

MODEL AK FOR MERCURY SERIES
ASSEMBLY INSTRUCTIONS
AK 2 STROKE 2-3 CYL. 30-50 HP STARTING 1995
AKL-44 4 STROKE 4 CYL. 50 HP STARTING 1996
AK-43 4 STROKE 3 CYL. 40 HP STARTING 1999

1. Place the engine on the transom of your boat so that it is mounted vertically, in the normal fashion. Remove the trim tab to reach and remove the rear stud nut. Disconnect the shift rod at the hex threaded coupling. Remove the 4 bolts and lower the gear box. Leave the hex threaded coupling and jam nut attached to the propeller drive.
2. Heat the rear stud with a propane torch and, using a pipe wrench, remove the stud from the motor mid section.
3. Install the jet driveshaft assembly into the spiral pump housing locking it in place with the four 1/4-20 x 3/4 bolts and lockwashers. Use grease on the threads. Tighten to 8 ft-lbs.
4. Install the water pump assembly on top of the stainless steel plate with gaskets both sides. Use the four M6 Mercury bolts with flat washers and be sure to install the Mercury water pump impeller drive key. Grease the threads.

NOTE

4 cylinder motors must use a Mercury water pump assembly No. 46-812966A- with a 3/4 inch bore impeller and housing. The lower stainless steel plate must have the forward end cut to match the water pump gasket so it does not interfere with the adapter plate.

5. Squeeze the 2 split centering sleeves with pliers and transfer from the propeller drive to the motor mid section. Attach the 3/4 inch adapter plate to the motor using four M10 bolts x 35MM and one M10 bolt x 30MM with lockwashers. Grease the threads and tighten to 22 ft-lbs.
6. Thread the plastic shift rod guide onto the shift rod. Install the copper water tube extension on the water tube and the plastic Mercury water tube connector onto the water pump. Lightly grease the socket and water tube extension.
7. Next, attach the jet drive to the motor. Use two 5/16-18 x 2-1/2 bolts (front), two 5/16-18 x 2-3/4 bolts (rear) from below with lockwashers, one 3/8-16 x 1-1/4 bolt and lockwasher, above rear, and two 3/16 x 1/2 dowel pins.

Grease the bolt threads, driveshaft spline generously, and rubber water tube pilot and guide the jet into place. Tighten the 5 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 8 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.

Place the water intake in position and secure with 2 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 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.

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When the impeller clearance is satisfactory, 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.

9. Place the intake casing in position with the lower end at the rear and tighten the six 1/40-20 x 3/4 hex head bolts. No lockwashers are used. Grease the threads. See diagram page 3.
10. If your jet drive was ordered for use with a steering tiller handle, see separate pages 4-5 "Shift Cable and Handle Assembly Instructions," pages 4-5.
11. If your motor is equipped for remote controls, proceed as follows:

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

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. 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. If the neutral position is too far out of adjustment, the tendency of the gate to move toward reverse, under water pressure, will put tension 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.

13. 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.

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

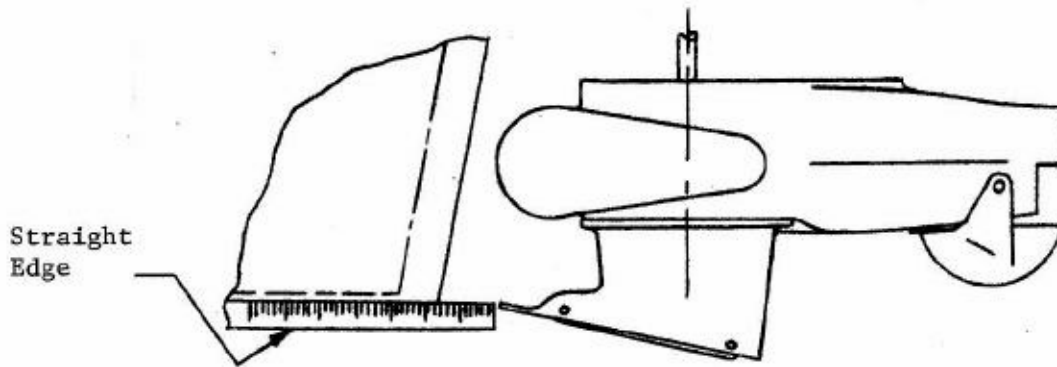
When starting the engine for the first time, watch to see that cooling water comes out of the small hole at the rear side of engine just below the powerhead. This is to check your assembly of the cooling water pump and its

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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



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 AKC-43 TILLER HANDLE STEERING
4 STROKE, 3 CYLINDER MOTORS
KIT 1659 SHORT SHAFT MOTORS
KIT 1660 LONG SHAFT MOTORS

1. Cut out the drilling template and attach it to the motor pan with masking tape. Line up the upper and right hand edges with the pan edges.

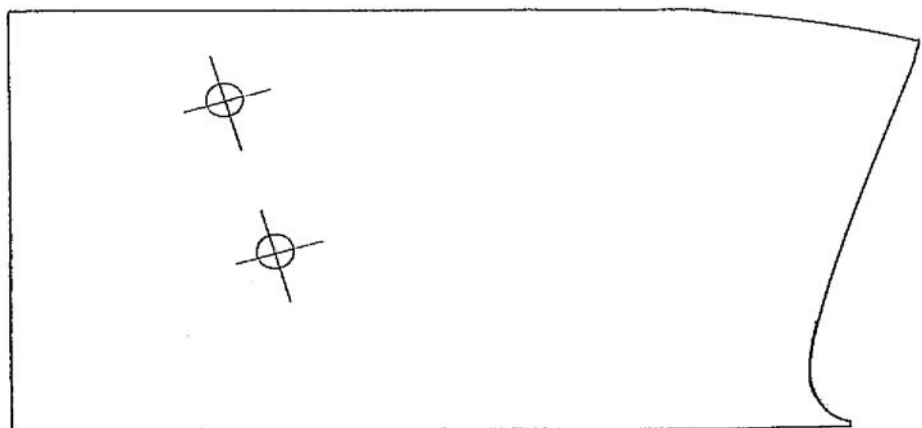
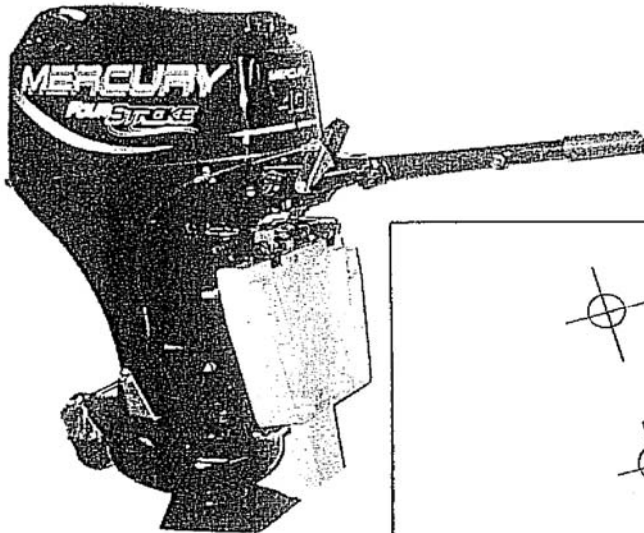
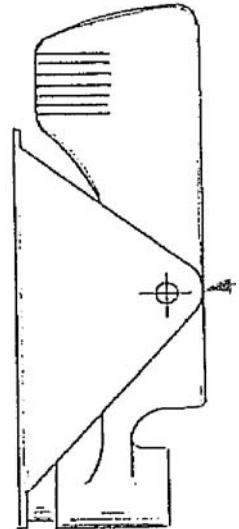
Drill 2- 1/16 holes, remove template and open up holes with a 3/16 drill.

2. Remove the bolt holding the shift handle. Install the 3/4 diameter spacer, pressed steel shift lever, longer bolt and flat washer. Do not tighten the bolt yet.

Before drilling the 1/4 inch hole in the shift handle, align the curved edge of the steel bracket with the side wall of the plastic handle. This is necessary for the hole to center itself between the inside ribs of the handle. Start a 1/4 inch drill, remove the plastic handle and drill through. Install a 1/4 x 5/8 bolt from inside the handle and then reassemble. Lubricate the spacer-steel lever pivot interface and bolt threads.

3. Thread the shift cable 2/3 way into the shift handle rod end. Attach the cable body to the motor pan using the shim, U-clamp, 2 #10-24 x 5/8 screws and lock nuts.

4. Attach the lower end of the cable to the jet drive with the ball rod end threaded on the cable as far as it will go and the cable anchor bracket centered and locked. Tighten the clamp screws. The clamp base is slotted to allow alignment for minimum cable bending.



MODEL AKC-43 TILLER HANDLE STEERING
4 STROKE, 3 CYLINDER MOTORS
KIT 1659 SHORT SHAFT MOTORS
KIT 1660 LONG SHAFT MOTORS

5. Place the shift handle in forward, solidly in the detent. The reverse gate cam roller must be at the end of the slot in the cam. If these conditions are not met, slide the cable anchor bracket on the jet drive and/or adjust the threaded rod end on the cable.
6. Shift to reverse and back to forward. Do not be concerned if the gate does not reach reverse. There is clearance at this position and water pressure will close the gate.
7. In forward, with the roller at the end of the cam slot, the gate cannot be forcibly rotated toward reverse. Pull on the gate by hand to verify this.
8. Lock the jam nuts on the cable against the rod ends to complete the adjustment.

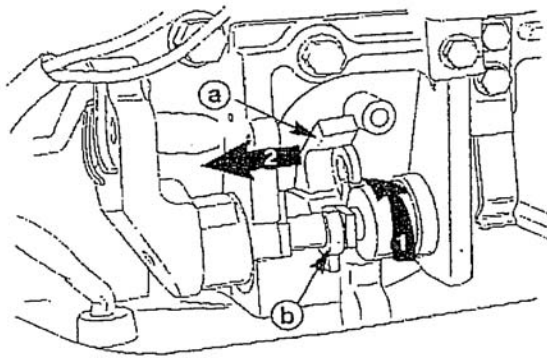
CAUTION You must return the throttle to idle before starting shifting.

NON-BIGFOOT GEAR HOUSING

4-STROKE MODELS

MERCURY/MARINER 25, 30/40, and 45/50

4. Disconnect shift shaft by un-snapping retainer to lower clip and sliding retainer to the left.



A- Retainer
B- Lower Clip

MODEL AK TILLER HANDLE STEERING
SHIFT CABLE ASSEMBLY
KIT 1410 SHORT SHAFT MOTORS
KIT 1411 LONG SHAFT MOTORS

1. Cut out the drilling template including the rectangular opening. Place the template on the motor pan, carefully aligning the upper edge parallel to the pan offset edge and the rectangular opening over the knockout. Hold in place with masking tape.

Center punch the two hole locations and drill through using a 3/16 drill. Remove the template.

2. Attach the lower end of the cable to the jet drive with the terminal end threaded on the cable as far as it will go and the cable anchor bracket slid forward and locked. Use the two 1/4 -20 x 5/8 hex hd bolts with flat washers to hold the bracket and one 1/4-20 x 3/4 bolt and lock nut through the ball terminal end.

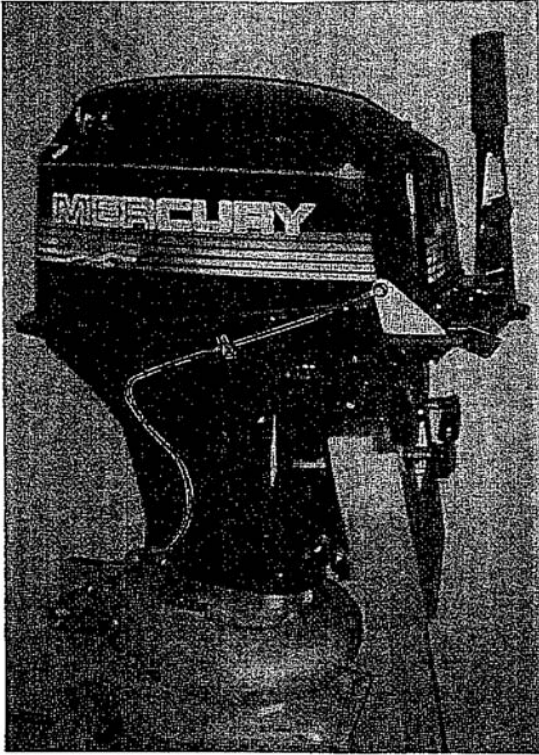
3. Attach the upper cable anchor to the motor pan using the U clip, shim, 2- #10-32 x 1 screws and 2- #10-32 lock nuts.

4. Screw the ball terminal end on the upper cable end as far as it will go and attach to the shift handle steel bracket using a 1/4-20 x 3/4 bolt and lock nut.

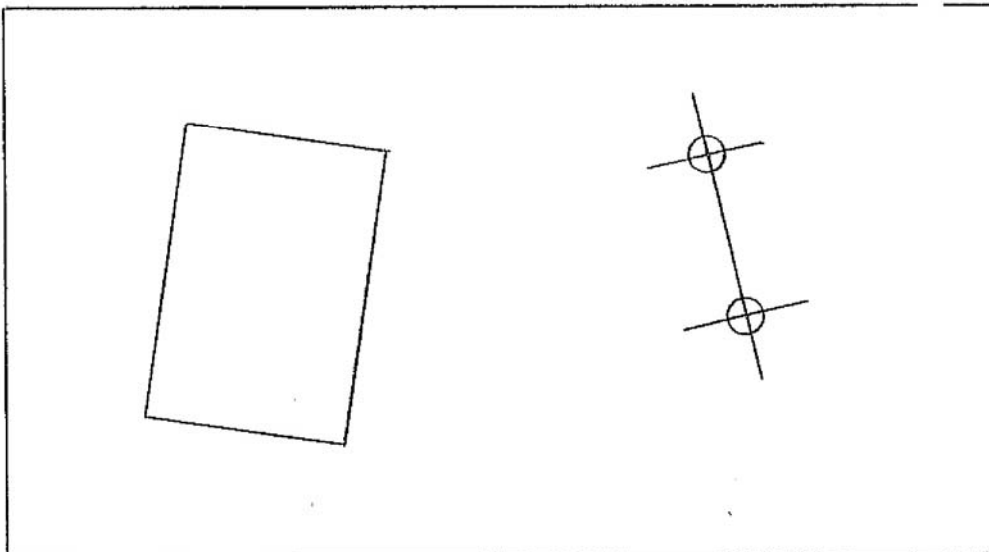
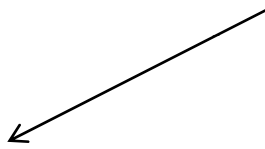
5. Place the reverse gate in forward with the cam roller at the end of the slot in the cam. Place the shift handle in forward, locked in the detent. Center the shift handle bracket on the plastic shift handle, clamp in place and drill the 2 mounting holes using a 3/16 drill. Remove the clamp. Install and tighten two #10-32 screws with lock nuts. Use the 1-1/4 long screw in the thick section of the handle.

MODEL AK TILLER HANDLE STEERING
SHIFT CABLE ASSEMBLY
KIT 1410 SHORT SHAFT MOTORS
KIT 1411 LONG SHAFT MOTORS

6. Shift to reverse and back to forward. The cam roller should be at the end of the slot in the cam such that the gate cannot be forcibly rotated toward reverse. Pull on the gate by hand to verify this. Readjust the rod end position if necessary to satisfy this condition. Lock the cable jam nuts. Do not be concerned if the reverse gate does not reach full reverse. Water pressure will close the gate tightly.

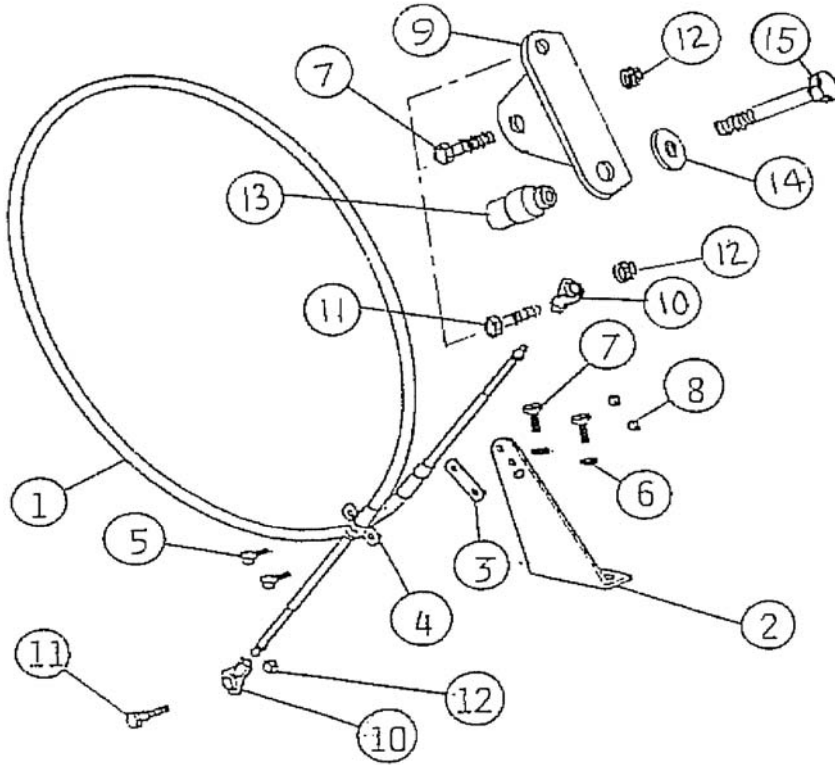


Align this edge parallel to the motor pan offset edge.

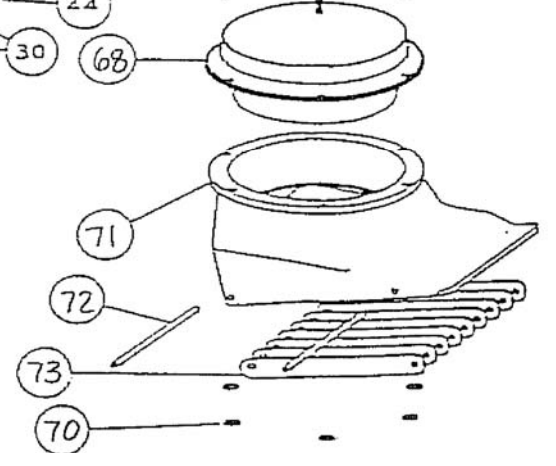
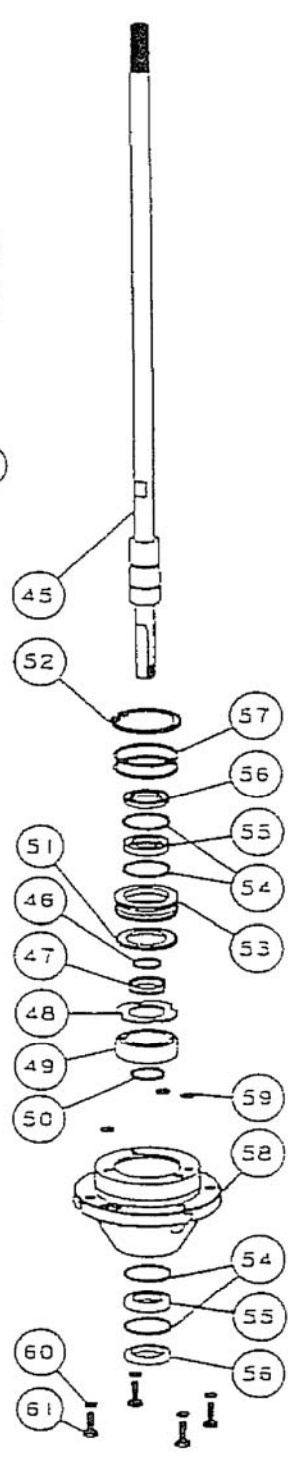
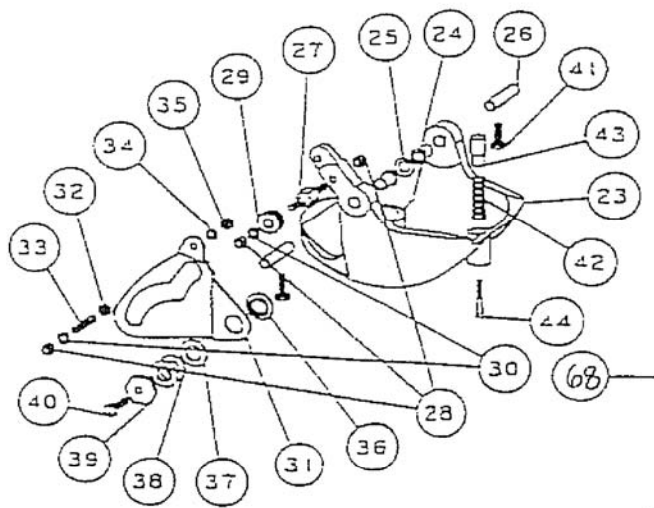
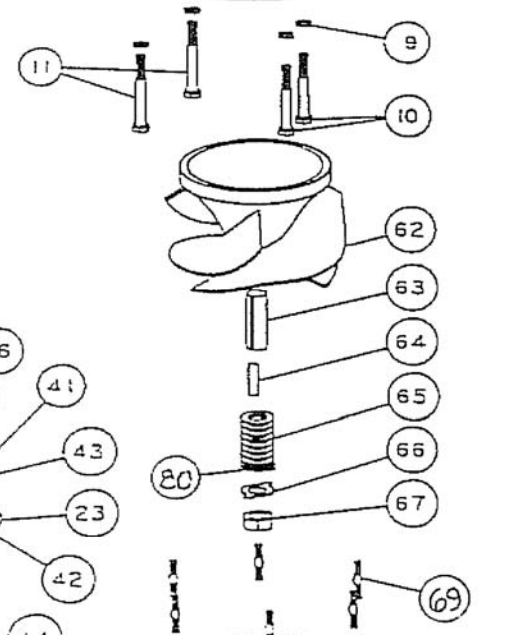
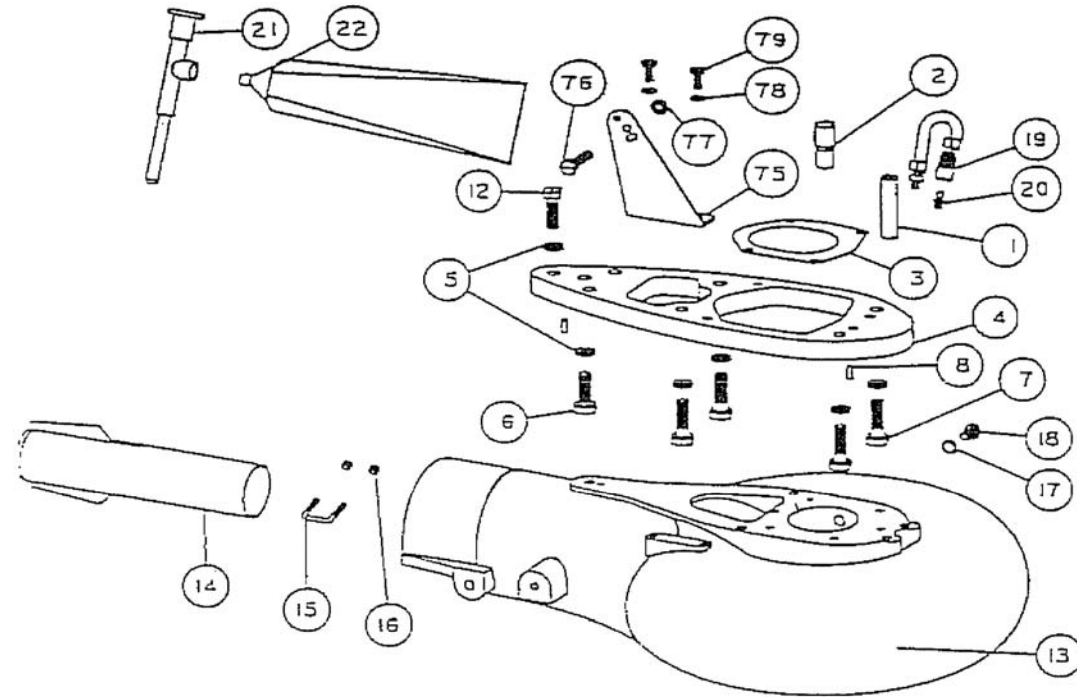


MEDIUM SERIES

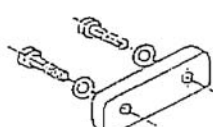
SHIFT CABLE ASSEMBLY
 MERCURY MODEL AKC-
 43
 4 STROKE, 3 CYL.
 TILLER STEERING
 1659 SHORT
 1660 LONG



REF	QTY	PART NO.	DESCRIPTION
1	1	555	CABLE 3 FT MORSE 33C SUPREME- SHORT
1	1	549	CABLE 3 1/2 FT MORSE 33C SUPREME - LONG
2	1	156	BRACKET CABLE SUPPORT
3	2	542	SHIM MORSE A03577
4	2	543	CLAMP CHRYS 154317
5	4	561	FIL HD SLOTTED 10-24 X 5/8
6	2	635	1/4 WASHER AN960C416
7	3	572	BOLT HEX HD 1/4-20 X 5/8
8	4	619	NYLOC 10-24
9	1	1657	SHIFT LEVER
10	2	553.2	BALL END 1/4 X 10-32 CABLE
11	2	573	BOLT HEX HD 1/4-20 X 3/4
12	3	623	NYLOC 1/4-20
13	1	1658	SPACER
14	1	633.2	5/16 X 1 WASHER
15	1	591.1	BOLT HEX HD M8 X 1.25 X 60MM



MODEL AK



ANODE KIT 1693

MODEL AK MERCURY

AK 2 STROKE, 2-3 CYL

AKL-44 4 STROKE, 4 CYL

AK-43 4 STROKE, 3 CYL

REF	QTY	PART NO.	DESCRIPTION	REF	QTY	PART NO.	DESCRIPTION
1	1	1391	SHIFT ROD GUIDE AK	45	1	1399	SHAFT ONLY, AKS, 14T 25 3/4 LG.
2	1	1392	WATER TUBE EXT. AK			1400	SHAFT ASSY COMPLETE, AKS, 2 STROKE
3	1	1496	GASKET WATER PUMP AK	45	1	1408	SHAFT ONLY, AKL, 14T 30 1/4 LG
4	1	1390	ADAPTER PLATE AK			1409	SHAFT ASSY COMPLETE, AKL, 2 STROKE
5	6	636	WASHER SPRING LOCK M10	45	1	1494	SHAFT ONLY, AKL-44, 14T 30 1/4 LG
6	1	588.1	BOLT HEX HD M10-1.5 X 30MM			1495	SHAFT ASSY COMPLETE, AKL-44, 4 STROKE, 4 CYL.
7	4	588.2	BOLT HEX HD M10-1.5 X 35MM	45	1	1588	SHAFT ONLY, AK-43, 14T 26 3/16 LG
8	2	631	DOWEL PIN 3/16 X 1/2			1589	SHAFT ASSY COMPLETE AK-43, 4 STROKE, 3 CYL.
9	4	640	WASHER SPRING LOCK 5/16	45	1	1597	SHAFT ONLY, AKL-43, 14T 30 3/16 LG
10	2	603	BOLT HEX HD 5/16-18 X 2 1/2			1598	SHAFT ASSY COMPLETE, AKL-43, 4 STROKE 3 CYL.
11	2	599	BOLT HEX HD 5/16-18 X 2 3/4	46	1	41	SHAFT BEARING THRUST RING
12	1	606	BOLT HEX HD 3/18-16 X 1 1/4	47	1	477	COLLAR BACKFIT 7205
		1396	VOLUTE WITH GATE AK	48	1	832	THRUST WASHER
13	1	1395	VOLUTE WITH EXHAUST TUBE AK	49	1	504	BEARING 7205B-UA
14	1	80	EXHAUST TUBE ASSY MEDIUM 2	50	1	511	TRUARC 5100-98
15	1	846	CLIP EXHAUST TUBE 1	51	1	833	SPACER
16	2	621	NYLOC 10-32	52	1	512	TRUARC N5002-212ZD
17	1	1023	WASHER FIBER 3/8	53	1	433	UPPER SEAL CARRIER W/ SEALS & O RINGS
18	1	1022	BOLT HEX HD 3/8-16 X 1/2	54	4	517	SPIROLOX RR-150S
19	1	975	LUBE HOSE ASSY.	55	2	506	SEAL INNER
20	1	539	ZIRC FITTING 1/4-28	56	2	507	SEAL OUTER 6324-S
21	1	550	GREASE GUN	57	2	526	O RING 568-135 3/32X1 15/16X2 1/8
22	1	552	GREASE 10 OZ TUBE NO. 630-AA	58	1	1402	BEARING CARRIER W/SEALS & O RINGS AK
23	1	1175	REVERSE GATE, MEDIUM	59	3	521	O RING 568-011 1/16X5/16X7/16
24	2	535	NYLINER 3/8 ID X 11/16	60	4	638	WASHER SPRING LOCK 1/4
25	1	1177	SPRING GATE PIVOT 3/8	61	4	573	BOLT HEX HD 1/4-20 X 3/4
26	2	822	PIN GATE PIVOT 3/8 MEDIUM	62	1	8.23	IMPELLER 6 1/8 W/36 SLEEVE 30-50 HP
27	1	1043	SHAFT ROLLER	62	1	1737	IMPELLER 6 1/8 W/36 SLEEVE 30-50 HP, STAINLESS
28	3	624	NYLOC 1/4-28	63	1	36	SHAFT SLEEVE PLASTIC MEDIUM
29	1	1042	ROLLER ASSY	64	1	782	IMPELLER TEE KEY - SQUARE
30	2	635	1/4 WASHER AN960C416	64	1	1705	IMPELLER TEE KEY - 1/2 ROUND
31	1	1035	SHIFT CAM MEDIUM	65	8	21	SHIM WASHERS
32	1	62	NUT HEX JAM 1/4-28	66	1	805	NUTKEEPER MED/PKG 2 PER BAG
33	1	1199	PIVOT - CABLE END	67	1	22.1	SHAFT NUT 5/8-18 BRASS
34	1	638	WASHER SPRING LOCK 1/4			1447	INTAKE ASSY 6 1/8 FLANGED W/ GRILL & LINER
35	1	622	NUT HEX 1/4-28	68	1	1521	LINER 6 1/8 FLANGED
36	1	1037	BUSHING CAM	69	6	1300	STUD-INTAKE MEDIUM
37	1	1038	WASHER CAM	70	6	623	NYLOC 1/4-20
38	2	1039	SHIM-CAM	71	1	1326	INTAKE PAINTED ONLY MED FLANGED
39	1	1036	CAM ECCENTRIC DRILLED	72	2	14	GRILL ROD
40	1	574.1	BOLT HEX HD 1/4-20 X 1 PATCH	73	9	16	GRILL BAR MEDIUM
41	2	574	BOLT HEX HD 1/4-20 X 3/4 PATCH			334	BRACKET ASSY MERCURY W/HARDWARE
42	1	1170	SPRING GATE BUMPER	75	1	153	BRACKET CABLE SUPPORT MERCURY
43	1	1169	GATE BUMPER	76	1	597	BOLT HEX HD 5/16-18 X 1 1/4
44	1	559.2	FIL HD SLOTTED 10-32 X 1 1/4 PATCH	77	1	625	NYLOC 5/16-18
				78	2	635	1/4 WASHER AN960C416
				79	2	572	BOLT HEX HD 1/4-20 X 5/8
				80	1	1718	TORSIONAL DAMPER 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

AKL-44 4 STROKE, 4 CYL. REQUIRES 46-812966A-6 WATER PUMP

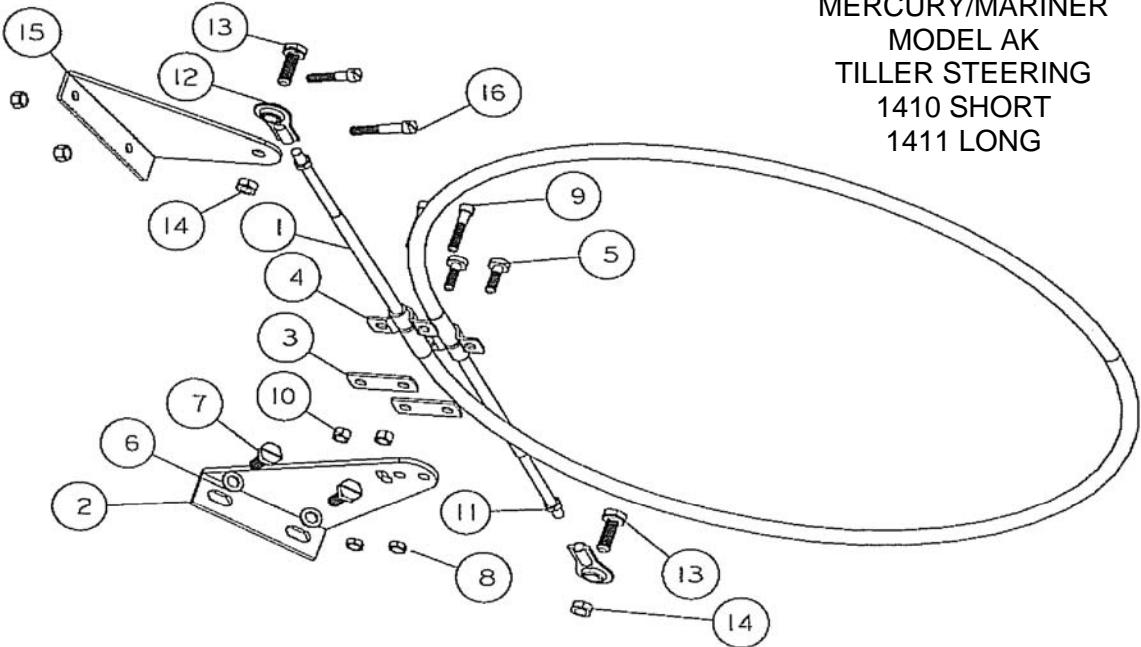
TILLER STEERING:

SHIFT CABLE ASSY, 1410, 1411 SEE PAGE 33 (NOT AK-43)

1659, 1660 SEE PAGE 33.1 AKC-43

BEARING, SEAL, SNAP & "O" RING KIT 803.1

SHIFT CABLE ASSEMBLY
 MERCURY/MARINER
 MODEL AK
 TILLER STEERING
 1410 SHORT
 1411 LONG



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8	2	619	NYLOC 10-24
9	3	559	FIL HD SLOTTED 10-32 X 1
10	4	621	NYLOC 10-32
11	2	621.1	HEX NUT 10-32 JAM
12	2	553.2	BALL END 1/4X10-32 CABLE
13	2	573	BOLT HEX HD 1/4-20 X 3/4
14	2	623	NYLOC 1/4-20
15	1	1405	SHIFT LEVER AK
16	1	558	FIL HD SLOTTED 10-32 X 1 1/4