AHLMANN

OPERATING INSTRUCTIONS

Articulated Loader AL 6

Ahlmann-Maschinenbau GmbH · D 2370 Rendsburg

PREFACE

This manual contains instructions for operating, servicing and preventive maintenance as well as a general technical description of the loader.

Please read this manual carefully and follow the instructions. Important repair work should be carried out be properly trained service personnel.

An engine manual with maintenance instructions is also supplied with each machine. Please follow these instructions closely.

It is further recommended that you read the accident prevention instructions for excavators and loaders prepared by the German construction association (Tiefbau Berufsgenossenschaft).

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C O N T E N T S

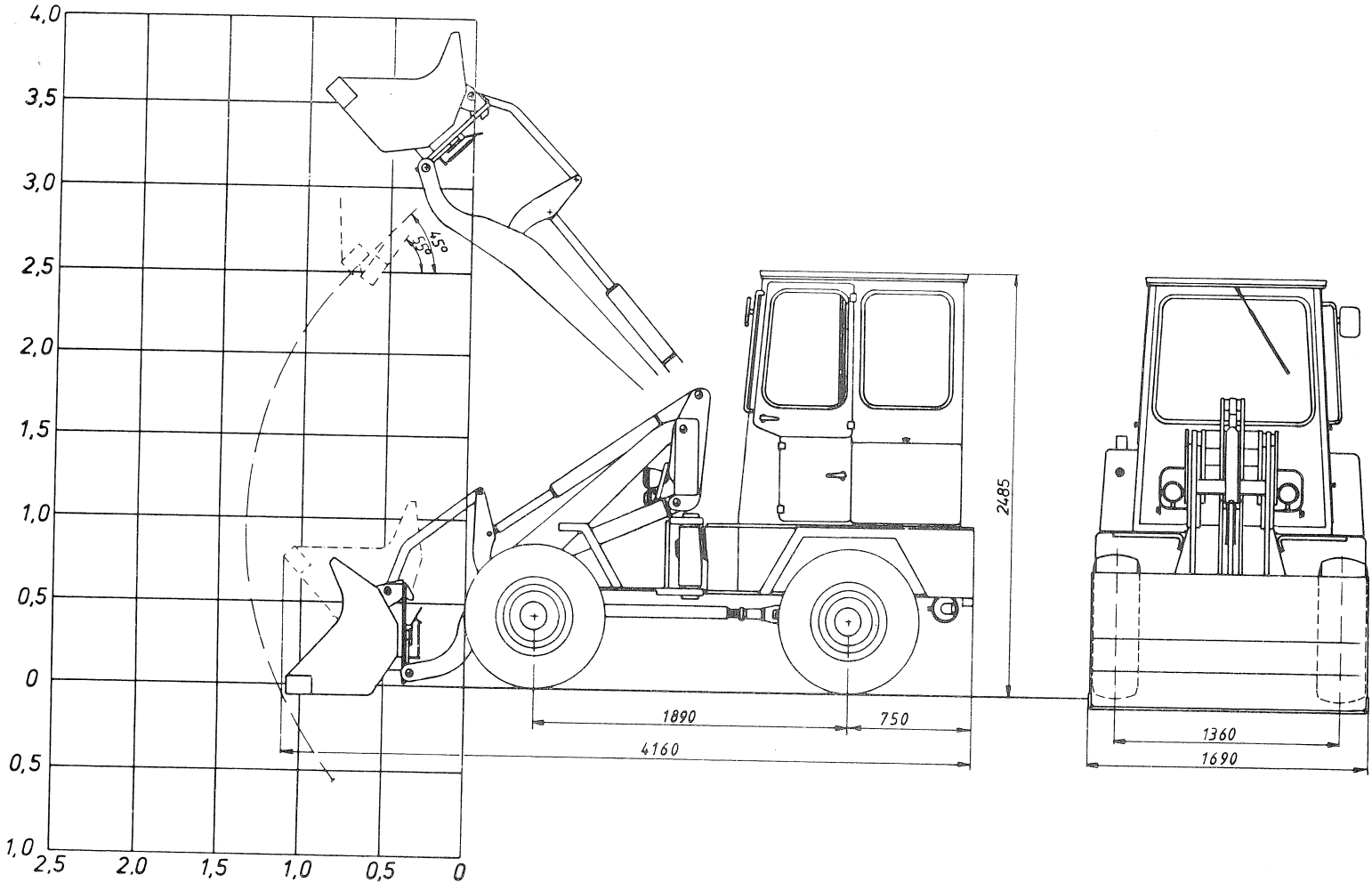


Illustration 1

1.1 Technical Specifications

General Note

"Right" and "Left" are as seen from the driver's cabin.

Diesel Engine

- air-cooled Deutz Diesel engine : F2L511D,
- 2 cylinder, 4 stroke, direct injection,
- displacement : 1650 cm^3,
- bore Ø 100 mm, stroke 105 mm,
- output 25,7 kW (35 HP) at 3000 RPM, as per DIN 6270B - continuous output,
- fuel consumption 225 g/kW/h,
- starter motor - 1,5 kW (2,0 HP), 12 V,
- dry air cleaner

Hydrostatic Drive System

- Diesel engine.
- Axial piston pump (variable displacement pump) flange-mounted to Diesel engine,
- High pressure hoses connect the piston pump to the hydrostatic piston motor.
- The hydrostatic motor is connected to the reduction gear in the rear with direct torque transmission from reduction gear to rear axle and via drive shaft to front axle.

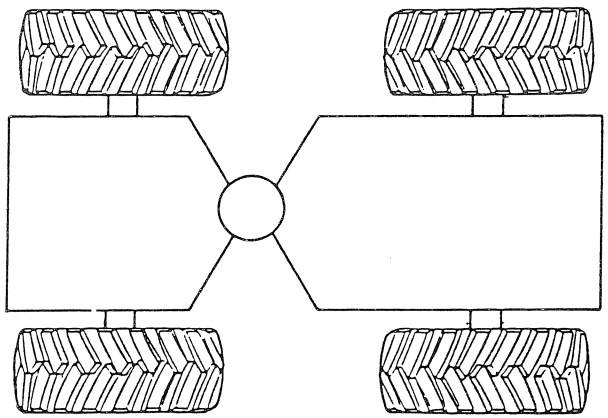
IMPORTANT

- The maximum speed of the hydrostatic motor has been fixed by the factory. Removing the seal can result in damage and loss of warranty.
- The front axle can be optionally equipped with a differential lock which can be switched on and off by the operator.
- The AL6 is equipped with 4 tires of equal size. The standard tire is 11,5/80 - 15,3/8PR/TL. See following table for optional tires an tire pressure.

TIRE PRESSURE

	with - Bucket		with - Bucket - Backhoe		with - Pallet Fork - Telescopic High-Lift	
Tire	Front bar	Rear bar	Front bar	Rear bar	Front bar	Rear bar
11,5/80-15,3/8PR/TL (Tubeless)	2,0	2,0	* 2,0	3,0	3,0	2,0
10,5-18 MPT/6PR/TL (Tubeless)	2,0	2,0	* 2,0	2,5	2,5	2,0
12,5-18 MPT/6PR	1,8	1,8	* 1,8	2,0	2,0	1,8
15,5/55-R18/14PR	1,8	1,8	* 1,8	2,0	2,0	1,8
LP 400-15,5/6PR	2,0	2,0	* 2,0	2,1	2,1	1,8

* Tires filled with water (+ anti-freeze)



Correct Tire Pattern

Operating Characteristics, Axle Loads, Weights

Operating Characteristics

- working speed : 0 - 9 km/h
- travel speed . 0 - 20 km/h (standard tires)

Noise insulation : conforms with current German regulations.

Pushing force on dry, concrete surface	2400 daN
Gradeability with full payload (operating capacity) without backhoe	54%
Gradeability with backhoe + water-filled front tires	45%
Minimum external turning radius (with bucket)	3800 mm
Oscillation (forward chassis)	$\pm$ 11°, 260 mm difference in height of wheels
Articulation (forward chassis)	2 x 40°
Operating capacity (bucket)	1210 kg - Counterweights may be used - subject to manufacturer's approval - to increase the capacity.

Axle Loads/Weights (Road Travel)

Front	1400 kg)	with empty bucket and without backhoe
Rear	2100 kg)	
Total weight	3500 kg)	
Front	1050 kg)	with backhoe/rear grapple and with empty bucket
Rear	3500 kg)	
Total Weight	4550 kg)	

Steering System

Servo-assisted hydrostatic steering system fed by a gear pump which is flanged to the Diesel engine.

Maximum steering pressure : 160 bar.

Emergency Steering

It is possible to steer the machine in the event of an engine failure, but without servo-assistance. The towing-speed should not exceed 5 km/h

Braking System

Operating Brake- There is a foot brake (inching pedal) located to the left of the steering column (illustration 8/32) which activates a valve in the hydrostatic pump via a Bowden cable. The operator can close the pump to slow down or stop the machine without having to adjust the speed of the engine.

Parking Brake - Hand lever located to the right of the operator's seat which is connected to a drum brake in the reduction gear (rear axle) - (illustration 3/arrow).

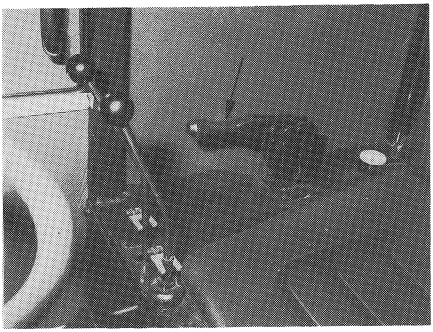


Illustration 3

Electrical Installation

Voltage : 12 V
Battery : 66 A/h 12 V standard, (125 A/h on request)
Alternator : 14 V / 33 A
Starter : 1,5 kW 12 V
Fuel Gauge
Hourmeter
2 Headlights
Emergency Flashers
Direction Indicators
Taillamps

Lights comply with German road travel regulations.

The battery should be kept dry and clean. Terminals should be covered with a thin layer of acid-free grease which must not touch the acid. Top up fluid level with distilled water.

ATTENTION

Never add any acid.

The density of the acid should be checked each month.

	Normal	Tropical Conditions	Freezing Point
Fully loaded battery	1,28 g/cm^3	1,23 g/cm^3	- 65° C
Semi-loaded battery	1,20 g/cm^3	1,16 g/cm^3	- 27° C
Empty battery	1,18 g/cm^3	1,08 g/cm^3	- 11° C

Electrical welding equipment may only be used on the loader, after the battery terminals have been disconnected.

Fuel Supply

The fuel tank (40 litres) is positioned to the left under the cabin. The level can be checked on a gauge which is inside the cabin. The inlet is on the left-hand side of the machine (illustration 5/arrow).

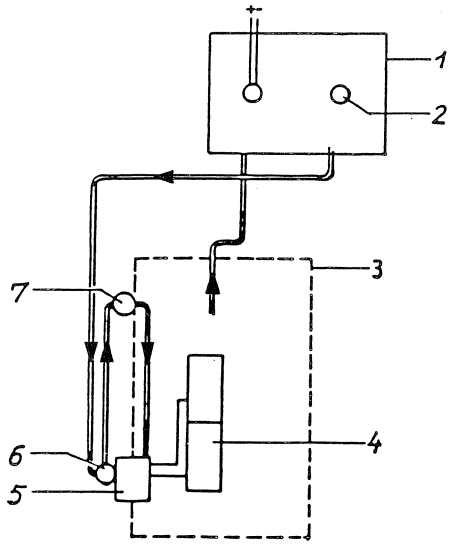


Illustration 4

1. Fuel Tank)
2. Inlet)
3. Engine)
4. Fuel Injector) Illustrat. 4
5. Injection Pump)
6. Supply Pump)
7. Fuel Filter)

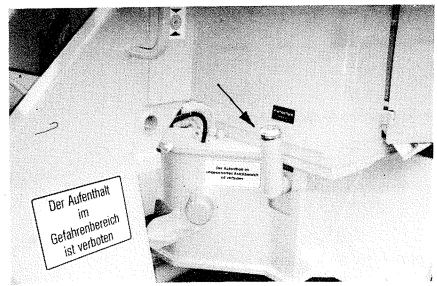


Illustration 5

Loader Hydraulics

Gear pump flanged to the engine with a pump capacity of 19 cm³/Rev (or 57 l/m at 3000 RPM) which feeds via a control valve :

- the lift cylinder Ø 90/55 mm)
- the tilt cylinder Ø 80/45 mm) double-acting

Maximun relief pressure : 180 bar (ca. 2600 PSI)

The lift and tilt functions and the speed of these operations are controlled by a single lever (illustration 8/21) which is linked to the control valve. Operation is smooth and easy to regulate. Both loader functions can be carried out simultaneously.

Bucket Angle
- Backward tilt : 45°
- Dumping : 55° (bucket raised to full height)

Loader Performance :

- Lift capacity	2540 daN max.
- Operating capacity (German safety regulations)	1210 kg
- Break-out force (bucket edge)	3420 daN
- Pushing force on dry, concrete ground	2400 daN
- Tipping load - standard bucket, straight	2750 kg
- fully articulated	2420 kg

Cycle Times :

- Lifting : 3,8 s
- Lowering : 2,5 s
- Dumping : 2,8 s
- Tilting : 2,0 s

Equipment

Comfortable seat	: with shock absorber and weight adjustment; mounted on sliding rails; adustable back-rest; can be turned 180° for backhoe operation (optional).
Well arranged dash-board	: hourmeter, fuel gauge, 12 V socket, pull switch for emergency flashers.
Cabin	: steel roll-over protective cabin, lockable side door, easy access, windscreen wipers, sun shield, defroster for windscreen, excellent all-round visibility, heating.

Set of tools,

Articulation lock,

Wheel chock - for loaders equipped with rear-mounted attachments with total weight in excess of 4 t.

Extras : all-round lighting
radio
auxiliary heating

ATTENTION

The standard equipment as supplied by the factory is in line with the norm in Germany. Local regulations in Germany and elsewhere may require the installation of additional equipment, It is the user's/distributor's responsibility to ensure that this equipment is added.

In accordance with transport regulations, the loader is supplied with a minimum amount of fuel.

2. Driving on Public Roads

It is recommended that all users follow these rules which correspond to the regulations in Germany. The user must also acquaint himself and comply with any local regulations that happen to be in force.

1. The lift arm support pins should be taken out of their holders (illustration 6/1), inserted in the bracket (illustration 6/2) and secured (spring).

2. Lower the lift arms onto the support pins, tilt back the bucket & engage locking device (illustration 8/22) to secure the control lever in the cabin.

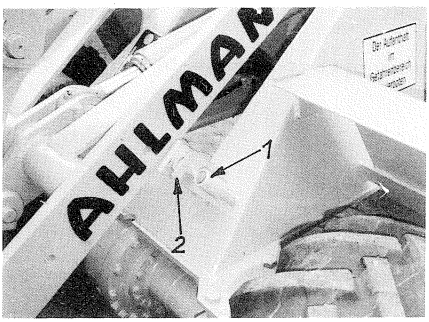


Illustration 6

3. The bucket edge/teeth must be covered by a protector. There is a socket on the right-hand side of the cabin which can be used to connect bucket-edge-mounted direction flashers, should these be required.

4. Driving on public roads with the backhoe :

   a) Fold the backhoe and place in transport position (Illustration 7). The folded backhoe must extend beyond the width of the machine equally to each side.
   b) Use cotter bolts to connect boom to frame (Illustration 7/1) and secure (springpin)
   c) Wrap chain around bucket linkage and boom. Fasten the chain behind the boom and tighten (Illustration 7/2).
   d) Attach rear collision protector (Illustration 7/3) and secure with springpins. Connect rear lights via the socket (Illustration 7/4).
   e) The wheel chock must be carried with the machine.

Illustration 7

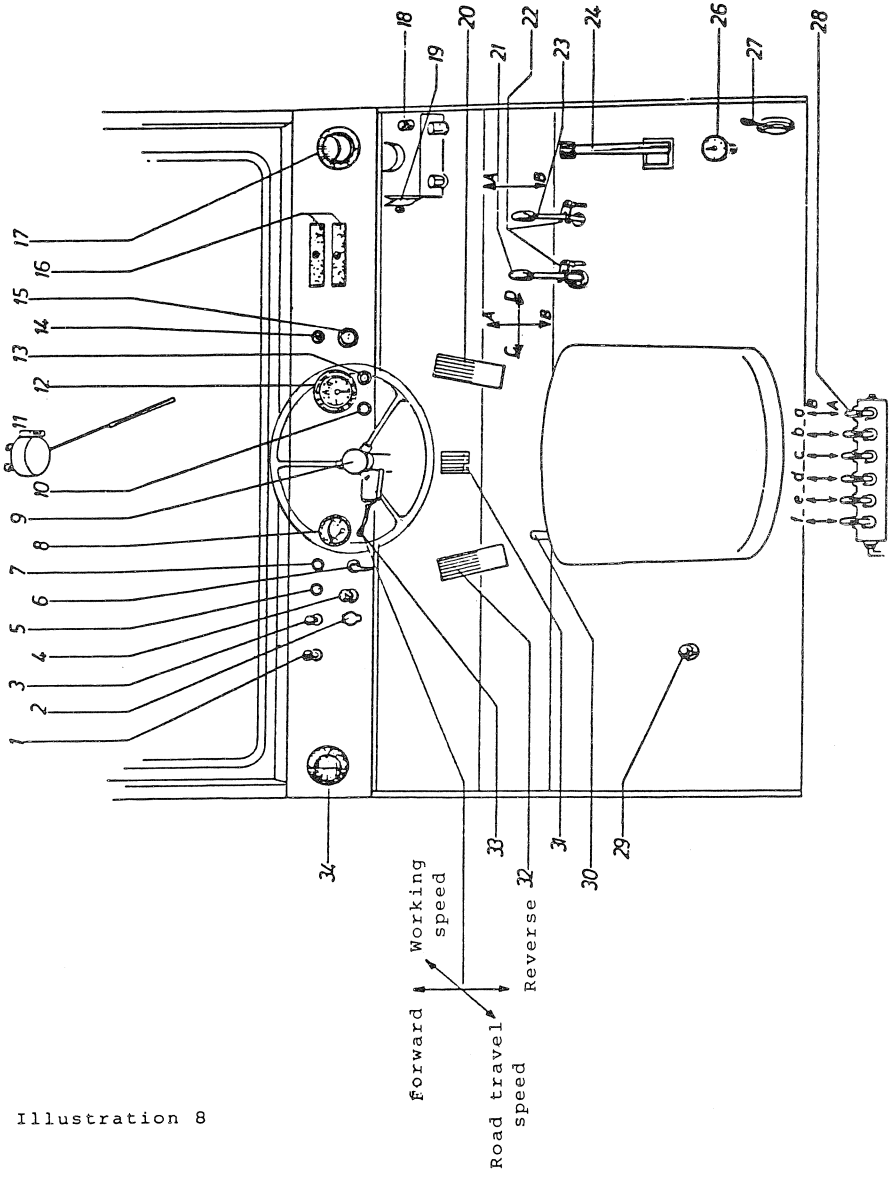


Illustration 8

3. Controls and Dash-Board

1 Switch for auxiliary heating (optional)
2 Socket 12 V
3 Pulling-switch for heating (standard)
4 Pulling-switch, emergency flashers
5 Head-lamp tell-tale
6 Indicator switch
7 Indicator tell-tale
8 Fuel gauge
9 Horn-push-button
10 Oil pressure warning lamp
11 Windscreen-wiper switch
12 Hourmeter
13 Battery charging tell-tale
14 Starter push-button
15 Ignition-light switch
16 Fuse box
17 Hot air outlet
18 Hot air outlet direction knob (summer/winter position)
19 Leg-room hot air outlet flap
20 Accelerator pedal and engine cut-out
21 Control lever for loader hydraulics (with push-button for tilt lock)
22 Locking device for control lever
23 Control lever for auxiliary hydraulics
24 Parking brake lever
25
26 Pressure gauge, hydraulic filter (intake)
27 Manual throttle (optional)
28 Control valve for backhoe (optional)
29 Choke
30 Lever for sliding seat
31 Foot pedal for differential lock (optional)
32 Brake pedal (inching pedal)
33 Drive control lever - forward/reverse
- road travel/working speed
34 Hot air outlet, auxiliary heating (optional)

Bucket/Attachment Operation

Working with a bucket :

Lever (Illustration 8/21) moved towards position A - lowers lift arms
Lever (Illustration 8/21) moved towards position B - raises lift arms
Lever (Illustration 8/21) moved towards position C - tilts bucket
Lever (Illustration 8/21) moved towards position D - dumps bucket

Working with a multi-purpose bucket :

Lever (Illustration 8/21) moved towards position A - lowers lift arms
Lever (Illustration 8/21) moved towards position B - raises lift arms
Lever (Illustration 8/21) moved towards position C - tilts bucket
Lever (Illustration 8/21) moved towards position D - dumps bucket
Lever (Illustration 8/23) moved towards position A - opens bucket
Lever (Illustration 8/23) moved towards position B - closes bucket

Working with a pallet fork :

Lever (Illustration 8/21) moved towards position A - lowers lift arms
Lever (Illustration 8/21) moved towards position B - raises lift arms
Lever (Illustration 8/21) moved towards position C - tilts teeth back
(Press button on lever at same time)
Lever (Illustration 8/21) moved towards position D - tilts teeth forward

Working with telescopic high-lift :

Lever (Illustration 8/21) moved towards position A - lowers lift arms
Lever (Illustration 8/21) moved towards position B - raises lift arms
Lever (Illustration 8/21) moved towards position C - tilts mast back
(Press button on lever at same time)
Lever (Illustration 8/21) moved towards position D - tilts mast forward
Lever (Illustration 8/23) moved towards position A - lowers teeth
Lever (Illustration 8/23) moved towards position B - raises teeth

Working with a backhoe :

Lever "a" (Illustration 8/28) towards position A - lowers left stabilize
Lever "a" (Illustration 8/28) towards position B - raises left stabilize
Lever "b" (Illustration 8/28) towards position A - empties bucket
Lever "b" (Illustration 8/28) towards position B - fills bucket
Lever "c" (Illustration 8/28) towards position A - swings boom to ri
Lever "c" (Illustration 8/28) towards position B - swings boom to le
Lever "d" (Illustration 8/28) towards position A - extends dipperstick
Lever "d" (Illustration 8/28) towards position B - folds dipperstick
Lever "e" (Illustration 8/28) towards position A - lowers boom
Lever "e" (Illustration 8/28) towards position B - raises boom
Lever "f" (Illustration 8/28) towards position A - lowers right stabiliz
Lever "f" (Illustration 8/28) towards position B - raises right stabiliz

IMPORTANT

The hydraulic functions can be carried out simultaneously.

Engage the hand-brake if the loader is working in a stationary position (Illustration 8/24)

Lower bucket to ground and engage hand-brake when not actually working with the machine (even if it is only a short break).

3.1 Start-up

3.2 Starting the Engine

(1) Engage parking-brake (Illustration 8/24).

(2) Place drive control lever in neutral position (Illustration 8/33).

(3) Turn ignition key to the right to position 1 (battery and oil pressure warning lamps light up) (Illustration 8/15).

(4) Press accelerator pedal (Illustration 8/20) to the bottom.

(5) Press starter button (Illustration 8/14). Release as engine starts.

ATTENTION

Do not press the starter for more than 10 seconds. Wait one minute before repeating.

Oil pressure and battery warning lights must go out once the engine is running.

3.3 Cold Temperature Starting

Pull and release the choke (Illustration 8/29) before commencing the process explained under 3.2 whenever the engine or weather are cold.

IMPORTANT

The engine cannot be started by towing the loader.

3.4 Cabin Heater

3.4.1 Standard Heating System

Utilization :

(1) Open hot air outlet (Illustration 8/17).

(2) Pull direction knob (Illustration 8/18) upwards (winter position) to direct hot air stream into cabin.

(3) Open flap (Illustration 8/19) to heat leg-room.

3.4.2 Auxiliary Heating and Ventilation

Technical Specifications :
- Eberspächer D 1 L
- Diesel Consumption ca. 0,21 l/h
- Voltage 12 V
- Output 1700 W

The installation can be used to provide fresh air or additional heating.

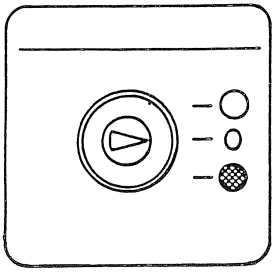


Illustration 9

Instructions :

Turn switch (Illustration 9)

Position ◯ = fresh air
Position ⊗ red = hot air blower

The control lamp (arrow) lights up in both positions.

(3) Air stream outlet — either windscreen only (Illustration 8/34) or. alternatively, both windscreen and leg-room at same time.

Malfunctions can be overcome by repeating the start-up procedure.

If the heater fails to start, check the fuse under the cover flap.

The blower is stopped by turning the switch to "0"

ATTENTION

Leave flow of current from battery for 3 minutes after switchin off the blower. Do not cut off.

WARNING

The heater may not be used in closed rooms or while the loader is being refuelled.

3.5 Lights

The lights are switched on by turning the ignition key (Illustration 8/15)

Position "1" - Ignition
Position "2" - Parking lights
Position "3" - Head lamps
Position "4" - Full beam

Fuse box

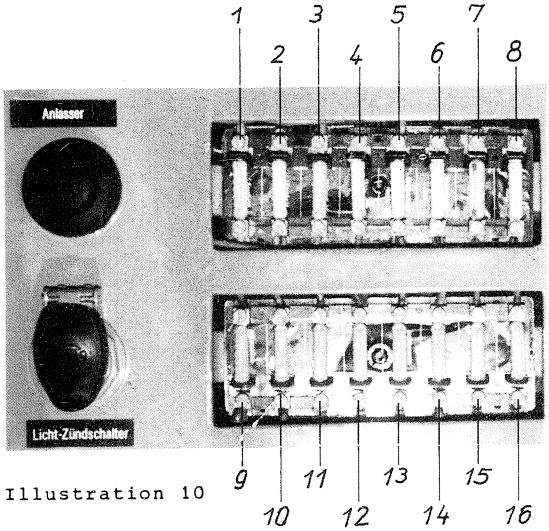


Illustration 10

1 - Full beam right
2 - Full beam left
3 - Dipped headlamp right
4 - Dipped headlamp left
5 - Lateral light right
6 - Lateral light left
7 - Tail light right
8 - Tail light left
9 - Emergency flashers
10 - Direction Indicator
11 - Drive
12 - Hooter
13 - Dash-board
14 - Standard heater
15 - Wipers
16 - Stop light

3.6 Driving with the Loader

(1) Release parking brake (Illustration 8/24).

(2) Select gear (Illustration 8/33) working or road travel speed, depending on the application.

(3) Select forward or reverse drive (Illustration 8/33).

(4) Press the accelerator (Illustration 8/20).

IMPORTANT

Driving the loader is straightforward. It is possible to change gear and to switch from forward to reverse or vice-versa by flicking the lever while driving. There is no need to stop the machine. Do not, however, switch from road travel to working speed if the loader is travelling at a high speed. The operator can reach the maximum speed of each gear simply by pressing the accelerator.

Pressing the accelerator affects both travel speed and wheel torque. The wheel torque increases as the speed decreases, when the accelerator is kept in the same position, e.g. when driving up a slope at full throttle, or in difficult terrain. The greatest wheel torque can be achieved when travelling at close to 0 km/h in working gear.

Speed and wheel torque are identical in forward and reverse drive.

3.7 Working with the Loader

Driving with a Load

Keep load close to the ground for optimal stability and driving power.

Scraping and Levelling

Place lift arms in lowest position. Adjust bucket angle according to wheel size and ground conditions.

Both jobs can be carried out in working or travel gear. Levelling is best done, while driving backwards.

Bucket Size/Operating Capacity (Payload)

Never exceed operating capacity of 1210 kg, no matter which bucket is used.

4. Quick-Change Mounting System for Attachments

(1) Lower lift arm and tilt mounting frame forwards (Illustration 11).

(2) Slot top of frame into the mounting hooks on the attachment, pick up and tilt backwards until the rear of the attachment is resting against the frame (Illustration 12).

(3) Engage the attachment locking wedges (Illustration 12/arrow) using the auxiliary control lever (Illustration 8/23) in the cabin.

(4) Undo the quick-couplers (Illustration 13/1) on the mounting frame and link to the hydraulic lines of the attachment. Cover the coupler fittings on the quick-change frame (Illustration 13/2)

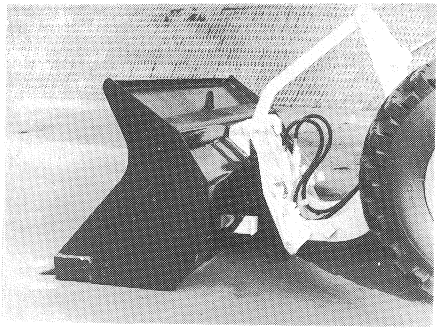


Illustration 11

ATTENTION
Check correct mounting and locking of the attachment. Make sure the quick-couplers are clean and securely linked.

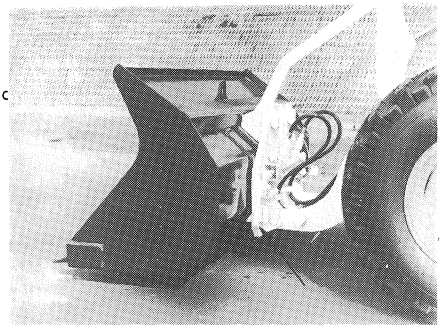


Illustration 12

NOTE
- Point 4 refers to the hydraulically activated attachments only.
- The mechanical quick-change device is operated via handlevers on the frame. Hydraulic attachments are then linked to auxiliary lines on the loader boom.
- If the loader is not equipped with a quick-change frame, the attachments are fastened by 3 pins to the lift arms.

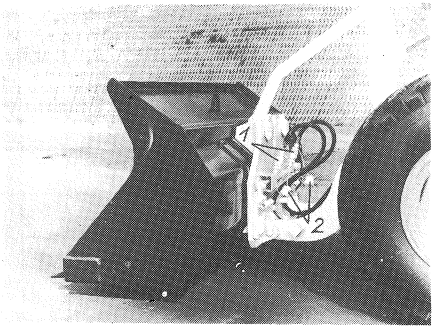


Illustration 13

4.1 Bucket Types

0,6 m³ Standard Bucket)
0,9 m³ Light Material Bucket) with/without teeth
1,0 m³ Light Material Bucket) direct or quick-change mounting
0,45 m³ Multi-Purpose Bucket)

4.2 Attachments

Backhoe

Buckets 280 mm wide
380 mm wide
480 mm wide

Diagram

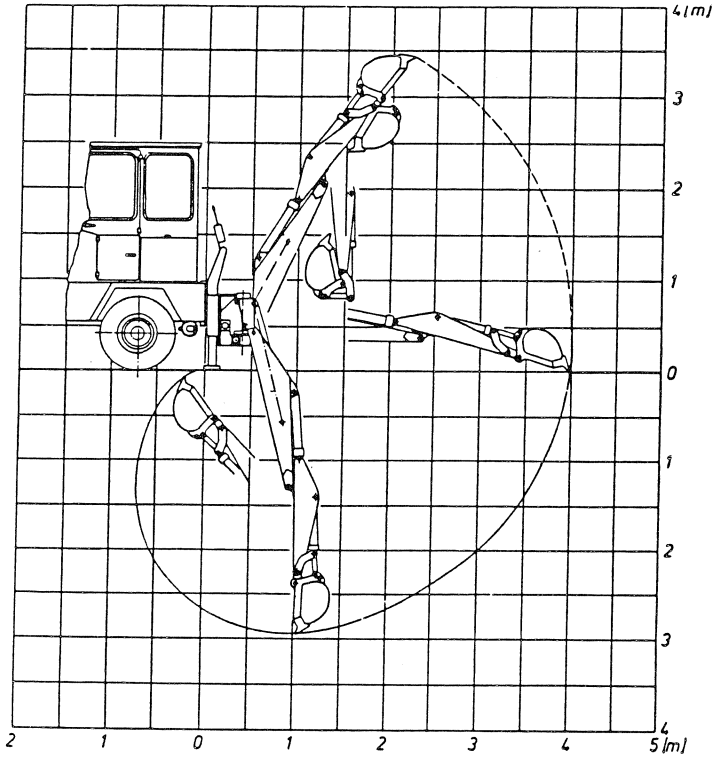


Illustration 14

Mounting the Backhoe

(1) Disconnect hose at the quick-coupler (Illustration 15/arrow).

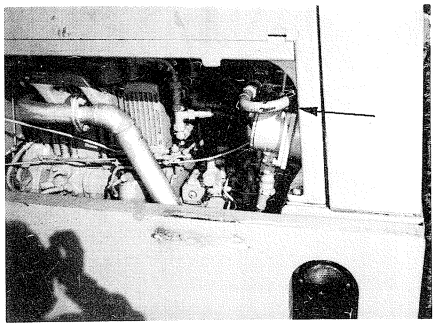


Illustration 15

(2) Connect backhoe hoses to loader via the quick-couplers (illustration 16/1).

Remove the mounting clamps on the backhoe (Illustration 16/2)

Illustration shows the clamps after they have been taken off.

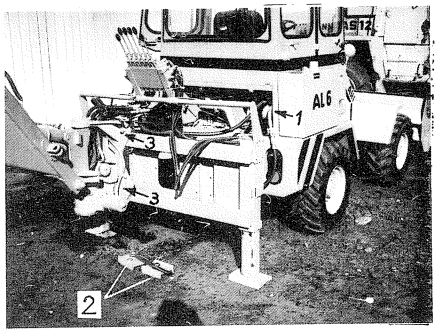


Illustration 16

(3) Lower stabilizers to raise backhoe to the height of the machine, using the hydraulic controls of the backhoe (Illustration 8/28). Make sure the backhoe is linked into the bottom of the rear frame of the machine. Then replace and fasten the mounting clamps (top of frame - Illustration 17/arrow).

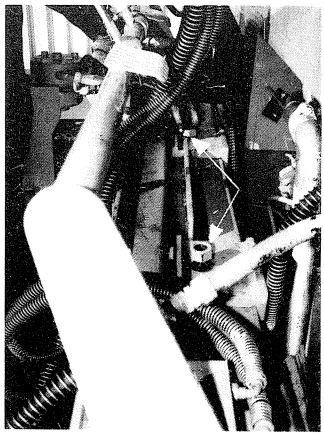


Illustration 17

Illustration 18

(4) Open rear window (Illustration 18/1), lift seat, turn 180° and lower back into self-locking position.

Swing control valve (Illustration 18/2) towards machine and lock.

The backhoe is now ready for operation.

Illustration 19

(5) When working with front-mounted attachments, place backhoe in the transport position (Illustration 19) as described in the section dealing with driving on public roads (Page 10).

Working with the Backhoe

All backhoe movements
- stabilizers
- bucket
- dipperstick
- boom (lifting & swinging)

are activated via the control valve (Illustration 8/28).

In order to side-shift the backhoe, it is necessary to unscrew the 4 clamp bolts (Illustration 16/3). Swing boom 90°, so that the arm is pointing in the direction you want to slide the backhoe. Anchor bucket in the ground and use the hydraulics to pull the backhoe into the desired position. Rebolt the clamps.

Lubricate all grease points before using backhoe or every 10 hours during continuous operation.

Pallet Fork Attachment

Use only in conjunction with quick-change mounting frame and tilt cylinder lock.

Check correct mounting and electrical connection (see telescopic high-lift) before use.

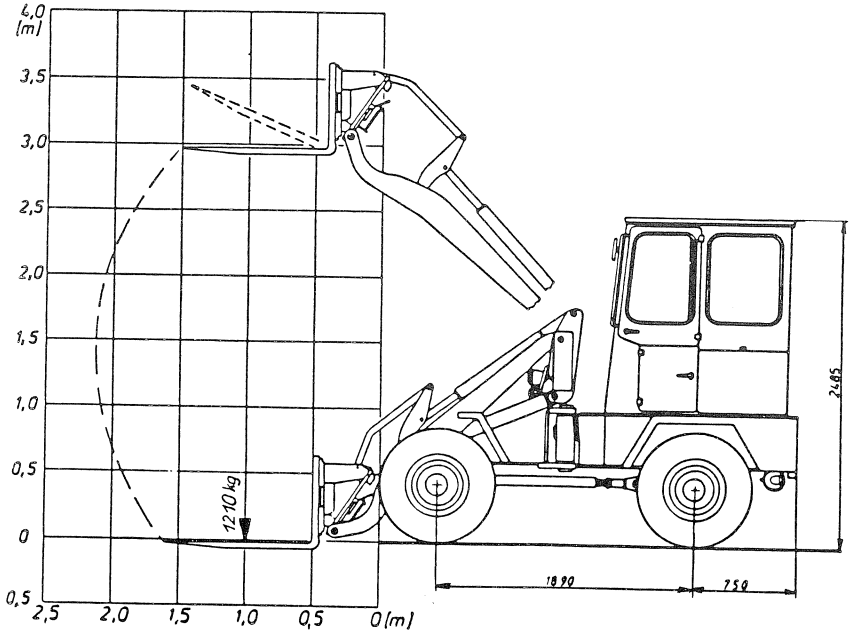
It is possible to move the teeth sideways in stages.

Distance between teeth :
Minimum 216 mm) distance between locking grooves measured
Maximum 1054 mm) as from tooth centre according to DIN 15173, load capacity category 2, row 2.

Teeth should be positioned equidistant from centre. Load must be centred and carried on both teeth. Adjust tilt angle of teeth when raising or lowering loader boom.

Raising loader boom : tilts the teeth back.
Lowering loader boom : tilts the teeth forward.

Diagram



Telescopic High-Lift

Use only in conjunction with quick-change mounting frame and tilt cylinder lock. Mount following procedure described in Section 4 of this manual.

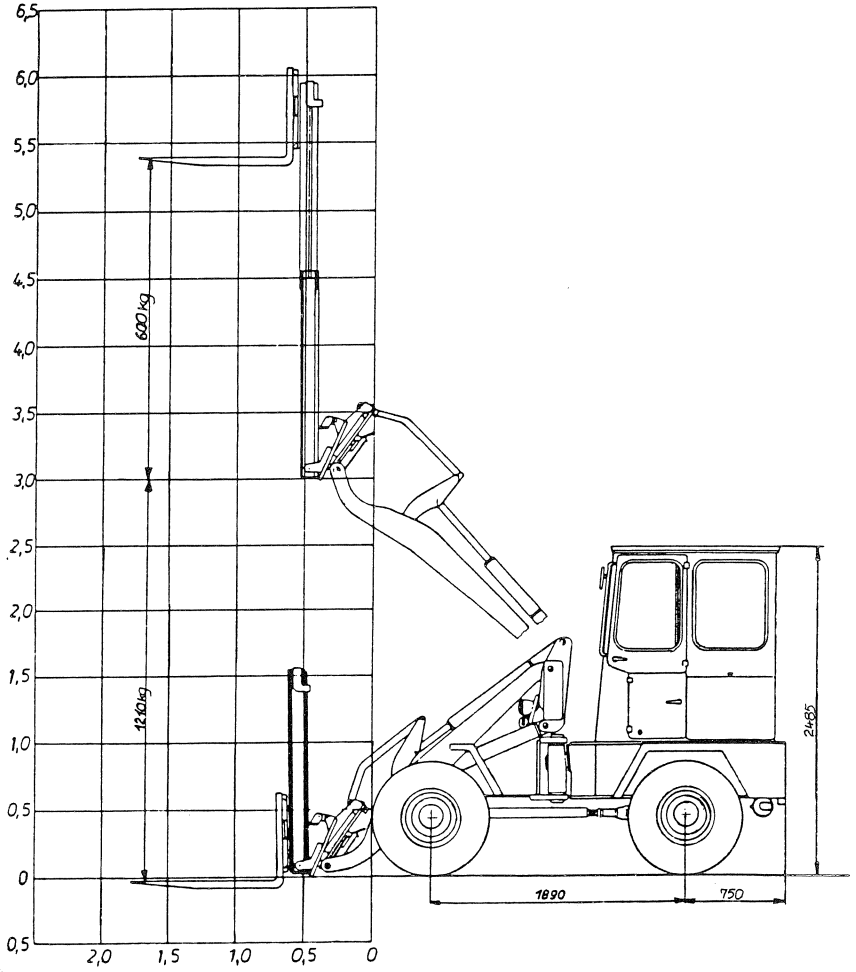
It is possible to move the teeth sideways in stages. Teeth should be positioned equidistant from centre. Load must be centred and carried on both teeth.

Correct tilt angle of teeth when lowering or raising loader boom.

Raising boom : tilts teeth back.
Lowering boom : tilts teeth forward.

Lubricate all grease points before using attachment or every 10 operating hours.

Diagram



Mounting the Attachment

(1) Check that contact-screw is tight (Illustration 22/arrow).

IMPORTANT

Tighten contact-screw, if loose before mouting the attachment. Adjust the screw afterwards, see point (3).

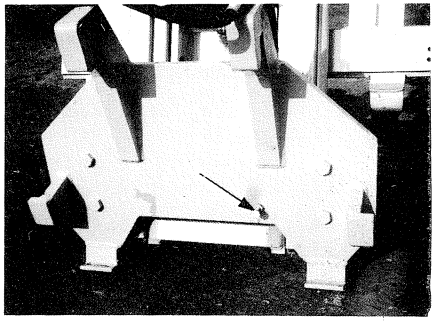


Illustration 22

(2) Hook mounting frame into the high-lift (Illustration 23). Pick up attachment and tilt back until it is lying against the frame.

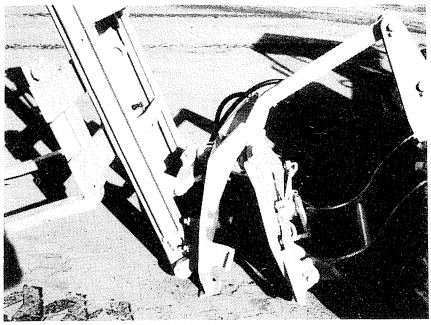


Illustration 23

(3) Close the hydraulic locking wedges (Section 4, Point 4). Check that the E-switch (Illustration 24/2) is functioning properly.

IMPORTANT

The contact-screw (Illustration 22/arrow) should press in the pin of the E-switch 5 mm. It must not press it in more than 9 mm. Otherwise the switch will be broken.

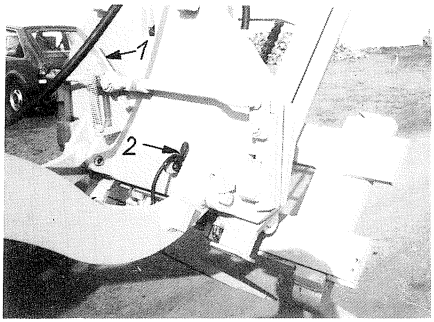


Illustration 24

WARNING

Check correct mounting, secure wedging, tilt locking system and that the attachment is working properly before operation.

Multi-Purpose Bucket

The multi-purpose bucket can be fitted to the quick-change frame or directly to the loader lift arms. (Note, the back of the bucket is different in each case).

The multi-purpose bucket can be used for digging, scraping. loading or as a grab.

The procedure for attaching the bucket to the machine is described in Section 4.

IMPORTANT

Check that the quick-couplers are clean and make sure they are firmly connected.

Lubricate the grease points each time before using the attachment or every 10 hours of operation.

Diagram

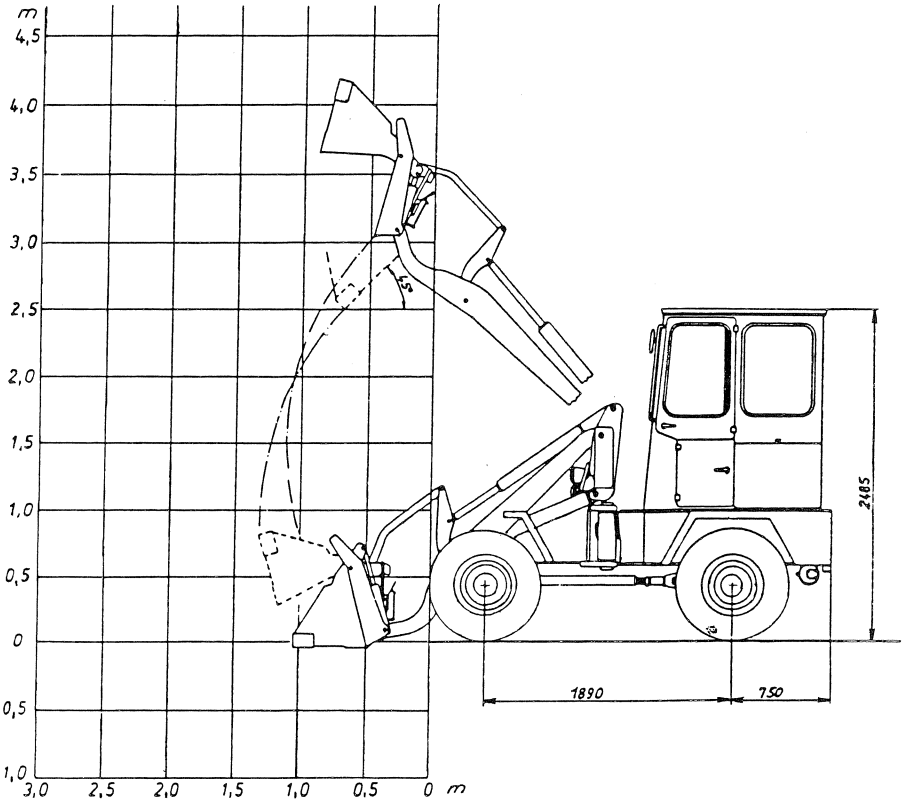


Illustration 25

5. Stopping and Parking the Loader

(1) Park the machine on a hard surface; and, whenever possible, on level ground.

(2) Lower bucket or attachment to the ground.

(3) Place backhoe in "transport position".

(4) Put drive-control lever into neutral ("O" position).

(5) Engage parking brake.

WARNING

If parking on a slope cannot be avoided, then it is necessary, in addition, to place a chock before one of the wheels and to insert the articulation lock.

(6) Stopping the engine :
- press down the small plate at the bottom of the accelerator (Illustration 26/arrow) until the engine stops.
- If the engine is very hot, let it run for 2-3 minutes in neutral, before turning it off.

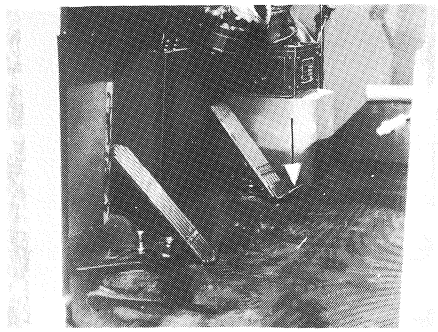


Illustration 26

(7) Turn ignition key to the left and withdraw.

6. Towing the Loader

Prepare the loader for road travel as described in Section 2. In addition, raise the boom slightly to make room for the tow bar.

The tow bar should be connected to the loader frame over the right axle flange (Illustration 27/arrow).

The hydrostatic transmission must be switched to free-oil-flow before the machine is towed. This is done by unscrewing the pressure limiting valve (Illustration 28/arrow) and by inserting a plug (M 26 x 1,5) in its place. Check cleanliness.

Towing speed should be kept down, as only emergency steering available.

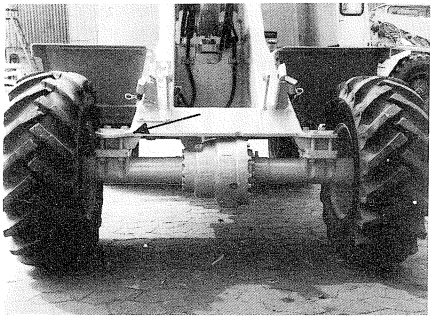


Illustration 27

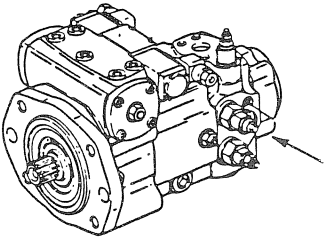


Illustration 28

7. Preventive Maintenance

WARNING
Do not service machine with the engine running.

Follow the maintenance plan outlined in the service schedule. Failure to do so, will result in loss of warranty.

Do not service the loader without using a lift-arm stop when the loader arms are raised.

Do not carry out service work near the articulation joint without engaging the articulation lock (Illustration 29/arrow). Turn the lock 180° and secure using the spring pin.

Take necessary steps to ensure that the loader cannot move.

Illuatration 29

Transmission Oil

Check oil level by unscrewing plug in rear axle bevel gear (differential) housing (Illustration 30/arrow). The oil level should reach the plug hole.

IMPORTANT

- Check the oil level only when the machine is on level ground. The level may be distorted if the loader is or has been on a slope.

- Adding fresh oil for the rear axle takes a certain amount of time as the bevel gear (differential) is connected to the reduction gear with the same oil sump. The inlet is in the reduction gear housing (Illustration 30a/2).

  To change the oil, it is necessary to unscrew the drain plugs in both the bevel gear and reduction gear housing.

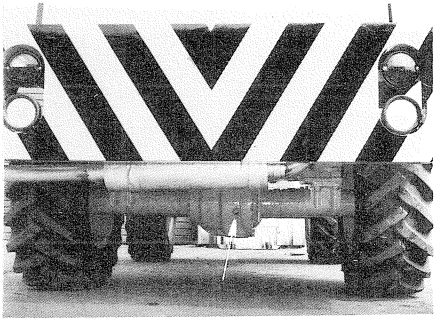


Illustration 30

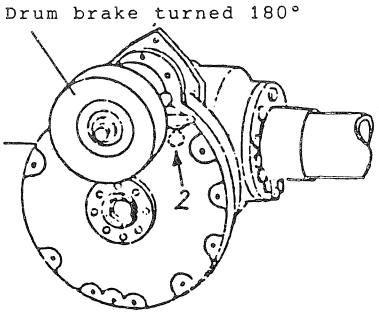


Illustration 30a

Hydraulic Oil

The oil tank holds 40 litres.

Check oil level via oil-check glass (illustration 31/1), Oil must be added if no fluid can be seen behind the glass.

Use a jaw spanner to open the oil inlet (illustration 31/2).

The drain-plug is behind the fender under the tank (Illustration 31/3).

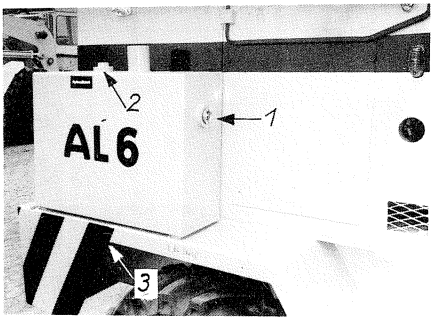


Illustration 31

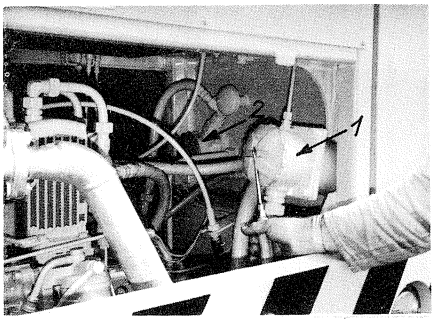


Illustration 32

Hydraulic Filter Replacement

The induction filter (Illustration 32/1 and the return filter (Illustration 32/2) are connected to the hydraulic tank and can be reached via the engine compartment.

Unscrew the caps to change the filters

The oil flow in the filters is shut off automatically, when the filters are being changed. Smear the seal with oil before inserting a new element.

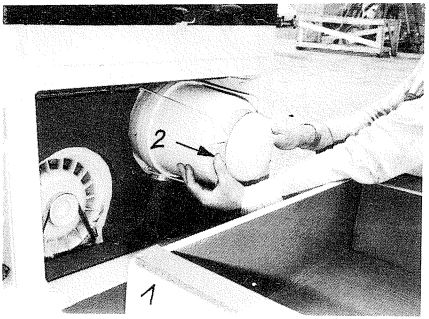


Illustration 33

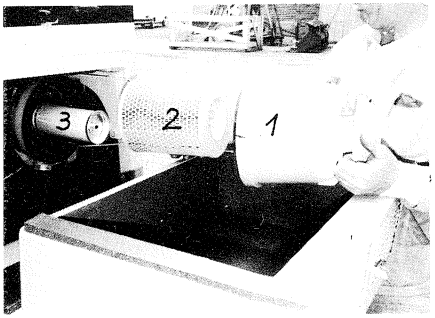


Illustration 34

Air Filter Service

(1) Open the cover (Illustration 33/1)

(2) Loosen the clamps on the dust cup (Illustration 33/2).

(3) Remove dust cup and clean (Illustration 34/1).

(4) Clean or replace the outer filter element (Illustration 34/2).

Clean, using dry compressed air, pressure not exceeding 5 bar. Blow through the filter from th inside. Exchange the element if very dirty.

(5) If the condition indicator still shows red when the engine is running after the outer element has replaced, then it is necesary to replace the inner cartridge (Illustration 34/3) as well.

IMPORTANT

Check that the seal is undamaged before installing the filter element. Press the condition indicator button (Illustration 35/1) to remove the red warning sign (which shows up when the filter is clogged and needs servicing).

Check condition of rubber hose between filter and manifold. Replace if cracked.

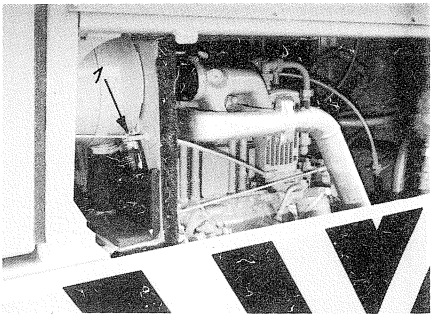


Illustration 35

(6) Dust Outlet Valve

Squeeze the valve every 10 hours by hand. The valve is in the engine compartment on the left (Illustration 36/arrow).

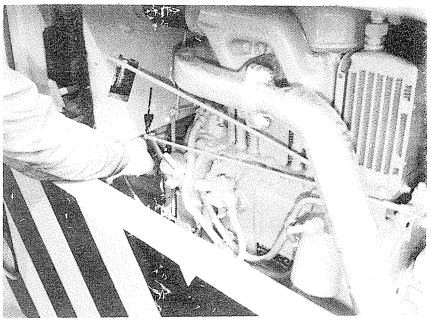


Illustration 36

Operating Brake

The operating brake is maintenance free. We do, however, recommend checking that it is functioning properly. The braking performance is the same in forward and reverse gear.

Parking Brake Adjustment

The brake is adjusted by turning the knob at the end of the brake lever (Illustration 37/arrow).

- Release brake by lowering the lever.
- Adjust tension by turning the knob.
- The tension is correct if the lever can be pulled up without this requiring too much force.
- Test the brake as follows : put the machine into road travel gear and accelerate to maximum speed. Pull up the brake lever while keeping accelerator pressed down. The brake must bring the machine to complete stop.

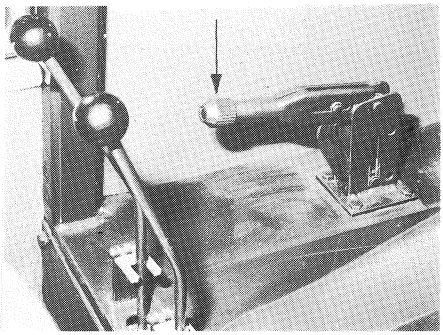


Illustration 37

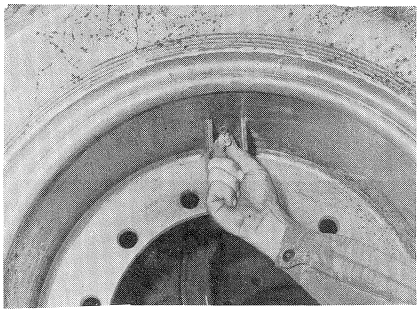


Illustration 38

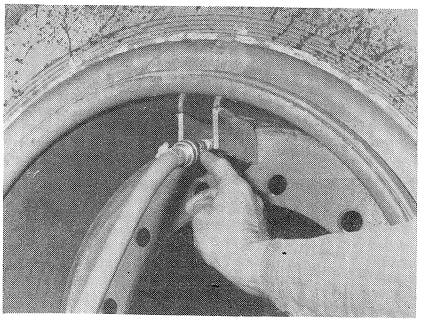


Illustration 39

Illustration 40

Filling the Tires with Water

Use a specially prepared solution to fill the tires :
- 46 litres water
- 27 litres magnesiumchloride

1. Turn wheel so that the tire valve is in the highest possible position.

2. Unscrew the valve and insert a connecting nut (Illustration 38).

3. Screw the filling valve into the nut.

4. Run the fluid into the tire fr. a raised tank.

5. Periodically press air-release knob on the filling valve (Illustration 39).

6. Unscrew filling valve, replace the tire valve and pump up the tire with air. For correct pressure, see table on page 4.

7. Check the filling :

   Turn wheel so that the valve is in a horizontal position (Illustration 40). Fluid should then run out if the valve is opened.

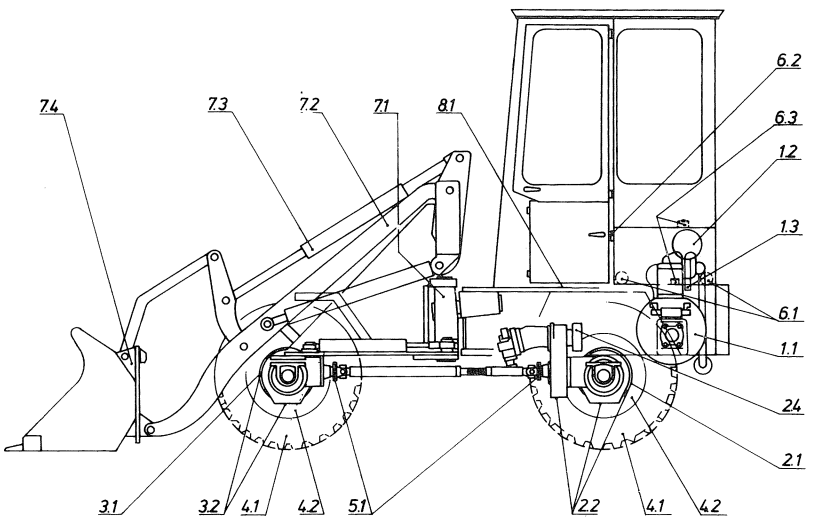
WARNING

The magnesiumchloride must be added to the water, never the other way round.

Make sure the solution does no come into contact with eyes, skin or clothing.

Service Plan

Chassis No. 12505100



Materials

Pos.	Description	Specification	Filling quantity
1	Mot.oil acc. to manufact.instruction	MIL-L - 2104 C	approx 3,5 l
2.2	Gear oil SAE 90	MIL-L - 2105 B	approx 6,0 l
3.2	Gear oil SAE 90	MIL-L - 2105 B	approx 3,0 l
6.3	Hydraulic oil	ATF Suffix A or equiva. HLP-oil acc. ISO-VG 46	approx 40,0 l
7	Multipurpose grease lubrication	DIN 51502 K2K	acc to requirement
8	Destilled water		acc to requirement

Explanations of Symbols

Δ = first oil change resp. first filter change resp. first control

O = control respectively greasing

◆ = change at 1000 working hours or everly year

Caution

Please pay attention to the safety rules when servicing the unit

Time interval / h. 10	50	100	200	1000	Pos	Maintenance Places
					1	Motor
					1.1	Maintenance acc. to manufacturer's instruct. (open Motor cover)
					1.2	Dry-air filter (open air suction hood) Observe stop indicator during operation Change filter element if stop indicator indicates „red"
O					1.3	Press dust valve (rubber bushing) several times
			O		2	Rear Axle with Transmission
	Δ			◆	2.1	Axle gear / Transmission, oil control (control screw)
				◆	2.2	Axle gear / Transmission, oil change
	O				2.3	Gear hub, oil filling as life time greasing
					2.4	Control resp. adjust fixing brake
			O		3	Front Axle
	Δ			◆	3.1	Axle gear, oil control (control screw)
				◆	3.2	Axle gear, oil change
					3.3	Gear hub, oil filling as life time greasing
	O				4	Wheels and Tyres
					4.1	Control inflation-pressure
Δ			O		4.2	Control wheel nuts
		O			5	Cardan Shaft
					5.1	Control fixture and cardan joint greasing
	Δ			◆	6	Hydraulic System
				◆	6.1	Change filter cartridges, observe low pressure gange in the cab, max. 0,2 bar at operating temperature 60°C
O					6.2	Oil control (sight glass)
				◆	6.3	Oil change
	O				7	Places for Grease (red marked)
					7.1	Articulated oscillating link
O					7.2	Shovel units
	O				7.3	Hydraulic cylinder
O					7.4	Joint flange / universal joint
		O			8	Battery
					8.1	Control acid level (remove door mat and swing out floor slab)
					9	Brake Systems
					9.1	Operating brake (hydrostatic drive) and fixing brake Function control before operating

8. General Hints

The following is supplied together with the unit:

- Operating instructions for the engine. Please take all details regarding the engine from these operating instructions.

- A valid copy of "Safety rules for excavators, loaders, dozers, scrapers, an special machines for excavation work".

- A list of spare parts.