STAR TRAC
SERVICE MANUAL

VERSION 1.0

STAR TRAC BY UNISEN, INC.

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NOTE: *For faster service, please have your STAR TRAC Model and Serial Numbers available.*

ACKNOWLEDGEMENTS

We wish to extend thanks to the entire STAR TRAC Customer Service team for their support. And, a special thanks to Dennis Vega and Sandy Sather for their valuable technical assistance.

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How to Use This Manual

This service manual is intended to assist in preventive maintenance, troubleshooting, and replacing worn parts for the STAR TRAC 2000 and 3000 Series Treadmills.

STAR TRAC Models

2000P Series	STAR TRAC Programmable
2000S Series	STAR TRAC Simple
2000J Series	STAR TRAC Jogger
2000W Series	STAR TRAC Walker
3000P Series	STAR TRAC Programmable
3000S Series	STAR TRAC Simple
3000J Series	STAR TRAC Jogger
3000W Series	STAR TRAC Walker

In **Chapter One: Preventive Maintenance**, you will find the recommended maintenance guide for your treadmill. Keeping a regular preventive maintenance schedule increases the treadmill uptime and runners' enjoyment.

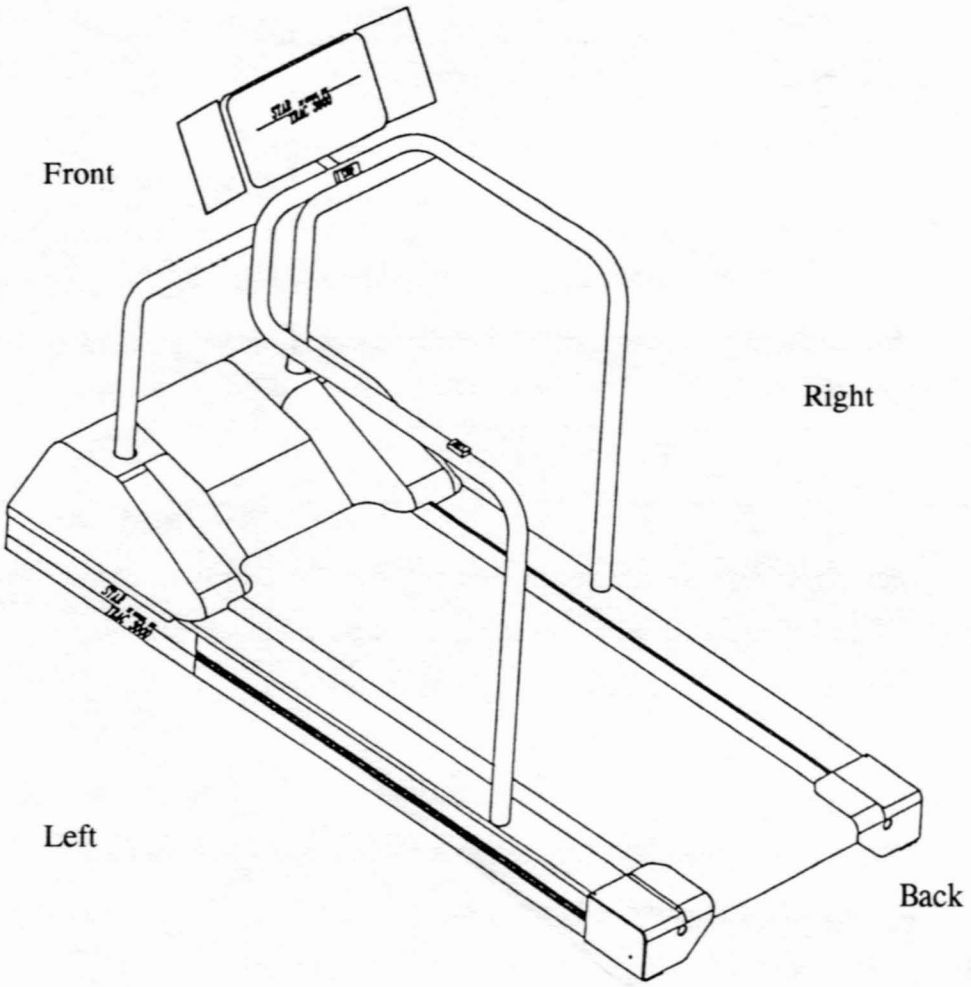
In **Chapter Two: Diagnostic Test**, you will learn how to activate the Motor Test Mode and Display Test Mode to prevent problems and service your treadmill. Correcting problems and troubleshooting error codes are covered in **Chapter Three: Troubleshooting Error Codes**.

Chapter Four: Increasing Mechanical Uptime provides hints and tips for preventing and troubleshooting common mechanical problems. **Chapter Five: Replacement Procedures** details with text and illustrations how to replace the worn parts.

Chapter Four: Increasing Mechanical Uptime provides hints and tips for preventing and troubleshooting common mechanical problems. **Chapter Five: Replacement Procedures** details with text and illustrations how to replace the worn parts.

DIRECTIONAL ORIENTATION

The directions used in this manual are from the runner's viewpoint. The display panel is the front of the treadmill. The right, left, and rear are as viewed by the runner.



CHAPTER ONE:

PREVENTIVE MAINTENANCE

Performing regular preventive maintenance on all STAR TRAC treadmills is strongly recommended. Without preventive maintenance, normal wear and tear may cause cumulative effects, such as misalignment and early replacement of parts. In addition, the more the treadmill is in use, the stricter you should adhere to the preventive maintenance schedule.

NOTE: *If any unusual problems, such as error codes and blown circuit breakers, occur, please refer to* ***Chapter Three: Troubleshooting Error Codes.***

DAILY PREVENTIVE MAINTENANCE

You should perform the following maintenance on a daily basis.

- Use a cloth and diluted all-purpose cleaner to remove any dust, dirt, and other substances from the main part of the treadmill. Wipe the display panel, console, handrails, and motor cover. Avoid using cleaner under the running belt.

- To ensure the longevity of the running belt, clean under the running belt with a soft, **dry** cloth.

  To clean, slide the cloth between the running belt and the deck from one side of the frame to the other side. You may need a ruler or rod to slide towel under the running belt.

  Then, holding the edges of the cloth, pull the cloth from the headroller to the tailroller.

  NOTE: *Do NOT clean the running belt by activating the treadmill. Do NOT place feet or any weight on the running belt when cleaning the treadmill.*

- Check the running belt for alignment and tension.

  NOTE: *Do NOT automatically tighten the belt daily. For additional information on how to verify belt alignment or correct a belt that has slipped or mistracked, please refer to* ***Chapter Four: Increasing Mechanical Uptime.***

- Verify power cord is not under the treadmill. If the power cord is placed under the treadmill, it may become pinched or bind up the elevation screws. This results in error codes or treadmill damage.

WEEKLY PREVENTIVE MAINTENANCE

You should perform the following maintenance on a weekly basis.

- Elevate the treadmill and vacuum the floor under the treadmill. Be careful not to bump the elevation switches as you sweep.

- Inspect the deck and running belt surfaces for unusual wear.

  Check the deck for worn areas where the underlying fiber board or soft spots are visible. Inspect the underside center of the running belt for a worn, glazed appearance.

- Walk on the deck surface. If any portion feels soft, replace the deck.

  NOTE: *For information on replacing a worn deck or belt, please refer to* ***Chapter Five: Replacement Procedures.***

- If you have a 3000 Series, check the subdeck and weardeck screws. If loose, tighten them.

BIWEEKLY PREVENTIVE MAINTENANCE

You should perform the following maintenance biweekly or twice a month basis.

- Vacuum around the motor and electronics by removing the shroud cover and lifting the motor shroud.

  Raise the motor shroud and suspend it from the display neck with the bungie cord, from your STAR TRAC Treadmill Toolkit. Be sure to avoid bumping or damaging the RPM disc and sensor, elevation sensor, limit switches, and wire connections.

  NOTE: *To raise the motor shroud, use the Phillips screwdriver to remove the screw in the motor shroud. Gently lift the motor shroud up the display handrail. Using the bungie cord from the STAR TRAC Toolkit, hold the motor shroud at the top of the display handrail.*

To replace the motor shroud, remove the bungie cord and lower the motor shroud until it touches the frame. Press the sides of the motor shroud to the frame and attach the velcro fasteners. Using the Phillips screwdriver, tighten the screw in the center of the motor shroud.

MONTHLY PREVENTIVE MAINTENANCE

You should perform the following maintenance once a month.

- Lubricate the elevation screws with a silicon lubricant to prevent rust accumulation.

- Activate Motor Test Mode and Display Test Mode of Diagnostic Test. This will diagnose any unforeseen maintenance and error codes.

  NOTE: *For additional information on activating Diagnostic Test, please refer to* ***Chapter Two: Diagnostic test.***

CHAPTER TWO:

DIAGNOSTIC TEST

The STAR TRAC software program contains a self-diagnostic test mode that precisely determines the reason for an error. This chapter outlines how to activate Diagnostic Test and diagnose the problem.

Diagnostic Test consists of the Motor Test Mode and Display Test Mode. You will use the test mode to check the motor, sensors (if they are working and calibrated), and switches (if they are active and responding). The Display Test Mode checks the keyboard response and quality of the LEDs. The Diagnostic Tests are the best methods for determining specific failure areas on the STAR TRAC treadmill.

Remember, in Diagnostic test, you are in command. Pay attention to the display panel. The LED lights and readouts show you the exact position and limits of the treadmill. In this chapter, you will learn:

ACTIVATING MOTOR TEST MODE OF DIAGNOSTIC TEST

Use the Motor Test Mode to check the motor, sensors (if they are working and calibrated), and switches (if they are active and responding). In addition, you may be instructed to activate the Motor Test Mode during preventive maintenance or troubleshooting.

To activate Motor Test Mode, please follow these instructions. If your treadmill does not respond, please refer to **Chapter Four: Increasing Mechanical Uptime** or contact STAR TRAC customer service.

Step One Turn the power switch to the OFF position.

Step Two Place the treadmill into the Motor Test Mode.

- If you have a Jogger, Programmable, or Simple with number keys, simultaneously press key number 8, while turning the power switch to ON.

- If you have a Walker or Simple with no number keys, simultaneously press the - (minus) key, while turning the power switch to ON.

Step Three Verify the display panel reads:

0 3 0.0

- If you have a 2000 Series treadmill from 1990 or earlier, verify the display panel reads:

0 2 0.0

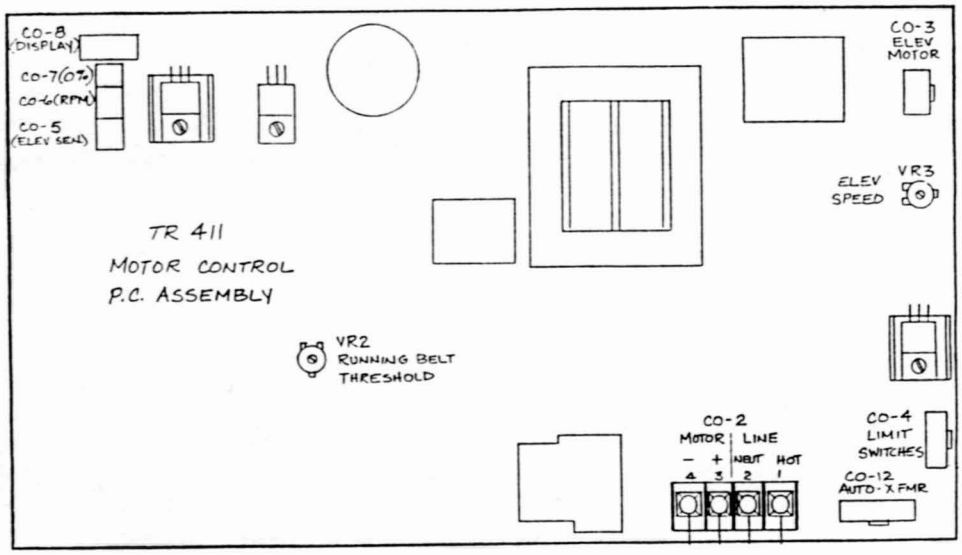
Step Four Verify the running belt is not moving.

-- *If the running belt is not moving, proceed to the next step.*

-- *If the running belt begins moving, then:*

- *To raise the motor shroud, use the Phillips screwdriver to remove the screw holding the motor shroud to the frame. Gently raise the motor shroud up the display handrail. Using the bungie cord from the STAR TRAC Toolkit, hold the motor shroud at the top of the display handrail.*

- *Adjust the VR2 potentiometer, located on the motor control board by using a small, flat screwdriver to slowly turn the screw on the VR2 potentiometer counter-clockwise until the running belt quits moving.*



Step Five Verify the threshold adjustment works correctly by increasing the speed of the running belt.

- Press the + (plus) key or fast key to change the display readout under Distance from 3 to 18.

- If you have an older 2000 Series (1990 or earlier), press the fast key to change the display readout under Distance from 2 to 16.

***NOTE:** At this point, the belt should be moving slowly at approximately one inch per second. Look for a smooth movement of the belt without hesitation or jerking motions.*

-- *If the belt doesn't move or moves too fast, then adjust the belt speed.*

- *Adjust the VR2 potentiometer, located on the motor control board by using a small, flat screwdriver.*

  To increase the running belt speed, carefully turn the screw clockwise.

  To decrease the running belt speed, carefully turn the VR2 screw counter-clockwise.

- *Verify the running belt is moving at approximately one inch per second.*

- *Replace the motor shroud by removing the bungie cord and lowering the motor shroud until it touches the frame. Press the sides of the motor shroud to the frame and attach the velcro fasteners. Using the Phillips screwdriver, tighten the screw in the center of the motor shroud.*

CAUTION

Do not stand on the running belt while the treadmill is in test mode.

Step Six Verify the RPM sensor works correctly as the running belt continues moving at approximately one inch per second.

- If you have a Programmable, check the LED numbers located under Pre-Designed Programs on the Display Panel Board. Numbers one/two and five/six should toggle slowly.

- If you have a Jogger, Walker, or Simple, verify the elapsed time and distance lights toggle.

  -- *If not, then:*

  - *Check the alignment or adjustment of the RPM disc and the RPM sensor cable connection.*

  - *Adjust the potentiometer, located on the RPM sensor.*

  - *If aligned but the LEDs do not toggle, replace the RPM sensor.*

Step Seven Verify the RPM sensor is calibrated by pressing the + (plus) key or fast key to raise the display readout from 0.0 to 3.5 (5.6 km per hour).

- If you have a Programmable or Simple, verify the numbers 0 to 7, located under Percent Grade, are lit and number 8 is blinking.

- If you have a Jogger, verify the numbers 0.0 to 3.5, located under Percent Grade, are lit and number 4.0 is blinking.

- If you have a Walker, verify the numbers 7 and 8, located under Elapsed Time, are toggling.

  -- *If yes, the RPM sensor is calibrated.*

  -- *If no, then:*

  - *Check for excessive dust on the RPM sensor and disc.*

  - *Remove the dust from the RPM sensor and disc, blow air into the RPM disc area.*

    Or, with a toothbrush, gently brush one side of the RPM disc and then gently brush the other side of the disc. Be careful you do not hit the RPM sensor with the toothbrush or any foreign objects.

  - *Adjust the potentiometer on the RPM sensor, as described in Step Six.*

NOTE: *If you have a Walker, please skip to Step Ten. Steps Eight and Nine discuss elevation.*

Step Eight Verify the 0% (zero percent) switch at 0% grade and above 0% grade.

NOTE: *The treadmill does not display the actual elevation during the Motor Test Mode.*

- If you have a Programmable, check under Pre-designed Programs and verify LED number 4 is on and LED number 8 is off, when the elevation is at 0% grade. Raise the elevation to above 0% percent grade and verify that the LED number 4 is off and LED number 8 is on.

- If you have a Jogger, check under Percent grade and verify LED number 7.5 is on, when the elevation is at 0% grade. Raise the elevation to above 0% grade and verify the LED number 7.5 is off.

- If you have the Simple, check under Percent Grade and verify the number 15 is on at 0% grade. Raise the elevation to above 0% grade and verify the number 15 is off.
  -- *If not, check the elevation switches cable connection.*

NOTE: *If there is an elevation-related problem, you may disable the elevation system. This allows the treadmill to operate normally, without the elevation operation.*

To disable the elevation motor, turn the power switch off. Then simultaneously press the key number 0, while turning the power switch to ON. The display readout says ELV OFF. The elevation will be disabled until the power switch is turned off.

If you have a Simple with no numbers, simultaneously press the DOWN Arrow key, while turning the power switch to ON. The display readout says ELV OFF. The elevation is disabled until the power switch is turned off.

***NOTE:** In the Diagnostic test, it is possible, although unlikely, you could override the system. For example, if you press the elevation up arrow key, the treadmill elevates until you release the up arrow key. On the early 2000 Series treadmill, it is possible to overdrive the elevation limit switches and elevation grades.*

Be sure to pay attention to the display panel as you work with the treadmill in Diagnostic test. The LED lights and readouts show you the exact position and limits of the treadmill.

Step Nine Check the elevation motor speed.

- Press the UP Arrow key while verifying the elevation speed located under Total Calories in this Test Mode. The elevation motor speed should read approximately 60 revolutions per second, as the treadmill elevates.

- Press the DOWN Arrow key while verifying the elevation speed located under Total Calories in this Test Mode. The elevation motor speed should read approximately 60 revolutions per second or higher, as the treadmill descends.

  -- *If not, then:*

     - *Adjust VR3 on the Motor Control Board. To increase the speed, turn VR3 clockwise. To decrease the speed, turn VR3 counter-clockwise.*

  -- *If yes, proceed to the next step.*

  -- *If the display numbers aren't reading, check the elevation sensor connection.*

  -- *If an error code appears, turn the power switch to OFF. Wait four seconds, then turn the power switch to ON.*

Step Ten Replace the motor shroud by removing the bungie cord and lowering the motor shroud until it touches the frame. Press the sides of the motor shroud to the frame and attach the velcro fasteners. Using the Phillips screwdriver, tighten the screw in the center of the motor shroud.

Step Eleven Exit the Motor Test Mode by pressing the STOP key.

- Turn the power switch to OFF. Wait four seconds, then turn the power switch to ON.

ACTIVATING DISPLAY TEST MODE OF DIAGNOSTIC TEST

Use the Display Test Mode to check the display panel, key response, and quality of the LEDs. In addition, you may be instructed to activate the Display Test Mode during preventive maintenance or troubleshooting.

To activate Display Test Mode, please follow these instructions:

Step One Turn the power switch to the OFF position.

Step Two Place the treadmill into Display Test Mode.

- If you have a Programmable, Walker, or Simple with number keys, simultaneously press the key number 5, while turning the power switch to ON.

- If you have a Jogger or Simple with no number keys, simultaneously press the + (plus) key, while turning the power switch to ON.

NOTE: *If you cannot access Display Test Mode, you may need to replace the display panel. For additional information on troubleshooting the display panel, please refer to* ***Chapter Three: Troubleshooting Error Codes.***

Step Three All the LEDs on the Display Panel should be lit. Press any key, except the STOP key, to display the EPROM number.

- Please make note of this EPROM number. If there are problems with the display panel, STAR TRAC requires this EPROM number to ship the correct replacement part.

Step Four Check the key response by individually pressing each key on the display panel. Each key should beep and display a pattern of LED lights on the display panel readout. The 0 key will beep, but no LED lights will be displayed.

-- *If not all the LEDs to form the pattern are lit, you may need to replace the display panel. For additional information, please refer to* ***Chapter Three: Troubleshooting Error Codes.***

Step Five Exit the Display Test Mode.

- Press the STOP key.

- Turn the power switch to OFF. Wait four seconds, then turn the power switch to ON.

CHAPTER THREE:

TROUBLESHOOTING ERROR CODES

This chapter outlines the speed, CPU, elevation, and FS (fail safe) error codes and how to solve the error code problems.

To correct an error using this troubleshooting guide, locate the type of error code, such as SPD ER 2, and follow the instructions in the flow charts. If the error persists, continue to the next step and follow the instructions, and so on.

In this chapter, you will learn error codes for:

SPEED (SPD ER) ERROR CODES

Speed (SPD ER) error codes indicate that the RPM sensor may be damaged or the CPU circuit is being interrupted, such as a ground problem or loose connection.

The following flow charts demonstrate the corrective steps for speed error codes 0, 1, 2, and 3. Begin these instructions by placing the treadmill in the Motor Test Mode. To enter Motor Test Mode, simultaneously press the 8 key, while turning the power switch to ON. If you have a Simple with no number keys, simultaneously press the - (minus) key, while turning the power switch to ON.

The display panel should read:	0	3	0.0
or on older models:	0	2	0.0

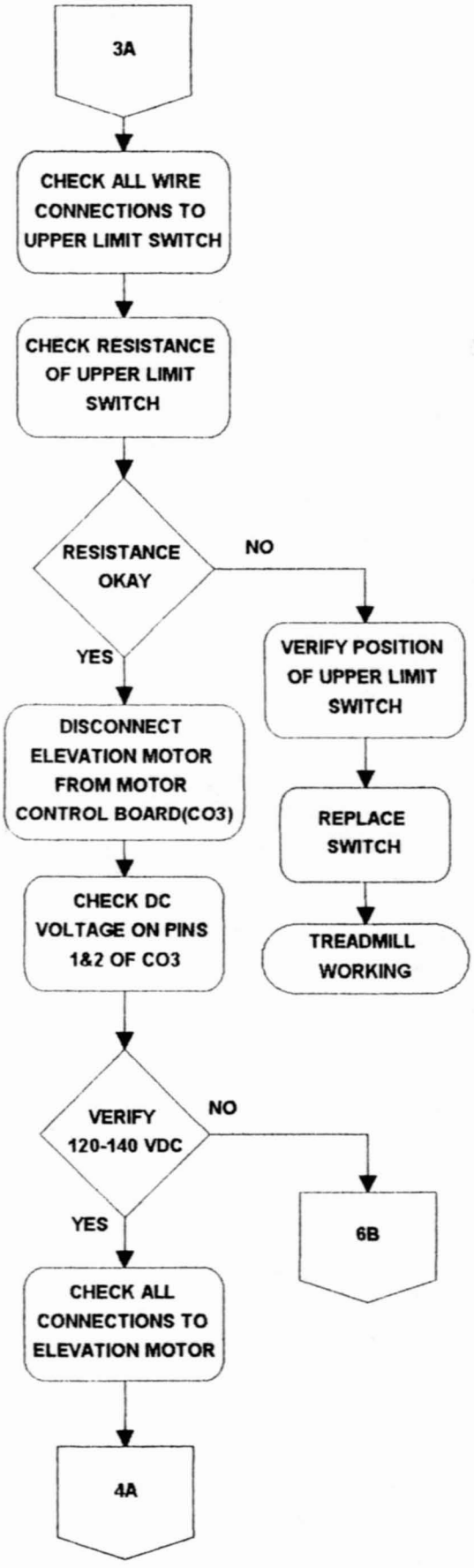
NOTE: *Please begin by cleaning dust and obstructions from the RPM disc and RPM sensor.*

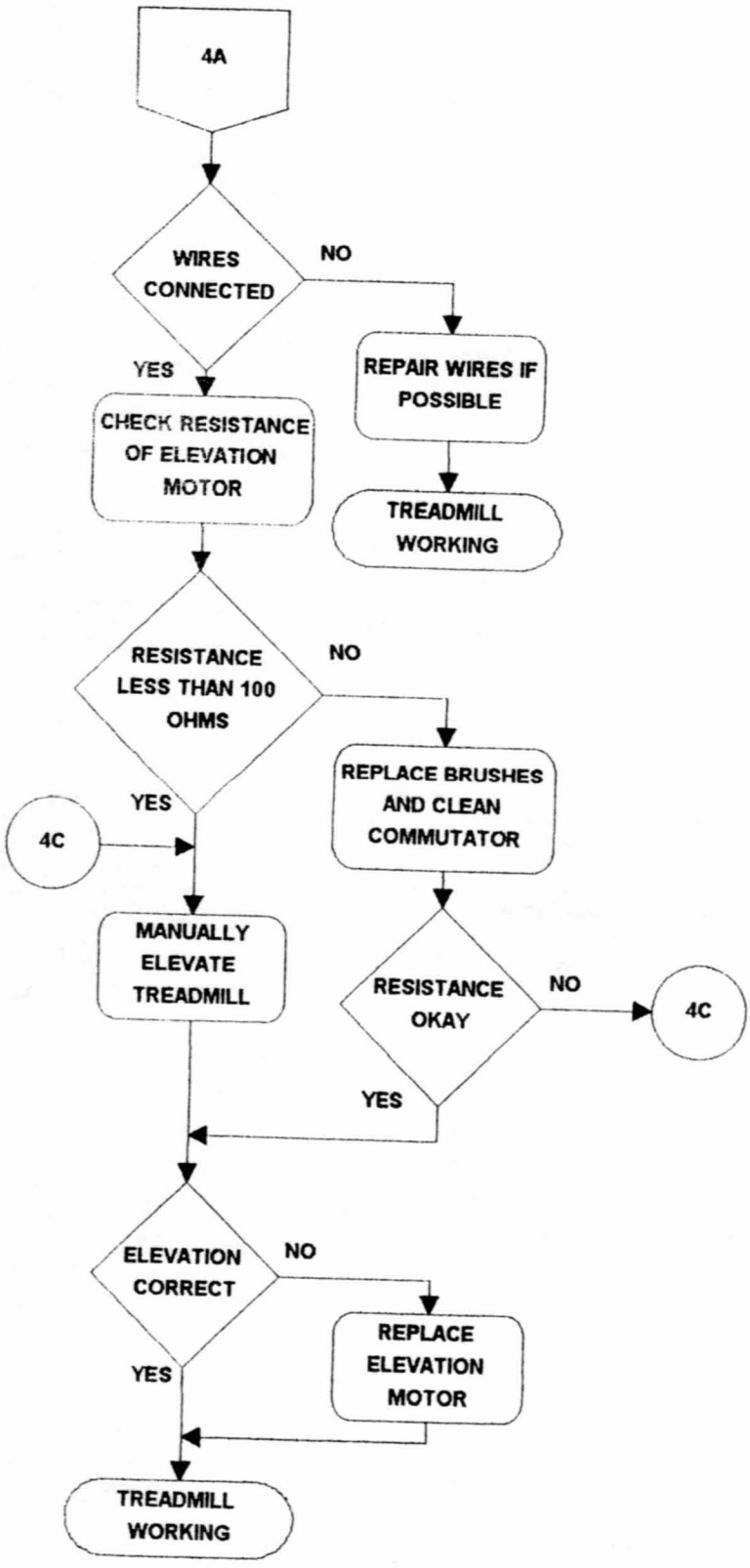
NOTE: On models older than 1990, the upper limit switch is located above the left elevation can. On models newer than 1990, the upper limit switch is the top switch of the three switch configuration.

NOTE: The lower limit switch should have a resistance of zero ohms.

NOTE: The switch must not be in the notched area of the elevation screw or activated by the upper trip plate.

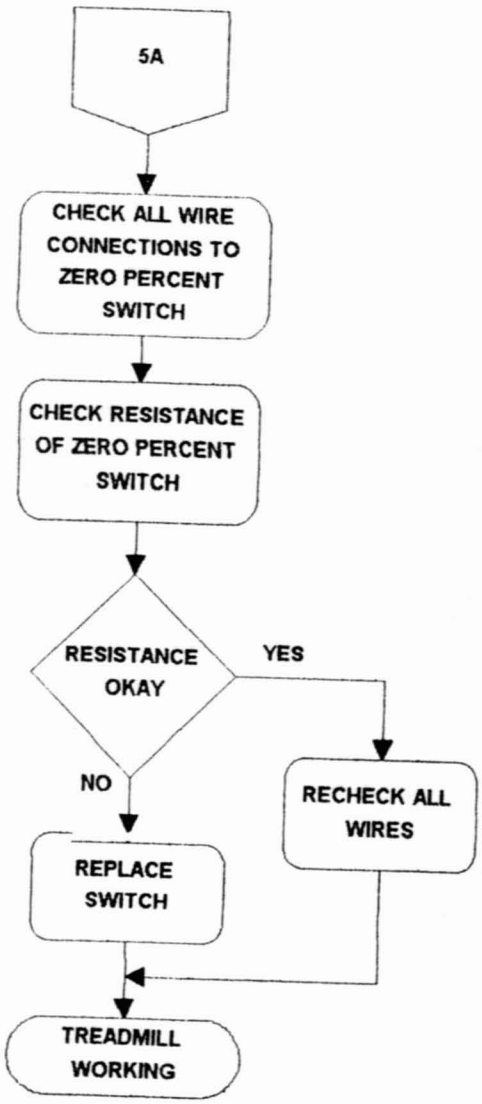
NOTE: A second technique for isolating a failure between the motor control board and elevation motor is to disconnect the elevation motor connector (C03) and limit switch connector (C04). Place the meter leads on the cathodes of CR62 and CR36. In the test mode, push the UP Arrow key. The DC voltage should be 3 to 6 VDC. If only the limit switches are disconnected, the DC voltage should be 70 to 90 VDC. If the DC voltage is correct, the only possible failure on the motor control board would be the elevation relay or fuse 3. If you can hear the elevation relay activate, the elevation motor or wiring to the motor is likely to be bad.

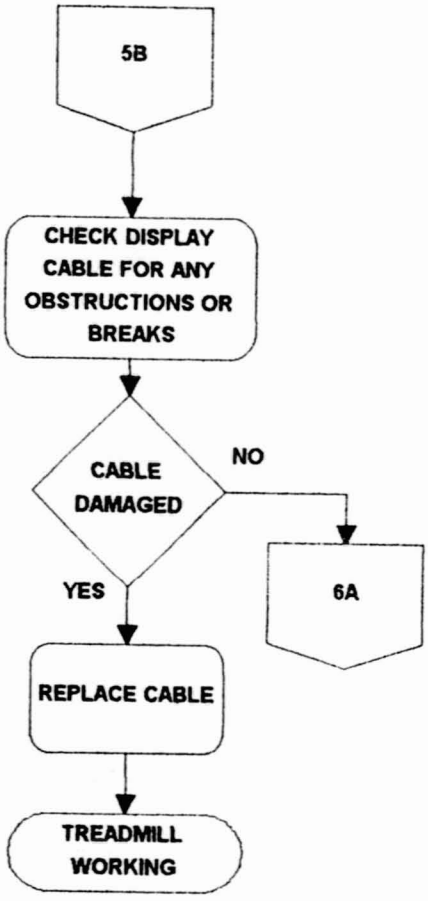



4A
WIRES CONNECTED
NO
REPAIR WIRES IF POSSIBLE
TREADMILL WORKING
YES
CHECK RESISTANCE OF ELEVATION MOTOR
RESISTANCE LESS THAN 100 OHMS
NO
REPLACE BRUSHES AND CLEAN COMMUTATOR
YES
4C
MANUALLY ELEVATE TREADMILL
RESISTANCE OKAY
NO
4C
YES
ELEVATION CORRECT
NO
REPLACE ELEVATION MOTOR
YES
TREADMILL WORKING

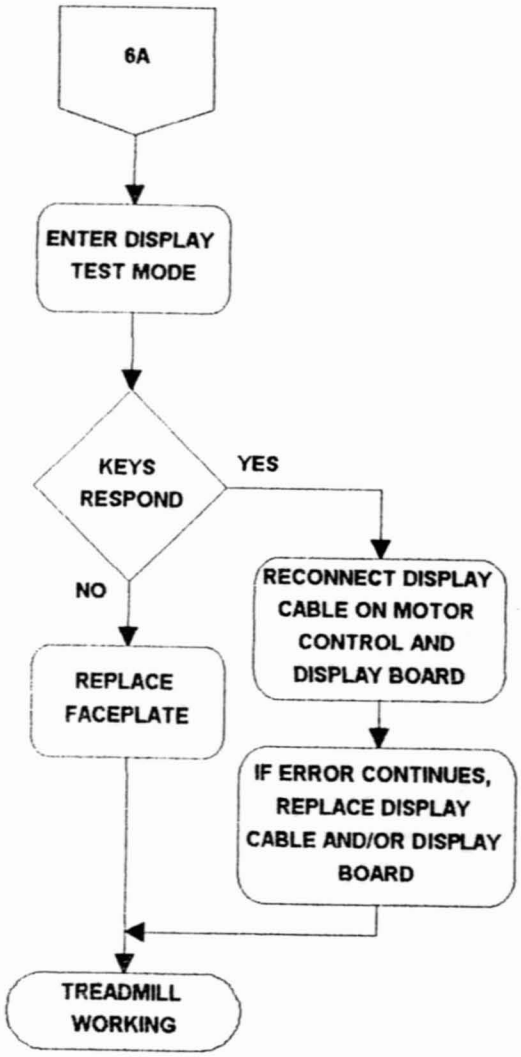
NOTE: *On models older than 1990, the 0% switch is located next to the lower limit switch under the treadmill. On models newer than 1990, the 0% switch is the bottom switch of the three switch configuration.*

NOTE: *The 0% switch should have a resistance of infinite ohms at 0% and 0 ohms above 0%.*




5B
CHECK DISPLAY CABLE FOR ANY OBSTRUCTIONS OR BREAKS
CABLE DAMAGED
NO
YES
6A
REPLACE CABLE
TREADMILL WORKING

NOTE: *Simultaneously press the key number 5 (on Simples without number keys, press the + (plus) key), while turning the power switch to ON.*



NOTE: For transformer with resistor:

red/white = approx. 16 ohms

black/white = approx. 4 ohms

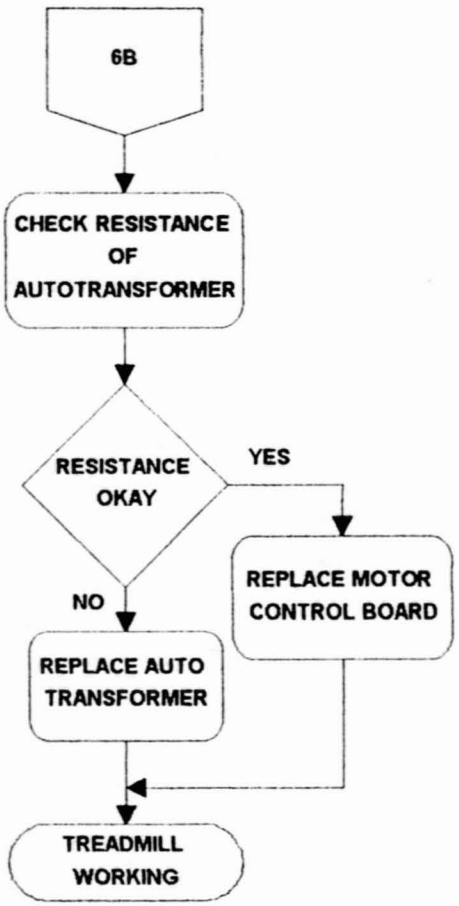
red/black = approx. 13 ohms

For older models:

red/white = approx. 4.7 ohms

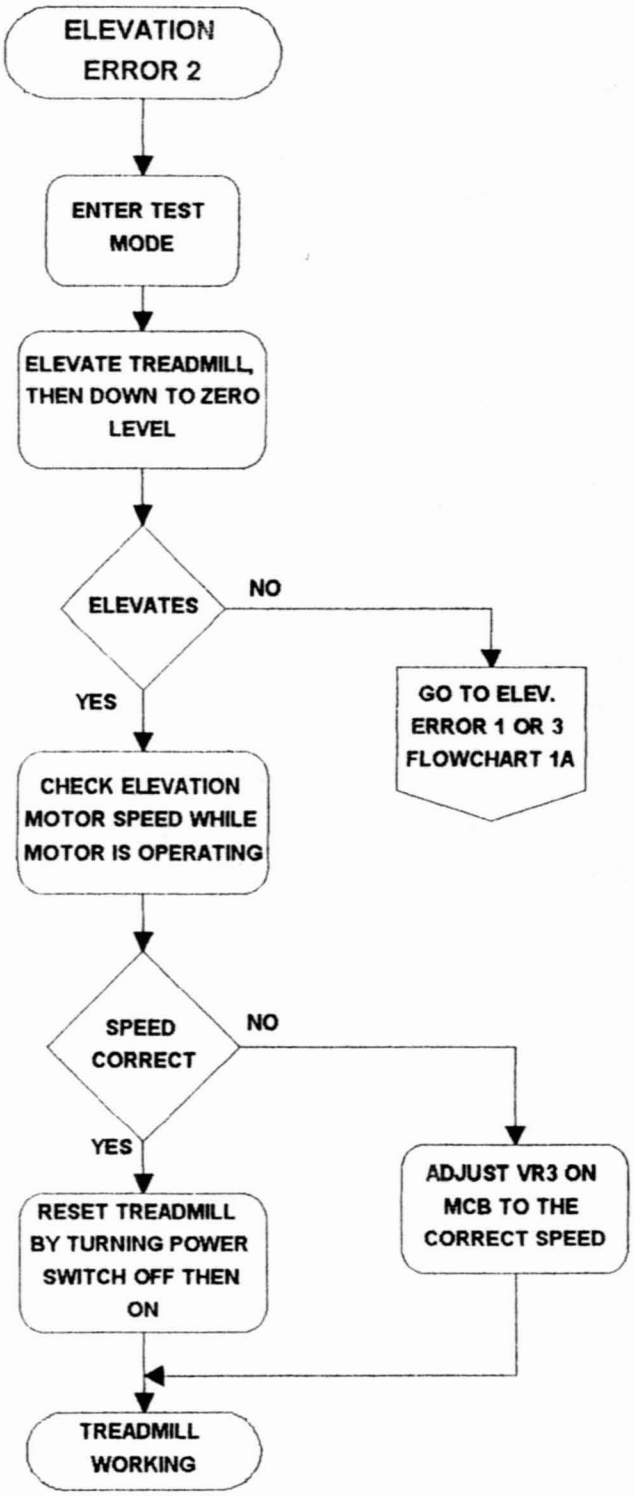
black/white = approx. 2.7 ohms

red/black = approx. 2.3 ohms



NOTE: *If the elevation error continues, disable the elevation circuit by turning the power switch to OFF. Wait four seconds, then simultaneously press the key number 0 (on Simples without number keys, press the DOWN Arrow key), while turning the power switch to ON. To enable the elevation circuit, turn the power switch to OFF.*

NOTE: To enter Motor Test Mode, please refer to the instructions on page 38.



NOTE: In the test mode, the correct Speed is displayed under Elapsed Time.

NOTE: When ascending, the elevation speed should be between 55 and 60. When descending, the speed should be faster than 60.

NOTE: VR3 is located on the right center of the motor control board.

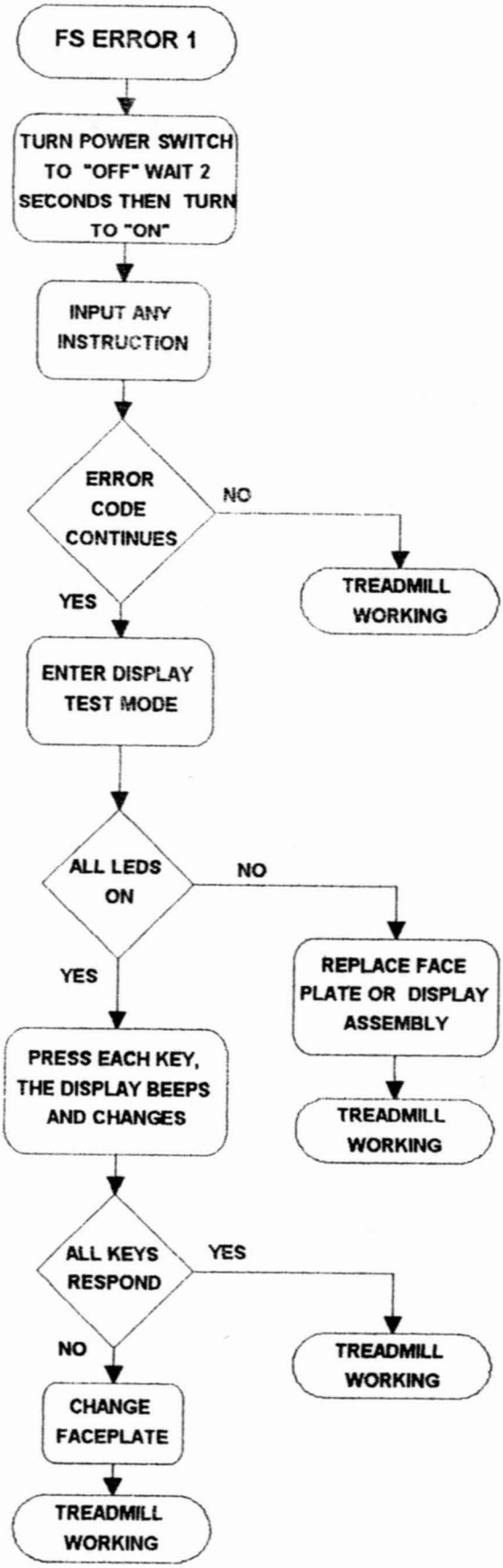
FAIL SAFE (FS ER) ERROR CODE

Fail safe (FS ER) error codes are caused by shorted or faulty keys on either the display panel or the emergency stop switch.

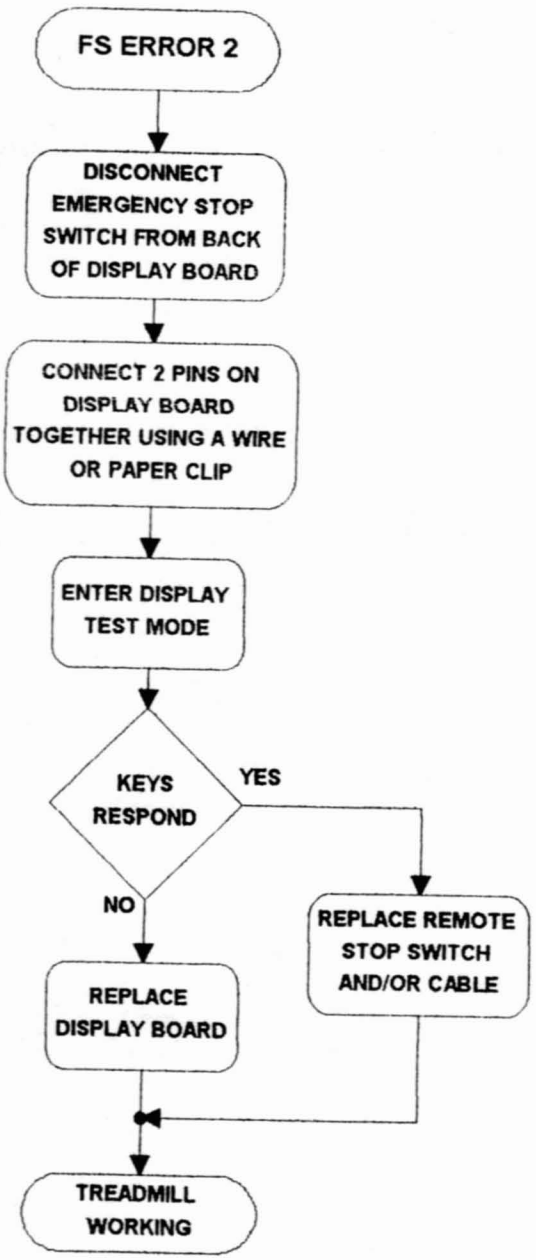
The following flow charts demonstrate the corrective steps for fail safe error codes 1 and 2. Begin these instructions by placing the treadmill in Display Test Mode.

NOTE: *If the FS Error Code occurs when you are entering Motor Test Mode, you may have pressed the wrong key number. Confirm the type of STAR TRAC treadmill (programmable, simple, jogger, or walker) and verify the key number. Re-enter test mode.*

Begin these instructions by placing the treadmill in the Display Test Mode. To enter Display Test Mode, simultaneously press the key number 5, while turning the power switch to the ON. If you have a Simple without number keys, simultaneously press the + (plus) key while turning the power switch to the ON.



NOTE: *To enter Display Test Mode, please refer to the instructions on page 50.*



NOTE: *To enter Display Test Mode, please refer to the instructions on page 50.*

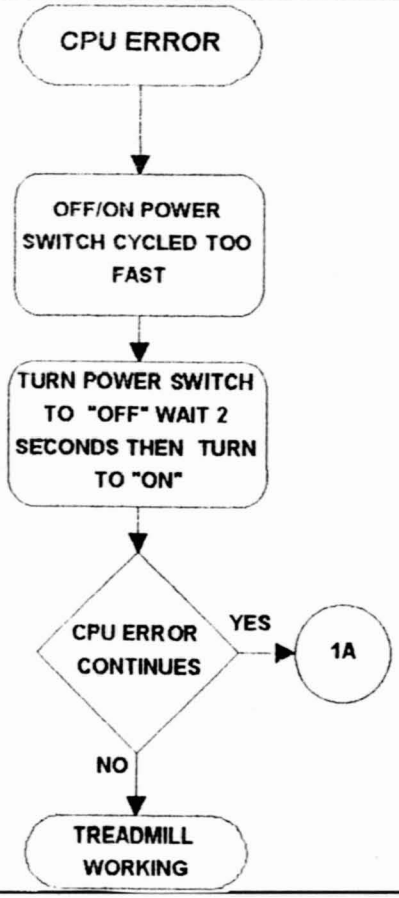
CPU (CPU ER) ERROR CODES

The CPU (CPU ER) error codes indicate the CPU (central processing unit) circuit is being interrupted by a ground problem, loose connection, or static noise.

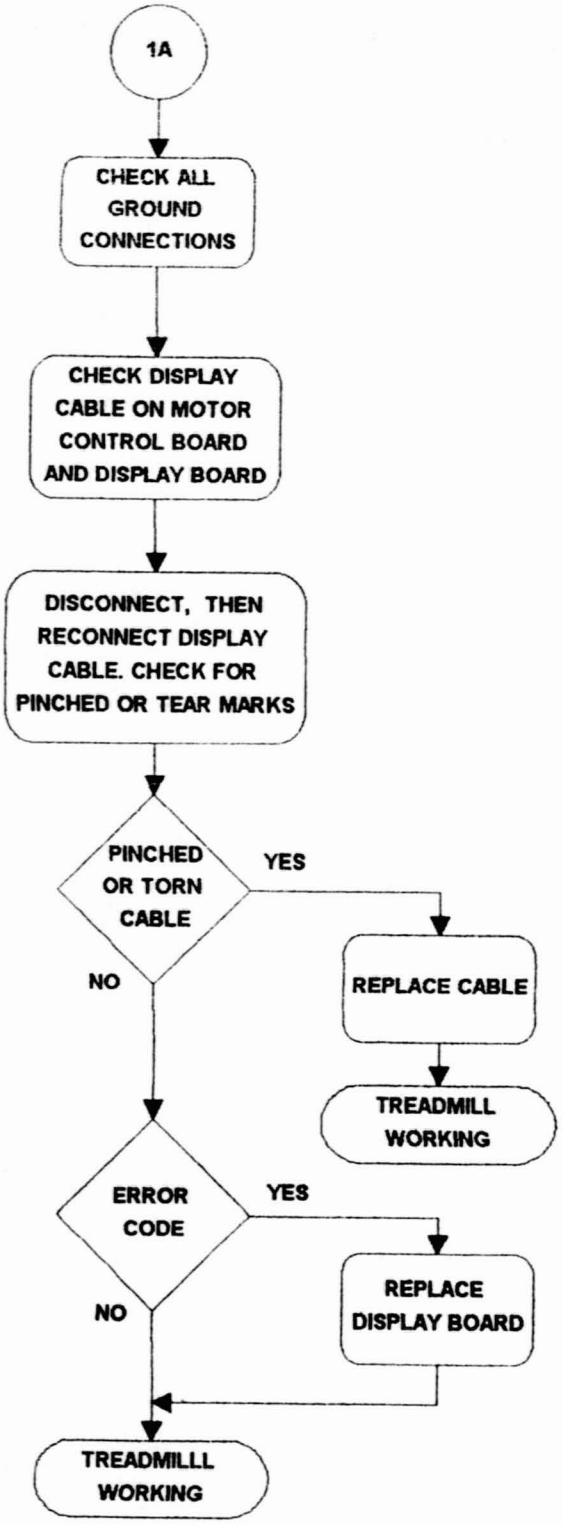
The following flow chart demonstrates the corrective steps for all CPU error codes.

CAUTION

Always unplug the STAR TRAC treadmill from the power outlet, prior to troubleshooting.

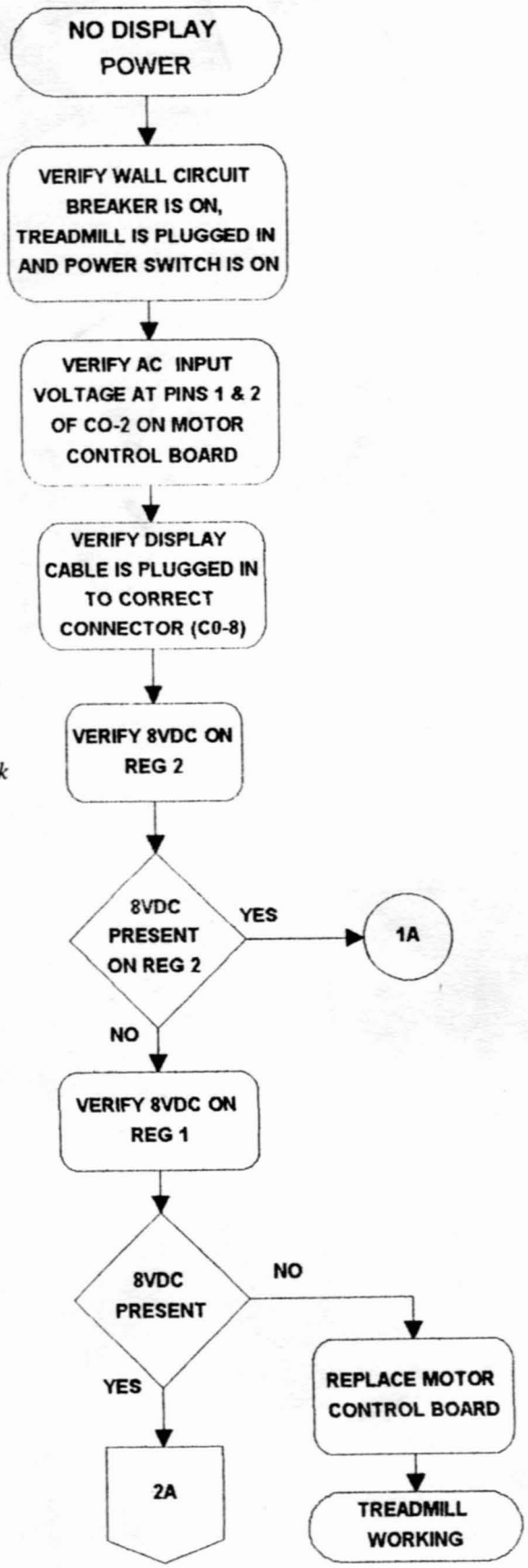


NOTE: The ground connections are located on the line cord, plug, display board plate, and frame.



NO DISPLAY POWER

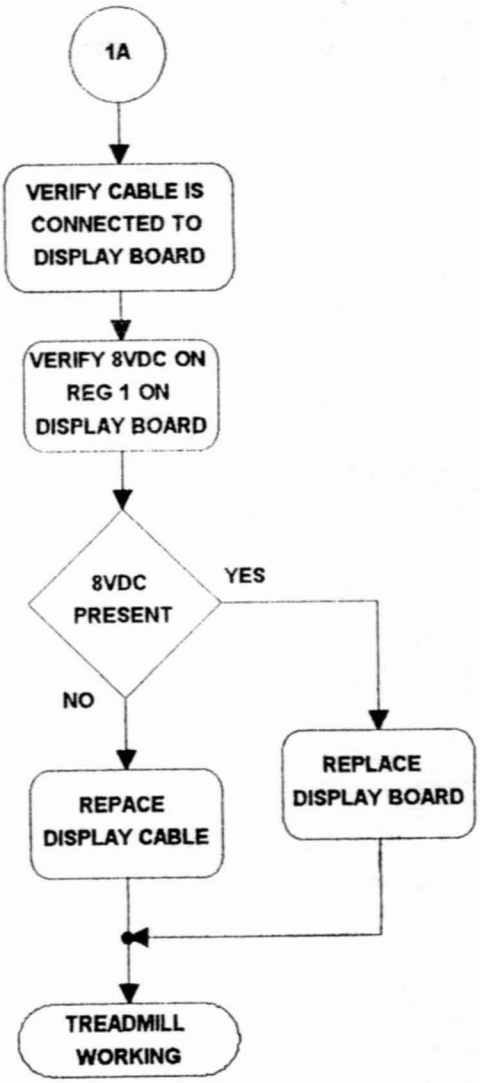
When the power switch is turned to ON, you should be able to read the display. If not, begin by visually inspecting the treadmill, wall circuit breaker, and power switch.

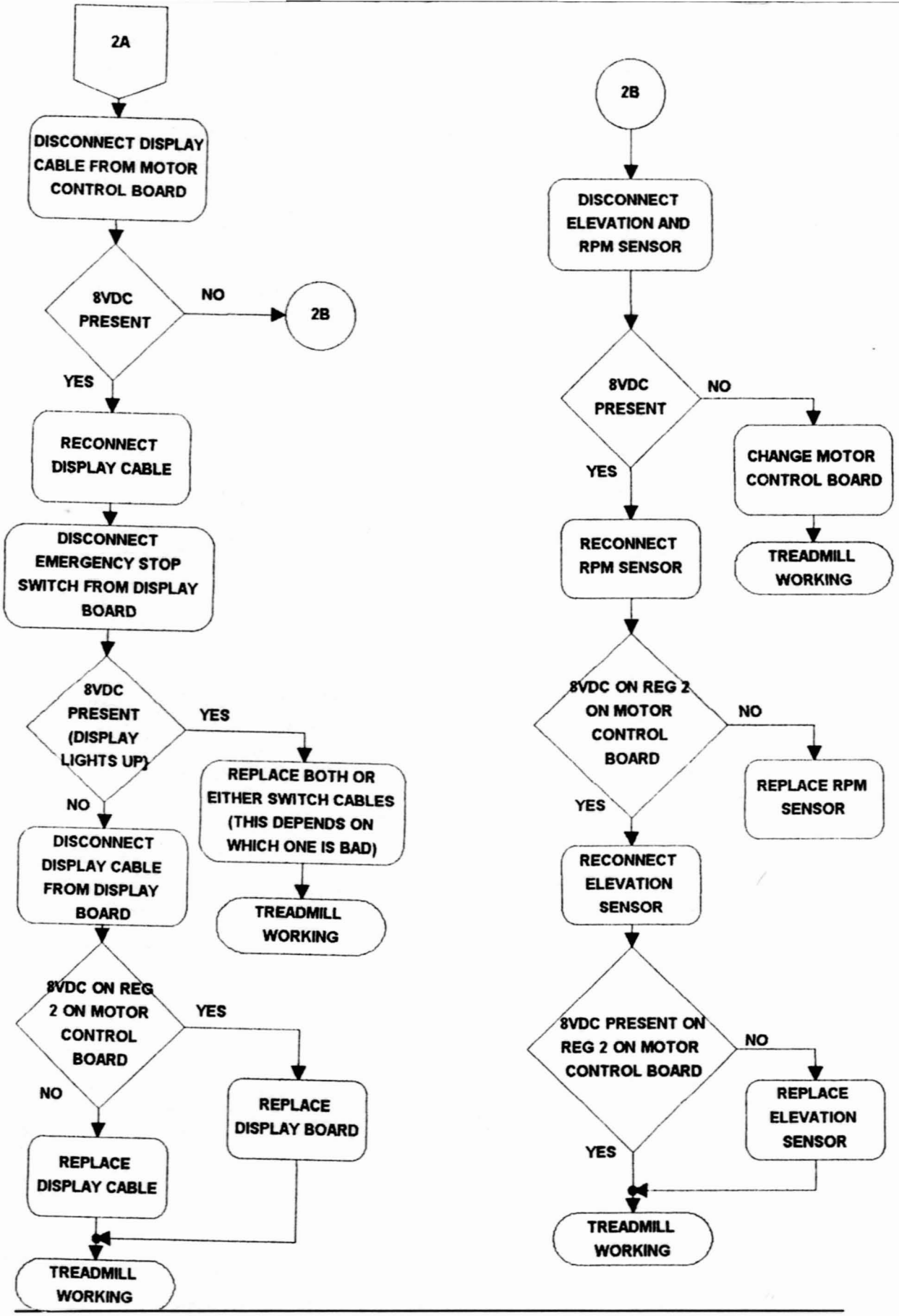


NOTE: *The flat ribbon cable is connected to the vertical connection. The round cable is connected to the horizontal connection.*

NOTE: *The REG 2 is located on the upper left of the motor control board. Place the red lead of the meter on the left side of REG 2 and black lead on the center ground screw.*

NOTE: REG 1 may be checked on the solder side of the display board. Locate the three solder points and nut on the lower right side of the motor control board. Place the red leads of the meter on the bottom solder point and black lead on nut. The voltage should read 8 VDC. Place the red lead on the top solder point. The voltage should read 6 VDC.




2A
DISCONNECT DISPLAY CABLE FROM MOTOR CONTROL BOARD
8VDC PRESENT
NO
2B
YES
RECONNECT DISPLAY CABLE
DISCONNECT EMERGENCY STOP SWITCH FROM DISPLAY BOARD
8VDC PRESENT (DISPLAY LIGHTS UP)
YES
REPLACE BOTH OR EITHER SWITCH CABLES (THIS DEPENDS ON WHICH ONE IS BAD)
TREADMILL WORKING
NO
DISCONNECT DISPLAY CABLE FROM DISPLAY BOARD
8VDC ON REG 2 ON MOTOR CONTROL BOARD
YES
REPLACE DISPLAY BOARD
NO
REPLACE DISPLAY CABLE
TREADMILL WORKING
2B
DISCONNECT ELEVATION AND RPM SENSOR
8VDC PRESENT
NO
CHANGE MOTOR CONTROL BOARD
TREADMILL WORKING
YES
RECONNECT RPM SENSOR
8VDC ON REG 2 ON MOTOR CONTROL BOARD
NO
REPLACE RPM SENSOR
YES
RECONNECT ELEVATION SENSOR
8VDC PRESENT ON REG 2 ON MOTOR CONTROL BOARD
NO
REPLACE ELEVATION SENSOR
YES
TREADMILL WORKING

CHAPTER FOUR:

INCREASING MECHANICAL UPTIME

This chapter describes simple preventive maintenance guidelines that increase treadmill uptime and reduce mechanical downtime.

In this chapter, you will troubleshooting of:

RUNNING BELT TROUBLESHOOTING

For optimal performance during the lifetime of the treadmill, running belt adjustments may become necessary. All adjustments are performed by turning the tailroller adjustment with a one-quarter inch Allen wrench.

To troubleshoot your running belt before any problems occur, you may verify the running belt is properly adjusted and working smoothly by performing the following four steps:

Step One Place your hand under the middle of the running belt. You should not feel any glaze.

-- *If the underside is glazed, replace the running belt.*

Step Two Elevate the treadmill to the maximum grade. Then, without electronically activating the running belt, stand at the top of the running belt and gently push off from the front handrail. You should be able to coast to the bottom of the treadmill.

-- *If you are not able to coast to the bottom, check the wax glaze, belt tension, and wax build up on the tailroller. If okay, replace the running belt.*

Step Three Activate the running belt electronically. Stand at the back of the treadmill and visually inspect the running belt. The running belt should move smoothly, without drifting from side to side.

-- *If the running belt is not moving smoothly or is drifting from side to side, check the belt tracking as outlined in* ***Running Belt Tracking*** *in this section. If okay, replace the running belt. To replace the running belt, please refer to* ***Chapter Five: Replacement Procedures.***

If you observe the following symptoms, then the running belt must be replaced:

- Blown breaker after short use.
- Slipping continues after tighten tailroller tension.
- Edges of running belt fraying.
- Seam of running belt pulling apart.
- Middle of running belt folding.

NOTE: *If your running belt requires replacement, contact Unisen. Be sure to have your model number and serial number handy. For instructions on replacing a running belt, please refer to* ***Chapter Five: Replacement Procedures.***

RUNNING BELT TRACKING

If the running belt is moving from side to side, the tracked may require adjusting. Please use the following steps.

Step One Adjust the tracking by turning the tailroller bolt one quarter turn at a time.

- If your running belt is tracking to the left, then adjust the running belt to track to the right. Tighten the left tailroller bolt by turning clockwise or loosen the right tailroller bolt by turning counter-clockwise.

- If your running belt is tracking to the right, then adjust the running belt to track to the left. Loosen the left tailroller bolt by turning counter-clockwise or tighten the right tailroller bolt by turning clockwise.

Step Two Verify the running belt tracking. Continue adjusting, as necessary, by turning the tailroller bolt one quarter at a time.

NOTE: *Turning the bolts as little as one-quarter of a bolt may have substantial effect. The best tracking position is 1/4" to 1/2" (6mm to 12mm) from the headroller pulley.*

RUNNING BELT SLIPPAGE AND TENSION

The running belt tension may need to be adjusted over time to keep the running belt from slipping each jogging step or at high speed. An easy method for testing belt slippage, before it becomes a problem is as follows:

Step One Accelerate the running belt to 2 mph.

Step Two Stand at the side of the treadmill. Grasping the handrails firmly, place one foot on the treadmill with a very sharp impact. The running belt should not stop.

-- *If the running belt does not stop, the running belt tension is good.*

-- *If the running belt stops and slippage occurs, check that the location of the slippage. Is it caused by the running belt slipping over the rollers or the drive belt slipping over the pulleys? Loosen the motor mount bolts and tighten motor adjustment bolt. This causes the drive belt to tighten.*

-- *If the slippage is caused by the running belt slipping over the rollers, tighten the running belt.*

Step Three Tighten the left and right tailroller bolts by turning clockwise. Always tighten or loosen the two tailroller bolts the same number of quarter turns.

Step Four Repeat Step Two and Three. Continue adjusting, as necessary. However, do not overtighten the running belt.

NOTE: *The overtightening of the running belt causes premature failure of running belts or rollers.*

The running belt has been tightened too much and may require loosening, if:

- You can't slide your hand under the belt and raise your hand one quarter of an inch.
- The edge of the running belt curls down, causing a bubble in the middle.
- Running belt creaks as it runs over the rollers.

NOTE: *If the running belt creaks in spite of being tightened, apply dry lubricant, such as TFE Teflon, to the slik deck. While this will stop the creaking for a short time, the running belt may still need replacement.*

DRIVE MOTOR TROUBLESHOOTING

The following adjustments relating to the drive motor may be required when the drive motor is replaced or misadjustment is indicated. However, if the following symptoms are observed, the drive motor may require replacing:

- Motor control board stops working.
- Motor grinds and knocks.
- Motor hesitates and jerks.
- Flywheel begins sparking.

NOTE: *If the display panel indicates an error code, fix the error code prior to replacing the drive motor. If the flywheel begins sparking, check the motor brushes. For additional information, please refer to* ***Chapter Three: Troubleshooting Error Codes.***

DRIVE BELT TENSION TROUBLESHOOTING

The drive belt tension may require tightening, if a slipping problem occurs on the drive pulley. You will need a medium Phillips screwdriver and two 1/2" wrenches.

Step One Remove the power cord from the power outlet.

Step Two Raise the motor shroud by using the Phillips screwdriver to remove the screw in the motor shroud. Gently lift the motor shroud up the display handrail. Using the bungie cord from the STAR TRAC Toolkit, hold the motor shroud at the top of the display handrail.

Step Three Loosen the four motor mounting nuts, using a 1/2" wrench. Place the mounting nuts to the side.

Step Four Loosen the belt tension locknut, using a 1/2" wrench.

Step Five Adjust the belt tension by turning the belt tension screw.

-- *If too tight, turn the belt tension screw counter-clockwise.*
-- *If too loose, turn the belt tension screw clockwise.*

***NOTE:** The easiest method for achieving optimum tension is loosening the drive belt. Turn the belt tension screw clockwise until the belt is taut, then turn the tension screw one additional full rotation.*

Step Six Simultaneously, tighten the belt tension locknut, while holding the belt tension screw with a 1/2" wrench.

Step Seven Simultaneously, tighten the right rear motor mounting nut while moving the flywheel backwards. Then tighten the other three motor mounting nuts.

Step Eight Replace the motor shroud by removing the bungie cord and lowering the motor shroud until it touches the frame. Press the sides of the motor shroud to the frame and attach the velcro fasteners. Using the Phillips screwdriver, tighten the screw in the center of the motor shroud.

Step Nine Plug the treadmill into the power outlet.

HEAD- AND TAILROLLER TROUBLESHOOTING

You may need to replace the head- or tailroller, if you observe the following symptoms:

- Delron end caps are loosening.
- Bearings are grinding and knocking.
- Lagging (coating) is loose.
- Thumping sounds (indicates a possible wax buildup)

NOTE: *For information on replacing the head- or tailroller, please refer to* ***Chapter Five: Replacement Procedures.***

TREADMILL VIBRATIONS TROUBLESHOOTING

A treadmill vibrates during use if the floor is uneven or bolt is loose. You may diagnose treadmill vibration problems by following these steps:

Step One Verify the treadmill is on an even, uncarpeted floor.

-- *If no, move the treadmill to an even floor.*
-- *If floor is carpeted, place treadmill on a rubber mat.*
-- *If yes, proceed to next step.*

Step Two Verify all the handrail bolts and the bottom weld under the handrail bolt are secure.

-- *If no, tighten the bolts.*
-- *If yes, proceed to next step.*

Step Three Verify all the slik deck bolts are secure.

-- *If no, tighten the bolts.*
-- *If yes, proceed to next step.*

Step Four Verify the flywheel is secure.

-- *If no, tighten the bolts.*

-- *If yes, proceed to next step.*

Step Five Verify the elevation screws are even.

-- *If no, make elevation screws even.*

-- *If yes, proceed to next step.*

Step Six Remove the drive belt and isolate the drive motor.

-- *If the drive motor vibrates, check the motor mount bolts. If loose, tighten the motor mount bolts. If not, check the motor brushes for wear or the motor mount for cracking.*

-- *If the drive motor does not vibrate, proceed to next step.*

Step Seven Check the drive motor shaft for damage.

-- *If yes, replace the drive motor shaft.*

-- *If no, replace the drive motor.*

TREADMILL STATIC AND SHOCKING TROUBLESHOOTING

The treadmill may cause a slight shock from the display panel or handrails, due to a faulty ground wire or worn running belt and slik deck. To diagnose the source of the treadmill static and shocking follow these steps:

Step One Check the line cord and plug prongs for signs of damage. Verify no prongs are broken, loose or missing.

***NOTE:** A damaged line cord may cause a shock between treadmills.*

-- *If damaged, contact Unisen for a replacement.*

Step Two Check the green groundwire on the frame.

-- *If damaged, contact Unisen for a replacement.*

Step Three Check the display panel for metal ground plate.

-- *If damaged, contact Unisen for a replacement.*

CHAPTER FIVE:

REPLACEMENT PROCEDURES

This chapter outlines the procedures for replacing mechanical and electrical components of the STAR TRAC treadmills. Before replacing any parts, verify the problem by using the Diagnostic Test, detailed in **Chapter Two: Diagnostic Test**.

NOTE: *If you have additional assistance, please contact STAR TRAC Hotline at 800 / 503 - 1221.*

In this chapter, you will learn replacement procedures for:

DISPLAY CABLE REPLACEMENT

You will need the following tools for replacing the display cable:

- 9/16" Wrench
- 5/32" Hex Key
- Eight feet roll of string and a small weight, such as keys or a fishing sinker
- 5/64" Allen Wrench

CAUTION

Always turn the power switch to the OFF position. Unplug the treadmill power cord from the power outlet.

Step One Verify the STAR TRAC treadmill is unplugged from the power outlet.

Step Two Raise the motor shroud by using the Phillips screwdriver to remove the screw in the motor shroud. Gently lift the motor shroud up the display handrail. Using the bungie cord from the STAR TRAC Toolkit, hold the motor shroud at the top of the display handrail.

Step Three Remove the display panel faceplate.

- Using a 5/64" Allen wrench, remove the five small hex screws from the back of the display console. Place the five screws to the side.
- Gently dislodge the display panel from the console.
- Disconnect the Display Cable and Stop Switch cable, if applicable, from the display panel.
- Place the display panel in a safe place.

NOTE: *If your treadmill does not have handrails, please skip to Step Five-A.*

Step Four **If your treadmill has handrails**, remove the display handrail assembly.

- Using a 9/16" wrench, loosen the U-bolt nuts and washers from both sides of the treadmill. Set the nuts and washers in a safe place.
- Using a 5/32" hex key, remove the two buttonhead screws below the Display handrail. Set the buttonhead screws in a safe place.
- Disconnect the Display cable from the Motor Control Board and carefully lift the display handrail away from the elevation screws. Set the Display handrail in a safe place.

Step Five

Remove the current display cable by removing the mylar insert that holds the display cable against the handrail.

- Tie a string to the current display cable at the display panel faceplate assembly.
- Remove the display cable from the bottom of the handrail, by pulling the string. The string should be threaded through both ends of the handrail.
- Tie a string to the new display cable at the display panel faceplate assembly.
- Carefully pull the string with the new display cable attached, through the handrail.
- Replace the mylar insert that holds the display cable against the handrail.

Step Five-A

If your treadmill does not have handrails, disconnect your display cable from the motor control board.

- Tie a string to the current display cable at the display panel faceplate assembly.
- Remove the display cable from the bottom of the handrail, by pulling the string. The string should be threaded through both ends of the handrail.
- Tie a string to the new display cable at the display panel faceplate assembly.
- Carefully pull the string with the new display cable attached, through the handrail.
- Connect the display cable to the motor control board.

NOTE: *If your treadmill does not have side handrails, please skip to Step Seven.*

Step Six Replace the display handrail assembly.

- Using a 5/32" hex key, replace and tighten the two buttonhead screws below the display handrail.
- Using a 9/16" wrench, tighten the U-bolt nuts and washers on both sides of the treadmill.
- Reconnect the display cable to the motor control board and carefully replace the display handrails over the elevation screws.

Step Seven Replace the display control board.

- Connect the display cable and the emergency stop switch to the back of the display panel.
- Using a 5/64" Allen wrench, replace the five hex screws from the back of the display console. Verify the bottom right hand screw is the ground (largest screw) and that it is in contact with the metal plate attached to the display panel.
- Gently replace the display panel from the console.

Step Eight Replace the motor shroud by removing the bungie cord and lowering the motor shroud until it touches the frame. Press the sides of the motor shroud to the frame and attach the velcro fasteners. Using the Phillips screwdriver, tighten the screw in the center of the motor shroud.

Step Nine Plug the STAR TRAC treadmill into the power outlet. Turn the power switch to ON.

EMERGENCY STOP SWITCH REPLACEMENT

***NOTE:** Treadmills without side handrails do not have emergency stop switches.*

You will need the following tools for replacing the emergency stop switch:

- 9/64" Wrench
- 5/32" Hex Key
- Roll of String

CAUTION

Always turn the power switch to the OFF position. Unplug the treadmill power cord from the power outlet.

Step One Verify the STAR TRAC treadmill is unplugged from the power outlet.

Step Two Remove the left side handrail.

- Using a 5/32" hex key, remove the two buttonhead socket screws below the display handrail.
- Slowly remove the side handrail from the display handrail.

Step Three Remove the two screws holding the emergency stop switch and place the two screws to the side.

Step Four Disconnect the emergency stop switch from the side handrail.

Step Five Insert the new emergency stop switch.

- Replace the two screws that hold the emergency stop switch in place.

Step Six Reconnect the emergency stop switch by replacing the two buttonhead screws.

Step Seven Connect the remote display cable to the extension cable in the handrail.

Step Eight Replace the side handrail.

- Slowly reinsert the side handrail to the display handrail.
- Using a 5/32" hex key, replace the two buttonhead socket screws below the display handrail.
- Verify the display cable is not pinched.

NOTE: *The treadmill displays an FS 2 error code when the power is turned on, if the display cable is pinched.*

ELEVATION MOTOR REPLACEMENT

NOTE: *Treadmills with no elevation do not have an elevation motor.*

You will need the following tools to replace the elevation motor:

- Two 17mm Wrench
- 1/8" and 5/65" Allen Wrenchs
- Pair of Pliers
- Phillips Screwdriver
- 1/4" Nutdriver

CAUTION

Always turn the power switch to the OFF position. Unplug the treadmill power cord from the power outlet.

Step One Verify the STAR TRAC treadmill is unplugged from the power outlet.

Step Two Raise the motor shroud by using the Phillips screwdriver to remove the screw in the motor shroud. Gently lift the motor shroud up the display handrail. Using the bungie cord from the STAR TRAC Toolkit, hold the motor shroud at the top of the display handrail.

Step Three Disconnect the elevation sensor (CO-5) from the motor control board.

Step Four Disconnect the elevation motor connection (CO-3) from the motor control board.

Step Five Lay the treadmill on its side.

Step Six Remove the four screws located on the switch panel at the base of the treadmill. Place the screws in a safe place.

- Gently remove the switch panel as far as possible without stressing the wires.

Step Seven Remove the tension from the elevation belt by loosening the idler pulley.

- Simultaneously loosen the top nut of the idler pulley with a 17 mm wrench, while holding the bottom nut in place with a second 17 mm wrench.

Step Eight Remove the elevation motor pulley, by using a 5/65" Allen wrench to loosen the two setscrews. Set the setscrews in a safe place.

Step Nine Remove the four mounting screws and washers from the bottom of the elevation platform, using a 1/8" Allen wrench. Set the mounting screws and washers in a safe place.

- Remove the elevation motor.

Step Ten Install the new elevation motor with the square end down.

- Align the elevation motor so the sensor mounting studs are close to the drive pulley shaft of the drive motor.
- Replace the four mounting screws and washers on the bottom of the elevation platform. You will need to use a 1/8" Allen wrench.

Step Eleven Replace the elevation motor pulley. Tighten the two setscrews, using a 5/65" Allen wrench.

- Check that both of the elevation motor pulleys are straight.

Step Twelve Replace the tension on the elevation belt by tightening the idler pulley.

- At the same time, tighten the top nut of the idler pulley using a 17 mm wrench and hold the bottom nut in place, using a second 17 mm wrench.

Step Thirteen Replace the switch panel at the base of the treadmill. Tighten the four screws.

Step Fourteen Stand the treadmill in a upright position.

Step Fifteen Connect the elevation motor sensor (CO-3) on the Motor Control Board.

Step Sixteen Connect the elevation sensor (CO-5) on the Motor Control Board.

Step Seventeen Replace the motor shroud by removing the bungie cord and lowering the motor shroud until it touches the frame. Press the sides of the motor shroud to the frame and attach the velcro fasteners. Using the Phillips screwdriver, tighten the screw in the center of the motor shroud.

Step Eighteen Plug the treadmill into the power outlet.

Step Nineteen Turn the power switch to the ON position.

MOTOR BELT REPLACEMENT

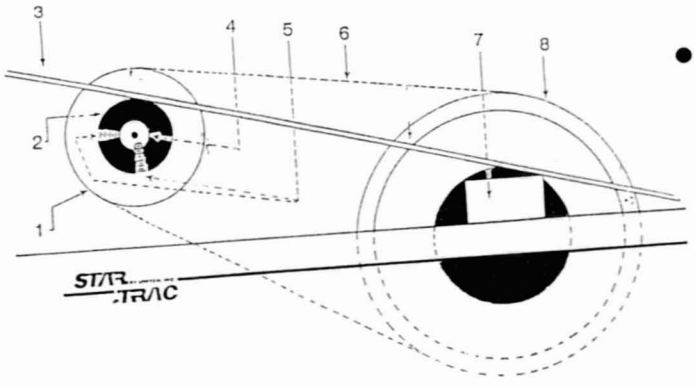
CAUTION

Always turn the power switch to the OFF position. Unplug the treadmill power cord from the power outlet.

Step One Verify the STAR TRAC treadmill is unplugged from the power outlet.

Step Two Raise the motor shroud by using the Phillips screwdriver to remove the screw in the motor shroud. Gently lift the motor shroud up the display handrail. Using the bungie cord from the STAR TRAC Toolkit, hold the motor shroud at the top of the display handrail.

Step Three Remove the motor belt from the motor pulley.



1 MOTOR PULLEY 2 MOTOR PULLEY HUB 3 12 INCH RULER
4 MOTOR SHAFT 5 SETSCREWS 6 MOTOR BELT
7 HEAD ROLLER BLOCK 8 HEAD ROLLER PULLEY

- Simultaneously, rotate the flywheel forward, then backward one revolution, while firmly pushing down and to the left on the motor belt (where it approaches the motor pulley). Continue until the drive belt slides.

Step Four Position the new motor belt on the headroller pulley. Try to position the motor belt so that it touches the first two or three grooves.

Step Five Place the forward end of the motor belt to the immediate left of the motor pulley.

Step Six Replace the motor belt on the motor pulley.

- Simultaneously, rotate the flywheel forward, then backward one revolution, while firmly pushing down and to the right on the motor belt. Continue until the drive belt slides on.

Step Seven Replace the motor shroud by removing the bungie cord and lowering the motor shroud until it touches the frame. Press the sides of the motor shroud to the frame and attach the velcro fasteners. Using the Phillips screwdriver, tighten the screw in the center of the motor shroud.

Step Eight Plug the treadmill into the power outlet.

Step Nine Turn the power switch to the ON position.

ELEVATION SENSOR REPLACEMENT

NOTE: *Treadmills without elevation do not have elevation sensors.*

You will need the following tools to replace the elevation sensor:

- Phillips screwdriver
- 1/4" nut driver

CAUTION

Always turn the power switch to the OFF position. Unplug the treadmill power cord from the power outlet.

Step One Verify the STAR TRAC treadmill is unplugged from the power outlet.

Step Two Raise the motor shroud by using the Phillips screwdriver to remove the screw in the motor shroud. Gently lift the motor shroud up the display handrail. Using the bungie cord from the STAR TRAC Toolkit, hold the motor shroud at the top of the display handrail.

Step Three Remove elevation sensor cable, located at CO-5, from the motor control board.

Step Four Verify half-moon elevation disc is positioned away from the optical sensor.

- Using a 1/4" nut driver, remove the two nuts and washers from the elevation sensor disc.
- Remove the elevation sensor board. Place to one side.

Step Five Place new elevation sensor between the elevation disc.

- Replace the two nuts and washers.

Step Six Position the elevation sensor between the walls of the optical sensor on the elevation sensor board. The elevation disc should not make contact with the optical sensor walls.

Step Seven Reconnect the elevation sensor cable to position CO-5 on the motor control board.

Step Eight Replace the motor shroud by removing the bungie cord and lowering the motor shroud until it touches the frame. Press the sides of the motor shroud to the frame and attach the velcro fasteners. Using the Phillips screwdriver, tighten the screw in the center of the motor shroud.

Step Nine Plug the treadmill into the power outlet.

Step Ten Turn the power switch to the ON position.

LIMIT SWITCH REPLACEMENT

You will need the following tools to replace the limit switch:

- one Phillips screwdriver
- one slot head screwdriver

CAUTION

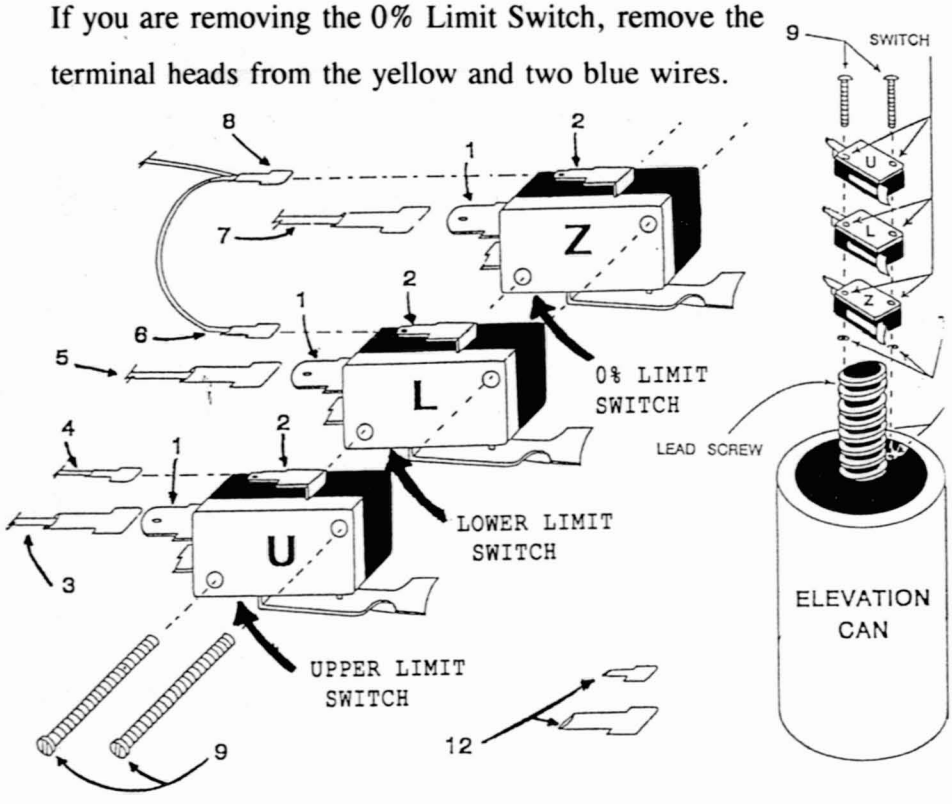
Always turn the power switch to the OFF position. Unplug the treadmill power cord from the power outlet.

Step One Verify the STAR TRAC treadmill is unplugged from the power outlet.

Step Two Raise the motor shroud by using the Phillips screwdriver to remove the screw in the motor shroud. Gently lift the motor shroud up the display handrail. Using the bungie cord from the STAR TRAC Toolkit, hold the motor shroud at the top of the display handrail.

Step Three Remove the top two screws on the top of the left elevation can.

- Using a slot head screwdriver, remove only the wires related to defective switch.
- If you are removing the Upper Limit Switch, remove the terminal heads from the red and black wires.
- If you are removing the Lower Limit Switch, remove the terminal heads from the white wire and blue jumper.
- If you are removing the 0% Limit Switch, remove the terminal heads from the yellow and two blue wires.



SWITCH LIMIT

1 SIDE SWITCH TERMINAL
2 BACK SWITCH TERMINAL
3 RED WIRE
4 BLACK WIRE
5 WHITE WIRE
6 BLUE JUMPER
7 YELLOW WIRE
8 ONE TERMINAL WITH TWO BLUE WIRES
9 SLOT SCREW
10 FLAT WASHER
11 ELEVATION CAN THREADED HOLES
12 SLIP-ON FEMALE TERMINAL FOR ALL WIRE HEADS

Step Four Replace the limit switch by reconnecting the terminal heads and wires.

- If you are replacing the Upper Limit Switch, reconnect the terminal heads of the red wire on to the side switch terminal. Reconnect the terminal heads of the black wire on to the back switch terminal.
- If you are replacing the Lower Limit Switch, reconnect the terminal heads of the white wire on to the side switch terminal. Reconnect the terminal heads of the blue jumper on to the back switch terminal.
- If you are replacing the 0% Limit Switch, reconnect the terminal head of the yellow wire on to the side switch terminal. Reconnect the terminal heads with the blue wires jumper on to the back switch terminal.

Step Five Replace the motor shroud by removing the bungie cord and lowering the motor shroud until it touches the frame. Press the sides of the motor shroud to the frame and attach the velcro fasteners. Using the Phillips screwdriver, tighten the screw in the center of the motor shroud.

Step Six Plug the treadmill into the power outlet.

Step Seven Turn the power switch to the ON position.

RPM SENSOR REPLACEMENT

You will need the following tools to replace the RPM sensor:

- One 1/8" Allen Wrench
- One 1/8" T-handle Hex Key
- One 5/64" T-handle Hex Key
- One Slot Head Screwdriver

CAUTION

Always turn the power switch to the OFF position. Unplug the treadmill power cord from the power outlet.

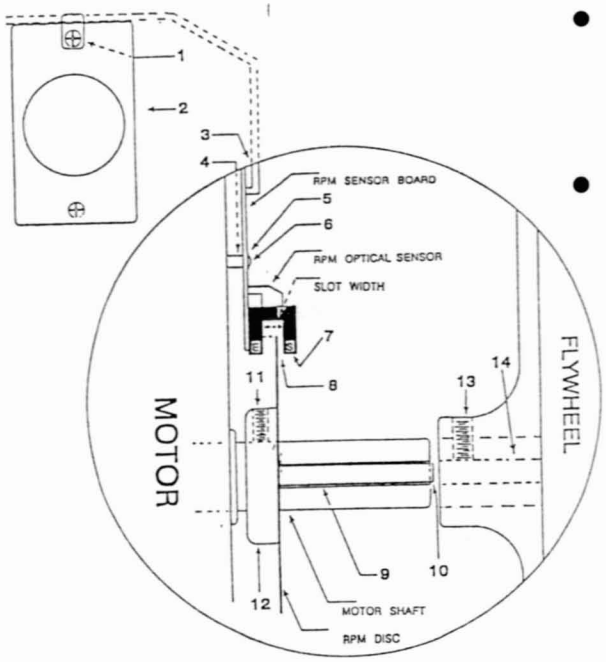
Step One Verify the STAR TRAC treadmill is unplugged from the power outlet.

Step Two Raise the motor shroud by using the Phillips screwdriver to remove the screw in the motor shroud. Gently lift the motor shroud up the display handrail. Using the bungie cord from the STAR TRAC Toolkit, hold the motor shroud at the top of the display handrail.

Step Three Remove the flywheel from the motor shaft by loo. setscrews with a 1/8" Allen wrench. Place the flywhee. safe place.

***NOTE:** Be careful not to bump the RPM disc or sensor.*

Step Four Remove the RPM sensor board from the motor brush cover.



- Using a flat screwdriver, remove the screw on the motor brush cover.
- Release the sensor cable, located at CO-3, from the motor control board.

SIDE VIEW: RPM SYSTEM AND FLYWHEEL ASSEMBLY

1 PHILIPS SCREW	2 BRUSH COVER	3 CABLE
4 PLASTIC SPACER	5 PLASTIC WASHER	
6 SLOT SCREW (or KEP NUT)	7 SENSOR	8 1/3 SLOT WIDTH
9 MOTOR SHAFT GROOVE	10 TORQUE KEY	11 RPM DISC SETSCREW
12 RPM DISC HUB	13 FLYWHEEL SETSCREW	14 FLYWHEEL GROOVE

Step Five Position the new RPM sensor on the drive motor. The RPM sensor disc should be placed between the slots on the optical sensor.

- Using a flat screwdriver, replace the screw on the motor brush cover.

Step Six Replace the flywheel on the motor shaft by tightening the two setscrews with a 1/8" Allen wrench.

***NOTE:** Be careful not to bump the RPM disc or sensor.*

Step Seven Replace the motor shroud by removing the bungie cord and lowering the motor shroud until it touches the frame. Press the sides of the motor shroud to the frame and attach the velcro fasteners. Using the Phillips screwdriver, tighten the screw in the center of the motor shroud.

Step Eight Plug the treadmill into the power outlet.

Step Nine Turn the power switch to the ON position.

MOTOR CONTROL BOARD REPLACEMENT

You will need the following tools:

- 7/16" Socket Wrench
- Slot Head Screwdriver
- Phillips Screwdriver

CAUTION

Always turn the power switch to the OFF position. Unplug the treadmill power cord from the power outlet.

Step One Verify the STAR TRAC treadmill is unplugged from the power outlet.

Step Two Raise the motor shroud by using the Phillips screwdriver to remove the screw in the motor shroud. Gently lift the motor shroud up the display handrail. Using the bungie cord from the STAR TRAC Toolkit, hold the motor shroud at the top of the display handrail.

Step Three Wait for **three minutes**.

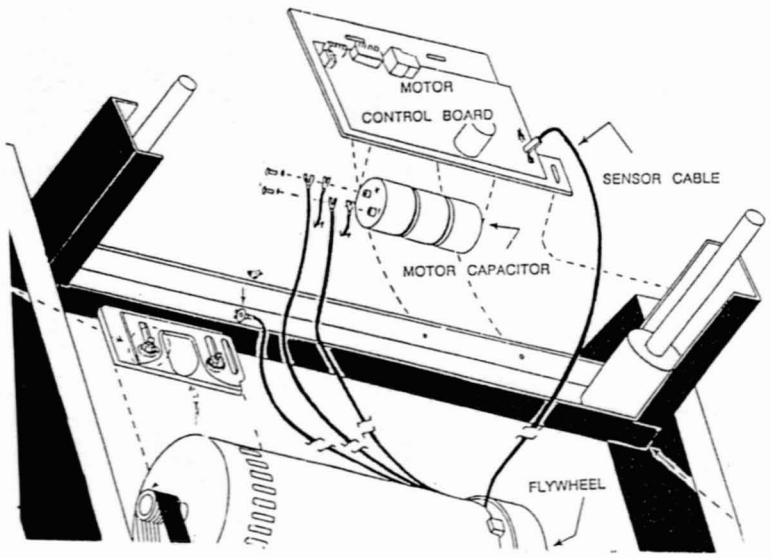
Step Four Without crossing the wires, disconnect the red and black wires on the large blue capacitor, located behind the Motor Control Board.

Step Five Disconnect the elevation motor, limit switches, and auto transformer connectors from their terminals.

Step Six Disconnect the display cable, 0% cable, RPM sensor, and elevation sensor.

Step Seven Remove the terminal wires from CO-2 one at a time.

Step Eight Using the socket wrench, remove the two mounting bolts located at the bottom of the motor control board. Using a Phillips screwdriver, remove the motor control board.



Step Nine Position the new motor control board on the frame. Insert the screws and tighten.

Step Ten Using a socket wrench, replace the two mounting bolts located at the bottom of the motor control board. Replace the motor control board screw, using a Phillips screwdriver.

Step Eleven Reconnect the terminal wires from CO-2 one at a time.

Step Twelve Reconnect the display cable, 0% cable, RPM sensor, and elevation sensor.

Step Thirteen Reconnect the elevation motor, limit switches, and auto transformer connectors to their terminals.

Step Fourteen Without crossing the wires, reconnect the red and black wires on the large blue capacitor, located behind the Motor Control Board.

Step Fifteen Replace the motor shroud by removing the bungie cord and lowering the motor shroud until it touches the frame. Press the sides of the motor shroud to the frame and attach the velcro fasteners. Using the Phillips screwdriver, tighten the screw in the center of the motor shroud.

Step Sixteen Plug the treadmill into the power outlet.

Step Seventeen Turn the power switch to the ON position.

FLYWHEEL REPLACEMENT

You will need the following tools:

- 1/8" T-handle Hex Key
- Rubber Mallet

CAUTION

Always turn the power switch to the OFF position. Unplug the treadmill power cord from the power outlet.

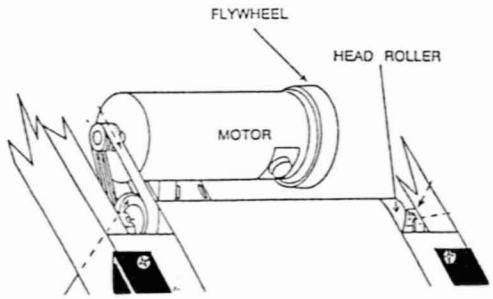
Step One Verify the STAR TRAC treadmill is unplugged from the power outlet.

Step Two Raise the motor shroud by using the Phillips screwdriver to remove the screw in the motor shroud. Gently lift the motor shroud up the display handrail. Using the bungie cord from the STAR TRAC Toolkit, hold the motor shroud at the top of the display handrail.

Step Three With a 1/8" T handle hex key, loosen the setscrews on the flywheel.

- Carefully remove the flywheel by tapping with a rubber mallet. Be careful not to loose the torque key.

***NOTE:** Be careful not to touch the RPM optical sensor and disc.*



Step Four Place the torque key in the motor shaft. One end of the torque key should touch the RPM disc hub.

Step Five Align the flywheel groove with the motor shaft groove.

Step Six Carefully tap the flywheel on the motor shaft with the rubber mallet.

- Verify the flywheel is on the motor shaft and resting against the RPM disc.

Step Seven With a 1/8" T handle hex key, tighten the set screws on the flywheel.

Step Eight Replace the motor shroud by removing the bungie cord and lowering the motor shroud until it touches the frame. Press the sides of the motor shroud to the frame and attach the velcro fasteners. Using the Phillips screwdriver, tighten the screw in the center of the motor shroud.

Step Nine Plug the treadmill into the power outlet.

Step Ten Turn the power switch to the ON position.

MOTOR PULLEY REPLACEMENT

You will need the following tools:

- 3/32" T-handle Hex Key
- Phillips Screwdriver
- 12" Ruler

CAUTION

Always turn the power switch to the OFF position. Unplug the treadmill power cord from the power outlet.

Step One Verify the STAR TRAC treadmill is unplugged from the power outlet.

Step Two Raise the motor shroud by using the Phillips screwdriver to remove the screw in the motor shroud. Gently lift the motor shroud up the display handrail. Using the bungie cord from the STAR TRAC Toolkit, hold the motor shroud at the top of the display handrail.

Step Three Remove the motor belt from the motor pulley.

- Simultaneously, rotate the flywheel forward, then backward one revolution, while firmly pushing down and to the left. Continue until the motor belt slips off.

Step Four Loosen the set screws in the pulley hub.

- Using a 3/32" T handle hex key, turn the set screws counter-clockwise. Place the set screws in a safe place.

Step Five Slide the motor pulley from the motor shaft.

Step Six Place the torque key in the motor shaft. Slide the motor pulley over the torque key and motor shaft.

Step Seven Align the motor pulley with the headroller pulley, using a 12" ruler. Tighten the setscrews.

Step Eight Replace the motor belt.

- Simultaneously, rotate the flywheel forward, then backward one revolution, while firmly pushing down and right on the motor belt. Continue until the motor belt slides on.

Step Nine Replace the motor shroud by removing the bungie cord and lowering the motor shroud until it touches the frame. Press the sides of the motor shroud to the frame and attach the velcro fasteners. Using the Phillips screwdriver, tighten the screw in the center of the motor shroud.

Step Ten Plug the treadmill into the power outlet.

Step Eleven Turn the power switch to the ON position.

RIGHT OR LEFT HANDRAIL REPLACEMENT

NOTE: *Treadmills without handrails may not have handrails added at a later date.*

You will need the following tools:

- 5/32" Hex Key
- 1/4" Hex Key Driver

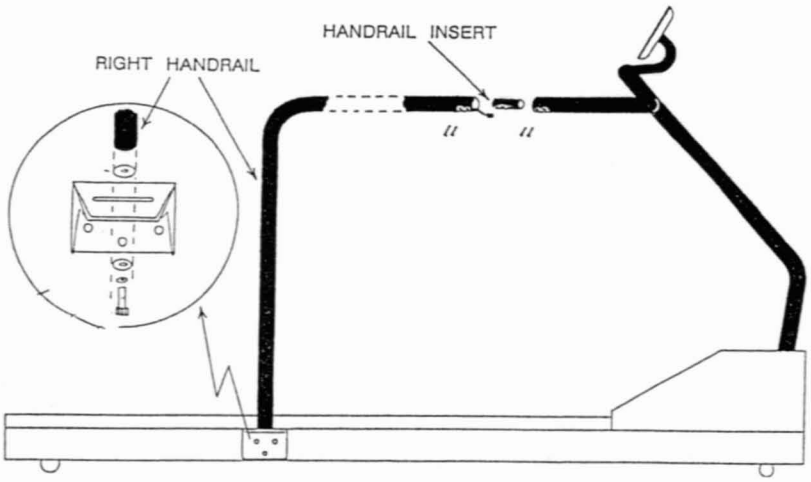
CAUTION

Always turn the power switch to the OFF position. Unplug the treadmill power cord from the power outlet.

Step One Verify the STAR TRAC treadmill is unplugged from the power outlet.

Step Two Remove the handrail.

- Using a 1/4" hex key driver, remove the socket head bolt, lock washer, and flat washer located under the side foot. Remove the gasket above the side foot. Place the bolt, washers, and gasket in a safe place.



Step Three Using a 5/32" hex key, remove the two bottom head socket screws below the display handrail.

- Slowly remove the handrails from the display handrail.

Step Four Remove the emergency stop switch extension cable from the plastic tubing inside the display handrail.

- If the left handrail is being removed, disconnect the emergency stop switch extension cable.

Step Five Connect the new right or left handrail by inserting the emergency stop switch extension cable into the plastic tube in the display handrail.

- If the left handrail is being connected, be careful not to pinch the emergency stop switch cable.
- Replace the handrails to the side feet by tightening the gasket, flat washer, lock washer, and socket bolt head.

Step Six Plug the treadmill into the power outlet.

Step Seven Turn the power switch to the ON position.

SLIK DECK REPLACEMENT

The slik deck may need replacing if the surface feels soft, the deck creaks when running, or the middle portion is worn down to the wood. You will need the following tools:

- Large Phillips screwdriver
- 1/4" and 1/8" Allen wrenchs

CAUTION

Always turn the power switch to the OFF position. Unplug the treadmill power cord from the power outlet.

NOTE: *If you have a 2000 Series treadmill with elevation, raise the treadmill to the highest percent grade elevation. A 3000 Series treadmill does not need to be elevated.*

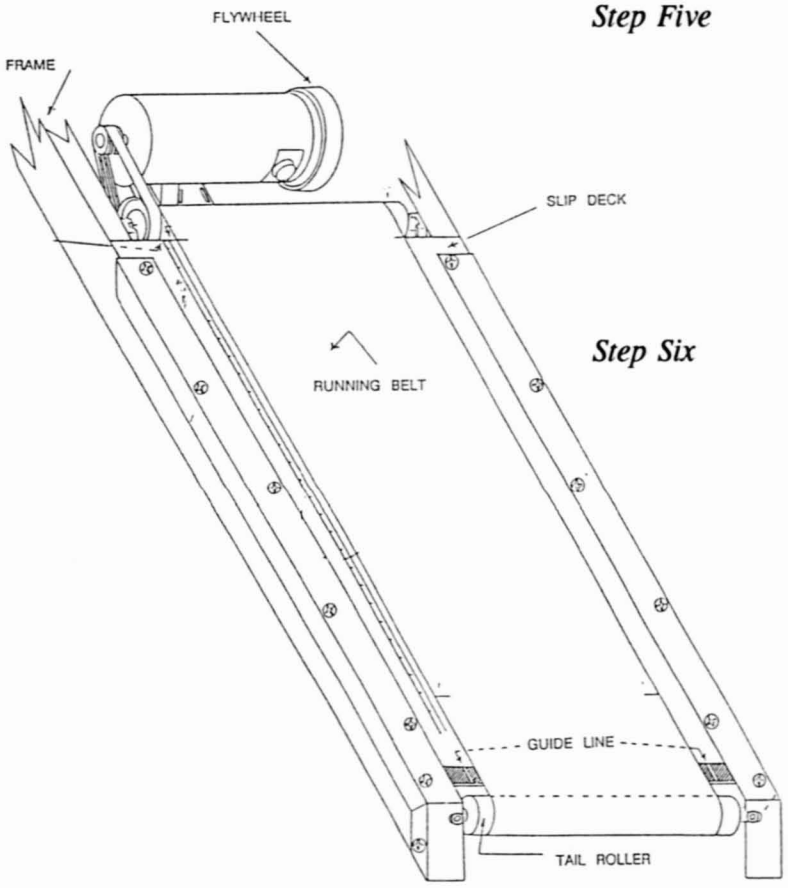
Step One Remove the power plug from the outlet.

Step Two Raise the motor shroud by using the Phillips screwdriver to remove the screw in the motor shroud. Gently lift the motor shroud up the display handrail. Using the bungie cord from the STAR TRAC Toolkit, hold the motor shroud at the top of the display handrail.

Step Three Remove the drive belt from the motor pulley and headroller pulley by alternately rotating the flywheel forward and backward while firmly pushing down and to the left on the drive belt. The drive belt will gradually "walk" off the pulleys.

Step Four Remove the sidebed and corner covers.

- If you have a 2000 Series, use a Phillips screwdriver to remove the sidebed covers and corner covers. Place them to one side.



Step Five Remove the tailroller bolts by using a T Hex Key. Turn bolts counter-clockwise to remove. Place the tailroller to the side.

Step Six Check the tailroller for wax buildup.

-- *Remove excess wax by scraping the surface with a credit card or piece of wood. Do NOT remove all of the wax. Only remove the excess.*

Step Seven Remove the headroller bolts by using a T Hex Key. Turn bolts counter-clockwise to remove. Place the headroller to the side.

Step Eight Raise one side of the slik deck approximately two inches and slide from the treadmill.

-- *If the opposite side of the slik deck coated with wax and has not been used previously, turn the slik deck over and slide back on to the treadmill.*
-- *If the both sides of the slik deck have been used, remove from the treadmill and discard.*

Step Nine Position the new slik deck with the wax side up and slide it between the running belt.

NOTE: *If you have a 2000 Series, be careful not to damage the static line running under the treadmill.*

- Check the condition of the running belt. For additional information on running belts, please refer to the section on **Running Belt Troubleshooting**.

NOTE: *The running belt must be replaced, if it is worn. Placing a good slik deck on a worn running belt will require additional repairs in the near future.*

Step Ten Replace the headroller by sliding it through the running belt and placing it on the brackets. Replace and tighten the headroller bolts by turning them approximately two turns.

- Tighten the front left and right roller bolts as far as possible.

- Verify the position of the drive belt around the pulley. If not in the correct position, re-position the drive belt.

Step Eleven Replace the tailroller by sliding it through the running belt and on to the brackets. Replace and tighten the tailroller bolts.

- Turn each tailroller bolt enough to remove the slack from the running belt.

Step Twelve Verify the alignment and tension of the running belt.

- Plug in the power outlet. Turn the power switch to the ON position.

- Check the running belt tension by accelerating the speed to 2 mph. Stand at the side of the treadmill. Grasping the handrails firmly, place one foot on the treadmill with a very sharp impact. The running belt should not stop.

  -- *If the running belt does not stop, the running belt tension is good.*

  -- *If the running belt stops, tighten the tailroller bolts by turning for one revolution. Repeat the step until the tension is correct.*

- Verify the running belt tracking by accelerating the speed to 5 mph.

  Stand behind the treadmill and visually check for tracking problems.

NOTE: *For additional information on running belts, please refer to* ***Running Belt Replacement.***

Step Thirteen Replace the motor shroud by removing the bungie cord and lowering the motor shroud until it touches the frame. Press the sides of the motor shroud to the frame and attach the velcro fasteners. Using the Phillips screwdriver, tighten the screw in the center of the motor shroud.

RUNNING BELT REPLACEMENT

NOTE: *For additional information on troubleshooting running belt problems, please refer to* ***Chapter Four: Troubleshooting.***

CAUTION

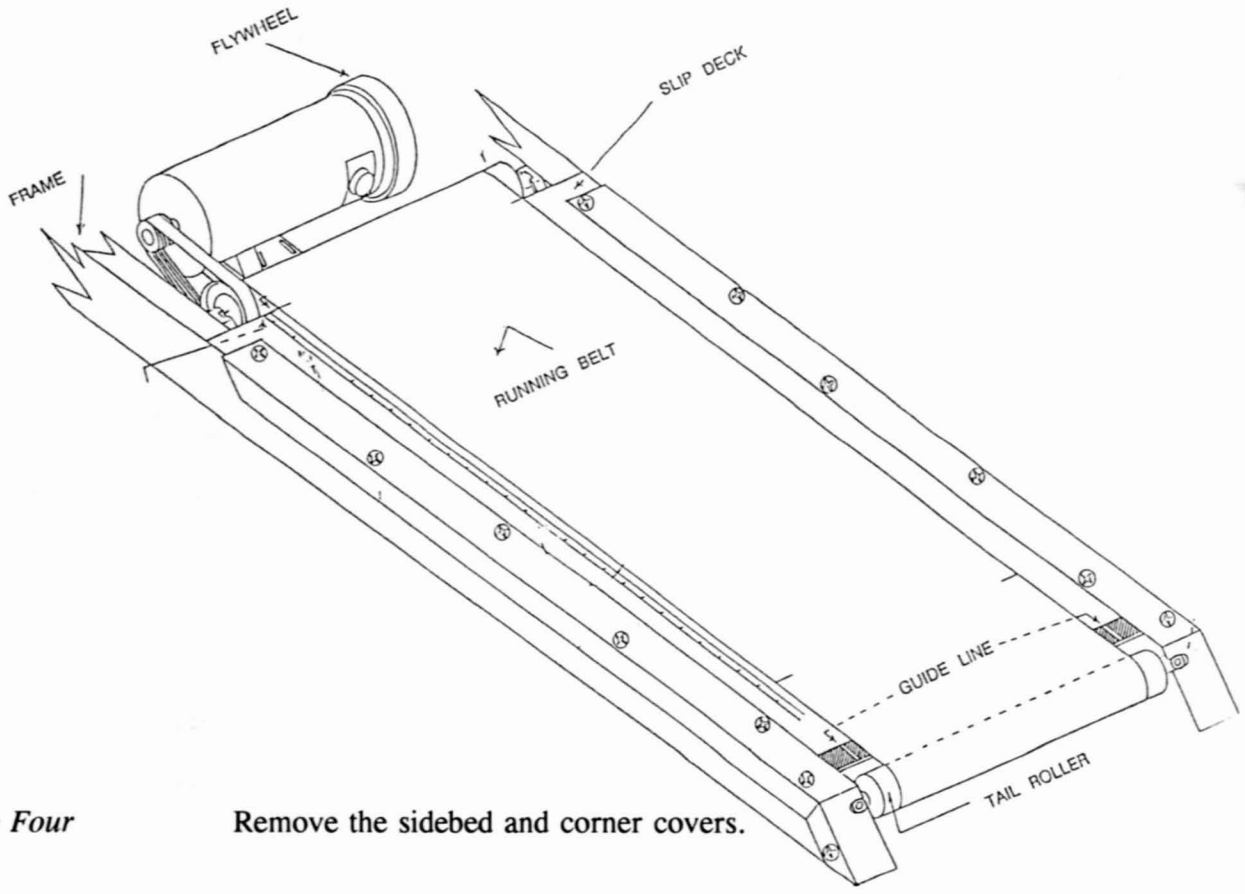
Always turn the power switch to the OFF position. Unplug the treadmill power cord from the power outlet.

Step One Verify the STAR TRAC treadmill is unplugged from the power outlet.

Step Two Raise the motor shroud by using the Phillips screwdriver to remove the screw in the motor shroud. Gently lift the motor shroud up the display handrail. Using the bungie cord from the STAR TRAC Toolkit, hold the motor shroud at the top of the display handrail.

Step Three Remove the motor belt from the motor pulley.

- At the same time, rotate the flywheel forward and backward one revolution, while firmly pushing down and to the left (where it approaches the motor pulley).
- Continue until the motor belt slips off the motor pulley or headroller pulley.



Step Four Remove the sidebed and corner covers.

- If you have a 2000 Series, use a Phillips screwdriver to remove the sidebed covers and corner covers. Place them to one side.

Step Five Remove the tailroller bolts by using a T Hex Key. Turn bolts counter-clockwise to remove. Place the tailroller to the side.

Step Six Remove the headroller bolts by using a T Hex Key. Turn bolts counter-clockwise to remove. Place the headroller to the side.

Step Seven Raise one side of the slik deck approximately two inches and slide from the treadmill.

Step Eight Remove running belt.

Step Nine Install new running belt by positioning the it with the seam going from the upper left to lower right.

Step Ten Position the slik deck with the wax side up and slide it between the running belt.

***NOTE:** If you have a 2000 Series, be careful not to damage the static line running under the treadmill.*

Step Eleven Replace the headroller by sliding it through the running belt and placing it on the brackets. Replace and tighten the headroller bolts by turning them approximately two turns.

- Tighten the front left and right roller bolts as far as possible.

- Verify the position of the drive belt around the pulley. If not in the correct position, re-position the drive belt.

Step Twelve Replace the tailroller by sliding it through the running belt and on to the brackets. Replace and tighten the tailroller bolts.

- Turn each tailroller bolt enough to remove the slack from the running belt.

Step Thirteen Verify the alignment of the running belt to the front edge of the slik deck.

Step Fourteen Tighten the running belt to align the rear tension mark to the back edge of the slik deck.

Step Fifteen Verify the positioning and tension of the running belt.

- Plug in the power outlet. Turn the power switch to ON.
- Check the running belt tension by accelerating the speed to 2 mph. Stand at the side of the treadmill. Grasping the handrails firmly, place one foot on the treadmill with a very sharp impact. The running belt should not stop.
  - -- *If the running belt does not stop, the running belt tension is good.*
  - -- *If the running belt stops, tighten the tailroller bolts by turning for one revolution. Repeat the step until the tension is correct.*
- Verify the running belt tracking by accelerating the speed to 5 mph. Stand behind the treadmill and visually check for tracking problems.

Step Sixteen Replace the motor shroud by removing the bungie cord and lowering the motor shroud until it touches the frame. Press the sides of the motor shroud to the frame and attach the velcro fasteners. Using the Phillips screwdriver, tighten the screw in the center of the motor shroud.

ELEVATION CAN REPLACEMENT

You will need the following tools:

- Three 17mm wrenches
- Large Phillips screwdriver
- 5/64" Allen wrench
- 1/8" Allen wrench
- 1/4" nut driver

CAUTION

Always turn the power switch to the OFF position. Unplug the treadmill power cord from the power outlet.

Step One Verify the STAR TRAC treadmill is unplugged from the power outlet.

Step Two Raise the motor shroud by using the Phillips screwdriver to remove the screw in the motor shroud. Gently lift the motor shroud up the display handrail. Using the bungie cord from the STAR TRAC Toolkit, hold the motor shroud at the top of the display handrail.

Step Three Lay the treadmill on its side.

Step Four Remove the limit switch on the left side of the treadmill. Place the limit switch panel as far away as possible without stressing the wires.

Step Five Sketch the positioning of the elevation belt for placement around the idler pulleys.

Step Six Loosen, but do not remove, the idler pulley. Remove the elevation belt.

Step Seven Remove the axle cap from the elevation wheel. Slide the axle out of the elevation wheel for the elevation can you are removing.

Step Eight Thread the elevation screw. The elevation can drops down.

Step Nine Insert the new elevation can. Thread the elevation screw.

Step Ten Slide the axle into the elevation wheel. Remove the axle cap.

Step Eleven Remove the elevation belt around the idler pulleys. Tighten the idler pulleys.

Step Twelve Replace the limit switches.

Step Thirteen Stand the treadmill upright.

Step Fourteen Replace the motor shroud by removing the bungie cord and lowering the motor shroud until it touches the frame. Press the sides of the motor shroud to the frame and attach the velcro fasteners. Using the Phillips screwdriver, tighten the screw in the center of the motor shroud.

Step Fifteen Plug the power cord into the power outlet.

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