

MODEL P MERCURY SERIES  
ASSEMBLY INSTRUCTIONS  
50-70 HP, 3 CYLINDER, 49.8 CU. IN., 1972 TO 1990

1. Place the engine on the transom of your boat so that it is mounted vertically, in the normal fashion. Remove the 4 upper and lower nuts holding the gearbox to the upper housing and remove the gearbox.
2. Remove the 2 rear gearbox mounting studs from the upper housing, using a pipe wrench. The rearmost 3/8 stud hole must now be drilled through to the top of the housing to receive the rear jet mounting bolt from above. Drill through with the 25/64 stepped drill. Back spotface the top of the hole just until a full diameter seat is formed. A 5/8 diameter x 1/2 long steel spacer fits here, under the bolt head. The drills and spotfacer are available on loan or from you dealer. If it is ever desired to remount the propeller gearbox, a 3/8-16 bolt can be used at this rear hole.
3. Remove the complete water pump assembly from the propeller driveshaft. Remove the rubber cushion which supports the base of the engine exhaust tube.
4. Slide the jet driveshaft assembly into the engine exhaust housing to check for proper spacing of the 2 mounting studs. If the offset studs mounted in the bearing housing are spaced too far apart, they must be removed and replaced with straight studs, available from the factory for 1971 or older motors.
5. The two 3/16 diameter alignment dowels must be used with the jet drive mounting flange, if used with the propeller drive.
6. Next, install the jet pump driveshaft assembly into the spiral pump housing, locking it in place with the four 5/16-18 x 1 long bolts.
7. On older models, seal the flushing inlet on the lower water pump housing with the 3/8-16 set screw provided. It may be necessary to thread the hole with a 3/8-16 tap. Not required on late model motors.
8. Now install the water pump onto the jet driveshaft using gasket. Be sure to install the pump-impeller key. Lock the pump in place firmly with the three 1/4-20 x 2-1/8 bolts and lockwashers. Place the plastic guide sleeve for the cooling water tube into the water pump. Replace the rubber washer over the water pump and the shaft spline seal where used.
9. A tilt latch mechanism is provided to keep the engine from tilting up in reverse. A splined shift lever attaches to the engine gearshift-tilt latch shaft and guides into a 3/8 hole in the front of the jet housing. Install the tilt latch cam on the spline with the vertical wall aligned as shown on page 3. a fiber washer is placed between the shift lever and the aluminum housing. Place the engine gearshift control in "forward" position. The splined shift lever is installed in the jet drive rotated back against the housing. This is the position for the remote control in "forward." Grease the shift lever spline and cam. Then remove the shift lever from the jet housing and insert it into the engine spline in the same position.
10. Place the rubber cushion for the engine exhaust tube in the jet housing. Remove any sharp lower edges from the exhaust tube with a file so that the tube will enter the rubber cushion easily.
11. Now you are ready to mount the jet to the engine. Tip the engine up toward the horizontal. Lubricate the mating parts of the shift shaft fiber washer, driveshaft spline, water tube, exhaust tube and their rubber seats with grease for easy assembly. Install the jet pump housing and shaft assembly onto the engine, guiding the shift shaft, driveshaft, water tube and exhaust tube into place. Operate the remote control to be sure the tilt latch cams are assembled properly. Then tighten the 2 nuts and rear bolt firmly.
12. 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

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the eight shim washer 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 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.

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 casing wall, one or more of the brass 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. Insufficient blade clearance will do more harm than good from any performance gains it might provide.

13. Place the intake casing in position with the lower end at the rear and tighten the 6 nuts. Grease the threads.
14. With the remote control in forward, thread the shift rod into the pivot on the spline shift lever and adjust the thread engagement so that the reverse gate is in the full forward position with the cam roller on the gate at the end of the slot in the cam. Install the washer and cotter pin. If your motor uses a tiller steering handle, see last pages.
15. Remove the shift cable from inside the cowl and prepare to attach it directly to jet drive. The shift cable must be attached to the jet drive for the system to operate properly. An aluminum sleeve, 7/16 diameter x 3/8 long, is placed on the pin in the powerhead, where the cable end normally attaches, so that the cable end keeper can be secured. If this is not done, the keeper may turn sideways and jam the mechanism.
16. Attach the cable anchor bracket to the jet drive using 2 – 1/4-20 x 5/8 bolts and flat washers. Attach the cable.

Using a light finger pressure on the gate, move the gate toward reverse until the cam roller is nested in the neutral notch of the cam.

Adjust the shift cable end and the cable anchor bracket on the jet drive such that the roller is in the neutral notch when the shift handle is in neutral. Secure hardware, while allowing enough looseness for rotation of the cable anchor and cable end.

17. Shift to forward. The roller should be well onto the flat section of the cam 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, giving less importance to the roller position in neutral.

If the neutral position is too far out of adjustment, the tendency of the gate to move toward reverse, under water pressure, will put a strain on the cable in neutral. In some remote control boxes, this makes it difficult to re-engage the shift mode with the motor running in the high speed idle, cold start setting. It is then necessary to stop the motor, operate the shift handle to engage the shifting pin and then restart the motor.

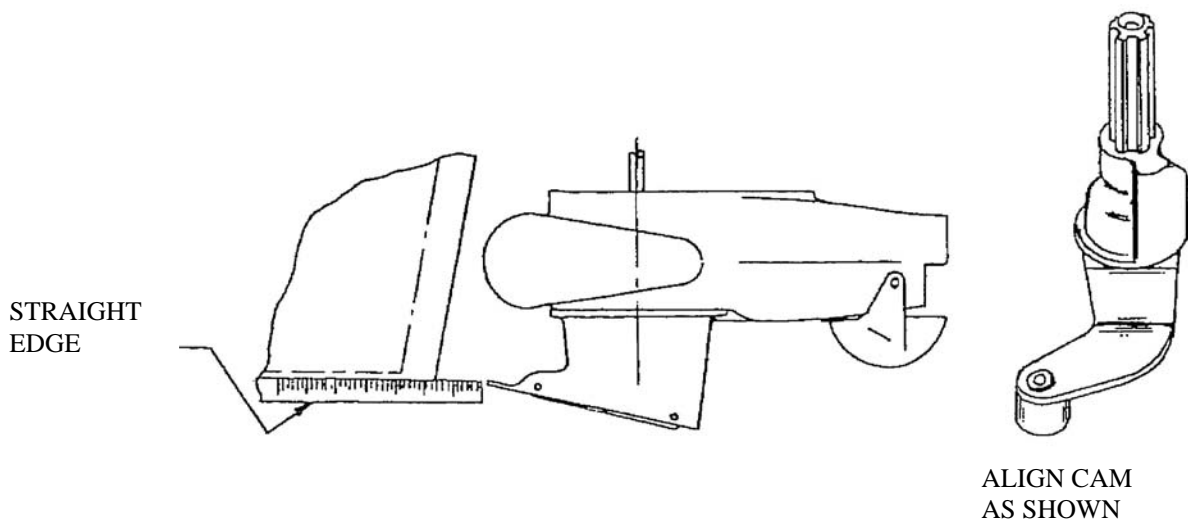
Proper cable adjustment will prevent this problem but it is most important that the forward locking condition be met if a compromise is to be made.

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18. When converting to jet drive, your motor will have to be raised to the height shown 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, using wood shim under the motor clamps. If you raise it too much it will suck air and cavitate, either on start up when banking on turns. When cavitating, the engine overspeeds in spurts and shakes considerably in the engine mount. This is not a normal condition and should be avoided by proper adjustment of 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.

Good boating and have fun!

**PROPER ENGINE 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 separate sheet.

# 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**

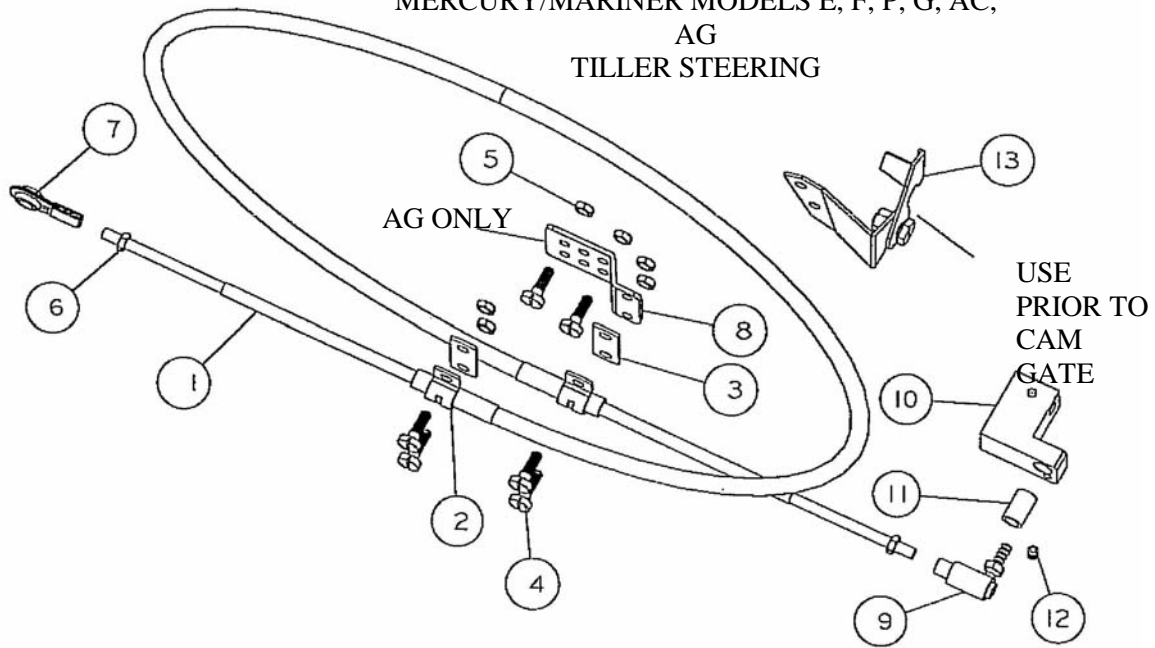
Aluminum and stainless steel have been used in the construction of your jet drive. These materials have either been treated or are inherently resistant to corrosion. It is recommended, however, that when not in use the motor be tipped up so that the jet unit is out of the water. When used in salt water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

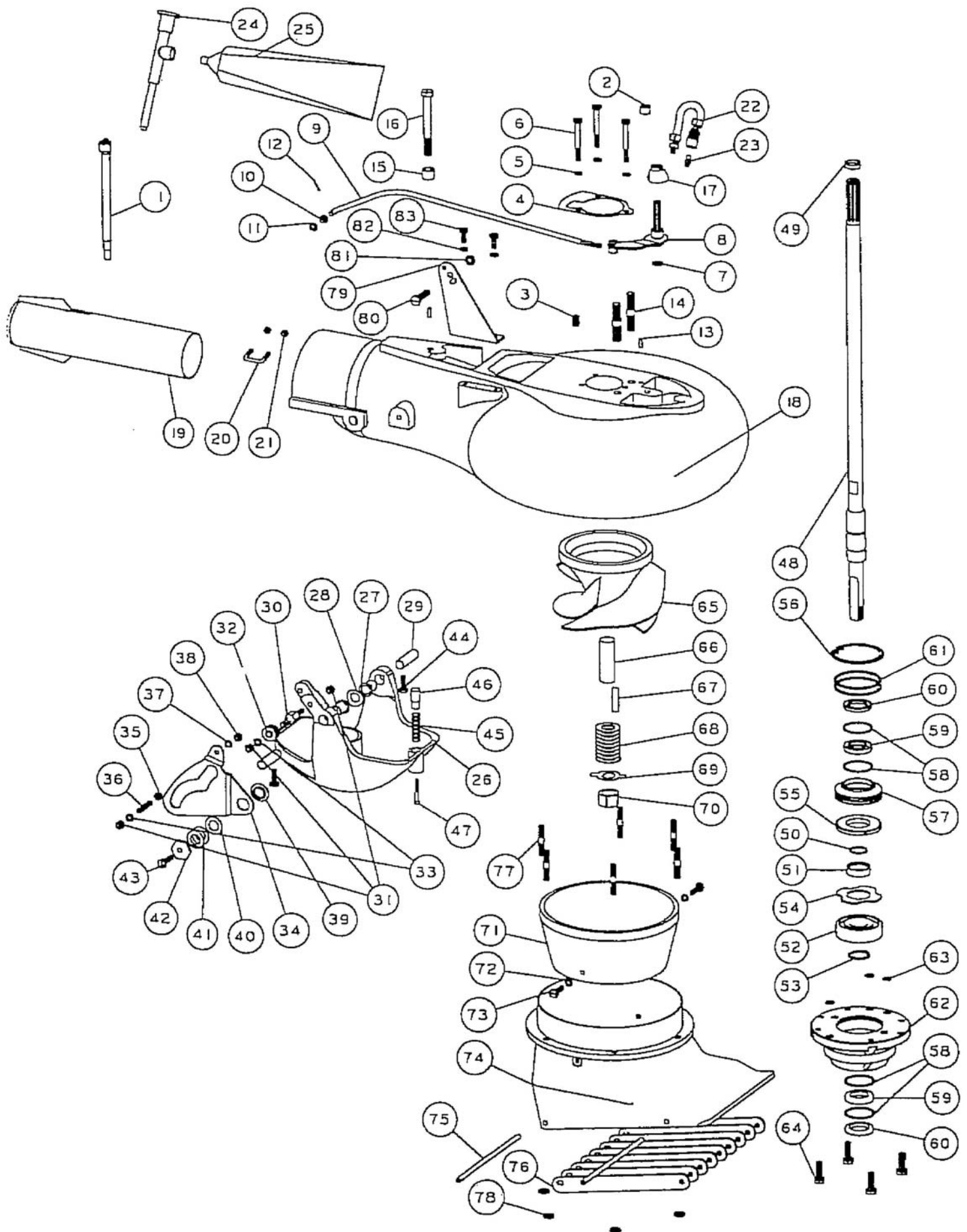
Due to inflexible government regulation, we do not have a written warranty. We have, however, a good reputation for fairness with our customers which we intend to maintain. If you think you have a warranty situation, regarding material, workmanship, call us before making repairs.

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

SHIFT CABLE ASSEMBLY  
MERCURY/MARINER MODELS E, F, P, G, AC,  
AG  
TILLER STEERING



REF	QTY	PART NO.	DESCRIPTION
1	1	555	CABLE 3 FT MOR 33C SUPREME SHORT
1	1	549	CABLE 3 1/2 FT MOR 33C SUPREME LONG
2	2	543	CLAMP CHRYS 154317
3	2	542	SHIM MORSE AO35777
4	6	561	FIL HD SLOTTED 10-24 X 5/8
5	6	619	NYLOC 10-24
6	2	621.1	HEX NUT 10-32 JAM
7	1	553.2	BALL END 1/4 X 10-32 CABLE
8	1	1258	CABLE ANCHOR PORT SIDE
9	1	544.1	BALL JOINT MORSE 31799-001
10	1	1259	BLOCK AGC
11	1	1260	SLEEVE-BLOCK AGC
12	1	565.1	SOC SET-CUP PT 10-32 X 1/4
13	1	169	FORWARD LOCK E, F, G, P, AC



MODEL P MERCURY/MARINER

REF	QTY	PART NO.	DESCRIPTION	REF	QTY	PART NO.	DESCRIPTION
1	1	103.23	SPOTFACER & DRILL KIT 3/8	54	1	830	THRUST WASHER
2	1	335	SPACER CABLE END EFGP	55	1	831	SPACER
3	1	565	SET SCR HOLLOW HD 3/8-16 X 1/2	56	1	513	TRUARC N5002-250Z0
4	1	399	GASKET PUMP EF78	57	1	432	UPPER SEAL CARRIER W/SEALS & O RINGS
5	3	638	WASHER SPRING LOCK 1/4	58	4	517	SPIROLOX RR-150S
6	3	579	BOLT HEX HD 1/4-20 X 2 1/8	59	2	506	SEAL INNER
7	1	643	WASHER FIBER 3/8	507	2	507	SEAL OUTER 6324-S
8	1	330	TILT ARM ASSY P	61	2	527	O RING 568-141 3/32X2 5/16X2 1/2
9	1	111	SHIFT ROD FORMED	62	1	108.5	BEARING CARRIER W/SEALS & O RINGS 5/16
10	1	533	NYLINER 1/4 10 X 1/4	63	3	521	O RING 568-011 1/16 X 5/16 X 7/16
11	1	635	1/4 WASHER AN960C416	64	4	602.1	BOLT HEX HD 5/16-18 X 1 PATCH
12	1	645	COTTER PIN 1/16 X 1/2	65	1	106.23	IMPELLER 6 7/8 W/136 SLEEVE
13	2	631	DOWEL PIN 3/16 X 1/2	66	1	136	SHAFT SLEEVE PLASTIC LARGE
14	2	463	STUD SHORT	67	1	434	IMPELLER TEE KEY
15	1	181	SPACER, REAR MOUNTING BOLT	68	9	121	SHIM WASHER LARGE
16	1	613	BOLT HEX HD 3/8-16 X 3 1/2	69	1	781	NUT KEEPER LARGE/PKG 2 PER BAG
17	1	130	CAM MILLED	70	1	122.1	SHAFT NUT 3/4-16 BRASS
		34400	VOLUTE WITH GATE P	141.2		141.2	INTAKE ASSY 6 7/8 WITH GRILL & LINER
18	1	344	VOLUTE WITH EXHAUST TUBE P	71	1	135	LINER 6 7/8 W/HARDWARE
19	1	128	EXHAUST TUBE ASSY LARGE 2 1/2	72	2	638	WASHER SPRING LOCK 1/4
20	1	847	CLIP EXHAUST TUBE 3/4	73	2	575	BOLT HEX HD 1/4-20 X 7/8
21	2	621	NYLOC 10-32	74	1	104	INTAKE PAINTED ONLY
22	1	975	LUBE HOSE ASSY	75	2	14	GRILL ROD
23	1	539	ZIRC FITTING 1/4-28	76	9	117	GRILL BAR LARGE
24	1	550	GREASE GUN	77	6	1319	STUD - INTAKE LARGE
25	1	552	GREASE 10 OZ TUBE HO. 630-AA	78	6	625	NYLOC 5/16 - 18
26	1	1172	REVERSE GATE, LARGE	334		334	BRACKET ASSY MERCURY W/HARDWARE
27	2	536	NYLINER 1/2 10 X 13/16	79	1	153	BRACKET CABLE SUPPORT MERCURY
28	1	1178	SPRING GATE PIVOT 1/2	80	1	597	BOLT HEX HD 5/16-18 X 1 1/4
29	2	823	PIN GATE PIVOT 1/2 LARGE	81	1	625	NYLOC 5/16 - 18
30	1	1043	SHAFT ROLLER	82	2	635	1/4 WASHER AN960C416
31	3	624	NYLOC 1/4-28	83	2	572	BOLT HEX HD 1/4-20 X 5/8
32	1	1042	ROLLER ASSY				
33	2	635	1/4 WASHER AN960C416				
34	1	1034	SHIFT CAM LARGE				
35	1	62	NUT HEX JAM 1/4-28				
36	1	1199	PIVOT - CABLE END				
37	1	638	WASHER SPRING LOCK 1/4				
38	1	622	NUT HEX 1/4-28				
39	1	1037	BUSHING CAM				
40	1	1038	WASHER CAM				
41	2	1039	SHIM-CAM				
42	1	1036	CAM ECCENTRIC DRILLED				
43	1	574.1	BOLT HEX HD 1/4-20 X 1 PATCH				
44	2	574	BOLT HEX HD 1/4-20 X 3/4 PATCH				
45	1	1170	SPRING GATE BUMPER				
46	1	1497	GATE BUMPER				
47	1	559.2	FIL HD SLOTTED 10-32 X 1 1/4 PATCH				
		331.1	SHAFT ASSY COMPLETE. PS. 11T 5/16				
48	1	326	SHAFT ONLY. PS. 11T 25 5/8 LG				
		332.1	SHAFT ASSY COMPLETE. PL. 11T 5/16				
48	1	328	SHAFT ONLY. PL. 11T 29 3/8 LG				
49	1	60	BUSHING OBSOLETE				
50	1	41	SHAFT BEARING THRUST RING				
51	1	467	COLLAR BACKFIT 7305				
52	1	502	BEARING 7305B-UA				
53	1	511	TRUARC 5100-98				

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