

MODEL AL FOR SUZUKI SERIES  
ASSEMBLY INSTRUCTIONS  
150-225 HP, 6 CYLINDER, 164.3 CU. IN., STARTING 1986

1. Place the engine on the transom of your boat so that it is mounted vertically, in the normal fashion. Disconnect the shift linkage near the gearbox. Remove the trim tab and 7 bolts holding the gearbox to the engine midsection. Remove the gearbox.
2. To prevent the disconnected shift rod from rattling in the engine pivot tube, slip the sponge rubber sleeve over the lower end of the rod, partially into the tube and secure it with a plastic tie.
3. Remove the water pump assembly from the propeller drive, including the lower stainless steel plate, gasket, dowel pins, and impeller drive key.
4. Install the jet driveshaft assembly into the spiral pump housing locking it in place with the four 5/16-18 x 1 bolts and lockwashers. Use grease on the threads and tighten to 12 ft-lbs.
5. Position the 3/4 inch water pump adapter on the pump housing using 2 – 3/16 inch dowel pins. Install the gasket, lower stainless steel plate, 2-6mm dowel pins and rubber impeller with drive key. A thin film of grease on the driveshaft, the plate and inside the impeller housing will ease assembly. Rotate the driveshaft, clockwise from above, while easing the pump housing over the impeller. Lock in place using four 5/16-18 x 1-3/4 bolts. Grease the threads. Tighten to 10 ft-lbs.
6. The large 3/4 inch adapter plate is attached to the midsection to hold the jet drive. Use 2-8mm dowel pins and 7-10mm x 35mm bolts with lockwashers. Grease the threads. Tighten to 22 ft-lbs.
7. 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 from below and one 3/8-16 x 1-1/2 bolt from above rear with lockwashers 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. The upper rear bolt is reached through the trim tap opening in the motor exhaust housing.

Grease the bolt threads, driveshaft spline generously, and rubber water tube pilot and guide the jet into place. Tighten the five bolts to 22 ft-lbs.

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 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 grooves and jam the nut.

Then bump the nut up snug with a wrench. If the ears of the retainer do not line 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.

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

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11. 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. If you have difficulty making this cable length adjustment, open the remote control box and adjust the engagement of the threaded terminal end to use up or let out cable. 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.
12. When converting to jet drive, your motor will have to be raised to the height shown in the diagram pg. 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 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 26 inches measured vertically from the boat bottom for long shaft motors.

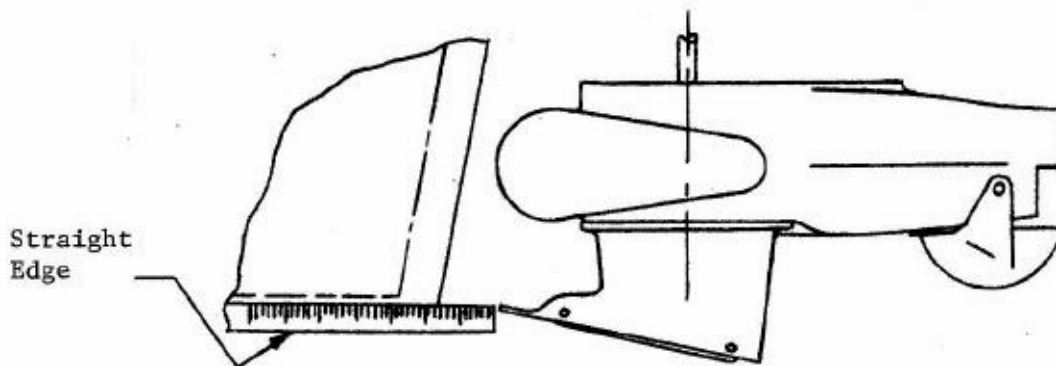
If you raise it too much it will suck air and cavitate, either on start up or when banking on turns. When cavitating, the motor overspeeds in spurts and shakes considerably in the motor mount. This is not a normal condition and should be avoided by proper adjustment of motor height on each individual 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 No. 24789A1 is available from a Mercury 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.

#### SETTING MOTOR HEIGHT



#### MAINTENANCE AND LUBRICATION

See last page.

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CAUTION  
V4 and V6 Jet Drives.

It is important on high HP installations to mount the motor at the correct height and to use the power tilt properly.

Power tilt is convenient for drifting and when operating at low throttle in very shallow areas. The motor can be trimmed out about 15 degrees and run at 1000 – 1200 RPM through shallow areas with less chance of picking up sand gravel. Watch the cooling water tell tale stream.

When under power however, the engine should not be tilted out in an effort to gain speed as is done with propellers. The engine driveshaft should be vertical when planing or tilted toward the boat in order to provide a scooping angle on the water intake grill. Tilting the motor out beyond a vertical position reduces the scoop angle and can cause impeller slippage and cavitation burns on the impeller blades.

When running in a bay, lake or wide river in windy conditions, particularly when running with the wind, the jet can suck in air when jumping across the wave crests. This will result in engine overspeeding and causes severe strain on the driveshaft when the engine is suddenly brought back to normal speed as the impeller once again grabs solid water.

If your boat is used frequently under these conditions, the engine height should be set lower than normal to minimize overspeeding. Running at reduced throttle will help when winds are strong. You can also experiment with a plate extending from the hull bottom to the top of the leading edge of the water intake as shown in paragraph 7 of the owner's manual. This tends to reduce air intake as well as to reduce spray.

A water intake fin kit, part #1186 is available. The purpose of these fins is to ram more water into the intake and to shield the forward sides of the intake from the entrance of air. There is a noticeable reduction of engine overspeeding when running with the wind on a heavy chop. To a lesser degree, the fins provide some rudder effect when operating at low speeds. This is not a cure all for cavitation and it is still necessary to set the engine height and angle properly and to minimize obstructions or imperfections in the hull ahead of the intake.

# 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.

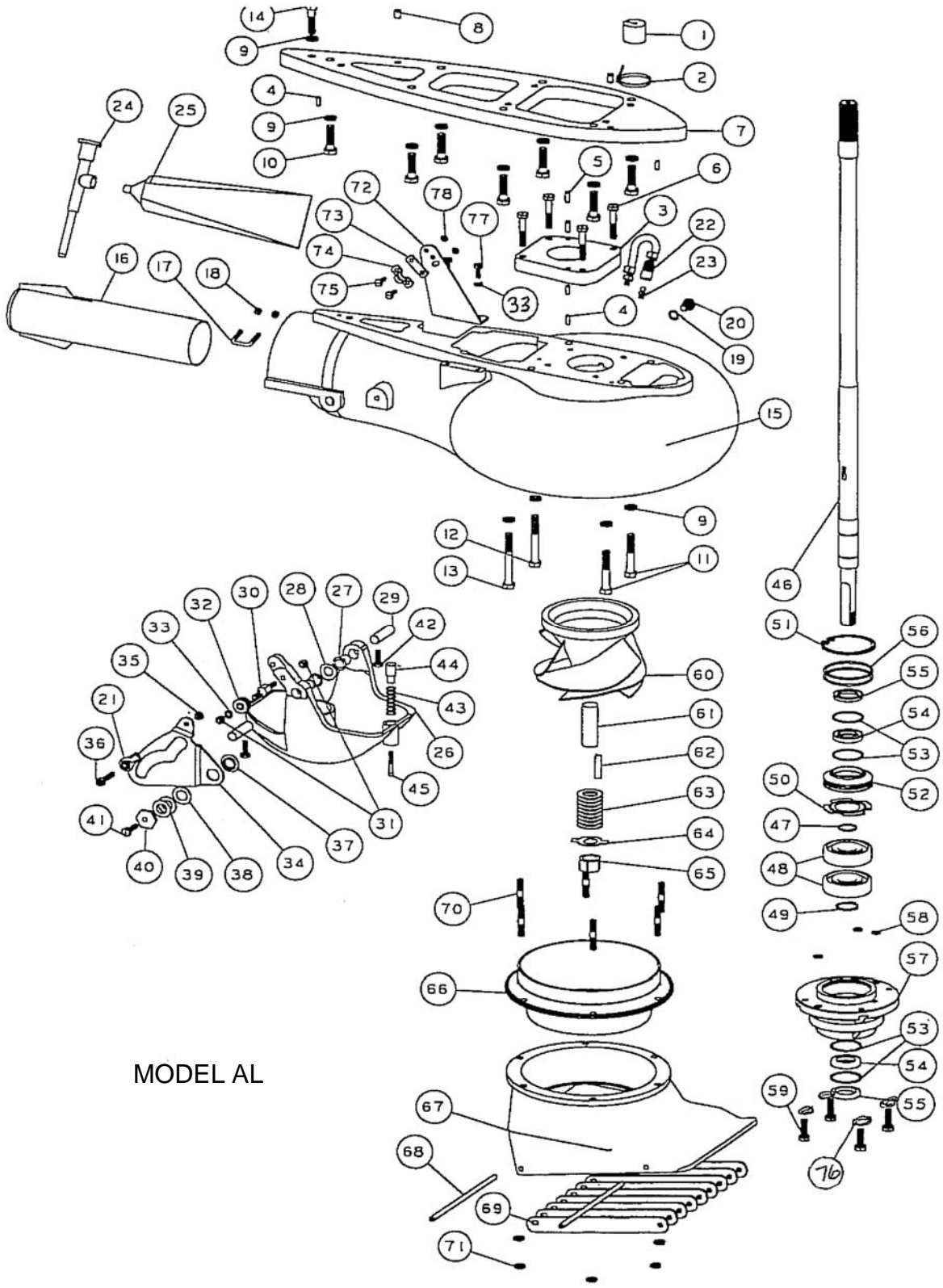
## **SALT WATER USE**

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 AL

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REF	QTY	PART NO.	DESCRIPTION	REF	QTY	PART NO.	DESCRIPTION
1	1	40	Sponge collar	53	4	517	SPIROLOX RR-150S
2	1	1437	PLASTIC TIE	54	2	506	SEAL INNER 0857
3	1	1425	PUMP ADAPTER AL	55	2	507	SEAL OUTER 1317 REV B
4	4	631	DOWEL PIN 3/16 X 1/2	56	2	527	O RING 568-141
5	2	616	DOWEL PIN 6 X 16 MM	57	1	393.5	BRG CARR SEALS DOUBLE - 5/16
6	4	597.1	BOLT HEX HD 5/16-18 X 1 3/4	58	3	521	O RING 568-011 1/16X5/16X7/16
7	1	1414	ADAPTER PLATE AL	59	4	602.1	BOLT HEX HD 5/16-18 X 1 PATCH
8	2	615	DOWEL PIN 8 X 12MM	60	1	1352	IMPELLER 4BLADEV6 OBSOLETE
9	12	636	WASHER SPRING LOCK M10	61	1	136	SHAFT SLEEVE PLASTIC LARGE
10	7	592	BOLT HEX HD M10-1.25 X 35MM	62	1	434	KEY, TEE IMPELLER LARGE 3/16
11	2	608	BOLT HEX HD 3/8-16 X 2 1/4	63	9	121	SHIM WASHER LARGE
12	1	609	BOLT HEX HD 3/8-16 X 2 3/4	64	1	781	NUT KEEPER FOLDED LARGE
13	1	610	BOLT HEX HD 3/8-16 X 3	65	1	122.1	SHAFT NUT 3/4-16 BRASS
14	1	607	BOLT HEX HD 3/8-16 X 1 1/2			1333	INTAKE ASSY 7 3/8 FLANGED
		1419	RECOUP GATE AL CAM	66	1	1431	LINER 7 3/8 FLANGED
15	1	1418	RECOUP TUBE AL	67	1	1332	INTAKE PAINTED 7 3/8 FLANGED
16	1	128	EXHAUST TUBE ASSY LARGE 2 1/2	68	2	14	GRILL ROD
17	1	845	CLIP EXHAUST TUBE 1 3/8	69	9	117	GRILL BAR LARGE
18	2	621	NYLOC 10-32	70	6	1319	STUD - INTAKE LARGE
19	1	1023	WASHER FIBER 3/8	71	6	625	NYLOC 5/16-18
20	1	1022	BOLT HEX HD 3/8-16 X 1/2			171	BRACKET ASSY MORSE
21	1	553.2	BALL END 1/4X10-32 CABLE	72	1	156	BRACKET CABLE SUPT OMC, MORSE
22	1	975	LUBE HOSE ASSY	73	1	542	SHIM MORSE A035777
23	1	539	1/4-28 THREAD HYDRAULIC ZIRC	74	1	543	CLAMP CHRYS 154317
24	1	550	GREASE GUN 30195	75	2	561	FIL HD SLOTTED 10-24 X 5/8
25	1	552	GREASE 10 OZ TUBE NO.630-AA	76	4	640	WASHER SPRING LOCK 5/16
26	1	1172	GATE PAINTED LARGE 1/2 CAM	77	2	572	BOLT HEX HD 1/4-20 X 5/8
27	2	536	NYLINER 4217A 1/2ID X .82	78	2	619	NYLOC 10-24
28	1	1178	SPRING GATE PIVOT 1/2				
29	2	823	PIN GATE PIVOT 1/2 LARGE				
30	1	1043	SHAFT ROLLER				
31	2	624	NYLOC 1/4-28				
32	1	1042	ROLLER ASSY				
33	3	635	1/4 WASHER AN960C416				
34	1	1034	SHIFT CAM LARGE				
35	1	623	NYLOC 1/4-20				
36	1	573	BOLT HEX HD 1/4-20 X 3/4				
37	1	1037	BUSHING CAM				
38	1	1038	WASHER CAM				
39	2	1039	SHIM - CAM				
40	1	1036	CAM ECCENTRIC DRILLED				
41	1	574.1	BOLT HEX HD 1/4-20 X 1 PATCH				
42	2	574	BOLT HEX HD 1/4-20 X 3/4 PATCH				
43	1	1170	SPRING GATE BUMPER				
44	1	1497	GATE BUMPER - LONG				
45	1	559.2	FIL HD SLOT 10-32X 1 1/4 PATCH				
		1429.1	DSHAFT ASSY AL - 5/16				
46	1	1428	DRIVESHAFT & SLV AL				
47	1	41	SHAFT BEARING THRUST RING				
48	2	502	BEARING 7305B-UA				
49	1	511	TRUARC N5002-250ZDL				
50	1	404	BACKUP WASHER LARGE PLATED				
51	1	513	TRUARC N5002-250ZDL				
52	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