

MODEL BM MERCURY SERIES 20 HP
ASSEMBLY INSTRUCTIONS
2 CYLINDER, 4 STROKE 22.4 CU. IN.

1. Place the motor on the transom of your boat so it is mounted vertically. Disconnect the gearshift rod coupling. Remove the four nuts 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, pump housing and impeller. Open up the three mounting holes in the plastic housing using a 17/64 drill.
3. Install the jet pump driveshaft assembly into the jet drive housing, locking it in place with the two #10-24 fil head screws and spring lock washers. Grease on the threads.
4. Mount the 1 1/2 inch thick aluminum adapter to the bearing housing using two 1/4-20 x 1 socket head screws with lock washers. Install the water pump assembly on top of the 1 1/2 inch thick aluminum adapter. Be sure to install the impeller drive key, part #1275. Lock in place with three 1/4-20 x 1 3/4 bolts and flat washers. Grease the threads.
5. The large adapter plate is attached to the exhaust housing to hold the jet drive. Use four nuts and washers from the propeller drive. Grease the threads.
6. Thread the 3/4 long hex shift rod coupling onto the shift rod guide. Lock it tight and thread onto the motor shift rod. Lock the jam nut. Next, attach the jet drive to the motor. Four 5/16-18 x 2 bolts and lock washers from below and one 3/8-16 x 1 1/4 bolt from above rear, are used. Grease the bolt threads, driveshaft spline generously, and rubber water tube inlet 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 seven shim washers, torsional damper and nut retainer on the shaft, and bring the nut up snug by hand.

Place the water intake in position and secure with two bolts. Observe the clearance between the impeller blade edge and the intake liner. Then remove the intake.

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 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.

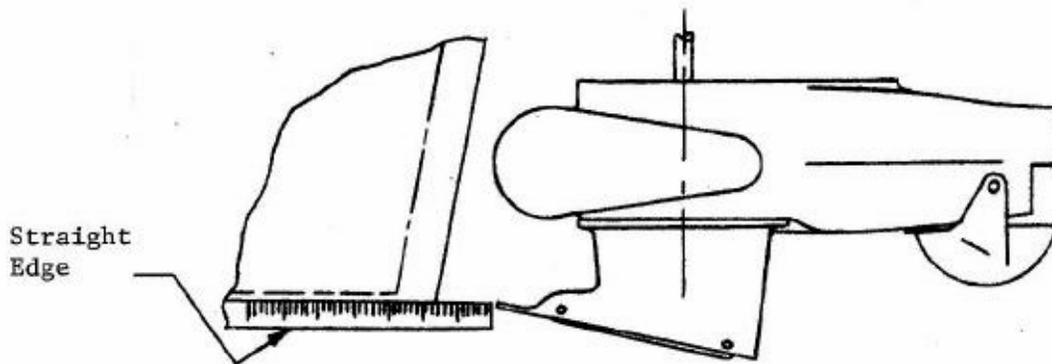
Shims should not be used above the impeller on new installations where no wear has occurred unless the blade clearance exceeds 1/32 inch. Insufficient blade clearance will do more harm than good from any performance gains it might provide.

When the impeller clearance is satisfactory, bump the nut up tight 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.

MODEL BM MERCURY SERIES 20 HP
ASSEMBLY INSTRUCTIONS
2 CYLINDER, 4 STROKE 22.4 CU. IN.

8. Place the intake casing in position with the lower end at the rear and tighten the six 1/4-20 x 3/4 bolts. No lock washers are used. Grease the threads.
9. The shift system on this motor does not provide a means for shifting our reverse gate. Instead, we have provided a transom mounted shift handle and cable system. A pivoted stop is flipped up to provide a neutral position for the handle. It is flipped down, out of the way, to provide full travel of the handle from forward to reverse. Be sure, in forward, to pull the handle all the way down to lock the gate roller in the locking detent in the cam slot. Mount the shifter twelve inches from motor centerline.
10. When converting to jet drive, your motor will have to be raised to the height shown in the diagram below, using a straight edge under the boat. Test run the boat and then raise or lower the motor 1/4 inch at a time to obtain the best results. If you raise it too much, it will suck air and cavitate, either on start up or when banking on turns. When cavitating, the engine over speeds in spurts and shakes considerably in the engine mount. This is not a normal condition and should be avoided by proper adjustment of the engine height on each individual boat. If you lower it too much, you will have excessive drag, therefore, mount the engine as high as possible without allowing cavitation.

SETTING MOTOR HEIGHT



CAUTION

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

MAINTENANCE AND LUBRICATION

See last page.

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.

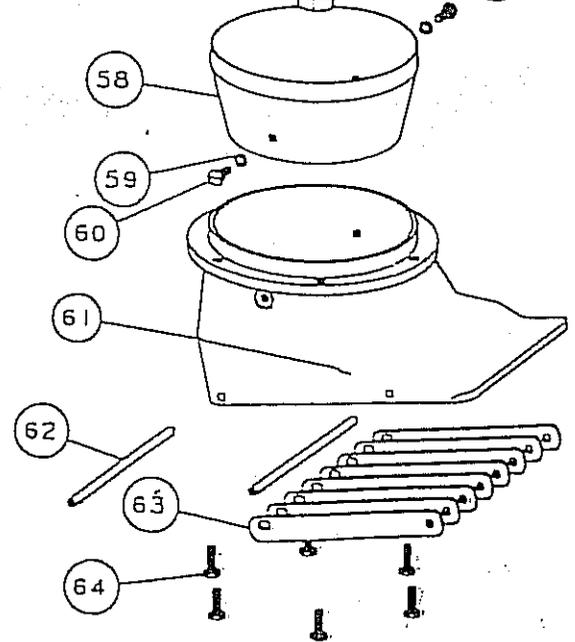
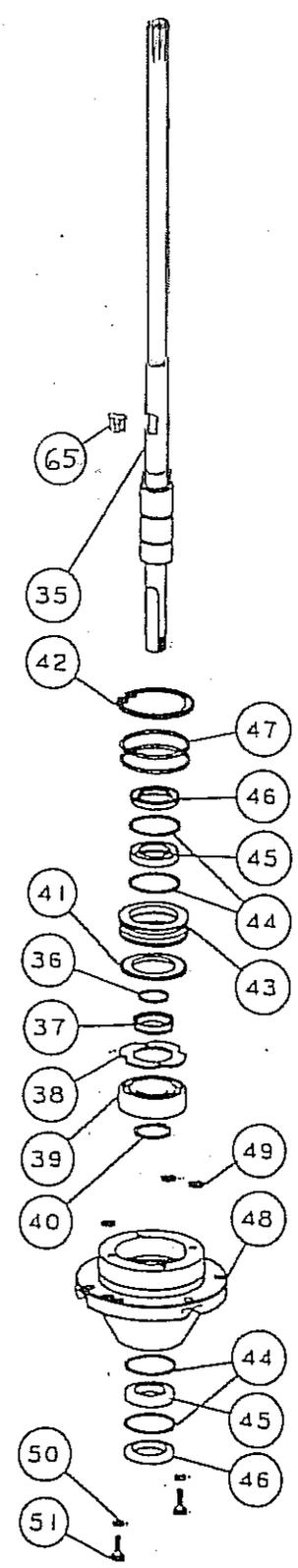
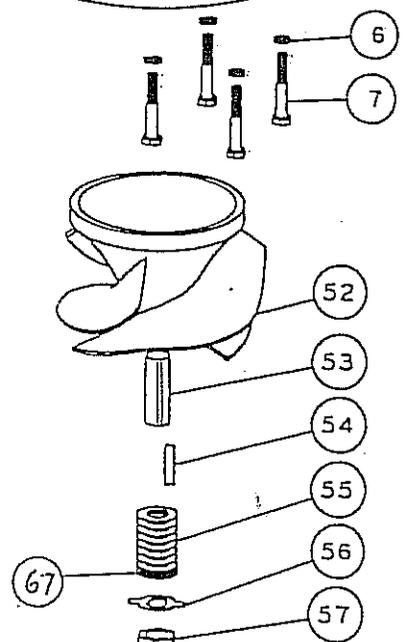
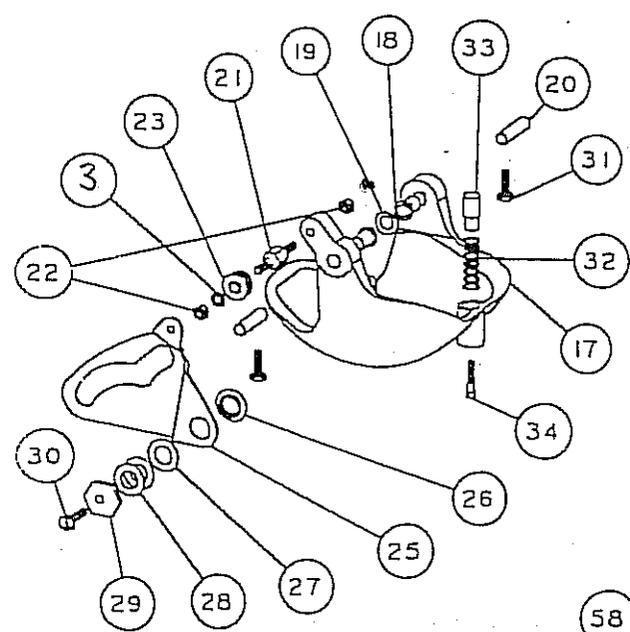
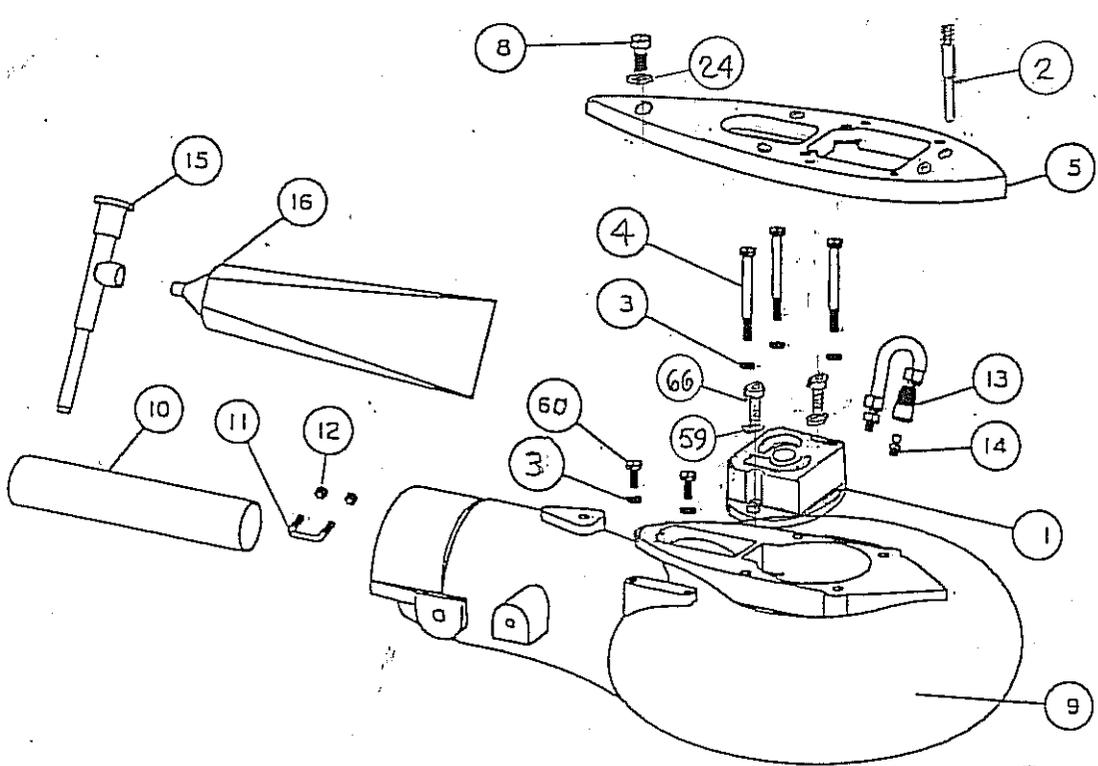
SALT WATER USE

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.

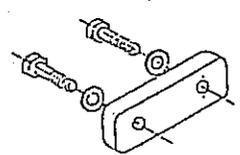
GUARANTEE

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 BM



MODEL BM MERCURY 20 HP

4 STROKE 2 CYL 22.4 CU. IN.

REF	QTY	PART NO.	DESCRIPTION	REF	QTY	PART NO.	DESCRIPTION
1	1	2107	PUMP ADAPTER BM	52	1	2118	IMPELLER 6-79 CB W/36.1 SLEEVE
2	1	2114	SHIFT ROD GUIDE BM	53	1	36.1	SHAFT SLEEVE PLASTIC MEDIUM
3	6	635	1/4 WASHER AN960C416	54	1	1705	IMPELLER TEE KEY - 1/2 ROUND
4	3	578	BOLT HEX HD 1/4-20 X 1 3/4	55	7	21	SHIM WASHER MEDIUM
5	1	2106	ADAPTER PLATE BM	56	1	805	NUTKEEPER MED/PKG 2 PER BAG
6	4	640	WASHER SPRING LOCK 5/16	57	1	22.1	SHAFT NUT 5/8-18 BRASS
7	4	595	BOLT HEX HD 5/16-18 X 2	1	2120	INTAKE ASSY 6 REDUCED WITH GRILL & LINER	
8	1	606	BOLT HEX HD 3/8-16 X 1 1/4	58	1	2119	LINER 6 W/HARDWARE REDUCED 5/8 INCH
		2111	VOLUTE WITH GATE BM	59	4	638	WASHER SPRING LOCK 1/4
9	1	2110	VOLUTE WITH EXHAUST TUBE BM	60	4	572	BOLT HEX HD 1/4-20 X 5/8
10	1	221	EXHAUST TUBE SMALL 1 1/2	61	1	853	INTAKE PAINTED ONLY
11	1	847	CLIP EXHAUST TUBE 3/4	62	2	216	GRILL ROD SMALL
12	2	621	NYLOC 10-32	63	8	215	GRILL BAR SMALL
13	1	975	LUBE HOSE ASSY	64	6	573	BOLT HEX HD 1/4-20 X 3/4
14	1	539	ZIRC FITTING 1/4-28	65	1	1275	KEY, TEE WATER PUMP
15	1	550	GREASE GUN	66	2	564.1	SOCKET HD SCREW 1/4-20 X 1
16	1	552	GREASE 10 OZ TUBE 630-AA	67	1	1718	TORSIONAL DAMPER 5/8
17	1	1355	REVERSE GATE SMALL				
18	2	535	NYLINER 3/8 ID X 11/16				
19	1	1177	SPRING GATE PIVOT 3/8				
20	2	821	PIN GATE PIVOT 3/8 SMALL				
21	1	1043	SHAFT ROLLER				
22	2	624	NYLOC 1/4-28				
23	1	1042	ROLLER ASSY				
24	1	636	WASHER SPRING LOCK M10				
25	1	1035	SHIFT CAM MEDIUM				
26	1	1037	BUSHING CAM				
27	1	1038	WASHER CAM				
28	2	1039	SHIM-CAM				
29	1	1036	CAM ECCENTRIC DRILLED				
30	1	574.1	BOLT HEX HD 1/4-20 X 1 PATCH				
31	2	574	BOLT HEX HD 1/4-20 X 3/4 PATCH				
32	1	1170	SPRING GATE BUMPER				
33	1	1169	GATE BUMPER				
34	1	559.2	FIL HD SLOTTED 10-32 X 1 1/4 PATCH				
35	1	2105	SHAFT ASSY COMPLETE, BM, 11T				
	1	2104	SHAFT ONLY, BM, 11T, 22 13/16 LG				
36	1	41	SHAFT BEARING THRUST RING				
37	1	477	COLLAR BACKFIT 7205				
38	1	1536	THRUST WASHER				
39	1	504	BEARING 7205B-UA				
40	1	511	TRUARC 5100-98				
41	1	1535	SPACER				
42	1	512	TRUARC N5002-212ZD				
43	1	433	UPPER SEAL CARRIER W/SEALS & O RINGS				
44	4	517	SPIROLOX RR-150S				
45	2	506	SEAL INNER				
46	2	507	SEAL OUTER 6324-S				
47	2	526	O RING 568-135 3/32X1 15/16X2 1/8				
48	1	1166	BEARING CARRIER W/SEALS & O RINGS AE				
49	3	521	O RING 568-011 1/16X5/16X7/16				
50	2	637	WASHER SPRING LOCK #10				
51	2	561	FIL HD SLOTTED 10-24 X 5/8				

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

GATE SHIFT CABLE ASSY – TILLER TRANSOM MOUNTED – SHORT 2116

BEARING, SEAL, SNAP & “O” RING KIT 803.1

