

Hebelwerk
Pedal System and Levers
Pédalier et Leviers
Pedaleria e Leve

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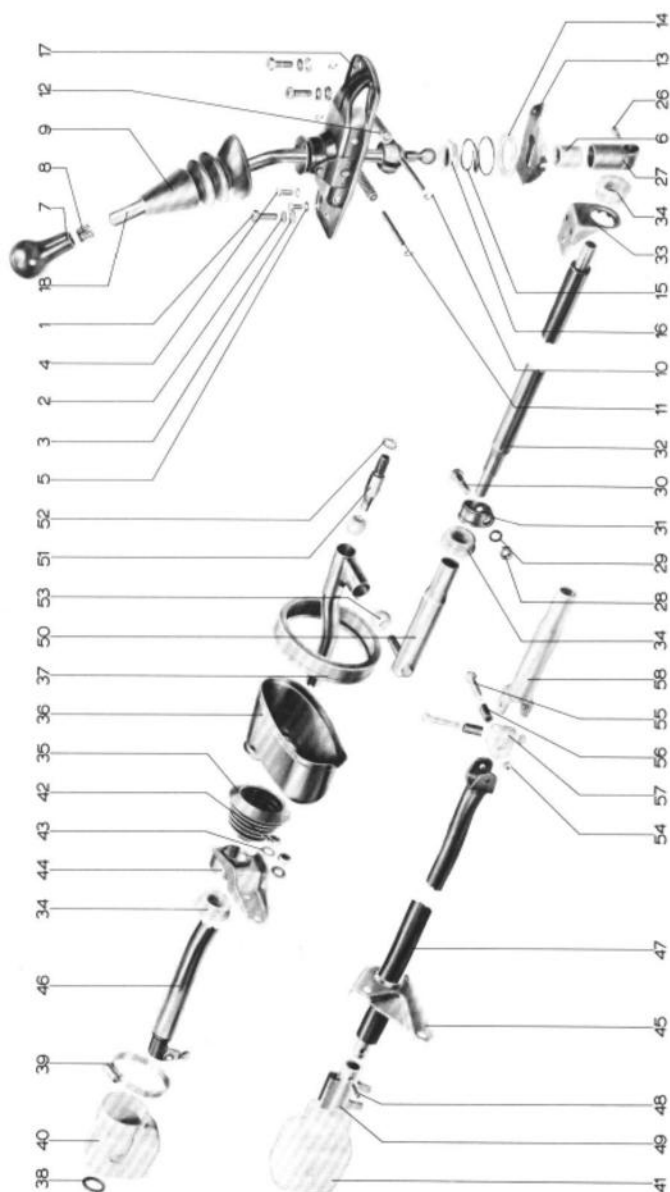
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TORQUE VALUES FOR MANUAL AND PEDAL CONTROLS

Location	Designation	Thread	Grade	Tightening Torque	
				mkp	ft. lbs.
Bracket for bushing of front shift rod	Bolt	M 6	8.8	0.6	4.4
Gearshift support plate to tunnel	Bolt	M 8	8.8	2.1	15.2
Tapered screw in shift rod head	Tapered screw	M 8	8.8	1.5	10.8
Tapered screw in shift rod coupling	Tapered screw	M 8	8.8	1.5	10.8
Shift rod to shift rod lever	Bolt	M 8	8.8	2.5	18.1
Throttle pedal to body	Bolt	M 6	8.8	0.6	4.4
Lock nut for ball socket	Nut	M 5		0.3	2.2
Brake light switch attachment	Slotted screw	M 4	5.8	0.25	1.8
Attachment clutch pedal top	Hex. nut flat	14x1,5	8/CK 35	4.0	28.9
Piston rod to brake pedal	Hex. nut flat	10	6S/C 45	1.0	7.2
Counter nut for clutch cable front	Hex. nut	6	8/6.4	0.85	6.2
Attachment cable pulley on bearing bracket	Uni-Stop nut U 18,10	10	8/50...60	3.5	25.3



No.	Description	Qty.	Note when		Special instructions see
			Removing	Installing	
1	Bolt M 8	3			
2	Lock washer	3			
3	Flat washer	3			
4	Bolt M 6	2			
5	Spring washer	2			
6	Ball socket	1		Insert with moly paste	
7	Shift knob	1			
8	Shift knob retaining ring	1		Replace	
9	Shift boot	1			
10	Snap ring	4			
11	Guide pin	2			
12	Spring	2			
13	Stop plate	1		Insert with moly paste	1.1-2/1
14	Lower spring seat	1		Insert with moly paste	
15	Spring	1			
16	Upper spring seat	1			
17	Plate	1			
18	Shift lever mounting bracket	1			
*					
26	Tapered screw	1			
27	Shift rod head	1		Coat inside with moly paste	
28	Nut M 8	1			
29	Lock washer	1			
30	Bolt M 8x32	1			

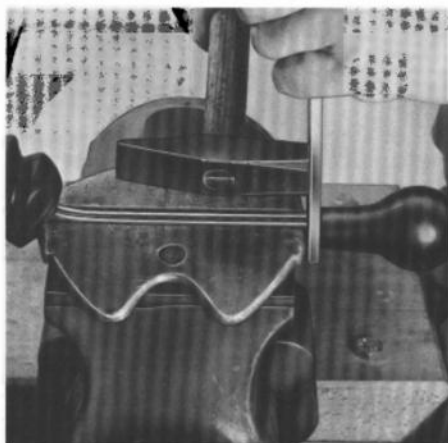
*) Position 19 - 25 are not listed

No.	Description	Qty.	Note when		Special instructions see
			Removing	Installing	
31	Clamp	1			
32	Shift rod, front	1		Grease contact areas	
33	Bracket for bushing	1			
34	Bushing	1			
35	Boat	1			
36	Case				
37	Rubber seal	1			
38	Seal for case	1			
39	Clamp	1			
40	Dust cap	1			
41	Dust cap 914/6	1			
42	Nut M 8	2			
43	Spring washer	2			
44	Shift rod holder	1			
45	Shift rod holder 914/6	1			
46	Shift rod, rear	1		Grease the ends, attach guide cover before assembly adjustment	
47	Shift rod 914/6	1			
48	Lock pin	1			
49	Selector	1		Grease contact areas	
50	Shift connector rod	1			
51	Bolt	1			
52	Star washer	1			
53	Ball	2		Replace if removed	
54	Nut M 6 914/6	2			
55	Bolt M 6 914/6	2			

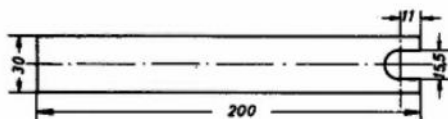
No.	Description	Qty.	Note when		Special instructions see
			Removing	Installing	
56	Bushing 914/6	2			
57	Adapter 914/6	1			
58	Shift connector rod 914/6	1		Grease contact areas	

Disassembling

- 1 - Clamp the shift lever into a vice equipped with soft jaws. Drive off shift knob using the self-made tool. See illustrations.



Drawing for self-made tool



1/4 inch flat stock, all edges rounded off.

- 2 - Pull retaining ring out of shift knob with a hook.
- 3 - Remove shift boot. Pry plastic ball socket off shift lever with a screwdriver.
- 4 - Clamp shift lever mounting bracket into vice.

Caution

Use care when removing, the guide pin springs are under tension and may fly out.

Remove the guide pin snap springs. Remove the guide pin spring one at a time.

- 5 - Remove retaining parts.



Assembling

- 1 - Push lower spring seat on the shift lever compression spring until the spring is seated.
- 2 - Coat the lower part of the shift lever well with molybdenum paste. Insert lever into shift bracket.

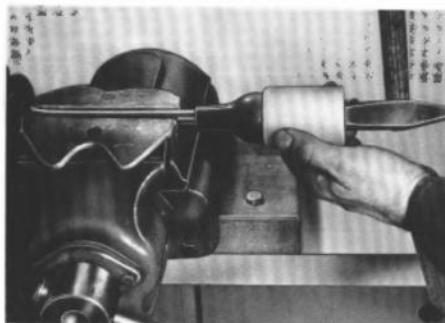
- 3 - To install the guide pin springs:
 - a. Position the stop plate to the shift bracket of the guide pins.
 - b. Insert the second guide pin with snap ring at an angle. Slip the spring over the pin.
 - c. Carefully push one end of the spring into the cutout. Align the spring and push the pin in completely.
 - d. Install the spring on the other guide pin in the same way.



- 4 - Slide on the shift boot.

- 5 - Insert new retaining ring into shift knob (as far as the stop).

- 6 - Place shift knob on lever so that the shift pin is in the correct position. Install using special tool P 299.



Adjusting Linkage

The linkage can be adjusted at the front shift rod, connector rod and rear shift rod by either changing the length or by turning the rods.

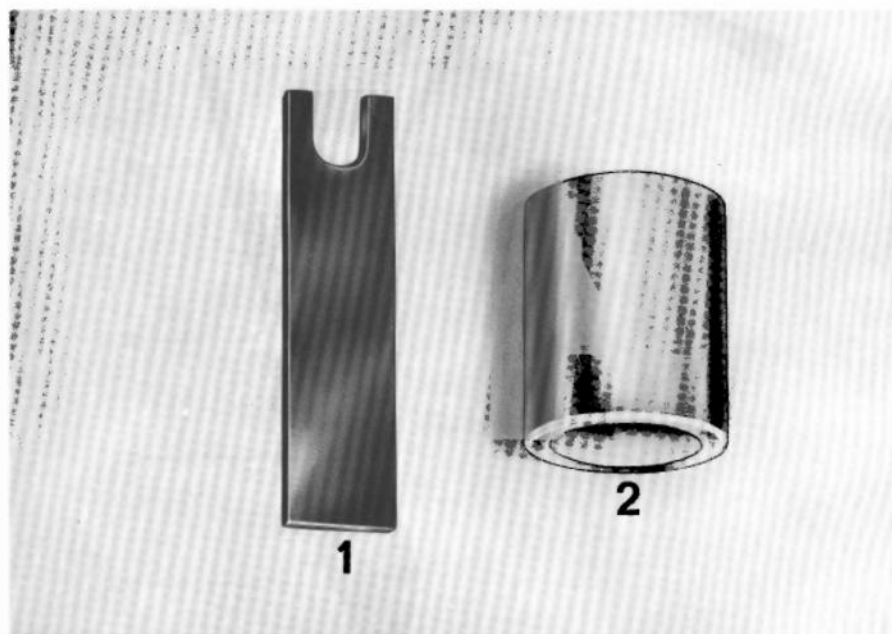
- 1 - Loosen the clamp between the front shift rod and connector rod.



- 2 - Move shift lever into neutral. The lower end of the shift lever should be in the vertical position when seen from the side. Rest the shift lever against the left stop.
- 3 - Remove the dust cap on the transmission for the rear shift rod. Move the selector lever into the neutral position. Center the selector lever by sliding the rear shift rod.
- 4 - Tighten the clamp between the front shift rod and connector rod.
- 5 - Select 3rd gear with gear shift lever. Check that the selector lever at the transmission is correctly engaged. Re-adjust if necessary.
- 6 - Test drive. Check that all gears engage smoothly.

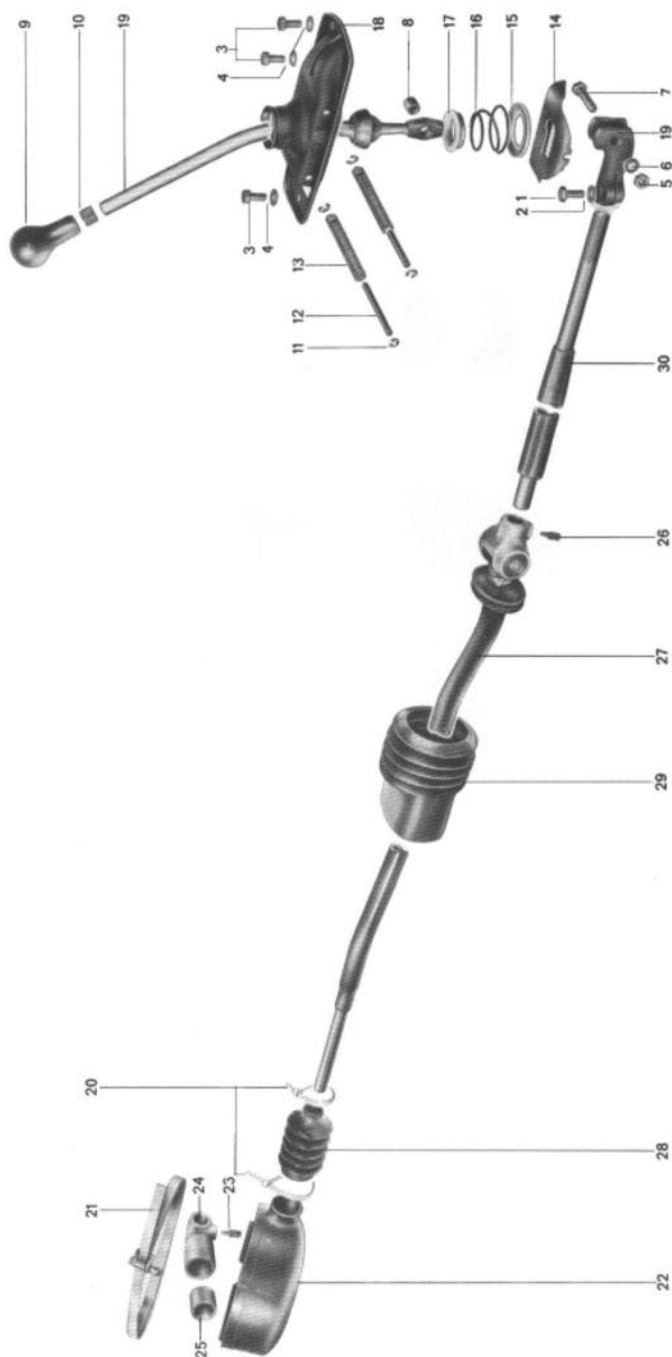
SHIFT LEVER LINKAGE

TOOLS



No	Description	Special Tools	Remarks
1	Lever		Locally manufactured
2	Press mandrel	P 299	

DISASSEMBLY AND REASSEMBLY



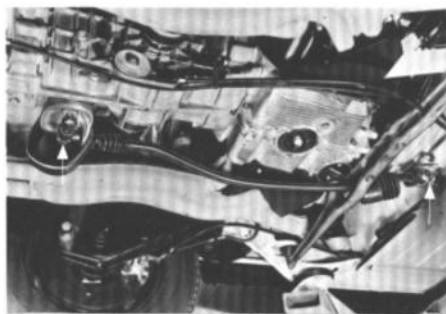
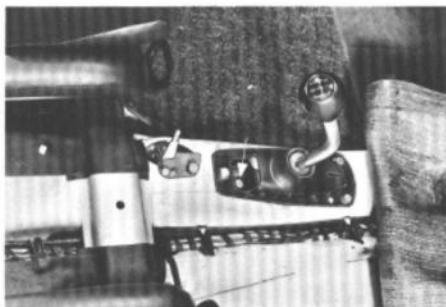
No.	Description	Qty.	Note when		Remarks
			removing	installing	
1	Bolt M 8	1		Torque to specification.	
2	Spring washer	1		Replace.	
3	Bolt M 8 x 15	3			
4	Spring washer	3		Replace.	
5	Nut M 8	1		Torque to specification.	
6	Lock washer	1		Replace.	
7	Bolt M 8 x 35	1			
8	Spacer bushing	1	Check for signs of wear, replace if necessary.	Grease with MoS ₂ multi-purpose grease.	
9	Shift knob	1	Remove with locally manufactured lever (see sketch).	Install with P 299 special tool.	See 1.1-2/1
10	Shift knob retainer	1		Replace.	
11	Lock ring	4		Replace if necessary.	
12	Guide pin	2			
13	Spring	2			
14	Stop plate	1		Use multi-purpose grease with MoS ₂ .	
15	Lower spring seat	1		Use multi-purpose grease with MoS ₂ .	
16	Spring	1			
17	Upper spring seat	1		Use multi-purpose grease with MoS ₂ .	
18	Shift support plate	1			

No.	Description	Qty.	Note when		Remarks
			removing	installing	
19	Shift lever with selector rod	1		Grease joints with MoS ₂ multi-purpose grease.	
20	Wire strap	2		Replace if necessary.	
21	Hose clamp	1		Replace if necessary.	
22	Dust boot	1		Seal off at mounting block with gasket cement.	
23	Tapered screw	1		Torque to specification.	
24	Shift rod head	1			
25	Ball socket	1		Use multi-purpose grease with MoS ₂ .	
26	Tapered screw	1		Torque to specification.	
27	Rear shift rod with support body	1	Check for signs of wear	Grease pivot.	
28	Dust boot	1	Check for signs of wear, replace if necessary.		
29	Dust boot	1	Check for signs of wear, replace if necessary.		
30	Front shift rod	1		Grease pivot. Can be changed only when power train is removed from vehicle.	

INSTRUCTIONS FOR DISASSEMBLY AND REASSEMBLY

Disassembly

1. Remove console (see Group 8, page 9.1-7/1).
2. Remove M 8 bolt from shift rod.
3. Pull gearshift support plate forward and remove.
4. Disassemble gearshift support plate.
5. Remove dust boot after loosening the hose clamp.
6. Loosen tapered screw and pull shift rod head off shift rod.
7. Remove dust boot from rear panel.
8. Loosen tapered screw and pull shift rod rearward to remove.

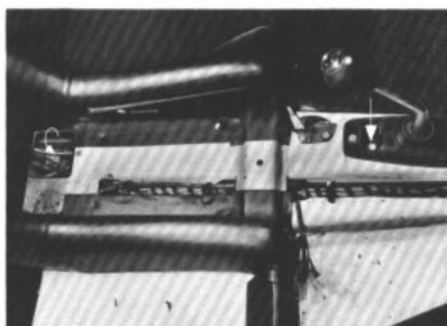


Reassembly

1. Install shift rod through vehicle underside, moving it forward (seen in the direction of travel).
2. Lubricate selector lever and shift rod in passage through the rear panel with MoS₂ multipurpose grease.
3. Coat dust boot with gasket cement and tighten hose clamp.

ADJUSTING GEARSHIFT CONTROLS - FROM 1973 MODELS

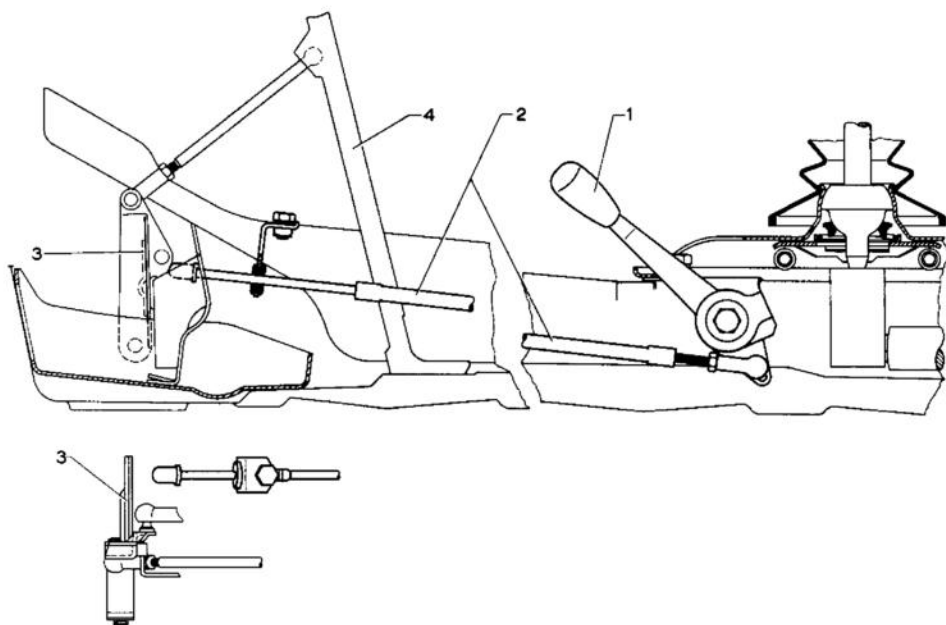
1. Remove M 8 retaining bolt located within the opening in the gearshift support plate.
2. Move the gearshift lever into neutral in such a way that its lower part is vertical and touching the right stop (neutral position along the level of 4/5 gears).
3. Remove rear cover from center tunnel.
4. Turn shift rod to right stop (seen in direction of travel).
5. Lightly tighten the retaining bolt in the gearshift support plate.
6. Check if shift lever travel is same in gears 2 thru 5, also checking if reverse gear can be easily engaged. If necessary, make corrections by repositioning the gearshift lever.
7. Tighten retaining bolt to 2,5 mkg.



Throttle Lever

The 914 Sportomatic, 914/6 and 914/6 Sportomatic are provided with a throttle lever (1), which acts via the actuating rod (2) against the stop plate on the guide lever (3) of the pedal controls. The bearings of the throttle lever are provided with a friction plate on each side of the lever.

With the engine warm and the throttle lever fully pulled, an engine speed of 4,000 rpm should be obtained. The friction plates of the throttle lever are adjusted in such a manner that the throttle lever will be safely locked in any position.



- 1 - Throttle lever
- 2 - Actuating rod
- 3 - Stop plate on guide lever
- 4 - Accelerator pedal

Removal and Installation of Hand Brake Lever

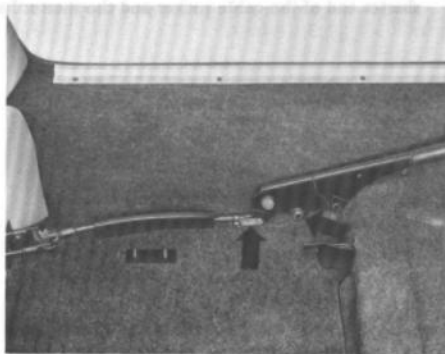
Remove driver's seat prior to removing hand brake lever (refer to 8/61-1/1).

Removal

- 1 - Remove cable lock for control cable.
- 2 - Unscrew fastening screw for locking sector.

Installation

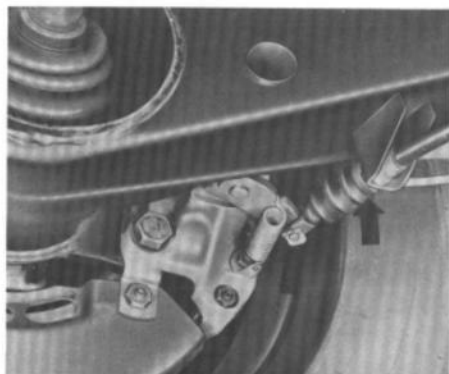
- 1 - Place hand brake lever on guide bolt and screw-in fastening bolt for locking sector.
- 2 - Install cable lock for cable controls.



Removal and Installation of Hand Brake Cable

Removal

- 1 - Remove bolt for hand brake cable on actuating lever of caliper.
- 2 - Pull out clamping lock for hand brake cable guide and pull off sealing sleeve.
- 3 - Remove fastening clips for hand brake cable guides.
- 4 - Disconnect hand brake cable on cable rocker and pull out toward the rear.



Installation

- 1 - Slide in hand brake cable and connect to cable rocker.
- 2 - Install fastening clips, insert lock for hand brake cable guides and attach sealing sleeve.
- 3 - Connect hand brake cable to actuating lever of caliper.
- 4 - Adjust hand brake cable.

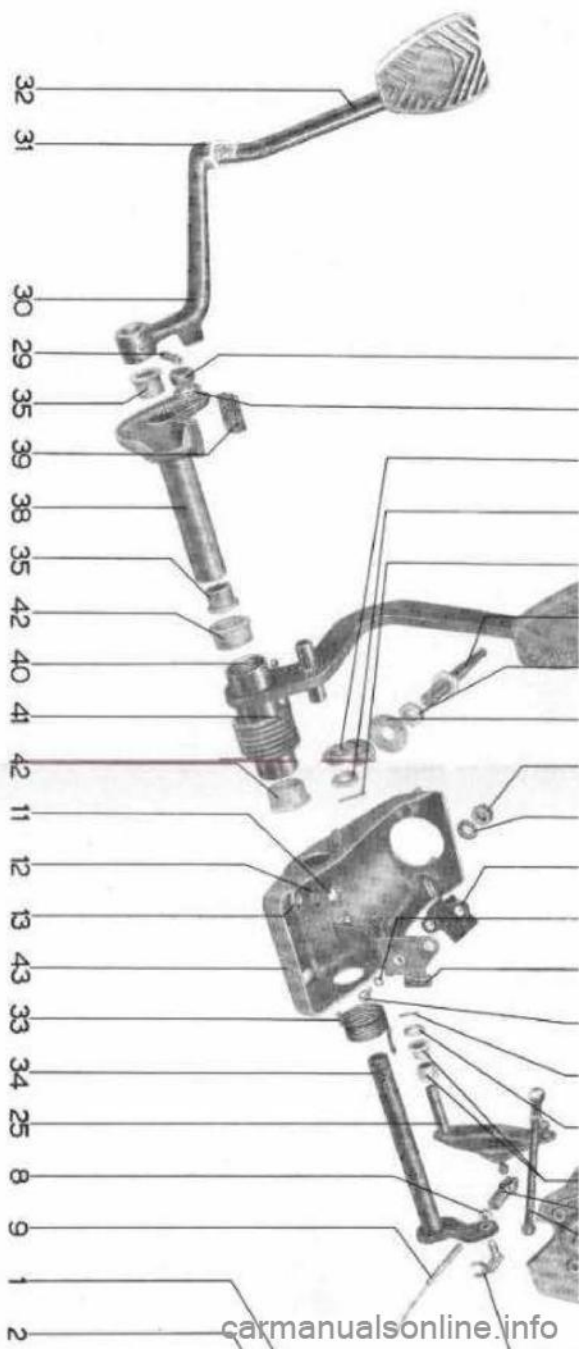
Caution!

The bore in the cable rocker is off-center. The longer hand brake cable must be connected to the shorter end of the cable rocker and the shorter hand brake cable into the longer end.

Adjusting the Hand Brake

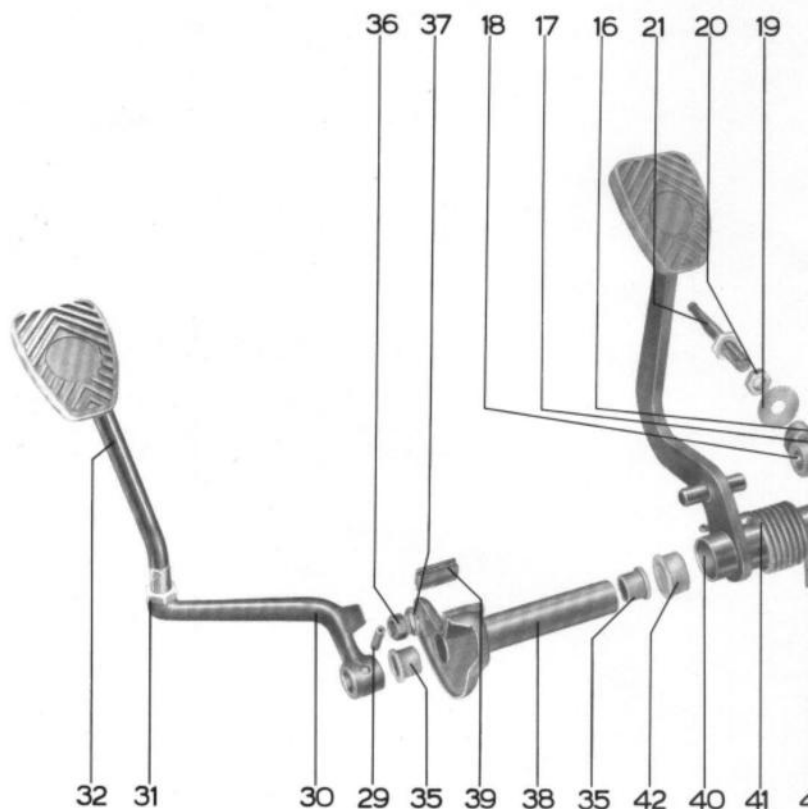
The hand brake is automatically adjusted. A basic adjustment is only required when replacing the rear calipers or the hand brake cables. In rest position of the hand brake lever the actuating levers of the calipers should rest against the pin stop. The adjusting nuts of the hand brake cable guides are then turned until the actuating levers are just lifting off the pin stop. The cable rocker should then be at an angle of 90° in relation to pulling cable.



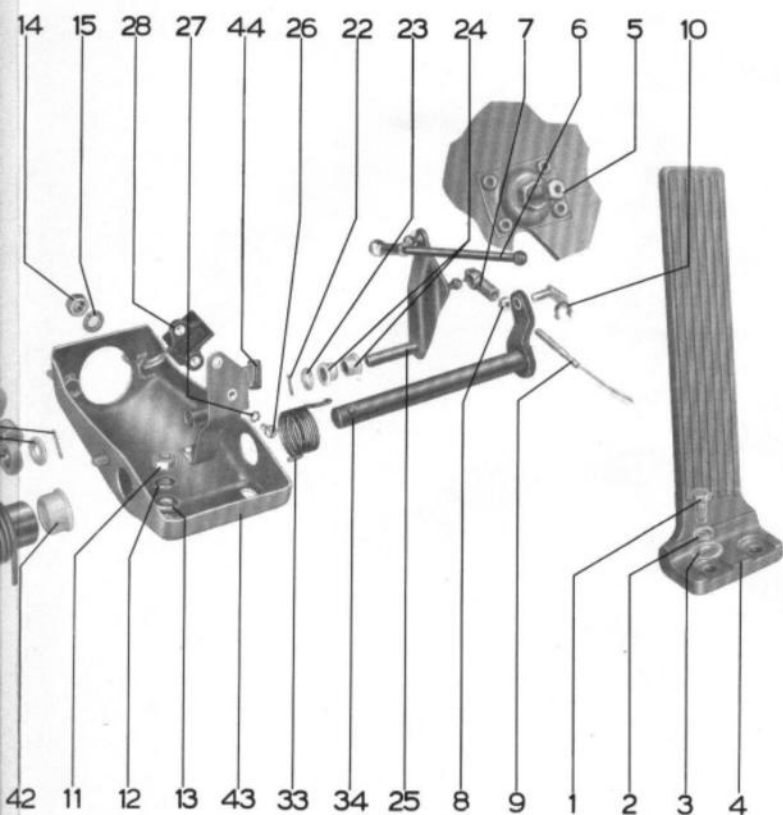


No.	Designation	Each	Observe during: Removal/ Disassembly	Installation/ Assembly	Instr.
1	Screw M 6 x 16	2			
2	Spring ring	2			
3	Washer	2			
4	Accelerator pedal	1	Pull off toward the rear		
5	Stop screw for accelerator pedal	1		Adjust	
6	Push rod for accelerator pedal	1			

No.	Designation	Each	Removal/ Disassembly	Installation/ Assembly
7	Ball socket	1		
8	Nut M 5	1		
9	Throttle cable controls	1		
10	Fork bolt	1		
11	Nut M 8	2		
12	Spring ring	2		



No.	Designation	Each	Observe during:		Instr.
			Removal/ Disassembly	Installation/ Assembly	
1	Screw M 6 x 16	2	Pull off toward the rear	Adjust	
2	Spring ring	2			
3	Washer	2			
4	Accelerator pedal	1			
5	Stop screw for accelerator pedal	1			
6	Push rod for accelerator pedal	1			



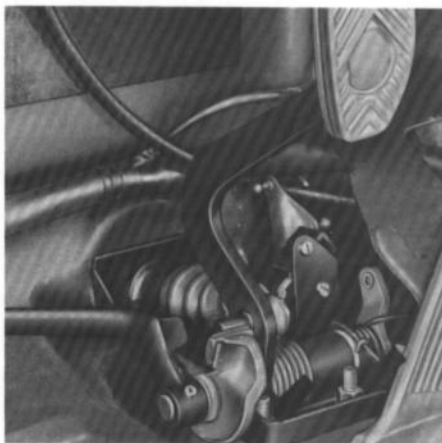
No.	Designation	Each	Observe during:		Instr.
			Removal/ Disassembly	Installation/ Assembly	
7	Ball socket	1	Unscrew prior to removing throttle	Insert with multi- purpose grease, adjust	
8	Nut M 5	1	cable controls		
9	Throttle cable controls	1	Pull out toward the rear		
10	Fork bolt	1			
11	Nut M 8	2			
12	Spring ring	2			

No.	Designation	Each	Observe during:		Instr.
			Removal/ Disassembly	Installation/ Assembly	
13	Washer	2	First unscrew cover plate for steering and tandem master brake cylinder	Tighten to 2.5 mkp (18.1 ft.lbs)	
14	Nut M 8	2			
15	Spring ring	2		Use new spring rings	
16	Cotter pin for actuating rod	1		Use new cotter pin	
17	Washer	1			
18	Intermediate piece	1			
19	Stop washer for brake light switch	1			
20	Hex, nut M 10		Check bushings for wear	Assemble and install actuating rod prior to installing pedal controls	
21	Piston rod	1			
22	Cotter pin for guide Lever	1		Use new cotter pin	
23	Washer	1			
24	Bushing	2			
25	Guide lever	1		Insert with multi-purpose grease	
26	Oval head screw AM 4x10	2			
27	Serrated washer	2	Pull off flat plug	Adjust	
28	Brake light switch	1			
29	Hollow set pin	1	Knock out	Use new set pin	
30	Clutch pedal bottom	1		Adjust to length, if required	
31	Nut M 14 x 1.5	1			
32	Clutch pedal top	1			

No.	Designation	Each	Observe during:		Instr.
			Removal/ Disassembly	Installation/ Assembly	
33	Spring for clutch pedal shaft	1			
34	Clutch pedal shaft	1	Check bushings for wear	Insert with multi-purpose grease	
35	Bushing	2			
36	Nut M 8	1			
37	Spring ring	1			
38	Bearing tube	1		Insert with multi-purpose grease	
39	Rubber stop	1			
40	Brake pedal	1	Check bushings for wear		
41	Return spring	1			
42	Bushing	2			
43	Mounting bracket	1			
44	Rubber stop	1			

Removal and Installation

The fastening nuts for the pedal controls, as well as the cable controls for the accelerator pedal and the clutch pedal are accessible after removing floor board in interior and cover plate for steering and tandem master brake cylinder at the front under the vehicle.



Caution!

Do not unscrew brake lines,
do not remove tandem master brake cylinder.

During installation, note that the actuating rod must be installed prior to installing pedal controls.



Disassembly

- 1 - Remove guide lever.
- 2 - Unscrew brake light switch.
- 3 - Disconnect return spring for clutch pedal shaft.
- 4 - Knock hollow set pin out of clutch pedal and remove shaft.
- 5 - Remove bearing tube for brake pedal and remove brake pedal together with return spring out of bearing tube.
- 6 - Check plastic bushings for brake pedal, clutch pedal and guide lever for wear and replace, if required.



Assembly

- 1 - Insert brake pedal with return spring into bearing bracket, insert bearing tube and tighten fastening nut.
- 2 - Insert clutch pedal shaft with return spring into bearing tube, position clutch pedal and fasten with new hollow set pin.
- 3 - Insert guide lever and attach cotter pin.
- 4 - Fasten brake light switch.

Adjustment of Actuating Rod for Tandem Master Brake Cylinder

Adjust length of actuating rod in such a manner that a clearance of $S = 1 \text{ mm}$ (.04") is available between the piston pressure socket and the actuating rod. The clearance can also be measured as idle travel on pedal plate, it is here $S_1 = 5 \dots 7 \text{ mm}$ (0.2-0.3").

Adjusting the Throttle Cable Controls

In rest position of the accelerator pedal, the throttle valve must be completely closed, when the pedal rests against the stop screw it must be completely opened. Pertinent adjustments can be made either at the rear on the venturi control unit or at the front at the wall socket. In addition, the accelerator pedal stop screw can be adjusted, when the pedal travel is insufficient.

REMOVING AND INSTALLING CLUTCH CABLE

Removing

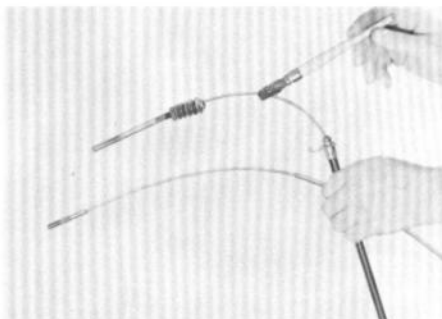
1. Unscrew self-locking adjusting nut from rear threaded end of cable and detach cable.
2. Remove pulley.



3. Remove console housing, cover, and floorboard.
4. Loosen lock nut from clevis, push clevis pin retainer up and pull clevis pin out.
5. Unscrew clevis from cable.
6. Pull clutch cable and housing assembly rearward out of the vehicle.

Installing

1. Coat clutch cable with Molykote or similar multipurpose grease.



2. Push clutch cable into guide tube from the rear.
3. Screw clevis and lock nut onto clutch cable. Threaded cable end should be approx. 10 mm (0,393 in.) deep in the clevis.



4. Install pulley and coat with approx. 5 grams of Molykote or similar multipurpose grease.
5. Adjust clutch free play and pedal travel.