

LOWRANCE

SIMRAD

# Outboard and DrivePilot Installation Guide

ENGLISH

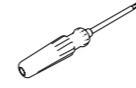
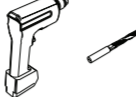





## Technical specifications

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NAC-1	
Operating temperature	-25 °C to +55 °C (13 °F to 131 °F)
Protection	Splashproof, IPx5
Weight	0.6 kg (1.3 lbs)
Power supply/Load	9-16 V DC/140 mA + drive unit load
Performance	Drive: 8 A cont., 16 A for 1 s
Pump-1	
Operating temperature	-15 °C to +75 °C (5 °F to 167 °F)
Protection	Splashproof, IPx5
Weight	2.2 kg (4.9 lbs)
Hydraulic thread size	1/4 NPT
Load	5 A at 8 bar (116 psi), 7 A at 24 bar (350 psi)
Performance	0.8 l/min at 24 bar (350 psi)
Point-1AP	
Operating temperature	-25 °C to +60 °C (13 °F to 140 °F)
Protection	Watertight, IPx7
Weight	0.14 kg (0.31 lbs)
Power supply/Load	9-16 V DC/<100 mA @ 12 V DC
Performance	Heading: +/- 3°, Horiz. accuracy: 3 m (9.8 ft)
Compass safe distance	1 m (3.3 ft)
Auto/Stby Button	
Operating temperature	-25 °C to +55 °C (13 °F to 131 °F)
Protection	Splashproof, IPx5
Weight	0.04 kg (0.09 lbs) (including cable)
Precision-9	
Operating temperature	-25 to + 65 °C (-13 to + 149 °F)
Protection	IPx7
Weight	165 g (5.8 oz) + 130 g (4.6 oz) (Bracket)
Power supply/Load	8-16 V/1.4 W
Accuracy	± 2 degrees after calibration
Compass safe distance	0.5 m (1.7 ft)

## PLANNING: Tools needed

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-  Screwdriver
-  Drill
-  Wrench
-  Cup or can
-  Tape
-  Tools to connect power cables to the battery
-  Gloves (disposable type)

### Check the contents

- NAC-1 Autopilot computer
- Point-1AP or Precision-9 Compass
- Auto/Stby Button
- NMEA 2000 Network kit
- Pump-1
- Pump fitting kit

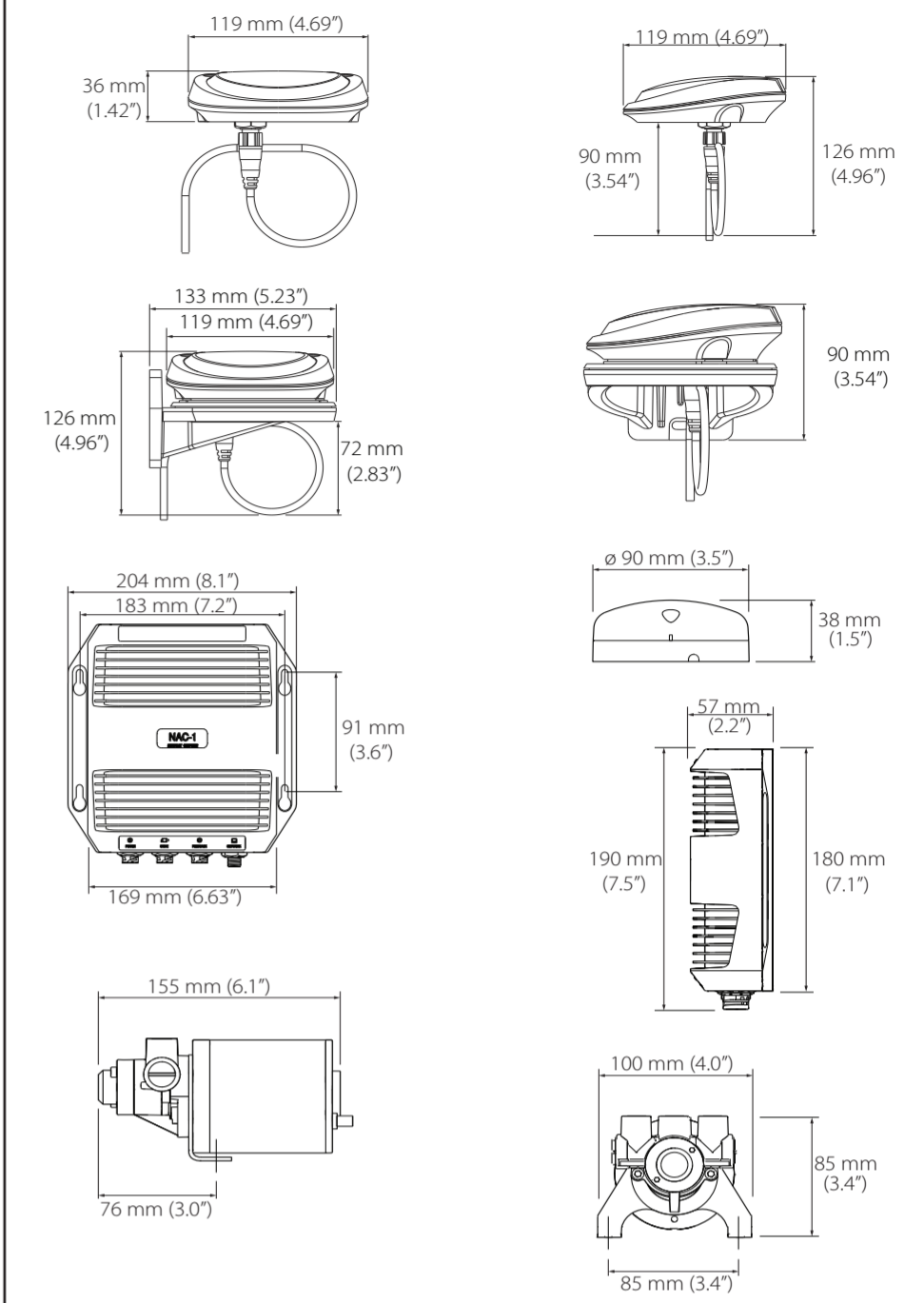
### PLANNING: Cable lengths

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 Refer to "WIRING: Wiring diagram" (point 9) to find the various cable lengths.

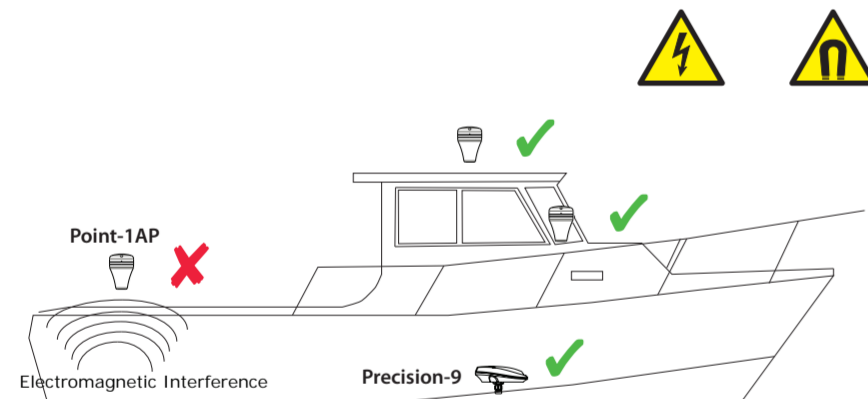
## PLANNING: Dimensions

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## PLANNING: Point-1AP and Precision-9 Compass, Mounting location

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### Point-1AP and Precision-9

The compasses contain a magnetic heading sensor and should not be mounted close to any potential magnetic source, and as close to the vessel's centre of roll and pitch as possible. Refer to technical specifications.

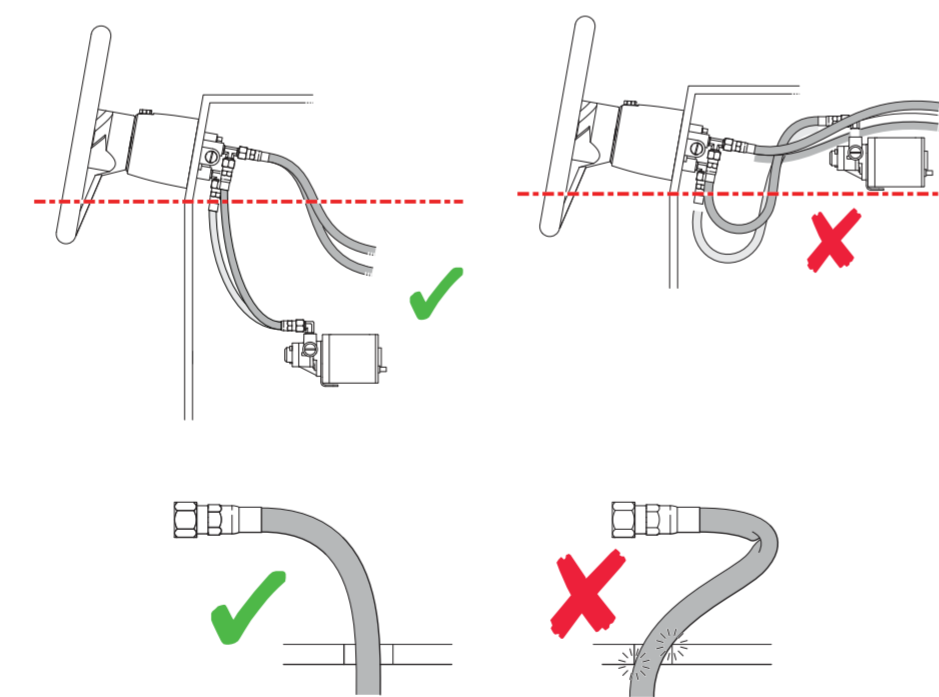
Potential sources for magnetic/electromagnetic interference include:

- Electrical Motors/Magnets/Moving Metal items
- Outboard Engines
- High current electrical sources such as main power cables, batteries, distribution panels etc.

The Point-1AP compass also comes with a GPS antenna and should be mounted as far as possible away from disturbing magnetic/electromagnetic interferences.

## PLANNING: Pump-1, Mounting location

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### Compatibility information

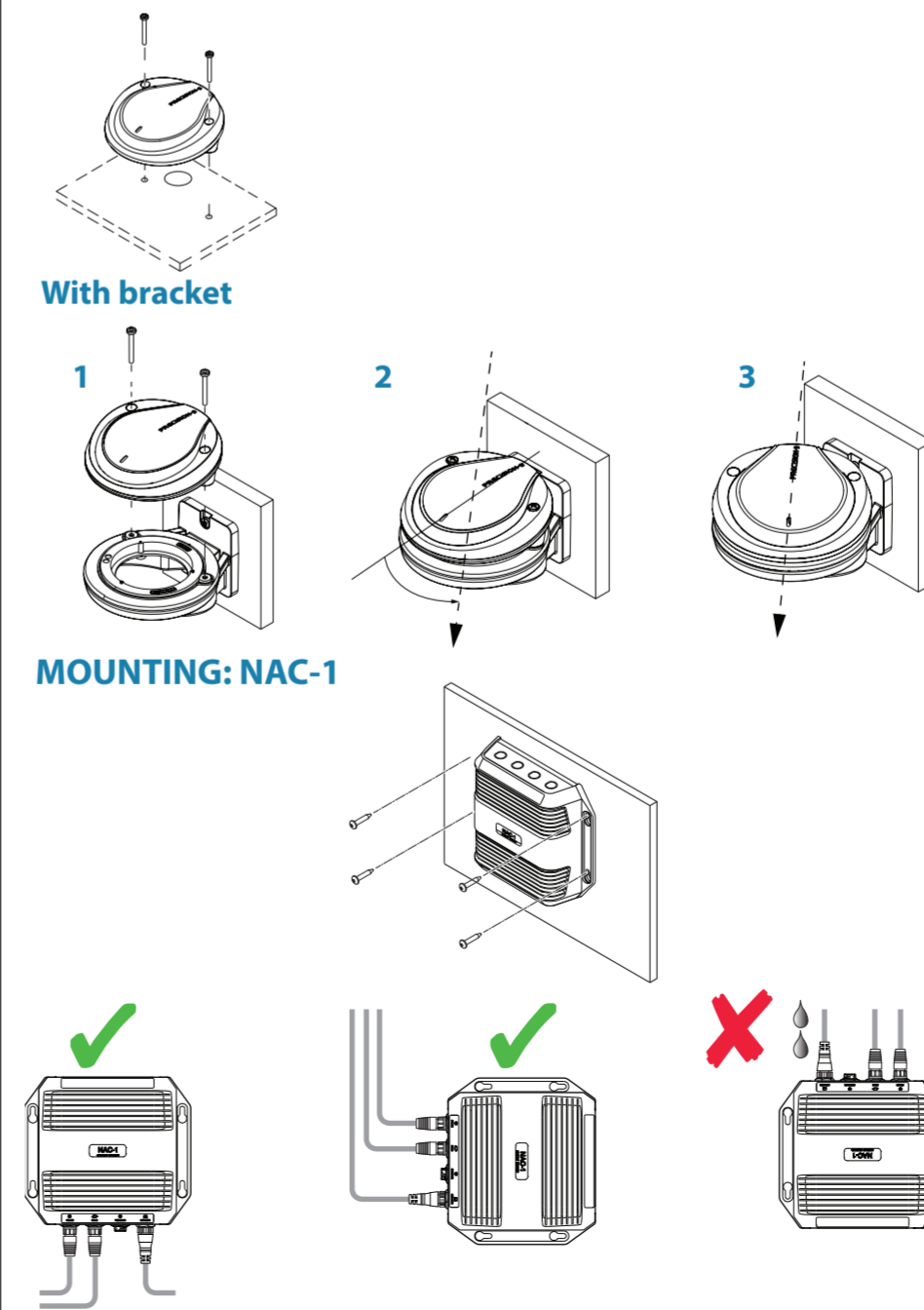
The hydraulic kit comes with both 1/4 NPT 9/16 UNF fittings and ORB fittings which make them ideally suited for the following steering systems:

- Teleflex SeaStar HC5345, HC5347, HC5348, HC5358.
- Teleflex BayStar HC4600, HC4645, HC4647, HC4648, HC4658.
- Hynautic K6 Steering Rams
- Steering rams from Vetus, Uflex, and Lecomble & Schmitt can also be used.

→ **Note:** Newer SeaStar/BayStar helm pumps require the use of ORB fittings (supplied in the kit).

## MOUNTING: Precision-9 Without bracket

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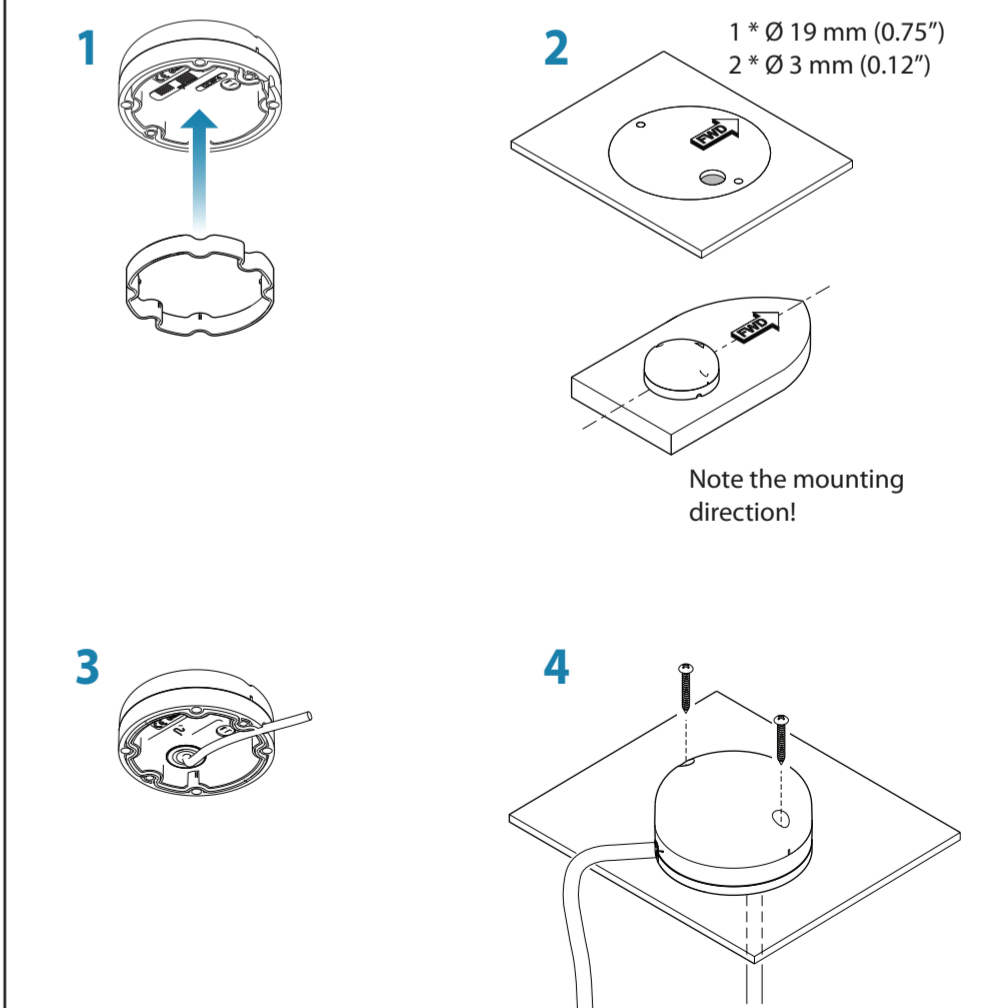


### With bracket

### MOUNTING: NAC-1

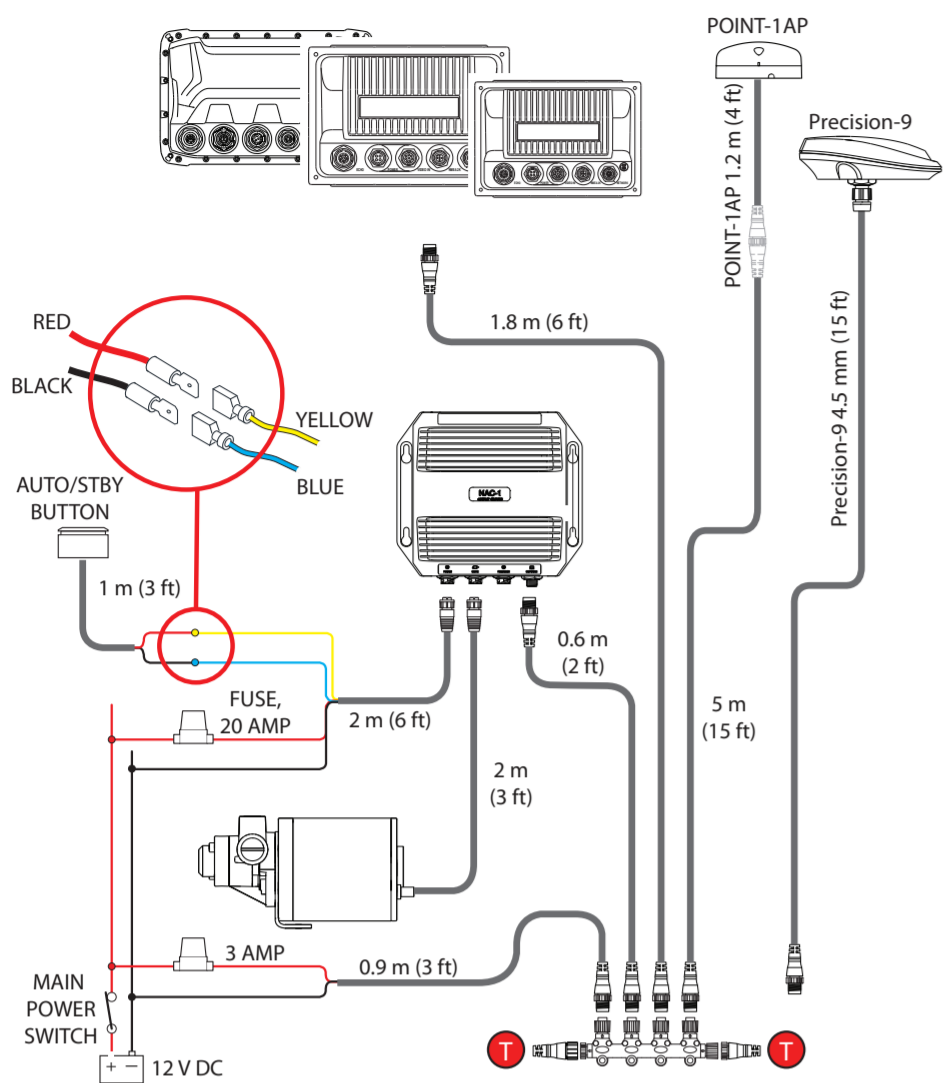
## MOUNTING: Point-1AP

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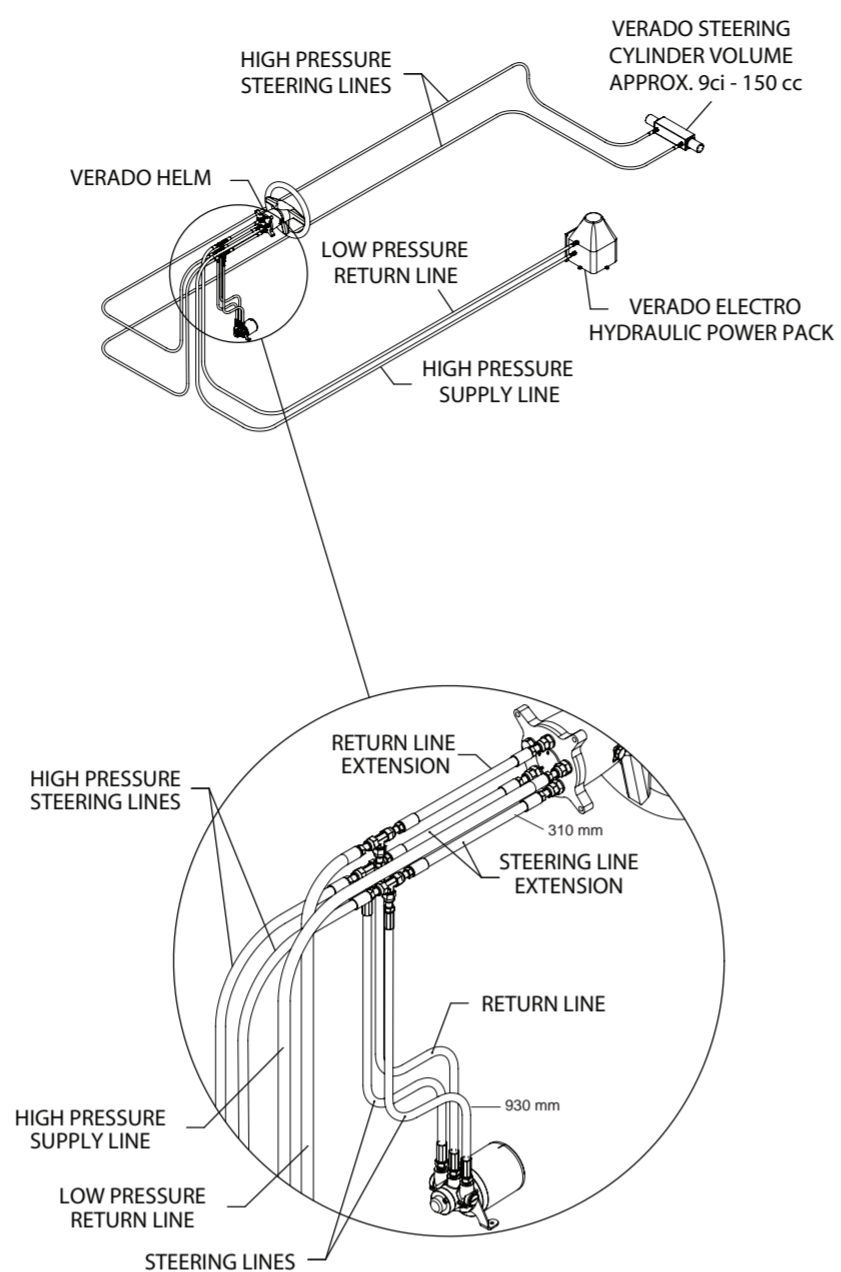
### WIRING: Wiring diagram

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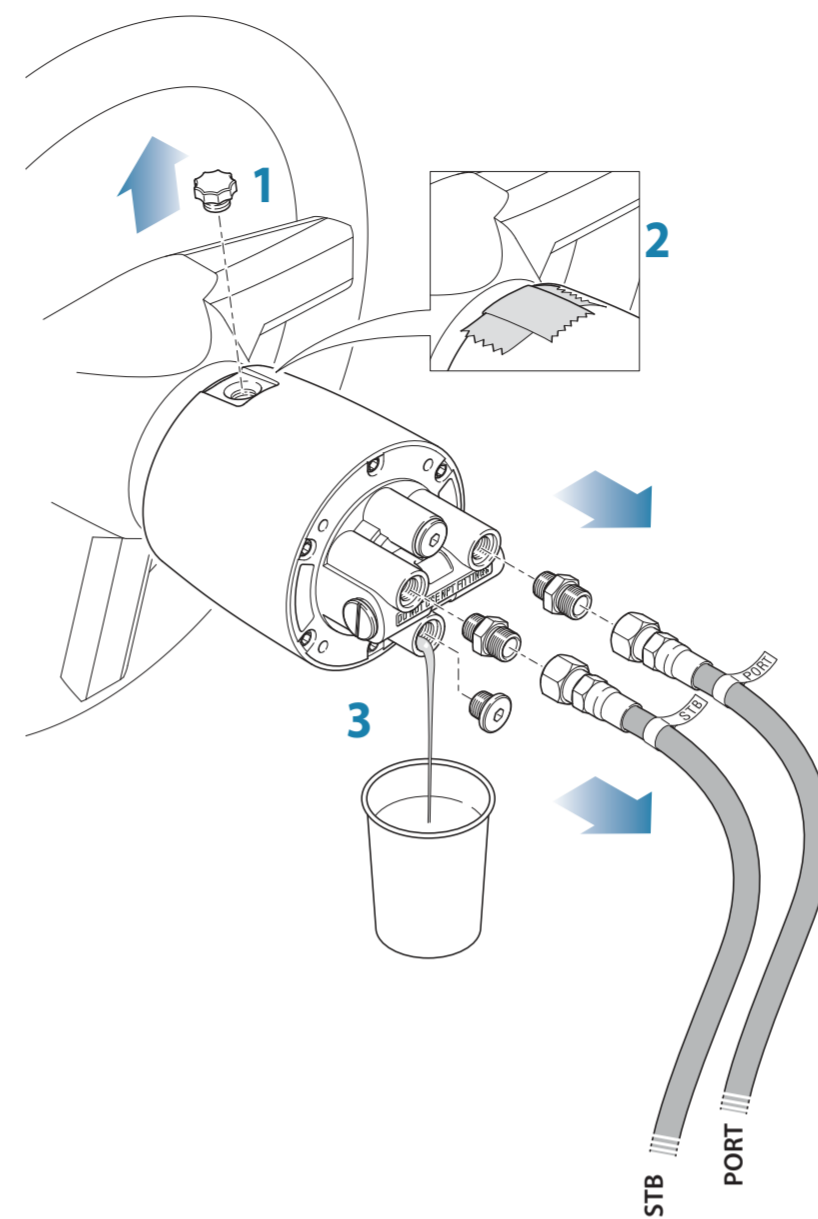
### Installing with optional Verado fitting kit for Pump-1

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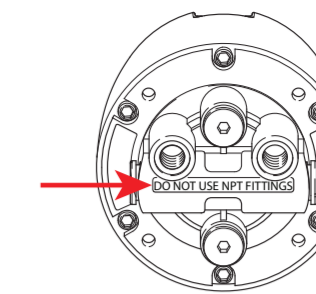
### MOUNTING: Disconnecting the hoses from helm pump

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### MOUNTING: Identify Type of Fitting Required

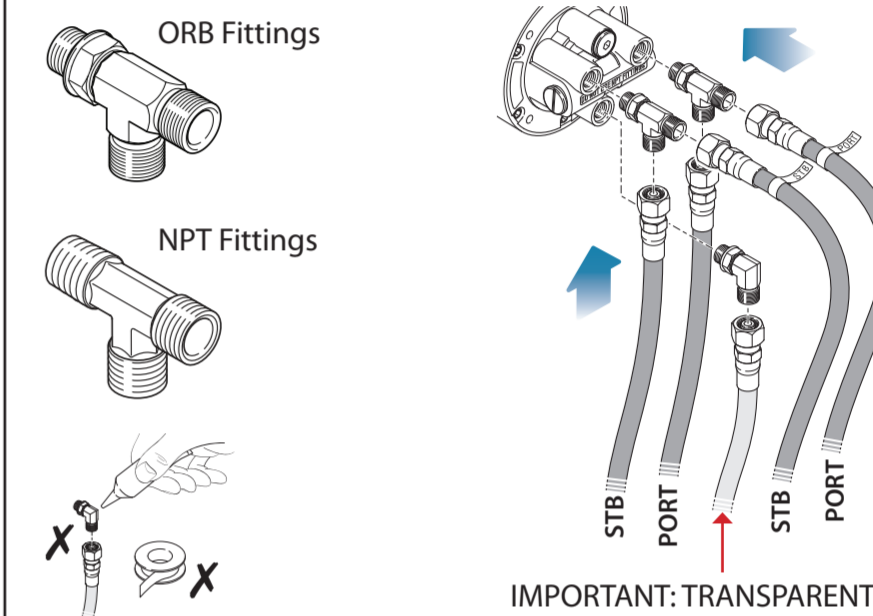
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The drawing shows a SeaStar helm pump which identifies fittings using text engraved on the back.

- **Note:** Helm and fittings required may vary by manufacturer.
- **Note:** ORB and NPT fitting kits are supplied in separate bags. Discard the fittings not used.
- **Note:** Pay attention to the ports on the helm pump to ensure you are using the correct fittings.

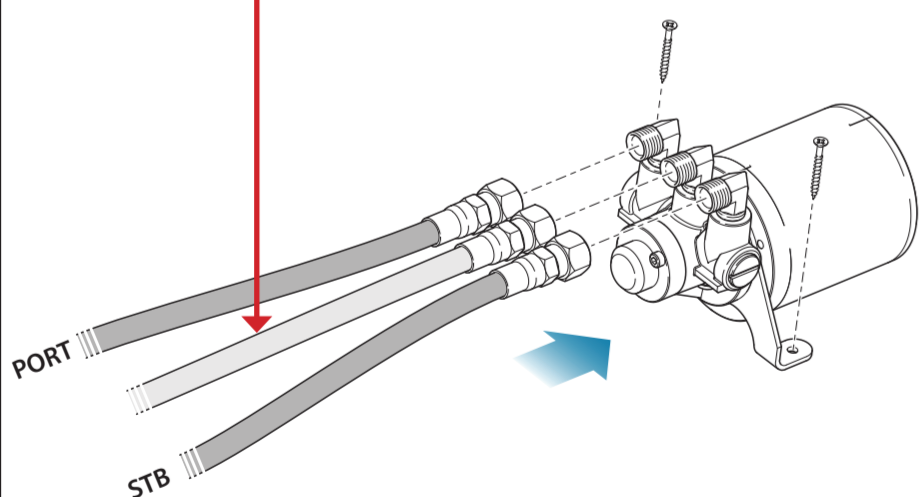
### MOUNTING: Connect hoses to helm pump



### MOUNTING: Pump-1, Connect hoses

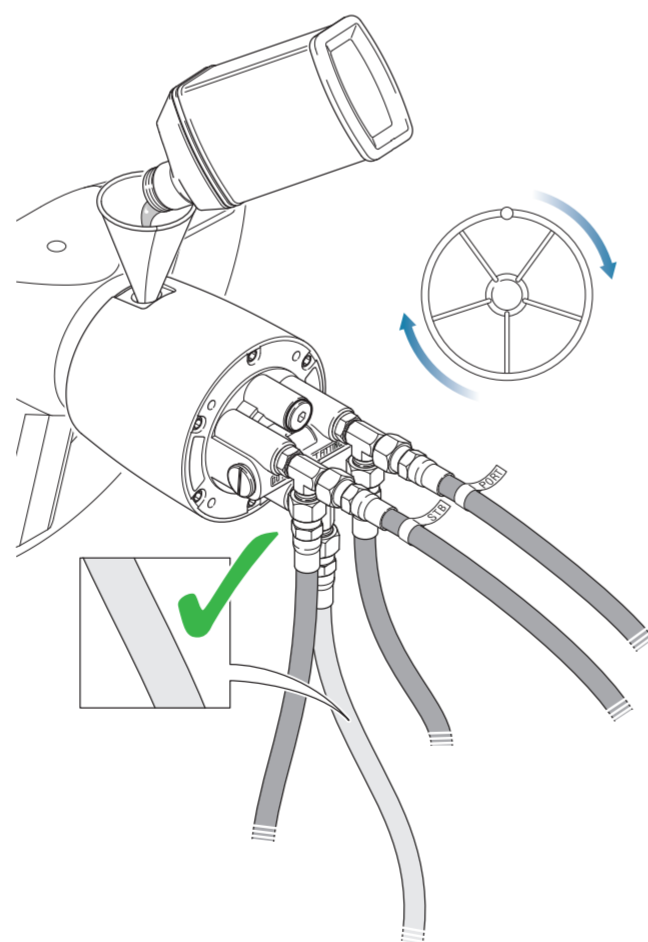
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IMPORTANT: TRANSPARENT HOSE



### MOUNTING: Bleeding the hand steering

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Turn the wheel until the cylinder reaches max travel in both directions, and refill oil.

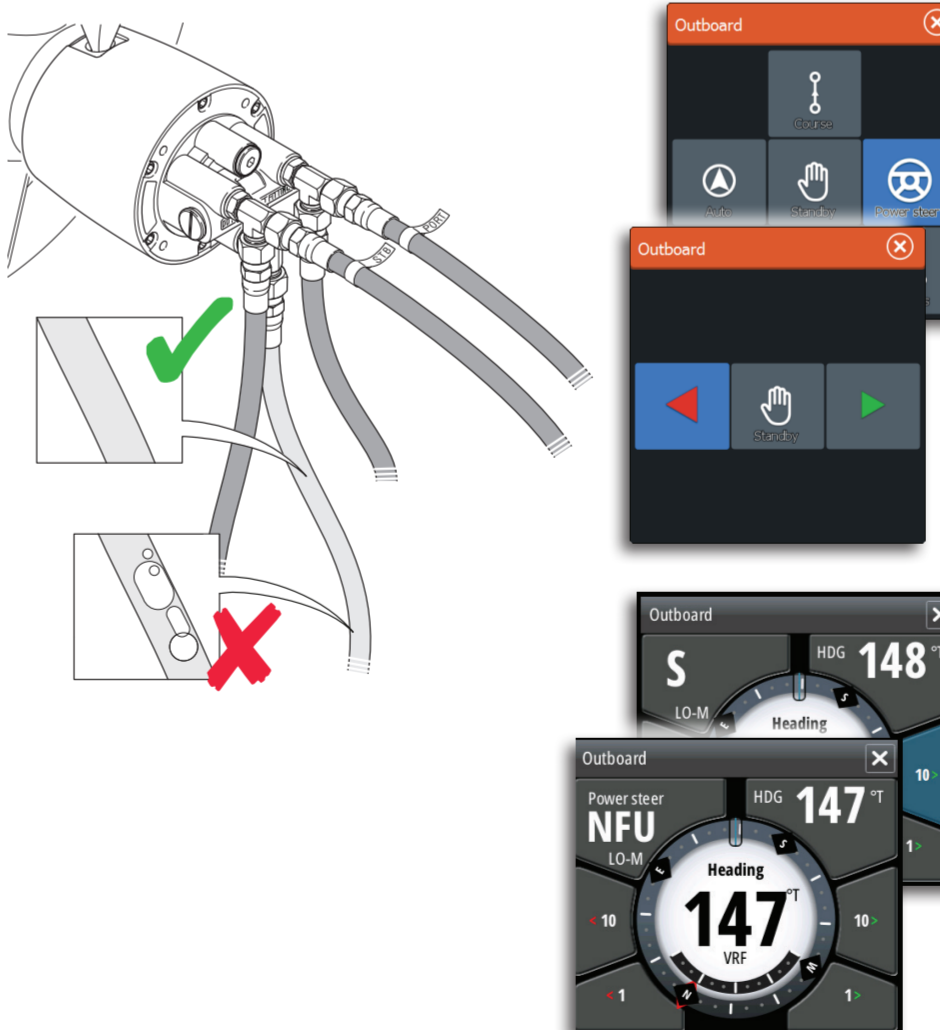
Keep turning and refilling oil until the oil level is stable and the outboard engine responds firmly.

If air bubbles still remain in the system, follow the bleeding procedure described for the outboard cylinder.

→ **Note:** It is recommended to use a threaded filler tube if available.

### MOUNTING: Bleeding Pump-1

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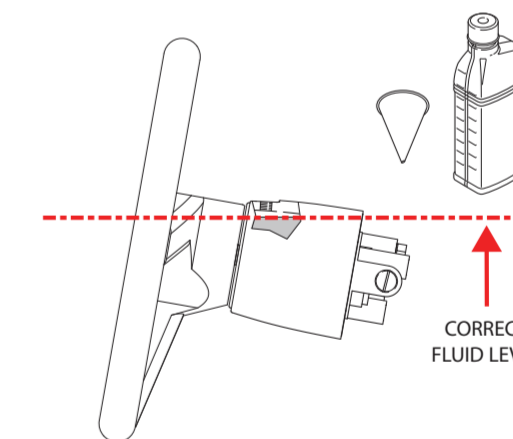
Switch the autopilot to Power Steer mode.

Press and hold the arrow keys on the Autopilot controller in steps less than 3 seconds at a time, until the cylinder reaches max travel in both directions. The screenshots above are examples from HDS and NSS evo2.

Continue to run the pump in both directions until no air bubbles are left in the transparent tube.

### IMPORTANT: Check fluid level

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Check all fittings for leaks.

### Configuration

Refer to your Autopilot controller's documentation for setup instructions.

### Compliance Statements

The Outboard and the DrivePilot:

- Comply with CE under EMC directive 2004/108/EC
- Comply with the requirements of level 2 devices of the Radiocommunications (Electromagnetic Compatibility) standard

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