

2001-03 AUTOMATIC TRANSMISSIONS

Removal & Installation - 01P

APPLICATION

TRANSAXLE APPLICATION

Application	Transaxle Model
Eurovan	01P

REMOVAL & INSTALLATION

VEHICLES WITH SHORT FRONT END

NOTE: On Eurovans from January 1996, the front end and assembly mounts have been modified. The front end can be either a long or short front end version. Long front end vehicle (distance "a") is 3.54" (90 mm) longer than short front end vehicle. Short front end design has a character line (arrow) on upper wing. See [Fig. 1](#) . The transaxle mounts on these vehicles have also been modified (using pendulum support). From January 1996, drive to the right side drive axle is via an exposed flange shaft.

NOTE: In the following procedures, letters and numbers in parenthesis are shown in illustrations.

NOTE: When battery is disconnected, vehicle computer and memory systems may lose memory data. Driveability problems may exist until computer systems have completed a relearn cycle.

CAUTION: Radio/cassette or radio/CD player is equipped with an anti-theft protection circuit. Whenever battery is disconnected, radio will go into anti-theft mode. When battery is reconnected, radio will display CODE, and will be inoperative until proper code number is entered. Obtain security code before disconnecting battery.

Removal & Installation

1. Remove battery covering. With the ignition switched off, disconnect the battery ground strap (in engine compartment and if installed, under driver's side). Remove charge air cooler from lock carrier (arrows) if installed. See [Fig. 2](#) . Remove radiator grille with trim frame and tilt out radiator and lock carrier toward front.

2. **NOTE:** The torsion bars are relieved when vehicle is raised.

Loosen hexagon bolt for drive axle/wheel hub. Raise and support vehicle. Remove left front wheel. Remove hexagon bolt for drive axle/wheel hub. Using a tape measure, record distance from nut face to end of torsion bar threaded rod (a). See [Fig. 3](#) .

3. Relieve tension on torsion bar with Special Socket (3257). See **Fig. 4** . Remove bolts (1) and pull radiator out in direction of arrow. See **Fig. 5** . Pull upper White connector off transaxle vehicle speed sensor. Remove upper engine/transaxle connecting bolt.

2003 Volkswagen EuroVan MV

REMOVAL & INSTALLATION - A/T (01P)

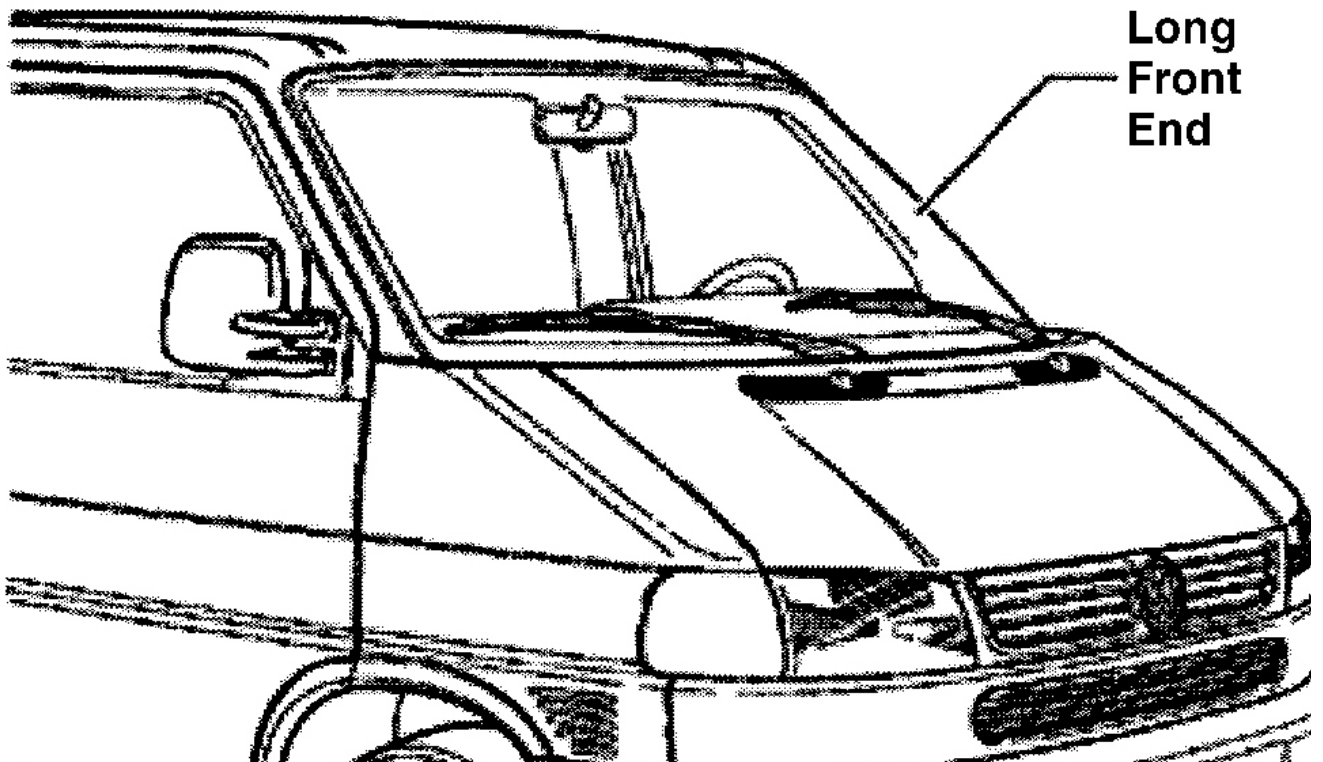
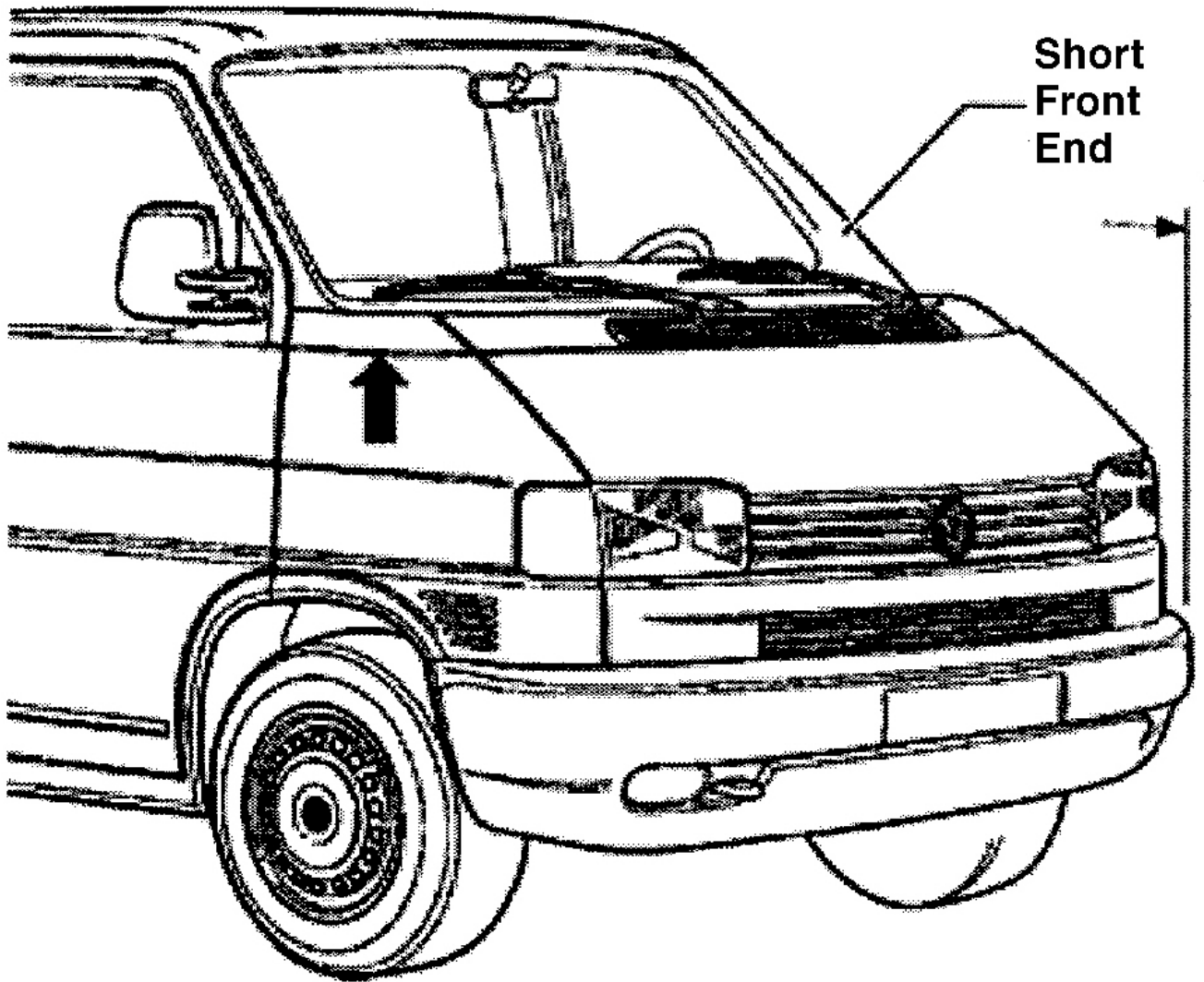
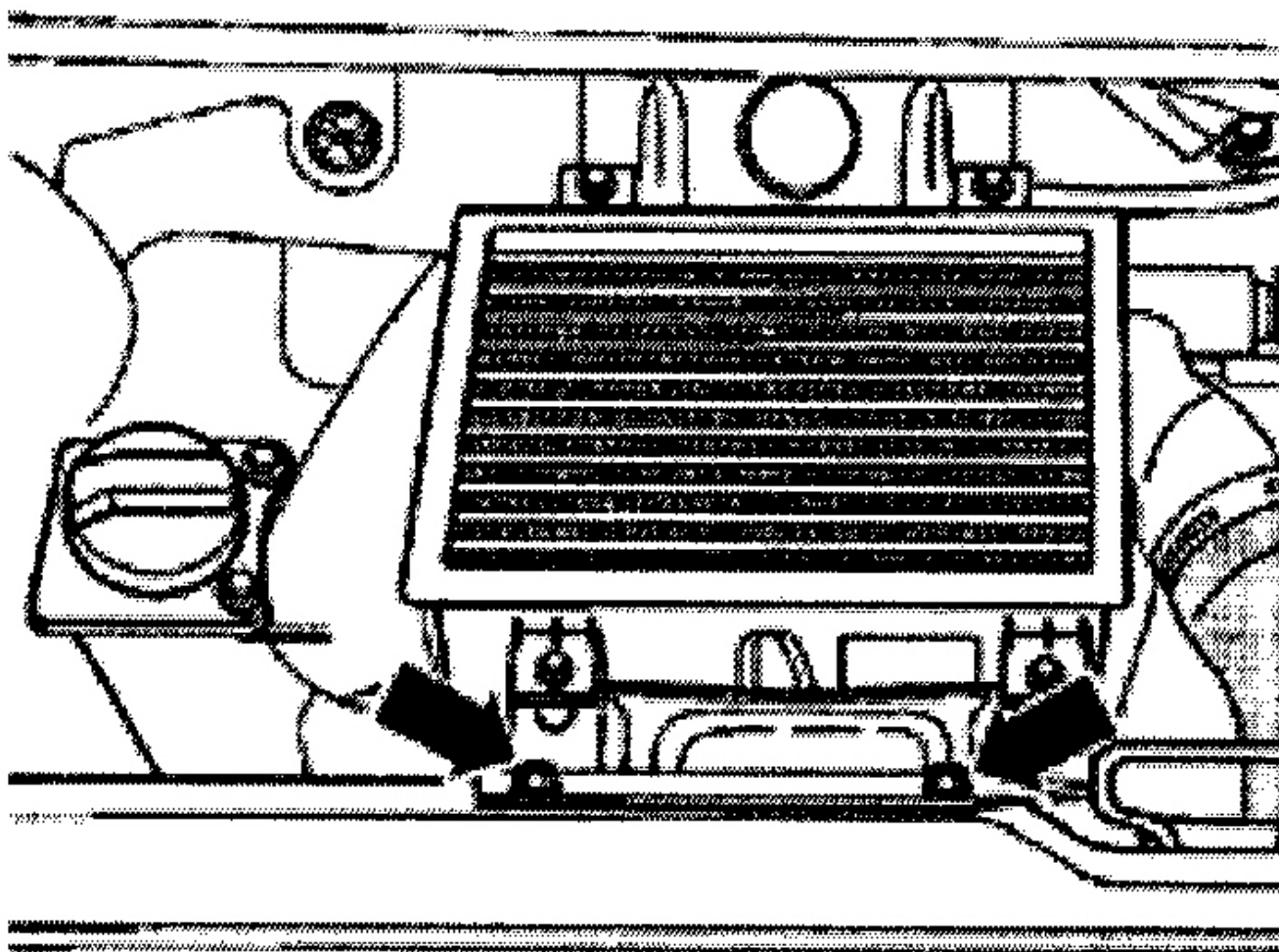
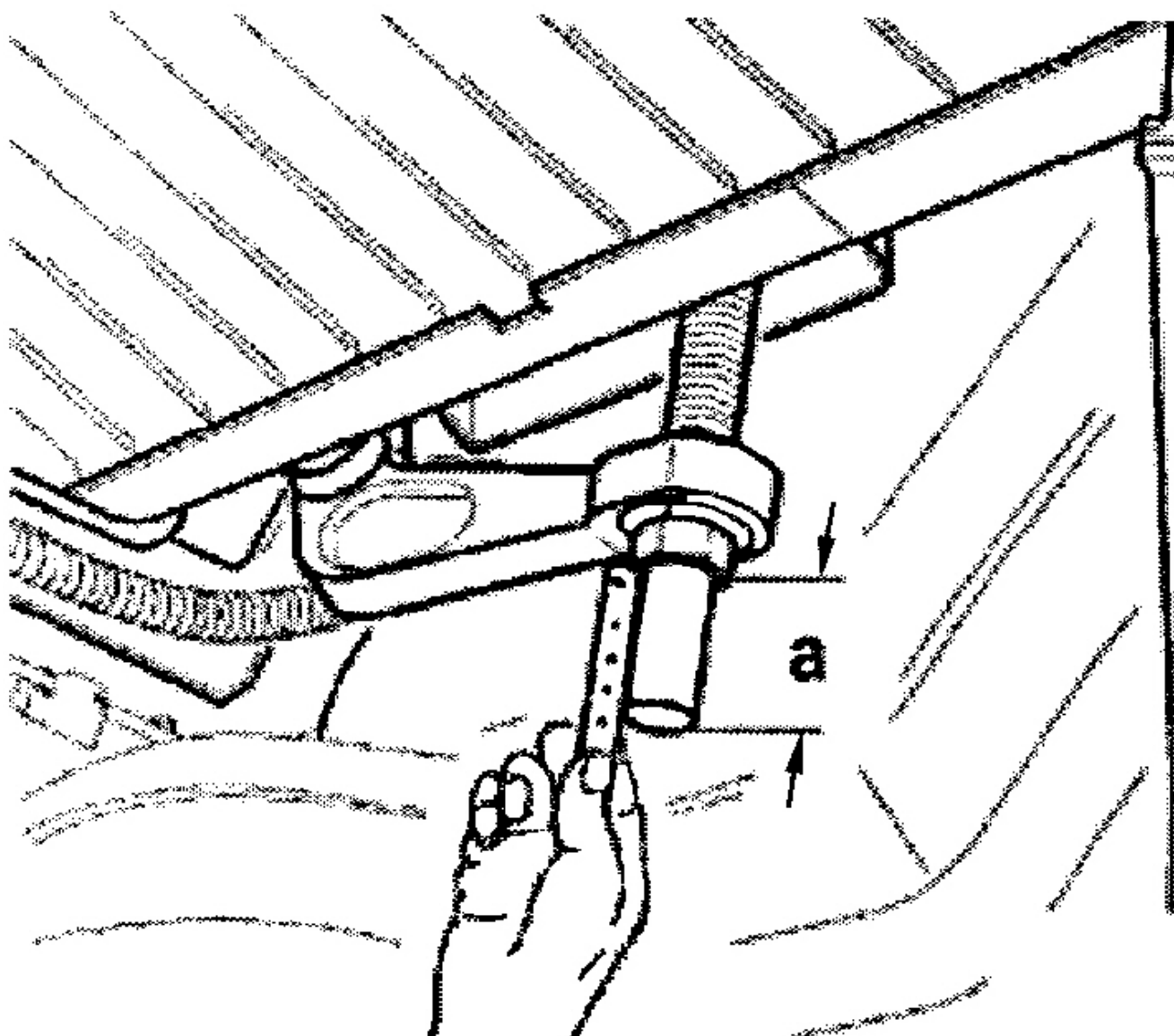


Fig. 1: Identifying Difference In Long & Short Front End Design
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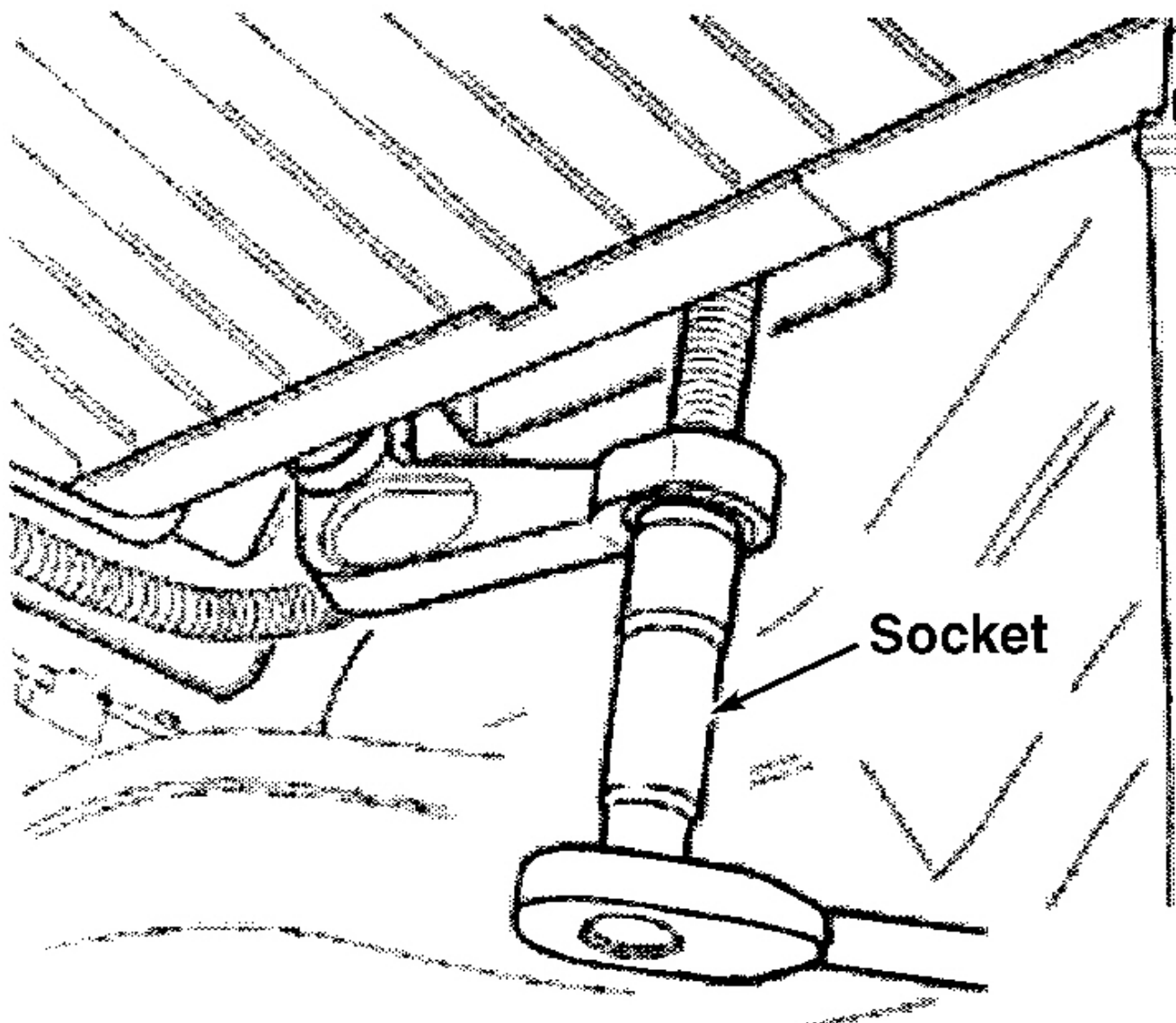
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Fig. 2: Removing Charge Air Cooler From Lock Carrier
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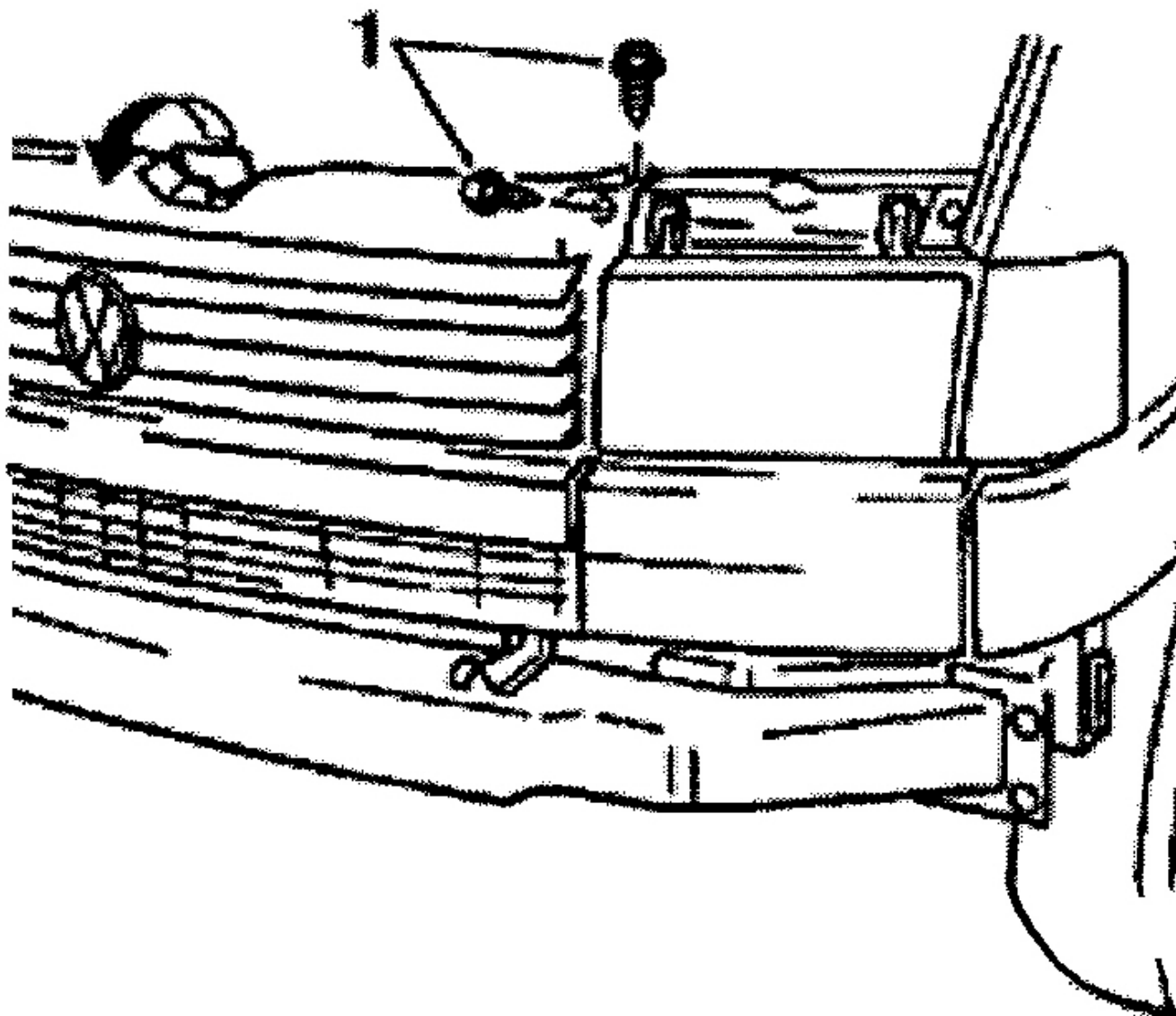
Fig. 3: Measuring Distance From Nut To End Of Torsion Bar Rod
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Fig. 4: Relieving Torsion Bar Tension

Courtesy of VOLKSWAGEN UNITED STATES, INC.



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Fig. 5: Pulling Out Radiator Toward Front Of Vehicle
 Courtesy of VOLKSWAGEN UNITED STATES, INC.

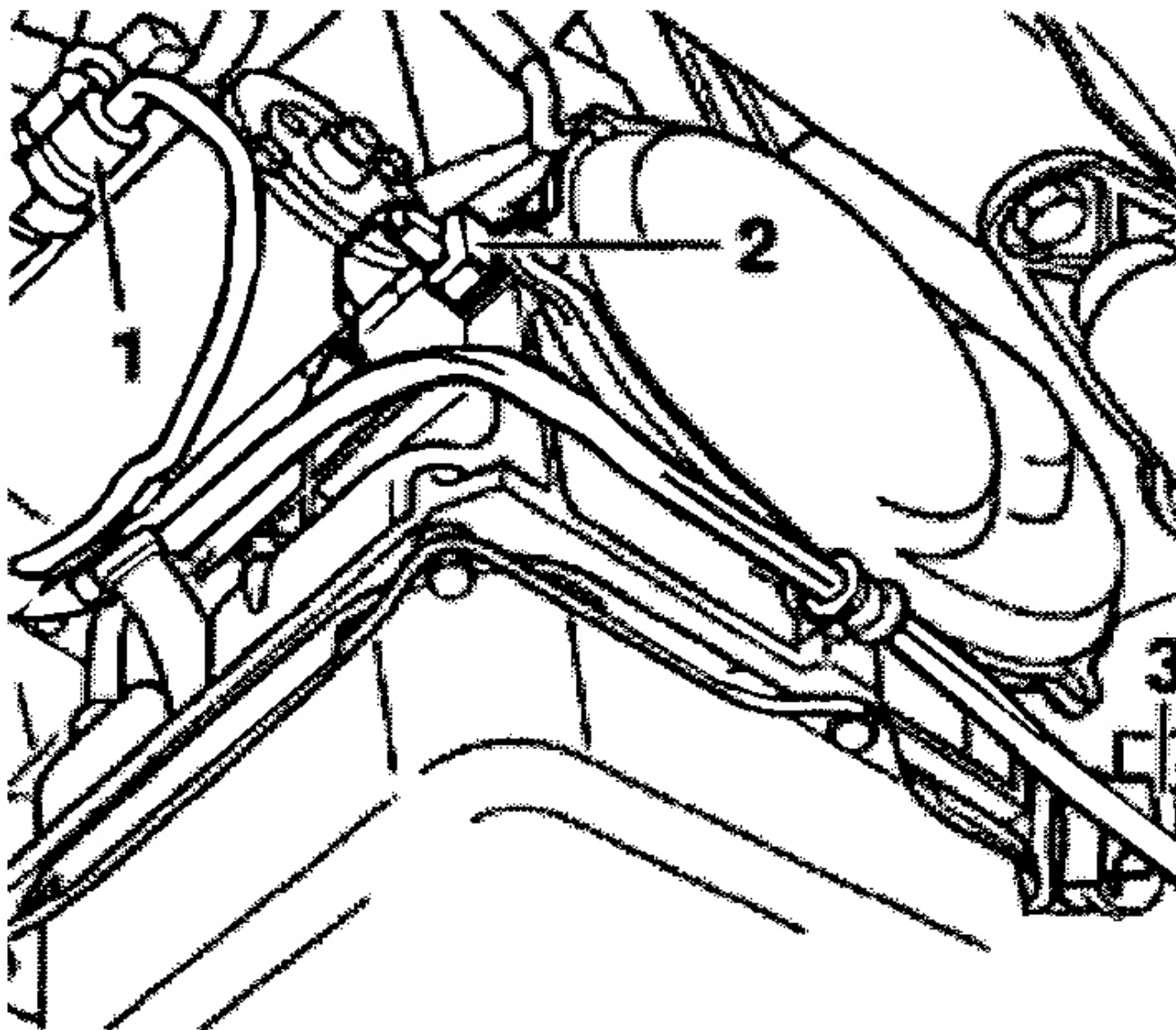
4.

NOTE: Mark position of engine/transaxle connecting bolts before removal and only use bolts of same length when replacing.

Remove noise insulation tray. Pull electrical connections off transaxle at valve body (1), vehicle speed sensor (2) and multifunction TR switch (3). See **Fig. 6** . Remove multifunction TR switch cable and holder from transaxle and position to one side. Remove starter. Unbolt drive axles from transaxle flange shafts. Raise right drive axle and secure out of the way.

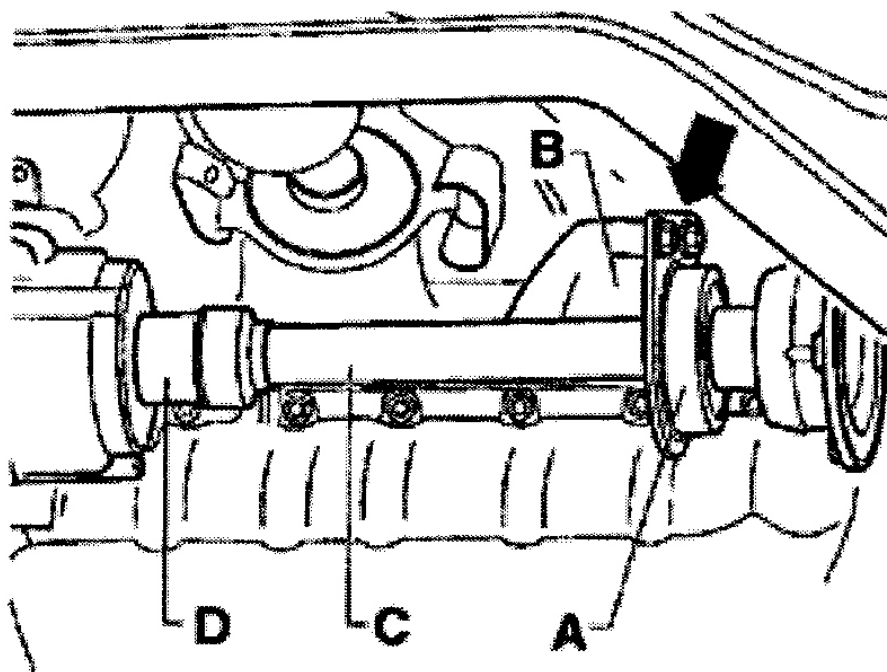
5. Unbolt flanged shaft bearing (A) from transaxle mount (B) at arrow. Pull right hand flange shaft (C) out from intermediate shaft (D). See **Fig. 7** . Detach front exhaust pipe at exhaust manifold. Remove bolts (arrows) for cover plate. See **Fig. 8** .
6. Remove nut (arrow) from torque converter. Rotate torque converter to remove additional nuts (2). See **Fig. 9** . Separate left hand wheel bearing housing/lower swivel joint bolted connection. See **Fig. 10** . Always replace bolts. Remove bolt for left hand shock absorber/stabilizer bar coupling rod. Push left

hand shock absorber together. Remove auxiliary heater end pipe, if installed.



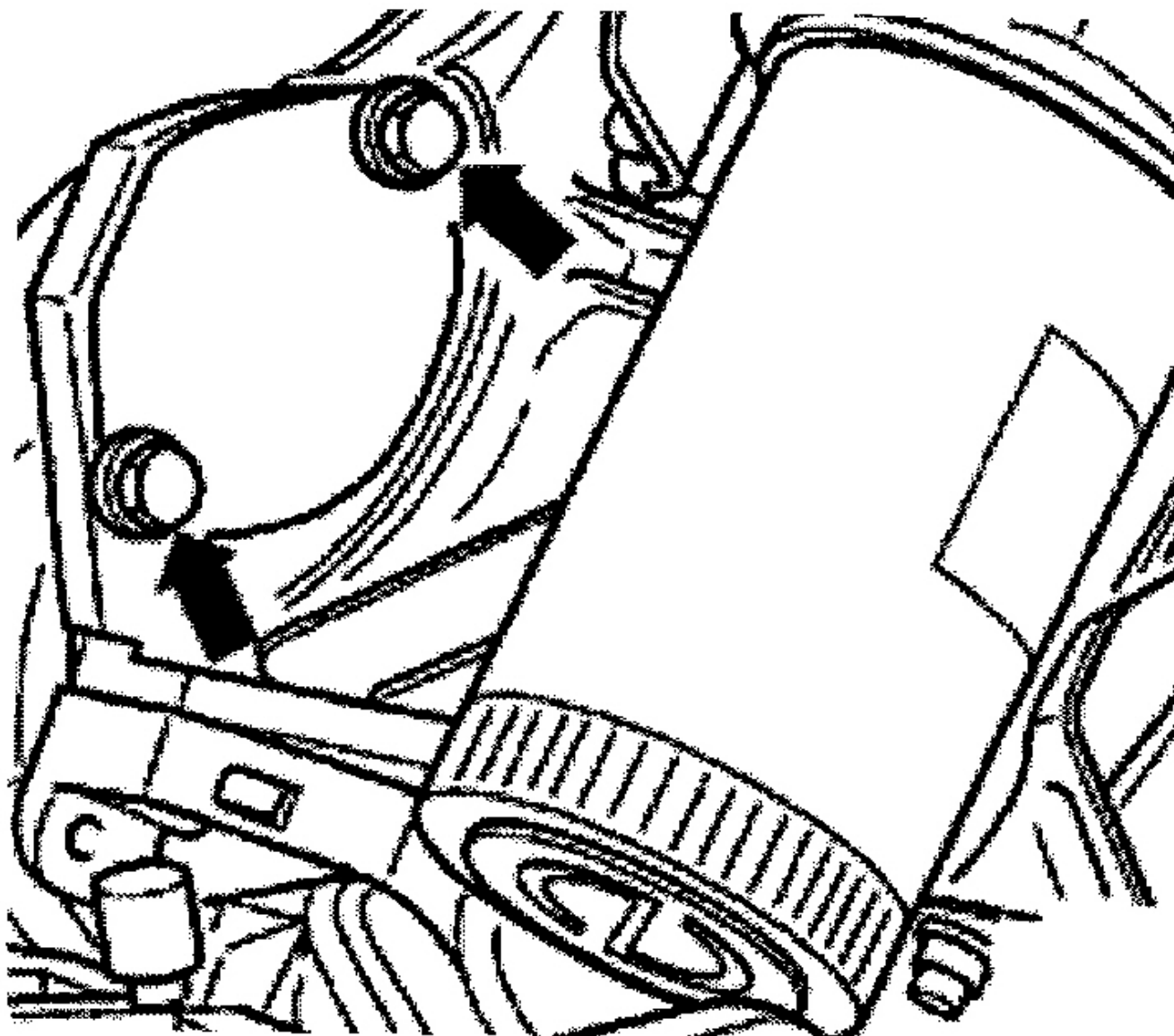
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Fig. 6: Disconnecting Wiring Connections On Transaxle
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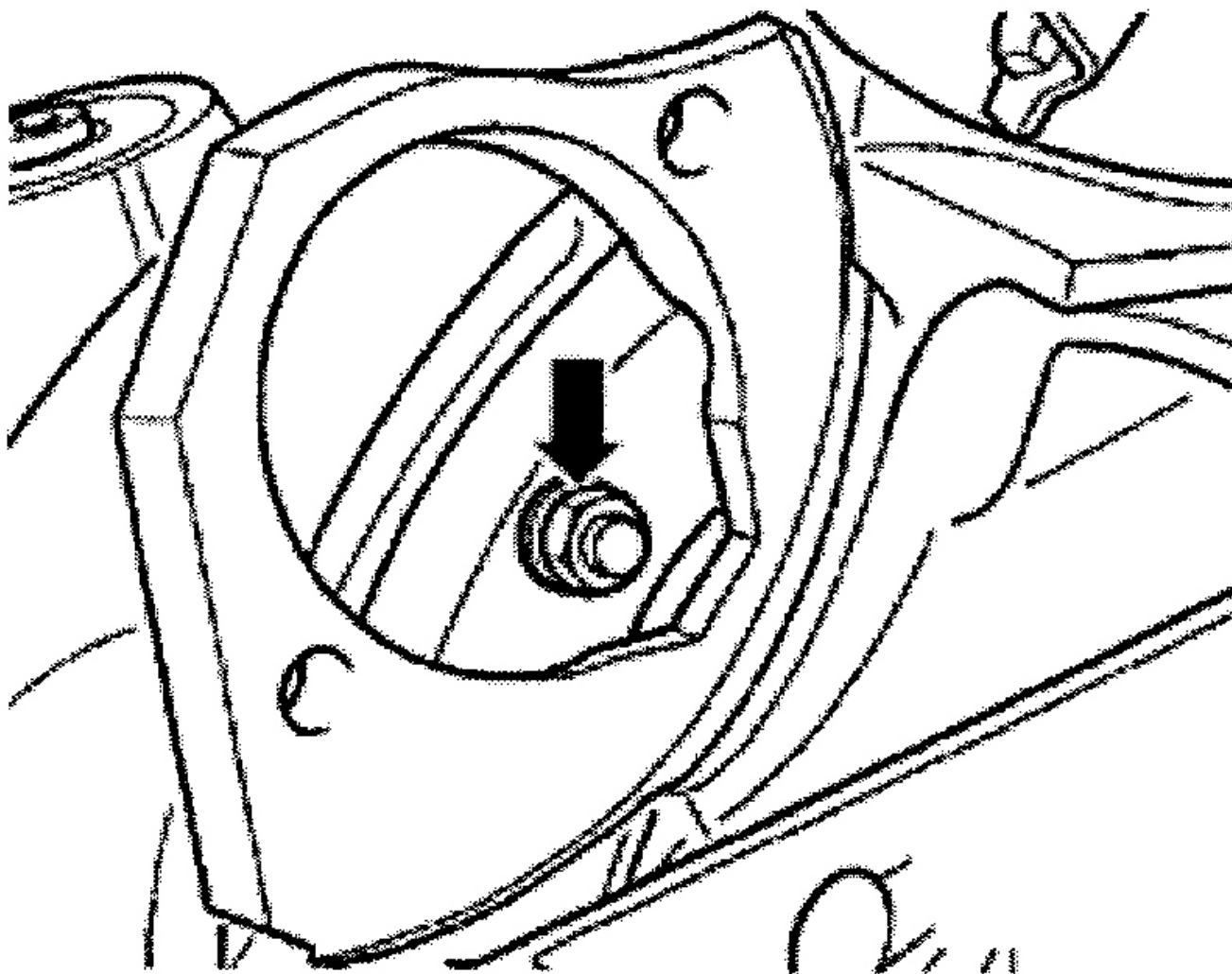
Fig. 7: Removing Flanged Shaft Bearing From Transaxle
Courtesy of VOLKSWAGEN UNITED STATES, INC.



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Fig. 8: Removing Cover Plate Bolts

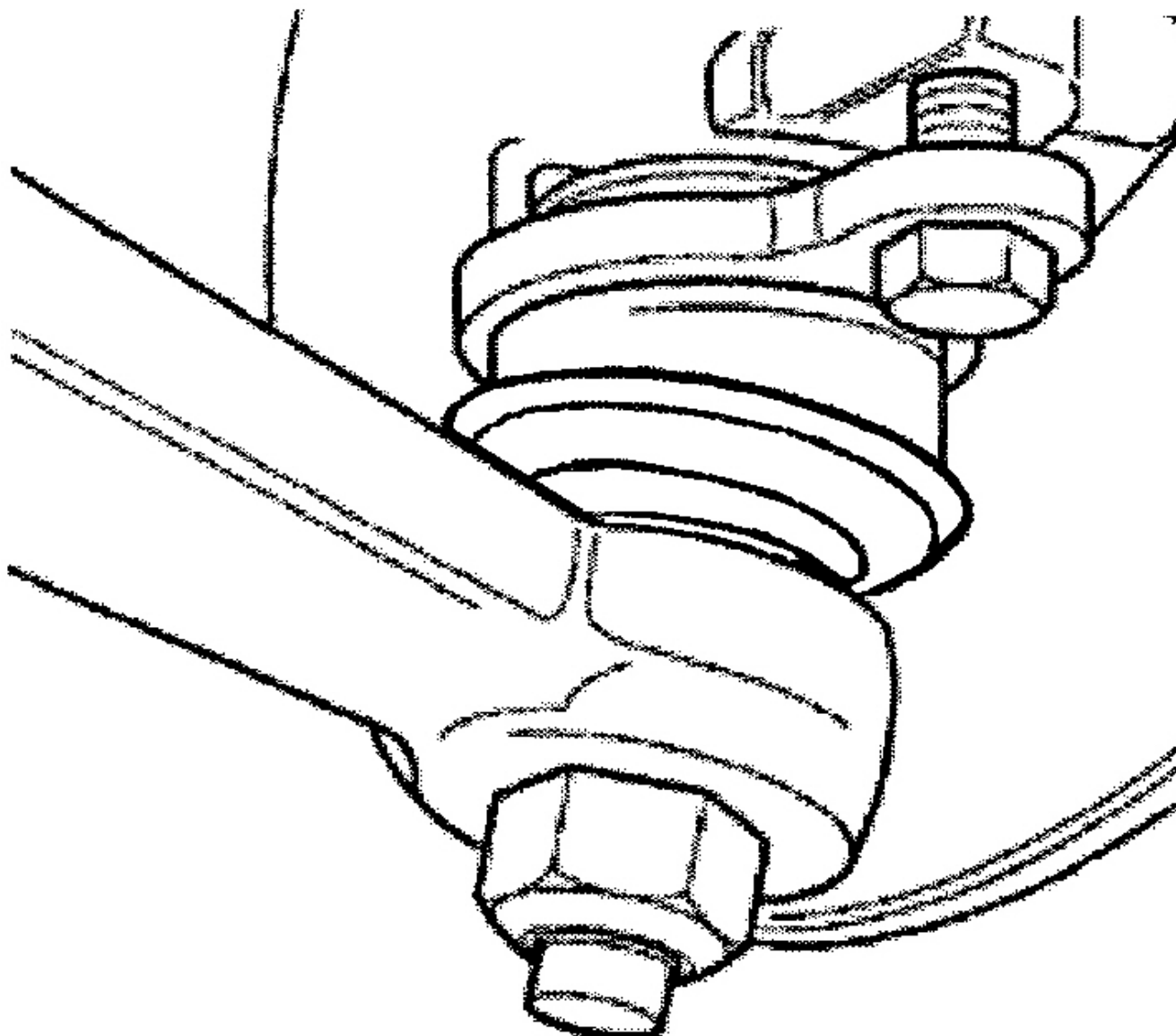
Courtesy of VOLKSWAGEN UNITED STATES, INC.



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Fig. 9: Removing Torque Converter Nut

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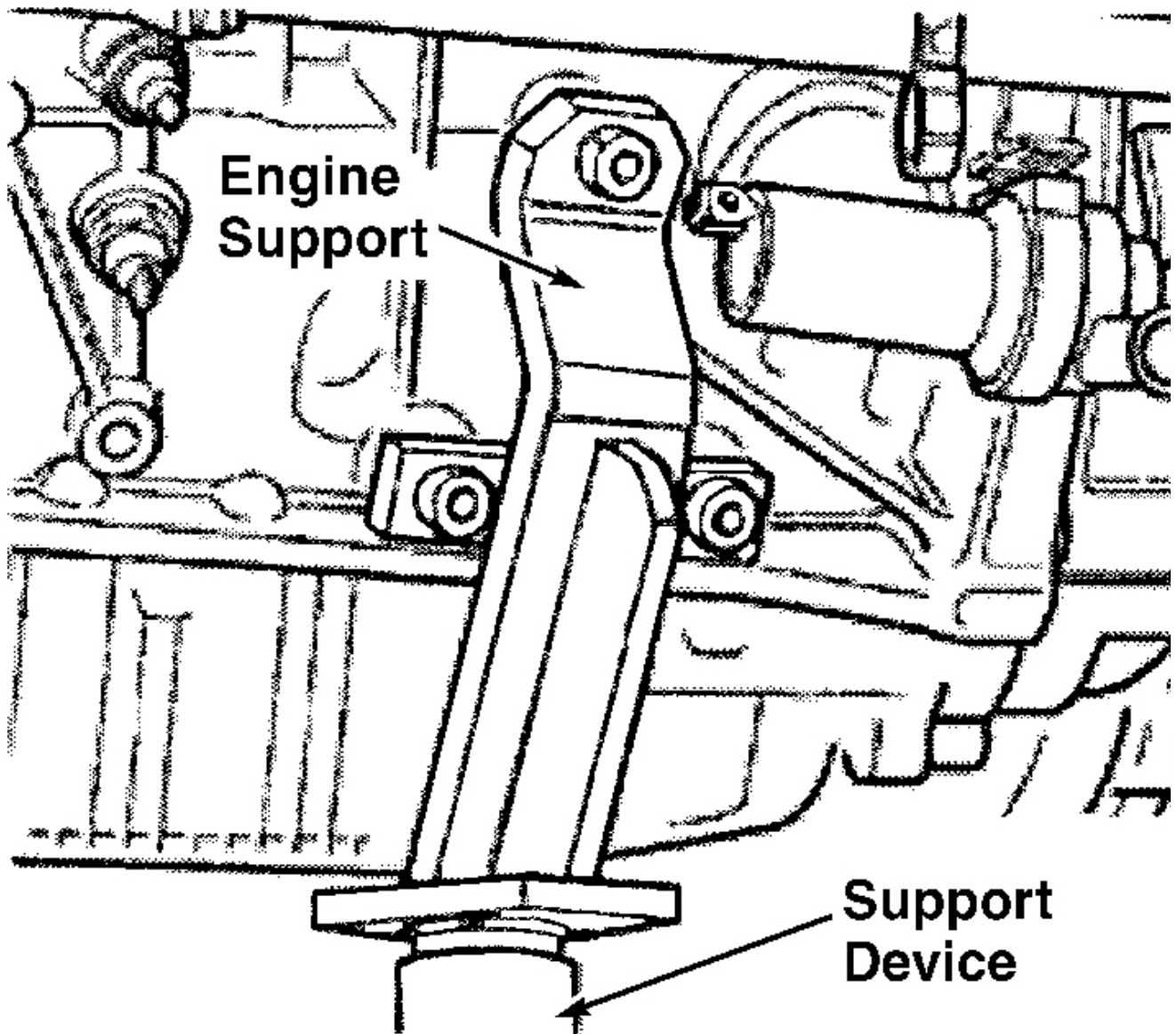
Fig. 10: Removing Wheel Bearing Housing/Lower Swivel Joint Bolt
Courtesy of VOLKSWAGEN UNITED STATES, INC.

7. **NOTE:** Engine Support (3227) may also be used to support engine on some vehicles.

Install Support Device (3184) to support engine/transaxle assembly. Install Engine Support (3227) to engine block, as necessary. See **Fig. 11** . Hook Auxiliary Support (3184/1) for Support Device (3184) in cross panel (arrow). See **Fig. 12** . If necessary, remove wiring harnesses and pipes from cross panel.

8. Install Support Device (3184) into Auxiliary Support (3184/1) and into subframe (A). Screw spindle (C) into hole on engine mount. Align support device so that the slide (B) is resting against the right hand tube (arrow). Secure support device to subframe (A) and to Auxiliary Support (3184/1) by tightening the angle plates. Relieve subframe load by raising engine/transaxle using spindle (C). See **Fig. 13** .
9. Remove pendulum support by removing bolts (A and B). See **Fig. 14** . Unbolt transaxle mount from

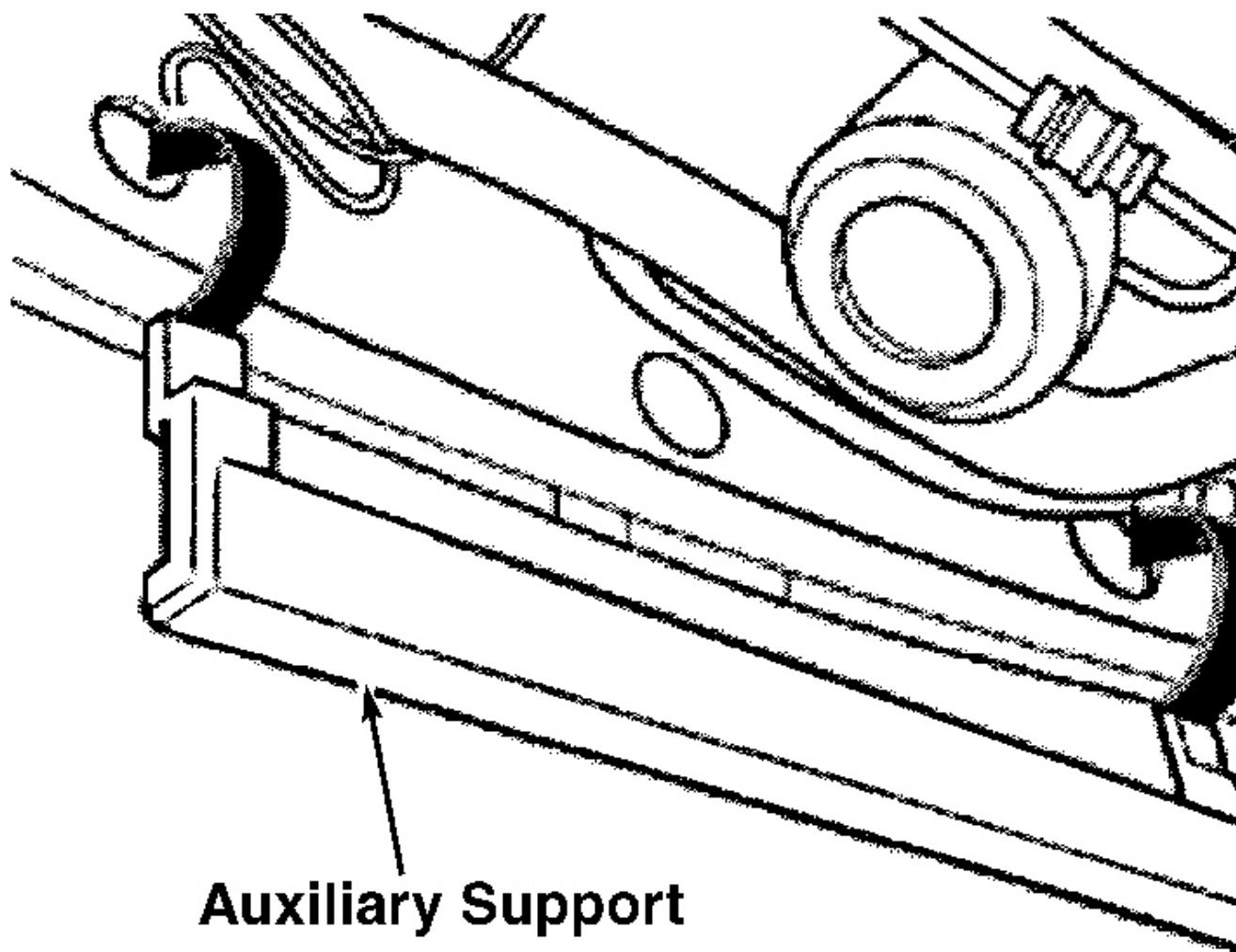
body (arrow 1). Carefully lower engine using support device spindle. Unbolt bearing block from transaxle (arrow 2). See **Fig. 15** .



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Fig. 11: Installing Engine Support

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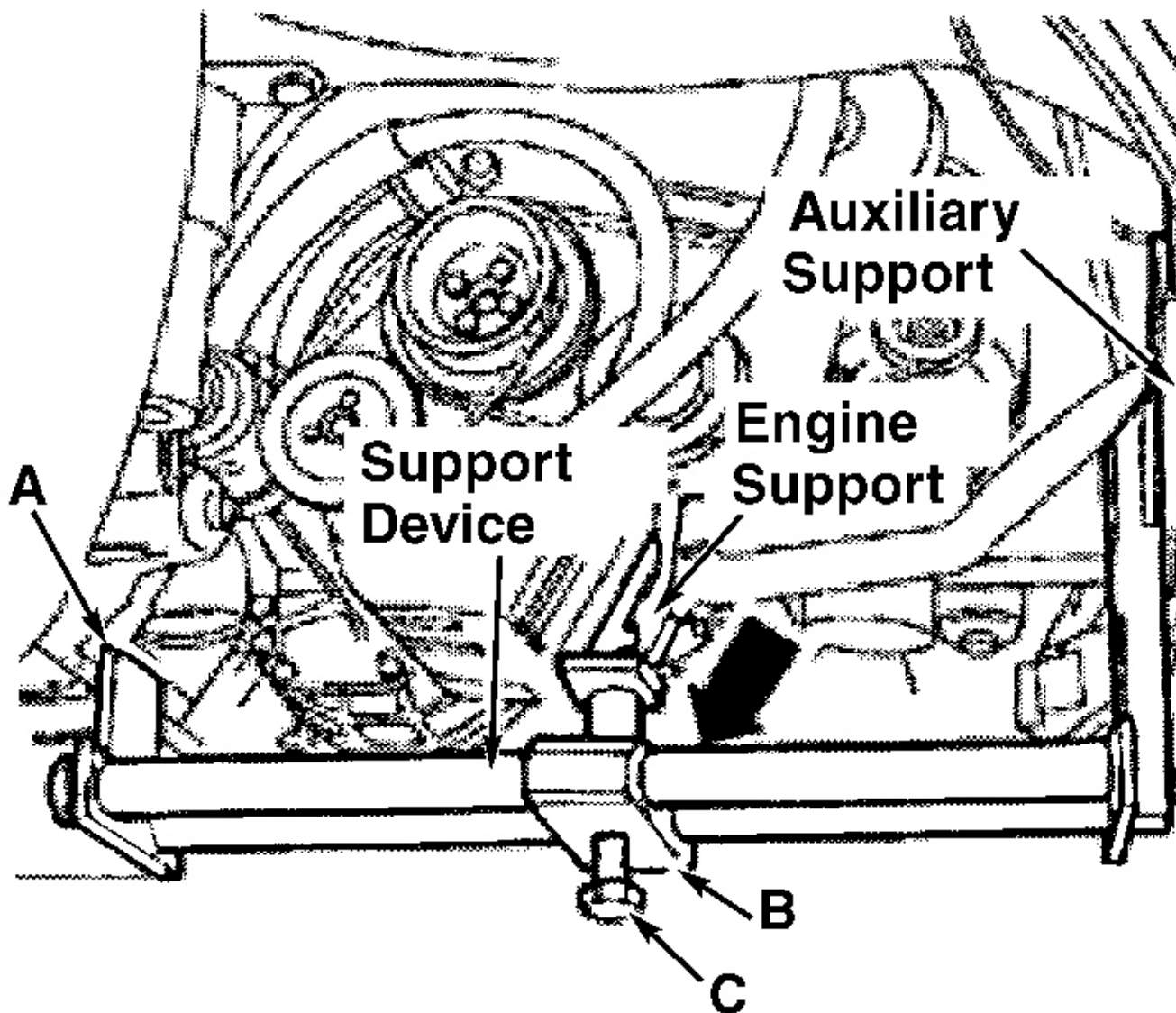


Auxiliary Support

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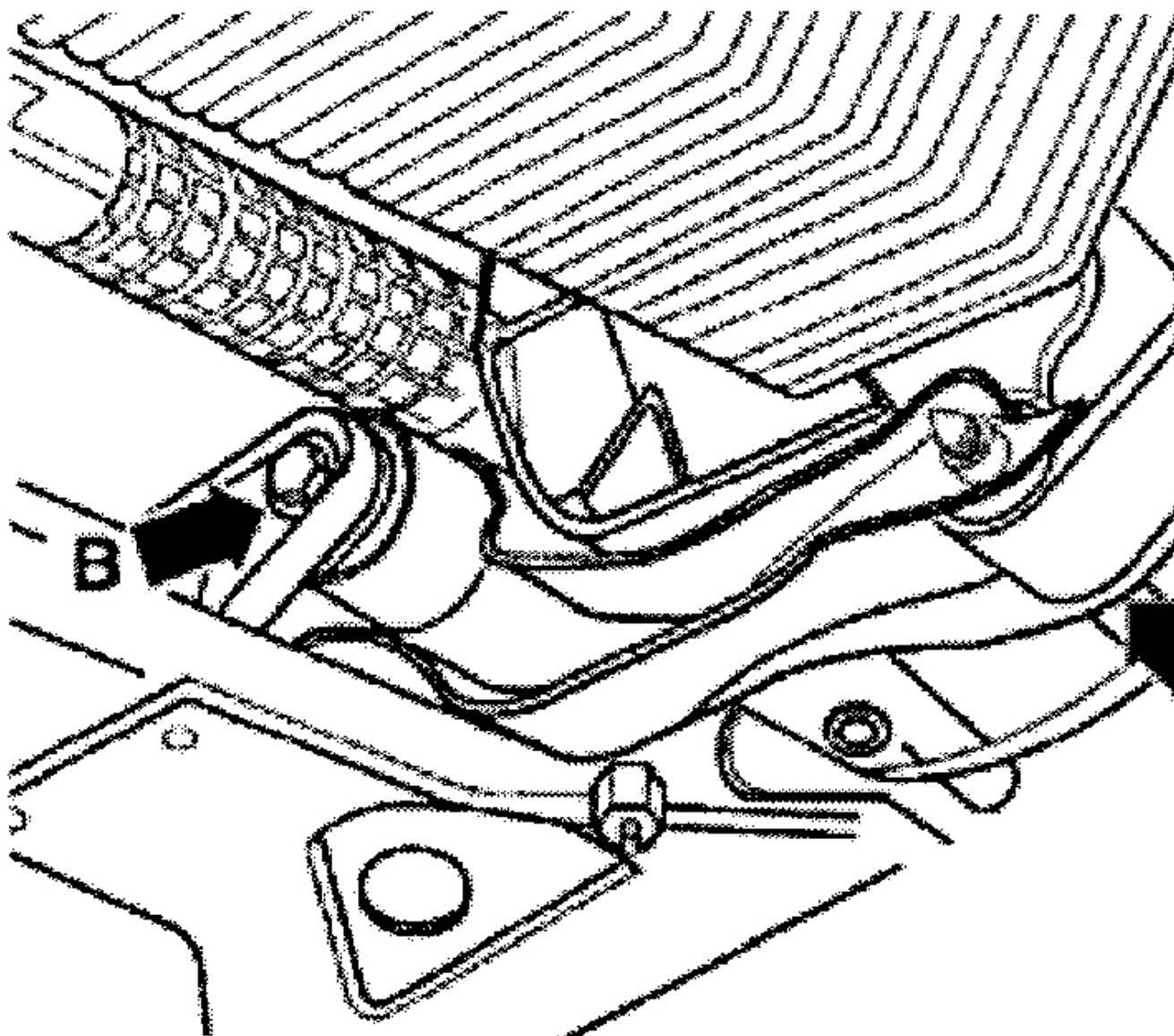
Fig. 12: Attaching Auxiliary Support

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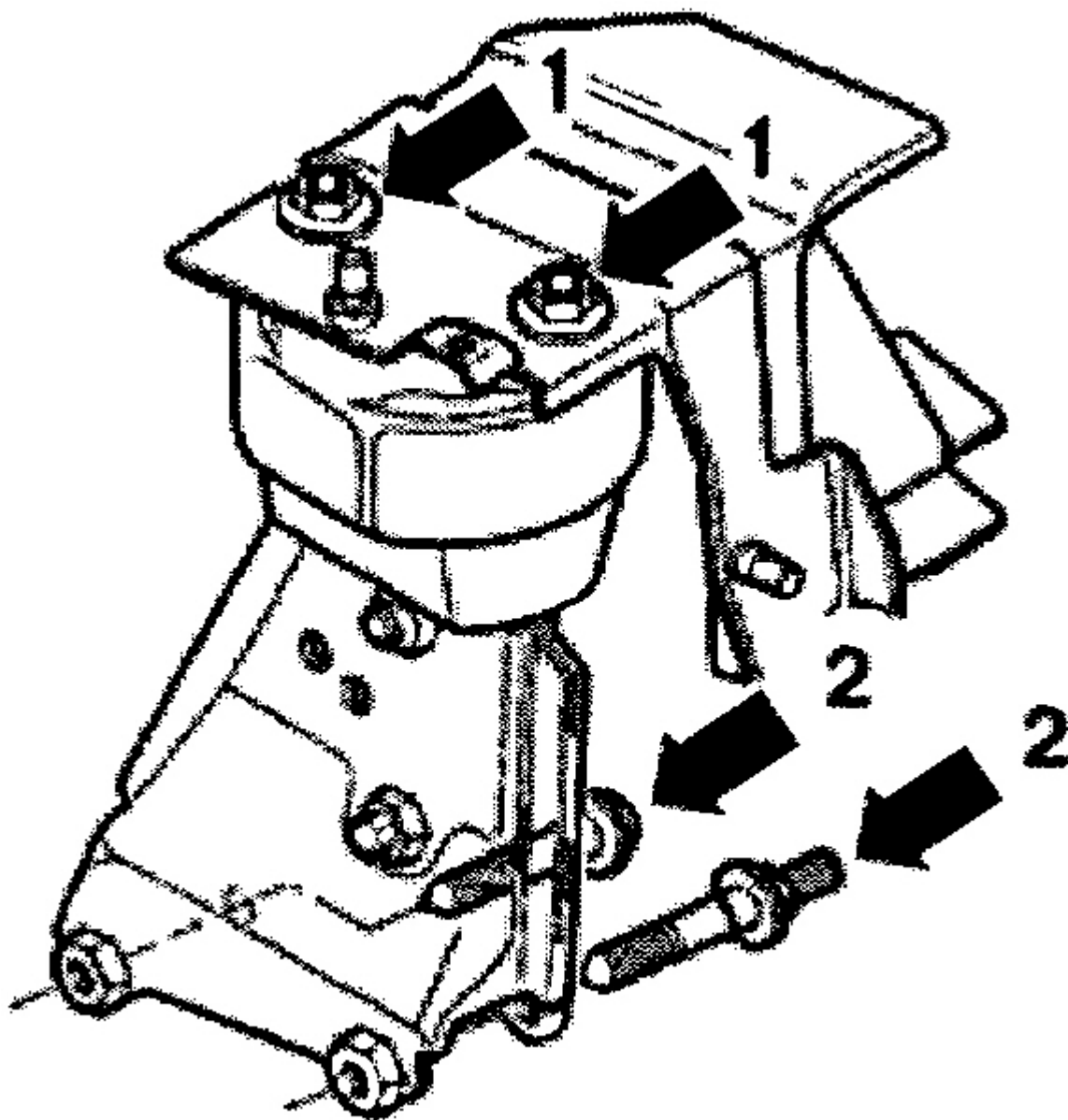
Fig. 13: Raising Engine/Transaxle Assembly Using Support Device & Auxiliary Support
Courtesy of VOLKSWAGEN UNITED STATES, INC.



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Fig. 14: Removing Pendulum Support

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Fig. 15: Unbolting Transaxle Mount & Bearing Block
 Courtesy of VOLKSWAGEN UNITED STATES, INC.

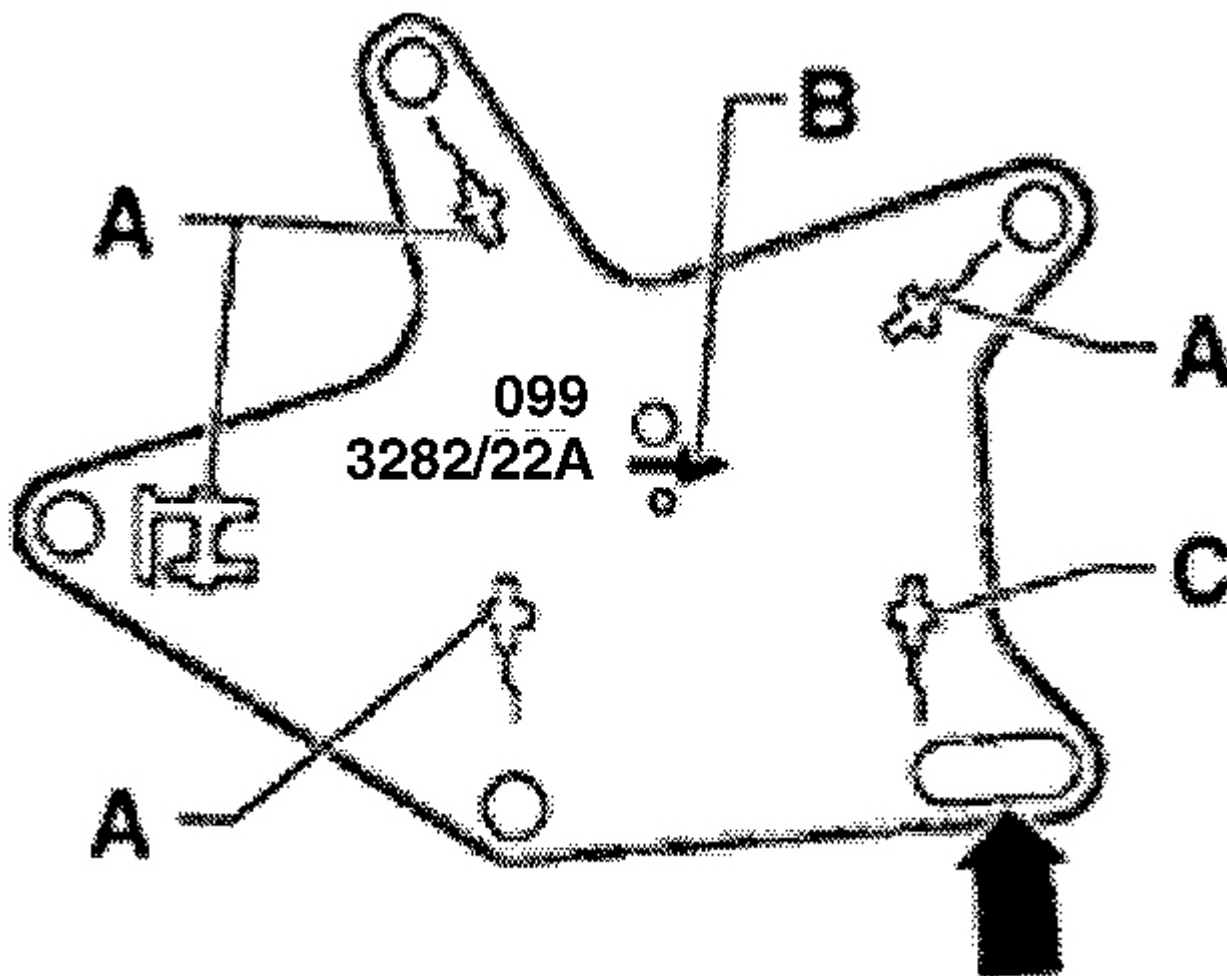
10. Carefully swivel engine/transaxle forward and lower, thereby ensuring that the selector lever cable, multifunction TR switch and drive axles are not damaged. To swivel forward, turn spindle (D) to the left. To swivel back, turn spindle (D) to the right. See **Fig. 13** . Ensure that the selector lever cable does not become tightened. Unclip selector lever cable securing clips and detach selector lever cable. Clamp off ATF cooler hoses and detach at ATF cooler.
11. Tilt engine/transaxle further forward and lower. Ensure sufficient clearance exists between engine and vehicle longitudinal member. Loosen alternator and remove tensioning arm from engine, if necessary. Remove left hand drive axle, ensuring multifunction TR switch is not damaged.
- 12.

NOTE: The support element (C) can be used with the corresponding hole (arrow) in the adjustment plate to remove the transaxle in cases where

the engine has a metal oil sump. Once the torque converter cover has been removed, the support element (C) should be bolted tight to the torque converter housing. See Fig. 16 .

Set up Transaxle Support (3282). The Transaxle Support (3282) is set up with the Adjustment Plate (3282/22A) for removal of transaxle. Bolt on Support Elements (A), as shown in illustration of adjustment plate. See Fig. 16 and Fig. 17 . Move Transaxle Jack (VAG 1383A) with Transaxle Mount (3282) under the transaxle and support transaxle. The arrow (B) on the adjustment plate points in direction of normal travel. Secure Transaxle Support (3282) with drilled plate to the pendulum support bushing (arrow). See Fig. 18 .

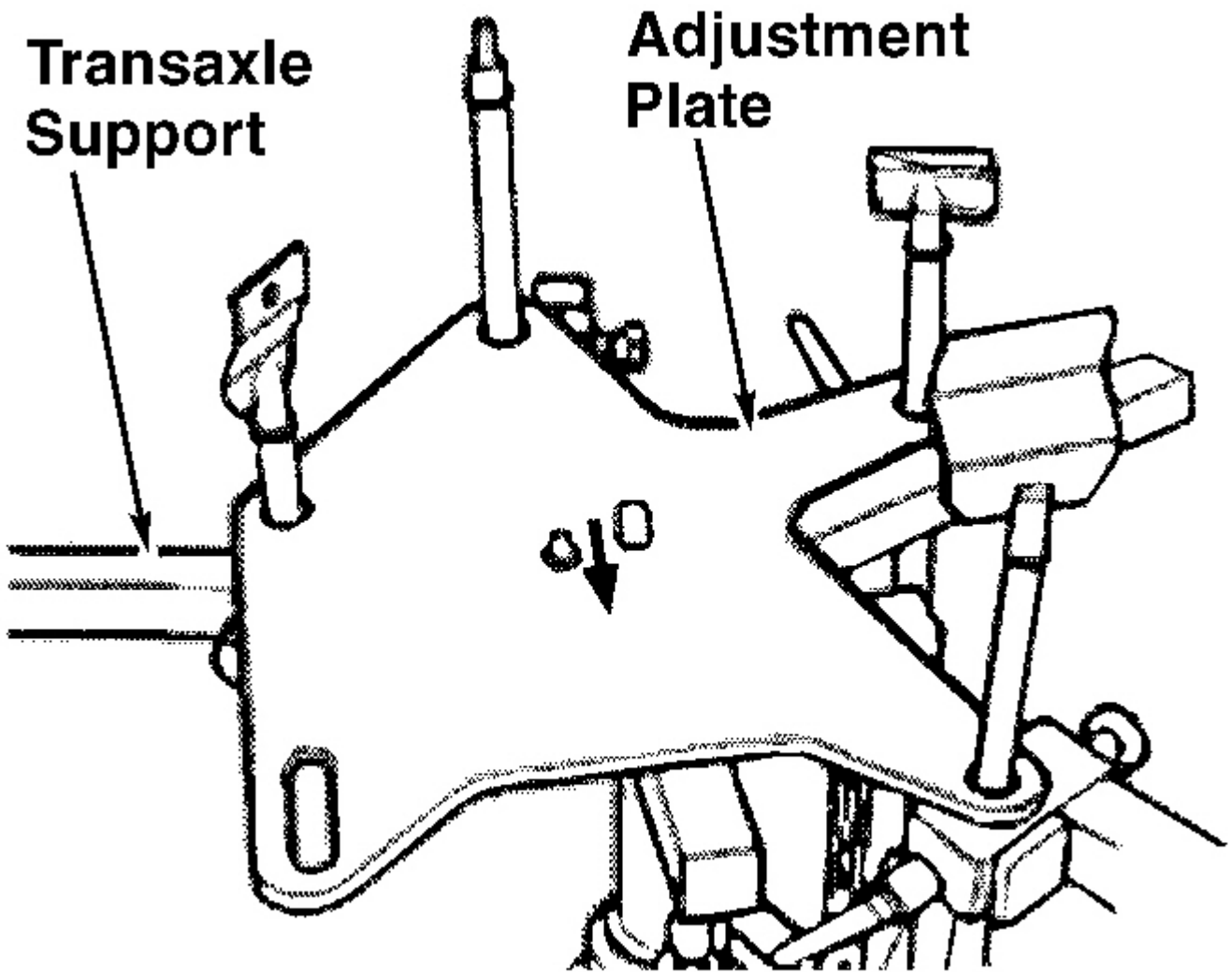
13. Remove lower engine/transaxle connecting bolts. Press transaxle off engine, while pressing torque converter out of drive plate. Press torque converter against ATF pump. Lower transaxle slightly. Swivel transaxle and carefully lower. Secure torque converter to prevent it from falling out.
14. To install transaxle, reverse removal procedure. When installing the torque converter, ensure that both drive pins engage in the ATF pump inner wheel recesses. Always replace self locking nuts and bolts. Before installing, ensure that the dowel sleeves are correctly located.
15. Before installing starter mounting bushing, check for wear and replace, if necessary. Before installing pendulum support bushing, check for wear and replace, if necessary. While swinging transaxle inward, install both drive axles in the flanged shaft and drive flange.



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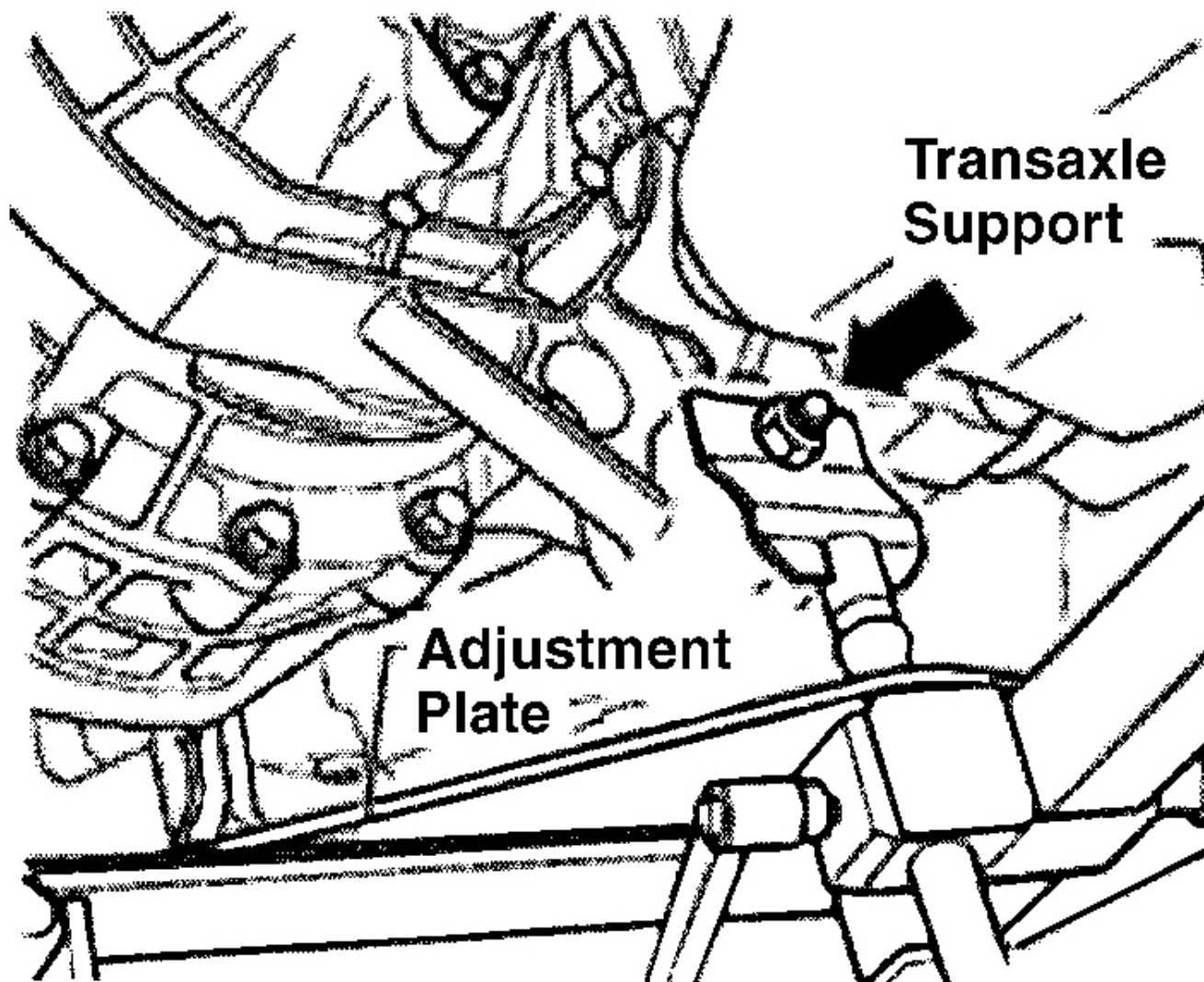
Fig. 16: Identifying Adjustment Plate Direction

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Fig. 17: Installing Adjustment Plate To Transaxle Support
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Fig. 18: Securing Transaxle Support To Pendulum Support
 Courtesy of VOLKSWAGEN UNITED STATES, INC.

16. **WARNING:** Do not remove Support Device (3184) until the bolts securing the left hand bearing bracket have been securely tightened.

Before lifting engine/transaxle, tighten bolts (arrows 2) to specification. After lifting engine/transaxle, tighten nuts (arrow 1) to specification. See **Fig. 15** . Tighten all nuts and bolts to specification. See **TORQUE SPECIFICATIONS** .

17. Adjust torsion bar threaded rod distance. See **Fig. 3** . Check selector lever cable adjustment, and adjust as necessary. Check and top off ATF level. See **SERVICING - EUROVAN** article.

VEHICLES WITH LONG FRONT END

Removal & Installation

NOTE: In the following procedures, letters and numbers in parenthesis are shown in illustrations.

NOTE: When battery is disconnected, vehicle computer and memory systems may lose memory data. Driveability problems may exist until computer systems have completed a relearn cycle.

CAUTION: Radio/cassette or radio/CD player is equipped with an anti-theft protection circuit. Whenever battery is disconnected, radio will go into anti-theft mode. When battery is reconnected, radio will display CODE, and will be inoperative until proper code number is entered. Obtain security code before disconnecting battery.

1. Remove battery covering. With the ignition switched off, disconnect the battery ground strap (in engine compartment and if installed, under driver's side). Loosen hex bolt for drive axle/wheel hub. Raise and support vehicle. Remove left front wheel. Remove hex bolt for drive axle/wheel hub.

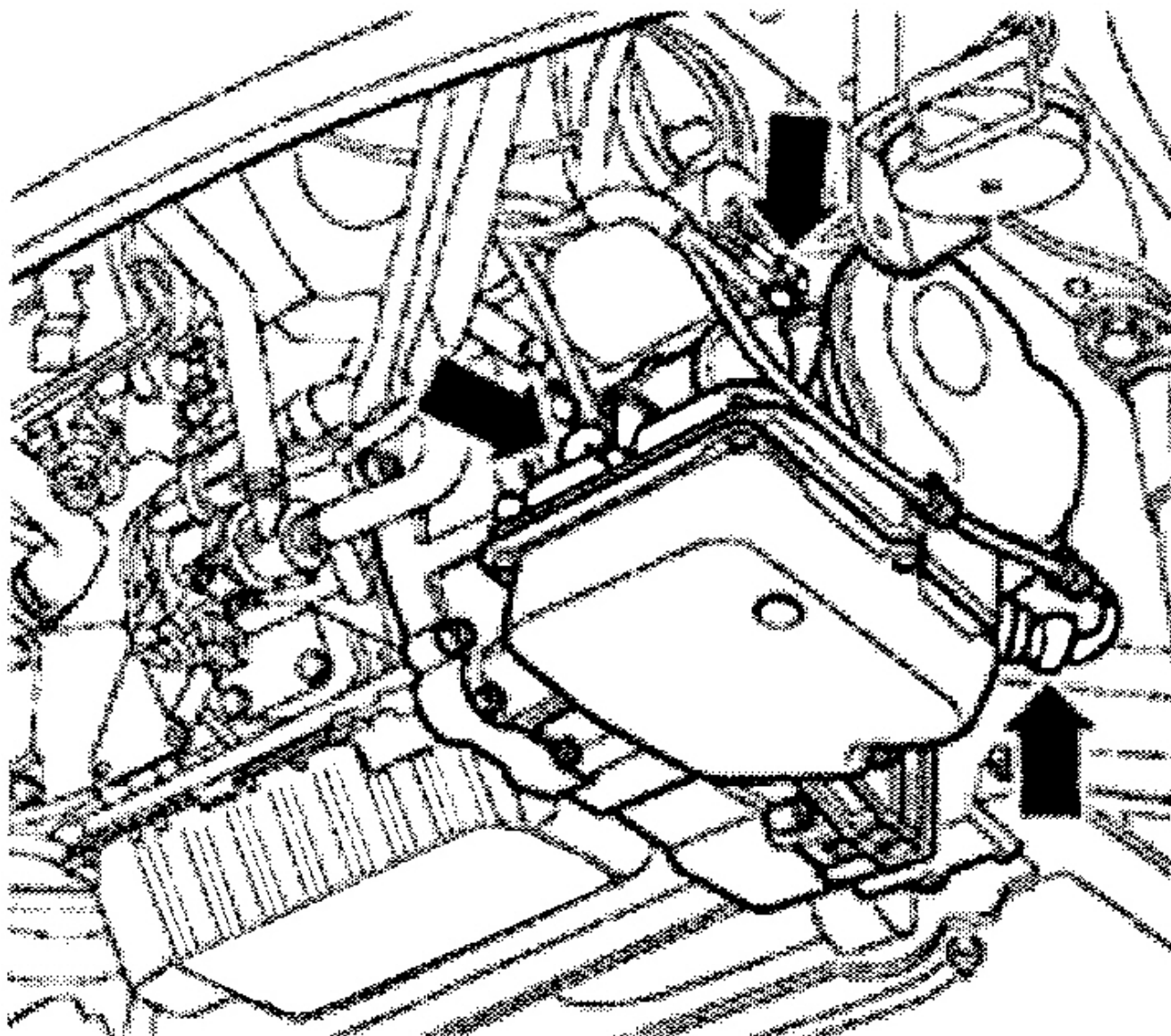
2.

NOTE: Mark position of engine/transaxle connecting bolts before removal and only use bolts of same length when replacing.

NOTE: The torsion bars are relieved when vehicle is raised.

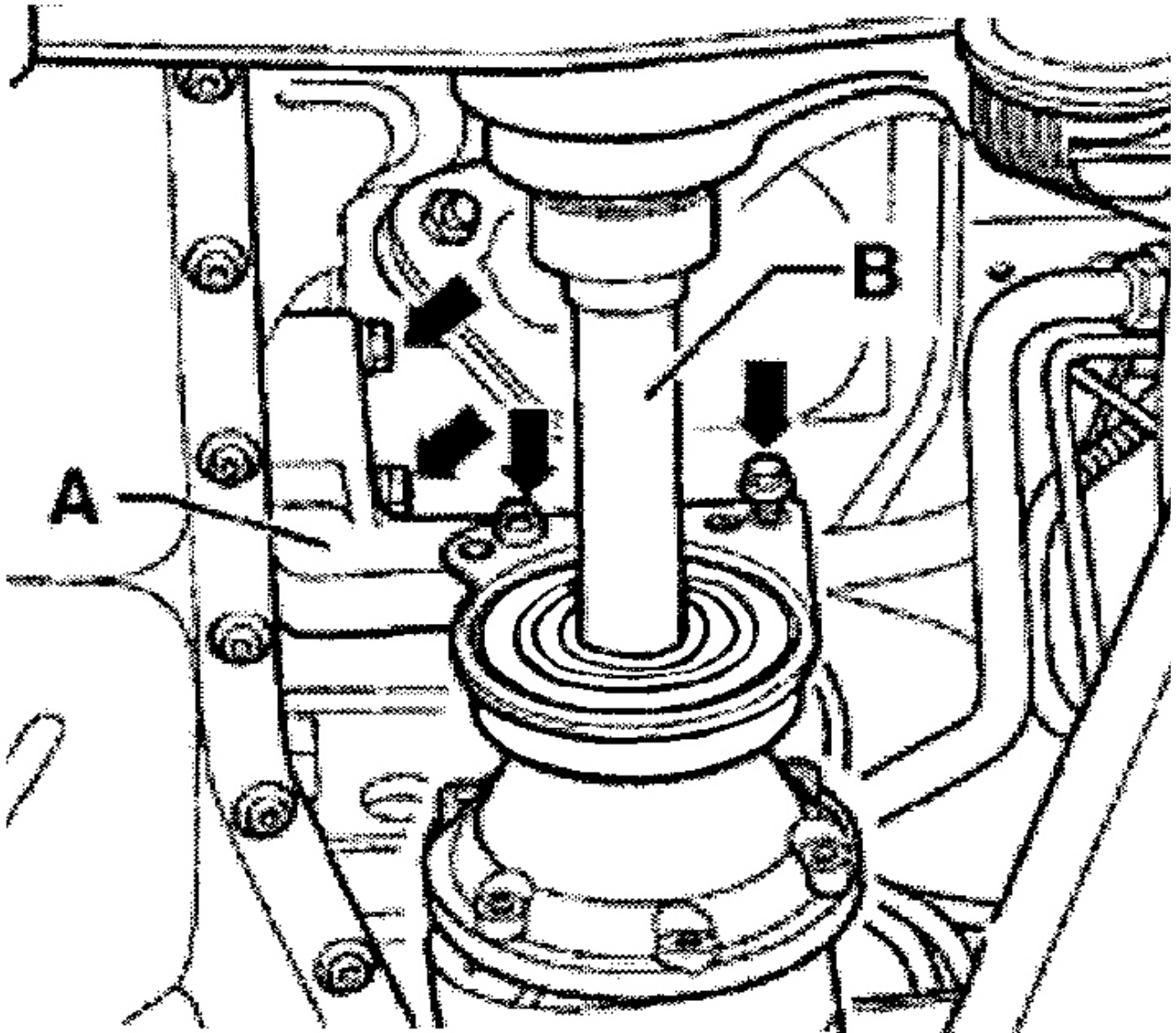
Remove upper engine/transaxle connecting bolts. Pull upper connector off transaxle (transaxle vehicle speed sensor). Using a tape measure, record distance from nut face to end of torsion bar threaded rod (a). See **Fig. 3** . Relieve tension on torsion bar with Special Socket (3257). See **Fig. 4** . Remove noise insulation tray.

3. Remove electrical connections (arrows) at transaxle. See **Fig. 19** . Pull connector off speedometer sender. Remove starter. Unbolt drive axles from transaxle flange shafts. Raise right drive axle and secure out of the way. Remove transaxle carrier (A) bolts (arrows) for right hand flanged shaft bearing. Pull out flanged shaft (B). See **Fig. 20** .
4. Detach front exhaust pipe at exhaust manifold. Remove bolts (arrows) for cover plate. See **Fig. 8** . Remove nut (arrow) from torque converter. Rotate torque converter to remove additional nuts (2). See **Fig. 9** .
5. Remove pendulum support by removing bolts (A and B). See **Fig. 14** . Using appropriate socket (1), separate left hand wheel bearing housing/lower swivel joint bolted connection. See **Fig. 21** . Always replace bolts.
6. Remove bolt for left hand shock absorber/stabilizer bar coupling rod. Press drive axle out of wheel bearing housing. Push left hand shock absorber together. Remove left hand drive axle, ensuring multifunction TR switch is not damaged. Remove auxiliary heater end pipe, if installed.



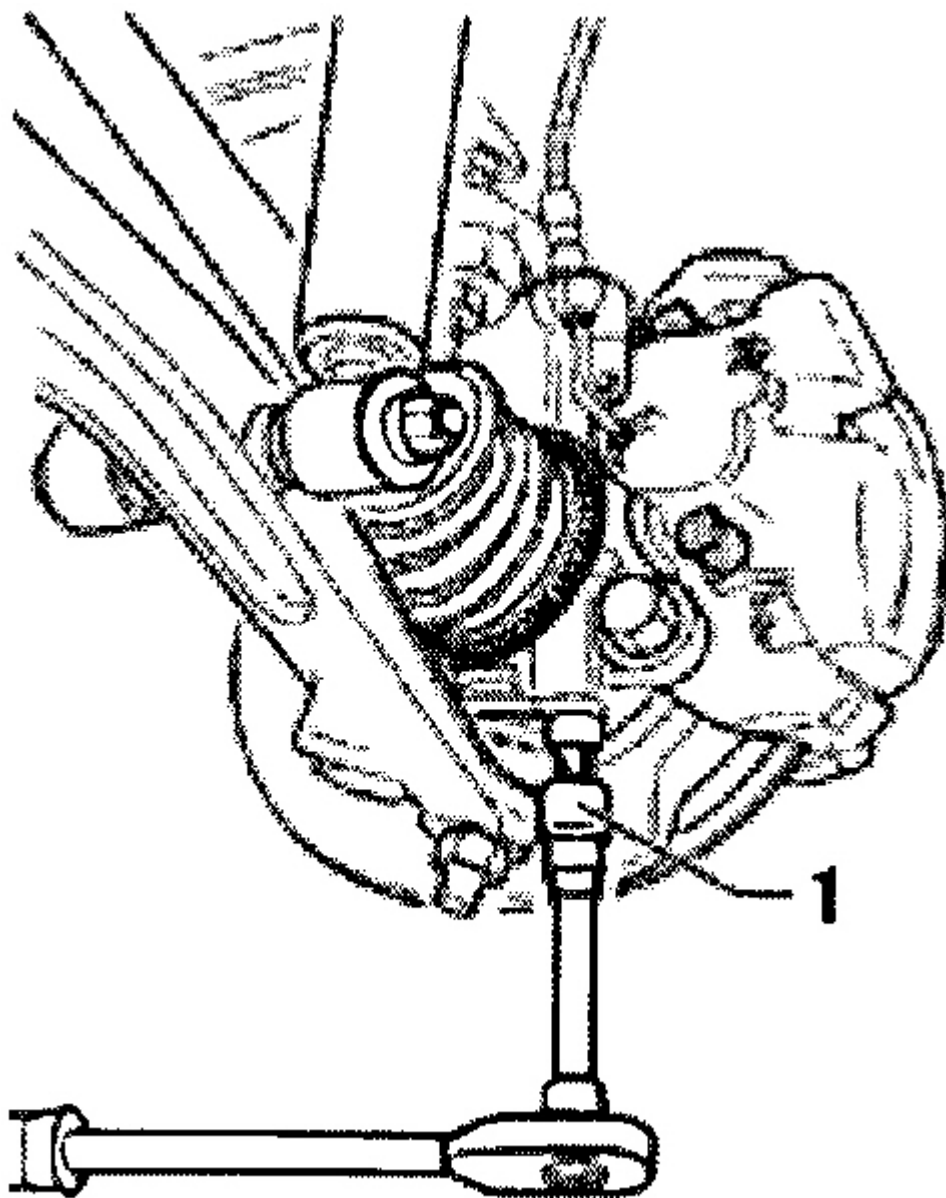
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Fig. 19: Disconnecting Wiring Connections At Transaxle
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Fig. 20: Removing Transaxle Carrier For Right Hand Flanged Shaft Bearing
Courtesy of VOLKSWAGEN UNITED STATES, INC.



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Fig. 21: Separating Left Hand Wheel Bearing Housing From Lower Swivel Joint
 Courtesy of VOLKSWAGEN UNITED STATES, INC.

7. Remove engine/transaxle securing bolt (arrow). See **Fig. 22** . Install Retainer (3407) to engine. See **Fig. 23** . Install Support Device (10-222A) in conjunction with Supports (10-222 A/6). Attach Hook (10-222 A/2) and Auxiliary Hook (10-222 A/7) in left hand support spindle. See **Fig. 24** . Attach Auxiliary Hook (10-222 A/7) in Retainer (3407). See **Fig. 23** . Attach Hook (10-222 A/2) in right hand support spindle and on engine. Tighten engine/transaxle assembly on the spindles.
8. Unclip selector lever cable securing clips and detach selector lever cable. Clamp off ATF cooler hoses and detach at ATF cooler.
- 9.

NOTE: The support element (C) can be used with the corresponding hole (arrow) in the adjustment plate to remove the transaxle in cases where the engine has a metal oil sump. Once the torque converter cover has

been removed, the support element (C) should be bolted tight to the torque converter housing. See **Fig. 16** .

Set up Transaxle Support (3282). The Transaxle Support (3282) is set up with the Adjustment Plate (3282/22A) for removal of transaxle. Bolt on Support Elements (A), as shown in illustration of adjustment plate. See **Fig. 16** and **Fig. 17** .

10. Move Transaxle Jack (VAG 1383A) with Transaxle Mount (3282) under the transaxle and support transaxle. The arrow (B) on the adjustment plate points in direction of normal travel. Secure Transaxle Support (3282) with drilled plate to the pendulum support bushing (arrow). See **Fig. 18** .

11.

NOTE: To remove securing nuts, use step ladder as necessary.

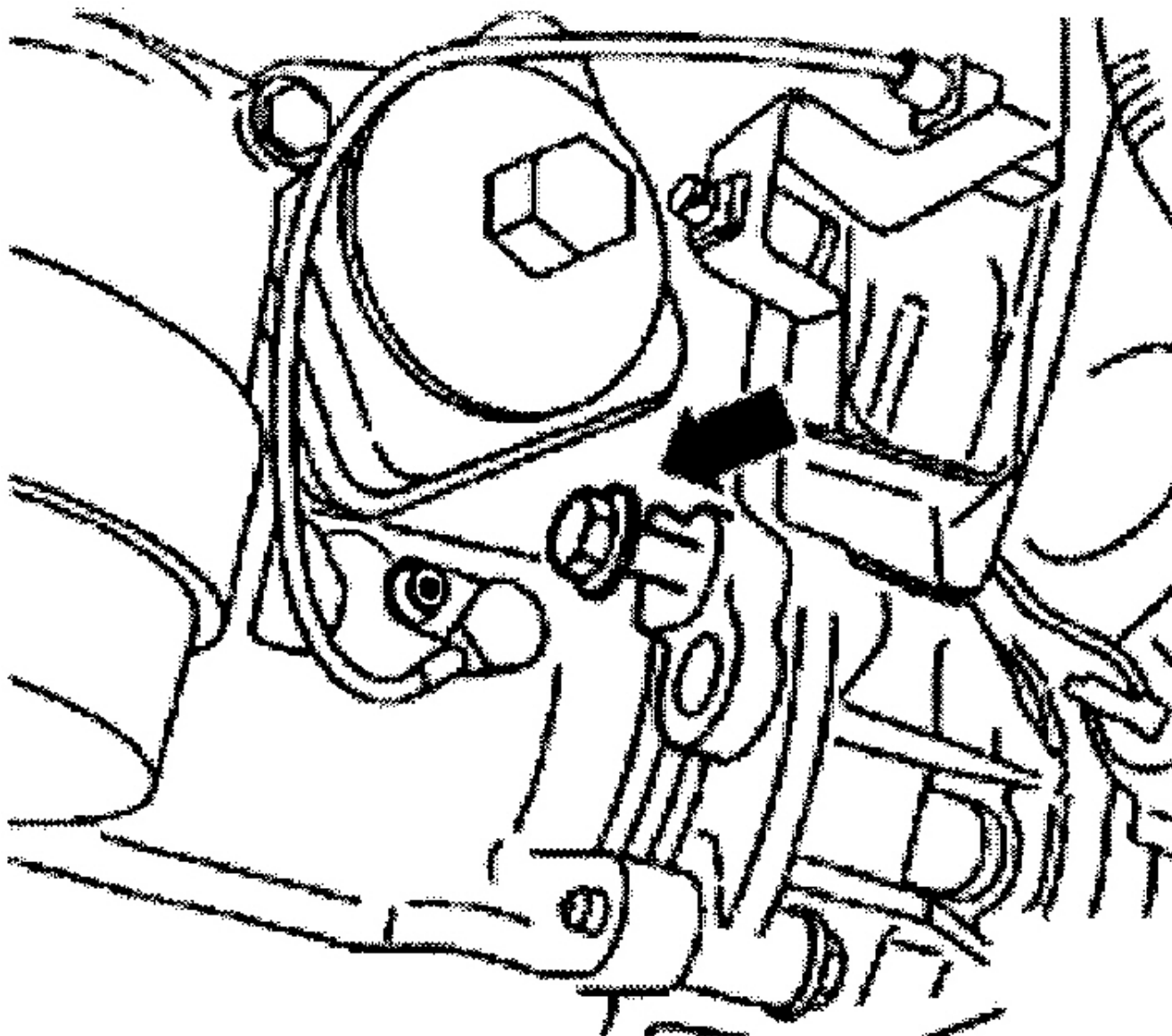
Unbolt transaxle mount from body (arrow 1). See **Fig. 15** . Carefully lower engine/transaxle assembly via spindles of support device and, at the same time, via the Transaxle Jack (VAG 1383A). Unbolt bearing block with transaxle mount from transaxle (arrow 2). See **Fig. 15** .

12. Remove lower engine/transaxle connecting bolts. Press transaxle off engine, while pressing torque converter out of drive plate. Press torque converter against ATF pump. Swivel transaxle and carefully lower. Secure torque converter to prevent it from falling out.
13. To install transaxle, reverse removal procedure. When installing the torque converter, ensure that both drive pins engage in the ATF pump inner wheel recesses. Always replace self locking nuts and bolts. Before installing, ensure that the dowel sleeves are correctly located.
14. Before installing starter mount bushing, check for wear and replace, if necessary. Before installing pendulum support bushing, check for wear and replace, if necessary. Install left hand drive axle.
- 15.

WARNING: Do not remove Support Device (10-222A) until the bolts securing the left and right assembly mounts have been securely tightened.

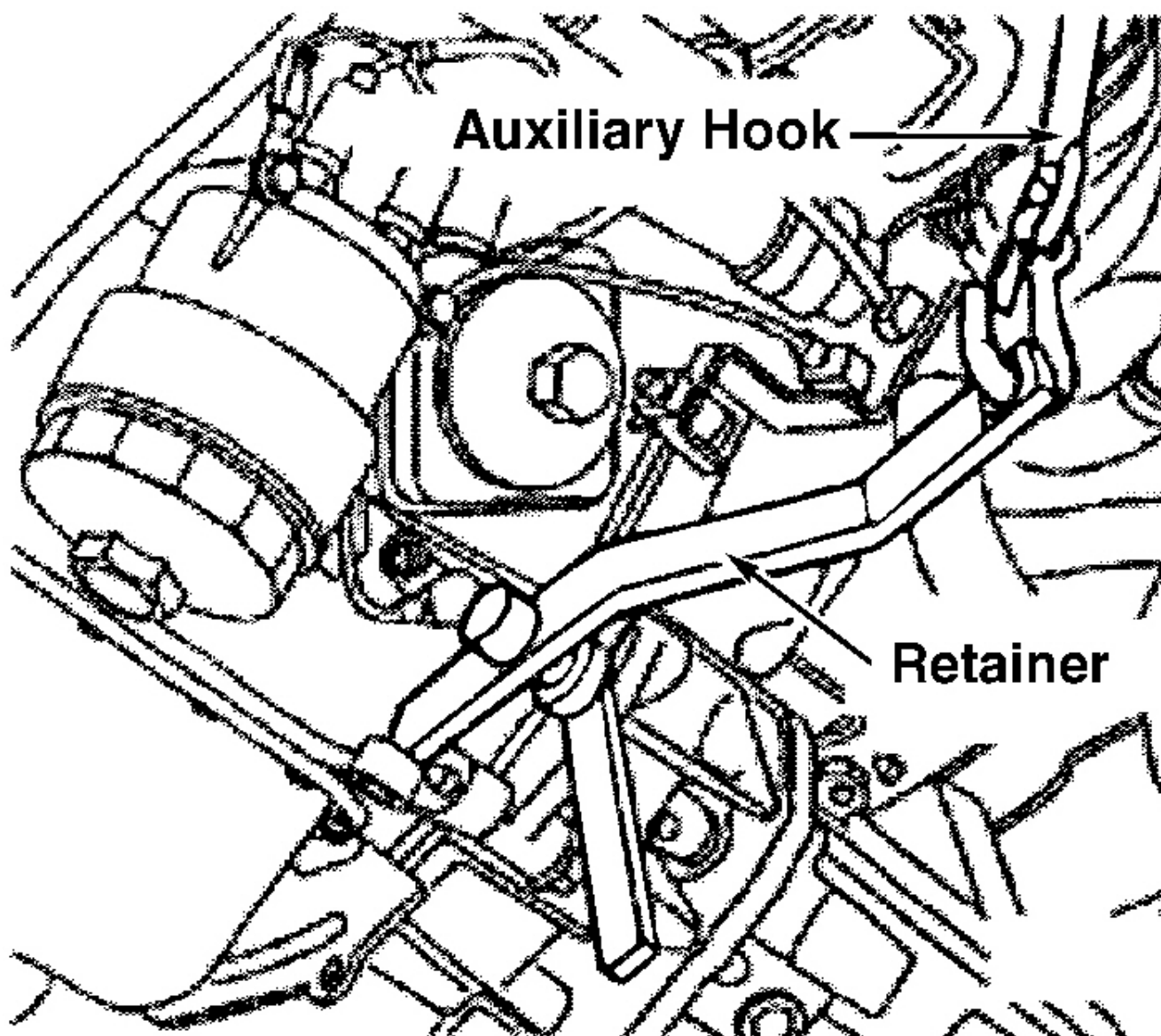
Before lifting engine/transaxle, tighten bolts (arrows 2) to specification. After lifting engine/transaxle, tighten nuts (arrow 1) to specification. See **Fig. 15** . First tighten transaxle carrier (A) bolts on engine to specification, then tighten flanged shaft (B) bearing bolts to specification. See **Fig. 20** . Tighten all nuts and bolts to specification. See **TORQUE SPECIFICATIONS** .

16. Adjust torsion bar threaded rod distance. See **Fig. 3** . Check selector lever cable adjustment, and adjust as necessary. Check and top off ATF level. See **SERVICING - EUROVAN** article.



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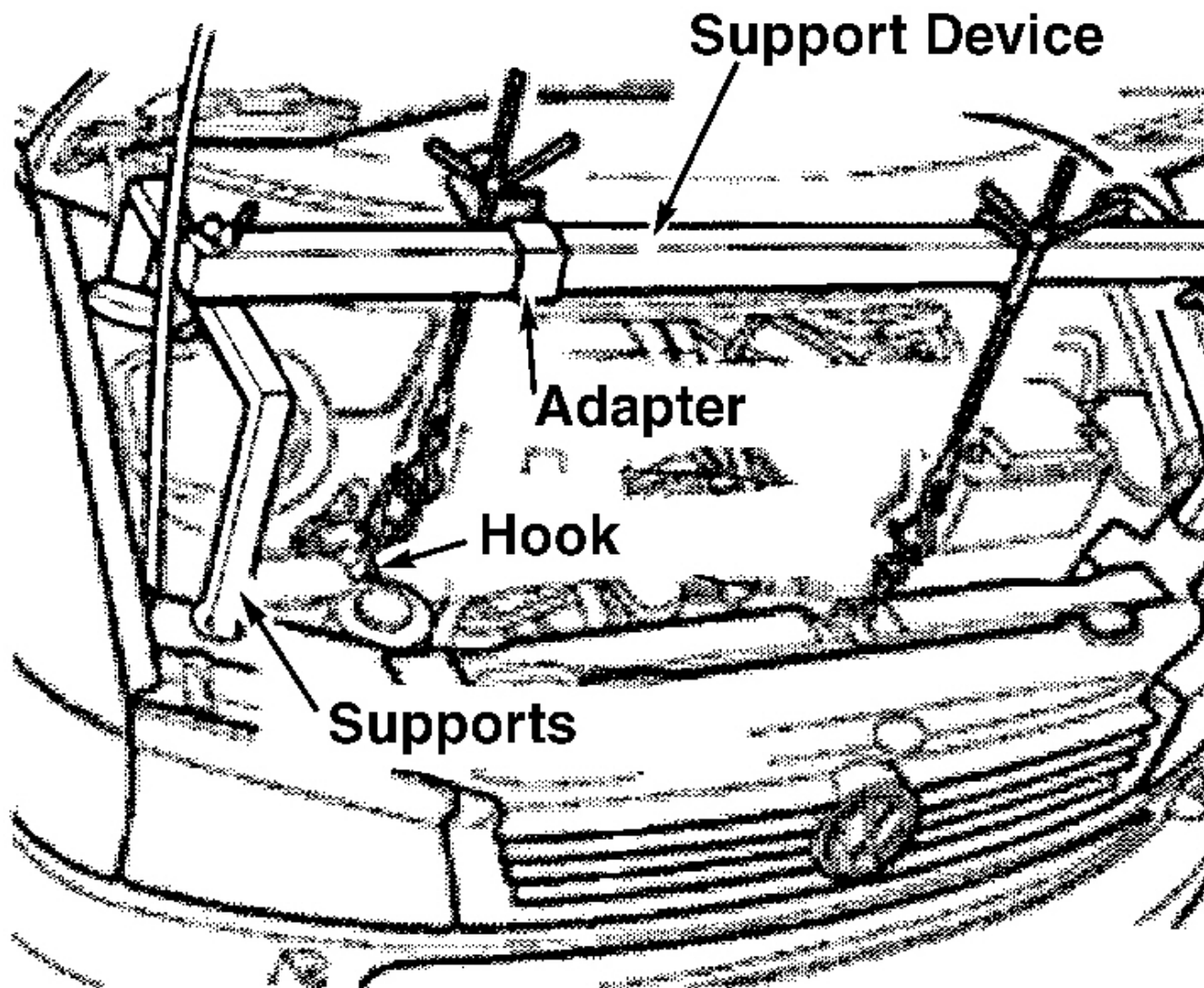
Fig. 22: Removing Engine/Transaxle Securing Bolt
Courtesy of VOLKSWAGEN UNITED STATES, INC.



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Fig. 23: Installing Retainer To Engine

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Fig. 24: Installing Support Device With Adapters & Hooks
 Courtesy of VOLKSWAGEN UNITED STATES, INC.

TORQUE SPECIFICATIONS

TORQUE SPECIFICATIONS

Application	Ft. Lbs. (N.m)
Cover Plate-To-Transaxle Bolt	11 (15)
Drive Axle-To-Wheel Hub Bolt	(1) 111 (150)
Left Hand Transaxle Mount	
Bolt	(2) 37 (50)
Nut	41 (55)
Lower Control Arm-To-Wheel Bearing Housing Bolt	(3) 66 (90)
Torque Converter-To-Drive Plate Nut	44 (60)
Transaxle Carrier Flanged Shaft Bearing-To-Engine Bolt	(4) 30 (40)
Transaxle Carrier Flanged Shaft Bearing-To-Flange Bolt	(4) 18 (25)

2003 Volkswagen EuroVan MV

REMOVAL & INSTALLATION - A/T (01P)

Transaxle Mounting-To-Bearing Housing Bolt	18 (25)
Transaxle Mounting-To-Engine Bolt	30 (40)
Transaxle-To-Engine Bolt	
M 8 Bolt	17 (23)
M 10 Bolt	44 (60)
M 12 Bolt	59 (80)

- (1) Tighten bolt to specification plus an additional 90 degrees.
- (2) Tighten bolt to specification plus an additional 90 degrees. See **Fig. 15** .
- (3) Tighten bolt to specification plus an additional 90 degrees. See **Fig. 10** .
- (4) For bolt locations, see **Fig. 20** .