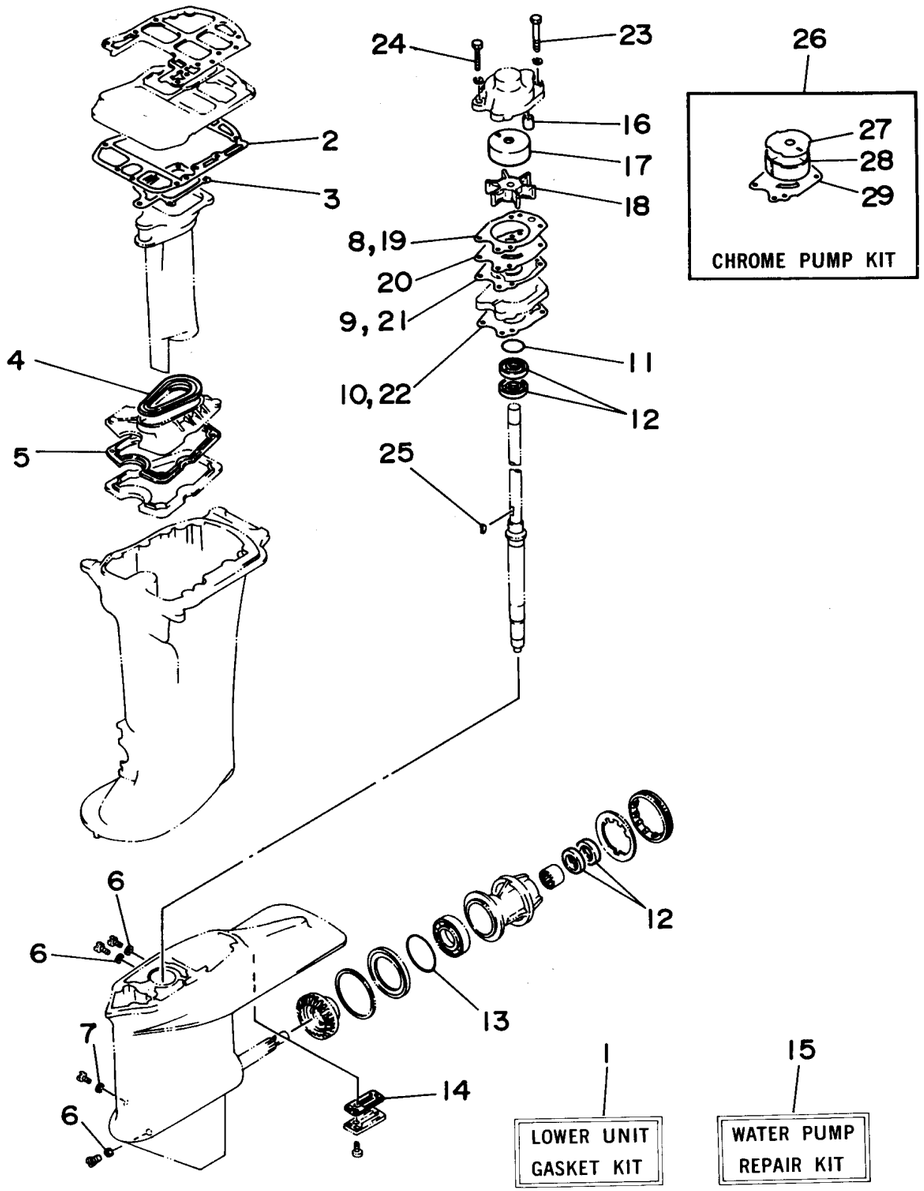
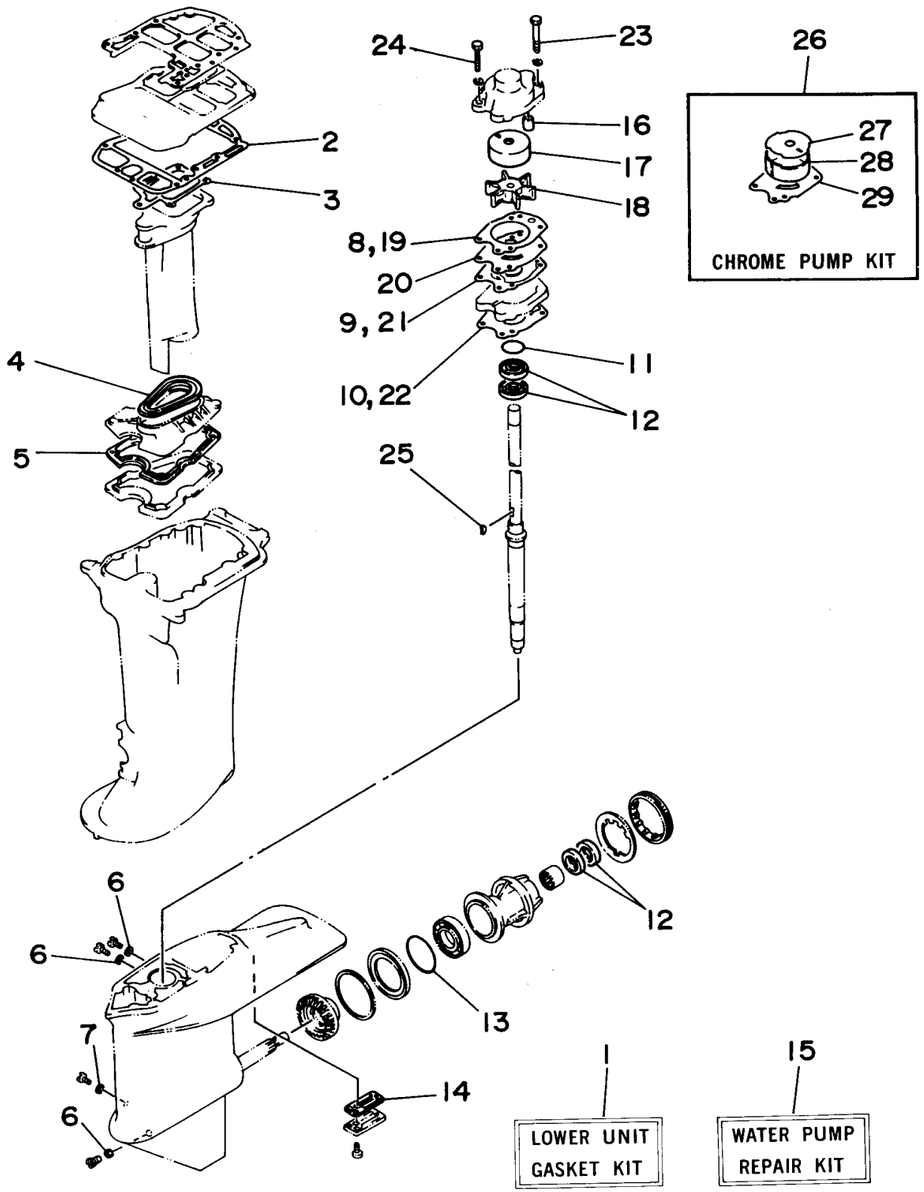


REPAIR KIT 2

Ref No.	Part Number	Description	Qty	Remarks
1	6A0-W0001-22-00	LOWER UNIT GASKET KIT	1	
2	676-45114-A0-00	. GASKET, UPPER CASING	1	
3	676-41133-A0-00	. GASKET, EXHAUST MANIFOLD 1	1	
4	676-45127-00-00	. SEAL	1	
5	676-45128-00-00	. SEAL 2	1	
6	90430-08020-00	. .GASKET	3	
7	90430-06M03-00	. .GASKET	1	
8	676-44315-A0-00	. GASKET, WATER PUMP	1	
9	676-44324-A0-00	. GASKET, CARTRIDGE	1	
10	679-44316-A0-00	. GASKET, WATER PUMP	1	
11	93210-41042-00	. O-RING	1	
12	93101-22067-00	. .OIL SEAL	4	
13	93210-66M98-00	. O-RING	1	
14	679-45315-A1-00	. PACKING, LOWER CASING	1	
15	679-W0078-01-00	WATER PUMP REPAIR KIT	1	
16	663-44366-00-00	. DAMPER, WATER SEAL 2	1	
17	676-44322-00-00	. INSERT, CARTRIDGE	1	
18	6F5-44352-00-00	. IMPELLER	1	
19	676-44315-A0-00	. GASKET, WATER PUMP	1	
20	676-44323-00-00	. OUTER PLATE, CARTRIDGE	1	

CONTINUED ON NEXT FRAME >



REPAIR KIT 2

Ref No.	Part Number	Description	Qty	Remarks
21	676-44324-A0-00	. GASKET, CARTRIDGE	1	
22	679-44316-A0-00	. GASKET, WATER PUMP	1	
23	97095-08055-00	. BOLT	2	
24	97095-08045-00	. .BOLT	2	
25	90280-04M00-00	. KEY, WOODRUFF	1	
26	676-W0078-0A-00	CHROME PUMP KIT	1	
27	676-44321-40-00	. INNER PLATE, CARTRIDGE	1	
28	676-44322-40-00	. INSERT, CARTRIDGE	1	
29	676-44323-40-00	. OUTER PLATE, CARTRIDGE	1	

Technical BULLETIN

1997 MODELS

PRIMARY I.D. NUMBERS AND PROPELLER, CONTROLS, FUEL TANK & RIGGING ITEMS SHIPPING LOCATION

INTRODUCTION

For identification purposes, the factory has released the following list of primary I.D. numbers. Production of 1997 models started with the numbers listed below. Shipping locations for propellers and other rigging hardware are listed to the right of each model's primary I.D. number. For an explanation of the 1997 model identification codes, please refer to the chart at the end of this bulletin.

NOTE: To simplify the various control and rigging kit options for the dealer, the Sales department has instituted a Kitting Program for 1997. Because of this Kitting Program, the standard equipment can vary. For more details refer to Tech Exchange O96-011 or contact your Marketing Representative.

MODEL	STARTING I.D.	PROPELLER	CONTROL	FUEL TANK	RIGGING ITEMS
2MSHV	6A1-177165	CRATE	N/A	N/A	N/A
3MSHV	6L5S-057799	CRATE	N/A	N/A	N/A
3MLHV	6L5L-311477	CRATE	N/A	N/A	N/A
4MSHV	6E0S-160048	CRATE	N/A	N/A	N/A
4MLHV	6E0L-352848	CRATE	N/A	N/A	N/A
5MSHV	6E3S-017855	CRATE	N/A	N/A	N/A
5MLHV	6E3L-312209	CRATE	N/A	N/A	N/A
6MSHV	6M8S-003801	CRATE	N/A	SEPARATE	N/A
6MLHV	6M8L-303150	CRATE	N/A	SEPARATE	N/A
8MSHV	6N0S-008601	CRATE	N/A	SEPARATE	N/A
8MLHV	6N0L-305564	CRATE	N/A	SEPARATE	N/A
9.9MSHV	682CS-155717	CRATE	N/A	SEPARATE	N/A
9.9MLHV	682CL-455706	CRATE	N/A	SEPARATE	N/A
9.9ESHV	682CS-700311	CRATE	N/A	SEPARATE	N/A
9.9ELRV	682CL-690216	CRATE	CRATE	SEPARATE	CRATE
F9.9MSHV	6G9S-009927	CRATE	N/A	SEPARATE	N/A
F9.9MLHV	6G9L-307742	CRATE	N/A	SEPARATE	N/A
T9.9MLHV	6G8L-304349	CRATE	N/A	SEPARATE	N/A
T9.9ELHV	6G8L-471752	CRATE	N/A	SEPARATE	N/A
T9.9MXHV	6G8UL-703344	CRATE	N/A	SEPARATE	N/A
T9.9EXHV	6G8UL-787945	CRATE	N/A	SEPARATE	N/A
T9.9ELRV	6G8L-412586	CRATE	CRATE	SEPARATE	CRATE
T9.9EXRV	6G8UL-762268	CRATE	CRATE	SEPARATE	N/A
15MSHV	684CS-405638	CRATE	N/A	SEPARATE	N/A
15MLHV	684CL-153440	CRATE	N/A	SEPARATE	N/A

ROUTE TO: ☐ SERVICE ☐ PARTS ☐ WARRANTY ☐ SALES

MODEL	STARTING I.D.	PROPELLER	CONTROL	FUEL TANK	RIGGING ITEMS
15ESHV	684CS-300231	CRATE	N/A	SEPARATE	N/A
15ELHV	684CL-600581	CRATE	N/A	SEPARATE	N/A
20MSHV	6L3S-003408	CRATE	N/A	SEPARATE	N/A
20MLHV	6L3L-304119	CRATE	N/A	SEPARATE	N/A
25MSHV2	6L2S-111644	CRATE	N/A	SEPARATE	N/A
25MLHV2	6L2L-405543	CRATE	N/A	SEPARATE	N/A
25ESHV	6L2S-253373	CRATE	N/A	SEPARATE	N/A
25ELHV	6L2L-552726	CRATE	N/A	SEPARATE	N/A
25ELRV	6L2L-481148	CRATE	CRATE	SEPARATE	CRATE
25MSHV3	6K9S-200281	CRATE	N/A	SEPARATE	N/A
25MLHV3	6K9L-500176	CRATE	N/A	SEPARATE	N/A
C25MSHV	695S-041604	CRATE	N/A	SEPARATE	N/A
C25MLHV	695L-332562	CRATE	N/A	SEPARATE	N/A
C25ELHV	695L-403276	CRATE	N/A	SEPARATE	N/A
C25ELRV	695L-560377	CRATE	SEPARATE	SEPARATE	CRATE
30MSHV	6J8S-108684	CRATE	N/A	SEPARATE	N/A
30MLHV	6J8L-407535	CRATE	N/A	SEPARATE	N/A
30ELHV	6J8L-760441	CRATE	N/A	SEPARATE	N/A
30ESRV	6J8S-155578	CRATE	CRATE	SEPARATE	CRATE
30ELRV	6J8L-461450	CRATE	CRATE	SEPARATE	CRATE
C30ELRV	61TL-402644	CRATE	SEPARATE	SEPARATE	CRATE
40MSHV	6H4S-191155	ORDER YPAD	N/A	SEPARATE	CRATE
40MLHV	6H4L-491030	ORDER YPAD	N/A	SEPARATE	CRATE
40ESRV	6H4S-110507	ORDER YPAD	SEPARATE	SEPARATE	CRATE
40ELRV	6H4L-841774	ORDER YPAD	SEPARATE	SEPARATE	CRATE
40TLRV	6H4L-543418	ORDER YPAD	SEPARATE	SEPARATE	CRATE
40TLHV	6H4L-430241	ORDER YPAD	N/A	SEPARATE	TILLER KIT
40MJHV	6H4S-191175	N/A*	N/A	SEPARATE	CRATE*
40EJRV	6H4S-820221	N/A*	CRATE	SEPARATE	CRATE*
C40ELRV	6E9L-556824	ORDER YPAD	SEPARATE	SEPARATE	CRATE
C40MSHV	6E9S-011803	ORDER YPAD	N/A	SEPARATE	N/A
C40PLRV	6E9L-338274	ORDER YPAD	SEPARATE	SEPARATE	CRATE
C40ESHV	6E95-110325	ORDER YPAD	SEPARATE	SEPARATE	CRATE
E48MLHV	670L-381379	ORDER YPAD	N/A	SEPARATE	N/A
50EJRV	6H5S-090316	N/A*	CRATE	N/A	CRATE*
50TLHV	6H5L-590261	ORDER YPAD	N/A	N/A	TILLER KIT
50TLRV	6H5L-443259	ORDER YPAD	SEPARATE	N/A	50-90 KIT
F50TLRV	62YL-405003	ORDER YPAD	SEPARATE	N/A	CRATE
F50TLHV	62YL-450872	ORDER YPAD	N/A	N/A	TILLER KIT
T50TLRV	64JL-401005	ORDER YPAD	SEPARATE	N/A	CRATE
C60TLRV	6H2L-353657	ORDER YPAD	SEPARATE	N/A	CRATE
P60TLHV	6H2L-551529	ORDER YPAD	N/A	N/A	TILLER KIT
E60MLHV	6K5L-312655	ORDER YPAD	N/A	SEPARATE	N/A
70TLRV	6H3L-488888	ORDER YPAD	SEPARATE	N/A	50-90 KIT
P75TLHV	692L-900196	ORDER YPAD	N/A	N/A	TILLER KIT
E75MLHV	692L-514527	ORDER YPAD	N/A	SEPARATE	N/A
C80TLRV	6H0L-351385	ORDER YPAD	SEPARATE	N/A	CRATE
90TLRV	6H1L-493116	ORDER YPAD	SEPARATE	N/A	50-90 KIT
B90TLRV	6H1L-493261	ORDER YPAD	SEPARATE	N/A	50-90 KIT
90TJRV	6H1L-493311	N/A*	CRATE	N/A	CRATE*

MODEL	STARTING I.D.	PROPELLER	CONTROL	(A) OIL TANK	RIGGING ITEMS
115TLRV	6E5L-400614	ORDER YPAD	SEPARATE	SEPARATE	VL KIT
S115TLRV	6E5L-400664	ORDER YPAD	SEPARATE	SEPARATE	VL KIT
S115TXRV	6E5UL-727472	ORDER YPAD	SEPARATE	SEPARATE	VX KIT
C115TLRV	6E5L-329256	ORDER YPAD	SEPARATE	N/A	CRATE
C115TXRV	6E5UL-522556	ORDER YPAD	SEPARATE	N/A	CRATE
115TJRV	**6E5L-400614**	**N/A***	**SEPARATE**	**CRATE**	**CRATE***
130TLRV	**6L1L-308805**	**ORDER YPAD**	**SEPARATE**	**SEPARATE**	**VL KIT**
S130TLRV	**6L1L-308845**	**ORDER YPAD**	**SEPARATE**	**SEPARATE**	**VL KIT**
S130TXRV	**6L1UL-704230**	**ORDER YPAD**	**SEPARATE**	**SEPARATE**	**VX KIT**
L130TXRV	**6L6UL-701646**	**ORDER YPAD**	L KIT	**L KIT**	**L KIT**
150TLRV	6G4L-350635	ORDER YPAD	SEPARATE	SEPARATE	VL KIT
S150TLRV	6G4L-350574	ORDER YPAD	SEPARATE	SEPARATE	VL KIT
S150TXRV	6G4UL-501239	ORDER YPAD	SEPARATE	SEPARATE	VX KIT
L150TXRV	6K0UL-500361	ORDER YPAD	L KIT	L KIT	L KIT
P150TLRV	6J9L-500750	ORDER YPAD	SEPARATE	SEPARATE	VL KIT
D150TLRV	**6J9L-600101**	**CRATE**	**SEPARATE**	**SEPARATE**	**VL KIT**
C150TLRV	**6G4L-303795**	**ORDER YPAD**	**SEPARATE**	**N/A**	**CRATE**
C150TXRV	**6G4UL-702190**	**ORDER YPAD**	**SEPARATE**	**N/A**	**CRATE**
150TJRV	**6G4L-350584**	**N/A***	**SEPARATE**	**CRATE**	**CRATE***
P175TLRV	**62HL-500263**	**ORDER YPAD**	**SEPARATE**	**SEPARATE**	**VL KIT**
S175TXRV	6G5UL-500434	ORDER YPAD	SEPARATE	SEPARATE`	VX KIT
200TLRV	6G6L-350387	ORDER YPAD	SEPARATE	SEPARATE	VL KIT
S200TXRV	6G6UL-501890	ORDER YPAD	SEPARATE	SEPARATE	VX KIT
L200TXRV	6K1UL-500570	ORDER YPAD	L KIT	L KIT	L KIT
P200TLRV	61HL-500695	ORDER YPAD	SEPARATE	SEPARATE	VL KIT
225TLRV	**6K7L-450173**	**ORDER YPAD**	**SEPARATE**	**SEPARATE**	**VL KIT**
S225TXRV	**62JUL-100101**	**ORDER YPAD**	**SEPARATE**	**SEPARATE**	**VX KIT**
L225TXRV	**62KUL-100101**	**ORDER YPAD**	**L KIT**	**L KIT**	**L KIT**
S225TURV	**62JSU-200101**	**ORDER YPAD**	**SEPARATE**	**SEPARATE**	**VX KIT**
L225TURV	**62KSU-200101**	**ORDER YPAD**	L KIT	**L KIT**	**L KIT**
S250TXRV	61AUL-100101	ORDER YPAD	SEPARATE	SEPARATE	VX KIT
L250TXRV	61BUL-100101	ORDER YPAD	L KIT	L KIT	L KIT
S250TURV	61ASU-200101	ORDER YPAD	SEPARATE	SEPARATE	VX KIT
L250TURV	61BSU-200101	ORDER YPAD	L KIT	L KIT	L KIT

*Jetdrive Models have the jet pump shipped separately.

KEY:

N/A	**Model does not include this item as standard equipment**
CRATE	**These items are included in the crate with the unit.**
SEPARATE	**If ordered, these items are shipped in a separate box.**
50-90 KIT	**50, 70, 90 Rigging Kit**
VL KIT	**If ordered, V4/V6 Long Shaft Rigging Kit (20" Shaft)**
VX KIT	**If ordered, V4/V6 Extra/Ultra Long Shaft Rigging Kit (25" & 30" Shaft)**
L KIT	**V4/V6 Left Hand Rigging Kit**
ORDER YPAD	**Item is not standard equipment. Order from YPAD.**
TILLER KIT	**40TLH to P75TLH Tiller Handle Rigging Kit**

NOTE: All models that used a rigging kit still have some basic rigging items, such as mounting bolts and steering arm, included in the unit crate. Also, all left hand models have the dual engine tie bar included in the crate.

(A) If rigging kit is ordered, oil tank is included with rigging kit.

SUBJECTS: 1. General Engine Break-in Key Points - All Models
2. Special EFI Engine Break-in Key Points - S225, S250
3. 1997 Outboard Support Literature

General Engine Break-in Key Points - All Models

Proper engine break-in can increase the life of any engine. The Yamaha Engine Break-in Procedure is designed to maintain engine component temperatures within an acceptable range to provide the best engine life expectancy. The detailed engine break-in procedure is explained in the Owner's Manual for each engine. Some key points are as follows:

- Use 50:1 premix with oil injected models for the first 10 hours of operation. (25:1 for premix models.)
- Let the engine idle for the first 10 minutes of operation.
- Do not exceed 1/2 throttle (3000 rpm) for the next 50 minutes. **DO NOT ATTEMPT PLANING WITH A LARGE HEAVY BOAT.**
- Second hour - Accelerate at full throttle onto plane and reduce the throttle to 3/4 throttle (4000 rpm). Allow about 10 minutes at 3/4 throttle for engine to cool internally. Vary engine speed occasionally. Occasionally run the engine at full throttle for short periods of one minute each. Again, allow engine to cool after each full throttle operation.
- Third to tenth hour - Avoid operating at full throttle for more than 5 minutes at a time. Allow the engine to cool after each full throttle operation, varying engine speed occasionally. For the S225V & S250V EFI models, avoid operating the engine at 2000 rpm or below for more than one hour at a time.
- After 10 hours - Operate the engine normally. Use only straight gasoline for oil injection models and premix (with the specified ratio) for other engine models.

Additional points:

- DO NOT RUN THE ENGINE IN NEUTRAL FOR EXTENDED PERIODS. In neutral, there is no load on the engine. Because of this, some internal parts (e.g., the pistons) will tend to move in a different pattern than normal. This may result in parts wearing incorrectly.
- FOR S225V & S250V EFI MODELS, DO NOT RUN THE ENGINE FOR MORE THAN ONE HOUR BELOW 2000 RPM (EVEN IN GEAR). During break in, with both premix fuel and oil injection, there will be excessive oil below 2000 rpm. This excess oil will interfere with proper oxygen sensor operation.

Engine Break-in Key Points For the 1997 S225 & S250 - EFI Models

The Yamaha Electronic Fuel Injection (EFI) System uses an oxygen sensor. This sensor allows the computer to adjust the fuel mixture to produce the best running engine in the market. (For more information on this system, see the S225V, S250V, L225V, L250V Service Guide included with the 1997 Marine Technical Guide.) This oxygen sensor does create some important differences when compared to a standard engine, which are as follows:

- DO NOT DISCONNECT THE OIL PUMP CONTROL ROD FOR ANY EXTENDED TIME. The oil pump will be at maximum output with the oil pump control rod disconnected. This will cause excessive oil to be injected into the engine at the lower engine speeds. This excessive oil will build up inside the oxygen sensor cavity and interfere with the sensor's normal operation. When the throttle is increased to the higher power

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Send your tips to: Yamaha Motor Corporation, U.S.A., Attn: Tech Exchange, P.O. Box 6555, Cypress, CA 90630

settings, it will take time for this oil to dissipate. During this time, the EFI system can operate excessively lean resulting in possible engine damage. If the oil pump arm is left disconnected, reconnect it and operate the engine only around 4000 rpm for a few minutes. This will clear the excess oil from the engine.

- **WHEN MIXING THE 50:1 PREMIX USED FOR THE BREAK-IN PERIOD, INSURE THE OIL IS PROPERLY MIXED WITH THE FUEL AND THE RATIO DOES NOT EXCEED 50:1.** It is recommended (for larger boats) to mix the oil first in a separate container before adding it to the main fuel tank. The oil can easily settle to the bottom of the fuel when you add large amounts of oil directly to a large fuel tank. This may result in the engine receiving an extremely rich fuel oil mixture. This will cause conditions similar to leaving the oil pump arm disconnected.
- **DO NOT OPERATE THE ENGINE WITH THE COMPUTER BYPASSED BY THE EMERGENCY CIRCUIT UNLESS NECESSARY.** The mixture will be rich at the lower speeds and lean at high speeds (over 3500 rpm) with the computer bypass. Operation above 3500 rpm could result in engine damage caused by the lean condition. Operation at the lower speeds will cause excessive fuel to build up in the oxygen sensor cavity. After returning the computer to normal operation, use only partial throttle (around 4000 rpm for a few minutes) to allow the engine time to burn off the excess fuel. This will insure proper oxygen sensor and engine operation.
- **DO NOT USE LEADED FUEL.** This will permanently damage the oxygen sensor. Lead will plug the sensor and can not be removed with any cleaner. The sensor will require replacement. (See the S/L225V & S/L250V Owner's Manual pages 1-10 & 4-4 or Tech Exchange O97-001.)

In addition, make a visual inspection of the fuel system in the boat. A small or dirty fuel filter, small fuel selector valve, pinched fuel line, etc. may cause fuel restriction to the motor. The high power EFI engines do require a good supply of fuel. If any problem is suspected, test for fuel restriction as described on page 7-54 of the "1997 Marine Technical Guide" and on Tech Exchange O96-002.

1997 Outboard Support Literature - All Models

In addition to the Marine Field Seminar during December of 1996, the following 1997 service materials were sent to all dealers:

- 1997 Marine Technical Guide - including:
  - Highlights of Changes for 1997
  - 1997 Model Guide
  - S225V, S250V, L225V, L250V Service Guide (EFI System)
  - D150 Service Guide (Twin Rotating Propeller System)
  - 64E Clamp Bracket Unit with Power Trim & Tilt Service Guide
  - Technical Service Information - Including Troubleshooting Tips
  - Reference Material
- 1997 Marine Tune-up Specs Guide (LIT-18559-00-97)
- S225/S250 EFI System Troubleshooting Video
- 225/250 EFI Wiring Diagram
- Wiring Diagram for V6 Oil Injected & V6 Premix Models

This material was developed to aid in both selling and servicing Yamaha Marine products. Make sure all of your dealership staff is familiar with this material.

The following documents are of special interest and may be found in the "1997 Marine Technical Guide" as indicated:

- 1997 Outboard Diagnostic Reference List (pages 7-1 & 8-40)
- V6 Model Engine Variations (150 to 225 2.6L) (page 7-19)
- Oil Warning System Operation Chart ('84 - '97)(page 7-38)
- Prime Start System Chart ('85 - '97) (page 7-46)

If help is needed, Yamaha Phone Numbers are on page 8-37.