

Cardiovascular Systems Part Number 750A-901 E



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Table of Contents

Front Pages FCC Compliance Information	iii
1 Safety Grounding and Voltage Information Important Safety Instructions Warning and Caution Decals	1-1 1-2 1-4 1-7
2 Preventive Maintenance Warnings	2-1 2-2 2-2 2-2 2-3 2-3 2-4 2-5 2-6
3 Customer Service Contacting Service	3-1 3-1 3-2 3-2 3-3 3-3
4 Service Warnings. Cautions. Display Console. Audio Visual (AV) Key Pad – Optional. Service Diagnostics. Error Codes. Trouble Shooting/Error Codes. Parts List. Exploded Views.	4-1 4-2 4-3 4-6 4-7 4-34 4-35

FCC Compliance Information



WARNING: Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment!

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates, uses and can radiate radio frequency energy and (if not installed and used in accordance with the instructions) may cause harmful interference to radio communications. There is no guarantee that interference will not occur in a particular installation.

If equipment does cause harmful interference to radio or television reception, (determine by turning the equipment off and on) the user is encouraged to try to correct the interference by one or more of the following methods:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a different circuit from the receiver.
- Consult dealer or an experienced radio/TV technician.

1 – Safety

IMPORTANT: Read all instructions and warnings before using.

Grounding and Voltage Information



DANGER: Improper connection of equipment grounding conductor can result in a risk of electric shock. Check with a qualified electrician or service provider if in doubt as to whether the unit is properly grounded.

For Optional Power Supply

Unit must be grounded. This unit is equipped with an optional equipment-grounding conductor cord and a grounding plug.

Do not use a ground plug adapter to adapt the power cord to a non-grounded outlet.

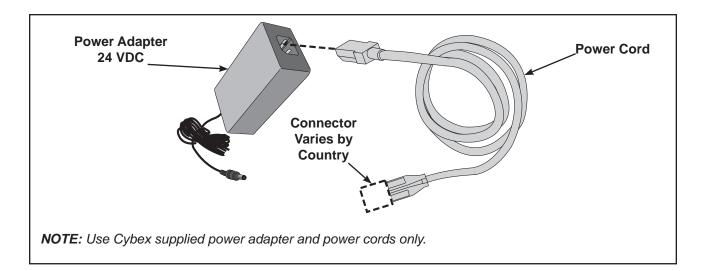
Plug must be plugged into an appropriate outlet that is properly installed and grounded in accordance with all local codes and ordinances.

If unit malfunctions, grounding provides path of least resistance for electric current to reduce risk of electric shock.

Cybex is not responsible for injuries or damages as a result of cord or plug modification.

Verify voltage requirements of unit match local voltage requirements.

Verify unit outlet is the same configuration as the plug.



Important Safety Instructions

(Save These Instructions)



DANGER: To reduce the risk of electrical shock, always unplug unit from electrical outlet immediately after use and before cleaning.



WARNING: Serious injury could occur if these listed precautions are not observed. Follow precautions to reduce the risk of burns, fires, electric shock or injury.

User Safety Precautions

Obtain medical exam before beginning any exercise program.

WARNING: Heart rate monitoring systems may be inaccurate. Over exercise may result in serious injury or death. If you feel faint stop exercising immediately.

Stop exercising if feeling faint, dizzy or experiencing pain and consult your physician.

Obtain instruction before using. Lisez les instructions avant l'utilisation.

Read and understand the Owner's Manual and all warnings posted on the unit before using.



Keep children away. Teenagers and disabled must be supervised. *Tenez les enfants éloignés. Les adolescents et les handicapés doevent être surveilles.*

Use the handrails for support and to maintain balance.

Wait until foot plates come to a complete stop before dismounting. Attendre l'arret complet des reposes pieds avant de descendre.

Keep foot plate surface clean and dry.

DO NOT wear loose or dangling clothing while using.

Keep all body parts and other items free and clear of moving parts.

DO NOT use unit if user weight exceeds 400 lbs (180 kg). This is the rated maximum user weight.

Report any malfunctions, damage or repairs to the facility.

Replace any warning labels if damaged, worn or illegible.

Facility Safety Precautions

NOTE: It is the sole responsibility of the user/owner or facility operator to ensure that regular maintenance is performed.

Enforce all user and safety precautions.

Read and understand the Owner's Manual completely before assembling, servicing or using unit.

Verify all users are properly trained on using the equipment.

Do not use unit outdoors.

Verify that each unit is setup, leveled and operated on a solid, level surface. Do not install equipment on an uneven surface.

Verify there is enough room for safe access and operation of unit.

Use Cybex AC power adapters only.

Do not use the optional power adapter in damp or wet locations.

Do not use the unit if: (1) the unit is plugged into an optional power adapter that has a damaged cord; (2) the unit is not working properly or (3) if the unit has been dropped or damaged. Seek service from a qualified technician.

EQUIPMENT is not suitable for use in the presence of aerosol (spray), FLAMMABLE ANAESTHETIC MIXTURE WITH AIR or WITH OXYGEN or NITROUS OXIDE.

Perform regular maintenance checks on unit. Performance level can be maintained only if examined regularly. Pay close attention to all areas most susceptible to wear, including (but not limited to) cables, pulleys, belts and grips.

Replace any warning labels if damaged, worn or illegible.

Immediately replace worn or damaged components. If unable to immediately replace worn or damaged components, then remove unit from service until repair is made.

Do not attempt repairs; electrical or mechanical. Seek qualified repair technician when servicing. Failure to do so could result in serious injury. See *Chapter 3 – Customer Service* for contact information.

Use only Cybex supplied components to maintain/repair unit.

Keep a repair log of all maintenance activities.

Disconnect the optional power adapter before servicing unit.

Do not use attachments unless recommended for the unit by Cybex.

The unit may generate electromagnetic or other forms of interference, or it may be affected by interference from other equipment nearby. If this is suspected, take precautions by separating the equipment or otherwise shielding it to avoid such interference.

Unit with A/V Options

Devices connected to Cybex equipment must comply with appropriate safety standards. This includes but not limited to: UL 1647 and EN 60335-1.

There must be adequate mechanical mounting of the device in all combinations (configurations).

Device must be stable on the unit in all configurations.

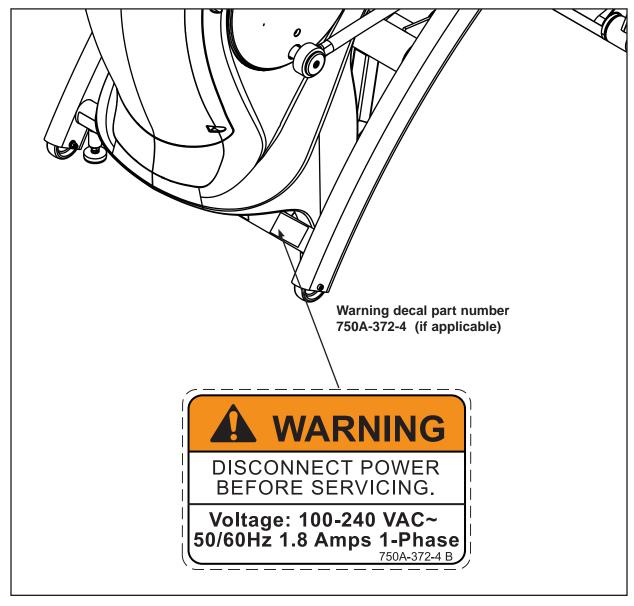


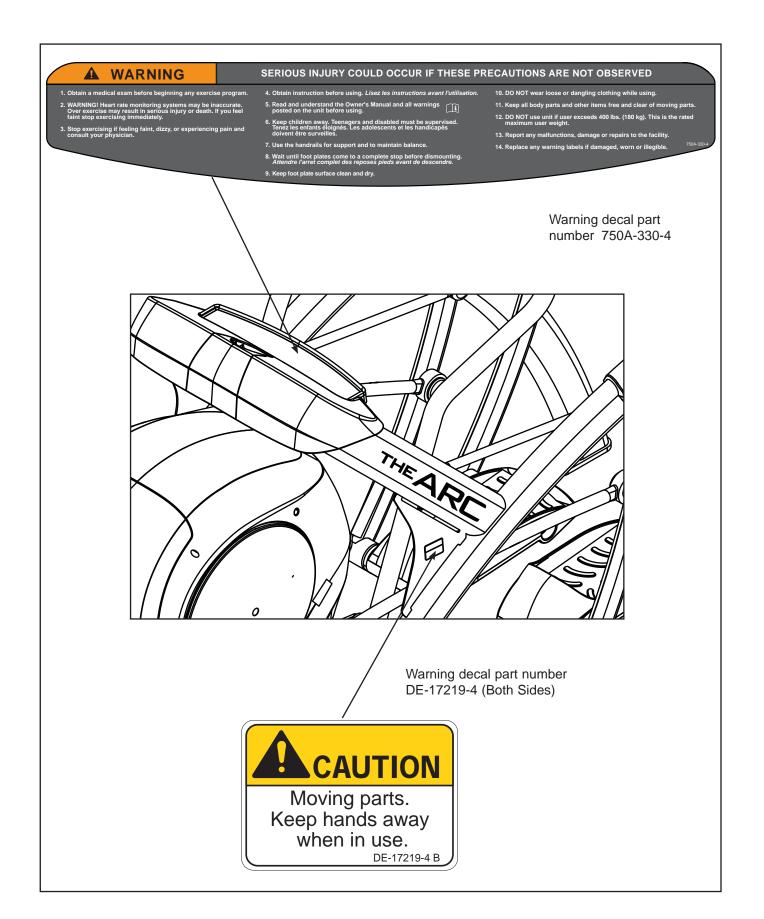
Warning and Caution Decals

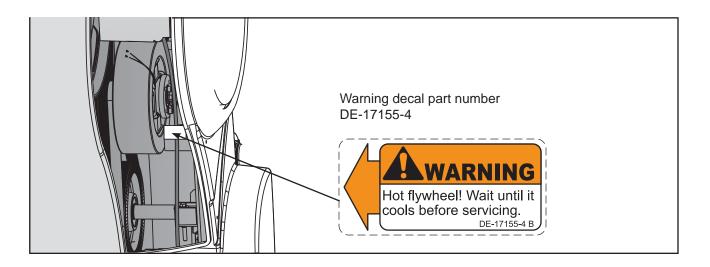
NOTE: To replace any worn or damaged labels, see **Chapter 3 – Customer Service** for contact information.

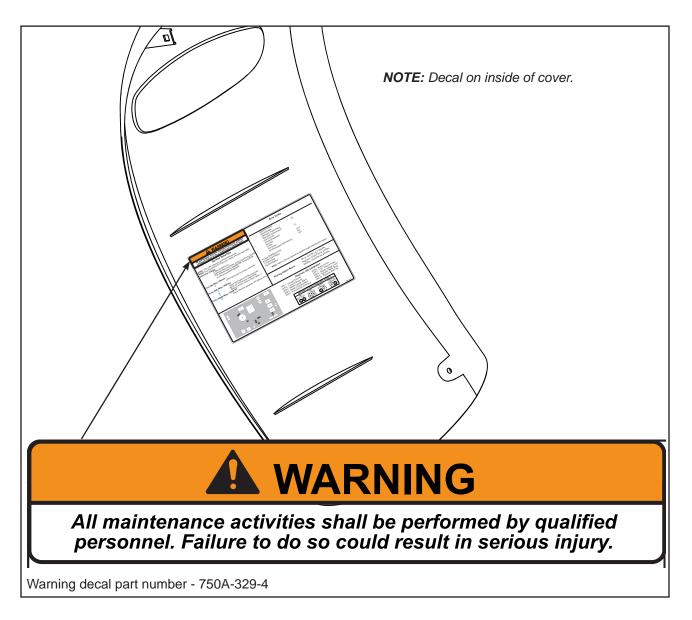
Warning decals indicate a potentially hazardous situation which, if not avoided, could result in death or serious injury.

Carefully read and understand the following caution and warning labels before using the unit.





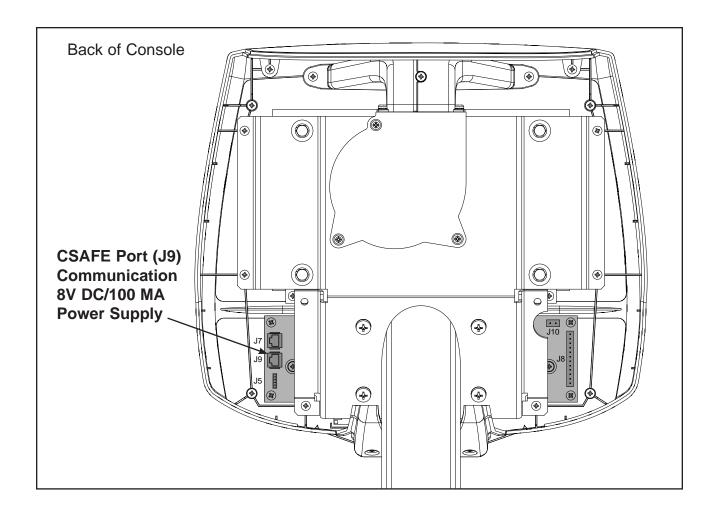




CSAFE Port

The CSAFE standard defines a communication protocol and low-voltage DC power source specific to the Fitness Equipment Industry. These RJ-45 phone jacks are provided for use ONLY within the CSAFE protocol. For more information on CSAFE standard, visit www.fitlinxx.com/csafe.

NOTE: The CSAFE port inside the console, accessible through the back cover, is the only port that carries BOTH the CSAFE communication lines and the 8.0v DC CSAFE power supply. If attaching a CSAFE compliant device that requires power, this connection must be used. Power is present only when the unit is in use or when a power supply is attached.



Cybex 750A/750AT Arc Trainer® Service Manual

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2 - Preventive Maintenance



Warnings

Read all warnings in this chapter and in *Chapter 1 — Safety.*

Observe the following warnings and cautions:

All maintenance activities shall be performed by qualified personnel. Failure to do so could result in serious injury.

To prevent electrical shock, verify unit is unplugged from the electrical outlet before performing any cleaning or maintenance procedures. **NOTE:** A charge can remain after unplugging the power cord.

Keep wet items away from inside parts of unit.

Performance level of equipment can be maintained only if it is examined regularly for damage and wear. **NOTE:** Pay special attention to components most susceptible to wear.

Replace worn or damaged components immediately and/or keep the equipment out of use until repair is completed.

Cleaning Unit

- 1. Spray a clean cloth with a mild cleaning agent, such as a water and dish soap solution.
- 2. Wipe unit.

NOTE: Do not spray cleaning solution directly on unit. Direct spraying could cause damage to electronics and may void warranty.

After Each Use:

Wipe up any liquid spills immediately.

Wipe up any remaining perspiration from handles and painted surfaces.

Be careful not to spill or get excessive moisture on the console and display overlays, as this might create an electrical hazard or cause failure of the electronics.

Clean heart rate grips using a cloth dampened with a cleaning solution containing alcohol.

NOTE: The heart rate grips are the only part of the unit where a cleaning solution containing alcohol should be used.

Preventive Maintenance Activities

Perform regular preventive maintenance to ensure normal operation of unit. Keep a log of all maintenance actions to assist in staying current with all preventive maintenance activities.

NOTE: Cybex is not responsible for performing regular inspection and maintenance actions of this unit. Instruct all personnel in equipment, inspection and maintenance. Require all personnel to report and record all accidents.

- Read and understand warnings listed in this chapter and in *Chapter 1 Safety*. Read and understand all instructions in this section.
- **2.** During maintenance, disconnect the external power source. If unit has the optional AC Power Kit, unplug the power cord from the power outlet.

For some maintenance activities it will be necessary to remove and replace the access cover.

Tool Required

Phillips screwdriver

Remove Access Cover

- Using a Phillips screwdriver, remove the two lower screws securing the access cover.
 See Figure 1.
- 2. Using a Phillips screwdriver, remove two upper screws securing the access cover. See Figure. 1
- 3. Remove the access cover.



WARNING: The flywheel may be hot. Wait until it cools before servicing.

Attach Access Cover

NOTE: Do not over tighten screws.

- Using a Phillips screwdriver, replace and tighten the two upper screws removed in step 2 Remove Access Cover.
- 2. Using a Phillips screwdriver, replace and tighten the two lower screws removed in step 1 *Remove Access Cover.*
- **3.** Test unit for proper operation.

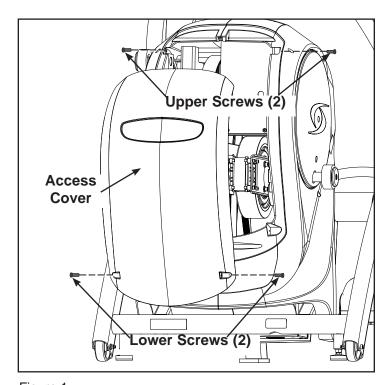


Figure 1

Drive Belts

There are two drive belts that may become loose, worn or cracked.

Unless the belts have been removed and not replaced properly, it is unlikely the belts will come loose or need to be retensioned. See Figure 2.

NOTE: If a belt has cracks or appears worn, it must be replaced immediately by a qualified service technician.

Primary Belt – The wider of the two belts. It has grooves that keep it aligned on the large upper pulley.

Secondary Belt – The narrower of the two belts. It has gooves that keep it aligned on the flywheel's drive pulley.

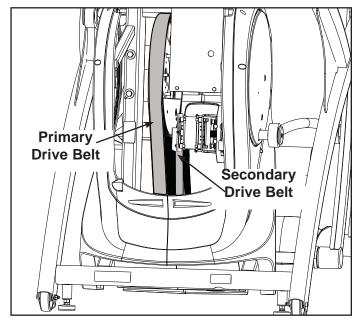


Figure 2

Recommended Service Schedule

To determine mileage start striding:

During initial countdown, press **CLEAR**, **key in 9-9-9** and press **ENTER**. The first menu item is ODOMETER.

Press ENTER to view accumulated distance.

First 500 Miles (800 KM)

Follow this procedure to ensure the belts are tensioned properly and in good condition.

- 1. Remove access cover. (See previous procedure *Remove Access Cover*)
- **2.** Pull down and roll each belt to examine the condition. If a belt has cracks or appears worn, it must be replaced immediately by a qualified service technician.
- 3. Attach access cover. (See previous procedure Attach Access Cover)

Every 5000 Miles (8000 KM)

Check drive belts for tension and wear. (See procedure First 500 Miles)

Move unit and vacuum underneath. Lift the rear of unit and roll it back from its present position. Vacuum underneath and return unit to normal position.

Clean inside unit.

- 1. Remove access cover. (See previous procedure *Remove Access Cover*)
- 2. Using a vacuum cleaner attachment or hand vacuum, clean the exposed components.
- 3. Remove dirt and debris from internal components.
- 4. Using a dry cloth, wipe all exposed areas.
- 5. Attach access cover. (See procedure Attach Access Cover)

Every 20,000 Miles (32000 KM)

Contact qualified service technician to check elevation assembly, replace any worn parts and lubricate elevation bushings.

Statistics

The Statistics screen allows tracking of equipment usage.

Open Statistics screen from Count Down, Lock, CSAFE ID Entry or Dormant Modes

Press Clear, key in 9-9-9 and press ENTER.

Data features can also be accessed from the CSAFE port.

Use the **ENTER** key to advance to next screen.

Use the **Load Control** keys to scroll forward or backward in the menu.

Statistics Menu	Display	
ST1 – ODOMETER	KM XXXX.X or MI XXXX.X	0.0 – 999,999.9 (X=total accumulated miles or KM)
ST2 – HOURS	HOURS XXXXXX	0 – 99999 (X=total user session time)
ST3 – STARTS	STARTS XXXXXX	0 – 999,999 (X=total number of user sessions)
ST4 - MOVES	MOVES XXXXXX	0 – 9,999,999 (X=number of incline moves in 1% increments)
ST5 – BATTERY	BATTERY XXXXXX	0 – 999,999 (X=total whole minutes the battery has been used)
ST6 – ERRORS	X ERR X HH:MM M-DD-YY	Tracks error codes in a rolling log of 20 entries, each stamped with time and date
ST7 – PROGRAM USAGE	PR Y XXXXXX	Y= program number XXXXX=number of times program was chosen, set completed and unit entered active mode.

Clear data by holding Pause/End key for three seconds, listen for double beep, and press CLEAR.

Rechargeable Battery

The unit is designed with a 12 volt Lead-Acid rechargeable battery. The battery will recharge during regular operation of unit or when the optional power adapter is plugged in.

The display will indicate dashes in the incline display if the battery fails to provide enough energy. The unit will still function normally other than the disabling of the incline feature.

If the battery is completely discharged, the workout review will also be truncated if the user is not striding during the time period. See *Chapter 3 – Customer Service* for contact information to replace the battery or purchase the optional AC adapter kit.



WARNING: Battery replacement shall be performed by qualified service technician.

NOTE: Remove battery and dispose of safely before unit disposal.

Environment

Humidity and Static Electricity

The unit is designed to function normally in an environment with a relative humidity range of 30% to 75%. The unit can be shipped and stored in a relative humidity range of 10% to 90%.

Climatic dry air may cause static electricity. During workout, user may experience a shock due to build-up of static electricity on the body and the discharge path of the unit. If static electricity is experienced, increase humidity to a comfortable level through the use of a humidifier.

NOTE: Do not install, use or store the unit in an area of high humidity, such as in the vicinity of a steam room, sauna, indoor pool or outdoors. Exposure to extensive water vapor, chlorine and/or bromine could adversely affect the electronics as well as other parts of the unit.

Temperature

The unit is designed to function normally in an environment with an ambient temperature range of 50° F (10° C) to 104° F (40° C). The unit can be shipped and stored in an environment with an ambient temperature range of 32° F (0° C) to 140° F (60° C).

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3 - Customer Service

Contacting Service

Hours of phone service are Monday through Friday from 8:30 a.m. to 6:00 p.m. Eastern Standard Time.

For Cybex customers living in the USA, contact Cybex Customer Service at 888-462-9239.

For Cybex customers living outside the USA, contact Cybex Customer Service at **508-533-4300** or fax **508-533-5183**.

Find information on the web at www.cybexinternational.com or by e-mail at techhelp@cybexintl.com.

Serial Number

The serial number is located on the unit as shown in Figure 1.

Record serial number below for reference when calling Cybex Customer Service.

Serial Number

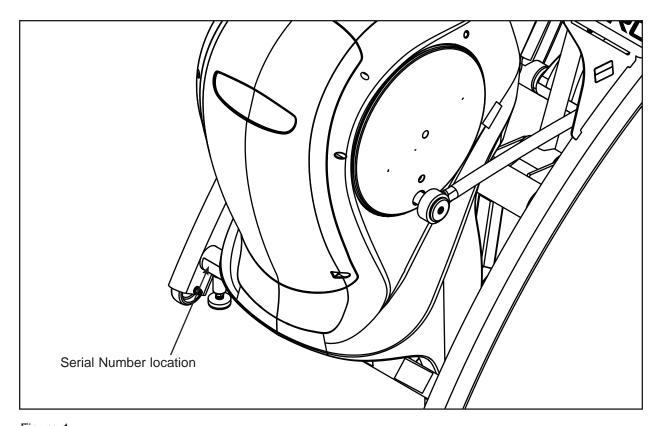


Figure 1

Ordering Parts

Fax orders to **508-533-5183**. To speak with a customer service representative, call **888-462-9239** (for customers living within the USA) or **508-533-4300** (for customers outside the USA).



Use only Cybex replacement parts when servicing. Failure to do so could result in personal injury.

NOTE: All inspections and repairs must be performed by trained service personnel only.

Cybex will void warranty if non-Cybex replacement parts are used.

Servicing of Double-Insulated Products

In a double-insulated product, two systems of insulation are provided instead of grounding. No grounding means is provided on a double-insulated product, nor should a means for grounding be added to the product.

Servicing a double-insulated product requires extreme care and knowledge of the system, and should be done only by qualified service personnel. Replacement parts for a double-insulated product must be identical to the parts they replace. A double-insulated product is marked with the words "DOUBLE INSULATION" or "DOUBLE INSULATED." The symbol (square within a square) may also be marked on the product.

Symbol	Description	
	Double-Insulated symbol	

Cybex 750A/750AT Service Manual

Damaged Parts

Materials damaged in shipment should not be returned for credit. Shipping damages are the responsibility of the carrier (UPS, Federal Express, trucking companies, etc.).

Apparent Damage - Upon receipt of shipment, check all boxes carefully. Any damage seen with a visual check must be noted on the freight bill and signed by the carrier's agent. Failure to do so will result in the carrier's refusal to honor the damage claim. The carrier will provide required forms for filing such claims.

Concealed Damage - Damage not seen with a visual check upon receipt of a shipment but noticed later must be reported to the carrier as soon as possible. Upon discovery of the damage, a written or phone request to the carrier asking them to perform an inspection of the materials must be made within ten days of the date of delivery. Keep all shipping containers and packing materials: they will be needed as part of the inspection process. The carrier will provide an inspection report and the necessary forms for filing a concealed damage claim. Concealed damage is the carrier's responsibility.

Return Material Authorization (RMA)

The Return Material Authorization (RMA) system outlines the procedures to follow when returning material for replacement, repair or credit. The system assures that returned materials are properly handled and analyzed. Follow the following procedures carefully.

Contact an authorized Cybex dealer on all warranty-related matters. A local Cybex dealer will request an RMA from Cybex, if applicable. Under no circumstances will defective parts or equipment be accepted by Cybex without proper RMA and an Automated Return Service (ARS) label.

- 1. Call the Customer Service hotline listed on Page 3-1 for the return of any item that is defective.
- 2. Provide the technician with a detailed description of the problem or the defect in the item.
- **3.** Provide the model and serial number. *The serial number is located on the front of the unit as shown in Figure 1.* The serial number begins with a letter, for example: R09-101331100.
- **4.** At Cybex's discretion, the technician may request that the problem part(s) be returned to Cybex for evaluation and repair or replacement. The technician will assign an RMA number and will send an ARS label. The ARS label and RMA number must be clearly displayed on the outside of the package that contains the item(s) to be returned. Include a description of the problem, the serial number of the unit and the name and address of the owner in the package along with the part(s).
- **5.** Forward the package through UPS to Cybex.

Attn: Customer Service Department Cybex International, Inc. 1975 24th Ave SW Owatonna, MN 55060 USA

NOTE: Merchandise returned without an RMA number on the outside of the package or shipments sent C.O.D. will not be accepted by the Cybex receiving department.

Cybex 750A/750AT Service Manual

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4 - Service

Read and understand all warnings and cautions in *Chapter 1 – Safety* and all service warnings and cautions in this chapter before servicing unit.



Warnings

All maintenance activities shall be performed by qualified personnel. Failure to do so could result in serious injury.

Disconnect the power cord before servicing unit if using Cybex AC power adapter.

Keep wet items away from inside parts of the unit. Electrical shock could occur even if the unit is unplugged.

Flywheel may be hot. Wait until it cools before servicing.

Failure to release the drive belt tension may cause personal injury and may damage the unit.

Do not touch components on the controller board. A charge can remain after unplugging the power cord.



Cautions

Do not pinch fingers between the belt and pulley during this procedure.

Pulley on eddy current brake is sharp. Wear work gloves to protect hands.

NOTE: Read and understand each procedure thoroughly before servicing. Unless otherwise noted, "right" and "left" denote user orientation for all procedures.

Display Console

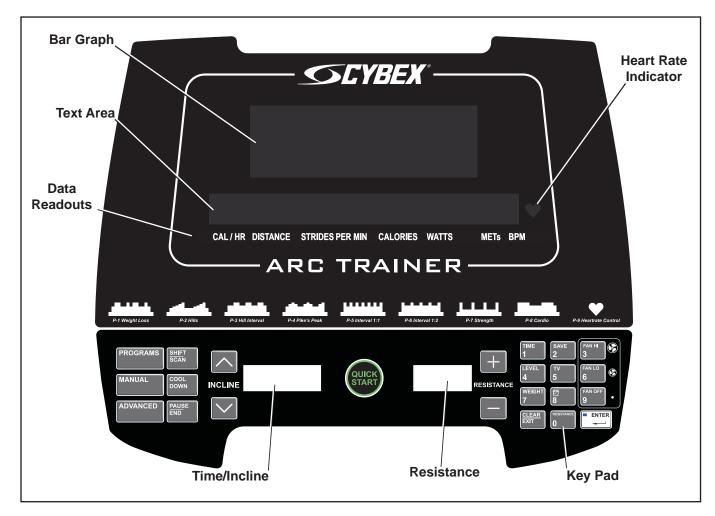


Figure 1

Audio Visual (AV) Key Pad - Optional

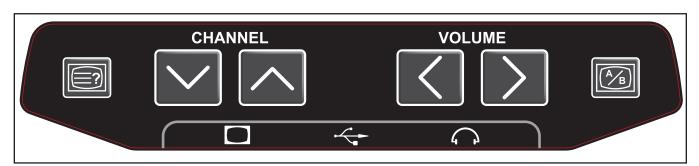


Figure 2

Service Diagnostics

Service diagnostics allows testing, monitoring or altering of unit controls and performance.

Open service diagnostics from *Count Down, Lock, ID Entry* or *Dormant* modes. While striding press **PAUSE/END** key to exit. **NOTE:** Striding must continue throughout this procedure. If striding is stopped, this procedure must be restarted.

Press CLEAR, key in 8-8-8 and press ENTER.

LED TEST

A quick LED test begins with lighting the following for three seconds each.

- 1. Bar Graph Matrix (BGM) LEDs
- 2. Text Area
- 3. Data Readout LED

"Key Test" will then be displayed.

KEY TEST

Test each key by pressing once. Each key press is recognized with a beep. If key is held, beep is repeated or stuck key is indicated.

Press **PAUSE/END** to exit test and move forward in *Test Mode*.

STATIC I/O

"STATIC I/O" is displayed in Text Area.

1. Check software version

SHIFT/SCAN key displays the model and software version of the unit "750A VX.YY". X=Major Version and .YY=minor version.

2. Test heart rate display

Grasp heart rate grips to verify heart rate LED blinks and "CHR" is displayed. If testing wireless heart rate, "WHR" displays.

3. Test Controller Communication

The two lower left decimal points of the incline/clock display blink to indicate receiving (left) and transmitting (right) communication signals.

4. Test Network Communication

The upper right decimal points of the incline/clock display blink to indicate receiving (left) and transmitting (right) CSAFE and/or AV Port Communication signals.

5. Repeat Display Test

Push **PROGRAMS** key to light up the entire Bar Graph matrix and Red RGB for three seconds.

Push MANUAL key to light up the entire Text Area and Green RGB for three seconds.

Push **ADVANCED** key to light up the entire enunicator, Blue RGB and 7-segment displays for three seconds.

DRIVE DIAGNOSTICS

Enter Drive Diagnostics by holding the **ENTER** key for 3 seconds while in Static I/0 test. This creates a diagnostics screen for controlling and viewing lower controller values.

Text Area shows "DRIVE DIAGNOSTICS".

Navigation Keys		
LOAD +/-	Directly control the brake torque from 0 to max	
QUICK/START	Sets brake to 100% torque	
INCLINE +/-	Control function as if in Active Mode	
ENTER	Enters diagnostic mode	
CLEAR	Backs up one step	
PAUSE/END	Exits Diagnostics	
Drive Diagnostics Menu		
BRAKE ID X	Allows viewing/setting the brake type using keypad. X=Brake type	
INCLINE CAL 1	Incline calibration value #1 and calibration routine entry; press QUICK/START to initiate auto-calibration.	
INCLINE CAL 2	Incline calibration value #2; view the incline calibration data.	
LOAD CAL 1	Brake calibration value 1; view and modify the calibration values.	
LOAD CAL 2	Brake calibration value 2; view and modify the calibration values.	
LOAD CAL 3	Brake calibration value 3; view and modify the calibration values.	
CHARGE [# - Text]	Returns the state of the battery charger.	
BATT VOLTS XX.X	Returns the actual battery voltage in volts.	
BATT AMPS X.XX	Returns the charge in Amps	
BATT LVL [# Text]	Returns the health and status.	
PWR SOURCE [- text]	Returns the power source.	
MICRO TEMP XXX	LCB Microprocessor temperature.	
LCB CODE VX.XX	Drive firmware version	

Brake ID

The unit has two different brake types, with the possiblity for more. Use the keypad or the +/- keys to populate alternate numbers.

Enter both accepts what is displayed, stores it, and exits back to the Drive Diagnostics menu, moving forward to the next item in the list.

Incline

The incline must be calibrated due to the variations in the pot setting and other mechanical deviations. The lower controller stores the calibration values. Incline allows running and viewing the calibration routine as well as seeing the values for 0% and 20%.

Press **QUICK/START** to cause the incline calibration routine to start. "CALIBRATING" is displayed on the text area and the A/D value in displayed in the **RESISTANCE** window.

The controller runs the incline to maximum until it can't move any further. Once at the movement maximum, the lower controller will stop and store the A/D value for the 20% incline position. Value is shown in the **RESISTANCE** window. The value for 0% incline is shown in the **INCLINE** window.

When completed, "SAVED" is shown briefly in the Text Area and test exits back to menu.

Press **ENTER** to move forward to Load Calibration.

Load Calibration

The load or brake contribution must be calibrated due to the variations in the mechanical construction of the brake and the Arc engine assembly.

The display acts as the interface to allow the entry of these values in the controller where they are stored.

In the Text Area, display "LOAD CAL X" where X is the calibration number 1-3. The acutal calibration value is displayed in the **RESISTANCE** window.

Value can be adjusted by the control keys or keyed in directly form the keypad.

Press **ENTER** to accept what is displayed and move on to the next value.

LOAD CAL 1 = AAA First cal value
LOAD CAL 2 = BBB Second cal value
LOAD CAL 3 = CCC Third cal value

Charge State

The real-time charge state of battery charger.

- 0 OFF (not being charged)
- 1 FULL CC (charging with constant current stage 1)
- 2 FULL CV (charging with constant voltage stage 2)
- 3 FLOAT CV (float charging, battery is topped off stage 3)
- 4 CHK (potential problem)
- 5 ERR (definitive problem)

Battery Voltage

The present voltage measured on the battery. The battery voltage measurement can range 00.0 to 25.5.

Battery AMPs

The real-time charge current for the battery/charger. Reads the actual battery Amps 0.00 to 2.55.

Battery Level

The computed level of the battery charge status.

- 0 Unknown
- 1 Full
- 2 Med
- 3 Low
- 4 Flat (very low, but possible to recharge)
- 5 Dead (likely unable to resurrect with charger)
- 6 Open (Unplugged or wiring or battery damaged)

Power Source

The source of power for the controller and console.

UNK - LCB can not determine source BATT - Pulling all power from the battery

GEN - Using the internal generator

AC - Using the optional AC adapter

Microprocessor Temperature

The internal measured temperature in C of the lower control board (LCB) microprocessor. Temperature in 1 degree C from 0 - 125.

Code Version

The "LCB CODE VX.XX" is displayed to show the LCB's firmware.

Error Codes

Error codes notify user of a problem condition and are displayed on the console. Error codes can also help to indicate the part of the unit most likely to be causing the problem. Errors are tracked in a rolling log of 20 entries, each stamped with time and date. The log number will show in the INCLINE display as L-01 through L-20.

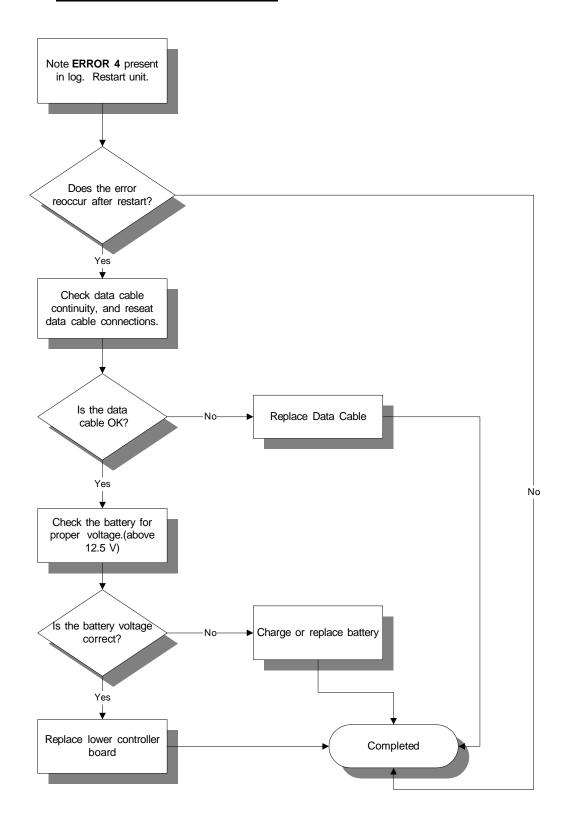
	Error Code Listing
Error Code #	Meaning
4	LCB Ignored Shutdown
5	Drive Communication Lost
8	Approaching Over Temperature
9	Display Watchdog Triggered
22	Power Supply Irregularity - Generator Power No Speed Signal
23	Power Supply Irregularity - Speed Signal, but no Generator Power - Fatal
24	Incline moving too Slowly
25	Incline Movement Feedback Stopped
26	Incline Disabled
27	Low Battery
28	Over Temperature
29	Controller Watchdog Triggered
30	Dead Battery
31	EEPROM Write Failure
32	UART Failure
33	Packet Error
34	Communication Watchdog Triggered
35	LCB Latched On - Can't Shut Down
36	Library Fault
37	Incline Out of Range
38	Incline Timeout
39	UART RX Buffer Over-Run
40	UART TX Buffer Over-Run
41	Data Transmission Fault- Recieve Packet/Buffer Overflow
42	Data Transmission Fault-Recieve Packet/CRC Mismatch
43	Data Transmission Fault- Receive Packet/Size Mismatch

Cybex 750A/750AT Arc Trainer Service Manual

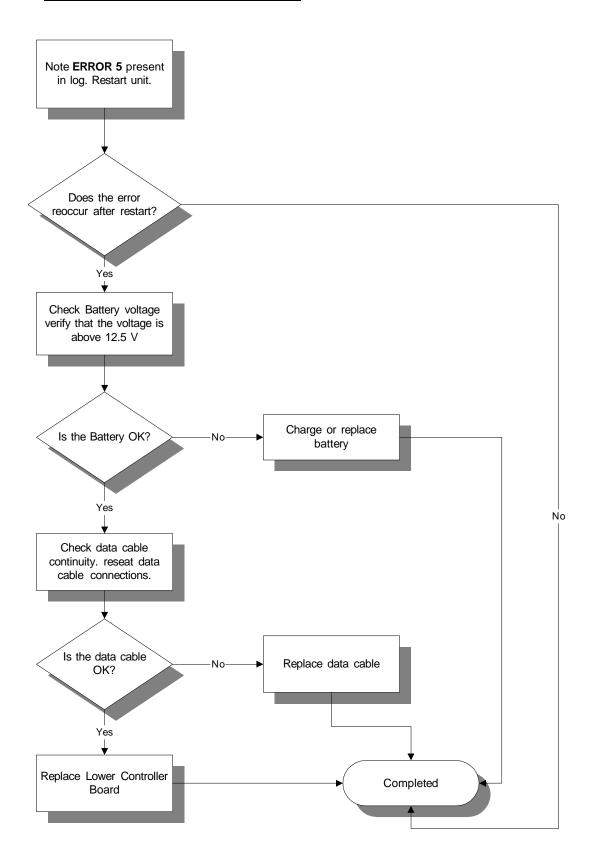
Trouble Shooting/Error Codes

Trouble shoot error codes using the flowcharts in this section. Individual instruction sheets are included with replacement part orders.

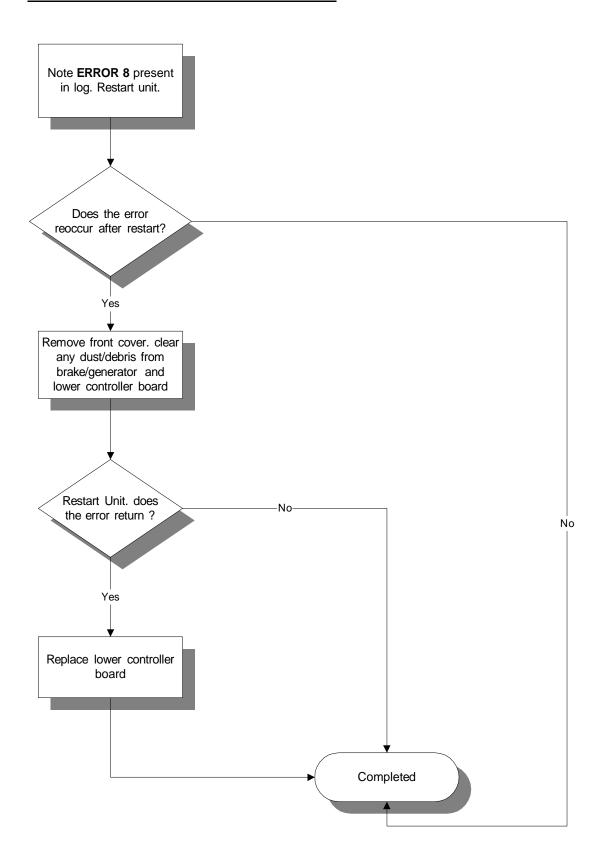
ERROR 4 - LCB IGNORED SHUTDOWN



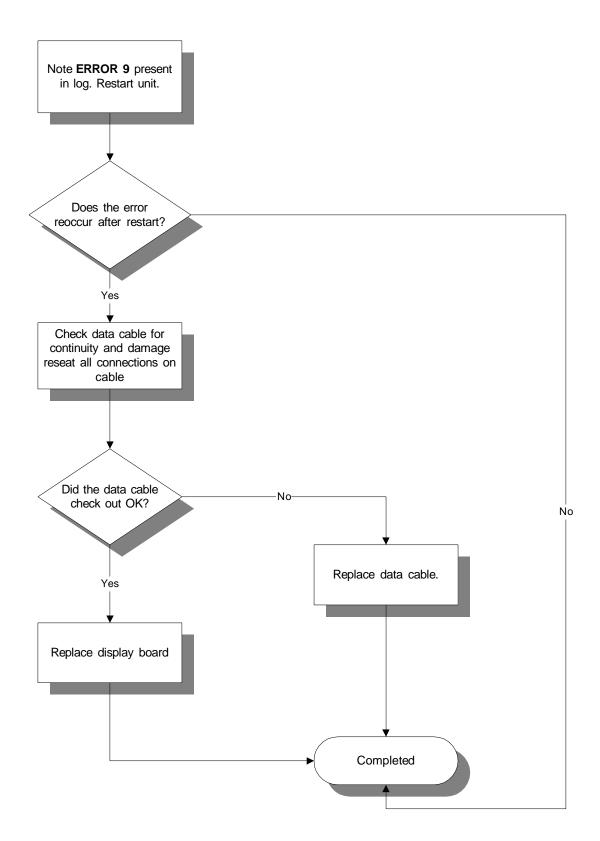
ERROR 5 - DRIVE COMMUNICATION LOST



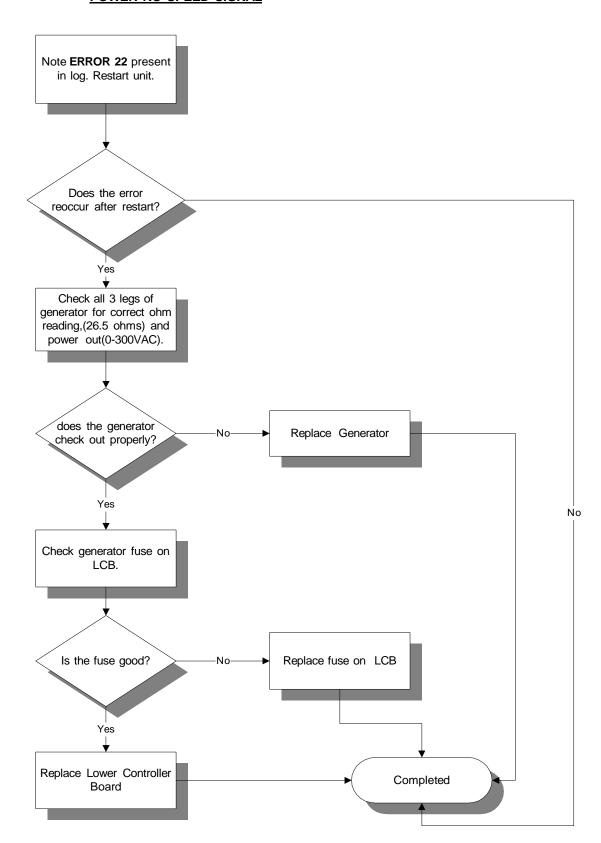
ERROR 8 - APPROCHING OVER TEMPERATURE



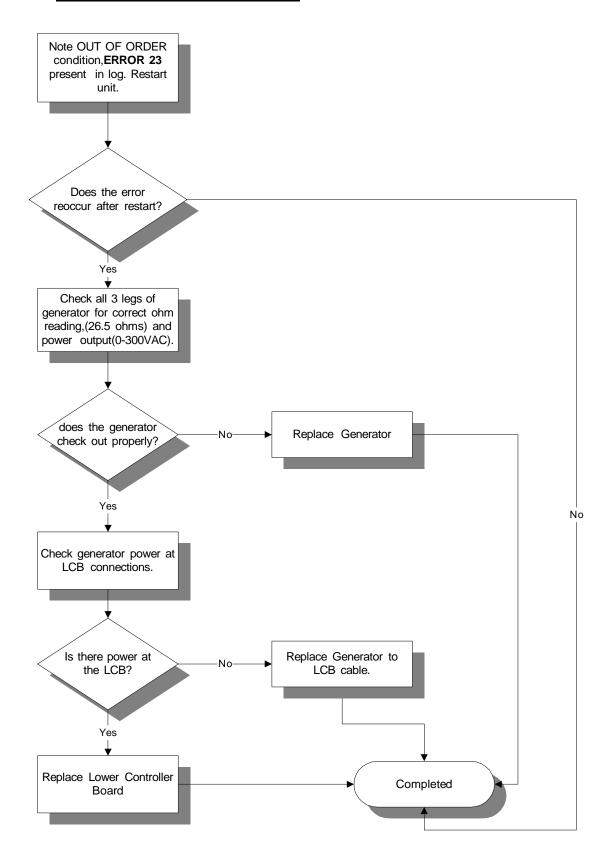
ERROR 9 - DISPLAY WATCHDOG TRIGGERED



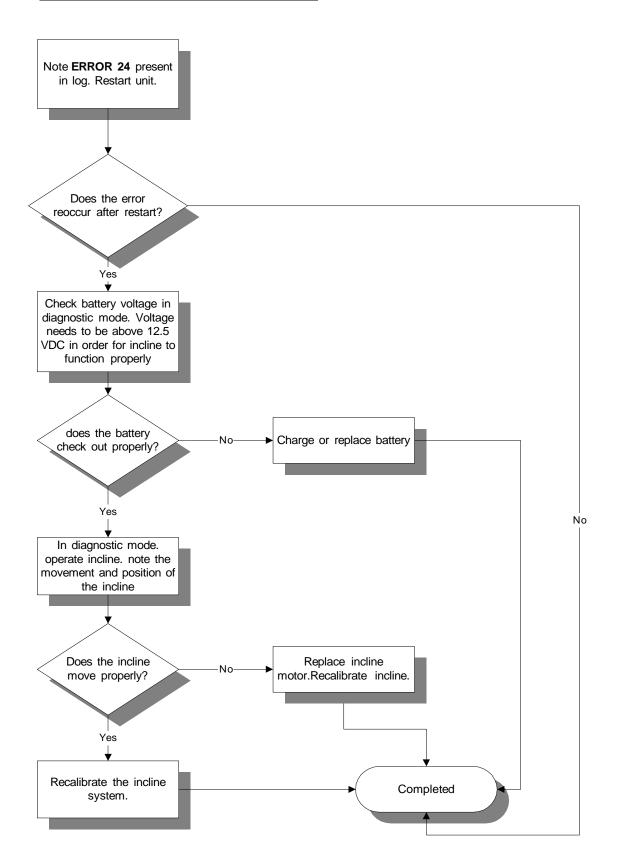
ERROR 22 - POWER SUPPLY IRREGULARITY - GENERATOR POWER NO SPEED SIGNAL



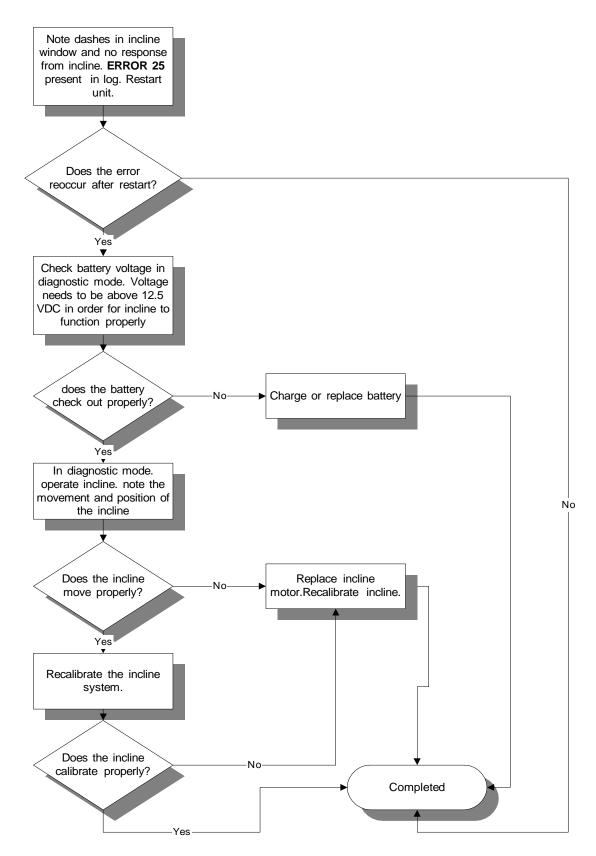
ERROR 23 - POWER SUPPLY IRREGULARITY - SPEED SIGNAL BUT NO GENERATOR POWER - FATAL



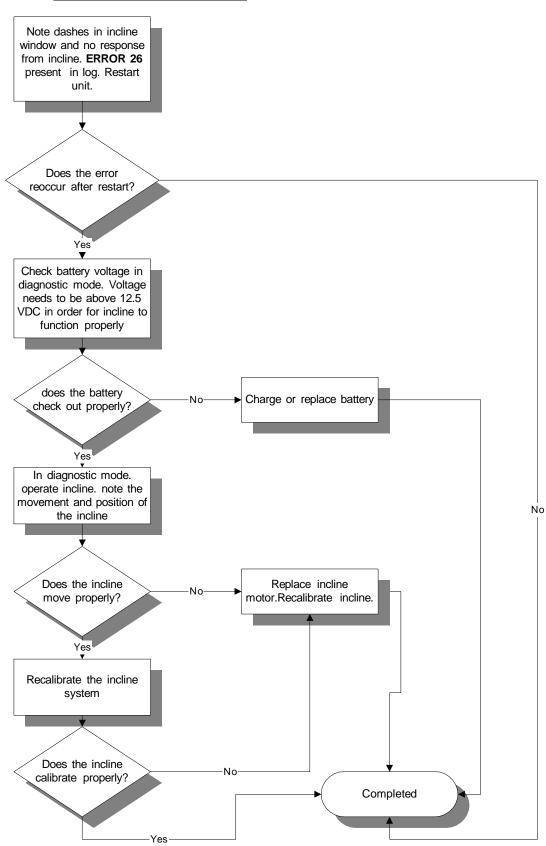
ERROR 24 - INCLINE MOVING TOO SLOWLY



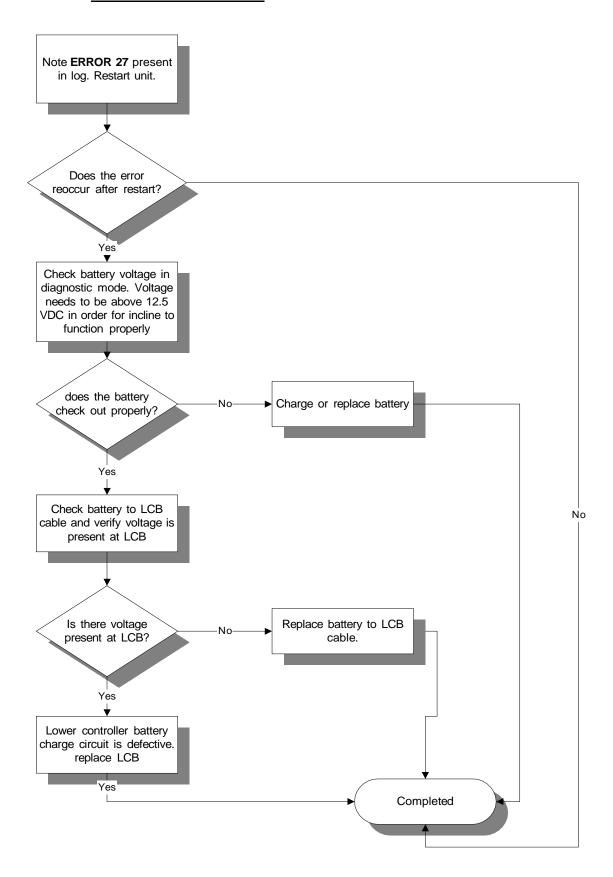
ERROR 25 - INCLINE MOVEMENT FEEDBACK STOPPED



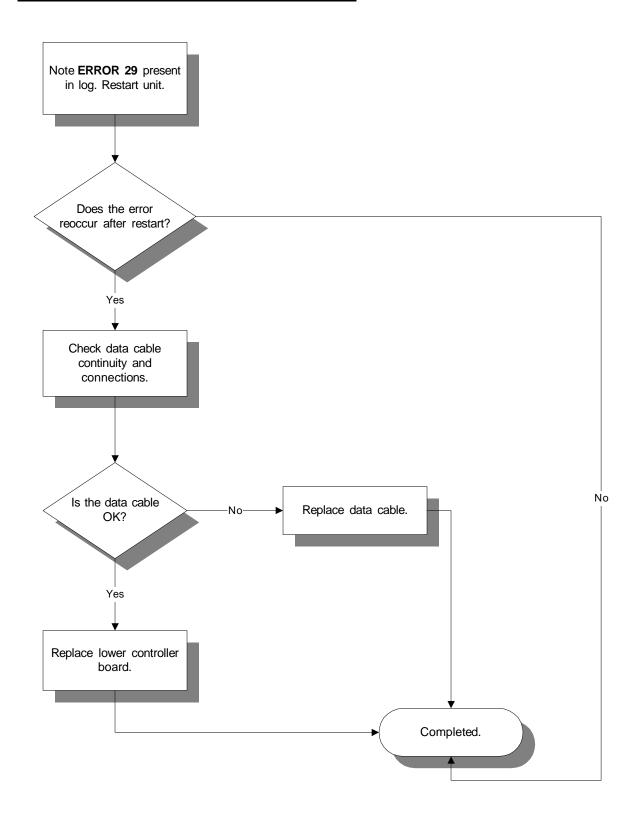
ERROR 26 - INCLINE DISABLED



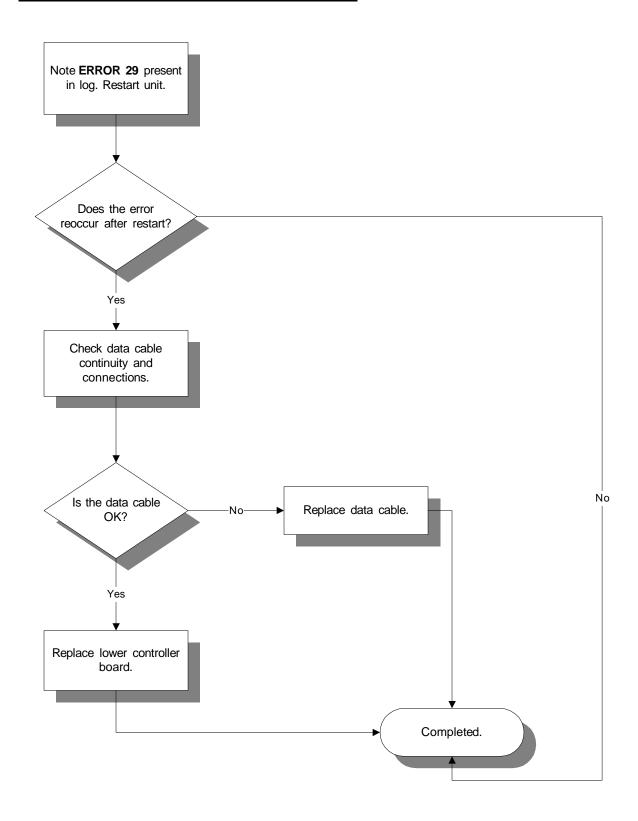
ERROR 27 - LOW BATTERY



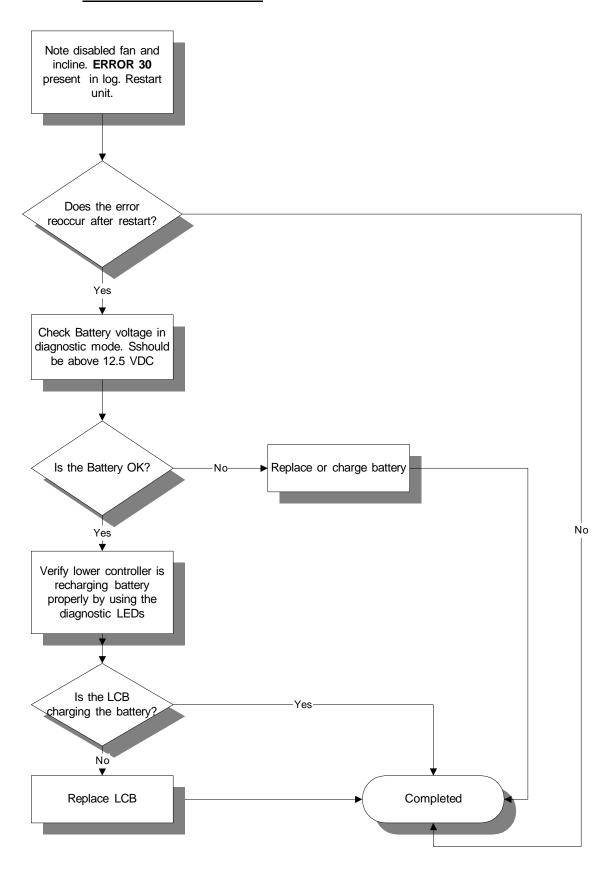
ERROR 29 - CONTROLLER WATCHDOG TRIGGERED



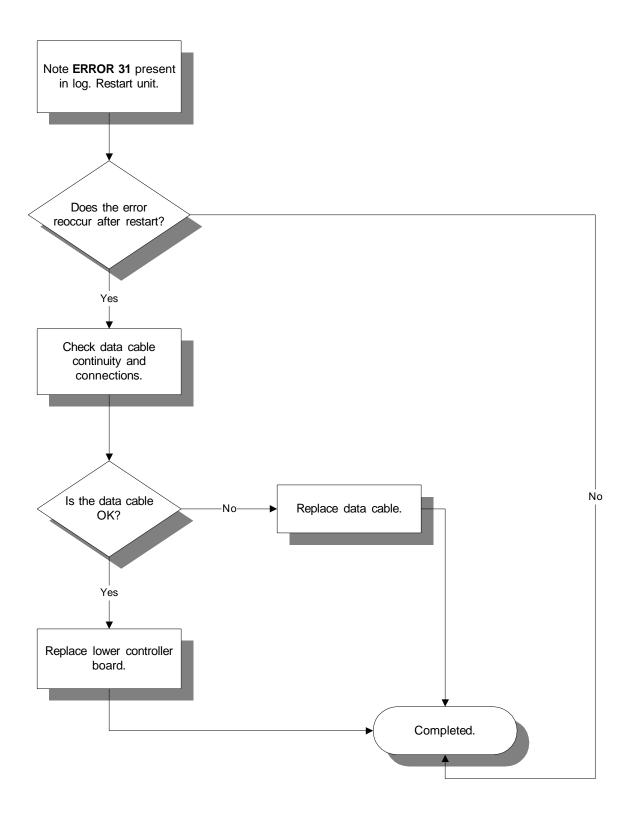
ERROR 29 - CONTROLLER WATCHDOG TRIGGERED



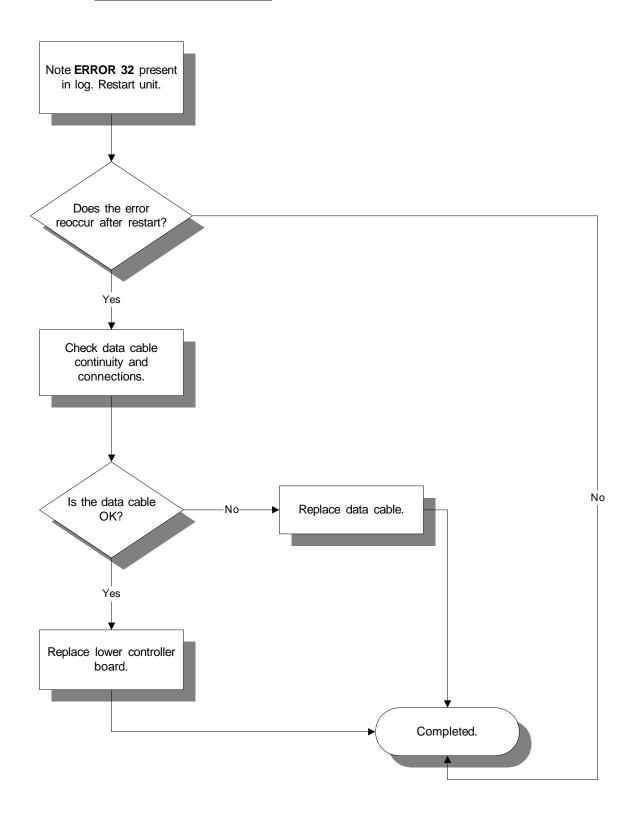
ERROR 30 - DEAD BATTERY



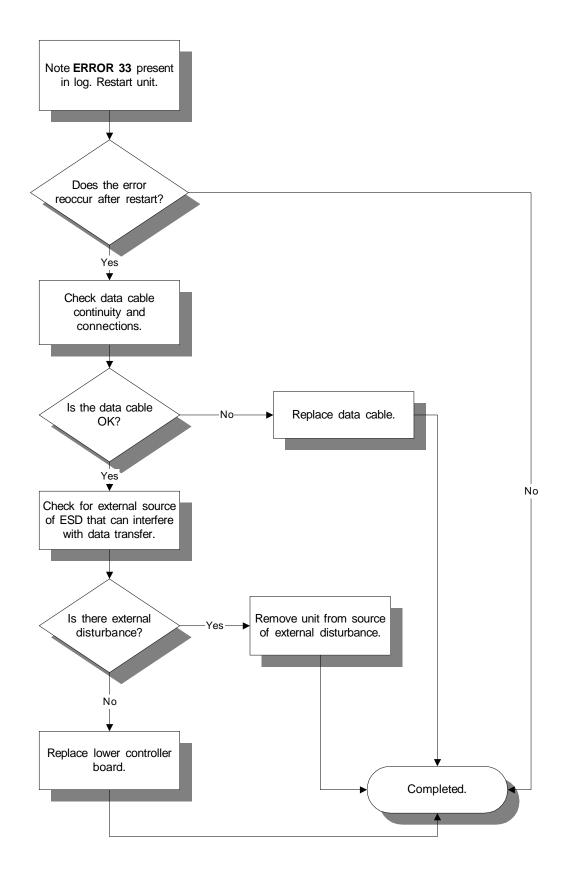
ERROR 31 - EEPROM WRITE FAILURE



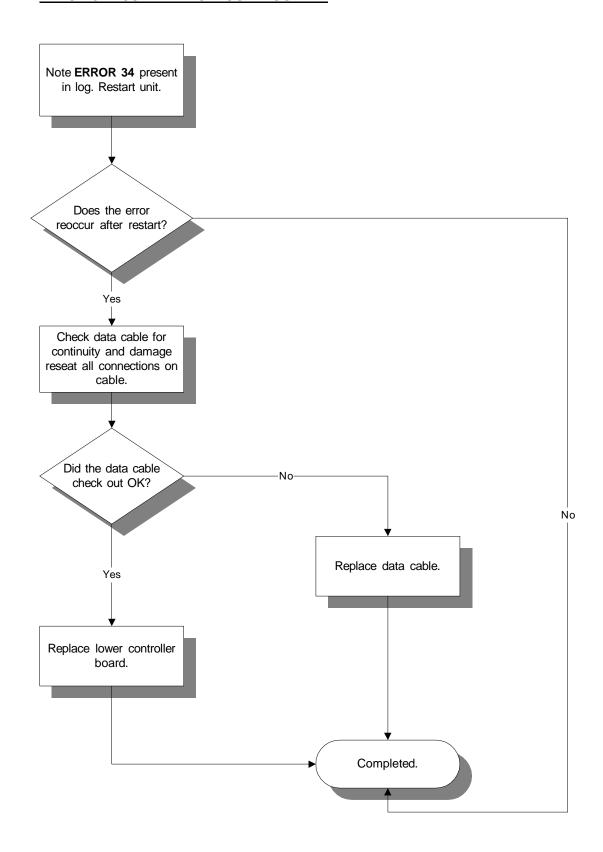
ERROR 32 - UART FAILURE



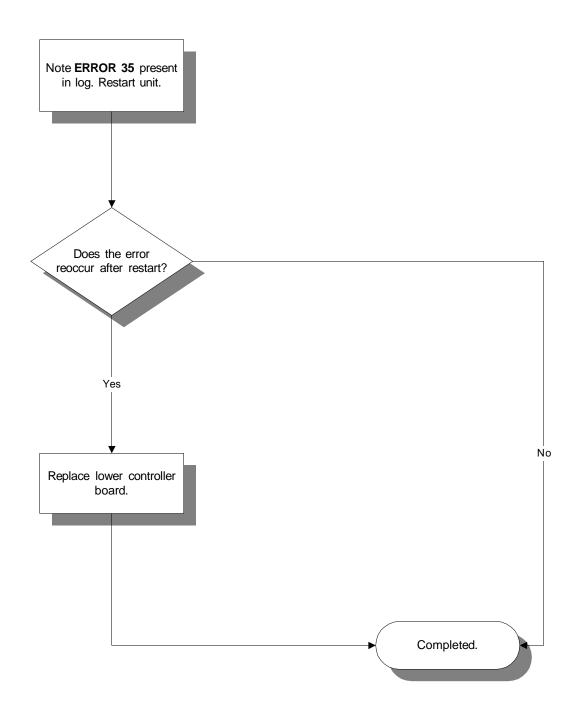
ERROR 33- PACKET ERROR



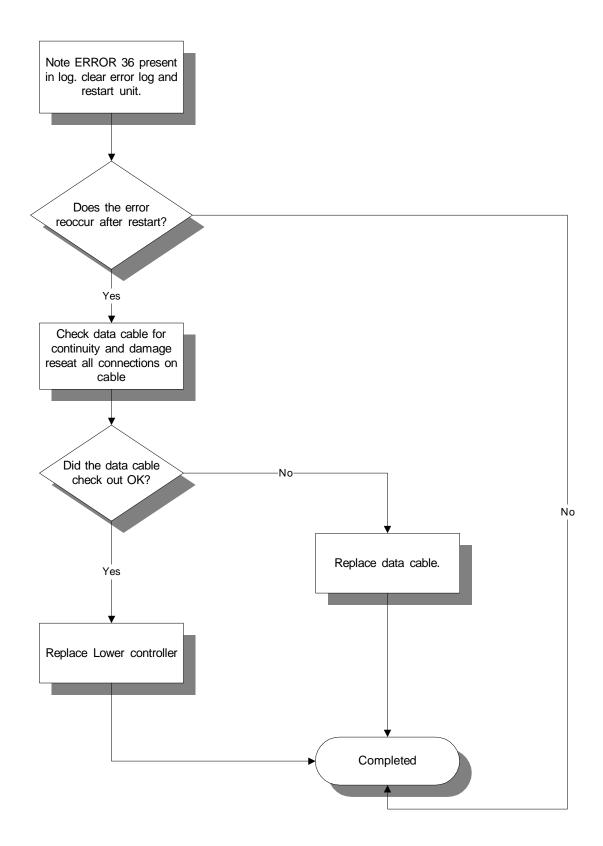
ERROR 34 - COMM WATCHDOG TRIGGERED



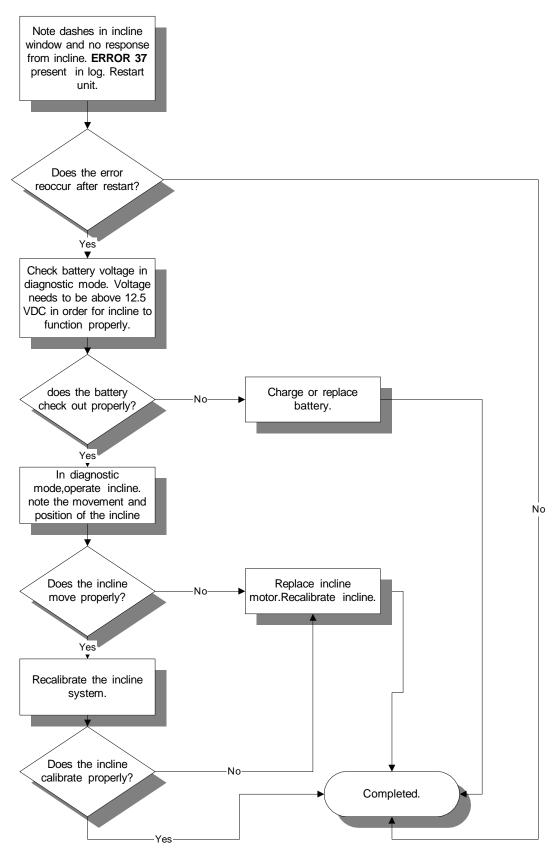
ERROR 35 - LCB LATCHED ON - CAN'T SHUT DOWN



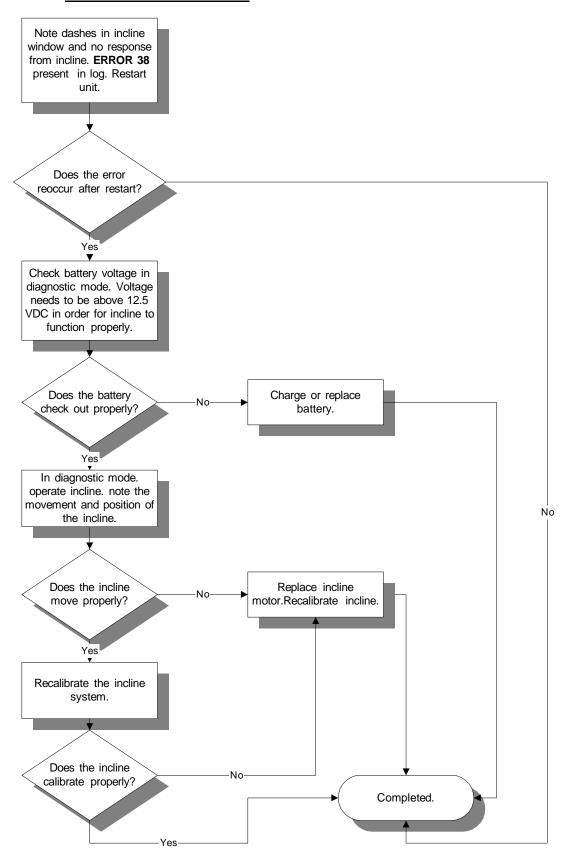
ERROR 36 - LIBRARY FAULT



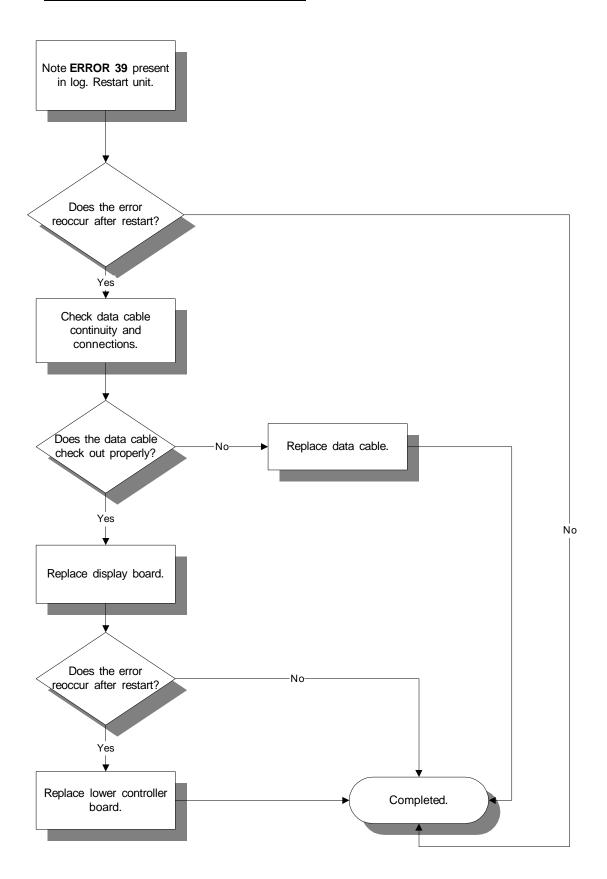
ERROR 37 - INCLINE OUT OF RANGE



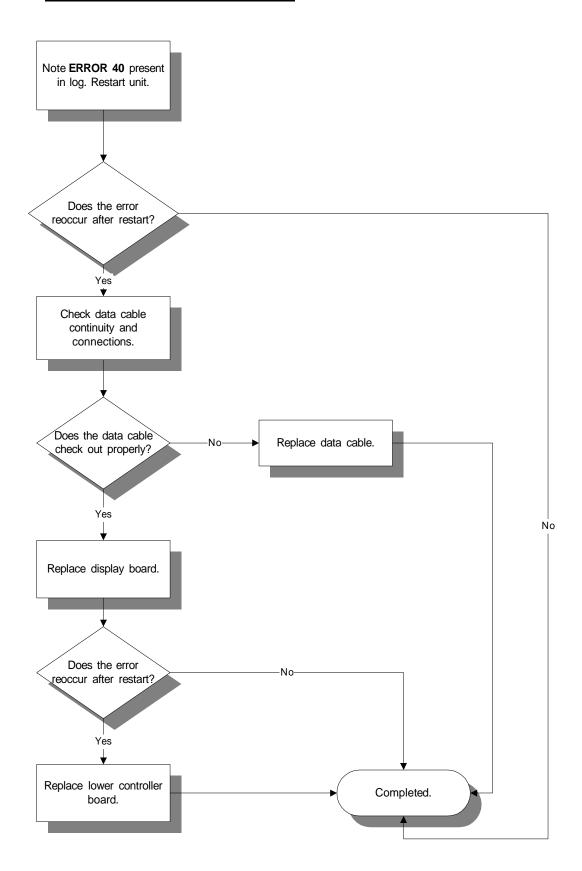
ERROR 38 - INCLINE TIMEOUT



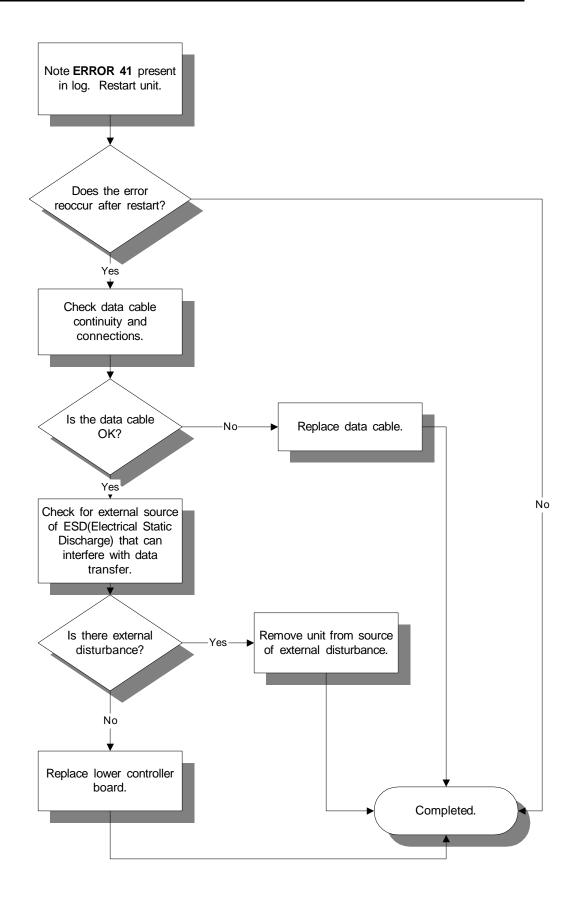
ERROR 39 - UART RX BUFFER OVER-RUN



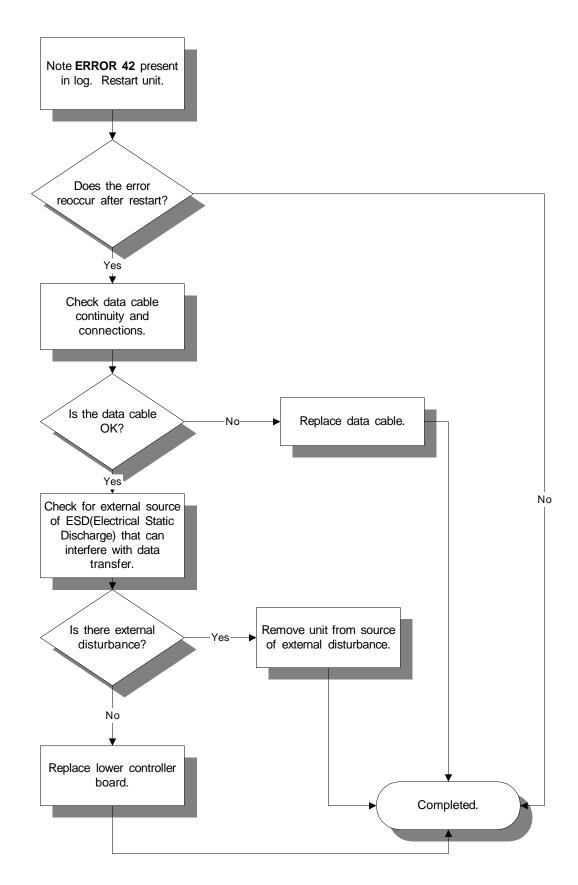
ERROR 40 - UART TX BUFFER OVER-RUN



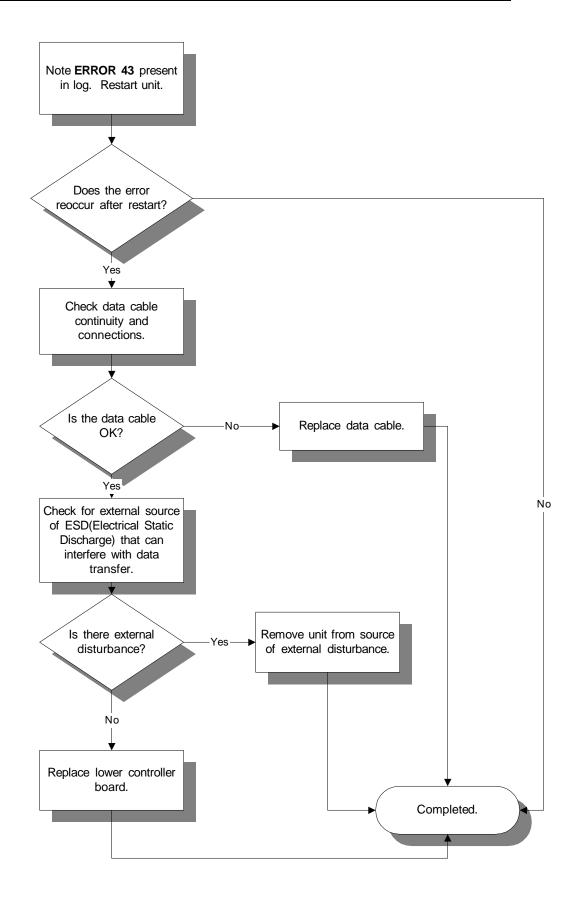
ERROR 41- DATA TRANSMISSION FAULT - RECIEVE PACKET / BUFFER OVERFLOW



ERROR 42- DATA TRANSMISSION FAULT - RECIEVE PACKET / CRC MISMATCH



ERROR 43- DATA TRANSMISSION FAULT - RECIEVE PACKET / SIZE MISMATCH



750A/750AT Parts List

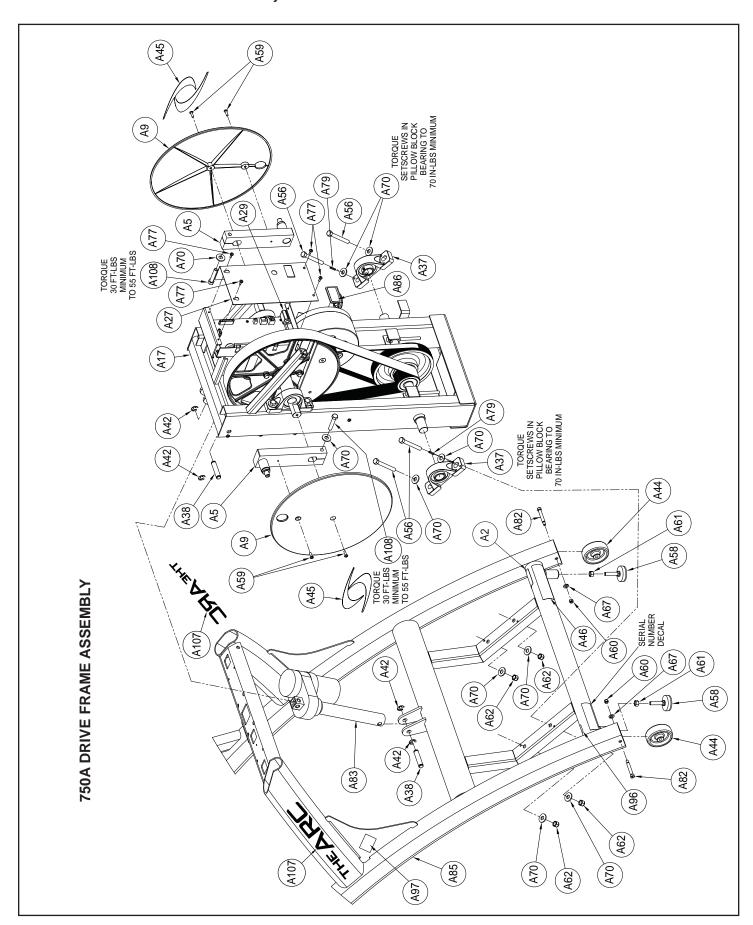
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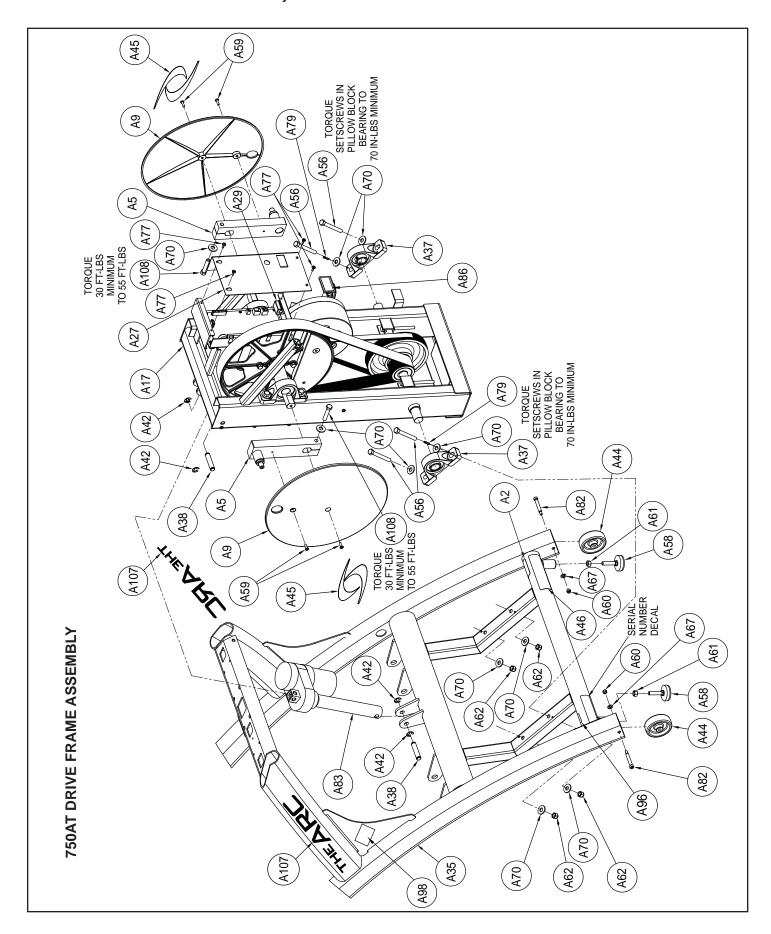
ITEM	QTY	PART NO.	DESCRIPTION
I I E IVI	QII	PART NO.	
A59	4	HM582514	SCREW, PAN HEAD PHILPIPS 10-32 X .62 BLK
A60	2	HN624901	LOCKNUT, .250-20 NYLON BLK ZN
A61	2	HN704000	HEX NUT .375-16
A62	8	HN704901	LOCKNUT, .375-16 NYLON
A63	8	HN704902	LOCKNUT, .375-16 NYLON
A64	6	HS307601	WASHER, FLAT .281 ID X .500 OD X
			.062
A65	4	HS307602	WASHER FLAT .281 ID X 1.000 OD. X .063
A66	2	HS307603	WASHER, FLAT .281 ID X .734 OD X .063
A67	2	HS328300	LOCKWASHER SPLIT .312
A68	4	HS347600	WASHER, SAE .375
A69	4	HS347602	WASHER, FLAT .390 ID X 1.500 OD X .124
A70	10	HS347700	WASHER, USS .375
A71	4	750A-446	WASHER, .765 ID X 1.000 OD X .125
A72	2	HT102214	PHIL, HEX, WASHER HD, TYPE 23, 10-24
A73	8	HT512522	TAP SC 10-24 X 1.50 TYPE WB PN
A74	8	HT552511	SCREW, TAP 8-16 X .38 PLASTITE BLACK
A75	10	HT552512	PAN HD PHIL HD SELF TAPPING, 8-16 X .50 TYPE WB
A76	9	HT552515	TAP SC NO. 8-16 X .75 PLASTITE PN HD PHIL BLK
A77	13	HT572512	TAP SC NO. 10-24 X .50 PN HD PHIL
A78	4	HT592526	TAP SC 10-12 X 2.00 TYPE A PN HD PHIL
A79	2	HX-17023	PIN, SPRING .1875 X .75 LG, TYPE 420
A80	12	HX622815	SHCS .250-20 UNC-3A SS
A81	4	HX700415	BHSCS .375-16 X .75 SS
1 . 1			
A82	2	JD623324	BOLT, SHOULDER .312 X 1.75 .250-20
A83	1	MR-18446	MOTOR, ELEVATION, 115 V
A84	6	PL-16535	CAP, LINKAGE ROD, 2.00 OD
A85	1	750A-200	W/MAIN FRAME - 750A
A86	1	DE-17155-X*	DECAL, WARNING
A87	1	750A-121	CONSOLE
A88	1	750A-330-X*	DECAL,WARNING
A89	1	740A-378	LEFT FOOT PLATE (BLACK)
A89	1	740A-392	LEFT FOOT PLATE (YELLOW)
A90	1	740A-380	LEFT TOE CAP (BLÀCK)
A90	1	740A-394	LEFT TOE CAP (YELLOW)
A91	4	HX700412	BHSCS .375-16 X .50SS
A92	1	750A-403	WASHER, SADDLE, .390 ID X .750 OD X .06
A93	1	HX700428	BHSCS .375-16 X 2.25 SS
A94	1	750A-124	HANDLE ASSY - 750A
A94 A95	1		
		750A-213	CONSOLE MOUNT, 750A
A96	1	750A-372-X*	DECAL, WARNING
A97	1	DE-17219-X*	DECAL, WARNING
A98	1	CP-21072	MONITOR CYBEX 13.3" LCD, ATSC- NTSC DIGITAL PEM
A99	1	CP-21073	MONITOR CYBEX 13.3" LCD, PAL- DVB-SECAM DIGITAL PEM
A100	1	TR-21835	AC POWER SUPPLY (POWER CORD VARIES)
A101	1	750A-404	CABLE 750A CHR GRIP
A102	1	740A-379	RIGHT FOOT PLATE (BLACK)
A102	1	740A-393	RIGHT FOOT PLATE (YELLOW)
A103	1	740A-381	RIGHT TOE CAP (BLACK)
A103	1	740A-395	RIGHT TOE CAP (YELLOW)
A104	1	750AT-126	HANDLE LINKAGE ASSY, RH
		. 55.11 120	

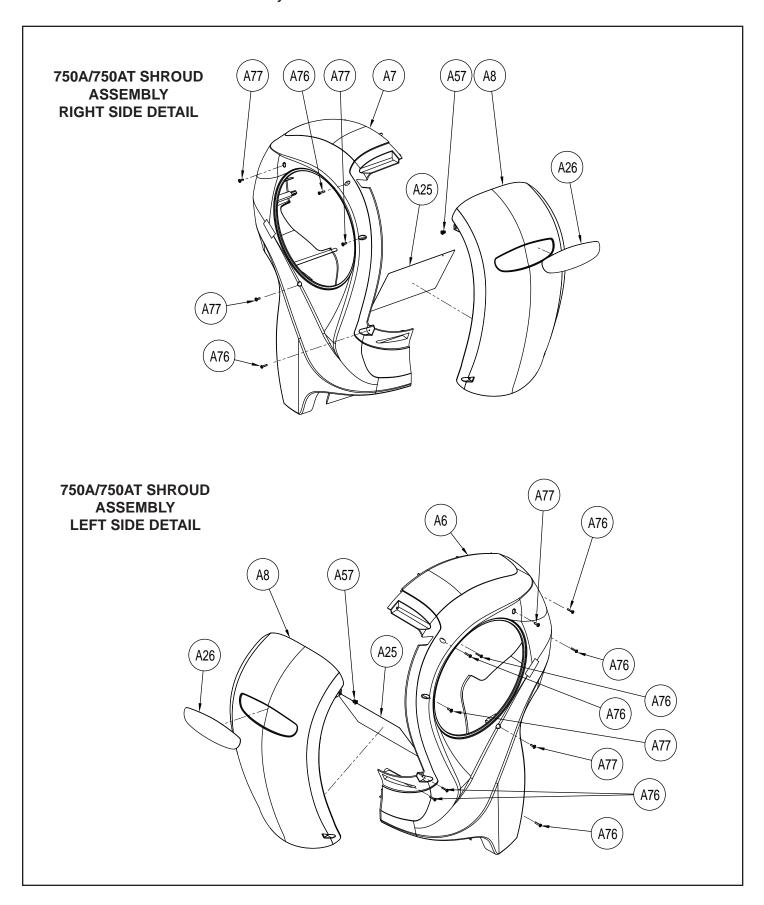
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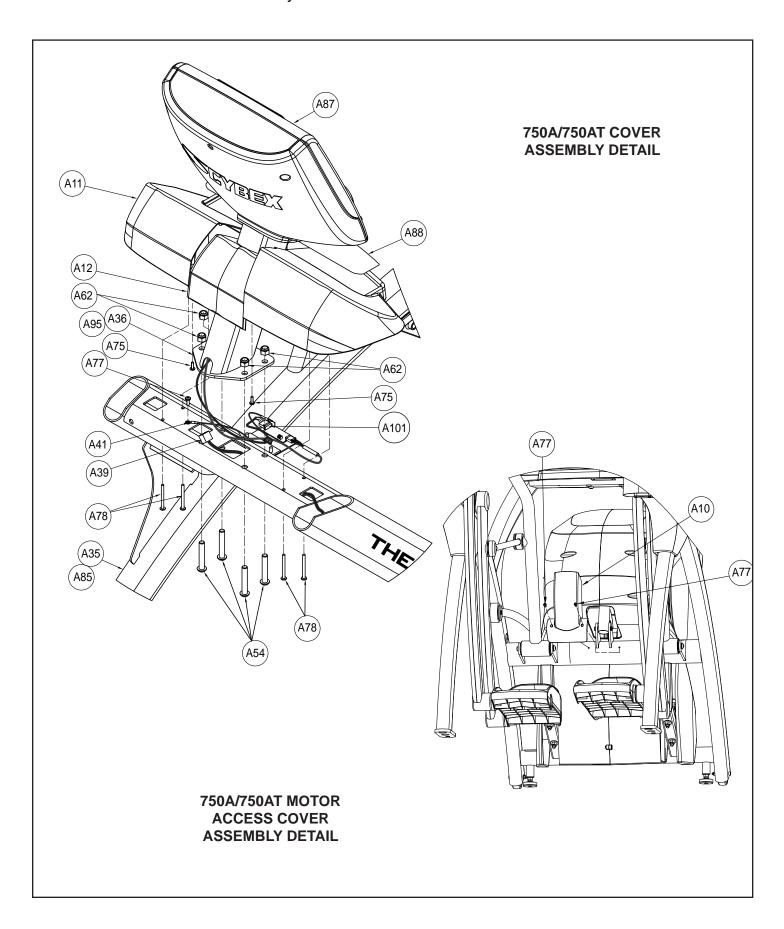
Cybex 750A/750AT Arc Trainer Service Manual

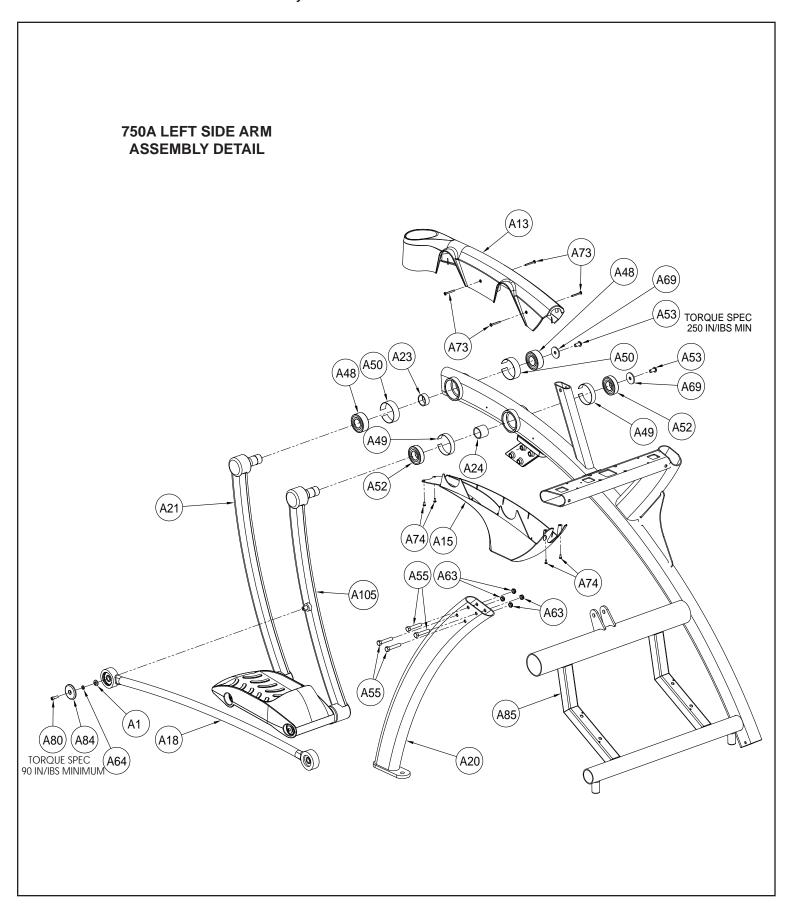
ITEM	QTY	PART NO.	DESCRIPTION
A105	1	750A-202	FRONT FOOT PLATE ARM LH
A106	1	750A-203	FRONT FOOT PLATE ARM RH
A107	2	750A-459	DECAL, THE ARC (BLACK)
A107	2	750A-460	DECAL, THE ARC (SILVER)
A108	2	HH701226	BOLT, HHCS GRADE 8, .375-16 X 2.0
NS	1	TR-21265	POWER SUPPLY, PEM
NS	1	5750-X*	OWNERS MANUAL
NS	1	750A-402	750A ASSEMBLY POSTER
NS	1	750A-391	COMMERCIAL ARC WARRANTY SHEET
NS	1	750A-392	CONSUMER ARC WARRANTY SHEET
NS	1	750A-393	750AT ASSEMBLY POSTER

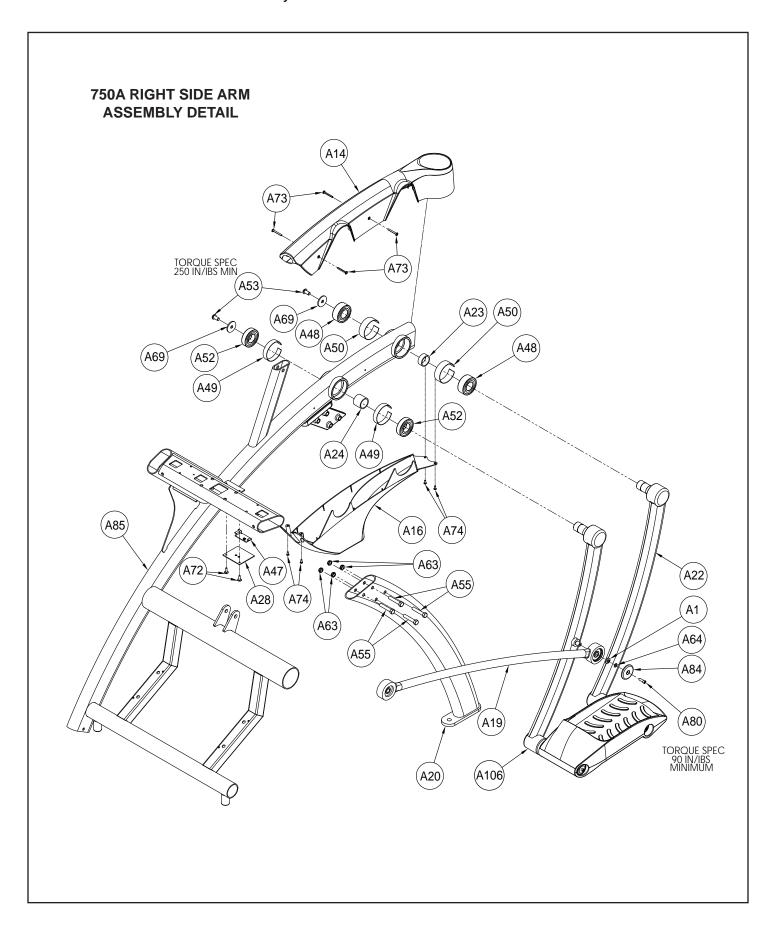


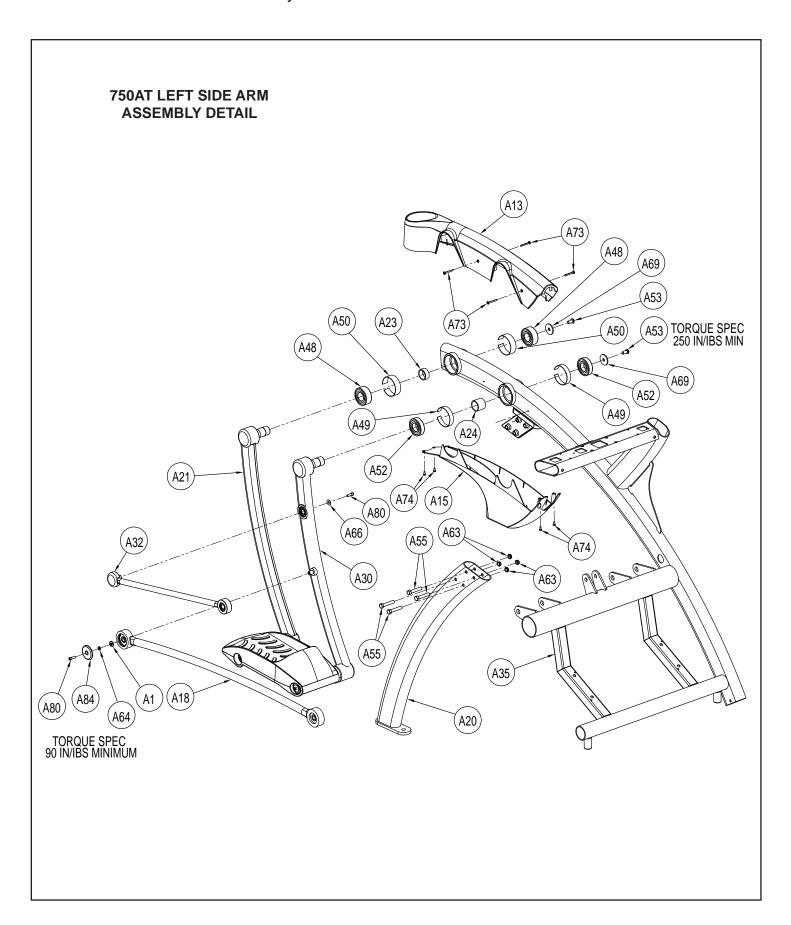


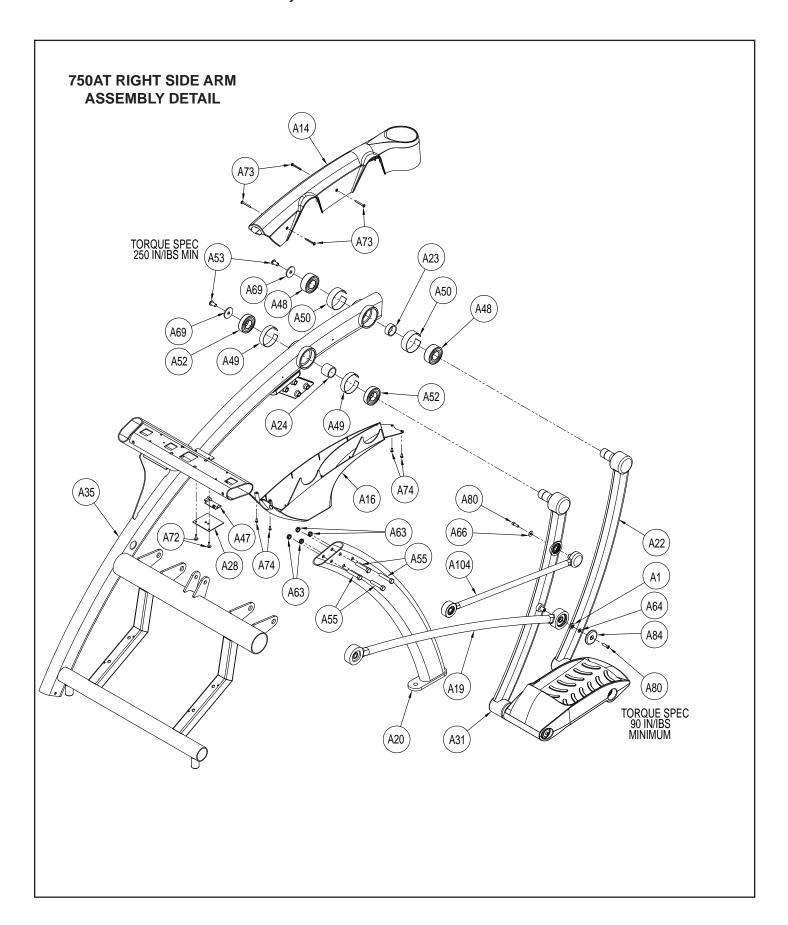


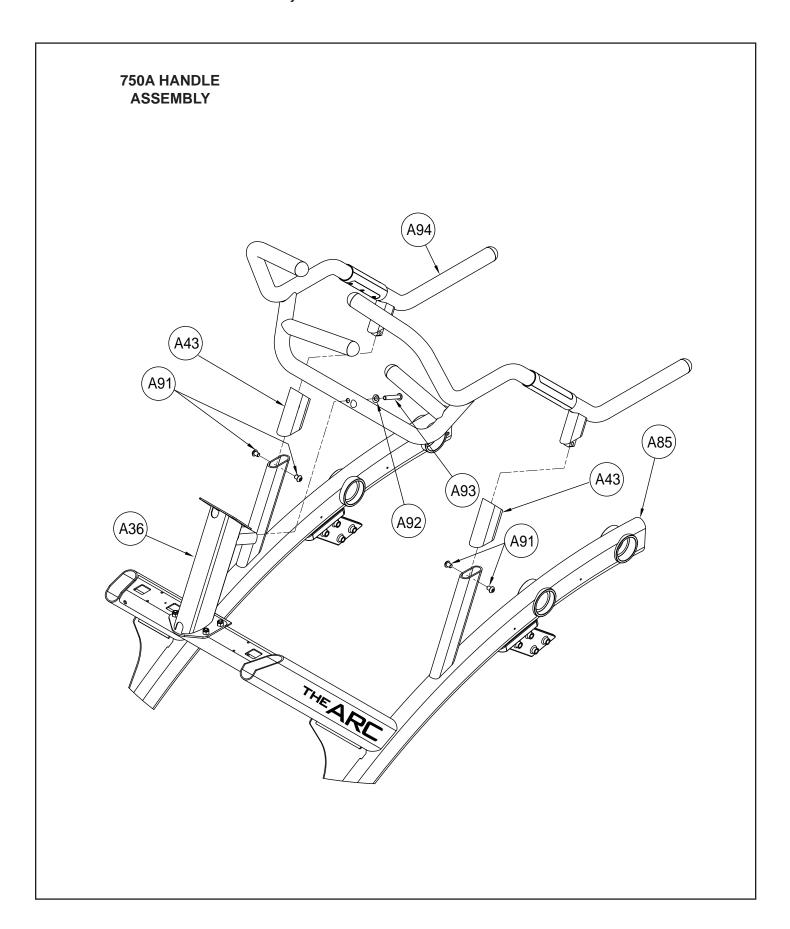


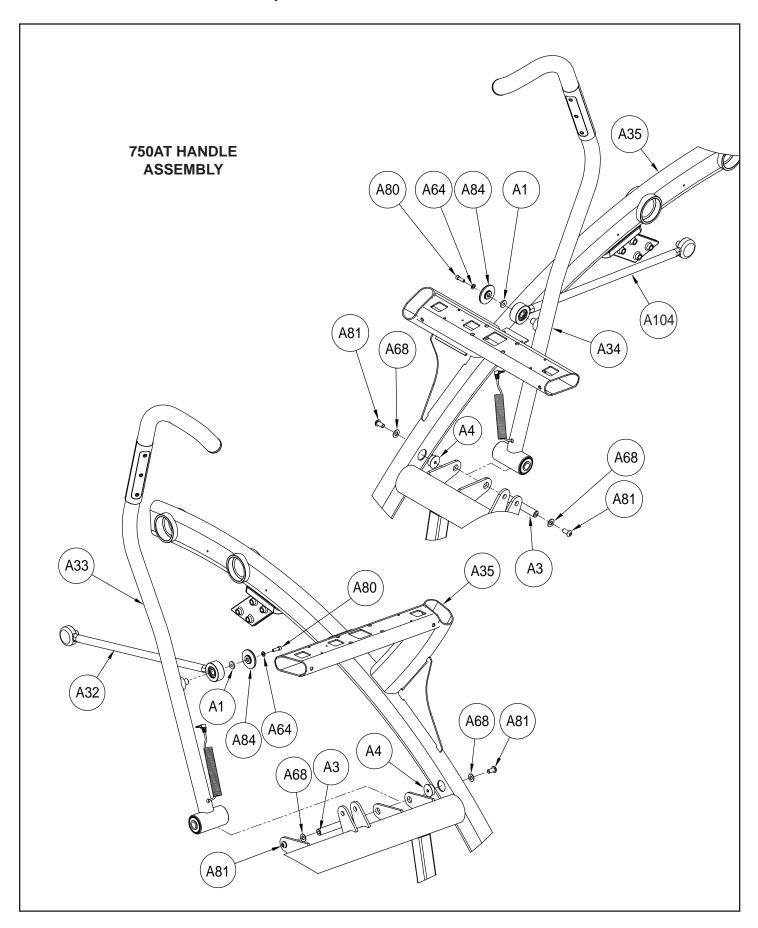


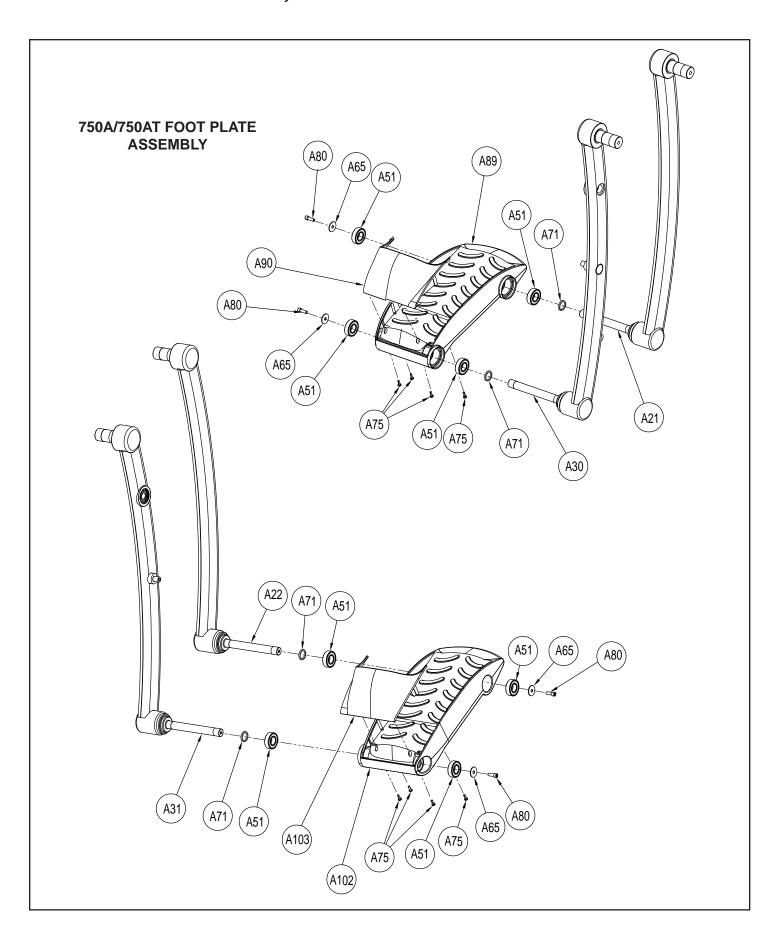






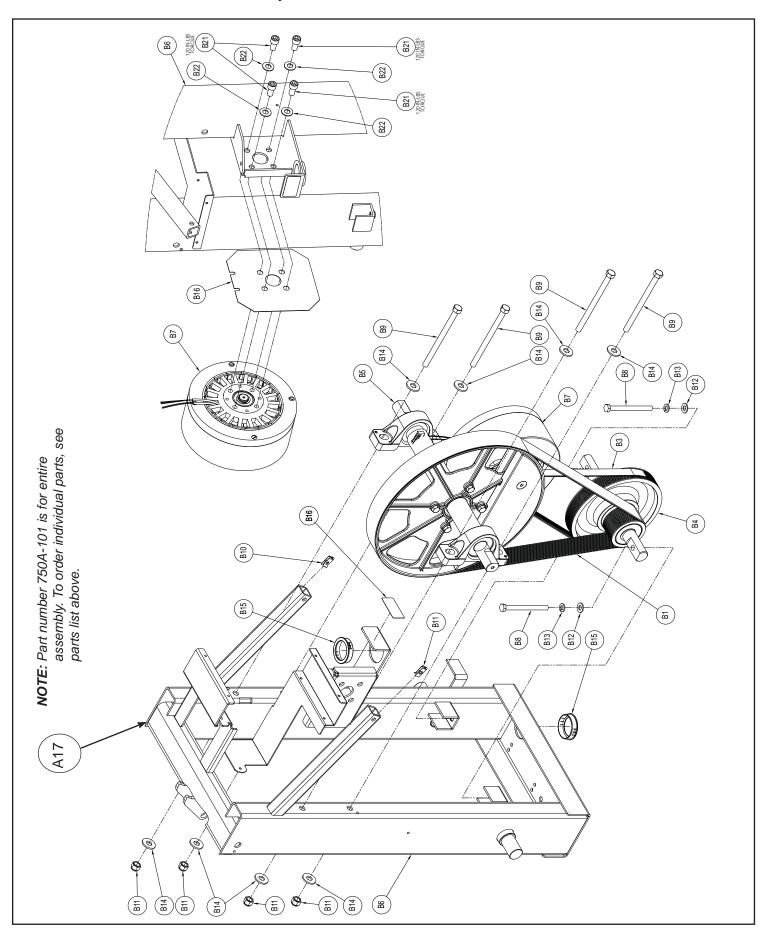






Drive Frame Assembly – Part Number 750A-101	DESCRIPTION	BELT, PRIMARY DRIVE	CLAMP, BATTERY	BELT, SECONDARY DRIVE, 7 RIB	DOUBLE PULLEY ASSY	SINGLE PULLEY ASSY	WELDMENT, FRAME, FRONT	ASSEMBLY, ECB/GEN	SCREW, HEX HEAD CAP .312-18 x 3.75	HX HD CAP SCREW .375-16 X 5.50	PANEL FASTNER, 10-24 U TYPE	LOCKNUT, .375-16 NYLON	WASHER, SAE .312	LOCKWASHER SPLIT .312	WASHER, USS .375	BUSHING, 1.275 ID x 1.87 OD, NYLON	DECAL, WARNING	SPACER, GEN WINDING	PCA, CONTROL BOARD, EDDY CURRENT	CABLE, SPA BATTERY	LABEL, WARNING ICON	BATTERY, 12 V 7AHR	SHCS .375-16 X .750	WASHER, SAE .375	TAP SC NO. 10-24 X .50 PN HD PHIL	
ame Assembly – F	Y. PART NUMBER	600A-343	630A-314	630A-328	750A-110	750A-111	750A-212	AX-19550	HC661240	HC701254	HF579000	HN704901	HS327600	HS328300	HS347700	HX-17050	DE-17155-X*	750A-364	AD-20827	AW-18447	DE-19586	EC-18267	HC702815	HS347600	HT572512	
Drive Fr	ITEM NO. QTY.	_	_	_	_	_	_	_	2	4	2	4	2	3	8	2	_	_	_	_	_	_	4	4	5	
	ITE	B	SS	B3	B 4	B5	B6	B7	B8	B3	B10	B11	B12	B13	B14	B15	A86	B16	SS	SS	SS	SS	B21	B22	A77	

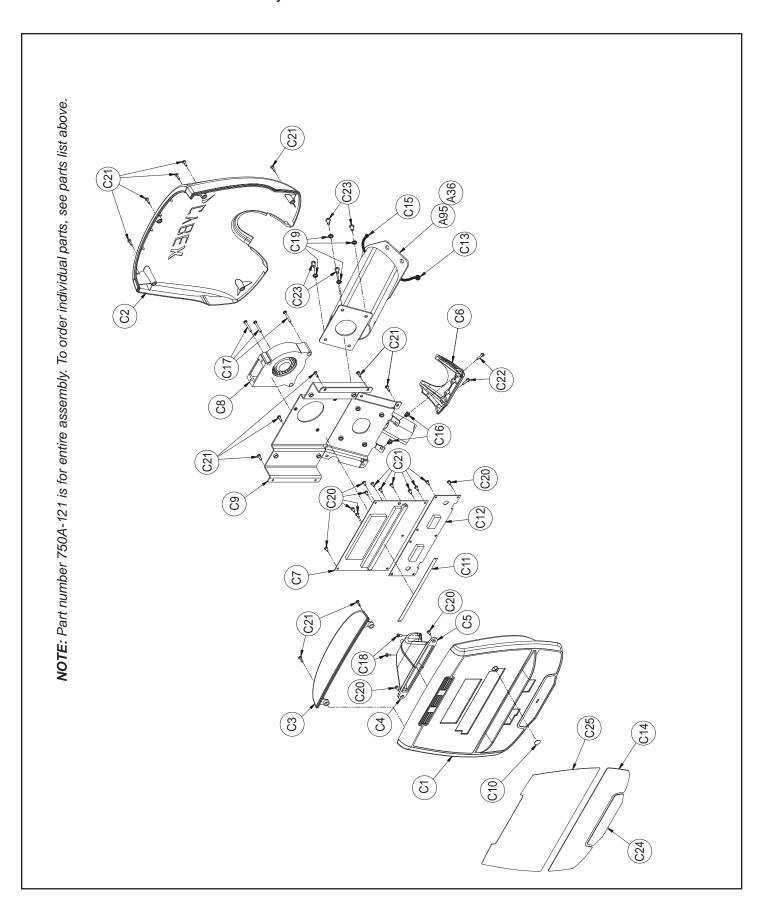
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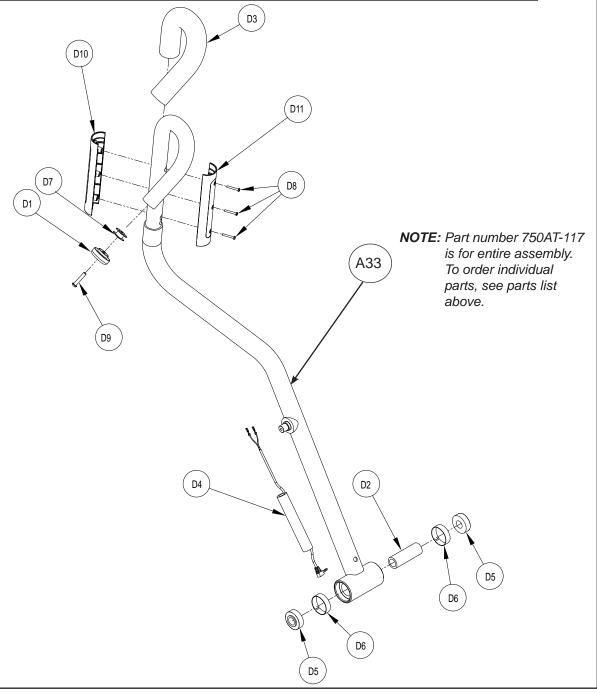
Service Page 4–48

		Console Assembly -	Console Assembly – Part Number 750A-121
C1 C2 C3 C3 C4 C5	Ω ,	PART NUMBER 740A-384 740A-386 740A-389 740A-390	DESCRIPTION CONSOLE, FRONT CONSOLE, BACK CONSOLE, TOP DUCT, FAN RIGHT DUCT, FAN LEFT
8788255 2726 8726		740A-391 750A-102 750A-105 750A-357 750A-387 DE-21240-X* AD-21194	COVER, LOWER CONSOLE, NON-AV PCA, SPLIT DISPLAY UPPER FAN,12VDC,120X120MM,CFM30 CONSOLE INNER PLATE DIFFUSER, .60 OD DISC ENUNCIATOR PCA 750A DISPIAY
2	0	AW-20934 SW-20928-X* AW-21747 HF540200 HJ692560 HJ692560 HS307400	CABLE, 750A CONSOLE OVERLAY CABLE, 750A GROMMET, NYLON SCREW, SEMS, 8-32 X 1.25 PNHD PHIL EXT ZN SCREW, SEMS, M4 X 0.7 X 10mm PNHD PHIL EXT ZN LOCKWASHER INT TOOTH .250 SS SCREW, TAP 8-16 X 3-10 IA STITE
C22 C22 C23 C24 C24 NS	- - - 0 4	H 1592509 HT552512 HT552517 JC620412 DE-21691 DE-20929-X* 750A-396	SCREW, 1AF 9-18 x .31 PLASTILE PAN HD PHIL HD SELF TAPPING, 8-16 x .50 TYPE WB TAP SC NO. 8-16 X 1.00 TYPE WB PNHD PHIL BLK BHSCS .250-20 X .50 DECAL 750A DECAL 750AT UPPER KEYBOARD FERRITE CLAMP-ON .40 ID

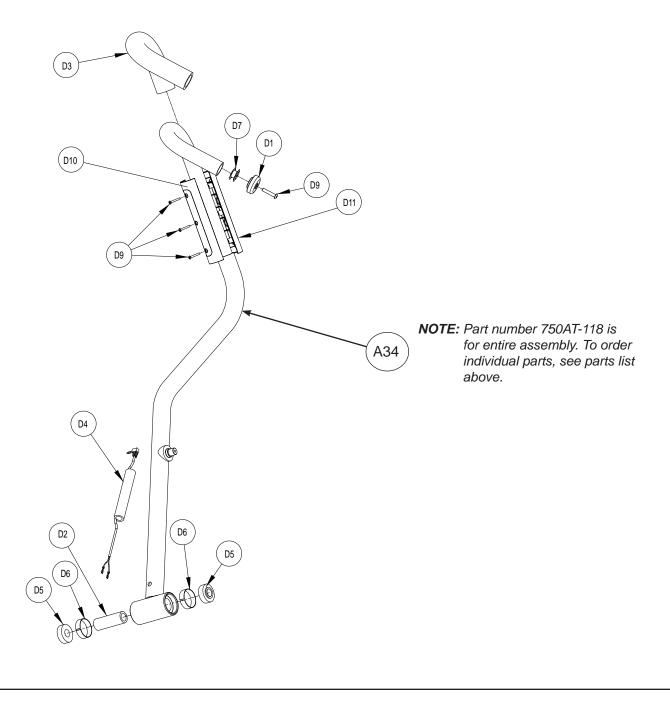
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750AT Left Hand Assembly – Part Number 750AT-117								
ITEM NO.	QTY.	PART NUMBER	DESCRIPTION					
D1	1	610A-350	END CAP					
D2	1	610A-356	TUBE, SPACER					
D3	1	750A-388	GRIP, RUBBER					
D4	1	AW-18286	CABLE, 610A, CHR GRIP					
D5	2	FB030232	BEARING, RADIAL 17 mm EXTENDED RACE					
D6	2	FC030006	TOLERANCE RING 1.575 ID					
D7	1	HF449064	INSERT 1.12 X .250-20 UNC					
D8	3	HT532517	TAP SC #6 X 1.00, TYPE A, PPHD					
D9	1	HX620420	BHSCS .250-20 X 1.250 SS					
D10	1	740A-408	HEART GRIP					
D11	1	740A-407	HEART GRIP					

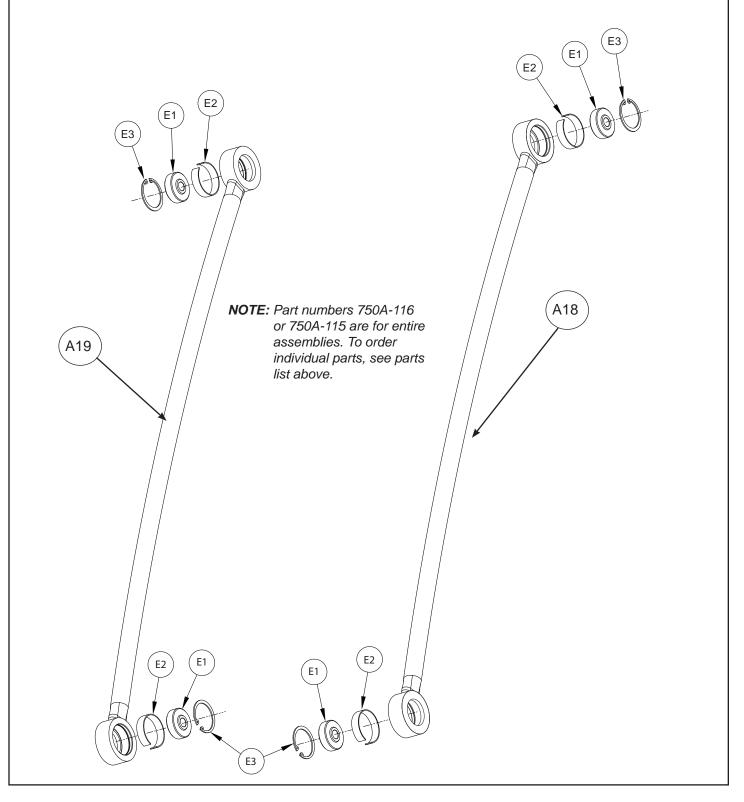


750AT Right Hand Assembly - Part Number 750AT-118								
ITEM NO.	QTY.	PART NUMBER	DESCRIPTION					
D1	1	610A-350	END CAP					
D2	1	610A-356	TUBE, SPACER					
D3	1	750A-388	GRIP, RUBBER					
D4	1	AW-18286	CABLE, 610A, CHR GRIP					
D5	2	FB030232	BEARING, RADIAL 17 mm EXTENDED RACE					
D6	2	FC030006	TOLERANCE RING 1.575 ID					
D7	1	HF449064	INSERT 1.12 X .250-20 UNC					
D8	3	HT532517	TAP SC #6 X 1.00, TYPE A, PPHD					
D9	1	HX620420	BHSCS .250-20 X 1.250 SS					
D10	1	740A-408	HEART GRIP					
D11	1	740a-407	HEART GRIP					



Left and Right Linkage Assembly Part Numbers 750A-115 and 750A-116

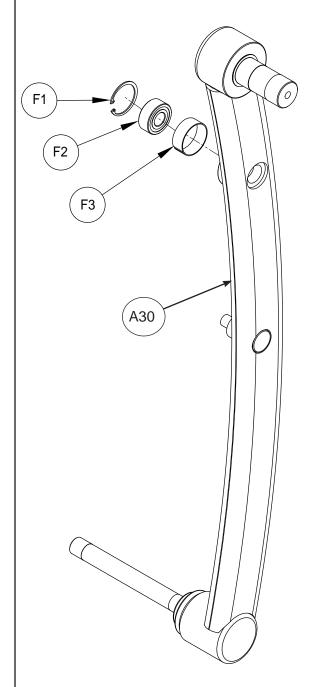
ITEM NO.	QTY.	PART NUMBER	DESCRIPTION
E1	2	FB030244	BEARING, RADIAL BALL50 ID X 1.688 OD
E2	2	FC030004	TOLERANCE RING 42 (1.653) ID
E3	2	HX-17143	RING RETAINING, INTERNAL, .500-168

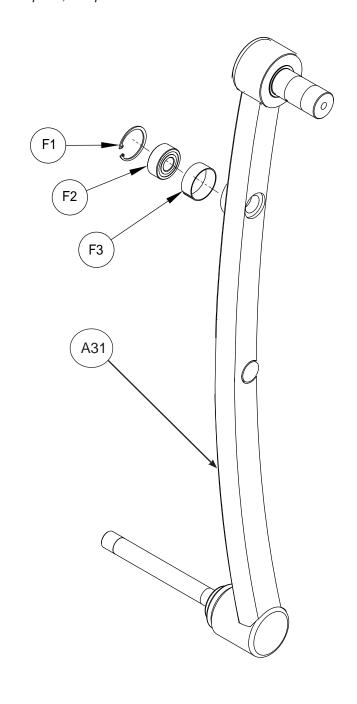


750AT Left and Right Foot Plate Arm Assembly Part Number 750AT-112 and 750AT-113

ITEM NO.	QTY.	PART NUMBER	DESCRIPTION
F1	1	BR030225	RETAINING RING 1.438 INTERNAL
F2	1	FB030248	BEARING, SPHERICAL 15MM
F3	1	FC030005	TOLERANCE RING 1.378 ID

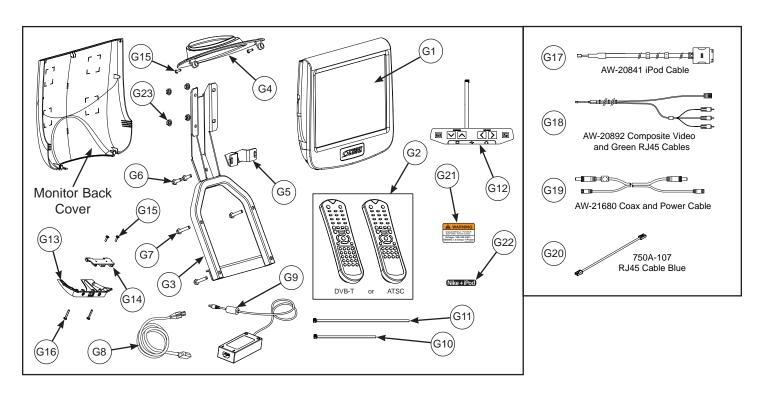
NOTE: Part numbers 750A-112 or 750A-113 are for entire assemblies. To order individual parts, see parts list above.





DIGITAL PEM MONITOR OPTION								
ITEM NO.	QTY.	PART NUMBER	DESCRIPTION					
G1	1	CP-21072	MONITOR, 13.3" ATSC NTSC PEM					
G1	1	CP-21073	MONITOR, 13.3" DVB-T PEM					
G2	1	CP-21632	REMOTE CONTROL, ATSC					
G2	1	CP-21531	REMOTE CONTROL, DVB-T					
G3	1	750A-217	W AV CONSOLE SMALL					
G4	1	740A-387	CONSOLE, TOP AV					
G5	1	750A-360	BRACKET, AV LOWER SMALL CONSOLE					
G6	2	JC620415	BHSCS .250-20 X .75					
G7	4	HM621120	SCREW HEX HD FLANGE .250-20 X 1.25					
G8	1	VARIES	POWER CORD					
G9	1	TR-21265	POWER SUPPLY					
G10	3	EW000028	CABLE TIE, 8"					
G11	1	EW000029	CABLE TIE, 15"					
G12	1	750A-356-X	MEMBRANE, A/V KEYPAD					
G13	1	740A-388	COVER, JACK BOARD AV					
G14	1	750A-103	PCA, HANDSET AUDIO JACK					
G15	4	HT552512	TAP SCREW, 8-16 X .50, PN HD PHIL BLK					
G16	2	HT552517	TAP SCREW, 8-16 X 1.00, PN HD PHIL BLK					
G17	1	AW-20841	CABLE, IPOD					
G18	1	AW-20892	CABLE, COMP AV JACK					
G19	1	AW-21680	CABLE, LOCKING RF & DC POWER CABLE, 2795MM					
G20	1	750A-107	CABLE, 5E BONDED-PAR-RJ45 ROUND					
G21	1	750A-372-X	DECAL, WARNING					
G22	1	750A-441	LABEL, NIKE+IPOD					
G23	4	N/A	PEM MOUNTING NUT (PART OF MONITOR-G1)					
NS	1	750A-394	POSTER, ASSY INSTR MONITOR					
NS	2	N/A	BATTERIES, REMOTE CONTROL, AAA SIZE					
NS	1	LT-21264	PERSONAL ENTERTAINMENT MONITOR MANUAL, ATSC					
NS	1	LT-21788	PERSONAL ENTERTAINMENT MONITOR MANUAL, DVB-T					

NS = Not Shown



750A/750AT SCHEMATIC

