

MODEL BL YAMAHA SERIES F70  
ASSEMBLY INSTRUCTIONS  
4 STROKE, 4 CYLINDER, 70 HP, 60.8 CU. IN. STARTING 2010

1. Place the engine on the transom of your boat so that it is mounted vertically. Remove the five bolts holding the gearbox to the exhaust housing and remove the gearbox assembly.
2. Remove the water pump assembly from the propeller drive, including the lower stainless steel plate, gasket and dowel pins.
3. Install the jet driveshaft assembly into the spiral pump housing, locking it in place with the four 1/4-20 x 3/4 bolts and lock washers. Use grease on the threads.
4. Install the water pump assembly on top of the gasket and stainless steel plate, using two M8 x 35MM and two M8 x 25MM bolts with flat washers. Remove the plastic water tube guide from the water pump outlet. Be sure, also, to install the water pump impeller drive key and dowel pins. Grease the threads.
5. Install the plastic shift rod guide in the spline of the shift rod and the brass water tube extension onto the copper water tube. If there is a burr on the end of the water tube, file it smooth so the "O" ring inside the water tube extension will slide on.
6. The large 3/4" adapter plate is attached to the exhaust housing to hold the jet drive. Two 6 x 16MM dowels locate the plate. Four M10 x 35 MM bolts with lock washers and one M8 x 30MM bolt with lock washer secure it. Grease the bolt threads. Attach the shift cable anchor bracket to the main housing using two 1/4 x 5/8 bolts and flat washers. Slide the bracket forward and lock the bolts. After the main housing is mounted to the adapter plate, it is difficult to install these bolts.
7. Next, attach the jet drive to the motor. Use two 5/16-18 x 2-1/2 bolts (front), two 5/16-18 x 2-3/4 bolts (rear) from below with lock washers, one 3/8-16 x 1-1/2 bolt and lock washer, above rear, inside the motor mid-section, and two 3/16 x 1/2 dowel pins.

Grease the bolt threads, driveshaft spline generously, and rubber water tube pilot and guide the jet into place. Tighten the 5 bolts.

8. Next, install the impeller. Grease the shaft threads, key and impeller bore. Place the plastic sleeve inside the impeller, hold the key in the nose of the impeller with your forefinger and slide onto the driveshaft. Install the seven shim washers, torsional damper, nut keeper, nut, and bring the nut up snug by hand. Place the flanged liner in the main housing and observe the clearance between the impeller blade edge and liner. It should be approximately 1/32 of an inch.

When, after use in sand and gravel, the blade clearance becomes more than about 1/32" between the impeller edge and the water intake liner, one or more of the stainless shim washers can be transferred from the bottom stack to the top of the impeller, which moves the impeller down into the tapered casing to reduce the clearance.

**Shims should not be used above the impeller on new installations, where no wear has occurred, unless the blade clearance exceeds 1/32". Insufficient blade clearance will do more harm than good from any performance gains it might provide.**

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When the impeller clearance is satisfactory, bump the nut up snug with a wrench. If the ears of the retainer do not line up with the flats on the nut, spin the nut off, turn the retainer over and tighten the nut again. In one of these two positions you will have alignment and can fold the ears up against the nut to retain it. The flat in the retainer is angled to the ears to allow this.

9. Place the intake casing in position with the lower end at the rear and tighten the six fiber lock nuts.
10. **If your jet drive was ordered for use with a steering tiller handle**, see attached page, "Tiller Shift Cable Assembly 1857 long".
11. **If your motor is equipped for remote controls, or tiller steering, see sheet 1566.3**

**Two cables will be attached to the cable anchor bracket and roller cam to provide neutral start protection.** The outer cable comes from the remote control box or tiller handle to operate the reverse gate. It does not enter the motor housing. The 5 foot inner cable assembly #1566.3 enters the motor housing to operate the neutral start safety switch and is driven by the movement of the reverse gate. The neutral start switch prevents starting the motor in forward or reverse.

12. With the shift handle in forward and the reverse gate in forward, **with the cam roller at the end of the slot**, adjust the cable and/or cable anchor position to this condition. **Shift to reverse and back to forward. The roller should be at the end of the cam slot such that the gate cannot be forcibly rotated toward reverse. Pull on the gate by hand to verify this.** If this forward lock condition is not met, readjust the cable positions

**Shift to neutral and adjust the cable end in the motor housing so that the neutral start switch is activated.** Check adjustment coming from both forward and reverse to compensate free play in cable linkage.

13. **When converting to jet drive, your motor will have to be raised to height shown in diagram on page 3, using a straight edge under the boat.** Test run the boat and then raise or lower the motor 5/16 inch at a time to obtain the best results.

The motor has four sets of upper mounting holes. You will use one set to begin with. Mark pencil lines on the boat transom through the other sets. Then if you wish to go up or down 5/16 inch, you can drill one alternate set of holes 5/16 inch up or down from the pencil marks. By alternating between these two sets of transom holes and the four sets of motor holes, the motor can be moved in 5/16 inch increments over almost one inch. The transom height should be about 21" measured vertically from the boat bottom for short shaft motors and 26" for long shaft.

**If you raise it too much it will suck air and cavitate, either on start up or when banking on turns.** When cavitating, the motor over-speeds in spurts and shakes considerably in the motor mount. **This is not a normal condition and should be avoided by proper adjustment of motor height on each individual boat.** If you lower it too much you will have excessive drag, therefore mount the motor as high as possible without allowing cavitation.

### **CAUTION**

**When starting the engine for the first time, watch to see that cooling water comes out of the small hole at the rear side of engine just below the power head.** This is to check your assembly of the cooling water pump and its connections.

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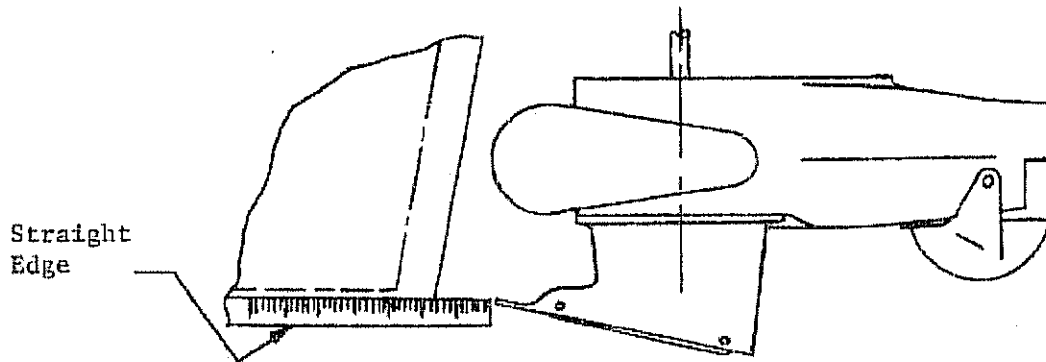
The cooling system can be flushed by removing the M8 bolt next to the grease fitting. A hose coupling, part #1065 is available for purchase. Turn on the water gently, start the motor, set to idle and watch for cooling water at the tell tale. Adjust water pressure if needed. **Replace the bolt after flushing.**

**MAINTENANCE AND LUBRICATION**

See separate sheet.

GOOD BOATING AND HAVE FUN!

PROPER ENGINE HEIGHT



Specialty Manufacturing Company  
Outboard Jets  
2035 Edison Avenue  
San Leandro, CA 94577

# MAINTENANCE AND LUBRICATION OUTBOARD JET DRIVE

## BEARING LUBRICATION

A grease gun and tube of grease is supplied with your jet drive. We recommend greasing the bearing every 10 hours. Make greasing a part of your cleanup after the days use. Pump in just enough grease to fill the lube hose. Then reconnect the lube hose coupling to the zerk grease fitting.

Every 30-40 hours, pump in extra grease so as to purge any moisture. The texture of the grease coming out gives an indication of conditions inside the bearing housing. A gradual increase in moisture content indicates seal wear. If the grease begins to turn dark, dirty gray, the bearing and seals should be inspected and replaced if necessary. Some discoloration of the grease is normal during the break in period on new sets of seals.

We have selected a water resistant grease of the proper consistency for this application. If you use a substitute grease, be sure it is water resistant and of the same consistency.

## IMPELLER

Your jet drive is equipped with a key to protect the unit in the event of a rock jam. This can be reached by removing the water intake, and then the driveshaft nut, similar to a propeller drive. After replacing the key, pull the shaft nut up tight to remove any play between the impeller and shaft. Note the position of the impeller shim washers, and replace them in the same order.

## REVERSE GATE MECHANISM

Occasionally check adjustment of the gate shifting linkage. In "forward" the gate should be firmly locked in position. Pull on the gate by hand to verify this. This will prevent wave action from accidentally shifting the gate into reverse as the boat is violently maneuvered

## GENERAL

Check all mounting bolts, intake screws, linkage connections, etc., occasionally to be sure they are tight.

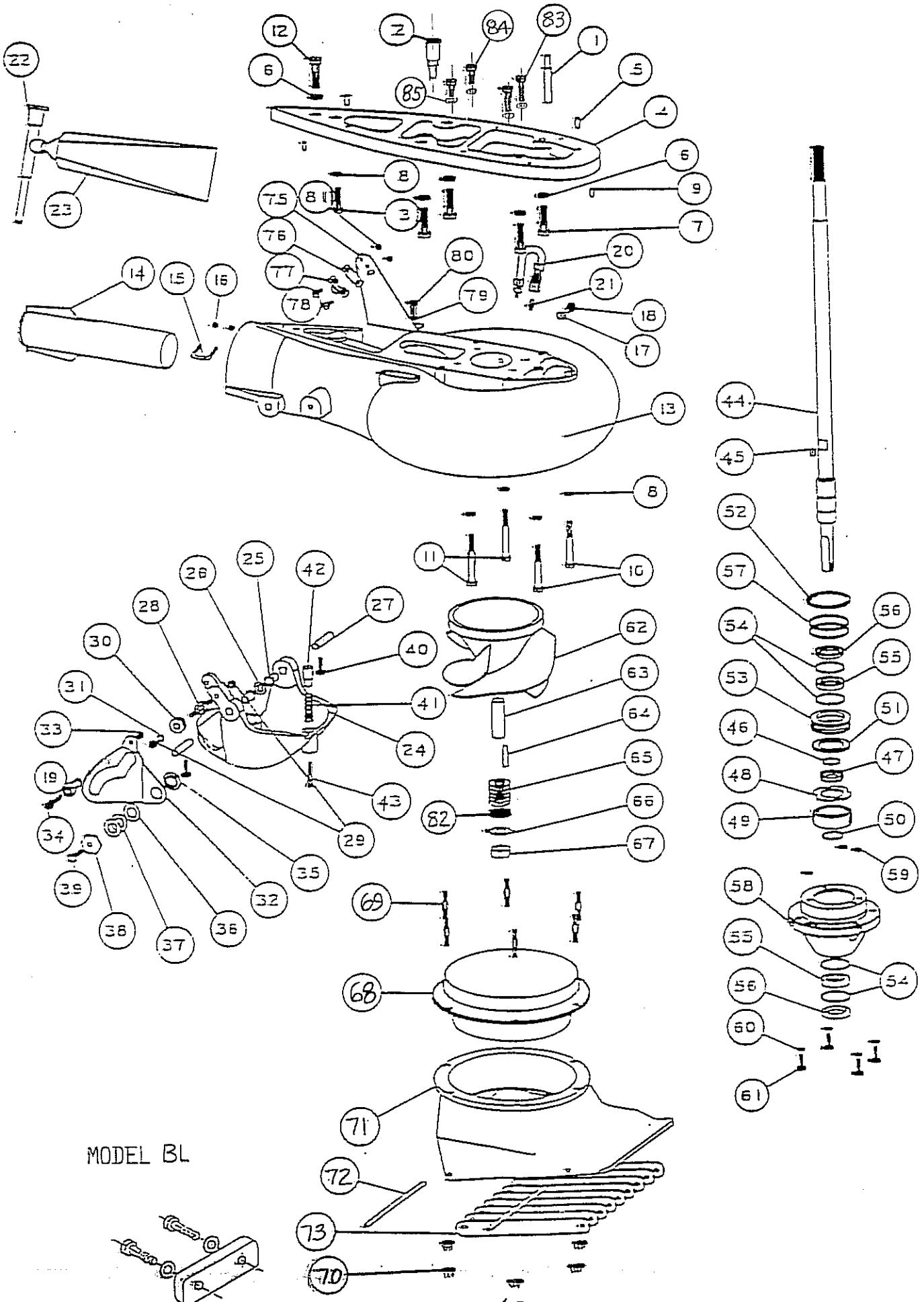
## SALT WATER USE

Aluminum and stainless steel have been used in the construction of your jet drive. These materials have either been treated or are inherently resistant to corrosion. It is recommended, however, that when not in use the motor be tipped up so that the jet unit is out of the water. When used in salt water more than in fresh water, remove mounting hardware, grease, and reassemble once a year. Failure to do this may result in hardware that is difficult if not impossible to remove at a later date.

## GUARANTEE

Due to inflexible government regulation, we do not have a written warranty. We have, however, a good reputation for fairness with our customers which we intend to maintain. If you think you have a warranty situation, regarding material, workmanship, call us before making repairs.

Specialty Manufacturing Company  
Outboard Jets  
2035 Edison Avenue  
San Leandro, CA 94577



MODEL BL

ANODE KIT 1693

# MODEL BL YAMAHA F70

4 CYL. 4 STROKE 70 HP

60.8 CU. IN.

REF	QTY	PART NO.	DESCRIPTION	REF	QTY	PART NO.	DESCRIPTION
1	1	1378	SHIFT ROD GUIDE	52	1	512	TRUARC N5002-2122D
2	1	2095	WATER TUBE EXT. BL	53	1	433	UPPER SEAL CARRIER W/SEALS & O RINGS
3	1	591	BOLT HEX HD M8-1.25 X 30MM	54	4	517	SPIROLOX RR-150S
4	1	1366	ADAPTER PLATE AJ / BL	55	2	506	SEAL INNER
5	2	616	DOWEL PIN 6 X 16 MM	56	2	507	SEAL OUTER 6324-S
6	5	636	WASHER SPRING LOCK M10	57	2	526	O RING 568-135 3/32X1 15/16X2 1/8
7	4	592	BOLT HEX HD M10-1.25 X 35MM	58	1	1380	BEARING CARRIER W/SEALS & O RINGS AJ/BL
8	5	640	WASHER SPRING LOCK 5/16	59	3	521	O RING 568-011 1/16X5/16X7/16
9	2	631	DOWEL PIN 3/16 X 1/2	60	4	638	WASHER SPRING LOCK 1/4
10	2	603	BOLT HEX HD 5/16-18 X 2 1/2	61	4	573	BOLT HEX HD 1/4-20 X 3/4
11	2	599	BOLT HEX HD 5/16-18 X 2 3/4	62	1	8.23	IMPELLER 6 1/8 W/36 SLEEVE
12	1	607	BOLT HEX HD 3/8-16 X 1 1/2	62	1	1737	IMPELLER 6 1/8 W/36 SLEEVE, STAINLESS
		2094	VOLUTE WITH GATE BL	63	1	36	SHAFT SLEEVE PLASTIC MEDIUM
13	1	2093	VOLUTE WITH EXHAUST TUBE BL	64	1	782	IMPELLER TEE KEY - SQUARE
14	1	80	EXHAUST TUBE ASSY MED 2	64	1	1705	IMPELLER TEE KEY - 1/2 ROUND
15	1	846	CLIP EXHAUST TUBE 1	65	8	21	SHIM WASHER MEDIUM
16	2	621	NYLOC 10-32	66	1	805	NUTKEEPER MED/PKG 2 PER BAG
17	1	1025	WASHER FIBER M8	67	1	22.1	SHAFT NUT 5/8-18 BRASS
18	1	1024	BOLT HEX HD M8-1.25 X 12			1447	INTAKE ASSY 6 1/8 FLANGED W/ GRILL & LINER
19	1	553.2	BALL END 1/4X10-32 CABLE	68	1	1521	LINER 6 1/8 FLANGED
20	1	975	LUBE HOSE ASSY	69	6	1300	STUD - INTAKE MEDIUM
21	1	539	ZIRC FITTING 1/4-28	70	6	623	NYLOC 1/4-20
22	1	550	GREASE GUN	71	1	1326	INTAKE PAINTED ONLY MED FLANGED
23	1	552	GREASE 10 OZ TUBE 630-AA	72	2	14	GRILL ROD
24	1	1175	REVERSE GATE MEDIUM	73	9	16	GRILL BAR MEDIUM
25	2	535	NYLINER 3/8 1D X 1D X 11/16			171	BRACKET ASSY MORSE W/CLAMP & HARDWARE
26	1	1177	SPRING GATE PIVOT 3/8	75	1	156	BRACKET CABLE SUPPORT
27	2	822	PIN GATE PIVOT 3/8 MEDIUM	76	1	542	SHIM MORSE A035777
28	1	1043	SHAFT ROLLER	77	1	543	CLAMP CHRYS 154317
29	2	624	NYLOC 1/4-28	78	2	561	FL JD SLOTTED 10-24 X 5/8
30	1	1042	ROLLER ASSY	79	2	635	1/4 WASHER AN960C416
31	1	635	1/4 WASHER AN960C416	80	2	572	BOLT HEX HD 1/4-20 X 5/8
32	1	1035	SHIFT CAM MEDIUM	81	2	619	NYLOC 10-24
33	1	623	NYLOC 1/4-20	82	1	1718	TORSIONAL DAMPER 5/8
34	1	573	BOLT HEX HD 1/4-20 X 3/4	83	2	591.3	BOLT HEX HD M8-1.25 X 35MM
35	1	1037	BUSHING CAM	84	2	591.2	BOLT HEX HD M8-1.25 X 25MM
36	1	1038	WASHER CAM	85	4	637.1	FLAT WASHER .344 ID X .688 OD X .060
37	2	1039	SHIM-CAM				
38	1	1036	CAM ECCENTRIC DRILLED				
39	1	574.1	BOLT HEX HD 1/4-20 X 1 PATCH				
40	2	574	BOLT HEX HD 1/4-20 X 3/4 PATCH				
41	1	1170	SPRING GATE BUMPER				
42	1	1169	GATE BUMPER				
43	1	559.2	FIL HD SLOTTED 10-32 X 1/4 PATCH				
44	1	1695	SHAFT ONLY, AJL / BL 16T, 4 STROKE				
		1696	SHAFT ASSY COMPLETE, AJL / BL, 16T 4 STROKE				
45	1	1275	KEY, TEE WATER PUMP				
46	1	41	SHAFT BEARING THRUST RING				
47	1	477	COLLAR BACKFIT 7205				
48	1	1536	THRUST WASHER				
49	1	504	BEARING 7205B-UA				
50	1	511	TRUARC 5100-98				
51	1	1535	SPACER				

## TILLER STEERING

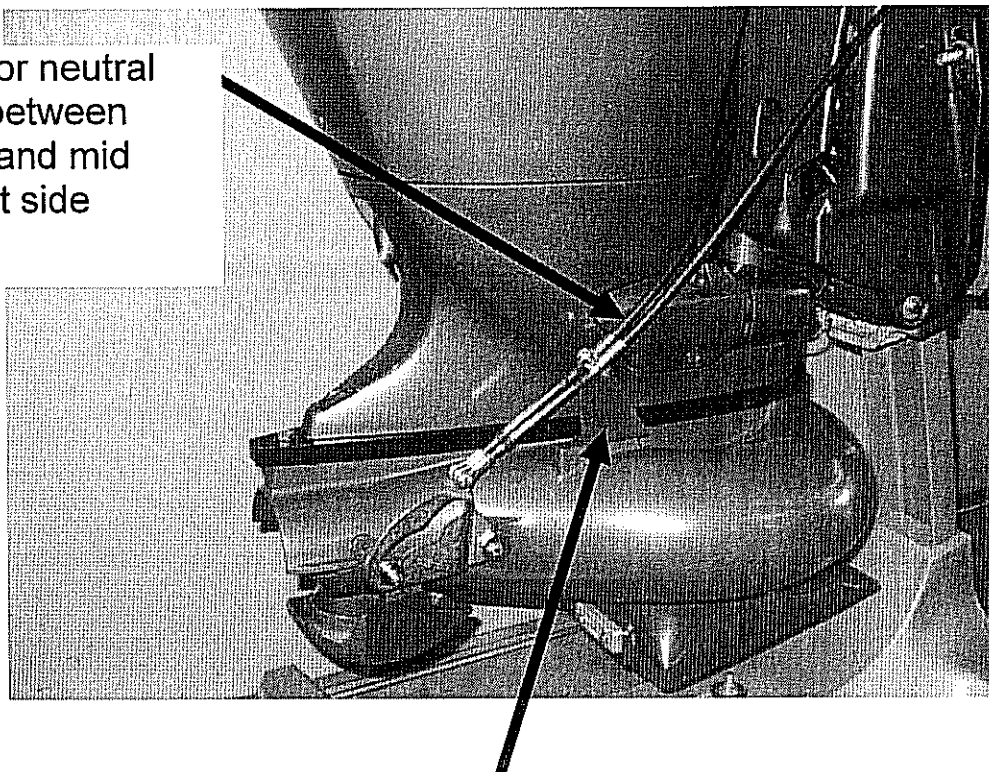
2006 SHIFT CABLE ASSY 1857, SEE PG. 26.9, LRG SERIES

NEUTRAL CABLE ASSY 1566.3, SE PG. 26.2 LRG SERIES

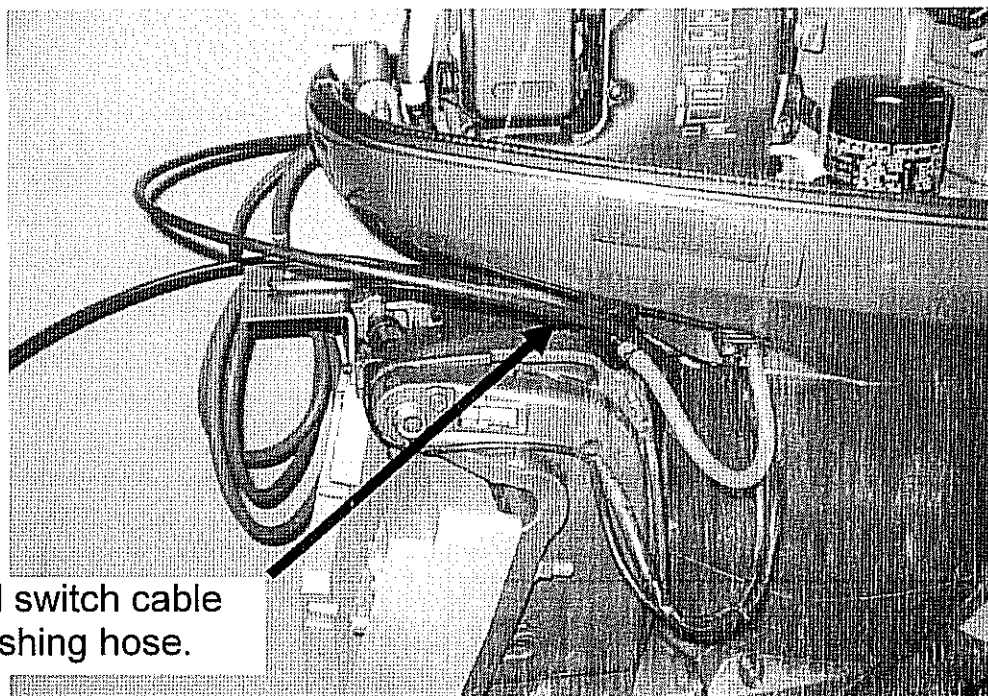
BEARING, SEAL, SNAP & "O" RING KIT 803.1

SIZE	TORQUE
1/4-20 (M6)	8-9 FT-LBS
5/16-18 (M8)	12 FT-LBS
3/8-16 (M10)	22 FT-LBS

Inside cable for neutral switch route between motor mount and mid section to port side



Mount cable support bracket to main housing, slide all the way forward and tighten bolts before mounting jet drive to adapter plate.

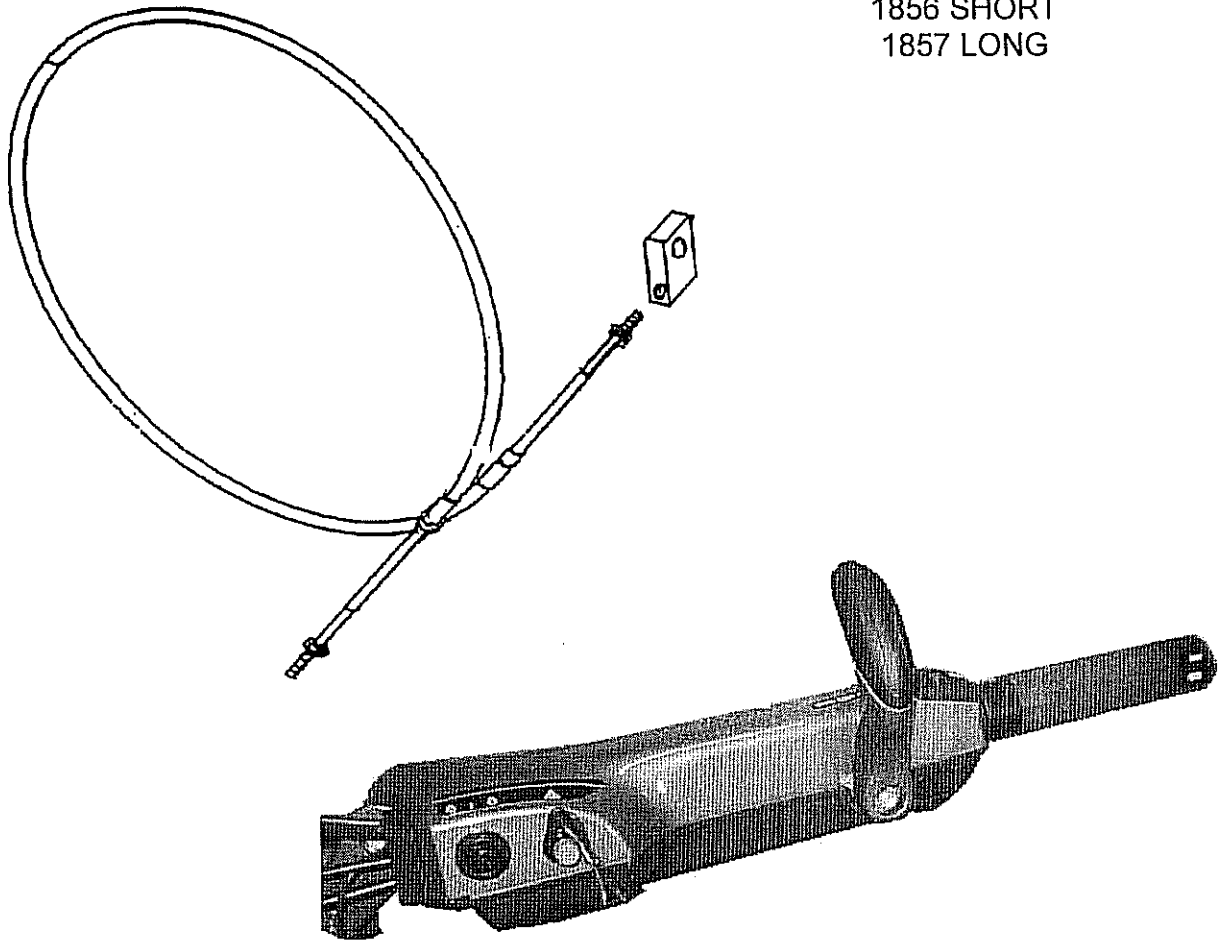


\* Rest neutral switch cable on top of flushing hose.

\* General description of cable routing.

For AJSMT-43 and BL, support cable on lower cowl with cable clamp.

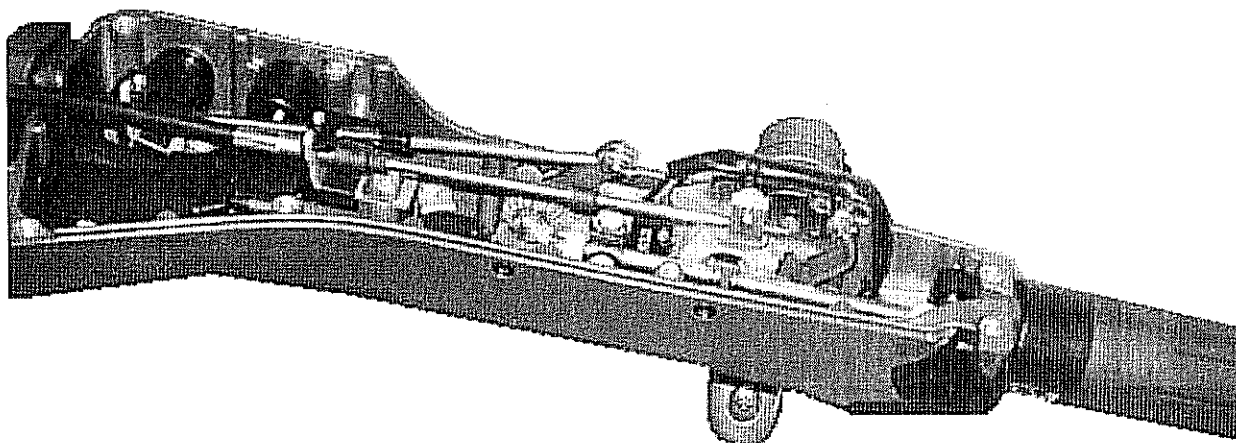
TILLER SHIFT CABLE ASSY  
 YAMAHA STARTING 2006  
 1856 SHORT  
 1857 LONG



REF	QTY	PART NO.	DESCRIPTION
1	1	547.1	CABLE 4 1/2 FT MOR 33C SUPREME LONG
1	1	547.2	CABLE 5 FT MOR 33C SUPREME LONG
2	1	1851	CABLE END YAMAHA 2006 TILLER



TILLER SHIFT CABLE ASSY  
YAMAHA STARTING 2006  
1856 SHORT  
1857 LONG



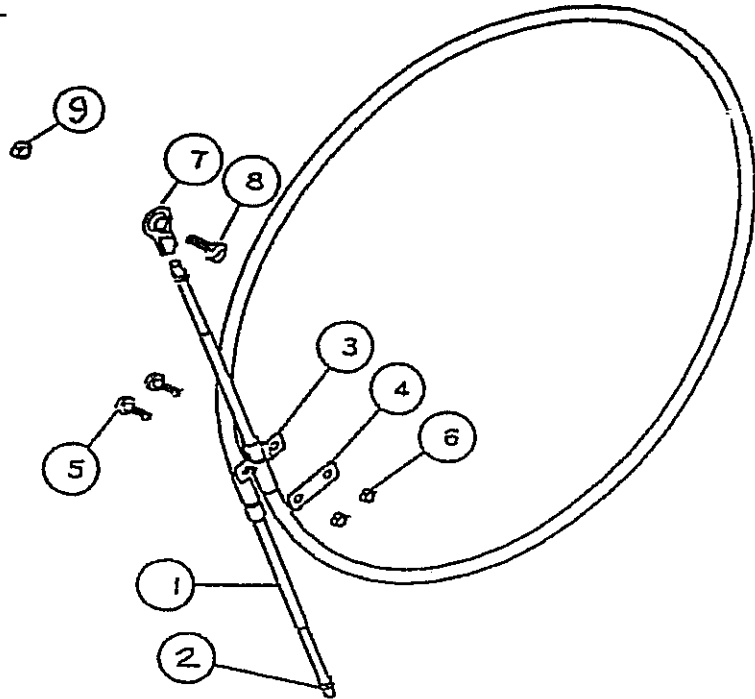
1. Remove the lower plastic cover from the steering handle.
2. Remove the shift cable.
3. Install the 4 1/2 ft. or 5 ft. standard 33C cable, using the cable end 1851.
4. Attach the lower end of the cable to the jet drive with the ball rod end threaded on the cable as far as it will go and the cable anchor bracket centered and locked. Twist the cable in the U-clamp so that the cable rests against the motor cowling and tighten the clamp screws. The clamp base is slotted to allow alignment for minimum cable bending.
5. Place the shift handle in forward, solidly in the detent. The reverse gate cam roller must be at the end of the slot in the cam. If these conditions are not met, slide the cable anchor bracket on the jet drive and/or adjust the threaded rod end on the cable.
6. Shift to reverse and back to forward. Do not be concerned if the gate does not reach reverse. There is clearance at this position and water pressure will close the gate.
7. In forward, with the roller at the end of the cam slot, the gate cannot be forcibly rotated toward reverse. Pull on the gate by hand to verify this.
8. Lock the nuts on the cable against the rod ends to complete the adjustment and reassemble the lower cover of the steering arm.

**CAUTION**

**YOU MUST RETURN THE THROTTLE  
TO IDLE BEFORE SHIFTING.**

LARGE SERIES

NEUTRAL CABLE ASSEMBLY  
 AA6P, HPDI, AQ, AJSM06-43, BL  
 1566.3



REF	QTY	PART NO.	DESCRIPTION
1	1	547.2	CABLE 5 FT MOR 33C SUPREME
2	2	621.1	HEX NUT 10-32 JAM
3	1	543	CLAMP CHRYS 154317
4	1	542	SHIM MORSE AO35777
5	2	561.1	SCREW #10-24 X 3/4
6	2	619	NYLOC #10-24
7	1	553.2	BALL END 1/4X10-32 CABLE
8	1	585	BOLT HEX HD 1/4-20 X 1 1/4
9	1	623	NYLOC 1/4-20