

700 R4 HI-Tech Valve Body Kit

17000, 17001, 17002, 17003



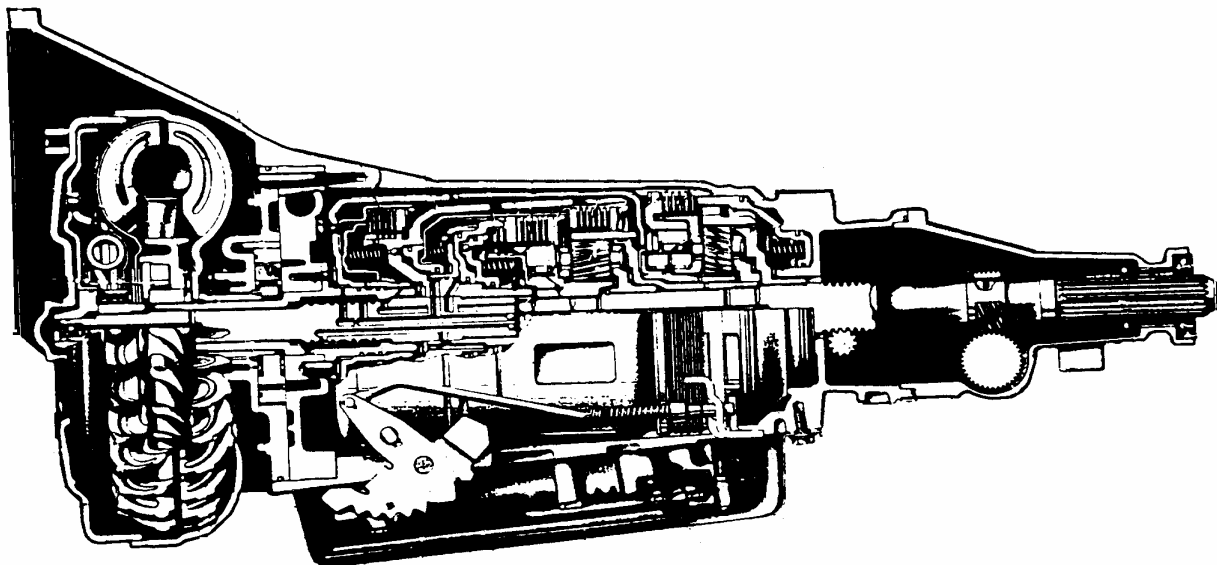
INSTALLATION INSTRUCTIONS

This kit is designed to fit the 700R4 transmission used in General Motor vehicles since 1982. It is not a cure-all for an ailing transmission. On removal of the pan if burnt clutch, band material, or metal filings are found the transmission must be torn down and worn or damaged parts must be replaced.

This kit, when properly installed, will give firmer shifts and increase the life of your transmission. We strongly recommend the installation of an **Art Carr** external transmission cooler.

Please read all instructions thoroughly before beginning installation of this kit. The cable adjustment is very critical on this transmission. Refer to section E on proper cable adjustment.

We are here to help you. Please call us If you have any questions. After reading these instructions through and you do not feel conformable doing the work please call a high performance transmission shop to do the work it's better to be safe than sorry.



700 R4 HI-Tech Valve Body Kit

17000, 17001, 17002, 17003

SERVO SPRING

17000 PARTS MENU FACTORY LOCK-UP CONVERTER QUANTITY – 1 OF EACH PART LISTED

DESCRIPTION

PAN GASKET
SERVO O-RING
SERVO O-RING
FILTER
SERVO PISTON
SERVO PIN
SERVO SPRING
SERVO HOUSING
3-4 ACCUMULATOR SPRING
THROTTLE VALVE SPRING
1/4" CUP PLUG WITH HOLE
VALVE BODY GASKET (UPPER)
VALVE BODY GASKET (LOWER)
1/8" DRILL BIT

17001 PARTS MENU FACTORY LOCK-UP CONVERTER QUANTITY – 1 OF EACH PART LISTED

DESCRIPTION

PAN GASKET
SERVO O-RING
SERVO O-RING
FILTER
SERVO PIN
3-4 ACCUMULATOR SPRING
THROTTLE VALVE SPRING
1/4" CUP PLUG WITH HOLE
VALVE BODY GASKET (UPPER)
VALVE BODY GASKET (LOWER)
1/8" DRILL BIT

(ALL) 700R4 LARGE SERVO KIT 17003 PARTS MENU QUANTITY – 1 OF EACH PART LISTED

DESCRIPTION

PAN GASKET
SERVO O-RING
SERVO O-RING
SERVO PISTON

SERVO HOUSING
SERVO PIN

17004 PARTS MENU ALL GM, S-10, S-15 NON-LOCK-UP CONVERTER QUANTITY – 1 OF EACH PART LISTED

DESCRIPTION

PAN GASKET
PUMP GASKET
PUMP O-RING
SERVO O-RING
SERVO O-RING
FILTER
SERVO PISTON
SERVO PIN
SERVO SPRING
SERVO HOUSING
3-4 ACCUMULATOR SPRING
THROTTLE VALVE SPRING
NON-LOCK-UP PUMP VALVE WITH
SET SCREW
VALVE BODY GASKET (UPPER)
VALVE BODY GASKET (LOWER)
1/8" DRILL BIT
1/4" CUP PLUG WITH HOLE

17005 PARTS MENU CORVETTE NON-LOCK-UP CONVERTER QUANTITY – 1 OF EACH PART LISTED

DESCRIPTION

PAN GASKET
PUMP GASKET
PUMP O-RING
SERVO O-RING
SERVO O-RING
FILTER
SERVO PIN
3-4 ACCUMULATOR SPRING
THROTTLE VALVE SPRING
1/4" CUP PLUG WITH HOLE

700 R4 HI-Tech Valve Body Kit

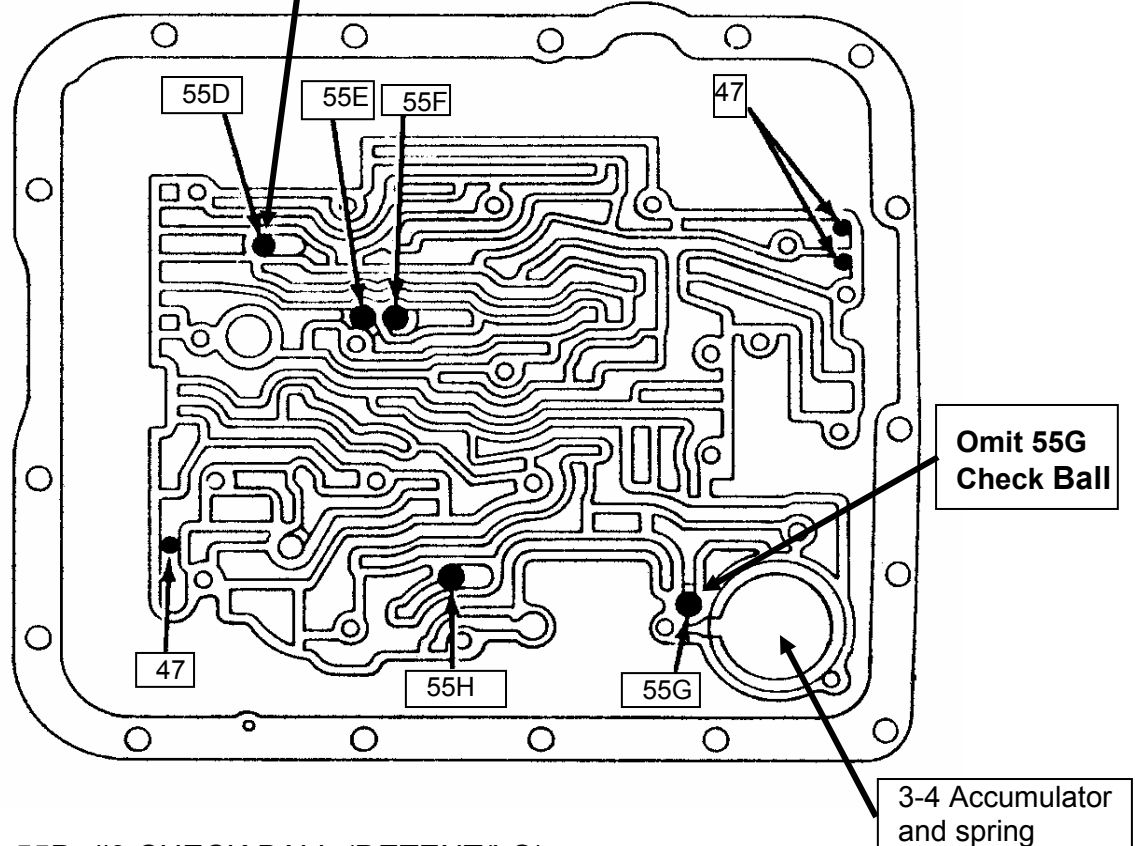
17000, 17001, 17002, 17003

NON LOCK-UP PUMP VALVE WITH
SET SCREW
VALVE BODY GASKET (UPPER)

VALVE BODY GASKET (LOWER)
1/8" DRILL BIT

Note: Some 87' models & up have no
Check ball here.

Figure 1



- 55D #9 CHECK BALL (DETENT/LO)
- 55E #4 CHECK BALL (3-4 CLUTCH/3-2 EX.)
- 55F #8 CHECK BALL (2ND/1-2)
- 55G #1 CHECK BALL (4TH ACCUMULATOR)
- 55H #3 CHECK BALL (PART THROTTLE/DRIVE 3)
- 47 GOVERNOR FILTER LOCATIONS
- 47 CONVERTER CLUTCH FILTER LOCATION

SECTION A. VALVE BODY AND CASE

1. Remove oil pan bolts and oil pan. Remove oil filter by pulling straight out.
2. Disconnect all wiring after marking or noting proper connections. Remove solenoid bolts and solenoid.
3. Remove throttle lever bracket bolts and bracket.
4. Remove remaining 13 bolts holding valve body to case (10mm socket) being careful valve body does not fall.
5. Carefully remove valve body. Save check balls (3) – (only 2 check balls on some '87 models and up).

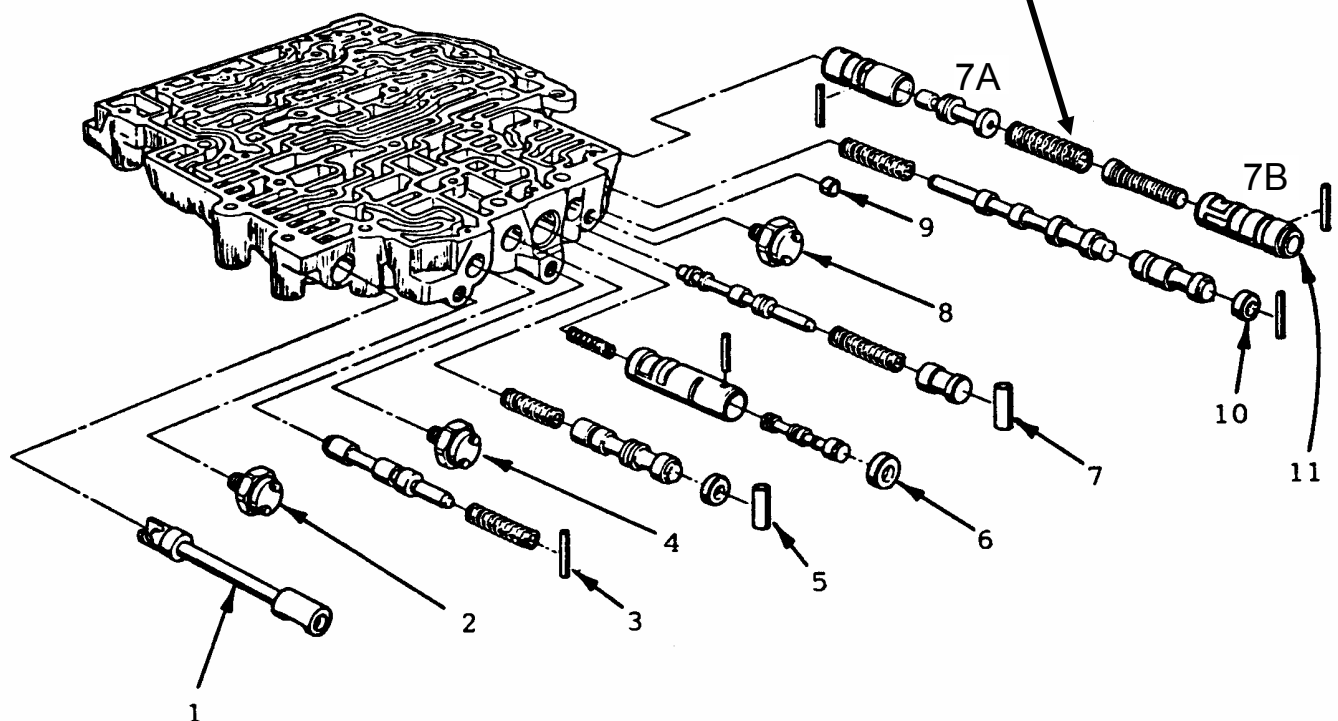
700R4 VALVE BODY KIT

17000

Ver.1.01

6. Remove 3 bolts holding 1-2 accumulator housing to case. Drill & install cup plug (see Figure #12).
7. Remove 4 bolts holding support plate to case.
8. Carefully lift separator plate and gaskets off case, discard gaskets, remove and save check balls.
9. Remove 3-4 accumulator spring (Figure #1) from case and discard. Install white spring from kit in 3-4 accumulator.
10. Place valve body on a clean work bench and locate TV valve sleeve #7A and plunger #7B (Figure #2). Remove roll pin on rough casting side of the valve body holding TV sleeve in. Remove and discard spring and replace with orange spring supplied in kit. Reinstall plunger and sleeve assembly. Reinstall roll pin making sure pin passes through slot in sleeve.
11. Locate MTV upshift valve #2 (Figure #3). Remove pin, aluminum plug, valve and spring, discard spring #304. Reinstall valve, plug and roll pin.
12. Install converter clutch throttle valve spring and sleeve at this time (NOTE: not used on all models – see Figures #3 and #11).
13. Install 4 check balls in case (Figure #1) in locations shown. Do not install check ball in #55G (NOTE: Do not install a check ball in 55D if transmission did not originally have one, in which case you will only install 3 check balls).
14. Drill 1/8" holes in separator plate as shown in Figures 9 & 10.
15. Install case gasket, marked with a "C" to case. Install separator plate and valve body gasket marked "VB". Install 1-2 accumulator assembly and support plate. Tighten bolts to 8 to 10 ft. lbs.
16. Install 3 (or 2 on some '87 models and up) check balls in valve body (Figure #4). Retain with grease. Install valve body onto case hooking manual valve to link. Install bolts and torque to 8 to 10 ft. lbs.
17. Reinstall solenoid and reconnect wires as removed (Figure #5).

Discard stock spring and
Install orange spring
here



700R4 VALVE BODY KIT

17000

Ver.1.01

Figure #2

SECTION B. SERVO ASSEMBLY – Refer to Figure #6 (Section B applies to kits 17000 and 17004 only) (servo modification for #17000 & 17004 kits – skip to section C for all other kits)

1. Locate servo on right side of case. Remove retaining ring #13 and pull cover out. Cut and remove cover o-ring and remove cover from case. Remove remaining servo assembly from case.
2. Remove “E” clip #18, washer #19 and spring #20 from servo pin #29. Pull pin out. It may be necessary to file the burr from shaft to remove the pin.
3. Compress servo spring retainer in vise and remove retaining snap ring #28. Release vise and remove retainer #27 and cushion spring #26 from 2nd apply piston.
4. Using 2nd apply piston from kit, install original cushion spring in 2nd apply piston. Install retainer and compress with vise. Install snap ring #28.
5. See (Figure #6) Install pin, supplied in kit, through retainer and 2nd apply piston, making sure it slides smoothly.
6. Install spring #20, washer #19, and “E” clip #18.
7. Install servo return spring #31 and install servo assembly less seals in case as removed.
8. Check band clearance by pressing in on cover. Measure distance between cover and snap ring. It should be between .040 to .060. If clearance is under .040, remove servo assembly and grind off tip of servo pin until clearance is correct. Be sure to grind pin in a rounded manner like the original.
9. When proper clearance is obtained, remove servo and install all sealing rings and o-rings. Reinstall servo assembly.

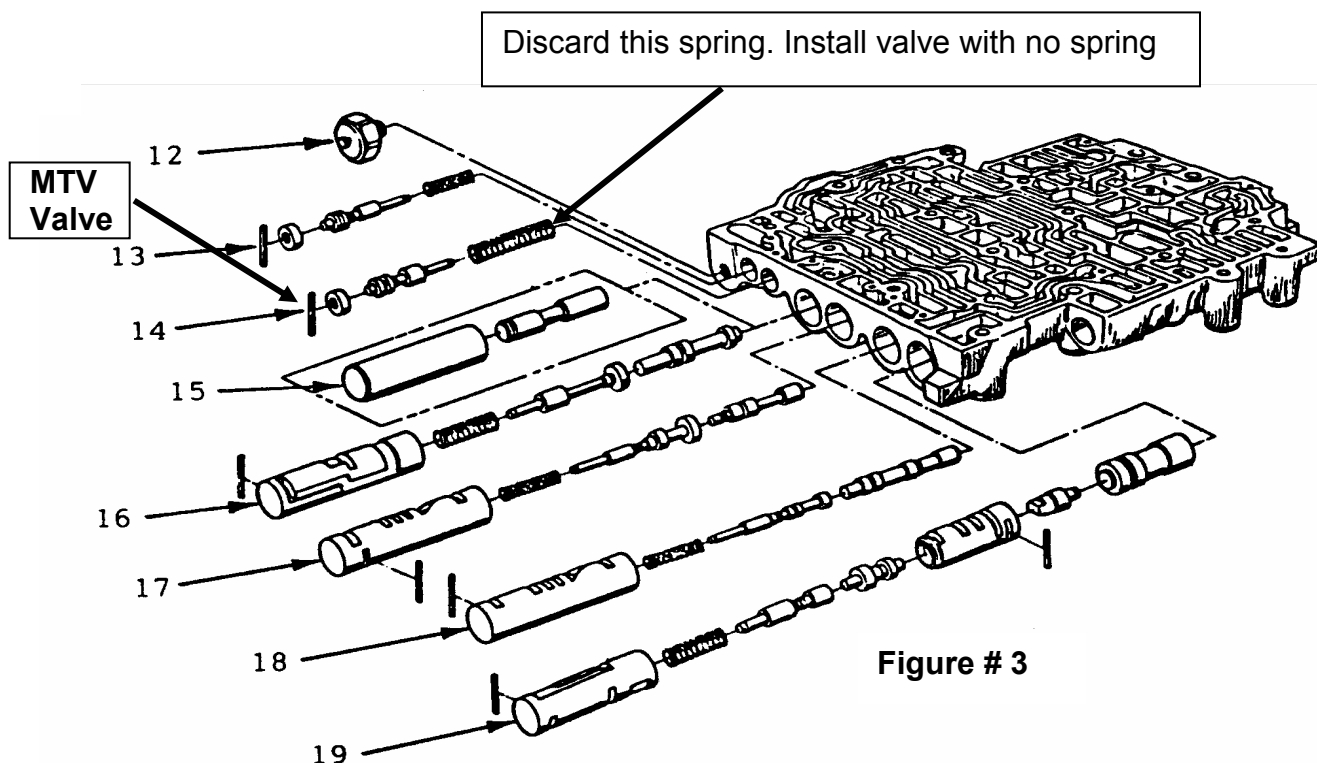


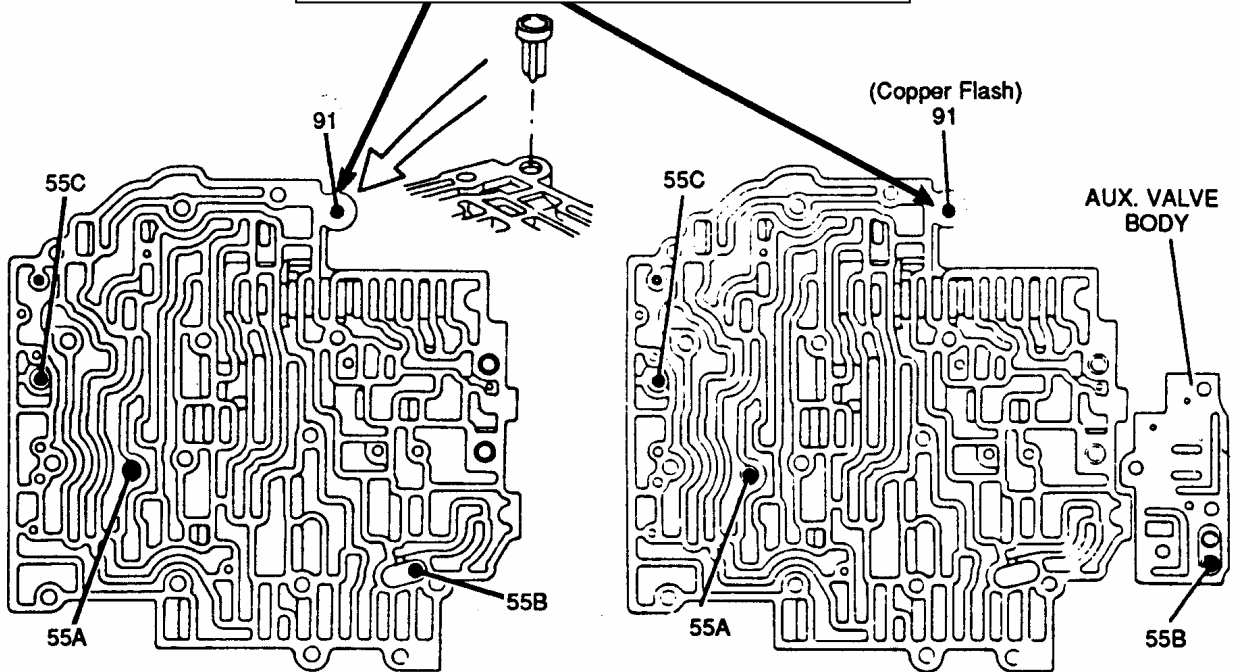
Figure # 3

700R4 VALVE BODY KIT

17000

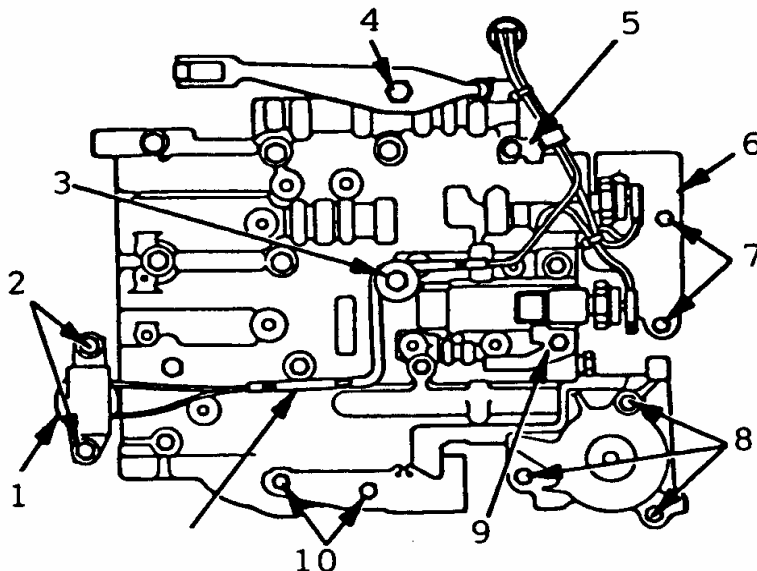
Ver.1.01

No. 91 Omit check ball.
Some models check ball not used.



This figure for 1982-87' vehicles
without auxiliary valve body.

This figure for 1987 & up vehicles
With auxiliary valve body.

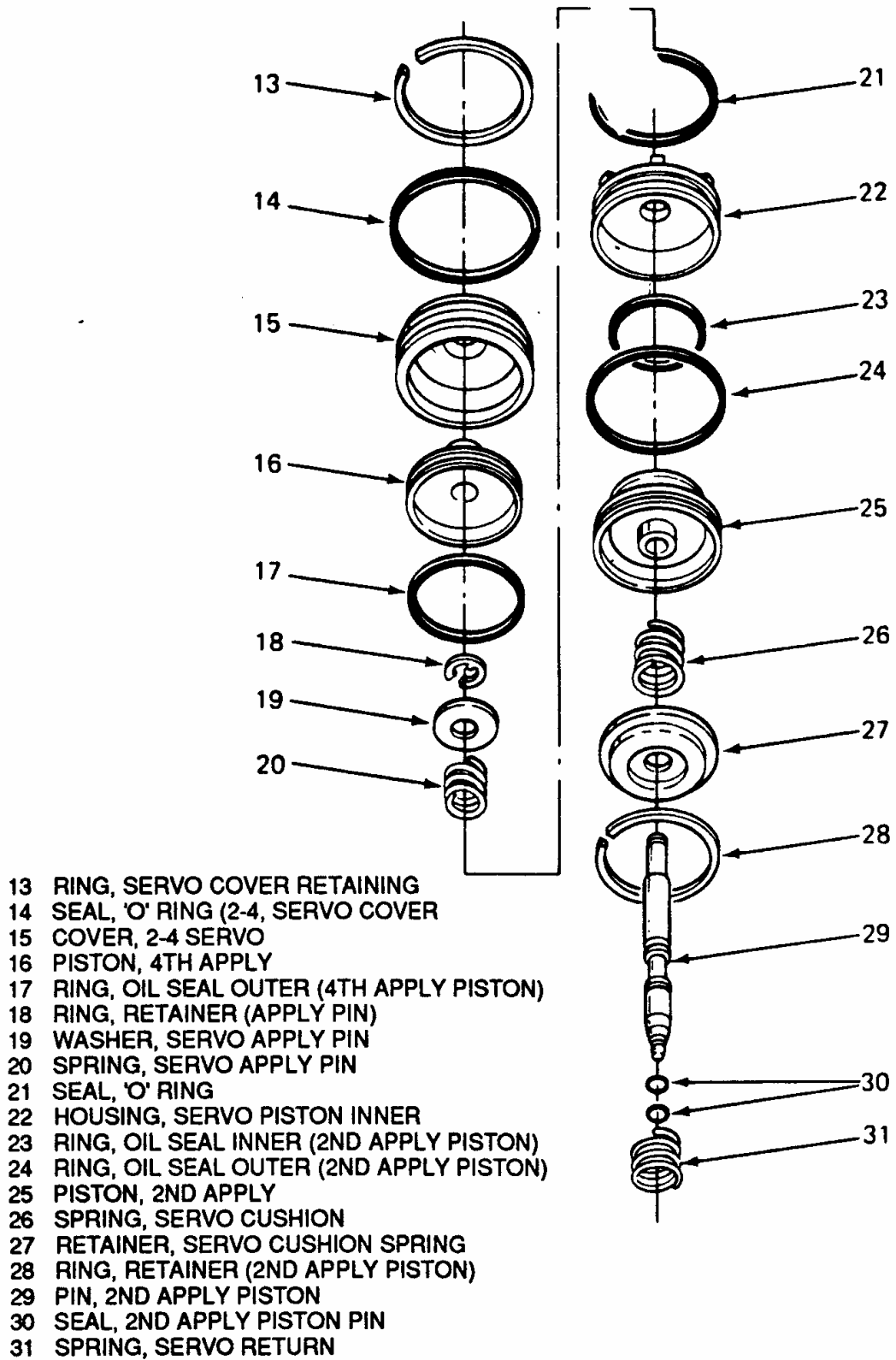


1. Solenoid Bolts
2. Accumulator Housing
3. Manual Detent lever
4. Wire Harness
5. T.V. Lever and bracket

700R4 VALVE BODY KIT

17000

Ver.1.01



700R4 VALVE BODY KIT

17000

Ver.1.01

Note: Kit 17000 and 17004 install servo kit.
Kit 17001 and 17005 servo not supplied.

NOTE: Special Art Carr torque converter required for non-lock-up use.

SECTION C. PUMP ASSEMBLY – SECTION C FOR NON-LOCK-UP USE ONLY

SKIP TO SECTION D FOR LOCK-UP SYSTEMS

1. Remove pump bolts and with suitable puller carefully remove pump from transmission.
2. Remove 5 pump cover to pump body bolts and carefully separate pump cover from pump body (Figure #7).
3. Remove converter clutch valve from cover and drive out cup plug located at #25 (Figure #7) in pump. Tap same hole 5/16 x 24 through to valve bore. Clean all chips out.
4. Install valve as shown with the side with 2 holes facing out to outer edge of pump (NOTE: Install cup plug end in first – see Figure #7).
5. Install valve stop and snap ring.
6. Put a drop or two of loctite on plug supplied and screw in hole #25. Tighten plug until valve is locked in place. Do not over tighten!
7. If installing pump kit #17700 or 17701, follow instructions supplied with the pump kit at this time.
8. Reassemble pump being sure both pump halves line up perfectly. Torque bolts to 20 ft. lbs.
9. Install plastic thrust washer on to pump, retain with grease.
10. Using new o-ring and gasket, reinstall pump into case. Install 7 pump bolts and torque bolts to 20 ft. lbs.
11. Be sure to remove capsule & check ball from turbine shaft. *Refer to FIGURE #8).*

The following illustrations (figure 7 & 8) are for section C pump assembly Non-Lockup only.

Remove the check ball from input shaft using # 4 screw extractor

700R4 VALVE BODY KIT

17000

Ver.1.01

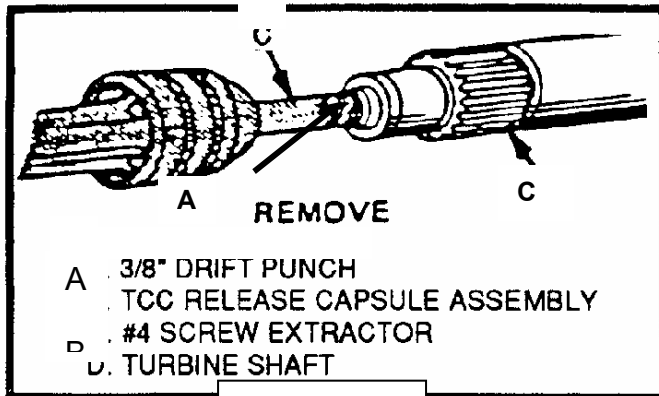
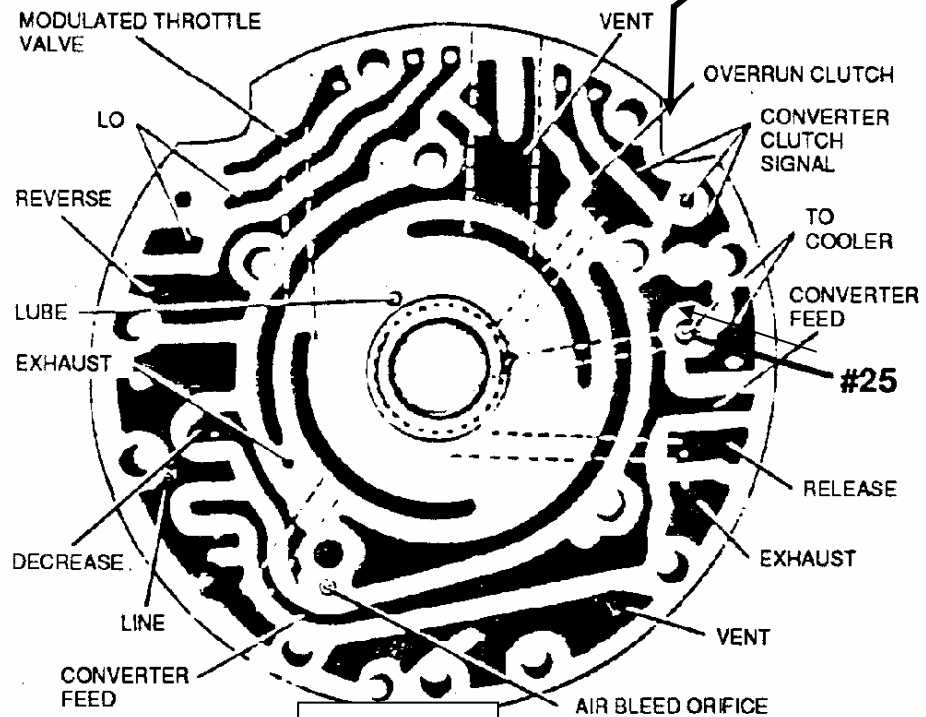


Figure # 8

Note: Install cup
plug end first



700R4 VALVE BODY KIT

17000

Ver.1.01

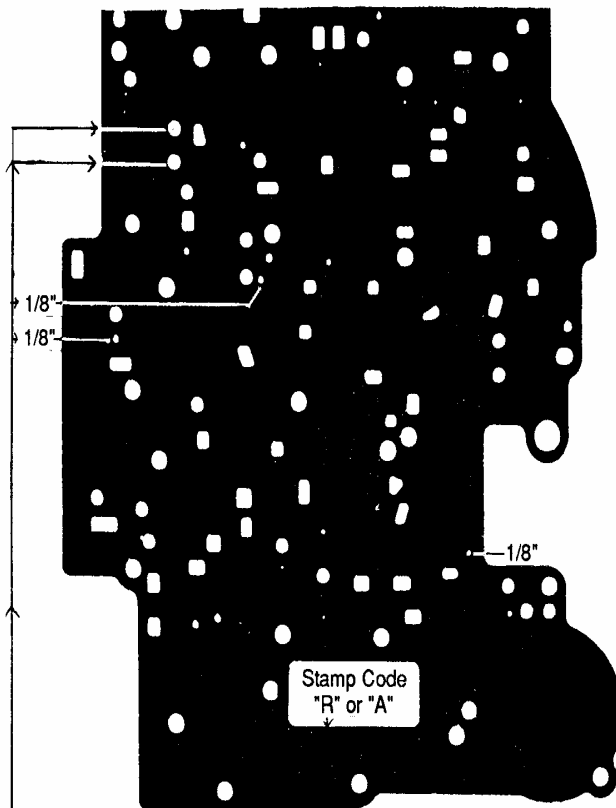


FIGURE #9

(NOTE: All separator plates stamped "R" or "A" REQUIRE check ball)
 ○ If two circles are shown on separator plate, leave check ball in.
 Drill three 1/8" holes in separator plate as indicated in above diagram.

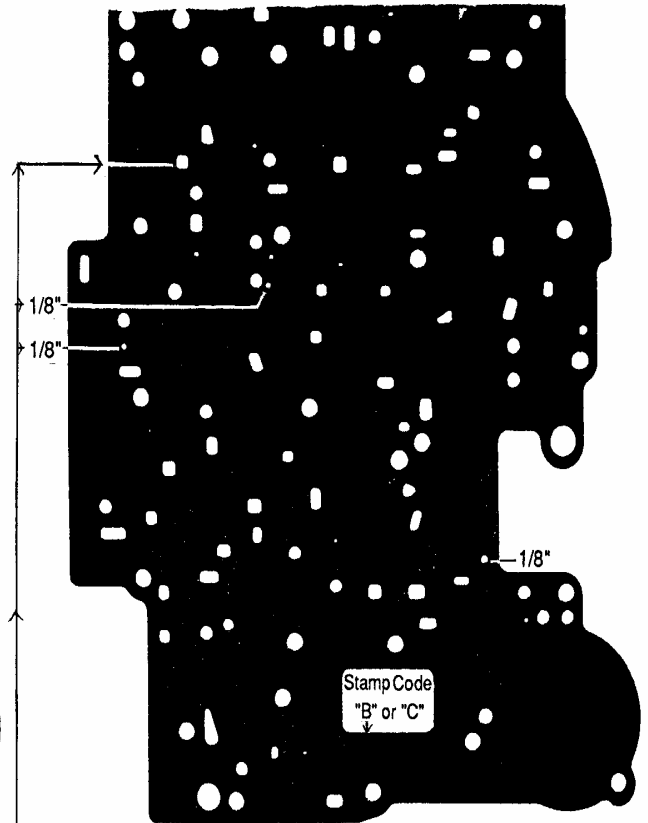


FIGURE #10

(NOTE: All separator plates stamped "B" or "C" OMIT check ball)
 □ If square is shown on separator plate omit check ball.
 Drill three 1/8" holes in separator plate as indicated in above diagram.

700R4 VALVE BODY KIT

17000

Ver.1.01

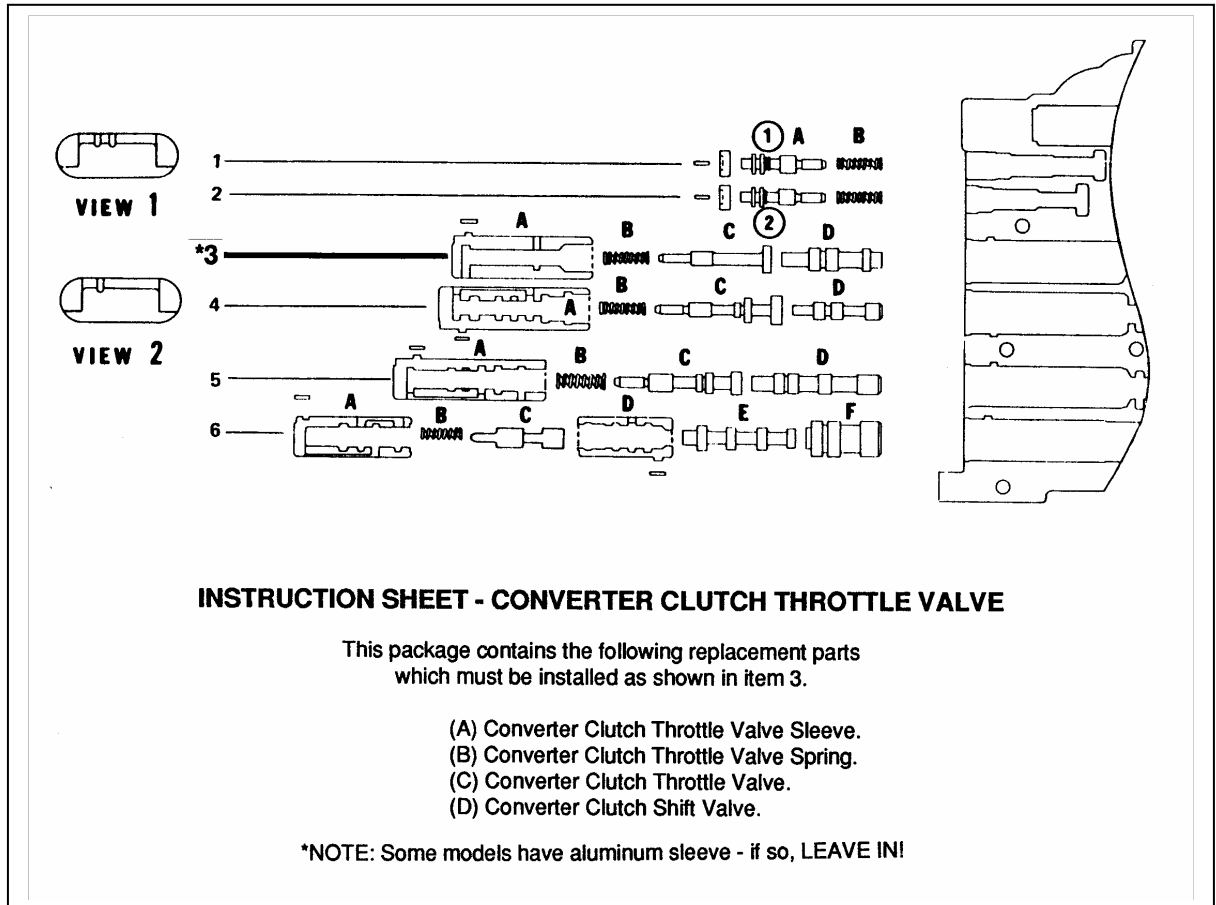


FIGURE #11

700R4 VALVE BODY KIT

17000

Ver.1.01

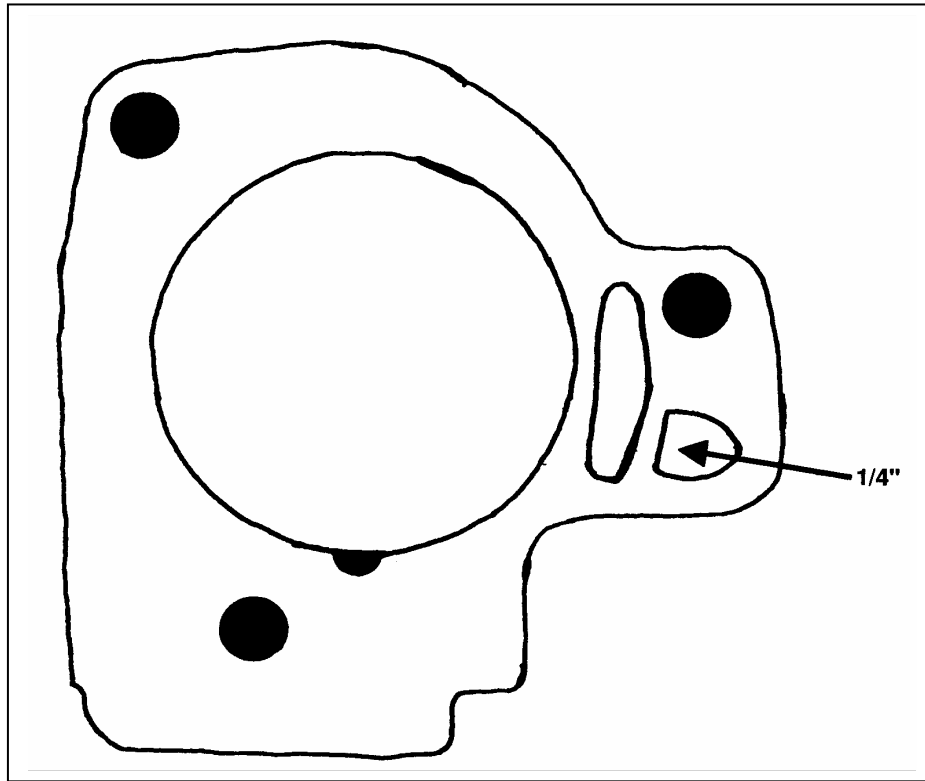


Figure # 12

1-2 ACCUMULATOR HOUSING

In the 1-2 accumulator housing you will find a hole in the casting that is marked by the arrow shown. Take $\frac{1}{4}$ " drill and enlarge hole in housing. (NOTE: Hole in housing is drilled at a 45° angle). Install orifice cup plug (supplied in kit) in hole making sure cup plug is recessed at least $\frac{1}{16}$ " below surface of housing. Reinstall accumulator housing.

SECTION D. REASSEMBLY

1. Install new filter with o-ring.
2. Install new gasket, pan and bolts. Torque bolts to 10 to 15 ft. lbs.

700R4 VALVE BODY KIT

17000

Ver.1.01

IMPORTANT!!

YOU MUST CHECK YOUR T.V. CABLE ADJUSTMENT!

WARNING: PERMANENT DAMAGE WILL OCCUR, IF THE T.V. CABLE IS NOT ADJUSTED PROPERLY, OR HOOKED UP. THE DAMAGE WILL OCCUR WITHIN A FEW FEET OF DRIVING THE VEHICLE!

IF NOT ADJUST PROPERLY YOU WILL HAVE TRANSMISSION FAILURE!

SECTION E. TV CABLE ADJUSTMENT PROCEDURE

Before adjusting the TV cable, check the following:

- Transmission oil level. Correct if necessary.
- Proper engine operation. This can cause problems similar to a malfunctioning transmission.
- Dragging brakes. This can detract from vehicle performance and cause transmission malfunction.
- Check the TV cable to insure that it is the right part for the vehicle. If you do not hear at least one “click” from the TV cable during the adjustment procedure, it may be the wrong part. Refer to your parts catalog for the correct part.
- Check the cable to insure that it is properly connected at the transmission. If the cable is unhooked at the transmission, “clicks” will still be heard during adjustment.

ADJUSTMENT PROCEDURE (Self Adjusting Cable – FIGURE 13)

1. Stop the engine.
2. Depress the Adjusting tab and move the slider back through the fitting away from the carburetor until it stops.
3. Release the adjustment tab.
4. Move the throttle linkage to rest against the full throttle stop, then release it.
5. Check the cable to insure that it is not sticking or binding.
6. Road test the vehicle.

SHORTENING THE CABLE

If you shorten the cable (move it towards the adjuster tab), this raises both line pressure and shift points. However, when the drive performs a full throttle downshift the TV cable will readjust to its approximate normal position.

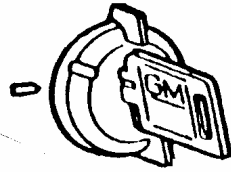
LENGTHENING THE CABLE

If you lengthen the valve, this lowers both line pressure and shift points. Under this condition, the TV cable will not readjust during a full throttle downshift. What you have effectively done is allowed the engine torque to be ahead of transmission line pressure and shift points. Operating the vehicle under this condition will cause premature clutch wear and transmission malfunction.

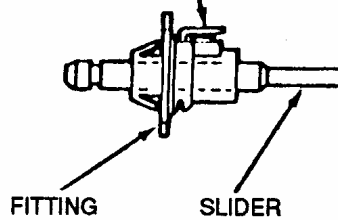
700R4 VALVE BODY KIT

17000

Ver.1.01

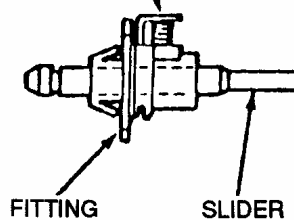


LOCK TAB (UNLOCKED)



Depress lock tab and hold. Move slider back through fitting in direction away from throttle body or pump lever until slider stops against fitting.

LOCK TAB (LOCKED)



Release lock tab

CARBURETOR

LEVER

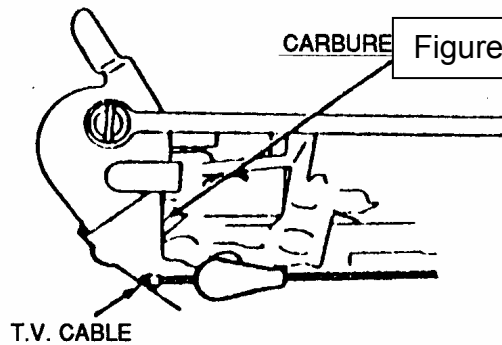
T.V. CABLE

On Gas:

Open carburetor lever to "full throttle stop" position to automatical adjust T.V. cable. Release carburetor lever.

On 6.2L Diesel

Rotate the throttle lever to the "full throttle stop" position

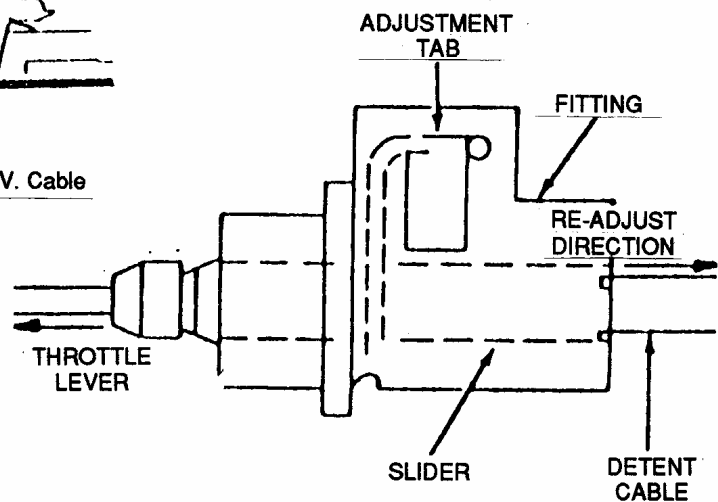


CARBURETOR Figure #13

T.V. CABLE

Self-Adjusting T.V. Cable

Page 14 of 14



700R4 VALVE BODY KIT

17000

Ver.1.01

LIMITED WARRANTY

RDH INDUSTRIAL, INC. dba ART CARR PERFORMANCE PRODUCTS (ART CARR PERFORMANCE) warrants to its direct customers (warranty non-transferable) only that each torque converter or transmission hard part (product) remanufactured or sold by ART CARR will be free from defects in material and workmanship under normal and proper use and service for a period of one year or twelve thousand (12,000) miles on competition and extreme transmissions and, two years on heavy duty super torque, 9.5" single and triple plate lock up, super duty diesel, and all competition converters and 90 ninety days on all parts, super torque, mileage maker and street rod torque converters and street max transmissions. Purchasers are exercising their own skill and judgment in determining if product is in fact for their application relative to safety and durability. Customer is responsible for making a safe and proper installation. Any and all instructions supplied by Art Carr Performance are for customer's convenience and are not a substitute for common sense mechanical practices. Art Carr Performance's sole obligation under this Warranty shall be to repair or replace, at its option, the defective Product at no charge to the customer. Under no circumstances shall Art Carr be liable for any oil, towing, labor or rental vehicle charges. As a condition to this Warranty, the customer must return any allegedly defective product, freight prepaid, to Art Carr at 19 Windmill Circle, Abilene, TX 79606, accompanied by a packing slip indicating the shipper, a Art Carr issued returned merchandise authorization number (RMA#) written on the outside of the package, and the invoice number when originally invoiced.

This Warranty does not apply to unsatisfactory Product performance which is attributable, in whole or in part, to any factor, condition or circumstance other than defects in material or workmanship of the Product. No claims may be made hereunder by any parties who purchase items from Art Carr's customers even if such items purchased include as component parts Product produced by Art Carr. Without limiting the foregoing, this Warranty shall be null and void if repair or replacement is required because of improper installation, accident, physical or electrical stress, neglect, misuse or any other cause other than the ordinary and intended use for which the Product was designed, or if the Product has been dismantled, altered or repaired by the customer or any third party.

EXCEPT FOR THE EXPRESS WARRANTY SET FORTH ABOVE, ART CARR MAKES NO OTHER REPRESENTATION OR WARRANTY, EXPRESSED OR IMPLIED, ARISING BY OPERATION OF LAW OR OTHERWISE, WITH RESPECT TO THE PRODUCT INCLUDING, WITHOUT LIMITATION, THE WARRANTIES MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE WHETHER OR NOT THE USE OR THE PURPOSE HAS BEEN DISCLOSED TO ART CARR PERFORMANCE IN SPECIFICATIONS, DRAWINGS OR OTHERWISE. AND WHETHER OR NOT ART CARR'S PRODUCTS ARE SPECIFICALLY DESIGNED AND/OR MANUFACTURED BY ART CARR PERFORMANCE FOR THE CUSTOMER'S USE OR PURPOSE'S EXCEPT AS SET FORTH IN THIS LIMITED WARRANTY. THE EXPRESS WARRANTY SET FORTH ABOVE IS GIVEN IN SATISFACTION OF ANY AND ALL OBLIGATIONS OR LIABILITIES OF ART CARR PERFORMANCE TO THE CUSTOMER, OR ANY THIRD PARTY, WITH RESPECT TO THE PRODUCT (WHETHER SUCH LIABILITIES OR OBLIGATIONS ARISE OUT OF CONTRACT, NEGLIGENCE, STRICT LIABILITY, TORT OR OTHERWISE). WITHOUT LIMITING THE FOREGOING, ART CARR PERFORMANCE SHALL NOT BE LIABLE FOR ANY PROPERTY DAMAGE OR PERSONAL INJURY TO THE CUSTOMER, OR ANY THIRD PARTY, WITH RESPECT TO THE PRODUCT. ART CARR PERFORMANCE SHALL NOT BE RESPONSIBLE FOR ANY DAMAGE CAUSED BY FAULTY INSTALLATION OF ITS PRODUCTS THE CUSTOMER'S EXCLUSIVE REMEDY FOR ANY LOSS, DAMAGE OR INJURY RELATED TO THE PRODUCT SHALL BE LIMITED TO REPAIR OR REPLACEMENT OF THE DEFECTIVE PRODUCT. IN NO EVENT SHALL ART CARR PERFORMANCE'S LIABILITY TO THE CUSTOMER EXCEED THE AMOUNT PAID BY THE CUSTOMER FOR THE PRODUCT.