LifeFitness

95/97T, 95/97TWEZ, and Classic Series Treadmills with DSP Motor Controllers

95T-XXXX-05

95T-XXXX-07

95TWEZ-XXXX-0□

95TWEZ-XXXX-07

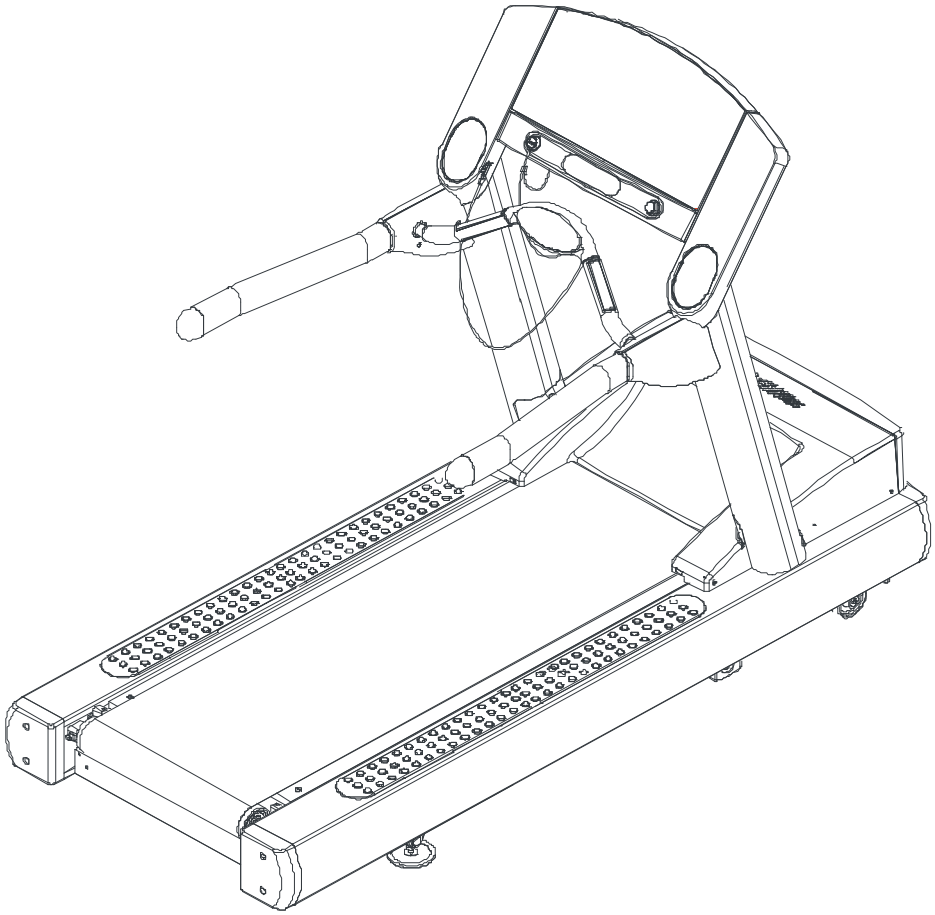
97T-XXXX-05

97T-XXXX-07

97TWEZ-XXXX-0□

97TWEZ-XXXX-07

CLST-XXXX-0□



Customer Support Services
SERVICE MANUAL

TABLE OF CONTENTS

TABLE OF CONTENTS - CONTINUED

TABLE OF CONTENTS - CONTINUED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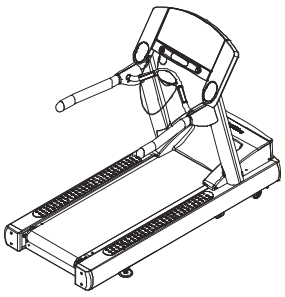

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95/97T and 95/97TWEZ Treadmills with DSP Motor Controllers

INTRODUCTION

USING THIS MANUAL

This service manual provides safe and efficient test and service procedures for the 95/97T ▫ 95/97TWEZ treadmills with DSP motor controllers▫ Illustrations are service views that complement the procedures▫

Throughout the manual, all messages viewed in the display consoles are shown in uppercase letters and ▫uotation marks▫ Any keys depressed on the console appear in uppercase letters▫

This manual is arranged in these sections▫

TABLE OF CONTENTS
INTRODUCTION
TROUBLESHOOTING
DIAGNOSTICS
"HOW TO▫▫▫" SERVICE AND REPAIR GUIDES
ELECTRONICS
PREVENTIVE MAINTENANCE
INDEX

Refer to the table of contents for section subtopics▫

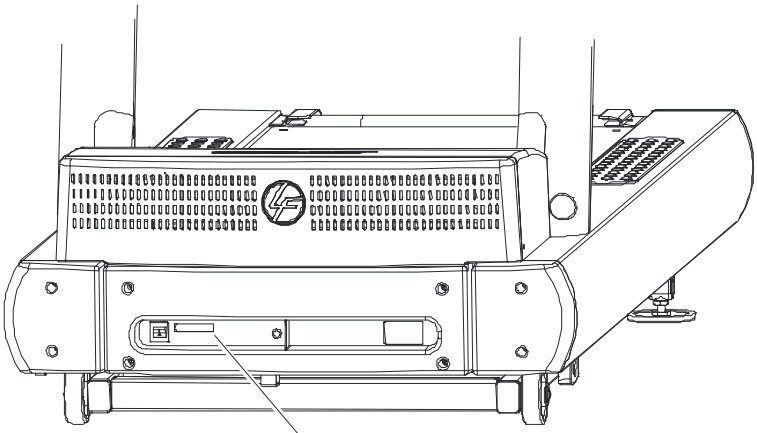
When an operating problem occurs, attempt to isolate the cause by referring to the troubleshooting guides and diagnostic tests▫ Symptoms are listed in these guides with tests and probable causes▫ Once the source of the problem has been identified, refer to the "How To…" guides for repair procedures▫ The "How To…" guides are organi▫ed by replaceable part or assembly name▫ For convenience, each guide lists the tools and estimated time re▫uired to complete the repair▫

Before installing a part, read the entire ▫How To▫▫▫▫ section and follow the step-by-step procedures▫ This will ensure a safe and efficient installation▫

CONTACTING CUSTOMER SUPPORT

To speed Life Fitness Customer Support Service□s response, please be prepared to provide the following information to the phone technician□

- Model number
- Serial number (a □-letter, □-number se□uence)
- Symptom of problem



Location of model
and serial numbers

Phone technicians are available Monday through Friday from □□00 AM to 5□00 PM (Central time)□ Fax numbers are always active□

LIFE FITNESS CUSTOMER SUPPORT SERVICES
5□00 River Road Schiller Park, Illinois □0□7□, U□S□A□
Telephone□ Toll Free (□00) □5□-□7□7 or local (□□7) □5□-00□□
Fax□ Toll Free (□00) □□□-□□9□, local (□□7) □□□-□70□
www□lifefitness□com
www□commercialservices□ lifefitness□com

THEORY OF OPERATION

This treadmill is an electromechanical fitness device that operates on alternating current□

The main components of the treadmill are□

- Frame
- Striding belt and deck
- Display console
- Main motor
- DSP controller
- Lift motor (incline)
- Electronics
- Activity Zone

Initially, AC power is routed through a line filter to various individual boards□ This AC power is then converted to DC power, which is necessary to operate the motor controller and various other electrical and mechanical components□ The operator controls all of the treadmill□s electromechanical components and makes ad□ustments in the unit□s speed and incline through the display console□ Custom workout programs are selected through the console as well□

The frame is critical, not only for supporting the user□s weight, but also for providing a stable base for the moving components□ The striding belt and deck are designed to endure constant mechanical stress loads□ The main motor has a pulley on the end of its shaft, which is connected by a Poly-V drive belt to the front roller pulley□ The striding belt tension is ad□ustable by means of tensioning bolts, which are located at the ends of the rear roller□ When turned, these bolts tension and center the belt□ The striding belt is pre-lubricated, which helps minimi□e wear and flexible, which provides lower impact to the runner□ Under the deck are LifeSprings, which absorb impact while providing support and stability to the runner□

The display console is the control center of the treadmill, where all programming operations and diagnostic functions are controlled□ Selections are easily made with touch keys□ The console allows the user to choose operational settings, specify workout routines, or input information such as weight, age, display language, etc□

GLOSSARY

Term	Definition
Activity □one	The Activity Zone is a remote keypad located on the Ergo bar□
Anti-slip pad	A rubber strip located on the surface of each side of the frame used to avoid slipping while mounting or dismounting the treadmill
Anti-Static Tinsel	A rubber strip of copper that discharges static electricity from the striding belt during operation
Bucket	A software memory area
Connector	A device used to □oin wiring to complete an electrical circuit
Deck	A fibrous particleboard used for the running surface
Display console board	The electronic component used for making direct input settings and monitoring the output messages displayed in the digital readout display
DSP	Digital Signal Processor
EEPROM	Electrically Erasable Programmable Read Only Memory
Electromechanical	Relating to a device or system that is controlled or actuated by electricity
Ergo bar	The crossbar containing the Lifepulse sensors□ Ergo is from ergonomic
Front roller	The motor-driven roller that moves the striding belt
Home switch	The component that senses the □ero-incline position of machine
IEC	The common name for a C□□ plug/C□□ socket combination□ from International Electromechanical Commission (a standard and conformity assessment body)
□umper	An electrical connector used to short circuit two electrical connections
Km/h	Kilometers per hour
LED	Light Emitting Diode
Leveler	One of two ad□ustable supports under the rear of the treadmill which stabili□e the unit by raising or lowering the rear corners
Lifepulse□	The system that measures heart rate through hand sensors
LifeSpring□	Elastic devices used for deck suspension
Lift motor	The components that raise and lower the unit for incline and decline operations

continued...

GLOSSARY - CONTINUED

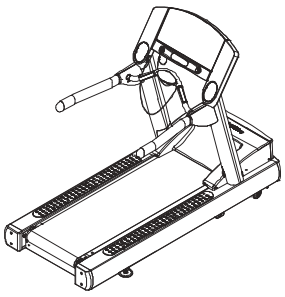
Term	Definition
Main drive belt	The component which transmits power from the striding belt motor to the striding belt
Main wire harness	Device which provides interconnects between the circuit boards
Motor controller	Electronic device which regulates the speed of the striding belt
MPH	Miles Per Hour
PCB	Printed Circuit Board
Polar□ receiver	A radio fre□uency device manufactured by the Polar Corporation which receives signals from a chest strap transmitter in order to monitor a heart rate
PWM	Pulse Width Modulation
Rear roller	The free-spinning, ad□ustable component used to tension and center the striding belt
Rear roller guards	Protective devices located between the striding belt and deck at each end of the rear roller
RPM	Revolutions Per Minute
Single-phase AC	Producing, carrying or powered by a single alternating voltage
Smart Stop	An energy-conservation feature which stops the treadmill when a user steps off the striding belt□ It is not an emergency stop system□
Static current	Steady flow of electricity
Stop switch	The device used to terminate a workout routine
Stride Sensor	The component which detects a users impact on the deck
Striding belt	The moving part of the unit on which a user walks or runs
Telemetry receiver	A device that reads a heart rate signal from a chest strap transmitter
Three-phase AC	Producing, carrying or powered by three e□ual alternating voltages
Wire ties	Plastic straps used to secure wiring

SERVICE TOOLS

Unless otherwise specified, these tools are re□uired to perform the service procedures in this manual□

- Screwdrivers (Phillips and slotted)
- Torx□ bit set
- Pliers (regular and needle nose)
- Rubber mallet
- Snap ring pliers (internal and external)
- Removable thread locking compound
- Socket wrenches (English and metric)
- Combination, open-end, or box wrenches (English and metric)
- Multimeter

Using tools improperly can result in damage to e□uipment or personal in□ury□



LifeFitness

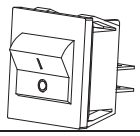
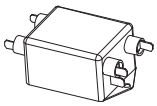
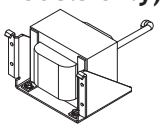
95/97T and 95/97TWEZ Treadmills with DSP Motor Controllers

TROUBLESHOOTING

NO POWER TO TREADMILL □ AC POWER DISTRIBUTION TESTING

Tool re□uired□multimeter

To diagnose a no power condition, the motor cover must be removed (see page □5) Follow this procedure□

Step	Inspect	Action	Results
□	Line Voltage□	Unplug the unit from the wall outlet and measure the line voltage at the outlet	If line voltage is present, plug the line cord into the wall outlet□
			If no voltage is present, check the house fuse or circuit breaker□ Replace or reset as necessary□
□	Power Switch 	Turn the power switch on and check for line voltage at TP□ (see fig□ □ and □ on next page)	If no line voltage is present, replace the power switch and the line cord□
□	Line Filter 	Turn the power switch on and check for line voltage at TP□ (see fig□ □ and □ on next page)	If no line voltage is present, replace the line filter□
□	Motor Controller Power Feed	Turn the power switch on and check for line voltage at TP□ (see fig□ □ and □ on next page)	If no line voltage is present, check the wiring between the motor controller and the power transformer (high voltage unit) and/ or the line filter□ Repair or replace as necessary□
5	Power Transformer (□□0v or higher models only) 	Turn the power switch on and check for line voltage (□□0VAC) at TP□ (see fig□ □ and □ on next page)	If no line voltage (□□0VAC) is present, check the wiring from the line filter to the power transformer□ Repair or replace as necessary□
		Turn the power switch on and check for line voltage (□□0VAC) between Pin□ and Pin□ on the power transformer	If no line voltage (□□0VAC) is present, replace the transformer□

NO POWER TO TREADMILL □ AC POWER DISTRIBUTION TESTING

□□0V

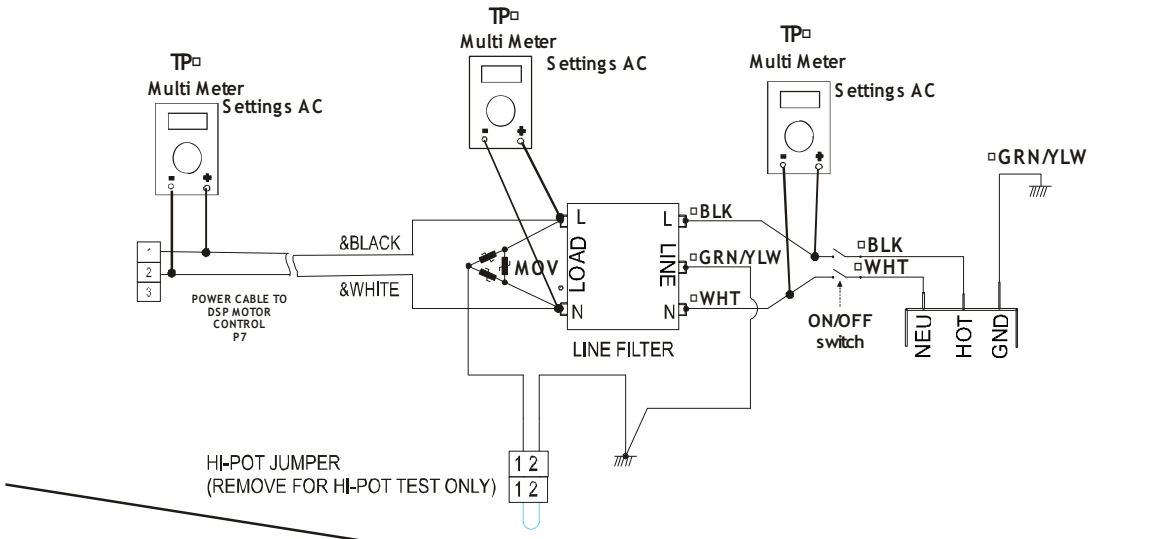


Figure □

□00-□□0V

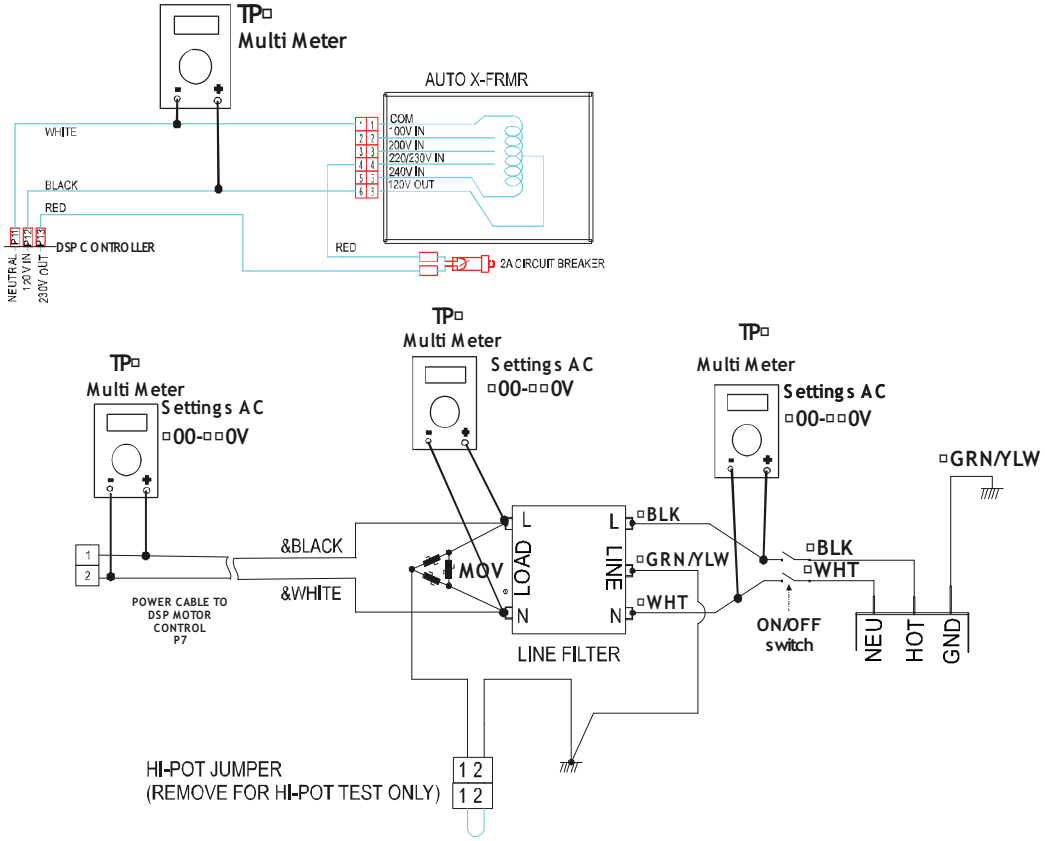


Figure □

NO POWER TO CONSOLE

Tool Re□uired□multimeter

To troubleshoot a no-power condition at the treadmill console□

□□ **Turn the power switch off□**
□□ **Remove the console (see page □□0 to gain access to the main wiring harness (P□)□**
□□ **Turn the power switch on□**
□□ **Attach the negative (black) lead of the meter to Pin □ (yellow) or Pin □ (orange) to obtain a ground reference□**
5□ **Attach the positive (red) lead of the meter and probe the corresponding harness wire (see below) to verify that the proper voltage is present□**

Expected Voltage	Pin Number	Possible Failure	Solution
□□VDC	□	Short circuit on console board	If voltage is present and the console is not lit, replace the console board□ Verify that LEDs □, □ and □ are lit on the DSP controller□ If not, replace the DSP controller□
□□VDC	□	Short circuit on console board	If voltage is present and the console is not lit, replace the console board□ Verify that LEDs □, □ and □ are lit on the DSP controller□ If not, replace the DSP controller□

TROUBLESHOOTING GUIDE

Tool required: multimeter

Symptom	Probable Cause	Corrective Action
"Immobilized" message	"Immobilized" safety feature is activated	Press and hold the SPEED DOWN key then press the PAUSE key to toggle the feature on and off.
Maximum speed is reduced	Worn deck/striding belt	Perform the belt and deck test (see page 35). Replace the belt and the flip deck if necessary.
	Insufficient power source	Connect the treadmill to a correct power source. See operation manual for power requirements.
	Main motor binding	Check the main motor shaft for binding or roughness. Replace the main motor if necessary.
	Front or rear roller binding	Check the rollers for binding or roughness. Replace the rollers as necessary.
Knocking noise	Faulty front or rear roller bearings	Check rollers for binding or roughness. Replace rollers as necessary.
	LifeSprings not positioned correctly and/or loose mounting hardware	Reposition or tighten the LifeSpring hardware.
	Treadmill not level	Level the treadmill

TROUBLESHOOTING GUIDE

Symptom	Probable Cause	Corrective Action
Knocking noise	Faulty front or rear roller bearings	Check rollers for binding or roughness□ Replace rollers as necessary□
Rubbing sound from under the treadmill	Foreign ob□ects under machine	Inspect and remove any debris or ob□ects causing interference□
	Incorrect anti-static tinsel positioning	Reposition tinsel for light contact with the striding belt□
	Striding belt is not between the belt guide	Reposition the striding belt between the belt guides□
S□ueaking noise while belt moves	Worn or damaged main drive belt	Inspect the main drive belt□ Replace the belt as necessary□
	Motor pulley to roller pulley misalignment	Align the pulley
Grinding noise during incline	Faulty lift motor	Replace the lift motor□
	Obstruction in lift mechanism	Inspect the mechanism for interference□
Grinding noise on footfall	Excessive friction between deck and striding belt	Perform the belt and deck test (see page □5)□ Replace the belt if necessary□
Unresponsive display	Faulty ribbon cable connection	Perform the keypad test□ Verify that the two ribbon connections are attached properly to the display board□ Reseat the ribbon cable□
	Worn or marred overlay assembly	Replace the overlay assembly□
Unresponsive activity □one	Feature was not turned on	Enable activity □one (SB No□ TR0□0□090□N)
	Faulty or disconnected ribbon cable connection	Enter diagnostics and perform activity □one keypad test□ Verify that the ribbon connections are attached properly to the display board□ Reseat the ribbon cable connections□
	Worn or marred activity □one assembly	Replace the Activity Zone assembly□
Striding belt does not stop after two minutes	Feature was not turned on□ this feature is available on 95/97T-07 versions only	Enable the Stride Sensor□

TROUBLESHOOTING GUIDE

Symptom	Probable Cause	Corrective Action
User Not Detected On Belt	Stride Sensor is not set correctly	Enable the Stride Sensor (see Diagnostics or SB No TR0 0 00 N)
	Worn or damaged Stride Sensor assembly	Replace the Stride Sensor assembly (see page 07)
Unit pauses or randomly resets or system initialization	Intermittent power source	The treadmill is connected to a power source See operation manual for power requirements
	Damaged ground terminal on line cord	Replace the line cord
	Line cord improperly seated in electrical outlet	Inspect power connection at the electrical outlet and at the machine for proper contact
	Loose connections at display console	Secure all connections at the display console board
	Stop switch is false triggering	Replace the stop switch
	Damaged or shorted main wiring harness	Replace the main wiring harness
	Anti-static brush not making contact with drive belt	Check contact of the anti-static brush and adjust if necessary
Workout summary in the middle of a workout	Loose connections at display console	Secure all connections at the display console board
	Stop switch is false triggering	Replace the stop switch
Striding belt slips	Striding belt tension incorrect	Check the striding belt tension Adjust if necessary See How to Tension the Striding Belt on page 9
Striding belt traveling beyond tracking limits	Striding belt needs to be tensioned or tracking needs adjustment	Tension striding belt Adjust the striding belt tracking (see page 9)
	Worn striding belt	Perform the belt and deck test (page 5) Replace the belt if necessary
	Unit is not level	Refer to the operation manual for the leveling procedure
Striding belt not centered	Striding belt requires adjustment	Tension the striding belt (page 9) Adjust the striding belt tracking (page 9)
Lift motor will incline only	DSP controller not receiving proper incline positioning information	Check connections to the DSP controller Check operation of the home switch

TROUBLESHOOTING GUIDE

Symptom	Probable Cause	Corrective Action
"LIFT MOTOR INOPERATIVE" or "INCLINE INOPERATIVE-CONTINUE IF DESIRED" message	Incorrect lift motor ad□ustment	Ad□ust the lift motor□
	Defective lift motor	Cycle motor using Incline Automatic (see page □□) and verify that □□0VAC is present between pins □ and □ on P7 of the wax/lift board□ Replace the lift motor if the voltage is incorrect□
		Disconnect the lift motor and make resistance checks□ Verify approximately □0 ohms from the black to the red wire□ Verify approximately □5 ohms from the white to the red wire□ Verify approximately □5 ohms from the white to the black wire□ Replace lift motor if necessary□
"NOTIFY MAINTENANCE LIFT TIMEOUT ERROR" or "LIFT TIME" message	Faulty lift motor	Cycle the motor using Incline Automatic (see page □□) and verify the □□0VAC is present between pins □ and □ on P□ on the DSP board□ Replace the lift motor if necessary□
	Faulty home switch or associated wiring	Cycle motor using Incline Automatic (see page □□) to verify proper operation□
		Verify the wiring for continuity□ Repair or replace the wiring as necessary□
"MC in BOOT MODE" message	DSP controller not successfully updated	Update the software again□ Replace the DSP controller□
"SYSTEM CONFIGURED TWO WIRED" message	Motor controller □umper not properly configured	Reseat the □umper at □W□ on both pins□
"SINGLE WIRE COMM" message	Motor controller □umper not properly configured	Reseat □umper at □W□ on both pins□
"MOTOR DISABLE" or "MC-DISABLE" message	The controller unexpectedly disabled the motor	Replace the DSP controller□
"SCI ERROR" message	Faulty wire harness connection	Reseat all connections on the display console and DSP controller□

TROUBLESHOOTING GUIDE

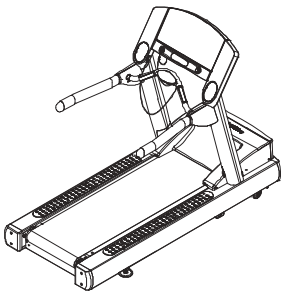
Symptom	Probable Cause	Corrective Action
"DYNAMIC CURRENT TRIP" message	Excessively worn striding belt or deck	Perform the belt and deck test (page □5)□
	Insufficient power source	Connect the treadmill to a correct power source□ See the operation manual for power re□uirements□
"CHECKSUM ERROR XXXX" message	Faulty display console PCB	Replace the console PCB□
"MOTOR CONTROLLER COMM BAD□ CHECK POWER TO MOTOR CONTROLLER" message	Faulty motor controller	Verify the line voltage at P□ on the motor controller□ If voltage exists, replace motor controller□
"NOTIFY MAINTENANCE MOTOR CONTROLLER COMM BAD ERROR" message	Faulty motor controller	Replace the motor controller□
		Perform a belt and deck test (page □5) to ensure that excessive belt friction did not contribute to motor controller failure□ Replace the belt if necessary□
"UNABLE TO OBTAIN TARGET SPEED" message	Insufficient power source	Perform a belt and deck test (page □5) to ensure that excessive belt friction did not contribute to motor controller failure□ Replace the belt if necessary□
	Striding belt or deck may have excessive wear	Perform a belt and deck test□ (see page □5) Replace the belt if necessary□
	Faulty motor controller	Replace the motor controller□
"EXTERNAL ROM FAILURE" message	Faulty console PCB	Replace the console PCB□
"INCLINE TIMEOUT ERROR" message	Faulty □home□ switch or associated wiring	Cycle the motor using Incline Manual (page □□) to verify proper operation□
		Verify wiring continuity□ Repair or replace wiring as necessary□
"NOTIFY MAINTENANCE "LOW LINE VOLTAGE ERROR" or "LOW-V ERR" message	The line voltage in the treadmill is too low to support the system	Verify wiring continuity□ Repair or replace wiring as necessary□
		Replace the DSP controller if necessary□

TROUBLESHOOTING GUIDE

Symptom	Probable Cause	Corrective Action
"NOTIFY MAINTENANCE OVERLOAD TRIP" or "MAX AMP" or "NOTIFY MAINTENANCE HARDWARE AMP ERROR"	Faulty main motor	Replace the main motor□
	Worn belt and deck	Perform a belt and deck test□ (page □5) Replace the belt if necessary□
	Electrical overstress caused by power surges, electrical storms, or polarity reversal	Connect the treadmill to a power source□ See the operation manual for power re□uirements□
Static current trip Max temperature trip	Faulty main motor or worn belt and deck	Replace the main motor□
		Perform a belt and deck test□ (page □5) Replace the belt if necessary□
Abnormally high Lifepulse readings	Electromagnetic interference from electronic devices such as cell phones, televisions or computers in close proximity	Increase the distance between the interfering source and the treadmill□
Lifepulse system displays incorrect reading or does not respond	Dirty Lifepulse sensors	Wipe the sensors with a clean soft cloth□ Verify proper operation with the Lifepulse test (page □□)□
	Pace over □□5 mph (7□5 Km/h) while attempting to read heart rate	Slow the pace to less than □□5 MPH (7□5km/h)□
	User may have an unusual heart condition/signal	Have different people grasp the sensors to detect any unusual variance□
	Loose connection at display console or Ergo bar	Secure the connections at display console and Ergo bar□
	Faulty Lifepulse sensors	Replace the Lifepulse sensors□
	Faulty display console board	Conduct the Lifepulse test (page □□)□ Replace display console board if necessary□
Console displays reading with no heart rate signal present	Wiring harness pinched at handlebar or handrail	Repair or replace wiring the harness□
	Electromagnetic interference from another telemetry device	Increase the distance between the interfering source and the treadmill□
	Electromagnetic interference from electronic devices such as cell phones, televisions or computers in close proximity	

TROUBLESHOOTING GUIDE

Symptom	Probable Cause	Corrective Action
No chest strap detected	Telemetry turned off	Enter Manager□s Configuration (see page □□) and turn on the telemetry feature□
	Chest strap sensors not making good contact with body	Tighten the chest strap and moisten sensors to make better contact with skin□
	Exceeding usable monitoring range	Move to within □ feet (□ meter) of the receiver□
	Faulty connection at receiver	Check the connection on the receiver□ Replace the receiver if necessary□
	Faulty chest strap	Replace the chest strap□
	Faulty receiver	Verify □5VDC at connector P□ if console PCB on Pin □ with respect to ground□ If voltage is present, replace the receiver□ If not, replace the display console board□



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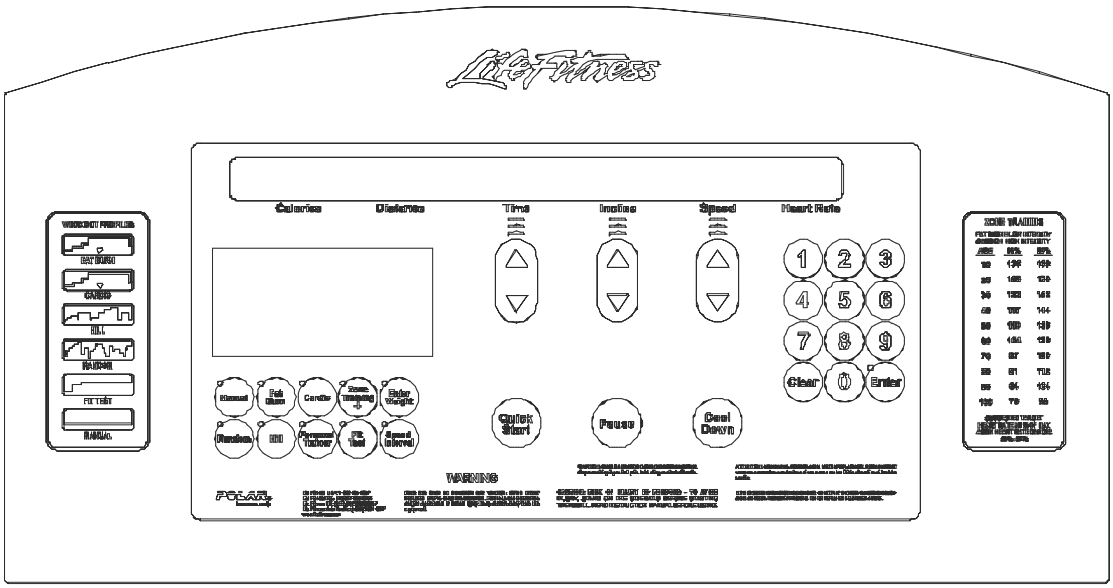
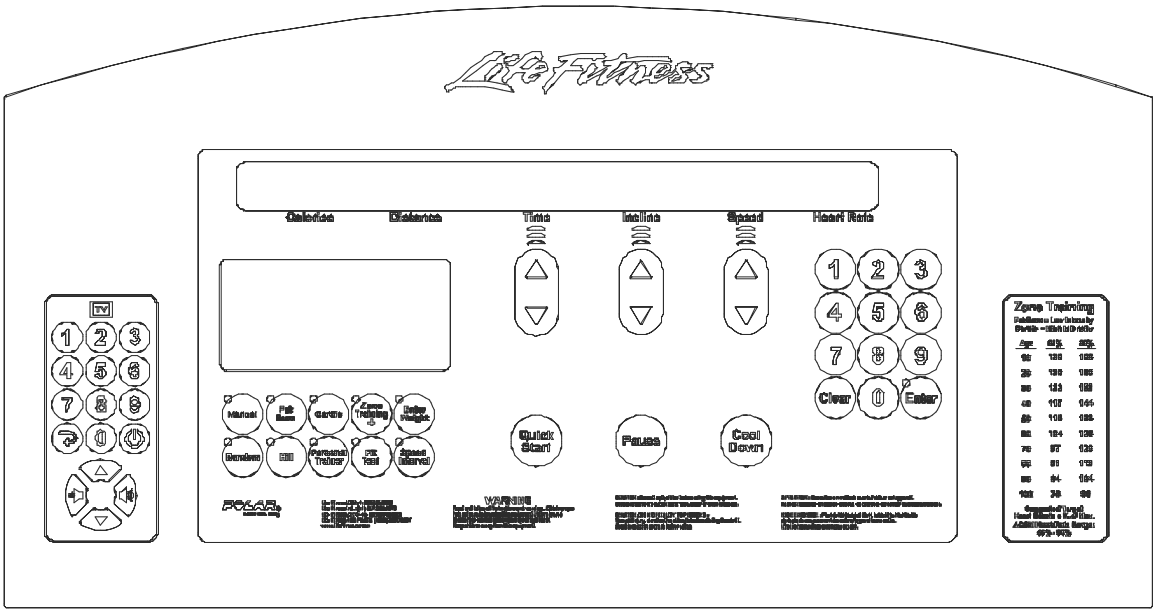
95/97T and 95/97TWEZ Treadmills with DSP Motor Controllers

95T-05, 97T-05 DIAGNOSTICS

95TI/95TWEZ CONSOLES

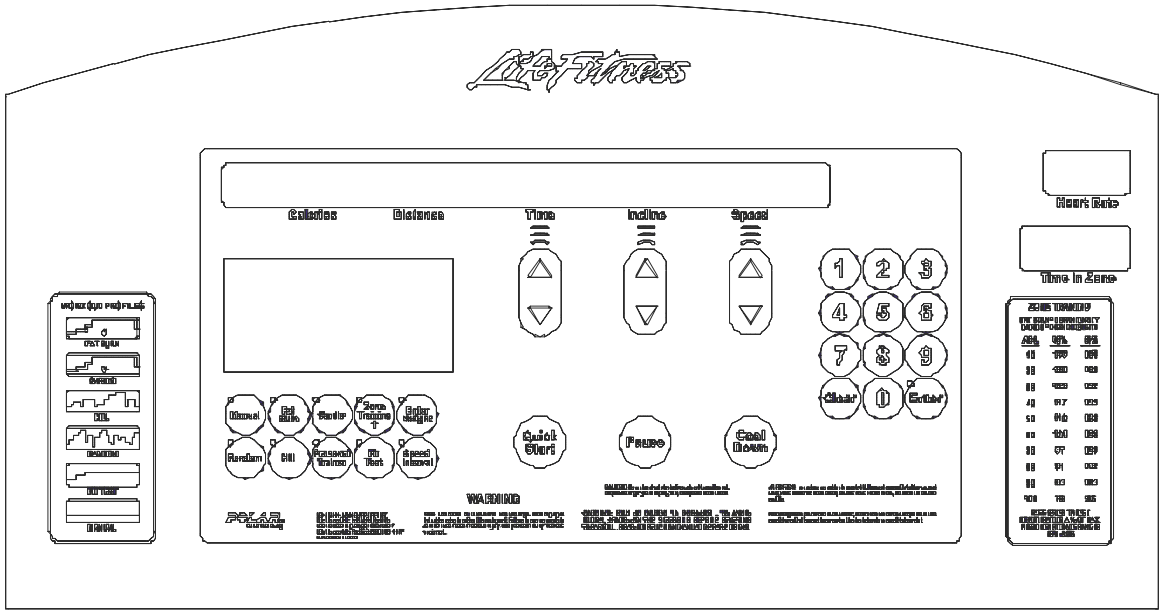


95Ti Console

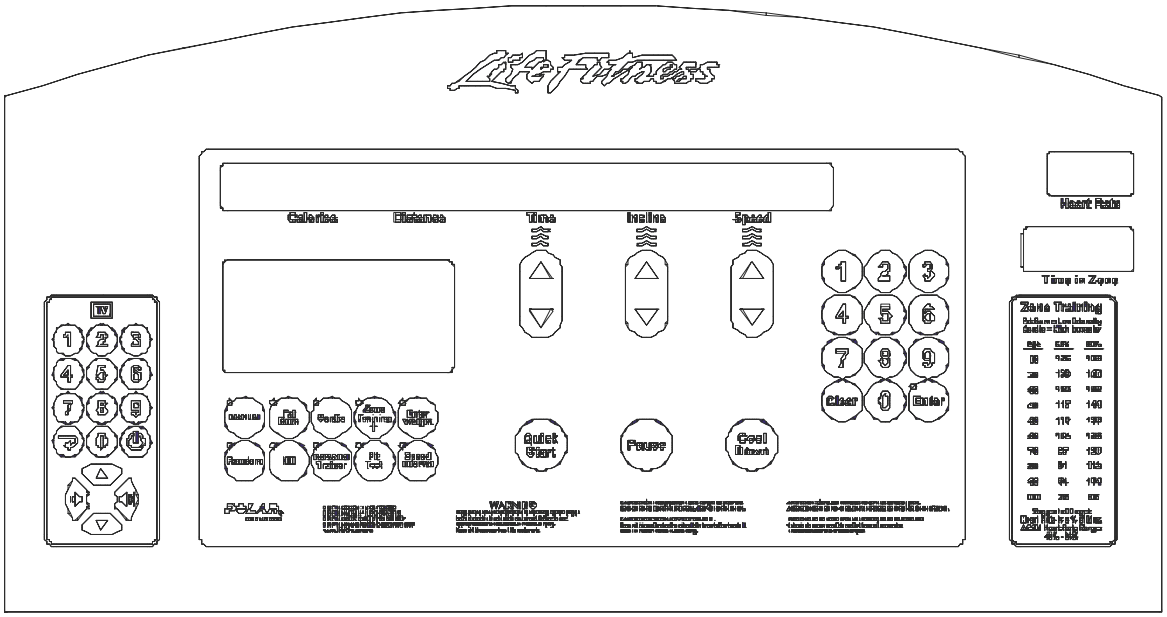


95TWEZ Console

97TI/97TWEZ CONSOLES

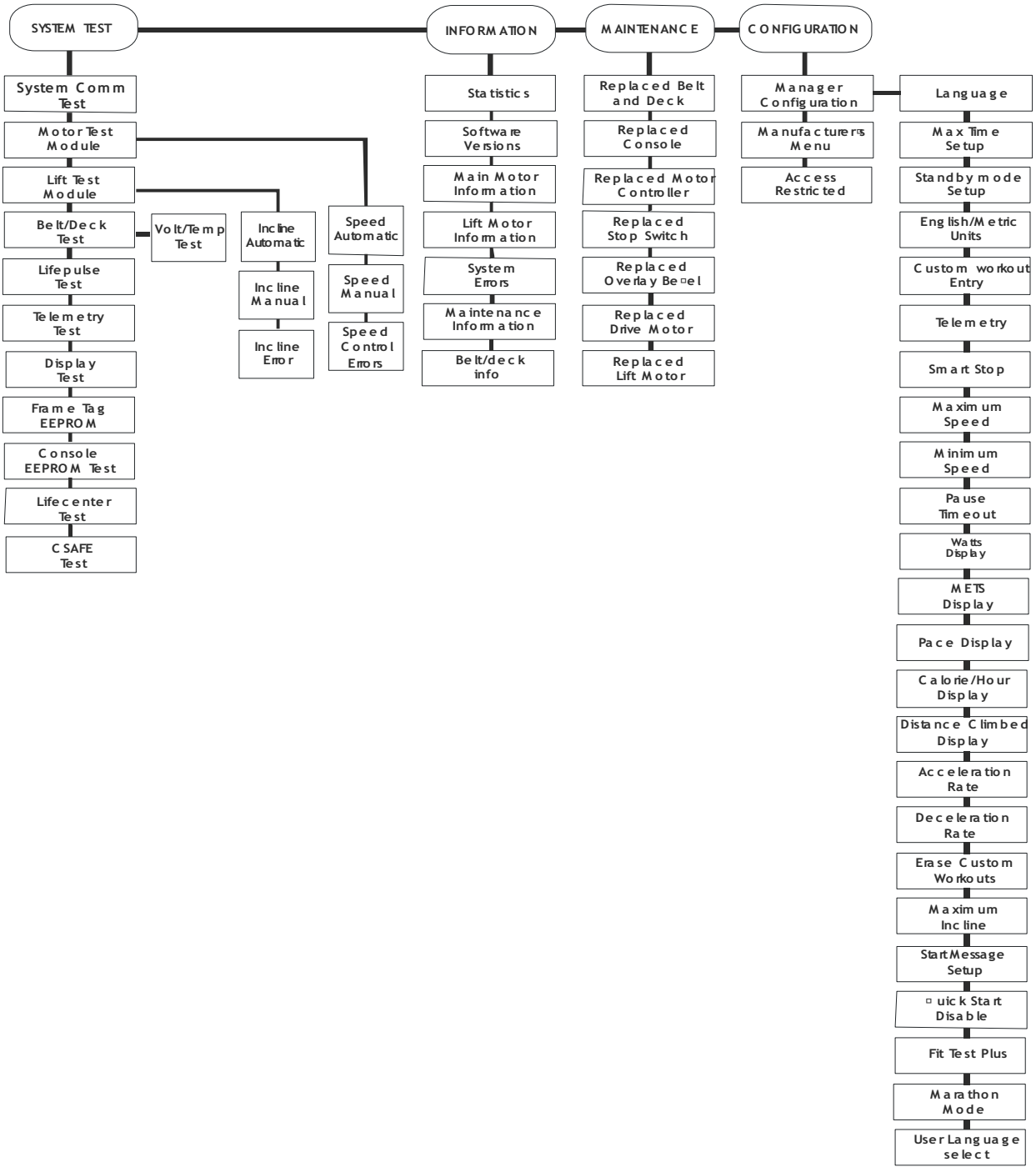


97Ti Console



97TWEZ Console

DIAGNOSTIC MAP

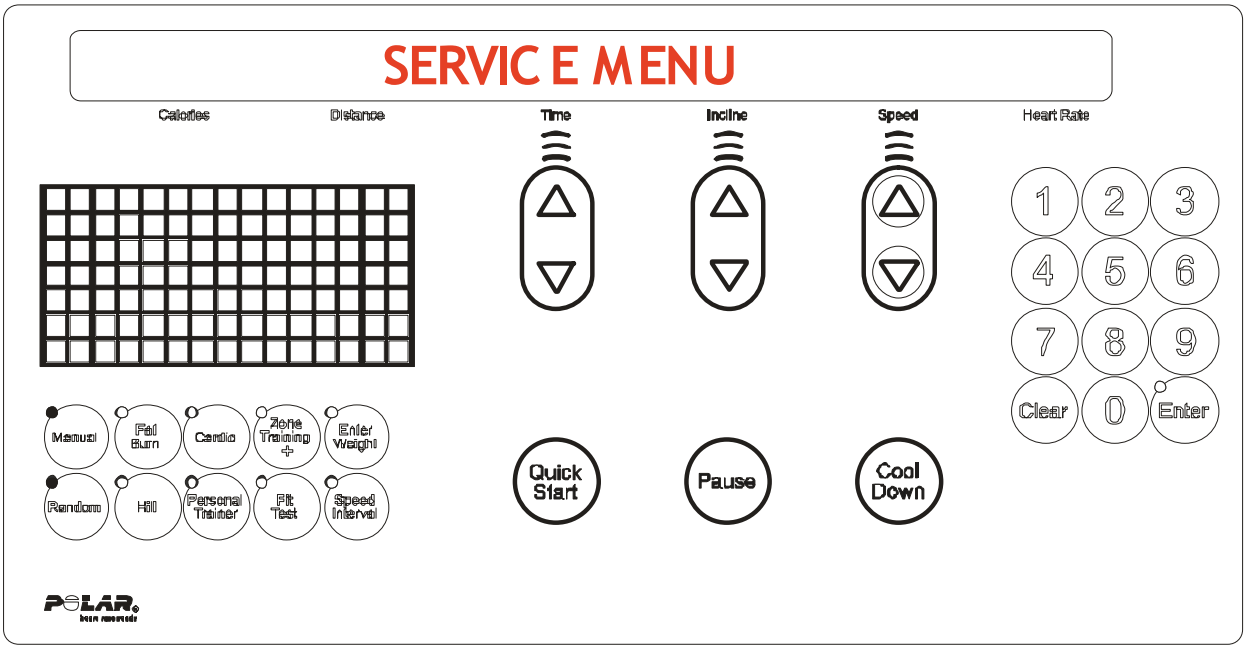


DIAGNOSTIC ENTRY

Diagnostics may be entered in three ways□

□□ Hold down the PAUSE key and press STOP□
□□ Hold down the PAUSE key and press CLEAR Key twice□
□□ Hold down the PAUSE key when power is applied□

Continue holding the PAUSE key until “SERVICE MENU” appears□



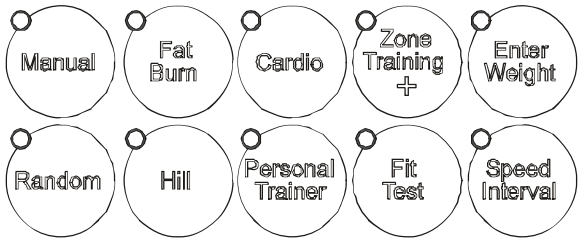
This will take about □ seconds and will be followed by “USE ARROW KEY TO SCROLL THROUGH LIST”

Using any of the arrow keys will allow the user to scroll through the four main categories□

System Test
Information
Maintenance
Configuration

□UICK KEY REFERENCE

Once Diagnostics has been entered, diagnostic selections can be made by pressing combinations of program keys as shown in the table below□



DIAGNOSTIC TESTS AND PROGRAM KEY COMBINATIONS											
	DIAGNOSTIC TEST	MANUAL	FAT BURN	CARDIO	RANDOM	HILL	CUSTOM/ PERSONAL TRAINER	FIT TEST	ZONE TRAINING	SPEED INTERVAL	ENTER WEIGHT
SYSTEM TESTS	COMM TEST				ON			ON			
	SPEED AUTO				ON						
	SPEED MANUAL	ON			ON						
	SPEED ERROR				ON		ON				
	INCLINE AUTO					ON					
	INCLINE MANUAL	ON				ON					
	INCLINE ERROR					ON	ON				
	BELT/DECK TEST						ON				
	LIFEPULSE TEST		ON								
	TELEMETRY TEST			ON							
	SMART STOP TEST		ON			ON					
	DISPLAY TEST	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON
	FRAME TAG EEPROM TEST				ON			ON			
	CONSOLE EEPROM TEST		ON					ON			
	LIFECENTER TEST		ON				ON				
	CSAFE TEST			ON			ON				
INFORMATION	MAIN MOTOR INFO			ON	ON						
	INCLINE MOTOR INFO			ON		ON					
	STATISTICS		ON	ON							
	SOFTWARE VERSION		ON		ON						
	MAINTENANCE INFO	ON		ON							
	SYSTEM ERROR	ON	ON								
	MAINTENANCE MENU	ON									

Note□blank fields are considered 'off□'

SYSTEM COMMUNICATION TEST

Upon entry into this category, a System Communication (COMM) test will be performed automatically. This test will attempt to communicate with all of the treadmill's modules. If a module does not respond to the console processor, one of these three error messages will be displayed.

- If all the modules communicate, the message will be "SYSTEM COMM OK."
- If the motor controller module does not communicate, the initial message will display "MOTOR CONTROLLER COMM BAD".
- If the motor controller has no power, the message will be "CHECK POWER TO MOTOR CONTROLLER."

SYSTEM TEST MENU

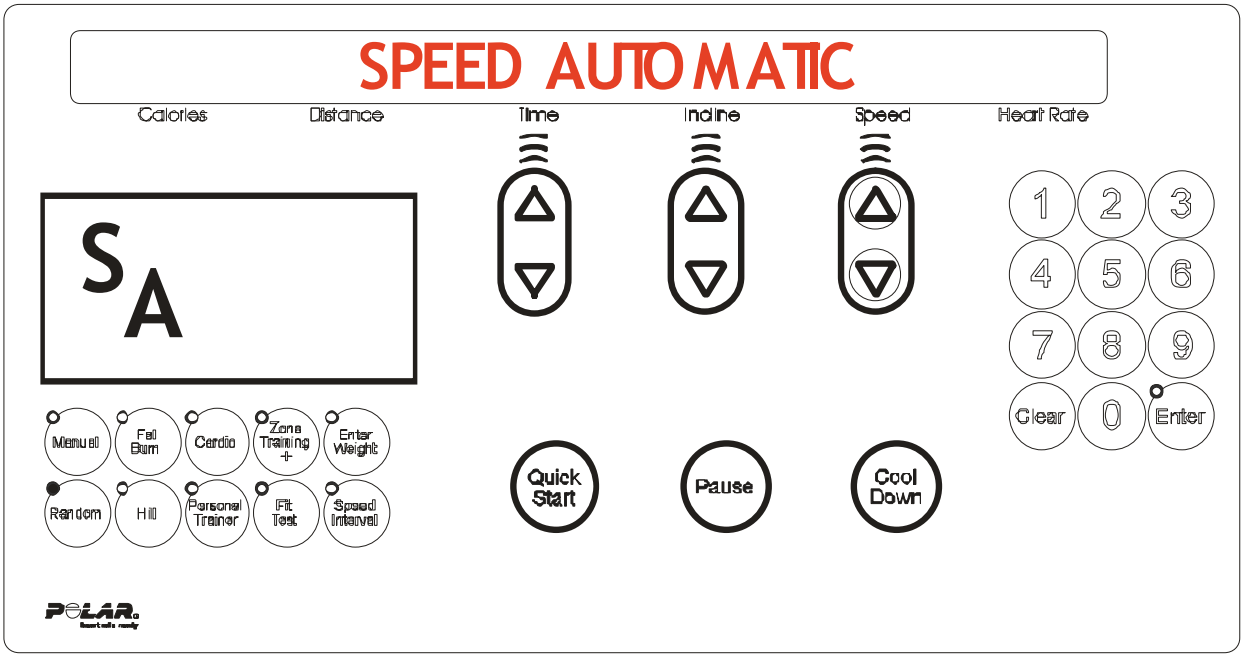
Upon entry, the messages are▫ “SYSTEM TEST MENU” and “USE ARROW KEYS TO SCROLL THROUGH THE LIST”▫

The arrow keys allow the user to scroll trough these system tests▫

- System Comm Test
- Motor Test Module
- Lift Test Module
- Belt/Deck Test
- Lifepulse Test
- Telemetry
- Smart Stop Test
- DISPLAY TEST
- Frame Tag EEPROM
- Console EEPROM
- Lifecenter Test
- CSAFE Test

Press the ENTER key to access one of the test▫

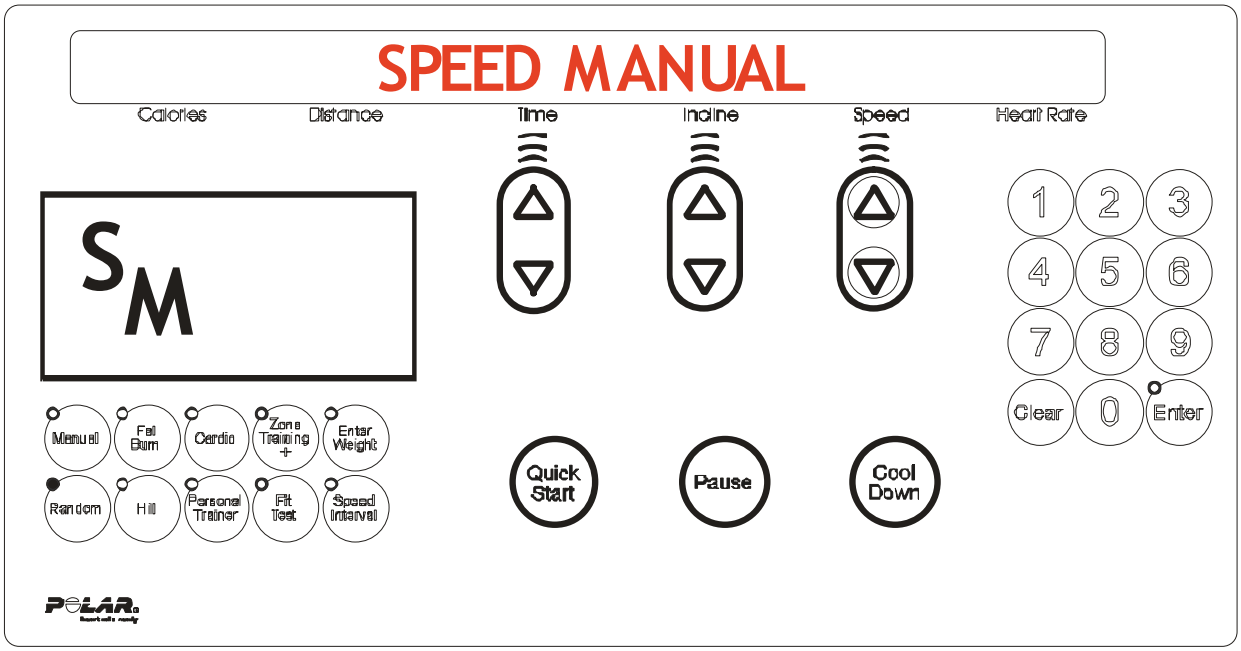
SYSTEM TEST ▫ SPEED AUTOMATIC



During this test, the letters “SA” (for “Speed Automatic”) will appear in the profile window▫ A target speed is then selected via the SPEED ARROW keys▫

Press the ENTER key to advance to the Speed Manual test▫ Press the CLEAR key to exit the Speed Automatic test and return to the System Test menu▫ Press the CLEAR key multiple times until the message “SYSTEM INITIALIZING” is displayed to exit Diagnostic mode▫

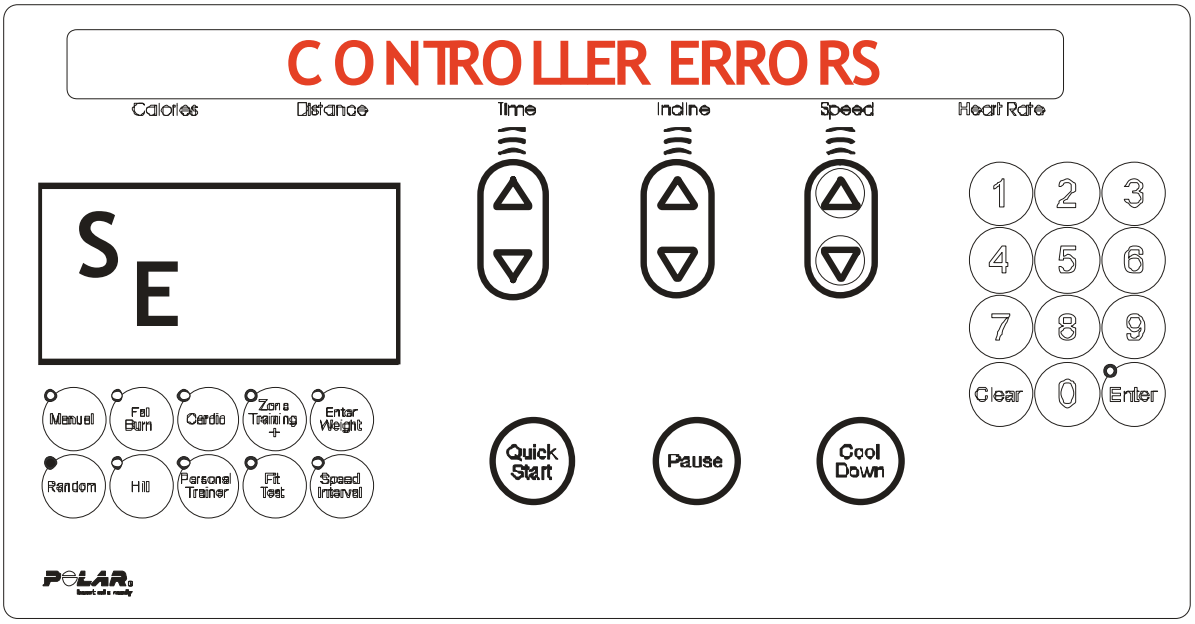
SYSTEM TEST ▫ SPEED MANUAL



During this test, the letters “SM” (for “Speed Manual”) will appear in the profile window▫ A target motor RPM is selected via the SPEED ARROW keys▫

Press the ENTER key to advance to the Speed Manual test▫ Press the CLEAR key to exit the Speed Automatic test and return to the System Test menu▫ Press the CLEAR key multiple times until the message “SYSTEM INITIALIZING” is displayed to exit Diagnostic mode▫

SYSTEM TEST ▫ CONTROLLER ERRORS



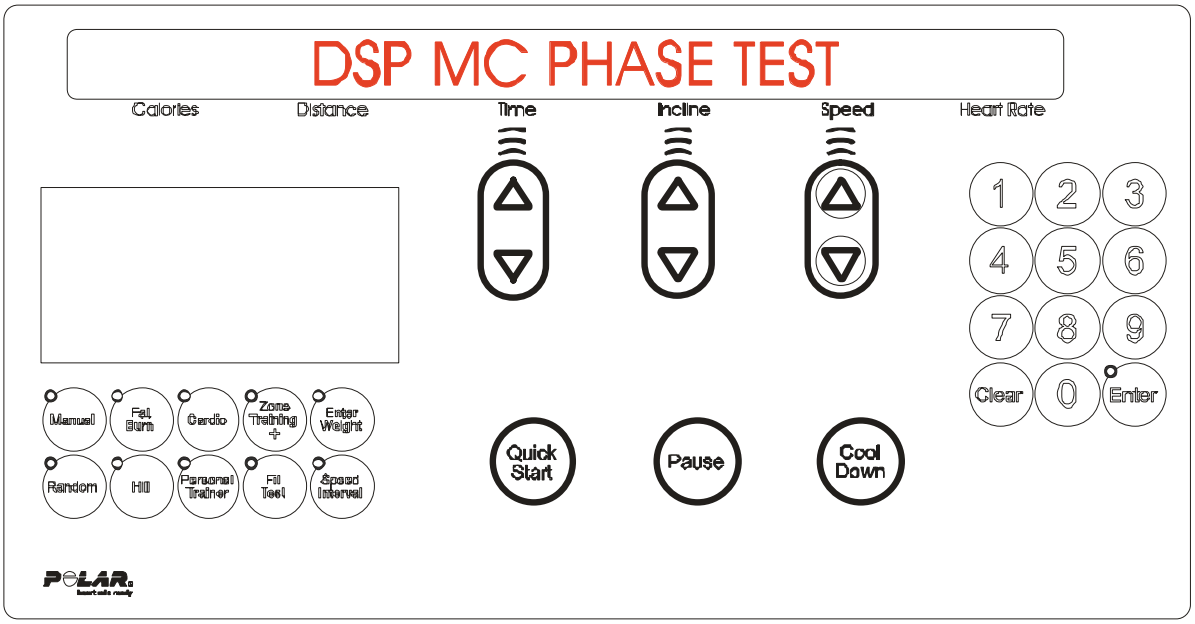
Upon entry into this state the letters “SE” (for “Speed Errors”) will be shown in the profile window▫ This state allows the user to see the current motor controller conditions▫ If any of the following error messages are displayed, refer to the troubleshooting section for corrective action▫

Power Up Reset Error
Static Current Trip
Max Temperature Trip
Maximum Voltage Trip
Dynamic Current Trip
Fault Line ▫ Error
SCI Error
Low-V Err

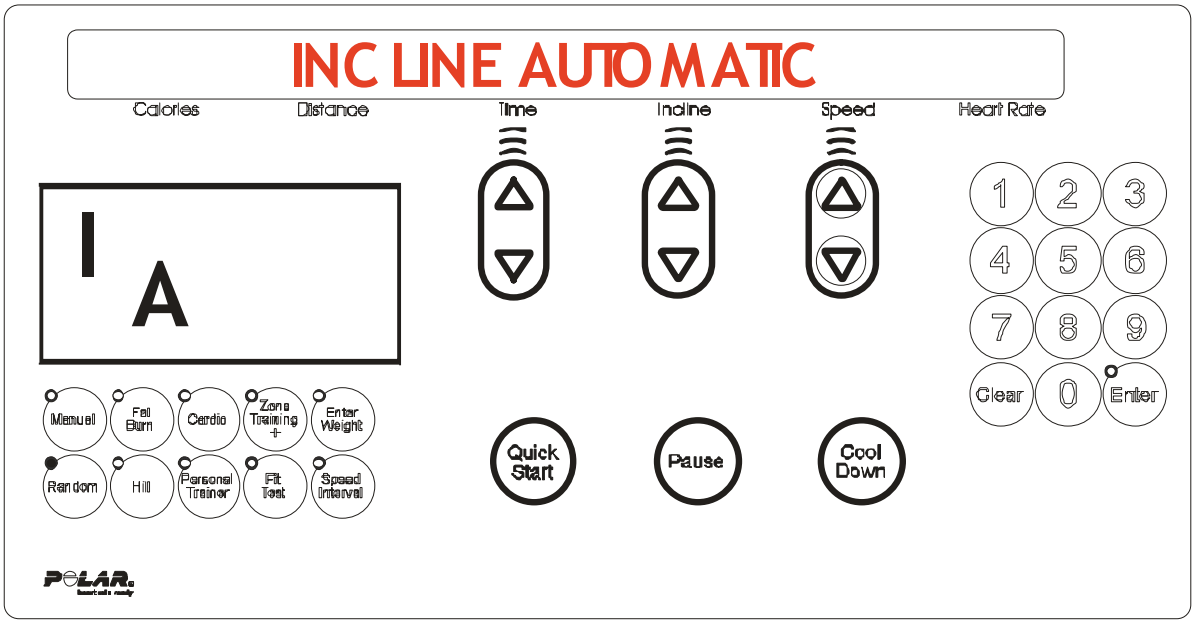
Press the CLEAR key to exit the Speed Controller Errors test and return to the Speed Manual test▫

SYSTEM TEST - PHASE TEST

The DSP MC Phase test is accessible only via hot keys (ENTER ▫ WEIGHT ▫ CARDIO)▫ It is not accessible using normal key-press menu navigation▫



SYSTEM TEST - INCLINE AUTOMATIC

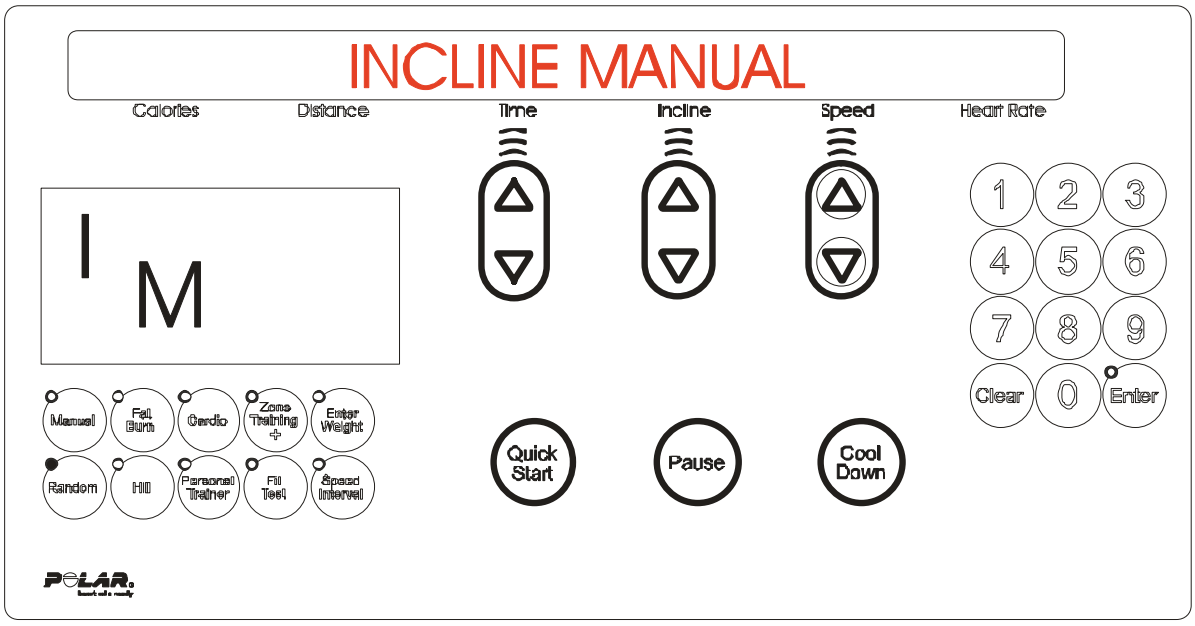


During this test, the letters “IA” (for “Incline Automatic”) appear in the profile window□ A target incline angle is selected via the INCLINE ARROW keys□ Both the target and actual incline are shown in the message center along with a count that defines the movement re□uest in software terms□

The speed system can be activated in this test as well□ The target speed will be displayed for two seconds while the SPEED keys are being pressed□ The display will then return to the incline information□

Press the CLEAR key to exit the Incline Automatic test and return to the System Test menu□ Press the ENTER key to advance to the Incline Manual test□

SYSTEM TEST ▫ INCLINE MANUAL



During this test, the letters “IM” (for “Incline Manual”) appear in the profile window▫ This test allows operation of the lift motor via the INCLINE ARROW keys▫ The count defines the movement re▫uest in software terms and actual incline is displayed in the message center▫ The state of the level and negative incline switches will be displayed in the profile window▫

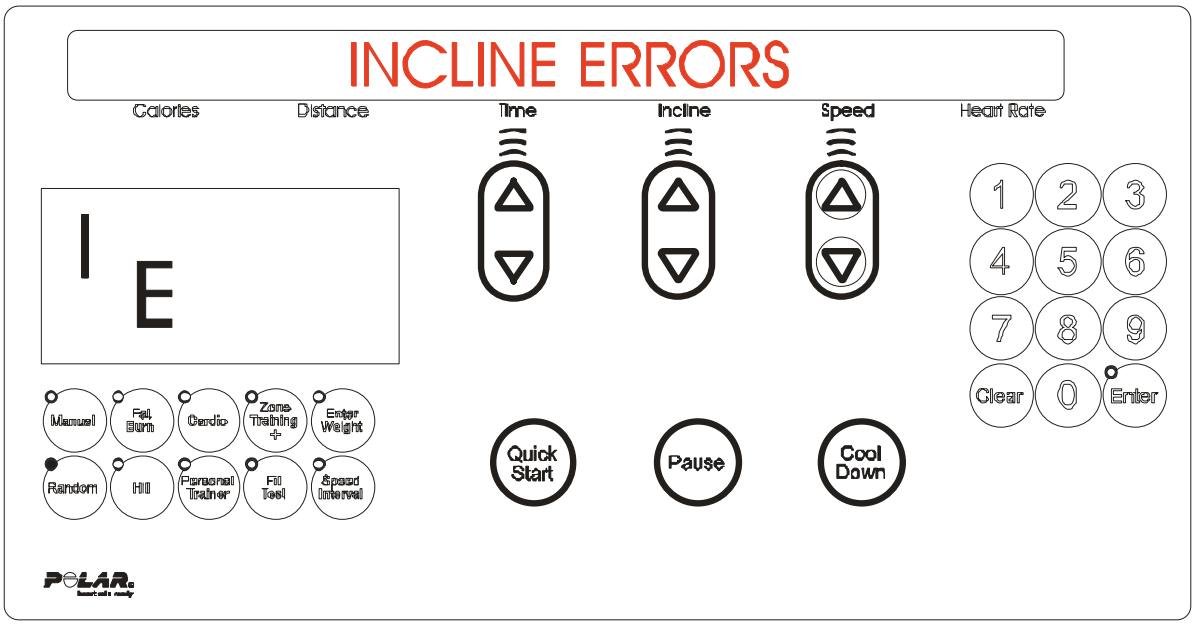
For non-decline units▫ The state of the level switch will be displayed in the profile window▫ A ▫ero (“0”) displayed in the profile window indicates that the level switch is in the closed position▫ As the unit is inclined, the ▫ero will disappear, indicating that the level switch is functioning▫

For decline units▫ The state of the level and negative incline switches will be displayed in the profile window▫ A ▫ero (“0”) displayed in the profile window shows the level switch in the closed position▫ As the unit is declined, the ▫ero will disappear and “▫▫▫” will appear in the profile window▫ This verifies that the negative switch is functioning▫ (The “▫▫▫” will appear only in incline manual mode)▫

The Speed system can be activated in this test as well▫ The target speed will be displayed for two seconds while the SPEED keys are being pressed▫ The display will then return to the incline information▫

Press the CLEAR key to exit the Incline Manual test and return to the Incline Automatic test▫ Press the ENTER key to advance to the Incline Errors test▫

SYSTEM TEST ▫ INCLINE ERROR MODE



Upon entry into this state the letters “IE” (for “Incline Errors”) will be displayed in the profile window▫ This state allows the user to see the current lift motor error conditions▫ If any of these lift motor errors are displayed, refer to the Troubleshooting section for corrective action▫ The possible motor error conditions are▫

Incline Timeout Error
Home Switch Error
Negative Switch Error
No AC Power Error

Press the CLEAR key to exit the Incline Errors test and return to the Incline Manual test▫

SYSTEM TEST ▫ BELT/DECK TEST

This test allows the user to check the belt and deck conditions▫ This test acts as a wattage meter, providing the percentage of power, wattage, bus voltage, and temperature readings▫

These messages will scroll▫

"RELATIVE POWER METER"
"RECOMMENDED SPEED ABOVE ▫▫5 MPH"

This initial information will then be displayed▫

"PERCENT XXX WATT XXX"

"XXX" are values▫ "PERCENT" is the percentage of available power (ranging from 0 to ▫00)▫ "WATT" is the wattage (from ▫▫0 to ▫▫00) re▫uired by the motor controller to move the belt▫

Pressing the "COOL DOWN" key will display this information▫

"VOLTAGE XXX TEMP XX ▫C"

"XXX" indicates real values▫ "VOLTAGE" is the bus voltage of the motor controller (not the input line voltage)▫ "TEMP" is the temperature of the motor controller heat sink (in degrees Celsius)▫

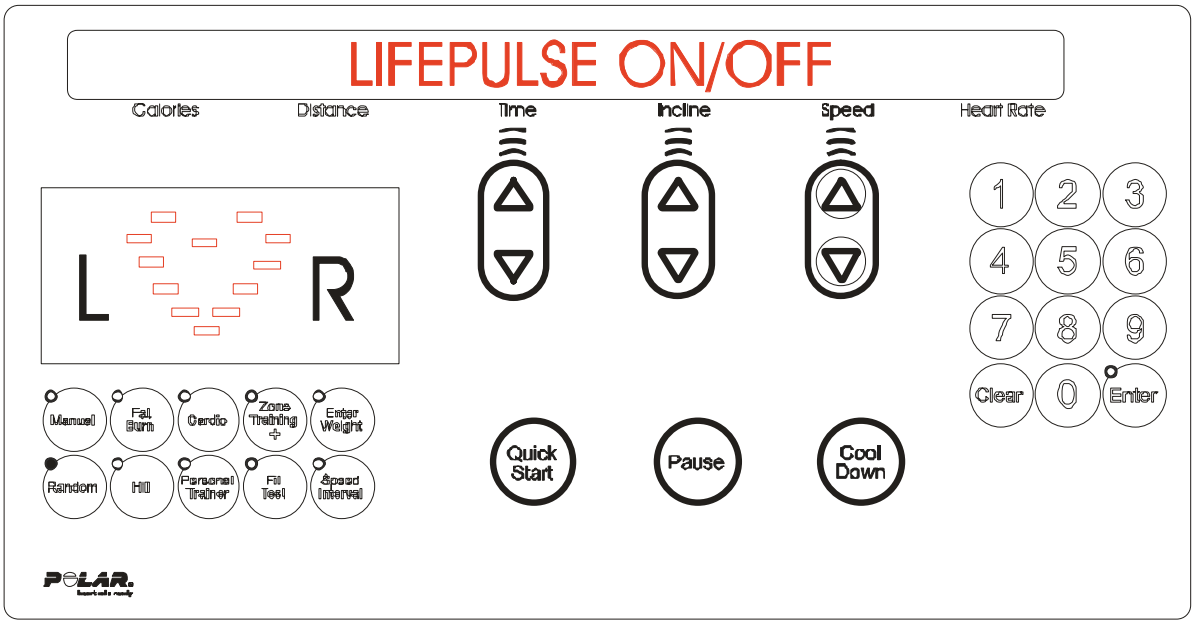
The display will lock on the current information if the PAUSE key is pressed▫

The speed system and incline systems can be activated in this test▫ The display will show the target speed or incline for two seconds while the SPEED/INCLINE keys are being pressed▫ It will then return to showing belt and deck information▫

To test whether the belt and deck should be replaced use the SPEED UP ARROW key and walk on the unit at ▫▫5 MPH (Km/h)) for at least one minute▫ Then run on the unit at 7▫0 MPH (Km/h) for at least one minute▫ If the watts display is higher than ▫▫00, replace the belt and either flip or replace the deck▫

Press the CLEAR key to exit the Belt/Deck test and return to the System Test menu▫

SYSTEM TEST ▫ LIFEPULSE TEST



Upon entering the Lifepulse test a heart shape will appear in the profile window, indicating that Lifepulse is ready to ac▫uire a signal▫

The system will sense when either hand is in proper contact with the Lifepulse sensors by displaying an ▫L▫ (left) or ▫R▫ (right) next to the heart in the profile window▫

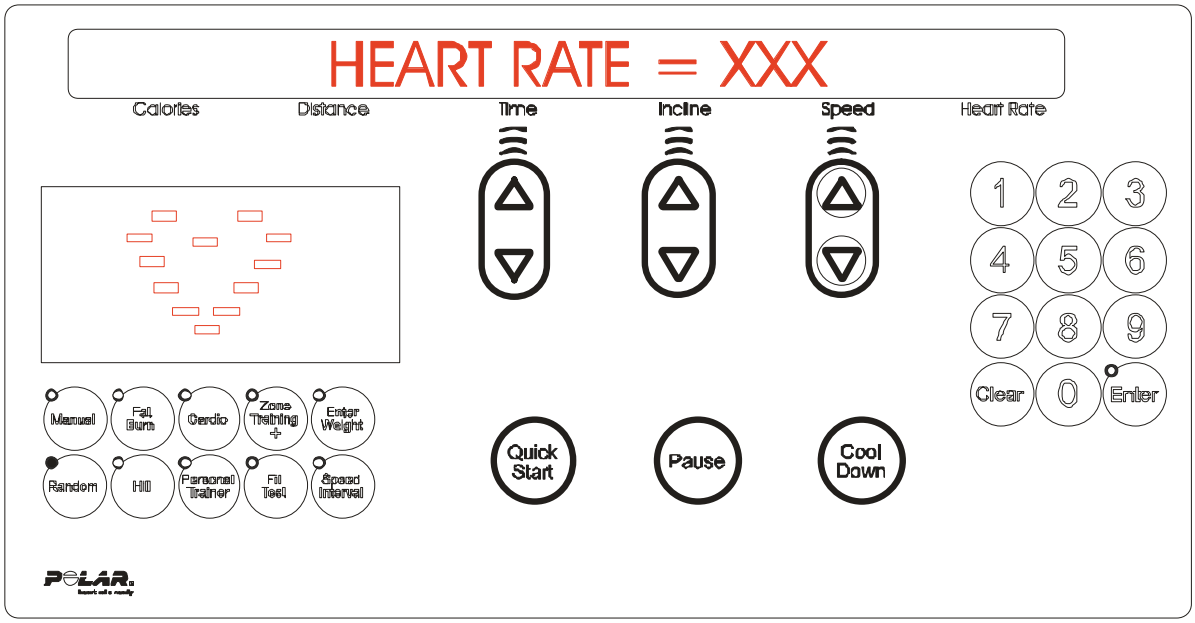
Once the Lifepulse system acknowledges that both hands are in place on the sensors and providing proper signals, a timer will start▫ The timer displays ac▫uisition time▫ Once heart rate data is displayed, the counter will stop▫ Three terms are displayed in the Lifepulse Test▫

Term	Description
ON/OFF	Status of the Lifepulse feature▫ (This test will not function if the Lifepulse feature has been disabled▫)
GAIN	The value displayed (from “0”-“99”) is proportional to the amount of signal that is being provided by the Lifepulse sensors▫ The higher the gain value, the lower the signal being evaluated by the Lifepulse system▫
CONFIDENCE	The reading (from 0-9) indicates a confidence level for the displayed heart rate values▫ High confidence numbers indicate that Lifepulse is providing accurate readings▫ Low numbers usually indicate poor contact with the hand sensors▫

Both the Speed and Incline systems can be ad▫usted during this test▫ The display will show speed or incline information briefly when any INCLINE or SPEED keys have been pressed▫ The display will then revert to Lifepulse information▫

Press the CLEAR key to exit the Lifepulse Test and return to the System Test menu▫ To exit Diagnostic mode, press the CLEAR key repeatedly until the message “SYSTEM INTIALIZING” is displayed▫

SYSTEM TEST ▫ TELEMETRY TEST

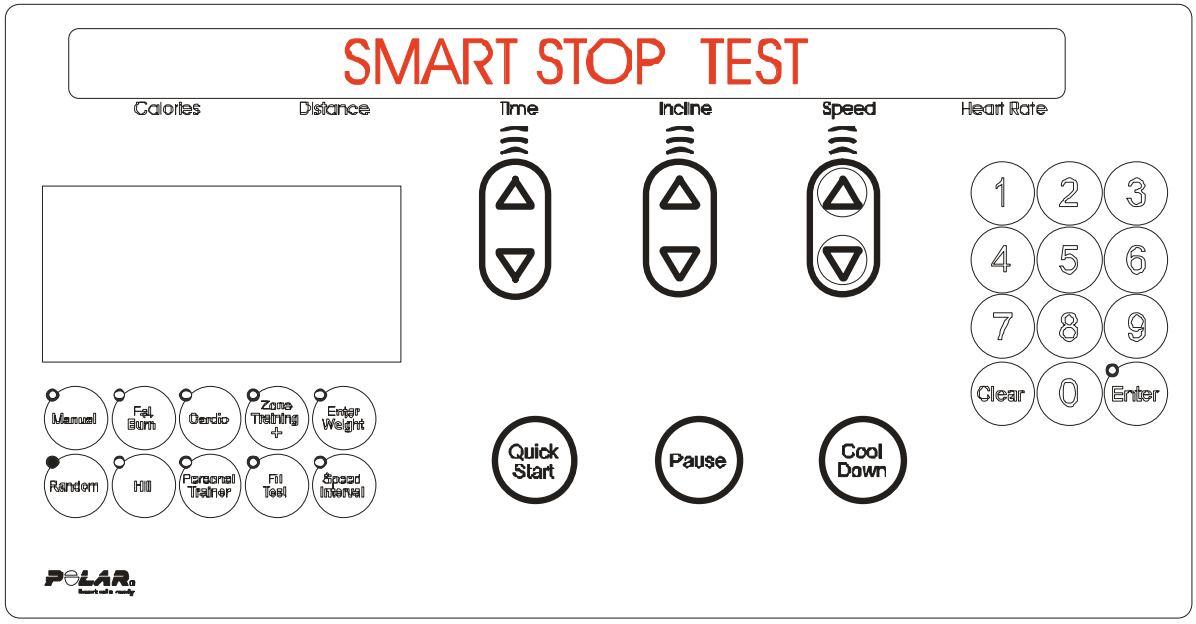


The ENTER LED will flash (at the users heart rate) when the telemetry feature is on and the receiver is receiving a signal from the Polar transmitter▫ (This test re▫uires a Polar-compatible chest strap or pulse simulator▫)The heart rate value being transmitted by the Polar strap will be displayed in the message center▫

"ON/OFF" indicates the status of telemetry feature▫ (This test will not function if the telemetry function has been disabled▫ "XXX" Indicates an integer value▫

Press the CLEAR key to exit the Heart Rate Telemetry test and return to the System Test menu▫ To exit Diagnostic mode, press the CLEAR key repeatedly until the message "SYSTEM INITIALIAING" is displayed▫

SYSTEM TEST ▫ SMART STOP TEST



This test allows the user to test the Smart Stop system▫ If the Smart Stop PCB is not plugged in upon entry to this test, the message "SMART STOP UNPLUGGED" will be displayed▫ If the Smart Stop system detects a user, it will scroll the profile window from empty to full, depending on the percentage of detection that is occurring▫ Other Smart Stop information, shown below, will scroll automatically every three seconds▫

Smart Stop Disabled
Smart Stop Unplugged
Smart Stop On
Smart Stop Off
User Detected on Belt
User not Detected on Belt

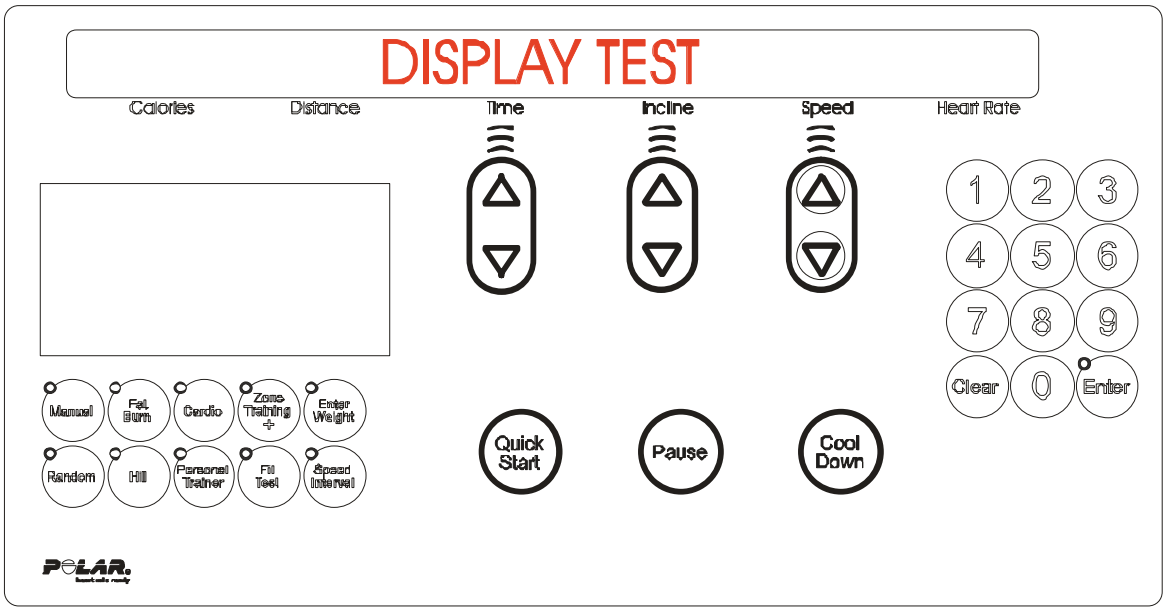
If an error occurs, refer to the Troubleshooting section for corrective action▫

The Smart Stop system can be turned on and off in this test▫ When the message "SMART STOP ON" is shown in the message center, any ARROW key will toggle it to "SMART STOP OFF▫"

The display can be locked by pressing the PAUSE key▫ This will stop the scrolling of the Stride Sensor information▫

Press the CLEAR key to exit the Smart Stop test and return to the System Test menu▫

SYSTEM TEST ▫ DISPLAY TEST



Upon entry to this test, all lights will be turned on, allowing the user to test the display console▫

In this test, once the ENTER key has been pressed individual LEDs are lit in se▫uence▫ Each character will then be lit separately▫ If the PAUSE key is pressed, the se▫uence will halt until the PAUSE key is pressed again▫

Pressing the PAUSE key locks the display▫ This will stop the scrolling of the LEDs▫
Press the CLEAR key to exit the Walking LED test and return to the Keypad test▫

The keys beep when pressed and except for the ENTER and CLEAR keys, the characters in the following table will be repeated across the message center▫

continued...

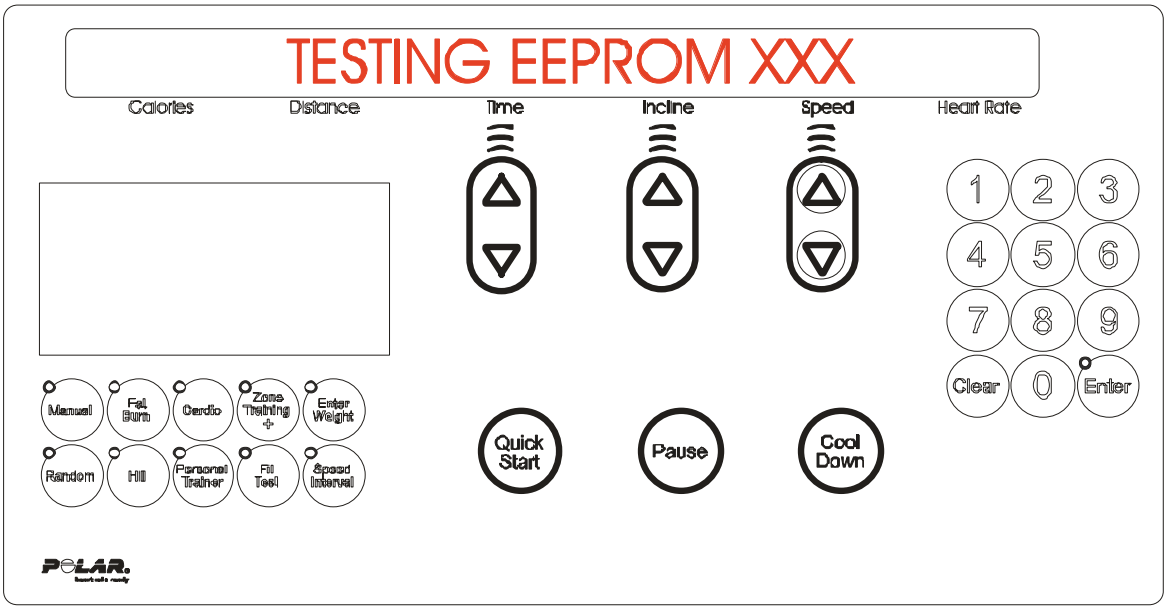
SYSTEM TEST ▫ DISPLAY TEST - CONTINUED

KEYS	DISPLAYED CHARACTER
0	0
▫	▫
▫	▫
▫	▫
▫	▫
5	5
▫	▫
7	7
▫	▫
9	9
MANUAL	C
FAT BURN	D
CARDIO	E
RANDOM	H
HILL	▫
PERSONAL TRAINER	K
FIT TEST	L
TIME UP	N
INCLINE UP	P
SPEED UP	▫
TIME DOWN	R
INCLINE DOWN	T
SPEED DOWN	U
▫ UICK	V
PAUSE	W
COOL DOWN	X
STOP	Y
DOWN	Z
UP	S
ZONE TRAINING	F
SPEED INTERVAL	M
ENTER WEIGHT	G

Pulling the Emergency Stop switch will result in the message “REPLACE EMERGENCY STOP SWITCH▫”

Press the CLEAR key to exit the Display test and return to the System Test menu▫ Press the ENTER key to advance to the Walking LED test▫

SYSTEM TEST ▫ FRAME TAG EEPROM TEST

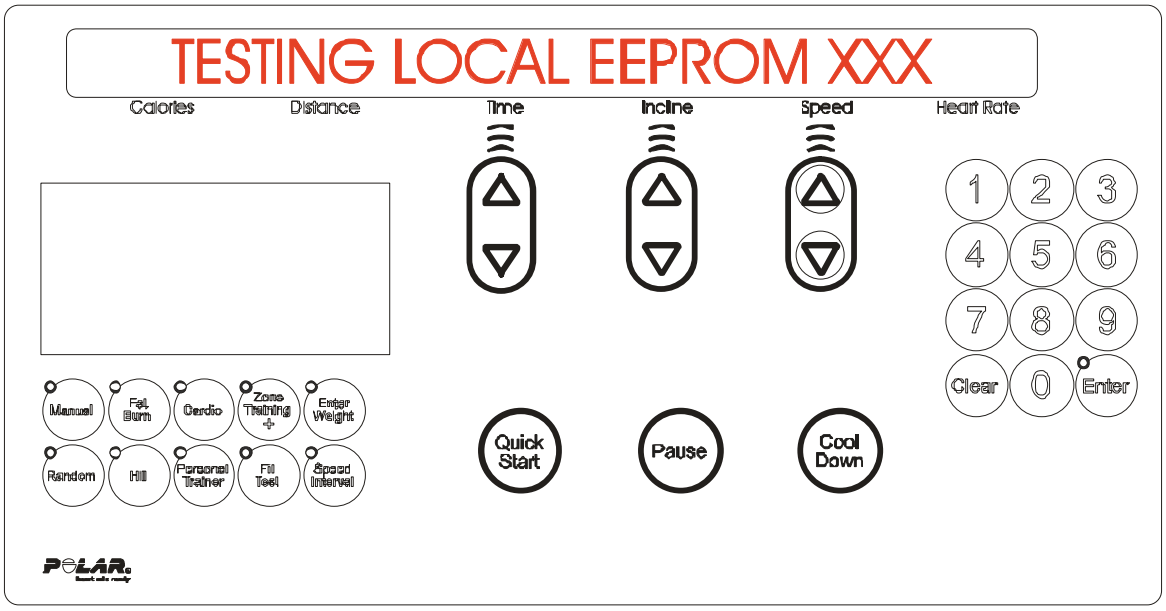


This test, which allows the user to test the frame tag EEPROM, will read/write/replace all used locations in the frame tag EEPROM▫ If there is an error, the bad location will be displayed▫ The possible messages are▫

FRAME EPROM COMM BAD
FRAME TAG UNPLUGGED
TESTING FRAME EEPROM
EEPROM TESTED GOOD
EEPROM BAD AT XX

If an error has occurred, refer to the troubleshooting section for corrective action▫ Press the CLEAR key to exit the Frame Tag EEPROM test and return to the System Test menu▫

SYSTEM TEST ▫ DISPLAY CONSOLE EEPROM TEST

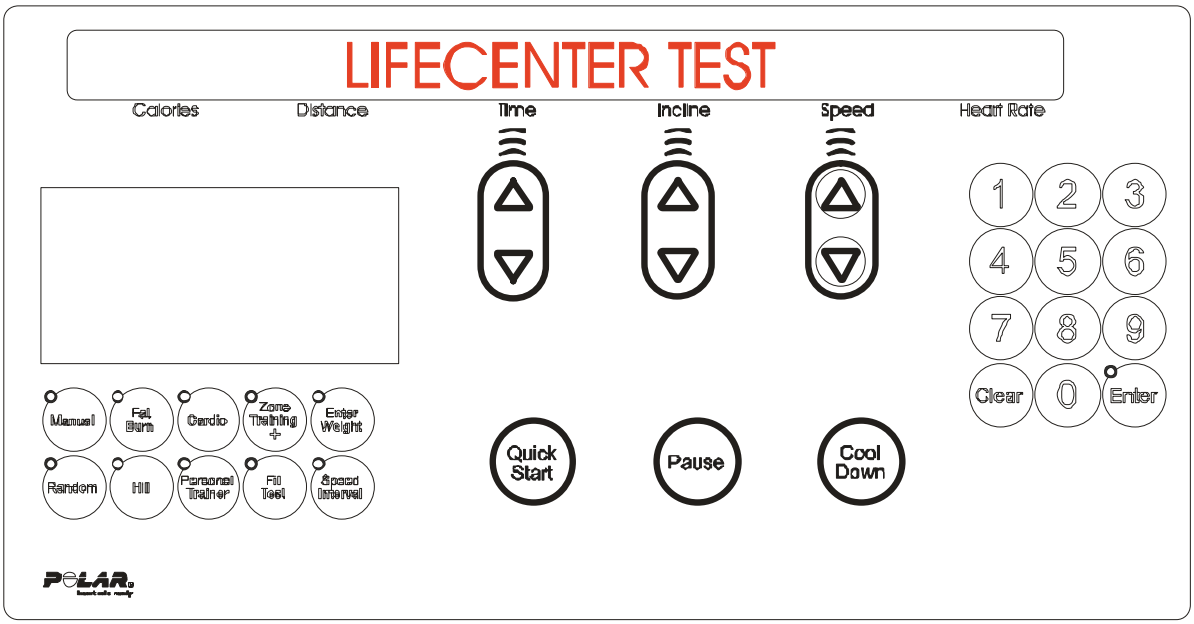


This test allows the user to test the display console EEPROM▫ The test will read/write/replace all used locations in the display console EEPROM▫ The EEPROM location being tested will be displayed in the heart rate window▫ If there is an error, the bad location will be displayed▫ Possible console messages are▫

TESTING LOCAL EEPROM
EEPROM TESTED GOOD
EEPRM BAD AT XX

If an error has occurred, refer to the troubleshooting section for corrective action▫ Press the CLEAR key to exit the Display Console EEPROM test and return to the System Test menu▫

SYSTEM TEST ▫ LIFECENTER TEST



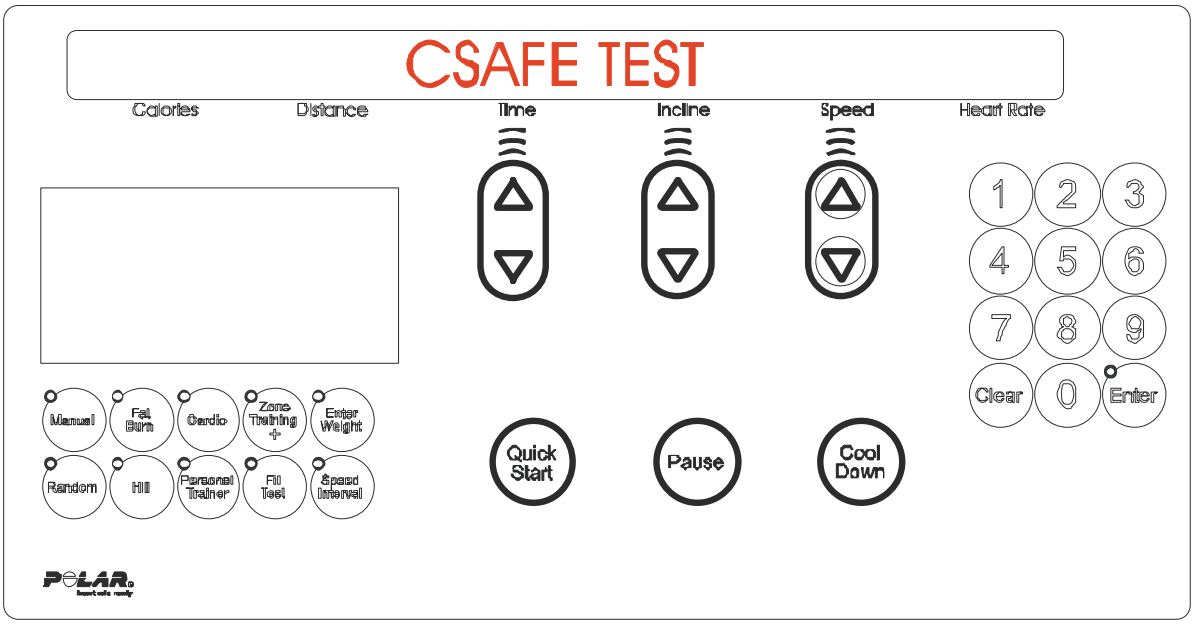
This test provides information about whether a Lifecenter system is connected to the treadmill▫ These messages may be displayed▫

“NULL T-XX R-XX”
“OFF T-XX R-XX”
“ON T-XX R-XX”
“WAIT T-XX R-XX”
(No message)

“T-XX” is the last transmitted message to the Lifelink card▫
“R-XX” is the last received message from the Lifelink card▫

Press the CLEAR key to exit the Lifecenter test and return to the System Test menu▫

SYSTEM TEST ▫ CSAFE TEST



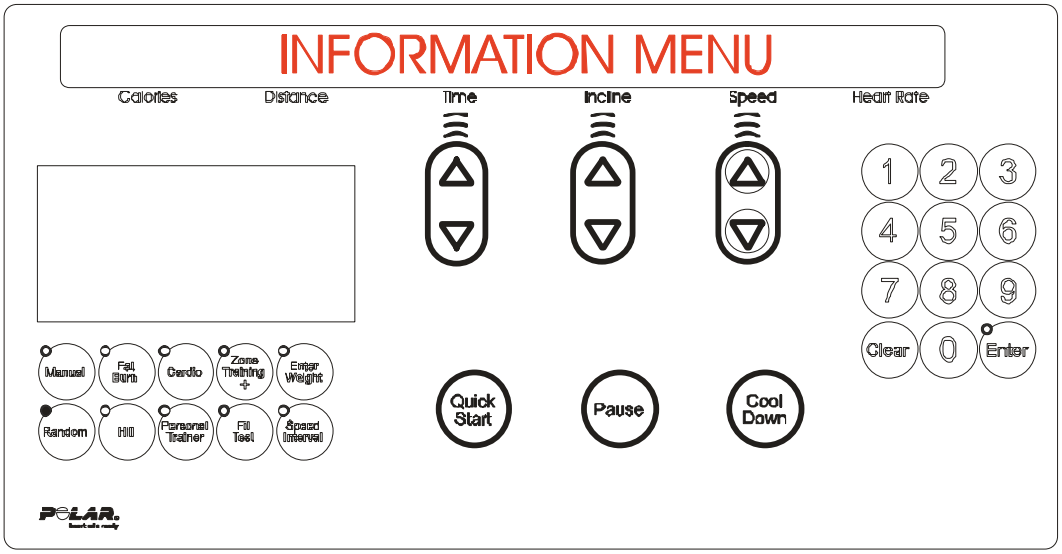
The user can determine whether the CSAFE system is connected to the treadmill with this test▫ One of these messages will be displayed▫

“NULL T-XX R-XX”
“OFF T-XX R-XX”
“ON T-XX R-XX”
“WAIT T-XX R-XX”
(No message)

“T-XX” is the last transmitted message to the CSAFE card▫
“R-XX” is the last received message from the CSAFE card▫

Press the CLEAR key to exit the CSAFE test and return to the System Test menu▫

INFORMATION MENU

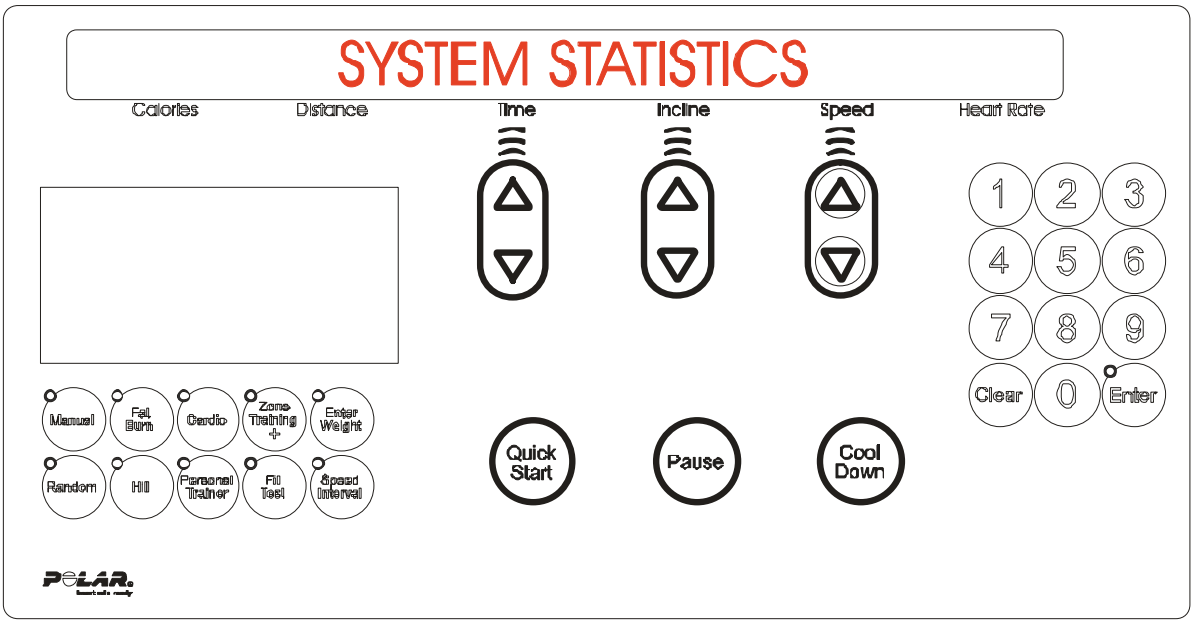


Upon entry into this area, the messages “INFORMATION MENU” followed by “USE ARROW KEYS TO SCROLL THROUGH LIST” are displayed□ Pressing any of the arrow keys allows the user to scroll through these system information areas□

- System statistics
- Software versions
- Main motor info
- Lift motor info
- System errors
- Maintenance info
- Belt/deck info

Press the ENTER key to enter the desired category□

INFORMATION MENU ▫ SYSTEM STATISTICS



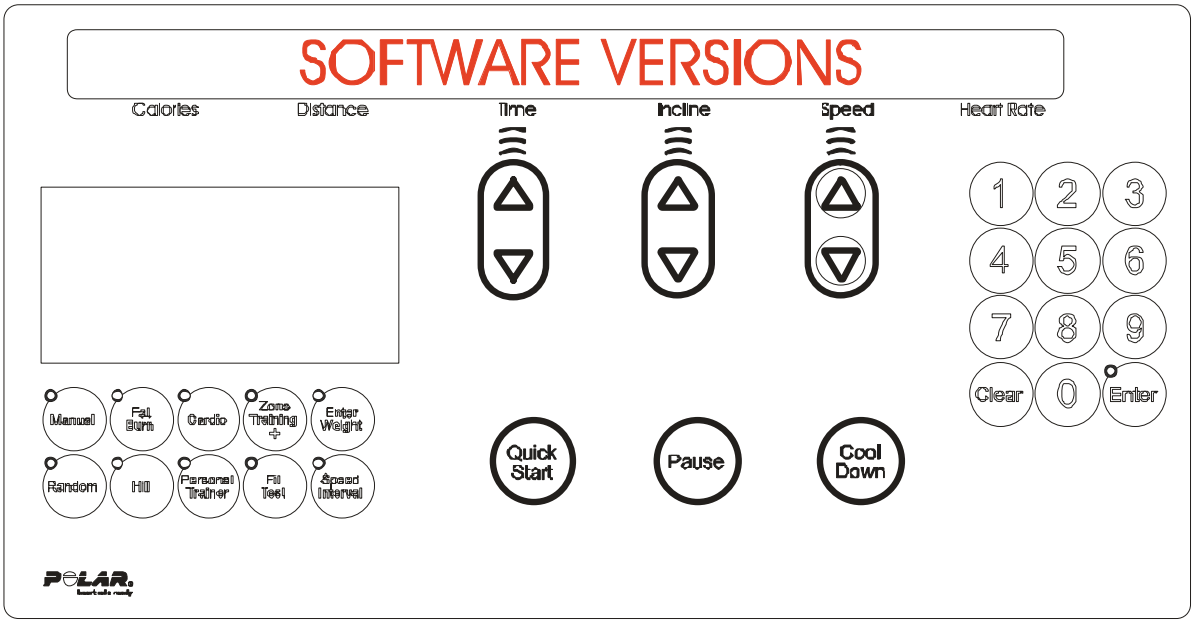
System Statistics allows the user to see system information concerning these areas▫

- Total hours
- Total miles
- Belt hours
- Belt miles
- Lift minutes
- Hill program selections
- Random program selections
- Manual program selections
- Fat burn program selections
- Cardio program selections
- Fit test program selections
- ▫ uick start program selections
- Custom program selections (▫-▫)
- Miscellaneous custom program selections
- Sport training program selections
- Speed internal program selections
- Zone training and program selections

The information will scroll automatically every three seconds▫ Using any of the arrow keys will allow the user to scroll through the selections manually▫

Press the PAUSE key to lock the display▫ Press PAUSE again to resume scrolling of the information▫ Press the CLEAR key to exit System Statistics and return to the System Info menu▫

INFORMATION MENU ▫ SOFTWARE VERSION



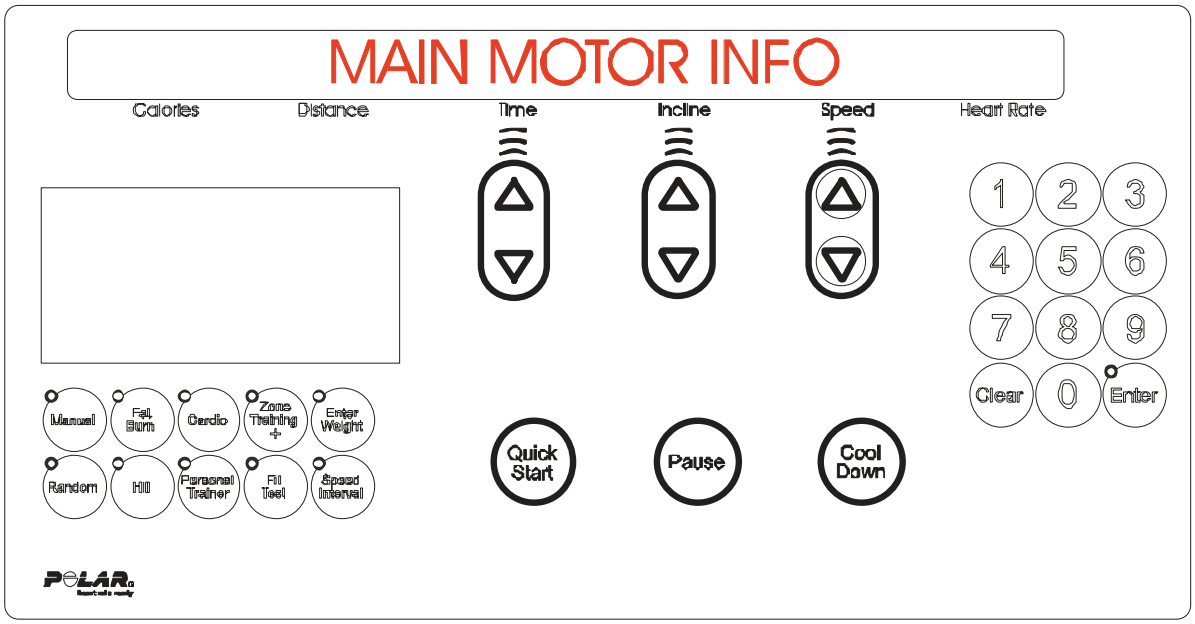
The Software Versions section allows the user to view system information concerning these areas▫

- Console software version
- Motor controller software version
- Lifepulse software version
- CSAFE version
- Boot version

The information will scroll automatically every three seconds▫ Pressing any of the arrow keys will allow the user to scroll manually through the Software Versions information▫

Press the PAUSE key to lock the display▫ Press PAUSE again to resume scrolling of the information▫ Press the CLEAR key to exit the Software Version Info section and return to the System Info menu▫

INFORMATION MENU ▫ MAIN MOTOR INFO



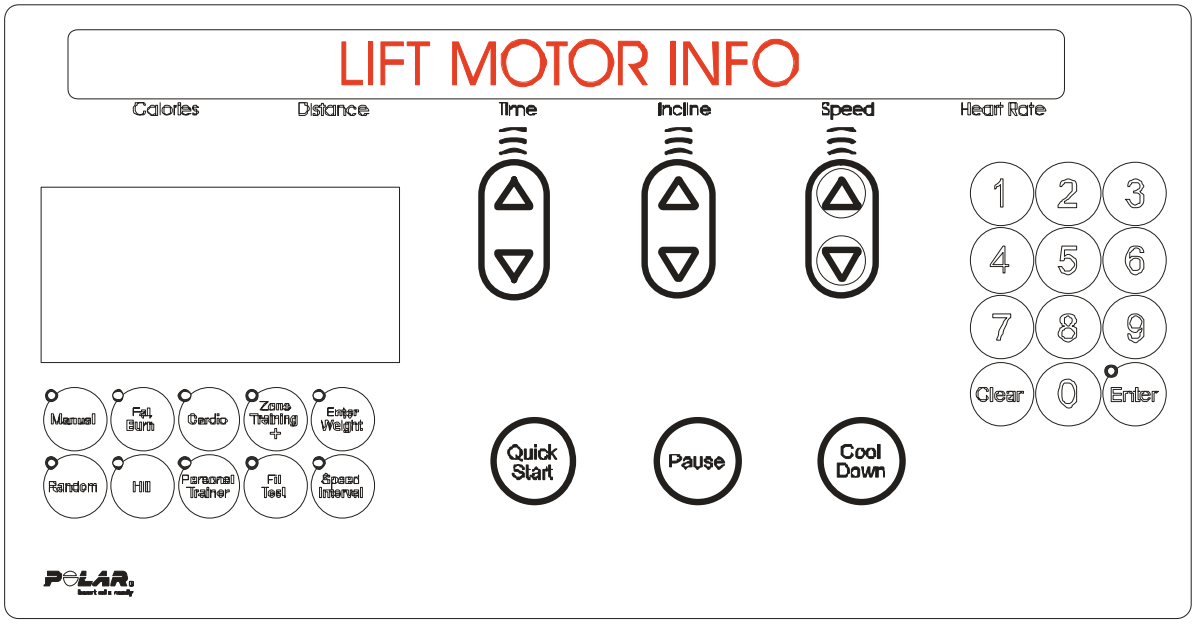
The Main Motor Info section will allow the user to see information about the main motor and motor controller, specifically on these topics▫

Motor minutes
Number of power up resets
Number of static current trip
Number of max temperature trip
Number of maximum voltage trip
Number of dynamic
Current trip
Maximum static current value
Number of hardware current errors
Maximum temperature value
Maximum voltage value
Maximum dynamic current value

The information will scroll automatically every three seconds▫ Pressing any of the arrow keys will allow the user to scroll manually through the main motor information▫

Press the PAUSE key to lock the display▫ Press PAUSE again to resume scrolling of the information▫ Press the CLEAR key to exit main motor Info and return to the System Info menu▫

INFORMATION MENU ▫ LIFT MOTOR INFO



This section provides the user with this information about the lift motor▫

Unit configuration (negative or non-negative)
Current lift on (time in minutes)
Bucket (see table on next page)

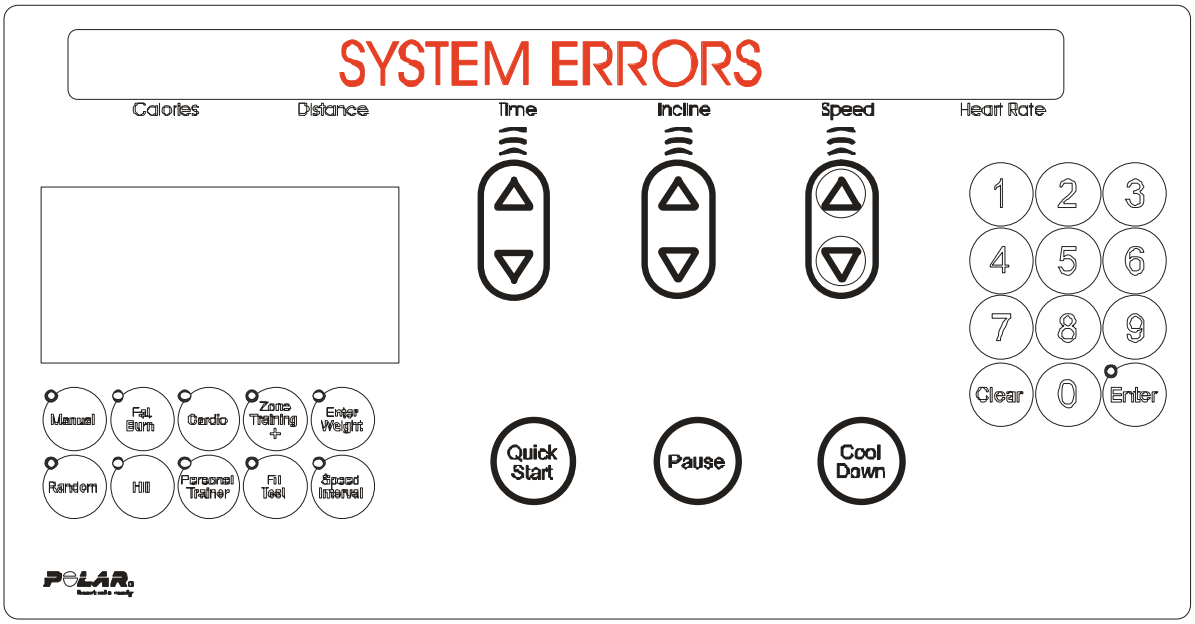
continued...

INFORMATION MENU ▫ LIFT MOTOR INFO - CONTINUED

BUCKET	INCLINE (PERCENTAGE)
0	Not Used
▫	Not Used
▫	Not Used
▫	0▫0
▫	▫▫0 to 0▫▫
5	▫▫0 to ▫▫▫
▫	▫▫0 to ▫▫▫
7	▫▫0 to ▫▫▫
▫	5▫0 to ▫▫▫
9	▫▫0 to 5▫▫
▫0	7▫0 to ▫▫▫
▫▫	▫▫0 to 7▫▫
▫▫	9▫0 to ▫▫▫
▫▫	▫0▫0 to 9▫▫
▫▫	▫▫▫0 to ▫0▫▫
▫5	▫▫▫0 to ▫▫▫▫
▫▫	▫▫▫0 to ▫▫▫▫
▫7	▫▫▫0 to ▫▫▫▫
▫▫	▫5▫0 to ▫▫▫▫

The information will scroll automatically every three seconds▫ Press the PAUSE key to lock the display▫ Press PAUSE again to resume scrolling of the information▫ Press the CLEAR key to exit Lift Motor Info and return to the System Info menu▫

INFORMATION MENU ▫ SYSTEM ERRORS



This area allows the user to see the last twenty-five logged system errors, displayed from the most recently logged incident to the oldest▫ Errors are displayed in this format▫

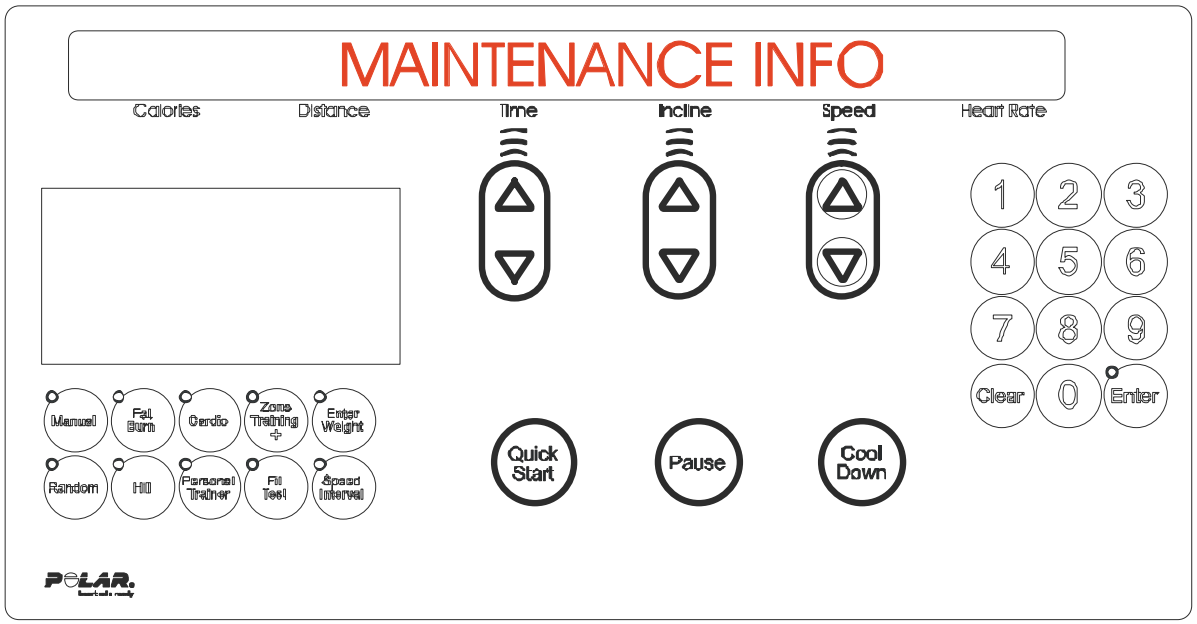
"ERROR XX" (brief error title)

"XX" is an integer▫ this format allows the user to scroll through all of the logged system errors without seeing any error details▫ The system errors will scroll automatically every three seconds or can be scrolled manually by using any of the arrow keys▫

Details about error conditions can be viewed by pressing the ENTER key while the error title is displayed on the message center▫ When the ENTER key is pressed, all of the error log details will begin to display▫ These error details will also scroll automatically every three seconds or can be scrolled manually by using any of the arrow keys▫

Press the CLEAR key to return to viewing only the error titles▫ Press the CLEAR key again to exit System Errors and return to the System Info menu▫

INFORMATION MENU ▫ MAINTENANCE INFO



This area will allow the user to see the last twelve logged system repairs▫ The repair information will be displayed from the most recently logged to the oldest▫ Each system repair will be displayed in this format▫

"PROCEDURE XX" (brief explanation)

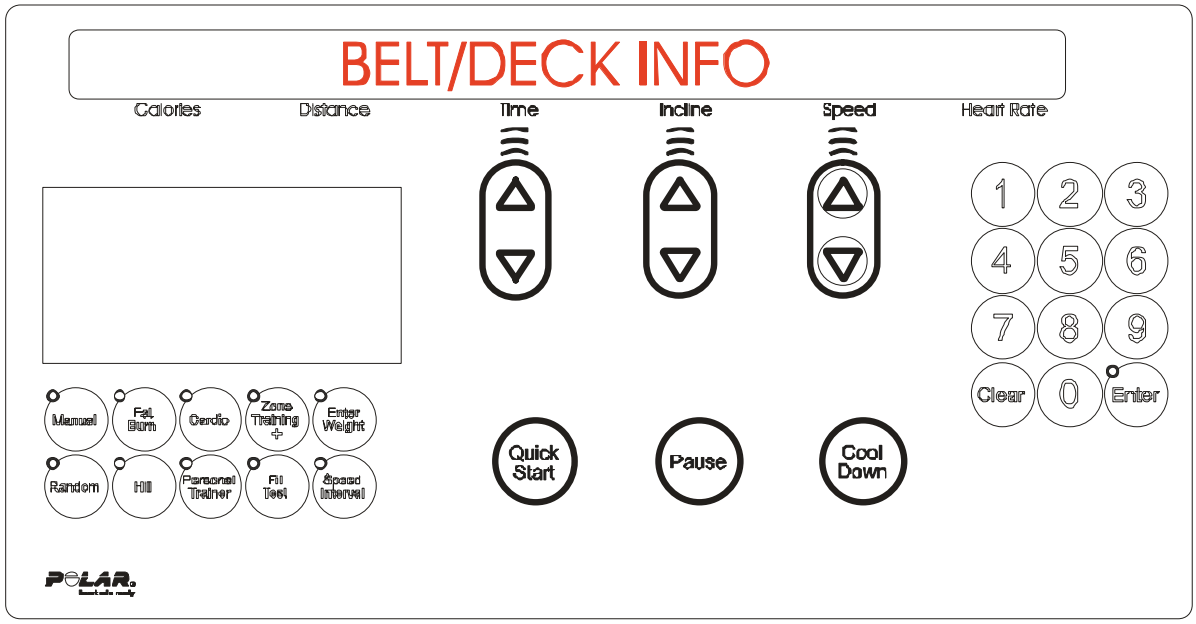
This allows the user to scroll through all of the logged system repairs without seeing any repair details▫ The system repairs will scroll automatically every three seconds or can be scrolled manually by using any of the arrow keys▫

Pressing the UP/DOWN ARROW keys while the repair title is displayed in the message center will allow the user to see details about a repair procedure▫

When the ENTER key is pressed, all of the repair procedure details will begin to display▫ These details will also scroll automatically every three seconds or can be scrolled manually by using any of the arrow keys▫

Press the ENTER key to view system repair procedures▫ Review the repair log as needed▫ Press the CLEAR key to exit the Maintenance Info section and return to the System Info menu▫

INFORMATION MENU ▫ BELT/DECK INFO

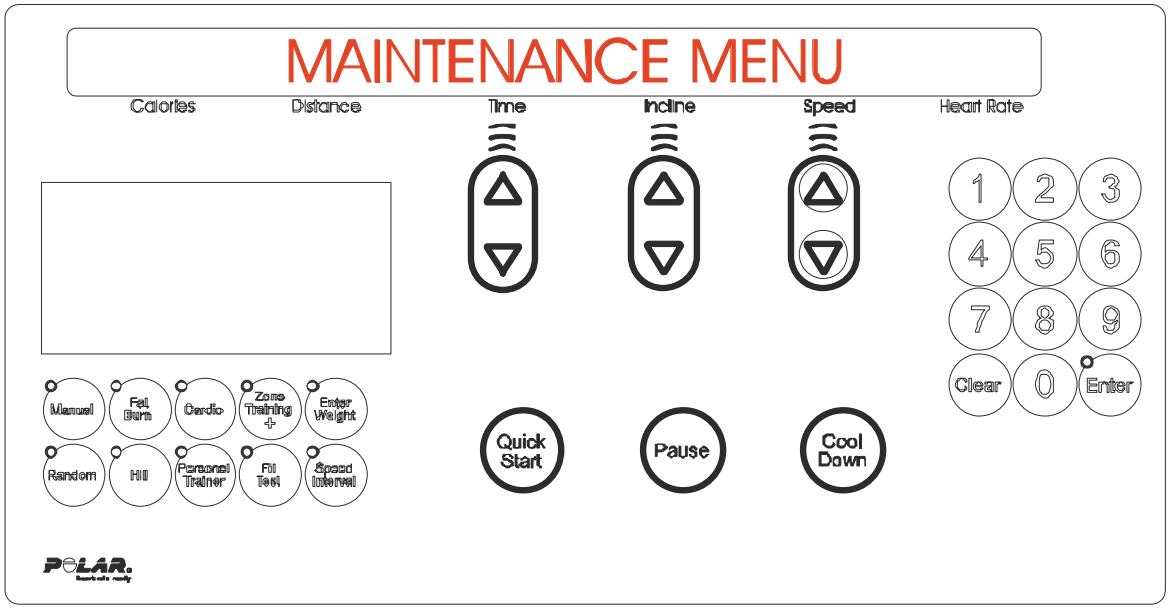


When a notification exists, the notification indicator will be turned on▫ Upon entering the Belt/Deck Info menu, the console will display the message▫ "PLEASE CHECK BELT/DECK FOR SIGNS OF EXCESSIVE WEAR▫" This message is displayed once then, the following is displayed▫

- Total hours
- Total miles
- Total belt hours
- Total belt miles
- Event history
  - Mileage or CATS ("cannot attain target speed") error
  - Hours (when the notification occurred)
  - Miles (when the notification occurred)
  - Wattage (when the notification occurred)
  - Speed (when the notification occurred)
  - Weight entered (when the notification occurred)

Press the CLEAR key to return to viewing only the error titles▫ Press the CLEAR key again to exit System Errors and return to the System Info menu▫

MAINTENANCE MENU



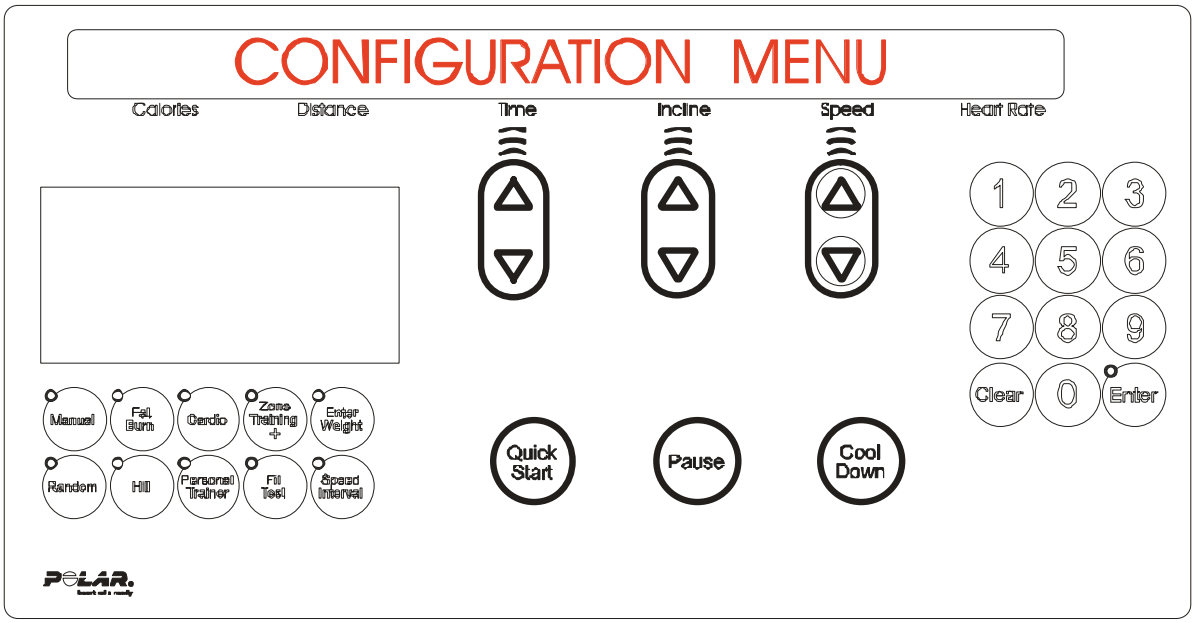
Upon entry to this area, the message is “MAINTENANCE MENU” followed by “USE ARROW KEYS TO SCROLL THROUGH LIST□” Using any of the arrow keys will allow the user to scroll through the available system maintenance procedures□

Replacing belt/deck
Replacing console
Replacing motor controller
Replacing stop switch
Replacing overlay be□el
Replacing drive motor
Replacing lift motor

Press the ENTER key to choose the desired procedure□ After a selection has been made, the system will gather all of the pertinent information concerning that procedure and log the procedure and the details to the EEPROM□ Upon successful completion of the log, the message “REPAIR LOGGED” will be displayed□

Press the CLEAR key to exit the Maintenance Menu and return to the Service Menu□

CONFIGURATION MENU

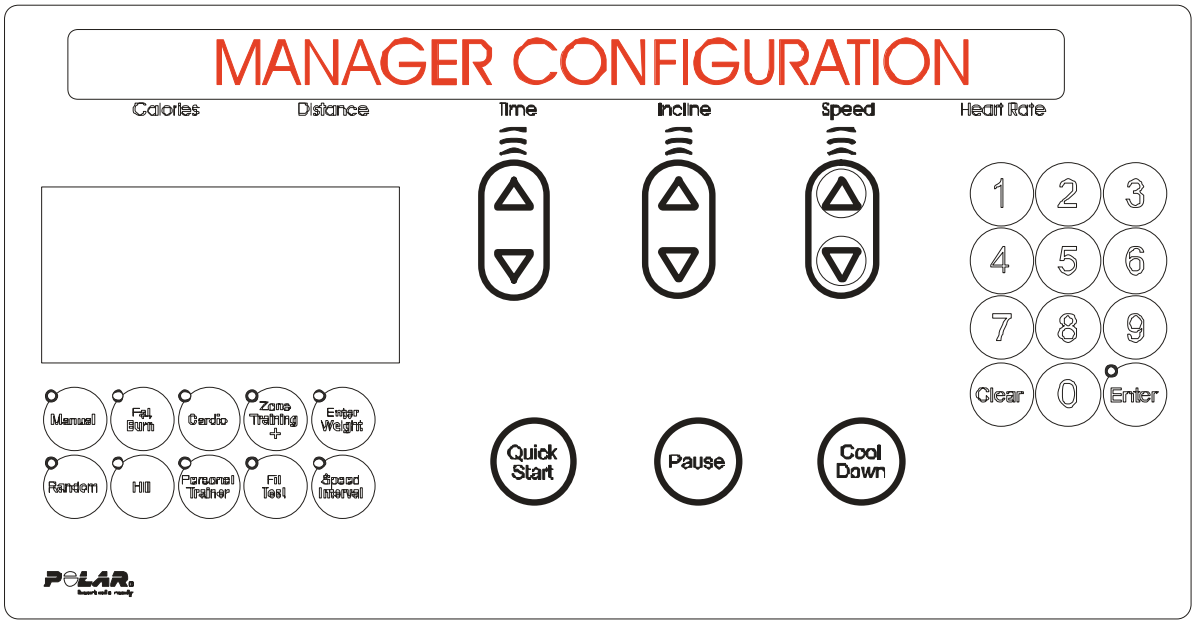


Upon entry into the area, the message is “CONFIGURATION MENU” followed by “USE ARROW KEYS TO SCROLL THROUGH LIST▫” Use any of the ARROW keys to toggle through the two system configuration areas▫

MANAGER CONFIG
MANUFACTURER CONFIG

Press the ENTER key to choose the desired area▫ Press the CLEAR key to exit the Configuration Menu and return to the Service Menu▫

CONFIGURATION MENU ▫ MANAGER



The information will scroll automatically every three seconds▫ Use the TIME UP or TIME DOWN ARROW keys to scroll through the configuration items▫ When the item is displayed in the message center, its values can be changed by using any of the remaining arrow keys▫

continued...

CONFIGURATION MENU □ MANAGER - NON-07 MODELS (CONTINUED)

This area will allow the user to see the system□s current configuration□ The information will cover the following areas□

Configuration Setting	Factory Default	Description
LANGUAGE	ENGLISH	Nine languages can be selected□ English, Dutch, Italian, Portuguese, German, French, □apanese, Spanish and Turkish□ □apanese is available only on units e□uipped with the Complex Character Display only□
MAXTIME SETUP	OFF	This feature enables fitness club managers to set workout duration limits□
STANDBY MODE SETUP	OFF	This feature enables fitness club managers to set periods at which the treadmill automatically powers up or powers down□ See the operation manual for details
ENGLISH/METRIC UNITS	ENGLISH	Measurement unit types for weight, distance and speed□
CUSTOM WORKOUT ENTRY	N/A	See "Programming Custom Workouts in the operation manual□
TELEMETRY	ON	The telemetry feature makes it possible to use the Polar-compatible Heart Rate Zone Training exercise chest strap to monitor the heart rate□
SMART STOP	ON	This feature automatically pause□s the workout if the user steps off the belt□
MAXIMUM SPEED	□□□0 MPH(Km/h) for 95T-05 □5□0 MPH(Km/h) for 97T-05	This feature allows the fastest speed at which the treadmill can operate to be set□
MINIMUM SPEED	□05 (MPH)	This is the slowest speed at which the treadmill can operate□
PAUSE TIMEOUT	□ (minute)	This feature allows the maximum time during which a workout can remain in pause mode to be set□
WATTS DISPLAY	OFF (Int□l□ ON)	If this option is enabled, the message center displays the watts e□uivalent of the step rate□
METS DISPLAY	OFF	If this option is enabled, the message center displays the METS e□uivalent of the step rate□
PACE DISPLAY	ON	This feature displays the rate in minutes per mile□
CALORIE PER HOUR DISPLAY	ON (Int□l□ OFF)	If this option is enabled, the message center displays the number of calories burned per hour during the workout□
DISTANCE CLIMBED DISPLAY	OFF	The total distance climbed, based on the incline and speed of the treadmill□

continued…

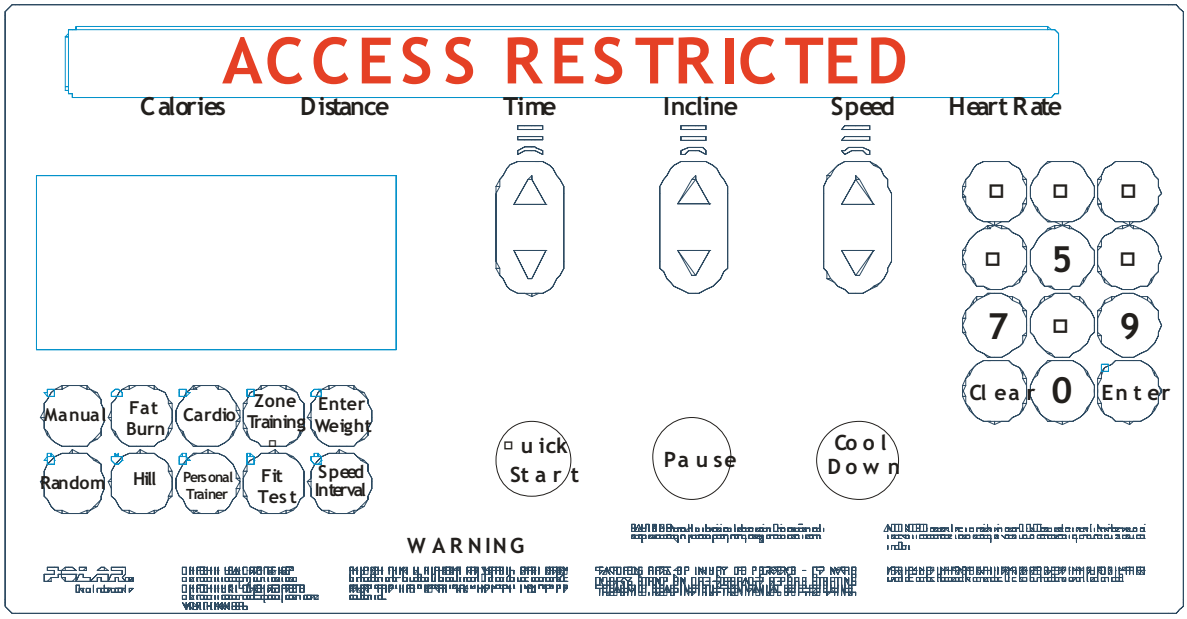
CONFIGURATION MENU □ MANAGER - NON-07 MODELS (CONTINUED)

Configuration Setting	Factory Default	Description
ACCELERATION RATE	□	The rate at which the treadmill accelerates to the selected speed, ranging from □ (slowest) to 5 (fastest)□
DECELERATION RATE	□	The rate at which the treadmill decelerates to the selected speed, ranging from □ (slowest) to 5 (fastest)□
ERASE CUSTOM WORKOUTS	N/A	This option erases all custom workouts□
MAXIMUM INCLINE	□5□0	This option changes the maximum incline grade to a value lower than □5 percent□
START MESSAGE SETUP	N/A	See “Using the Start Message Setup” in the operation manual□
□ UICK START DISABLE	OFF	Use this option to disable or enable the □ uick Start workout via the numeric keys□ See “Using □ uick Start Disable” in the operation manual□
FIT TEST PLUS	ON (Int□l□ OFF)	Enable/disable fit tests□ Army PFT□ Navy PRT□ Marines PFT□ Gerkin protocol□ PEB
SYSTEM BEEPS	ON	Enable/disables the beep on key press□
MARATHON MODE	OFF	This option, if enabled, allows the user to work out indefinitely□ See “Marathon Mode” in the operation manual□
USER LANGUAGE SELECT	OFF	This option, gives users the ability to select a language for use during a workout□ See the “User Language Select” in the operation manual□

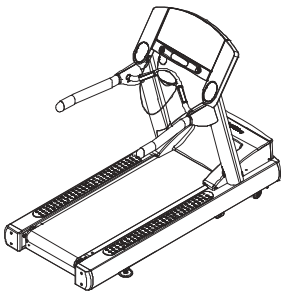
Press the PAUSE key to lock the display□ This will stop the scrolling of the information□
All changed items will be saved to the memory upon exiting the Manager□s Configuration□
Press the CLEAR key to exit Manager□s Configuration and return to the Configuration Menu□

CONFIGURATION MENU - MANUFACTURER

Upon attempting to enter Manufacturer□s Configuration, the user will see the message "ACCESS RESTRICTED□"



This configuration should be used only by authori□ed Life Fitness service representatives□

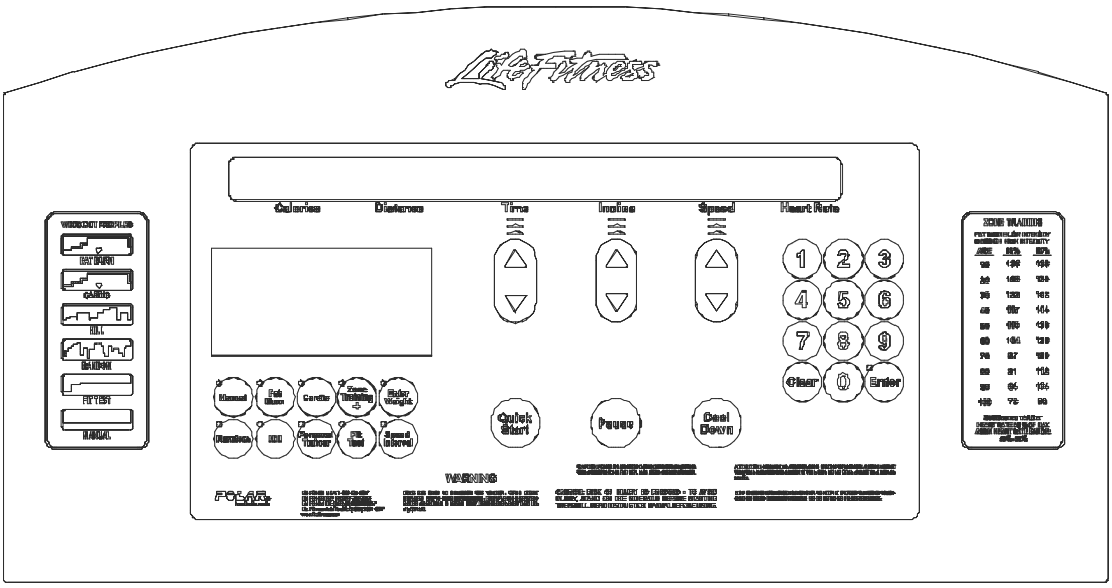


LifeFitness

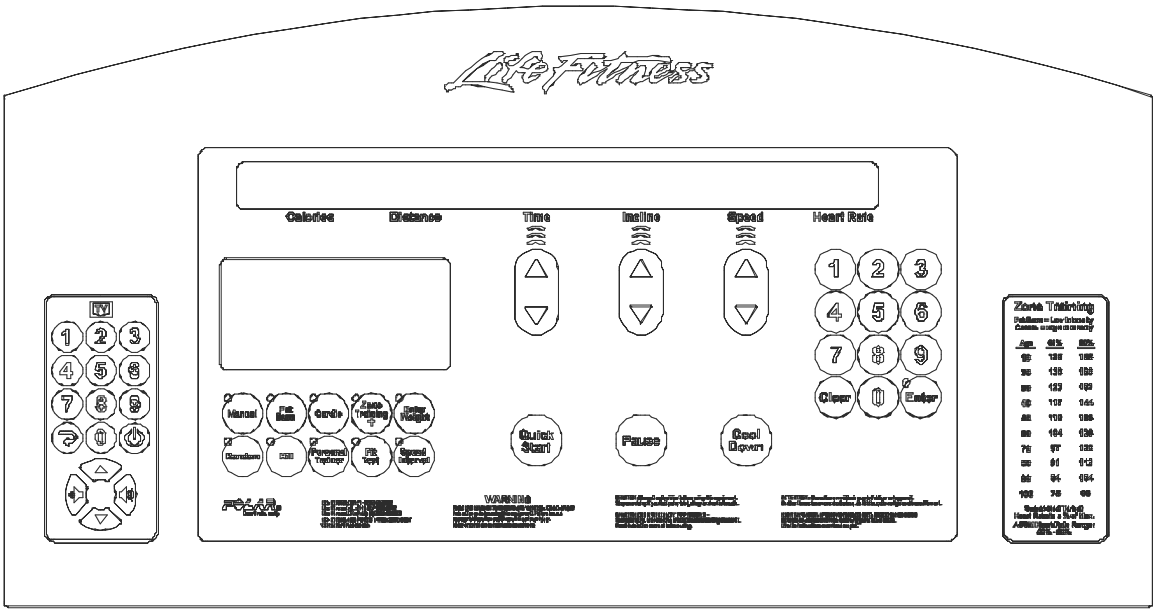
95/97T and 95/97TWEZ Treadmills with DSP Motor Controllers

DIAGNOSTICS

95TI/95TWEZ CONSOLES

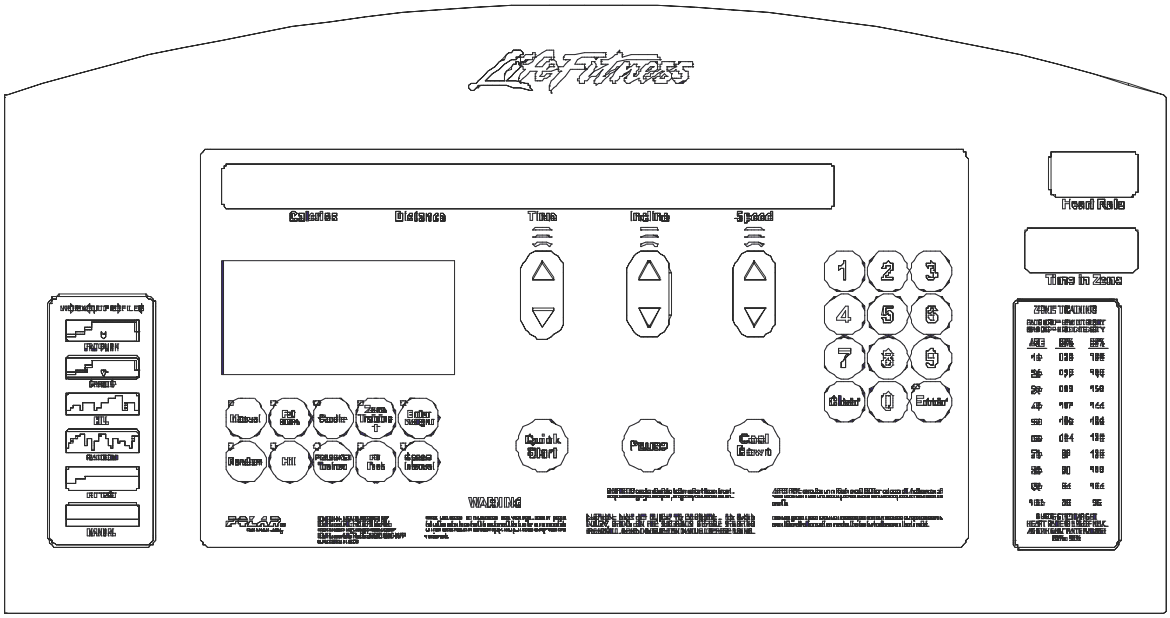


95Ti Console

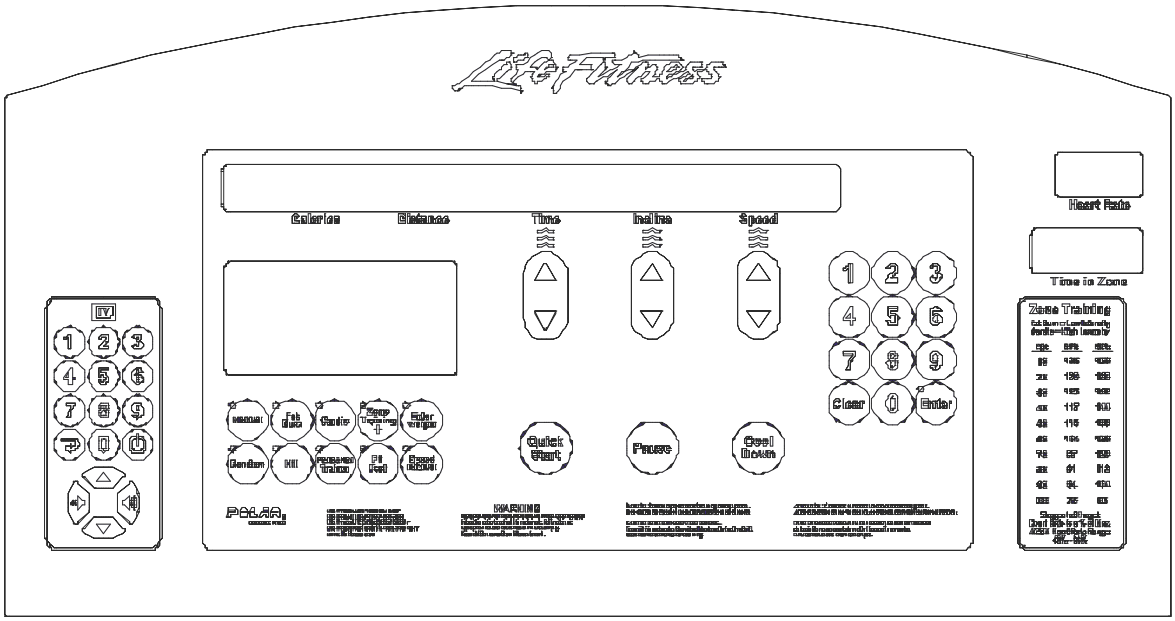


95TWEZ Console

97TI/97TWEZ CONSOLES

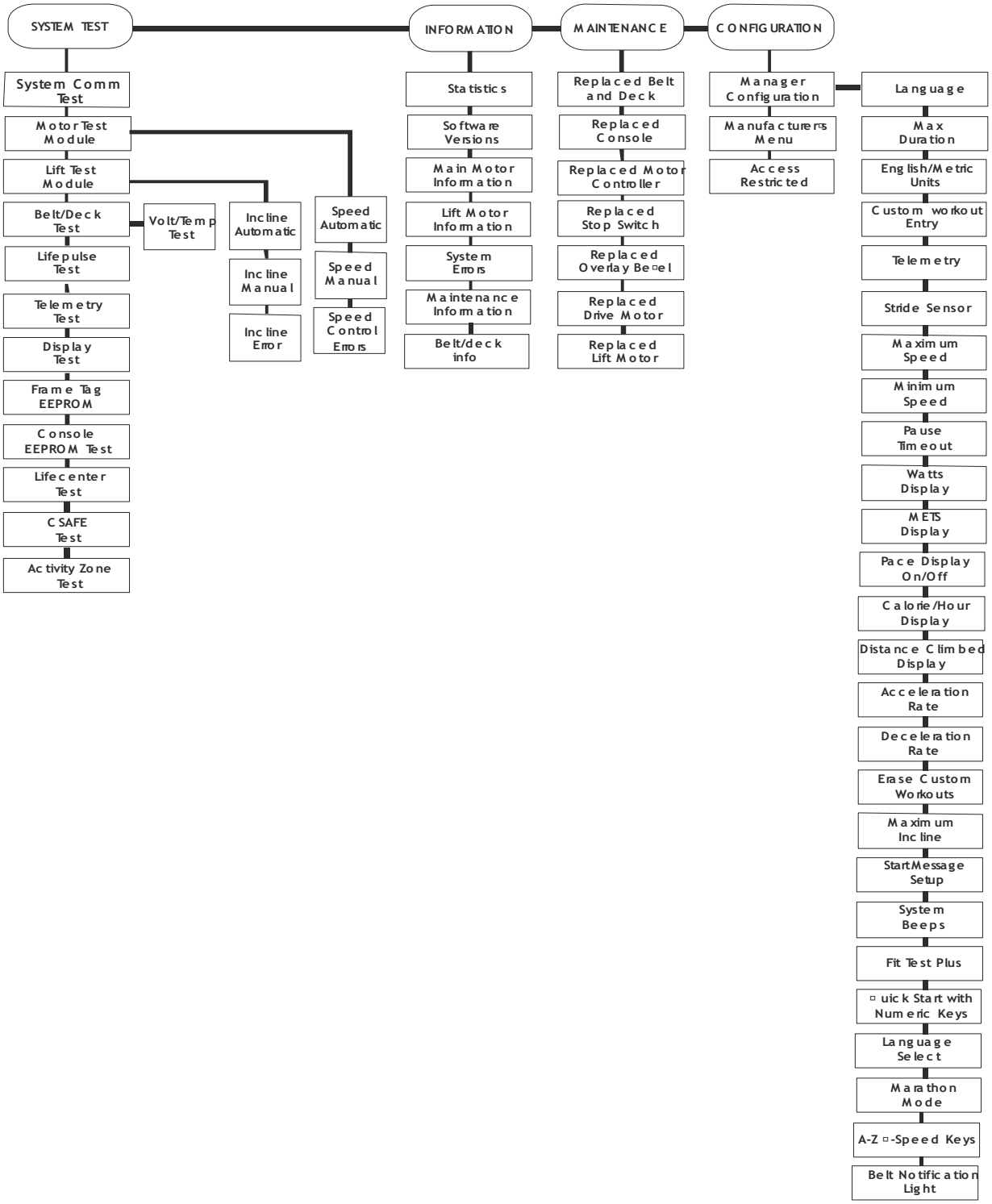


97Ti Console



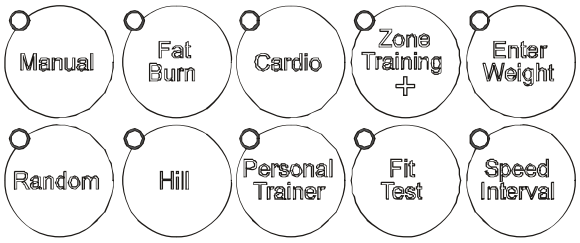
97TWEZ Console

DIAGNOSTIC MAP



□UICK KEY REFERENCE-07 MODELS

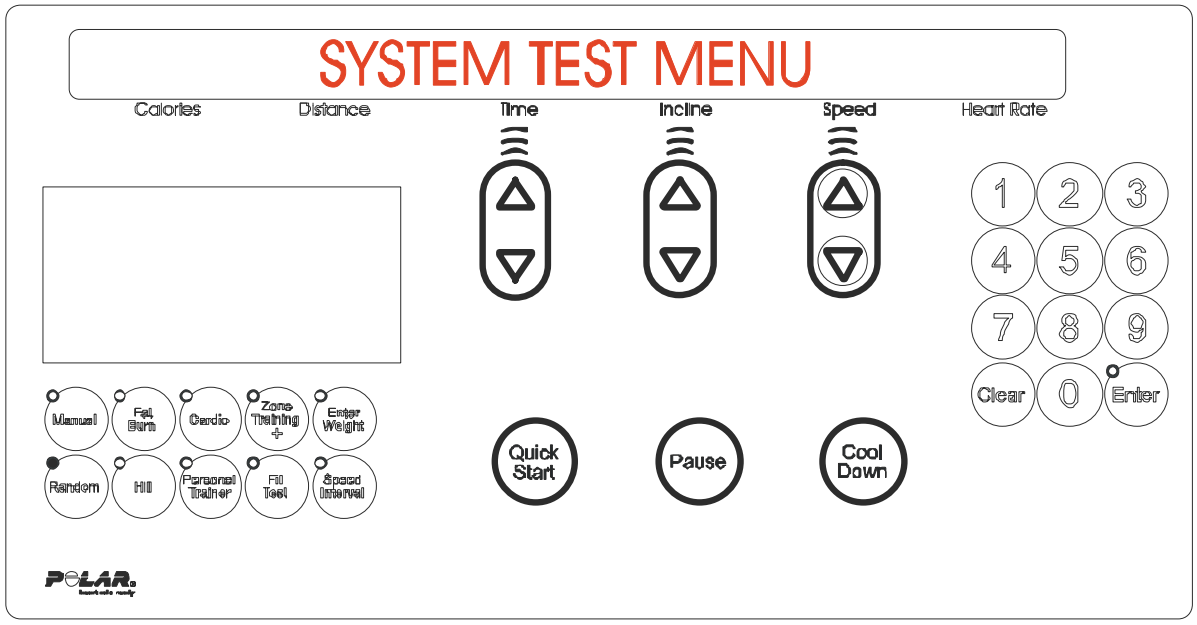
Once Diagnostics has been entered, diagnostic selections can be made by pressing combinations of program keys, as shown in the table below□



DIAGNOSTIC TESTS AND PROGRAM KEY COMBINATIONS											
	DIAGNOSTIC TEST	MANUAL	FAT BURN	CARDIO	RANDOM	HILL	CUSTOM/ PERSONAL TRAINER	FIT TEST	ZONE TRAINING	SPEED INTERVAL	ENTER WEIGHT
SYSTEM TESTS	COMM TEST				ON			ON			
	SPEED AUTO				ON						
	SPEED MANUAL	ON			ON						
	SPEED ERROR				ON		ON				
	INCLINE AUTO					ON					
	INCLINE MANUAL	ON				ON					
	INCLINE ERROR					ON	ON				
	BELT/DECK TEST						ON				
	LIFEPULSE TEST		ON								
	TELEMETRY TEST			ON							
	STRIDE SENSOR TEST		ON			ON					
	DISPLAY TEST	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON
	FRAME TAG EEPROM TEST				ON			ON			
	CONSOLE EEPROM TEST		ON					ON			
	LIFECENTER TEST		ON				ON				
	CSAFE TEST			ON			ON				
	ACTIVITY ZONE TEST										ON
INFORMATION	MAIN MOTOR INFO			ON	ON						
	INCLINE MOTOR INFO			ON		ON					
	BELT/DECK INFO		ON								ON
	STATISTICS		ON	ON							
	SOFTWARE VERSION		ON		ON						
	MAINTENANCE INFO	ON		ON							
	SYSTEM ERROR	ON	ON								
	MAINTENANCE MENU	ON									

Note□ blank fields are considered "off□"

SYSTEM TEST MENU - 07 MODELS



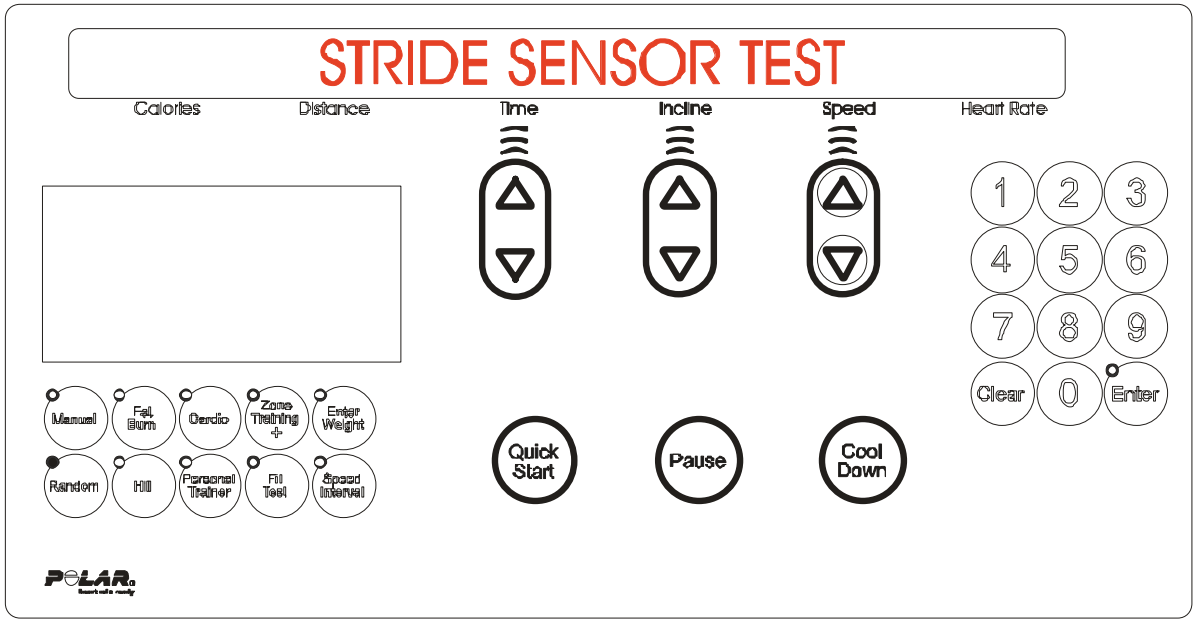
Upon entry the message is "SYSTEM TEST MENU"

Press any of the ARROW keys to scroll the available system tests

System Comm Test
Motor Test Module
Lift Test Module
Belt/Test Test
Lifepulse Test
Telemetry
Display Test
Frame Tag Eeprom
Console Eeprom
Life Center Test
CSAFE Test
Activity Zone Test

Press the ENTER key to access any of the tests

SYSTEM TEST ▫ STRIDE SENSOR TEST-07 MODELS



This test allows the user to test the Stride Sensor system▫ Upon entry into this test, if the Stride Sensor PCB is not plugged in, the message “Stride Sensor Unplugged” will be displayed▫ If the Stride Sensor system detects a user, it will scroll the profile window from empty to full, depending on the percentage of detection that is occurring▫ Other Stride Sensor information will scroll automatically every three seconds▫ These are the possible error messages▫

“STRIDE SENSOR DISABLED”
“STRIDE SENSOR UNPLUGGED”
“STRIDE SENSOR ON”
“STRIDE SENSOR OFF”
“USER DETECTED ON BELT”
“USER NOT DETECTED ON BELT”

If an error has occurred, refer to the Troubleshooting section for corrective action▫

The Stride Sensor system can be turned on and off in this test▫ When the message “STRIDE SENSOR ON” is shown in the message center, an ARROW key will toggle it to “STRIDE SENSOR OFF▫”

The display can be locked by pressing the PAUSE key▫ This will stop the scrolling of the Stride Sensor information▫

Press the CLEAR key to exit the STRIDE SENSOR test and return to the System Test menu▫

CONFIGURATION MENU □ MANAGER (CONTINUED)-07 MODELS

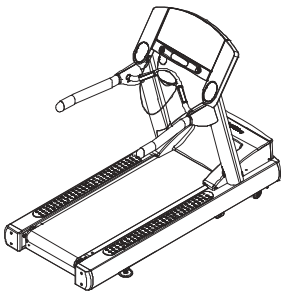
This area will allow the user to see the system□s current configuration□ The information will cover the following areas□

Configuration Setting	Factory Default	Description
LANGUAGE	ENGLISH	Nine languages can be selected□ English, Dutch, Italian, Portuguese, German, French, □apanese, Spanish, and Turkish□ □apanese is available only on units e□uipped with the Complex Character Display□
MAX DURATION SETUP	□0 Minutes	This feature enables fitness club managers to set workout duration limits□
MAXTIME SETUP	OFF	This feature enables fitness club managers to set workout duration limits□
STANDBY MODE SETUP	OFF	This feature enables fitness club managers to set periods at which the treadmill automatically powers up or power down□ See the operation manual for details
ENGLISH/METRIC UNITS	ENGLISH	Measurement unit types for weight, distance and speed□
CUSTOM WORKOUT ENTRY	N/A	See “Programming Custom Workouts” in section □ of the operation manual□
TELEMETRY	ON	The telemetry feature makes it possible to use the Polar-compatible Heart Rate Zone Training exercise chest strap for monitoring the heart rate□
MAXIMUM SPEED	□□□0 MPH(Km/h) for 95T-07 □□□0 MPH(Km/h) for 97T-07	This feature allows the fastest speed at which the treadmill can operate to be set□
MINIMUM SPEED	□05 MPH(km/h)	This is the slowest speed at which the treadmill can operate□
PAUSE TIMEOUT	□ (minute)	This is the maximum time during which a workout can remain in pause mode□
WATTS DISPLAY	OFF (Int□l□ ON)	If this option is enabled, the message center displays the watts e□uivalent of the step rate□
METS DISPLAY	OFF	If this option is enabled, the message center displays the METS e□uivalent of the step rate□
PACE DISPLAY	ON	This feature displays the rate in minutes per mile□
CALORIE PER HOUR DISPLAY	ON (Int□l□ OFF)	If this option is enabled, the message center displays the number of calories burned per hour during the workout□

CONFIGURATION MENU □ MANAGER (CONTINUED)-07 MODELS

Configuration Setting	Factory Default	Description
DISTANCE CLIMBED DISPLAY	OFF	The total distance climbed, based on the incline and speed of the treadmill□
ACCELERATION RATE	□	The rate at which the treadmill accelerates to the selected speed, ranging from □ (slowest) to 5 (fastest)□
DECELERATION RATE	□	The rate at which the treadmill decelerates to the selected speed, ranging from □ (slowest) to 5 (fastest)□
ERASE CUSTOM WORKOUTS	N/A	This option erases all custom workouts in a single step□
MAXIMUM INCLINE	□5□0	This option changes the maximum incline grade to a value lower than □5 percent□
START MESSAGE SETUP	N/A	See "Using the Start Message Setup" in the operation manual□
□UICK START DISABLE	OFF	Using this option to disable or enable □uick Start workout via the numeric keys□ See "Using □uick Start Disable" in the operation manual□
FIT TEST PLUS	ON (Int□l□ OFF)	Enable/disable fit tests□ Army PFT□ Navy PRT□ Marines PFT□ Gerkin protocol□ PEB
SYSTEM BEEPS	ON	Enable/disable system beep on key press□
USER LANGUAGE SELECT	OFF	This option, if enabled, gives the user the ability to select a language for use during a work out□ See "User Language Select" in the operation manual□
MARATHON MODE	OFF	This option, if enabled, allows the user to work out indefinitely□ See "Marathon Mode" in the operation manual□
ACTIVITY ZONE □-SPEED KEYS	ON	Use this option to enable or disable the three speed keys on the Activity Zone panel□ If disabled, the user will see "FEATURE DISABLED BY MANAGER" whenever ACTIVITY ZONE keys are pressed□
BELT NOTIFICATION LIGHT	OFF	If enabled, this option will alert a fitness club manager if the belt notification exists□

Press the PAUSE key to lock the display□ This will stop the scrolling of information□
All changed items will be saved to the memory upon exiting Manager□s Configuration□
Press the CLEAR key to exit Manager□s Configuration and return to the Configuration Menu□



LifeFitness

95/97T and 95/97TWEZ Treadmills with DSP Motor Controllers

“HOW TO…”

HOW TO□□□REPLACE UPRIGHT COVERS, MOTOR COVER, □ FRONT COVER

Tools re□uired□Phillips screwdriver
Estimated time re□uired□□5 minutes

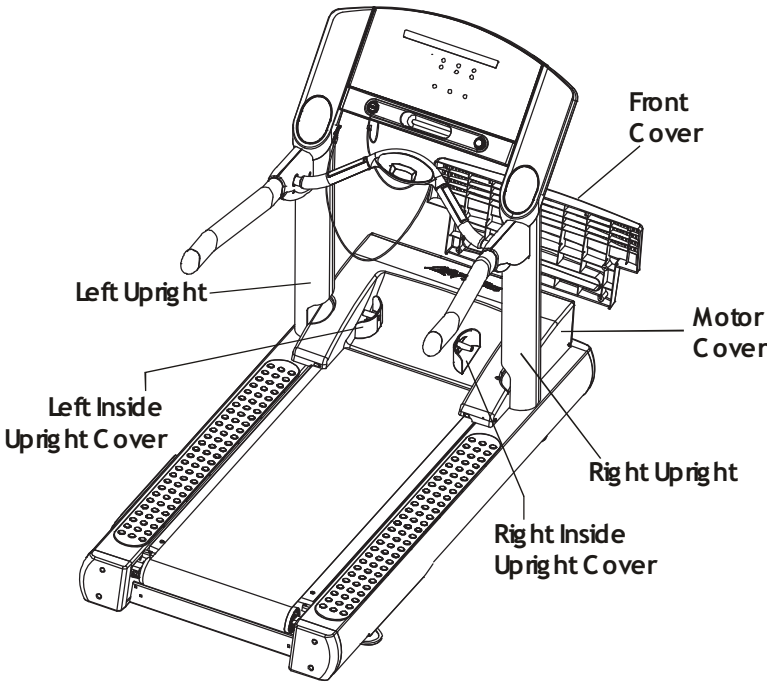
□□ Turn the power off at the on/off switch□

□□ Unplug the line cord from the wall outlet□

□□ Remove the mounting screws that secure the left and right inside upright covers□

□□ Remove the four front cover screws□

5□ Remove the front cover□



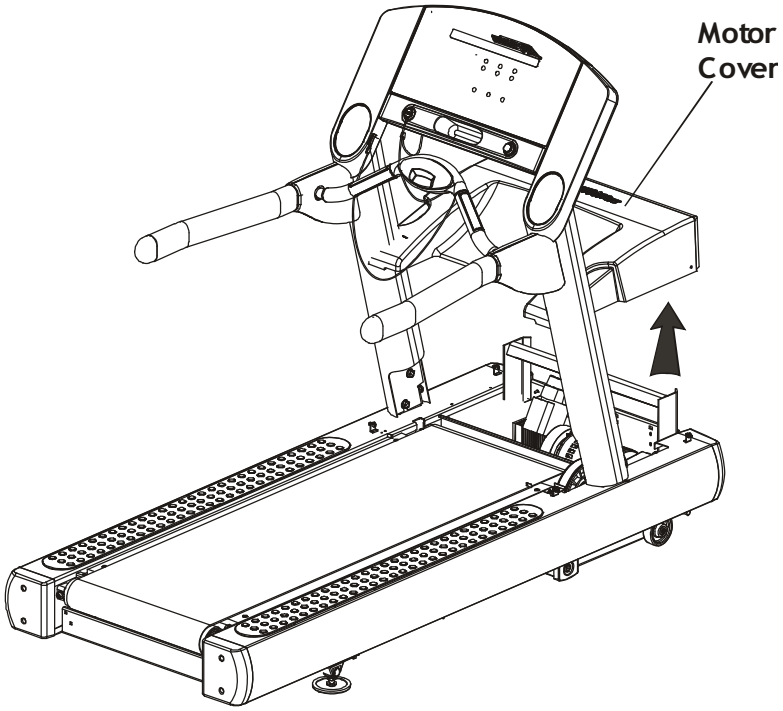
□□ Remove the four motor cover screws□

7□ Lift the cover out from between the support uprights□

□□ To reassemble the unit, install the motor cover□

9□ Install the front cover□

□0□Install the inside upright covers□



HOW TO□□□REPLACE THE STRIDING BELT AND DECK

Tools re□uired□Phillips screwdriver, Allen wrenches
Estimated time re□uired□□ hour

□□ Turn the power off at the on/off switch□

□□ Unplug the line cord from the wall outlet□

□□ Remove the upright covers□ See "How To..." on page □□□

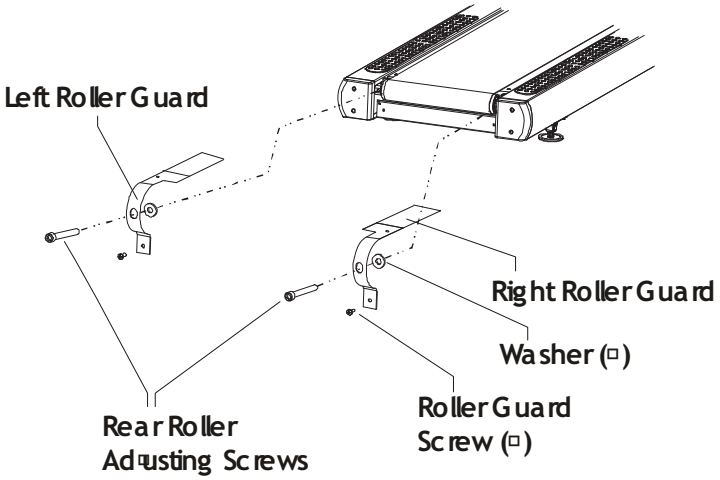
□□ Remove the front cover□

5□ Remove the motor cover□

□□ Remove the four screws that secure the roller guards to the rear roller□

7□ Remove the roller guards□

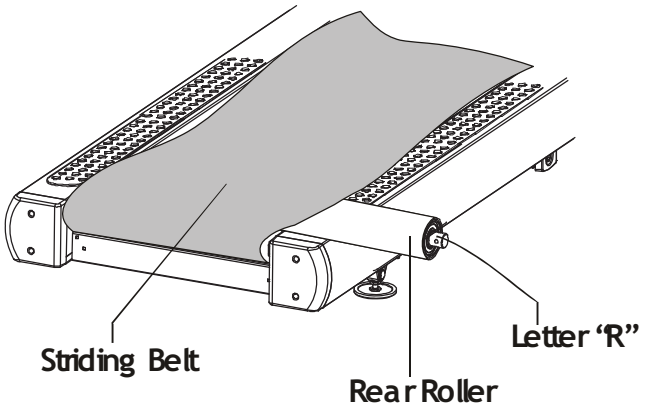
□□ Remove the rear roller ad□usting screws□



note

To simplify re-tensioning the striding belt, mark the initial positions of the roller ad□usting screws or count the number of rotations when loosening them□

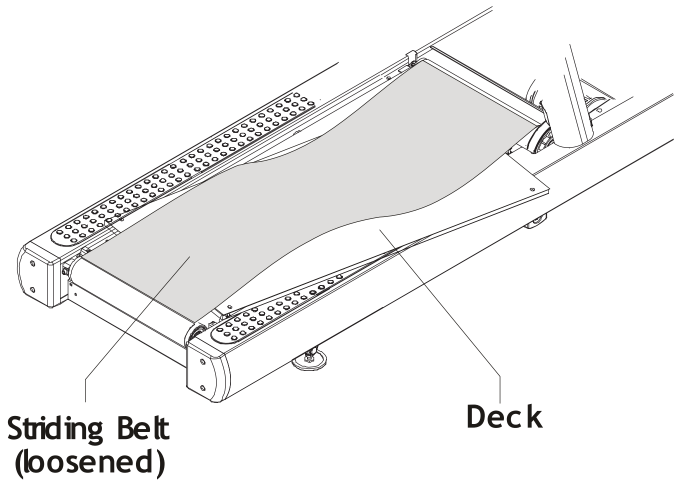
9□ Remove the rear roller from under the striding belt □ust enough to mark the right end of the shaft with the letter "R" with a felt-tip marker so that it can be reinstalled in the same left-right orientation□ This will maintain the same bearing wear pattern□



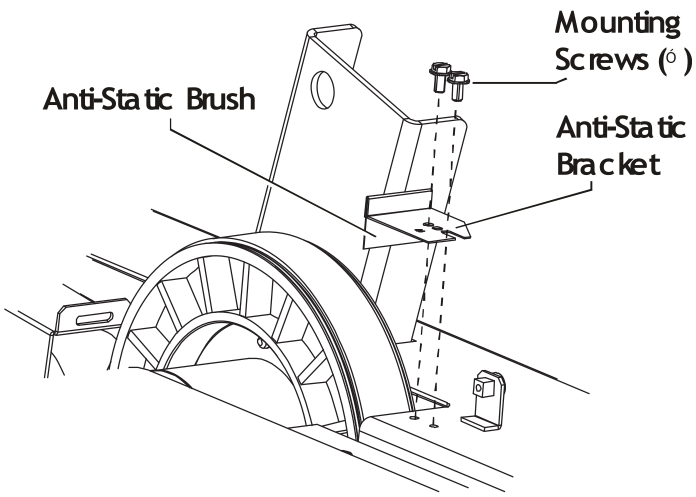
HOW TO□□□REPLACE THE STRIDING BELT AND DECK õ CONTINUED

□0□Remove four deck screws, one at each corner of the deck□

□□□Remove the deck from under the striding belt□



ôóú To avoid damage to the anti-static brush, remove the two mounting screws that secure the anti-static brush bracket (immediately behind the front roller pulley)□

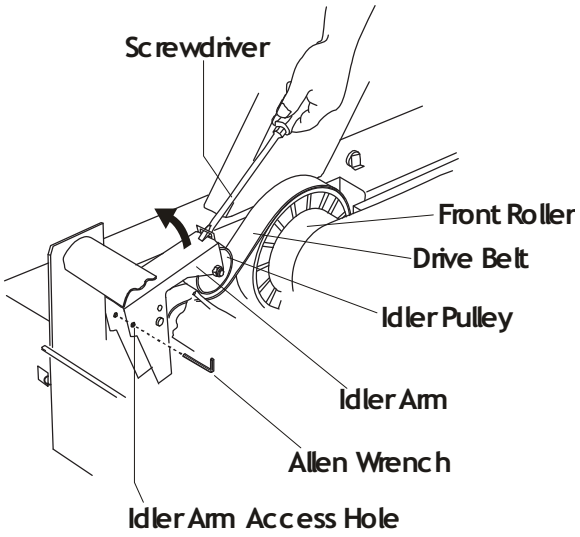


HOW TO□□□REPLACE THE STRIDING BELT AND DECK □ CONTINUED

caution

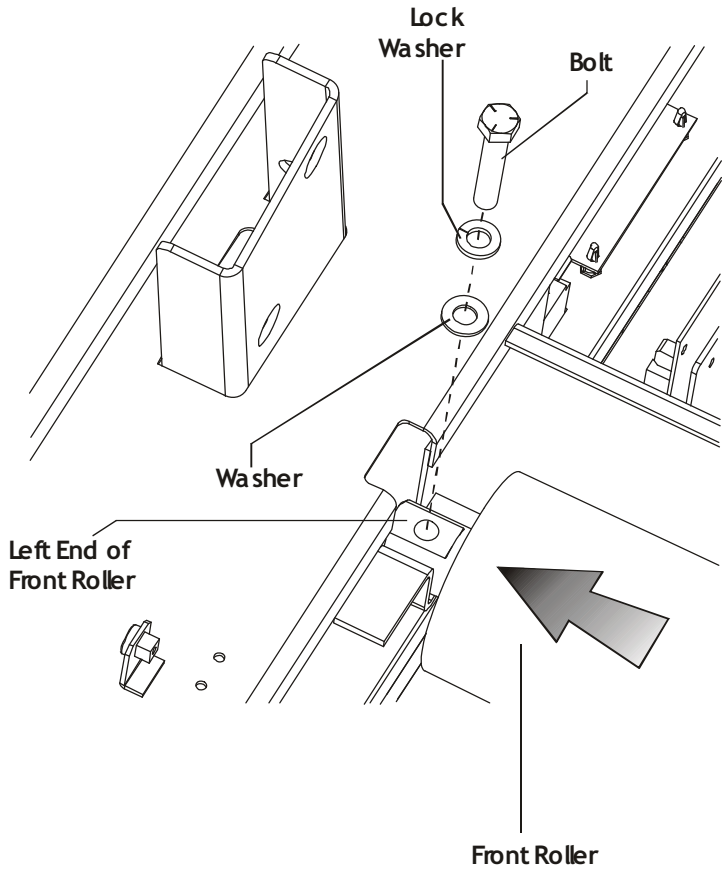
The idler arm is under extreme spring tension□ In the next step, hold the screwdriver securely and do not raise the idler arm any higher than necessary□

□□□ Insert a flat blade screwdriver into the slotted end of the idler arm□ Raise the idler arm □ust enough to install an Allen wrench into the access hole of the idler arm to keep it in a raised position□



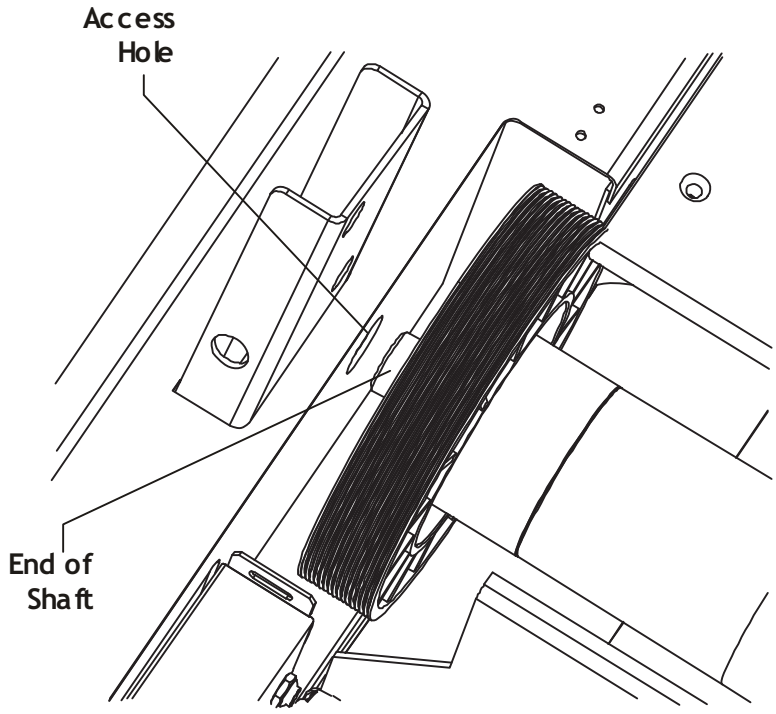
□□□ Remove the mounting bolt, lock washer and flat washer that secure the front roller shaft at the left side of the frame

□5□ Slide the left end of the front roller shaft as far as possible toward the left side of the frame□ (For clarity, the striding belt has been removed in this illustration□)



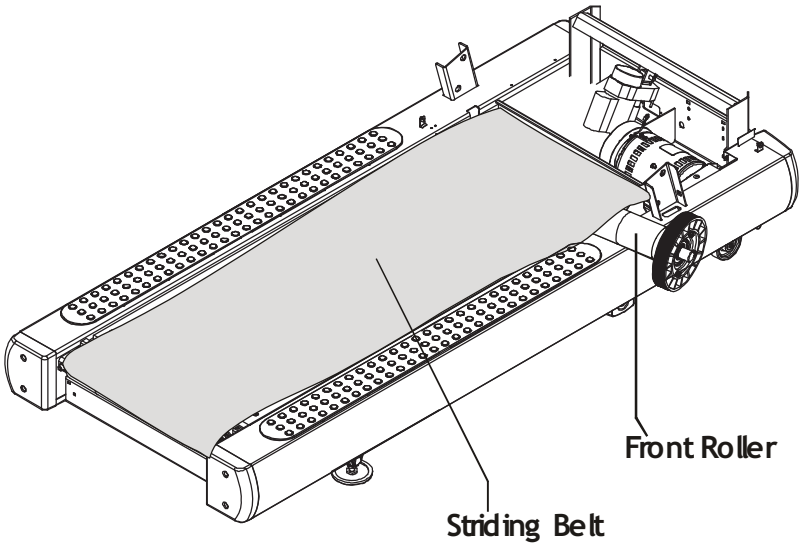
HOW TO REPLACE THE STRIDING BELT AND DECK - CONTINUED

3. The other end of the front roller will now clear the access hole in the right side of the frame. Remove the motor drive belt from the front roller pulley.



Right End of Front Roller (as viewed from the front of the unit)

7. Remove the front roller from under the striding belt.



HOW TO□□□REPLACE THE STRIDING BELT AND DECK - CONTINTUED

□□□ Remove the striding belt from the frame□ Discard the striding belt□

□9□ Position the new striding belt inside the unit□ The arrow on the inside of the belt must point in the direction of belt rotation□

□0□ Replace the anti-static tinsel□

□□□ Position the front roller under the striding belt□

□□□ Place the right side of the front roller shaft in the access hole□

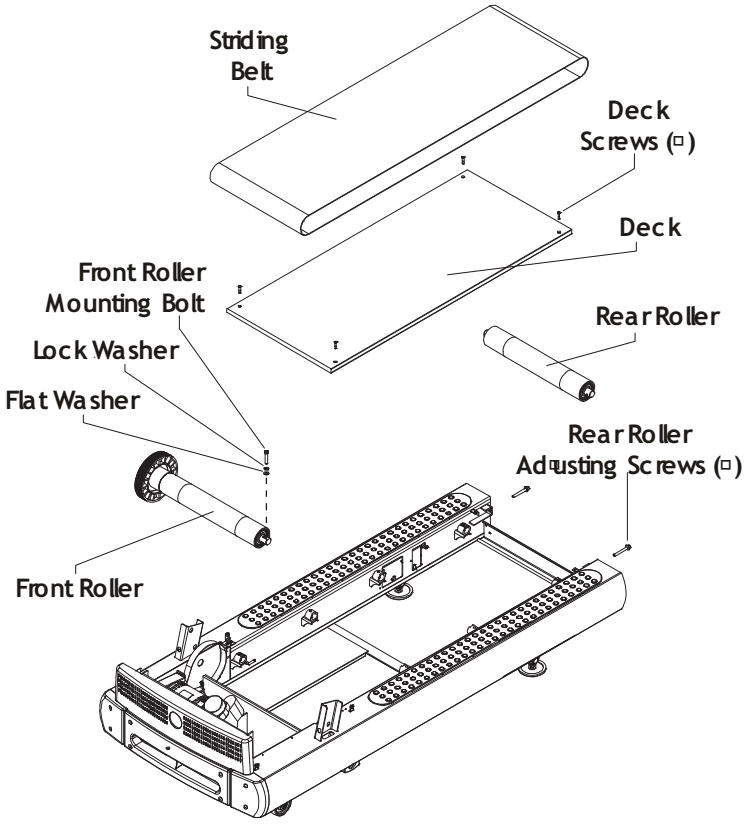
□□□ Secure the left side of the front roller shaft with the mounting bolt and washers□

□□□ Reinstall the motor drive belt on the front roller pulley□

□5□ Install the new deck (or flip and reinstall the existing deck)□

□□□ Secure the deck with the four mounting screws□

□7□ Remove any wax build-up on the rear roller□



□□□ Position the rear roller under the striding belt□ Orient the roller so that the “R” identification mark at the end of the roller shaft is positioned on the right-hand side of the machine□

□9□ Secure the rear roller adjusting screws by hand□ (Do not tighten these screws at this time□ The belt should remain loose□)

□0□ Adjust the striding belt□ See the “How To□□□” procedures on pages □9 and 90□

□□□ Reinstall the inside upright covers

□□□ Reinstall the motor cover□

□□□ Reinstall the front cover□

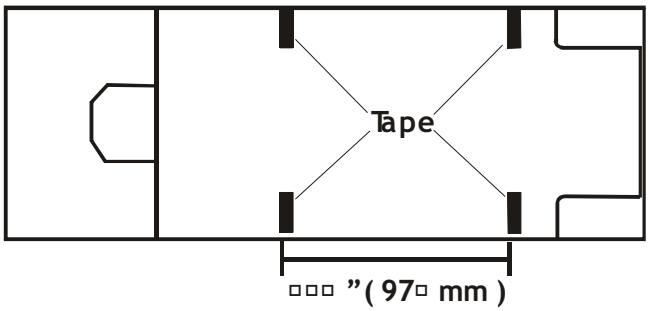
□□□ Refer to page □□ in the Diagnostics section to log the maintenance repair of the striding belt□

HOW TO□□□TENSION A NEW STRIDING BELT

Tools re□uired□Allen wrenches
Estimated time re□uired□□5 minutes

□□ Center the loose striding belt on the front and rear rollers□

□□ Place two pieces of masking tape exactly □□□ ” (97□ mm) apart on the right and the left edges of the striding belt as shown (four pieces total)□

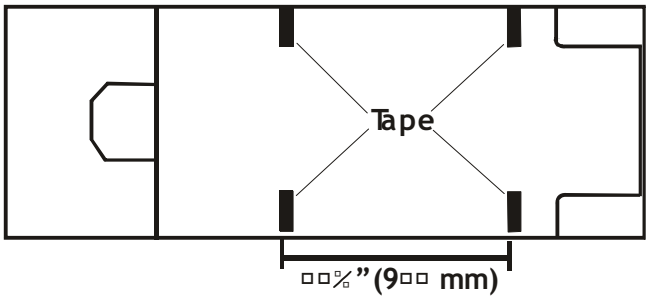


□□ Position the belt within three barriers□

□□ Tighten the tensioning bolts until the distance between the tapes (on both sides) is increased to □□□ ” (9□□ mm)□ At this point, the belt is properly tensioned□

5□ Ad□ust the striding belt tracking□ See “How To□□□ Ad□ust the Striding Belt Tracking” on page 9□□

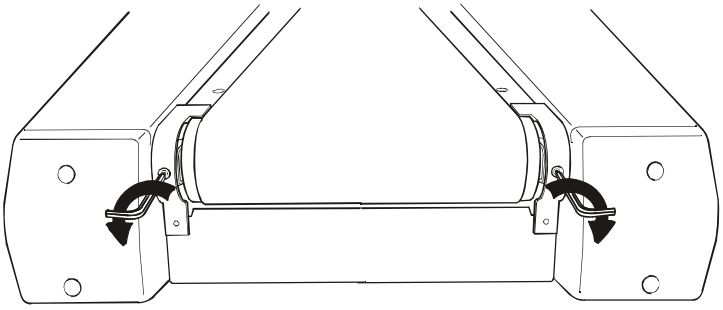
□□ Refer to Maintenance on page □□ of the Diagnostics section to log this event□



HOW TO□□□TENSION AN EXISTING STRIDING BELT

Tools re□uired□ Allen wrenches
Estimated time re□uired□□ 5 minutes

□□ Locate the belt tensioning bolts on both sides of the rear roller□ The tensioning bolts are accessible through the holes in the rear roller guards□



□□ Return the tensioning bolts to their approximate original position (using the mark or the number of rotations re□uired to remove them)□

□□ Enter SPEED MANUAL and run unit at 5□0 mph (□□0 km/h) for five minutes□ Do not walk or run on the treadmill during this time□

□□ Ensure that the belt is centered□ If the belt is not centered, see the "How To..." on the following page□

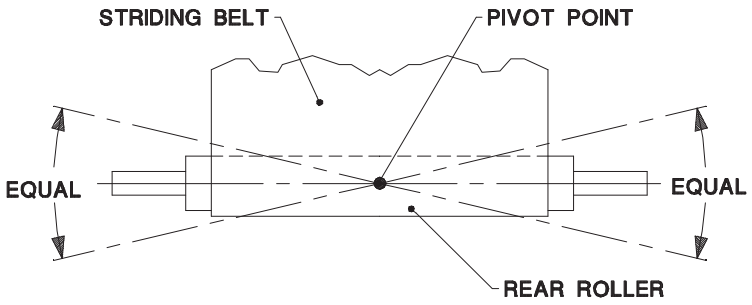
5□ Set the striding belt speed to □ mph (□□□ km/h)□

□□ While walking on the treadmill, tightly grasp the handrails and make a deliberate attempt to slow the striding belt□ If belt slippage is detected, proceed to step 7, otherwise skip to step □□

7□ Stop the belt and increase the belt tension on each side by one □uarter-turn□ Return to step □□

Never make tension ad□ustments in greater than □uarter-turn increments□

□□ With the belt running, note its tracking on the deck surface□ If the belt is offset to the right or left, refer to the following tracking procedure in the following section□



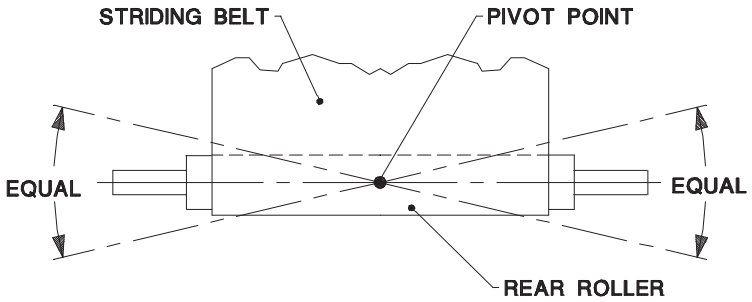
HOW TO□□□AD□UST THE STRIDING BELT TRACKING

Tools re□uired□ Allen wrenches
Estimated time re□uired□□ 5 minutes

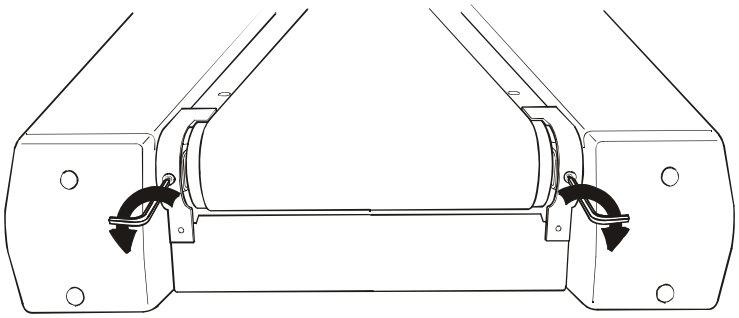
> **note** It is critical that the treadmill be level prior to any tracking ad□ustments□ An unstable or unleveled unit can cause the striding belt to drift to one side□ Refer to "How To…Remove the Leveler Assembly" on page □□□ for leveling instructions□

□□ Turn power on□

□□ Use the SPEED AUTOMATIC mode to set the belt speed to □□5 mph (□□0 km/h)□



□□ If the striding belt has moved to the right, turn the right tension bolt □/□-turn clockwise and the left tension bolt □/□-turn counter-clockwise, as shown in the illustration) to start moving the striding belt back to the center of the rear roller□



□□ If the striding belt has moved to the left, turn the left tension bolt □/□ turn clockwise and the right tension bolt □/□ turn counter-clockwise (opposite the direction shown in the illustration) to start moving the striding belt back to the center of the rear roller□

5□ Repeat this ad□ustment until the striding belt is centered□ Allow the unit to operate for several minutes to see that the belt remains in the centered position□

> **note** During the ad□ustment, do not exceed one full turn of the ad□usting screws in either direction to avoid significant changes in belt tension□

HOW TO...REPLACE THE MAIN DRIVE BELT

Tools re□uired□Phillips screwdriver, socket wrenches, Allen wrenches
Estimated time re□uired□□5 minutes

ôÚ Turn the power off at the on/off switchÚ

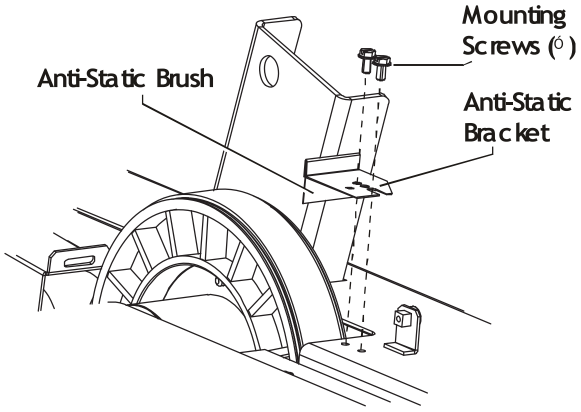
óÚ Unplug the line cord from the wall outlet□

ìÚ Remove the inside upright covers□ See the "How To..." on page ËìÚ

ïÚ Remove the front cover□

5□ Remove the motor cover□

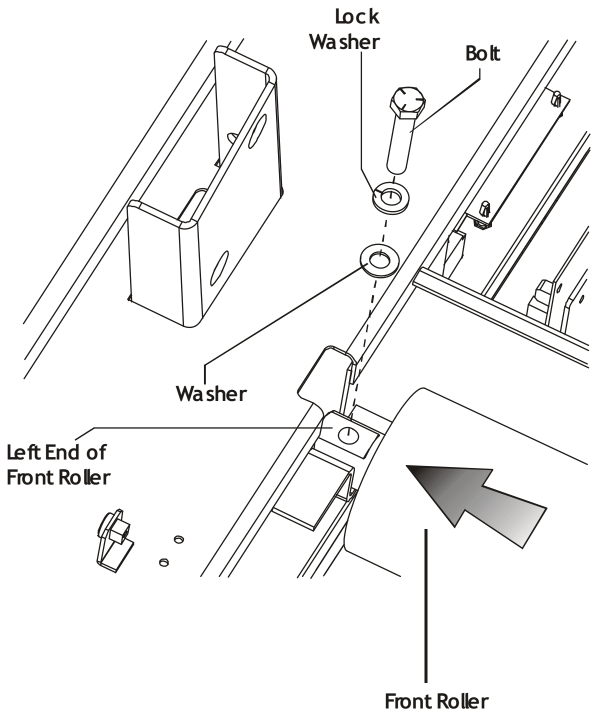
íÚ Loosen the rear roller ad□usting screws to slacken the Striding Belt enough to allow side-to-side movement of the front roller□



7□ Remove two screws that secure the anti-static brush bracket □ust behind the front roller pulley□ This will prevent it from being damaged during roller removal□

To simplify the re-tensioning of the striding belt, count the number of rotations when loosening the roller ad□usting screws□

ËÚ Remove the mounting bolt that secures the end of the front roller shaft on the left side of the frame□



HOW TO□□□REPLACE THE MAIN DRIVE BELT - CONTINUED

caution

The idler arm is under extreme spring tension□ In the next step, hold the screwdriver securely and do not raise the idler arm any higher than necessary□

9□ Loosen the tension on the drive motor belt by inserting a flat blade screwdriver into the slotted end of the idler arm□ Raise the idler arm □ust enough to install an Allen wrench into the access hole in the idler arm to keep it in a raised positionÚ

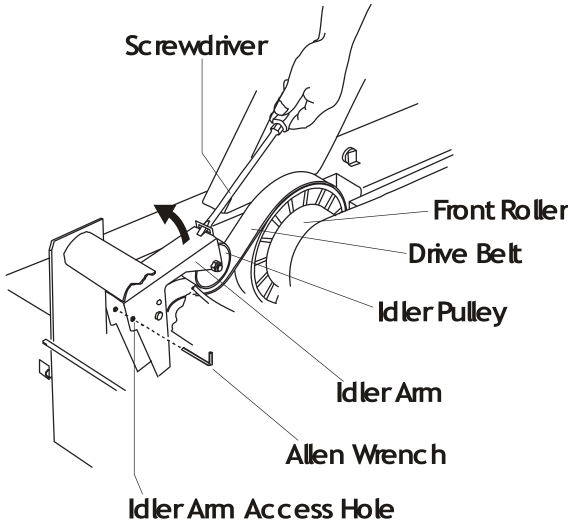
ô 0Ú Move the front roller shaft as far as possible toward the left side of the frame□

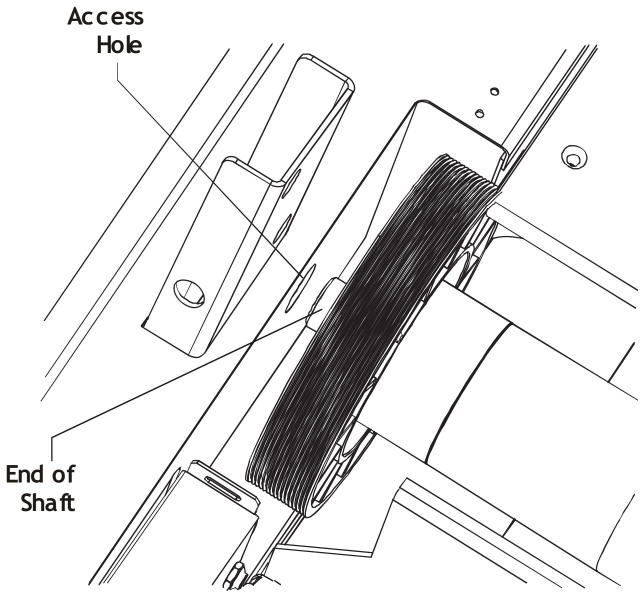
ôôÚ The other end of the front roller will now clear the access hole in the right side of the frame□ Remove the old drive belt from the front roller pulley and motor pulley□

ôóÚ Install a new main drive belt in the reverse order□

□□□Re-tension the striding belt following the "How To..." procedure on page 90□

□□□Reinstall the covers□





Right End of Front Roller (as viewed from the front of the unit)

HOW TO□□□REPLACE THE DRIVE MOTOR

Tools re□uired□Flat head screwdriver, socket wrenches, Allen wrenches
Estimated time re□uired□□5 minutes

□□ Turn the power off at the switch□

□□ Unplug the line cord at the wall outlet□

□□ Remove the inside upright covers□ (See the "How To..." on page □□)

□□ Remove the front cover□

5□ Remove the motor cover□

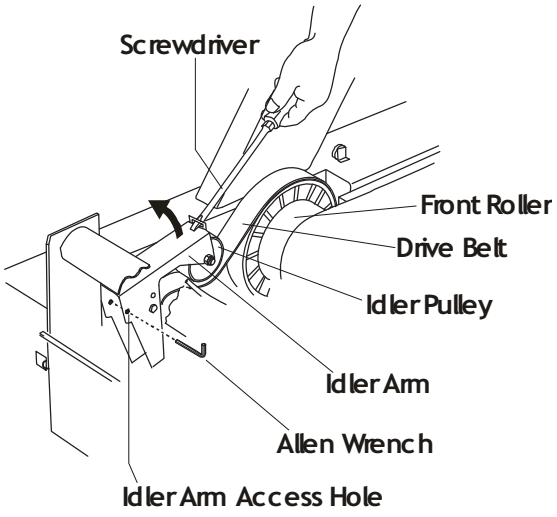
□□ Disconnect two cable connectors from the motor□

caution

The idler arm is under extreme spring tension□ In the next step, hold the screwdriver securely and do not raise the idler arm any higher than necessary□

7□ Loosen the tension on the drive motor belt by inserting a flat blade screwdriver into the slotted end of the idler arm□ Raise the idler arm □ust enough to install an Allen wrench into the access hole of the idler arm to keep it in a raised position□

□□ Remove the four lock nuts, flat washers and insulating washers from the motor studs□



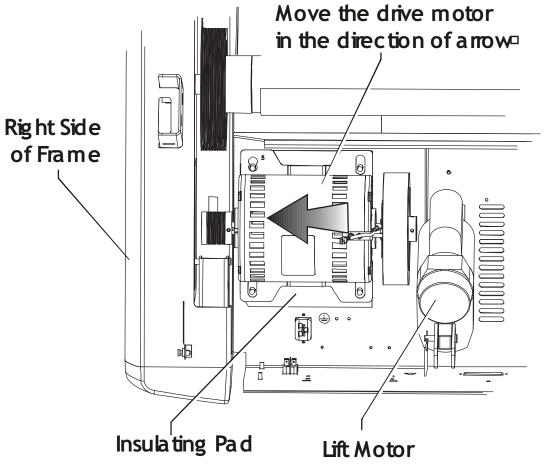
HOW TO□□□REPLACE THE DRIVE MOTOR - CONTINUED

7□ The drive motor is removed in three movements□ (For clarity, a number of components have been removed from the illustration□)

a□ Initially, lift the motor off its studs□

b□ Then move it sideways toward the left side of the frame to allow added clearance between the pulley and lift motor□

cÚ Finally, tilt the pulley end up and continue to lift out the motor at this angle□



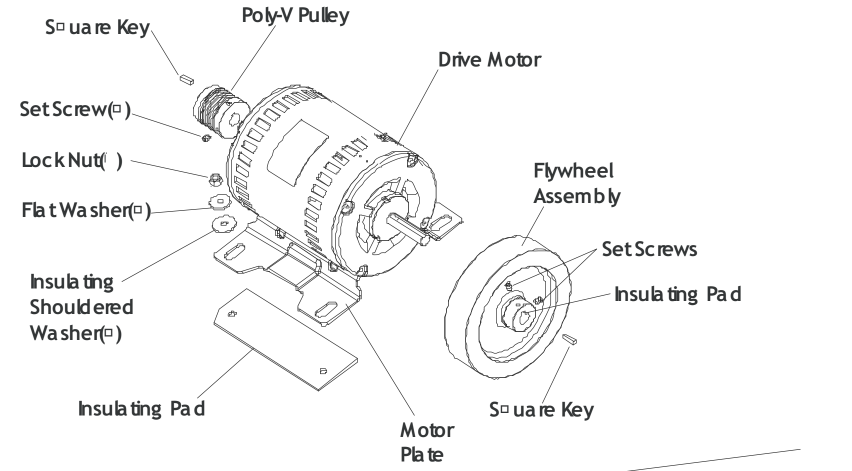
ËÚ Remove the insulating pad under the motor plate□

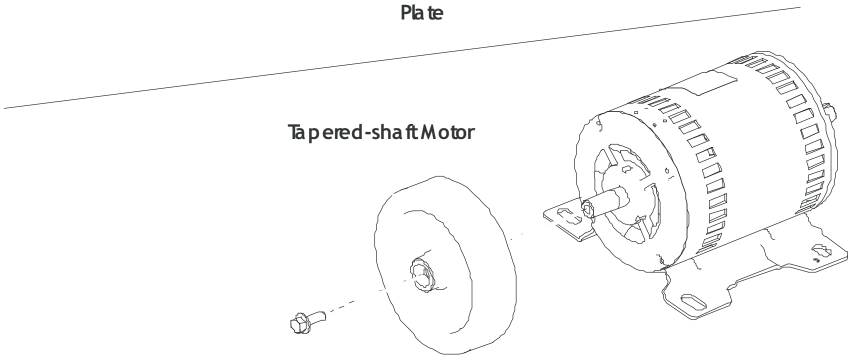
9□ Remove the flywheel and the Poly-V pulley, which are held on by set screws□ Keep these components and hardware for the new motor□

ô0Ú Slide the flywheel and the s□uare key on the new drive motor shaft□

□□□Apply Loctite® ÓÏÓ on the flywheel set screw threads□

ÔÓÚ Tighten the flywheel□





HOW TO□□□REPLACE THE DRIVE MOTOR - CONTINUED

□□□Slide the Poly-V pulley onto the motor shaft□

ôïú To align the drive motor pulley with the front roller pulley□

a□ Using a straightedge, align the outer face of the Poly-V pulley with the outer face of the front roller pulley□

b□ If necessary, move the Poly-V pulley in or out on the shaft□

cú Tighten one of the two setscrews on the Poly-V pulley□

d□ Remove the other setscrew and apply Loctite ôïó to its threads□

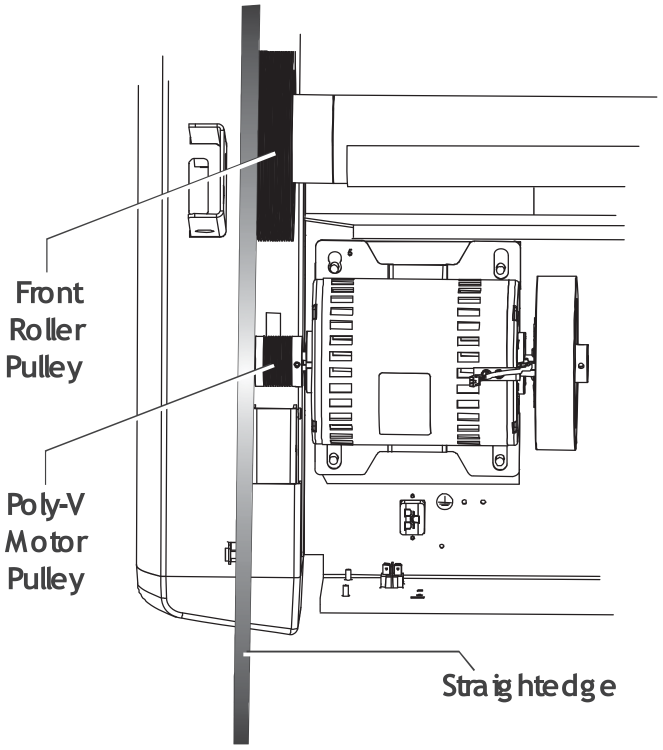
e□ Insert and tighten that setscrew in the pulley□

fú Remove the first setscrew□

gú Apply Loctite ôïó to its threads□

hú Insert and tight the first setscrew□

iú Repeat this procedure with the front roller pulley□s setscrews□



□5□Install the new motor□

□□□Reconnect the drive belt□

□7□Reconnect all connectors to the motor controller□

□□□Before releasing the idler tensioning arm, make sure that the drive belt is positioned on the far left Poly-V pulley groves□

□9□Reinstall the motor cover□

□0□Reinstall the front cover□

□□□Reinstall the inside upright covers□

□□□Refer to page íï the Diagnostics section to log maintenance repair of the drive motor□

HOW TO□□□REPLACE THE FRONT ROLLER

Tools re□uired□Flat head screwdriver, Allen wrenches, socket wrenches
Estimated time re□uired□□ hour

caution

The idler arm is under extreme spring tension□ In the next step, hold the screwdriver securely and do not raise the idler arm any higher than necessary□

□□ Turn the power off at the on/off switch□

□□ Unplug the line cord at the wall outlet□

□□ Remove the inside upright covers□ See the “How To…” on page □□ or procedures for removing the inside upright cover, the front cover and the motor cover□

□□ Remove the front cover□

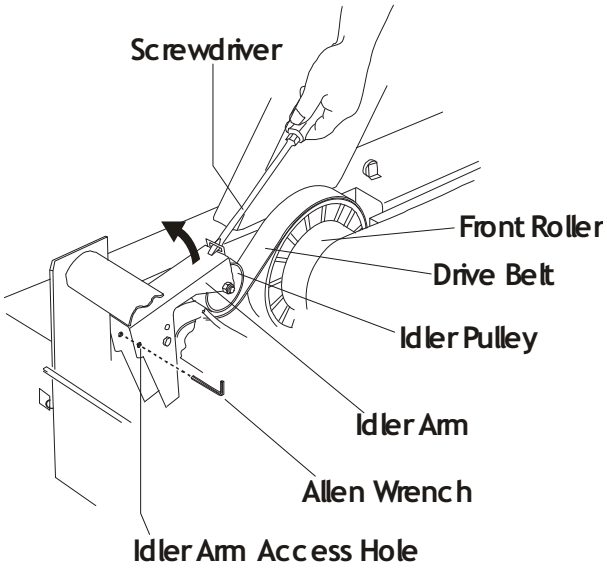
5□ Remove the motor cover□

□□ Loosen the rear roller ad□usting screws to slacken the striding belt enough to allow side-to-side movement of the front roller□

note

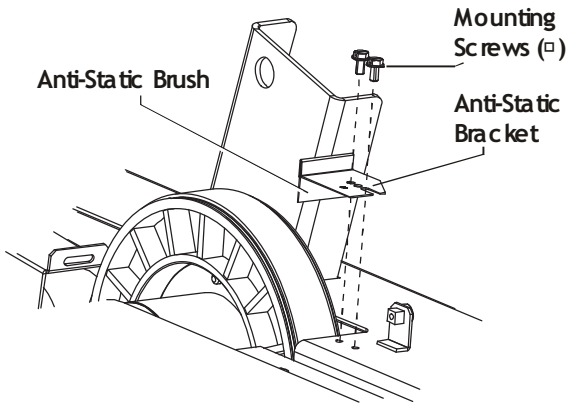
To simplify re-tensioning the striding belt, mark the initial positions of the roller ad□usting screws or count the number of rotations when loosening them□

7□ Insert the end of a flat blade screwdriver in the slot of the idler arm□ Raise the idler arm and insert an Allen wrench in the idler arm access hole to keep it in a raised position□



HOW TO□□□REPLACE THE FRONT ROLLER - CONTINUED

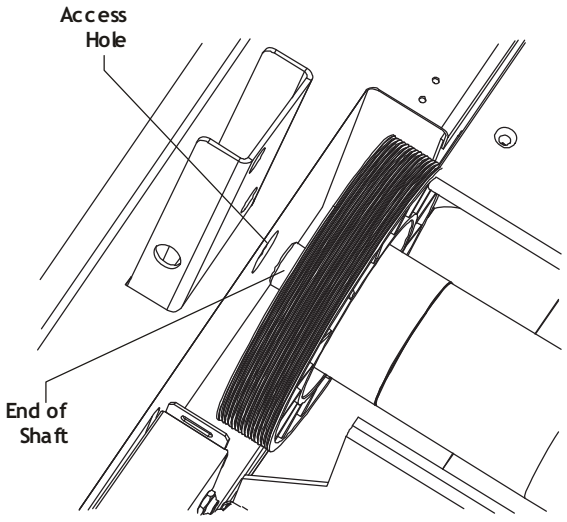
□□ To avoid damage to the anti-static brush, remove the two mounting screws that secure the anti-static brush bracket (immediately behind the front roller pulley)□



9□ Remove the mounting bolt□ lock washer, and flat washer that secure the left front roller shaft at the left side of the frame□

□0□ Slide the left end of the front roller shaft as far as possible toward the left side of the frame□

□□□ The other end of the front roller will now clear the access hole in the right side of the frame□ Remove the motor drive belt from the front roller pulley□ (For clarity, the striding belt has been removed in this illustration□)



Right End of Front Roller (as viewed from the front of the unit)

HOW TO□□□REPLACE THE FRONT ROLLER - CONTINUED

ôóú From the right side of the frame, remove the front roller from under the striding belt□

□□□ Remove the pulley and hardware from the front roller (save for the new front roller)□

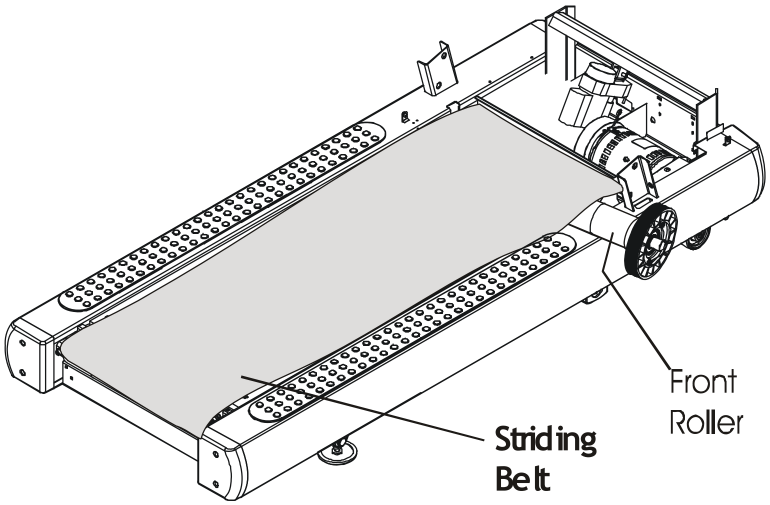
ôíú Install the pulley on the new front roller□

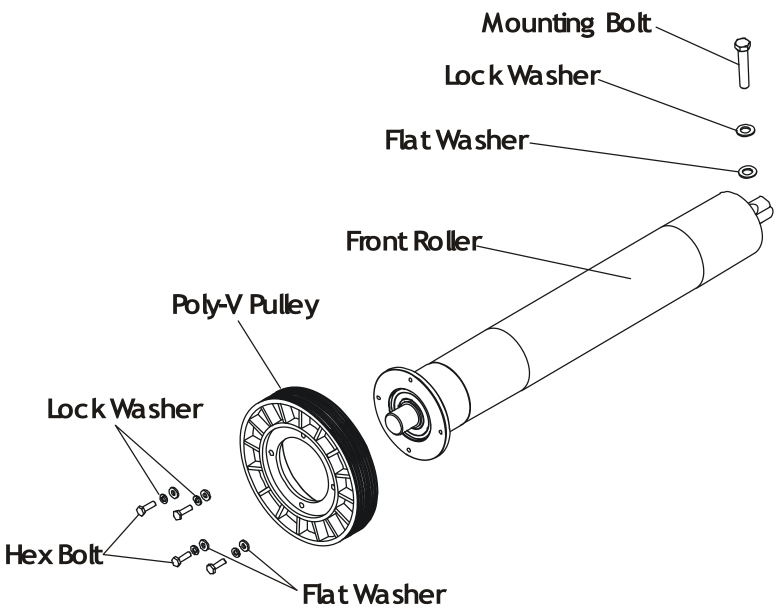
□5□ Install the front roller into position and secure in place with the mounting bolt, lock washer and flat washer on the left side of the roller shaft□

ôíú Position the motor drive belt on the left-side grooves of the front roller pulley□

□7□ Lower the Idler arm roller against the drive motor belt□

□□□ Refer to the "How To..." sections on tensioning the striding belt (page 90 and ad□usting the belt□s tracking (page 9□





HOW TO□□□REPLACE THE REAR ROLLER

Tools re□uired□Phillips screwdriver, Allen wrenches
Estimated time re□uired□□5 minutes

□□ Turn the power off at the on/off switch□

□□ Unplug the line cord at the wall outlet□

□□ Remove the four screws that secure the roller covers and guards□

□□ Remove the roller covers and guards from the rear roller□

5□ Index the initial position of the ad□usting screw or count the rotations and remove the rear roller ad□usting screws□

□□ Remove the rear roller from under the striding belt□ Discard the belt□

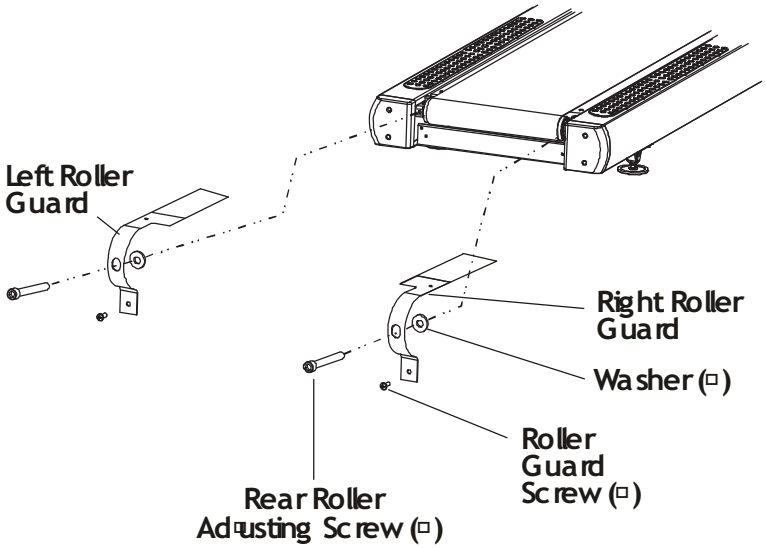
7□ Install the new rear roller in the reverse order of removal□

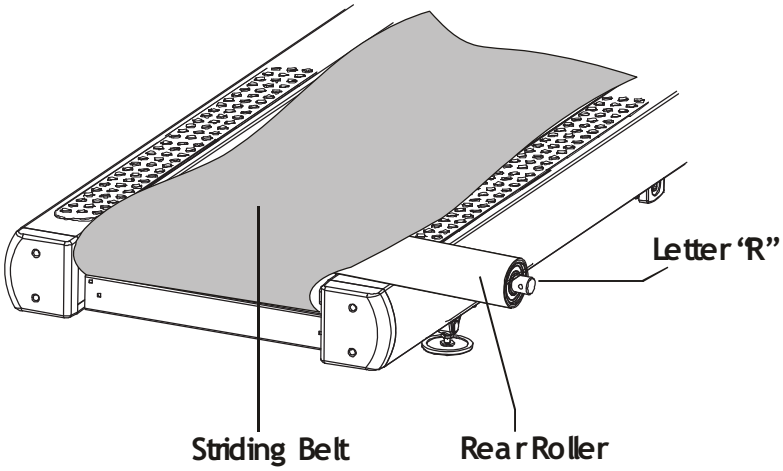
□□ Reinstall the tensioning bolts□

9□ Refer to the sections on ad□usting the striding belt tracking (page 90 and tensioning page 9□)

□0□ Reinstall the rear roller guards□

□□□ Reinstall the covers□





HOW TO□□□REPLACE THE REAR ROLLER GUARDS

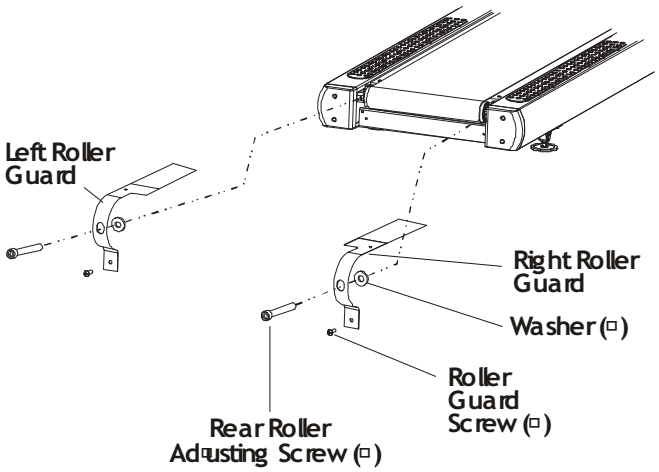
Tools re□uired□Phillips screwdriver
Estimated time re□uired□□5 minutes

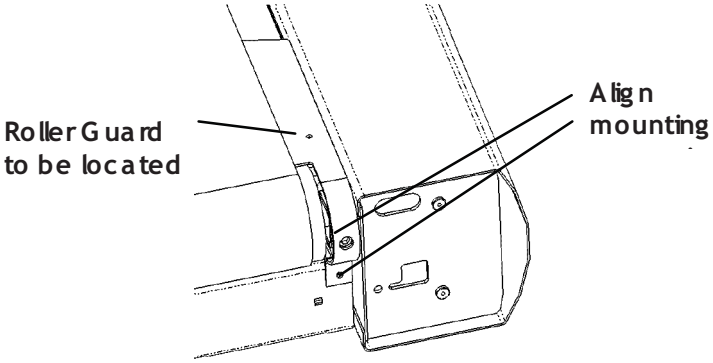
□□ Remove the screws that secure the rear roller guard assembly to the frame□

□□ Place the roller guard in position as shown with the top surface under the walking belt and with the mounting holes aligned□

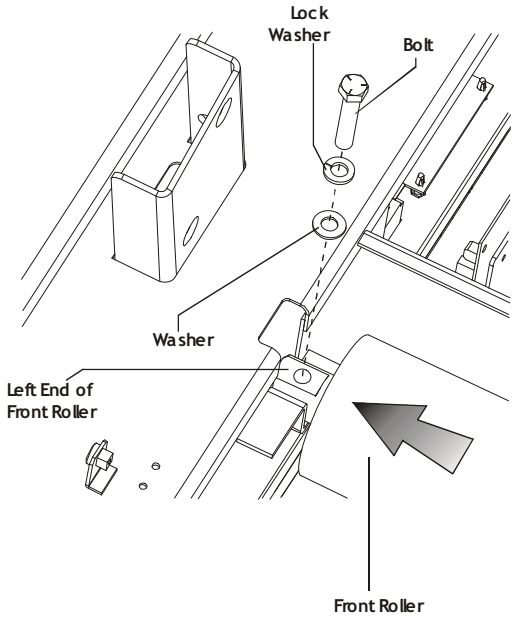
□□ Install the screws and tighten to □□-□7 in-lbs (□□5-□□□ Nm)□

□□ Repeat this procedure for the opposite side□





5□ Run the treadmill and check for interference or binding□ If necessary, loosen the mounting screws, re-align the guard and refasten securely□



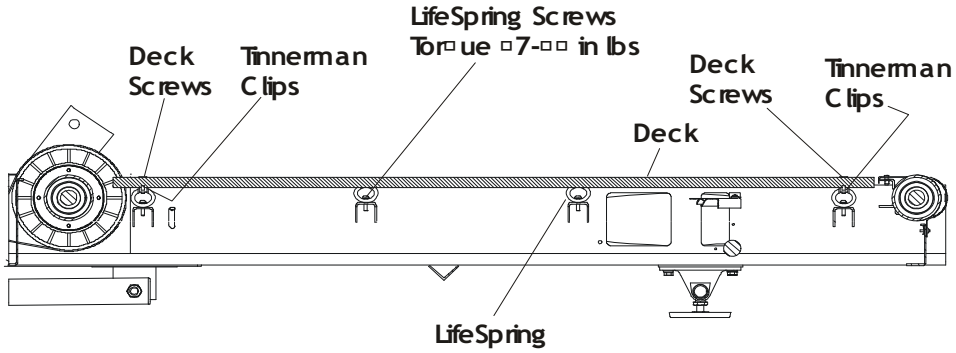
HOW TO□□□REPLACE THE LIFESPRING ABSORBERS

Tools re□uired□Phillips screwdriver, Allen wrenches
Estimated time re□uired□□ hour

□□ Turn the power off at the on/off switch□

□□ Unplug the line cord at the wall outlet□

□□ Remove the inside upright covers□ See the "How To..." on page □□ or cover removal procedures□



□□ Remove the front cover□

5□ Remove the motor cover□

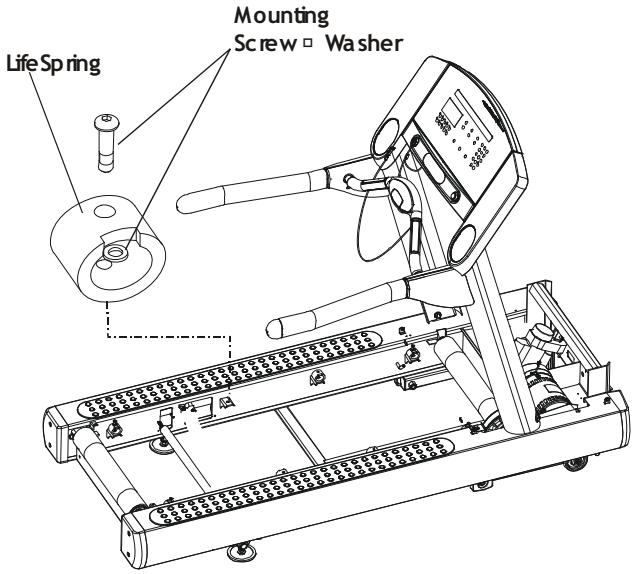
□□ Loosen the rear roller tensioning bolts so that the striding belt is loose enough for deck removal□ Count the number of rotations when loosening the roller ad□usting screws to provide a starting point for belt re-tensioning□

7□ Remove the four deck screws (one at each corner)□

□□ Remove the deck from under the striding belt□

9□ Remove the Tinnerman clips from the old LifeSpring□

□0□ Remove the LifeSpring screws and LifeSprings from the frame□



□□□ Install the new LifeSprings with the notch in the LifeSpring facing toward the inside of the unit as shown in the illustration□

□□□ Tighten the screws to □7-□□ in-lbs (□□0-□□7 Nm)□

HOW TO□□□REPLACE THE LIFESPRING ABSORBERS - CONTINUED

□□□Reinstall the Tinnerman clips on the LifeSprings at each corner of the unit□

Use new Tinnerman clips when replacing LifeSprings□

□□□Reinstall the deck□

□5□Re-tension the striding belt□ (Refer to the "How To□ on page 90□)

□□□Reinstall the motor cover□

□7□Reinstall the front cover□

□□□Reinstall the inside upright covers□

HOW TO□□□REPLACE THE ANTI-STATIC TINSEL

Tools re□uired□Phillips screwdriver
Estimated time re□uired□□5 minutes

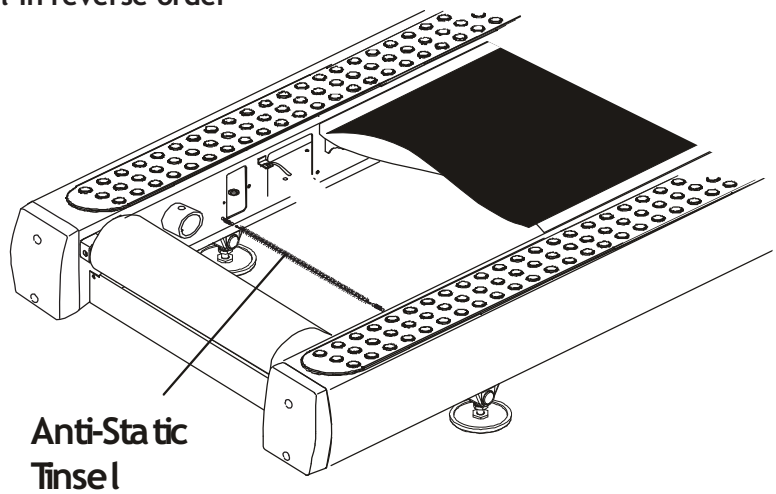
□□ Turn the power off at the on/off switch□

□□ Unplug the line cord at the wall outlet□

□□ Reach under the machine and unclip the anti-static tinsel from the right side of the frame□

□□ Remove the single screw that secures the tinsel on the left side of the frame□

5□ Install the new anti-static tinsel in reverse order□



HOW TO□□□REPLACE THE DSP CONTROLLER

Tools re□uired□Phillips screwdriver
Estimated time re□uired□□5 minutes

Before beginning this procedure, all LEDs on the motor controller must be out□

□□ Turn the power off at the on/off switch□

□□ Unplug the line cord at the wall outlet□

□□ Remove the inside upright covers□ See the cover-removal procedures on page □□□

□□ Remove the front cover□

5□ Remove the motor cover□

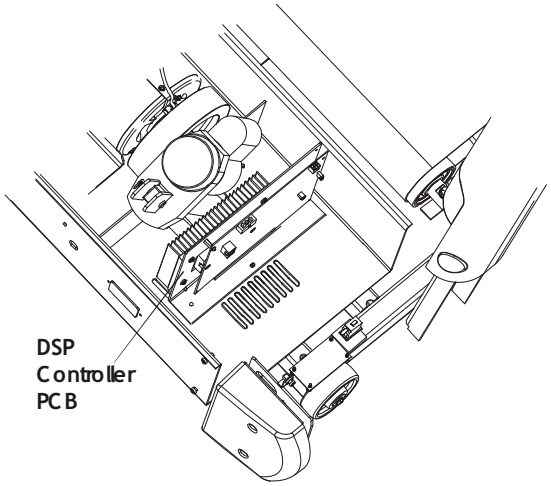
□□ Tag each cable with the corresponding Pin number on the DSP controller□

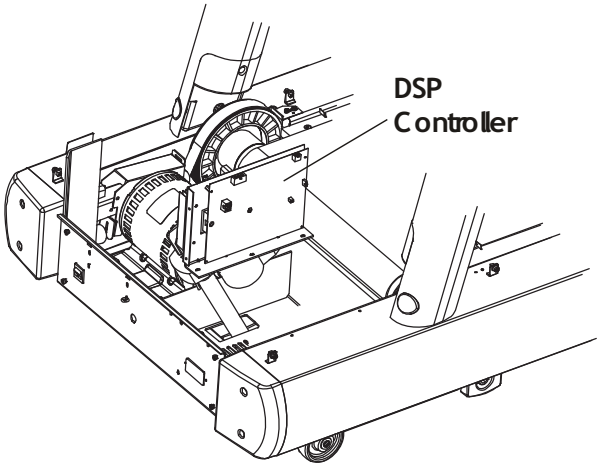
7□ Disconnect the appropriate wiring from the DSP controller assembly□

□□ Remove the DSP controller assembly by remove the five mounting screws that secures he DSP controller to the frame (two in the front of the unit and three at the base)□

9□ Lift out the DSP controller assembly□

□0□ Log repair in Diagnostics under Maintenance on page □□□





HOW TO□□□REPLACE THE STRIDE SENSOR ISO BOARD (95/97T-XXXX-07 ONLY)

Tools re□uired□Phillips screwdriver, needle nose pliers
Estimated repair time□□5 minutes

□□ Turn the power off at the on/off switch□

□□ Unplug the line cord at the wall outlet□

□□ Remove the inside upright covers□ See the cover-removal procedures in the "How to..." on page □□□

□□ Remove the front cover□

5□ Remove the motor cover□

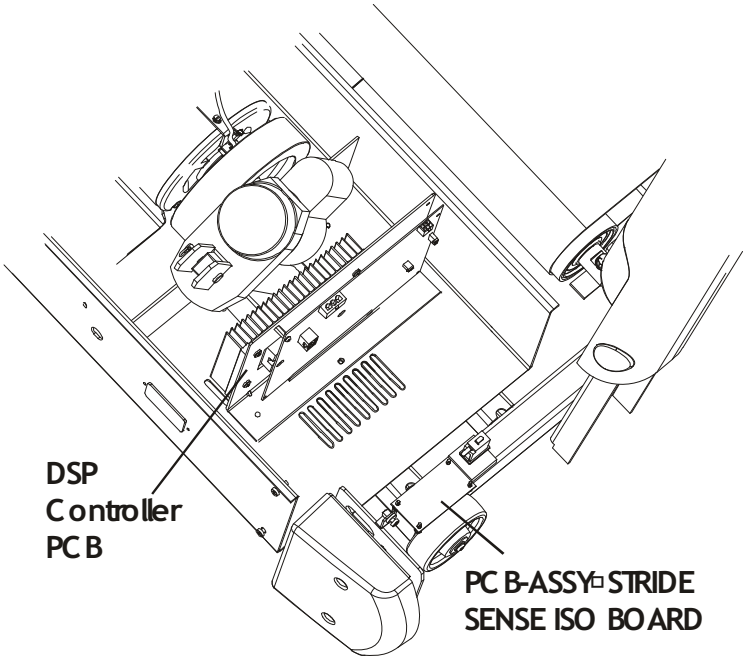
□□ Tag each cable with the corresponding Pin number on the stride sense ISO board and DSP controller□

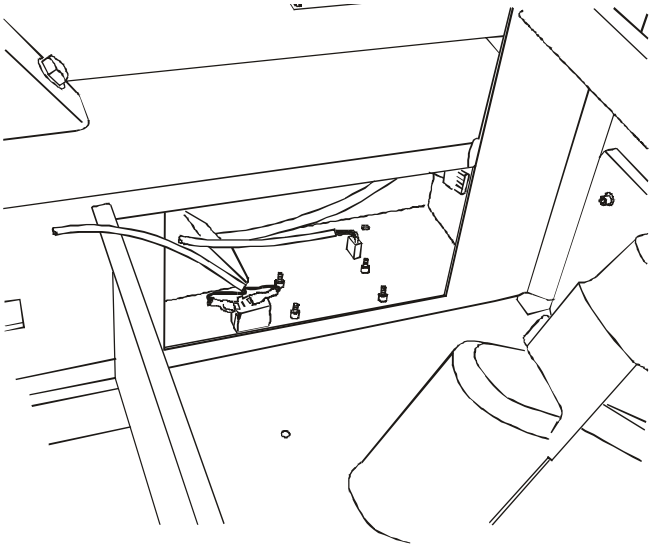
7□ Disconnect the three cables on the stride sense ISO board□ (In this illustration, a portion of the treadmill frame had been removed to show the Stride Sense ISO board□)

□□ Four spring clips hold the stride sense ISO board in place□ S□uee□e the spring clips to release the stride sense ISO board□

9□ Remove the stride sense ISO board from the left side of the frame□

□0□ Install the new stride sense ISO board onto same spring clips in reverse order





HOW TO□□□REPLACE THE STRIDE SENSOR ASSEMBLY (95/97T-XXXX-07 ONLY)

Tools re□uired□Phillips screwdriver
Estimated repair time□□5 minutes

□□ Turn the power off at the on/off switch□

□□ Unplug the line cord at the wall outlet□

□□ Remove the inside upright covers□ See the cover-removal procedures on Page □□□

□□ Remove the front cover□

5□ Remove the motor cover□

□□ Loosen the rear roller tensioning bolts so that the striding belt is loose enough for deck removal□ Count the number of rotations when loosening the roller ad□usting screws to provide a starting point for belt re-tensioning□

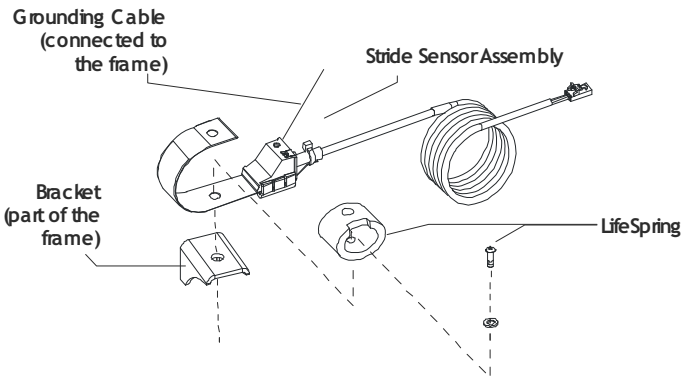
7□ Remove the four deck screws, one at each corner□

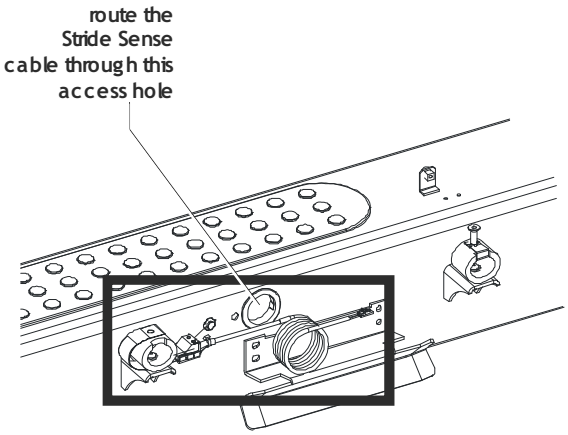
□□ Remove the deck from under the striding belt□

9□ Detach the grounding cable from the stride sensor assembly□

□0□ Detach the stride sensor cable from the stride sensor ISO board□

□□□ Remove the screw that secures the LifeSprings and stride sensor assembly to the frame□





□□□ Install the new stride sensor assembly on the LifeSpring (with the notch facing toward the inside of the frame as shown in illustration)□

□□□ Tor□ue screws to □7-□□ in-lbs (□□0-□□7 Nm)□

□□□ Reinstall the Tinnerman clips on the LifeSprings at each corner of the unit□

□5□ Reinstall the deck□

□□□ Re-tension the striding belt□ Refer to “How To□ on page 90□

□7□ Reinstall the motor cover□

□□□ Reinstall the front cover□

□9□ Reinstall the inside upright covers□

HOW TO□□□REPLACE THE LIFT MOTOR

Tools re□uired□Phillips screwdriver, needle nose pliers
Estimated time re□uired□□5 minutes

□□ Turn the power off at the on/off switch□

□□ Unplug the line cord at the wall outlet□

□□ Remove the inside upright covers□ See the "How To..." on page □□ or cover-removal procedures□

□□ Remove the front cover□

5□ Remove the motor cover□

□□ Cut off three cable ties that secure the cables to the cross-member□

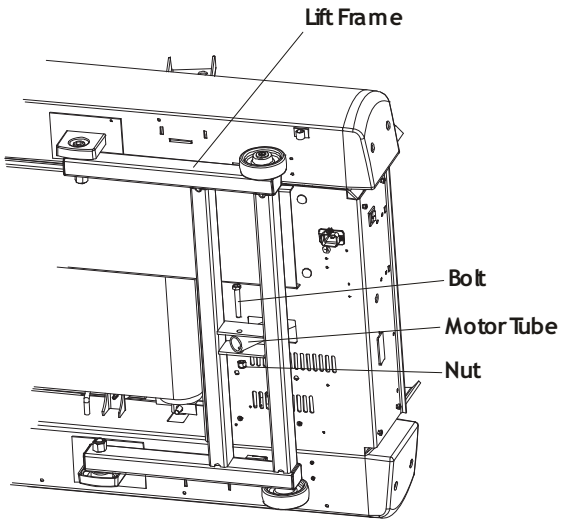
7□ Disconnect the □-pin connector from the wax lift board or the DSP controller□

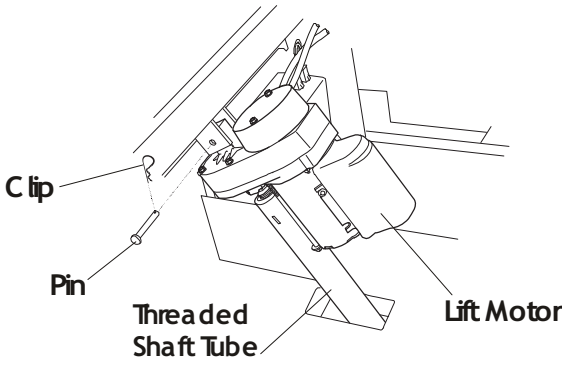
□□ Disconnect the lift motor ground wire□

9□ Remove the bolt and nut from the end of the motor tube and lift frame□

□0□ Remove the clip and pin that secure the lift motor to the cross-member□

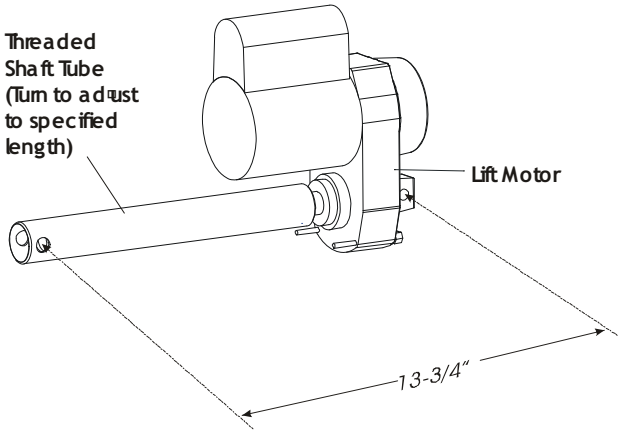
□□□ Remove the lift motor□





□□□ Make sure the Lift carriage is activating the home switch□ If necessary, ad□ust the threaded shaft tube until the mounting holes are □□°/□" (prior to installation) apart or aligned with the carrier and lift motor□ Do not rotate the threaded shaft tube more than one full turn□

□□□ Refer to the Diagnostics section page □□ to log maintenance repair of the lift motor□

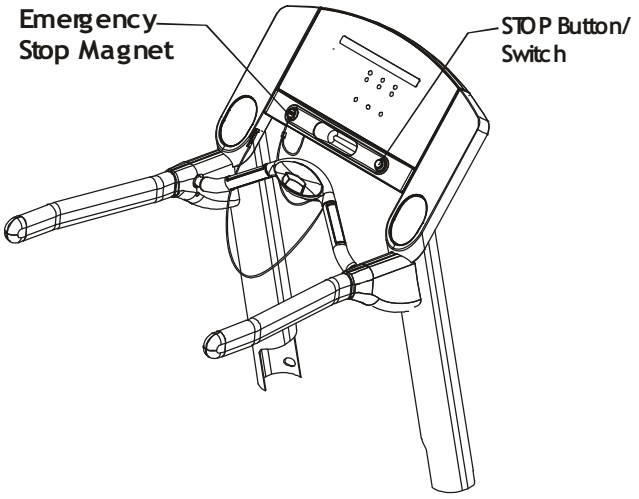


HOW TO□□□REPLACE THE STOP BUTTON/SWITCH

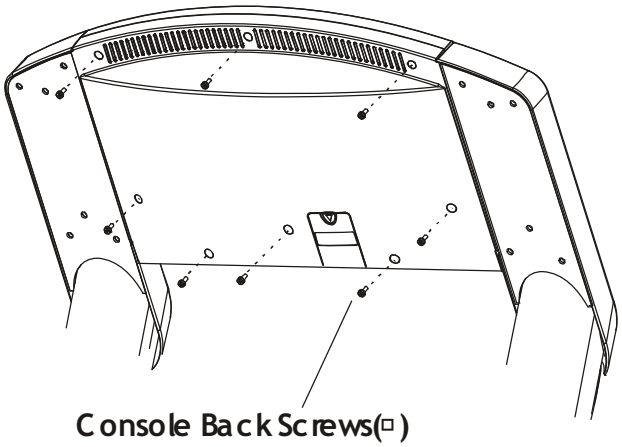
Tools re□uired□Phillips screwdriver
Estimated time re□uired□□0 minutes

□□ Turn the power off at the on/off switch□

□□ Unplug the line cord at the wall outlet□



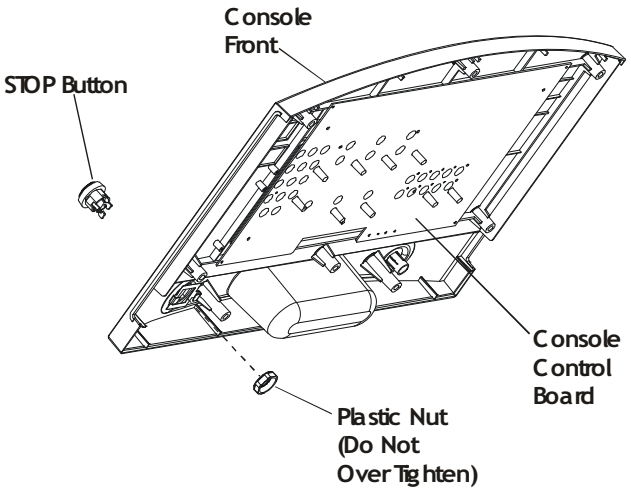
□□ Remove eight screws from the console back□



□□ Lift off the overlay be□el assembly□

5□ Remove the microswitch (not shown) and the plastic nut that secure the STOP button/switch at the back of the console front□

□□ Lift out the STOP button/switch□

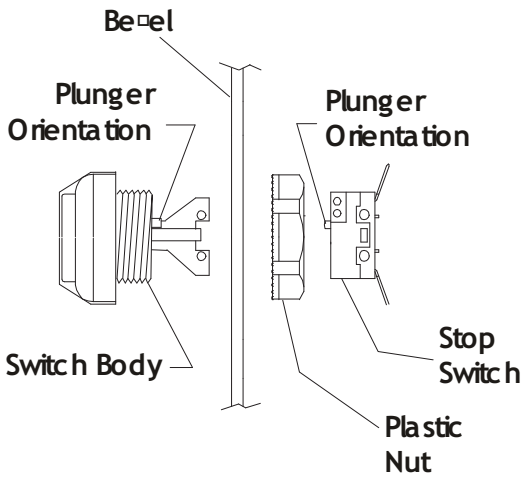


HOW TO□□□REPLACE THE STOP BUTTON/SWITCH - CONTINUED

7□ Insert the STOP button/switch through the opening in the front of the be□el assembly□

□□ Position the switch body on the face of the be□el so that the word "STOP" is correctly oriented for the user□

9□ Install the plastic nut on the threaded portion of the switch body with the flat side toward the back of the be□el□ Tighten □/□ of a turn past hand tight□ Do not over-tighten the plastic nut□



Exploded Side View

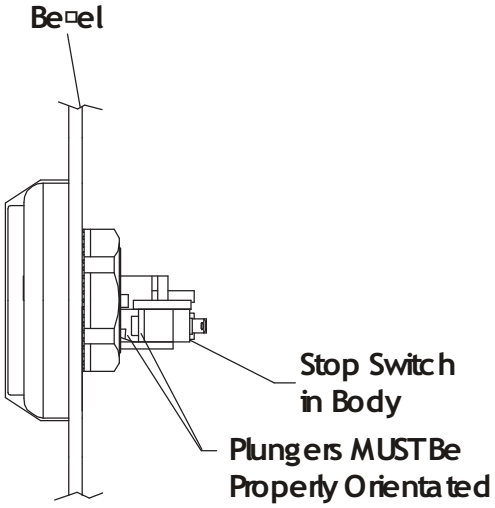
note

Over-tightening the plastic nut may cause damage to the switch body or be□el□

□0□ Insert the switch into the STOP button/switch□ Orient the two parts so that the switch plungers make contact upon assembly□ This can be verified visually while pressing the STOP button□

□□□ Reconnect the wiring, being careful not to bend or break the connecting tabs□

□□□ Refer to the Diagnostics section to log maintenance repair of the stop switch□



Assembled View

HOW TO□□□REPLACE THE HEART RATE SENSORS

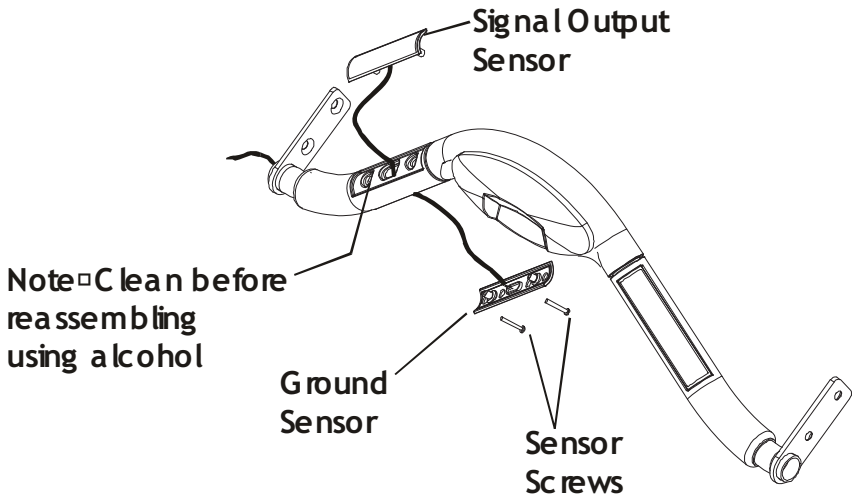
Tools re□uired□Phillips screwdriver
Estimated time re□uired□□5 minutes

□□ Turn the power off at the on/off switch□

□□ Unplug the line cord at the wall outlet□

□□ Remove the two screws that secure the heart rate sensors□

□□ Disconnect the black or green wire from the ground sensor□



5□ Disconnect the red or white wire from the signal output sensor□

□□ Discard the old sensor□

7□ Install the new sensors in reverse order□

□□ Tighten the screws to 5-7 in-lbs (0□□-0□□ Nm)□

9□ Repeat the above steps for the remaining heart rate sensor□

HOW TO□□□REPLACE THE ON/OFF SWITCH

Tools re□uired□Phillips screwdriver
Estimated time re□uired□□5 minutes

□□ Turn the power off at the on/off switch□

□□ Unplug the line cord at the wall outlet□

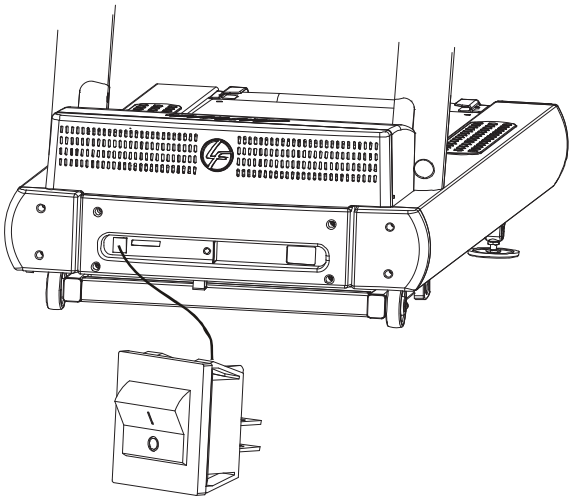
□□ Remove the motor cover□ See the "How To..." on page □□□

□□ Identify and tag the wiring on the switch□

5□ Disconnect the wiring to the switch□

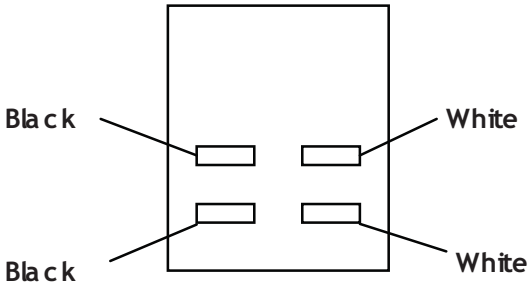
□□ S□uee□e the tabs on the sides of the switch and remove through front of unit□

7□ Install the new switch in reverse order□



ON/OFF Power Switch

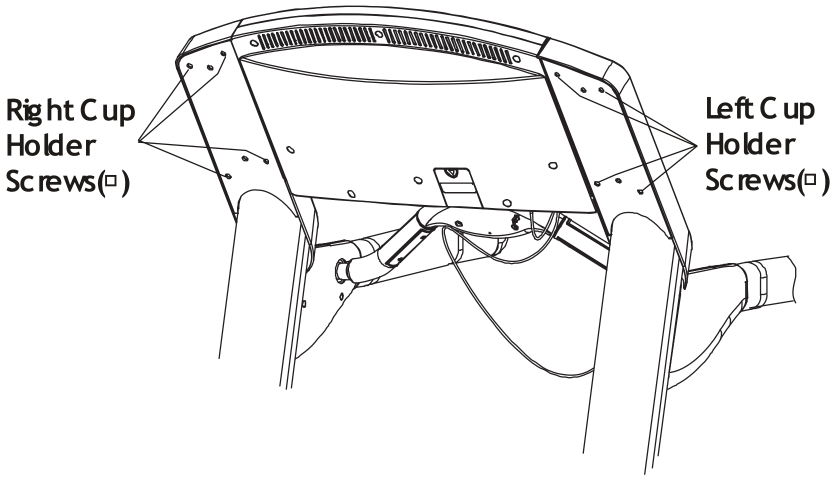
Terminal Connections (Rear View)



HOW TO□□□REPLACE THE ACCESSORY CUP HOLDERS

Tools re□uired□Phillips screwdriver
Estimated time re□uired□□5 minutes

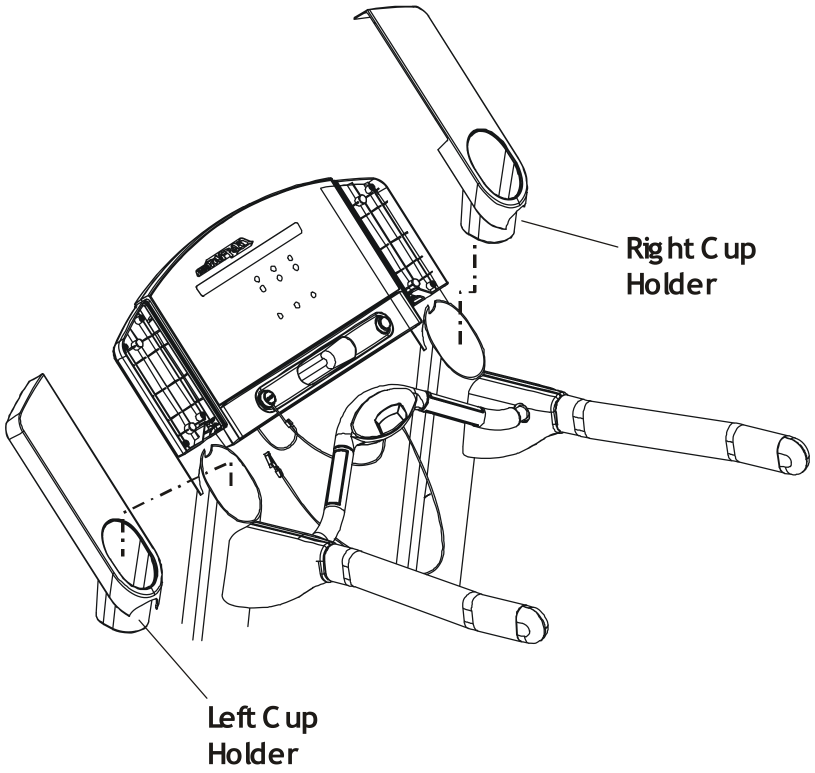
ôÚ Remove the four corner screws from the back of each cup holder□



óÚ Lift the cup holders up and out of the uprights□ Be careful not to damage the cables in the left upright□

ìÚ Install the new cup holders, again being careful not to pinch cables□

ïÚ Secure the cup holders in place with the mounting screws□



HOW TO□□□REPLACE THE LINE CORD

Tools re□uired□Phillips screwdriver
Estimated time re□uired□□5 minutes

□□ Turn the power off at the on/off switch□

□□ Unplug the line cord at the wall outlet□

□□ Remove the front cover□

□□ Remove the front end cap on the right side of the frame□

5□ Tilt the unit over on the user□s right side□

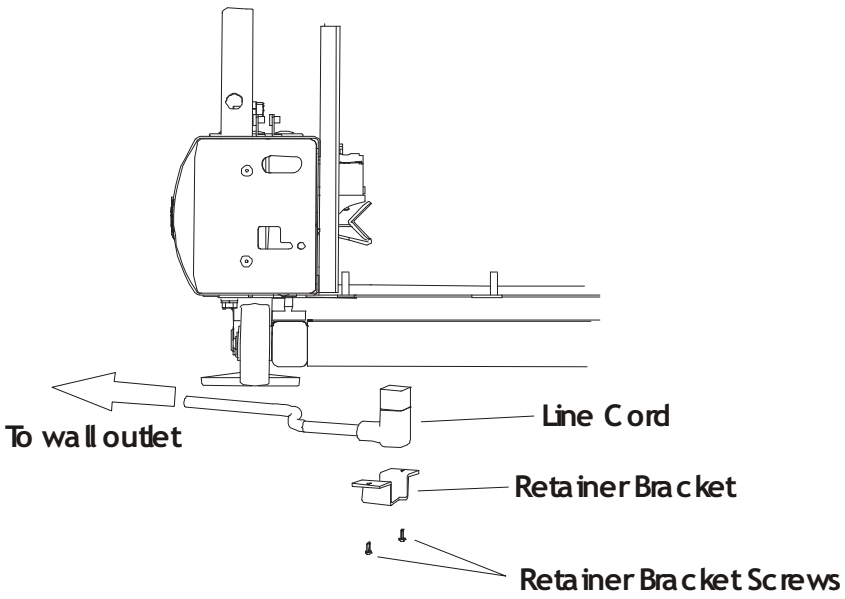
□□ Remove the clamp screw that secures the line cord□

7□ Remove and discard the line cord□

□□ Secure the new line cord in place with the clamp□

9□ Turn the unit upright□

□0□ Reinstall the covers□



HOW TO□□□REPLACE THE IEC RECEPTACLE

Tools re□uired□Phillips screwdriver
Estimated time re□uired□□5 minutes

□□ Turn the power off at the on/off switch□

□□ Unplug the line cord at the wall outlet□

□□ Remove the front cover□

□□ Remove the front end cap on the right side of the frame□

5□ Tilt the unit on the user□s right side□

□□ Remove the retainer bracket screws that secure the line cord□

7□ Remove the line cord□

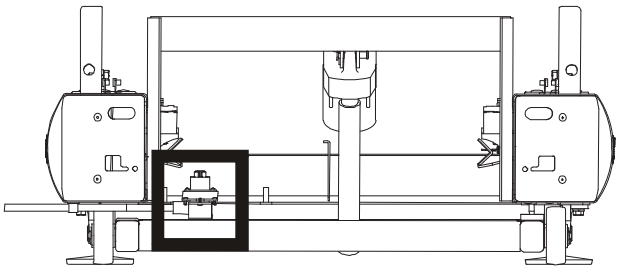
□□ Remove the screws from the IEC receptacle□

9□ Remove the wires from the IEC receptacle□

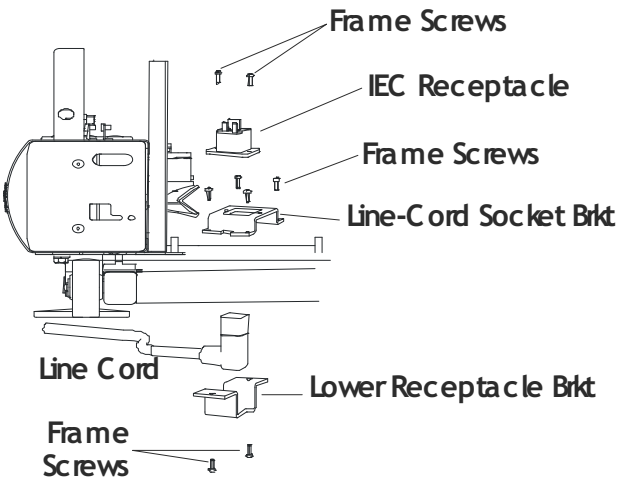
□0□ Install the new IEC receptacle in reverse order□

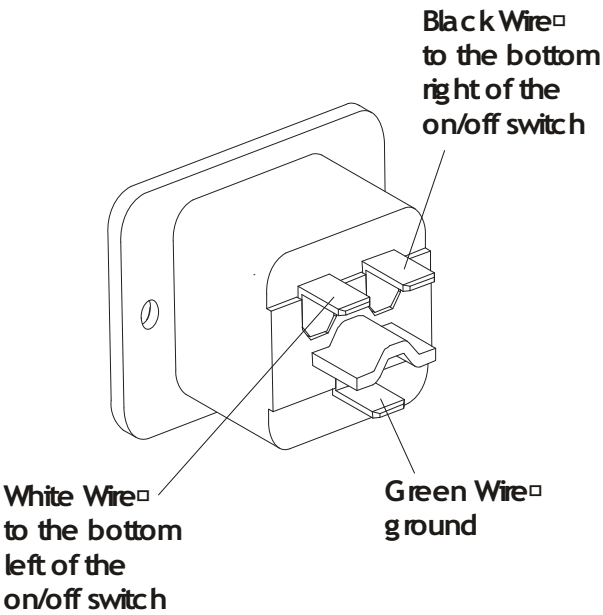
□□□ Turn the unit upright□

□□□ Reinstall the covers□



Location of I□E□C □ Receptacle





HOW TO□□□REPLACE THE LINE FILTER

Tools re□uired□Phillips screwdriver
Estimated time re□uired□□5 minutes

□□ Turn the unit off at the on/off switch□

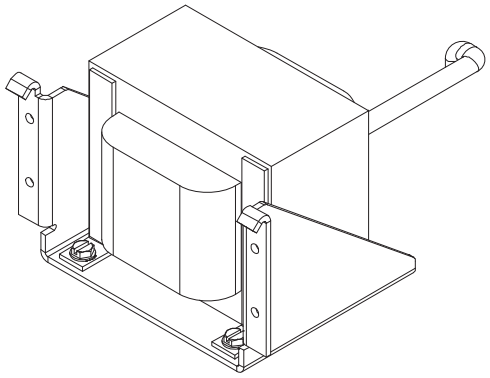
□□ Unplug the line cord at the wall outlet□

□□ Remove inside upright covers□ See the cover-removal procedures on page □□□

□□ Remove the front cover□

5□ Remove the motor cover□

□□ If the unit is e□uipped with a transformer, it must be removed first in order to access the line filter below it□ Before removing the transformer, identify and tag all wires connected to it□



Transformer

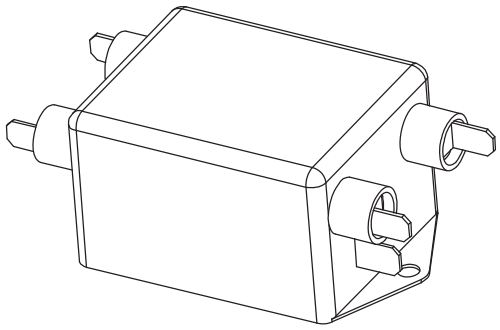
7□ Identify and tag all wires connected to the line filter, which is located in front of the drive motor□

□□ Disconnect the wires from the line filter□

9□ Remove the two screws that secure the line filter at the base of the unit□

□0□ Lift out and discard the line filter□

□□□ Install the new line filter in reverse order□ (Refer to the power components schematic on page □□5)□ Do not over-tighten the screws□



Line Filter

HOW TO□□□REPLACE THE DISPLAY BOARD PCB

Tools re□uired□Phillips screwdriver
Estimated time re□uired□□0 minutes

□□ Turn the power off at the on/off switch□

□□ Unplug the line cord at the wall outlet□

□□ Remove the eight screws from the back cover of the console□

□□ Lift off the front cover□

5□ Disconnect all the cables and ribbon connectors from the PCB board□

□□ Remove the eight screws from the PCB□

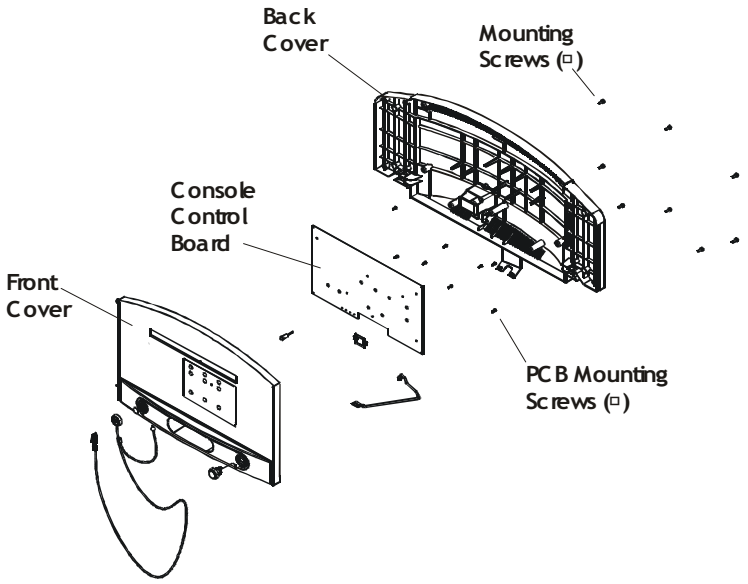
7□ Remove the PCB□

□□ Install new PCB in reverse order□ Do not over-tighten the mounting screws□

9□ Reconnect the cables and ribbon connectors to the PCB□

□0□ Reinstall the back cover□ Do not over-tighten the screws□

□□□ Refer to page □□ of the Diagnostics Section to log maintenance repair of the display console control panel□



HOW TO□□□REPLACE THE TELEMETRY RECEIVER

Tools re□uired□Phillips screwdriver
Estimated time re□uired□□0 minutes

□□ Turn the unit power off at the on/off switch□

□□ Unplug the line cord at the wall outlet□

□□ Remove the eight screws from the console back□ See the "How To..." on page □□0□

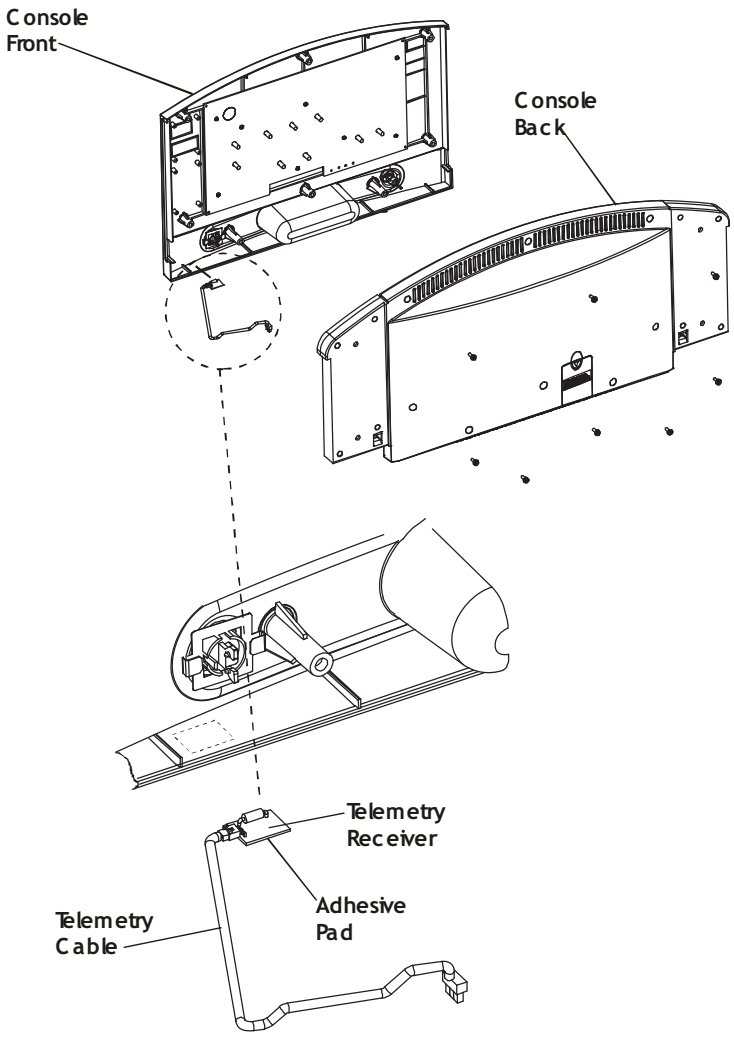
□□ Lift off the console front□

5□ Disconnect the necessary wiring from the console front□

□□ Remove the telemetry receiver and cable from the inside left corner of the console front□ The telemetry receiver is held in place with an adhesive pad□

7□ Install the new telemetry receiver (with a new adhesive pad) in reverse order□

□□ Reattach the console front to the console back, making sure all connectors are secure□



HOW TO□□□REPLACE THE MAIN WIRE HARNESS

Tools re□uired□Phillips screwdriver
Estimated time re□uired□□0 minutes

□□ Turn the power off at on/off the switch□

□□ Unplug the line cord at the wall outlet□

□□ Remove the inside upright covers□ See the cover removal procedures on page □□□

□□ Remove the front cover□

5□ Remove the motor cover□

□□ Remove the overlay be□el assembly□ See the "How To..." on page □□□

7□ Disconnect the main wiring harness from the motor controller□

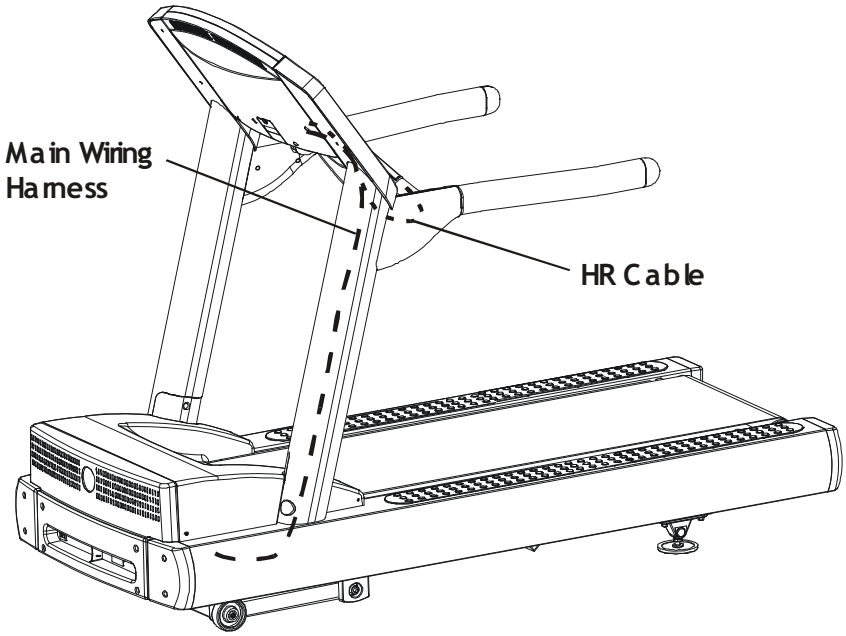
□□ Pull out the main wiring harness□

9□ Install the new main wiring harness through the top of the left upright□

□0□ Connect the new harness to the motor controller□

□□□ Reconnect the new harness to the console assembly□

□□□ Reinstall the covers□



HOW TO□□□REPLACE THE CONSOLE ASSEMBLY

Tools re□uired□Phillips screwdriver
Estimated time re□uired□□5 minutes

note

To disconnect the wiring inside the console assembly, the assembly must be split□

□□ Turn the unit power off at the on/off switch□

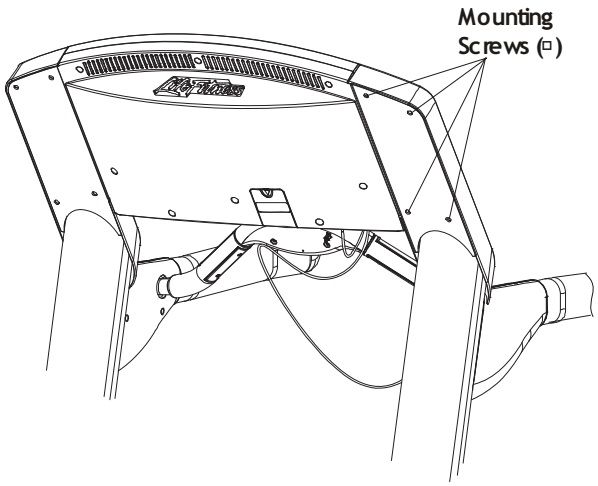
□□ Unplug the line cord at the wall outlet□

□□ Remove the four mounting screws from the back of each cup holder□

□□ Lift the cup holders up and out of the uprights□ Be careful not to damage cables□

5□ Remove the eight screws from the console back□

□□ Lift out the console front while disconnecting electrical connectors from the console power control board□



7□ Install the new console assembly in reverse order□

□□ Install the cup holders in the uprights□ Be careful not to pinch any wires□

HOW TO□□□REPLACE THE OVERLAY BEZEL

Tools re□uired□Phillips screwdriver
Estimated time re□uired□□5 minutes

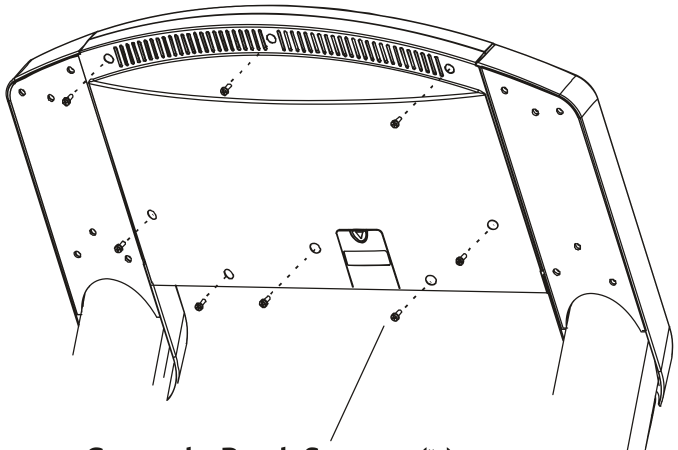
note The overlay be¶el is part of the console front assembly but the console PC board is not, so the console PC board must be removed from the back of the console front□

ÔÚ Turn the power off at the on/off switchÚ

ÓÚ Unplug the line cord at the wall outlet□

ÌÚ Remove eight screws from the console back□

ÏÚ Lift off the console front □ust enough to disconnect the electrical connectors from the console PC board□



Console Back Screws (Ë)

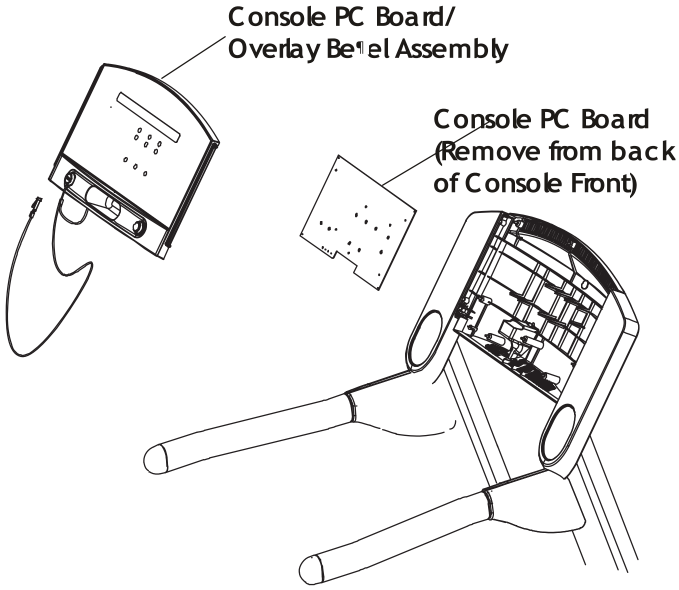
5□ Remove the screws that secure the console PC board to the back of the console front□

ÍÚ Disconnect the ribbon cables from the console PC board□

7□ Set the PC board aside for reuse on the new overlay be¶el□

ËÚ Install the new overlay be¶el assembly in reverse order□ Make sure that all connectors and ribbon cables are securely fastened to the console PC board□

9□ Refer to page Íï of the Diagnostics section to log the maintenance repair of the overlay be¶el□



HOW TO□□□REPLACE THE ERGO BAR, HANDRAILS, AND UPRIGHTS

Tools re□uired□Phillips screwdriver, Allen wrenches, socket wrenches
Estimated time re□uired□□5 minutes

□□ Turn the power off at the on/off switch□

□□ Unplug the line cord at the wall outlet□

□□ Remove the inside upright covers□ See the "How to..." on page □□□

□□ Remove the motor cover□

5□ Remove the front cover□

□□ Remove the plug at the front of each upright□

7□ Remove the mounting bolt under each plug□

□□ Loosen the inside mounting bolts on each upright enough to allow them to be spread apart for removal of the Ergo bar□

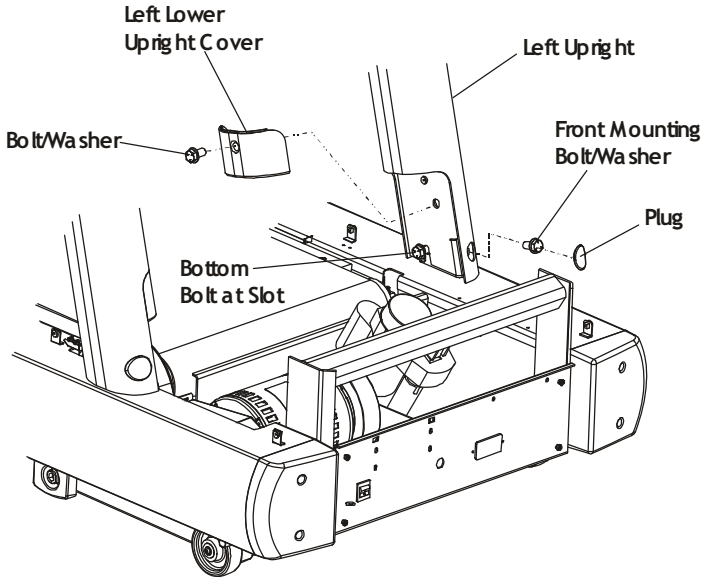
9□ Remove the console assembly□ See the "How To..." on page □□0□

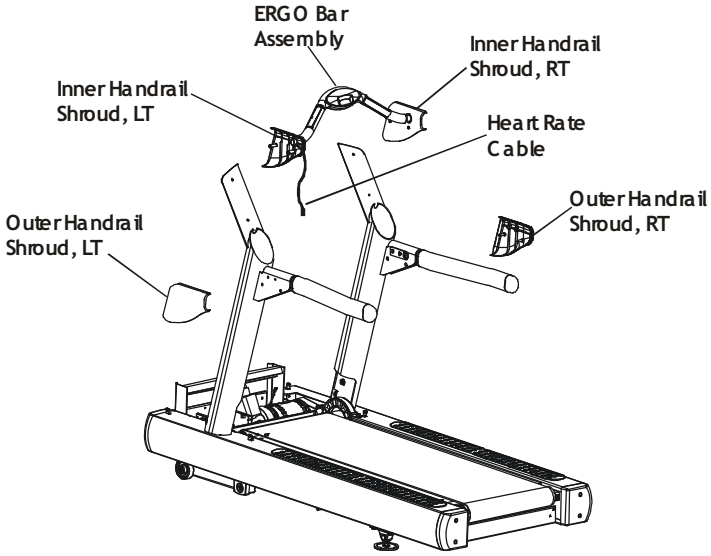
□0□ Remove the left and right outer handrail shrouds□

□□□ Move the inner shrouds toward the center of the Ergo bar□

□□□ Remove from the handrails the left and right mounting bolts that secure the Ergo bar□

□□□ Separate the uprights enough to remove the Ergo bar and the heart rate and smart stop cables□





HOW TO□□□REPLACE THE ERGO BAR, HANDRAILS, AND UPRIGHTS õ CONT□D

ôïú If necessary, replace the handrails□

□5□ Remove the three screws from the inside of each handlebar shroud (the left shroud assembly is shown in the illustration)□

ôíú Pull apart the two halves of each handlebar shroud□

□7□ Remove the two Torx bolts (from the inside of the handrail) and the screw (from under the handrail) from each handrail□

□□□ Remove the handrails□

□9□ Install the handrail in reverse order□ Notice that the ends of the handrails curve outward□

□0□ Remove the bolts that secure the uprights□

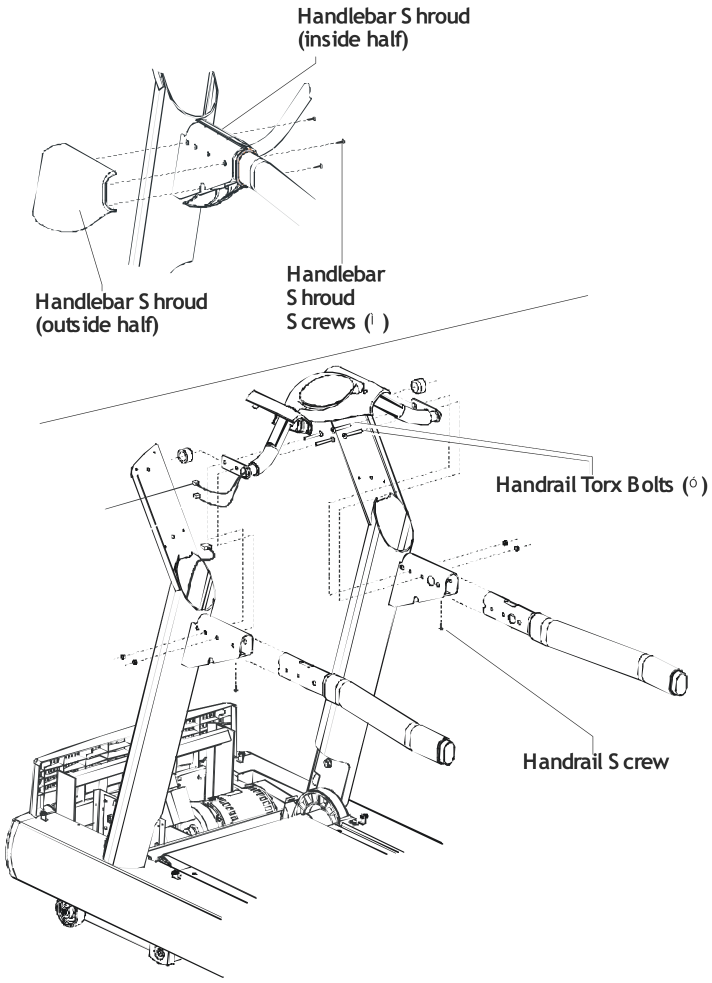
óôú Lift the uprights out from the frame supports□

óóú If necessary, install new uprights□ Leave all of the mounting bolts loose□

óíú Install the new Ergo bar assembly□ Be careful not to pinch the cables during installation□

óïú Install the console assembly in reverse order□ Route the cables through the channel guides in the console back cover□

□5□ After all components are positioned properly, tighten all loose hardware□



HOW TO□□□REPLACE THE LEVELER ASSEMBLY

Tools re□uired□ Allen wrenches, open end wrenches, support blocks (e□g□, blocks of □"x□" wood)
Estimated time re□uired□□ 5 minutes

caution

The treadmill must be properly supported at all times during this procedure□

□□ Turn the power off at the on/off switch□

□□ Unplug the line cord at the wall outlet□

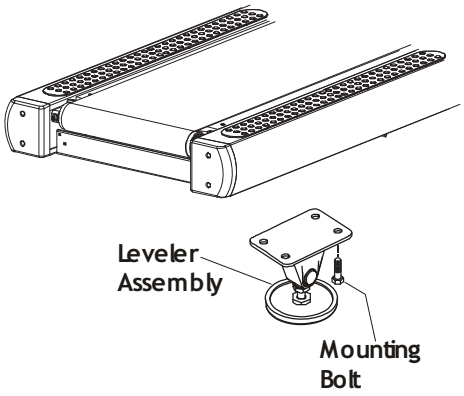
□□ Lift up the treadmill (□ust enough to allow removal of the leveler assembly) and support with suitable blocks□

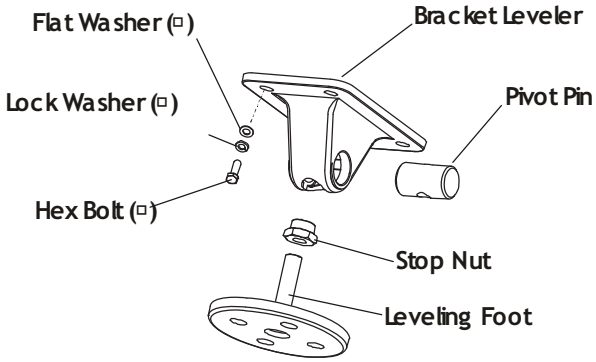
□□ Remove the four leveler mounting bolts and hardware□

5□ Install the new leveler assembly in reverse order of removal□ The mounting holes in the leveler bracket are not symmetrical□ They will fit the holes in the bottom of the frame in only one orientation□ Also, note the orientation of the stop nut□

□□ Level the unit by turning the leveler foot until it firmly contacts the floor□

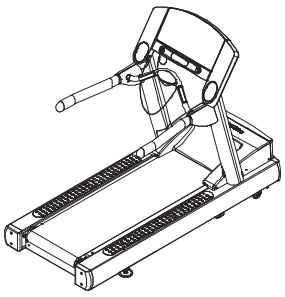
7□ When unit is level, tighten the stop nut□ Make certain the stop nut is properly seated against the pivot pin□





note

It is important that the treadmill be leveled before use□ An unleveled machine will cause the striding belt to drift to one side□



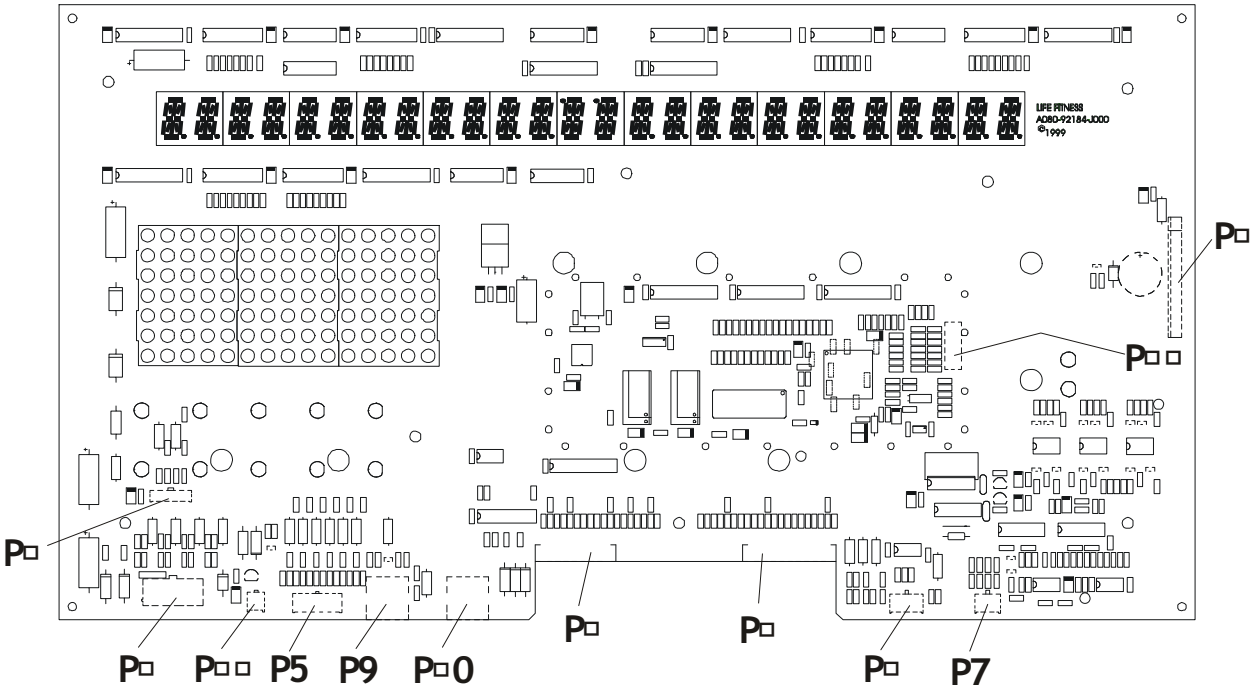
LifeFitness

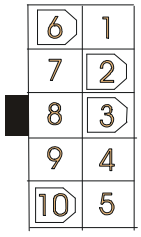
95/97T and 95/97TWEZ Treadmills with DSP Motor Controllers

ELECTRONICS

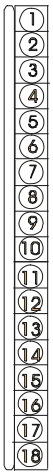
DISPLAY CONSOLE BOARD

The display console printed circuit board is an intelligent display and keypad interface□ It works in con□unction with the DSP controller□ The console board reads the keypad input for user commands, refreshes the status LEDs, data display and profile display matrix□ The Lifepulse circuitry reads analog voltages from the users□ hands and converts it into a digital signal for the Lifepulse heart rate□ The console contains two R□□5 type (CSAFE) connectors to provide □□ volts at 0□□ amps DC and a CSAFE network interface□

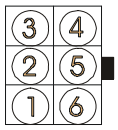
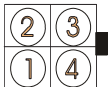


Connector	Location	Pin	Functional Description
P□ is a □0-pin connector which connects to DSP controller P5		□	GND
		□	GND
		□	□□VDC
		□	□□VDC
		5	□□□VDC Out for motor relay
		□	TXD (transmit data)
		7	RXD (data received)
		□	Bus Re□ (bus re□uest)
		9	□□□VDC (emergency stop switch)
		□0	□□□VDC Out for motor relay

DISPLAY CONSOLE BOARD - CONTINUED

Connector	Location	Pin	Functional Description
P□ is a □□-pin ribbon connector which connects to the display console overlay		□	Ground (ESD)
		□	Switch (strobe 0)
		□	Switch (return 0)
		□	Switch (strobe □)
		5	Switch (return □)
		□	Switch (strobe □)
		7	Switch (return □)
		□	Switch (strobe □)
		9	Switch (return □)
		□0	Switch (strobe □)
		□□	Switch (return □)
		□□	GND (ESD)
P□ is a □0-pin ribbon connector which connects to the display console overlay		□	GND (ESD)
		□	Switch (return □)
		□	Switch (strobe □)
		□	Switch (return □)
		5	Switch (strobe □)
		□	Switch (strobe □)
		7	Switch (return 5)
		□	Switch (return □)
		9	Switch (return 7)
		□0	Ground (ESD)
P□ is an □□ pin connector which connects to the remote console PCB 97Ti		□	D□5 - □DP□ Segment Data
		□	D□□ - □G□ Segment Data
		□	D□□ - □F□ Segment Data
		□	D□□ - □E□ Segment Data
		5	D□□ - □D□ Segment Data
		□	D□0 - □C□ Segment Data
		7	D9 - □B□ Segment Data
		□	D□ - □A□ Segment Data
		9	ST5 - Digit Strobe 5
		□0	ST□ - Digit Strobe □
		□□	ST7 - Digit Strobe 7
		□□	Key
		□□	ST□ - Digit Strobe □
		□□	ST9 - Digit Strobe 9
		□5	ST□0 - Digit Strobe □0
		□□	ST□□ - Digit Strobe □□
		□7	□□VDC (Not used)
		□□	Ground (Not used)

DISPLAY CONSOLE BOARD - CONTINUED

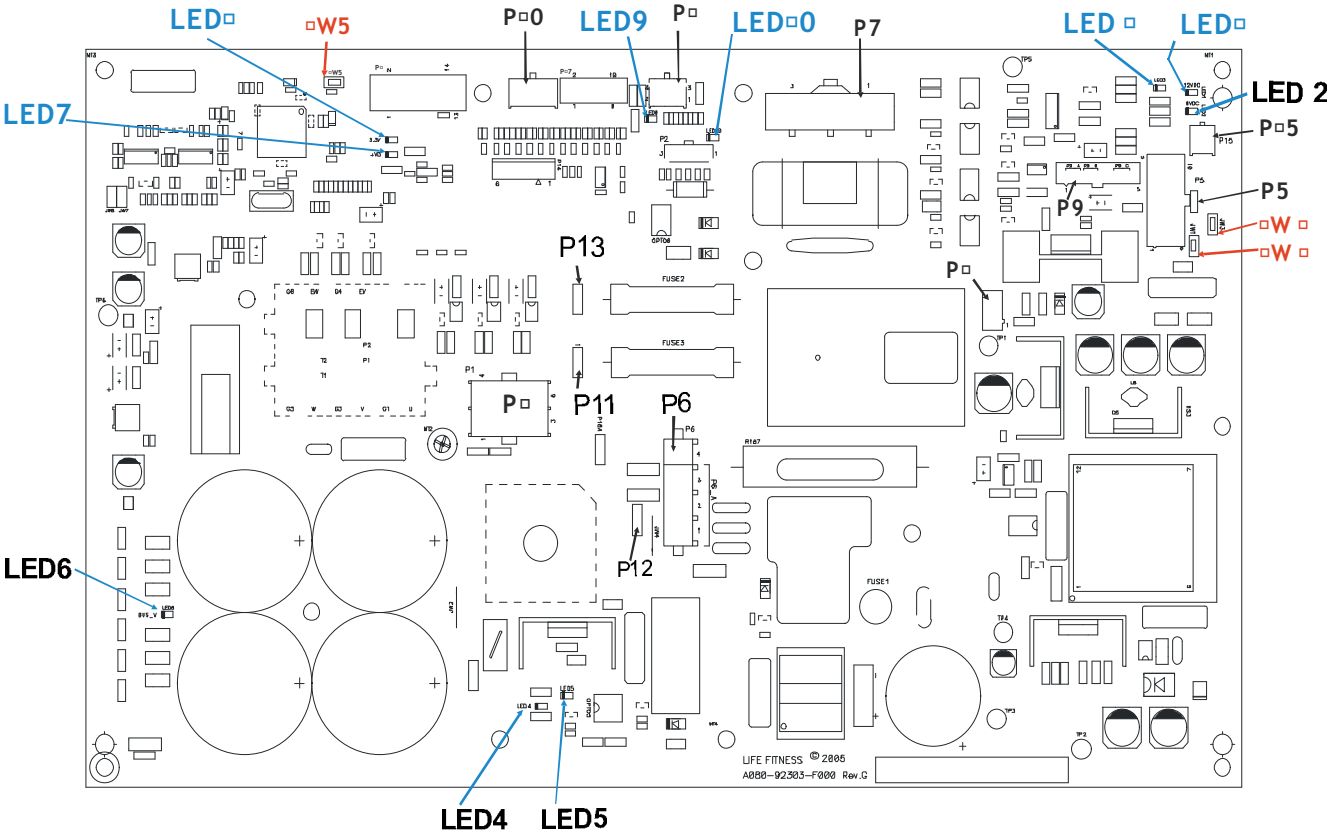
Connector	Location	Pin	Functional Description
P□ is a □-pin connector which connects to the Polar receiver		□	□5VDC
		□	Telemetry signal
		□	GND (ground)
		□	Stop Switch (□)
		5	Stop Switch (-)
		□	N/U (not used)
P7 is a □-pin connector which connects to the Lifepulse electrodes		□	Left (□)
		□	Left (-)
		□	Right (-)
		□	Right (□)
P□ is a □-pin connector which connects to the Activity Zone□(Models 95/97T-07, 95/97TWEZ-07 □ 95/97TE-07 only)		□	GND (ground)
		□	□□VDC
		□	Serial Clock to Activity Zone
		□	Serial Clock from Activity Zone
P□0 is an □-pin R□□5 connector		□	N/U (Not used)
		□	N/U (Not used)
		□	Receive Data (RD)
		□	Transmit Data (TD)
		5	□□ VDC □ Vcardio
		□	CTS
		7	Ground
		□	N/U (Not used)
P□□ is a □-pin connector		□	Switch -
		□	Switch □
P□□ is a □0-pin connector which connects to the background debug mode signals		□	/DS
		□	/BERR
		□	Ground
		□	/BKPT/DSCLK
		5	GND (ground)
		□	SUSPEND/□ UOT
		7	/RESET
		□	IPIPE□/DS□
		9	□5VDC
		□0	IPIPE0/DS0

DSP CONTROLLER BOARD FUNCTION DESCRIPTION

This assembly replaces the controller and wax/lift-cap assemblies used on 95Ti, 97Ti, 95Te, 97Te, and T9e treadmills□ The board incorporates the functionality of the motor controller board, capacitor board and wax/lift board except for wax pump and frame tag board support□ To allow for the elimination of the frame tag board, the 9□□0□ controller stores a copy of system and error log information□ Real time clock information is not available to the console□ The DSP controller circuit board is a single-phase AC input PWM variable fre□uency three-phase AC output motor controller□ The controller input is configured as a full wave bridge for □□0VAC input, and as voltage doublers for □□0VAC input□ The resultant DC bus voltage is processed through a microprocessor controlled six switches DC to AC inverter□ The output is three-phase power with pulse width modulation of both voltage and fre□uency□

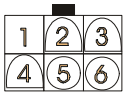
caution

Personnel must be trained and ade□uate precautions must be taken whenever working on this e□uipment□ Considerable energy is stored in it for up to ninety seconds after it is removed from the circuit□ Wait two full minute after the unit is turned off before performing any procedures□



DSP CONTROLLER BOARD - CONTINUED

Description	Location		Function
Service LED	LED□		□□VDC indicator
	LED□		□VDC indicator
	LED□		Tx Communication indicator
	LED□		Lift (Up) direction
	LED5		Lift ON
	LED□		V bus indicator
	LED7		□VDC indicator
	LED□		□□□VDC indicator
	LED9		Incline 0 position indicator
	LED□0		Incline Bottom position indicator
□umper (□W)	□W□	IN	Serial interface (Error message "System Configured Two Wire" appears If removed□)
	□W□	IN	Serial interface (Error message "System Configured Two Wire" appears If removed□)
	□W5	IN	Determines the wave form applied to the motor

Connector	Location	Pin	Functional Description
P□ is a □ Position female Mate-N-Lock connector for Motor		□	GND
		□	Motor phase W
		□	Motor phase V
		□	Motor phase U
		5	Not Used
		□	Not Used
P□ is a □ Position Mini-Fit □r□, for Home Switch		□	Zero position switch
		□	Zero position switch return (GND)
		□	Bottom limit switch
		□	Bottom limit switch return (GND)

DSP CONTROLLER BOARD - CONTINUED

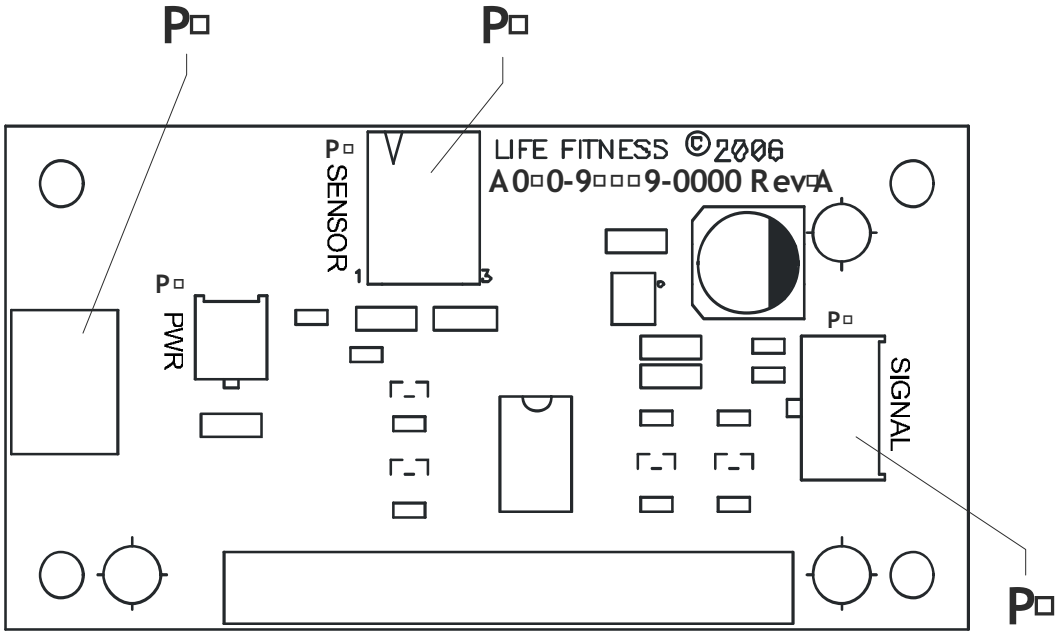
Connector	Location	Pin	Functional Description
P5 is a □0 Position Mate-N-Lock connector for Console power and signal	□0 Position Mate-N-Lock connector	□	RTN
		□	RTN
		□	□VDC
		□	□VDC
		5	Not used (LED) or □□V (LCD)
		□	RXD (Receive Data)
		7	TXD (Transmit Data)
		□	Not used
		9	□□ VDC
		□0	ESS (Emergency Stop Switch)
P□ is a □ Position Mate-N-Lock connector for Lift Actuator		□	Down
		□	Hot
		□	Up
		□	Not Used
P7 is a □ Position Mini-Fit Senior for AC Input Power input	□ POS Connect □□0VDC	□	Line
		□	Neutral
		□	Not Used
P7 is a □ Position Mini-Fit Senior for AC Input Power input	□ POS Connect □□0VDC	□	Line
		□	Neutral
P□ is a □ Position Mini-Fit □r□ for Motor Thermal Switch	□ POS Mini-Fit □r□	□	Therm□ □ ESS Out
		□	Therm□ □ ESS In

DSP CONTROLLER BOARD - CONTINUED

Connector	Location	Pin	Functional Description
P9 is a 5 Position Mini-Fit □r□ for Console Voltage Select		□	□VDC
		□	5□5/□VDC
		□	5□5VDC
		□	□□VDC
		5	□□V (ESS)
P□0 is a □ x □ Microfit header for Stride Sensor/ISO-Board interface		□	□□□VDC
		□	□Vd
		□	GND (Ground)
		□	Spare I/O (A7)
		5	SSENSE
		□	Spare I/O (A□)
P□0 is a □ x □ Microfit header for Stride Sensor/ISO-Board Power interface		□	□□□VDC
		□	RTN
P□□ is a Faston Connection for □00-□□0V Only		□	Autotransformer return
P□□ is a Faston Connection for □00-□□0V Only		□	Autotransformer out (□□0)
P□□ is a Faston Connection for □00-□□0V Only		□	Autotransformer in (□00-□00-□□0/□□0-□□0VAC)

STRIDE SENSOR ISO PCB

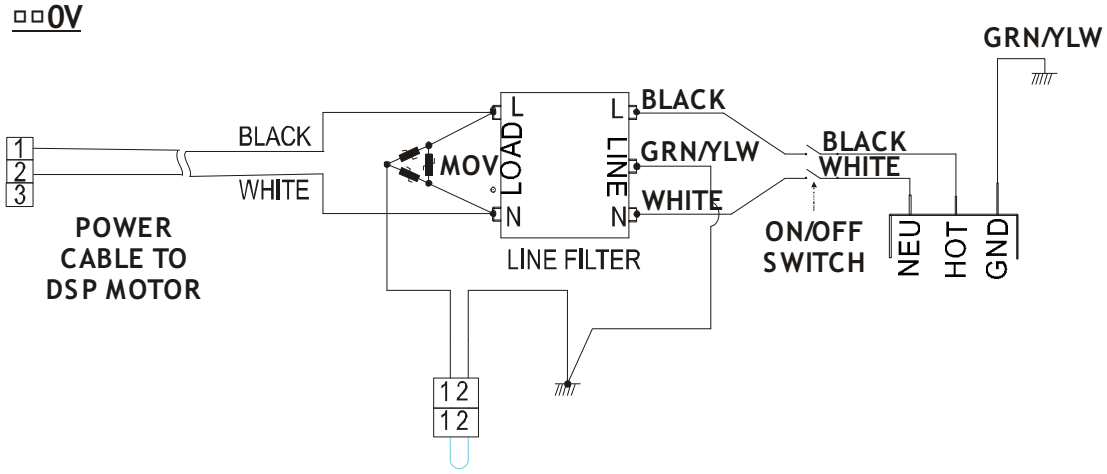
This assembly provides power to the Stride Sensor and couples the analog output of the Stride Sensor to the digital ground reference of the A/D on the DSP motor controller□ This board does not contain a microprocessor CPU or any part having programmability□



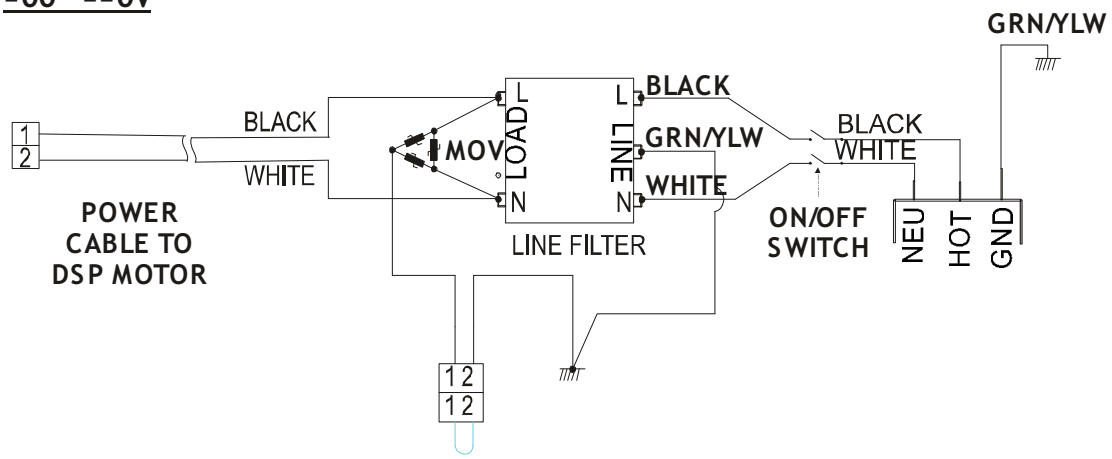
Connector	Location	Pin	Functional Description
P□ is a □ x □ Microfit header for Stride Sensor/ISO-board power interface□		□	□□□V
		□	RTN
P□ is a □ Position connector for Stride Sensor		□	GND (Ground)
		□	SENSE
		□	PWR (Power)
P□ is a □ x □ Microfit header for Stride Sensor/ISO-board interface□		□	□□□V
		□	□Vd
		□	GND (Ground)
		□	Spare I/O (A7)
		5	SSENSE
		□	Spare I/O (A□)

POWER COMPONENTS SCHEMATIC

▫▫0V

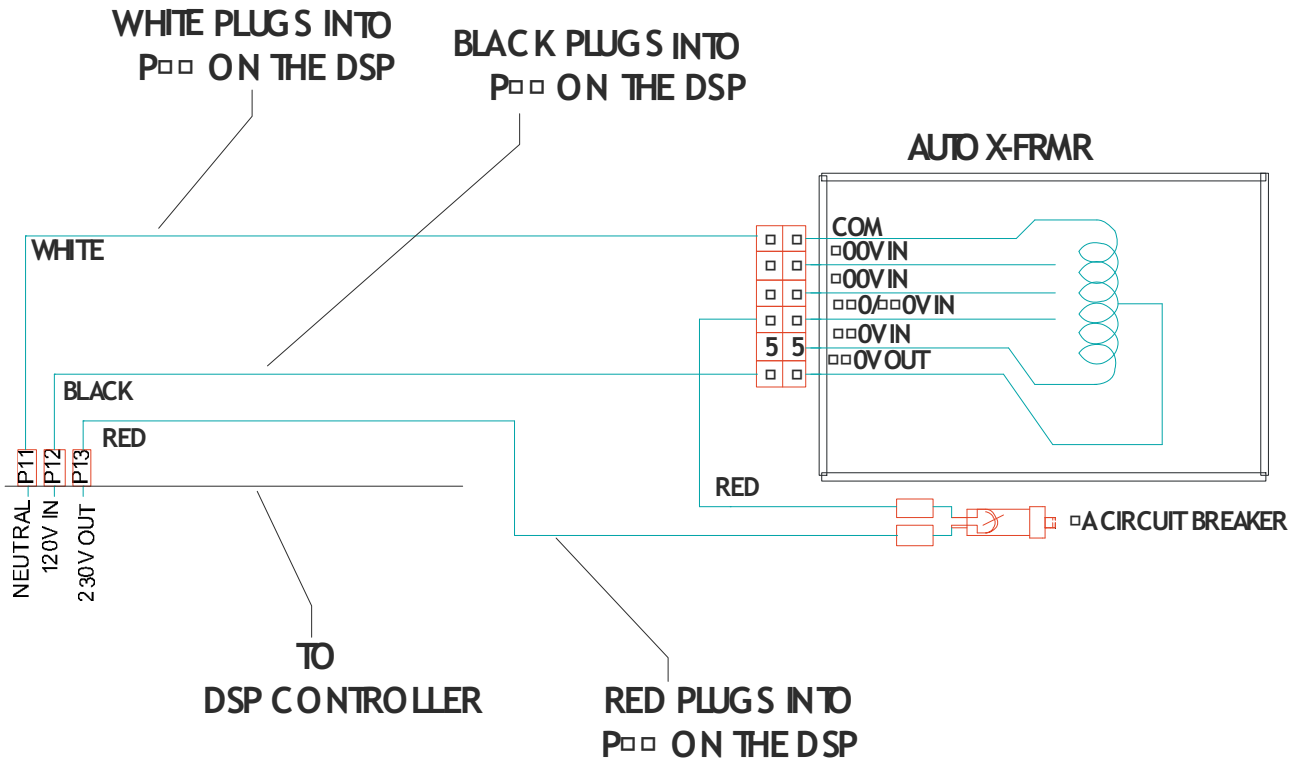


▫00 - ▫▫0V

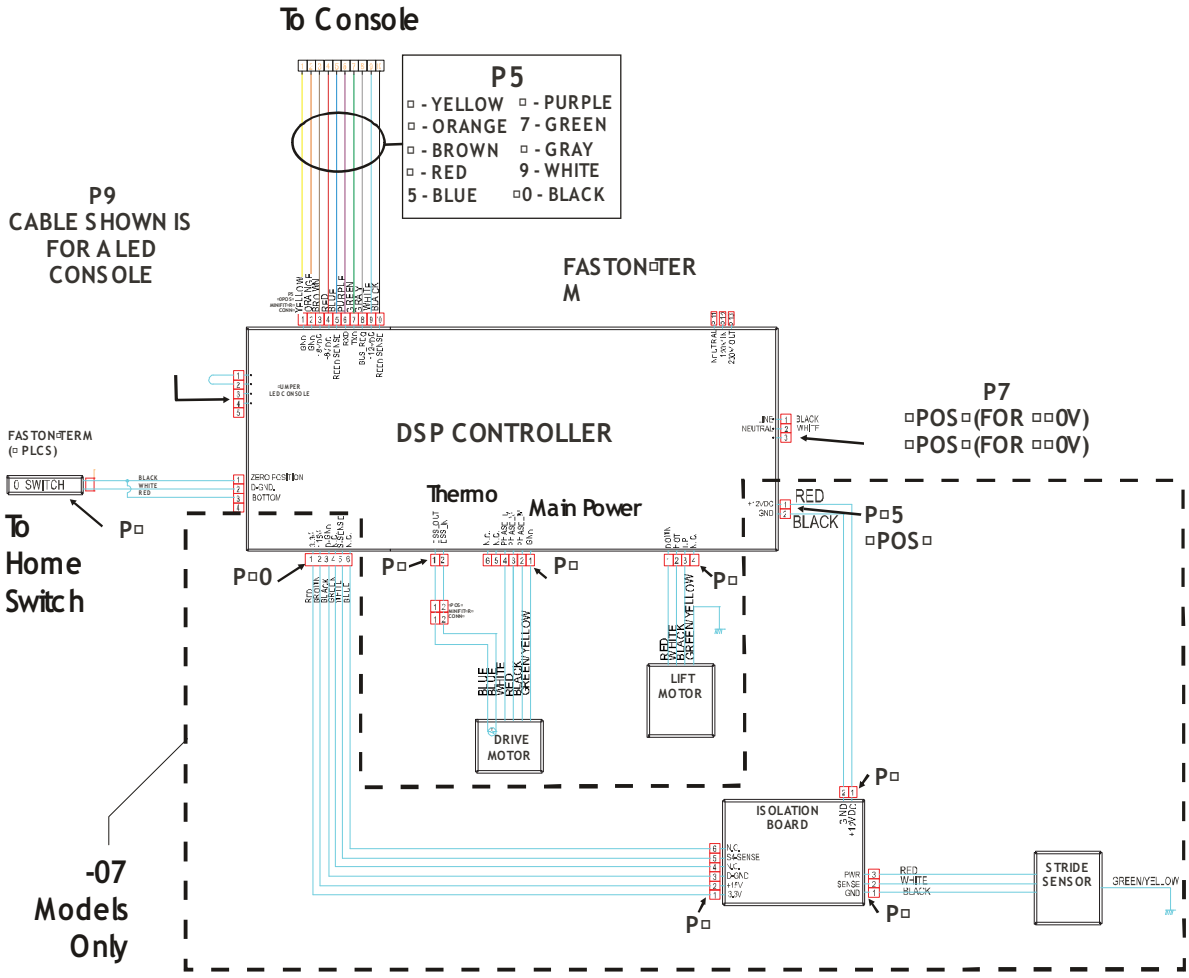


POWER COMPONENTS SCHEMATIC □00 □ □□0 VOLTS

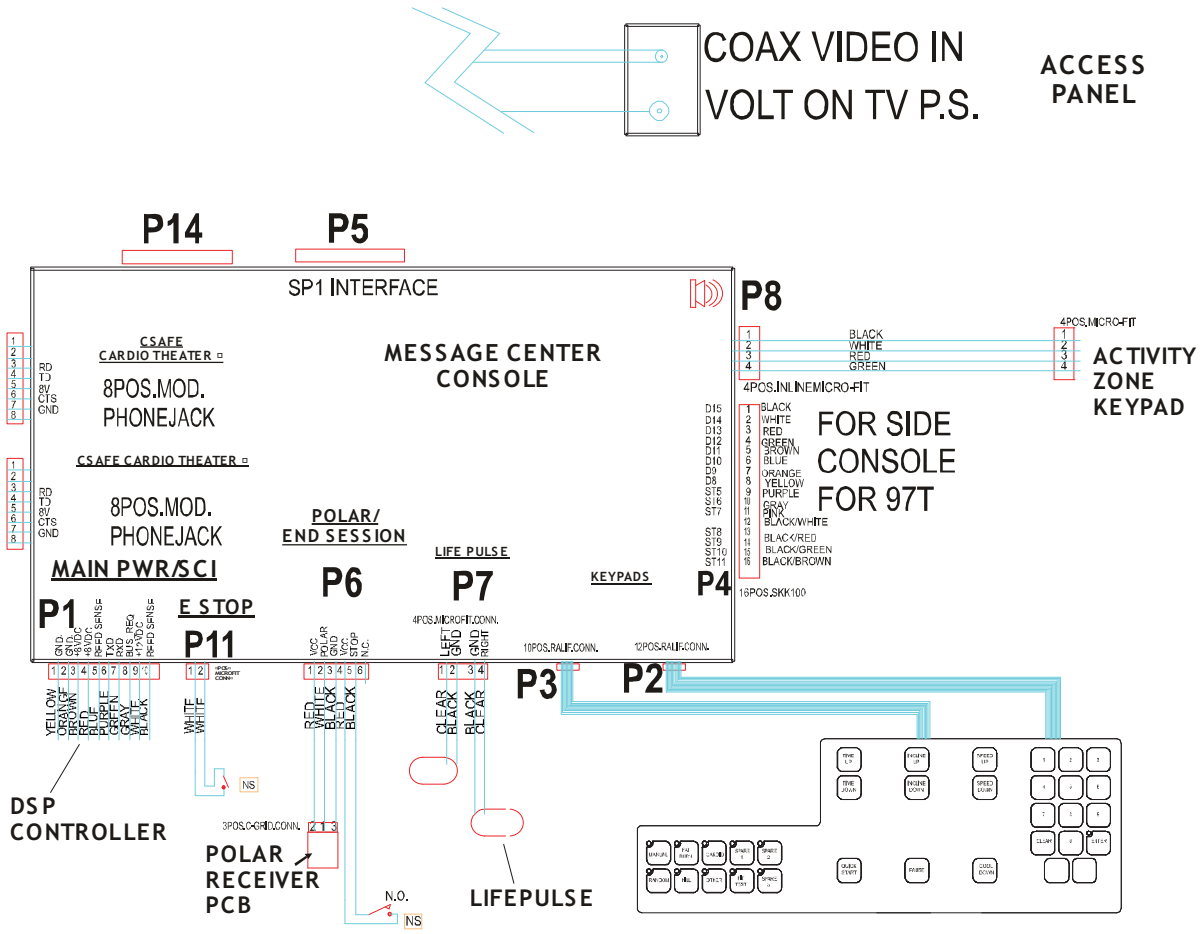
□□0-□□0 VOLT CABLE SHOWN

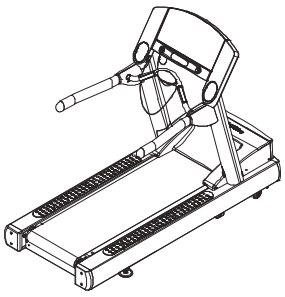


DSP CONTROLLER BLOCK DIAGRAM



DISPLAY CONSOLE BOARD BLOCK DIAGRAM





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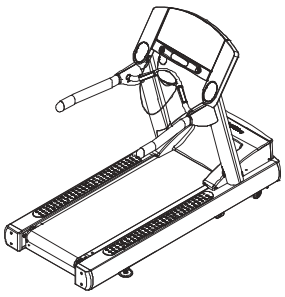
95/97T and 95/97TWEZ Treadmills with DSP Motor Controllers

PREVENTIVE MAINTENANCE

PREVENTIVE MAINTENANCE SCHEDULE

	Item	Weekly	Monthly	Biannually	Annually
DISPLAY CONSOLE ASSEMBLY	Hardware			Inspect	
	Overlay	Clean		Inspect	
	Accessory Cups				Inspect
	Stop Switch	Clean/ Inspect			
	Emergency Switch/ Key	Clean/ Inspect			
HANDLEBAR ASSEMBLY (ERGO-BAR)	Hardware			Inspect	
	Handlebar			Inspect	
	Side Hand Rails			Inspect	
	Lifepulse Sensors	Clean/ Inspect			
FRAME ASSEMBLY	Hardware			Inspect	
	Motor Cover	Clean			
	Motor Electronic Compartment		Vacuum	Inspect	
	Drive Belt			Inspect	
	Leg Levelers		Inspect/ Adjust		
	Front Roller			Inspect	
	Rear Roller			Inspect	



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95/97T and 95/97TWEZ Treadmills with DSP Motor Controllers

INDEX

INDEX

INDEX

INDEX

M05▫-00K5▫-A▫5▫
FEBRUARY ▫007