

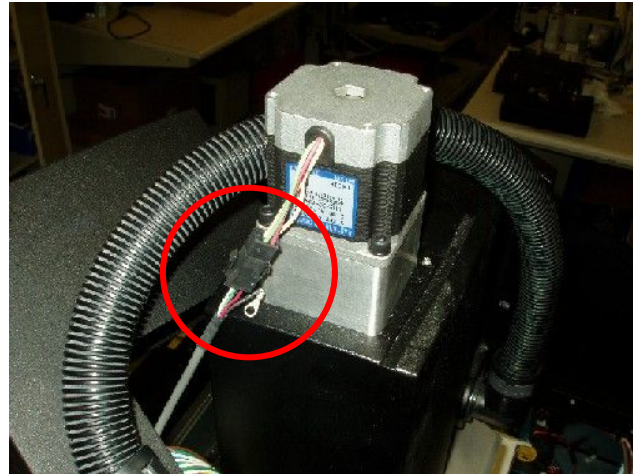
APR-5000/APR-5000-DZ Z-AXIS MOTOR SIGNAL CHECKS

Note: although the z-axis motor is powered by DC voltage, it is a stepper motor so it receives pulsed rather than constant voltage, so it is difficult to get 'exact' voltage readings. This procedure attempts to provide 'typical' DC and AC measurements at the motor connections to try to make a better determination on z-motor & signal status.

Required Tools:

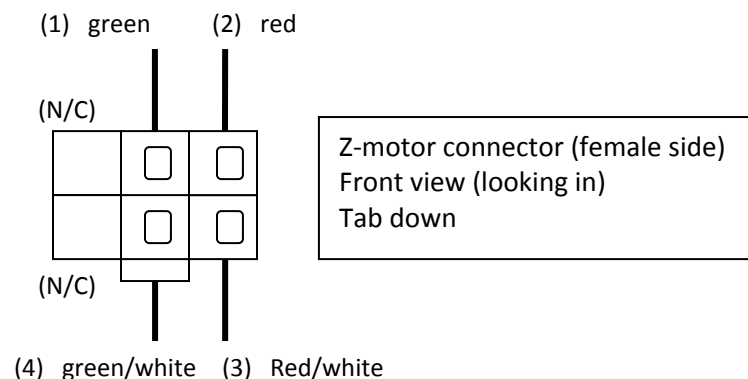
Phillips screwdriver (medium-large)
Hex allen keys (standard)
Digital Multimeter

- 1) Remove top cover of APR by removing the 4x screws circled in below picture:



- 2) Locate z-axis motor connections (6-pin connector but only 4 wires used)
- 3) Disconnect motor connection from control connection.
- 4) Check resistance (ohms) on connector leading to motor (female side).

WIRE CONNECTION:	OHMS TYPICAL	OHMS MEASURED (FILL IN)
Red to Red/white (1 to 2)	3-5 ohms	
Green to Green/white (3 to 4)	3-5 ohms	
(Green/GWhto Red/RWh is OPEN)		



5) 'Typical' signal voltage checks on motor control connector leading from conduit/chassis (male side)

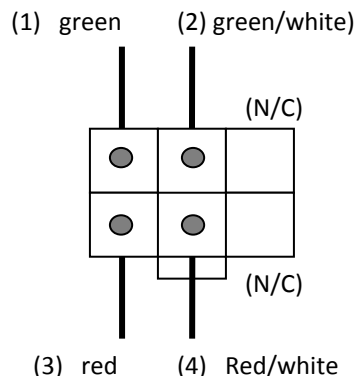
Note: although the z-axis motor is powered by DC voltage, it is a stepper motor so it receives pulsed rather than constant voltage, so it is difficult to get 'exact' voltage readings. This procedure attempts to provide 'typical' DC and AC measurements at the motor connections to try to make a better determination on z-motor & signal status. AC measurement for reference only may be possible because of the 'pulsed' DC to motor.

- Leave z-motor connection disconnected as in steps 1-3.
- Turn on machine (no software).
- Measure and record both DC and AC voltage at motor control connector leading from conduit/chassis (male side). Refer to table below for 'typical' values.
- Open the software. With the z-motor disconnected, there will be no movement and 'head homing' message will continue indefinitely.
- Measure and record both DC and AC voltage at motor control connector leading from conduit/chassis (male side). Refer to table below for 'typical' values.
- Power down machine. Should get a COM (7) error or equivalent, which is normal.
- Close software. Use ctrl-alt-delete if necessary.
- Review measured readings with OK Tech Support.

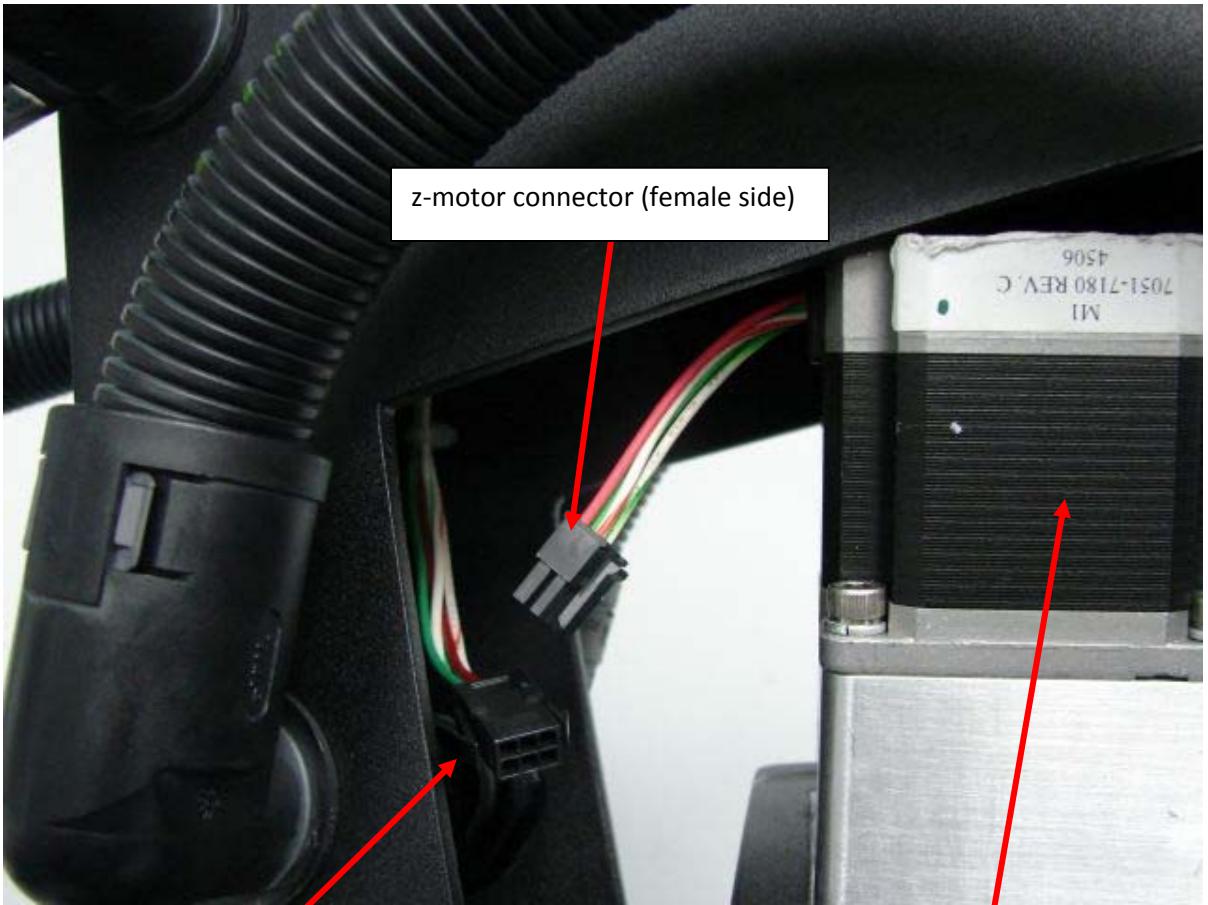
WIRE CONNECTION:	MACHINE ON, NO SOFTWARE		MACHINE ON, OPEN SOFTWARE	
	'Typical' readings		'Typical' readings	
	DC V typ	AC V typ	DC V typ	AC V typ
Green to Green/white (1 to 2)	0.25-0.35 DC V	1.5-1.7 AC V	-0.04 DC V	22.55 AC V
Red to Red/white (3 to 4)	21.3 DC V	1.55 AC V	0.04 DC V	22.55 AC V

Fill in:

WIRE CONNECTION:	MACHINE ON, NO SOFTWARE		MACHINE ON, OPEN SOFTWARE	
	Measured readings		Measured readings	
	DC V typ	AC V typ	DC V typ	AC V typ
Green to Green/white (1 to 2)				
Red to Red/white (3 to 4)				



motor control connector (male side, from conduit/chassis)
Front view (looking in)
Tab down



z-motor connector (female side)

motor control connector
(male side, from conduit/chassis)

Z-MOTOR