service bulletin

No. 98-9

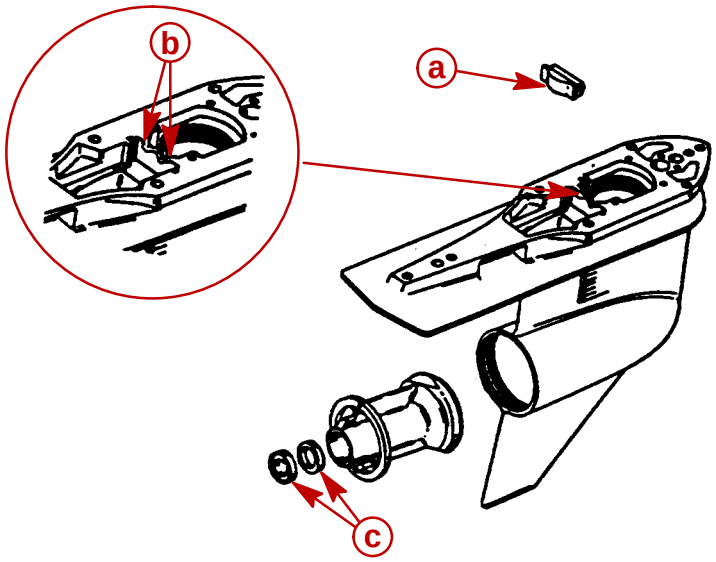
Burned Propeller Hubs and Shaft Seals 3.0 Litre

Models Affected

MERCURY/MARINER
1997 AND 1998, 225/250 HP, 3.0 LITRE
S/N 0G438000 Thru S/N 0G693841

Some 3.0 Litre outboards have experienced low hour failures of burned propeller shaft seals, propeller hubs, gear case rubber filler blocks, and accelerated corrosion of the gear case, caused by unusually hot exhaust. These problems generally result from a lack of cooling water to the gear case caused by the following items.

- Outboard mounted too high
- Outboard operated too high on a jack-plate
- Outboard trimmed too far out for boat application
- Cooling water being air-ventilated, or deflected by the hull, or attachments to the hull



a - Filler Block
b - Corroded Exhaust Dam
c - Propeller Shaft Seals

CORRECTION

Install High Speed Pick-up Plates P/N 17280A2 on outboards between serial numbers 0G438000 and 0G693841 and assure that the outboard is properly mounted as follows.

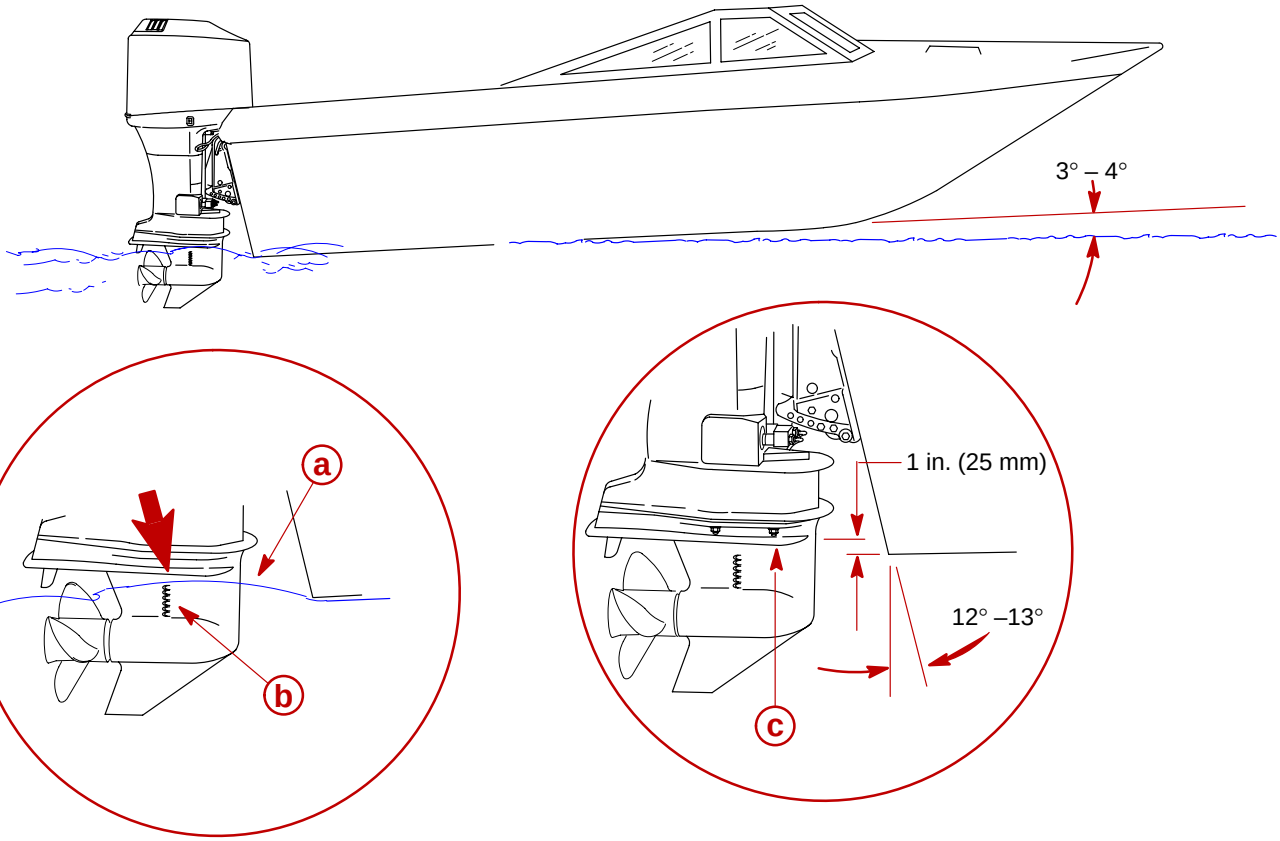
INSTALLATION GUIDELINES

The following are general rules for the mounting of large outboards on planing type boats, NOT for displacement type hulls. Rules are general in nature and may vary slightly for style/ type of boat and application. Anti-ventilation plate even with the bottom of the boat, will be referred to as standard engine height.

- The engine can be raised 1 in. (25 mm) above standard, for every 10 MPH (17 km/h) above 40 MPH (64 km/h) that the boat can achieve, not to exceed 5 in. (127 mm) above standard.
- For every 12 in. (305 mm) the outboard is behind the transom, or a notch in the transom, the engine can be raised 1in. (25 mm) above standard.
- Engines using standard production gear cases should NOT be mounted with the anti-ventilation plate higher then 5 in. (127 mm) above the bottom of the boat. Refer to the Operation and Installation manuals.
- Check and relocate hull attachments if they are the cause of air-ventilated water or if they deflect the supply of cooling water from the gear case. It is necessary to check for this problem in various degrees of turns as well as straight ahead.
- Trimming the engine beyond the point where boat attitude (bow lift) permits the maximum, wide-open throttle speed normally has no benefit, and can cause overheating of the engine and exhaust system. See the Operations and Maintenance Manual for proper power trim operation.
- Raising the engine height may result in the following.
  - Increase in boat speed
  - Decrease in steering torque
  - Expose the lower unit water inlet holes, to air causing engine overheat
  - Decrease bow lift
  - Increase time to plane boat

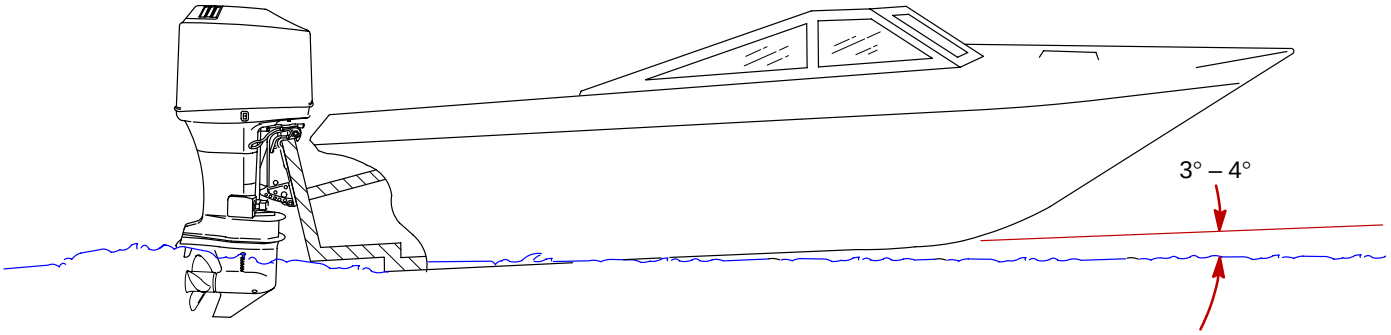
Following are examples of outboard to boat mounting combinations. These along with the general rules for mounting large outboards on planing type boat hulls, can be used as a guideline to assure adequate water supply to the engine.

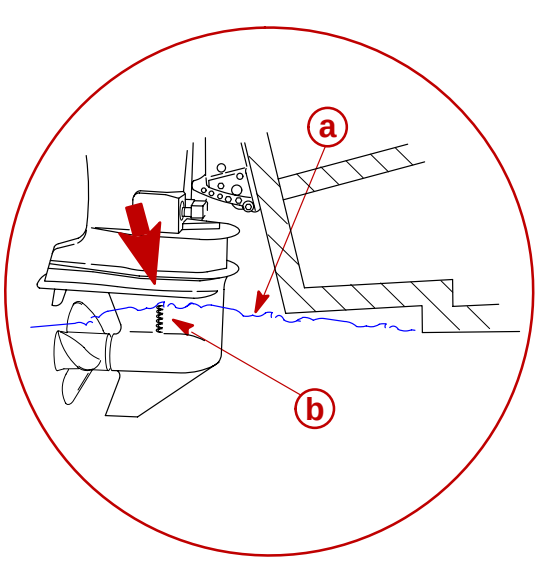
Example # 1 Boat with 12-13 degree transom angle (typical of most boats) provides good bow lift when outboard is trimmed out and a top speed in the low 50 MPH (80 km/h) range. With this combination, the anti-ventilation plate runs parallel to the water line and can be mounted 1 in. (25 mm) above the boat bottom.

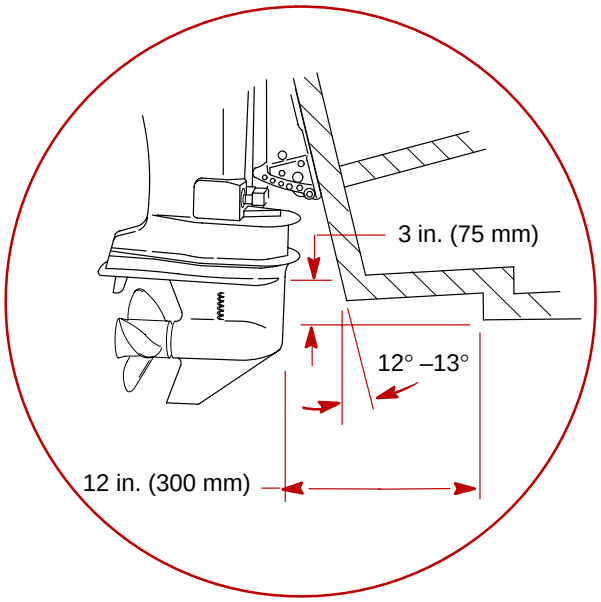


a - Water Line
b - Cooling Water Inlets
c - Anti-Ventilation Plate

Example # 2 Boat with notched transom provides good bow lift and is capable of running in the low 60 MPH (97 km/h) range. Boat speed, along with the notched transom, allows the engine to be mounted with the anti-ventilation plate 3 in. (75 mm) above the boat bottom.

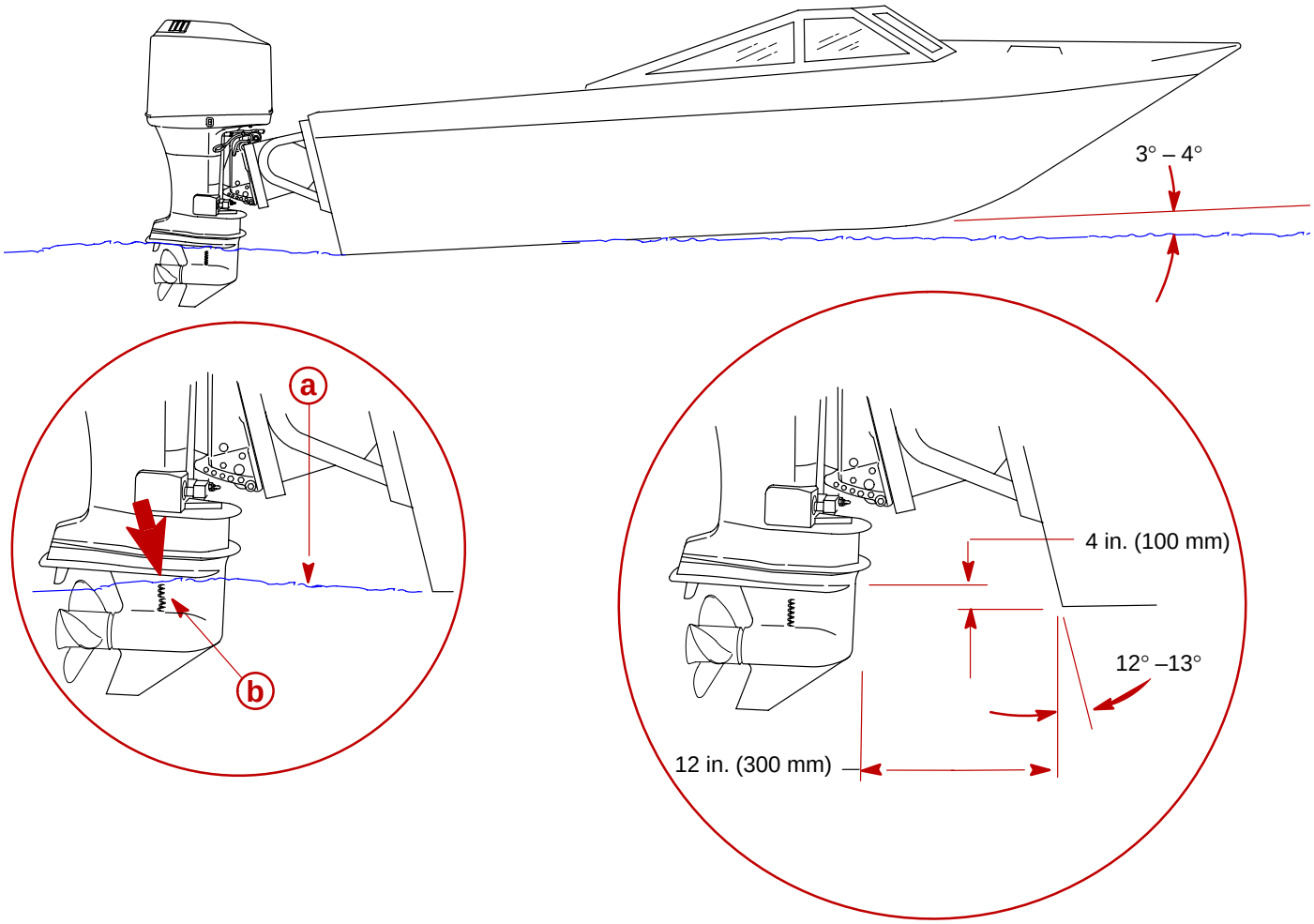






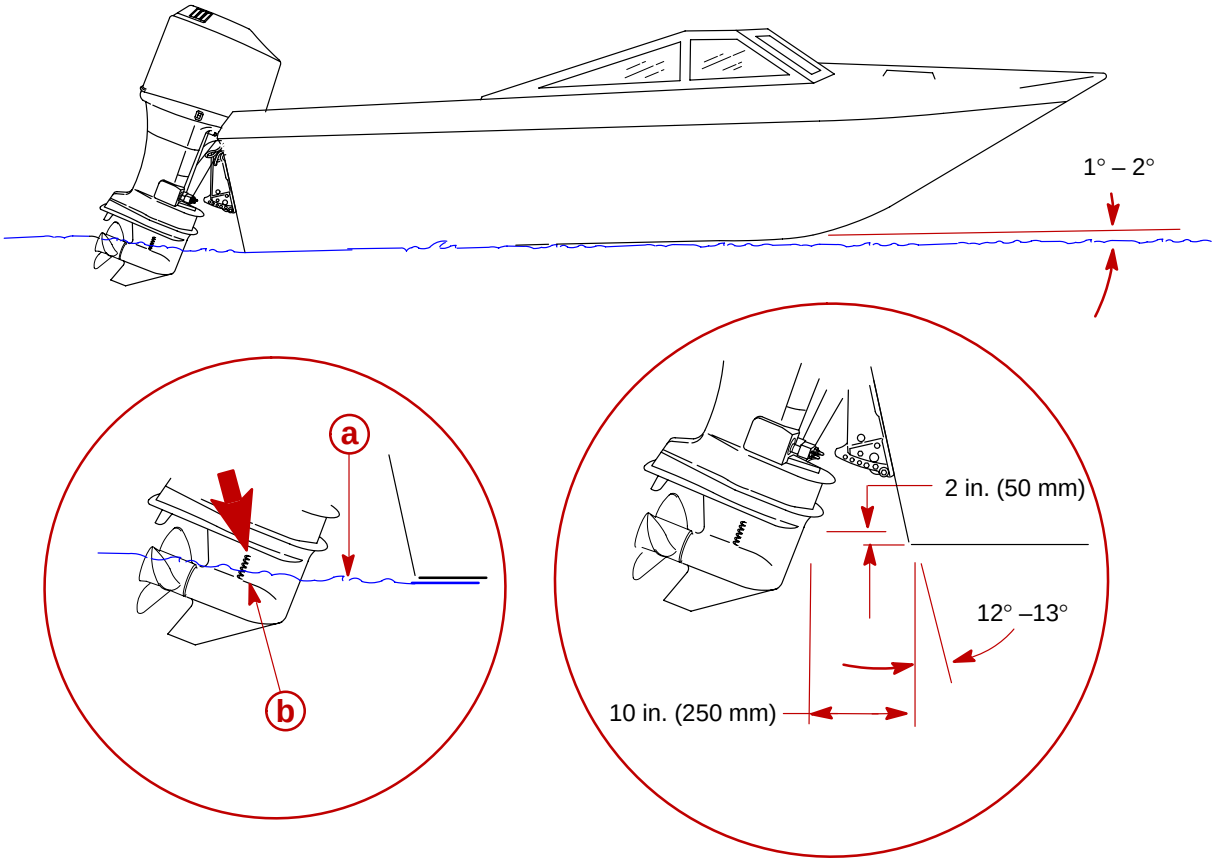
a - Water Line
b - Cooling Water Inlets

Example # 3 Boat using 12 in. (300 mm) set back plate, provides good bow lift and a top boat speed in the mid 70 MPH (113 km/h) range. In this application the boat speed allows us to raise the engine 3 in. (75 mm). The 12 in. (300 mm) set back plate gives us another 1 additional in. (25 mm) for a total of 4 in. (100 mm) above standard height.



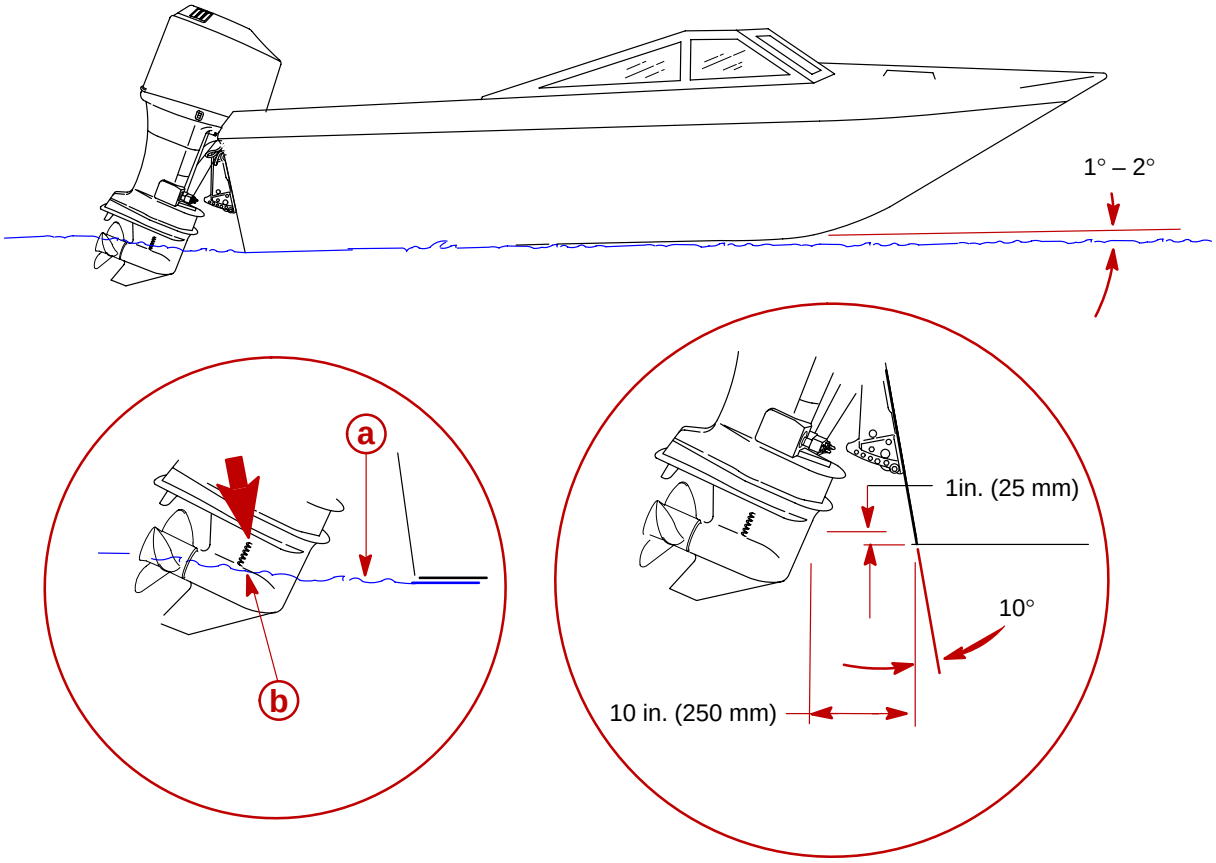
a - Water Line
b - Cooling Water Inlets

Example # 4 Boat with poor bow lift, in the full trim position, will allow the anti-ventilation plate to be above and at an angle to the water line. The upper water inlets are likely to draw in air causing overheating of the power head and/or exhaust system. Options would be to lower the engine, add high speed pick-up plates, limit the use of the power trim, or where possible move weight in the boat further aft (moving boat center of gravity further aft) to aid bow lift.



a - Water Line
b - Cooling Water Inlets

Example # 5 Boat has a top speed in the low 50 MPH (80 km/h) range, with poor bow lift and low transom angle. Due to the low transom angle, and poor bow lift, when the engine is fully trimmed out, the anti-ventilation plate is running above and at an extreme angle to the water line. The water inlet holes are almost completely out of the water. On this type of boat, even with the engine mounted all the way down on the transom, the engine may not receive adequate cooling. Options would be to install the high speed pick-up plates, limit the use of the trim, or where possible move weight in the boat further aft (moving boat center of gravity further aft) to aid bow lift.

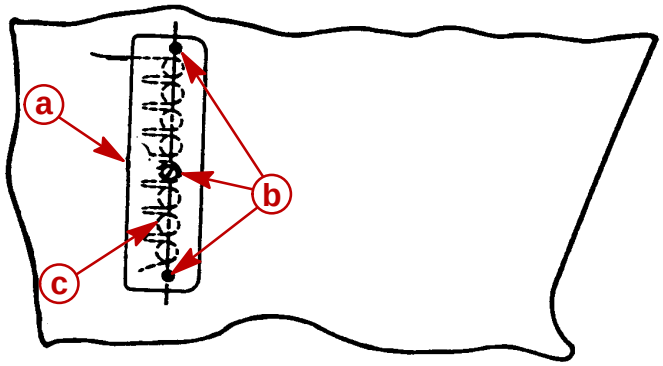


a - Water Line
b - Cooling Water Inlets

HIGH SPEED PICK-UP PLATES P/N 17280A2

Installation of high speed pick-up plates may increase water flow and help cooling of the engines exhaust system and power head.

NOTE: *The high speed pick-up plates have greater possibility of blockage from under water debris.*



a - High speed pick-up plate P/N 17280A2
b - Mounting bolts (3)
c - Water inlet holes (8) each side

PARTS REQUIRED

Qty. 1 If required P/N 17280A2 High speed pick-up plates

WARRANTY

During the warranty period, Mercury Marine will cover the installation of the high speed pick-up plates on sold outboards within this serial number range where the outboard is mounted per these recommendations. Addition of the plates on new, unsold outboards is recommended to avoid hot exhaust problems to outboards within the serial number range listed on this bulletin.

Installation of the new style exhaust tube (P/N 833116A7) will only be covered under warranty with pre-approval from Mercury Marine.

Complete warranty claim listing:

- Outboard serial number
- Quantity 1 P/N 17280A2
- One (1) hour labor (pick-up plates only)
- Flat Rate Code NJC
- Failure Code 699-00

US and Canada: Complete and process the warranty claim via Midas or return a warranty claim form.

International: Follow instructions issued by Marine Power International office or by your distributor.