

DISCONTINUED ITEM - All types replaced with #400

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# E - UNIT

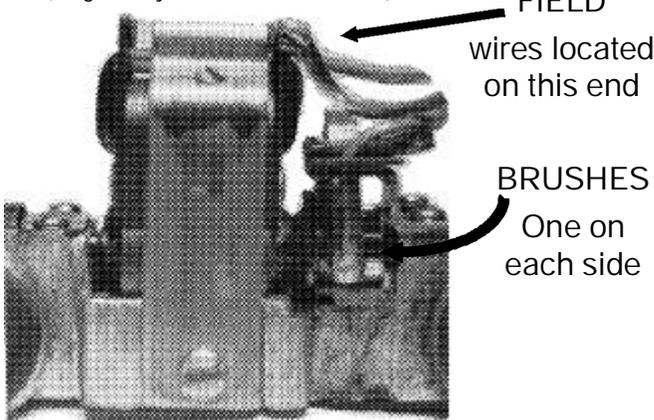
Item # 384 ○ 385 ○ rated at: 2 Ampere 4 Ampere for: AC - SERIES MOTORS	518 ○ 386 ○ 387 ○ 1 Ampere 2 Ampere 4 Ampere for: DC "CAN" MOTORS
AC (series) MOTOR wiring code: black #1 - AC input #1 black #2 - AC input #2 gray - field #1 red - field #2 yellow - brush #1 green - brush #2	DC MOTOR wiring code: black #1 - AC input #1 black #2 - AC input #2 gray - brush #1 red - brush #2

DO NOT attempt to use an E-UNIT intended for AC motors on DC motors since this will destroy the electronic E-UNIT. As an added precaution, a fuse may be placed in series with one of the black wires to protect the E-UNIT from blowing out during an extreme overload. The proper fuse to use would be an MDL-X where X is replaced by the current rating of the unit listed + 1.



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## AC (series) MOTOR help guide (Original Flyer diesel motor shown)



## Attaching a LOCKOUT SWITCH (use ONLY ROSIN CORE SOLDER !)

area of interest on all E-UNIT'S

attach a SPST switch (Item #524) @ arrow positions for lock in forward (shorted = locked)



## ELECTRONIC "E" UNITS (SEQUENCE REVERSE)

The ELECTRONIC "E" UNIT provides direction sequencing of locomotives that are designed to operate with AC track power. As with the original mechanical "E" units the locomotives will sequence through FORWARD, NEUTRAL, REVERSE, NEUTRAL, FORWARD positions as track power is interrupted. Unintentional power interruptions caused by dirt on the track or by gaps in the rails such as at switch turnouts tend to be ignored by the ELECTRONIC "E" UNIT so the possibility of accidental sequencing is minimized. As an additional feature, if the track power is "off" for approximately 20 seconds, the ELECTRONIC "E" UNIT will reset to its FORWARD position.

If the motor in your locomotive is a wound field series type, use the E-UNIT/AC. Some of the newer locomotives, especially the imports, have permanent magnet DC motors which will require the E-UNIT/DC. Both the AC and DC "E" units are available at 2 Ampere capacity for single motor locomotives. 4 Ampere capacity versions are also available for dual motor locomotives or those single motors requiring more current. Many of the imported, brass, steam locomotives have larger motors and rubber traction tires resulting in high current requirements, therefore the 4 Amp capacity versions are recommended for these applications (an easy guide to current draw is to reference the various magazine product reviews of locomotives as they frequently provide this information along with comparisons of the new release with the older prior versions).

The ELECTRONIC "E" UNIT is NOT supplied with a lock out provision however for those who require or desire a lock in the FORWARD position it is possible to wire a switch to the ELECTRONIC "E" UNIT to provide this feature. Information regarding this option is available on request and is also supplied with "E" UNIT installation instructions.

A long narrow "E" UNIT, Item 518, is also available for DC motors that do not exceed 1 Amp current draw. This unit is the same as used in some production locomotives that have small DC motors and measures 5.25" L x 0.95" W. Item 518 does incorporate a 3 pin header which used with Item 567 (SPDT center off toggle switch) allows locking the "E" UNIT in either the FORWARD or REVERSE positions.

DC "E" UNITS have four wires to connect. The two black wires are input power coming from the track. For AMERICAN FLYER or other two rail applications one wire connects to each rail pickup. For LIONEL or other three rail applications connect one black wire to the center rail pickup rollers and the other black wire to the frame or ground lug. The red and gray wires from the "E" UNIT are then connected to the motor brushes such that the locomotive will start in the FORWARD direction when power is initially applied. If the starting direction is not as you prefer, simply switch the connection of the red and gray wires at the motor brushes.

AC "E" UNITS have six wires to connect. The two black wires are input power coming from the track. For AMERICAN FLYER or other two rail applications one wire connects to each rail pickup. For LIONEL or other three rail applications connect one black wire to the center rail pickup rollers and the other black wire to the frame or ground lug. The green and yellow wires from the "E" UNIT are connected to the motor brushes and the red and gray wires connect to the field winding. NOTE: LIONEL generally grounded one side of the field winding either to the locomotive frame or to a grounding lug on the motor. You must locate this connection and DISCONNECT it from ground and connect it to the gray wire. This will isolate the field winding from track power and connect it only through the red and gray wires of the "E" UNIT. Once you have disconnected the field from ground, you can use this ground location to connect one of the black wires. AMERICAN FLYER, in later years, also used a "HOT" chassis but did so with a brush wire - this must also be separated and insulated for proper hookup.

The wires from the "E" UNIT are connected to the motor brushes and field such that the locomotive will start in the FORWARD direction when power is initially applied. If the starting direction is not as you prefer, simply switch the connection of the green and yellow wires at the motor brushes.

Be sure that only the motor is connected to the E-UNIT and NOT the smoke unit or head lights. They will cause excessive currents to be required of the E-UNIT and possibly destroy it prematurely. Be careful to not let any components on the electronic E-UNIT to come in contact with any other metal part, this will also damage the E-UNIT.