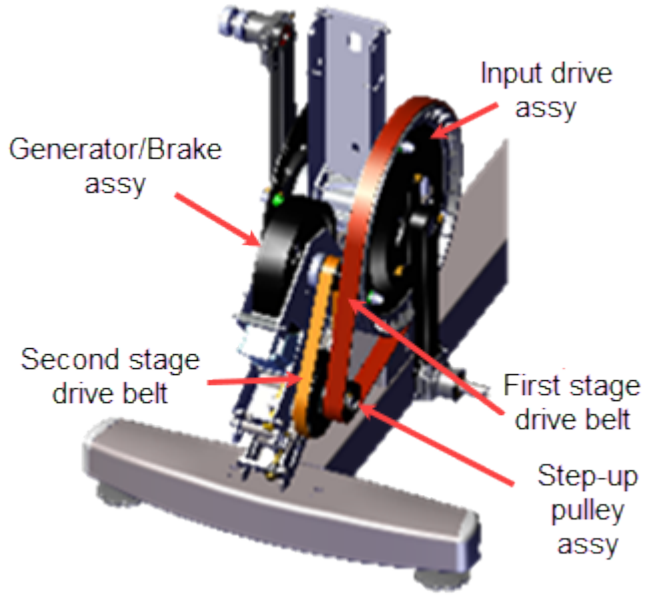
2. Slide the Generator/Brake assembly down and install the upper carriage bolt. Tighten the bolt just enough to keep the carriage bolt head inserted into the mounting slot but do not fully tighten. Then slide the assembly upward and install the lower carriage bolt. Tighten the bolt just enough to keep the carriage bolt head inserted into the mounting slot but do not fully tighten.

TIP: Install the upper carriage bolt fastener first and then the lower. The upper bolt cannot be installed when the lower bolt is installed.

3. Walk the second stage drive belt onto the Generator/Brake assembly pulley and larger second stage Step-up Pulley/Tensioner assembly pulley.

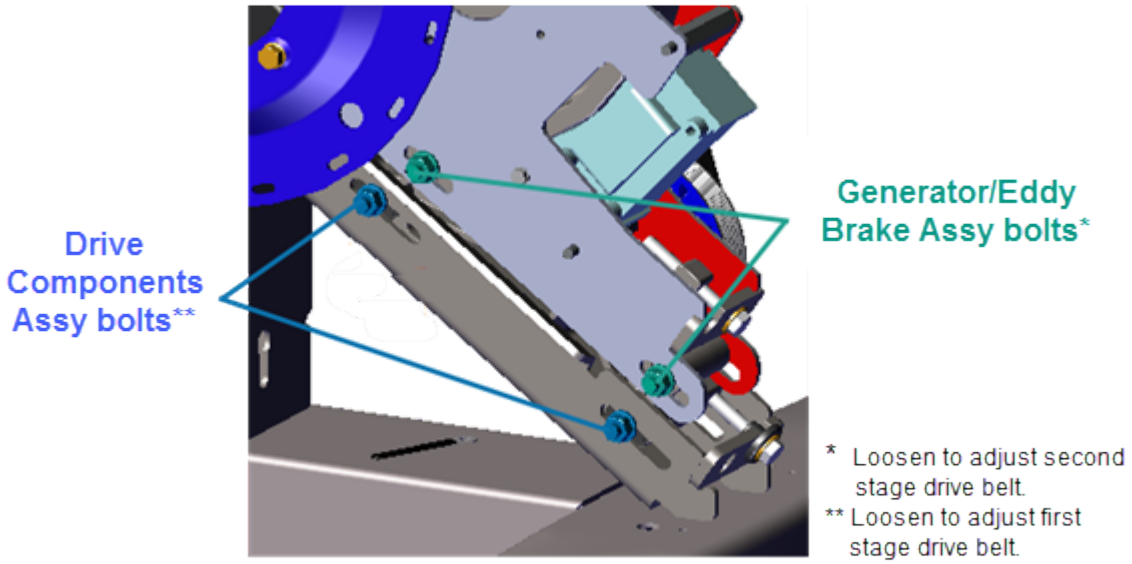


4. Walk the first stage drive belt onto the smaller first stage Step-up Pulley assembly and Input Drive assembly pulleys and tension the belt to 140-150 lbs (63.5 - 68 kgs), see First Stage Drive Belt Tension Adjustment.



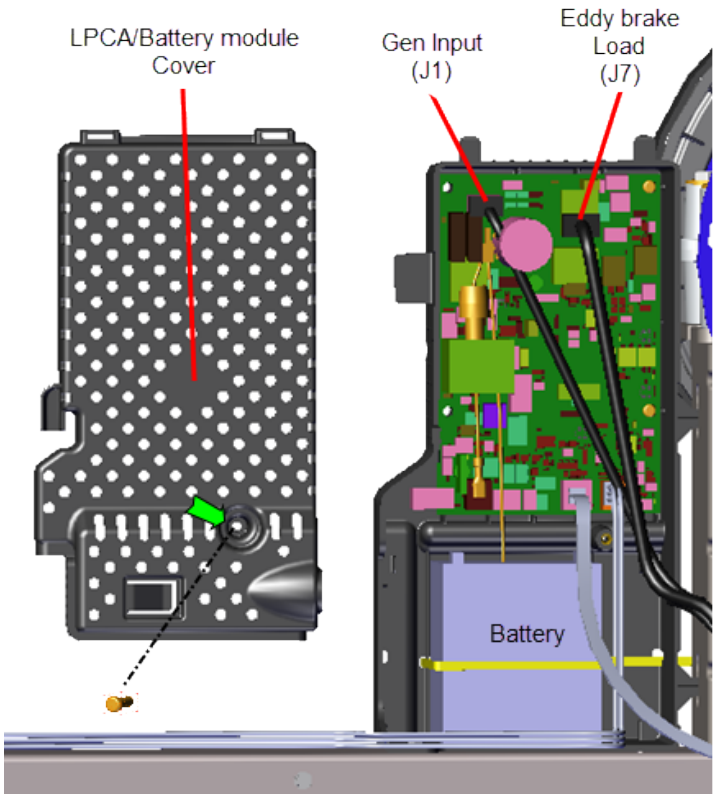
5. Tension the Second Stage belt to specification, see "Specifications" on page 118.

6. Fully tighten the two Generator/Brake assembly and two Drive Components assembly carriage bolts, torque to 180 in-lbs (20.3 Nm).



7. Route and reconnect the Generator cable and Eddy/Brake cable to the LPCA Generator input (J1) and Eddy/Brake load (J7) **I/O**[1] connectors. Reinstall the LPCA/Battery module cover and secure with the #2 Phillips screw fastener.

[1]Input and Output Interface.



8. Reinstall the left and right Drive Disk covers (includes reinstalling the Stairarms), see "Drive Disk Covers Replacement" on page 91. Reinstall any other removed covers.
9. Verify machine operation and return to service, see "Operation Verification" on page 20.

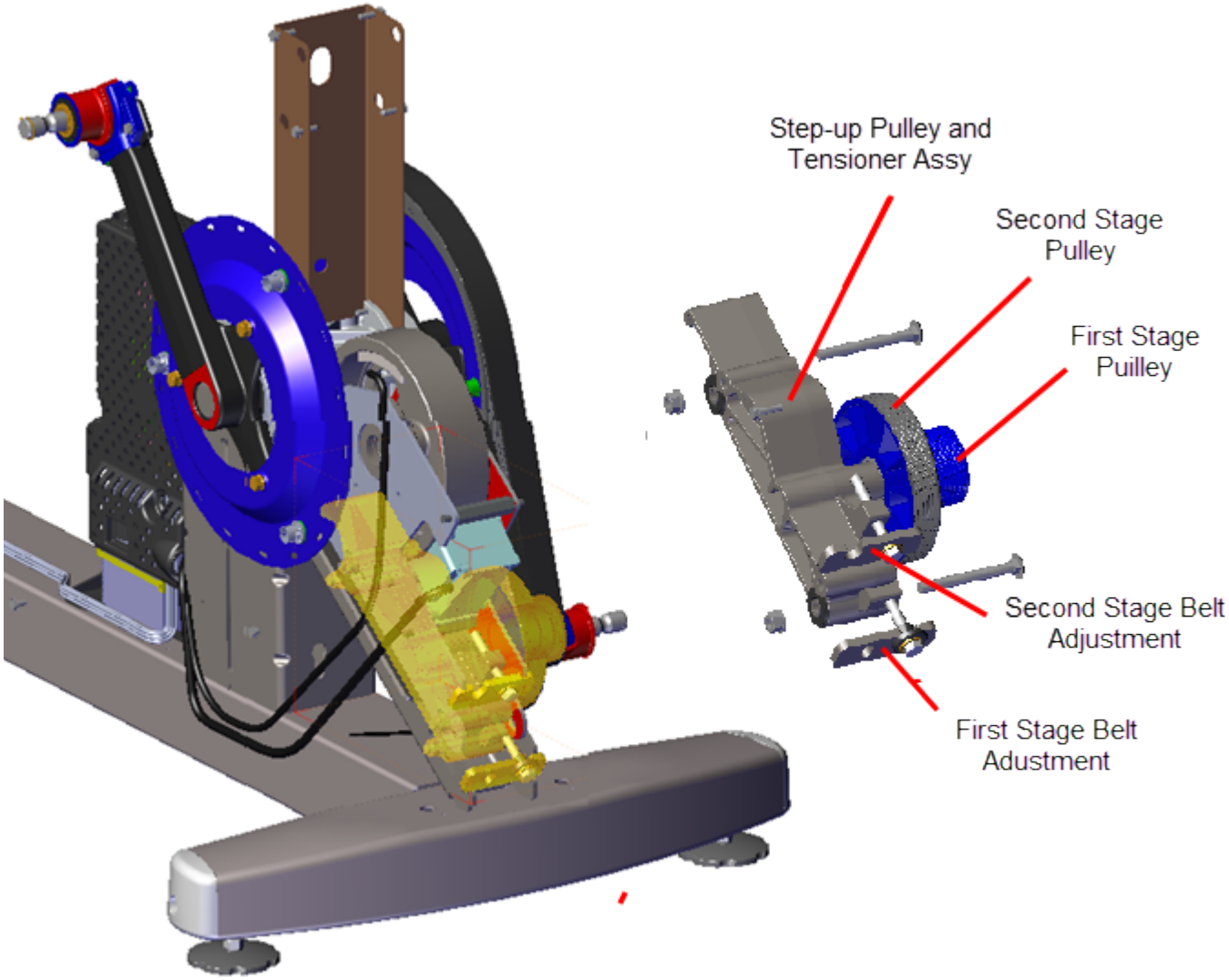
Step-up Pulley/Tensioner assembly Replacement

Applies To: Dual Stage Input Drive

About

This procedure provides instruction to remove and install the Step-up pulley/Tensioner Assembly for a dual stage input drive assembly.

The Step-up pulley/Tensioner Assembly comprises the first-to-second stage step-up pulleys and the first and second stage drive belt tensioners.

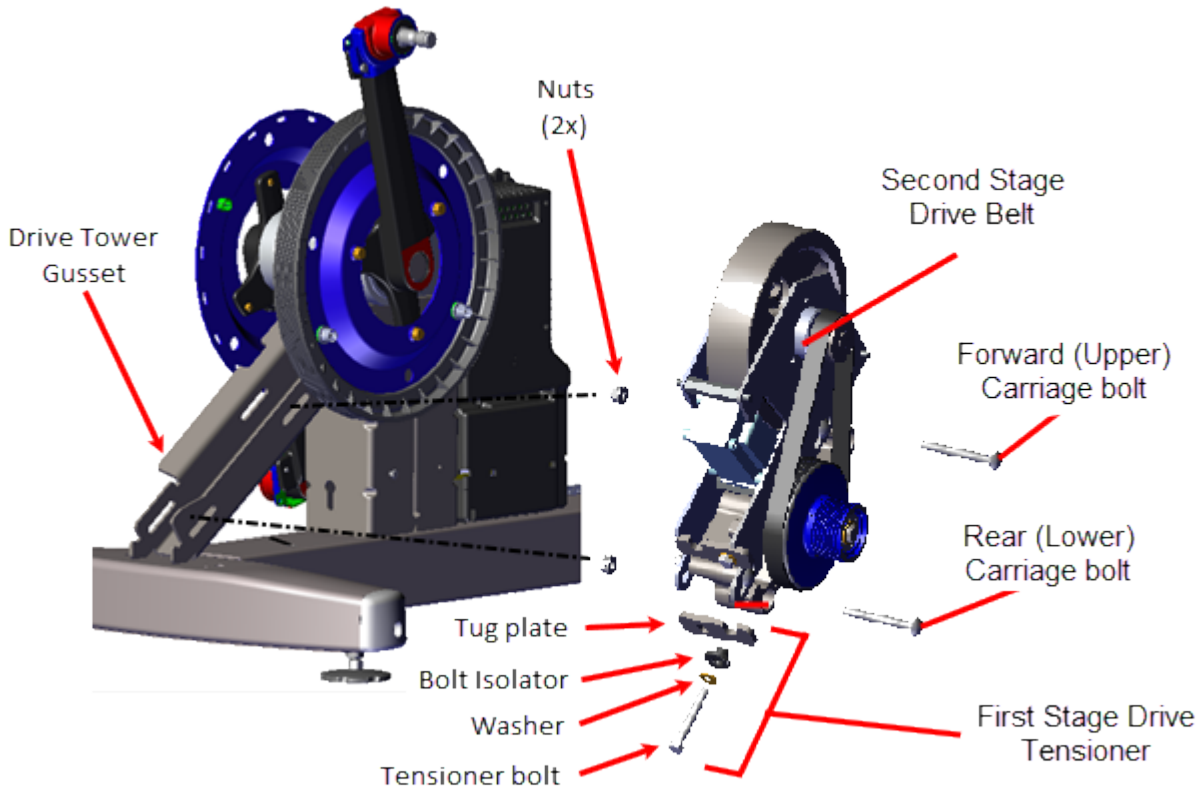


Procedure

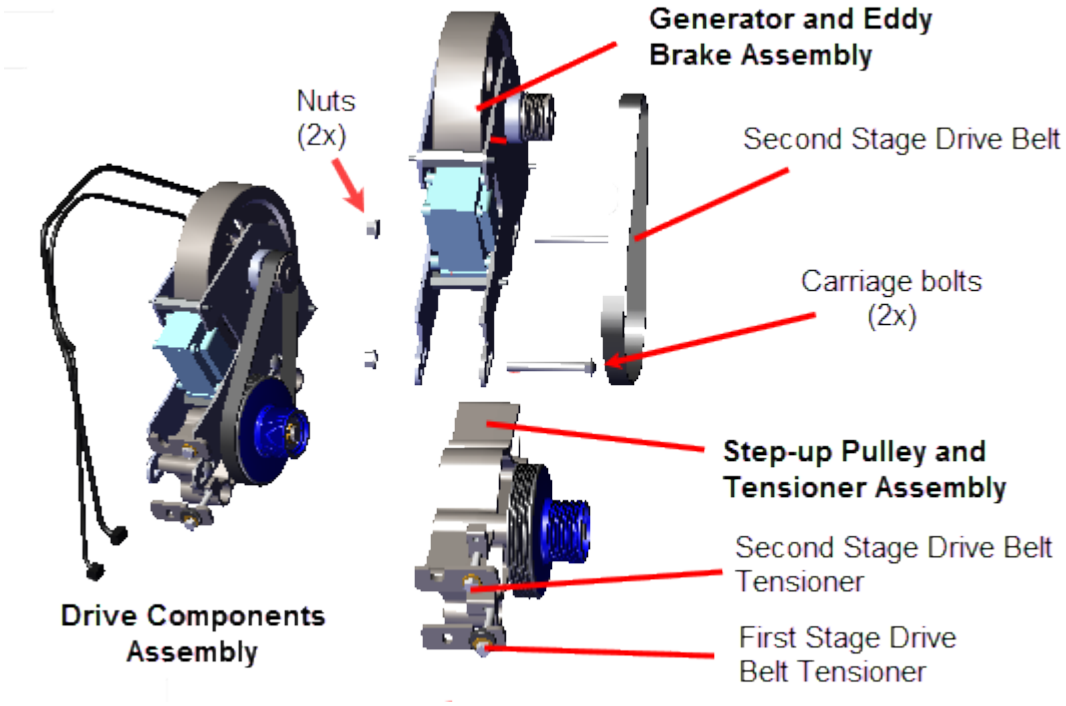
Review entire procedure before starting.

Removal Instructions

1. Remove the Drive Access panel, see "Drive Access Panel Replacement" on page 90.
2. Remove the left and right Drive Disk covers, see "Drive Disk Covers Replacement" on page 91.
3. Remove the left and right Stairarms and the Drive Housing covers, see "Drive Housing Covers Replacement" on page 95.
4. Remove the Drive Components assembly, see "Drive Components assembly Replacement" on page 135.



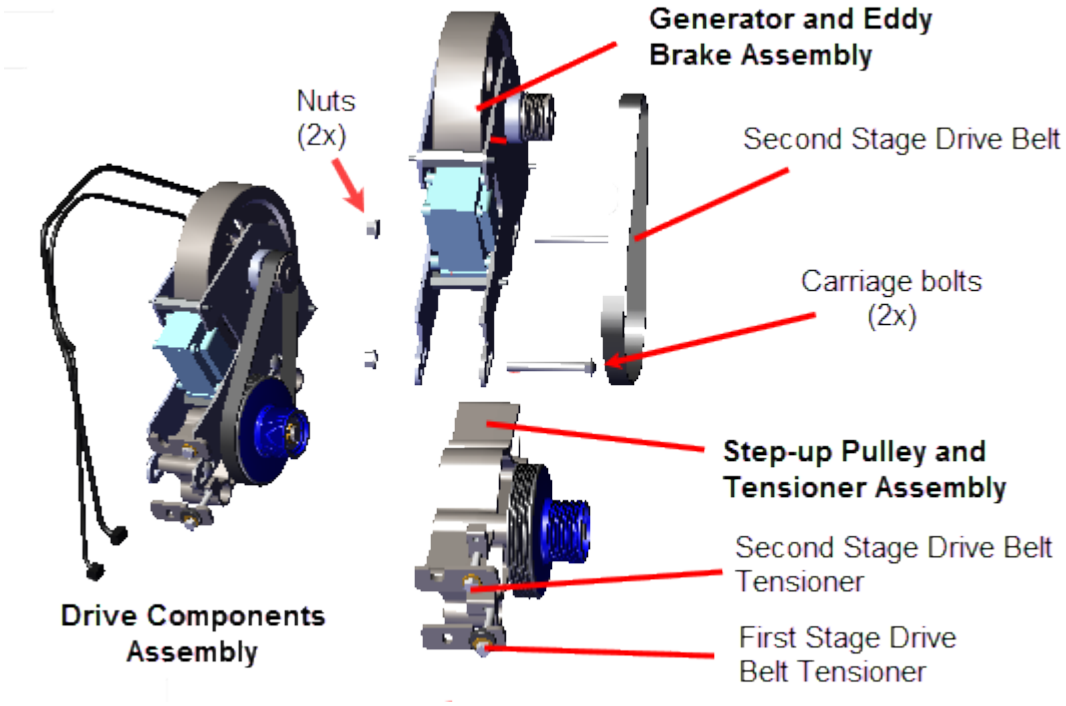
1. Use a 1/2" socket to remove the second stage belt tension hardware: the tensioner adjustment bolt, washer, and tug plate.



2. Remove the second stage drive belt by walking the belt off the Step-up Pulley/Tensioner and Generator/Brake assembly pulleys.
3. Use a 1/2" socket to remove the two carriage bolt fasteners to separate the Generator/Brake assembly from the Step-up Pulley/Tensioner assembly.

Installation Instructions

1. Place the Generator/Brake assembly onto the Step-up pulley/Tensioner assembly. Secure using the two carriage bolts and nuts. Tighten the bolts just enough to keep the carriage bolt heads inserted into the bolt belt adjustment slots to allow movement. Do not fully tighten.



2. Use a 1/2" socket to install the second stage belt tension hardware: the tensioner adjustment bolt, washer, and tug plate. Tighten the tensioner bolt just enough to keep the tensioner hardware in place.
3. Reinstall the second stage drive belt by walking the belt onto the larger Step-up Pulley/Tensioner pulley and Generator/Brake assembly pulley. Tighten the tensioner bolts just enough to keep the belt on the pulleys and tensioner hardware in place. Do not fully tension or over tension the belt.
4. Reinstall the Drive Components assembly, see "Drive Components assembly Replacement" on page 135.
5. Adjust the First Stage Drive Belt tension, see "First Stage Drive Belt Tension Adjustment" on page 58.
6. Adjust the Second Stage Drive Belt tension, see "Second Stage Drive Belt Tension Adjustment" on page 62.
7. Reinstall the left and right Stairarms and Drive Housing covers, see "Drive Housing Covers Replacement" on page 95.
8. Reinstall the left and right Drive Disk covers, see "Drive Disk Covers Replacement" on page 91.
9. Reinstall the Drive Access panel, see "Drive Access Panel Replacement" on page 90.
10. Verify machine operation and return to service, see "Standard Service Menus" on page 23.

.See Also

"Drive Components assembly Replacement" on page 135

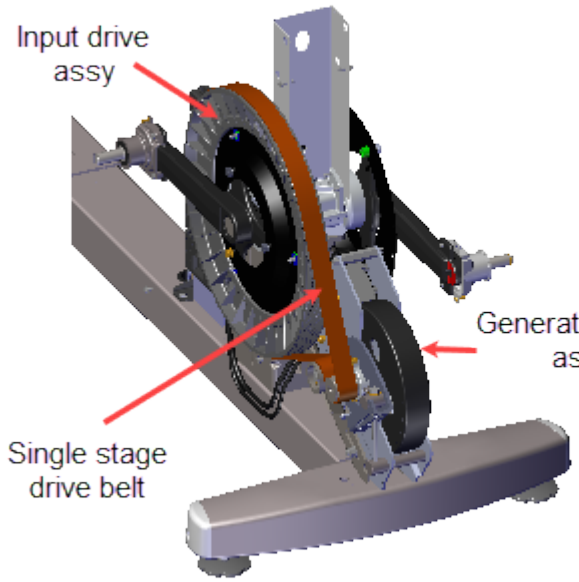
Input Drive Assembly Replacement

About

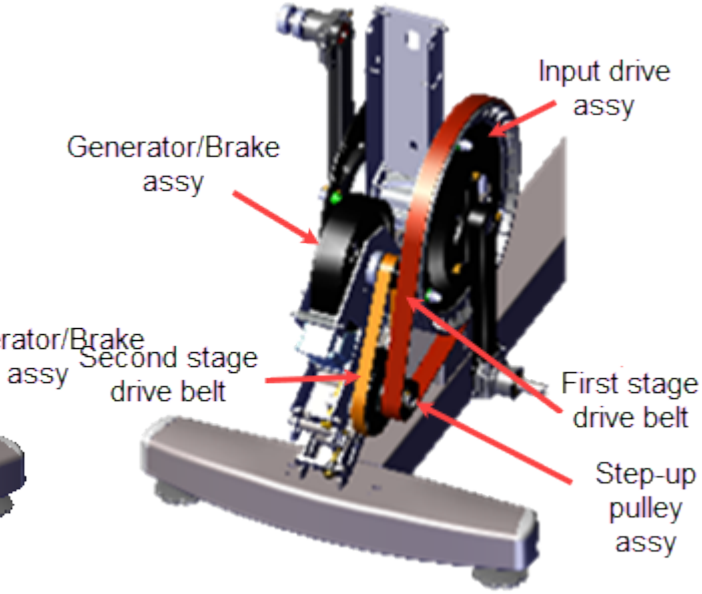
The EFX600 ellipticals can be installed with either a single stage or a dual stage Input drive system. This procedure provides instructions to remove/install the input drive for either input drive system.

Single Stage Input Drive System: On a single stage input drive system, the input drive uses a single belt to drive the generator/brake assembly.

Dual Stage Input Drive System: On a dual stage input drive system, the input drive utilizes a two stage drive belt system to drive the generator/brake assembly. The first stage drive belt connects the input drive to the smaller pulley on the step-up pulley assembly. Then the second stage drive belt connects the larger pulley on the step-up pulley assembly to the generator/brake assembly.



Single Stage Input Drive System



Dual Stage Input Drive System

Single-Stage Input Drive System

- "Input Drive Assembly Replacement (Single Stage Input Drive)" on the facing page

Dual Stage Input Drive System

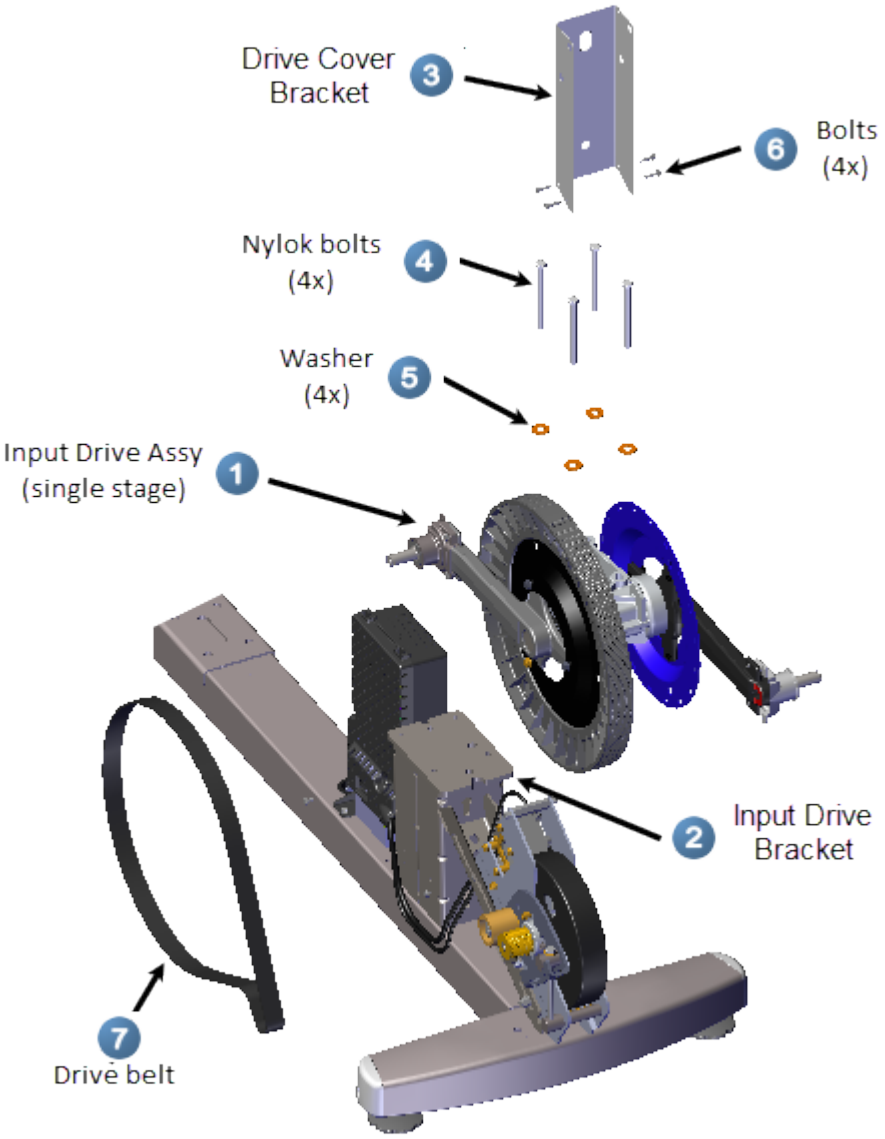
- "Input Drive Assembly Replacement (Dual Stage Input Drive)" on page 163

Input Drive Assembly Replacement (Single Stage Input Drive)

Applies To: Single Stage Input Drive

About

This procedure provides instruction to remove and install the single stage Input Drive Assembly.



ID	Cover
1	Input Drive Assembly
2	Drive Cover Bracket

ID	Cover
3	Drive Cover Bracket
4	Nylock® bolts
5	Washers
6	Bolts
7	Drive Belt

Specifications

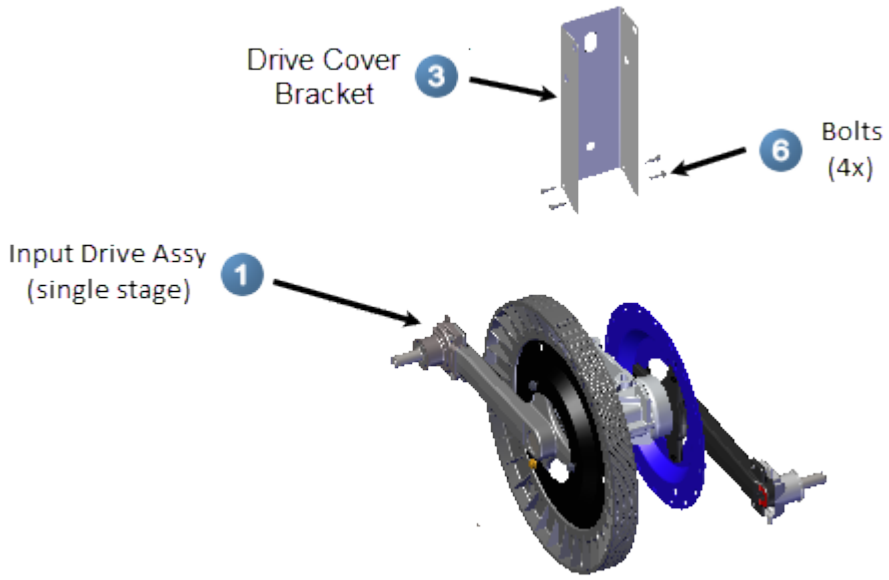
System Component	Specification
Input Module Assy Fasteners	300 +/- 90 in-lbs (34 +/- 10 Nm)

Procedure

Review entire procedure before starting.

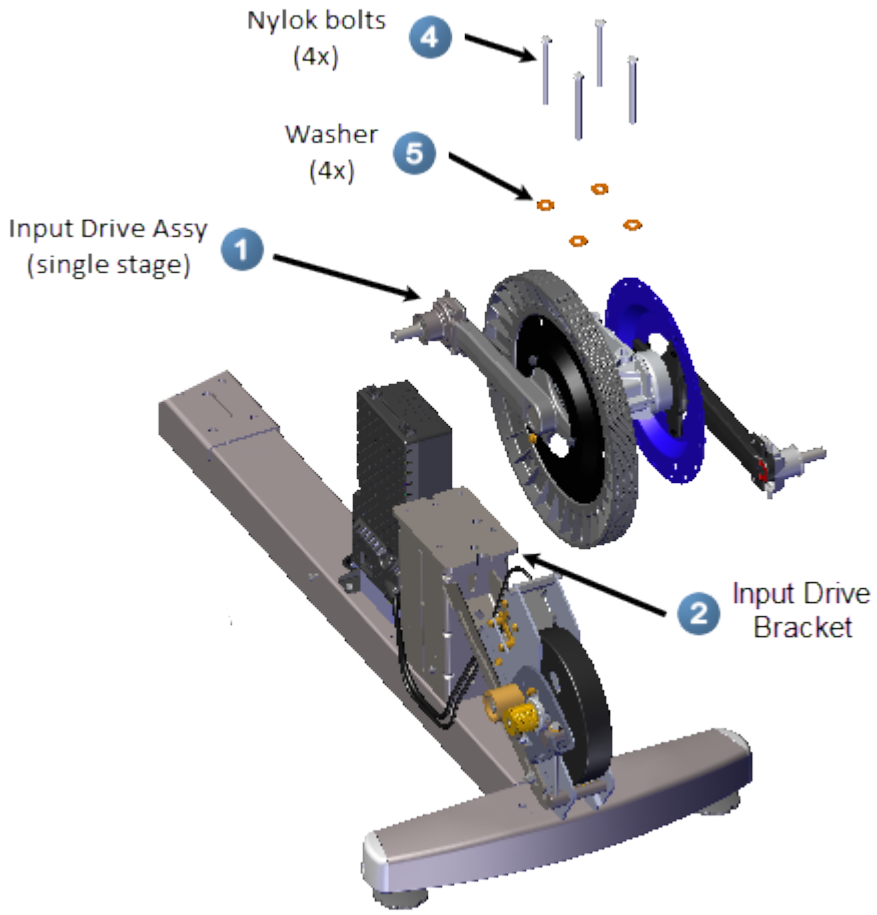
Removal Instructions

1. Remove the Drive Access Panel, see "Drive Access Panel Replacement" on page 90.
2. Remove the left and right Drive Disk Covers, see "Drive Disk Covers Replacement" on page 91.
3. Remove the left and right Drive Housing covers (includes removing the Stairarms from the Input Drive Crank), see "Drive Housing Covers Replacement" on page 95.
4. Remove the Input Drive belt, see "Single Stage Input Drive Belt Replacement" on page 111.
5. Use a 5/16" box end wrench to remove the four bolts 6 and remove the drive cover bracket 3 from the Input Drive Assy 1. Retain part(s) and/or fastener(s) for installation.



6. Use a 9/16" socket to remove the four Nylock bolts 4, flat washers 5, and the Input Drive Assembly 1. Discard the four Nylock bolts, these bolts 4 cannot be reused for installation. Retain washers 5 for installation.

CAUTION: Do not reuse the four Input Drive Assembly Nylock patch bolts 4 for installation. Discard the used bolts and order new bolts for installation (see Exploded View Diagrams, bubble # 296).

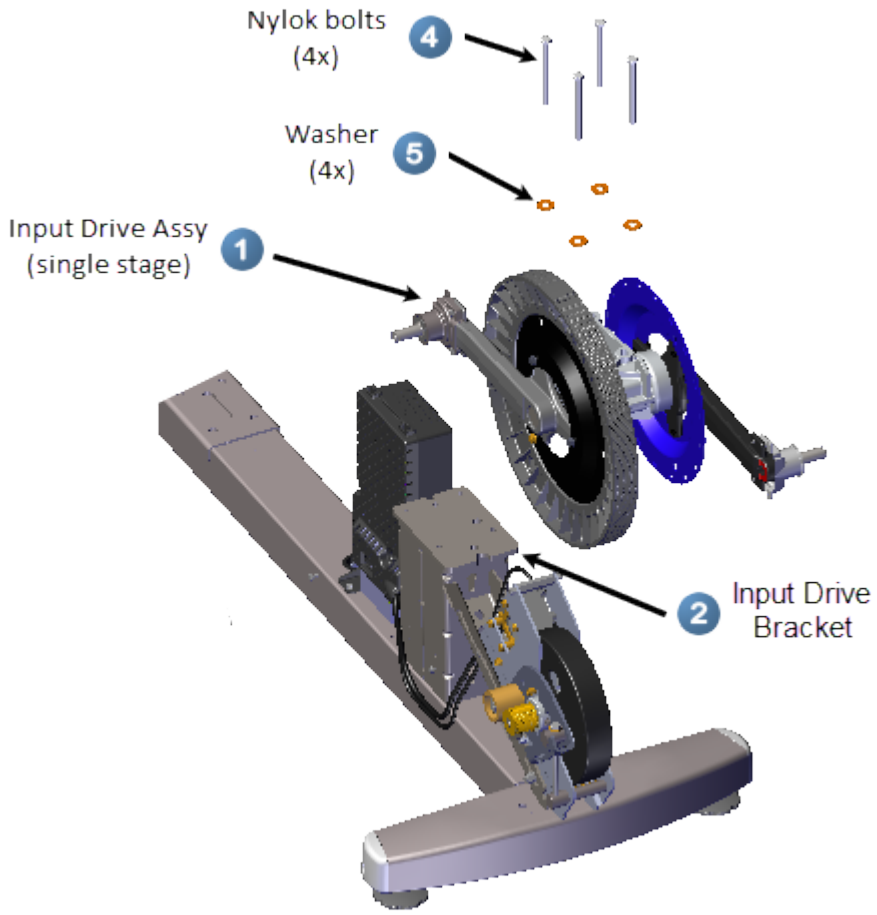


Installation Instructions

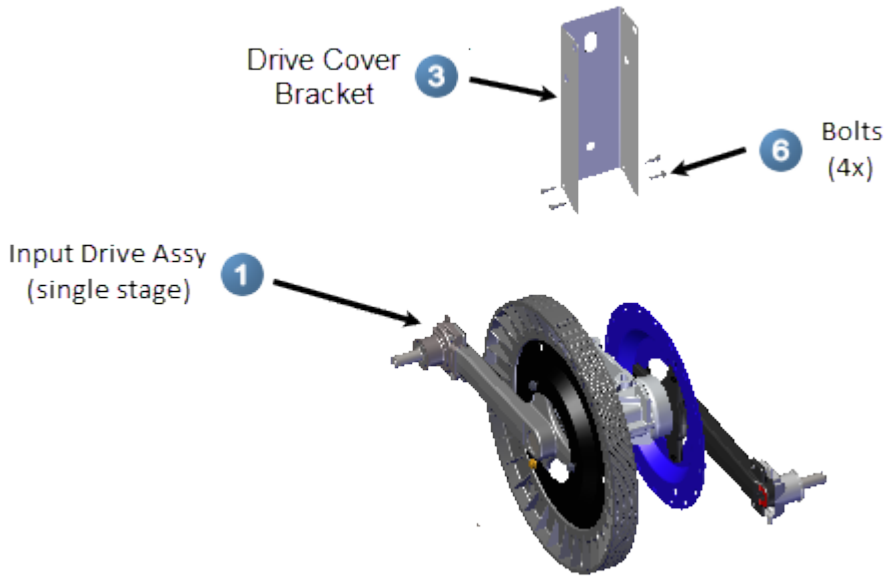
1. Reinstall the Input Drive Assembly 1 onto the Input Drive Bracket 2. Secure using four new Nylock patch bolts 4 and the removed flat washers 5. **Torque**[1] the bolts to 300 +/- 90 in-lbs (34 +/- 10 Nm).

CAUTION: Do not reuse the four Input Drive Assembly Nylock patch bolts 4 for installation. Discard the used bolts and order new bolts for installation (see Exploded View Diagrams, bubble # 296).

[1]Torque is a measure of the force that can cause an object to rotate about an axis. Bolt/nut example: 5 NM torque is equivalent to 5 newton's of force applied one meter from the center of the bolt, 6 ft-lb is equivalent to 6 lbs of force applied 1 foot away from the center of the bolt.



2. Reinstall the drive cover bracket 3 onto the Input Drive Assembly 1. Secure using the four 5/16" bolts 6 and fully tighten.



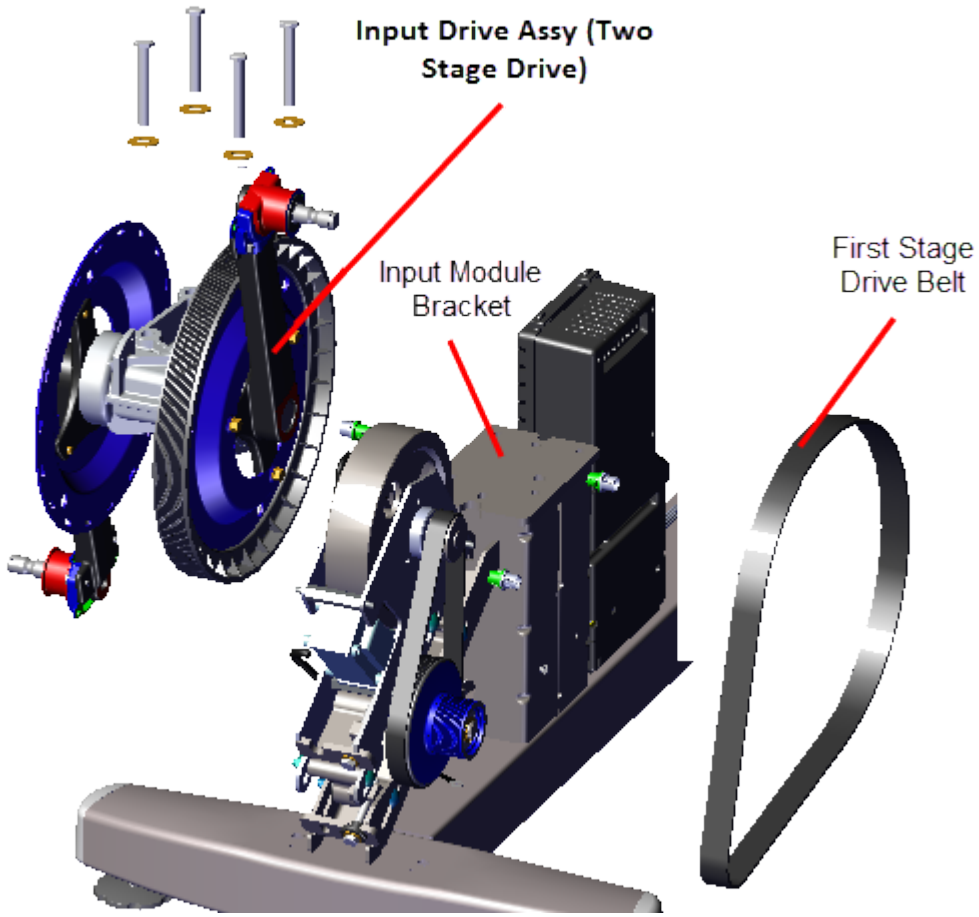
3. Reinstall the Input Drive belt and tension to specification 93-100 lbs (42- 45.4 kgs), see "Single Stage Input Drive Belt Replacement" on page 111.
4. Reinstall the left and right Drive Housing covers (includes reinstalling the Stairarms onto the Input Drive Crank), see "Drive Housing Covers Replacement" on page 95.
5. Reinstall the left and right Drive Disk Covers, see "Drive Disk Covers Replacement" on page 91.
6. Reinstall the Drive Access Panel, see "Drive Access Panel Replacement" on page 90.
7. Verify machine operation and return to service, see "Operation Verification" on page 20.

Input Drive Assembly Replacement (Dual Stage Input Drive)

Applies To: Dual Stage Input Drive

About

This procedure provides instruction to remove and install the Dual Stage Input Drive Assembly.



Specifications

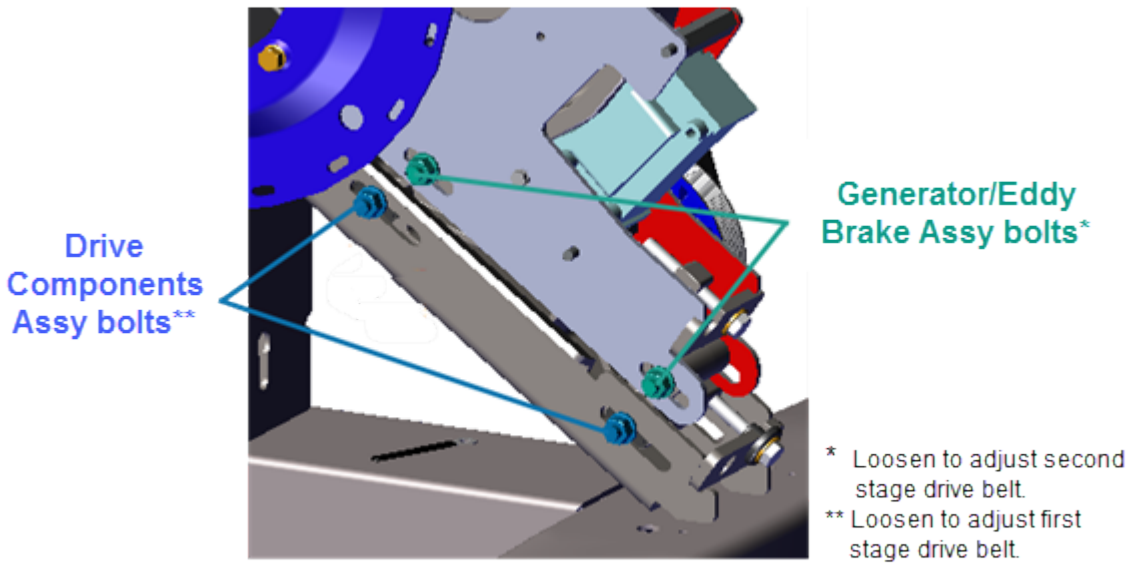
System Component	Specification
Dual Stage Input Drive Assy Fasteners	300 +/- 90 in-lbs (34 +/- 10 Nm)

Procedure

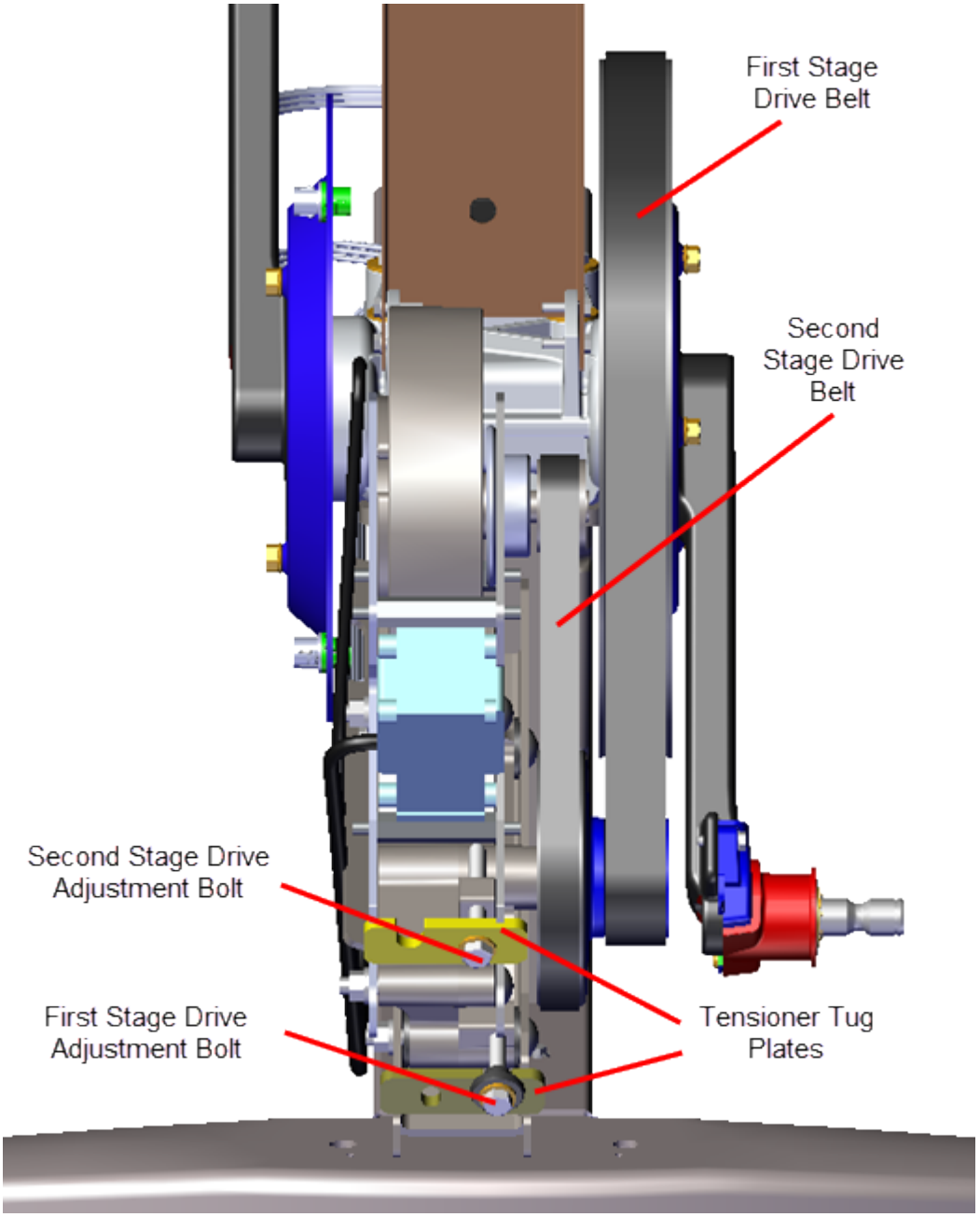
Review entire procedure before starting.

Removal Instructions

1. Remove the Drive Access panel see "Drive Access Panel Replacement" on page 90.
2. Remove the left and right Drive Disk covers, see "Drive Disk Covers Replacement" on page 91.
3. Remove the left and right Stairarms and Drive Housing covers see "Drive Housing Covers Replacement" on page 95.
4. Use a 1/2" socket to loosen the two Drive Components assembly fastener nuts (left side). Do not remove the fastener nuts.

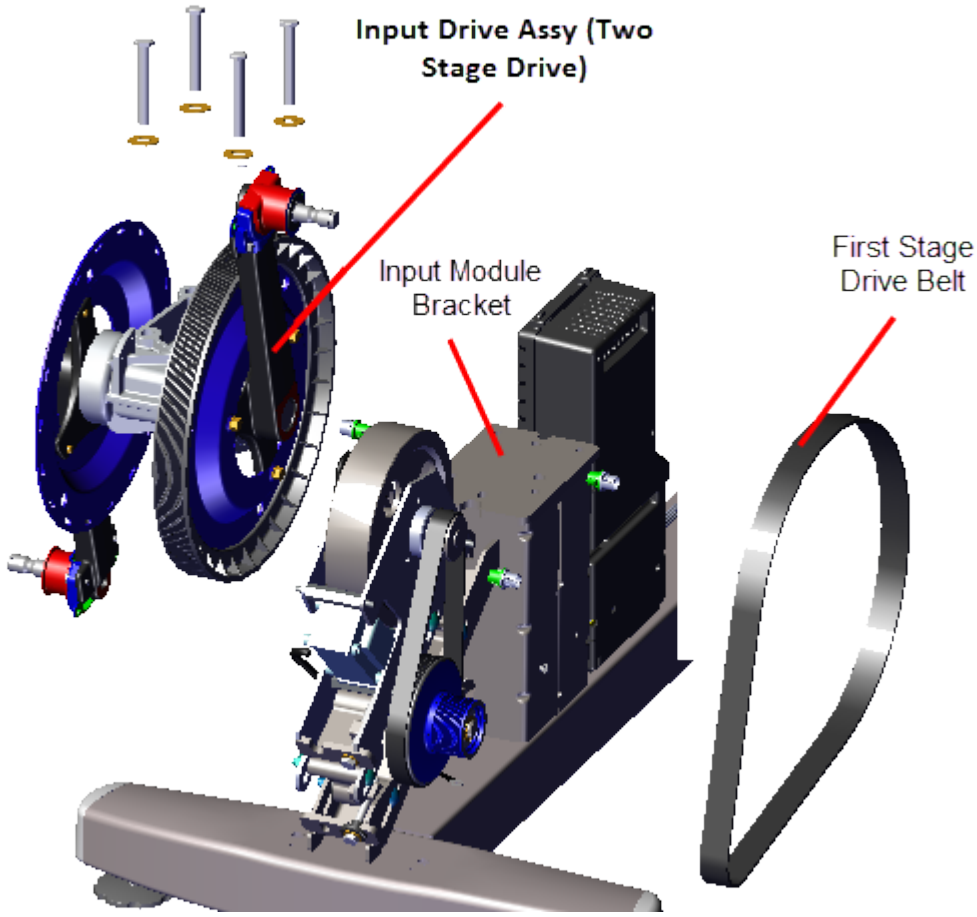


5. Use a 1/2" socket to loosen first stage belt tensioner and walk the first stage drive belt off the pulleys. Remove the first stage drive belt. Retain belt for installation.



6. Use a 9/16" socket to remove the four fasteners (bolts and washers) and remove the Input Drive Assembly. Discard the four bolt fasteners, the bolt cannot be reused for installation. Retain washers for installation.

CAUTION: Do not reuse the Input Drive Assy Nylock patch bolt fasteners for installation. Discard the used bolts and order new bolts for installation (see Exploded View Diagrams, bubble # 296).



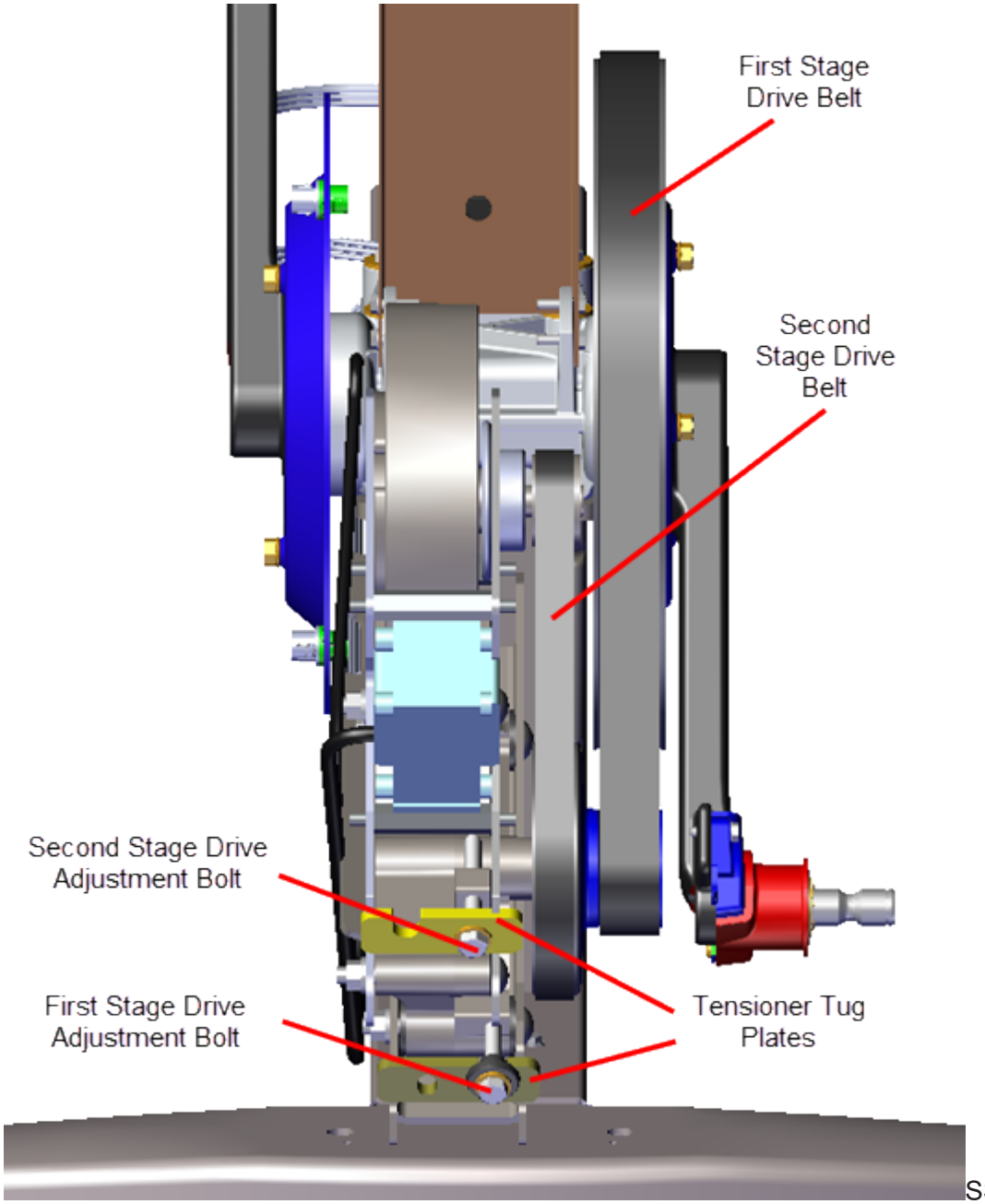
Installation Instructions

1. Reinstall the Input Drive Assembly onto the Input Module Bracket and secure using four new Nylock patch bolt fasteners. The removed washers can be reused for installation. **Torque**[1] to 300 +/- 90 in-lbs (34 +/- 10 Nm).

CAUTION: Do not reuse the Input Drive Assy Nylock patch bolt fasteners for installation. Discard the used bolts and order new bolts for installation (see Exploded View Diagrams, bubble # 296).

2. Adjust the first stage tensioner as necessary to walk the first stage drive belt onto the Input Drive and first stage drive pulleys. Rotate the crank and make sure that the belt is properly aligned and seated in the pulley grooves.

[1]Torque is a measure of the force that can cause an object to rotate about an axis. Bolt/nut example: 5 NM torque is equivalent to 5 newton's of force applied one meter from the center of the bolt, 6 ft-lb is equivalent to 6 lbs of force applied 1 foot away from the center of the bolt.



SS

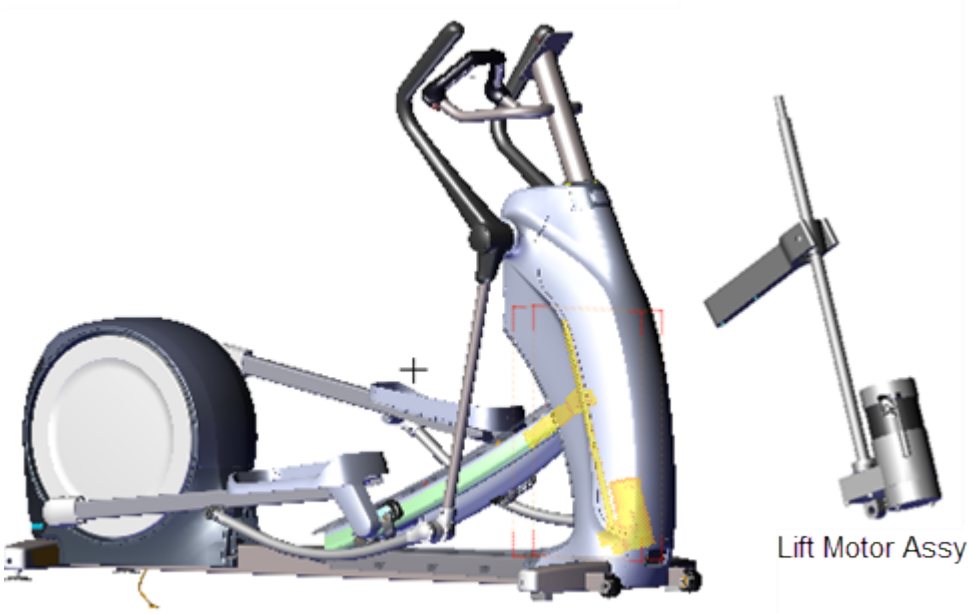
3. Tension the first stage drive belt to 140-150 lbs (63.5 - 68 kgs), see "First Stage Drive Belt Tension Adjustment" on page 58.
4. Verify the second stage drive belt is within the specified tension 110-120 lbs (50- 54.4 kgs), see "Second Stage Drive Belt Tension Adjustment" on page 62.
5. Tighten the two Drive Components assembly carriage bolt fasteners, torque to 180 in-lbs (20.3 Nm).

6. Reinstall the right and left Stairarm and Drive Housing covers (includes reinstalling the Stairarms onto the Input Drive Crank), see "Drive Housing Covers Replacement" on page 95.
7. Reinstall the left and right Drive Disk covers, "Drive Disk Covers Replacement" on page 91.
8. Reinstall the Drive Access panel, "Drive Access Panel Replacement" on page 90.
9. Verify machine operation and return to service, see Operation Verification.

Lift Motor Replacement

About

This procedure provides instruction to remove and install the Lift Motor.



Videos

	Service Video	Link
▶	EFX[1] Lift Motor Jackscew Lubrication maintenance video	EFX Lift Motor Jackscew Lubrication

Specifications

System Component	Specification
Lift Motor Calibration Distance*	9" +/- 1/4" (23 cm +/- 0.6 cm
Ramp Yoke Bolts	330 in-lbs (27.5 ft-lbs or 37.2 Nm)
Note: * Calibration distance is set at incline level 10.	

[1]Elliptical Fitness Crosstrainer

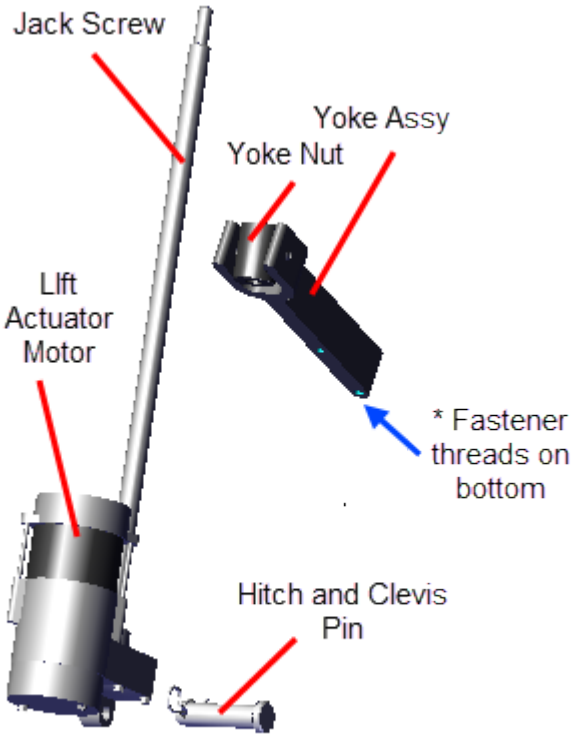
Lift motor power

Lift motor power is supplied by the battery thru the lift motor fuse located on the **LPCA**[1] board, see "LPCA Fuse Locations" on page 181. The battery must be in good condition and charged to power the lift motor.

Procedure

TIP: To help keep your hands clean while doing this procedure, it is advised to wear general purpose mechanics gloves. You will be handling the jackscrew which is coated with a thin layer of grease.

Review entire procedure before starting.



Lift Motor Assembly

[1]Lower Printed Circuit Assembly board; also refered to as the Lower PCA or simply as the lower board. On treadmills, it is the console to base function interface and the motor controller unit (MCU). On self-powered units, it is the lower PCA console to base function interface.

Removal Instructions

1. Remove the Lift Front cover (see "Lift Front Cover Replacement" on page 79),Lift Interface Plate cover (see "Lift Interface Plate Cover Replacement" on page 83), Accessory Tray cover (see "Accessory Tray Cover Replacement" on page 84), and Rear Lift cover (see "Lift Rear Cover Replacement " on page 84).
2. Place a protective pad over the frame weldment and forward frame cover underneath the ramp to protect the surfaces while doing this procedure.
3. .If the lift motor is working, access the **CROSSRAMP TEST** diagnostic test and raise the crossramp incline to level 10.
    - On **LED**[1] (P10, P30, P30i and P31) consoles: Access diagnostic test menu (51765761) and select **MACHINE TEST** > **CROSSRAMP TEST**.
    - On touchscreen (P62, P80, and P82) consoles: Access the Service menu (51765761) and select **System Settings > Systems Test** > **CrossRamp Test**.



CAUTION: Be careful to NOT jam the ramp when operating the incline level in **CROSSRAMP TEST** mode and there is an active lift error code (E40, E42, E45, or E46). There are no software position min/max limit stops in this mode of operation to prevent over extending the ramp beyond the upper and lower limits

4. Disconnect the Lift Motor Assembly input power/control cable.



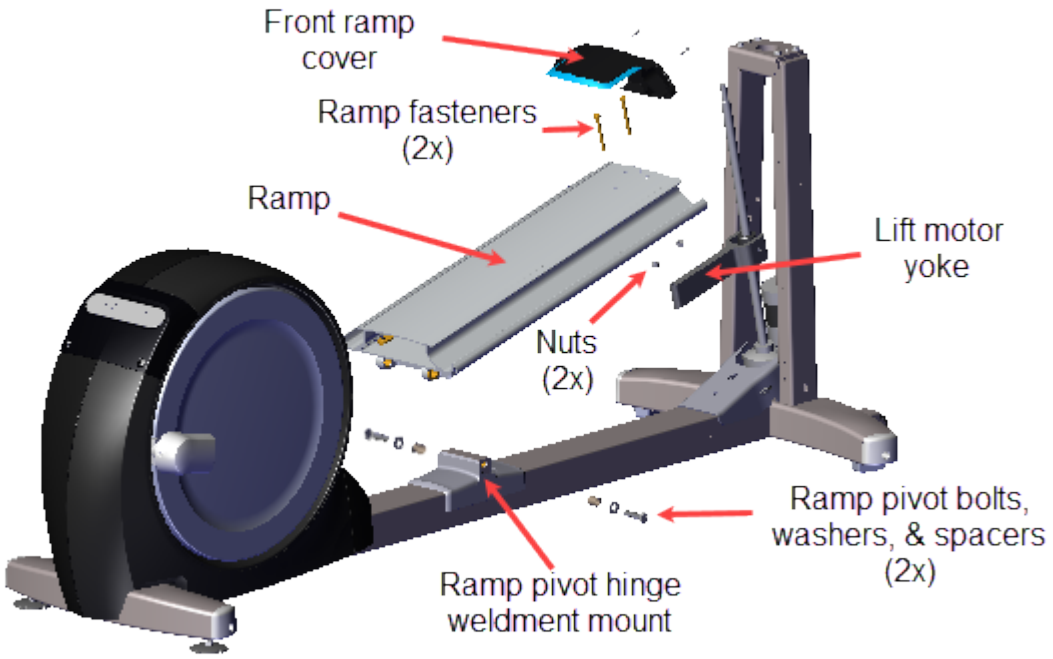
WARNING: Make sure to disconnect the Lift Motor input power/control cable or it is possible for the ramp to automatically lower to level 1 under certain circumstances, such as, if the CrossRamp Test is exited or the console powers down and then the pedals are moved. This unexpected action could cause personal injury.

5. Disconnect the Lift Motor Yoke from the Ramp by uninstalling the Ramp, see "Ramp Assembly Replacement" on page 195. The Ramp must be removed to disconnect the yoke from the Ramp.

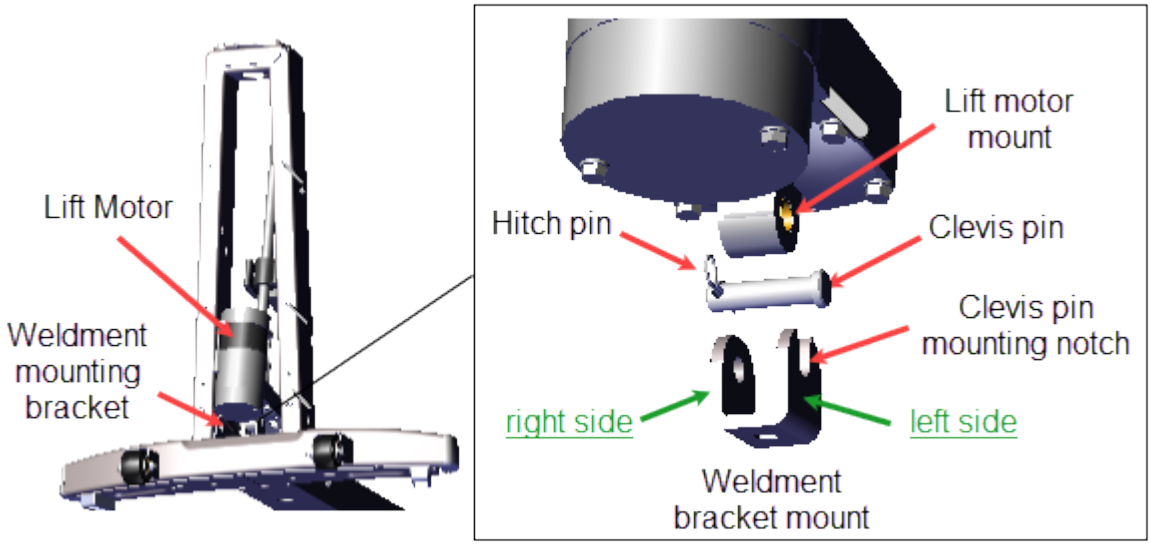


Note: Ramp and Ramp Front cover removal is required to remove the Ramp from the Lift Motor Yoke.

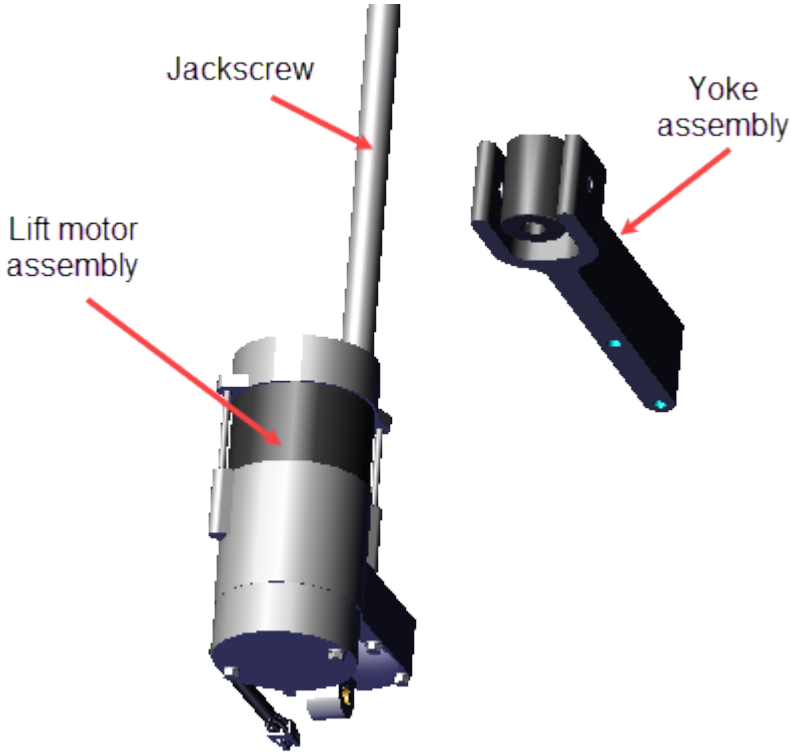
[1]light-emitting diodes.



6. Remove the hitch pin from the Lift Motor clevis pin. Then, while holding the lift motor assembly, slide the clevis pin to the left just enough to clear the bracket right side bolt hole. Then tilt the lift motor assembly forward enough for the jackscrew to clear the inside of the frame tower weldment and then lift to remove. Do not fully remove the clevis pin to remove the Lift Motor Assembly. Retain part(s) and/or fastener(s) for installation.



7. Unscrew the Yoke Assembly from the jackscrew and remove. Retain the Yoke Assembly for installation.



Installation Instructions

1. If this is a used lift motor replacement, clean and apply a thin layer of synthetic lubricant to the jackscrew.

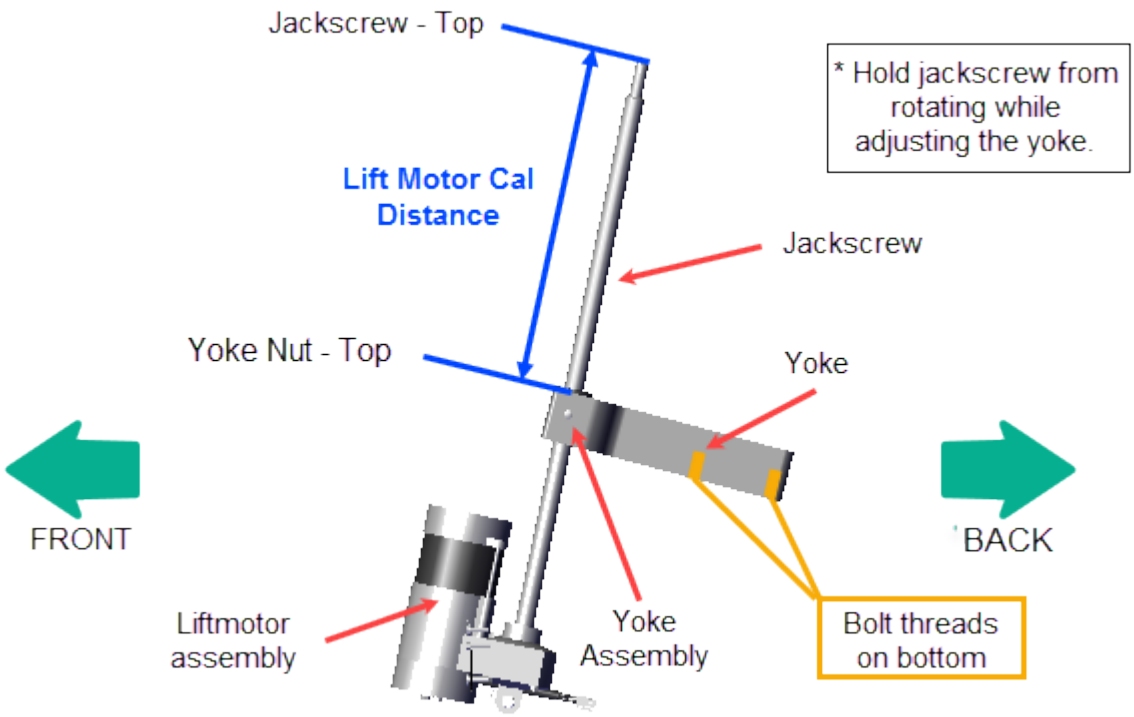
   LUBRICATE THE LIFT MOTOR JACKSCREW

2. Lay the replacement Lift Motor on the floor in front of the elliptical and connect the input power/control cable.
3. .Access the **CROSSRAMP TEST** diagnostic test and set the crossramp incline to level 10.
   - On LED (P10, P30, P30i and P31) consoles: Access diagnostic test menu (51765761) and select **MACHINE TEST** > **CROSSRAMP TEST**.
   - On touchscreen (P62, P80, and P82) consoles: Access the Service menu (51765761) and select **System Settings > Systems Test** > **CrossRamp Test**.
4. Disconnect the input power/control cable.
5. Install and calibrate the lift motor.
   a. Install the Yoke assembly onto the jackscrew with the yoke ramp mounting bolt threads positioned on the bottom side of the yoke. Use one hand to hold the jackscrew from rotating and the other hand to screw the Yoke Assembly onto the jackscrew.
   Do NOT allow the jackscrew to rotate (invalidating the lift motor level 10

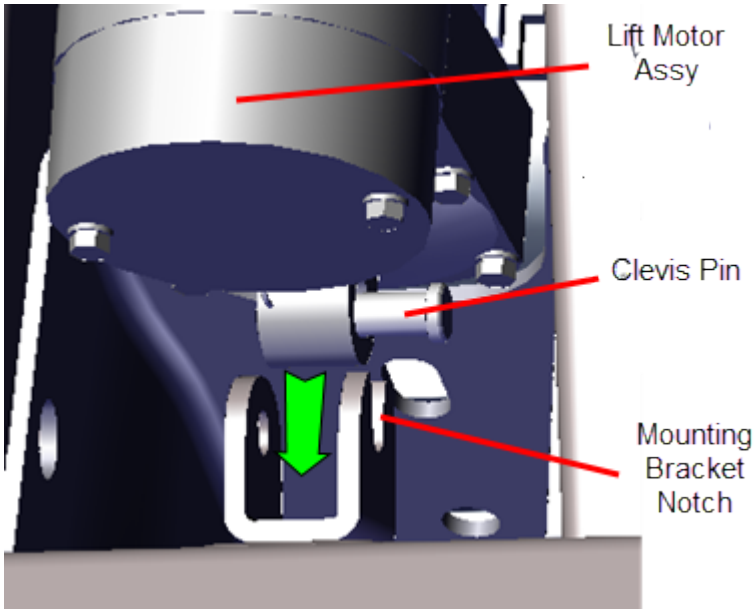
jackscrew calibration position) while installing and/or adjusting the jackscrew. If the jackscrew does rotate, reconnect the lift motor power cable, reset the lift motor incline level to 10 and repeat the following Lift Motor Yoke/Jackscrew distance calibration adjustment step.

b. With the Yoke positioned opposite the Lift Motor, adjust the Yoke so the distance from the top of the jackscrew to the top of the Yoke Nut is within the 9" +/- 1/4" (23 cm +/- 0.6 cm calibration distance.

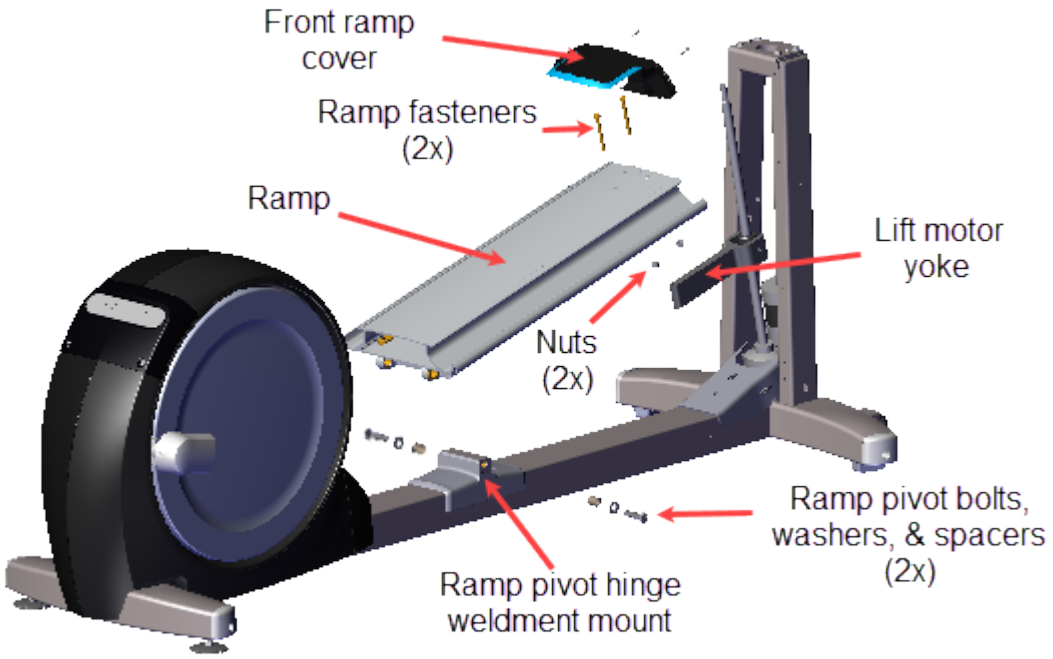
Note: Make sure to install the Yoke Assy with the ramp mounting bolt threads on the bottom of the yoke.



6. Install the lift motor:
   a. Insert the clevis pin from the left side of the lift motor mount until it is flush with the right side of the mount (do not allow the clevis pin to exit the right side of the lift motor mount bolt hole).
   b. Then install the lift motor assembly onto the lift motor weldment bracket so that the clevis pin rests in the left side mounting bracket notch.
   c. Tilt the lift motor assembly into the front tower weldment while carefully guiding the Yoke and jackscrew into mounting position.
   d. Next push the clevis pin completely through the right side of the weldment mounting bracket and secure with the hitch pin.



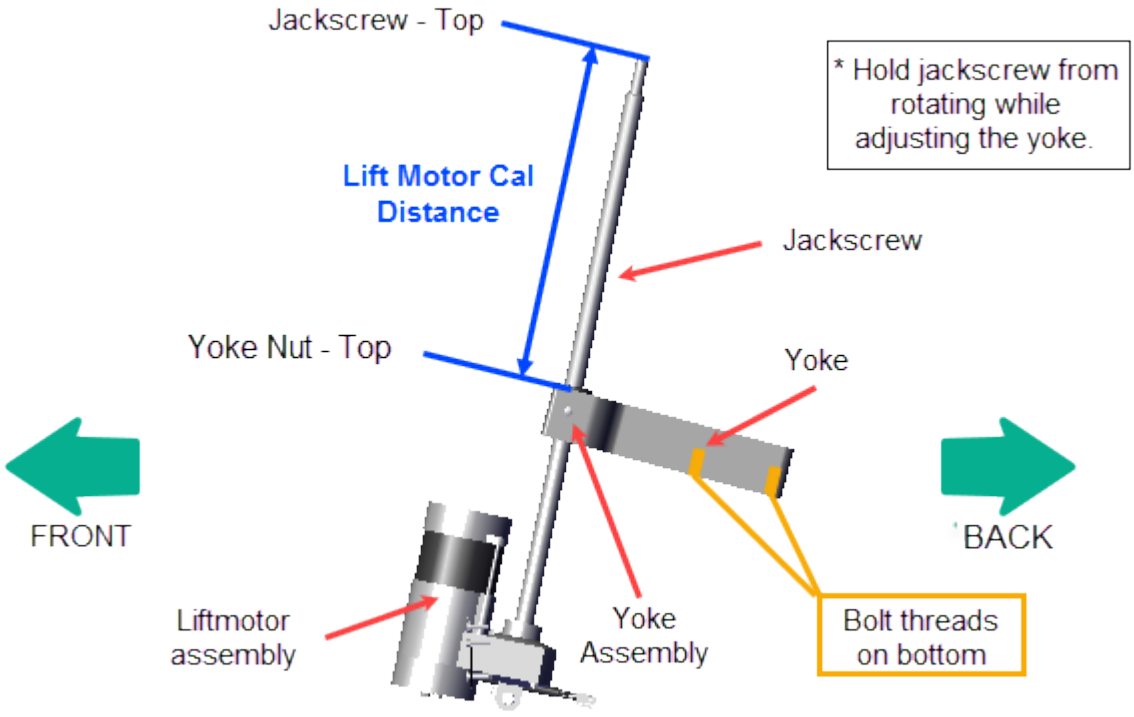
7. Reattach the Ramp to the Yoke by completing the Ramp installation procedure, see "Ramp Assembly Replacement" on page 195.



8. Reconnect the Lift Motor input power/control cable.
9. Access the service menu diagnostic **CrossRamp Test** and operate the ramp incline level through the full range of motion from minimum to maximum levels and verify operation:

- P10, P30, P30i and P31: (**Service menu (51765761)** > **MACHINE TEST** > **CROSSRAMP TEST**.
- P62, P80, and P82: (**Service menu (51765761)** > **System Settings** > **System Tests** > **CrossRamp Test**.

10. Verify the lift motor calibration distance has not changed:
    a. Access the diagnostic **CROSSRAMP TEST** and set the incline level to 10.
    b. Measure and verify the Lift Motor calibration distance remains 9" +/- 1/4" (23 cm +/- 0.6 cm.



11. Select **QUICKSTART** and start a manual workout. Operate the machine at the following conditions to verify the Stairarm and ramp incline operation. Make sure that the Stairarms and ramp movement is smooth and that there are no unusual noises:
    - . Raise and lower the **INCLINE** from minimum to maximum range while varying the Stairarm speed from 50 to > 150 **SPM**[1].
    - Repeat this test for several incline cycles.
12. Reinstall the Ramp cover, the Lift Interface Plate cover, and the Front Lift cover, see "Lift Front Cover Replacement" on page 79, "Lift Interface Plate Cover Replacement" on page 83, and "Covers and Panels Replacement" on page 76.
13. Verify machine operation and return to service, see "Operation Verification" on page 20.

[1]steps per minute

Note: This procedure may have generated lift motor related error codes. Check the error log and resolve any active error codes, clear the error log on P10, P30, P30i and P31 consoles.

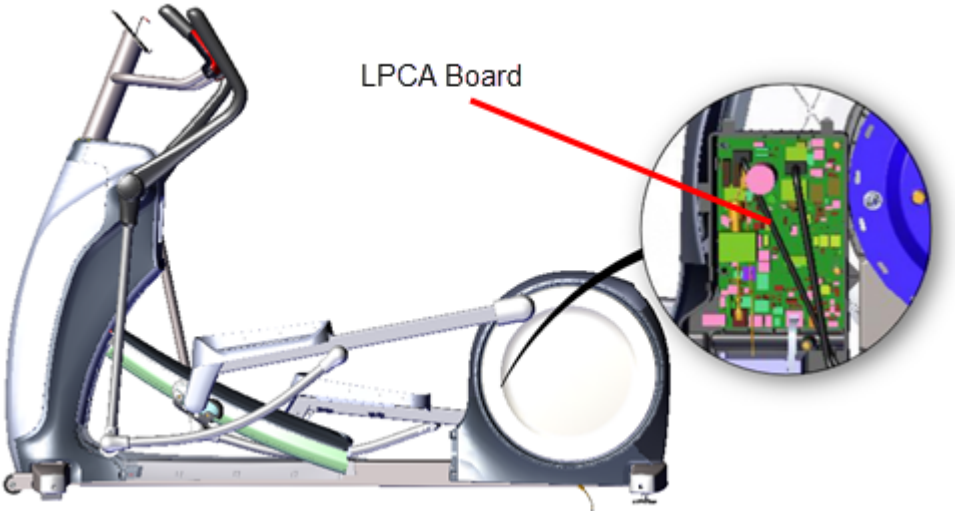
See Also

"Lift Motor Calibration" on page 66

LPCA (Lower PCA) Board Replacement

About

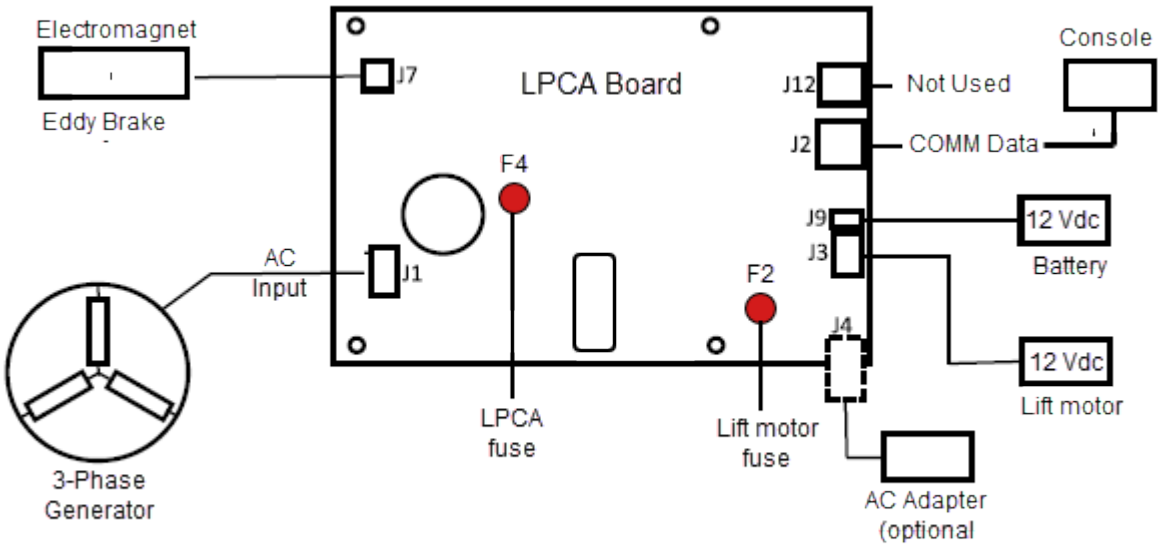
This procedure provides instruction to remove and install the **LPCA**[1] (**Lower PCA**[2]) board.



[1]Lower Printed Circuit Assembly board; also refered to as the Lower PCA or simply as the lower board. On treadmills, it is the console to base function interface and the motor controller unit (MCU). On self-powered units, it is the lower PCA console to base function interface.

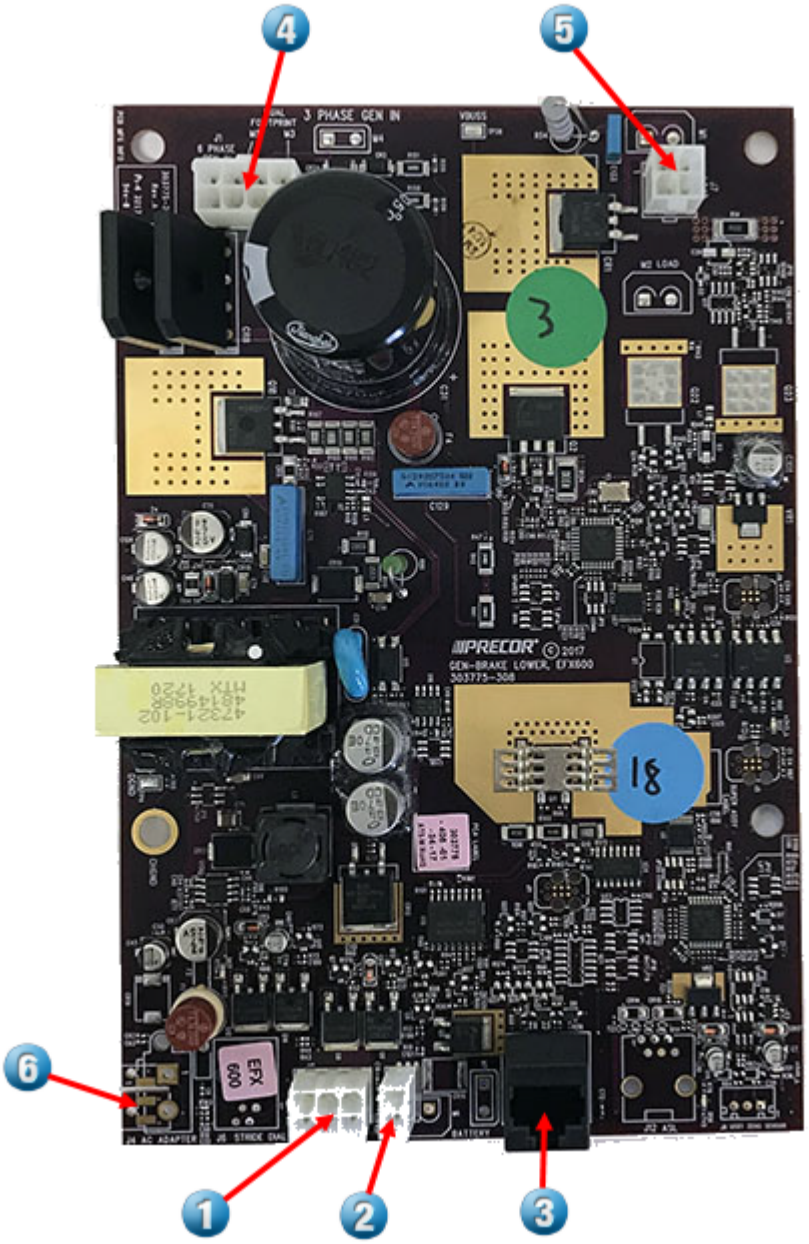
[2]Lower Printed Circuit Assembly board; also refered to as the Lower PCA or simply as the lower board. On treadmills, it is the console to base function interface and the motor controller unit (MCU). On self-powered units, it is the lower PCA console to base function interface.

LPCA System Block Diagram



LPCA System Block Diagram

LPCA Interface Connections



Num	Interface
1	Lift Motor (J3)
2	Battery (J9)
3	COMM Data Serial (J2)

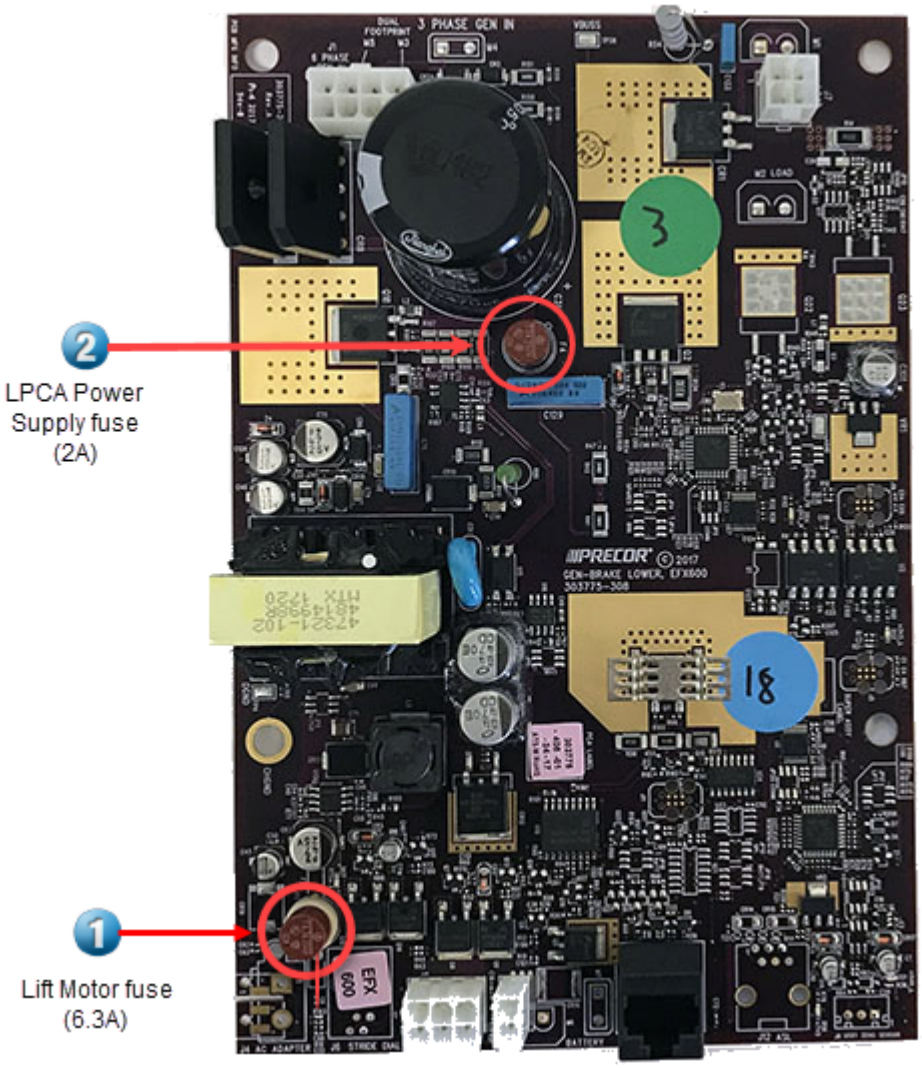
Num	Interface
4	Generator (J1)
5	Eddy Brake (J7)
6	AC[1] Adapter (J4)

LPCA Fuse Locations

There are two replaceable fuses located on the LPCA board:

- 2 Amp LPCA power supply
- 6.3 Amp lift motor fuse.

[1]Alternating Current: electric current which periodically reverses direction between positive and negative polarity.



ID	Interface
1	Lift Motor Fuse (6.3A)
2	LPCA Power Supply Fuse(2A)

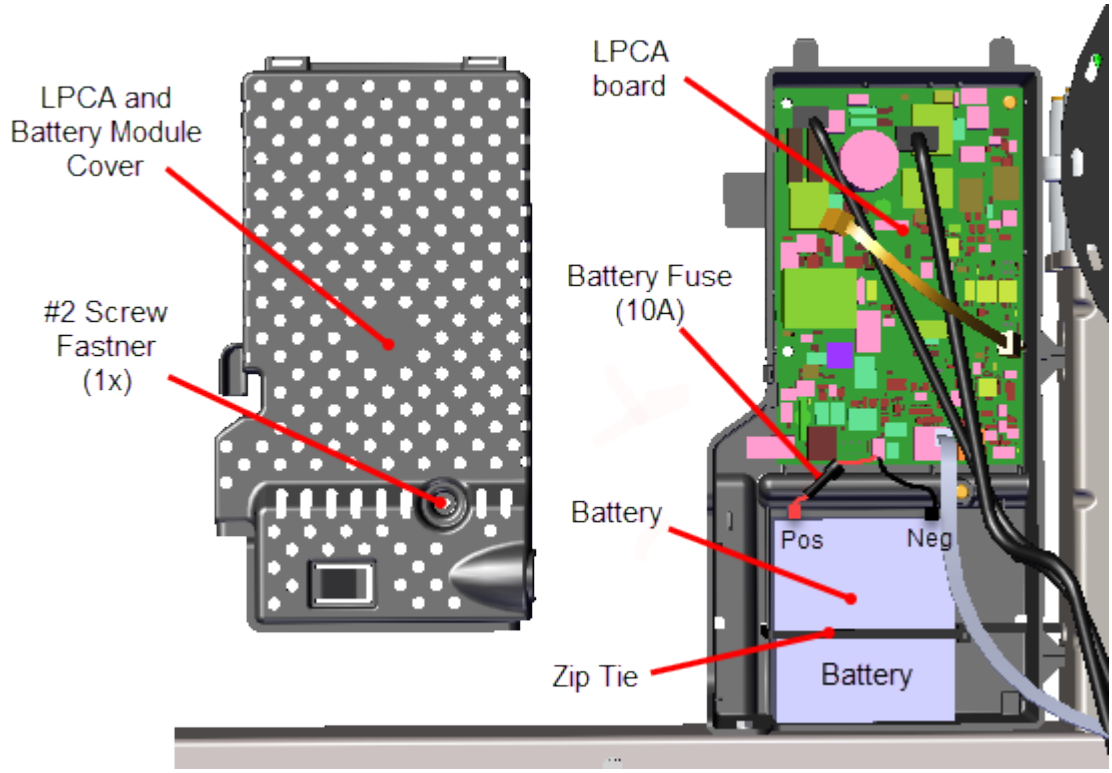
Procedure

Review entire procedure before starting.

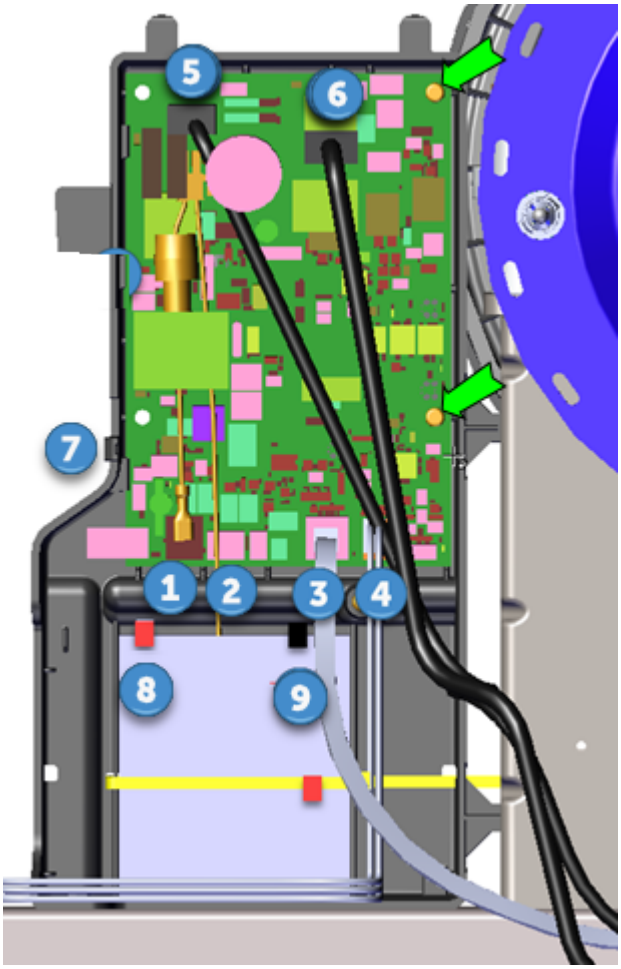
Removal Instructions

1. Remove the Left Drive Disk Cover, see "Drive Disk Covers Replacement" on page 91.

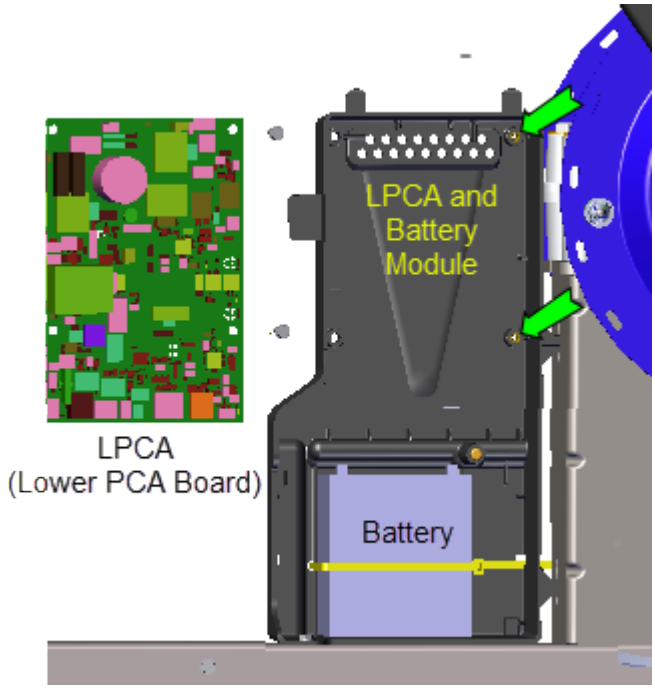
2. Remove the one #2 Phillips screw fastener and remove the LPCA/Battery Module cover. Retain part(s) and/or fastener(s) for installation.



3. Disconnect the Positive (Red) and Negative (Black) battery terminal cables.
4. Remove the following LPCA interface cables:
   a. Disconnect the Generator (J1) cable 4.
   b. Disconnect the Eddy Brake (J7) cable 5.
   c. Disconnect the Lift (J3) cable 1.
   d. Disconnect the Battery (J9) cable 2.
   e. Disconnect the COMM Data (J2) cable 3.



5. Remove the two #2 Phillips screw fastener and remove the LPCA board. Retain part (s) and/or fastener(s) for installation.
6. If attached, disconnect the AC Adapter (J4) cable 6.



Installation Instructions

1. If removed, reinstall the AC Adapter (J4) cable 6..
2. Reinstall the LPCA board using the two #2 Phillips screw fasteners.
3. Reconnect the following LPCA interface cables:
   a. Reconnect the Lift (J3) cable 1.
   b. Reconnect the Battery (J9) cable 2.
   c. Reconnect the Comm Serial (J2) cable 3.
   d. Reconnect the Generator (J1) cable 4.
   e. Reconnect the Eddy Brake (J7) cable 5.
4. Reconnect the Positive (Red) and Negative (Black) battery terminal cables.
5. Reinstall the LPCA/Battery module cover using the one #2 Phillips screw fastener.
6. Reinstall the Left Drive Disk cover, see "Drive Disk Covers Replacement" on page 91.
7. Verify machine operation and return to service, see "Operation Verification" on page 20.

Fixed Arms Replacement

About

This procedure provides instruction to remove and install the Fixed Arms.



Specifications

System Component	Specification
Fixed Arm Mounting Bar Nylock Set Screw	300 in-lbs (34 Nm)
Handlebar Mount Clamp Screw	144 in-lbs (16.3 Nm)

Procedure

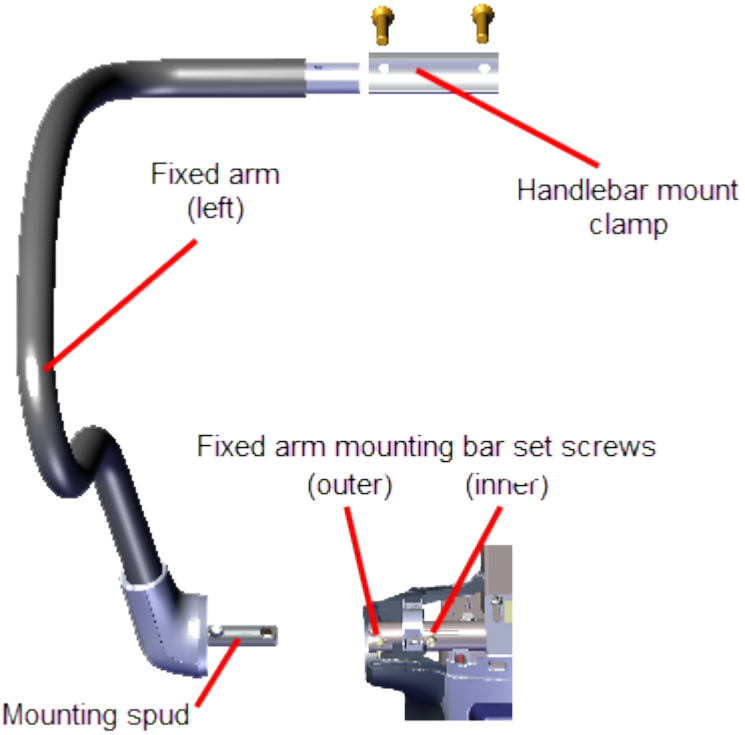
Review entire procedure before starting.

Removal Instructions

Repeat this procedure for both the right and left Fixed Arms.

1. Remove the Top Lift cover, see "Lift Front Cover Replacement" on page 79.
2. Use a 3/16" hex key to remove the Fixed Arm Mounting Bar - **inner** and **outer** Nylock set screws. Do not loosen and then retighten the Nylock set screw, this will compromise the integrity of the Nylock patch. Discard and do not reuse the Nylock set screws.

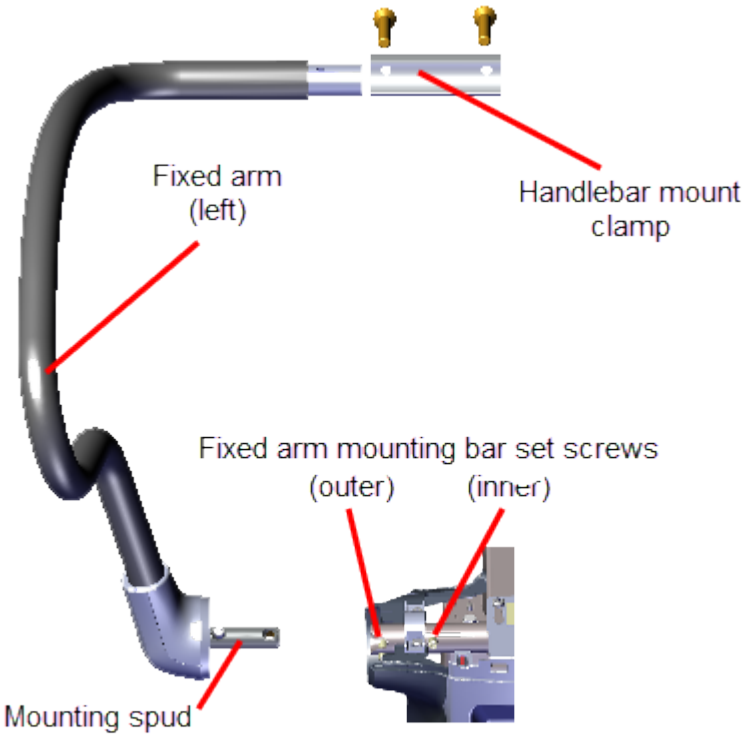
CAUTION: Do not reuse the **inner** or **outer** Nylock patch set screws for installation. Either removing or loosening the Nylock set screw will compromise the integrity of the Nylock patch. Discard and order new set screws for installation (see Exploded View Diagrams, bubble # 252).



1. Remove the two 5/32" hex key Handlebar Mounting Clamp fasteners located at the front top of the console mount weldment. Hold the arm while removing clamp.
2. Carefully remove the Fixed Arm from the fixed arm mounting bar and Handlebar mount.
3. Repeat procedure for both left and right Fixed Arms.

Installation Instructions

1. Reinstall the Fixed Arm onto Fixed Arm Mounting Bar and the Handlebar Mounting Bracket.



2. Position the Fixed arm into the Handlebar Mounting Bracket. Secure using the Handlebar Mount Clamp and two 5/32" hex key fasteners. Fully tighten and torque fasteners to 144 in-lbs (16.3 Nm).
3. Reinstall New **Inner** and **Outer** 3/16" hex key Nylock set screws, torque fasteners to 300 in-lbs (34 Nm)

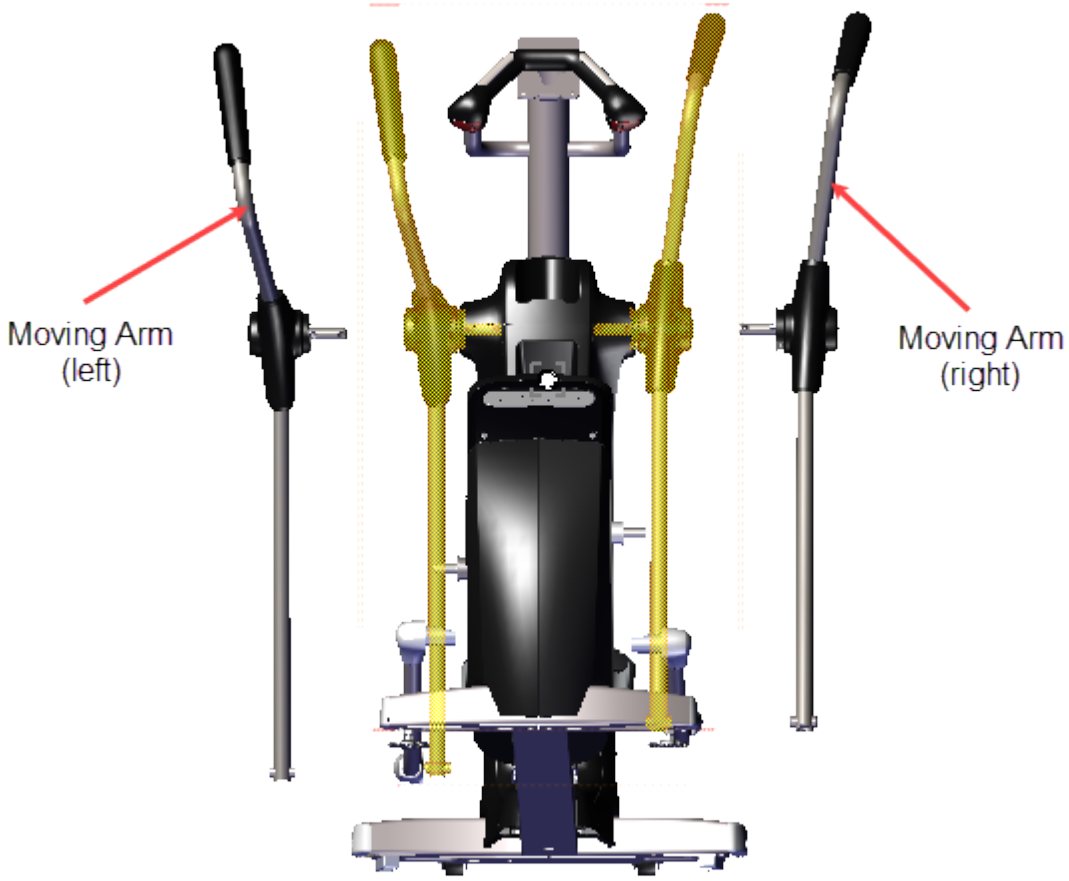
CAUTION: Do not reuse the **inner** or **outer** Nylock patch set screws for installation. Either removing or loosening the Nylock set screw will compromise the integrity of the Nylock patch. Discard and order new set screws for installation (see Exploded View Diagrams, bubble # 252).

1. Repeat procedure for both left and right handle bars.
2. Verify machine operation and return to service, see "Operation Verification" on page 20.

Moving Arms Replacement

About

This procedure provides instruction to remove and install the Moving Arms.



Specifications

Fastener	Specification
Link Arm Bolt	300 +/- 90 in-lbs (34 +/- 10 Nm)
Inner/Outer Nylock set screw	300 in-lbs (34 Nm)

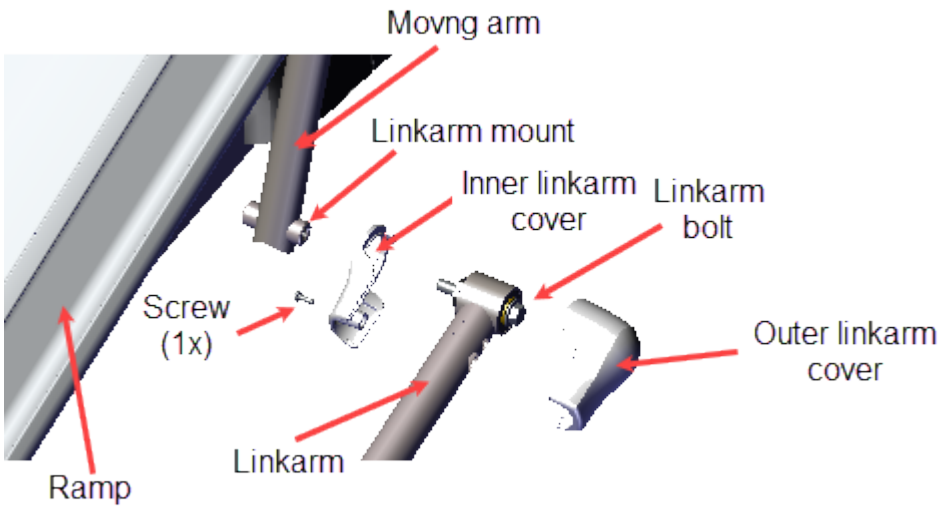
Procedure

Review entire procedure before starting.

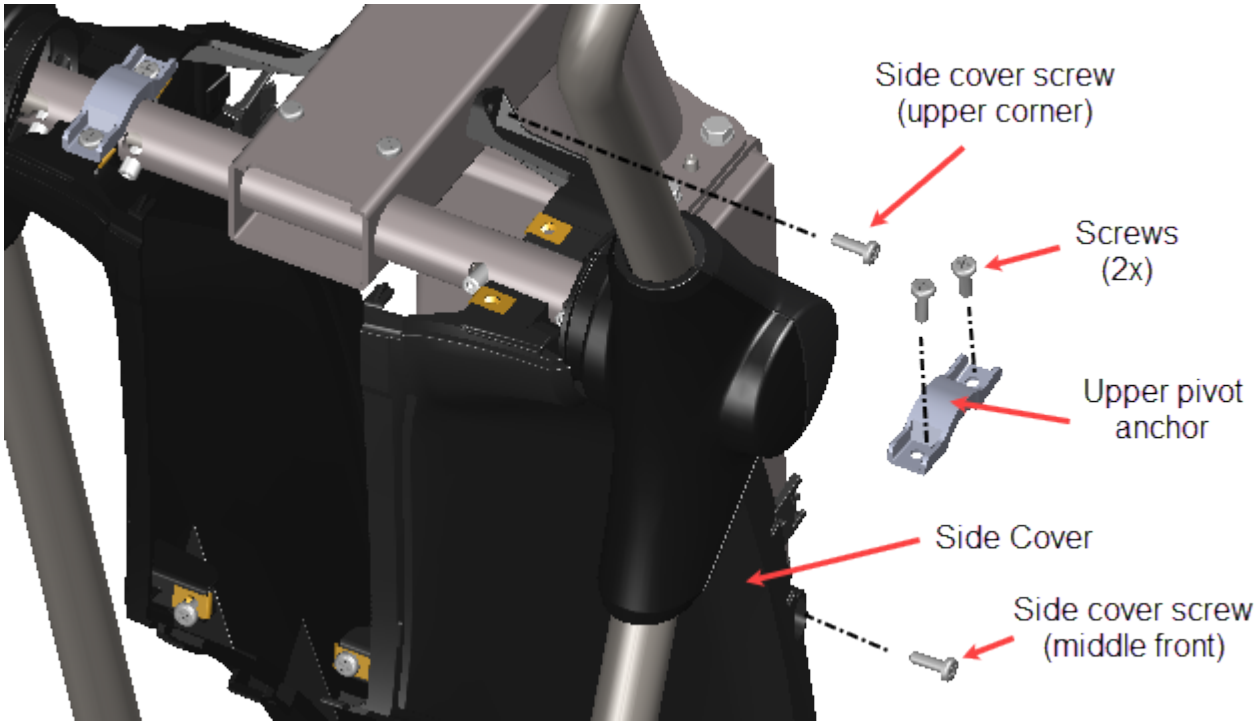
Removal Instructions

Repeat this procedure for both the right and left Moving Arm removal.

1. Remove the Lift Front Cover (see "Lift Front Cover Replacement" on page 79), Accessory Tray (see "Accessory Tray Cover Replacement" on page 84), and Lift Rear cover (see "Lift Rear Cover Replacement " on page 84)
2. Disconcert the Linkarm from the Moving Arm:
    a. Remove the #2 Phillips screw and the Outer Linkarm cover. Retain part(s) and/or fastener(s) for installation.
    b. Loosen the 9/16" Linkarm hex bolt and remove the Linkarm from the Moving Arm. Retain part(s) and/or fastener(s) for installation.
    c. Remove the Inner Linkarm cover from the Moving Arm. Retain part(s) and/or fastener(s) for installation.

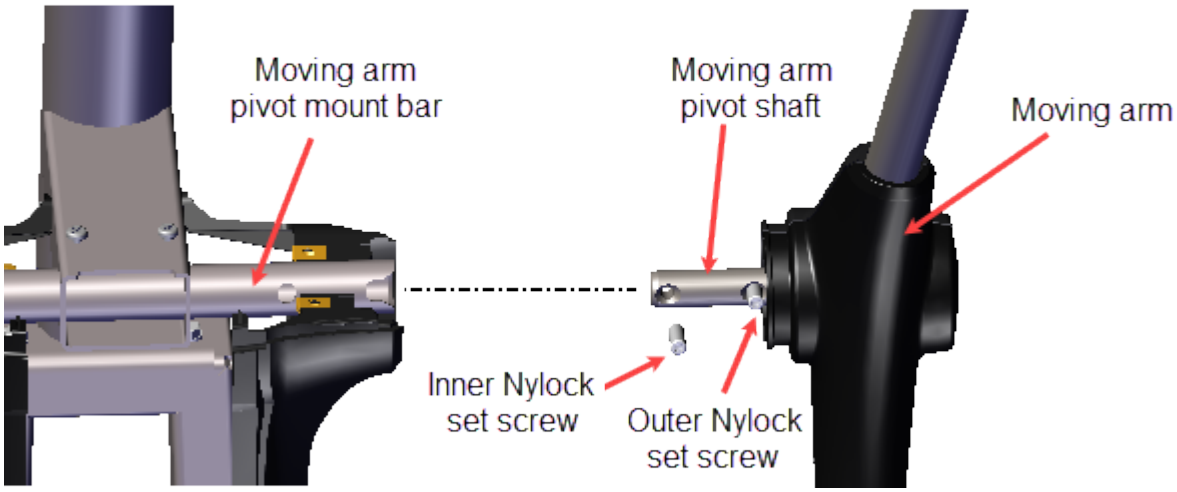


3. Loosen the top half of the Lift Side cover from the front tower weldment:
    a. Remove the front upper corner and the middle front #3 Phillips Lift Side cover weldment screws.
    b. Then remove the two #2 Phillips screws and the Upper Pivot Anchor bracket.



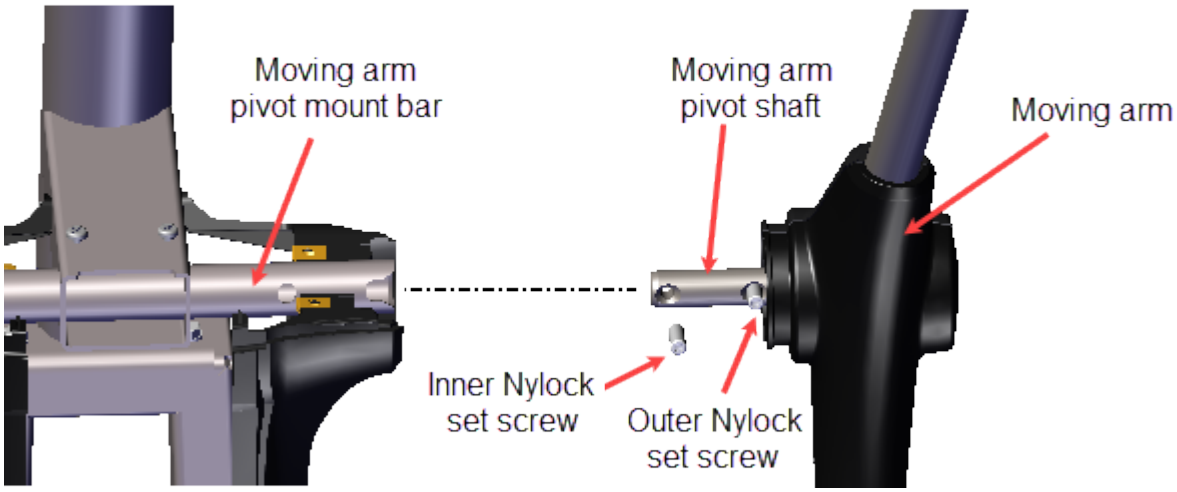
4. Remove the Moving Arm:
   a. Remove the 3/16" hex key pivot shaft **outer** Nylock set screw. Do not loosen and then retighten the Nylock set screw, this will damage the Nylock patch. Discard and do not reuse the Nylock set screw.
   b. Then remove the 3/16" hex key pivot shaft **inner** set screw and gently pull the Moving Arm outward and over the side cover to remove. Discard and do not reuse the Nylock set screw.

CAUTION: Do not reuse the **inner** or **outer** Nylock patch set screws for installation. Either removing or loosening the Nylock set screw will compromise the integrity of the Nylock patch. Discard and order new set screws for installation (see Exploded View Diagrams, bubble # 252).



Installation Instructions

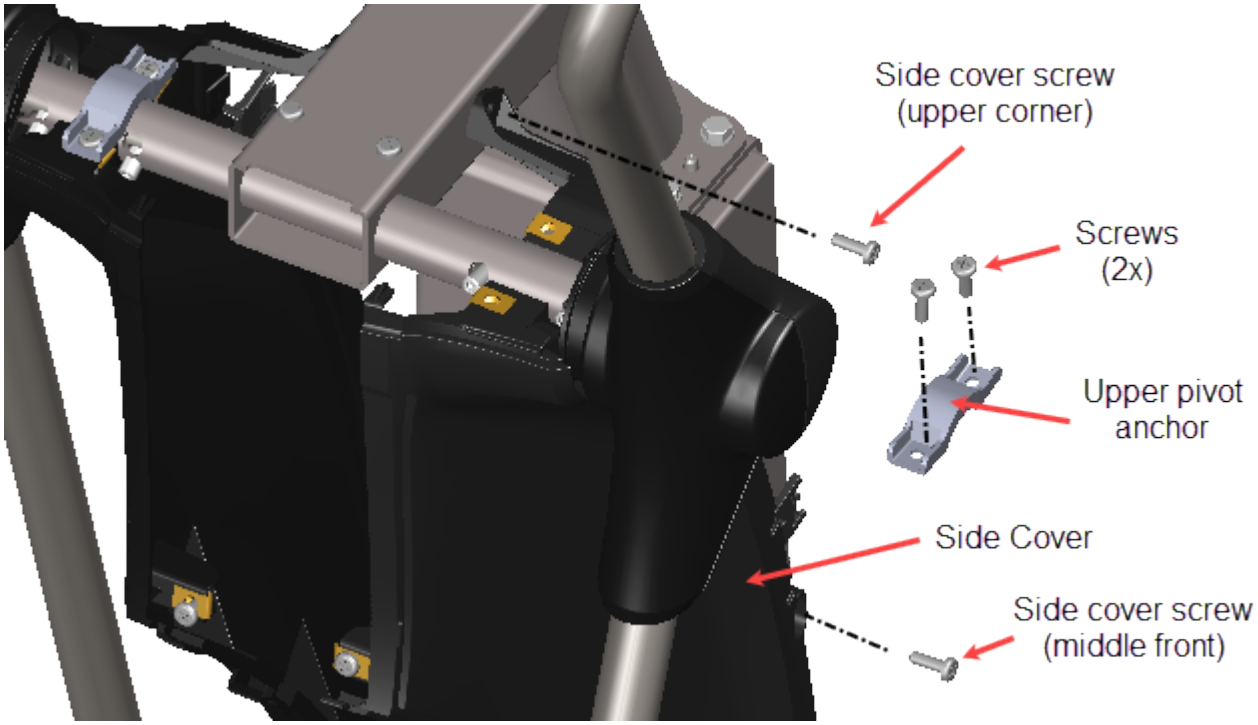
1. Reinstall the Moving Arm pivot shaft into the weldment moving arm pivot mount bar.



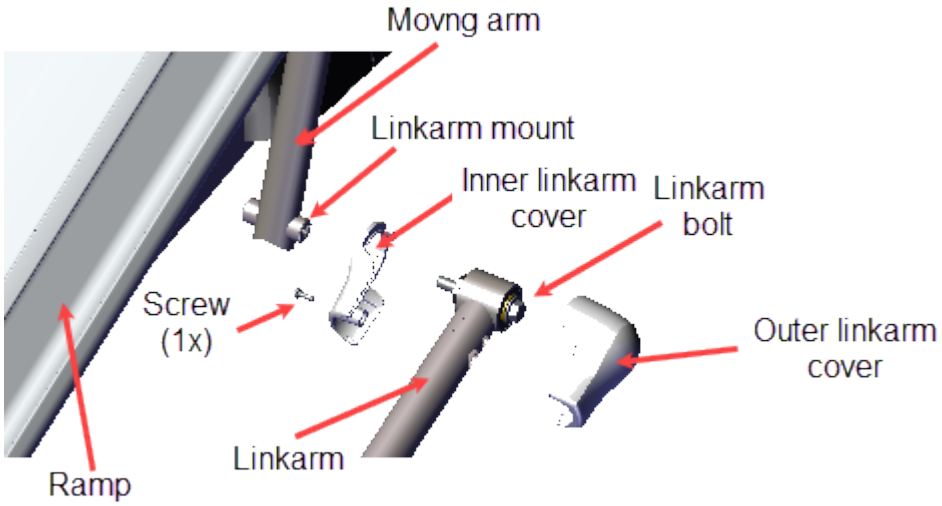
2. Secure using new 3/16" hex key pivot shaft **inner** and **outer**, Nylock set screws, torque to 300 in-lbs (34 Nm).

CAUTION: Do not reuse the **inner** or **outer** Nylock patch set screws for installation. Either removing or loosening the Nylock set screw will compromise the integrity of the Nylock patch. Discard the used set screws and order new set screws for installation (see Exploded View Diagrams, bubble # 252).

1. Reinstall the upper corner and middle front #3 Phillips Lift Side cover weldment screws, torque to 30 +/- 9 in-lbs (3.4 +/- 1 Nm).



2. Reinstall the Upper Pivot Anchor bracket and secure using the two #2 Phillips screws, torque to 30 +/- 9 in-lbs (3.4 +/- 1 Nm).
3. Reattach the Linkarm to the Moving Arm:
    a. Reinstall the Inner Linkarm cover onto the Moving Arm Linkarm mount.
    b. Then attach the Linkarm to the Moving Arm and secure using the 9/16" bolt, torque to 300 +/- 90 in-lbs (34 +/- 10 Nm).
    c. Reinstall the Outer Linkarm cover and secure using the #2 Phillips screw.



4. Reinstall the Lift Rear cover (see "Lift Rear Cover Replacement " on page 84), Accessory Tray (see "Accessory Tray Cover Replacement" on page 84), and Lift Front Cover (see "Lift Front Cover Replacement" on page 79).
5. Verify machine operation and return to service, see "Operation Verification" on page 20.

Ramp Assembly Replacement

About

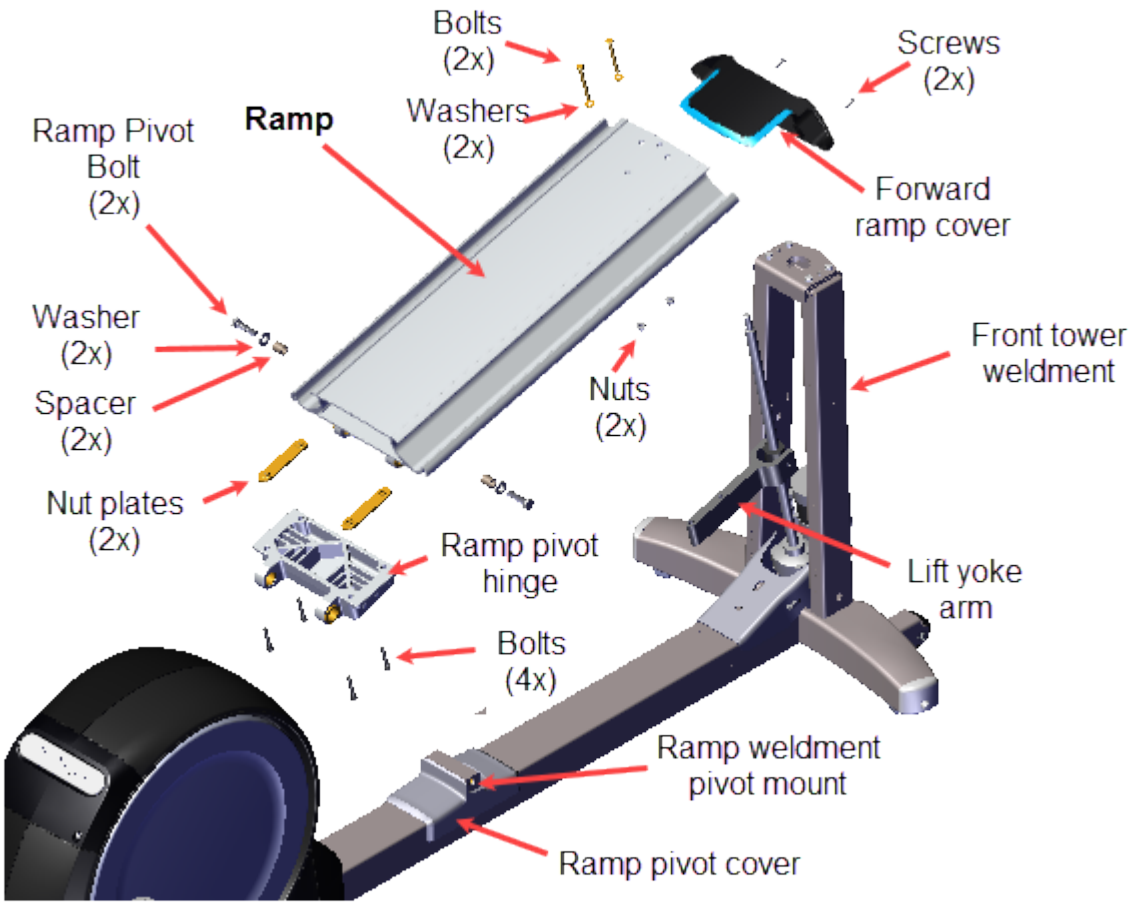
This procedure provides instructions to remove and install the Ramp assembly.

Specifications

System Component	Specification
Ramp-Pivot Mounting Bolts (Nylock)	1080 in-lbs (90 ft-lbs or 122 Nm)
Ramp-Yoke Mounting Bolts	330 in-lbs (27.5 ft-lbs or 37.2 Nm)
Ramp Pivot Hinge Mounting Bolts	96 in-lbs (8 ft-lbs or 10.8 Nm)
Forward Ramp Cover fasteners	30 +/- 9 in-lbs (3.4 +/- 1 Nm)

Procedure

Review entire procedure before starting.



Removal Instructions

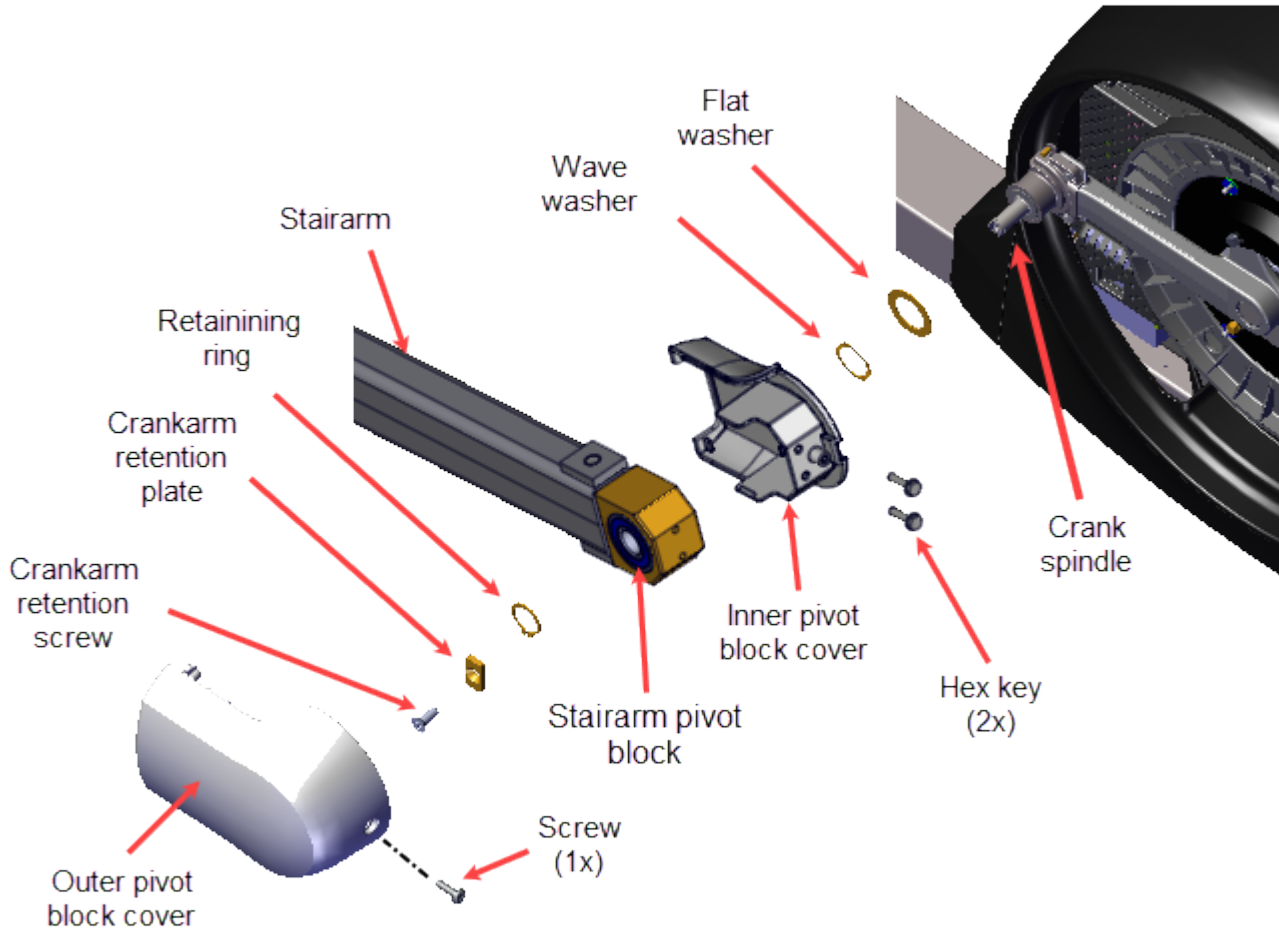
This procedure will require a fully charged good battery to operate the lift motor.

IMPORTANT: It's important to follow the removal steps in sequence to successfully remove the ramp.

1. Remove the Lift Front cover (see "Lift Front Cover Replacement" on page 79) and Rear Lift cover (see "Lift Rear Cover Replacement " on page 84).
2. Access the service menu diagnostic **CrossRamp Test** and raise the incline level to 10.
    a. P10, P30, P30i and P31: (**Service menu (51765761)** > **MACHINE TEST** > **CROSSRAMP TEST** and raise the **INCLINE LEVEL** to 10).
    b. P62, P80, and P82: (**Service menu (51765761)** > **System Settings** > **System Tests** > **CrossRamp Test** and raise the **INCLINE** level to 10).
3. Disconnect the Lift Motor input power/control cable connector.

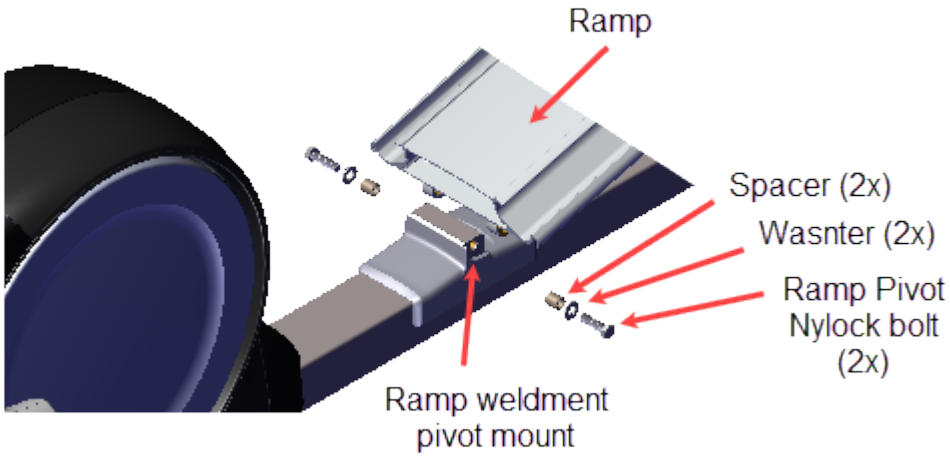
WARNING: Make sure to disconnect the Lift Motor input power/control cable or it is possible for the crossramp to automatically lower to level 1 under certain circumstances, such as, if the CrossRamp Test is exited or the console powers down. This unexpected action could cause personal injury.

4. Remove the left and right Stairarms from the respective input Crank Spindle, see "Stairarm Input Crank Removal" on page 207. Repeat procedure for the left and right Stairarms.



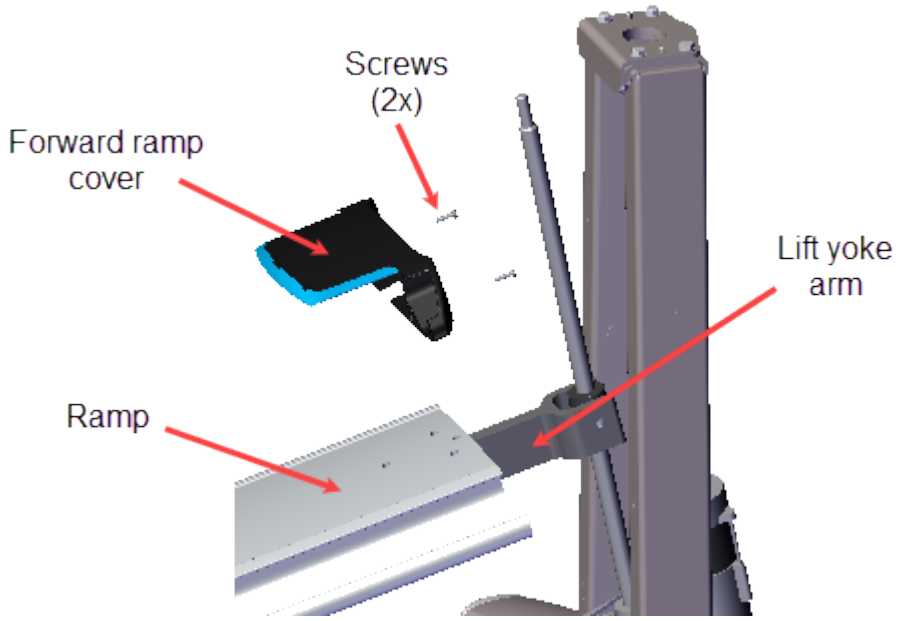
5. Remove the left and right Stairarm wheels from the ramp. Roll the Stairarm wheel down and off the back of the ramp track. Carefully lay the Stairarm onto the floor.
6. Remove the left and right 3/4" (19 mm) Nylock Ramp Pivot bolts, flat washers, and spacers. Carefully lift the ramp rearward and rest the ramp onto the frame weldment behind the weldment ramp pivot mount. Note that the front of the ramp and lift motor yoke and jackscrew will move side to side when the ramp is moved rearward. Therefore, hold the front of the ramp steady as it exits the front tower weldment to prevent damaging the front Lift Side covers. Discard the Nylock Ramp Pivot bolts and do not reuse for installation.

Note: The rear ramp pivot mount must be removed first so that the ramp can be moved rearward away from the front tower weldment providing access to the forward ramp cover fasteners. The front ramp cover must be removed to allow access to the front ramp-yoke bolts.

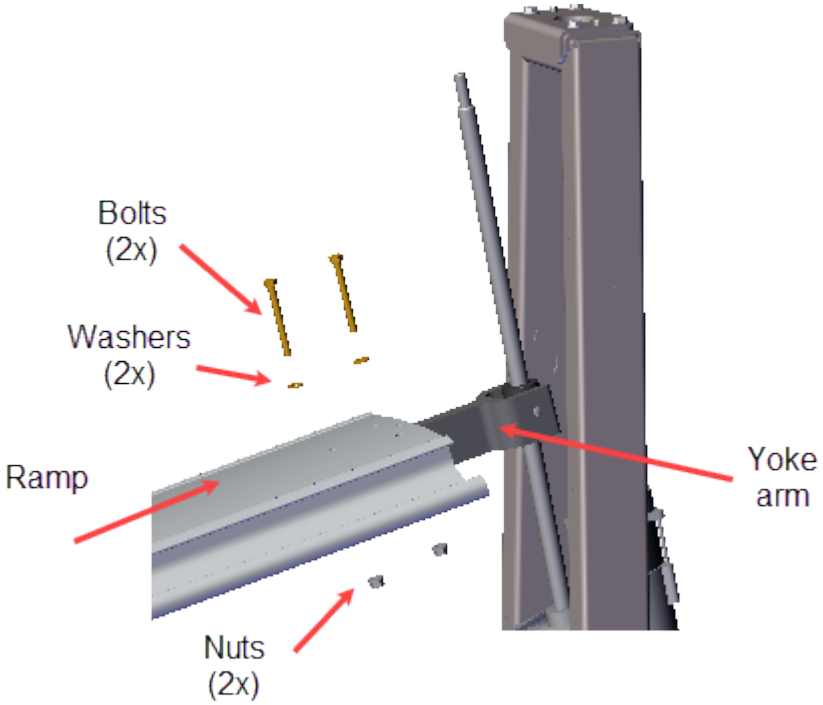


CAUTION: Do not reuse the Ramp Pivot Nylock patch bolt fasteners for installation. Discard the used bolts and order new bolts for installation (see Exploded View Diagrams, bubble # 361).

1. Remove the two #2 Philips pan head screws and remove the Forward Ramp cover.

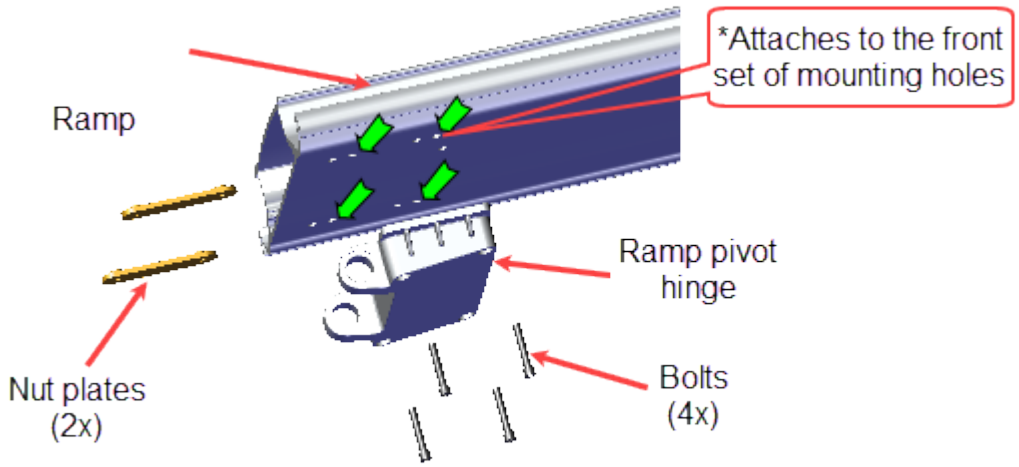


2. Remove the ramp from the lift motor yoke arm by removing the two 1/2" bolts (2x), washers (2x), and nuts (2x). Make sure to hold the ramp while removing the fasteners. Retain part(s) and/or fastener(s) for installation.



Ramp Pivot Hinge Removal

3. Only remove the Ramp Pivot Hinge if necessary. Remove the four 3/16" hex key bolts, the two nut plates, and remove the Ramp Pivot hinge. Slide the Nut Plates from the back of the ramp. Retain part(s) and/or fastener(s) for installation.

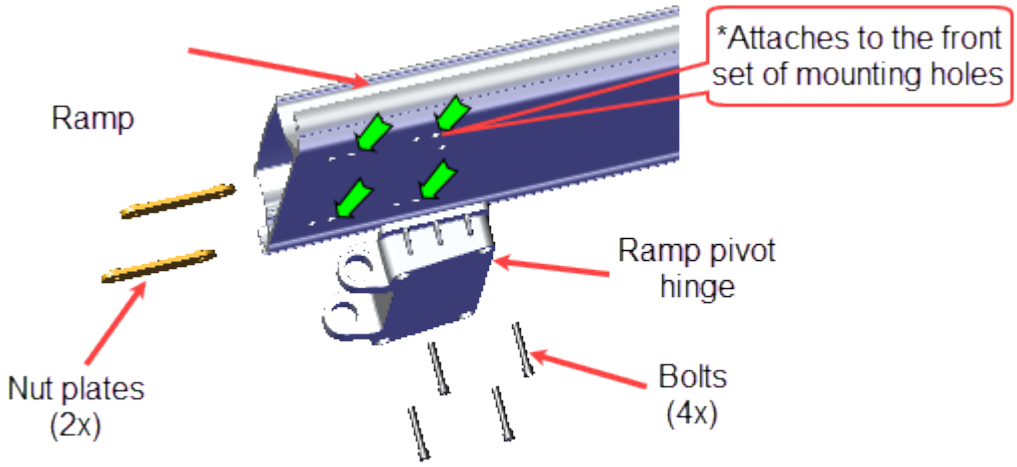


Installation Instructions

Ramp Pivot Hinge Installation

1. Only do this step if the Ramp Pivot Hinge was removed.
   Position the Ramp Pivot Hinge so that the four bolt holes align with the front set of

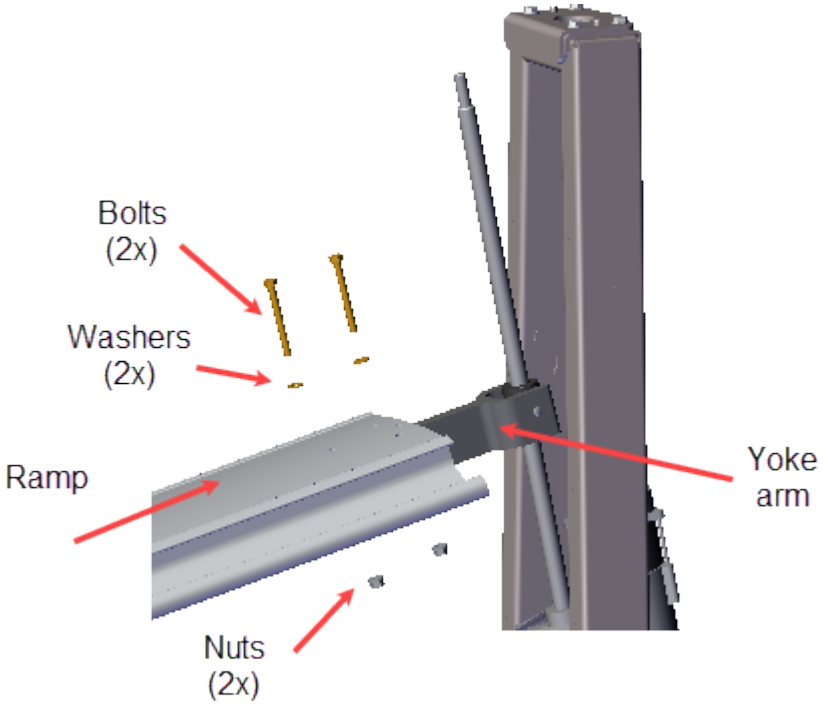
ramp mounting holes. Then insert a Nut plate and secure using two 3/16" hex key bolts. Install the second Nut Plate and secure using two 3/16" hex key bolts. **Torque**[1] bolts to 96 in-lbs (8 ft-lbs or 10.8 Nm).



Ramp Installation

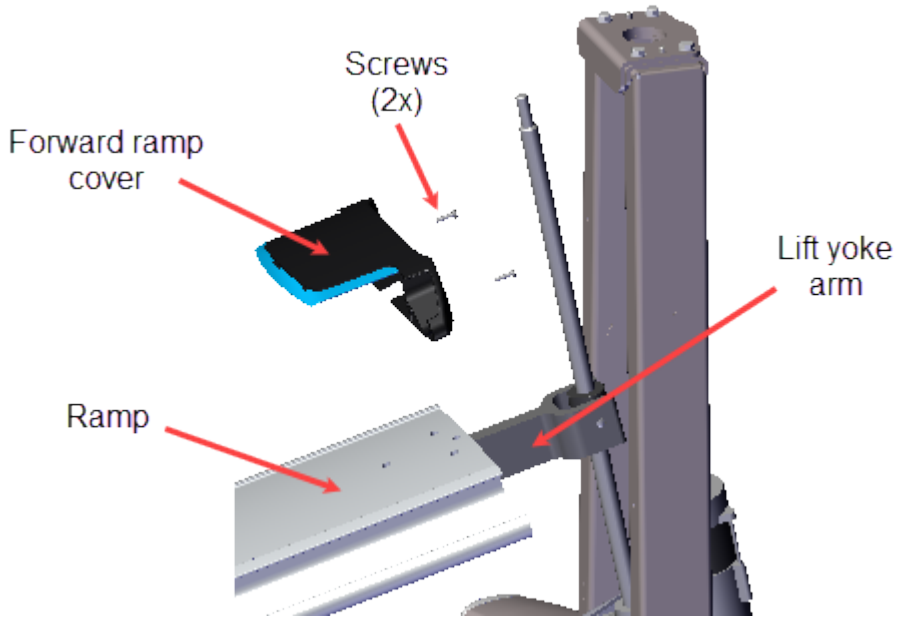
2. Reinstall the ramp front onto the lift motor yoke arm and secure using two 1/2" bolts (2x), washers (2x), and nuts (2x). Make sure to hold the ramp while installing the fasteners. Torque bolts to 330 in-lbs (27.5 ft-lbs or 37.2 Nm).

[1]Torque is a measure of the force that can cause an object to rotate about an axis. Bolt/nut example: 5 NM torque is equivalent to 5 newton's of force applied one meter from the center of the bolt, 6 ft-lb is equivalent to 6 lbs of force applied 1 foot away from the center of the bolt.



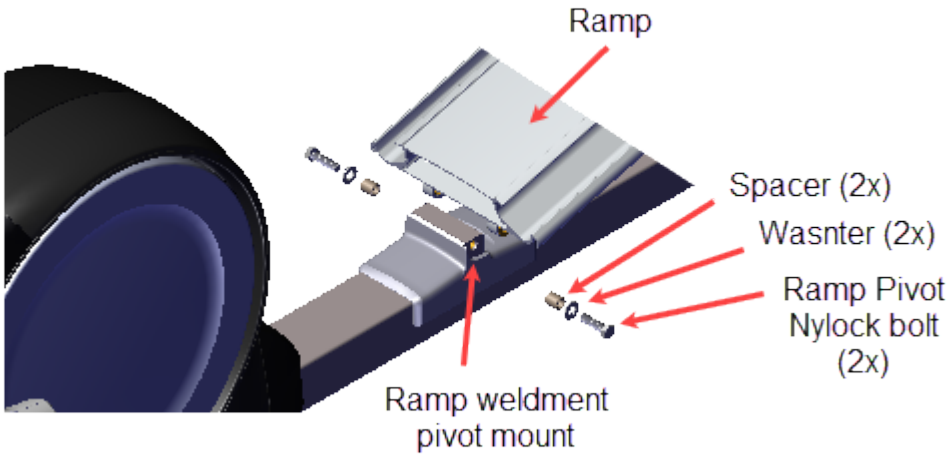
3. .Reinstall the Forward Ramp cover and secure using the two #2 Philips pan head screws. Torque screws to 30 +/- 9 in-lbs (3.4 +/- 1 Nm).

CAUTION: Do not over tighten the forward ramp cover screws which could strip and damage the ramp screw mounting threads.



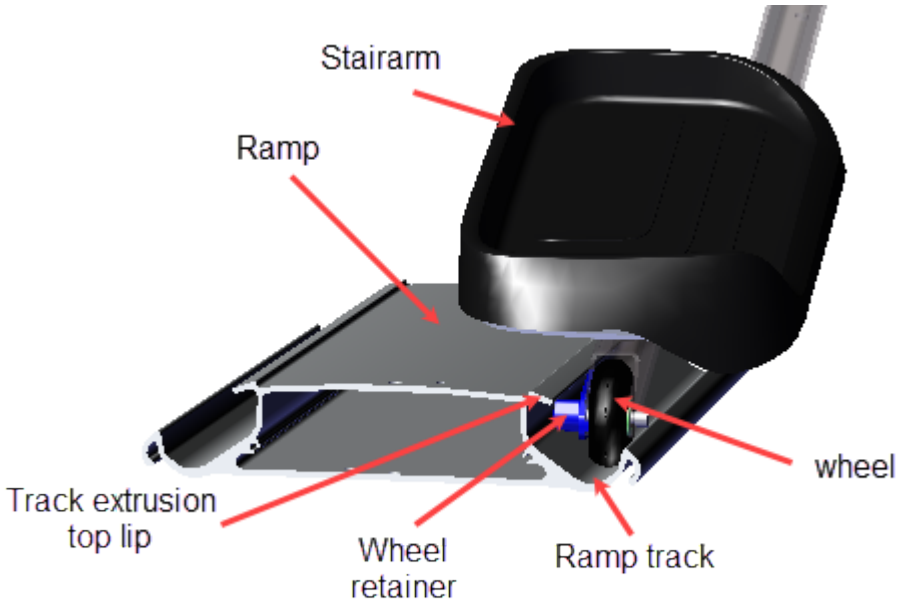
4. Carefully move the ramp forward and set the ramp pivot mounting bracket onto the frame weldment pivot mount. As the ramp is moved forward, carefully guide the lift

motor yoke and jackscrew into the front tower weldment. Align the pivot bolt mounting holes and secure using the two 3/4" (19 mm) ramp pivot bolts, flat washers, and spacers. Torque bolts to 1080 in-lbs (90 ft-lbs or 122 Nm).

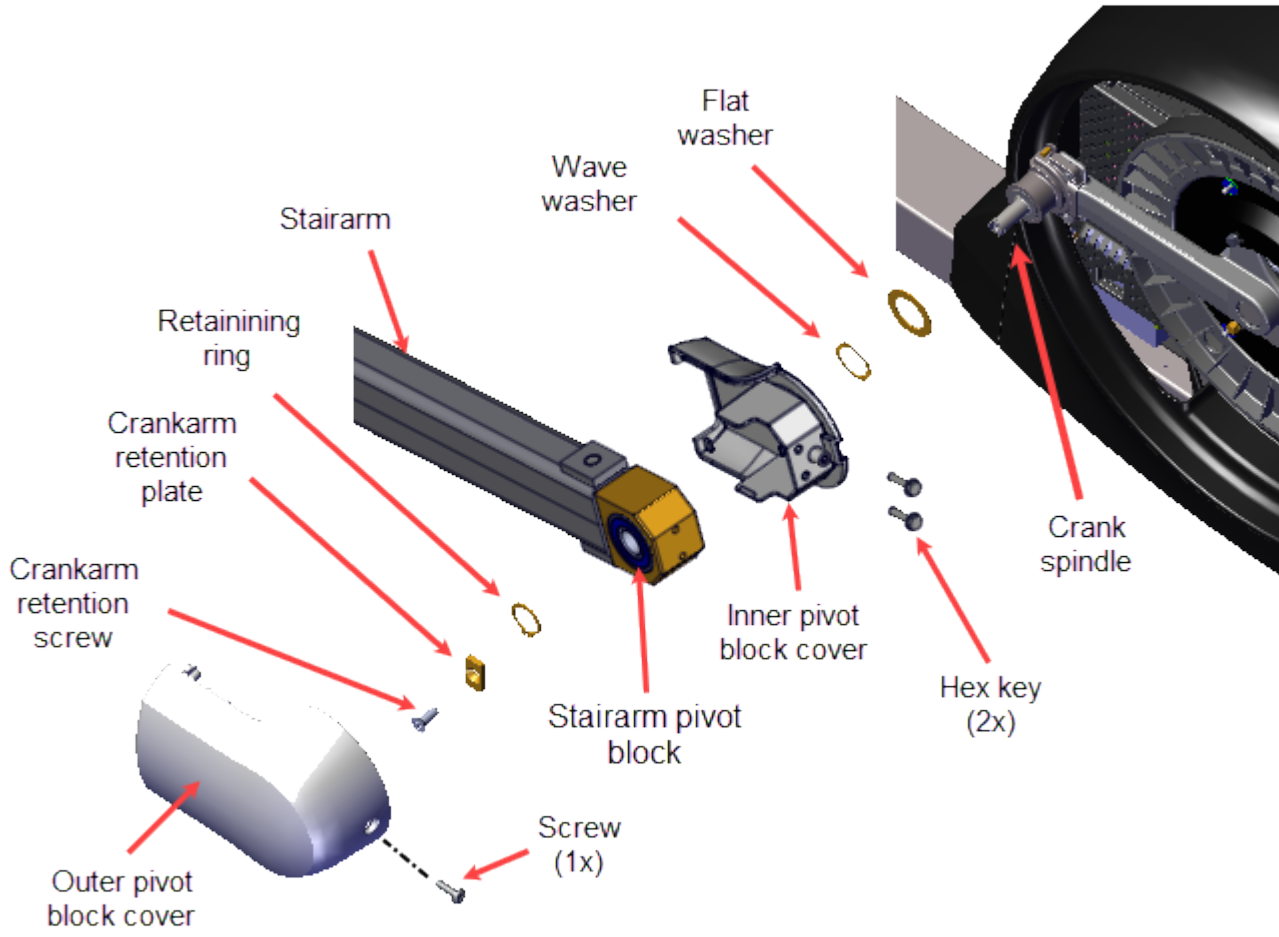


CAUTION: Do not reuse the Ramp Pivot Nylock patch bolt fasteners for installation. Discard the used bolts and order new bolts for installation (see Exploded View Diagrams, bubble # 361).

5. Reinstall the left and right Stairarms onto the ramp. Insert the wheel from the bottom of the track making sure that the wheel retainer is positioned underneath the ramp track extrusion top lip. Verify that the Stairarm wheel is correctly installed by attempting to pull the Stairarm upward off the track, reinstall the wheel if needed.



6. Reinstall the left and right Stairarms onto the respective Crank Spindle, see "Stairarm Input Crank Installation" on page 211. Repeat procedure for both the left and right Stairarms.



7. Reconnect the input power/control cable.
8. Access the service menu diagnostic **CrossRamp Test** and operate the ramp incline level through the full range of motion from minimum to maximum range and verify operation:
   - P10, P30, P30i and P31: (**Service menu (51765761)** > **MACHINE TEST** > **CROSSRAMP TEST**.
   - P62, P80, and P82: (**Service menu (51765761)** > **System Settings** > **System Tests** > **CrossRamp Test**.
9. Exit the service diagnostic test menu.
10. Select **QUICKSTART** and start a manual workout. Operate the machine at the following conditions to verify the Stairarm and ramp incline operation. Make sure that the Stairarms and ramp movement is smooth and that there are no unusual noises:

a. . Raise and lower the **INCLINE** from minimum to maximum range while varying the Stairarm speed from 50 to > 150 **SPM**[1].

b. Repeat this test for several incline cycles.

11. Reinstall the Rear Lift cover (see "Lift Rear Cover Replacement " on page 84) and the Lift Front cover (see "Lift Front Cover Replacement" on page 79).
12. Verify machine operation and return to service, see "Operation Verification" on page 20.

Note: This procedure may have generated lift motor related error codes. Check the error log and resolve any active error codes (for **LED**[2] consoles, clear the error log.

See Also

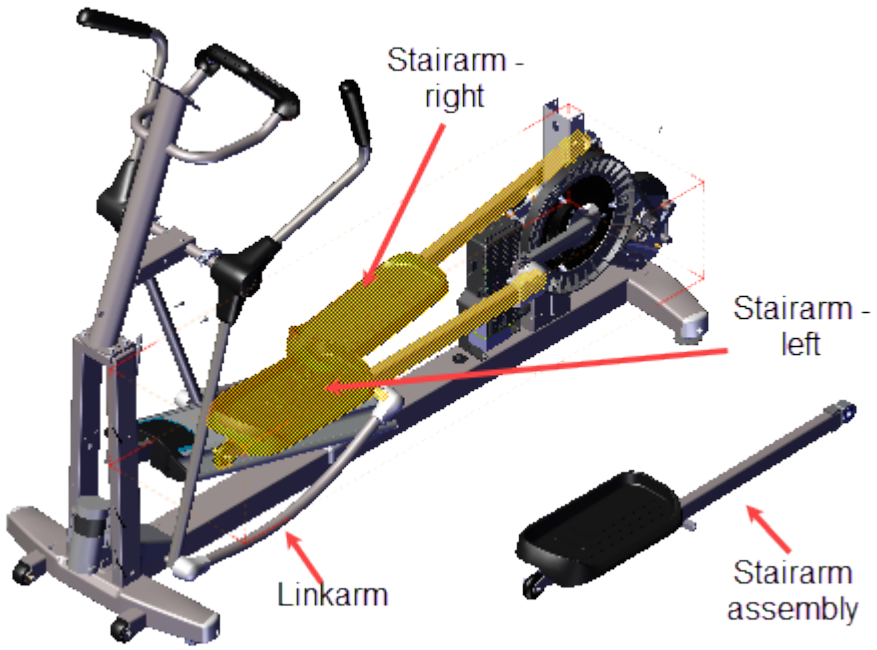
"Lift Motor Calibration" on page 66

[1]steps per minute
[2]light-emitting diodes.

Stairarm Assembly Replacement

About

This procedure provides instruction to remove and install the Moving and Fixed Arm model Stairarm assemblies and components including: Stairarms, Linkarms (moving arm models), Pedals, and Wheels.

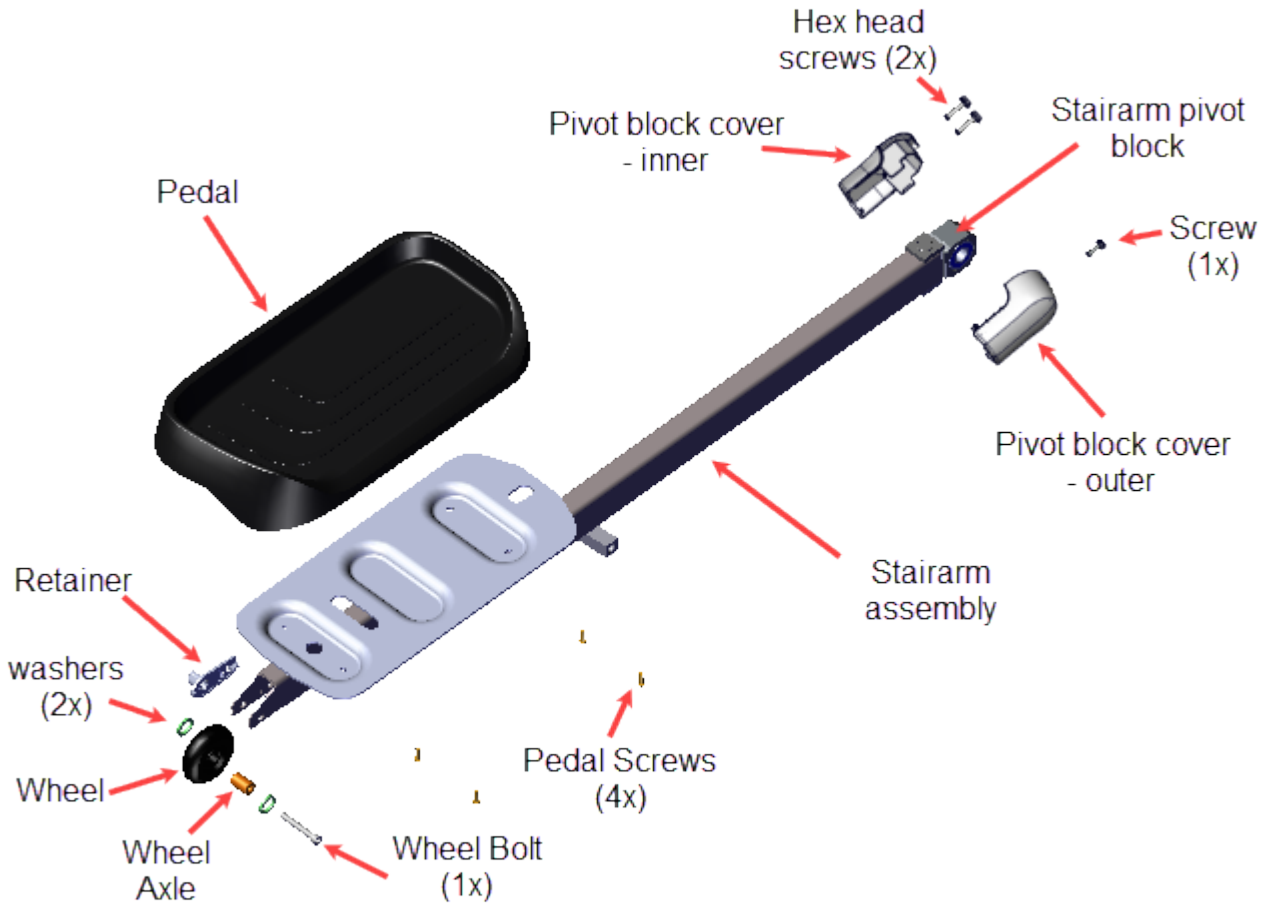


Specifications

Fastener	Specification
Linkarm - Stairarm bolt	300 +/- 90 in-lbs (34 +/- 10 Nm)
Crank Retention Plate Screw	30 +/- 9 in-lbs (3.4 +/- 1 Nm)
Pedal Screws	25 in-lbs (2.8 Nm)
Wheel Nylock bolt	100 in-lbs (11.3 Nm)

Procedure

Review entire procedure before starting.

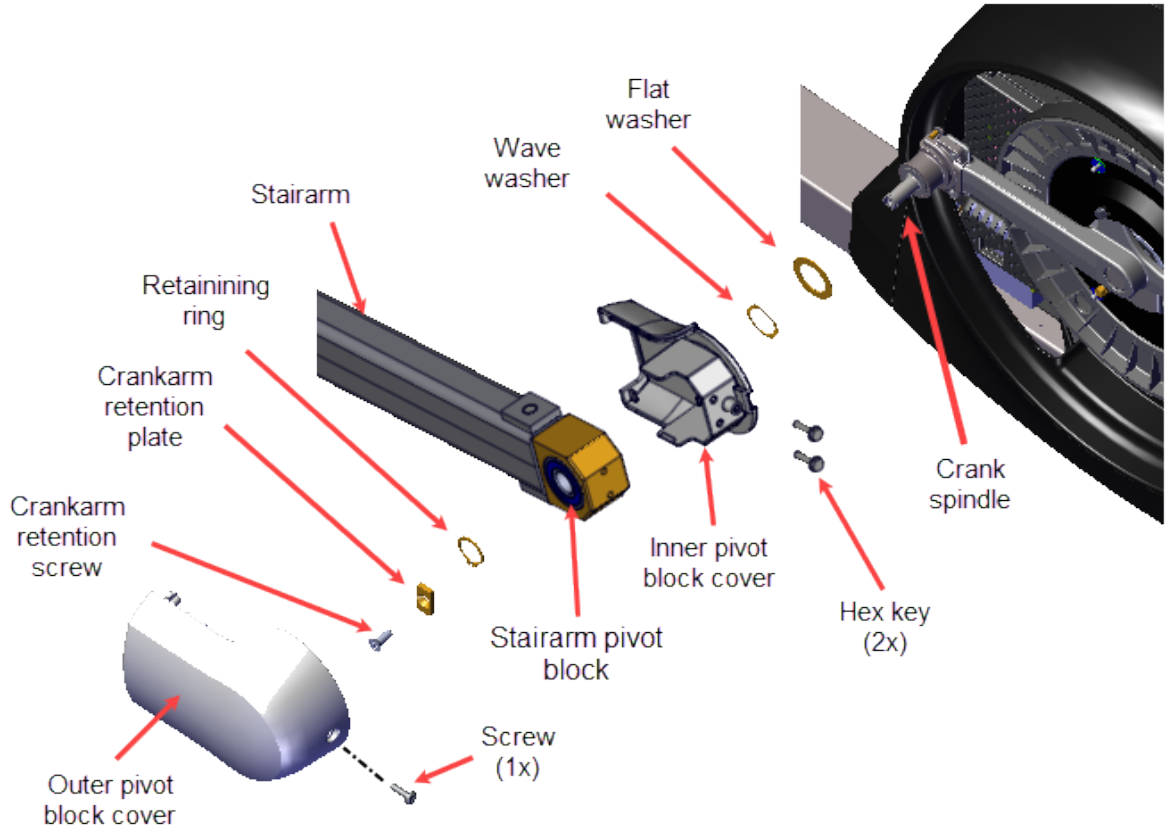


Removal Instructions

Repeat this procedure for both the right and left moving arm replacement.

Stairarm Input Crank Removal

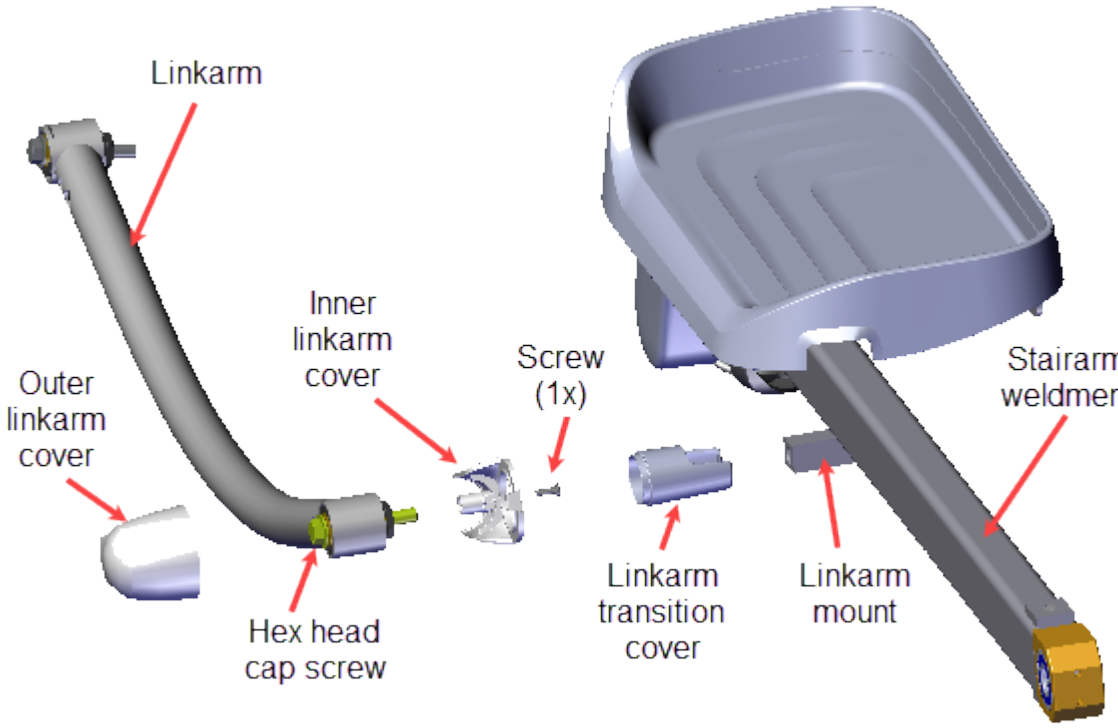
1. Remove the stairarm from the input drive crank:



   a. Remove the #2 Phillips screw fastener and slide the Outer Pivot Block cover rearward and away from the frame to remove. Retain part(s) and/or fastener(s) for installation.
   b. Remove the #3 Phillips Nylock screw and the Crank Retention Plate. Discard the screw and retain the Crank Retention Plate for installation.
   c. Use external 0.047" retaining ring pliers to remove the stairarm Pivot Block retaining ring. Retain part(s) and/or fastener(s) for installation.
   d. Remove the stairarm off the Crank Spindle and carefully lay on the floor.
   e. Remove the Pivot Block inner wave washer and flat washer off the Crank Spindle. Note that the flat washer sets against the crank
   f. Remove the two 5/16" hex key screws and remove the Inner Pivot Block cover.
2. Remove the Stairarm from the ramp. Roll the wheels down the track and off the back of the ramp.

Stairarm Linkarm Removal

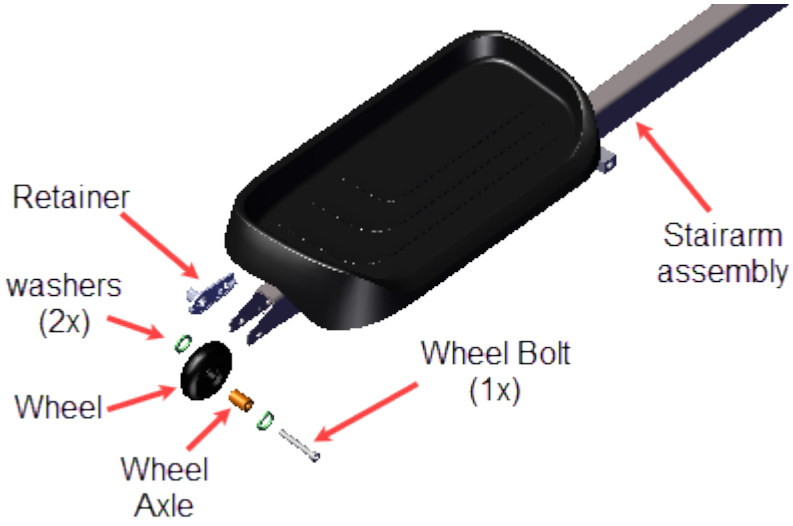
3. Remove the Linkarm from the stairarm (moving arm models only):
   a. Remove the #2 Phillips screw fastener and remove the Outer Linkarm Cover. Retain part(s) and/or fastener(s) for installation.



   b. Remove the 9/16" hex head screw and remove the Linkarm from the Stairarm weldment - Linkarm bracket and carefully lay onto the floor.
   c. Remove the Inner Linkarm cover from the Stairarm weldment - Linkarm bracket. Retain hardware and fastener for installation.

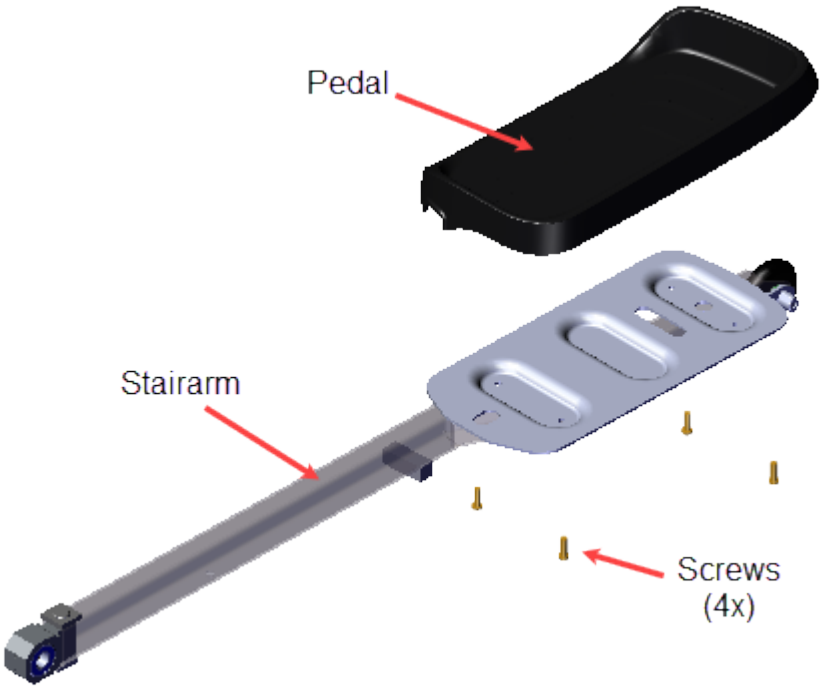
Stairarm Wheel Removal

1. Remove the 1/4" hex key bolt, washers (2x), Wheel, Wheel Axle, and retainer. Retainer, Washers (2x), and Wheel Axle.



Stairarm Pedal Removal

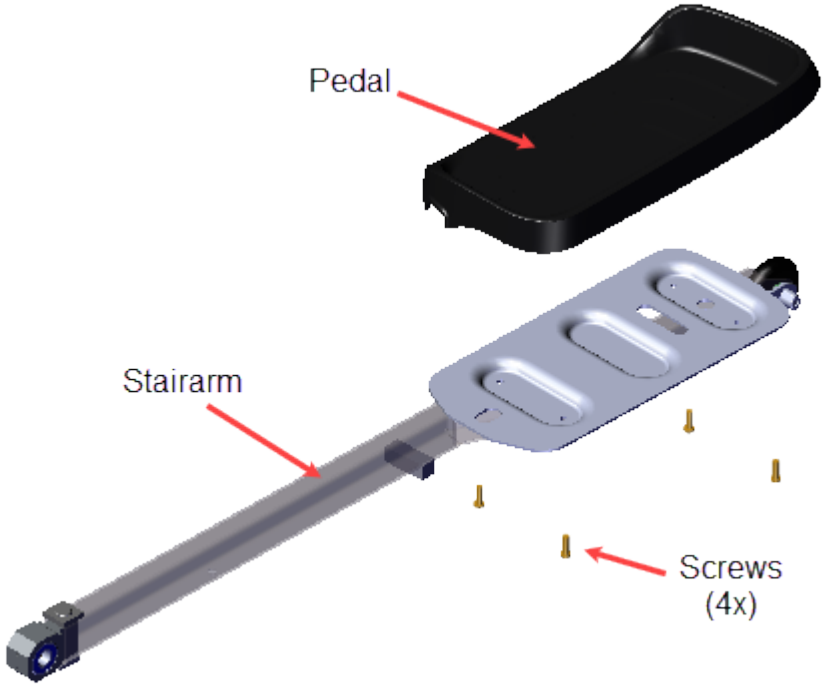
2. Remove the four #2 Phillips Pedal screws and remove from the Stairarm pedal mounting bracket. Retain part(s) and/or fastener(s) for installation.



Installation Instructions

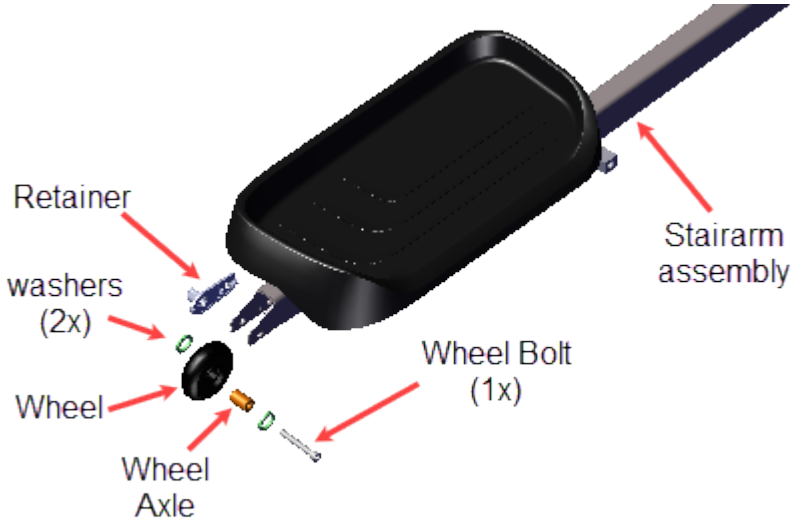
Stairarm Pedal Installation

1. If the Pedal was removed, position the Pedal.onto the Stairarm weldment pedal bracket and secure using the four #2 Phillips screws, torque to 25 in-lbs (2.8 Nm).



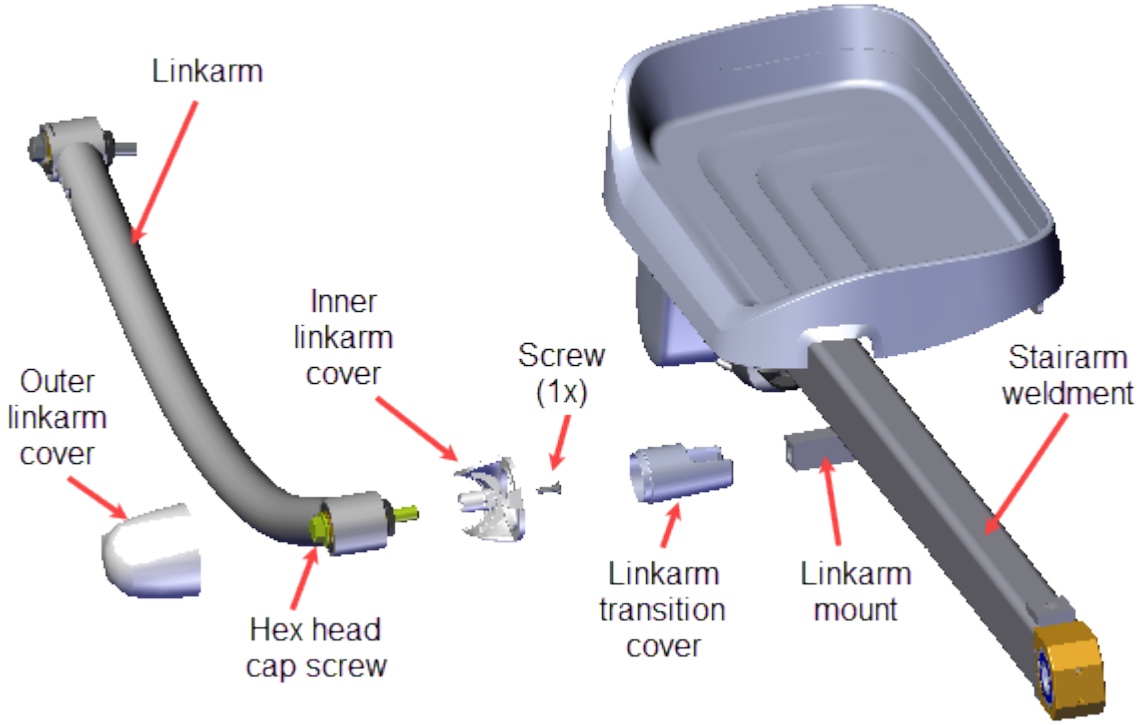
Stairarm Wheel Installation

2. If the Stairarm Wheel was removed, reinstall the Wheel. Install the Wheel Axle into the Wheel. Then insert the Wheel and two washers (2x) into the Stairarm weldment wheel mounting bracket. Secure using the Retainer and 1/4" hex key bolt, torque to 100 in-lbs (11.3 Nm).



Stairarm Linkarm Installation

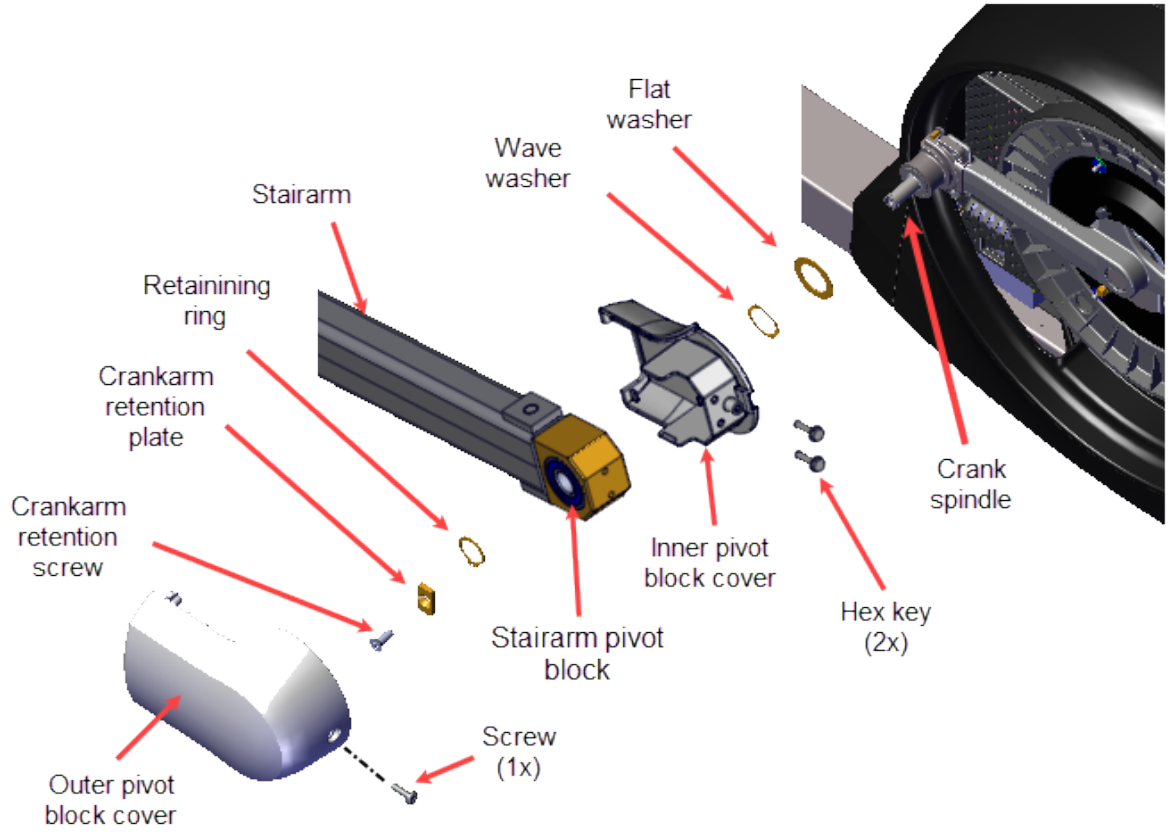
3. Reinstall the Linkarm onto the stairarm (moving arm models only):



   a. Make sure the Linkarm Transition cover is installed onto the stairarm weldment Linkarm Mount.
   b. Position the Inner Linkarm cover onto the Linkarm and then install the Linkarm onto the stairarm weldment Linkarm Mount. Secure using 9/16" hex head screw and torque to 300 +/- 90 in-lbs (34 +/- 10 Nm).
   c. Reinstall the Outer Linkarm Cover and secure using the #2 Phillips screw.
4. Reinstall the stairarm wheel onto the ramp. Carefully place the wheel onto the back of the track and then slide the wheel up the ramp.

Stairarm Input Crank Installation

5. Reinstall the stairarm onto the input drive Crank Spindle:



a. Reinstall the Inner Pivot Block cover onto the Stairarm Pivot Block and secure using two 5/16" hex key screws and fully tighten.
b. Install the flat washer and then the wave washer onto the Crank Spindle. Note that the flat washer sets against the crank.
c. Then slide the stairarm Pivot Block onto the Crank Spindle. Use external 0.047" retaining ring pliers to reinstall the retaining ring on the Crank Spindle. Make sure the retaining ring is properly seated by attempting to pull the Stairarm off the Crank Spindle.
d. Reinstall the Crank Retention Plate and secure using a #3 Phillips screw.
e. Reinstall the Outer Pivot Block cover and secure using the #2 Phillips screw.

6. Verify machine operation and return to service, see "Operation Verification" on page 20.

Troubleshooting

About

This section contains troubleshooting information to help you identify, isolate, and resolve component and system issues.

Review the *Introduction To Troubleshooting* section below to learn about the troubleshooting process, troubleshooting best practices, and other pertinent information that will help you efficiently troubleshoot issues and return the equipment to service.

Information that will help you troubleshoot:

- Review the *Introduction To Troubleshooting* section below, see "Introduction to Troubleshooting" below.
- Review the machine diagnostics *Error Log* for any current active error codes, see the "Error Log & CPA Event Log" on page 223 and "Standard Error Codes" on page 219 topics.
- Refer to the *Error Code Troubleshooting Guide* for error code description and troubleshooting repair information, see Error Code Troubleshooting Guide.
- Make sure that the machine has incorporated all machine specific service bulletins, tech-tips, and software updates, see "Verify service bulletin and software update incorporation" on page 216.

Introduction to Troubleshooting

Troubleshooting issues is an investigative process best implemented utilizing a systematic approach that efficiently targets the issue cause allowing correct equipment repairs and return to service. The following basic troubleshooting steps will help you to systematically troubleshoot and resolve issues.

Troubleshooting Steps

Always begin troubleshooting using the most common simplest possible solution first and then systematically trying the next more complex solution until the issue is finally resolved. Use the following basic troubleshooting steps to help guide you through a systematic approach to troubleshoot and resolve equipment issues:

- "Validate the customer reported issue" on the next page
- "Verify Input Power" on the next page
- "Verify (reproduce) the customer issue" on page 215

- "Verify the Club Settings" on the facing page
- "Verify service bulletin and software update incorporation" on page 216
- "Verify console operation" on page 216
- "Verify that there are no current active error codes" on page 217
- "Verify hardware validation diagnostic tests" on page 218
- "Verify that there are no new error codes" on page 218

Validate the customer reported issue

The failure that is reported may differ from your observations as a trained technician. Many reported failure are not true failures and can be fixed without a customer visit.

For example, start the troubleshooting process by asking the customer the following questions:

- Powered units only: Always ask the customer if there is power to the machine (power cord connected, circuit breaker ON) and is the machine switched ON.
- Further question the customer to determine if this is the real issue requiring an on-site visit or possibly a different issue that can be simply resolved over the phone.

Verify Input Power

On powered equipment and consoles, **always** make sure that the customer has the power properly connected and the equipment is switched "ON".

Powered touchscreen consoles (P62, P80, and P82):

Make sure that the powered touchscreen console (P62, P80, and P82) power brick cord is properly connected.

Powered equipment (treadmills):

Verify the customer has input power cord connected and that the equipment power is switched "ON".

If the machine power is connected and switched ON, but the machine does not power up or runs poorly, verify the following conditions:

- Make sure there is power at the outlet receptacle and that the power is within the specified voltage and current limits. If not, review the following possible causes:
    - Outlet voltage to low: Low out-of-spec outlet voltage can be caused by a large voltage drop in the facility circuit panel-to-wall outlet circuit due to an extremely long circuit wire run. For power requirement information, refer to the *Power Requirements* topic.
    - Input current to low: The power outlet circuit wire gauge may be too small to carry the required machine load current (20 amps/machine).

- Make sure that the outlet receptacle power is good quality (the input power is NOT intermittent or has fluctuating voltage levels or frequency). Poor quality input power can cause operational failures in the machine or powered console. For power requirement information, refer to the *Power Requirements* topic.
- Make sure that each Precor treadmill is connected to a separate 20 amp individual branch circuit outlet. No other devices can be connected to the same circuit outlet except for one optional **PVS**[1] (Personal Viewing System) display if installed. For power requirement information, refer to the *Power Requirements* topic.

IMPORTANT: Always make sure the input power is good quality before troubleshooting the machine. A poor quality input power signal may be the cause of the machine issue or operating failure.

Verify (reproduce) the customer issue

If possible, operate the unit in the workout and conditions similar to the customer and attempt to reproduce the reported failure.

- Determine if the error is a repeatable or intermittent type failure.
- Make note of any additional observations (noises, vibrations, etc.) that occur at the time of the failure which may then be used to help resolve the issue.

Note: It is important to keep in mind that some issues are weight (load) related. You may need to test the unit at minimum and maximum load Limits to reproduce the failure.

Verify the Club Settings

Verify that one of the workout limit settings are not causing a failure, see Club Settings (**LED**[2] consoles) or System Settings Workout Limits (Touchscreen consoles). If a failure is observed while using the machine but passes the hardware validation system tests, this could be an indication that one of the club parameters Limits settings is causing the issue.

IMPORTANT: Check the following if a failure is observed during a workout but the machine works perfectly when doing a hardware validation test:
• First check the Club settings. Some parameters might be set to limits that can give the appearance of a failure, such as, the incline limit set to 0, or the parameter Units set to Metric or US Standard.
• Attempt to recreate the issue. Some problems are caused by vibration, to much weight, or may be an intermittent issue etc. Various workout conditions and scenarios may be necessary to recreate the issue.

[1]Personal Viewing System display.
[2]light-emitting diodes.

Verify service bulletin and software update incorporation

Make sure that the machine is up to date with all released service bulletins, tech-tips, and software updates before troubleshooting an issue. The list of current service bulletins, tech-tips, and software updates can be viewed and downloaded from the Precor Connect web-site. Make sure that all released service bulletins/Tech-Tips and software updates have been incorporated.

How to find and download service bulletins and tech-tips:

1. Log in to your Precor Connect Servicer account (Precor Connect Partner's).
2. From the Connect Home page, select the DOCUMENTATION pane > SERVICE BULLETINS link to view the list of the equipment service bulletins and Tech-Tips.

Note: .There may or may not be service bulletins or tech-tips released for this machine.

How to find and download software updates:

1. Log in to your Precor Connect Servicer account (Precor Connect Partner's).
2. From the Connect Home page, select the DOCUMENTATION pane > CONSOLE SOFTWARE to view the list of available equipment console "**UPCA**[1]" and/or **MC**[2] "**LPCA**[3]" software updates.

   Use the following software access login Username and Password:

   Username: software
   Password: D0wnl0ads!

Note: .There may or may not be software updates for this machine.

Verify console operation

1. On LED consoles (P10, P30, P30i and P31) make sure the console powers up and is working correctly, perform the following verification tests:
   a. If the console does not power up, make sure the Data COMM cable is properly connected at the console and LPCA and in good condition.

[1]Upper PCA board

[2]Motor controller, motor controller unit, or motor controller module: used on treadmills, contains the LPCA and motor controller functionality.

[3]Lower Printed Circuit Assembly board; also refered to as the Lower PCA or simply as the lower board. On treadmills, it is the console to base function interface and the motor controller unit (MCU). On self-powered units, it is the lower PCA console to base function interface.

b. Run the console Display, and Keypad diagnostic tests (see "Hardware Validation Diagnostics Tests Menu (51765761)" on page 33). Resolve any failures.

2. On Touchscreen consoles (P62, P80, and P82) make sure the console powers up and is working correctly, perform the following verification tests:
   a. If the console does not power up, make sure the external **AC**[1]/**DC**[2] power adapter is plugged in and connected to the console. Also make sure the AC/DC adapter brick is in good condition.
   b. Run the following console System Tests (see System Tests):
      - Touchscreen Test
      - Touchscreen Calibration
      - Backlight Test
      - RGB Test
      - Numeric Backlight Test
      - Numeric Display Test

Note: Keep in mind that if a key on the console keypad does not function, the LPCA will not receive a user initiated request for action. For failed console key problems, the machine failure is not caused by a problem with the LPCA or the machine base, In these types of console failures, no error codes will be triggered and logged.

Verify that there are no current active error codes

Always review the Error Log or CPA Event Log when troubleshooting an issue. The error logs will contain any triggered error code events and related information. You can then refer to the Error Code Troubleshooting Guide for information to help resolve the issue. Also, when calling Precor customer service for assistance, refer to the Error Log or CPA Event Log for additional information to help the representative resolve the issue.

- Refer to Error Code & CPA Error Log, see "Error Log & CPA Event Log" on page 223.
- Refer to Error Code Troubleshooting Guide for error code descriptions and repair information.

IMPORTANT: Error code descriptions and troubleshooting information can be found in the *Error Code Troubleshooting Guide*, see Error Code Guide Troubleshooting Guide.

Note: Not all failures trigger an error event code. Many issues are purely mechanical in nature and therefore cannot trigger an error event code.

[1]Alternating Current: electric current which periodically reverses direction between positive and negative polarity.
[2]Direct Current: electrical current that only flows in one direction.

Verify hardware validation diagnostic tests

Perform the equipment Hardware Validation Tests (LED consoles) or System Tests (Touch-screen consoles) to help isolate the cause of the issue. These tests will help identify failed system components. Resolve any resulting failures.

Verify that there are no new error codes

After correcting the issue, reopen the Error Log and verify that there are no remaining active error codes. This will verify that the original error codes are not recurring and that there are no new error code issues. If the error code is recurring, the issue may be mileage related, review the error code odometer history to verify if the error event is related to mileage intervals.

Clear the Error Log, see "Error Log & CPA Event Log" on page 223.

Note: If there are no logged error codes and the issue persists, you will need to use observable and audible indicators to identify the source of the failure. Also make sure that there are no related service bulletins that may resolve the issue. Browse the list of available Troubleshooting procedures for related Troubleshooting information.

Standard Error Codes

About

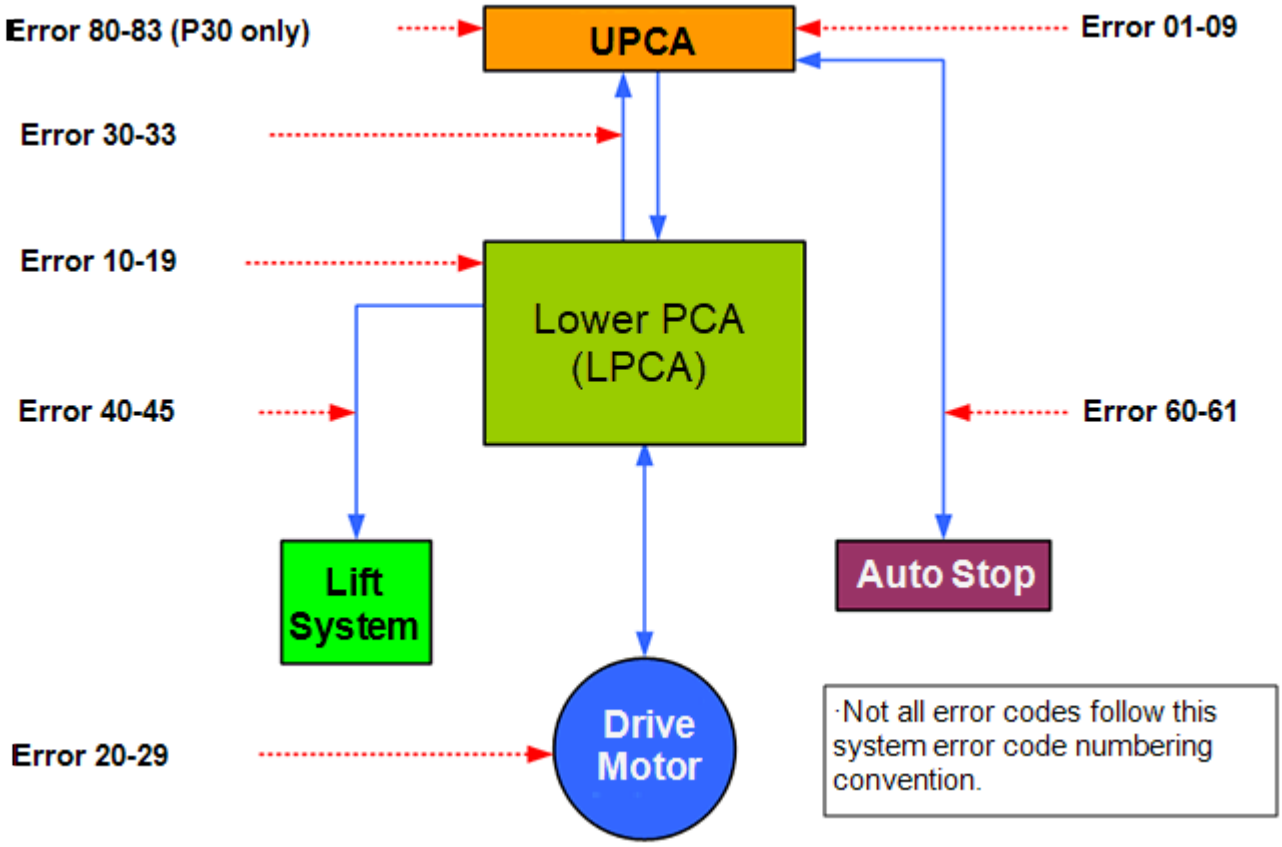
There is a set of standard error codes implemented across Precor cardio exercise equipment. Error codes are system generated codes that identify specific machine fault conditions. The maintenance software monitors error code event conditions, when a fault is detected, the error code is generated and stored in the Error Log (or **CPA**[1] Event Log) along with related machine metrics, such as, the machine mileage (or hours), the time, drive motor current, etc.

On some equipment, error codes have been separated into two categories: Error codes "ERR" and Warning codes "WRN". see Errors and Warnings.

Error code numbers range from 01 to 99. There are also a small number of alpha and alpha-numeric codes. Most, but not all error codes are grouped into numeric ranges to help easily identify common system issues. Refer to the Error Code Troubleshooting Guide for a complete list of error codes and troubleshooting information.

IMPORTANT: Error code descriptions and troubleshooting information can be found in the *Error Code Troubleshooting Guide*, see Error Code Guide Troubleshooting Guide.

[1]Touchscreen console Control Processing Assembly.



How Error Codes Are Generated and Stored

The **Lower PCA**[1] monitors error code event conditions, when a fault is detected, the error code is generated and transmitted to the console **Upper PCA**[2] where it is stored and viewed in the Error Log or CPA Event Log. The error log shows the error code along with related machine metrics, such as, the machine mileage, hours, the time when the event occurred, the date, and other machine specific relevant data.

Error codes are sequentially stored in memory on a "First-In, Last-Out" basis, the newest error code is stored in the number one memory position pushing any currently stored error codes down one position. When the memory is full, the next new code is stored pushing the oldest error code from memory.

[1]Lower Printed Circuit Assembly board; also refered to as the Lower PCA or simply as the lower board. On treadmills, it is the console to base function interface and the motor controller unit (MCU). On self-powered units, it is the lower PCA console to base function interface.
[2]Upper Printed Circuit Assembly board located in the console.

Errors and Warnings

On certain machines, there is a differentiation between errors and warnings. Issues that are noncritical to the operation of the machine have been demoted from Error status to Warning status. Error codes will be formatted with an "ERR" prefix identifier and Warning codes will be formatted with the "WRN" prefix identifier.

- **Error Codes**

  Error codes are system generated codes that identify specific machine fault conditions. The maintenance software monitors error code event conditions, when a fault is detected, the error code is generated and stored in the Error Log or CPA Event Log along with pertinent machine metrics, such as, the machine mileage, hours, event time stamp, etc. Error codes are identified with the "ERR' prefix.

- **Warning Codes**

  Warning codes are system generated codes that identify noncritical machine information that in most cases will not require service action. Depending on the Warning, the information could be used by clubs to better utilize and maintain the equipment etc. or provide additional machine information to help the service technician resolve an issue. Warnings will not disable functionality, display to the exerciser, or change the **ASL**[1] light status.

To differentiate between errors and warnings, error codes will be identified with the "ERR" prefix and warning codes will be identified with the "WRN" prefix.

Viewing Error Codes (Error Log & CPA Event Log)

Error event codes are logged, stored, and viewed in either the **Error Log** on **LED**[2] consoles (P10, P30, P30i and P31) or the **CPA Event Log** on touchscreen consoles (P62, P80, and P82), see Error Log & CPA Event Log.

How to access the Error Log:

- On LED consoles (P10, P30, P30i and P31)**:** access the **Information Display (65)** > select **Error Log**.
- On touchscreen consoles (P62, P80, and P82)**:** access the **Service Settings menu (51765761)** > select **About > CPA Event Log**

Error Code and Troubleshooting Guide

Use the *Error Code Troubleshooting Guide* to learn about the error code and to help troubleshoot and repair the machine. The *Error Code Troubleshooting Guide* provides a complete list of all supported error codes and information about the error code including the

[1]Active Status Light: Service and maintenance status light.

[2]light-emitting diodes.

code description, related issues and symptoms associated with the error, troubleshooting steps, and repair procedures:

Error Code and Troubleshooting Guide: Error Code Troubleshooting Guide.

- The error code description.
- The affected system components.
- The Issues and Symptoms associated with the fault condition.
- Troubleshooting steps and repair instructions.

Troubleshooting with Error Codes

Getting Started

You will need a copy of the "*Error Code Troubleshooting Guide*" to learn Information about the error codes including the code description, related issues/symptoms, troubleshooting and repair information, click Error Code Troubleshooting Guide.

Using Error Codes to troubleshoot

1. Review the equipment Error Log (or CPA Event Log) to identify any current active error codes. Also review the error code history for any past error codes that may provide insight to the current active error code issue.
2. Next go to the error code topic in the *Error Code Troubleshooting Guide* and review the error code troubleshooting and repair information.

Note: Be aware that not all machine failures will cause an error code event. Use physical observation and mechanical troubleshooting skills to resolve non error code issues.

Error Log & CPA Event Log

About

The Error Log and **CPA**[1] Event Log is used to store "log" and view error and warning codes. On **LED**[2] (P10, P30, P30i and P31 consoles) use the "*Error Log*" to view error codes. On touchscreen consoles (P62, P80, and P82) use the "*CPA Event Log*" to view error/warning codes.

- Error Log, see "Error Log " on the next page
- CPA Event Log, see " CPA Event Log" on page 226

IMPORTANT: On touchscreen consoles (P62, P80, and P82), use the **CPA Event Log** and not the **Event Log** to view the maintenance error/warning codes. The touchscreen console Event Log includes additional OEM use only error codes.

more....

How Error Codes Are Generated and Stored

The **Lower PCA**[3] monitors error code event conditions, when a fault is detected, the error code is generated and transmitted to the console **Upper PCA**[4] where it is stored and viewed in the Error Log or CPA Event Log. The error log shows the error code along with related machine metrics, such as, the machine mileage, hours, the time when the event occurred, the date, and other machine specific relevant data.

Error codes are sequentially stored in memory on a "First-In, Last-Out" basis, the newest error code is stored in the number one memory position pushing any currently stored error codes down one position. When the memory is full, the next new code is stored pushing the oldest error code from memory.

Repeating Error Codes

Repeated instances of the same error code will only be logged as a single error code until one of the following conditions occur:

1. Two different errors events occur and are logged
2. There is an "Odometer" and "Hours" change.

[1]Touchscreen console Control Processing Assembly.

[2]light-emitting diodes.

[3]Lower Printed Circuit Assembly board; also refered to as the Lower PCA or simply as the lower board. On treadmills, it is the console to base function interface and the motor controller unit (MCU). On self-powered units, it is the lower PCA console to base function interface.

[4]Upper Printed Circuit Assembly board located in the console.

Errors and Warnings

On certain machines, there is a differentiation between errors and warnings. Issues that are noncritical to the operation of the machine have been demoted from Error status to Warning status. Error codes will be formatted with an "ERR" prefix identifier and Warning codes will be formatted with the "WRN" prefix identifier.

- **Error Codes**

  Error codes are system generated codes that identify specific machine fault conditions. The maintenance software monitors error code event conditions, when a fault is detected, the error code is generated and stored in the Error Log or CPA Event Log along with pertinent machine metrics, such as, the machine mileage, hours, event time stamp, etc. Error codes are identified with the "ERR' prefix.

- **Warning Codes**

  Warning codes are system generated codes that identify noncritical machine information that in most cases will not require service action. Depending on the Warning, the information could be used by clubs to better utilize and maintain the equipment etc. or provide additional machine information to help the service technician resolve an issue. Warnings will not disable functionality, display to the exerciser, or change the **ASL**[1] light status.

To differentiate between errors and warnings, error codes will be identified with the "ERR" prefix and warning codes will be identified with the "WRN" prefix.

Troubleshooting with Error Codes

Always review the Error Log or CPA Event Log when troubleshooting an issue. The error logs will contain all current and past error codes from the last log reset. You can then refer to the *Error Code Troubleshooting Guide* (Error Code Troubleshooting Guide) to for description and troubleshooting information.

Note: Be aware that not all machine failures will trigger an error code event. Use physical observation and mechanical troubleshooting skills to resolve non error code issues.

Error Log

Error Log

Error Log

Applies To: LED (P10, P30, P30i and P31) consoles

About

[1]Active Status Light: Service and maintenance status light.

On LED (P10, P30, P30i and P31) consoles, error codes are stored in the **Error Log**. Error codes are sequentially shown on the console message display one at a time. The individual error code data metrics will scroll across the display. Use the Up/Down keys to scroll thru and view the individual error codes.



LED P31 Console "ERROR LOG"

Event Code Format

The error format will always start with the Error Log entry number, the error type (error "ERR" or warning "WRN"), the Error Number and then additional information specific to the type of fitness equipment, with no commas or other delimiters in between information. Errors will have the identifier ERR and Warnings will have the identifier WRN before the error number.

Example Error Code Format

1	ERR	30	1000 MILES 20 HOURS
2	WRN	70	1000 MILES 20 HOURS

- Error log memory stack number
- Code Type: Error "ERR" or Warning "WRN"
- Error/Warning number
- Description and associated metric values

Typical Error Log data format metrics:

- Error/Warning code entry number: 1 thru "n" (1 is the newest error code and "n" is the oldest)
- Event Type: Error "ERR" or Warning "WRN"

- Error/Warning Code Number
- Error/Warning Code Description
- May include additional pertinent event metric information

How to open the Error Log:

1. Access the **Information Display (65)**
2. Select **Error Log**
3. Select **OK** hardkey

Clearing Error Codes:

To remove an error code from the Error Log, scroll to select the error code to be removed and then press/hold the **QUICK START** key for a minimum of 6 secs until the ."NO ERRORS" message shows.

TIP: **Error code remove shortcut**: Press and hold the **PAUSE** key for a minimum of 6 seconds to open the Error Log and view all logged error codes. If there are no logged error codes, the "Stuck Key" message will show. To remove error codes, select the error code and press/hold the **QUICK START** key until the "NO ERRORS" message shows.

CPA Event Log

CPA Event Log

CPA Event Log

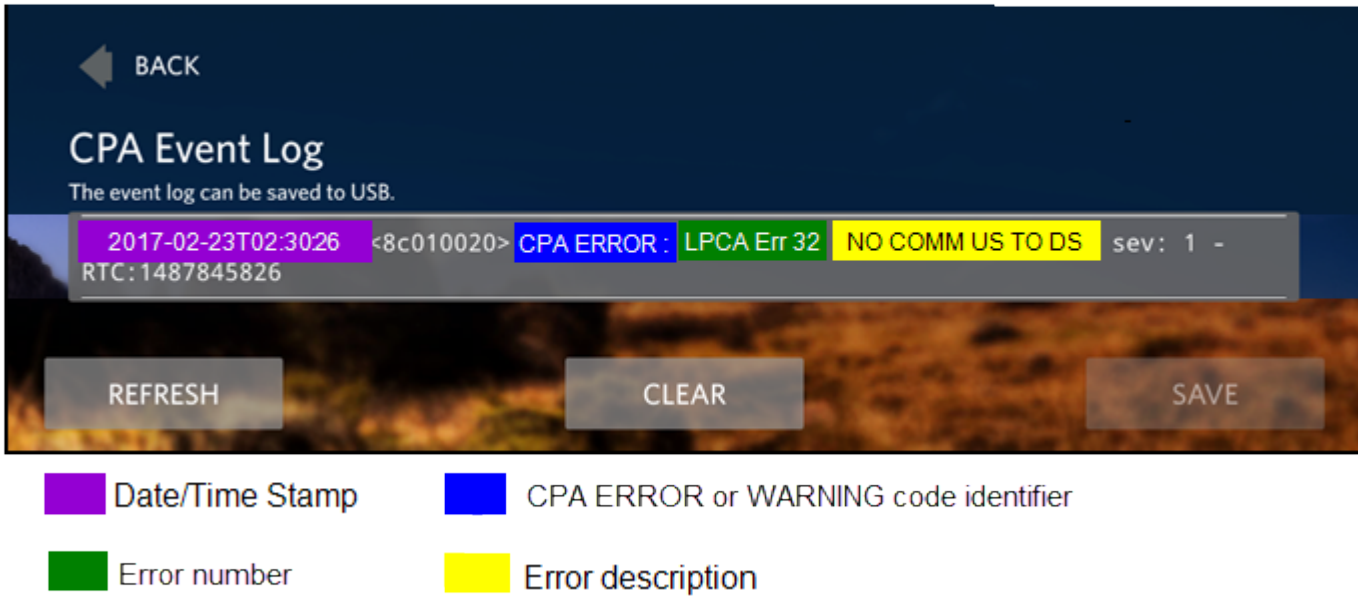
Applies To: Touchscreen (P62, P80, and P82) consoles

About

On touchscreen (P62, P80, and P82) consoles you will use the **CPA Event Log** and not the **Event Log** to view error and warning codes. The **CPA Event Log** only contains service related error and warning codes, whereas the Event Log contains all event code types including additional OEM use only error codes. Maintenance error codes are identified with a "CPA ERROR" tag and warnings are identified with a "CPA WARNING" tag

IMPORTANT: . Make sure to only use the **CPA ERROR** or **CPA WARNING** tagged event codes for service related issues, refer to the Error Code Troubleshooting Guide for description and troubleshooting information.

Touchscreen console "CPA Event Log"



Date/Time Stamp

CPA ERROR or WARNING code identifier

Error number

Error description

Event Code Format

Typical CPA Error and Warning code data format information:

- Date and Time stamp
- Event type: CPA Error or CPA Warning
- Error/Warning Code Number
- Error/Warning Code Description
- May include additional pertinent event metric information

How to open the CPA Event Log:

1. Access the **Service menu (51765761)**
2. Select **About > CPA Event Log**

CPA Event Log Softkeys

The CPA Event Log provides the following function softkeys

Softkey	Description
REFRESH	Refreshes the CPA Event Log with any missing current error codes.
CLEAR	Removes all error codes from the CPA Error Log.

Softkey	Description
SAVE	Typically reserved for Precor use. Saves the CPA Event Log error codes to a **USB**[1] flash drive.

How to Clear CPA Error Codes

1. Access the **Error Event Log**
2. Select the **CLEAR** softkey.

How to Save CPA Error Log Data

The save CPA Event Error Log feature is used by Precor to investigate machine issues. Occasionally, Precor may request you to save the CPA Error Log error code data to a USB flash drive and then send the USB drive to Precor customer service.

1. Access the **CPA Event Log**.
2. Insert a USB flash drive into the USB chin port.
3. Then wait for the **SAVE** softkey to highlight and then select **SAVE**.
4. Follow prompts to complete the save process.
5. Remove the USB flash drive.
6. Insert the USB drive into PC and verify that the error log data file was saved.
7. Return the USB drive as directed by Precor customer service.

[1]Short for Universal Serial Bus, is an industry standard developed in the mid-1990s that defines the cables, connectors and communications protocols used in a bus for connection, communication, and power supply between computers and electronic devices.

System Troubleshooting Procedures

System Troubleshooting procedures provide information and procedures to help you troubleshoot and repair elliptical issues.

Available Troubleshooting Procedures

- "Blown Battery Fuse Troubleshooting" on the next page

See Also

Troubleshooting

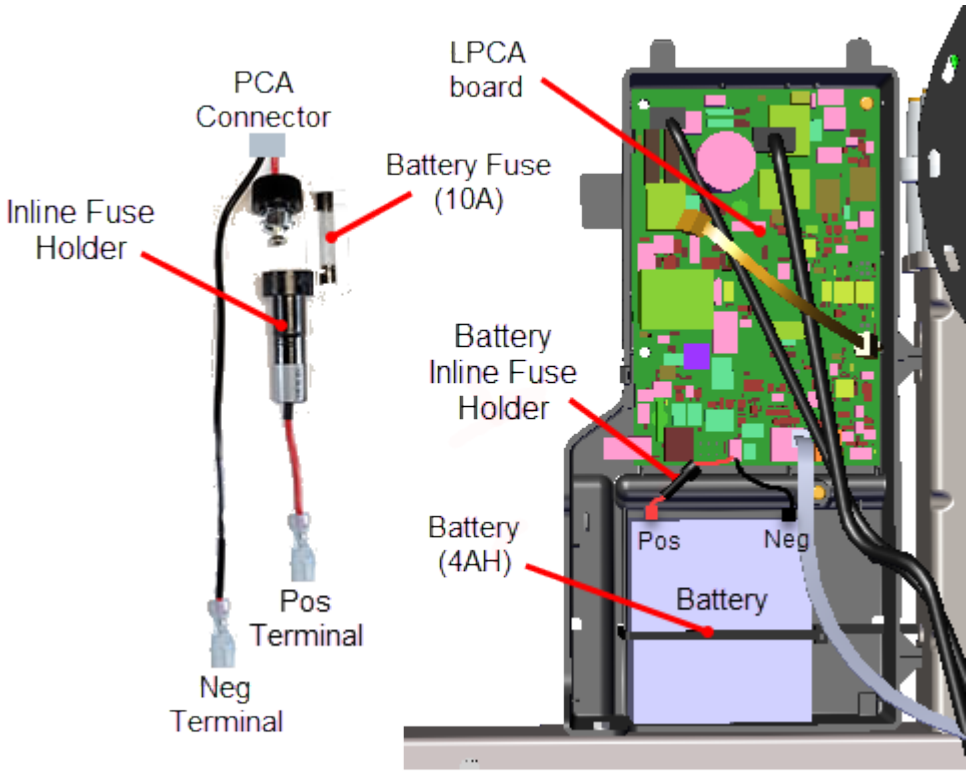
Blown Battery Fuse Troubleshooting

Use this procedure to help troubleshoot a failed "blown" battery fuse.

Main battery fuse failure

An indication that the battery fuse has failed is that the machine will operate as normal except that the incline lift function does not operate,

1. Remove the main battery fuse from the inline fuse inline holder and verify condition. Use an ohm meter to verify that there is continuity (zero ohms) between the two fuse connection pins.
    a. If the fuse is good, replace the removed fuse.
    b. If the fuse is bad, replace the fuse.
2. Make sure the battery is charged and properly connected, see "Battery Replacement" on page 73.
3. Make sure that the battery positive and negative cables are installed correctly and securely connected at both ends of the battery power cable.
4. Switch the power ON. Verify that the machine power has been restored. Wait for a few minutes and make sure the fuse does not fail again.
    a. If the fuse fails after power up, the fuse is not causing the power failure, continue troubleshooting the cause of the electrical power failure.



See Also

"System Troubleshooting Procedures" on page 229

Preventive Maintenance (PM)

About

Preventative maintenance is proven to extend the life of the equipment, improve the user experience, and keep maintenance problems and service calls to a minimum.

IMPORTANT: It is the responsibility of the owner to maintain equipment in accordance with the Precor recommended preventative maintenance schedule. Following the preventative maintenance schedule is required to maintain warranty coverage.

Preventative maintenance (**PM**[1]) tasks are grouped into Daily, Weekly, Monthly, Quarterly, and Semi-annual scheduled maintenance tasks (scheduled maintenance tasks are equipment model specific). Refer to the equipment specific maintenance guide for schedule and maintenance task information. The PM maintenance manuals are available for download from the Precor product web page, see " PM Guides" below. There are also many PM service task instructional videos available to view from the Precor Connect servicer web site, see " PM Service Videos" on page 234.

Precor Customer PM Plans

Precor also offers PM service plans for customer purchase, see Preventative Maintenance Plans.

PM Guides and Videos

Product PM Guides

PM Guides

The PM maintenance guide provides the required Daily, Weekly, Monthly, Quarterly, and Semi-annual scheduled maintenance tasks needed to satisfy Precor equipment maintenance requirements. The PM guides can be downloaded from the Precor product web page.

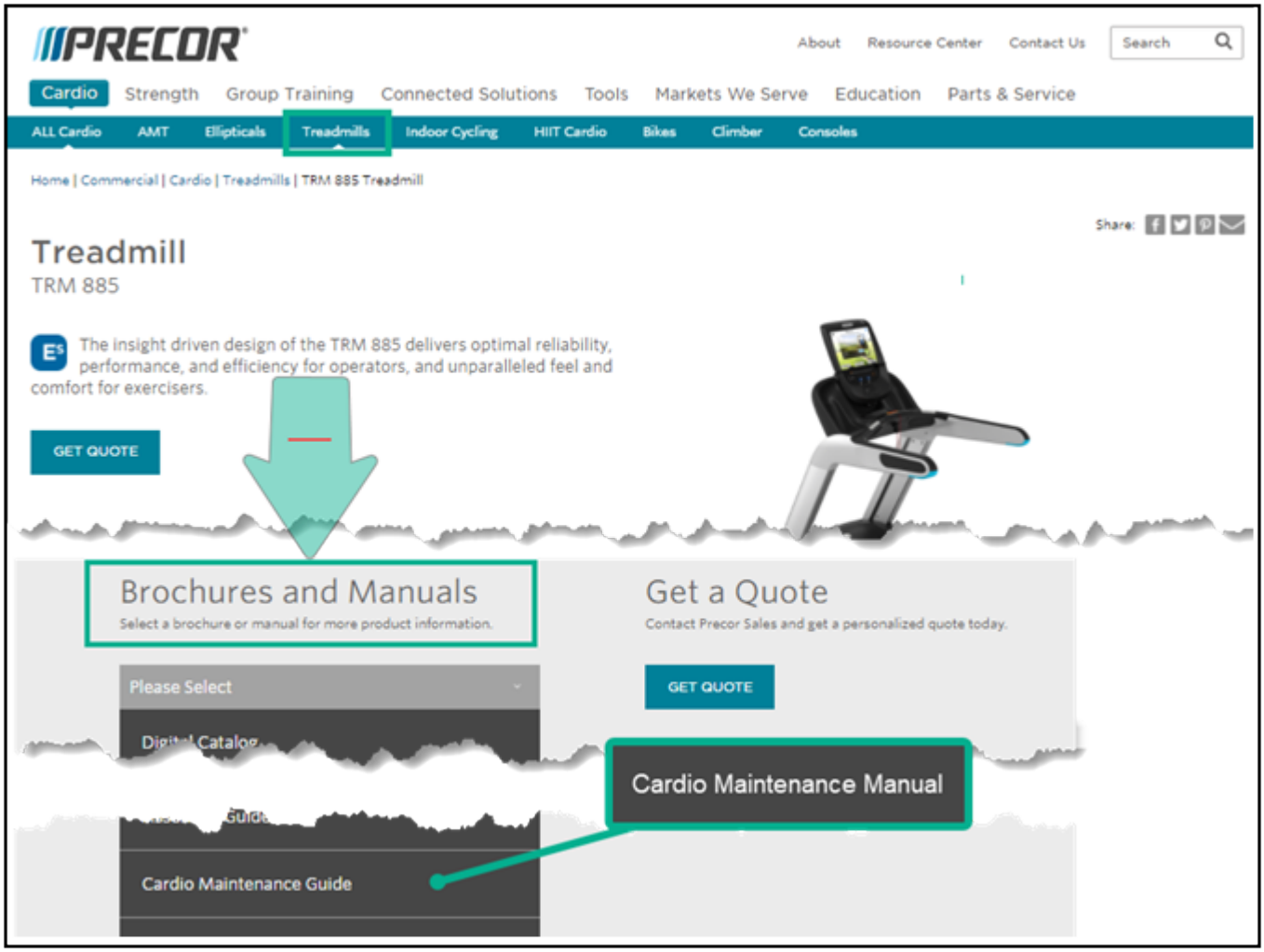
- Cardio Equipment PM Guide

How to find equipment and console PM guides

[1]Preventative Maintenance: Daily, Weekly, Monthly, and Quarterly scheduled maintenance.

1. Go to the Precor.com website (Precor.com) and navigate to the specific equipment product web page.
2. Then scroll down to the **Brochures and Manuals** section.
3. Click the **Please Select** drop-down box and select the product **Preventative Maintenance Guide** link(s).

TIP: Make sure to review the entire list of manuals. There may be other related product PM guides, such as, console PM guides.



IMPORTANT: If you determine that the equipment needs service, disconnect all power connections (television, Ethernet, and power cables). Then place an OUT OF SERVICE sign on the equipment and make it clear that the machine must not be used.

PM Service Videos

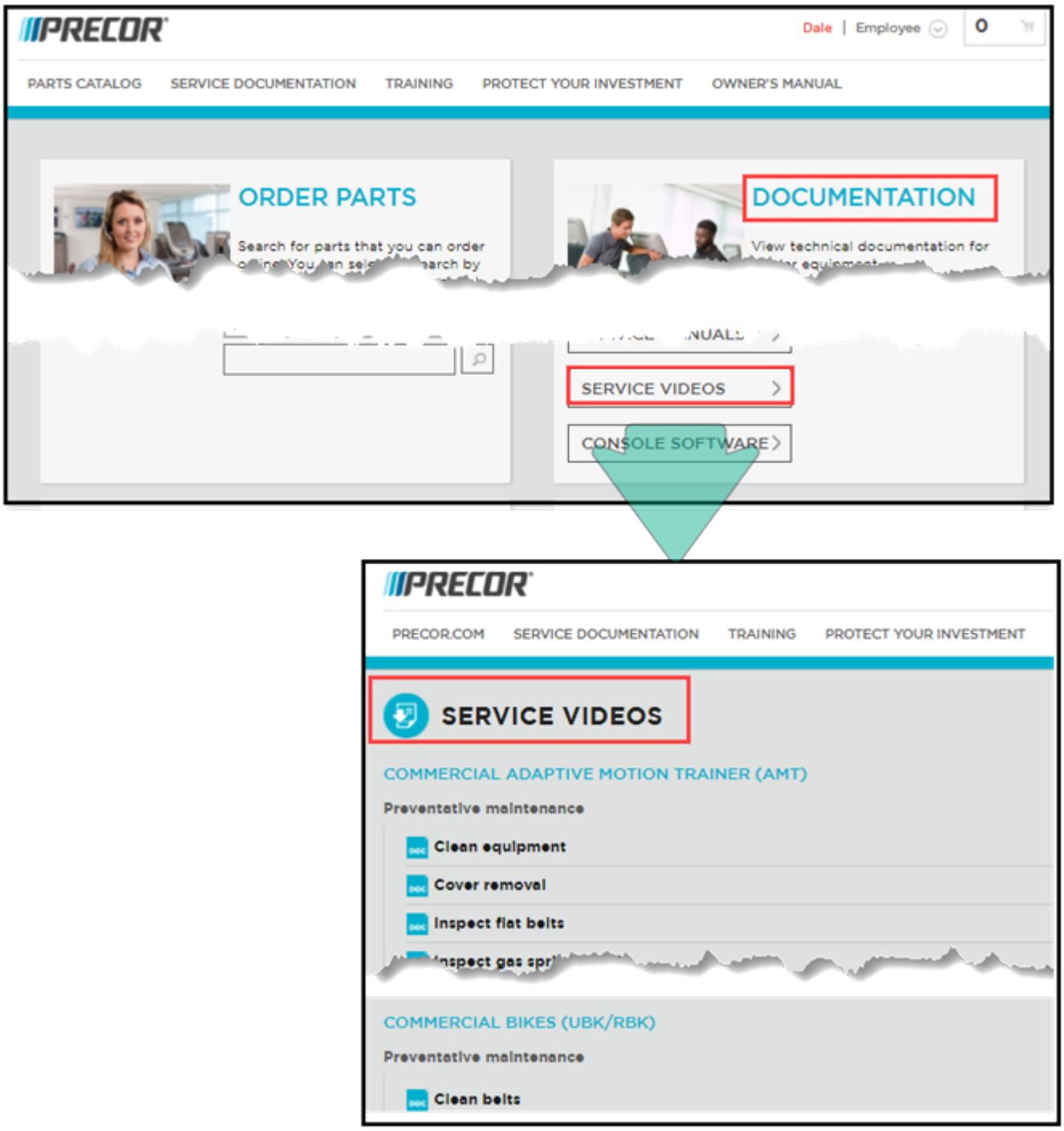
PM Service Videos

There are many products that have specific PM task instructional videos available on the Precor Connect > **SERVICE VIDEOS** web page. Review the SERVICE VIDEOS web page for a list of current available product PM task videos. Not all products currently include PM videos:

- PM Service Videos: SERVICE VIDEOS

How to access PM service videos from Precor Connect:

1. Log in to your Precor Connect Servicer account (Precor Connect Partner's).
2. From the Connect Home page, select DOCUMENTATION > **SERVICE VIDEOS** to view the list of the equipment Service Bulletins and Tech-Tips.


PRECOR
Dale | Employee
PARTS CATALOG
SERVICE DOCUMENTATION
TRAINING
PROTECT YOUR INVESTMENT
OWNER'S MANUAL
ORDER PARTS
DOCUMENTATION
SERVICE VIDEOS
CONSOLE SOFTWARE
PRECOR.COM
SERVICE DOCUMENTATION
TRAINING
PROTECT YOUR INVESTMENT
SERVICE VIDEOS
COMMERCIAL ADAPTIVE MOTION TRAINER (AMT)
Preventative maintenance
Clean equipment
Cover removal
Inspect flat belts
COMMERCIAL BIKES (UBK/RBK)
Preventative maintenance
Clean belts

Electrical Systems

Information about the machine electrical systems.

Electrical System Overview

Power-up sequence

When the user begins pedaling at speed greater than minimum, 40 strides per minute (spm) the lower circuit (**LPCA**[1]) powers up and delivers power to the console, and all systems initialize.

The LPCA will remain powered ON using battery power until the pedal speed drops below the minimum 40 spm which then starts the pending shutdown process.

Banner default state

When the user begins pedaling at speed greater than minimum, 40 strides per minute the lower circuit (LPCA) powers up and delivers power to the console, and all systems initialize.

The LPCA will remain on under battery power until the pedal speed drops below the minimum, at which time the system enters Pending Shutdown state.

- Exercise program is the manual program.
- Goal type is time.
- Goal value is the club time limit.
- All other exercise program parameters revert to default values appropriate to the specific exercise program.
- Weight is 170 pounds or 77 kilograms.
- Age, gender, target heart rate and fitness score are unknown.
- Units, language, and optional metric are read from **EEPROM**[2], as set by Owner Settings. Factory defaults for these are U.S., English, and no optional metric.

When the machine returns to Banner state after an exercise session ends, the following accumulated session data is stored in memory until the system goes through the Initialization state, or until the next user performs data entry.

[1]Lower Printed Circuit Assembly board; also refered to as the Lower PCA or simply as the lower board. On treadmills, it is the console to base function interface and the motor controller unit (MCU). On self-powered units, it is the lower PCA console to base function interface.
[2]Electrically erasable programmable read-only memory and is a type of non-volatile memory.

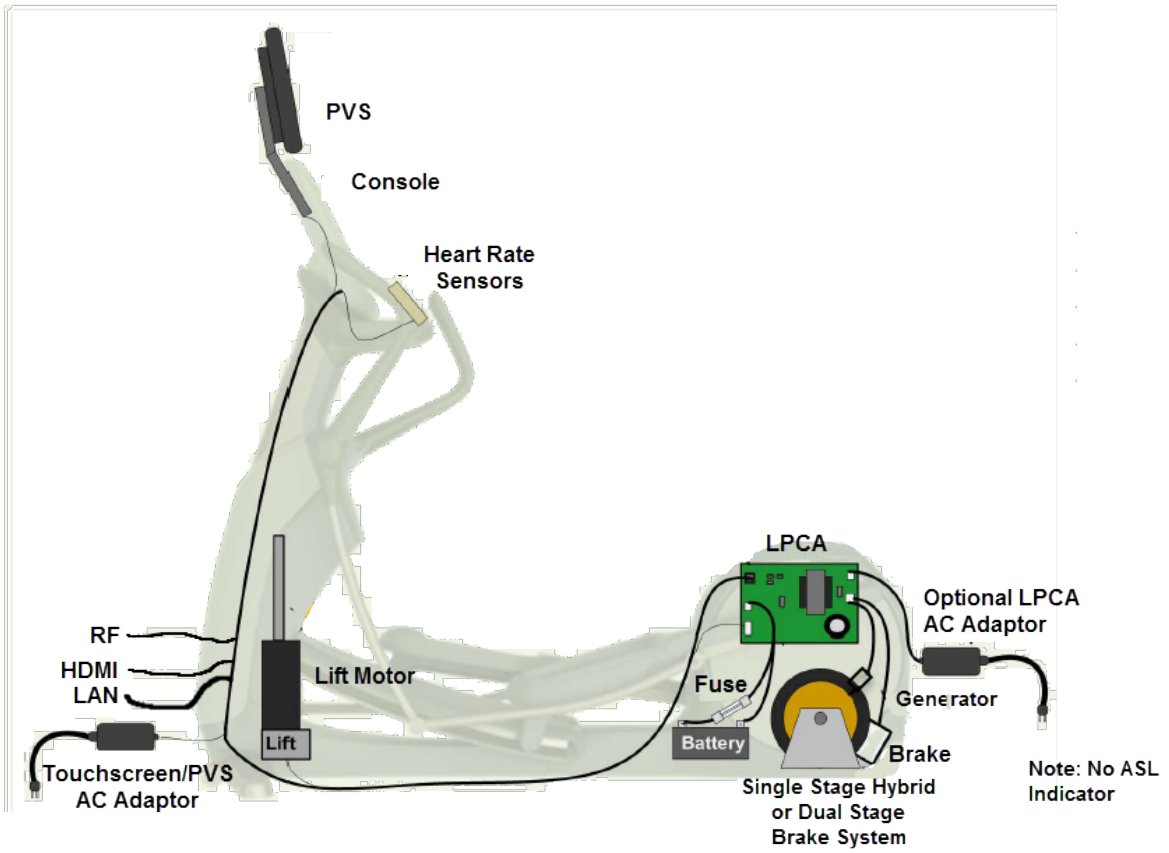
- Session program.
- Session total time, including cool-down time.
- Session total distance, including horizontal, vertical, strides, revolutions, equivalent distances, etc.
- Session total calories.
- Average speed.
- Average heart rate, max heart rate, and total time spent in a heart rate zone.
- Weight, age, gender, target heart rate, parameters related to interval course profile, and fitness score.

System Component Overview

The EFX600-18 is comprised of two basic system blocks, the console and the base. The console contains the upper control board (LPCA) and provides the user input controls, metric indicator displays, and console-to-base communication interfaces. The console also provides the standard service software menus and the error code data received from the base **Lower PCA**[1] board (LPCA). The base LPCA receives machine operating commands and executes them. The main base electrical systems include the **MCU**[2] (contains the LPCA), battery, the lift motor, and Input module (contains the generator and brake system) the base also monitors error conditions and sends detected error code data to the console.

Note that The EFX600 elliptical can be installed with either a single stage hybrid or a dual stage Input drive system.

[1]Lower Printed Circuit Assembly board; also refered to as the Lower PCA or simply as the lower board. On treadmills, it is the console to base function interface and the motor controller unit (MCU). On self-powered units, it is the lower PCA console to base function interface.
[2]Motor controller, motor controller unit, or motor controller module: used on treadmills, contains the LPCA and motor controller functionality.



EFX600 Eliptical Electrical System

Console

The console provides the user interface operational control inputs, the metric indicator information, and the console-to-base communication interface. The console **Upper PCA**[1] board (**UPCA**[2]) sends the input control commands to the base Lower **PCA**[3] board (LPCA). The console also receives error code data from the base which is used to maintain the Error Log service menu.

[1]Upper Printed Circuit Assembly board located in the console.

[2]Upper PCA board

[3]Printed circuit assembly, generally referred to as either an upper PCA or lower PCA.

Base

The base Lower PCA (**LPCA**[1]) receives machine control commands from the console and directly executes the commands to control the braking, lift operation, and power ON/OFF state. The LPCA also monitors error conditions and sends the detected error event code information to the console **UPCA**[2].

The LPCA makes use of two main processors: the Master (also referred to interchangeably as “Major”) and Slave (also as “Minor”).

Generator/Brake system

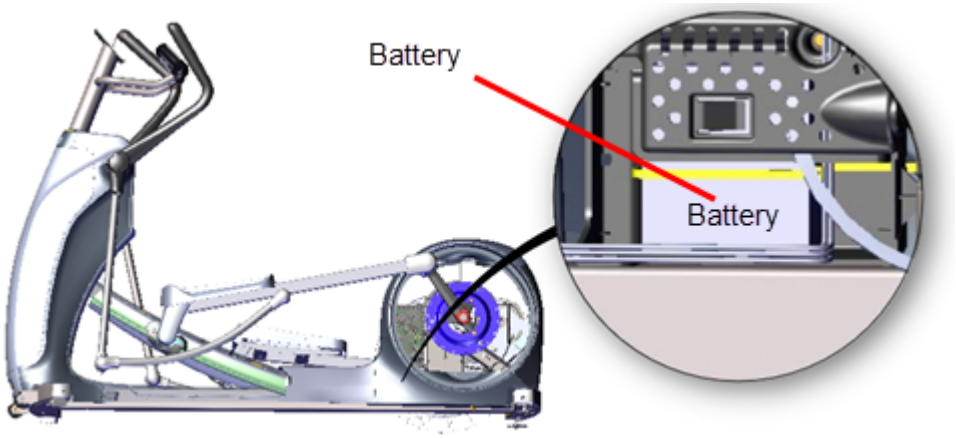
The EFX600 ellipticals can be installed with either a single stage hybrid or a dual stage input drive generator/brake system (same dual stage input drive used on the EFX800 & EFX700 elipticals).

Active Status Light (ASL)

Active Status Light (**ASL**[3]) function is not supported on EFX600 model ellipticals.

Battery

Battery location



[1]Lower Printed Circuit Assembly board; also refered to as the Lower PCA or simply as the lower board. On treadmills, it is the console to base function interface and the motor controller unit (MCU). On self-powered units, it is the lower PCA console to base function interface.
[2]Upper PCA board
[3]Active Status Light: Service and maintenance status light.

Determining the battery condition

Use the System Tests menu **BATTERY TEST** to measure the battery voltage and determine the battery condition.

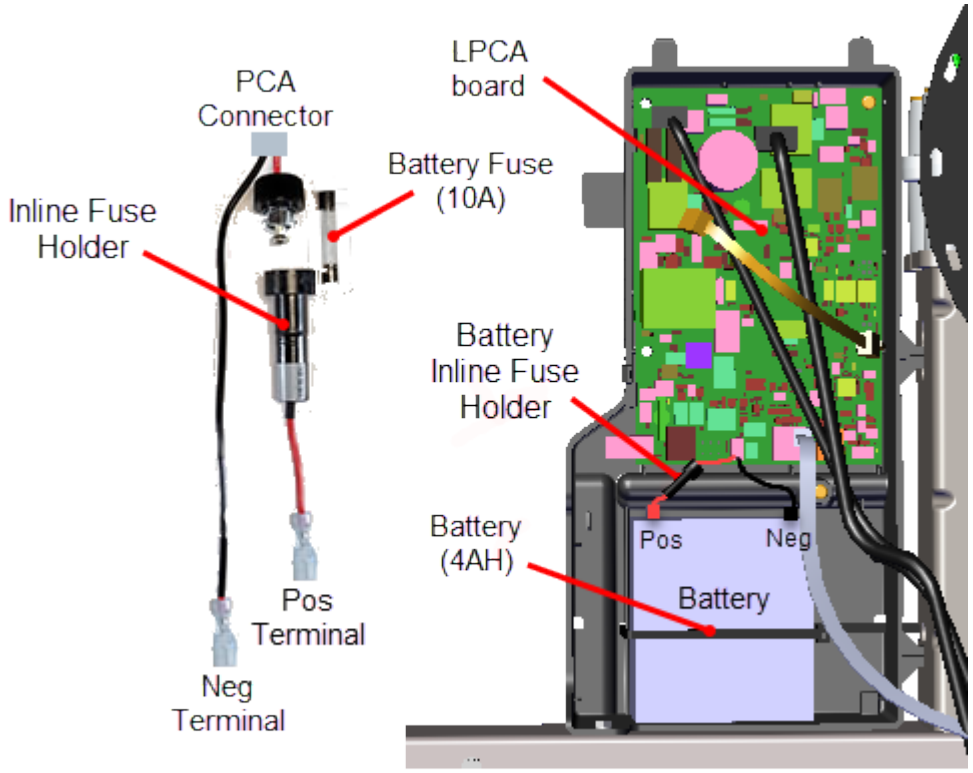
Battery test

Format	XX.X VDC YY
where	XX.X is the measured battery voltage in VDC (nominal 12.6 - 14.6 Vdc). VDC: **DC**[1] volts Y is the information suffix: C: external **AC**[2] charger connected. L: Battery is low (less than 11.4 volts). CL: Charger is connected and battery is low.

Battery Fuse

The battery inline fuse holder is part of the battery assembly cable attached to the battery positive terminal. To remove the fuse, twist the fuse holder top cap and remove.

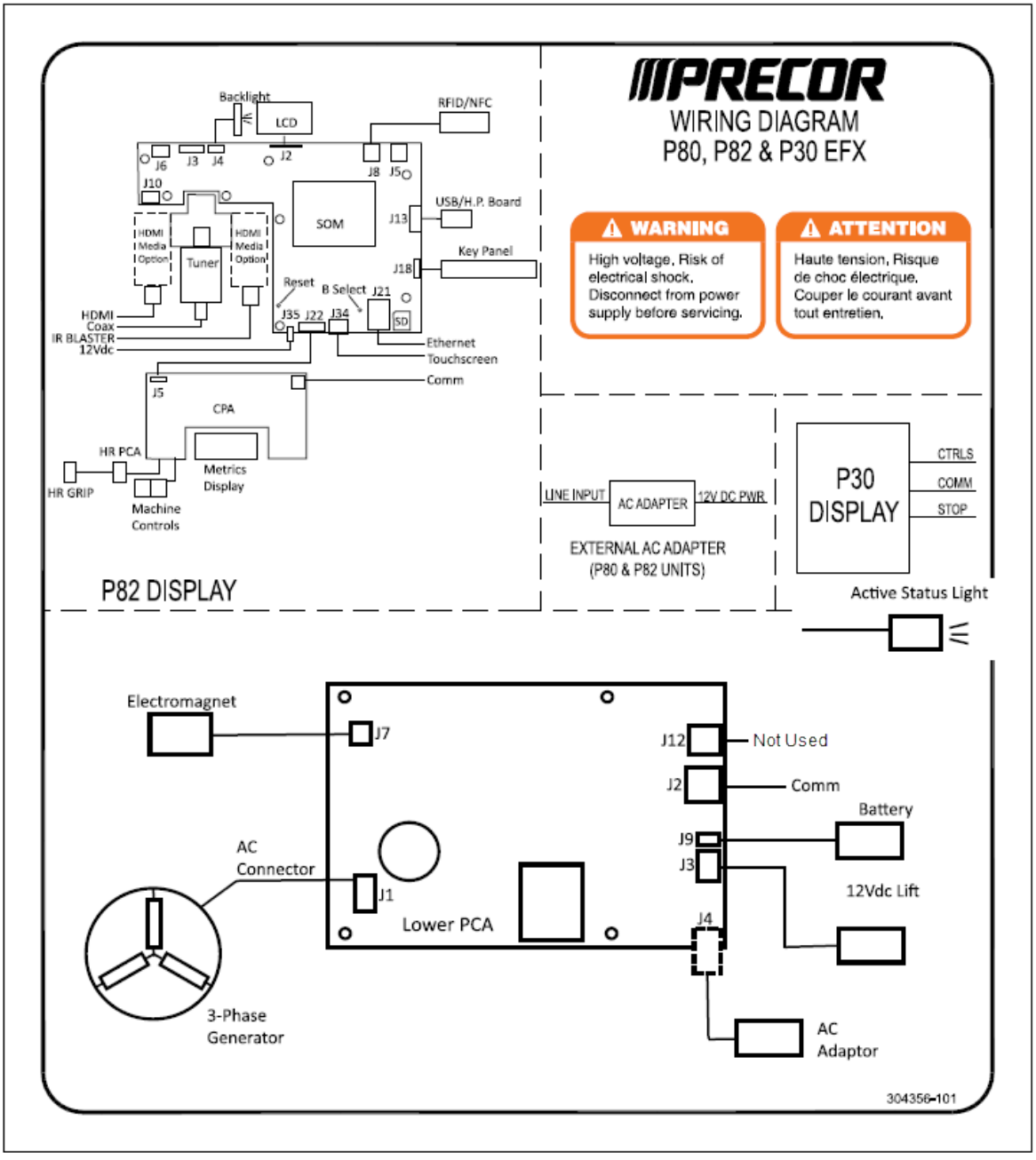
Fuse Type: Inline 10 Amp slow blow fuse, .25" diameter



[1]Direct Current: electrical current that only flows in one direction.

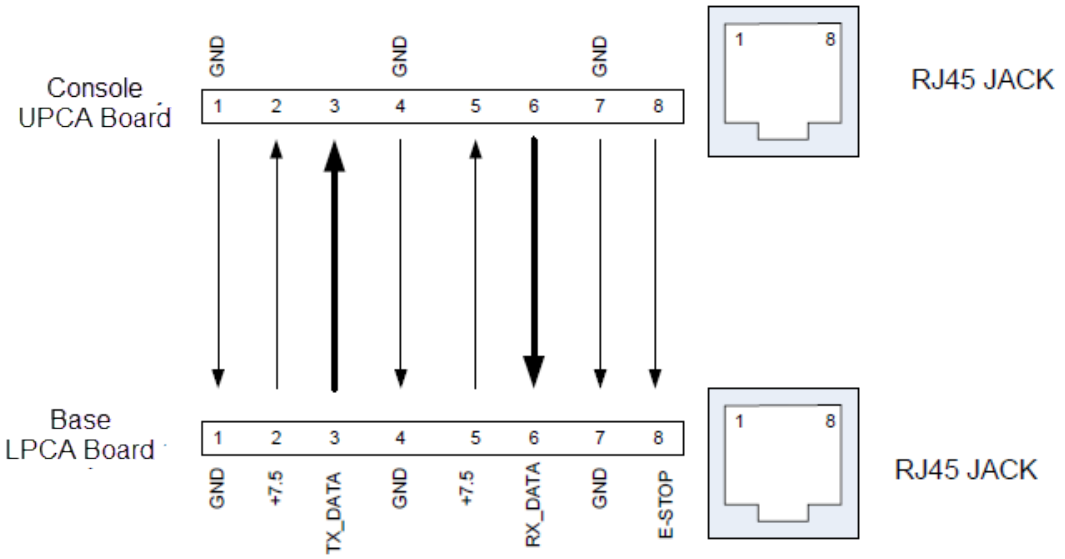
[2]Alternating Current: electric current which periodically reverses direction between positive and negative polarity.

System Wire Diagram



COMM Data Cable Wire Diagram

The COMM Data Cable connects the console Upper PCA to the base Lower PCA.



- TX and RX ----- 9600 baud, 8 data bits, 1 stop bit, no parity
- TX and RX signals are TTL (5 volt) levels, with 0V (start bit) to 5V (stop bit) range
- Power is provided by the Lower Control Board
  - +7.5 VDC +/- 5%
  - 1.5 amps

Parts

About

The *Exploded View Diagram* and *Parts List* documents are used to show the disassembled machine and to identify the machine replacement part numbers. The *Exploded View Diagram* shows the disassembled replacement machine parts and the part bubble numbers. The *Parts List* is used to obtain the Precor part numbers using the Exploded View part bubble number.

How to use the *Exploded View Diagram* and *Parts List* to find part numbers:

- First use the machine *Exploded View Diagram* to identify a machine replacement part and the associated bubble number.
- Then go to the *Parts List* and use the part bubble number to obtain the Precor part number.

This service manual include copies of the equipment *Exploded View Diagram* and *Parts List*. These documents are primarily intended to be used as a quick reference when servicing the equipment. However, the service manual may not reflect the latest equipment part updates. So always refer to the equipment *Exploded View Diagram* and *Parts List* on Precor Connect to obtain the latest part information.

Precor Connect Exploded View Diagram and Parts List

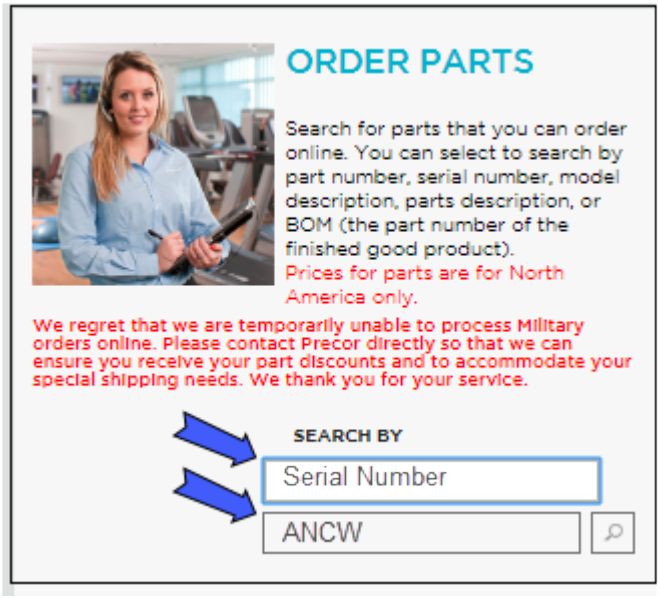
If you have online web access, it is always recommended that you log in to your Precor Connect servicer account (Precor Connect) to view and download the equipment's most current *Exploded View Diagram* and *Parts List* information.

How to use Precor Connect to find part Information

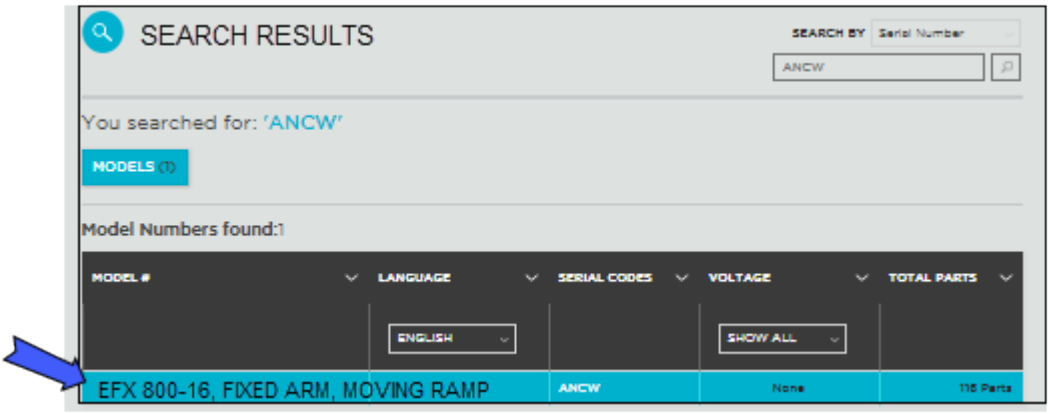
1. Log in to the Precor Connect Partner website.



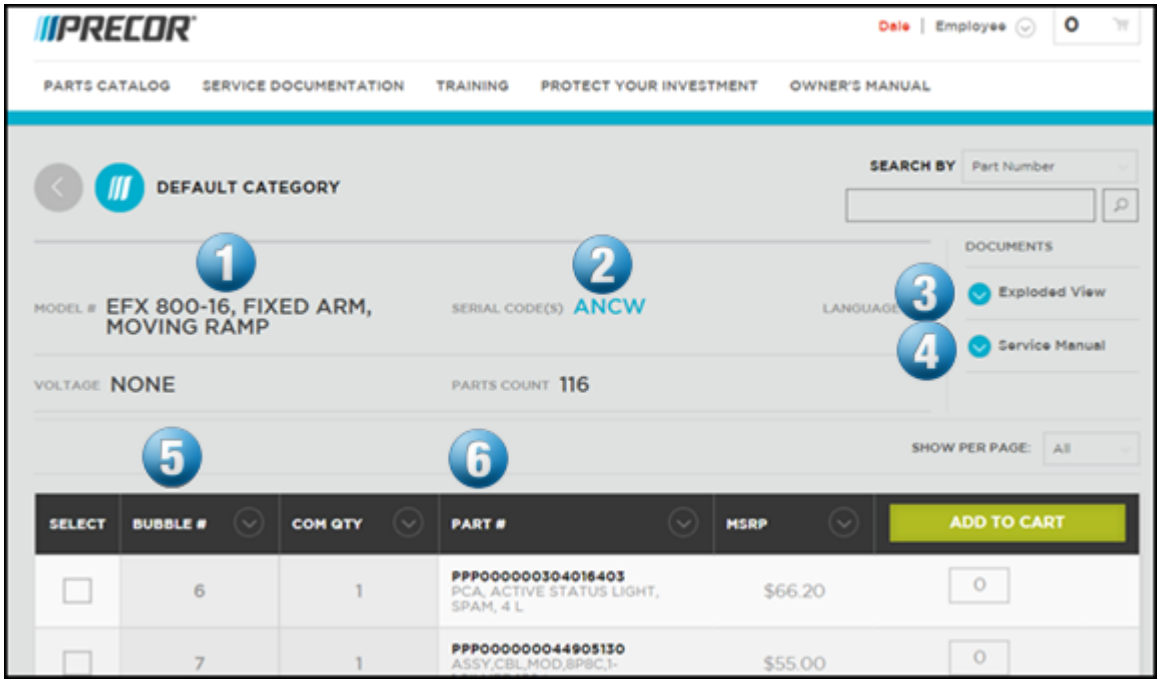
2. Then use the ORDER PARTS "SEARCH BY" function to find the equipment model. You can search by Part Number, Serial Number (first four letters are sufficient), Model Description, or the Parts Description.



3. Select the equipment model from the list of found search results.



4. Finding equipment part numbers:
   a. Verify the MODEL Description (1) and SERIAL CODE (2).
   b. Open the Exploded View Diagram (click the Exploded View link (3)) and find the part bubble number.
   c. Then go to the *Parts Identification Table*, locate the bubble number in the "BUBBLE #" column (5) and the associated part number in the "PART #" column (6).



ID	Description	ID	Description
1	Model Description	4	Service Manual Link
2	Serial Code	5	Bubble Numbers
3	Exploded View Link	6	Part Numbers

Exploded View Diagrams and Parts List

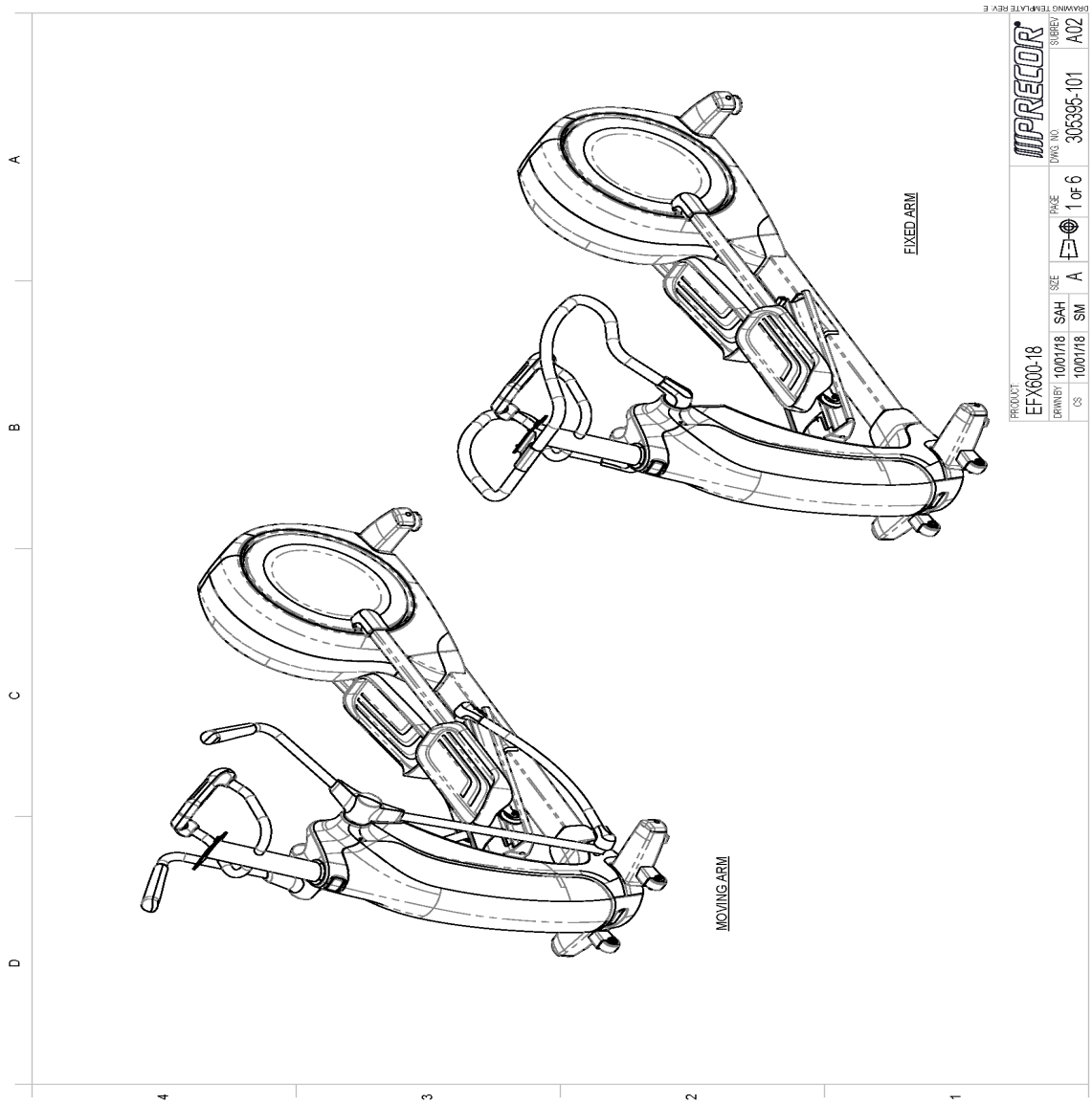
This manual provides local copies of the *Exploded View Diagram* and *Parts List.*

- Exploded View Diagrams: see "Exploded View Diagram" on the facing page.
- Parts List: see "Parts List" on page 253.

TIP: It is recommended that you go to the Precor Connect servicer website to obtain the most current version of the *Exploded View Diagram* and part number information.

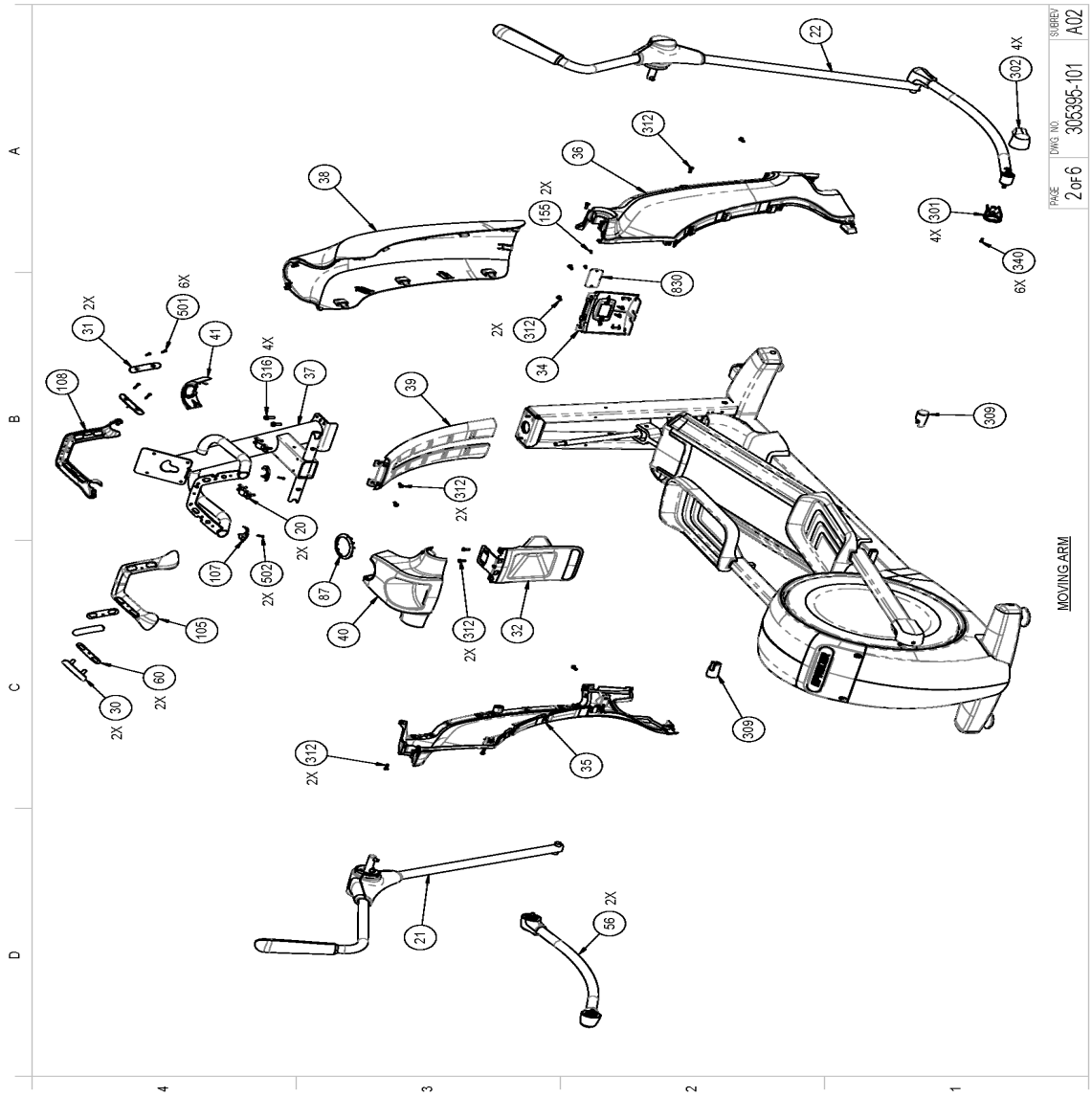
Exploded View Diagram

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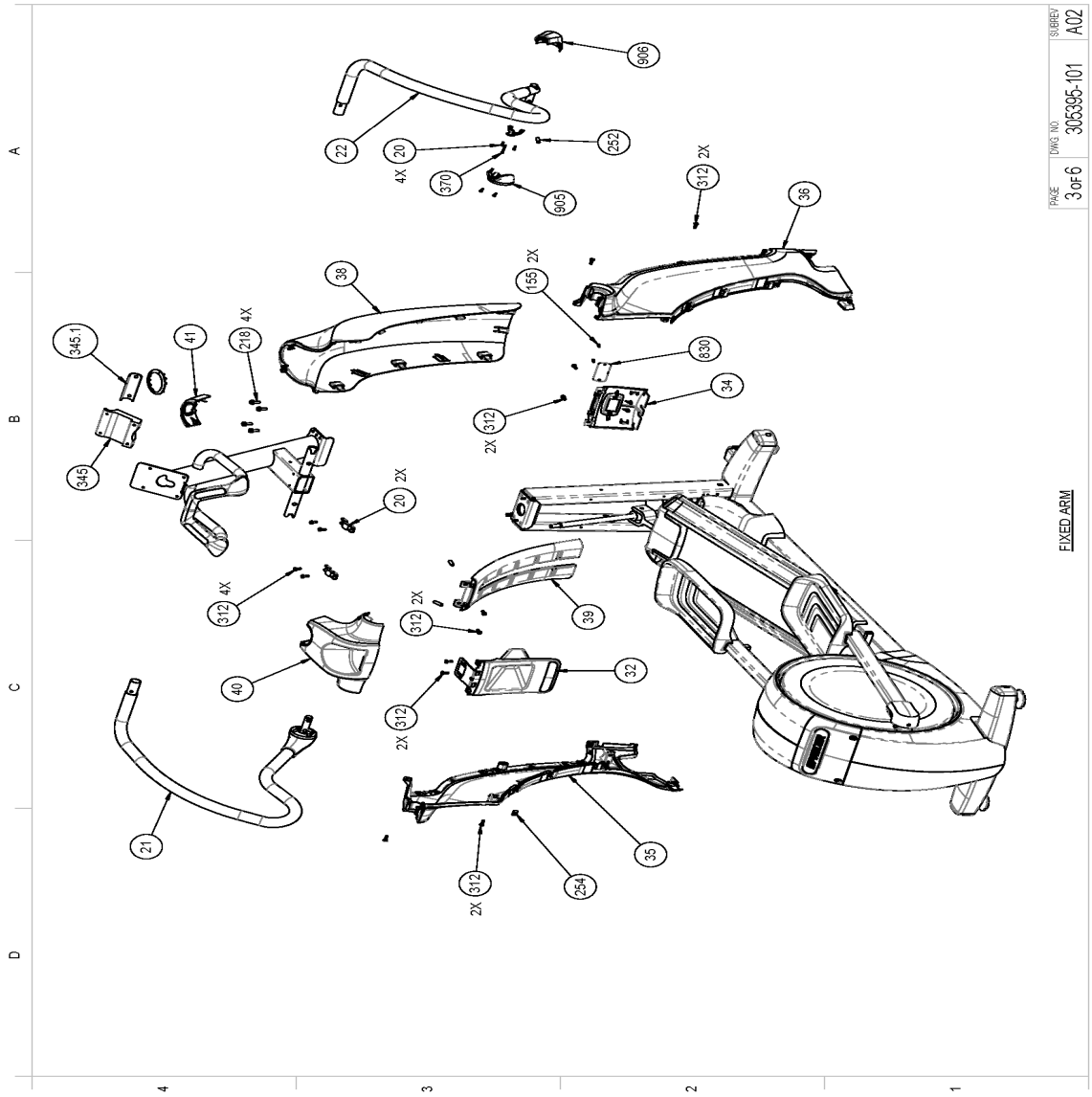
Exploded View Diagram

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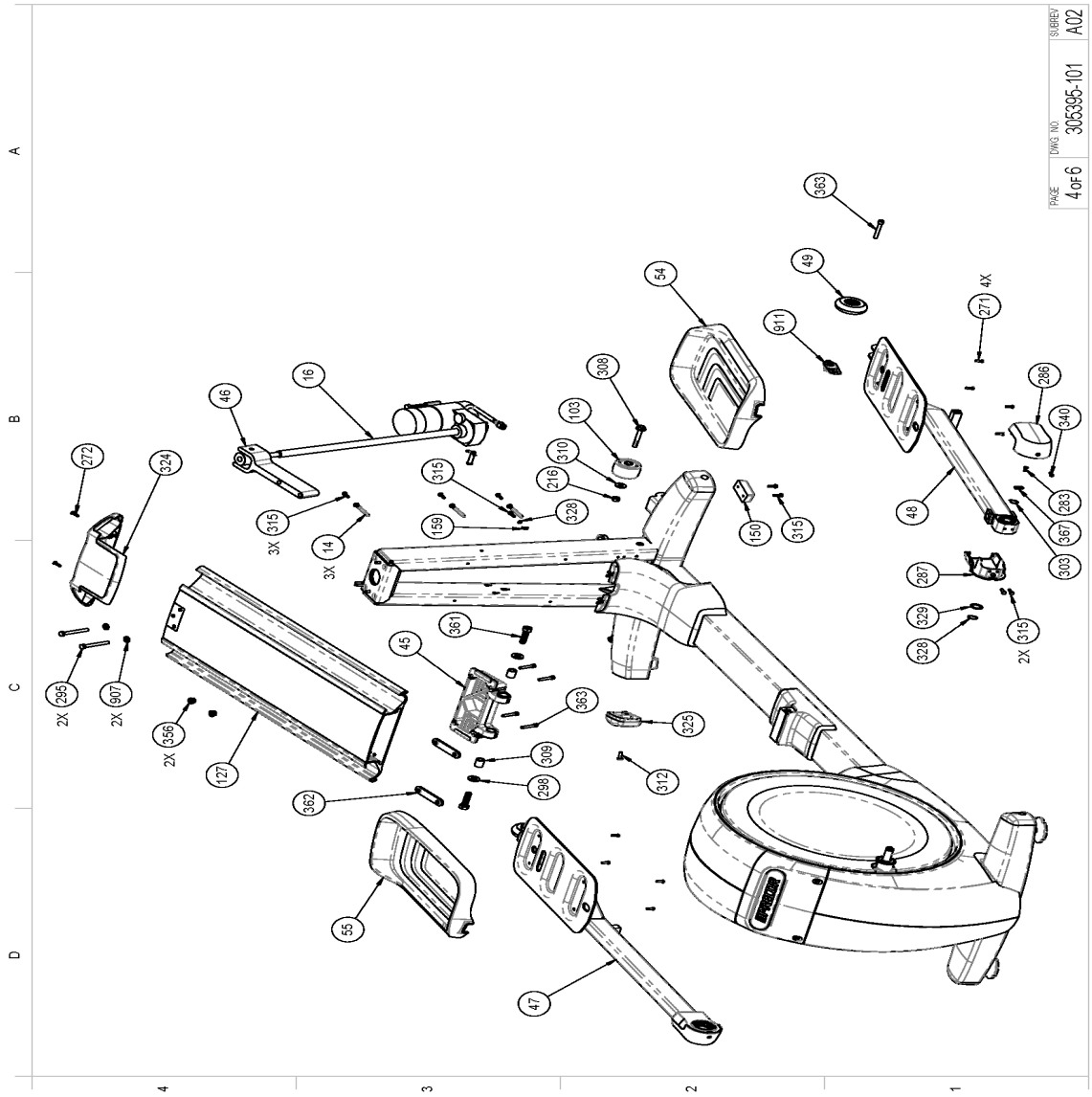
Exploded View Diagram

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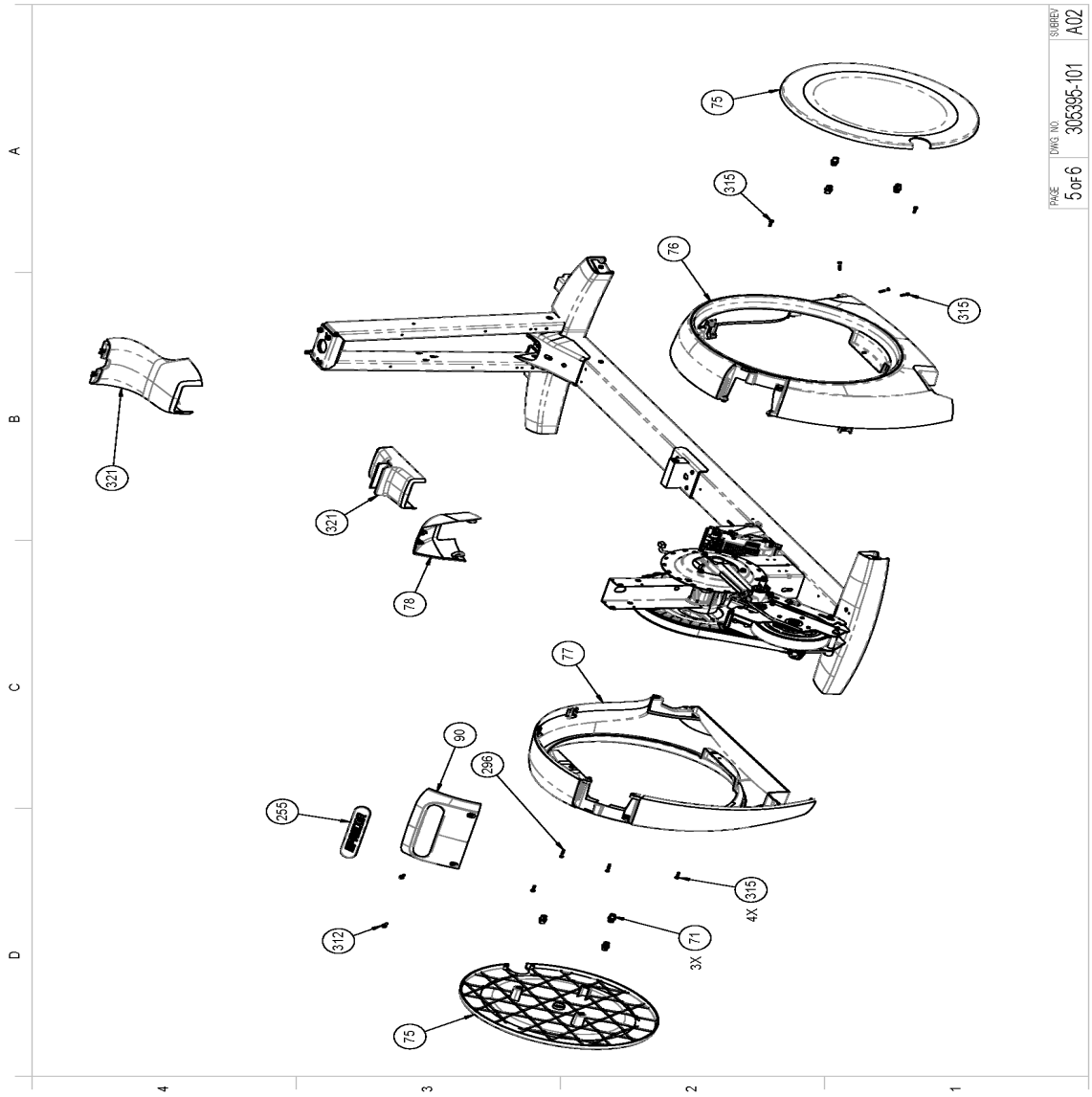
Exploded View Diagram

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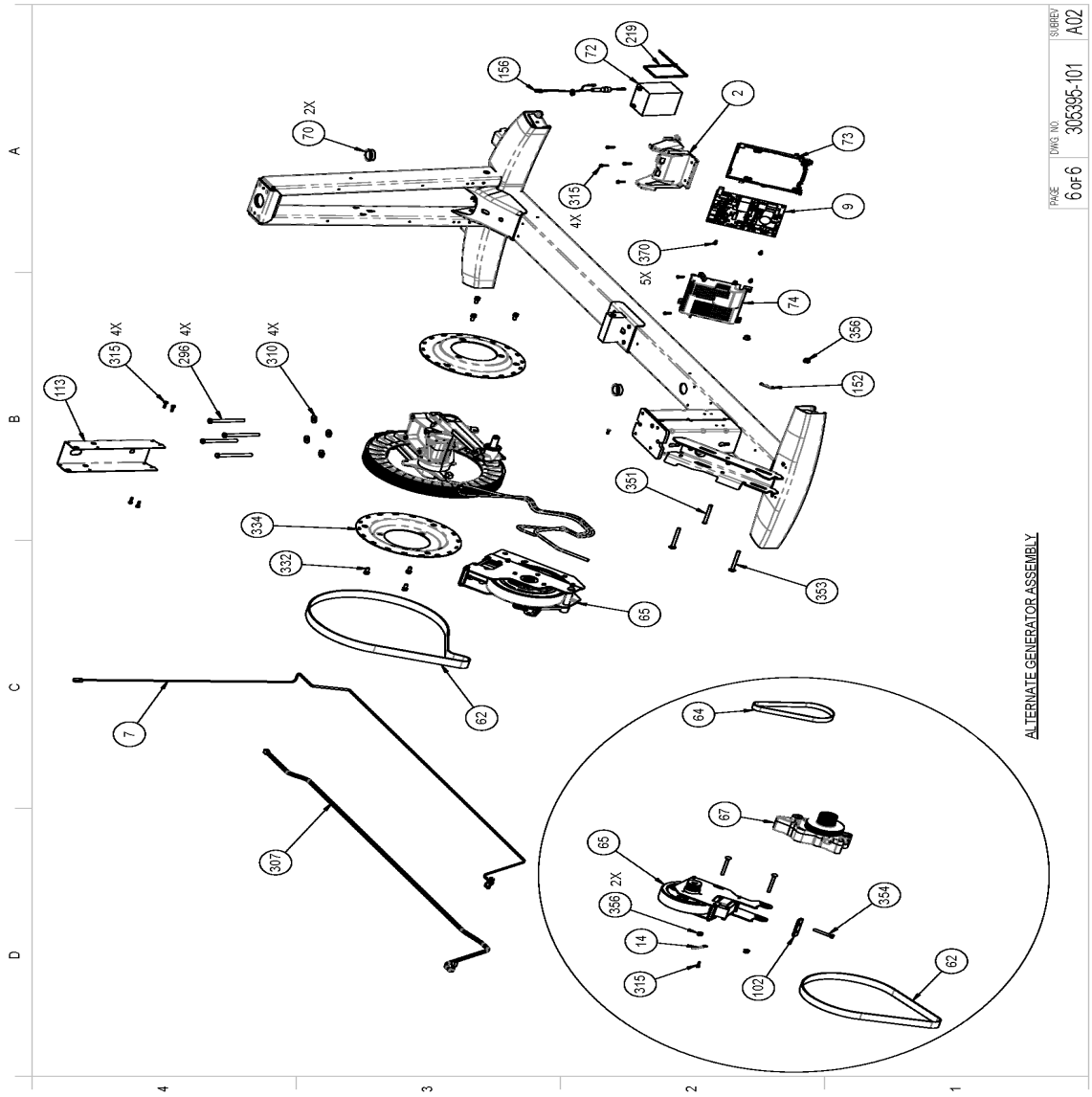
Exploded View Diagram

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Exploded View Diagram

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Parts List

EFX 600-18 Parts List

SAP Part #	Item Description	Bubble Numbers
PPP000000044905130	ASSY,CBL,MOD,8P8C,1-1,SILVER,130"	7
PPP000000305347102	ASSY, LPCA & SW, EFX600-18	9
PPP000000013217101	WIRE CLAMP, .25 INCH FASTENER, METAL WRAP STYLE	14
PPP000000303324102	ACTUATOR, LIFT,SELF POWERED EFX, W/O NUT (ROHS)	16
PPP000000303456101	MANTIS - UPPER PIVOT ANCHOR	20
PPP000000304511103	ASSY,MA,EFX600,LH,GMS	21
PPP000000304511104	ASSY,MA,EFX600,RH,GMS	22
PPP000000303529101	TRANS CVR,LINK,LH,SILVER GRAY	25
PPP000000303529102	TRANS CVR,LINK,RH,SILVER GRAY	26
PPP000000303502101	ASSEMBLY, UPPER HHHR CONTACT WITH CARRIER	30
PPP000000302414101	CONTACT, HHHR LOWER, STAINLESS	31
PPP000000303523104	ASSY, ACC TRAY/BDGE, 600, TUNGSTEN	32
PPP000000303416102	LIFT COVER,INT PLT,TUNGSTEN	34
PPP000000303541102	ASSY,LIFT COVER,LH,TUNGSTEN	35
PPP000000303542102	ASSY,LIFT COVER,RH,TUNGSTEN	36
PPP000000303590102	WLDMT,FRAME DISP MNT,PNTD,GMS	37
PPP000000303610102	ASSY, DISP MNT W/HHHR GRIP, GMS	37
PPP000000303507101	LIFT COVER, FRONT, ASSY,SILVER GRAY	38
PPP000000303508102	ASSY, LIFT COVER, REAR, TUNGSTEN	39
PPP000000303409103	LIFT COVER,TOP,TUNGSTEN	40
PPP000000303524102	ASSY,GSE NCK+FRT BDGE,TUNGSTEN	41
PPP000000302639103	RAMP, EXTRUSION	44
PPP000000304542101	ASSY,PIVOT,RAMP,EFX600	45
PPP000000303563101	ASSEMBLY, LIFT NUT AND YOKE	46
PPP000000048336101	WHEEL,OVERMOLDED,BLACK	49
PPP000000048336101	WHEEL,OVERMOLDED,BLACK	49
PPP000000302636104	PEDAL,EFX700,RH,TUNGSTEN	54
PPP000000302636103	PEDAL,EFX700,LH,TUNGSTEN	55
PPP000000303630103	ASSY,LWR LNK W/MTG. STUD,GMS	56
PPP000000302418101	GASKET, HHHR CONTACT	60
PPP000000303440103	ASSY, INPUT MODULE,EFX600	61
PPP000000010217151	BELT, DRIVE, 550J12 POLY V	62
PPP000000305427101	ASSY,GEN+IDLER ADJUST,EFX600	65
PPP000000010178112	BUSHING, SNAP	70
PPP000000304313101	ASSY,CATCH LATCH AND RECEIVER	71
PPP000000012258040	BATTERY,SLA,12V,4AH,.187 TABS	72
PPP000000303624101	COVER, REAR LPCA MOUNT	73
PPP000000303627101	COVER, LPCA FINGER GUARD	74
PPP000000303490101	COVER, DRIVE DISK,SILVER GRAY	75
PPP000000305408101	ASSY,EFX 600, RIGHT, DRIVE COVER	76
PPP000000305407101	ASSY,EFX 600, LEFT, DRIVE COVER	77
PPP000000304751101	EFX 600, TRANSITION COVER, COSMETIC	78
PPP000000010427151	FUSE,SLOW,10A,32V,1/4 DIA	79
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Product Literature & Videos

Additional product literature and videos that will help you to service and maintain the equipment.

- "Service & Maintenance Documentation" below
- "Precor Websites" below
- "Service Videos" on the facing page

Service & Maintenance Documentation

	Document	Link
	EFX600-18 Base Service Manual (online version)	Service Manual
	Preventative Maintenance Guides	"Preventive Maintenance (PM)" on page 232

Precor Websites

	Precor Websites	Link
	Precor.com product home page. Available information: • Product Specifications • Assembly Guides • Preventative Maintenance Guides • Console Install & PM Guides	Precor.com
	Precor Connect servicer home page*. Available Product information: • Part Numbers • Exploded View Diagrams • Service Bulletins • Software Updates • Service Videos	Connect Login
	Precor Technician Certification Training	Service & Install Training
	Precor E-Learning Center	E-Learning System
	SalesForce Login	SalesForce Login
* Always log in to Precor connect using your Precor Connect account login information.		

Service Videos

	Service Video	Link
	Preventative Maintenance Videos	
	Preventative Maintenance Videos: (not available for all products) • Login to Precor Connect‡. • select **SERVICE VIDEOS** • Navigate to the product equipment PM videos	available on Precor Connect Connect Login
	EFX[1] Service Videos	
	EFX600/700/800 Rear Drive Covers Removal video	EFX600/700/800 Rear Drive Covers Removal
	EFX Lift Motor Jackscew Lubrication maintenance video	EFX Lift Motor Jackscew Lubrication
	EFX600/700/800 Dual Stage Input Drive Belt Tension Verification	EFX600/700/800 Dual Stage Input Drive Belt Tension Verification

‡ Always log in to your Precor connect servicer account. Guest login users do not have access to all features.

[1]Elliptical Fitness Crosstrainer

Appendix A : Edition Information

Edition

Title: Experience Series 600 Line **EFX**[1] Service Manual
P/N: 20039-208
Publish Date: May 2019

Additional Documentation

You can also view the service manual online at Online Service Manual

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[1]Elliptical Fitness Crosstrainer

Appendix B : Notices and Safety

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[1]Adaptive Motion Trainer

[2]Elliptical Fitness Crosstrainer

[3]speed

Safety Notices

Warning and Caution notices indicate an activity that could be dangerous and cause personal injury and/or equipment damage if not adhered to. Always follow Warning and Caution instructions.

Warning



A **WARNING** notice denotes a hazard. It calls attention to an operating procedure, practice, or the like that, if not correctly performed or adhered to, could result in personal injury or death. Do not proceed beyond a WARNING notice until the indicated conditions are fully understood.

Caution



A **CAUTION** notice denotes a hazard. It calls attention to an operating procedure, practice, or the like that, if not correctly performed or adhered to, could result in damage to the product or loss of important data. Do not proceed beyond a CAUTION notice until the indicated conditions are fully understood.

Service Safety Guidelines

Prior to doing any machine service, review the Service Safety Guidelines, see "Service Safety Guidelines" on page 4.