MERCURY Racing service bulletin

MERCRUISER HI-PERFORMANCE SERIES No. 2001-01

☐ WARRANTY INFORMATION ☑ SERVICE INFORMATION

▲ = Revised May 2002. This bulletin supercedes the previous bulletin 2001-01 April 2001

Engine Block Water Pressure Requirements

Models

All MerCruiser Hi-Performance Series Bravo Models.

Situation

LOW OR EXCESSIVE ENGINE WATER PRESSURE

⚠ CAUTION

Overheating from insufficient cooling water will cause engine and drive system damage. Ensure that there is sufficient water always available at water inlet holes during operation.

Engine water pressure has become an increased concern on MerCruiser Hi-Performance Series engines that make use of the dual water inlet Bravo gear case. The dual water inlet gear case may not supply adequate water pressure and flow to the engine at the high drive installation “X” dimension heights that were used with the Low Water Inlet gear case. The power package installer must verify that the drive height will provide the engine with an adequate flow of water that meets the Mercury Racing specification for block water pressure.

Block Water Pressure Specification

- 20-30 psi (138-207 kPa) at Wide Open Throttle (WOT)
- Take pressure readings at the block drains on either side of the engine.
- Test at varying trim angles and in turns.

Operating engine with block water pressure below 20 psi (138 kPa):

- Overheating and engine damage can occur.

Operating engine with block water pressure above 30 psi (207 kPa):

- Leaks at the water pump and head gasket as well as water hose failure.

GEAR CASE FEATURES THAT AFFECT WATER PRESSURE

Low Water Pickup Gear Case

- Water inlets located below torpedo to provide water pressure at higher “X” dimensions than with a dual water inlet gear case.
- Due to a small amount of total water inlet area, there is high suction at the water inlets. The results of which are:
  a. Will clog easily with any bottom contact.
  b. Susceptible to clogging if run close to the bottom in shallow water or operated in weedy areas.
- At positive trim angles the inlets are under the torpedo in a low pressure area and may not supply adequate cooling water.

Dual Water Inlet Gear Case

- Will self clean if plugged by incidental contact with bottom, run very close to the bottom in shallow water or operated in weedy areas. (See following information on how to clear a gear case that has become clogged)
- Can deliver water to engine at all trim angles and turning attitudes if the gear case is not installed at too high an “X” dimension.
- Has increased total water inlet area which slows the velocity of the incoming water. The water inlets are less likely to draw in weeds and debris with lower water velocity.

Correction

BLOCK WATER PRESSURE IS BELOW SPECIFICATION - DUAL WATER INLET GEAR CASE

- Lower the “X” dimension.
- Install stainless steel plugs in the upper 4 holes of the strut water inlets (See information following on installing plugs).
- Install a low water pickup gear case.
- Install a transom or through-hull water pick-up.

NOTE: *Because stepped bottom boats have a layer of air under the boat, engine overheating can occur due to an aerated water supply with the use of transom or through-hull water pickups. Do not locate water pick-ups in an aerated water supply.*

BLOCK WATER PRESSURE IS BELOW SPECIFICATION - LOW WATER INLET GEAR CASE

- Lower the “X” dimension.
- Change to a propeller that will reduce the positive trim angle of the gear case.
- Install a transom or through-hull water pick-up.

NOTE: *Because stepped bottom boats have a layer of air under the boat, engine overheating can occur due to an aerated water supply with the use of transom or through-hull water pickups. Do not locate water pick-ups in an aerated water supply.*

BLOCK WATER PRESSURE IS ABOVE SPECIFICATION - LOW WATER OR DUAL WATER INLET GEAR CASE

- ▲Install Water Bypass Kit P/N 863208A3.

INSTALLING PLUGS IN STRUT INLETS OF DUAL WATER INLET DRIVE

Plug the upper four strut water inlet holes on each side of the gear case with stainless steel plugs (P/N 22-16581).

1. Tap water inlet holes with a 1/16-27 tapered pipe tap. Tap only to the depth required to bring the head of the plug flush with the water inlet hole.
2. Coat threads of stainless steel plugs with Mercury/Quicksilver Perfect Seal and thread into tapped holes until flush.
3. Paint plugs to help retard corrosion.

CLEARING A DUAL WATER INLET DRIVE

If engine temperature begins to rise and clogging of the water inlets is suspected.

- Idle the boat out to deep water.
- Bring the boat up on plane but operate at a moderate speed until the engine temperature and block water pressure returns to normal.

If engine temperature is normal but block water pressure is low.

- Clear the line going to the block water pressure gauge. It may take several clearings before the engine and line are free of debris.

Warranty

Proper installation of the MerCruiser Hi-Performance Series power package is the responsibility of the installer. Thorough boat testing must be done to insure that Mercury's specification for block water pressure is met.

SOME GENERAL EXCLUSIONS FROM WARRANTY

- Modifications to the drive (plugging the upper strut water inlets) cooling water system or boat in order to bring the engine water pressure into the required specification.
- Component failures due to overheating or excessive water pressure.