ORCA

MAN OVERBOARD ALARM

Data Cable Installation Guide for Overboard Recovery Communications Apparatus (ORCA®) Direction Finder

BriarTek
INCORPORATED

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1. Introduction

This document is provided as a guide when installing the ORCA® DF data cable (P/N: DFS-CKSER (Commercial). For cable runs greater than 25', additional cable (P/N: DF-CSERRSC) is required. The installation notes provided herein are intended to serve as a guide only. They do not serve as material required for the certification of technicians for the installation, repair or alteration of the ORCA® system.

2. Materials Supplied:

Line Item	Qty	Description
1	1	Color-coded serial cable (25')
2	1	D-sub male connector
3	1	D-sub female connector
4	1	D-sub hood assembly, non-waterproof
5	1	D-sub hood assembly, waterproof
6	1	Heat shrink, white, for labeling cable wires

3. Tools Required

a. D-sub crimper
b. cable cutter
c. wire stripper
d. screwdriver: flat head jeweler's size
e. heat gun

4. Terminate antenna end of cable

a. Slide D-sub waterproof hood assembly over end of cable. (See figure 1)

b. The waterproof hood assembly includes a strain relief cap, strain relief, adaptor and waterproof hood body with gasket.

c. Terminate this end of cable with D-SUB female connector.

  1. Remove 1" of the cable's jacket using cable stripper. Do not cut the cable shield. (See figure 2)

  2. Fan out the cable shield. Ensure braid is completely fanned out down to cable jacket. Peel back metal foil and separate the wires inside the cable.
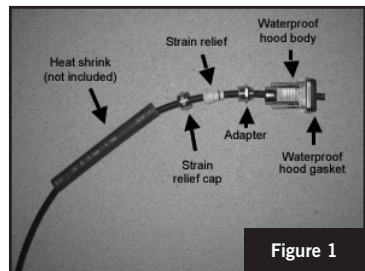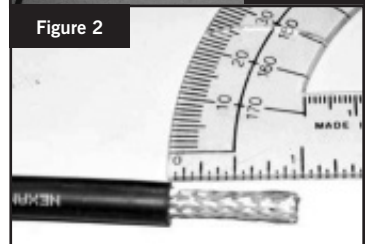

Figure 1

Figure 2

3. Using the supplied heat shrink labeling tube, write 1-9 and cut each number from the heat shrink. (See figure 3)
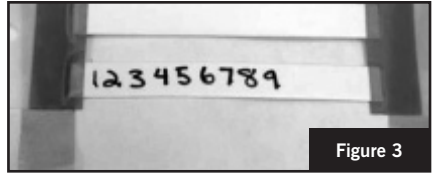

Figure 3

4. Install heat shrink labels over wires in accordance with Table 1. Use a heat gun to shrink the tubing.

Table 1		
Serial Cable Wire	**Heat Shrink Label**	**D-SUB Pin Hole**
Red with blue dots	1	1
Green with white dots	2	2
Orange with white dots	3	3
Blue with white dots	4	4
Grey with white dots	5	5
Blue with red dots	6	6
White with green dots	7	7
White with orange dots	8	8
White with blue dots	9	9
White with grey dots	not used	-
Brown with white dots	not used	-
White with brown dots	not used	-

5. Strip individual wires to expose 1/8" for all wires that are used in Table 1. The unused wire should be left as a spare. (See figure 4)
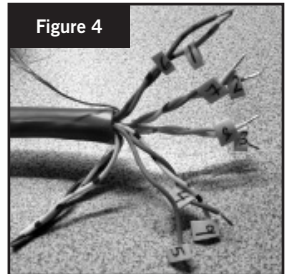

Figure 4

6. Crimp the D-SUB pins onto the wires.

7. Insert wires into D-SUB slots in accordance with Table 1.

8. Insert D-sub connector into the waterproof hood. (See figure 5) To ease assembly, be sure to unscrew the D-SUB waterproof hood adaptor to allow the shield to exit the bottom.

9. Lightly tape shield to outside of jacket (This tape will be removed later). Slide waterproof hood over taped shield so it is flush with the D-sub connector.
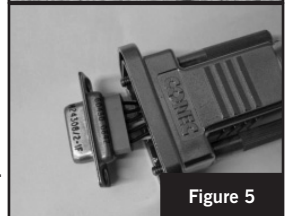

Figure 5

10. Place installation key between waterproof hood and D-sub connector and gently pry the hood while pushing the D-sub into the slot. (See figure 6, next page)

11. Place the assembly key between the opposite side of the waterproof hood and D-sub connector and gently pry the hood while pushing the D-sub connector into the slot. (See figure 7)

12. Remove assembly key and verify D-sub connector is inside both slots. (See figure 8)

13. Screw the waterproof hood adapter onto the hood.

14. Remove tape attaching shield to cable jacket.

15. Snip off excess shield flush with the bottom of the adapter. (See figure 9)

16. Slide the strain relief into the adapter. Ensure cable shield makes contact with the inside wall of the hood & adapter. (See figure 10)

17. Screw the strain relief cap to the waterproof hood. (See figure 11) Ensure strain relief is snug against the cable.

18. Install waterproof gasket on waterproof D-sub hoods. (See figure 12)

   i. If connecting to the DF100, use 8 mm (standard length) gasket
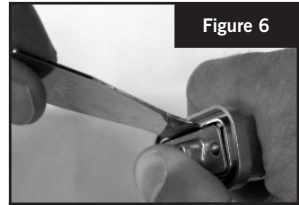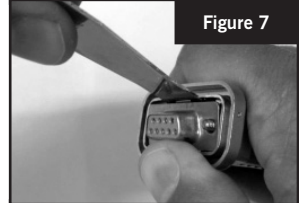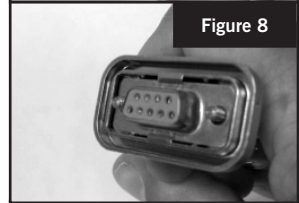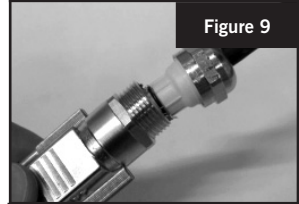
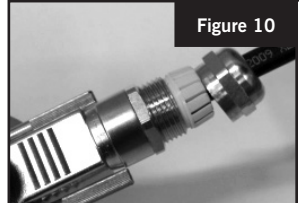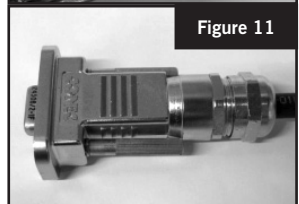 ii. If connecting to the DF101, use 10 mm (extended length) gasket
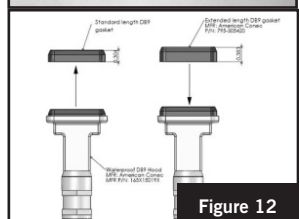
Figure 6

Figure 7

Figure 8

Figure 9

Figure 10

Figure 11

Figure 12

## 5. Terminate display end of cable

a. Parts: D-SUB backshell assembly (top), D-SUB Connector (bottom). (See figure 13)

b. Remove 1" of the cable's jacket using cable stripper. Do not cut the cable shield. (See figure 14)

c. Fan out the cable shield. Ensure braid is completely fanned out down to cable jacket. Peel back metal foil and separate the wires inside the cable.

d. Using the supplied heat shrink labeling tube, write 1-9 and cut each number from the heat shrink. (See figure 15)

e. Install heat shrink labels over wires in accordance with Table 1. Use a heat gun to shrink the tubing.

f. Strip individual wires to expose 1/8" for all wires that are used in Table 1. The unused wire should be left as a spare. (See figure 16)

g. Crimp the D-SUB pins (supplied) onto the wires. (See figure 17)

Figure 13

Strain relief

Grounding ring

Figure 14

Figure 15

Figure 16

Figure 17
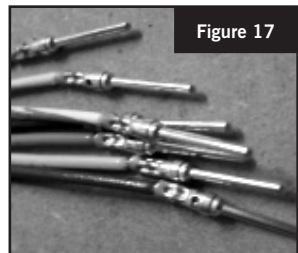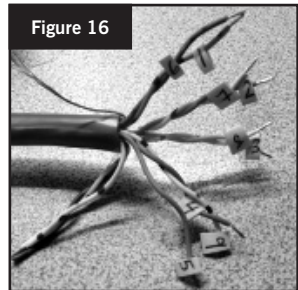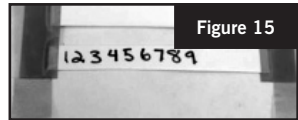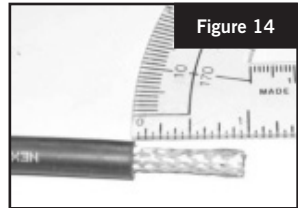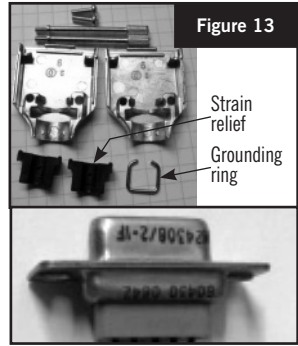
h. Insert wires into D-SUB slots in accordance with Table 1. Place the grounding ring on the cable just at the end of the jacket, fold the cable's shield over the grounding ring and strain relief, be sure that no shield will run past the end of the strain relief (note there are four set of strain relief to choose from; select the strain relief that is closest to the cable size). (See table 1 and figure 18)
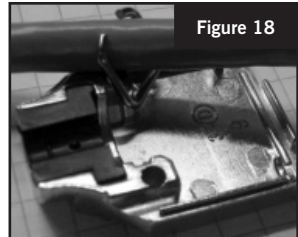

Figure 18

i. Attach D-SUB male connector and back shell. (See figure 19)

j. Test cable using a digital multimeter:

   i. **Continuity: Set multimeter to continuity mode. When a connection is made between probes, it will "ring out." Check that pins 1-9 and grounded backshell make contact from one connector to the other.**

   ii. **Check for short circuits: Ensure there are no shorts between any pins or between any pins and ground.**
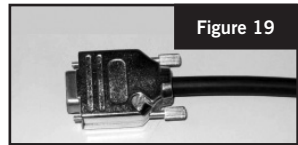

Figure 19

k. If test passes, connect D-SUB connectors to display and antenna.

l. Install DF antenna on foundation and secure with set screw(s).

m. Perform operational test of DF.

Specifications

- » Weight: 5.1 oz. (144.6 g)
- » Power: 100 mW
- » Tracking Range: 2 NM from small craft, 5 NM from ship, 20 NM or greater from aircraft
- » Alerting Range: 1 NM to receiver
- » Power Source: One (1) 9V alkaline battery
- » Battery Life: Three years (Armed mode); 24 hours continuous once activated (Transmit mode)
- » Activation: manual or saltwater
- » Current Draw: Armed 25 uA; Transmit 20mA
- » Modulation Frequency: 121.5 MHz FM/AM
- » External antenna with flexible strain relief
- » Meets IP68 watertight standard
- » Rated Depth: 300m salt water, equal to 439 psi (30.3 bar)
- » Operating Temperature -20º C (-4º F) to +55º C (131º F)
- » Storage Temperature -40º C (-40º F) to +60º C (140º F)

DIMENSIONS ARE IN INCHES
TOLERANCES: ± 0.005

Warranty

BriarTek provides a one-year warranty on all ORCA® man overboard alarm system effective
from the date of purchase.

If a component fails to function properly during its warranty period (one year), the manufacturer will proceed according to its warranty as follows:

» BriarTek Inc. guarantees each product it distributes to be free from defective materials and workmanship and agrees to remedy any such defect, or to furnish a new or equal part in exchange (at BriarTek's discretion) for a period of one year from the date the component is purchased.

» For an exchange of the product, carefully pack the equipment and return to BriarTek Inc. at the following address:

BriarTek Inc.
112 E. Del Ray Ave
Suite A
Alexandria, VA 22301

This warranty is void if:
» any component has been subject to misuse or improper installation by a non-BriarTek employee, or has been repaired or altered by a non-BriarTek employee.
» any component fails to function properly after being put into service due to something other than defective materials or workmanship, i.e. excessive temperature, humidity, or shock while component is in storage.

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