MODEL X SERIES

ASSEMBLY INSTRUCTIONS

For Chrysler/Force Motors - 70 - 90 HP 3 cyl., 1978 to present
105 - 140 HP 4 cyl., 1977 to present
* 150 HP 5 cyl., 1989 to present

1. Temporarily clamp the engine on the transom of your boat or an engine stand so that the gearbox can be removed.

2. Disconnect the gearbox shift rod at the lower end, by removing the cross pin. Remove the bolts holding the gearbox and remove the gearbox.

3. After removing the gearbox, the rear threaded hole in the exhaust housing is drilled through to the top with a 5/16" drill. Back spotface the hole to a full diameter flat seat. A 5/16-18 x 4 bolt with a 5/8 dia. x 1/2 long collar goes here.

4. Slide the shift rod connector sleeve back in place on the shift rod and using the 1/4-20 x 1-1/4 bolt, 1/8 thick aluminum spacer and nylon locknut, secure the shift rod in its lowest position against the exhaust housing. The spacer goes between the connector sleeve and the exhaust housing. The reverse shift cable will attach directly to the jet drive.

5. Now that the motor shift linkage has been deactivated it is necessary to connect both wires together on either of the terminals of the starting switch. This switch is inside the motor hood and was activated when the shift linkage was in neutral. You must still start the motor with the throttle lever in neutral.

6. Break the sharp edges of the cooling water tube where it enters the water pump. Slide the brass water tube extension with "O" ring in place on the tube.

7. Mount the main adapter plate to the exhaust housing using 6 - 5/16-18 x 1-3/8 bolts and lockwashers. Grease the threads.

8. Install the jet driveshaft assembly into the spiral pump housing locking it in place with the four 1/4-20 x 7/8 bolts and lockwashers. Use grease on the threads.

9. * Remove the rubber sleeve and steel collar (upper end of propeller driveshaft) and water pump assembly from the propeller drive. Install in the jet drive, using the same bolts, mounting on top of the cast aluminum pump base supplied in the jet kit. Be sure to include the stainless pump plate, its gasket and the water pump impeller drive key. Slide the steel collar and rubber sleeve onto the driveshaft and grease the spline.

10. Next, attach the jet drive to the motor. Four 3/8-16 bolts and lockwashers from below and one 5/16-18 x 4 bolt with spacer collar from above rear 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. Tighten the five bolts.

* 150 HP motor requires use of Force cooling pump FK1069

11. 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.

    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 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.

12. Place the intake casing in position with the lower end at the rear and tighten the six 5/16-18 x 7/8 bolts. No lockwashers are used. Grease the threads.

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

    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. Tighten hardware.

    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.

14. 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.

15. When converting to jet drive, your motor will have to be raised to height shown in diagram below, 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 three 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 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 connections.

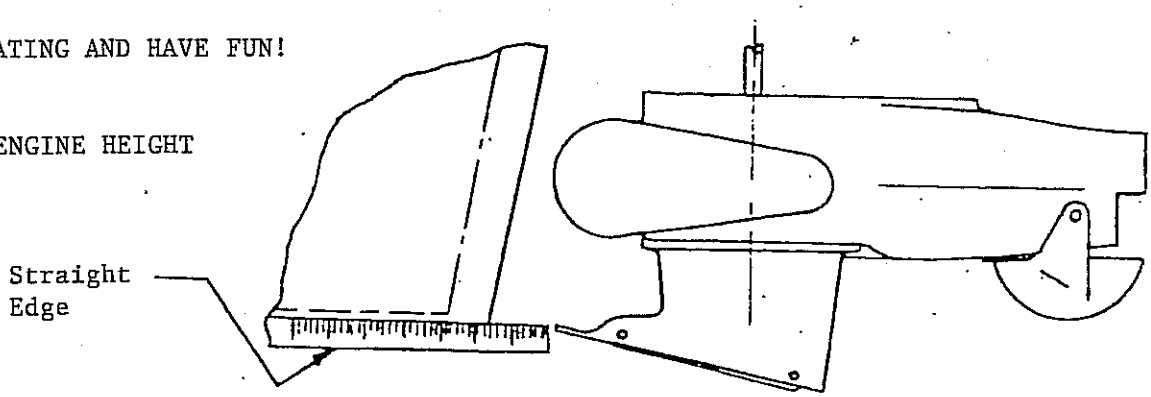
The cooling system can be flushed by removing the slotted screw next to the grease fitting. A hose coupling No. 24789A1 is available from a Mercury dealer. Turn on the water gently, start the motor, set to idle and watch for cooling water at the tell tale. Adjust water pressure if needed. Replace the screw after flushing.

MAINTENANCE AND LUBRICATION

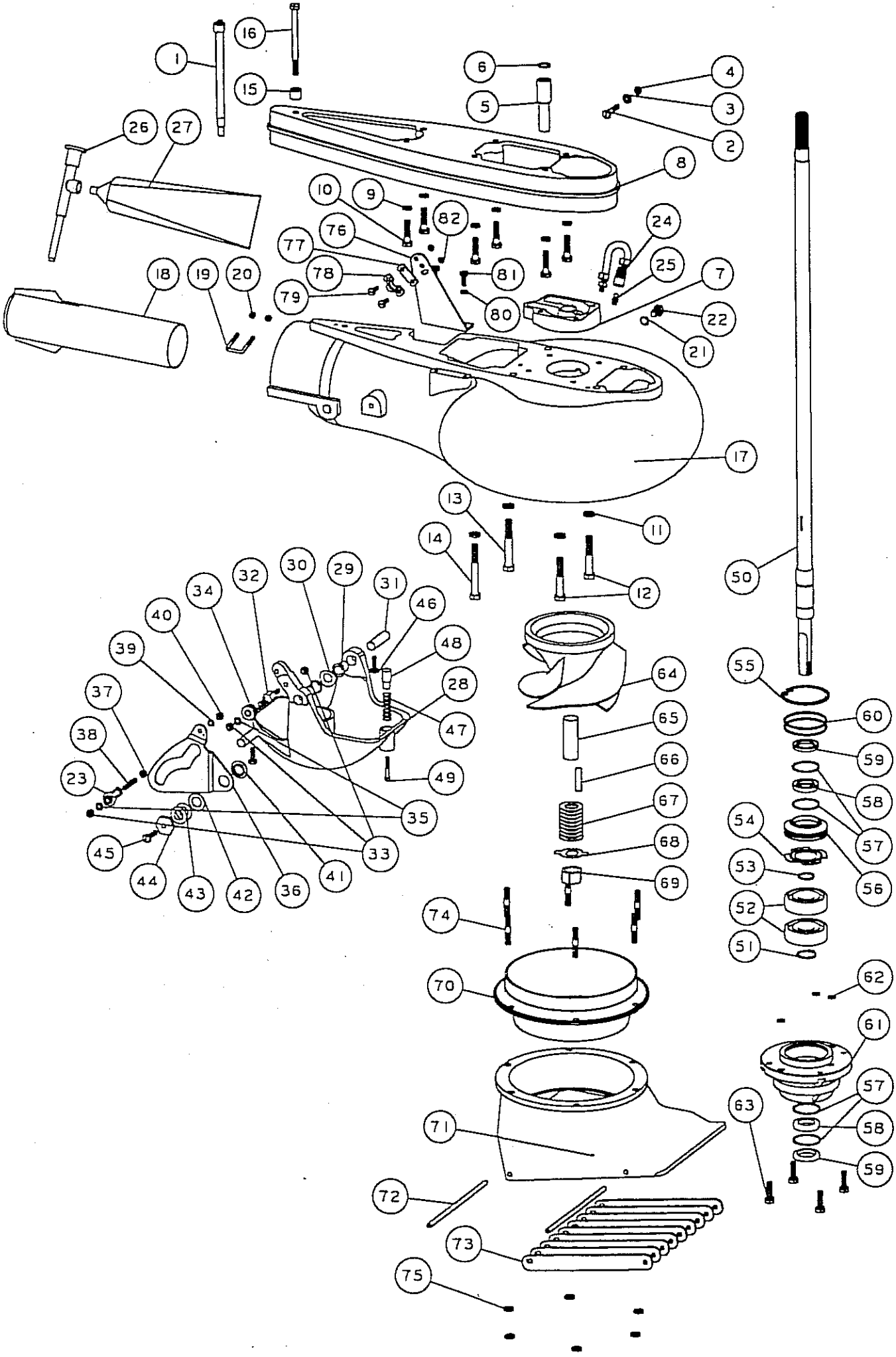
See separate sheet.

GOOD BOATING AND HAVE FUN!

PROPER ENGINE HEIGHT



Specialty Manufacturing Company
Outboard Jets
2035 Edison Ave.
San Leandro, CA 94577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MODEL X CHRYSLER/FORCE

REF	QTY	PART NO	DESCRIPTION
1	1	403	SPOTFACER & DRILL KIT 5/16
2	1	585	BOLT HEX HD 1/4-20 X 1 1/4
3	1	27	SHIFT LEVER SPACER B
4	1	623	NYLOC 1/4-20
5	1	851	WATER TUBE EXT X W/ O-RING
6	1	531	O RING 568-015 1/16X9/16X11/16
7	1	844	PUMP ADAPTER X
8	1	842	ADAPTER PLATE X
9	6	640	WASHER SPRING LOCK 5/16
10	6	597	BOLT HEX HD 5/16-18 X 1 1/4
11	4	636	WASHER SPRING LOCK M10
12	2	608	BOLT HEX HD 3/8-16 X 2 1/4
13	1	609	BOLT HEX HD 3/8-16 X 2 3/4
14	1	610	BOLT HEX HD 3/8-16 X 3
15	1	886	SPACER 5/16ID X 1/2
16	1	604	BOLT HEX HD 5/16-18 X 4
		85800	VOLUTE WITH GATE X
17	1	858	VOLUTE WITH EXHAUST TUBE X
18	1	128	EXHAUST TUBE ASSY LARGE 2 1/2
19	1	845	CLIP EXHAUST TUBE 1 3/8
20	2	621	NYLOC 10-32
21	1	1023	WASHER FIBER 3/8
22	1	1022	BOLT HEX HD 3/8-16 X 1/2
23	1	553.2	BALL END 1/4X10-32 CABLE
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.630-AA
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
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
		1441.1	SHAFT ASSY COMPLETE, XDX, 15T 5/16
50	1	1440	SHAFT ONLY, XDX, 15T 38 3/4 LG
		959.1	SHAFT ASSY COMPLETE, XD, 15T 5/16
50	1	958	SHAFT ONLY, XD, 15T 33 3/4 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
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 RINGS 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	106.25	IMPELLER 7 3/8 W/136 SLEEVE 70-85 HP
64	1	948	IMPELLER 7 3/8D W/136 SLEEVE 90-140 HP
64	1	1352	IMPELLER 4BLADEV6 W/136 SLEEVE 150 HP
65	1	136	SHAFT SLEEVE PLASTIC LARGE
66	1	434	IMPELLER TEE KEY
67	9	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	INTAKE ASSY FLANGED WITH GRILL & LINER
70	1	1431	LINER 7 3/8 FLANGED
71	1	1332	INTAKE PAINTED ONLY
72	2	14	GRILL ROD
73	9	117	GRILL BAR LARGE
74	6	1319	STUD - INTAKE LARGE
75	6	625	NYLOC 5/16-18
		171	BRACKET ASSY MORSE W/CLAMP & HARDWARE
76	1	156	BRACKET CABLE SUPPORT
77	1	542	SHIM MORSE A035777
78	1	543	CLAMP CHRYS 154317
79	2	561	FIL HD SLOTTED 10-24 X 5/8
80	2	635	1/4 WASHER AN960C416
81	2	572	BOLT HEX HD 1/4-20 X 5/8
82	2	619	NYLOC 10-24

26.SEP.97

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

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
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