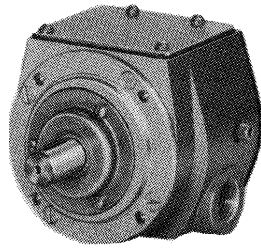


## SPEED SWITCHES



Rear View of Speed Switch  
Less Lockout Solenoid and  
Mounting Bracket

NEMA Type 1, 4 and 13 Enclosure



Front View of Speed Switch  
Less Lockout Solenoid and  
Mounting Bracket

NEMA Type 1, 4 and 13 Enclosure

**DESCRIPTION**— The Bulletin 808 speed switch is a pilot device which is used with an automatic starter arranged for reversing or plugging duty to provide plugging or antiplugging of squirrel cage motors. This device can also be used as a speed sensing switch, or to indicate direction of rotation of a driven shaft.

Plugging is a control function that provides braking by reversing the motor. The phase sequence is reversed so that the motor develops a counter-torque that exerts a retarding force. Antiplugging protection is the effect of a control device that operates to prevent the application of counter-torque by the motor until the motor speed has been reduced to an acceptable value.

**PLUGGING** — When applied in a suitable plugging application such as the circuit shown in Figure 1, the switch with normally open contacts is used. The Bulletin 808 speed switch is designed to automatically interrupt reverse braking power as the motor approaches zero speed. The speed at which the contacts operate can be adjusted so as to avoid coasting or reverse rotation of the motor. The contacts can be wired for plugging in either or both directions.

**TYPICAL PLUGGING CIRCUIT** — Bulletin 808 speed switch used with a reversing starter to bring a motor to a fast stop.

**NOTE:** See applicable standards, codes, and laws for all applications.

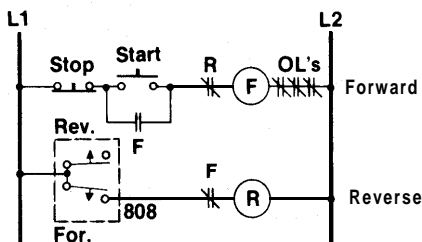


FIGURE 1

**PRECAUTIONS IN PLUGGING APPLICATIONS** — There are many advantages in plugging a motor to a stop, however, care must be taken that these advantages are not lost through misapplications. The following information should be considered before deciding to use a plugging control.

1. When plugging a motor to a stop, full load motor current may be greatly exceeded. The electrical supply must be able to handle the excess load.
2. The resultant forces of a plugged stop may be too great for the driven machine to withstand. For example, a twisted or broken shaft may result.
3. The motor may not withstand braking duty. The duty cycle and load must be considered and the motor manufacturer should be consulted to determine if a particular motor is adequate for plugging duty.

**NOTE:** See applicable standards, codes, and laws for all applications.

**ANTIPLUGGING** — For this application, the switch with normally closed contacts is used. The speed switch is designed to keep the reverse circuit open until the speed of the driven machine has decreased to a predetermined value. At this speed the contacts are designed to close, permitting reverse energization to be applied manually, or automatically when using a second speed switch arranged for plugging duty. Mechanical braking can also be used. The speed switch can be used for antiplugging control in either or both directions. See Figure 2.

**PRECAUTIONS IN ANTIPLUGGING APPLICATIONS** — The speed switch must be adjusted so that contact closure does not occur before the speed of the machine is reduced to a safe level for secondary braking.

**TYPICAL ANTIPLUGGING CIRCUIT**— This circuit is used in cases where damage would result from a sudden reversal of power. The speed switch contacts are designed to keep the reverse circuit open until the motor has coasted to a preset speed.

**NOTE:** See applicable standards, codes, and laws for all applications.

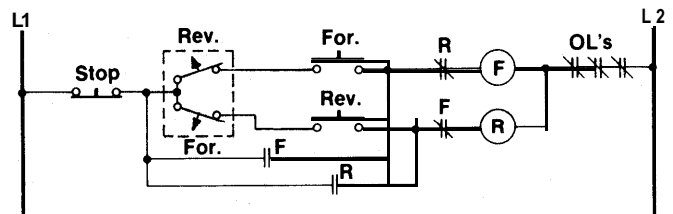


FIGURE 2



