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Installation Instructions
P & Q 600 SERIES DUAL COIL
"3 WIRE" DC SOLENOIDS

MOUNTING SOLENOID AND ELECTRICAL CONNECTIONS

1. Securely bolt the solenoid in its mounting position, making sure to align the plunger as straight as possible to the connecting linkage. **Do Not Connect the linkage to the lever at this time.**

2. Using the "Wire Gage Recommendation Table" below, select the proper wire size for your installation. Wire the solenoid for your installation as shown on page 2 of these instructions.

IMPORTANT
To insure proper solenoid operation, the total connecting wire length for both leads combined, must not exceed the recommended maximum lengths indicated in the Wire Size Recommendation Table below:

WIRE SIZE RECOMMENDATION TABLE

Solenoid	Rated Voltage	Maximum lead length or all leads (in feet) Wire Gage/Size								
		22GA	20GA	18GA	16GA	14GA	12GA	10GA	8GA	6GA
P & Q 610	12 VDC	-----	-----	4	6	9.5	15	24	38	60
	24 VDC	----	----	15	24	38	60	96	150	240
P & Q 612 613	12 VDC	----	----	2.5	4	6	10	16	25	40
	24 VDC	----	----	10	16	25	40	64	100	160

Solenoid Lead Identification:

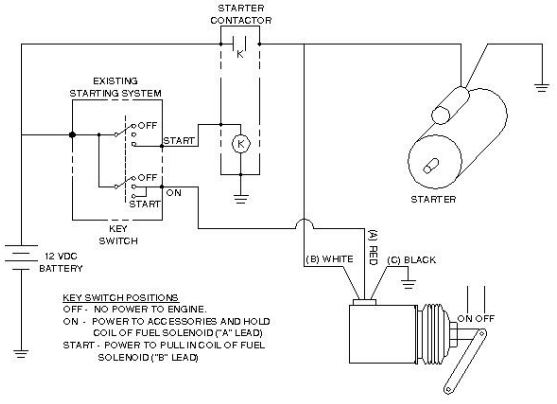
WHITE	PULL COIL / HIGH CURRENT
RED	HOLD COIL / LOW CURRENT
BLACK	GROUND

CAUTION!
Coils that burn out due to improper electrical connections are not covered by factory warranty. If you have any questions concerning proper installation, contact the factory before proceeding.

<u>SYSTEM # 1</u> - "ON-TO-RUN", FUEL SHUTDOWN APPLICATIONS

Solenoid is wired into existing starting system of the engine. No added "high current" relays are required since the solenoid "pull coil" (high current) power comes directly from the engine starter. Wire the solenoid as shown in the schematic below:

Note: If wired as shown to the right, and solenoid is *improperly* adjusted, solenoid plunger will release when operation is shifted to the "holding mode" after the engine starts. If the plunger releases, no damage will occur to the solenoid. Only readjustment of the linkage is required.

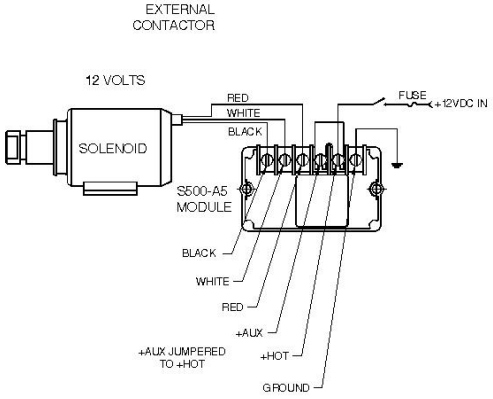


FUEL SOLENOID WIRING DIAGRAM FOR GROUNDED SYSTEM

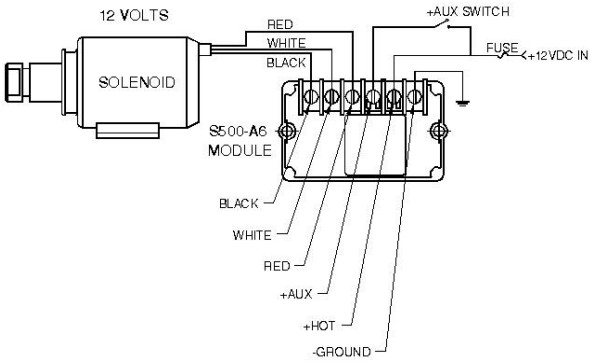
SYSTEM # 2 - Engine speed/RPM control and many other applications

On applications other than ñOn-To-Runòfuel shut down, a solenoid electronic control module is required to allow the solenoid to operate in a continuous duty mode without damaging the solenoid. Wire the solenoid and module as shown below. Do Not mount the module directly on the engine or other high vibration point. Keep module away from direct heat sources.

WIRED DIRECT (S500-A5)



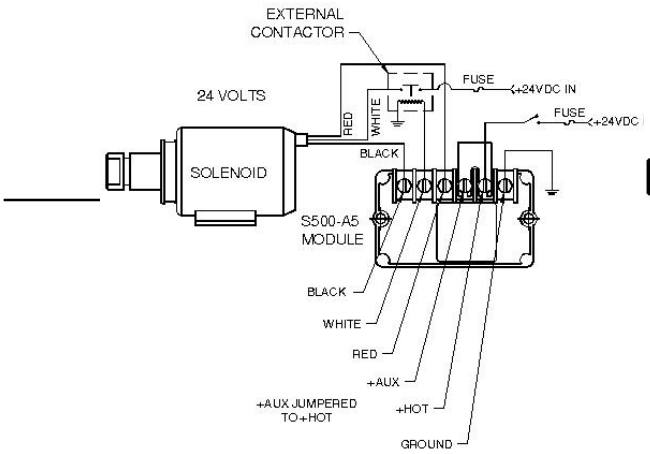
WIRED FOR REMOTE OPERATION (S500-A6)



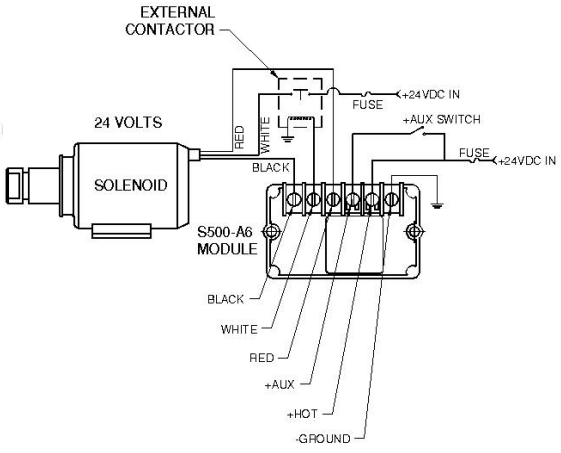
24 Volt Installations

Although the module is capable of 12 or 24 volt input, only the 12 volt system can be wired with its output going directly to the solenoid as depicted in the diagrams above. The 24 volt output (pull-in) MUST be wired through an external contactor. Failure to do so will result in reduced module life.

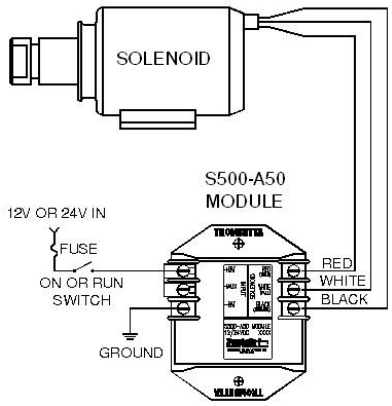
WIRED DIRECT (S500-A5)



WIRED FOR REMOTE OPERATION (S500-A6)



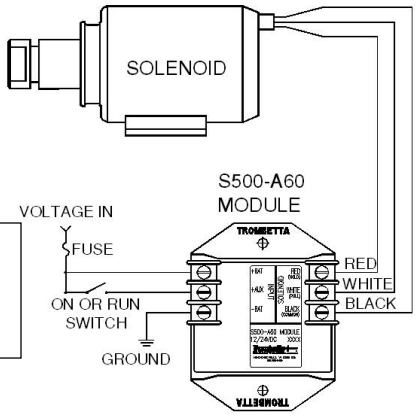
WIRED DIRECT (S500-A50)



*** Note when using an S500-A50 or S500-A60 module all of the solenoid connections must connect to the module as shown. **Do not** connect any of the solenoid leads to another ground point in the system.

* Note - some solenoids only have 2 wires. If this is the case, use the black and either the white or red wire connection points on the module

WIRED FOR REMOTE OPERATION (S500-A60)



3. S500-A5 & A50 Modules - After making the final wiring check, energize the solenoid hold coil by turning the switch to the ñonòposition and manually push the solenoid plunger to the seated position. The plunger should remain seated.
   S500-A6 & A60 Modules - After making the final wiring check, energize the solenoid hold coil by turning the switch to the ñonòposition, close the run switch on the module and manually push the solenoid plunger to the seated position. The plunger should remain seated.

4. With solenoid seated, connect the linkage to the plunger , adjust the linkage for proper operation and tighten all connection points securely.

5. De-energize the solenoid. Visually check the linkage by manually moving the linkage thought its entire stroke to make sure the linkage is free from obstructions. Total movement of the plunger **MUST NOT** exceed the recommended stroke of the solenoid.