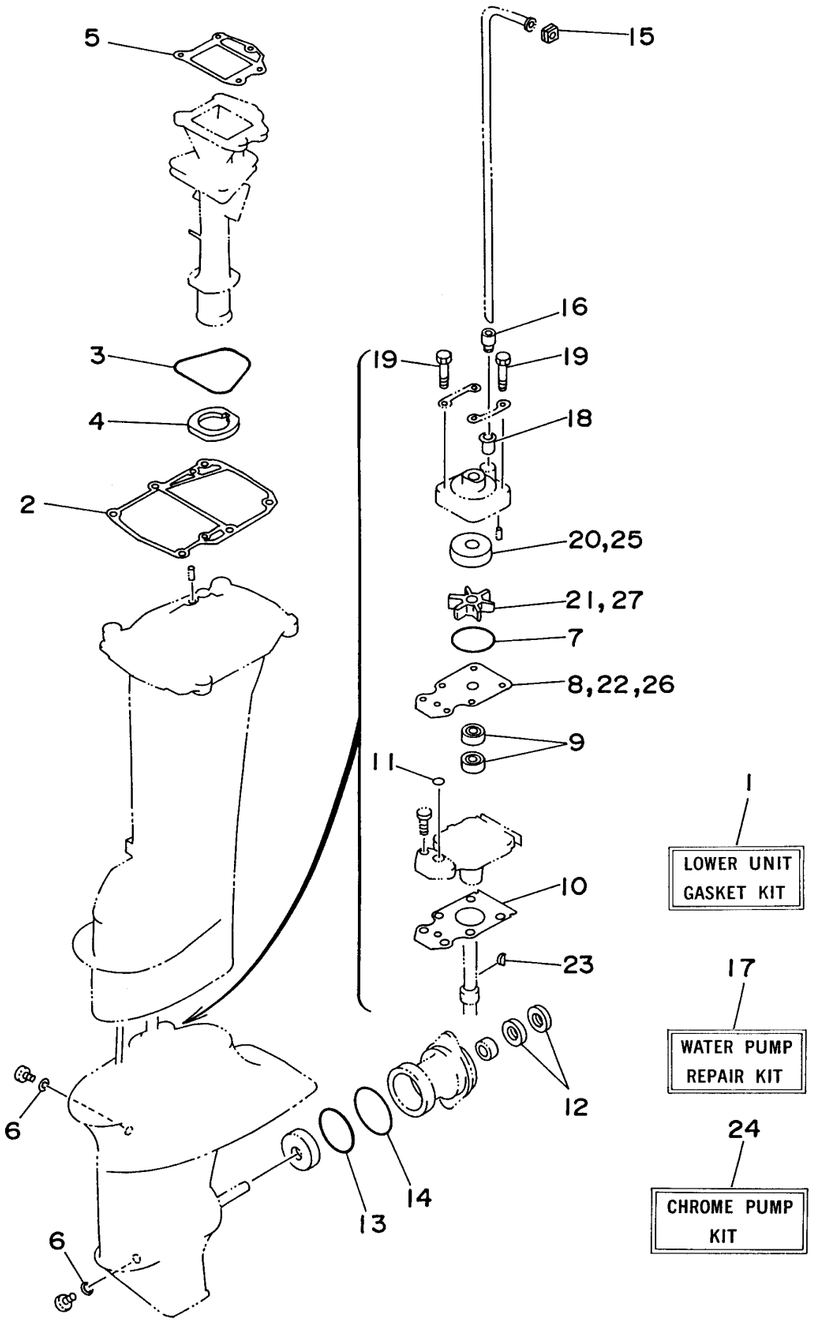


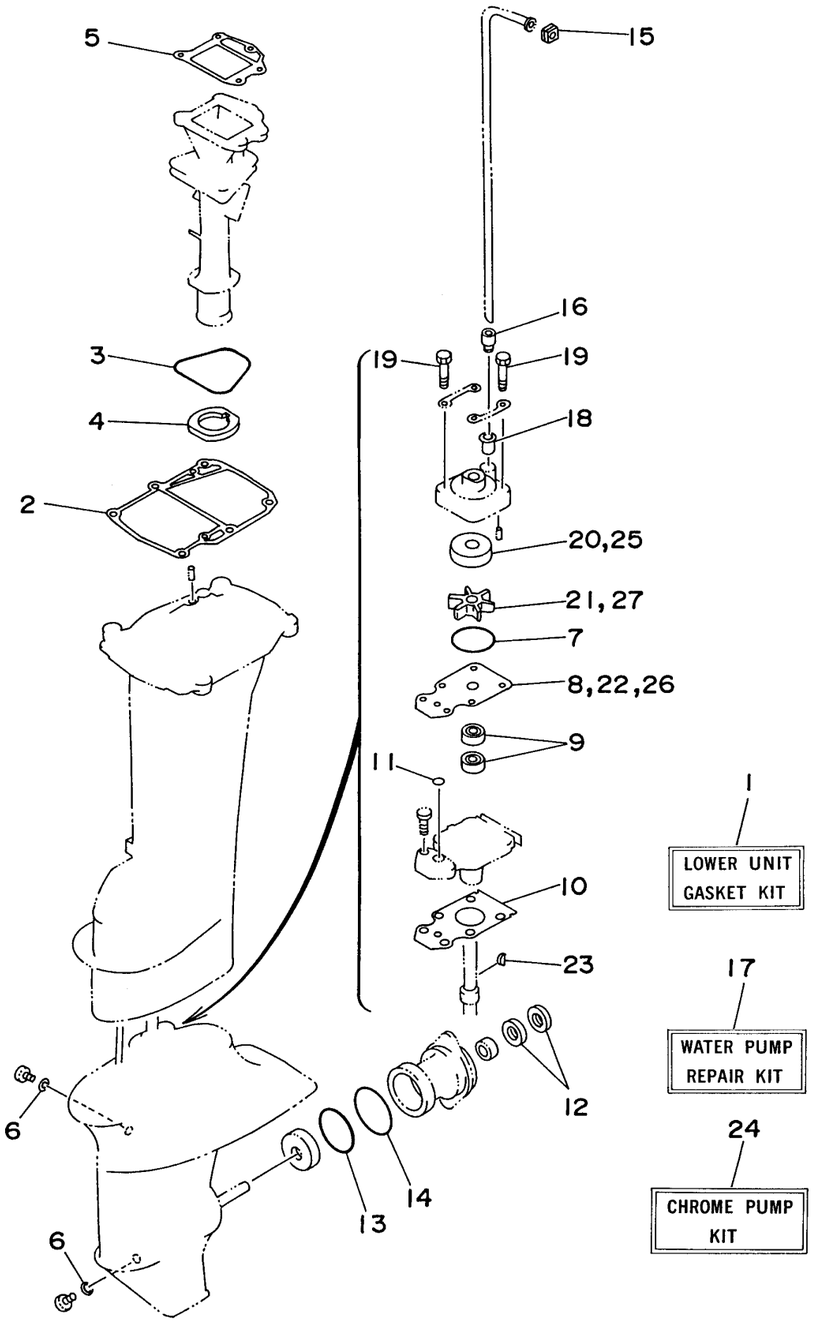
63VJA-5210

9_9_mh_eh_er_v

REPAIR KIT 2

Ref No.	Part Number	Description	Qty	Remarks
1	63V-W0001-21-00	LOWER UNIT GASKET KIT	1	
2	63V-45113-A1-00	. .GASKET, UPPER CASING	1	
3	93210-71MH6-00	. O-RING	1	
4	63V-41135-00-00	. .GASKET, EXHAUST MANIFOLD	1	
5	63V-41133-A1-00	. .GASKET, EXHAUST MANIFOLD 1	1	
6	90430-08020-00	. .GASKET	2	
7	93210-44704-00	. O-RING	1	
8	63V-44323-00-00	. .OUTER PLATE, CARTRIDGE	1	
9	93101-20048-00	. .OIL SEAL	2	
10	63V-45315-A0-00	. .PACKING, LOWER CASING	1	
11	93210-06ME6-00	. .O-RING	1	
12	93101-17054-00	. .OIL SEAL	2	
13	93210-57M09-00	. .O-RING	1	
14	93210-56M80-00	. .O-RING	1	
15	63V-44365-10-00	. DAMPER, WATER SEAL 1	1	
16	63V-44368-00-00	. .RUBBER, WATER SEAL 4	1	
17	63V-W0078-00-00	WATER PUMP REPAIR KIT	1	
18	647-44366-00-00	. .DAMPER, WATER SEAL	1	
19	97080-08045-00	. BOLT	4	
20	63V-44322-00-00	. .INSERT, CARTRIDGE	1	

CONTINUED ON NEXT FRAME >



63VJA-5210

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REPAIR KIT 2

Ref No.	Part Number	Description	Qty	Remarks
21	63V-44352-00-00	. IMPELLER	1	
22	63V-44323-00-00	. .OUTER PLATE, CARTRIDGE	1	
23	664-44338-00-00	. .KEY, WOODRUFF	1	
24	63V-W0078-0A-00	CHROME PUMP KIT	1	
25	63V-44322-40-00	. .INSERT, CARTRIDGE	1	
26	63V-44323-40-00	. .OUTER PLATE, CARTRIDGE	1	
27	63V-44352-00-00	. IMPELLER	1	

Technical BULLETIN

Repainting Yamaha Marine Products

INTRODUCTION

Proper painting of Yamaha marine products is very important for both appearance and corrosion protection. Yamaha has conducted considerable research developing paint and painting processes to provide customers with a long lasting, high quality paint. YPAD has also spent considerable time developing touch up spray paint to allow paint repairs of similar quality as the original. Paint matching is achieved through following proper preparation and painting procedures. This bulletin provides the needed information to insure this match is obtained.

PREPARATION MATERIAL: Salt Water Cleaning Solution = 75% Vinegar & 25% Water
400 & 600 Grit Wet and Dry Sandpaper
Standard Painting Tack Cloth

PAINT: (All paints are 13oz. spray cans).

Color	Code	Part Number	Comments/Usage
Dark Blue Gray Metallic	04D	PNT-93000-S0-4D	1994(S) and later models. Use with clear coat for 08D.
Clear Top Coat		PNT-65000-04-00	Use with 04D to produce 08D 1996 and later color. Includes UV protection.
Marine Primer		PNT-00000-SP-WV	Epoxy based Marine Primer
Gray Primer		PNT-00000-00-86	Older Optional Primer
Metallic Marine Silver Spray	0EK	PNT-87000-S0-EK	1984 to '93 Standard Outboard
YEMS Silver	0EK	PNT-92YEM-SP-00	All YEMS Stern Drives
EST Silver	0EK	PNT-92EST-SP-00	All EST Stern Drives
Shiny Black Spray	0NA	PNT-91000-S0-NA	1990 and later Pro V Lower Unit and Lower Mount Covers. V76X Cowlings
Marine Dark Silver	0NG	PNT-92000-S0-NG	1986 to '89 Pro V Lower Unit and Lower Mount Covers
Metallic Marine Blue	0EJ	PNT-90000-S0-EJ	1989 to '91 C Models

TOUCH UP PAINT: (1/2 oz. brush in the cap).

Color	Code	Part Number	Comments/Usage
Metallic Marine Silver	0EK	PNT-84000-T0-EK	1984 to '93 Standard Outboard
Shiny Black	0NA	PNT-86000-T0-NA	1990 and later Pro V Lower Unit and Lower Mount Covers. V76X Cowlings
Harbor White	0EL	PNT-85000-T0-EL	FT, T9.9 1985 to '94

PREPARATION

1. Select a dust free and wind protected area with adequate ventilation.
2. Clean all unpainted surfaces of any salt water deposits by using a solution of 75% vinegar and 25% water.
3. Rinse all surfaces being painted with clean water and allow to dry.
4. Be sure all surfaces being painted are completely dry and free from moisture, grease, oils and lubricants.
5. Sand all fiberglass, aluminum, and molded plastic surfaces to be painted with 400 grit wet and dry sandpaper. The purpose is to rough-up the surface so the primer will adhere better.
6. Mask off all areas not being painted. For best results, mask an area to a clean break point such as an edge, gap, etc.

PRIMING

1. Apply Yamaha Marine Primer in several thin coats at 5 to 8 minute intervals.
2. Apply the primer by spraying in one direction from top to bottom.
3. Use long even strokes, and be sure to spray past the area to be painted by several inches.
4. After thirty minutes to one hour, lightly sand the primer with 600 grit wet and dry sandpaper.

IMPORTANT: If scratches, pitting or imperfections appear, repeat steps 1~4 above until a smooth even surface is achieved.

5. Apply at least two primer coats to match the original factory process.
6. Allow the primer to set at least 4 hours in temperatures of over 75°F (overnight if temperatures are less or humidity is high).
7. Before applying the finish coat, wipe the surface with a tack cloth. Be careful to remove all dust from the surfaces to be painted.

FINAL PAINTING

IMPORTANT: Heavier paint products will eventually settle to the bottom of a spray can. The longer the can has set on the shelf the longer you will need to shake the can to properly mix the paint or proper color match will not occur. Shake the paint can at least one minute after hearing the ball rattle (most clear coating paints do not contain a ball). Extend the shaking time for any paint can that has been in storage an extended time.

It is difficult to properly match older Yamaha paint products. The EK color is difficult to match, because the EK spray paint may change color during long time storage. Proper shaking of the can with EK paint is especially important.

Yamaha Marine Finishes are made from the highest grade polyurethane resins available. They are formulated to set-up slowly; allowing the clear resin to surface as it dries.

1. Apply a Yamaha Marine Finish Paint over the primer in several thin coats.

NOTE: Applying thick, uneven coats may not allow the coating to dry properly, which may result in a loss of adhesion.

2. Apply several fog coats at 5 to 8 minute intervals holding the aerosol can approximately 14 inches from the surface being painted.
3. After several fog coats have been applied, move the aerosol can 10 inches from the surface. Apply thin even coats until the proper color is achieved.
4. When ready to apply the final coat, move the spray can 6 inches from the surface, and applying a single heavier final coat.

IMPORTANT: Be careful not to run the paint. If the paint is allowed to completely dry between coats, be sure to sand between coats with 600 grit wet & dry sandpaper.

FINAL CLEAR COAT

Yamaha Clear Coat may be added to provide a physical protection layer and match the Yamaha original factory finish. Other clear coats are not recommended, since they may have a chemical imbalance with the new finish coat and cause a mismatch, foggy look or paint lifting.

FINAL DRYING AND CURING

It is not recommended to use heat as an aid in curing paint. Excessive heat may damage the fresh paint. If heat is used, be sure to wait 4 hours before applying it to the final paint. Although the finish will appear dry overnight, it will not be totally cured for several days. If possible, do not subject painted surfaces to water for 6 to 7 days.

NOTE: If some dull spots appear on the surface, they may be rubbed out using a quality grade polishing compound. Wax the painted surfaces with a good marine wax before using the marine item. Do not apply polishing compounds and wax until the paint is completely cured.

PAINT CAN STORAGE

1. If you are going to let the can stand idle for more than twenty minutes, be sure to turn the can upside down, and spray until no paint comes out of the nozzle. Another method of clearing a spray nozzle before storing, is to put the nozzle on a can of contact cleaner and spray for a few seconds.
2. Store partially used spray cans upside down to reduce the chance of the paint thickening and stopping up the nozzle as you begin to spray.

NOTE: Empty spray cans are recyclable in most cities. Check with your local disposal or recycle company.

WARRANTY INFORMATION

Following the above procedure will produce a paint finish virtually equal to the factory finish in both appearance and corrosion protection. The above repainting procedure may be used to repair any shipping damage or other paint & finish problem covered by the normal Yamaha warranty.

ROUTE TO: ☑ SERVICE ☑ PARTS ☑ WARRANTY ☑ SALES

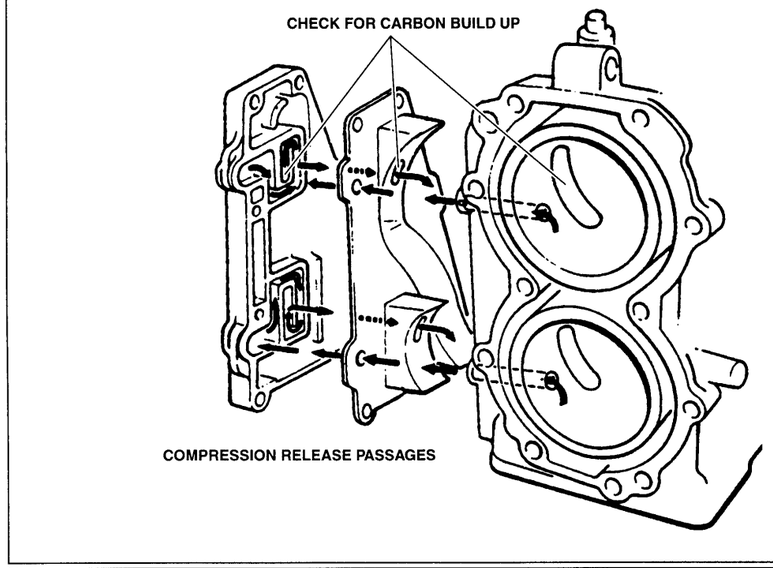
SUBJECTS:
1. **Rough Idle - 25HP Engines**
2. **Finding Oil Leaks - All Models**
3. **Cleaning Gasket Surfaces - All Models**

Rough Idle - 25HP Engines

The following Tech Exchange was submitted by Jerry Herota of Buck's Outboard Repair, Inc. in Sacramento, CA. Thanks Jerry! Your Tech Exchange hat is on its way!

If you have a 1988 or later model (20hp or 25hp) outboard engine with a rough idle, examine the carburetion, engine compression, and spark. If they all check out okay and the manual starter seems harder to pull than usual, check for carbon build up in the built in compression release (refer to pg. 2-6 in the 1996 Marine Technical Guide).

NOTE: Carbon build up is more common if the customer is using some other oil than "Yamalube for Outboards."



If you have technical tips you think other dealers could use, let us know. You'll receive credit in the Tech Exchange for ideas we use, and we'll send you an exclusive Yamaha Tech Exchange hat as our thanks.
Send your tips to: Yamaha Motor Corporation, U.S.A., Attn: Tech Exchange, P.O. Box 6555, Cypress, CA 90630

Finding Oil Leaks - All Models

If you have trouble finding an oil leak, try performing a powder check. A powder check is performed as follows:

1. Clean the suspected area fully of all oil residue and dry fully. Yamaha Mud, Grease and Engine Cleaner (ACC-MUDGR-CL-NR) and Simple Green (ACC-SMPGR-00-24) both work well for this. Make sure the area is completely dry.

2. Sprinkle some talcum powder, baby powder or other light powder over the area of the suspected leak. An aerosol can that dispenses light powder (e.g., deodorant or foot powder) may also be used. Make sure the suspected area has a remaining coat of the dry powder. If any wet spots appear, this may be where the leak is located. If the spot is wet from incomplete cleaning, note the spot and repeat steps 1 and 2.

⚠WARNING

Use the powder in a well ventilated area and use adequate protection from breathing any of the powder. Read the label on the powder container to insure it is safe to use.

3. Briefly start the engine or operate the device in question (e.g., the power trim and tilt). Inspect the dry powder for a new wet spot indicating the start of a leak. **NOTE:** Additional engine running may be necessary if there is no indication of a leak.

Cleaning Gasket Surfaces - All Models

When repairing an engine, lower unit, or other item using fabric gaskets, the removal of all the small pieces of old gasket may be quite time consuming. First, apply several coats of MEK (Methyl Ethyl Ketone) with a brush to the old gasket. While thoroughly soaked, remove the large pieces of the old gasket using a scraper, if necessary. Then, use a standard 1" to 2" by 6" to 8" flat sharpening stone with solvent to rub (as if using sandpaper) the remaining gasket material from the casting. This will not only easily remove the small pieces of old gasket, but will remove any glue and smooth out any nicks to produce a nice, clean surface for the new gasket.

NOTE: Use a standard, double sided medium/fine grit sharpening stone large enough to span the openings when preparing the crankcase or other large castings. The stone may be readily purchased from sporting goods stores and some tool suppliers.

SUBJECTS:
1. **Highlights of Changes for 1997 Models**
2. **1997 Model Standard Equipment**
3. **Float Plan Availability**

HIGHLIGHTS OF CHANGES FOR 1997 MODELS

Yamaha has made a number of changes for the 1997 Outboard model line. This Tech Exchange gives a brief summary of some of these changes. More information is also in the Model Guide being sent to you now, and in technical literature for the EFI and TRP systems sent later. Complete details will be included in Technical Service Update Seminars to be presented this fall.

A. Current Model Changes

1. Plastic remote fuel tanks shipped separately; no fuel tank in the crate.
   a. 3 Gallon for 6, 8, F9.9, & T9.9
   b. 6 Gallon for 9.9 to 40, E48, E60, & E75
2. 25-HP name changes for clarity:
   a. Three-cylinder '96-models 25MSHU2 and 25MLHU2 (manual start, tiller handle) are now '97-model 25MSHV3 and 25MLHV3
   b. Twin-cylinder '96-models 25MSHU and 25MLHU are now '97-models 25MSHV2 and 25MLHV2.
   c. The twin-cylinder 25E electric-start models names are unchanged.
3. YDC-30 corrosion-resistant alloy through mid-size models (except Enduros)
4. P50TLRU (Pro 50) model name changed to 50TLRV.
5. New High-Performance Gear Case on T50, C60, C80, E60, P60, 70, E75, P75, 90, and B90.
6. Trim meter and harness are no longer standard on C models.
7. New bracket and trim & tilt on V4 & V6s (not V76). Bracket is larger to fit all transoms and trim and tilt is easily removable.
8. Electronic Fuel Injection (EFI) with oxygen (O_2) sensor on V76 Models (225 and 250).
9. Left-hand models now include the Fuel Management Gauge in the rigging kit.

B. New Models for 1997:

1. T9.9EXRV (Electric Start, Remote, 25" Shaft)
2. 40ESHV (Electric Start, Tiller Handle, 15" Shaft)
3. C80TLRV (C Model, Trim & Tilt, Electric Start, Remote, 20" Shaft) Includes Micro Computer Ignition. Replaces C75 and C85.
4. B90TLRV (Trim & Tilt, Electric Start, Remote, 20" Shaft) New Inshore 90 model with extensive salt water protection, salt water flushing device, and new high-performance gear case.
5. D150TLRV (Trim & Tilt, Electric Start, Remote, 20" Shaft) Pro V Max Twin Rotating Propellers (TRP) Model. Provides the ultimate in both top speed and great handling for a Bass boat.
6. The 225 and 250 models are considered new models because of the extensive changes with the introduction of EFI. The oxygen sensor provides a closed-loop fuel mixture feedback system that produces unequaled fuel economy and engine operation.

C. Deleted Models

1. 9.9ELH
2. P50TLR (Replaced by 50TLRV)
3. C75TLR & C85TLR (Replaced by C80TLRV)
4. P115TLR

If you have technical tips you think other dealers could use, let us know. You'll receive credit in the Tech Exchange for ideas we use, and we'll send you an exclusive Yamaha Tech Exchange hat as our thanks.
Send your tips to: Yamaha Motor Corporation, U.S.A., Attn: Tech Exchange, P.O. Box 6555, Cypress, CA 90630

1997 MODEL STANDARD EQUIPMENT

You've asked for an easy-to-use program to help you get the right rigging equipment for your particular installations. The Yamaha Sales Department is proud to announce a Kitting Program for 1997 with simple control and rigging kit options. This Kitting Program will allow you to order the standard equpment specific to your needs. Below is a list of the basic standard equipment as of the publication date of this Tech Exchange. Additional standard equipment will depend upon the kits you order. Contact your Marketing Representative for full details about the Kitting Program.

BASIC STANDARD EQUIPMENT*

6, 8, F9.9, & T9.9	3-gallon plastic fuel tank shipped separately, fuel hose in crate.
9.9 to 40, E48, E60, & E75	6-gallon plastic fuel tank shipped separately, fuel hose in crate.
F50 & T50	Analog tachometer, trim meter, harness, and fuel hose in crate.
40MJ (Jet Drive)	Water pump and fuel hose in crate.
40EJ and 50J (Jet Drive)	Analog tachometer, harness, fuel hose, and water pump in crate.
90J (Jet Drive)	Multifunction tachometer, harness, fuel hose, and water pump in crate.
115J and 150J (Jet Drive)	Multifunction tachometer, multifunction speedometer, harness, fuel hose, and water pump in crate.
L130 to L250	Dual engine tie bar in crate. Left-hand rigging kit is standard equipment.
D150 (TRP model)	25" propeller set (front and rear).

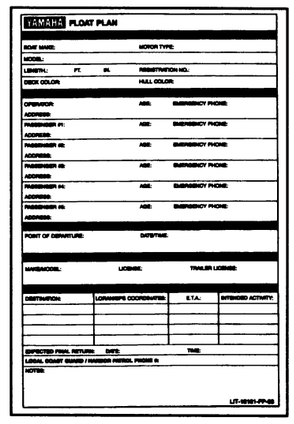
*The standard equipment included with each model is subject to change.

FLOAT PLAN AVAILABILITY

Common good-boating practice is to leave a "float plan" with a responsible person on shore before going out. Yamaha has prepared an easy-to-use Float Plan in pads of 25 for your customers' convenience.

A sample pad of float plans has been sent to you recently. Additional pads are available from YPAD.

Part Number	Description	Qty	Dlr Cost
LIT-18161-FP-96	Float Plan	25 per pad	$1.00


YAMAHA FLOAT PLAN

BOAT MAKE: MOTOR TYPE:
MODEL:
LENGTH: FT. IN. REGISTRATION NO.
DECK COLOR: HULL COLOR:

OPERATOR AGE: EMERGENCY PHONE:
ADDRESS:
PASSENGER #1: AGE: EMERGENCY PHONE:
ADDRESS:
PASSENGER #2: AGE: EMERGENCY PHONE:
ADDRESS:
PASSENGER #3: AGE: EMERGENCY PHONE:
ADDRESS:
PASSENGER #4: AGE: EMERGENCY PHONE:
ADDRESS:
PASSENGER #5: AGE: EMERGENCY PHONE:
ADDRESS:

POINT OF DEPARTURE: DATE/TIME:

MAKE/MODEL: LICENSE: TRAILER LICENSE:

DESTINATION:	LORAN/GPS COORDINATES:	E.T.A.:	INTENDED ACTIVITY:

EXPECTED FINAL RETURN: DATE: TIME:
LEGAL BOAT OWNER / MARINE PATROL PHONE #:
NOTES:

LIT-18161-FP-96

OUTBOARD	DATE: 7/15/96	O96-012

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.

Technical BULLETIN

1997 MODELS
OUTBOARD SERVICE LITERATURE

This bulletin contains a comprehensive listing of service literature available for 1997 models. Certain models will not have new literature if the prior year's information is still current. Those literature part numbers will still be listed, but "Same as . . ." will occur in the Remarks column. Other information on publications interchangeability may also be found in the Remarks column. This bulletin also lists other publications related to your dealership operations. All publications can be ordered from Yamaha Parts and Accessories.

Model	Publication	Part Number	Remarks
2V	Owner's Manual Service Manual	LIT-18626-02-59 LIT-18616-01-31	
3V	Owner's Manual Service Manual	LIT-18626-02-59 LIT-18616-01-63	
4V, 5V	Owner's Manual Service Manual	LIT-18626-02-59 LIT-18616-01-33	
6V, 8V	Owner's Manual Service Manual	LIT-18626-02-60 LIT-18616-01-64	
9.9V, 15V	Owner's Manual Service Manual	LIT-18626-02-60 LIT-18616-01-65	
F9.9V, T9.9V	Owner's Manual Service Manual	LIT-18626-02-66 LIT-18616-01-35	
20V, 25V, 25V(2)	Owner's Manual Service Manual	LIT-18626-02-61 LIT-18616-01-66	
C25V/C30V	Owner's Manual Service Manual	LIT-18626-02-68 LIT-18616-01-67	
25V(3), 30V	Owner's Manual Service Manual	LIT-18626-02-61 LIT-18616-01-68	
C40V	Owner's Manual Service Manual	LIT-18626-02-68 LIT-18616-01-50	
40V, 50V 28 & 35 Jet Drive Models	Owner's Manual Service Manual *Operation & Service Manual (Supp.)	LIT-18626-02-62 LIT-18616-01-38 LIT-18619-00-95	
E48V	Owner's Manual Service Manual	LIT-18626-02-70 LIT-18616-01-28	Same as E48T
F50V, T50V	Owner's Manual Service Manual	LIT-18626-02-67 LIT-18616-01-48	Supp. to LIT-18616-01-23

Model	Publication	Part Number	Remarks
E60V	Owner's Manual Service Manual	LIT-18626-02-70 LIT-18616-01-72	
P60V, 70V, P75V, 90V, B90V 65 Jet Drive Model	Owner's Manual Service Manual *Operation & Service Manual (Supp.)	LIT-18626-02-63 LIT-18616-01-69 LIT-18619-00-95	
E75V	Owner's Manual Service Manual	LIT-18626-02-70 LIT-18616-01-73	
C60, C80V	Owner's Manual Service Manual	LIT-18626-02-69 LIT-18616-01-69	
C115V	Owner's Manual Service Manual	LIT-18626-02-69 LIT-18616-01-70	
115V, 130V, L130V 80 Jet Drive Model	Owner's Manual Service Manual *Operation & Service Manual (Supp.)	LIT-18626-02-64 LIT-18616-01-70 LIT-18619-00-95	
C150V 105 Jet Drive Model	Owner's Manual Service Manual *Operation & Service Manual (Supp.)	LIT-18626-02-69 LIT-18616-01-71 LIT-18619-00-95	
150V, P150V, 175V, P175V, 200V, P200V, 225(L), L150V, L200V	Owner's Manual Service Manual	LIT-18626-02-64 LIT-18616-01-71	
D150V	Owner's Manual Service Manual	LIT-18626-02-80 LIT-18616-01-71	
225(X/U)V, L225V, 250V, L250V	Owner's Manual Service Manual	LIT-18626-02-65 LIT-18616-01-61	

*This manual is included with all Jet Drive models along with the standard Owner's Manual for the particular propeller drive model the Jet Drive model is based on.

OTHER OUTBOARD PUBLICATIONS

Dual Station System Owner's Manual	LIT-18626-01-59	
Warranty Statement—Outboard	LIT-18790-00-89	
Warranty Statement—Jet Drive	LIT-18790-01-86	
Outboard Rigging Specs (1996)	LIT-18865-00-96	
Outboard Rigging Specs (1996-1997) (Supp.)	LIT-18865-00-97	
1996 Service Data Poster	LIT-18531-00-14	
Warranty & Y.E.S. Handbook	LIT-11760-00-95	
Parts Policies & Procedures Manual	LIT-10080-05-00	
Service Appointment Pad	LIT-11561-00-80	
Heavy-Duty Service Binder	LIT-18501-00-87	

NOTE: Pages 77 and 78 of the "1997 Marine Power Marketing Guide" are incorrect. Please remove these pages and insert a copy of this Technical Bulletin in their place.

PAGE 2 OF 2 ROUTE TO: ☑ SERVICE ☑ PARTS ☑ WARRANTY ☑ SALES

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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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.

OUTBOARD	10/7/96	O96-015

SUBJECTS: **1. Disconnect Trailer Wiring Before Launching**
2. Notes on the Use of the "Transom Saver"

Yamaha wants its customers to get the most out of their boats. The following are some helpful tips you can pass on to your marine customers. Display this as a poster in your service reception area, the service manager's area, or any other heavily trafficked area.

Save Your Trailer's Electrical System! Disconnect Trailer Wiring Before Launching

DID YOU KNOW?
It is a good idea to disconnect the trailer wiring before launching (even if you are using water tight lights on your trailer) to improve the durability and life of your trailer's electrical system!

WHY?
- If the wiring is left connected, trailer lights will get hot with the use of brakes on an inclined launch ramp. Lights will then become suddenly cooled when submerged into water. This change in temperature can break lights or weaken water tight seals.
- Also, temperature change affects the air pressure inside the light assemblies, causing water to be drawn through any leak in the seal.
- Electrical wiring can be weakened at joints, at spots where the wiring is starting to fray, or at the main connector by corrosion amplified by the presence of electrical current.

TIP!
Disconnect the trailer wiring before launching. Always remember to reconnect the trailer lights before leaving the launch ramp area!

Notes On The Use Of Outboard Motor Support "Transom Saver" When Trailering

DID YOU KNOW?
If you like to use an outboard motor support bar commonly called a "transom saver" when trailering take note of the following:

Transom savers, especially rigid ones, can actually **increase** the load to both the outboard motor and the boat transom. After an extended amount of time using the transom saver, the bushings within the outboard clamp bracket assembly will deteriorate.

WHY?
- Because the trailer flexes and roads are rough, the outboard motor and boat bounce during transportation. If the boat bounces up and down while the motor is held stationary in relation to the trailer, considerable load is put on the motor clamp bracket and transom.

TIP!
If you use a transom saver, pick one that has some give or flex to absorb shock. Also, insure that the boat is firmly secured to the trailer.

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