NO: 23-36-99

SUBJECT: ACR Viper Package - Service Information

DATE: October 1, 1999

OVERVIEW:

This bulletin supplies the part numbers and repair information for the unique components to the Viper ACR package.

DISCUSSION:

The unique components for the Viper ACR package are:

- Five Point Restraint System
- ACR Decals
- ACR Dash Plaque
- Radio/Speaker Plugs (the ACR Viper is available without a radio or speakers.)
- Fog Lamp Plugs
- Suspension/Wheels
- Air Cleaner

PARTS REQUIRED:

Qty	Part Number	Description
AR	0LC171XBAD	Panel Assy., Bulkhead
AR	0QD06DX9AD	Carpet, Front Floor Right
AR	0QD07DX9AF	Carpet, Front Floor Left
AR	0QL021XBAD	Panel Assy., Quarter Trim Right
AR	0QL031XBAD	Panel Assy., Quarter Trim Left
AR	0QS021X7AN	Panel Assy., Door Trim Right
AR	0QS031X7AN	Panel Assy., Door Trim Left
AR	0SM12DX9AA	Cap, Wheel
AR	0SM08WD2AA	Wheel, Front
AR	OSM08WD2AA	Wheel, Rear
AR	0SZ22CA1AA	Decal, ACR Hood
AR	0SZ22SBBAA	Decal, ACR Hood
AR	05015296AA	Fascia, Front (Unpainted)
AR	0SZ301A9AA	Fascia, Front (Bright Silver W/Blue Stripe)
AR	0SZ301RNAA	Fascia, Front (Red W/Bright Silver Stripe)
AR	0SZ301X3AA	Fascia, Front (Black W/Bright Silver Stripe)
AR	04865448AA	Cover, Fog Lamp Filler
AR	05245172	Adapter, Fog Lamp Fascia Front
AR	0SZ28DX9AA	Carpet, Assembly
AR	0TG89DX9AA	Bezel, Radio Delete
AR	04854436AA	Plate, Speaker Delete
AR	04865432AA	Cable & Grommet, Audio Antenna

AR	05245265AC	Element, Air Cleaner
AR	04854292AA	Bracket, Seat Belt
AR	04854293AA	Bracket, Seat Belt
AR	04854438AA	Belt Assy, 5 Point
AR	04854439AA	Belt Assy, 5 Point
4	06036185AA	Rubber Spacer, Latch & Buckle
6	06036263AA	Eye Bolt
AR	06036183AA	.032 Metal Spacer, Eye Bolt
AR	06036184AA	.068 Metal Spacer, Eye Bolt
AR	04854434AA	Nameplate, ACR
AR	04854449AA	Coil Over Shock Assembly (Rear) (Lft or Rht)
AR	04854450AA	Bracket, Coil Over Shock (Rear) (Lft or Rht)
AR	05264841AA	Shock Absorber, (Rear) (Lft or Rht)
AR	05264843AA	Spring, Coil Over Shock (Rear) (Lft or Rht)
AR	05264848AA	Nut, Coil Over Shock (Rear) (Lft or Rht)
AR	05264844AA	Coil Over Shock Assembly (Front) (Lft or Rht)
AR	04865425AA	Bracket Assy., Relay/Rear

EQUIPMENT REQUIRED:

Special Tool 8396 - Adapter (Height Fixture Gage)
Special Tool 6914 - Height Fixture Gage

REPAIR PROCEDURE:

FIVE POINT RESTRAINT SYSTEM:

ACR vehicles are equipped with two complete and separate belt systems: the conventional 3-point belt and a 5-point belt harness. The five-point belt system consists of inboard (tunnel) and outboard (door sill) lap belts, right and left shoulder belts, and a floor mounted anti-submarining center belt. A single latch mechanism is permanently attached to the inboard lap belt and releases all remaining belts simultaneously. The single latch mechanism is operated by turning a lever clockwise 90 degrees. The inboard and outboard lap belt anchorage's are shared with the conventional 3-point belt and are permanently bolted to the vehicle. The remaining three belts (right and left shoulder and floor mounted center belt) terminate with hooks and are snapped onto eyelets. These belts may be removed by unsnapping from the eye bolts.

Lap Belts:

Inboard (tunnel) side lap belt: shared with 3-point belt webbing termination plate.

1. Move seat to the full forward position and tilt seat back full forward.
2. Remove inboard bolt holding the 5-point and 3-point belt members on the latch side (Figure 1).
3. Remove the 5-point lap belt (Figure 2).
4. Install the new 5-point lap belt in the same position as the old one was removed. Be sure to reinsert the rubber spacer (Figure 1) between the new 5-point belt and the existing 3-point belt webbing plate.

   CAUTION: THE 5-POINT BELT SYSTEM SHOULD ALWAYS BE INBOARD OF THE 3-POINT SYSTEM. THE 5-POINT BELT LATCH MECHANISM RELEASE LEVER MUST POINT DOWNWARD (FIGURE 3).

5. Torque the bolt holding both belts to 39.5 Nm (350 in.lbs).

Outboard (doorsill) side: shared with 3-point buckle assembly.

1. Move seat to forward position and tilt seat back forward.
2. Remove inboard bolt holding the buckle side of the 5-point and 3-point belt members, (Figure 4).
3. Remove the buckle side of the 5-point lap belt, (Figure 5).
4. Install the new 5-point lap belt in the same position as the old one was removed. Be sure to insert the rubber spacer between the 5-point belt and the existing 3-point belt buckle.

   NOTE: TO SERVICE THE 3-POINT BELT SYSTEM. THE RUBBER SPACER (FIGURE 4) WHICH IS SUPPLIED WITH THE STANDARD 3-POINT BUCKLE ASSEMBLY MUST BE DISCARDED. IT IS REPLACED WITH THE SHORTER RUBBER SPACER (P/N 6030185AA).

5. Torque the bolt holding both belts to 39.5 Nm (350 in.lbs).

   CAUTION: THE 5-POINT BELT SYSTEM SHOULD ALWAYS BE INBOARD OF THE 3-POINT SYSTEM. THE 5-POINT BELT LATCH MECHANISM RELEASE LEVER MUST POINT DOWNWARD, (FIGURE 3).

Shoulder belt and eyebolt mount:

1. Remove the four upper screws to the bulkhead trim panel.
2. Remove the lower quarter trim panel.
3. Unclip the shoulder belt thru the opening provided in the bulkhead and quarter trim. Feed the belt through the seat to remove. Install the new shoulder belt in the same manner as removed.

   CAUTION: IF THE SHOULDER BELT EYEBOLT MUST BE REPLACED. THE SPACER WASHERS PROVIDED UNDER THE EYEBOLT MUST BE RETAINED FOR REASSEMBLY WITH THE NEW EYELET. (FIGURE 6). THE EYELET IN THE FINAL TORQUED DOWN POSITION MUST BE ORIENTED IN THE FORE AND AFT DIRECTION.

Floor mounted center belt:

1. Unclip the floor mounted center belt to remove.

   CAUTION: IF THE FLOOR MOUNTED CENTER BELT EYEBOLT MUST BE REPLACED. THE SPACER WASHERS PROVIDED UNDER THE EYEBOLT MUST BE RETAINED FOR REASSEMBLY WITH THE NEW EYELET (FIGURE 7). THE EYELET IN THE FINAL TORQUED DOWN POSITION MUST BE ORIENTED IN THE FORE AND AFT DIRECTION (FIGURE 8).

DECALS:

All decals should be installed in the same position as the existing decal. Refer to the 1999 Viper Service Manual (Publication Number 81-270-9150) beginning on page 23-34 for installation instructions. Refer to Figure 9 for proper positioning measurements.

ACR DASH PLAQUE:

1. Clean any residue from the center bezel where the new dash plaque will be installed.
2. Remove the protective strip from rear of plaque.
3. Center the dash plaque cross car with the ash receiver and center front to rear in the space provided (Figure 10). Press the plaque firmly into place.

RADIO PLUG:

1. Remove the instrument panel center bezel (Figure 11).
2. Remove the two screws holding the plug in place (Figure 12).
3. Remove the plug.
4. Replace the plug by installing the two screws.
5. Install the instrument panel center bezel.

SPEAKER PLUGS:

1. Remove the three screws holding the speaker grill (Figure 13).
2. Remove the two speaker plugs.
3. Install the two speaker plugs and speaker grill using the three screws.

FOG LAMP PLUGS:

1. Remove the three screws holding the fog lamp cover adapter from the front fascia (Figure 14).
2. Remove the fog lamp filler.
3. Install the new fog lamp filler and adapter, torque the three screws to 1.35 Nm (12 In. lbs.).

SUSPENSION:

CURB HEIGHT CHECKING (ACR):

When checking curb height or design height on vehicles equipped with the ACR package, follow the procedure in the service manual. When you come to the steps calling for placement of the Vehicle Height Checking Fixtures, Special Tool 6914, on the vehicle, adapters will need to be added to the ends of the fixtures in order for them to fit the BBS wheels that come on the ACR vehicle. Use the following steps to attach the adapters.

1. Place an Adapter, Special Tool 8396-1, inside the larger end of each Height Fixture (Gage), Special Tool 6914, aligning the adapter thumb screw with the notch in the Fixture. The beveled edges on both tools should be on the same side as shown in Figure 15.
2. Tighten the thumb screws.
3. Place an Adapter, Special Tool 8396-2, over the smaller end of each Height Fixture (Gage), Special Tool 6914, aligning the adapter locating pin with the notch in the Fixture. The beveled edges on both tools should be on the same side as shown in Figure 16.
4. Tighten the thumb screws.
5. Install the Vehicle Height Checking Fixtures (Gages) with the Adapters attached on the vehicle as requested in the standard procedure. Only when placing the tools against the very base of wheels, place the adapters against the wheels as shown in Figure 17 and Figure 18.
6. Measure front and rear curb height or design height following the procedure in the service manual using the same height specifications as listed in the service manual.
7. Check and set the alignment with design height weights still installed in the vehicle.

SHOCK ASSEMBLY (ACR-FRONT) (DESCRIPTION & OPERATION)

The ACR package available on this vehicle utilizes unique coil-over shock assemblies (Figure 19). The ACR front shock assembly consists of the following components:

- Upper spring seat
- Coil spring
- Lower spring seat
- Lock nut
- Shock damper

These shock assemblies mount basically the same as the standard shock assemblies except for the addition of two spacers at the mounting points, one on each side. They are there to take up the difference in width of the shock mounting eyes. The shock damper is supplied by Koni. It is an externally adjustable race damper.

The ACR shock assembly functions basically the same as the standard shock assembly, except for a couple of differences. That being the ability to adjust damper Bump and Rebound settings and coil spring height (Figure 19).

SHOCK ASSEMBLY (ACR-FRONT) (DISASSEMBLEY & ASSEMBLY)

The shock assembly must be removed from the vehicle for it to be disassembled and assembled. Refer to the removal procedure provided in the 1999 Viper Service Manual (Publication No. 81-270-9150) beginning on page 2-26.

DISASSEMBLY

1. Position the shock assembly vertically in a soft jawed vise by mounting the bottom eye in the vise's jaws. Be careful not to damage the bearing.
2. Using two adjustable pin spanner wrenches, one on the lower spring seat and the other on the lock nut below it, loosen and back off the lock nut (Figure 19).
3. Using one of the adjustable pin spanner wrenches, rotate the lower spring seat releasing tension from the coil spring and upper spring seat. Continue to loosen the lock nut until the upper spring seat moves down toward the shock damper body approximately 10 mm. (0.4 in).
4. Remove the snap ring from the circular lock nut below the shock damper's top eye using a pair of snap ring pliers (Figure 20).
5. Remove the upper spring seat straight up over the top of the shock damper's top eye.
6. Remove the coil spring from the shock damper.
7. Remove the shock damper from the vise.

ASSEMBLY

NOTE: IF A NEW SHOCK DAMPER IS BEING INSTALLED, BE SURE TO SET THE BUMP AND REBOUND ADJUSTMENT DISCS TO POSITION ONE (FULL NEGATIVE). THAT IS THE FACTORY SETTING.

1. Position the shock damper vertically in a soft jawed vise by mounting the bottom eye in the vise's jaws. Be careful not to damage the bearing.

   NOTE: THERE IS NO DESIGNATED TOP OR BOTTOM TO THE COIL SPRING. IT MAY BE INSTALLED EITHER END UP.

2. Install the coil spring over the shock damper until it seats on top of the lower spring seat (Figure 19).

   NOTE: THE LOWER SPRING SEAT AND LOCK NUT MUST BE LOWERED ENOUGH ON THE SHOCK DAMPER BODY TO ALLOW FOR UPPER SPRING SEAT AND SNAP RING INSTALLATION.

3. Install the upper spring seat over the top eye of the shock damper onto the top of the coil spring.
4. Install the snap ring into the groove of the circular lock nut below the top eye (Figure 20).
5. Slowly thread the lower spring seat upward aligning the upper spring seat with its normal mounting position.
6. Continue threading the lower spring seat upward until the correct coil spring height is achieved . The factory spring height should be set to 232mm (9.125 in.). That is the correct distance between the upper and lower spring seats. Do not be alarmed if there is a small amount of free play between the spring and it's seats when setting the spring height to factory specifications, it is normal. (Figure 21).
7. Once proper spring height is achieved, thread the lock nut up against the bottom of the lower spring seat.
8. Place an adjustable pin spanner wrench on the lower spring seat to hold it in place and another on the lock nut, then tighten the lock nut up against the lower spring seat.

9. Using an open end wrench on the top eye flats, align the hole in the top eye of the shock damper with that of the bottom eye.
10. Remove the shock assembly from the vise.

SHOCK ASSEMBLY (ACR-REAR) (DESCRIPTION & OPERATION)

DESCRIPTION

The ACR package available on this vehicle utilizes unique coil-over shock assemblies (Figure 22). The ACR rear shock assembly consists of the following components:

- Upper spring seat
- Coil spring
- Lower spring seat
- Lock nut
- Shock damper
- Clevis bracket (with threaded adapter)

These shock assemblies mount basically the same as the standard shock assemblies except for the addition of two spacers, one on each side, at the upper mounting points. They are there to take up the difference in width of the shock mounting eyes. The shock damper is supplied by Koni. It is an externally adjustable race damper.

OPERATION

The ACR shock assembly functions basically the same as the standard shock assembly, except for a couple of differences. That being the ability to adjust damper Bump and Rebound settings, and coil spring height.

SHOCK ASSEMBLY (ACR-REAR) (DISASSEMBLY & ASSEMBLY)

The shock assembly must be removed from the vehicle for it to be disassembled and assembled. The removal procedure is provided in the 1999 Viper Service Manual (PublicationNo. 81-270-9150) beginning on page 2-66.

DISASSEMBLY

1. Position the shock assembly vertically in a vise by mounting the clevis bracket in the vise's jaws.
2. If the clevis bracket needs to be separated from the shock damper, it should be loosened, but not completely removed at this time. To do so, place an adjustable pin spanner wrench on the lock nut below the lower spring seat then rotate the shock damper counterclockwise to loosen it from the clevis bracket and it's threaded adapter (Figure 23).
3. Using two adjustable pin spanner wrenches, one on the lower spring seat and the other on the lock nut below it, loosen and back off the lock nut (Figure 23).
4. Using one of the adjustable pin spanner wrenches, rotate the lower spring seat releasing tension from the coil spring and upper spring seat. Continue to loosen the lock nut until the upper spring seat moves down toward the shock damper body approximately 10 mm.
5. Remove the snap ring from the circular lock nut below the shock damper's top eye using a pair of snap ring pliers (Figure 20).
6. Remove the upper spring seat straight up over the top of the shock damper's top eye.
7. Remove the coil spring from the shock damper.
8. If the clevis bracket needs to be separated from the shock damper, remove the previously loosened shock damper from the clevis bracket, then remove the clevis bracket from the vise.

ASSEMBLY

NOTE: IF A NEW SHOCK DAMPER IS BEING INSTALLED, BE SURE TO SET THE BUMP AND

REBOUND ADJUSTMENT DISCS TO POSITION ONE (FULL NEGATIVE). THAT IS THE FACTORY SETTING.

1. If the clevis bracket has been removed from the vise or is being replaced, position it in a vise so that the shock damper is mounted vertically above.

   NOTE: IF THE CLEVIS BRACKET IS SEPARATE FROM THE SHOCK DAMPER, PROCEEDWITH THE FOLLOWING STEP, OTHERWISE PROCEED TO STEP 8.

   NOTE: CLEAN ANY USED THREAD SEALER FROM THE THREADS OF THE CLEVIS BRACKET THREADED ADAPTER OR THE SHOCK DAMPER BODY BEFORE APPLYING NEW SEALER.

2. Apply Mopar Lock 'N Seal or Locktite 242 to the threads of the threaded adapter mounted in the clevis bracket.
3. Thread the shock damper into the clevis bracket threaded adapter by hand.
4. Thread the lock nut up against the bottom of the lower spring seat.
5. Place an adjustable pin spanner wrench on the lower spring seat to hold it in place and another on the lock nut, then tighten the lock nut up against the lower spring seat.
6. Once the lock nut and lower spring seat are tightened together, tighten the shock damper into the clevis bracket using an adjustable pin spanner wrench installed on the lower spring seat. Tighten it to a torque of 68 Nm (50 ft. lbs).
7. Place an adjustable pin spanner wrench on the lower spring seat to hold it in place and another on the lock nut. Loosen the lock nut being careful not to loosen the shock damper from the clevis bracket.

   NOTE: THERE IS NO DESIGNATED TOP OR BOTTOM TO THE COIL SPRING. IT MAY BE INSTALLED EITHER END UP.

8. Install the coil spring over the shock damper until it seats on top of the lower spring seat (Figure 22).

   NOTE: THE LOWER SPRING SEAT AND LOCK NUT MUST BE LOWERED ENOUGH ON THE SHOCK DAMPER BODY TO ALLOW FOR UPPER SPRING SEAT AND SNAP RING INSTALLATION.

9. Install the upper spring seat over the top eye of the shock damper onto the top of the coil spring.
10. Install the snap ring into the groove of the circular lock nut below the top eye (Figure 20).
11. Slowly thread the lower spring seat upward aligning the upper spring seat with its normal mounting position.
12. Continue threading the lower spring seat upward until the correct coil spring height is achieved . The factory spring height should be set to 232mm (9.125 in.). That is the correct distance between the upper and lower spring seats. Do not be alarmed if there is a small amount of free play between the spring and it's seats when setting the spring height to factory specs, it is normal. (Figure 21).
13. Once proper spring height is achieved, thread the lock nut up against the bottom of the lower spring seat.
14. Place an adjustable pin spanner wrench on the lower spring seat to hold it in place and another on the lock nut, then tighten the lock nut up against the lower spring seat.
15. Using an open end wrench on the top eye flats, align the hole in the top eye of the shock damper with the holes in the clevis bracket.
16. Remove the shock assembly from the vise and install the assembly in the vehicle.

SHOCK DAMPER SET-UP FOR COMPETITIVE DRIVING (ACR)

When developing a good set-up for this vehicle's dampers, keep in mind the following:

- Make changes to the settings in small steps (1-2 clicks of the Bump and Rebound discs at a time)
- Keep track of all changes made and their effect to the vehicle.
- Aim for a good chassis balance first, and only then start searching for outright performance.

BASIC DAMPER SET-UP

1. Set all dampers to their minimum adjustment position for both Bump and Rebound (Figure 24). Refer to Bump and Rebound Adjustment below for information on setting Bump and Rebound discs.
2. Carefully drive the vehicle and increase speed gradually so you can get a feeling for the vehicle.

   NOTE: AT THIS STAGE, DO NOT PAY MUCH ATTENTION TO EXCESSIVE BODY ROLL, A WALLOWING RIDE AND POSSIBLE LOSS OF DOWN FORCE THAT MAY OCCUR BECAUSE OF THIS.

3. Increase the Bump settings by two clicks of the Bump adjusting discs at a time on all dampers.
4. When you arrive at a Bump setting that makes the vehicle too harsh, back off the Bump setting one click.

   NOTE: FRONT AND REAR BUMP SETTINGS MAY END UP BEING DIFFERENT.

   The standard Bump settings have now been determined. Now, proceed to set the Rebound settings.

5. Increase the Rebound settings on all dampers one or two clicks at a time. Pay special attention to changes in attitude of the chassis when entering corners or accelerating out of them.
6. Continue to increase Rebound settings until the car feels precise and stable. Changes of direction or throttle position should not result in drastic changes of chassis attitude. Too much Rebound generally results in loss of grip. Too much at the front will give understeer on turn-in, while too much at the rear will result in loss of traction or oversteer on turn-in.

   NOTE: FRONT AND REAR REBOUND SETTINGS MAY END UP BEING DIFFERENT.

7. Basic set-up is now complete.

ADDITIONAL TIPS

Remember these additional tips when setting up the vehicle.

- When you change spring rates, expect to change your basic set-up as well.
- A damper only functions when it moves. When the suspension stops moving due to lack of travel, the damper will not have any influence on handling. A wheel that runs out of Bump travel loses grip suddenly and viciously.
- Try to stick to the balance between Bump and Rebound as found during basic set-up. If you wish to tighten things up, start by increasing both bump and rebound settings. Beware not to end up in a situation as described in the previous tip, caused by a damper dynamically jacking the suspension up and down.
- An increase of damping forces at one end of the car will tend to make the other end of car move more.

BUMP AND REBOUND ADJUSTMENT

Adjusting is done by rotating the adjustment discs, located in the window of the top eye (Figure 20). To rotate the discs, you need a steel pin, 1.5 x 50 mm. (0.06 x 2.0 in.). A 1/16 inch drill bit or rivet works fine. The upper disc is for Bump (compression) adjustment (Figure 24). The lower disc is for Rebound (extension) adjustment. For both Bump and Rebound there are eight different positions, each with a positive stop. The discs need to be rotated 180 ° to go from minimum to maximum adjustment. The minimum position is referred to as position one. The maximum position is referred to as position eight. Rotate the discs according to the markings on the top eye. The eye is marked with a plus (+) and minus (-) sign, and the letters B (Bump) and R (Rebound) next to the corresponding disc.

CAUTION: NEVER USE FORCE WHEN MAKING ADJUSTMENTS.

SPECIFICATIONS

ACR SHOCK ASSEMBLY FACTORY SETTINGS

DESCRIPTION	SPECIFICATION
Bump	Position One (Full Negative)
Rebound	Position One (Full Negative)
Spring Height*	232 mm (9.125 in.)

NOTE: * DISTANCE BETWEEN UPPER AND LOWER SPRINGS SEATS WITH SHOCK ASSEMBLY IN FULLY EXTENDED (REBOUND) POSITION. THERE MAY BE SOME FREE PLAY BETWEEN THE SPRING AND IT'S SEAT.

POLICY:

Reimbursable within the provisions of the warranty.

TIME ALLOWANCE:

Labor Op. No.	Description	Time
23-13-02-90	Restraint System, Five Point; Replace - Right	0.6 Hrs.
23-13-02-91	Restraint System, Five Point; Replace - Left	0.6 Hrs.
23-01-18-90	Decal, Fender Side - Right	0.2 Hrs.
23-01-18-91	Decal, Fender Side - Left	0.2 Hrs.
23-01-18-94	Decal, Rear Fascia - Replace	0.2 Hrs.
23-11-23-91	Plaque, Dash ACR - Replace	0.2 Hrs.
23-10-25-91	Plug, Radio - Replace	0.2 Hrs.
23-10-16-91	Plug, Speaker - Replace One Or Both	0.2 Hrs.
23-02-27-90	Plug, Fog Lamps - Replace One Or Both	0.2 Hrs.
02-15-15-97	Shocks - Rear - Replace/Suspension Set Up	3.2 Hrs.

FAILURE CODE:

Code	Description
P8	New Part