SHIFT KIT T.M.
TURBO HYDRA-MATIC 200

SK200™ SHIFT KIT™ 1976-78 INSTRUCTION SHEET

SK200™-IS-A

Although this transmission has received tons of bad publicity, we have found that it works great with some major changes in calibration.

This SHIFT KIT™ is really an almost total reengineering of the valve body.

SURPRISINGLY: A 200 with a SHIFT KIT™ installed and the T.V. adjusted properly feels very much like a really good 400. Gas mileage and performance is much improved and durability is probably doubled.

EVERY CUSTOMER that drives in, especially those with "normal" working 200's, should be offered this kit and a service for $130-$160. The result will delight your customer by giving him a transmission that really performs well, in place of one that just gets by.

HERE IS WHY AND HOW

REVERSE-DELAY leak has been discarded and has been replaced with a nearly parallel hi-rev clutch feed circuit that results in quieter and quicker reverse engagements. This eliminates DELAYED-REVERSE and delayed-harsh complaints.

3-2 DOWNSHIFT CLUNK at 12-20 MPH has been corrected by utilizing a dual orifice on band release oil to cushion the band apply during coast downshift.

SOFT 1-2 at light throttle and HARSH 1-2 at heavy throttle has been corrected by eliminating T.V. sensitive accumulator system and furnishing a more flexible accumalator system that uses constant rate absorption and orificing.

SLOW 2-3 or BIND-UP during 2-3 or gets slow or bindy when hot has been corrected by using the hi-clutch exhaust circuit to also feed the high gear circuit. This furnishes 3½ times more oil for high gear. Enough to safely cover the internal leaks that are often difficult or impossible to find and fix.

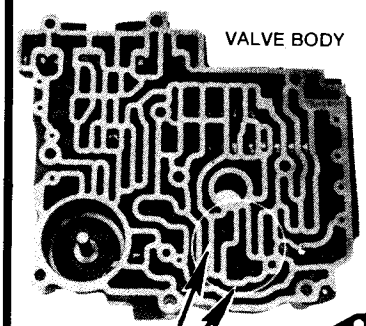
2nd GEAR starts are corrected with re-designed spring and governor adjustment.

LATE SHIFTS and EXCESSIVE PASSING GEAR are corrected by allowing more safe FLEXIBILITY IN T.V. ADJUSTMENTS.

SUMMARY: A SHIFT KIT corrects the following common original complaints: soft 1-2, harsh 1-2, slow 2-3, soft 2-3, 2-3 bind-up, delayed reverse, 3-2 clunk, late shifts, excessive passing gear, 2nd gear starts. Increased gas mileage and durability come as a bonus.

IDENTIFICATION:

This kit fits all 1976-78 THM 200's. It will not work in 79 & later models.

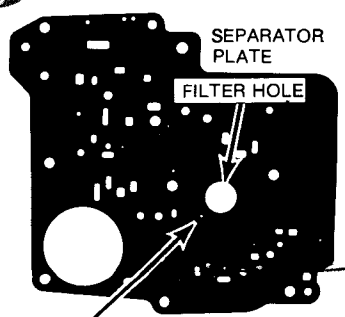


HOW TO IDENTIFY 1976-78 TYPE

FIGURE 1

TWO HATCHET SHAPED PASSAGES HERE

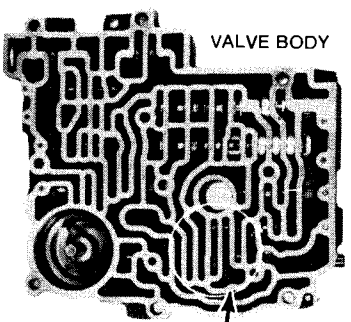
THIS KIT FITS THIS TYPE ONLY



REVERSE BOOST HOLE LOCATED AT THE 7:30 O'CLOCK POSITION IN RELATION TO THE FILTER HOLE

FIGURE 2

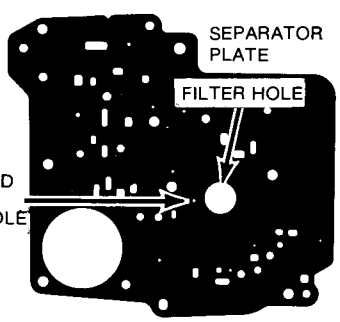
HOW TO IDENTIFY 1979 TYPE



THIS KIT WILL NOT FIT THIS TYPE V.B.

FIGURE 3

ONE FIRE AXE SHAPED PASSAGE



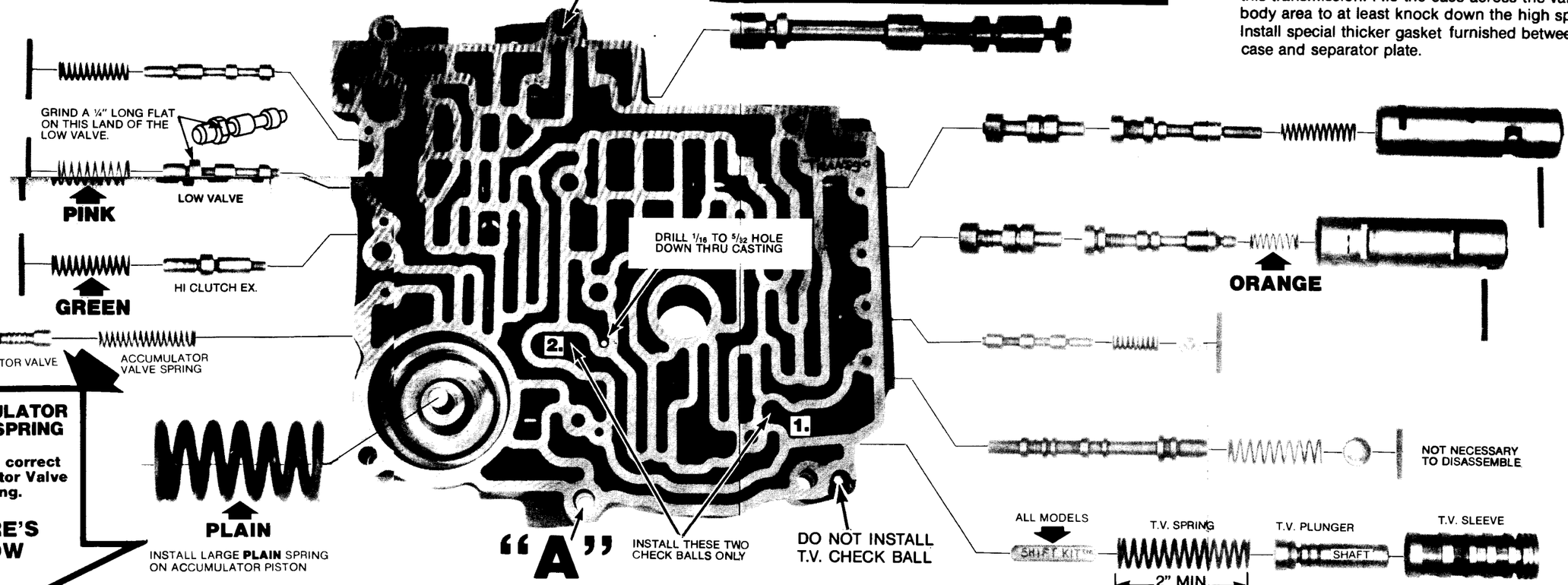
REVERSE BOOST HOLE LOCATED AT THE 9:00 O'CLOCK POSITION IN RELATION TO THE FILTER HOLE

FIGURE 4

VALVE BODY

DRILL HOLE SHOWN AND INSTALL SPRINGS FURNISHED WHERE SHOWN. ALL OTHER LOCATIONS - REINSTALL ORIGINAL SPRINGS.

ALL OF THE "SHIFT KIT™" INSTRUCTIONS ARE ON THIS PAGE



ACCUMULATOR VALVE SPRING

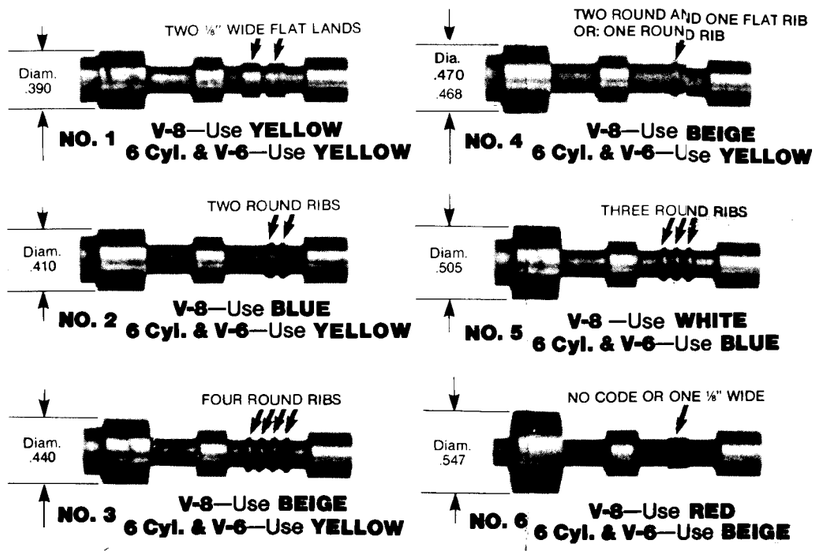
Selecting correct Accumulator Valve Spring.

HERE'S HOW

INSTALL LARGE **PLAIN** SPRING ON ACCUMULATOR PISTON

4 CYL: Do not install **ANY** accumulator valve spring.

Figure 9. **ALL V-8's 6 CYL. & V-6's** Install the color shown



NOTE: There are two bolt holes in the valve body marked "A." These two holes are close fitting "Line Up Holes." Always install and tighten these two bolts first and your gaskets and separator plate will be aligned perfectly.

CROSS LEAKS AND HOW TO FIX:

Cross leaks between case and valve body are a common cause of complaints and failure in this transmission. File the case across the valve body area to at least knock down the high spots. Install special thicker gasket furnished between case and separator plate.

If necessary, grind T.V. spring. Much time is often spent adjusting T.V. to avoid late, light and medium throttle shifts and still have detent. Grinding spring when required, will make adjusting T.V. much easier.

GOVERNOR: Remove the original spring and install small **BLACK** spring furnished.

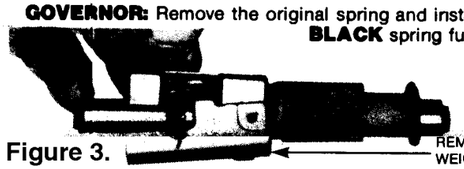


Figure 3.

Insert a cotter pin or safety wire down through hole as shown, then slide black spring over it.

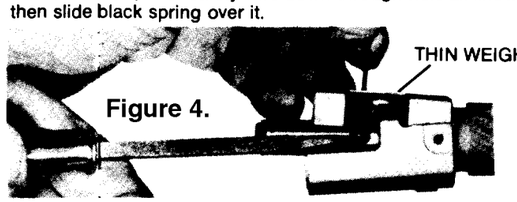


Figure 4.

Lift black spring into position with a thin bladed screwdriver.

GOVERNOR ADJUSTMENT: Insert screwdriver between the thick weight and shaft, force thick weight away from shaft until it aligns with slot in governor gauge. Align small weight also.

Figure 5.

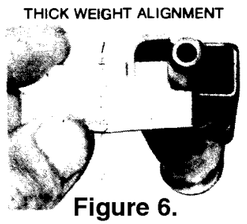


Figure 6.

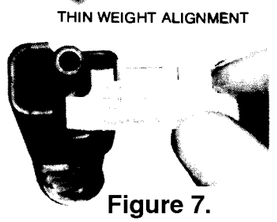


Figure 7.

THIS COMPLETES SHIFT KIT™ INSTRUCTIONS (PAGES 1 & 2) THE REVERSE SIDE (PAGES 3, 4 & 5) COVER T.V. ADJUSTMENTS AND CORRECTING PROBLEMS CAUSED BY MIXED OR MISMATCHED PARTS

YOU DO NOT NEED TO READ THIS SIDE
PAGES 3, 4 & 5 ARE ADDITIONAL REPAIR INFORMATI

T.V. ADJUSTMENT

This is the part that decides whether you've got just a good working transmission or one that really shifts right at the "RIGHT TIME."

FIRST STEP: Pull the T.V. adjustment tab "UP." A 90° scriber is the best tool to use.

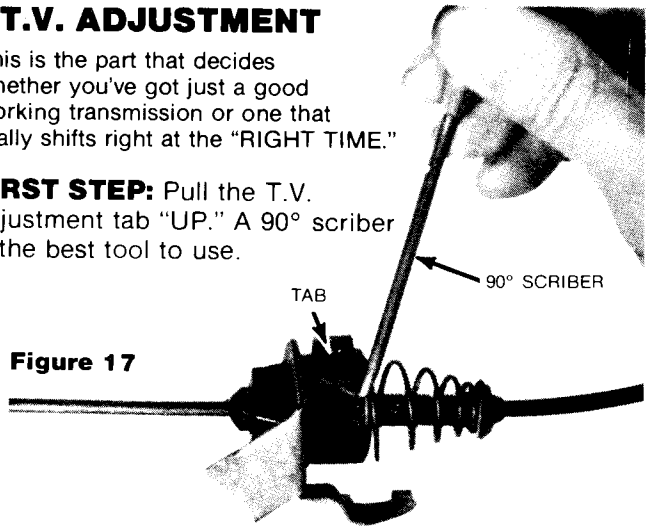
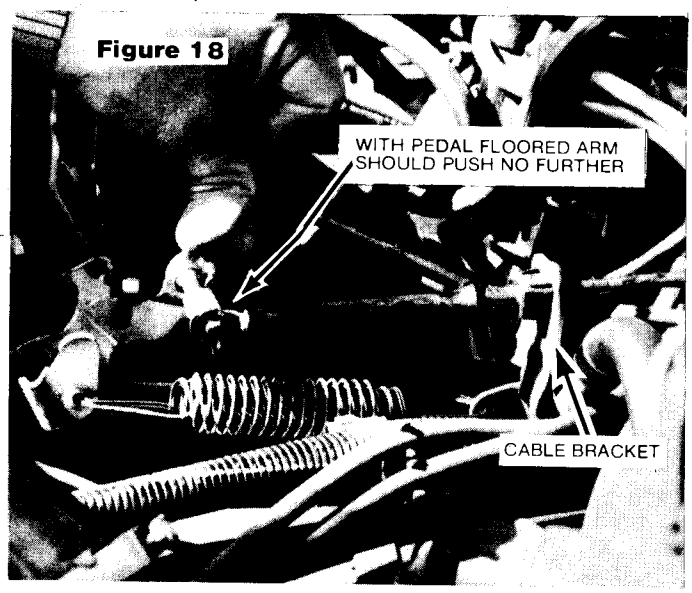


Figure 17

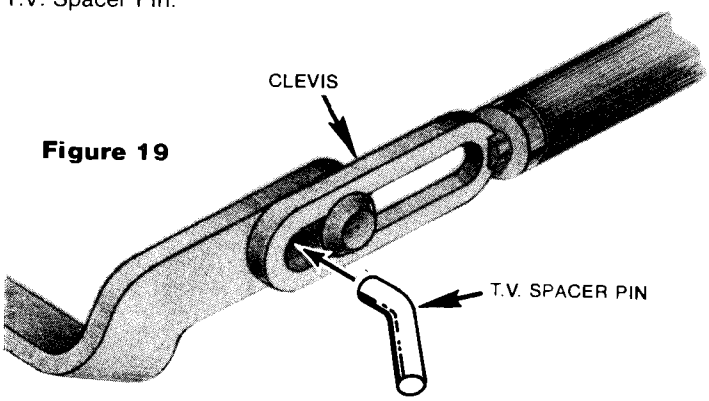
SECOND STEP: Now have someone floor the gas pedal FROM INSIDE THE CAR. While the pedal is floored, push the carb arm and see if it will move further. If it moves further, then adjust (Bend) cable bracket towards firewall until you are certain of wide open throttle.

Figure 18



THIRD STEP: With tab up as shown in Figure 17, pull clevis forward and insert the T.V. Spacer Pin (furnished) as shown in Figure 19. Hold spacer pin in position and push throttle to wide open. Now push down T.V. adjustment locking tab. Remove T.V. Spacer Pin.

Figure 19



Adjustment with T.V. pin gives earliest possible shifts while still retaining kick downs.

FOURTH STEP: Road test, checking shift timing and passing gear. If firmer or later shifts are desired adjust cable snout 1/16" closer to adjusting assembly.

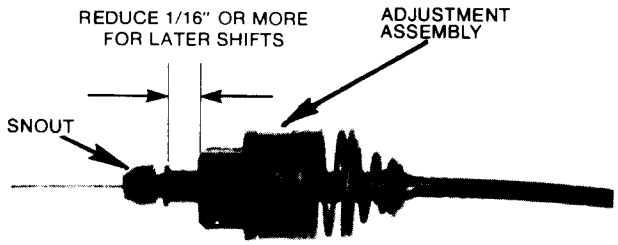


Figure 20

HI CLUTCH FAILURE: So commonly encountered in this trans, in our opinion, could be eliminated by installing this kit **before failure occurs.**

KNOWLEDGEABLE MECHANICS - have found that the shifting of the 200 trans is not very good. In our opinion a 200 needs a SHIFT KIT™ when the car is **BRAND NEW.** The biggest favor you could do for every 200 on the road is drag it into your shop and put this kit in it. The customer will be delighted to have a really good working trans and better gas mileage. You will rapidly become known as "The mechanic who can make **200's WORK RIGHT**".

Developing this kit was a couple of years of pain, agony, failures and successes. I am humbled that it took so long to "Get ~~it all~~ together," but we are proud that we can now join with you in offering a really good working 200 to the car owner.

Very Truly

GIL YOUNGER

ADDITIONAL REPAIR INFORMATION:

1. We know that you will encounter mismatched parts in this transmission such as wrong T.V. plunger or spring, wrong P.R. spring, wrong valve body, wrong front servo, etc. The resulting complaints are late shifts, rough 1-2, soft 1-2, etc. Experience has shown that correcting the particular complaint is a lot quicker and easier than complaining about mismatched parts and trying to make sense from a bunch of specifications and numbers.
2. Being a "Hero" does not depend on how fast you can change parts. It depends upon how often you can change or adjust the RIGHT PARTS "The First Time." This depends upon our willingness **to LISTEN to what the CAR IS SAYING instead of insisting that the car listens to what we are saying or doing.**
3. If you learn how to deal with "mismatched parts complaints," you will quickly become the "200 hero" in your territory by easily fixing the ones that have been driving everyone else up the wall.
4. Remember that the calibration causes of most common complaints have been corrected by installing a Shift Kit™. The following information is how to handle the MISMATCH COMPLAINTS that still exist AFTER the INSTALLATION of a SHIFT KIT™. In some instances these fixes would not be safe to use with original calibration, but are completely safe with SHIFT KIT™ calibration.

'AGES 3, 4 & 5) TO INSTALL KIT.
N ABOUT CORRECTING MISMATCHED PARTS.

5. All of these FIXES are ONE THING ONLY FIXES. Everything else must be O.K. EXAMPLE: We would not do a fix for a rough 1-2 shift if we also had late shifts, or stacked shifts, or high gear starts.

RULE 1. Fix WHEN it shifts first.
RULE 2. Fix HOW it shifts ONLY AFTER the WHEN it shifts is fixed.
RULE 3. Drive it first to "qualify it" then fix it.
RULE 4. Follow CAUSE and SOLUTIONS in the order given, don't try to choose what you think it is.

6. COMPLAINT: Very late upshift or no upshifts.
QUALIFY: 1-2 above 30 MPH and hot and cold has very little effect, if any.
CAUSES: (1) GOVERNOR. (2) Checkball installed in the case. (3) T.V. Valve, Plunger Shaft and Sleeve mismatched.

1. GOVERNOR: Hold the governor horizontal with the large weight towards the ground and place the feed end in your mouth. Blow into feed end with your cheeks (not your lungs). It must be air tight. If it is air tight go to #2. If it leaks, look and see if the tab on the big weight is hitting the plastic with the big weight in the "out" position. If tab is hitting plastic before it seats the ball, bend the tab down against ball until leak is corrected. Then readjust the big weight as shown in Figure 5 and 6. This time bend it out just far enough to see the inside edge through the gauge. If it still leaks because tab hits plastic before the ball is seated, grind the plastic. If it leaks for any other reason change it. Governor must be air tight with weights in the "out" position. Road Test.

2. CHECKBALL INSTALLED IN THE CASE: If you are POSITIVE there is not a checkball in the case go to Step 3. Removing checkball: Remove pan and filter. Loosen valve body bolts enough to lower valve body and plate and remove ball located over T.V. bellcrank assembly. If there was no checkball in the case, see Step 3.

3.T.V. PLUNGER SHAFT AND SLEEVE MISMATCHED WITH T.V. VALVE:

If T.V. Plunger Shaft and Sleeve is too **SMALL,** you will have erratic very late upshifts or no upshift.

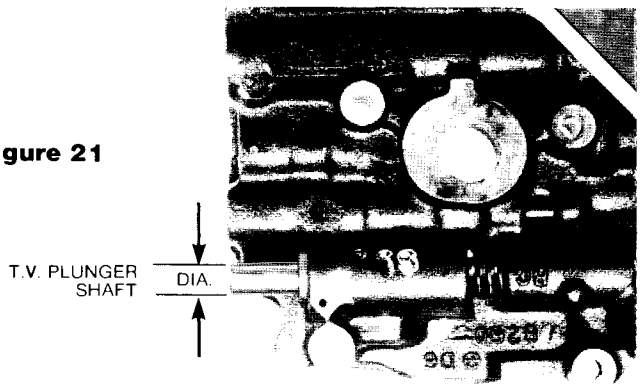
If T.V. Plunger Shaft and Sleeve is too **LARGE**, the throttle will be hard to push.

The Shaft on the T.V. Plunger comes in 3 different sizes (diameters) to match 3 different T.V. Valve sizes.

The code on the T.V. Valve, in the valve body, will tell you what size T.V. Plunger and Sleeve must be used. Follow the arrow from **"T.V. VALVE"** in FIGURE 8 (page 2-3) and look at the spool part of the valve as you move the valve back and forth slowly.

CODE ON T.V. VALVE
1 Machined Rib = Use .430 Dia. Plunger and Sleeve
2 Machined Ribs = Use .390 Dia. Plunger and Sleeve
No Machined Rib = Use .357 Dia. Plunger and Sleeve

Figure 21



7. COMPLAINT: Very quick shifts (too early).
QUALIFY: Adjusting T.V. has no effect.

1. T.V. cable disconnected: Have someone push gas pedal to see if T.V. plunger is moving with pan off. Connect as necessary.

2. Remove valve body: Check gaskets and checkball location. The gasket next to the valve body must have "VB" cut through it above the manual valve. The gasket between the case and separator plate must have an "O" or "C" cut through it along the back edge about 2" in from the manual valve side. If #1 checkball is out of position or missing, there is no T.V. See Figure 8.

8. COMPLAINT: No detent when T.V. is adjusted for proper shift points at light and medium throttle.
QUALIFY: When T.V. is set so that detent is available, the light and medium throttle shifts are late.
CAUSE: (1) Carb not getting wide open. (2) T.V. Spring is too long.

1. Have someone floor the gas while you check for W.O.T. as shown in Figure 18.

2. T.V. SPRING TOO LONG: Remove pan-T.V. bellcrank assembly, roll pin, T.V. plunger and sleeve, T.V. spring and detent spacer. Grind on end of the spring until spring is 2" long (+1/16"). Reassemble. Don't forget to reset T.V. because shifts could now be early or soft unless you adjust T.V.

9. COMPLAINT: ROUGH 1-2 shift at most throttle openings but mooth under the very lightest throttle.
QUALIFY: Shift to high is at right speed and O.K.
1. Remove pan; see if you drilled the hole in valve body.
2. If hole is drilled, removing the accumulator valve spring will soften the 1-2 shift. HERE'S HOW—with needle nose pliers remove the accumulator valve roll pin. Remove the plug, valve and spring. Discard spring and reassemble. Open up one end of the roll pin slightly and reinstall it from the bottom.
3. If still rough, install smaller servo assembly. 1976-78 servo assemblies work just fine on all year models with Shift Kit ™

10. COMPLAINT: Soft 1-2 all throttle openings or slide bump on hard throttle.
QUALIFY: More throttle makes it worse.
Install higher number accumlator valve spring (2 steps higher) and road test. If not fixed install larger servo. 1976-78 servo's can be used in '79 and later models with Shift Kit™

11. COMPLAINT: Late 1-2 shift or stacked shifts (common in diesels and Chevrolet Nova).
QUALIFY: All other shifts O.K. and 1-2 T.V. bushing has #8 stamped on the end.
SOLUTION: Install #6 or #5 1-2 T.V. bushing and valve using SHIFT KIT ™ spring.

Have a Nice Day!®

PRESSURE REGULATOR VALVE & SPRING COMBINATIONS What a trip this stuff is

Why do you need this information? Usually you won't, it is here for when you are having a problem caused by mixed or mismatched parts.

COMPLAINT: Diesel with wrong geat starts
QUALIFICATION: Idle line pressure over 80 in "D"
SOLUTION: Install code "C" PR spring (8630093)

COMPLAINT: V6 with rough shifts allover (maybe high gear start?)
QUALIFICATION: Stall line pressure over 148 lbs.
SOLUTION: Install code "D" PR spring (8630345)

COMPLAINT: V8 with passing gear spinup and/or soft shifts.
QUALIFICATION: Pressure under 143 lbs in "D" at stall.
This is very common after changing stator support.
SOLUTION: Install code "C or G" PR spring.

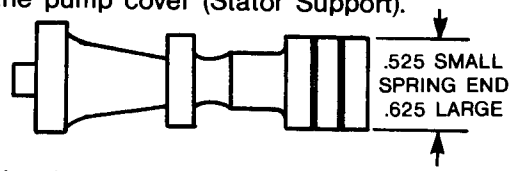
COMPLAINT: V8 with rough shifts all over
QUALIFICATION: Line pressure in "D" at stall over 153 lbs.
SOLUTION: Install weaker PR spring. Try code "D" (8630345)

COMPLAINT: Loses passing gear at too low of speed.
QUALIFICATION: Pressure at 1000 RPM in "P" is OK, but stall pressure is 20 or more lbs low.
CAUSE: Small PR valve matched with a valve body that was meant for use with large PR valve. Result is low shift TV pressure.
SOLUTION: Install V.B. with stronger shift TV spring or change spring.

COMPLAINT: V8 or V6 with soft shifts or any cutloose.
QUALIFICATION: Line pressure less than 70 lbs at 1000 RPM in "P"
CAUSE: Very easy to install stator support from 4 cyl or small V6 into a V8 and have this complaint.
SOLUTION: Install correct PR spring. Code "C or G"

EXTREMELY IMPORTANT: Deburr the PR valve bore, in the stator support, BEFORE removing the snap ring. Be especially careful to remove all burr that the snap ring has kicked into the bore; BEFORE REMOVING SNAP RING.

PRESSURE REGULATOR VALVES: Have two sizes and are measured on the spring end. They are matched with the pump cover (Stator Support).



SMALL valve-will fit sloppy into 9/16" open end wrench
LARGE valve-will not fit into 9/16" open end wrench.
1976 covers (non-check ball) used the LARGE valve.
1977-78 most covers used SMALL valve. Some 305-350 Chev & olds with 4 barrel carb used LARGE.
1979-82 All covers used SMALL valve except 305 Malibu & Camino

Now the good news; Don't worry be happy—if you happen to have a mismatch, changing the P.R. spring will make it OK.

P.R. SPRING APPLICATION

Engine	Size	With Small P.R. Valve	With Large P.R. Valve
V8	300up	C	G,C
V8	267	C	H,D
V8	260	C	H,D
V6	260	D	J,E
6	250	D	J,E
V6	231	D	J,E
V6	229	D	J,E
V6	200	E	J,E
V6	173	E	J,E
4	151	E	K,F
4	119	E	K,F
4	97	F	K,F
4	85	F	K,F
4	Opel	E	K,F
V8	Diesel	C,B	G,C

PRESSURE REGULATOR SPRING IDENTIFICATION CHART

Code	Part Number	Color	Length l .030	Coils	Diam. l .005	Tension at 1.300"	Wire Dia.	P.S.I. Park 1000 R.P.M.
A	8632551	Pink	2.150	15	.515	25	.071	86 ± 3
B	8633579	GRN	1.980	15	.515	24	.071	82 ± 3
C	8630093	RED	2.430	17	.515	22	.065	74 ± 3
D	8630345	GRN	2.600	17¾	.515	19	.062	64 ± 3
E	8630175	PUR	2.490	17½	.515	15	.061	50 ± 3
F	8630174	GRN	2.480	18¾	.515	12	.058	40 ± 3
G	8630093	WHT	2.430	16½	.545	21½	.067	72 ± 3
H	8628051	BLU	2.775	17¾	.545	19	.061	64 ± 3
J	8628127	YEL	2.650	18	.545	15½	.060	52 ± 3
K	8628126	Pln	2.900	18	.540	12½	.055	41 ± 3

A thru **F** fit both large & small valves. **G** thru **K** large only. There are three GRN color springs. It is very easy to tell which one you have or need. The 24 LB is a little under 2" long. The 19 LB is over 2½" but less than 2⅝". The 12 LB is under 2½".

200- 200 4R- 325- 325 4L- 700
COMPLAINT: Erratic shifts. Late, then OK, late then OK. 2nd hangs.
QUALIFICATION #1: You are certain the valve body TV plunger and sleeve matches the TV valve.
QUALIFICATION #2: Line pressure sticks at various readings. This means it does not come back to minimum every time you take your foot off the throttle, but will occassionally come back to minimum by kicking the throttle.
CAUSE: Sticking TV valve. This is very common if trans had a failure that made metal particles or has a converter that is making metal.
SOLUTION: Reduce TV valve diam .001". Remove the TV valve from valve body. The TV valve has three lands. #1 land is the smallest diameter. #2 land is a twin land. #3 land is the end land (largest). With a micrometer measure the #2 twin land and the #3 large land and write it down. Reduce the size of #2 and #3 land .001".
HERE'S HOW: Install small land into electric drill motor. Install drill motor into vise to hold it firm and turn it on. Place a ½" wide strip of emery cloth (80 to 180 grit) on a narrow file and bring it UP FLATLY against #3 land while the valve is spinning. Stop and mic it every few moments so that you will know when you have made the valve .001" smaller. Now do the same thing to the #2 twin land. DO NOT sand or hone #2 and #3 lands at the same time, they are DIFFERENT SIZES. Now reinstall TV valve. Do not stand or hone the #1 land, it will not need to be smaller.