

MODEL AN-4M SERIES

ASSEMBLY INSTRUCTIONS

Mercury 90 HP 4 stroke 4 cyl. 97.4 cu.in. 1999 to present

1. Place the engine on the transom of your boat so that it is mounted vertically, in the normal fashion. Remove the 5 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 and impeller drive key.
3. 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. Tighten to 15 Ft-lb.
4. Install the water pump assembly on top of the 5/8 inch thick aluminum adapter and stainless steel plate. Be sure also to install the water pump impeller drive key removed from the propeller drive. No gasket is needed beneath the lower stainless steel plate. Use the four metric bolts and centering washers from the propeller gearbox. Grease the threads. As you tighten the bolts, center the pump housing to give uniform clearance around the driveshaft.
5. Remove the 4 forward studs and 1 rear stud from the motor mid-section. This can be done, without damaging the studs, by jamming 2 nuts against each other on the stud. The first nut is put on backwards so that the nuts are tightened metal to metal. Put a wrench on the first nut and wind out the stud.
6. Install the M10 taper lock stud at the rear of the motor mid-section. Grease the threads and after tightening, grease the tapered section.
7. Next, attach the jet drive to the motor. Install the plastic shift rod guide in the 5/16 hole at the front of the jet drive housing. Two 3/8 X 7/8 dowel pins center the jet drive to the motor. Four M10 bolts and lockwashers are used. Select the lower bolt lengths to suit the different counter bore depths so that all bolts enter the exhaust housing the same depth. Grease the bolt threads, driveshaft splines generously, rubber water tube socket, and guide the jet into place. Tighten the four bolts to 22 Ft-lb.
8. Grease the threads and tapered section of the wedge bolt. Install through 5/16 cross hole at the rear of the jet drive, to capture the taper lock stud. Install the fiber lock nut and tighten to 7 Ft-lb.
9. 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.

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Then bump the nut 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 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.

Place the intake casing in position with the lower end at the rear and tighten the six 5/16 nyloc nuts. No lockwashers are used. Grease the threads.

10. Attach the gearshift cable to the inner hole of the lower arm in the remote control box to give 2-3/4 inch total cable travel. (The outer hole gives too much travel.) Shift the remote control to neutral.

Attach the shift cable and cable anchor bracket to the jet drive.

11. With the shift handle in forward and the reverse gate in forward, with the 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 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.

12. 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 five 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" measured vertically from the boat bottom.

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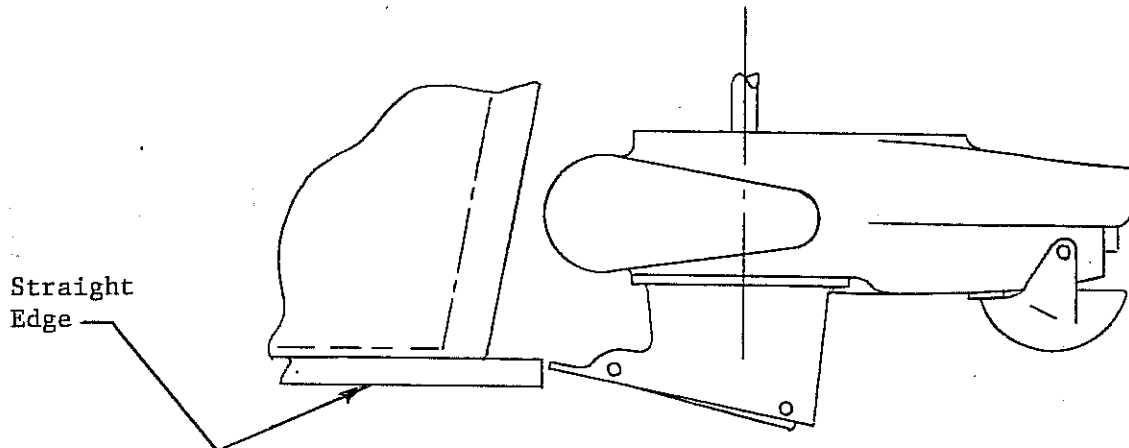
If you raise it too much it will suck air and cavitate, either on start up or when banking on turns. When cavitating, the motor overspeeds in spurts and shakes considerably in the motor mount. This is not a normal condition and should be avoided by proper adjustment of motor height on each individual 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 the 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 your Mercury dealer. Turn on the water gently, start the motor, set the 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 Page 4.

GOOD BOATING AND HAVE FUN!

Specialty Manufacturing Company
Outboard Jets
2035 Edison Ave.
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

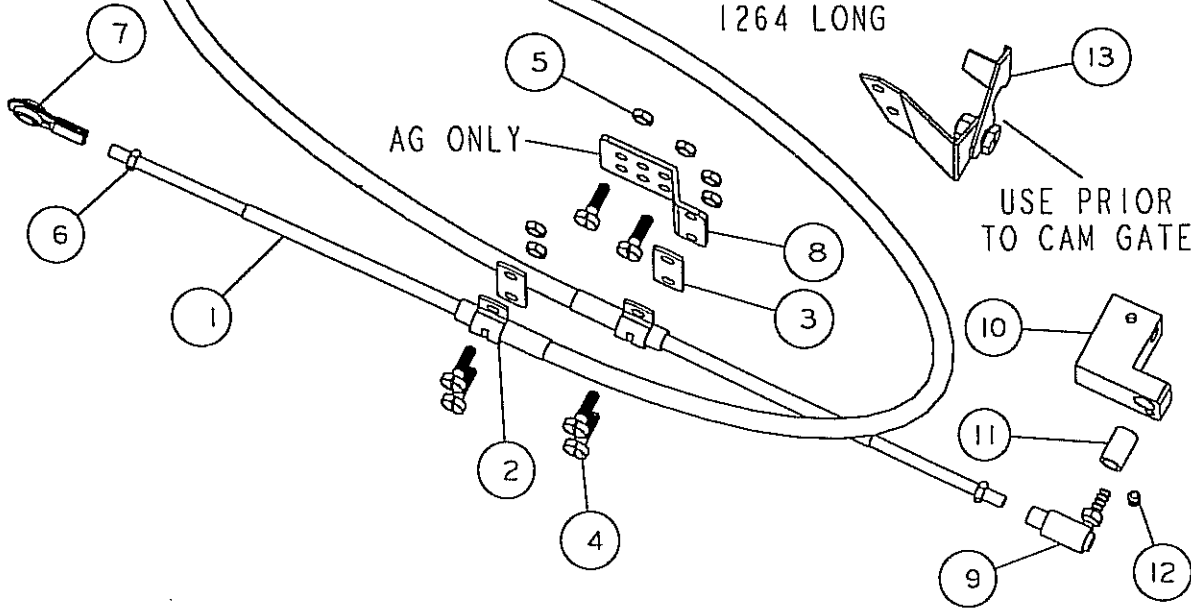
Aluminum and stainless steel have been used in the construction of your jet drive. These materials have either been treated or are inherently resistant to corrosion. It is recommended, however, that when not in use the motor be tipped up so that the jet unit is out of the water. When used in salt water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

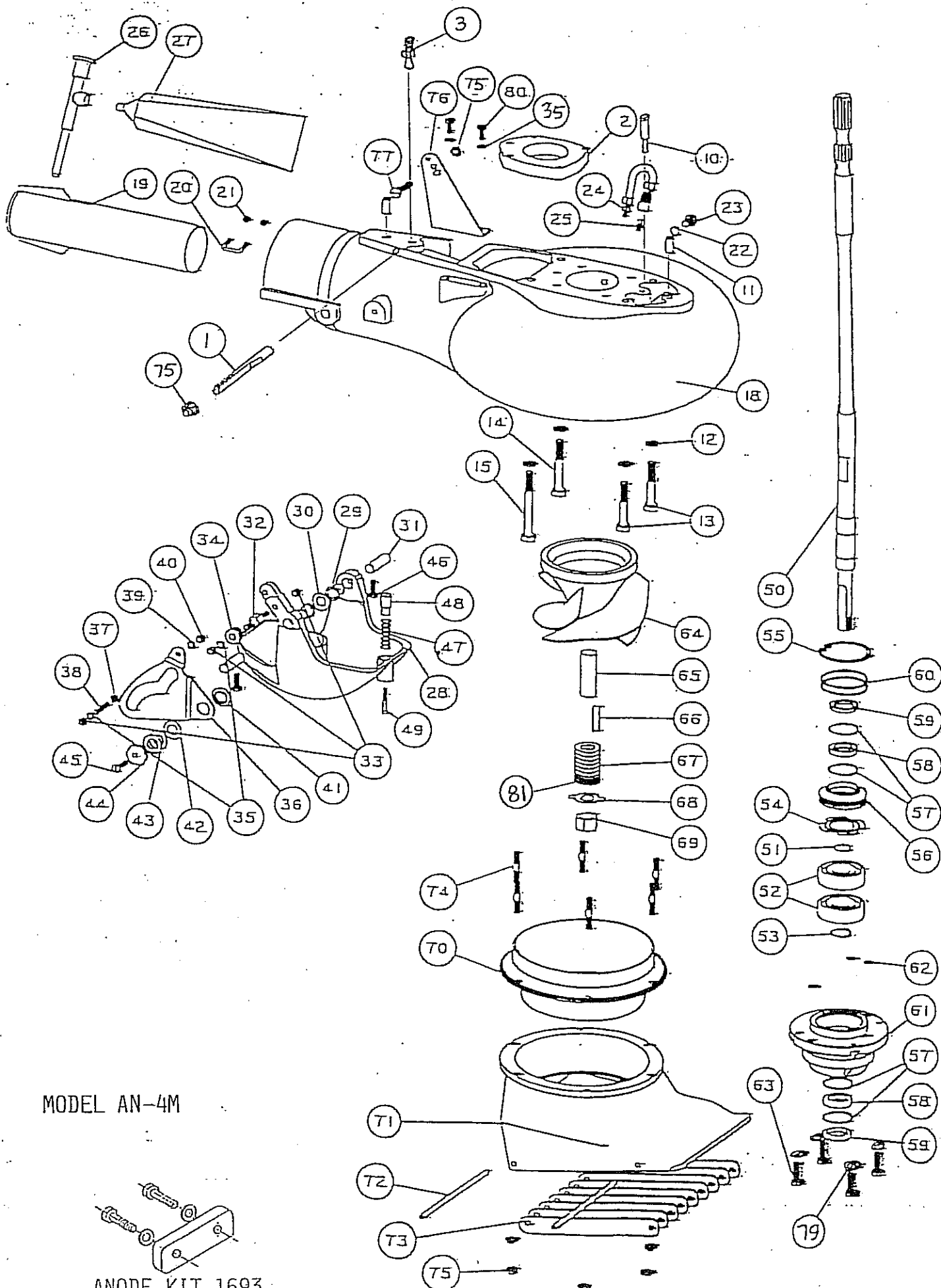
Specialty Manufacturing Company
Outboard Jets
2035 Edison Avenue
San Leandro, CA 94577

SHIFT CABLE ASSEMBLY
MERCURY/MARINER MODELS E, F, P, G, AC, AG
TILLER STEERING
1263 SHORT
1264 LONG

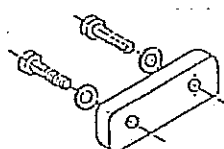


| REF | QTY | PART NO | DESCRIPTION |
|-----|-----|---------|-------------------------------------|
| 1 | 1 | 555 | CABLE 3 FT MOR 33C SUPREME SHORT |
| 1 | 1 | 549 | CABLE 3 1/2 FT MOR 33C SUPREME LONG |
| 2 | 2 | 543 | CLAMP CHRYS 154317 |
| 3 | 2 | 542 | SHIM MORSE A035777 |
| 4 | 6 | 561 | FIL HD 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 1/4X10-32 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 |

8. AUG. 97



MODEL AN-4M



ANODE KIT 1693

MODEL AN-4M MERCURY 4 STROKE 75-115 HP (97.4-106.2 c.i.)
MODEL AN-4M 20T MERCURY 4 STROKE 75-115HP (105.7 C.I.)

| REF | QTY | PART NO. | DESCRIPTION | REF | QTY | PART | DESCRIPTION |
|-----|-----|----------|------------------------------------|-----|-----|---------|--|
| 1 | 1 | 1486 | WEDGE BOLT AN | 56 | 1 | 432 | UPPER SEAL CARRIER W/SEALS & O RINGS |
| 2 | 1 | 1009 | PUMP ADAPTER AC, AN | 57 | 4 | 517 | SPIROLOX RR-150S |
| 3 | 1 | 1620 | WEDGE STUD AN-4M | 58 | 2 | 506 | SEAL INNER |
| 10 | 1 | 1621 | SHIFT GUIDE AN-4M | 59 | 2 | 507 | SEAL OUTER 6324-S |
| 10 | 1 | 1621.1 | SHIFT GUIDE AN-4M | 60 | 2 | 527 | O RING 668-141 3/32X2 5/16X2 1/2 |
| 11 | 2 | 630 | DOWEL PIN 3/8 X 7/8 | 61 | 1 | 393.5 | BEARING CARRIER W/SEALS & O RING 5/16 |
| 12 | 4 | 636 | WASHER SPRING LOCK M10 | 62 | 3 | 621 | O RING 568-011 1/16X5/16X7/16 |
| 13 | 2 | 588 | BOLT HEX HD M10-1.5 X 60MM | 63 | 4 | 602.1 | BOLT HEX HD 5/16-18 X 1 PATCH |
| 14 | 1 | 589 | BOLT HEX HD M10-1.5 X 70MM | 64 | 1 | 1756 | IMPELLER 7 3/8 STAINLESS 75-115 HP |
| 15 | 1 | 590 | BOLT HEX HD M10-1.5 X 90MM | 65 | 1 | 136 | SHAFT SLEEVE PLASTIC LARGE |
| | | 1490.04 | VOLUTE WITH GATE AN-4M | 66 | 1 | 434 | IMPELLER TEE KEY - SQUARE |
| 18 | 1 | 1489.04 | VOLUTE WITH EXHAUST TUBE AN-4M | 66 | 1 | 1706 | IMPELLER TEE KEY - 1/2 ROUND |
| 19 | 1 | 128 | EXHAUST TUBE ASSY LARGE 2 1/2 | 67 | 8 | 121 | SHIM WASHER LARGE |
| 20 | 1 | 847 | CLIP EXHAUST TUBE 3/4 | 68 | 1 | 781 | NUT KEEPER LARGE/PKG 2 PER BAG |
| 21 | 2 | 621 | NYLOC 10-32 | 69 | 1 | 122.1 | SHAFT NUT 3/4-16 BRASS |
| 22 | 1 | 1023 | WASHER FIBER 3/8 | | | 1333.04 | INTAKE ASSY 7 3/8 FLANGED W/ GRILL & LINER |
| 23 | 1 | 1022 | BOLT HEX HD 3/8-16 X 1/2 | 70 | 1 | 1431 | LINER 7 3/8 FLANGED |
| 24 | 1 | 975 | LUBE HOSE ASSY | 71 | 1 | 1332.04 | INTAKE PAINTED ONLY |
| 25 | 1 | 539 | ZIRC FITTING 1/4-28 | 72 | 2 | 14 | GRILL ROD |
| 26 | 1 | 550 | GREASE GUN | 73 | 9 | 117 | GRILL BAR LARGE |
| 27 | 1 | 552 | GREASE 10 OZ TUBE NO. 630AA | 74 | 6 | 1319 | STUD - INTAKE LARGE |
| 28 | 1 | 1172.04 | REVERSE GATE LARGE | 75 | 8 | 625 | NYLOC 5/16-18 |
| 29 | 2 | 536 | NYLINER 1/2 ID X 13/16 | | | 334 | BRACKET ASSY MERCURY W/HARDWARE |
| 30 | 1 | 1178 | SPRING GATE PIVOT 1/2 | 76 | 1 | 153 | BRACKET CABLE SUPPORT MERCURY |
| 31 | 2 | 823 | PIN GATE PIVOT 1/2 LARGE | 77 | 1 | 597 | BOLT HEX HD 5/16-18 X 1 1/4 |
| 32 | 1 | 1043 | SHAFT ROLLER | 79 | 4 | 640 | WASHER SPRING LOCK 5/16 |
| 33 | 3 | 624 | NYLOC 1/4-28 | 80 | 2 | 572 | BOLT HEX HD 1/4-20 X 5/8 |
| 34 | 1 | 1042 | ROLLER ASSY. | 81 | 1 | 1719 | TORSIONAL DAMPER 3/4 |
| 35 | 4 | 635 | 1/4 WASHER AN960C416 | | | | |
| 36 | 1 | 1034 | SHIFT CAM LARGE | | | | |
| 37 | 1 | 62 | NUT HEX JAM 1/4-28 | | | | |
| 38 | 1 | 1199 | PIVOT - CABLE END | | | | |
| 39 | 1 | 638 | WASHER SPRING LOCK 1/4 | | | | |
| 40 | 1 | 622 | NUT HEX 1/4-28 | | | | |
| 41 | 1 | 1037 | BUSHING CAM | | | | |
| 42 | 1 | 1038 | WASHER CAM | | | | |
| 43 | 2 | 1039 | SHIM - CAM | | | | |
| 44 | 1 | 1036 | CAM ECCENTRIC DRILLED | | | | |
| 45 | 1 | 574.1 | BOLT HEX HD 1/4-20 X 1 PATCH | | | | |
| 46 | 2 | 574 | BOLT HEX HD 1/4-20 X 3/4 PATCH | | | | |
| 47 | 1 | 1170 | SPRING GATE BUMPER | | | | |
| 48 | 1 | 1497 | GATE BUMPER | | | | |
| 49 | 1 | 559.2 | FIL HD SLOTTED 10-32 X 1 1/4 PATCH | | | | |
| | 1 | 1619.1 | SHAFT ASSY COMPLETE AN-4M 18T | | | | |
| 50 | 1 | 1618 | SHAFT ONLY, AN-4M 18T 31 3/32 LG | | | | |
| | 1 | 1953.1 | SHAFT ASSY COMPLETE AN-4M 20T | | | | |
| 50 | 1 | 1952 | SHAFT ONLY, AN-4M 20T 33 5/8 LG | | | | |
| 51 | 1 | 41 | SHAFT BEARING THRUST RING | | | | |
| 52 | 2 | 502 | BEARING 7305B-UA | | | | |
| 53 | 1 | 511 | TRUARC 5100-98 | | | | |
| 54 | 1 | 404 | BACKUP WASHER | | | | |
| 55 | 1 | 513 | TRUARC N5002-250ZD | | | | |

| 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 1264 SEE PAGE 21
BEARING, SEAL, SNAP & "O" RING KIT
2 BRG 462.2