

# Installation Tips

*An SRE Bulletin on Making Your Installations Easier!*

## Application Note #8: Using the SE325/175 Without an Accelerator

For trucks which used switched fields or switched resistors (throttle is not infinitely variable), the SE325/175 can still be used without adding a potentiometer. This application note describes how to connect and set the controller for use without a potentiometer.

- programmable speed ramp-up (acceleration)
- three speeds are possible when a belly switch is used, four without a belly switch.
- all other advantages of SE325/175

### Disadvantages

- speed is not infinitely variable, no fine control
- lowest speed is 50% of the desired top motor voltage (not usually a problem)
- incompatible with the electronic lock

### Wiring

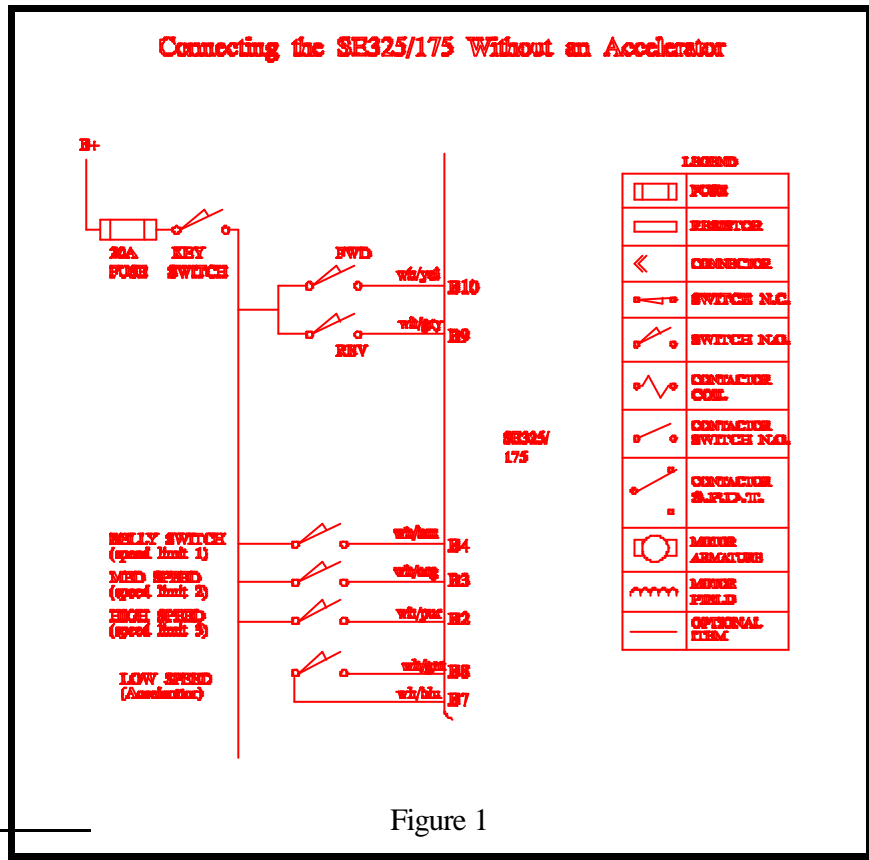
Assume you are using a switched throttle with 3 switches for low, medium and high speed

### Throttle Requirements

- at least 2 "speed" switches
- as you go faster, the lower speed switches must stay closed<sup>1</sup>.

### Advantages

- no need to install new throttle
- programmable speeds
- protection



<sup>1</sup> Strictly speaking, the only switch that must stay closed is the first (or lowest speed) switch.

and you want to use a belly switch. See also

the diagram in figure 1. The wiring is the same as the standard controller wiring described in the manual with the following exceptions:

1. connect the low speed switch in place of the potentiometer (white-green & white-blue). Note that the common for this switch is NOT B+.
2. connect the medium speed switch in place of speed limit 2 (from the switched side of the key switch to the white-orange input)
3. connect the high speed switch in place of speed limit 3 (from the switched side of the key switch to the white-purple input)
4. connect the belly switch (if it is used) in place of speed limit 1 (from the switched side of the key switch to the white-brown input)

If you are not using a belly switch, simply leave it unconnected (or use it to provide an additional speed level).

If you want to used a different number of speeds or combination of speed switches and cutbacks, remember the following:

- speed limit 3 takes priority over speed limit 2 which both take priority over speed limit 1. This means that if both 1 and 2 are on, then 1 is ignored. If all of 1,2 and 3 are on, then 1 and 2 are ignored.
- you must use a switch or accelerator on the white-green and white-blue wires. If this switch is open or the potentiometer is "off", the truck will not run, regardless of the position of the speed limit switches.

## Using Direction Switches For Low Speed Input

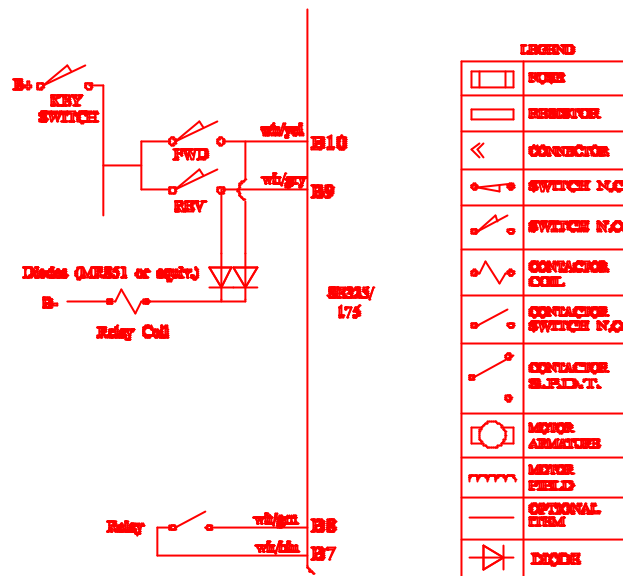


Figure 2

So, if you want only 2 speeds (hi and low), don't bother with speed limit 3. If you want to use 4 speeds and no belly switch, then the highest speed should be speed limit 3, then speed limit 2, then speed limit 1 and finally the accelerator input (with a switch on it) for the lowest speed.

### Direction Switches Used as Low Speed Switches

On some vehicles the direction switches perform double duty as low speed switch. In this case a relay must be used to provide the low speed level (it isolates the B+ level from the throttle input). Diodes must be added to keep the direction inputs isolated. See wiring diagram in figure 2.

### Setup

Assume you are installing the 3-speed system above into a 24 volt truck. You want the low speed to be 12 volts, medium to be 18 volts and high speed to be 24 volts. Using the ProBit, set the following parameters:



Parameter	Value	Why
maximum forward speed	50%	(50% of 24 volts is 12 volts)
maximum reverse speed	50%	(50% of 24 volts is 12 volts)
speed limit 2	150%	(150% of 12 volts is 18 volts)
speed limit 3	200%	(200% of 12 volts is 24 volts)

Note that speed limits are set as a percentage of the "usual" maximum speed and that the highest is 200%

Note also that the safe sequencing still works. The truck will only run if the low speed switch closes **after** the direction switch closes.

Revision History:

95-01-20 RTA -- Original Version.