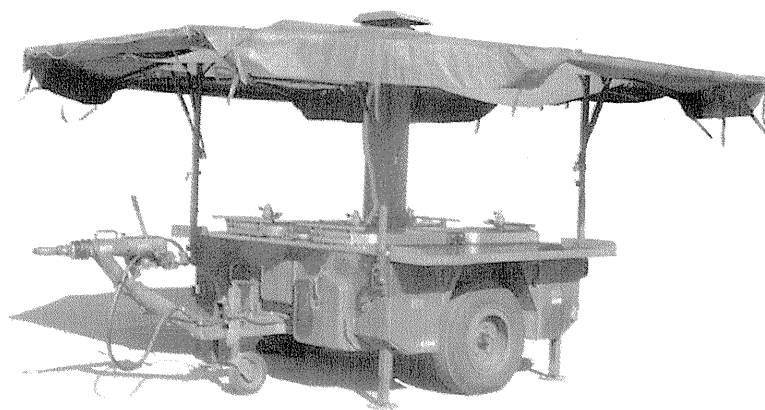




INSTRUCTION MANUAL

TFK 250

1.622-140.0



BTA (GB) 5.970-151.0

ETL 5.960-778.0

10/03

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Part 1
Description

1.1 General Information

1.1.1 General View



Fig. 1 Field kitchen

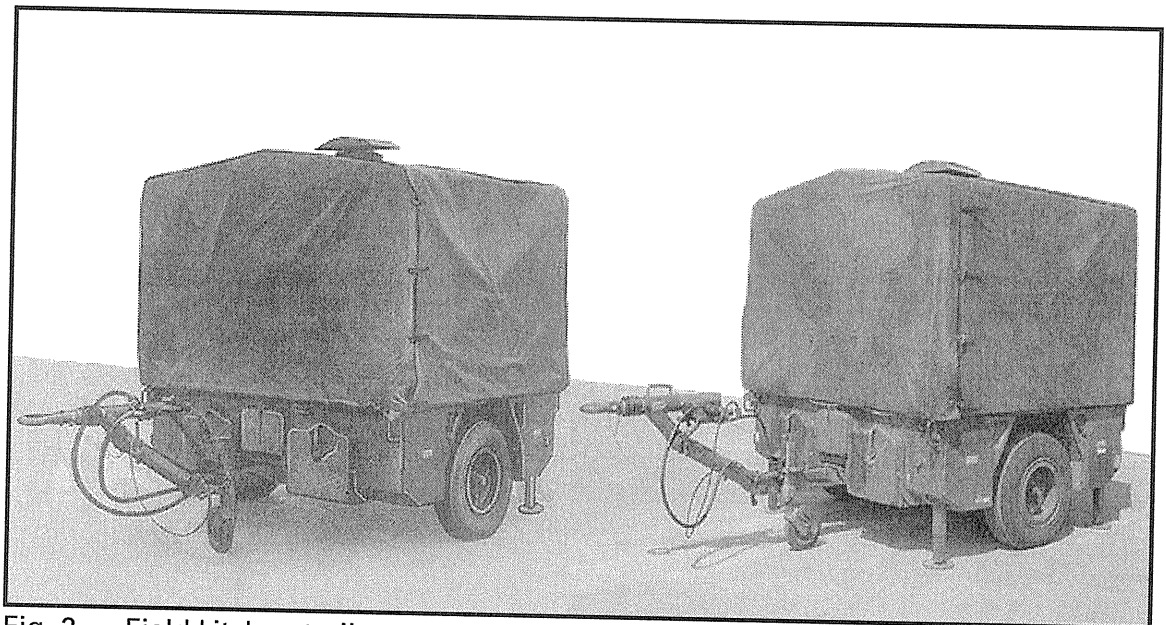


Fig. 2 Field kitchen trailer, variant 1 (left) and variant 2 (right)

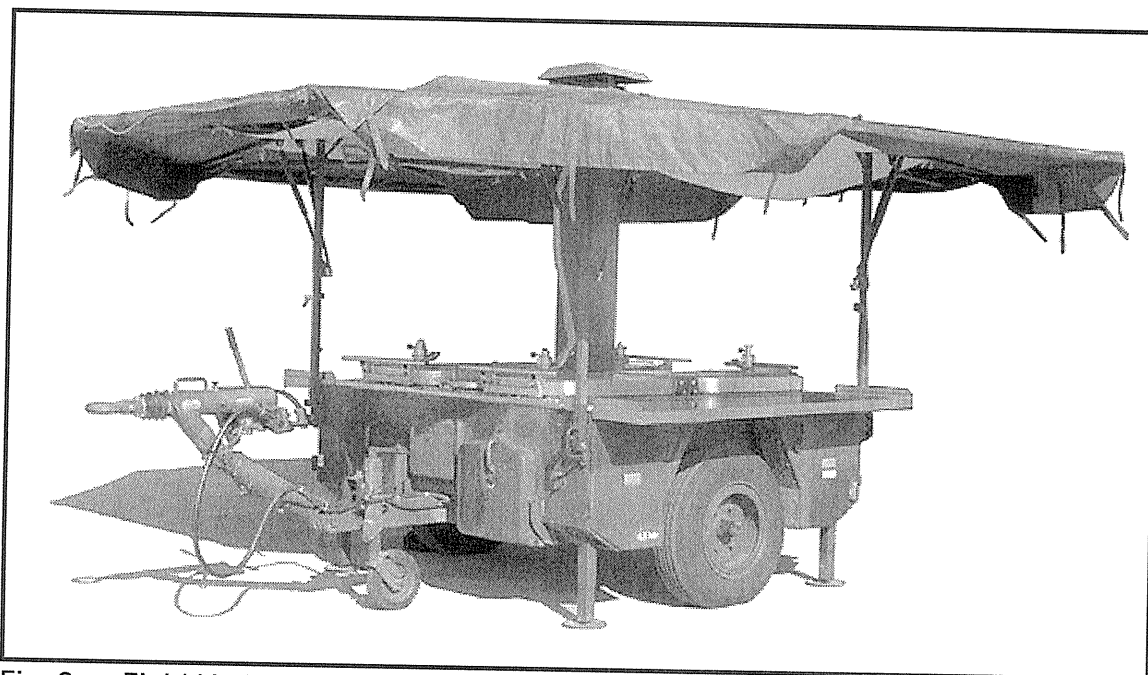


Fig. 3 Field kitchen trailer, with the roof folded up

1.1.2 Designation of the Equipment

Common name: Field kitchen

Supplying name: TFK 250

1.1.3 Intended Use

The field kitchen consists of

- the field kitchen trailer (in the following also referred to as trailer) for the cooking of food,
- the built-in equipment and general equipment as preparation area for cooking, incl. work tables, kitchen utility equipment and other accessories, with storage area for parts of the troop loading and rationing, as well as
- the truck as towing vehicle for the trailer and for carrying of the built-in equipment and the general equipment.

The field kitchen is used for preparation and cooking of meals for up to 250 persons.

Both fresh foods as well as preserved and are non-perishable foods can be processed.

Normally, the field kitchen should be operated within the range of a given infrastructure with intact

- Power supply,
- Water supply,
- Waste water disposal and
- Disposal possibility for food stuffs and waste.

The field kitchen is fully mobile and suitable for travel on roads as well as on unpaved paths over fields or in forests (partially militarized versions for towing vehicle and trailer). However, it is not designed for off-road or cross-country travel.

After appropriate retrofitting, the trailer can also be towed by civil vehicles.

1.1.4 Overview of Assemblies (GAPL)

According to the overview of assemblies (GAPL), the trailer is structured as follows:

06	Electrical System
09	Chassis
12	Brake System
16	Built-in Equipment
17	Burner
18	Frame
19	Surface Mounting
97	Accessories and supplies, Operating and Consumption Materials

1.1.5 Identification Locations

1.1.5.1 Trailer

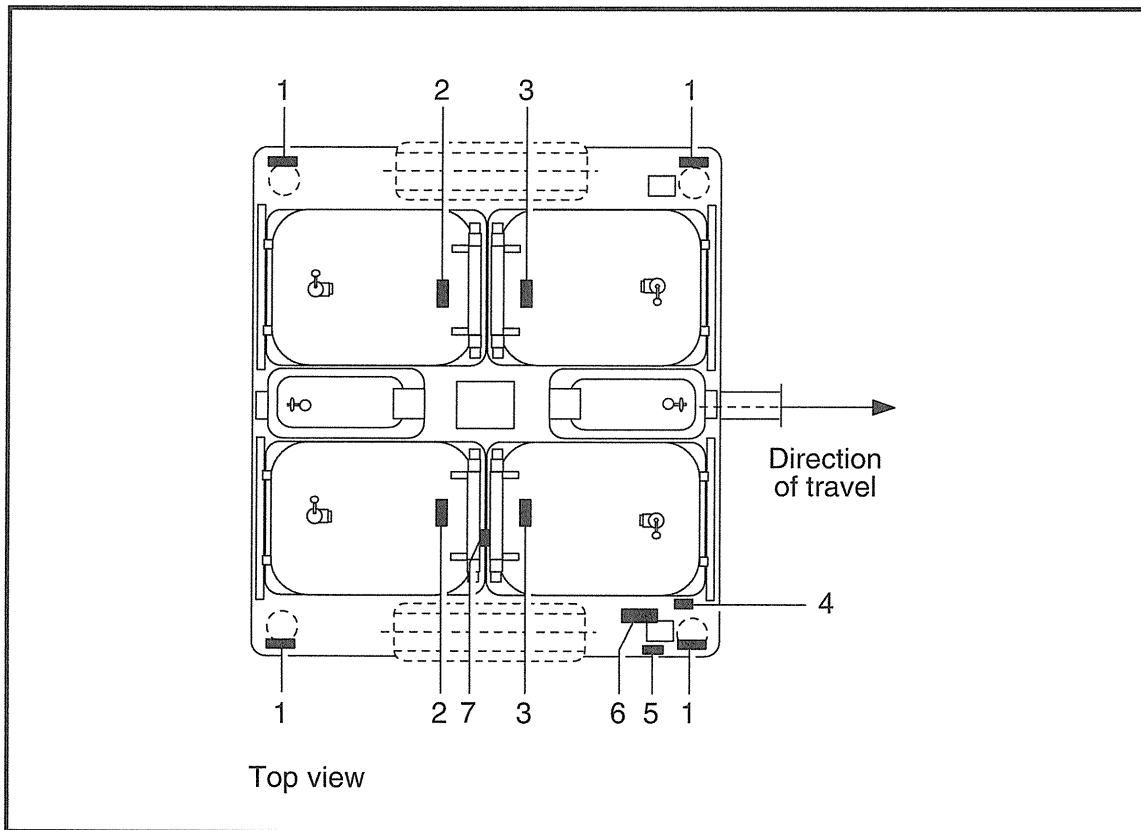


Fig. 4 Locations of identification plates on the trailer

- | | |
|--|-------------------------------------|
| 1 Trailer support | 5 Chassis No. |
| 2 Pressure roaster | 6 Type plate trailer, complete unit |
| 3 Pressure cooker | 7 Torsion bar suspension axle |
| 4 Pressure tank inspection of pressure cooker and pressure roaster | |

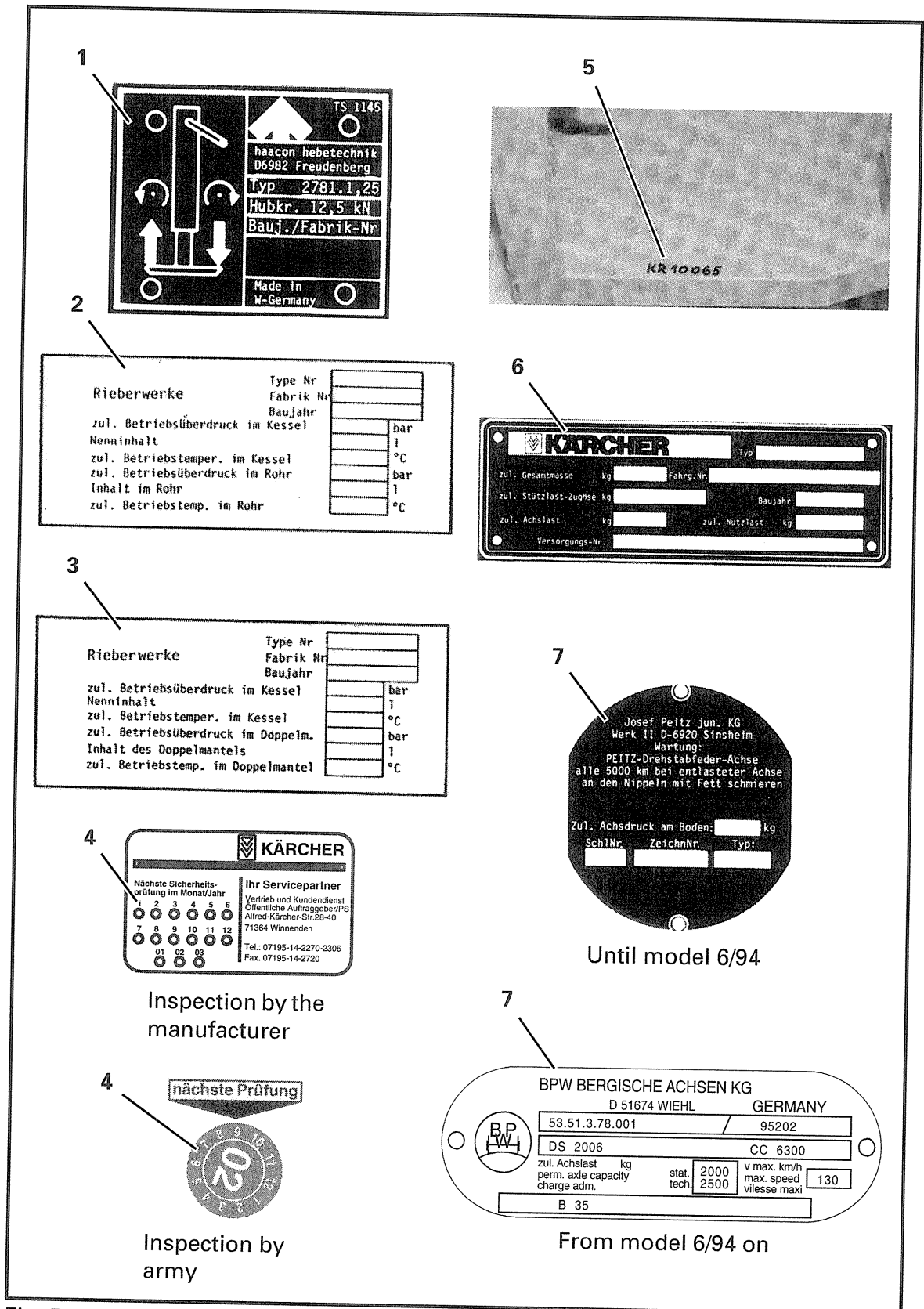


Fig. 5 Identification plates on the trailer (legend according to Fig. 4 Locations of identification plates on the trailer)

1.1.5.2 Towing Hitch

(1) Variant 1

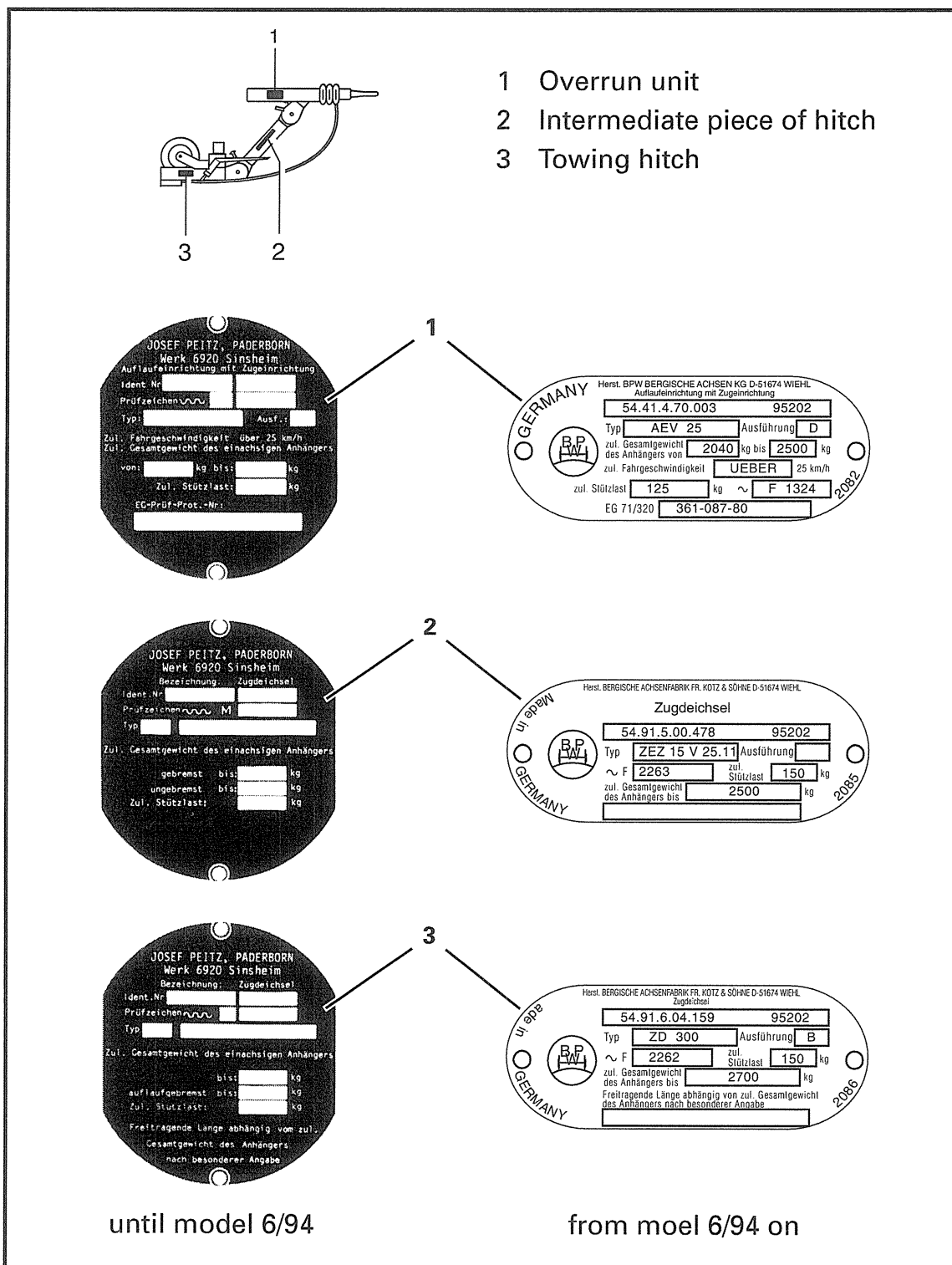


Fig. 6 Identification locations on the towing hitch, variant 1

(2) Variant 2

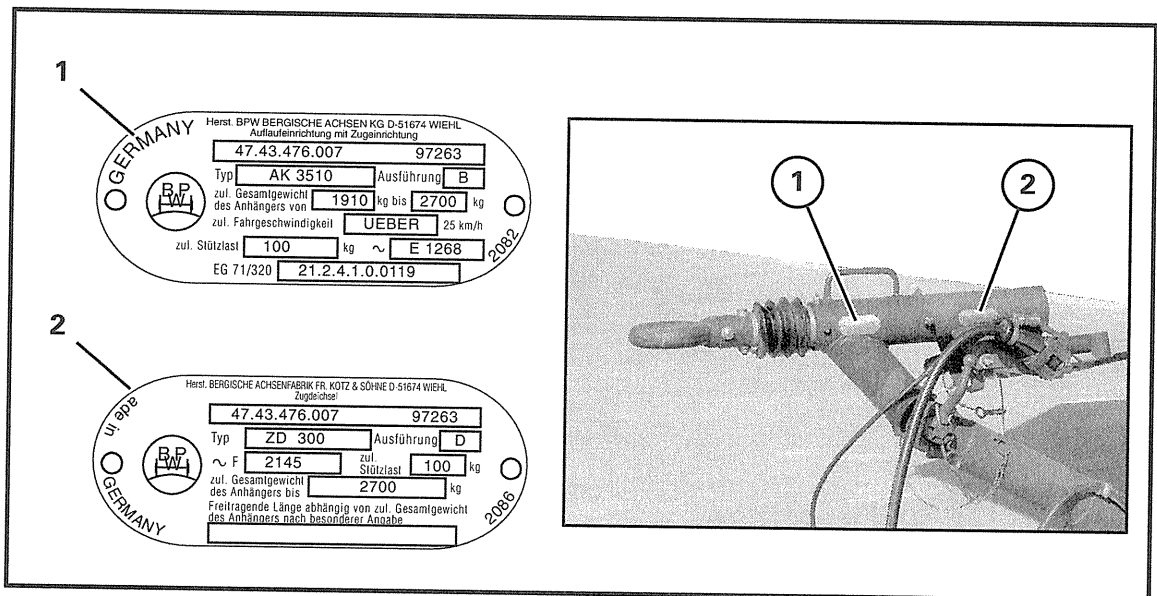


Fig. 7 Identification locations on the towing hitch, variant 2

- 1 Overrun unit
- 2 Towing hitch

1.1.5.3 Burner

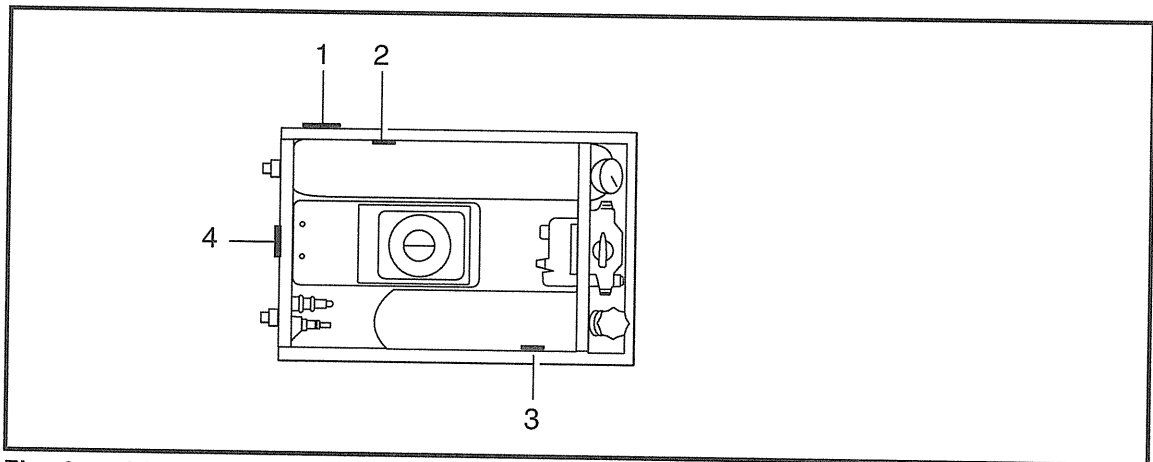


Fig. 8 Identification locations on the burner

- 1 Pressure container inspection, burner
- 2 Air tank
- 3 Fuel tank
- 4 Burner, complete

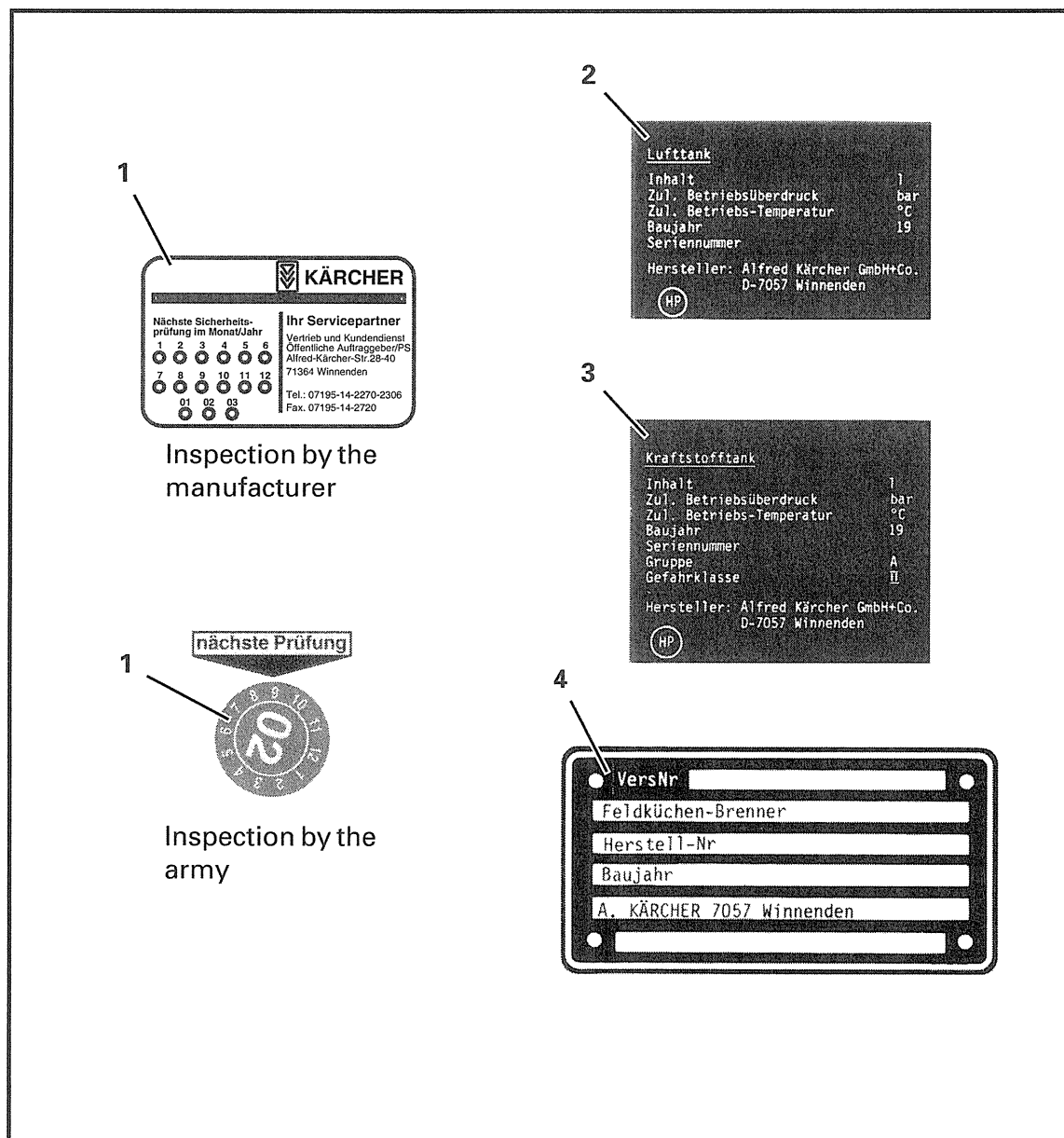


Fig. 9 Identification plates on the burner (legend according to Fig. 8)

1.2 Technical Data

1.2.1 Dimensions

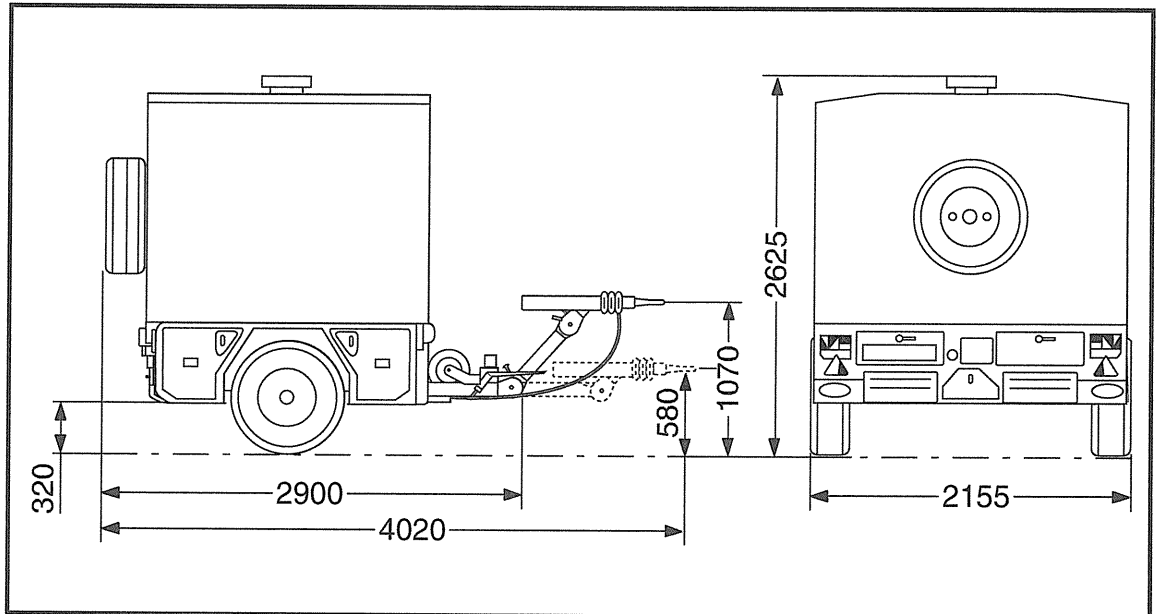


Fig. 10 Dimensions of the trailer (variant 1), ready to move

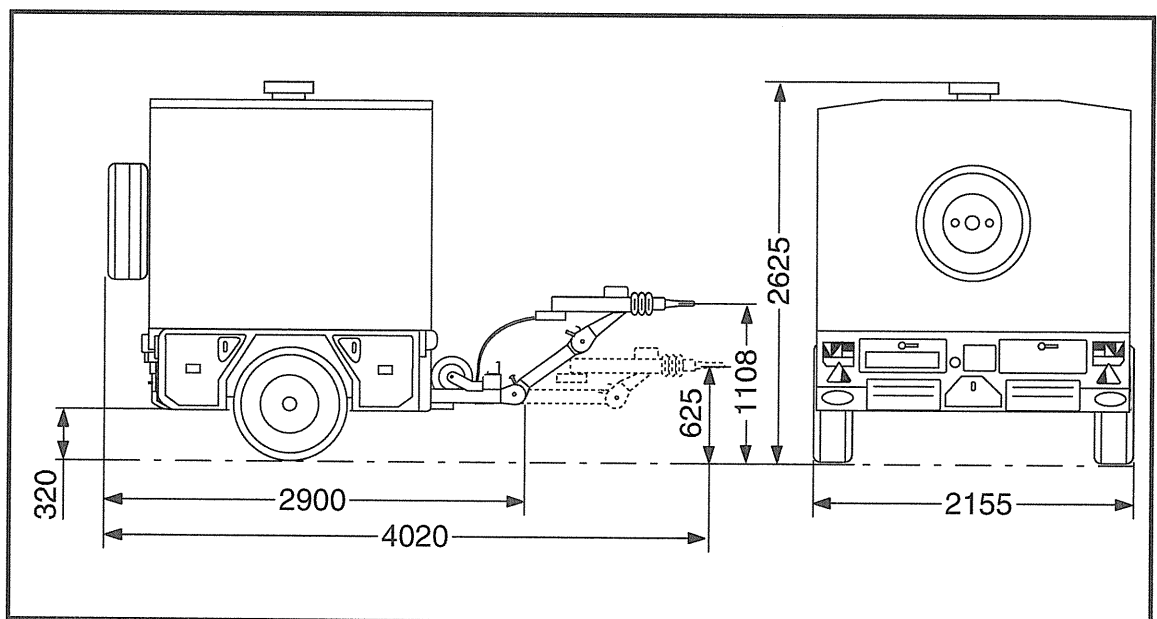


Fig. 11 Dimensions of the trailer (variant 2), ready to move

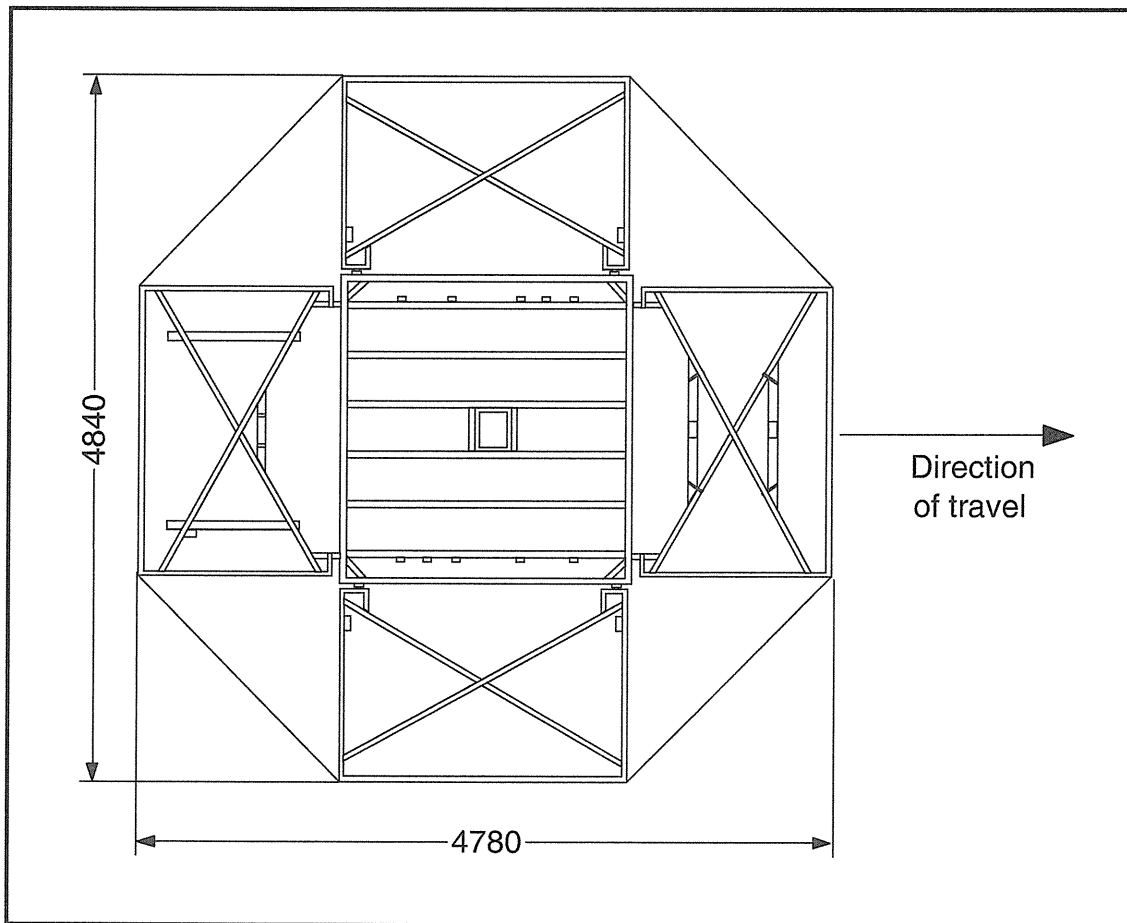


Fig. 12 Dimensions of the roof construction, in working position

1.2.2 Trailer Weights/Loads

Weight, empty	2170 kg
Gross combination weight	2500 kg
Maximum allowable axle load	2500 kg
Allowable load on the trailer coupling	min. 50 kg max. 125 kg

1.2.3 Cooking Facilities

1.2.3.1 Pressure Cooker

Pressure tank according to pressure tank regulations, test group I)

Rated capacity	125 l ¹⁾
Volumetric capacity	150 l
Allowable working overpressure in the boiler	0,45 bar
Allowable working temperature in the boiler	110 °C
Allowable working overpressure in the double jacket	3,5 bar
Rated capacity of the double jacket	10,5 l
Water filling in the double jacket	approx. 5 l
Allowable working temperature in the double jacket	148 °C
Threshold value of the predetermined vapor permeability location at the pressure lid seal (sealing lip)	0,55 bis 0,85 bar
Dimensions L x W x H	900 x 640 x 440 mm
Weight of the pressure cooker with lid, empty	126 kg

1) Rated capacity: Filling amount 70 mm below brim of boiler

1.2.3.2 Pressure Roaster

(Pressure tank according to pressure tank regulations, test group I)

Rated capacity	25 l ¹⁾
Volumetric capacity	55 l
Allowable working overpressure in the boiler	0,45 bar
Allowable working overpressure in the heating tube	150 bar
Water filling in the heating tube	approx. 0,023 l
Threshold value of the predetermined vapor permeability location at the pressure lid seal (sealing lip)	0,55 to 0,85 bar
Dimensions L x W x H	900 x 640 x 440 mm
Weight of the pressure cooker with lid, empty	176 kg

1) Rated capacity: Filling amount 70 mm below brim of boiler

1.2.3.3 Lid Valve

Indication	1. Ring	0,01 – 0,02 bar
	2. Ring	0,15 (–0,05) bar
	3. Ring	0,3 (–0,05) bar
	4. Ring	0,4 (–0,05) bar
Discharge value		0,42 (+0,05) bar

1.2.3.4 Hot Water Boiler

Rated capacity	22 l
Volumetric capacity	30 l
Dimensions L x W x H	630 x 300 x 320 mm
Weight of the hot water boiler with lid, empty	7 kg

1.2.3.5 Oven

Rack levels for GN 1/1-65	2
Volumetric capacity	78 l
Dimensions L x W x H	700 x 530 x 210 mm
Weight of oven with flap, empty	20 kg

1.2.4 Burner**1.2.4.1 Dimensions, Weight and Performance Data**

Dimensions L x W x H	710 x 440 x 215 mm
Weight, empty	approx. 30 kg
Heating capacity	18 kW
Consumption of operating materials	
• Position "1" (min.)	0,8 l/h
• Position "3" (max.)	1,8 l/h

TFK 250

1.2.4.2 Air Tank

(Pressure tank according to pressure tank regulations, test group I)

Volumetric capacity	6,9 l
Allowable operating pressure	9,5 bar

1.2.4.3 Fuel Tank

(Pressure tank according to pressure tank regulations, test group I)

Volumetric capacity	4,8 l
Working pressure	5 bar

1.2.4.4 Safety Block

Safety valve, blow-off pressure	9,5 bar
Pressure reducer, setting value	5±0,1 bar

1.2.5 Frame

Design	Integral, welded steel profile construction
Trailer support	
Drop	215 mm
Spindle stroke	250 mm
Lifting power	12,5 kN

1.2.6 Roof

Gas-pressured dampers	6 x 1000 N/2 x 1300 N
-----------------------	-----------------------

1.2.7 Chassis

Bauart Single-axis chassis with torsion bar and single wheel suspension

1.2.7.1 Tires

Wheel rim 6.5–15 HD

Tires 7.50 R 15–16 PR

Tire pressure 4,3 bar

Tightening torque, wheel nuts 300 Nm

1.2.7.2 Trailer Coupling

Interchangeable, NATO or DIN

1.2.7.3 Brake System

Overrun brake

Overrun stroke, max. 130 mm

Wheel brake (design) Simplex lever brake (spreading action)

1.2.8 Electrical System

Operating voltage 24/12 V

Automatic circuit breaker 2 x 8 A

1.2.9 Operating Materials and Filling Amounts, Burner

Filling amount: 4.8 l operating fuel per burner

CAUTION

Operation with gasoline or other operating fuels mixed with gasoline is strictly prohibited. Danger of explosion!

Operating Fuel	Designation	Service Life ¹⁾	Remarks
F-58	Petroleum	> 120 h	Standard fuel
F-75	Diesel	approx. 80 h	Alternative fuel
F-34/F-35/F-44	Kerosene	–	Alternative fuel
	Fuel oil (heating oil)	–	Use is prohibited! Coking of the burner; cleaning not possible.

1) The times mentioned are approximate values, and represent the operational duration of the burner with one main nozzle and without basic cleaning.

NOTE

Mixing of standard fuel with alternative fuel is possible in **small** quantities (remainders after draining the burner).

1.3 Technical Description

1.3.1 Trailer

The trailer (variant 1 and 2) is a mobile kitchen set-up with two pressure cookers, two pressure roasters, two ovens and two hot water boilers.

The four side parts of the roof can be folded up individually, and are held open by two gas-pressure dampers each.

Additionally, side tarpaulins can be hooked onto the folded up side parts.

The chassis is equipped with a torsion bar suspension axle with end buffer and shock absorbed single wheel suspension. The overrun unit with trailer coupling ring is height-adjustable. The two drum brakes are activated by a mechanically operated overrun unit. When stationary, the trailer is secured by means of a parking brake. *Im Stand wird der Anhänger mit einer Feststellbremse gesichert.*

The lighting installation consists of tail, brake and turn signal lights, as well as number plate and contour lights.

1992 models and on are equipped with a rear fog light.

Older model trailers are not retrofitted and may be towed without rear fog light. For this case, a special permission is available.

1.3.2 Cooking Equipment

The trailer is equipped with

- Two pressure cookers (13/4), front left and right,
- Two pressure roasters (16/1), rear left and right,
- Two ovens (16/7), rear left and right,
- Two hot water boilers (13/5, 16/4), front and rear in the center.

The boilers and ovens are heated by means of four identical, independently operating burners.

The burners are to be operated with petroleum.

Diesel fuel as well as kerosene are to be used as alternative fuels only when petroleum is not available. More frequent cleaning of the burner and reduced service life of the nozzles must be taken into account as a consequence.

CAUTION

When using these alternative fuels, overheating can occur due to the higher heating capacity; therefore, do not operate at full power.

In emergency operation, heating with solid fuels (wood, charcoal) is possible using the solid fuel burner insert.

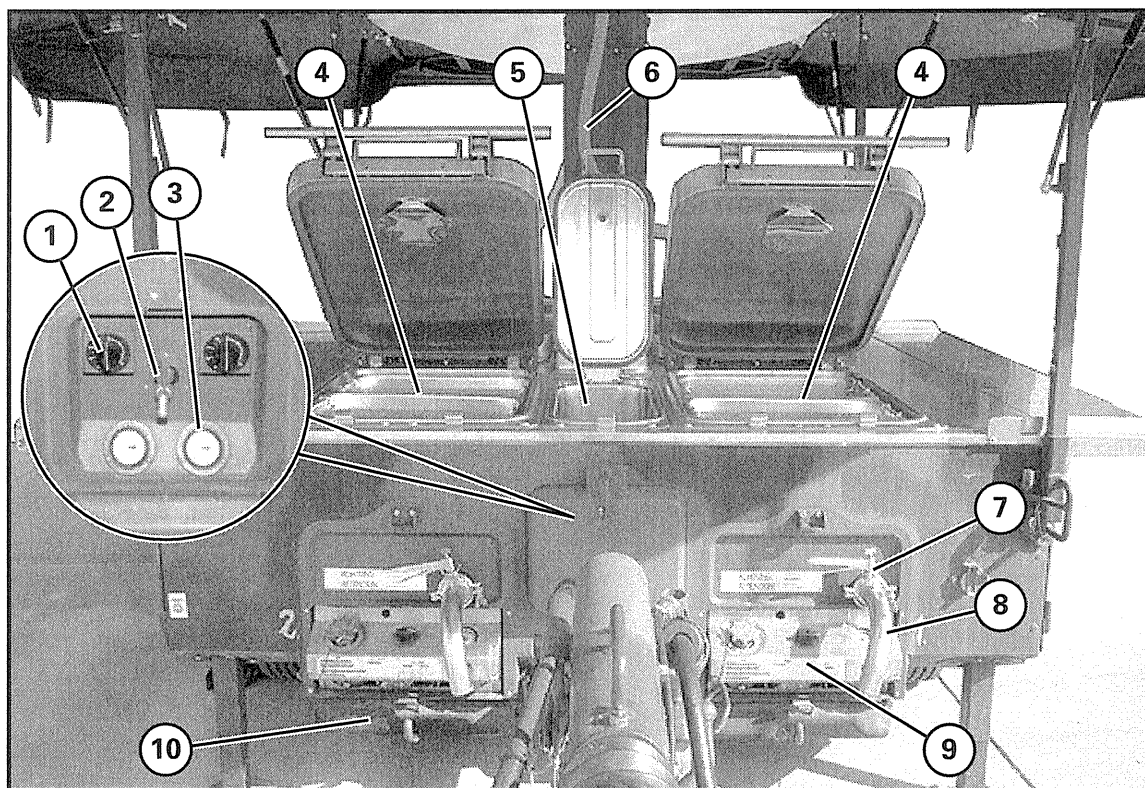
1.3.2.1 Pressure Cookers

Fig. 13 Cooking unit, front

- | | |
|--|--------------------------------|
| 1 Cooking clock | 6 Steam exhaust hose |
| 2 Drain valve, hot water boiler, front | 7 Drain valve, pressure cooker |
| 3 Manometer, double jacket | 8 Drain elbow |
| 4 Pressure cooker | 9 Burner |
| 5 Hot water boiler | 10 Burner door |

The two pressure cookers (13/4) with 125 liters rated capacity each, are double-walled (jacketed) containers. The inner and outer walls are welded steam-tight.

The double jacket (14/5) is partially filled with water which evaporates upon heating and conveys the heat from the burner (14/8) to the food. This indirect method of heating effects even heating in the pressure cooker.

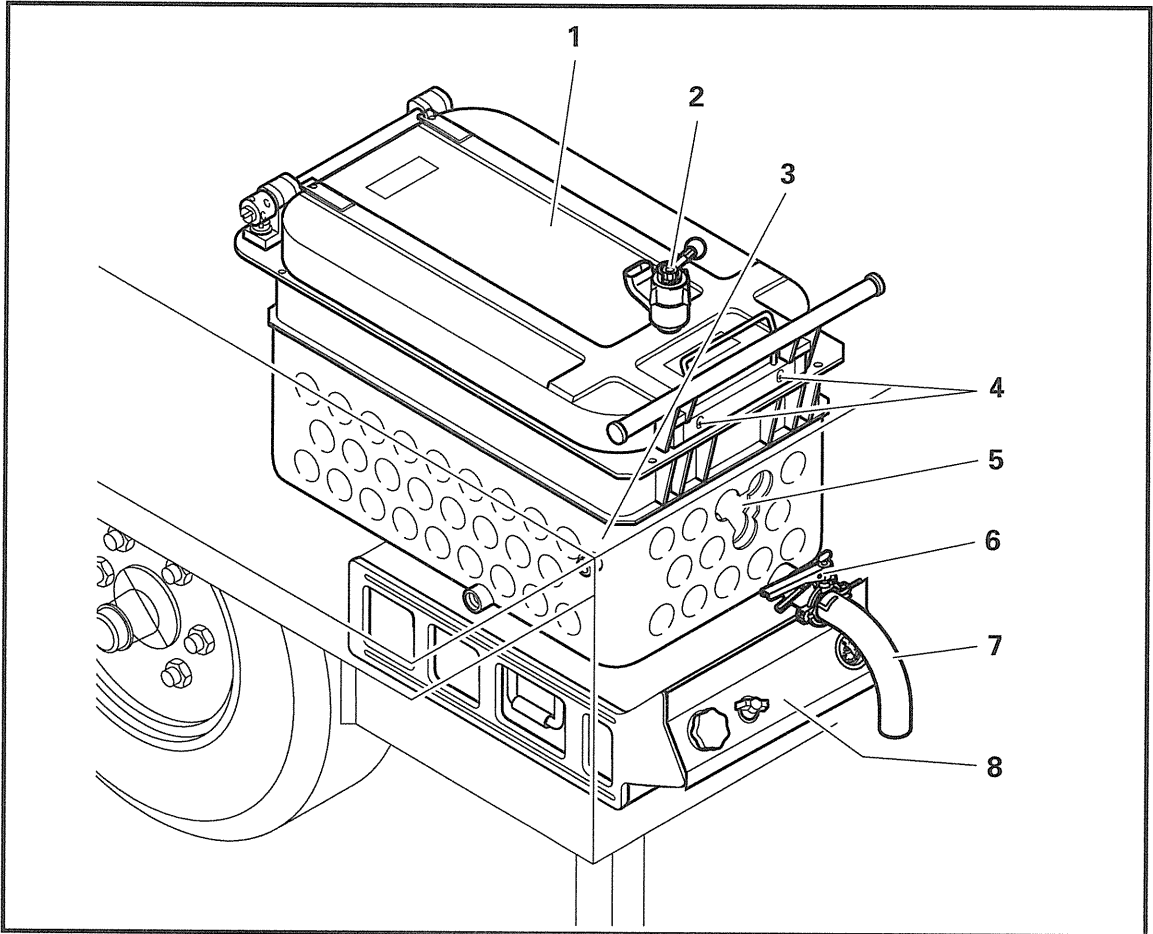


Fig. 14 Pressure cooker

- | | |
|-------------------|--------------------------------------|
| 1 Pressure lid | 5 Pressure area of the double jacket |
| 2 Lid valve | 6 Drain valve |
| 3 Pressure cooker | 7 Drain elbow |
| 4 Control pins | 8 Burner |

The working overpressure in the double jacket is approx. 1 bar (at 100 °C in the double jacket) and can be read on the corresponding double-jacket manometer (13/3)

For draining of fluids, the pressure cooker is equipped with a drain valve (14/6) onto which a drain elbow (14/7) can be attached.

The pressure cooker accepts standard cooking containers (GN).

The cooking clock (13/1) allows for adjustment of alarm periods up to 60 minutes. An acoustic signal sounds after the time has run off.

On the double-jacket manometer (13/3), the scale range from -1 to 2.5 bar and the pointer tip are marked with green luminescent pigment paint, and the scale range from 3 to 3.5 bar is marked with red luminescent pigment paint.

The control pins (14/4) indicate that the lid is shut correctly.

The pressure lid and the lid valve are described in Section 1.3.2.3.

The double jacket valve (15/1) protects the double jacket against excessive overpressure. It opens at 3.5 bar overpressure and blows off steam via the hose (15/3).

In order to achieve optimum heat distribution in the pressure cooker, it is necessary to bleed the air out of the double jacket. Bleeding must be carried out after each filling or opening of the double jacket.

The bleeding valve (15/2) intended for this is located next to the respective double jacket valve in the two front storage areas.

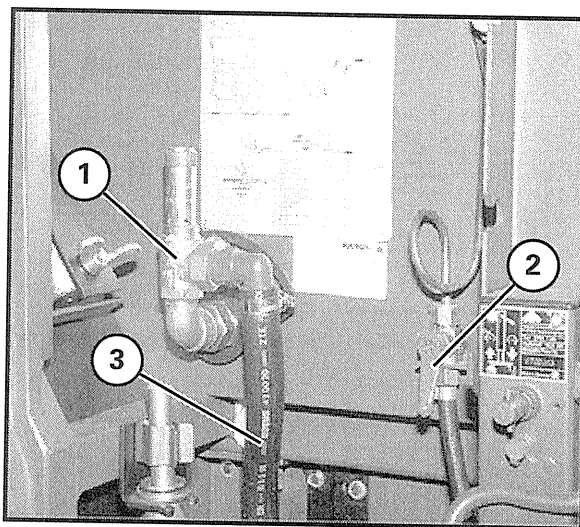


Fig. 15 Storage area, front right

1.3.2.2 Pressure Roaster and Oven

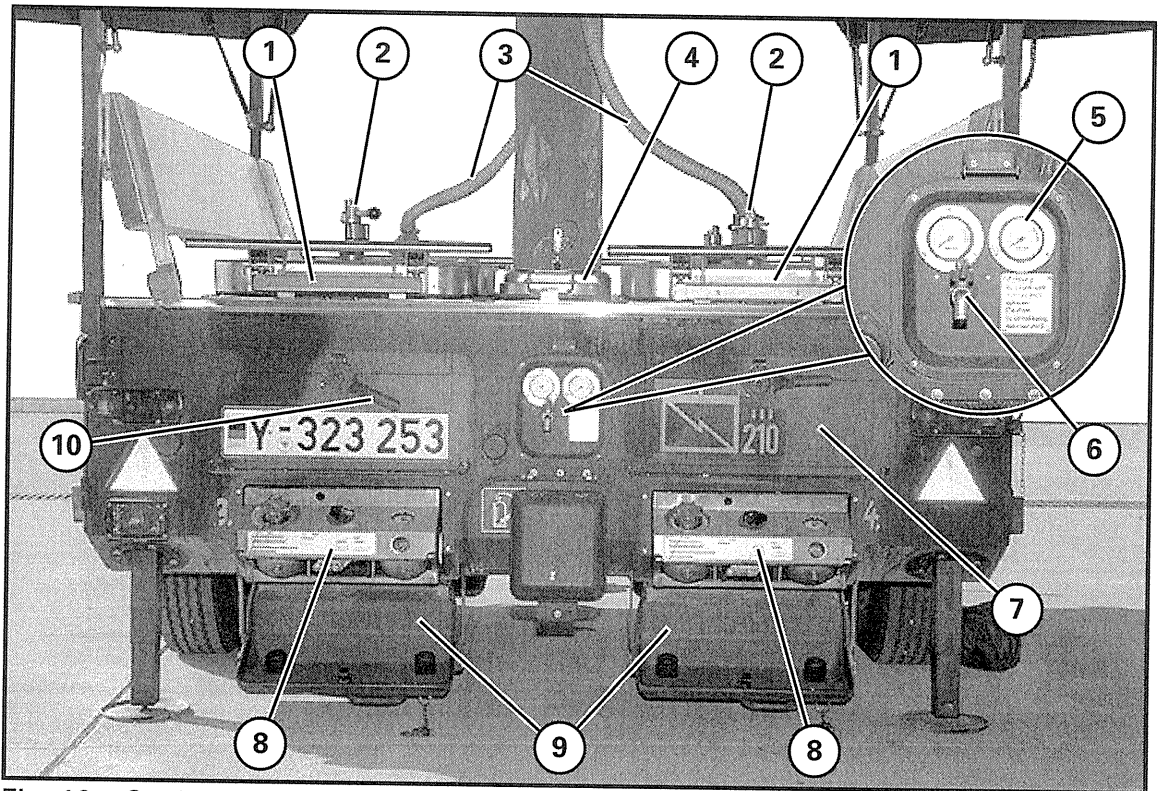


Fig. 16 Cooking unit, rear

- | | |
|---|------------------------|
| 1 Pressure roaster | 7 Oven |
| 2 Lid valve | 8 Burner |
| 3 Steam exhaust hose | 9 Burner door |
| 4 Hot water boiler | 10 Locking lever, oven |
| 5 Temperature indicator | |
| 6 Drain valve,
hot water valve, rear | |

One pressure roaster (16/1) and an oven (16/7) each are heated by one burner (16/8).

The two pressure roasters, each with a rated capacity of 25 liters, are single-wall containers with a heat-compensating base. The heat from the burner to the pressure roaster is transmitted through heating tubes (17/7) which are installed around the oven and welded to the heat-compensating base. The heat is distributed evenly over the complete surface by the heat-compensating base, and rapid heat removal is prevented when placing in pieces of roast.

The pressure lid and the lid valve are described in Section 1.3.2.3.

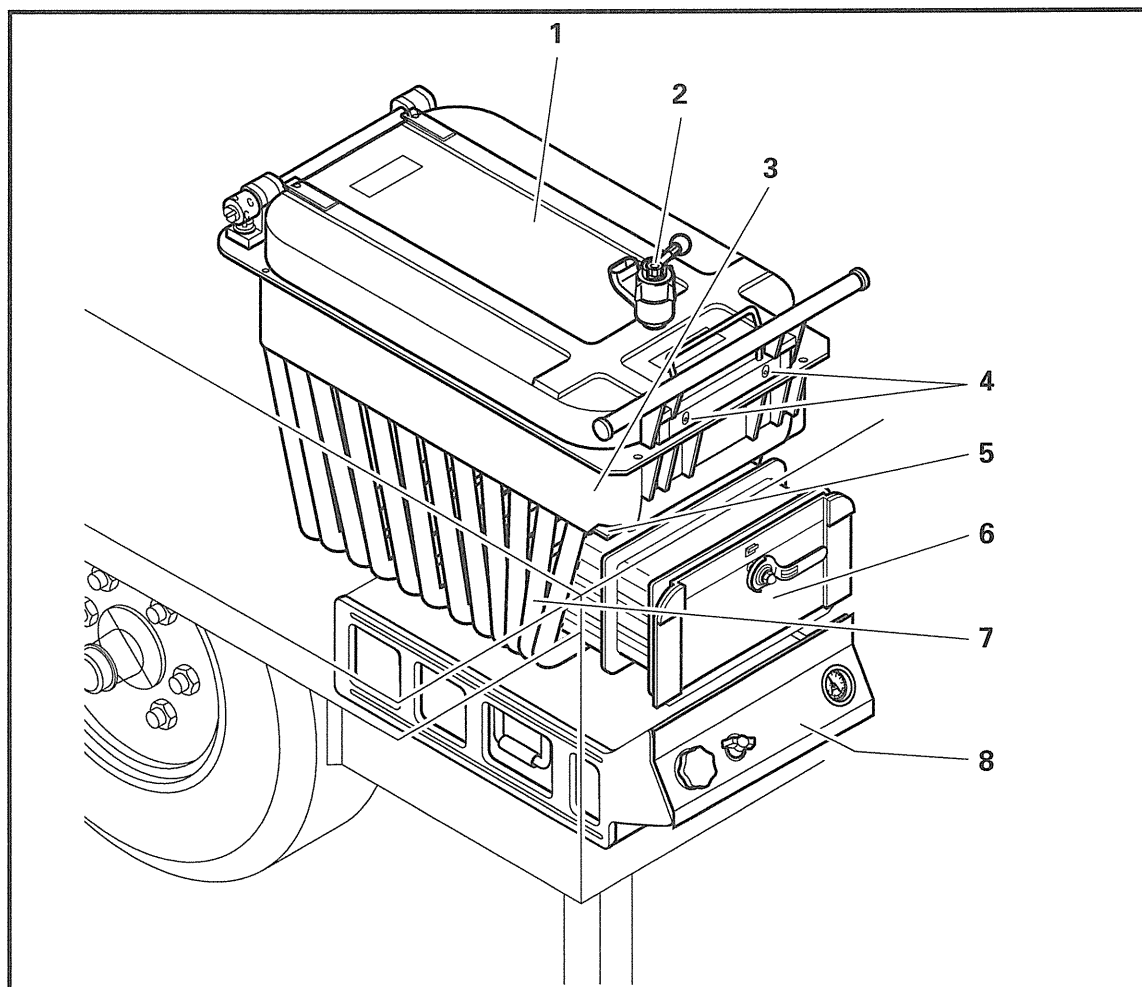


Fig. 17 Pressure roaster and oven

- | | |
|--------------------|--------------------------|
| 1 Pressure lid | 5 Heat-compensating base |
| 2 Lid valve | 6 Oven |
| 3 Pressure roaster | 7 Heating tube |
| 4 Control pins | 8 Burner |

The oven is a single-wall container, which is shut on the front side with a door. It is heated by means of the heating tubes of the pressure roaster and the exhaust fumes of the burner. The temperature in the oven is to be read off of the respective temperature indicator (16/5).

The locking lever (16/10) for opening of the oven door is designed in such a manner that when in the vertical position, the door only opens gap wide, in order to allow steam to escape. After swiveling the lever further 90°, the door can be opened fully.

Baking sheets can be slid in the oven on two levels.

1.3.2.3 Pressure Lid

(1) General Description

Pressure cooker and pressure roaster are shut with the pressure lid (18/4).

The lid valve (18/2) is inserted in the pressure lid. The escaping steam is led through the steam exhaust hose (18/1) into the flue.

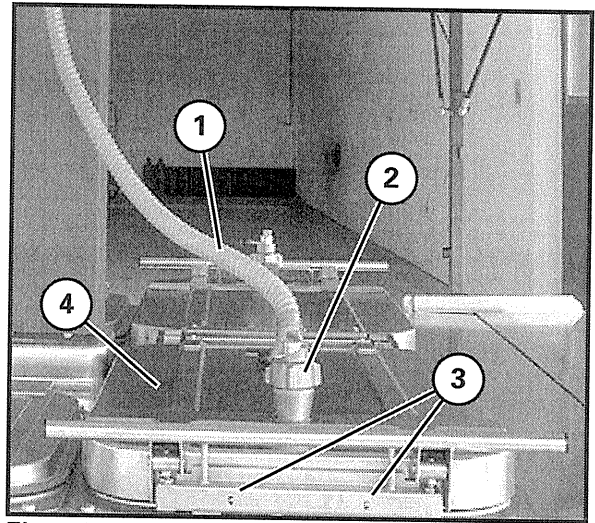


Fig. 18 Pressure lid, shut

A vapor plate (19/2) is located on the inside of the pressure lid. It prevents fluid food stuffs from being drawn out while releasing the pressure.

The seal between cooker and pressure lid is effected by a silicone lid seal (19/1). When the lid is closed, the lip of the seal faces over the edge of the cooker and is pressed against as pressure builds up in the cooker.

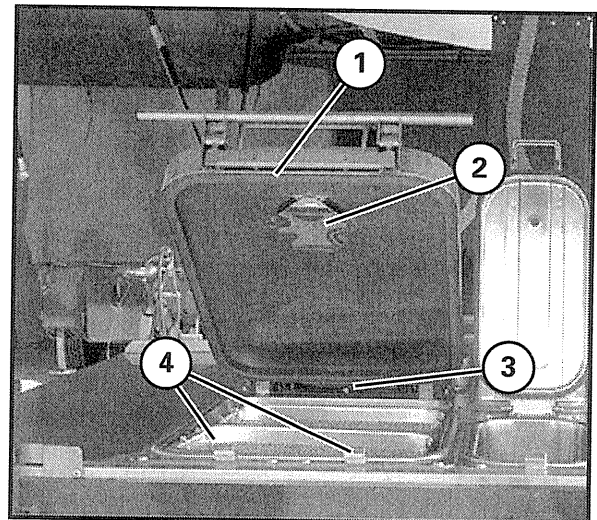


Fig. 19 Pressure lid, open

On the hinge side of the lid, the seal lip is formed in such a manner to act as a predetermined vapor permeability location (20/1), over which excessive interior pressure can escape (2. safety device apart from the lid valve; reaction pressure between 0.55 and 0.80 bar).

The pressure lid is spring-loaded with a spring (20/2) positioned between the hinges, so that it is held in place at any given position.

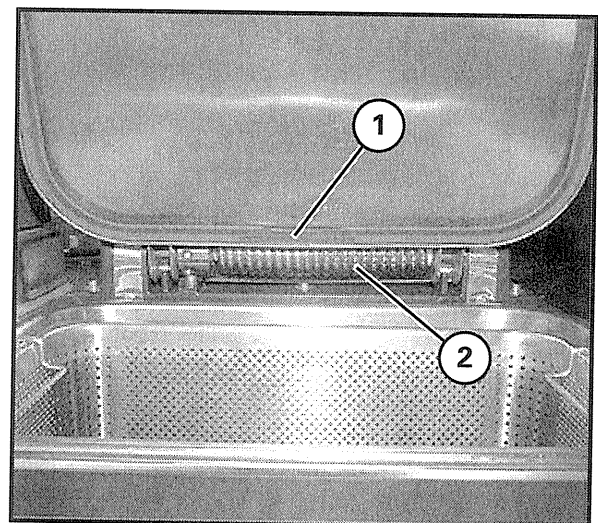


Fig. 20 Spring and lid seal

(2) Lid Valve

The lid valve indicates the pressure in the cooker and protects the boiler from overpressure (1. safety device).

When the pressure increases, the pressure indicating pin (21/2) is lifted and four ring marks (21/1) become visible.

The ring marks indicate the following amounts of overpressure:

1. Ring 0.01 – 0.02 bar
2. Ring 0.15 (-0.05) bar
3. Ring 0.30 (-0.05) bar
4. Ring 0.40 (-0.05) bar

At a pressure of 0.42 (+0.05) bar, the blow-off piece (21/5) is lifted and allows steam to escape through the outlet (21/7).

After the cooking period is over, the lid valve can be opened in steps with help of the blow-off lever (21/6).

CAUTION

Relieve pressure from the cooker only in steps.

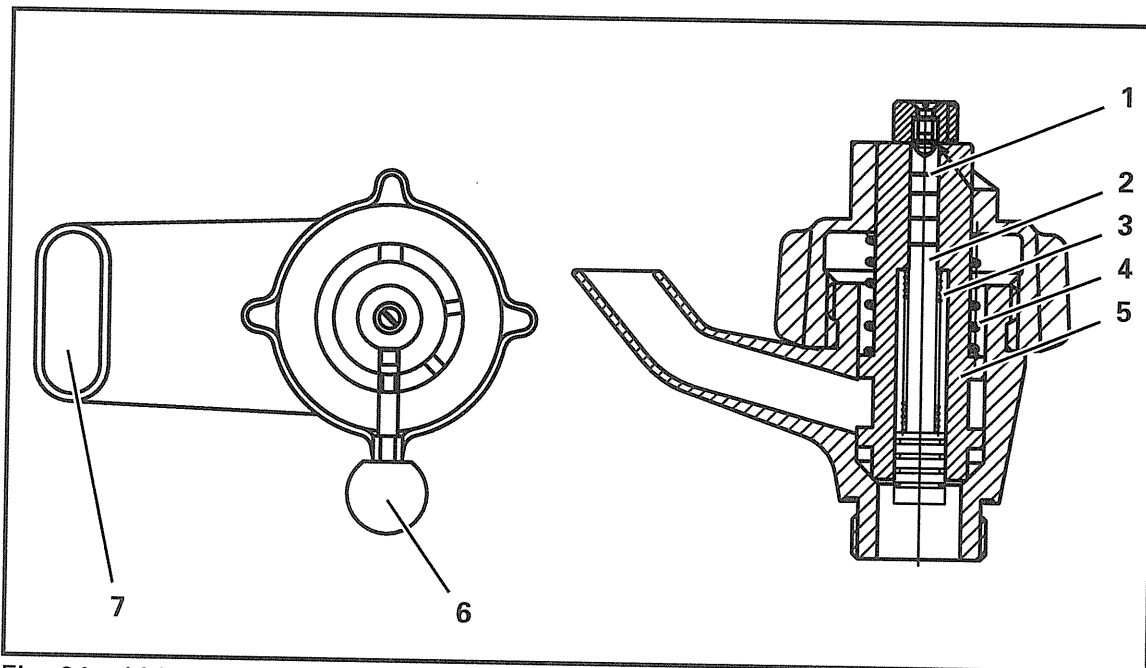


Fig. 21 Lid valve, sectional view

- | | |
|-----------------------------|------------------|
| 1 Ring mark | 5 Blow-off piece |
| 2 Indicating pin | 6 Blow-off lever |
| 3 Spring for indicating pin | 7 Outlet |
| 4 Spring for blow-off piece | |

(3) Lid Lock

The pressure lid is locked by means of a locking lever (22/1), which engages behind two retainers (22/4, 19/4) on the pressure cooker or roaster respectively.

Proper locking is indicated through the two control pins (22/3, 18/3).

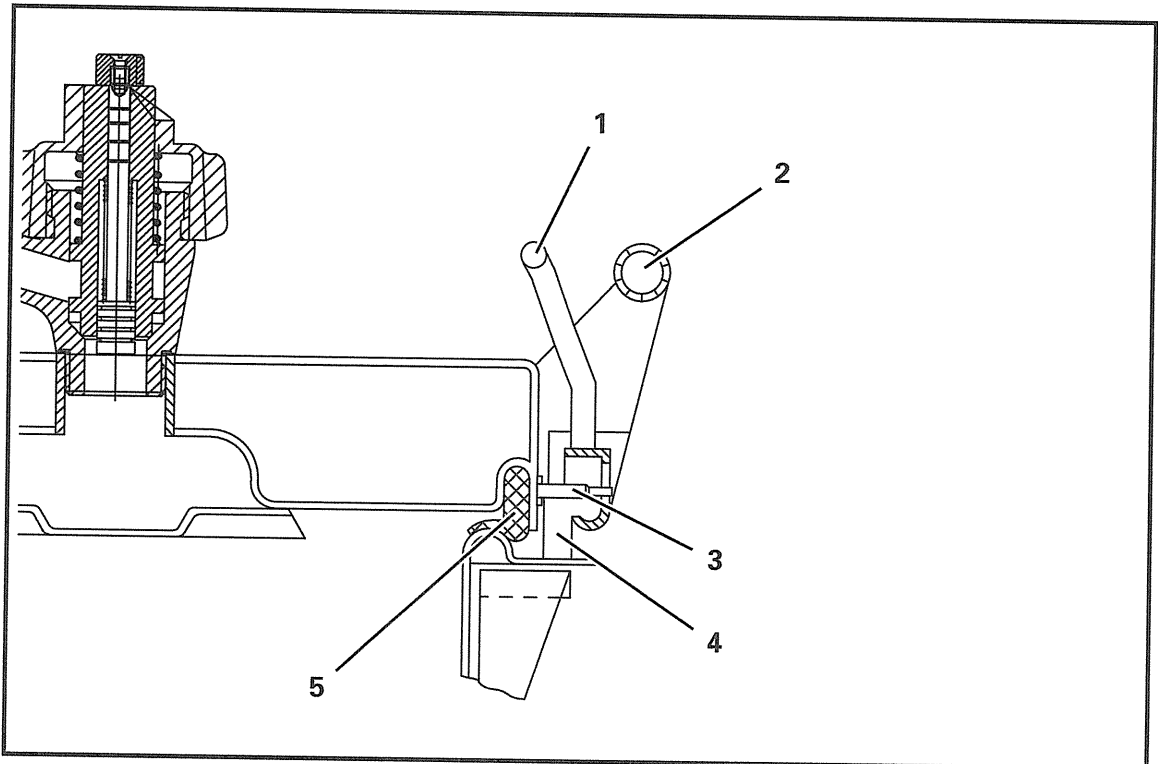


Fig. 22 Lid lock

- 1 Locking lever
- 2 Handle
- 3 Control pin

- 4 Retainer
- 5 Pressure lid seal

1.3.2.4 Steam Exhaust Hose

The steam escaping out of the pressure cooker or pressure roaster upon pressure relief is led into the flue via the two steam exhaust hoses (23/1).

This prevents the work area from fogging up, especially at low temperatures.

CAUTION

Danger of scalding in the area where the steam escapes!

A steam exhaust hose each is fastened with a quick-connector (24/1) at the front and rear of the flue in the direction of travel. The connection for attachment (24/2) to the flue is secured additionally with a securing latch (24/3).

To lead the steam into the flue, the funnel attachment (25/2) of the steam exhaust hose is slid over the outlet (25/3) of the lid valve and carefully tightened with the attachment screw (25/1).

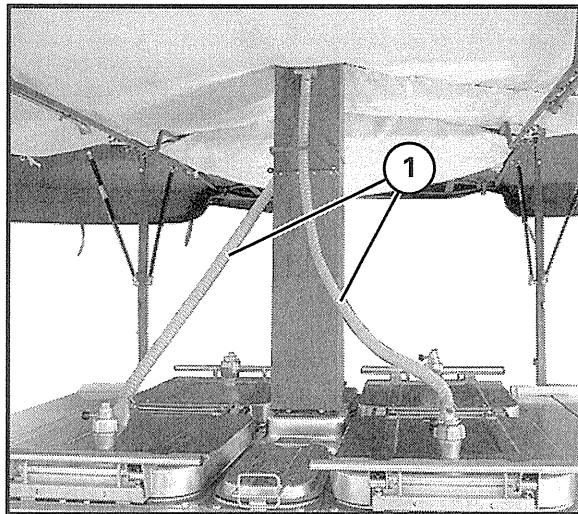


Fig. 23 Steam exhaust hoses

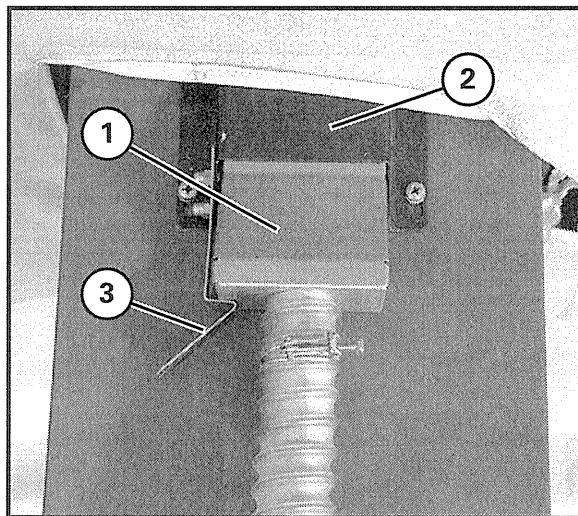


Fig. 24 Attachment of steam exhaust

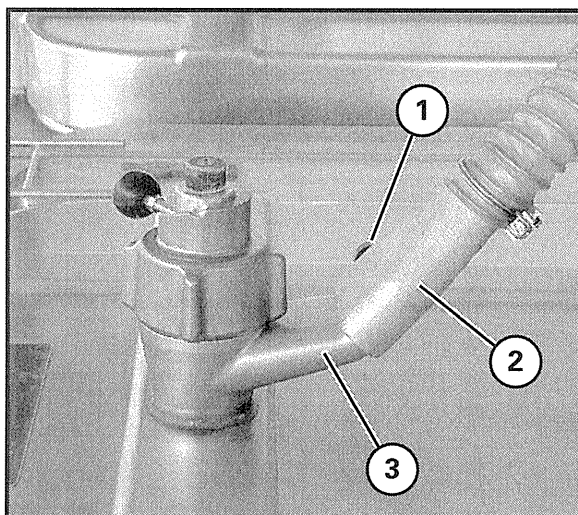


Fig. 25 Funnel attachment to lid valve

1.3.2.5 Hot Water Boiler

The two hot water boilers (Fig. 26) are single-walled containers with a capacity of 22 liters. They are located between the pressure cookers and pressure roasters. The hot water boilers are heated by the exhaust gases from the burner.

CAUTION

Before putting the burners into operation, the hot water boilers are to be filled at least half full with water.

The boiler lids are sealed with a seal and locked by means of a clamp (26/1). Water is removed via the drain valve (26/2). A 1/2" water hose is supplied. It can be attached to the drain valve for emptying of the hot water boiler.

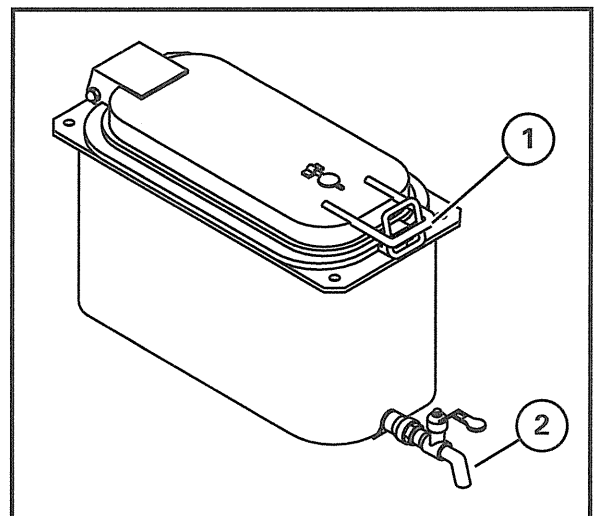


Fig. 26 Hot water boiler

1.3.2.6 Cover and Folding Table

The cover between the boilers and the two folding tables (27/1) are of stainless steel. When raised, the tables are held in position by two spring bolts (27/2).

Each, which can be released by pulling on a pull cord.

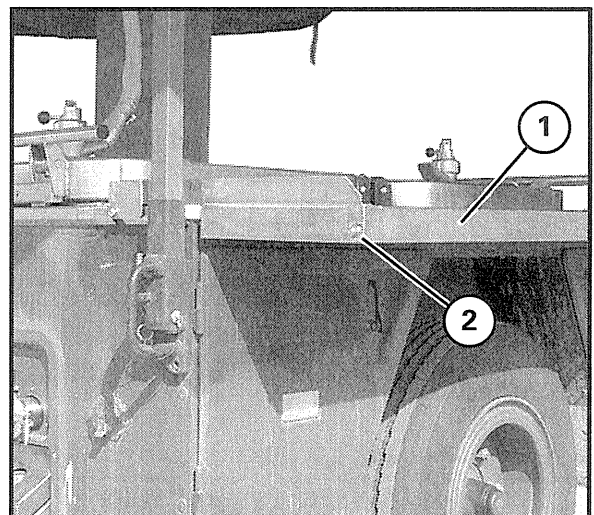


Fig. 27 Folding table

1.3.2.7 Burner Assembly

The burner assembly consists of the following components:

- Air tank (29/2)
- Safety block (29/1)
- Preheating plate (29/7)
- Frame (29/13)
- Fuel tank (29/11)
- Control block (29/6)
- Burner unit (29/12)
- Burner cover (28/1)

The individual components of the burner are built into the frame (29/13) and can be dismantled. They are connected together by means of pipes. Kerosene and compressed air are required for operation.

The air tank (29/2) can be filled with compressed air from the truck or from a suitable pump.

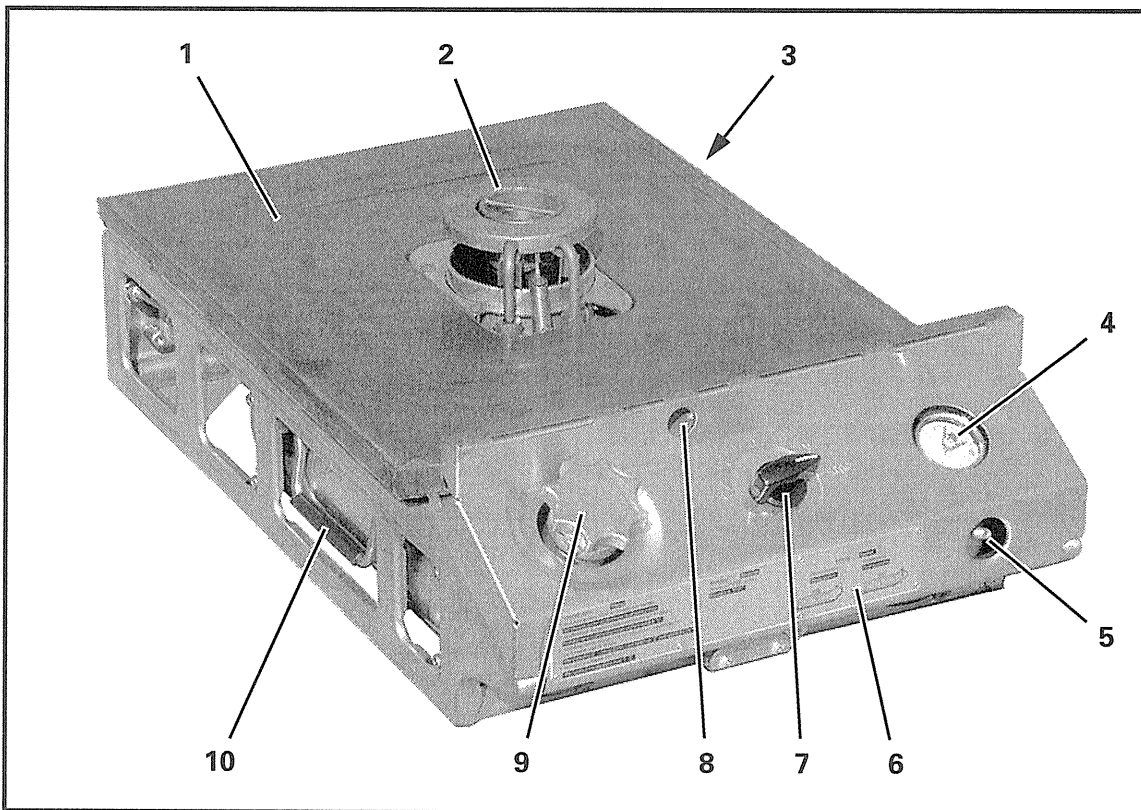


Fig. 28 Burner

- | | |
|-----------------------------------|----------------------|
| 1 Burner cover | 6 Short manual |
| 2 Vaporizer | 7 Rotary switch |
| 3 Label, pressure tank inspection | 8 Inspection opening |
| 4 Manometer, air tank | 9 Tank lid |
| 5 Air-intake valve | 10 Carrying handle |

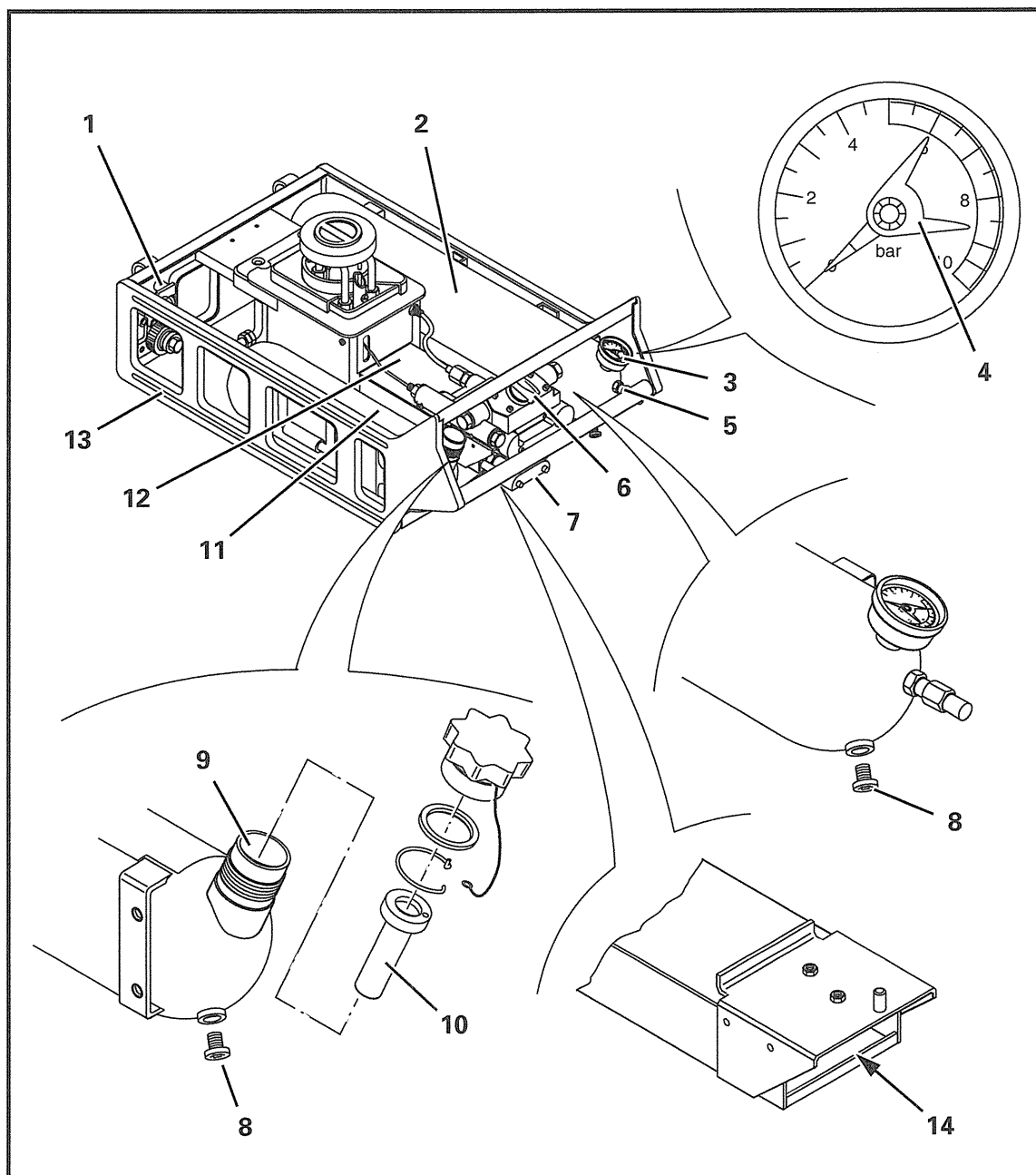


Fig. 29 Burner without burner cover

- | | |
|-----------------------|------------------------|
| 1 Safety block | 8 Drain screw |
| 2 Air tank | 9 Filler neck |
| 3 Manometer, air tank | 10 Inlet strainer |
| 4 Reference pointer | 11 Fuel tank |
| 5 Air-intake valve | 12 Burner unit |
| 6 Control block | 13 Frame |
| 7 Preheating plate | 14 Fuel collecting pan |

1.3.2.8 Air Tank

The air tank (29/2) is screwed to the frame. It has a capacity of 6.9 l and is filled via the air-intake valve (29/5) with air to a maximal overpressure of 9 bar.

The filling pressure is indicated on the air tank manometer (29/3). The adjustable reference pointer (29/4) is used for indication of the preheating time. The scale range from 5 to 9 bar and the pointers are coated with green luminescent pigment paint, the scale range from 9 to 9.5 bar with red luminescent pigment paint.

The drain screw (29/8) is used for draining of condensate.

1.3.2.9 Fuel Tank

The fuel tank (29/11) is screwed to the frame. It has a capacity of 4.8 l and is under pressure when the burner is in operation. The pressure comes from the air tank and is limited to 5 bar by the safety block.

1.3.2.10 Safety Block

The safety block (29/1) is screwed to the frame. It contains a safety valve (30/2), a pressure reducer (30/3) and a check valve (30/1).

The safety valve opens at an overpressure of 9.5 bar.

The pressure reducer is set to 5 bar.

The check valve prevents fuel from entering the air tank.

CAUTION

The pressure reducer is factory-set. The setting must not be changed.

- 1 Check valve
- 2 Safety valve
- 3 Pressure reducer

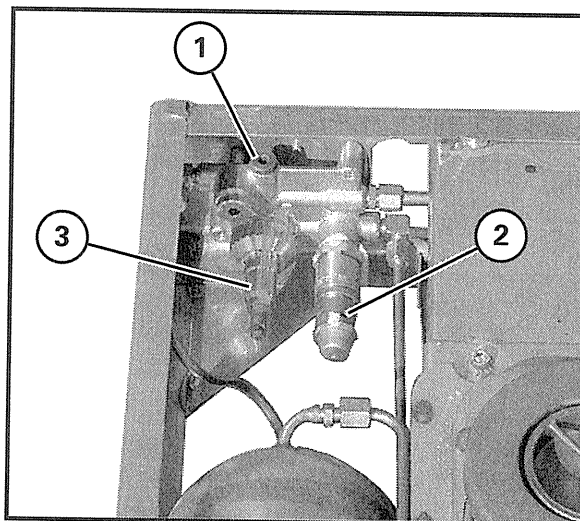


Fig. 30 Sicherheitsblock

1.3.2.11 Control Block and Preheating Plate

The control block (31/5) is fastened on the burner unit.

The preheating plate (31/8) is screwed onto the control block.

The control block contains the regulating and control elements for operation of the burner. The individual elements are operated with the rotary switch (31/3).

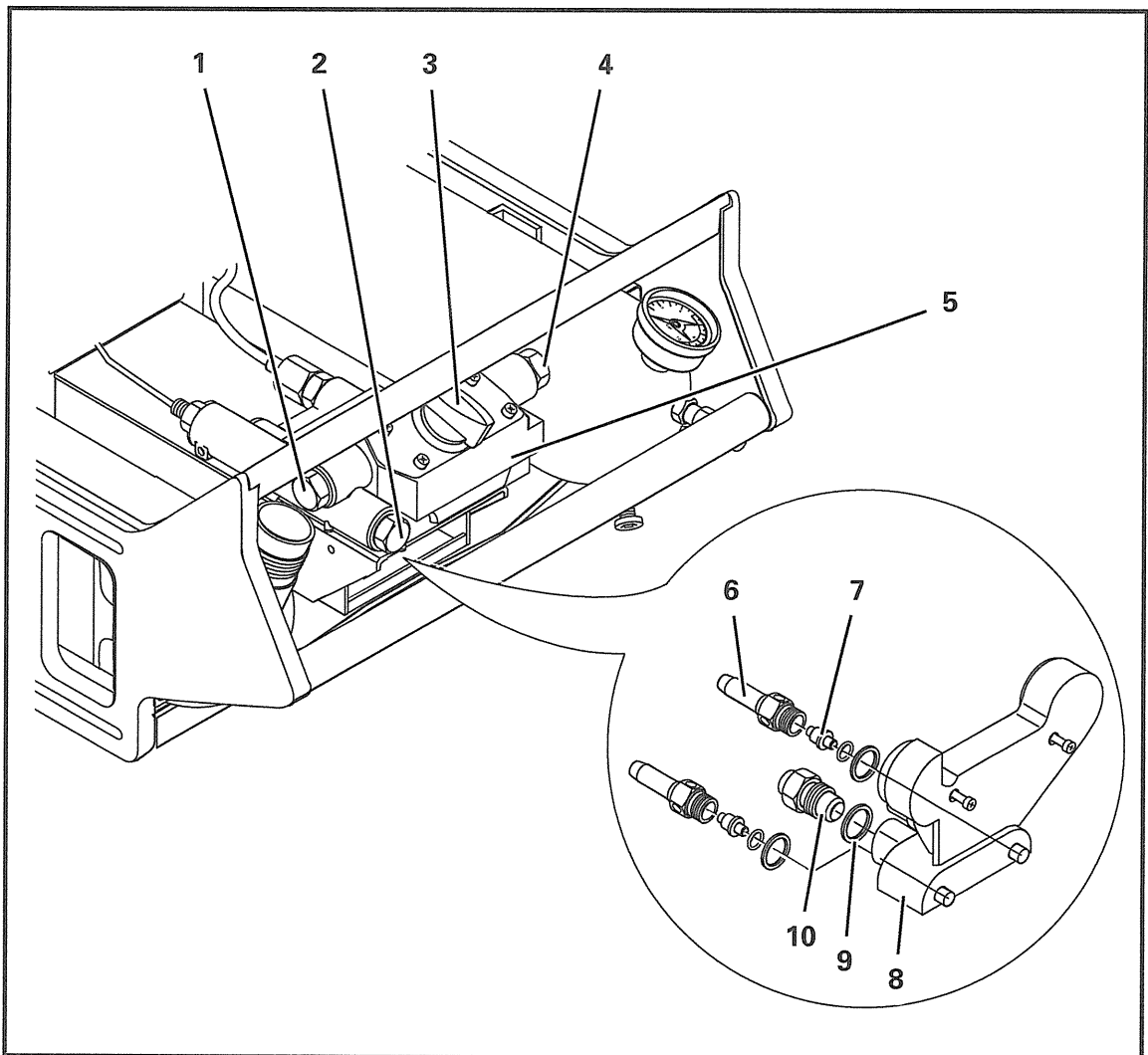


Fig. 31 Control block and preheating plate

- | | |
|--------------------------|----------------------|
| 1 Preheating valve, fuel | 6 Injector sleeve |
| 2 Fine filter, fuel | 7 Air nozzle |
| 3 Rotary switch | 8 Preheating plate |
| 4 Preheating valve, air | 9 Sealing ring |
| 5 Control block | 10 Preheating nozzle |

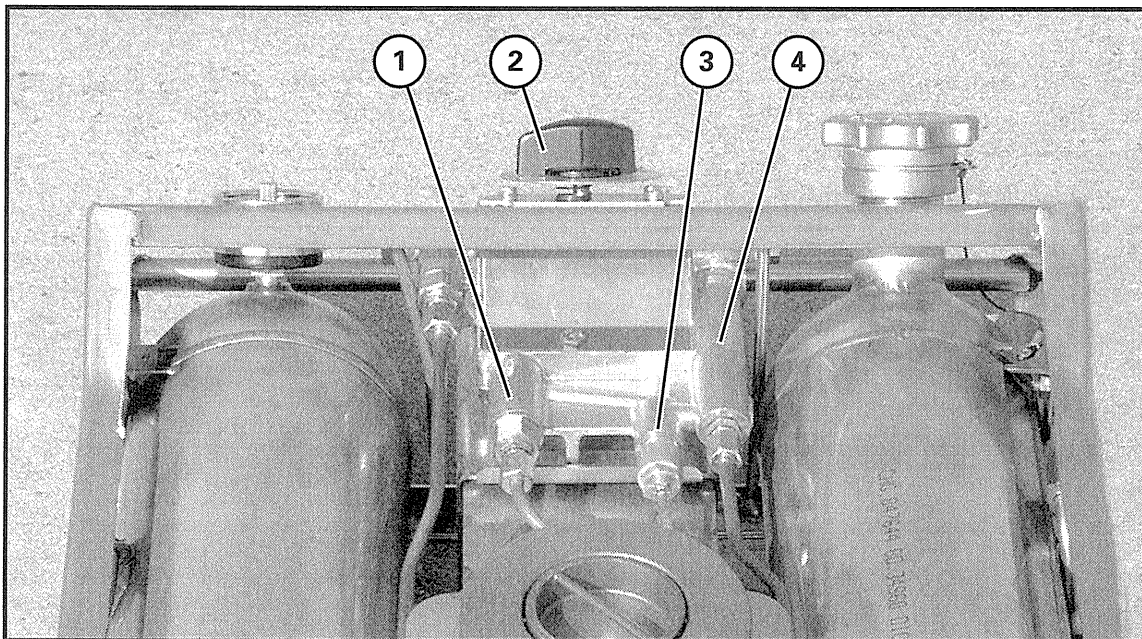


Fig. 32 Control block (without cover)

- | | |
|-------------------------|----------------------|
| 1 Fuel regulating valve | 3 Flame-safety valve |
| 2 Rotary switch | 4 Fine filter, fuel |

By turning the rotary switch (32/2), the respective air, fuel or flame-safety valve is mechanically operated.

The flame-safety valve (32/3) is a solenoid valve which is mechanically actuated only in the "Z" position of the rotary switch. In the operation phase, the valve is held open by means of the thermo-current generated in the flame sensor (33/4). If the flame goes out during operation, the valve shuts and the fuel supply to the main nozzle is interrupted.

All valves in the control block are spring-loaded to return to their starting position.

A fuel fine filter (32/4) prevents contamination of the nozzles, valves and pipes.

By means of the preheating nozzle (31/10) and the two air nozzles (31/7), fuel and air are sprayed into the burner unit during the preheating phase and burnt.

1.3.2.12 Burner Unit

In the preheating phase, the preheating flame is guided through the preheating pipe (33/5) and the flame conductor plate (33/7) to the preheater (33/9) and vaporizer (33/2), whereby these are heated to operating temperature.

Operating fuel is supplied through the preheater and vaporizer to the main nozzle (33/6) to create the operating flame..

The fuel vapor emerging from the main nozzle combines with the air in the burner shield (33/3) and is ignited by the preheat flame. After the preheating flame goes out, the preheater and vaporizer are heated by the operation flame.

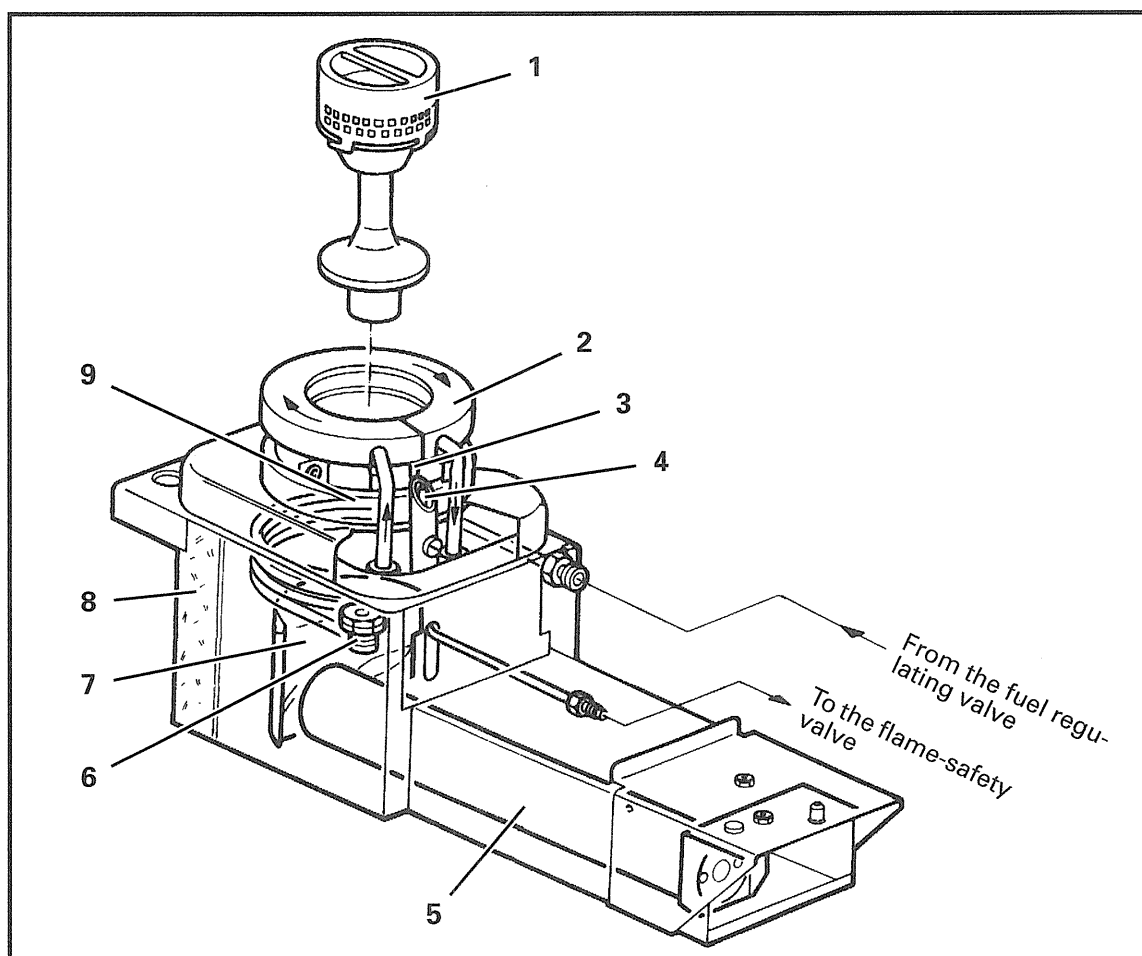


Fig. 33 Burner unit

- | | |
|-------------------|----------------------------------|
| 1 Burner shield | 6 Main nozzle with filter |
| 2 Vaporizer | 7 Flame conductor plate |
| 3 Tongue | 8 Insulation |
| 4 Flame sensor | 9 Preheater with preheating pipe |
| 5 Preheating pipe | |

1.3.2.13 Function

Prior to starting operation, the air tank must be filled with 9 bar max. and at least with 7.5 bar.

During operation of the burner a minimum pressure of 5 bar is required.

The burner is put into operation in three phases:

- Preheating "V",
- Ignition "Z",

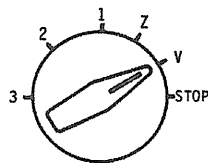
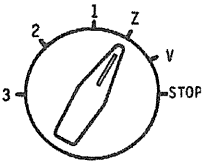
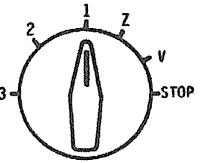
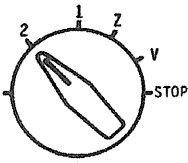
Duration (approx.)	2,5 min	5 sec	2 min	as required
Position of the rotary switch				
Phase	Preheating "V"	Ignition "Z"	Operation "1"	Operation "1...3"

Fig. 34 Putting the burner into operation

During the preheating phase, the fuel is heated in the preheater and vaporizer and vaporizes (Fig. 35).

In position "Z" of the rotary switch, apart from the preheating valves (fuel and air) the flame-safety valve and the fuel regulating valve are also open (Fig. 36).

The main flame ignites here.

During operation the preheating valves are shut (Fig. 37).

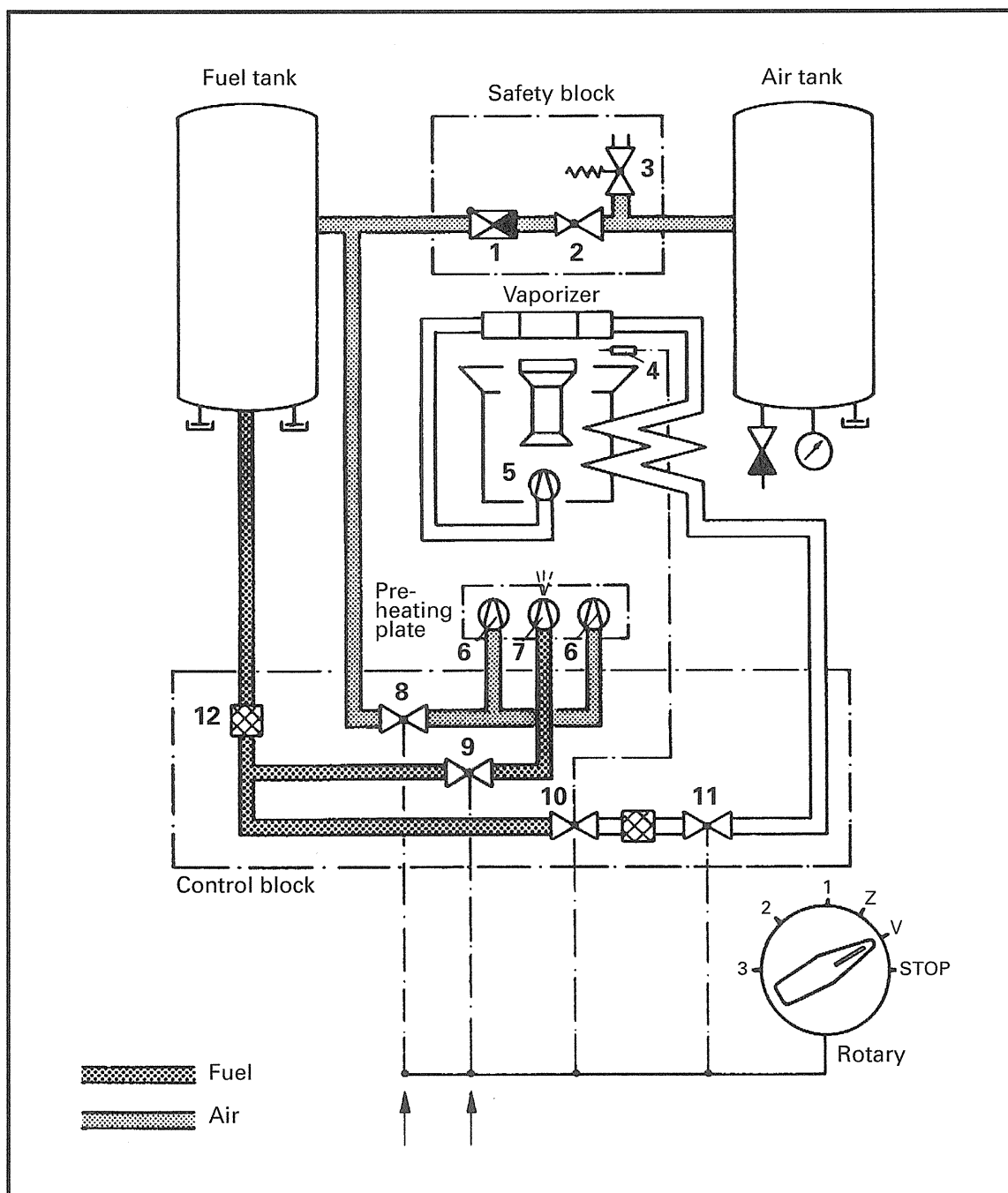


Fig. 35 Air/fuel flow diagram in position "V"

- | | |
|--------------------|--------------------------|
| 1 Check valve | 7 Fuel nozzle |
| 2 Pressure reducer | 8 Preheating valve, air |
| 3 Safety valve | 9 Preheating valve, fuel |
| 4 Flame sensor | 10 Flame-safety valve |
| 5 Main nozzle | 11 Fuel regulating valve |
| 6 Air nozzle | 12 Fine filter |

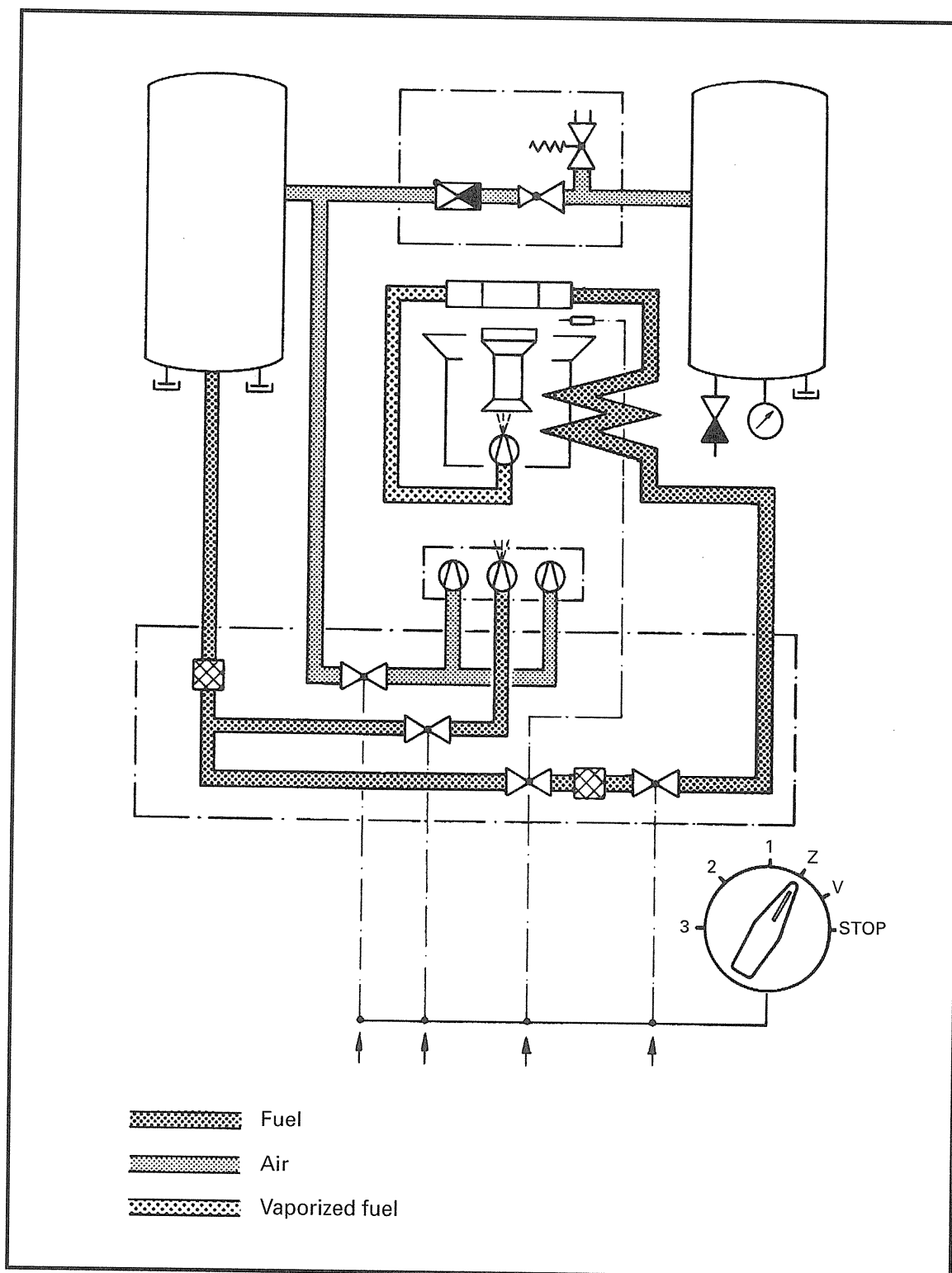


Fig. 36 Air/fuel flow diagram in position "Z"

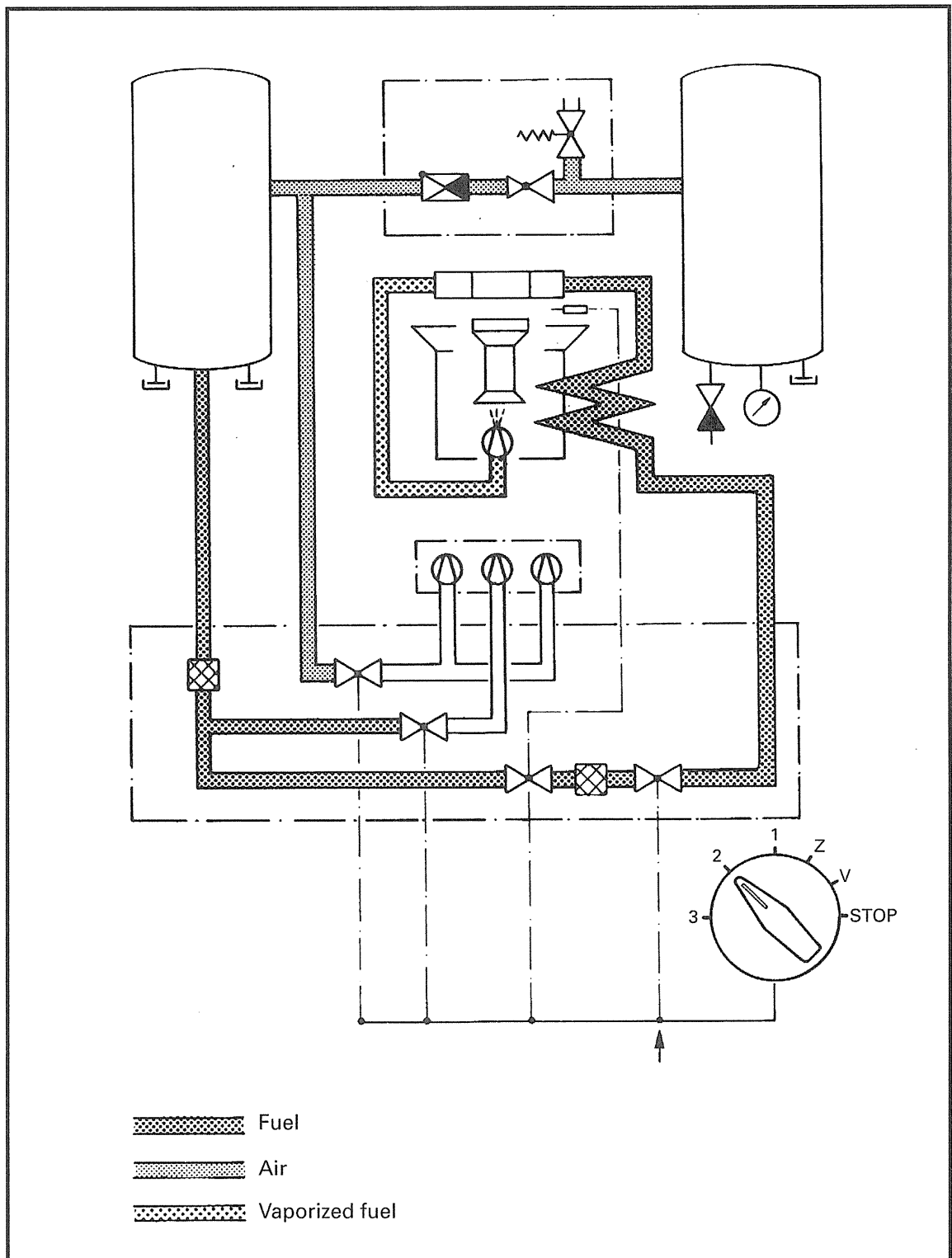


Fig. 37 Air/fuel flow diagram in position "1...3"

1.3.3 Frame

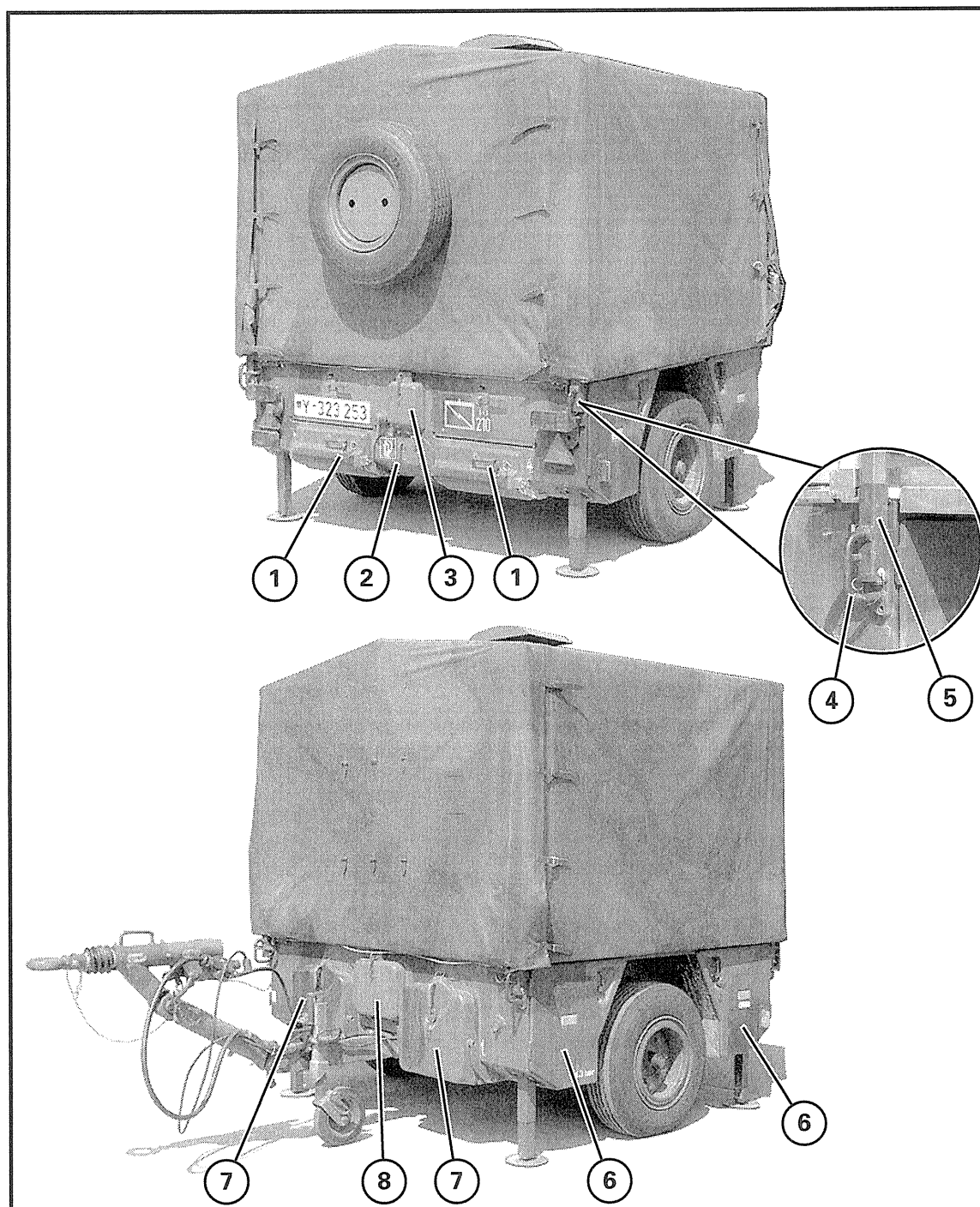


Fig. 38 Frame

- | | |
|--------------------------------------|---------------------------------------|
| 1 Burner door, rear | 5 Roof support holder |
| 2 Door for storage space, rear | 6 Door for storage space, side |
| 3 Cover for instruments/gauges, rear | 7 Burner door, front |
| 4 Griff | 8 Cover for instruments/gauges, front |

The frame is a self-supporting, welded steel profile construction, which is bolted to the chassis. The cooking equipment is inserted and screwed from above into the frame, each as a self-contained unit. The exhaust gases from the burners are lead through ducts to the flue. The frame parts and the side panels are protected from excessive heat by insulating mats. On the bottom side the frame is closed by floor panels. The burner areas are closed by means of doors (38/1 and 38/7). The operating and display instruments are protected by covers (38/3 and 38/8).

The roof supports holders (38/5) are screwed on at each corner. The handles (38/4) of the holders are used for stowing of the trailer.

A trailer support is fastened in each of the four storage areas on the side (38/6) (description, see Section 1.3.3.1). Some of the accessories and supplies are also stored here. The front storage spaces are lockable; those on the rear sides are secured by means of S-hooks.

A fire extinguisher (12 kg) and a utility brush with handle are housed in the rear storage area (38/2).

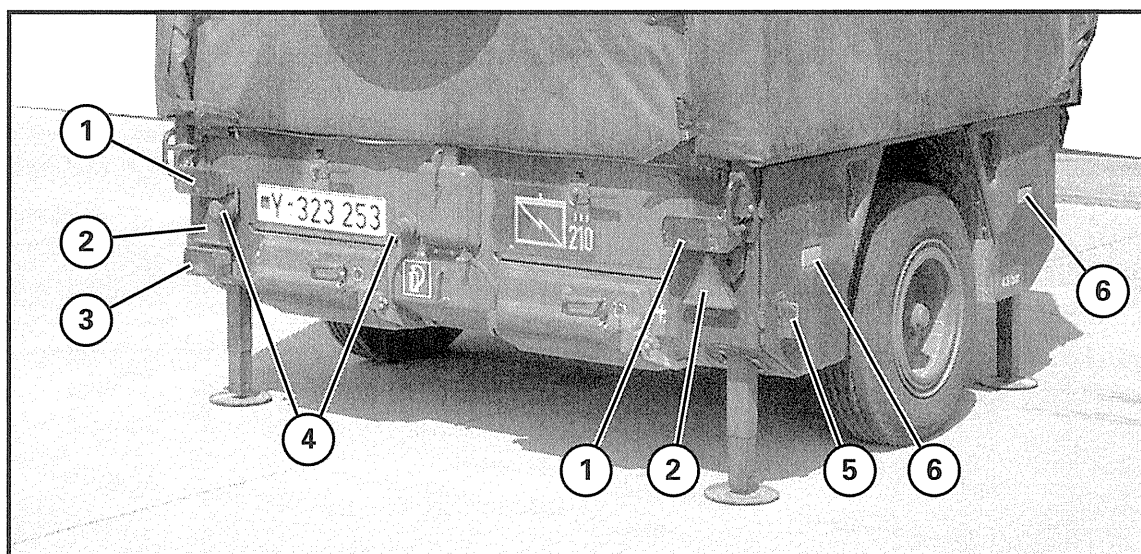


Fig. 39 Lighting system

- | | |
|-----------------------------------|----------------------|
| 1 Three-chamber light | 4 Number plate light |
| 2 Rear reflector, triangle-shaped | 5 Contour light |
| 3 Rear fog light | 6 Side reflector |

The parts of the lighting system (see Section 1.3.7) and two triangle-shaped rear reflectors (39/2) are fastened at the rear side of the trailer. A rear fog light (39/3) is installed on 1992 model trailers and up. A rectangular-shaped side reflector (39/6) and a contour light (39/5) are attached on the left and right storage area doors.

1.3.3.1 Trailer Supports

The trailer is stabilized for cooking operation by means of the four trailer supports and horizontally aligned with the box level.

The trailer supports can also be used as jacks.

Legend:

- 1 Crank
- 2 Drive shaft
- 3 Handle
- 4 Support
- 5 Support plate

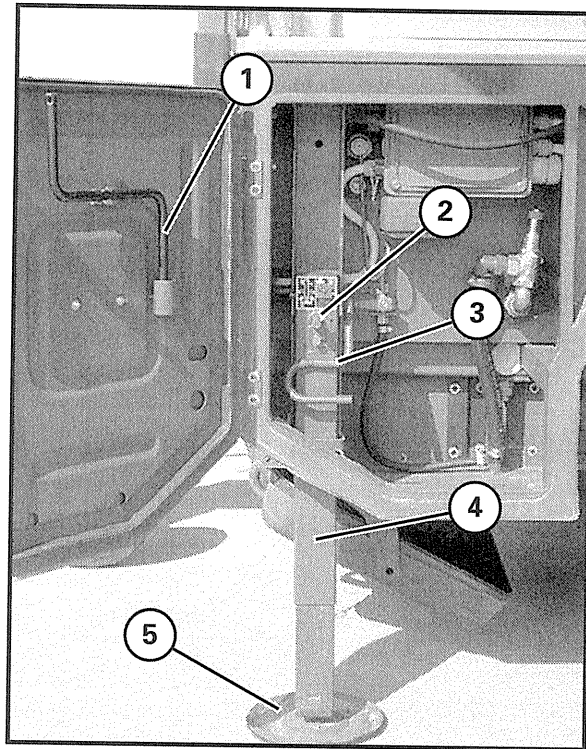


Fig. 40 Trailer support

1.3.4 Roof

1.3.4.1 Roof Supports

The roof supports are inserted in four holders (41/5) on the frame and secured with a pin (41/8) and a screw (41/9) each.

Four roof elements can be folded up individually and are held open by two gas-pressured dampers (41/3) each.

On the roof construction, fixtures are mounted for the following:

- Spare wheel
- Grease fleece and
- Hangers for kitchen utensils.

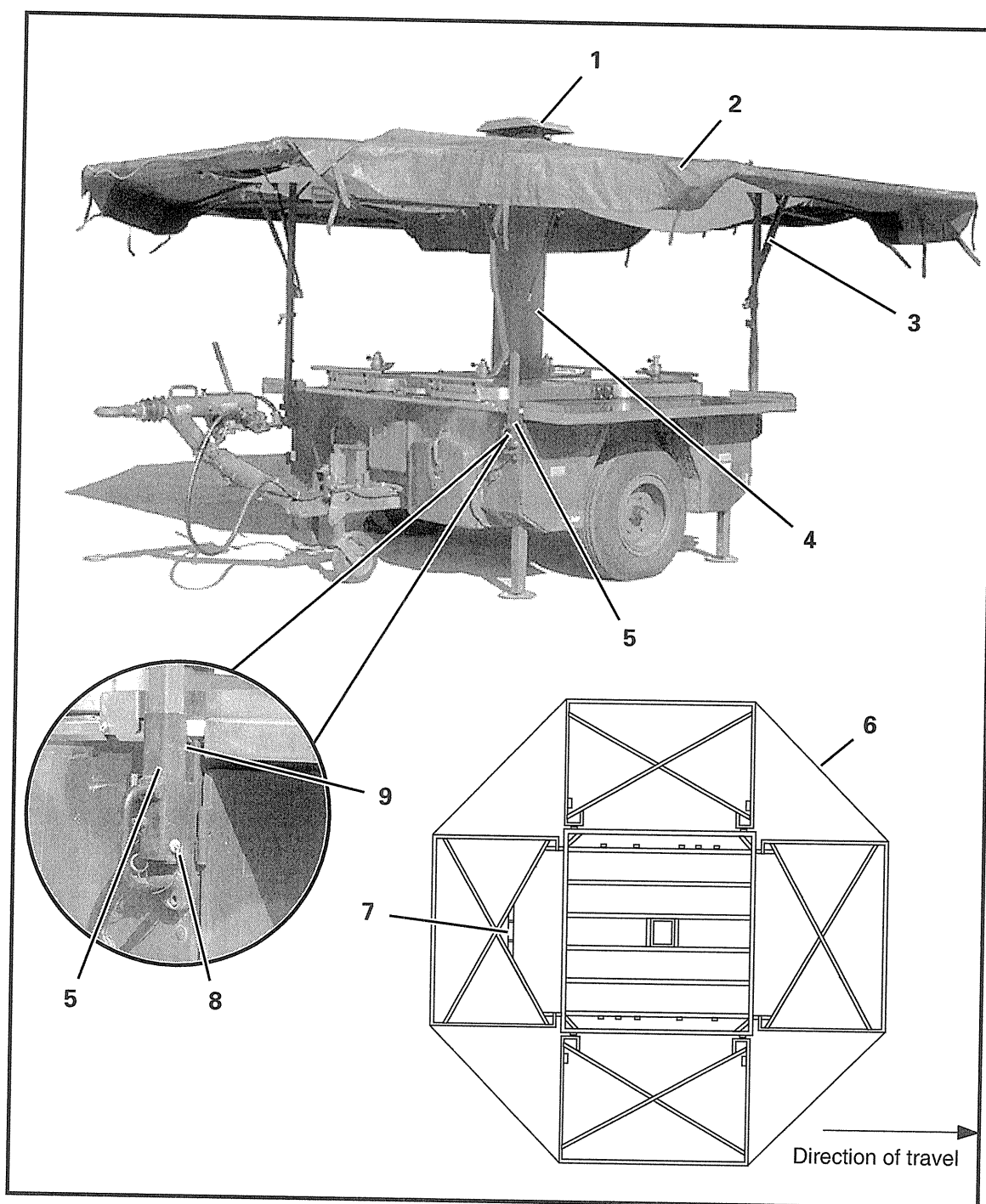


Fig. 41 Roof

- | | |
|------------------------|------------------------------|
| 1 Flue head | 6 Wire cable |
| 2 Roof tarpaulin | 7 Stud bolts for spare wheel |
| 3 Gas-pressured damper | 8 Pin |
| 4 Flue | 9 Screw |
| 5 Roof support holder | |

1.3.4.2 Roof Tarpaulin

The roof tarpaulin (41/2) is strapped to the roof construction.

It has a square opening in the center with an elastic band sewn in to guide the flue through it. When the roof parts are folded up, the roof tarpaulin is held at the corners by means of wire cables (41/6). These are screwed on at the outermost location of the roof construction.

Two side tarpaulins (42/1) are included in the general equipment of the field kitchen. With these, the trailer can be protected either fully around the circumference or partially, against weather. The side tarpaulins are hung onto the roof construction and the wire cables, and are fastened to the ground with tent pegs.

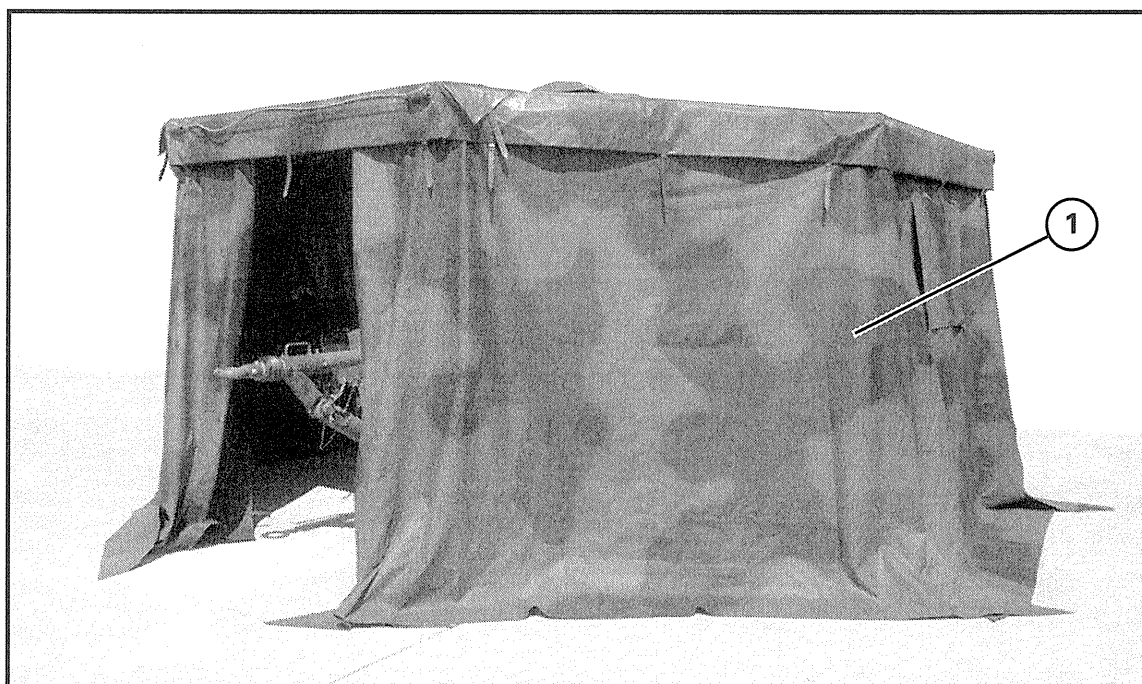


Fig. 42 Field kitchen trailer with side tarpaulins

1.3.4.3 Grease Fleece

A grease (43/1) is fastened below the roof construction. It is used to absorb the steam with any particles in the flow.

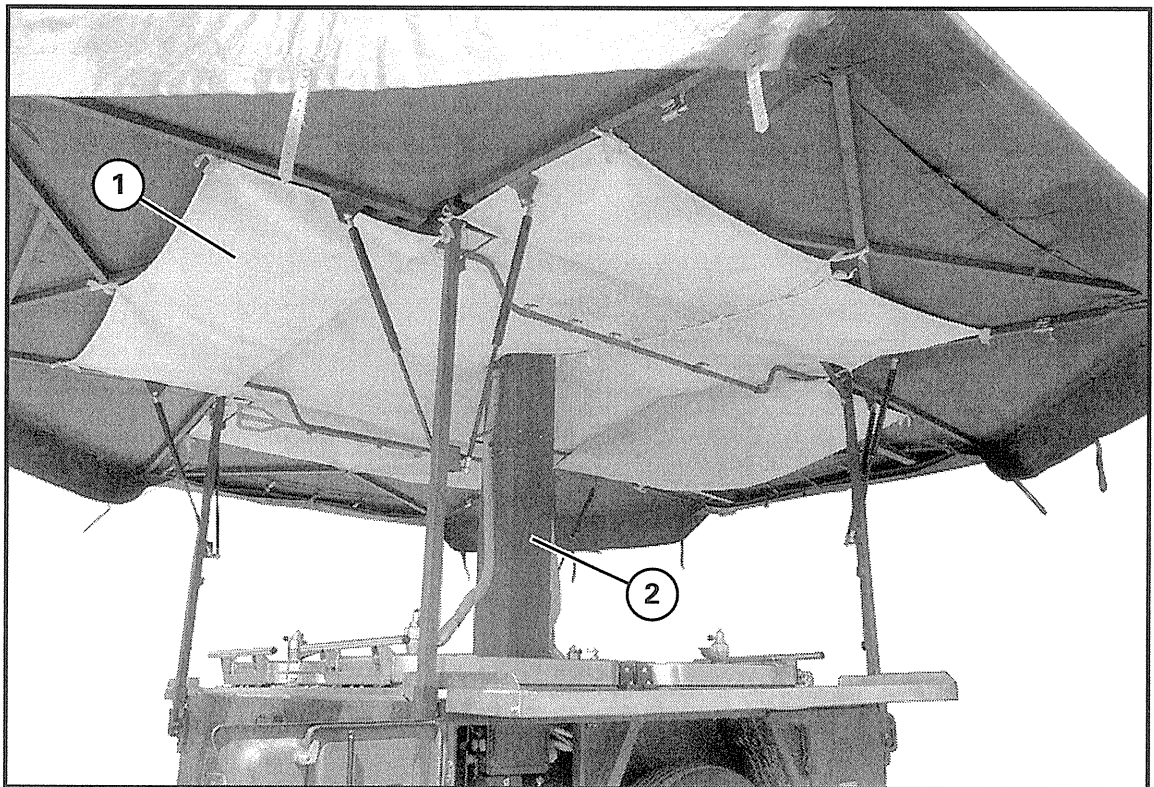


Fig. 43 Grease fleece

1.3.4.4 Flue

The exhaust gases from the four burner areas are discharged via the double-walled flue (43/2).

The flue head (41/1) is detachable.

The flue is hinge-attached to the base (44/2). After removing the roof and releasing the flue securing fixture (44/1), it can be folded over toward the front.

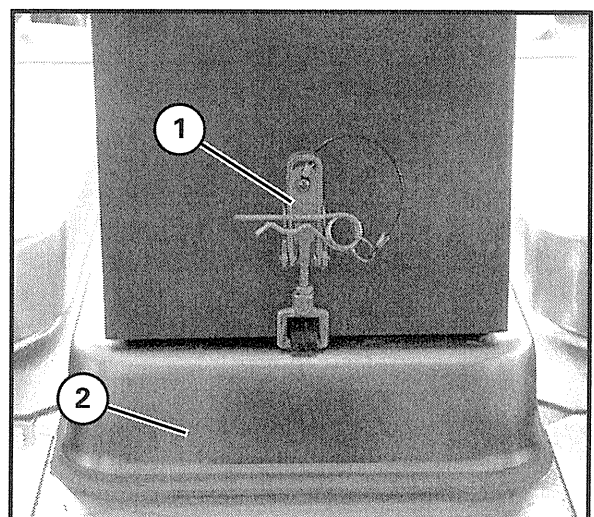


Fig. 44 Flue securing fixture

1.3.5 Chassis

The frame is bolted onto the single-axle chassis. The height-adjustable overrun unit with trailer coupling ring allows for towing of the trailer with any military or civil vehicle. A trailer coupling ring (45/5, 46/4) in accordance with (for civil towing vehicle) is stored in the front right storage area.

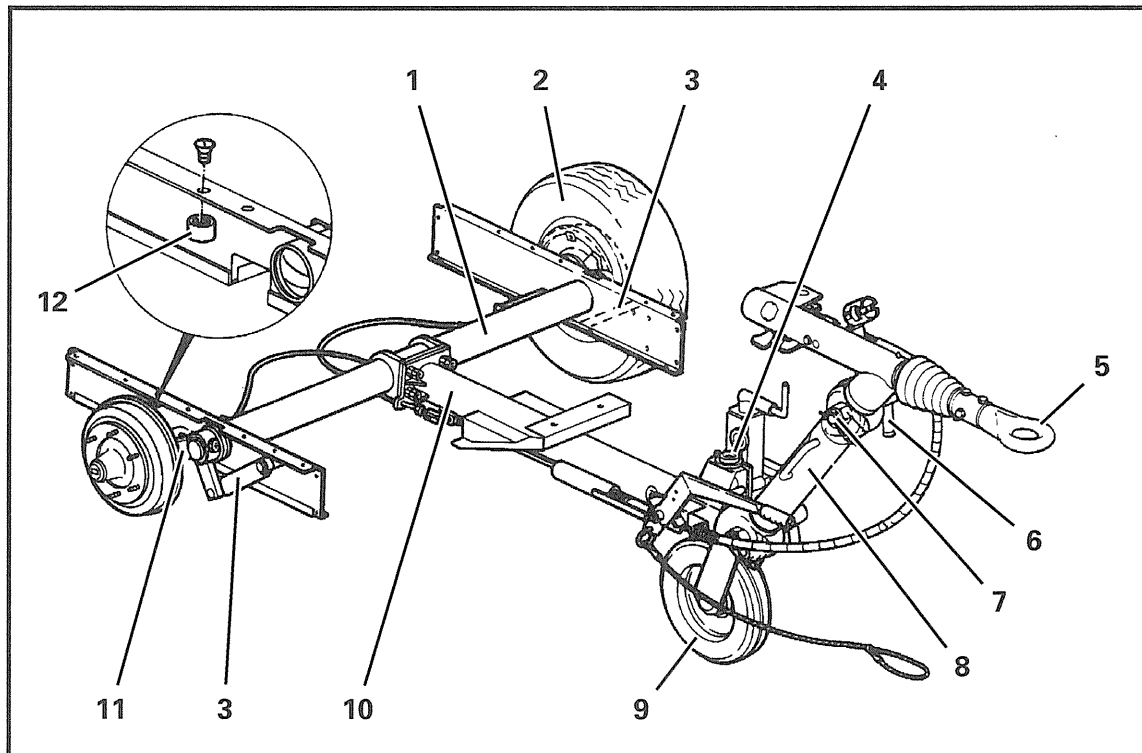


Fig. 45 Chassis, variant 1

- | | |
|------------------------------------|--------------------------|
| 1 Axle with torsion bar suspension | 7 Swivel pin |
| 2 Tire | 8 Hitch transition piece |
| 3 Shock absorber | 9 Supporting wheel |
| 4 Box level | 10 Towing hitch |
| 5 Trailer coupling ring | 11 Rocker lever |
| 6 Toggle | 12 Buffer |

During travel, the trailer is sprung by a means of a torsion bar suspension (45/1, 46/1) with rocker lever (45/11, 46/12) and two shock absorbers (45/3, 46/11).

The single-wheel suspension allows independent deflection of the wheels. The box level (45/4, 46/9) is used for horizontal alignment of the trailer.

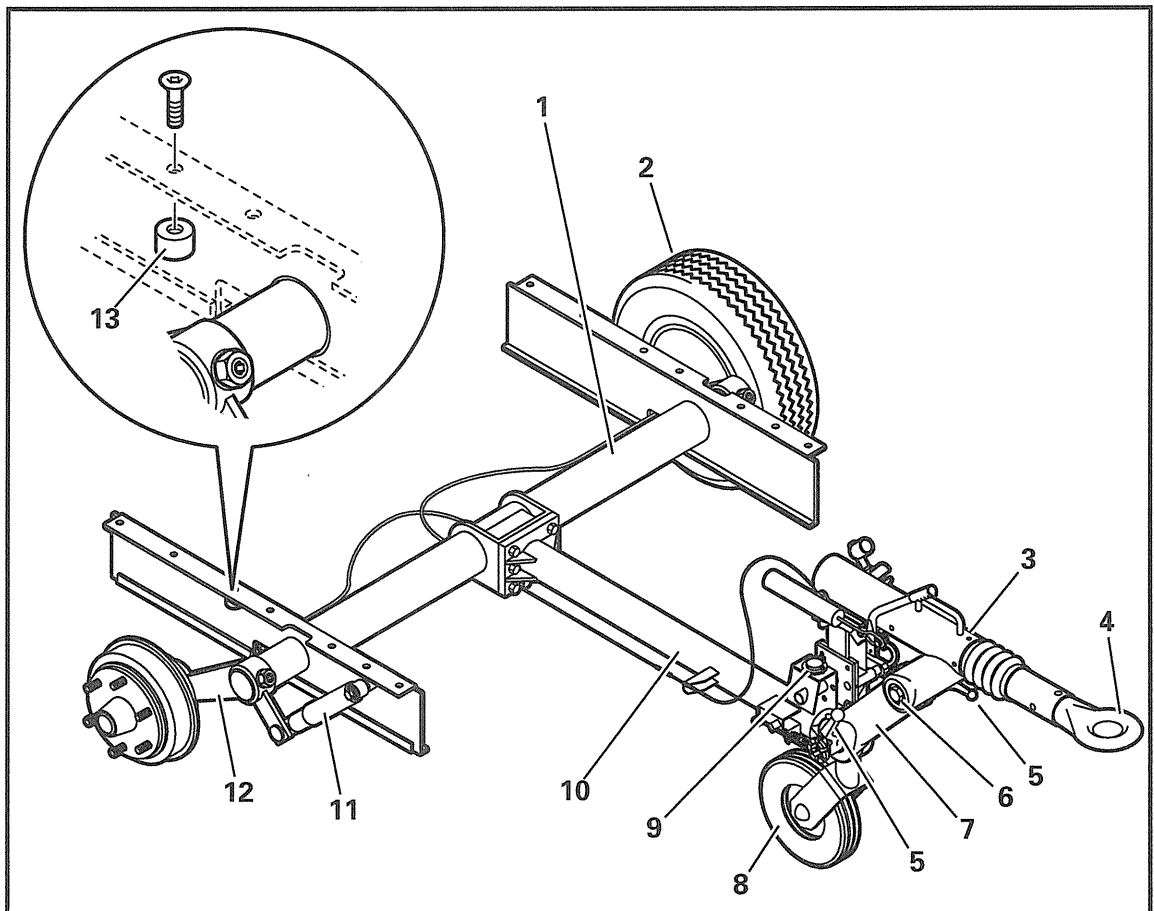
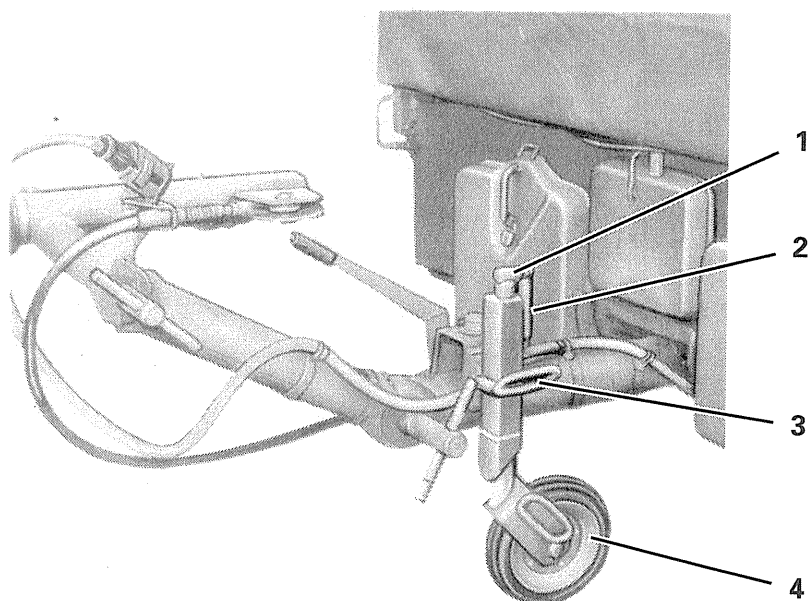


Fig. 46 Chassis, variant 2

- | | |
|------------------------------------|--------------------|
| 1 Axle with torsion bar suspension | 8 Supporting wheel |
| 2 Tire | 9 Box level |
| 3 Overrun unit | 10 Towing hitch |
| 4 Trailer coupling ring | 11 Shock absorber |
| 5 Toggle | 12 Rocker lever |
| 6 Swivel pin | 13 Buffer |
| 7 Hitch transition piece | |

The height of the supporting wheel crank (47/1) can be adjusted with the crank (47/4). By pulling the handle (47/3) outward, the supporting wheel can be swiveled by 90°. Afterwards, reengage the handle again. The crank (47/1) can be tilted over by 90°. Slide the sleeve (47/2) outward for this.

Variant 1



Variant 2

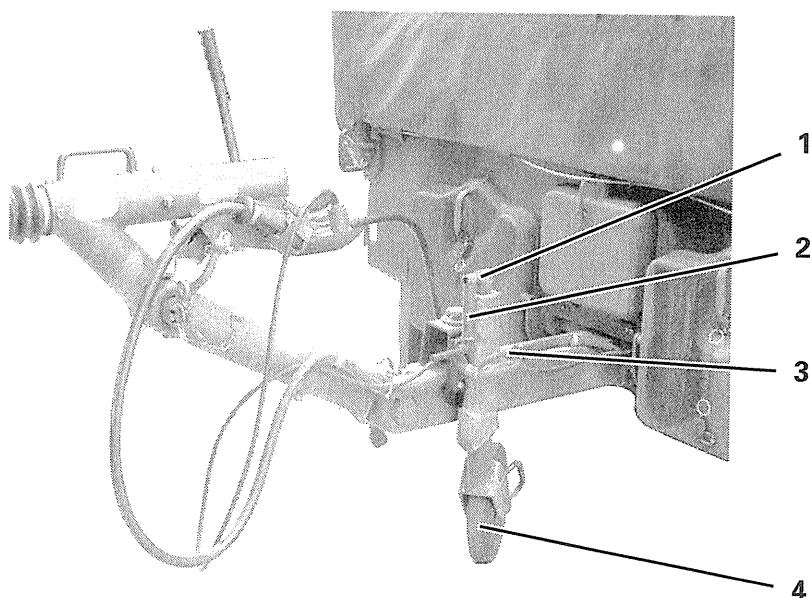


Fig. 47 Supporting wheel, variant 1 and 2

- 1 Crank
- 2 Sleeve

- 3 Handle
- 4 Supporting wheel

1.3.6 Brake System

The brake system consists of:

- the overrun unit,
- Parking and rapid-emergency brake,
- Actuation gear and
- Wheel brakes.

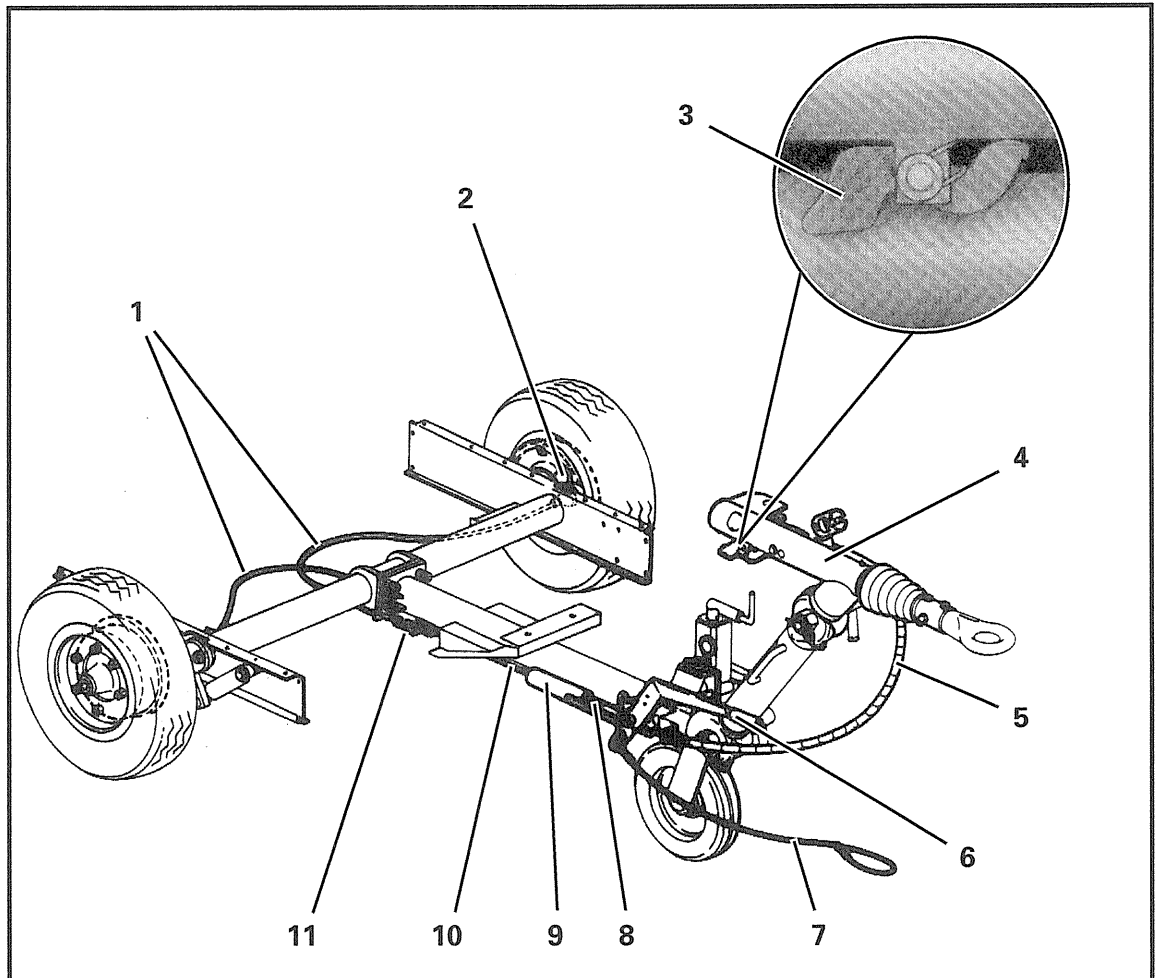


Fig. 48 Brake system, variant 1

- | | |
|-------------------------------|-------------------------|
| 1 Brake cable | 6 Hand brake lever |
| 2 Wheel brake | 7 Rapid-emergency cable |
| 3 Brake hold-off lever | 8 Turnbuckle |
| 4 Overrun unit | 9 Spring brake actuator |
| 5 Cable with protective cover | 10 Brake linkage |
| | 11 Compensating bridge |

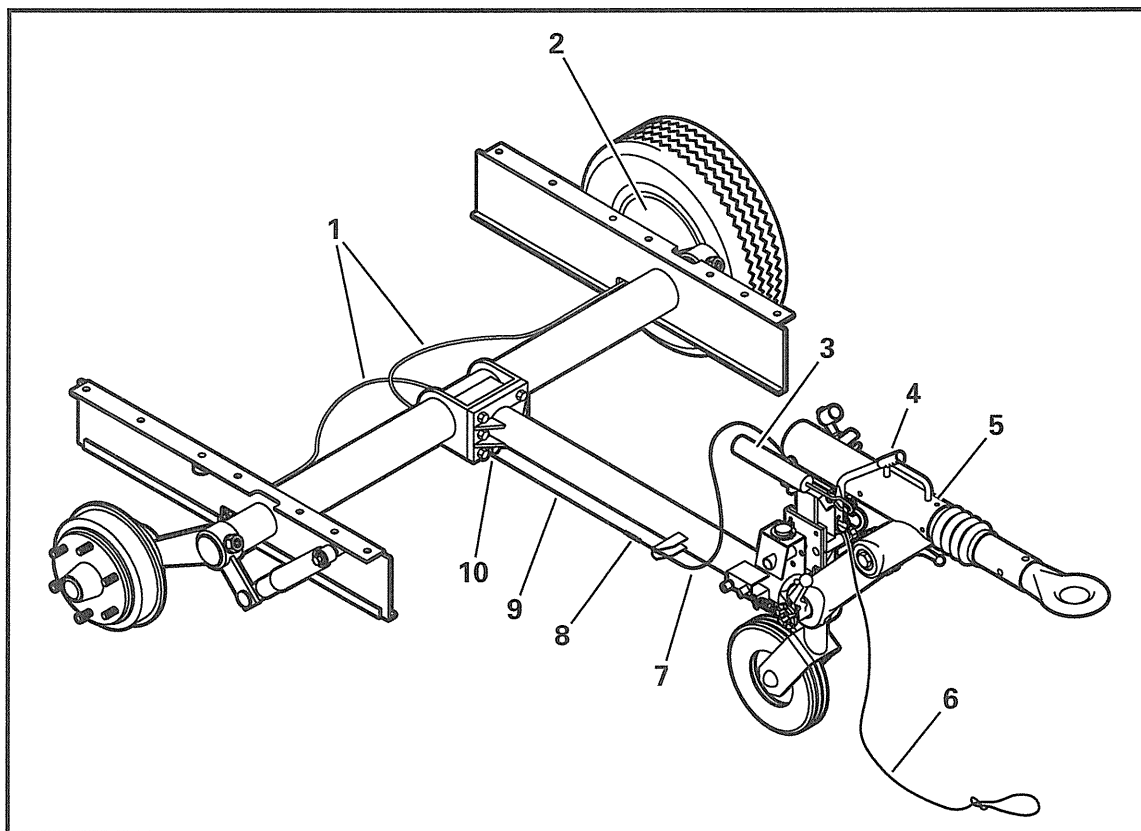


Fig. 49 Brake system, variant 2

- | | |
|-------------------------|-------------------------------|
| 1 Brake cable | 7 Cable with protective cover |
| 2 Wheel brake | 8 Turnbuckle |
| 3 Spring brake actuator | 9 Brake linkage |
| 4 Hand brake lever | 10 Compensating bridge |
| 5 Overrun unit | |
| 6 Rapid-emergency cable | |

1.3.6.1 Overrun Unit

Operation of the overrun brake is performed mechanically.

When the truck brakes down, the trailer runs into the truck. This puts pressure in reverse direction on the trailer coupling ring (50/4) and the sliding tube (50/5), and actuates the relay lever (50/7).

The brake cables and the brake linkage are pulled by the control cable (50/2), resulting in the actuation of the wheel brakes.

The brake force is controlled by the overrun force caused by the trailer.

A hydraulic shock absorber (50/3) compensates the jolting occurring between truck and trailer during travel. Furthermore, the hydraulic shock absorber avoids actuation of the brakes when minor pushing of the trailer occurs.

The overrun brake is equipped with an automatic reversing interlock, which prevents actuation of the brakes when driving backwards.

If the force that works against towing hitch when backing up is too low to actuate the automatic reversing interlock (e.g. in the case of slip in muddy or swampy terrain), the overrun brake can be switched off by inserting the brake hold-off lever (48/3) (only variant 1).

When pulling force is applied to the hitch again, the lock of the brake hold-off lever releases automatically.

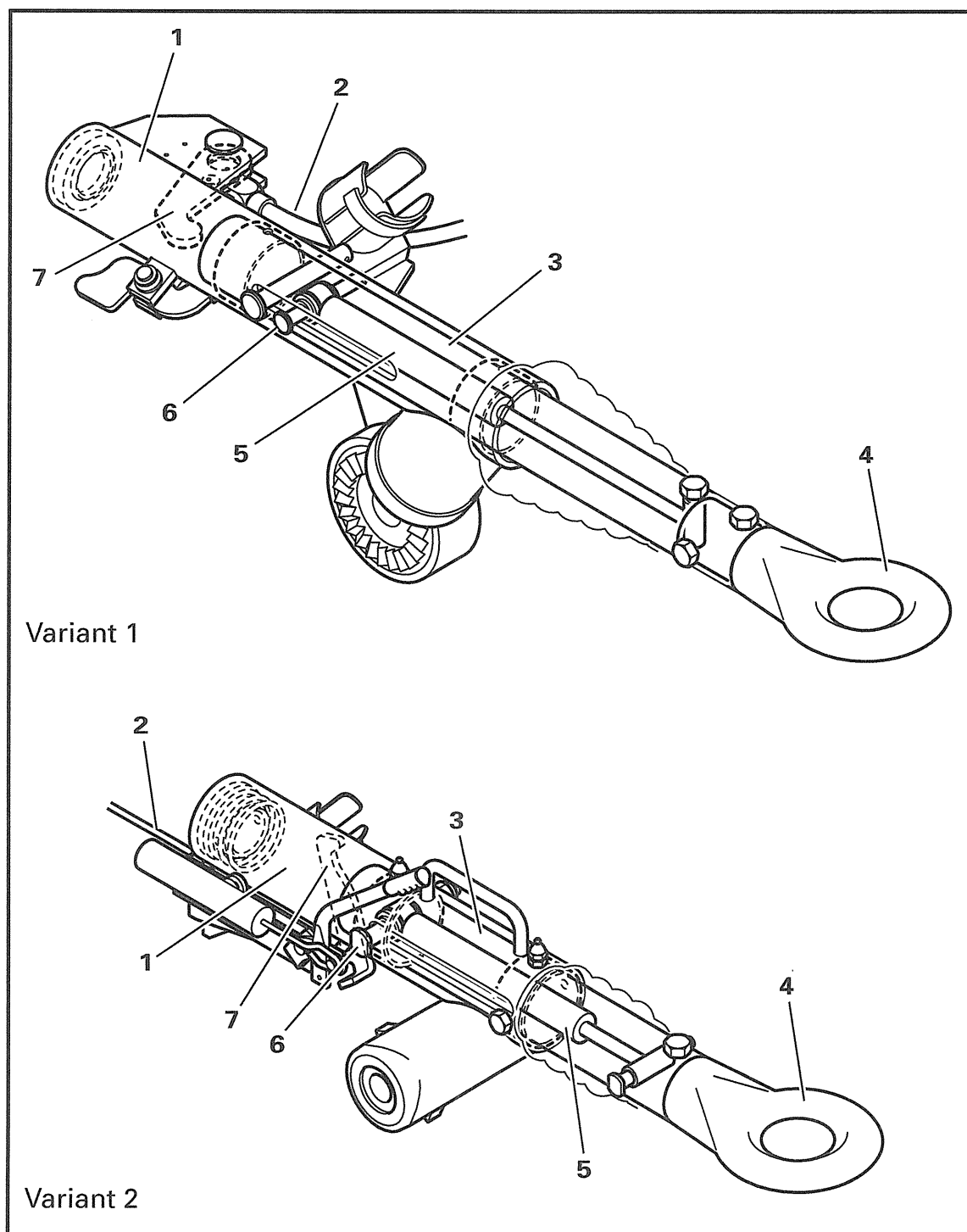


Fig. 50 Overrun unit

- | | |
|-------------------------|----------------|
| 1 Guide tube | 5 Sliding tube |
| 2 Brake cable | 6 Pin |
| 3 Shock absorber | 7 Relay lever |
| 4 Trailer coupling ring | |

1.3.6.2 Parking Brake and Rapid-Emergency Brake

By pulling the parking brake lever (48/6, 49/4) , the wheel brakes are actuated via the brake linkage (48/10, 49/9) and the brake cables (48/1, 49/1). By pulling the parking brake lever, tension is put on the spring brake actuator (48/9, 49/3) (a pre-loaded spring) and thus actuates the brakes.

The rapid-emergency brake automatically actuates in case of unintentional parting of the trailer from the truck. The rapid-emergency brake cable (48/7, 49/6) is fixed to the hand brake lever (48/6, 49/4) and is connected with the tow vehicle. If the trailer should breakaway, the brake is applied in the same way as the parking brake.

1.3.6.3 Actuation Gear, Braking System

The forces for application of the brakes are transmitted to the wheel brakes via the relay lever (50/7) of the overrun unit, the cable with protective cover (48/5, 49/7), the turnbuckle (48/8, 49/8), the brake linkage (48/10, 49/9) and the brake cables (48/1, 49/1).

The compensating bridge (48/11, 49/10) ensures that the force applied to each of the wheel brakes is uniform.

The spring brake actuator (48/9, 49/3) only works in conjunction with the parking brake and rapid-emergency brake. It has no effect on the service brake.

1.3.6.4 Wheel Brakes

The wheel brakes (48/2, 49/2) are Simplex spreading-action lever brakes (drum brakes) with asbestos-free brake linings. A built-in swivel mechanism (reverse automatic) enables backing-up with the trailer.

1.3.7 Electrical System

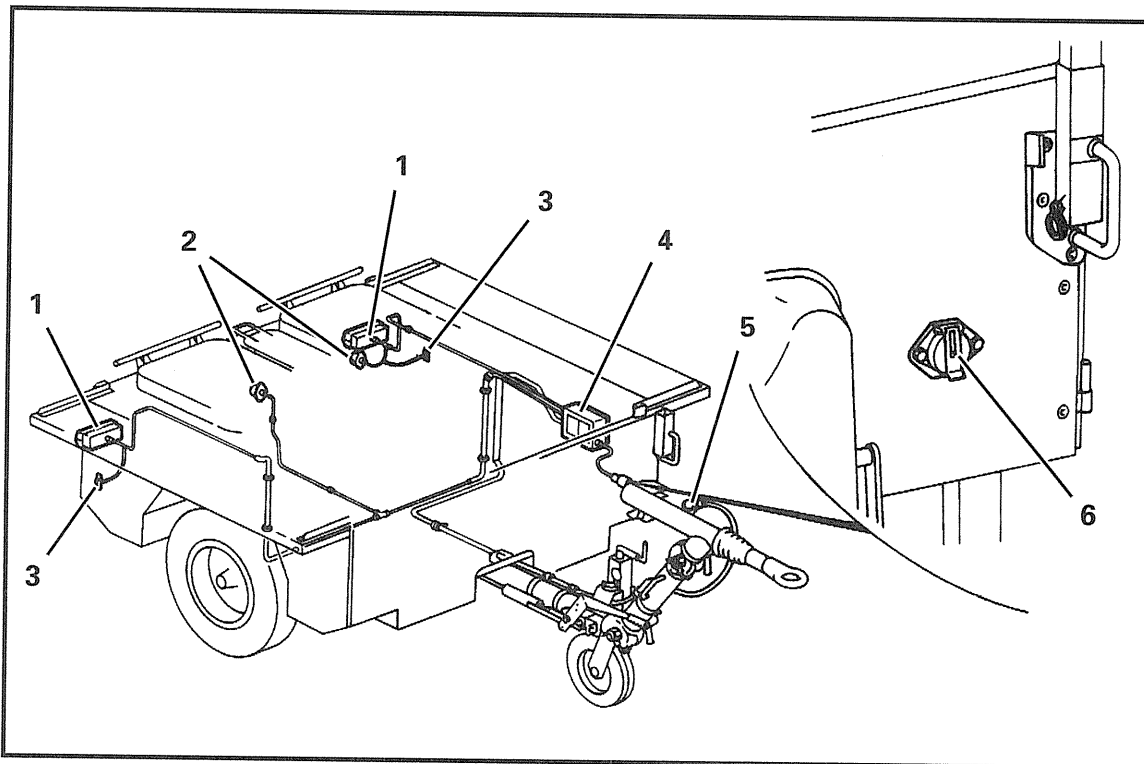


Fig. 51 Electrical system for models up to 1991 (variant 1)

- | | |
|------------------------|-------------------|
| 1 Three-chamber lights | 4 Distributor box |
| 2 Number plate lights | 5 Plug, 12-pole |
| 3 Contour lights | 6 Socket, 7-pole |

The power supply of the electrical system is made by means of a connection cable with 12-pole plug (51/5) via the electrical system of the truck.

For civil trucks, the electrical system is supplied via a 7-pole cable (accessory) and the socket (51/6) at the front of the frame.

The distributor box (51/4) is mounted in the front left storage box.

The three-chamber lights (51/1) each include a tail light, braking light and turn signal light. A contour light each is located on the left and right of the storage area doors. (51/3).

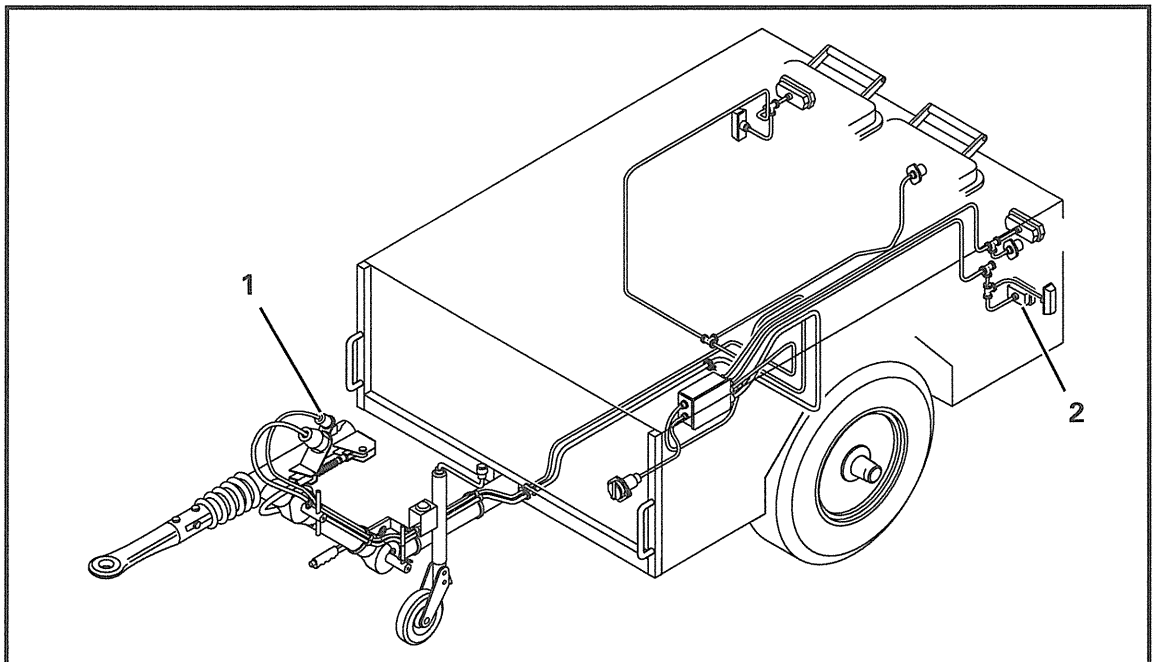


Fig. 52 Electrical system from 1992 models on (variant 1)

- 1 Cable with plug, 7-pole
- 2 Rear fog light

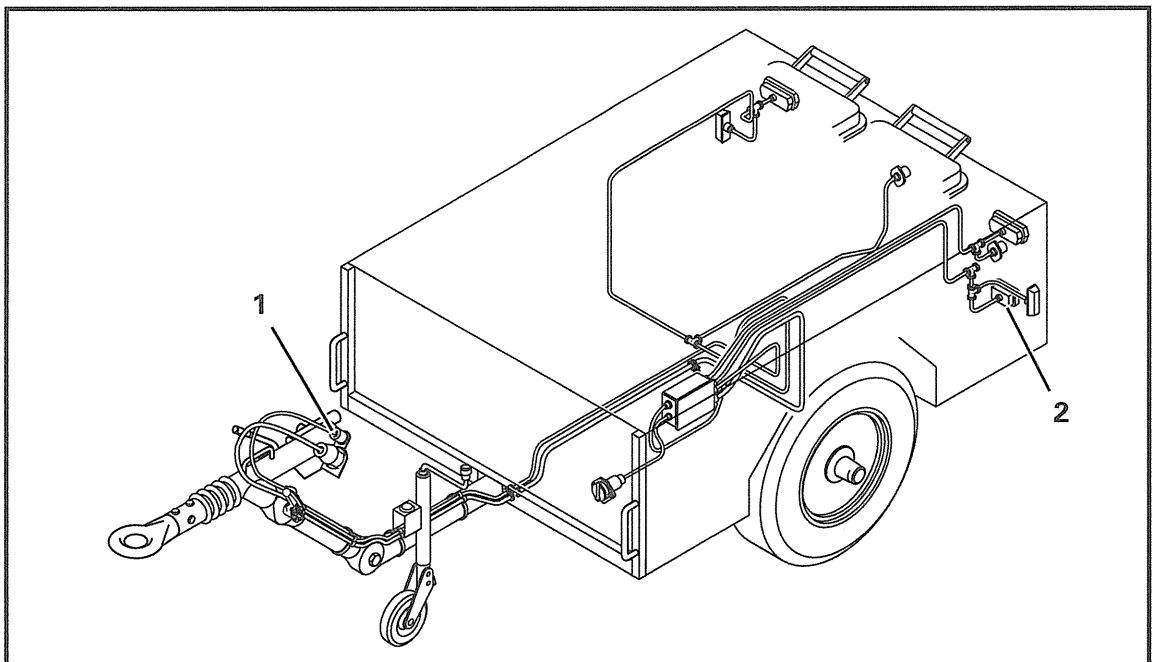


Fig. 53 Electrical system, variant 2

- 1 Cable with plug, 7-pole
- 2 Rear fog light

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The electrical system is protected by means of two 8 Amp circuit breakers (54/1). A single-pole power socket (54/3) for connection of a hand lamp is mounted on the left of the distributor box.

The holding device (54/2) contains the box for the 12 V bulb set.

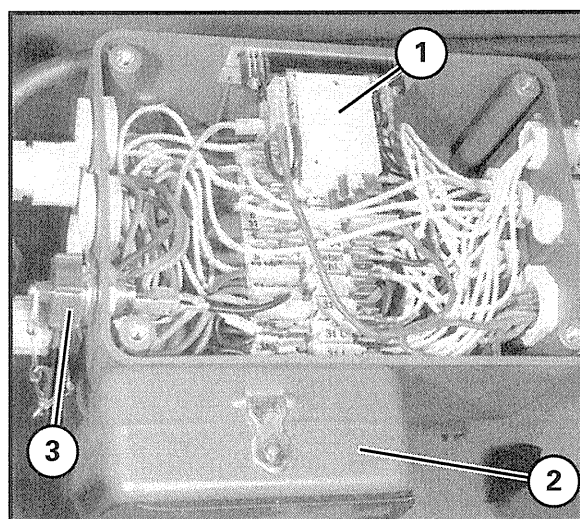


Fig. 54 Distributor box without cover

1.4 Equipment

NOTE

Compulsory for the equipment is the enclosed AAN data sheet.

1.4.1 Accessories and Supplies

No. in Fig. 55	Designation	Quantity	Remark
1	Water hose 1/2"	1	approx. 1 m long
2	Tool bag	1	Contents, see 1.4.1.1
3	Funnel	1	
4	Crank	2	
5	Trailer coupling ring, DIN	1	Alternatively mounted
6	Trailer coupling ring, NATO	1	Alternatively mounted
7	Fire extinguisher, 12 kg	1	
8	Connection cable, 7-pole (24/24 V)	1	
9	Connection cable, 7-pole (12/24 V)	1	
10	Set of bulbs, 12 V	1	see 2.1.9.1
11	Spare wheel	1	
12	Padlock B40	8	
13	Wire brush with handle	1	
14	First aid kit	1	
15	Wheel chock	2	

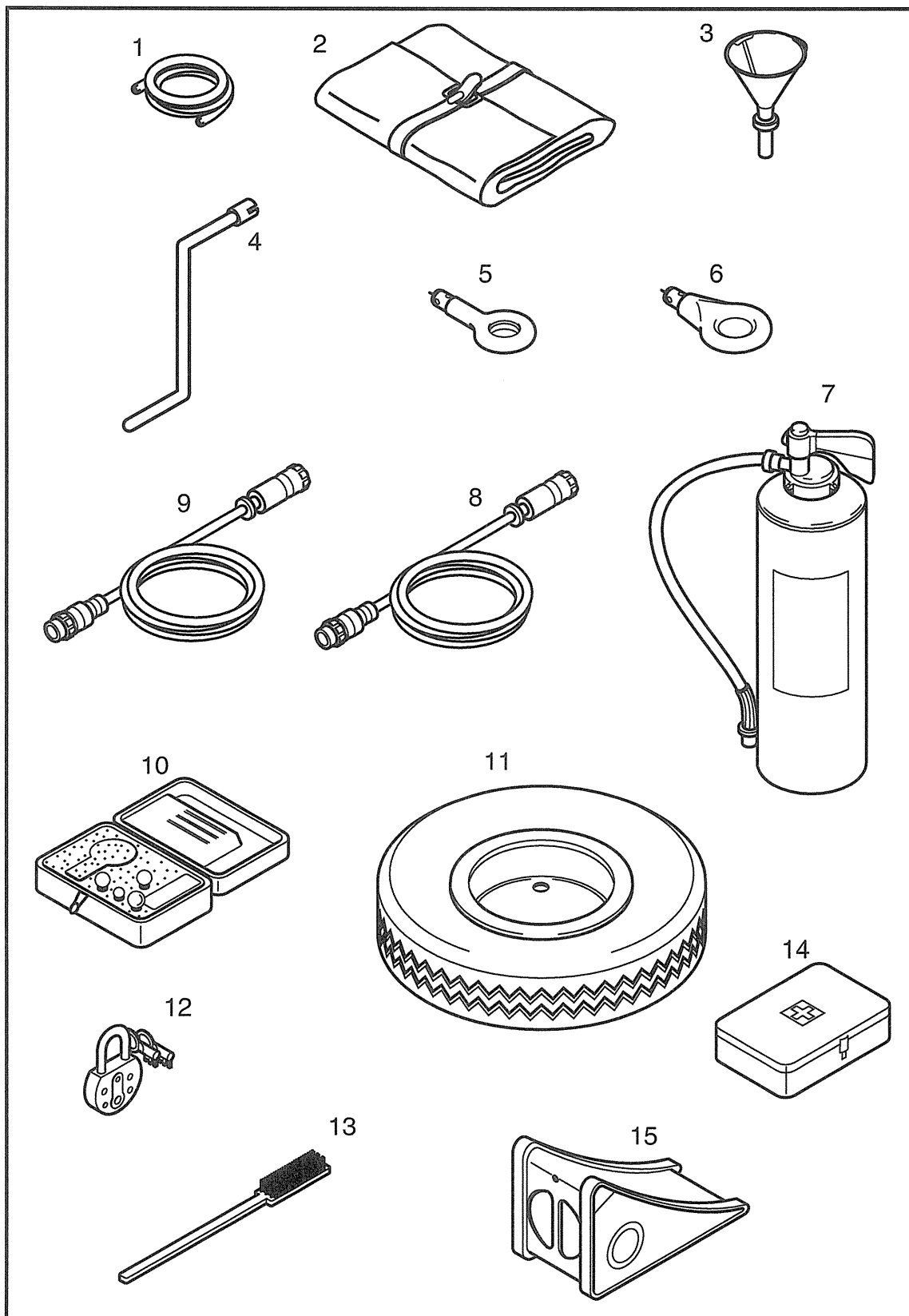


Fig. 55 Accessories and supplies

1.4.1.1 Tools and Supplies in the Tool Bag

No. in Fig. 56	Designation	Quantity	Remark
1	Open-end wrench, size 22 x 24 mm	1	Fuel tank
2	Open-end wrench, size 17 x 19 mm	2	
3	Open-end wrench, size 12 x 14 mm	1	
4	Open-end wrench, size 8 x 10 mm	1	
5	Hook wrench, size 45-50 mm	1	
6	Socket wrench with handle rod, size 24 mm	1	
7	Screwdriver 1 x 5.5	1	
8	Main nozzle	4	
9	Fuel filler with sieve	1	
10	Fuel fine filter	2	
11	Preheating nozzle	4	
12	Thermocouple	1	
13	Steel wire brush, 3-row	1	
14	Bottle brush	1	
15	Air nozzle brush	1	

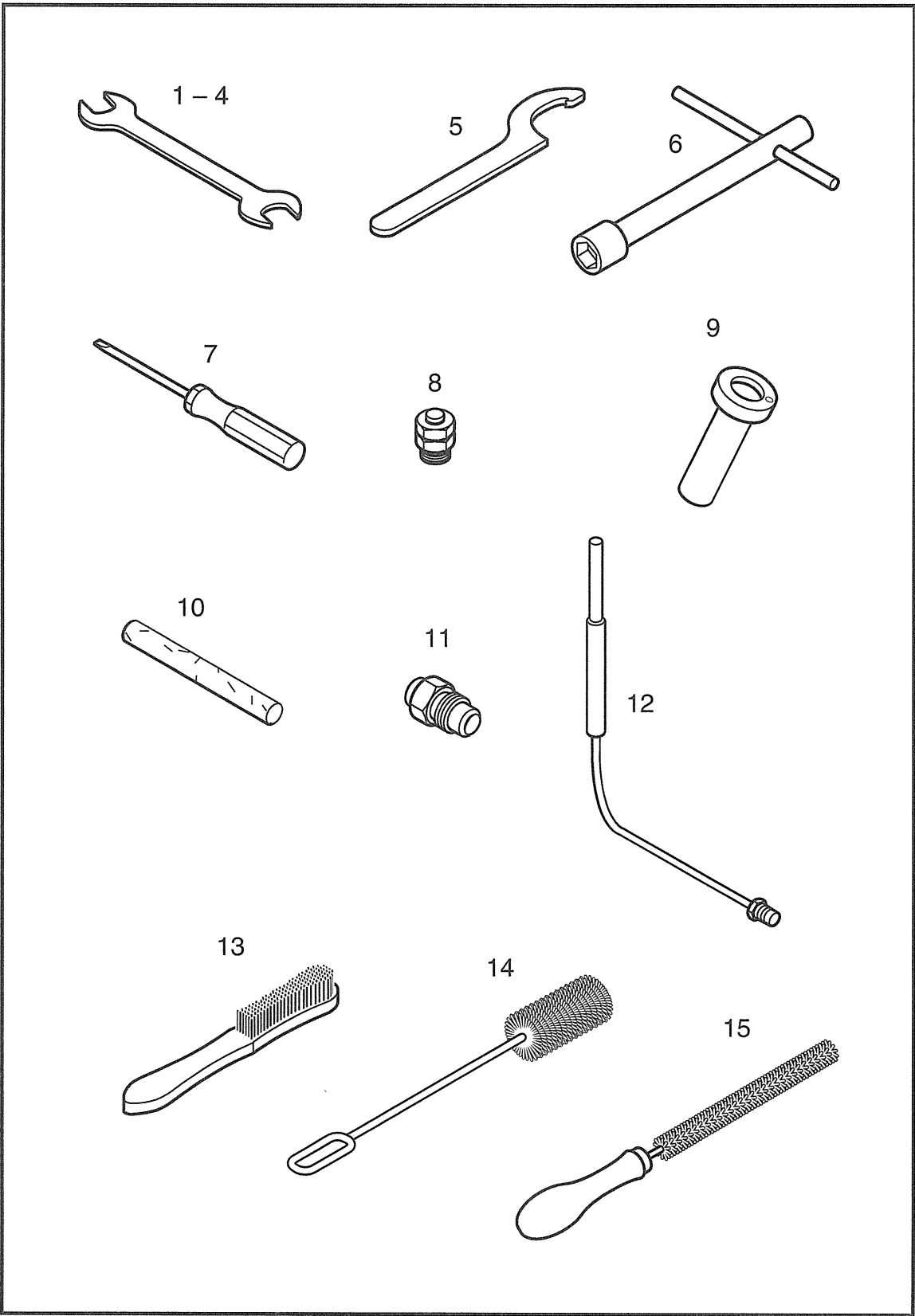


Fig. 56 Tools and supplies (1 of 2)

No. in Fig. 57	Designation	Quantity	Remark
1	Sealing rings consisting of: - Sealing ring 4.3 x 2.4 - Sealing ring 39 x 3 - Seal ring - Sealing ring 22.3 x 2.4	1 Set 4 2 1 2	for preheating plate for tank lid for drain valve for double-jacket valve
2	Open-end wrench, size 36 mm	1	
3	Clamping pipe	1	} Pressure lid adjustment
4	Clamping rod	2	
5	Phillips screwdriver B-PH3	1	for preheating plate
6	Screw socket	1	for cleaning of supply line and main nozzle
7	Lighting wick	2	
8	Combination socket wrench 10 x 16 x 19	1	

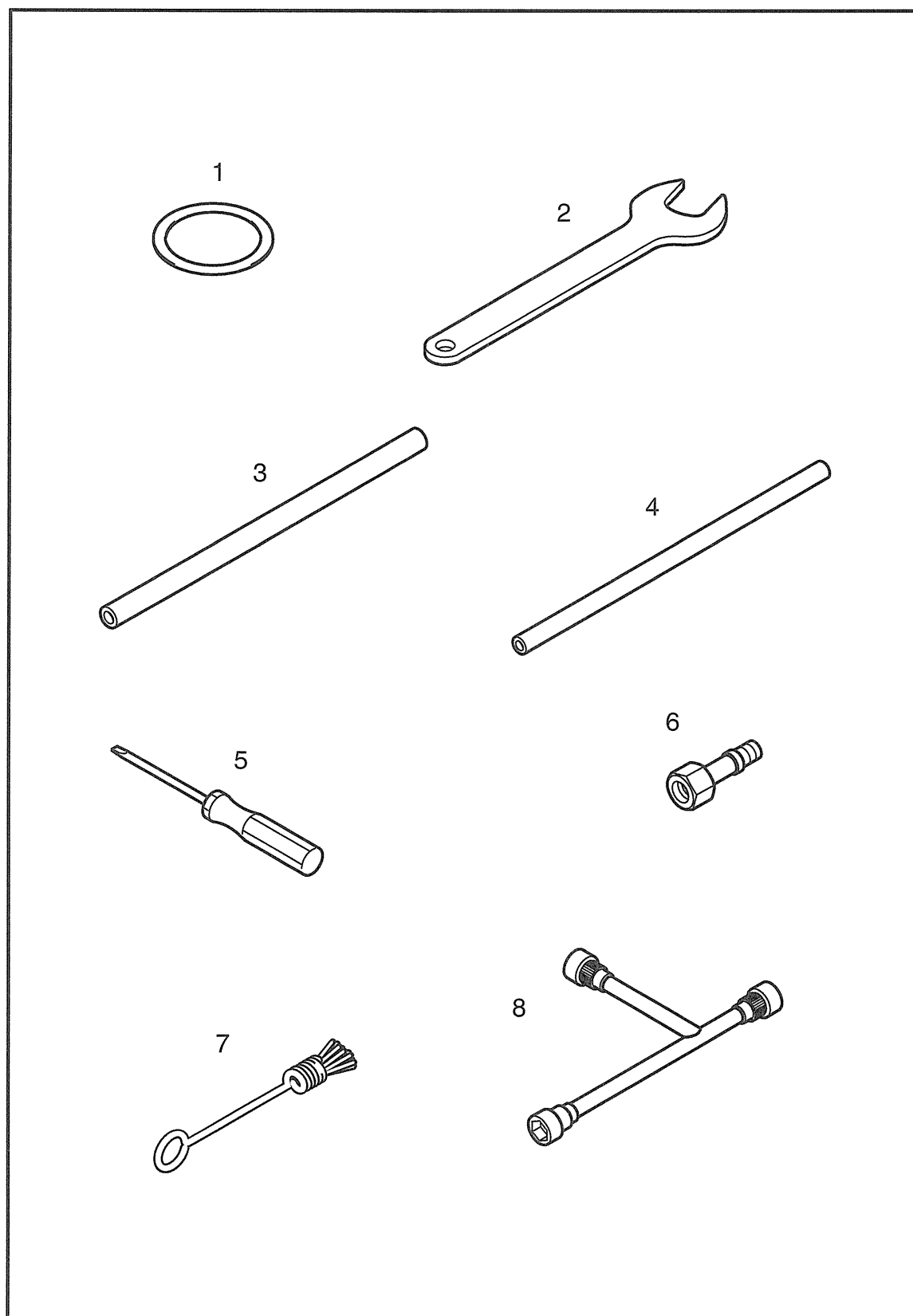


Fig. 57 Tools and supplies (2 of 2)

1.4.2 Cooking Accessories

No. in Fig. 58	Designation	Quantity	Remark
1	Insertion plate, perforated	2	7330-12-311-3689
2	GN food container 1/1-190, perforated	8	7330-12-314-0485
3	Drain pipe, elbow	2	4710-12-314-1691
4	Measuring stick	1	6680-12-311-2994
5	GN food container 1/1-65, 9 l	4	7310-12-318-0058
6	GN food container 1/1-20	4	7910-12-318-0059
7	Spatula, 970 mm	1	7330-12-311-3684
8	Ladle, 815 mm	1	7330-12-311-3685
9	Whisk, 900 mm	1	7330-12-311-3690
10	Hand ladle, wide, 4 l	1	7330-12-311-3686
11	Hand ladle, small, 1 l	1	7330-12-311-3687
12	Removal hook	2	7330-12-311-3688

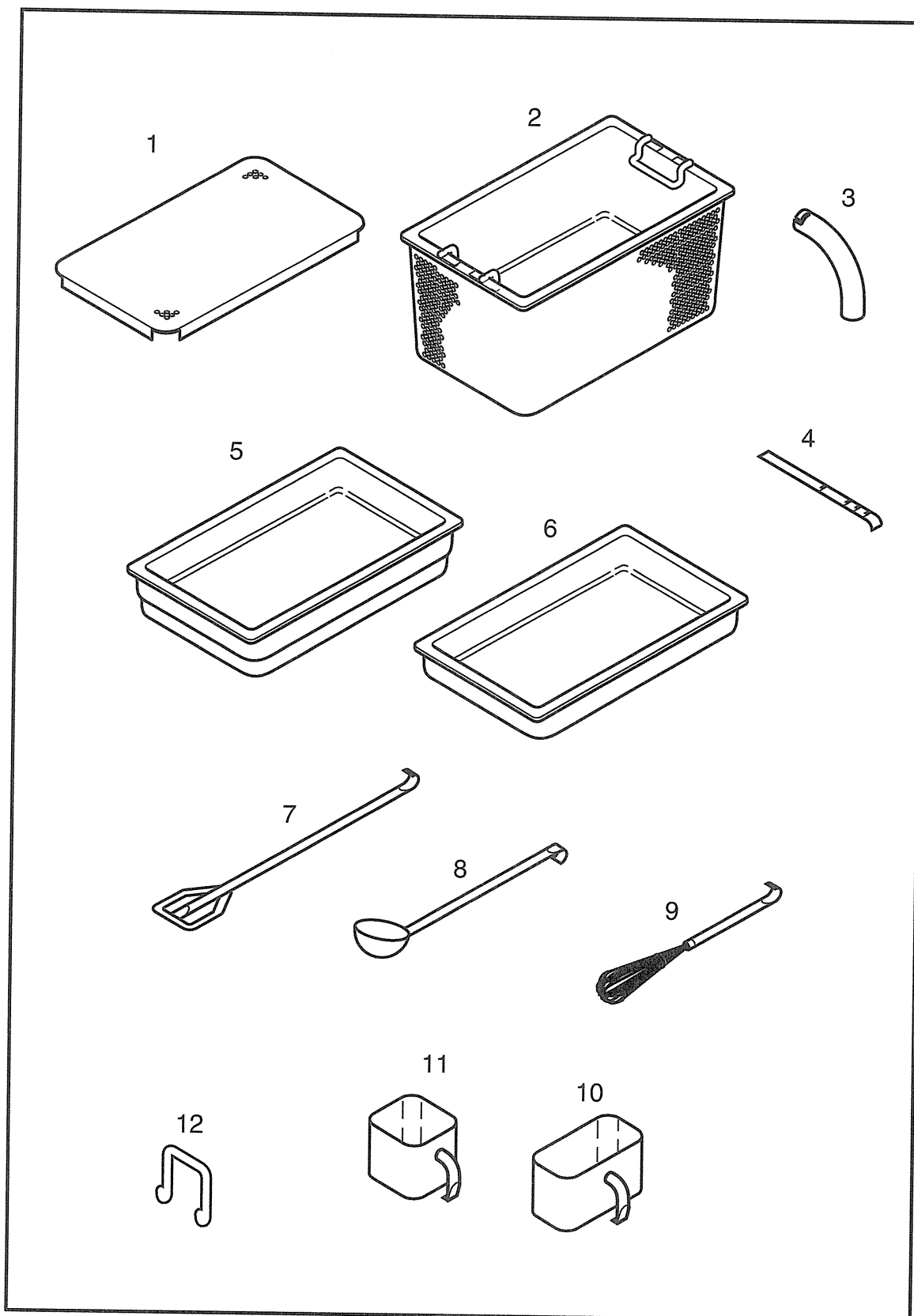


Fig. 58 Cooking accessories

1.5 Loading Plan

No. in Fig. 59	Designation	Quantity	Remark
1	Ladle, 815 mm	1	7330-12-311-3685
2	Whisk, 900 mm	1	7330-12-311-3690
3	Padlock B40	8	
4	Spatula, 970 mm	1	7330-12-311-3684
5	Tools and supplies in tool bag	1	Contents, see 1.4.1.1
6	Bulb set, 12 V	1	see 2.1.9.1
7	Crank	2	
8	Wheel chock	2	
9	First-aid kit	1	
10	Water hose 1/2", approx. 1 m long	1	4720-12-311-6976
11	Insertion plate, perforated	2	7330-12-311-3689
12	GN food container 1/1-190, perforated	8	7330-12-314-0485
13	Measuring stick	1	6680-12-311-2994
14	Drain pipe, elbow	2	4710-12-314-1691
15	Hand ladle, small, 1 l	1	7330-12-311-3687
16	Burner	4	
17	Hand ladle, wide, 4 l	1	7330-12-311-3686
18	Removal hook	2	7330-12-311-3688
19	Funnel	1	
20	Trailer coupling ring, DIN or NATO	1	Alternatively mounted
21	Connection cable, 7-pole (24/24 V)	1	
22	GN food container 1/1-65, 9 l	4	7310-12-318-0058

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No. in Fig. 59	Designation	Quantity	Remark
23	GN food container 1/1-20	4	7910-12-318-0059
24	Connection cable, 7-pole (12/24 V)	1	
25	Fire extinguisher, 12 kg	1	
26	Wire brush with handle	1	
27	Spare wheel	1	

*) When the cooking containers are loaded with food supplies, these parts are stowed on the towing vehicle/truck.

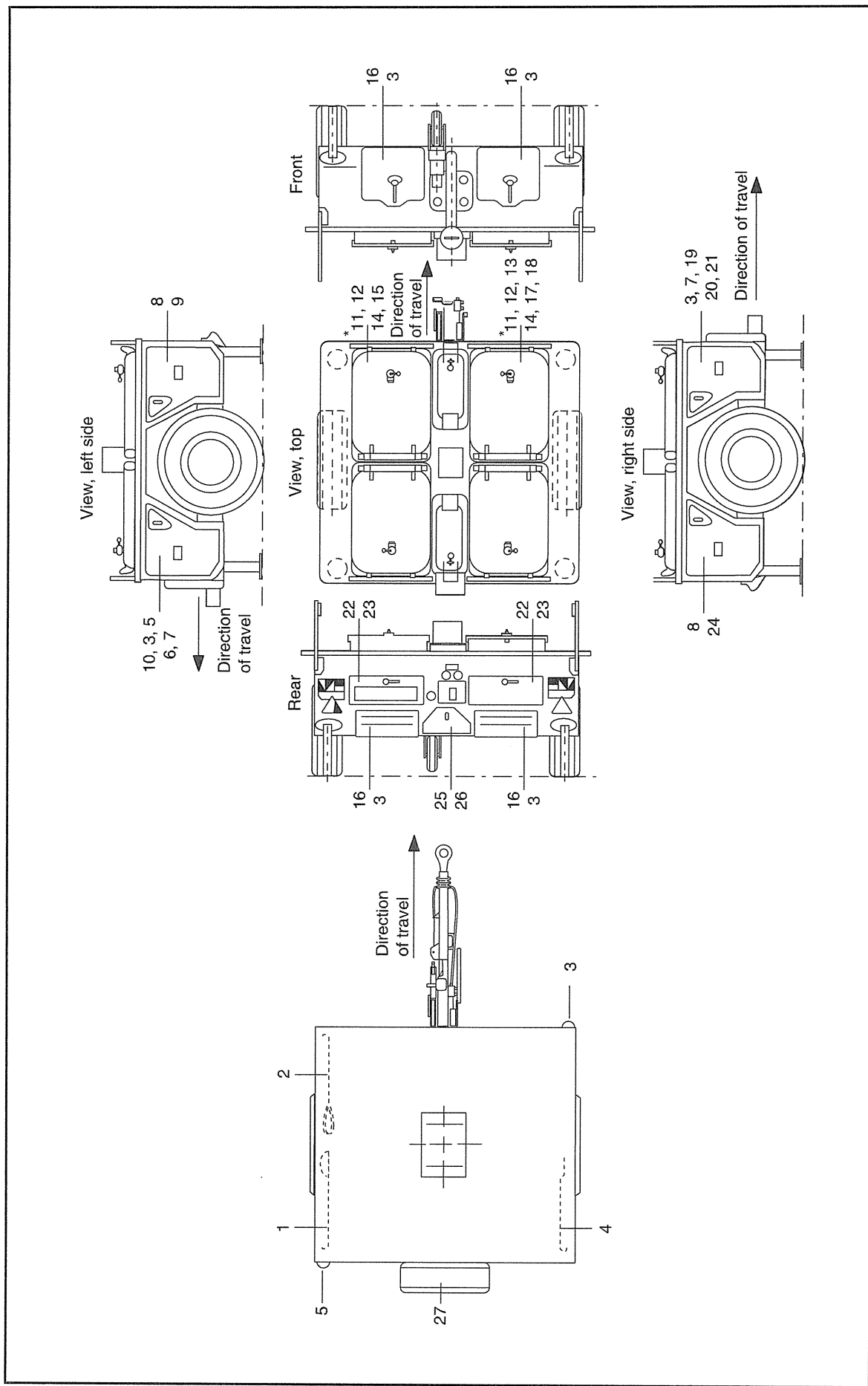


Fig. 59 Loading plan, trailer

Part 2
Operation and Maintenance

2.1 Working/Operating Instructions

2.1.1 Inspection and Set-up of the Field Kitchen Trailer

In accordance with the TRB 600, the following guidelines must be observed when setting up the field kitchen trailer:

1. Inspection of the field kitchen set-up may be carried out only by the rationing sergeant trained and appointed for this, and is to be documented in the equipment log.
2. The TFK 250 is to be set up in such a manner that staff or third persons are not subject to danger.
3. The subsoil of the set-up location must be level and capable to bear the load. The field kitchen trailer is to be leveled with the supports and must stand securely. Improper position changes must be ruled out (addition to Section 2.1.3.2 (1) of this technical service instruction).
4. Set-up may not take place in direct vicinity of vehicle traffic, otherwise, sufficiently stable protection for driving is to be provided for.
5. Fire loads in direct vicinity of the TFK are to be avoided. If the danger of a fire load is given which, in the case of fire could cause pressure-carrying side components or safety-relevant pressure container equipment to fail due to excessive heating, appropriate safety measures, e. g. for fire prevention, fire protection and fire fighting are to be provided for.
6. A fire load is given, e. g. when storing danger class II burner fuel. Neither fuel nor larger amounts of combustible materials, except for objects that serve directly for the cooking operation, may be stored within a 5 m radius.
7. When the fuel containers are filled, the sealing tightness of fuel carrying burner components are to be checked through a visual inspection of the TFK (preferably on the bottom side).

2.1.2 Initial Putting into Operation

Before putting into operation for the first time, no additional work is required.

The measures from Section 2.1.3 on apply for the putting into operation.

2.1.3 Establishing Operational Readiness

NOTE

The spreadsheets with Fig. 67 and 68, as well as 69 (depending on variant) should be pulled out when referring to the working/operating instructions.

2.1.3.1 Unhitching the Trailer from the Towing Vehicle

A site that is as firm and level as possible should be chosen as the location for the trailer.

CAUTION

For operation, the safety clearances and measures in accordance with Section 2.6.9 are to be observed.

- (1) Apply the parking brake (68/10, 69/13).
- (2) Lower the supporting wheel (68/9, 69/6) on the towing hitch, lock into position and crank down to the ground.
- (3) Lower both rear ground supports (68/2, 69/2), lock into position and crank them down to the ground.
- (4) Secure the wheels with the two wheel chocks.
- (5) Release the rapid-emergency cable from the towing vehicle.
- (6) Pull the plug of the electrical connection cable from the towing vehicle and insert it into the holder (68/5, 69/10) stecken.
- (7) Unlock and disconnect the trailer coupling from the towing vehicle; drive the towing vehicle away.

2.1.3.2 Setting Up the Trailer

(1) Leveling the trailer

- Lower both front ground supports (68/13, 69/4) , lock into position and crank them down to the ground.
- Relieve the supporting wheel.
- Adjust the ground supports in such a manner that the air bubble of the box level (68/4, 69/11) is centered.

(2) Folding up the roof

- Release the tie-down straps (68/1, 69/1) at the corners.
- By pulling the release handle (68/3, 69/3), release the front and rear roof parts and fold up.
- Release and fold up the left and right roof parts by folding over the spring latches (68/14, 69/14) entriegeln und aufklappen.

CAUTION

The gas-pressured dampers of the roof parts are under high pressure and lead to an automatic folding-up of the roof parts. Hold the roof parts when opening and slowly allow them to fold up.

- (3) Attach the side tarpaulins, if required (see Section 2.1.8.2).
- (4) Release and fold down the work tables (68/12, 69/12).

NOTE

The work tables are released by pulling out the cable under the work table.

2.1.3.3 Filling the Burner

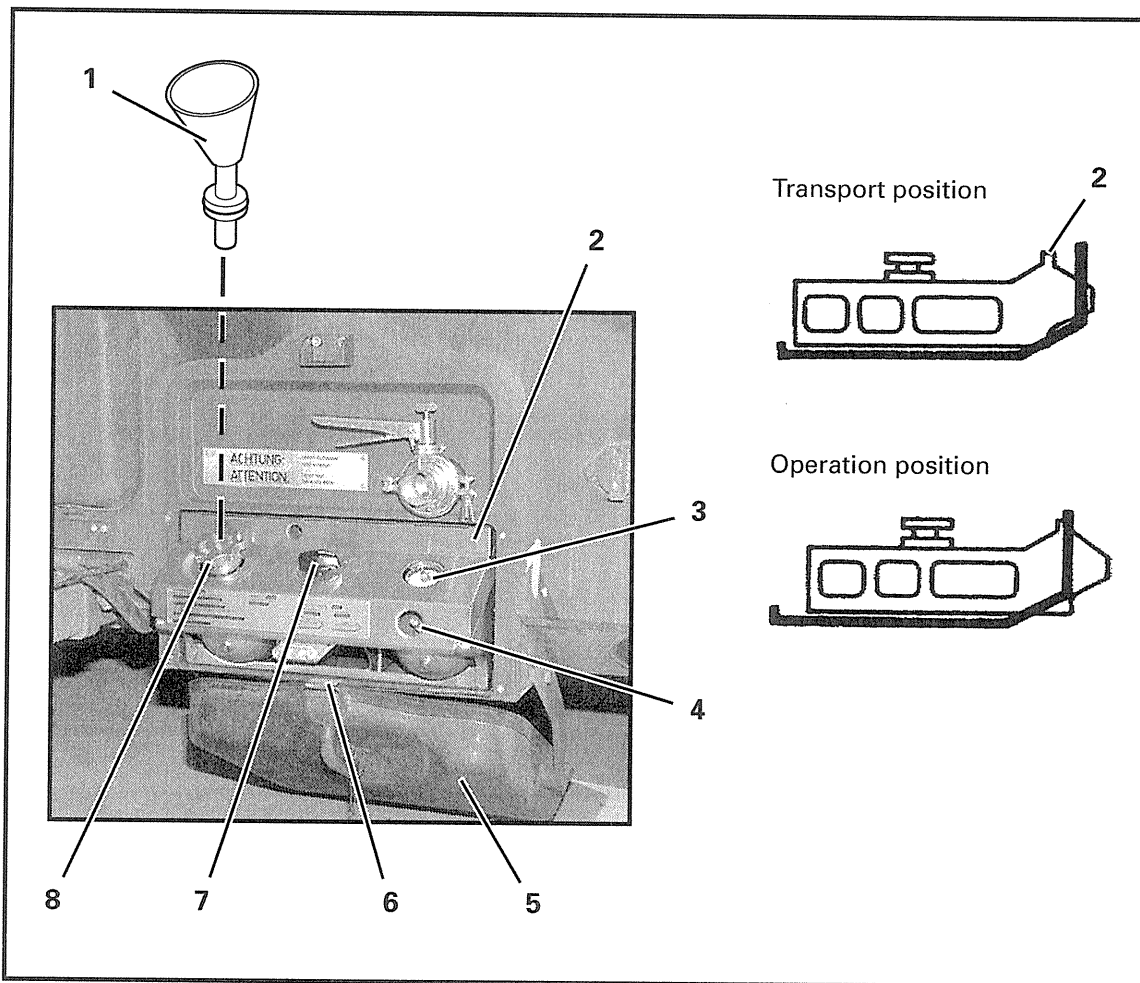


Fig. 60 Burner in operation position

- | | |
|-----------------------|-----------------|
| 1 Funnel | 5 Burner door |
| 2 Heel | 6 Hook |
| 3 Manometer, air tank | 7 Rotary switch |
| 4 Filler valve | 8 Fuel tank cap |

- (1) Release the burner door, front (60/5), tilt downwards and hang into position on the hook (60/6).
- (2) Release the burner door, rear (67/7), and tilt downwards.
- (3) Pull the burner so far out of the burner chamber that the heel (60/2) at the burner cover is flush with the frame sheeting.

- (4) Open the fuel tank cap (60/8) of the fuel tank slowly to relieve any possible overpressure.

CAUTION

Do not open the fuel tank cap with a striking tool. Do not actuate the filler valve for pressure relief of the burner, otherwise fuel can enter the air tank. Danger of fire!

- (5) Check the rotary switch (60/7) for easy-running (only in pressure-free condition).
 - Turn the rotary switch twice from the "STOP" position to the "3" position and back again to the "STOP" position.
- (6) Fill the fuel tank.
 - Pull the burner out of the field kitchen trailer.

CAUTION

Observe safety clearance according to Section 2.6.9.

- Unscrew the fuel tank cap (60/8).
- Attach the funnel (60/1) onto the filler neck and press in to the stop.

CAUTION

For filling, use only the original funnel. Observe safety instructions according to **Section 2.6.9.**

- Fill with fuel until some remains in the funnel. As the funnel is slowly drawn out, the remainder will flow into the fuel tank.
- Screw on tank cap by hand to the stop. Afterwards, unscrew approx. 1/4 of a turn.

CAUTION

Do not use any tools!

- (7) Fill the air tank.
 - Press the filler hose of the compressor onto the filler valve (60/4).
 - Fill the air tank to 9 bar. The filling pressure can be read on the air tank manometer (60/3).
 - Set the right indicator of the reference pointer to the filling pressure.

2.1.4 Putting into Operation

NOTE

Before putting into operation, the cleaning and hygienic work in accordance with Section 2.2.3 and the technical inspections before using (Section 2.2.5.1) must be carried out.

2.1.4.1 Putting the Cooking Facilities into Operation

- (1) Remove the fire extinguisher from the rear storage space (67/6).

CAUTION

Before putting a burner into operation, the fire extinguisher must be positioned readily available at a distance of at least 3 m from the trailer.

- (2) Open the front and rear instruments/gauges flaps (67/16 und 5).
- (3) Check the drain valves of the pressure cookers for easy running and proper function as follows.

Old version:

- Lightly press the lever of the drain valve (61/1) downward to disengage it and turn it to the front by approx. 90°.
- Lightly press the lever of the drain valve downward, turn it back, and pull it up lightly to engage it.

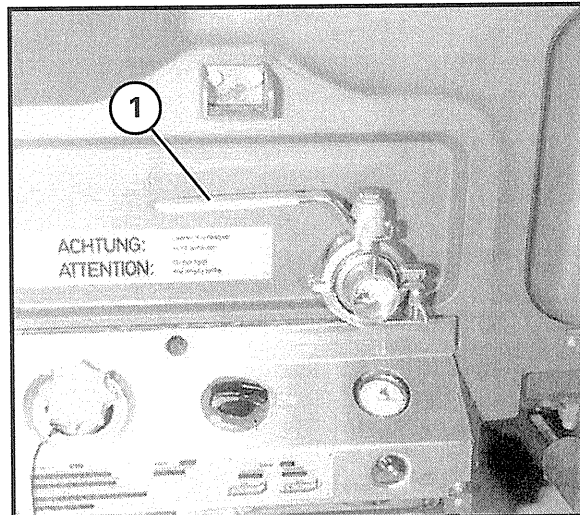


Fig. 61 Drain valve, old version

New version:

- The new version drain valves are additionally equipped with a locking lever (62/1) which must be pulled upward for opening and closing.

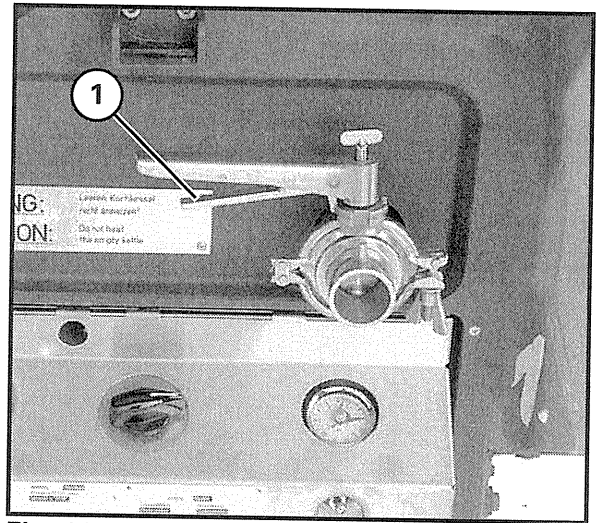


Fig. 62 Drain valve, new version

CAUTION

When the drain valve moves in the thread, the cooker must not be put into operation. Repair in maintenance level 2.

NOTE

The drain valve is for intended only for draining of water. Scoop out food stuffs.

- (4) Check the drain valves (67/3) of the hot water boiler for easy running and proper function by opening and closing.
- (5) Attach the drain elbows (67/17) to the drain valves of the pressure cookers.

CAUTION

Cooking operation is permitted only with the drain elbows attached. DANGER OF SCALDING!

- (6) Check the lid valve for cleanness. Check the indicating pin (63/1) for easy running.

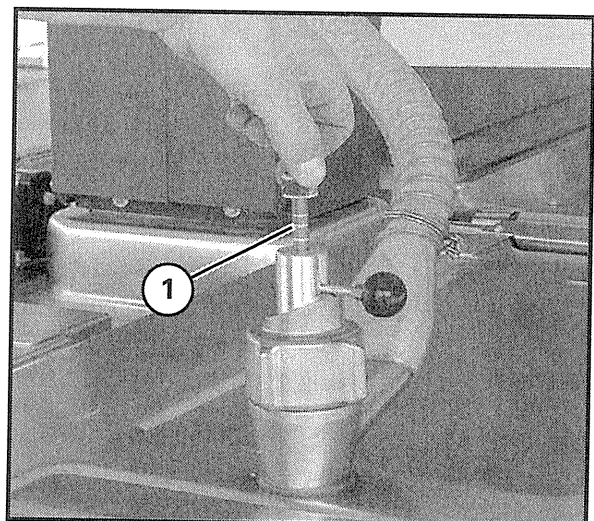


Fig. 63 Lid valve

- (7) Remove the vapor plate (64/1) and check it for cleanness. Check the area behind the vapor plate and the valve inlet for cleanness. Reinsert the vapor plate again.

NOTE

The vapor plate must be seated firmly in the two bolts (64/2) this is not the case, remove the vapor plate and bend the free corners by hand until it fits with slight tension when inserted.

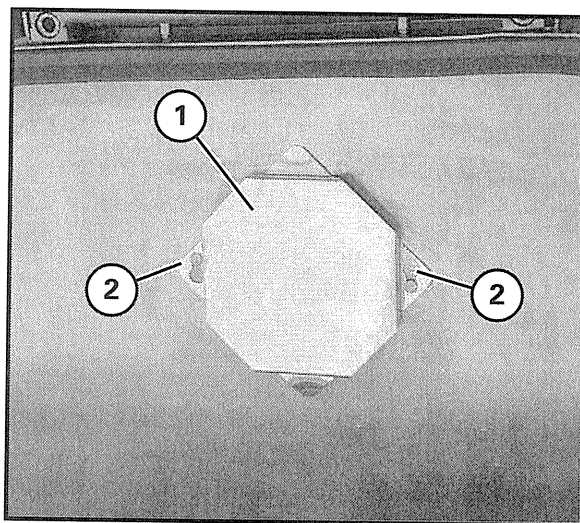


Fig. 64 Vapor plate

- (8) Read the manometer to check for vacuum of the double jacket (65).
- If the manometer reads – 0.6 to 0 bar with the cooker being cold, then the field kitchen is not ready for operation.
 - Fill and purge the double jacket in accordance with Section 2.1.8.4.

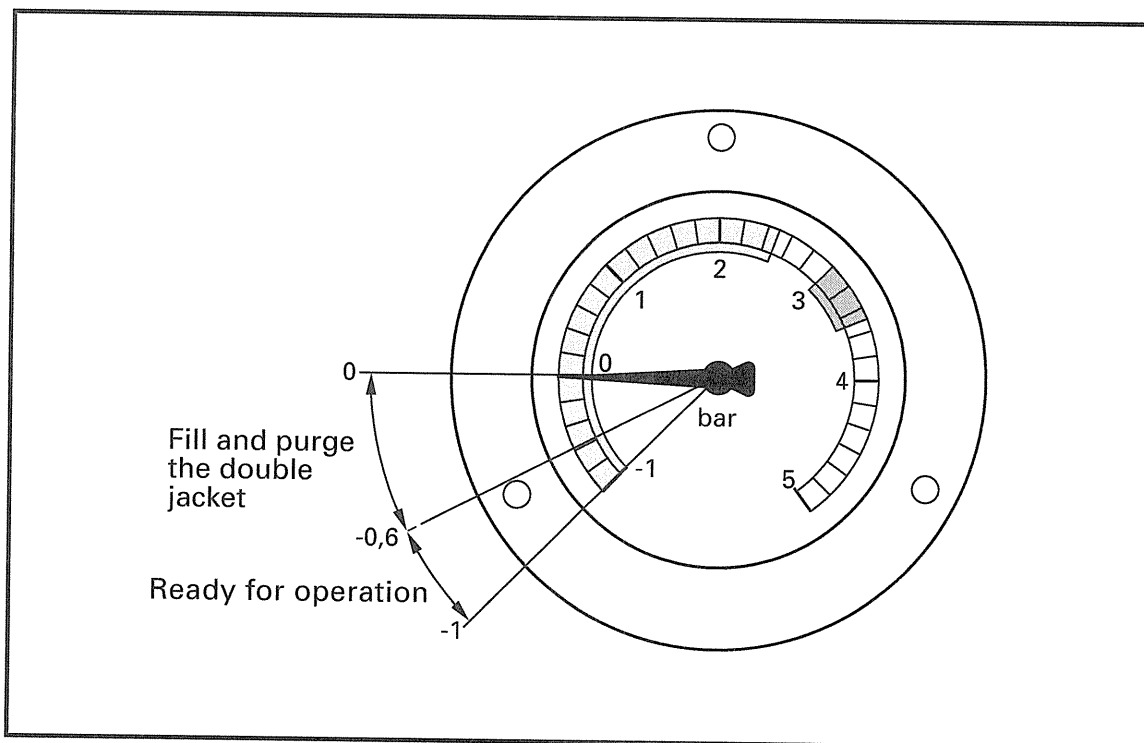


Fig. 65 Manometer, double jacket

(9) Filling the boiler with food

	Filling level, min.	Filling level, max.
Pressure cooker	1 cm above base (10 l)	7 cm below edge (125 l)
Pressure cooker, heavily frothing foods	1 cm above base (10 l)	15 cm below edge (90 l)
Pressure roaster	–	4 cm below edge (45 l)
Hot water boiler	1/2 (11 l)	1/1 (22 l)

CAUTION

Do not heat empty cookers. When operating the pressure roaster, a GN 1/1 – 65 container filled with water is to be inserted into the respective oven.

(10) Check the pressure lid seal (sealing lip) and the contact surface for cleanness, and clean if required.

2.1.4.2 Putting the Burners into Operation

CAUTION

Check the fuel collecting pan of the burner for fuel remainders/residue. Put the burner into operation only when in the burner compartment. If fuel remainders are detected, do not put the burner into operation, and arrange for maintenance.

Putting the burner into operation takes place in three steps:

- Preheating "V"
- Ignition "Z"
- Operation "1...3"

(1) Preheating "V"

- The rotary switch (67/13) is in the "STOP" position.
- The air tank must be filled with an overpressure of at least 7.5 bar.

- Set the right reference pointer indicator from the air tank manometer (67/12) to the pressure indicator.
- Hold the wick (57/7) against the preheating nozzle (67/14).
- Slowly set the rotary switch (67/13) to "V".
- Remove the lighting wick when the preheating flame burns steadily. The preheating time is done when the pressure indicator at the air tank manometer has reached the left reference pointer indicator (duration: approx. 2.5 min). In this time, the pressure in the air tank drops by 2.5 bar.
- Check the preheating flame through the inspection opening (67/15). The flame must reach the vaporizer.

CAUTION

If the preheating is interrupted, a minimum cooling down period of 10 minutes must be allowed before repeating the preheating. Check the pressure in the air tank.

CAUTION

When the flame goes out during preheating, fuel can collect in the preheating tube and in the fuel collecting pan. Remove any fuel that has run out before igniting again.

(2) Ignition "Z"

- On expiry of the preheating time, slowly turn the rotary switch to "Z", wait approx. 5 seconds, and then slowly turn the rotary switch to position "1". Before selecting a higher operating level, the rotary switch must remain in position "1" for approx. 2 minutes.
- Check the overpressure in the air tank (5 bar minimum) and refill, if required.

CAUTION

If the main flame does not ignite or if the preheating and main flames are completely extinguished, the rotary switch must be turned to "STOP" (wait for approx. 10 min). Correct the malfunction (see Section 2.3.2).

(3) Operation "1...3"

- After approx. 2 minutes the burner is continuously adjustable from position "1" to "3".

2.1.5 Operation

2.1.5.1 Data on Equipment Operation

During operation of the field kitchen, the following operating, indicating and safety devices must be activated and/or checked.

(1) Burner

- Check the main flame. In case the main flame has gone out, turn the rotary switch to "STOP" and allow the burner to cool down for 10 minutes. Correct malfunction and start again.
- A weak flame in setting 3 indicates a malfunction (see Section 2.3.2).
- Check the pressure in the air tank. The pressure reading of the air tank must always be within the green range (5 to 9 bar); refill air as required.

(2) Lid Valve

- The overpressure of the respective pressure cooker can be read from the lid valve. The ring marks of the indication pin indicate the following pressures:
 - 1. ring 0,01 – 0,02 bar
 - 2. ring 0,15 (–0,05) bar
 - 3. ring 0,3 (–0,05) bar
 - 4. ring 0,4 (–0,05) barat 0,42 (+0,05) bar, the lid valve opens.
- The lid valve can be opened in steps by means of the blow-off lever.

(3) Manometer, Double Jacket

- The manometer of the double jacket (indication range -1 to 5 bar) indicates the pressure in the double jacket of the pressure cooker. The operating overpressure is approx. 1 bar at 100 °C in the double jacket.

CAUTION

When the pressure indicator is in the red range (3 to 3.5 bar), the burner must be switched off and the malfunction corrected.

(4) Double Jacket Valve

At a value of 3.5 bar in the double jacket of the pressure cooker, the double jacket valve (67/19) opens with a distinct noise.

CAUTION

After the double jacket valve has actuated, water must be refilled into the double jacket and the double jacket must be purged (see Section 2.1.8.4).

(5) Temperature Indicator

The temperature indicator (67/2) (indication range 0 to 300 °C) indicates the temperature in the oven.

CAUTION

Do not heat the oven above 250 °C.

(6) Cooking Clock

Periods of up to 60 minutes can be set with the cooking clock (67/9). An acoustic signal sounds when the clock has run off.

2.1.5.2 Instructions for Cooking

(1) General

CAUTION

When short frying, frying in oil, browning in fat and roasting in the pressure roaster and for operation of the oven with the pressure roaster empty, the pressure lid of the pressure roaster must always remain open!

When the pressure roaster is **filled** with water:

- low top heat in the oven,
- burner operation at any setting from level "1" to "3".

When the pressure roaster is **empty**:

- At temperatures of 250 °C in the oven, the burner may be operated only at level setting "1".
- When heating up a full oven (e. g. for defrosting, cooking in GN container), the burner must not be operated at setting "3" for more than 25 minutes. It must then be turned down to setting "1".

(2) Cooking

Conventional cooking is possible in the pressure roaster and pressure cooker as well as in the oven (with GN container).

CAUTION

Never open the pressure lid with force.

The overpressure must be fully relieved before opening. The lid valve must remain open, otherwise pressure builds up again. When relieving the pressure, attach the steam exhaust hose and switch off the burner.

(3) Pressure Cooking

The special design of the pressure cookers and pressure roaster allows for cooking with overpressure up to 0.42 bar.

(3.1) Pressure Cooking in Steam

- Place the perforated sheet in the pressure cooker and fill with at least 10 liters of water.
- Put in solid food (e.g. potatoes in their skins) either loose or in the perforated GN container.
- Open the lid valve.
- Shut the pressure lid:
Holding the lid by the handle, pivot the lid down and pull the locking lever toward the handle (do not slam the lid). The lid is locked correctly when the control pins can be felt to protrude out of the locking lever.

CAUTION

When the lid is not closed correctly, putting into operation is prohibited.

- Put the burner into operation.
- When the contents of the cooker has come to a boil, allow steam to flow through the lid valve for at least 2 minutes and then shut the valve.
- Once the required pressure has been reached, set the cooking time on the cooking clock and adjust the burner power.
- After expiry of the cooking time, turn off the burner.
- Relieve the overpressure by actuating the blow-off lever on the lid valve.

CAUTION

Attach the steam exhaust hose when relieving the overpressure.

(3.2) Pressure Cooking in Liquid

- Pour in water, bring to a boil or cook from cold.
- Add food (rice, noodles, stew, etc.) either directly or in a perforated GN container.

NOTE

Maximum filling level: 7 cm. Maximum filling level for foods that foam or froth heavily (e. g. stews): 15 cm below the edge of the cooker.

- Carry out further work steps according to Section (3.1).

(4) Steaming

Steaming is carried out in the same manner as pressure cooking (see Section (3), except that the lid valve is open.

(5) Roasting, Browning in Fat, Frying und Baking

CAUTION

For reasons of safety, these work processes are only possible in the pressure roaster or in the oven.

Observe the general instructions in Section (1).

NOTE

In case of uneven heat distribution, see Section 2.3.2.

CAUTION

Never leave the roaster unattended!

If fat should catch fire, never extinguish with water!

(5.1) Roasting and Browning in Fat

- Heat pressure roaster and oven.
- Add fat/grease and roast or brown the food in the pressure roaster or oven.

(5.2) Baking

- Heat the oven.
- Insert the food placed on a GN sheet.

NOTE

Position the locking lever vertically downwards to allow fumes to escape.

(5.3) Frying

- Heat the pressure roaster with the rotary switch at the burner set at position "3".
- Place small quantities of food in the roaster and fry.

2.1.5.3 Rules and Regulations for Cooking

For operation of the field kitchen the following points must be observed:

- In order to obtain the full aroma of spices and herbs, the food should be seasoned before the pressure phase.
- As a general rule, use less spice quantities than usually, as the aromatic substances cannot escape while pressure cooking.
- When cooked under pressure, e. g. instant soups and canned foods require only 1/4 of the usual cooking time!
- When cooking in liquid (without GN containers), fill the pressure cookers to maximum 15 cm below the edge of the cooker.

CAUTION

Bring foods that produce foam to a boil without the lids first, then, after the foam has diminished, cook under pressure.

- Before pressure cooking, the cooking chamber must be purged:
- Open the lid valve (see Section 2.1.5.2, (3)),
- Shut the pressure lid.
- Heat the contents in the vessel to a boil.
- Let the steam escape through the lid valve for approx. 2 minutes, then close the lid valve.
- Due to the stored energy of the vessels, the food contained in the pressure cooker or roaster may continue to boil even after the actual cooking process.
- Relieve the overpressure only gradually, as sudden pressure equalization can possibly force food stuffs against the lid valve, especially with liquid foods. (Switch off burner first!).

CAUTION

Never open the pressure lid with force.

The overpressure must be fully relieved before opening. The lid valve must remain open, otherwise pressure builds up again. When relieving the pressure, attach the steam exhaust hose and switch off the burner.

2.1.6 Putting Out of Operation

(1) Burner

- Turn the rotary switch (67/13) to the "STOP" setting.

NOTE

The main flame must go out after 3 minutes latest.

- Relieve the pressure in the fuel tank. Open the fuel tank cap sufficiently so that the pressure can be relieved.
- Shut the fuel tank cap by hand to the stop, then turn back approx. 1/4 turn.

(2) Pressure Cooker

- Fully relieve the overpressure with the blow-off lever at the lid valve and leave the lid valve open.

2.1.7 Preparing to Move Off

2.1.7.1 Trailer

- (1) Set the burner out of operation (see Section 2.1.6 (1)).
- (2) Release pressure from pressure cookers; lid valves remain open.
- (3) Check the vapor plates (64/1) for tight seating.
- (4) Stowaway accessories and supplies.
- (5) Shut the pressure lids of the pressure cookers and pressure roasters and secure the lids from opening automatically during travel using cable tie wraps.
- (6) Shut the lids of the hot water boilers.
- (7) Shut the oven doors (67/4).
- (8) Shut the front and rear instrument/gauges flaps (67/16 und 67/5).
- (9) Slide the burners in the burner chambers to the transport position and shut the burner doors (67/7 und 67/18).
- (10) Fold up and engage the folding tables (67/8).
- (11) Dismantle side tarpaulins, as required (see Section 2.1.8.2).

(12) Fold roof together:

- Fold down the left and right roof parts and lock them with the spring latches (68/14, 69/14).
- Fold down the front and rear roof part and while doing this, pull the loose corner parts of the roof tarpaulin to the outside, roll them in (Fig. 66) and strap down the roof tarpaulin over the corner.

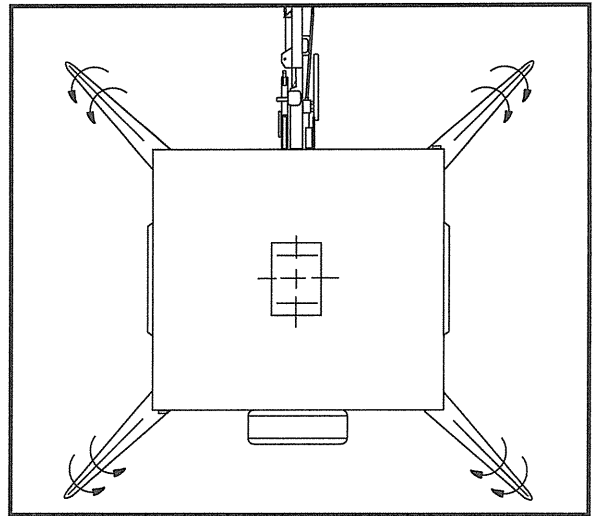


Fig. 66 Folding together the roof tarpaulin

CAUTION

The roof parts must be interlocked properly. The gas-pressured dampers are under high pressure and can cause the roof parts to fold out automatically.

2.1.7.2 Hitching the Trailer to the Tow Vehicle

CAUTION

When the trailer is hitched to a civil vehicle the trailer coupling ring and if necessary the light bulbs must be replaced (see Section 2.1.9.1).

(1) Adjusting the height of the trailer coupling ring

- Adjust the overrun unit with the trailer coupling ring in such a manner that it is at the same height as the trailer coupling of the towing vehicle; here the overrun unit (68/6, 69/9) must be parallel to the towing hitch (68/11, 69/5).

(2) Prior to travelling, check the freedom of play of the height adjustment device (68/7, 69/7):

- The gearing at both joints must engage in each other.
- The swivel pins must be tightened with the tommy bars.
- The nuts must be secured with split pins.

NOTE

Checking the freedom of play by pulling up and pushing down the trailer coupling ring is possible only with great force.

CAUTION

The driving characteristics of the field kitchen trailer become worse when the following defects are given:

- Air pressure in the tires too low.
- Hitch transition piece (68/8, 69/8) not correctly adjusted to the trailer coupling height of the towing vehicle.
- Overrun unit (68/6, 69/9) not adjusted parallel to the towing hitch.
- Tommy bar of the height adjustment device (68/7, 69/7) not tightened.
- Retaining chains of the securing split pins stuck or jammed in the gearing.

After 1 km of travel and again after 50 km of travel, the tommy bars are to be checked for tight seating.

- (3) Lower the support wheel.
- (4) Bring the front ground supports (68/13, 69/4) in the upper latching position and crank up the support plates so far until they face firmly against the paneling and seal off the storage spaces.
- (5) Crank up the rear ground supports (68/2, 69/2) to max. 5 cm above the ground.
- (6) Unlock and open the trailer coupling on the towing vehicle.
- (7) Reverse the towing vehicle with the help of a guide until the coupling engages in the coupling ring of the trailer.

CAUTION

Standing between the towing vehicle and the trailer during the hook-up procedure is prohibited. DANGER TO LIFE!

- (8) Check that the trailer coupling is locked and secured correctly.
- (9) Connect the electrical connection to the towing vehicle.
- (10) Fasten the rapid-emergency cable to the trailer coupling of the towing vehicle.
- (11) Crank up/fold in and engage the support wheel (68/9, 69/6); secure the crank.
- (12) Bring the rear ground supports (68/2, 69/2) in the upper latching position and crank up the support plates so far until they face firmly against the paneling and seal off the storage spaces.
- (13) Fasten the wheel chocks in the storage spaces.
- (14) Close the storage space doors.
- (15) Release the parking brake lever (68/10, 69/13).

- 1 Lid valve
- 2 Temperature indicator
- 3 Drain valve, hot water boiler
- 4 Oven door
- 5 Instruments/gauges flap, rear
- 6 Storage space door, fire extinguisher
- 7 Burner compartment door, rear
- 8 Folding table
- 9 Cooking clock
- 10 Manometer, double jacket
- 11 Drain valve, pressure cooker
- 12 Manometer, air tank
- 13 Rotary switch
- 14 Preheating nozzle
- 15 Inspection opening
- 16 Instruments/gauges flap, front
- 17 Drain elbow
- 18 Burner compartment door, front
- 19 Double jacket valve
- 20 Storage space (front right)

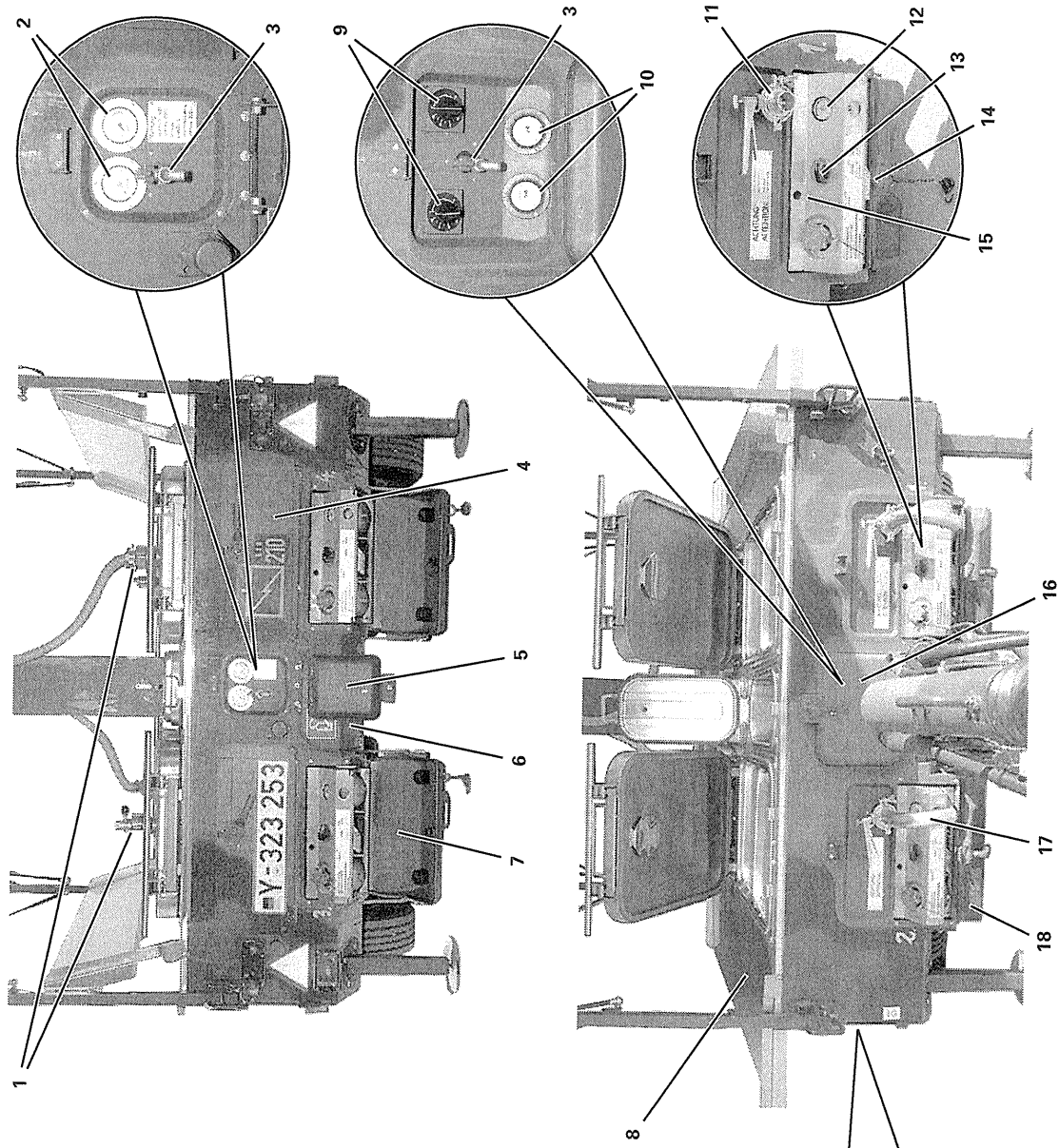


Fig. 67 Field kitchen trailer, ready for operation

- 1 Strap
- 2 Ground support, rear
- 3 Release handle
- 4 Box level
- 5 Holder
- 6 Overrun unit
- 7 Height adjustment device
- 8 Hitch transition piece
- 9 Supporting wheel
- 10 Parking brake lever
- 11 Towing hitch
- 12 Folding table
- 13 Ground support, front
- 14 Spring latch

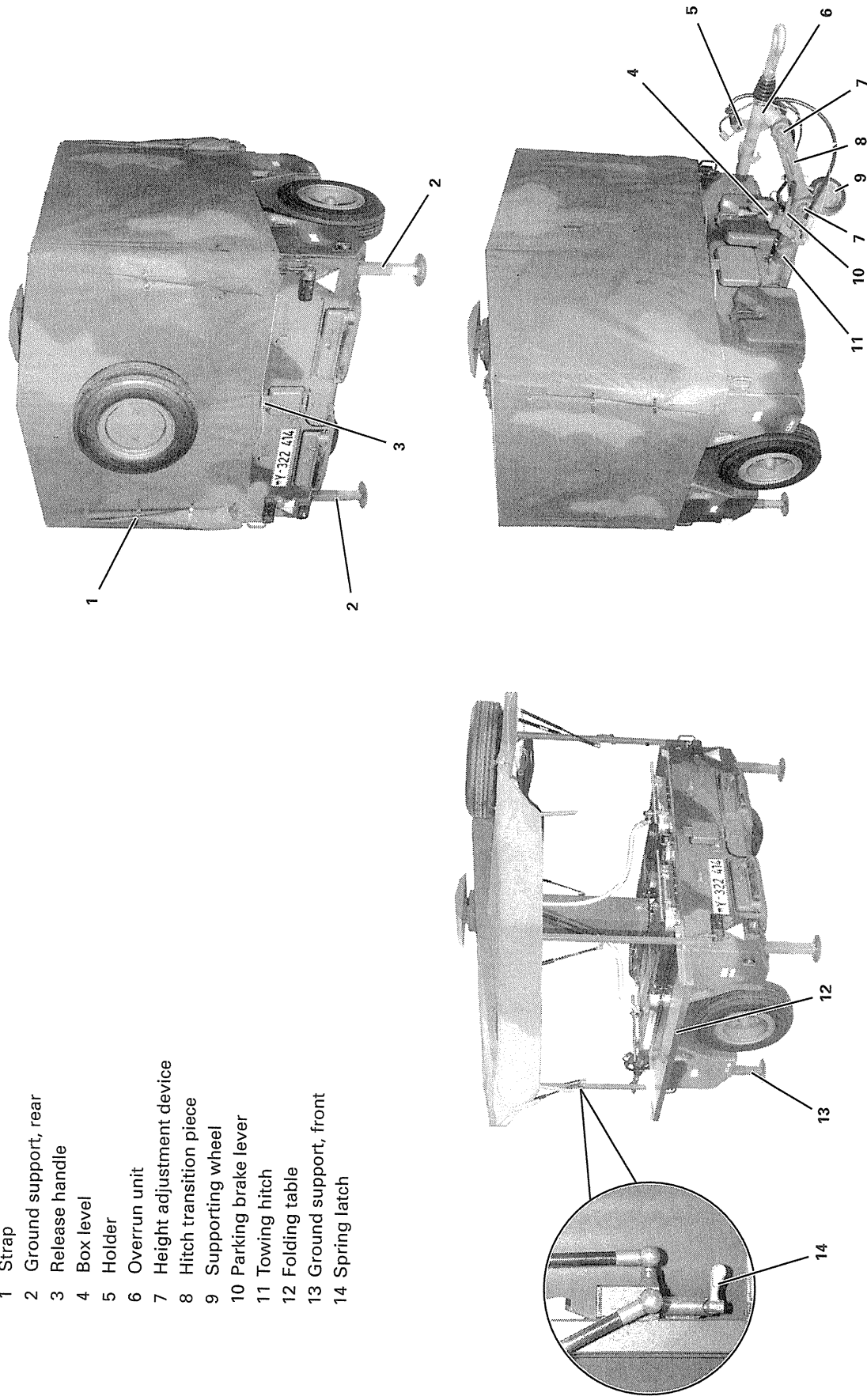


Fig. 68 Field kitchen trailer, ready to move off (variant 1)

- 1 Strap
- 2 Ground support, rear
- 3 Release handle
- 4 Ground support, front
- 5 Towing hitch
- 6 Supporting wheel
- 7 Height adjustment device
- 8 Hitch transition piece
- 9 Overrun unit
- 10 Holder
- 11 Box level
- 12 Folding table
- 13 Parking brake lever
- 14 Spring latch

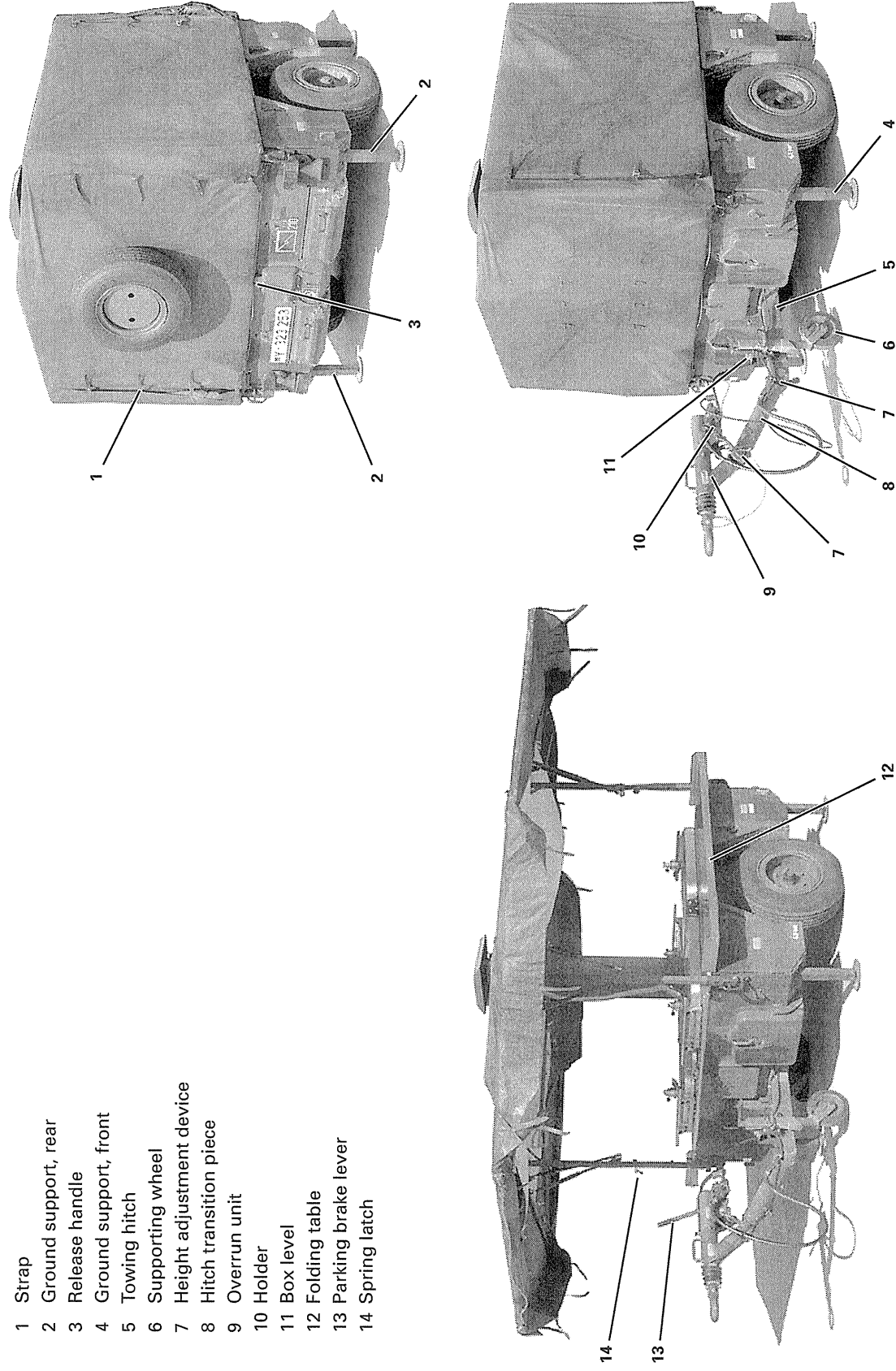


Fig. 69 Field kitchen trailer, ready to move off (variant 2)

2.1.8 Special Operating Instructions

2.1.8.1 Replacing the Grease Fleece

NOTE

Before the grease fleece is taken off, the steam exhaust hoses are to be dismantled in accordance with Section 2.2.1.4 auszubauen.

CAUTION

Do not step on the folding tables, cooker lids and lid valves.

- Loosen all straps (70/2) and take off the grease fleece (70/1).

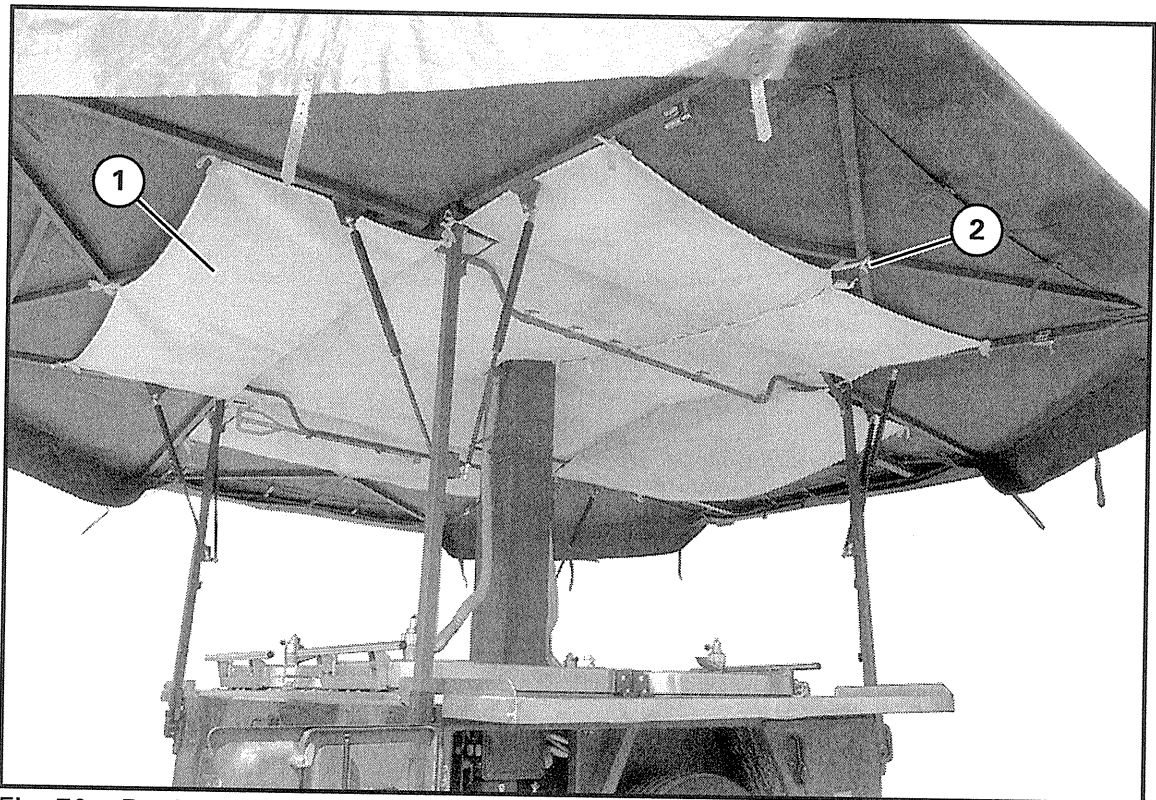


Fig. 70 Replacing the grease fleece

- Clean the grease fleece according to Section 2.2.1.3.

- Place down the dry grease fleece according to Fig. 71 with the coated side facing downward (fleece facing upward) and align centrally.

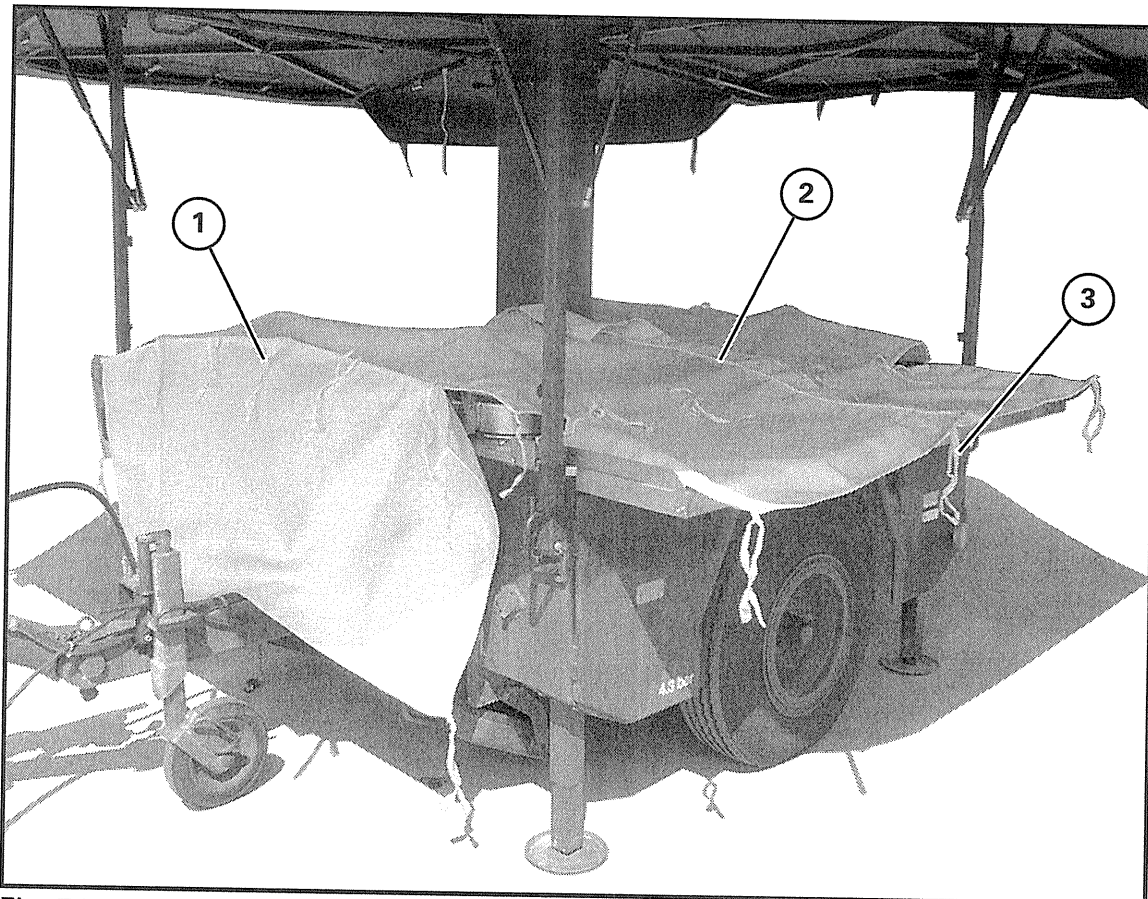


Fig. 71 Fastening the grease fleece

- First, tie the grease fleece with the inner straps (71/1) to the roof construction.
- Tension the grease fleece toward the outside and tie down with the outer straps (71/3).
- Close the separation line (71/2) of the grease fleece with the straps.
- Install the steam exhaust hoses again.

2.1.8.2 Installing and Dismantling the Side Tarpaulins

Starting position: The trailer is set up and the four roof parts are folded up.

NOTE

For weather protection, two identical side tarpaulins (Fig. 72) which can also be mounted individually, are available.

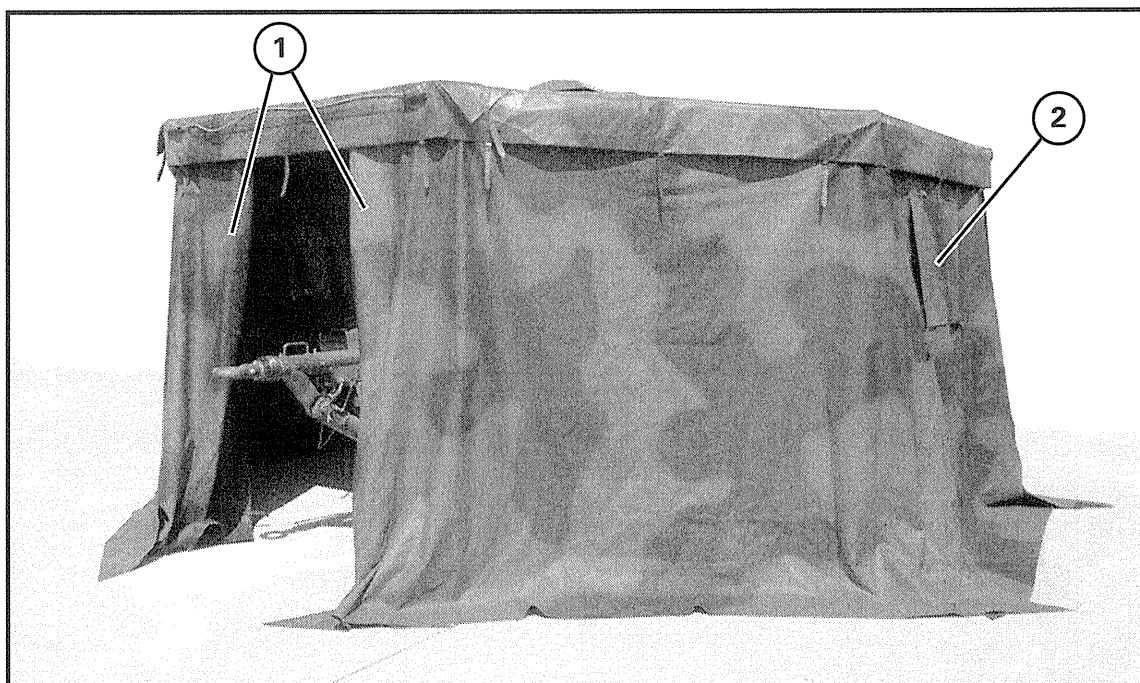


Fig. 72 Trailer with side tarpaulins

- (1) Lay out the side tarpaulin centrally, lengthwise alongside the trailer; window cover tarpaulin (72/2) on the outside.
- (2) Hook the side tarpaulin with the spring hooks (73/3) to the wire cable on the inside (73/1) and the eyelets (73/2) of the roof construction.

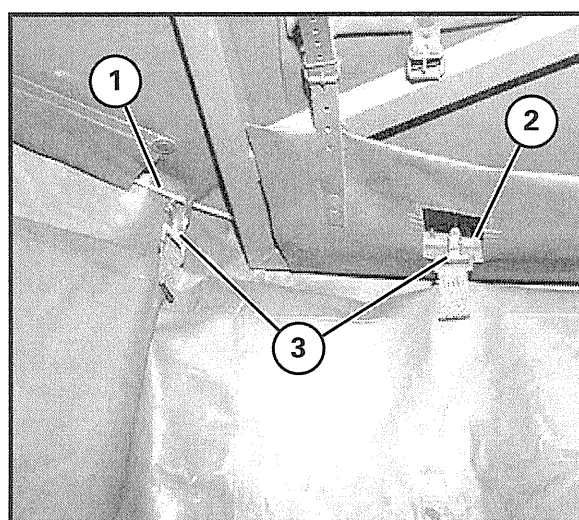


Fig. 73

- (3) Tie the straps (74/1) on the outside of the roof tarpaulin to the buckles of the side tarpaulins.
- (4) Make the access opening to the field kitchen in the front or rear area of the trailer by folding in the side tarpaulins (72/1).
- (5) Fasten the side tarpaulins to the ground with tent pegs.

NOTE

Observe the folding plan for packaging of the side tarpaulins (see Section 3.6, 145).

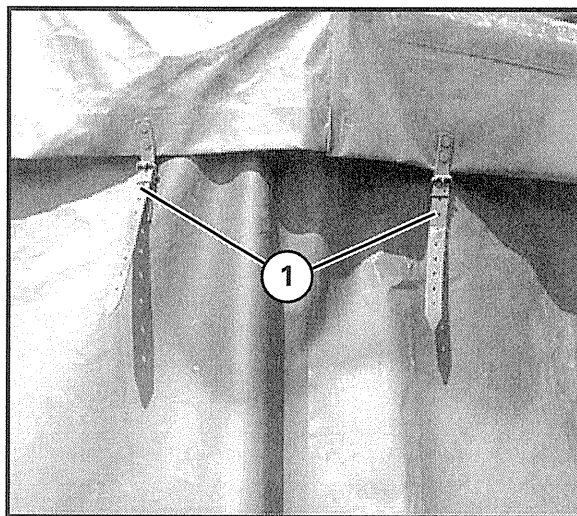


Fig. 74

2.1.8.3 Operation Using the Solid Fuel Burner Insert

Under emergency conditions, the field kitchen can be heated using solid fuel (wood, coal, etc.).

For this to be done, the solid fuel burner insert (Fig. 75) is inserted into the burner compartment.

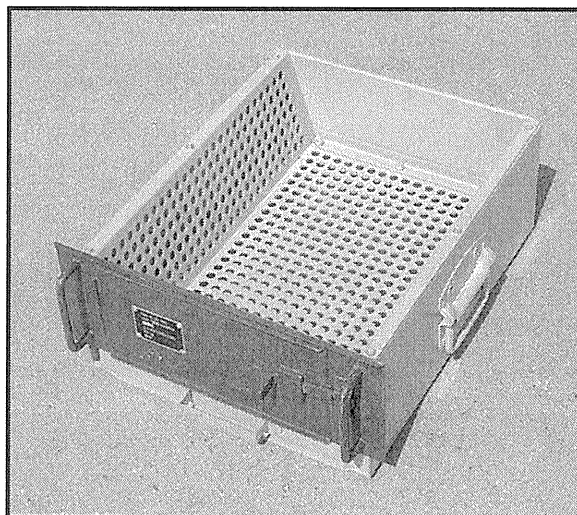


Fig. 75 Solid fuel burner insert

2.1.8.4 Filling and Purging the Double Jacket of the Pressure Cooker

CAUTION

Only clean water (not salt water) may be used to fill the double jacket.

The double jacket is a closed container. It must be filled, refilled and purged in the following cases:

- when the double jacket valve (77/1) has actuated during operation and steam has escaped,
- after repair work on the double jacket,
- when a new pressure cooker is filled for the first time,
- when the pressure is between -0.6 and 0 bar while the cooker is cold.

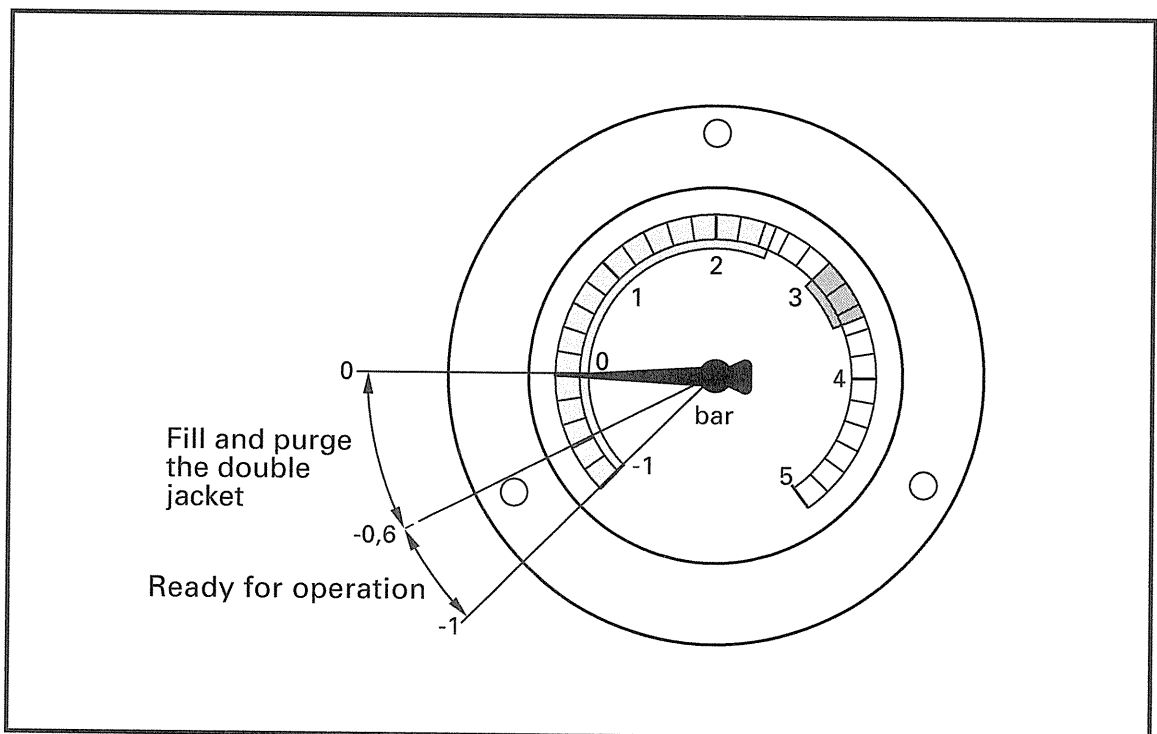


Fig. 76 Manometer, double jacket

- (1) Level the trailer with the aid of the ground supports and the box level.
- (2) Open the purge valve (77/2).
- (3) Unscrew the union nut (77/4) and remove the double jacket valve (77/1).
- (4) Using a hose, fill the double jacket until the water drips out of the pipe socket (77/3).

CAUTION

The double jacket valve may not be taken apart. To avoid damage, do not overfill the double jacket.

- (5) Clean fitted surfaces, renew seals, attach double jacket valve and screw on the union nut (77/4).
- (6) Shut the purge valve.

NOTE

The purge valve is shut when the notch on the purge valve is positioned in transverse direction to the flow direction.

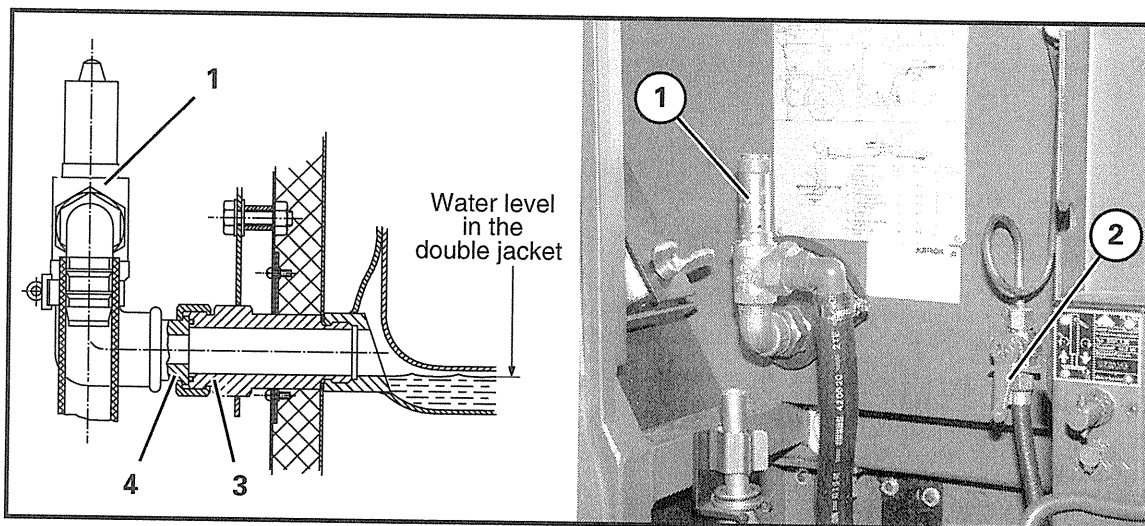


Fig. 77 Double jacket with double jacket valve

- | | |
|-----------------------|---------------|
| 1 Double jacket valve | 3 Pipe socket |
| 2 Purge valve | 4 Union nut |

(7) Purging

CAUTION

Danger of scalding!

- Fill the empty pressure cooker with at least 10 liters of water.
- Heat the pressure cooker to 1 bar overpressure in the double jacket.
- Open the purge valve (77/2).
- Allow steam to escape for 40 seconds.
- Shut the purge valve.

CAUTION

Danger of scalding!

2.1.8.5 Checking the Heat Distribution in the Pressure Roaster

- (1) Fill the pressure roaster with water so that the base is covered with water by approx. 1 cm.
- (2) Heat up the pressure roaster.

NOTE

With the temperature increasing, steam bubbles must develop in the area around the heating tubes.

Failure of 3 heating tubes is permitted, however, the 3 heating tubes may not be located next to each other.

In case more than 3 heating tubes fail, the vessel is to be replaced in maintenance level 2.

2.1.8.6 Changing a Wheel

- (1) Apply the parking brake.
- (2) Secure the wheel which is not to be changed using two wheel chocks.
- (3) Unscrew the spare wheel nuts, remove the cover (78/2) and lift off the spare wheel (78/1).
- (4) Loosen the six wheel nuts (78/5) of the wheel to be changed.
- (5) Crank down the front and rear ground support (78/3) until the wheel is lifted from the ground.
- (6) Unscrew the six wheel nuts and remove the wheel (78/4).
- (7) Fit the spare wheel and screw on the wheel nuts evenly over cross, but do not tighten.
- (8) Crank up the front and rear ground support.
- (9) Tighten the wheel nuts crosswise.

NOTE

Check the tightening torque with the torque wrench (tightening torque: 300 Nm).

- (10) Check the tire pressure; required value: 4.3 bar.

NOTE

After 30 – 50 km of travel, the wheel nuts must be retightened crosswise.

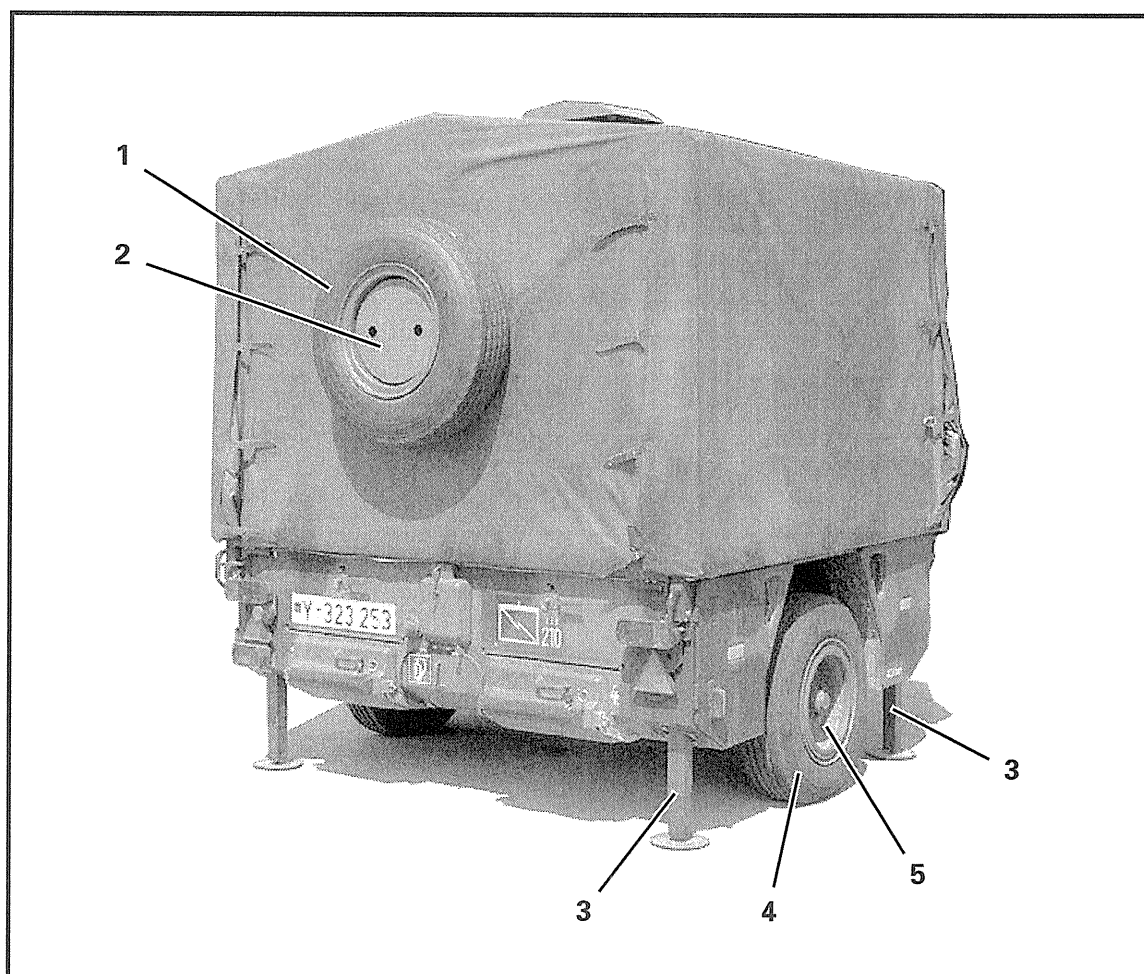


Fig. 78 Changing a wheel

- 1 Spare wheel
- 2 Cover
- 3 Ground support

- 4 Wheel
- 5 Wheel nut

2.1.9 Handling and Operation Under Specific Climatic or Other Conditions

- Heat frozen cooking vessels carefully at level 1 for approx. 15 minutes in order to melt the ice in the double jacket.
- For operation in cold climates/winter, the burner air tank is to be filled by means of the compressor (use a test connection). Otherwise the foot air pump must be used.
- For temperatures below -15 °C, extend the preheating time by up to 1 minute.
- When the danger of freezing is given, empty the vessel after the cooking operation.
- When operating the burner with alternative fuels observe Section 1.2.9.

2.1.9.1 Operating Instructions for Towing with Commercial Trucks

NOTE

All retrofit components required for operation with commercial trucks are contained in the accessories of the trailer.

When hitching up to a commercial truck the following steps are to be carried out:

- (1) Replace the trailer coupling ring, see Section 3.2.3.9.
- (2) When hitching up to a truck with 12 V electrical system, exchange the 24 V bulbs with 12 V bulbs.
- (3) A 7-pole cable, which is connected to the socket (51/6), is used as the electrical connection line.

NOTE

If the truck is equipped with a 12 V system, use the 12/24 V connection cable with plug and coupling. For 24 V systems, use the 24/24 V connection cable with two couplings.

