SLEIPNER
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Service and Support

Advanced Troubleshooting Guide

POST 2005 THRUSTERS WITH IPC CONTROL SYSTEM

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Contents

Warnings and Safety

MC_0800

It is essential to follow all instructions within this document to avoid potential personal injury, death, or damage to existing products in the vessel, the vessel's hull integrity, and including this product during installation or operation. Failure to follow instructions within this document will render all warranties given by Sleipner Motor as VOID.

Warnings and situations requiring extra caution are outlined in the documentation. Take extra consideration when warnings are outlined.

WARNING
Indicate a potentially hazardous situation that, if not avoided, could result in death or severe injury.

CAUTION
Indicates a potentially hazardous situation that could result in minor or moderate injury or critical damage to vessel integrity if not avoided.

Responsibility of the installer

MC_0038

General:

- The installer must read this document to ensure necessary familiarity with the product before installation.
- Directions outlined in this document cannot be guaranteed to comply with all international and national regulations, including but not limited to health and safety procedures. It is the installers responsibility to adhere to all applicable international and national regulations when installing Sleipner products.
- This document contains general installation guidelines intended to support experienced installers. Contact professional installers familiar with the vessel, Sleipner products and applicable regulations if assistance is required.
- If local regulation requires any electrical work to be performed by a licensed professional, seek a licensed professional.
- When planning the installation of Sleipner products, ensure easy access to the products for future service and inspection requirements.

MC_0020

CAUTION

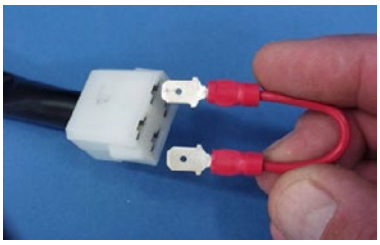
This guide is intended for Thrusters utilizing Sleipner “Plug and Play” wiring only, and not intended for thrusters utilizing Sleipners Automatic Main Switch or Sleipners voltage conversion box.

Each product manual contain a basic trouble-shooting section. Read over the user manuals and familiarize yourself with the product. This guide is designed to supplement these trouble-shooting guides providing illustrated instructions for more advanced issues.

Recommended Tools For Troubleshooting

MC_0497

- Metric Allen Wrenches, 4mm to 12 mm
- Metric wrenches or sockets
- Needle Nose Vise-Grips
  (for holding jam nuts when removing battery cables from motor)
- Phillips head screwdriver
- Small jumper wire
  (with male quick discontent terminals if available)
- 12” jumper wire with alligator clips
- Multi-meter (with alligator clips if available)



Identifying Thruster Parts

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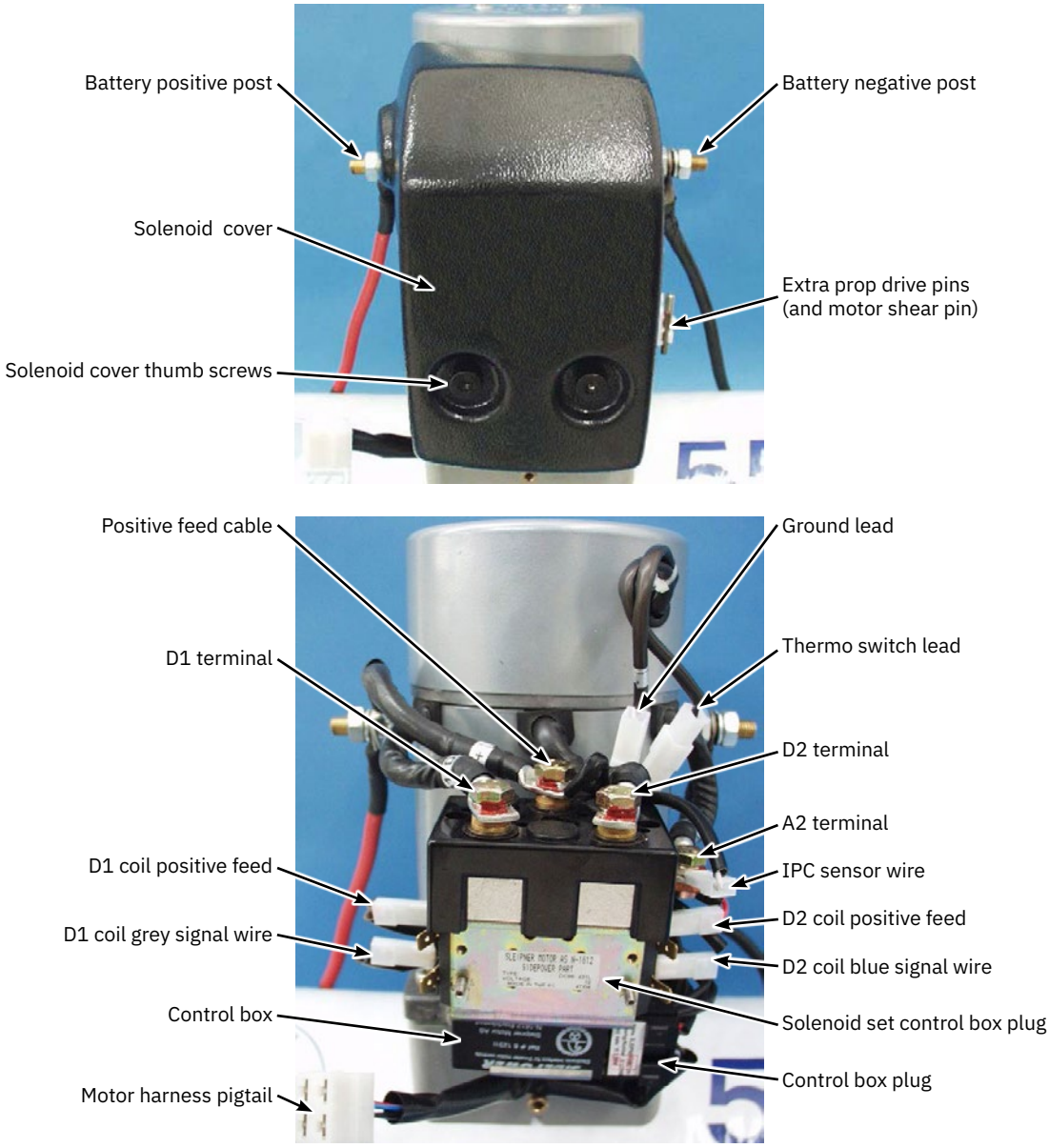


If Control Panel does not turn on.
(Light between two On buttons does not light)

1. Check battery power.

- The control panel is powered through the bow thruster. The thruster is usually on its own circuit, meaning the positive and negative battery cables run directly between the thruster and the battery. A fuse should be installed on the positive cable within 72” of the battery, check that it is not blown. A battery switch is usually installed in close proximity to the fuse and battery, check that the battery switch is turned on.

Control panel on

2. Check voltage at the thruster.

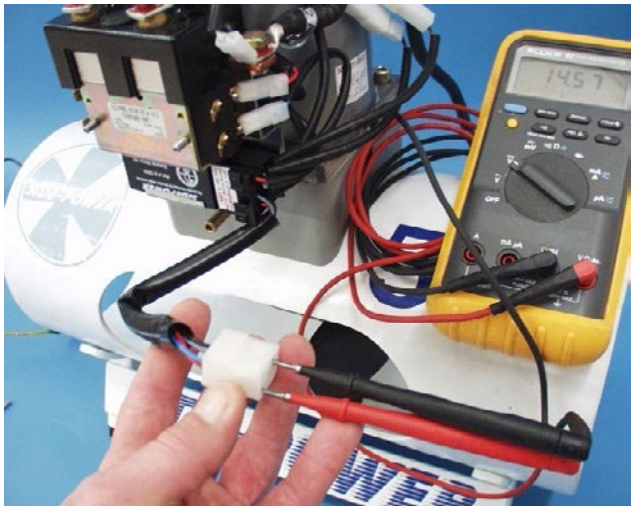
- You should read battery voltage at the thruster. If there is no voltage at the thruster there is a problem with the power supply, check the battery, fuse, switch, or cabling.


Checking voltage at thruster

3. Check for voltage on the control harness pigtail on motor and at control panel.

- With multi-meter set to DC volts, check from red wire (positive) to black wire (negative) on motor wiring harness pigtail. If there is battery voltage at the thruster battery cables, but no voltage at the motor harness pigtail, than proceed to step 4.

- If there is battery voltage on the motor control harness repeat step 3 on control harness at the control panel to ensure there is no fault with the control harness run. If there is battery voltage at control panel then there is a problem with the control panel. Please contact your local Sleipner distributor for service support.


Checking voltage on motor harness

4. Check control system positive and negative.

- Check for voltage between the battery negative stud and red wire on motor harness pigtail.
- **If no voltage is present**, then check that all motor harness and control box plug connections are tight and in place. If the motor harness checks out, then there may be a problem with the control box. Please contact your local Sleipner distributor for service support.

Checking voltage on motor harness to battery negative stud

- **If voltage is present**, locate the control system negative lead and unplug it from the motor harness. With multi-meter set on ohm (Ω), check for continuity between the control system negative lead and the A1 battery negative stud. There should be continuity; ohms will go close to 0 (usually about 0.2Ω-0.5Ω).

  ◊ **If there is no continuity** between the control system negative lead and battery negative stud, then please contact your local Sleipner distributor for service support.

Checking continuity between negative lead and battery negative post

◊ **If there is continuity** between negative lead and battery negative stud, reconnect control system ground lead to motor harness, then check for continuity between the black wire on the motor harness pigtail and battery negative stud. Set the multi-meter on diode-test position, showing about 0.5V-0.7V. (A diode is fitted on the black wire).

(NB: Be sure to have Positive lead connected to motor pigtail and negative lead to control box plug!)

If there is no continuity between these two points, then the motor harness has been damaged.

Checking continuity between black in motor pigtail and control box plug

If control panel does turn on but thruster does not run, or thruster runs in one direction only.
(NB: The preceding tests are to be performed while the boat is in the water. Please contact your local Sleipner distributor for service support if you have any questions.)

1. Bypass control panel and check thruster control box and solenoid operation.

- Remove control panel and unplug wiring harness or unplug control harness from motor harness pigtail, whichever is more convenient. On the four wire Amp connector (wiring harness if disconnected at control panel or motor pigtail if disconnected at motor), with short jumper wire, jump from red to blue for starboard run, and red to grey for port run.

  (NB: Be careful not to jump red to black as this will permanently damage the control box.)

- **If thruster runs** in both directions when jumping red to blue and red to grey on the motor harness pigtail, repeat this test on the control panels harness at the control panel. If the thruster runs then the control panel is likely damaged.

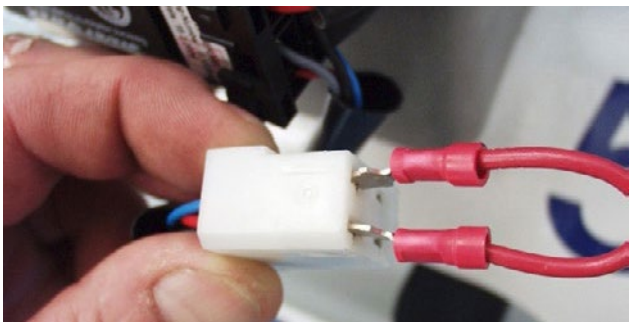
- **If thruster does not run**, or runs in only one direction, at the control panel, but runs in both directions at the motor harness pigtail, then the harness or terminals are damaged.

  (NB: Be sure that all control panels in the system are unplugged when doing this test!)

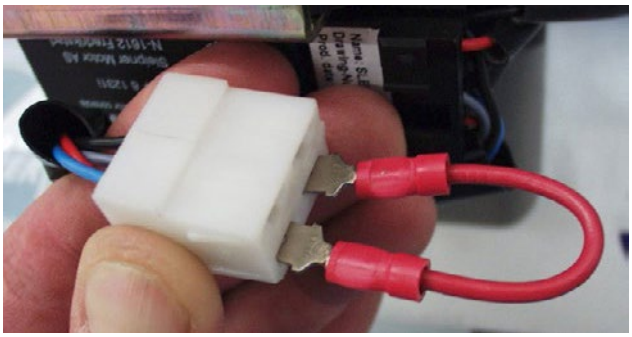
- **If thruster does not run**, proceed to step 2.

2. Bypass thruster control box and check thruster solenoid operation.

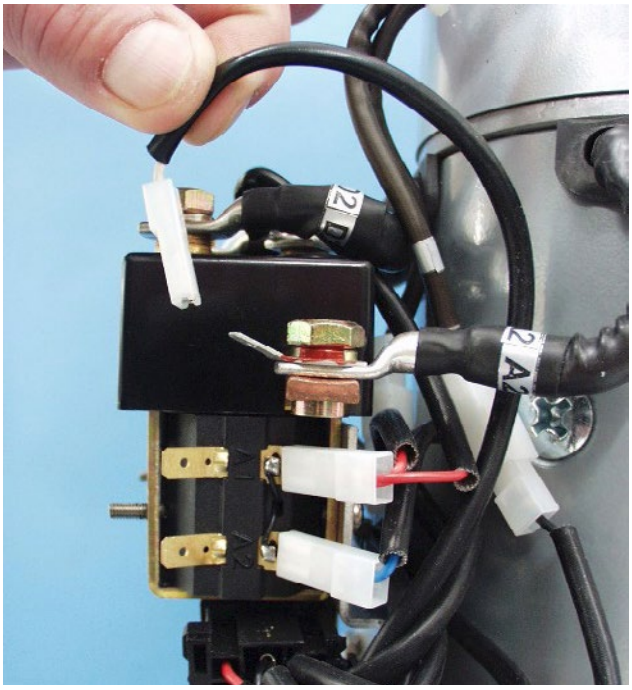
- Disconnect the white IPC sensor wire on the A2 terminal.



Jumping red to blue on motor pigtail



Jumping red to grey on motor pigtail



Disconnecting white IPC sensor wire

With long jumper wire, jump from negative battery stud to D1 coil grey signal wire for port run, and to D2 coil blue signal wire for starboard run.

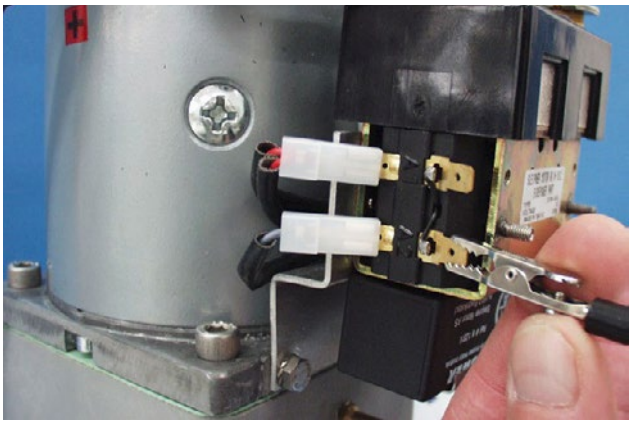
- **If thruster runs properly**, proceed to step 3.
- **If thruster does not run**, proceed to step 4

3. Checking the thermo switch.

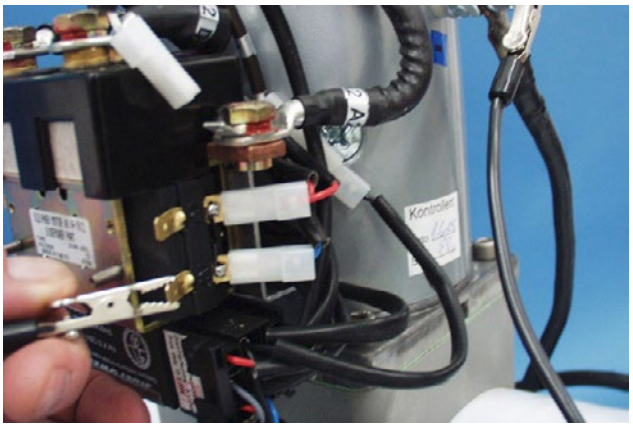
- Locate the thermo switch lead and unplug it from the motor harness. With multi-meter set on ohm (Ω), check for continuity between the thermo switch lead and the battery negative stud. There should be continuity; ohms will go close to 0 (usually about 0.2Ω -0.5Ω).

  ◊ **If there is no continuity** between thermo switch lead and A1 battery negative stud, then either the thermo switch needs to be replaced or the A1 battery negative stud has been damaged internally. Verify that the A1 Battery negative stud is OK by checking for continuity between A1 and A2. If there is continuity then the A1 battery negative stud is OK.

  ◊ **If there is continuity** between thermo switch lead and battery negative stud then there is a problem with the control box or the motor wiring harness. Please contact your local Sleipner distributor for service support.



Jumping red to blue on motor pigtail



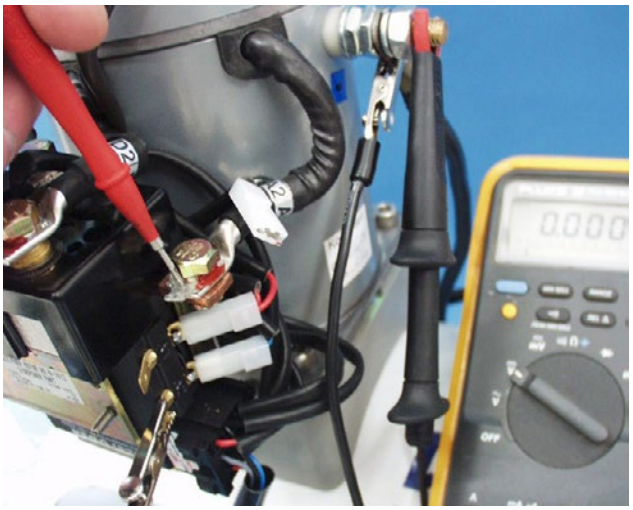
Jumping red to grey on motor pigtail

4. Check for solenoid output.

- With jumper wire still attached and IPC wire detached from step 2, check for voltage on the A2 terminal.

  ◊ **If no voltage is present** on A2 terminal then the solenoid pack may need to be replaced. Please contact your local Sleipner distributor for service support.

  ◊ **If voltage is present** on A2 terminal then the motor may be damaged. Please contact Your local Sleipner distributor for service support.



Disconnecting white IPC sensor wire

5. Check the operating voltage

- Once the thruster is operating properly, check the voltage between the battery positive post and the battery negative post while the thruster is running. The voltage will drop initially and then should level off after approximately 5-10 seconds.
- The voltage should be no lower than 9.5 for a 12 volt thruster and 19 volts for a 24 volt thruster after the voltage has stabilized.
- If the voltage does not stabilize and continues to drop below 9.5 or stabilizes below 9.5 for 12 volt thrusters (19 volts for 24 volt thrusters), than the battery source needs to be check to ensure the amp capacity is sufficient to run the thruster or the cable run needs to be checked for voltage drop. Please contact your local Sleipner distributor for service support if you have low operating voltage.

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