

Micro Update

This is what's new:

Since the last filming of this fiche, we added or changed:

Groups 00 - 19

- Information regarding the new 4.2 L engine (code ABH) has been added into each group.

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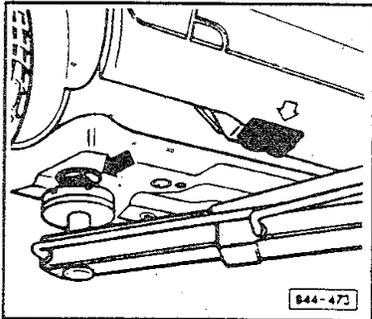
- ★ **NEW INFORMATION** since last filming

Lifting points, hoist/floor jack

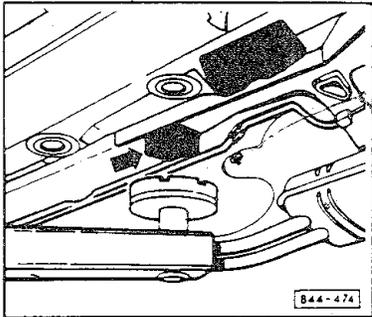
In the contact area for the lift arms, rubber contact plates are installed (arrows).

CAUTION

Only lift vehicle at these locations.



Front lifting point



Rear lifting point

Type and model identification

Audi V8 Type: 44
4-door sedan Quattro

Model code	Model years	Designation		Body style	Trans	Engine code*
		USA	Canada			
441 216 (USA) 441 316 (Can)	1990	V8 Quattro	V-8	4-Door	Auto.	PT
4C2 216	1991	V8 Quattro	V-8	4-Door	Auto.	PT
4C2 215					5-Speed	
4C2 256 (USA/Canada)	1992	V8 Quattro		4-Door	Auto.	ABH (49-states)
4C2 276						ABH (Calif.)

*Engine code KW @ RPM (BHP)

PT	184 @ 5800 (240)
ABH	206 @ 5800 (280)

Assemblies	Type	Code letters	BHP Net (SAE)	RPM
Engine 3.6 Liter — Motronic Multiport Fuel Injection	—	PT	240	5800
Engine 4.2 Liter — Motronic Multiport Fuel Injection	—	ABH	280	5800
Automatic Transmission	018	ATU		
Manual Transmission	016	AWW		
Rear Final Drive — Manual Trans.	017	AXZ		
Rear Final Drive — Auto. Trans.	017	AFV		

Lifting vehicle with hoist/floor jack**CAUTION.**

The vehicle should never be lifted or jacked up from underneath the engine oil pan, the transmission housing, or the front or rear axle. This could lead to serious damage.

The same lifting points as illustrated for the hoist also apply when using a floor jack. To avoid damage to the underbody or chassis frame, it is necessary to insert a rubber pad between the floor jack and the lift points.

Ensure there is sufficient clearance between pads and vehicle before driving the vehicle on a hoist, especially if the vehicle has a large front panel or spoiler.

WARNING

- when removing components such as engine block, transmission housing, fuel tank, wheels front, or rear axle, anchor vehicle to hoist or add corresponding weights to maintain the center of gravity. Otherwise the vehicle might tilt or slip off the hoist, causing serious damage or personal injury.
- to reduce the risk of serious personal injury and vehicle damage, lift vehicle only at the special workshop hoist and floor jack lift points illustrated. Failure to lift vehicle at these points could cause the vehicle to tilt or fall from a lift when, for example, heavy components such as the engine block or transmission are removed resulting in a shift in vehicle weight distribution and balance.
- if you must lift your vehicle with a floor jack to work underneath, be sure the vehicle is safely supported on stands intended for this purpose.

Technical data, engine

Audi V8 Quattro

Engine code letters		PT
Start of production		2/89
Displacement	Liter, (cu. in.)	3.60 (219.7 cu. in.)
Power output	KW (a RPM, (SAE HP (a RPM)	184 (a 5800 (240 (a 5800)
Torque	Nm (a RPM, (ft lb (a RPM)	350 (a 4000 (245 (a 4000)
No. of Cylinders		8
Cylinder bore diameter	mm, (in.)	81.0, (3.19)
Stroke	mm, (in.)	86.4, (3.40)
Compression ratio		10.6:1
Valve timing at 1mm valve lift	Inlet opens after TDC Inlet closes after BDC Outlet opens before BDC Outlet closes before TDC	11° 28.5° 30.5° 2°
Octane rating	RON minimum	91 (leadfree)*
Injection type		Motronic Multiport Fuel Injection
Firing order		1-5-4-8-6-3-7-2
Catalytic converter		Yes-Dual Three-Way
Oxygen sensor		Yes
Knock sensor		Yes-Two

*Use of 95 RON results in maximum performance

Technical data, engine

Audi V8 Quattro

Engine code letters		ABH
Start of production		8/91
Displacement	Liter, (cu. in.)	4.2 (4172 cu. in.)
Power output	KW (a RPM, (SAE HP (a RPM)	206 (a 5800 (280 (a 5800)
Torque	Nm (a RPM, (ft lb (a RPM)	400 (a 4000 (295 (a 4000)
No. of Cylinders		8
Cylinder bore diameter	mm, (in.)	84.5, (3.29)
Stroke	mm, (in.)	93.0, (3.62)
Compression ratio		10.6:1
Valve timing at 1mm valve lift	Inlet opens after TDC Inlet closes after BDC Outlet opens before BDC Outlet closes before TDC	7° 29° 31° 2°
Octane rating	RON minimum	95 (leadfree)*
Injection type		Motronic Multiport Fuel Injection
Firing order		1-5-4-8-6-3-7-2
Catalytic converter		Yes-Dual Three-Way
Oxygen sensor		Yes
Knock sensor		Yes-Two

*Use of 95 RON results in maximum performance

Technical data, ignition

Engine code letters		PT/ABH
Distributor, part numbers	left right	077 905 205 E 077 905 206 E
Distributor basic adjustment		Top Dead Center (see Repair Group 15)
Spark plugs	part number Bosch	N 101 251 04 H 6 DCO
gap		0.8 ± 0.1 mm (0.032 ± 0.004 in)
tightening torque		40 Nm (22 ft lb)
Firing order		1-5-4-8-6-3-7-2
RPM cut-off		6510 ± 40 RPM
Resistance checks: Ignition coil	primary secondary	0.5 to 1.0 Ohms 5000 to 9000 Ohms
Distributor rotor		1000 Ohms
Ignition wires		1000 Ohms
Spark plug connector		5000 Ohms
Crankshaft position sensor		approximately 1000 Ohms (see Repair Group 28)
Engine speed sensor		approximately 1000 Ohms (see Repair Group 28)

Note

Ignition timing is determined by the Engine Control Module and **CANNOT** be adjusted.

CAUTION

Part numbers are for reference only. Always check with your Parts Department for latest information.

General Repair Information

Performance testing

When conducting performance tests on the roller-type dynamometer, only four-wheel dynamometers may be used without making modifications to the vehicle.

If a two-wheel dynamometer is used, the driveshaft must be removed.

Brake testing

Brake tests may be conducted on slow-running brake dynamometers.

Towing

For notes on vehicle towing, see owner's manual.

The greatest possible care and cleanliness, as well as perfect tools are essential for perfect and successful transmission repairs.

Transmission

- when replacing automatic transmission, ATF and oil in final drive should be checked and topped off if necessary.
 - for filling capacity and specifications, see section 32-10

When replacing final drive, transmission oil should be changed

- for filling capacity and specifications, see section 32-10

Seals, sealing rings

Replace O-rings.

Replace shaft seals.

Before installation, lightly oil the outside diameter and fill the area between the sealing lips with grease.

After installation, check transmission oil level or ATF level and, if necessary, correct.

General 00

Nuts, bolts and screws

Tightening torques are given for uncoiled nuts and bolts.

Replace self-locking nuts and bolts.

Self-diagnosis, troubleshooting

Before carrying out repair work on the automatic transmission, the cause of damage should be determined as closely as possible, see Repair Group D3, Self-Diagnosis.

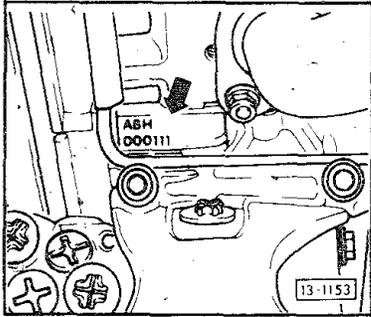
Engine code/number, location

Engine code PT
(not shown)

Stamped on left side of engine block, just below
cylinder head

Engine code ABH

Stamped on left side of engine block, just above
hydraulic pump (arrow)



Vehicle identification number (VIN)

VIN explained: (Example shown only)

W	A	U	K	E	5	4	4	2	L	N	1	0	0	1	0	3
①	②	③	④	⑤	⑥	⑦	⑧	⑨								

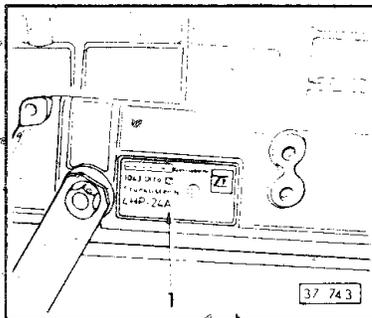
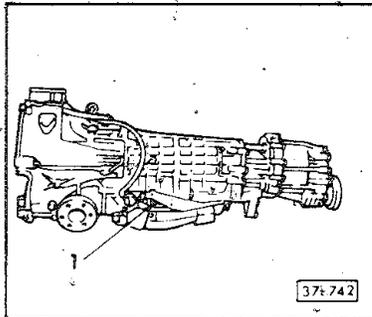
Position	Digits	Description	Code
①	1-3	Manufacturer's identification	W A U Passenger Car European Production
②	4	Line and body type	K 4-Door Sedan Quattro
③	5	Engine	E Gas, 8-Cyl. 3562cc. 240 HP V Gas, 8-Cyl. 4172cc. 280 HP (49 states) W Gas, 8-Cyl. 4172cc. 280 HP (California)
④	6	Passenger restraint system	5 Air bag-driver active-passenger
⑤	7-8	Model	44 4-Door 100/200
⑥	9	Check digit (no significance for mechanic)	0 through 9 or X for 10
⑦	10	Model year	L 1990 M 1991 N 1992
⑧	11	Manufacturing plant	N Necharsulm
⑨	12-17	Sequential production number	000 001 thru 999 999

Automatic transmission identification

The four-wheel drive automatic transmission 018 is installed in the Audi V8 in conjunction with the 8 cylinder injection engine.

Identification location

Four-wheel drive automatic transmission 018 1 (4HP-24A)



Transmission code letters and serial number

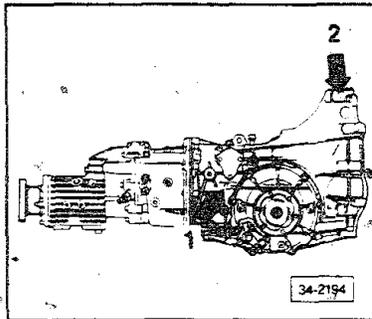
- 1 - code letters
- 2 - serial number

Automatic transmission

Transmission code letters		ATU
Manufactured	from:	3/89
	to:	
Torque converter code letter		
Ratio	Type	Audi V8
	Engine	3.6 ltr./184 kW (240 HP) 4.2 ltr./206 kW (280 HP)
	Primary stage	35/27 = 1.30
	1st gear	2.479:1
	2nd gear	1.479:1
	3rd gear	1.000:1
	4th gear	0.728:1
	Reverse gear	2.086:1
	Final drive	35/12 = 2.917
Drive shaft flange dia.		108 mm
Rear final drive		AFV

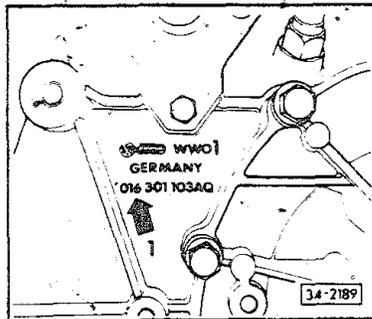
Manual transmission identification

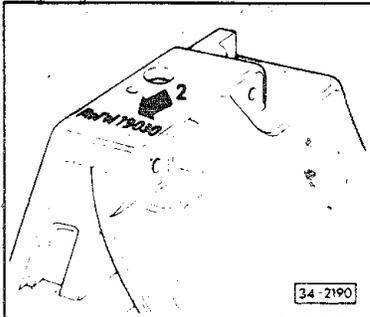
Locations of transmission type number (1) and code letters/date of production (2)



Transmission type number

1 - 016





Transmission code letters and date of production (2)

Example

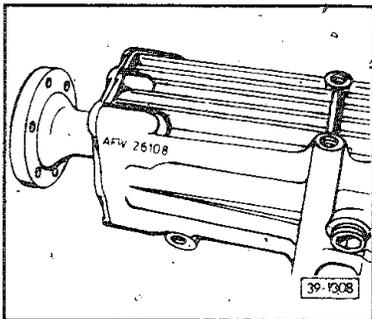
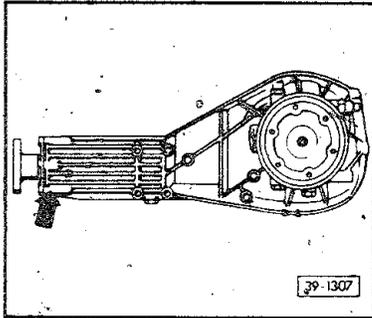
AWW 19 03 0
 code day month year (90)
 letters

Transmission code letters		AWW
Manufactured	from: to:	1/90
Ratio	Type:	Audi V8
	Engine:	3.6 ltr./184 kW (240 HP)
	1st gear	3.500:1
	2nd gear	1.889:1
	3rd gear	1.231:1
	4th gear	0.903:1
	5th gear	0.730:1
Rear final drive	Reverse gear	3.455:1
	code letters	AXZ
	ratio	4.11:1

Filling capacity

Transmission code letters	AWW
Oil capacity	3.0L (3.2 qt.)
Lubricant	Hypoid gear oil G50 SAE 75W/90 (synthetic oil)

Rear final drive identification, automatic transmission



Rear final drive identification

The final drive 017 is allocated to the four-wheel drive automatic transmission 018.

Arrow - Code letters and build date.

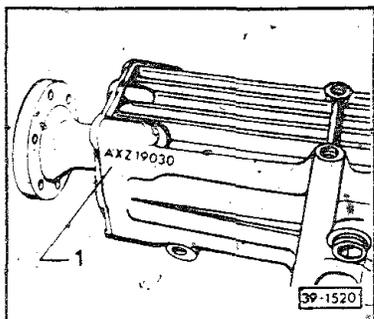
Location of code letters and date of manufacture of rear final drive.

Example

AFV code letters 26 day 10 month 8 year (88)

Code letters		AFV
Manufactured		from: 10/88 to:
Allocation	Type:	Audi V8
	Engine:	3.6 ltr./184 kW (240 HP) 4.2 ltr./206 kW (280 HP)
Ratio	Final drive	37/9 = 4.111
Drive shaft flange	dia.	108 mm
Allocation, automatic transmission		018 Four-wheel
Code letters		ATU

Rear final drive – manual transmission



1 – location of rear final drive code letters

Example

AXZ 19 03 0
 code day month year (90)
 letters

Code letters		AXZ
Manufactured	from:	1/90
	to:	—
	Vehicle type:	Audi V8
	Engine:	3.6 ltr./184 kW (240 HP)
Ratio	Final drive	4.11:1
Drive shaft flange	dia.	108 mm
For use with		Manual transmission 016 5-speed
Code letters		AWW

Filling capacity

Code letters		AXZ
Oil capacity		1.7L (1.8 qt.)
Lubricant		Hypoid gear oil GL5 (SAE 90 Mil-L 2105 B)

Filling capacities, automatic transmission

Transmission

Filling capacities	Planetary transmission	Automatic transmission
Initial filling	9.7 ltr. (10.2 qt.)	ATU
Oil change	Approximately 3.0 ltr. (3.1 qt.)	
Lubricant	ATF Dexron	

Front final drive

Filling capacities	Final drive	Automatic transmission
Initial filling	0.5 ltr. (0.52 qt.)	ATU
Oil change	Filled for service life. No oil change.	
Lubricant	Hypoid gear oil GL 5 (SAE 90 Mil-L 2105 B)	

Rear final drive

Filling capacities	Final drive	Rear final drive
Initial filling	1.7 ltr. (1.8 qt.)	ATU
Oil change	Filled for service life. No oil change.	
Lubricant	Hypoid gear oil GL 5 (SAE 90 Mil-L 2105 B)	

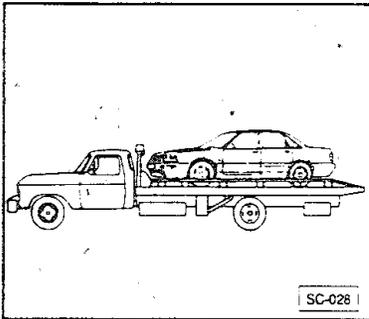
Towing

Note

Detailed towing instructions can be found in a special towing instruction brochure at your Audi dealer.

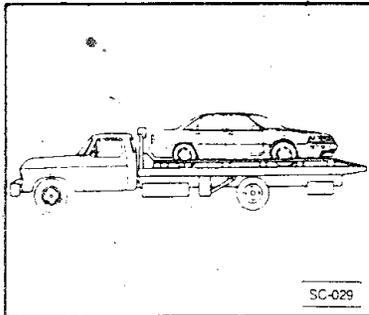
CAUTION

- Audi V8 cannot be towed with conventional sling-type equipment, wheel lift equipment or wheel dollies
- flat bed required to avoid damage to the All Wheel Drive system
- do not wrap safety chains around brake lines



Front hook-up

- attach towing eye, located in tool kit in luggage compartment, below the right **front** bumper of the vehicle
- load vehicle onto a flat bed



Rear hook-up

- attach towing eye, located in tool kit in luggage compartment, below the right **rear** bumper of the vehicle
- load vehicle onto a flat bed

Long distance towing

CAUTION

- move selection lever at "N"
- do not have vehicle towed faster than 30 mph (50 km/hr)
- do not tow further than 30 mi. (50 km)

Do not tow vehicle when transmission oil is leaking or has been drained.

This is what's new:

Since the last filming of this fiche, we added or changed:

Groups 00 - 19

- Information regarding the new 4.2 L engine (code ABH) has been added into each group.

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Engine Assembly

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Engine

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★ **NEW INFORMATION** since last filming

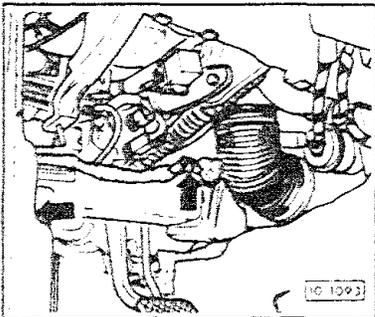
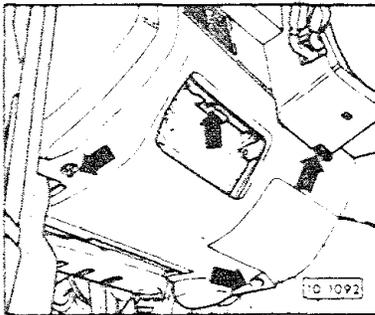
Engine, removing

The engine is taken out towards the front without the transmission.

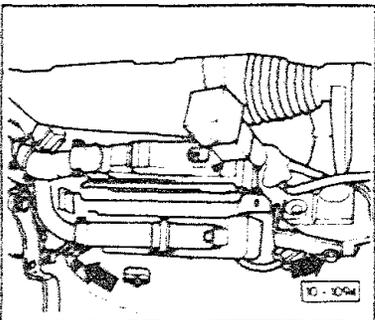
Note

All tie wraps which have to be removed or cut when removing the engine must be replaced in the same position when the engine is installed.

- obtain radio security code
- disconnect battery ground strap
 - the battery is under the rear seat
- remove left side footwell trim



- remove heater duct for driver-side area under dash panel by removing right-hand screw and loosening left-hand screw (arrows)
- unclip floor lamp and push through opening



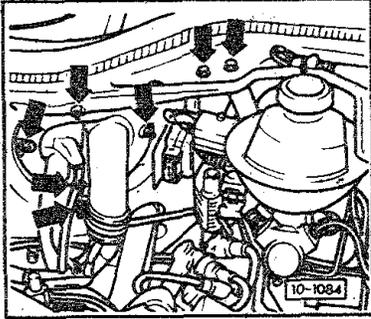
- remove control units with brackets (arrow)

Note

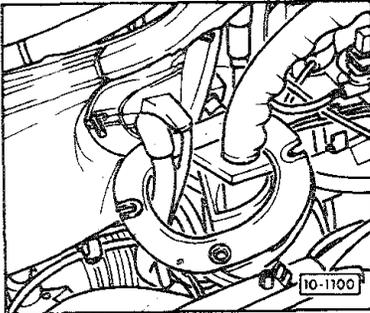
Only Engine Control Module for vehicles with manual transmission is installed

Also, connector for connecting strip No. 11 is not installed

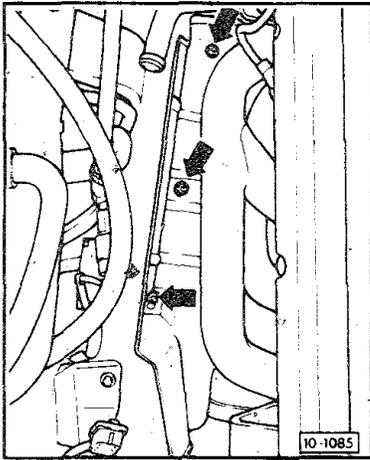
Engine Assembly 10



- remove bolts securing ignition coil at left, cable housing and retaining clip (arrows)
- watch spacer sleeve

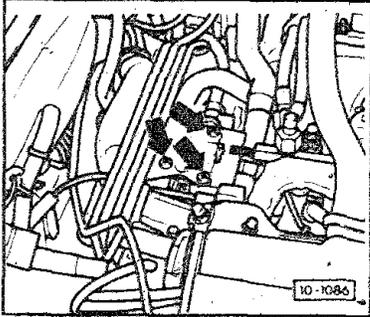


- pull wiring harness through contact plate and place on engine

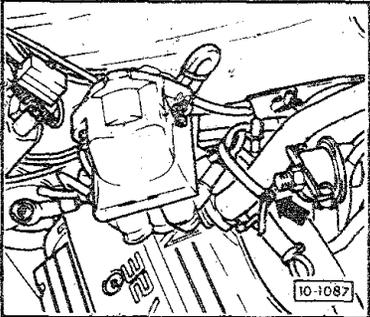


- remove heat shields at left and right (arrows)

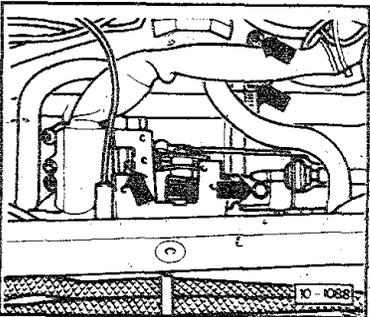
Engine Assembly 10



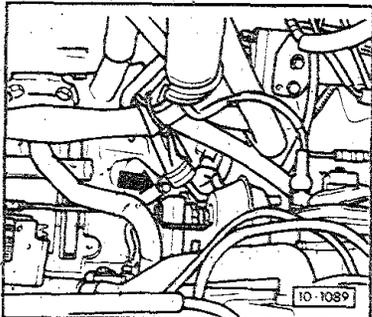
- remove housing for ignition wire retainer (**arrows**)
- disconnect vacuum hose from intake manifold
 - right side, near sheet metal, under ignition wires



- remove screws securing distributor caps on left and right sides (wiring remains connected)
- using tie-wraps (**arrows**), secure two distributor caps to PCV hose

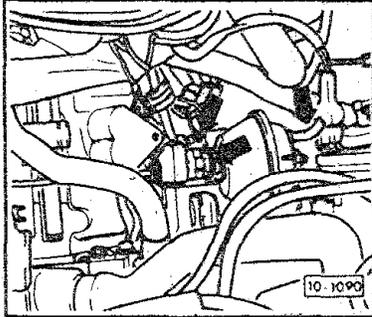


- disconnect throttle cable by unclipping both retaining clips (**top arrows**)
- pull back, release sleeve, and place to the side
- remove screws securing throttle cable support bracket (**arrow**)
- unscrew both coolant hoses

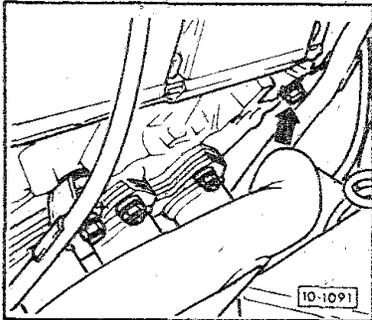


- disconnect supporting clamp (**arrow**)

Engine Assembly 10

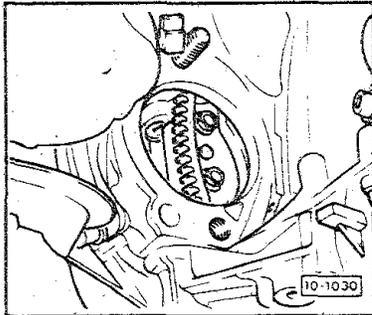


- disconnect vacuum line (right arrow) from vacuum unit for cruise control system

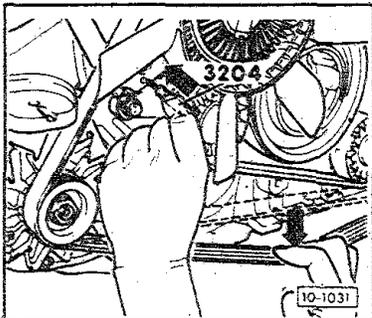


Vehicles with automatic transmission

- remove transmission oil fill tube bolt (arrow) from engine

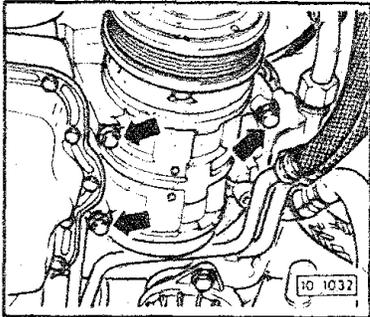


- remove six bolts for converter through starter opening
 - tightening torque 35 Nm (26 ft lb)

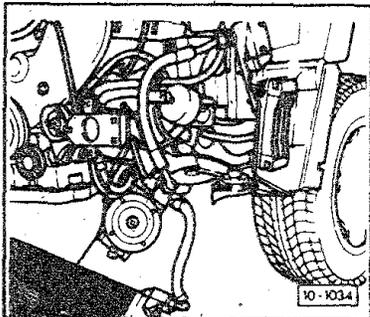


- release tension on ribbed belt by pulling belt firmly by hand in the middle at the bottom and insert setting pin 3204 (arrow)
- remove belt

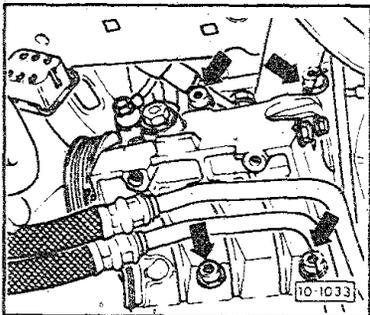
Engine Assembly 10



- remove bolts securing air conditioner compressor (arrows)
 - do not damage guide sleeves



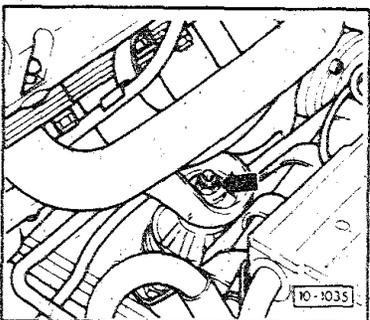
- lift air conditioner compressor over strut
 - lines remain connected



- remove bolts for air conditioner compressor bracket and hydraulic pump (arrows)
 - watch guide sleeves
- place bracket with hydraulic pump on long member
 - lines remain connected

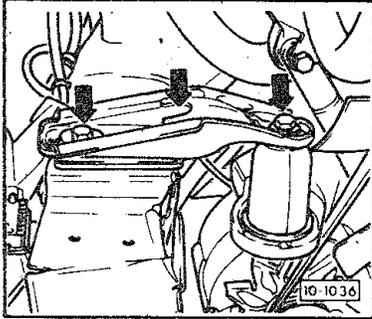
Note

When installing the bracket, first fit the lower bolts with guide sleeves in position and tighten slightly, only then should the upper bolts be fitted.



- remove nuts from engine mountings on left and right sides (arrow)

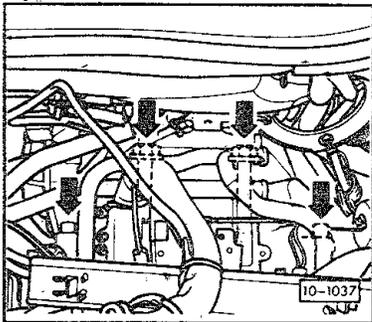
Engine Assembly 10



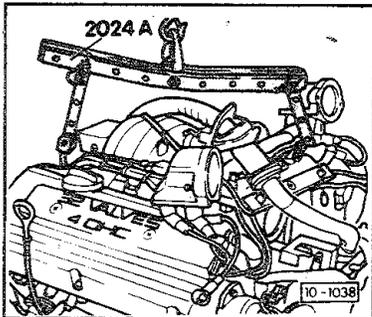
- remove bolts securing engine support (arrows) at front

Note

When the engine is installed, same thickness shims must be used.



- disconnect engine and transmission at top by removing three of four bolts (arrows); loosen fourth bolt but don't remove it



- guide lifting hook **2024 A** at the front left-hand side and rear right-hand side and secure

Note

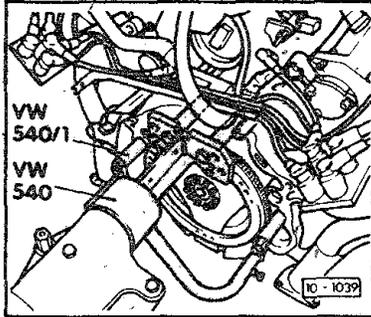
The perforated bars of the tool must be set properly (position and length) to adjust the center of gravity of the engine. Positions face the front pulley. The holes in the bars are counted from the hook and are positioned as shown.

- move in engine hoist (watch air conditioner condenser)
- attach lifting hook **2024 A** at assembly crane
- lift engine carefully
- remove last bolt from top of connecting guide for engine and transmission
- unscrew engine mounting at left and right sides
- pull engine out toward front

CAUTION

Carefully lift engine to prevent damage to transmission main shaft, clutch, and body.

Engine Assembly 10



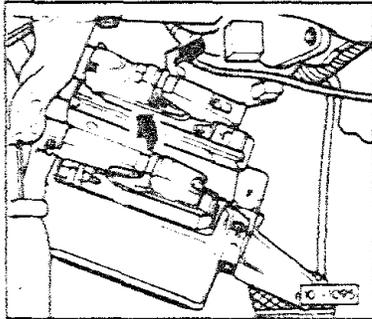
Engine, securing to repair stand

- to perform repair work on the engine, secure engine to repair stand using engine holder **VW 540** and adapters **VW 540/1**

CAUTION

When measuring cylinder bore diameters (see Repair Group 15), the engine must not be mounted to adapter **VW 540**, since this may distort the cylinder block and cause inaccurate measurements.

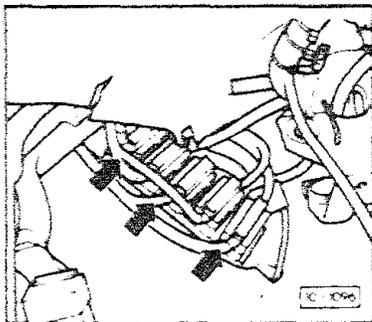
Engine Assembly 10



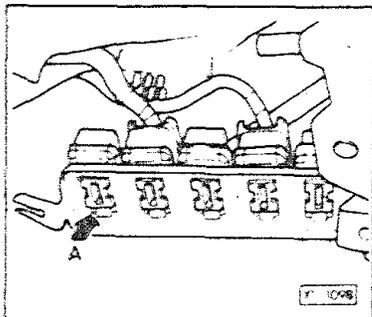
- open locking mechanisms on Engine Control Module connectors and disconnect harness connectors

Note

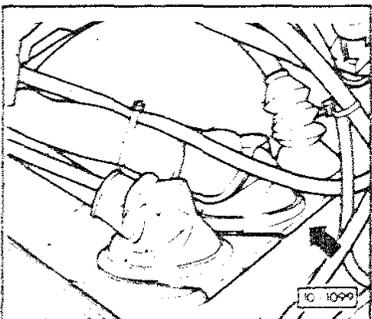
Lock control unit connectors to insure they don't become tangled when removing cable harness (arrows)



- pull off connectors 11, 13 and 15 (arrows)
 - numbers are marked on wiring harness.



- press latch A on butterfly connector lock
- slide butterfly in transverse direction to panel
- release connector housing from panel and remove



- remove wiper arms and plenum chamber cover
- lift up rubber grommet on middle wiring harness (arrow)
- cut tie-wrap
- pull wiring harness carefully out of passenger compartment and plenum chamber
- open expansion tank cap for coolant