

LANDICE

L7/L8/L9 Treadmill
90 Series
Service Manual



Safety Information

⚠ DANGER

To reduce the risk of electric shock: always unplug the treadmill from the electrical outlet immediately after using and before cleaning.

⚠ DANGER

Always unplug the treadmill before cleaning or removing the motor cover.

⚠ DANGER

Improper connection of the grounding connector can result in risk of electric shock. Check with a qualified electrician/service technician if you are in doubt as to whether the treadmill is properly grounded. Do not modify the plug provided with the treadmill. If the plug will not fit in the outlet, have a proper electrical outlet installed by a qualified electrician.

⚠ WARNING

To reduce the risk of burns, fire, electric shock or injury to persons:

- An appliance should never be left unattended when plugged in. Unplug from outlet when not in use, and before putting on or taking off parts.
- Close supervision is necessary when the treadmill is used by or near children or persons with disabilities.
- Use the treadmill only for its intended use as described in this manual. Do not use attachments not recommended by Landice.
- Never operate treadmill if it has a damaged cord or plug, if it is not working properly, or if it has been damaged. Call your dealer or certified service provider immediately for examination and repair.
- Keep the power cord away from heated surfaces. Be sure the cord has plenty of slack and cannot be pinched under the treadmill when it elevates and de-elevates.
- Never operate the treadmill with the motor cover air openings blocked. Keep the air openings free of lint, hair, dust, or debris.
- Do not drop or insert objects into any opening on the treadmill. Be sure no objects are near or beneath the treadbelt when you are using the treadmill.
- Do not use treadmill outdoors.
- Do not operate treadmill where aerosol (spray) products are being used or where oxygen is being administered.
- To disconnect, press **STOP** twice, pull the safety lanyard out, then remove plug from outlet.

⚠ WARNING**Failure to observe the following warning statements can result in serious injury!**

- Do not use this product without first consulting your doctor if you suffer from any illness, condition, or disability that affects your ability to run, walk or exercise.
- Do not use this product without supervision present if you are suffering from any illness, condition, or disability which affects your ability to run, walk or exercise. Failure to do so can result in serious injury should you fall while the treadbelt is moving.
- Failure to leave ample clearance around the treadmill could cause you to be trapped between the treadmill and a wall if you fall, resulting in burns or other serious injury from the moving treadbelt. **Allow a minimum clearance of 18 inches (46 cm) on each side of the treadmill. Allow a minimum clearance of 6 feet (183 cm) at the rear of the treadmill.**
- Never stand on the treadbelt when starting the treadmill. A sudden start could cause you to lose your balance. Always begin by placing your feet on the side traction strips, straddling the treadbelt, before turning the treadmill on.
- Always wear the safety lanyard clip securely on your clothing while exercising. Failure to do so can result in severe injuries should you accidentally fall while exercising.
- Test the emergency stop safety lanyard regularly by pulling on the cord and ensuring that the treadbelt comes to a complete stop when key is pulled.
- Familiarize yourself with this manual. Be sure you understand operation of the treadmill before use.
- Always follow basic safety precautions when using an electrical appliance.

⚠ WARNING

Connect treadmill to a properly grounded, dedicated electrical outlet only. See the following Grounding Instructions.

⚠ WARNING

Do not plug treadmill into a surge suppressor or Ground Fault Interrupt (GFI) outlet.

Grounding Instructions

This product must be grounded. If it should malfunction or break down, grounding provides a path of least resistance for electric current to reduce the risk of electric shock. The treadmill is equipped with a cord having an equipment grounding conductor and a grounding plug. The plug must be plugged into an appropriate outlet that is properly installed and grounded in accordance with all local codes and ordinances.

- 120-Volt Treadmills

Treadmills marked 120 VAC are intended for use with a grounding plug in a nominal 120-volt circuit. Ensure the treadmill power cord is connected to an outlet having the same configuration as the plug. No adapter should be used with 120 VAC treadmills.

- 200 – 250-Volt Treadmills

Treadmills marked 200-250 VAC are intended for use on a circuit having a nominal rating greater than 120V and are factory-equipped with a specific power cord and plug to permit connection to a proper electrical circuit. Ensure the treadmill power cord is connected to an outlet having the same configuration as the plug. No adapter should be used with 200 – 250 VAC treadmills.

If the treadmill must be configured for use on a different type of electrical circuit, qualified service personnel should make the proper connection.

It is intended that a qualified, trained technician work on this treadmill

Read all instructions before using the treadmill.

- Familiarize yourself with this manual. Be sure you understand control panel operation before using the treadmill.

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The Service Warranty covers installation of parts shown to be defective in material or workmanship. The selling dealer is responsible for labor for product needing repairs. A Service Authorization (SA) number must accompany any service reimbursement request. Service Authorization numbers are given when the selling dealer or the service technician calls Landice prior to beginning work on the product. This allows Landice to verify that the product is within the labor warranty and also aids us in helping the technician troubleshoot the product. Landice welcomes technicians to call us from the field and gives these calls the highest priority.

This Service Warranty does not cover customer instruction, installation, setup, maintenance, or adjustments to treadbelt or drivebelt.

1.1. Wear Item Warranty

1.1.1. Residential Products

Treadmills and Ellipticals- Lifetime Parts, Lifetime Wear Items (treadbelt & deck) / 1 Year Labor.

Executive Touchscreen Console, headphone jack, connector and USB Port have a 5 year warranty.

Bikes-7 year parts / 1 year Labor

1.1.2. Light Institutional Treadmills (LTDs)

Parts warranty for 5 years or 5000 hours with the exception of the treadbelt and deck which are covered for 2 years and the Executive Touchscreen Console, headphone jack, connector and USB Port that have a 3 year warranty. LTD treadmills are designed for commercial applications in which use is 5 hours a day or less.

1.1.3. CLUB Treadmills

Parts warranty for 5 years with unlimited hours with the exception of the treadbelt and deck which are covered for 2 years and the Executive Touchscreen Console, headphone jack, connector and USB Port that have a 3 year warranty. CLUB treadmills are designed for heavy-duty commercial applications and any pay-for-membership facilities.

This warranty does not cover cosmetic damage, damage due to acts of God, accident, misuse, abuse, or negligence of the product. The part(s) will be covered in full only if it exhibits evidence of a manufacturing or material defect during the warranty period. Please keep in mind, "negligence of the product" includes damage inflicted by using the treadmill with an improperly tracked treadbelt. This causes irreversible damage to the treadbelt edges and is not considered a warranty issue.

1.2. Service Reimbursement Policy

This is offered to all Landice dealers as well as all authorized Landice service providers. Landice covers our products with a 1-year labor reimbursement policy. That means we will pay to fix our products as long as it's sold by the dealer within one year from the date the treadmill was purchased by the dealer. After that date the product will carry only a 5 year parts warranty and no labor.

1.2.1. Our Policy

Landice will reimburse the selling dealer according to our flat rate labor schedule. If you are a service provider for Landice and do not sell our product, you have the option of billing us direct or you can bill the dealer that you're providing service for. Generally, if our capped rate does not cover your labor charge you would bill the selling dealer. The current rate is \$30.00 per hour and is capped at a maximum of one hour labor and one hour travel per failure. Diagnostic and return trips are not covered. Note that treadbelt tracking, treadbelt / drive belt tensioning, blown fuses, and set-up procedures are not covered by this warranty.

Set-Up Includes: Assembly, adjusting treadbelt and drive belt (if needed), walking the treadbelt and deck wax in, and performing any additional adjustments that may have been upset during shipping.

The dealer must call for a service authorization number prior to performing any service to verify the treadmill is under labor warranty. Landice will also take this opportunity to help troubleshoot the problem and, where possible, send the most likely part to repair in one trip. Whenever possible it is advisable to call Landice from the product location to successfully diagnose the problem.

Labor claim forms, supplied by Landice, must be submitted within three months from the date service was performed. Labor claim forms must be completely filled out and have the Landice Service Authorization number at the top. Generally service claims are paid out upon the return of defective parts and/or crediting of the warranty invoice. If parts are outstanding for a period of more than 90 days previously submitted service claims will be returned unpaid.

1.2.2. Floor Models And Dealer Stock

If the dealer sells a product to a customer within one year of its purchase from Landice, the warranty period will be extended to start from the date of sale to the customer.

If a product is over 1 year old when sold to a customer, it will carry a 5 year parts warranty from the date of shipment and there will be NO labor warranty.

1.2.3. Parts Policy

Our policy requires that all REQUESTED defective parts be returned to Landice. This will be clearly marked on all packing slips and Invoices and an ARS tag to pay for its return will be included with the part(s). If Landice does not need the parts back the packing slips and Invoices will be clearly marked CREDIT. All warranty parts requiring return will be billed to the dealer at dealer cost. Landice will credit this invoice upon receipt of defective parts. It is the dealer's responsibility to return the defective parts to Landice with a copy of the invoice or packing slip. If the defective parts are not returned within 30 days, payment of invoice is expected in full.

1.3. Warranty Part Ordering

When ordering parts under warranty please have the following information available. Warranty orders cannot be processed without this information.

- 1) Customer's name, address and phone number
- 2) Serial number
- 3) Detailed description of failure

If the customer has not registered the product it will not have a warranty. No parts will be sent and no Labor Claims will be paid unless the product is registered according to Landice policy.

1.4. Purchase Part Ordering

Serial numbers are recommended to help ensure the correct part is shipped. Purchased parts are covered by a 90 day replacement part warranty from the date the order shipped.

*All terms and conditions of Warranty are subject to change. Please contact Landice with questions or concerns.

2.1. Specifications

Figure 2-1. L7-90 Dimensions

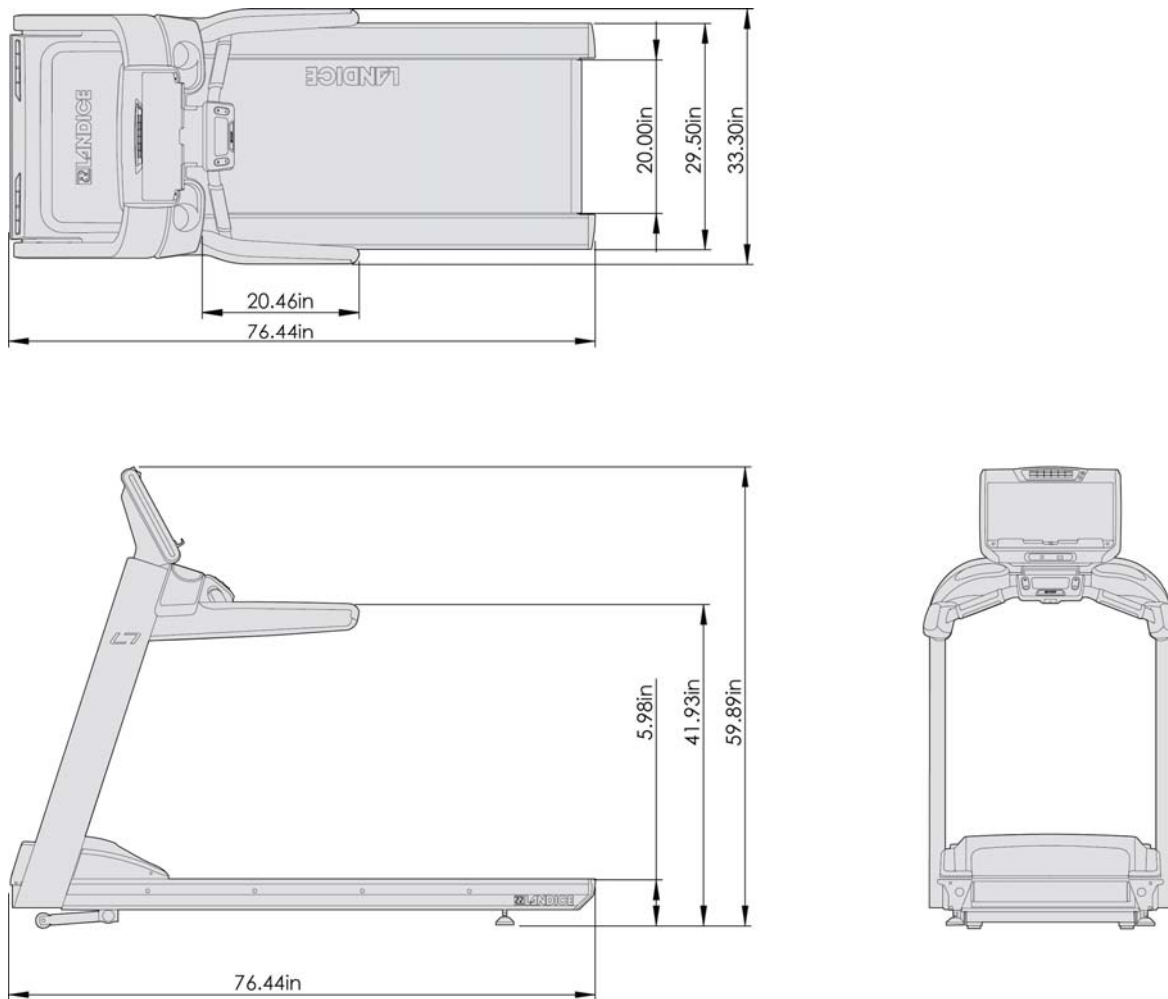


Table 2-1 L7-90 Specifications

Parameter	Specification
Treadmill Dimensions (boxed)	36" x 25" x 82" Weight 350 lbs
Treadmill weight (No box or pallet)	Weight 300 lbs
Treadbelt Dimension	
Width	20 inches
Length	58 inches
Circumference	122 inches
Deck Dimension	
Width	52.2 inches
Length	24.5 inches
Starting serial number for Frames	L7-110299
L7-90 Production Date	09/28/16

Figure 2-2. L8-90 and L9-90 Dimensions

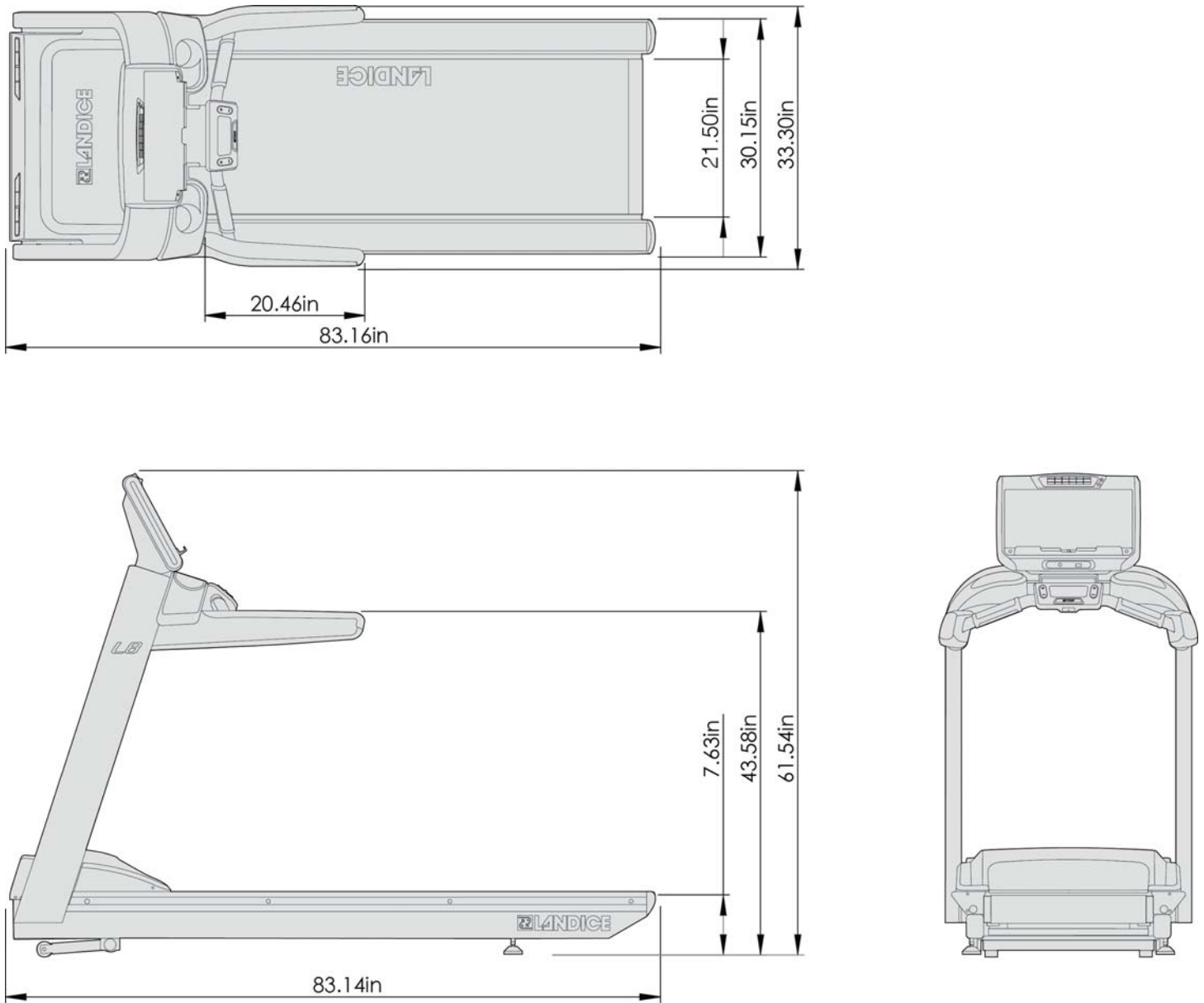


Table 2-2 L8-90 and L9-90 Specifications

Parameter	Specification
L8-90 Treadmill Dimensions (boxed)	90" x 38" x 29" Weight 435 lbs
L8-90 no box or pallet	Weight 360 lbs
L9-90 Treadmill Dimensions (boxed)	90" x 38" x 29" Weight 460 lbs
L9-90 no box or pallet	Weight 360 lbs
Treadbelt Dimension	
Width	21.5 inches
Length	63 inches
Circumference	136 inches
Deck Dimension	
1 inch thick wood Phenolic layer – Reversible	
Width	56 inches
Length	25 inches



2.2. 90 Series Control Panel and Features

Table 2-3 Control Panel Specification

Parameter	Specification
Starting serial numbers	
L7-90	L7-110299 DOM 09/28/16
L8-90	L826613 DOM 09/28/16
L9-90	L910210 DOM 10/06/16
90 Series Pro Sports Console	
Where used	Pro Sports Console is used on all models L7-90, L8-90, and L9-90
Production Date	September, 2016
Electronics	DCI-PWM, ESI-PWM, SCR I & SCR 2 (110v and 220v),
Home setting	0.5-12 mph and max elevation is 15%
Commercial setting	0.5-11 mph and max elevation is 15%
90 Series Pro Trainer Console	
Where used	Pro Trainer Console is used on all models L7-90, L8-90, and L9-90.
Production Date	September 2016
Electronics	DCI-PWM, ESI-PWM, SCR I & SCR 2 (110v and 220v),
Home setting	0.5-12 mph and max elevation is 15%
Commercial setting	0.5-11 mph and max elevation is 15%
90 Series Cardio Console	
Where used	Cardio Console is used on all models L7-90, L8-90, and L9-90.
Production Date	September 2016
Electronics	DCI-PWM, ESI-PWM, SCR I & SCR 2 (110v and 220v),
Home setting	0.5-12 mph and max elevation is 15%
Commercial setting	0.5-11 mph and max elevation is 15%
90 Series Executive Console	
Where used	Executive Console is used on all models L7-90, L8-90, and L9-90.
Production Date	September 2016
Electronics	DCI-PWM, ESI-PWM, SCR I & SCR 2 (110v and 220v),
Home setting	0.5-12 mph and max elevation is 15%
Commercial setting	0.5-11 mph and max elevation is 15%

2.3. Electrical Requirements

Table 2-4 Electrical Requirements

110 VAC Home, Ltd, and Club Treadmill	220 VAC Club Treadmill
	
110 VAC, 60 Hz, 15 AMP DEDICATED CIRCUIT & GROUND	220VAC, 60 Hz, 15 AMP DEDICATED CIRCUIT & GROUND
PLUG: NEMA Style 5-15P (PLUG)	PLUG: NEMA Style 6-15P (PLUG)
RECEPTACLE: NEMA Style 5-15R (RECEPTACLE)	RECEPTACLE: NEMA Style 6-15R (RECEPTACLE)

⚠ WARNING

Dangerous voltages are present when the treadmill is plugged in. During troubleshooting, power may be applied to verify that voltage is present so proper care must be exercised to avoid shock and shorting. Serious injury and death to you and damage to the electronics can result if proper care is not taken during probing.

Note: FOR 220V & 110V MACHINES USING 3 PHASE VOLTAGE: Each treadmill must have its own circuit breaker and be run on the same phase (same power leg). If 220V power is required, then all treadmills must run on the same two phases (power legs) and on their own circuit breakers.

2.4. Components

The following table and figures identify parts of the treadmill.

Table 2-5 Component Descriptions

Component	Description
Capacitor	Stores energy to smooth out voltage to Drive Motor. Used with SCR Motor Control Boards.
Choke (Inductor)	Acts like a filter to smooth out voltage to Drive Motor. Used with SCR Motor Control Boards.
DCP (Display Control Package)	Contains all components relative to the Upper Display Console, including membrane/faceplate, upper display board, and wire harness. The DCPs also include owner's manuals, warranty cards, and cardio pulse transmitter strap (if applicable). DCPs are for HOME TREADMILLS ONLY and are rarely a warranty part.
Diagnostic Mode	Mode that allows access button feedback, potentiometer calibration, speed control (PT, PST, CT, & ET), total hours and miles, and pulse reading.
Drive Belt	Connects the Drive Motor to Sheave (Pulley) on Drive Roller.
Drive Motor	Provides power to Drive Belt to turn Pulley on Drive Roller to move Treadbelt. Obtains power from the PWM or SCR. Drive Motors are either 110v or 220v.
Drive Roller W/ Sheave	Roller at the front of the Treadmill. The Sheave (pulley) is pressed onto the roller and allows transfer of movement from Drive Belt to Treadbelt.
Elevation Frame Assembly	Connects to Elevation Motor to allow movement of front of treadmill up or down.
Elevation Motor	Motor works through the elevation frame assembly to raise or lower the front of the treadmill. It gets its power from the PWM Board on Home and LTD models and from the SCR on Club models.

Table 2-5 Component Descriptions (Continued)

Component	Description
Elevation Potentiometer	Attaches to Elevation Motor and gives feedback on treadmill incline to Upper Display. Must be calibrated whenever elevation motor is replaced. A Potentiometer should be checked if there is a problem with elevation or if Error Code "PO" occurs.
ESI PWM	Control Board that is a combination of the PWM, relay board, and DC Transformer. Delivers power to the upper board, elevation motor, and drive motor.
Faceplate	Overlay used on RTM models and is screwed onto the Upper Display Board.
Frames (Side)	One on either side, these connect with the Deck Slats to form the treadmill's frame.
Frame Covers (Side)	These sit on top of the Frame Rails and keep Deck in place. They also form the base for the Traction Strip.
IR Potentiometer	Located on the PWM Control Board and is used to adjust the time it takes the PWM to react to a load or amperage spike. It normally requires adjustment if the motor appears to be surging or lacking torque.
Membrane Panel	Sends information from the display membrane keys to Upper Display Board via the ribbon cable. It is used on all models except the RTM.
Open Loop Speed (O.L.S.) Mode	Test mode that removes the speed sensor from equation of running treadmill. This mode gives access to speed feedback and control the speed of the treadmill on a running unit.
Safety Lanyard	This is a safety feature that closes the circuit that allows the treadmill to operate while in normal position, fully retracted in the lower control panel. If the lanyard is pulled, and thus pulls out its yellow block, the circuit is opened and the upper control removes power from the treadmill drive motor and stops. When this happens the console displays SAFE .
SCR (Silicon Controlled Rectifier) Control Boards (Club Models, 220v))	This board runs the drive motor, elevation relays, the belt relay, DC transformer for power to Upper Display Board, and on-board diagnostic lights. The SCR requires a Capacitor and Choke to provide "clean" power to the Drive Motor.
Speed Sensor	Landice uses an optical speed sensor to produce accurate speed readings. Readings are taken directly from the flywheel on the motor and sent to the PWM or SCR Motor Control PCB.
Take Up Roller	Roller at the rear of the treadmill. It completes the loop for Treadbelt movement and allows tracking and tension adjustment of Treadbelt.
Treadbelt	The surface the user walks on. It rides over the deck and rollers.
Upper Display Board	This controls information from the Membrane panel or Faceplate. It then transmits it to the PWM board on Home models and the SCR on Club models.
Upright	The main inverted "U" tubular frame holds the wire harness, console, the cross member, and the handrails.
Upper Wire Harness	Transmits data from lower electronics to upper electronics.
Lower Control Panel	Quick controls
VFX System	Shock-absorbing System. Consists of wood Deck, VFX Deck Post, Deck Spacer, Deck Load Washer, Deck Felt Washer, and Deck Impact Absorber.

Figure 2-3. Mechanical Base Parts (treadbelt transparent for clarity)

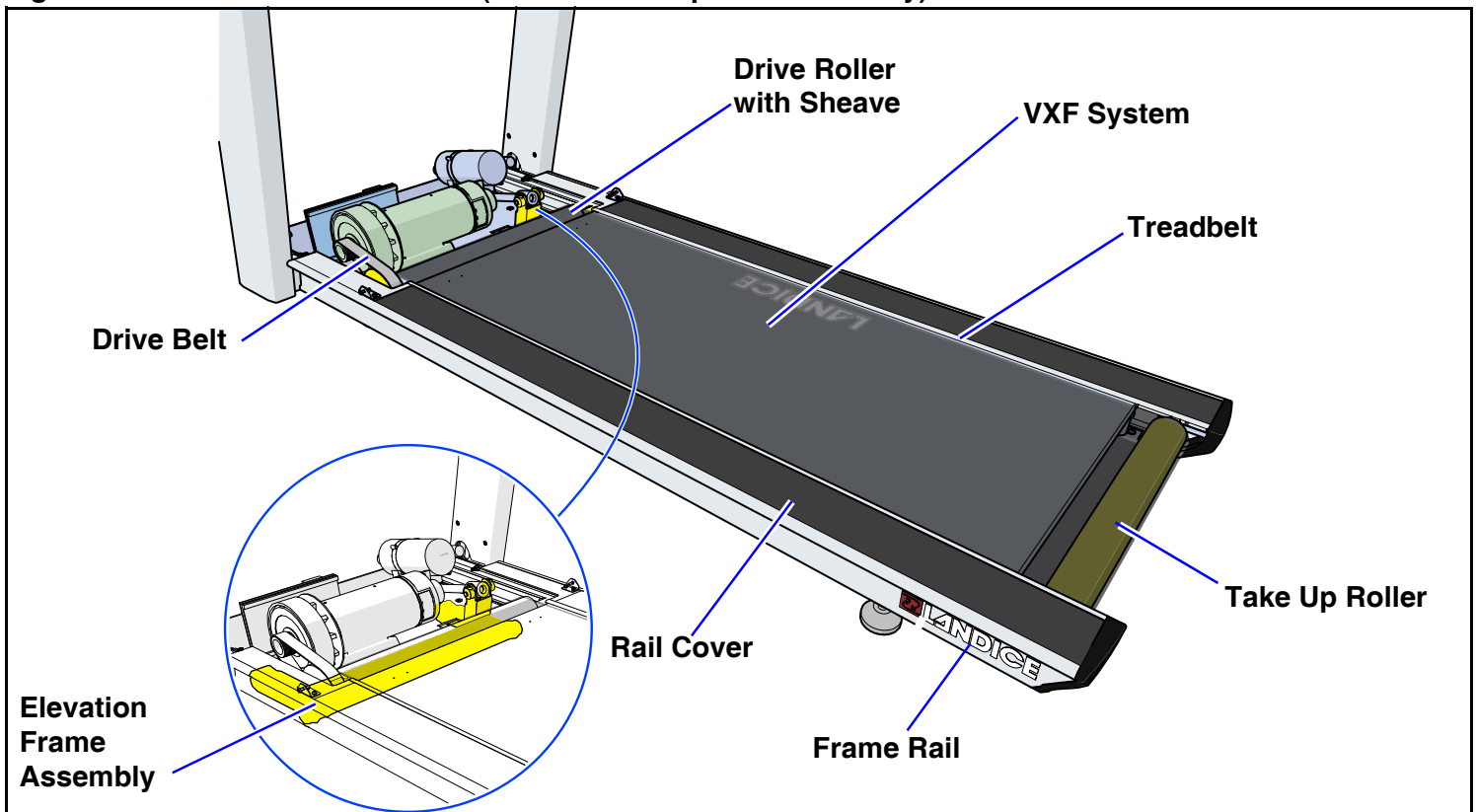
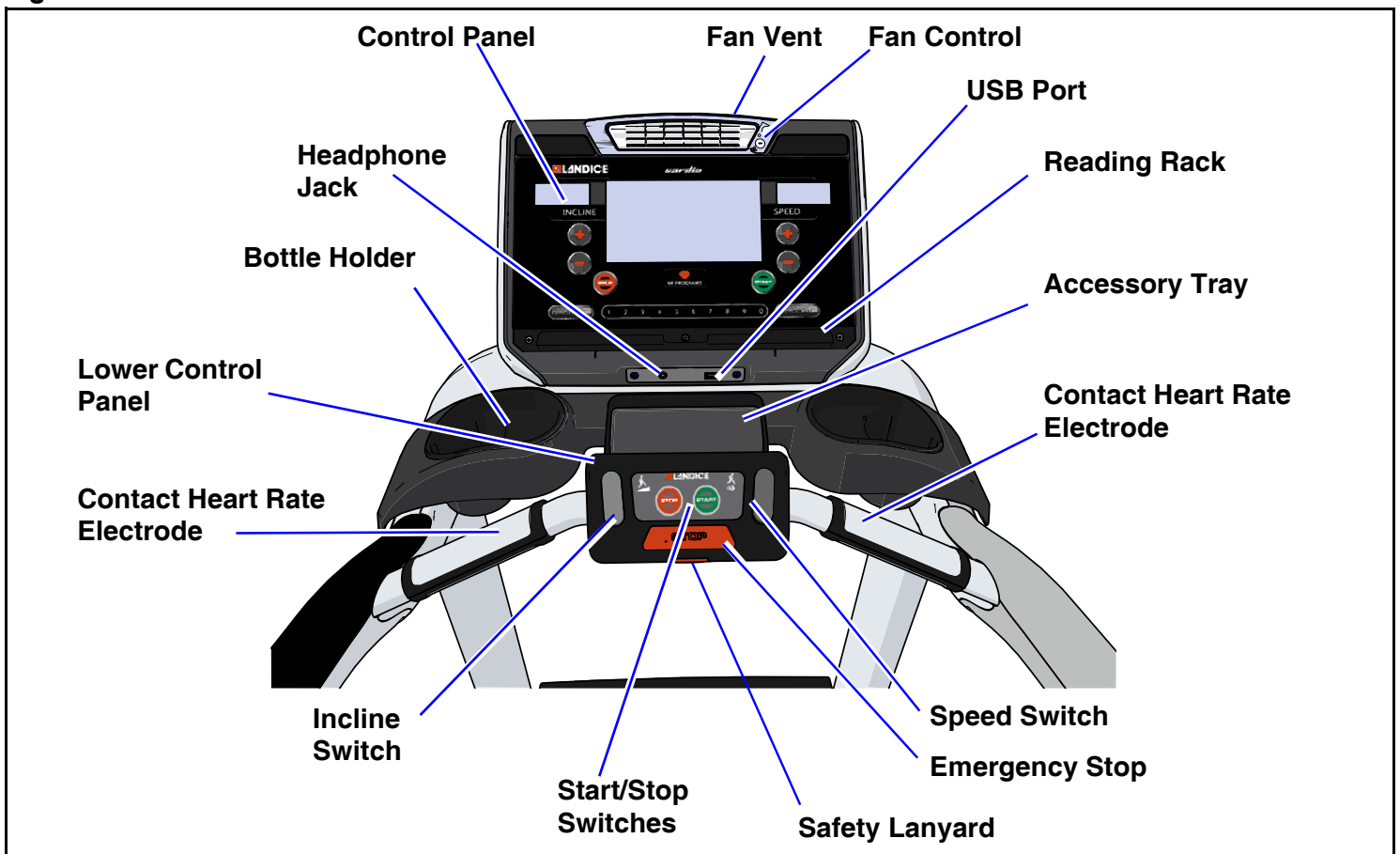


Figure 2-4. Features and Controls



2.5. Recommended Tools

- Deep socket set 3/8 drive with ratchet and extension: Must have:
 - SAE Sizes: 3/8", 7/16", 1/2", 5/16", 9/16" sockets
- Hex Wrench Driver, 4mm, 5mm, 6mm sizes
- Combination wrench set: Must have:
 - Open end wrenches, 14mm and 19mm or adjustable open end wrench
 - SAE Sizes: 3/8, 7/16, 1/2, 5/16, 9/16
- #1, 2, and 3 cross tip screwdriver
- #1, 2, and 3 flat head screwdriver
- Socket head cap screw wrench set/multi Allen Wrench
- Rubber mallet
- Diagonal cutter/dykes
- Wire stripper
- Wire crimper
- Digital Multi-Meter (DMM)

Note: Analog voltmeters are not recommended.

- Utility knife
- Pulse simulator tester
- AC Amp Meter

This chapter provides the printed circuit board (PCB) layouts and interconnect wiring diagrams.

3.1. Electronic and Electrical Components

The figures in this section show the electronic and electrical components and their locations in the treadmill.

Figure 3-1. Electronic Assemblies - Upper Assembly All Models

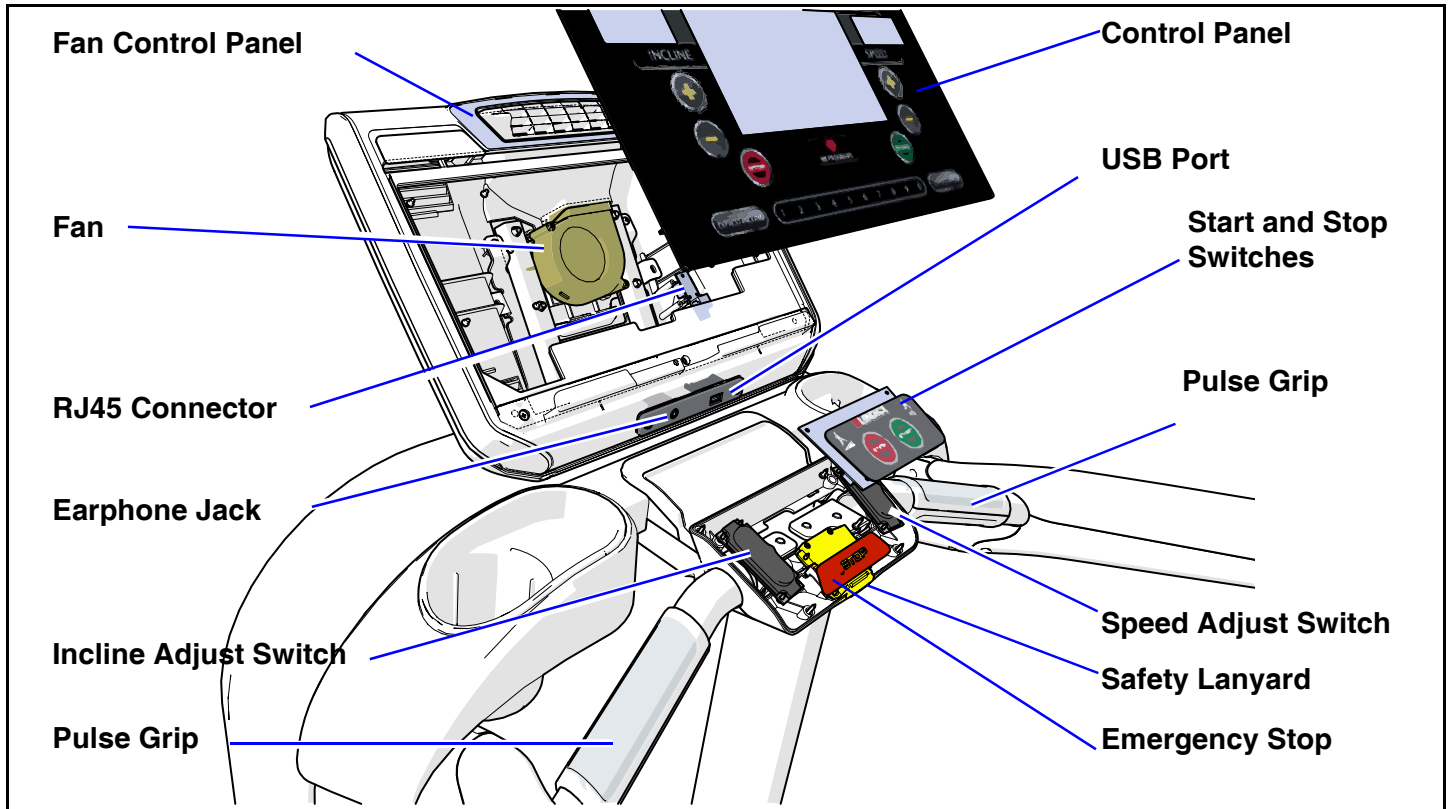


Figure 3-2. Electronic Assemblies - Base Assembly L7 Home and LTD Model

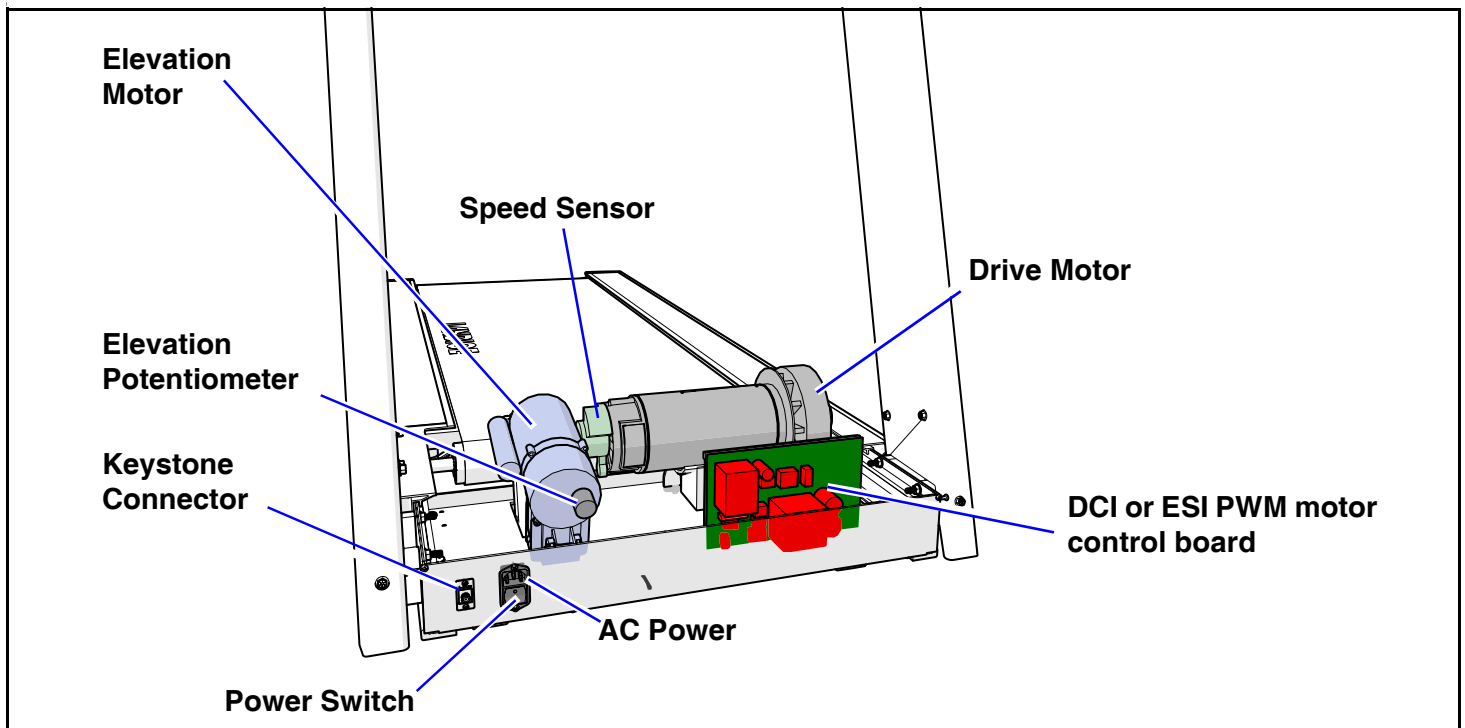
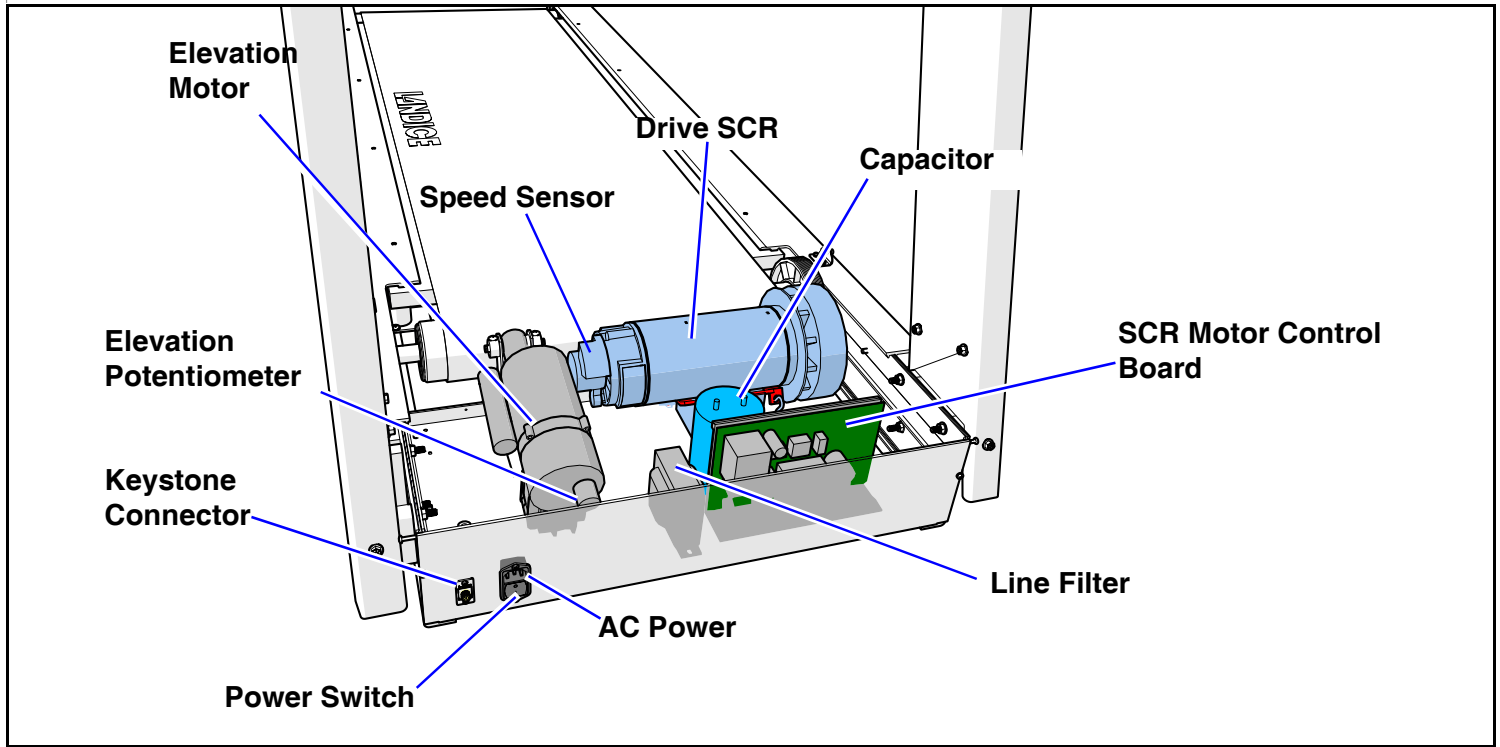


Figure 3-3. Electronic Assemblies - Base Assembly L8 and L9 Club Model



3.2. Board Compatibility

Table 3-1 DCI PWM Motor Control Board Compatibility

Treadmill Model	Upper Display Board Version
RTM	This will NOT use the DCI PWM
PT4	V1.00
PST6	V1.01
CT6	V1.01
ET4	V2.01

Table 3-2 DCI PT4 Display Compatibility

Lower Motor Control PCB Type	Make and Version
PWM	ESI Rev L
	DCI
SCR	ESI 110v Rev G V3.01
	ESI 220v Rev F V3.00

3.3. Interconnect Wiring Information

Figure 3-4. Interconnect Wiring Diagram - LTD and Home Models, ESI PWM Control PCB

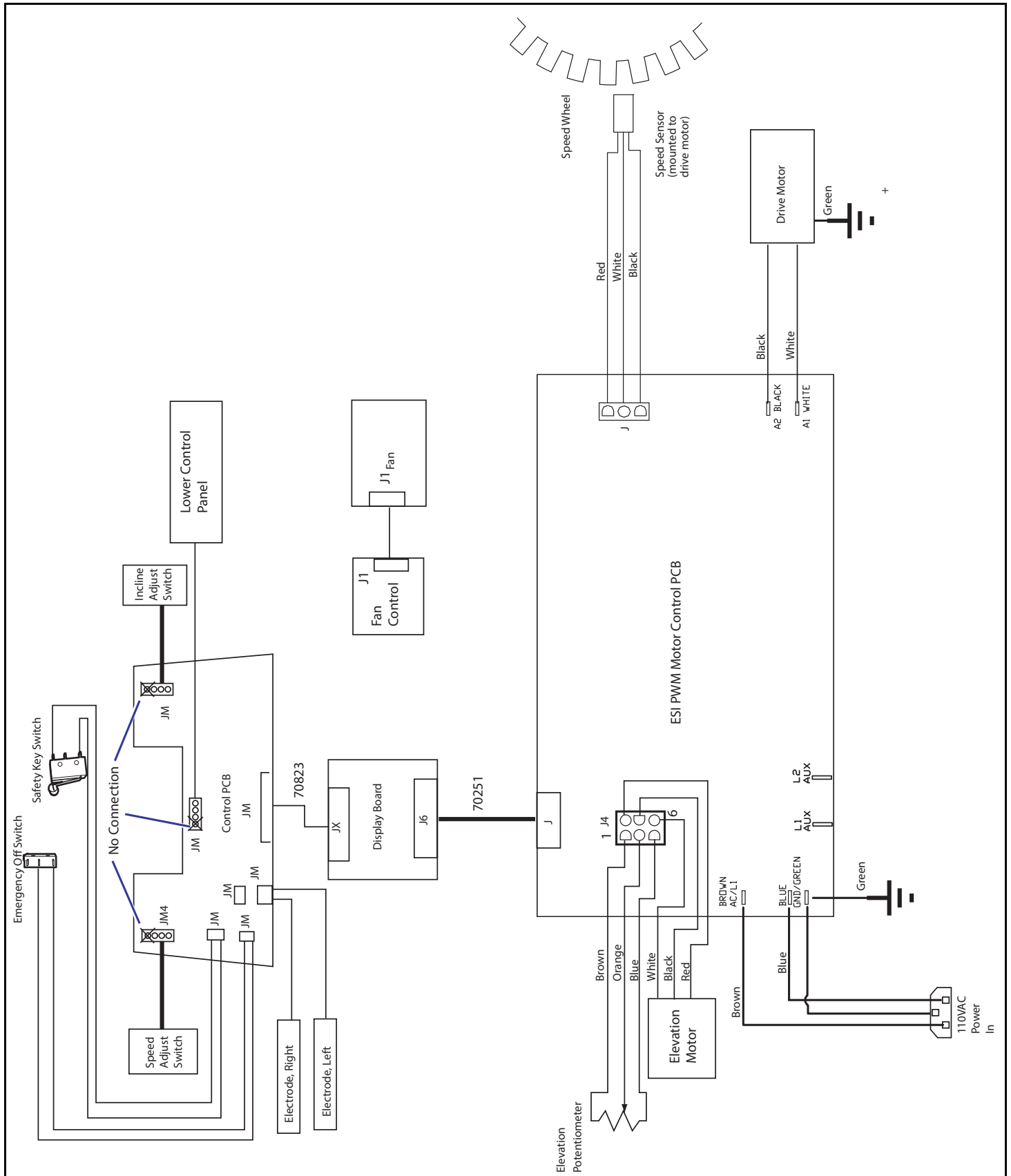


Figure 3-5. Interconnect Wiring Diagram - LTD and Home Models, DCI PWM Motor Control PCB

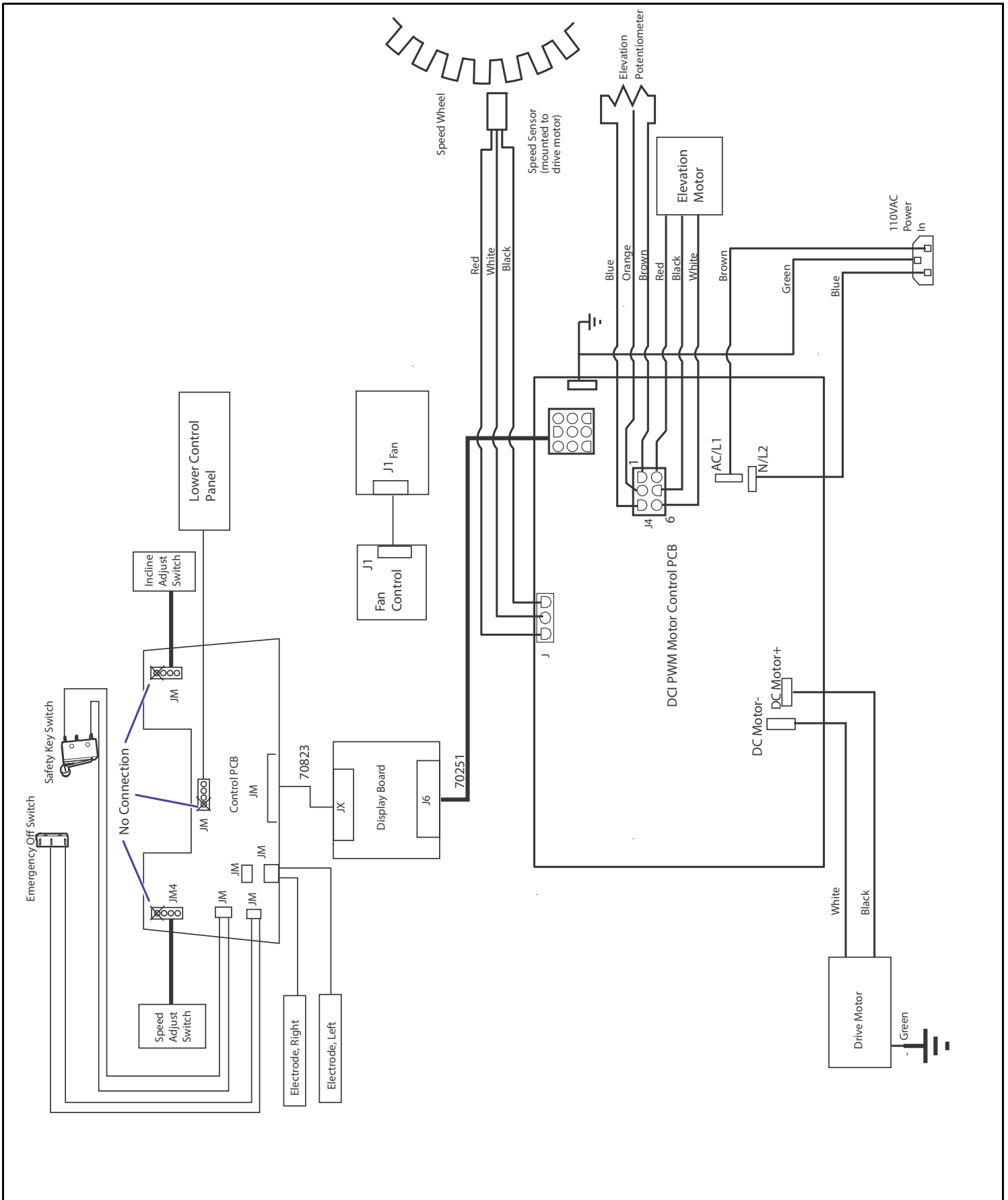
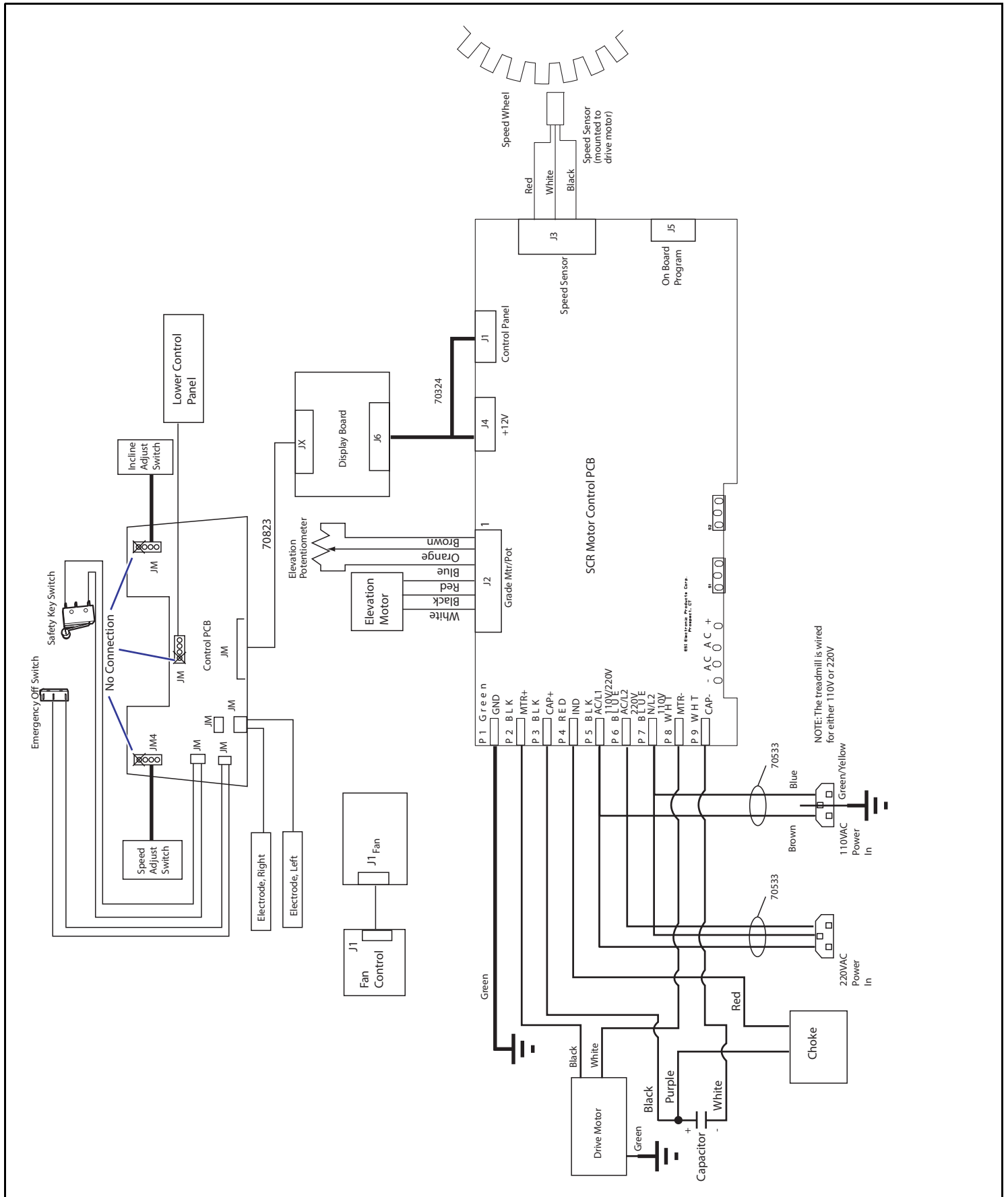


Figure 3-6. Interconnect Wiring Diagram - Club Model



3.4. DCI PWM Motor Control Board

Figure 3-7. DCI PWM Motor Control Board

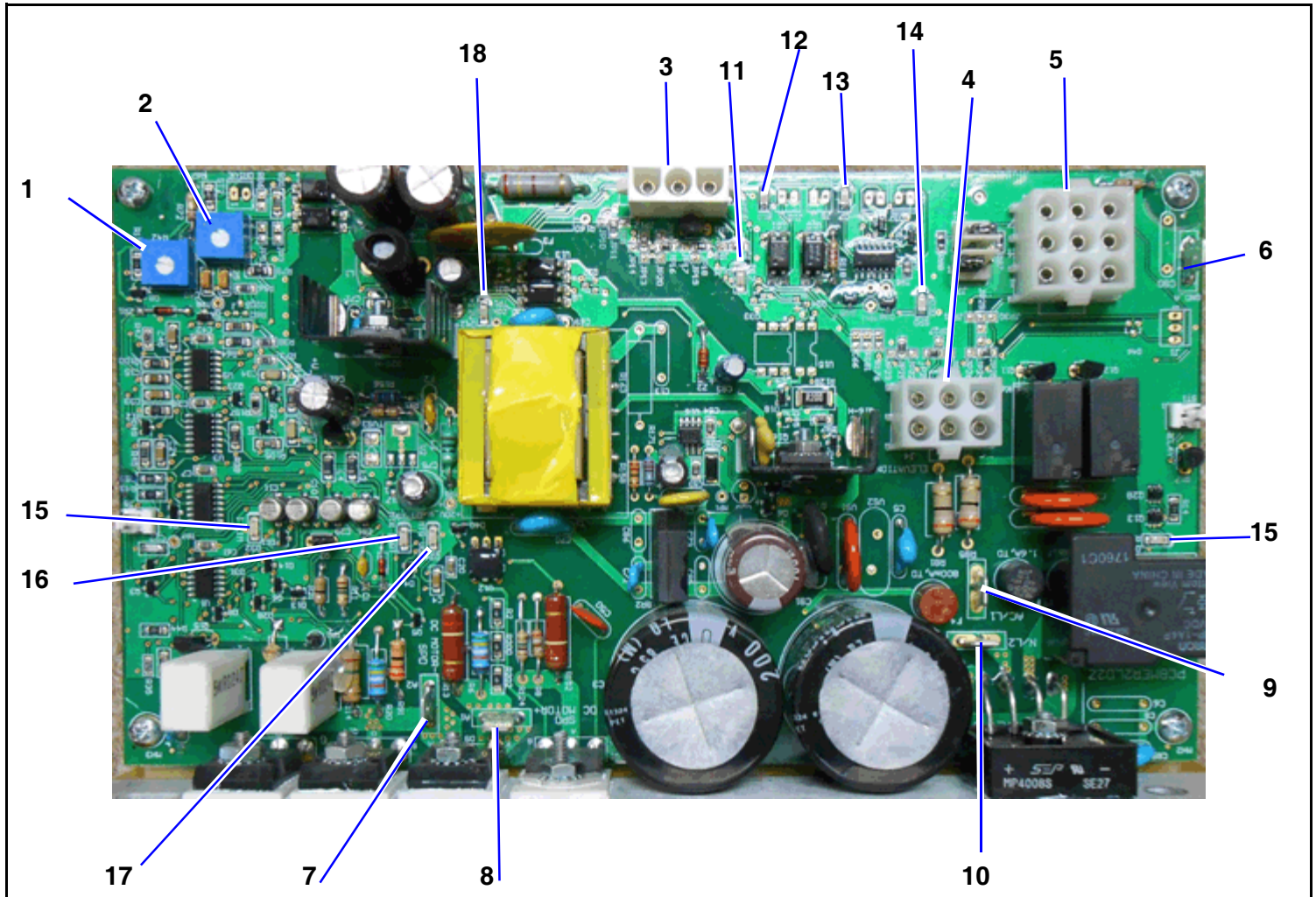


Table 3-3 DCI PWM Motor Control Board Contacts, LEDS and Potentiometers

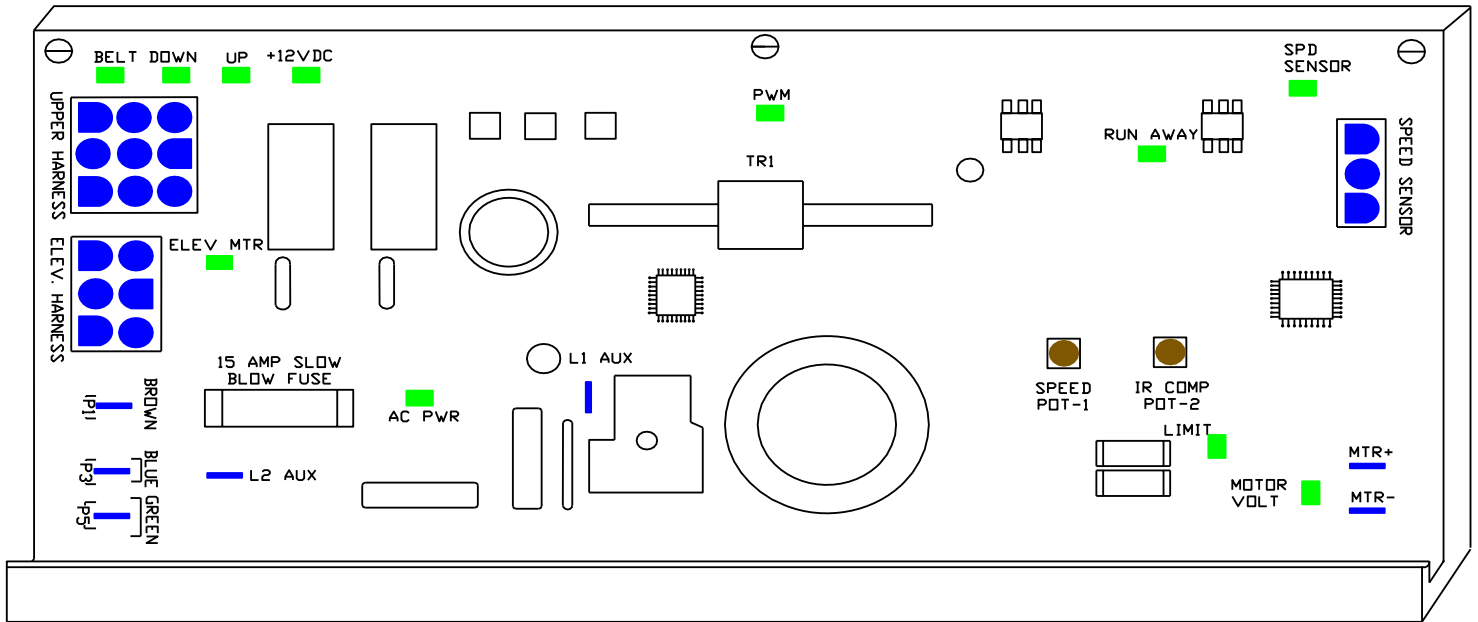
Item #	Description		
1	IR POT left side set at Factory	2	Speed Pot right side set at Factory
3	Speed Sensor	4	Elevation Motor
5	Main Harness	6	Ground Wire
7	White wire from the drive motor goes to: Motor (-) terminal	8	Black wire from drive motor goes to: Motor (+) terminal
9	Brown wire from inlet connector goes to: AC-L1 terminal	10	Blue wire from inlet connector goes to: N/L2 terminal
11	PWM PCB Power On LED	12	Up Elevation LED
13	Down Elevation LED	14	Speed Sensor LED
15	Limit LED	16	Motor Short (over current) LED
17	Motor Power Available	18	+12 VDC

3.5. ESI PWM Motor Control Board

This section indicates the LEDs and contacts of the ESI PWM Motor Control PCBs.

- Green: LED indicator
- Blue: Electrical contact
- Brown: Potentiometer

Figure 3-8. ESI PWM Motor Control Board

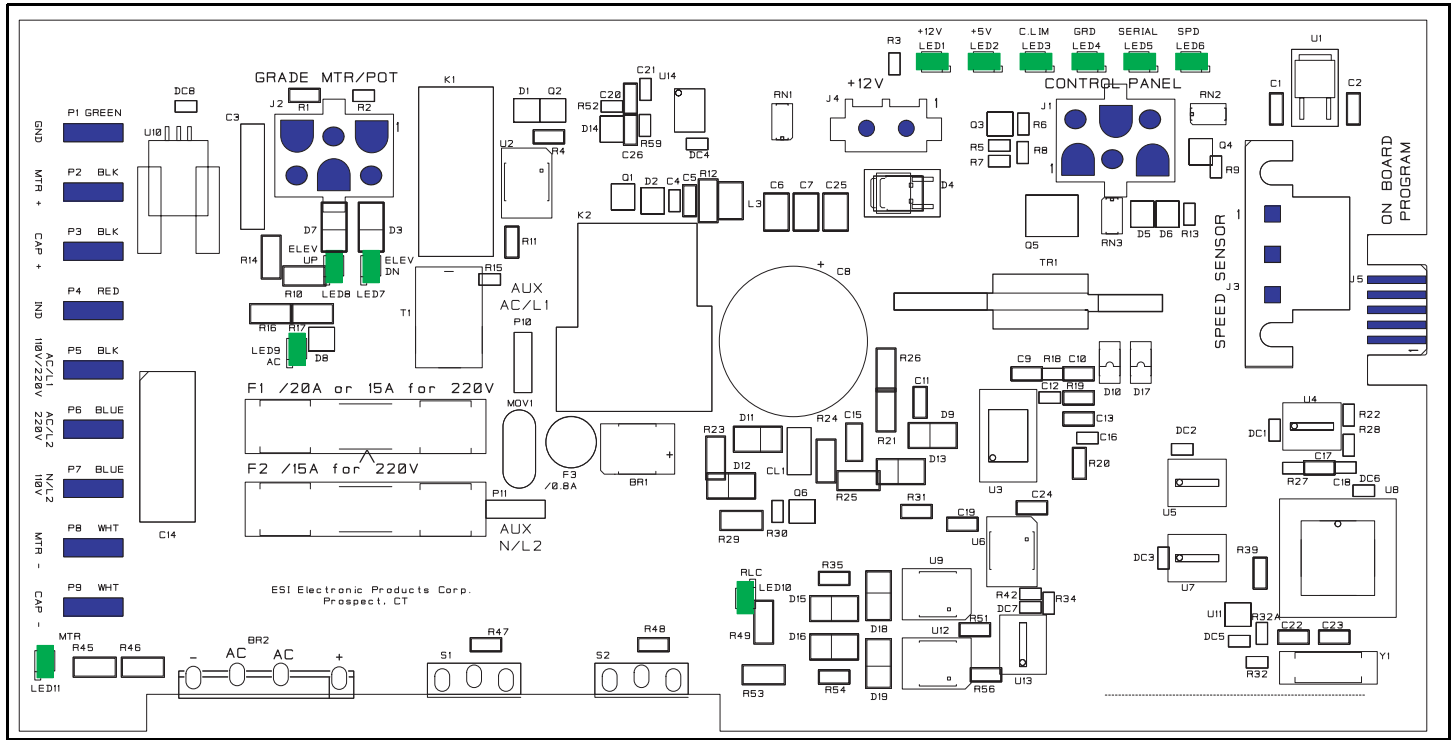


3.6. SCR Motor Control PCB

This section indicates the LEDs and contacts of the SCR Motor Control PCBs.

- Green: LED indicator
- Blue: Electrical contact
- Brown: Potentiometer

Figure 3-9. SCR PCB



3.7. Harnesses

Figure 3-10. Upper Wire Harness for PWM (7025)1

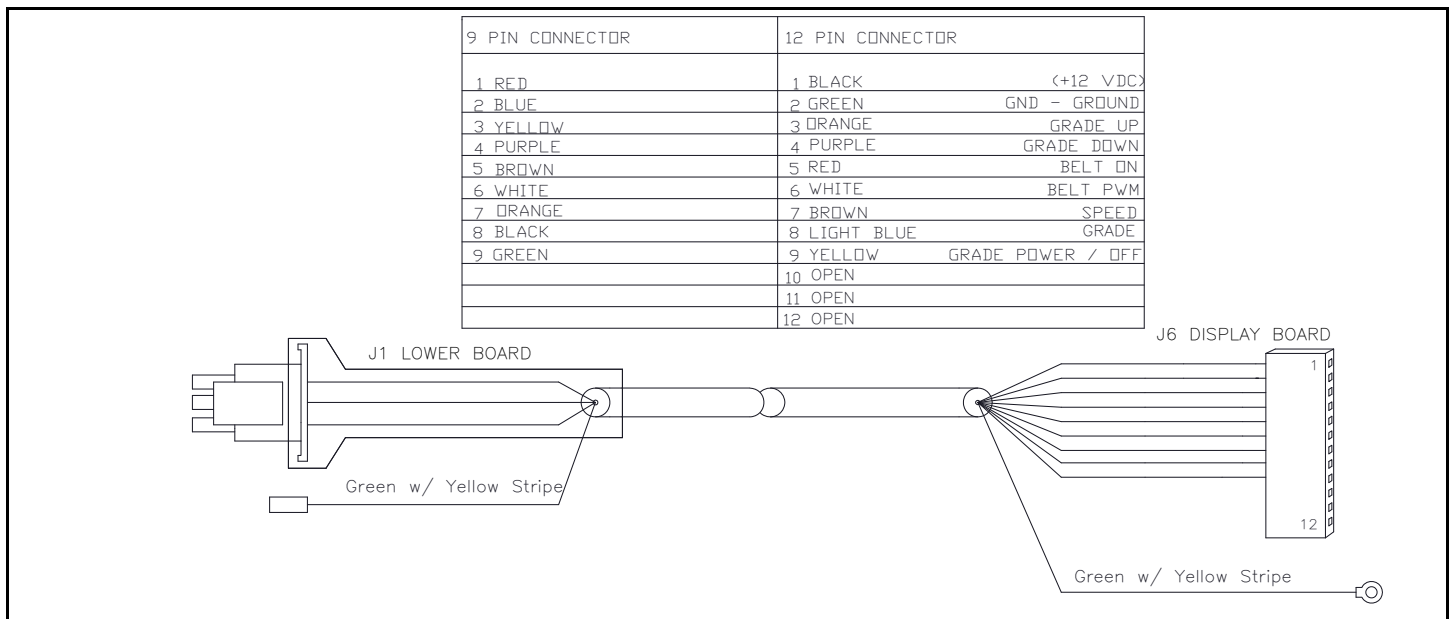


Figure 3-11. Upper Wire Harness for SCR (70324)

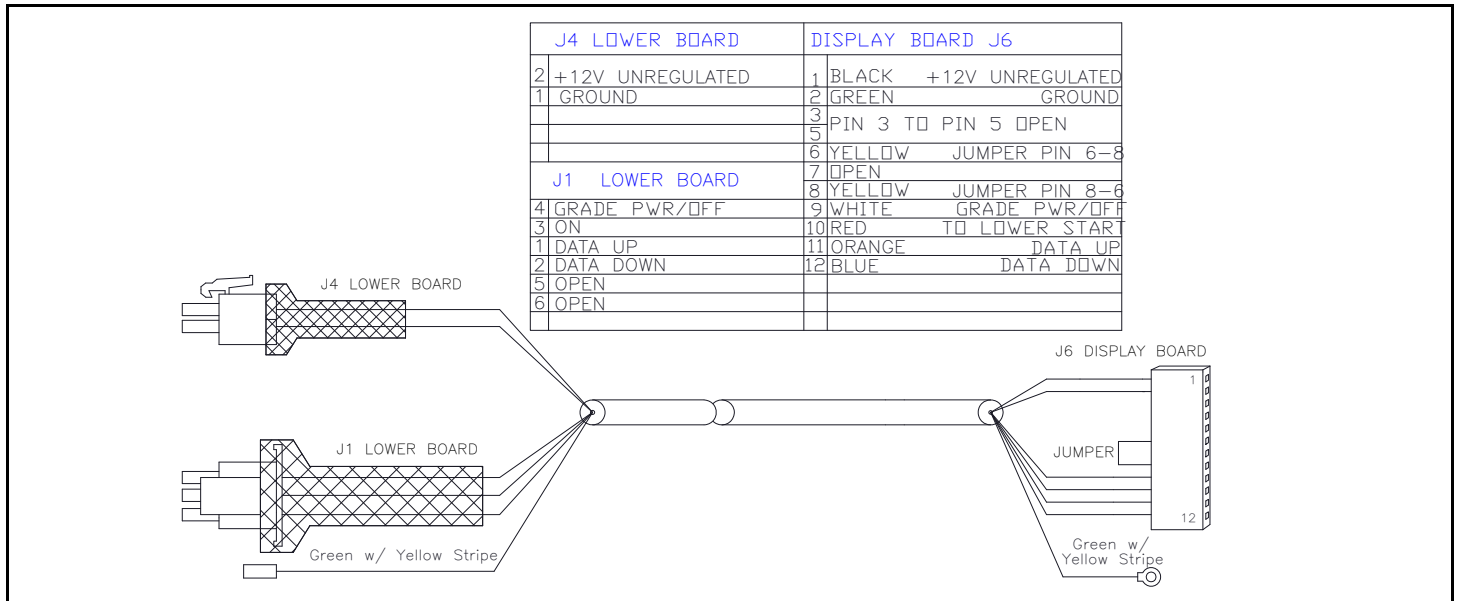


Figure 3-12. Line Cord Connector with On/Off Switch (70816)

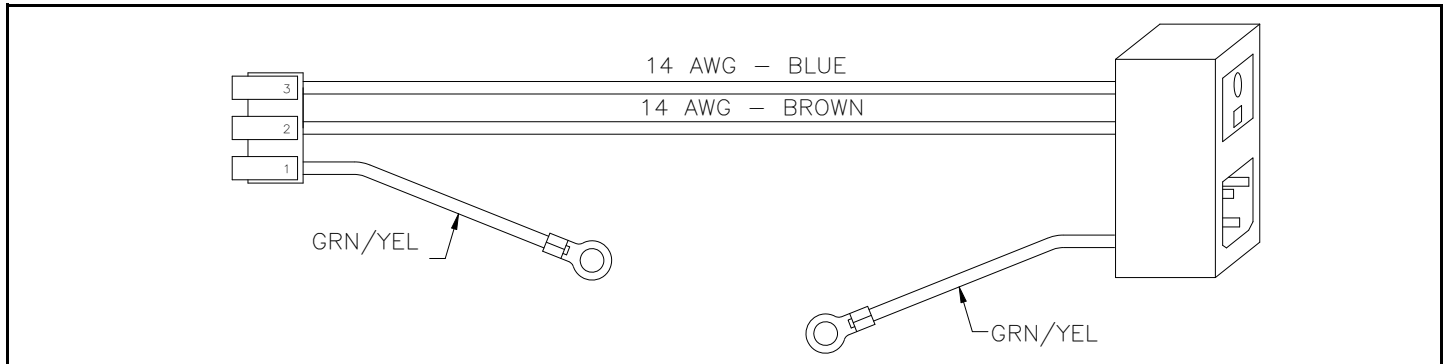
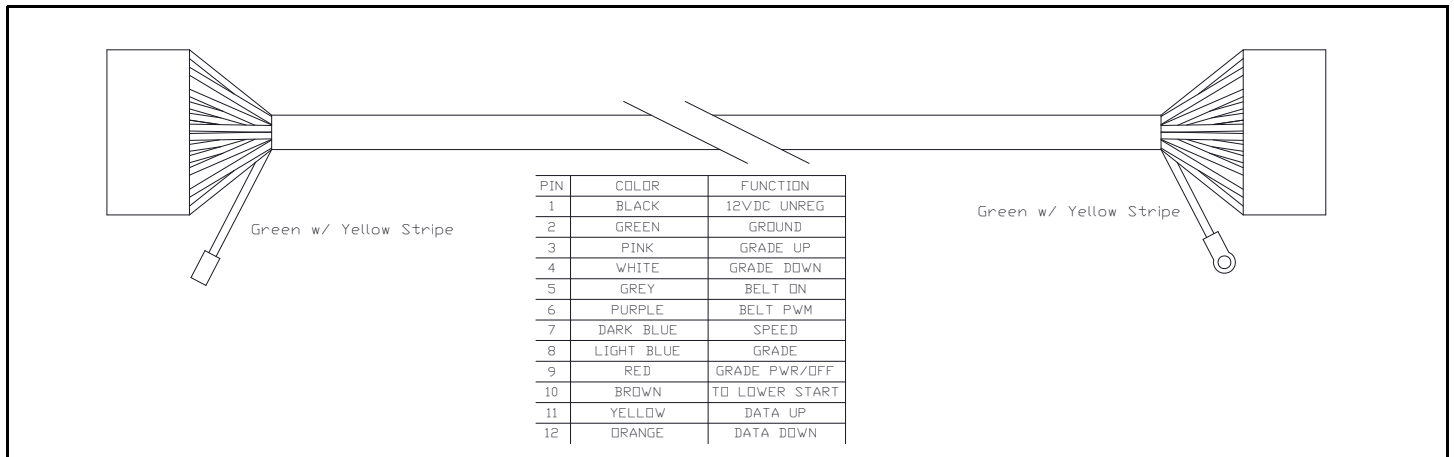


Figure 3-13. RTM Upper Harness (70488)



Note: Always turn off and unplug the treadmill before performing maintenance.

4.1. Home Models

No other maintenance is required but the following:

- As Required: Wipe down display using mild solution of non-phosphate cleaner on damp soft microfiber cloth and handrails after every use.
- Monthly:
 - Vacuum around and beneath the treadmill.
 - Vacuum or wipe down the deck area between the treadbelt and frame.
- Annually:
 - Remove motor cover and vacuum the motor pan.
 - Inspect treadbelt and drive belt for alignment, correct tension and lubricate treadbelt if necessary.

4.2. Commercial Models

4.2.1. Weekly Maintenance

Perform these tasks weekly at minimum.

- Wipe down display. Use mild solution of non-phosphate cleaner on damp (not wet!) microfiber cloth.
- Wipe down handrails and traction strips with soft cotton cloth and mild soap and water. Cloth should be damp not wet.
- Vacuum or wipe down the deck area between treadbelt and frame, including the visible part of the rear roller.
- Clean Treadbelt Walking Surface: Vacuum treadbelt to remove loose dirt. If vacuuming does not remove dirt, Landice recommends the use of a medium stiff nylon bristle brush to remove dirt trapped in treadbelt surface. A damp (not wet!) sponge can be used to finish the cleaning process.

4.2.2. Monthly Maintenance

- Take off motor cover and vacuum. Be careful not to touch any of the circuit boards.
- Turn on the treadmill. Elevate treadmill to 15%. Turn off the treadmill. Vacuum under and around the treadmill. Turn on the treadmill and return to 0% elevation.
- Mark the adjustment bolts on the rear roller and loosen each side two full turns. Examine the deck and treadbelt for wear and replace if necessary.
- See “Instructions for Lubricating Treadmills with SlipCoat” on page 28. If lubrication is necessary slide clean towel between the deck and belt.
- Check condition of line cord for any cuts, gouges, or broken prongs on the plug ends. Replace if necessary.

4.2.3. Every Six Months

- Check motor brushes for wear. Clean commutator if needed. See “Drive Motor Brush Replacement and Commutator Inspection Instructions” on page 80 for instructions.
- Check all nuts and bolts for tightness, especially the upright bolts, handrails and bearing blocks bolts for elevation system (see Bearing Block Maintenance below). Do not over tighten!
- Apply lithium grease to elevation motor shaft.

4.3. Instructions for Lubricating Treadmills with SlipCoat

SlipCoat lubricant reduces friction between the treadbelt and deck. It is required for all institutional treadmills. Proper and timely application of SlipCoat will prevent premature failures due to excessive wear and load. Items affected by inadequate lubrication are the treadbelt, deck, motor, and motor controller.

4.3.1. When to Lubricate

Home Treadmills: Lubricate with SlipCoat every 2500 miles or perform an amperage check as outlined below:

Institutional Treadmills: Landice L-Series should be checked on a monthly basis.

If you want to confirm that the treadmill is properly lubricated, you check for proper lubrication by putting your hand under the treadbelt and sliding it between the belt and deck to see if its slick. Your hand should feel greasy if the deck is lubricated properly. If it is dry then SlipCoat is needed. You can also perform an amperage check to see if the treadbelt is dragging excessively and thus drawing excessive current as follows:

1. Install AC clip-on ammeter around hot lead on line cord.
2. Turn treadmill ON and increase speed to 3.0mph.
3. Let speed stabilize and record the AC amperage.
4. Decrease speed to 1.0mph and have a person weighing at least 150 lb step onto the treadbelt.
5. Increase speed back up to 3.0mph.
6. Let speed stabilize and record the AC amperage. Compare the two readings.

Note: Current draw for a new or well-maintained 110V treadmill with a 150lb load at 3mph will be approximately 6A, for 220V units it will be approximately 3A. If the load is higher than 150lb, then adjust the amperage upward., if load is lighter the amperage draw will be less. Example 200lb load @3mph=8amps.

If the loaded current draw is substantially greater than the unloaded reading, then the treadbelt and deck system is wearing and may need lubrication and/or replacement:

- If treadmill is pulling under 9 amps no lubrication is necessary.
- If treadmill is pulling over 10 amps apply lubrication as outlined in “How to Lubricate” on page 28.
- If treadmill is pulling over 13 amps and/or if the amps do not decrease after applying lubrication, replace the treadbelt and flip the deck as outlined in “Deck and Treadbelt” on page 90.

7. Record the hours and miles in “Maintenance Checklist” on page 29.

4.3.2. How to Lubricate

Note: Only use SlipCoat by Landice. Most standard greases, waxes, and silicone sprays will build up on the rollers and affect belt slippage and tracking and could void the warranty.

1. Before lubricating, loosen treadbelt and slide clean towel under the treadbelt and wipe the deck and under the belt to remove dirt and debris. Rotate belt 180 degrees and repeat.
2. Using our SlipCoat packets, empty the entire contents of the packet to the middle 10" of the deck for the entire length of the deck in a zig zag pattern. Re-tension the treadbelt and check tracking at 2.0 mph.
3. Walk in the SlipCoat for a few minutes at a speed of 2.0 mph. Make sure to walk in the middle of the deck where the lubrication has been applied and walk from top to bottom. This will work the lubrication into the treadbelt.

4.4. Maintenance Checklist

Table 4-1 Commercial Treadmill Maintenance Checklist

Task	Check If Done
Check treadbelt tension and tracking	
Wipe beneath treadbelt	
Check drive belt tension	
Check motor brushes	
Use cleaning stone to clean commutator	
Vacuum under motor hood	
Vacuum around and under treadmill	
Lubricate deck with SlipCoat if needed	
Wipe down display using microfiber cloth with Simple Green and water. Allow to dry before using.	

This section provides the adjustment procedures.

5.1. Leveling Treadmill

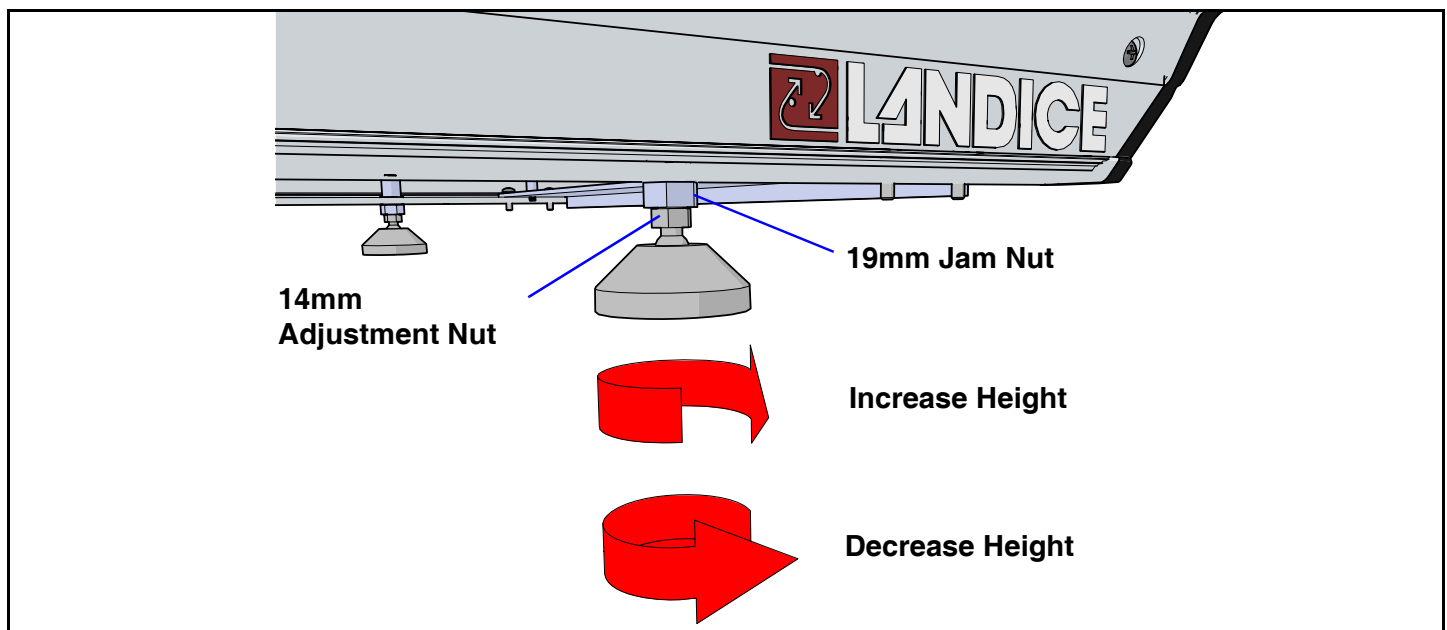
1. Place a carpenter's level across rear frame rails running parallel with rear roller.

CAUTION

There must be a minimum of 150 pounds on the treadmill's side steps for the reading to be accurate.

2. Adjust the leveling feet as shown in the following figure.

Figure 5-1. Leveling Feet



3. Tighten jam nut and re-check that the treadmill is level.

5.2. Drive Belt Tension

WARNING

Unplug the treadmill from the wall outlet. Dangerous voltages are present when it is plugged in and accessible when the motor cover is removed.

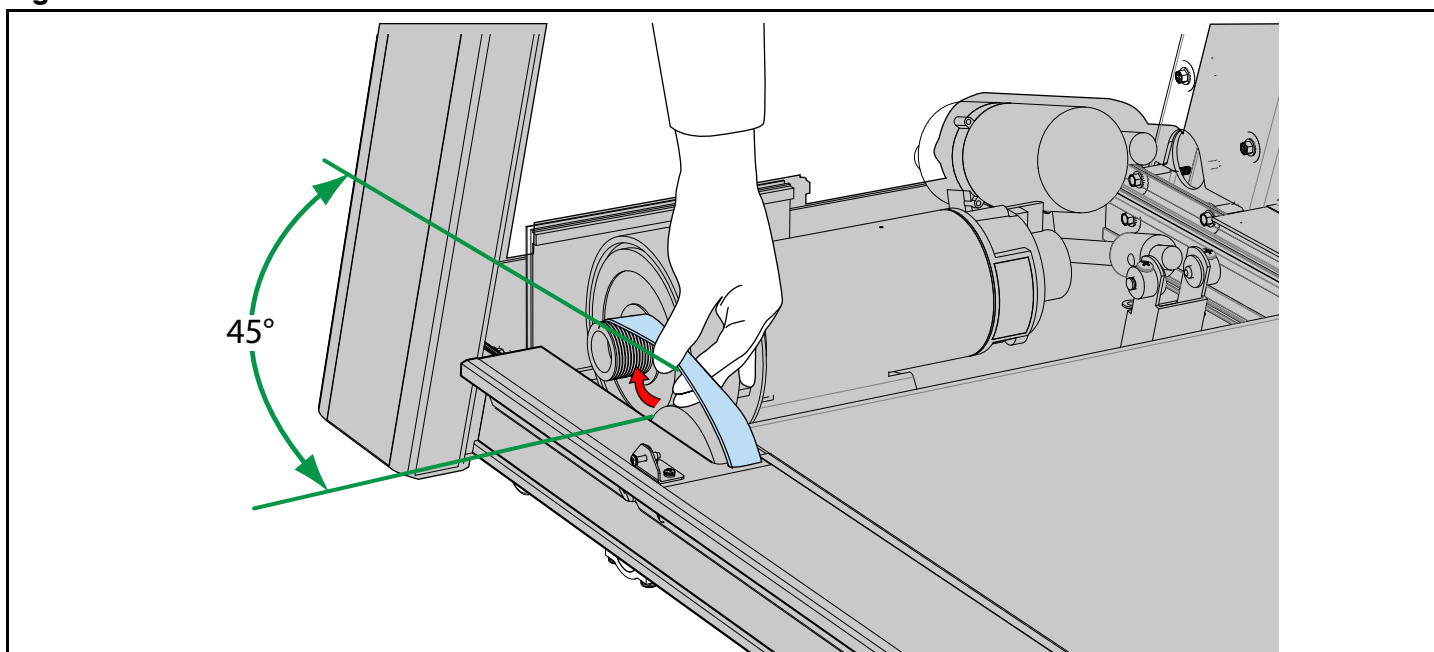
CAUTION

Never over tension the drive belt. Tighten only until slippage stops. Over tightening may cause serious damage to the drive motor and will void the motor's warranty.

Drive belts are tensioned at the factory. Adjustments are only necessary when drive belt is slipping during use. If the belt needs to be adjusted use a 7/16" socket and turn the bolt beneath the motor pan attached to the hook screw.

To test for tightness:

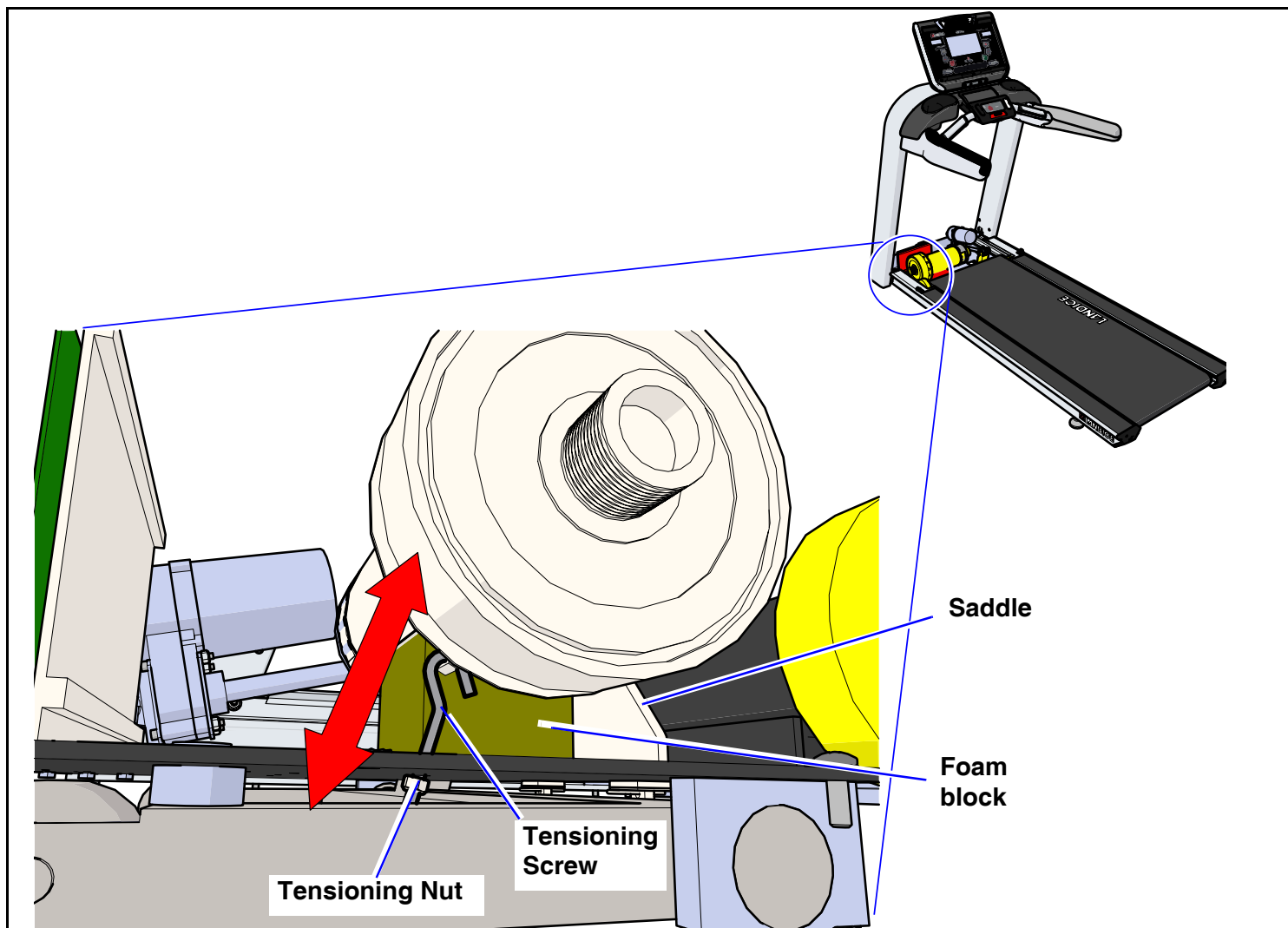
1. Unplug the power cord from its outlet.
2. Remove motor cover.
3. Check the tension on the drive belt by placing the drive belt between the thumb and forefinger and twisting as shown in the following figure. It should easily twist to 45°.

Figure 5-2. Drive Belt Tension Check

If it does not easily twist to 45°, follow Drive Belt Tensioning procedure.

1. Remove motor cover.
2. Elevate treadmill to 15%.
3. Locate drive belt tensioning nut on bottom of motor pan.
4. Tighten or loosen nut as necessary.
5. Set the treadmill to run at 2mph and walk on treadbelt.
 - If the drive belt is moving the front roller with no slippage then drive belt is correctly tensioned. Otherwise, tighten belt by tightening the tensioning nut, as shown in the following figure, only until it stops slipping. This rotates the drive motor saddle, thus tightening the belt. The foam block provides “spring” against the belt tension created by the saddle.

Figure 5-3. Drive Belt Tensioning Bolt



- If the belt is too tight, then loosen the tensioning nut to allow the motor to rotate upward and to the front to relieve belt tension.

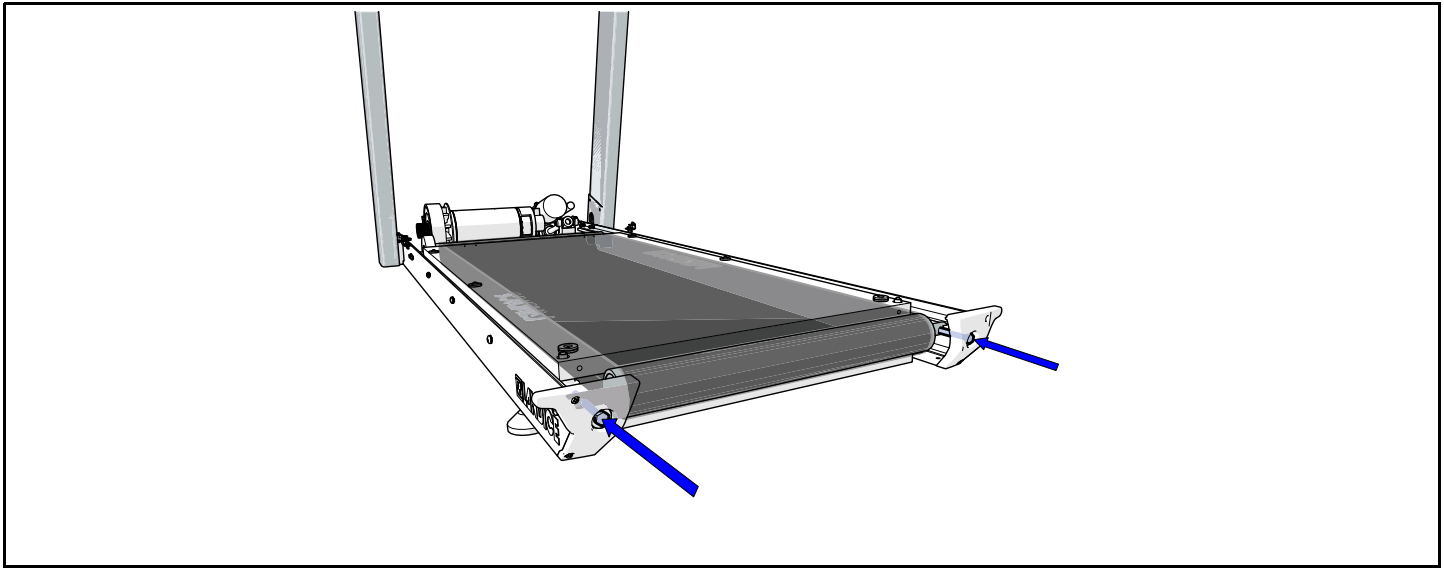
5.3. Treadbelt Tensioning

Treadbelts are tensioned at the factory and normally need no adjustment. To determine if the treadbelt needs adjustment, perform the following test:

1. Remove motor cover.
2. Set treadmill speed to 2mph.
3. Walk on treadbelt and see if drive roller is turning but belt is not moving. If belt is not moving then tension treadbelt by tightening the treadbelt tensioning screws (see the following figure) ONLY until belt ceases to slip.

CAUTION Over-tensioning the treadbelt will damage the drive motor, rollers and treadbelt.

Figure 5-4. Treadbelt Tensioning Screws

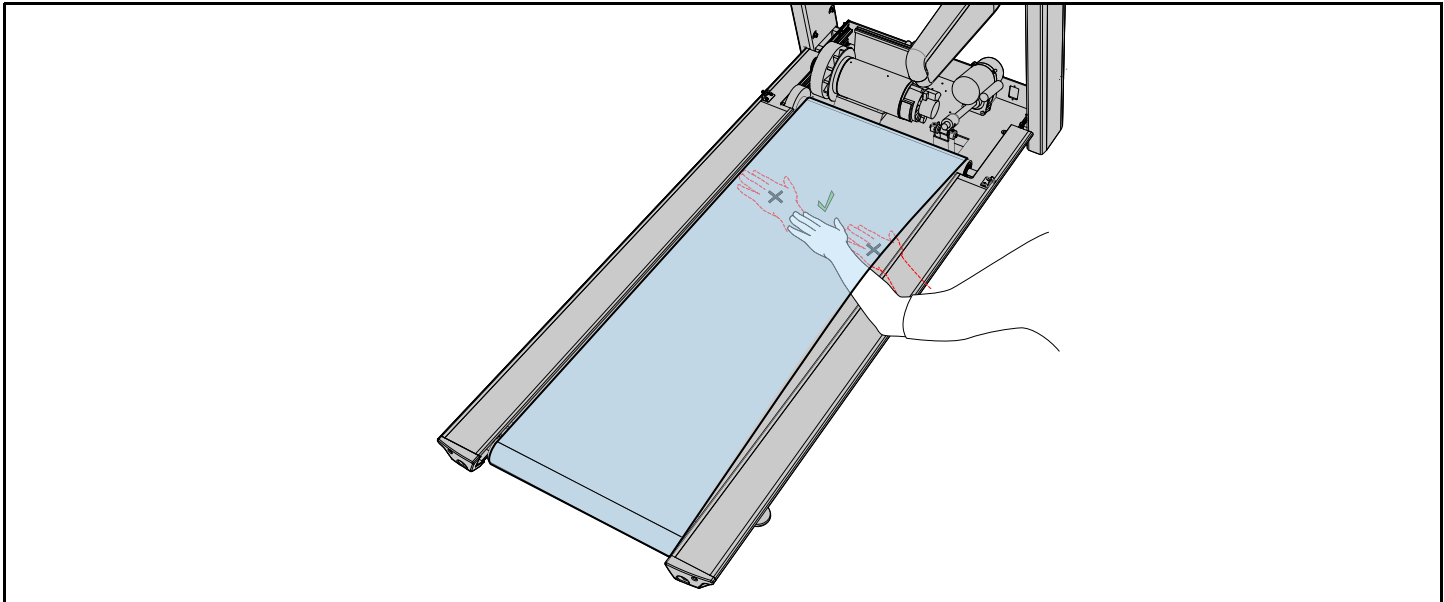


To tighten treadbelt, turn both adjustment bolts (clockwise) exactly the same amount to maintain proper tracking. Failure to turn them equally will affect belt tracking. You are moving the take-up roller closer or further away from the deck to tension the treadbelt.

CAUTION

DO NOT OVER TIGHTEN TREADBELT! If you cannot reach the palm of the hand under the center of the Treadbelt (see the following figure), if the edges of the belt are curled up, or if you hear the belt “groaning” **THE TREADBELT IS TOO TIGHT.**

Figure 5-5. Treadbelt Tension Check

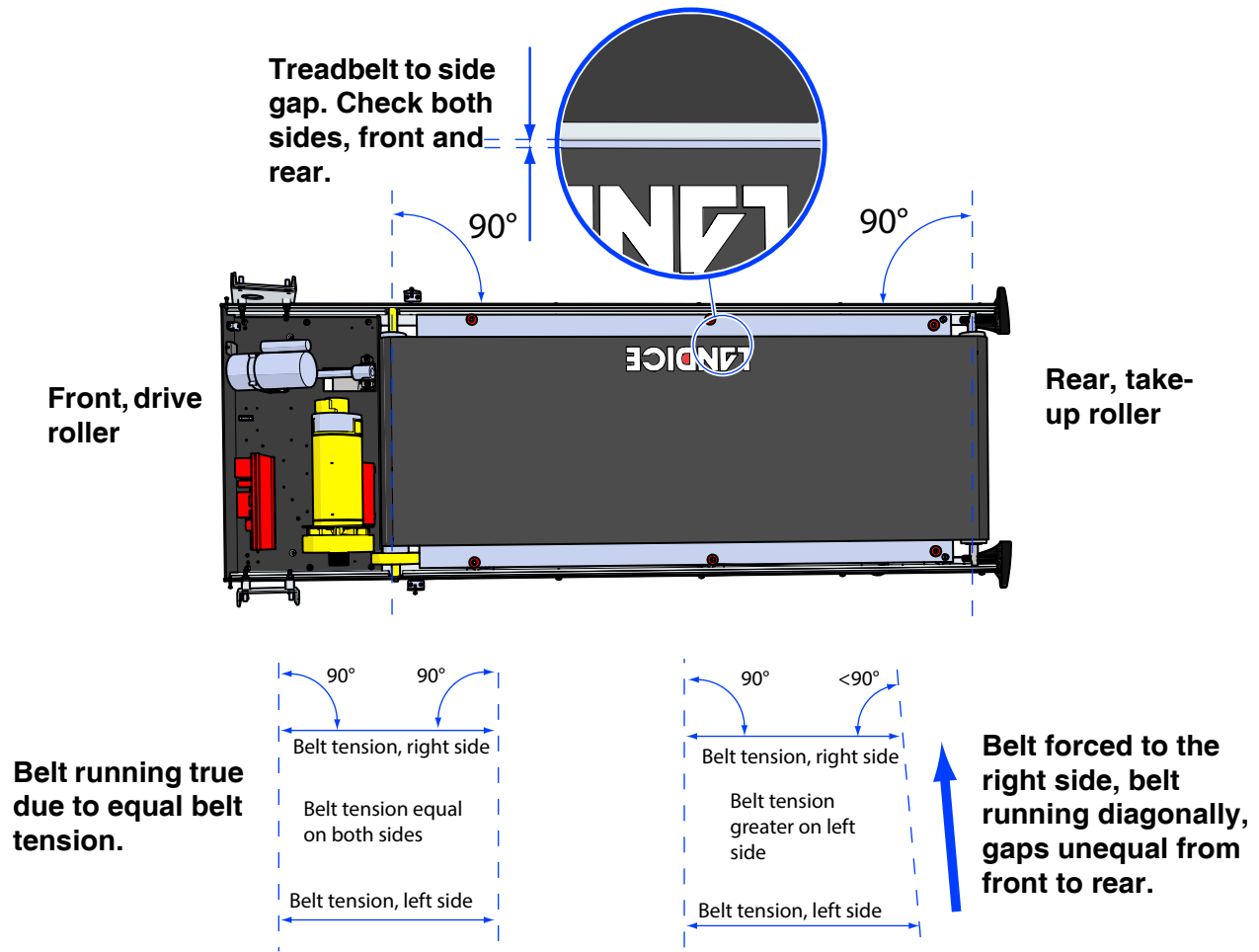

CAUTION

Treadbelt and deck surface should always be replaced together if either is worn.

5.4. Treadbelt Tracking

Treadbelt tracking is maintained by ensuring that the drive and take-up rollers are parallel, each is at right angles to the frame, so that the treadbelt tension from side to side is equal as shown in the following figure. If the treadbelt is running diagonally, with unequal gaps between the treadbelt and sides then the rollers must be adjusted.

Figure 5-6. Tracking Setup



Adjustment is performed using the following:

- The two adjustment bolts (9/16" socket) located at rear of treadmill, see Figure 5-4.
- By the bolts used to secure the drive roller to the frame, see Figure 5-7.

It is easier to start adjusting for proper tracking with the take-up rollers and if further adjustment is required, proceed to the drive roller as discussed in the following example: Treadbelt tracks to the right:

Note: This example assumes that only the take-up roller is out of alignment. You might encounter a situation in which both rollers are out of alignment but the same process applies.

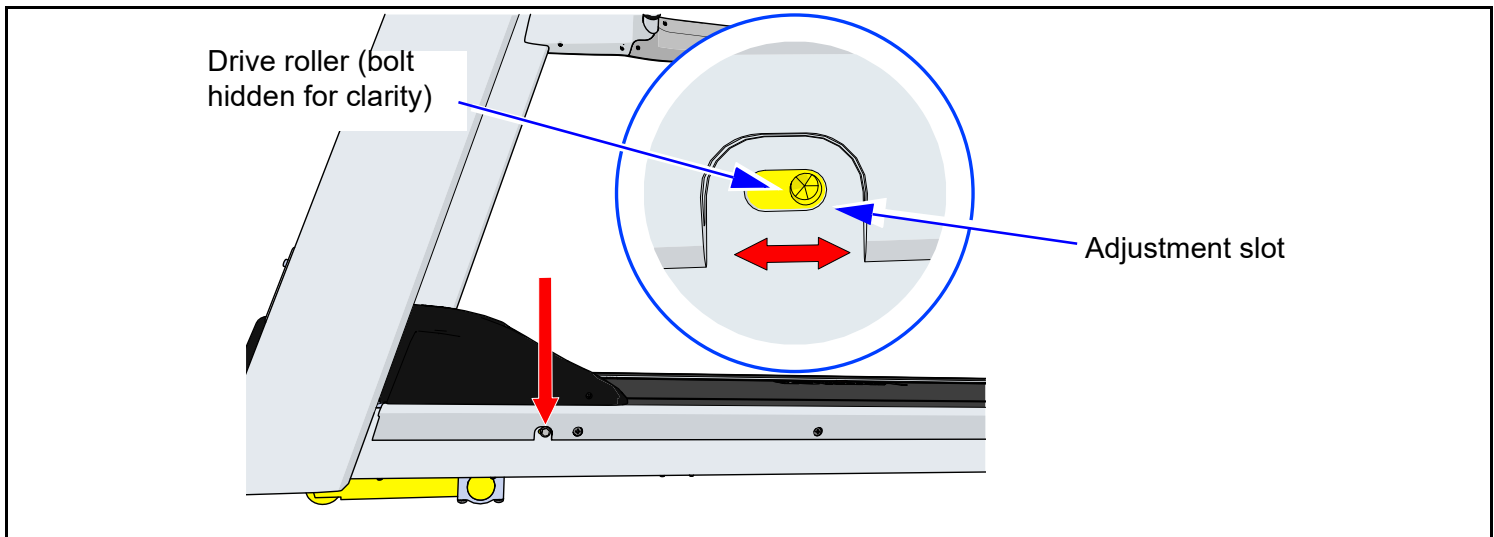
1. Ensure that the treadmill is level as outlined in "Leveling Treadmill" on page 31.
2. Ensure that the treadbelt is properly tensioned as outlined in See "Treadbelt Tensioning" on page 33.
3. Turn treadmill on, and bring speed up to 2.0 mph.
4. Using a 9/16" wrench, tighten the right-hand adjustment bolt 1/4" turn.

5. Loosen the left-hand adjustment bolt 1/4" turn.
6. Let treadmill stabilize (rotate for 30 seconds). In this example, the treadmill will change tracking as shown by the blue arrow due to the increased tension on the right side and the reduced tension on the left. Readjust if necessary.
7. If normal tracking procedures are not working satisfactorily, repeat the same procedure just performed on the take-up rollers on the drive rollers as discussed in the following section, Drive Roller Alignment.

5.5. Drive Roller Alignment

The drive roller is aligned at the factory. However, if the treadmill is centered at the rear roller but is off center in the front, an adjustment is necessary. This problem often appears as the belt is running diagonally (closer to one side at the top but farther away at the bottom). The drive roller is secured to the frame with two hex head bolts (3/8 socket) as shown in the following figure. The holes in the frame are elongated; this allows for forward and aft adjustment of the drive roller.

Figure 5-7. Drive Roller Alignment Adjustment Bolt



Example: Treadbelt is tracking diagonally to the right hand side. Adjust right hand side of drive roller by moving it towards the front (motor side) of treadmill. The treadmill will move towards the center.

5.6. Elevation Potentiometer Calibration

1. Visually confirm treadmill is level. Press down arrow for elevation until motor stops moving. The treadmill should now be level. If not, perform the procedure outlined in “Leveling Treadmill” on page 31.
2. Place in diagnostic mode as outlined in “Entering Diagnostic Mode Procedures” on page 41 as appropriate for your control.
3. The potentiometer should read 0.1 for all models.

Note: Elevation window shows actual elevation. Display shows potentiometer setting.

4. If the setting is incorrect, follow the steps below.
 - a. If off slightly, loosen the screws holding the potentiometer and rotate to adjust.
 - If this does not fix the problem, remove the screw and remove the potentiometer and proceed to the next step
 - If the elevation reading is accurate, you are done.
 - b. Turn the post of the potentiometer all the way clockwise.
 - c. Slowly turn the potentiometer counterclockwise until the setting is correct.

Note: If the setting seems stuck at 25.5 check that pot wires are seated in the correct order and that upper wire harness connection is seated tightly.

5. Carefully install potentiometer into the motor housing.

Note: The setting may vary when inserting the potentiometer into the motor. As long as the change is minimal, fine adjustment can be achieved after the potentiometer is loosely screwed into the motor housing. Tighten when done.

6. Press **OFF** to turn treadmill off, then press **ON** to retest for an accurate elevation reading.
 - If elevation reading is accurate, tighten the potentiometer bracket.
 - If the elevation reading is not accurate proceed to “Testing Elevation Potentiometer” on page 48 to determine why and fix the problem.

5.7. Speed Calibration: PWM PCB Motor Control Treadmills

1. Enter diagnostic mode as outlined in “Entering Diagnostic Mode Procedures” on page 41 as appropriate for your control.
2. Adjust the max speed first. Bring the set speed to 12mph. Let actual speed stabilize.
3. Adjust the MAX potentiometer on the PWM motor control board accordingly.
 - Clockwise: increases speed
 - Counterclockwise: decreases speed
4. Decrease set speed to 0.5mph. Let actual speed stabilize. Adjust the MIN pot accordingly.

Note: 0.48 to .52 mph is acceptable.

5. Before turning treadmill off, check the MAX speed one more time for accuracy.

5.8. PWM Motor Control Board IR COMP Potentiometer Adjustment

If the PWM motor control board IR COMP potentiometer is out of adjustment then stepping onto the treadbelt will result in either a surge in treadbelt speed or make it feel like it's pulsing. To adjust the IR COMP potentiometer:

No load / belt surging / LED1 flashing: Use a small screwdriver to rotate IR COMP potentiometer. Make this adjustment while the treadmill is running (surging). Rotate the pot in small increments until the treadmill surge subsides and runs smoothly.

Note: The IR COMP potentiometer can be rotated clockwise (CW) or counterclockwise (CCW) to achieve smooth operation.

With load / belt surging / LED1 may be flashing: Use a small screwdriver to rotate IR COMP pot. Make this adjustment while the user is walking on the treadmill. Rotate the pot in small increments until the treadmill surge subsides and runs smoothly. Keep speed setting under 2.0mph for safety.

WARNING If you cannot solve the problem, please call 1-800-LANDICE.

6.1. General Information

The primary method of troubleshooting is:

1. Find the symptom in Table 6-2.
2. Read the information in the Probable Cause/Diagnostic Procedure column and follow the link(s) to the specified procedure or test when applicable.

Note: Table 6-1 provides links to the appropriate method of launching Diagnostic Mode for each treadmill control.

Table 6-1 Entering Diagnostic Mode

Model	See Reference
Executive	"Touch Screen Executive Control (ET4) Diagnostic Mode" on page 41
Cardio	"Pro Sport Trainer (PST6) and Cardio Trainer (CT6)" on page 43
Pro Sport	"Pro Sport Trainer (PST6) and Cardio Trainer (CT6)" on page 43
Pro Trainer	"Pro Trainer (PT4) Diagnostics Mode" on page 43

Table 6-2 Diagnostics

Symptom	Probable Cause/Diagnostic Procedure
Treadmill is noisy	See "Noises" on page 45
Treadbelt feels like it is slipping or grabbing when walked on.	See "Treadbelt Tensioning" on page 33
Treadmill slows down when user steps onto treadmill.	<ul style="list-style-type: none"> •Incorrectly tensioned or worn out treadmill or deck. See "Treadbelt Tensioning" on page 33 and "Treadbelt Tracking" on page 35. •Worn or defective motor brushes and/or scorched commutator on drive motor. See "Testing Drive Motor: Generation Test" on page 46 •Demagnetized stator magnets on drive motor. See "Testing Drive Motor: Generation Test" on page 46
Treadbelt is moving diagonally.	See "Treadbelt Tracking" on page 35
Treadmill speed is erratic and/or surges.	<ul style="list-style-type: none"> •Loose drive belt. See "Drive Belt Tension" on page 31 •Loose treadmill. See "Treadbelt Tensioning" on page 33 •Worn or defective motor brushes and /or commutator. See "Testing Drive Motor: Generation Test" on page 46 •Line voltage surging: Verify electrical specifications are met. See "Electrical Requirements" on page 12 •PWM boards ONLY (Home): IR potentiometer out of adjustment. See "PWM Motor Control Board IR COMP Potentiometer Adjustment" on page 38

Table 6-2 Diagnostics (Continued)

Symptom	Probable Cause/Diagnostic Procedure
NO SAFETY KEY	<ul style="list-style-type: none"> •The safety key must be installed. Verify that the safety key is fully inserted in the Emergency Stop switch. The code is reset in about 6 seconds, but the treadmill will now be at zero (0) MPH, requiring the user to press the SPEED + button to reset the system. •If there is a malfunction in the safety system the error message changes from NO SAFETY KEY to SAFETY KEY FAIL and the treadmill becomes inoperable until power is cycled to reboot the system.
No power, blown in-line fuse	See “ESI SCR: No power, Blown In-line Fuse” on page 53.
No power, blown in-line fuse	See “ESI PWM: No power, Blown In-line Fuse” on page 54.
“SAFETY SHUTDOWN Loss of Speed Signal”	<p>The speed sensor is not reporting any motor movement. This displays the error message to the upper board.</p> <p>For SCR board models; See “ESI SCR: SAFETY SHUTDOWN: Loss of Speed Signal: Upper display lights but treadbelt does not move” on page 55</p> <p>For PWM board models: See “ESI PWM: SAFETY SHUTDOWN: Loss of Speed Signal: Upper display lights but treadbelt does not move” on page 56</p>
“SAFETY SHUTDOWN Loss of Speed Signal”	<p>The speed sensor is not reporting any motor movement. This displays the error message to the upper board.</p> <p>See “ESI SCR: SAFETY SHUTDOWN: Upper display lights, treadbelt moves, speed will not increase” on page 57</p>
“SAFETY SHUTDOWN Loss of Speed Signal”	The speed sensor is not reporting any motor movement. This displays the error message to the upper board. See “ESI PWM: SAFETY SHUTDOWN: Upper display lights, treadbelt moves, speed will not increase” on page 58
“Comm Error”, “CE Error”, or “Communication error”	Occurs when there is a break in communication between the upper board and the lower board. If the upper board does not identify signal to the lower board it is likely the main upper harness has a poor connection, broken wire, etc. Re-seat the main harness at the upper and lower board and if required, verify continuity of the cable. Repair or replace as required.
Speed shown is not actual speed	Speed needs to be calibrated (Home treadmills only). See “Speed Calibration: PWM PCB Motor Control Treadmills” on page 38
DISPLAY MEMORY displayed	Checking for RAM and ROM memory within the programs of the upper board. This will notify you if there is a problem with the software stored in ROM on the upper board.
BELT OVERSPEEDING displayed ¹	<p>Note: During high elevation and low speed the role of the user’s weight and gravity is likely to cause an Overspeed error.</p> <p>This compares the requested speed to the actual speed of the treadmill to confirm if the speeds of the treadmill are within specification. Speed fluctuation or overspeed can be caused by improper position of the speed sensor, a bad speed sensor, or a bad motor control board.</p> <p>Recalibrate; see “Speed Calibration: PWM PCB Motor Control Treadmills” on page 38.</p> <p>If problem recurs, test according to “Testing Speed Sensor” on page 49.</p>

Table 6-2 Diagnostics (Continued)

Symptom	Probable Cause/Diagnostic Procedure
SPEED SENSOR displayed	The speed sensor reads the RPM from the flywheel and relays this information to the upper board. The speed sensor must be positioned perpendicularly at a gap of 1/16" from the flywheel. The SPD LED will flicker on and off when it detects the gaps in the flywheel "teeth". This is most easily demonstrated when the treadmill is not running and the flywheel is spun slowly by hand. Recalibrate: see "Speed Calibration: PWM PCB Motor Control Treadmills" on page 38. If problem recurs, test according to "Testing Speed Sensor" on page 49.
MOTOR VOLTAGE displayed	This tests the DC voltage from the motor control board to the drive motor. During testing the drive motor will move. If this test fails, measure for 90 - 180VDC voltage output across M+ and M- while in diagnostic mode. If fail, replace the motor control PCB. Test at maximum speed: •110V: 90VDC •220V: 180VDC
INCLINE SENSOR displayed	This confirms feedback from the potentiometer. A working potentiometer is 0 to 1000Ω.
ELEVATION MOTOR displayed	This will test elevation motor movement.
Grade Potentiometer displayed	This test works in relation with the INCLINE SENSOR test. Test will check if the potentiometer reading is calibrated and compare that feedback are within parameters.
Upper display fails to light when START is pressed.	See "ESI SCR: Upper display fails to light when START is pressed." on page 60
Display reads Calibration in Progress.	See "PT4: Calibration in Progress Message at Start Up" on page 62
Display reads "OFF".	See "PT4 Displays Elevation Error Code: OFF" on page 63
PO error: Elevation system failure	See "ESI PWM: PO Error: Elevation System Failure" on page 64
"Potentiometer Out Of Range"; Elevation Malfunction	Same as PO error: Elevation system failure. See "ESI PWM: PO Error: Elevation System Failure" on page 64

Note: A signal break may also cause an O5, PO, or L5 error.

6.2. Entering Diagnostic Mode Procedures

This section provides the procedures for launching Diagnostic Mode in each 90 Series treadmill model. Diagnostic Mode contains information to trouble shoot different components/functions and can be used for Elevation calibration, hours of use, etc.

6.2.1. Touch Screen Executive Control (ET4) Diagnostic Mode

To enter diagnostic mode:

1. With board off press and hold **Down** and **Stop** and then press **Start**.
2. Count to two and release all keys. This will bring you to Menu list that allows you to enter the following diagnostic functions. To navigate the list:

- Use the up and down keys to move between the selections
- Press **Start** to enter the selection
- Press the Left arrow to return to the Menu screen.

Table 6-3 Executive Control Diagnostic Modes

Function	Description
Error Logs	Shows you a list of all error codes recorded
Diagnostics	Shows information for the following functions:
	Speed sensor feedback (formerly known as OLS mode)
	Pot- Shows Pot Calibration
	Pulse-test if the pulse (Contact or Chest Strap) reading is being transmitted and received
	Hours and Miles
	Software Version of the Display Board
Button Check	Checks membrane buttons
Touch Screen Check	Shows if different parts of the Touch Screen are functioning
NV INIT-Boot	Not for Diagnostics
Self Diagnostic	Will run a check on the functions of the unit and report problems found
Lock out	Allows user to input a code to prevent unauthorized use
Toggle Units	Allows selection of English or Metric units to measure speed and miles
Toggle Beeper	Allows selection of turning Beep on or off
Toggle User Presence	On machines equipped with this option it will turn off the machine when no activity is recorded
Toggle Max Grade	On machines equipped with this option it will allow the selection of 12% or 15% grade
Toggle Max Speed	On machines equipped with this option it will allow the selection 11 mph or 15 mph or the corresponding values in kilometers
Toggle Client	Allows the use of the Client feature

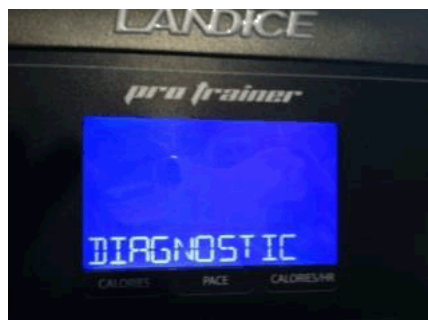
6.2.2. Rehabilitation Treadmill (RTM)

Press FAST and START to enter diagnostics. Hours and Miles are not available for these models.

6.2.3. Pro Trainer (PT4) Diagnostics Mode

To enter into diagnostic mode:

1. With the treadmill OFF press and hold down Incline (+) and Incline (-) keys and then press and hold **ENTER** until screen displays DIAGNOSTIC as shown below.



Available functions are:

- Calibration (Speed under Speed window, Incline under Incline window)
- HR (Pulse reading)
- Key (Button feedback)
- Display (test all pixels on display including words, tracks, and numbers)

To navigate the diagnostics functions:

- To scroll between functions press the Incline (+) key to go forward and the Incline minus (-) key to go backward.
- When the functions you want are displayed, press **ENTER**.
- To exit that function press the **STOP** key to return to the Diagnostic screen.

6.2.4. Pro Sport Trainer (PST6) and Cardio Trainer (CT6)

- **To Enter Diagnostic Mode:** With the display OFF, press and hold **ENTER** key and then press **START** key until beep is heard. The following information is displayed:
 - Model of the Unit (Pro Sport Trainer or Cardio Trainer) and Version (V1.0 etc) followed by the serial number.
 - Elevation Pot setting
 - Speed Sensor Reading
 - Circuit Board functions (Rom, Ram, NV)
 - Blue: Tests whether a correctly programmed Bluetooth dongle (Pass) is present (Cardio Trainer 6 only)
 - SCR: Tests that information is passing between the upper and lower (SCR) board
 - Audio: Tests if the Cardio theater circuitry is working
 - Contrast: For LCD screen contrast
 - Total Hours and Total Miles
- **To Exit Diagnostics:** Pull the safety key to disengage, then replace safety key to allow restarting.
- **To Enter Hidden Menu of Diagnostics and Settings:**

1. With board off, press and hold **Down** and **STOP** keys and then press **START**.

- Count to two and release all keys. This displays a Menu that allows entry to the following functions. To navigate the list use the up and down keys to move between the selections and press the **START** button to enter the selection. Press the Left arrow to return to the Menu screen.

Table 6-4 Menu List, Pro Sports and Cardio Trainer

Function	Description
Error Logs	Shows a list of all error codes recorded
Diagnostics	Shows information for the following functions:
	Speed sensor feedback (formerly known as OLS mode)
	Pot-Shows Pot Calibration
	Pulse-test if the pulse (Contact or Chest Strap) reading is being transmitted and received
	Hours and Miles
	Software Version of the Display Board
Button Check	Checks membrane buttons
Touch Screen Check	Shows if different parts of the Touch Screen are functioning
NV INIT-Boot	Not for Diagnostics
Self Diagnostic	Will run a check on the functions of the unit and report problems found
Lock out	Allows user to input a code to prevent unauthorized use
Toggle Units	Allows selection of English or Metric units to measure speed and miles
Toggle Beeper	Allows selection of turning Beep on or off
Toggle User Presence	On machines equipped with this option it will turn off the machine when no activity is recorded.
Toggle Max Grade	On machines equipped with this option it will allow the selection of 12% or 15% grade.
Toggle Max Speed	On machines equipped with this option it will allow the selection 11 mph or 15 mph or the corresponding values in kilometers.
Toggle Client	Allows the use of the Client feature.

6.3. Noises

Many times a treadmill will tell you what's wrong with it by the noises it makes. We strongly recommend the use of an automotive stethoscope.

Service Tip: Treadmill making noise but cannot tell from where.

Solution: Must isolate all moving parts.

1. Unplug treadmill.
2. Disconnect drive belt.
3. Turn treadmill on, listen for noise.
 - If noise is not present proceed to next step.
 - If noise is present, drive motor must be the source.
4. Reconnect the Drive Belt and loosen the Treadbelt completely.
5. Turn treadmill on, listen for noise.
 - If noise is not present, Rear Roller must be source (bearings).
 - If noise is present, Drive Roller must be source (bearings).
6. With treadmill off, bounce or jog in place on deck. If noise is present then deck or frame is making the noise.

Note: The Treadbelt must be loose enough that when the treadmill is powered up the Treadbelt does not move.

6.3.1. Rollers (Drive and Take up)

Rollers only have two moving parts, the bearings located on either end of the roller. The place to check for noise is on the shaft coming out of the roller because it is close to the bearings and does not move. Many technicians will hold the blade end of screwdriver onto the shaft and place their ear next to the handle end to be sure they are identifying the location of the noise. The most common sound is a clicking that comes from a bearing that is no longer round. Other noises can be a rumbling (like rolling something around in a metal drum) and in worse cases a grinding metallic noise.

When you hear any bearing noise, replace the roller.

6.3.2. Treadbelt, Deck and VFX Noises

- Replace a damaged treadbelt. See "Deck and Treadbelt" on page 90
- Check that the treadbelt is tensioned properly. See "Treadbelt Tensioning" on page 33

Decks are solid pieces of wood with a phenolic coating that rest on the VFX cushioning system.

- The deck can make a squeaking noise when the VFX hardware is not properly tightened or lubricated. You can test for this by bouncing on the deck when the machine is not running.
- Sometimes the deck will need to be lubricated on the sides that go into the frame rails. Use Lubriplate grease sparingly.
- If a part on the VFX system is broken the deck will make a clunky noise when it bounces against the damaged part. Check the Impact absorbers,
- A deck may also make a scraping noise when it is worn out.

6.3.3. Elevation Motor

Elevation motors consist of an electric motor and screw shaft. If noise is heard only during a change in the elevation:

- Clean the elevation screw and nut.
- The gearbox may be damaged. If a grinding noise is coming from the gearbox, replace the elevation motor. See “Elevation Motor” on page 82
- Check that the motor mounts are not damaged. If either one is, noise can be a consequence of flexing and rubbing.
 - Replace the Clevis mount. See “Clevis Mount” on page 93
 - Replace the elevation assembly. See “Elevation Assembly” on page 93

6.3.4. Drive Motor and Drive Belt

Drive belts make a high-pitched squeal when they are worn or improperly tensioned. It can also happen when the drive pulley and drive roller are misaligned.

The drive motor is an electric motor with a flywheel and pulley attached. The only serviceable parts are the brushes. If noise is heard from the following sources, perform the prescribed solution. Otherwise, replace the drive motor. See “Drive Motor” on page 78

- Tinny or clicking sound if the fan is rubbing against the fan cover. Try to pry the cover away from the motor, being careful to not damage either.
- Metallic grinding noise if the motor brushes are very worn. Replace the brushes. See “Drive Motor Brush Replacement and Commutator Inspection Instructions” on page 80
- Buzzing noise if the brushes are hung up in the brush holder. Reinstall the brushes correctly. See “Drive Motor Brush Replacement and Commutator Inspection Instructions” on page 80

6.4. Testing Drive Motor: Generation Test

If the motor fails any of these tests, replace it.

All Landice drive motors (110 & 220) are direct current (DC). A DC drive motor can generate a DC voltage when it is manually rotated. The DC output is linear to the speed at which the motor is rotated. To perform the Generation Test follow these steps:

1. Unplug treadmill from wall outlet.
2. Disconnect drive motor from motor control board.

Note: Set DMM for Volts DC (VDC)

3. Connect DMM (digital multi-meter) to the drive motor wires.
 - Motor plus (+) = Red test lead from DMM
 - Motor minus (-) = Black test lead DMM
4. Position the DMM so you can read it while standing on the treadbelt.
5. Start to push or run on the treadbelt.

Note: You are spinning the drive motor manually. The faster you spin the motor, the higher the DC voltage on the DMM.

- 110 VAC treadmills use a 90 VDC drive motor. For every mile per hour you spin the drive motor you will generate approximately 10 VDC output. So, at 1 mph you will measure 10VDC +/- and at 9mph you will measure 90VDC +/-.
- 220 VAC treadmills use a 180 VDC drive motor. For every mile per hour (mph) you spin the drive motor you will generate approximately 20 VDC output. So, at 1.0mph you will measure 20 VDC +/- and at 9.0mph you will measure 180 VDC +/-.
- If you measure very low DC voltage or zero DC voltage:
- Check the drive motor brushes for condition. Motor brushes are the leading cause for drive motor failure. Remove them and measure them. If the motor brushes are worn below 3/8" in length, replace them.

Alternate Test 1:

Attach 9 or 12 volt battery to motor leads. There should be motor movement.

Alternate Test 2:

- Unplug treadmill.
- Disconnect drive motor wires.
- Remove drive belt. See "Drive Belt" on page 85
- Hold black and white wires together and spin the flywheel. There should be resistance when wires are connected.

Note: If red LED is lit then current draw is high.

6. Check condition of motor commutator. If it is burnt, scratched, or scored, use commutator stone to clean. If it is too badly damaged, motor must be replaced.
7. Check condition of motor shaft
 - Does it seem to wobble? Check that flywheel and pulley are tight and in line.
 - Is shaft visibly bent/broken? Replace motor.

6.5. Testing Elevation Motor



This test requires that power be applied to the circuitry. Use caution to avoid electrical shock.

Measure the input voltage (AC) to the elevation motor:

1. Secure the black (negative) probe to a good chassis ground.
2. Place the red probe on the red wire in the elevation harness.
3. Press the elevation DOWN key. You should see a reading of 120 /220VAC, depending on the model of treadmill.
4. Place the red probe on the BLACK wire in the elevation harness.
5. Press the elevation UP key. You should see a reading of 120/220VAC, depending on the model of the treadmill.
6. If the elevation motor is getting the proper AC voltage input but does not turn, replace it.

7. Check for fractured housing or broken motor mounts. Replace if necessary.

6.6. Testing Elevation Potentiometer

1. Remove the elevation pot from elevation motor but do not disconnect the brown, orange and blue wires.
2. Using a digital voltmeter set to ohms (Ω), place probes on the potentiometer prongs with the (orange) and (brown) wires.
 - Turn pot shaft completely clockwise: 0-1000 Ω
 - Turn pot shaft completely counterclockwise: 1000-0 Ω

Note: Now place meter probes on prongs (orange) and (blue) wires.

- Turn shaft of the potentiometer completely clockwise: 1000-0 Ω
- Turn pot shaft completely counterclockwise: 0-1000 Ω

Note: If the elevation potentiometer does not indicate the proper resistance readings, it must be replaced.

Note: Potentiometer should fit snugly into motor. Check for tight fit. Also check that nut on potentiometer is tight.

6.7. Testing Motor Control Board

This procedure verifies both the PWM motor control board and the SCR Motor Control PCB, any differences in the step is noted. Reference the appropriate wiring diagram for pin-out information:

- SCR motor control PCB: "Interconnect Wiring Diagram - LTD and Home Models, ESI PWM Control PCB" on page 19
- PWM motor control PCB: "Interconnect Wiring Diagram - Club Model" on page 21



This test requires that power be applied to the circuitry. Use caution to avoid electrical shock and shorting board contacts.

1. Plug the treadmill in and turn it on.
2. Remove the motor cover.
3. Measure AC voltage into the motor control PCB across AC voltage terminals.
 - 110V Treadmills: 120 VAC
 - 220V Treadmills: 220 VAC

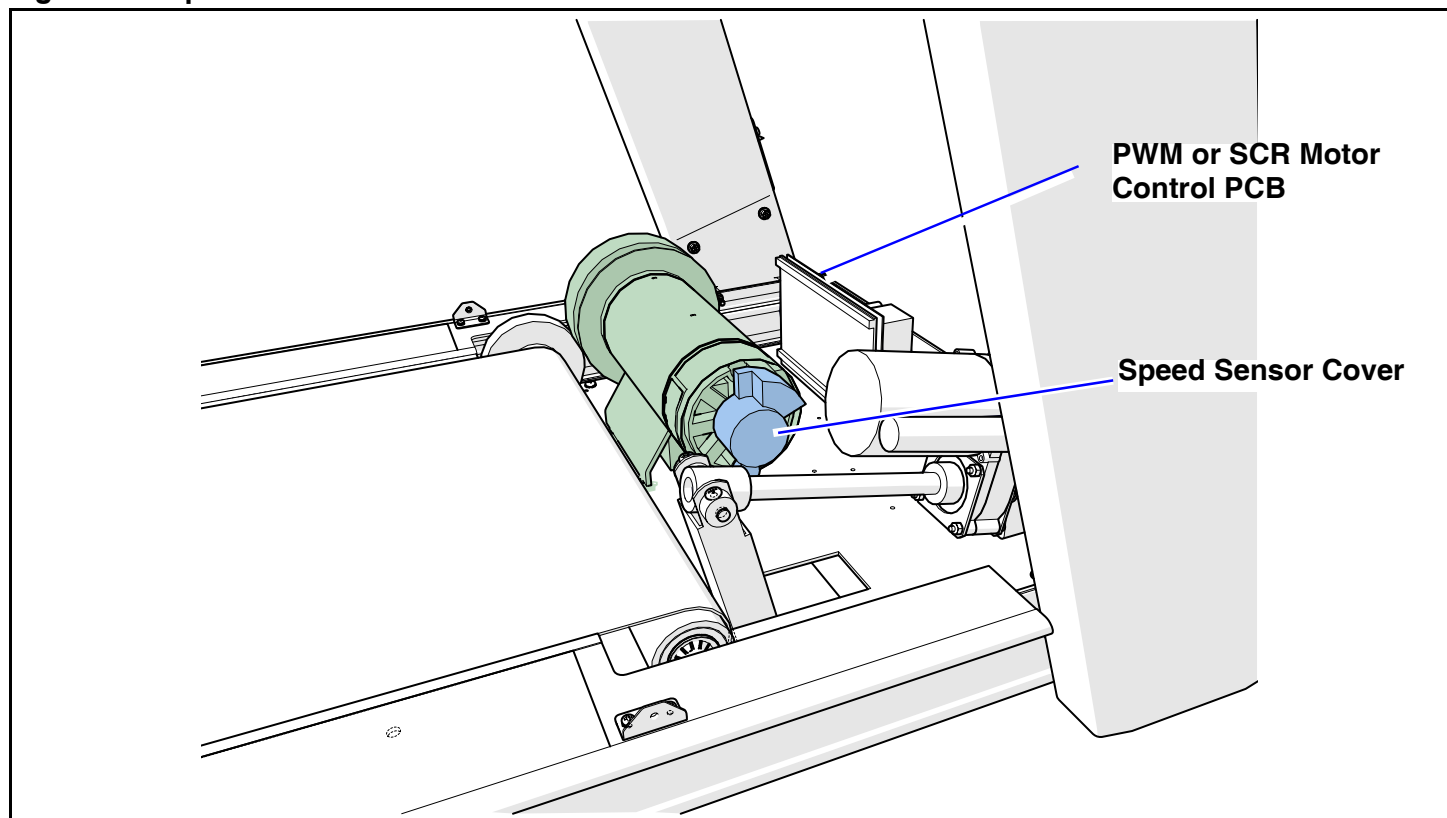
If the voltage is correct then proceed to the next step. Otherwise correct the AC power input problem.
4. Place the treadmill in Diagnostic mode.
5. Increase speed up to maximum: 90VDC for 110V Treadmills, 180VDC for 220V Treadmills.
6. Confirm that 90VDC (for 110V treadmills) or 180VDC (for 220V treadmills) is available across MTR+ and MTR-. If the reading is as specified, the motor control PCB is working properly and troubleshooting is complete. Otherwise, proceed.

6.8. Testing Speed Sensor

The speed sensor is an optical emitter/detector assembly that has its light beam interrupted by a toothed speed wheel affixed to the motor's shaft. When the speed wheel rotates the teeth interrupt the light emitted by the sensor's LED and thus creates a pulse train from the detector. This pulse train is used by the PWM motor control board to determine motor speed. Verify the sensor's operation as outlined in the following procedure:

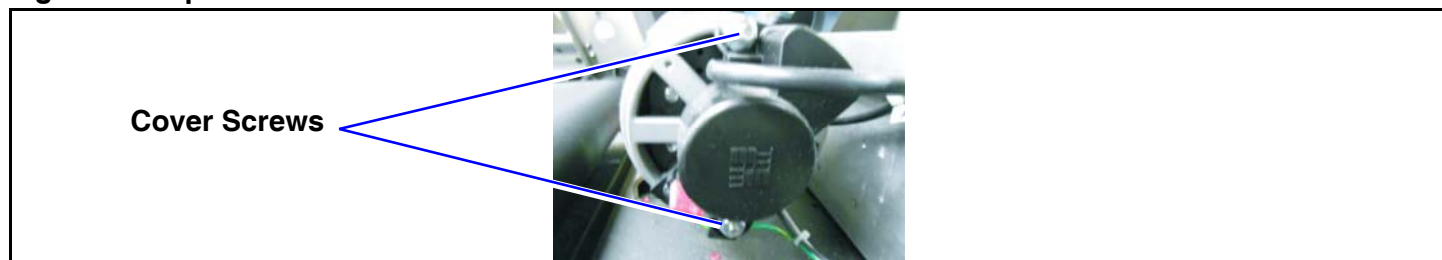
1. Unplug the treadmill.
2. Remove the motor cover. the following figure shows the speed sensor cover.

Figure 6-1. Speed Sensor Cover and Motor Control PCB Locations

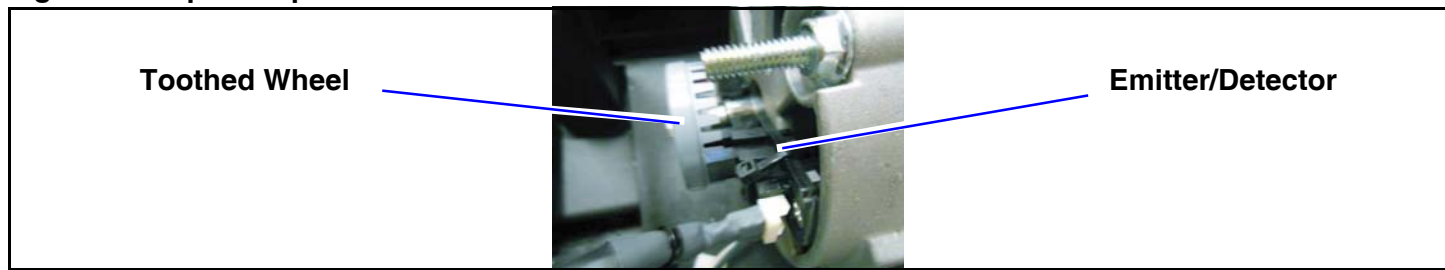


3. Remove the two nuts holding the sensor cover (see the following figure) using the 7/16" socket, 2" extension and 3/8" ratchet.

Figure 6-2. Speed Sensor Cover Hardware



4. Slide the cover off to see the speed sensor components, see the following figure.

Figure 6-3. Optical Speed Sensor

5. Verify that the toothed wheel is secured to the motor shaft and that the teeth run between the emitter/detector posts. One side has the LED emitter and the other the light detector. The teeth must break the beam to create the pulse train. Adjust as required.



The next step requires that power be applied to the circuitry. Appropriate caution must be used to avoid shock and shorting board contacts.

6. If the sensor is properly adjusted plug the treadmill in and turn it on.
7. Verify that power is available to the emitter/detector:
 - a. Disconnect the cable to the emitter/detector assembly.
 - b. Check for +5VDC at the red and black wires of the cable's connector
 - c. Check for +5VDC between the white and black wires of the connector.
 - If power is available, replace the speed sensor.
 - If power is not available, replace the cable.

6.9. Testing Upper Display Board

The upper display board is powered by DC voltage. The power is supplied by the PCB through the Upper Wire Harness and then connected to the upper display board. By measuring the Black and Green wires on the Upper Wire Harness you can confirm voltage from the PCB. Confirm the upper display is getting +12DC volts delivered to it. If the display board has the proper DC voltage supplied and does not light, see "Testing Membrane Panel".

6.10. Testing Membrane Panel

The membrane panel has small micro switches laminated inside that transmit the user's key presses into treadmill functions. Enter **Diagnostic Mode** to confirm proper operation of the membrane panel. In this test mode you will be able to check each key on the membrane panel. By pressing a key, a numeric code appears, see Table 6-5 for a complete list of these codes. If you see the appropriate code appear, then the key has failed and the membrane panel must be replaced.

Note: The Pro Trainer and Executive Trainer control displays the text of the button pressed and so is not included in the following table.

Note: Press **STOP** for the Pro Trainer and Power Down for the Executive Trainer to stop and exit the test.

Table 6-5 Control Button Codes

Code	Cardio Trainer	Pro Sport Trainer	Code	Cardio Trainer	Pro Sport Trainer
1			17		
2			18		
3	START	START	19		
4	DOWN	DOWN	20	ENTER	ENTER
5	UP	UP	21	RIGHT	RIGHT
6	Num1	Num1	22	Num7	Num7
7	Num2	Num2	23	Num8	Num8
8	Num3	Num3	24	Num9	Num9
9			25	SLOW	SLOW
10	FAST	FAST	26	*HR PROGRAMS	*HR PROGRAMS
11			27	PROGRAM	PROGRAM
12	MANUAL	MANUAL	28	STOP	STOP
13	LEFT	LEFT	29		
14	Num4	Num4	30	QUICK INCLINE	QUICK INCLINE
15	Num5	Num5	31	Num0	Num0
16	Num6	Num6	32	QUICK SPEED	QUICK SPEED

6.11. Testing Membrane and Faceplate

When a treadmill with a membrane experiences a loss in power to the upper display, such as when a customer presses the START button and nothing happens, a possible cause of this is a bad membrane panel. A membrane panel bypass test can verify this.

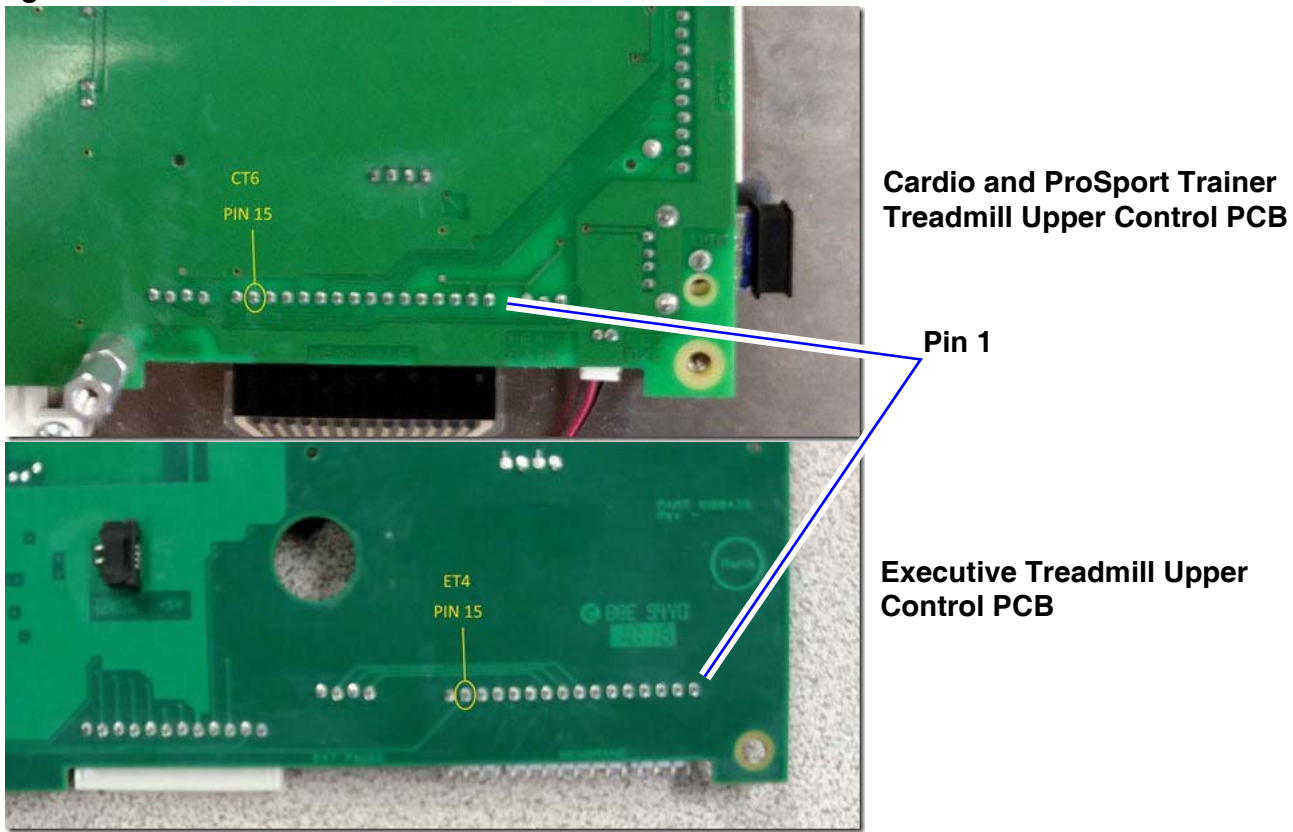
Note: +12-17Vdc must be confirmed across the black and green wires at the upper connector on the wire harness to perform this procedure.

Tools Required:

- Cross tip Screwdriver
- Digital Multimeter
- Jumper wire (only if the multimeter doesn't have a continuity setting)

1. Unscrew the three screws holding the magazine rack and remove rack.
2. Pull the display down and forward of the Velcro seal and then disconnect the membrane ribbon cable.
3. Set the voltmeter to continuity and touch the two test leads together to make sure they beep, indicating a short. Using the jumper wire, short START (pin 15) to GND (pin 1) on the upper board as shown in the following figure.

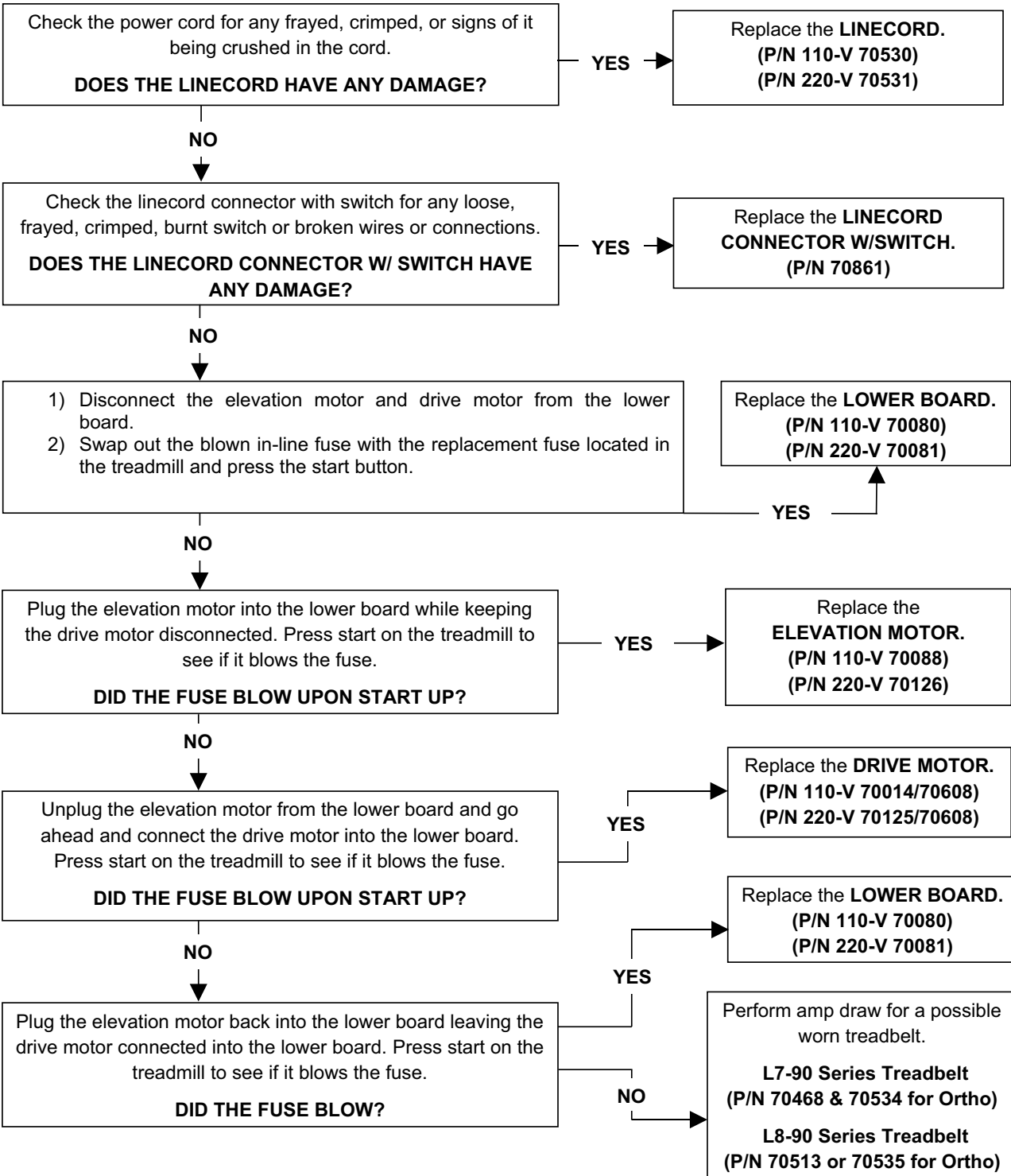
Figure 6-4. Control Board START and GND Pins



If the treadmill starts, replace the Upper Control PCB.

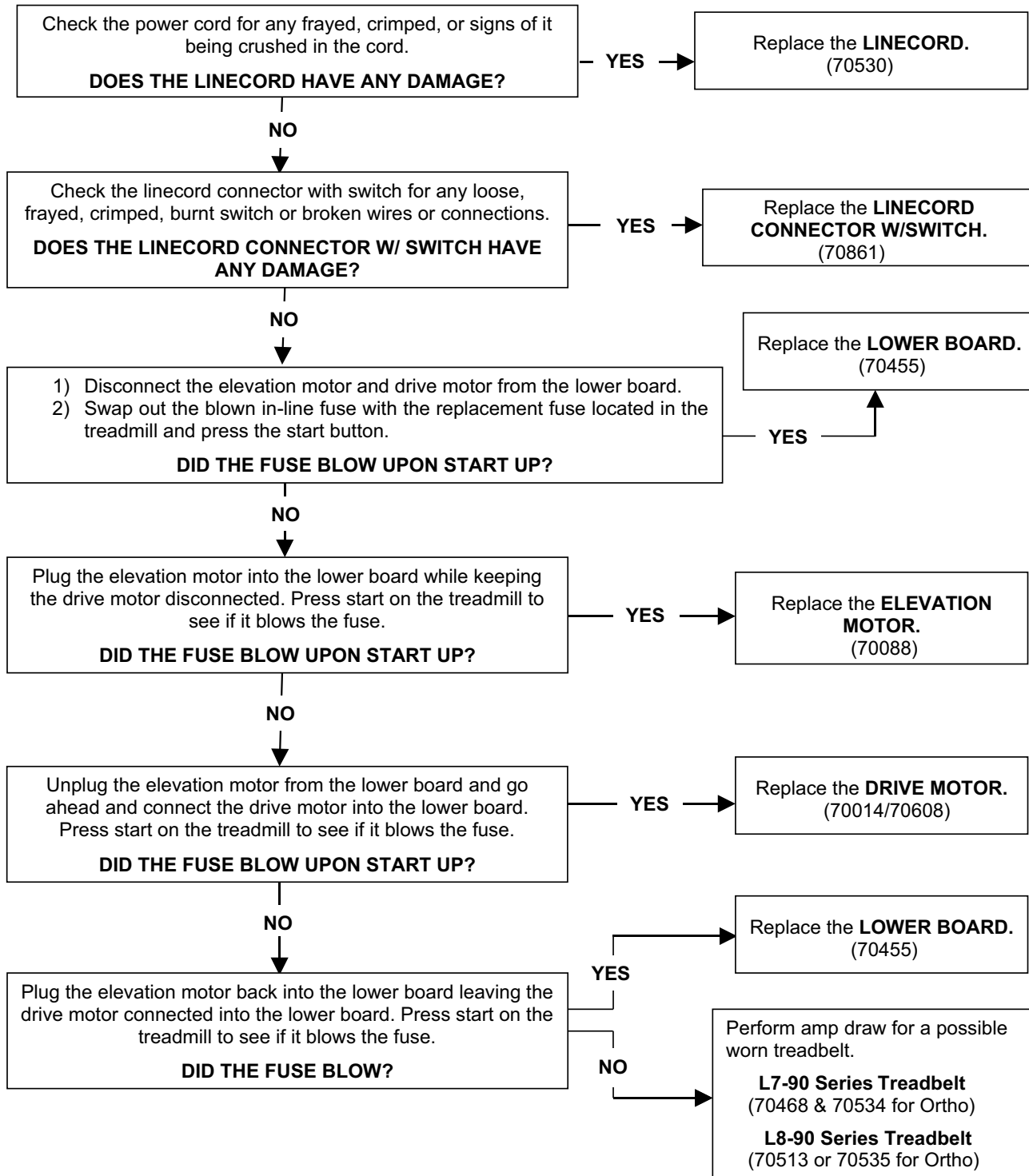
6.12. ESI SCR: No power, Blown In-line Fuse

NOTE: USE THIS FOR DIAGNOSING ESI-SCR BOARD
Error Code: No power/Blowing In-Line Fuse
 Fuse blows when start button is pressed:



6.13. ESI PWM: No power, Blown In-line Fuse

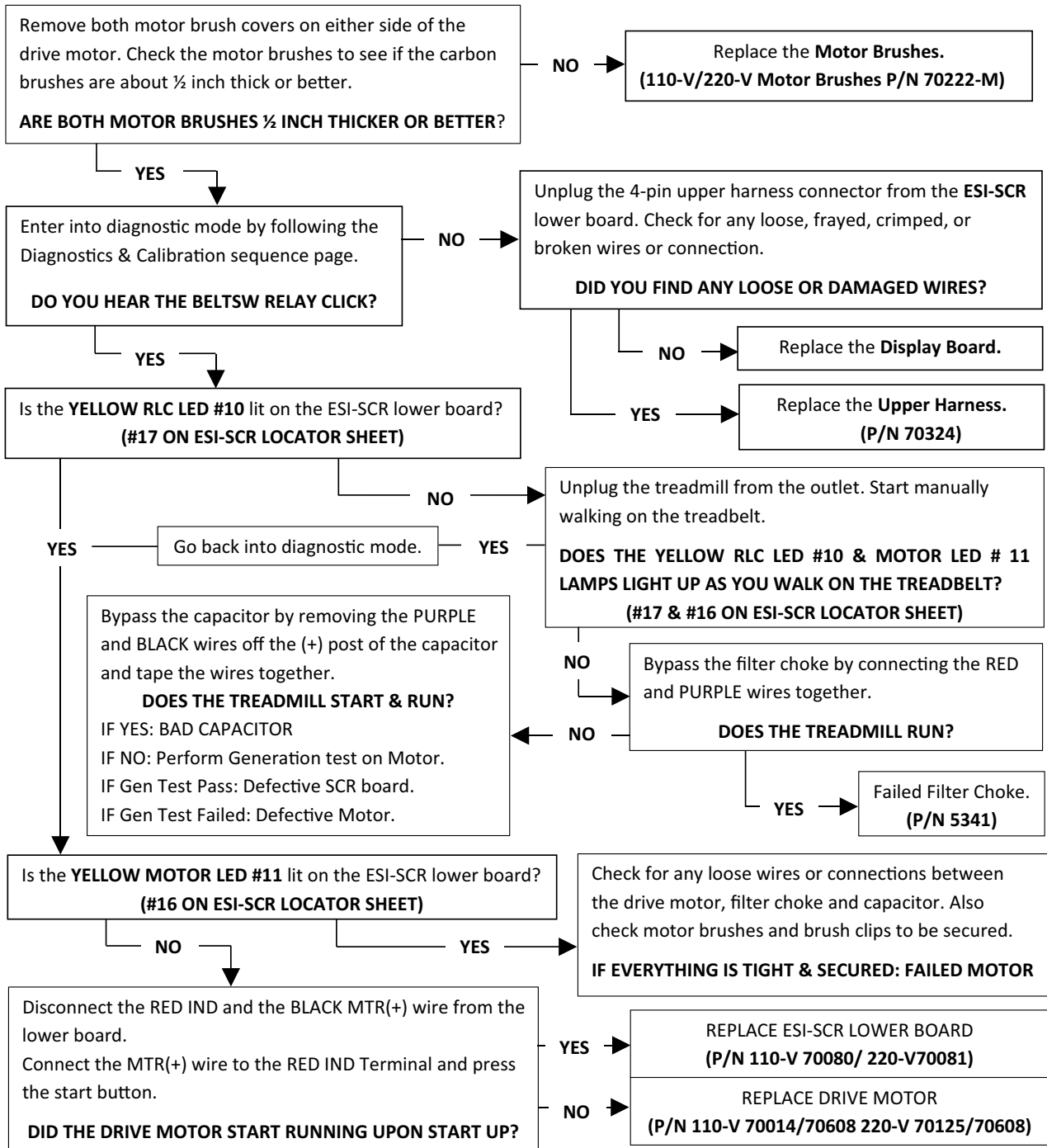
NOTE: USE THIS FOR DIAGNOSING ESI- PWM BOARD
Error Code: No power/Blowing In-Line Fuse
 Fuse blows when start button is pressed:



6.14. ESI SCR: SAFETY SHUTDOWN: Loss of Speed Signal: Upper display lights but treadmill does not move

NOTE: USE THIS FOR DIAGNOSING ESI-SCR BOARD
Error Code: SAFETY SHUTDOWN Loss of Speed Signal
 Upper display lights up but treadmill doesn't move:

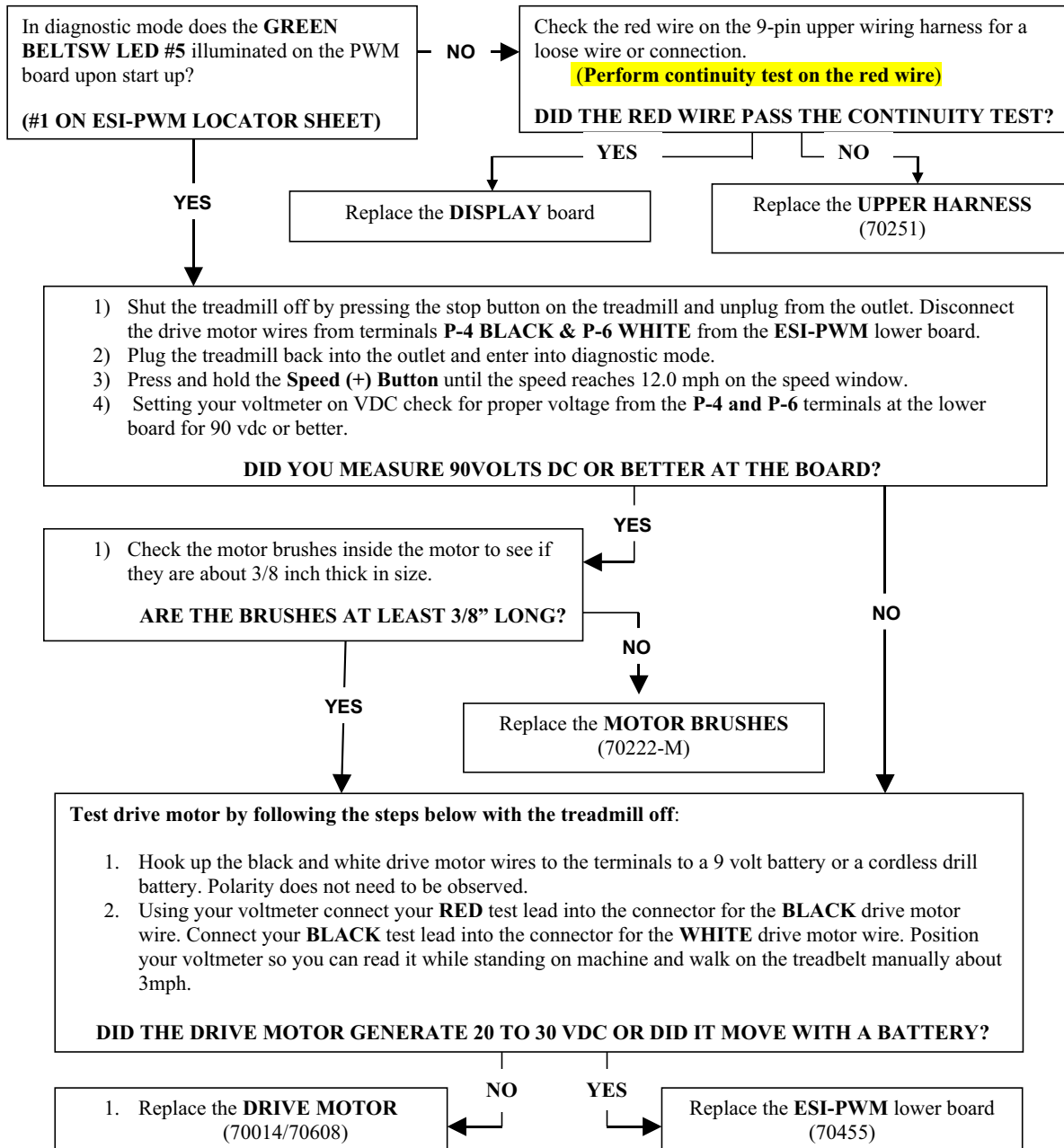
Enter Diagnostic Speed Mode: Follow the diagnostics & calibration button sequence page:



6.15. ESI PWM: SAFETY SHUTDOWN: Loss of Speed Signal: Upper display lights but treadmill does not move

NOTE: USE THIS FOR DIAGNOSING ESI-PWM BOARD
Error Code: SAFETY SHUTDOWN Loss of Speed Signal
 Upper display lights up but treadmill doesn't move:

Enter Diagnostic Speed Mode: Follow the diagnostics & calibration button sequence page:

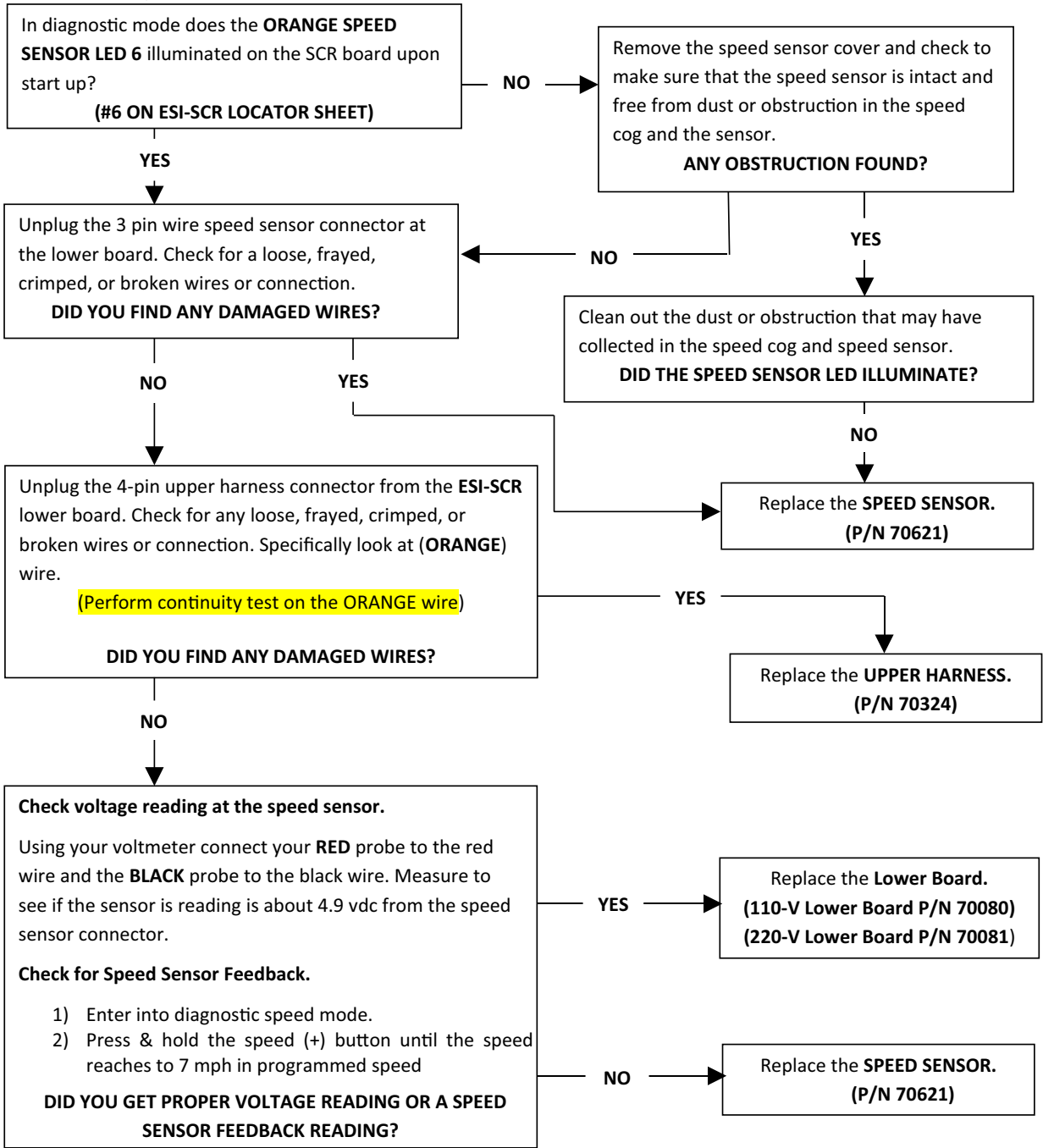


PERFORM AMP DRAW FOR A POSSIBLE WORN BELT & DECK

6.16. ESI SCR: SAFETY SHUTDOWN: Upper display lights, treadbelt moves, speed will not increase

NOTE: USE THIS FOR DIAGNOSING ESI-SCR BOARD
Error Code: SAFETY SHUTDOWN Loss of Speed Signal
 Upper display lights up treadbelt moves but the speed will not increase

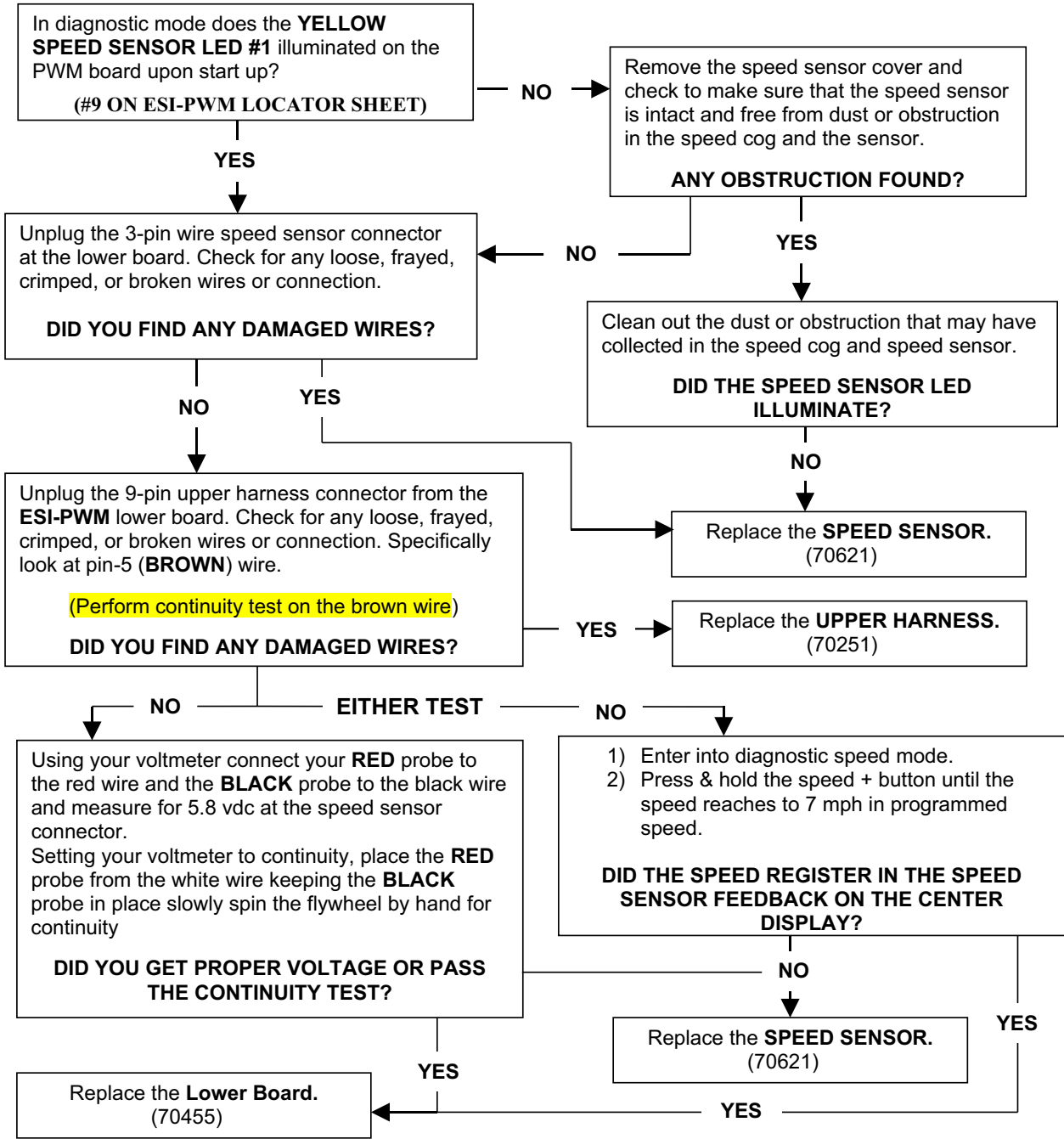
Enter Diagnostic Speed Mode. Follow the diagnostics & calibration button sequence page:



6.17. ESI PWM: SAFETY SHUTDOWN: Upper display lights, treadbelt moves, speed will not increase

NOTE: USE THIS FOR DIAGNOSING ESI-PWM BOARD
Error Code: SAFETY SHUTDOWN Loss of Speed Signal
 Upper display lights up treadbelt moves but the speed will not increase

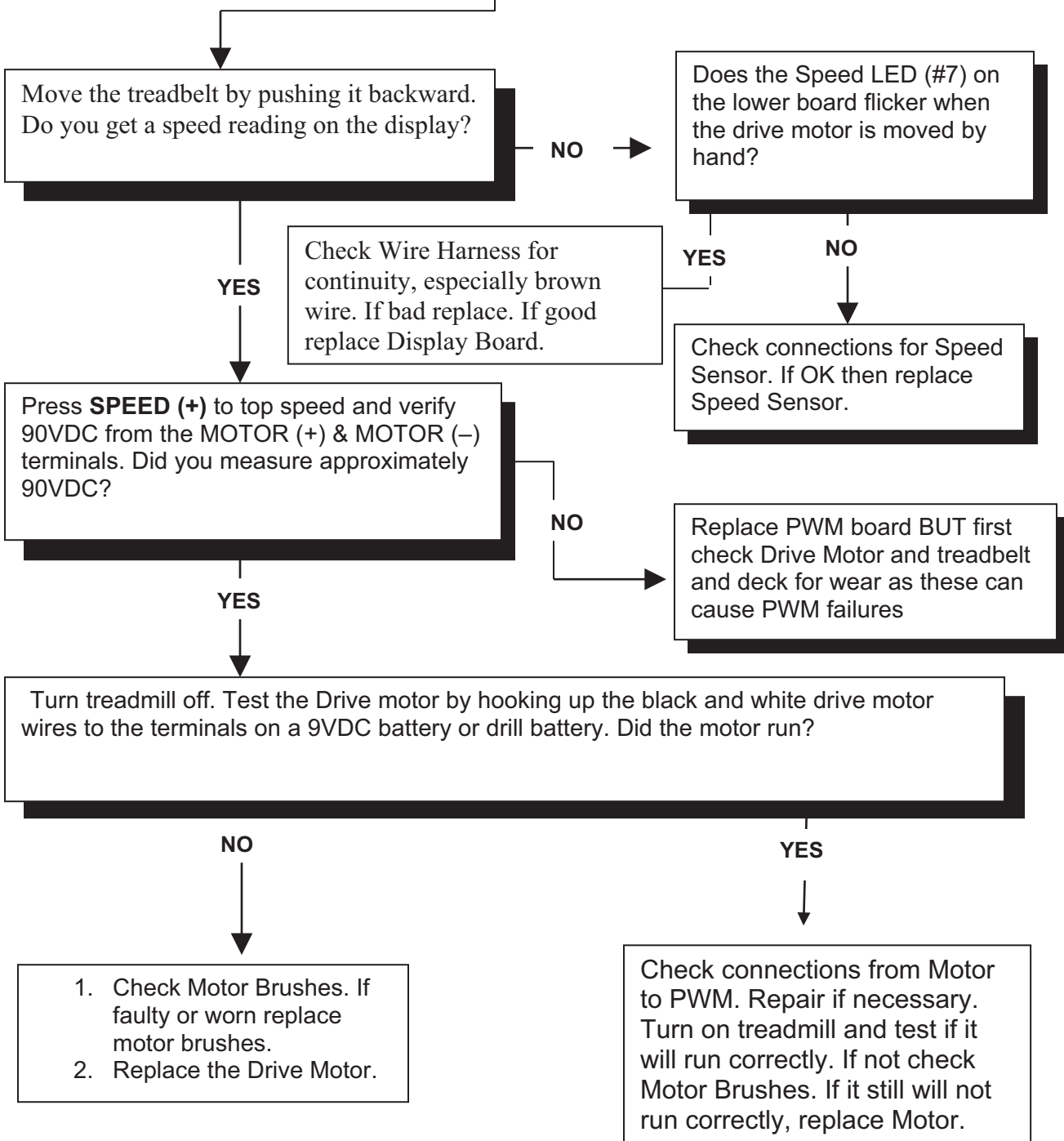
Enter Diagnostic Speed Mode: Follow the diagnostics & calibration button sequence page:



6.18. PT4: Loss of Speed: Upper display lights, treadmill moves, speed will not increase

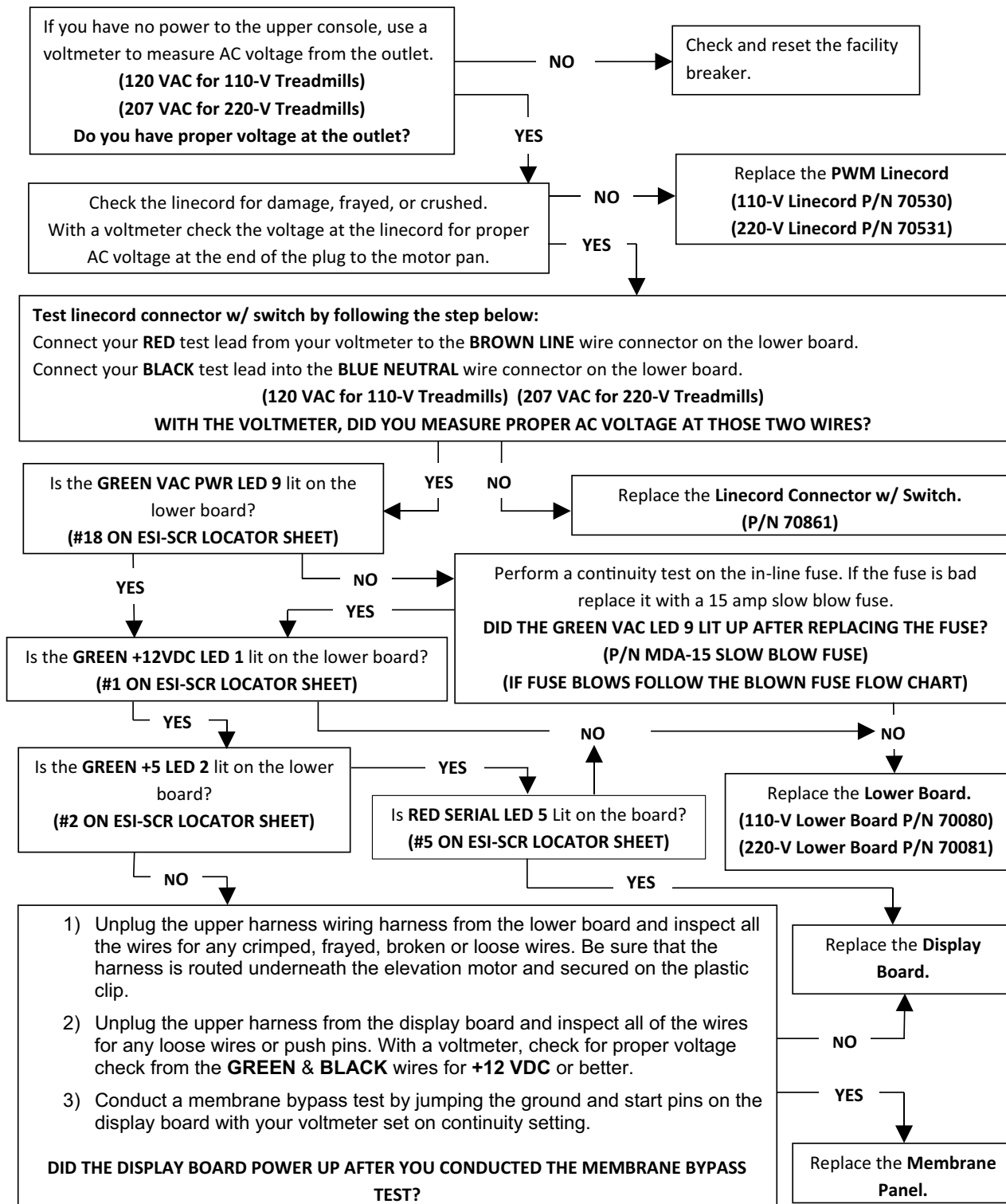
With treadmill OFF press and hold down **INCLINE (+)** and **INCLINE (-)** keys and then press and hold the **ENTER** button until screen changes to read Diagnostics. Press **ENTER** again to get into different diagnostic modes. Press (+) key to change modes. When you get to “Calibration” press **ENTER**.

Refer to attached pictures for PWM’s LED locations.



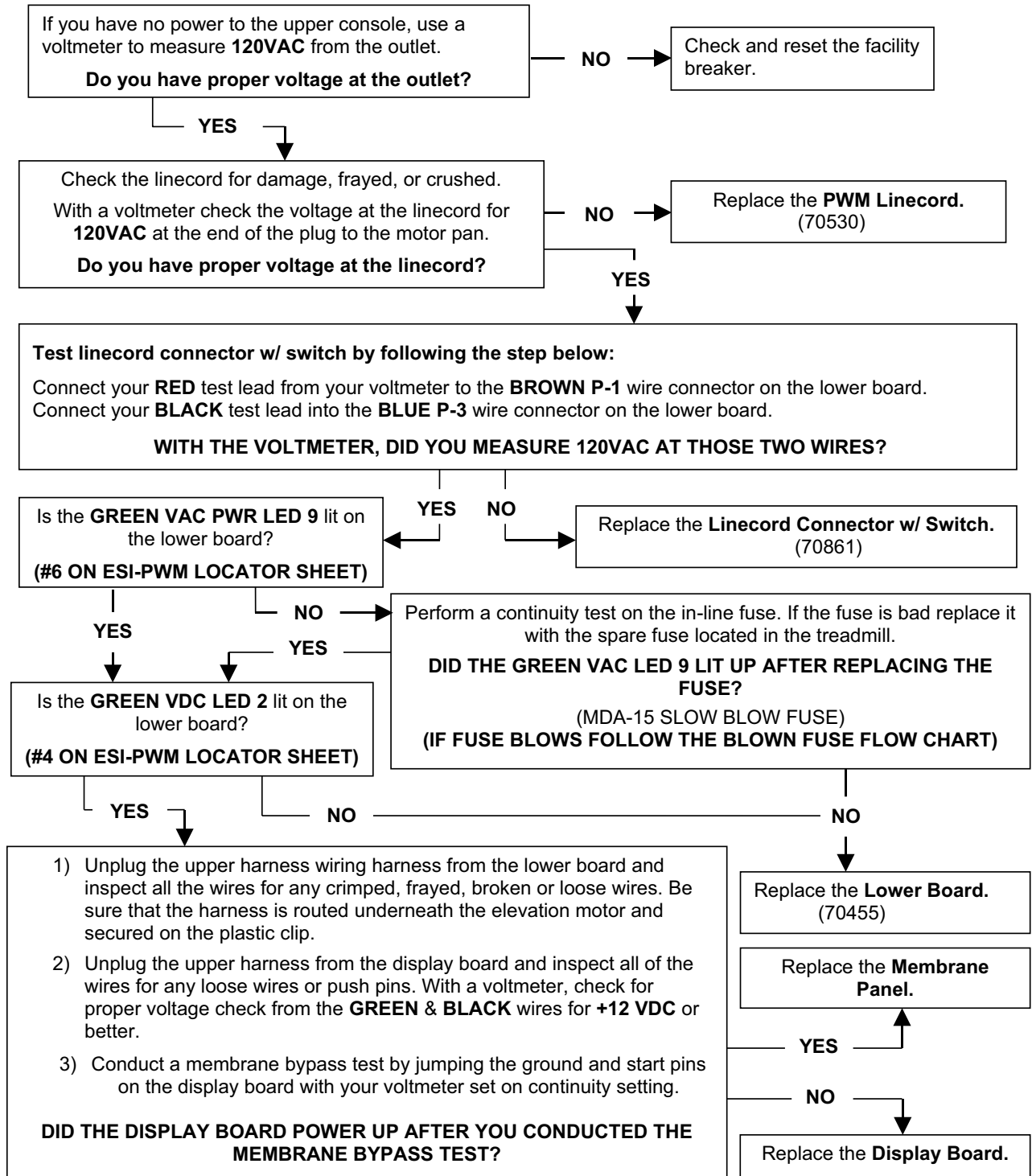
6.19. ESI SCR: Upper display fails to light when START is pressed.

NOTE: USE THIS FOR DIAGNOSING ESI-SCR BOARD
Error Code: No power to the upper console
 Upper display fails to light when START is pressed:



6.20. ESI PWM: Upper display fails to light when START is pressed.

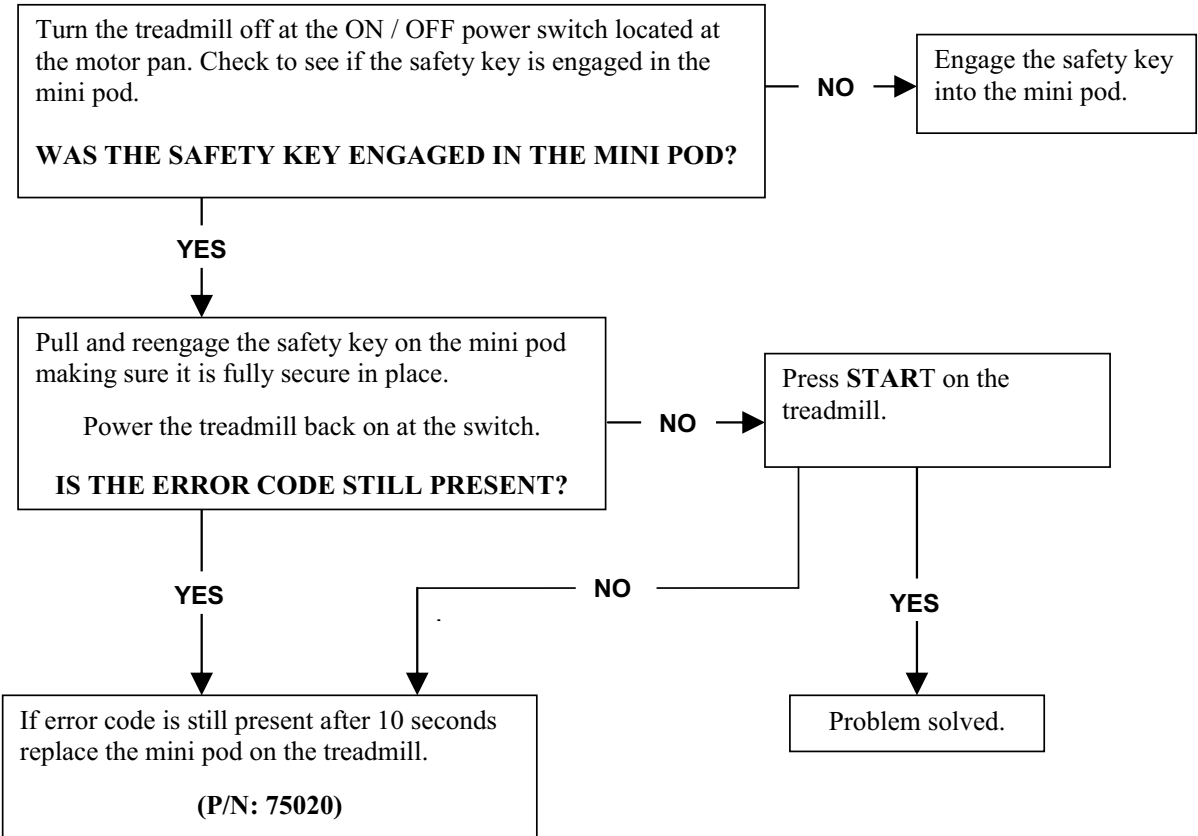
NOTE: USE THIS FOR DIAGNOSING ESI- PWM BOARD
Error Code: No power to the upper console
Upper display fails to light when START is pressed:



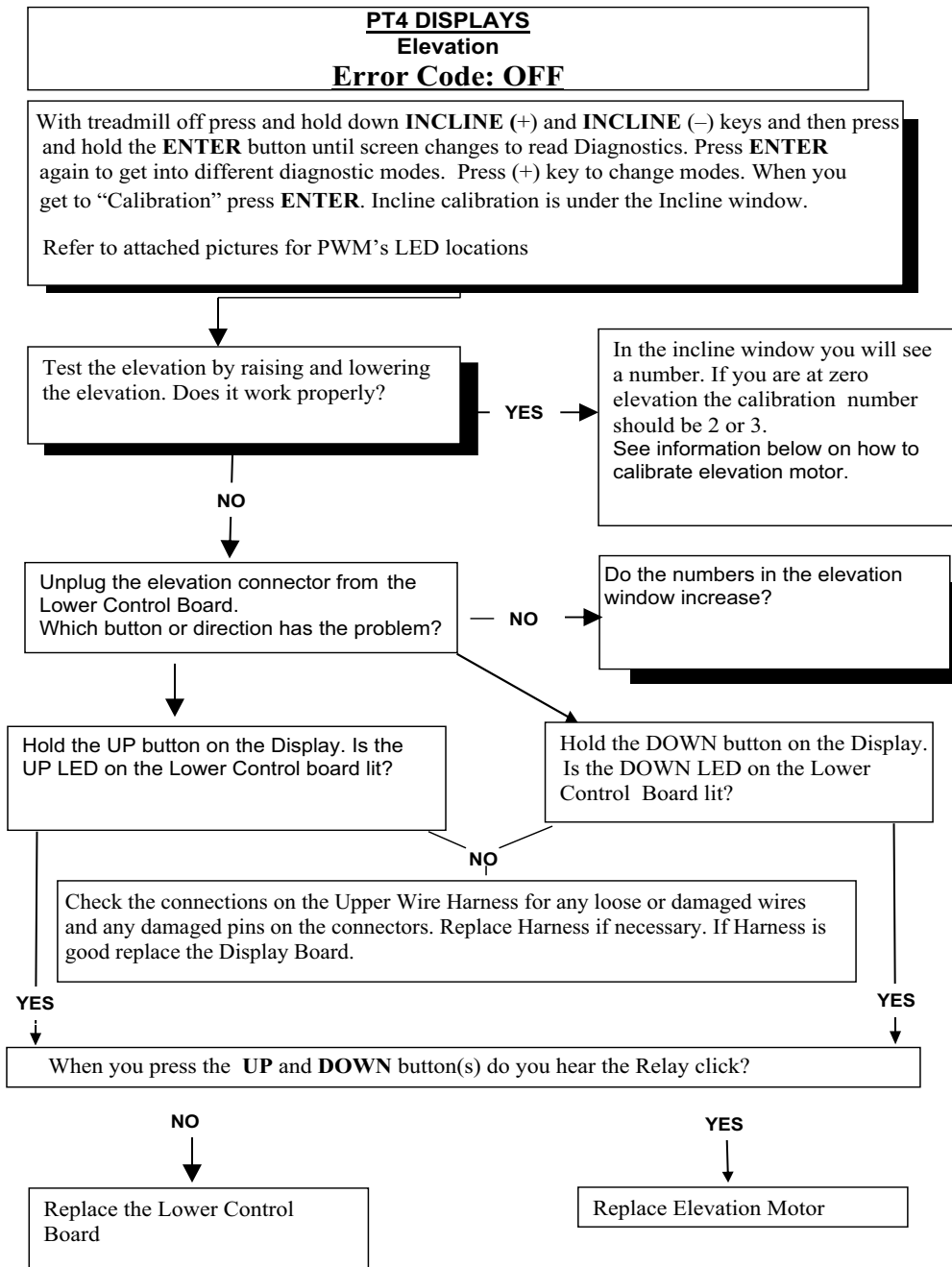
6.21. PT4: Calibration in Progress Message at Start Up

PT4 90 Series Treadmill reads Calibration in Progress at Start Up

Use this flow chart if this error message doesn't go away after 5 seconds of being powered on.



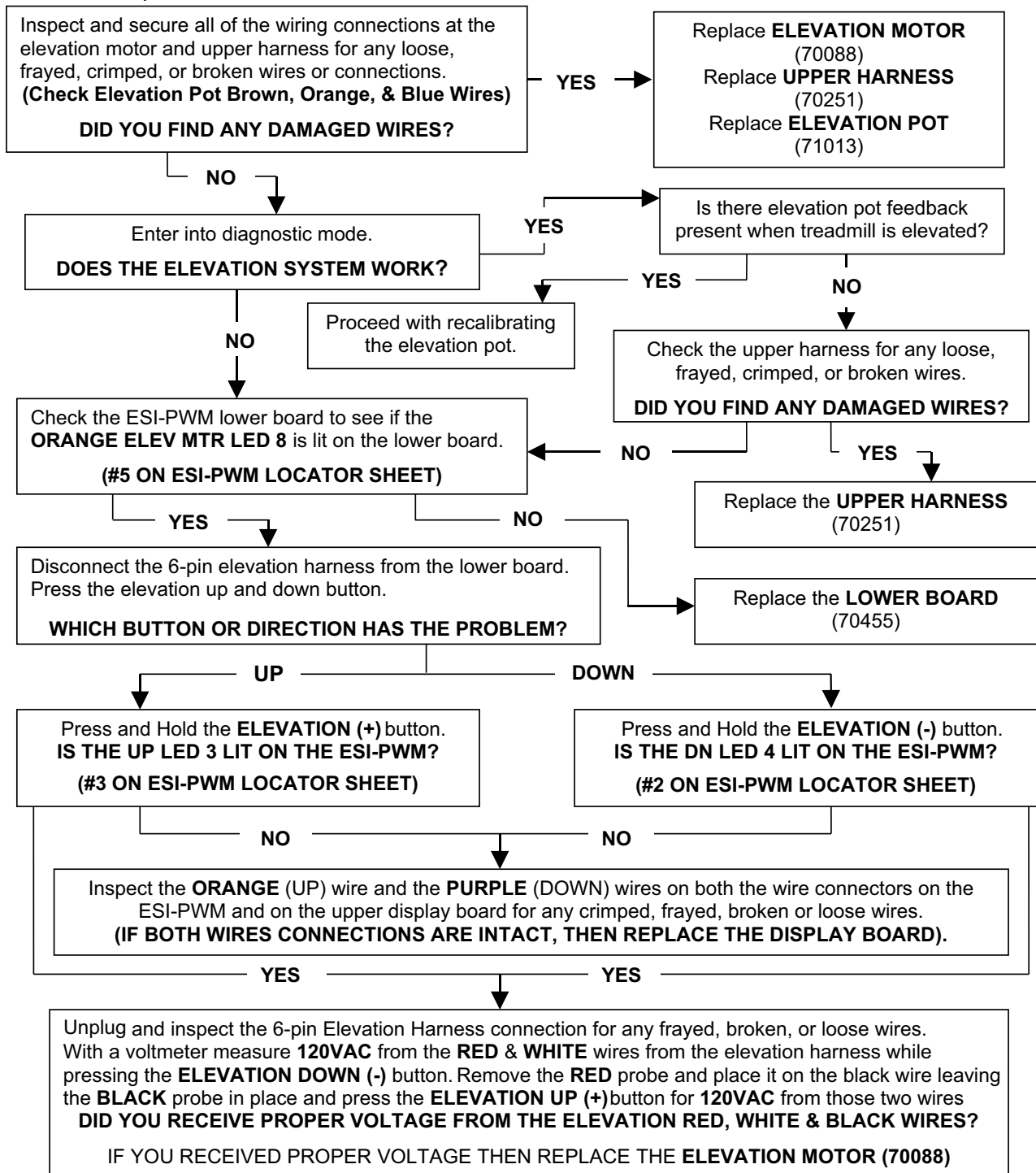
6.22. PT4 Displays Elevation Error Code: OFF



6.23. ESI PWM: PO Error: Elevation System Failure

NOTE: USE THIS FOR DIAGNOSING ESI-PWM BOARD
Error Code: "PO" Error Code/ Elevation Calibration Failure
 Upper display lights up but treadmill doesn't move

Enter Diagnostic Mode: Follow the diagnostic & calibration button sequence page:



1. Before beginning component removal or replacement, unplug power cord from wall.
2. Make a note of serial number, model (L7, L8, Home, LTD, or Club) and type (Pro Sport, Cardio or Executive). Landice tracks all information from this serial number and it must be given when requesting parts or technical assistance.
3. Always remove one component at a time to test for problems and to simplify replacement. Use Table 7-1 to find the part's replacement procedure.

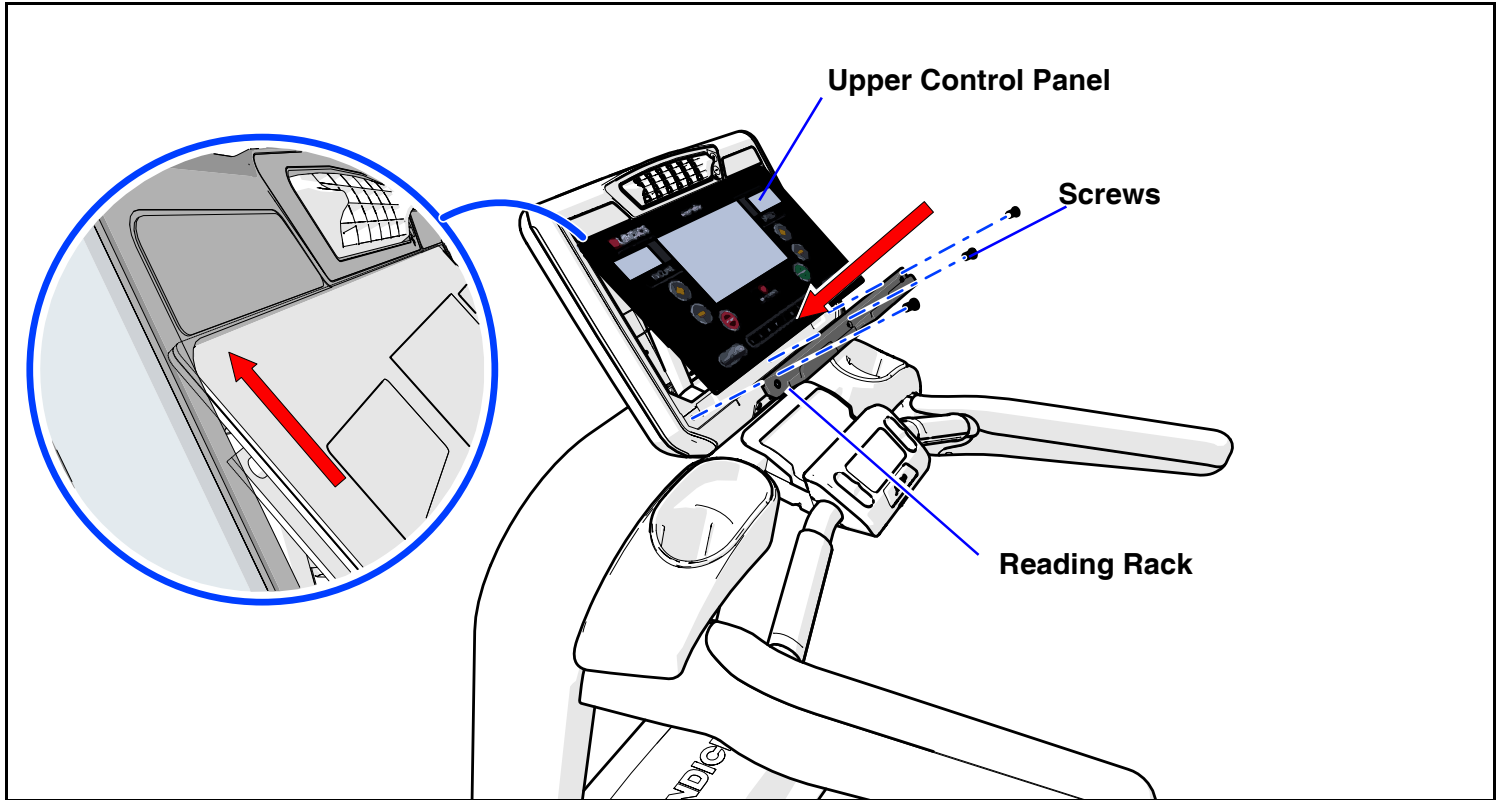
Table 7-1 Part Replacement Cross Reference

Part to be replaced	See section
Upper display	See "Upper Control Panel" on page 66
Fan	See "Fan" on page 67
Speed adjust switch	See "Lower Control Panel Electronics" on page 68
Incline adjust switch	See "Lower Control Panel Electronics" on page 68
Emergency stop switch	See "Lower Control Panel Electronics" on page 68
Stop button	See "Lower Control Panel Electronics" on page 68
Lower control panel electronics	See "Lower Control Panel Electronics" on page 68
Lower control panel control	See "Lower Control Panel Electronics" on page 68
Motor cover	See "Motor Cover" on page 73
McMillan speed sensor	See "Speed Sensor" on page 74
Line cord	See "Power Inlet and Switch" on page 75
PWM motor control board	See "Motor Control PCB" on page 76
SCR motor control board	See "Motor Control PCB and Bracket Removal" on page 76
Choke	See "Choke" on page 77
Capacitor	See "Capacitor" on page 78
Drive motor	See "Drive Motor" on page 78
Drive Motor Brushes	See "Drive Motor Brush Replacement and Commutator Inspection Instructions" on page 80
Elevation motor	See "Elevation Motor" on page 82
Treadbelt	See "Deck and Treadbelt" on page 90
Deck	See "Deck and Treadbelt" on page 90
Drive Belt	See "Drive Belt" on page 85
Drive Roller	See "Drive Roller" on page 87
Take Up Roller	See "Take-up Roller" on page 86
Impact Absorber	See "Impact Absorbers" on page 91
Elevation Potentiometer	See "Elevation Potentiometer" on page 84

7.1. Upper Control Panel

1. Remove the screws that secure the reading rack in place and remove the reading rack.

Figure 7-1. Upper Control Panel Removal

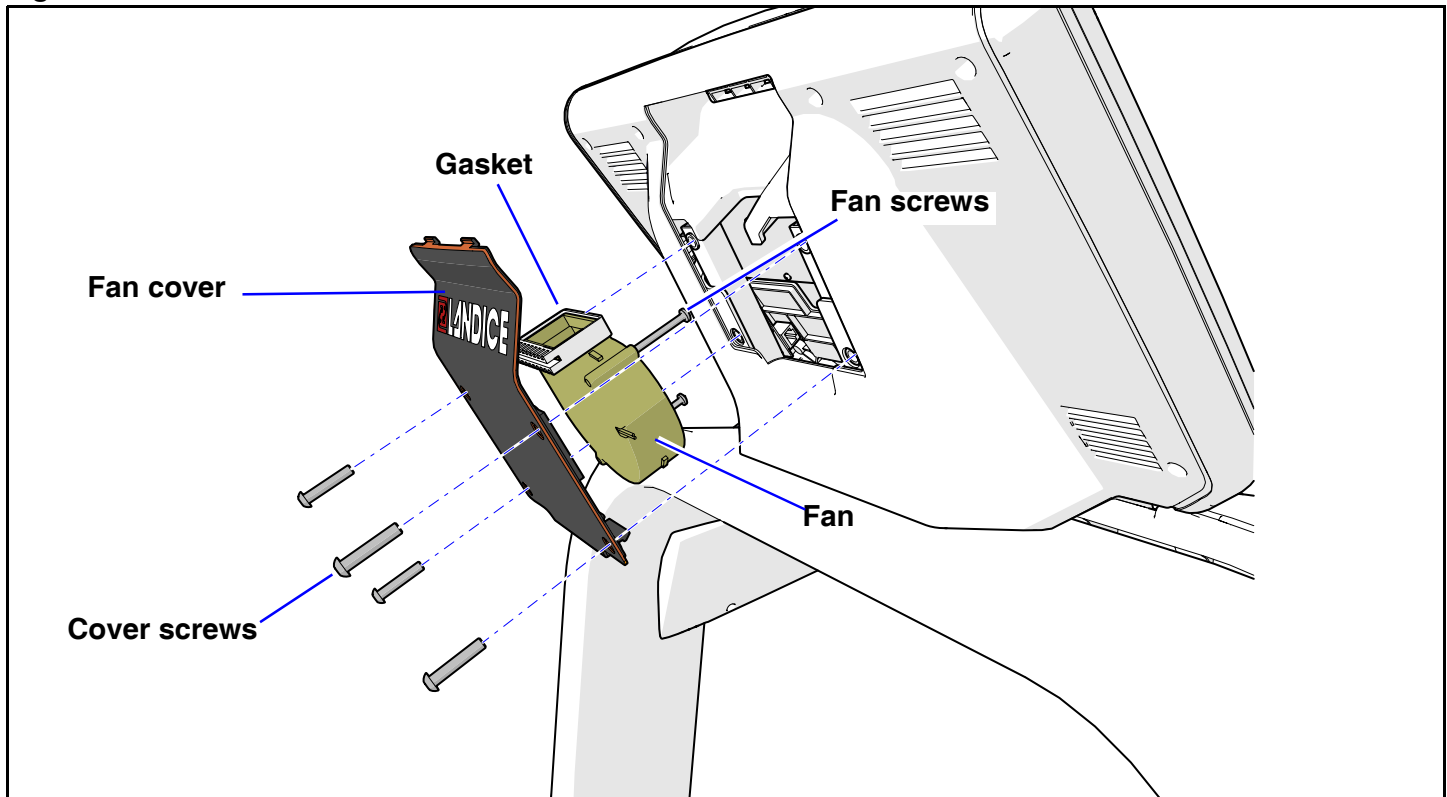


2. Rotate the upper control panel as shown and slide it down and out of the slot in the top of the frame. The top of the display is tucked behind the frame.
 3. Disconnect main wire harness clip. Please review the following to prevent breaking the connector.
- Note:** The wire harness locks into place on the upper control panel. Press firmly down on the clip to unlock and slowly move the harness side to side until it is disconnected from the upper control panel.
4. Follow steps, in reverse, for replacement.

7.2. Fan

1. Unplug the treadmill from its outlet.
2. Remove the four screws securing the fan cover in the upper housing and carefully remove the fan cover.

Figure 7-2. Fan



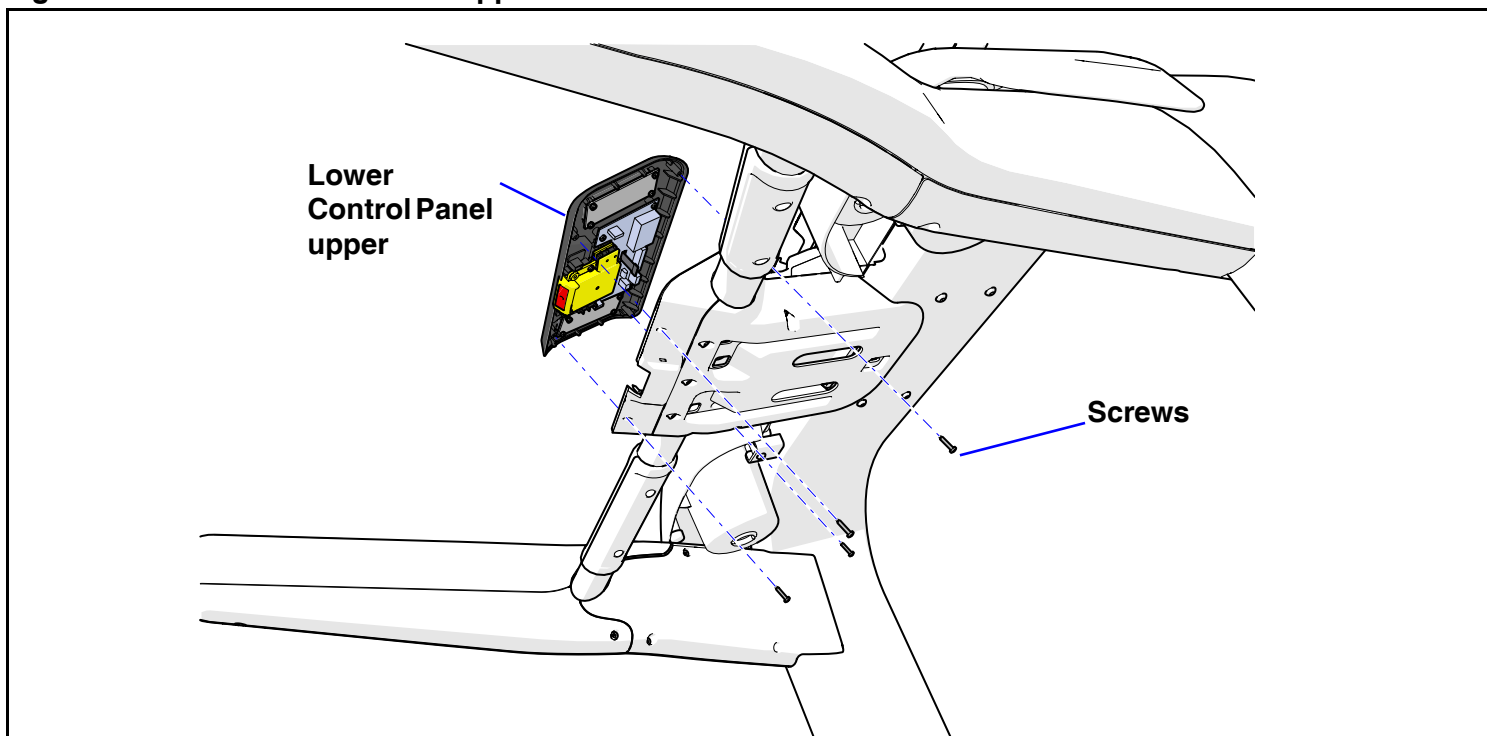
3. Disconnect the fan from the harness.
4. Remove the two screws securing the fan to the cover.
5. Remove the gasket from the fan.
6. Follow steps, in reverse, for replacement.

7.3. Lower Control Panel Electronics

The lower control panel contains a few electronic components, See “Electronic Assemblies - Upper Assembly All Models” on page 17 The entire lower control panel does not need to be removed from the handle assembly to replace the components.

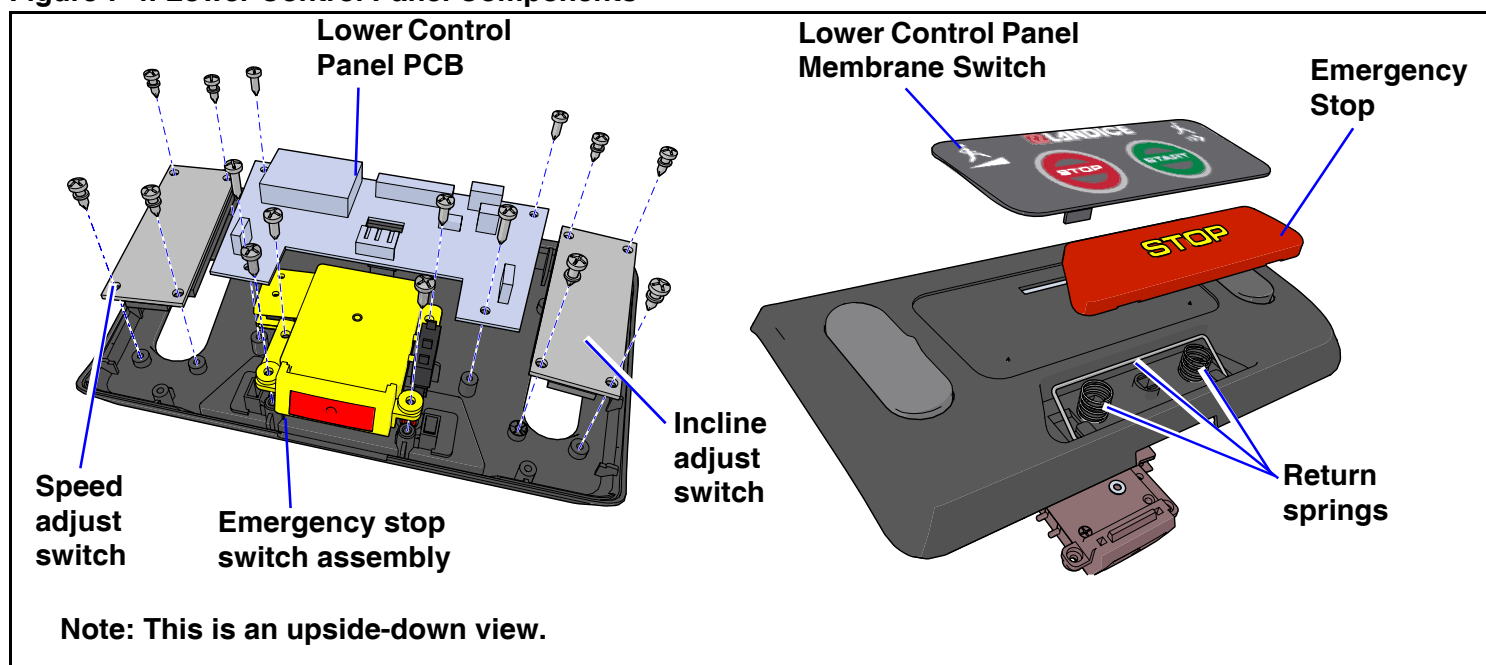
1. Unplug the treadmill from its outlet.
2. Remove the four screws that secure the lower control panel upper to the handle assembly as shown in the following figure.

Figure 7-3. Lower Control Panel Upper



3. Carefully lift the upper so as not to pull any of the wires or connectors. Rotate it until it is upside-down and rest it on the lower panel frame.
4. Disconnect the component to be replaced from the harness.
5. Remove the component to be replaced from the lower control panel, see the following figure.

Figure 7-4. Lower Control Panel Components



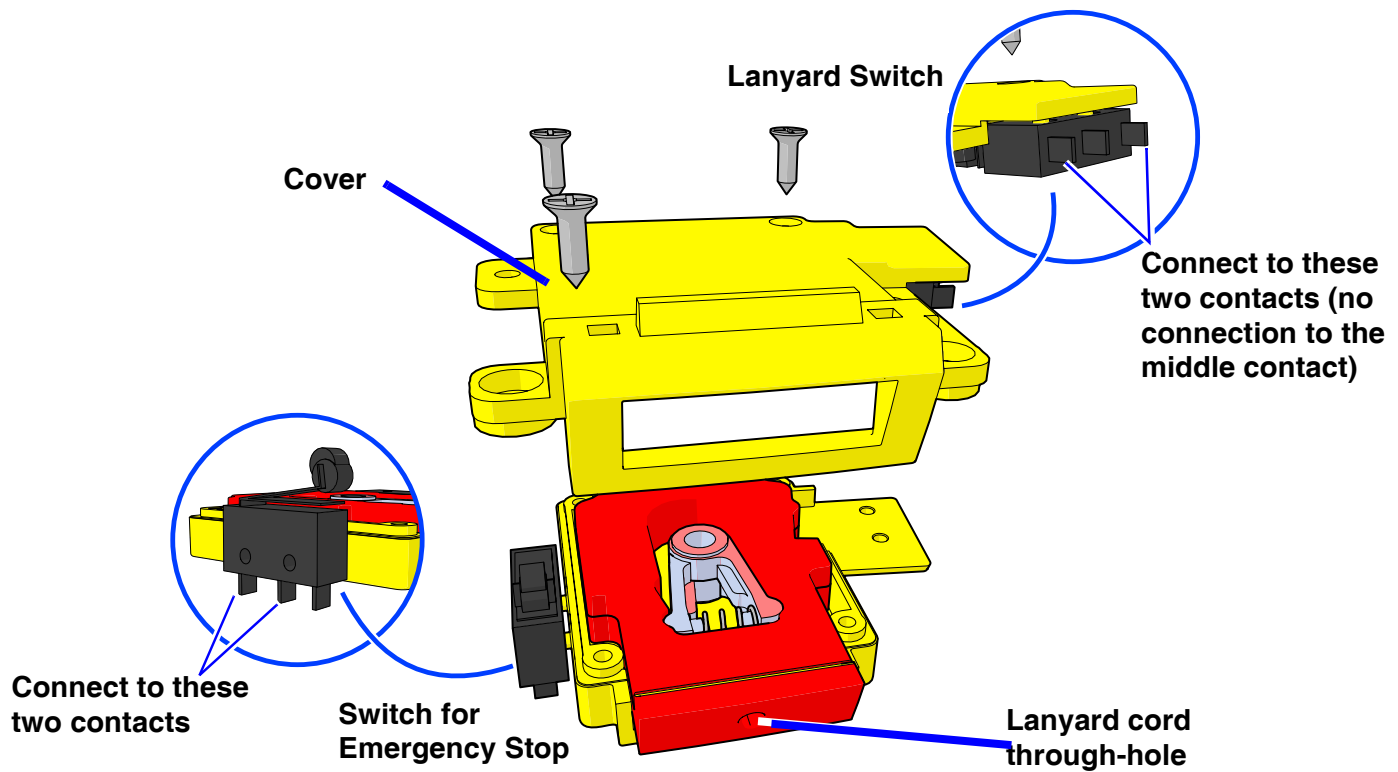
6. Installation of each component is the reverse of removal.

Note: When reconnecting the control PCB to the Speed Adjust and Incline Adjust switches, the connectors from the Speed Adjust and Incline Adjust switches are connected to the lower three control PCB header contacts, not the top GND contact. See “Interconnect Wiring Diagram - LTD and Home Models, DCI PWM Motor Control PCB” on page 20 or “Interconnect Wiring Diagram - Club Model” on page 21 as applicable.

7.4. Safety Switch Assembly Switch Replacement

1. Remove the lower control panel as outlined in “Lower Control Panel Electronics” on page 68.
2. Remove the emergency stop switch assembly. It is secured with four screws (Figure 7-4).
3. Remove the wires from the faulty switch to be replaced.
4. See Figure 7-5. Remove the faulty switch from the emergency stop switch assembly. The switch for Emergency Stop can be removed from its mounting pegs without removing the cover. However, the cover must be removed to replace the Lanyard Switch. Remove the yellow cover by removing three securing screws.

Figure 7-5. Emergency Switch Assembly Switches

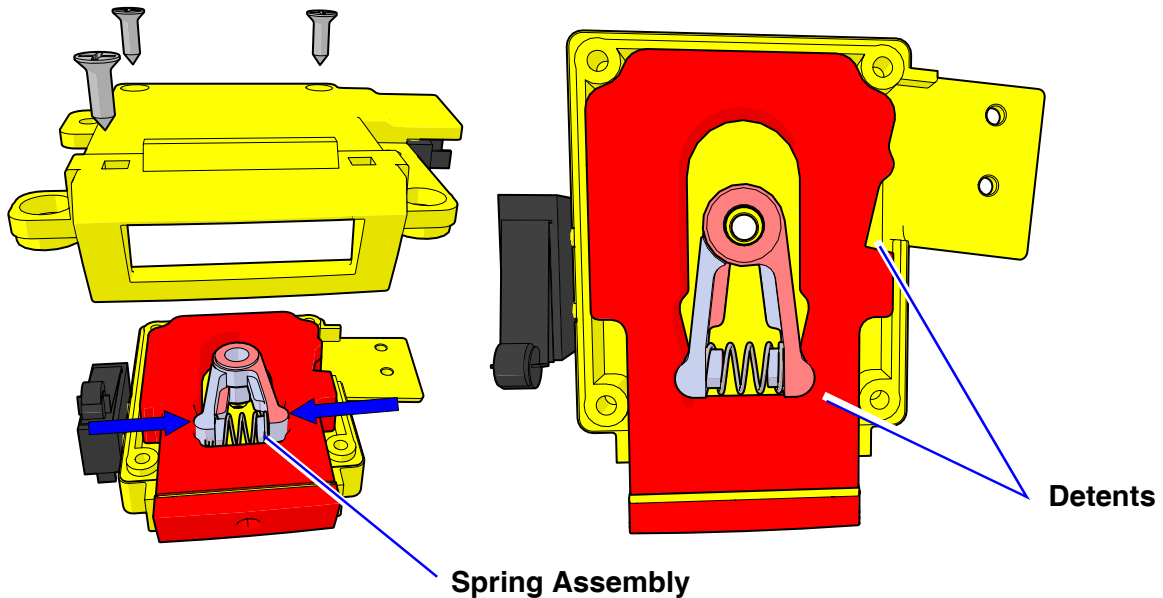


5. Reconnect the switch, noting which contacts must be connected to the harness as shown in the figure above and “Interconnect Wiring Diagram - LTD and Home Models, ESI PWM Control PCB” on page 19 or “Interconnect Wiring Diagram - Club Model” on page 21 as applicable.
6. Install the switch.
7. Install the Emergency Switch Assembly as outlined in “Lower Control Panel Electronics” on page 68.

7.5. Safety Lanyard

1. Remove the lower control panel as outlined in “Lower Control Panel Electronics” on page 68.
2. Remove the emergency stop switch, which is secured with four screws, as shown in Lower Control Panel Components.
3. Remove the cover, it is secured by three screws as shown in the following figure.

Figure 7-6. Safety Lanyard Assembly

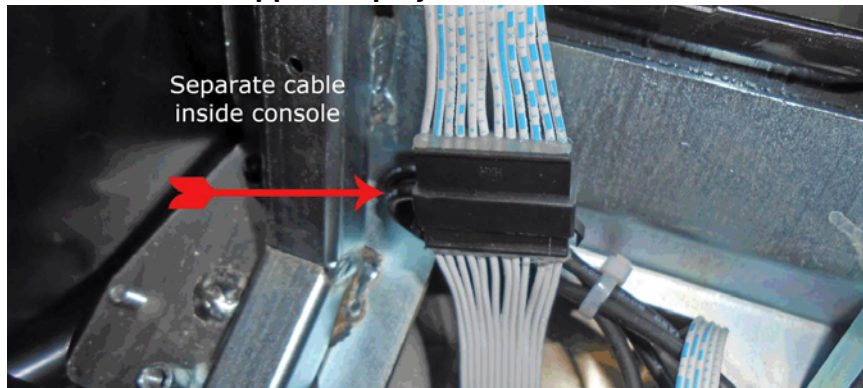


4. Compress the spring assembly and remove from the lanyard assembly. Do not allow it to spring free.
5. Remove the lanyard block and untie the lanyard string to remove it.
6. The installation is the reverse of removal but remember to run the lanyard string through the front opening in the cover and the hole in the block and tie it in the block to secure it.

7.6. Lower Control Panel Control

1. Remove the upper control panel as outlined in “Upper Control Panel” on page 66.
2. Disconnect the lower control panel control cable from the upper display board cable (Figure 7-7).

Figure 7-7. Lower Control Panel to Upper Display Board Cable Connection



3. Remove the lower control panel as outlined in “Lower Control Panel Electronics” on page 68.
4. Remove the lower control panel control. As shown in Lower Control Panel Components, it is secured with four screws.
5. Carefully pull the lower control panel control cable through the frame and leave it connected to the lower control panel control.
6. Disconnect the cables from the other components.
7. Follow steps, in reverse, for replacement.

7.7. Motor Cover

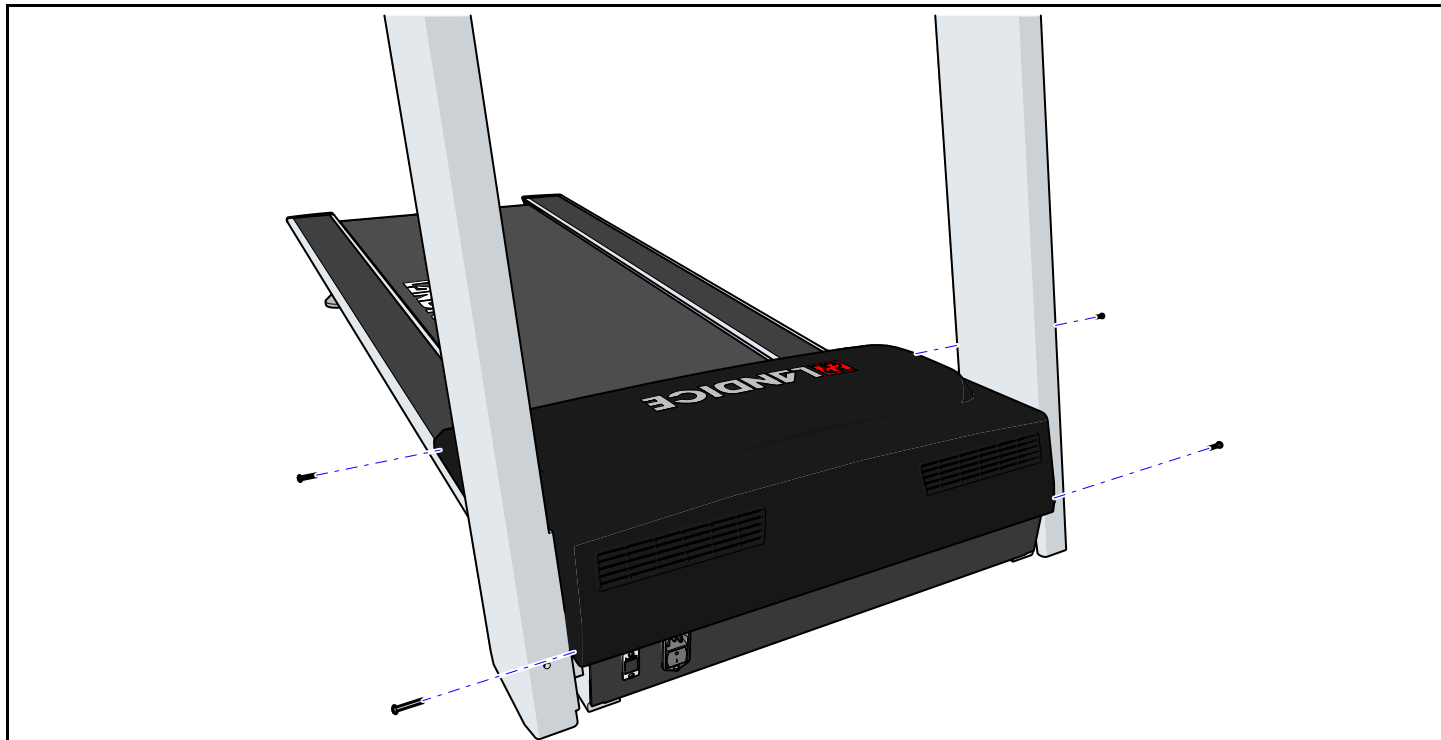
⚠WARNING

When the cover is off, dangerous voltages are present if the power cable is plugged in. Remove the plug from its outlet whenever the cover is removed.

If power is required for testing, adjustment, alignment, etc. then plug it in as required to reduce the chance of accidental electrical shock, and unplug it when that task is complete.

The motor cover is held in place with four screws as shown in the following figure.

Figure 7-8. Motor Cover Screws



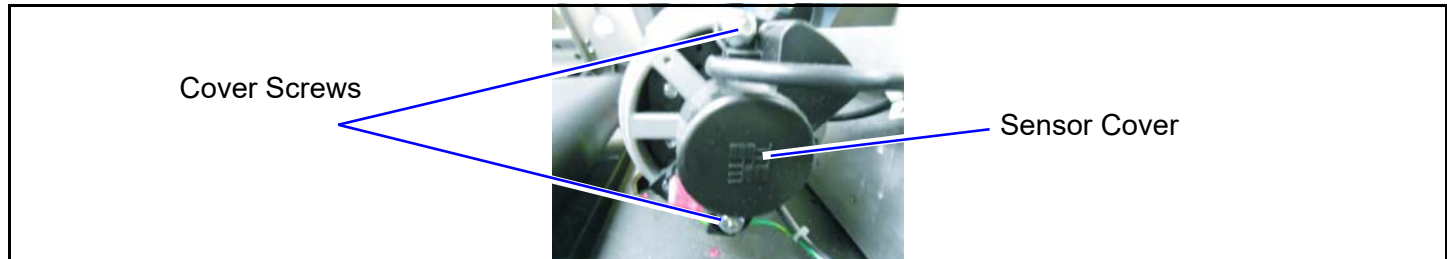
7.8. Speed Sensor

Tools required

- ½ inch socket wrench
- 7/16 & ¼ inch socket
- Straight blade screwdriver

1. Loosen and remove the two 7/16" nuts holding the plastic cover located on the back of the drive motor.

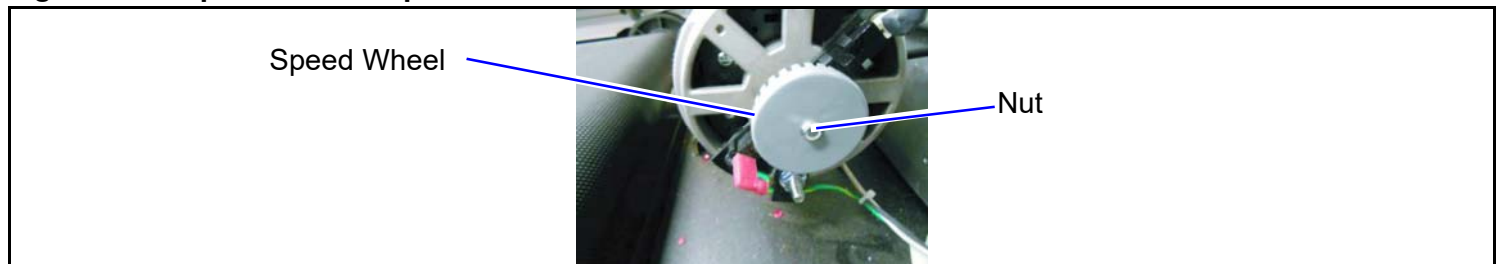
Figure 7-9. Speed Sensor Cover Hardware



2. Remove the plastic cover from the drive motor.

3. Loosen and remove the ¼" set screw holding the black round speed wheel as shown in the following figure.

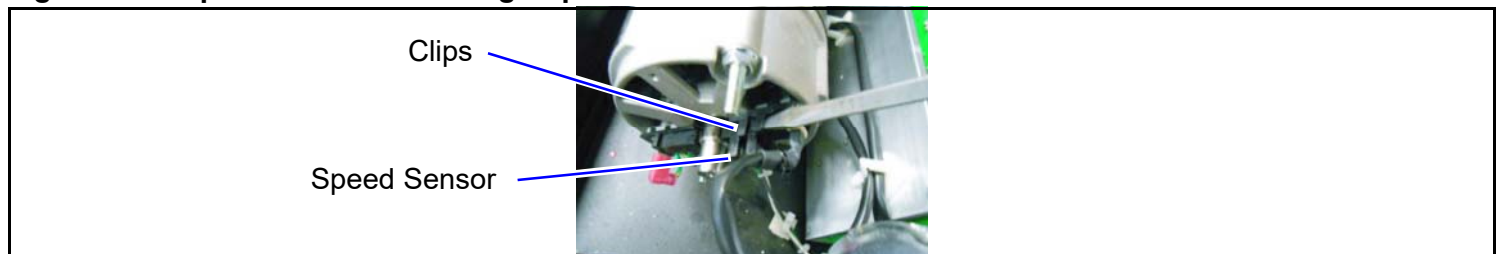
Figure 7-10. Speed Sensor Speed Wheel



4. Remove the speed wheel.

5. Remove the speed sensor by using a screwdriver to carefully pry the clips holding the sensor just far enough to remove the speed sensor. Use care to avoid breaking the clips.

Figure 7-11. Speed Sensor Mounting Clips



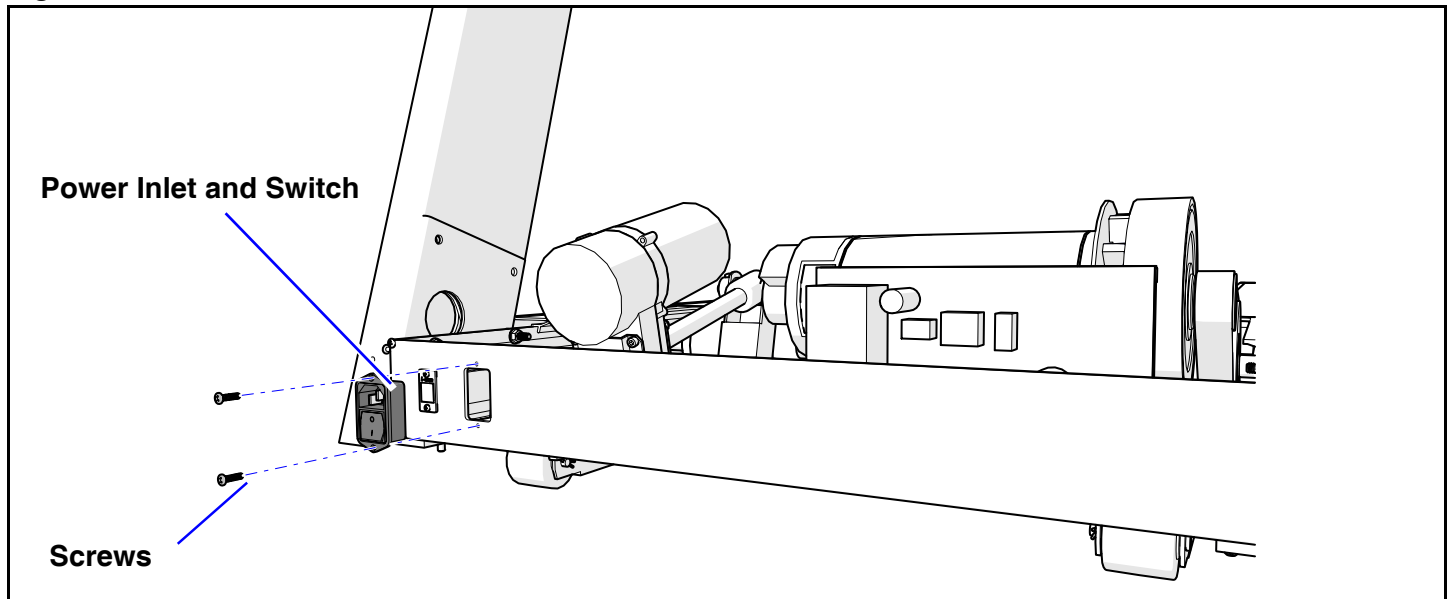
6. To install the new sensor, align the sensor with the alignment pole on the plastic mount on the drive motor to the sensor alignment hole and push the sensor on the clip.

7. After installing the speed sensor, follow steps 1 through 4 in reverse order to reassemble.

7.9. Power Inlet and Switch

1. Unplug the treadmill from its outlet.
2. Remove motor cover screws and cover.
3. Remove the cord from the power inlet.
4. Remove the screws securing the power inlet and switch to the pan.

Figure 7-12. Power Inlet and Switch



5. Disconnect the wires from the power inlet and switch.
6. Remove the two screws securing the power inlet and switch to the pan and remove it.
7. Installation is the reverse of removal. See “Interconnect Wiring Diagram - LTD and Home Models, ESI PWM Control PCB” on page 19 or See “Interconnect Wiring Diagram - Club Model” on page 21, as required.

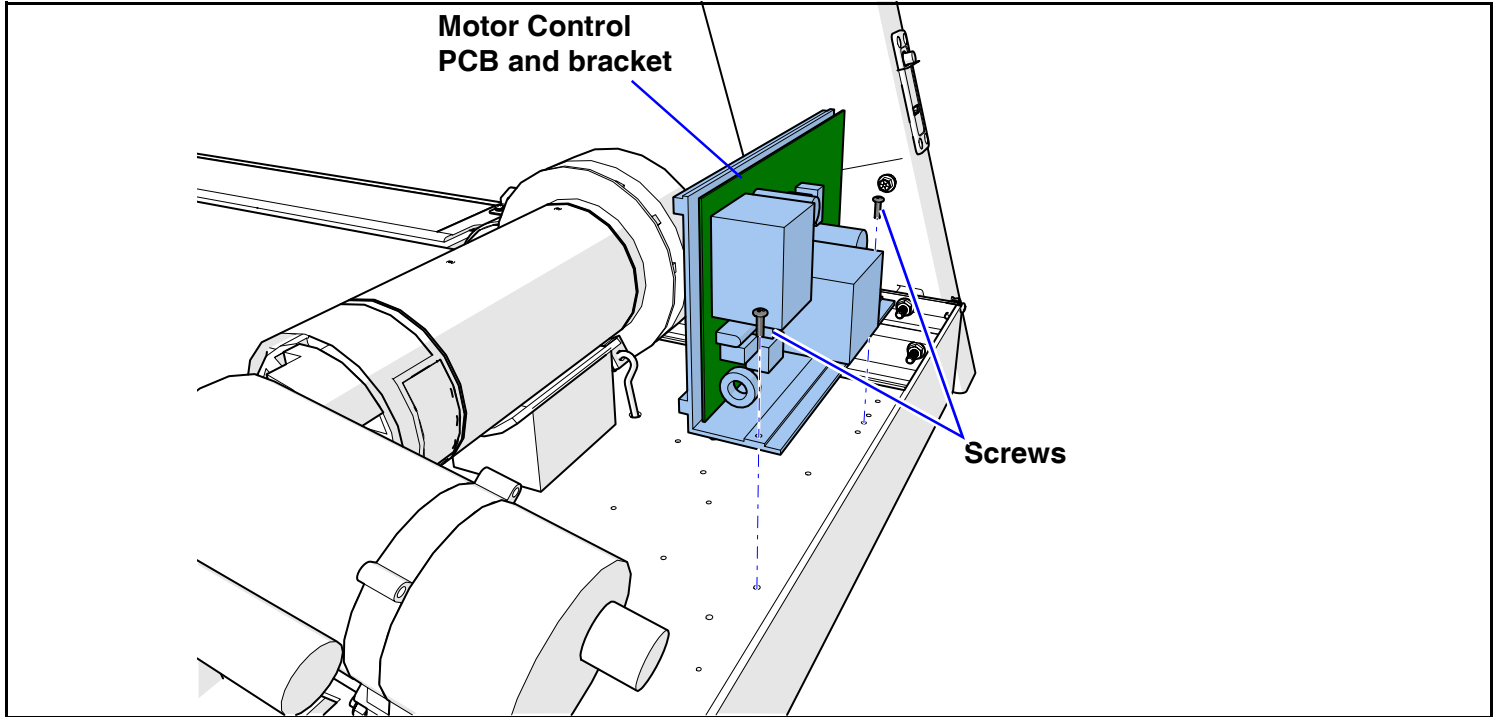
7.10. Motor Control PCB

Note: This applies to PWM and SCR Motor Control PCBs (MCBs).

Note: Cut plastic wire ties as needed but remember to replace them when done!

1. Unplug the treadmill from its outlet.
2. Remove the motor cover.
3. Disconnect all wires from the MCB.

Figure 7-13. Motor Control PCB and Bracket Removal



4. Reverse to install new MCB.
5. Connect the wires to the MCB as appropriate:
 - PWM MCB: see Table 7-2.
 - SCR MCB: see Table 7-3.

Table 7-2 PWM MCB Connections

Contact/Connector	Destination
HOT and NEUT terminals	Line cord
JX	Speed sensor connector
JY	Upper harness connector
A-	White wire to Drive Motor
A+	Black wire to Drive Motor

Table 7-3 SCR MCB Connections

Contact/Connector	Destination
Clip with Blue, Orange, Brown, Red, Black, and White wires	to Elevation Motor
Clip with Red, Green, and Black wires	to Speed Sensor on Drive Motor
Black (MTR) and White (MTR) wires	to Drive Motor
Red wire	to Choke
Green wire	to Ground on Frame
Black wire	to Capacitor (+)
White wire	to Capacitor (-)
Clip with Green and Black wires	to Upper Display
Clip with Red, Blue, White, and Orange wires	to Control Panel

7.11. Choke

Note: This applies to Club models only that use the SCR MCB.

1. Unplug the treadmill from its outlet.
2. Remove the motor cover.
3. Disconnect all wires from the choke.
4. Connect the replacement choke as outlined in Table 7-4.

Table 7-4 Choke Connections

Contact/Connector	Destination
Red wire	to SCR MCB
Purple wire	to SCR MCB

7.12. Capacitor

Note: This applies to Club models only that use the SCR MCB.

1. Unplug the treadmill from its outlet.
2. Remove the motor cover.
3. Disconnect all wires from the capacitor.
4. Connect the replacement choke as outlined in Table 7-5.

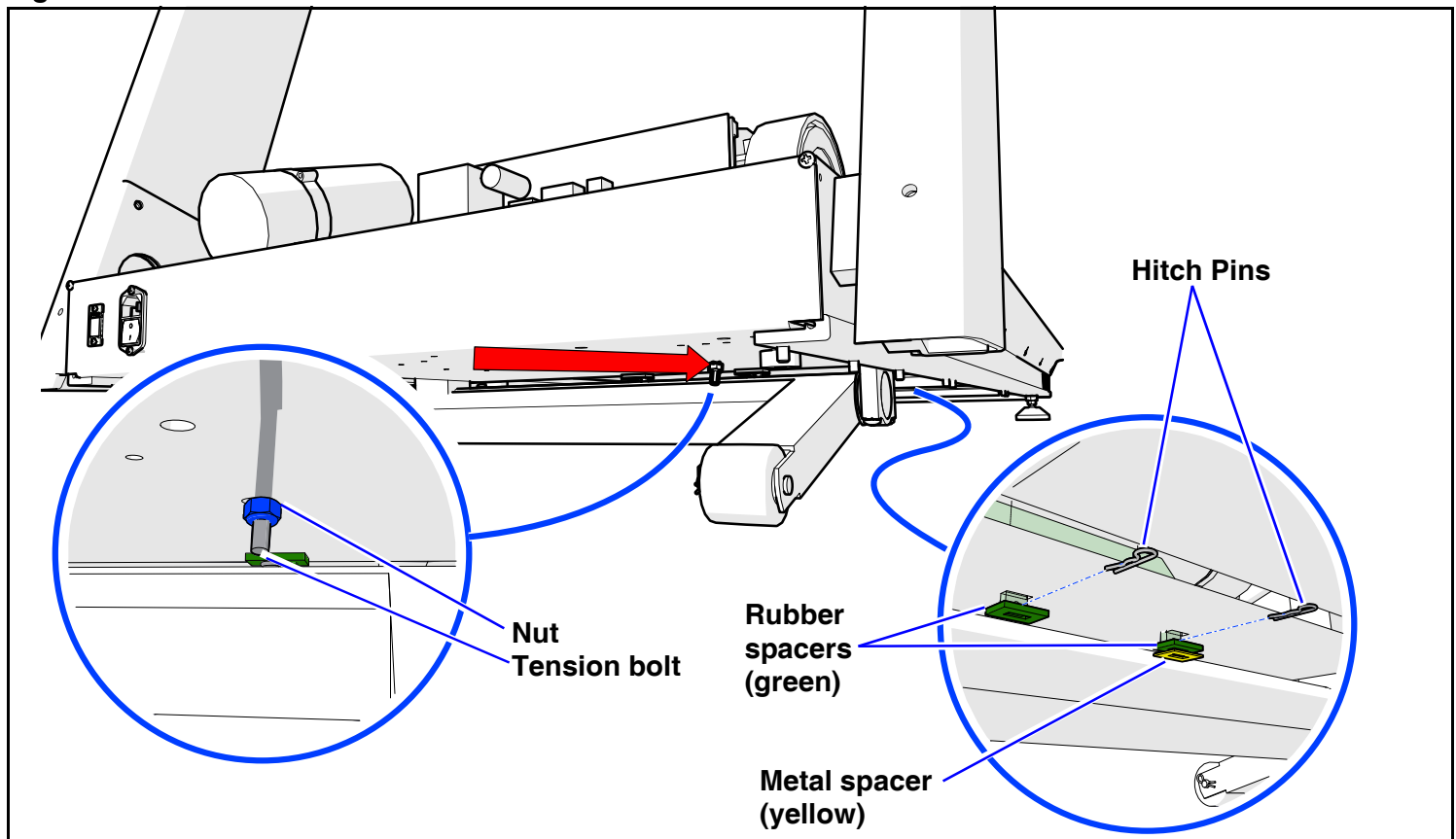
Table 7-5 Capacitor Connections

Contact/Connector	Destination
White wire	to SCR
Black wire	to SCR
Purple wire	to Choke
Resistor	both Poles of the Capacitor

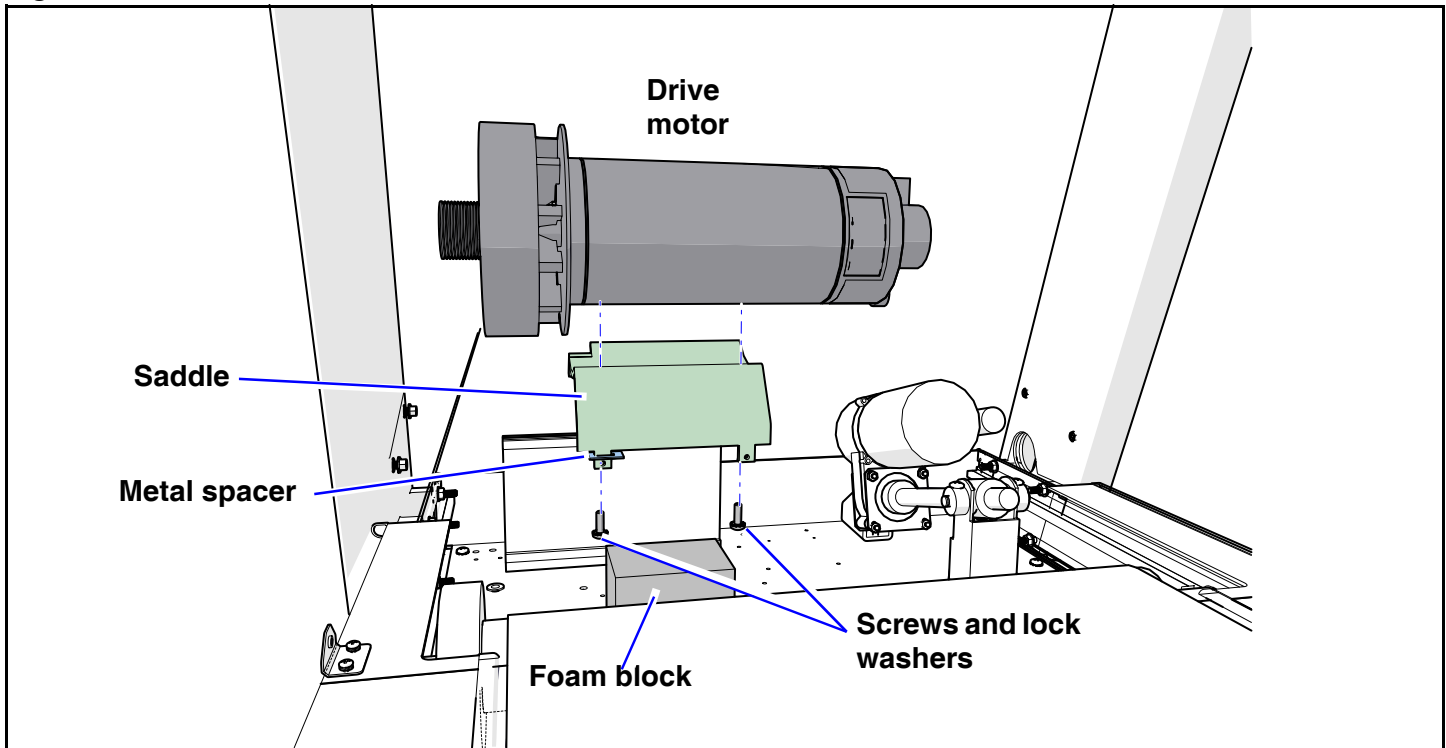
7.13. Drive Motor

1. Elevate treadmill to 15%. Unplug power cord.
2. Remove the motor cover (See "Motor Cover" on page 73).
3. Disconnect the motor's white, green, and black wires from the motor control board.
4. If required remove green ground wire from frame.
5. Remove drive belt tension adjustment bolt by removing nut. Nut is located on bottom of motor pan as shown in the following figure.

Figure 7-14. Drive Motor Hardware



6. Remove drive belt from motor.
7. Locate Drive Motor hitch pins on bottom of motor pan as shown in the previous figure. Remove hitch pins using needle nose pliers and remove Motor Spacers.
8. Remove Drive motor from the saddle. Be sure not to lose metal spacer from under left side.

Figure 7-15. Drive Motor

9. Reverse to install with the following details:

- To reduce vibration, the rubber and metal spacers mounted between the motor mount and the motor pan are arranged in a specific manner. If you are standing on the treadmill, the following arrangement applies: On the right side you will have (0) spacers on top of pan and (1) rubber, (1) metal followed by (1) retaining clip on bottom. On the left side you will have (1) metal spacer on top of the pan and (1) rubber on the bottom followed by (1) retaining clip.
- When reinstalling make sure to properly position foam block under motor.
- Tension drive belt, See “Drive Belt Tension” on page 31

7.14. Drive Motor Brush Replacement and Commutator Inspection Instructions

Drive motor brush inspection and maintenance is important especially for LTD or Commercial machines. Motor brushes that are excessively worn or too short may damage the drive motor. Perform the following procedure to remove/inspect/replace motor brushes and inspect the commutator of McMillan Drive Motors.

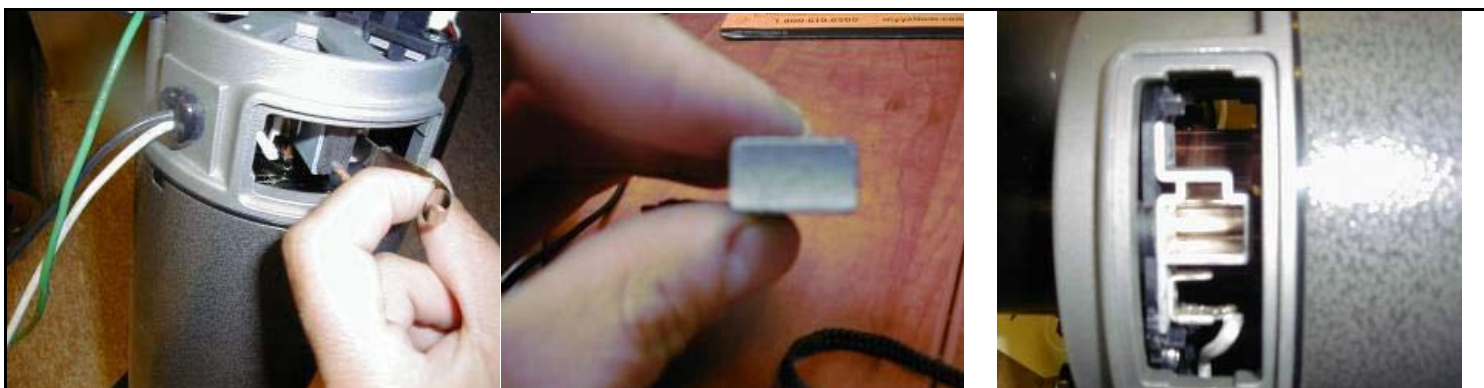
1. Remove the cap with a flat head screwdriver. This exposes the brush holder and brush.



2. Use needle nose pliers to remove the motor brush wires from the connector.



3. Press down on the metal spring, slide the motor brush holder and take the clip out. A good motor brush will look shiny and is free from scorch marks or chips, and is not dull where the commutator would make contact. The commutator is copper colored and shiny. Cleaning the commutator with a cleaning stone or piece of emery cloth may remove the dull appearance and black scorch marks.



4. Connect the motor brush to the terminal using the needle nose pliers.



5. Insert the motor brush back inside the brush holder.



6. After the motor brush is re-seated and secured down, snap the cover back in place and repeat these instructions for the other side.

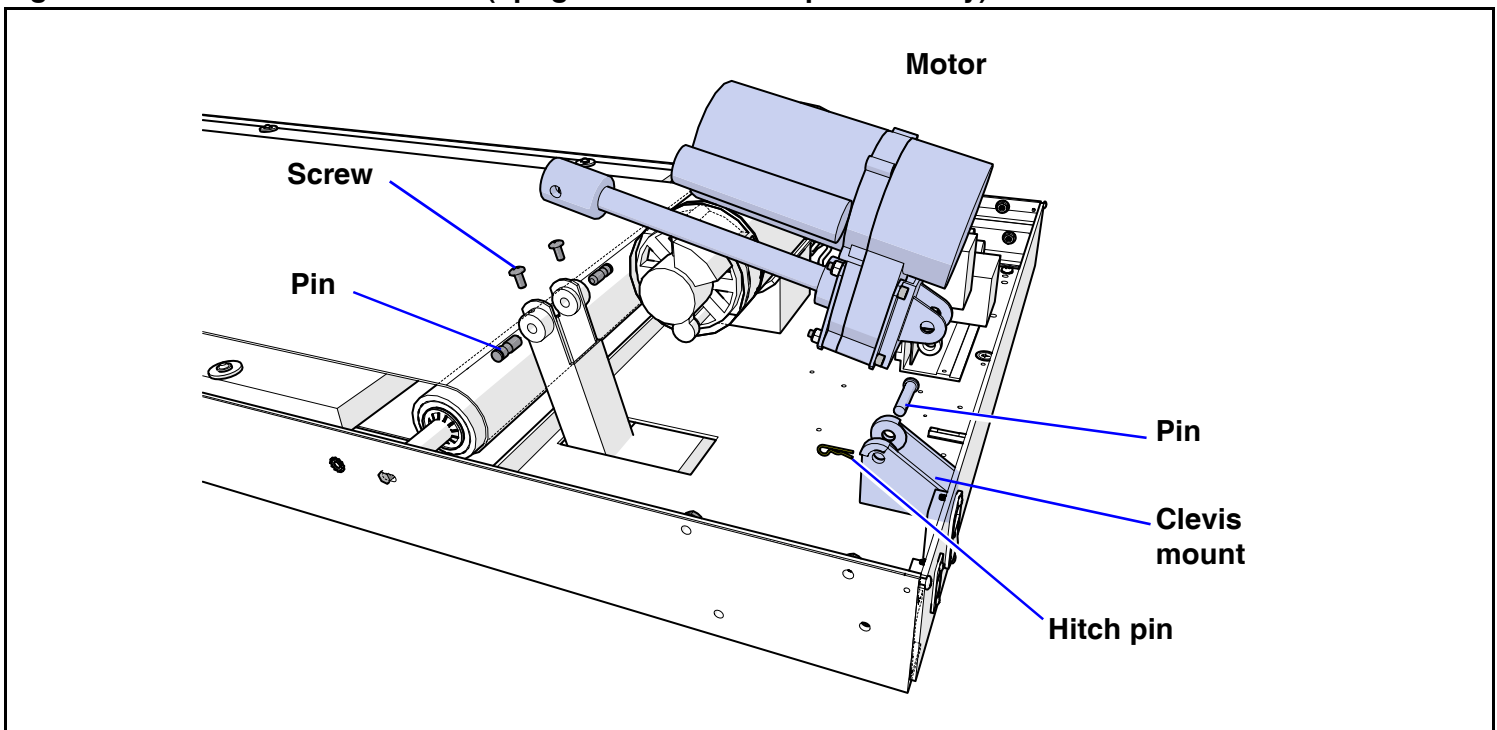


7.15. Elevation Motor

When performing these remove/replace procedures, refer to Elevation Motor Parts (upright removed to improve clarity), below. The parts are identified by the number shown in the figure.

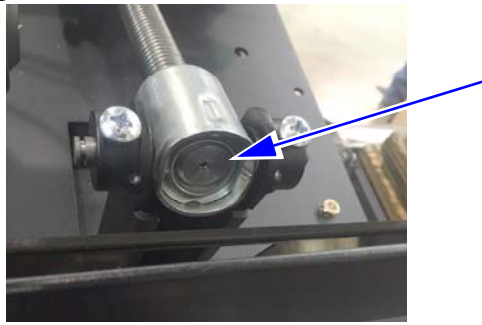
1. Unplug the treadmill from its outlet.
2. Remove the motor cover.
3. Remove all weight from the elevation assembly by placing a suitably strong object under the motor pan, such as a piece of 4x4 lumber, so that the wheels are off the floor.
4. Disconnect Elevation Motor wires.
5. Disconnect the Elevation Motor nut from the elevation assembly. To do this, loosen the two 1/4-20 screws and slide the two 1/4" diameter pins out.

Figure 7-16. Elevation Motor Parts (upright removed to improve clarity)



6. Remove the hitch pin from the pin.
 7. Remove the pin from the Clevis mount.
 8. Remove Elevation Motor.
 9. Install new Elevation Motor.
 10. Remove the support from beneath the treadmill and set it on the ground.
 11. Align the Elevation Motor with the Clevis mount and install the 3/8" diameter mounting pin.
 12. Insert the hitch pin.
 13. Reconnect the Elevation Motor wires.
 14. Enter diagnostic mode as outlined in "Entering Diagnostic Mode" on page 39. Press the UP key briefly and then hold the DOWN key until the motor stops.
- Note:** This process sets the elevation lower limit switch and MUST be done to obtain maximum elevation range.
15. Hold the 3/4" diameter elevation screw to prevent it from turning and turn the elevation nut to line it up with the holes on the elevation assembly.

Note: Elevation nut must be flush with the end of the elevation shaft. See Figure 7-17.

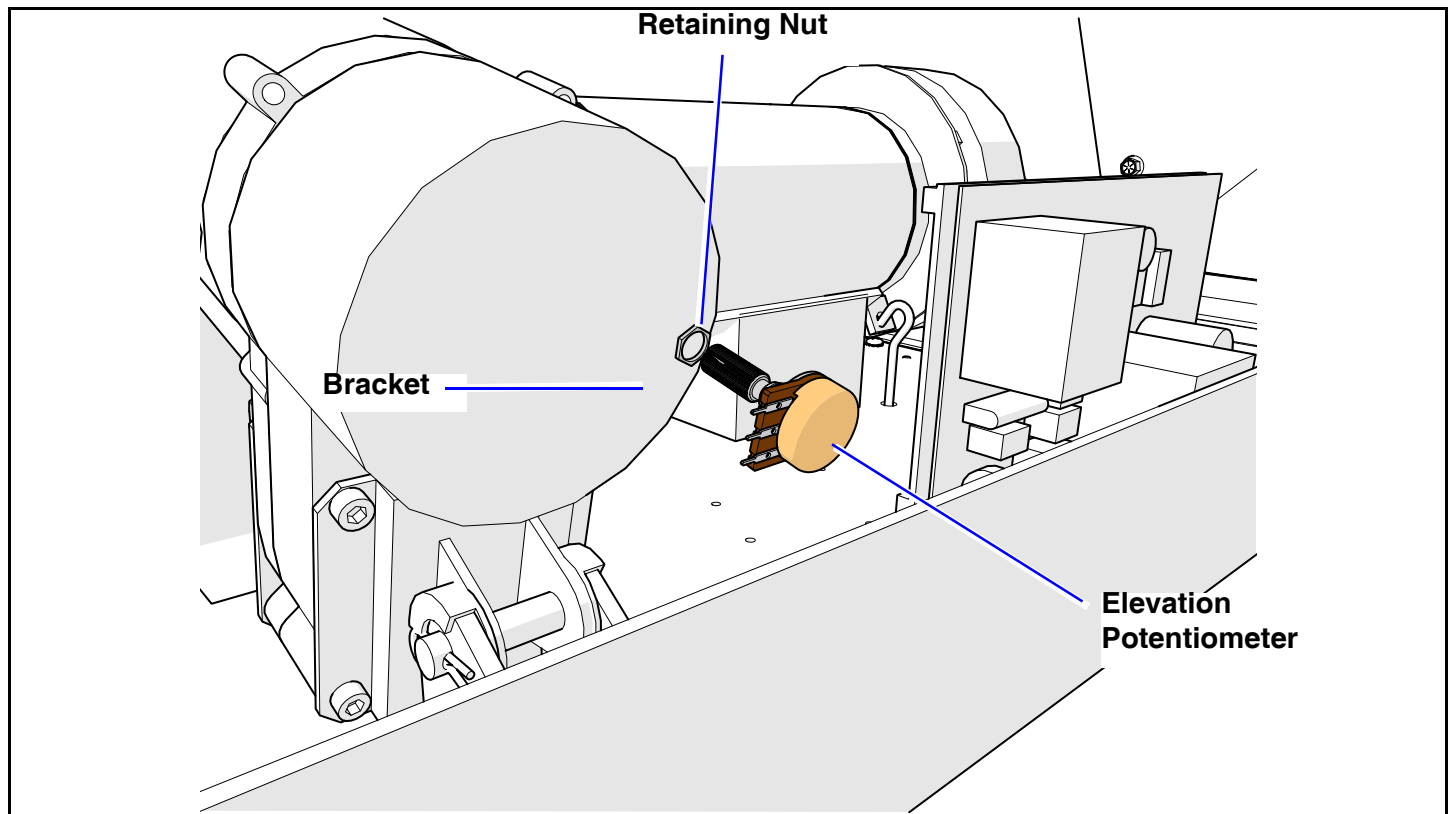
Figure 7-17. Elevation Nut Shaft Setting

16. Slide the two $\frac{1}{4}$ " diameter pins through the elevation assembly and into the elevation nut. Secure the pins with the two $\frac{1}{4}$ -20 screws.

17. Calibrate the elevation potentiometer, See "Elevation Potentiometer Calibration" on page 37

7.16. Elevation Potentiometer

1. Remove the motor cover.
2. Remove the wires from the elevation potentiometer.

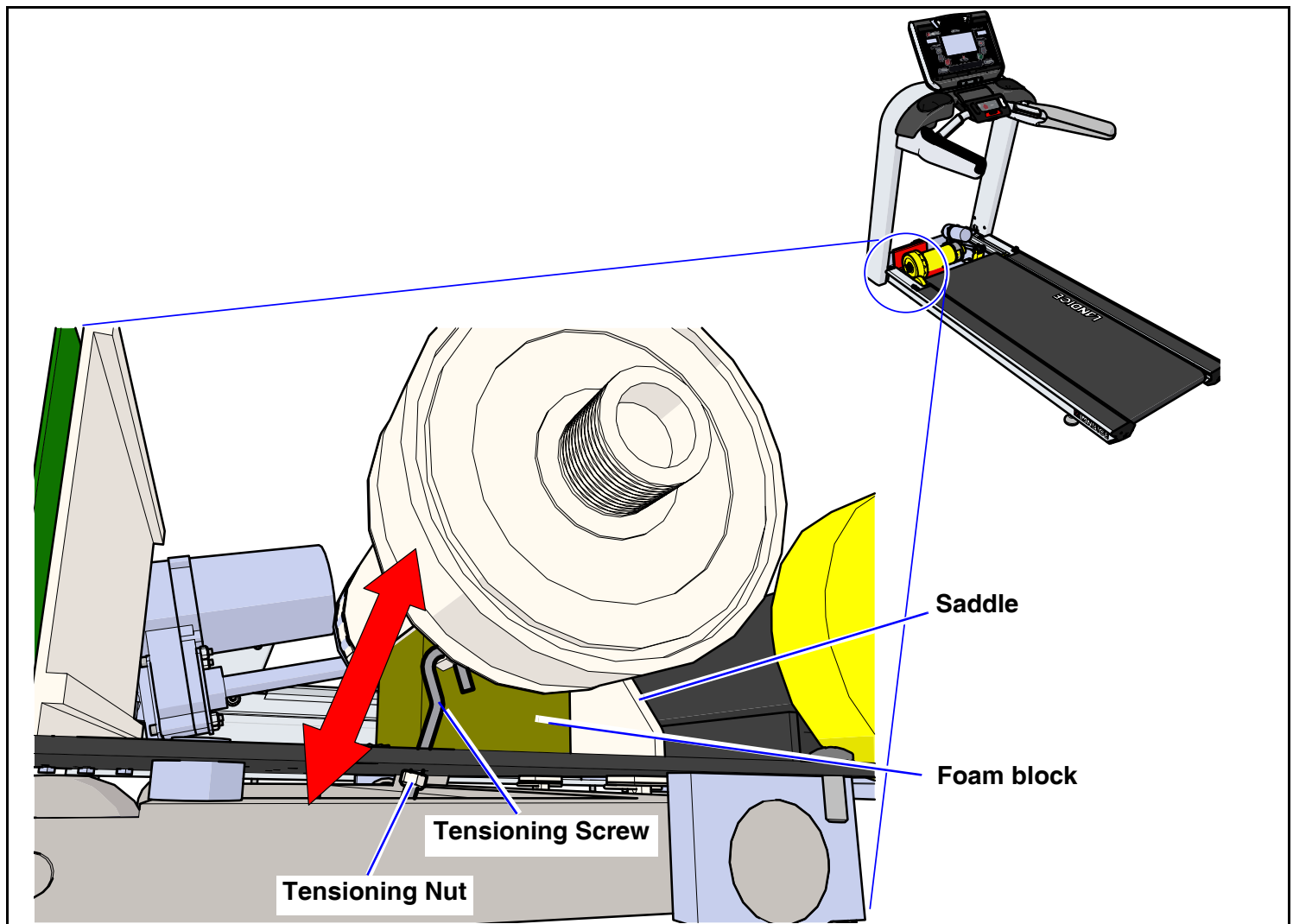
Figure 7-18. Elevation Potentiometer

3. Remove the retaining nut and slide the potentiometer from its bracket.
4. Re-installation is the reverse of removal. Reconnect the potentiometer as shown in "Interconnect Wiring Diagram - LTD and Home Models, ESI PWM Control PCB" on page 19 or "Interconnect Wiring Diagram - Club Model" on page 21 depending on the model.

7.17. Drive Belt

1. Use a $\frac{7}{16}$ " deep well socket to loosen the drive belt tensioning nut, as shown in the following figure, until there is slack in the belt.

Figure 7-19. Drive Belt Tensioning Bolt

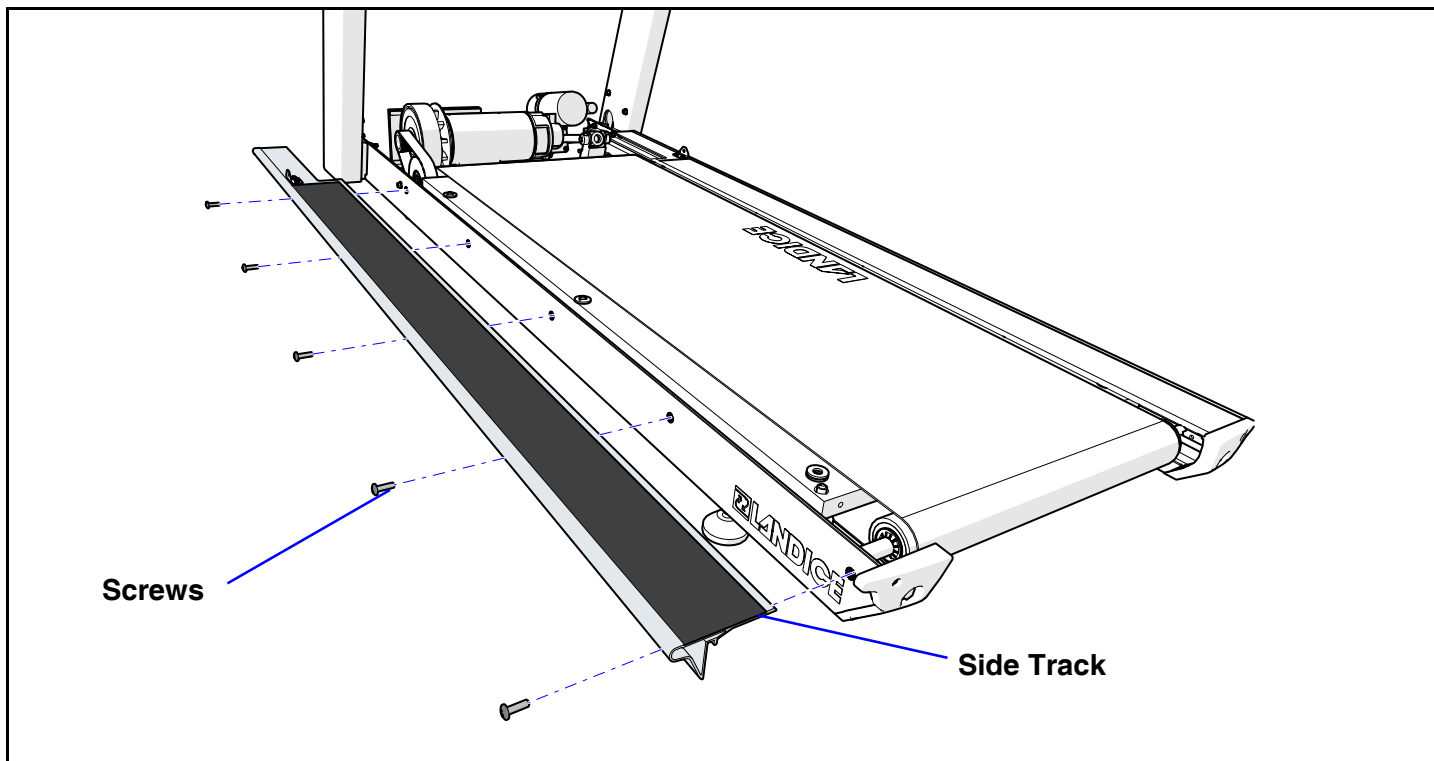


2. Follow the instructions in "Drive Roller" on page 87 to the point that the drive belt can be removed from the drive roller.
3. Slide the belt off both pulleys.
4. Installation is reverse of removal.
5. Tension the drive belt as outlined in "Drive Belt Tension" on page 31.

7.18. Take-up Roller

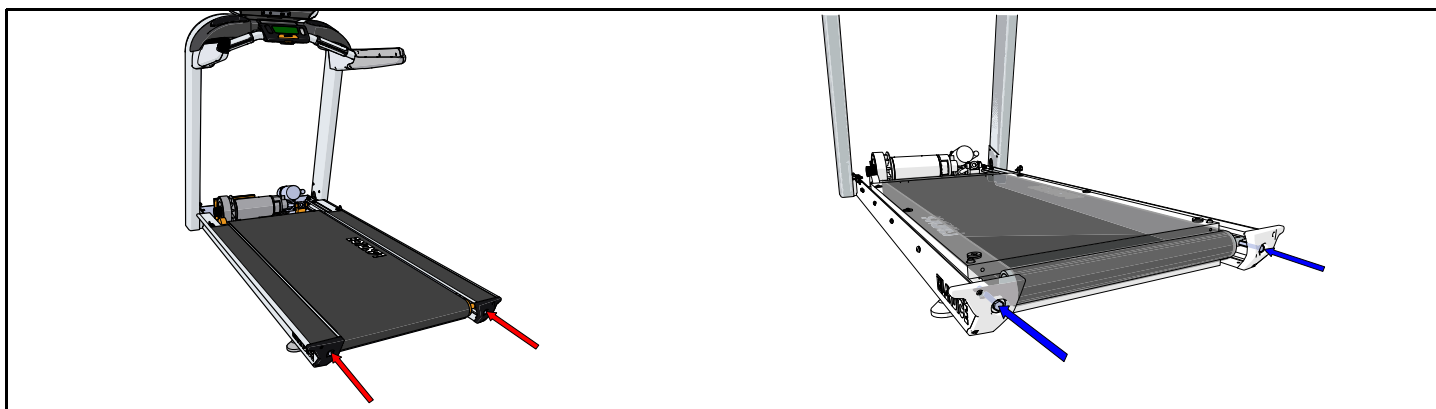
1. Remove the motor cover.
2. Remove the screws from the rail covers as shown in the following figure.

Figure 7-20. Side Rail Cover (same for left side)



3. Using a rubber mallet, gently tap up on the rail to remove it. Repeat for left side.
4. Remove the drive belt as outlined in "Drive Belt" on page 85.
5. Use a 9/16" socket and ratchet to remove the bolts from the take-up roller on both sides.

Figure 7-21. Treadbelt Tensioning Screws

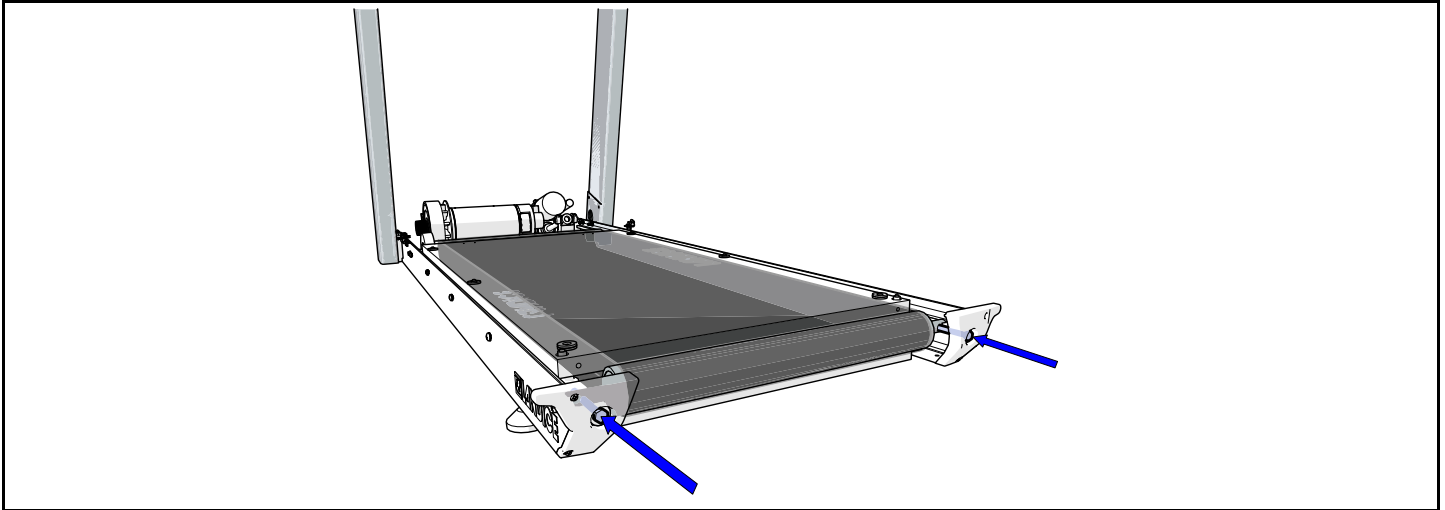


6. Remove the take-up roller.
7. Installation is the reverse of removal.

7.19. Drive Roller

1. Loosen the take-up roller to provide slack in the treadbelt.
2. Loosen treadbelt tension using a 9/16" socket and 3/8" ratchet at the adjustment bolts located as shown in the following figure.

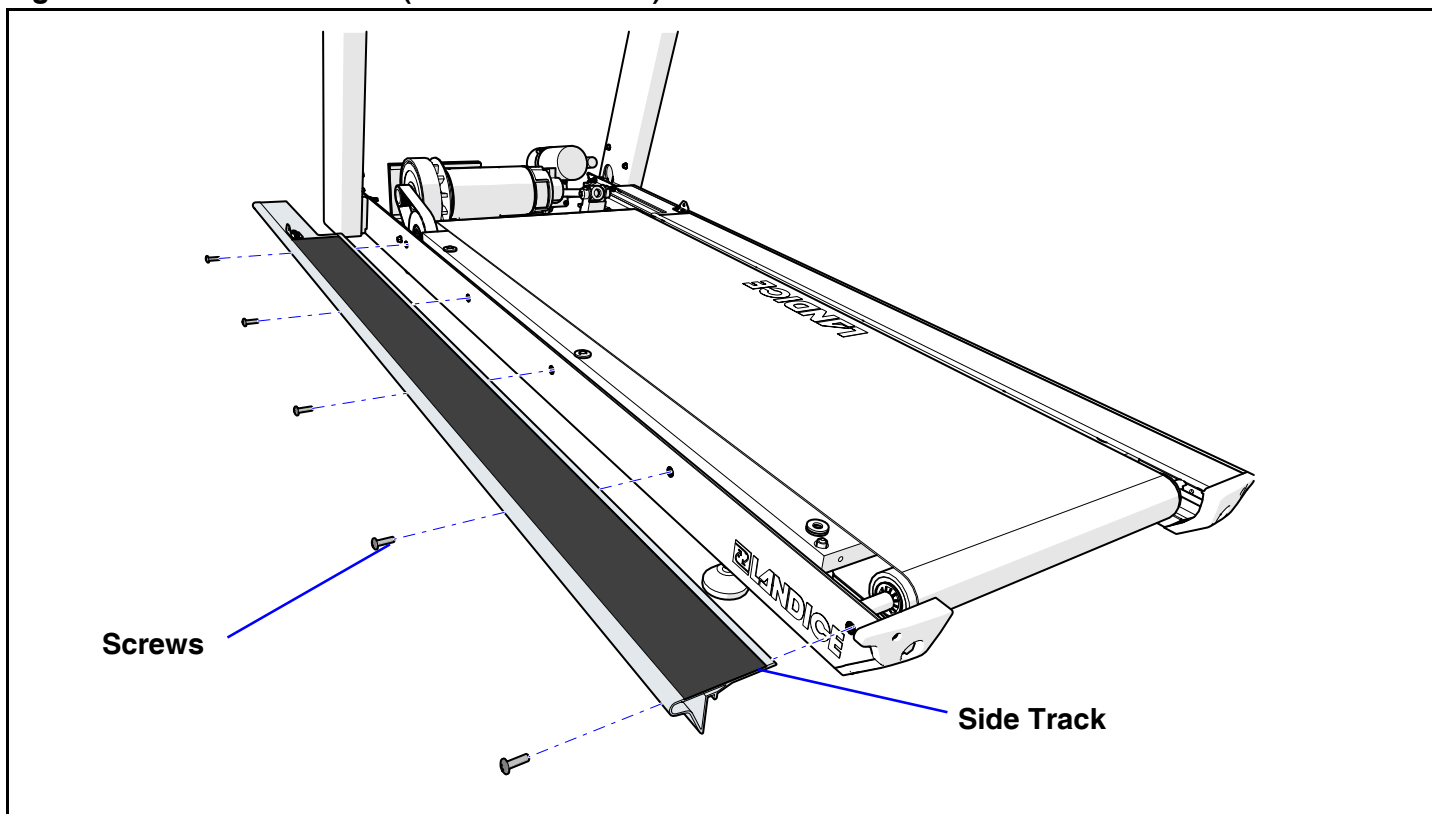
Figure 7-22. Treadbelt Tensioning Bolts



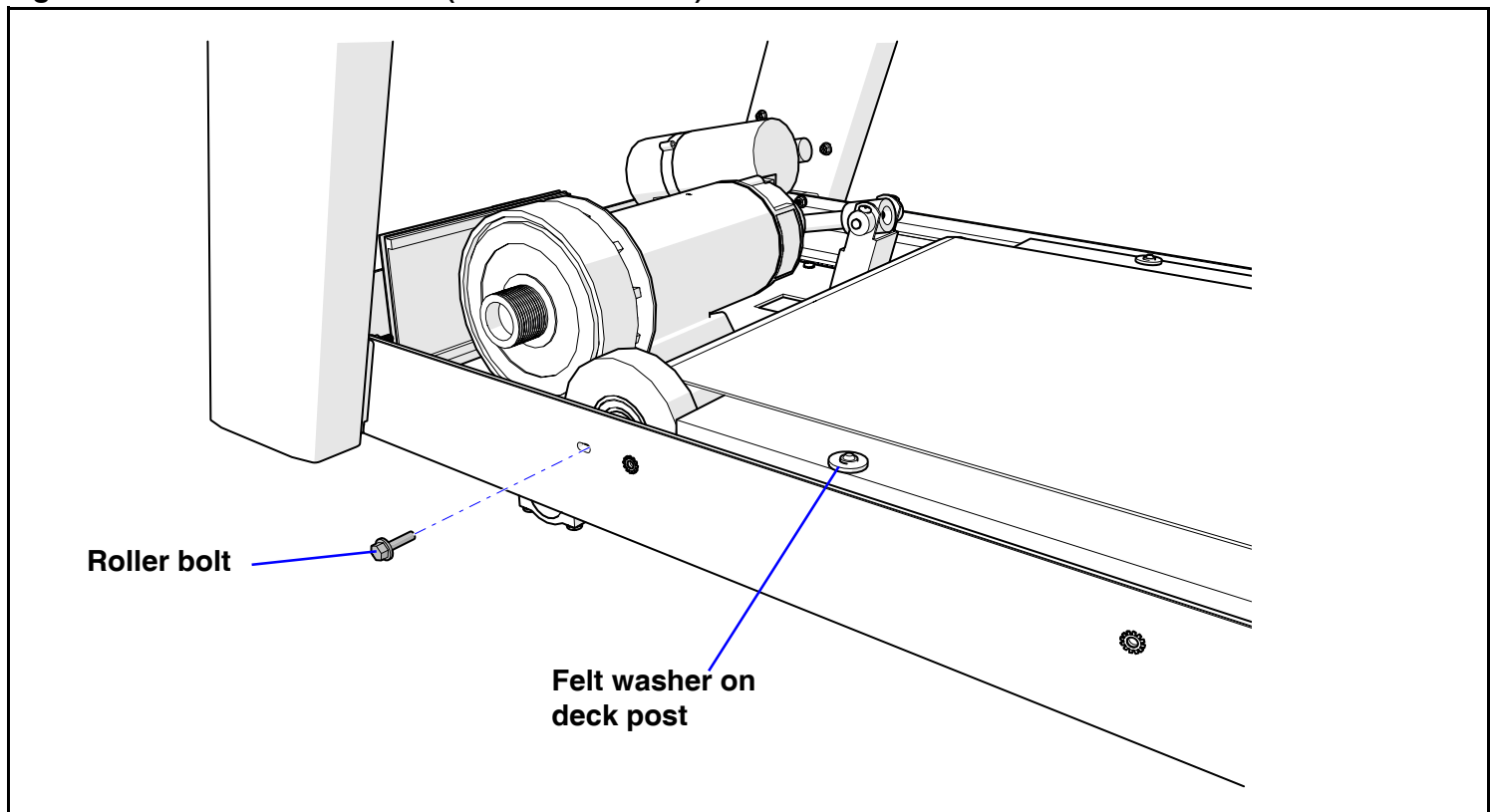
3. Turn treadmill ON and elevate it to 15% grade.
4. Turn treadmill OFF and unplug its power cord from wall outlet.
5. Remove motor cover as outlined in "Motor Cover" on page 73.
6. Disconnect the upper harness connectors and ground wire, if applicable, from the lower board and make sure that it can be removed with the upright in the next step.

7. Remove the screws from the right and left rail covers as shown in the following figure.

Figure 7-23. Side Rail Cover (same for left side)



8. Using a rubber mallet, gently tap up on the rail to remove it. Same for left side.
9. Remove the drive belt as outlined in "Drive Belt" on page 85.
10. Remove the left and right front roller bolts using a 3/8" socket with ratchet as shown in the following figure.

Figure 7-24. Drive Roller Screw (same for left side)

11. Angle the roller and slide the front roller out from inside the treadbelt.

Note: Use the drive belt as a handle for removing the roller by wrapping it around the drive roller pulley in the following step.

12. Now that there is slack in the treadbelt, remove the drive roller.

13. Installation is the reverse of removal with the following directions for the felt washers that prevent the deck from banging against the side frame covers:

- L7:
 - Regular Treadbelt: Front two posts: One gray (thick) topped by one white (thin). Remaining Posts: One gray each.
 - Ortho Treadbelt: All posts get one gray (thick) topped by one white (thin) each.
- L8 and L9: All posts get one gray (thick) topped by one white (thin) each.

14. Adjust the tension of the treadbelt as outlined in “Treadbelt Tensioning” on page 33.

15. Adjust drive belt tension as outlined in “Drive Belt Tension” on page 31.

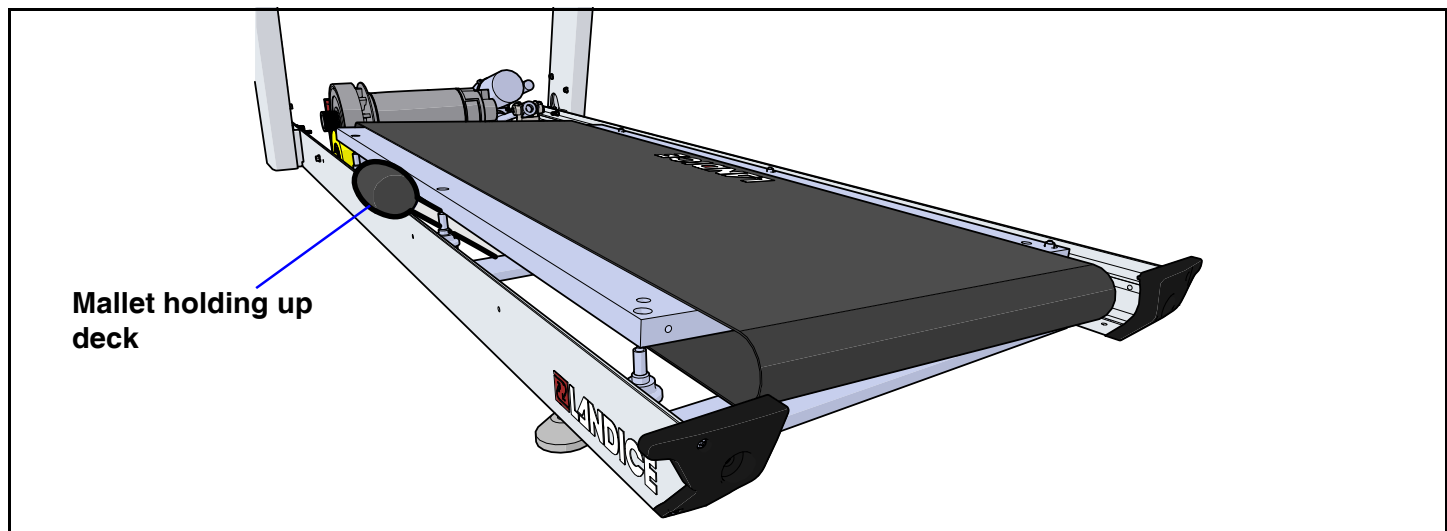
16. Adjust the treadbelt tacking as outlined in “Treadbelt Tracking” on page 35.

7.20. Deck and Treadbelt

This procedure provides information for installing a new treadbelt or deck or just reversing the deck for a new surface. The deck should be reversed only when you are replacing the treadbelt.

1. Remove the motor cover.
2. Remove the take-up roller as outlined in “Take-up Roller” on page 86.
3. Remove the drive roller as outlined in “Drive Roller” on page 87.
4. Remove the felt washers from the deck.
5. The deck sits on top of impact absorbers over deck posts. The deck must be lifted off of the posts so that the treadbelt can be removed.
 - If you are working with someone, simply remove the deck and stand it on one side so that the treadbelt can be removed.
 - If you are working alone, lift the deck off of the posts on one side and insert the handle of the rubber mallet between the deck and the frame as shown in the following figure. Lift it from the opposite side and stand it up on edge to remove the treadbelt.

Figure 7-25. Mallet holding up deck



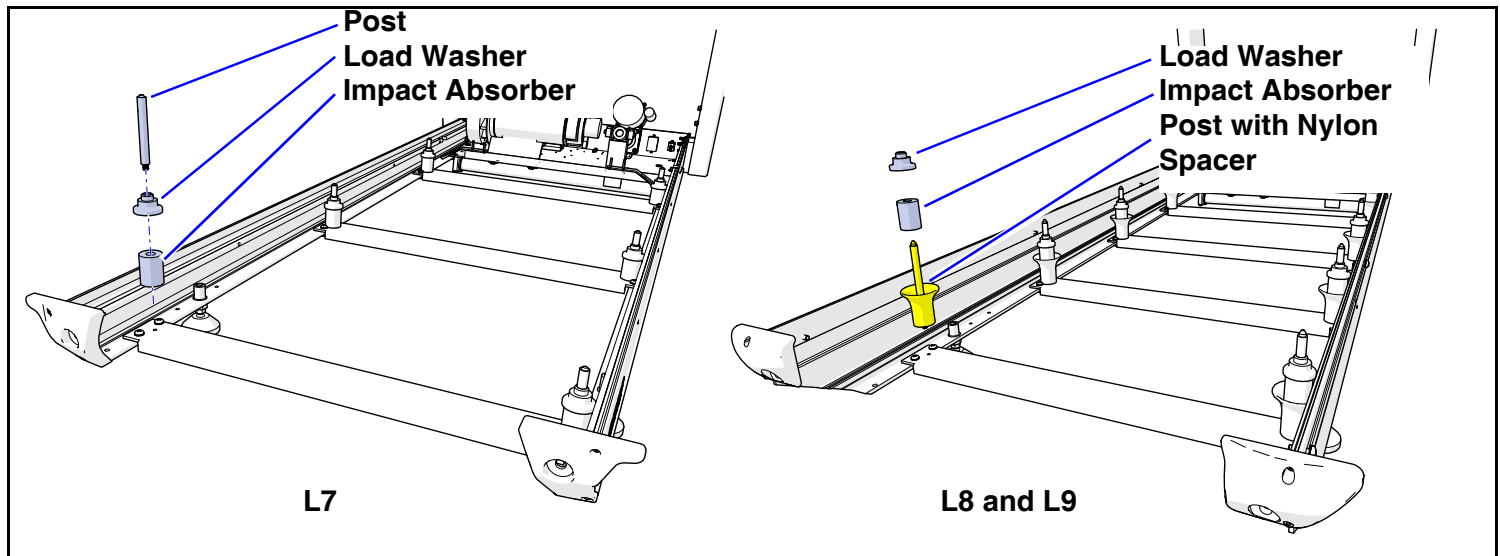
Note: If the deck has one unused side, it will be reversed now. If both sides have been used, replace the deck now.

6. Inspect the impact absorbers for damage. Replace any damaged impact absorbers as outlined in “Impact Absorbers” on page 91. Otherwise, reverse the deck and continue to the next step.
7. Installation is the reverse of removal. If required align the drive roller. See “Drive Roller Alignment” on page 36.
8. Adjust the drive belt’s tension as outlined in “Drive Belt Tension” on page 31.
9. When the rollers are in place, adjust the treadbelt as close to center as possible, then tension it as outlined in “Treadbelt Tensioning” on page 33.
10. Break the treadbelt in. Walk on the treadbelt so the wax penetrates it. Starting at the back, walk from side to side and up and down at a speed of 2 mph for at least 20-30 minutes to break in belt. If required, adjust treadbelt tracking as outlined in “Treadbelt Tracking” on page 35.

7.21. Impact Absorbers

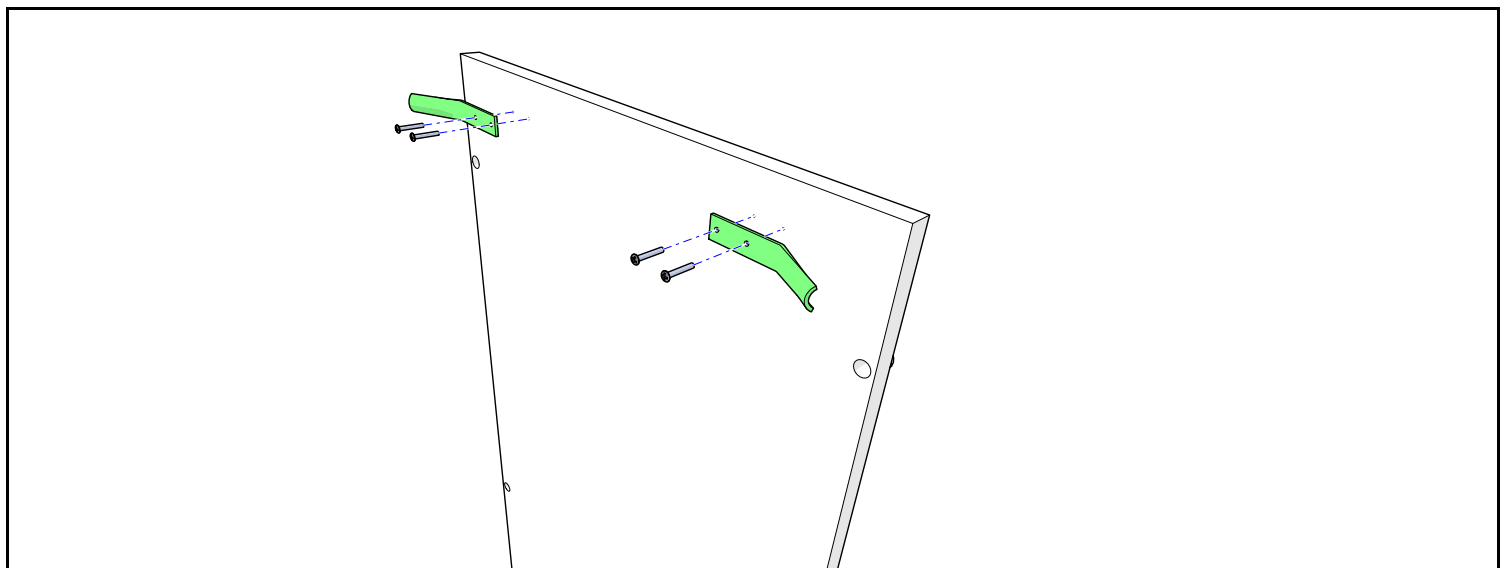
1. Remove the deck as outlined in “Deck and Treadbelt” on page 90.
2. Using vice grips (locking pliers), lock them around the tip of the deck post. Turn the pliers counterclockwise to remove the deck post. See the following figure. There are two types of impact absorbers depending on the treadmill model:
 - L7: The post has no spacer.
 - L8 and L9: The post has a nylon spacer.

Figure 7-26. Impact Absorbers



3. For L7 models only: Remove the guides (see the following figure) from the deck and reinstall on either the new deck or the reverse side of the existing deck, as applicable.

Figure 7-27. Treadbelt Guides - L7 Only



Note: The nylon spacer is not removed from the post. If the nylon spacer is damaged, replace the post.

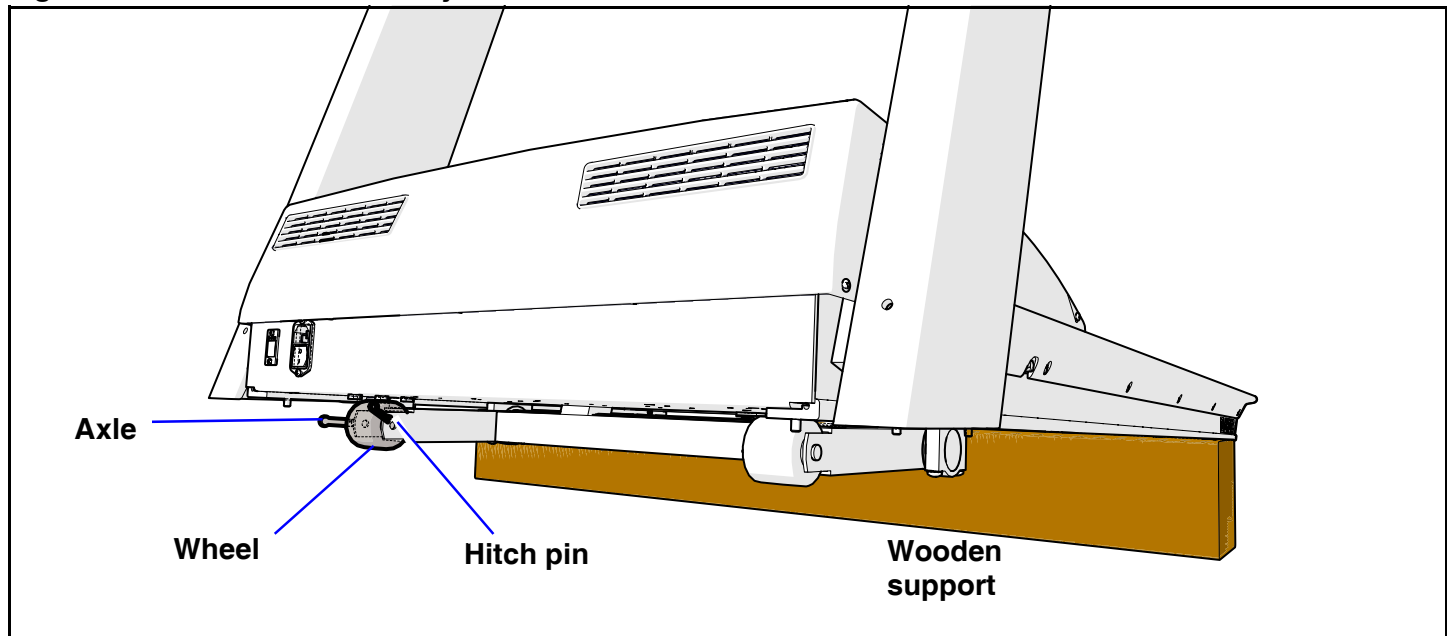
4. Slide the impact absorber and load washer off of each post.

5. Lubricate as follows with Lubriplate white lithium grease (Landice item #71061 with a small brush:
 - Both ends of the impact absorbers
 - The bottom of the nylon spacer
 - The entire shaft of the post but not the threads
6. **Do one of the following:**
 - **For L7 models:** Place all absorbers and load washers in position on the slats, insert the post and thread it into the slat.
 - **For L8 and L9 models:** Install the post and nylon spacer. Install the greased impact absorber and load washer on all posts.
7. Use the locking pliers to tighten the posts into the slats securely, 1/4 turn past snug.
8. Install the deck, see “Deck and Treadbelt” on page 90.

7.22. Elevation Assembly Wheels

1. Block the treadmill up on a stable platform such as a 4” x 4” x 36” piece of wood as shown in the following figure.

Figure 7-28. Elevation Assembly Wheel

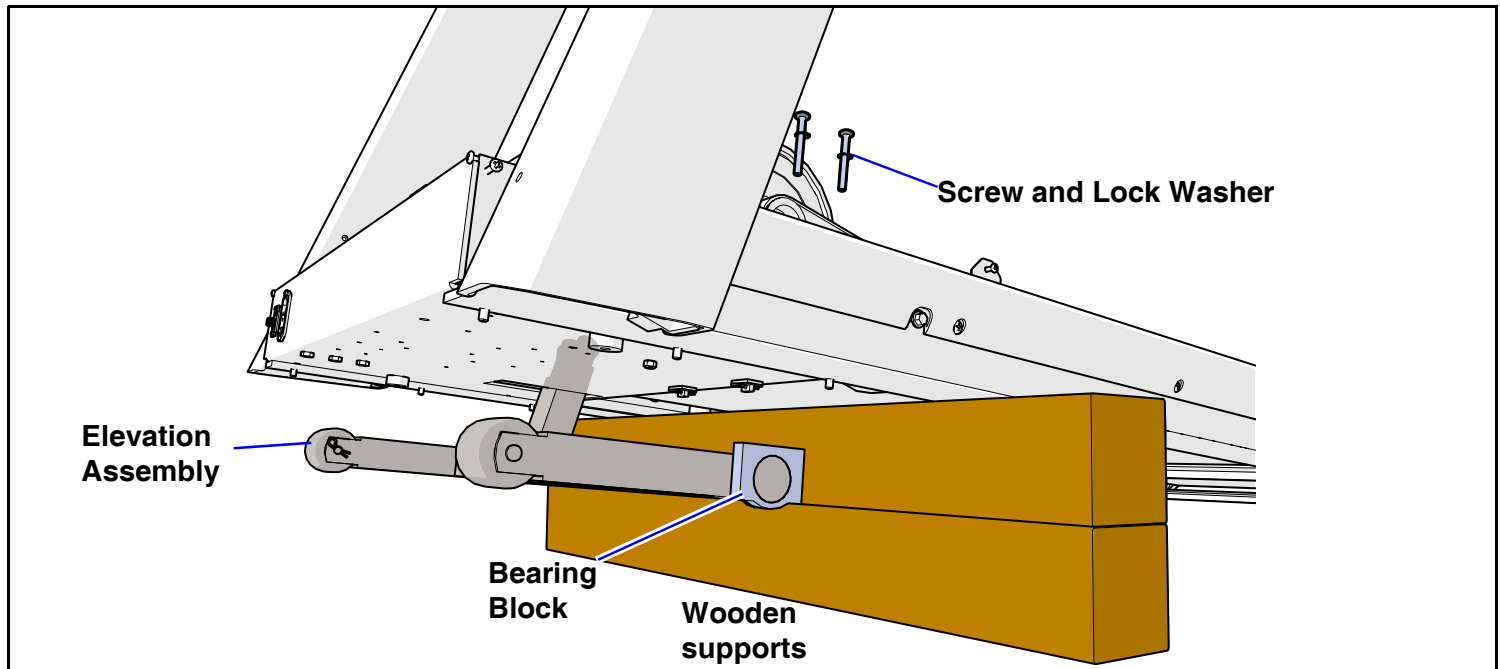


2. Remove the hitch pin and then slide out the axle, the wheel will drop out.
3. Installation is the reverse of removal.

7.23. Elevation Assembly

1. Remove the motor cover.
2. Remove the elevation motor as outlined in "Elevation Motor" on page 82.
3. Block the treadmill up on a stable platform such as two 4" x 4" x 36" pieces of wood as shown below.

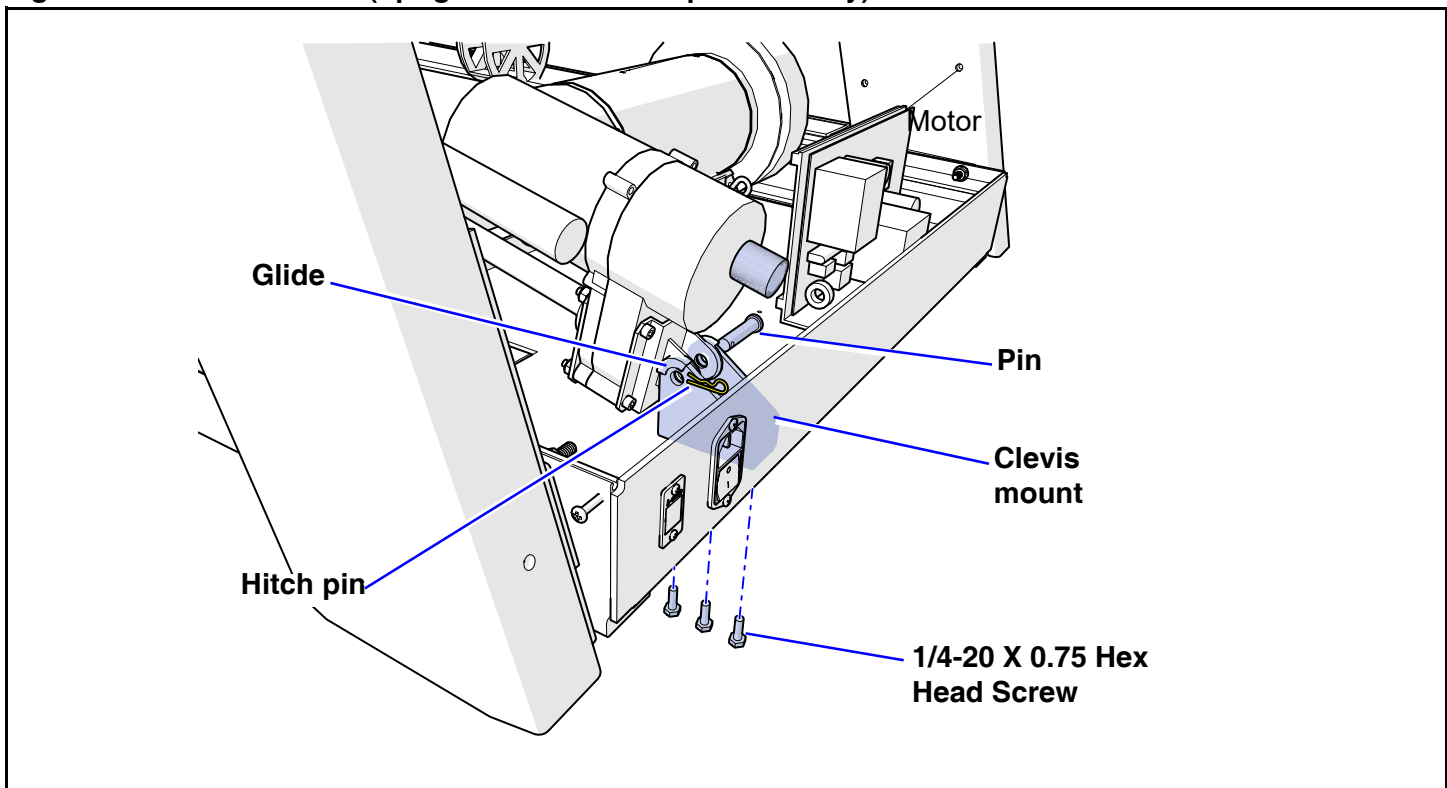
Figure 7-29. Elevation Assembly



4. Place a block beneath the elevation assembly to prevent it from falling during removal.
5. Remove the screws and lock washers from the bearing blocks and lower the elevation assembly to the block.
6. Installation is the reverse of removal.
7. Remove the bearing blocks and remove the elevation assembly.

7.24. Clevis Mount

1. Unplug the power cord.
2. Remove the motor cover.
3. Remove all weight from the elevation assembly by placing a suitably strong object under the under motor pan, such as a piece of 4" x 4" lumber so that the wheels are off the floor.
4. Remove the three screws securing the Clevis mount to the motor pan from beneath as shown in Figure 7-30.

Figure 7-30. Clevis Mount (upright removed to improve clarity)

5. Remove the hitch pin from the pin.
6. Support the elevation motor and remove the pin from the Clevis mount.
7. Remove the Clevis mount.
8. Place the glides on the new Clevis mount.
9. Installation is the reverse of removal.

Figure 8-1. Top Level - L7

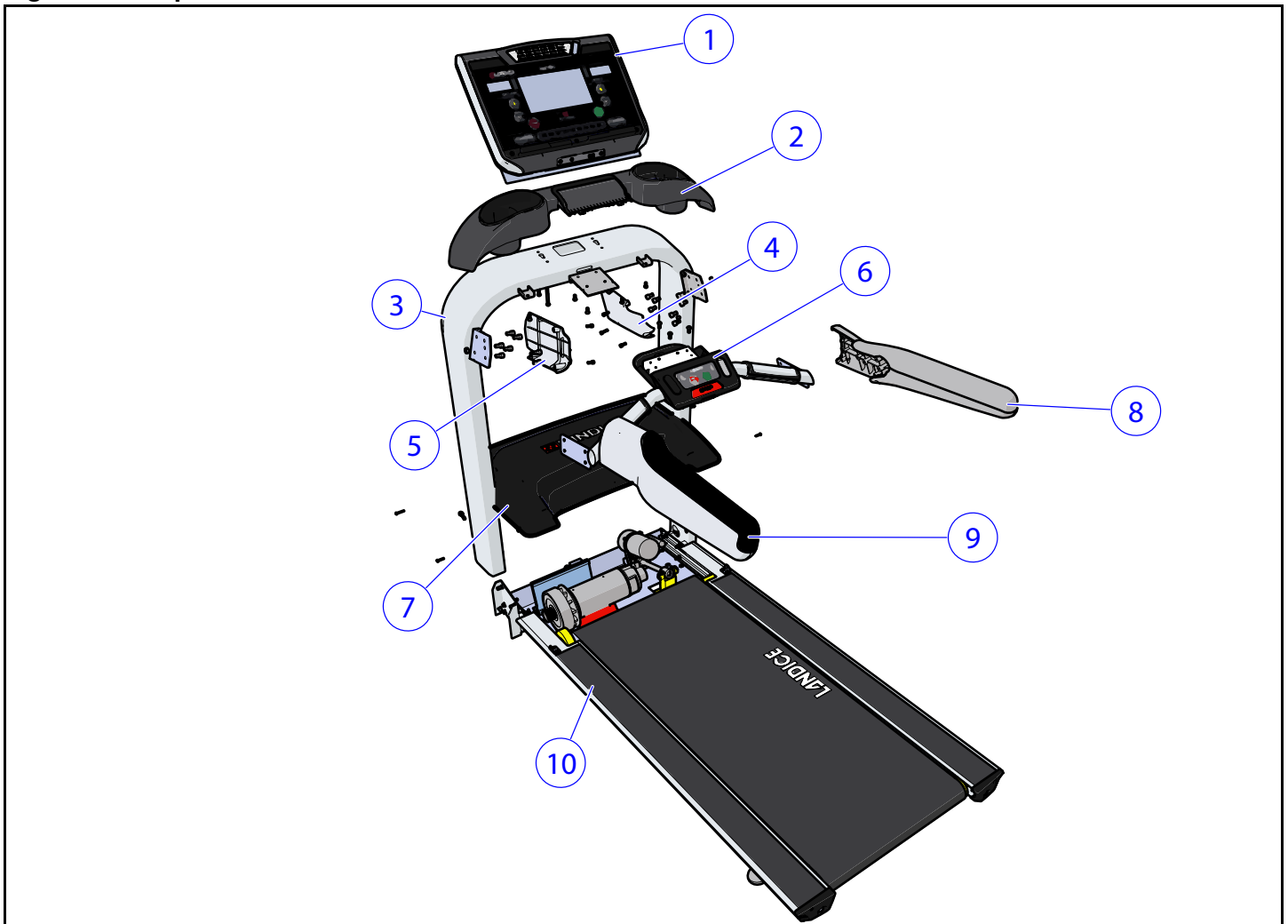


Table 8-1 Top Level Parts

Item Number	Part Number	Description	QTY
1	75100	Console	1
2	75070	Bottle Holder	1
3	73000	Upright	1
4	75058	Handrail Small Inner Cover Left	1
5	75059	Handrail Small Inner Cover Right	1
6	75000	Lower Control Panel	1
7	73015	Motor Cover	1
8	75050	Handrail, Right	1
9	75051	Handrail, Left	1
10		Base Assembly (see "Base - L7" on page 104 or "Base Parts - L8" on page 106)	1

Figure 8-2. Arm Inner Cover Hardware (same for right side)

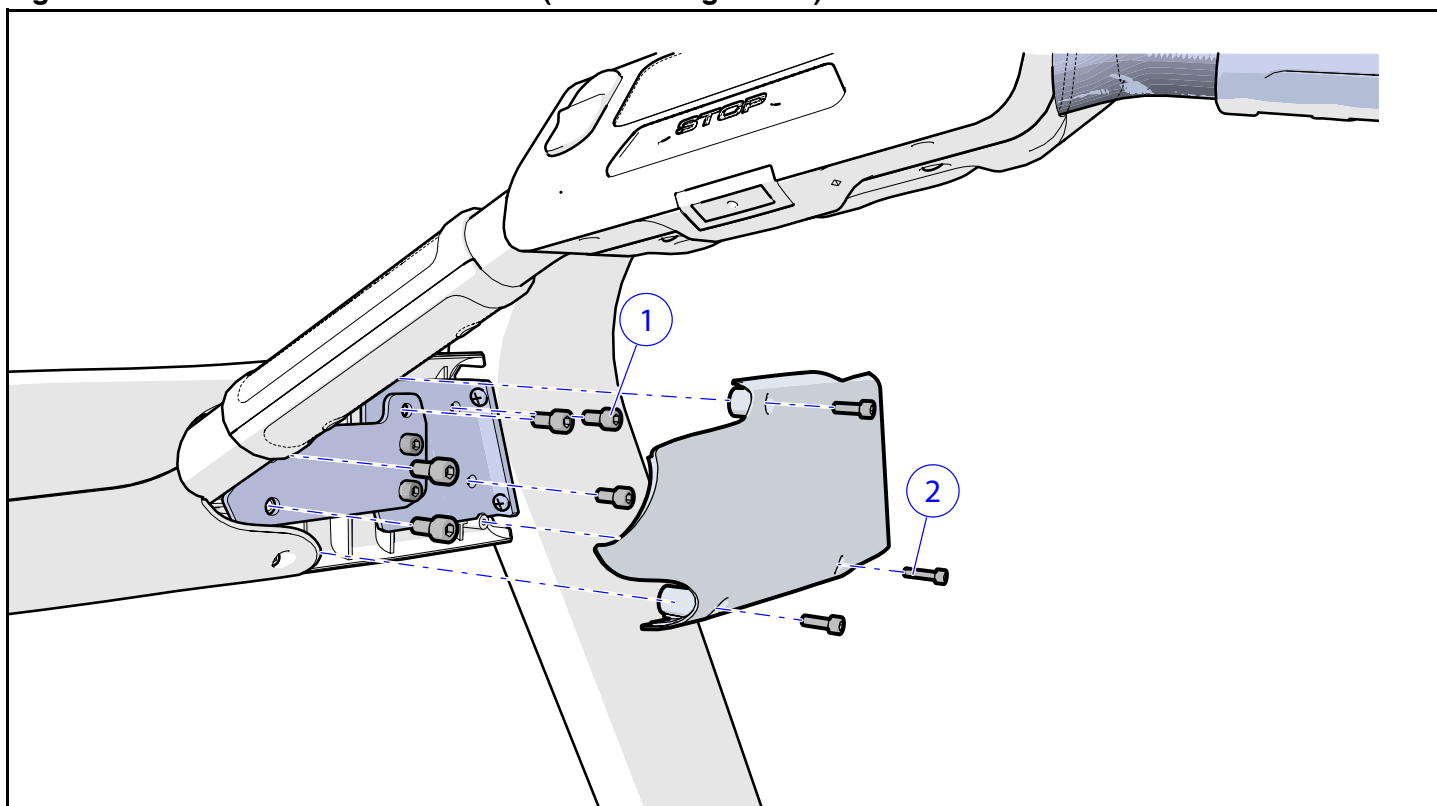


Table 8-2 Top Level Parts - Arm Inner Cover Parts

Item Number	Part Number	Description	QTY
1	M8x15SHCS	M8x15 socket head cap screw	14
2	M5x15SHCS	M5x15 socket head cap screw	6

Figure 8-3. Upright and Cover Hardware

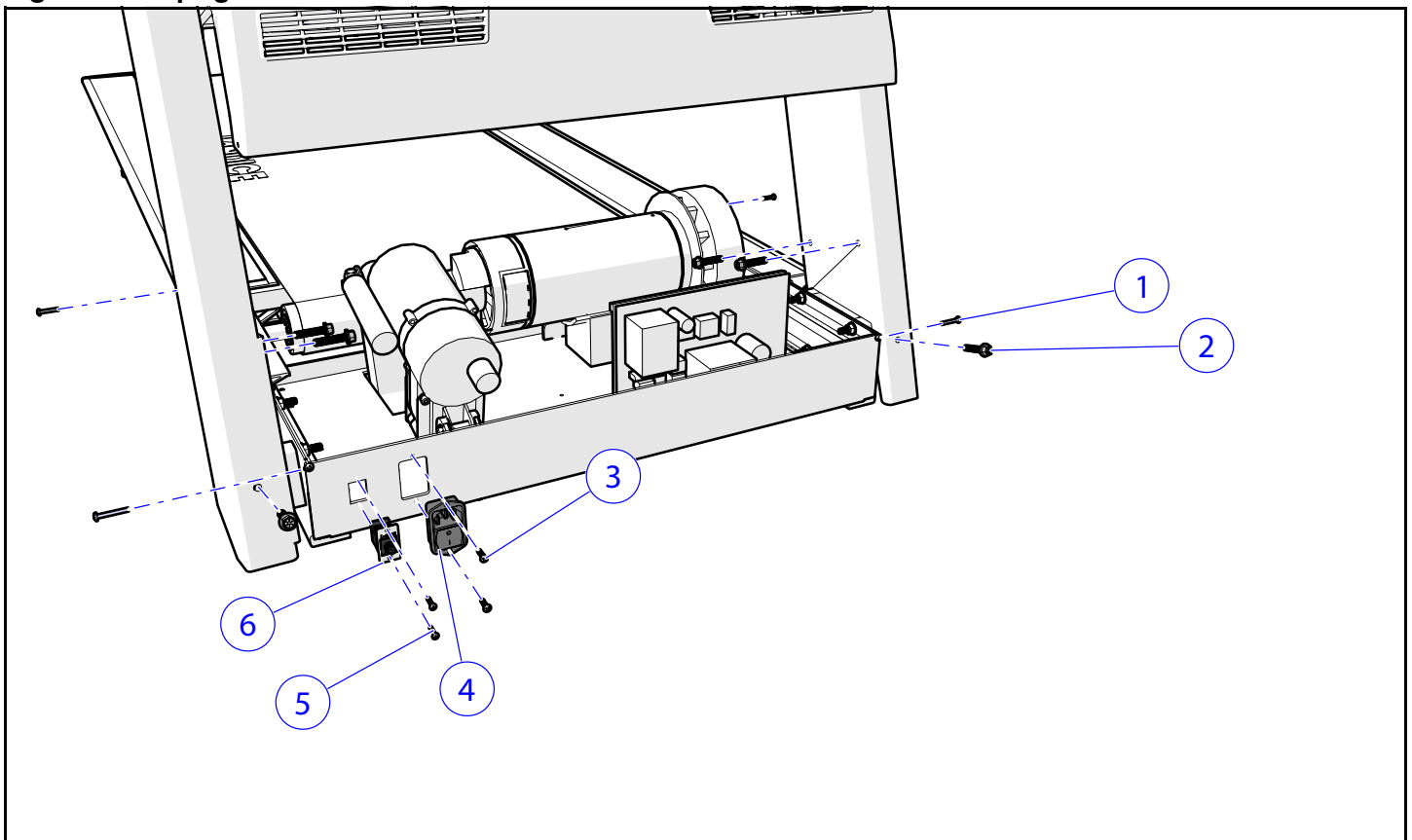


Table 8-3 Top Level Parts - Upright and Cover Hardware

Item Number	Part Number	Description	QTY
1	8/32x0.75	8/32x0.75 Pan Head Phillips Screw	4
2	1/4-20x1.25	1/4-20x1.25 High Strength Flange Head Cap Screw	6
3	6-32x0.5	6-32x0.5 Screw	2
4	70861	On/Off Switch, Power Cord Assembly	1
5	90727A110	4-40x0.5 Screw	2
6		Blank Connector Assembly	1

Figure 8-4. Lower Control Panel and Bottle Holder Hardware

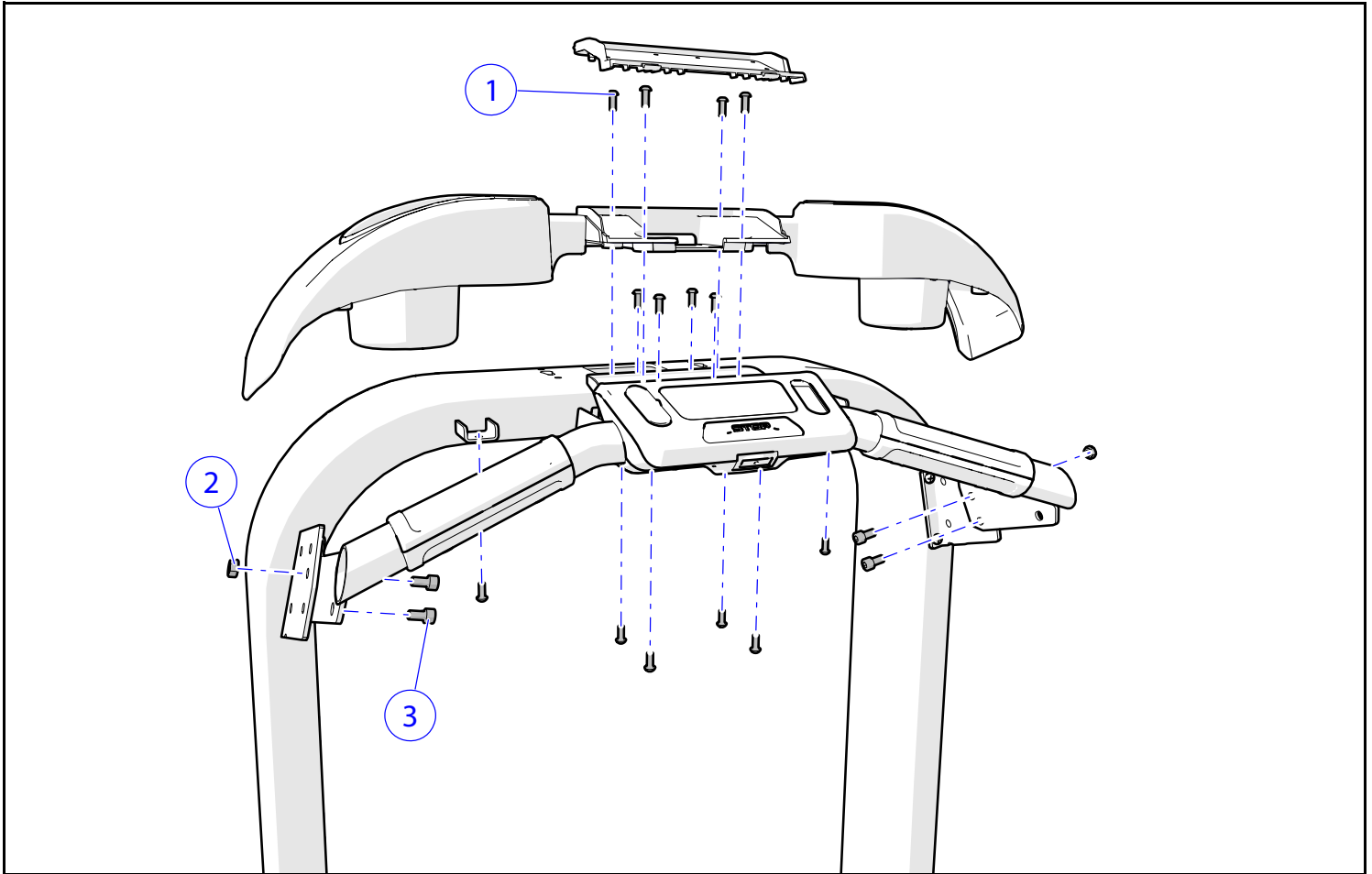


Table 8-4 Top Level Parts - Lower Control Panel and Bottle Holder Hardware

Item Number	Part Number	Description	QTY
1	M6x15BHSS	M6x15BHSS	14
2	M8 nut	M8 nut	2
3	M8x15SHCS	M8x15SHCS	2

Figure 8-5. Bottle Holder

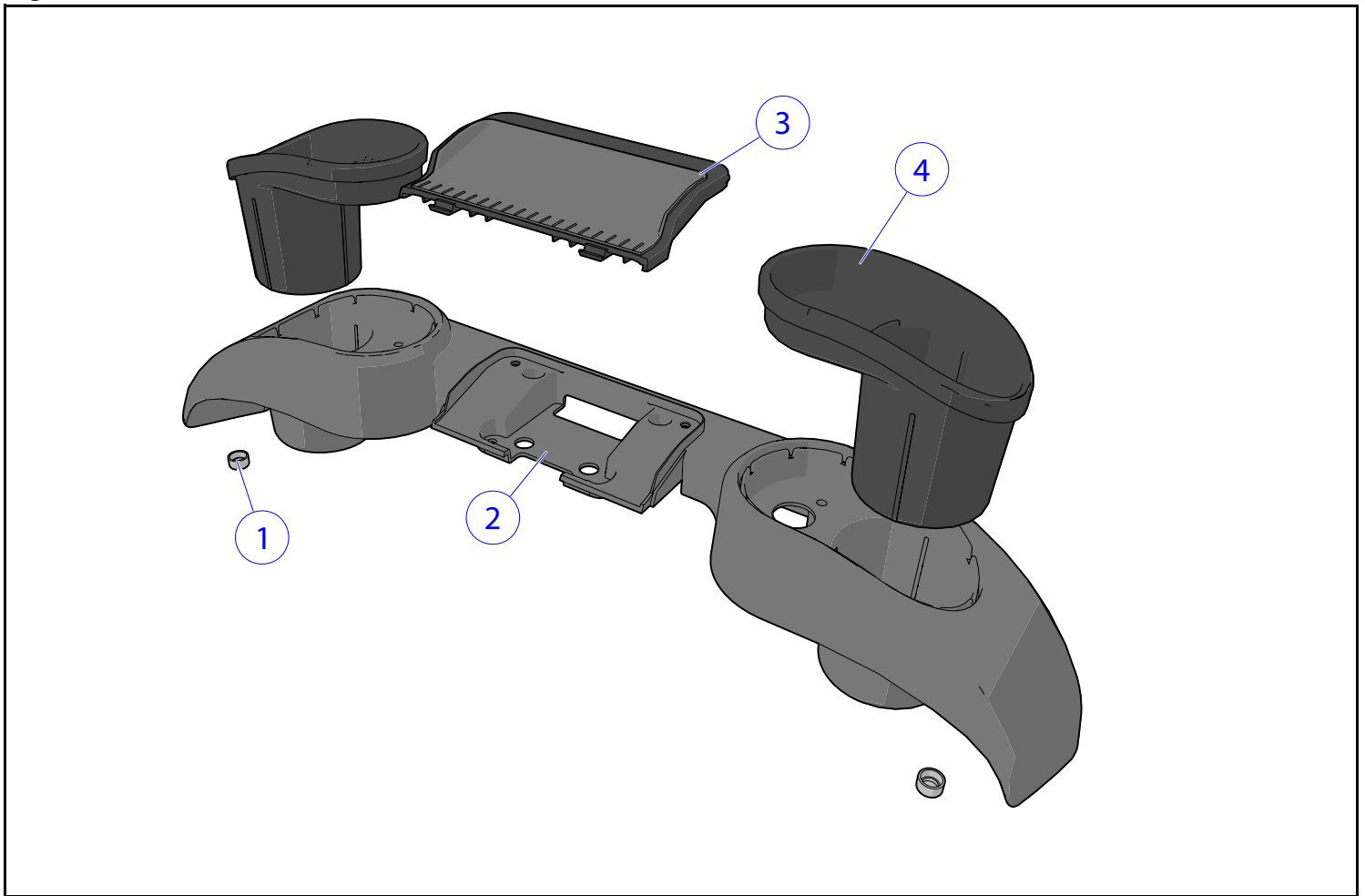


Table 8-5 Top Level Parts - Bottle Holder Parts

Item Number	Part Number	Description	QTY
1	75074	Bridge Bumper	2
2	75071	Plastic Bridge Cover	1
3	Misc	Accessory Tray	1
4	Misc	Cup Holder Liner	2

Figure 8-6. Lower Control Panel

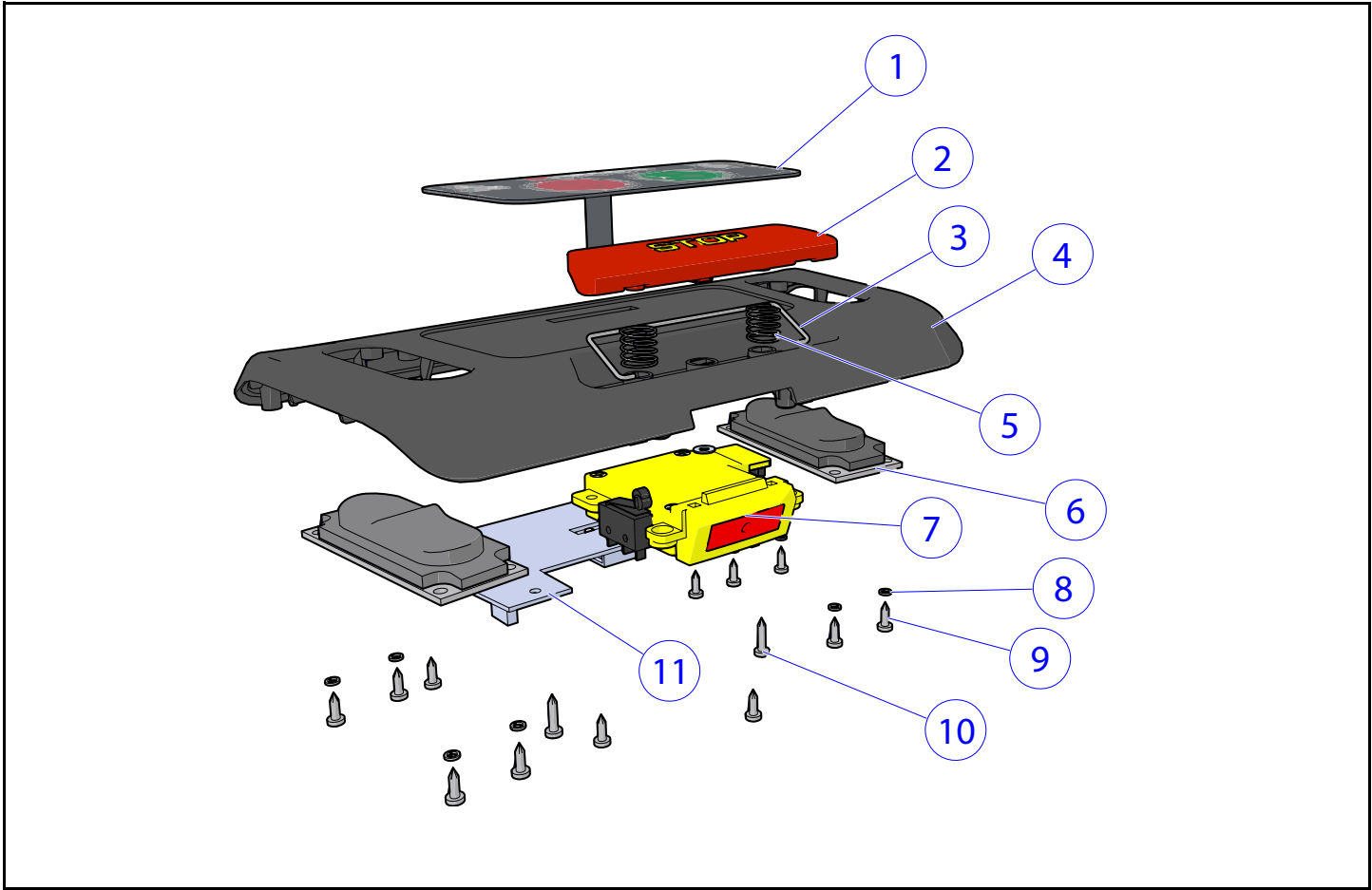


Table 8-6 Lower Control Panel Upper Parts

Item Number	Part Number	Description	QTY
1	75026	Lower Control Membrane Switch	1
2	75025	Emergency Stop Button	1
3	75029	Spring	1
4	75024	Lower Control Panel Bezel	1
5	75030	Coil Spring	2
6	75031	Adjust Switch Assembly	2
7	RT7507400	Emergency Stop Switch Assembly	1
8	IMP-GB93	Lock Washer	8
9	IMP_GB845ST2.9_9.5	IMP_GB845ST2.9 Screw	10
10	IMP_GB845ST2.9_13	IMP_GB845ST2.9_13 Screw	2
11	75027	Lower Control Panel	1

Figure 8-7. Lower Control Panel and Electrode Assemblies

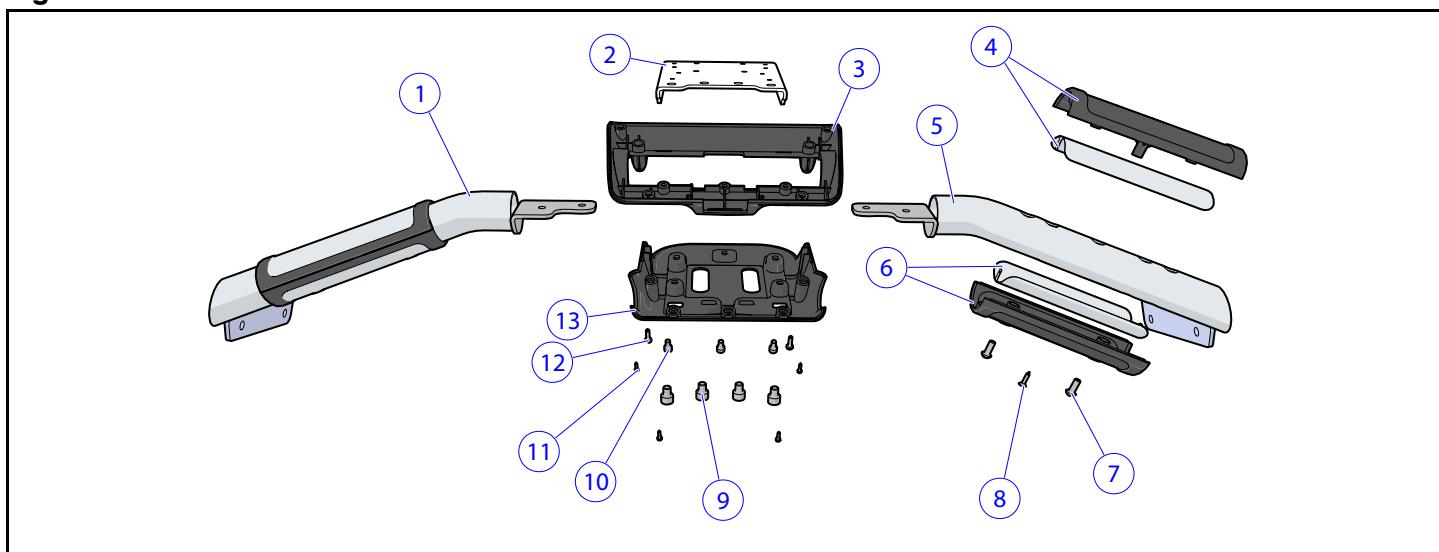


Table 8-7 Lower Control Panel Lower and Electrode Assemblies Parts

Item Number	Part Number	Description	QTY
1	75002	Ergo Bar Weldment, Left	1
2	75007	Ergo Assembly, Main Bracket	1
3	75021	Activity Zone Bottom Housing	1
4	75003	Contact Heart Rate Right Top	2
5	75001	Ergo Bar Weldment, Right	1
6	75005	Contact Heart Rate Right Bottom	2
7	M6X15BHSS	4mm Socket, Button Head Fastener, 6mm DIA X 15mm Long	4
8	IMP_GB846ST3.5_16	Phillips Countersunk Screw, 3.5mm OD x 16mm Long	2
9	M8X10SHCA	8mm x 10mm Socket Head Cap Screw	4
10	IMP_GB70M5_10	IMP_GB70M5_10	3
11	GB845SST2.9_15	Pan Head Phillips Screw, 3mm DIA x 15mm Long	4
12	IMP_GB845ST4.2_19	Pan Head Phillips Screw, 4mm DIA X 19mm Long	2
13	75808	Bottom Cover	1

Figure 8-8. Control Panel

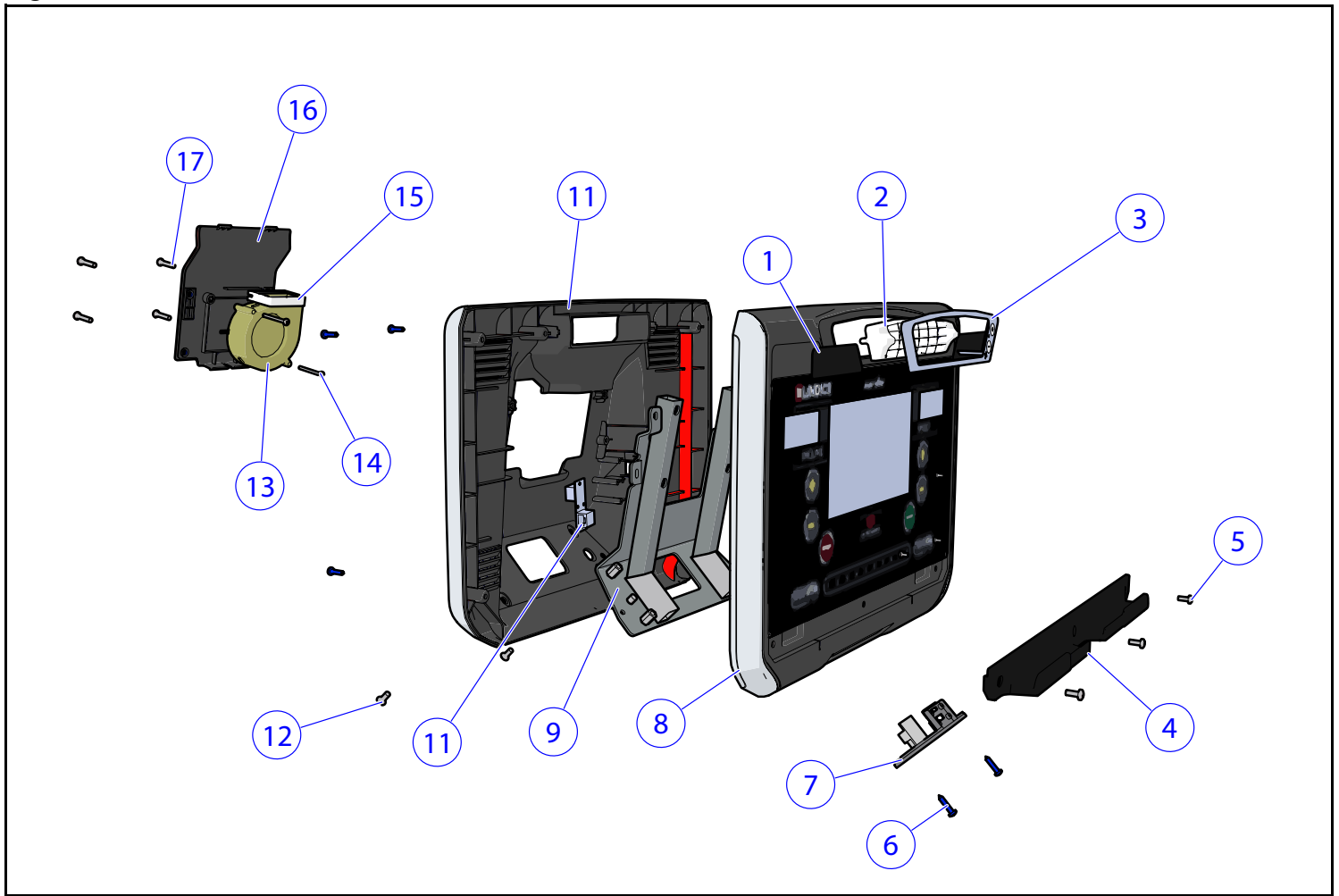


Table 8-8 Control Panel Parts

Item Number	Part Number	Description	QTY
1	73100	Left English Console Warning Label	1
2	75109	Fan Vent	1
3	75111	Fan Bezel Overlay	1
4	75104	Magazine Rack	1
5	M4x10	Pan Head Phillips Plastics Screw, 4.2mm DIA X 19mm Long	3
6	GB845ST4.2		8
7	75107	Panel With USB & Headphone Jack	1
8	75106	Console Front Shell	1
9	75114	Control Weldment	1
10	75102	Console Back Assembly	1
11	75116	RJ 45 C Safe Port	1
12	MP_GB819M6(GB819M6_15	Pan Head Phillips Countersunk Screw, 6mm DIA X 15mm Long	2
13	75120	Fan	1
14	M4x40	Panhead Screw	2
15	75119	Fan Duct Adapter	1
16	75118	Back Fan Cover	1
17	M6x30	Button Head Cap Screw	4

Figure 8-9. Base - L7

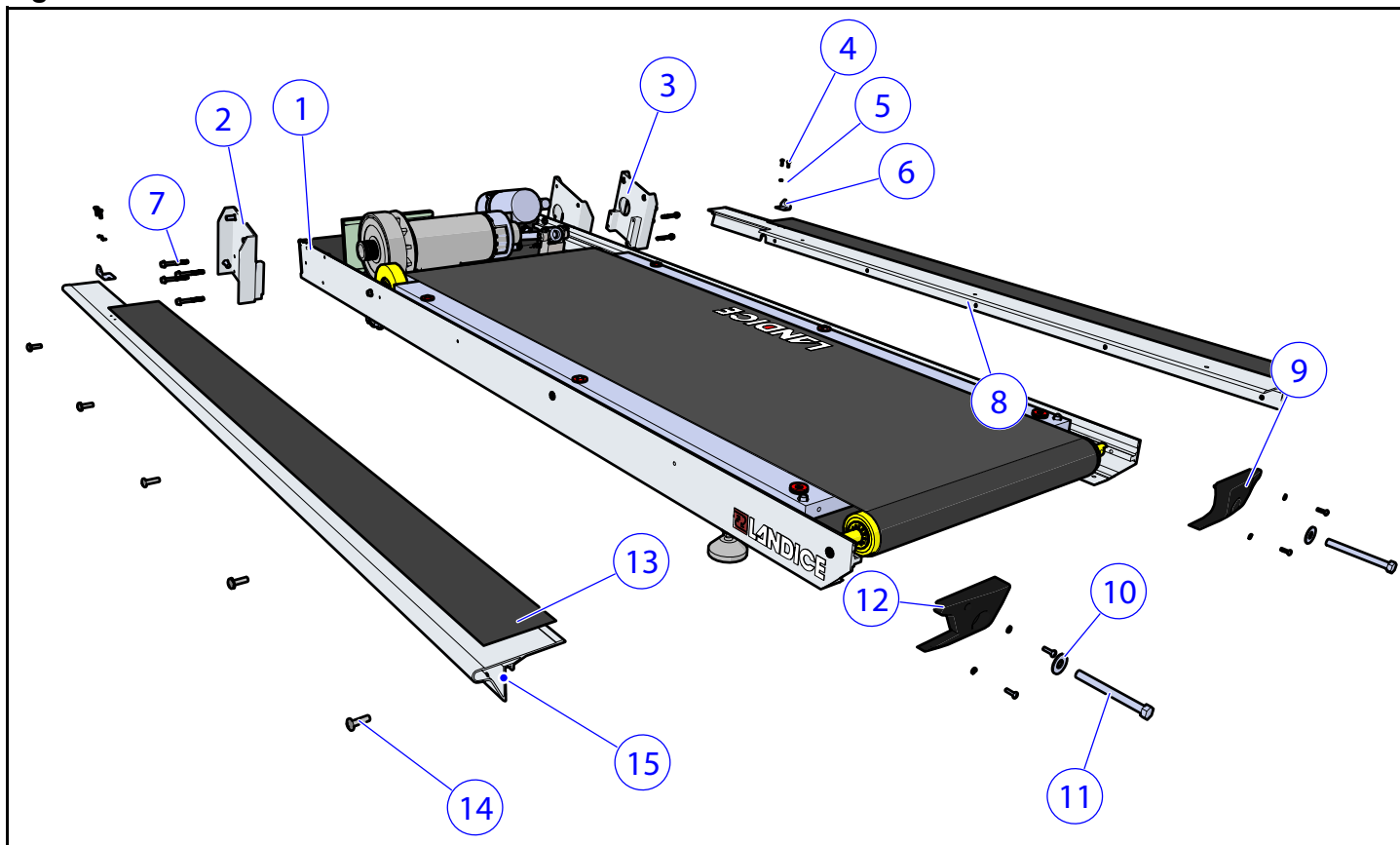


Table 8-9 Base Parts - L7

Item Number	Part Number	Description	QTY
1		Base Assembly (see the subsequent figures for these parts)	NA
2	73010	Upright Bracket, Left	1
3	73009	Upright Bracket, Right	1
4	8-32x0.5	Pan Head Phillips Screw	8
5	8-32	Lock Washer	8
6	70043	Motor Cover Bracket	2
7	1/4-20x1.5	High Strength Serrated Flange Head Cap Screw	8
8	73003	Side Frame Cover, Right	1
9	73011	End Cap, Right	1
10	3/8	Washer	2
11	3/8-24x2.5	Hex Head Bolt	2
12	73012	End Cap, Left	1

Table 8-9 Base Parts - L7 (Continued)

Item Number	Part Number	Description	QTY
13	73013	Tape, Traction	2
14	1/4-20x0.75	Pan Head Phillips Screw	10
15	73004	Side Frame Cover, Left	1

Figure 8-10. Base Parts - L8

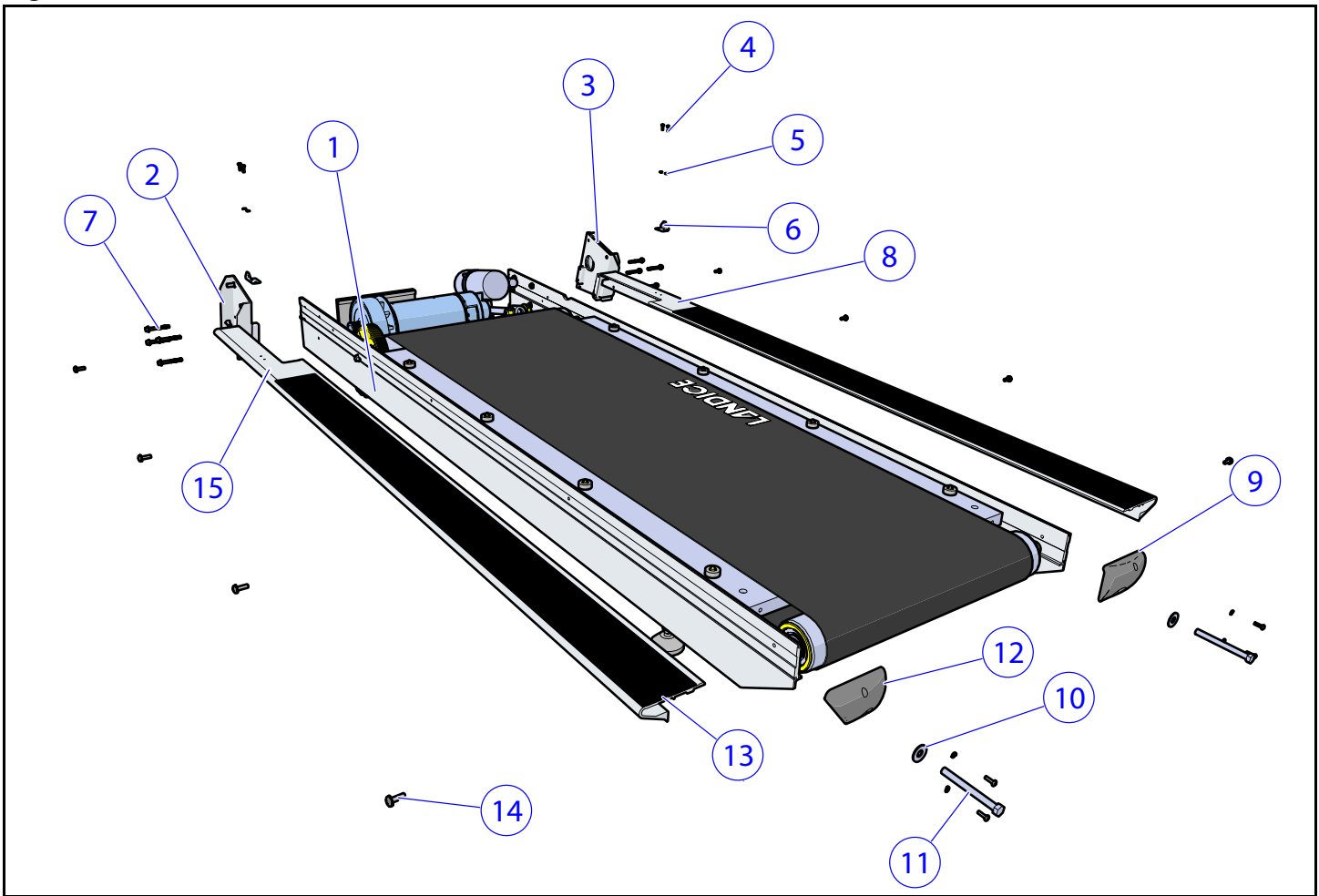


Table 8-10 Base Parts - L8/L9

Item Number	Part Number	Description	QTY
1	70043	Base Assembly (see the subsequent figures for these parts)	NA
2	73010	Upright Bracket, Left	1
3	73009	Upright Bracket, Right	1
4	8-32x0.5	Pan Head Phillips Screw	8
5	8-32	Lock Washer	8
6	70043	Motor Cover Bracket	2
7	1/4-20x1.5	High Strength Serrated Flange Head Cap Screw	8
8	73007	Track, Right	1
9	70508	End Cap, Right	1
10	3/8	Washer	2
11	3/8-24x2.5	Hex Head Bolt	2

Table 8-10 Base Parts - L8/L9 (Continued)

Item Number	Part Number	Description	QTY
12	70509	End Cap, Left	1
13	73293	Traction Strip	2
14	1/4-20x0.75	Pan Head Phillips Screw	10
15	73008	Track, Left	

Figure 8-11. Elevation Motor

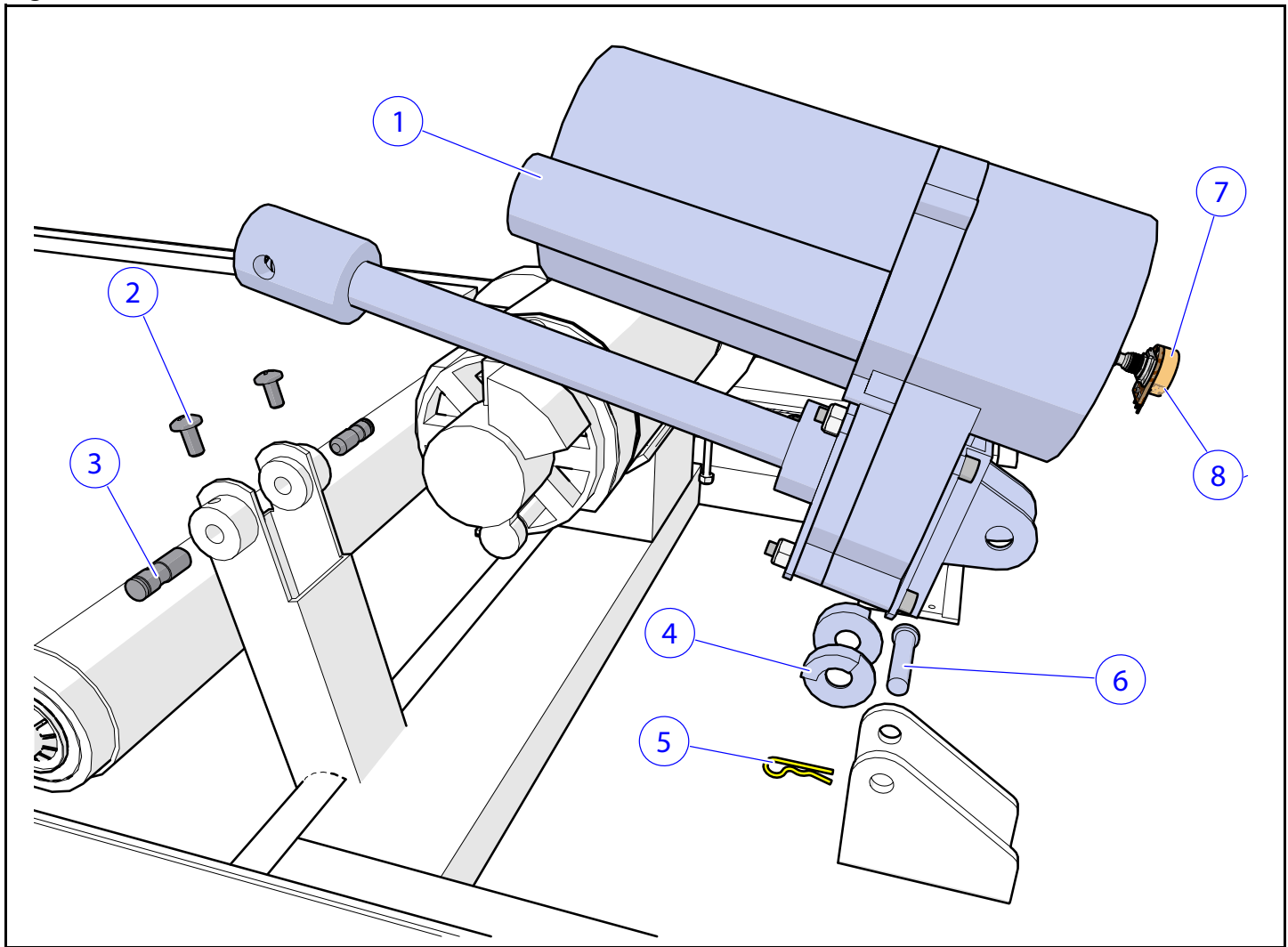


Table 8-11 Elevation Motor Parts

Item Number	Part Number	Description	QTY
1	70088	Elevation Motor, 110VAC	1
1	70126	Elevation Motor, 220VAC	1
2	1/4-20x0.5	Pan Head Phillips Screw	2
3	70032	Locking Pin Lift Screw Collar	2
4	70022	Plastic Bushing Clevis Axle	2
5	70213	Locking Pin	1
6	70063	Clevis Axle Lift Mechanism	1
7	71013	1000Ω Potentiometer	1
8	8-32x1/4HHFSMS	Screws for Potentiometer	2

Figure 8-12. Drive Motor

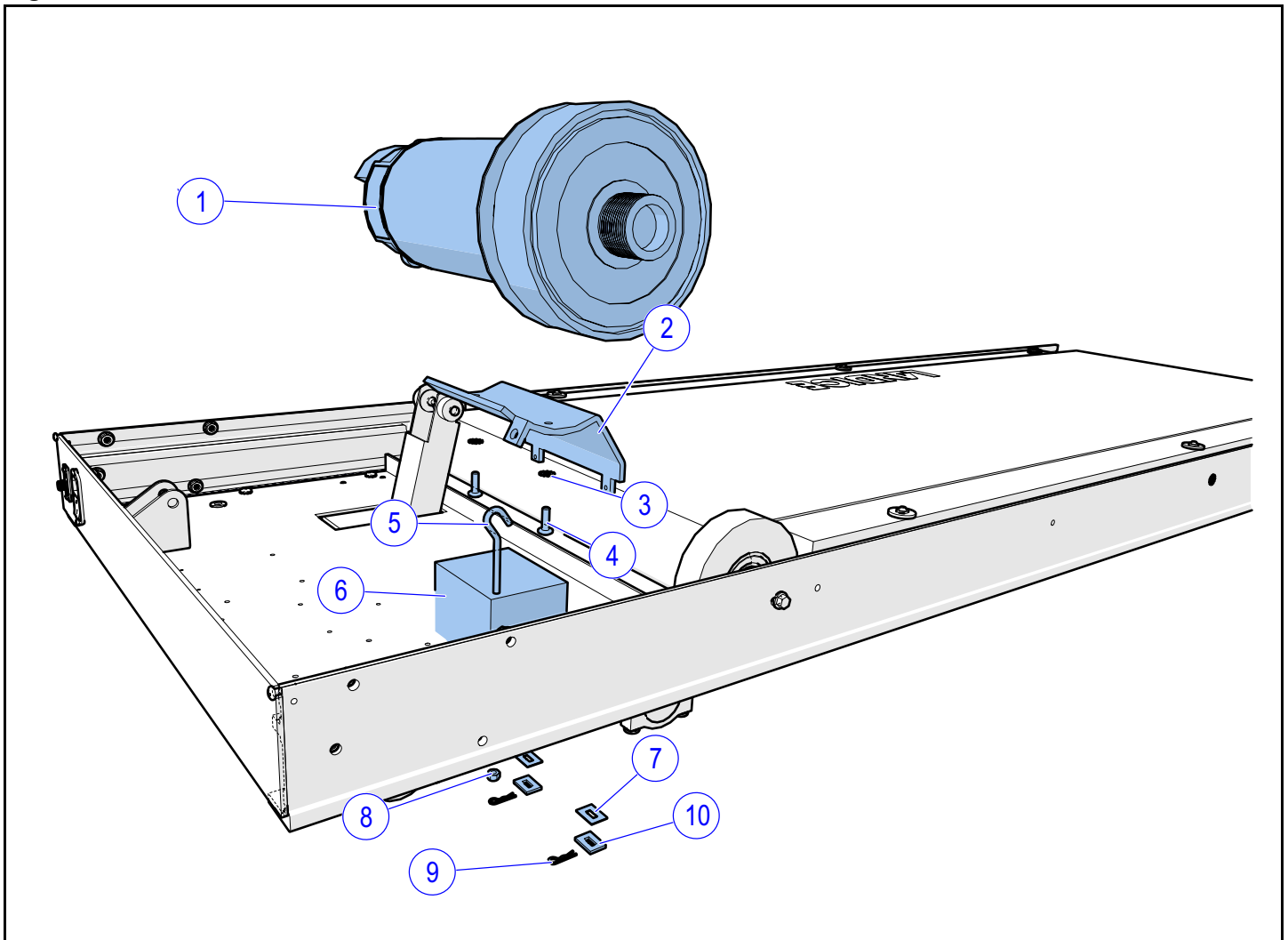


Table 8-12 Drive Motor Parts

Item Number	Part Number	Description	QTY
1	70014	Motor	1
2	70014	Drive Motor Bracket	1
3	1/4	Washer	2
4	1/4-20x0.75	Pan Head Phillips Screw	2
5	1/4-20 Hook Bolt	Hook Bolt	1
6	71013	Motor Foam Support	1
7	70089	Motor Mount Rectangular Washer Elastomer	2
8	1/4-20 Nut	1/4-20 Nut	1
9	70233	Locking Pin	2
10	70089	Motor Mount Rectangular Washer Metal	2

Figure 8-13. Elevator and Feet

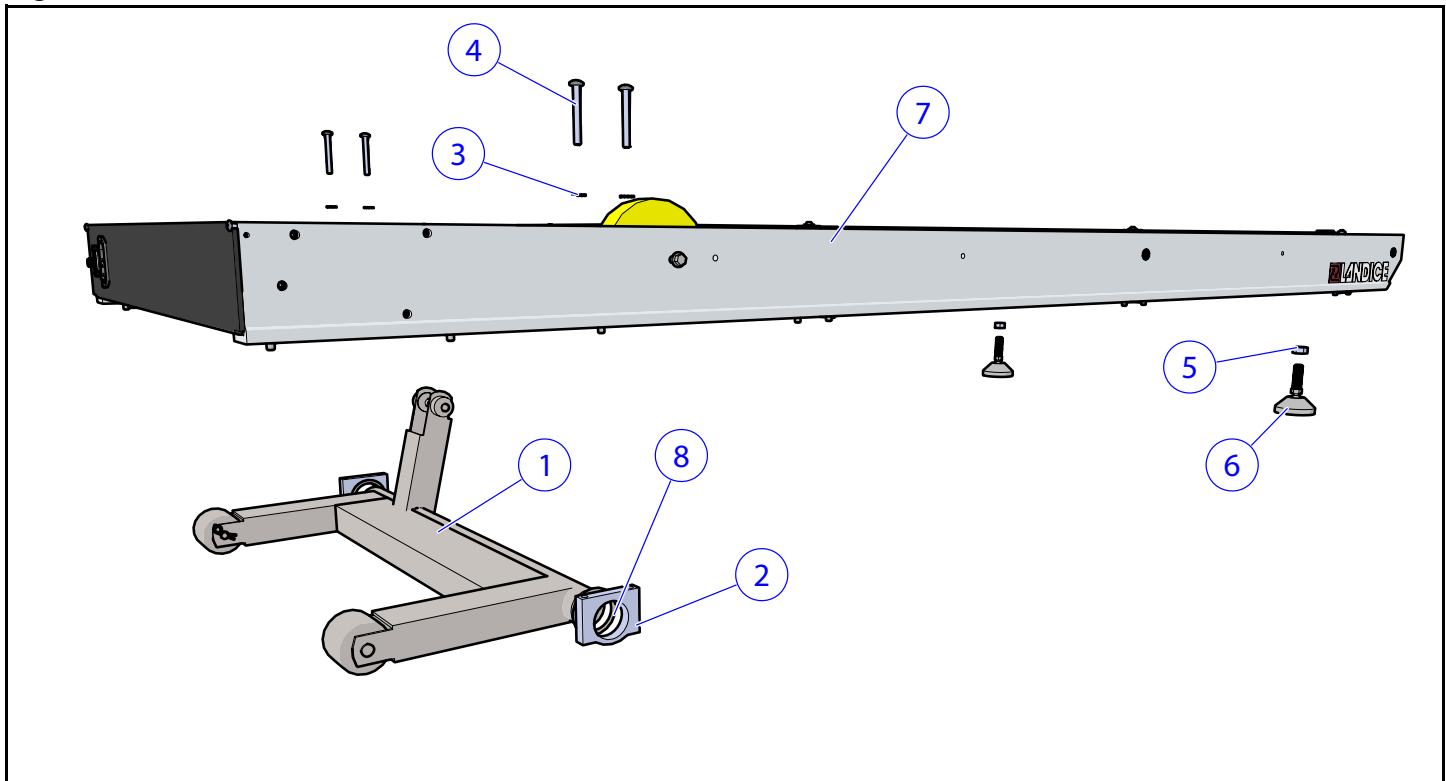


Table 8-13 Elevator and Feet Parts

Item Number	Part Number	Description	QTY
1	70367	Elevation Leg Assembly - L7	1
1	70374	Elevation Leg Assembly - L8, L9	1
2	70373	Bearing block	2
3	1/4-20 Washer	1/4-20 Washer	4
4	1/4-20x2PHPS	1/4-20x2 Pan Head Phillips Screw	4
5	1/2-13 Nut	Leveling Foot Jam Nut	4
6	70865	Leveling Foot	2
7		Base Frame (See "Belt, Deck and Rollers - L7" on page 111. or See "Belt, Deck and Rollers - L8 and L9" on page 112.)	
8	70402	Lift Mechanism Axle Washer	2

Figure 8-14. Belt, Deck and Rollers - L7

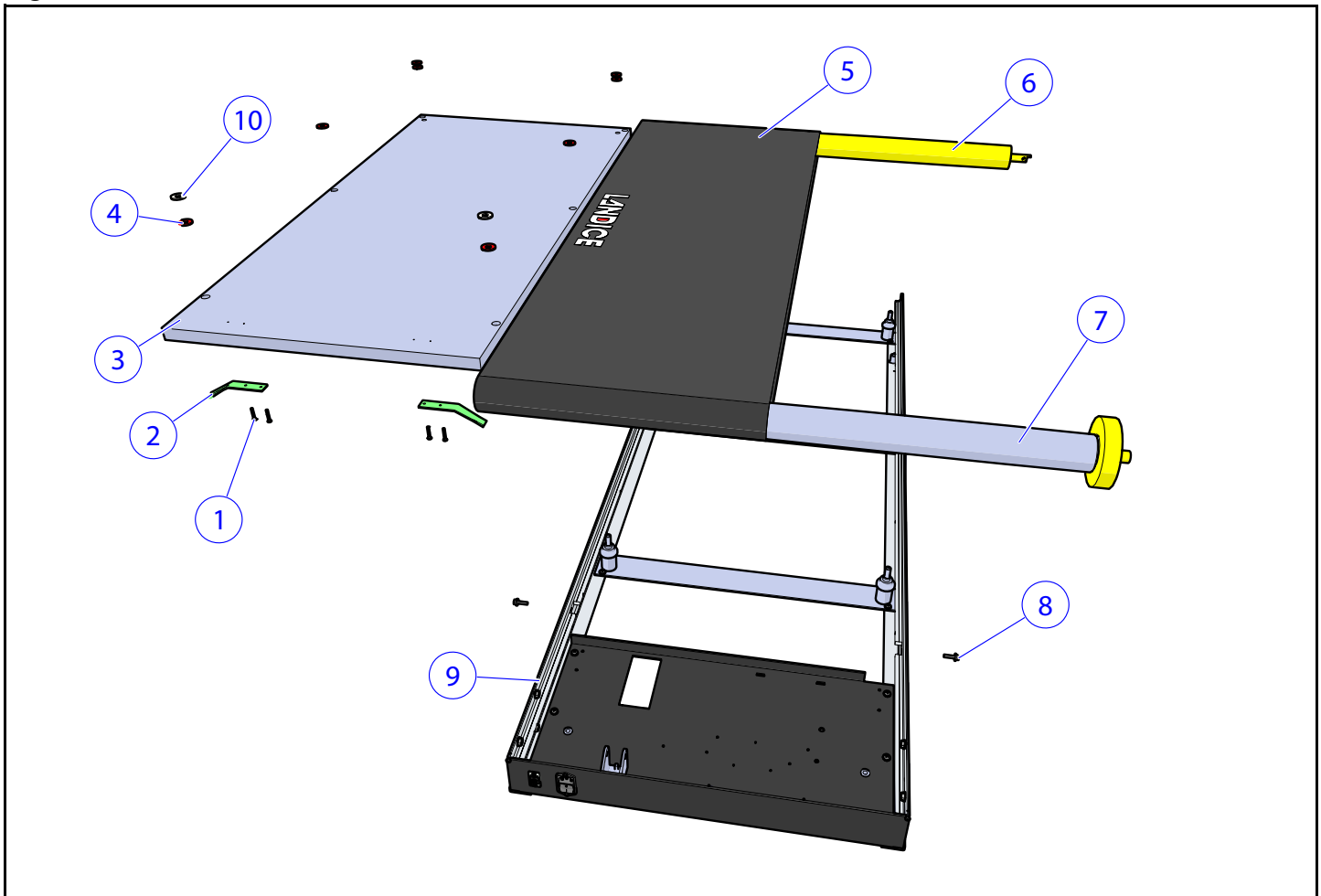


Table 8-14 Belt Drive Parts - L7

Item Number	Part Number	Description	QTY
1	8x1PHWS	No 8x1 Pan Head Wood Screw	4
2	70208	Belt Guide Bracket	2
3	70466	Deck	1
4	70516	Gray Felt Washer	6
5	70468	Treadbelt	1
6	70237	Take Up Roller Assembly	1
7	70236	Drive Roller Assembly	1
8	1/4-20x0.75HHB	1/4-20x0.75 Hex Head bolt	2
9		Frame (See "Base Frame Parts - L7" on page 113.)	1
10	70220	White Felt Washer (L7 only)	2

Figure 8-15. Belt, Deck and Rollers - L8 and L9

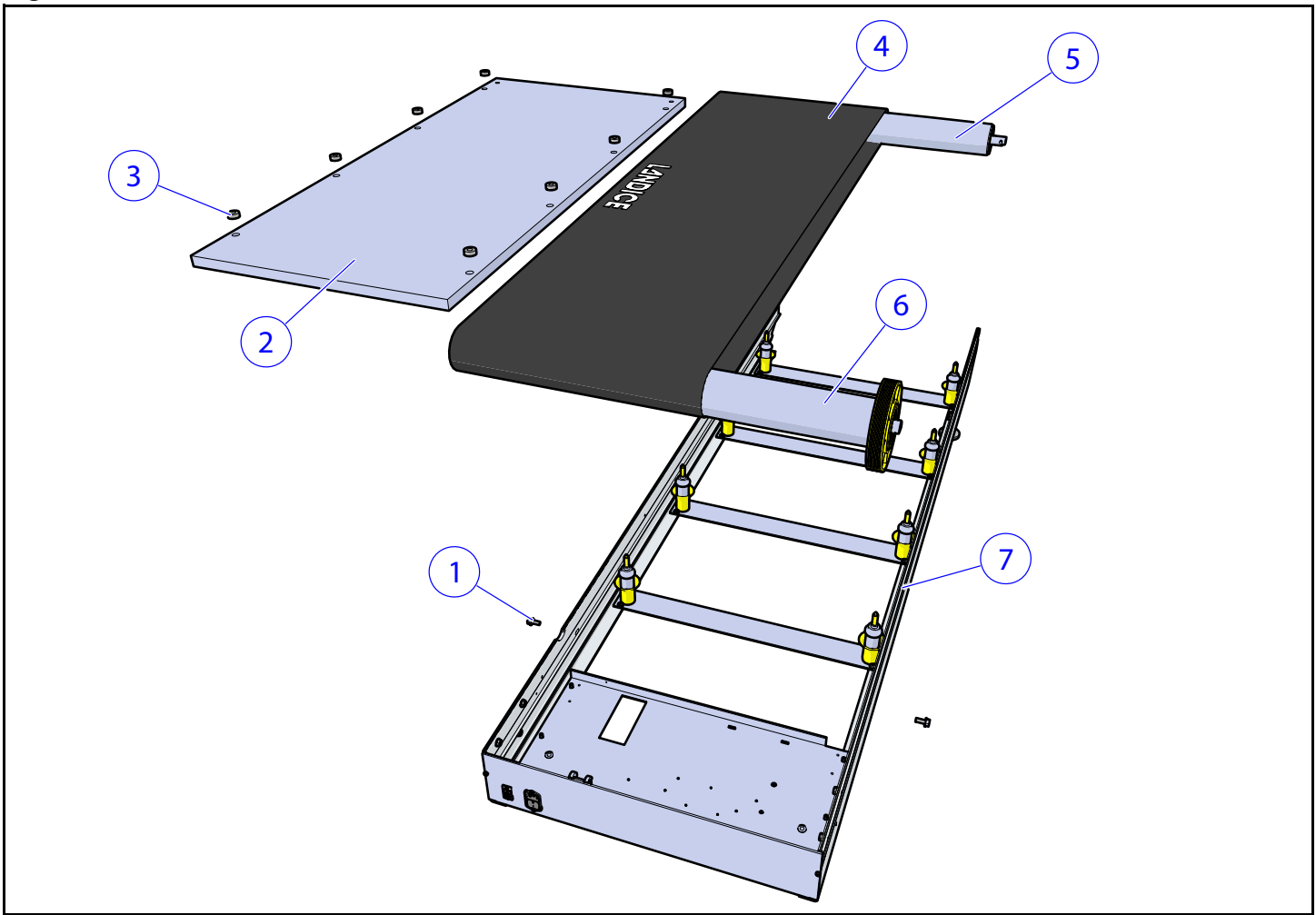


Table 8-15 Belt Drive Parts - L8, L9

Item Number	Part Number	Description	QTY
1	5/16-18x0.75HHB	5/16-18x0.75 Hex Head Bolt	2
2	70296	Deck	1
3	70516	Gray Felt Washer	8
4		Treadbelt	1
5	70505	Take Up Roller Assembly	1
6	70504	Drive Roller Assembly	1
7		Frame (See "Base Frame Parts - L8 and 9" on page 114.)	

Figure 8-16. Base Frame Parts - L7

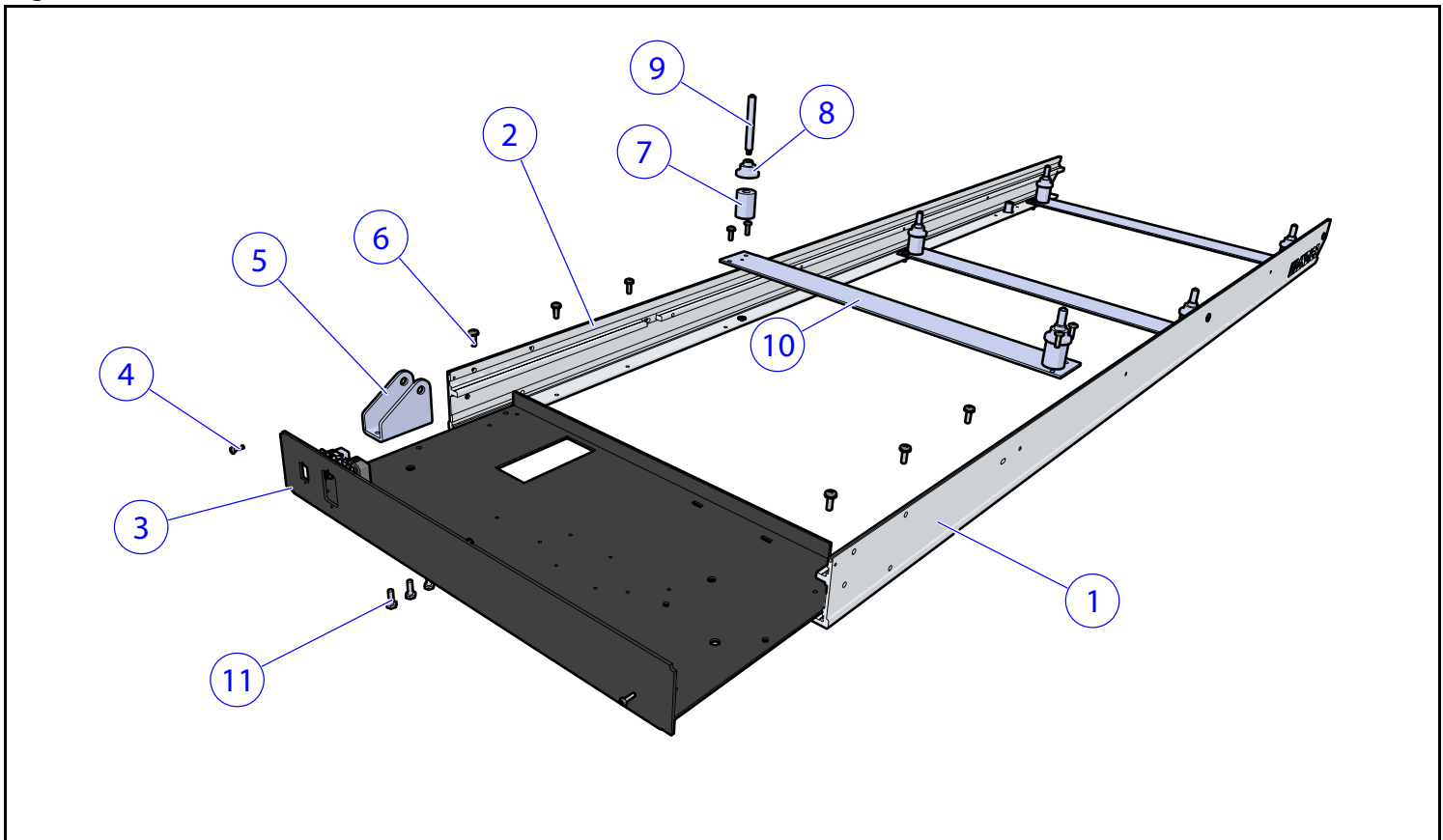


Table 8-16 Base Frame Parts - L7

Item Number	Part Number	Description	QTY
1	73002	Frame Side, Left	1
2	73001	Frame Side, Right	1
3	70242	Motor Pan	1
4	8-32x0.5PHPS	8-32x0.5 Pan Head Phillips Screw	2
5	70049	Elevation Motor Clevis	1
6	1/4-20x0.75PHPS	1/4-20x0.75 Pan Head Phillips Screw	18
7	70221	Impact Absorber Base	6
8	70217	Impact Absorber Top	6
9	70580	Impact Absorber Screw	6
10	70240	Deck Slat	3
11	1/4-20x0.75HHS	1/4-20x0.75 Hex Head Screw	3

Figure 8-17. Base Frame Parts - L8 and 9

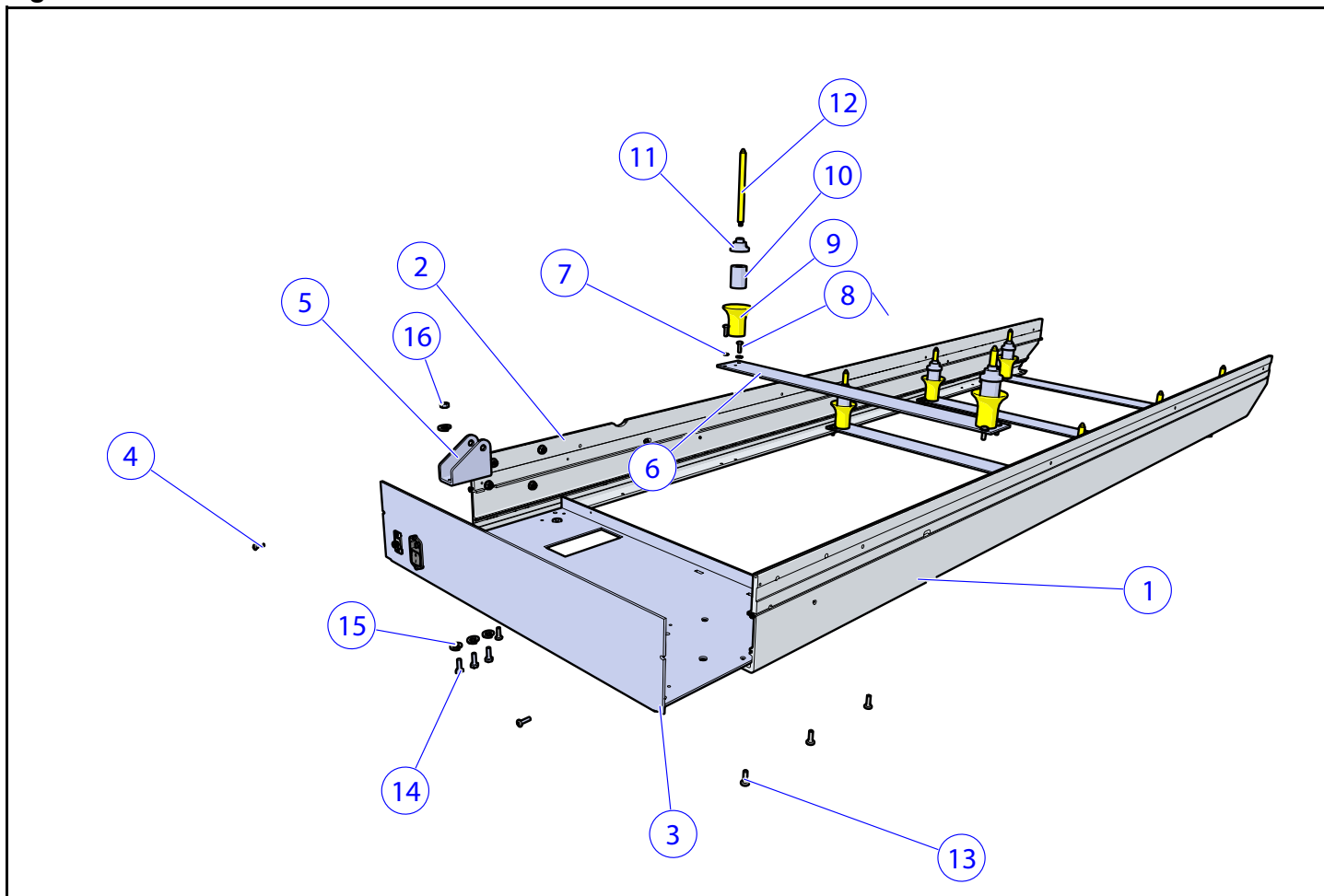


Table 8-17 Base Frame Parts - L8 and 9

Item Number	Part Number	Description	QTY
1	73006	Frame Side Left	1
2	73005	Frame Side Right	1
3	70242	Motor Pan	1
4	8-32xp5PHPS	8-32xp05 Pan Head Phillips Screw	2
5	70049	Elevation Motor Clevis	1
6	70240	Deck Slat	4
7	1/4-20LW	1/4-20 Lock Washer	16
8	1/4-20x0.75PHPS	1/4-20x0.75 Pan Head Phillips Screw	16
9	70506	Deck Spacer Trumpet	8
10	70221	Impact Absorber	8
11	70217	VFX Deck Load Washer	8

Table 8-17 Base Frame Parts - L8 and 9 (Continued)

Item Number	Part Number	Description	QTY
12	70297	VFX Deck Post	8
13	1/4-20 X 0.75	PAN HEAD PHILLIPS SCREW W LOCK WASHER	6
14	1/4_20x3/4_HMMS	Clevis Bolt	3
15	1/4_20_NUT	1/4-20 Clevis Nut	1
16	1/4_LW_EXT	Star Washer	4

DEALER INFORMATION

Service Dealer / Dealer Name		
Address		
City	State	Zip
Phone() -		
Contact		

CUSTOMER INFORMATION

Name		
Address		
City	State	Zip
Phone() -		
Contact		

PRODUCT INFORMATION

Model Type:	Date of Service	
Frame Serial #	Date of Purchase	
DCP Serial # (if applicable)		
Out of box problem	Yes	No
CUSTOMER Description of Issue		

SERVICES PERFORMED/PARTS REPLACED

TRAVEL / LABOR: Travel Time:	Labor Time:	TOTAL TIME:
-------------------------------------	--------------------	--------------------

VALIDATION SIGNATURES

Service Rep. Signature	Customer Signature	Date
-------------------------------	---------------------------	-------------

Please send service claim form with defective part to Landice. Service claim form can be mailed, emailed, faxed or sent with the returned part. Do not submit service claims without service authorization numbers. See next page for contact information.

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Randolph, NJ 07869

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For Technical Help and Warranty Parts, Technical Service: service@landice.com

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