Testing Cox Box Wiring in an 8 with a Multimeter

PREFACE:

Generally NK recommends troubleshooting any boat harness issues by substituting known "good" equipment in place, one at a time, to determine the location of the failed equipment.

The following procedure* is recommended only if the above has not determined the issue or if duplicate equipment is not available.

*Some electronic knowledge is assumed with this procedure.

Testing Cox Box Wiring in an 8 with a Multimeter

WHAT YOU WILL NEED FOR THIS TEST:

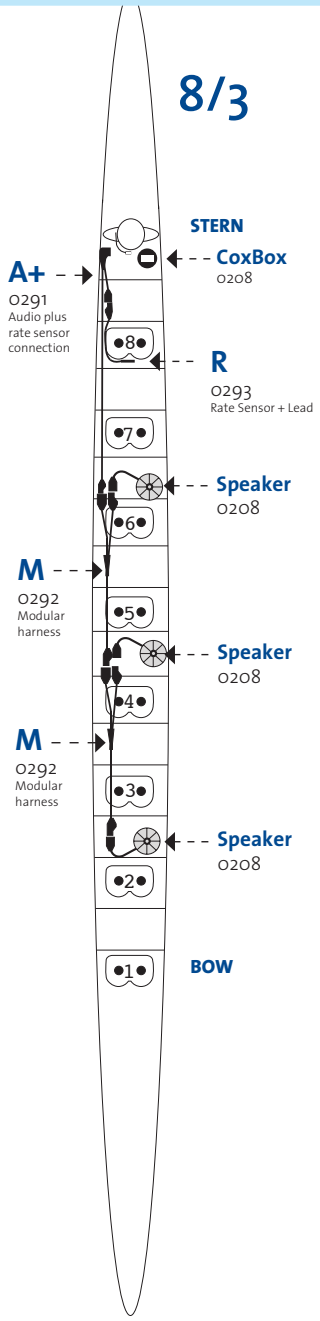
- A Multimeter or Ohmmeter
- Boat on slings – Access to both ends of the wiring harnesses.
- A magnet

Helpful but Optional:

- A second person
- Alligator clips

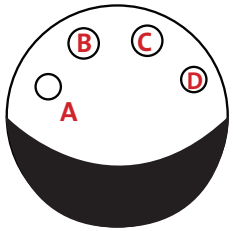
Multimeter

Alligator Clips

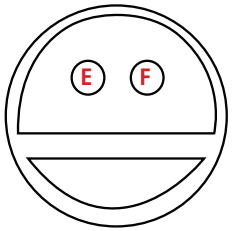


Testing A+ Harness (0291)

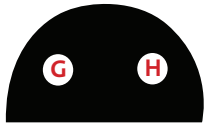
Harness Connector going into the Cox Box (R4)

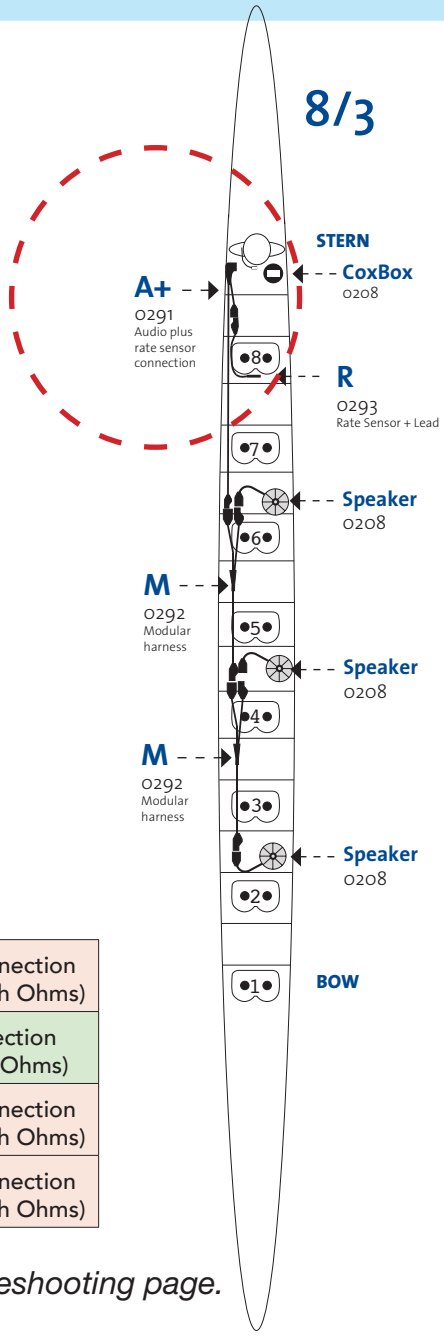


Male Connector going to Rate Sensor (R)



Female Connector going to Speaker Harness (M)





» Set the Multimeter to measure Ohms (Ω)

» Connect one alligator clip to the R4 connector at location A,B,C or D.

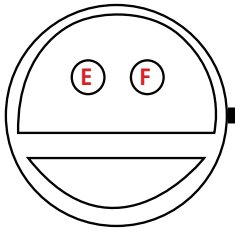
» Connect other end to R2 or P2 connector and measure resistance and compare below.

A	E	Connection (0 – 10 Ohms)	B	E	No Connection (very high Ohms)	C	E	No Connection (very high Ohms)	D	E	No Connection (very high Ohms)
	F	No Connection (very high Ohms)		F	No Connection (very high Ohms)		F	No Connection (very high Ohms)		F	Connection (0 – 10 Ohms)
	G	No Connection (very high Ohms)		G	No Connection (very high Ohms)		G	Connection		G	No Connection (very high Ohms)
	H	No Connection (very high Ohms)		H	Connection (0 – 10 Ohms)		H	No Connection (very high Ohms)		H	No Connection (very high Ohms)

Very High Ohms can be defined as over 10K. If results do not match, please see troubleshooting page.

Testing R Harness (0293)

Female Connector going to A+ Harness



RATE SENSOR

Place Probes in connector

Move Magnet by sensor and read resistance:

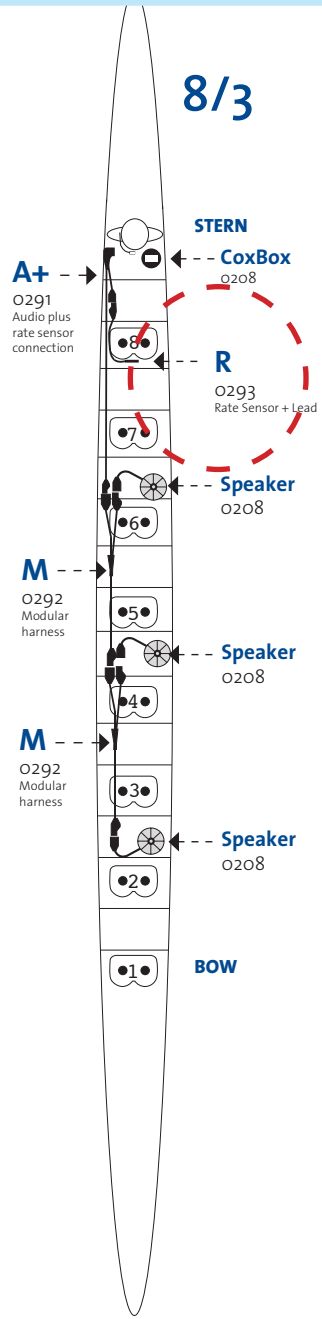
MAGNET

Zero (0 to 10) Ohms

MAGNET

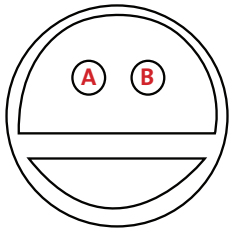
Infinite (very high amount) Ohms

If zero (or close to zero) Ohms are never shown, rate sensor may be bad. Try cleaning connections first and test again.

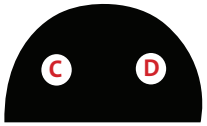


Testing M Harness (0292)

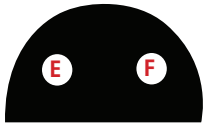
Male Connector coming from previous harness (A+ or M)



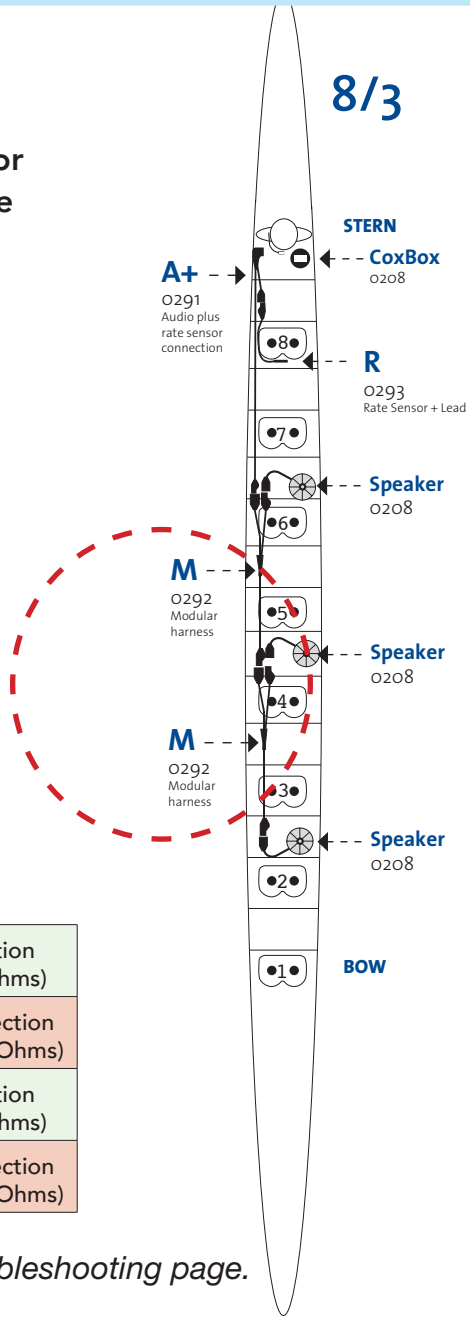
Female Connector next to male Connector



Female Connector opposite of male Connector



- Set the Multimeter to measure Ohms (Ω)
- Connect one alligator clip to the male connector at location A or B.
- Connect other end to the female connector and measure resistance and compare below.



A	D & F	Connection (0 – 10 Ohms)	B	D & F	No Connection (very high Ohms)	C	E	Connection (0 – 10 Ohms)
							F	No Connection (very high Ohms)
	C & E	No Connection (very high Ohms)		C & E	Connection (0 – 10 Ohms)	D	F	Connection (0 – 10 Ohms)
							E	No Connection (very high Ohms)

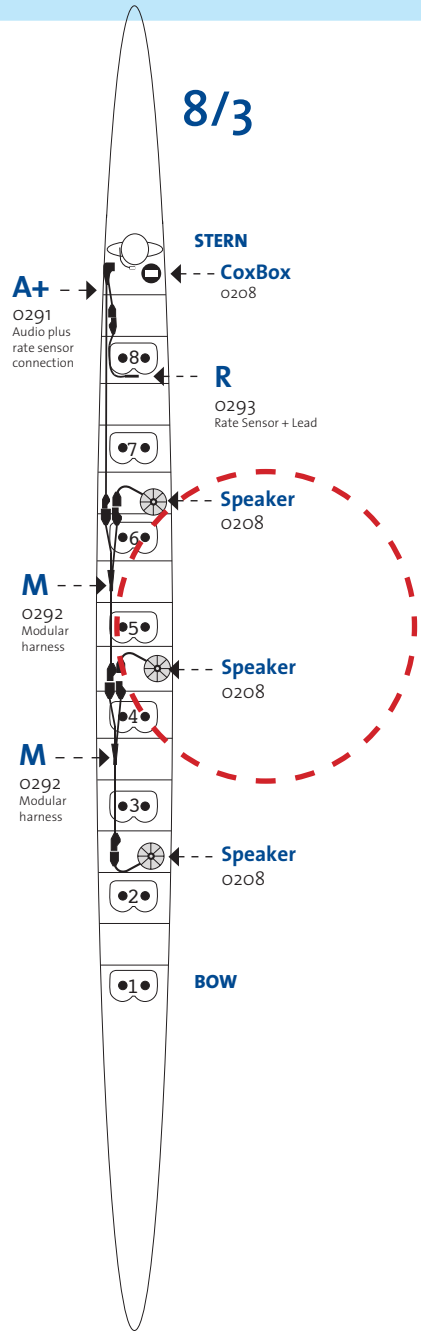
Very High Ohms can be defined as over 10K. If results do not match, please see troubleshooting page.

Testing Speaker (0208)

Place Probes across pins in connector

Date Code	Good Values
< 3914	7 to 9 Ohms
≥ 3914	15 to 17 Ohms

If value falls outside this range, most likely speaker has failed and needs to be replaced.



Troubleshooting Issues

If expected result is “Connection (0-10 Ohms)”, but actual result is otherwise:

- This condition indicates a “short” in the wiring.
  - Stop using wiring immediately.
- Replace the wiring with the short.

If expected result is “No Connection (very high Ohms)”, but actual result is otherwise :

- This condition indicates an “open” in the wiring.
- Check wiring for any nicks or cuts in cable shielding.
- Clean both ends of the connector with a brush / Q-Tip and either rubbing alcohol or WD-40. Try connection test again.
- Replace wiring if nicks or cuts are found or cleaning doesn’t help.

ALL NK Wiring and speakers are covered under a 2 year warranty.
Contact NK at techsupport@nkhome.com if wiring is failing within 2 years.

Proper Maintenance Moving Forward

- Harness Connectors needs to be regularly maintained and cleaned. Cleaning them with rubbing alcohol and/or WD-40 will help maintain and restore the connections. Nyogel is also highly recommended for preventing corrosion.
- This is especially needed with salt water programs.
- Audio System Maintenance Kit is recommended for all programs.
- Use care when mounting harnesses so that they are out of the way from rowers and not stressed. Rowers can bump or rub the harnesses and over time create nicks or cuts in the wiring. These nicks are then susceptible to failing on the water and can create dangerous situations.
- Check that connectors are fully plugged together. If a connector starts to pull away, this can allow water entry into the connection and speed up the corrosion process.