

Index

- Brake booster**
 - assembly 46.18
- Brake noise**
 - eliminating 46.17a
- Brake pedal clevis**
 - adjusting 46.19
- Clutch pedal clevis**
 - adjusting 46.19
- Front brakes (Girling caliper)**
 - assembly 46.3
 - assembly (Coupe) 46.3a
 - checking pads 46.4
 - replacing pads 46.7
- Front brakes (Teves caliper)**
 - assembly 46.6
 - checking pads 46.7
 - replacing pads 46.7
- Parking brake**
 - assembly 46.20
 - adjusting 46.21
 - removing 46.22
- Pedal cluster**
 - assembly 46.18
- Rear brakes (Girling caliper)**
 - assembly 46.9
 - basic setting 46.12
 - basic setting, Quattro 46.14
 - checking pads 46.10
 - replacing pads 46.10
 - replacing pads, Quattro 46.13
- Technical data**
 - chart 46.2

Technical data

2 Wheel Drive

Engine type	4-cyl/5-cyl	
Master cylinder diameter	22.2mm	
Brake booster diameter	9"	
Amount of brake fluid (approx.)	0.6 liter	
	Front	Rear
Brake caliper piston diameter	54mm	36mm
Brake disc diameter	256mm	245mm
Brake disc thickness	22mm	10mm
Pad thickness	14mm	12mm
Pad surface of 4 pads	200cm ²	120cm ²

All Wheel Drive

Engine type	5 cylinder	
Master cylinder diameter	22.2 mm for 136 hp engine 23.81 mm for 170 hp engine 25.4 mm coupe only	
Brake booster diameter	9" for 136 hp engine	
Hydraulic brake servo piston diameter	24 mm for 170 hp engine	
Amount of brake fluid (approx.)	0.6 liter	
	Front	Rear
Brake caliper piston diameter	54 mm 40/45 mm (coupe only)	36 mm 38 mm from VIN 89 JA 225 957 38 mm for 170 hp engine
Brake disc diameter	256 mm 276 mm (coupe only)	245 mm
Brake disc thickness	22 mm 25 mm (coupe only)	10 mm
Pad thickness	14 mm 13 mm (coupe only)	12 mm
Pad surface of 4 pads	194 cm ² 224 cm ² (coupe only)	108 cm ²

Brake – Mechanical Components

Note

Install complete repair kit

CAUTION

Machine discs on both sides — never on one side only. Always check condition and thickness of brake pads.

35 Nm (25 ft lb)
always replace
hold guide pin when loosening
and tightening

Serrated bolt
125 Nm (92 ft lb)
clean serrations if bolt
is to be reused

Calliper housing
do not remove brake hose
when replacing pads

Heat shield
install in piston

Brake pad carrier
supplied as a replacement part
assembled with sufficient grease on
guide pins
if protective caps are damaged.
install repair kit,
Part No. 443 698 470

Brake disc

replace both discs together
remove caliper before removing disc

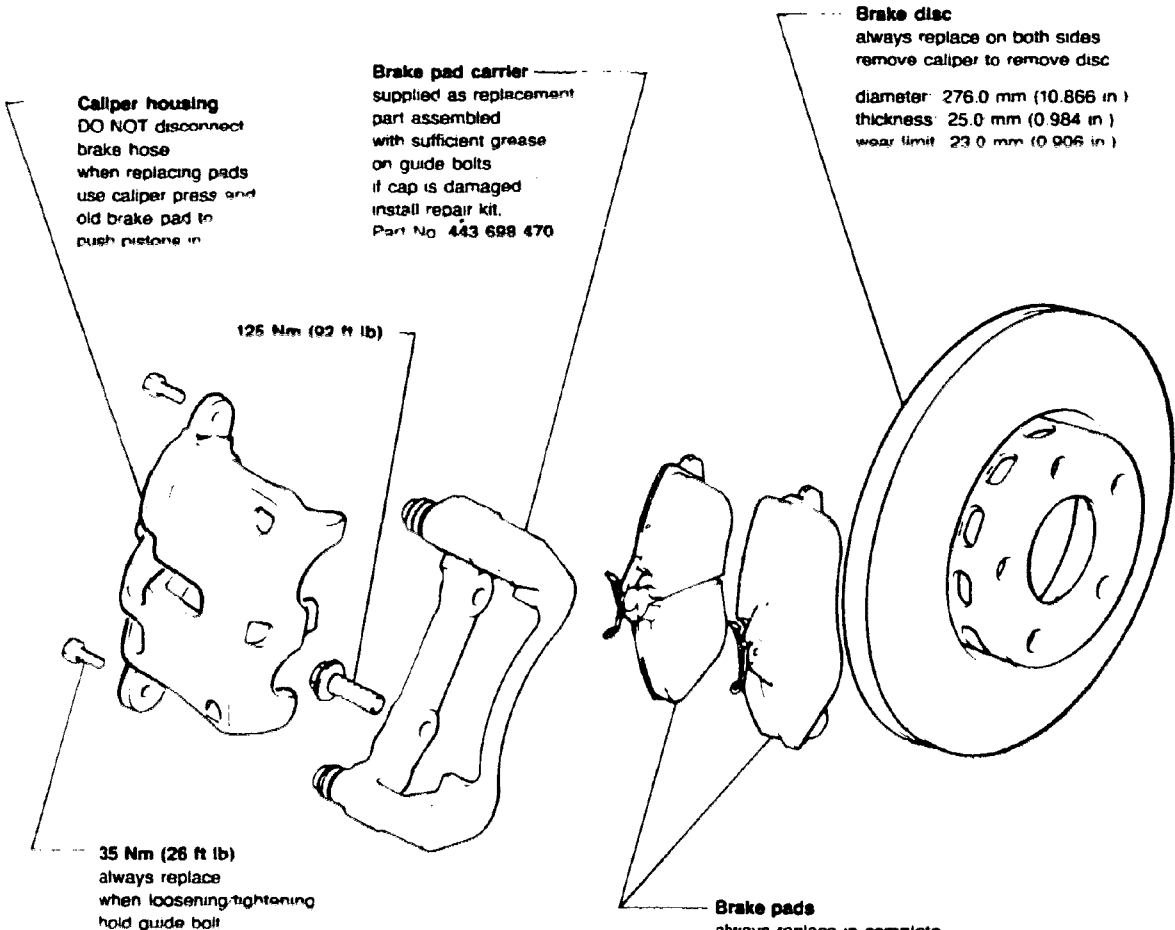
diameter	256.00mm (10.079 in.)
thickness (vented disc)	22.00mm (0.866 in.)
wear limit	20.00mm (0.787 in.)

Brake pads

always replace pads in complete sets
(both wheels)

thickness (new)	14.00mm (0.511 in.)
wear limit	2.00mm (0.078 in.)
(with backing plate)	7.00mm (0.275 in.)

46-625



Note

Install all parts in repair kit

CAUTION

Disc machining must be performed on both sides of disc — never on one side only
Always check condition/thickness of brake pads.

46-697

Brake – Mechanical Components

Pad thickness, checking

- visually check thickness of outer pads through hole in wheel rim (use a flashlight if necessary)
- if pad thickness is 7mm or less (including backing plate), the pads have reached their wear limit and must be replaced

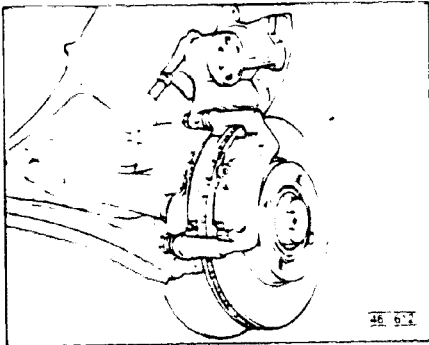
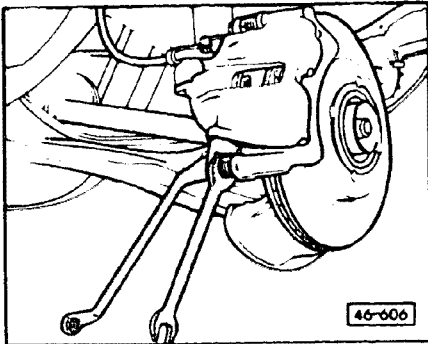
Brake pads, replacing

- remove wheels

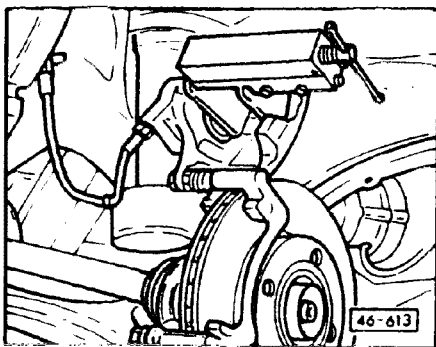
CAUTION

When re-using brake pads, mark to prevent changing inside to outside or from one caliper to another.

- remove lower caliper mounting bolt (hold guide pin with open end wrench while loosening)
- swing brake caliper up and remove brake pads



Brake – Mechanical Components



- push piston into caliper housing

CAUTION

Always remove some brake fluid from the reservoir before installing new brake pads. When the caliper piston is pushed back, fluid is forced out of the caliper and into the reservoir. After pads are installed, refill the reservoir only to the **MAX** mark.

- install brake pads and heat shield
- swing brake caliper down and tighten new caliper securing bolts to 35 Nm (25 ft lb)

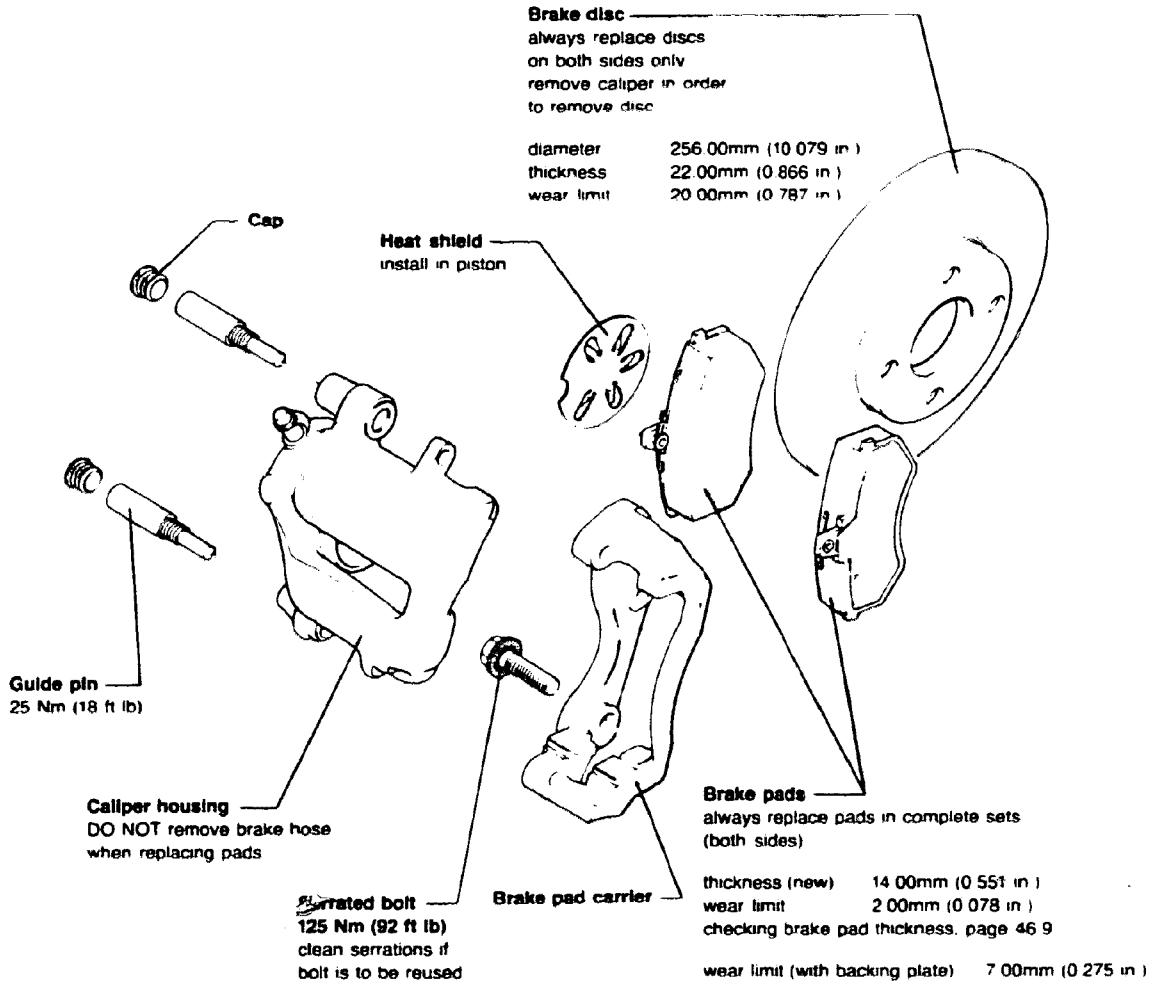
Note

Depress brake pedal firmly several times while vehicle is stationary to permit piston and brake pads to adjust to brake disc.

Brake – Mechanical Components

CAUTION

Disc machining must be performed on both sides of disc — never on one side only.
Always check condition and thickness of brake pads.



Note

Two self-locking bolts contained in the repair kit are not required on Teves brakes. Otherwise, install the complete repair kit.

46-859

C-7

Teves

Front brake caliper

46.6

Brake – Mechanical Components

Brake pad thickness, checking

- visually check thickness of outer pads through hole in wheel rim (use a flashlight if necessary)
- if pad thickness is 7mm or less (including backing plate), the pads have reached their wear limit and must be replaced

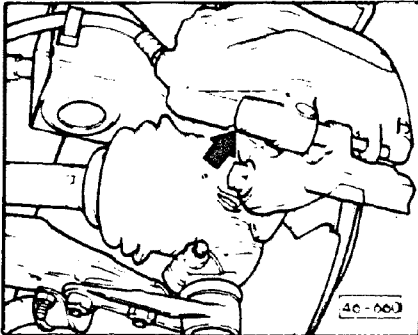
Brake pads, replacing

- remove wheels

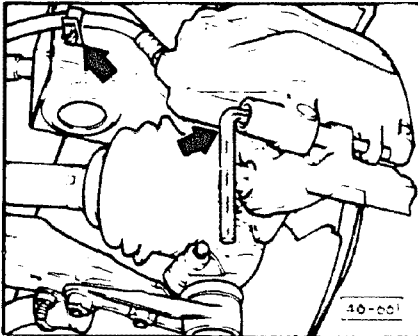
CAUTION

When re-using brake pads, mark to prevent changing inside pads to outside or from one caliper to another.

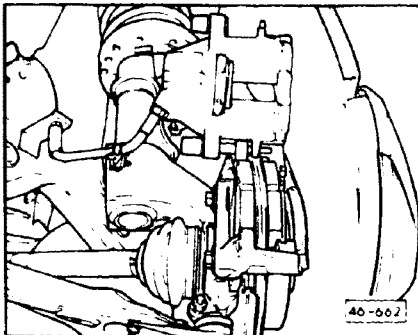
- remove guide pin caps (arrow)

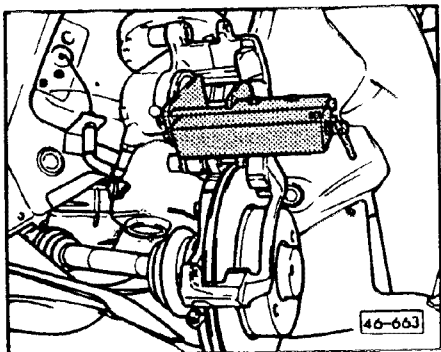


- remove both guide pins (lower arrow)
- remove brake hose clip from bracket on wheel bearing housing (upper arrow)



- swing brake caliper up and hold in position
- remove brake pads
- check correct location of heat shield in piston





- push piston back into caliper housing

CAUTION

Always remove some brake fluid from reservoir before installing new brake pads. When caliper piston is pushed back, fluid is forced out of caliper and into reservoir. After pads are installed, refill reservoir only to **MAX** mark.

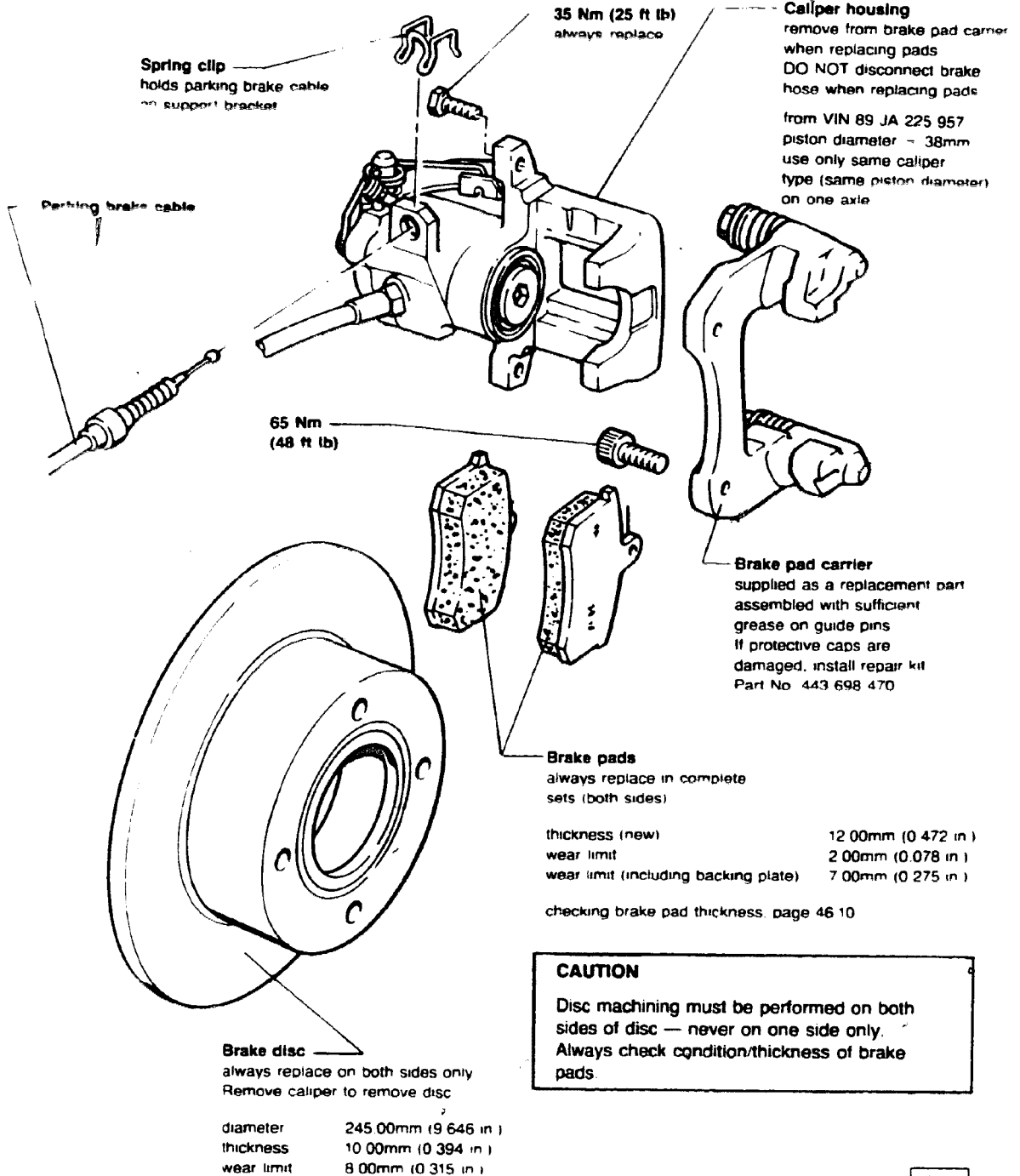
- install brake pads
- tighten brake caliper housing guide pins to 25 Nm (18 ft lb)
- install guide pin caps
- install brake hose clip in bracket on wheel bearing housing

Note

The repair kit contains two self-locking bolts which are not required with the Teves brakes.

Depress brake pedal firmly several times while vehicle is stationary to permit piston and brake pads to adjust to brake disc.

Brake – Mechanical Components



46-626

Note

Install all parts supplied in repair kit.

Brake – Mechanical Components

Brake pad thickness, checking

- visually check thickness of outer pads through hole in wheel rim (use a flashlight if necessary)
- if pad thickness is 7mm or less (including backing plate), the pads have reached their wear limit and must be replaced

Brake pads, replacing

- remove rear wheels

CAUTION

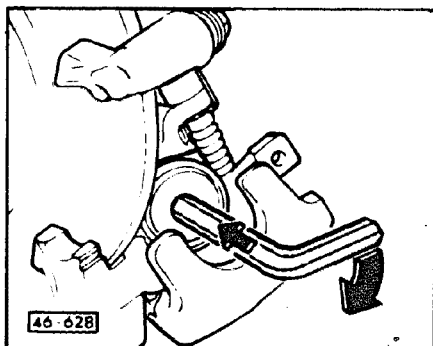
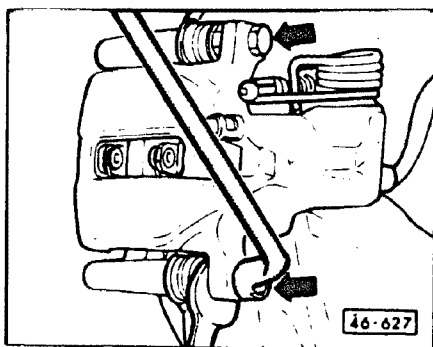
When re-using brake pads, mark them to prevent changing from original position.

- remove brake caliper housing, (hold guide pin with open end wrench while loosening bolts)
- remove brake pads

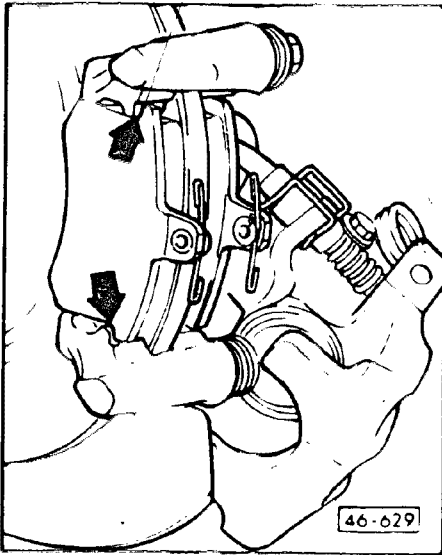
CAUTION

Always remove some brake fluid from reservoir before installing new brake pads. When caliper piston is turned in, brake fluid is forced out of the caliper and into reservoir. After pads are installed, refill reservoir only to **MAX** mark.

- screw piston into housing by turning it clockwise with a socket head wrench while pushing in firmly (arrows)



Brake – Mechanical Components



- install brake pads
- install caliper housing with new bolts and tighten to 35 Nm (25 ft lb)

Note

The repair kit contains four self-locking bolts which must always be installed

CAUTION

After installing new brake pads, always check basic setting of rear brakes.

Brake – Mechanical Components

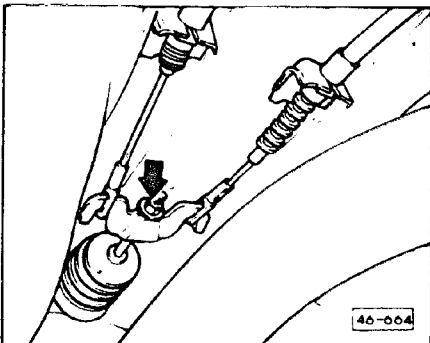
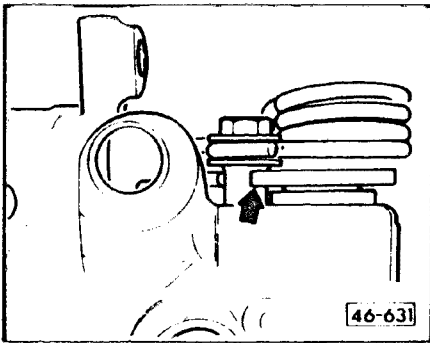
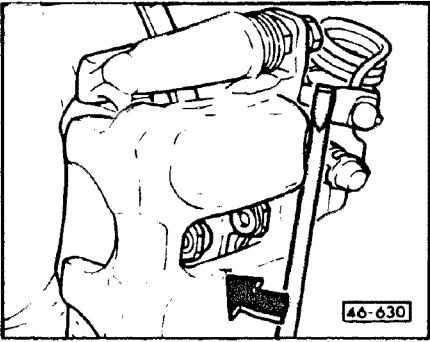
Rear brake basic setting, checking

Note

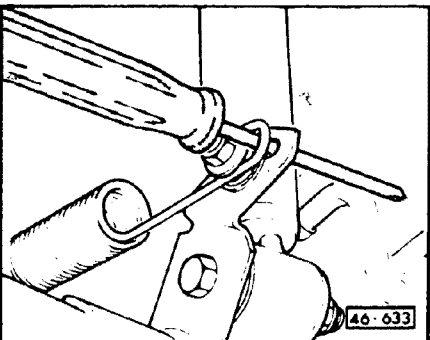
Parking brake cable must be free of tension during basic setting check.

Work sequence

- use a screwdriver to push caliper lever against stop on both sides of vehicle
- parking brake cable is too tight if lever of opposite side caliper is pulled away from stop (arrow)



- loosen adjustment nut for parking brake cable (arrow) until both levers rest against stop

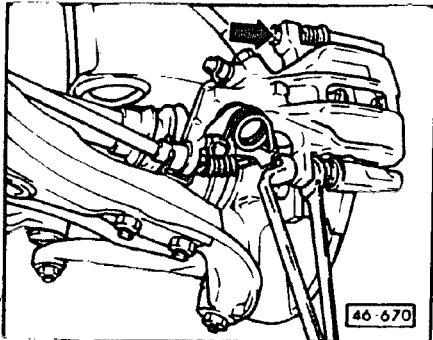


- push a screwdriver of at least 6mm dia. between rear hook of spring and roller
- pump brake pedal with moderate force about 40 times (engine not running)
- check that both wheels rotate freely
- remove screwdriver

C-13

Brake – Mechanical Components

Brake pads, replacing (Quattro only)



- remove rear wheels

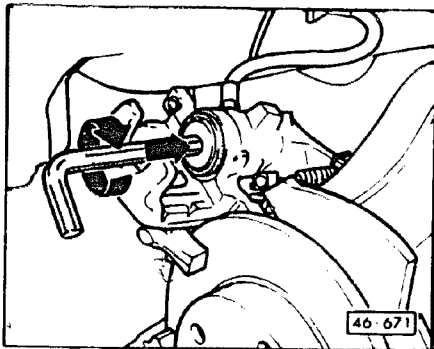
CAUTION

When re-using brake pads, mark them to prevent changing from original position.

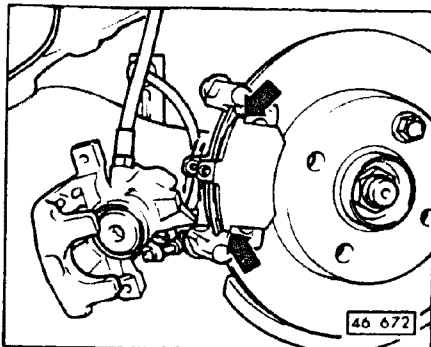
- remove brake caliper housing
(hold guide pins with an open-end wrench while loosening bolts)
- remove brake pads

CAUTION

Always remove some brake fluid from reservoir before installing new brake pads. When caliper piston is turned in, brake fluid is forced out of the caliper and into reservoir. After pads are installed, refill reservoir only to **MAX** mark.



- screw piston into housing by turning it clockwise with a socket head wrench while pushing in firmly (arrow)



- install brake pads (arrows)
- install caliper housing with new bolts and tighten to 35 Nm (25 ft lb)

Note

The repair kit contains four self-locking bolts which must always be installed.

CAUTION

After installing new brake pads, always check basic setting of rear brakes.

C-14

Brake – Mechanical Components

Rear brake basic setting, checking

Note

Parking brake cable must be free of tension during basic setting check.

- use a screwdriver to push caliper lever against stop **a** on both sides of vehicle
 - parking brake cable is too tight if lever of opposite side caliper is pulled away from stop

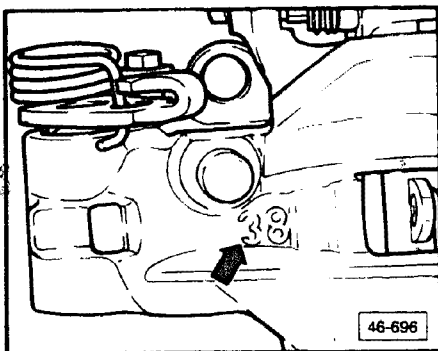
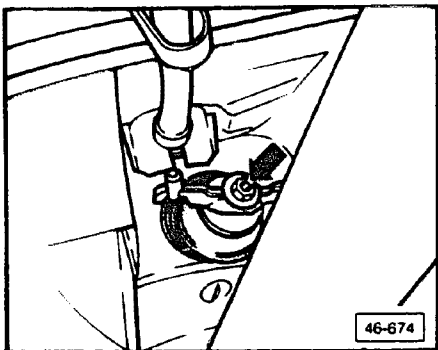
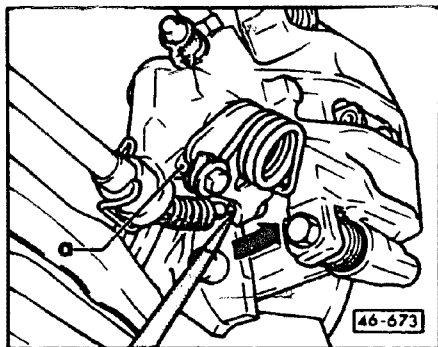
- loosen adjustment nut for parking brake cable (**arrow**) until both levers rest against stop

36mm caliper piston:

- pump brake pedal with moderate force about **40** times (engine not running)

38 mm caliper piston:

- press brake pedal **one** time
- check that both wheels rotate freely



CAUTION

Different caliper types are identified by raised number (**arrow**) indicating piston diameter (38 mm shown).

**This page
intentionally
left blank**

**This page
intentionally
left blank**

**This page
intentionally
left blank**

Brake—Mechanical Components

Brake noise

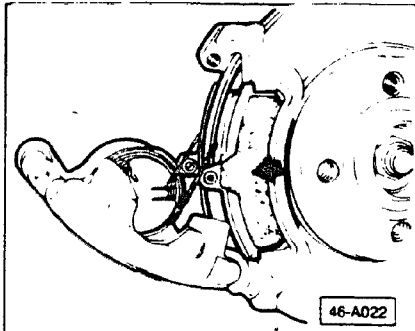
Brake noise is mainly the result of vibrations between components of the brake caliper assembly.

The following procedure has proven effective in reducing brake noise and eliminating customer complaints arising from noisy brakes.

Note

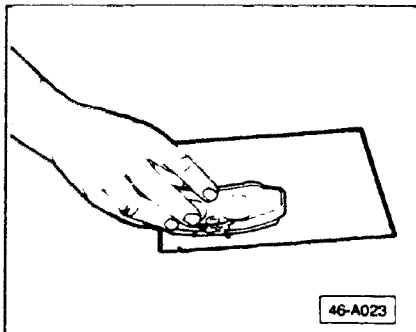
To achieve maximum effectiveness it is imperative that this procedure be followed in its entirety.

See page 4 — Brake discs, front and rear — before assembling brake components.

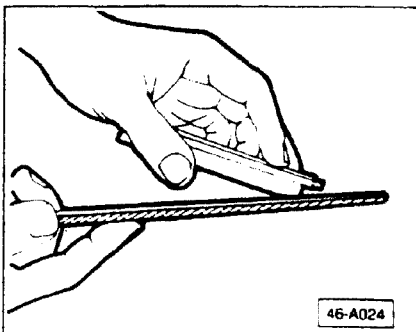


Front brake caliper

Brake pads must have anti-vibration material (**arrow**). If not, replace pads with Part Number <43 698 151 F



- inspect pads, deglaze and clean face of pad with sandpaper if necessary

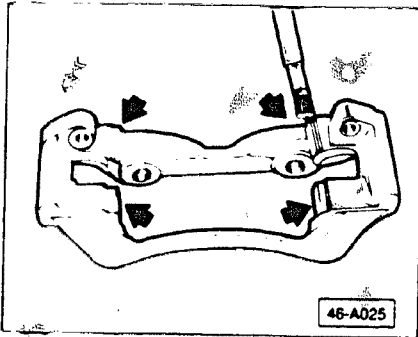


- slightly chamfer (bevel) edges of brake pad material with file

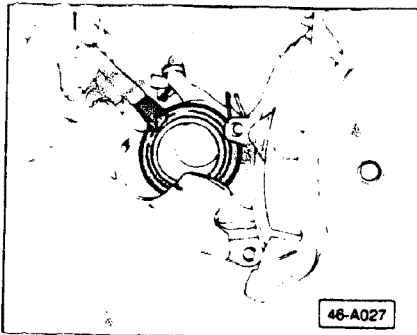
more

C-19

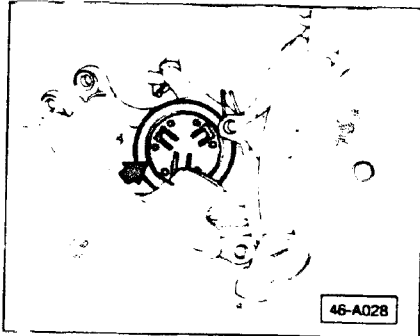
Brake—Mechanical Components



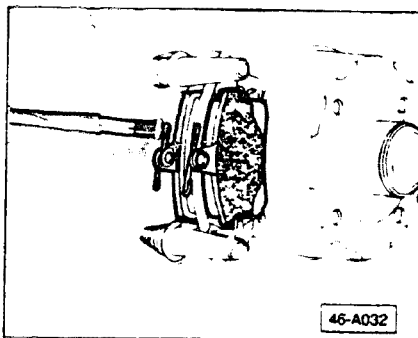
- clean brake pad carrier contact points (arrows) and apply high temperature grease. e.g. Plastilube Moly 3*



- clean and lubricate caliper piston with high temperature grease



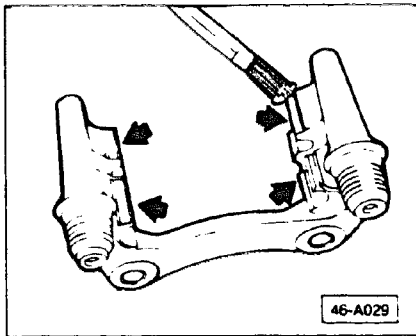
- install anti-knock shim (shim has six [6] indentations), chrome color, Part Number 443 615 231 A, (arrow) into caliper piston (two required)
- apply thin coating of high temperature grease on surface of shim



- apply small amount of high temperature grease to spring contact points when reassembling

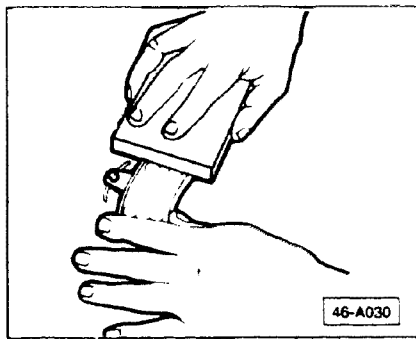
more

C-20

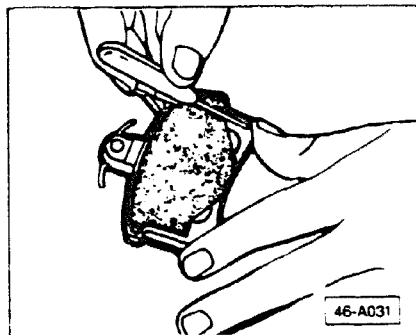


Rear brake caliper

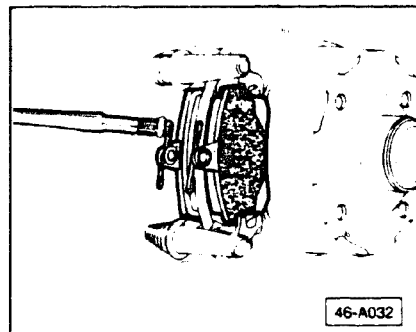
- remove brake pad carriers and clean pad contact points (**arrows**)
- apply high temperature grease, e.g. Plastilube Moly 3* to pad contact points of pad carriers



- remove paint on back of pads using sandpaper or wire brush



- install anti-vibration stickers, Part Number **171 698 993**, to backs of all four rear brake pads and trim to proper size
- deglaze face of pads with sandpaper, if necessary
- slightly chamfer (bevel) edges of brake pad material with file

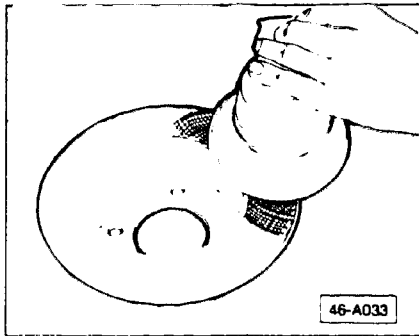


- install brake pads and lubricate spring contact points with high temperature grease

more

C-21

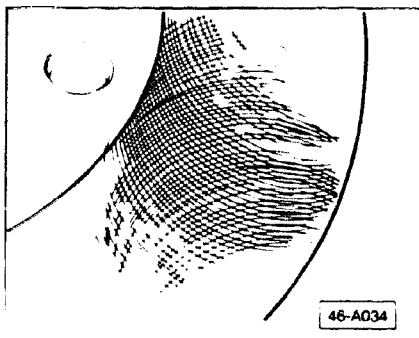
Brake—Mechanical Components



Brake discs, front and rear

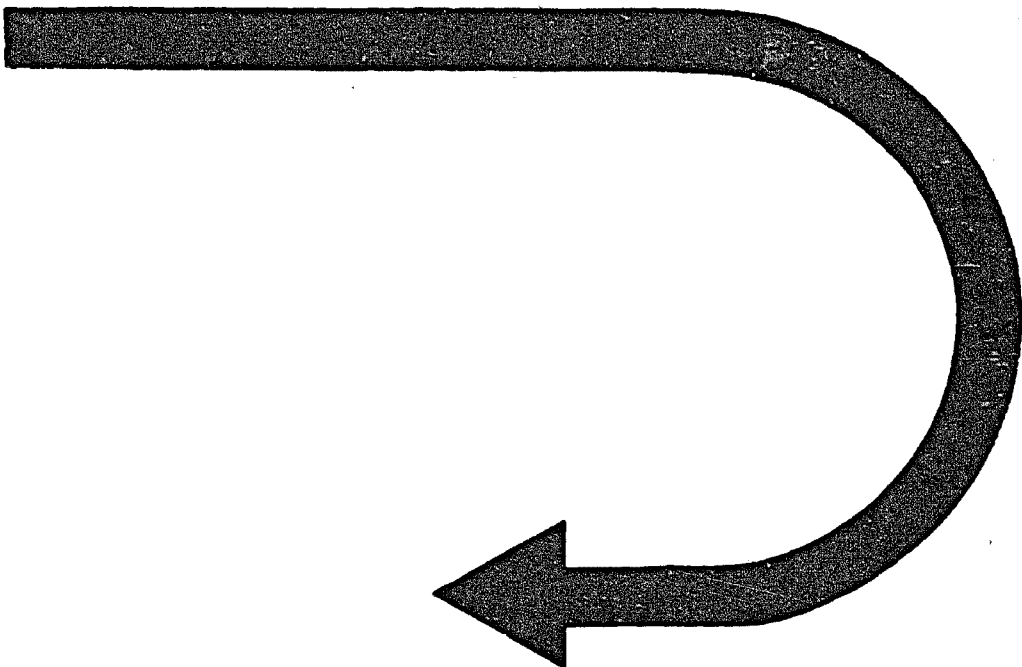
Glazed discs must be cleaned using a power disc-type sander and 80 grit sandpaper. Sand brake discs to achieve a "cross-hatch" pattern:

- lightly sand in clockwise direction using leading edge of sanding disc

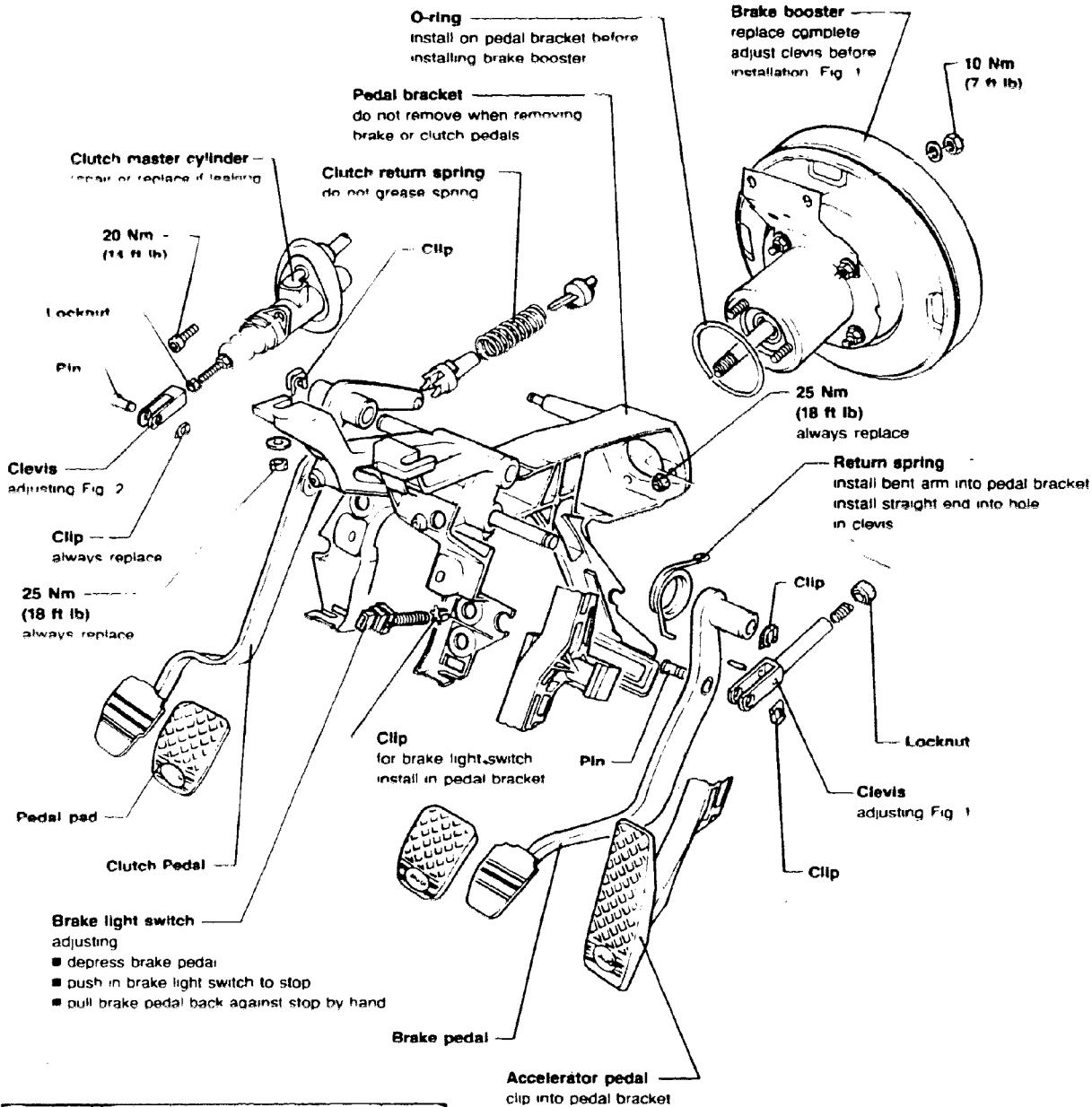


- continue to sand in clockwise direction using trailing edge of sanding disc

CONTINUED IN THE
BEGINNING OF NEXT ROW



Brake – Mechanical Components



CAUTION

Always use new self-locking nuts and circlips.

Note

Lubricate all pivot points with white grease.
Part No. AOS 126 000 05, before assembling.

WARNING

Do not install additional floor mats as they may interfere with pedal movement.

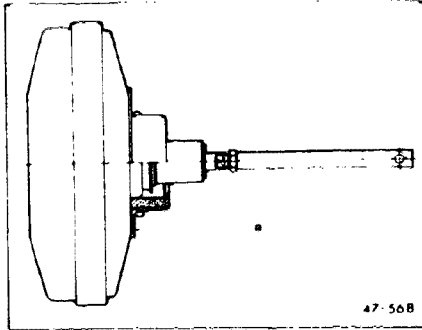
46-657

D-2

Pedal cluster
Brake booster

46.18

Brake – Mechanical Components

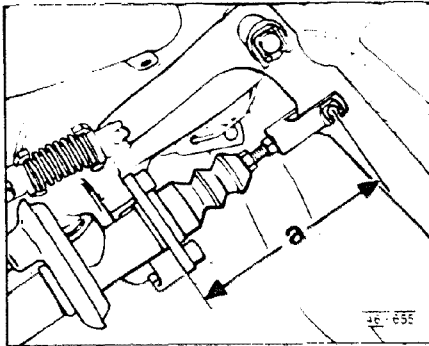


► Fig. 1 Clevis, adjusting

$$a = 269.0 \pm 0.5\text{mm} \\ (10.590 \pm 0.02 \text{ in.})$$

Note

When measuring, the push rod must be perpendicular to the surface of the brake booster



► Fig. 2 Clevis, adjusting

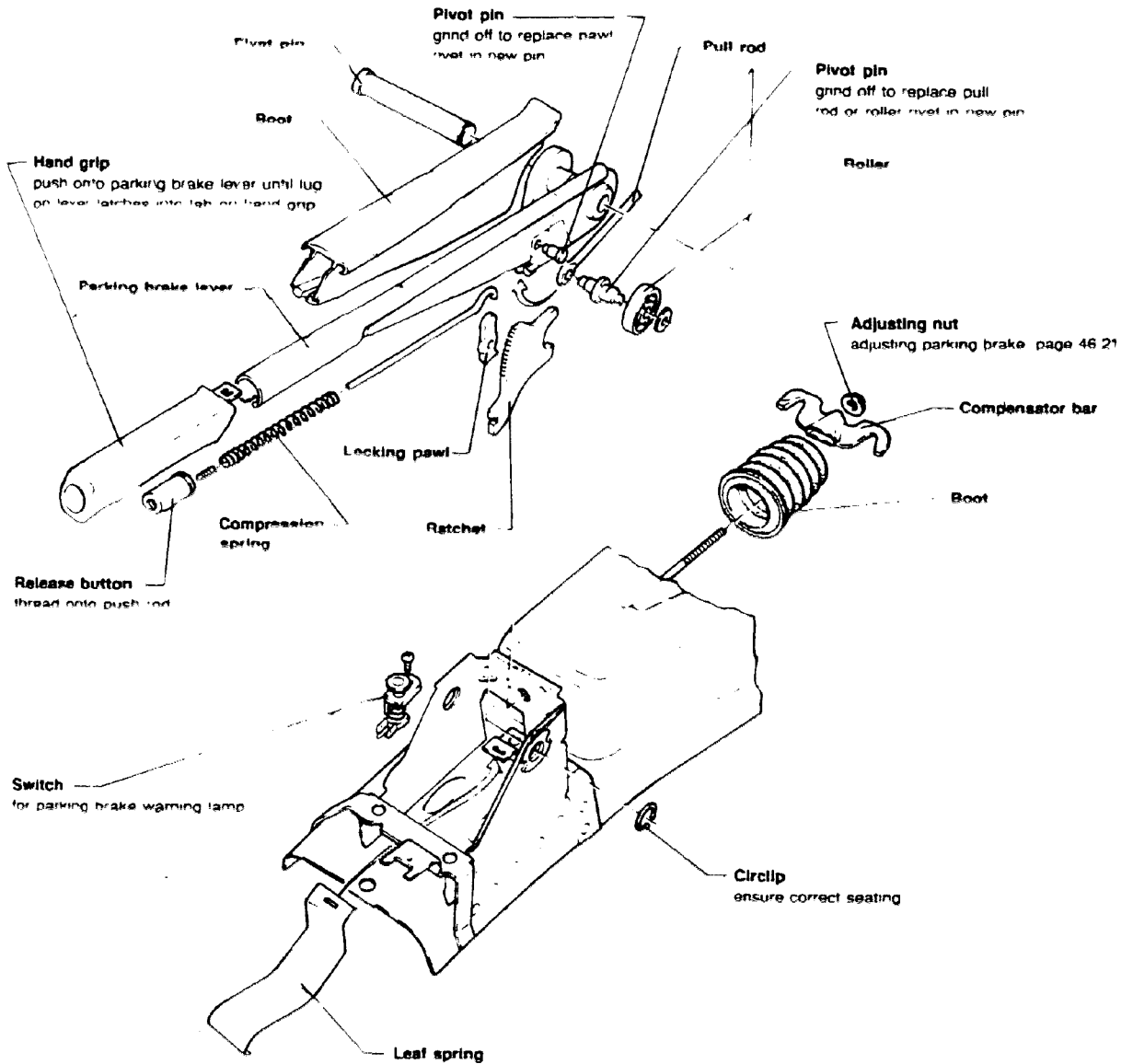
$$a = 116.0 \pm 0.2\text{mm} \\ (4.566 \pm 0.007 \text{ in.})$$

Note

If the clutch pedal does not return automatically although the clevis is correctly adjusted, it is possible that:

- air is in the hydraulic system
- the pedal bushing is tight

Brake – Mechanical Components



Note

Lubricate all contact areas with white grease.
Part No AOS 126 000 05 before assembling

46-656

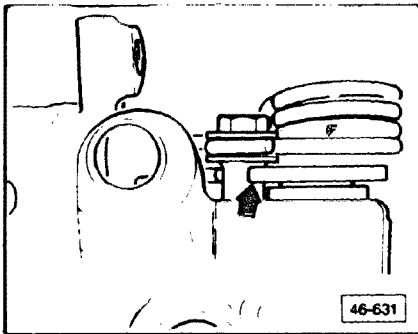
Brake – Mechanical Components

Parking brake, adjusting

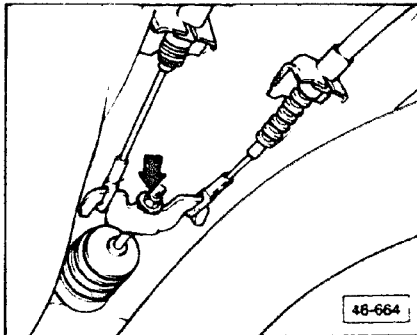
Because rear brakes are self-adjusting, you need to adjust only after replacing

- parking brake cables
- brake calipers
- discs
- pads

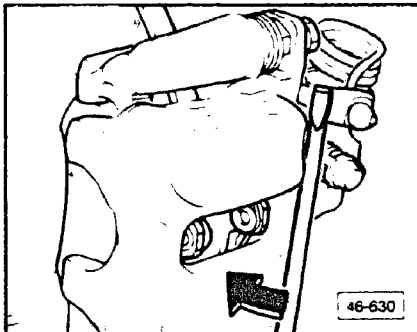
Always make basic adjustment on rear brakes first (see page 46 12 and page 46 14)



- tighten adjusting nut for parking brake cable until both levers (**arrow**) lift slightly off their stops (two mechanics required)



- turn adjusting nut (**arrow**) back two turns

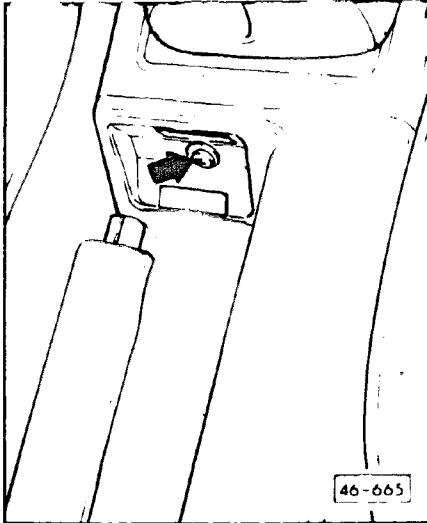


- using a screwdriver, press levers for parking brake cable alternately against stop
 - parking brake cable is too tight if the lever of the opposite brake caliper is pulled away from stop
- loosen adjustment nut for parking brake cable until both levers rest against stops
- pull up on parking brake and release
- check that both wheels rotate freely

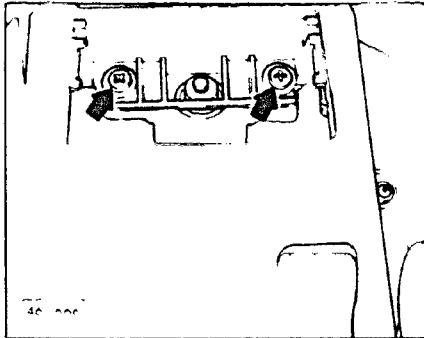
D-5

Brake – Mechanical Components

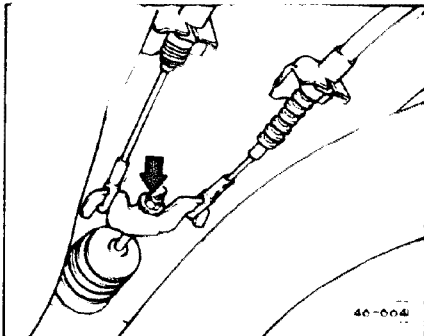
Parking brake lever, removing



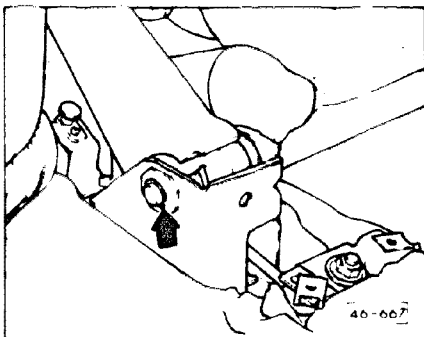
- remove parking brake lever boot
- remove screw (arrow)



- remove ashtray
- remove screws (arrows)
- remove center console at rear



- remove adjusting nut (arrow)
- remove compensator bar
- remove boot



- remove circlip (arrow)
- push out pivot pin
- push parking brake lever slightly to rear and then remove

Note

After installing parking brake lever, adjust parking brake (see page 46.21).