

## DID YOU KNOW..

by : **BOB STEIN**

### January/February 1985

Maybe not too useful to know, but... some Ford ('72-73?), Jeep and maybe other brake master cylinders will bolt onto the E, ES, and 140 brake boosters. The booster shaft will have to be lengthened about an inch to give a full stroke. Probably some cylinders will bolt to the firewall of S coupes. Modify plunger rod as necessary. Brake line ends will have to be modified as necessary to fit the new cylinder. Check things out carefully before getting carried away! It might be worth the trouble on S's when the brake servo dies. If you think about it, you could make an adapter plate to mount almost any master to an A or S coupe. (This offbeat note is occasioned by the fact that my younger son is currently mounting a 142 body on a Ford Bronco 4x4 frame.)

### OVERDRIVE TEST STAND

(Mike Fitzgerald liked this one.) Use a bare block-with crank and pulley only. Attach clutch, bell housing and transmission. Mount an electric motor on the block to drive the crank pulley. Use a battery to activate the solenoid. Presto! An instant CHEAPO test stand! And no SVO number!

### March/April 1985

The following table lists the data on all Volvo springs that will fit the 1800:

Car model	122	122HD	1800	1800ES
Thickness	.461-.469	.484-.492	.441-.449	.46-.47
Diameter	4.51-4.57	4.53-4.77	4.57-4.63	4.5-4.6
No. turns	10.7	10.7	10.7	10.7
Load @1 cm.	43-47	51-56	35-39	43-47
Spring length	8.86-10.43	8.86-10.43	8.86-10.43	8.86-10.43
Fully compressed	4.84	5.10	4.64	4.84
Loading	609-649	750	504-515	607-647
Length	9.65	9.65	9.65	9.65

Note: Dimensions are in inches, and loads are in pounds. The 122HD springs haven't been available for years. The data were gathered from various Volvo publications. Don't take any of the specs too literally. My experience indicates greater variations than those listed

### RETRACTABLE SEAT BELTS:

These belts eventually fray and swell and will no longer retract fully because they have become too thick to fit on the take-up reel. The answer may be to iron them with a hot iron, perhaps using a little spray starch, to restore them to their original thickness. It's worth trying. Adding a little more spring tension (one or two turns) wouldn't hurt either.

## May/June 1985

### REMOVING LOWER A FRAME BOLTS:

If these rust fast in the sleeves they can be a bear to remove! The bolt is quite soft, so pounding only flattens the end and insures that it will have to be cut off or filed to fit through the sleeve. Heat is a possible solution. It works, but you'll fry the bushings and it is tricky and takes time. The best method I know is an air hammer. Cut the end off of a punch or chisel so that it is flat. Nice if it fits inside the nut which you leave on to center the punch. The air hammer will walk the bolt right out! Use rods as extensions as the bolt moves through the x-member. You may ruin the nut, but this method can save HOURS of aggravation. It would even make sense to remove the x-member from the car and take it to someone with air.

### OVERHEATING:

Do not overlook ignition timing as a possible cause of overheating. An engine can run 10-20 degrees hotter if the timing is retarded (late). Most carbureted cars will run best 3-5 degrees more advanced (earlier) than specs call for. Fuel injected cars are apt to be a bit fussier. The old-timer's method of advancing the timing until there is a very slight ping in high gear on acceleration is still the best in my book.

## 1969S

This transition year from S to E produced a rather unique car. It is an S in all respects except the following:

Interior: S seat frames with head restraints. Black plastic knobs and door and window handles. E style steering wheel (three spoke).

Seat Belts: E type with distinctive adjuster.

Exterior: Side marker lights "72 style side mirrors (fasten from inside the doors).

Mechanical: B-20 with Stromberg carbs. Alternator. E type steering box with telescoping shaft.

Brakes: E type booster. E type dual system with Girling front and Bendix rear drums.

The car I examined had serial number around 28,600.

## **September/October 1985**

### WATER LEAKS:

The 1800's are notorious for leaking right over your gas pedal foot. Three inches to the left would reduce the profanity echoing through these cars immensely, but such is life. Following are reminders of what to check.

1. Fresh air vents. Remove cowl grille and plastic housing. Check that drain hole is open and that vent butterflies close tightly.
2. Wiper post bushings. These are very often the source of leaks; these are the rubbers that seal the holes where the wiper posts go thru the cowl. Unfortunately new ones are not available. Tighten the large chrome nut. If not, remove the nut and try a spacer under the nut, some silicone, or.....?
3. Of course seal windshield gasket if needed.

Do not overlook the simple garden hose as a diagnostic tool. Soak the sucker and look under the dash to see where the water is coming in.

### HEATER CONTROL CABLES.

These little buggers seem to always come loose, due to poor design. The clamps are made large enough to clamp on the plastic cable covering, too large to clamp on the cable when the covering is damaged. Tape is useless. Wedging a small machine screw between the cable and the clamp will work OK, but a better solution is to wind some solid wire around the cable to slightly larger than the original covering. This provides a good grip on the cable. A star washer under the head of the screw is sometimes needed.

## **November/December 1985**

SWAY BAR MOUNTS. If one bolt pulls out (on later S, and E and ES) due to rust or fatigue, a temporary repair can be made with a 1/8 or thicker plate. Cut a piece about 1" wide, drill holes, and mount, using the one good nut. For a permanent repair, weld a nut to the backside of your repair plate, bolt in place and weld to the frame.

### OVERDRIVES AND CLUTCHING.

I'm often asked what I recommend about clutching when shifting in and out of OD. Following are my own preferences, not to be taken as necessarily the best possible, and I don't think they make too much difference in the life of the OD. They may be easier on your U joints, rear end and clutch.

SHIFTING INTO OVERDRIVE. This is an upshift and puts almost no strain on anything. I do not clutch. Up to about 4000 RPM just forget it. Above 4000, especially accelerating, it is a good idea to ease up on the gas for an instant. The shift will be faster and more positive and it feels to me like it is easier on the OD.

SHIFTING OUT OF OVERDRIVE. Any abrupt downshift can jar the clutch, U joints and rear end. Under 3000 RPM the shift is not too abrupt and I usually do not clutch. Above 3000, and especially if decelerating rapidly, I like to clutch slightly, both for personal comfort and to make it easier on the drive train. This is unquestionably easier on clutch springs, U joints, and differential parts and will prolong their lives somewhat. I am not sure that there is much effect on the OD.

## **January/February 1986**

### Transmission Input Shafts:

A Chevy four speed ('77 Camaro) is the same diameter at the flywheel as the 1800 (B18 & B20). The splines are about 1/8" larger on the Chevy, but there are the same number of splines and they are about the same thickness and spacing. Almost useless information, BUT, my guess is that a piece of Chevy shaft would make a perfect snug fitting pilot tool for centering B18-20 clutch discs.

P1800A and 1800S Rear View Mirrors: The A coupe (to'63) has a cast white metal mounting shaft. The S coupes have a padded, covered shaft. The mirror heads appear to be the same. Both mount in the same holes and will interchange, but the A coupe style is slimmer and sleeker in design.

### FUSES

The ceramic type fuses from 1970 on, can be a pain. The common American glass enclosed fuses have nice, plated ends, while the ceramic type uses the fuse material to make contact. It corrodes. The fuse holders corrode. It can be a mess. Scrape the holders clean occasionally and replace corroded fuses. It hardly pays to try to clean them unless you have no other choice (unless you're stubborn!). I guess everyone knows that these are the same type VW uses and are easily obtainable. It is a good idea to spray the contacts with electronic contact cleaner. If the holders lose tension, they can be bent inwards with pliers (carefully).

There is even a slight trick to installing the little buggars. The fuse material should face the holder when you press them into place to prevent it from slipping off the ceramic core. After they are in place, you can rotate them so you can see the fuse link. BUT... GBC type buss fuses are a glass enclosed, American style alternative! They have pointed ends and are made to replace the ceramic type. A much better fuse!

Of course, it's a good idea to carry spares. In an emergency, some U.S. style, glass fuses can be made to work. A short length of wire with alligator clips on both ends is also handy, but rarely needed, since you can usually swap a less necessary fuse for the one you need.

If a fuse holder breaks, you can use a spade clip on each side wired to a glass fuse holder.

## **March/April 1986**

### FUEL INJECTED CARS, STARTING:

In cooler weather the cold start valve may not give sufficient gas to start easily. Try this: Turn ignition switch on and allow fuel pump to run through its 1-2 second cycle. Repeat. Then turn ignition on and off 5-10 times. Each time you turn the switch one pair of injectors will squirt a shot of gas, since the triggering contacts are set up that way. Now the car should start easily. Also, it MAY help to "pump" the gas pedal. Each time you press it the throttle switch runs thru several acceleration contacts and the injectors open in sequence. The gas pressure is constant, so they must inject gas, although I haven't pulled a set of injectors to check. FI cars need a reasonably good battery to start. The above may help when your battery only allows you one or two chances.

### OVERDRIVES:

Slipping in and out of OD probably is due to worn pump seals, low oil or dirt, if solenoid is OK. Seals can be replaced. Sometimes changing the oil will help. It's smart to change it once in a while anyway.

Clean the magnetic drain plug and put in 2 quarts of #30 oil. I always use NON-DETERGENT oil. The detergents are probably not harmful, but I don't think they are of any use in the gearbox and the OD, which operates with a high-pressure hydraulic system. #40 oil will not hurt, especially in hot weather, and may help a little if pump seals are worn. I wouldn't hesitate to add half a can of auto trans. sealer-conditioner if the OD is working poorly anyway. It may soften the seals.

I cannot recommend it, but auto trans. fluid or 1/2 kerosene and 1/2 oil make good flushing fluids. Run 2-3 minutes (in and out of OD), drain and refill with oil. Some synthetic oils are reported to work very well.

Note: Always put in 2 Qts. of oil. You can't hurt anything by over filling. It takes a long time for the oil to run back into the OD, so any use of the oil level plug will give false indications, sometimes for quite a while. To be sure, check again after driving, or put in the 2 qts. and forget it!

### OD LEAKS:

ODs leak in three places: 1. Output shaft seal. Replace it. 2. Speedo cable drive. Replace O ring. 3. At spacer (OD or trans side). Tighten nuts. These do loosen with time. Dismantle and replace gaskets if necessary.

## **May/June 1986**

SPEEDOS: There are several things to check before you attack your speedo (with a hammer).

NEEDLE SHAKE. Probably in the head. Maybe a bad cable. My experience is that most speedo shops do not or cannot cure a good shake.

FAILURE. Can be frozen head, broken cable, right angle drive, or speedo gear in transmission. 1. Check cable. Disconnect the cable at the head and see if it turns when you drive. If it doesn't, skip #2. 2. If cable is OK, remove head. (Two thumb screws in back. The head removes toward you from the dash.) Use an end of an old cable, or grind a nail to fit speedo, to spin speedo by hand. Turn counter clockwise. If frozen, lubricate and try to free it or send it to a speedo shop. 3. Check right angle drive. Remove and check like speedo head. There is a short square shaft on the transmission side that often breaks. This can be made from a nail, a square sardine can opener, an old cable end, or bought, but they are hard to find. 4. Speedo gear in transmission (or overdrive). Remove the 7/16" headed bolt at right angle to the drive. With angle drive attached, pull the gear housing out. Check the plastic teeth on the gear. If damaged or worn in the center of the teeth, replace it. When installing, remove angle drive to be sure the "O" ring is in place on outside of gear housing, around speedo gear shaft.

It is smart to lubricate the speedo cable periodically.

### **July/August 1986**

#### MAINTAINENCE WE SOMETIMES FORGET

TRANSMISSIONS. Change the oil once in a while, 20,000- 30,000 miles. Auto transmissions need it. The OD's on a 4 speed can use it too. These are hydraulic, and the oil will absorb moisture and other contaminants in time. The oils may or may not break down, but they do get dirty.

REAR ENDS. Change the oil! Bearings need clean oil and there is gear wear inherent in the differential and ring and pinion. (Bills of \$800-\$1,000 are not uncommon for rear end repairs)

FRONT WHEEL BEARINGS. These are tough and almost bullet proof. I may be a heretic, but I almost never grease these unless I have to remove them. However, it is smart to check them at 40-50,000 miles. They may need adjustment.

STEERING BOXES. Check oil regularly! These buggars are expensive! If the oil leaks, use grease. These should be checked for wheel play and adjusted periodically.

IDLER ARM BUSHINGS. There should be NO vertical movement possible, either by hand or when turning the steering wheel. Replace when necessary. Sloppy front ends are dangerous.

CONTROL ARM BUSHINGS. The uppers wear very rapidly under rough road usage. Lowers last much longer but wear is harder to detect.

TIRE VALVES. Tubeless valves do get dried out and fail. The bodies crack. They will leak rapidly and provide aggravation as well as danger. If your present valves were born with the car, change them.

AIR CLEANERS, E & ES. These suckers are hidden behind the grille and are often forgotten. They are also a pain to replace. You usually have to unfasten the housing and juggle it in, but clean air is essential and a clogged filter will make your motor run too rich.

There are other things that sometimes get overlooked, but I forget what they are (chuckle)... U-joints, motor mounts, brake cables, gear shift levers, window regulators, door locks, pedals, cables, light sockets, courtesy light switches, etc., etc.

ODD OD SWITCH. On an E or ES you can use a directional switch. I just got an E where someone did. Some day this might be good to know.

### **September/October 1986**

#### OVERHEATING:

I've written about this before. Automatic Es and ESs are the worst offenders. Here are a few additional suggestions.

1. Blow out the dirt and debris from condenser and radiator.
2. Add additional antifreeze to raise the boiling point of the coolant.
3. Add a transmission oil cooler. This will take some load off the cooling system.  
It's good for the trans, too.
4. Replace the clutched fan with a fixed blade high volume fan.
5. Add an electric fan in FRONT of the radiator. Volvo recommended this on early 140s and it's probably one of the best solutions.
6. Use a 160 degree thermostat.
7. Have radiator core cleaned.

#### SEAT ADJUSTER KNOBS:

If the driver's side knob is always getting stuck in your pant leg and coming off (like mine does), change the tracks! Put the adjusting track on the right side and the non-adjusting track on the left!

### **November/December 1986**

#### TRANSMISSION EXTENSION SHIFTERS AND SHAFTS.

The S type extension with short shift lever differs from the E-ES type in LENGTH by about 1 1/2", consequently the transmission tunnel is cut out in a different location for each. Therefore, while you can interchange earlier and later transmissions and overdrives, you'll need to use the original type transmission cover-shifter if you want to avoid cutting the transmission tunnel.

#### TRANSMISSION- OLD MATCH - S COUPES.

There is some confusion over whether all transmissions and OD's can be used interchangeable. I always thought there were no restrictions, but there are two confusing statements in the service manual. One states, "Transmission overdrives type number 32/3324 or higher have force feed lubrication of the needle bearings in the planetary gears and output shaft. The part number of the mainshaft in the gearbox is unaltered. This means that when fitting a new mainshaft... a check must be made to see that the mainshaft is drilled." If anyone can figure this one out, please let me know!

## RESTORATION

I'm not an expert on restoring 1800's, but I know a little bit about repairing them, and about parts costs and availability. Of course each owner's goals differ based on personal values, cash, time, facilities, parts, abilities, availability of craftsmen, etc., etc., but here are some thoughts that may be worth considering before you buy or begin your project.

1. There are almost no new interior parts available. Good used are scarce. Most of us will have to settle for custom work or less than perfect.
2. Almost all mechanical parts are available, new or used. Volvos are not hard to work on (with few exceptions, of course).
3. Most body parts are available. They are very expensive. They are expensive to install. Repair is usually a reasonable solution. Chrome trim is expensive. Almost all is available. (NO fender chrome to '66.)
4. Frame and floor repair is fairly easy and relatively cheap compared to other things.

On a very loose 1-10 scale, I rank the four areas as follows:

For the PURIST:

Interior: 10  
BODY: 8  
Mechanics: 6  
Frame: 5

For the non-purist (cost oriented)

BODY: 8  
Mechanics: 7  
Frame: 5  
Interior: 4

Values of each will vary greatly with car condition, area, and mechanics, of course. My point is that you need to get a handle on costs and goals before you jump in. My advice always has been to buy the best one you can afford: it will be cheaper in the long run, unless you enjoy a restoration project, in which case, "Join the club."