MODEL AC MERCURY / MARINER SERIES 70-125 HP
ASSEMBLY INSTRUCTIONS
2 STROKE, OPTIMAX, 4 STROKE, 1987 TO PRESENT

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 5/8" thick aluminum adapter, gasket, and stainless steel plate. Be sure also, to install the water pump impeller drive key removed from the propeller drive. Use the four metric bolts from the propeller gear box. Do not 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. On motors without power trim and tilt, a tilt latch mechanism is provided to keep the engine from tilting up in reverse. A splined shift lever engages the engine gearshift shaft and guides into a 3/8 hole in the front of the jet housing. A fiber washer is placed between the shift lever and the aluminum housing. Grease the washer and pilot. The shift lever is installed in the jet drive rotated back against the housing. Grease the spline and install the aluminum spacer and the tilt latch cam from the propeller drive. See the diagram on page 4.

7. Attach the shift rod from the reverse gate to the shift lever. With the lever back against the housing and the reverse gate cam in full forward, adjust the threaded rod position so that it enters the nylon bushing on the gate arm. Install the washer and cotter pin. (On motors with power trim and tilt, the shift rod and splined shift lever are not used since there is no tilt latch cam to actuate.) Place the gearshift linkage, inside the motor cover, in forward position and the jet drive reverse gate cam in full forward position.

8. 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.

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 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.

10. 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.

11. 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.)

12. 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 this forward lock condition is not met, readjust the cable positions.

13. **When converting to jet drive, your motor will have to be raised to height shown in the diagram on page 4, 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 three 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 cavatation

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.

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.

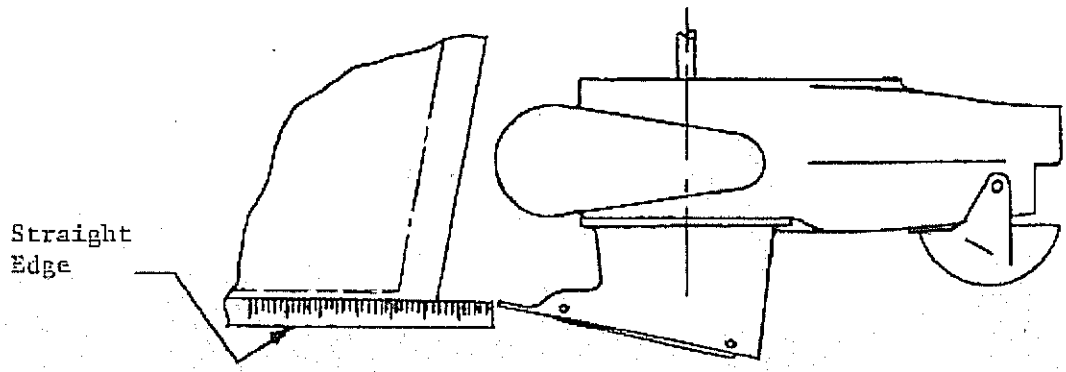
A water intake fin kit, part #1186 is now available. The purpose of these fins is to ram more water into the intake and to shield the forward sides of the intake from the entrance of air. There is a noticeable reduction of engine overspeeding when running with the wind on a heavy chop. To a lesser degree, 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.

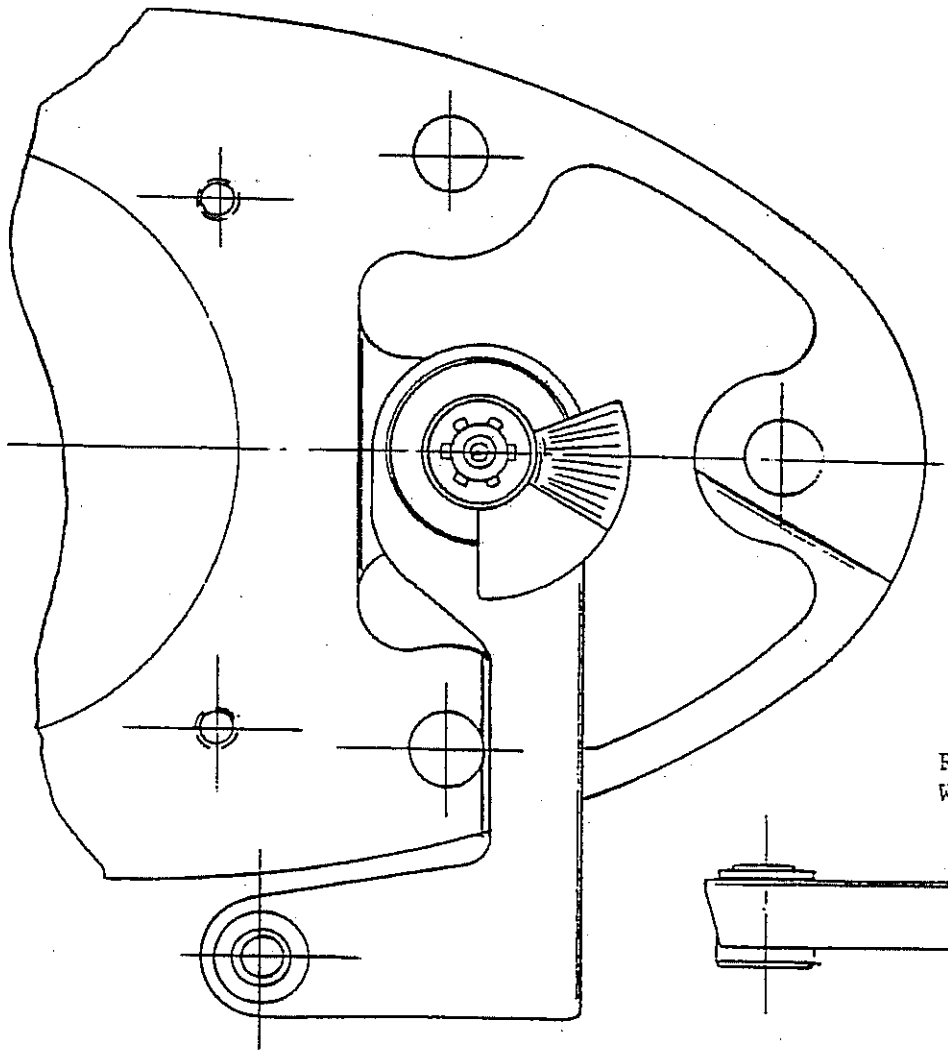
The cooling system can be flushed by removing the hex bolt next to the grease fitting. A hose coupling, 24789A1, is available from a Mercury dealer. Turn on the water gently, and start the motor set to idle. Watch for cooling water at the tell tale. Adjust the water pressure if needed. **Be sure to replace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

GOOD BOATING AND HAVE FUN!

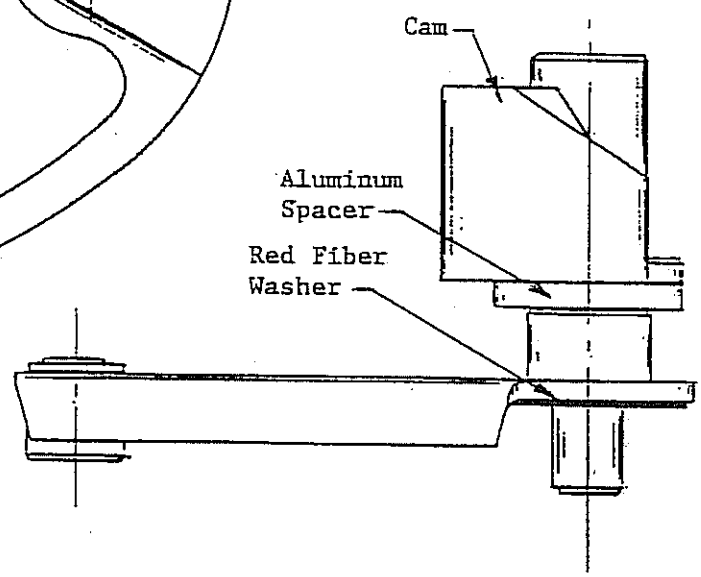
Specialty Manufacturing Company
Outboard Jets
2035 Edison Avenue
San Leandro, CA 94577

SETTING MOTOR HEIGHT





CAM ALIGNMENT



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.

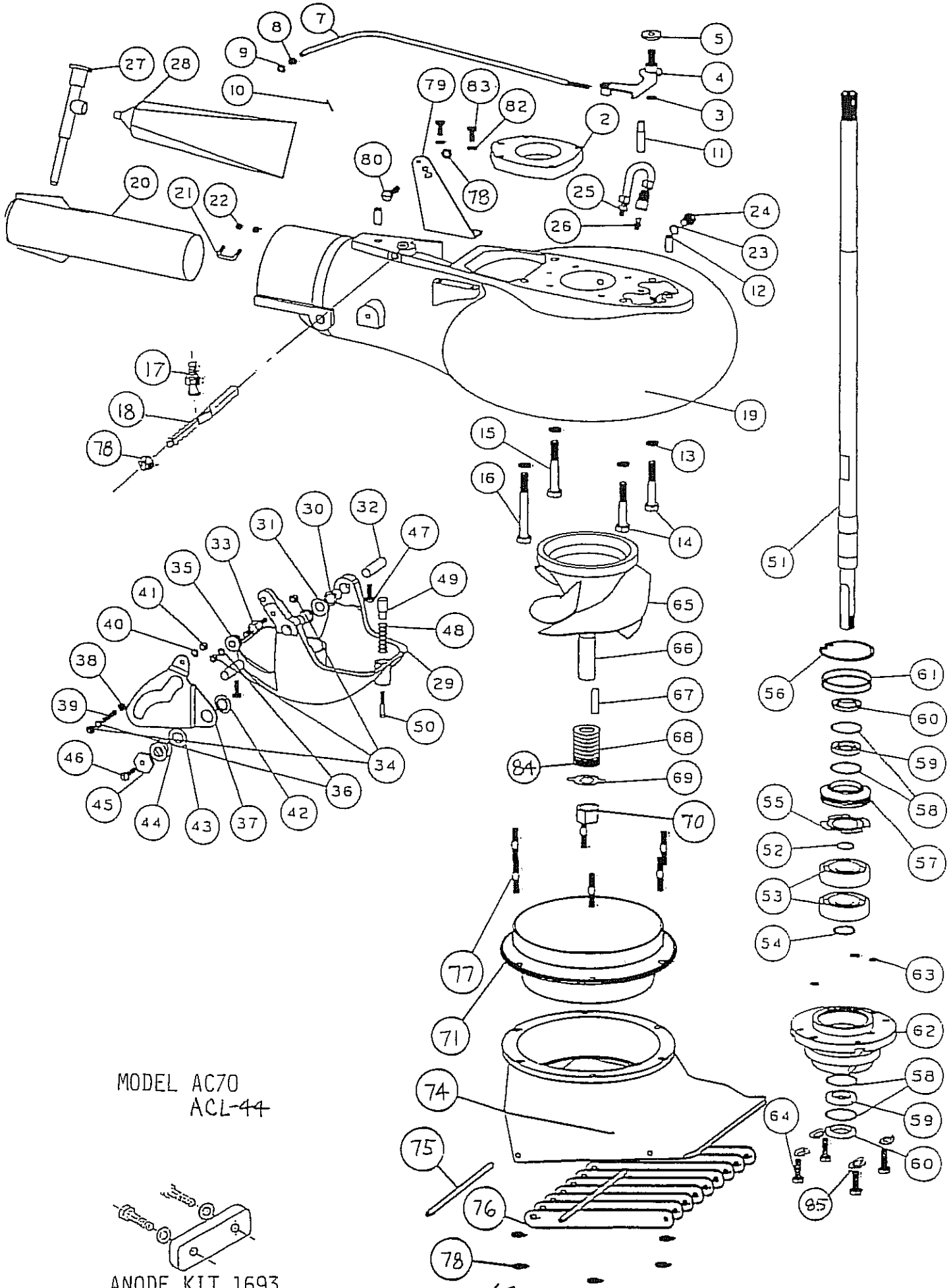
SALT WATER USE

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 AC70
ACL-44
ANODE KIT 1693

MODEL AC MERCURY

AC70 (2 STROKE)

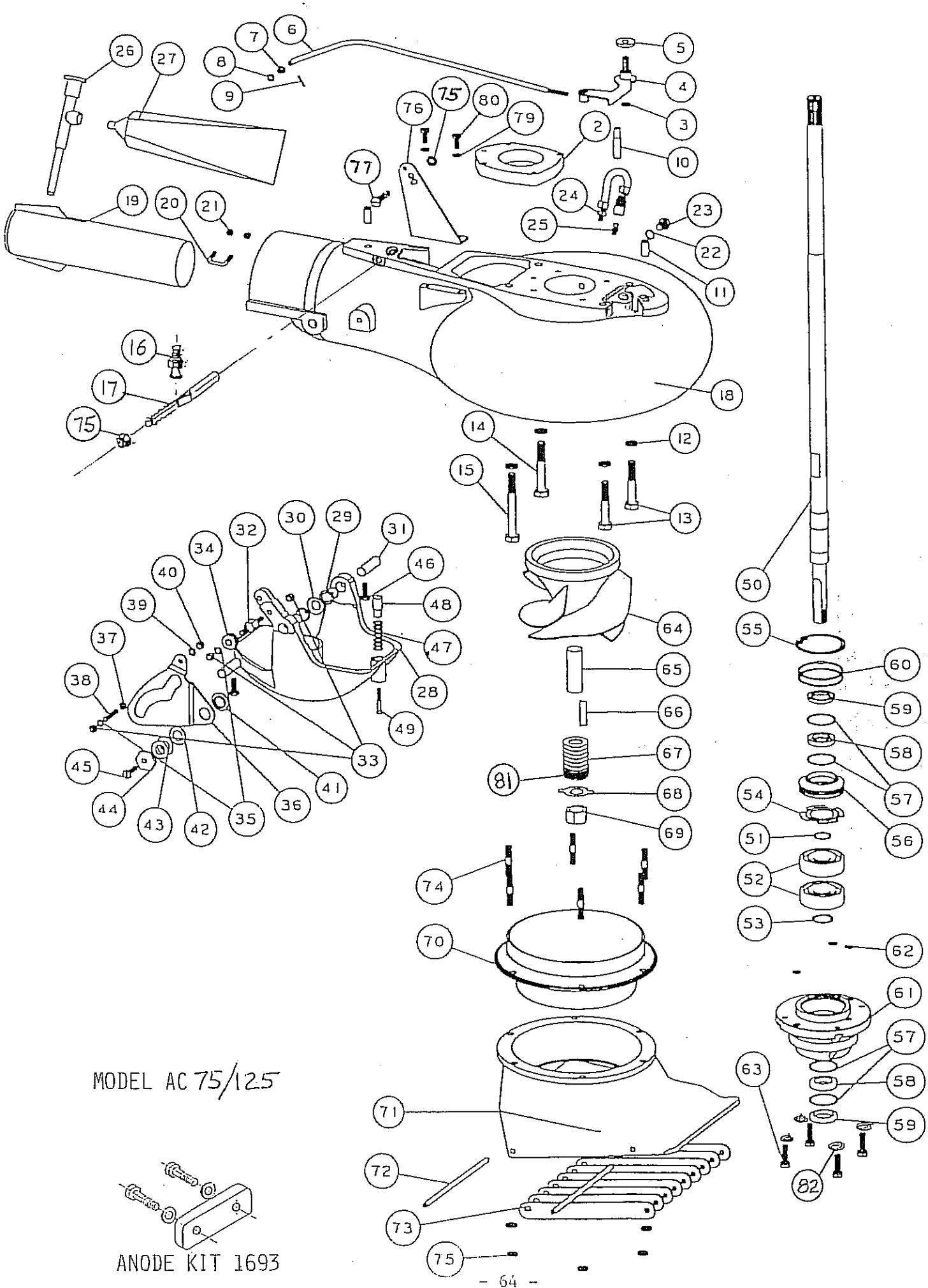
ACL-44 (4 STROKE 4 CYL BIG FOOT)

REF	QTY	PART NO.	DESCRIPTION	REF NO.	QTY	PART	DESCRIPTION
2	1	1009	PUMP ADAPTER AC, AM	51	1	1715	SHAFT ONLY ACL-44, 13T 31 3/32 LG
3	1	643	WASHER FIBER 3/8			1716.1	SHAFT ASSY COMPLETE, ACL-44 13T-5/16
4	1	1013	TILT ARM ASSY AC	52	1	41	SHAFT BEARING THRUST RING
5	1	1018	CAM SPACER AC	53	2	502	BEARING 7305B-UA
7	1	111	SHIFT ROD FORMED	54	1	511	TRUARC 5100-98
8	1	533	NYLINER 1/4 1D X 1/4	55	1	404	BACKUP WASHER
9	1	635	1/4 WASHER AN960C416	56	1	513	TRUARC N5002-250ZD
10	1	645	COTTER PIN 1/16 X 1/2	57	1	432	UPPER SEAL CARRIER W/SEALS & O RINGS
11	1	1265	SHIFT GUIDE AC-ROD	58	4	517	SPIROLOX RR-150S
12	2	630	DOWEL PIN 3/8 X 7/8	59	2	506	SEAL INNER
13	4	636	WASHER SPRING LOCK M10	60	2	507	SEAL OUTER 6324-S
14	2	588	BOLT HEX HD M10-1.5 X 60MM	61	2	527	O RING 568-141 3/32X2 5/16X2 1/2
15	1	589	BOLT HEX HD M10-1.5 X 70MM	62	1	393.5	BEARING CARRIER W/SEALS & O RING 5/16
16	1	590	BOLT HEX HD M10-1.5 X 90MM	63	3	521	O RING 568-011 1/16X5/16X7/16
17	1	1620	WEDGE STUD AN-4M	64	4	602.1	BOLT HEX HD 5/16-18 X 1 PATCH
18	1	1486	WEDGE AN	65	1	106.24	IMPELLER 7 3/16 W/136 SLEEVE 70-75 HP
		10071	VOLUTE WITH GATE AC	65	1	106.21	IMPELLER 6 5/8 W/136 SLEEVE 50HP
19	1	1007	VOLUTE WITH EXHAUST TUBE AC	66	1	136	SHAFT SLEEVE PLASTIC LARGE
20	1	128	EXHAUST TUBE ASSY LARGE 2 1/2	67	1	434	IMPELLER TEE KEY - SQUARE
21	1	847	CLIP EXHAUST TUBE 3/4	67	1	1706	IMPELLER TEE KEY - 1/2 ROUND
22	2	621	NYLOC 10-32	68	8	121	SHIM WASHER LARGE
23	1	1023	WASHER FIBER 3/8	69	1	781	NUT KEEPER LARGE/PKG 2 PER BAG
24	1	1022	BOLT HEX HD 3/8-16 X 1/2	70	1	122.1	SHAFT NUT 3/4-16 BRASS
25	1	975	LUBE HOSE ASSY	71	1	137	LINER 7 3/16 W/HARDWARE 70-75HP
26	1	539	ZIRC FITTING 1/4-28	71	1	134	LINER 6 5/8 W/HARDWARE 50HP
27	1	550	GREASE GUN	72	2	638	WASHER SPRING LOCK 1/4
28	1	552	GREASE 10 OZ TUBE NO. 630AA	73	2	575	BOLT HEX HD 1/4-20 X 7/8
29	1	1172	REVERSE GATE LARGE	74	1	104	INTAKE PAINTED ONLY
30	2	536	NYLINER 1/2 ID X 13/16			141.3	INTAKE ASSY 7 3/16 WITH GRILL & LINER
31	1	1178	SPRING GATE PIVOT 1/2			141.1	INTAKE ASSY 6 5/8 WITH GRILL & LINER
32	2	823	PIN GATE PIVOT 1/2 LARGE	75	2	14	GRILL ROD
33	1	1043	SHAFT ROLLER	76	9	117	GRILL BAR LARGE
34	3	624	NYLOC 1/4-28	77	6	1319	STUD - INTAKE LARGE
35	1	1042	ROLLER ASSY.	78	8	625	NYLOC 5/16-18
36	2	635	1/4 WASHER AN960C416			334	BRACKET ASSY MERCURY W/HARDWARE
37	1	1034	SHIFT CAM LARGE	79	1	153	BRACKET CABLE SUPPORT MERCURY
38	1	62	NUT HEX JAM 1/4-28	80	1	597	BOLT HEX HD 5/16-18 X 1 1/4
39	1	1199	PIVOT - CABLE END	82	2	635	1/4 WASHER AN960C416
40	1	638	WASHER SPRING LOCK 1/4	83	2	572	BOLT HEX HD 1/4-20 X 5/8
41	1	622	NUT HEX 1/4-28	84	1	1719	TORSIONAL DAMPER 3/4
42	1	1037	BUSHING CAM	85	4	640	WASHER SPRING LOCK 5/16
43	1	1038	WASHER CAM				
44	2	1039	SHIM - CAM				
45	1	1036	CAM ECCENTRIC DRILLED				
46	1	574.1	BOLT HEX HD 1/4-20 X 1 PATCH				
47	2	574	BOLT HEX HD 1/4-20 X 3/4 PATCH				
48	1	1170	SPRING GATE BUMPER				
49	1	1497	GATE BUMPER				
50	1	559.2	FIL HD SLOTTED 10-32 X 1 1/4 PATCH				
51	1	1016	SHAFT ONLY, AC 13T 30 5/32 LG				
		1017.1	SHAFT ASSY COMPLETE, AC 13T-516				

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 1263, 1264 SEE PAGE 21

BEARING, SEAL, SNAP & "O" RING KIT
2 BRG 462.2


MODEL AC 75/125
ANODE KIT 1693

MODEL AC MERCURY 80-125 HP 2 STROKE
MODEL AC OPT MERCURY 75-115 HP OPTIMAX

REF	QTY	PART NO.	DESCRIPTION
2	1	1009	PUMP ADAPTER AC, AN
3	1	643	WASHER FIBER 3/8
4	1	1013	TILT ARM ASSY AC
5	1	1018	CAM SPACER AC
6	1	111	SHIFT ROD FORMED
7	1	533	NYLINER 1/4 1D X 1/4
8	1	635	1/4 WASHER AN960C416
9	1	645	COTTER PIN 1/16 X 1/2
10	1	1265	SHIFT GUIDE AC-ROD
11	2	630	DOWEL PIN 3/8 X 7/8
12	4	636	WASHER SPRING LOCK M10
13	2	588	BOLT HEX HD M10-1.5 X 60MM
14	1	589	BOLT HEX HD M10-1.5 X 70MM
15	1	590	BOLT HEX HD M10-1.5 X 90MM
16	1	1620	WEDGE STUD AN-4M
17	1	1486	WEDGE AN
		10071	VOLUTE WITH GATE AC
18	1	1007	VOLUTE WITH EXHAUST TUBE AC
19	1	128	EXHAUST TUBE ASSY LARGE 2 1/2
20	1	847	CLIP EXHAUST TUBE 3/4
21	2	621	NYLOC 10-32
22	1	1023	WASHER FIBER 3/8
23	1	1022	BOLT HEX HD 3/8-16 X 1/2
24	1	975	LUBE HOSE ASSY
25	1	539	ZIRC FITTING 1/4-28
26	1	550	GREASE GUN
27	1	552	GREASE 10 OZ TUBE NO. 630AA
28	1	1172	REVERSE GATE LARGE
29	2	536	NYLINER 1/2 ID X 13/16
30	1	1178	SPRING GATE PIVOT 1/2
31	2	823	PIN GATE PIVOT 1/2 LARGE
32	1	1043	SHAFT ROLLER
33	3	624	NYLOC 1/4-28
34	1	1042	ROLLER ASSY.
35	2	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
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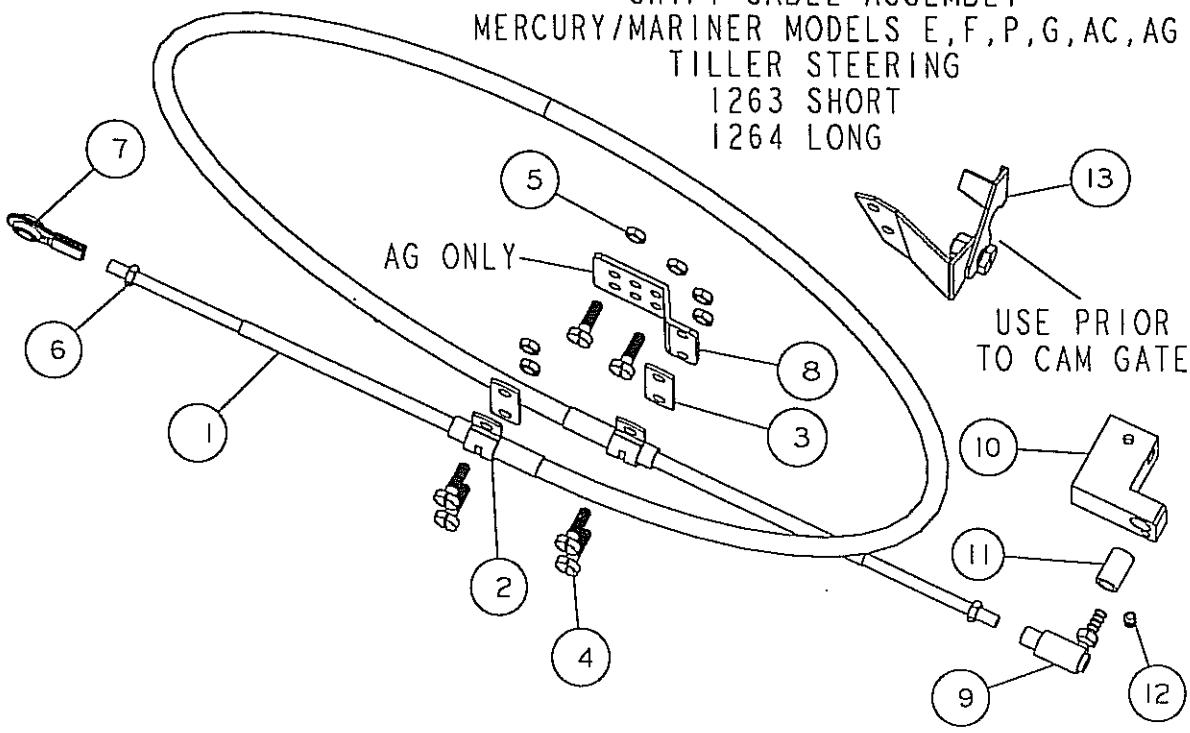
48	1	1497	GATE BUMPER
49	1	559.2	FIL HD SLOTTED 10-32 X 1 1/4 PATCH
50	1	1016	SHAFT ONLY, AC 13T 30 5/32 LG
		1017.1	SHAFT ASSY COMPLETE, AC 13T-516
50	1	1806	SHAFT ONLY ACX, 13T 35 5/32 LG
		1807.1	SHAFT ASSY COMPLETE, ACX 13T-5/16
50	1	1785	SHAFT ONLY AC OPT, 13T 30 3/4 LG
		1786.1	SHAFT ASSY COMPLETE, AC OPT 13T-5/16
50	1	1788	SHAFT ONLY ACX OPT, 13T 35 3/4 LG
		1789.1	SHAFT ASSY COMPLETE, ACX OPT 13T-5/16
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
56	1	432	UPPER SEAL CARRIER W/SEALS & O RINGS
57	4	517	SPIROLOX RR-150S
58	2	506	SEAL INNER
59	2	507	SEAL OUTER 6324-S
60	2	527	O RING 568-141 3/32X2 5/16X2 1/2
61	1	393.5	BEARING CARRIER W/SEALS & O RING 5/16
62	3	521	O RING 568-011 1/16X5/16X7/16
63	4	602.1	BOLT HEX HD 5/16-18 X 1 PATCH
64	1	1756	IMPELLER 7 3/8 STAINLESS W/136 SLEEVE 75-90 HP
64	1	1919	IMPELLER 7 3/8D STAINLESS W/136 SLEEVE 100-125 HP
65	1	136	SHAFT SLEEVE PLASTIC LARGE
66	1	1706	IMPELLER TEE KEY - 1/2 ROUND
67	7	121	SHIM WASHER LARGE
68	1	781	NUT KEEPER LARGE/PKG 2 PER BAG
69	1	122.1	SHAFT NUT 3/4-16 BRASS
		1333.04	INTAKE ASSY 7 3/8 FLANGED W/ GRILL & LINER
70	1	1431	LINER 7 3/8 FLANGED
71	1	1332.04	INTAKE PAINTED ONLY
72	2	14	GRILL ROD
73	9	117	GRILL BAR LARGE
74	6	1319	STUD - INTAKE LARGE
75	8	625	NYLOC 5/16-18
		334	BRACKET ASSY MERCURY W/HARDWARE
76	1	153	BRACKET CABLE SUPPORT MERCURY
77	1	597	BOLT HEX HD 5/16-18 X 1 1/4
79	2	635	1/4 WASHER AN960C416
80	2	572	BOLT HEX HD 1/4-20 X 5/8
81	1	1719	TORSIONAL DAMPER 3/4
82	4	640	WASHER SPRING LOCK 5/16

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 1263, 1264 SEE PAGE 21

BEARING, SEAL, SNAP & "O" RING KIT
2 BRG 462.2

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