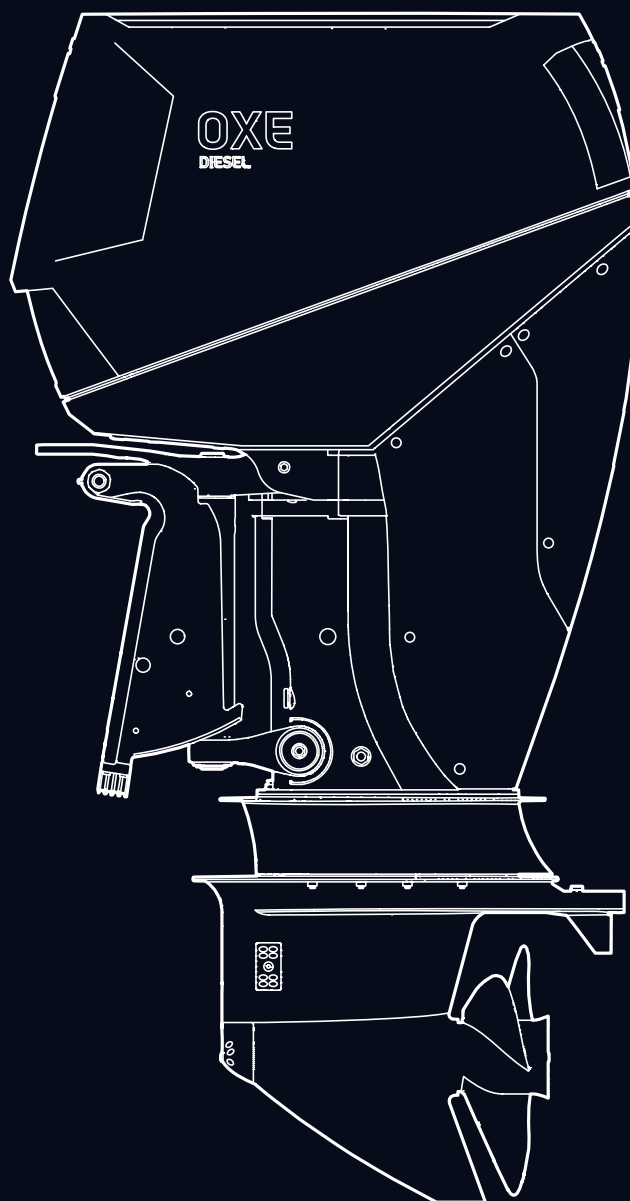


DIESEL ENGINE

INSTALLATION MANUAL 1.0



Publication No: ODM1003

PREFACE

ABOUT THIS MANUAL

This manual provides you with the information you need to install your OXE 150/200 HP outboard.

Specifications and descriptions are subject to change without notice

Cimco Marine AB
Metallgatan 19a
SE-262 72 Engelholm, Sweden
+46 (0)431-371130
info@oxe-diesel.com

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WARNING SIGNS AND REGULATIONS

LEVELS OF WARNINGS

Important instructions which concern technical safety and protection of persons are emphasised as shown below.



WARNING

A warning indicates a hazardous situation which, if ignored, could result in death or serious injury.



DANGER

This refers to working and operating procedures which must be complied with in order to prevent damage to or destruction of material.



CAUTION

A caution indicates special precautions that must be taken to avoid damage to the products or other property.

NOTE! Explanatory descriptions which help in understanding the relevant work or operating procedure to be carried out.

REGULATIONS DESIGNED TO PREVENT ACCIDENTS WITH PERSONAL INJURY AND DAMAGE TO ENGINE

Installation work may only be performed by authorised and skilled personnel.

- Keep area surrounding engine, ladders and stairways free of oil and grease. Accidents caused by slipping can have serious consequences.
- Persons must not stand under an engine suspended on a crane hook. Keep lifting gear in order.
- Wear close-fitting working clothes.
- During installation work, switch off the battery master switch.
- The engine may only be started and operated by authorised personnel.
- Always use genuine OXE Diesel parts only. Installation of "equally" good parts from other suppliers may cause severe damage for which the workshop carrying out the work is responsible.
- Use only OXE Diesel-approved service products (fuel, engine oil, anti-freeze and anti-corrosion agent).
Pay attention to cleanliness. Diesel fuel must be free of water.

IMPORTANT INFORMATION

RECOMMENDED FLUIDS AND GREASE

Fluid	Quality	Quantity	
		Metric	English
Fuel	EN 590 (with national environmental and cold weather standards) ASTM D 975 No. 1 and No. 2 JIS KK 2204	-	-
Engine oil change incl. filter	5w-30 dexos2 API SM/CF GM-LL-A025 / B025 ACEA A3/B4	5.5 liters	5.8 quarts
Gear oil	Fully Synthetic Dual Clutch Transmission Fluid - DCT	2.0 liters	2.1 quarts
Cooling system, coolant mixture	GM Long-Life Coolant - Specification B040 1065/ Distilled water (30/70)	7.5 liters	7.9 quarts
Grease	DIN 51502:KP2.5K-20 ISO 6743: ISO-L-XBCEB2.5	-	-
Power trim and tilt unit	ATF Dexron II	0.5-0.7 liters	0.52-0.73 quarts
Upper belt oil	Fully Synthetic Transmission Fluid - ATF / Dexron HP	0.33 liters	0.34 quarts
Lower belt oil	Fully Synthetic Transmission Fluid - ATF / Dexron HP	2 liters	2.1 quarts

NOTE! Only use fuels, lubricants etc. in accordance with Cimco Marine AB regulations. Otherwise the manufacturer's liability for defects will not apply!

Also refer to User's manual and Service manual.

DIESEL FUELS

The composition of the fuels is vital for operation of the OXE outboard, its service life, and emissions. To meet the performance specified and to run the boat cleanly and quietly, it is important that fuel as recommended in table **Recommended fluids and grease** is used.

NOTE! The fuel must meet national and international standards.

OXE-diesel engines can be operated on local diesel fuel, not exceeding 350 ppm sulphur. Using such fuel will increase the outboard's emission levels and cause excessive wear and shorter lifetime.

NOTE! Large differences in composition occur in local fuel specifications. This can result in higher fuel consumption, higher emissions and less power output.

AVOIDING FUEL FLOW RESTRICTIONS



WARNING

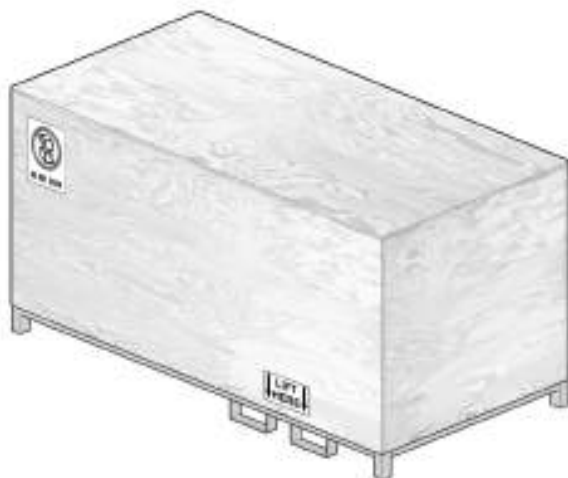
Adding components to the fuel supply system as in filters, valves, fittings, etc. may restrict the fuel flow and could cause engine stalling at low speed, and/ or a lean fuel condition at high RPM, that could cause engine damage.

SELECTING ACESSORIES FOR THE OUTBOARD

Genuine Cimco Marine Parts and Accessories have been specifically designed and tested for this outboard.

Some accessories not manufactured or sold by Cimco Marine are not designed to be safely used with this outboard or outboard operating system. Acquire and read the Installation, Operation, Maintenance and Accessories manuals for all selected accessories.

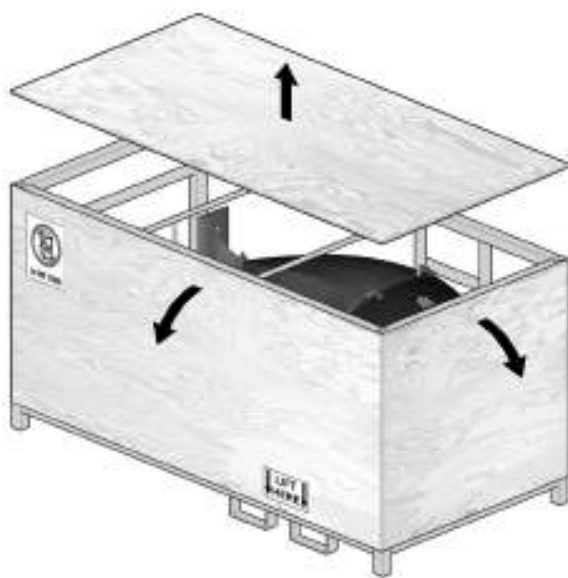
UNPACKING INSTRUCTIONS



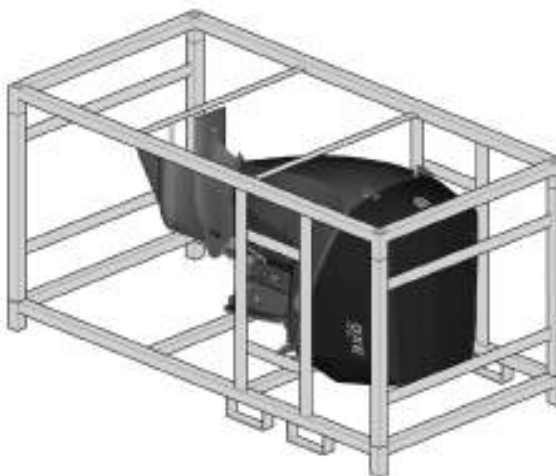
1. Move the outboard box by means of a pallet truck.

 **CAUTION**

Follow instructions on the outboard box.



2. Remove the shell from the frame.



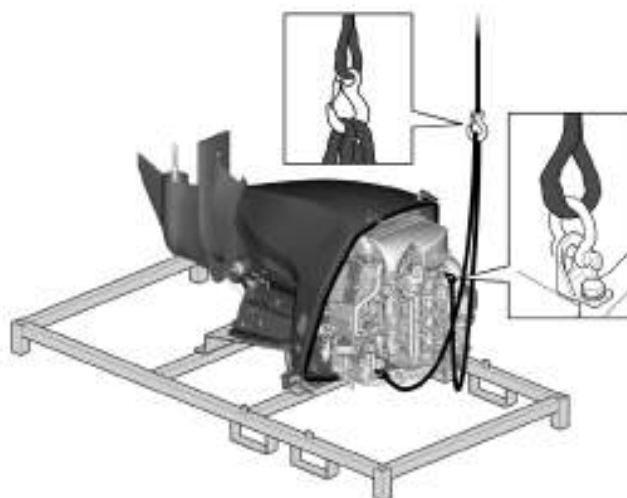
3. Remove the upper and side parts of the frame.

**CAUTION**

Do not damage the outboard surface.

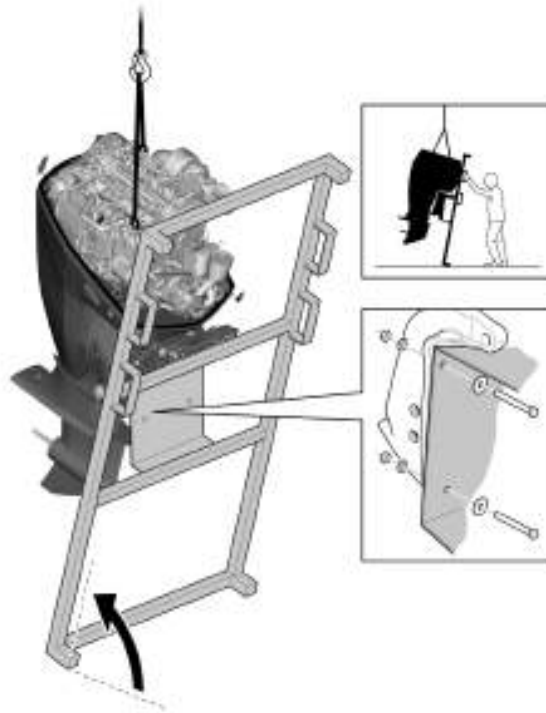
4. Remove the top cowling.
5. Remove and take care of the document folder placed nearby the ECU.

NOTE! These documents shall always follow the outboard!

**DANGER**

Do not remove the engine from the frame.

6. Mount shackles and lifting straps to the lifting eyes.



! DANGER

Do not remove the engine from the frame before lifting operation.

! CAUTION

This is a two men operation.

7. Slowly lift the outboard and frame into upright position.

! CAUTION

Do not damage the paint coat of the transom unit.

8. Remove screws, spacers and nuts carefully.

! CAUTION

This is a two men operation.

9. Carefully remove the frame from engine. Hold the engine in order to keep it from swinging.

Lista över medskickade saker som kan bockas av?

INSTALLATION SPECIFICATIONS

When mounting the outboard, ensure there will be clearance for engine movements from port to starboard as well as during trim and tilt operations.

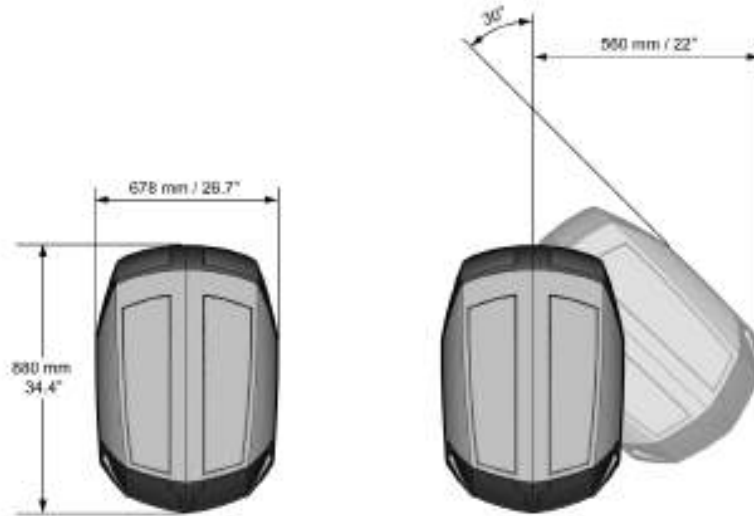


Fig. 1 Clearance needed for outboard moving from port to starboard

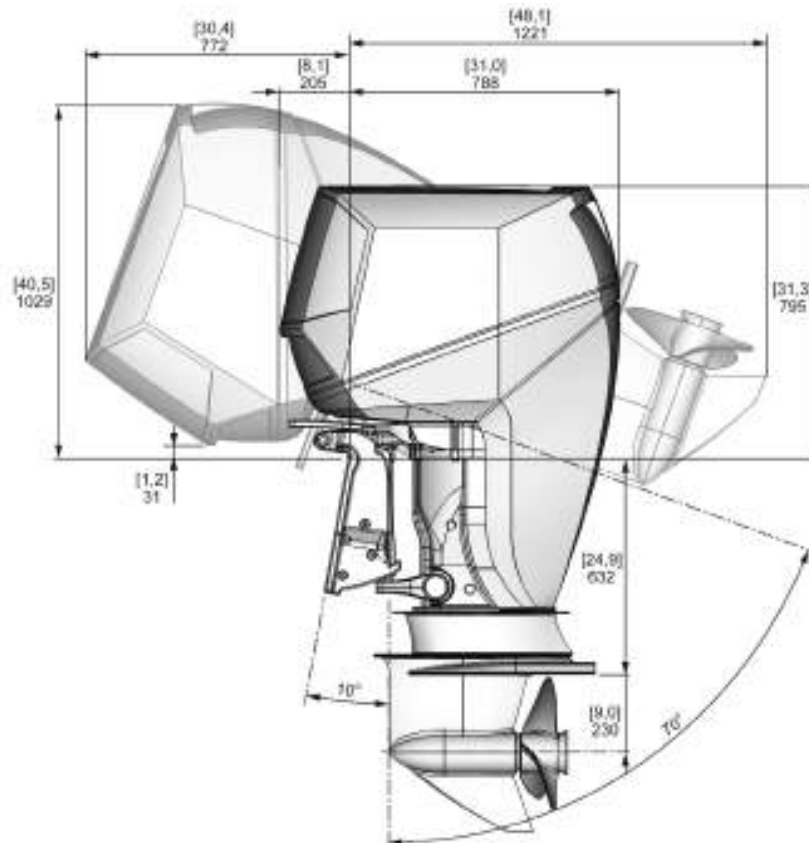
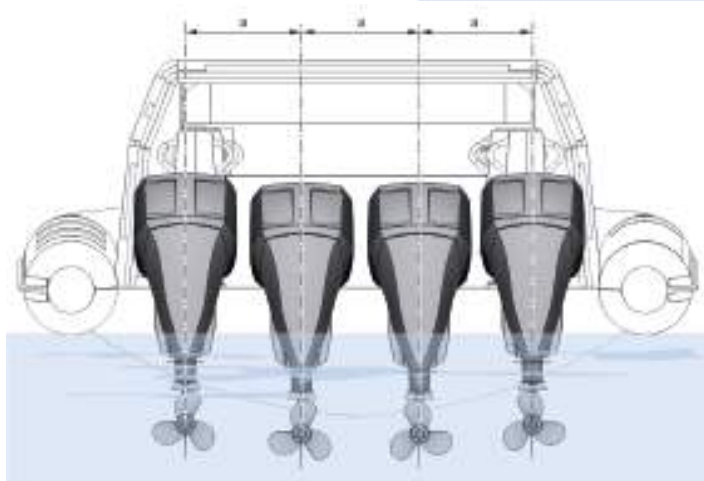
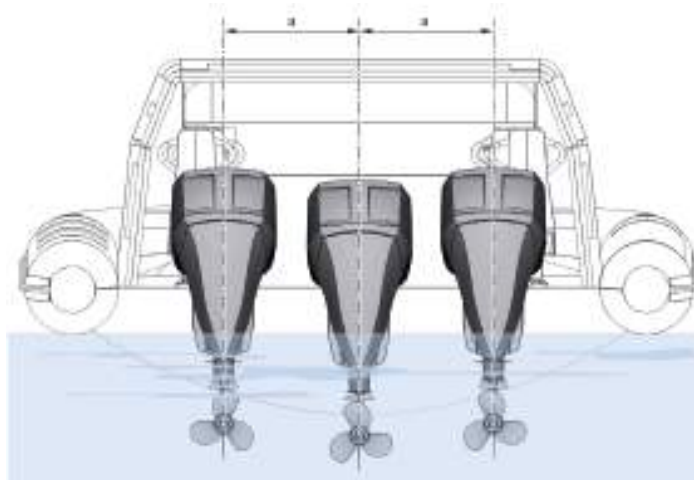
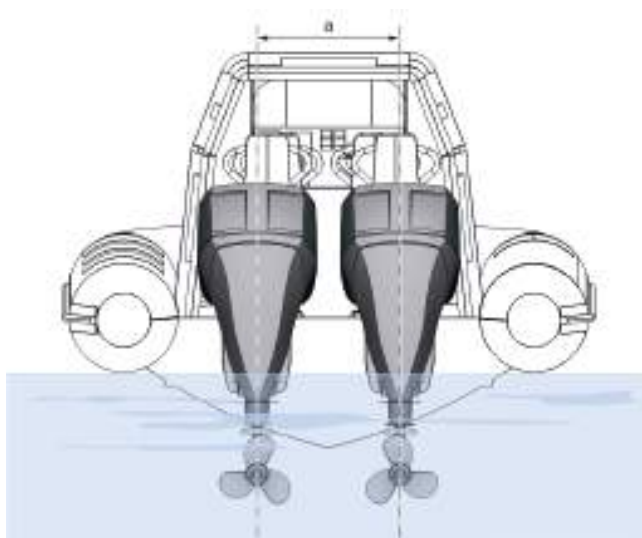


Fig. 2 Clearance needed for outboard trim and tilt operation



a	Transom opening - minimum	cm	inch
	Twin/Triple/Quad	81,3	32

MOUNTING THE OUTBOARD



WARNING

Overpowering a boat may cause severe instability. Never install an outboard that exceeds the maximum boat horsepower rating capacity. Always check with your dealer!

Improper mounting of the outboard could result in hazardous conditions, such as poor handling, loss of control or fire hazards. Only authorised personnel should mount the OXE Outboard.

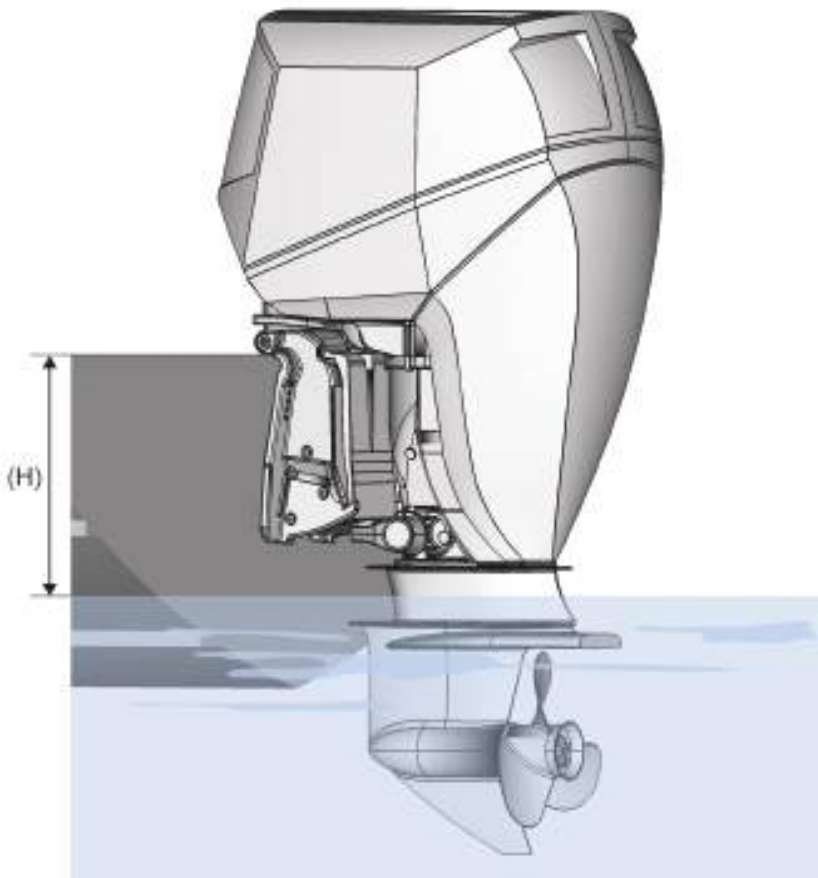


Fig. 3 Outboard mounting height (H)

Minimum height between water surface and bracket seating point		
Model	Min. height (H)	
OXE Diesel P2 - 200	150 mm	5.9 in

Under mooring of boat with a maximum boat load, maintain the minimum allowable height (H) shown in the illustration between the water surface and the clamp bracket seating point. Remember to check and adjust the height if you change CG or increase maximum boat load.

INSTALLING TRANSOM MOUNT

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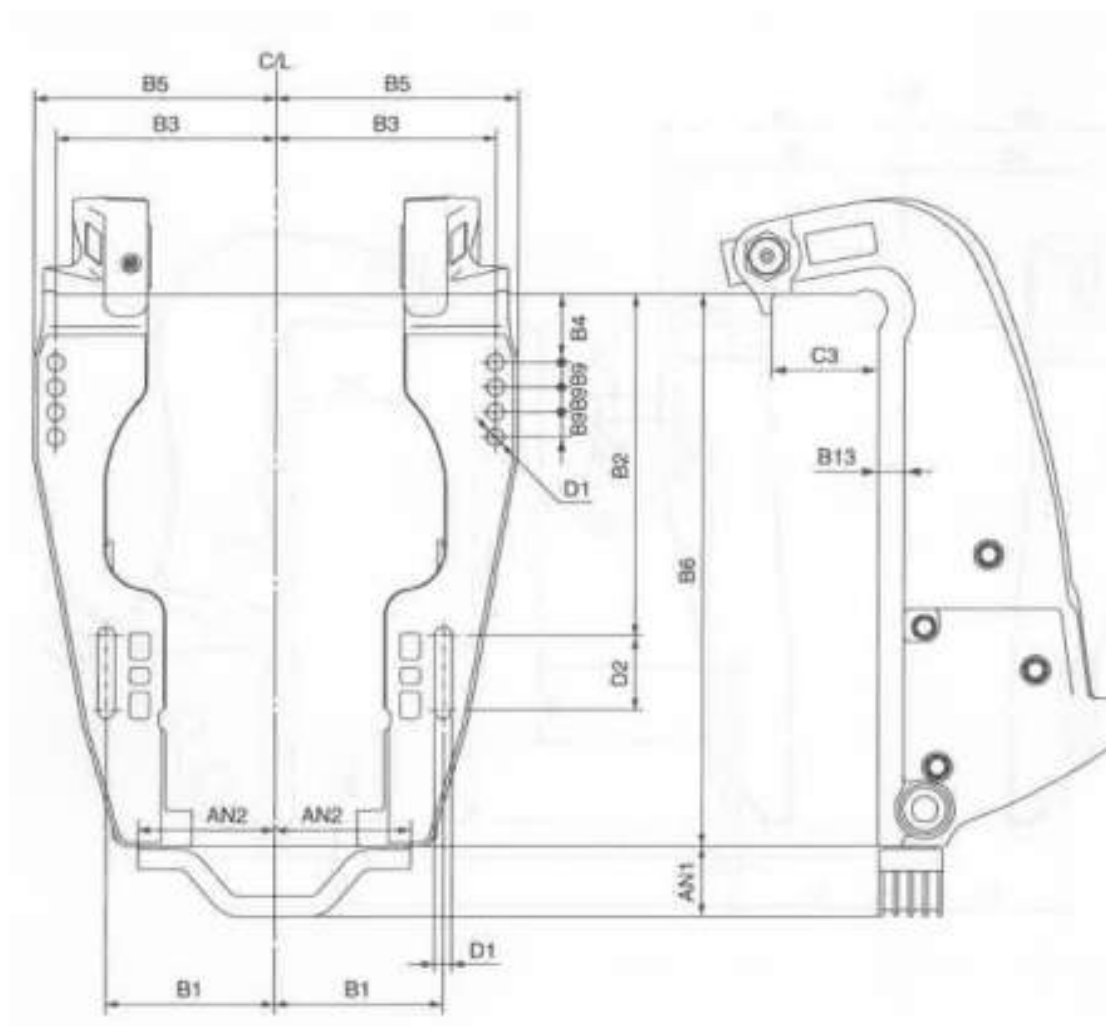


Fig. 4 Transom mount, measurements and bolt pattern

Symbol	mm (in.)	Symbol	mm (in.)	Symbol	mm (in.)	Symbol	mm (in.)
B1	125.4 (4.9)	B8	—	C1	—	AN1	52 (2.0)
B2	254 (10.0)	B9	18.5 (0.7)	C2	—	AN2	102 (4.0)
B3	163.5 (6.4)	B10	—	C3	79 (3.1)		
B4	50.8 (2.0)	B11	—	D1	13 (0.5)		
B5	180 (7.1)	B12	—	D2	55.5 (2.2)		
B6	411 (16.2)	B13	20 (0.79)	D3	—		
B7	—			D4	—		

1. Determine boat transom center line
Take the measurements a, b, c and d. Measurements a and b should be similar and so should measurements c and d be.
Note! Recheck the measurements and verify that the transom centerline position is straight!

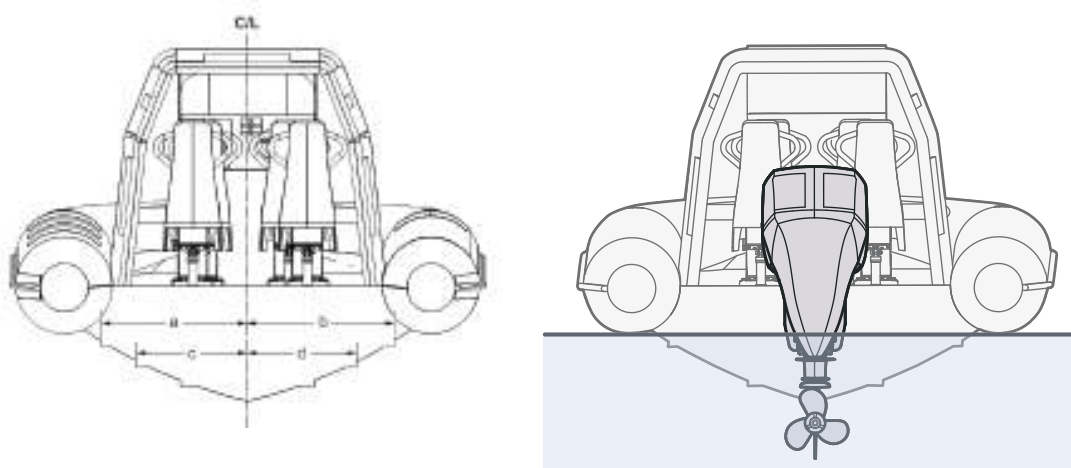


Fig. 5 Centerline measurements

Dual outboard installation

Mount both outboards so that the distance of each outboard centerline to the transom centerline is the same on both sides, i.e. measurements (e) and (f) should be the same. Ensure to maintain a minimum distance (a) between both vertical centerlines of the outboards.



CAUTION

- Ensure that distance e and f are similar
- T1 must be the same as e plus f and no less than the minimum distance a. Check dimensions.

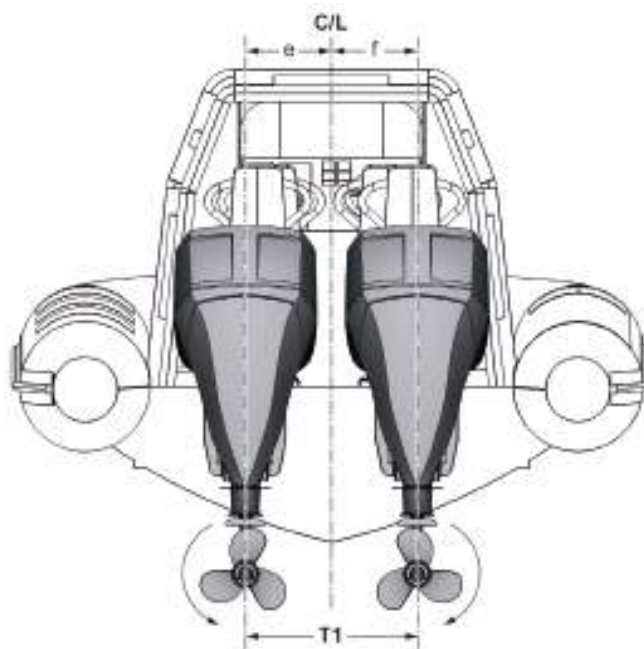


Fig. 6 Transom centerline - dual installation

Triple outboard installation

Set outboards as shown in figure below. The center outboard should be equipped with a longer rig than the left and right outboard..

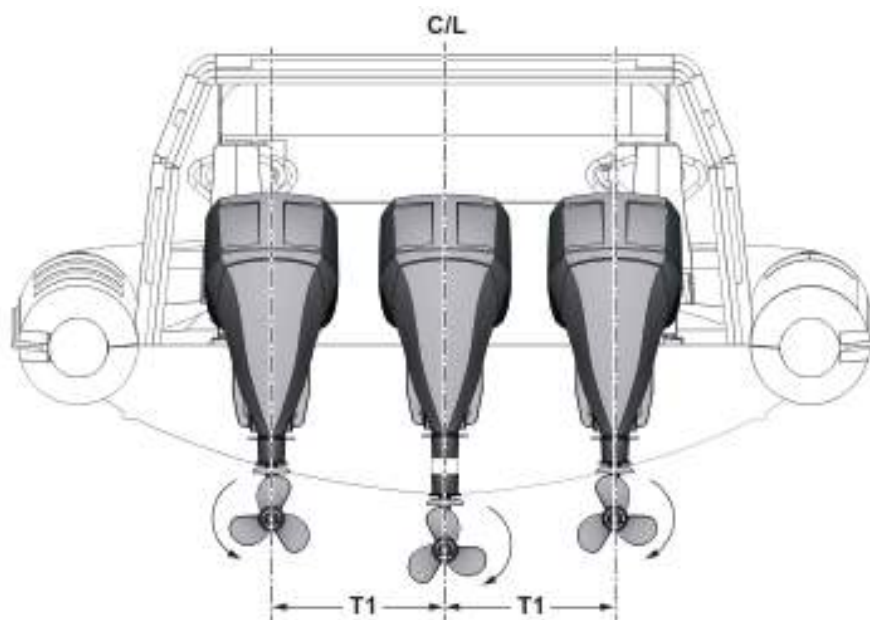


Fig. 7 Triple outboard installation

Quad outboard installation

Set the outboards as shown in figure below. The inner outboards should be equipped with a longer rig than the outer outboards.

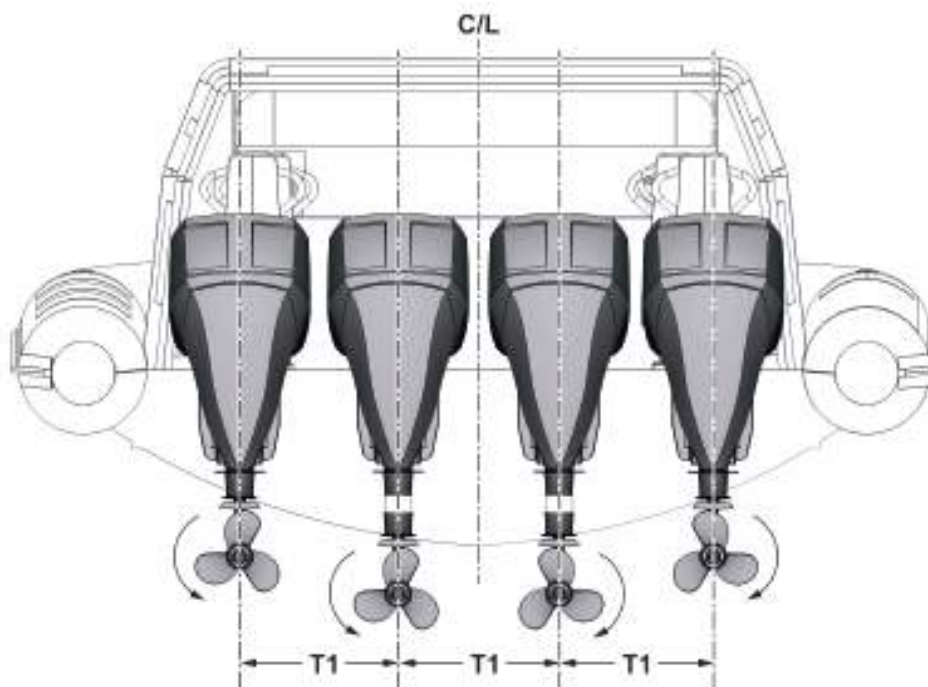


Fig. 8 Quad outboard installation

OUTBOARD MOUNTING



1. Anti-cavitation plate

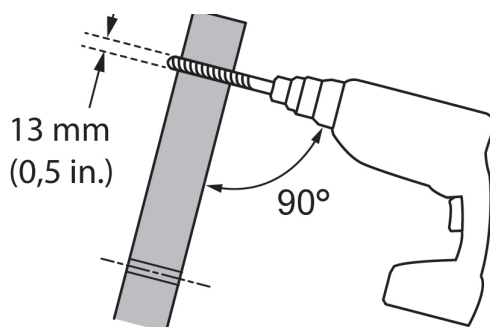
Fig. 9 Outboard mounting height

2. Adjust the outboard height so that the anti-cavitation plate **(1)** is aligned with, or lowered, within **25 mm (1 in.)**, the boat transom bottom.

High speed application



For high speed applications a higher mounting position, approx 25 mm (1 in.) above the boat transom bottom, might provide better performance.

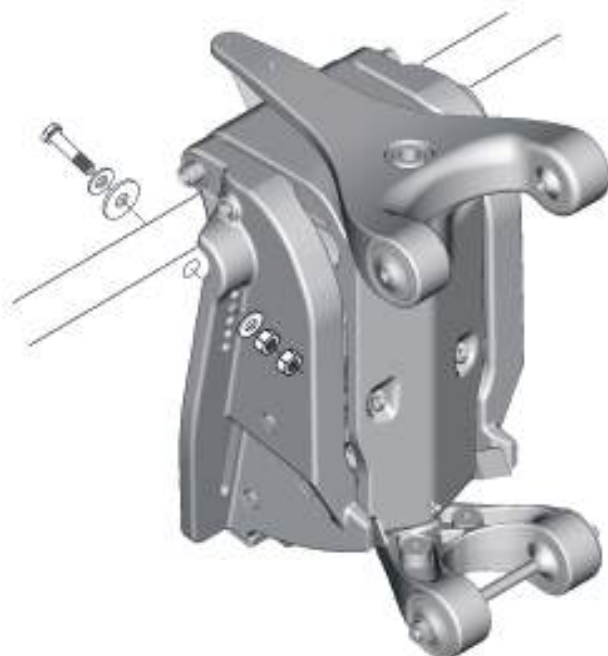


3. After determining the transom mount position, mark the preferable mount hole positions onto the boat transom. Drill mount holes, 13 mm (0.5 in) perpendicular to boat transom.
4. Apply Marine Sealer to shanks of bolts, not threads! Secure the outboard with supplied mount hardware.

**WARNING**

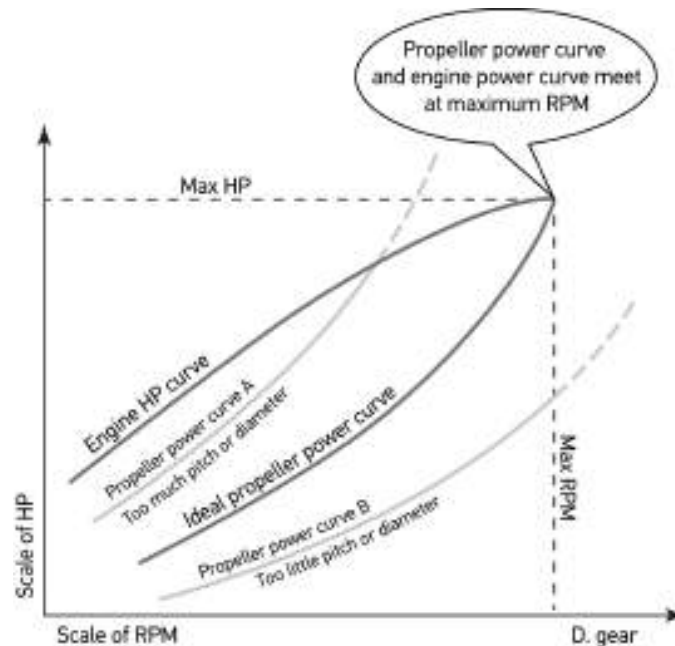
No play allowed between transom surface and clamp bracket. The clamp bracket or transom could brake.

5. Apply sealant to the mounting holes. Use supplied mounting details to attach the outboard to the boat.
6. Tighten mounting bolts at a suitable torque due to boat transom and outboard combination. First tighten the inner nut, then tighten the outer nut.



PROPELLER SELECTION

The ideal propeller for a boat is one that provides maximum performance in relation to boat speed and fuel consumption when the engine speed is at full throttle operating range, e.g. about 5000 to 6000 rpm.



Water testing with various propeller designs and sizes is the best method of propeller selection. The type, size, and design of the propeller have direct impact on boat acceleration, top speed, fuel economy, and even engine life.

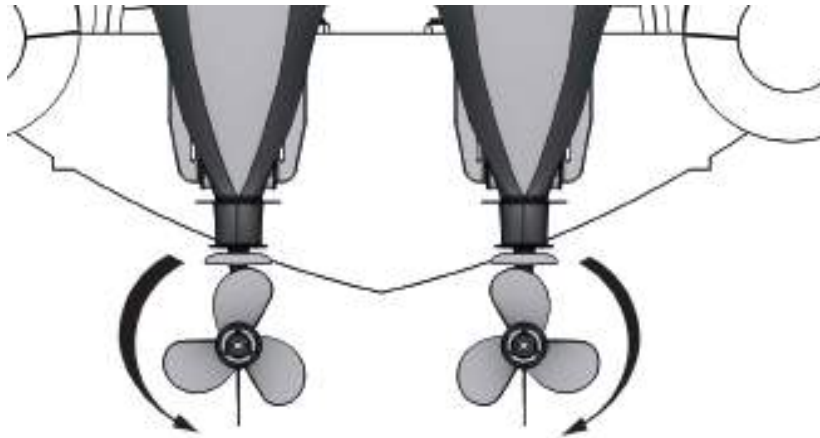
An incorrect choice could reduce engine life, affect boat performance or or cause serious damage to the engine.

For a greater operating load, a smaller pitch propeller is more suitable as it enables the correct engine speed to be maintained. A larger pitch propeller is more suitable for a smaller operating load.

NOTE! If the propeller blades have too much pitch, the engine will operate below the normal range at full throttle. Engine damage could occur due to the power loss.

If the propeller blades have too little pitch the engine will operate above its normal range and damage from over-speeding can occur.

For best all-round performance, select a propeller that allows the engine to operate in the upper half of the recommended full throttle speed range with the boat normally loaded. Check full throttle speed, using an accurate tachometer, with engine trimmed out to a balanced steering condition (steering effort equal in both directions) without causing the propeller to brake loose.



Right hand propellers are considered standard rotation propellers. When propelling a boat forward, the propeller rotates in a right-hand (clockwise) direction as viewed from the rear.

Left hand propellers are considered counter-rotation propellers. When propelling a boat forward, the propeller rotates in a left-hand (counterclockwise) direction as viewed from the rear.

**WARNING**

For multi-outboard applications, always ensure that propellers are installed on the correct engines before aggressively operating the boat. Refer to section *Mounting the outboard*.

Engine rotation direction is achieved by the transmission?

PROPELLER INSTALLATION

NOTE! In twin, or more, installations, one propeller should be for right-hand rotation and the other one should be for left-hand rotation. Both should be of the same size (same diameter) and have the same pitch. *See Fig. 7 to 9 on previous pages.*

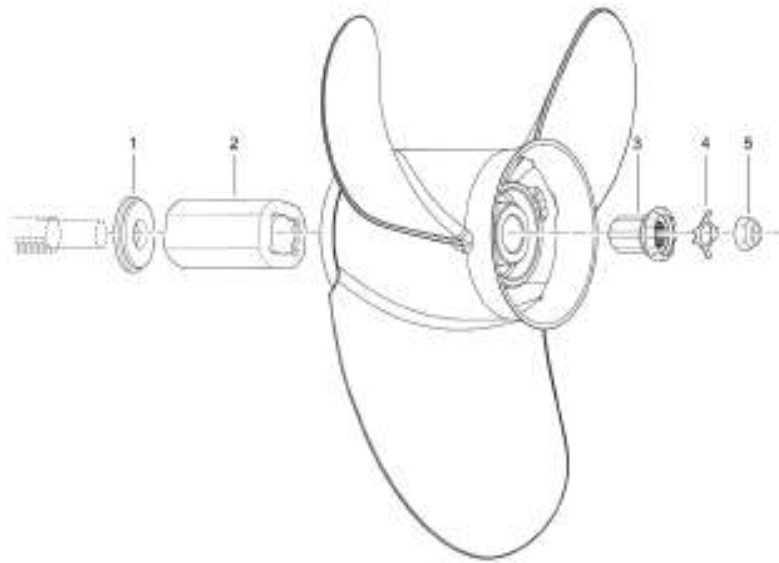
 WARNING

Rotating propellers can cause serious injury or death. Never operate the boat out of the water with a propeller installed. Before installing or removing a propeller, place the drive unit in neutral and engage the lanyard stop switch to prevent the engine from starting.



Fig. 11 Propeller shaft

1. Apply marine grease according to table "Recommended Fluids and Grease" to the propeller shaft before installing the propeller, as this will aid future removal and corrosion resistance.



2. Install the thrust washer **(1)**, the drive sleeve **(2)** and the propeller on the propeller shaft.

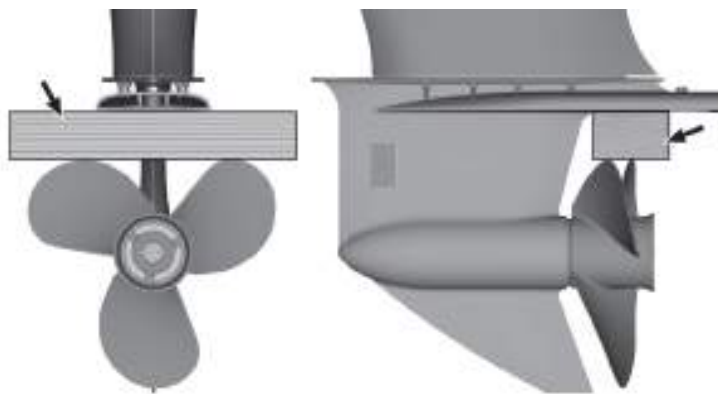
NOTE! Be sure to install the thrust washer before installing the propeller, otherwise the lower case and propeller boss could be damaged.

3. Install the drive sleeve adapter **(3)**.



WARNING

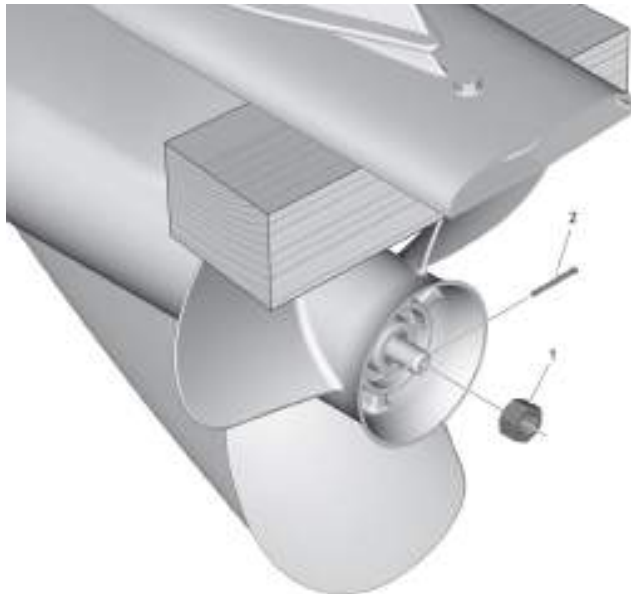
Do not use your hand to hold the propeller when loosening or tightening the propeller nut. Secure the propeller with a wooden block according to illustration below.



4. Place the locknut retainer **(4)** over the raised pins on the drive sleeve adapter **(3)**.



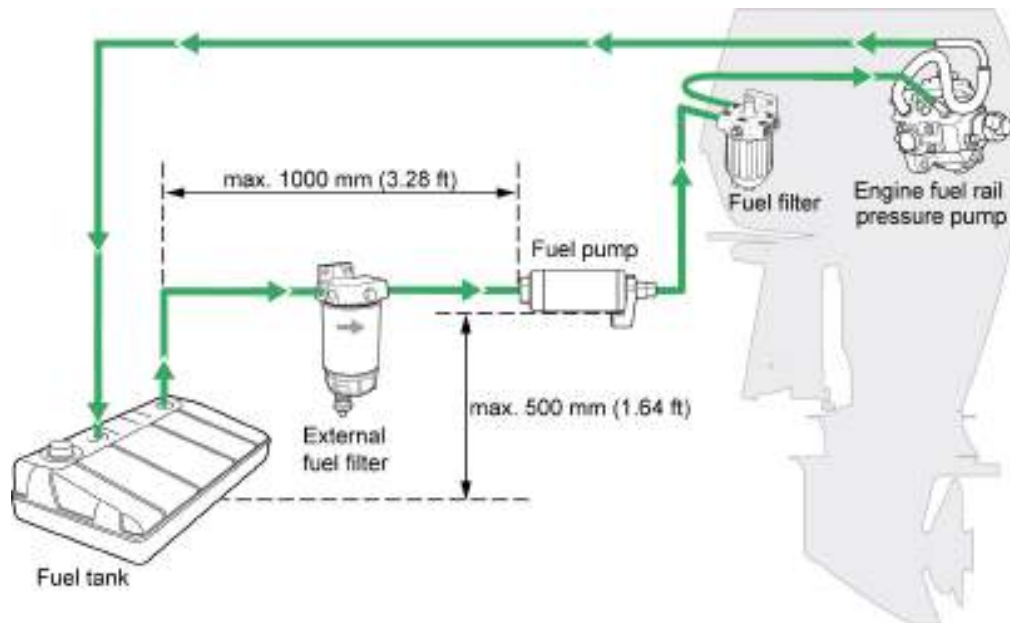
5. Tighten the propeller Nyloc-nut **(1)** to the specified torque.
Propeller nut tightening torque: 75.0 Nm (55 ft-lb).
6. Align the propeller nut with the propeller shaft hole.
NOTE! If the propeller nut does not align with the propeller shaft hole after tightening to the specified torque, tighten the nut further to align it with the hole.
- 7a. Secure the locknut by bending the tabs up against the flats of the Nyloc-nut.
NOTE! Some models use a castle nut and a cotter pin. Use washers as required in order to align castle nut and cotterpin.



- 7b. Insert a cotter pin **(2)** in the hole and bend the cotter pin ends securely.
8. Ensure that the propeller is undamaged and rotates freely of the lower housing.

FUEL SYSTEM

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The fuel enters the engine via the fuel filter and water separator.

The mechanical fuel injection pump output is controlled by the engine control (ECM), and provides fuel at the pressure needed by the fuel injectors. The fuel injectors supply fuel directly to the combustion chambers of the engine.

The mechanical fuel injection pump, fuel rail pressure, fuel injection timing, and injection duration are controlled by the ECM.

External fuel filter

(Not provided by Cimco Marine)

The 30-micron fuel filter is equipped with a water separator and installed after the fuel tank, on the suction side of the fuel system, between the fuel feed tank and the electric fuel feed pump.

External fuel pump

The electric fuel feed pump is mounted outside the fuel tank and is operated by the engine's ECU. An electric pump motor pushes fuel from fuel tank to the engine through fuel lines.

The fuel line between tank and pump must not exceed **1000 mm (3.28 ft)**. The fuel pump mounting height measured from bottom of tank must not exceed **500 mm (1.64 ft)**.

Fuel filter on engine

The fuel filter is a one-piece fuel filter water separator of snap-on model.

Fuel rail pressure pump

The fuel injection pump is a mechanical high pressure pump. Fuel is pumped to the fuel rail at a specific pressure. Fuel pressure is regulated by the fuel pressure regulator, which is controlled by the ECM.

Fuel rail assembly

The fuel rail assembly attaches to the cylinder head. The fuel rail distributes pressurised fuel to the fuel injectors through the fuel lines.

The fuel rail pressure sensor gives the engine control mode (ECM) an indication of fuel pressure. The ECM uses this information to regulate fuel pressure, by commanding the fuel pressure regulator open or closed on the inlet of the fuel injection pump.

Fuel injectors

A fuel injector is a solenoid device, controlled by the ECM, that injects pressurised fuel to a single engine cylinder. Fuel from the injector tip is sprayed directly into the combustion chamber on the compression stroke of the engine.

The control functions for the fuel injection system are integrated in the engine control module ECM.

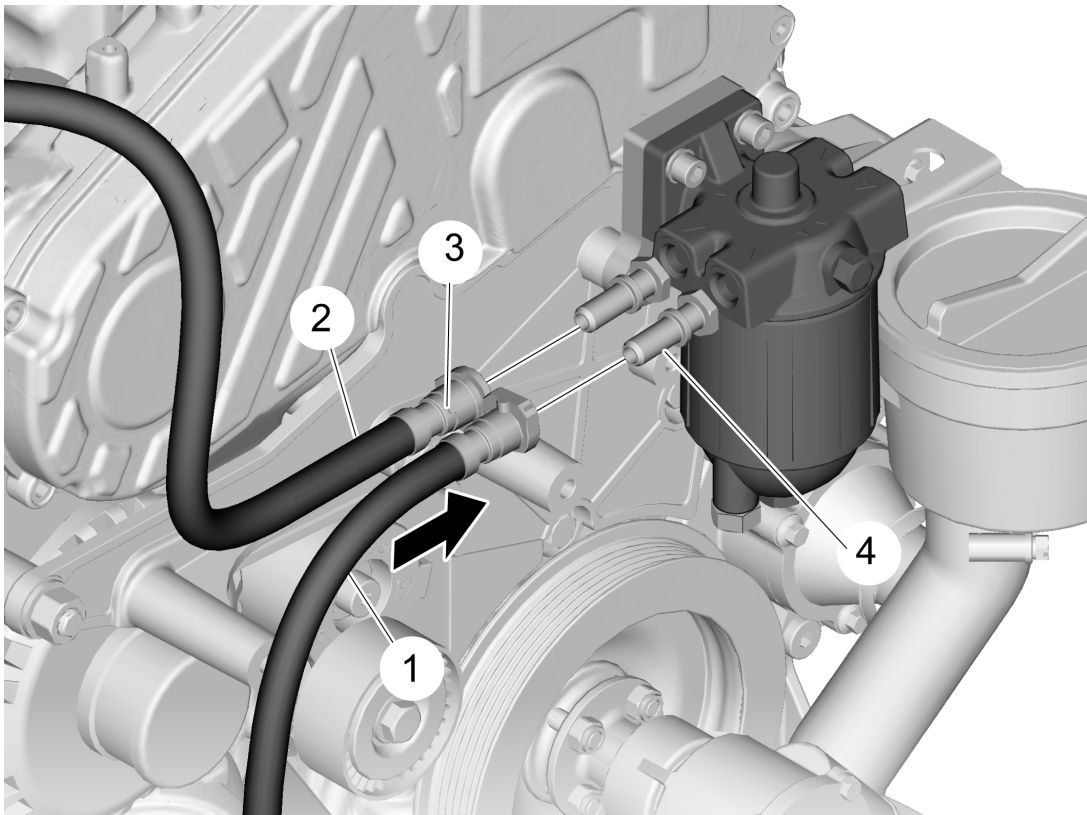
Quick-connect fitting

Quick-connect fittings provide a simplified means of installing and connecting fuel system components. The fittings consist of a unique female connector and a compatible male pipe end. O-rings, located inside the female connector, provide the seal. Integral locking tabs inside the female connector hold the fittings together.

Fuel pipe O-rings

O-rings seal the connections in the fuel system. Fuel system O-ring seals are made of a special material. Service the O-rings seals with the correct service part.

INSTALLING FUEL LINES AND COMPONENTS



1. Fit supply **(1)** and return **(2)** fuel line with quick connector 30-0114-140 and hose clamp 30-0122-052 **(3)** from the "Accessory Box" to the fuel filter connectors **(4)**.

BLEED THE FUEL SYSTEM

NOTE! In order for the diesel fuel system to work properly, the fuel lines must be full of fuel and free from air. It is necessary to bleed/evacuate the air from the system before operating the outboard.

Evacuate air from the fuel system

1. Turn the ignition key **ON**. The fuel pump will run for 20 seconds.

NOTE! Do not turn the ignition key to **START**. This could damage the injection pump.

2. Repeat three times.

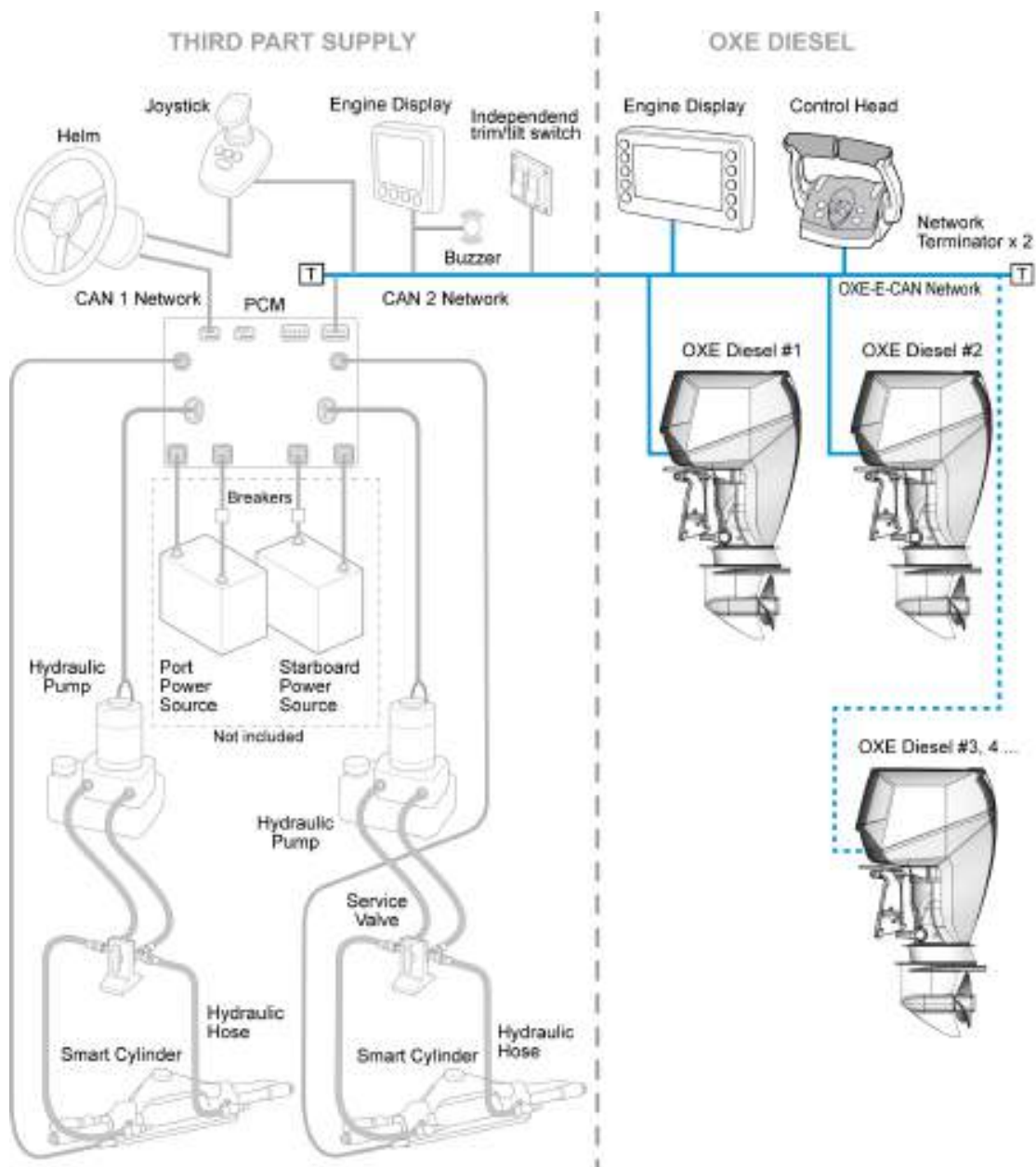
Air could enter the system in any of the following ways:

- The engine ran out of fuel.
- The fuel lines have damaged and or leaking joints.
- The filter was removed for service or replacement.
- The fuel lines were removed or disconnected for servicing.
- The fuel pump was removed for servicing.
- The fuel filter water drain cock was opened while the engine was running.

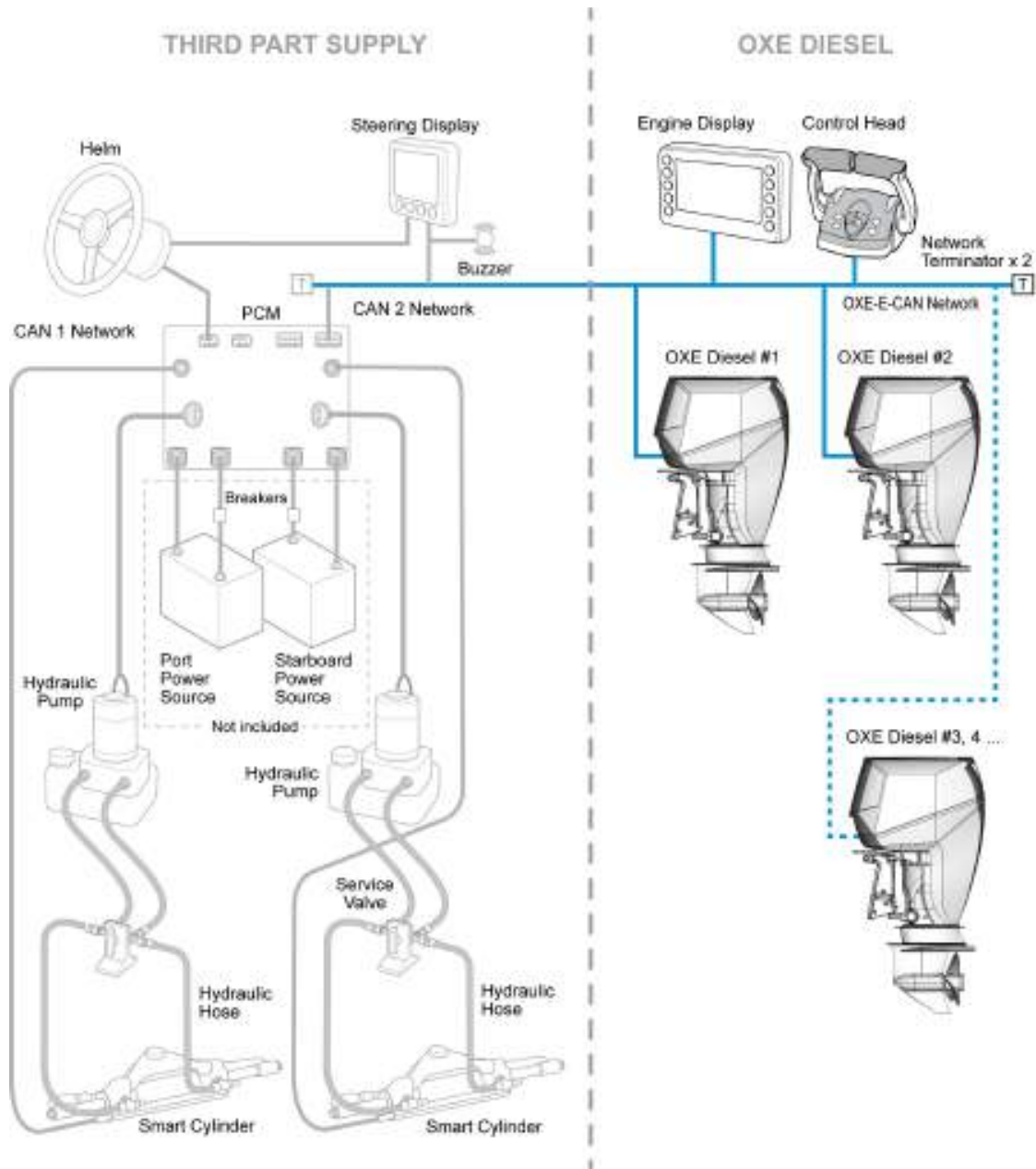
If one or more of the above occurs, air has entered the fuel system and you will need to bleed/evacuate the air from the system as described above prior to operating the outboard.

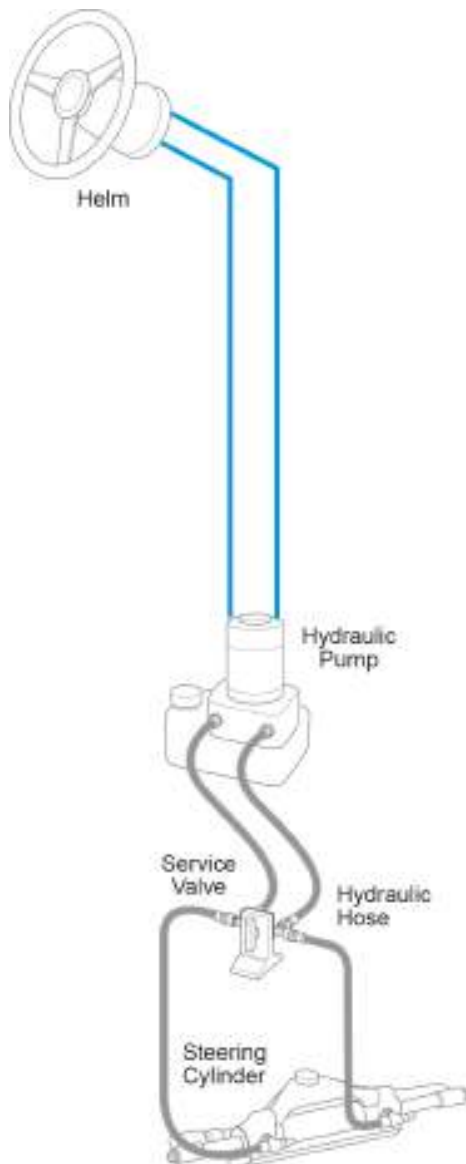
STEERING

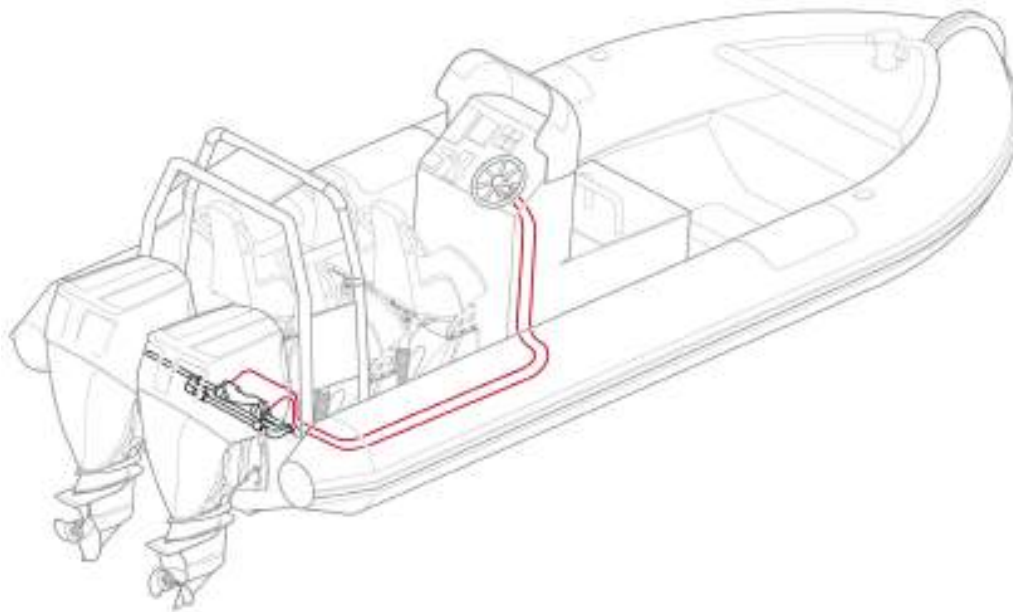
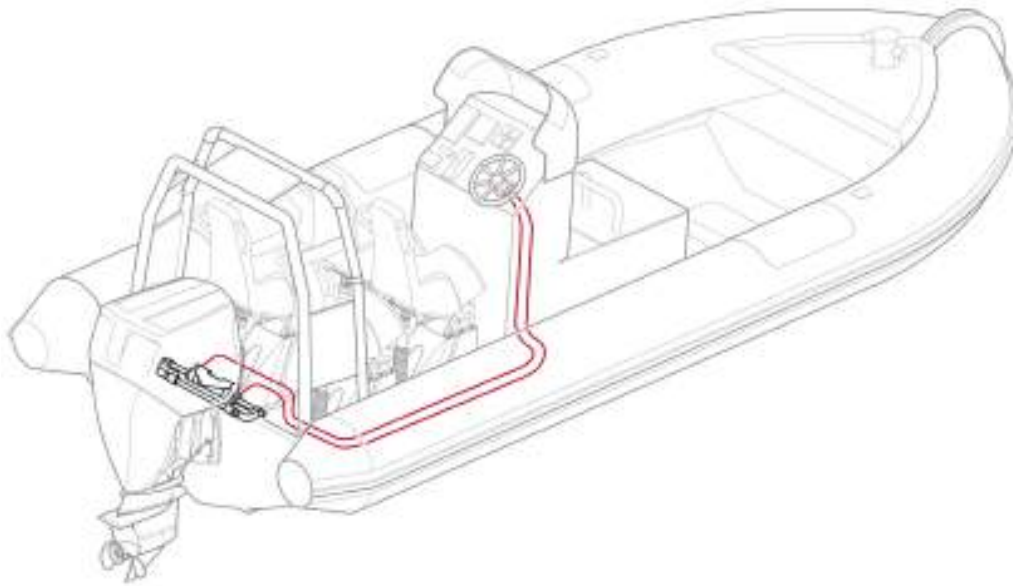
ELECTRO STEERING WITH JOYSTICK



ELECTRO STEERING WITHOUT JOYSTICK



POWER STEERING (SERVO-ASSISTED STEERING)



Några korta ord om "styrstaget" som gör att båda motorerna kan styras med samma ratt. Hur gör man vid fler än två motorer? tre motorer 2 med stag, en utan? Fyra motorer = i par med styrstag?

ELECTRICAL SYSTEM

WIRING

When installing the helm harness built for the OXE-diesel it is important not to connect any peripheral devices to the OXE Diesel Engine CAN system.

Any peripheral equipment should be connected to a separate CAN system.

Connecting any peripheral equipment to the helm harness (OXE Diesel Engine CAN) will void the warranty.

NMEA2000, 1A (F101)

This fuse will not be pre-mounted on, but supplied with, the Helm Harness.

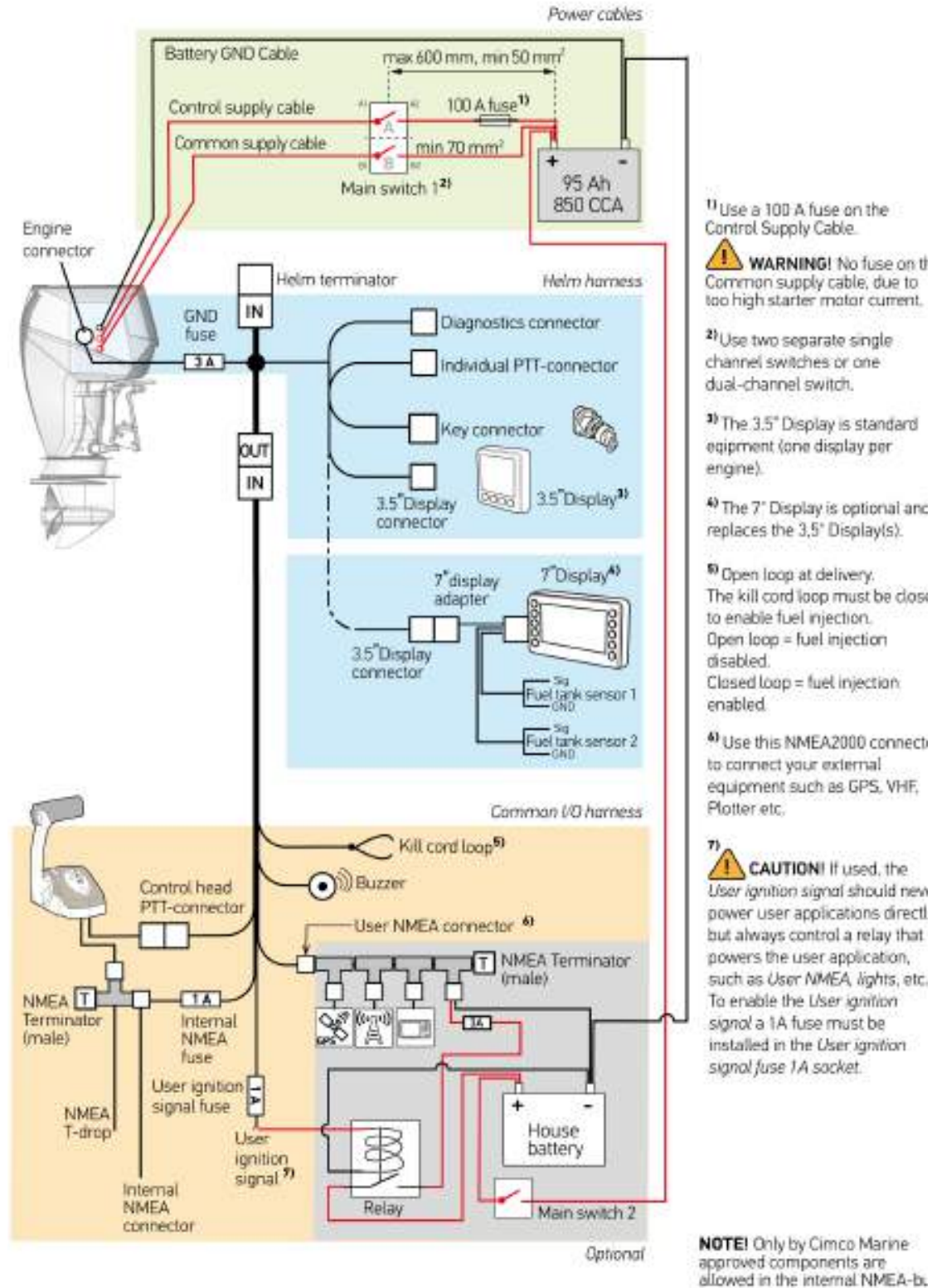
The "NMEA2000, 1A" fuse is powering the NMEA2000 ignition power supply in a single engine configuration.

SINGLE ENGINE CONFIGURATION:

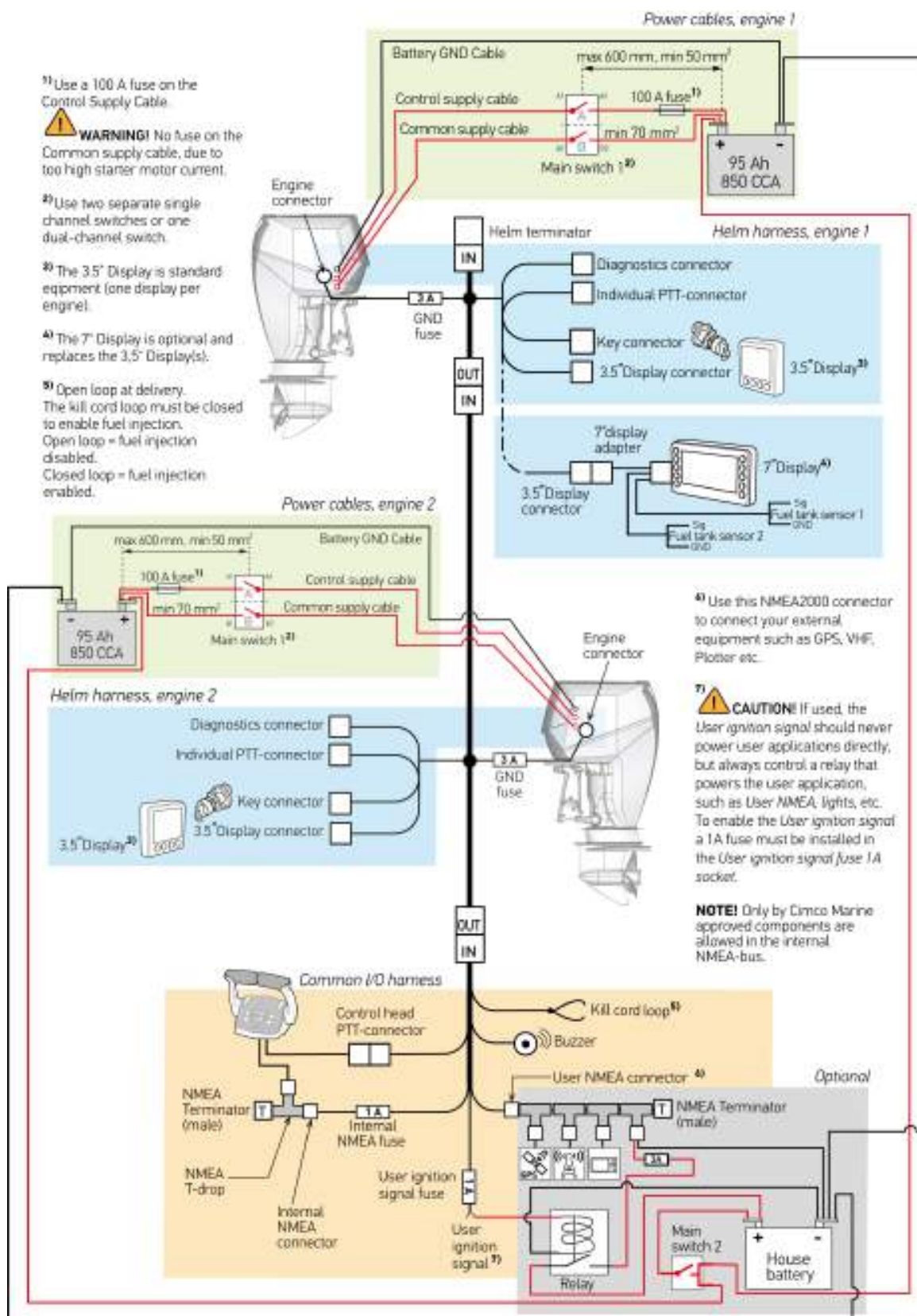
"NMEA2000, 1A" fuse connected, no external power supply to the NMEA2000 bus allowed.

Or

"NMEA2000, 1A" fuse disconnected, external power supply to the NMEA2000 bus needed, e.g. consumer battery or equivalent that has the same ground as the engine.

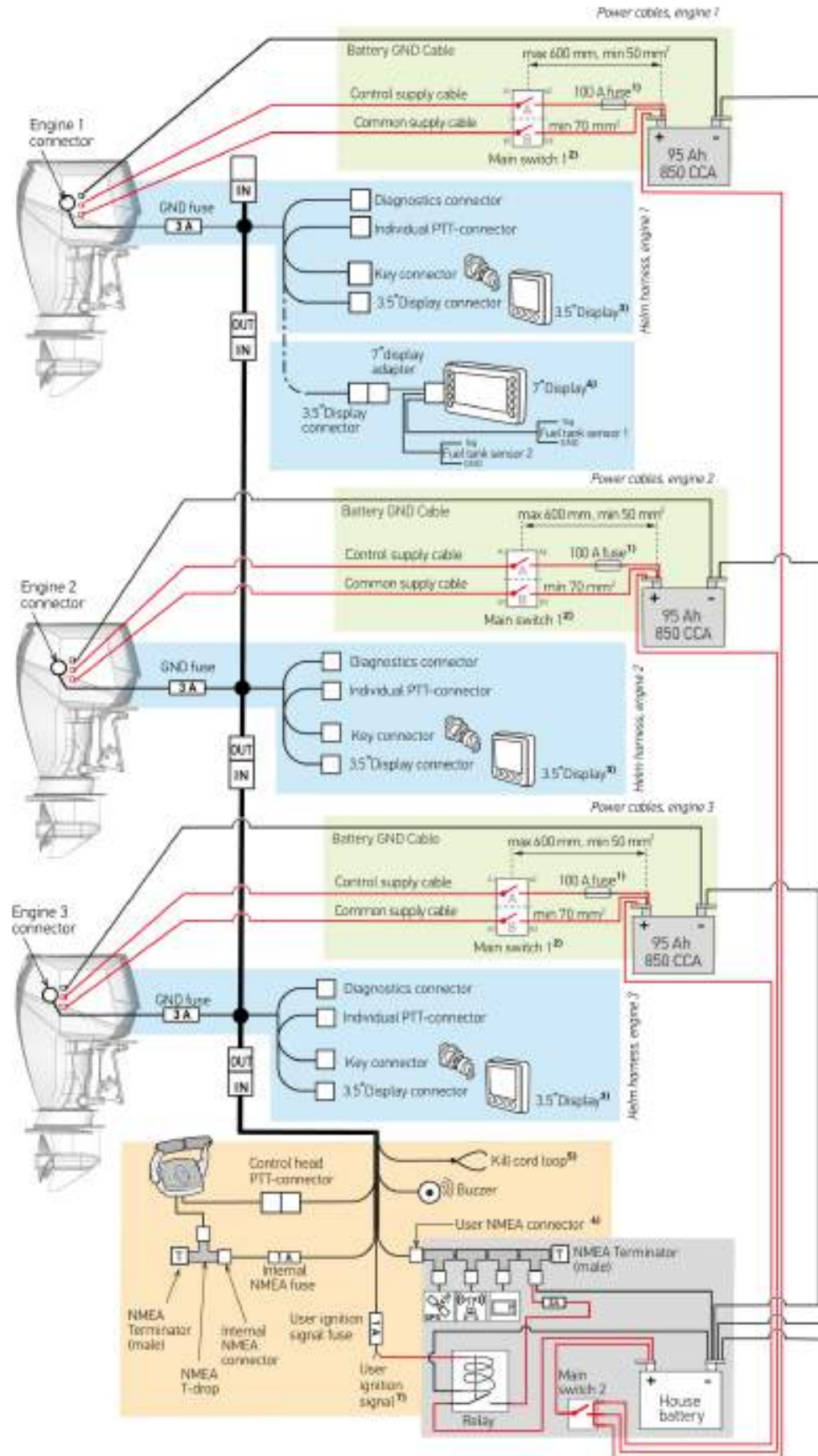


G4 - TWIN ENGINE APPLICATION

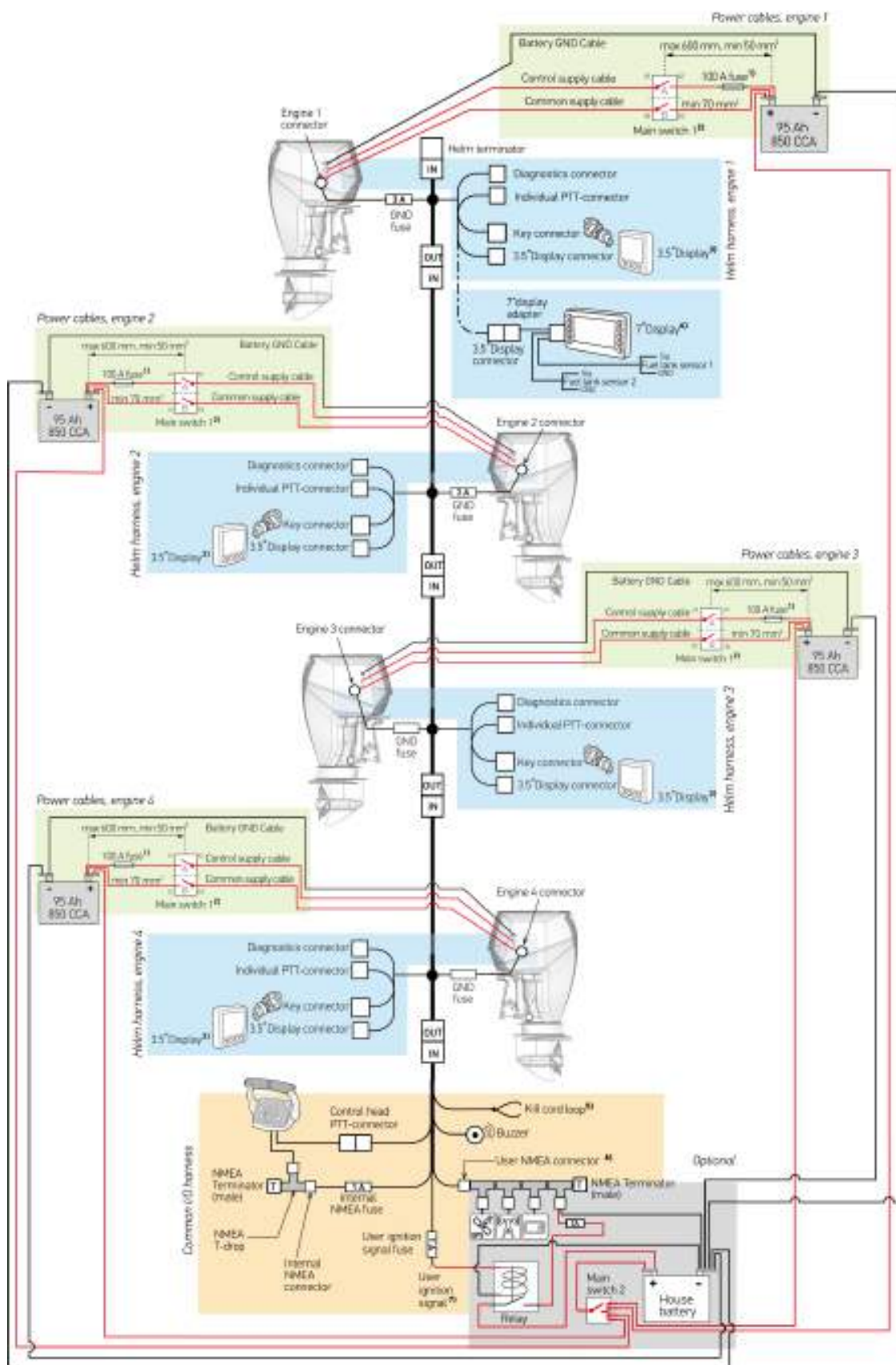


G4 - TRIPPLE ENGINE APPLICATION

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G4 - QUAD ENGINE APPLICATION



REFERENCES FOR CABLE HARNESS CONNECTIONS

39

G4-Tripple and G4-Quad applications in combination with 3.5" /7" Display

1. Use a 100 A fuse on the Control Supply Cable.



WARNING!

No fuse on the Common supply cable, due to too high starter motor current.

2. Use two separate single channel switches or one dual-channel switch.
3. The 3.5" Display is standard equipment (one display per engine).
4. The 7" Display is optional and replaces the 3,5" Display(s).
5. Open loop at delivery.
The kill cord loop must be closed to enable fuel injection.
Open loop = fuel injection disabled.
Closed loop = fuel injection enabled.
6. Use this NMEA2000 connector to connect your external equipment such as GPS, VHF, Plotter etc.



7. CAUTION!

If used, the *User ignition signal* should never power user applications directly, but always control a relay that powers the user application, such as *User NMEA*, lights, etc.

To enable the *User ignition signal* a 1A fuse must be installed in the *User ignition signal fuse 1A socket*.

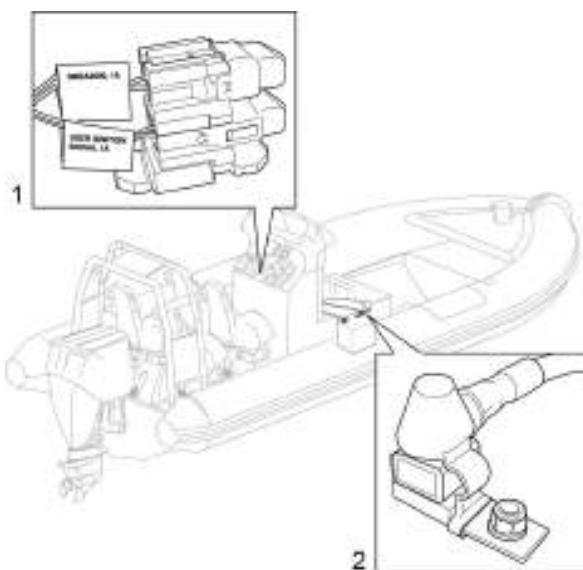
NOTE! Only by Cimco Marine approved components are allowed in the internal NMEA-bus.

USER IGNITION SIGNAL, 1A (F102)

This fuse will not be pre-mounted on, but supplied with, the Helm Harness.

The "User ignition signal, 1A" is only supposed to drive low power applications that needs an ignition signal, e.g. relays (NOT power supply!). Therefore, a separately fused relay must be used to supply currents higher than 0,75 Ampere. If a relay is used, the relay signal ground must be connected close to a battery and the relay power supply must also be connected to a battery.

Fuse size: 1A



1. Connect all applicable helm related devices to the helm harness (items applicable):
 - Ignition key (s)
 - Emergency Stop (s)
 - Throttle handle (s)
 - Display (s)
 - Diagnostic adaptor harness (es) (if applicable -preferred in order to perform a pre-start-up control)

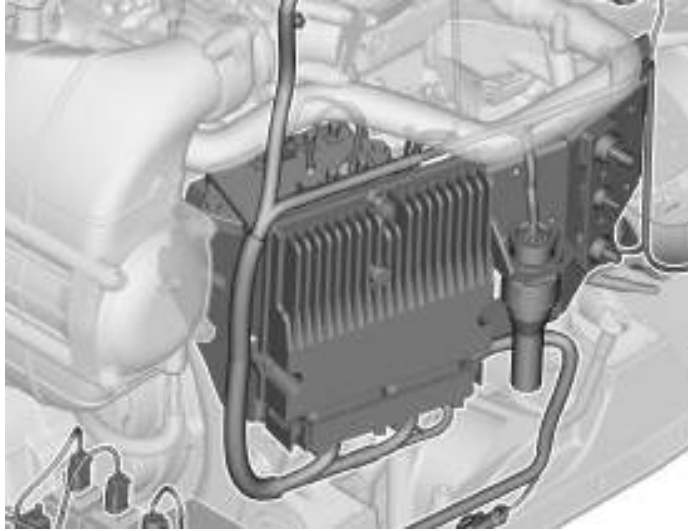
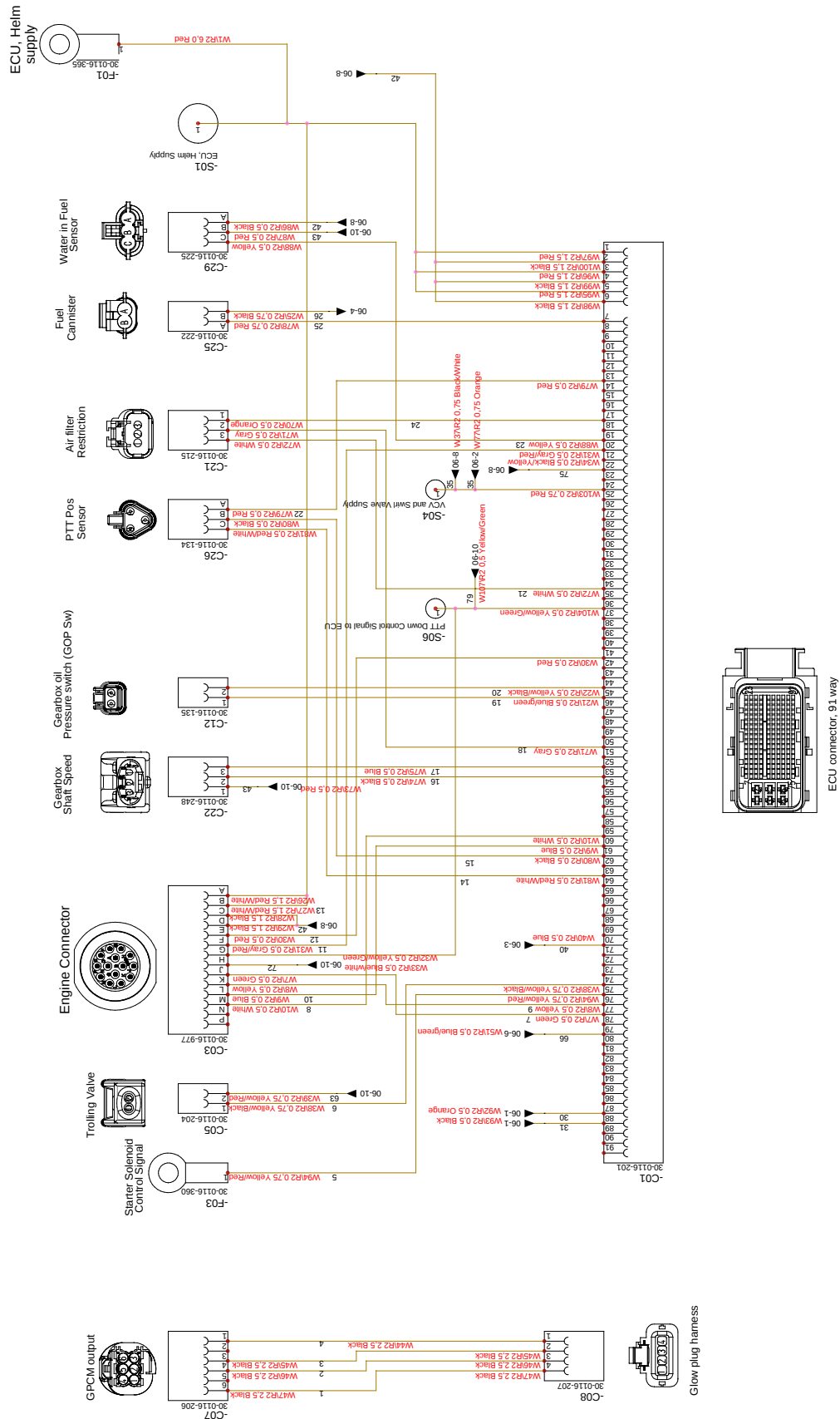


Fig. 10 Engine connector

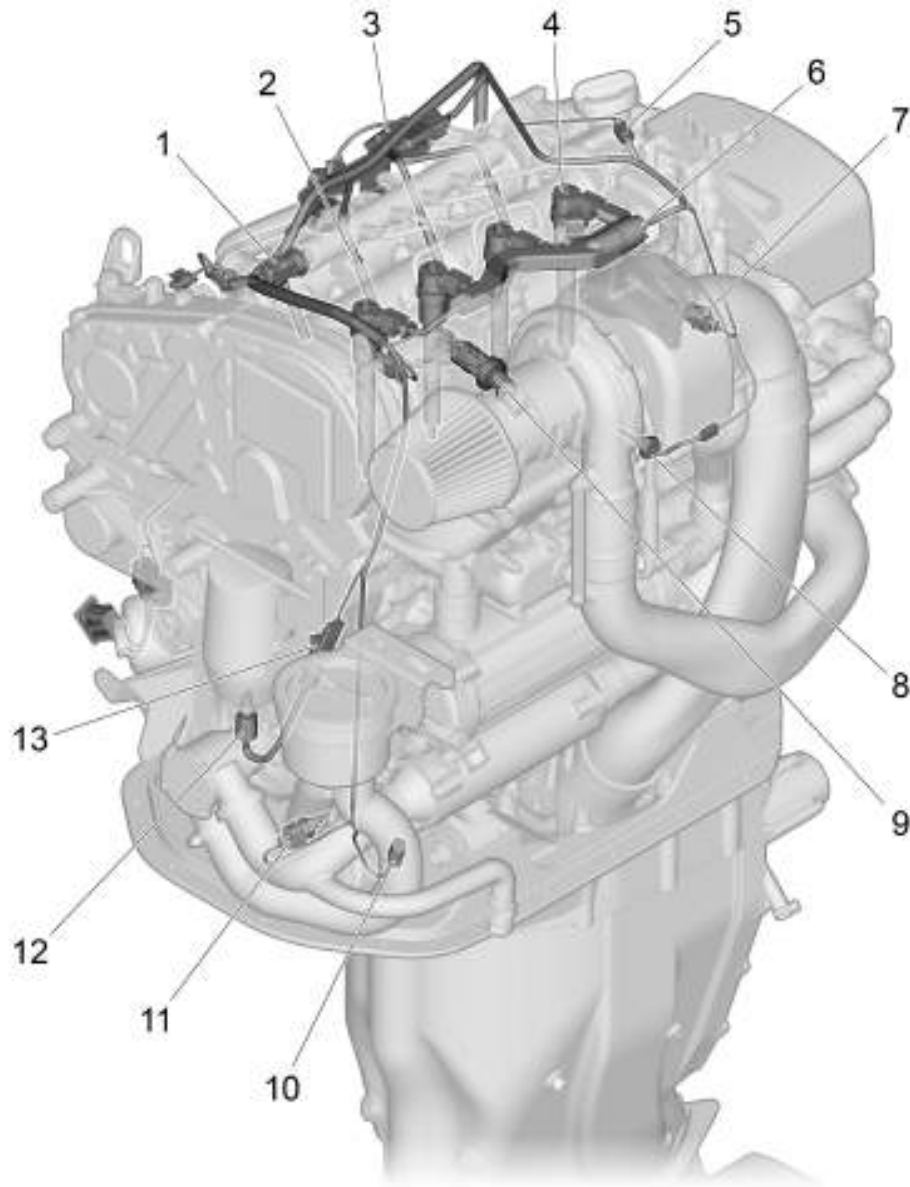
- 2.** Connect the helm harness boat connector with the engine harness boat connector.
- 3.** Complete a final inspect of all connections.



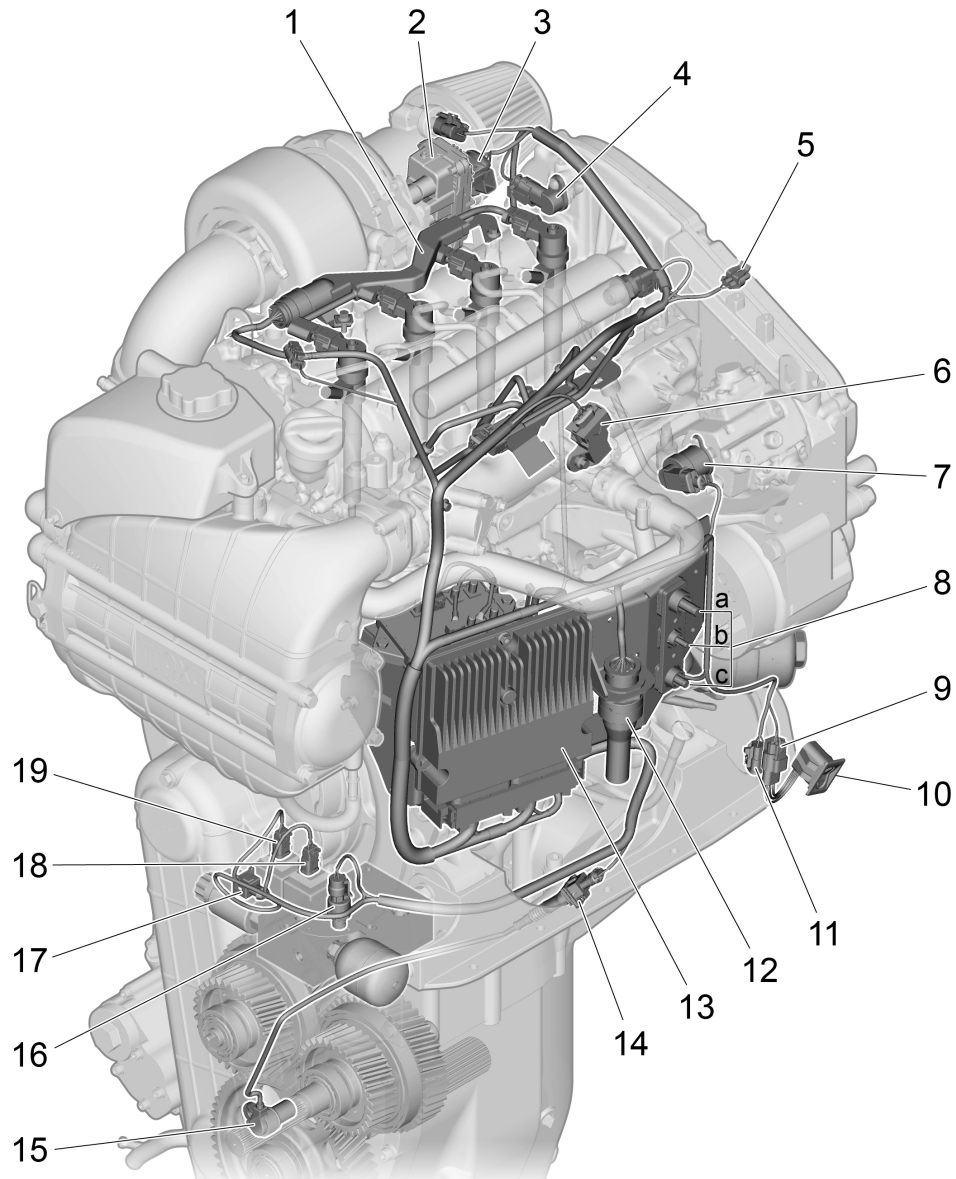


ELECTRICAL SYSTEM

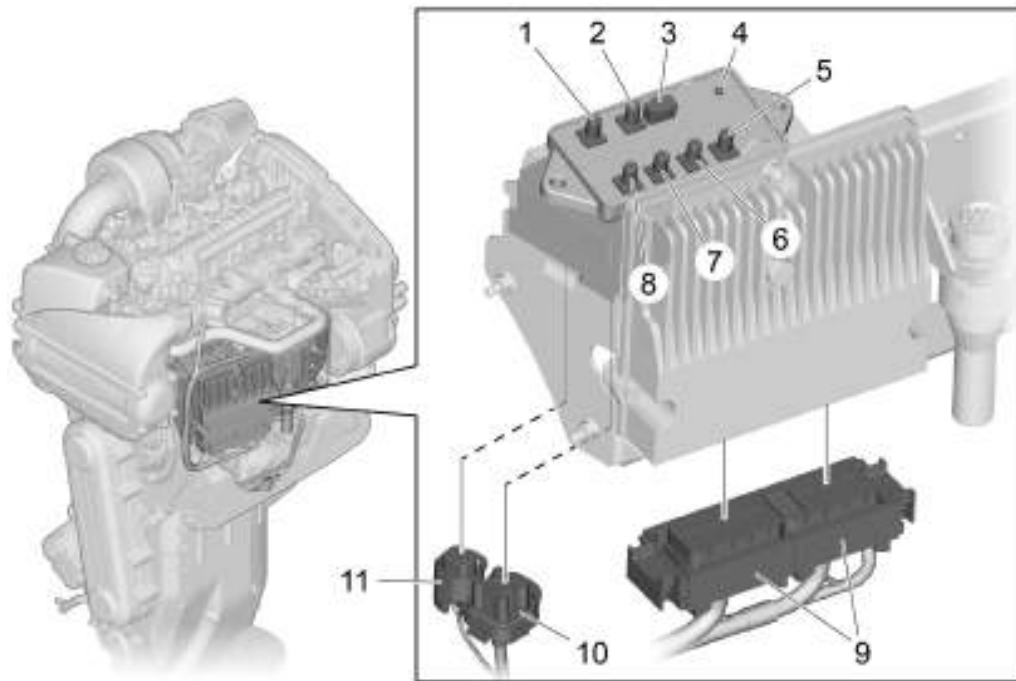
ELECTRICAL COMPONENTS



- | | |
|--|---|
| 1. Fuel rail pressure sensor connector | 8. Exhaust gas temperature sensor |
| 2. Glow plug (4 pcs) | 9. Air filter restriction sensor |
| 3. Glow plug harness connector | 10. Gearbox oil pressure switch connector |
| 4. Injector (4 pcs) | 11. Engine oil temperature sensor |
| 5. Exhaust gas temperature sensor connector | 12. Water-in-fuel sensor |
| 6. Injector harness connector | 13. Water-in-fuel sensor connector |
| 7. Engine coolant temperature sensor/connector | |



- | | |
|---|--|
| 1. Injector harness | 9. PTT cowl connector |
| 2. Actuator | 10. PTT-switch |
| 3. Turbo actuator connector | 11. PTT sensor connector |
| 4. Camshaft position sensor | 12. Engine connector |
| 5. Fuel supply modul (FSM) connector | 13. ECU |
| 6. Temperature and air mass meter | 14. Gearbox output speed sensor connector |
| 7. Fuel pressure control valve | 15. Gearbox output speed sensor |
| 8. Power cable connector | 16. Gearbox oil pressure sensor |
| a) GND | 17. Trolling valve |
| b) ECU & Helm power | 18. Starboard gear coil |
| c) Engine starter power | 19. Port gear coil |

ENGINE CONTROL UNIT

- | | |
|---|--|
| 1. <i>GND</i> | 7. <i>PTT up</i> |
| 2. <i>Supply</i> | 8. <i>PTT down</i> |
| 3. <i>PSU control and feedback</i> | 9. <i>ECU connectors</i> |
| 4. <i>PSU OK LED-indicator</i> | 10. <i>Glow module, control, feedback, supply</i> |
| 5. <i>ECU and helm</i> | 11. <i>Glow module, output</i> |
| 6. <i>Glow plug control module</i> | |

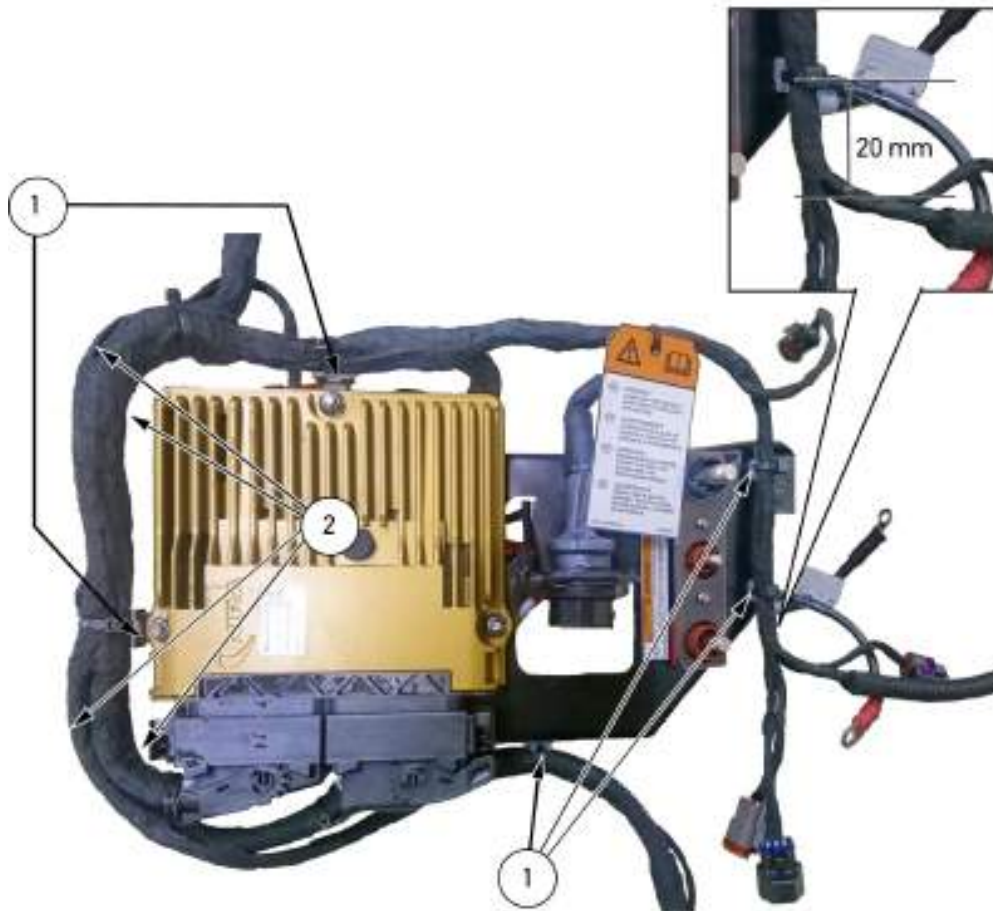
WIRING

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Power trim and tilt unit power cable assembly



1. Use an arrow head clip **(1)** on cyclon in order to fasten the PTT power cable.
2. Route the ppt power cable **(2)** behind the cooling fluid return pipe **(3)** from the oil cooler.



1. Fasten and secure wiring with clips (1).

**CAUTION**

It is very important that the harness branches are laid out as shown in picture above, to avoid fretting at exposed critical areas (2) and to ensure correct cabling length.

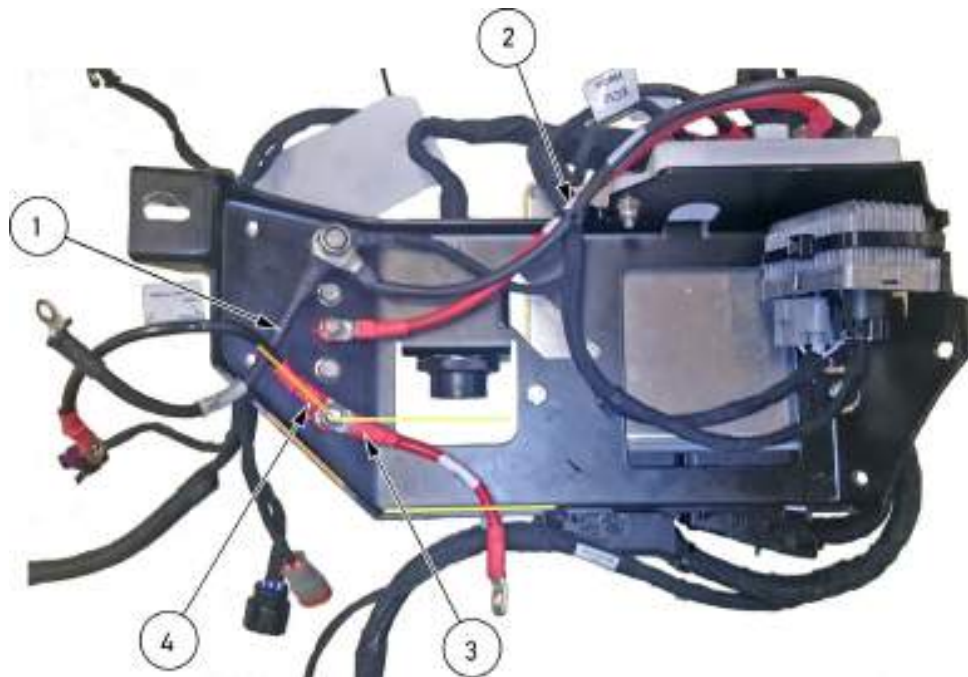
Always double check wiring layout after the ECU bracket assembly is mounted on the engine to ensure that there is no fretting risk.



1. Fasten and secure wiring with clips **(1)**.

Power cable assembly

Power connectors, short starter motor cable (<160 mm, 6.33 in)



Supply cabling order		GND cabling order	
1	Starter motor supply	1	Engine harness GND
2	Alternator supply	2	PSU GND cable
		3	Engine block GND

1. Place the engine block ground cable closest **(1)** to the bracket .
2. Secure/fasten all cables and the harness within the cable clip **(2)**.
3. Cable **(3)** and cable **(4)** should be mounted in parallell with bracket edges.



1. Mount the starter motor cable **(1)** in an right angle to the bracket edge.

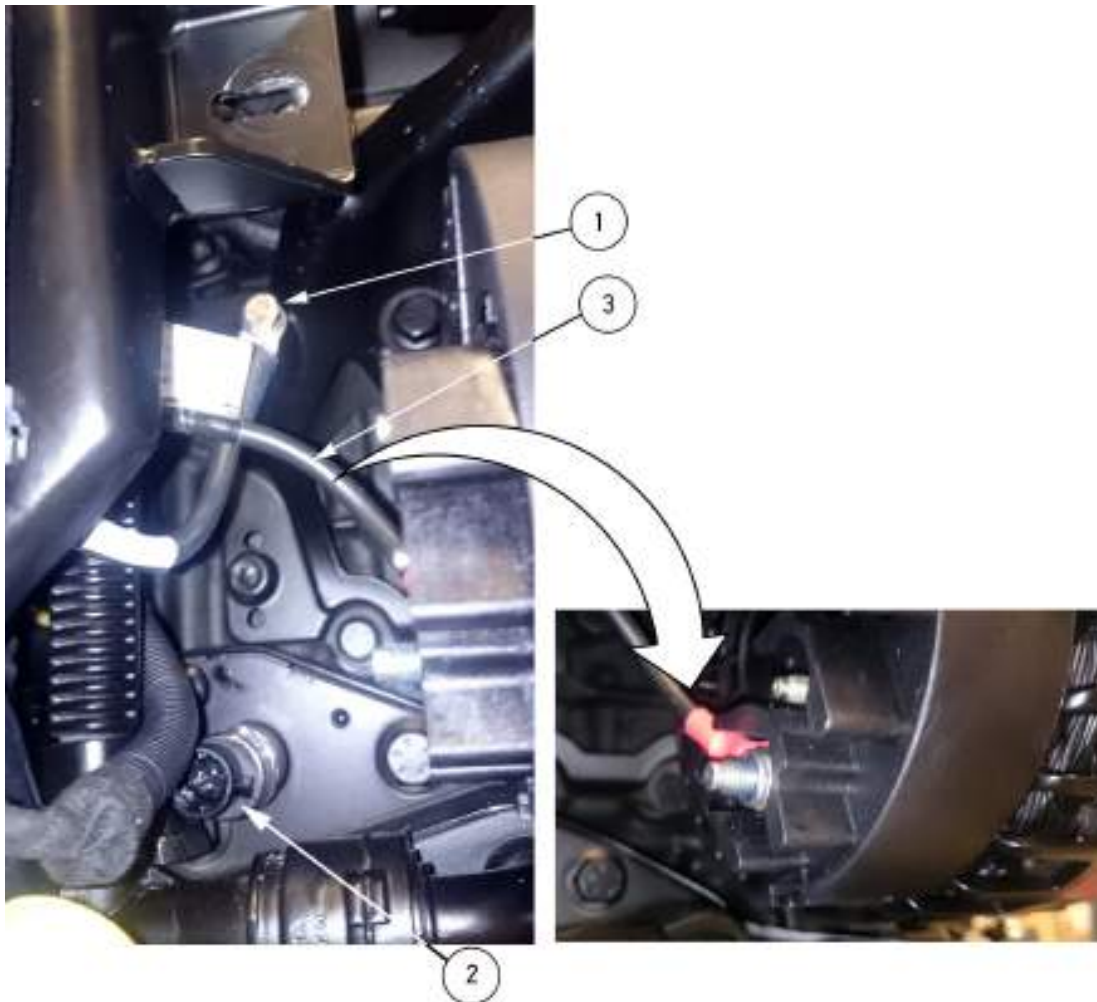
Power connectors, PSU



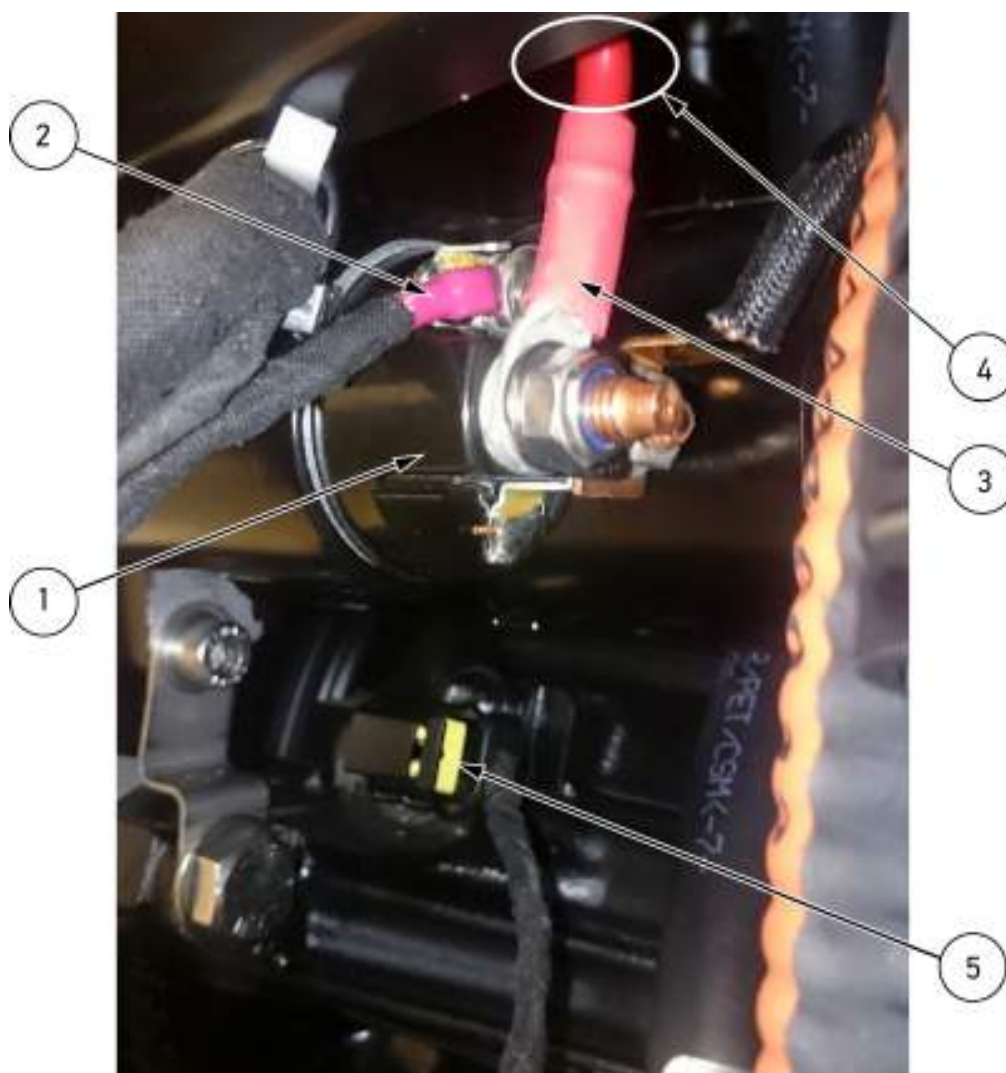
1. Mount the power cables at recommended angles as shown in picture above.



3. First connect the swirl valve **(1)**.
NOTE! Ensure it click's.
4. Slide the secondary lock (yellow) in place.
5. Fit the ECU bracket in place and secure loosely with screws/nuts.
NOTE! Rear side of engine only.



6. Mount engine block GND cable **(1)** on the engine block.
NOTE! Ensure that the contact surface is free from paint.
7. Connect the engine oil pressure sensor connector **(2)**.
NOTE! Ensure it *click's*.
8. Mount the alternator supply **(3)** on the alternator.
NOTE! Route the cable towards the engine.



9. Mount the starter motor cable **(2)** horizontally.
10. Mount the starter motor supply cable **(3)** to the starter motor solenoid **(1)** and lead it as vertical as possible.

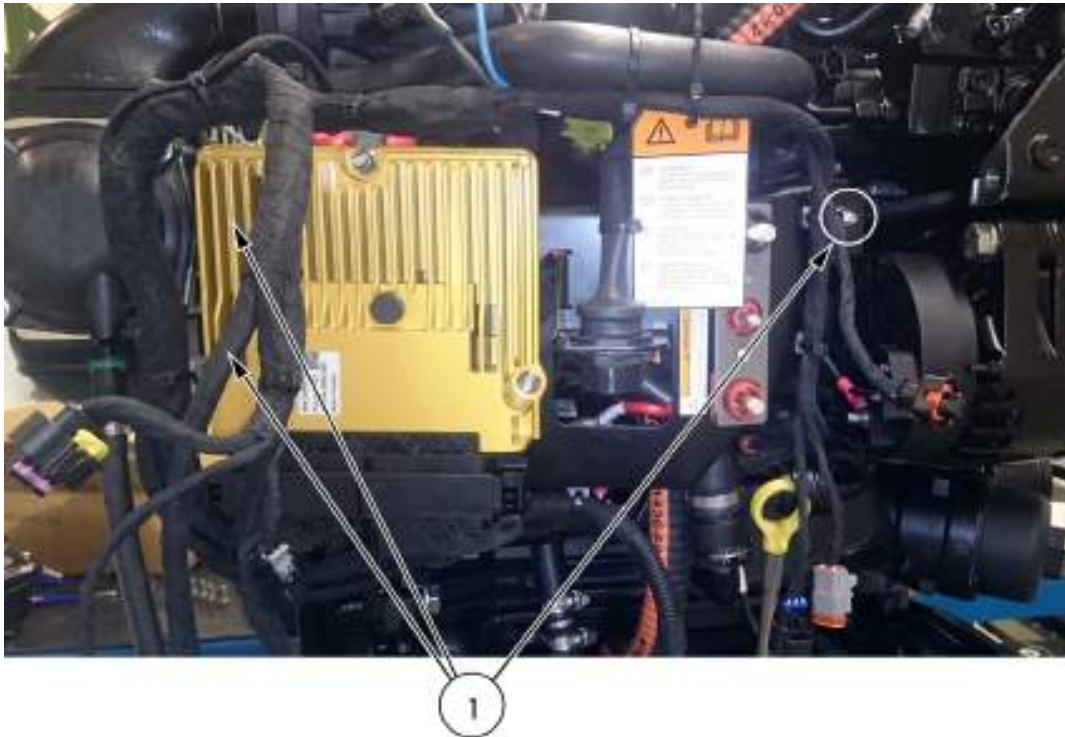
⚠ CAUTION

Ensure no fretting on starter motor cables **(4)**. Recommended clearance >10 mm (>0.394 in).

11. Connect the crankcase sensor connector **(5)**.

NOTE! Ensure it *click's*.

12. Slide the secondary lock (yellow) in place.



- 13.** Tighten 3 screw-nuts **(1)**. Adjust the ECU bracket assembly to ensure not fretting.



CAUTION

Ensure that fretting is not possible. Recommended clearance **>10 mm (>0.394 in)**.



14. Mount the PTT-power cables.

- blue cable **(1)** closest to the rear end of the engine
- black/green cable **(2)** second closest to the rear end of the engine



15. Connect the fuel pressure control valve **(1)**.

NOTE! Ensure it **click's**.

Gearbox connectors

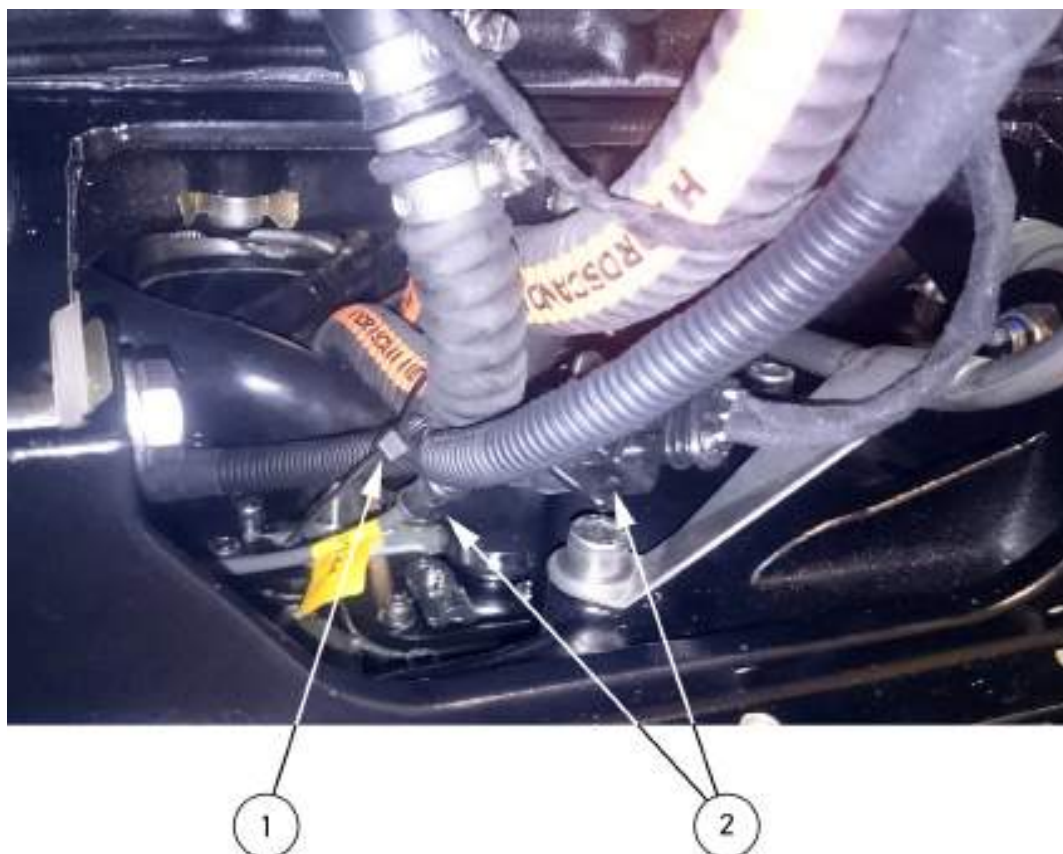


1. Trolling valve connector
2. Port selector coil connector, **FWD** gear
3. Flywheel
4. Gearbox oil pressure sensor connector
5. Cable ties
6. Starboard selector coil connector, **REV** gear

 WARNING!

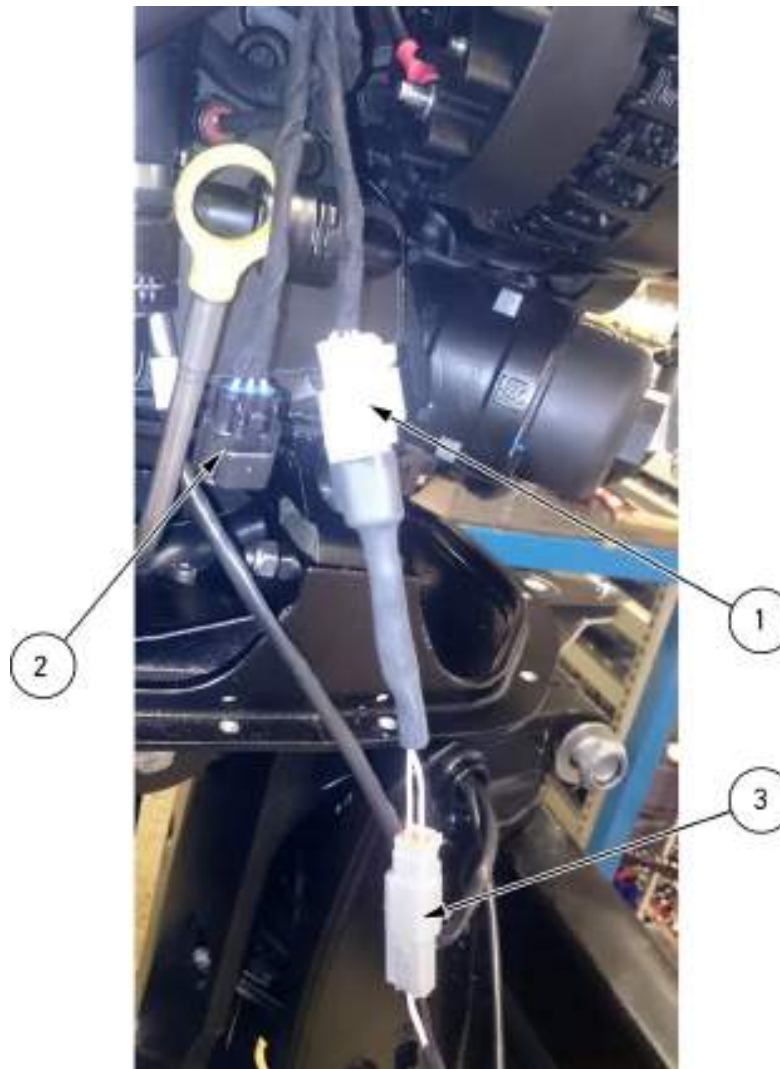
Make sure the cables are tightly secured so that no contact with the flywheel is possible! Recommended clearance: >15 mm.

16. Ensure that all connectors **click**.



1. Cable tie

17. Connect the propeller speed sensor connector **(2)**. Make sure it **clicks**!



- 18.** Connect the PTT sensor adapter **(1)** to the engine harness. Make sure it **clicks**!
- 19.** Connect the PTT cowl switch **(2)**. Make sure it **clicks**!
- 20.** Connect the PTT sensor adapter to the PTT sensor **(3)**. Make sure it **clicks**!



1. T-MAP connector.
2. Glow plug harness connector.
3. EGT connector
4. Injector harness connector
5. Air filter restriction connector
6. Turbo actuator connector
7. Cam shaft angle sensor connector
8. Fuel rail pressure sensor connector
9. Cable tie
10. FSM connector
11. Clips

NOTE! Make sure all connectors **click** and push the yellow or red secondary lock in place!



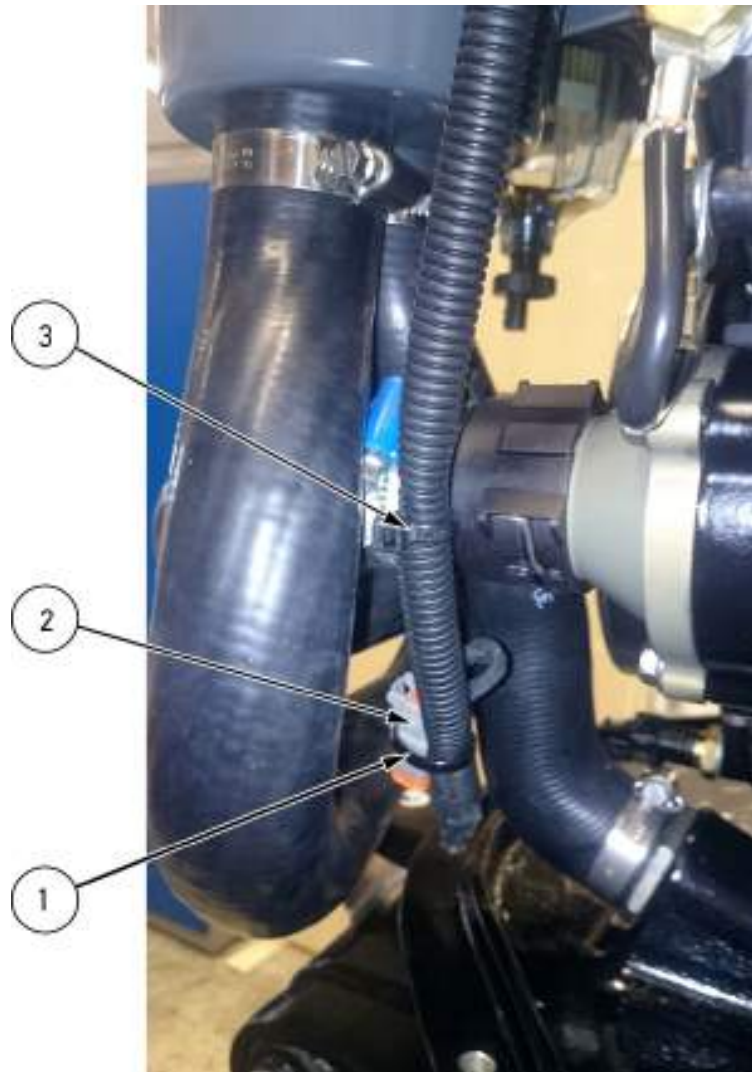
- 1. Exhaust manifold
- 2. Intercooler
- 3. ECT connector

NOTE! Make sure The ECT connector clicks when connecting.



- 1.** *Clip*
- 2.** *Water-in-fuel sensor connector*
- 3.** *Clip*
- 4.** *Cable tie*

- 1.** Fix the Water-in-fuel sensor **(3)** connector with a cable tie **(4)**.



2. Fix the Gearbox lubricating oil pressure switch connector **(2)** with a cable tie **(1)**.
3. Secure the cable with a clip **(3)**.



1. Alternator belt
2. Engine oil pressure sensor connector
4. Connect the Engine oil pressure sensor connector **(2)**. Make sure it **clicks**!

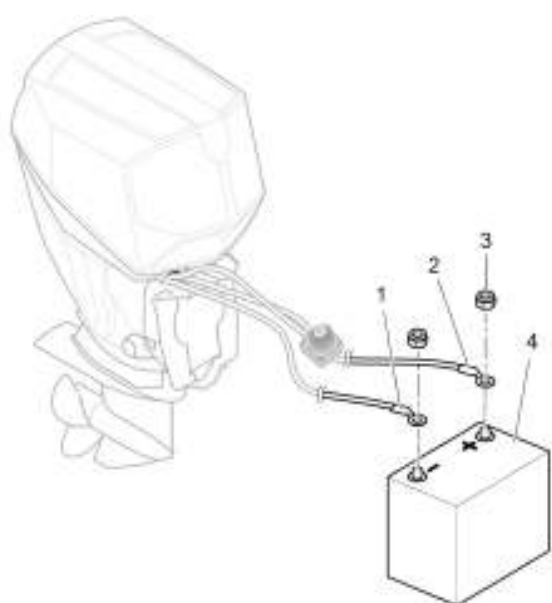
BATTERY SIZING

The recommended battery size is based on batteries used during our tests. The specified battery has proven good enough to ensure reliable operation so far. One battery per installed OXE outboard is recommended.

Battery specification	
Battery size	95Ah
Cranking current	850CCA
Battery cables between battery bank	
Maximum total cable length between battery banks (one way)	5 m
Minimum cable area	50 mm

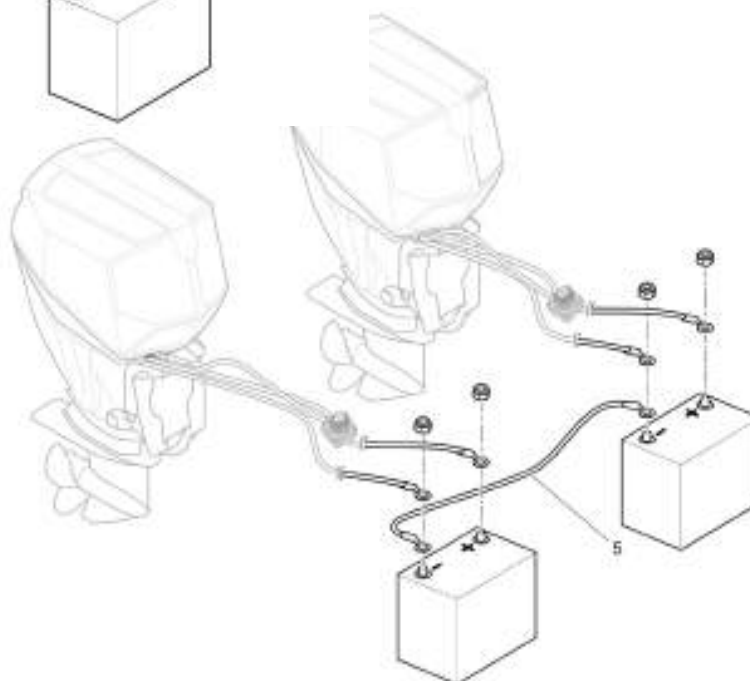
BATTERY CONNECTIONS

Single outboard



1. Black sleeve (negative)
2. Red sleeve (positive)
3. Hex nuts – Torque to 13.5 Nm (120 lb. in.)
4. Starting Battery
5. Ground Cable (Same Wire Size As Engine Battery Cable) – Connect Between Negative (–) Terminals

Twin installation



ELECTRIC POWER CABLE CONNECTION PROCESS

1. Install a main electric power switch on the (B+) side (See *specifications of length between battery and switch*)

From the main electric power switch:

- 2.** Install a separate (B+) power supply cable to the starter motor
(See layout and specifications of the cables in the picture below).
- 3.** Install a separate (B+) to the fuse box.
(See layout and specifications of the cables in the picture below).
- 4.** Prior to installing the ground cable – ensure that the main electric power switch is disengaged (OFF and ignition key is in the OFF-position).
- 5.** Install the ground cable to the specified torque on the alternator bracket and then install the other end to the battery (B-) Ground. Connect a common ground cable (wire size same as engine battery cables) between negative (–) terminals on starting batteries.

