

MODEL AG, MERCURY / MARINER SERIES 50-60 HP, 1991-2005, 3 CYL., 2 STROKE
MODEL AGF, FORCE SERIES 70-75 HP, 1991-2000, 3 CYL., 2 STROKE
ASSEMBLY INSTRUCTIONS

1. Place the engine on the transom of your boat so that it is mounted vertically, in the normal fashion. Remove the five bolts 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, gasket, and impeller drive key.
3. Install the jet driveshaft assembly into the main housing, locking it in place with the four 5/16-18 x 1 bolts with lock washers. Use grease on the threads. Tighten to 15 Ft-Lbs.
4. Install the water pump assembly on top of the stainless steel plate. Be sure also, to install the water pump impeller drive key removed from the propeller drive. Use the four metric bolts and centering washers from the propeller gear box. Grease these threads.
5. Install the taper lock stud at the rear of the motor mid-section. Grease the threads and after tightening, grease the tapered section.
6. The splined lower end of the gearshift rod must be supported in the jet drive housing. Install the 5/16 x 1 1/4 steel pin in the housing, along with the aluminum spacer and spline coupling from the propeller drive.
7. Next, attach the jet drive to the motor. Two 3/8 x 7/8 dowel pins center the jet drive on the motor. Four M10 bolts and lock washers from below 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 spline generously, and rubber water tube socket, tilt latch spline and cam (where used) and guide the jet into place. Tighten the four bolts to 22 Ft-Lbs. Grease the threads and tapered section of the wedge bolt. Install through the 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-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 seven shim washers, rubber washer and cup, and nut retainer on the shaft, up against the impeller, and bring the nut up snug by hand.

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" 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.

9. Place the intake casing in position with the lower end at the rear and tighten the six nuts. No lock washers are used. Grease the threads.

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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.)
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 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 your motor uses a tiller steering handle, see insert pages.

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 the 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 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" 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 the cooling water comes out of the small hole at the left side of the engine just below the powerhead. This is to check your assembly of the cooling water pump and its connections.

MAINTENANCE AND LUBRICATION

See separate sheet.

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. When under power however, the engine should not be tilted out in an effort to gain speed as is done with propellers.

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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.**

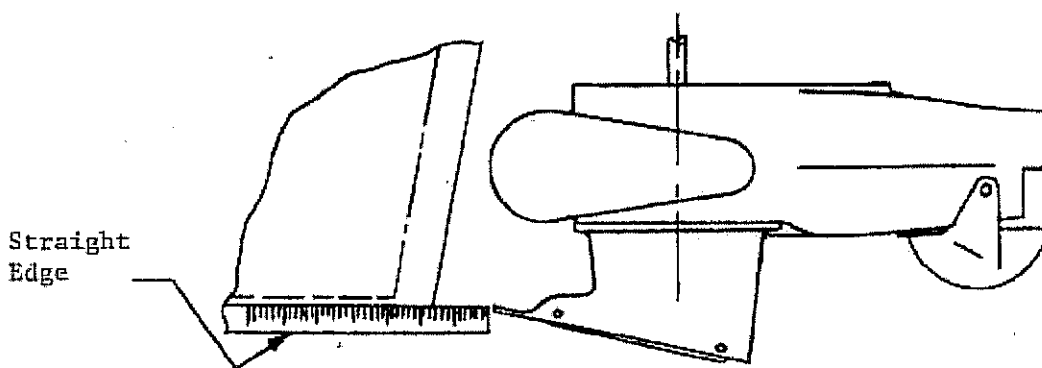
When running in a bay, lake or wide river in windy conditions, particularly when running with the wind, the jet can suck in air when jumping across the wave crests. This will result in overspeeding and causes severe strain on the driveshaft when the engine is suddenly brought back to normal speed as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

The cooling system can be flushed by removing the hex bolt next to the grease fitting. A hose coupling, 24789A1, is available from a Mercury dealer. Turn on the water gently, and start the motor set to idle. Watch for cooling water at the tell tale. Adjust the water pressure if needed. **Be sure to replace the bolt after flushing.**

SETTING MOTOR HEIGHT



GOOD BOATING AND HAVE FUN!

Specialty Manufacturing Company
Outboard Jets
2035 Edison Avenue
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

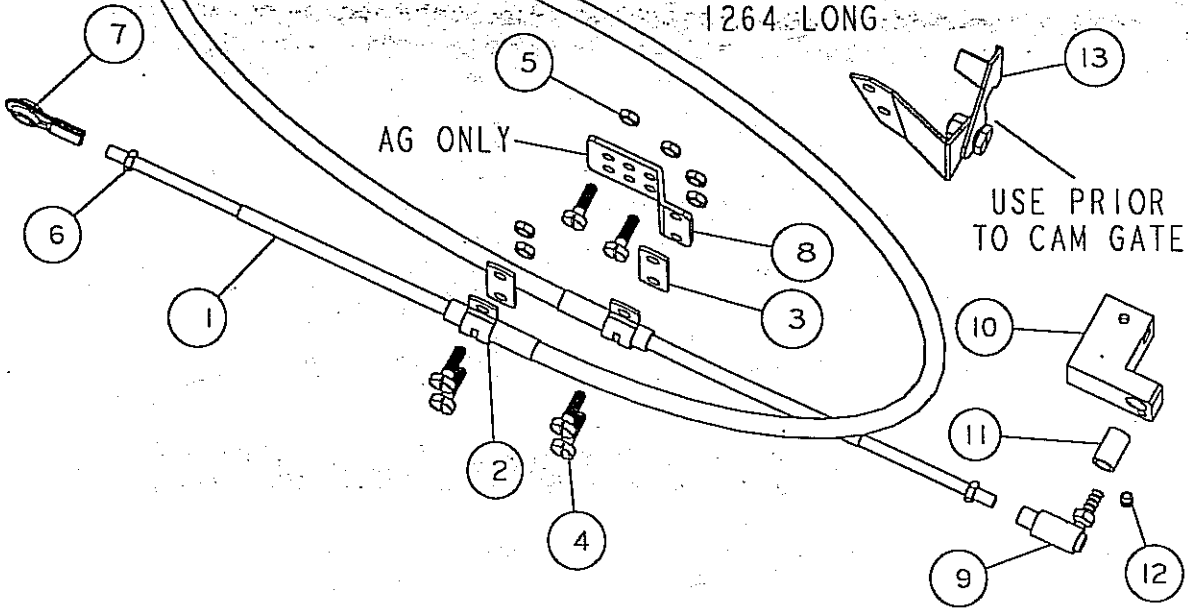
Aluminum and stainless steel have been used in the construction of your jet drive. These materials have either been treated or are inherently resistant to corrosion. It is recommended, however, that when not in use the motor be tipped up so that the jet unit is out of the water. When used in salt water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

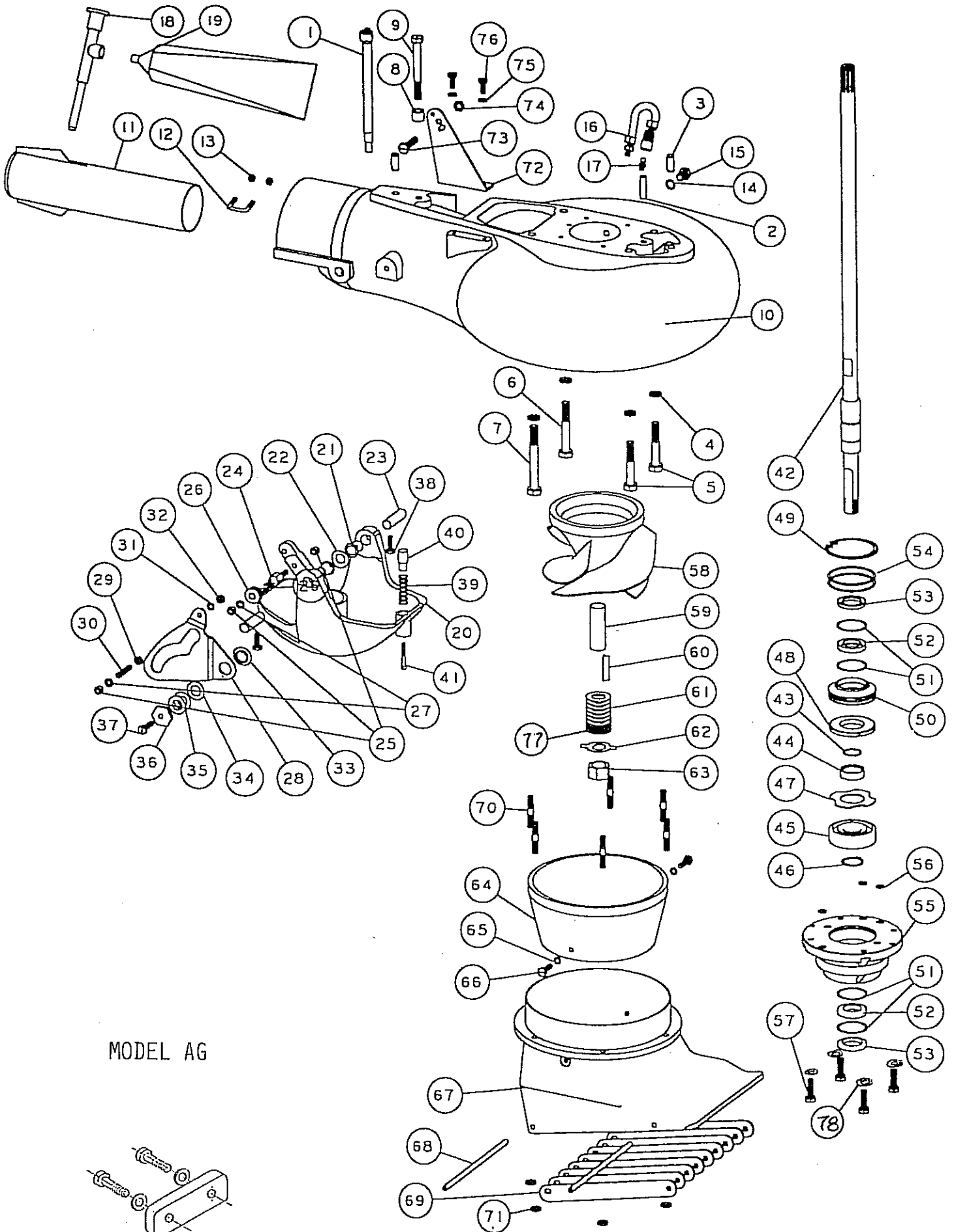
Specialty Manufacturing Company
Outboard Jets
2035 Edison Avenue
San Leandro, CA 94577

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

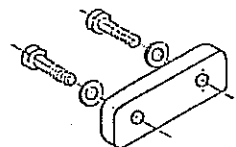


REF	QTY	PART NO	DESCRIPTION
1	1	555	CABLE 3 FT MOR 33C SUPREME SHORT
1	1	549	CABLE 3 1/2 FT MOR 33C SUPREME LONG
2	2	543	CLAMP CHRYS 154317
3	2	542	SHIM MORSE A035777
4	6	561	FIL HD SLOTTED 10-24 X 5/8
5	6	619	NYLOC 10-24
6	2	621.1	HEX NUT 10-32 JAM
7	1	553.2	BALL END 1/4X10-32 CABLE
8	1	1258	CABLE ANCHOR 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 AG



ANODE KIT 1693

MODEL AG MERCURY
AG (2 STROKE 3 CYL.)
AGL-44 (4 STROKE 4 CYL.)

REF	QTY	PART NO.	DESCRIPTION	REF	QTY	PART NO.	DESCRIPTION
1	1	403.23	SPOTFACER & DRILL KIT 3/8	46	1	511	TRUARC 5100-98
2	1	1231	SHIFT ROD PILOT AG	47	1	830	THRUST WASHER
3	2	630	DOWEL PIN 3/8 X 7/8	48	1	831	SPACER
4	4	636	WASHER SPRING LOCK M10	49	1	513	TRUARC N5002-250ZD
5	2	588	BOLT HEX HD M10-1.5 X 60MM	50	1	432	UPPER SEAL CARRIER W/SEALS & O RINGS
6	1	589	BOLT HEX HD M10-1.5 X 70MM	51	4	517	SPIROLOX RR-150S
7	1	590	BOLT HEX HD M10-1.5 X 90MM	52	2	506	SEAL INNER
8	1	181	SPACER, REAR MOUNTING BOLT	53	2	507	SEAL OUTER 6324-S
9	1	611	BOLT HEX HD 3/8-16 X 3 1/4 SHORT SHAFT	54	2	527	O RING 568-141 3/32X2 5/16X2 1/2
9	1	612	BOLT HEX HD 3/8-16 X 4 LONG SHAFT	55	1	108.5	BEARING CARRIER W/SEALS & O RINGS 5/16
		12261	VOLUTE WITH GATE AG	56	3	521	O RING 568-011 1/16X5/16X7/16
10	1	1226	VOLUTE WITH EXHAUST TUBE AG	57	4	602.1	BOLT HEX HD 5/16-18 X 1 PATCH
11	1	128	EXHAUST TUBE ASSY LARGE 2 1/2	58	1	106.21	IMPELLER 6 5/8 50HP
12	1	847	CLIP EXHAUST TUBE 3/4	58	1	106.23	IMPELLER 6 7/8 60HP
13	2	621	NYLOC 10-32	59	1	136	SHAFT SLEEVE PLASTIC LARGE
14	1	1023	WASHER FIBER 3/8	60	1	434	IMPELLER TEE KEY - SQUARE
15	1	1022	BOLT HEX HD 3/8-16 X 1/2	60	1	1706	IMPELLER TEE KEY - 1/2 ROUND
16	1	975	LUBE HOSE ASSY	61	8	121	SHIM WASHER LARGE
17	1	539	ZIRC FITTING 1/4-28	62	1	781	NUTKEEPER LARGE/PKG 2 PER BAG
18	1	550	GREASE GUN	63	1	122.1	SHAFT NUT 3/14-16 BRASS
19	1	552	GREASE 10 OZ. TUBE NO. 630-AA			141.1	INTAKE ASSY 6 5/8 WITH GRILL & LINER 50HP
20	1	1172	REVERSE GATE, LARGE	64	1	134	LINER 6 5/8 W/HARDWARE
21	2	536	NYLINER 1/2 1D X 13/16			141.2	INTAKE ASSY 6 7/8 WITH GRILL & LINER 60HP
22	1	1178	SPRING GATE PIVOT 1/2	64	1	135	LINER 6 7/8 W/HARDWARE
23	2	823	PIN GATE PIVOT 1/2 LARGE	65	2	638	WASHER SPRING LOCK 1/4
24	1	1043	SHAFT ROLLER	66	2	575	BOLT HEX HD 1/4-20 X 7/8
25	3	624	NYLOC 1/4-23	67	1	104	INTAKE PAINTED ONLY
26	1	1042	ROLLER ASSY	68	2	14	GRILL ROD
27	2	635	1/4 WASHER AN960C416	69	9	117	GRILL BAR LARGE
28	1	1034	SHIFT CAM LARGE	70	6	1319	STUD - INTAKE LARGE
29	1	62	NUT HEX JAM 1/4-28	71	6	625	NYLOC 5/16-18
30	1	1199	PIVOT - CABLE END			334	BRACKET ASSY MERCURY W/HARDWARE
31	1	638	WASHER SPRING LOCK 1/4	72	1	153	BRACKET CABLE SUPPORT MERCURY
32	1	622	NUT HEX 1/4-28	73	1	597	BOLT HEX HD 5/16-18 X 1 1/4
33	1	1037	BUSHING CAM	74	1	625	NYLOC 5/16-18
34	1	1038	WASHER CAM	75	2	635	1/4 WASHER AN960C416
35	2	1039	SHIM - CAM	76	2	572	BOLT HEX HD 1/4-20 X 5/8
36	1	1036	CAM ECCENTRIC DRILLED	77	1	1719	TORSIONAL DAMPER 3/4
37	1	574.1	BOLT HEX HD 1/4-20 X 1 PATCH	78	4	640	WASHER SPRING LOCK 5/16
38	2	574	BOLT HEX HD 1/4-20 X 3/4 PATCH				
39	1	1170	SPRING GATE BUMPER				
40	1	1497	GATE BUMPER				
41	1	559.2	FIL HD SLOTTED 10-32 X 1 1/4 PATCH				
42	1	1246	SHAFT ONLY, AGS, 11T 25 1/4 LG				
		1247.1	SHAFT ASSY COMPLETE, AGS, 11T-5/16				
42	1	1223	SHAFT ONLY, AGL, 11T 29 3/4 LG				
		1230.1	SHAFT ASSY COMPLETE, AGL, 11T-516				
42	1	1711	SHAFT ONLY AGL-44, 17T 31 3/16 LG				
		1712.1	SHAFT ASSY COMPLETE, AGL-44, 17T-5/16				
43	1	41	SHAFT BEARING THRUST RING				
44	1	467	COLLAR BACKFIT 7305				
45	1	502	BEARING 7305B-UA				

TILLER STEERING
 SHIFT CABLE ASSY 1263, 1264 SEE PAGE 21

SHIFT CABLE ASSY AGCL-44 1660 SEE PAGE 33.1
 OF THE MEDIUM SERIES

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

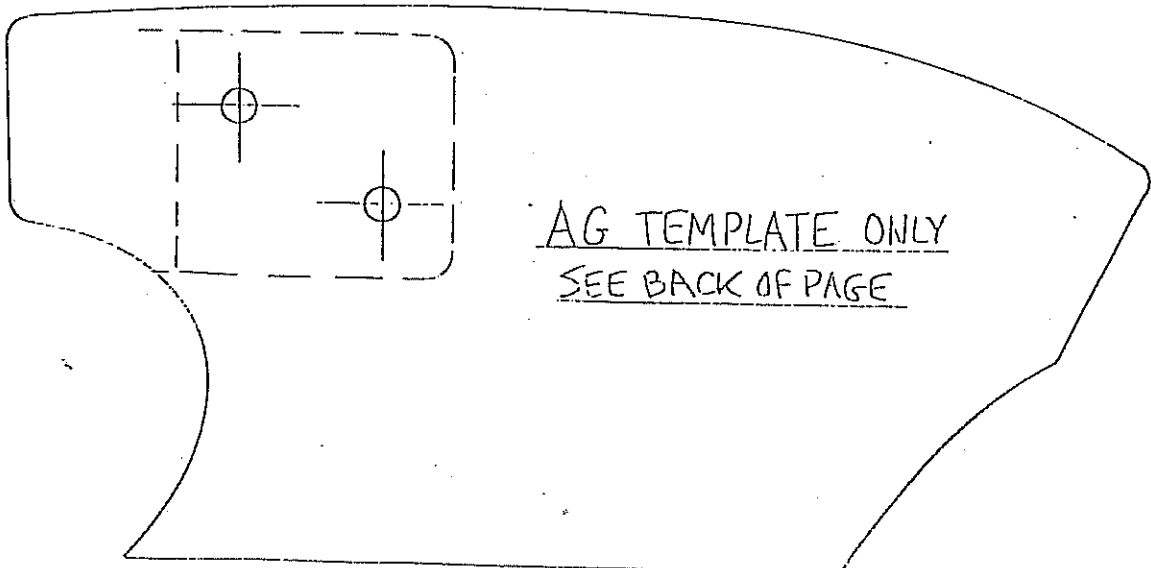
Shift Handle and Cable Assembly Instructions

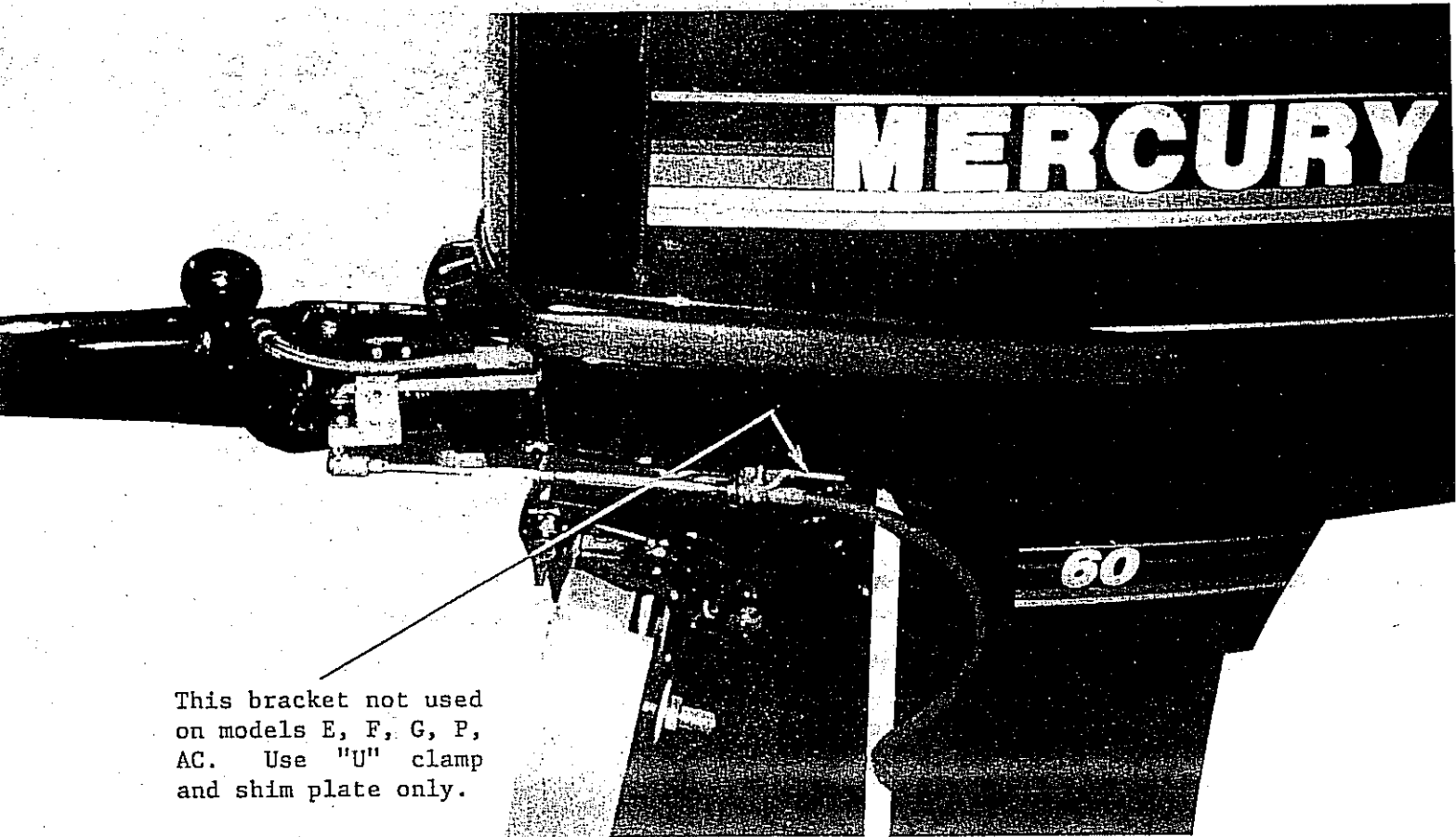
Tiller Steering Kits, short shaft #1263, long shaft #1264

1. (AG only) Cut out the paper template, bottom of this page. Align the template under the motor cowl and hold in place with masking tape. Drill 2 - 3/16 inch holes and remove template. Attach the upper cable anchor bracket using 2 - #10-24 x 5/8 fil head screws and fiber lock nuts.

We do not have the older outboards in house, which use the model E, F, G, P and AC jet drives, with which to develop a paper pattern to locate the upper cable anchor. This is explained in 5 through 8 below.

2. Slide the aluminum cable end support over the 1/4 inch motor shift rod as shown in the photograph, back of page. Use the nylon bushing where the shift rod enters the shift handle. Engage the steel sleeve, install the ball end with lockwasher and tighten. Lock the set screw against the shift rod.
3. Attach the lower cable anchor to the jet drive using 2 - 1/4-20 x 5/8 bolts and flat washers. Slide to the rear and lock.
4. Attach the cable to the lower cable anchor using the #10-24 x 5/8 fil head screws and fiber lock nuts. Then feed the cable through to the upper side and attach.
5. With both ends of the cable attached and the cable secured to the lower cable anchor, it remains to locate, drill and secure the upper cable anchor bracket under the motor cowl, for models E, F, G, P, AC. Use "U" clamp and shim plate only.
6. Set the shift handle in forward and the reverse gate in forward with the roller at the end of the cam slot. Attach some pieces of masking tape under the cowl where the "U" clamp will attach, for pencil marking purposes.
7. Using 3 hands!, position the "U" clamp under the cowl giving a good lineup and gentle bends in the cable and outline the clamp position with a pencil on the tape.
8. Drill the cowl, secure the cable and check the system as in 9 on back of page. Adjust cable ends and lower bracket position if necessary.





This bracket not used on models E, F, G, P, AC. Use "U" clamp and shim plate only.

9. Shift through neutral 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. Water pressure will fully seat the gate in the neutral and reverse positions.
10. If this shift mechanism is used with E, F, G, P or AC jet drives, the rod connecting the reverse gate to the splined shift lever up front must be removed.
11. **VERY IMPORTANT.** The throttle must be returned to idle before shifting.