

## **DID YOU KNOW..**

by : **BOB STEIN**

### **July/August 1980:**

**OIL FILTERS:** Use Purolator PER 1, LEE LF 1, STP 1, or equivalent. These are twice the capacity of original and give twice the filtration plus cooler oil. Add an extra half-quart of oil.

**Speedometer Cable:** For replacement of inner cable use standard American universal type.

**WHEEL LUGS:** Use standard American parts available at any auto parts store. They are harder than original and don't strip as easily.

**SEAT WEBBING:** Use webbing from 122 seats. Spread the clips to fit the holes in 1800 seats and lace back and forth as in 122 seats. They work fine and are usually found in excellent condition on the 122s.

**SEAT CUSHIONS:** Use 122 cushions. They fit nicely, you will be able to fasten three of the four snaps, and they are more comfortable and more durable than original. They may not be a fanatic's dream, but they are better than some of the worn out cushions I've seen.

**SEATS:** If you are really stuck, 122 seats can be made to work. Remove the mounting hardware from 122 seats. Bend the mounting ears over so that the pipe frame will lie flat on the floor. Drill 1/4 or 5/16 holes through the pipe frame to match the front mounting nuts in the floor (after removing the original tracks). You will need a 1/4" Allen wrench. The hard part is to make a bracket or prop to raise the rear of the seat so that it will sit up straight. The whole job is a pain, but in a non-creampuff "using car" the result is comfortable, presentable seats.

### **September/October 1980**

**ROTORS:** Once in a great while the resistor in the distributor rotor will burn out and the engine will die. ALWAYS carry a spare! It's better to be safe!

**CONDENSERS:** Condensers rarely fail if they've been working. A new one is more suspect than an old one, (maybe excepting Bosch, which are excellent). Anyway, it's not really necessary to replace the points. Over the years I've experimented and left a couple in for over 50,000 miles with no noticeable effect on points, power, etc.,

**PLUGS:** Use Bosch plugs only. Most American plugs will not stand up due to poorer quality insulators and/or construction. The T175 is a little hotter than the 200 and works better in oil and for stop and go driving.

**OIL:** It's probably smart to use 20-50 oil in the warm months. The extra viscosity is a definite plus. While changing the oil and the filter every 4,000 miles is OK (I did for years), I'm about convinced that longer engine life will result if changes are every 3,000 or even 2,000 miles. Don't forget, PER-1, LEE LF-1 Or equivalent. These larger filters give double the filtration of original size. By they way, the STP double filter (STP-1) seems to give a DROP in oil pressure of about 10 pounds! I would not use this filter!

FUEL PUMP LEAKS: Sometimes oil will leak at the base of the fuel pump, which is not fitted with a gasket, If moderate tightening of the bolts does not help, remove the pump and make a thin gasket for each side of the base plate (plastic). So far as I know, Volvo does not make this gasket, since they are not fitted with them at the factory.

REAR SUSPENSION STRAPS: Make these out of any comparably thick drive belting. Use an old one for size and cut on a band saw or with a hacksaw. Any used piece will work fine. These belts are used for silage blowers, buzz saws, older lathes, etc. they are stronger than original and MUCH CHEAPER.

## **November/December 1980**

### **Rear Springs**

1800 rear springs are a little too soft for good handling, and they sink with a trunk full of stuff and rear seat passengers. I think the best single thing you can do to improve handling, stop rear end dipping and bottoming, and raise a sagging rear end, is to install stiffer rear springs.

The trick is to do it reasonably. The answer is 122 SEDAN SPRINGS. They work like a dream and fit perfectly!

Volvo lists both as having 10.7 turns. The 122 springs are supposed to be 1 1/2 mm narrower externally (negligible), but about .020 thicker, and rated for about 125 lbs. more load per spring. That means a 250-lb. greater car load to the same compressed length. The 1800 will sit about 2" higher empty.

You won't believe the improvement in cornering and ride! No more dipping, sagging and bottoming! And you can safely load the trunk.

To replace: Remove lower ends of suspension straps and shocks. Jack body and replace.

Note: It's a good idea to put the stiffer (less worn) spring on the driver's side i.e. passenger side from 122 on 1800 driver's side.

Volvo also lists heavy duty springs for the 122 sedan, thicker yet, and rated for another 100-lbs. load per spring! Unless you order new ones, I don't know how you could tell these from standard. It'd be hard to make a rusty spring accurately.

## **January/February 1981**

### REMOVING ENGINE.. DON'T

For those of you who need to do any engine work, from replacing a pan gasket to a rebuild, DO IT IN THE CAR! All work on the lower end can be done if you can get the pan to clear the oil pump for removal. Do it as follows:

1. Jack up the front end and place jack stands under the front jacking points.
2. Remove nuts from front engine mounts.
3. Jack up engine at bell housing so that motor is raised about two or three inches at crossmember.
4. Drop front crossmember as follows:
  - A) Remove 2 bolts on each side, which fasten X-member to frame.
  - b) Loosen front two X-member bolts about 2-3 turns, enough to drop X-member down about 3-4 inches at rear. Pull it down if it doesn't drop.

The pan should clear the oil pump for removal. If not, drop X-member another half inch or raise motor another half inch.

In this neck of the woods everybody rebuilds motors in the cars. Two or three hours on your back for rod and main bearings and pan is a lot easier than pulling the motor and putting it back in again

## **March/April 1981**

### THE CURE FOR BROKEN KEYS

Bosch made the worst ignition switches for Volvo! Keys break because they are too thin and weak and the spring is too strong. Change it! Use a universal American switch. KEM UL3 or equivalent. Time: about 20 minutes. Cost: about \$8.00.

To remove lock: With key turned to ON position, reach behind the dash and push detent pin with a nail or punch to remove lock to rear. THIS ALMOST NEVER WORKS. The alternative is to drill out the tumblers. This must be done if the key has broken off in the lock and you can't remove it. Use a 1/8 inch drill, or smaller, and drill to key depth in key slot, top and bottom. Wiggle the drill to get all of the pieces of the tumblers. Be careful not to break the drill. Insert a small screwdriver, turn the lock, and try the detent pin again. (It probably won't work.)

Now do what you might as well have done in the first place. Drill carefully into the outside retaining ring (on dash) and cut, pry, or break it so the switch can be removed to the rear. Try not to mar the dash.

Remove wires from the switch. Take care to tape the hot wire so it doesn't ground.

Now the damned cable to the coil! It has TWO layers of armor! Thick outer and thin inner. Where you cut it is unimportant. You can always splice in a piece of wire. I usually cut it about an inch behind the switch. Use a hacksaw or two pairs of pliers and bend it back and forth until the outer cable breaks. Repeat for the inner cable. Uncoil a few inches of armor and cut or break off to expose the wire from the coil. Cut coil wire near switch. This wire goes to IGN terminal of the new switch. Starter wire, battery, and accessory terminals are marked on the new switch. Connect them and mount the switch in dash.

You will be pleased with the light resistance of the spring for the starter position and the ease with which the switch works. I have replaced the switches on my last six Volvo's. No more broken keys!

(editors note from later issue: About the broken key article. It was written for 61-69 cars. I apologize for not mentioning this "minor detail". Mel Younker is right. Later keys are not subject to frequent breakage. They are much more strongly designed.)

Did you know that 140 series wheels will fit '69 or '70-73 1800s? Good to know in an emergency or for a spare or snow tires.

### **May/June 1981**

#### **BRAKE PROBLEMS**

Loosing brake fluid?:

1. Usually a rear cyl. (to '69). Fluid will show on backing plate and tire. Rebuild wheel cyl.
2. Might be a caliper. Rebuild both for even braking.
3. Hole in brake line. Look for wet spots. Replace.
4. Servo (vacuum booster). If no leaks as above, it is the servo! If you disconnect vacuum line to manifold and it's wet-bad servo. Confirm by opening vacuum tank. If it leaks fluid, bad servo. Re-build.

OR.... Bypass servo Disconnect brake line from master cyl. at master cyl. Disconnect output line from servo and connect to master cyl. Bleed brakes, front first. This bypasses servo. You will need good leg muscles, but the car will stop (eventually). There are lots of cars around here with no servos. I drive two of them.

AND...If you want better brakes (to '67), and want to leave the servo out, change rear cyls. Volvo used three sizes of rear cyls., all Girling. All will fit. They have pistons of 5/8, 3/4, & 7/8", or 3/4, 7/8, & 1", (or something like that). Older 122 wagons-62-64- had the biggest; older 122 sedans, -to 66- not servo equipped, had medium; and 1800's and later 122 wagons, the smallest. Find a pair larger than yours from an old 122, rebuild and install. Your 1800 will now stop at least as well as a 122 sedan, and you can forget the servo.

## REAR ADJUSTERS (to '67)

These are a pain when they rust fast and won't work.

If you're optimistic, try to free them up on the car, as follows:

1. Remove brake drum (with puller).
2. Remove lower spring and remove linings from slots in adjusters.
3. Spray adj. screw and slotted plugs (pistons) with WD40 or other penetrating oil.
4. Place cold chisel or rugged screw driver between 4 sided end of adj. screw and one plug, and rap with a hammer. If it moves, hammer it back in and out until you can grab it with a vice-grip, rotate it, and pull it out. Repeat for the other plug.
5. Try to work adj. screw back and forth until free. Screw it in and then back it out all the way.
6. Clean crud and rust from plugs and body of adjuster. Dry thoroughly.
7. Lubricate liberally with wheel bearing grease, Lubriplate, or anything that won't run onto drums when hot.

If they won't free up, remove the adjusters (two 3/8" hex head bolts behind backing plate) and try the above in a vise. If they won't loosen, replace it.

## TIPS

1. A good tool for adjusting is a 1/4" square drive socket used backwards. Fit an Allen wrench (say 1/4") to the hex side of a 1/4" socket. The square drive end will fit the square head of the adj. screw perfectly.
2. Use hex socket on bleeder screw to loosen so as not to booger it.
3. If you break a rear bleeder screw off you can still bleed the brakes, with the drum removed. It's a two man job, as follows:
  - A. Pry back the rubber cover from one side of wheel cyl.
  - B. As someone GENTLY pumps the pedal, hold pistons on cyl. Allow only one piston to come out past the rubber just enough to let air out. Push back in and repeat until air free.Tricky, but easier than replacing the cyl., especially if you're in a hurry, tired or lazy, or if you don't have another cyl.

## **July/August 1981**

## OIL LINES

Oil pressure line leaks are a pain. (The flexible braided line from the block to the gauge). They can put you out of commission at any time. It pays to carry a spare.

Replacement is not too easy due to the placement in the block behind the head pipe, especially the dual pipes on '66 and later cars. On these models, the easiest way is as follows:

1. Remove upper end of flexible hose from hard line to gauge. 7/16 and 1/2" open end wrenches.
2. Remove generator.
3. Turn brass fitting in block about 1/3 of a turn to the right so that the bottom end of the hose is accessible from the right side of the head pipe. 11/16 wrench.

4. Remove hose and replace.

5. Turn fitting back to original position (about 10.00 o'clock), position hose and connect on top.

NOTE: These are pipe threads (tapered) and DO NOT need to be tightened too much. Just snug.

Removing the oil filter gives much more room to work.

If you have the head pipe off or the engine out of the car, it's not a bad idea to replace the flexible line with copper tubing and eliminate the problem for good.

## GENERATOR REMOVAL

This is an especially aggravating job due to the placement of the bracket and the fine threaded bolts with lock nuts. Plus, there's no room for a normal size ratchet. Get a STUBBY 3/8 drive ratchet, or cut on down to 4-5 inches. It will save your knuckles and cut the job time by 3/4. It's a good idea to scratch the wire colors on the generator with a knifepoint or scribe before you remove the wires.

## September/October 1981

### DRIVE SHAFTS.

Drive shafts have to be removed occasionally, to replace U-joints, to remove transmissions, to tow a car with AT, etc.

Volvo DID NOT leave much room on the nut side of the drive shaft flanges! On most years you can't use a box wrench or a socket (unless thin walled). An open end is likely to slip and ruin the nuts. As much as I detest using a vice grip on hex nuts, experience in removing many drive shafts has convinced me that it is the best tool for this job in most cases.

Early 1800's have 7/16 heads and nuts on the flange bolts, 70-71 use 9/16. Try a box wrench and a socket on the later cars, but be prepared to resort to a vice-grip.

### TO REMOVE DRIVE SHAFTS

1. Jack up rear, or use ramps
2. Use socket on bolt head, vice-grip on nut. Turn socket, hold on nut (if possible).
3. One wheel will need to turn (jack it up), so you can turn the drive shaft to position one or two bolts at a time for easy access.
4. Drop drive shaft and remove.

## FRONT SHAFT

1. Remove front shaft flange bolts at transmission as above.
2. a) To '65-'66 slide shaft and carrier bearing to rear.  
b) '67-'73: Remove carrier bearing mount, then slide shaft and carrier to rear.

## TRANSMISSION REMOVAL

Most of the service manuals are correct. Transmissions are removed to the rear, BUT they neglect to mention that the motor, which you have lowered to gain access to the upper transmission bolts, has to be RAISED AGAIN so the transmission and OD can be slid STRAIGHT BACK IN THE DRIVE SHAFT TUNNEL, then tilted down and removed from the car towards the motor. I've seen a lot of butchered tunnels, probably due to misunderstanding this simple process.

## TRANSMISSION CONVERSIONS

A lot of people want to convert automatic ES's to 4 speeds with OD, and everyone seems to want a late unit (70-73). Let me go on record as not disliking the earlier 4 speeds and OD's. They work well enough and would be very satisfactory to me in an IS. A 4.30 rear would be nice, but a 4.56 wouldn't be too bad, either. It would be snappy!

## PROBLEMS

When converting a 72 or 73 to a trans. and OD from a 70 or 71 (or earlier), there are minor drive shaft flange problems. The 72's and 73's have a slimmer drive shaft and smaller flanges. Use the drive shafts and carrier bearing (with mount) from the car. ALSO USE THE DIFFERENTIAL FLANGE (on the rear end) that matches the drive shaft flange. Everything will work (from a 70-71) except; that the differential flange must be changed. Naturally, if you can find a 72 transmission and front shaft, there are no problems.

If you attempt to use a transmission and shafts earlier than 67, there will be carrier bearing mount problems. 67-69 should work OK, but the carrier bearing MIGHT have to be changed. ( I haven't done one yet). You also might need a late extension and shift lever. The earlier trans./OD's will work. It is the drive shafts and carrier bearing mount that don't match.

If you get the right drive shafts, flanges, carrier bearing, and extension and shifter, any year transmission will work, even including some 140 and 160 series, and probably some without overdrive.

## REAR ENDS

Volvo used the following rear end ratios on 1800's

4.10 61-64 Without OD

4.56 61-68 (69?) OD

4.30 (69) 70-73 OD

4.10 71 AUTOMATIC

3.9 72-73 AUTOMATIC