



PRODUCT SUPPORT BULLETIN

**Title: Motor Control Board Functional Description -
Star Trac Treadmills Models with PWM Drive System**

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The treadmill's Motor Control Board assembly circuits have these basic functions:

- DC Power Supplies
- Running Belt Motor Drive/Control
- Tachometer Signal Conditioning
- Elevation Motor Control

Power Supplies

The power supplies provide power to the Display Assembly and a reference voltage to the elevation position potentiometer in the Elevation Motor Assembly.

Running Belt Motor Drive and Control

The motor drive function takes AC power and converts it to Pulse Width Modulation (PWM) power to drive the treadmill's belt motor. Motor terminal voltage feedback and control panel speed commands are compared by the control system to determine the level of PWM power to be fed to the motor. Motor control circuits include fault sensing and safety functions.

Tachometer Signal Conditioning

The analog signal from the Hall Effect RPM Sensor is fed to signal conditioning circuits on the Motor Control Board, where the signal is converted to a digital output that is utilized by the Display Assembly to indicate belt speed.

Elevation Motor Control

The Elevation circuits on the Motor Control Board receive elevation direction and enable information from the Display Assembly, using these signals to provide control to the Elevation Motor. Elevation position information, in turn, is fed to the Display Assembly to indicate percent incline.

MCB ASSEMBLY

