



A6 TFD1/TFD2/ TGD1

Automatic welding machine

Simplified service manual

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WARNING



ARC WELDING AND CUTTING CAN BE INJURIOUS TO YOURSELF AND OTHERS. TAKE PRECAUTIONS WHEN WELDING. ASK FOR YOUR EMPLOYER'S SAFETY PRACTICES WHICH SHOULD BE BASED ON MANUFACTURERS' HAZARD DATA.

ELECTRIC SHOCK - Can kill

- Install and earth the welding unit in accordance with applicable standards.
- Do not touch live electrical parts or electrodes with bare skin, wet gloves or wet clothing.
- Insulate yourself from earth and the workpiece.
- Ensure your working stance is safe.

FUMES AND GASES - Can be dangerous to health

- Keep your head out of the fumes.
- Use ventilation, extraction at the arc, or both, to keep fumes and gases from your breathing zone and the general area.

ARC RAYS - Can injure eyes and burn skin.

- Protect your eyes and body. Use the correct welding screen and filter lens and wear protective clothing.
- Protect bystanders with suitable screens or curtains.

FIRE HAZARD

- Sparks (spatter) can cause fire. Make sure therefore that there are no inflammable materials nearby.

MALFUNCTION

- Call for expert assistance in the event of malfunction.

**READ AND UNDERSTAND THE INSTRUCTION MANUAL BEFORE
INSTALLING OR OPERATING THE EQUIPMENT**

PROTECT YOURSELF AND OTHERS!

SAFETY

Users of ESAB automatic welding machines have ultimate responsibility for ensuring that anyone who works on or near the equipment observes all the relevant safety precautions.

The following recommendations should be observed in addition to the standard regulations that apply to the work place.

All work must be carried out according to the specified instructions by personnel who are thoroughly familiar with the operation of the welding machine.

Incorrect or unintentional operation of the equipment may lead to a hazardous situation which can result in injury to the operator and damage to the equipment.

1. Anyone who uses the automatic welding machine must be familiar with:
 - its operation
 - the location of emergency stops
 - its function
 - relevant safety precautions

To make this easier each switch, pushbutton or potentiometer is marked with a symbol or text that indicates its function when activated.

2. The operator must ensure that:
 - no unauthorized person is stationed within the working area of the machine when it is started up.
 - that no-one is in a hazardous position when the carriage or slide mechanisms are operated.
3. The work place must:
 - be clear of mechanical components, tools, or other obstructions that could prevent the operator from moving freely within the working area.
 - be organized so that there is free access to the emergency stop.
4. Personal safety equipment
 - Always wear recommended personal safety equipment, such as safety glasses, flame-proof clothing, safety gloves.
 - Do not wear loose-fitting items, such as scarves, bracelets, etc., which could become trapped.

5. General precautions

Live electrical components are normally shielded from accidental contact.

- Make sure the return cable is connected securely.
- Work on high voltage components may **only be carried out by a qualified electrician.**
- Appropriate fire extinguishing equipment must be clearly marked and close at hand.
- Lubrication and maintenance must not be carried out on the equipment during its operation.

TECHNICAL DESCRIPTION

The A6 TFD1 automatik welding machine is mounted on a tractor unit and intended for DC or AC submerged-arc welding of butt and fillet welds.

The A6 TFD2 automatik welding machine with two welding heads is mounted on a tractor unit and intended for DC or AC submerged-arc welding of butt and fillet welds.

The A6 TGD1 automatik welding machine is mounted on a tractor unit and intended for DC MIG/MAG-welding of butt and fillet welds.

Welding head position is adjustable by means of vertical and horizontal crossslides, with an angular slide for angular adjustment.

	A6 TFD1	A6 TFD2	A6 TGD1
Permissible load	1500 A DC/AC	1500 A DC/AC	600 A DC
Wire diameter			
solid wire	3,0-6,0 mm	3,0-6,0 mm	1,0-2,4 mm
hollow wire			1,6-3,2 mm
Wire feed speed, max.	4,2 m/min	4,2 m/min	17,5 m/min
Travel speed, max.	2,5 m/min	2,5 m/min	2,5 m/min
Wire weight, max.	30 kg	30 kg	30 kg
Flux hopper volume	10 l	10 l	
Weight (excl. wire and flux)	110 kg	158 kg	100 kg
Brake hub torque	1,5 Nm	1,5 Nm	1,5 Nm
Sideways tipping angle, max.	25°	25°	25°
Control voltage	42 V AC	42 V AC	42 V AC

The A6 T automatic welding machine consists of: (See the pictures on page 7)

1. Brake hub
2. Wire straightener
for feeding and straightening the filler wire before it enters the contact device and contact jaws or contact tip, and to carry welding current from the shunt to the contact device. The straightener clamp can be rotated around the wire drive unit gearbox, e.g. when welding with leading or trailing wire and when fillet welding.
3. Handle
for adjusting the position of the tractor, manual transport or adjustment while welding is in progress.
4. Slide, hand-operated for transverse adjustment of the welding head
5. Slide, hand-operated for vertical adjustment of the welding head
6. Insulator, for galvanic insulation of live parts, e.g. the welding head and the carriage
7. Tractor unit
with four wheels, of which two are grooved for use on rails. The tractor is powered by a geared motor with chain drive to the two axles, so that all four wheels are driven.

Motor supply voltage	42 V
Motor speed	3220 rpm
Motor torque	27 Ncm (0.27 Nm)
Gear ratio	187.5:1
Gearbox output torque	22.5 Nm
Final reduction ratio	64:15
Sprocket ratio	1:1

8. Wire feed motor, A6 VEC (see instructions 333 533-003)

Wire feed motor with reduction gear	42 V (A6 TFD1/A6 TFD2)
Motor speed	4000 rpm
Gear ratio	156,1
Wire feed motor with reduction gear	42 V (A6 TGD1)
Motor speed	8000 rpm
Gear ratio	74:1
9. Control lever, for disengaging the drive for manual transport
10. PEG 1 control box

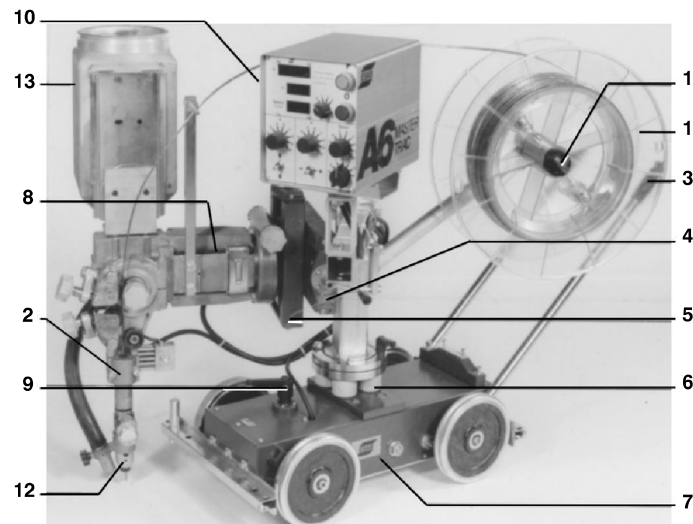
Additional parts:

11. Wire reel, for max. 30 kg of filler wire
12. Flux hopper
13. D35 contact equipment, intended for use with 3.0 - 6.0 mm wire

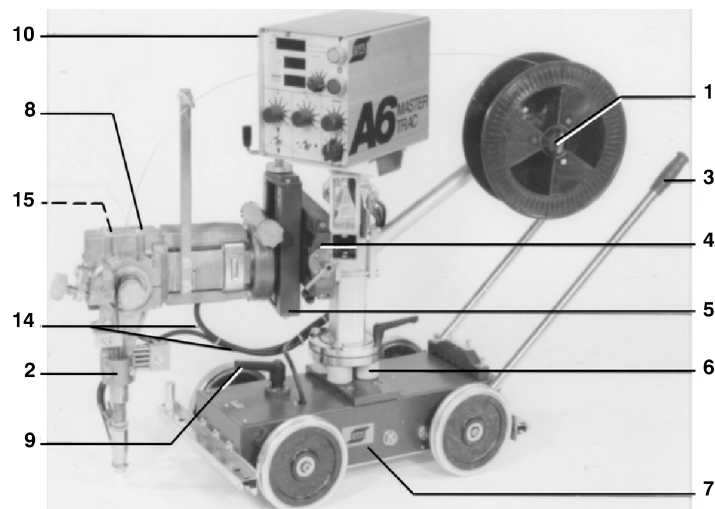
Additional parts for the A6 TGD1:

14. Hoses, for gas and cooling water (14/6.3 mm)
15. Solenoid valve, 42 V

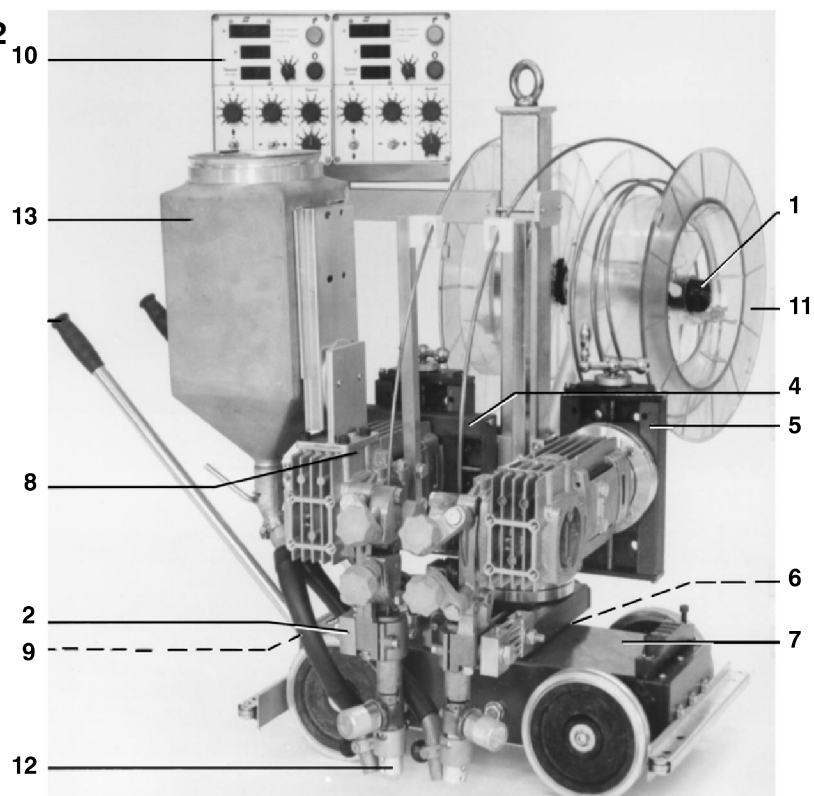
A6 TFD1

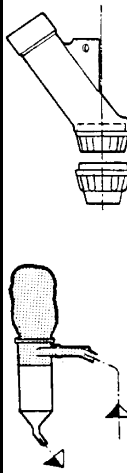


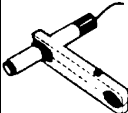
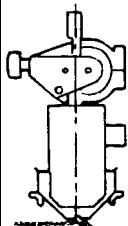
A6 TGD1



A6 TFD2



Extra accessories for the A6 TFD1 A6 TFD2 and A6 TGD1		Ordering no.
Fine wire straightener (not for the A6 TFD2) when accurate wire straightening is required for single wire not exceeding 2.5 mm diameter		332 565-880
Guide wheel bogey (not for the A6 TFD2)		6711 257-80
Rail set (2 m)		6715 039-80
Guide rail with magnets (3 m), (several lengths of guide rail can be used together)		154 203-880
Extra accessories for the A6 TFD1 (submerged-arc welding)		
Fine wire straightener when accurate wire straightening is required for twin wire not exceeding 2.5 mm diameter		145 787-880
D20 contact equipment for single wire: without contact tip and feed roller with contact tip and feed rollers for 1.6 - 3.0 mm wire with contact tip and feed rollers for 3.0 - 5.0 mm wire		334 289-880 -881 -882
D35 contact equipment for single wire (L=Length of the contact device) without contact jaws and feed rollers (L=220 mm) with contact jaws and feed rollers for 3.0 - 6.0 mm (L=220 mm) without contact jaws and feed rollers (L=275 mm) with contact jaws and feed rollers for 3.0 - 6.0 mm (L=275 mm)		334 290-880 -881 -882 -883
D35 contact equipment for twin wire, with fine wire straightener and flux nozzle without contact tip and feed rollers (L=220 mm) without contact tip and feed rollers (L=275 mm) without contact jaws and feed rollers (L=220 mm) without contact jaws and feed rollers (L=275 mm) with contact tip and feed rollers 1.2- 2.5 mm (L=220 mm) with contact tip and feed rollers 1.2- 2.5 mm (L=275 mm) with contact jaws and feed rollers 2.5-3,0 mm (L=220 mm) with contact jaws and feed rollers 2.5-3,0 mm (L=275 mm) with flux tube		334 291-880 -881 -882 -883 -884 -885 -886 -887 153 299-880
Contact tube curved, D20, for use in fillet welding		155 197-001
Flux funnel, for D20 contact equipment with insulating sleeve		145 221-881
Flux funnel for D35 contact equipment, including Insert, height 18 mm Insert, height 30 mm		2549 008-80 2549 003-02 2549 003-01
OPC flux recovery unit, (see instruction manual 333 125-001)		148 140-880
Wire reel, steel		416 492-880

Guide lamp for D35 contact equipment for D20 contact equipment		153 143-880 -882
Strip cladding head, for welding 30-100 mm strip		155 972-880
Accessory set for air/arc gouging		153 592-880
Conversion set consisting of a wire feed unit for an A6 SFD1 for conversion of an existing A6 TFD1 automatic welding machine to MIG/MAG-welding (wire diameter 1.0 - 3.2 mm)		334 299-880
Extra accessories for the A6 TFD2 (submerged-arc welding)		
OPC flux recovery unit, (see instruction manual 333 125-001)		148 140-880
Guide lamp (for D35 contact equipment)		153 143-880
Extra accessories for the A6 TGD1 (MIG/MAG welding)		
Wire reel, plastic, for 30 kg of wire		153 872-880

INSTALLATION

Connecting the automatic welding machine to the welding Power source

1. Dimension drawing: see fig. on page 15 and on page 16.
2. Adjust the automatic welding machine for butt or fillet welding as shown on page 15.
3. A6 VEC wire feed motor: see instruction manual 333 533-003
4. PEG1 control box: see instruction manual 333 470-001
5. Connection instructions, see page 17.

- **DC welding:**

Connect control cable (08) for A6 TFD1 resp. (15) for A6 TGD1 between the welding power source and the PEG1 control box.

Connect the welding current lead carrying a cable lug (07) resp. (08) between the welding power source and the current shunt

- **AC welding:**

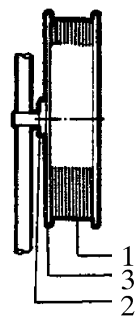
Connect control cable (08) between the auxiliary control box (11) and the PEG1 control box. Connect the auxiliary control box (11) to the welding power source.

Connect the welding current lead (07) between the welding power source and the current shunt.

- Connect the return cable between the welding power source and the workpiece
- Connect the measurement cable (09) resp. (16) between the workpiece and the welding power source, or between the workpiece and the PEG1 control box (e.g. as might be required when a power source from another manufacturer is being used)
- Connect the A6 VEC geared motor to the PEG1 control box
- Connect the guide lamp, if used, to the PEG1 control box

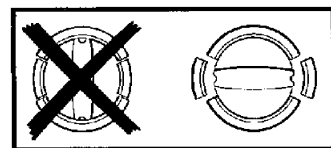
Loading with wire

1. Replacement of the coil
 - Remove the wire reel from the brake hub (2) and take off one end (3).
 - Place the coil (1) of wire on the reel and replace the end (3)
 - Fit the wire reel or disposable reel on the brake hub (2):
Note the position of the carrier



IMPORTANT!

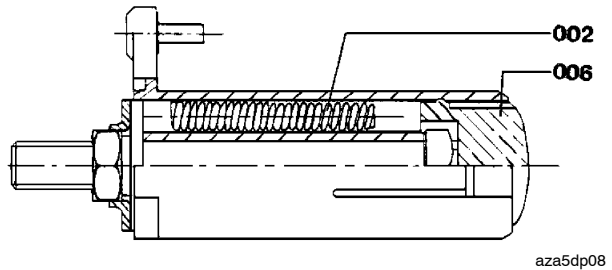
To prevent the wire drum from slipping off the brake hub; Secure the drum with the red retaining knob, as shown on the warning label (right) by the brake hub.



OPERATION

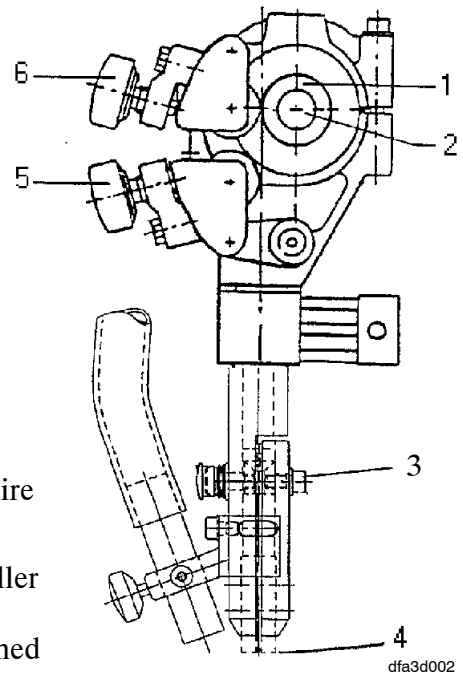
1. Adjusting the braking torque

- Turn the release knob (006) to the locked position.
- Insert a screwdriver into the hubs springs.
- Turn the springs (002) clockwise to reduce the braking torque, or anti-clockwise to increase it.
NB: adjust all springs by the same amount.



2. Check that the feed roller (1) and contact jaws are of the correct size for the wire to be used.

- Replacement of the feed roller
 - Remove knobs (5) and (6)
 - Remove the handwheel (2)
- Replacement of the contact jaws
 - Remove the pressure screw (3)
 - Remove the lower, loose, half of the contact tube



- If the wire diameter is greater than 2 mm, straighten out about 0.5 m of the wire and feed it through the wire straightener by hand.
- Adjust the pressure between the wire and the feed roller by means of knob (6). Do not apply a higher pressure than needed. The sprung knob (6) must not be tightened down fully to the bottom, but some spring action must be left
- Connect the welding power source to the mains supply.
Feed out 30 mm of wire using switch A 02 on the PEG1 control box.
- Straighten out the wire using knob (5). When welding with thin wire, the wire should remain straight over a distance of about 25 mm beyond the contact device, and with thick wire over a distance of about 45 mm.
- Tighten the contact device pressure screw (3). **Note** that this screw must be bottomed in order to avoid play between the contact jaws. (This applies only to submerged -arc welding).

Filling with flux (A6 TFD1 and A6 TFD2)

- Close the valve on the flux hopper
- Remove the separating cyclone of the flux recovery unit, if fitted. Fill the hopper with flux, which must be dry
- Adjust the height of the flux discharge nozzle above the weld to obtain a suitable depth of flux

Conversion of the A6 TFD1 (submerged-arc welding) to MIG/MAG-welding

1. Replace the wire feed gear motor unit.
2. Make the necessary changes to the PEG 1 control unit as described in the PEG1 instruction manual.

Operating instructions for the PEG1 control box

1. Position the carriage at the starting position, with switch A 06 set to position 3.
2. Cut off the tip of the wire on the skew.
3. Feed the wire to the proximity of the workpiece by means of switch A.
4. Set switch A 07 to position 3. "Presetting".
5. Preset a suitable welding current by means of potentiometer A 01.
6. Preset a suitable travel speed by means of potentiometer A 05.
7. If the welding power source is fitted with a preselection device, set a suitable welding voltage by means of potentiometer A 03.
8. Set switch A 07 to position 2.. "Current feedback".
9. Select the required starting mode and direction of travel by means of switch A 06, (Position 1, automatic start; position 2, scrape start; position 3, manual start).
10. Position the flux discharge tube to ensure good flux coverage, and open the fluxvalve (for submerged-arc welding).
11. Start welding by pressing pushbutton A 08 until indicating lamp A 08 lights.
12. If the welding power source is not fitted with a preselection device, adjust the welding voltage by means of switch A 04.
13. With switch A 07 in position 1, "Voltage feedback", during welding, welding current cannot be preset as described above under item 4. Instead, it should be adjusted by means of potentiometer A 01 after welding has started.
14. Adjust the post-burn time by means of potentiometer A 22 on the back of the control unit.
15. Terminate welding by means of pushbutton A 09.
16. Close the flux valve on conclusion of welding (submerged-arc welding).

MAINTENANCE

PEG1 control box, see instruction manual 333 470-001.

A6 VEC wire feed motor, see instruction manual 333 533-003.

Daily

- Clean dust and welding residue away from the moving parts of the machine.
- Check that all hoses and electrical connections are undamaged and correctly connected.
- Check that all screws and bolted joints are tight.
- Check the braking torque of the brake hub. This must not be so low that the wire reel continues to rotate when wire feed stops, nor so high that the feed roller slips. A guide value for a 30 kg reel is 1.5 Nm.

Periodic

- Inspect the wire feed motor brushes at three-monthly intervals, and replace them when they are worn down to 6 mm.
- Lubricate adjustment slides as necessary.
- Check the wire feed unit's wire guide, drive rollers and contact tip, and replace if worn or damaged.
- Check that the chain is correctly tensioned and lubricate if necessary.
- Check that the drive motor runs correctly at maximum, normal and minimum speeds. If the motor runs unevenly, it indicates that the brushes are worn and that the entire motor must be replaced.

TROUBLESHOOTING

Equipment

- Manual for control box PEG1, order no. 333 470-001.
- Manual for motor with gear A6 VEC, order no. 333 533-003.

Check

- that the welding power supply is connected for the correct mains supply voltage
- that all three phases are live (phase sequence is immaterial)
- that all welding cables and connections are undamaged
- that all controls are correctly set
- that the mains power supply is disconnected before repairs are done on the machine

POSSIBLE FAULTS

1. Symptom **Wide variations of current and voltage display values.**

Cause 1.1 The contact jaws or contact tip are worn or of the wrong size.

Action Replace contact jaws or contact tip as necessary.

Cause 1.2 Insufficient pressure on feed rollers.

Action Increase feed roller pressure.

2. Symptom **Wire feed is irregular.**

Cause 2.1 The pressure on the wire feed rollers is incorrectly set.

Action Adjust feed roller pressure.

Cause 2.2 Wrong size of feed rollers.

Action Replace feed rollers.

Cause 2.3 The grooves in the feed rollers are worn.

Action Replace feed rollers.

3. Symptom **Power supply cables overheat.**

Cause 3.1 Poor electrical connections.

Action Clean and tighten all electrical connections.

Cause 3.2 Inadequately sized cables.

Action Use larger cables or fit parallel cables.

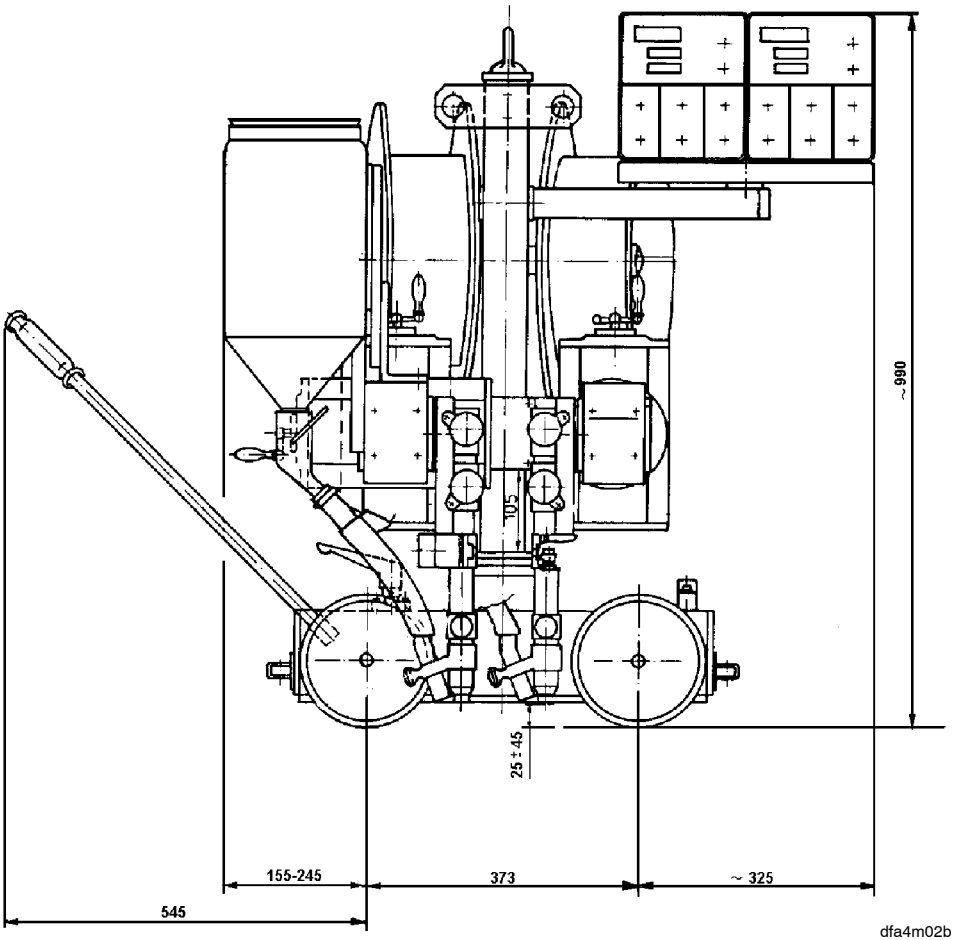
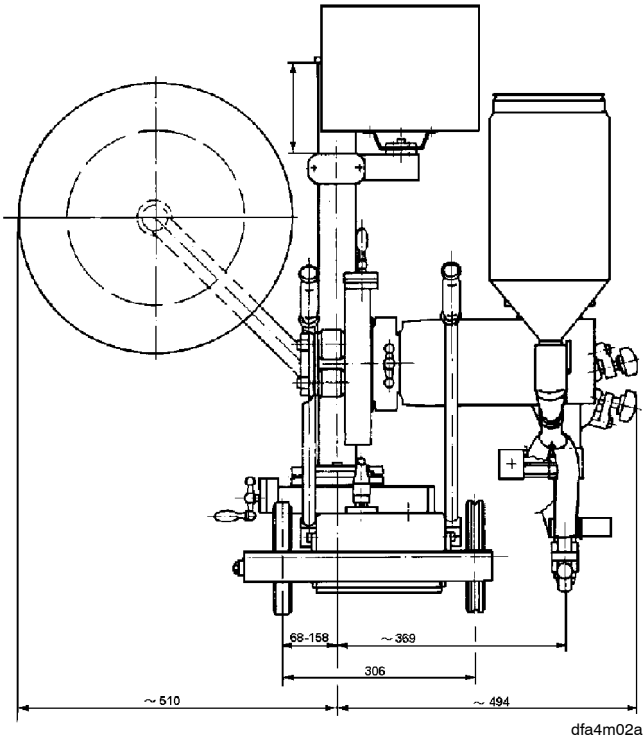
4. Symptom **Contact jaws are burnt or destroyed.**

Cause 4.1 The spring-loaded pressure screw in the contact device is not bearing properly against the contact jaws, causing arching between the contact jaws and the wire.

Action Replace the pressure screw.

DIMENSION DRAWING

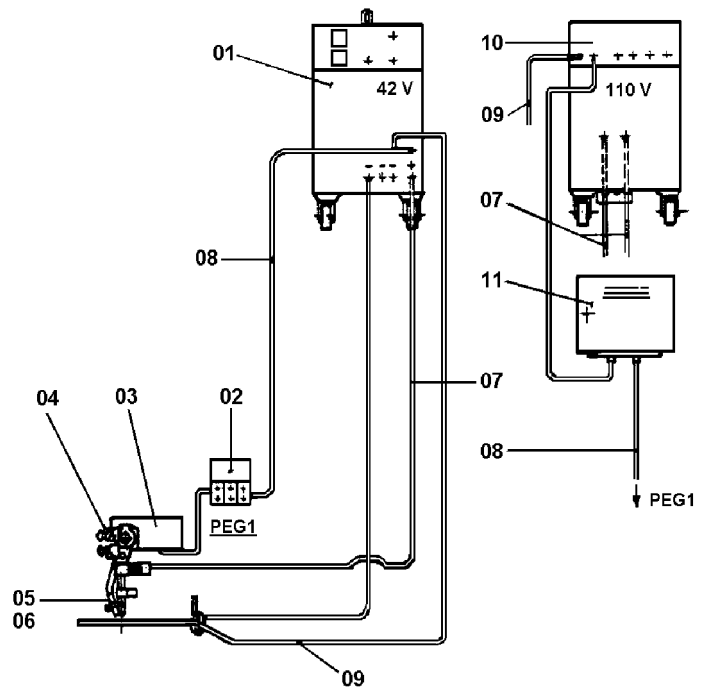
A6 TFD2



DIAGRAM

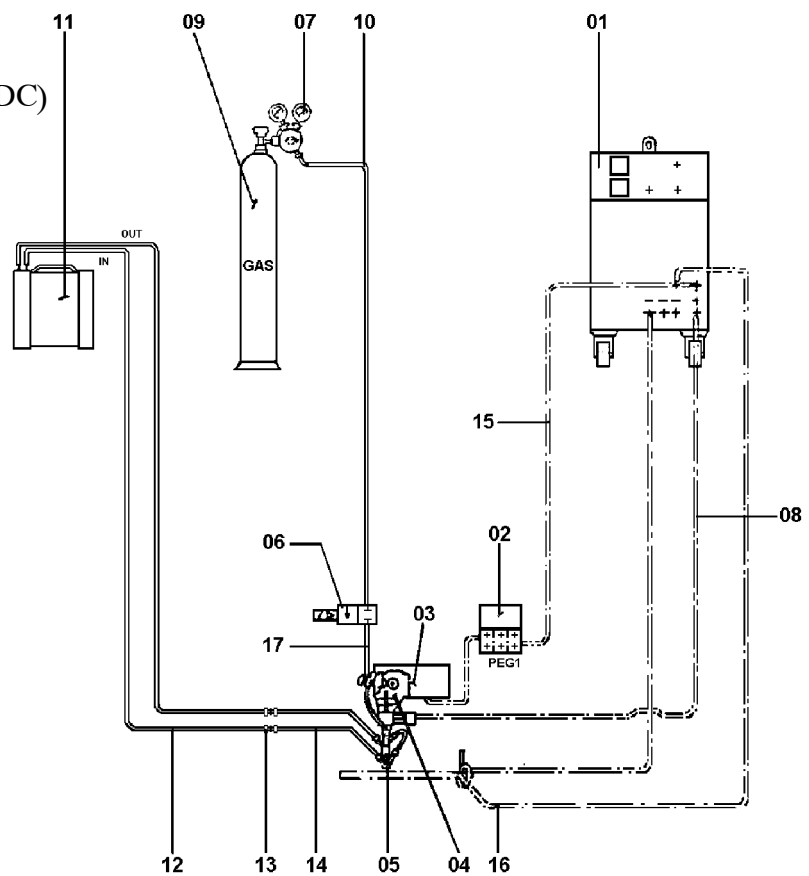
A6 TFD1/TFD2

01. Welding power source (DC)
02. Control box
03. Motor with gear
04. Straightener
05. Connector
06. Contact tube
07. Welding cable
08. Control cable
09. Cable
10. Welding power source (AC)
11. Filler wire unit



A6 TGD1

01. Welding power source (DC)
02. Control box
03. Motor with gear
04. Straightener
05. Connector
06. Solenoid valve
07. Reducer valve
08. Welding cable
09. Gas bottle
10. Hose (Gas)
11. Cooling unit
12. Hose (Cooling water)
13. Hose coupling
14. Hose (Cooling water)
15. Control cable
16. Cable
17. Hose (Gas)



dfa4sch2

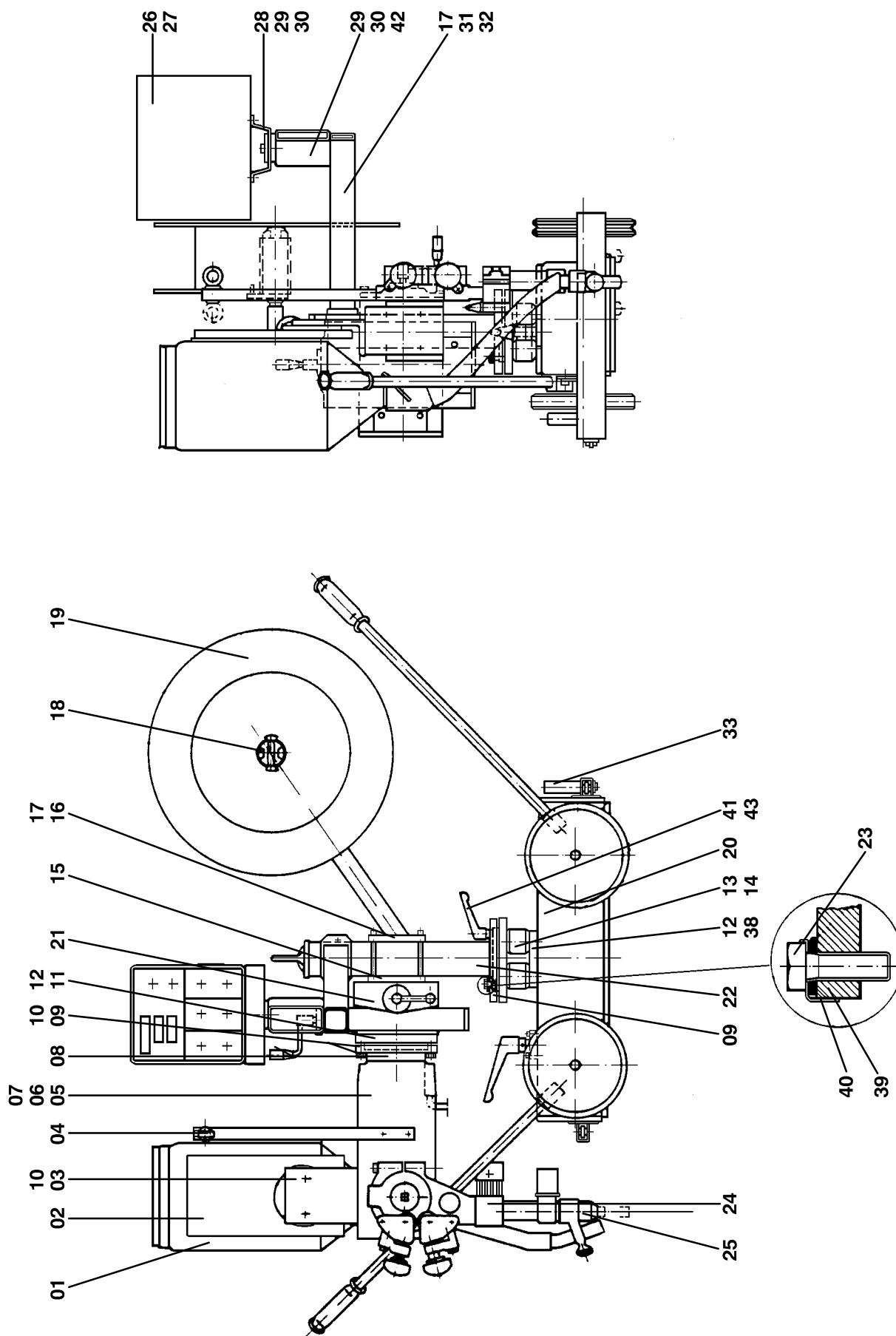
SPARE PARTS LIST A6 TFD1/TFD2/TGD1

Edition 9612

Spare parts are to be ordered through the nearest ESAB agency as per the list on the back of the cover. Kindly indicate type of unit, serial number, denominations and ordering numbers according to the spare parts list.

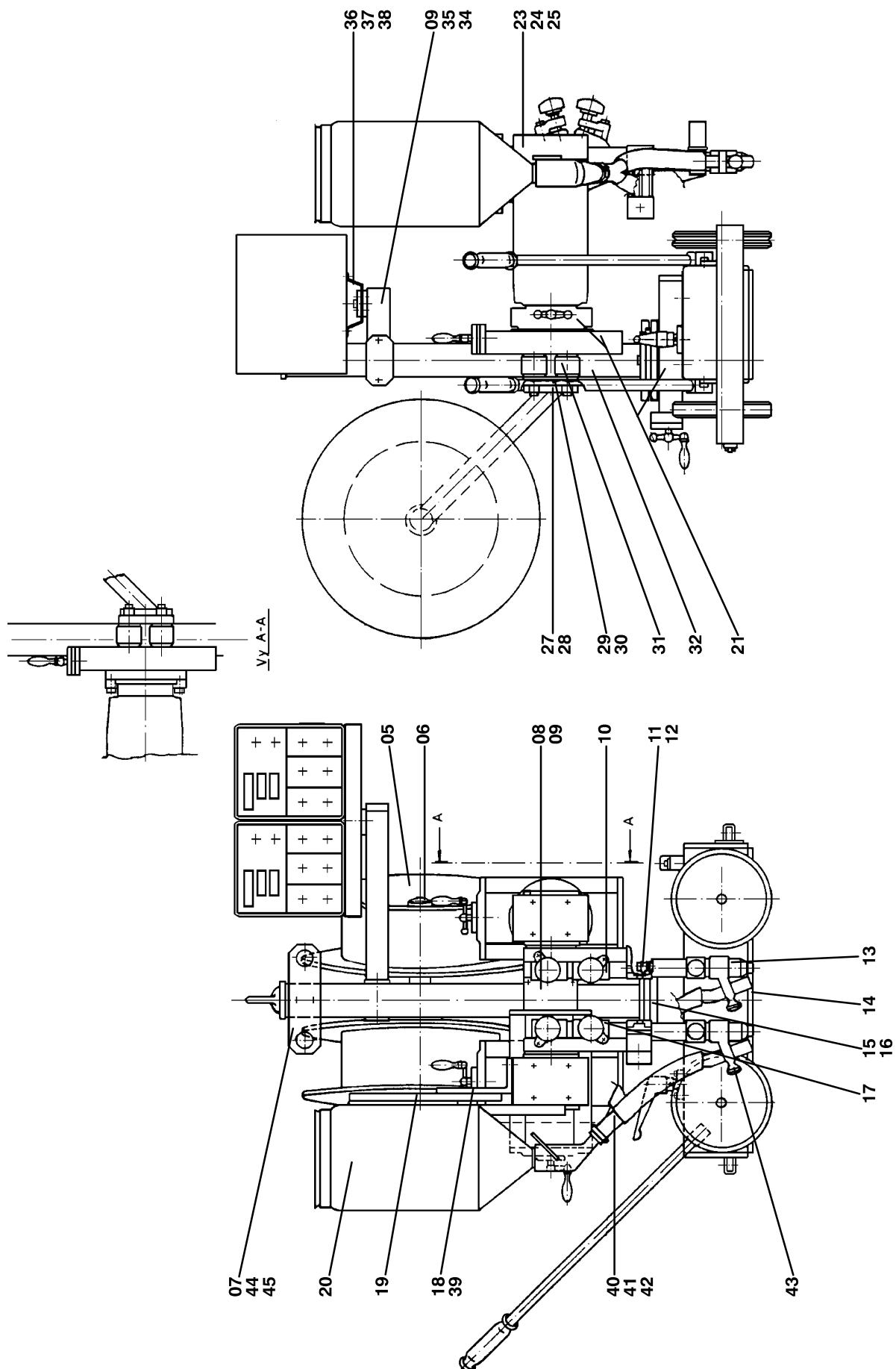
Reservdelstörteckning - Spare parts list - Ersatzteilverzeichnis - Liste de pièces détachées

Item	Qty	Orderingno.	Denomination	Remarks	Component designation in the circuit diagram
		334 190-880	Automatic welding machine	A6 TFD1	
01	1	147 649-881	Flux hopper compl.		
02	1	148 487-880	Holder		
03	1	334 294-001	Attachment		
04	1	334 707-880	Wire support		
05	1	145 063-906	Motor with gear	42 V	
06	1	147 428-880	Cable		
07	1	2188 101-83	Handwheel		
08	1	334 172-001	Gear mount		
09	2	334 170-001	Clamp ring		
10	6		Screw	M10x25	
11	2	334 171-001	Plate		
12	12		Screw	M12x20	
13	4	2783 001-80	Insulator		
14	4	2122 045-26	Screw	M12x25	
15	1	334 173-001	Plate		
16	1	334 176-880	Reel holder		
17	6		Screw	M8x80	
18	1	146 967-880	Brake hub		
19	1	153 872-880	Wire reel		
20	1	334 183-880	Carriage		
21	2	154 465-880	Slide, manually operated		
22	1	334 168-880	Column		
23	3		Screw	M10x30	
24	1	147 639-880	Straightener		
25	1	334 290-880	Contact equipment		
26	1	333 001-910	Control box		
27	4		Screw	B8x9.5	
28	1	334 185-880	Box girder beam		
29	2		Screw	M8x16	
30	4		Washer	D16/8.4x1.5	
31	1	334 297-880	Box support arm		
32	1	334 179-001	Plate		
33	1	332 947-880	Journal		
34	7	0409 536-01	Clamp		
38	1	334 706-001	Plate		
39	6		Belleville washer	D20/10.2x1	
40	3	193 571-106	Locking plate		
41	1	193 570-129	Locking arm		
42	1	334 709-001	Spacer		
43	1		Washer	D22/10.5x2	
44	1	0409 536-02	Clamp		
45	3	0409 536-03	Clamp		



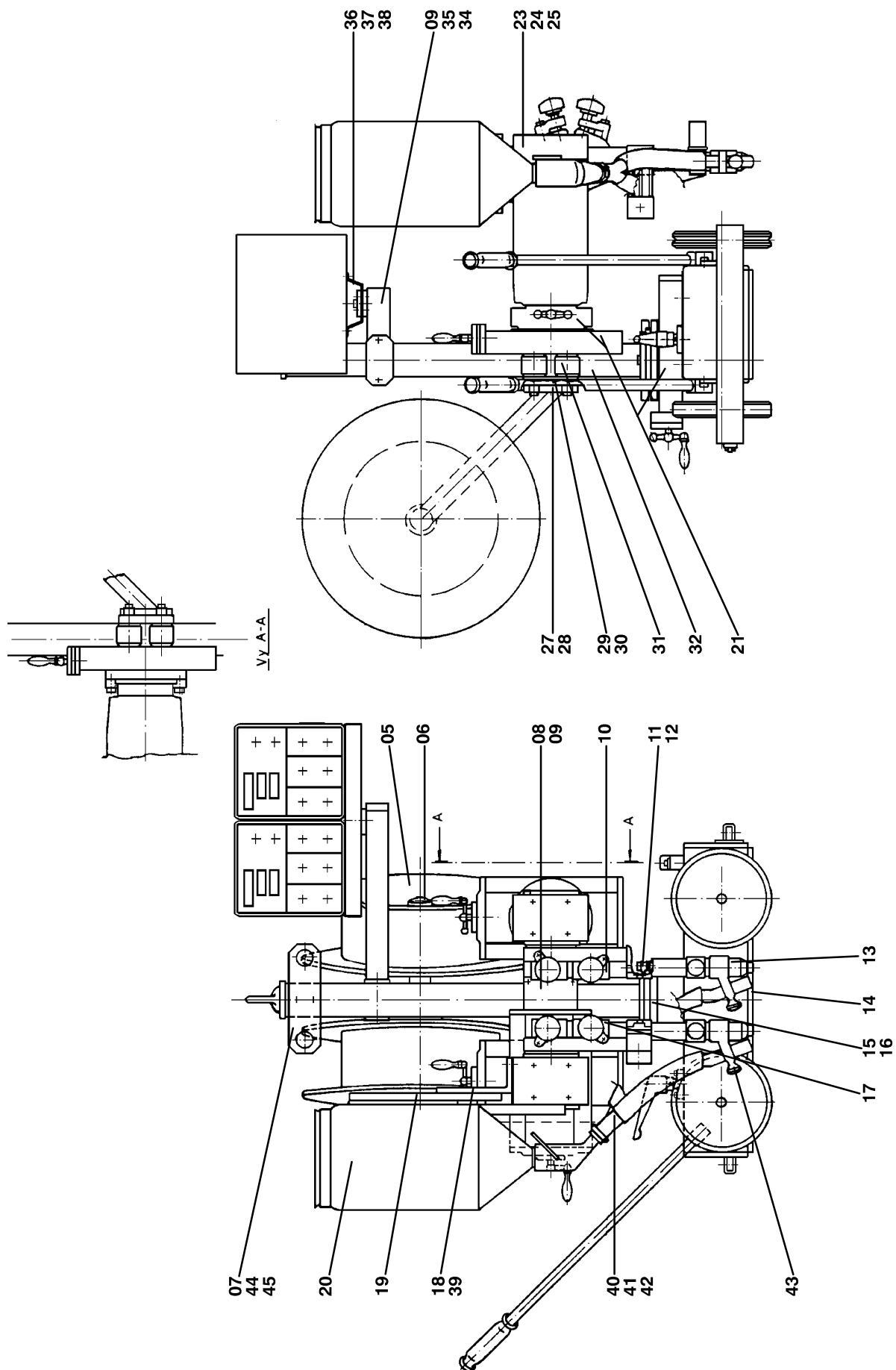
Reservdelstörteckning - Spare parts list - Ersatzteilverzeichnis - Liste de pièces détachées

Item	Qty	Orderingno.	Denomination	Remarks	Component designation in the circuit diagram
		334 191-880	Automatic welding machine	A6 TFD2	
01	1	333 001-910	Control box	DC	
02	1	333 001-901	Control box	DC	
04	8		Screw	B8x9.5	
05	2	153 872-880	Wire reel		
06	2	146 967-880	Brake hub		
07	1	334 457-880	Wire guiding device		
08	1	334 184-001	Plate		
09	6		Screw	M8x80	
10	1	147 639-880	Straightener		
11	2	334 170-001	Clamp ring		
12	4		Screw	M10x30	
13	2	417 959-880		L = 220	
14	1	334 183-880	Carriage		
15	2	334 171-001	Plate		
16	8		Screw	M12x20	
17	1	147 639-880	Straightener		
18	1	334 294-001	Attachment		
19	1	148 487-880	Holder		
20	1	147 649-881	Flux hopper		
21	4	154 465-880	Slide		
22	4		Screw	M10x25	
23	1	145 063-906	Motor with gear	42 V	
24	2	147 428-880	Cable		
25	2	2188 101-83	Handwheel		
26	1	334 172-001	Gear attachment		
27	1	334 180-880	Reel holder		
28	4		Screw	M8x20	
29	1	334 177-001	Plate		
30	8		Screw	M12x25	
31	8	2783 001-80	Insulator		
32	1	334 168-881	Column		
33	1	145 063-896	Motor with gear		
34	1	334 297-880	Box support arm		
35	1	334 179-001	Plate		
36	1	334 185-881	Box girder beam		
37	2		Screw	M8x25	
38	2		Washer	D16/8.4x1.5	
39	2		Screw	M10x20	
40	1	153 491-001	Manifold pipe		
41	1	2529 004-07	Hose clamp		
42	1	145 064-001	Flux hose	L = 400	
43	1	153 299-880	Flux nozzle		
44	2		Screw	M6x25	
45	2		Washer	D12/6.4x1.5	



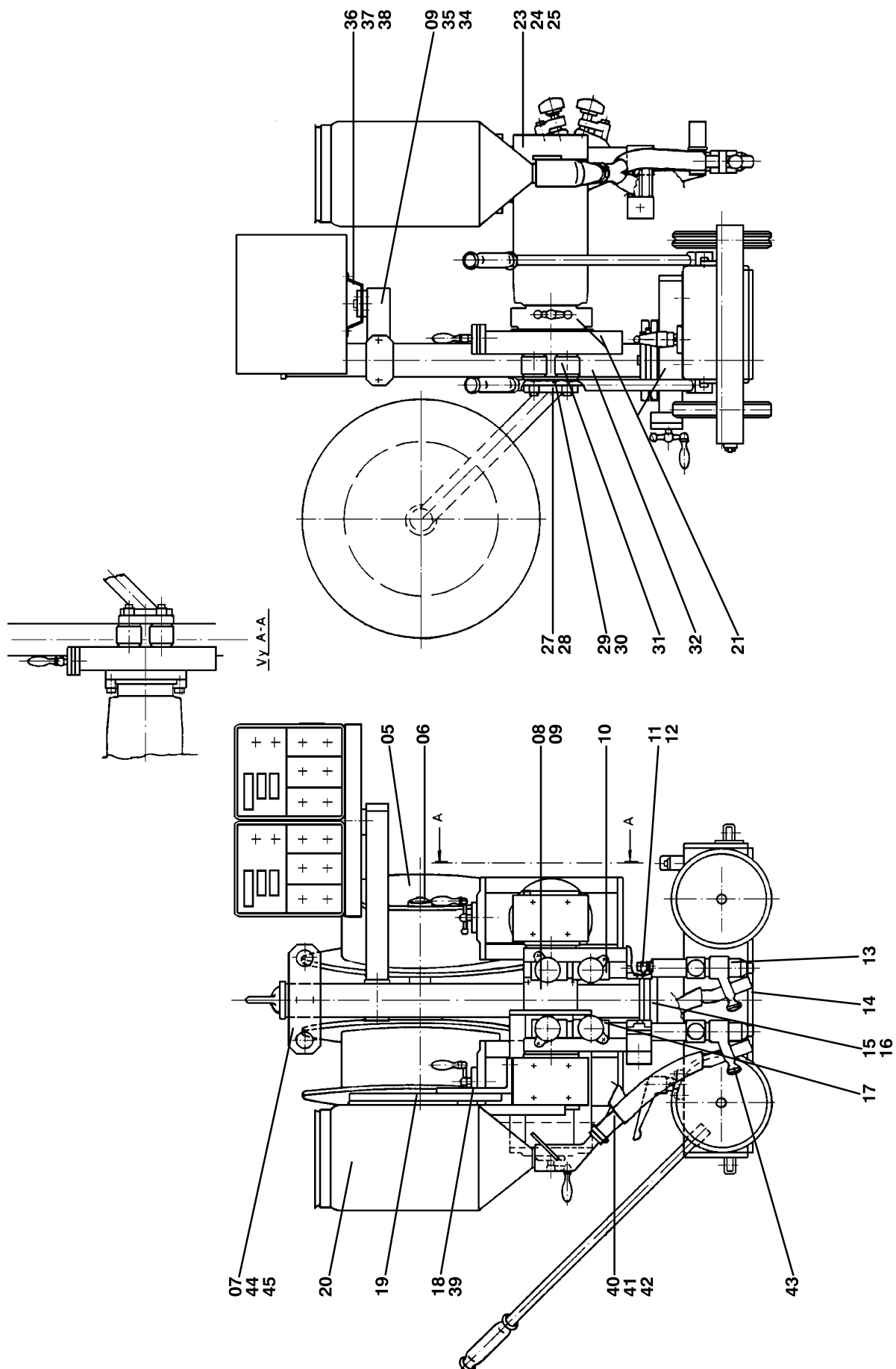
Reservdelsförteckning - Spare parts list - Ersatzteilverzeichnis - Liste de pièces détachées

Item	Qty	Orderingno.	Denomination	Remarks	Component designation in the circuit diagram
48	7	0409 536-01	Clamp		
49	4	0409 536-03	Clamp		
		334 191-881	Automatic welding machine	A6 TFD2	
01	1	333 001-910	Control box	DC	
03	1	333 001-905	Control box	AC	
04	8		Screw	B8x9.5	
05	2	153 872-880	Wire reel		
06	2	146 967-880	Brake hub		
07	1	334 457-880	Wire guiding device		
08	1	334 184-001	Plate		
09	6		Screw	M8x80	
10	1	147 639-880	Straightener		
11	2	334 170-001	Clamp ring		
12	4		Screw	M10x30	
13	2	417 959-880		L = 220	
14	1	334 183-880	Carriage		
15	2	334 171-001	Plate		
16	8		Screw	M12x20	
17	1	147 639-880	Straightener		
18	1	334 294-001	Attachment		
19	1	148 487-880	Holder		
20	1	147 649-881	Flux hopper		
21	4	154 465-880	Slide		
22	4		Screw	M10x25	
23	1	145 063-906	Motor with gear	42 V	
24	2	147 428-880	Cable		
25	2	2188 101-83	Handwheel		
26	1	334 172-001	Gear attachment		
27	1	334 180-880	Reel holder		
28	4		Screw	M8x20	
29	1	334 177-001	Plate		
30	8		Screw	M12x25	
31	8	2783 001-80	Insulator		
32	1	334 168-881	Column		
33	1	145 063-896	Motor with gear		
34	1	334 297-880	Box support arm		
35	1	334 179-001	Plate		
36	1	334 185-881	Box girder beam		
37	2		Screw	M8x25	
38	2		Washer	D16/8.4x1.5	
39	2		Screw	M10x20	
40	1	153 491-001	Manifold pipe		
41	1	2529 004-07	Hose clamp		
42	1	145 064-001	Flux hose	L = 400	
43	1	153 299-880	Flux nozzle		



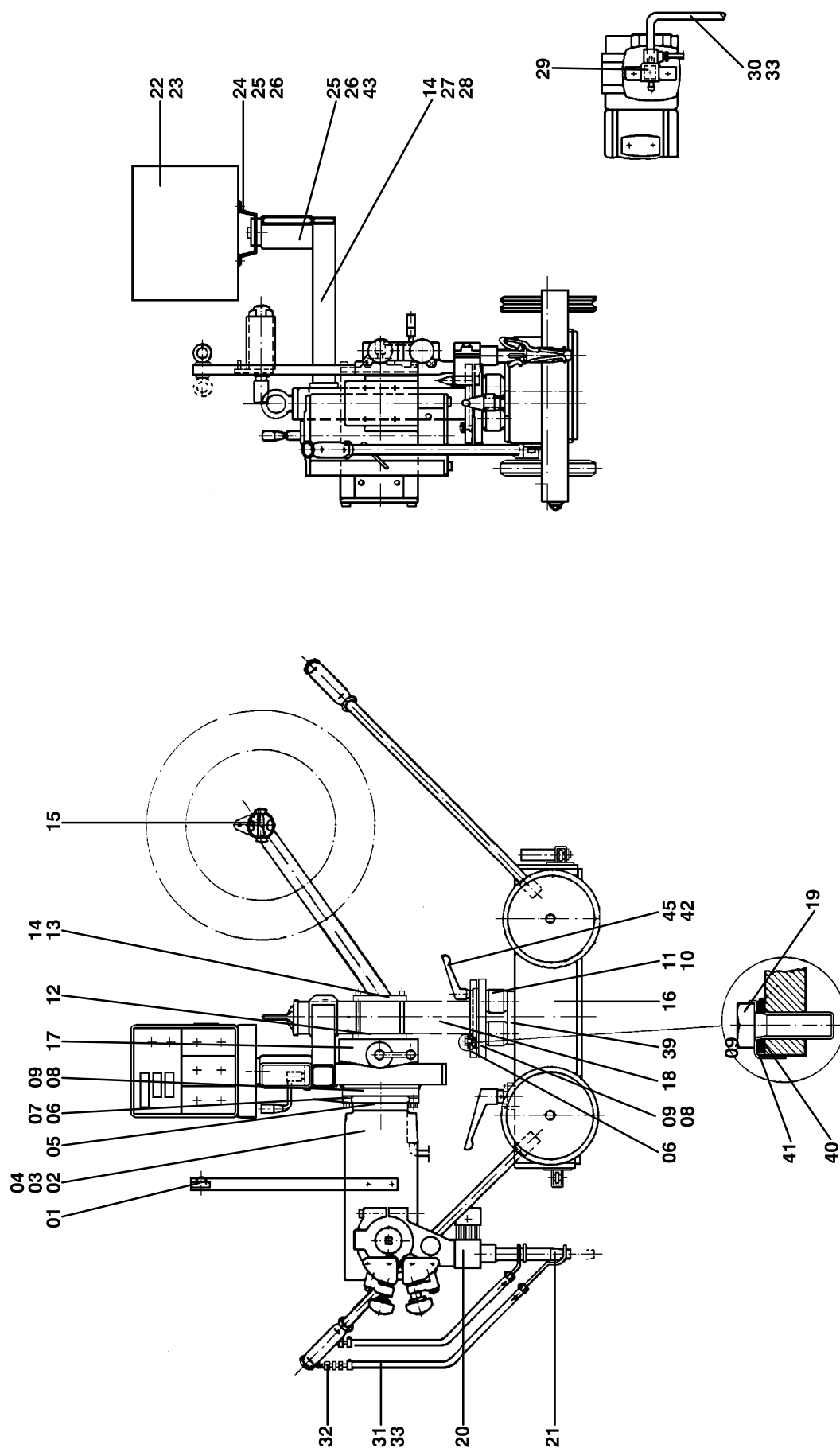
Reservdelsförteckning - Spare parts list - Ersatzteilverzeichnis - Liste de pièces détachées

Item	Qty	Orderingno.	Denomination	Remarks	Component designation in the circuit diagram
44	2		Screw	M6x25	
45	2		Washer	D12/6.4x1.5	
48	7	0409 536-01	Clamp		
49	4	0409 536-03	Clamp		



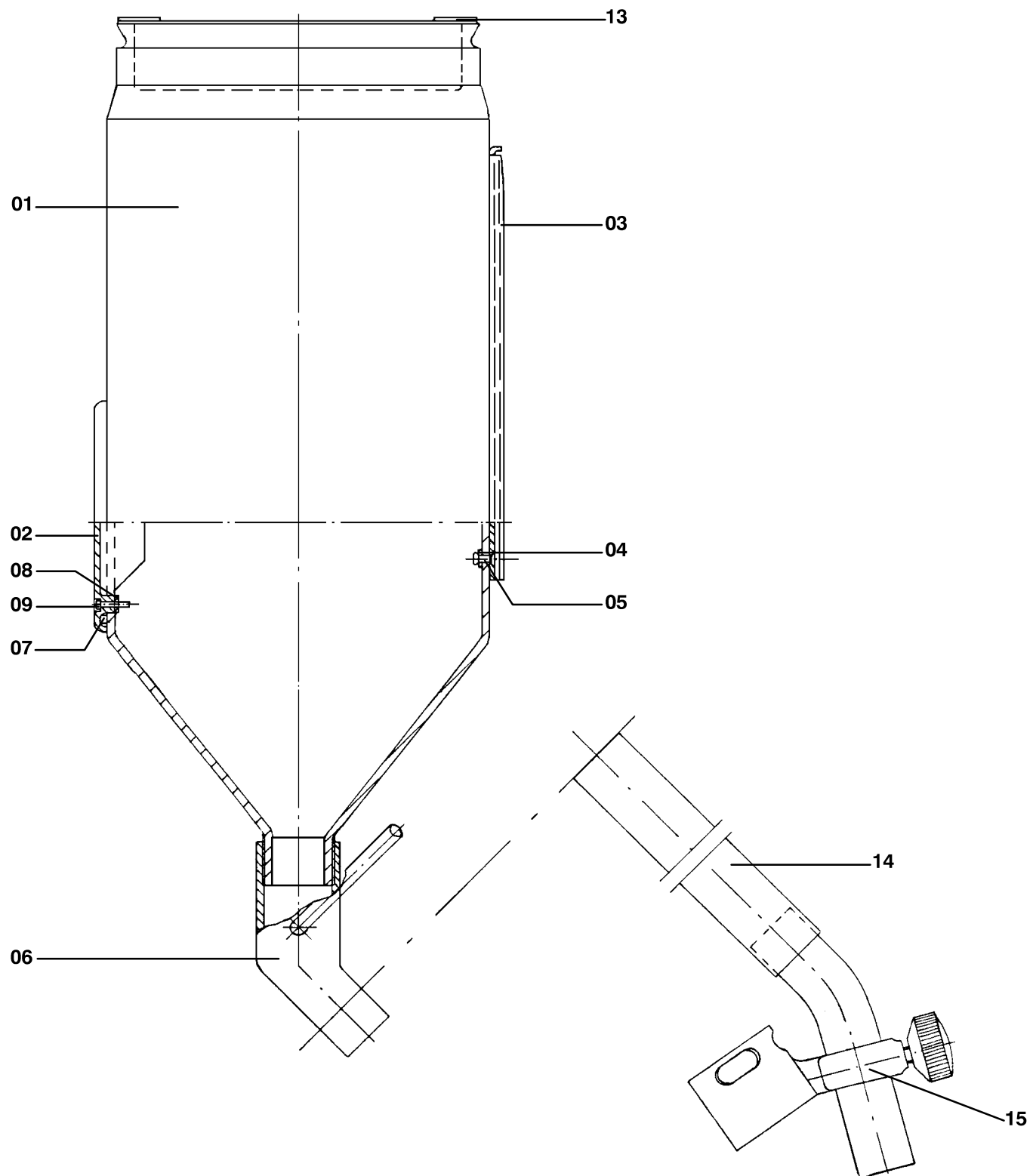
Reservdelstörteckning - Spare parts list - Ersatzteilverzeichnis - Liste de pièces détachées

Item	Qty	Orderingno.	Denomination	Remarks	Component designation in the circuit diagram
		334 178-880	Automatic welding machine	A6 TGD1	
01	1	334 707-880	Wire support		
02	1	145 063-909	Motor with gear	42 V	
03	1	147 428-880	Cable		
04	1	2188 101-83	Handwheel		
05	1	334 172-001	Gear mount		
06	2	334 170-001	Clamp ring		
07	4		Screw	M10x25	
08	2	334 171-001	Plate		
09	12		Screw	M12x20	
10	4	2783 001-80	Insulator		
11	4	2122 045-26	Screw	M12x25	
12	1	334 173-001	Plate		
13	1	334 176-880	Reel holder		
14	6		Screw	M8x80	
15	1	146 967-880	Brake hub		
16	1	334 183-880	Carriage		
17	2	154 465-880	Slide		
18	1	334 168-880	Column		
19	3		Screw	M10x30	
20	1	147 639-880	Straightener		
21	1	0304 653-85	Connector		
22	1	333 001-910	Control box		
23	4		Screw	B8x9.5	
24	1	334 185-880	Box girder beam		
25	2		Screw	M8x16	
26	4		Washer	D16/8.4x1.5	
27	1	334 297-880	Box support arm		
28	1	334 179-001	Plate		
29	1	333 111-882	Solenoid valve		
30	1	333 754-001	Hose (gas)	L=400	
31	2	333 754-001	Hose (cooling water)	L=600	
32	2	147 336-880	Hose connection		
33	6	1937 610-02	Hose clamp		
34	7	0409 536-01	Clamp		
35	1	0409 536-02	Clamp		
39	1	334 706-001	Plate		
40	6		Belleville washer	D20/10.2x1	
41	3	193 571-106	Locking plate		
42	1	193 570-129	Locking arm		
43	1	334 709-001	Spacer		
44	3	0409 536-03	Clamp		
45	1		Washer	D22/10.5x2	



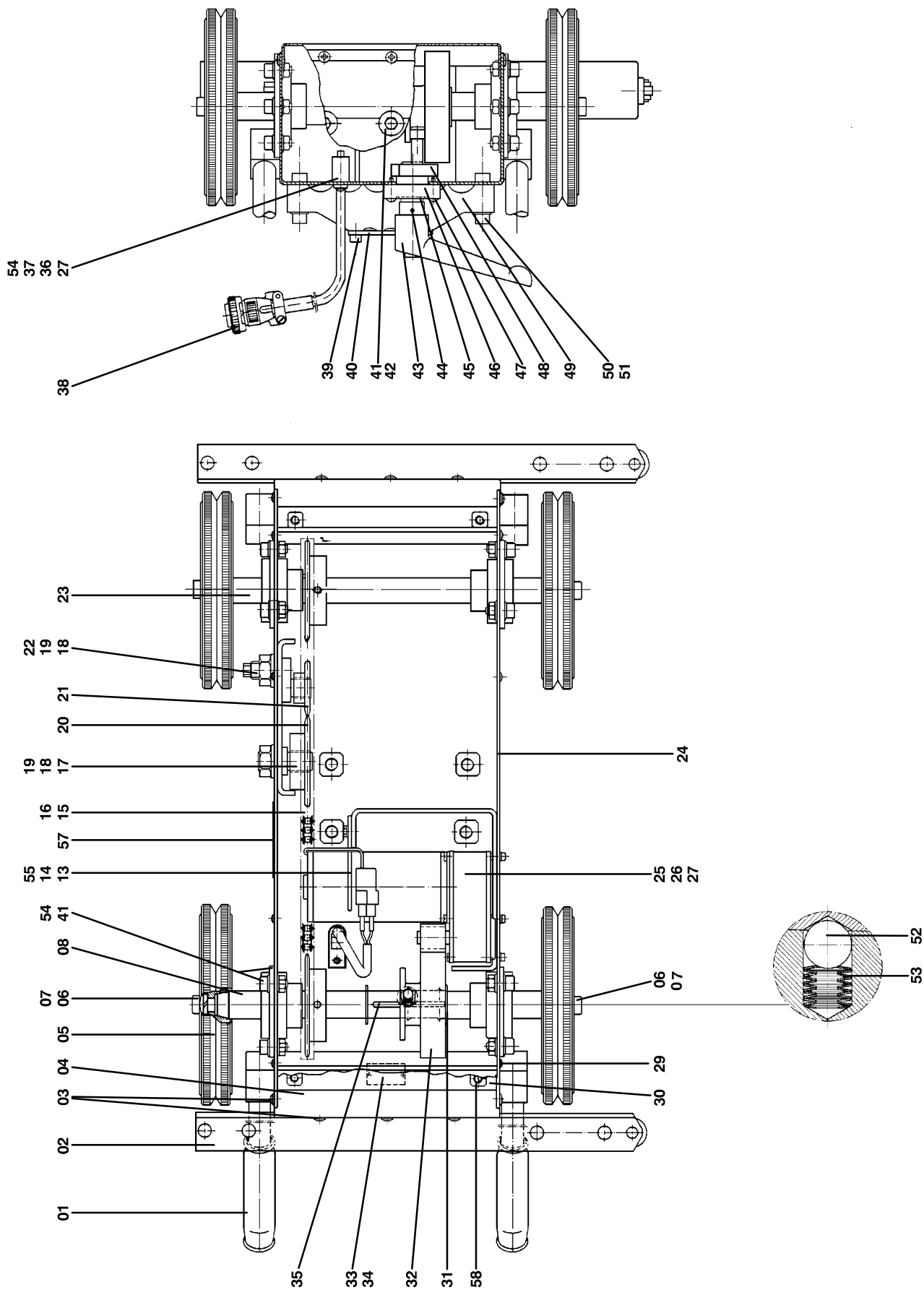
Reservdelsförteckning - Spare parts list - Ersatzteilverzeichnis - Liste de pièces détachées

Item	Qty	Orderingno.	Denomination	Remarks	Component designation in the circuit diagram
		147 649-881	Flux hopper compl	Optional equipment (OPC) Optional equipment (A6 TFD1/ TFD2)	
01	1	154 007-001	Hopper for flux		
02	1	146 837-001	Window		
03	1	147 645-001	Fitting		
04	4		Washer	D8/4.3x0.8	
05	4	191 898-108	Rivet		
06	1	153 347-880	Flux valve		
07	1	148 823-001	Seal		
08	2	148 799-001	Washer		
09	2		Screw	M3x16	
13	1	0203 017-80	Flux strainer		
14	1	443 383-002	Flux hose	L=500	



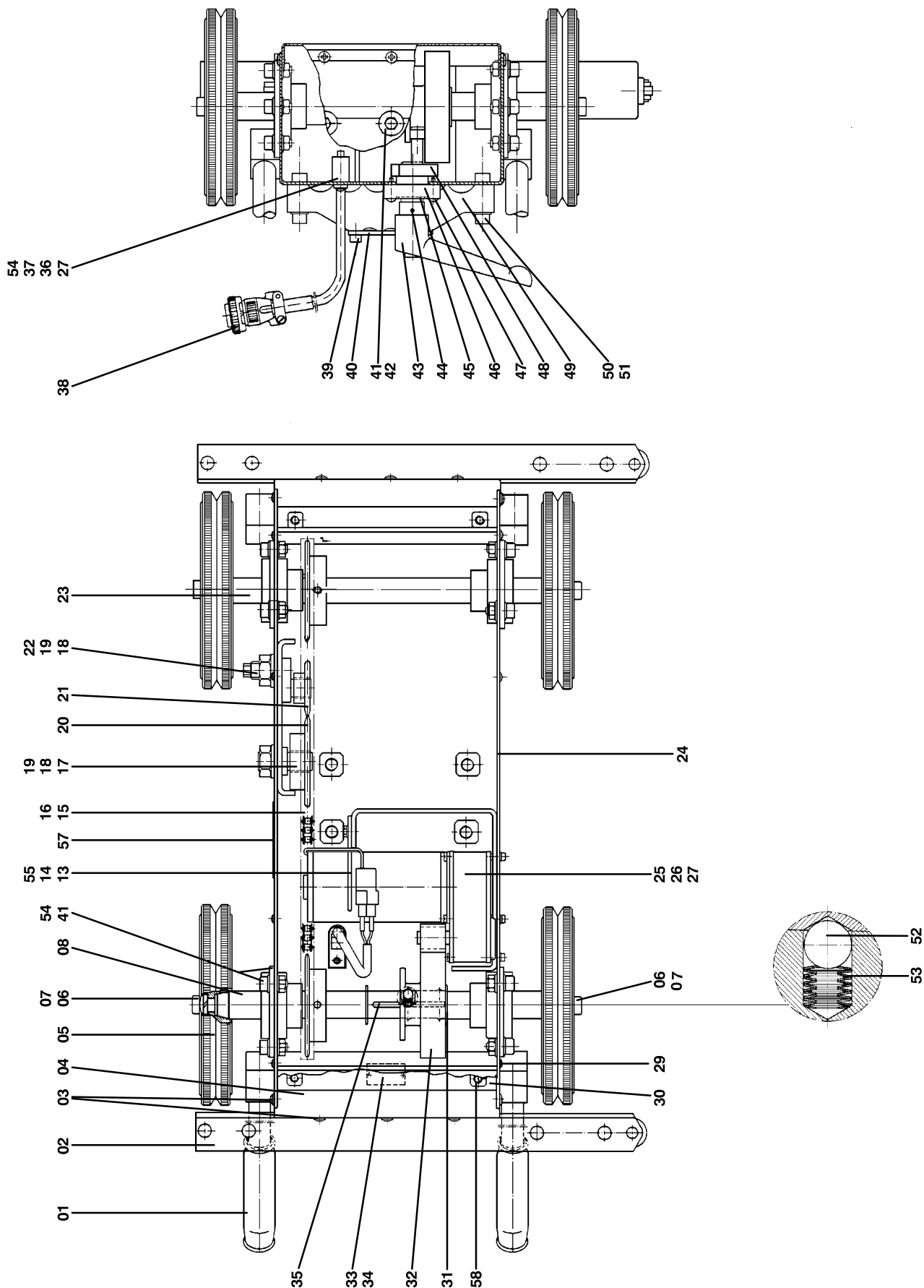
Reservdelstörteckning - Spare parts list - Ersatzteilverzeichnis - Liste de pièces détachées

Item	Qty	Orderingno.	Denomination	Remarks	Component designation in the circuit diagram
		334 183-880	Carriage		
01	2	334 295-880	Guide handle		
02	2	332 979-880	Guide arm		
03	16	2121 107-42	Screw	B12x16	
04	2	334 165-880	Side plate		
05	4	2292 022-80	Wheel		
06	4		Screw	M10x20	
07	4		Spring washer	D18.1/10.2	
08	1	334 198-880	Front axle and sprocket		
12	4	334 264-001	Flange support		
13	1	334 270-001	Support plate		
14	2		Screw	M5x10	
15	1	2182 015-02	Chain	L=1029	
16	1	2182 016-02	Chain lock		
17	1	334 160-001	Stub shaft		
18	2		Washer	D30/17x3	
19	2		Nut	M16	
20	1	334 163-880	Sprocket		
21	1	334 162-880	Sprocket		
22	1	334 161-001	Eccentric		
23	1	334 197-880	Rear axle and sprocket		
24	1	334 267-880	Cover		
25	1	334 265-880	Motor gear		
26	6		Screw	M4x16	
27	7		Washer	D8/4.3x0.8	
29	8		Screw	B8x9.5	
30	2	334 167-001	Cover plate, bas		
31	2	2157 010-19	Retaining ring		
32	1	334 189-001	Gear wheel		
35	1	2157 012-43	Wedge	5x5x65	
36	1	321 220-001	Cable bushing		
37	1		Screw	B6x25	
38	1	333 093-881	Motor cable		
39	2		Screw	M6x25	
40	1	147 331-001	Clamp		
41	6		Screw	M6x20	
42	6		Washer	D22/6.4x4	
43	1	333 630-001	Locking arm		
44	1	2111 029-40	Roll pin	D3x28	
45	1	2157 010-16	Retaining ring	D20	
46	2	334 196-001	Bushing		
47	4		Screw	B8x19	
48	1	334 192-880	Eccentric		
49	1	147 330-001	Clamp		
50	2		Screw	M8x60	



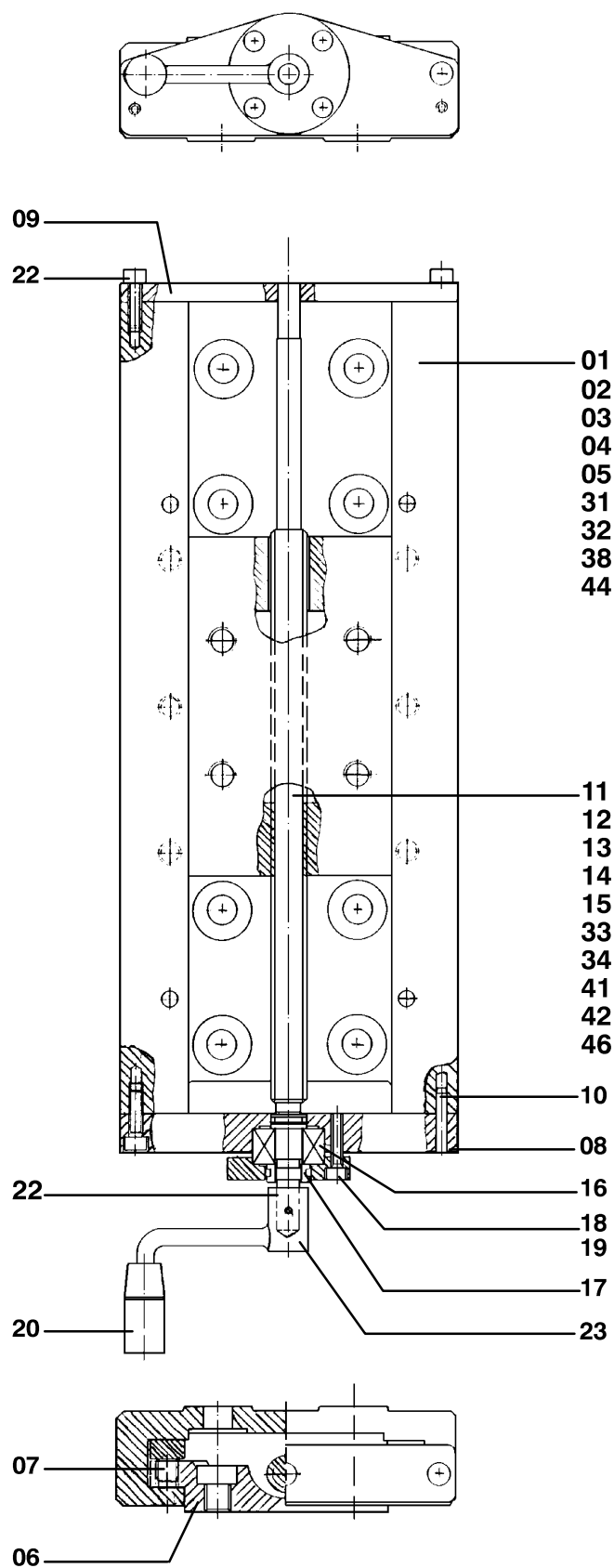
Reservdelsförteckning - Spare parts list - Ersatzteilverzeichnis - Liste de pièces détachées

Item	Qty	Orderingno.	Denomination	Remarks	Component designation in the circuit diagram
51	2	2213 070-01	Washer	D16/8.4x1.5	
52	1		Steel ball		
53	14		Belleville washer	D8/3.2x0.3	
54	1		Washer	D6.4/12x3	
55	2		Washer	D5/10x1	
58	2		Screw	M8x12	



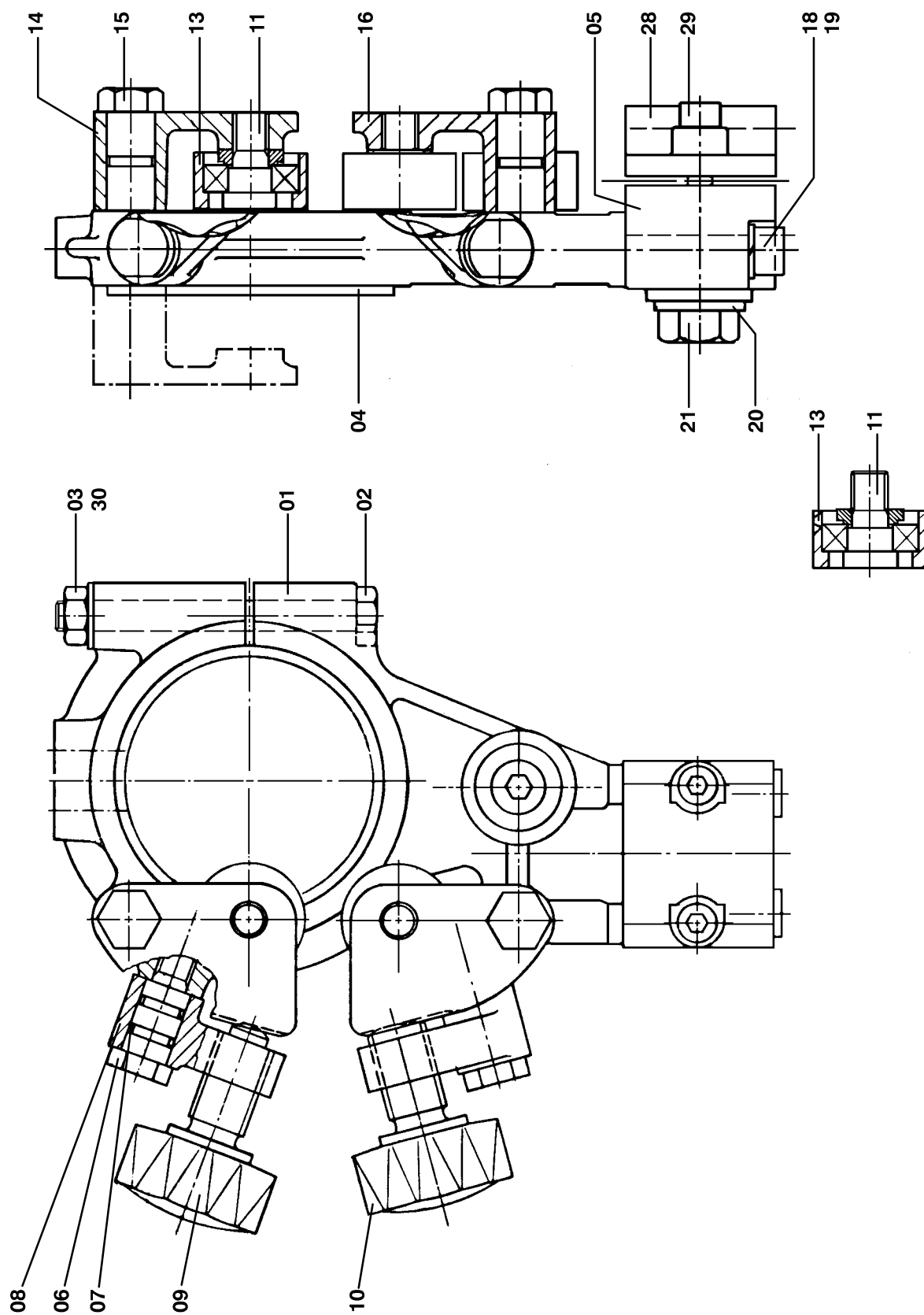
Reservdelsförteckning - Spare parts list - Ersatzteilverzeichnis - Liste de pièces détachées

Item	Qty	Orderingno.	Denomination	Remarks	Component designation in the circuit diagram
		154 465-880	Slide, manually operated		
01	1	154 464-001	Slide frame		
06	1	154 463-880	Carriage with slide rails		
07	6	190 509-485	Stop screw	M10x10	
08	1	154 458-001	End piece		
09	4		Screw	M6x20	
10	2	2111 029-57	Roll pin	D5x20	
11	1	154 461-001	Lead screw		
16	1	190 531-201	Ball bearing	SKF 3201	
17	1	154 456-001	Locknut		
18	1	154 457-001	Ball bearing cap		
19	4		Screw	M5x16	
20	1	154 459-001	End washer		
22	1	334 537-001	Crank		
23	1	2111 029-38	Roll pin	D3x20	
28	8		Screw	M12x20	
29	8		Washer	D24/13x2	
30	4		Screw	M10x25	



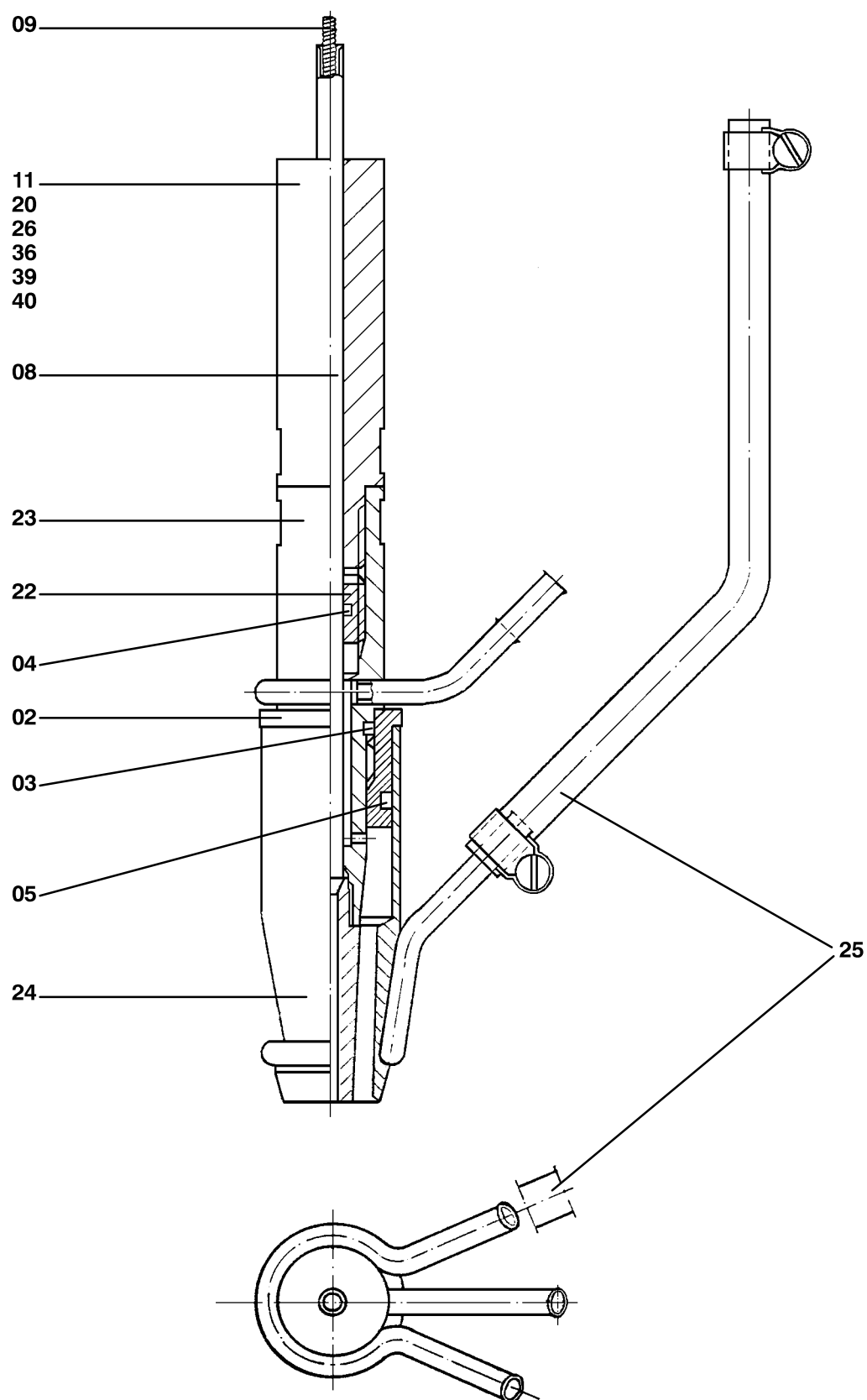
Reservdelsförteckning - Spare parts list - Ersatzteilverzeichnis - Liste de pièces détachées

Item	Qty	Orderingno.	Denomination	Remarks	Component designation in the circuit diagram
		147 639-880	Straightener		
01	1	156 449-001	Clamp		
02	1		Screw	M10x100	
03	1		Washer	D22/10.5x2	
04	1	2155 036-01	Insulating sleeve		
05	1	156 530-001	Clamp half		
06	2	2129 000-01	Spacer screw		
07	4	2152 012-09	O-ring	D11.3x2.4	
08	2	2184 008-01	Pressure roller arm		
09	1	2188 101-81	Handwheel		
10	1	2188 101-82	Handwheel		
11	3	332 408-001	Stub shaft		
13	3	153 148-880	Roller		
14	1	415 498-001	Thrust roller carrier		
15	2	2129 026-01	Spacer screw		
16	1	415 499-001	Thrust roller carrier		
18	2		Screw	M10x60	
19	2		Spring washer	D18.1/10.2	
20	1		Screw	M16x50	
21	1		Washer	D30/17x3	
28	1	156 531-001	Clamp half		
29	2		Screw	M8x30	
30	1		Nut	M10	
31	9		Washer	D22/13x2	



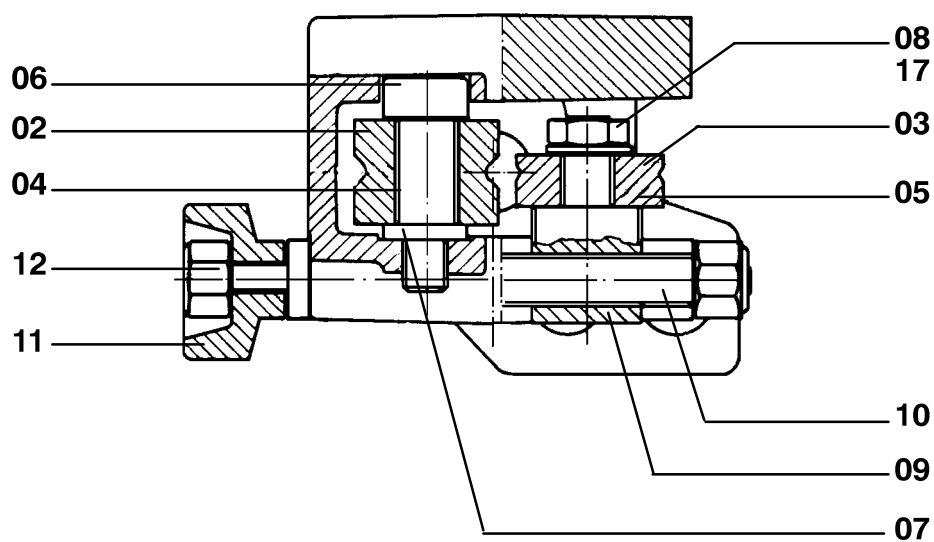
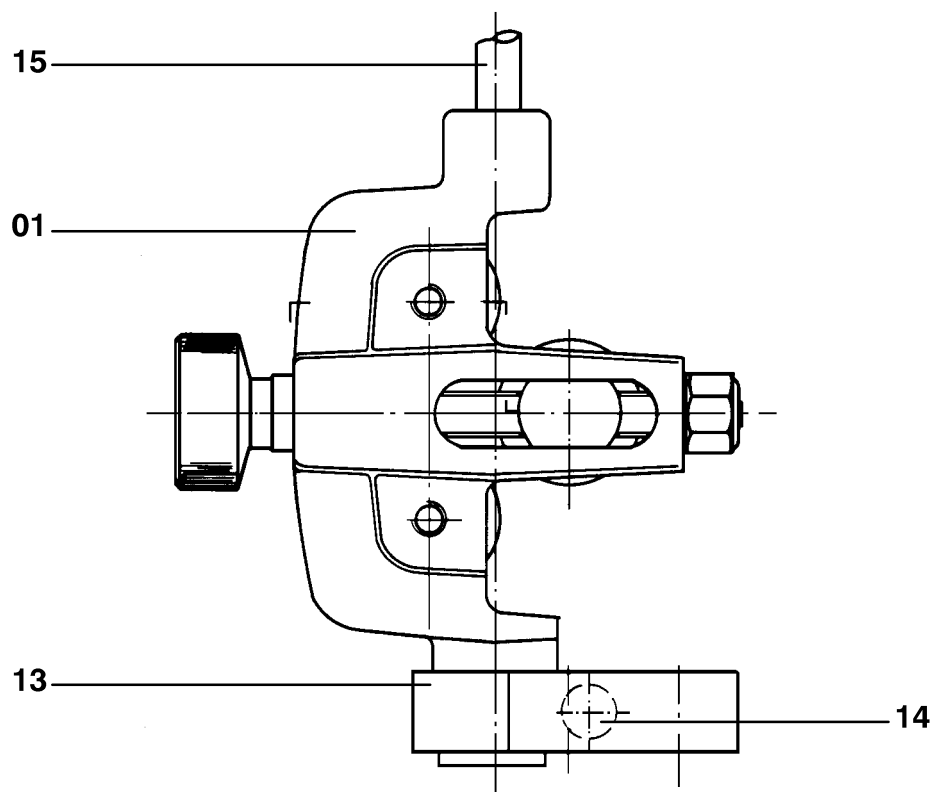
Reservdelsförteckning - Spare parts list - Ersatzteilverzeichnis - Liste de pièces détachées

Item	Qty	Orderingno.	Denomination	Remarks	Component designation in the circuit diagram
		0304 653-85	Connector	A6 TGD1	
02	1	145 226-001	Insulating sleeve		
03	1	190 680-313	O-ring	OR 15.3x2.4	
04	1	190 680-303	O-ring	OR 5.3x2.4	
05	1	190 680-405	O-ring	OR 22.2x3	
08	1	334 278-880	Insert tube		
09	1	334 279-001	Spiral		
20	1	146 094-001	Extension		
22	1	146 099-001	Plug		
23	1	145 534-882	Contact tube		
24	1	145 227-882	Gas nozzle		
25	1	144 998-882	Water hose		



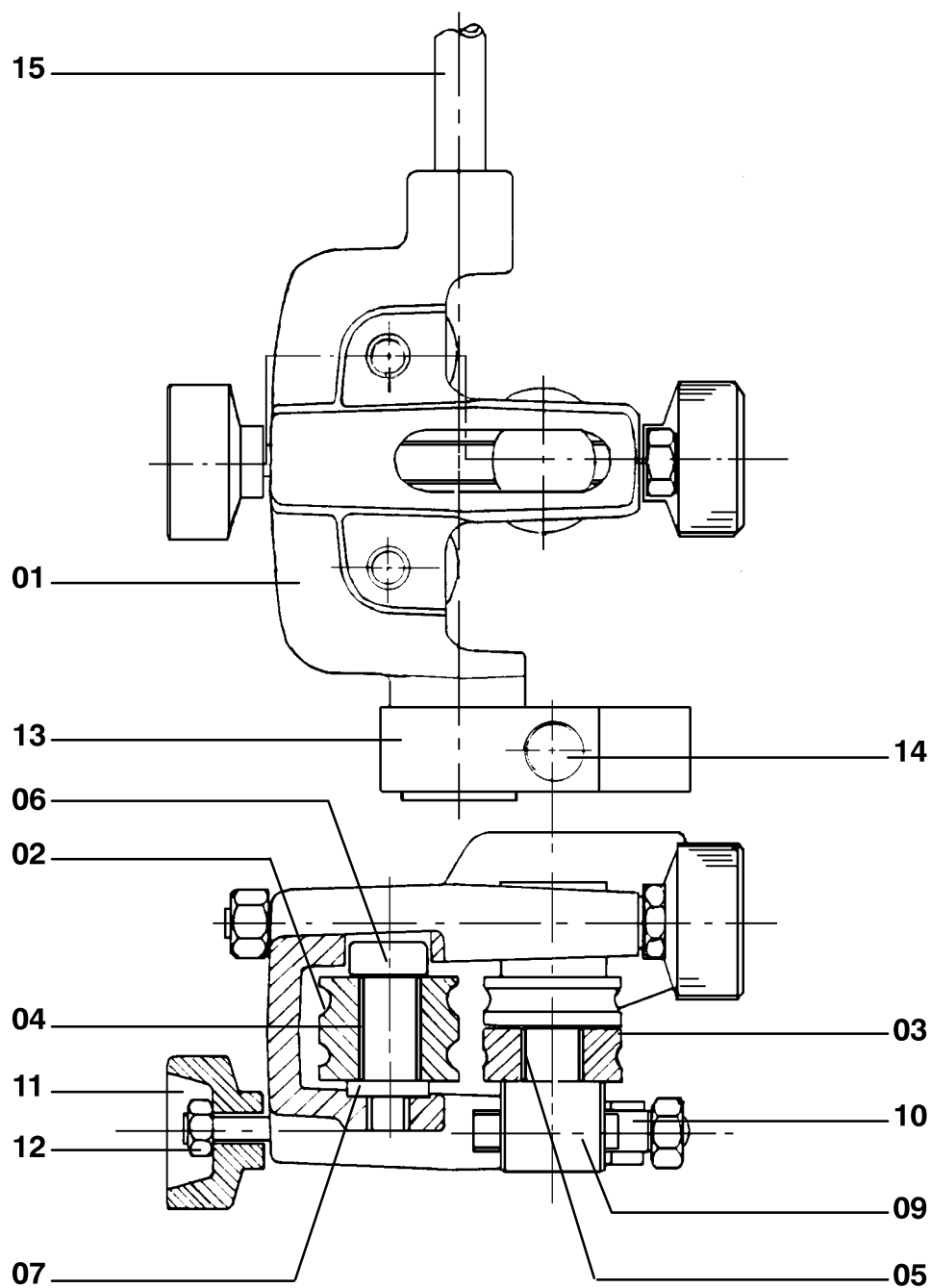
Reservdelsförteckning - Spare parts list - Ersatzteilverzeichnis - Liste de pièces détachées

Item	Qty	Orderingno.	Denomination	Remarks	Component designation in the circuit diagram
		332 565-880	Fine wire straightener for single wire	Optional equipment (A6TFD1/ TGD1)	
01	1	332 604-001	Housing (casing)		
02	2	332 619-001	Roller		
03	1	332 621-001	Roller		
04	2	145 791-001	Bearing bushing		
05	1	190 240-103	Bearing bushing	D12/10	
06	2	145 792-001	Screw		
07	2		Washer	D16/8.4x3	
08	1		Washer	D16/8.4x1.5	
09	1	332 620-001	Runner		
10	1	145 796-002	Screw		
11	1	145 794-001	Knob		
12	2		Nut	M8	
13	1	145 795-001	Link		
14	1		Screw	M8x25	
15	1	151 287-001	Hose	L=300	
16	2		Screw	M8x20	
17	1		Nut	M8	



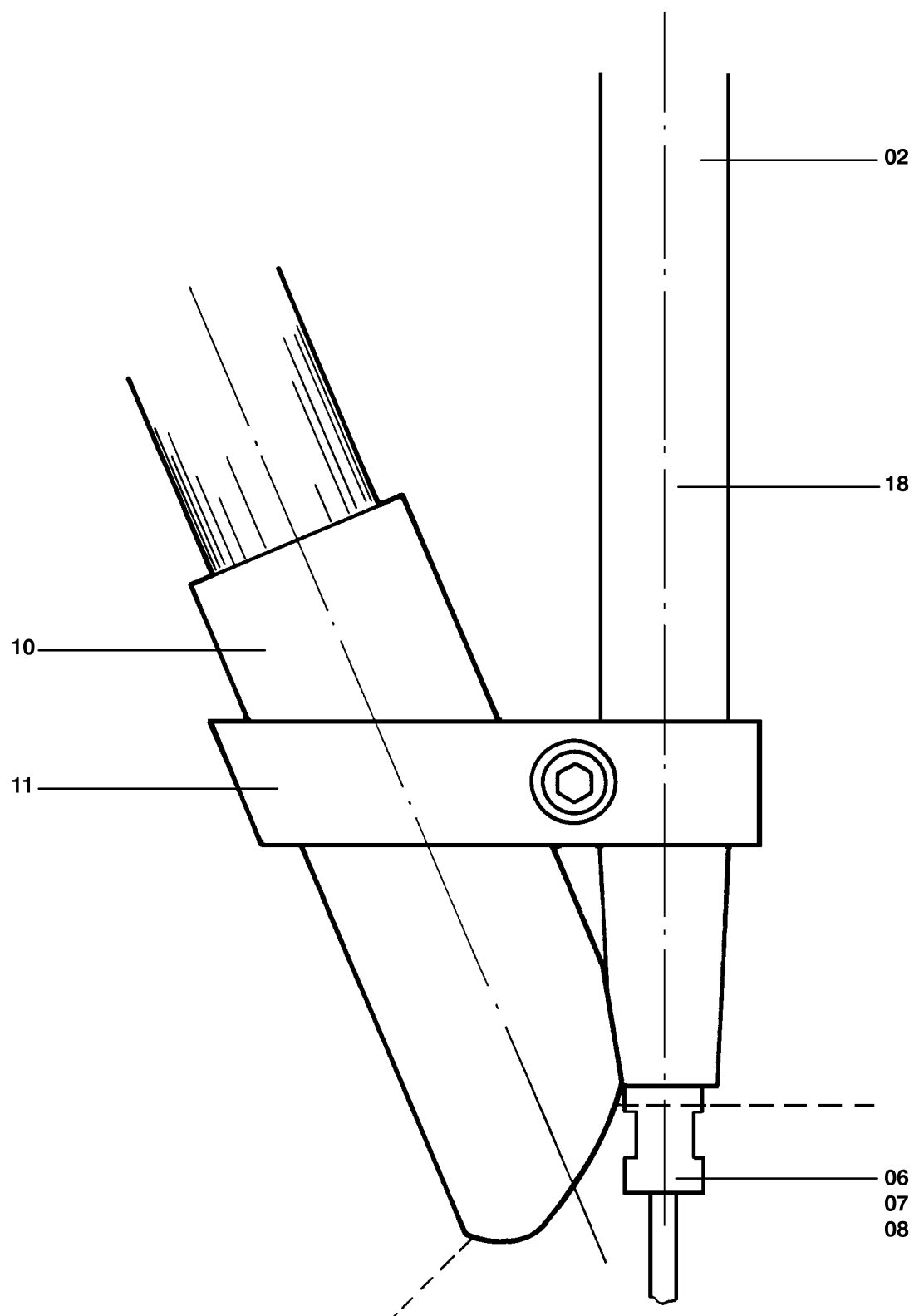
Reservdelsförteckning - Spare parts list - Ersatzteilverzeichnis - Liste de pièces détachées

Item	Qty	Orderingno.	Denomination	Remarks	Component designation in the circuit diagram
		145 787-880	Fine wire straightener for twin wire	Optional equipment (A6 TFD1) Optional equipment (A6 SFD1)	
1	1	145 788-001	Case		
2	2	145 789-001	Roller		
3	2	145 790-001	Roller		
4	2	145 791-001	Searing bushing		
5	2	190 240-103	Bearing bushing	D12/10	
6	2	145 792-001	Screw		
7	2		Washer	D16/8.4x3	
9	2	145 793-001	Runner		
10	2	145 796-002	Screw		
11	2	145 794-001	Knob		
12	4		Nut	M8	
13	1	145 795-001	Link		
14	1		Screw	M8x25	
15	1	151 287-001	Hose	L=600	
16	2		Screw	M8x20	



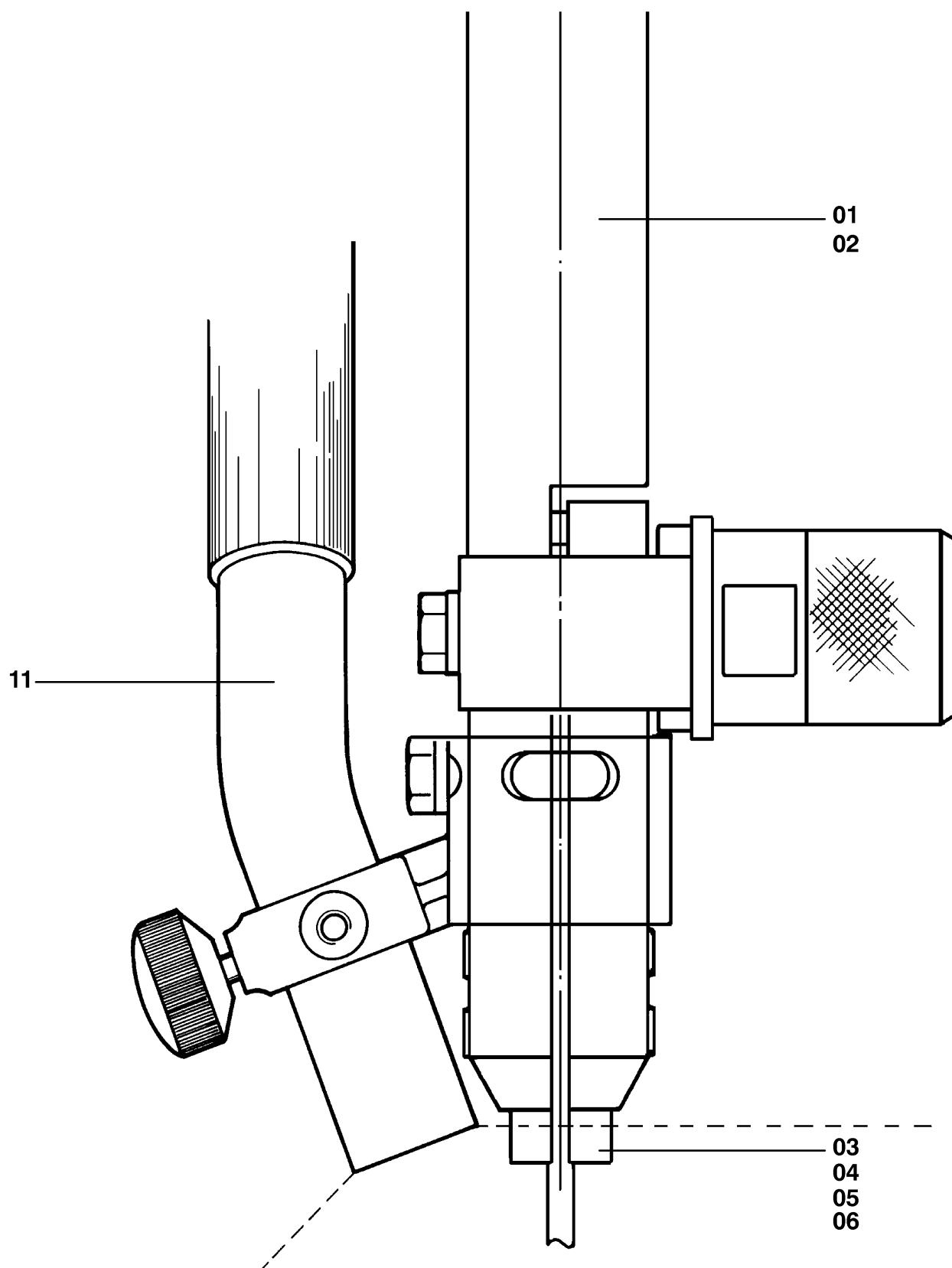
Reservdelsförteckning - Spare parts list - Ersatzteilverzeichnis - Liste de pièces détachées

Item	Qty	Orderingno.	Denomination	Remarks	Component designation in the circuit diagram
		334 289-880	Contact equipment single wire	Optional equipment (A6 SFD2) Optional equipment (A6 TFD1) D20	
01	1	156 907-001	Cartridge		
02	1	154 381-001	Contact tube	D20	
10	1	332 948-001	Flux tube		
11	1	333 094-880	Clamp		
18	1	334 278-880	Guide insert		
		334 289-881	Contact equipment single wire	Optional equipment (A6 SFD2) Optional equipment (A6 TFD1) D20	
01	1	156 907-001	Cartridge		
02	1	154 381-001	Contact tube	D20	
03	2	154 623-008	Contact tip	ø1.6	
04	2	154 623-007	Contact tip	ø2.0	
05	2	154 623-006	Contact tip	ø2.5	
06	2	154 623-005	Contact tip	ø3.0	
10	1	332 948-001	Flux tube		
11	1	333 094-880	Clamp		
12	1	2185 102-81	Feed roller	ø1.6	
13	1	2185 102-82	Feed roller	ø2.0	
14	1	2185 102-83	Feed roller	ø2.5	
15	1	2185 102-98	Feed roller		
18	1	334 278-880	Guide insert		
		334 289-882	Contact equipment single wire	Optional equipment (A6 SFD2) Optional equipment (A6 TFD1) D20	
01	1	156 907-001	Cartridge		
02	1	154 381-001	Contact tube	D20	
06	2	154 623-005	Contact tip	ø3.0	
07	2	154 623-003	Contact tip	ø4.0	
08	2	154 623-002	Contact tip	ø5.0	
10	1	332 948-001	Flux tube		
11	1	333 094-880	Clamp		
15	1	2185 102-98	Feed roller	ø3.0	
16	1	2185 102-86	Feed roller	ø4.0	
17	1	2185 102-87	Feed roller	ø5.0	



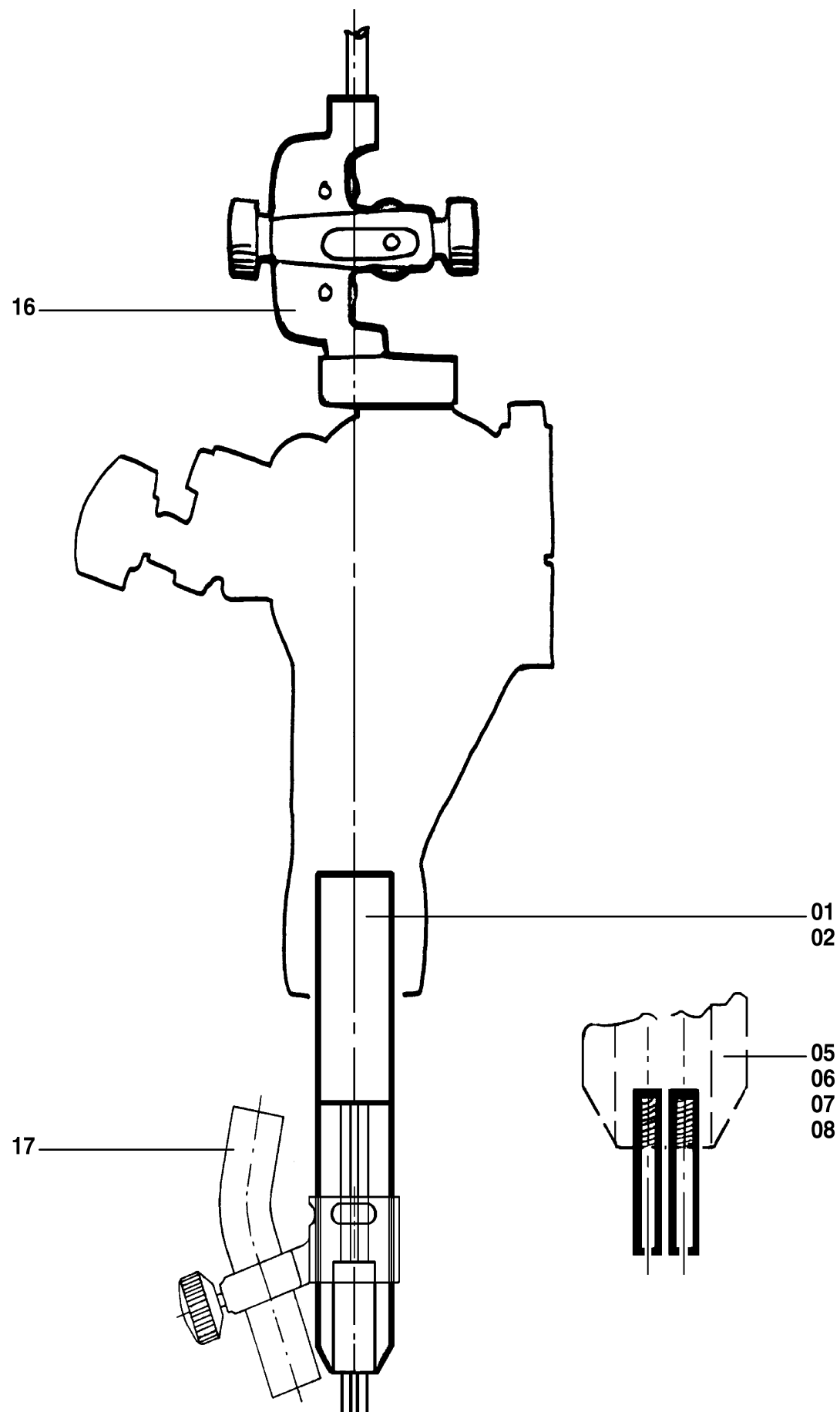
Reservdelsförteckning - Spare parts list - Ersatzteilverzeichnis - Liste de pièces détachées

Item	Qty	Orderingno.	Denomination	Remarks	Component designation in the circuit diagram
01	1	334 290-880 417 959-880	Contact equipment single wire Contact equipment	Optional equipment (A6 TFD1) D35 L=220	
11	1	153 299-880	Flux nozzle		
01	1	334 290-881 417 959-880	Contact equipment single wire Contact equipment	Optional equipment (A6 TFD1) D35 L=220	
03	1	2659 008-80	Contact jaw	ø 3	
04	1	2659 008-82	Contact jaw	ø 4	
05	1	2659 008-83	Contact jaw	ø 5	
06	1	2659 008-84	Contact jaw	ø 6	
07	1	2185 102-98	Feed roller	ø 3	
08	1	2185 102-86	Feed roller	ø 4	
09	1	2185 102-87	Feed roller	ø 5	
10	1	2185 102-88	Feed roller	ø 6	
11	1	153 299-880	Flux nozzle		
02	1	334 290-882 417 959-881	Contact equipment single wire Contact equipment	Optional equipment (A6 TFD1) D35 L=275	
11	1	153 299-880	Flux nozzle		
02	1	334 290-883 417 959-881	Contact equipment single wire Contact equipment	Optional equipment (A6 TFD1) D35 L=275	
03	1	2659 008-80	Contact jaw	ø 3	
04	1	2659 008-82	Contact jaw	ø 4	
05	1	2659 008-83	Contact jaw	ø 5	
06	1	2659 008-84	Contact jaw	ø 6	
07	1	2185 102-98	Feed roller	ø 3	
08	1	2185 102-86	Feed roller	ø 4	
09	1	2185 102-87	Feed roller	ø 5	
10	1	2185 102-88	Feed roller	ø 6	
11	1	153 299-880	Flux nozzle		



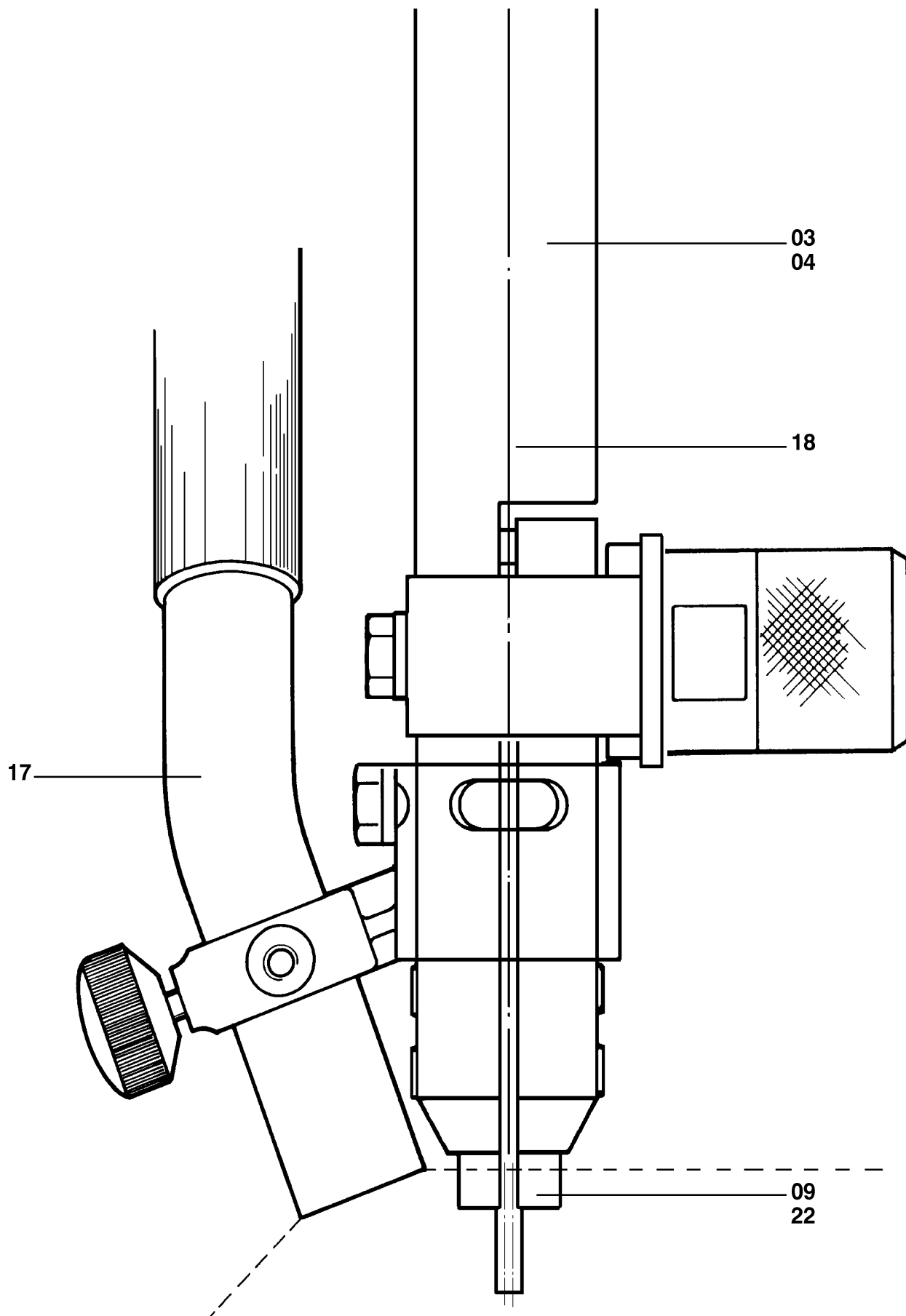
Reservdelstörteckning - Spare parts list - Ersatzteilverzeichnis - Liste de pièces détachées

Item	Qty	Orderingno.	Denomination	Remarks	Component designation in the circuit diagram
01	1	334 291-880	Contact equipment Twin-arc, with nozzle holder	Optional equipment (A6 TFD1) D35	
15	1	333 852-880	Contact device		
16	1	2185 245-80	Thrust roller		
17	1	145 787-880	Fine wire straightener		
		153 299-880	Flux nozzle		
02	1	334 291-881	Contact equipment Twin-arc, with nozzle holder	Optional equipment (A6 TFD1) D35	
15	1	333 852-881	Contact device		
16	1	2185 245-80	Thrust roller		
17	1	145 787-880	Fine wire straightener		
		153 299-880	Flux nozzle		
01	1	334 291-884	Contact equipment Twin-arc, with nozzle holder	Optional equipment (A6 TFD1) D35	
05	4	333 852-880	Contact device		
06	4	153 501-005	Contact tip	ø1.2	
07	4	153 501-007	Contact tip	ø1.6	
08	4	153 501-009	Contact tip	ø2.0	
10	1	153 501-010	Contact tip	ø2.5	
11	1	2185 224-86	Feed roller	ø1.2	
12	1	2185 224-88	Feed roller	ø1.6	
13	1	2185 224-84	Feed roller	ø2.0	
15	1	2185 224-80	Feed roller	ø2.5	
16	1	2185 245-80	Thrust roller		
17	1	145 787-880	Fine wire straightener		
		153 299-880	Flux nozzle		
02	1	334 291-885	Contact equipment Twin-arc, with nozzle holder	Optional equipment (A6 TFD1) D35	
05	4	333 852-881	Contact device		
06	4	153 501-005	Contact tip	ø1.2	
07	4	153 501-007	Contact tip	ø1.6	
08	4	153 501-009	Contact tip	ø2.0	
10	1	153 501-010	Contact tip	ø2.5	
11	1	2185 224-86	Feed roller	ø1.2	
12	1	2185 224-88	Feed roller	ø1.6	
13	1	2185 224-84	Feed roller	ø2.0	
15	1	2185 224-80	Feed roller	ø2.5	
16	1	2185 245-80	Thrust roller		
17	1	145 787-880	Fine wire straightener		
		153 299-880	Flux nozzle		



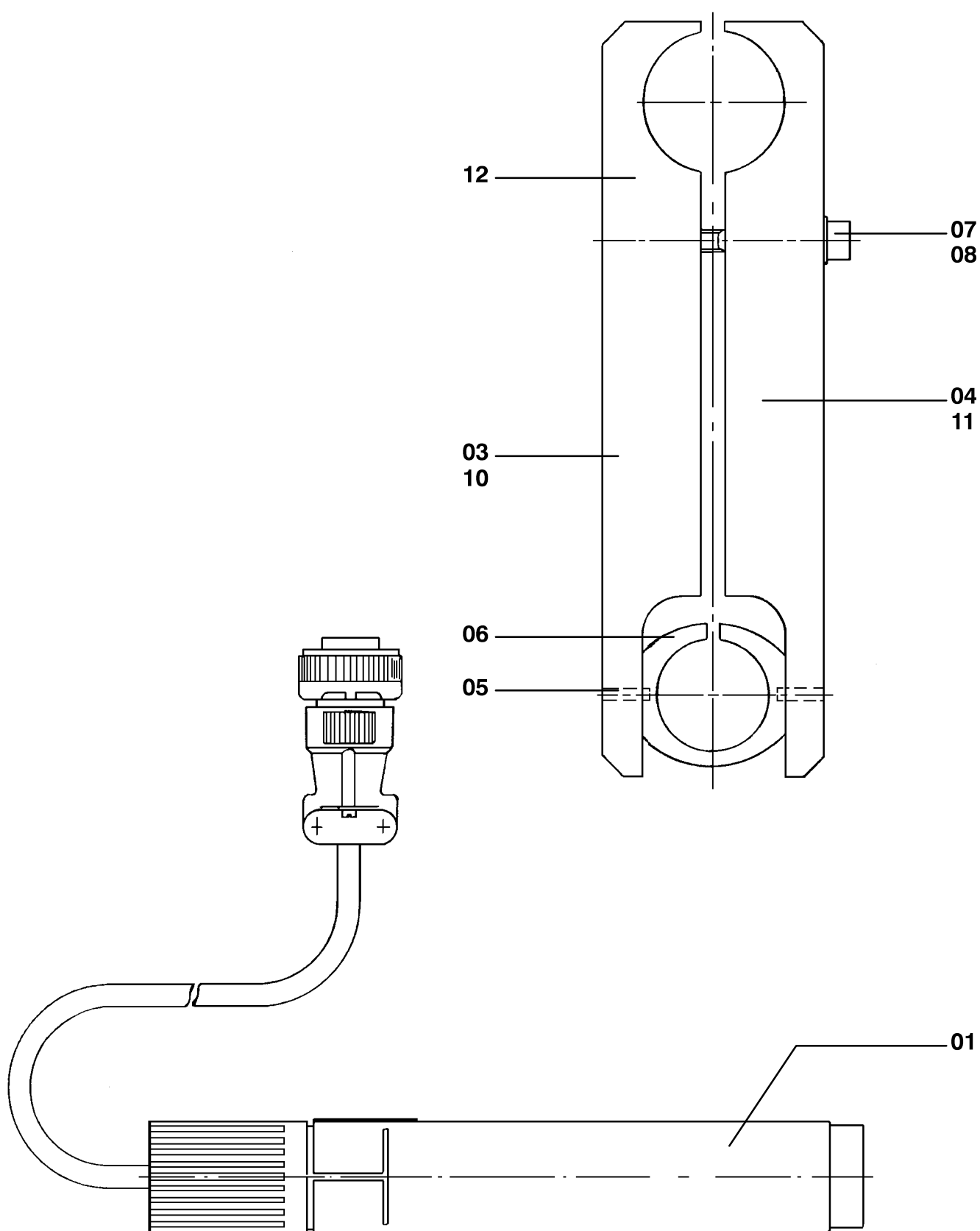
Reservdelsförteckning - Spare parts list - Ersatzteilverzeichnis - Liste de pièces détachées

Item	Qty	Orderingno.	Denomination	Remarks	Component designation in the circuit diagram
		334 291-882	Contact equipment Twin-arc, with contact jaw	Optional equipment (A6 SFD1) Optional equipment (A6 SFD2) Optional equipment (A6 TFD1) D35	
03	1	417 959-880	Contact equipment	L = 220	
15	1	2185 245-80	Thrust roller		
16	1	145 787-880	Fine wire straightener		
17	1	153 299-880	Flux nozzle		
18	1	334 278-881	Guide insert		
		334 291-883	Contact equipment Twin-arc, with contact jaw	Optional equipment (A6 SFD1) Optional equipment (A6 SFD2) Optional equipment (A6 TFD1) D35	
04	1	417 959-880	Contact equipment	L = 275	
15	1	2185 245-80	Thrust roller		
16	1	145 787-880	Fine wire straightener		
17	1	153 299-880	Flux nozzle		
18	1	334 278-881	Guide insert		
		334 291-886	Contact equipment Twin-arc, with contact jaw	Optional equipment (A6 SFD1) Optional equipment (A6 SFD2) Optional equipment (A6 TFD1) D35	
03	1	417 959-880	Contact equipment	L = 220	
09	2	2659 028-80	Contact jaw		
12	1	2185 224-84	Feed roller	ø2.0	
13	1	2185 224-80	Feed roller	ø2.5	
14	1	2185 224-81	Feed roller	ø3.0	
15	1	2185 245-80	Thrust roller		
16	1	145 787-880	Fine wire straightener		
17	1	153 299-880	Flux nozzle		
18	1	334 278-881	Guide insert		
22	2	2659 028-81	Contact jaw		
		334 291-887	Contact equipment Twin-arc, with contact jaw	Optional equipment (A6 SFD1) Optional equipment (A6 SFD2) Optional equipment (A6 TFD1) D35	
04	1	417 959-881	Contact equipment	L = 275	
09	2	2659 028-80	Contact jaw		
12	1	2185 224-84	Feed roller	ø2.0	
13	1	2185 224-80	Feed roller	ø2.5	
14	1	2185 224-81	Feed roller	ø3.0	
15	1	2185 245-80	Thrust roller		
16	1	145 787-880	Fine wire straightener		
17	1	153 299-880	Flux nozzle		
18	1	334 278-881	Guide insert		
22	2	2659 028-81	Contact jaw		



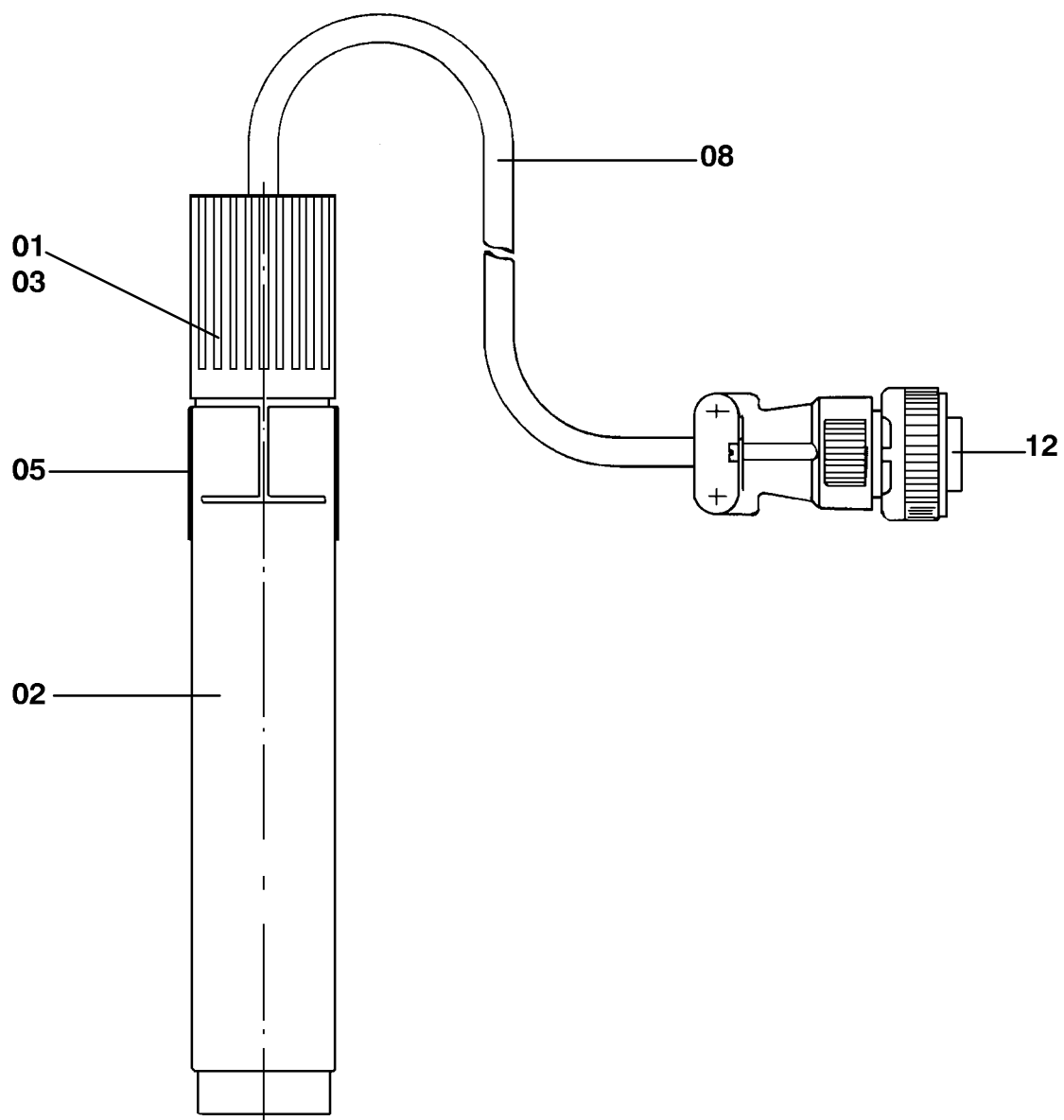
Reservdelsförteckning - Spare parts list - Ersatzteilverzeichnis - Liste de pièces détachées

Item	Qty	Orderingno.	Denomination	Remarks	Component designation in the circuit diagram
		153 143-880	Guide lamp compl.	Optional equipment (A6 SFD1) Optional equipment (A6 SFD2) Optional equipment (A6 TFD1/ TFD2) D35	
1	1	153 142-880	Guide lamp		
3	1	153 141-001	Holder		
4	1	153 141-002	Holder		
5	2	2111 029-34	Roll pin		
6	1	153 401-001	Bushing		
7	1		Screw	M6x50	
8	1		Washer	12/6.4x1.5	
		153 143-882	Guide lamp compl.	Optional equipment (A6 SFD1) Optional equipment (A6 SFD2) Optional equipment (A6 TFD1) Optional equipment (A2SFD1/SGD1) Optional equipment (A2 Multitrac) D20	
1	1	153 142-880	Guide lamp		
5	2	2111 029-34	Roll pin		
6	1	153 401-001	Bushing		
7	1		Screw	M6x50	
8	1		Washer	12/6.4x1.5	
10	1	153 141-003	Holder		
11	1	153 141-004	Holder		



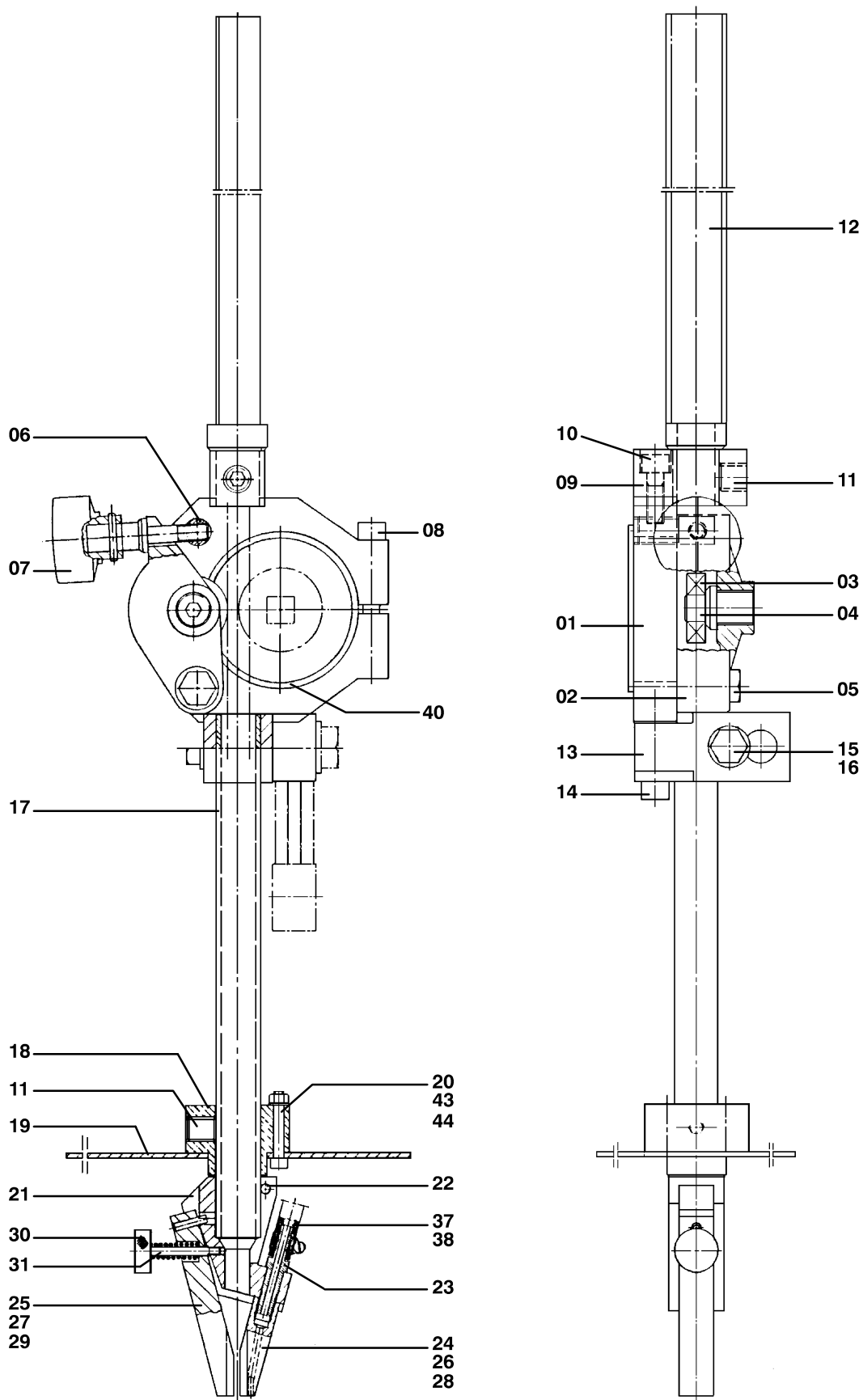
Reservdelsförteckning - Spare parts list - Ersatzteilverzeichnis - Liste de pièces détachées

Item	Qty	Orderingno.	Denomination	Remarks	Component designation in the circuit diagram
		153 142-880	Guide lamp	Optional equipment (A6 SFD1) Optional equipment (A6 SFD2) Optional equipment (A6 TFD1/ TFD2) Optional equipment (A2SFD1/SGD1) Optional equipment (A2 Multitrac)	
02	1	153 142-002	Lens tube		
03	1	153 142-003	Bulb		
	1	157 172-001	Bulb		
12	1	5385 011-04	Pin plug		



Reservdelstörteckning - Spare parts list - Ersatzteilverzeichnis - Liste de pièces détachées

Item	Qty	Orderingno.	Denomination	Remarks	Component designation in the circuit diagram
		153 592-880	Add, equipment for air-arc	Optional equipment (A6 TFD1)	
01	1	153 450-001	Clamp		
02	1	153 449-001	Cover		
03	1	147 551-002	Idling roller		
04	1	154 187-001	Stub shaft		
05	1	154 188-001	Screw stud		
06	1	154 189-001	Screw stud		
07	1	154 190-880	Screw		
08	1	192 238-507	Screw	M10x80	
09	1	154 192-001	Attachment		
10	1	192 238-495	Screw	M10x30	
11	2	190 509-618	Screw	M16x16	
12	1	154 193-880	Guide chute		
13	1	154 196-001	Clamp		
14	1	192 238-501	Screw	M10x50	
15	1	2121 016-30	Screw	M12x40	
16	1	190 452-178	Washer	D26/13x2	
17	1	154 207-001	Contact tube		
18	1	154 197-001	Hub		
19	1	154 198-001	Screen		
20	4	192 238-378	Screw	M6x40	
21	1	153 871-001	Torch tip		
22	1	192 238-372	Screw	M6x25	
23	1	154 199-001	Fitting, nipple		
24	1	154 200-001	Contact jaw	5/16"	
25	1	154 201-880	Contact jaw	5/16"	
26	1	154 200-002	Contact jaw	3/8"	
27	1	154 201-881	Contact jaw	3/8"	
28	1	154 200-003	Contact jaw	1/2"	
29	1	154 201-882	Contact jaw	1/2"	
30	1	154 202-001	Screw		
31	1	192 190-003	Compression spring		
32	1	2185 102-90	Feed roller	5/16"	
33	1	2185 102-91	Feed roller	3/8"	
34	1	2185 102-97	Feed roller	1/2"	
35	1	6880 003-05	Allen screw		
36	1	333 111-882	Solenoid valve	42V	
37	1	333 754-001	Hose	L=500	
38	2	193 761-002	Hose clamp		
40	1	2155 036-01	Insulating sleeve		
41	1	2188 101-83	Handwheel		
42	1	151 733-001	Tool box		
43	4	2151 000-13	Washer	D12/6.4x1.5	
44	4	2126 011-07	Nut		



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