

# SK® AOD-H SHIFT KIT®

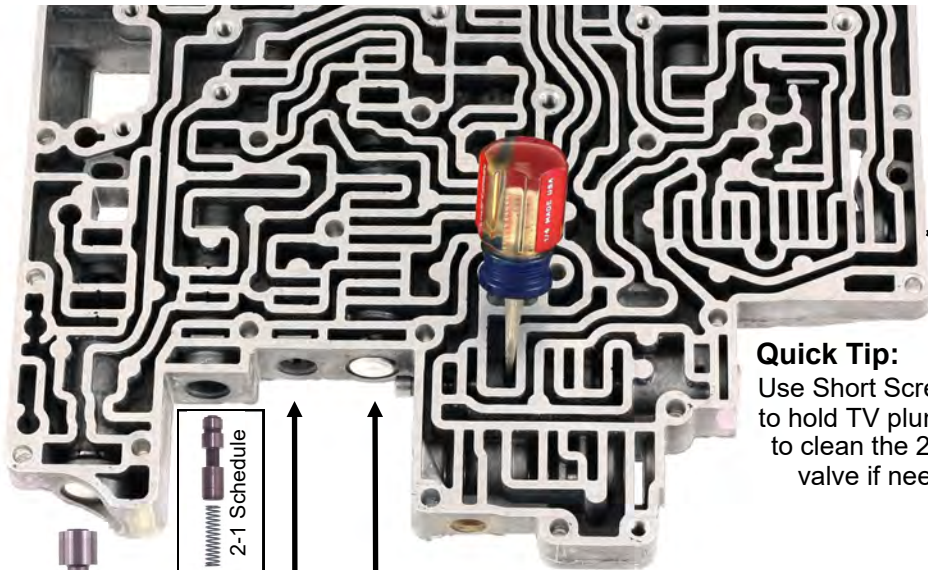
## Corrects/Prevents/Reduces

1-2 Bump or Slide, 2-3 Bump or Slide-Bump, Rough Down-Shift, 4-3 Cut-Loose or Bind-Up, 4-3-4 Shuttle-Hot, 4th Shudder-Light Throttle, O.D. Band Failure, Excessive Shifting, Late or no 4th, Falls out of 4th, Converter Dampener Breakage, 3rd Shaft Breakage.

First time using this product?  
Read "A Little Straight Talk"  
from Gil on page 6 first.

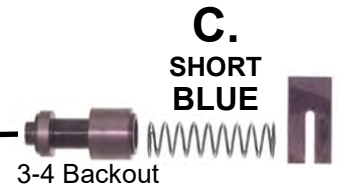
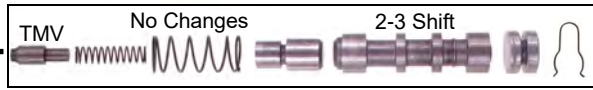
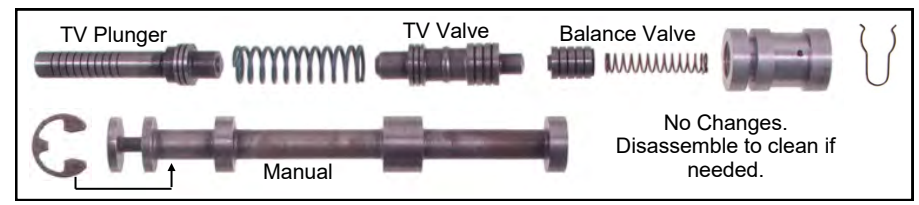
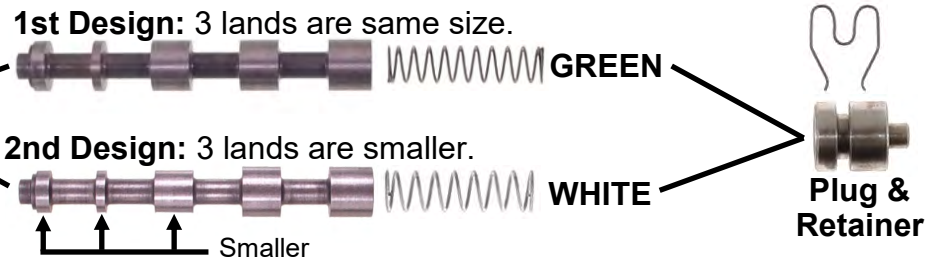


**WARNING:** This isn't a "do-it-yourself" kit. It is for the experienced, professional trans mechanic and is used for improving performance, durability and reducing complaints. It doesn't make HARD shifts, nor let you transplant transmission, engine, carbs, or linkage.

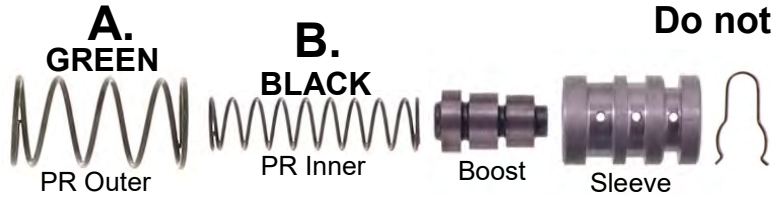


**Quick Tip:**  
Use Short Screwdriver to hold TV plunger "In" to clean the 2-3 shift valve if needed.

**D. 2-3 Back-out:** Select spring & install with new plug & retainer.



Please! Only open each bag of parts as the instructions require them for that page!  
**Do not mix them!**

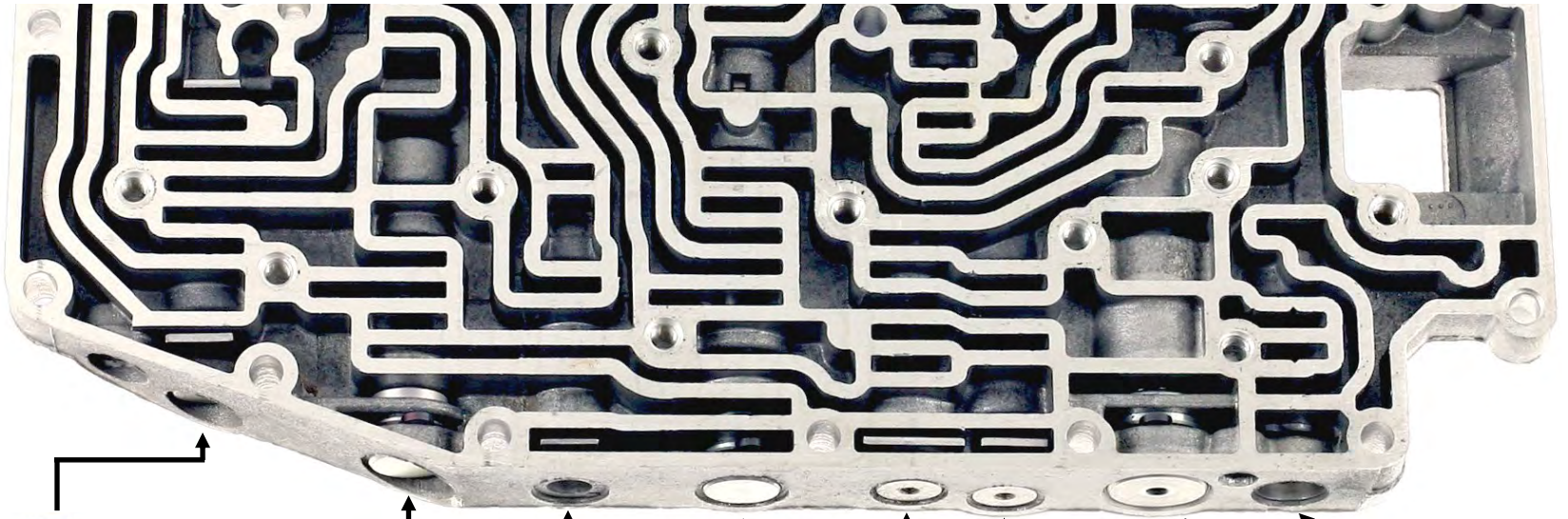


Over-adjusting the TV either way to correct a bad shift is a losing game. Adjust the TV until the start of the shift is where it should be. Then if the shift is too long or short, fix that shift. This will make the vehicle, you and the customer all winners.

For removing the plugs that the factory puts threads in, a 4mm bolt is furnished.

# A. 2-3 Capacity:

**Controls 2-3 Shift Feel.**  
 Ford built this trans with 5 medium capacity direct (3rd) frictions. Repair quality and durability is greatly improved with 6 or 7 high capacity friction.  
 Open sub-pack containing a Clip, 3 small springs (Red, Yellow & Green) & 1 small flat washer.



## Read this CAREFULLY!

If washer **WILL** fit over end of valve:  
 With 5 frictions:  
 Install **GREEN**  
 6-7-8 Frictions:  
 Install **YELLOW**

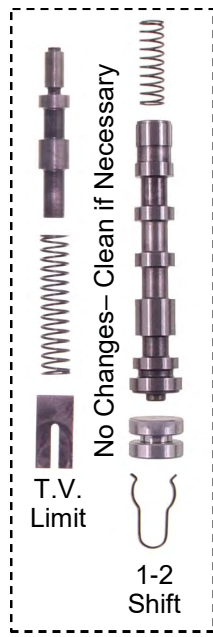
If washer **WON'T** fit over end of valve:  
 5 frictions:  
 Install **RED**  
 6-7-8 Frictions:  
 Install **GREEN**



**Any Vehicle 1985 & Up**  
**Skip step C.**  
 Re-Use Original Springs



## C.



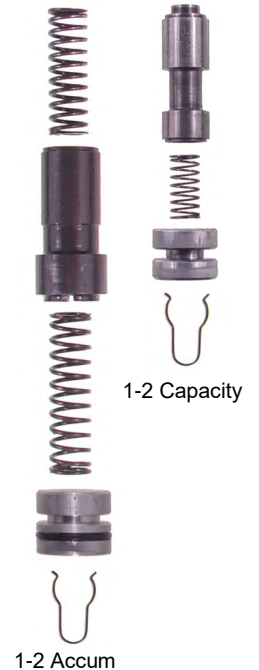
## D. BLACK



## E. SMALL RED



## F. Smart Act™ ACCM System is in Separate Pack

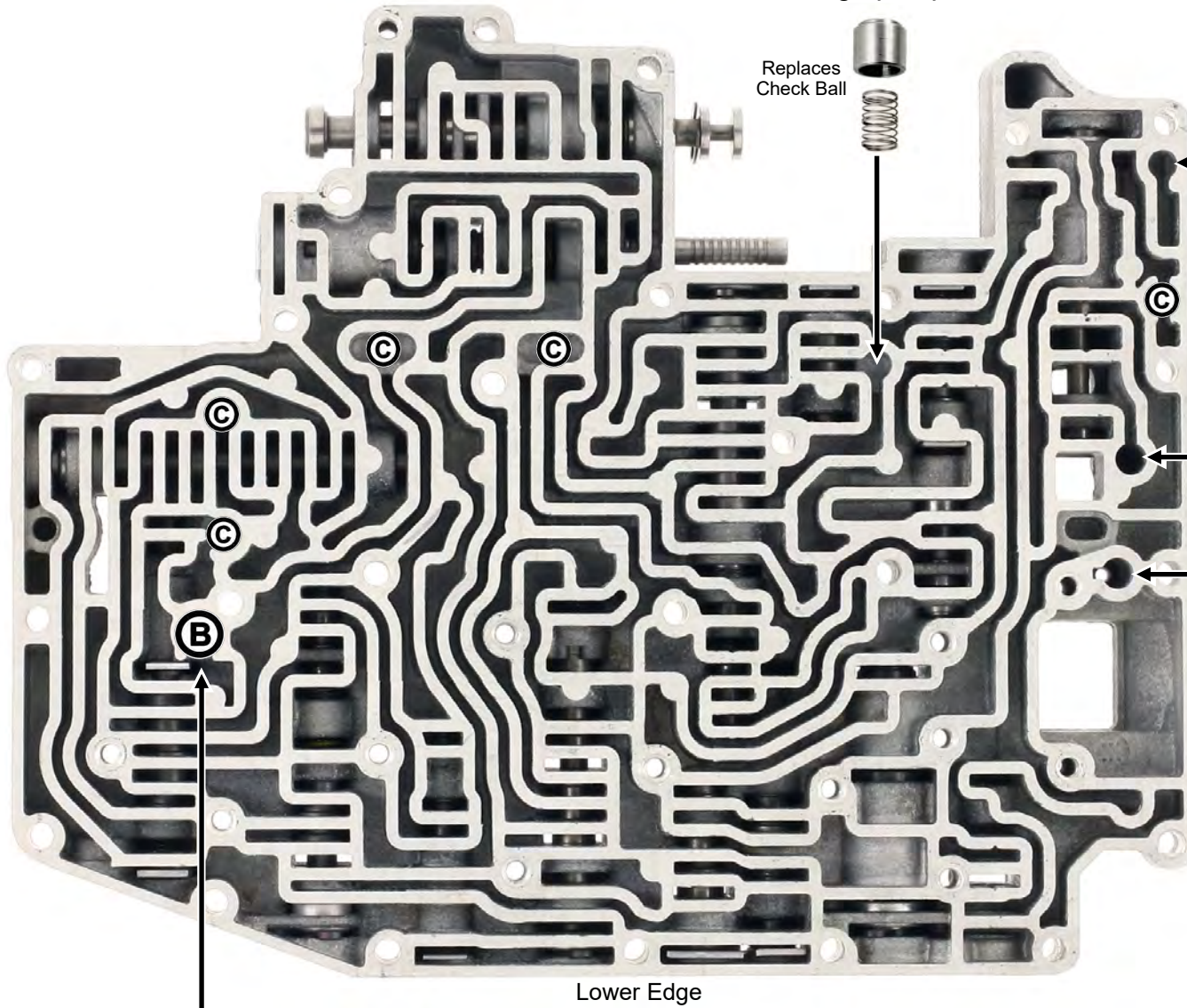


**A. 4-3-4 ORIFICE VALVE**  
 Installs with shiny spring into hollow end with flat orifice end facing up at plate.

**B.**  
**Check Ball Locations:**

Ⓑ = (1) 5/16 in.

Ⓒ = (5) 1/4 in.



No Ball Here

**C.**  
**Re-install Limit Valves**

Early models may have short stem valve, it's ok.

Typically Blue Converter Relief

It's ok- Relief Springs are the same.

Typically Green Throttle Relief

**D.**

**Valve Body Gasket:**

Line gasket up on 4-3-4 orifice valve. It is ok for VB gasket to overhang bolt holes on lower edge. After installing separator plate cover plates, make sure 4-3-4 orifice valve moves freely and always contacts separator plate when released.

Often this ball is missing due to erosion.  
**ALWAYS** install a 5/16 ball here.

Lower Edge

# Separator Plate

If plate has a **round hole** at **X**: Drill it **.086 to .093**.

If plate has this hole: Center punch up close to peen it shut.

Drill this hole **.093 to .099**

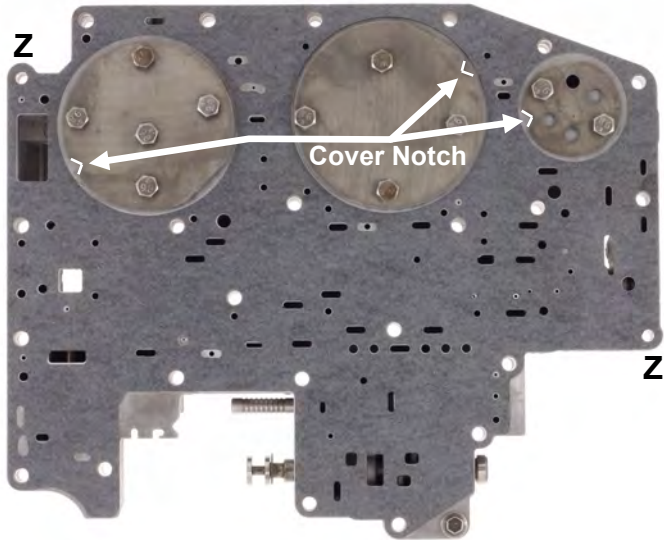
Holes **C, B, E & K**: Drill with **.055** drill furnished If hole is bigger than **.055** make it smaller first as shown below & re-drill **.055**.

Hole **C**: Install [**.038 to .040**] cotter pin furnished up through hole "C." Spread legs slightly and cut them off short so they will fit thru the hole in the gasket. Rotate cotter pin so legs lay horizontally when plate is held as shown on this page.

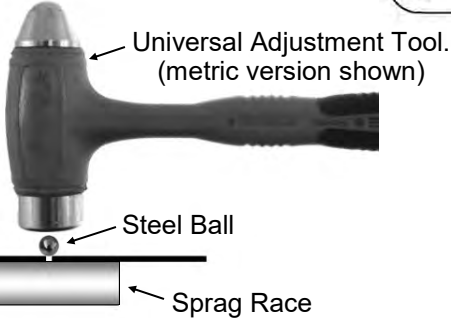
Cotter Pin Legs

**C. B. E. K.**

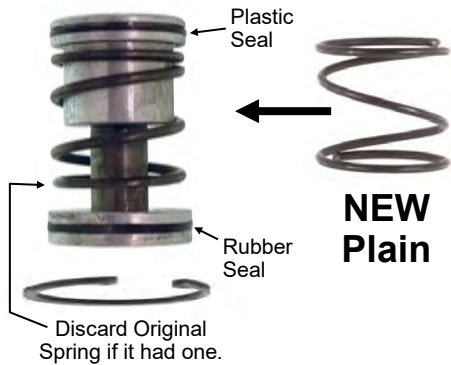
**Z** = Alignment Holes for Plate to Valve Body alignment.



If hole is bigger than size needed, make it smaller by placing the separator plate on a hardened surface like a Sprag Race. Place a ball on the hole to be made smaller & hit the ball smartly with a light hammer. Re-drill to size.



**A. 4th Accum** (If equipped)  
 Models with 4th Accum, If your 4th Accum contains a spring, discard it and use **Plain** spring provided. No spring originally? Install the New **Plain** Spring. It really needs it!



**Check 4th Accum Seals for damage.**

**C. OD Servo**

Install washer between piston and cover.



**Reminder:** It's real easy to miss the pin when you install the piston. If you do this, 3rd will be ok but you'll have neutral instead of 4th.  
**Before installing the piston:** Reach up past the rooster comb with a sharp screwdriver or ice pick and rotate the band *towards* the servo to set it against the anchor pin. NEXT insert a thin screwdriver or ice pick through the skinny slot, right next to the servo and push the band towards the TOP of the case & hold it there while you install the piston and cover.  
**Band clearance:** If the cover will not install with the washer in place (band too tight), remove washer and reassemble servo. With washer installed, wiggle the band front to back to check clearance. It must wiggle freely, at least 1/16". If it's draggy or won't wiggle, remove the piston & grind the tip of the pin 1/32' and recheck for clearance.

**B. 3rd Accum** (Choose Type)

**Aluminum Piston:**  
 If O-rings on Piston are ok, re-use them.



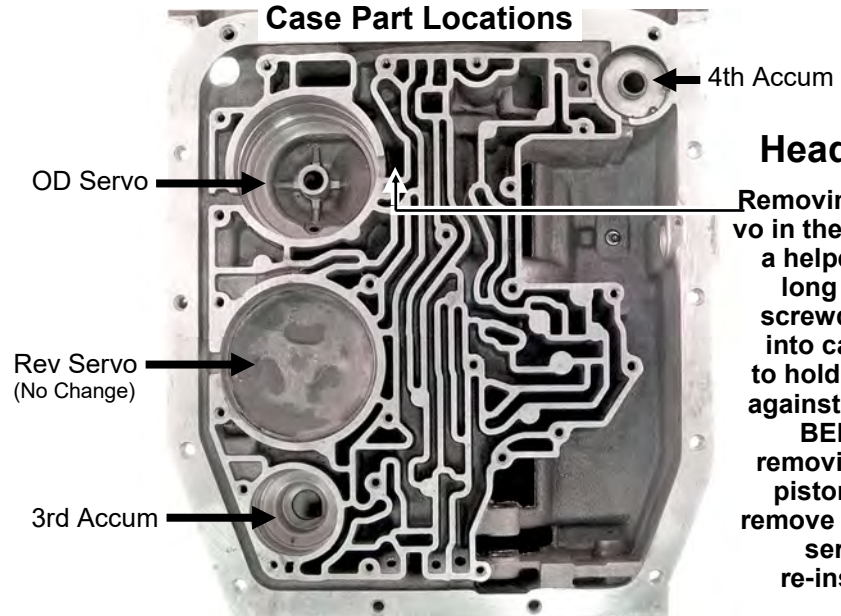
**Bonded Rubber Piston:**  
 Rubber must not be hard, torn or worn.



**Plastic Piston Only:**  
 Install **NEW Seal** on Piston with chamfered edge facing out.



**Case Part Locations**



**Heads Up!**

Removing OD Servo in the car? Have a helper hold a long skinny screwdriver up into case here to hold the band against the drum **BEFORE** removing servo piston. Don't remove it until the servo is re-installed.

## T.V. Adjustment (Rod Type)

1. Remove the air cleaner and put it on the BENCH. You're 1/2 done. Have someone **floor** the gas pedal (**from inside the car**) while you bend the THROTTLE cable **bracket**, until the butterfly ARM bottoms **SOLIDLY** on it's stop.
2. Turn the adjustment screw "IN" until 13 threads are sticking out the front of the adjuster arm. Approx 7/16".
3. Start the engine with the AIR off, and leave It OFF.
4. While the engine is idling, loosen the adjustment bolt on the arm on the side of the trans with a 13mm socket, one full turn. Push the arm UP (towards the top of the car) gently and tighten the bolt.
5. Now go back to the top adjustment and back It off 13 turns.
6. Place the selector In the "3" position and cruise at 45 MPH. Floor the throttle, you will notice you do not have a 3-2 kick-down.
- Turn adjustment screw In EXACTLY one turn at time, until you have kick-down at 45 MPH. THEN, turn the screw In 3 more turns and you will be In the middle of the TV adjustment.
7. Now road test for shift feel and timing. You can adjust It two turns from here either "IN" or "OUT", to Improve shift quality.
8. Don't forget the air cleaner when you're done!

## T.V. Adjustment (Cable Type)

1. Install a **100psi pressure gauge** on the T.V. port located on the passenger side of the transmission towards the middle and just above the pan gasket. There are two taps side by side. Use the one that is recessed inward towards the gear train more.
2. Bring the gauge up to the engine bay & tie it up safely so you can drive the car with the gauge left on to make adjustments.
3. You need the **spacer tool** or make your own. Take a 5/16 bolt and grind two flats 180 degrees apart from each other on the threaded end until the total thickness between the flats is **.250"**. Using a exhaust cutoff wheel or hack saw, make a slot for the cable that will pass through the center of both flats.



4. Locate the crimped end of the bare cable that is sticking out of the plastic. Its in front of where it hooks to the throttle arm. Gently pull on the crimp exposing the bare cable and insert the slotted spacer onto the cable. Effectively it's holding the cable out .250". 5. Release the cable lock and adjust the cable until the pressure gauge reads approx 28psi to start. Remove spacer & road test. Range with our kit installed is 24 to 40psi. Don't go below **24psi!** Also, you must have a 3-2 KD at 45mph in the D3 position! To adjust shift points- Lower the TV pressure = Earlier shifts.

## HOW ABOUT A LITTLE STRAIGHT TALK?

SHOP OWNER/MANAGER/MECHANIC:

If your goal is a couple upshifts, a passing gear and "OUT THE DOOR", you are reading the WRONG paper. If you are wanting your customer and your mechanic to say "This is the best working transmission I have ever driven", you are reading the RIGHT paper. It's going to take your mechanic at least an extra 45 minutes to read this information and install the parts in this kit and another 20 minutes to adjust the T.V. and road test. The first few times is going to take some concentration for LEARNING. After 4 or 5, it's duck soup.

DON'T throw this kit at your mechanic at 4:30 to try to salvage a loser. It doesn't install with a SHOTGUN. It installs with PATIENCE and CARE. DON'T expect your mechanic to know or do what you don't. Haven't you noticed it doesn't work that way? If you are his leader, give him the time and psychic support to learn. LEARNING is the first attribute of leadership. SHARING (teaching) is the second. There is more useful HERE, NOW and TODAY repair information in this kit, than all the manuals available put together. Go for it, you'll feel good about it. Let your customer read it too, so he can appreciate your efforts.

MECHANIC: We know the feeling when the trans comes in with a 1-2 or 2-3 slide or bump, and when you get everything apart it looks OK. It's SCARY. We also know what it's like to get it back in the car and have a big slide or bump because of defective calibration or clutch plates.

Most of these complaints are "System Malfunctions" and calibration weaknesses that this kit corrects. If the system malfunctions are not removed the trans isn't fixed. Sorry to say it so bluntly, but every customer deserves to have his trans fixed. I am against the attitude of getting the car moving again and guaranteeing the complaints all the way to the wrecking yard.

This trans is a marvel in basic design and efficiency. You will be road testing the finest working trans in the World today. Don't expect a hard HOT ROD type shift. A hard shift with this trans is a malfunction. The 1-2 or 2-3 bump or slide bump you've often felt with this trans means the clutches are slipping all the way thru the accum stroke and then engaging suddenly when the accum piston bottoms.

In my opinion this is one D\_ good trans. The most efficient I've ever seen. Both you and it deserve the superior calibration and quality clutches that will knock the complaints and failures in the head.

It took over three years of hard research, including many nights and weekends, to find the real causes of 3rd failure, bang and slide 1-2, 4-3-4-3-4 when hot and band failure.

Am I complaining? Not really, when you make the 123rd road test and it's still not fixed you have learned a patience and humility that overcomes the anger you experienced on the 2nd and 3rd road test.

Everything we have learned, that could be turned into parts, is IN this kit.

This is one tough valve body to work on. It requires concentration, patience and even humility. So take it easy on yourself. DON'T expect to do the first or 2nd one in 15 minutes. It will take you longer than that just to read the instructions. Let me encourage you by saying this, "Whether this is a brand new car, a fresh overhaul or a 60,000 mile slider, when this kit is installed you will road test the best one you ever drove. So don't worry if it takes awhile. You will be doing more for the trans, customer satisfaction and durability, then everything else you could do all put together. There is IMPORTANT repair information on Page 7 that you'll find helpful.



Mr. Shift

"Thanks for listening!"

## ADDITIONAL REPAIR AND OVERHAUL INFORMATION

**COMPLAINT:** Goes to neutral instead of 4th.

**CAUSE:** Front servo pin not engaging O.D. BAND.

**CHECK:** Remove the valve body. With thin screw driver reach band thru the hole in the case close to the servo. If you can move the band front to rear 1/8" or more pin is not engaged.

**SOLUTION:** Remove front servo assembly. Reach thru the hole in case opposite the servo with sharp ice pick and rotate band towards the servo firmly. Now push the band against the drum thru the hole next to the servo and install the piston while holding the band against the drum. Now push the piston by hand and see if it makes the band tight. **HERE IS THE TRICKY PART:** You must hold the band up against the drum thru the hole next to the servo while you install the cover.

**COMMENT:** If this complaint is before overhaul: band is broken, burned out or the lug pin in the case has slipped outward.

**COMPLAINT:** 2nd gear starts after overhaul.

**QUALIFICATION:** Binds up or locks up in low.

**CAUSE:** No clearance in 2nd gear clutch (in back of the front pump). Steel plates too thick.

**SOLUTION:** Install thin steels to obtain .020-.070 clearance.

**COMPLAINT:** Buzz-Sounds like converter noise (79-82).

**QUALIFICATION:** Noticeable on acceleration in 1st, 2nd, and rev. goes away in 3rd and 4th (except heavy throttle).

**CAUSE:** Converter relief valve bouncing.

**SOLUTION:** Replace short type valve with long stem type. (Part #E2F2-7E217-A).

**COMPLAINT:** No 3rd or 4th, goes to freewheel.

**QUALIFICATION:** 1st, 2nd and reverse O.K.

**CAUSE:** Torsional dampener (in converter) broken, or (rarely) the high drum splines have broken off.

**SOLUTION:** Replace converter.

**COMPLAINT:** No rev or holdback in low. (After repair)

**CAUSE:** Rear servo pin not engaged in band. Or the servo cover has bulged down, allowing the piston to come out of the bore.

**COMPLAINT:** Leak at bell housing.

**QUALIFICATION:** Front of converter wet.

**CAUSE:** Crack at converter pilot.

**SOLUTION:** TIG or ARC weld.

**COMPLAINT:** Rattle, squawk, dingle or crunch during 2-3 upshift.

**COMMENT:** What is actually happening is the 3rd clutch is applying unevenly. We call it "CHUCKING". It is not actually caused by anything but several things contribute to it. They are, wrong oil ("F" type). Calibration. Some brands of oil (any type). Some brands of clutch plates. Smooth steel plates.

**SOME DON'TS:** DON'T use "F" oil. DON'T put glazed steel plates in 3rd clutch (or any clutch, for that matter).

**DO'S:** Save the original factory fill oil if it's still good. It is super good stuff for correcting and preventing CHUCKING.

**SOLUTION:** Install Dexron oil. If still CHUCKING, drain down oil and install 2-3 quarts of Pennzoil "Hydra-Trans and Wet Brake Fluid" or one bottle of GM "Limited Slip" additive #1052358.

**QUESTIONS AND ANSWERS:**

**QUESTION:** Are there any shortcuts, like fixing a used car with a big bump?

**ANSWER:** Yes, but No. You can fix a slide bumper with this whole kit. The shortcut is, you don't have to overhaul it if it was still holding in all gears. It will work better than new.

**QUESTION:** What is the big snap-ring I can never find a place for?

**ANSWER:** Ford assembled trans standing up on the back end. The snap ring was installed deep in the case to hold the rear band in position while the servo was installed. You don't need the snap ring.

### CUSTOMIZING SHIFT QUALITY

**Listen Up-**Never attempt to correct how a shift feels unless the shift timing is OK at all throttle openings. You'll just be wasting your time and will be irked at us when the recommended change doesn't fix the complaint. Pressure rise must be working correctly, causing the shifts to get later or earlier according to throttle opening.

Fastest check is attaching a pressure gauge to the fwd outlet on the passenger side. In "D", just above idle pressure must be 72-84 lbs. Approx 1/4 throttle, must be 115-140 lbs. At stall 205-245 lbs.

If pressure rise is OK and there are no leaks to the friction units the variation in shift quality is always parts matching, calibration, or variations in the holding power of the friction materials.

**WARNING:** Do not make these changes to Trans's that do not have this kit installed.

### 1-2 SHIFT

**NO 1-2 SHIFT:** Seal installed wrong on Accum plug. Capacity valve stuck inboard. Intermediate roller clutch not holding. Case blown out.

**HAS:** Abrupt 1-2. Rattles dash, 1/4 to 5/8 throttle.

**CAUSES:** 1-2 capacity valve stuck outwards. Spring not in pocket. Spring on wrong end. 1-2 accum valve stuck; usually from over-tightening.

**HAS:** 1-2 WAY too short and sharp up to 1/2 throttle. Better at 5/8 throttle and OK at 3/4

**CAUSE:** Mismatch parts. Wrong capacity spring. Fluidics not working. Didn't install SK® Kit!

**HAS:** 1-2 too sharp at light to 3/8 throttle. OK at 1/2 throttle or more.

**FIX:** Change capacity spring.

**HAS:** 1-2 just a little firmer than you like.

**FIX:** Change capacity spring.

**HAS:** Soft 1-2, or slide bump 1-2.

**QUALIFICATION:** Gets OK with heavy throttle.

**FIX:** Change capacity spring.

**HAS:** OK 1-2 at light to medium throttle, but has slide or slide-bump at heavy throttle.

If gauge indicates pressure rise is working, and you have changed capacity spring for shorter shift, fire up your impact; it has bad clutches.

### 2-3 SHIFT

**HAS:** 2-3 slide bump or slide bump up to 3/8 throttle and still too long at 3/4 throttle.

**FIX:** Install capacity spring for shorter shift.

NONE-YELLOW-GREEN-RED → SHORTER

**HAS:** 2-3 too short or firm with NO SLIDE.

**FIX:** Install capacity spring for longer shift.

### 3-4 SHIFT

For a shorter 3-4 shift, all over, install "B" size servo and cover. (EOAZ7F200B & EOAZ7D027D)

**HAS:** Light throttle 3-4 flare.

**FIX:** Make hole "F" .010 smaller.

### 4-3 SHIFT

**HAS:** Engine flare during 55MPH downshift.

**FIX:** Make "F" hole .100-.112

**HAS:** Bang/bind during 55MPH 4-3 downshift.

**FIX:** Make "F" hole .010 smaller.

**Need some help? Call (626) 443-7451**

# Performance Products for the AOD Transmission!

## **TRANSGO PART #:** AOD-HP Reprogramming Kit

### **Fits Ford and Lincoln Mercury AOD 1980-1993**

Includes (4) governor valves for max throttle shift tuning; new boost valve with springs for tuning high performance engine applications and our patented High Temperature rings for forward clutch. Includes pan gasket and both valve body separator plate gaskets as well as other parts and procedures for shift feel calibration.

Short, Firm Shifts with Performance, Durability and "CLASS". Tunable wide open throttle shifts from 5500 - 6800 RPM.

This Kit does not provide a wide-open throttle up-shift to 4th. Trans will have full automatic operation in OD or D position.



Stub Shaft

Main Shaft



## **TRANSGO PART #:** AOD-HP SHAFT-KIT

**FITS:** Ford/Lincoln Mercury AOD 80-93

**FEATURES:** Run a C6 Converter in an AOD!  
New Hardened Input Shaft works with Cast iron or stamped steel drum.

Open Converter performance, No more lugging in 3rd and 4th or coast down chug. Great for street rods and transplants. Works with custom high stall or stock C6 converter.



# SMART ACT™ 1-2 SYSTEM—The four stage system that “THINKS”

To assure a high quality gear change for the life of the vehicle, the effective range of 1-2 accm/capacity system is 5 times as broad as original design.

**DISCARD** this spring if the VB has it.

**A** If the small end of accm valve does not have a hole for a spring, **OR** install the flat end of the plug into valve body.

If the small end of the accm valve has a hole in it, for a spring, install the recessed end of the plug into the VB so that the three accm springs will slide into the recess.



**B** Several capacity springs are furnished to match the clutch plates and for customizing shift feel.

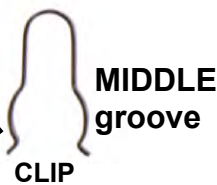
Identify	NEW PLATES	Capacity Spring
Light brown	No Grooves Alto Products	White
Green w/alum flake	No Grooves Borg Warner	Green
Grey w/white flake	Grooved (Not good for HD or HO)	Blue
White to Yellowish	No Grooves Raybestos	Blue

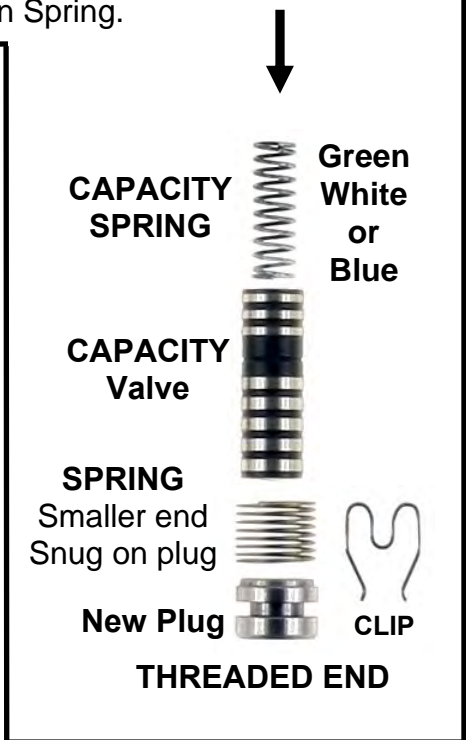
Identify	ORIGINAL/OLD PLATES	Capacity Spring
[Wash one plate in solvent to aid color identification.]		
Light brown	No Grooves Alto or Borg Warner	White
Green w/alum flake	No Grooves Borg Warner	Green
White, Tan or Brn	No Grooves Mfr unknown	White
White to Yellowish	No Grooves Raybestos	Blue
Clutch ID <b>unknown</b> or <b>not listed?</b> Use Green Spring.		

**QUICK/CHANGE/CUSTOMIZING**  
 Ever finish a road test and wish there was a quick way to make the 1-2 shift a little shorter or longer?  
 If you take a couple minutes to drill a hole and install a cotter pin, then you can customize shift feel, without having to remove the valve body.

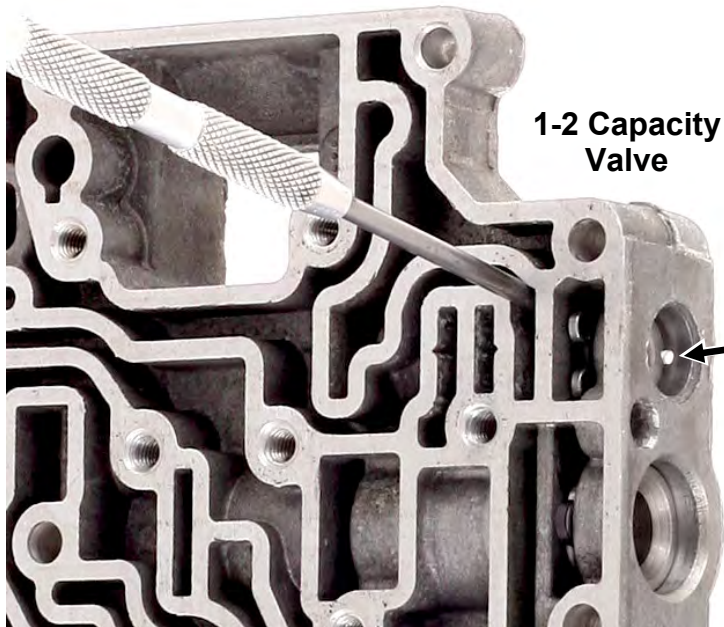
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ONLY Install SEAL in OUTBOARD groove



## QUICK/CHANGE AND CUSTOMIZING 1-2 SHIFT



Here's how to make the 1-2 adjustable so that you can make it longer or shorter without removing the VB.

A. Install new steel 1-2 capacity plug and the new clip.

B. While holding the plug outboard with a suitable tool, drill a hole up tight against the plug and down through the bottom of the VB. USE a .076-.078 drill bit.

C. Remove clip. Screw a VB bolt into plug and remove plug. Clean up drill chips and scrape the burrs off hole.

D. Install new spring & new Capacity Valve.

E. Install the plain spring on the plug and install the plug deep enough to insert the cotter pin furnished into the drilled hole starting from the pan side. (VB Bottom)

Spread the cotter pin legs slightly.

**DO NOT INSTALL ANY CLIP!**

With new HIGH QUALITY 2nd clutches 1-2 shift SHOULD get about 30% shorter after break-in. ALWAYS start with Calibration recommended.

**To make a Shorter or Longer 1-2 Shift:  
Drop pan, remove cotter pin, screw VB  
bolt into plug, remove plug, change spring.**

← LONGER — SHORTER →  
Capacity GREEN — WHITE — BLUE

### SYSTEM CORRECTION TECHNOLOGY AND ETHICS.

**Today's Transmissions:** About 15% come in with broken parts. Another 15% arrive because they ran out of fluid. The other 70% arrive because of **SYSTEM MALFUNCTIONS**.

The ones that came in with broken parts or ran out of fluid also have system malfunctions.

**Wasted time and profit-during the repair and back from the customer:** Except for converter complaints, 98% of the time spent trying to get them good enough to deliver, and over 95% of the complaint/failures back from the customer is caused by system malfunctions. Selling a repair without correcting the system malfunctions is the same as putting air in flat tire and leaving the nail in it. It is simply NOT FIXED.

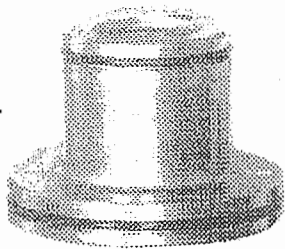
**ARE YOU STILL TRYING TO KID THE GUY YOU SHAVE?** If you are performing a "REBUILD, RECONDITION OR OVERHAUL", the customer understands those words to include removing the malfunctions that cause short life, complaints and failure. In short, those words let the customer believe it includes **fixing the trans**. If you're not removing the system malfunctions, you are deceiving yourself and the customer. You're not fixing the trans. System Correction is not something you learn in five minutes. It's not just some parts that you throw in. It includes making some correct decisions from a lot of repair data while you are doing the job. It will take you a while to learn the whole thing, on each late model trans. But, once you learn and apply it, you will know they are FIXED. The guys who learn and apply this technology are going to take over the trans business in the next few years. The guys that don't learn it are going to be out of ethics, out of tech, working too long for too little, and be in serious consumer trouble too.

System Correction starts with the parts, data, and repair info that's in the SHIFT KIT®.

SK® AOD; AOD-PSK; AOD-HP

**Listen up:** If trans has *aluminum* 3rd Accm Piston ***don't use seal*** furnished in the kit.

Install new seal  
on plastic piston.



K\AOD-P\pstseal