

MODEL K-20  
ASSEMBLY INSTRUCTIONS  
MODEL K-20 FITS MERCURY 200 FROM 1966 TO PRESENT

1. This unit requires a steep angle transom bracket on your boat. Follow the diagram on page 4.
2. Place the engine on your boat. Remove the plastic cap and next the Zinc plate beneath the anticavitation plate. Then remove the 1 forward and 2 rear nuts holding the gearbox to the exhaust housing. Pull downward to remove the driveshaft-gearbox assembly.
3. Using a pipe wrench, remove the 2 rear mounting studs. The rearmost stud hole must be drilled through to the top. See diagram on page 5. Use the 21/64" drill. Next back spot face the top of the hole until a full diameter seat is established for the bolt support collar. A spotfacer and drill kit is available on a refund basis from the factory.
4. Remove the cooling pump flushing screw and 3 nuts holding the water pump in the gearbox. Remove the water pump assembly, drive key, and driveshaft spline "O" ring.
5. Screw the front mounting stud into the main jet housing. Thread 2 3/8-24 nuts onto the stud, jam them against each other and use these to tighten the stud into the housing. Remove the nuts.
6. Mount the jet driveshaft assembly in the main jet housing using 4 1/4-20 x 3/4 lg. hex hd screws and lockwashers. Lightly grease threads on all hardware and lock screws firmly.
7. Install the water pump adapter onto the bearing housing using 4 #10-24 fil hd screws and lock washers. Tighten firmly.
8. The water pump flushing inlet must be sealed. Use the 3/8-16 x 1/2 soc. set screw. Tap the pump body 3/8-16 if not already threaded.
9. Install the water pump using 3 5/16-18 x 2 1/4 lg. hex hd bolts and lockwashers. Be sure the pump impeller drive key is in place in the driveshaft.
10. Install the taper adapter casting on the motor exhaust housing using 1 5/16-18 x 2 3/4 lg hex hd bolt and lockwasher. The rear mounting bolt, 5/16-18 x 3 1/4 lg hex hd with its steel support collar, and the forward aluminum centering ring should be in place to align the adapter. Tighten the center bolt firmly.
11. Grease the spline on the shift arm and slide it up into position in the exhaust housing shift spline. Grease the red fiber washer and stick it onto the shift arm shaft.
12. Slide the driveshaft spline "O" ring into place and grease the spline generously. Mount the jet housing to the motor guiding into place the driveshaft spline, the shift spline and be sure the cooling water tube enters the water pump properly. A bent piece of coat hanger wire helps to guide the tube into place.
13. Lock the forward stud nut (from the propeller unit) and the rear bolt firmly. Install and lock the 2 1/4-20 x 3/4 lg hex hd bolts and lockwashers on the slides of the mounting plate.
14. Grease the threads on the shift rod and screw it into the shift arm pivot. Adjust the threaded rod into the pivot so that the pivot arm arc of travel is centered in the cutout of the taper adapter mounting plate, when moving the reverse gate from full forward to reverse. Check to see that in forward the motor is free to tip up and in reverse it is locked down. Check also, that in forward the throttle can be turned to full. If necessary, readjust the shift arm position to accomplish this. Put in the flat washer and cotter pin at the reverse gate.
15. Water pressure on the reverse gate holds it in reverse position. You must return the throttle to idle position before shifting out of reverse. Nothing holds the gate in forward position, so a stop pin must be installed in the motor cowling to hold the shift handle in forward. This pin is on a spring leaf. To shift out of forward, depress the pin with the side of the index finger on your left hand, then press down on the shift handle with the thumb. The pin cams itself into position automatically on return to forward. Follow instructions pg. 4 for mounting the stop pin.

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16. Next install the impeller for blade clearance adjustment. Place in position the fiber shaft sleeve, the impeller, shear pin keeper, stack of 6 shim washers, and shaft nut. Bring the nut up snug. Install the water intake, locking in place with 2 screws only. Look inside. Clearance between blade edge and casing should be 1/64 to 1/32 inch. (a shim washer for example is 1/32 thick.) If clearance is excessive, place one shim washer above the impeller and repeat.
17. Now remove the intake casing and reassemble as follows: If shims are required, place the proper number above the impeller, place the plastic impeller sleeve on the shaft. Put on the impeller, the shear pin, the shear pin cup, the remaining shims from the stack of 6, and the nut. Turn the nut up snug and then bump the wrench until the cotter pin hole lines up. Put in the cotter pin and fold the ends around. If erosion or wear in abrasive conditions open the blade tip clearance up excessively, there will be a loss of pressure and performance. At this point one or two shims, as required, would be removed from the lower stack and placed on the shaft above the impeller which moves it down into the casing taper, thus reducing the clearance.
18. Place intake casing in position with the lower end at the rear and tighten the 6 1/4-20 x 3/4 lg hex hd screws.
19. Lubricate the shaft bearing as explained in separate sheet, MAINTENANCE AND LUBRICATION.
20. The jet conversion requires about a 25 1/2" transom. Refined height adjustment can be made by placing up to a 1 inch wood shim between the engine mount and the boat transom. Start with a 25 1/2 inch height. From there you can experiment for 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 engine overspeeds in spurts and shakes considerably in the engine mount. this is not a normal condition and should be avoided by proper adjustment of engine height on each individual boat. If you lower it too much, you will have excessive drag, therefore mount the engine as high as possible without allowing cavitation.

GOOD BOATING AND HAVE FUN!

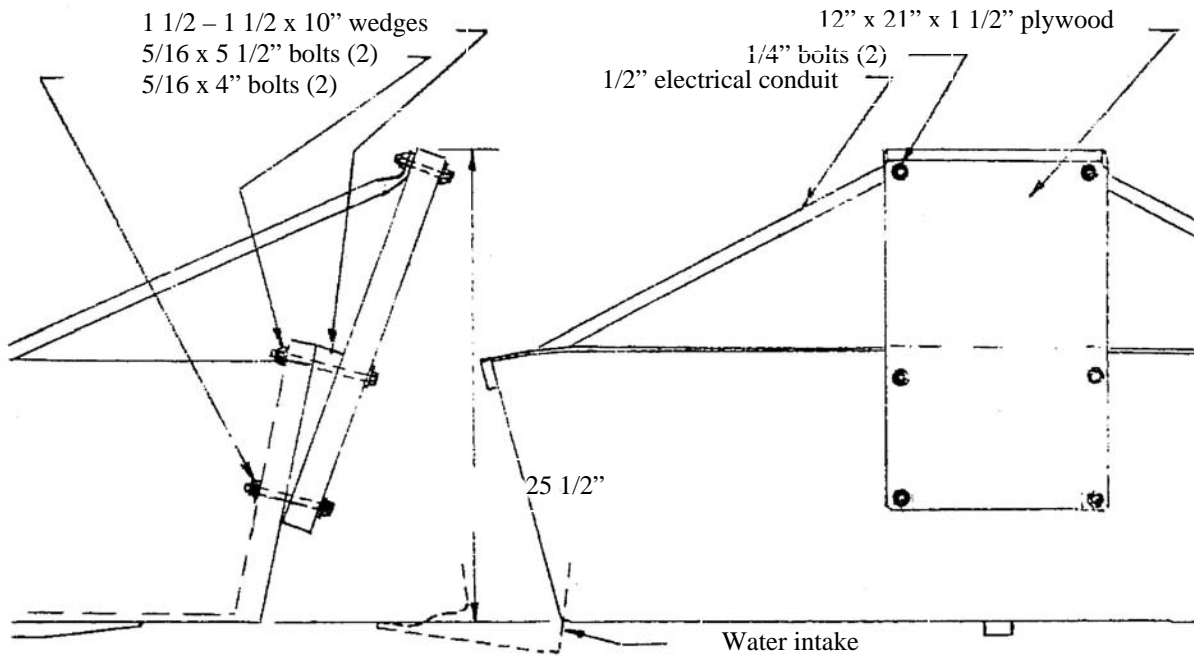
**CAUTION!**

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

**MAINTENANCE AND LUBRICATION**

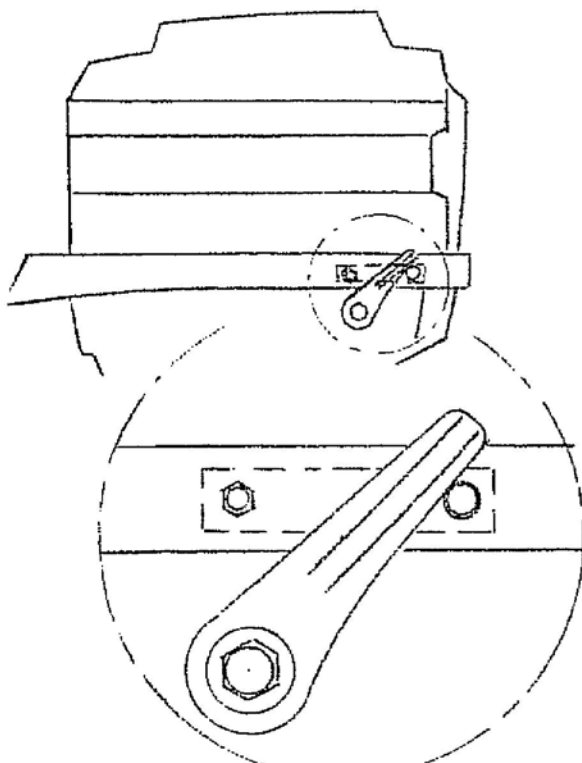
See separate sheet.

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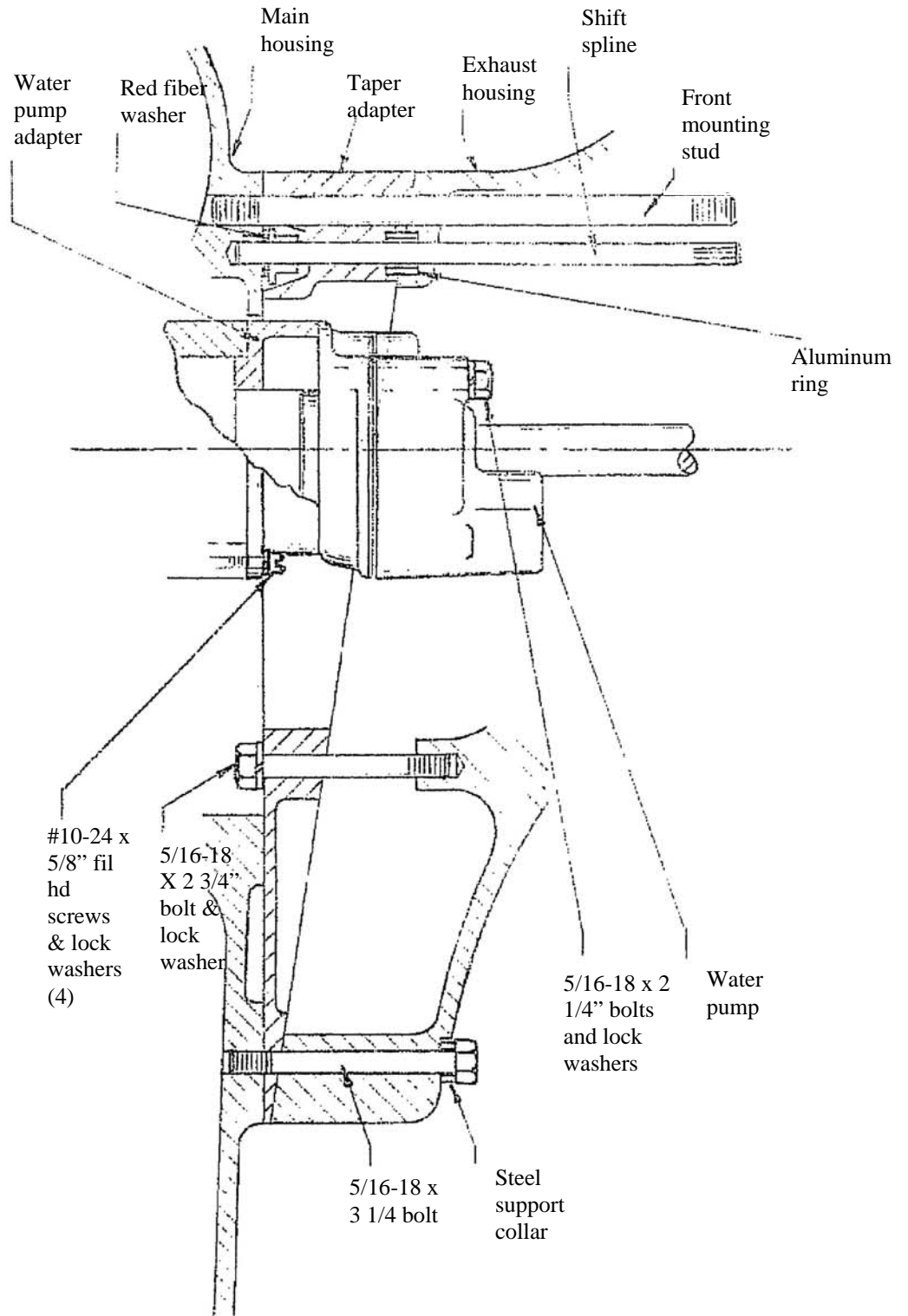
1. Glue 2 pieces 3/4" exterior plywood together using waterproof glue, clamp, or nail.
2. Bolt to boat transom at height shown. Use zinc plated hardware with flat washers both sides.
3. Make 2 diagonal braces from 1/2" electrical conduit. Flatten ends in vise and drill 1/4" hole through. Attach motor mount first. Then determine position and angle of forward bent. Attach to boat in solid location such as seats or gunwales. Avoid flexible aluminum panel locations.

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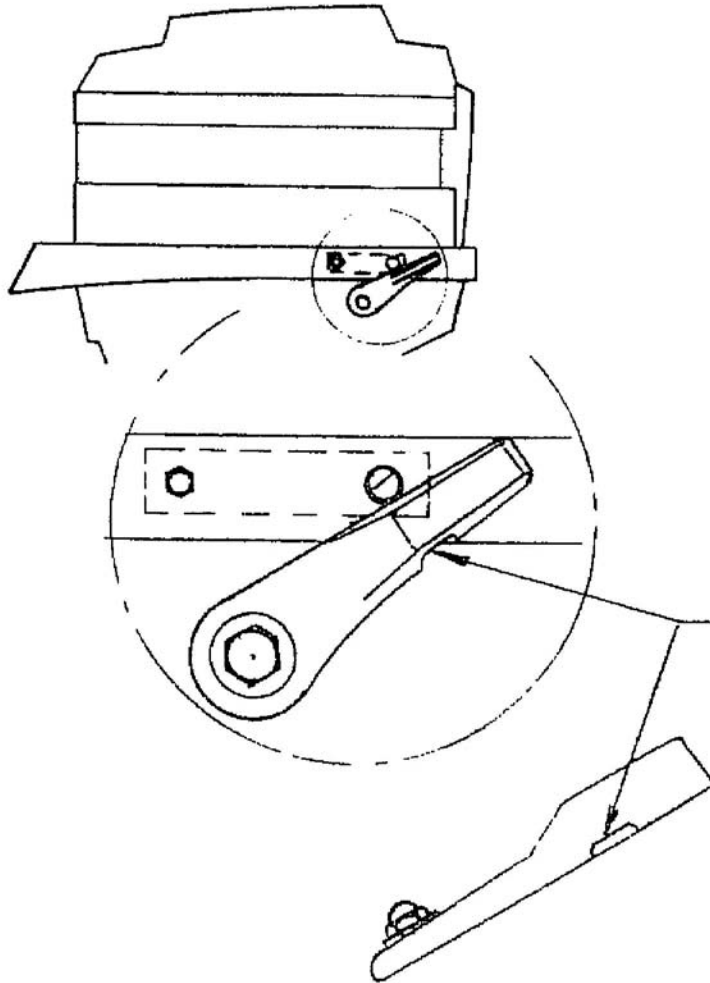
1. The shift lock installs inside the motor cowling with the stop pin projecting through the cowling and holding the shift handle in forward position.
2. Lift up on the shift handle to take the “spring” out of the system. Center punch a mark where the center of the stop pin should be to hold the handle in this position. Drill a 1/4” hole and follow with 13/32”.
3. Lay the stop pin leaf on the outside of the cowl with the pin in the hole. Center punch the rear bolt position and drill 1/4”.
4. Place the top pin leaf inside the cowl with the pin projecting through and install the 1/4-28 x 3/4” bolt and fiber lock nut, nut inside. Lock firmly, checking for free movement of the stop pin.

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FORWARD SHIFT LOCK INSTALLATION  
MERC 200 1971 & LATER  
JET KIT K20-A



1. The shift lock installs inside the motor cowling with the stop pin projecting through the cowling and holding the shift handle in forward position.
2. Push down on the shift handle to take the “spring” out of the system. Center punch a mark where the center of the stop pin should be to hold the handle in this position
3. Lay the stop pin leaf on the outside of the cowl with the pin in the hole. Center punch the rear bolt position and drill 1/4”.
4. Place the stop pin leaf inside the cowl with the pin projecting through and install the 1/4-28 x 3/4” bolt and fiber lock nut, nut inside. Lock firmly, checking for free movement of the pin.
5. File a notch in the lower edge only of the shift handle so that it will clear the pin when the shift handle is moved toward reverse.

## SHIFT MECHANISM ENGINE TILT LOCK CHANGES - MERC 200

The splined reverse gate shift lever in your kit is of threaded, adjustable construction to adapt to the various engine changes of the past 3 years.

When installing the taper adapter casting (steps 10-11) adjust the length and position of the spline to provide maximum engagement in the plastic splined engine coupling, giving about 1/32 inch end play with the red fiber washer in position.

The spline has one tooth removed to match the engine coupling. Position the spline such that with the shift handle in neutral, the lever is centered in the travel allowed in the taper adapter casting. Lock the jam nut firmly. This is most easily done by clamping the splined shift in a vise and while holding the lever in the desired position, tighten the nut with a wrench.

Assemble the taper adapter onto the engine once again and check as follows:

With the shift lever in forward, the throttle stops should be clear and allow full throttle. The engine tilt lock should be free and allow the engine to tilt up.

With the shift lever in reverse, the tilt should be locked and the throttle stop should allow approximately half throttle.

Between these positions, the reverse rod lever should travel the full distance allowed in the taper adapter casting.

If these conditions are not met, readjust the splined shift lever.

Installation of the shift handle lock, to hold the handle in forward position, is done in step 15. See page 4 or diagram for K20-A depending on motor year.

NOTE: If the jet shift arm spline fully engages the plastic engine coupling and if you shift with reasonable care and do not force the system, the plastic coupling will provide satisfactory service. If it breaks, it should be replaced with the earlier design Mercury parts made of steel and bronze.

Following is a list of parts, approximate cost \$13.72. Installation requires removal of the power head for access and should be avoided if possible.

PART NAME	MERCURY NO.	NO. REQ'D	COST
LEVER-REVERSE LOCK CAM	A-33407	1	2.09
REVERSE LOCK LEVER ASSY	A-33417A1	1	4.51
LINK ROD-REVERSE LOCK	A-33495	1	1.05
RETAINER-REVERSE LOCK CAM	A-35653	1	0.94
CAM COUPLING ASSY-SHIFT SHAFT	A-39241A1	1	3.41
SCREW	C-10-20540	2	.22 (15/BAG)
NUT	C-11-25980	1	.22 (10.BAG)
LOCK WASHER	C-13-26992	2	.17 (25/BAG)
ROLL PIN	C-17-33522	1	0.22
SPRING-TENSION	A-24-33413	1	0.28
SPRING-REVERSE LOCK	A-24-33418	1	0.61

# 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.

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