Elevation 1+ seeing encoder counts even though the motor is not moving

07/09/2010

If you are seeing encoder counts into the Elevation 1+ even though the hoist is not moving then the probable cause is a encoder that has been incorrectly wired. This issue can occur even after a hoist has been working with apparently no issues for a period of time.

Liftket Motors

Depending on how old the product is the wiring colours for the multicore will be different.

	Multicore	Multicore	Encoder
A	Grey	Green	Green
B	Blue	Red	Yellow
0v	White	White	White
+V	Brown	Black	Brown

The grey wire from the encoder SHOULD NOT BE CONNECTED.

The common fault when the encoders are installed incorrectly is the grey wire being connected to the 0v line.
If the encoder is wired incorrectly the encoder will continue to produce pulses and count seemingly correctly when run over short distances. When running over longer distances the problem will be easier to spot. You will see the incorrectly wired hoist produce a lower than expected number of encoder counts.

The reason the grey cable is present but not used, is due to the presence of a 0 or Z pulse being produced by the encoders that we use. This pulse (in addition to the A and B pulses) is commonly used in industrial applications to produce a pulse when one rotation of the motors shaft is completed. If the hoist is stopped at the point on the motors shaft where the pulse is counted then this can trip the encoder and cause extra pulses to be produced, despite the shaft not moving.

The quickest solution to stop these extra pulses is to bump the motor up or down to move it off of the position when the 0 or Z pulse is enacted. Hence the reason a hoist can seemingly function perfectly normally and then all of a sudden start producing extra pulses, the 1/100 chance of stopping it at the precise point the pulse is generated.
If a hoist is seeing this type of error remove the end of the motor (with the multicore) and check the wiring of the encoder.