mercruiser STERNDRIVES & INBOARDS

service bulletin

TO: SERVICE MANAGER ☐ TECHNICIANS ☐
PARTS MANAGER ☐

No. 98-6

7.4L (L29) Exhaust Valve Inspection

Models

1998 MCM 7.4L Bravo Sterndrive Engines: S/N 0L014086-0L042226.

1998 MIE 7.4L Inboard Engines: S/N 0L002093-0L005220.

NOTE: *This Inspection does not affect any 1997 7.4L models or any 454 Magnum models.*

Situation

A machining problem occurred on some exhaust valves used in these engines. This problem can cause the engine to 'tulip' an intake valve or damage a piston from detonation.

Inspection

1. Be sure that the suspect engine is within model and serial number ranges given.
2. Look for White Mark on top of Flame Arrestor, as shown in repair. This shows that engine is good.

NOTE: *If no White Mark is on the Flame Arrestor, look on the rear of the Distributor Cap for a vertical White Paint Strip. Some good engines were marked this way.*

3. If there is no white mark, look at engine date code stamped into cylinder block. The suspect engine has to be between the date codes listed. All engines outside the listed date codes are good. Refer to MerCruiser Service Manual Number 23, section 3 for GM cylinder block date code location.
   MCM 7.4L Bravo Engines: T06128XW-T08198XW.
   MIE 7.4L Inboard Engines: T06128XY-T08198XY.
4. Remove all spark plugs. Inspect for signs of pre-ignition damage on the spark plug. Refer to MerCruiser Service Manual Number 23, Section 1C for spark plug analysis chart. If damage is seen on the spark plug, go to step 14.
5. If spark plugs look good, reinstall them and torque to 15 lb. ft. (20 N·m). Make sure the spark plug wires are routed correctly and seated on the spark plugs.
6. Make sure that both Knock Sensors are connected to the wiring harness.
7. The boat has to be tested in the water or on a service dynamometer because engine has to run under load at high RPM.
8. Start engine and set it at idle until it is at normal operating temperature. Using a scan tool, check for any trouble codes. Repair and clear before starting the test.
9. Put the scan tool in the service mode and check initial timing, 8° BTDC. Reset if not correct.
10. Run boat/engine at 2500-3500 RPM at 500 RPM intervals if boat is in the water. Run at 1/2 throttle if on a service dynamometer.

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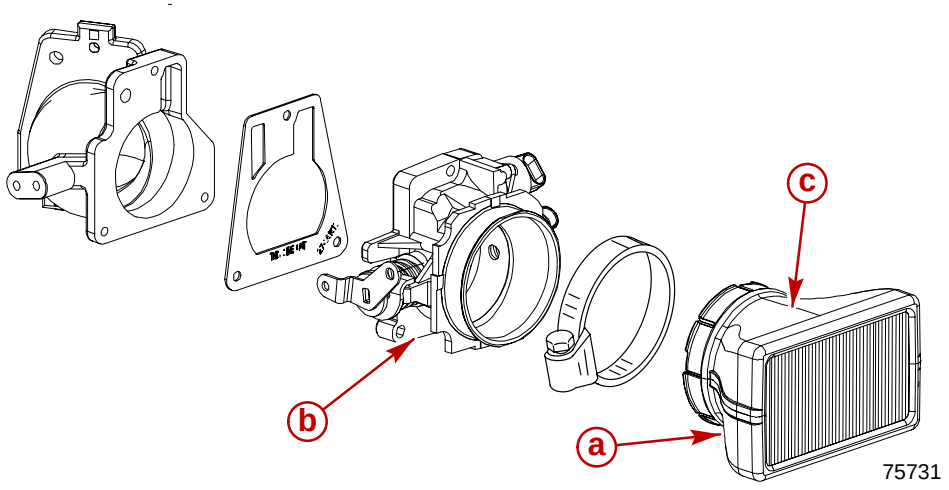
11. Watch ‘Knock Retard’ on scan tool and listen for ‘pinging or knocking’ sound from the engine.
    a. If noise is heard from engine or the timing is retarded 4.9°, quickly return the engine to idle RPM and shut it off. If in the water, return boat to dock at idle RPM. Go to step 14.
    b. If there is no noise or timing is not retarded 4.9° in ‘a’, then run the engine at wide-open-throttle. Again, listen for noise and watch for the timing to be retarding 4.9°. If either is present, return to idle RPM quickly and shut the engine off. If in the water, return boat to dock at idle RPM. Go to step 14.
12. If there was no noise or timing was not retarded 4.9° in ‘a’ or ‘b’, then the engine does not have suspect exhaust valves in it. Go to step 16.
13. If engine made noise or retarded timing 4.9° during tests in step 11, engine has at least 1 exhaust valve that is suspect.
14. Before ordering parts, remove both cylinder heads and inspect for ‘tulipped’ intake valves. Also inspect pistons and cylinder walls for signs of damage. Put each piston at BDC and look for piston ‘scuffing’ on the cylinder walls. ‘Scuffing’ is the transfer of piston material to the wall or vertical grooves in the wall.

NOTE: *If the intake valves are ‘tulipped’ or there is damage to the cylinder wall or the piston, a new long block has to be ordered.*

15. If there is no damage to the intake valves, pistons or cylinder walls, order one 7.4L Exhaust Valve Kit.

NOTE: *This kit contains all the parts, gaskets and torque specifications to replace all the exhaust valves in one engine. Refer to MerCruiser Service Manual Number 23 for complete repair procedures. No magna fluxing or machining of cylinder head or valves will be required. Inspect exhaust valve seats in the cylinder head before reassembly.*

16. After the repair or inspection, place a White Paint Mark on the Flame Arrestor at location shown below. This mark will tell other dealers that the engine has been inspected and repaired if required.



a - Flame Arrestor.
b - Throttle Body.
c - White Paint Mark.

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Exhaust Valve Kit Part Number

P/N 814506A 1 7.4L Exhaust Valve Kit.

Warranty

Fill out warranty claim and send it to your normal warranty processing center. More than one engine can be put on the warranty claim if you list the part number, engine model, serial number, warranty code and labor hours for each engine on separate lines onwarranty claim.

Warranty Code and Labor.

Inspection only (Steps 1-3):	EXCP 0.5 Hours.
Test run only (Steps 4-12):	EXCP 2.0 Hours.
Inspect and replace valves (Steps 13-16):	EXCP 10.0 Hours.
Inspect and replace long block (Steps 13-16):	Use flat rate time listed in MerCruiser flat rate.

Old Part: USA and Canada: Return only exhaust valves with warranty claim.
All Others: Retain for disposition by a Marine Power representative.

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