

SPT AOD VB R&R Instructions

Read completely before starting project. The safety measures outlined in any off-the-shelf DIY mechanics manual should be observed before you proceed (ie. Jack stands, wheel chocks, etc) A specific manual for your vehicle will have more in depth R&R instructions than provided here.

Tools Required:

- 1) 10mm socket
- 2) 8mm socket
- 3) Snap ring pliers



- 4) Vaseline / ATF lube
- 5) 12 quarts of preferred choice ATF, or, Mercon/Dex III
- 6) Torque wrench (10ft or 100in min)
- 7) Rags and scrapping tools.

Step 1 - DRAIN

Traditional Method: Position drain-pan to rear of transmission pan. Remove pan bolts starting at the rear, up both sides to the point fluid starts to drain from the loosened pan. Once stopped draining, carefully continue to remove all pan bolts and bring pan down towards your drain-pan. No loose objects should be in pan.

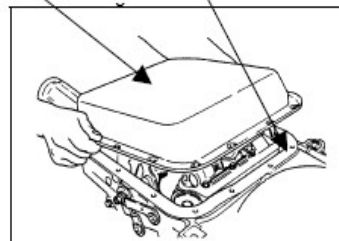
Alt Method: Remove return coolant line (AOD-Bottom Line, AODE/4R-Top line) from trans – place a short section of hose onto line draining to catch pan. Start the engine. This will pump 80% of the fluid out of the trans and is often less messy. Kill the engine as soon as you see the stream has stopped. Wait a few minutes and repeat. The transmission is now empty enough to remove. *Dispose of fluid in environmentally responsible manner*
If you encounter a loose plastic plug – spinning top in appearance - discard it.

Remove pan gasket and discard. If gasket material sticks to transmission pan or case, remove all material completely with razor/wire brush. Now is a good time to install a drain plug. They can be found at your local auto parts retailer. **Stash all the VB parts you remove including the pan bolt in the transmission pan during this process so not too lose them.**

Step 2 – REMOVE FILTER

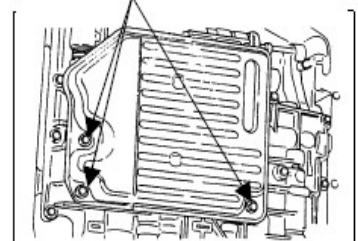
Carefully remove the oil filter by removing the three (3) filter bolts (8mm). Pull the filter straight down, discard it. Often the filter grommet will remain on the filter stem, discard it. Remove manual lever detent spring.

Remove the 14 oil pan attaching bolts,
Oil Pan



Remove the three oil filter attaching bolts

Filter Attaching Bolts



Step 3 – REMOVE VB

Remove the twenty-four (24) valve body bolts (8mm). Leave one hand tight in center. There are 8 short bolts and 16 long bolts. TWO of the shorter bolts MIGHT be partially threaded – note these bolts for reinstall.

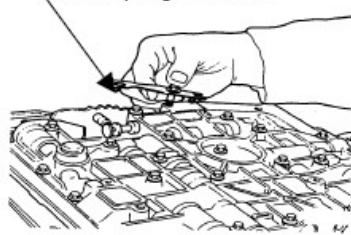
Remove the filter, grommet,
and filter gasket.

Oil Filter Grommet Oil filter Gasket



Remove the manual lever detent
spring and roller assembly.

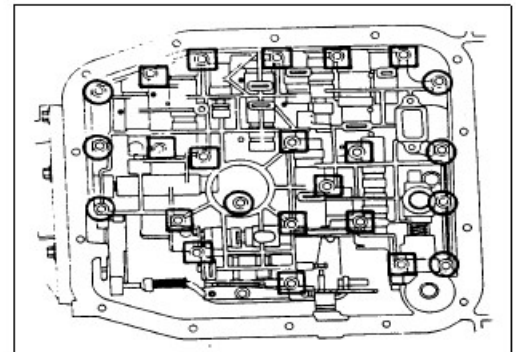
Detent spring and roller



Remove the remaining 24 valve body-to-case
attaching bolts, the valve body assembly and the
valve body gasket.

NOTE: The four front, one center and the three
rear attaching bolts are shorter than the others.

- Indicated a longer bolt
- Indicates a shorter bolt



Setp 3A - 2-3 ACCUMULATOR INSTALL

(Auto shift valve bodies only)

Locate the 2-3 Accum. in pic on next page. Using snap ring pliers remove the accumulator washer/cover. Some 90+ units have the AODE pointed cap retainer and no snap ring, requiring only a screwdriver to remove. A black spring should come down with the cover/cap. The stock 2-3 Accum is usually white plastic or aluminum. Pull down

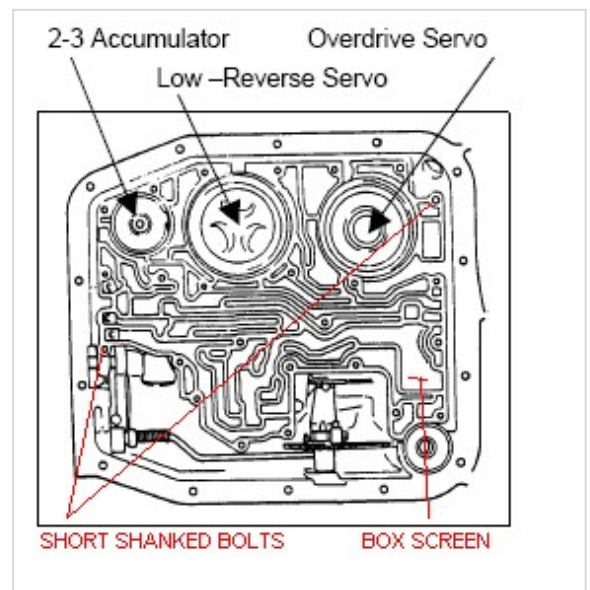
to remove and discard. Often you will have to use a pair of needle nose pliers or the snap ring pliers to aid in its removal.

Install the supplied rubber bonded accumulator. Lubricate the outside and install small diameter into the case. It is often difficult to install and may take some twisting and force from the pliers/snap ring pliers.

THE BORE IS AT A SLIGHT ANGLE! It is not 90 degrees of case surface. You will know it is installed correctly when you can turn it with the pliers in the bore smoothly. Reinstall the spring/cover/snap ring. If you have the cap, the pads on the outside diameter might need to be bent slightly to hold the assembly in place unit VB is secure. **Be sure the pointed side of the cap points down toward the vb.**

Step 4 - VB INSTALL

NOTE 2 If your vb is not supplied with a case to valve body gasket **DO NOT INSTALL ONE.** Due to the poor quality of gaskets available, SPT has tested and approved the installation of the VB without the gasket.

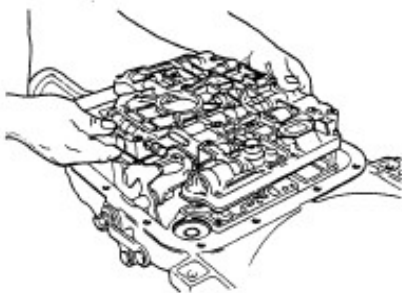


On 1988 and newer reinstall the box shaped filter screen in the case passage with Vaseline as an adhesive. Lift VB into place, sure to engage the manual valve with the rooster comb knob in the OUTERMOST slot in the valve. Stroke the TV valve plunger with your finger as you maneuver the VB into place to allow the TV lever to engage. Once everything is aligned and nothing is binding, insert the two (2) short shanked corner bolts mentioned earlier in outermost drivers side rear and passenger side front.

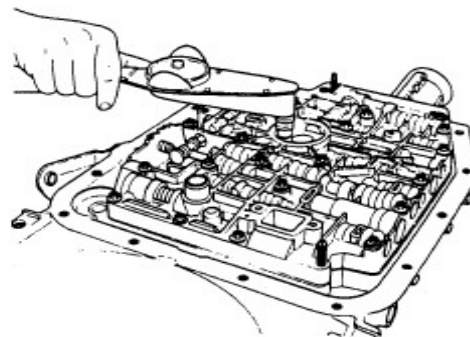
Reinstall the remaining twenty-two (22) bolts, paying attention to the long and short bolt locations. Tighten the bolts to 7-10 foot/pounds (84-120in pounds) working from the middle of the valve body out. Using the new filter gasket, attach and tighten the filter to 7-8 foot/pounds. **DO NOT OVERTIGHTEN BOLTS.** Best results are around 100inch lbs.

Reinstall the oil pan using the supplied gasket. Tighten the bolts to 6-10 foot/pounds. Refill the transmission in a known fashion. Recommend fill with 4 quarts, start engine, continue fill to full. **DO DO NOT OVERFILL TRANSMISSION!** After first road test recheck transmission for leaks and proper fluid level.

NOTE: Make sure the manual and throttle levers are properly positioned before installing the valve body attaching bolts



Loosely install 22 valve body attaching bolts using an 8mm socket. Starting at the center and working outward tighten the bolts to 9-11 N.m. (80-100 lb-in.).

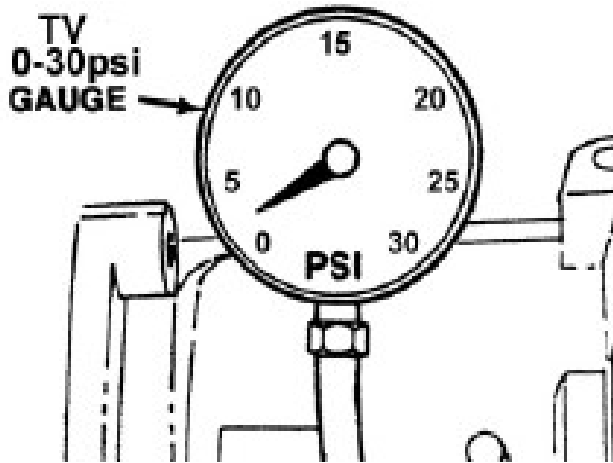


AOD TV PRESSURE SETTING

The T.V. linkage and pressure adjustment is critical to proper operation and service life of your AOD. If you experience shift malfunctions they may very well be related to your T.V. system adjustments. Consult a comprehensive AOD transmission manual for the proper adjustment procedures for your vehicle.

With SPT valve bodies, it is safe to set the TV pressure so there is no slack at idle

- 1) On a stock VB or any shift kit modified VB I recommend 5-11 psi at idle or @ 1000 RPM - hot.
- 2) With gauge tool – install in throttle linkage (5/16" rod in throttle stop) set pressure to 35 psi – hot
- 3) WOT TV should be around 90 psi



WOTS System, SPT-1, SPT-R, SPT-MAC, SPT-MAC-TB

If your valve body is equipped with the WOTS system or is one of the alternate VB's listed, please read the additional supplement before any work is done.

BUZZING SOUND AT IDLE – Constant pressure valve bodies

This buzz is known as TV BUZZ, a common complaint about the AOD up to around 1989. After 89 the gasket was revised to allow a small amount of back pressure to the tv circuit. With constant pressure valve bodies this feature must be eliminated and the buzz may exist. Adjusting the tv cable and/or idle speed will affect the sound. The buzz is directly related to the AOD gear rotor pump impulses.

Please note any SUPPLEMENTS to this manual for alternate SPT Valve bodies.

All AOD valve bodies are tested prior to shipment to ensure proper pressure and function. Auto shifting valve bodies are calibrated using the specs you provided regarding. Shift rpms are not an exact science. There are many factors that affect shift RPM between each valve body and its application. SPT's experience and patience is the key to making this the best for your application.

Be cautious to keep work area clean and the components clean for installation.

If your transmission is showing signs of weakness (e.g. burnt fluid, excessive slippage, erratic operation or other indications of mechanical failure), this valve body will not cure the transmissions problems. In fact installation of this kit will probably only worsen the problem due to demand in an increase in the performance of the internals of a weak transmission. This valve body is designed to reduce slippage, increase life of transmission, and increase performance of the shift overlap and some lubrication aspects. However it can not replace any lost friction material or fix any internal issues.

Warranty is only valid for use on normal operating known good transmissions.

All instructions must be followed correctly. Any deviation may result in default of warranty.

Installation within 30 days is recommended to prevent sticking valves. If a period of long storage is predicted, please ensure the VB is kept in a clean area away from electromagnetic source to prevent corrosion of the steel valve to the aluminum casting which may exacerbate the potential for sticking valves.

Dan Gilsdorf Silverfox Performance Transmission 18212 S Walker Est Rd Pleasant Hill, MO 64080 816-365-6215
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Wide Open Throttle Screw (WOTS)

ONLY FOR AUTO SHIFT VALVE BODYS – NOT MVB, MVB-TB

AOD SPT1, SPT-R, and SPT-MAC of all designs include a Wide Open Throttle Screw (WOTS) that allows fine tuning of shift points at heavy throttle. This screw has been pre-adjusted at SPT's discretion regarding your application and info you provided.

Post install adjustments can be made.

For each ½ turn you can adjust the shift point 100 RPM.

Clockwise (in) for higher shift points and counterclockwise (out) for lower. This adjustment will not affect firmness.

Before adjusting the WOTS utilize the TV adjustment to fine tune shift points.

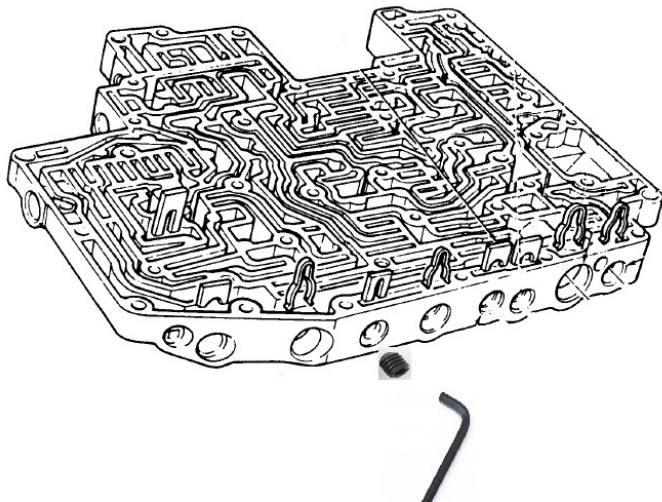
The WOTS is capable of adjusting the shift point in a range of +800 and -200 RPM from base line adjustment. Some adjustment has been taken already. The governor installed in your transmission will determine the base shift point which the WOTS will modify. Your choice of governor will not affect VB function or shift firmness – only shift rpm.

Never over tighten the screw past “bottomed”. Just before the screw bottoms out the WOTS will be adjust to a constant open state where shift pressures are no longer limited and will produce very high shift points and possible NO UPSHIFT situation could occur at WOT. If you reach this point, adjust the WOTS back until the condition disappears.

Contact SPT about upgrading your governor if TV cable and WOTS adjustments do not accomplish your desired WOT shift RPM.

WARNING: The WOTS system is under spring tension and if backed past the -1 turn from base line could result in plug ejection.

The WOTS is located on the passenger side just under the test ports.



SPT-R / MAC / MAC-TB / MVB / MVB-TB Supplement Instructions

This VB requires an electric switch be installed inside the cabin of the vehicle for proper operation. The suggested wiring method is to use the supplied case harness similar to (Fig1).

- Drill a single 5/16" hole in the case anywhere in the hash marked area pointed out (Fig2) (3.5" from rear of case, 2.7" from side of case) Be sure park rod operation does not interfere with wiring.

TIP: Use a vacuum to collect the shavings as you drill

- Smear a dab of oil onto the plug. Insert wired plug from either top or bottom side of transmission. Massage the plug through the hole. Using pliers, gently finish pulling the exposed plug through the hole.

- Install the valve body per the supplied instructions leaving out one bolt near the drivers side rear corner

- **Finish by securing the ring terminal (BLACK WIRE - Ground) of the rear solenoid to the bolt previously mentioned.**

- **Connect the switched wire (RED WIRE – 12v+) to the rubber plugged wire assembly (Quick-Link instructions below).**

To complete the switch wiring you will need roughly 6ft of 14 - 20 gauge wire, butt splice or spade connectors, and a typical on/off switch of your desire. Mount the switch in the cabin within reach. It is recommended the supply voltage be a fused KOER source with a max of 10A fuse. Voltage should be powered when the key is in the run/on position only to prevent battery drain when not in use. Power one terminal of the switch with 12v+ and the other terminal with solenoid wiring. If the switch is lighted, be sure to wire it according to your desire.

OVERDRIVE: Rear Solenoid

*RED wire, see wire notes below

A 12v on/off switch is required to toggle OD.

SPT-R / MAC: With switch ON, OD upshift is canceled or forced to downshift to 3rd.

When OFF, OD will engage as normal depending on road speed.

MVB: OD functions are only active with gear selector in 3rd. With switch OFF, OD upshift is canceled or forced to downshift to 3rd. When ON, OD will engage

It is highly discouraged to shift from 4-2 without turning OFF the OD switch to engage 3rd first. This practice prevents accidental 2-4 upshift (skipping 3rd).

TRANSBRAKE (MAC-TB / MVB-TB only): Front Solenoid

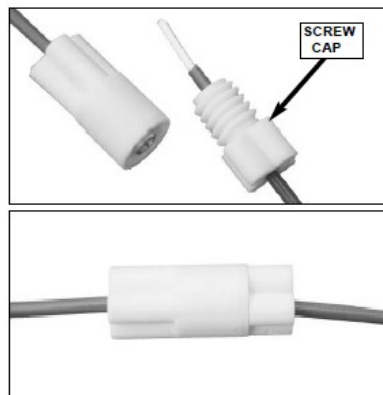
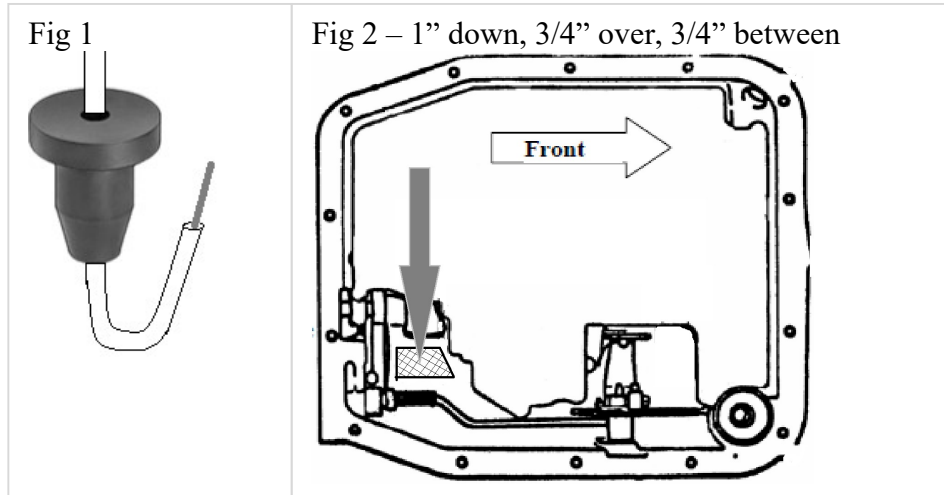
*BLACK wire, see wire notes below

A 12v MOMENTARY switch is required to operate the TB.

TB will only apply in 1st gear as a safety precaution. Practice is required to get used to the brake apply and release timing. Staging with the TB activated increases trans temperatures very quickly. PLEASE NOTE: Most SPT valve bodies do not require the TB be activated for reverse, some exceptions may apply (ie, reverse patterns, custom valve bodies, etc).

**The TB solenoid may require an additional bracket (Fig 3) – this bracket is zip tied to the location. Install tight against the solenoid with a vb bolt so that one finger folds over the end of the solenoid to prevent it from popping out. The filter will rest against the solenoid.

***WIRE NOTES:** Wire color may vary on some units. Please note the location of the solenoid (OD;rear, TB;front) and wire accordingly.



QUICK CONNECT INSTRUCTION:
 -strip 3/8" wire,
 -place cap on wire,
 -insert bare wire into metal barrel,
 -thread cap on to secure wire.



Fig 3