

MODELS C35, D45  
ASSEMBLY INSTRUCTIONS

C35 4 Cyl. Mark 55, 58, 58A  
4 Cyl. Merc 300, 350, 400 M, E  
Early Merc 500 M, E up to serial No. 1460498

D45 Merc 450 M, S  
Late Merc 500 E-1, M-2, E-2 serial No. 1460499 and up

1. Place the engine on the transom of your boat so that it is mounted vertically in the normal fashion. Remove the 4 upper and lower nuts holding the gearbox to the upper housing, and remove the gearbox.
2. Remove the 2 rear gearbox mounting studs from the upper housing using a pipe wrench. The rearmost  $3/8$  stud hole must now be drilled through to the top of the housing to receive the rear jet mounting bolt from above. It is easiest to drill through with a  $5/16$  drill first, then spot face the hole at the top of the housing just enough so that the bolt head will sit down square. Next, follow with a  $25/64$  drill, clearance size for a  $3/8$  bolt. The drills and spot facer are available on loan or from your dealer. If it is ever desired to remount the propeller gearbox, a  $3/8$ -16 bolt can be used at this rear hole.
3. Remove the top "O" ring and water pump assembly from the propeller drive shaft. The water pump must be of the type in which the water inlet came from ahead of the propeller. The early Merc cooling water pumps in which the water intake was behind the propeller cannot be used and must be replaced by Merc 500 pump assembly as used on serial No. 1521915 and up.
4. Next, install the jet pump drive shaft assembly into the spiral pump housing locking it in place with the 4  $1/4$ -20 x  $3/4$  long bolts and lock-washers.
5. Seal the flushing inlet on the lower water pump housing with the  $3/8$ -16 set screw provided. Use a little gasket cement here if available and seal tightly.
6. Now install the water pump onto the jet drive shaft using the gasket provided. Place the thin aluminum ring in the bearing housing to center the pump and be sure to install the rubber impeller drive pin in the shaft. Lock the pump in place firmly with the 3  $1/4$ -20 x 2- $1/8$  long screws and lock-washers. Replace the rubber sleeve and upper "O" ring on the driveshaft.
7. A tilt latch mechanism is provided to keep the engine from tilting up in reverse. A splined shift lever attaches to the engine gearshift-tilt latch 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. This lever shifts the jet reverse gate. Place the engine gearshift control in "forward" position. Align the tilt latch bronze cam on the shift lever as shown (last page). Then remove the shift lever from the jet housing and insert it into the engine spline in the same position.
8. Now you are ready to mount the jet to the engine. Tip the engine up toward the horizontal. Install the jet pump housing and shaft assembly onto the engine. Be sure, as you guide the unit into place that the cooling water tube engages the water pump. Install the 2 forward mounting stud nuts and the rear  $3/8$ -16 x 3 long bolt. Check the operation of the tilt latch mechanism to be sure the bronze cam is properly aligned and then tighten the nuts and bolt firmly.

9. Tip the engine back to a vertical position. Next install the impeller for blade clearance adjustment. Place in position, in the following order: the fiber impeller sleeve, the impeller, the shear pin keeper, the stack of 6 brass shims and the shaft nut. Turn the nut up snug. Place the intake in position. (The 1/4 inch thick leading edge faces forward.) Lock with 2 screws only.

Now observe the clearance between the impeller blade and the intake casing wall. This should be approximately 1/32 inch, the thickness of one shim washer for example. It should not be less than 1/64 inch.

If the clearance is greater than 1/32 inch it should be reduced. This is done by removing shims from the stack of 6 and placing them on the shaft above the impeller. This moves the impeller down into the casing taper and reduces the clearance. 4 shims will change the clearance by 1/64 inch.

10. Now remove the intake casing and impeller. Grease the shaft and impeller bore 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 keeper, the remaining shims from the stack of 6, and the cap nut. Turn the nut up snug and then bump the wrench further until the cotter pin hole lines up. Put in the cotter pin and fold the ends around. If erosion or wear in abrasive conditions opens 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.

11. Place the intake casing in position with the lower end at the rear and tighten the 6 socket screws.

12. Remove the bronze cam lever inside the motor cowling which limits throttle position in neutral and reverse. The stop must be altered to allow higher throttle in reverse. Cut away the cam surface with a hacksaw as shown in the attached diagram and re-install the lever.

13. Thread the shift rod into the shift lever and adjust position so that the reverse gate is held against the rubber pad beneath the main housing when the remote control is set in "forward." When the adjustment is correct, with the remote control in "reverse," the reverse gate will just close against the nozzle. Install a washer and cotter pin.

14. Tiller steering control. When using a tiller control, a separate shift control handle is used (part of the tiller assembly). Be sure, when shifting to forward, to push the shift handle all the way over, to where it locks itself in position. This will prevent the reverse gate from accidentally slipping into reverse.

15. Reverse gate action. The pivot positions on the gate are designed so that water pressure holds the gate in reverse. In fact, you will not be able to shift to forward from reverse with the engine running above a fast idle due to this water pressure. The single lever remote control handles this automatically, but with tiller control, the throttle must be returned to idle before shifting out of reverse. With tiller control, it is also dangerous to both operator and mechanism to shift into reverse at a high forward throttle setting.

16. Lubricate the shaft bearing as explained in separate sheet, MAINTENANCE AND LUBRICATION.

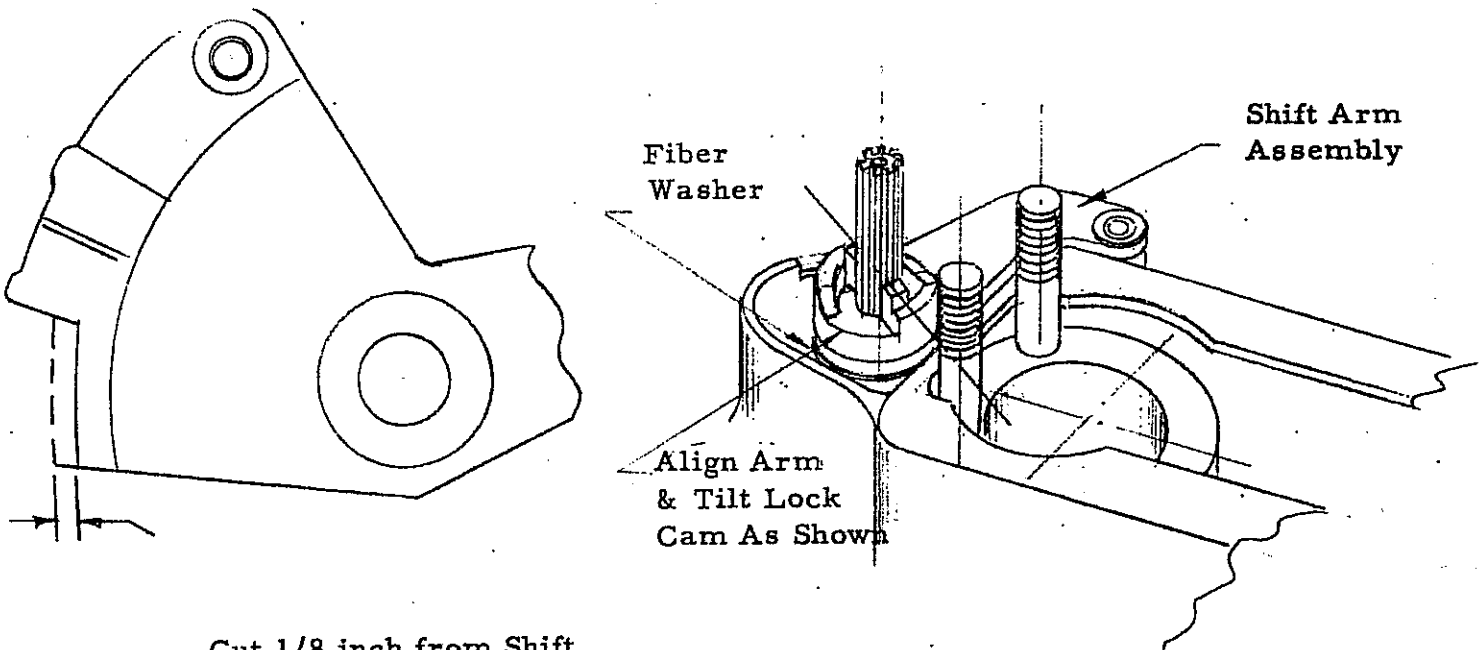
17. The jet conversion requires about a 22" transom. Refined height adjustment can be made by placing up to a 1 inch wood shim between the engine mount and the boat transom. Start with a 22-1/4 inch height. From there you can experiment for best results. If you raise it too much, it will suck air and 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 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 & LUBRICATION

See separate sheet.



Cut 1/8 inch from Shift  
Lever interlock to allow  
higher throttle in reverse

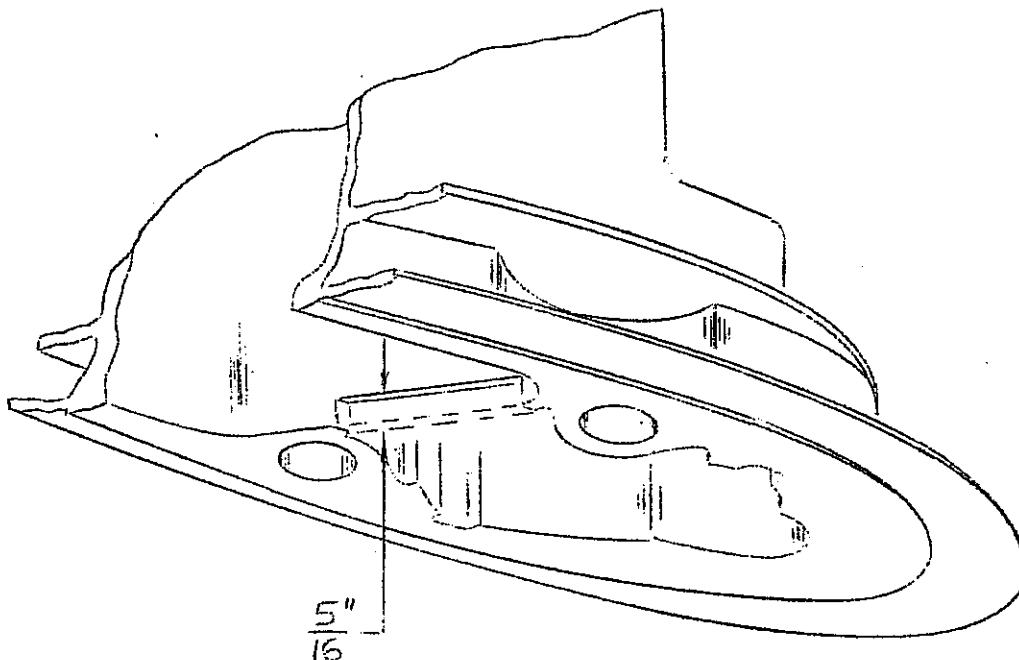
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MODEL C-35 JET DRIVE  
Engine Exhaust Housing Modification

The model C-35 Jet Drive requires the use of the Merc 500 cooling water pump. It is necessary to cut away a rib in the lower part of the engine exhaust housing to allow a clearance for the pump body.

Using a steel chisel and hammer, score a deep outline on both sides of the rib of the section to be removed. Grip the section with an adjustable wrench or pair of pliers, and using a bending motion break out the section. The break line does not have to be smooth, but should clear at least  $\frac{5}{16}$  inch above the mounting face.



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