

Wiring Requirements.

The 3597 mechanism will draw up to 55 amps when it is obstructed and up to 40 amps while lifting weights. **To allow proper mechanism operation, wire size for the motor power circuit must be calculated so that voltage does not drop below 11 vdc during normal operations, or drop below 9 vdc during lifting of weights, vertical mechanism pumping or mechanism obstruction.** The selected wire must be installed from the power source to the terminals at the mechanism circuit controller. If it is not physically possible to run the wire from the junction box base to the mechanism, then a minimum, one 3/16" bond strand conductor must be installed from the junction box base terminals to the mechanism circuit controller terminals. **Do not install #9 or #10 wire at any point in the motor power circuit.** Refer to the following example and formulas.

VOLTAGE DROP EXAMPLES AT 55 AMP LOCKED ROTOR CURRENT

WIRE LENGTH IN FEET	VOLTAGE DROP USING 1-#6 CABLE	PERCENT DROP @ 12 V SUPPLY	PERCENT DROP @ 15 V SUPPLY
50	2.3	19.16	15.33
100	4.6	38.33	30.66
150	6.9	57.5	46
200	9.2	76.6	61.3

WIRE LENGTH IN FEET	VOLTAGE DROP USING 2-#6 CABLE	PERCENT DROP @ 12 V SUPPLY	PERCENT DROP @ 15 V SUPPLY
50	1.15	9.58	7.66
100	2.3	19.16	15.33
150	3.45	28.75	23
200	4.1	34.16	27.33

WIRE LENGTH IN FEET	VOLTAGE DROP USING 3-#6 CABLE	PERCENT DROP @ 12 V SUPPLY	PERCENT DROP @ 15 V SUPPLY
50	0.76	6.33	5.06
100	1.53	12.75	10.2
150	2.3	19.16	15.33
200	3.06	25.5	20.4

WIRE LENGTH IN FEET	VOLTAGE DROP USING 1-3/16" BOND STRAND	PERCENT DROP @ 12 V SUPPLY	PERCENT DROP @ 15 V SUPPLY
10	0.35	2.91	2.33

WIRE LENGTH IN FEET	VOLTAGE DROP USING 1-#10 WIRE	PERCENT DROP @ 12 V SUPPLY	PERCENT DROP @ 15 V SUPPLY
10	1.17	9.75	7.8

TO CALCULATE OTHER LENGTHS OF RUN USE THE FOLLOWING FORMULA.

$$\frac{22 \times \text{WIRE LENGTH IN FEET} \times 55}{\text{CIRCULAR MILS}}$$

WIRE SIZE	CIRCULAR MILS	WIRE SIZE	CIRCULAR MILS
#10	10400	3/16"	35140
#9	13100	#4	41700
#6	26300	#2	66400