

Proper arrangement of the side gaskets. The gaskets are held in place with a sealer on GMC engines.

GMC Engines Only

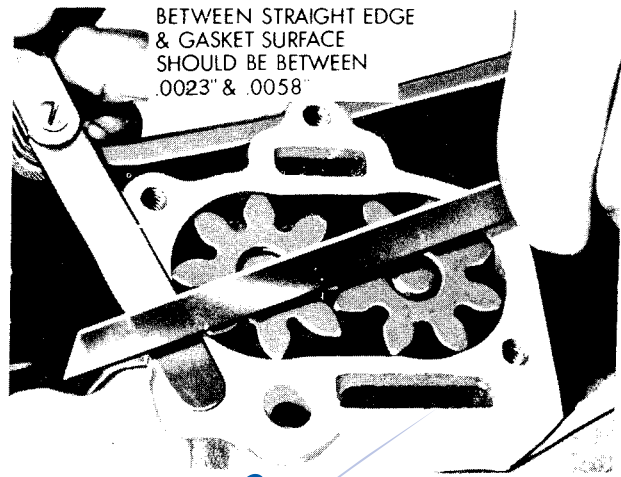
Wash the gears thoroughly and inspect them for wear and scores. If either gear is defective, they must be replaced as a **PAIR**.

Remove the oil pressure regulator valve cap, spring, and valve. The oil filter bypass valve and spring **MUST NOT** be removed because they are staked in place.

Wash the parts removed and check each one carefully. Inspect the regulator valve for wear and scores. Check the regulator valve spring to be sure it has not worn on its side or has collapsed. If in doubt about the condition of the spring, install a new one. Clean the screen staked in the cover.

Check the regulator valve in the cover. The clearance in the valve should only be a slip fit. If any side clearance can be felt, the valve or the cover should be replaced.

Inspect the fuel pump valve for nicks,



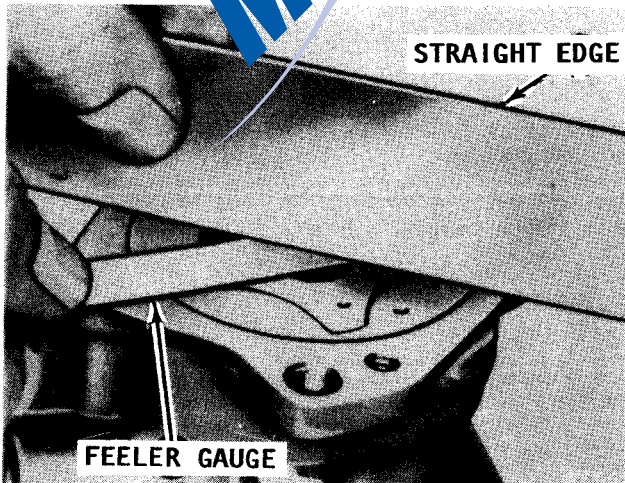
Using a straightedge and feeler gauge to check the rotor play on a GMC engine. The play should be 0.0023" - 0.0058".

cracks, or scoring. The valve should be flat with no ridges or scratches.

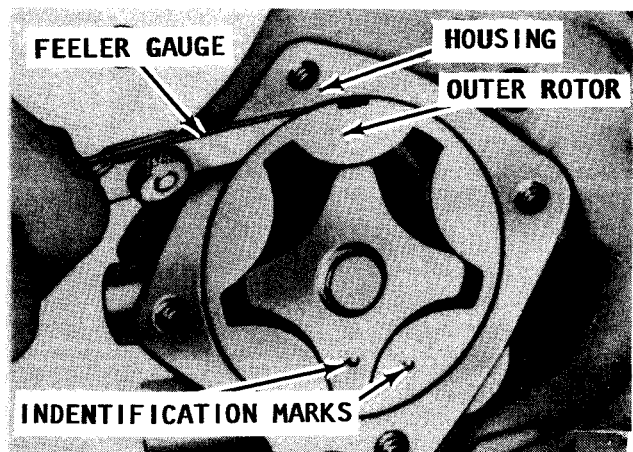
Mercury Marine and Ford Engines Only

Wash the rotor and the shaft thoroughly and inspect them for wear and scores. If either the rotor or the shaft is defective, they **MUST** be replaced as a **PAIR**.

Wash the pump parts carefully. Inspect the relief valve for wear or scores. Check the relief valve spring to be sure it is not worn on its side or has not collapsed. If in doubt about the condition of the spring, install a new one. Check the relief valve in its bore in the housing. The clearance for the valve should only be a slip fit. If any side clearance can be felt, the valve or the housing should be replaced. Clean the pick-up tube and screen.



Using a straightedge and feeler gauge to check the rotor play on a Mercury Marine or Ford engine. The play should be 0.001"-0.005".



Using a feeler gauge to check the clearance between the outer rotor and the oil pump housing on a Mercury Marine or Ford engine. The identification marks must align, as shown.

OIL PUMP ASSEMBLING AND INSTALLATION

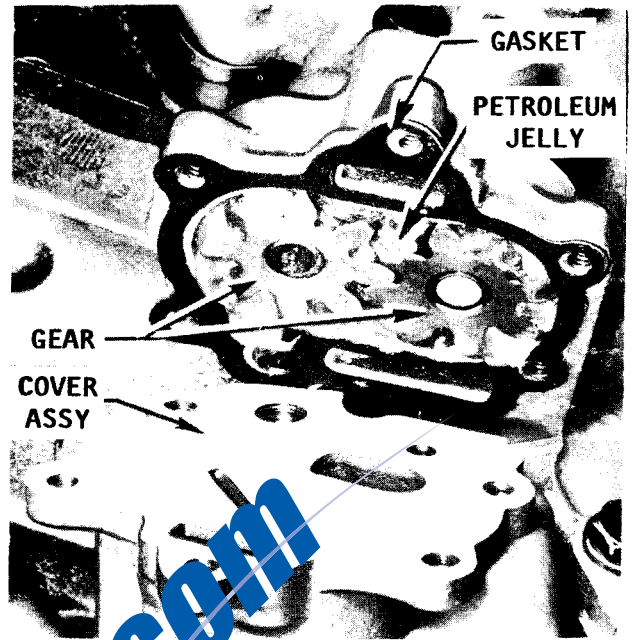
Assembling and installation of the oil pump is divided into two sets of procedures. The first set covers GMC engines and the second set Mercury Marine and Ford engines. Installation of the pan is the same for both GMC, Mercury Marine and Ford engines.

GMC Engines Only

Apply a generous amount of oil to the pressure regulator valve and spring. Install the lubricated valve and spring into the bore of the oil pump cover and then slide the retaining pin in place.

Install the gears and shaft onto the oil pump body aligning the two marked teeth together. Check the gear end clearance. Place a straightedge over the gears, and then measure the clearance between the straightedge and the gasket surface. The clearance should be 0.0023" (0.06mm) to 0.0058" (0.15mm).

If the gear end clearance is acceptable, remove the gears and pack the gear pocket full of petroleum jelly, **DO NOT** use chassis lube.



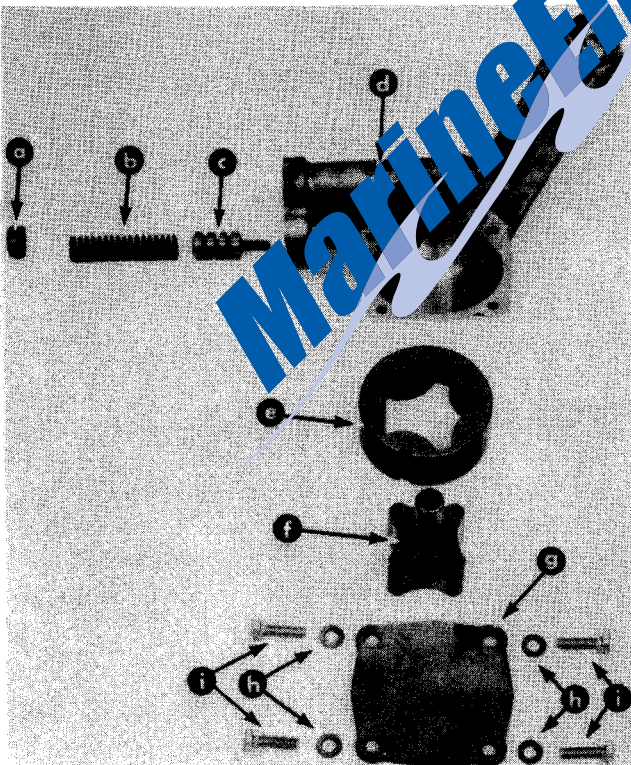
Serious consequences can result if the pump is not packed with petroleum jelly at time of assembling.

CAUTION

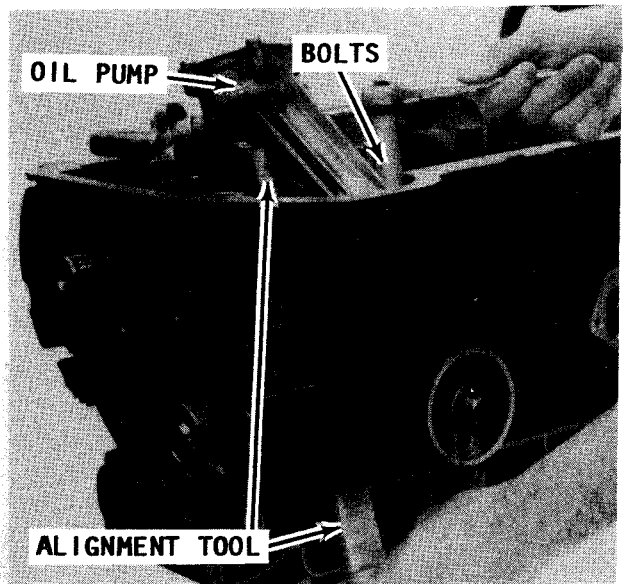
Unless the pocket is packed with petroleum jelly, it may not prime itself when the engine is started

Install the gears and shaft again, pushing the gears into the petroleum jelly. Place a new gasket in position, and then install the cover screws. Tighten the screws alternately and evenly to a torque value of 7 ft lb (10Nm).

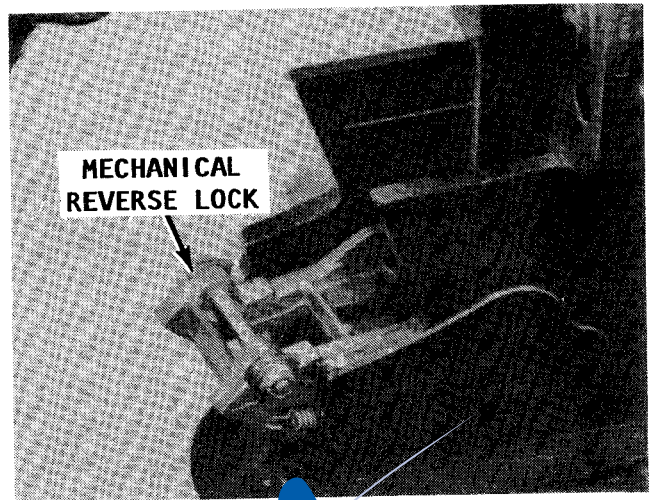
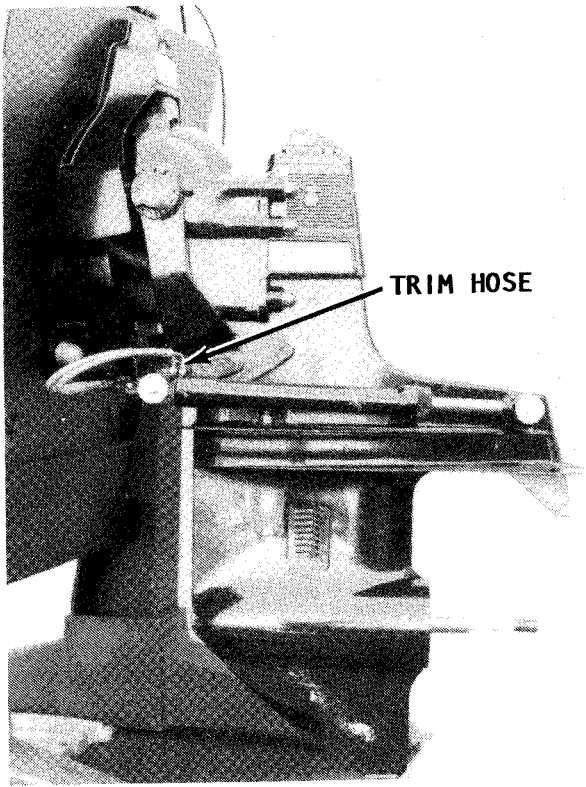
If the oil pump pickup screen was removed, apply sealer to the mating surfaces



Arrangement of oil pump parts on a Mercury Marine and Ford engine. Identified parts are: Welsh plug (a), relief valve spring (b), relief valve plunger (c), pump housing (d), outer rotor (e), inner rotor (f), cover (g), lockwashers (h), and screws (i).

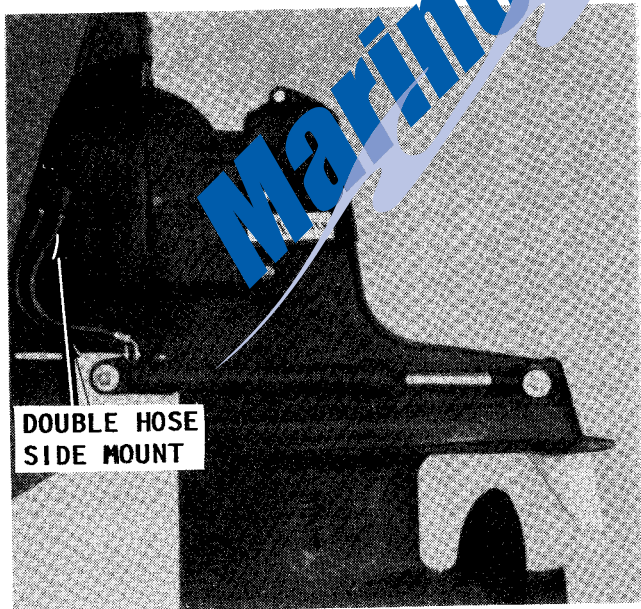
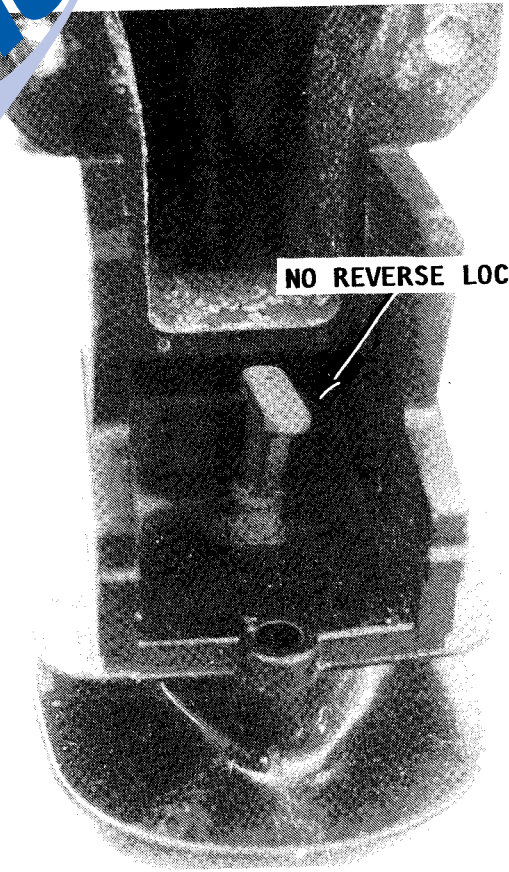


Using an alignment tool to properly position the oil pump before tightening the attaching bolts.



Mechanical reverse lock used on the following stern drive units: Model 1, 1535211 and below; Model 1, 1535212 thru 1535218, Model 1-ABC, 1775192 and below; Model 1-ABS-EZ, 2062140 and below; Model 120, 140, 160, 2495185 and below.

Double trim and tilt hose installation connected to the bottom of the gimbal housing. Stern drives with this hose arrangement are: Model 120, 140, 160, 2763442 thru 3780850 and above; Model 888, 3784374 and below; Model 888, 225S, 233, 3784375 and above.



Double trim and tilt hose installation connected to the port side of the gimbal housing. Stern drives with this hose arrangement are: Model 1-ABS-EZ, 2062140 and below; Model 120, 140, 160, 2495185 and below; Model 120, 140, 160, 2495186 thru 2763441.

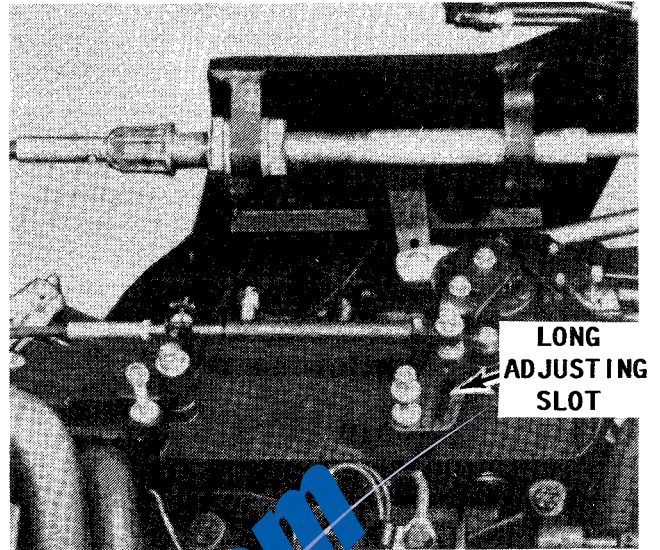
Stern drive units without the reverse lock. On these models the reverse lock is incorporated in the trim/tilt system: Model 120, 140, 160, 165, 2495186 thru 3780850 and above; Model 888, 3784374 and below; Model 888, 225S, 233, 3784375 and above.

housing. The standard gear ratio for all Bravo units is 1.5:1. No gear ratio change is available (at press time) for the Bravo when operating at high altitudes. However, the manufacturer recommends a propeller change for higher elevations. Consult the local dealer for his propeller suggestions.

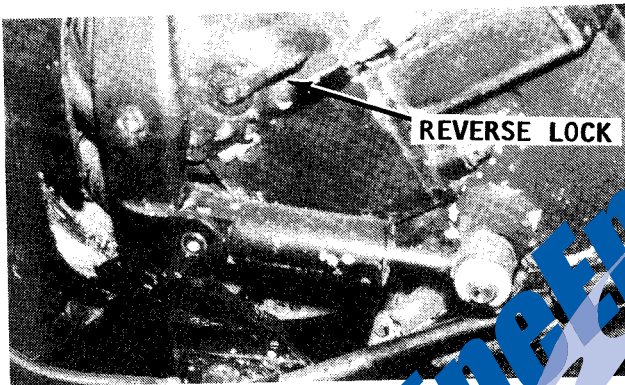
A table in the Appendix lists the Overall gear ratios associated with the various stern drives.

14-4 SHIFT IDENTIFICATION ALL UNITS EXCEPT BRAVO

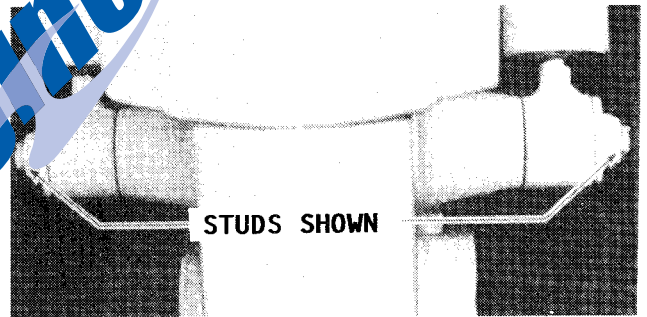
The following paragraphs will be helpful in identifying the type of shift mechanism installed through the stern drive serial number.



Long adjusting slot used on the following stern drive units: Model 1, 1535211 and below; Model 1, 1535212 thru 1684188; Model 1-ABC, 1775192 and below; Model 1-ABC-EZ, 2495185 and below; Model 120, 140, 160, 2495186 and below; Model 120, 140, 160, 165, 2495186 thru 3177494.



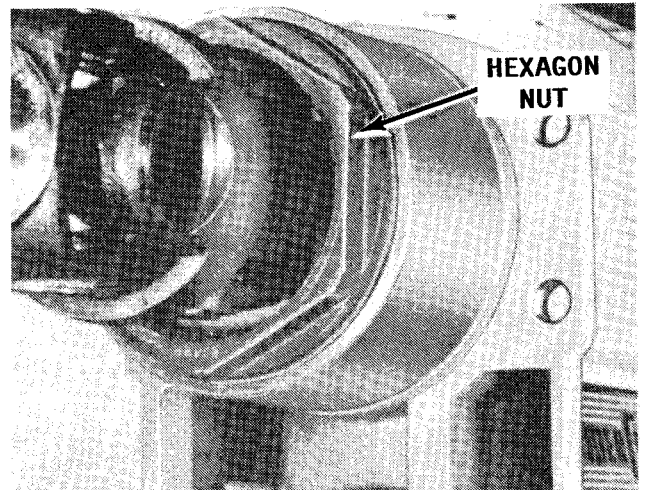
Hand-operated reverse lock used on very early model stern drive units. This arrangement requires the operator to extend himself over the transom to engage the reverse lock.



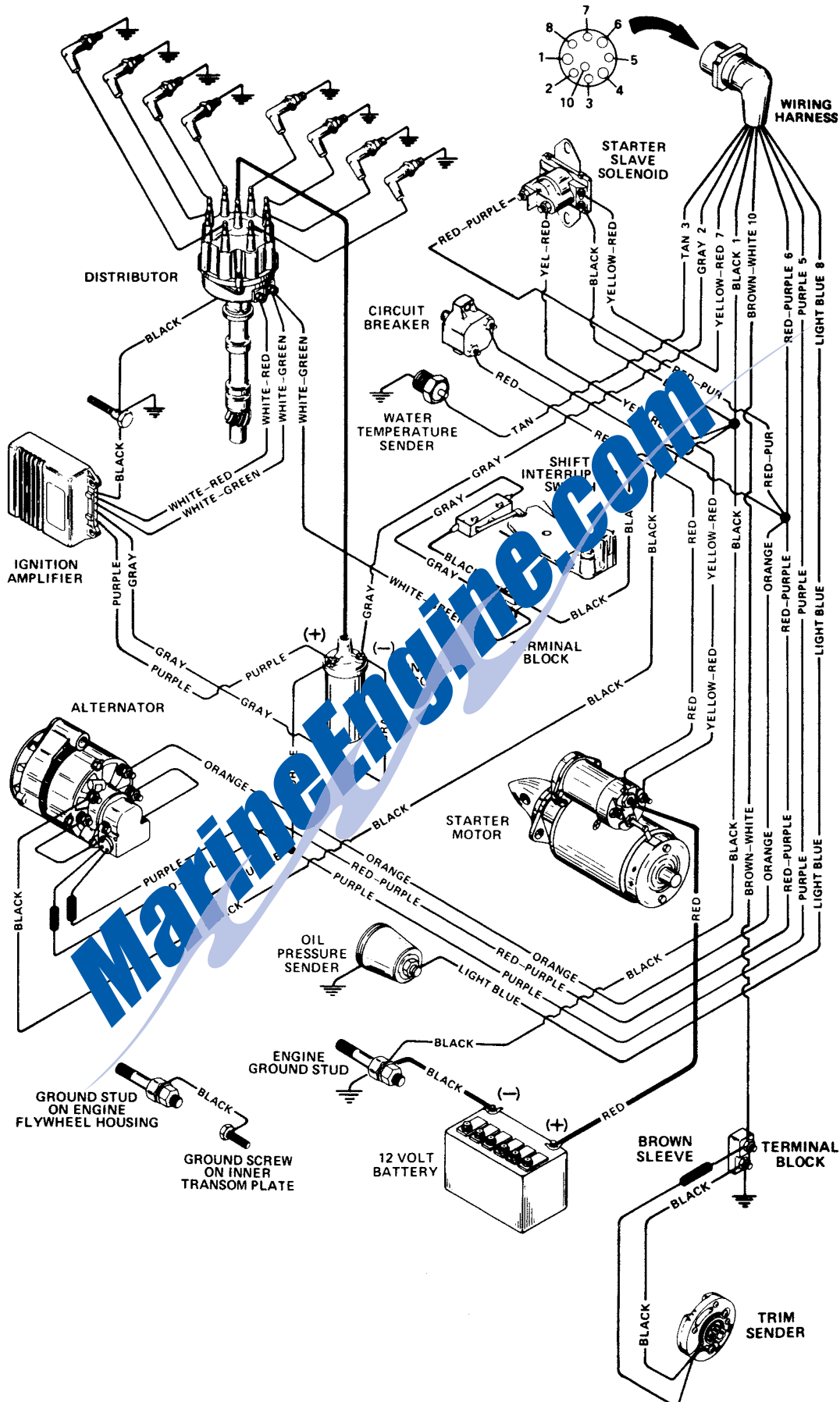
Bolt arrangement used to secure the shock absorber to the upper gear housing on very early model stern drive units. Models using nuts on both ends as shown: Model 1, 1535211 and below, Model 1, 1535212 thru 1563353. Models using bolt with single nut: Model 1 1563354 thru 1684188.



Short adjusting slot shift lever used on the following stern drive units: Model 120, 140, 165, 3780850 and above; Model 888, 225S, 233, 3784375 and above.



Hexagon-type universal joint cover nut used on the following stern drive units: Model 1, 1535211 and below, Model 1, 1535212 thru 1684188.



Wire identification and routing -- Model MCM 898R, 228R, 260R, 230, also 5.0 Litre and 5.7 Litre engines.