

# MC5 works on Land but not Underwater

If the MC5 is working well on land but not on a boat there are two likely sources of the problem:

1. There is an insulation weakness in the cable or cable joint to the Tow-fish.
2. There is electrical noise being introduced when the system is tested on the boat.

The method to check the insulation is to lower the cable and Tow-fish into seawater and check if there is any conductivity between the connector on the end of the cable and the seawater. The method is as follows:

Disconnect the cable from the MC5 and connect one terminal of a multi-meter to the outer or inner terminal of the cable connector.

The other multi-meter terminal should be connected to a piece of conductive material such as a copper pipe or stainless steel etc to be lowered into the water.

Set the multi-meter to a high resistance (Megohms) range and slowly lower the Tow-fish and cable into the water checking that the resistance remains extremely high.

If the resistance suddenly drops as the cable is lowered into the water this indicates the point where there is a failure in the insulation.

If the above test does not indicate any weakness in the insulation; then the problem is likely to be due to electrical noise being introduced via the power connections or through radiated noise into the cable or into the MC5 control unit.

When testing on the boat please use an independent battery that is isolated from all the other equipment on the boat, also remove the GPS and computer interface for initial testing. Carry out the test in open water away from the harbour and away from any large magnetic disturbances. If there is no radiated interference the MC5 should allow the Area Tune control to determine the highest signal with a gradual reduction either side of the peak response. If high readings are obtained on most of the settings; then there is still interference being introduced, if this is the case then all other equipment should be switched off to see what eliminates the problem; this includes switching off the boat engine.

We generated a document several years ago that gives a procedure to check for interference that temporarily puts a small piece of ferrous metal (Steel) on top of the Tow-fish to carry out an interference test. Putting the piece of metal on top of the Tow-fish stops the normal signal being generated (you can test this on land before doing it at sea); this is a way of towing the Fish and checking what is causing interference by switching off other equipment or moving the cable away from a source of interference such as an outboard engine or inboard engine generator. Power inverters can be a source of noise that can interfere.