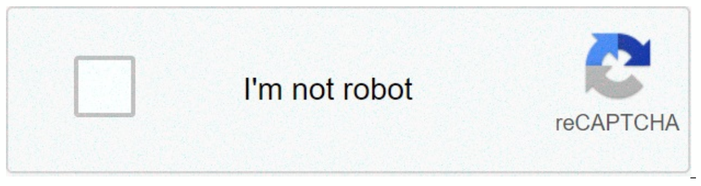

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Star trac 4500 treadmill manual

Section 1: Welcome to the world of STAR TRAC. In your hands is the STAR TRAC TR 4500 service manual. This manual is designed to be easy to use, providing step-by-step instructions on how to service and maintain the TR 4500. It is strongly recommended to read all applicable sections of the service manual before serving the treadmill. The information on the following pages will allow you to get started quickly, quickly, and securely. Content 1.1 How to use service manual 1.4 Test tools and equipment 1.2 Precautions 1.5 Treadmill overview. 1.3 Product support assistance How to use this manual •This service manual has been written to assist and instruct the repair technician on key components for a quick and efficient diagnosis of service issues. •Contribute to the search for the applicable sections in the service manual. Each section has a table of contents to help identify specific symptoms and topics. Major titles and titles can be found at the top of each page. •This manual should be used strictly as a maintenance manual for service and repair, not as a user manual. •An illustrated list of parts can be found on the back of this manual to identify parts with part numbers. •Troubleshooting tables and error code flowcharts are included for some sections to diagnose the system problem and find the root cause. 1. Always make sure that the treadmill is turned off and disconnected before starting any work, unless otherwise indicated, or when necessary for voltage tests. 2. Read each section for NOTES before starting any work. 3. To disassemble the electrical connectors, pull the connector itself, not the wires. 4. When replacing fuses, make sure that the new fuses are the correct assessment of the amperage. Do not exceed the evaluation of the fuse amplifier. If necessary, use a lower evaluation fuse until you reach the correct fuse. 5. When checking continuity on the wire connector, carefully insert the test probe to prevent the terminals from bending. 1.2 The STAR TRAC Product Support Department determines the industry standard for customer service and technical support worldwide. Providing superior product support and customer service is at the heart of STAR TRAC's business philosophy. This commitment to service has been one of the main factors contributing to star trac's success and growth in the global fitness equipment industry. Technical assistance •When buying a part or part of the technical support department, contact our product support department: CALL THE TOLL-FREE NUMBER: 1-800-

535-4634 or 800-503-1221 USA and CANADA or 714-669-1660 • At the time of the call, please have the following information: model 1.STAR TRAC. 2.STAR TRAC serial number 3.Declaration/symptom of the problem. After Hours Voicemail Direct •CALL THE TOLL-FREE NUMBER: 1-800-486-4736 •At the time of the call, please have the following information 1. MODEL STAR TRAC. 2. STAR TRAC 3 SERIAL NUMBER. Declaration/symptom of the problem. 4. Return the phone number and contact's name. Fax requests •National and international: Fax 714-669-0739 •When entering the fax, provide the following information: 1. STAR TRAC model. 2. STAR TRAC 3 SERIAL NUMBER. Declaration/symptom of the problem. 4. Return the phone fax number and contact's name. 5. Purchase order or reference number. 6. Description and quantity of parts. 7. Ship to/ invoice a. Access to support documentation • Web page •Documents CALL TOLL-FREE 1-800-429-3228 internal 640 USA and Canada or 714-253-3878 for a list of product support procedures and bulletins. Equipment function Philips Head Screwdriver #2 Shroud Motor Control Board Assembly Side bed cover and auto-transformer terminal caps Small slit screwdriver 3/32 Engine control potentiometers (MAX SPD) & (IRCOMP) Bungee Cord 28 Suspend engine shroud on Rail 5/32 Display Hex Allen Handrail Assembly Key 5/64 Hex Allen Key Display Board Set Key Display Hex Allen 1/8 Mounting the Hex Allen 1/4 Key Key Display Tail Roller of the 5/16 Running Belt Head Roller Or 9/64 Driver Drive Motor Bolts Allen Wrench Elevation Motor 17 mm Multi-meter Voltage Checks Continuity / OHM ΩChecks 1.4 •DC POWER SUPPLY The MCB provides power to the display assembly. Establishes a reference voltage and a potenziometric position from the elevation motor •RUNNING BELT MOTOR DRIVE CONTROL Takes AC and converts it into pulse width modulation (PWM) to power the drive motor. Engine voltage feedback and speed control controls determine the PWM power level delivered to the engine. Engine control circuits include fault detection and safety features. •TACHOMETER SIGNAL CONDITIONING The RPM sensor signal is fed to the signal conditioning circuits on the MCB, where the signal is converted into a digital output used by the display assembly to indicate the speed of the belt. •ELEVATION MOTOR CONTROL The elevation circuit on the MCB receives the elevation direction and allows information from the display assembly, using these signals to provide control to the elevation engine. Elevation position information, in turn, is placed in the display assembly to indicate the skew percentage. 1.5 Section 2: Preventive maintenance programs It is strongly recommended to perform regular preventive maintenance on all Star Trac treadmills. Maintenance-free normal wear can cause cumulative effects, such as misalignment and early replacement of parts. This can result in downtime. For this reason, it is strongly recommended to follow the manufacturer's maintenance programs. Content: 2.1 Preventive maintenance staff 2.2 Basket reaction 2.0 Maintenance of the preventive maintenance graph Cleaning Inspect Replace daily using an inspection of the liquid for non-abrasive wear and tear on ex- regularly clean the parts of the terior, following: in particular under the video card the running strap. handrail, inspect the shroud line, heart cable plug and frequency grips. Cable for possible Note: Do not damage or splash loose directly connection. on the board or on the heart grips. It raises weekly the running treadmill and belt alignment vacuum under and tension. the unit. Inspect the Note area: Disconnect under the unit when treadmill for vacuum cleaner. Obstructions. Monthly engine lift Inspect the use of a silicone shroud and display and spray lubricate the vacuum handrail screwing the elevation around the for loosening. while the engine and inspect the unit is electronic. high display panel. Clean keys and lub for wear. Note: This must be done with screws. note of the unit: this is disconnected and must be turned off. with the unit disconnected and turned off. Quarterly wax the running strap and the bridge using unisen powder wax. Note: Apply wax powder while belt and bridge are still warm (5 to 15 minutes of use) for optimal benefit. The following steps are performed with the treadmill off. Note: Blow away the extra wax first from around the handrails and deck before cleaning. Note: The RE WAX prompt can be cleared in Settings or configuration mode. The treadmill is designed with an automatic prompt, which will show RE WAX on the screen every 2,000 miles or 3,000 kilometers. The following procedure explains step by step how to apply wax and clear the RE WAX prompt. Time required: 5 minutes Required tools: 1 bag of wax powder (Unisen) teaspoon 1 clean towel paint stick or cleaner for all uses diluted by yard stick (409) PROCEDURE brush bristles PHASE 1: Cleaning the bridge and belt: •Using the stick or ruler, slide a towel under the center of the belt from one side of the frame to the other. •Hold the edges of the towel, pull from the head roller to the tail roller, then pull the belt down to clean the rest of the belt. TIP: Be careful when removing the towel, it will be dirty. Fold the dirty towel and shake in the trash. STEP 2: Bridge and belt waxing: •Lift the left side (facing the display) of the belt, about 12 inches from the engine shroud (see figure above). Hold the belt high so that the width of the belt is elevated from the bridge. •Gently place a teaspoon of powdered wax on the deck about two inches from the edge and blow the wax constantly under the belt, so that the wax powder is evenly distributed over the (see figure above). Gently place a teaspoon of second-level wax at 18 inches along the belt. •Repeat the previous step on the right side of the belt and bridge. STEP 3: Walk the wax in: •Start the treadmill at 1 mph and walk on all sections of the belt and deck for 1 minute to make sure the wax has been evenly distributed and machined properly. STEP 4: Cleaning: •Remove excess wax diluted detergent (409) and towel, or bristle brush. STEP 5: Clear the RE WAX prompt: •Turn on settings or configure modes. Press and hold keys 0, 1, or(2) & START, release only key 1 or (2). The display will signal and show SETTINGS or CONFIGURE momentarily (depending on whether key 1 or 2 has been released), units will be displayed. •Press the tilt down key (elevation) until LSTDCK is displayed. Press and release the HEART button, this will automatically transfer the miles /kilometers accumulated in the LSTDCK, press Enter key to save money. 2.2 Section 3: Diagnostics The STAR TRAC 4500 treadmill series contains diagnostic and customization modes. In these modes, you can control accumulated data about past treadmill usage, test its engine and display controls, and examine display code messages. For these reasons, the treadmill is equipped with a; • Manager mode (customize) • Display test mode (diagnostics) • Maintenance mode (diagnostics) • Heart rate test mode (diagnostics) • Engine test mode (diagnostics) Content: 3.8 Immersive engine test mode 3.1 Engaging manager mode 3.2 Immersive maintenance mode 3.9 Calibration 3.3 Description of parameters 3.10 Test mode of the engaging display Heart rate test mode After using the Star Trac 4500 treadmill for different workouts, you can customize the treadmill in a special way by changing some of its settings. To turn on Manager mode: 1. Hold the 0 , 1 & START keys together. Holding down the 0 & START keys, release only key 1 . 2.Il display will beep and temporarily show Manager mode, and then units will be displayed. Once the treadmill is in Manager mode, you can use the following keys: INCLINE KEY: Displays the next or previous parameter. SPEED KEYS: Changes the variable within the parameter. ENTER KEY: Saves the value if changed in the EPROM (software). Note: You must press ENTER KEY for each changed value. STOP KEY: Manager mode exists and restarts the treadmill with a hot start. 0 – 9 KEYS: Enters new parameter values. If the UNITS parameter is displayed, key 5 starts DISPLAY TEST and key 8 starts motor testing. HEART KEY: When pressed, the default value is automatically displayed. Note: You must press ENTER KEY to save the default values if they change. 3.1 The following parameters can be modified using the above keys: Parameters Lowest Highest Option 1 Option 2 Default Meaning Value Value UNITS --- --- English Metric English= units of lbs., hours, minutes Metric= units of kg., km, hours, minutes. MN SPD 0.1 2.5 English=0.5 Metric=1.0 0.5 Velocità minima in MPH o KM/HR MX SPD 5.0 20.0 Inglese=10.0 Metric=20.0 10.0 Velocità massima in MPH o KM/HR EL OPT --- --- ON ON ATTIVA Attiva o DISATTIVA il sistema di elevazione. TEMPO 5 99 99 Tempo massimo in in allowed for the program, including heating/cooling. OP HRS 0 0 --- --- 6,553.5 Total operating hours DIST 0 0 --- --- 65,635 Total treadmill miles (Unit=English) or kilometers (Unit=Metric) WEIGHT 10 399 --- --- 155 Default (for the user), typical weight in pounds/kg depending on the setting (UNITS= ENGLISH or METRIC SER NO 0 0 --- --- serial number treadmill 65,535. LANG --- --- --- --- English in English, Dutch, German, Portuguese, Spanish, Swedish or Italian. ENTRY --- --- Drive Tenths Drive This variable changes the starting speed to Drive Maintenance Mode or Tenths Mode 3.2 Includes all items in Manager mode, as well as additional data that is automatically saved to resolve correctly in case of problems. To turn on maintenance mode: 1. Hold keys 0 , 2, and START together. Holding down the 0 & START keys, release only key 2 . 2.Il display will beep and show MAINTENANCE momentarily, then units will be displayed. Once the treadmill is in maintenance mode, you can use the following keys: INCLINE KEY: Displays the next or previous parameter. SPEED KEYS: Changes the variable within the parameter. ENTER KEY: Saves the value if changed in the EPROM (software). Note: You must press ENTER KEY for each changed value. STOP KEY: Manager mode exists and restarts the treadmill with a hot start. 0 – 9 KEYS: Enters new parameter values. If the UNITS parameter is displayed, key 5 starts DISPLAY TEST and key 8 starts motor testing. HEART KEY: When pressed, the default value is automatically displayed. Note: You must press ENTER KEY to save the default values if they change. 3.3 The following parameters can be modified using the above keys: Parameters Lowest Highest Option 1 Option 2 Default Meaning Value Value UNITS --- --- English Metric English= units of lbs., miles, hours, minutes Metric= units of kg., km, hours, minutes. MN SPD 0.1 2.5 English=0.5 Metric=1.0 0.5 Minimum speed in MPH or KM/HR MX SPD 5.0 20.0 English=10.0 Metric=20.0 10.0 Maximum speed in MPH or KM/HR EL OPT --- --- ON OFF Turn the elevation system on or off. TIME 5 99 99 Maximum time in minutes allowed for the program, including heating/cooling. OP HRS 0 0 --- --- 0 Total operating hours DIST 0 0 --- --- 0 Total treadmill miles (Units=English) or kilometers (Units=Metric) WEIGHT 0 399 --- --- 155 Default (for the user), typical weight in pounds/kg depending on the setting (UNITS= ENGLISH or METRIC SER NO 0 0 --- --- 0 Serial number treadmills. LANG --- --- --- --- English in English, Dutch, German, Portuguese, Spanish, Swedish or Italian. --- --- Units Tenths Drive This variable changes the starting speed to Units or Tenths 3.4 Maintenance Mode Parameters Lower Option 1 Option 1 Default HRT Value WITH --- --- ON OFF= OFF= OFF= On Disabled Control= HRT-Enabled Heart Control --- --- CNT DN CNT DN CNT DN CNT DN= Polar Polar Contact Contact Polar, CONTACT or BOTH (Polar & Contact) 10 REV 22.0 74.0 30.7 Countdown Heart Rate = For 35.8 = For 29.1 Inches of 110v Drive Running Tape. 220v units travel 10 rpm, measured in inches. Pulley from 1.8:30.7 (110v) pulley of 2.1:35.8(220v) CNT/REV 1 255 31 = 125 = 31 Number of counts for RPM optical magnetic sensor RPM Sensor RPM Revolution of the RPM sensor. MN PWM 2 50 --- --- 30 PWM minimum to get the minimum speed, done automatically. 1/2 PWM 25 170 --- --- 130 1/2 PWM maximum to get 1/2 maximum speed, done automatically. MX PWM 86 255 --- --- 230 PWM maximum to achieve maximum speed, done automatically. DATE 1.00 12.99 --- --- 1.96 Treadmill Production Date. NO STO 0 255 --- --- 0 Number of times the stop switch has been pressed or disconnected on ignition since the last reset. 3.5 Maintenance Mode Parameters Lowest Option 1 Option 2 Default VALUE VALUE KEY DN 0 255 --- --- 0 Number of times the stop switch was pressed or disconnected on power on since the last reset. NO RPM 0 255 --- --- 0 Number of times the display did not detect an RMP signal. SP CNG 0 255 --- --- 0 Number of times a sudden change in speed EL STL 0 255 --- --- 0 Number of times an elevation stall has been detected. EL RNG 0 255 --- --- 0 Number of counts per rpm Sensor Revolution. EL LOST 0 255 --- --- 0 Number of times no elevation was detected. ELZERO 0 255 --- --- 240 Represents the inclination number for 0%. EL MAX 0 255 --- --- 57 Represents the inclination number for 15%. LSTERR 0 25 --- --- 0 Indicates which display code last appeared. 18 = NO STO 19 = KEYDN 20 = NO RPM 21 = SP CNG 22 = EL STL 23 = EL RNG 24 = EL LOST LSTELV 0 255 --- --- 0 Displays the target elevation before display code. LSTPOT 0 255 --- --- 0 Displays the tilt number before the display code. 3.6 Maintenance Mode Parameters Lowest Option Higher 1 Option 2 Default Meaning Value LSTRES 0 2 --- --- 0 Display 1 = Drive Restored to 0%. 0 = Drive recovery completed at 0% before display code. LSTSSP 0 255 --- --- 0 Displays the speed before the display code. LSTPWM 0 255 --- --- 0 Displays the PWM number before the display code. LSTMSP 0 255 --- --- 0 Displays the throughput measured before the display code. LST TM 0 65355 --- --- 0 Displays the elapsed time, in seconds, before the code of LSTDCK 0 65355 --- --- 0 Number of miles when the bridge was last waxed. After a difference of 2000 miles (or 3000 KM), the REWAX BELT will scroll into the display until the LST DCK miles are updated. LSTBLT 0 65355 --- --- --- number of miles when the last belt was replaced. 3.7 Motor Test Mode Motor Test Mode allows the treadmill to calibrate both the elevation and speed of the running belt. Check feedback from the MCB RPM sensor, drive engine and MCB and checks the range of the elevation engine (count). It also burns in the engine, through the controls and exposures of the treadmill. Warning*** : Do not stand on the running strap while performing these tests. Engage Test Mode: 1. Hold down keys 0 , 1, and START together (or 0 , 2). Holding down the 0 & START keys, release only key 1 (or 2). The display will beep and temporarily show MANAGER (or MAINTENANCE), and then the UNITS will be displayed. 2. Press and release key 8. The display will read: 240 3.0 if the treadmill is 0%. Alternative mode to access motor test mode: 1. Turn on the power switch by pressing button 8 at the same time on the display. 240 3.0 A. Range of elevation engines. B. PWM service cycle. There .RPM Feedback of the sensor Once the treadmill is in TEST mode, you can use the following keys: INCLINE KEY: Adjust the voltage to the inclined motor, tilt the treadmill in 1% increments. When using the inclined keys, make sure the elevation system responds correctly: •As the treadmill rises up and down, make sure the corresponding LEDs are soothing on the MCB. •Check that the elevation engine range (see column A above) changes in 1% increments as the treadmill increases up and down. Warning:Do not raise the treadmill above 15% = 57 (unit 110v), 80 (unit 220v) or less than 0% = 240 (unit 110 & 220v) mechanical damage may occur. SPEED KEYS: Adjust the PWM duty cycle and engine speed up and down, respectively, in increments of 0.1 mph (UNITS=English) or 0.1 km/h (UNITS = Metric). When using the speed keys, make sure that the speed control system responds correctly with the following: •When the treadmill starts to increase speed, make sure that the display registers RPM feedback (see above column C) in increments of 0.1 mph/km. (Continuous operation of the running strap and tilt using the program 8 at maximum speed. Press STOP KEY to stop burn-in. STOP KEY: Motor test mode exists and restarts the treadmill. HEART BUTTON: Starts automatic calibration of minimum speed, maximum 1/2 and maximum. 3.8 Calibration ***Caution*** : Do not stand on the running strap while performing these tests. Automatic speed calibration: In this mode, the minimum and maximum speed is automatically calibrated. Calibration lasts less than 3 minutes; belt will be moving during this test. Automatic calibration should be performed whenever the MN, MX SPD & UNITS parameters have been changed to SETTINGS or CONFIGURE mode. The automatic must be high when the speed control components have been updated or replaced, for example; MCB, Display Board, Drive Motor & RPM Sensor. 1. Hold the 0 , 1 & START (or 0, 2) keys together. Holding down the 0 & START keys, release key 1 (or 2). The display display And display MANAGER (or MAINTENANCE) momentarily, displays displays. Press and release key 8. The display will read: XXX 3 .0 if the treadmill is at 0% the display will read: 240 3 .0 Press the HEART button, the display will read: the CAL treadmill will go into an automatic speed calibration for less than 3 minutes. Press STOP to exit the engine test. NOTE: If automatic calibration fails to provide the correct answer, refer to section 4. 3.9 Display display mode allows you to test light emitter (LED) diods, 15-segment displays, and display control panel watchdog timer via your own controls and displays. It also displays the EPROM version. To enter test display mode: ***Caution*** : Do not stand on the running strap while performing these tests. 1. Hold the 0 , 1 & START (or 0, 2) keys together. Holding down the 0 & START keys, release key 1 (or 2). 2.Il display will momentarily report and show MANAGER (or MAINTENANCE), and then the units will be displayed. 3. Press and release key 5. Watch all leDs light up. 4. Pressing any key will display the EPROM version once. Alternative mode to access motor test mode: 1. Turn on the power switch by pressing button 5 simultaneously on the display. Watch all leDs light up. Once the treadmill is in Display Test mode, you can use the following keys: INCLINE KEYS: Lights % grade LED's one at a time, even 15-segment screen segments one at a time. PROGRAM SELECT KEY: Illuminates the six LEDs that face the 15-segment display. HEART BUTTON: Displays HEART HEART on the 15-segment display. START BUTTON: Displays START START on the 15-segment display. 0 – 9 KEYS: Turns on the corresponding LEDs in the number/program selection keys (except key 9), along with the profiles of the pre-designed program. STOP BUTTON: Displays WD TEST on the 15-segment display. Activates the watchdog timer, resetting the processor and returning the program to Start mode. 3.10 The heart rate test mode of the heart rate test verifies heart rate calculation and treadmill display capability if it is equipped with contact rings or Polar wireless thoracic strap reception capability. To enter heart rate test mode: 1. Hold the 0 , 1 & START (or 0, 2) keys together. Holding down the 0 & START keys, release key 1 (or 2). 2.Il display will momentarily report and show MANAGER (or MAINTENANCE), and then the units will be displayed. 3. Press and release key 5. Watch all leDs light up. 4. the 3X button, the display will read SEEKING HR throughout the display. 5. Grab the stainless steel contact rings or place the Polar wireless heart rate chest strap around the chest (the treadmill must be equipped with both contacts Polar). 6. On the display screen on the far right will flash a flashing LED segement, then the average heart rate will be displayed. NOTE: If the above heart rate test fails to provide the correct reading or response, refer to Section 4. 3.11 Section 4: Troubleshooting If the STAR TRAC 4500 treadmill has a problem or a display code appears, the following procedures will help determine the precise reason for the problem. This includes flow charts that break down each individual display code with instructions and problem solutions. Content 4.1 110v MCB Layout 4.24 Running Bridge Symptoms 4.3 220v MCB Layout 4.26 Insulating Noise 4.5 Calibration Symptoms 4.27 Leveling 4.7 Manual Calibration 4.28 Static Symptoms 4.58 No display power 110v 4.29 Vibrations 4.9 No display power 220v 4.30 Display codes Graph 4.10 Elevation engine symptoms 4.31 KEY DN Flowchart 4.12 Elevation symptoms 4.32 NO STO Flowchart 4.13 Heart Rate Symptoms 4.33 No FlowChart RPM 4.16 Polar Symptoms 4.37 SP CNG Flowchart 4.17 View Cable Symptoms 4.41 EL STL Flowchart 4.18 Drive Motor Symptoms 4.45 EL RNG FlowChart 4.19 Symptoms of the Head/Tail Roller 4.49 EL LOST FlowChart 4.20 Transmission Belt Symptoms 4.53 EL NOZ Flowchart 4.21 Running Belt Symptoms 110v MCB LED Layout The following LEDs will help diagnose whether the MCB has failed or is causing intermittent problems. ** WARNING ** Many of the following issues require live voltage management. Turn off and disconnect the treadmill while checking wire connections. NOTE: The display console may still shut down with the AC LED off. LED CA - Indicates that AC power has been applied to the MCB. It does not provide any indication of the voltage level, if this LED is not turned on and the treadmill does not turn on, check the following: 1.Il treadmill is connected to a wall socket. 2.The ON/OFF switch is turned on in position ON. 3.Check with a VOLT METER that 110VAC is present at the output. Units with step-down transformers need 220VAC. 4.Check 110v (+/- 10%) AC1 & AC2 wire AC voltage. After the above has been verified and the AC LED is still OFF, the MCB must be replaced. +18v LED - Indicates the presence of an acceptable voltage level to operate the MCB. If this LED is off or dim, the AC voltage level is not acceptable to properly power the MCB. Check the following: 1.Check with a VOLT METER that 110VAC is present on the AC1 & AC2 pins. After the previous step has been verified and the LED + 18V is still OFF, and display does not turn off, replace the MCB. +11v LED - Indicates that +11 volts were provided to the video card. If this LED is not turned on, check the following: 1.Il the display cable is damaged or pinched, disconnect the display cable and check if the LED turns on. If the LED turns on, replace the cable. After the above has been verified and led +11 is still OFF, the MCB must be replaced. 4.1 NOTE: Graft Graft Test mode and manually push on the running strap to check rpm feedback. NOTE: If the current limit is reached, the MCB will turn off the treadmill and the I-LIMIT LED will remain in operation until it is restored. LED MOTOR - Indicates the presence of acceptable voltage for the engine. If this LED is not on, there is one of the following conditions: 1.Check that the AC voltage is applied. 2.Verify that the MTR1/MTR2 wires are connected to the MCB. (This should be done with the treadmill disconnected and turned off) After the above has been verified and the ENGINE LED is still OFF, the MCB must be replaced. PWM LED - Indicates that there is a valid control command from the display to the MCB (this LED flashes only when the treadmill is running) If this LED is not turned on check the following: 1.Check if the display cable is connected. 2.Check if the display cable is damaged or pinched. (see page 4.17 in this section for display cable symptoms) After the above has been verified and the PWM LED is still OFF, the MCB must be replaced. LED I-LIMIT - Indicates that excessive load is placed on the engine. Amplifier readings of 26 or higher will cause LED light. If this LED is on, there is one of the following conditions: 1.La the running belt is worn. 2. Belt and deck require lubrication. 3. Drive the engine design on the peak of 26 amps. After the above has been verified and the I-LIMIT LED is still ON, the MCB must be replaced. UP LED—Indicates that the tilt is controlled. If this LED is not on and the elevation engine is not responding, check the following: 1.Display cable for possible pinches or tears (see page 4.17 in this section for viewing cable symptoms) 2.Replace MCB. LED DOWN—Indicates that the slope is controlled upwards. If this LED is not on and the elevation engine is not responding, check the following: 1.Display cable for possible pinches or tears (see page 4.17 in this section for viewing cable symptoms) 2.Replace MCB. 4.2 220v MCB LED Layout The following LEDs will help diagnose if the MCB has failed or caused intermittent problems. ** WARNING ** Many of the following troubleshooting steps require live voltage management. Turn off and disconnect the treadmill while checking wire connections. NOTE: The display console may still be turned off with the PWR AC LED off. AC PWR - Indicates that AC power has been applied to the MCB. It does not provide any indication of the voltage level, if this LED is not turned on and the treadmill does not turn on, check the following: 1.Il treadmill is to a wall outlet. 2.The ON/OFF switch is turned on in the ignition position. 3.Check with a VOLT METER that 110VAC is present at the output. Units with step-down transformers need 220VAC. 4.Check 220v (+/- 10%) AC1 & AC2 wire AC voltage. After the above has been verified and the AC LED is still OFF, the MCB must be replaced, if the treadmill is Operating. PWR DISPLAY- Indicates that +11 volts were provided to the video card. If this LED is not turned on, check the following: 1.Il the display cable is damaged or pinched, disconnect the display cable and check if the DISPLAY PWR LED turns on. If the LED turns on, replace the cable. After the above has been verified and the PWR DISPLAY LED is still OFF, the MCB must be replaced. NOTE: Turn on the engine test mode and manually push on the running belt to check the rpm feedback. RPM SENSOR - Indicates the input signal from the RPM sensor to the MCB. If this LED does not flash during operation, check the following sensor 1.RPM disconnected from the J3 connector to the MCB. 2.RPM mislineated sesnor gap. 3.RPM faulty sensor After the above has been verified and the RPM LED is still OFF, the MCB must be replaced. ENGINE CONTROL—Indicates that there is a valid control command from the display to the MCB. If this LED is not turned on, check the following: 1.Check if the display cable is connected. 2.Check if the display cable is damaged or pinched. After the above has been verified and the MOTOR CONTROL LED is still OFF, the MCB must be replaced. UP LED—Indicates that the tilt is controlled. If this LED is not turned on and the elevation engine is not responding, check the following: 1.Display cable for possible pinches or tears (see page 4.17 in this section for the symptoms of the display cable). 2.Replace MCB. LED DOWN—Indicates that the slope is controlled down. If this LED is not turned on and the elevation engine is not responding, check the following: 1.Display cable for possible pinches or tears (see page 4.17 in this section for the symptoms of the display cable). 2.Replace MCB. 4.4 Troubleshooting calibration issues The following steps resolve issues if automatic calibration steps fail to provide the correct read or answer. Symptom: Automatic calibration oscillates. 1. Check the line voltage for sufficient voltage supply. •If the wall voltage is less than 10% of what is required, this will cause speed fluctuations. 2. Check that the unit is on a dedicated circuit breaker. •Treadmills that share the same circuit line will cause intermittent problems and speed changes. 3. Verify that the following parameters are set correctly in configuration mode: (Configuration mode details in section 3) •CNT/RV : 31 = Magnetic/cherry rpm sensors •10 REV: 29.1 by 1.7 dia. motor pulley (110v) •10 REV: 35.8 for 2.1 dia. engine pulley (220v) NOTE: If you are not sure which ones should the 10 REV settings, manually measure the diameter of the drive motor pulley. The measurements above are made in inches. 4. Check the alignment of the RPM sensor. •The Hall Effect/Cherry RPM sensor is used, check that the space is not greater than 1/8 inch. NOTE: See Diagram #1. 5. Adjust the IR COMP potentiometer. NOTE: See #2, adjusting. REPLACE: MCB if the symptom continues. Calibration troubleshooting symptom: do not at the top speed. 1. Check the line voltage for sufficient voltage supply. •If the wall voltage is less than 10% of what is required, this will cause speed fluctuations. 2. Check that the unit is on a dedicated circuit breaker. •Treadmills that share the same circuit line will cause intermittent problems and speed changes. 3. Verify that the following parameters are set correctly in configuration mode. (Configuration mode details in Section 3) •SPD MN: 0.5 MPH or 1.0 KM/PH •MX SPD: 10.0 MPH (110v) or 20.0 KM/PH (220v) •CNT/RV : 31 = Magnetic/cherry rpm sensors •10 REV: 29.1 for 1.7 dia. motor pulley (110v) •10 REV: 35.8 by 2.1 dia. Engine pulley (220v) NOTE: To reach 20.0 KM/PH on 220v units, the drive engine pulley must be 2.1. If you are not sure what the 10 REV settings should be, manually measure the diameter of the drive motor pulley. 4. Check the alignment of the RPM sensor. •The Hall Effect/Cherry RPM sensor is used, check that the space is about 3 business cards or 1 credit card. If adjustment is required, loosen the flywheel to reposition. NOTE: See Diagrams #1. REPLACE: RPM sensor if RPM reading is sensitive or feedback appears irregular. 5. Adjust the MAX SPEED potentiometer. NOTE: See Diagram #2. (220v units only) GO TO: Section 3.7 Manual calibration if the problem persists. Manual calibration **WARNING** Do not stand on the running strap while performing these steps. NOTE: Alternative mode to access motor test mode; turn on the ON power switch by simultaneously pressing button 8 on the display. NOTE: The MN SPD must not exceed .5 MPH or 1KPH. The MX 1/2 SPD should be exactly half the desired MX SPD. The MX MX SPD must not exceed 10 MPH or 20 KPH (220 units). NOTE: Speed control 255 is the maximum that the treadmill will reach. The following procedure allows the treadmill to manually calibrate minimum and maximum speeds, only in case automatic calibration does not work properly. Symptom: Does not calibrate based on MN or MX speed, in automatic calibration mode. 1. Turn on test mode. Hold keys 0, 1, and START together (or 0, 2). Holding down the 0 & START keys, release key 1 (or 2). The display will beep and temporarily show SETTINGS (or CONFIGURE), and then the UNITS will be displayed. 2. Press and release key 8. The display will read: XXX 3.0 XXX is a variable number depending on the elevation position where the treadmill is located. 3 indicates the speed command, 0 indicates rpm. If the treadmill is 0% the display 240 3.0 3. Press the + (speed) button on the desired MN SPD, 1/2 MX and MX SPD. Note the corresponding speed command number displayed for each setting you want. 4. Press the STOP button. Turn on configuration/settings mode as described in STEP 1. 5. Using the ELEVATEON UP key go to the MN PWM parameter and enter the new MN MN SPD Command number using the + or -keys, and then press START to save the new setting. Run this interface for the 1/2 MX and MX SPD. 6. Press the STOP button to exit. 4.7 No display power The following steps allow you to solve problems in case the video card does not glide, during or before normal operation. UNIT 110v **WARNING** 1. Lift and suspend the engine shroud. The following steps 2. Check if the LED air conditioning is on. The AC LED indicates that the AC power is applied to the MCB, does not indicate the voltage level. If this LED is on go to step 3. the on treadmill. If the LED is not on, check the following: (see Diagram A) •The treadmill is connected to the wall. •The ON/OFF switch is turned in the ON position. •Check the AC1/AC2 wire connection on the MCB. •Check that the on/off switch wires are connected. •Check 110v (+/- 10%) AC1/AC2 AC voltage. if the voltage is 0 or less than 90v, check the wall tension, check that the unit is on a dedicated line. •If the wall tension is correct, check the continuity of the line correction. (see Diagram B) REPLACE: MCB if all of the above controls OK. 3.Check if led +18 is on. LED +18 indicates the presence of an acceptable voltage level for MCB operation. REPLACE: MCB if +18 is not on. Check if led + 11 is on. LED +11 indicates that 11v are applied to power the video card. If the LED is on, go to step 5. REPLACE: MCB if +11 is not on. Check the connection of the display cable. • Check the display cable for any pinches or tear marks. REPLACE: Video card if the display cable controls OK. 4.8 No screen power The following steps allow you to troubleshoot in case the video card does not feed, during or before normal operation. UNIT 220v 1. Lift and suspend the engine shroud. **CAUTION** The following steps 2. Check if the LED air conditioning is on. The AC LED indicates that the AC power is applied to the MCB, does not indicate the voltage level. If this LED is on go to step 3. with on treadmill. If the LED is not on, check the following: (see Diagram A) • The treadmill is connected to the wall. • The ON/OFF switch is turned in the ON position. • Check the AC1/AC2 wire connection on the MCB. • Check that the on/off switch wires are connected. • Check 220v (+/- 10%) AC1/AC2 AC voltage. if the voltage is 0 or less than 200v, check the wall tension, check that the unit is on a dedicated line. • If the wall tension is check the continuity of the linecord. (see Diagram B) REPLACE: MCB if all of the above controls OK. 3. Check if LED DISPLAY POWER is on. This LED indicates that 11v are applied to power the video card. If the LED is on, go to step 4. REPLACE: MCB if POWER LED DISPLAY is not on. 4. Check if LED MOTOR CONTROL is on. This LED indicates that there is a valid control command from the display to the MCB. Check the following if the LED is turned off: • Check the connection of the display cable. • • display cable for possible pinches or tear marks. REPLACE: Scoreboard if the display cable controls OK. 4.9 NOTE: The activation of the thermal protection breaker does not cause damage to the elevation actuator or other components of the treadmill. The following procedure explains the Thermal Protection and Limitations elevation system. Symptom: The elevation system shuts down when used consistently. 1. The Star Trac Model 4500 elevation system actuator is protected from overheating by a thermal protection circuit. In the event that the thermal protection switch is activated, the treadmill elevation system is temporarily disabled and EL STL display codes are displayed. •A simple reset of the treadmill restores full operation once the elevation actuator has been left to cool for a few minutes. 2.Predefined training programs 1 to 8 and other typical training regimes include elevation changes that easily fall within the operational limits of the Model 4500 elevation system actuator. The following information serves as a guide for users who may want to set up a custom program that requires frequent and/or large tilt changes. •Tilt variations of more than 5% should not be programmed for intervals of less than 1 minute. •Full range tilt variations (0% to 15% or vice versa) should not be programmed for intervals of less than 3 minutes. 4.10 4.10