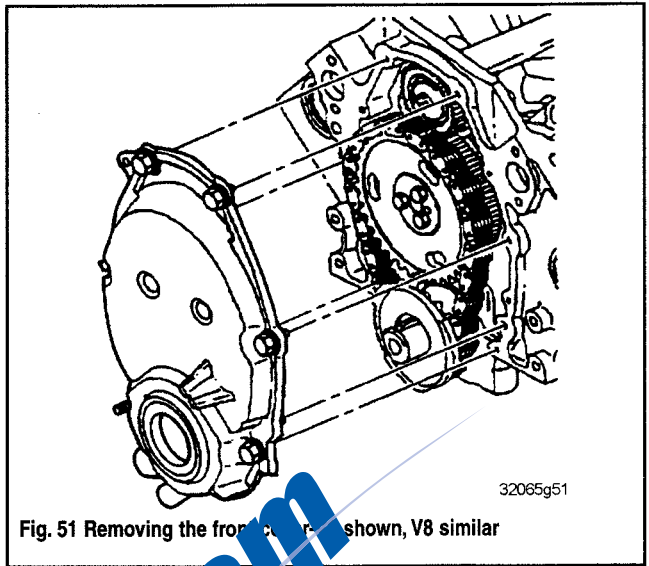
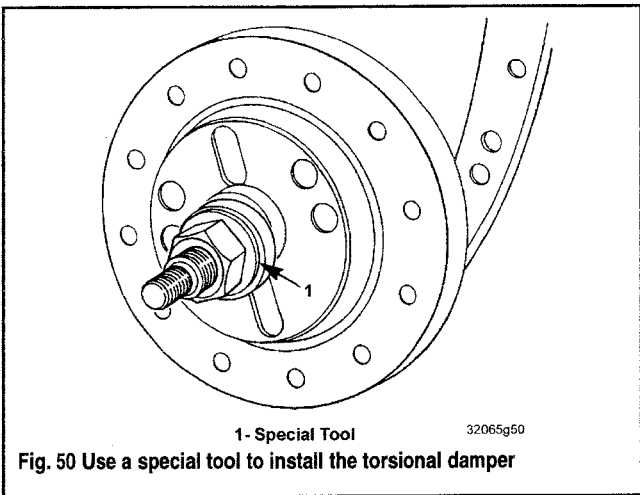


5-18 ENGINE MECHANICAL — V6 AND V8

Squirt a little RTV sealant into the crankshaft keyway to guard against oil seepage. Tighten the drive pulley to 35 ft. lbs (48 Nm), 30 ft. lbs. (81 Nm) on V6 engines with no balance shaft.

9. Install the drive/serpentine belt and make sure that it is adjusted properly.

10. Install the front mount and unhook the engine hoist if necessary.



Front Cover and Oil Seal



REMOVAL & INSTALLATION

◆ See Figures 51 and 52

■ This procedure may require engine removal, depending upon the particular boat. If necessary, remove the engine as detailed previously in this section.

1. Open the drain valves and drain the coolant from the block and exhaust manifold. Loosen the alternator and power steering belts (with the idler pulley) to provide slack, and then remove the drive pulley. Remove the water circulation pump.

2. Remove the heat exchanger and crossover (8.1L).

3. Remove the torsional damper as detailed previously in this section.

4. Tag and disconnect the cam position sensor (as shown on the 8.1L and then remove the sensor from the cover).

5. Remove the oil pan as detailed previously in this section.

6. Loosen the mounting bolts and remove the front cover. If the oil seal needs replacement, press it out from the (inner) side of the cover with a punch. Remove the front cover.

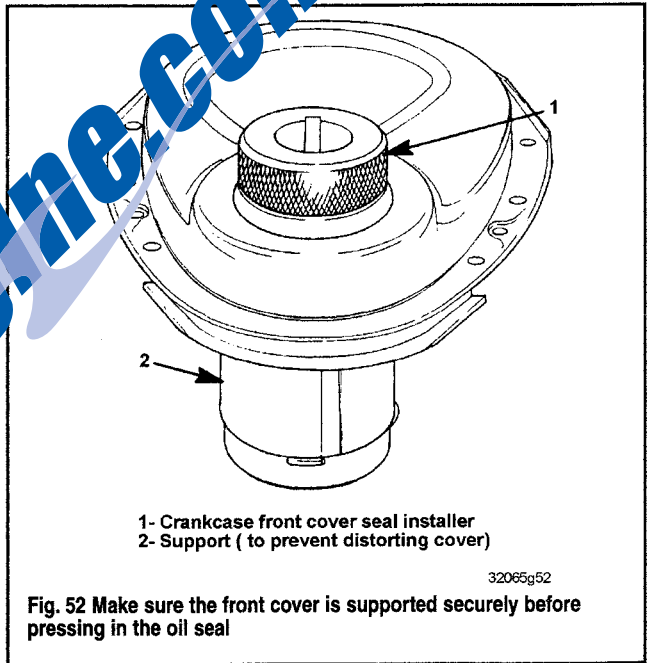
To Install:

7. Clean all gasket material from the cover and block mating surfaces with a scraper or putty knife. Be careful not to knock any pieces of gasket in the timing assembly.

8. If you removed the oil seal, install a new one with the lip toward the inside of the cover. Position a support under the seal and cover and then press the seal into the cover with the proper tool. Check the inside of the seal before installation; if there are helical grooves on the inner seal surface it can only be used on left hand rotation engines, if the inner surface is smooth it may be used on any engine.

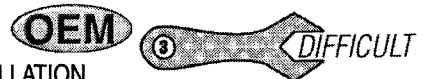
9. Coat both sides of a new gasket with Perfect Seal and then position the gasket onto the engine. Install the cover so that all the bolt holes line up; there are dowel pins on the cylinder block that will help alignment. Tighten the bolts to:

- 80 inch lbs. (9 Nm) on V6 models w/o a balance shaft.
 - 100 inch lbs. (11 Nm) on V6 engines with a balance shaft
 - 100 inch lbs. (11 Nm) on 1992-97 5.0L/5.7L/6.2L V8s
 - 106 inch lbs. (12 Nm) on 1998 and later 5.0L/5.7L/6.2L V8s and the 8.1L V8
 - 120 inch lbs. (14 Nm) on 1992-97 7.4L/8.2L V8s
 - 89 inch lbs. (10 Nm) on 1998 and later 7.4L/8.2L V8s
10. Install the oil pan and torsional damper.
11. Install the camshaft position sensor and reconnect the electrical lead (8.1L).



- 12. Install the heat exchanger and crossover (8.1L)
- 13. Install the crankshaft pulley and pull the belts back on. Check their tension adjustment.
- 14. Install the water circulation pump and connect the hose.
- 15. Install the engine if removed. Add oil and water/coolant, start the engine and check for any leaks.

Timing Chain and Sprockets/Gears



REMOVAL & INSTALLATION

◆ See Figure 53 and 54

■ Certain inboard engines (RH rotation) utilize timing gears rather than the more common timing chain and sprocket arrangement.

- 1. Remove the crankshaft pulley and torsional damper as previously detailed in this section.
- 2. Remove the oil pan as previously detailed in this section.
- 3. Remove the front cover as previously detailed in this section.

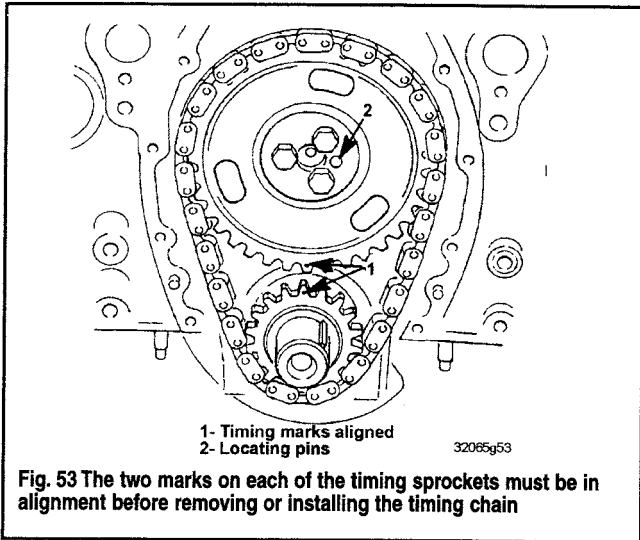


Fig. 53 The two marks on each of the timing sprockets must be in alignment before removing or installing the timing chain

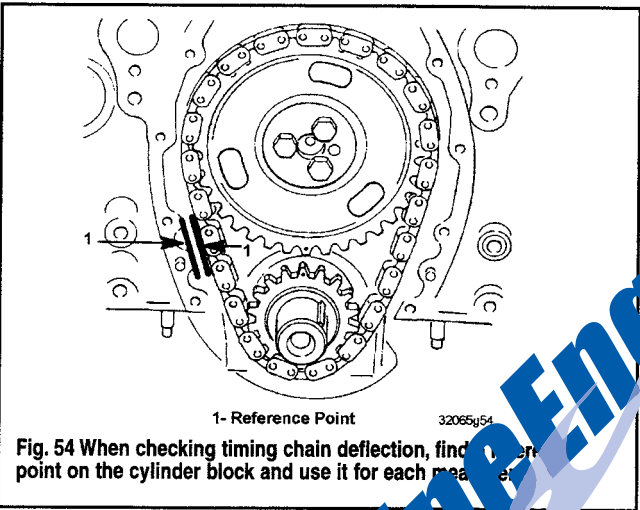


Fig. 54 When checking timing chain deflection, find a reference point on the cylinder block and use it for each measurement

4. Look carefully at the camshaft and crankshaft sprockets/gears—you should notice a small indent on the front face of one of the teeth on each sprocket/gear. Bump the engine over until the two marks are in alignment as shown in the illustration, a remote starter will work or you can screw the damper bolt back into the crankshaft pulley.

5. Dab a little paint across the top of the timing pins and the camshaft sprocket. Loosen the camshaft retaining bolts (three), grasp the sprocket on each side with a chain puller still attached and wiggle it off the shaft. It should come off readily, but do not tap the bottom edge lightly with a rubber mallet.

6. Mount a gear puller (J-5825-A) over the crankshaft pulley and pull it off the shaft.

To Install:

7. Clean the chain and sprockets/gears in solvent and let them air dry. Check the chain for wear and damage, making sure there are no loose or cracked links. Check the sprockets or gears for cracked or worn teeth.

8. Install the crankshaft sprocket/gear onto the shaft with an installation tool.

9. On engines with a timing chain, install the timing chain onto the camshaft sprocket so that the paint marks made during removal match up. If they do, and you haven't moved the engine, the timing marks on the two sprockets should also. Hold the sprocket/chain in both hands so the chain is hanging down, engage the chain around the crankshaft sprocket and then slide the cam sprocket/chain onto the camshaft. Do not force it! Tighten the three mounting bolts to:

- 18 ft. lbs. (24 Nm) on V6 engines with a balance shaft
- 20 ft. lbs. (27 Nm) on V6 engines w/o a balance shaft.
- 18 ft. lbs. (24 Nm) on 5.0L/5.7L/6.2L V8 engines

- 25 ft. lbs. (34 Nm) on 1992-97 7.4L/8.2L V8 engines
 - 22 ft. lbs. (30 Nm) on 1998-2001 7.4L/8.1L/8.2L V8 engines
10. On engines with timing gears, position the camshaft gear so that the timing mark is aligned with the one on the crank gear, align the dowel on the end of the camshaft with the hole in the gear and press it onto the camshaft. Do not force it. Tighten the bolts to 18 ft. lbs. (24 Nm). Check the gear backlash and runout.
 11. On engines with timing chains, rotate the camshaft slightly so that it creates tension on one side of the timing chain (either side if OK). Find a reference point on the same side of the cylinder block as the side that the timing chain is tight on and then measure from this point to the outer edge of the chain.
 12. Rotate the camshaft in the opposite direction until the other side of the chain is tight. Press the inner side of the chain outward until it stops and then measure from your reference point on the cylinder block (obviously, do this from the same side of the chain as you did in the previous step) to the outer edge of the chain. This is timing chain deflection and it should be no more than 3/4 inch (19mm). If it is, replace the chain.
 13. Install the front cover, the oil pan and the torsional damper.

■ Remember that when the timing marks were aligned properly, the No. 4 (or No. 6, V8) cylinder was at TDC so if you are reinstalling the distributor the rotor should be at the No. 4 (No. 6) post on the cap, NOT at the No. 1 post.

Balance Shaft Removal & Installation ③ ← DIFFICULT

9.0L/4.3L V6 Engines
 See Figures 55, 56 and 57

1. Remove the intake manifold as previously detailed in this section.
 2. Remove the front cover and timing chain as previously detailed in this section.

3. Rotate the balance shaft until the marks on its driven gear and the camshaft drive gear are aligned.

4. Fashion a small wedge out of an old piece of wood and jam it in between the teeth of the balance shaft driven gear and the camshaft drive gear to hold the shafts from turning. Using a Torx socket (you are probably going to have to buy this one), remove the driven gear bolt.

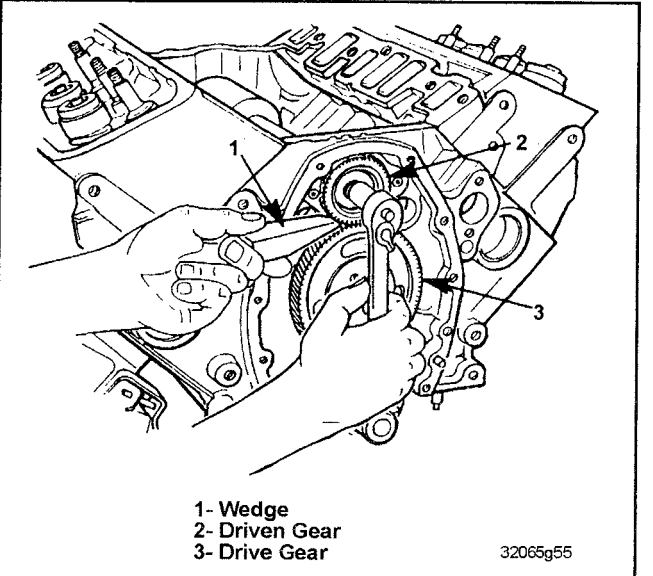


Fig. 55 Use a wooden wedge to keep the balance and camshafts from rotating while loosening the retaining bolt

Cylinder Head



REMOVAL & INSTALLATION

All Engines Exc. 8.1L V8

◆ See Figures 59, 60 and 61

1. Drain the water from the cylinder block and manifold.
2. Remove the fuel line support brackets. Disconnect the fuel line at the carburetor and fuel pump, plug the fitting holes and remove the line.
3. Remove the intake and exhaust manifolds as previously detailed in this section; you can leave the carburetor/throttle body attached to the intake manifold if you like.
4. Tag and disconnect the spark plug wires at the plugs; move them out of the way. Although not necessary, it's a good idea to remove the plugs themselves also.
5. Remove the cylinder head cover and rocker assemblies as detailed previously in this section.
6. Remove or relocate any components or connections that may interfere with the removal of an individual cylinder head.
7. Loosen the cylinder head bolts, from the center bolts and working out to the ends of the head and then carefully lift the head off the block. You may need to persuade it with a rubber mallet-be careful! Set the head down carefully; do not sit it on cement.

To install:

8. Carefully, and thoroughly, remove all residual head gasket material from the cylinder head and block mating surfaces with a scraper or putty knife. Check that the mating surfaces are free of any nicks or cracks. Make sure there is no dirt or old gasket material in any of the bolt holes. Refer to the Engine Rebuilding section found later in this manual for complete details on inspection and refurbishing procedures.
9. Apply a THIN coating of Perfect Seal to both sides of a new ribbed stainless steel gasket and position the gasket over the cylinder block dowel pins. If your engine uses a graphite composition gasket or is a 7.4L/8.2L, do not use any sealer. DO NOT use automotive-type steel gaskets.
10. Position the cylinder head over the dowels in the block. Coat the threads of the head bolts with Perfect Seal and install them finger tight. It never hurts to use new bolts, although it's not necessary. Tighten the bolts, a little at a time, in the sequence illustrated, until the proper tightening torque is achieved. On 1992-97 engines the first step should be 20 ft. lbs. (27 Nm), the second step should be 40 ft. lbs. (54 Nm) or 40 ft. lbs. (54 Nm) on the 7.4L/8.2L and the last step should be to specify as shown in the Torque Specifications chart at the end of this section.
11. Install rocker assemblies and the cylinder head cover. Don't forget the baffle plate and restrictors on the 5.0L/5.7L/6.2L V8 engines.
12. Install the spark plugs if they were removed and then connect the plug wires.
13. Install the manifolds and connect the fuel line. Don't forget to remove the fitting plugs.
14. Install or connect any other components removed to facilitate getting the head off.
15. Add coolant/water, connect the battery and check the oil. Start the engine and run it for a while to ensure that everything is operating properly. Keep an eye on the temperature gauge.
16. It never hurts to re-tighten the cylinder head bolts again after 20 hours of operation.

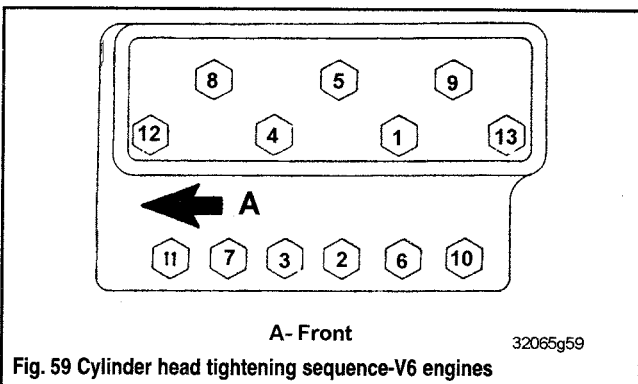
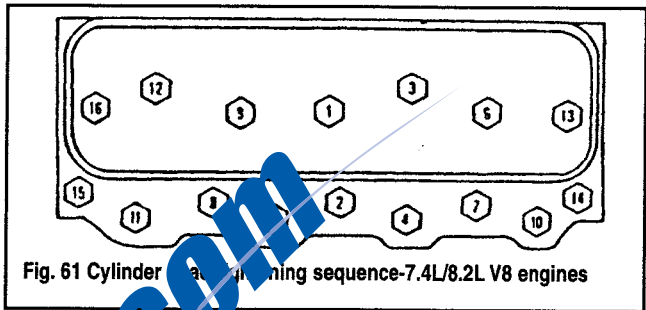
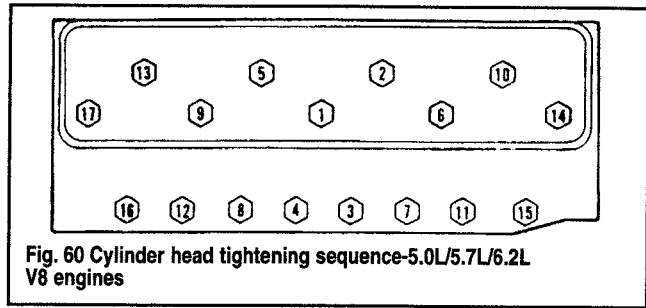


Fig. 59 Cylinder head tightening sequence-V6 engines



8.1L V8 Engines

◆ See Figures 62 and 63

1. Drain the water from the cylinder block and manifold.
2. Remove the intake and exhaust manifolds as previously detailed in this section; you can leave the carburetor/throttle body attached to the intake manifold if you like.
3. Tag and disconnect the spark plug wires at the plugs; move them out of the way. Although not necessary, it's a good idea to remove the plugs themselves also.
4. Remove the heat exchanger and coolant crossover.
5. Remove the front and rear engine lifting hooks. Just behind the front hook are hoses for the air actuated drain system, remove them.
6. Remove the alternator bracket.
7. Remove the cylinder head cover and rocker assemblies as detailed previously in this section.
8. Remove or relocate any components or connections that may interfere with the removal of an individual cylinder head.
9. Loosen the cylinder head bolts, from the center bolts and working out to the ends of the head and then carefully lift the head off the block. You may need to persuade it with a rubber mallet-be careful! Set the head down carefully; do not sit it on cement.

To install:

10. Carefully, and thoroughly, remove all residual head gasket material from the cylinder head and block mating surfaces with a scraper or putty knife. Check that the mating surfaces are free of any nicks or cracks. Make sure there is no dirt or old gasket material in any of the bolt holes. Refer to the Engine Rebuilding section found later in this manual for complete details on inspection and refurbishing procedures.
11. Position the cylinder head over the dowels in the block. Coat the threads of the head bolts with Perfect Seal and install them finger tight. It never hurts to use new bolts, although it's not necessary. Tighten the bolts, a little at a time, in the sequence illustrated, until the proper tightening torque is achieved as detailed in the Torque Specifications chart at the end of this section.
12. Install rocker assemblies and the cylinder head cover.
13. Install the spark plugs if they were removed and then connect the plug wires.
14. Install the manifolds and connect the fuel line. Don't forget to remove the fitting plugs.
15. Install or connect any other components removed to facilitate getting the head off.
16. Add coolant/water, connect the battery and check the oil. Start the engine and run it for a while to ensure that everything is operating properly. Keep an eye on the temperature gauge.
17. It never hurts to re-tighten the cylinder head bolts again after 20 hours of operation.

14-18 TRIM & TILT

19. Place a new pump shaft oil seal into the adapter with the lips of the seal pointing towards the pump. Press the seal into place with your thumb. Lubricate the lips of the seal with oil.

20. Place two new O-rings into the base of the hydraulic pump. Lower the pump into position on the adapter.

21. Using a 3/16 in. socket, tighten the two hex lobular screws alternately and evenly to 75 inch lbs. (8 Nm).

22. If you removed any of the relief valves, place a new O-ring onto the replacement valve fitting. Lubricate the O-ring with power steering fluid or motor oil and thread the color-coded valve into the port in the adapter. Tighten the new valve by the hex flats on the adapter fitting to 70 inch lbs. (7.9 Nm).

23. Place a new filter and sleeve over the pump inlet. Using a 5/8 in. deep socket, tap the end of the socket and drive the sleeve onto the end of the pump inlet. Repeat this step for the other filter.

24. Place a new O-ring onto the adapter and lightly lubricate it with Quicksilver Power Trim and Steering Fluid or motor oil.

25. Align the scribe marks or tape strips placed on the adapter and reservoir tank prior to disassembly. Carefully lower the adapter onto the reservoir to avoid damaging the filters on the ends of the pick-up tubes.

Pump Motor

◆ See Figures 35a, 36, 36a, 37, 37a, 38, 38a, 39, 40, 41, 42, 43 and 44

Be sure to keep the work area, tools and hands as clean as possible while working on the trim/tilt motor.

1. Place a scribe mark or a piece of tape on both halves of the motor case and the hydraulic adapter. These marks and/or tape will be very helpful during assembling of these components. Remove the two bolts securing the electric motor to the adapter. Lift the electric motor straight up and free of the adapter. Remove and discard the O-ring on the shoulder of the adapter.

2. Reach in and lift out the motor shaft coupler. Set the coupler aside for safekeeping.

3. Remove the four Phillips head screws securing the end cover of the motor. Lift off the end cover. It may be necessary to pry between the cover and motor because a tight seal may have formed around the wire harness grommet. Gently pull and twist on the grommet to break the seal. Once the grommet is free, lift off the cover. Be sure to remove the cover from inside the cover or from the armature shaft.

4. Remove the O-ring from the motor housing of the armature shaft.

5. Loosen the screw and remove the tab securing the brush holder to the brush frame.

6. Grasp the brush holder and lift it from the brush frame. A spring behind the brush will push the brush out of the brush holder when it clears the end of the commutator on the armature.

7. Remove the Phillips head screw securing the thermal switch to the brush frame. Disconnect the thermal switch wire from the thermal switch and lift the switch free of the motor.

8. Remove the two Phillips head screws securing the brush frame to the motor housing. Gently move the wires aside while lifting the brush frame from the casing.

9. Grasp the armature and lift it out of the motor housing. If the thrust washer is on the end of the armature shaft, remove the thrust washer.

10. Place a scribe mark on the motor field frame and the motor housing. Lift out the field frame from the housing.

To assemble:

Any sign of oil in the pump motor indicates either the pump shaft oil seal is damaged or the vent hole in the reservoir fill cap is plugged. If the vent hole is plugged, air in the reservoir tank may not escape and oil is forced into the pump motor.

Clean the motor case with warm soap and water and blow-dry with low pressure compressed air.

Clean the armature, and field with a spray electrical contact cleaner and blow-dry with low pressure compressed air.

11. Check the armature on a growler for shorts, open windings, or shorted windings. If the commutator is worn, true it on a lathe, and undercut the mica. If a growler is not available check the armature with an ohmmeter.

Set the ohmmeter to the Rx1 scale. Connect the Black lead of the meter to the center of the armature shaft and connect the Red meter lead to each one of the commutator bars. If the meter indicates continuity between the

commutator and the armature shaft, the armature is grounded and it must be replaced. If no continuity is indicated the armature is good.

12. Check the thermal switch for continuity. Obtain an ohmmeter and set the switches for Rx1 scale. Connect the Black meter lead to the thermal switch spade terminal, connect the Red meter lead to the brush lead. If continuity is indicated the switch is good. If no continuity is indicated the switch is defective and must be replaced. If the switch has high resistance, it must be replaced. Open the switch contacts and insert a piece of paper or other insulator. If continuity is indicated the switch is defective and must be replaced. If no continuity is indicated the switch is good.

13. Check the field frame for open circuits. Obtain an ohmmeter and set the switches for Rx1 scale. Connect the Red meter lead to the Blue/White wire lead on the field frame. Connect the Black meter Black lead to the brush lead. If zero ohms is indicated—full continuity—the field is good. If ohms are indicated or—no continuity—the field is open and must be replaced.

Move the Red meter Red lead over to the Green/White wire on the field. If zero ohms is indicated—full continuity—the field is good. If ohms are indicated or—no continuity—the field is open and must be replaced.

14. Check the field frame for a short. Obtain an ohmmeter and set the switches for Rx1 scale. Connect the Red meter lead to the brush lead. Connect the Black meter lead to the metal frame. If zero ohms is indicated—full continuity—the field is defective, shorted out, and must be replaced. If zero ohms is not indicated or—no continuity—the field windings are good.

15. Check the positive brush lead on the field frame for damaged or broken insulation. Check the negative brush lead on the thermal switch for damage or frayed brush lead.

16. Measure the amount of wear to the brushes. If they are worn to half their original length, the brushes should be replaced. When replacing the brush wire on the field frame wires, cut the braided wire as close to the old brush as possible. Insert the new brush braided wire and the old field wire into a wire crimp provided in the brush kit. Squeeze the crimp around both wires. The thermal cut-out switch and brush are replaced as an assembly.

17. Align the marks on the field frame with the marks on the motor case. These marks should have been made during disassembly. If no marks were made, the wire harness from the field must point towards the front of the motor case. The two screw holes in the field frame should also be aligned with the field winding. Slide the field frame down into the case.

18. Place the bronze thrust washer onto the end of the armature. Lower the armature through the center of the field frame and at the same time, guide the end of the armature into the motor case.

19. Align the brush frame with the field screw holes. Note the location of the thermal switch mounting pad. The pad must be directly in front of the Black spade wire or switch, if already installed. Gently pull back the wires on the field and lower the brush frame onto the end of the field frame. Align the screw holes in the brush frame, field, and motor case. Install the two Phillips head screws and tighten them securely.

20. Connect the Black wire terminal to the spade on the thermal switch. Place the thermal switch onto the mounting pad of the brush frame and secure it with the Phillips head screw.

21. Slide the brush holder over the spring and brush. Compress the spring while pushing the brush into the holder. Align the end of the brush with the commutator on the armature. Align the tabs on the bottom of the brush holder with the slots in the brush frame. Insert the brush holder into the brush frame and hold in place with finger pressure. Verify the brush holder is fully seated in the frame and the brush is contacting the commutator end of the armature.

22. Place the lock tab over the brush holder and secure the brush holder in place with a Phillips head screw. Do the same for the other brush and brush holder.

23. Slide a new O-ring over the wire harness and grommet. Place the O-ring into the groove in the motor case.

24. Place the thrust washer over the end of the armature against the commutator. Align the cover with the wire harness grommet. Place a thin coating of liquid neoprene on the grommet to ensure a good seal.

25. Lower the cover over the end of the armature and align the tape marks and fastener holes. Check to be sure the O-ring remains in the groove and the grommet fits into place. Apply a drop of Loctite to the screw threads and secure the cover in place with the four Phillips head screws. Tighten the screws alternately and evenly in a cross-sequence. Do not over tighten the screws.

14-20 TRIM & TILT

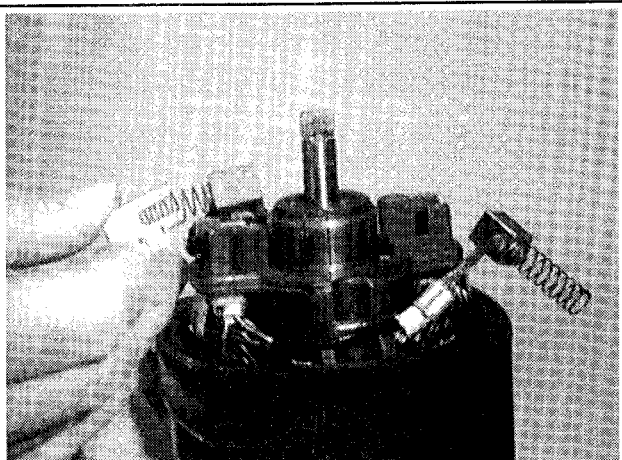


Fig. 38a Remove the brush holder, spring and brush

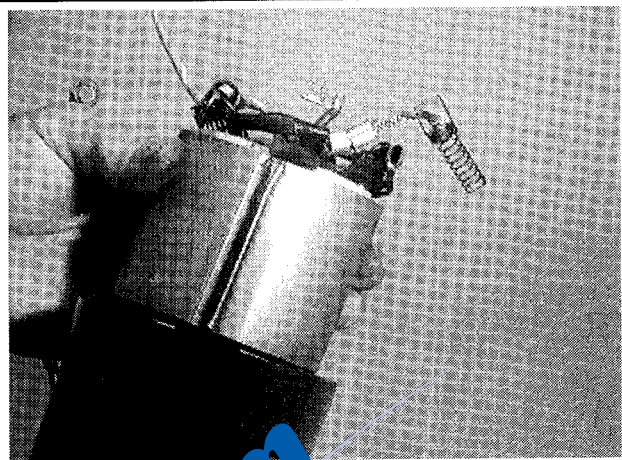


Fig. 40 ...and then the field frame

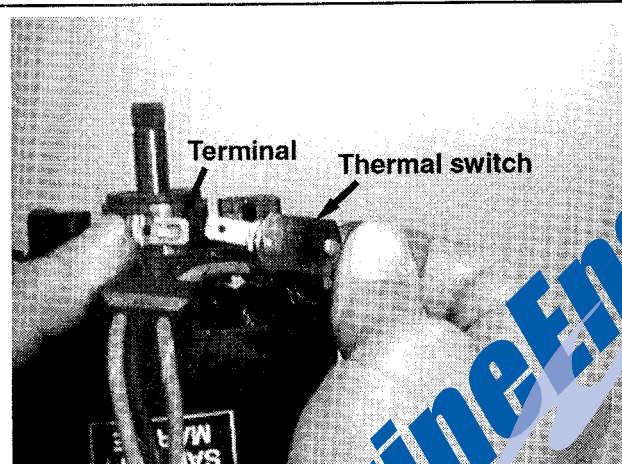


Fig. 38b Remove the terminal switch

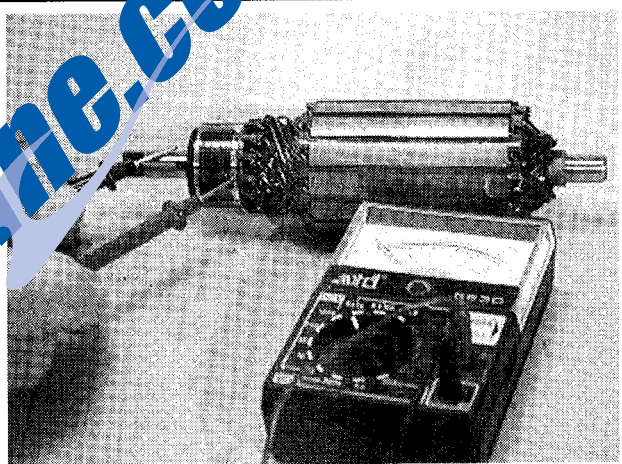


Fig. 41 Testing the armature

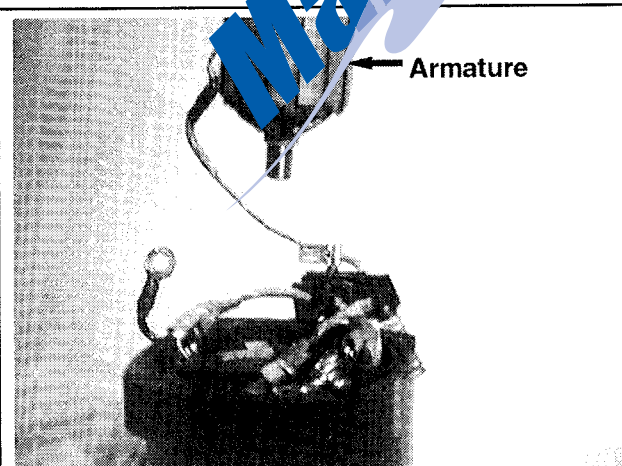


Fig. 39 Lift out the armature...

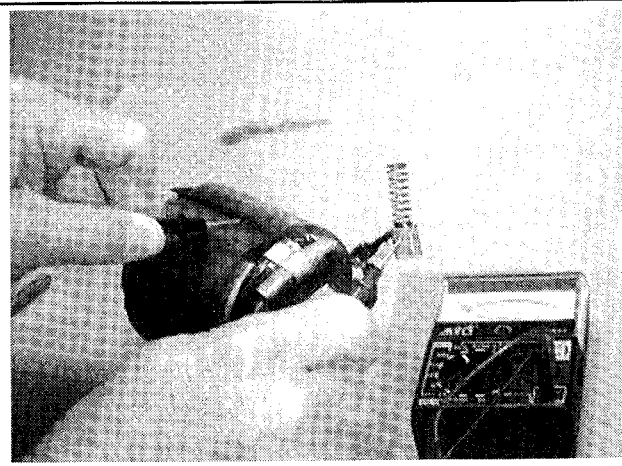


Fig. 42 Testing for a short

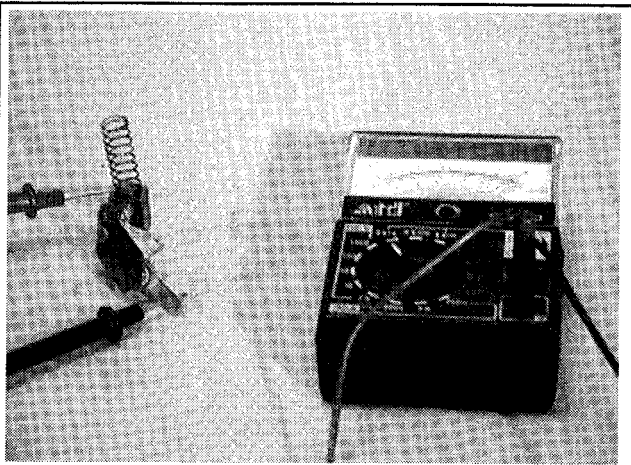


Fig. 43 Testing the thermal switch

■ Removing the end cap without the use of the special tool, could be termed “impossible”. The risk of damaging the small holes in the end cap used to hold the tool is very high. Should these holes be even slightly damaged, not even the special tool will remove the end cap. The cylinder would be completely unserviceable.

Other than the end cap removal, the rest of the components are relatively easily serviced.

The following procedures cover the removal and installation of a single cylinder. Simply repeat the procedures for the other side unless specific instructions are included.

■ 1998-01 Bravo units contain a Trim-In Limit insert in the drive unit to keep certain vessels from rolling onto their sides under extreme operating conditions. This system is detailed extensively in the Drive System section, but make sure you observe the position of the insert before attempting any work on these drive units—forward position on Bravo I and II, Aft position on Bravo III



REMOVAL & INSTALLATION

◆ See Figures 46, 48, 49, 50, 51 and 52

1. Move the trim unit to the full DOWN position. Place a suitable drain pan under the hydraulic hoses
2. Disconnect the UP hydraulic hose from the end of the cylinder using the correct size “Line Nut” or “Line Wrench”. These wrenches will prevent damage to the hex flats on the line or hose fittings, if they are extremely tight and a significant amount of corrosion has built up on the fitting. Most standard wrenches will flex under high torque loads, causing the wrench to damage the hex fitting on the hydraulic line.
3. Disconnect the DOWN hydraulic hose fitting at the hydraulic transom or on the transom assembly. Install hydraulic plug P/N 22-38609, or equivalent plugs into the hoses and/or fittings to prevent draining the trim/tilt hydraulic system any more than necessary.
4. Pry off the plastic cover on the end of the forward anchor pin. Pull the E-Clip off the end of the anchor pin (Alpha) or remove the locknut (Bravo) and then slide off the flat washer and then the bushing from the anchor pin. Repeat this step for the opposite end of the trim cylinder.
5. Grasp the cylinder on the inside of each anchor pin and pull both ends of the cylinder off the anchor pins. Remove the flat washer and bushing on the inside surface cylinder ends or the anchor pins. There is also a snap-ring on Bravo drives
6. Repeat the above steps for the opposite cylinder if both cylinders are to be repaired or replaced.

To install:

7. Position the port and starboard trim cylinders so the offset of the piston rod eyelets face the stern drive. The UP port for the cylinder hose connections should also be facing up.
8. Install a bushing onto the forward and aft anchor pin for the cylinder. Place the ends of the cylinder over the bushings and push the cylinder ends onto the bushing and the anchor pins.
9. Install another set of bushings onto the forward and aft anchor pins for the cylinder. Push the bushing onto the anchor pin and into the end of the cylinder. Slide a flat washer onto each anchor stud and secure the cylinder to the anchor stud with an E-ring on the Alpha. On the Bravo, tighten all four locknuts finger-tight and then tighten each one until the nut and washer just bottom on the shoulder of the anchor pin.

■ On 1998-01 Bravo units, ensure that the trim-in insert is in the same position it was on cylinder removal—forward for the Bravo I and II units and aft for Bravo III units.

10. Install a new plastic end cap over the ends of the anchor pins. Repeat the last three steps for the other trim cylinder if it was also removed.

11. Remove the plugs from the end of the hose fittings and cylinder port fittings. Bleed the system as detailed previously and then connect the hydraulic hoses to the ports. Carefully tighten the fittings to 70-150 inch lbs. (8-17 Nm) on the Alpha, or 110 inch lbs. (12 Nm) on the Bravo.

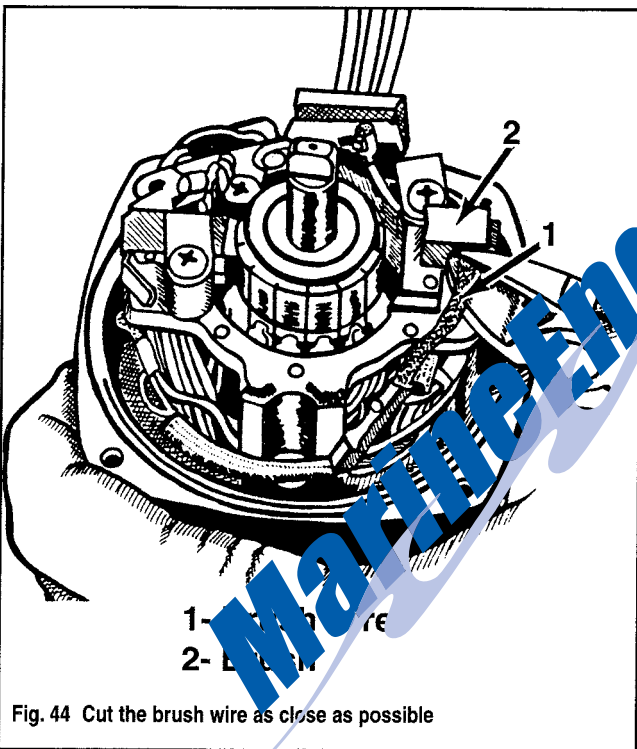


Fig. 44 Cut the brush wire as close as possible

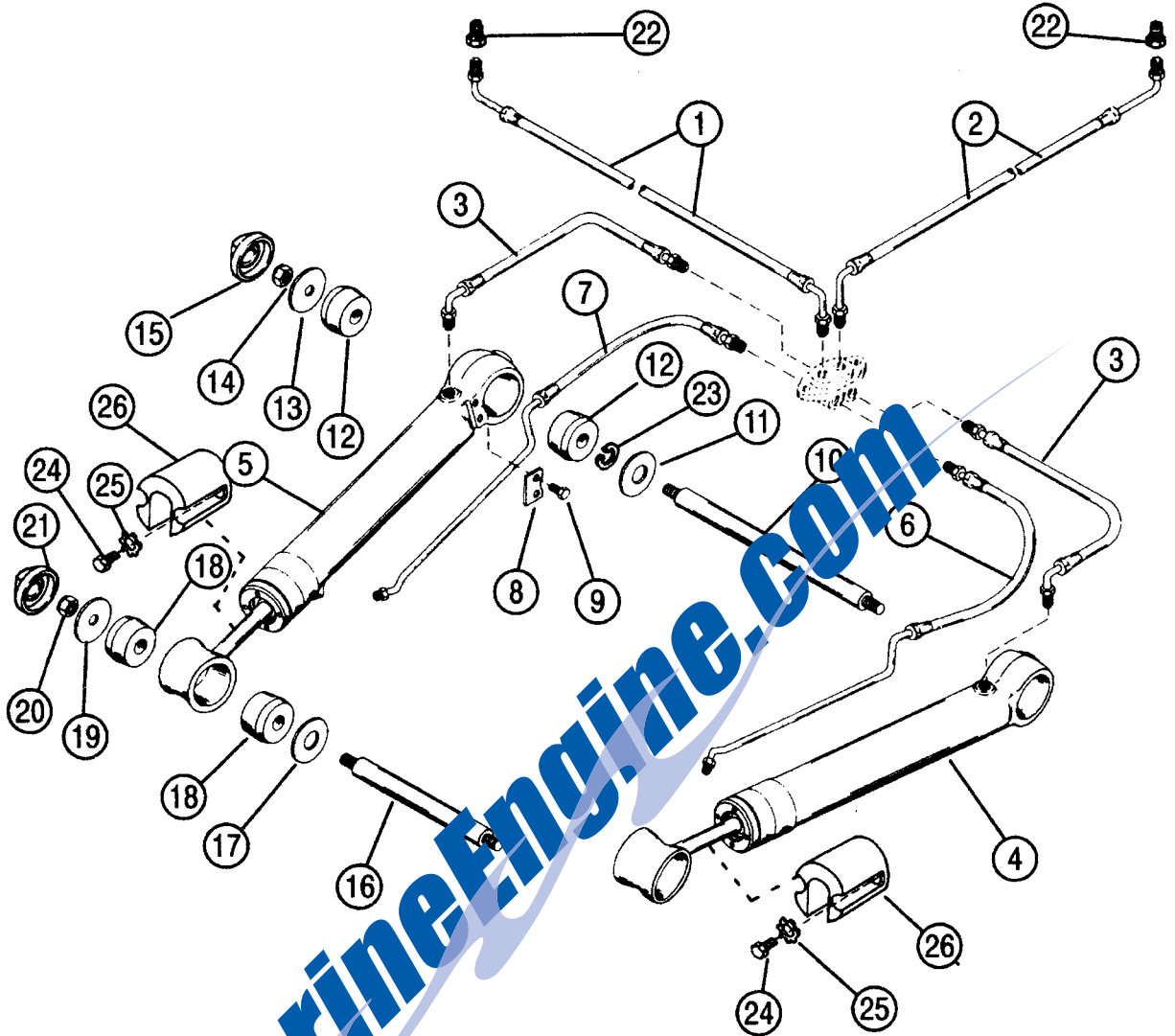
Trim Cylinder

◆ See Figure 45

■ If troubleshooting procedures have isolated a problem to the trim cylinders, for example: a leaking oil scraper seal around the rod or a defective impact valve, it is strongly recommended that the cylinders be removed and replaced with new ones, rather than attempting to disassemble the cylinders.

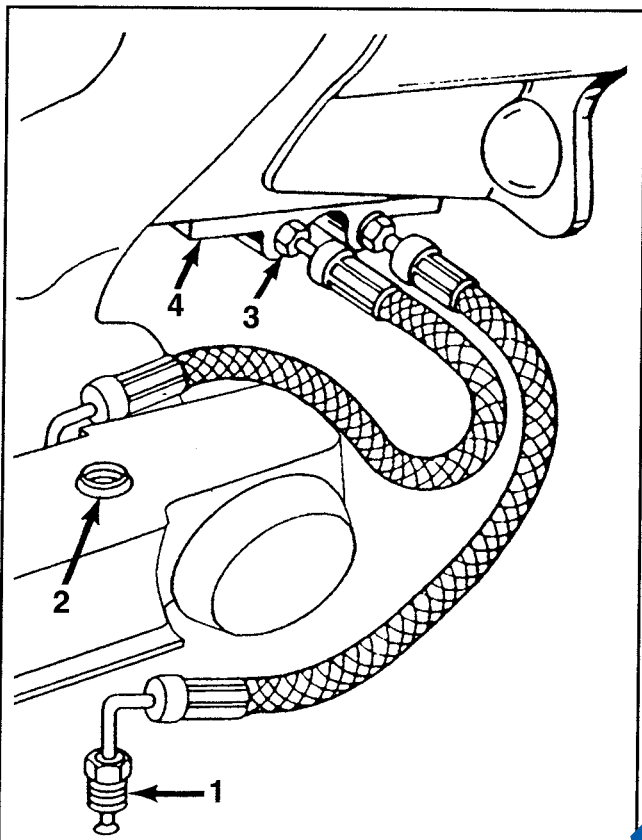
This recommendation is based on the fact considerable difficulty may be encountered in removing the end cap from the cylinder. Even with the aid of the special tool for this purpose, the task is most difficult, sometimes impossible.

14-22 TRIM & TILT



- | | |
|--------------------------------------|----------------------------|
| 1 - IN/DC hose to Trim Pump (Gray) | 14 - Nut |
| 2 - UP/OUT hose to Trim Pump (Black) | 15 - Cap |
| 3 - Hose to Trim Cylinder | 16 - Rear Pin |
| 4 - Starboard Trim Cylinder | 17 - Washer |
| 5 - Port Trim Cylinder | 18 - Bushing |
| 6 - Starboard Trim Cylinder Hose | 19 - Washer |
| 7 - Port Trim Cylinder Hose | 20 - Nut |
| 8 - Plate | 21 - Cap |
| 9 - Screw | 22 - Connector (Trim Pump) |
| 10 - Front Pin | 23 - Retainer |
| 11 - Washer | 24 - Screw |
| 12 - Bushing | 25 - Continuity Washer |
| 13 - Washer | 26 - Trim Cylinder Anode |

Fig. 45 Bravo trim system components



- 1- "UP" hose
- 2- Front hole on trim cylinder
- 3- "Down" hose
- 4- Hydraulic connector

Fig. 46 Disconnect the hydraulic hoses

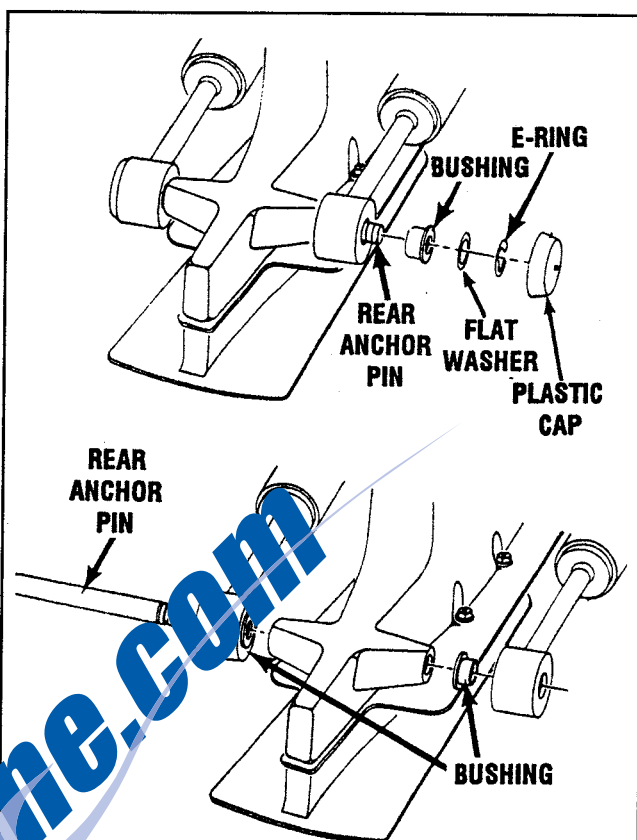


Fig. 48 ...and the remove the aft hardware (Alpha)

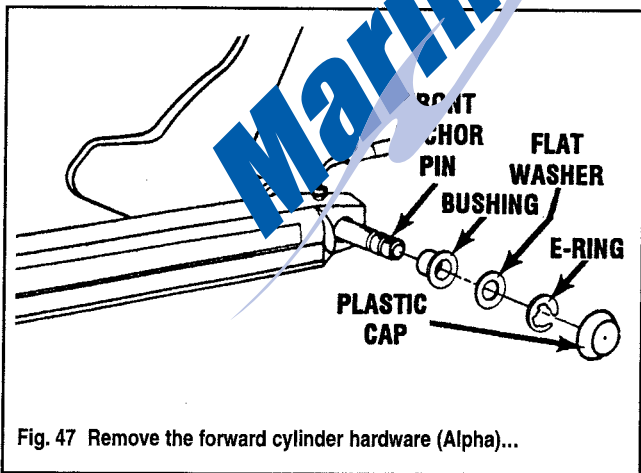


Fig. 47 Remove the forward cylinder hardware (Alpha)...

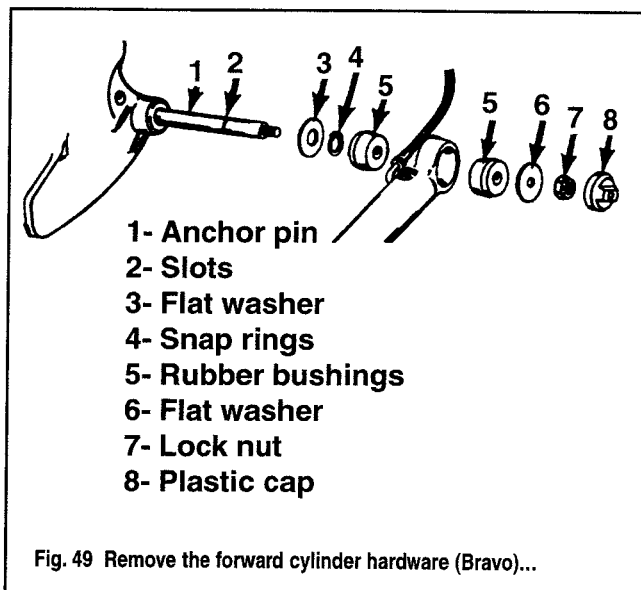


Fig. 49 Remove the forward cylinder hardware (Bravo)...