Treadmill Troubleshooting

Contents

Treadmill Troubleshooting

Treadmill Troubleshooting s is divided into three parts: ERROR Codes, Power Issues, Other

Error Codes, Overview

Error codes are provided to aid in troubleshooting. They offer information about a malfunction. A qUick definition of the most common error codes follows:

ERR1 - Defined as an optic sensor signal error, ERR1 encompasses a broad range of components.

ERR6 - Elevation motor

ERR7 - Elevation VR

How to Use ERROR Code Troubleshooting Guide

Carry out steps in the order presented. After completing one step, turn on the unit. Check it. If the issue hasn't been resolved, proceed to the next step.

Take Normal Safety Precautions

To avoid electrical shock, unplug the unit before replacing components. Beware that some components retain an electrical charge even after the unit is turned off. Avoid touching such components for at least five minutes after power is turned off. To avoid repetition, this manual doesn't tell you to unplug the machine to avoid shock.

Error Code List

Not all models have the same error codes. The list below shows error codes in various units.

Treadmill Error Codes

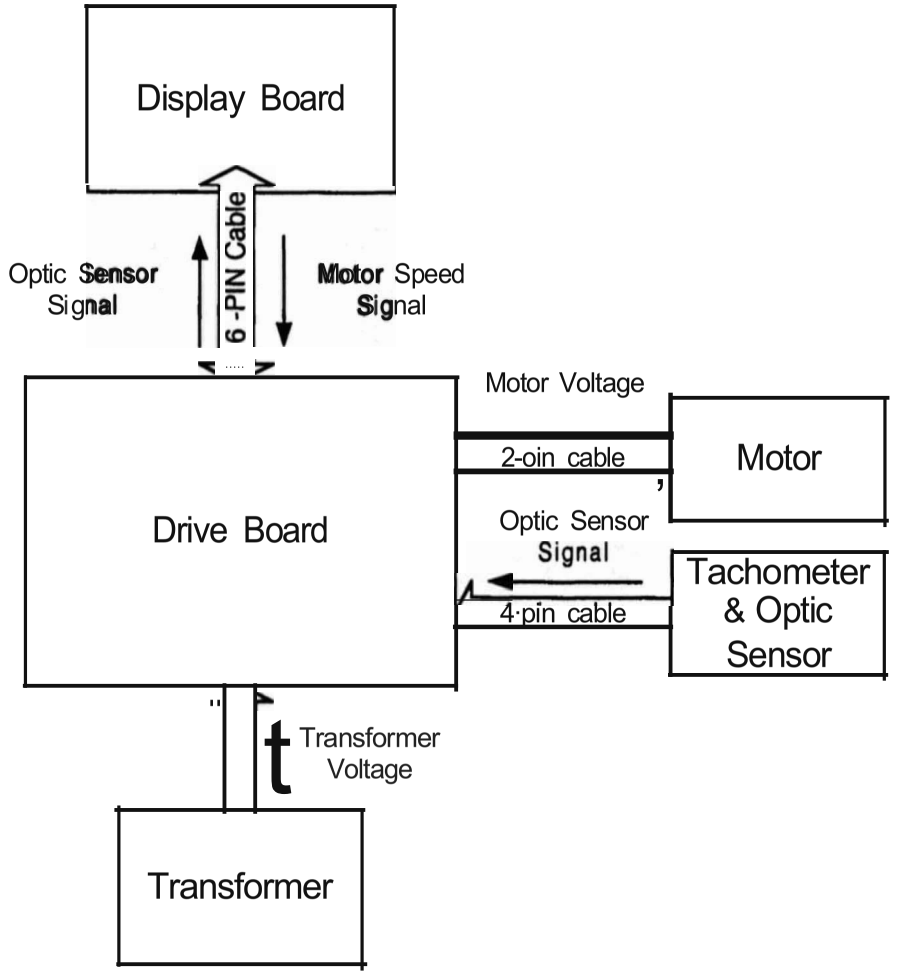
Treadmill Model	Error Codes	Codes Removed, Date
1096N / 1098N	1,3,6,7	
1190	1,3,6,7,10	
1210	1,3,7,10	
1200/1250 /1260	1,3,6,7,10	
1200N	1,3,6,7,10	
3007	1,2,3,5,6,7	
31 00 / 3120 / 3150	1,3,6,7,10	
3106/3108/3110	1,3,7,12	
3200	1,3,6,7,8,10	Cancel 6, 8, 9 - 04-20-00
3250	1,3,6,7,8,9,10	Cancel 6, 8, 9 - 04-20-00
6005	1,2,3,5,6,7,8,9	Cancelled 6, 9 - 05-04-01
6100	1,3,6,7,8,10	Cancelled 8, 9 - 04-30-00
6150 & Eversions	1,3,6,7,8,9,10	Cancelled 8, 9 - 04-30-00
6200	1,3,6,7,10,11	
6300/6310	1,3,7	

Elliptical Trainer Error Codes

Elliptical Model	Error Codes	Codes Removed, Date
803P	7	Cancelled 6 - 07-02-01
805P	6, 7	Cancelled 6 - 07-02-01
807P	7	
8300	7,12, "SERVICE BATIERY"	

ERR 1 Diagram

Definition: Display board CPU has not received the optic sensor signal.

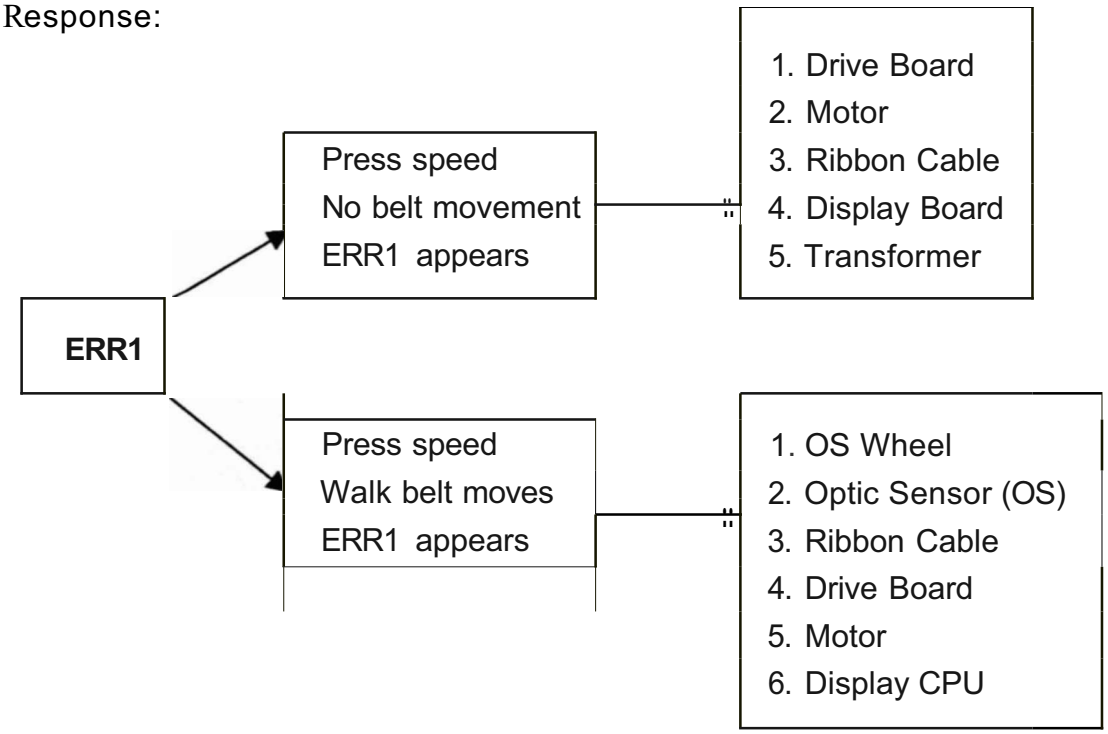


ERR1

Definition: The display board CPU didn't receive the optic sensor signal.

Explanation: After processing by the drive board, the optic sensor signal travels the 16-pin cable to the display board CPU, which determines motor speed. Components involved include the optic sensor, optic sensor wheel, 16-pin cable, drive board, display board, and connections.

Response:



ERR1 Condition: Press speed key; walk belt doesn't move; ERR1 appears.

1. Drive Board

a) Inspect drive board components for signs of damage, like bulging, burnt or cracked spots.

b) Inspect connections to the drive board, including the ribbon cable (at the display and drive boards), drive motor, incline motor, etc. loose connections are a common cause of ERR1.

c) Check the drive board IED indicators. Turn on the unit. The power LED should be lit. The EMG indicator should light up and then extinguish after the unit powers up. A lingering EMG light indicates drive circuit trouble, but it can also light up if drive board connections to motors and other components aren't secure.

d) Test whether the drive board is sending power to the motor. Put the muttimeter to the DC setting. Disconnect the motor M+M- wires from the drive board. Place probes on the drive board M+ M- terminals. Put the treadmill safety key in place; turn on the power; walk on the treadmill so that the CIK IED lights (this preempts the display from detecting no optic sensor signaling and immediately giving you an ERR1 message, thus allowing you to get a power reading); press the speed up key. The meter should show some voltage. If there's no voltage, inspect the ribbon cable and display board. If they appear OK, suspect the drive board.

e) Test drive board components for a short. See Components in the Basic Electronics.

2. Ribbon Cable

a) Check the ribbon cable and its connections. Link a spare cable from the drive board to the display board, outside the unit. Test the unit. If it works with the spare cable, replace the original cable.

b) Or, if you don't have a spare ribbon cable, test ribbon cable continuity. Wrap solder wire around each probe so you can insert probes into the ribbon cable connector, testing one wire at a time for continuity.

3. Display Board

a) Press down on the display board ICs. If you have a working unit of the same kind, swap the display board onto this unit. Test. If all works well and no ERR message appears, replace the original display board.

a) Reed Switch (Applies to models with magnetic safety keys only.)

Put the safety key in place over the reed switch. Put the meter to the 200 Ohm setting. Place probes on both ends of the reed switch. Meter should show 0 Ohm. If the meter doesn't get a reading, replace the reed switch.

4. **Treadmill Motor**

a) Rotate the motor. It should rotate smoothly. Grinding or sticking indicates wear.

b) Check the motor brushes. Uneven wear indicates worn brushes. Minimum brush length: 1/2 inch. Turn the brushes around and reinsert them. Rotate the flywheel. If the motor grinds or sticks, put brushes back in their original position.

c) Check motor resistance: Turn off unit. Disconnect the motor M+ M- cables from the drive board. Put multimeter setting to Ohms. Place probes into the motor wire M+ M- ends. Normal reading: 1 Ohm. Move the flywheel slightly and take another reading. Take a few readings, moving the flywheel slightly after each. Readings should be consistent. If the meter shows OL at any test point, replace the motor.

5. **Transformer**

a) Put the meter to the AC setting. Place the meter probes on the transformer output wire connectors on the drive board. Turn on the unit. There should be output voltage. If not, replace the transformer.

- 11XX/12XX brown-brown: 10.5VAC
- 31*XXI32XXI61* X*XI62*XX white-white: 12.5 VAC
- 6005 yellow-yellow: 11.0 VAC

If ERR1 is not resolved, see ERR1 with walk belt movement.

ERR1 Condition: Press speed key; walk belt moves; ERR1 appears.

1. Tachometer Wheel

Make sure the tachometer wheel:

a) Rotates in the middle of the optic sensor.

b) Is clean and free of cobwebs and dust.

c) Doesn't have broken or bent teeth.

d) Is fastened securely on the motor bracket

If the wheel has visible damage, replace it.

2. Optic Sensor

Make sure that the optic sensor signal is getting to the drive board.

a) With power on, turn the drive motor. The CLK indicator (an IED on the drive board) should light. This means that the optic sensor signal is reaching the drive board. If the CIK indicator doesn't light, replace the optic sensor.

b) Push the treadmill belt while pushing speed up key. If ERR1 doesn't appear until you stop pushing the belt, and the display speed values increase, then the optic sensor is good.

(On units without a CIK indicator, check optic sensor output voltage: (a) put probes on optic sensor output (b) turn the motor (c) if voltage doesn't vary, replace the optic sensor.)

3. Ribbon Cable

a) Check the ribbon cable and its connections. Link a spare cable from the drive board to the display board, outside the unit. Test the unit. If it works with the spare cable, replace the original cable.

b) Or, if you don't have a spare ribbon cable, test ribbon cable continuity. Wrap solder wire around each probe so you can insert probes into the ribbon cable connector, testing one wire at a time for continuity.

4. Drive Board

Check whether drive board components are burnt or cracked. Check component connections. A drive board power component short usually results in a huge burst of power, making the walk belt speed dangerously, before ERR1 appears. If the walk belt moves before ERR1 appears, but not very, very fast, suspect the optic sensor.

5. Treadmill Motor

a) Rotate the motor. It should rotate smoothly. Grinding or sticking indicates wear.

b) Check motor resistance. Turn off unit. Disconnect the motor M+ M- cables from the drive board. Put multimeter setting to Ohms. Place probes into the motor cable M+ M- ends. Normal reading: 1-2 Ohm. If there's no reading (OL), replace the motor.

c) Check the motor brushes. Uneven wear indicates worn brushes. Minimum brush length: 1/2 inch. Turn brushes around and reinsert them; rotate the flywheel by hand. If it rotates worse than before, put brushes back in their original position.

d) High amp draw can indicate a bad motor. Other factors would be a worn walk belt and deck. Run unit power through a current meter. Tum on the unit. Normal amp draw at 3 MPH with no load on the walk belt is 1/2 to 1 Amp.

6. Display Board ICs

Make sure that IC contacts on the display board are good. Press firmly on the ICs. Make sure you have the latest CPU version.

If ERR1 is not resolved, see ERR1 no walk belt movement.

ERR2

Definition: Base signal error - The display board CPU didn't receive the base level signal from the drive board.

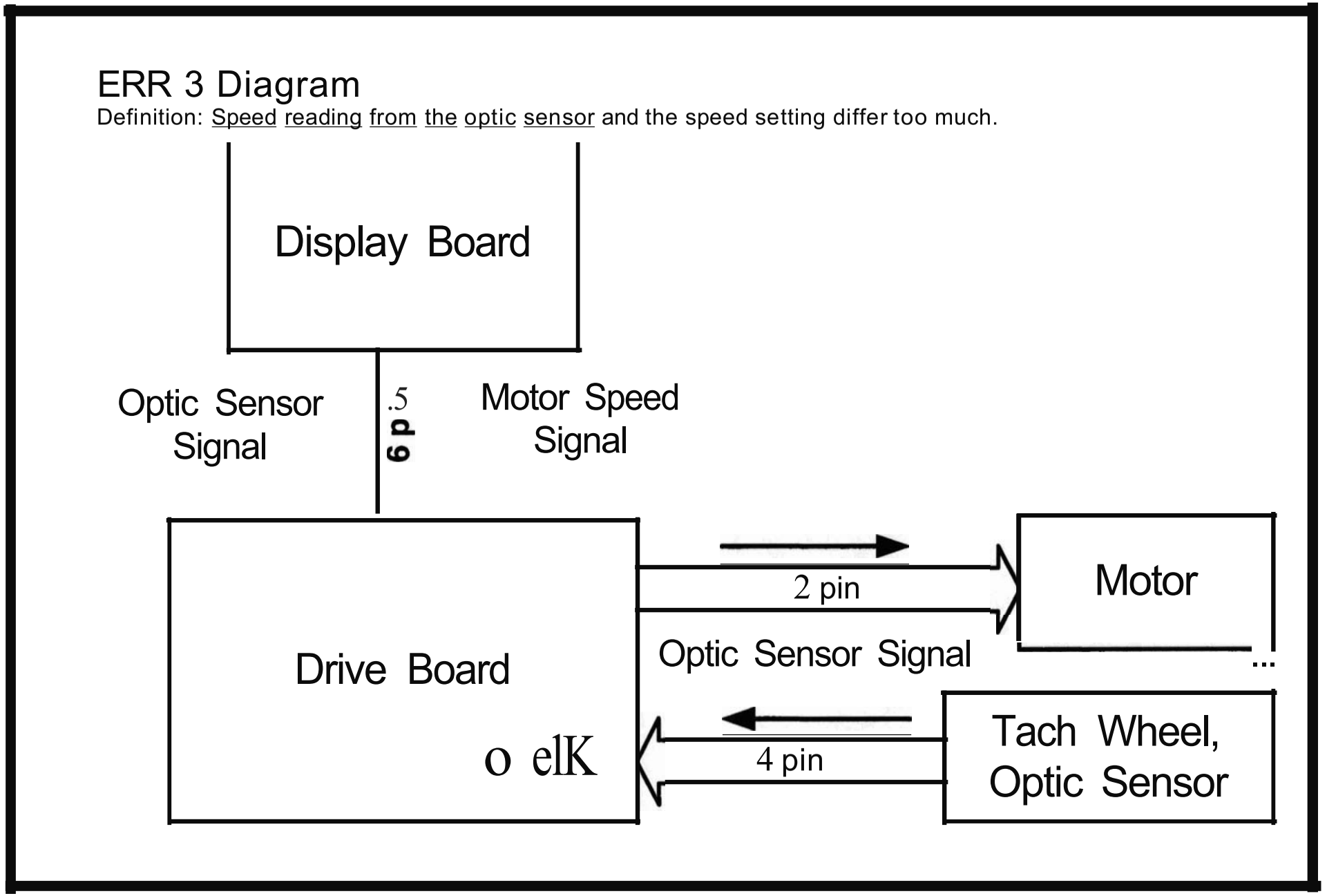
Explanation: The drive board sends a base level signal to the display board through the ribbon cable.

Condition: Turn on power; ERR2 appears

Response: Inspect drive board IC PC814 and IC 40106 soldering. If loose, re-solder. Or replace drive board.

ERR 3 Diagram

Definition: Speed reading from the optic sensor and the speed setting differ too much.

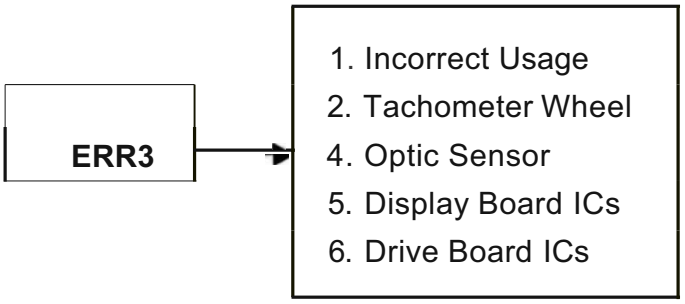


ERR3

Definition: Speed signal error - the speed signal from the optic sensor and the display speed setting differ.

Explanation: ERR3 appears when the optic sensor speed signal and the display board speed setting differ too much.

Response:



ERR3 Condition: Unit operates; ERR3 appears.

1. Incorrect Usage

Make sure that the user is not pulling the belt faster than the speed setting. This happens most often when operated at high incline at a slow speed with a heavy user. As the user steps down, his or her weight pulls the belt faster. Stop pulling the belt. Tum off the unit, then tum it on again. ERR3 will disappear.

2. Optic Sensor Wheel

Make sure the optic sensor wheel:

a) Rotates in the middle of the optic sensor.
b) Is clean and free of cobwebs and dust.
c) Doesn't have broken or bent teeth.
d) Is fastened securely on the motor bracket

If the wheel has visible damage, replace it.

3. Optic Sensor

Make sure that the optic sensor signal is getting to the drive board.

a) With power on, tum the drive motor flywheel. The CIK indicator (an IED on the drive board) should light. This means that the optic sensor signal is reaching the drive board. If the CIK indicator doesn't light, replace the optic sensor.

4. Display Board ICs

Make sure that IC contacts on the display board are good. Press firmly on the ICs. Re-solder if necessary.

5. Drive Board ICs

Make sure that IC contacts on the drive board are good. Press firmly on the ICs. Re-solder if necessary.

ERR4 - Not used.

ERRS

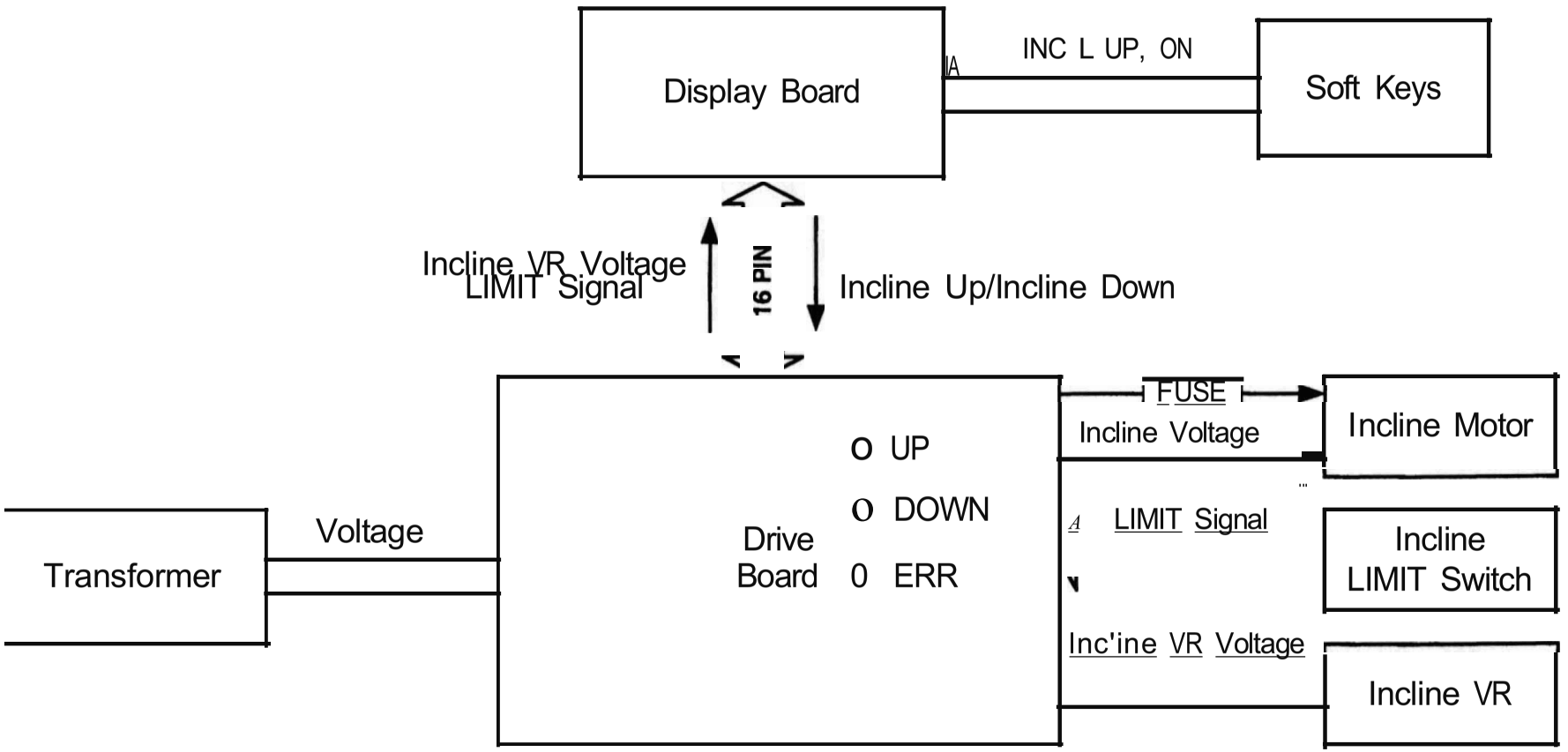
Definition: Exterior power supply is irregular.

Explanation: Exterior power supply irregularity prevents the unit from operating properly; ERR5 appears.

Response: Tum unit power off and on. The treadmill should reset and ERR5 should disappear. Make sure the unit is on a dedicated, grounded circuit of the proper amperage. Avoid power strips, long or light extension cords. If problem persists, have an electrician inspect power supply and ground at the wall.

ERR6 Diagram

Definition: Incline system didn't respond to commands from the display.

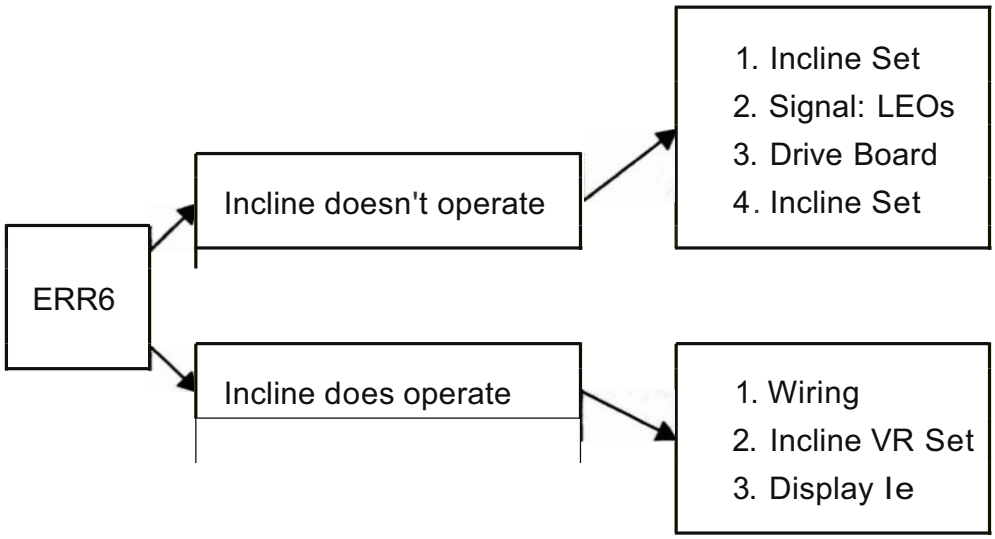


ERR6

Definition: The incline system isn't responding to commands from the display.

Explanation: The display sends signaJs via the ribbon cable to the drive board, and the drive board sends power to the incline motor. As the incline operates, the incline variable resistor (VR) moves, changing its voltage signal to the display. In ERR6, the display is sending commands to the incline but the VR signal indicates no response.

Response:



ERR6 Condition: Press incline UP or ON key; incline doesn't operate; ERR6 appears.

1. Incline Motor Set

a) Inspect incline fuse. If broken, replace it. (Incline fuse locations differ: On old units, look by the main power fuse; On new units, look on the drive board.)

b) Inspect incline motor set wire connections to the drive board.

c) Inspect whether the incline motor makes noise after incline UP or ON is pressed. If motor engages, but the worm gear doesn't turn, inspect the nylon gears inside the incline set. (See Incline Troubleshooting Manual for details.) One of two nylon gears is apt to break. If broken, replace the gear and recaJibrate the incline set, or replace the whole incline set.

d) Inspect whether the incline set is physically stuck. If so, dislodge it. If not possible, replace the incline set.

2. Signal: LEOs

a) Determine whether the incline signal arrives at the drive board. Press the UP or ON incline key. The drive board incline UP or ON LED should light. If it doesn't light, the signal hasn't arrived at the drive board. Inspect the ribbon cable, connections, and display keypad. Also, press down on the display board CPU.

b) Inspect whether the Incline ERR LED on the drive board lights. Inspect whether the incline set mechanically exceeds range. If so, recalibrate the incline set. Refer to Incline Calibration in the Incline Troubleshooting Manual.

3. Drive Board

a) Inspect power to the incline motor set. Clear ERR6 by turning off and on unit power once. Place multimeter probes on the wires from the drive board to the incline motor. Press incline UP or ON key. If there is no voltage and incline UP or ON LED lights, the drive board isn't providing power to the incline motor. Replace the drive board.

b) (31 XX, 32XX, 61 XX, 62XX) Check incline relay on the drive board. Press Incline UP, then ON keys. The relay should click. If it doesn't click but the LED lights, the relay is not operating. Tap it. Try again. If it still doesn't work, replace the drive board.

4. Incline Set

a) Inspect the incline VR as indicated below in ERR6, Incline Operates.
b) If there is voltage to the incline motor, the VR is OK, and the motor doesn't engage, replace the incline motor.

ERR6 Condition: Press incline up or down key; incline operates; ERR6 appears.

1. Wiring

a) Make sure that wires from the incline set to the drive board are connected securely. Make sure that the ribbon cable from the drive board to the display board is connected securely and not damaged.

2. Incline Variable Resistor (VR) Set

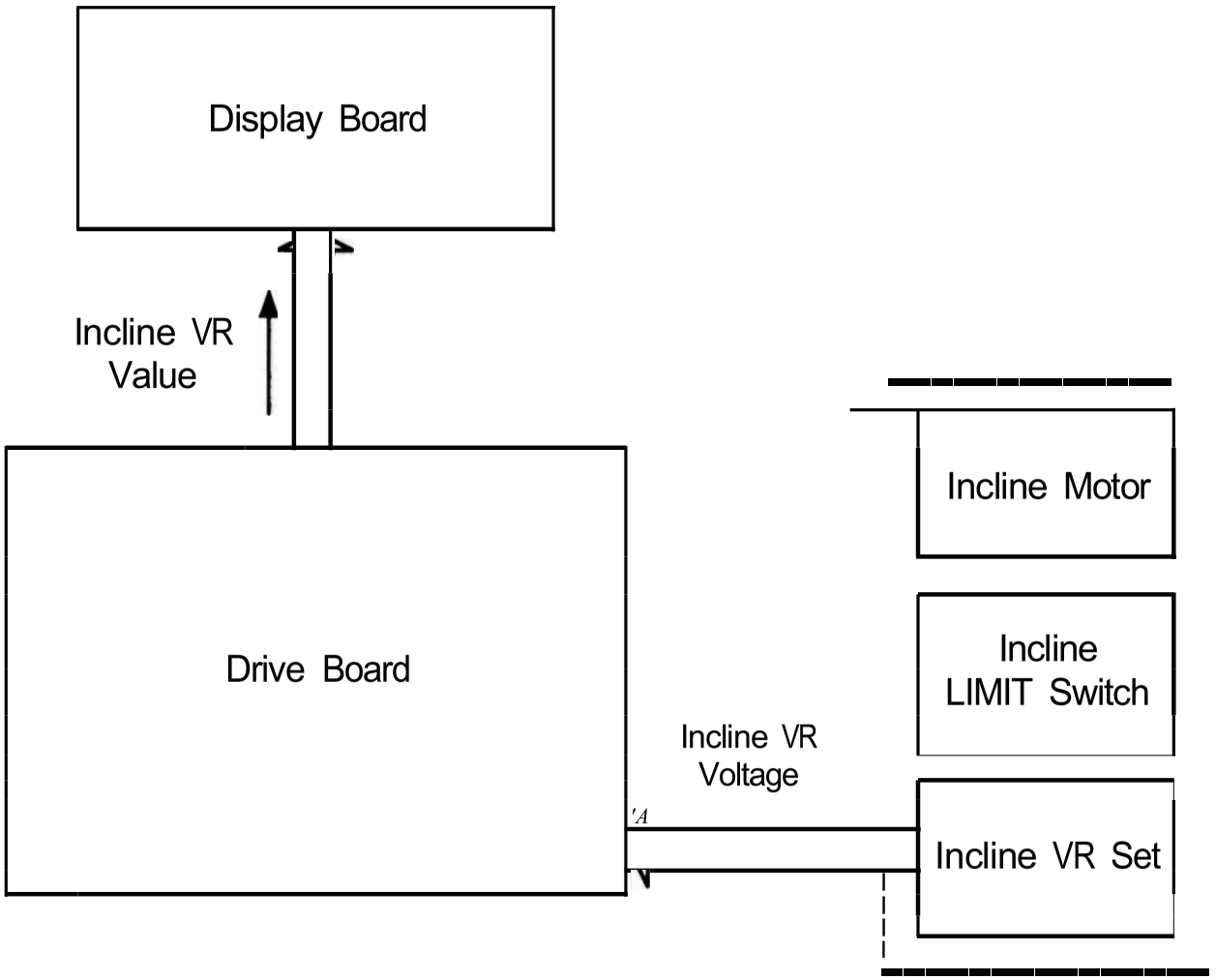
a) Inspect whether the incline ERR LED on the drive board lights. If the incline ERR LED lights, recalibrate the incline set. See Incline Calibration in the Incline TrOUbleshooting Manual for instructions.
b) Check the variable resistor (VR) output. Put multimeter to the DC setting. Back probe on the incline VR blue and green wires. Press incline UP or DN key. While the motor operates, VR values should change, but remain within the prescribed range. See the Incline Troubleshooting Manual for incline range specifications. If VR voltage exceeds the prescribed range, recalibrate according to Incline Calibration in the Incline Troubleshooting Manual.

3. Display Board ICs

Make sure that IC contacts on the display board are good. Press firmly on the ICs. Re-solder if necessary.

ERR7 Diagram

Definition: The display le didn't receive the VR signal or the VR signal exceeds the range.

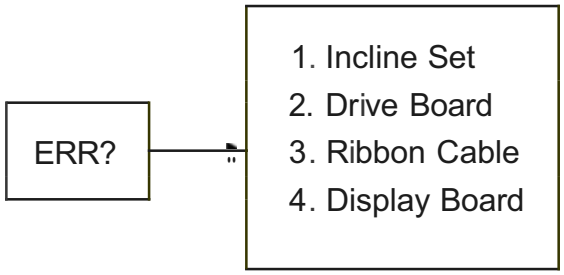


ERR7

Definition: The display board main IC didn't receive the incline variable resistor (VR) value, or the value exceeds the set range.

Explanation: The incline VR voltage changes as the incline motor operates, and the display board CPU uses the VR voltage to calculate the incline position. Without this value, the CPU cannot instruct the incline motor what to do, so ERR? appears. Or when the incline set is out of alignment, the VR value exceeds the set range; ERR? appears.

Response:



ERR7 Condition: ERR7 Appears

1. Incline Set

a) Inspect whether the Incline ERR LED on the drive board lights. This LED indicates that the incline set has exceeded the range.

b) Inspect whether the incline set mechanically exceeds range. On DC incline motors, at the 0% position, the line on the thin incline pipe will not align with the end of the thick pipe. On AC motors, at the 0% position, the red line will not appear even with the bottom of the incline window in the incline set. See Incline Troubleshooting Manual for details.

c) Inspect whether the incline VR voltage exceeds the range: Put multimeter probes on the incline VR set blue and green wire connectors, while keeping the wires connected. Refer to Incline Troubleshooting Manual for the voltage range for your treadmill. If the incline range is exceeded, either mechanically or electronically, calibrate the incline set. Refer to the Incline Calibration in the Incline Troubleshooting Manual for directions. If the incline set cannot be calibrated electronically, replace the incline VA. If the incline set is stuck and cannot be unstuck, replace the whole incline set.

2. Drive Board

Inspect incline voltage on the blue and green wires at the drive board. If voltage is within range, and ERRI appears, inspect drive board component connections and components for wear.

3. Ribbon Cable

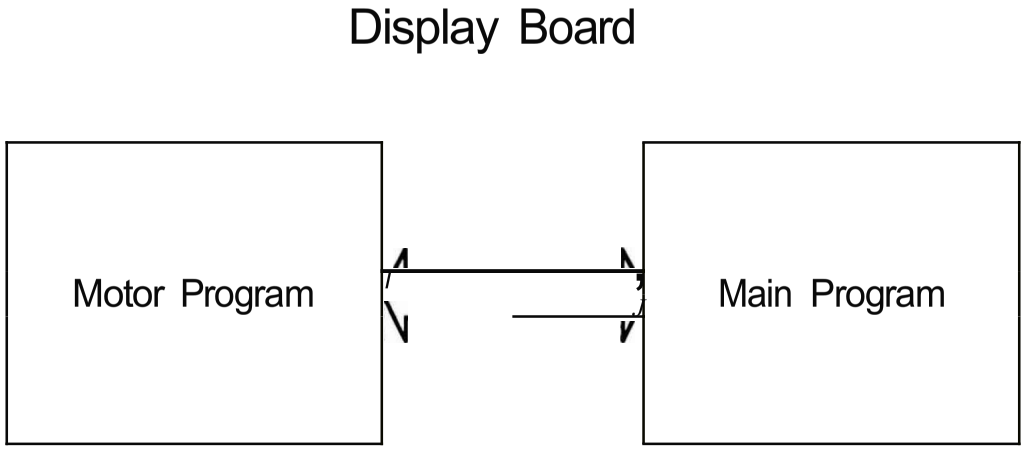
Inspect ribbon cable for breaks. Inspect connections at the display and drive boards.

4. Display Board

Inspect IC connections. Push down to secure connections. Re-insert Ies.

ERRS Diagram

Definition: The message between ICs on the display board was not clear.



Explanation: The motor program and main program communicate constantly. If the main program cannot read information from the motor program, ERR8 appears.

ERRS

Definition: The message between ICs on the display board was not clear.

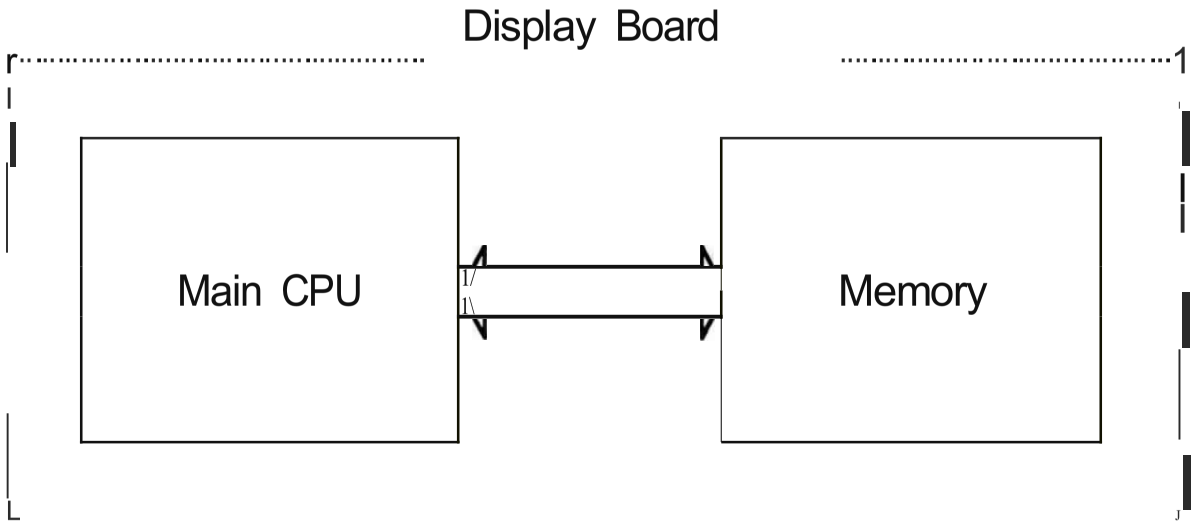
Explanation: Outside interference prevents the transmission of messages between ICs on the display board.

Response:

1. Press down on ICs to ensure good connections. Update program ICs.
2. Make sure the unit is grounded properly.
3. Make sure display board wire connections are good.
4. Inspect soft keys and their connections to the display.
5. Replace program IC or display board.

ERR9 Diagram

Definition: Treadmill operation exceeds the distance range setting.



Explanation: Some units have a set distance range. When the usage hits that mark, ERR9 appears as a reminder to provide service.

ERR9

Definition: Unit operation exceeds the distance setting; ERR9 appears to indicate that routine maintenance is required.

Explanation: Some units have a distance setting. When the treadmill is operated a certain distance, ERR9 appears to indicate that servicing is required.

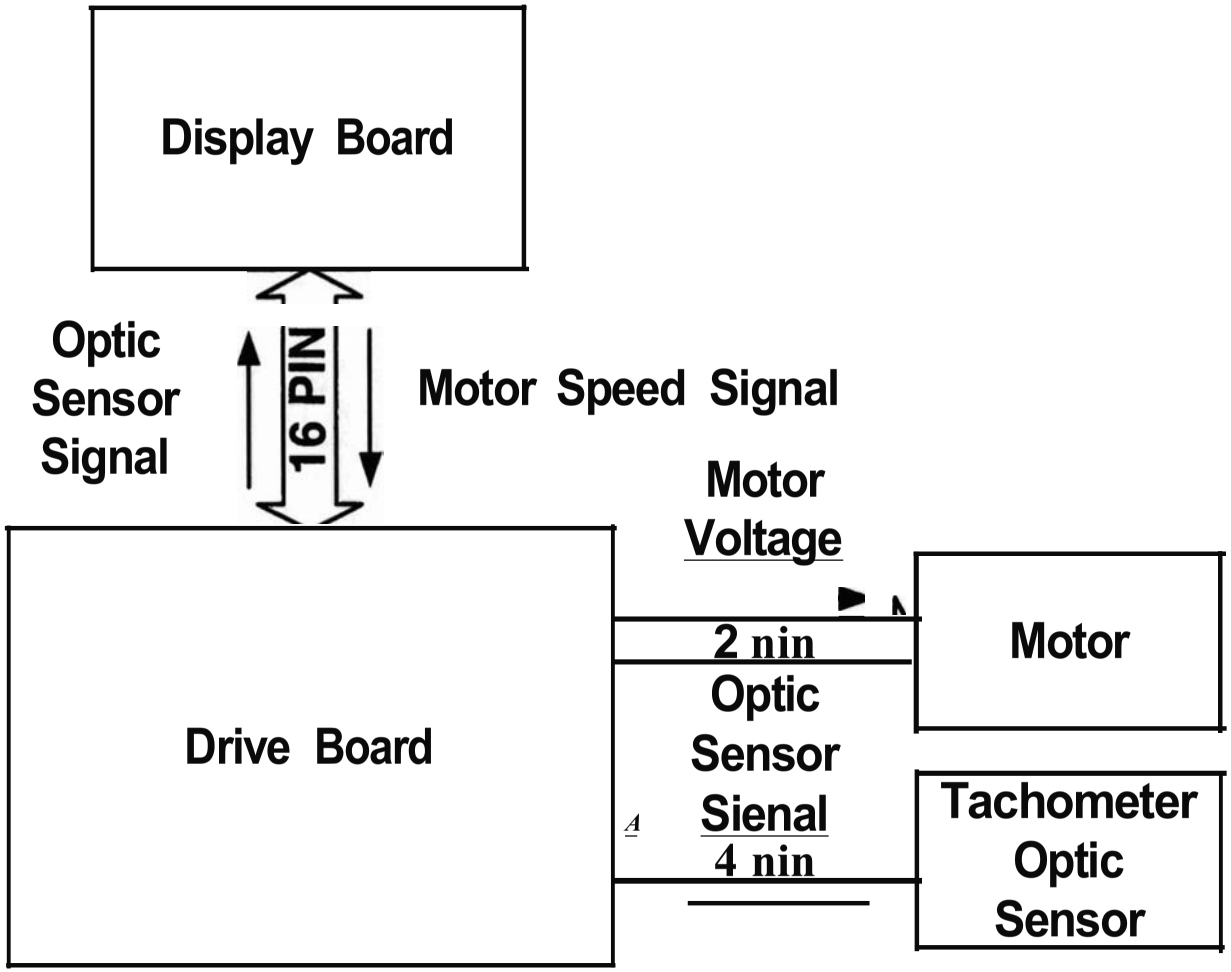
Response:

a) When ERR9 appears, replace the walk belt if necessary. Tum or replace the deck if necessary.

b) Erase distance memory to cancel ERR9. Refer to How to See and Clear Mileage Memory in Reference.

ERR10 Diagram

Definition: The speed reading from the optic sensor Is too high.



ERR10

Definition: The speed signal from the optic sensor is too high.

Explanation: The speed exceeds a set range; ERR10 appears.

Response:

1. Inspect whether the drive board IGBT or MOS has a short. See Components in Basic Electronics.
2. Inspect drive board for burnt components. Inspect connections. Replace drive board if necessary.
3. Inspect the display board ICs. Press on them to ensure a good connection. Make sure wire connections are good.
4. Inspect grounding in display, pedestal, and wall.

Note: Error 10 has a different meaning in 1210 units. In other units, the CPU detects excessively high speed (due to IGBT or motor short); then ERR10 appears. In the 1210, the CPU detects relay operation and no motor operation; then ERR10 appears.

In 1210 model treadmills, ERR10 can appear if the motor windings are bad. In 1210 treadmills with error 10, do an ohm test on the motor to confirm a motor issue.

ERR11

Definition: The direction of the drive motor differs from the display setting.

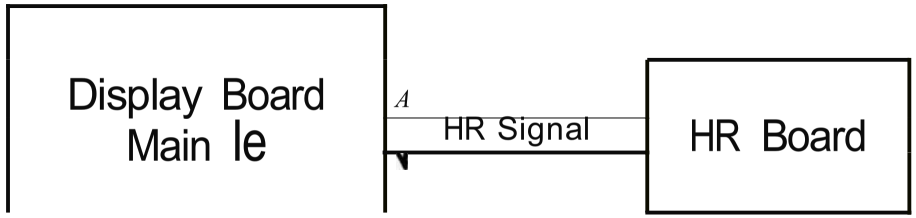
Explanation: The main Ie detects a direction error from the optic sensor signal.

Response:

1. Inspect the M+M- wires to the drive motor. The M+ motor wire should be connected to M+ terminal on the drive board? The M- motor wire should be connected to the M- terminal on the drive board.
2. Inspect the display board Ie for good contact. Inspect the ribbon cable for good contact. Inspect the optic sensor and its wires.

ERR12 Diagram

Definition: Signal from the HR board Is not clear enough for the display Ie to calculate heart rate.



Explanation: HR board detects that the user is holding onto the HTR handlebar, but the output from the HR board to the display isn't consistent enough for the display Ie to calculate heart rate.

ERR12

Definition: The heart rate signal is not clear enough to calculate heart rate.

Explanation: The HTR board detects (1) whether the user is holding the HTR handlebars and (2) the incoming pulse signal. If the user is holding the HTR handlebars but the pulse signal is muddled, ERR12 appears. It reminds users to hold onto the HTR handlebars without moving.

Response:
Keep your hands in one spot on the HTR handlebars and don't move them. ERR12 will disappear. If it doesn't, inspect HTR wiring. Update the HTR board version or display board main Ie version if necessary.

For more information, see HTR Function.

Power Issues

To avoid repetition but be complete, the following tracks power from the display downward. In your case, it might actually be faster to track power from the wall to the unit. Or it might be faster to skip from one spot to the next. In general, check the obvious (Is power switch ON?) first.

In this guide, related symptoms appear before each part that is inspected. To resolve your issue quickly, match the written symptoms to your observation at the unit, and proceed downward from there.

Symptom: Display doesn't light up; Drive board POWER LED does light up.

1. Display

Test whether the display receives power from the drive board. Put meter probes on the two pins of the capacitor close to the ribbon cable connection on the display board. Normal reading: 5VDC. If there is power at the capacitor, but the display doesn't light up, the display board is bad. Replace it. If there is no power at the capacitor, read below.

2. Ribbon Cable

a. Check the ribbon cable and its connections. Link a spare cable from the drive board to the display board, outside the unit. Test the unit. If it works with the spare cable, replace the original cable.

b. Or, if you don't have a spare ribbon cable, test ribbon cable continuity. Wrap solder wire around each probe so you can insert probes into the ribbon cable connector, testing one wire at a time for continuity. Each wire should have continuity. If one doesn't, replace the ribbon cable.

3. Drive Board

Inspect whether the drive board POWER LED lights up. The drive board POWER LED should light when power is on.

Symptoms: Display doesn't light up; Drive board POWER LED doesn't light up; On/Off switch lights.

4. Drive Board

If POWER LED on the drive board does not light, inspect whether the drive board has incoming power by putting probes on AC1 and AC2 connectors. Normal reading: 110VAC.

5. Transformer

Inspect whether the transformer has power coming to and from it. Normal reading on lines into the transformer: 110VAC. To test secondary power lines coming out of the transformer, put probes on like color wire connectors from the transformer at the drive board. Transformer voltage specifications vary, depending on unit. Many transformers have specifications written on them.

6. On/Off Switch

a. Tum "on" the On/Off switch. There are symbols on the switch: "—" and "0". ON = "—" pressed in. Off = "0" pressed in.

b. Check the On/Off switch LED. The On/Off switch LED should light when the "– " mark on the switch is pressed in.

Symptoms: Display doesn't light up; Drive board POWER LED doesn't light up; Power switch doesn't light up.

7. On/Off Switch Incoming Power

a. Test power coming from the fuse to the On/Off switch. Unplug unit. Put meter to the 200VAC setting. Place one probe on the fuse output connector (top most wire coming out of the fuse). (Roll up the insulation sheath to contact the metal.) Put the other probe on the incoming power wire connector at the switch (The wire from the cord outside the unit that directly connects to the switch. See figure for details.) Plug in the unit. Turn on unit. Normal reading: 110VAC. If the reading is normal and the On/Off switch doesn't light, replace the switch. If there's no voltage, see below.

8. Inspect the Main Power Fuse

a. Turn off the unit. Check the main fuse for signs of burning. Inspect for continuity. Install a new fuse if necessary.

b. Inspect the fuse holder. Does it maintain a good contact? Test continuity: Remove the fuse and cap from the unit. Put one probe on the fuse cap metal and another on the end of the fuse. The meter should beep, indicating continuity. If not, replace the fuse holder.

9. **Wall Power**

Put one probe in each wall socket. Normal reading: 110VAC. If not, check the circuit breaker.

Drive Board Test Notes

Imagine you have a drive board, but you don't know whether it is good or not, and you cannot test it by putting it in a treadmill. What should you do? The following are simple tests to inspect a drive board that's outside of a machine with no connections.

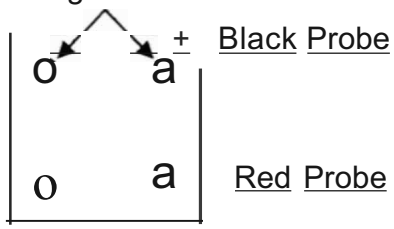
Audible Reading on M+ M- Terminals.

Put multimeter to the audible setting. Place the red probe on the M- tenninal. Put the black probe on the M+ tenninal. Normal reading: .359 +-.003. OL indicates a broken circuit. A long beep indicates a short - a bad board. Swapping probe positions, red on M+, black on M-, produces a meaningless reading.

Audible Reading on Bridge Rectifier

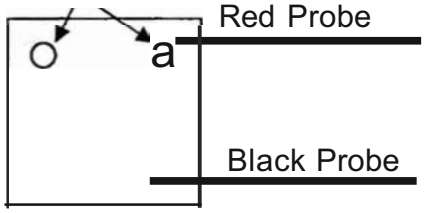
The bridge rectifier has four pins. Put the multimeter to the audible setting. Put probes as shown in Test 1. A beep is normal. Put probes the opposite way, red probe on + terminal of the bridge rectifier. OL or no reading is normal.

Bridge Rectifier Pins



Test 1

Bridge Rectifier Pins



Test 2

Put probes as shown in Test 2. A beep is nonnal. Reverse probe positions. OL or no reading is nonnal. A long beep indicates a short.

Audible Reading on IGBTs

IGBTs have three pins. Put multimeter probes on the pins in any order. A reading or short beep is nonnal. A long beep indicates a short - the IGBT is bad.

Ohm Reading on Capacitors

Put probes on the capacitors pins. Nonnal reading: increasing voltage, because capacitors hold a charge. Then at one point the meter will read OL. A bad capacitor will get no reaction.

Treadmill Troubleshooting: Electrical

This section discusses common troubleshooting topics briefly. For more detailed tests on the part mentioned, refer to the section on error codes.

Main fuse breaks
Incline fuse breaks
No reaction to safety key (applies to units with magnetic safety keys)
Displayed information changes even though no keys are pressed
Motor Speeds Uncontrolled
Motor Speed is Irregular
Walk belt suddenly stops when it should move

Main fuse breaks

Replace the fuse. Inspect the drive board, motor, fuse holder, switch.

1. Drive Board

a) Drive board components shouldn't be cracked, blown up, or disconnected.

b) Perform component tests in Drive Board Test and Components.

c) Inspect connections.

2. Motor

a) Move the motor flywheel with your hand. It should rotate smoothly, without sticking or clicking

b) Normal brush length: above 1/2 inch. Brushes should have even wear without chips. There shouldn't be a lot of soot on the motor vents.

c) Normal ohm reading: 1.2 ohms. Replace motor if 0 or over 3 ohms.

3. Wiring

Wiring of the fuse holder and switch could be an issue if recently rewired. See Wiring in Reference.

Incline fuse breaks

Replace fuse. Try to operate incline. If fuse breaks again, inspect whether the incline worm gear is stuck. If possible, recalibrate incline. If not possible, replace incline motor.

No reaction to safety key (applies to units with magnetic safety keys)

a) Inspect safety key. Magnet should stick to metal.

b) Test reed switch (see Components).

c) Replace display.

Displayed Information changes even though no keys are pressed

Replace keypad and overlay or entire display.

Motor Speeds Uncontrolled

1. Drive Board

a) Inspect drive board for burnt, cracked or bulging components. Test power components like the IGBT and surge absorber. See Drive Board Test Notes and Components.

d) Test power at M+M- at drive board. Normal reading: 7-1 OVDC increase per

MPH, up to 90VDC when speed UP key is hit.

2. Motor

a) Move the motor flywheel with your hand. It should rotate smoothly, without sticking or clicking

b) Normal brush length: above 1/2 inch. Brushes should have even wear without chips. There shouldn't be a lot of soot on the motor vents.

c) Normal ohm reading: 1.2 ohms. Replace motor if 0 or over 3 ohms.

3.0ptic Sensor and Tachometer Wheel

a) Tum motor flywheel. CIK indicator on drive board should light.

b) Tachometer wheel should rotate in the middle of the optic sensor. Teeth should not be bent or broken.

Motor Speed is Irregular

1. Connections

Inspect drive board to motor wire and ribbon cable connections.

2. Display

Press down on the IC chip to make good contact. Replace the IC.

3. Drive board

Put probes on M+M- connectors at drive board. Press SPEED up. Normal reading: 7-10VDC increase per MPH, up to 90VDC when speed UP key is hit.

4. Optic sensor

a) Turn motor flywheel. CIK indicator on drive board should light.

b) Tachometer wheel should rotate in the middle of the optic sensor. Teeth should not be bent or broken.

Walk belt suddenly stops when it should move

1. Stop switches (applies to 6005, 6100 and 6150 series and 6200). Disconnect stop switches and see if problem reoccurs. Replace stop switches.
2. Keypad and overlay soft keys. Inspect for cracks or other sign of damage in the overlay.

Treadmill Issues - General

Installation Tips
Adequate Power and Grounding
Drive Belt Tightness
Walk Belt Tightness
Maintenance and Lubrication
Fuse Locations on Products
How to Set MPH / KPH Modes

Treadmill Issues - General

Installation Tips

See the product user manual for product-specific instructions. In general, take the machine out of the box. Use caution when installing the pedestal to avoid damage to the ribbon cable. Observe power requirements for the unit. Check tensions and adjust if necessary. Avoid placement in dirty, damp environments.

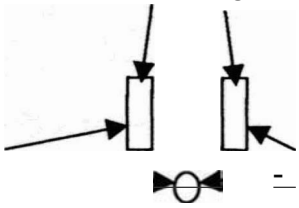
Adequate Power and Grounding

We recommend a dedicated 20-amp circuit for each commercial unit. A dedicated 15-amp circuit should suffice for home use. (To check this, see the circuit breaker at the wall.) Avoid using extension cords. If you do use one, use a heavy gauge cord and keep it short.

Power must be grounded for safety and to prevent interference. To inspect a wall socket, place multimeter probes as follows.

Wall Socket Test

Test 1. Voltage; Normal Reading: 110VAC



Test 3. Ground Test (b)
Normal Reading: OVAC

Test 2. Ground Test (a)
Normal Reading: 110VAC

If the wall socket is not grounded properly, Test 2 will not show voltage. Note: Make sure to touch the probe to metal.

Drive Belt Tightness

There are two tests to determine drive belt tightness.

Hand test: Grab onto the drive belt. Try to twist the drive belt up. You should be able to just barely twist the drive belt to a gO-degree angle from its original position but no more than that.

Stomp test: While the treadmill belt is moving slowly, put your foot down hard, applying pressure against the walk belt. The drive belt should slip slightly and quickly regain grip.

Walk Belt TIghtness

You should just be able to slip your palm between the top of the treadmill deck and the walk belt. You should be able to slip your fist between the low side of the treadmill board and the belt.

If belts are too tight, too loose, or worn out, unit amp draw increases, possibly wearing out the motor and the drive board. Normal amp draw at 3 MPH with no load on the walk belt is 1/2 to 1 Amp.

Maintenance and Lubrication

The factory recommends not applying lubricant to the treadmill running board or belt, but Mac's 8300 by NAPA can be used. Adding other lubricants actually attracts dust that creates more friction. Clean the running board with a damp towel. Use an air hose or canned air to blow dust and dirt from the drive and display boards.

Fuse Specifications

Replace fuses with ones of appropriate specifications. Sports Art product fuses can be found at most hardware stores. Refer to Fuse Specifications in reference for more information.

Fuse Locations on Products

Main power fuse location: Near the power switch.
Incline fuse location. New product: On the drive board near the incline relays. Old product: outside the unit, near the power switch and main fuse.
A drive board power fuse is on some products. Location: on the drive board, near incoming AC 1 AC2 power wires.

Set MPH / KPH Modes

One common complaint is that a treadmill speed seems slow. For example, at speed 5, the belt seems to move at speed 3. Usually there's nothing wrong with the treadmill. A user has unknowingly switched the mode from MPH to KPH. This applies to older treadmills with a manuaVset key, except 1096 and 1098,3120 and 6200.

- To change speed units from KPH to MPH in these models, turn on the unit. Press the MANUAUSET key until SET appears in the display. Press ENTER key. The display will show MPH or KPH. Press UP or DOWN keys to toggle

between MPH and KPH. When the preferred speed measure unit appears, press ENTER key to confirm your selection. You may also be prompted to enter more information, such as MALE/FEMALE, WEIGHT, etc. Use the same method, pressing UP or DOWN keys and ENTER key to make your selection. When the prompt mode is completed, the speed unit will be set and the treadmill will be ready for use.

3120 and 6200 treadmills use a jumper on the drive board to switch from MPH to KPH. See 1096 and 6200 Display Board in Reference for location. Move the jumper as indicated, and the speed unit changes.

On 1210, 3106, 3108, 3110, follow the user information prompts after turning the unit on.

Various AC Incline Motor VRSet Voltage Ranges

Model	Incline Range		VR Voltage	
	Lowest	Highest	At Lowest Point	At Highest Point
109611098F	0%	10%	1.27V	3.70V
12001125011260	00/0	12%	1.27V	3.70V
12XXN	0%	150/0	1.27V	3.70V
1190	0%	150/0	1.27V	3.70V
6005	0%	150/0	1.27V	4.50V

Part Removal and Installation Illustrations

Table of Contents

FUSE REPLACEMENT

1. Find the fuse holder in front of the treadmill.(see Fig.1)

2. Push and tum the fuse holder counterclockwise, the fuse holder with fuse will protrude.(see Fig.2)

3. Remove the damaged fuse and insert a new one.(see Fig.3)

4. Push and tum the fuse holder clockwise to secure.(see Fig.4)

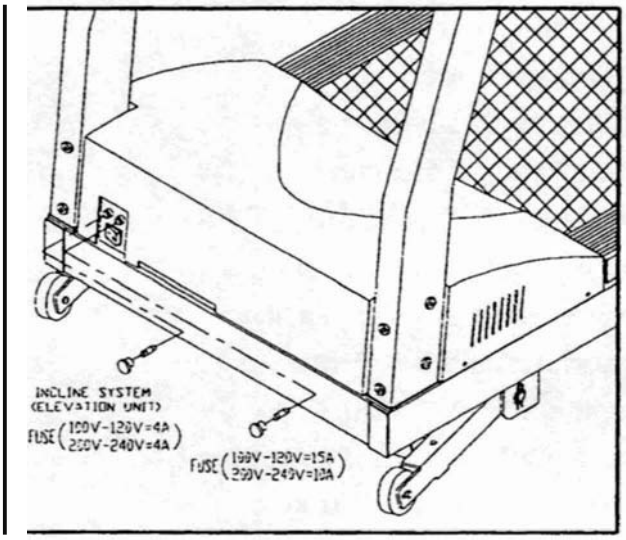


Fig.1

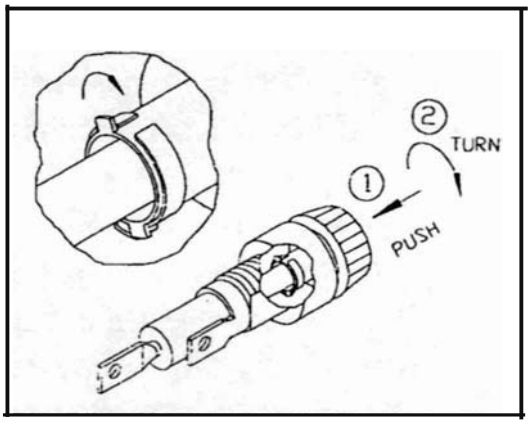


Fig.2

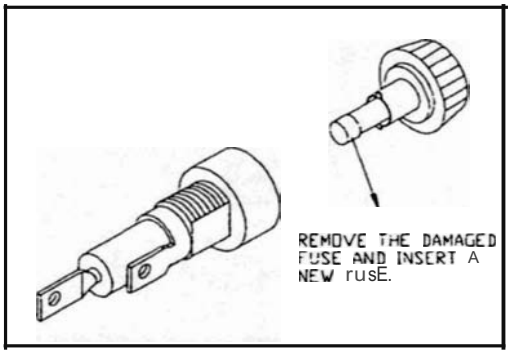


Fig.3

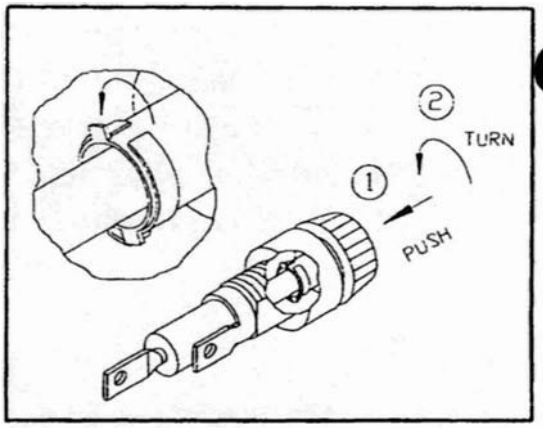


Fig.4

REPLACE THE FUSE LOCATED ON DRIVE BOARD

1. Remove faulty 3A fuse(100V - 120V) or 2A fuse(200V - 240V). (see Fig.1)

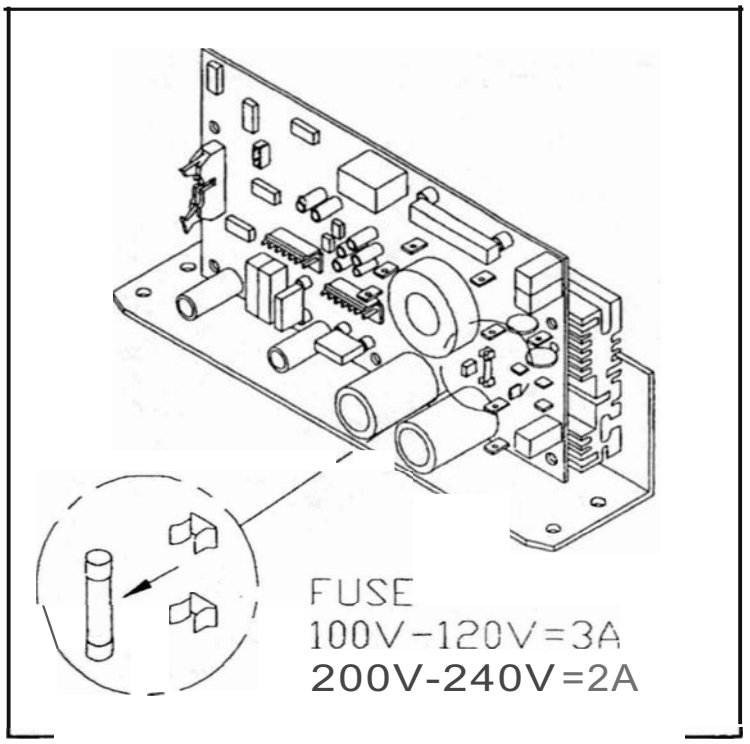


Fig.1

2. Insert new fuse on drive board.(see Fig.2)

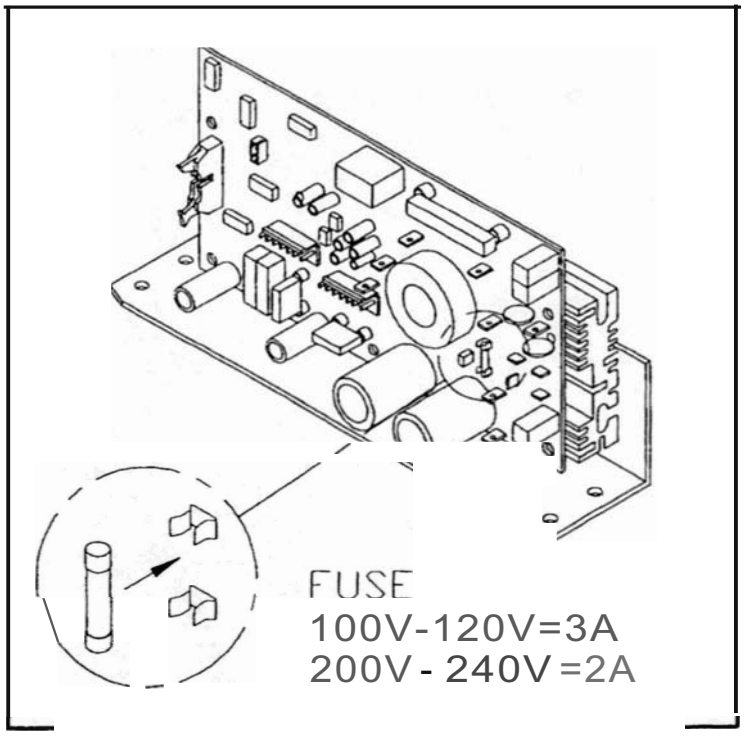


Fig.2

MOTOR REMOVAL AND INSTALLATION PROCEDURE

1. Loosen all screws and remove the motor shroud.

2. Unplug the M+ / M- wires from drive board. Release the 4P cable from optical switch. Unscrew grounding wire from the ground holder located on machine base. (see Fig.1)

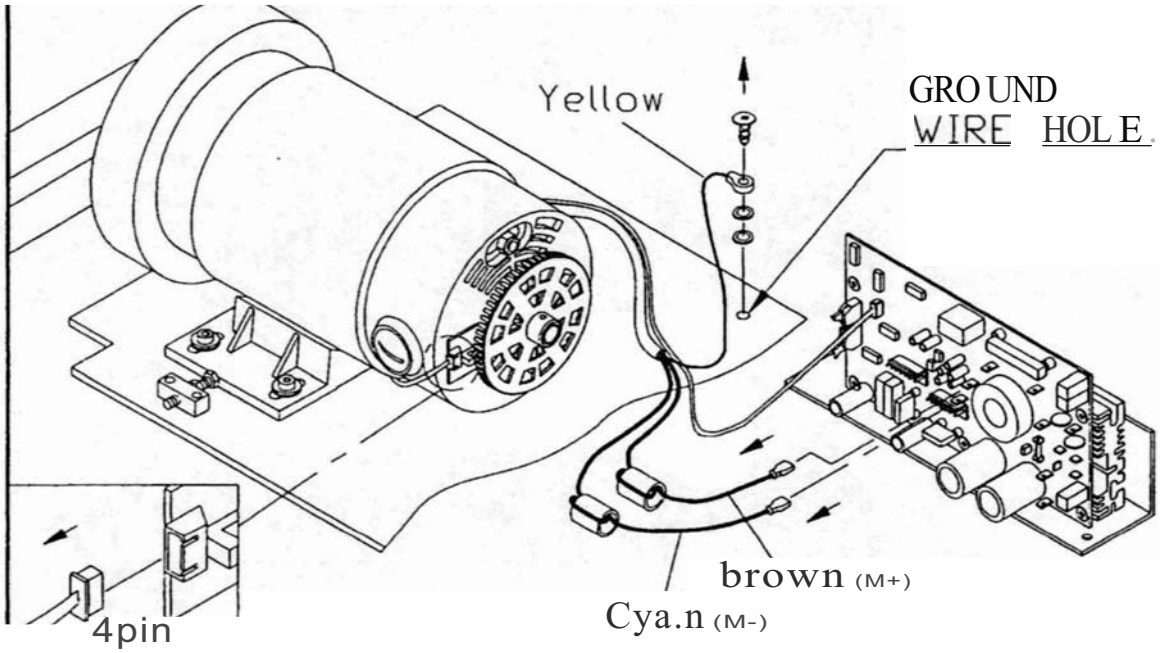


Fig.1

3. Using one combination wrench, unscrew the nut by turning clockwise. Then turn the adjustment screw counterclockwise to loose the motor frame. And release the poly-V belt. Loosen all screws along with washers, and remove motor. (see Fig.2)

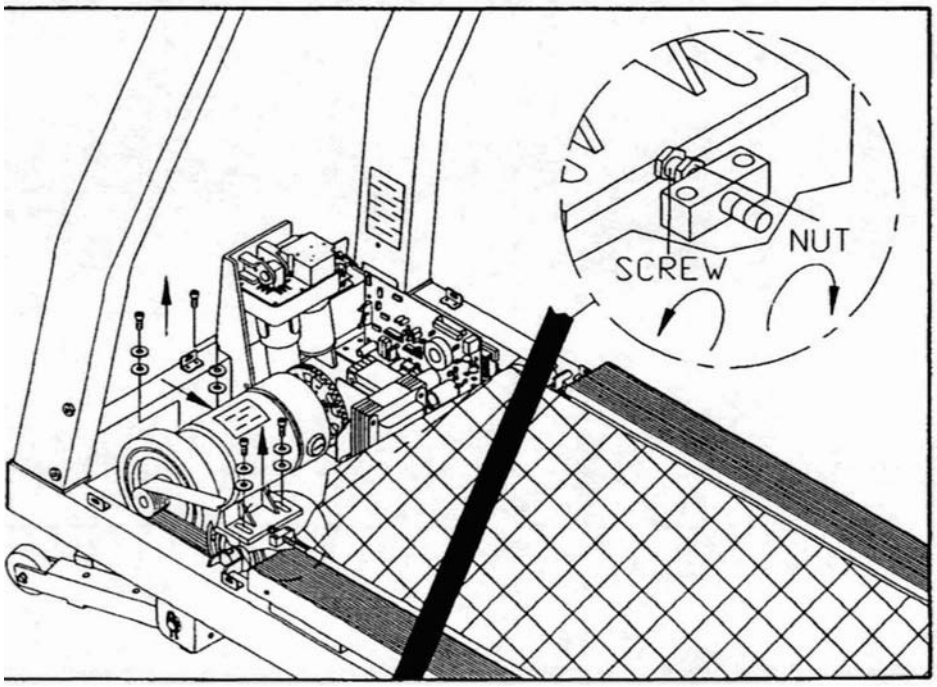


Fig.2

To install:

1. Mount a new motor on its position and secure the motor with four screws and washers. Don't tighten yet. (see Fig.3-4)

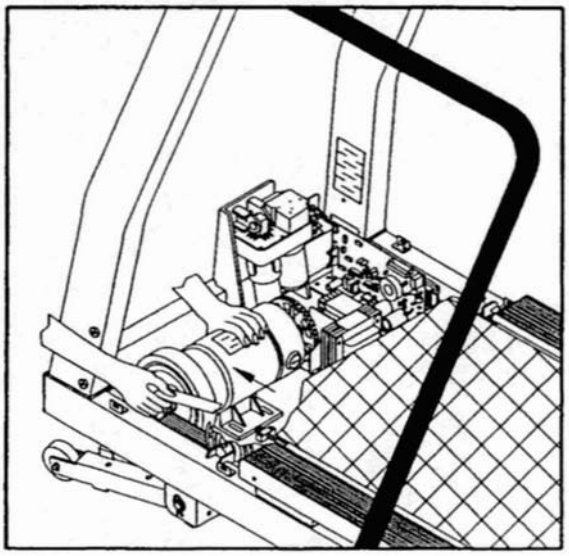


Fig.3

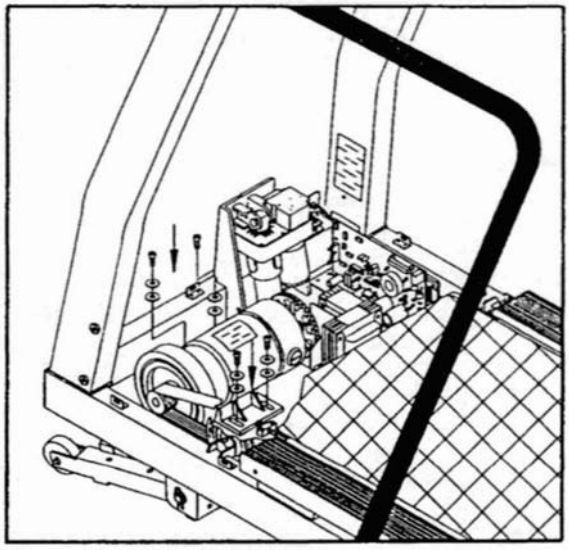


Fig.4

2. Tighten the adjustment screws by turning clockwise with a combination wrench. Then, fasten the nut securing the motor frame adjustment bracket by turning counterclockwise. (see Fig. 5)

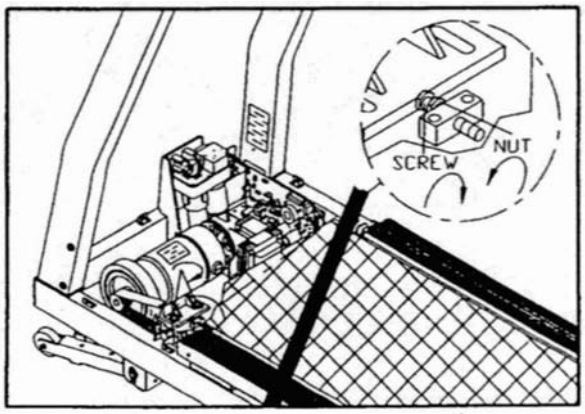


Fig.5

3. Use your hand to check the ploy-V belt tension. There should be 10-12mm *(OA-*0.5 inch) of play in the belt(see Fig.6)

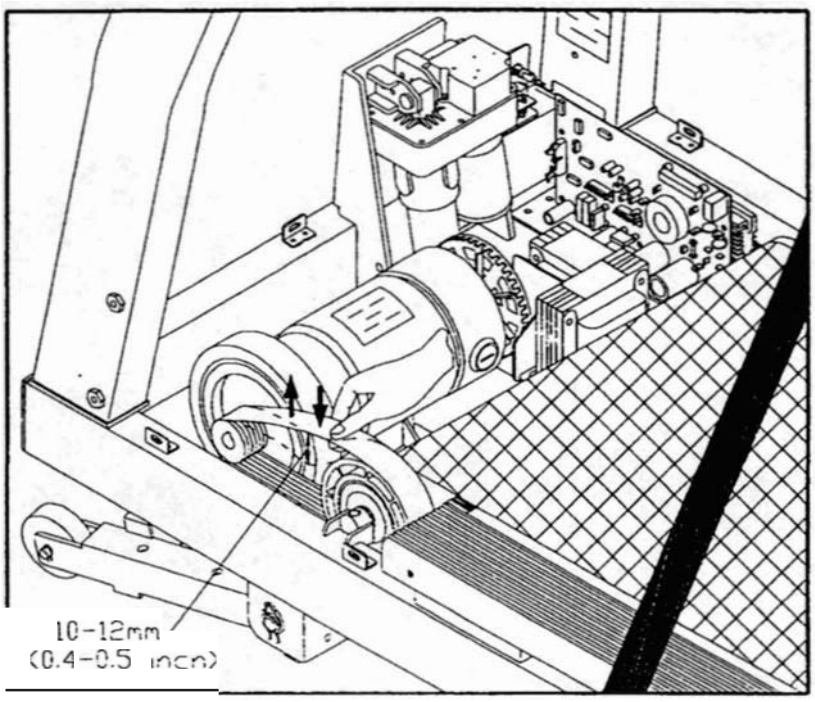


Fig.6

CAUTION: Having the poly-V belt too tight will damage the motor.

4. Now, secure all motor screws tightly.

5. Reconnect the M+/M- wires to the drive board and grounding wire to the ground holder. Plug the 4p cable to the optical switch. (see Fig.?)

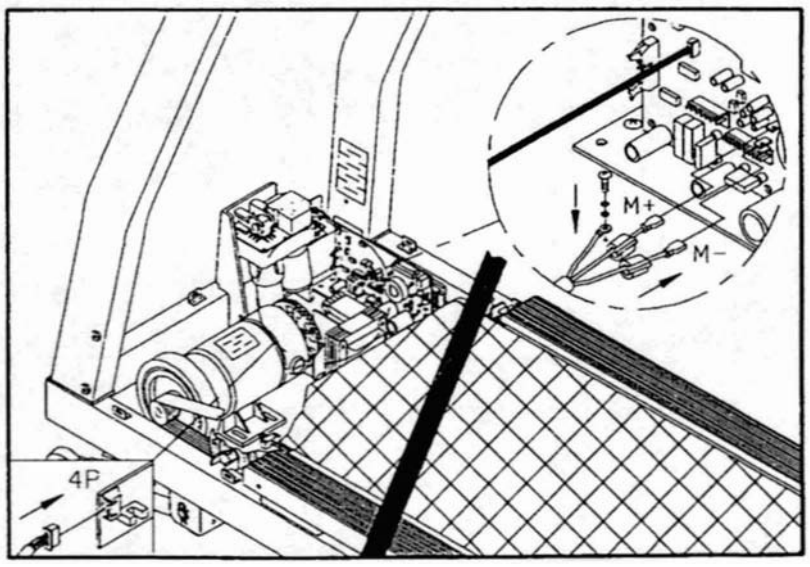


Fig.7

CAUTION: THE WIRES MUST BE PROPERLY CONNECTED TO THE CAPACITOR OR IT MAY CAUSE DAMAGE.

6. Place the motor shroud and tighten all screws.

REAR ROLLER REMOVAL AND INSTALLATION PROCEDURE

1. Unscrew all bolts, and pull out the staging platform. (see Fig.1-2)

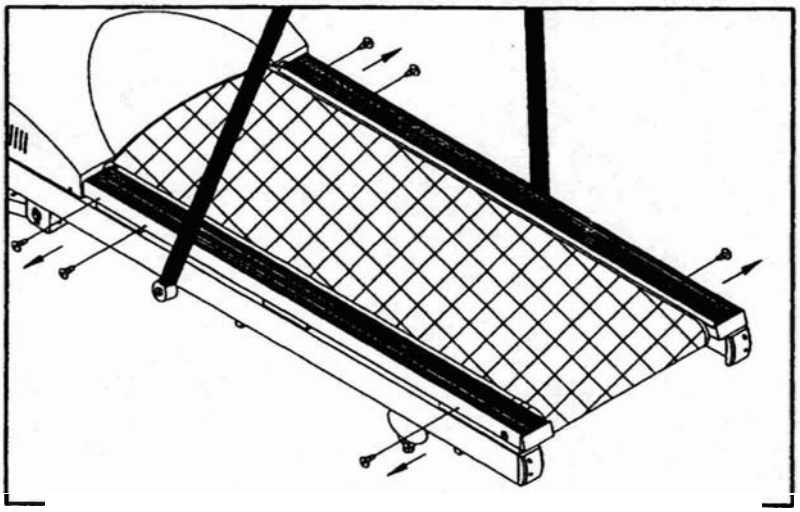


Fig.1

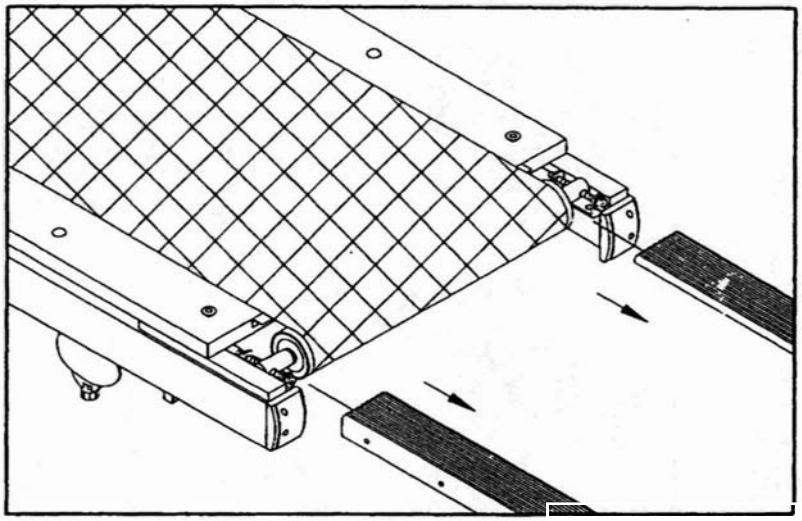


Fig.2

2. Remove screws securing on the rear roller. (see Fig.3)

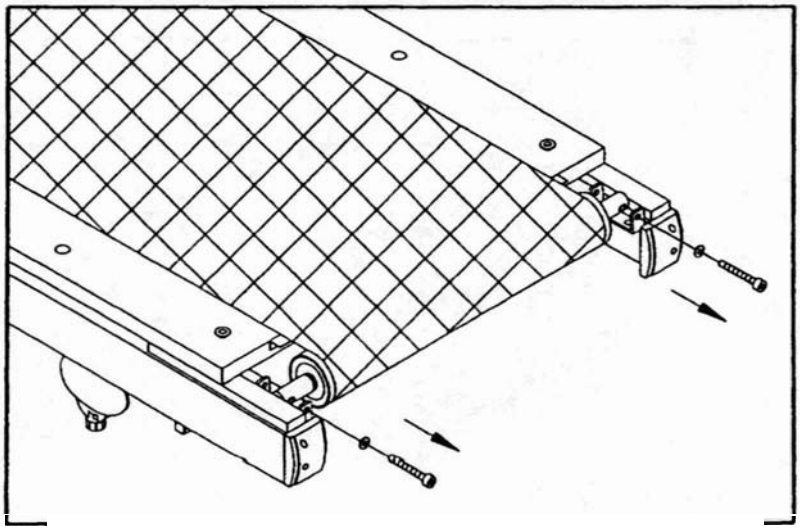


Fig.3

3. Take out the damaged rear roller.(see Fig.4)

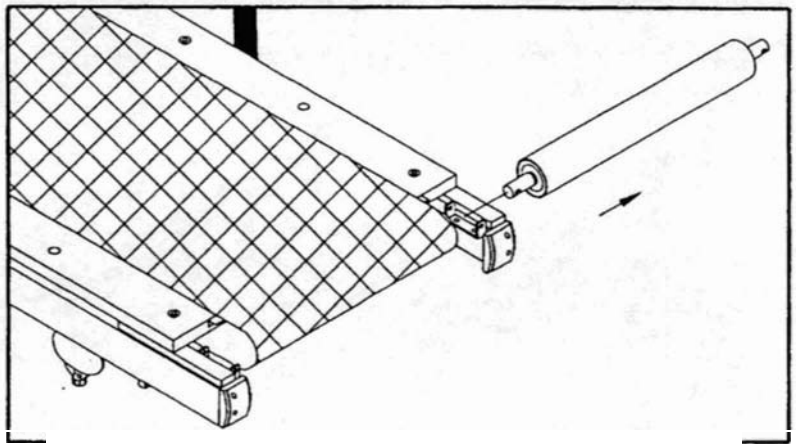


Fig.4

To install:

1. Place a new rear roller into its bracket. (see Fig.5)

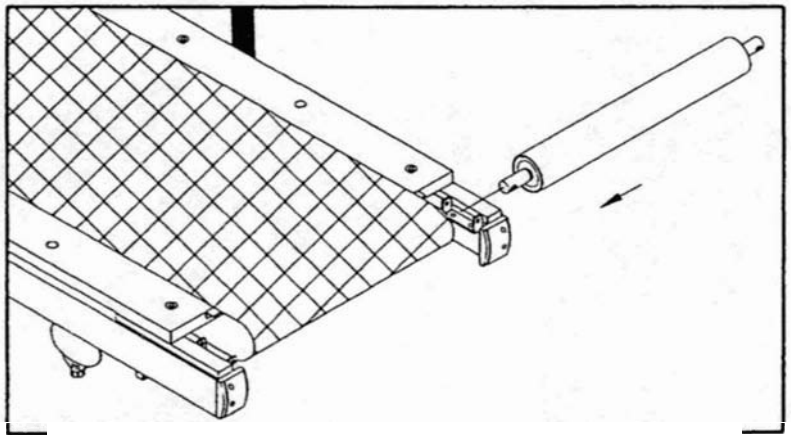


Fig.5

2. Secure the rear roller with two screws. (see Fig. 6)

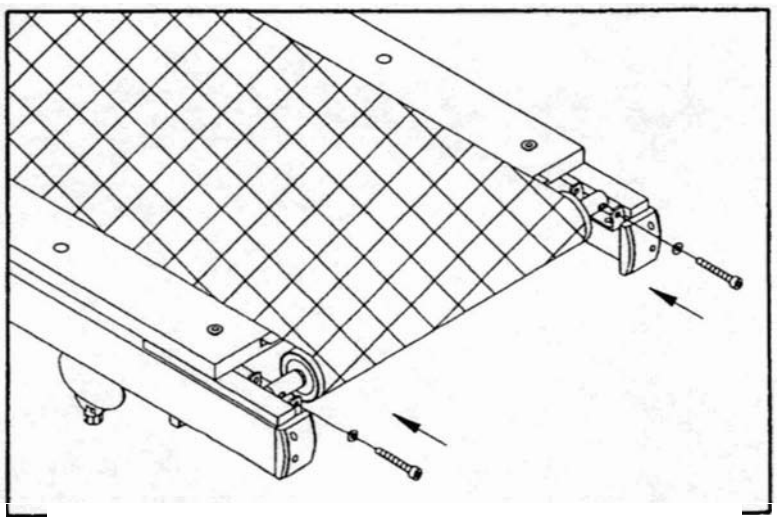


Fig.6

3. Place the staging platform, tighten all screws on both sides.(see Fig.?-8)

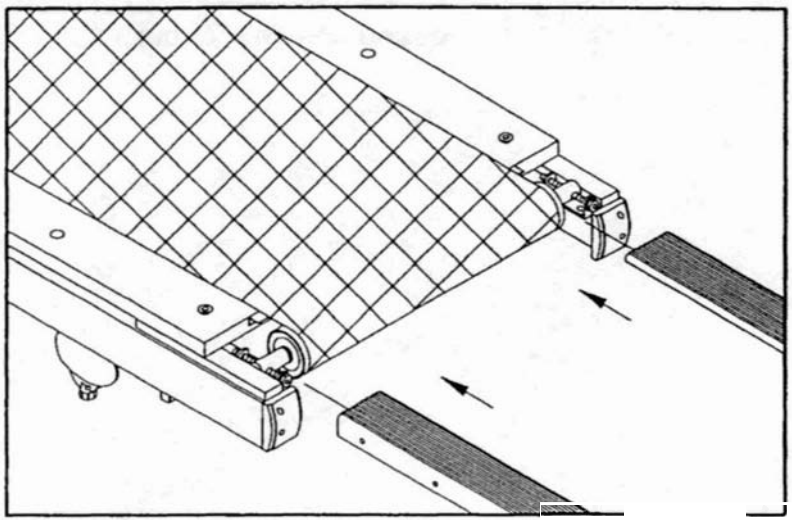


Fig.?

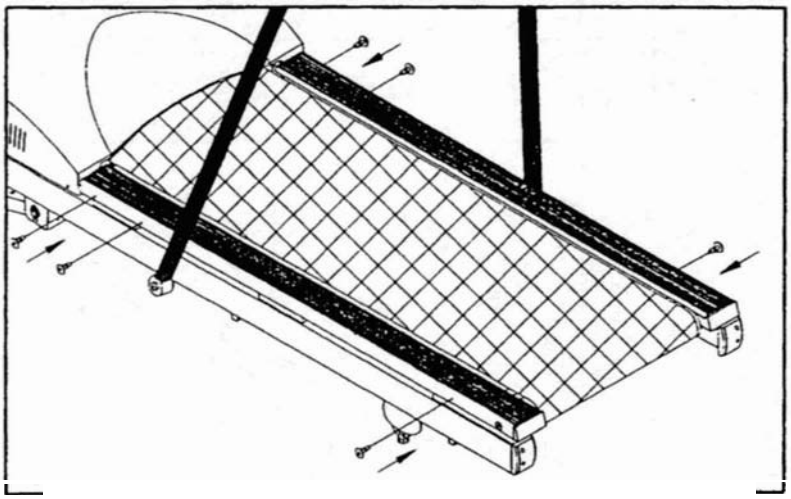


Fig.8

4. Adjust running belt inside the belt alignment roller.(see Fig.9)

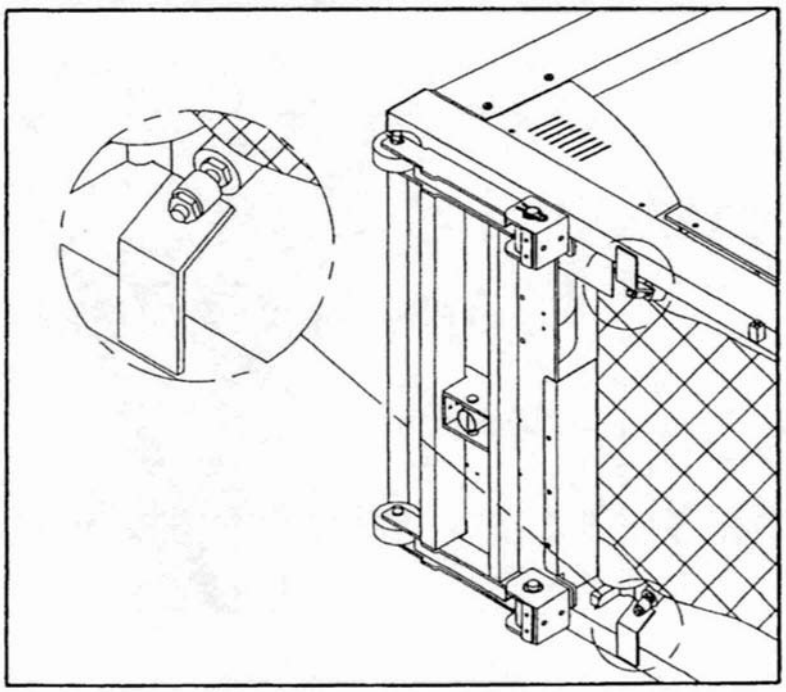


Fig.9

FRONT ROLLER REMOVAL AND INSTALLATION PROCEDURE

1. Remove the motor shroud. and unscrew all bolts securing staging platform. (see Fig.1)

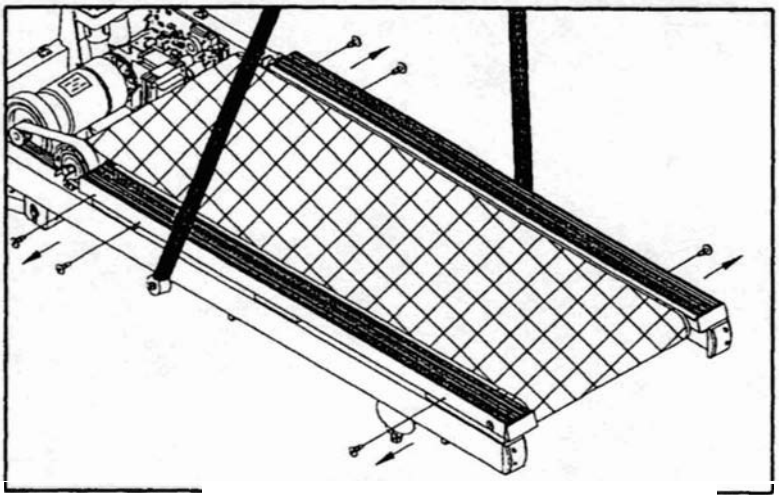


Fig.1

2. Pull out the staging platform.(see Fig.2)

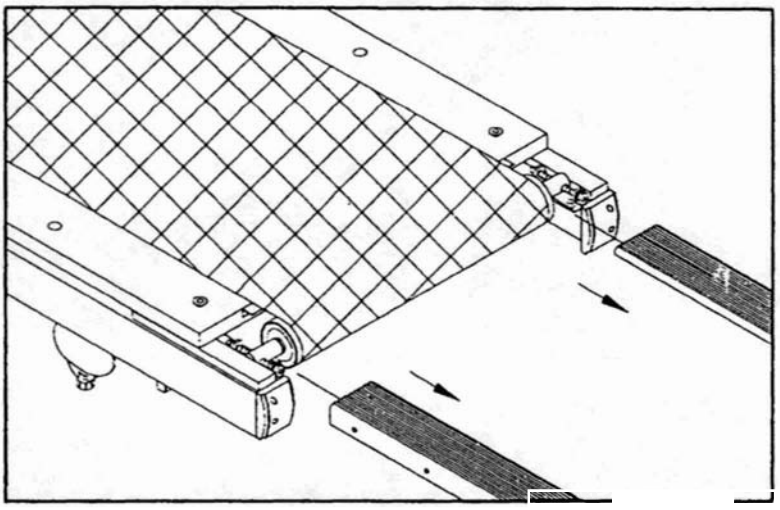


Fig.2

3. Unscrew the bolts securing on the front roller.(see Fig.3)

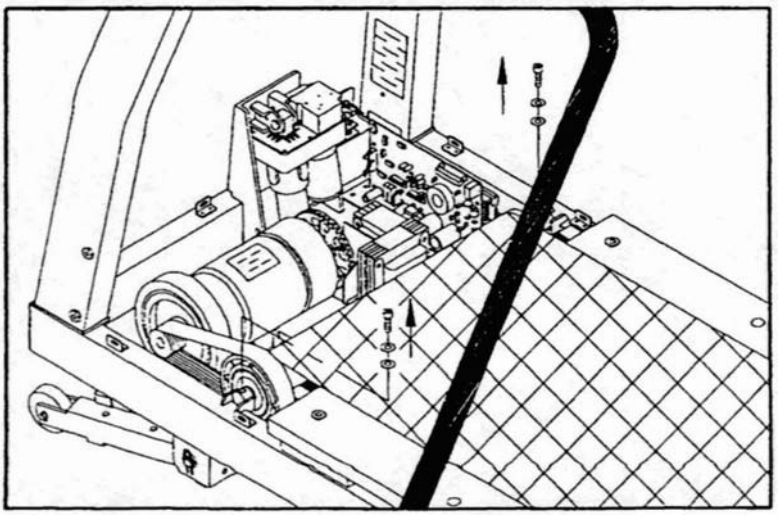
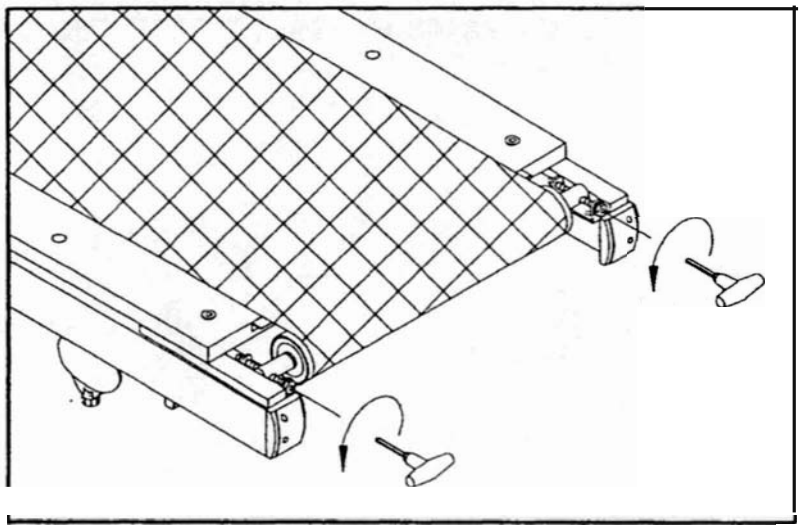


Fig.3

4. Loosen two bolts securing on the roller.(see FigA)



FigA

5. Remove the front roller from its bracket and slip from the running belt.(see Fig.5)

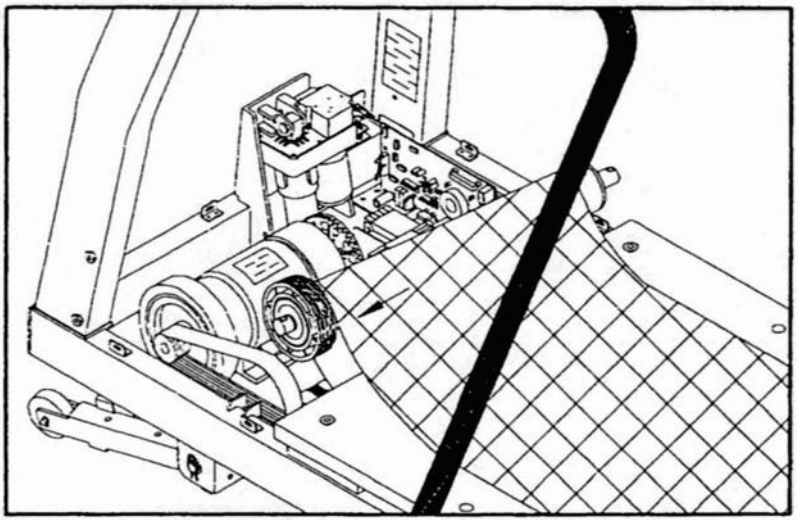


Fig.5

To install:

1.Place the new front roller through running belt into position.(see Fig.6)

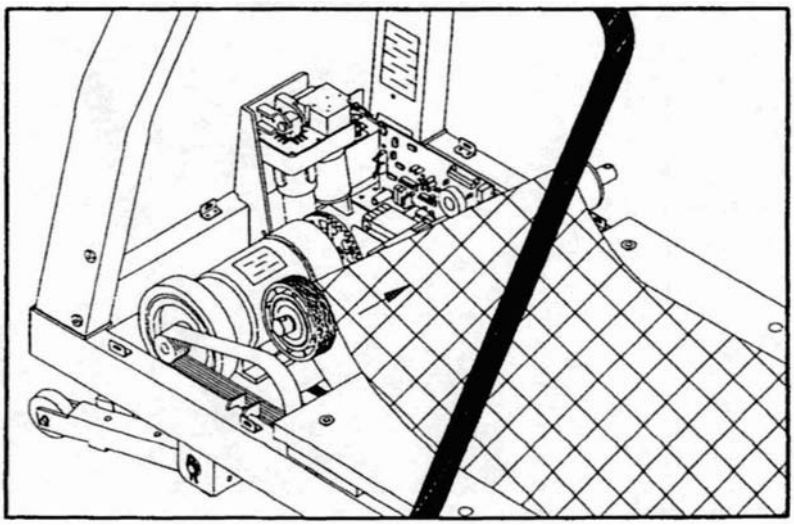


Fig.6

2.Secure the front roller with screws and washers. (see Fig.?)

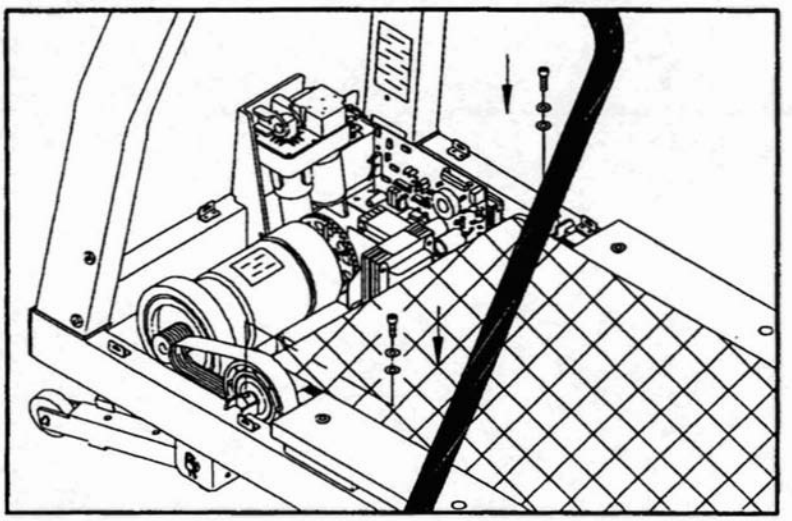


Fig.9

3.Secure the rear roller with screws, and adjust proper tension. (see Fig.8)

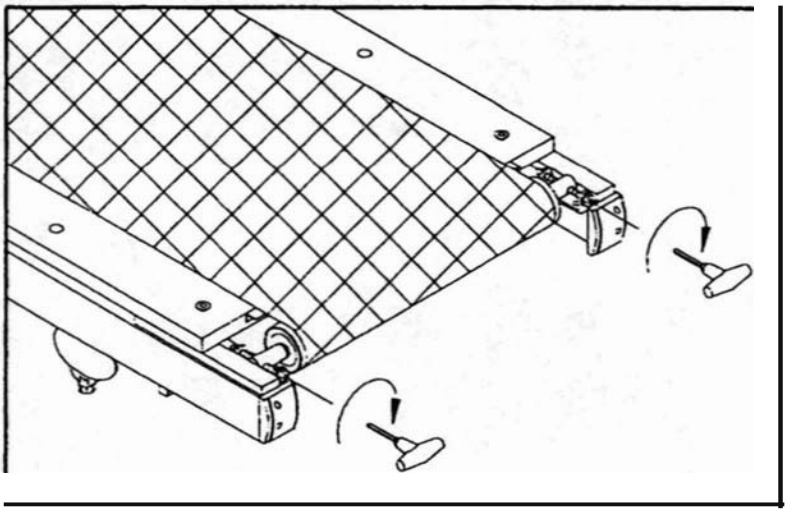


Fig.8

4. Move drive belt forward and backward to make sure drive belt in the notch of wheel.(see Fig.9)

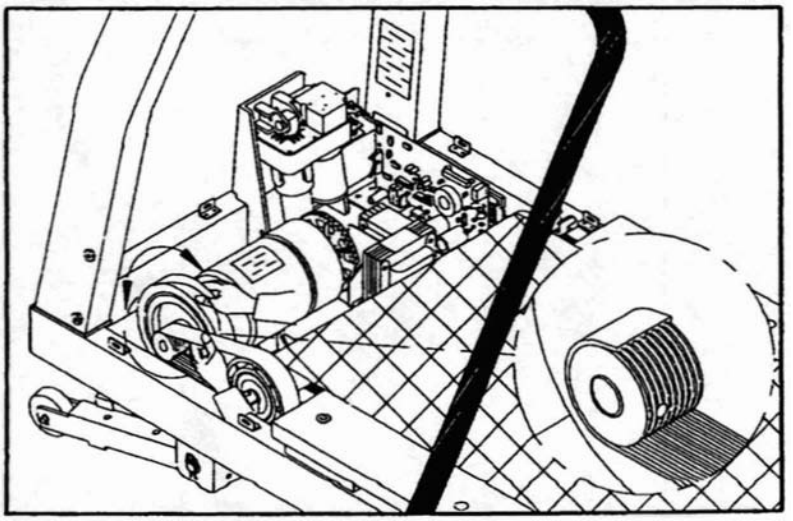


Fig.9

5. Place the staging platform, tighten all screws on both sides.(see Fig.10-11)

NOTE: The proper space between the front end of staging platform and the motor shroud is 0.2 inch *(5m1m).*

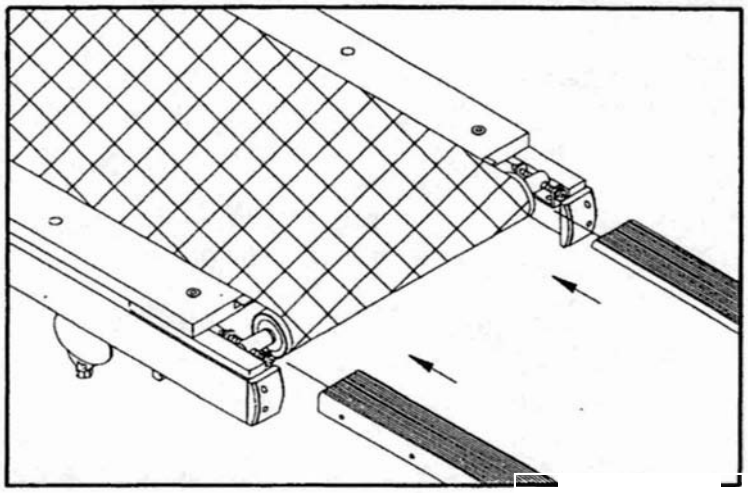


Fig.10

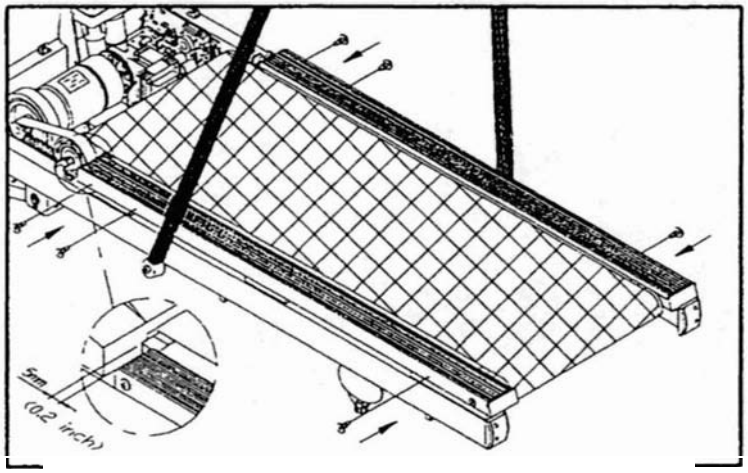


Fig.11

6.Adjust running belt inside the belt alignment roller.(see Fig.12)

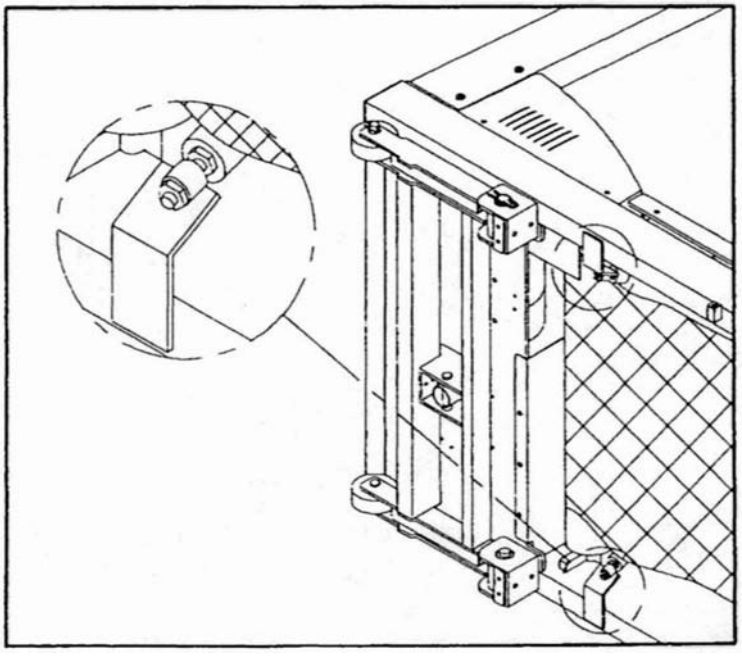


Fig.12

Correct tension of running belt and brief examination of belt alignment:

1. Check the correct tension of the belt, grab the belt in the middle portion of both sides, and lift belt up about 15mm (5/8 inch) or 3 - 5 kgs (6.6-11 pounds) of force.(see Fig.14-15)

2. If there is too loose, you can tighten the belt by adjusting both bolts on rear roller colockwise 1/2 turn at one time. Conversely, if the belt is too tight, adjust both bolts counterclockwise 1/2 turn at one time.(see Fig.13)

3. After you finish all installation, keep the treadmill running at 2MPH (3.3KPH) for several minutes to make sure everything works well.

4. To make sure the running belt is aligned properly after you replace the front roller, please check the color gauge on the front of motor shroud. The left edge of the running belt should be in the middle of the green section (safety zone). If the belt edge is in the red zone (either in the left or right), this could damage the entire treadmill.(see Fig.16) Please refer to belt alignment on page 87 for more information.

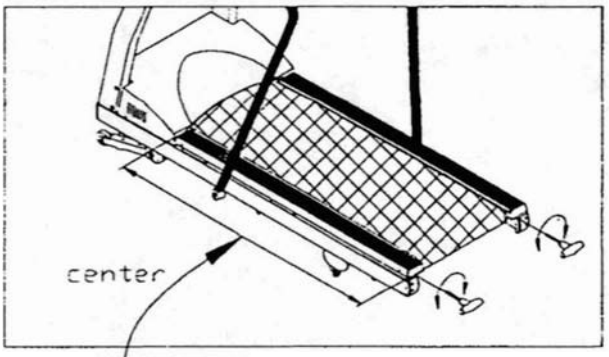


Fig.13

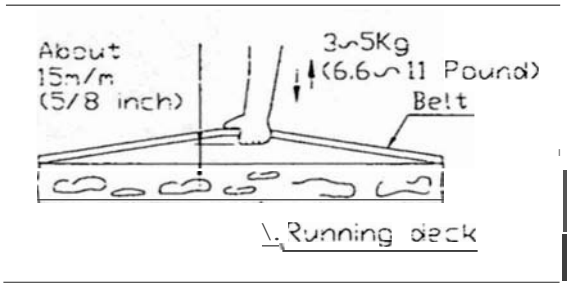


Fig.15

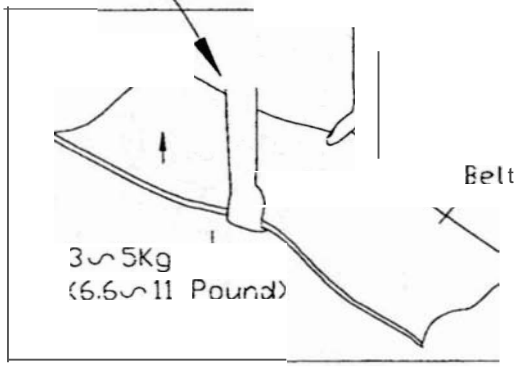


Fig.14

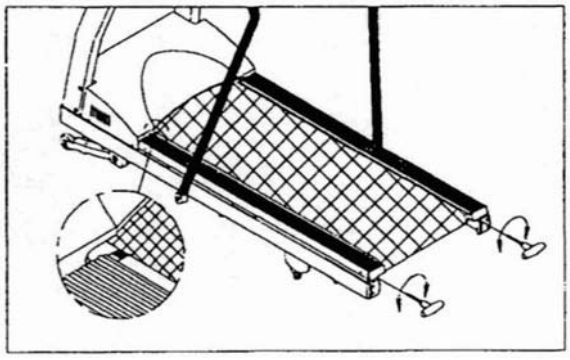


Fig.16

RUNNING DECK REMOVAL AND INSTALLATION PROCEDURE

1. Unscrew the staging platform.(see Fig.1)

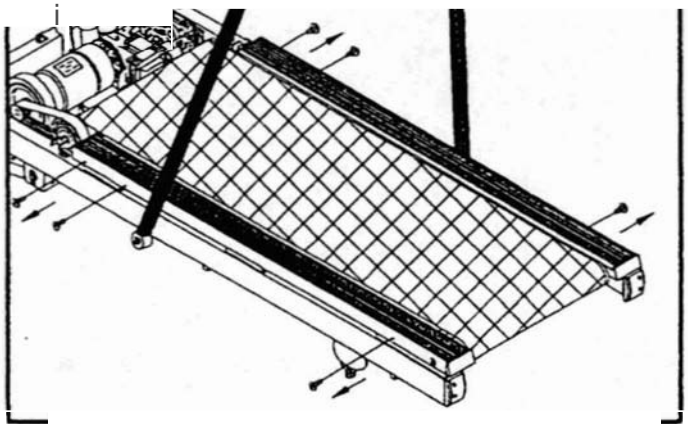


Fig.1

2. Slide the staging platform off from the end of the treadmill.(see Fig.2)

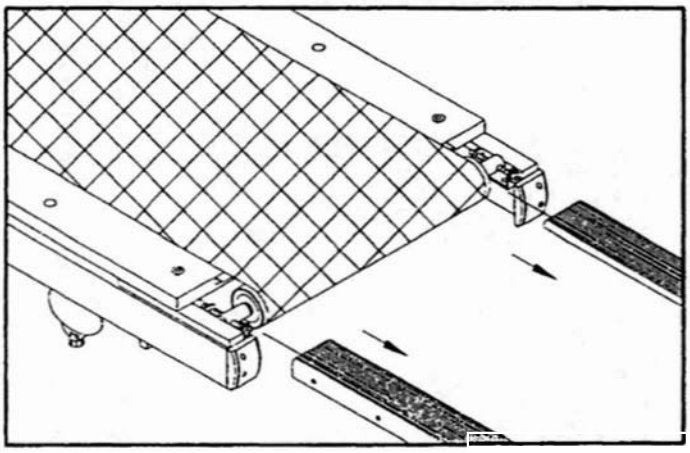


Fig.2

3. Unscrew one side of handlebars.(see Fig.3)

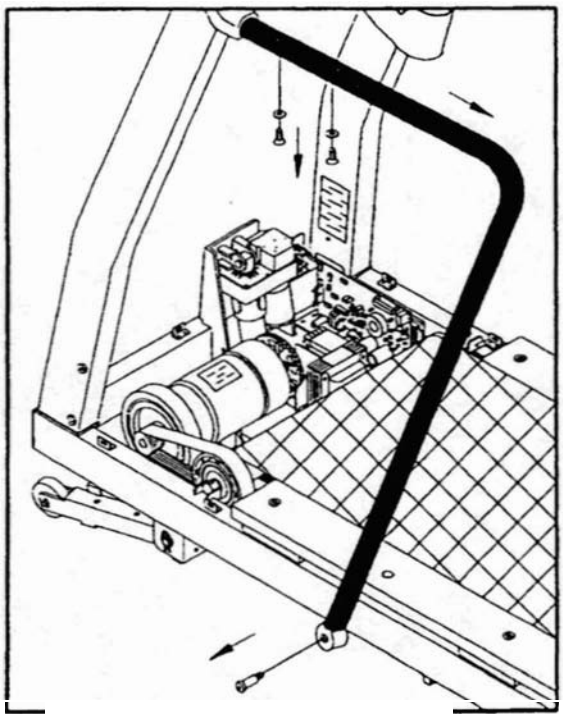
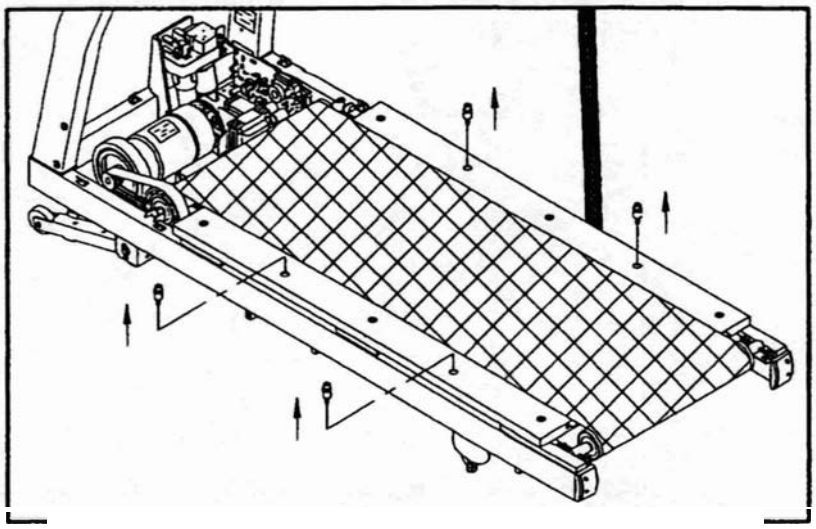


Fig.3

4. Loosen 4 screws with bushings on the deck.(see FigA)



FigA

S. Remove the running deck.(see Fig.S)

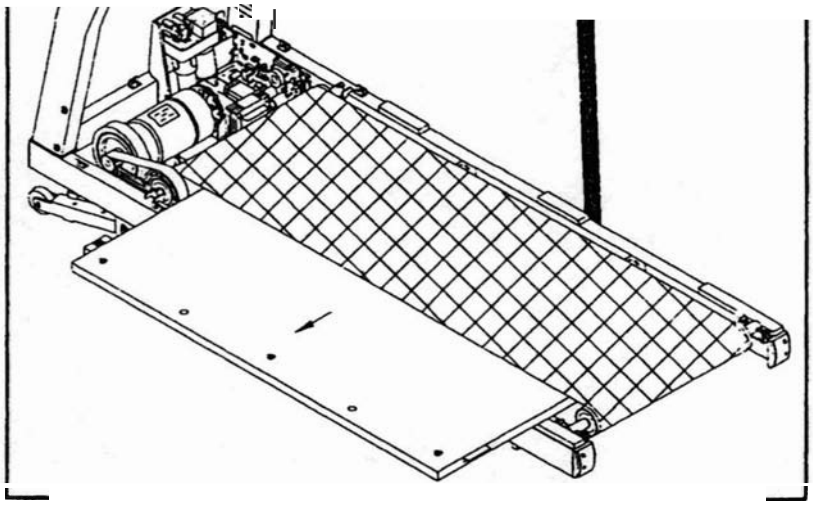


Fig.S

To install:

1. Replace new running deck.(see Fig.6)

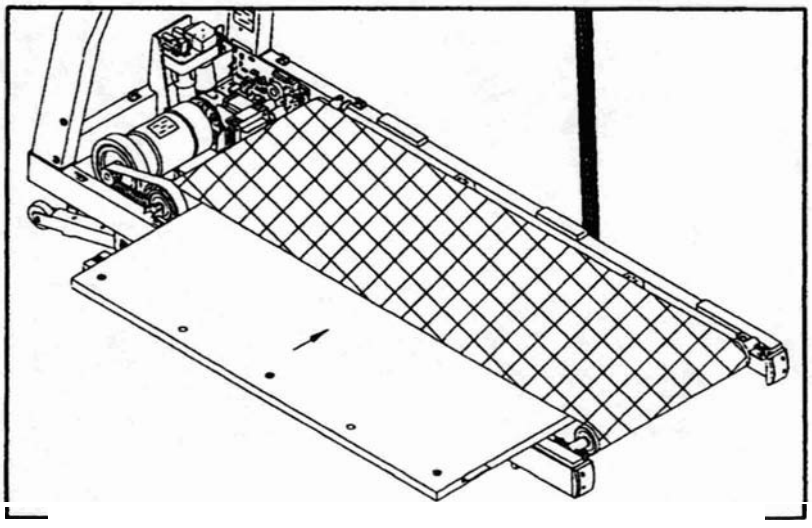


Fig.6

2. Tighten four screws with bushings. (see Fig.?)

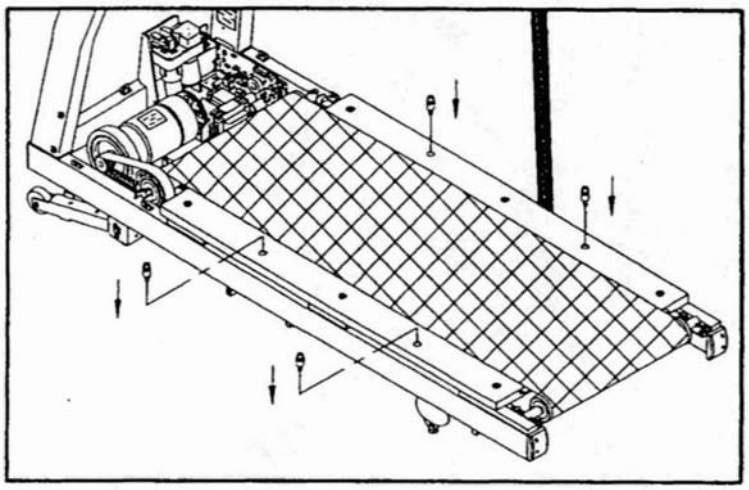


Fig.?

3. Secure the handlebars. (see Fig.S)

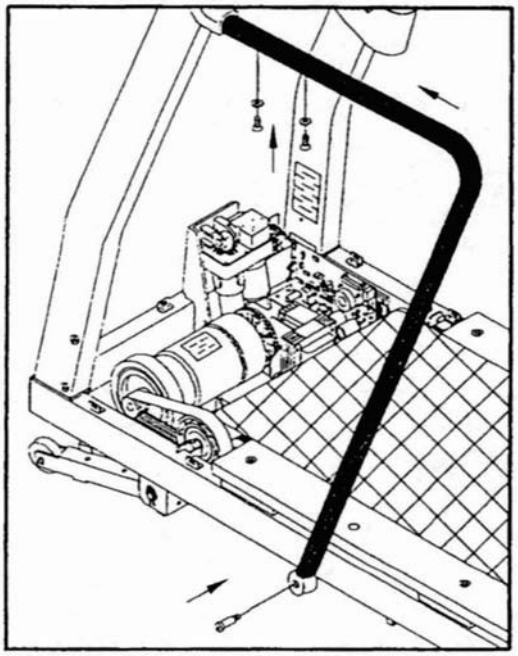


Fig.S

4. Place the staging platform.(see Fig.9)

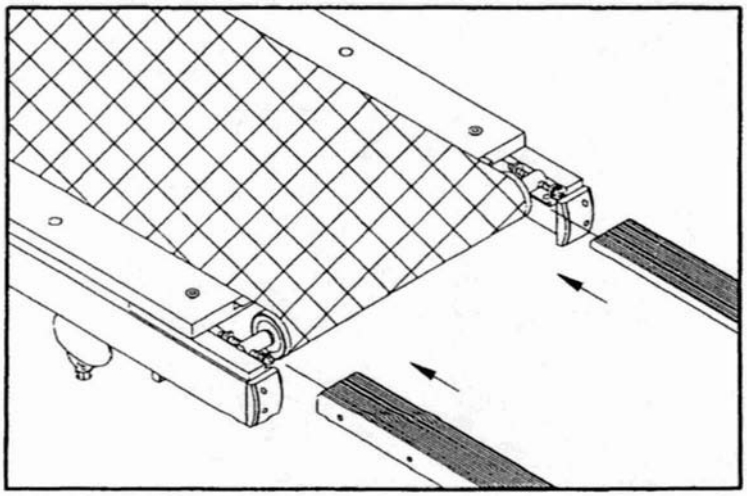


Fig.9

5. Then tighten all screws on both sides. (see Fig.10)

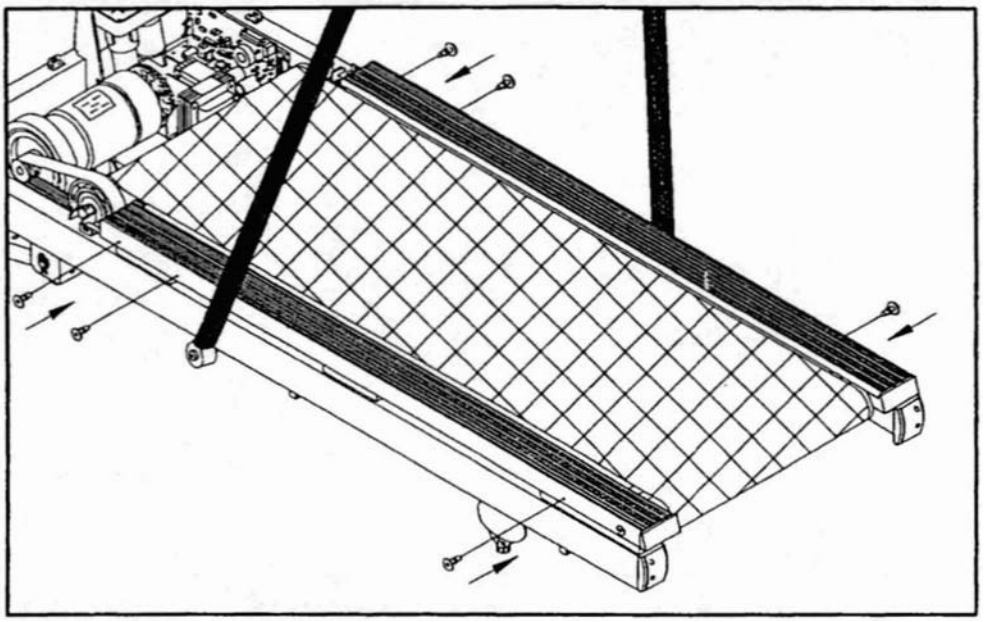


Fig.10

NOTE: The proper space between the front end of staging platform and the motor shroud is 0.2 inch (5 *m/m)*.

CUSHION DECK REMOVAL AND INSTALLATION PROCEDURE

1. Unscrew the staging platform.(see Fig.1)

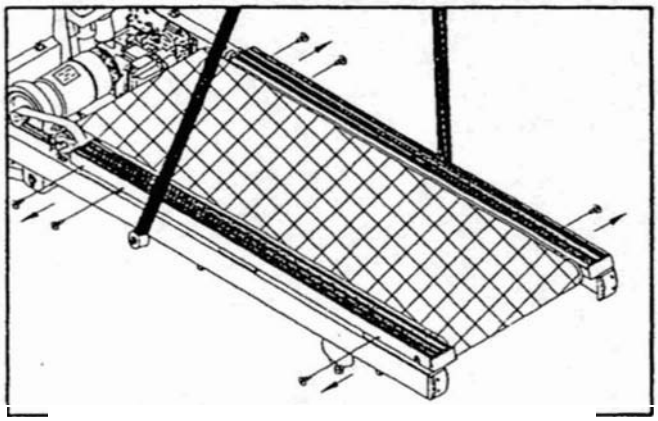


Fig.1

2.Slide the staging platform off from the end of the treadmill.(see Fig.2)

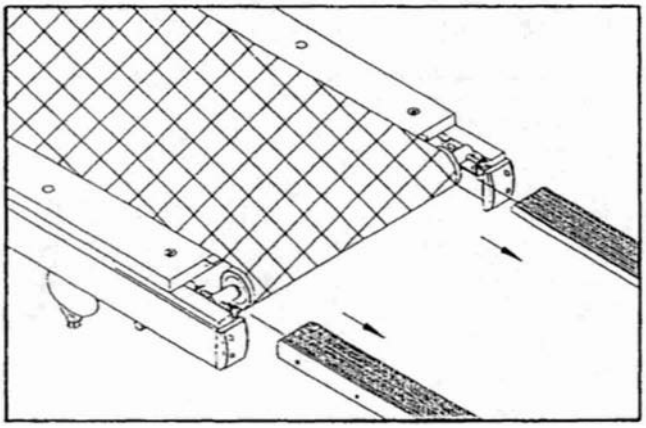


Fig.2

3.Unscrew one side of handlebars.(see Fig.3)

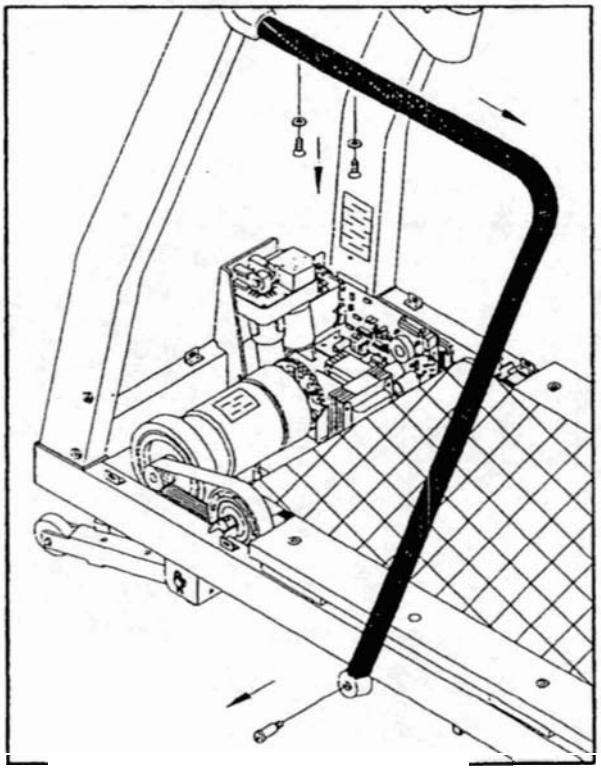
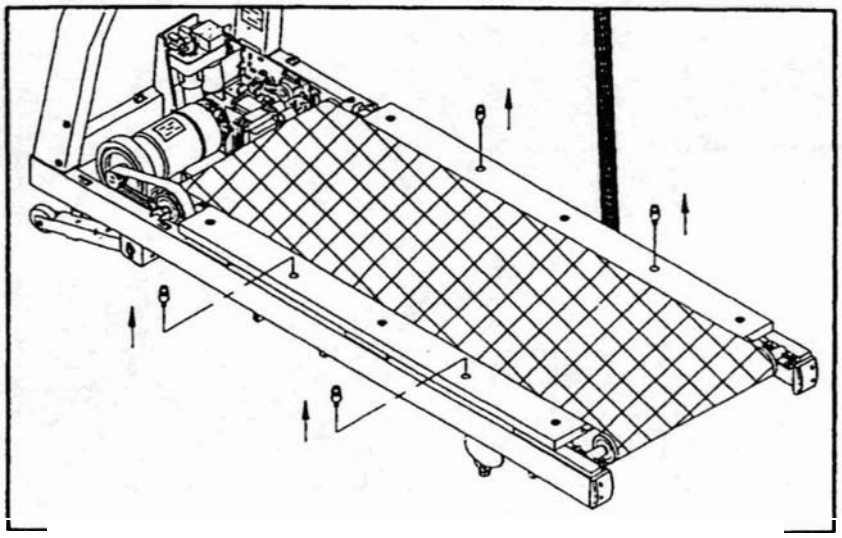


Fig.3

4.Loosen 4 screws with bushings on the deck.(see FigA)



FigA

S.Remove the running deck and put it aside for reassemble.(see Fig.S)

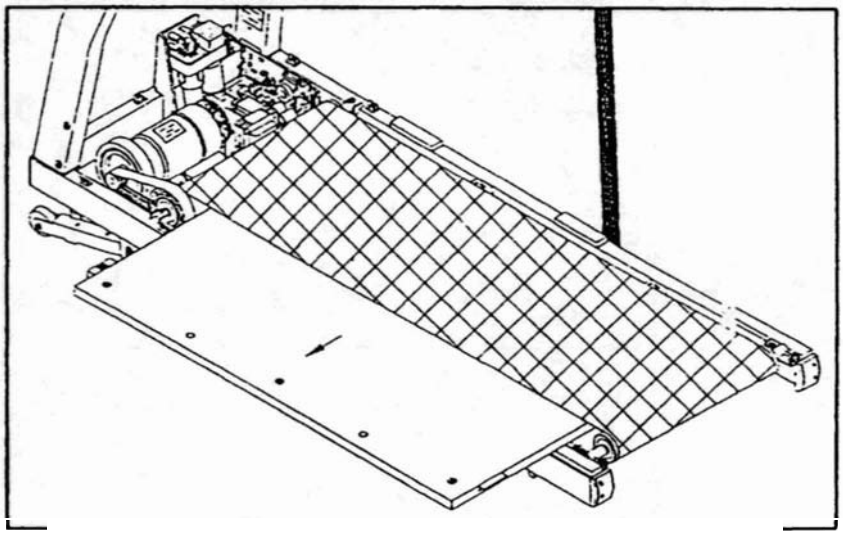


Fig.S

6. Tear out all cushion pieces. (see Fig.6 or Fig. 6A)

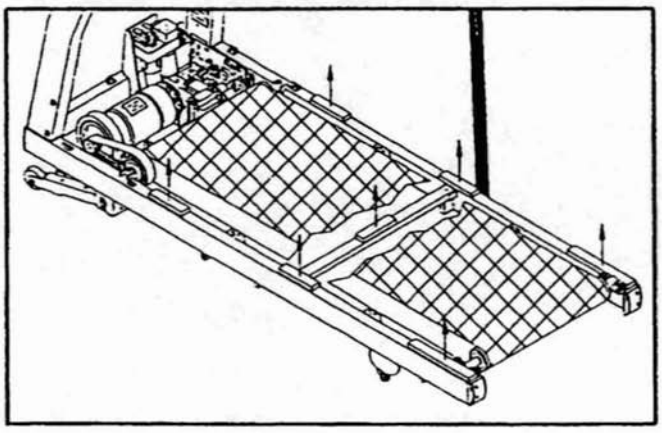


Fig.6

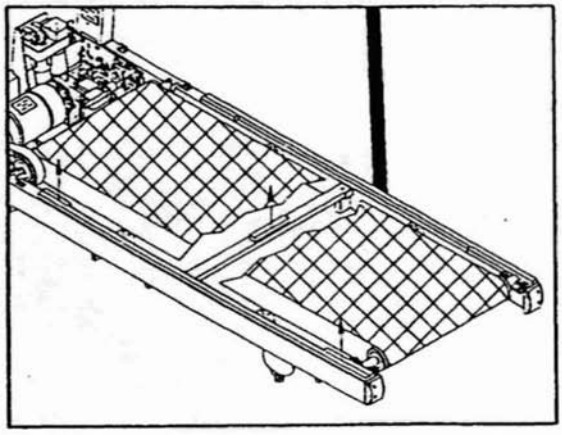


Fig.6A

To install:

1. Stick new full-length cushion on both sides.

   Keep a distance of 0.2inch *(5mlm)* between the front end of full-length cushion and the motor shroud. Also leave 0.2inch *(5m/m)* away the edge of both side frames. (See Fig. 7)

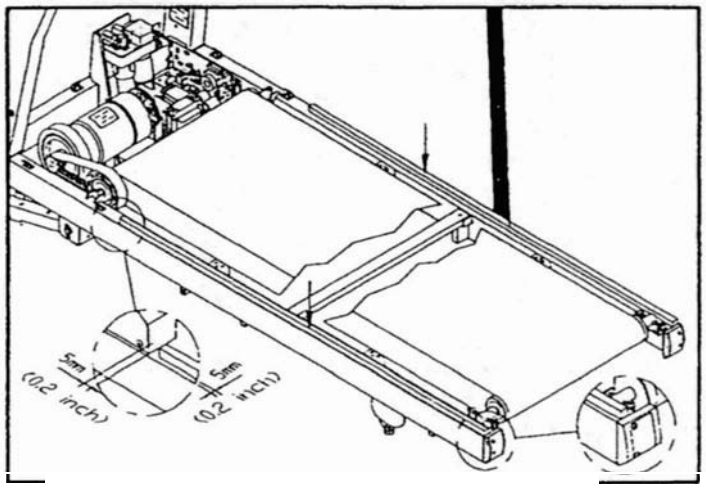


Fig.7

2. Stick two shorter cushions A (120 *m/m)* besides the front inner side of both full length cushions, and two shorter cushions B (260 *m/m)* to the rear inner side.

   Then, add one cushion B on the central of deck support. (see Fig. 8)

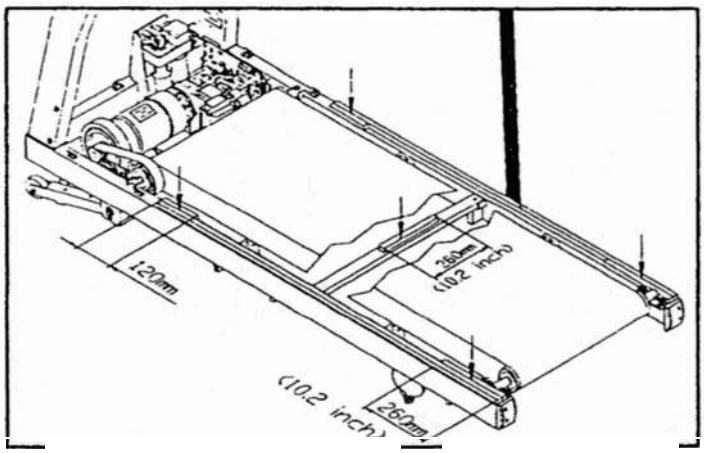


Fig.8

3. Replace the running deck.(see Fig.9)

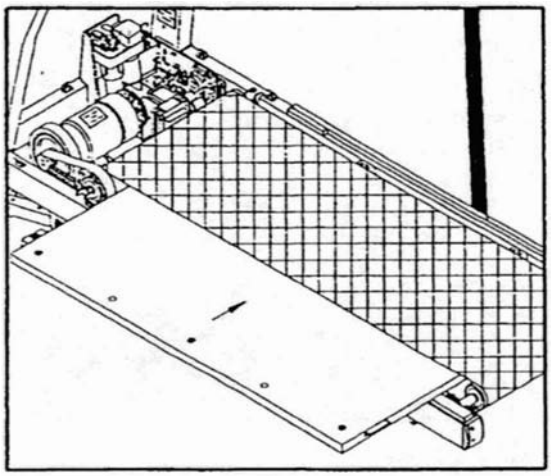


Fig.9

4.Tighten four screws with bushings. (see Fig.10)

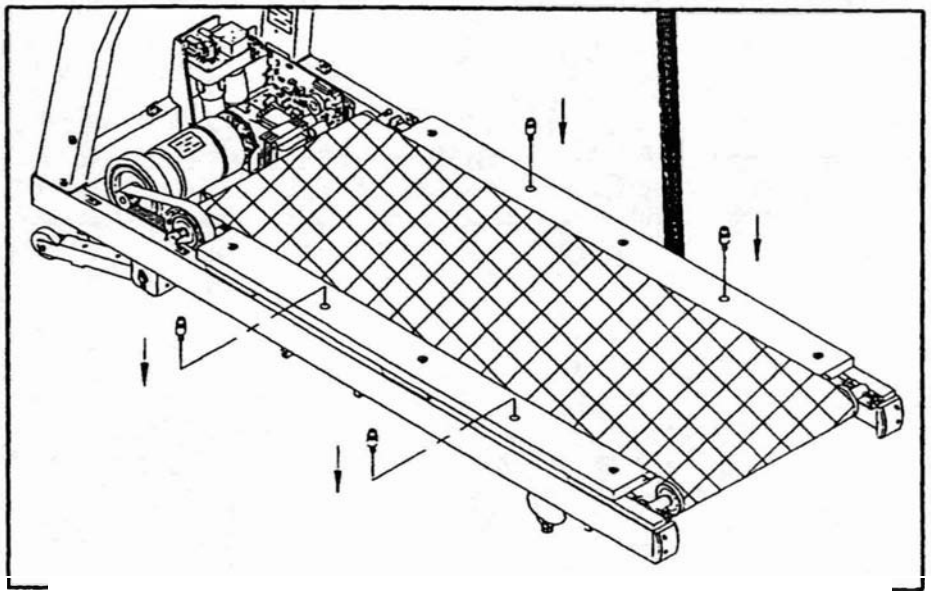


Fig.10

5.Secure the handlebars. (see Fig.11)

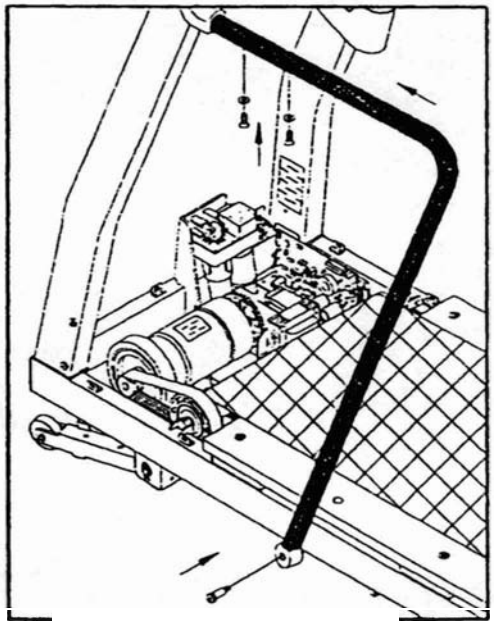


Fig.11

6. Place the staging platform.(see Fig.12)

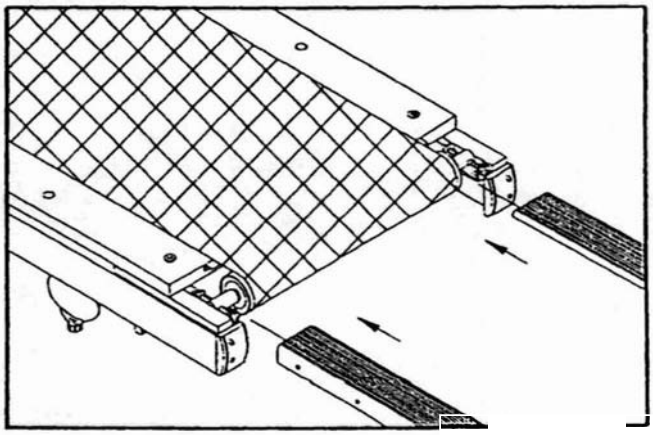


Fig.12

7.Then tighten all screws on both sides. (see Fig.13)

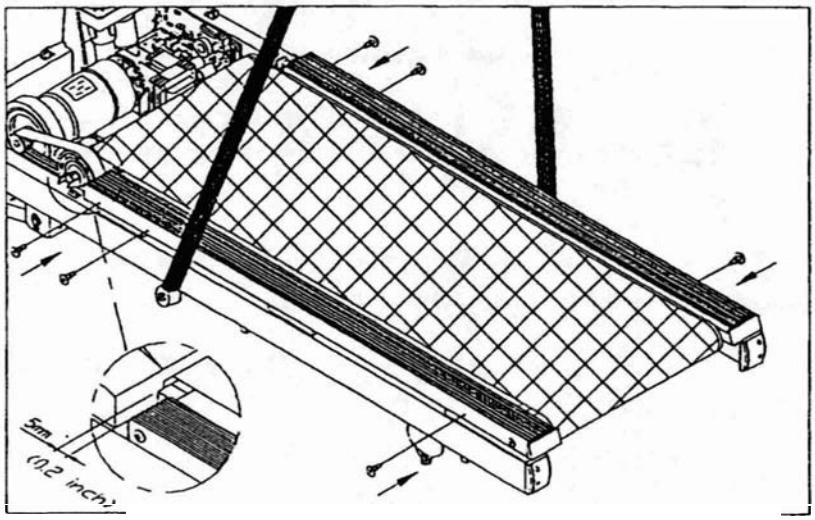


Fig.13

NOTE: The proper space between the front end of staging platform and the motor shroud is O.2inch *(5m/m)*.

RUNNING BELT STEP BY STEP REPLACEMENT

CAUTION: To avoid injury, special care must be taken when replacing or adjusting the running belt. Turn off the treadmill while adjusting or working near the rear roller. Remove any loose clothing or shoelace and tie back your hair. Be very careful to keep your fingers or any other object clear of the belt and rollers.

The treadmill is designed to carry specific weights at specific speeds. The treadmill will not stop immediately if an object becomes caught in the belt or roillers.

There may come a time when it is necessary to replace the running belt. Please follow up these steps exactly.

1.Remove the motor shroud.

2.Remove all screws securing the staging platform.(see Fig.1)

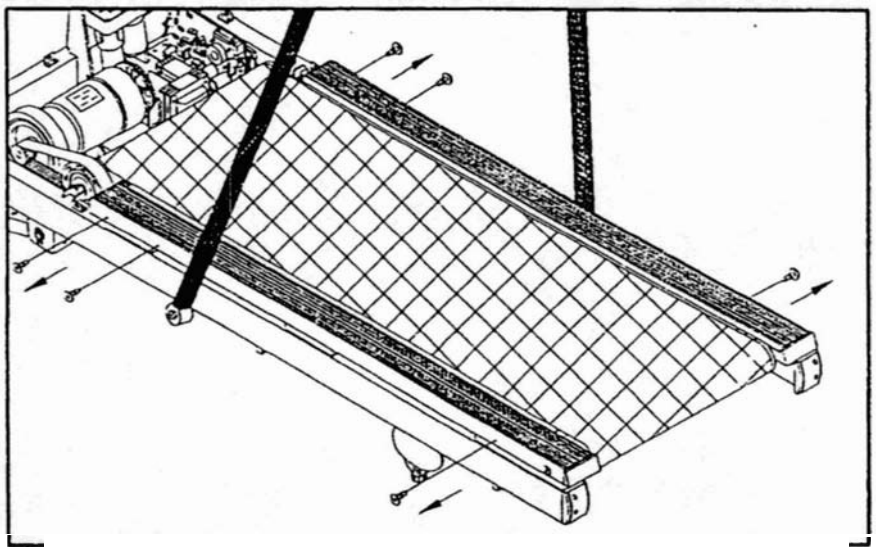


Fig.1

3.Slide the staging platform off from the rear end of the treadmill. (see Fig.2)

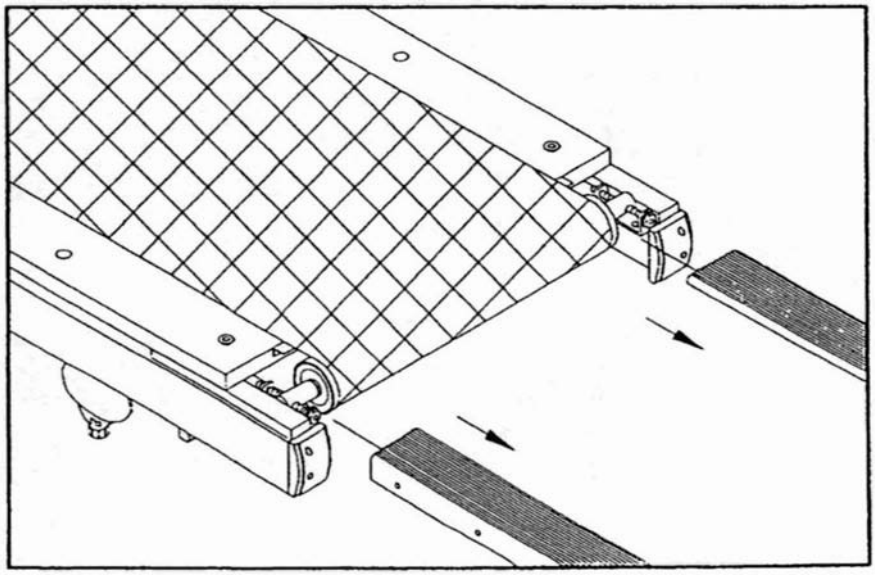


Fig.2

4.Loosen two screws securing the rear roller. (see Fig.3)

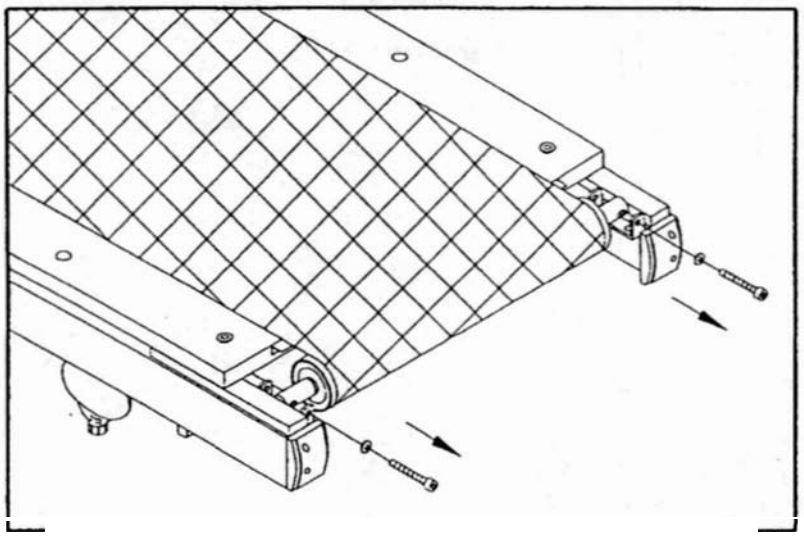
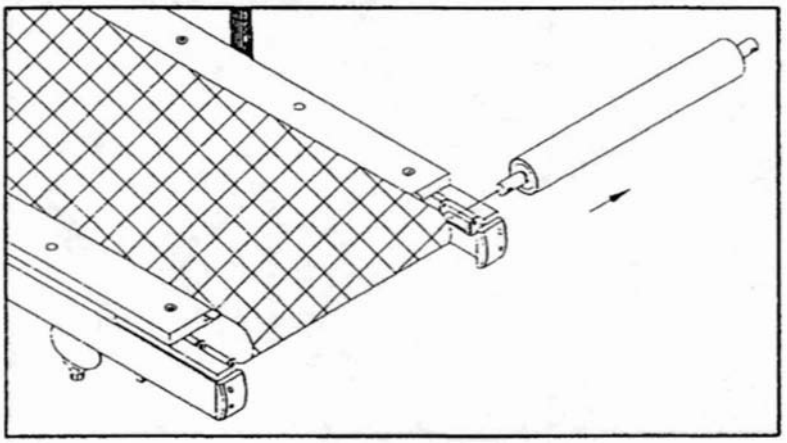


Fig.3

5.Remove the rear roller. (see FigA)



FigA

6.Loosen two screws securing the front roller. (see Fig.5)

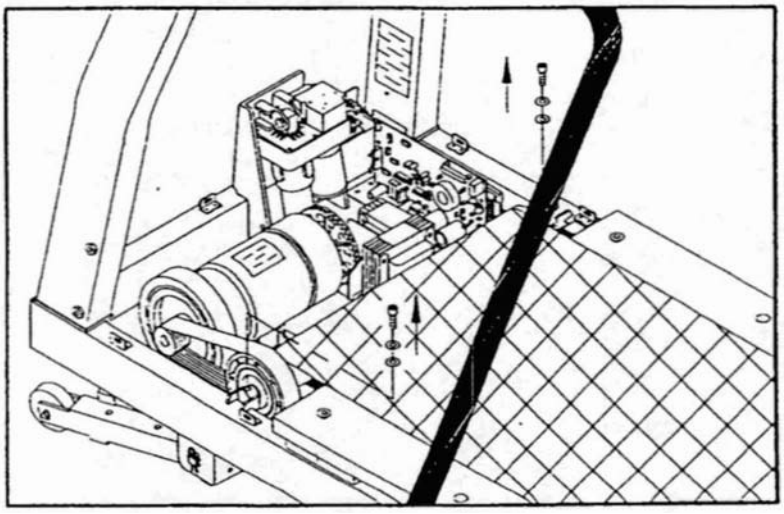


Fig.S

7.Remove the front roller from its bracket and slip from the running belt.(see Fig.6)

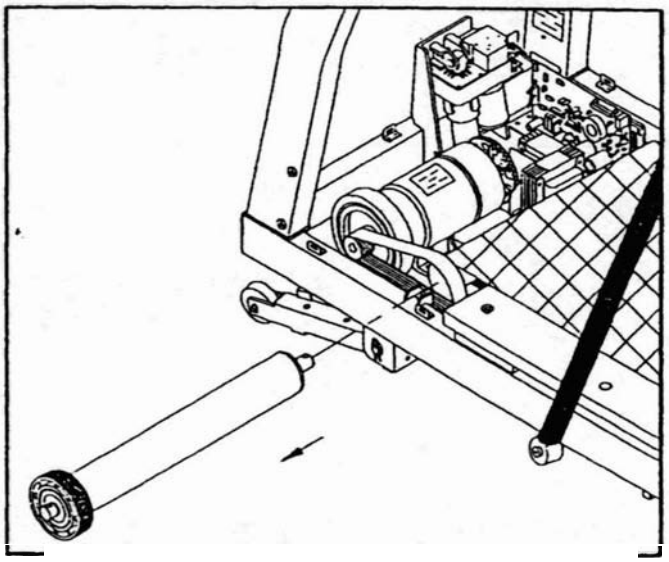


Fig.6

8.Loosen screws and remove one side of handlebars. (see Fig.7)

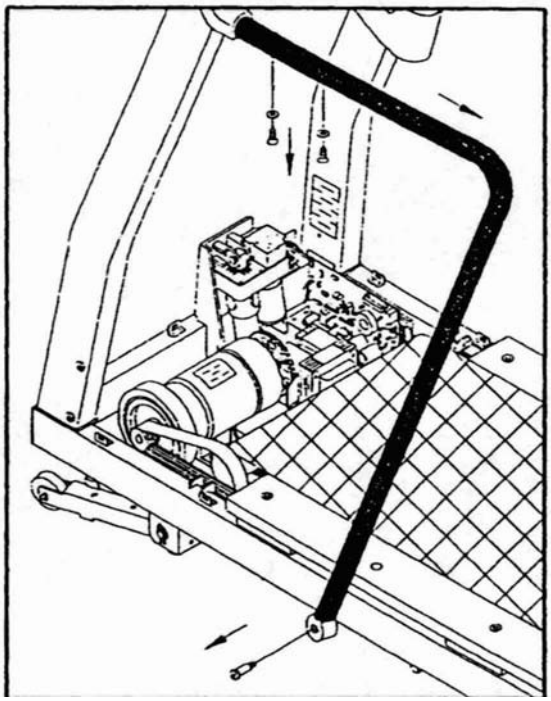


Fig.7

9.Remove four screws with bushings on the running deck. (see Fig.8)

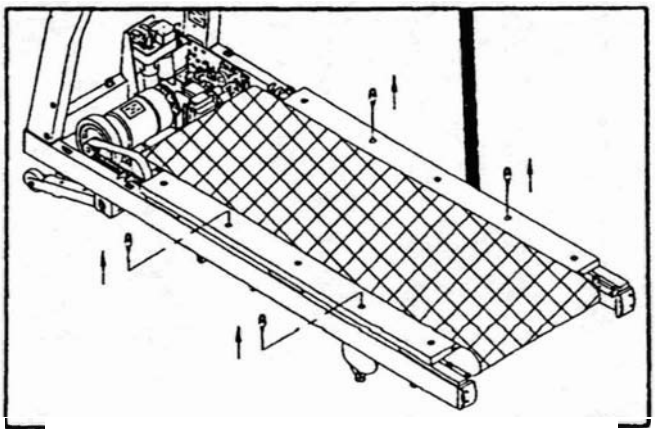


Fig.8

10. Slide the running deck out and put it aside.(see Fig.9)

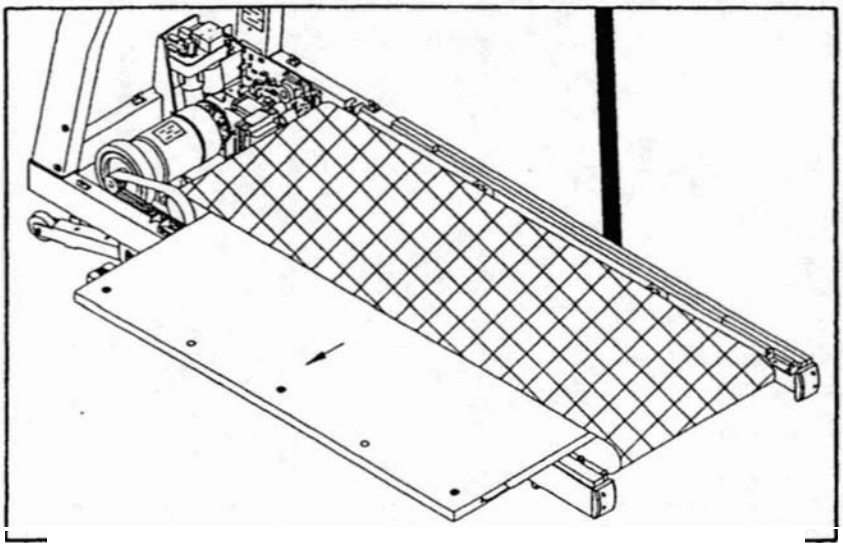


Fig.9

11. Unscrew and remove the deck support. (see Fig.10 - 11)

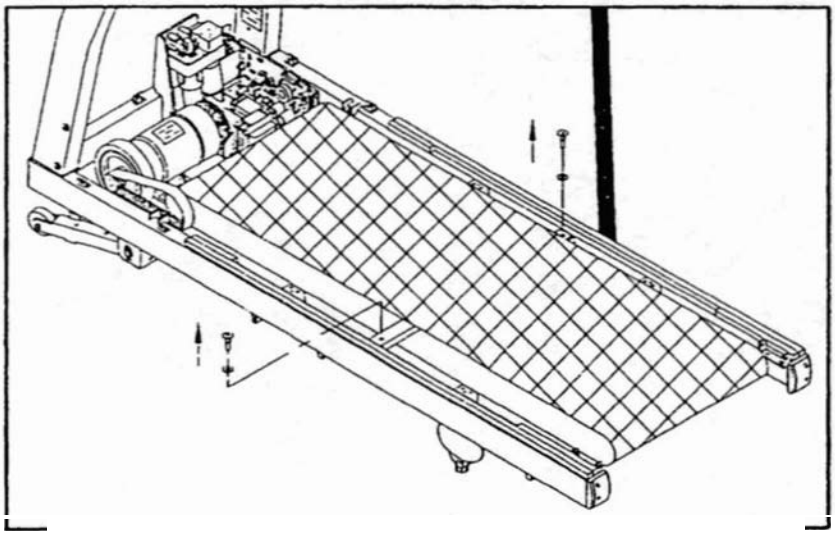


Fig.10

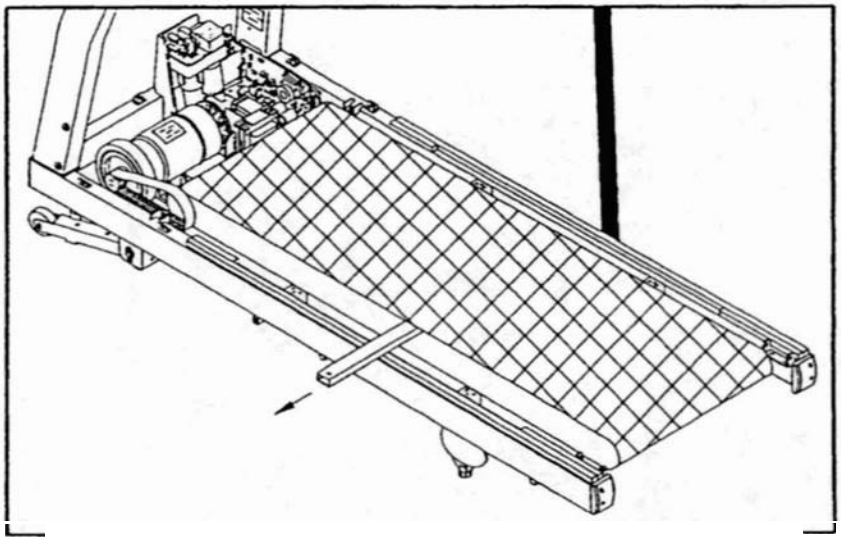


Fig.11

12. Remove the running belt. (see Fig.12)

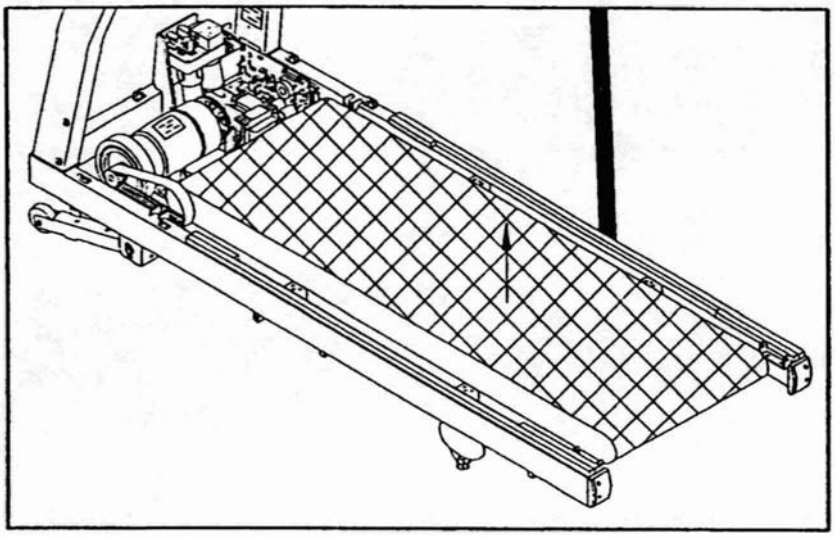


Fig.12

To install:

1. Place new running belt. (see Fig.13)

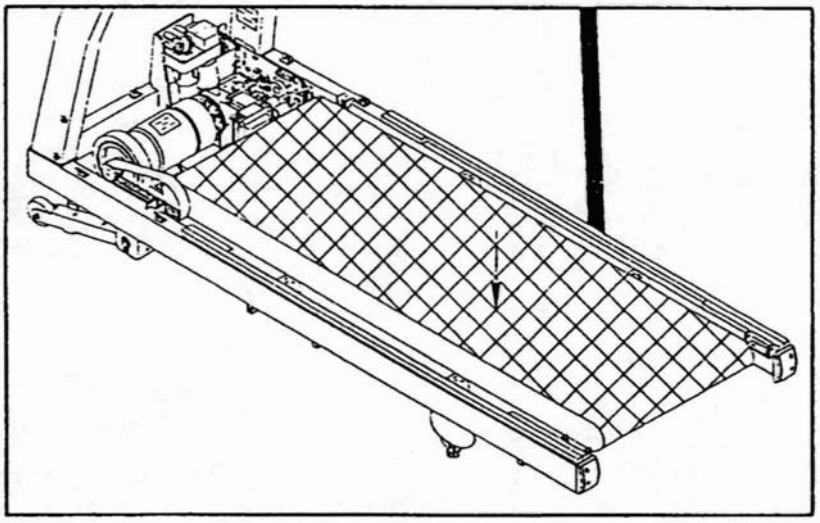


Fig.13

2. Tighten deck support steel with two screws. (see Fig.14-15)

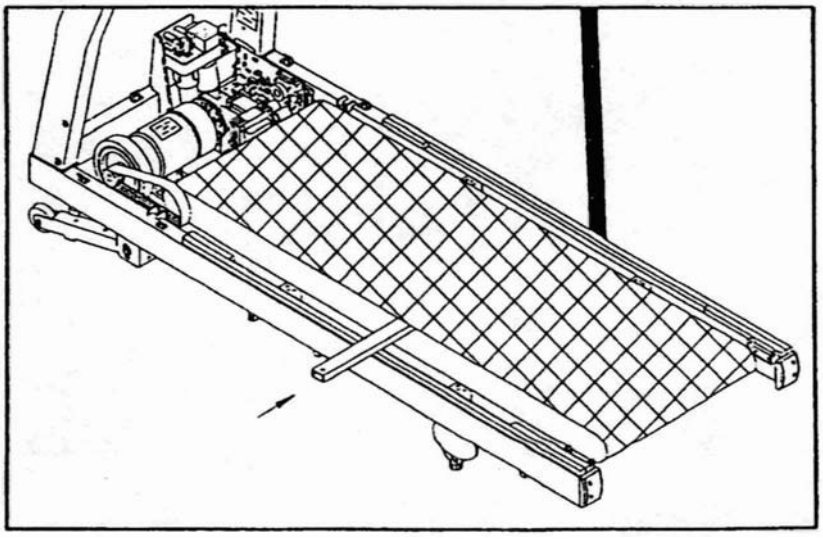


Fig.14

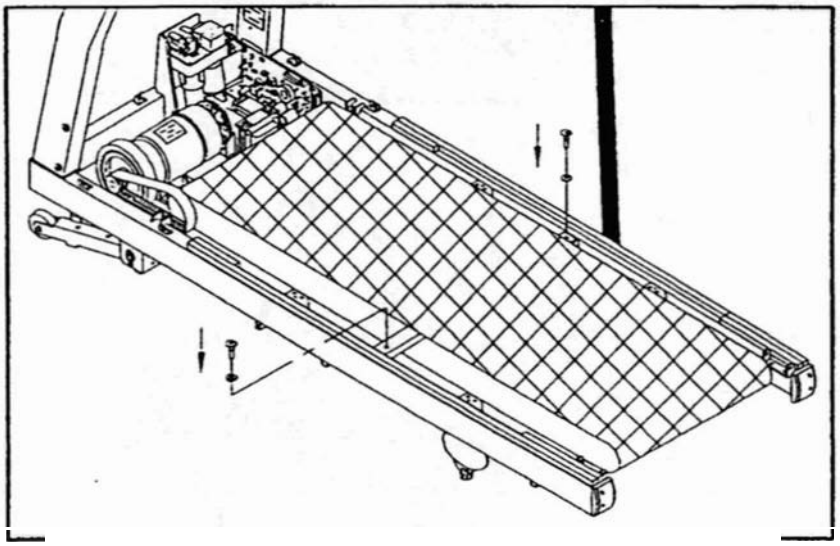


Fig.15

3. Slide the running deck back into place. (see Fig.16)

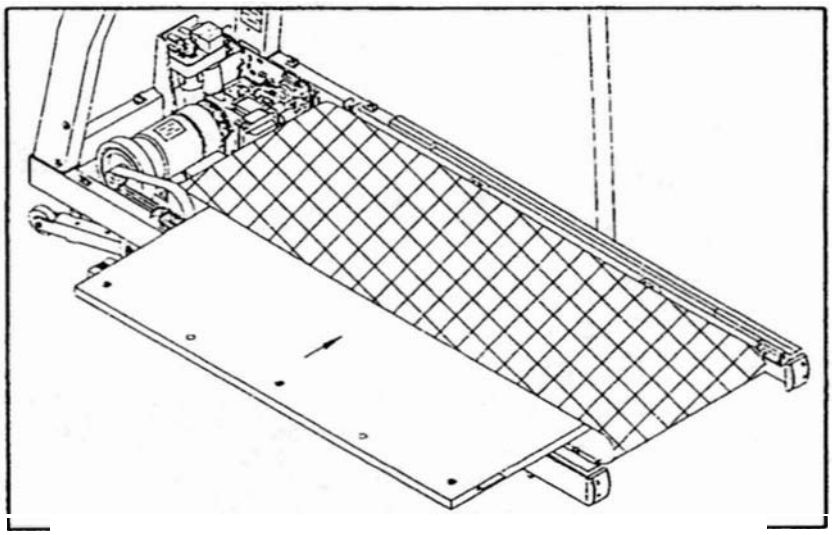


Fig.16

4. Secure all screws with bushings. (see Fig.17)

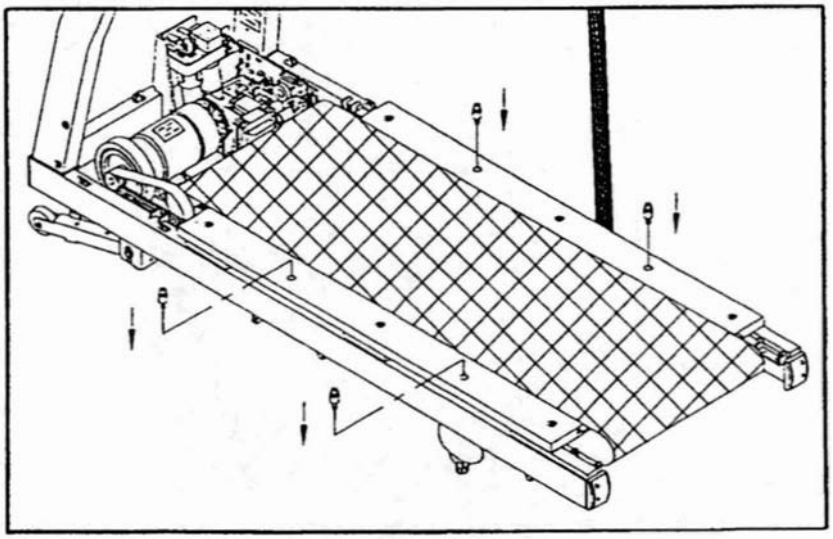


Fig.17

5. Install handlebars and tighten all screws. (see Fig.18)

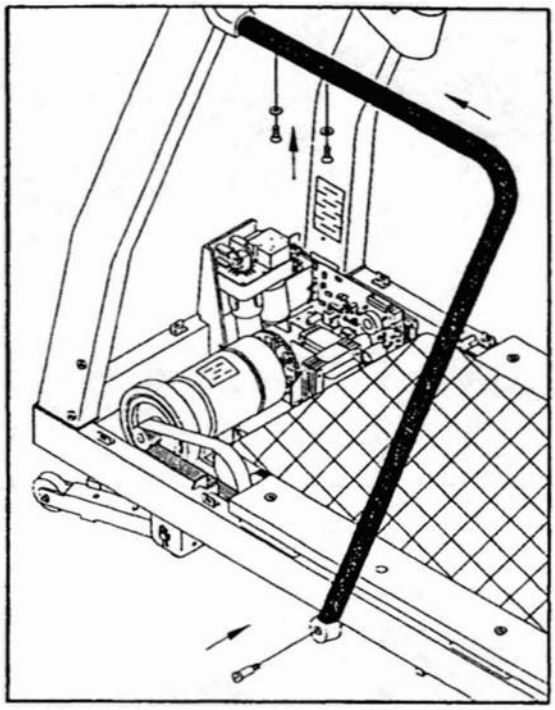


Fig.18

6. Place the front roller into its bracket. Secure with screws and washer on the front roller. DO NOT TIGHTEN YET. Also make sure the running belt is inside the belt alignment roller. (see Fig.19-20)

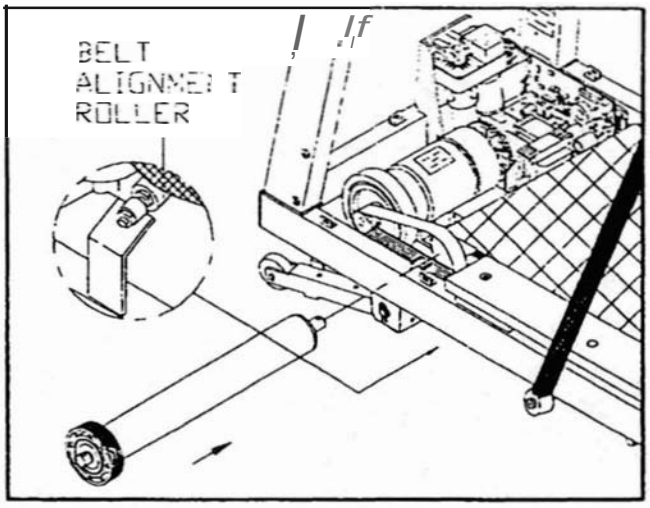


Fig.19

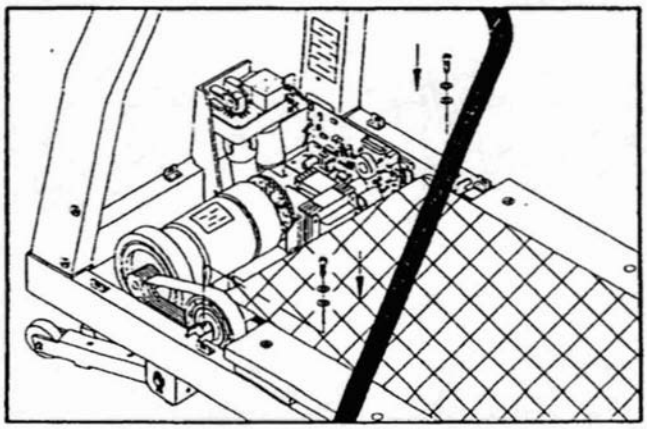


Fig.20

7. Place the rear roller. (see Fig.21)

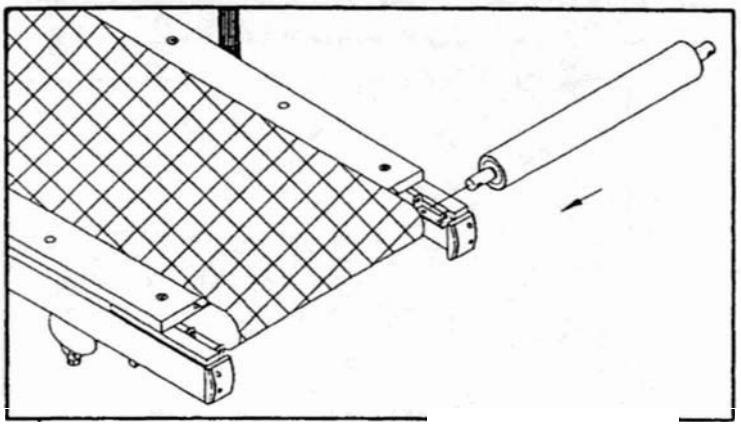


Fig.21

8. Place poly-V belt onto the motor pulley. then tighten the front roller screws at this moment.

Place the poly-V belt onto the bigger pulley first, slowly adjust the poly-V belt back into its place. Make sure the notch of the poly-V belt is in the pulley grooves properly.

Move the Poly-V belt onto the smaller cast iron pulley. Turn the pulley slowly until belt slides into pulley grooves completely. (see Fig. 22)

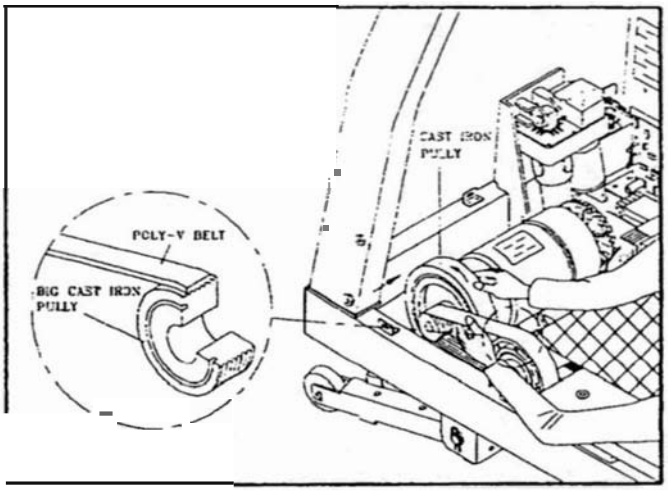


Fig.22

CAUTION: Make sure the notch of poly-V belt is in the pulley groves or it could cause machine noise.

9. Tighten adjustment screws on the rear roller. (see Fig.23)

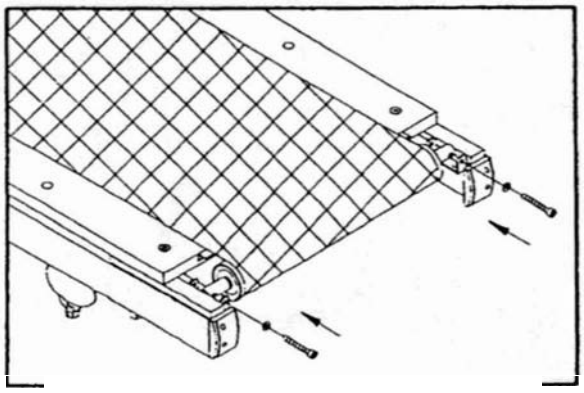


Fig.23

10. Replace the staging platforms. Leave 0.5mm (0.2 inch) space between the motor shroud and the front end of staging platforms. Tighten all screws on both sides (see Fig.24-25). Secure the motor shroud.

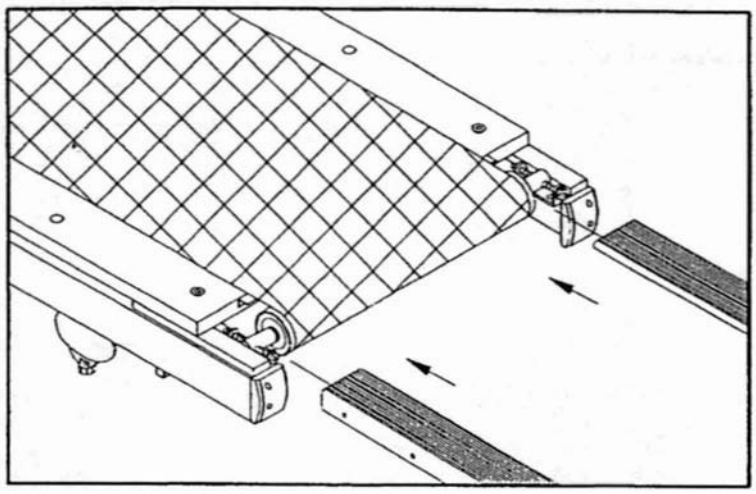


Fig.24

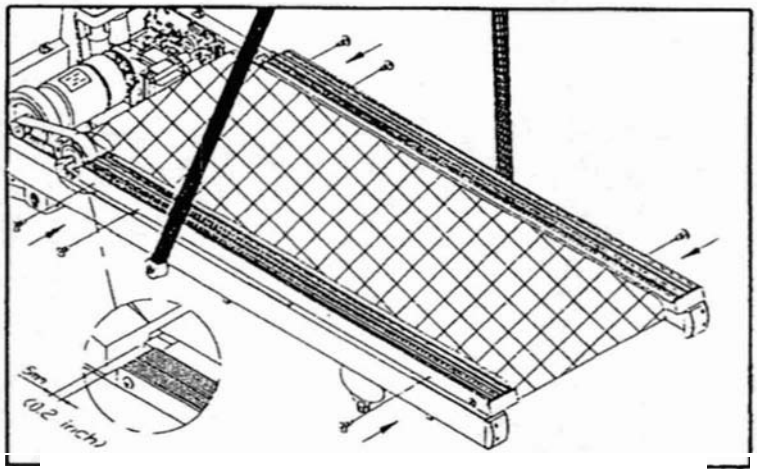


Fig.25

NOTE: The proper space between the front end of staging platform and the motor shroud is 0.2 inch *(5m/m)*.

Correct tension of running belt and brief examination of belt alignment:

1. Check the correct tension of the belt, grab the belt in the middle portion of both sides, and lift belt up about 15mm(5/8 inch) or 3 - 5 kgs (6.6-11 pounds) of force.(see Fig.27-28)

2.If there is too loose, you can tighten the belt by adjusting both bolts on rear roller colockwise 1/2 turn at one time. Conversely, if the belt is too tight, adjust both bolts counterclockwise 1/2 turn at one time.(see Fig.26)

3. After you finish all installation, keep the treadmill running at 2MPH (3.3KPH) for several minutes to make sure everything works well.

4. To make sure the running belt is aligned properly after you replace the running belt, please check the color gauge on the front of motor shroud. The left edge of the running belt should be in the middle of the green section (safety zone). If the belt edge is in the red zone (either in the left or right), this could damage the entire treadmill.(see Fig.29) Please refer to belt alignment on page 87 for more information.

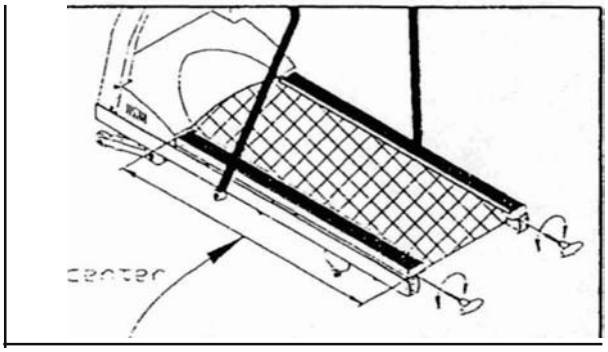


Fig.26

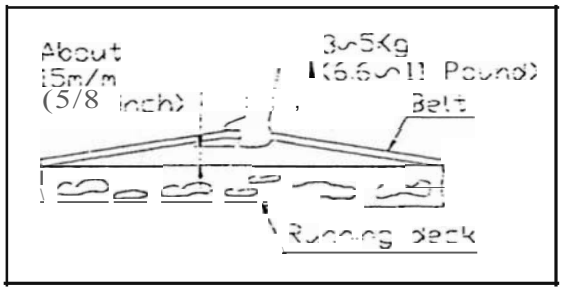


Fig.28

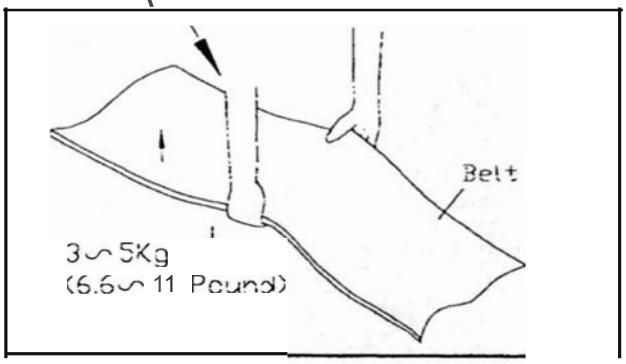


Fig.27

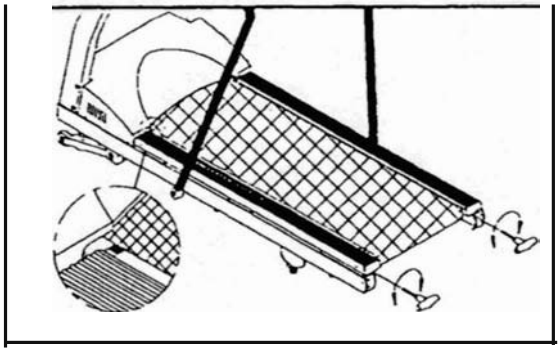


Fig.29

INCLINE SYSTEM GEAR REMOVAL AND INSTALLATION PROCEDURE

VVhen there is abnormal noise in the incline system, maybe there is something wrong with the gear. **The** gear should be replaced.

1. Remove the motor shroud.. (see Fig.1)

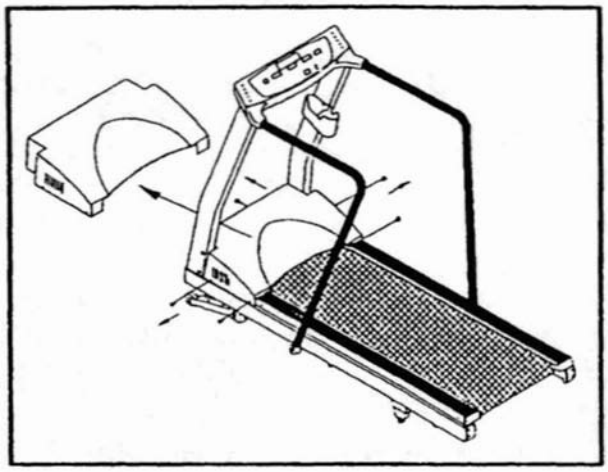


Fig.1

2. Put an object under the machine to raise the front of equipment. (see Fig.2)

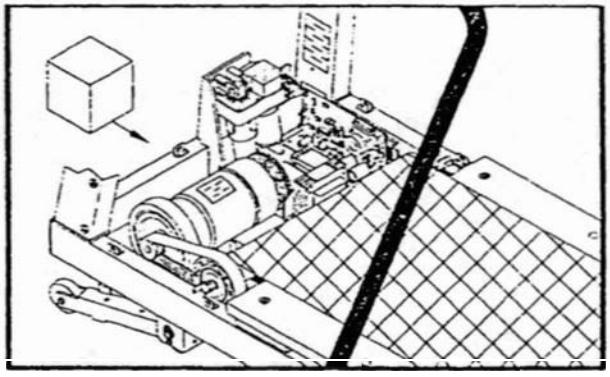


Fig.2

3. Remove the top cover and unplug all terminals from elevation unit. (See Fig.3)

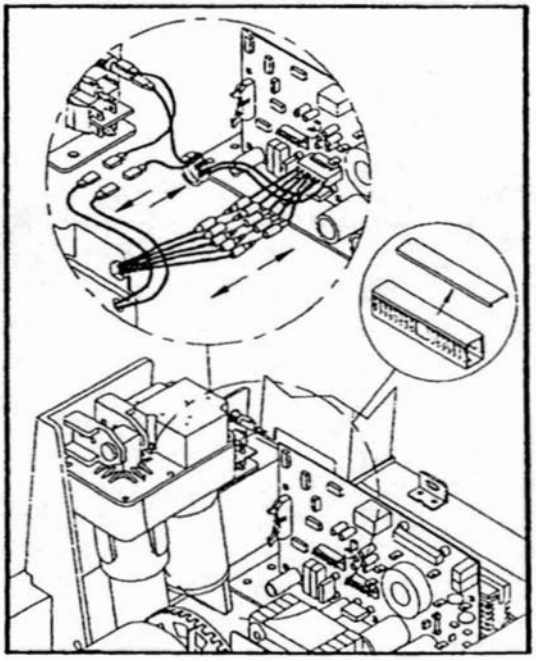


Fig.3

4. Use a pointed pliers to pull out the clip under the equipment and remove the pin securing the elevation unit. (See FigA)

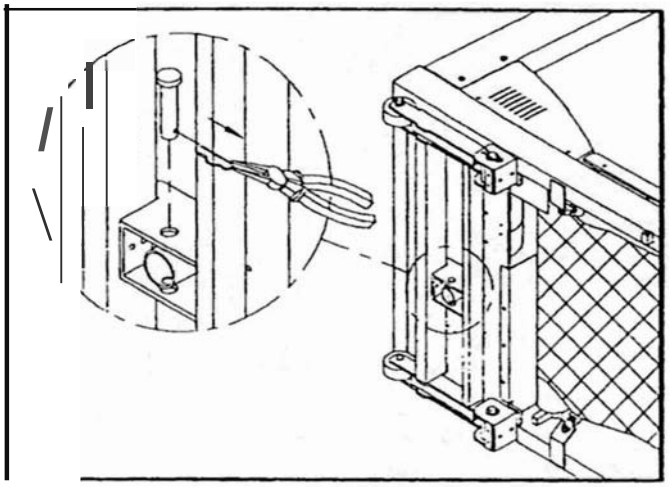


Fig.4

5. Use a pointed pliers to pullout the clip and remove the pin securing the top base of elevation unit. (See Fig.5)

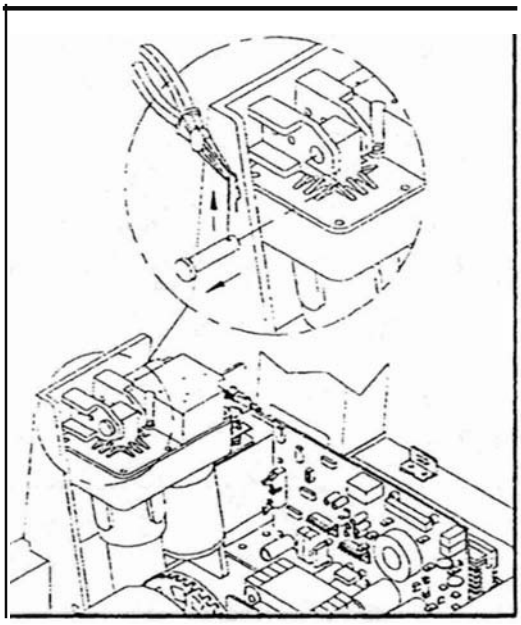


Fig.5

6. Take the elevation unit out of the machine. (See Fig.6)

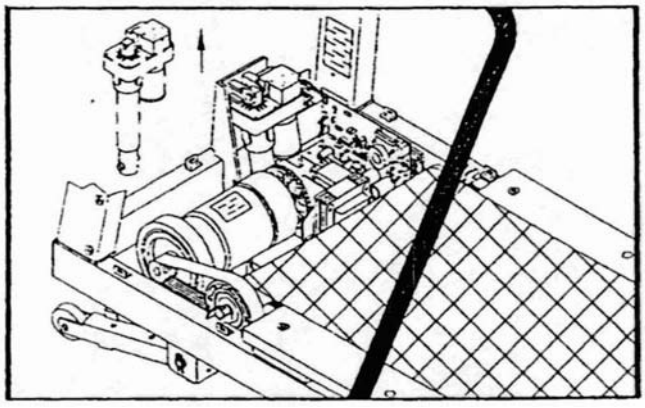


Fig.6

? Unscrew and remove the VR unit. (See Fig.?)

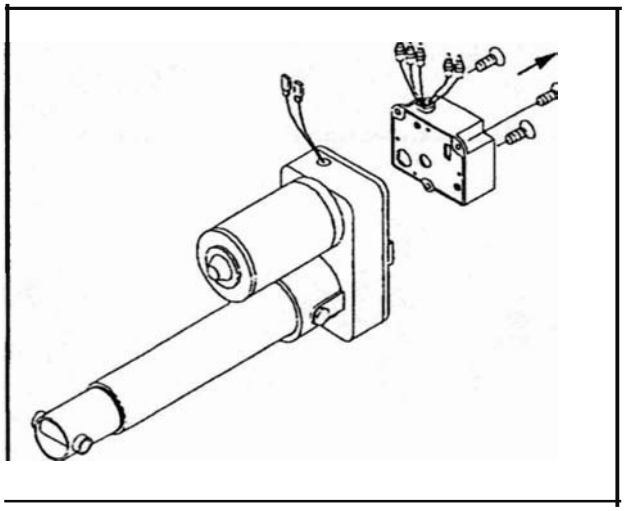


Fig.?

8. Unscrew and remove the top base of the elevation unit. (See Fig.8)

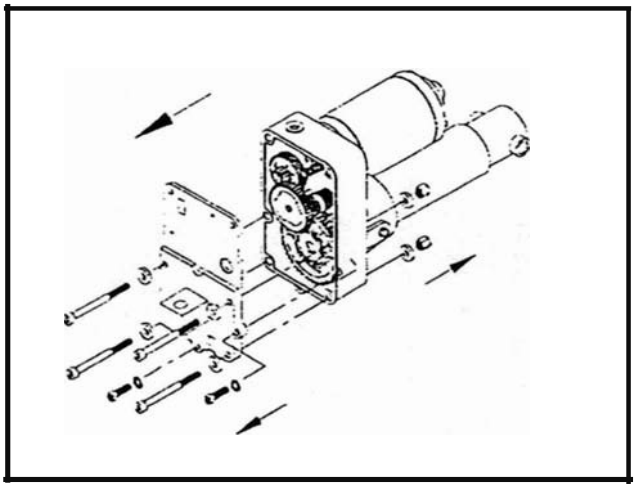


Fig.8

Install:

1. Replace one new gear. (See Fig.9)

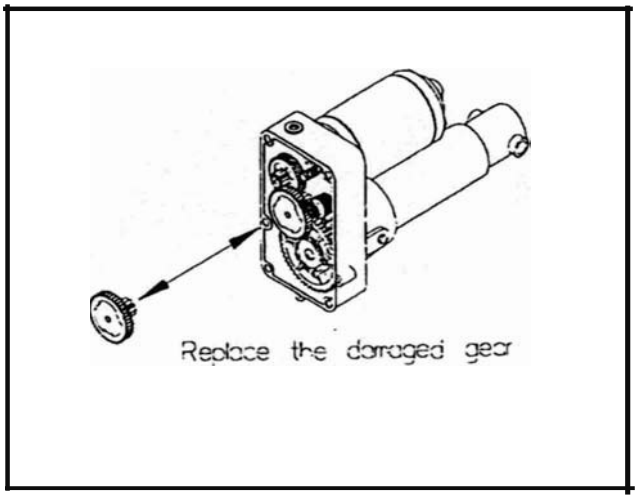


Fig.9

2. Place the top base of the elevation unit and tighten all screws. (See Fig.10).

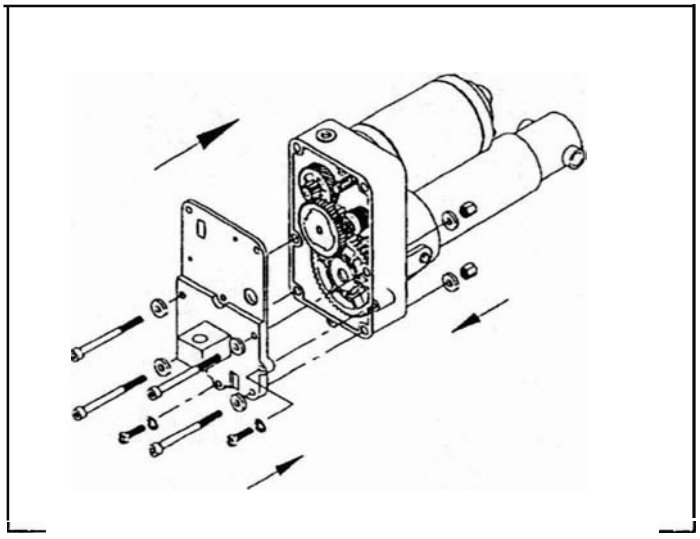


Fig.10

3. Tighten the VR unit. (See Fig.11)

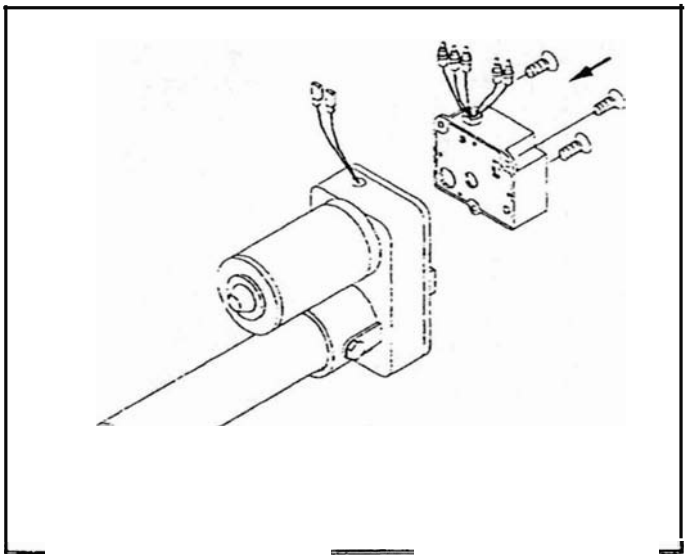


Fig.11

4. Plug all wires into respective terminals according to their colors. (See Fig.12)

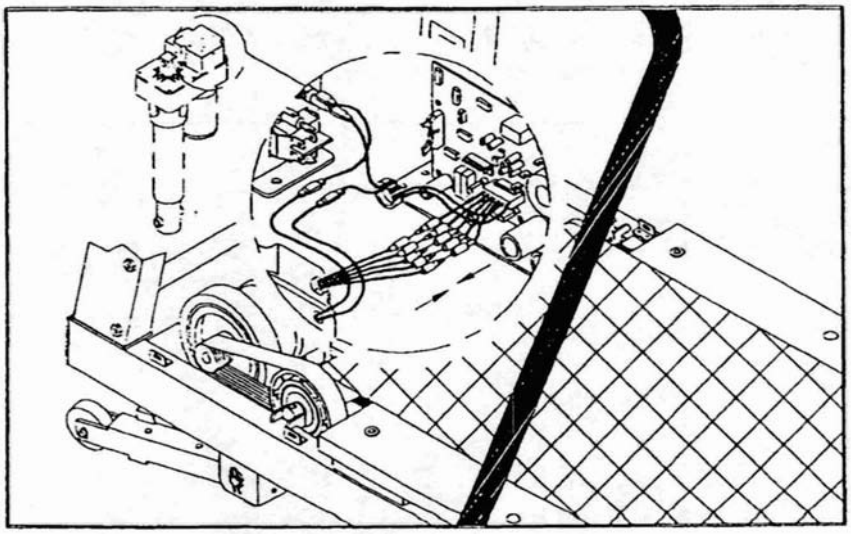


Fig.12

5. Plug the power cord to the outlet. Tum on the treadmill and press "INCLINE ▼" or "INCLINE ▼" to lift up 3%. Then press "INCLINE ▼" to come down 0%. (See Fig.13)

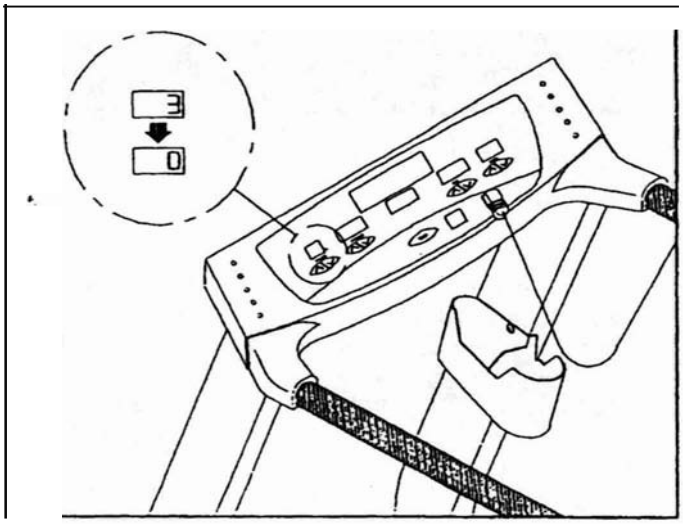


Fig.13

6. Rotate the interior tube of elevation unit until the mark line gets match with the edge of outer tube. (See Fig.14)

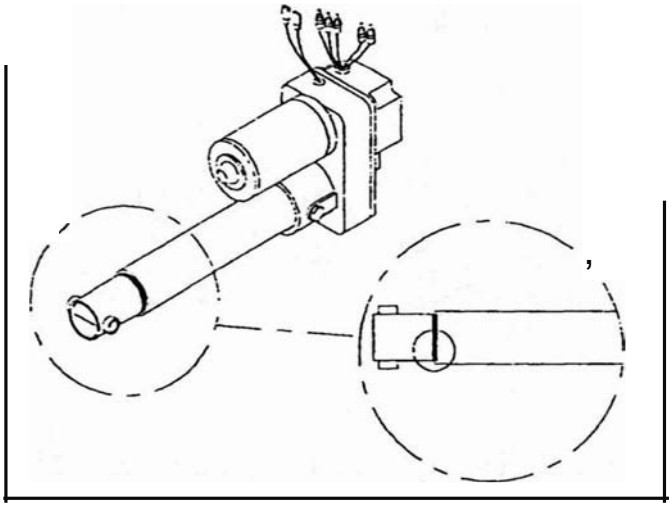


Fig.14

7. Install elevation unit on its place. Insert all wires coming from elevation unit into box. Then put back the cover. (See Fig.15)

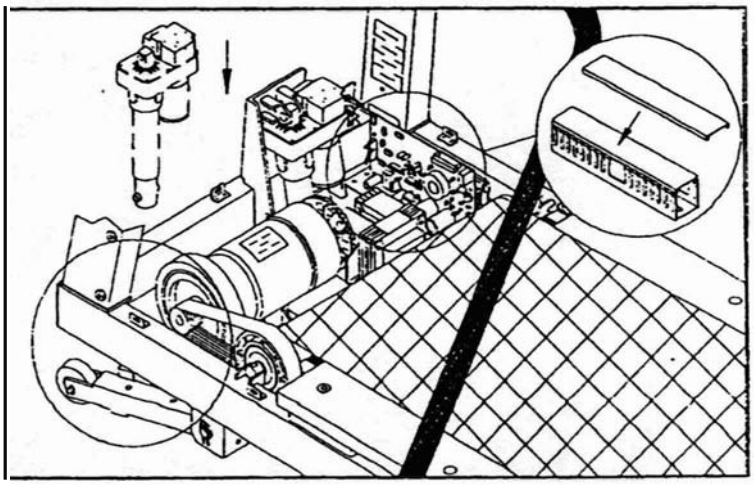


Fig.15

8. Insert the locking pin on the top base of elevation unit. Secure the pin in place with clip. (See Fig.16)

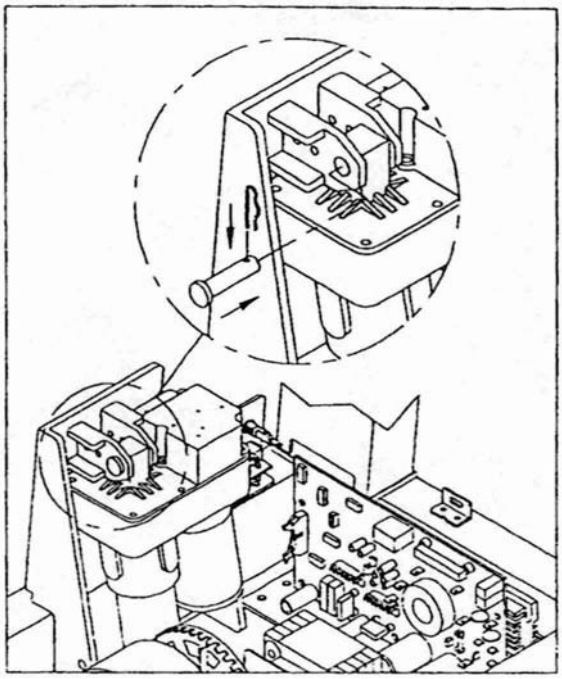


Fig.16

9. Insert the locking pin under the equipment. And secure the pin in place with clip. (See Fig.16)

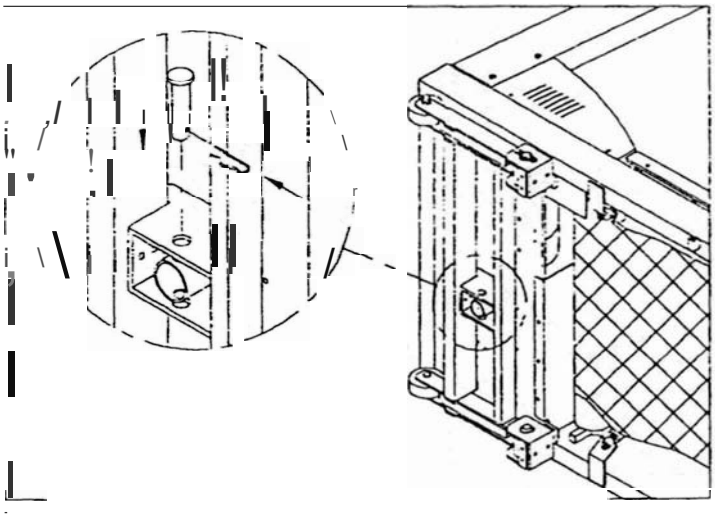


Fig.17

10. Remove the object that you use it to raise the equipment. (See Fig.18)

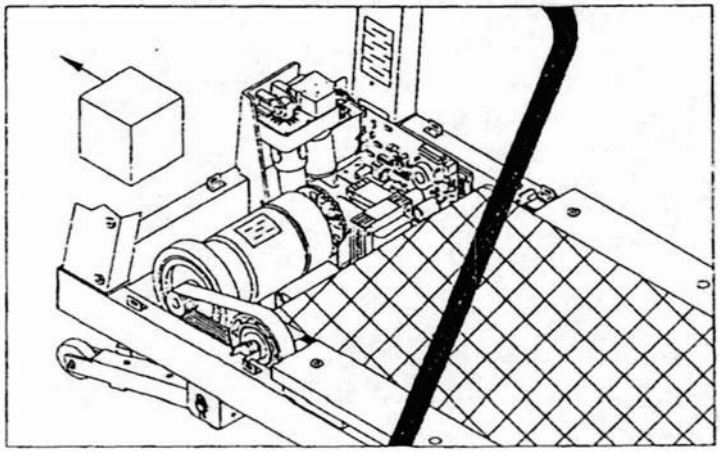


Fig.18

11 . Tighten the motor shroud. (See Fig.19)

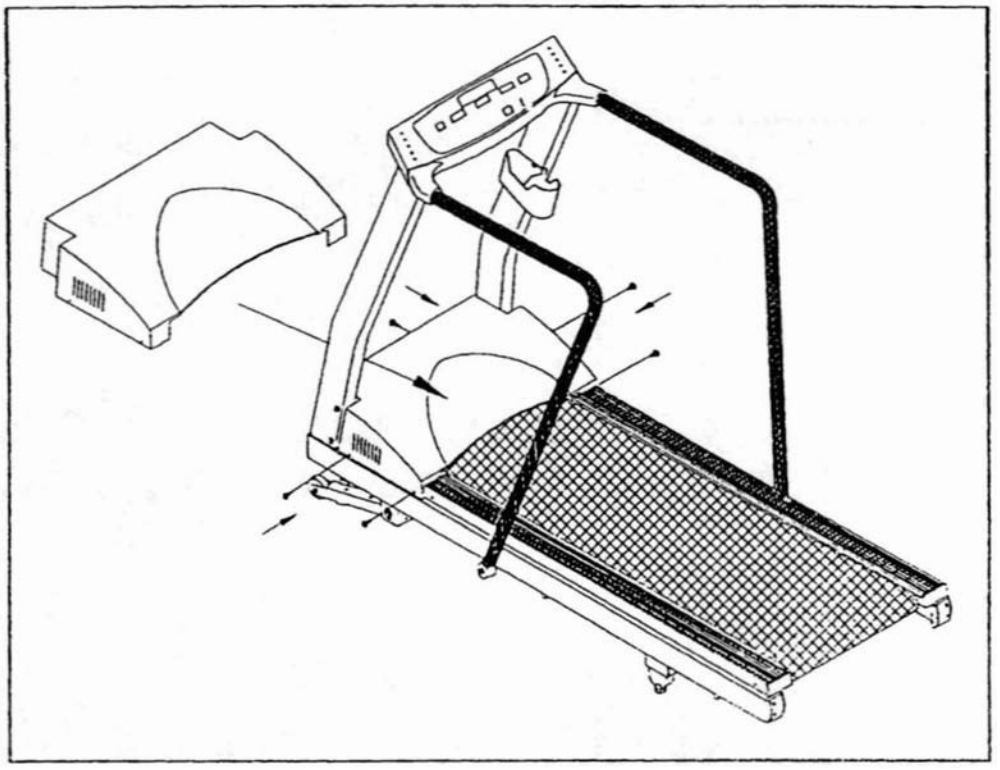


Fig.19

POWER SWITCH REMOVAL AND INSTALLATION PROCEDURE

1. Find the power switch located at the front of the treadmill frame.

2. Unplug the two wires on the bottom of the switch socket and the two wires on the top of the switch socket. Then press to remove the power switch from its bracket (see Fig.1).

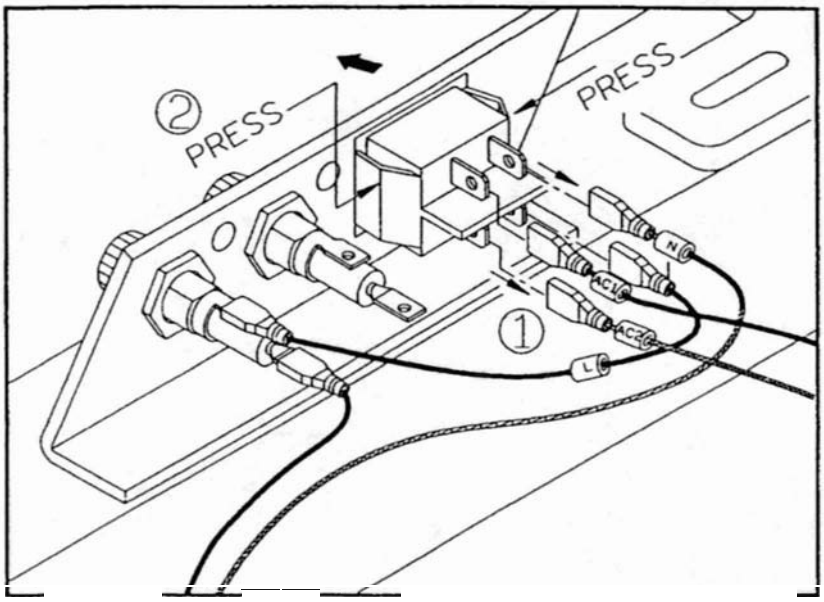


Fig.1

3. Insert a new power switch into the switch bracket.

4. Connect the two wires (L) to the bottom two switch sockets. Then connect the two wires (N) to the top two sockets (see Fig.2). Make sure the wires are properly connected.

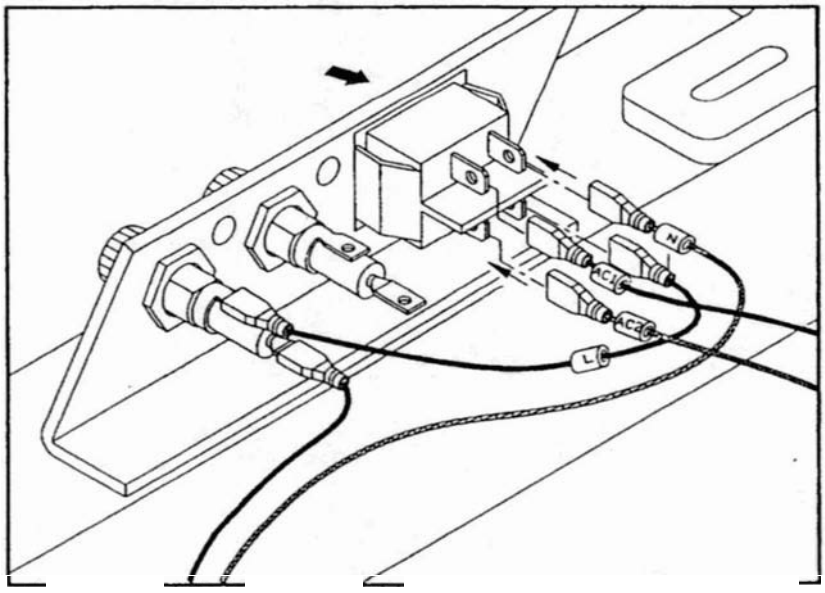


Fig.2

3. Put one new large resistor in place and connect the cable of the large resistor to the drive board. (see Fig.4)

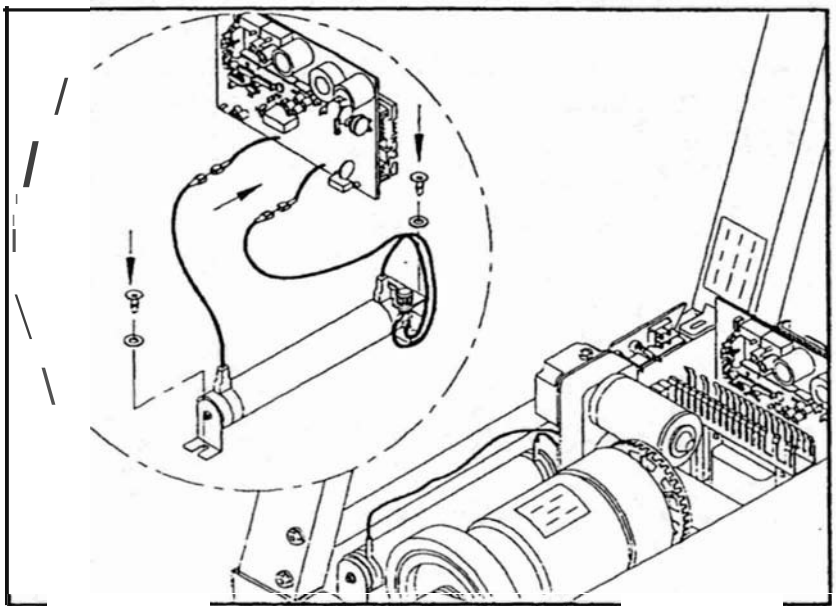


Fig.4

4. Replace the protective shroud. Replace the motor shroud and secure with the screws. (see Fig.5)

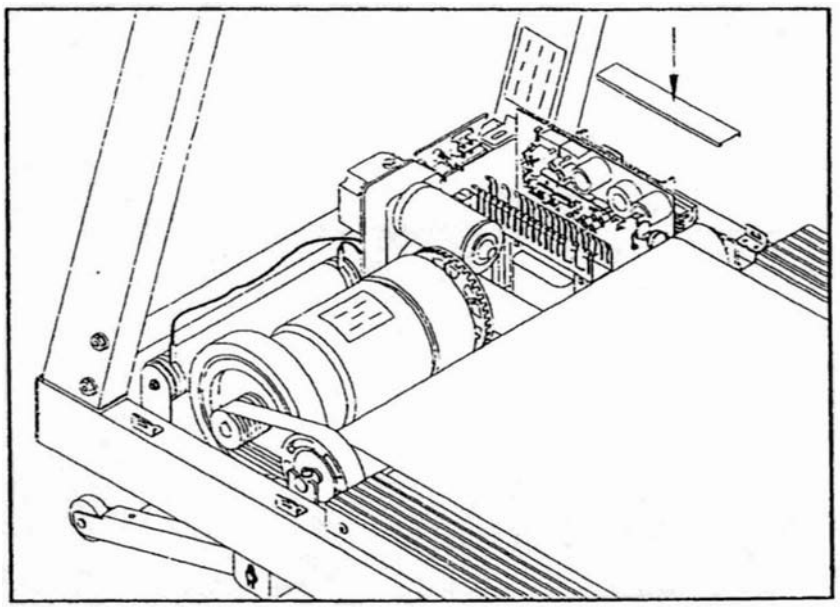


Fig.5

LARGE RESISTOR REMOVAL AND INSTALLATION PROCEDURE

1. Unscrew the motor shroud. and remove the protective shroud. (see Fig.1.2)

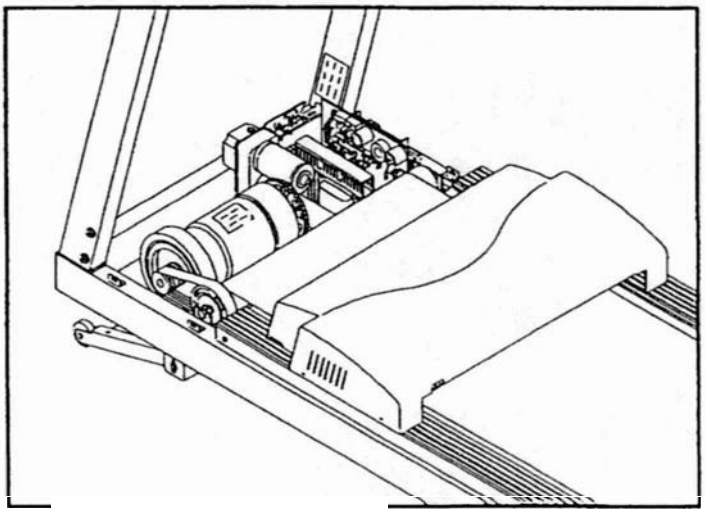


Fig.1

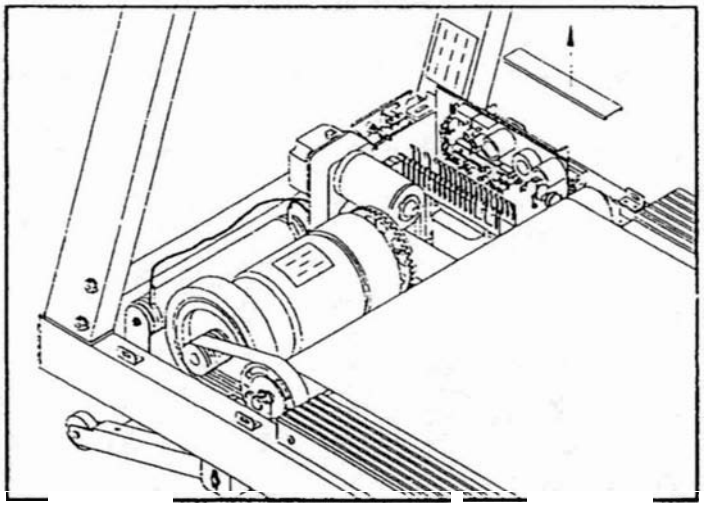


Fig.2

2. Disconnect the large resistor cable from the drive board, and remove the large resistor. (see Fig.3)

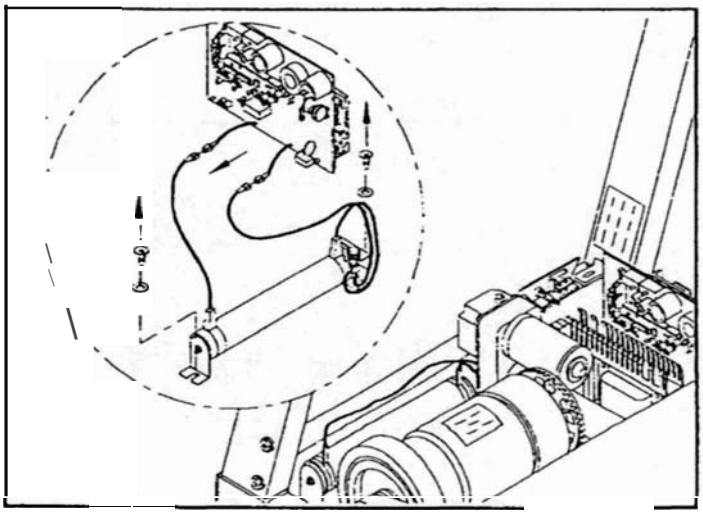


Fig.3

4. Plug all wires into their respective terminals. Then remove the sticker holding the inner elevation tube in place. (see Fig.7,8)

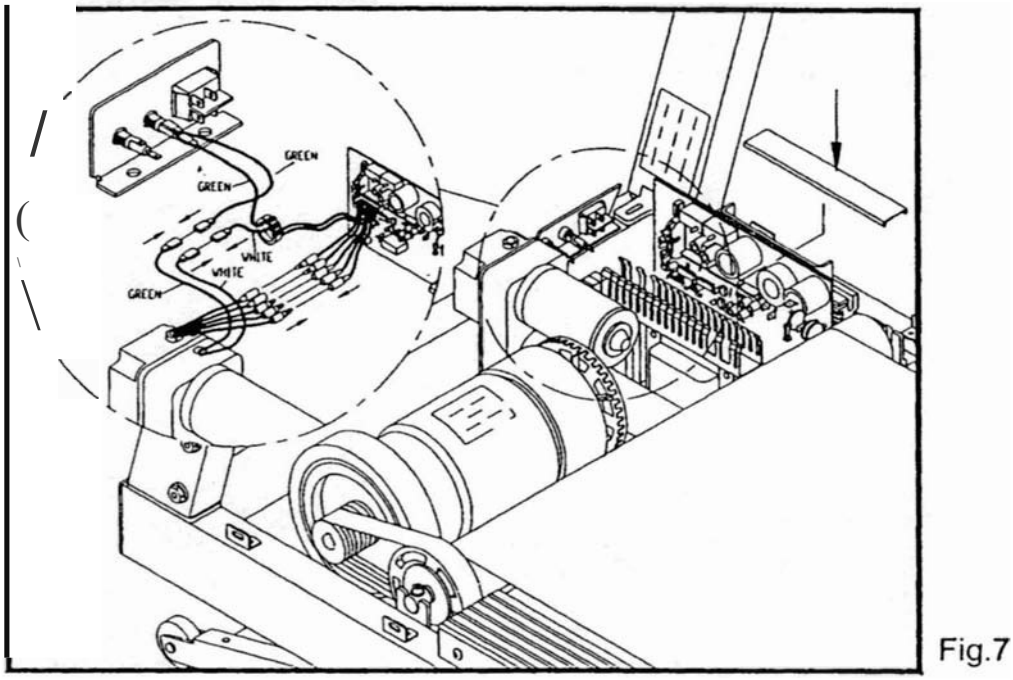


Fig.7

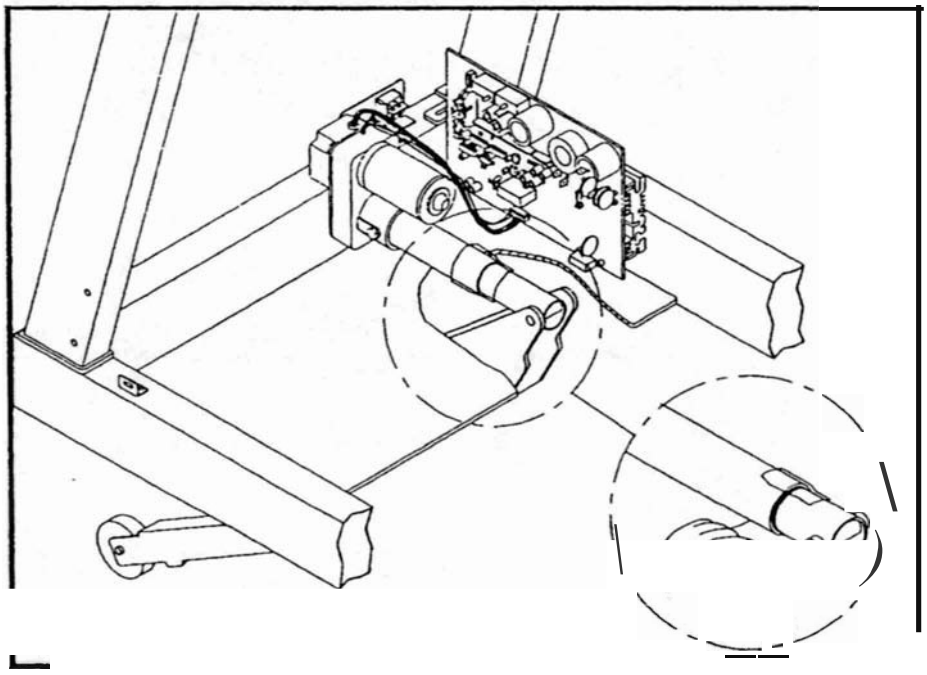


Fig.8

5. Remove the object you used to raise the treadmill, then replace the protective shroud.

6. Replace the motor shroud and secure with the screws.

4 PIN CABLE ON THE OPTICAL SWITCH REMOVAL AND INSTALLATION PROCEDURE

1. Disconnect the 4 pin cable from the optical switch to the drive board and replace a new one. (see Fig.1 or Fig.2)

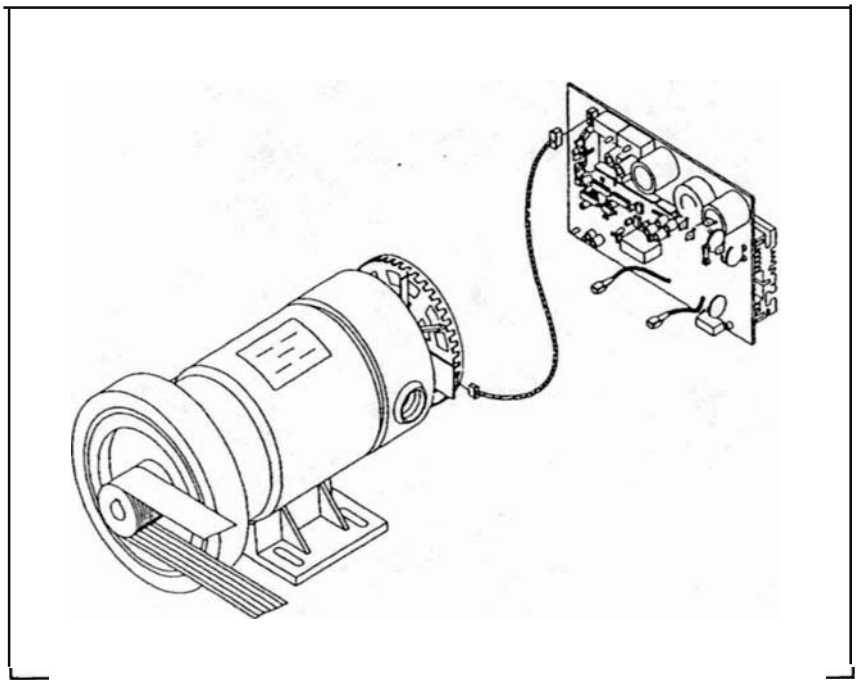


Fig.1

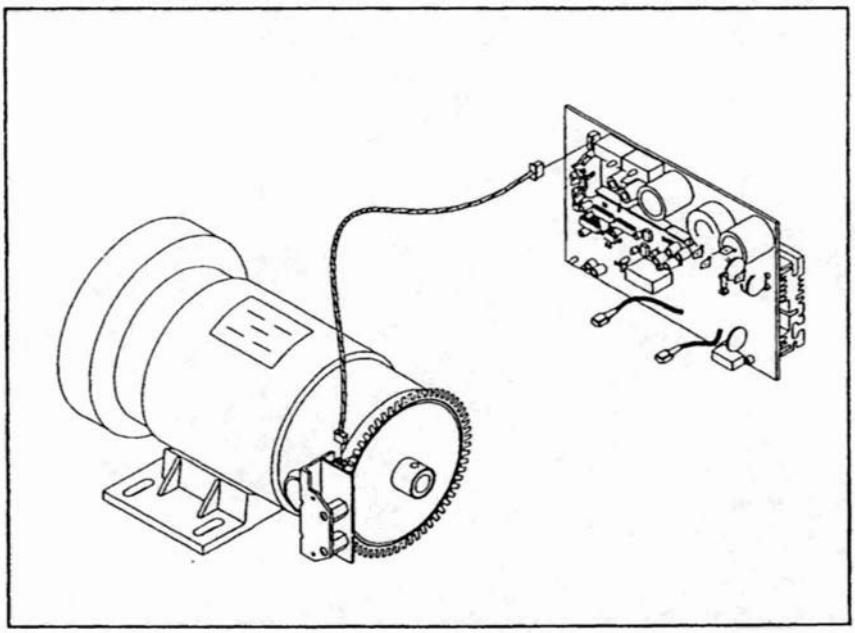


Fig.2

FUSE ON THE LARGE RESISTOR REMOVAL AND INSTALLATION PROCEDURE

1. Remove the fuse and replace with a new one. (see Fig.1)

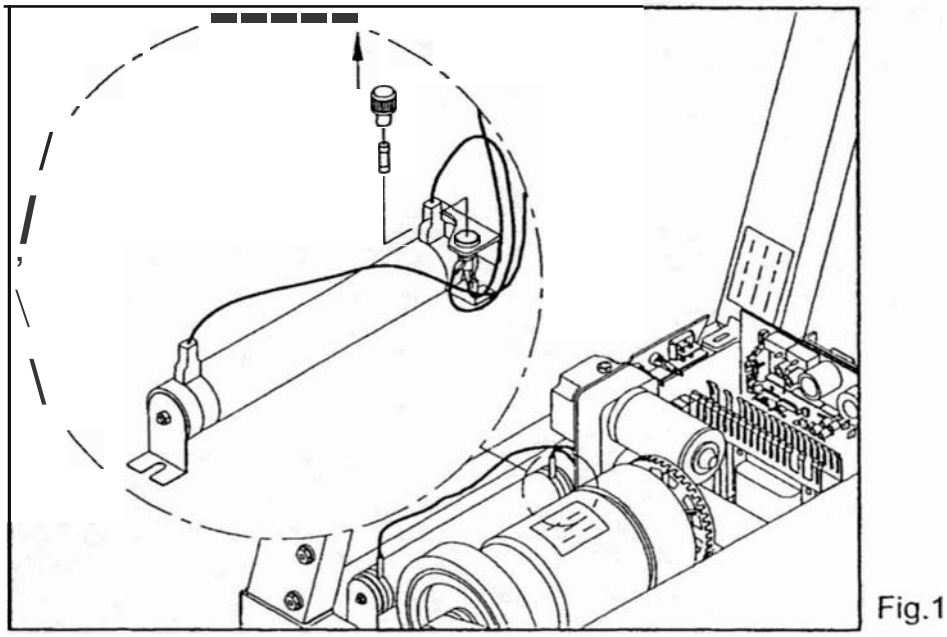


Fig.1

HOW TO DETERMINE IF THE DC MOTOR IS DAMAGED

If, after you have replaced the fuses and the treadmill functions well while no one running on it. But when someone is running on the treadmill, the fuse continue to blow, the DC motor may be damaged. Then, you need a DC voltage meter to check the capacitor voltage. Please see below steps.

1. Please remove the motor shroud.

2. CAUTION: Keep the machine running during this procedure. Take extreme care.

   a. Set the speed at maximum speed. Set the DC voltage meter to DCV 200 (see Fig.1)

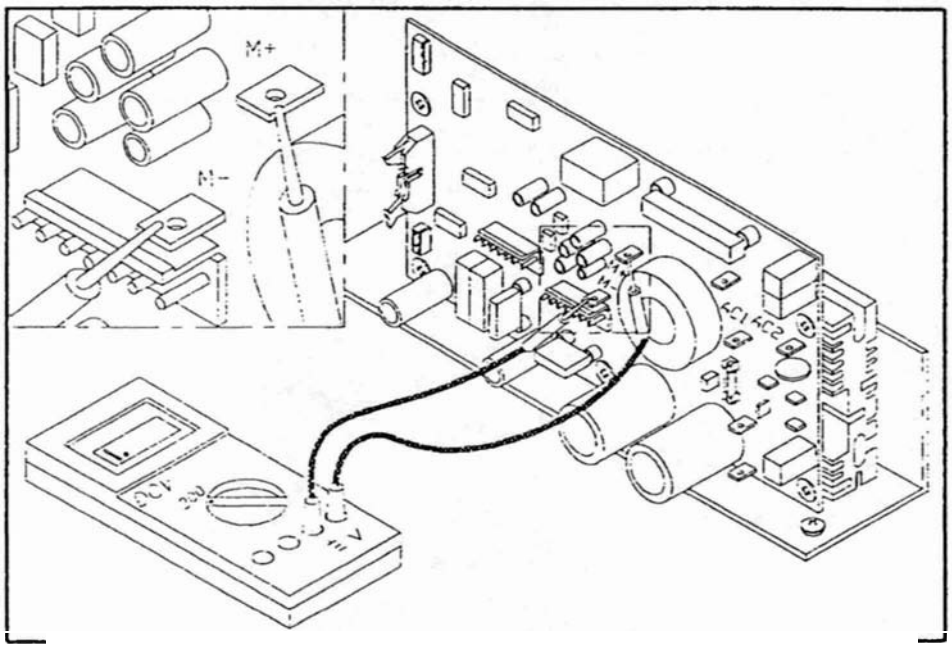


Fig.2

   b. Check the voltage of the motor:

   If you are in a country where the voltage is 100V-120V, the voltage reading can't be lower than 60V.

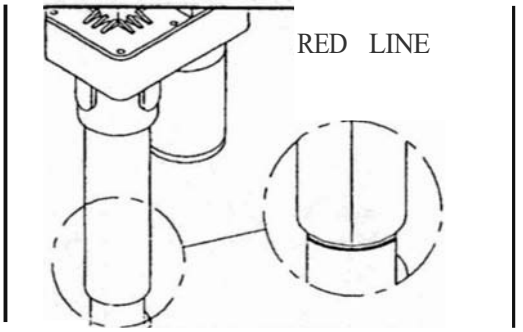
   If you are in a country where the voltage is 200V-240V, the voltage reading can't be lower than 140V.

   If the voltage reading is lower than stated. The DC motor is damaged and needs to be replaced. Please refer to "MOTOR REMOVAL AND INSTALLATION PROCEDURE" on page 37 for more information.

ELEVATION UNIT VARIABLE RESISTOR(VR) REMOVAL AND INSTALLATION PROCEDURE

1. Remove the motor shroud.

2. Please set elevation back to "0"(zero) firstly. And stop the treadmill. Then make sure the red line on the inner tube lines up with the edge of the outer tube.(see Fig.1)



3. Unplug all wires from their terminals.(see Fig.2)

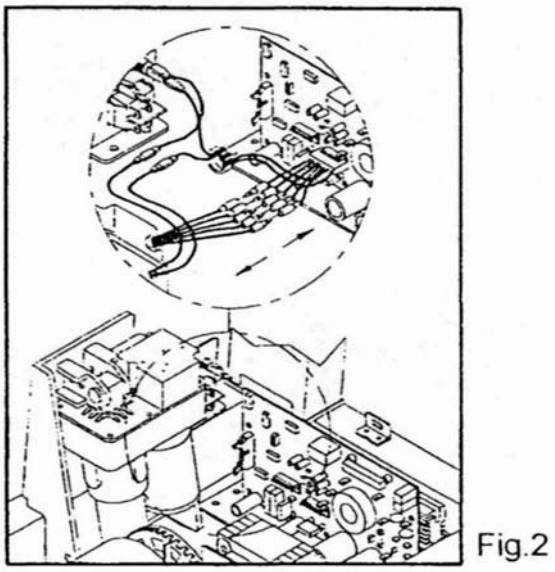


Fig.2

4. Loosen three screws securing the VR unit and remove it.(see Fig.3-4)

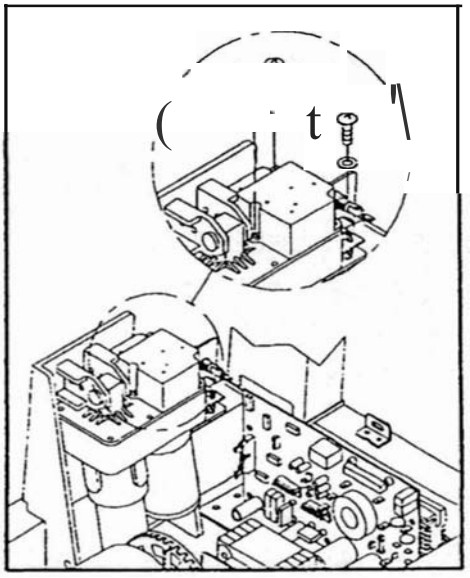


Fig.3

BELT ALIGNMENT

Should your belt edge be in the red zone, follow below steps to adjust the belt to the green "safety zone".

a. Run the treadmill at 2.0MPH (3.3KPH). Determine if the belt edge is too far left or too far right (standing at the back of the treadmill).

b. If the belt edge is in the left red zone, turn the left belt adjustment bolt located at the rear of the treadmill clockwise 1/4 turn at a time, and turn the right belt adjustment bolt counterclockwise 1/4 turn at a time.

Let the treadmill run at least 30 seconds, then check the position of the belt edge in the color gauge. If it still has not returned to the green safety zone, continue turning 1/4 turn at a time until the belt has returned to the middle of the green area. Do not turn the adjusting bolt more than 1/4 turn at a time.

Make sure to pause for 30 seconds between adjustment to check the progress of the belt.

c. If the belt is on the edge of the green color, please adjust it to be in the middle of the green safety zone. You may turn the adjustment nut less than 1/4 turn at a time.

d. Conversely, if the belt is in the right red zone, turn the right belt adjustment bolt located at the right rear of the treadmill clockwise 1/4 turn at a time, and turn the left belt adjustment bolt counterclockwise 1/4 turn at a time.

Let the treadmill run at least 30 seconds, then check the position of the belt in the color gauge. If *it* still has not returned to the green safety zone, continue 1/4 turn on the adjusting bolt more than 1/4 tum at a time.

Make sure to pause for 30 seconds between adjustment to check the progress of the belt.

e. \Nhen the belt is back in the green "safety zone", slowly increase the speed to maximum and let it run for at least 45 seconds.

Lower the speed and walk on the treadmill. If you feel a pause in the belt with each foot plant, the belt is too loose. Stop the machine, then adjust BOTH rear roller bolts clockwise 1/2 turn at a time.

Try on the machine again and evaluate. If more adjusting is required, give the both adjusting bolts another slight turn. Do not adjust over than 2 full turns.

f. If the belt is too tight, this will adversely effect the lift of the treadmill.

OPTICAL SWITCH REMOVAL AND INSTALLATION PROCEDURE

1.Remove the motor shroud.

2.Disconnect the 4 pin cable from optical switch.(see Fig.1)

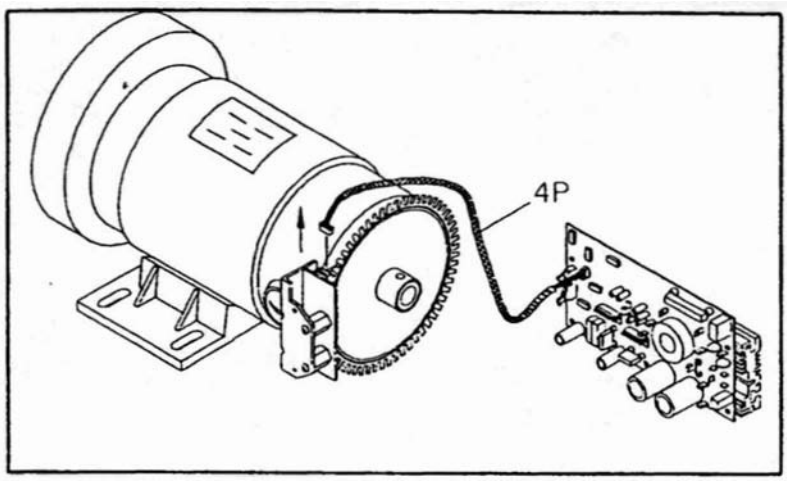


Fig.1

3.Loosen screws securing the optical switch and remove optical switch.(see Fig.2)

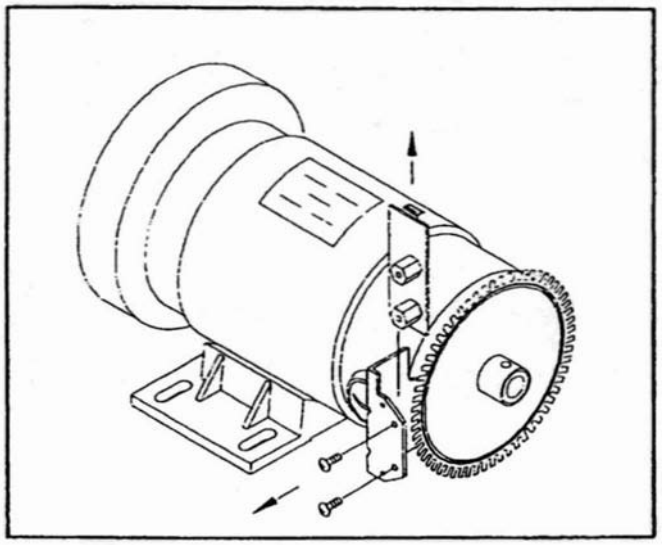


Fig.2

4.Place new optical switch and keep proper space between optical switch and tachometer wheel. Then secure two screws. (see Fig.3)

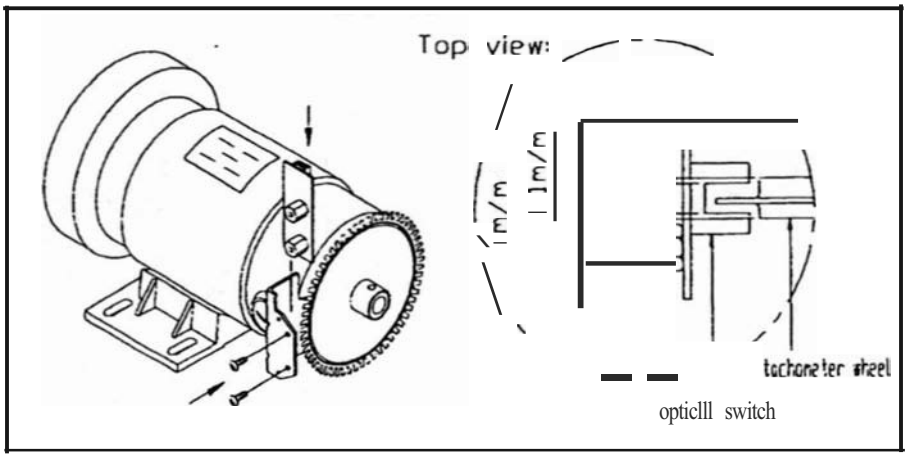


Fig.3

5.Plug the 4 pin cable to optical switch securely. (see FigA)

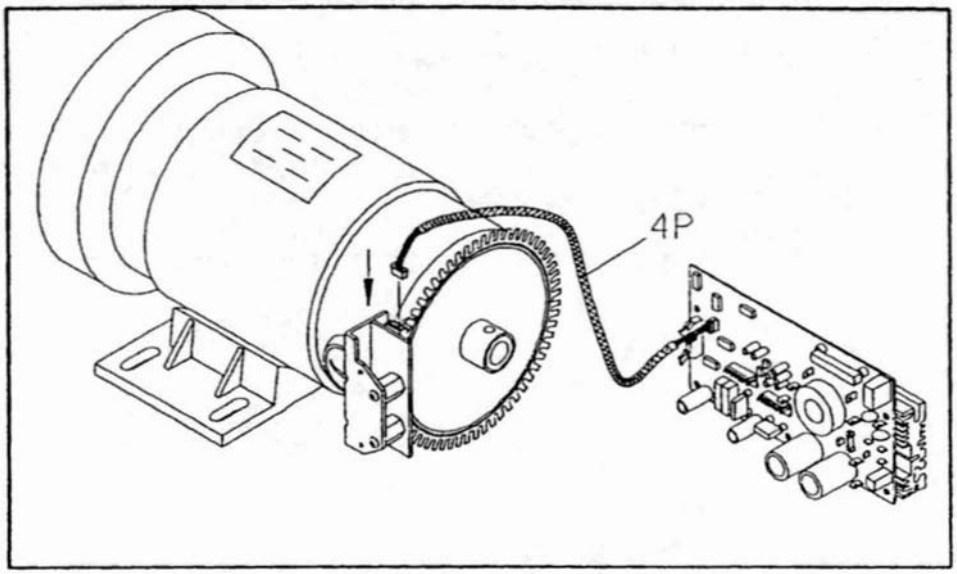


Fig.4

6.Secure the motor shroud.

HOW TO REPLACE THE OLD-TYPE OPTICAL SWITCH AND TACHOMETER WHEEL WITH NEW ONES

1. Remove the motor shroud.

2. Take out screw on the shaft of motor. Remove old-style tachometer wheel and disconnect the 4 pin cable from optical switch. Loosen screws securing the optical switch. Then remove optical switch.(see Fig.1)

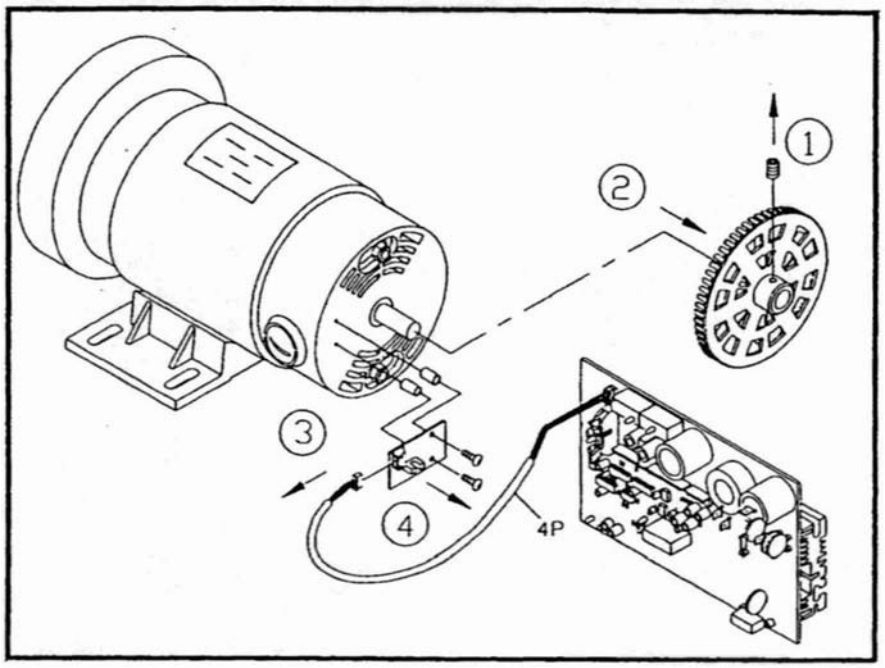


Fig.1

3. Screw the bracket on the rear end of the motor with two **PH** screws.(see Fig.2)

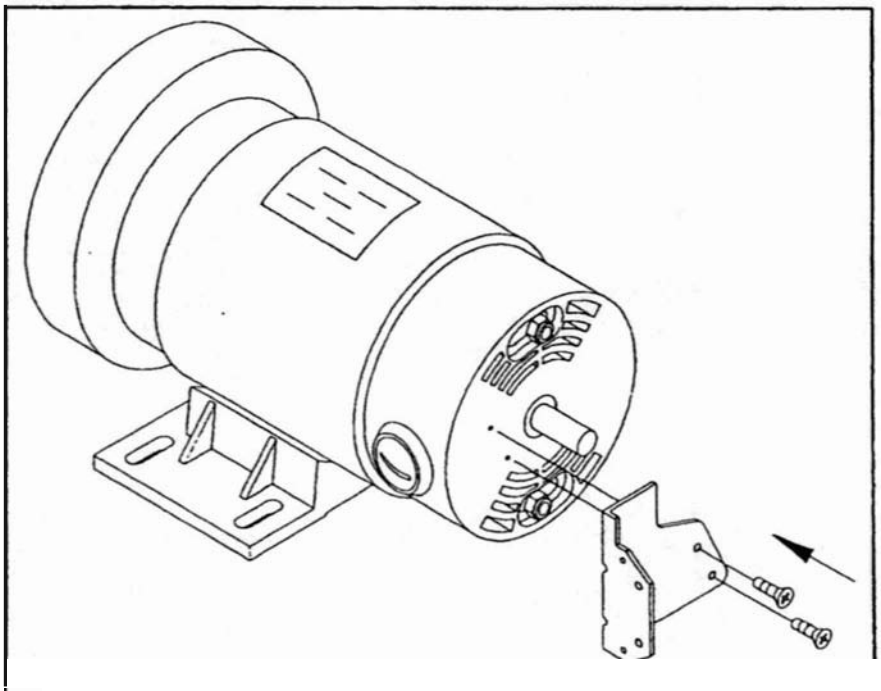


Fig.2

4.Put the new-style tachometer wheel (64T) onto the shaft of motor. (see Fig .3)

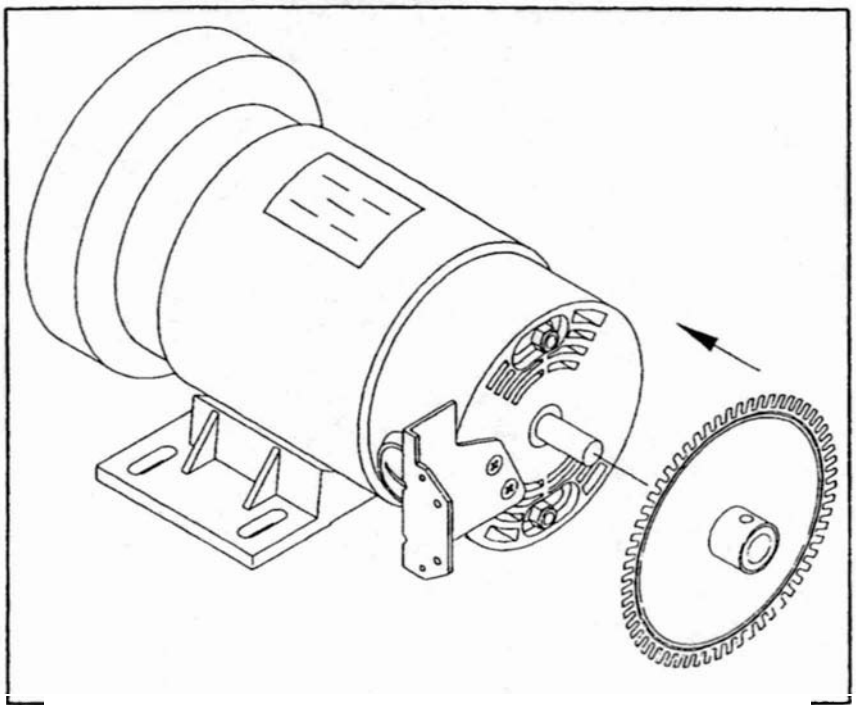


Fig .3

5. Place new-style optical switch and hold it with two PH screws, but do not fasten it yet. Also keep proper space between optical switch and tachometer wheet.(see Fig .4)

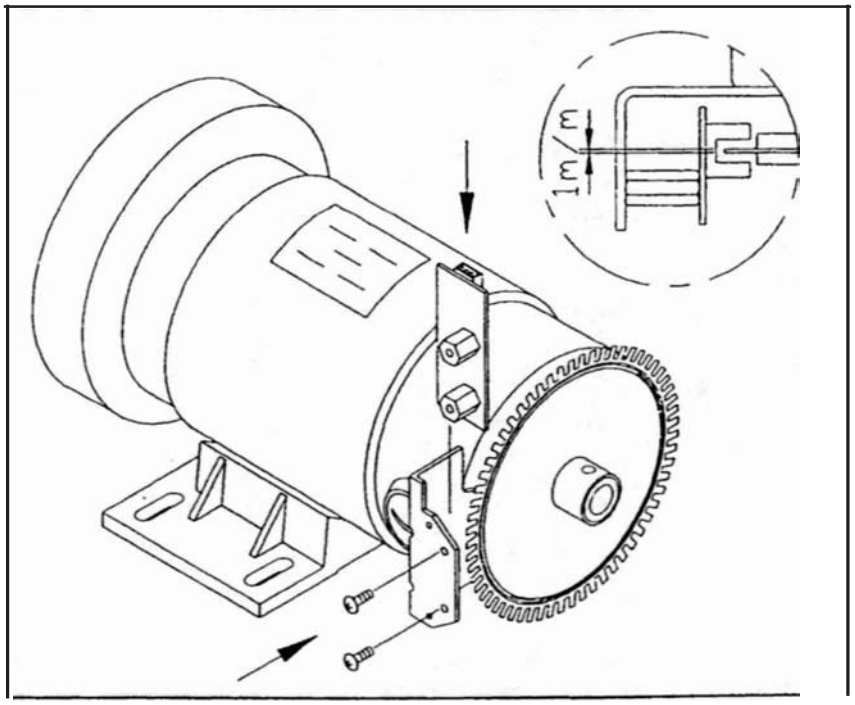


Fig.4

6. Be sure to adjust the tachometer wheel locating in the middle of the sensor. Fasten optical switch. Then use the Hex Allen Wrench to fasten the tachometer wheel with two socket screws. (see Fig.5)

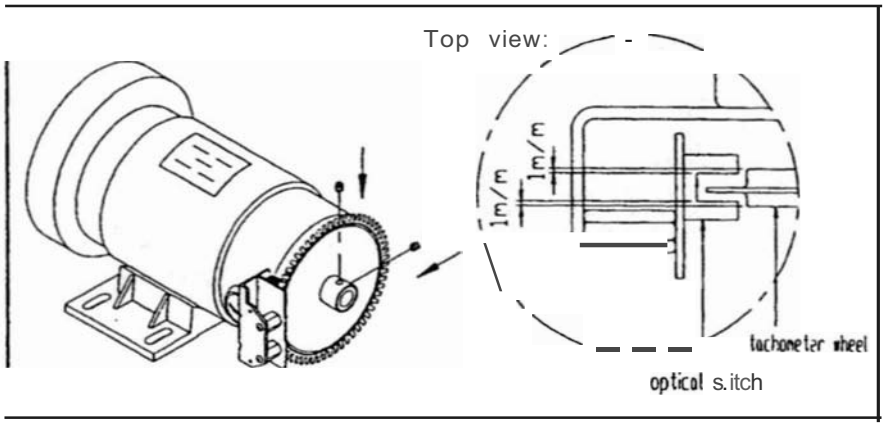


Fig.5

7.Connect 4 pin cable to the optical switch securely. (see Fig. 6)

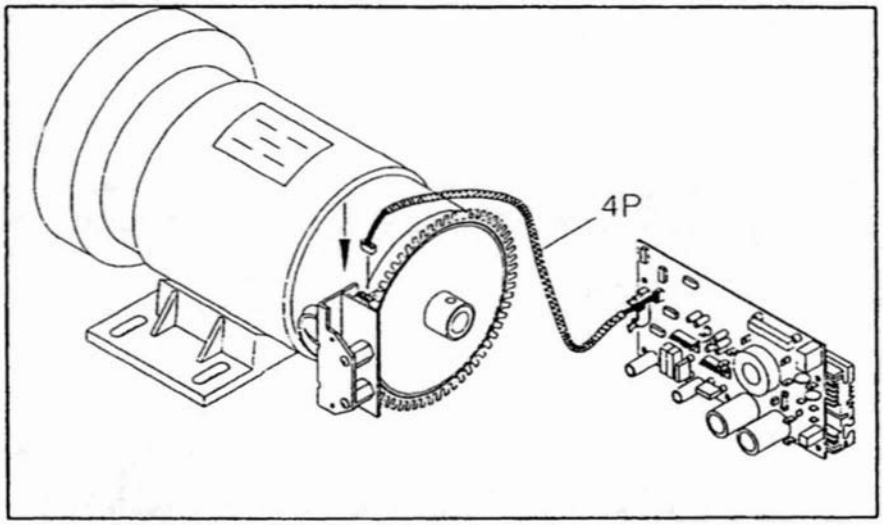


Fig.6

8.Secure the motor shroud.

TACHOMETER WHEEL REMOVAL AND INSTALLATION PROCEDURE

1. Remove the motor shroud.

2. Unplug the 4 pin cable from optical switch board. (see Fig.1)

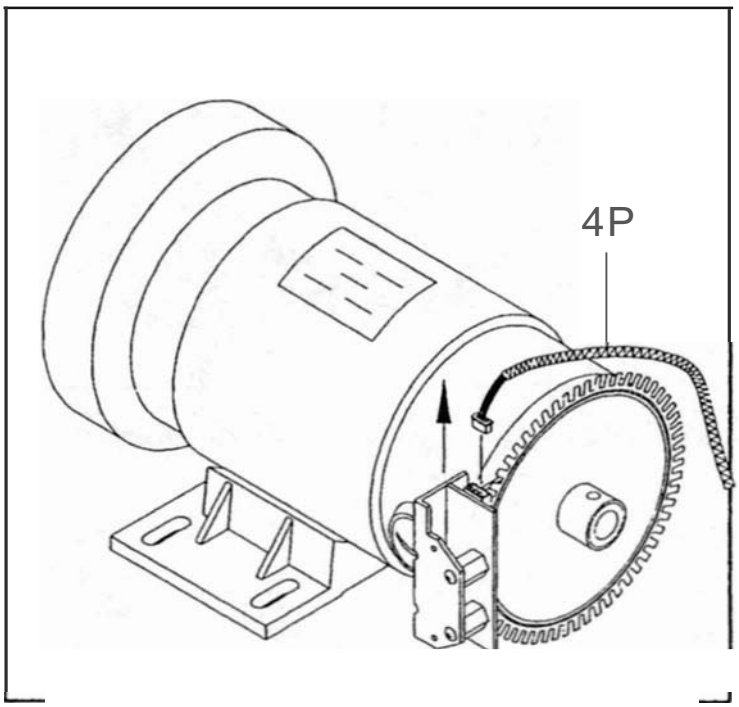


Fig.1

3. Loosen two screws and remove optical switch. (see Fig.2)

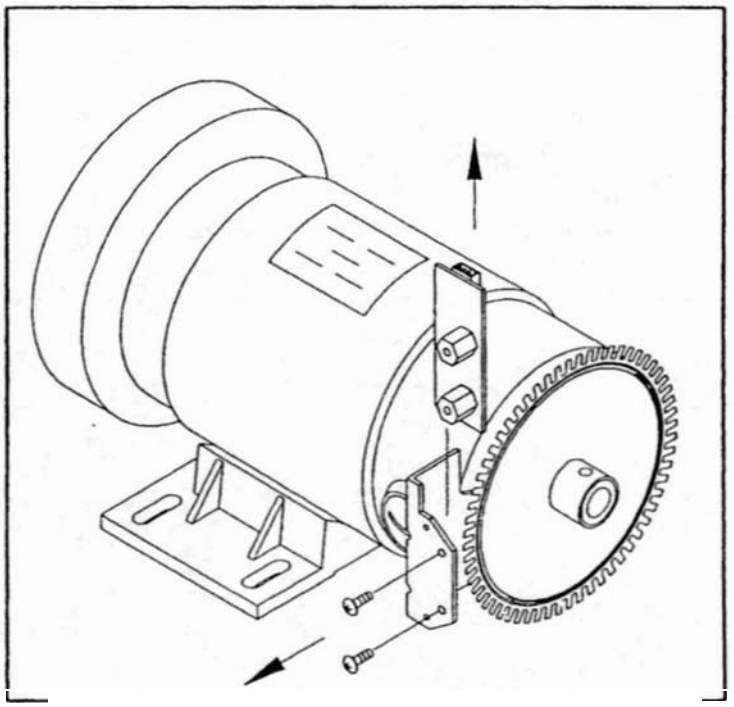


Fig.2

4. Loosen screws from tachometer wheel and remove faulty tachometer wheel. (see Fig.3)

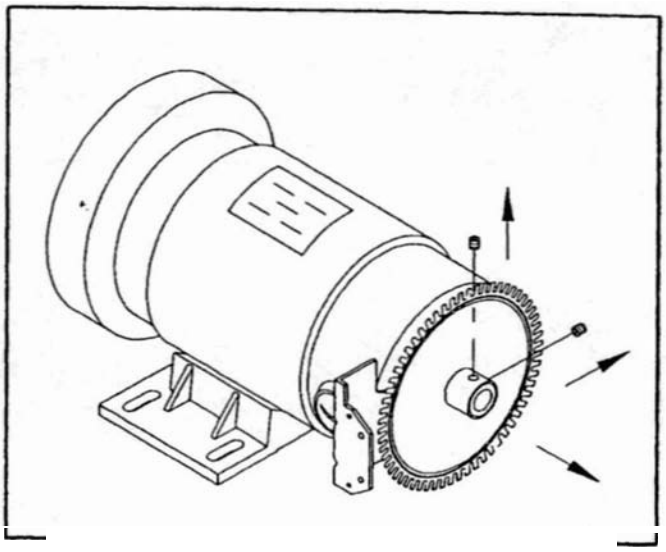
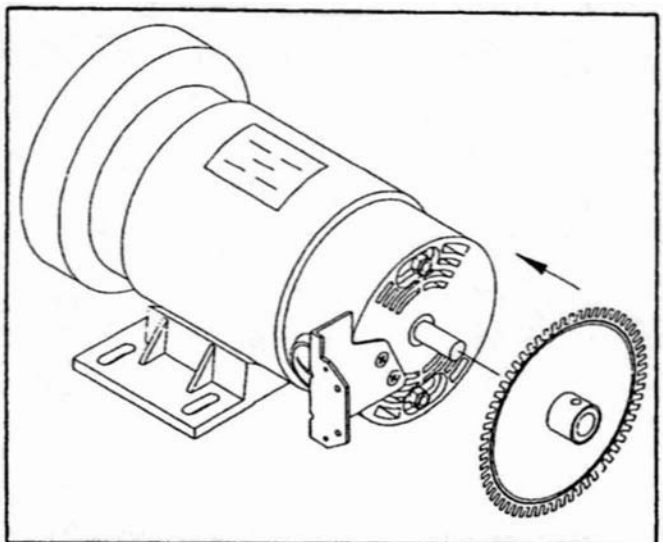


Fig.3

5. Put the new tachometer wheel(64T) onto the shaft of motor.(see FigA)



FigA

6. Place optical switch on its position and hold it with two PH screws, but do not fasten it yet. Also keep proper space between optical switch and tachometer wheel.(see Fig.5)

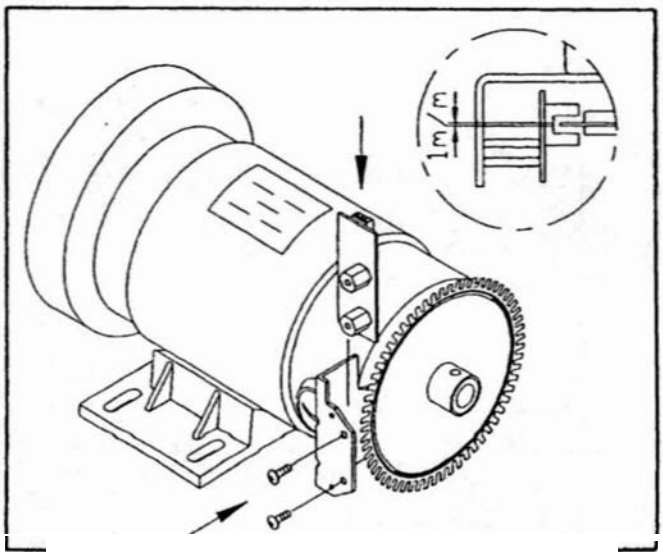


Fig.5

7. Be sure to adjust the tachometer wheel located in the middle of the sensor. Fasten optical switch. Then use the Hex Allen Wrench to tighten the tachometer wheel with two socket screws. (see Fig.6)

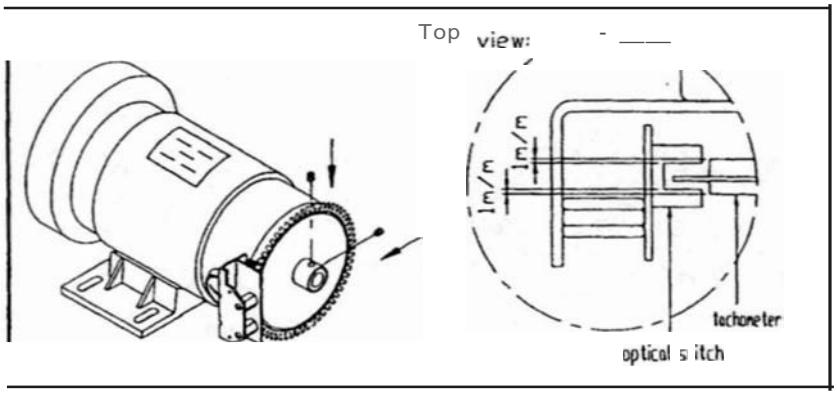


Fig.6

8.Connect 4 pin cable to the optical switch securely. (see Fig. 7)

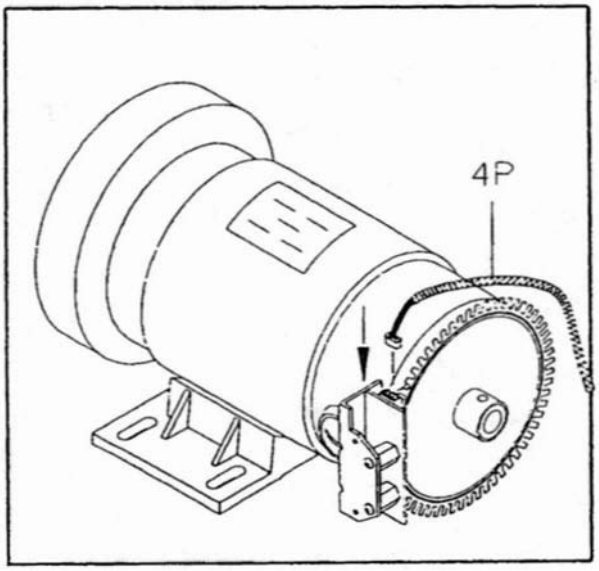


Fig.7

9.Secure the motor shroud.

Treadmill Incline Troubleshooting

AC Incline Set & Calibration

DC Incline Set & Calibration

SPORTSART

AC Incline Set Troubleshooting Manual

SPORTS ART INDUSTRIAL CO., LTD.

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[AC Incline Motor Troubleshooting Manual]

AC Incline Motor Set

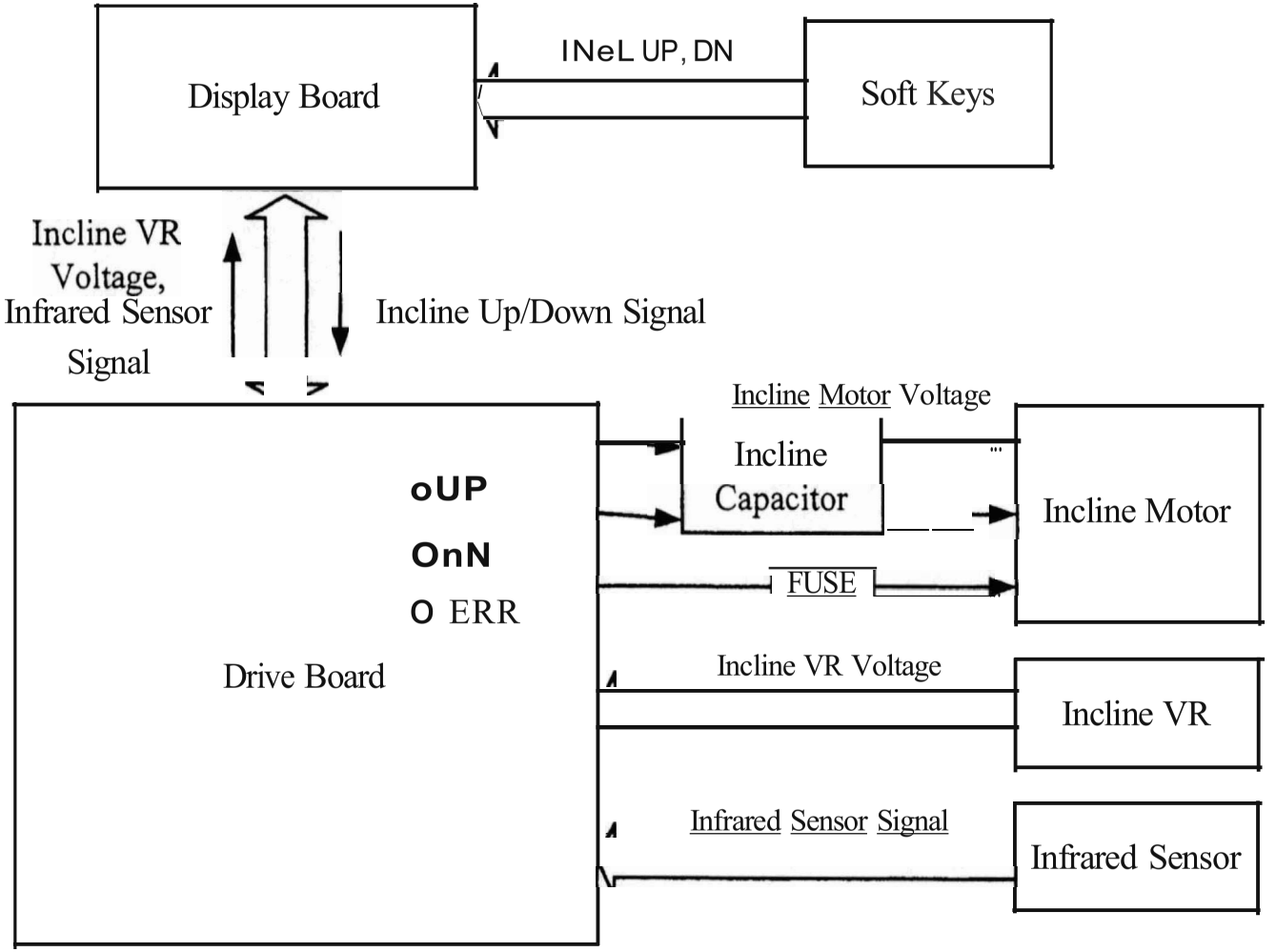
1. Block Diagrams

SPORTS ART INDUSTRIAL CO., LTD.

AC Incline Motor Set

1. Block Diagram

Models: ***109XF/12XXJ600S/1190***

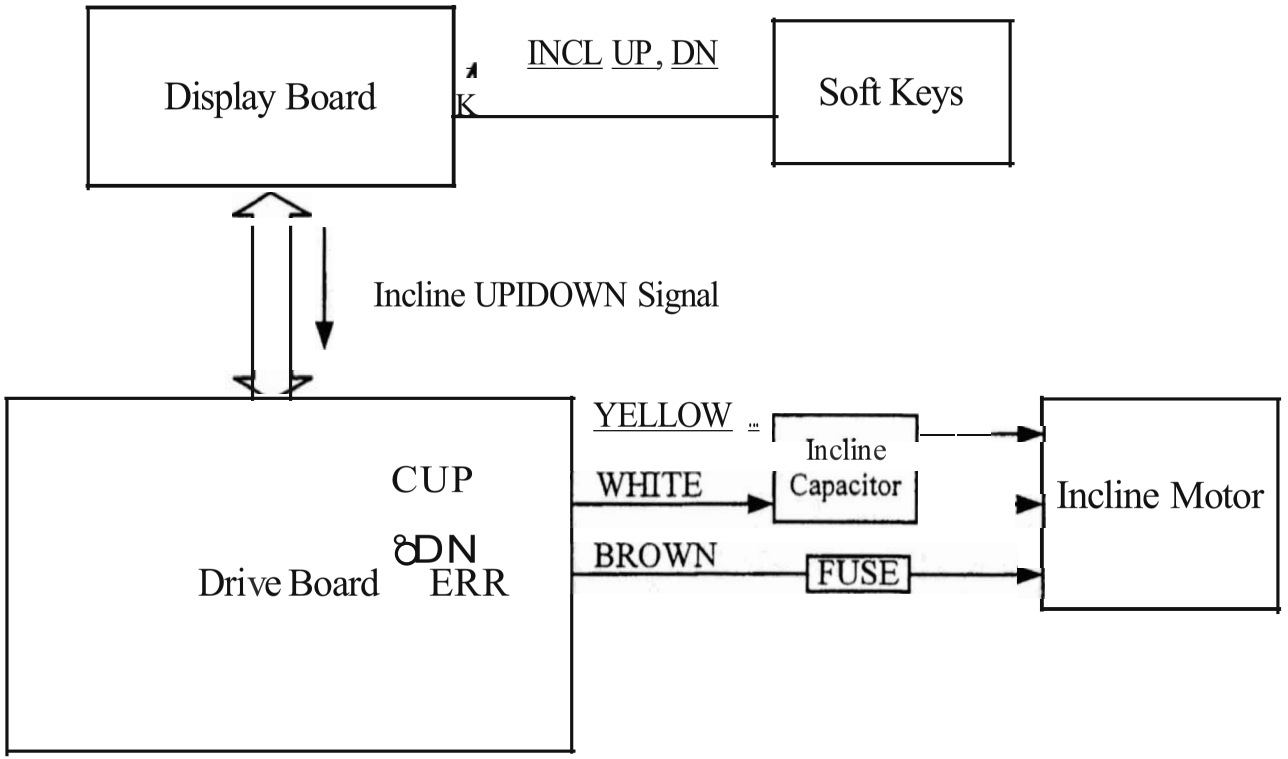


AC Incline Motor Set

2. Operation

2. Operation Flow Chart - 1. Incline Up/Down Action

1-1. Block Diagram



Display	Drive Board	Incline Voltage	Incline Motor Set
Press INCL<▲>	UP Indicator Lights	110VAC (N. America) or 220VAC(Europe) Brown-Yellow	Up Action
Press INCL<▼>	ON Indicator Lights	110VAC (N. America) or 220V(Europe) Brown-White	Down Action

1-2. Operation

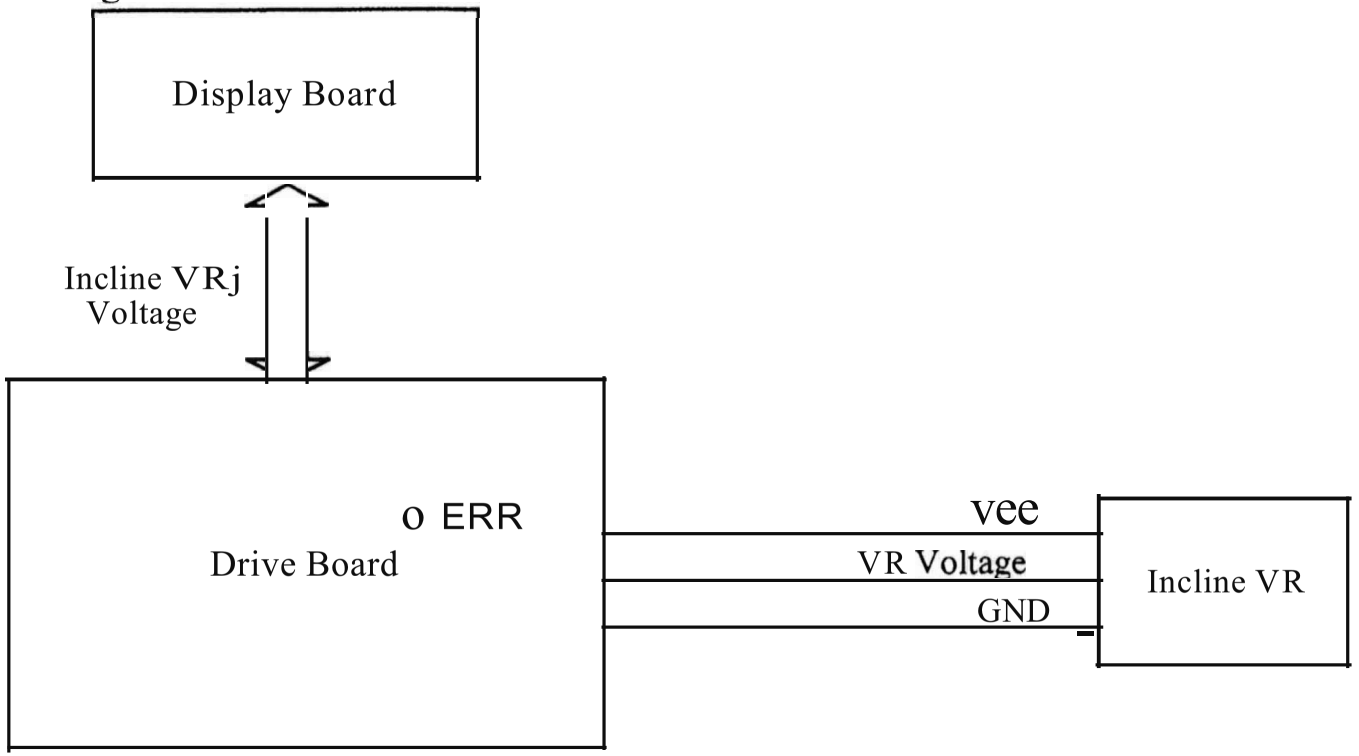
Order	Part	Operation
1	Display Board	1. Press INCL<▲> key. Display INCLINE window values increase. 2. Press INCL<▼> key. Display INCLINE window values decrease.
2	Cable (drive to display board)	1. The INCL UP, DN signal travels the cable from the display to the drive board.
3	Drive Board	1. Press the INCL<▲> key. The drive board UP indicator lights. There are 110V (N. America) or 220V (Europe) across the incline brown and yellow wires on the drive board connections. Incline operates up. 2. Press the INCL<▼> key. The drive board DN indicator lights. There are 110V (N. America) or 220V (Europe) across the incline brown and white wires on the drive board connections. Incline operates down.
4	Incline Motor	1. Drive board UP indicator lights. Incline operates up. 2. Drive board DN indicator lights. Incline operates down.

1-3 Procedure

Order	Operation
1	Tum on unit power.
2	Press INCLINE<▲> key. The drive board UP indicator lights. Incline operates up.
3	Press INCLINE<▼> key. The drive board DN indicator lights. Incline operates down.

2. Incline VR Operation

2-1. Block Diagram



2-2 Operation

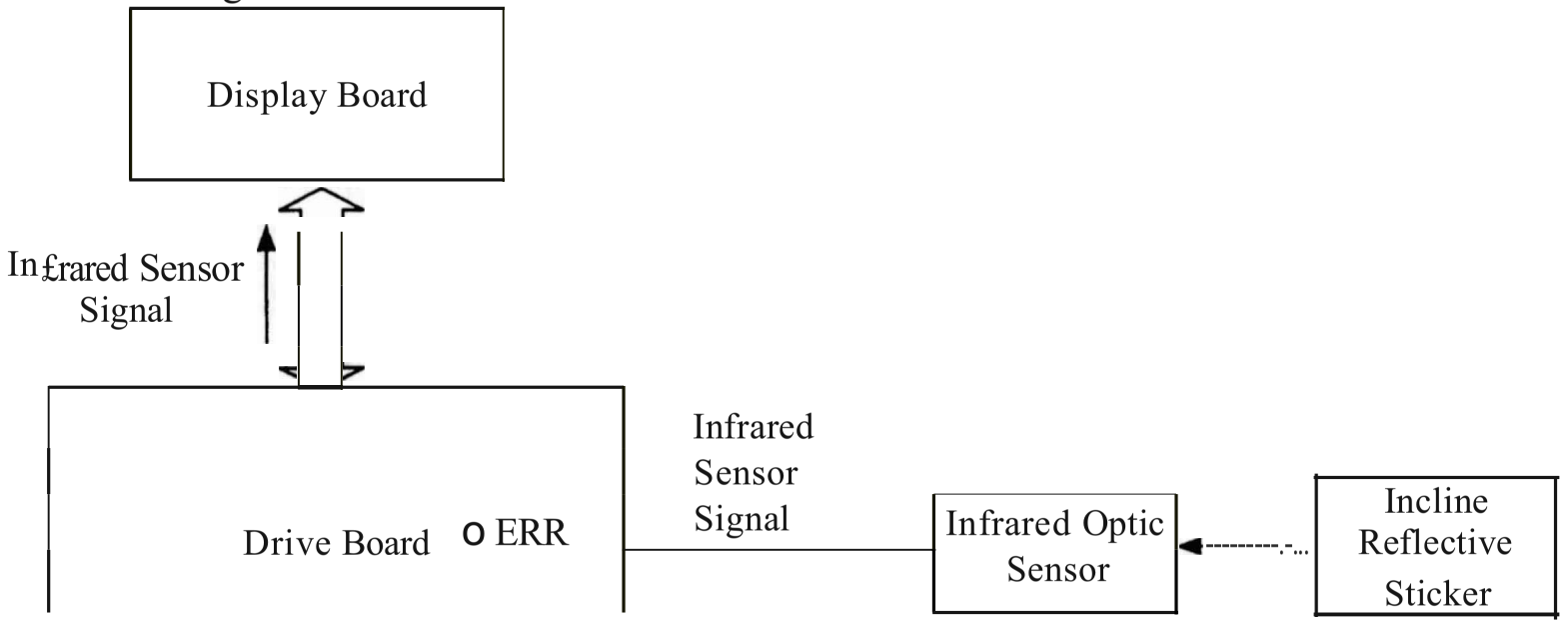
Order	Part	Operation
1	Incline Motor Set	1. When the drive board UP indicator lights, the incline motor is in upward operation. 2. When the drive board DN indicator lights, the incline motor is in downward operation.
2	Incline VR	1. At the 0% position, the incline VR voltage is 1.27VDC. 2. As the incline operates up, the VR voltage increases. 3. As the incline operates down, the VR voltage decreases.
3	Incline Cable	1. The incline VR voltage travels the incline cable to the drive board.
4	Drive Board	1. The drive board sends the VR voltage value to the display board.
5	Cable	1. The VR voltage value travels the main cable from the drive board to the display board.
6	Display Board	1. The program reads the VR value and determines incline position. When the VR voltage value matches the setting value, the incline UP/DOWN signal transmission ends and incline action stops.

2-3 Operation

Order	Operation
1	Tum on unit power.
2	Press INCLINE<▲> key until the INCLINE window shows the highest position. Drive board UP indicator lights. Incline operates to highest position and stops.
3	Press INCLINE<▼> key until the INCLINE window shows the lowest position. Drive board DOWN indicator lights. Incline operates to lowest position and stops.

3. Infrared Sensor Operation

3-1. Block Diagram



Display	Drive Board	Incline Voltage	Incline Motor
Press INCL<▲>	UP Indicator Lights	110V (America) or 220V (Europe) (brown and yellow wires)	Up Operation
Press INCL<▼>	DN Indicator Lights	110V(America) or 220V(Europe) (brown and white wires)	Down Operation

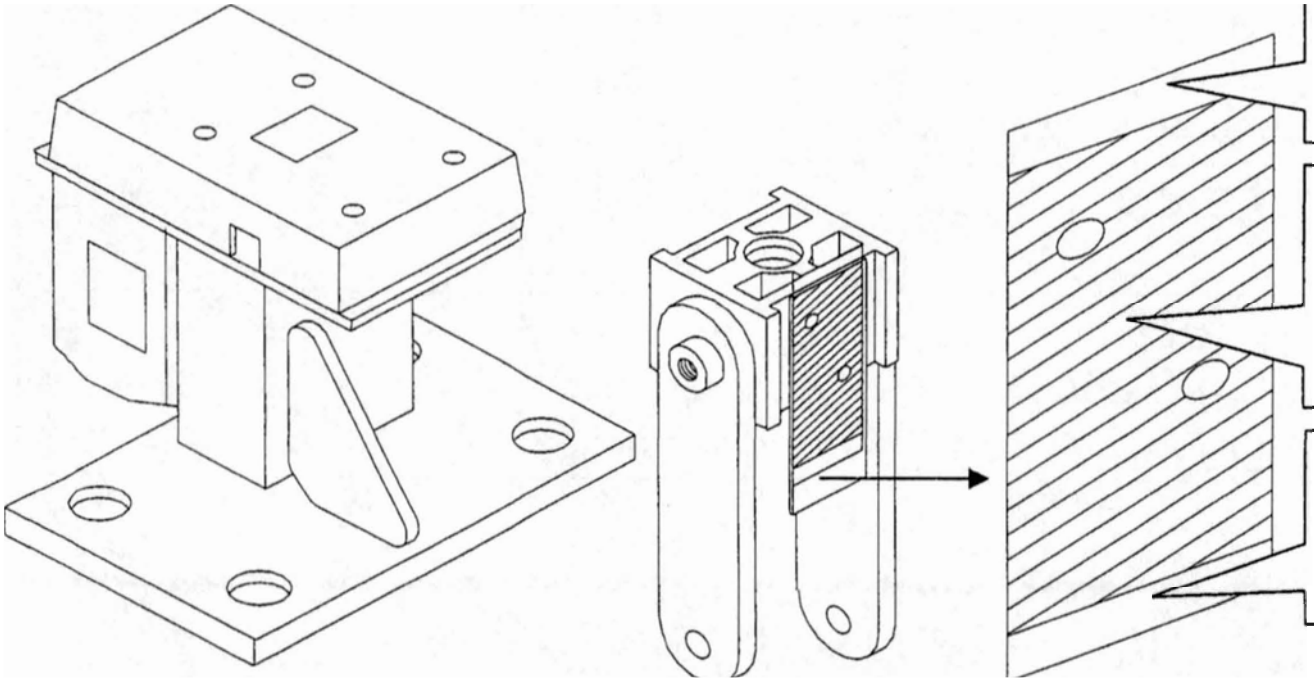
3-2. Operation

Order	Part	Operation
1	Incline Motor Set	1. When the drive board UP indicator lights, incline is in up operation. 2. When the drive board DN indicator lights, incline is in down operation.
2	Infrared Sensor	1. Infrared sensor detects whether the incline has exceeded its upper or lower range. 2. When the infrared sensor detects the black part of the reflective sticker, the drive board ERR indicator doesn't light. The incline set has not exceeded its proper range. 3. When the infrared sensor detects the silver part of the reflective sticker, the drive board ERR indicator lights. The incline set has exceeded its proper range.
3	Incline Wire	1. The infrared sensor signal travels the incline wire to the drive board.
4	Drive Board	1. When the infrared sensor detects the silver part of the incline reflective sticker, the drive board ERR indicator lights. 2. When the infrared sensor detects the black part of the incline reflective sticker, the drive board ERR indicator doesn't light. 3. If the ERR indicator lights, the drive board UP or DN indicator extinguishes and incline action stops.
5	Main Cable	1. The infrared sensor signal travels the main cable from the drive board to the display board.
6	Display Board	1. The program in the Ie reads the infrared sensor signal. 2. If the infrared sensor detects the silver part of the reflective sticker, the IC implements protective function. Incline only operates in one direction.

3-3.Procedure

Order	Operation
1	Press INCLINE<▲> or <▼> key repeatedly. Incline operates to the highest or lowest position. Drive board ERR indicator doesn't light.
2	Press INCLINE<▲> or <▼> key. Before the incline action stops, cover the infrared sensor. The drive board ERR indicator lights. Incline action immediately stops.
3	When the drive board ERR indicator lights, press the display INCLINE<▲> or <▼> keys. Incline window values can only change in one direction.

3-4. Infrared Sensor Operation



Silver Area - When the infrared sensor detects the silver part of the reflective sticker, the drive board ERR indicator lights.

Black Area - When the infrared sensor detects the black part of the reflective sticker, the drive board ERR indicator doesn't light.

Silver Area - When the infrared sensor detects the silver part of the reflective sticker, the drive board ERR indicator lights.

(2) Operation

Order	Part	Operation
1	Display Board	1. Press INCL<▲> key. Display INCLINE window values increase. 2. Press INCL<▼> key. Display INCLINE window values decrease.
2	Main Cable (Display to Drive Board)	1. INCL UP, DN signal travels the main cable to the drive board.
3	Transfonner	1. The transfonner provides power to the drive board incline circuit.
4	Drive Board	1. Press INCL<▲> key. The drive board UP indicator lights. There is 110VAC (N. America) or 220VAC (Europe) across the incline brown and yellow wires on the drive board connectors. 2. Press INCL<▼> key. The drive board DN indicator lights. There is 110VAC (N. America) or 220VAC (Europe) across the incline brown and white wires on the drive board connectors.
5	Incline Motor	1. Drive board UP indicator lights. Incline motor operates up. 2. Drive board DN indicator lights. Incline motor operates down.

3) Procedure

Order	Operation
1	Tum on unit power.
2	Press INCLINE<▲> key. Drive board UP indicator lights. Incline operates up.
3	Press INCLINE<▼> key. Drive board DN indicator lights. Incline operates down.

AC Incline Motor VR Voltage Range

Model	Incline Range		Incline Voltage	
	Lowest	Highest	At Lowest Position	At Highest Position
IO96F/1098F	0%	10%	1.27VDC	3.70VDC
1200/1 250/1260	0%	12%	1.27VDC	3.70VDC
6005	00/0	15%	1.27VDC	4.50VDC
1190	00/0	10%	1.27VDC	3.70VDC
12XXN	00/0	120/0	1.27VDC	3.70VDC

A⊂ Incline M⊙t⊙r Set

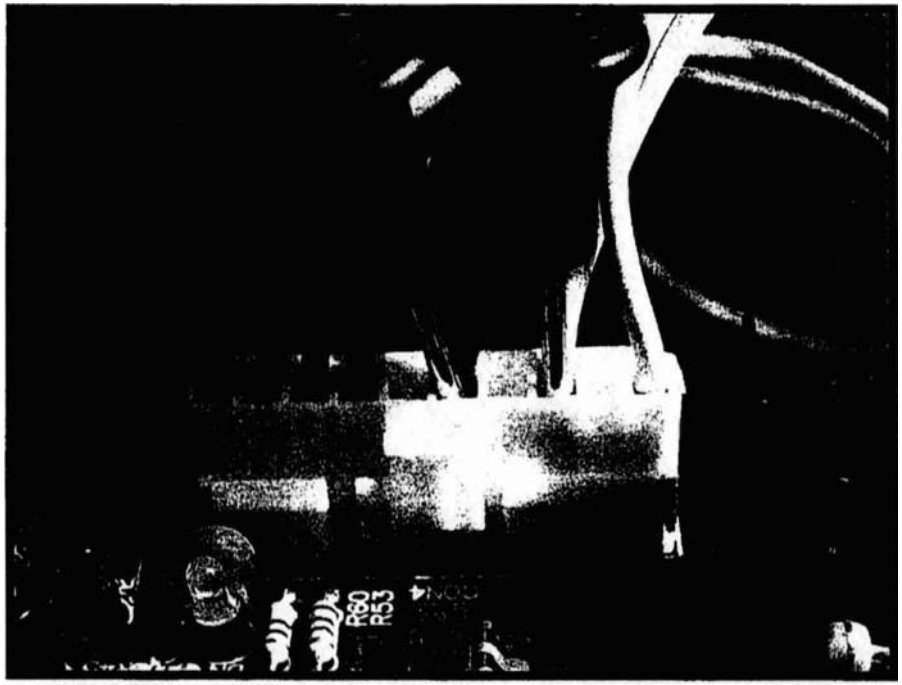
3. Measuring and Testing

SP⊙RTS ART INDUSTRIAL ⊆⊙ , LTD

3. Measuring and Testing -1. Drive Board Incline Motor Voltage

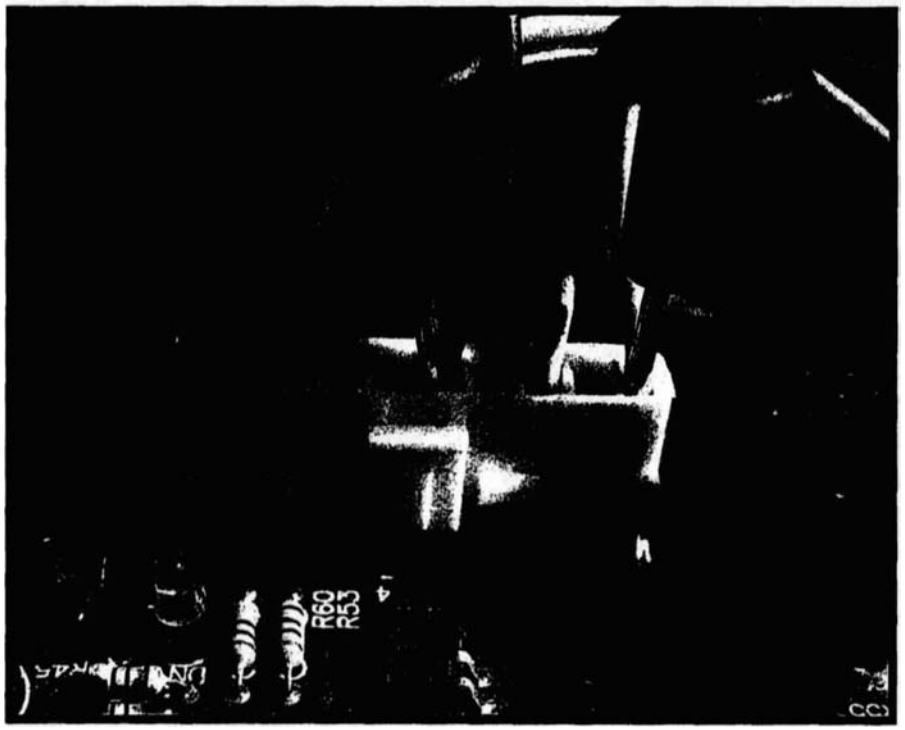
1-1. Illustration

Fig. 1. Incline Up Operation Voltage Test



1-2. Illustration

Fig. 2. Incline Down Operation Voltage Test



1-3. Test Procedure

(1) Put multimeter to 750VAC setting as shown.

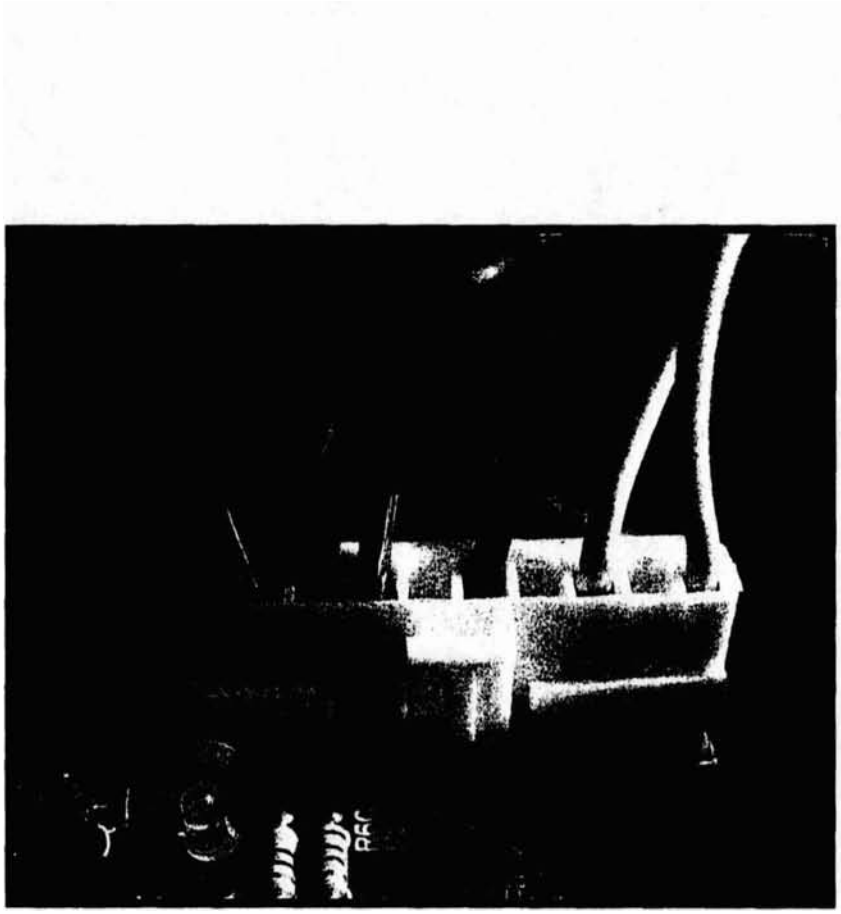
(2) Tum on unit power. Display lights up.

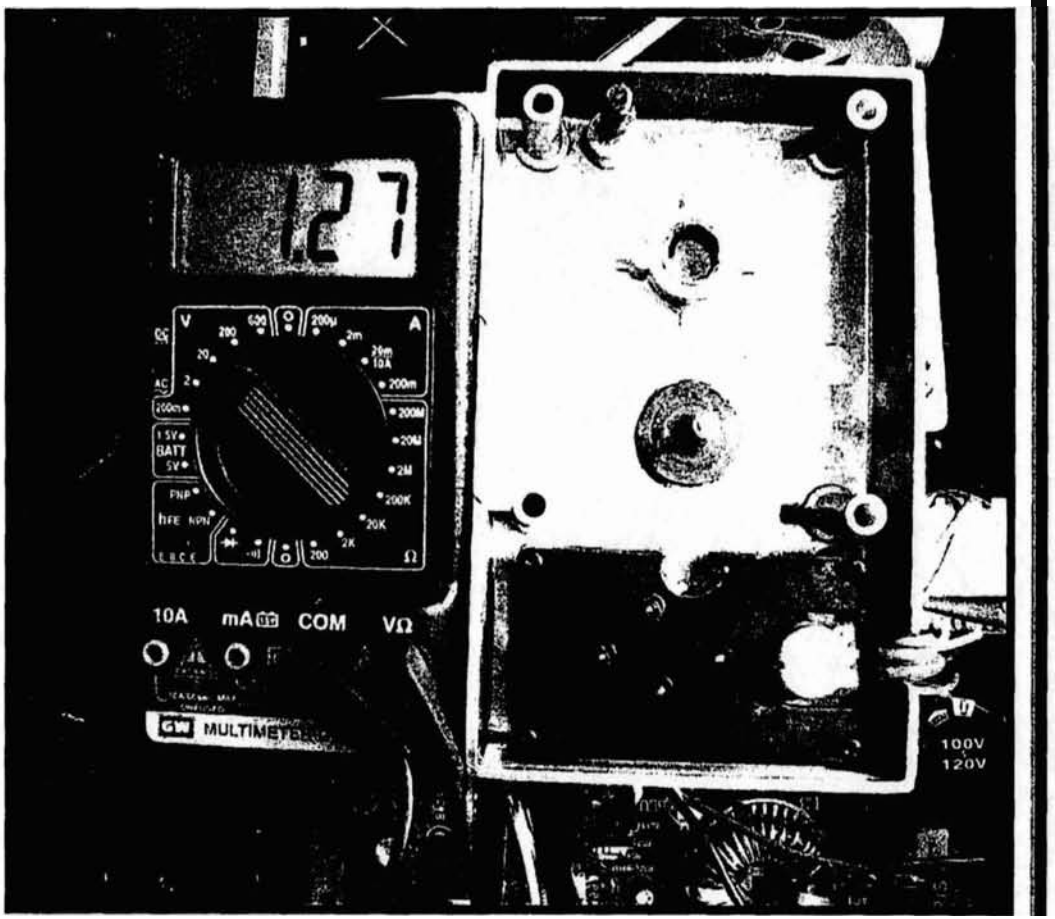
(3) Press INCL<▲> key. The drive board UP indicator lights. Put probes across the brown and white wire connector points on the drive board. Multimeter shows 11 OV (N. America) or 220V (Europe). Incline operates up.

(4) Press INCL<▼> key. The drive board DN indicator lights. Put probes across the brown and yellow wire connector points on the drive board. Multimeter shows 110V (N. America) or 220V (Europe). Incline operates down.

2. AC Motor Incline VR Voltage

2-1. Illustration





2-2. Test Procedure

(1) Put multimeter to the 20VDC setting. Place probes across the blue and green wire connector points on the drive board.

(2) Tum on unit power. The reading should show voltage within the range shown below. If not, the display shows ERR 7.

(3) Press INCL<▲> key until the incline window shows the highest position. Incline operates to highest position. Normal meter reading is 3.70VDC for most models (or 4.50VDC for 6005).

(4) Press INCL<▼> key until the incline window shows the lowest position, 0%. Incline operates to lowest position. Normal meter reading is 1.27VDC. The red line shows in the incline motor window.

2-3. VR Voltage Range for Various AC Incline Motors

Model	Incline Range		Voltage Range	
	Lowest	Highest	At Lowest Point	At Highest Point
1096/1098F	0%	10%	1.27VDC	3.70VDC
1200/1250/1260	00/0	12%	1.27VDC	3.70VDC
12XXN	0%	15%	1.27VDC	3.70VDC
1190	0%	15%	1.27VDC	3.70VDC
6005	0%	15%	1.27VDC	4.50VDC

3-2. Infrared Sensor Test Procedure

(1) Put multimeter to the 20VDC setting. Place probes on the black and green wire connections on the drive board as shown.

(2) Tum on unit power.

(3) Press INCL<▲> key until the INCLINE window shows the highest level. Drive board ERR indicator doesn't light. Normal reading for most models: 3.5VDC (Model 6005: 4.50VDC).

(4) Press INCL<▼> key until the INCLINE window shows the lowest level, 0%. Drive board ERR indicator doesn't light. Normal reading: 1.27VDC.

(5) Ifthe voltage is OV, the drive board ERR indicator lights, indicating the need for incline calibration.

(6) Ifthe ERR indicator lights, calibrate the incline set. Or inspect whether the incline reflective sticker has moved or worn away.

AC Incline Motor Set

4. Incline Set Calibration

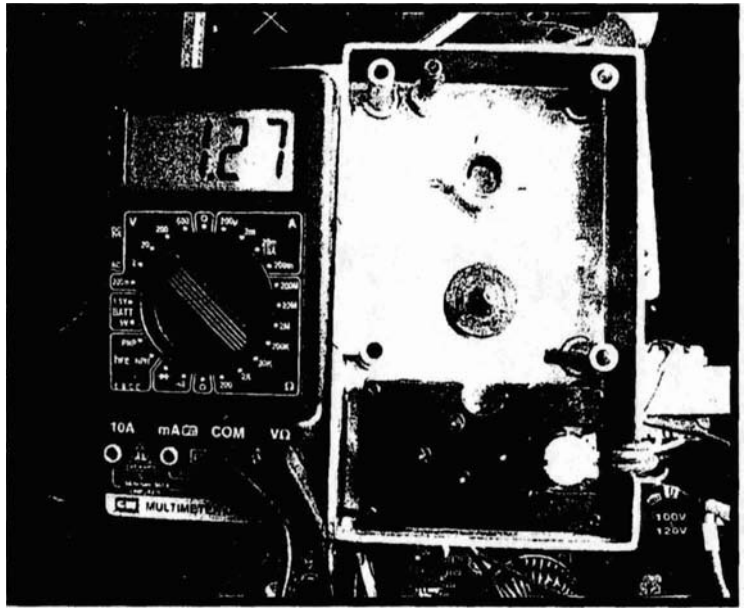
SPORTS ART INDUSTRIAL CO., LTD

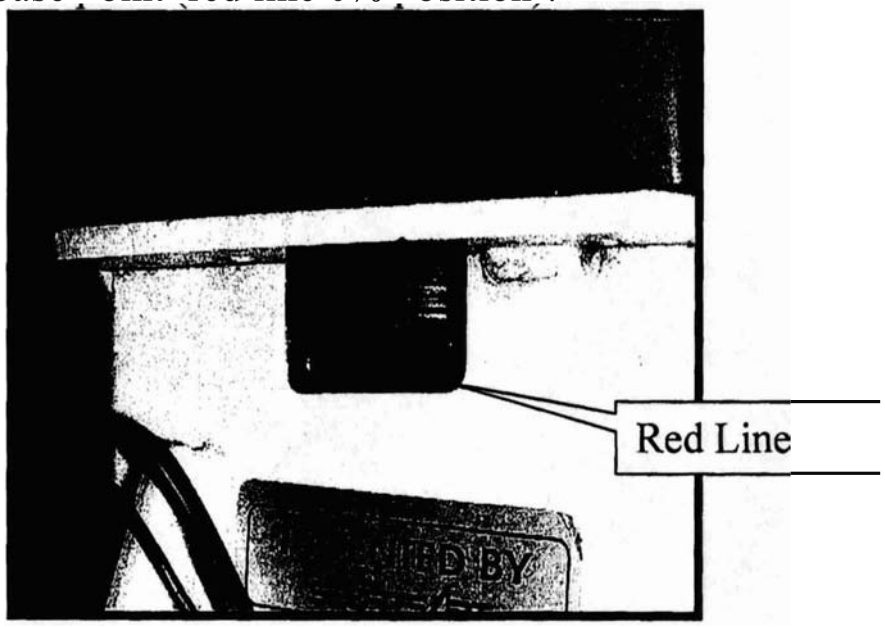
AC Incline Set Calibration Procedure

1. Goal: To adjust the incline set to allow for normal incline operation.

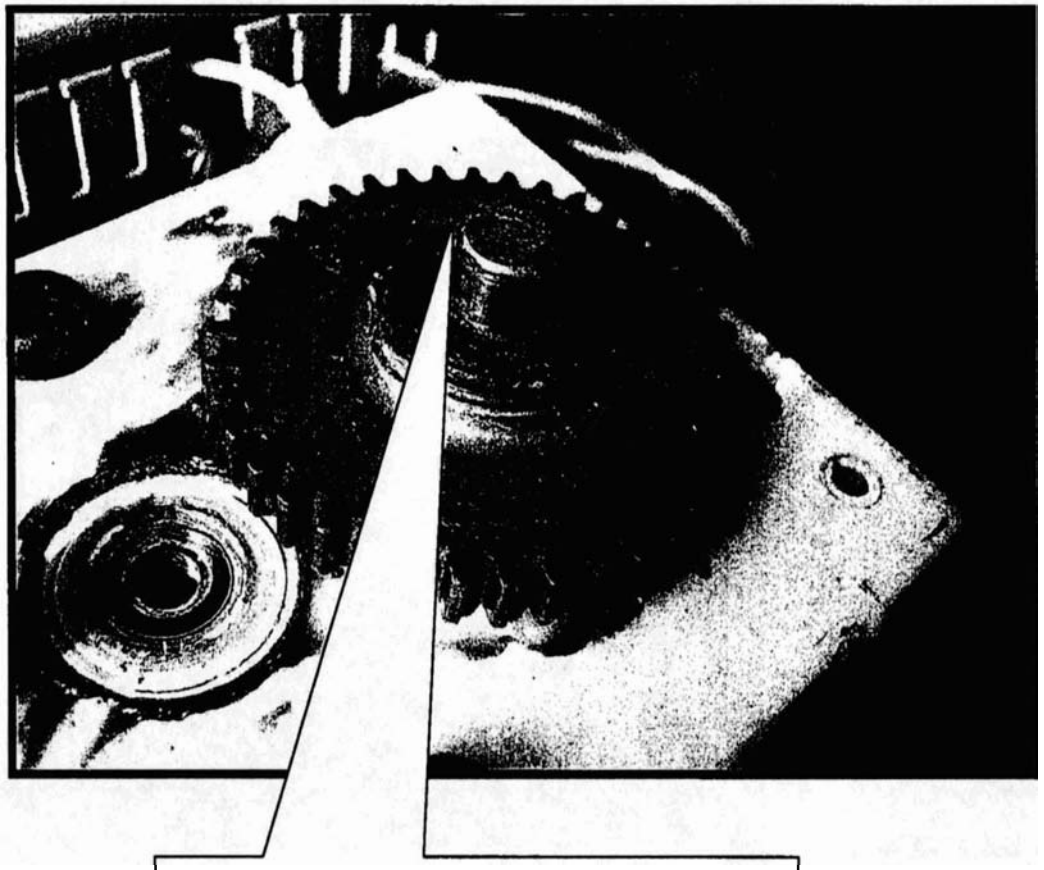
2. Calibration is needed when:
   (1) Display shows ERR7;
   (2) Display shows ERR6 and the drive board ERR indicator lights;
   (3) Incline set has extended beyond its normal range.

3. The calibration process has two parts - one electronic, one mechanical:
   (1) Electronic: Adjust VR voltage to 1.27V (at 0% position);
   (2) Mechanical: Adjust incline set to the base point red line 0% position.

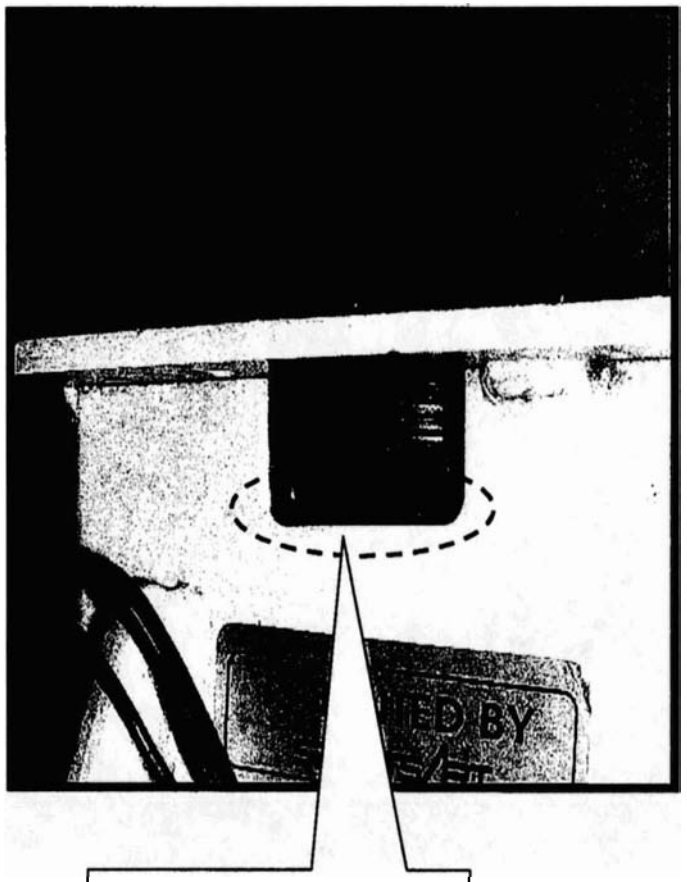




Step 4. Adjust the Incline Set so the Red Line is Visible



Tum this gear to adjust the incline set extension until the red line appears just above the bottom of the incline set window.



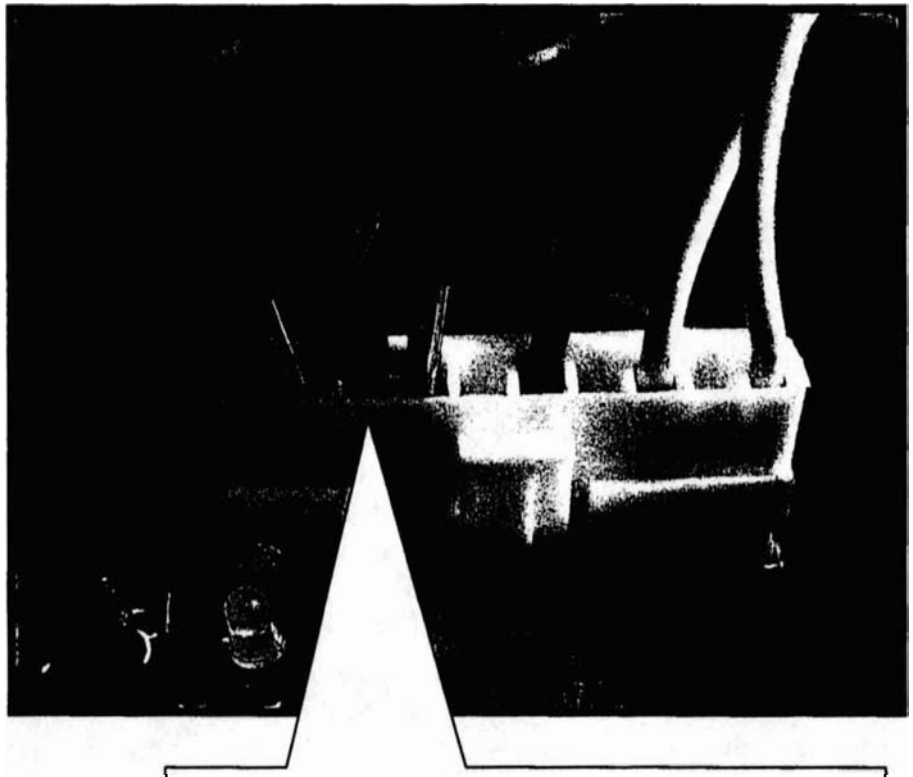
When the red line is visible as it is here, the incline set is at the 00/0 position.

Step 5. Electronic Calibration - VR Voltage Adjustment

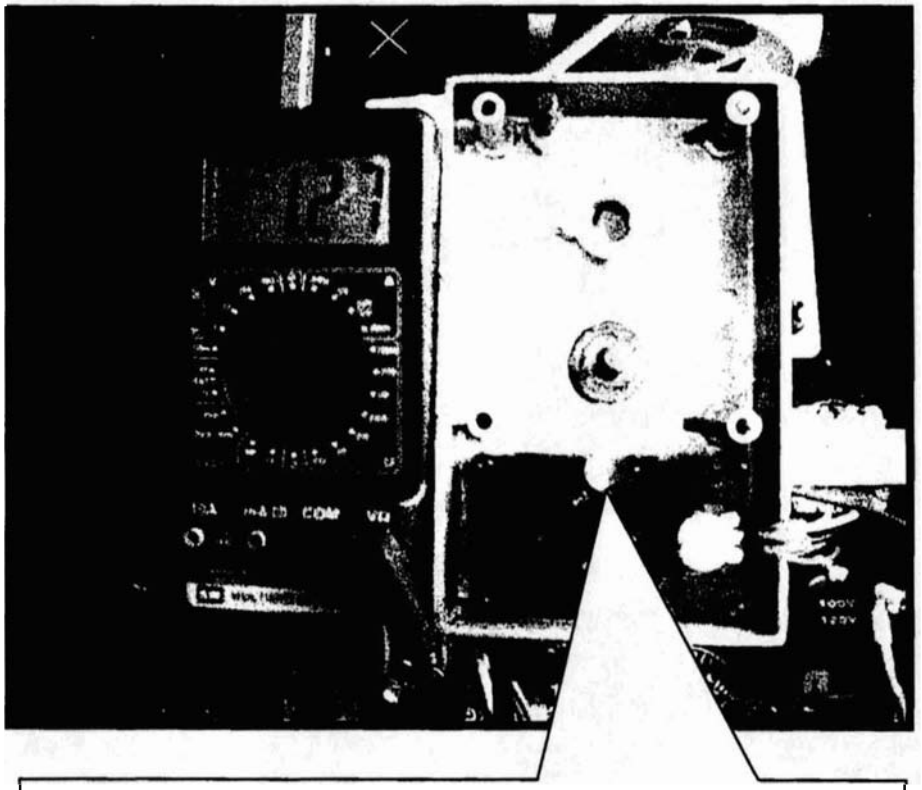
(1) Put multimeter to the 20VDC setting. Place probes on the blue and green wire connector points on the drive board as shown on the left.

(2) Tum on unit power. Tum the VR gear until the VR voltage shows 1.27VDC.

(3) Reassemble the VR set and tum off the unit power.

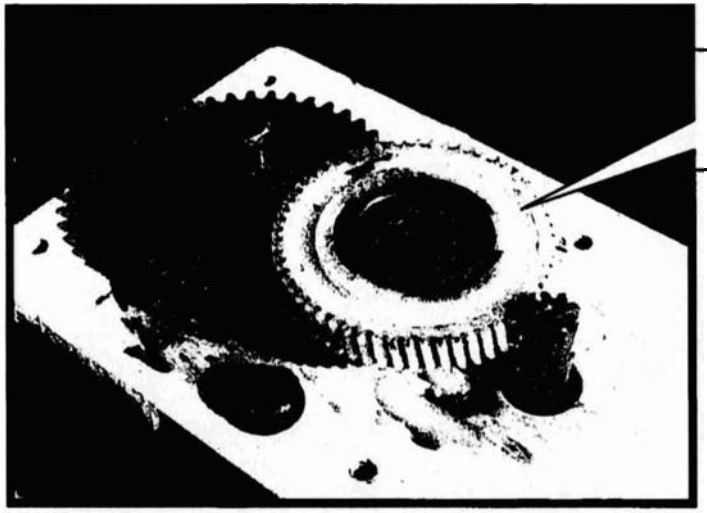


Place probes on the blue and green wire connector points on the drive board.

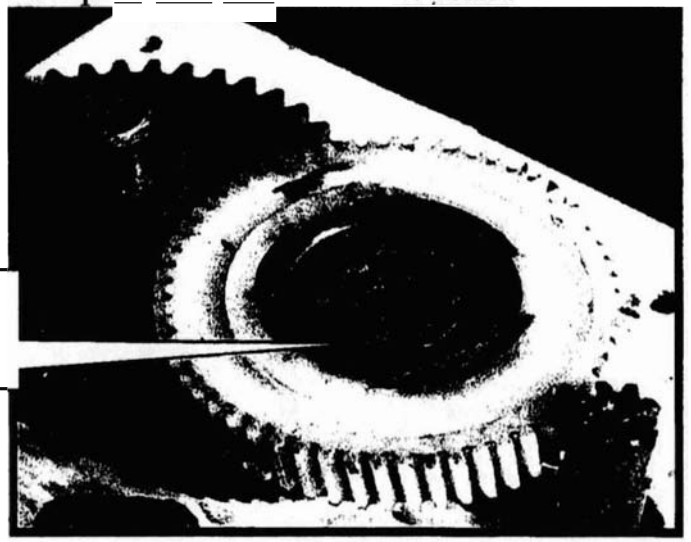


Tum the VR gear until the multimeter shows 1.27VDC.

Step 6. Put the Incline Gear Back in Place

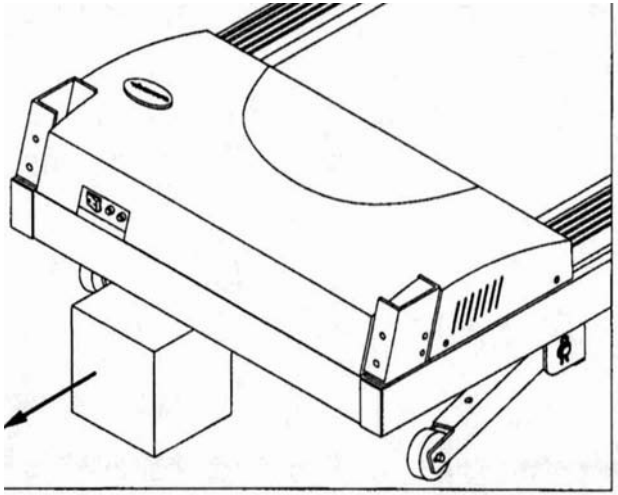


Step 7. Put the Wave Washer in Place



Step 8. Fasten the Incline VR Cap in Place

Step 9. Remove the Block of Wood



Step 10. Test

(1) Press INCL<▲> key until the INCL window shows the highest position (see page 4-7). Incline operates to highest position. Drive board ERR indicator doesn't light.
Normal reading: 3.70VDC on most models, 4.50VDC on 6005.

(2) Press INCL<▼> key until the INC window shows 0%. Incline operates to 0% position. Drive board ERR indicator doesn't light. Incline set red line is at the appropriate location (see page 4-1). Normal reading: 1.27VDC.

(3) If during incline operation, drive board LED5 doesn't light, and at the 00/0 position the red line (see page 4-1) on the incline set is in the appropriate location, the incline calibration is successful.

Vanous AC Incline Motor YR Set Voltage Ranges

Model	Incline Range		VR Voltage	
	Lowest	Highest	At Lowest Point	At Highest Point
1096/1098F	0%	100/0	1.27Y	3.70Y
12001125011260	0%	120/0	1.27Y	3.70Y
12XXN	0%	15%	1.27Y	3.70Y
1190	0%	150/0	1.27Y	3.70Y
6005	0%	150/0	1.27Y	4.50Y

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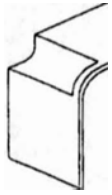
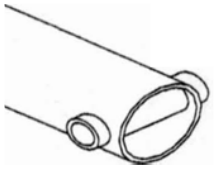
DC Incline Motor Set Troubleshooting Manual





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[DC Incline Motor Troubleshooting Manual]

DC Incline Motor Set

1. Block Diagram

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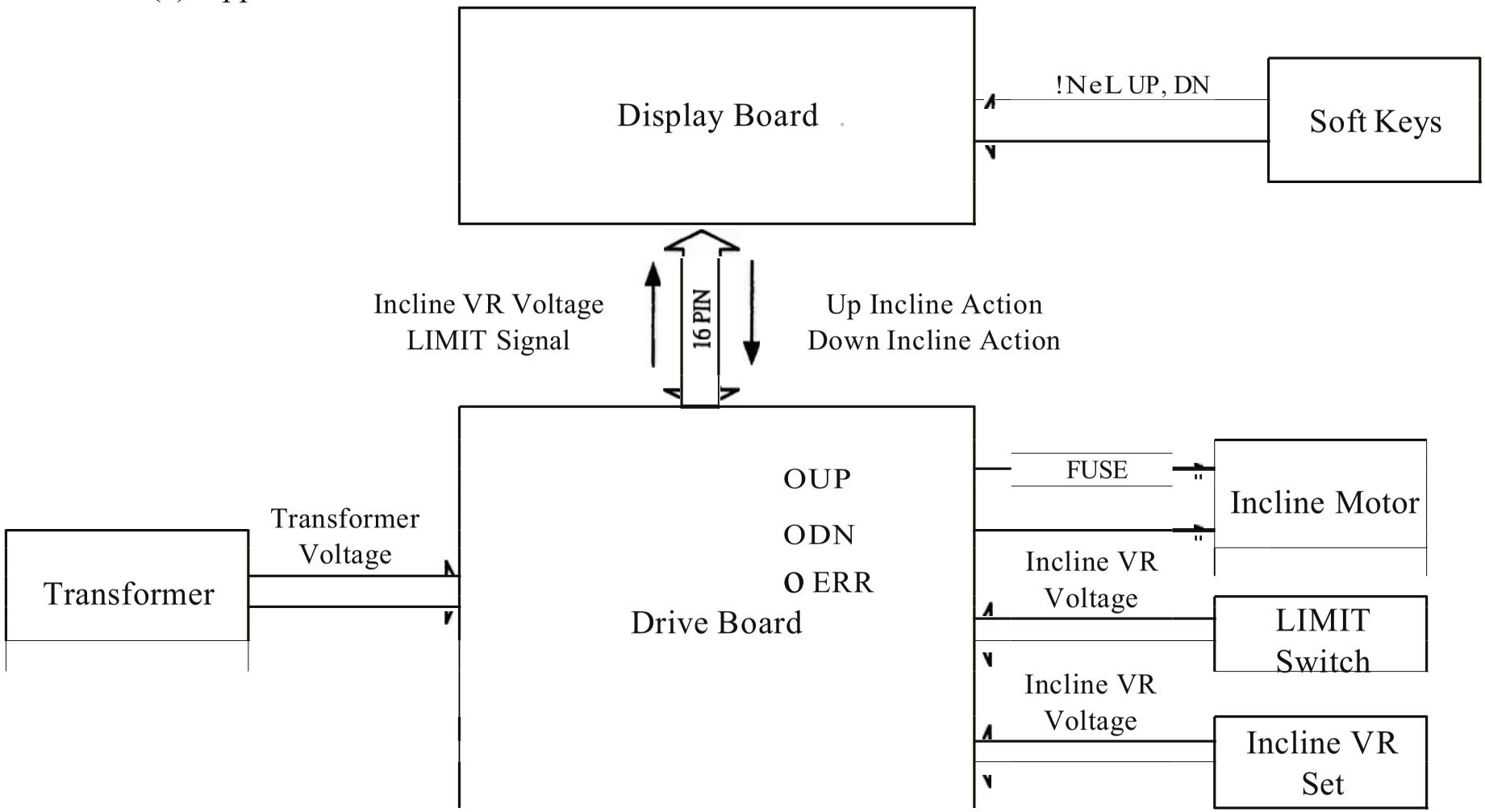
D C Incline Motor Set

1. Block Diagram

(1) Applies to Treadmill Models: 31XX/32XX/61XX/62XX/6200N



DC Incline Motor Set

2. Operation

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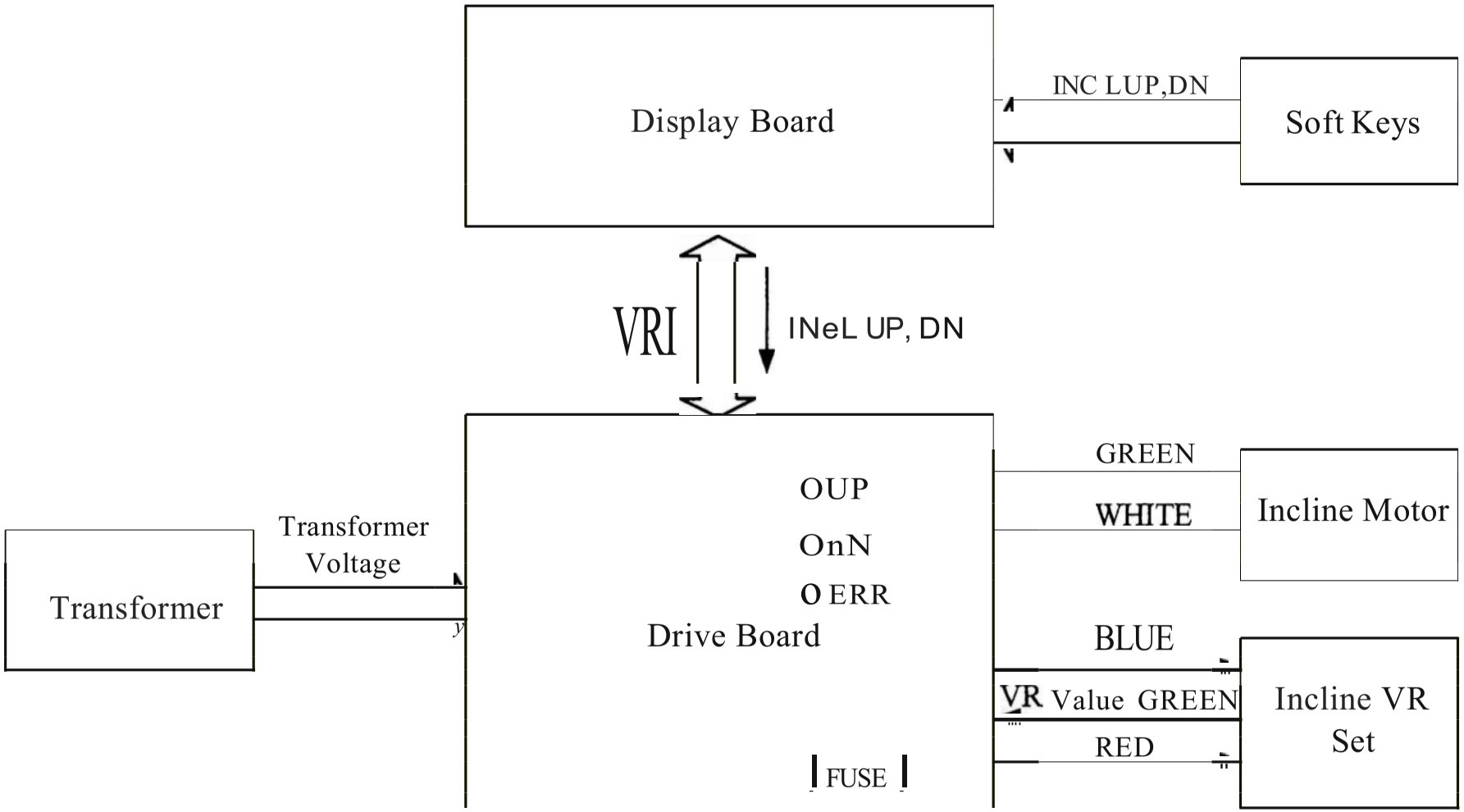
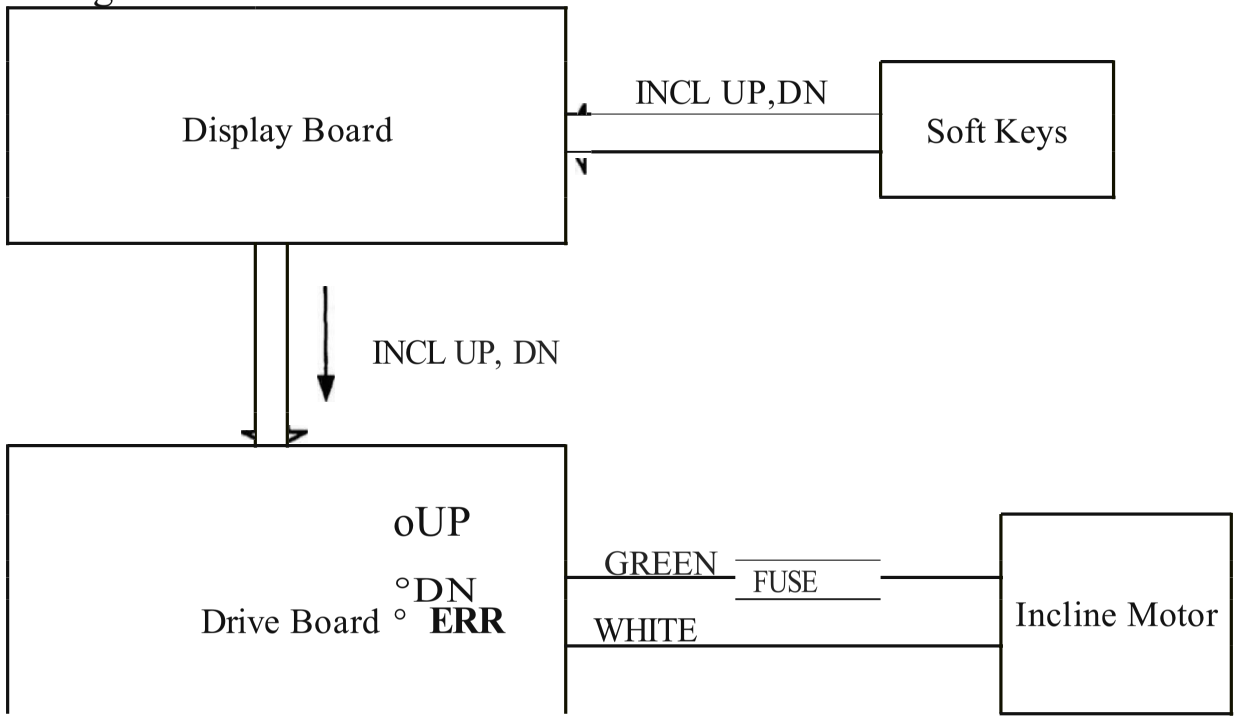
(2) Applies to Treadmill Models: *118011210/3106/3108/3110*



2. Operation – 1. UplDown Incline Action

1-1. Block Diagram



Display	Drive Board	Incline Voltage (GREEN-WHITE)	Incline Motor
Press INCL<▲>	UP Indicator Lights	40V	Up Action
Press INCL<▼>	DN Indicator Lights	-40V	Down Action

1-2. Operation

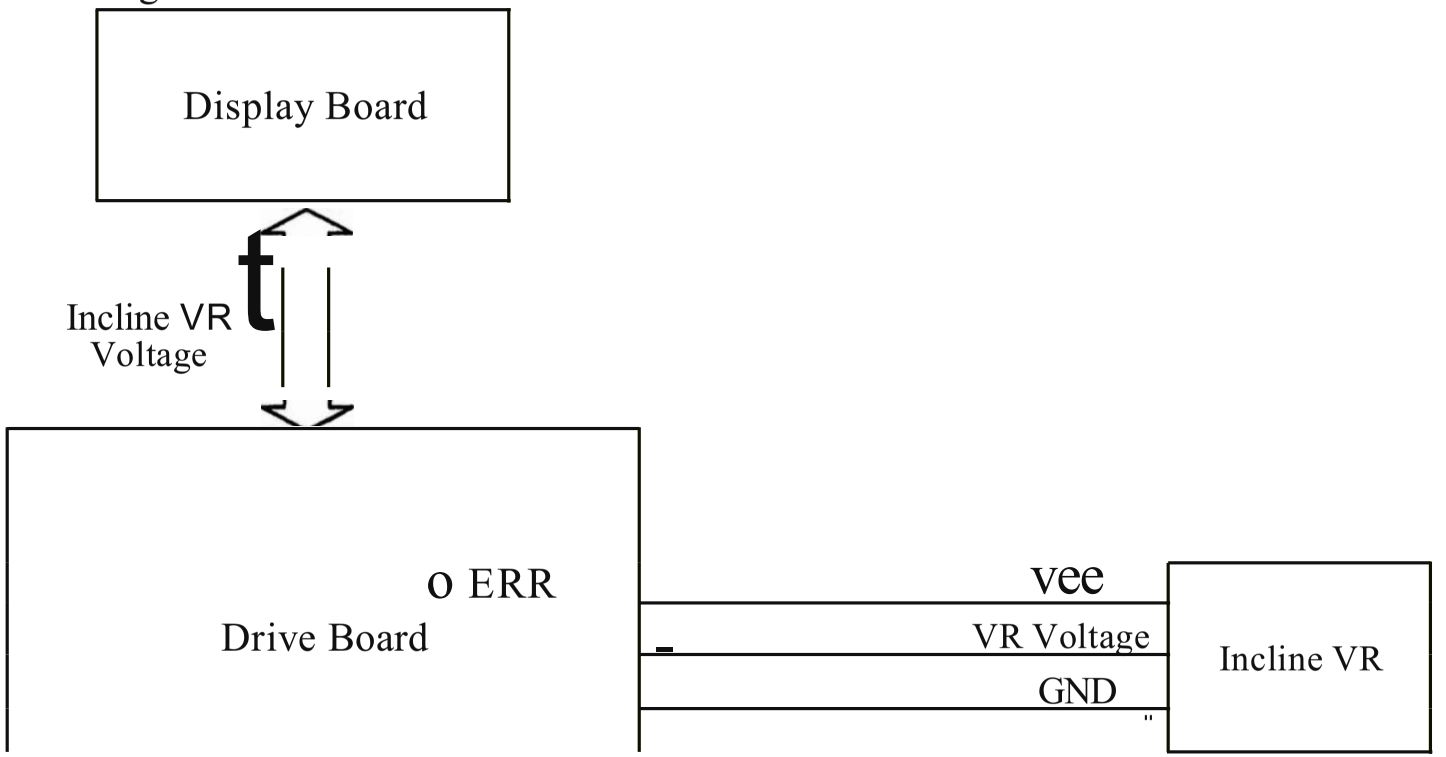
Order	Part	Operation
1	Display Board	1. Press INCL<▲> key. Values in the display INCLINE window Increase. 2. Press INCL<▼> key. Values in the display INCLINE window decrease.
2	Cable from Display Board to Drive Board	1. The incline UP or DOWN signal travels the main cable from the display board to the drive board.
3	Drive Board	1. Press INCL<▲> key. The drive board UP indicator lights. The drive board sends 40VDC through the incline green and white wires. Incline operates up. 2. Press INCL<▼> key. The drive board DN indicator lights. The drive board sends --40VDC through the incline green and white wires. Incline operates down.
4	Incline Motor	1. The drive board UP indicator lights. Incline operates up. 2. The drive board DN indicator lights. Incline operates down.

1-3 . Procedure

Order	Operation
1	Turn on unit power.
2	Press the INCLINE<▲> key. The drive board UP indicator lights. Incline operates up.
3	Press the INCLINE<T> key. The drive board DN indicator lights. Incline operates down.

2. Incline VR Operation

2-1 Block Diagram



2-2. Operation

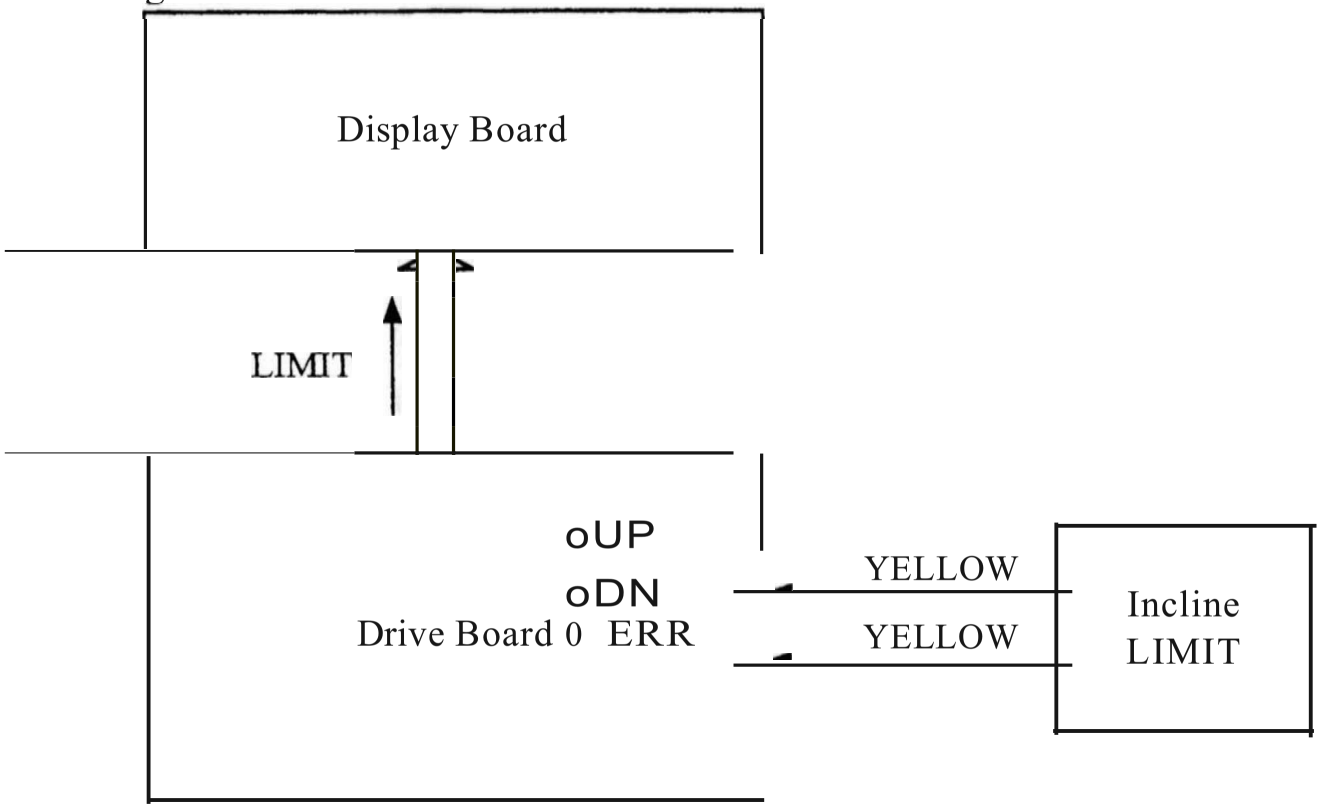
Order	Part	Operation
1	Incline Motor Set	1. During up incline operation, the drive board UP indicator lights. 2. During down incline operation, the drive board DN indicator lights.
2	Incline VR Set	1. VR voltage at 0%: 1.20VDC. 2. The VR voltage increases as the incline operates upward. 3. The VR voltage decreases as the incline operates downward.
3	VR Wires	1. The VR voltage value travels the VR wires to the drive board.
4	Drive Board	1. The drive board sends the VR voltage value to the display board.
5	Main Cable	1. The VR voltage value travels the main cable from the drive board to the display board.
6	Display Board	1. The program reads the VR value and determines incline position. 2. When the VR voltage value matches the incline setting, the incline UP or DOWN signal is shut off, and incline action stops.

2-3.Procedure

Order	Operation
1	Tum on unit power.
2	Press INCLINE<▲> key until the INCLINE window shows 15%. The drive board UP indicator lights. Incline operates to the highest position and then stops.
3	Press INCLINE<▼>key until the INCLINE window shows 0%. The drive board DN indicator lights. Incline operates to the lowest position and then stops.
4	Incline stops moving.

3. LIMIT Switch Protective Function

3-1. Block Diagram



Item	Incline Position		
	Less than 0%	0%-15%	More than 15%
LIMIT Operates	OPEN	CLOSE	OPEN
Drive Board ERR Indicator	Lit	Not Lit	Lit

3-20peration

Order	Part	Operation
1	Incline Motor Set	1. When the incline operates UP, the drive board UP indicator lights. 2. When the incline operates DOWN, the drive board DN indicator lights.
2	LIMIT Switch	1. At the 0-15% incline position, the LIMIT switch is CLOSED. 2. At less than 0% incline (malfunction), the LIMIT switch IS OPENED. 3. At more than 150/0 incline (malfunction), the LIMIT switch IS OPENED.
3	Incline Wire	1. The LIMIT switch signal travels the wire to the drive board.
4	Drive Board	1. When the LIMIT switch is CLOSED, the drive board ERR indicator doesn't light. Incline operation is normal. 2.When the LIMIT switch is OPENED, the drive board ERR indicator lights. Incline operation is abnormal. 3. When the ERR indicator lights, the UP or DN indicator extinguishes. Incline stops operating.
5	Main Cable	1. The LIMIT switch signal travels the main cable to the display board.
6	Display Board	1. The display program reads the LIMIT switch signal. 2. When the drive board ERR indicator lights, the IC implements its protective program, and incline motor operation is restricted to one direction only.

3-3. Error Simulation

Order	Operation
1	Repeatedly press INCLINE<▲> or<▼> key. Incline operates to the highest or lowest :position. Drive board ERR indicator doesn't light.
2	Press INCLINE<▲> or <▼> key. Before the incline has stopped operating, remove the incline motor yellow wire.
3	The drive board ERR indicator lights. Incline up or down action ends.
4	Ifthe drive board ERR indicator lights, press the display INCLINE<▲> or <▼> key. The incline can only operate in one direction.

3-4 DC Incline Motor Set Voltage Range

Model	Incline Range		Incline Voltage Range	
	Lowest	Highest	At Lowest Incline	At Highest Incline
1210	0%	12%	1.20YDC	3.30YDC
1180	0%	12%	1.20YDC	3.30YDC
3100/3120/3150	0%	15%	3.55YDC	1.20YDC
3106/3108/3110	0%	15%	1.20YDC	3.80YDC
3200/3250	0%	15%	1.20YDC	3.55YDC
6100/6150	0%	15%	3.55YDC	1.20YDC
6100E/6150E	0%	15%	1.20YDC	3.55YDC
6200/6200N/6260	-3%	22%	1.20YDC	3.55YDC
6300/6310	0%	15%	1.17YDC	3.75YDC
6320	-30/0	22%	1.17YDC	3.75YDC

DC Incline Motor Set

3. Measuring and Testing

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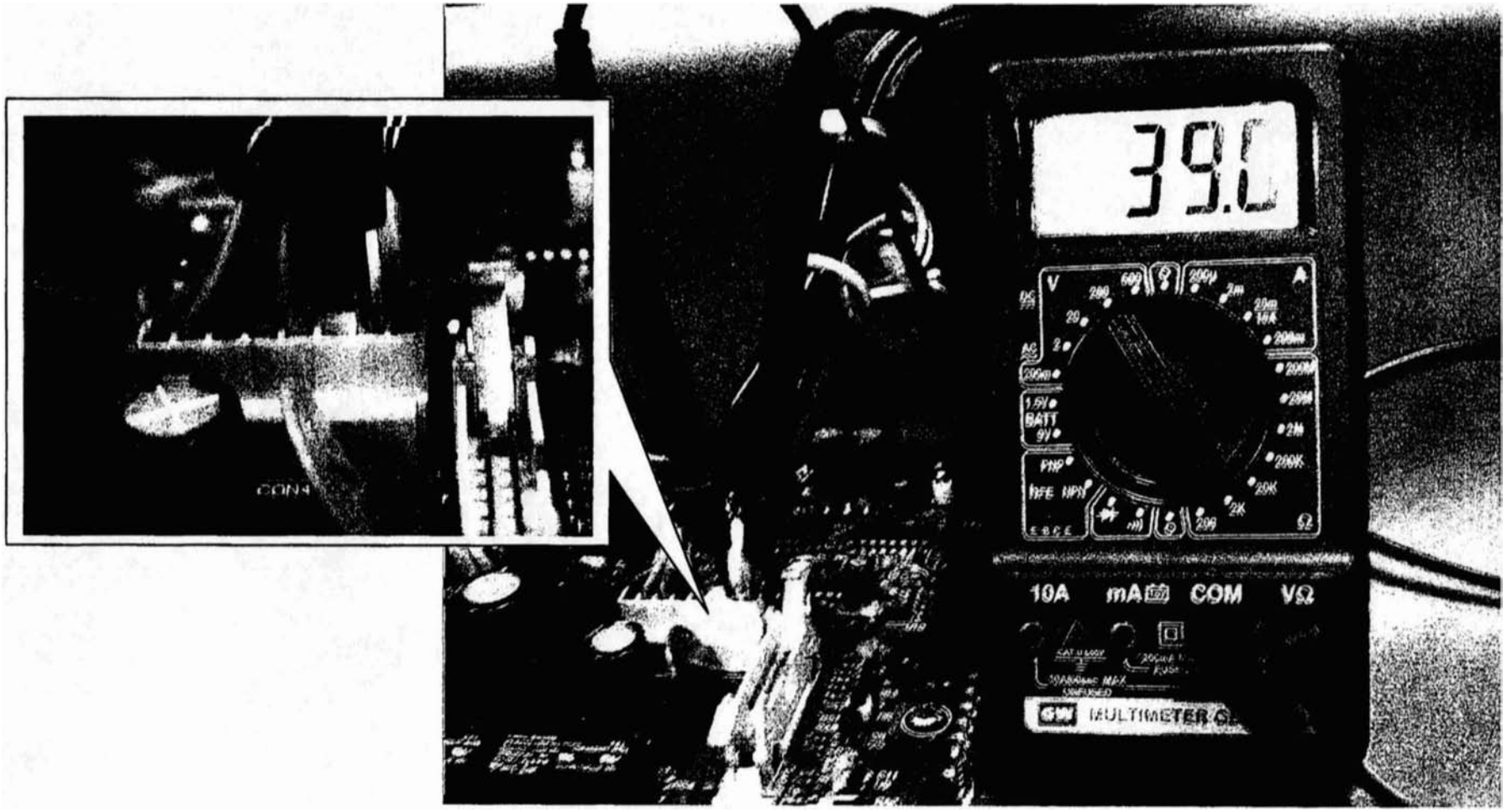
3. Measuring and Testing -1. Drive Board Incline Motor Voltage Test

1-1. Illustration



1-2. Test Procedure

(1) Put multimeter to the 200VDC setting. Place probes separately on the green and white wire connector points as shown.

(2) Tum on unit power. The display lights up.

(3) Press INCL<▲> key. The drive board LED4 indicator lights. Nonnal reading: +37V or more. The incline operates upward.

(4) Press INCL<▼> key. The drive board LED3 indicator lights. Nonnal reading -37V or more. The incline operates downward.

2. Incline VR Voltage Test

2-1. Illustration

2-2. Test Procedure

(1) Put multimeter to the 20VDC setting. Place probes on the blue and green wire connector points as shown.

(2) Turn on the unit power. See the chart below for the normal incline voltage range for your unit. If not within this range, ERR 7 appears on the display.

(3) Press INCL<▲> key until the display incline window shows the highest level for your model. The incline operates to the highest position. See the chart below for the normal voltage at the highest incline position for your model.

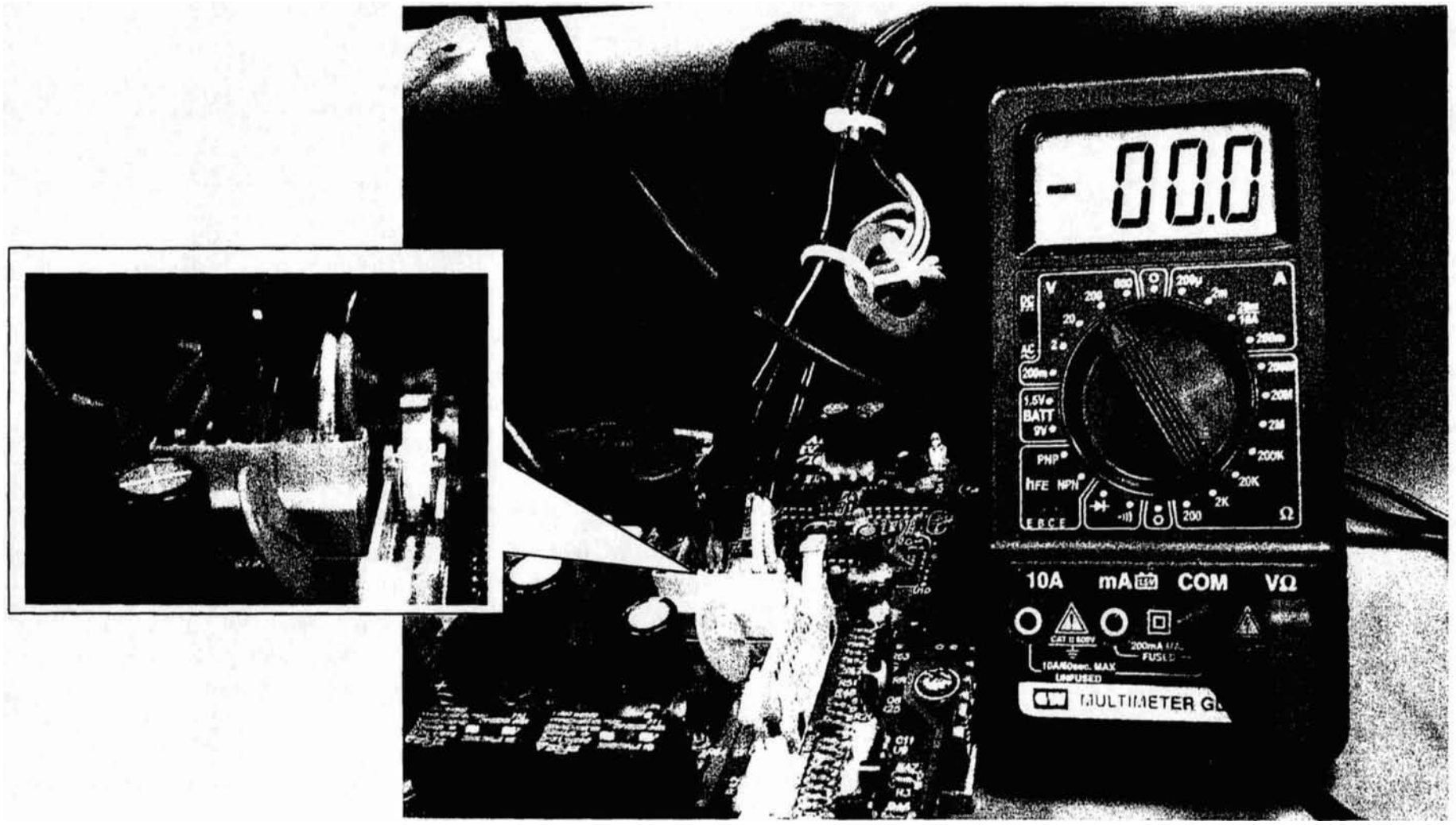
(4) Press INCL<▼> key until the display incline window shows 0%. The incline operates to the lowest position. On the incline motor, there is a thin pipe with a red line and a thick pipe. At the 0% position, the end of the thick pipe is even with the red line on the thin pipe.

2-3. VR Voltage Values for Various DC Incline Sets

Model	Incline Range		Incline Voltage Range	
	Lowest	Highest	VR Value at Lowest Position	VR Value at Highest Position
1210	0%	12%	1.20VDC	3.30VDC
1180	0%	12%	1.20VDC	3.30VDC
3100/3120/3150	0%	15%	3.55VDC	1.20VDC
3106/3108/3110	0%	15%	1.20VDC	3.80VDC
3200/3250	0%	150/0	1.20VDC	3.55VDC
6100/6150	0%	15%	3.55VDC	1.20VDC
6100E/6150E	0%	15%	1.20VDC	3.55VDC
6200/6200N/6260	-3%	22%	1.20VDC	3.55VDC
6300/6310	0%	12%	1.17VDC	3.75VDC
6320	-3%	22%	1.17VDC	3.75VDC

3. Incline LIMIT Test

3-1. Illustration



3-2. LIMIT Indicator Test

(1) Put multimeter to the 20VDC setting. The incline VR set has two yellow wires that connect to the drive board. Place meter probes on the two yellow wire connector points on the drive board. Normal reading at this location: 5VDC.

(2) Turn on the unit power.

(3) Press INCL<▲> key until the INCLINE window shows the highest level.

The drive board ERR indicator doesn't light. This means the limiter switch is closed. Voltage across the yellow wires: 5VDC.

(4) Press INCL<▼> key until the INCLINE window shows the lowest level.

The drive board ERR indicator doesn't light. This means the limiter switch is closed. Voltage across the yellow wires: 5VDC.

(5) If there is no voltage, the drive board ERR indicator lights, indicating that the incline set is out of calibration. Recalibrate the incline set.

Note: The voltage reading across the two yellow wires indicates whether the incline LIMIT switch is activated. It is a convenient place to put meter probes. But the reading here actually shows the opposite of the actual limit switch operation. When the VR voltage exceeds the proper range, the LIMIT switch opens, allowing 5VDC for the operation of the incline protection function on the drive board.

DC **Incline Motor Set**

4. Incline Motor Set Calibration

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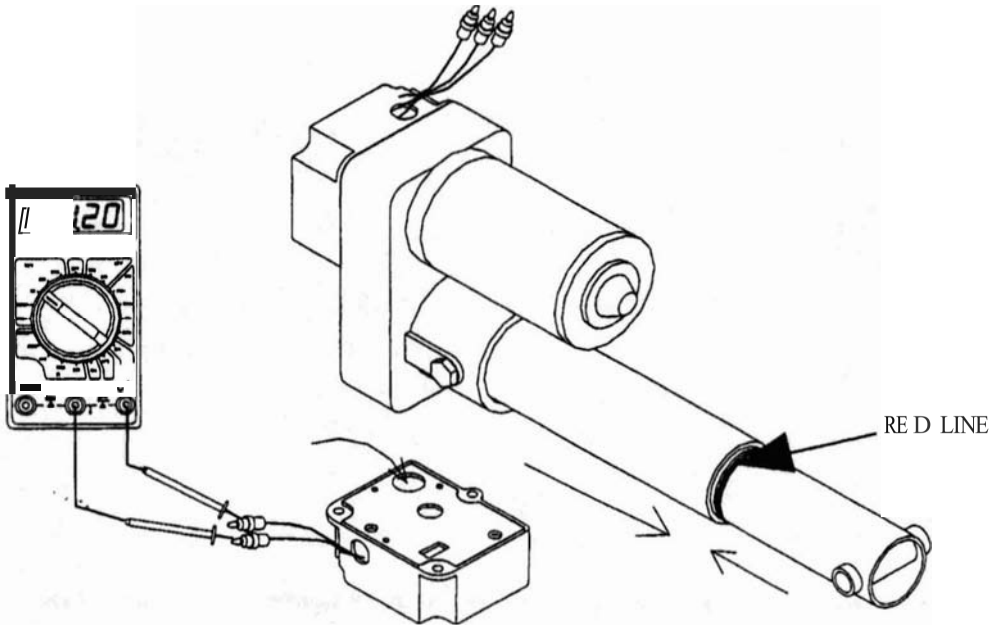
Incline Set Calibration

1. Goal: To calibrate the incline set, allowing it to operate properly.

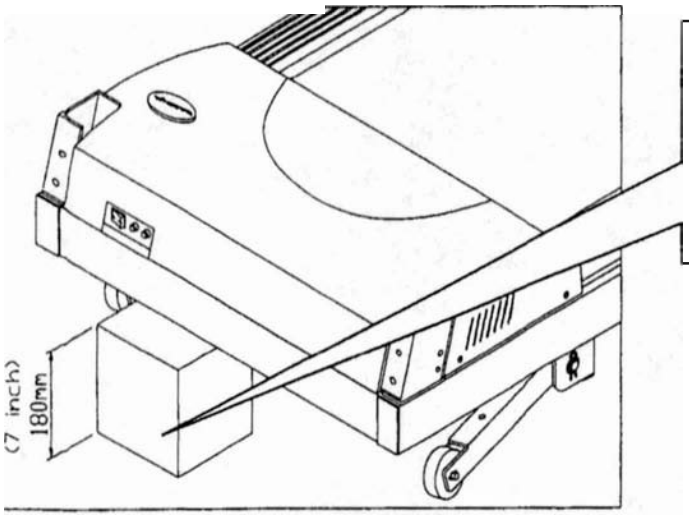
2. Calibration is necessary when:
   (1) ERR7 appears on the display;
   (2) ERR6 appears on the display and the drive board ERR indicator lights;
   (3) the incline set has extended beyond its low or high range limit.

2. The calibration process has two parts - one electronic, one mechanical:
   (1) Electronic: Adjust VR voltage to 1.20VDC or 3.55VDC (see model specifications);
   (2) Mechanical: Adjust the incline motor pipe to the base point (red line 0% position).



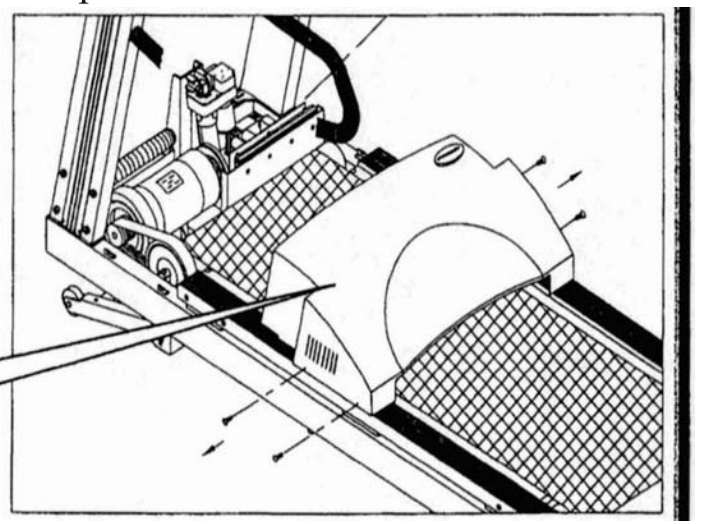
4. Calibration Procedure - Mechanical

Step 1. Support the Frame



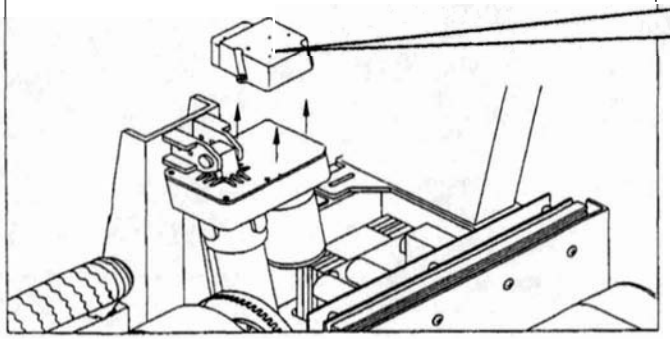
Take pressure off the incline set by putting a block of wood (180mm, 7inches high) under the frame.

Step 2. Remove the Motor Cover



Take out screws and remove the motor cover.

Step 3. Remove the Incline VR Box



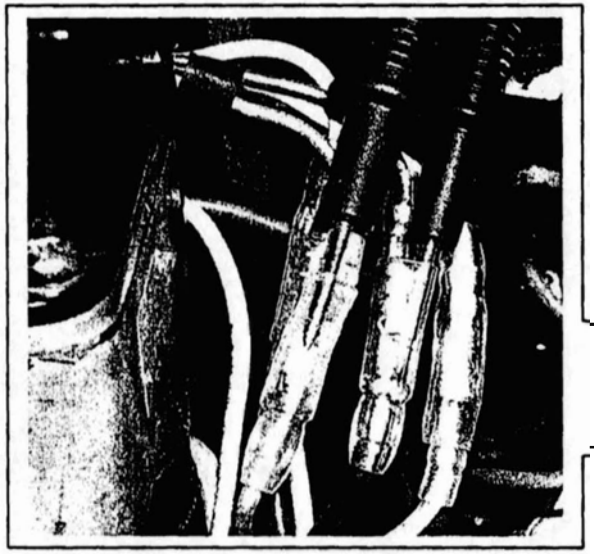
1. Don't remove the VR wires.
2. Take out screws and remove the VR box.

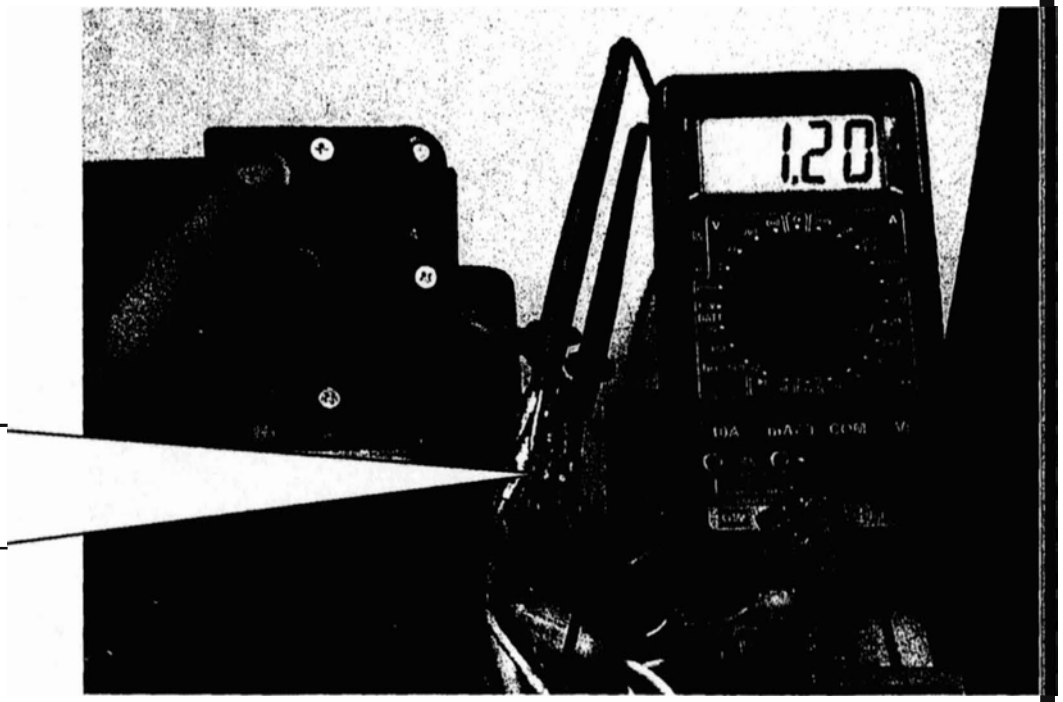
Step 4. Adjust the VR Voltage

(1) Put multimeter to the 20VDC setting. Place probes on CON2 blue and green wire connectors.

(2) Tum on unit power. Tum the VR gear until the meter shows appropriate voltage (see below).

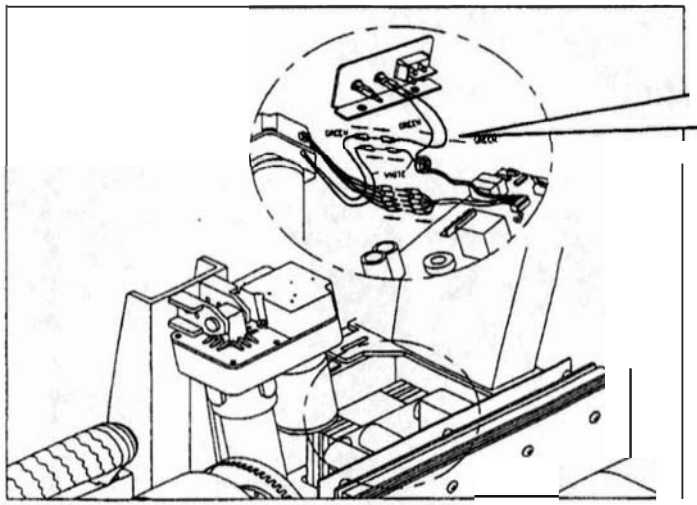
(3) Reinstall VR box. Tum offunit power.





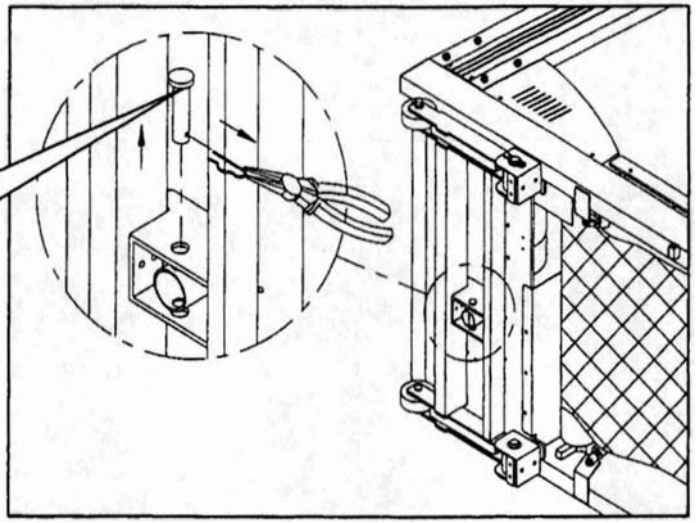
Model	LevelNoltage	Model	LevelNoltage
1210	0%→1.20V	6100/6150	0%→1.20V
1180	0%→1.20V	6100E/6150E	0%→3.55V
3100/3120/3150	0%→3.55V	6200/6200N/6260	0%→1.20V
3106/3108/3110	0%→1.20V		

Step 5. Detach the Incline Wire Connectors



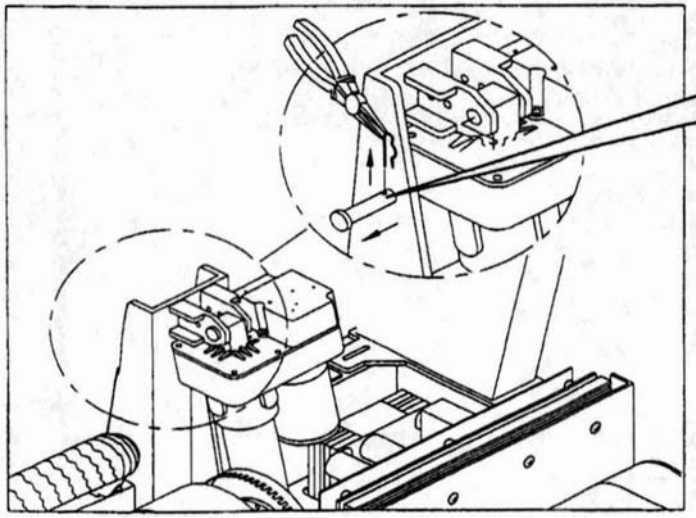
Detach connections on the incline motor and VR wires.

Step 6. Remove the Incline Lower Pin



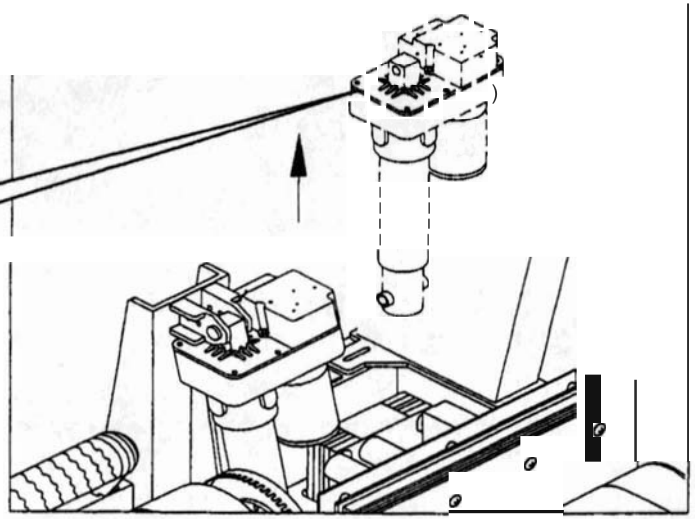
Remove the incline lower pin.

Step 7. Remove the Incline Upper Pin



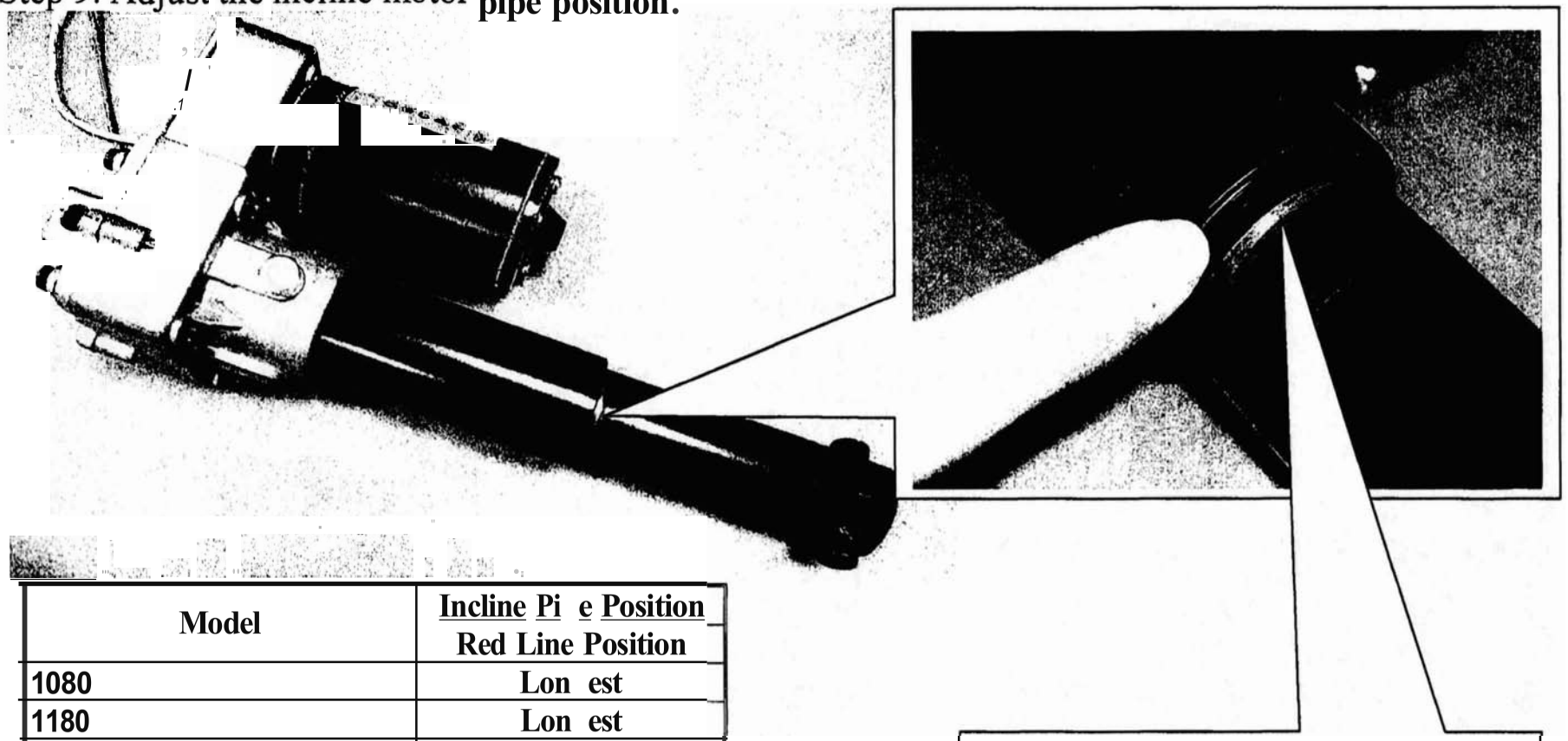
Remove the incline upper pm.

Step 8. Remove the Whole Incline Set



Remove the whole incline set.

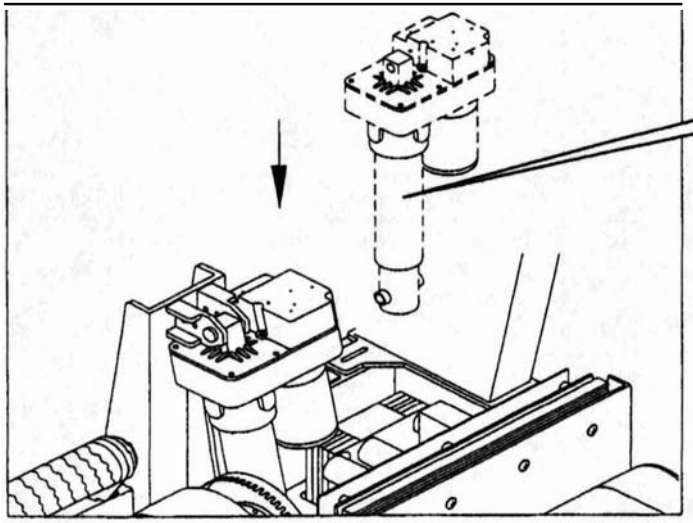
Step 9. Adjust the incline motor pipe position.



Model	Incline Pi e Position Red Line Position
1080	Lon est
1180	Lon est
3100/3120/3150	Lon est
3106/3108/3110	Shortest
3200/3250	Shortest
6100/6150	Shortest
6100E/6150E	Lon est
6200/6200N/6260	Shortest
6300/631016320	Shortest

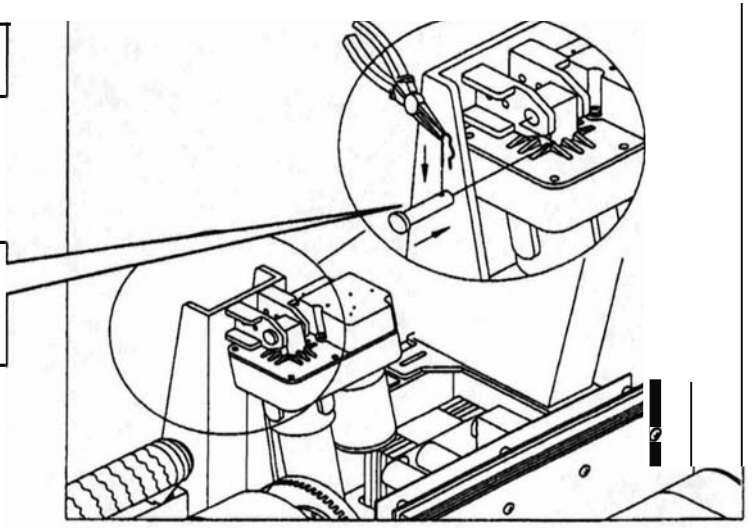
Rotate until the red line on the thin pipe is visible just above the end of the thick pipe.

Step 10. Reinstall Incline Set



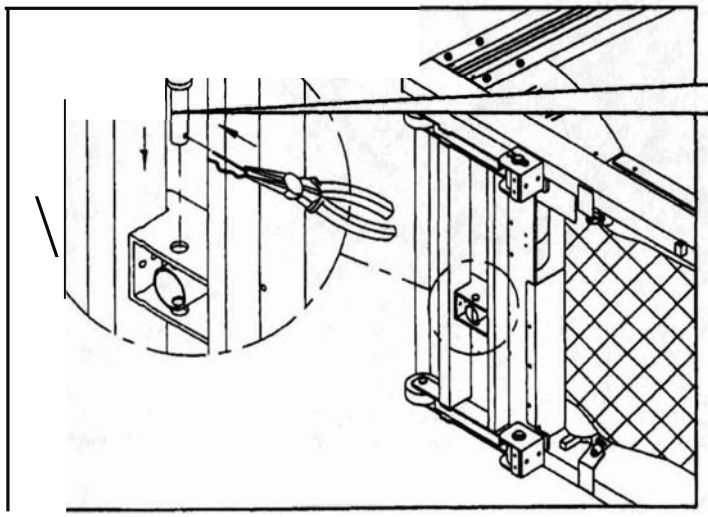
Reinstall incline set.

Step 11. Insert the Incline Upper Pin



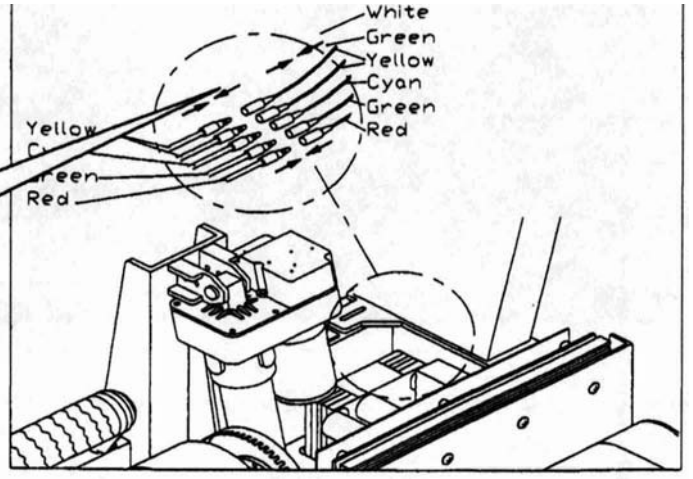
Insert the incline upper pm.

Step 12. Insert Incline Lower Pin



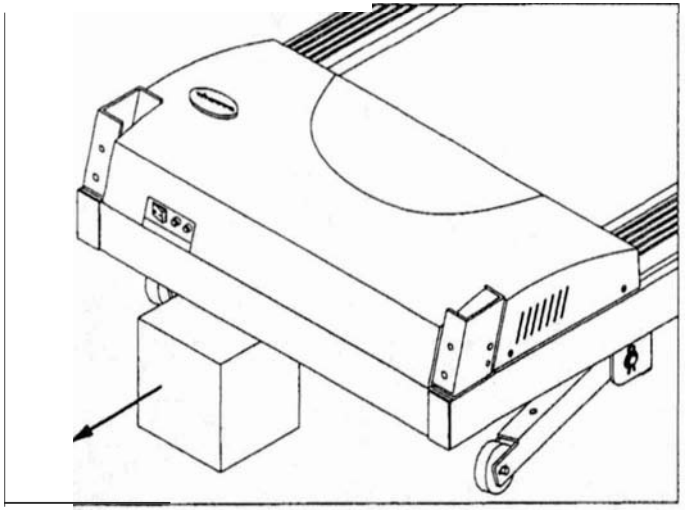
Insert incline lower pm.

Step 13. Reconnect Incline Wires



Reconnect incline WIres.

Step 14. Remove the Block



Step 15. Test

(1) Press INCL<▲> key until INCL window shows the highest incline position. The drive board LED5 indicator doesn't light.

(2) Press INCL<▼> key until INC window shows the lowest incline position. The drive board LED5 indicator doesn't light.

(3) If the unit incline operates up and down, and the drive board LED5 doesn't light, and at the 0% position the red line on the incline pipe is in the correct place, then calibration is complete.

VR Voltage Ranges of Various DC Incline Treadfills

Model	Incline Range		Incline Voltage	
	Lowest	Highest	Lowest Position	Highest Position
1210	0%	12%	1.20 VDC	3.30 VDC
3100/3120/3150	0%	15%	3.55 VDC	1.20 VDC
3106/3108/3110	00/0	15%	1.20 VDC	3.80 VDC
3200/3250	0%	15%	1.20 VDC	3.55 VDC
6100/6150	0%	150/0	3.55 VDC	1.20 VDC
6100E/6150E	0%	15%	1.20 VDC	3.55 VDC
6200/6200N/6260	-30/0	22%	1.20 VDC	3.55 VDC
6300/6310	00/0	15%	1.20 VDC	3.77 VDC
6320	-3%	22%	1.20 VDC	3.77 VDC

DC Incline Treadfill Operation Modes

Model	Incline Method	Incline Pipe Position	
		Lowest (0%)	Highest (15%)
3100/312013150	Pull	Extended	Retracted
3106/3108/3110	Push	Retracted	Extended
3200/3250	Push	Retracted	Extended
6100/6150	Pull	Extended	Retracted
6100E/6150E	Push	Retracted	Extended
6200/6200N/6260	Push	Retracted	Extended
6300/6310	Push	Retracted	Extended
6320	Push	Retracted	Extended

AC Incline Motor Position and **Voltage** Table

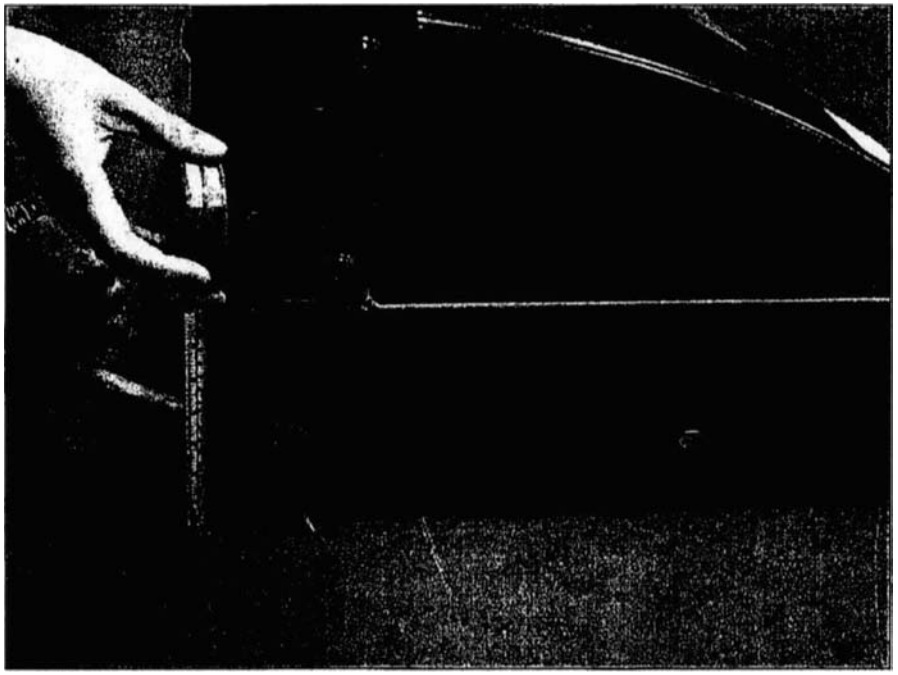
Model	Incline Range		Incline VR Voltage		Incline Position	
	Lowest	Highest	Lowest	Highest	Lowest	Highest
1096F/1 098F	000	1000	1.27V	3.75V	---------	-------
1200/125011260	00/0	12%	1.27V	3.75V	13.0cm	27cm
6005	0%	15%	1.27V	4.50V	--------	-------
1190	00/0	10%	1.27V	3.75V	6.5cm	18.5cm
12XXN	00/0	12%	1.27V	3.75V	13.0cm	27cm

DC Incline Motor Position and **Voltage** Table

Model	Incline Range		Incline VR Voltage		Incline Position	
	Lowest	Highest	Lowest	Highest	Lowest	Highest
1210	00/0	12%	1.20V	3.30V	9cm	25cm
1180	0%	12%	3.30V	1.20V	7cm	18cm
3100/3120/3150	0%	15%	3.55V	1.20V	11.5cm	--------
3106/3108/3110	0%	15%	1.20V	3.80V	8cm	27.8cm
3200/3250	0%	15%	1.20V	3.55V	10cm	29cm
6100/6150	0%	15%	3.55V	1.20V	12.5cm	30cm
6100E/6150E	0%	15%	1.20V	3.55V	12.5cm	30cm
6200/6200N/6260	-3%	220/0	1.20V	3.55V	lO.5cm	30cm
6300/6310	0%	150/0	1.17V	3.75V		
6320	-3%	22%	1.17V	3.75V		

Treadmill Incline Position Measurements

(1) Lowest Position



(2) Highest Position

TREADMILLS-SPECIFICATIONS

5/2/03	1190	1200	1210	1250	1260	3100/HR
Motor	1.8 HP Cont. @4400RPM	1.8 HP Cont. @4400RPM	2.0 HP Cont. @4500RPM	2.0 HP Cont. @4400RPM	2.0 HP Cont. @4400RPM	2.5 HP Cont. @3200RPM
Belt Size	18" X 55"	20" X 53"	20" X 58"	20" X 53"	20" X 53"	20" X 55"
Belt Type	4 Ply Commercial Grade	4 Ply Commercial Grade	4 Ply Commercial Grade	4 Ply Commercial Grade	4 Ply Commercial Grade	4 Ply Commercial Grade
Deck	Reversible & Phenolic	Reversible & Phenolic	Reversible & Phenolic	Reversible & Phenolic	Reversible & Phenolic	Reversible & Phenolic
Variable flex Shock Dissipation System	YES	YES	YES	YES	YES	YES
Frame	Steel Welded	Steel Welded	Steel Welded	Steel Welded	Steel Welded	Steel Welded
Speed Range	0.8 - 9 mph	0.5 - 10 mph	0.5 - 10 mph	0.5 - 10 mph	0.5 - 10 mph	0.1 - 11 mph
Electronic Package	2 Preset Programs Quick Start 3-Led Windows	3 Preset Programs Quick Start 3-Led Windows	5 Preset Programs 2-HRC w/strap Quick Start	5 Preset Programs HR Readout Quick Start	5 Preset Programs HR Readout Quick Start	8 Preset Courses, 2 Custom Intv. HR Readout, HRC
Incline Range	0-10%	0-12%	0-12%	0-12%	0-12%	0 -15%
User Weight Capacity	250 LBS	280 LBS	280 LBS	280 LBS	280 LS	300 LBS
Maintenance free deck (Lifetime)	YES	YES	YES	YES	YES	YES
Roller Type & Size	2.0" Diameter High Grade Sealed Bearing	2.5" Diameter High Grade Sealed Bearing	2.5" Diameter High Grade Sealed Bearing	2.5" Diameter High Grade Sealed Bearing	2.5" Diameter High Grade Sealed Bearing	2.5" Diameter High Grade Sealed Bearing
Belt Tracking Roller Guides	YES	YES	YES	YES	YES	YES
Self Diagnostic Electronics	YES	YES	YES	YES	YES	YES
Home Warranty	3 yr. Bed, Belt & Motor, 2 yr part, 1 yr. labor	4 yr. Bed, Belt & Motor, 2 yr part, 1 yr. labor	4 yr. Bed, Belt & Motor, 2 yr part, 1 yr. labor	4 yr. Bed, Belt & Motor, 2 yr part, 1 yr. labor	4 yr. Bed, Belt & Motor, 2 yr part, 1 yr. labor	5 yr. Bed, Belt 3 yr. Motor, 2 yr part, 1 yr. labor
Commercial Warranty	NA	NA	NA	NA	NA	1 yr. Parts & Labor, 4 hrs/day maximum usage
Net Weight	162 lbs	210lbs	2241bs	210 lbs	210lbs	230lbs
Contact Heart Rate	NO	NO	NO	NO	NO	YES
Product Dimensions	Length: 70.1" Width: 26.8" Height: 49.5"	Length: 70.9" Width: 28.0" Height: 48.8"	Length: 75.36" Width: 30.33" Height: 56.87"	Length: 70.9" Width: 26.8" Height 49.5"	Length: 70.1" Width: 28.0" Height: 48.8"	Length: 75.36" Width: 30.33" Height 56.87"

TREADMILLS-SPECIFICATIONS

5122102	3120/3150	3106	3108	3110	3200	3250
Motor	2.5 HP Cont. @3200RPM	3.0 HP Cont. @3200RPM	3.0 HP Cont. @32ooRPM	3.0 HP Cont. @3200RPM	2.7 HP Cont. @3200RPM	2.7 HP Cont. @3200RPM
Belt Size	20" x 55"	20· x 58"	20" X 58"	20" x 58"	20" x 55"	20" X 55"
Belt Type	4 Ply Commercial Grade	4 Ply Commercial Grade	4 Ply Commercial Grade	4 Ply Commercial Grade	4 Ply Commercial Grade	4 Ply Commercial Grade
Deck	Reversible & Phenolic	Reversible & Phenolic	Reversible & Phenolic	Reversible & Phenolic	Reversible & Phenolic	Reversible & Phenolic
Variable flex Shock Dissipation System	YES	YES	YES	YES	YES	YES
Frame	Steel Welded	Steel Welded	Steel Welded	Steel Welded	Steel Welded	Steel Welded
Speed Range	0- 11 mph	0.1 - 10 mph	0.1 -11mph	0.1 - 11 mph	0.1 - 11 mph	0.1 - 11 mph
Electronic Package	8 Preset Courses, 2 Custom Intv. Polar Comp/HRC Dot Matrix Led	5 Preset Programs 2 HRC w/strap Quick Start	8 Preset Course 2-HRC w/strap 2 Custom Prog. 4 User Codes Quick Start	8 Preset Course 2-HRC w/strap, Interval HR, 2 Custom Prog. 4 User Codes Quick Start	No Programs 5 Led Windows Quick Start	12 Preset Programs, 2 Custom Intv. HR Readout, HRC
Incline Range	0-15%	0-15%	0-15%	0-15%	0-15%	0-15%
User Weight Capacity	300 LBS	300 LBS	300 LBS	300 LBS	325 LS	325 LBS
Maintenance free deck (Lifetime)	YES	YES	YES	YES	YES	YES
Roller Type & Size	2.5" Diameter High Grade Sealed Bearing	2.5" Diameter High Grade Sealed Bearing	2.5" Diameter High Grade Sealed Bearing	2.5" Diameter High Grade Sealed Bearing	3.0" Diameter High Grade Sealed Bearing	3.0" Diameter High Grade Sealed Bearing
Belt Tracking Roller Guides	YES	YES	YES	YES	YES	YES
Self Diagnostic Electronics	YES	YES	YES	YES	YES	YES
Home Warranty	5 yr. Bed & Belt 3 yr. Motor, 2 yr part, 1 yr. labor	5 yr. Bed, Belt & Motor, 2 yr part, 1 yr. labor	5 yr. Bed, Belt & Motor, 2 yr part, 1 yr. labor	5 yr. Bed, Belt & Motor, 2 yr part, 1 yr. labor	5 yr. Bed, Belt & Motor, 2 yr part, 1 yr. labor	5 yr. Bed, Belt & Motor, 2 yr part, 1 yr. labor
Commercial Warranty	1 yr. Parts & Labor, 4 hrslday maximum usage	1 yr. Parts & Labor, 4 hrslday maximum usage	1 yr. Parts & Labor, 4 hrslday maximum usage	1 yr. Parts & Labor, 4 *hrs/day* maximum usage	2 yr.Parts & 1 yr Labor, 6 *hrs/day* maximum usage	2 yr. Parts & 1 yr Labor, 6 hrs/day maximum usage
Net Weight	230lbs	230lbs	230lbs	230lbs	266lbs	2661bs
Contact Heart Rate	YES	YES	YES	YES	YES	YES
Product Dimensions	Length: 75.36" Width: 30.33" Height 56.87"	Length: 75.36" Width: 30.33" Height: 56.87"	Length: 75.36" Width: 30.33" Height: 56.87"	Length: 75.36" Width: 30.33" Height: 56.87"	Length: 74.69" Width: 31 .81" Height: 53.94"	Length: 74 .69" Width: 31.81" Height: 53.94"

TREADMILLS-SPECIFICATIONS

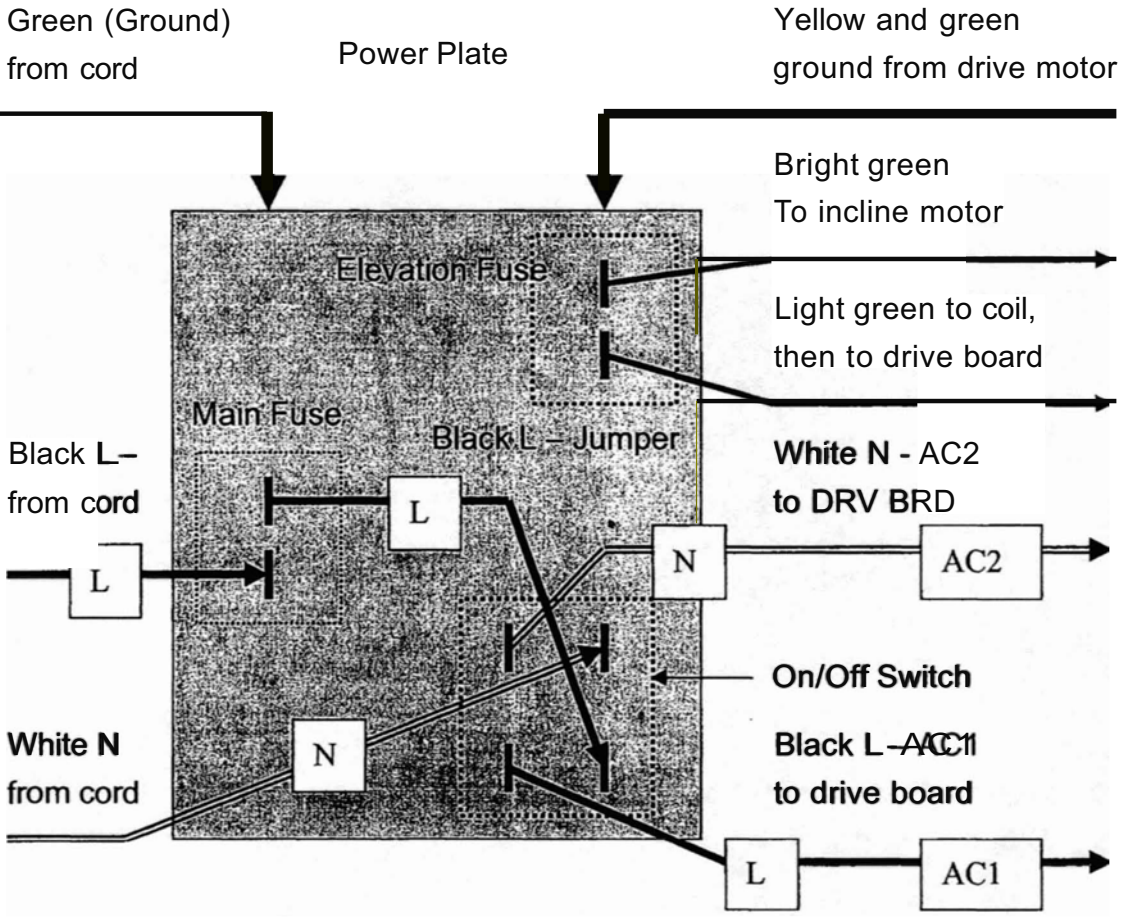
5/22102	6005	61001E	6150	6200	6300	6310
Motor	3.0 HP Cant. @2400RPM	3.0 HP Cant. @2930RPM	3.0 HP Cant. @2930RPM	3.0 HP Cant. @25OORPM	3.2 HP Cant. @2930RPM	3.2 HP Cant. @2930RPM
Belt Size	18" X 54"	20" X 55"	20" X 55"	20" X 58"	20" X 62"	20" X 62"
Bett Type	4 Ply Commercial Grade	4 Ply Commercial Grade	4 Ply Commercial Grade	4 Ply Commercial Grade	4 Ply Commercial Grade	4 Ply Commercial Grade
Deck	Reversible & Phenolic	Reversible & Phenolic	Reversible & Phenolic	Reversible & Phenolic	Reversible & Phenolic	Reversible & Phenolic
Variable flex Shock Dissipation System	YES	YES	YES	YES	YES	YES
Frame	Steel Welded	Steel Welded	Steel Welded	Steel Welded	Steel Welded	Steel Welded
Speed Range	0.5 - 10 mph	0.1 -12 mph	0.1 -12 mph	0.1 - 12 mph	0.1 - 12 mph	0.1 - 12 mph
Electronic Package	12 Preset Prog. 8 Race Program 2 IntervaVManual HR ReadoutlHRC 5 LED Windows	No Programs 5 LED Windows (Speed, Incline, Calories, Dist.) HRC	12 Preset Prog. 8 Race Program 2 IntervaVManual HR ReadoutlHRC 5 LED Windows	No Programs 6 LED Windows (Speed, Incline, Calories, Dist.) HRC, RS232	.8" LEOs Disp. (Distance, Time Calories, Speed Incline, METS, Quick Start	4 Programs, 2 Customs INN, 2 HRC, Cardio Control Display, Tri-Golor Matrix
Incline Range	0-15%	0-15%	0 - 15%	-3 - 22%	0-15%	0 - 15%
User Weight Capacity	400 LBS	400 LBS	400 LBS	400 LBS	350 LBS	410 LBS
Maintenance free deck (Lifetime)	YES	YES	YES	YES	YES	YES
Roller Type &Size	4.0" Diameter High Grade Sealed Bearing	4.0" Diameter High Grade Sealed Bearing	4.0" Diameter High Grade Sealed Bearing	4.0" Diameter High Grade Sealed Bearing	4.0" Diameter High Grade Sealed Bearing	4.0" Diameter High Grade Sealed Bearing
Belt Tracking Roller Guides	YES	YES	YES	YES	YES	YES
Self Diagnostic Electronics	YES	YES	YES	YES	YES	YES
Home Warranty (as of *9/30/01)*	3 yr. Parts & 1 Yr. Labor No Restrictions	3 yr. Parts & 1 Yr. Labor No Restrictions	3 yr. Parts & 1 Yr. Labor No Restrictions	3 yr. Parts & 1 Yr. Labor No Restrictions	2 yr. Parts & 1 Yr. Labor No Restrictions	3 yr. Parts & 1 Yr. Labor No Restrictions
Commercial Warranty (as of *9/30/01)*	3 yr. Parts & 1 Yr. Labor No Restrictions	3 yr. Parts & 1 Yr. Labor No Restrictions	3 yr. Parts & 1 Yr. Labor No Restrictions	3 yr. Parts & 1 Yr. Labor No Restrictions	1 yr. Parts & 1 Yr. Labor (LC) (6 hrs. per day)	3 yr. Parts & 1 Yr. Labor No Restrictions
Net Weight	328 lbs	330lbs	330lbs	3961bs	3481bs	444lbs
Contact Heart Rate	NO	YES	YES	YES	YES	YES
Product Dimensions	Length: 70.1" Width: 26.8" Height: 49.5"	Length: 70.1" Width: 26.8" Height: 49.5"	Length: 70.1" Width: 26.8" Height: 49.5"	Length: 70.1" Width: 26.8" Height: 49.5"	Length: 76.3" Width: 36.3" Height: 58.5"	Length: 83" Width: 36.3" Height 59.6"

TREADMILLS-SPECIFICATIONS

5/22102	6320
Motor	3.2 HP Cont. @2930RPM
Belt Size	
Belt Type	4 Ply Commercial Grade
Deck	Reversible & Phenolic
Variable flex Shock Dissipation System	YES
Frame	Steel Welded
Speed Range	0.1 -12 mph
ElectronIc Package	6 Programs, 2 Customs INTV, 2 HRC, Fitness Test, Cardio Control, Dot Mat
Incline Range	-3% - 22%
User Weight Capacity	425IBS
Maintenance free deck (Lifetime)	YES
Roller Type & Size	4.0" Diameter High Grade Sealed Bearing
Belt Tracking Roller Guides	YES
Self Diagnostic Electronics	YES
Home Warranty (as of *9130/01)*	3 yr. Parts & 1 Yr. labor No Restrictions
Commercial Warranty (as of *9/30/01)*	3 yr. Parts & 1 Yr. labor No Restrictions
Net Weight	497 lbs
Contact Heart Rate	YES
Product Dimensions	length: 85" Width: 37.3" Height: 60.5"

Wiring as Seen Behind the Power Switch

Applies to 3200/3250. The locations of fuse holders and the on/off switch differ slightly on power plates in various units, but in general, wire connections from the fuse to the switch are the same.

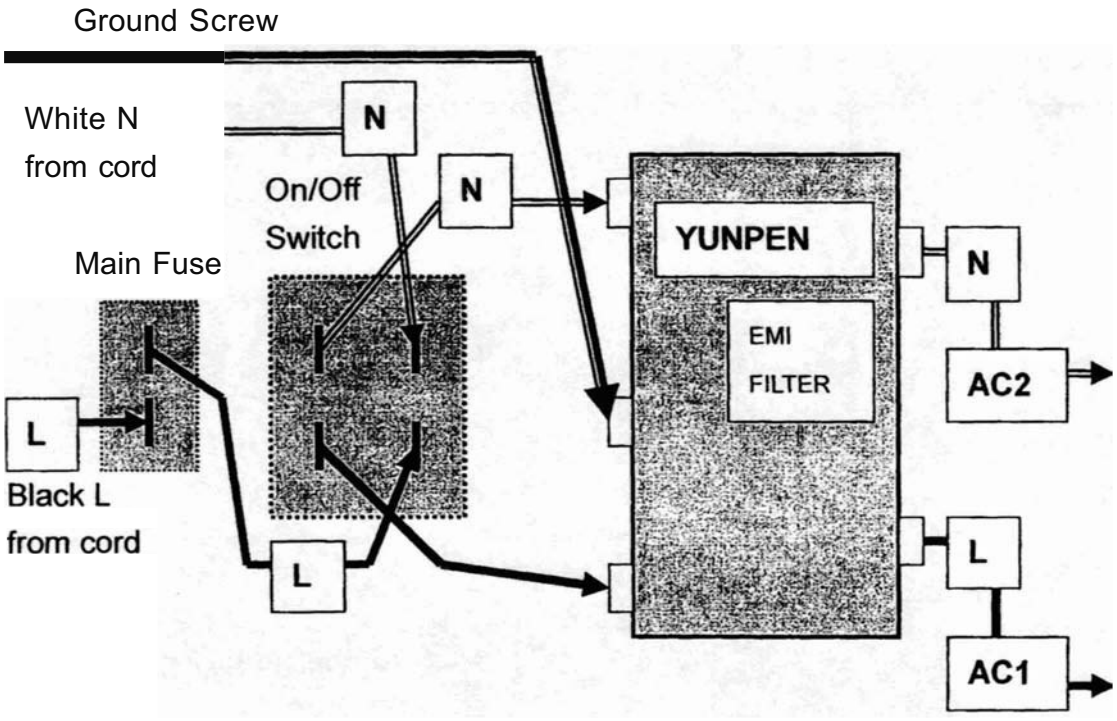


Wire Connections as Seen from Drive Motor
Yellow and green ground wire to power plate ground (above)
Red wire to coil then to drive board M+ blade connector
Blue wire to drive board M- blade connector

Wire Connections as Seen from the Incline Motor
Green ground wire to power plate ground (above)
White wire to green coil then to drive board terminal
Others are matched to a wire harness by color

Wiring on 6300/6310/6320 Treadmills

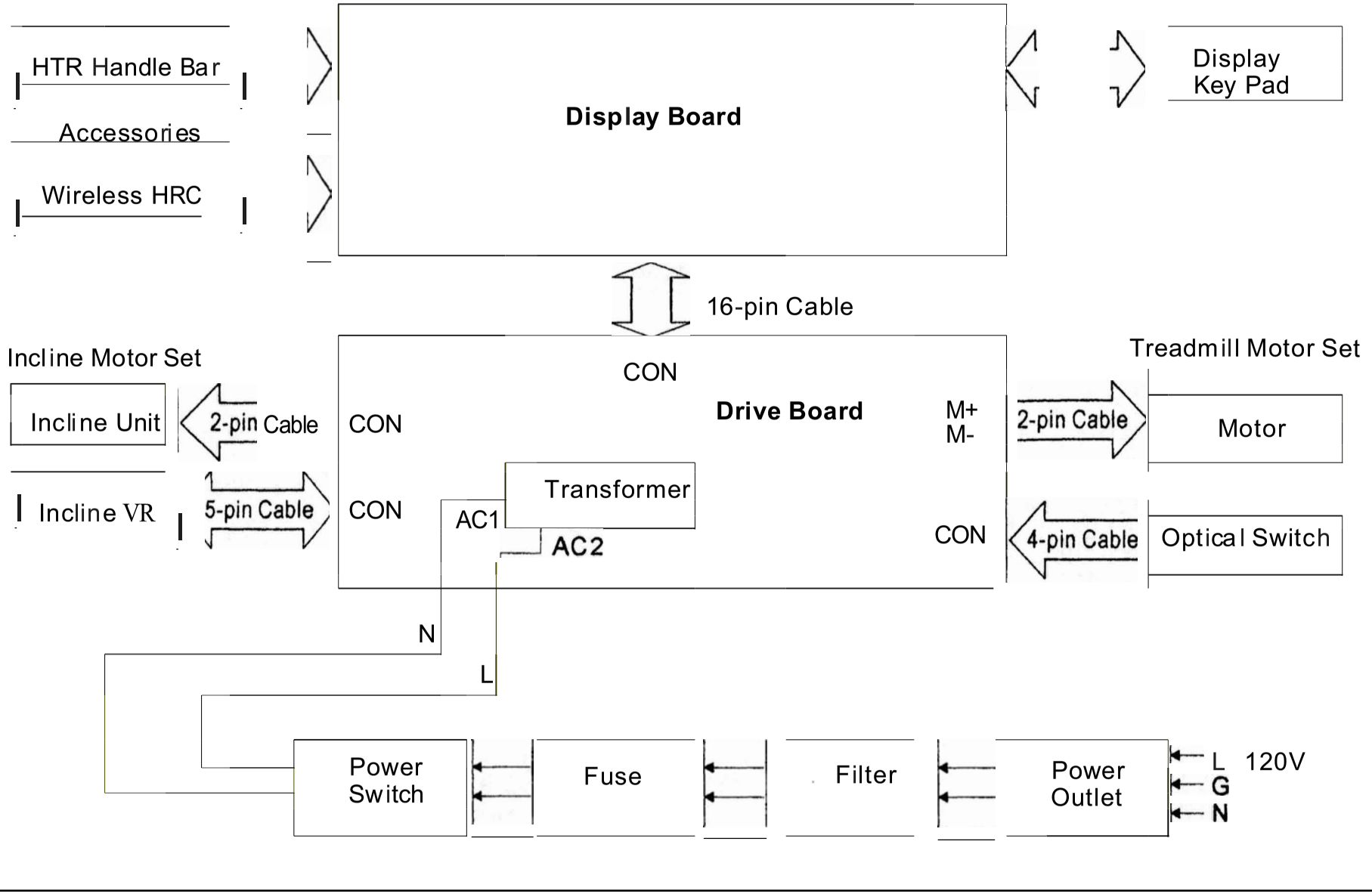
Wiring on *6300/6310/6320* model treadmills routes through an EMI filter. This view is as seen from inside the motor cover, looking at the back side of the *On/Off* switch.



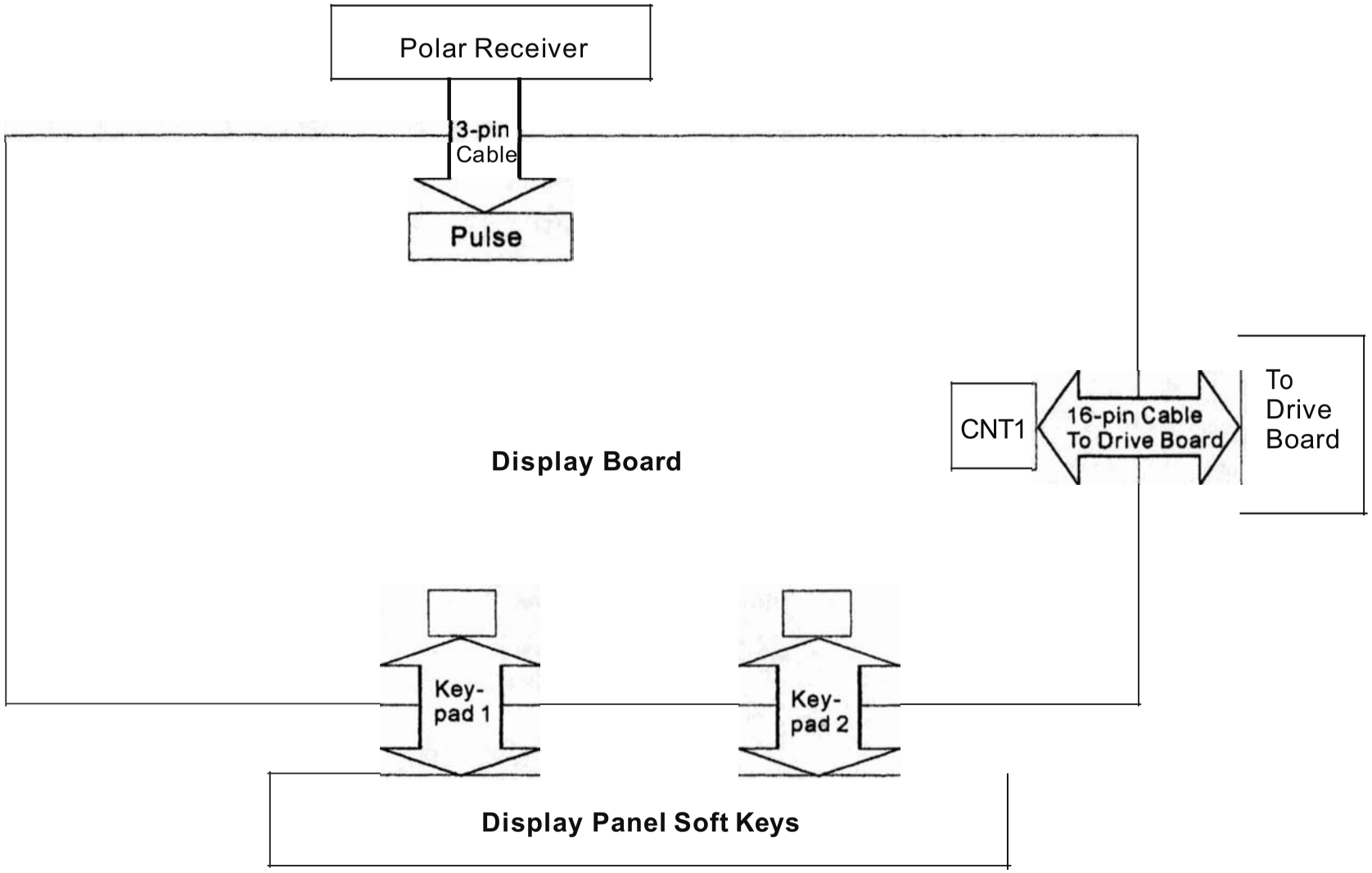
Wire routings - traced from the power cord, to the drive board

- Green ground wire to ground screw, then to the EMI filter middle left connector.
- White (N) wire to the On/Off Switch right side, out the left side of the *On/Off* Switch, to the top left connector on the EMI filter, then out the top right of the filter, becoming AC2 to the drive board.
- Black (L) wire to the bottom connector on the fuse holder, out the top connector of the fuse holder, to the ON/OFF Switch bottom right, out the bottom left, to the bottom left on the filter, then out the bottom right of the filter, becoming ACI to the drive board.

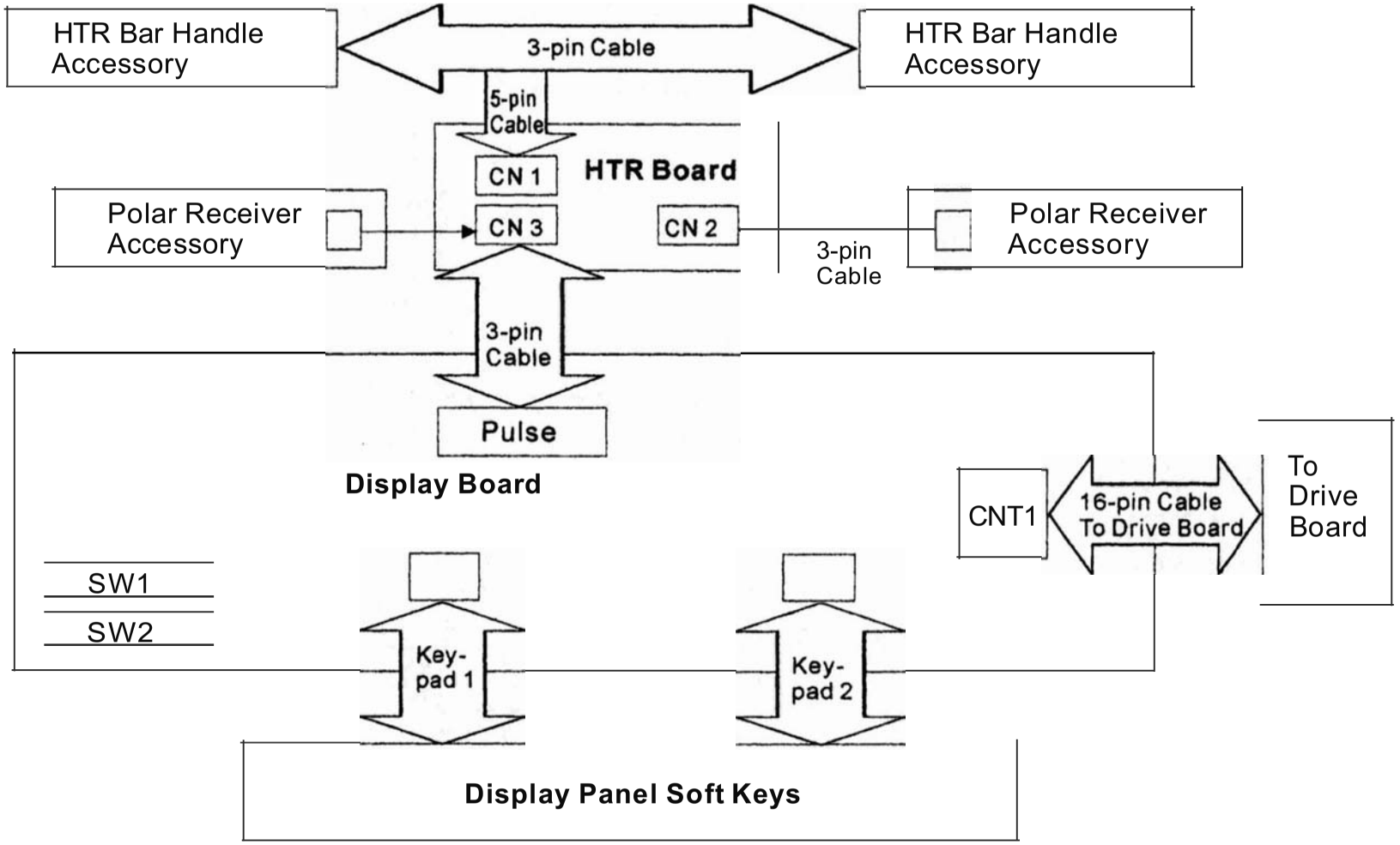
Treadmill Block Diagram



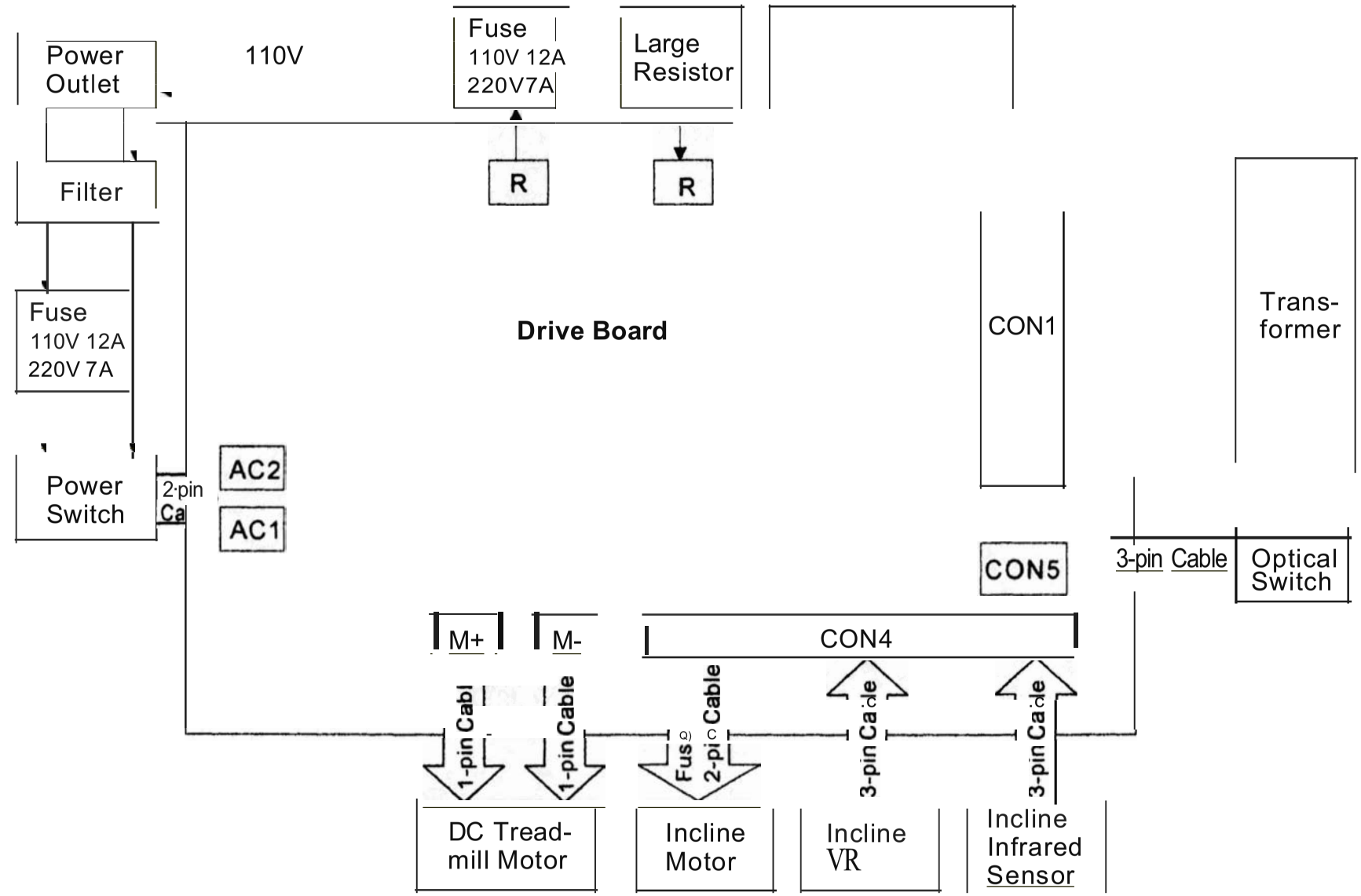
Treadmill Basic Configuration Diagram: 1200 Series



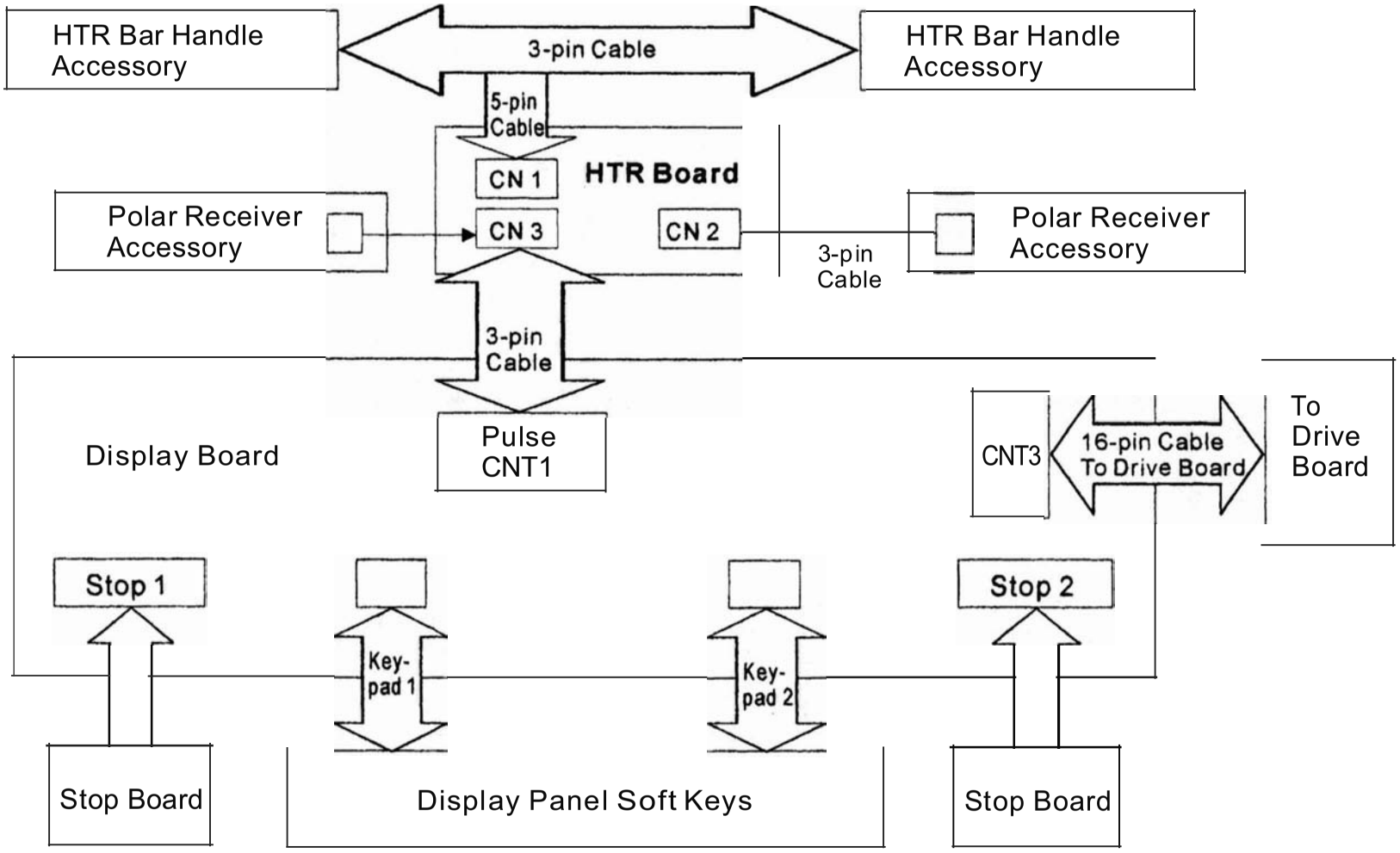
Treadmill Basic Configuration Diagram: 3100 Series



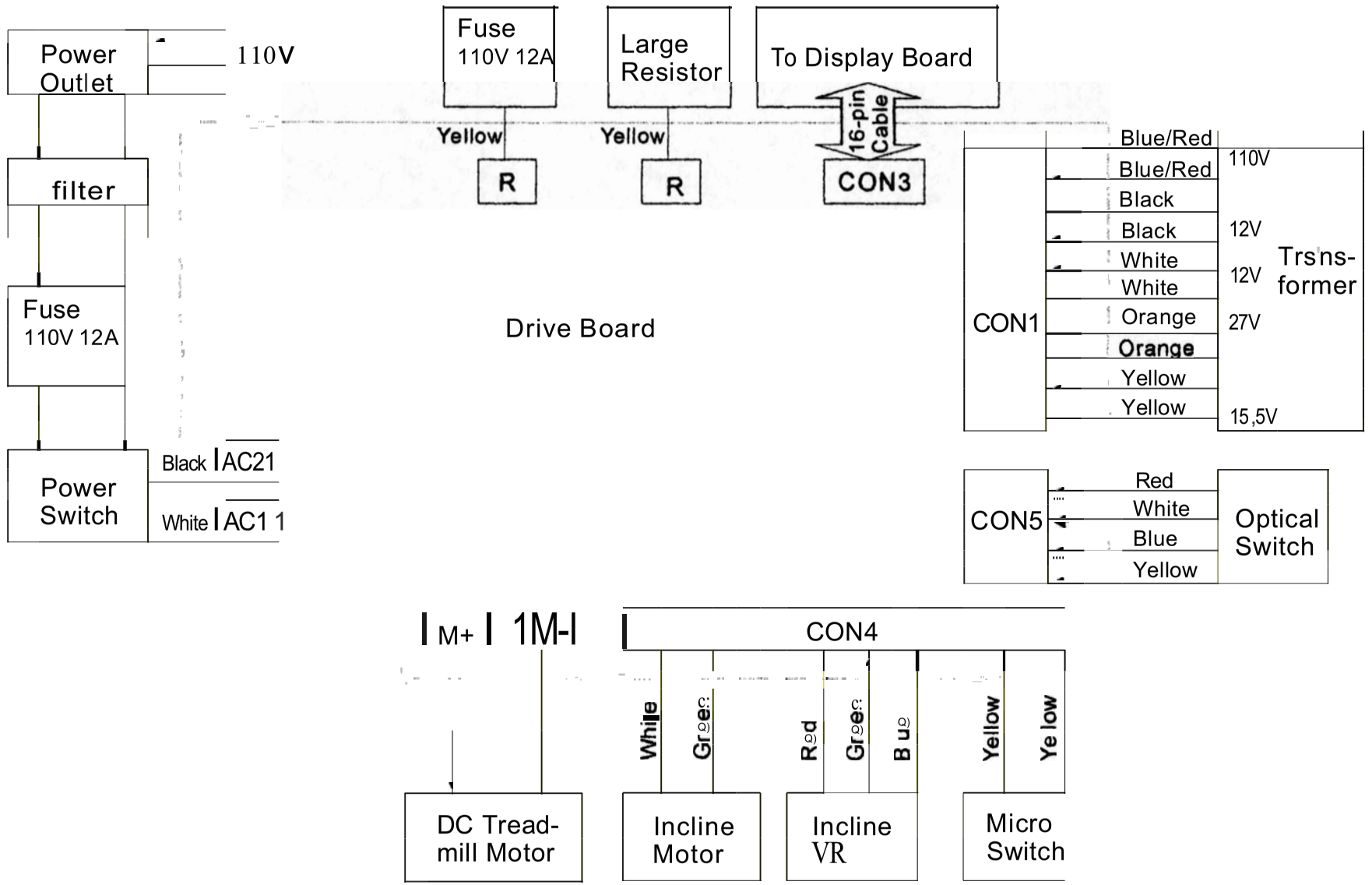
Treadmill Basic Configuration Diagram: 3100 Series



Treadmill Basic Configuration Diagram: 6000 Series



Treadmill Basic Configuration Diagram: 6000 Series



SPORTSART

THE LOOK OF A NEW LEADER

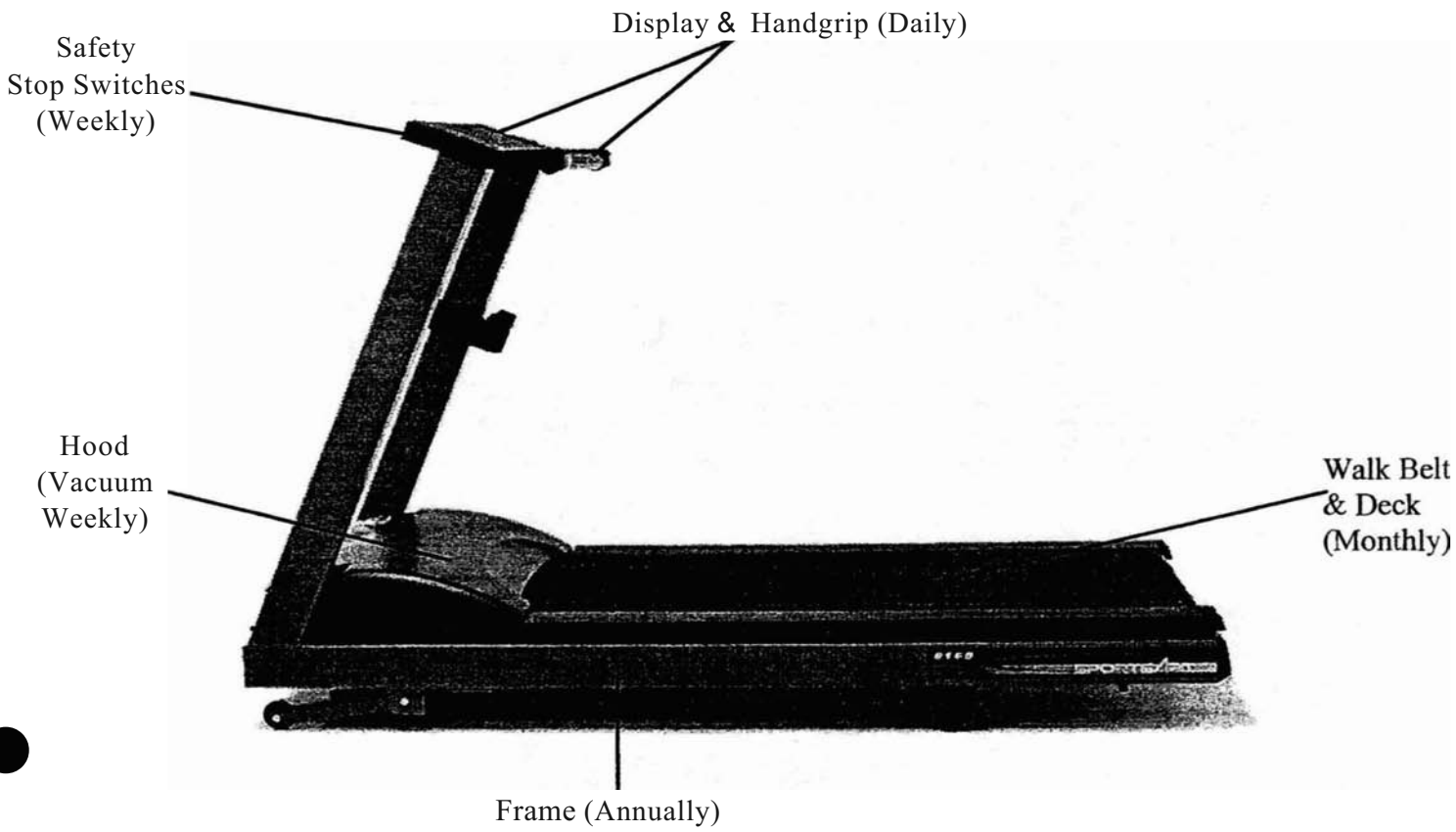
RECOMMENDED PRODUCT PREVENTIVE MAINTENANCE TIPS:

The following preventative maintenance tips will help keep your SportsArt equipment in peak condition and prolong the life of certain components. Preventative maintenance must be performed on a regular basis to aid in the safe and trouble-free operation of your equipment.

TREADMILLS:

- Display console and handgrip should be cleaned after each usage with a mild solution or cloth. Avoid using paper towels or any acid based cleaners as it may cause damage or discoloration to the display.
- Clean all exterior surfaces regularly with mild soap or Simple Green to wipe any perspiration or liquid spills from grips or painted surfaces.
- Vacuum under the hood regularly by removing cover and carefuUy cleaning around motor, electronics, and belt to keep debris from accumulating. This can be performed on a weekly or monthly basis depending on usage. REMINDER: Unplug unit before removing covers due to high voltage that may still be present.
- Wipe walking belt and deck surface with clean cloth on a weekly basis to prevent build up of dirt or debris. Inspect belt for wears and deck for grooves or nicks.
- Check safety switches operation once a week.
- Inspect power cord, cables, and grips for wear and replace as needed.
- Inspect all bolts and screws for looseness, tighten as required.

TREADMILL DIAGRAM:



RECOMMENDED MAINTENANCE SCHEDULE CHECKLIST:

RECOMMENDED MAINTENANCE SCHEDULE CHECKLIST: (RETAIL)

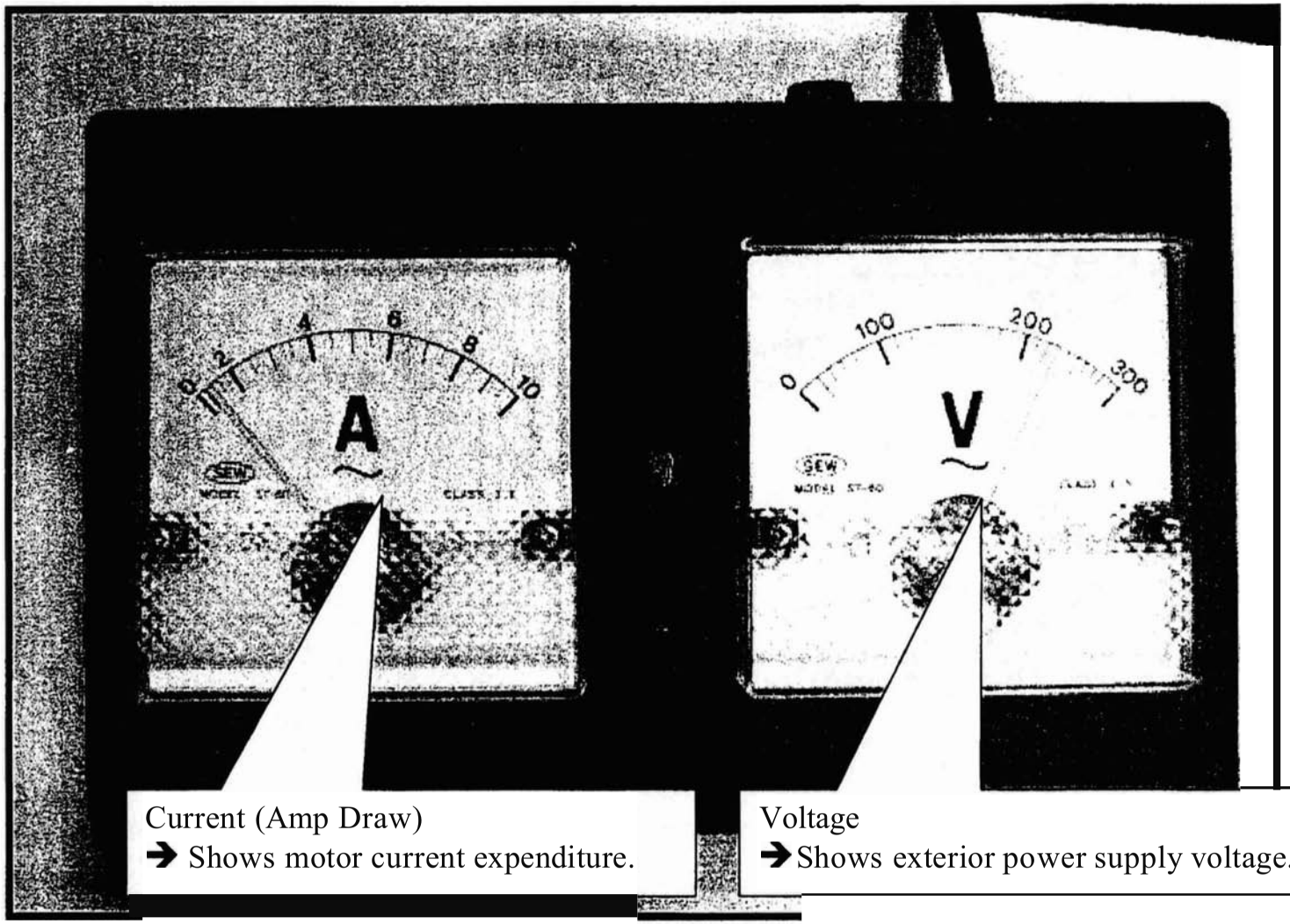
Check List	Daily	Weekly	Monthly	Annually
(TREADMILLS)				
Wipe down Display console	X			
Wipe handgrips for perspiration	X			
Vacuum under hood for debris		X		
Check drive belt for looseness			X	
Check all wiring connections			X	
Wipe debris between decklbelt		X		
Inspect deck for grooves			X	
Check walk belt for wear			X	
Check Safety Key operation		X		
Check power cord for damage			X	
Check bolts/screws for looseness			X	
Check frame for broken weld				X

RECOMMENDED MAINTENANCE SCHEDULE CHECKLIST: (COMMERCIAL)

Check List	Daily	Weekly	Monthly	Annually
(TREADMILLS)				
Wipe down Display console & handgrip	X			
Wipe pedistals for perspiration	X			
Vacuum under hood for debris		X		
Check drive belt for looseness			X	
Check all wiring connections			X	
Wipe debris between decklbelt		X		
Inspect deck for grooves			X	
Check walk belt for wear			X	
Check Safety Switches operation		X		
Check power cord for damage			X	
Check bolts/screws for looseness			X	
Check frame for broken weld			X	

Introduction to the Voltage / Current Meter

1. Introduction to Meter Functions



Current (Amp Draw)
➔ Shows motor current expenditure.

Voltage
➔ Shows exterior power supply voltage.

2. When to Use the Amp Draw Test
   1. When the treadmill main fuse blows often.
   2. When the treadmill speed is suddenly fast, suddenly slow, or when the motor brushes spark.
   3. When the motor case is unusually hot.

3. Motor Amp Draw Test Procedure

(1) Set the treadmill to run at the highest speed. After the speed has stabilized, take an amp meter reading.

(2) Inspect whether the amp draw is higher than the specifications (Table 1) below, or suddenly high, suddenly low.

(3) If as above, test the motor with no load to determine whether the motor is at fault.

Table 1

Model	Speed	Area Power Supply	Amp Draw Reference	
			110V Power	220V Power
1160/1180	Highest Speed	Area Power Supply	5A	4A
1100/1150	Highest Speed	Area Power Supply	6A	4.5A
1210	Highest Speed	Area Power Supply	6A	4.5A
1200(N)/1250(N)/1260(N)	Highest Speed	Area Power Supply	6A	4.5A
3100/3120/3150	Highest Speed	Area Power Supply	6A	4A
3200/3250	Highest Speed	Area Power Supply	6A	4A
3106/3108/3110	Highest Speed	Area Power Supply	6A	4A
6100/6150/6100£/6150£	Highest Speed	Area Power Supply	6A	5A
6200/6200N/6260	Highest Speed	Area Power Supply	6A	5A
6300/6310	Highest Speed	Area Power Supply	6A	5A

1. No Load Motor Test
   (1) Remove the belt between the motor and the front roller.
   (2) Set the treadmill to run at the highest speed. After the speed has stabilized, take an amp meter reading. See Table 2.
   (3) Is the amp draw too high? Or does the meter needle bounce, high and low?

Table 2 NormaI Amp Readlngs Appear Beb w

Model	Test Speed	Amp Meter Reading (Without Load)			
		110V		220V	
		No Fan	Fan	No Fan	Fan
1160/1180	Highest Speed	----------	----------	1.5A	----------
110011150	Highest Speed	2.0A	----------	1.5A	----------
1210	Highest Speed	2.0A		1.5A	----------
1200(N)/1250(N)/1260(N)	Highest Speed	2.0A	----------	1.5A	--.--------
3100/3120/3150	Highest Speed	2.0A	2.5A	1.5A	2.0A
3200/3250	Highest Speed	2.0A	2.5A	1.5A	2.0A
3106/3108/3110	Highest Speed	2.0A	2.5A	1.5A	2.0A
6100/6150/6100E/6150E	Highest Speed	2.0A	2.5A	1.5A	2.0A
6200/6200N/6260	Highest Speed	2.0A	2.5A	1.5A	2.0A
6300/6310	Highest Speed	2.0A	2.5A	1.5A	2.0A

4. Troubleshooting
    1. Inspect motor brushes as shown in Figure 2. Replace brushes if worn as shown.
        (1) Is the motor brush surface scratched?
        (2) Is there carbon on the motor brush or casing walls?
        (3) Are brushes worn down to under 1 cm in height?
    2. Replace motor brushes and inspect whether the motor current is high or unsteady.
        (1) If so, replace the motor.

Figure 1. Amp Meter and Gauge

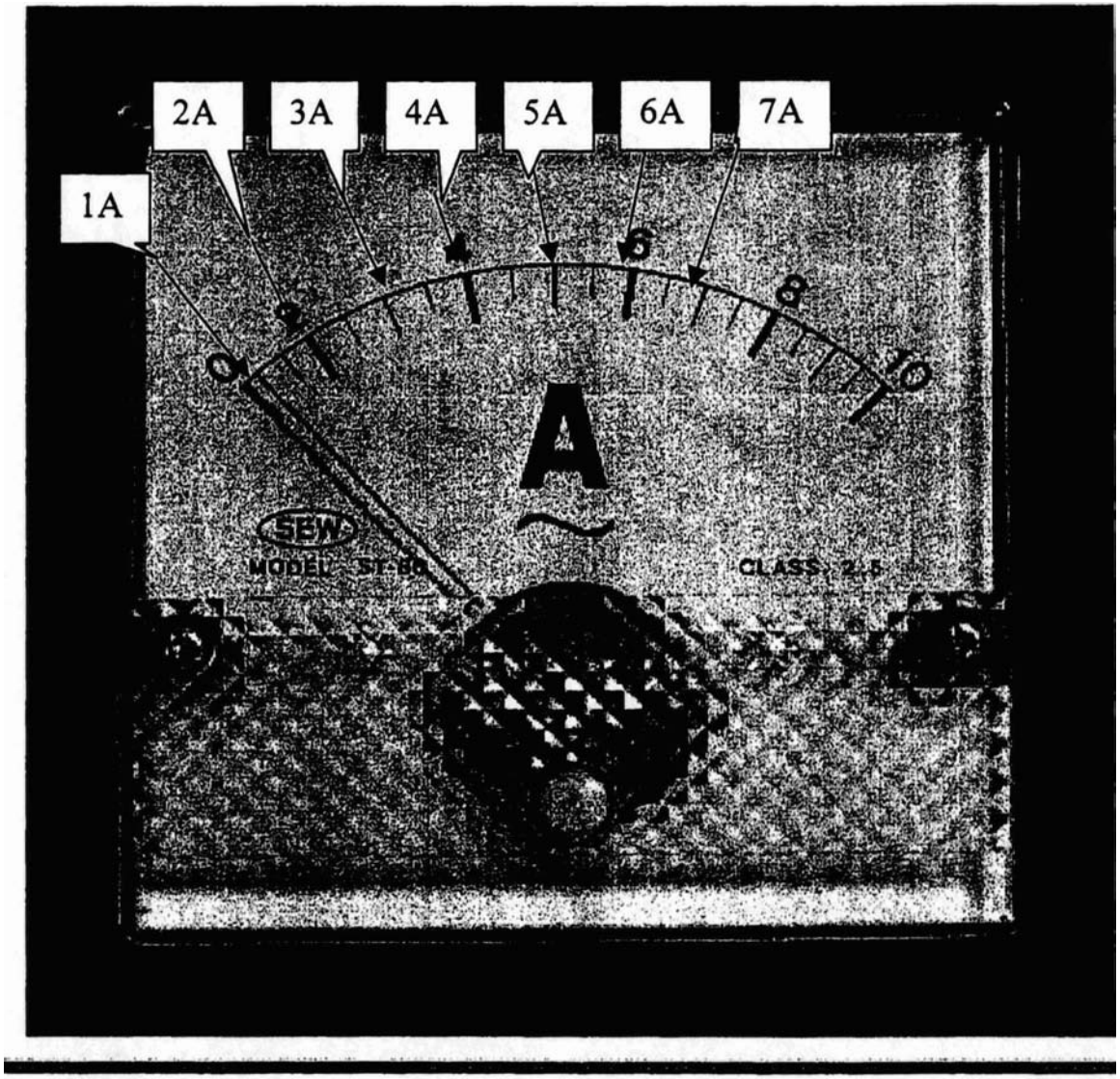


Figure 2. Motor Brush Covers (one on each side)