HPU 4233 Wiring Inspection & Repair Procedure

Introduction

RNRG Systems has found that a limited batch of Hydraulic Power Unit (HPU) assemblies may have an issue with internal wiring.

If you run the HPU for 5 minutes and the winch responds to pressing the controller buttons, you can be assured that your HPU is wired correctly and does not have a problem. This document outlines the issue symptoms, identification of your winch's wiring type and inspection procedure.

Once it is determined your winch has the issue, and the wiring type is identified, this document provides you with information on how to perform an emergency fix, e.g. in the event that the problem is discovered just as a crew is attempting to raise or lower a tower, and the crew has a 12 Volt battery. Under these circumstances, a fix can be made to get the system to operate. This document also informs you how to permanently fix this issue.

If you are not interested in fixing this issue, you can return the winch to RNRG Systems under a Return Merchandise Authorization (RMA) number - contact RNRG Systems Technical Services to discuss your winch operation, and an RMA number will be provided.

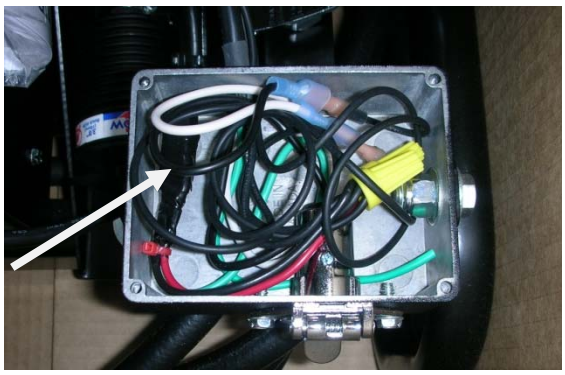
Symptoms

- With the winch properly connected to the HPU and the HPU running, check to see if the winch drum will spool in and out using the controller.
- If there is no response when either button is depressed, follow the instructions below to determine if this issue is present.

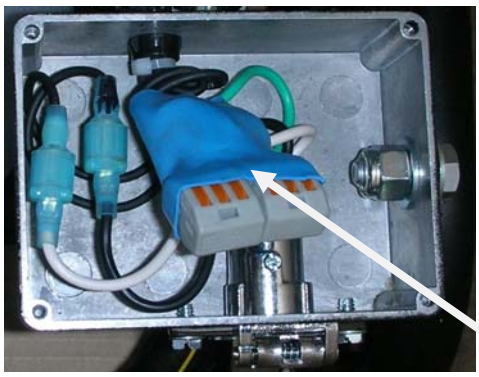
Identify Wiring Type

- Remove cover from electrical junction box (see below). Do not lose O-rings on screws.

- There may be two types of wiring configurations.
- To identify the type of circuit you have, see figures of type 1 and type 2 circuits below.
- Arrows point to the capacitor /diode assembly.

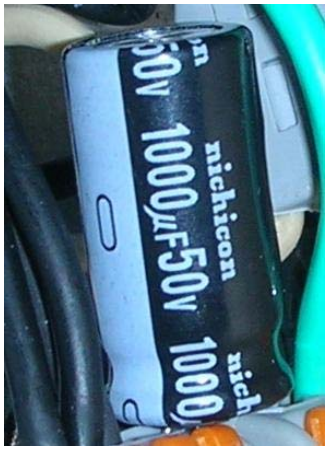


Type 1



Type 2

Included in the circuit are a diode and a capacitor. To identify which component is which, see the pictures below:



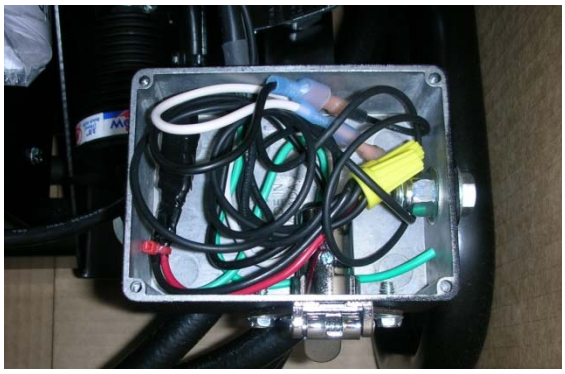
Capacitor

Diode

- The capacitor and diode are both **can-shaped**.
- The capacitor will be larger than the diode and will have a silver band vertical to the can's axis.
- The capacitor is marked "1000µF 50V". The diode will have a silver band around the can.

Inspection Procedure

Wiring Type 1



a. Pull up diode/capacitor assembly.
b. Cut tie wrap.
c. Remove tape.
d. Check wiring orientation of diode and capacitor (see photos below).
e. If wiring is correct: re-wrap assembly with black electrical tape and tie wrap wires back together.
f. Place wires back into electrical box and fasten on cover. Be careful to include small o-rings on screws.

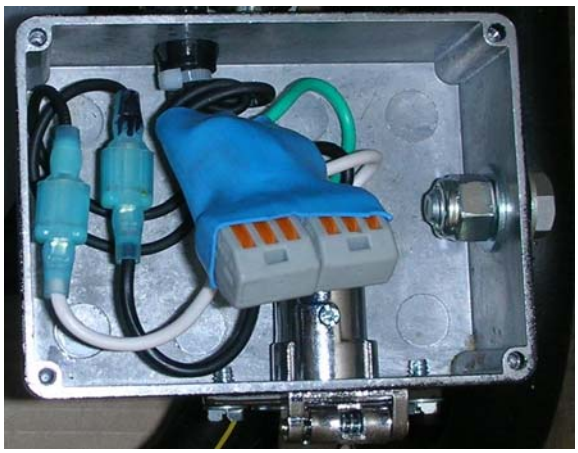
In a correct assembly, the lead on the side on the diode with the silver band will connect to the green wire.

In a correct assembly, the lead on the side of the capacitor with the silver band will connect to the black wire.

If the wiring is not correct, see the **Repair Procedure for Wiring Type 1** section of this document.

NOTE: If wiring is incorrect for either wiring type 1 or 2, the capacitor has probably been damaged and the system will not function.

Wiring Type 2



- Pull up diode/capacitor assembly.
- Carefully remove the shrink tubing from wiring connectors. Avoid damaging the internal components.
- Check wiring orientation of diode and capacitor.

Shown above is an example of the type of connector block used in wiring type 2. It should be noted that all wires attached to a single connector block are essentially wired together.

In a correct assembly, the connector block with the black wires will be connected to the capacitor lead on the side with the silver band.

In a correct assembly, the connector block with the green wire, or yellow wire with the green stripe, should be connected to the lead on the diode that has the silver stripe around its body.

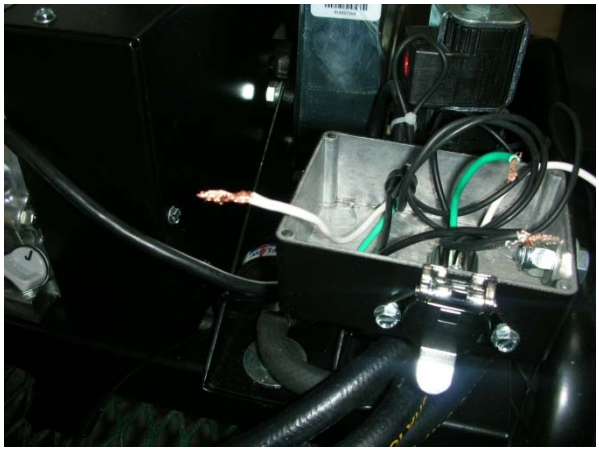
NOTE: If wiring is incorrect for either wiring type 1 or 2, the capacitor has probably been damaged and the system will not function.

Repair

RNRG is offering a permanent repair by supplying a replacement capacitor/diode assembly. This assembly can be used to repair systems with either wiring type 1 or 2. See below:

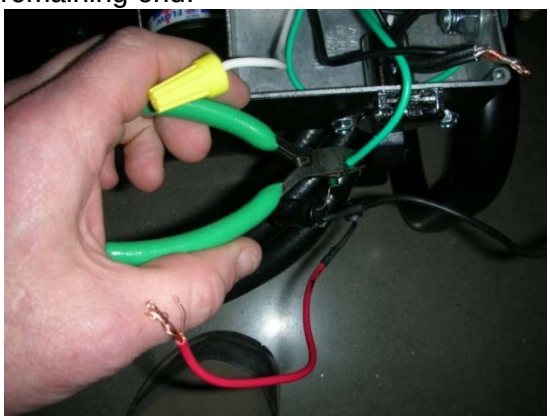
Repair Procedure for Wiring Type 1

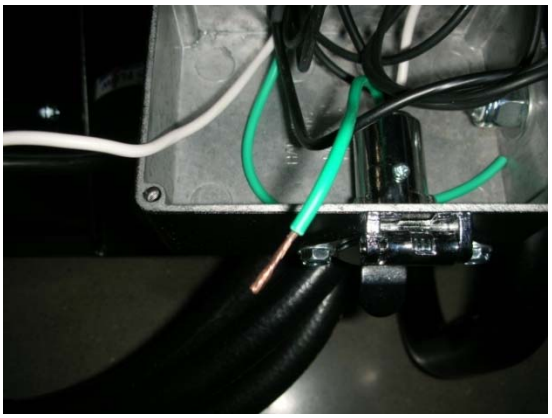
Step 1:
Remove the wire nut connecting the red and white wires.



Step 2:
Remove the wire nut connecting the black wires.

Step 3:
Cut the green wire close to the capacitor / diode assembly and remove the capacitor diode assembly. Strip the remaining end.

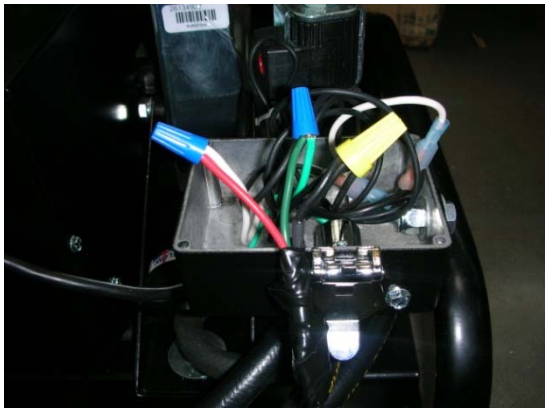




Step 4:
Attach the red wire of the replacement part to the white wire with a wire nut.

Step 5:
Attach the green wire of the replacement part with the green wire using a wire nut.

Step 6:
Attach the black wire of the replacement part to the black wire with a wire nut. Replace enclosure cover. Hook up the hydraulic hoses to the winch. Attach the pendant to the control box. Start the gas engine. Using the pendant controller, test to make sure the winch operates properly. If it doesn't work, check wiring steps 1 through 6 and make sure connections are solid.

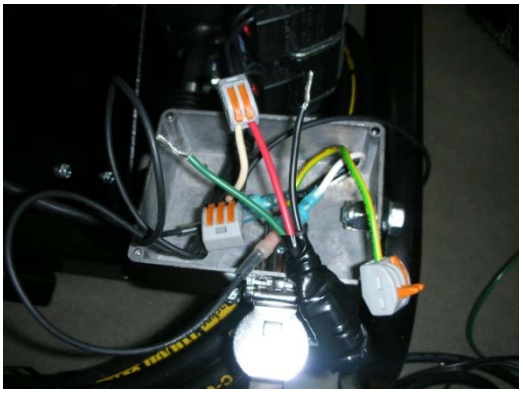


Repair Procedure for Wiring Type 2

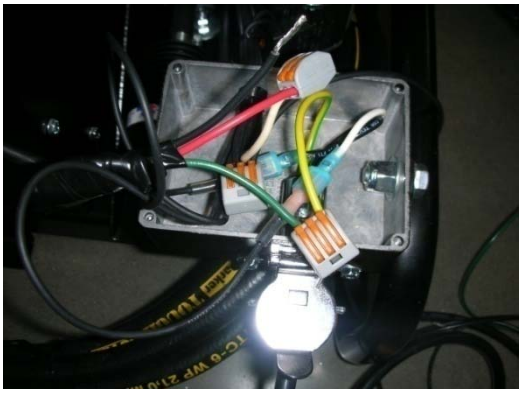
Step 1:
Pull up the corresponding levers on each of the connector blocks that contain capacitor leads and remove the capacitor.

Step 2:
Pull up the corresponding levers on each of the connector blocks that contain the diode. Remove the diode.

Step 3:
Attach the red wire of the replacement part to the connector block with the white wire.



Step 4:
Attach the green wire of the replacement part to the connector block with the green wire or the yellow wire with the green stripe.



Step 5:
Attach the black wire of the replacement part to the connector block with the black wires. Replace enclosure cover. Hook up the hydraulic hoses to the winch. Attach the pendant to the control box. Start the gas engine. Using the pendant controller, test to make sure the winch operates properly.

If it doesn't work, check wiring steps 1 through 5 and make sure connections are solid.