

MODEL Y70, Y90 YAMAHA SERIES
ASSEMBLY INSTRUCTIONS
70-100 HP, STARTING IN 1984

1. Place the engine on the transom of your boat so that it is mounted vertically, in the normal fashion. Remove the bolts holding the gear box 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, gaskets, impeller drive key, and dowel pins.
3. Install the jet driveshaft assembly into the spiral pump housing locking it in place with the four 5/16-18 x 1 bolts with lockwashers, 12 ft-lbs. Use grease on the threads.
4. Install the water pump assembly on top of the 1-3/8 inch thick aluminum adapter and stainless steel plate, with gaskets and dowel pins. Be sure also, to install the water pump impeller drive key removed from the propeller drive. Lock in place using four 5/16-18 bolts and lockwashers. Grease the threads.
5. The large 3/4 inch adapter plate is attached to the exhaust housing to hold the jet drive. A 3/8 x 1-1/2 pin in the front of the plate guides the disconnected shift rod. two 6 x 16mm dowels locate the plate, four M10 x 35mm bolts with lockwashers and one M8 x 30mm bolt with lockwasher secure it, 22 ft-lbs. Grease the bolt threads and the end of the pin where it slides in the shift rod.
6. Next attach the jet drive to the motor. Two 3/16 x 1/2 dowel pins center the jet drive on the adapter plate. Four 3/8-16 bolts and lockwashers from below and one 3/8-16 x 1-1/4 bolt from the above rear are used. Select the lower bolt lengths to suit the different counter bore depths so that all bolts enter the adapter plate the same depth, 22 ft-lbs.

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

7. 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 eight shim washers and nut retainer on the shaft, up against the impeller, and bring the nut up snug by hand. Be careful that the retainer does not fall into the thread groove and jam the nut.

Then bump the nut 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.

When, after use in sand and gravel, the blade clearance becomes more than about 1/32 inch 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 inch. Insufficient blade clearance will do more harm than good from any performance gains it might provide.

8. Place the intake casing in position with the lower end at the rear and tighten the six nuts, 12 ft-lbs. No lockwashers are used. Grease the threads.
9. Attach the shift cable and cable anchor bracket to the jet drive.

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 end and/or cable anchor position to this condition. Shift to reverse and back to forward. The roller

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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.

10. 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 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 two sets of transom holes and the four sets of motor holes, the motor can be moved in 5/16 increments over almost one inch. The transom height should be about 26 inches measured vertically from the boat bottom.

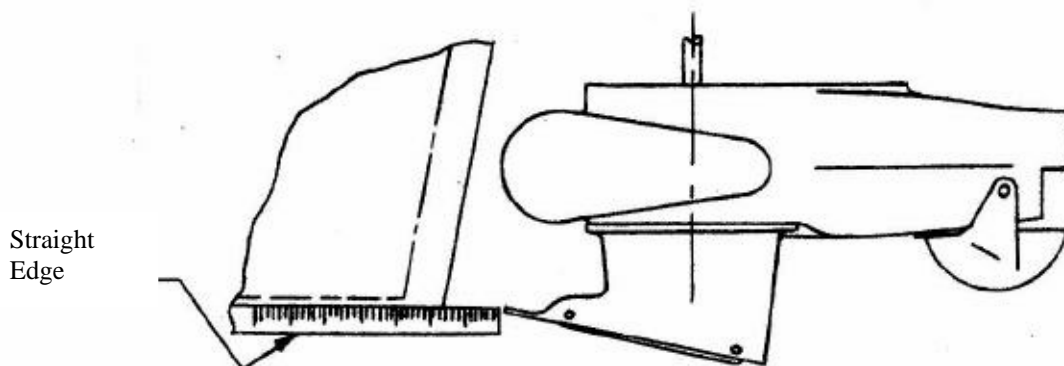
If you raise it too much it will suck air and cavitate, either on start up or when banking on turns. When cavitating, the motor overspeeds in spurts and shakes considerably in the motor mount. This is not a normal condition and should be avoided by proper adjustment of motor height on each individual 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 powerhead. This is to check your assembly of the cooling water pump and its connections.

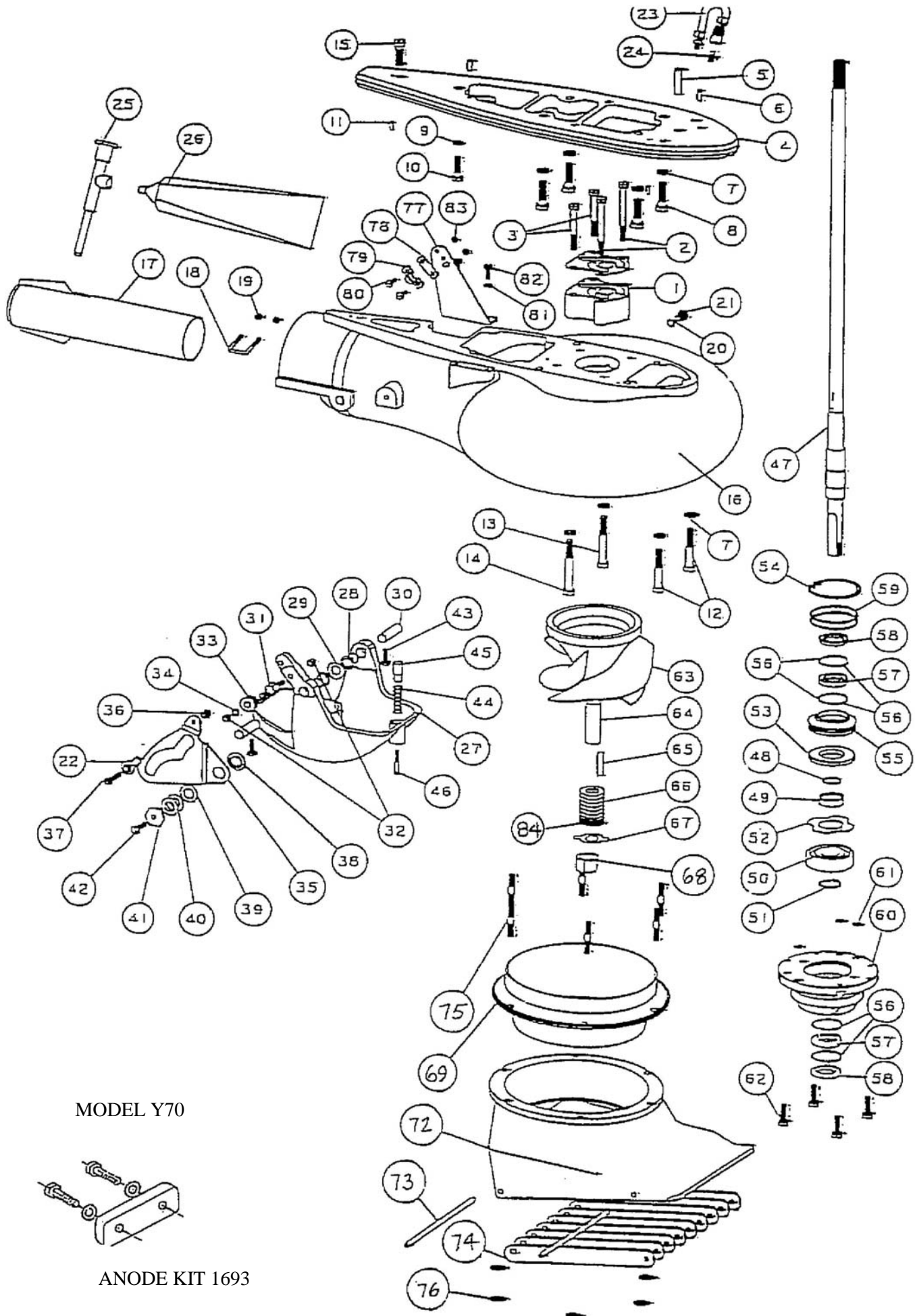
The cooling system can be flushed by removing the slotted screw next to the grease fitting. A hose coupling is available from a Yamaha dealer. Turn on the water gently, start the motor, set to idle and watch for cooling water at the tell tale. Adjust water pressure if needed. Replace the screw after flushing.

PROPER ENGINE HEIGHT

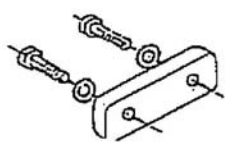


MAINTENANCE AND LUBRICATION

See last page.



MODEL Y70



ANODE KIT 1693

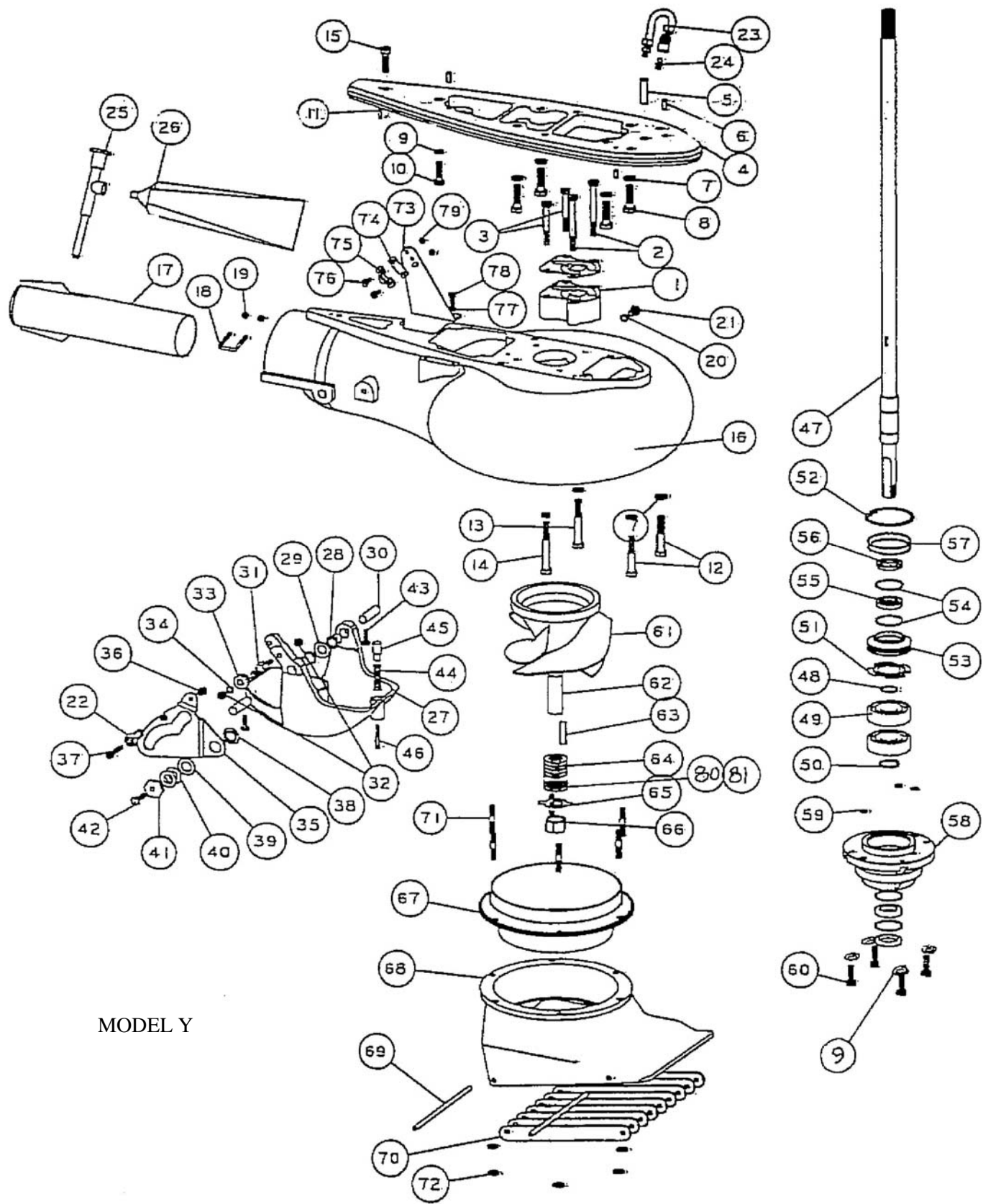
**MODEL Y70, Y70-04 YAMAHA 60-70 HP
2 STROKE, 51.8 CU. IN.**

REF	QTY	PART NO.	DESCRIPTION	REF	QTY	PART NO.	DESCRIPTION
1	1	873	PUMP ADAPTER, Y	49	1	467	COLLAR BACKFIT 7305
2	2	600	BOLT HEX HD 5/16-18 X 3 1/4	50	1	502	BEARING 7305B-UA
3	2	603	BOLT HEX HD 5/16-18 X 2 1/2	51	1	511	TRUARC 5100-98
4	1	871	ADAPTER PLATE Y	52	1	830	THRUST WASHER
5	1	874	SHIFT GUIDE Y	53	1	831	SPACER
6	2	616	DOWEL PIN 6 X 16MM	54	1	513	TRUARC N5002-250ZD
7	8	636	WASHER SPRING LOCK M10	55	1	432	UPPER SEAL CARRIER W/SEALS & "O" RINGS
8	4	592	BOLT HEX HD M10-1.25 X 35MM	56	4	517	SPIROLOX RR-150S
9	1	640	WASHER SPRING LOCK 5/16	57	2	506	SEAL INNER
10	1	591	BOLT HEX HD M8-1.25 X 30MM	58	2	507	SEAL OUTER 6324-S
11	2	631	DOWEL PIN 3/16 X 1/2	59	2	527	O RING 568-141 3/32 X 2-5/16 X 2-1/2
12	2	608	BOLT HEX HD 3/8-16 X 2 1/4	60	1	108.5	BEARING CARRIER W/SEALS & O"RINGS 5/16
13	1	609	BOLT HEX HD 3/8-16 X 2 3/4	61	3	521	O RING 568-011 1/16 X 5/16 X 7/16
14	1	610	BOLT HEX HD 3/8-16 X 3	62	4	602.1	BOLT HEX HD 5/16-18 X 1 PATCH
15	1	606	BOLT HEX HD 3/8-16 X 1 1/4	63	1	106.24	IMPELLER 7 3/16 W/136 SLEEVE
		90800	VOLUTE WITH GATE Y	64	1	136	SHAFT SLEEVE PLASTIC LARGE
16	1	908	VOLUTE WITH EXHAUST TUBE Y	65	1	434	IMPELLER TEE KEY - SQUARE
17	1	128	EXHAUST TUBE ASSY LARGE 2 1/2	65	1	1706	IMPELLER TEE KEY - 1/2 ROUND
18	1	845	CLIP EXHAUST TUBE 1 3/8	66	8	121	SHIM WASHER LARGE
19	2	621	NYLOC 10-32	67	1	781	NUT KEEPER LARGE/PKG. 2 PER BAG
20	1	1025	WASHER FIBER M8	68	1	122.1	SHAFT NUT 3/4-16 BRASS
21	1	1024	BOLT HEX HD M8 X 1.25 X 12MM			141.3	INTAKE ASSY 7 3/16 WITH GRILL & LINER
22	1	553.2	BALL END 1/4 X 10-32 CABLE	69	1	137	LINER 7 3/16
23	1	975	LUBE HOSE ASSY	70	2	638	WASHER SPRING LOCK 1/4
24	1	539	ZIRC FITTING 1/4-28	71	2	575	BOLT HEX HD 1/4-20 X 7/8
25	1	550	GREASE GUN	72	1	104	INTAKE PAINTED ONLY
26	1	552	GREASE, 10 OZ TUBE NO. 630-AA	73	2	14	GRILL ROD
27	1	1172	REVERSE GATE LARGE	74	9	117	GRILL BAR LARGE
28	2	536	NYLINER 1/2 ID X 13/16	75	6	1319	STUD-INTAKE LARGE
29	2	1178	SPRING GATE PIVOT 1/2	76	6	625	NYLOC 5/16-18
30	2	823	PIN GATE PIVOT 1/2 LARGE			171	BRACKET ASSY MORSE W/CLAMP & HDW
31	1	1043	SHAFT ROLLER	77	1	156	BRACKET CABLE SUPPORT
32	2	624	NYLOC 1/4-28	78	1	542	SHIM MORSE AO35777
33	1	1042	ROLLER ASSY	79	1	543	CLAMP CHRYS 154317
34	1	635	1/4 WASHER AN960C416	80	2	561	FIL HD SLOTTED 10-24 X 5/8
35	1	1034	SHIFT CAM LARGE	81	2	635	1/4 WASHER AN960C416
36	1	623	NYLOC 1/4-20	82	2	572	BOLT HEX HD 1/4-20 X 5/8
37	1	573	BOLT HEX HD 1/4-20 X 3/4	83	2	619	NYLOC 10-24
38	1	1037	BUSHING CAM	84	1	1719	TORSIONAL DAMPER 3/4
39	1	1038	WASHER CAM				
40	2	1039	SHIM-CAM				
41	1	1036	CAM ECCENTRIC DRILLED				
42	1	574.1	BOLT HEX HD 1/4-20 X 1 PATCH				
43	2	574	BOLT HEX HD 1/4-20 X 3/4 PATCH				
44	1	1170	SPRING GATE BUMPER				
45	1	1497	GATE BUMPER				
46	1	559.2	FIL HD SLOTTED 10-32 X 1-1/4 PATCH				
		921.1	SHAFT ASSY COMPLETE, Y70, 16T 5/16				
47	1	920	SHAFT ONLY, Y70, 16T 29 13/16				
		1804.1	SHAFT ASSY COMPLETE, Y70-04, 16T 5/16				
47	1	1803	SHAFT ONLY, Y70-04, 16T 29 13/16				
48	1	41	SHAFT BEARING THRUST RING				

TILLER STEERING
SHIFT CABLE ASSY 1317 SEE PAGE 23

BEARING, SEAL, SNAP & "O" RING KIT
1 BRG 462.1

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



MODEL Y

MODEL Y90 YAMAHA

REF	QTY	PART NO.	DESCRIPTION	REF	QTY	PART NO.	DESCRIPTION
1	1	873	PUMP ADAPTER Y	54	4	517	SPIROLOX RR-150S
2	2	600	BOLT HEX HD 5/16-18 X 3 1/4	55	2	506	SEAL INNER 0857
3	2	603	BOLT HEX HD 5/16-18 X 2 1/2	56	2	507	SEAL OUTER 1317 REV B
4	1	871	ADAPTER PLATE Y	57	2	527	O RING 568-141
5	1	874	SHIFT ROD GUIDE Y	58	1	393.5	BRG CARR SEALS DOUBLE - 5/16
6	2	616	DOWEL PIN 6 X 16 MM	59	3	521	O RING 568-011 1/16X5/16X7/16
7	8	636	WASHER SPRING LOCK M10	60	4	602.1	BOLT HEX HD 5/16-18 X 1 PATCH
8	4	592	BOLT HEX HD M10-1.25 X 35MM	61	1	1756	IMPELLER 7 3/8 SS 136, 1706
9	5	640	WASHER SPRING LOCK 5/16	62	1	136	SHAFT SLEEVE PLASTIC LARGE
10	1	591	BOLT HEX HD M8-1.25 X 30MM	63	1	434	KEY, TEE IMPELLER LARGE 3/16
11	2	631	DOWEL PIN 3/16 X 1/2	64	9	121	SHIM WASHER LARGE
12	2	608	BOLT HEX HD 3/8-16 X 2 1/4	65	1	781	NUT KEEPER FOLDED LARGE
13	1	609	BOLT HEX HD 3/8-16 X 2 3/4	66	1	122.1	SHAFT NUT 3/4-16 BRASS
14	1	610	BOLT HEX HD 3/8-16 X 3			1333	INTAKE ASSY 7 3/8 FLANGED
15	1	606	BOLT HEX HD 3/8-16 X 1 1/4	67	1	1431	LINER 7 3/8 FLANGED
		90800	RECOUP GATE Y CAM	68	1	1332	INTAKE PAINTED 7 3/8 FLANGED
16	1	908	RECOUP TUBE Y	69	2	14	GRILL ROD
17	1	128	EXHAUST TUBE ASSY LARGE 2 1/2	70	9	117	GRILL BAR LARGE
18	1	845	CLIP EXHAUST TUBE 1 3/8	71	5	1319	STUD - INTAKE LARGE
19	2	621	NYLOC 10-32	72	6	625	NYLOC 5/16-18
20	1	1023	WASHER FIBER 3/8			171	BRACKET ASSY MORSE
21	1	1022	BOLT HEX HD 3/8-16 X 1/2	73	1	156	BRACKET CABLE SUPT OMC, MORSE
22	1	553.2	BALL END 1/4X10-32 CABLE	74	1	542	SHIM MORSE A035777
23	1	975	LUBE HOSE ASSY	75	1	543	CLAMP CHRYS 154317
24	1	539	1/4-28 THREAD HYDRAULIC ZIRC	76	2	561	FIL HD SLOTTED 10-24 X 5/8
25	1	550	GREASE GUN 30195	77	2	635	1/4 WASHER AN960C416
26	1	552	GREASE 10 OZ TUBE NO.630-AA	78	2	572	BOLT HEX HD 1/4-20 X 5/8
27	1	1172	GATE PAINTED LARGE 1/2 CAM	79	2	619	NYLOC 10-24
28	2	536	NYLINER 4217A 1/2ID X .82				
29	1	1178	SPRING GATE PIVOT 1/2	NOTE: FLUSH SCREW & WASHER METRIC ON BLUE VOLUTES			
30	2	823	PIN GATE PIVOT 1/2 LARGE	20	1	1025	WASHER FIBER M8
31	1	1043	SHAFT ROLLER	21	1	1024	BOLT HEX HD M8-1.25 X 12
32	2	624	NYLOC 1/4-28				
33	1	1042	ROLLER ASSY				
34	1	635	1/4 WASHER AN960C416				
35	1	1034	SHIFT CAM LARGE				
36	1	623	NYLOC 1/4-20				
37	1	573	BOLT HEX HD 1/4-20 X 3/4				
38	1	1037	BUSHING CAM				
39	1	1038	WASHER CAM				
40	2	1039	SHIM - CAM				
41	1	1036	CAM ECCENTRIC DRILLED				
42	1	574.1	BOLT HEX HD 1/4-20 X 1 PATCH				
43	2	574	BOLT HEX HD 1/4-20 X 3/4 PATCH				
44	1	1170	SPRING GATE BUMPER				
45	1	1497	GATE BUMPER - LONG				
46	1	559.2	FIL HD SLOT 10-32X 1 1/4 PATCH				
		968.1	DSHAFT ASSY YD90 - 5/16				
47	1	967	DRIVESHAFT & SLV YD90				
48	1	41	SHAFT BEARING THRUST RING				
49	2	502	BEARING 7305B-UA				
50	1	511	TRUARC 5100-98SPP				
51	1	404	BACKUP WASHER LARGE PLATED				
52	1	513	TRUARC N5002-250ZDL				
53	1	432	SEAL RING ASSY LARGE				

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

TILLER STEERING
 SHIFT CABLE ASSY 1263, 1264 SEE PAGE 21
 BEARING, SEAL, SNAP & "O" RING KIT
 2 BRG 462.2

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

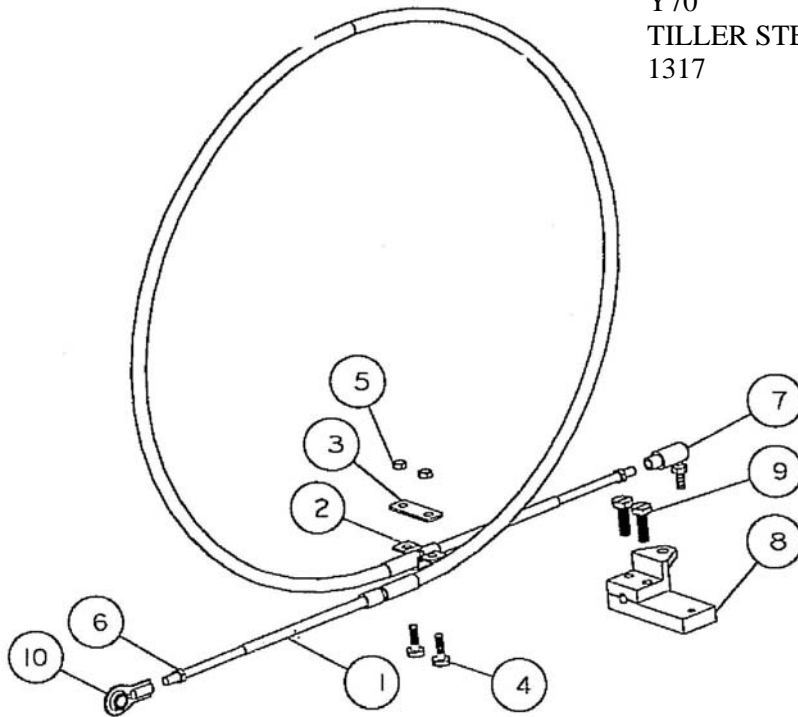
Aluminum and stainless steel have been used in the construction of your jet drive. These materials have either been treated or are inherently resistant to corrosion. It is recommended, however, that when not in use the motor be tipped up so that the jet unit is out of the water. When used in salt water 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.

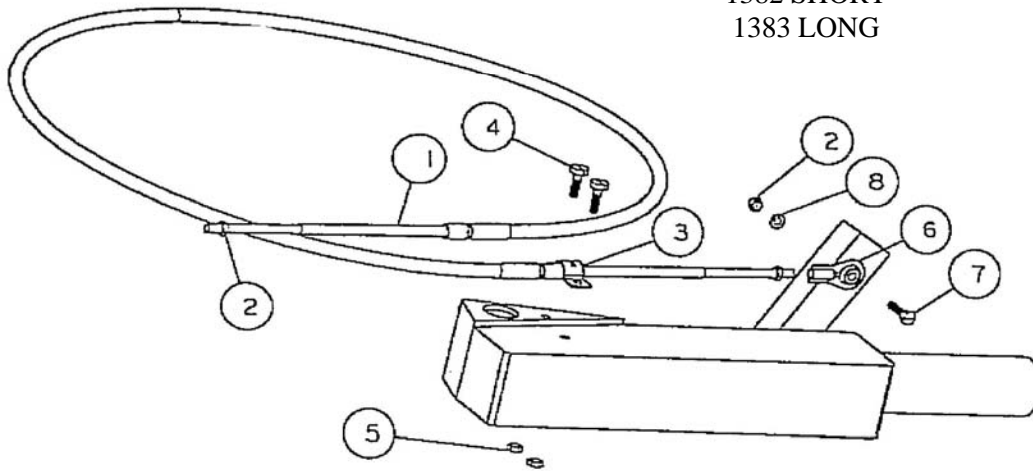
Specialty Manufacturing Company
Outboard Jets
2035 Edison Avenue
San Leandro, CA 94577

SHIFT CABLE ASSEMBLY
 YAMAHA MODEL Z70,
 Y70
 TILLER STEERING
 1317



REF	QTY	PART NO.	DESCRIPTION
1	1	549	CABLE 3 1/2 FT MOR 33C SUPREME
2	1	543	CLAMP CHRYS 154317
3	1	542	SHIM MORSE AO35777
4	2	561	FIL HD SLOTTED 10-24 X 5/8
5	2	619	NYLOC 10-24
6	2	621.1	HEX NUT 10-32 JAM
7	1	544.1	BALL JOINT MORSE 31799-001
8	1	1316	CABLE BLOCK Z Y TILLER
9	2	573	BOLT HEX HD 1/4-20 X 3/4
10	1	553.2	BALL END 1/4 X 20-32 CABLE

SHIFT CABLE ASSEMBLY
 YAMAHA MODEL AJM, Y
 TILLER STEERING
 1382 SHORT
 1383 LONG



REF	QTY	PART NO.	DESCRIPTION
1	1	547	CABLE 4 FT MOR 33C SUPREME SHORT
1	1	547.1	CABLE 4 1/2 FT MOR 33C SUPREME LONG
2	3	621.1	HEX NUT 10-32 JAM
3	1	543	CLAMP CHRYS 154317
4	2	561	FIL HD SLOTTED 10-24 X 5/8
5	2	619	NYLOC 10-24
6	1	553.1	BALL END NO. 10X10-32 CABLE
7	1	558.2	BOLT HEX HD 10-32 X 3/4
8	1	637	WASHER SPRING LOCK NO. 10