

**Rescue, towing, lashing,  
lifting by crane**

### 7 Rescue, towing, lashing, lifting by crane

#### 7.1 Rescue, towing, lashing

##### 7.1.1 Rescue/towing of the swivel shovel loader if the engine or drive has failed



#### CAUTION

The swivel shovel loader must not be tow-started. Any attempt to tow-start leads to damage.



#### DANGER

Secure the rescue location if it is on a public road.



#### NOTE

- Towing is only permitted to clear the site or a street.
- Preparation for towing depends on whether the engine has failed, thus causing a failure of the entire hydraulic system, or if only the drive has failed and the engine can drive the rest of the hydraulic system.

##### 7.1.1.1 Towing the swivel shovel loader if the engine has failed

(1) Actuate the toggle switch for the hazard flasher [AS 700 (4-9/2), AS 900 (4-9/4)].

(2) Secure both wheels of the front axle against rolling away in both directions (if necessary).

(3) Set the drive switch (4-11/4) to "0".



#### NOTE

The preparations described in steps (6), (7), (12) and (14) are only to be carried out if the rescue location is **not** on a public road:

(4) Switch the switching lever for the steering to the „rear-wheel steering“ position (chapter 5.5).

(5) Release the parking brake (4-12/2).

(6) Cover the bucket cutting edge and teeth with the bucket protector (5-4/arrow).

(7) Insert the plug of the bucket protector into the socket (5-5/arrow, option).

(8) Push the valve lever for the working hydraulics [AS 700 (4-11/1), AS 900 (4-10/1)] beyond its pressure point into the forward position (float position).

(9) Switch on the ignition [AS 700 (4-10/14), AS 900 (4-10/5)].

(10) Using a suitable lifting device, e.g. a second swivel loader with an attached bucket, lift the bucket arm of the swivel loader to be towed until the mechanical bucket arm support can be inserted at the loader to be towed (7-1).



### NOTE

- If the loader has been out of operation for a longer period of time, the hydraulic hoses must be disconnected from the lifting cylinders before attaching the lifting gear. Collect the escaping hydraulic oil in a sufficiently large oil pan.
- After towing has been completed, fill the lifting cylinders with hydraulic oil and deaerate them by raising and lowering the bucket arm several times.

(11) Mechanically prop up the bucket arm [e.g. by inserting the bucket arm support (option) (1-1/arrow)] and lower the bucket arm until it rests on the bucket arm support.

(12) Actuate the toggle switch for switching off pilot control [AS 700 (4-10/3), AS 900 (4-10/2)] “up”.

(13) Push the valve lever for the working hydraulics [AS 700 (4-11/1), AS 900 (4-10/1)] back to its home position.

(14) Block the swivel unit by inserting the blocking wedge into the swivel block (1-3/arrow).

(15) Connect the tow rod to the loader to be towed (7-2/ arrow) and to the towing vehicle.



### CAUTION

The loader does not have a shunting and towing coupling at the front and for this reason may only be towed rearwards.

(16) Switch the hydrostatic drive motor to free oil flow before towing. To do so, turn out the two-way valve (7-3/1) with an Allen key (size 8) all the way to the left (7-3/2).



### NOTE

- Turn the two-way valve (7-3/1) back in when towing is finished.
- The traction drive is located in the engine compartment on the left side.



Figure 7-1



Figure 7-2

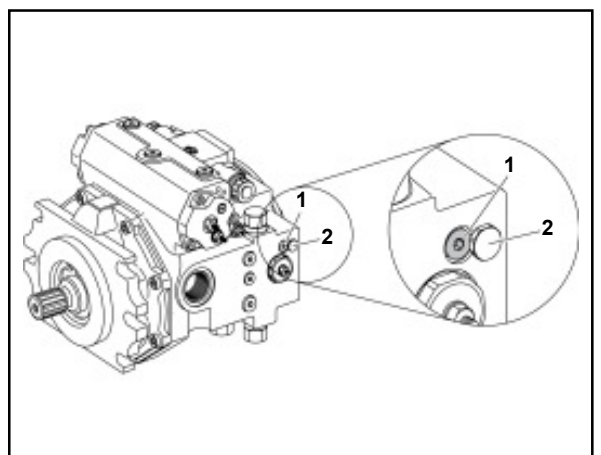


Figure 7-3

## 7 Rescue, towing, lashing, lifting by crane

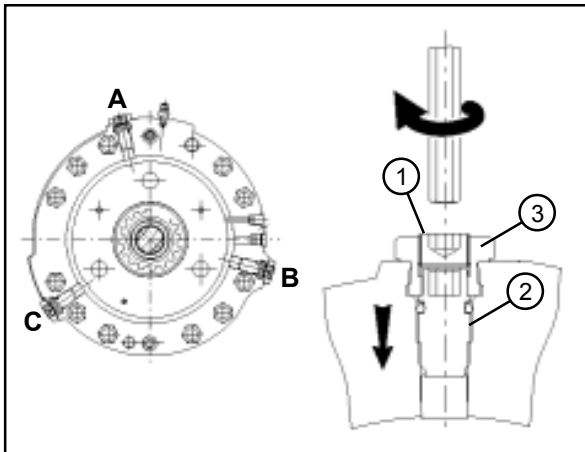


Figure 7-4

(17) Loosen the spring.

- Undo the fastening screws (7-4/1) on both sides of the axle.
- To release the brake, turn the adjusting screws (7-4/2) by half a turn each in the given sequence (A, B, C) until the resisting torque can be distinctly felt to decrease (a total of 4 to 5 turns is required).
- Tighten the fastening screws (7-4/1) on both sides of the axle again.



### CAUTION

- Make sure not to move the stop screw (7-4/3) while adjusting the other screws.
- Subsequent loosening of the adjusting screws (7-4/2) must be performed in the same way as tightening them. In other words: you must synchronously repeat loosening all three screws after each 1/2 turn to prevent seizing or canting.
- Loosen the springs at the left and right of the axle body separately.

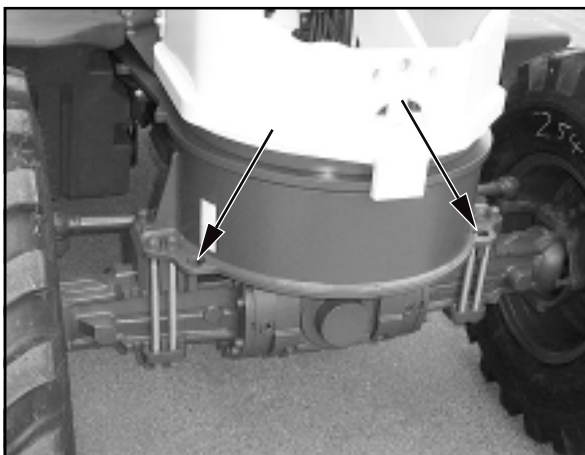


Figure 7-5

(18) Switch off the ignition [AS 700 (4-10/14), AS 900 (4-10/5)].

(19) Remove the chocks.



### DANGER

- Much more power is required to steer if the engine has failed.
- Tow the loader at walking speed (2 km/h).
- The towing distance should not exceed 1 km.
- For a longer distance, the defective loader must be loaded onto a truck (for the lashing points, see 7-5/arrows, 7-6/1 and 7-6/2).
- The max. permissible load of the rear shunting and towing coupling (7-6/1) is 8.0 t horizontally in the longitudinal direction.
- The max. permissible load of the lashing points/load-bearing points (7-5/arrows and 7-6/2) is 2.0 t at an assumed bracing angle of 45°.

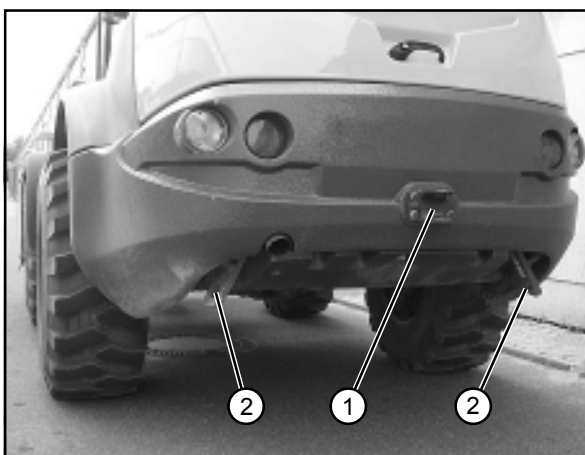


Figure 7-6

### 7.1.1.2 Towing the swivel shovel loader if the drive has failed

(1) Actuate the toggle switch for the hazard flasher [AS 700 (4-9/2), AS 900 (4-9/4)].

(2) Set the drive switch (4-11/4) to "0".



#### NOTE

The preparations described in steps (5), (6), (8) and (9) are only to be carried out if the rescue location is **not** on a public road:

(3) Apply the parking brake (4-12/2).

(4) Switch the switching lever for the steering to the „rear-wheel steering“ position (chapter 5.5).



#### CAUTION

If the rescue location is on a slope, wheel chocks must be placed on the sloping side of both front axle wheels in addition to applying the parking brake.

(5) Cover the bucket cutting edge and teeth with the bucket protector (5-4/arrow).

(6) Insert the plug of the bucket protector into the socket (5-5/arrow, option).

(7) Lift and mechanically prop up the bucket arm [e.g. by inserting the bucket arm support (option) (1-1/arrow)] and lower the bucket arm until it rests on the bucket arm support.

(8) Actuate the toggle switch for switching off pilot control [AS 700 (4-10/3), AS 900 (4-10/2)] **“up”**.

(9) Block the swivel unit by inserting the blocking wedge into the swivel block (1-3/arrow).

(10) Connect the tow rod to the loader to be towed (7-2/arrow) and to the towing vehicle.



#### CAUTION

The loader does not have a shunting and towing coupling at the front and for this reason may only be towed rearwards.

(11) Switch the hydrostatic drive motor to free oil flow before towing. To do so, turn out the two-way valve (7-3/1) with an Allen key (size 8) all the way to the left (7-3/2).



#### NOTE

- Turn the two-way valve (7-3/1) back in when towing is finished.
- The traction drive is located in the engine compartment on the left side.

## 7 Rescue, towing, lashing, lifting by crane

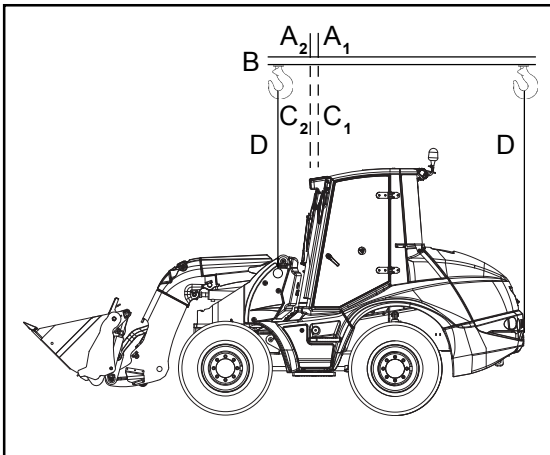


Figure 7-7

(12) Remove the chocks (if applicable).

(13) Release the parking brake (4-12/2).



### DANGER

- With the engine running, tow the loader at walking speed (2 km/h).
- The towing distance should not exceed 1 km.
- For a longer distance, the defective loader must be loaded onto a truck (for the lashing points, see 7-5/arrows, and 7-6/2).



### NOTE

Refer to page 7-4 for maximum permissible load capacity of lashing/load-bearing points.

### 7.2 Lifting by crane

The loader to be lifted must be prepared as follows:

(1) Set the drive switch (4-11/4) to "0".

(2) Select „Alpha max.“ [AS 700 (4-11/2), AS 900 (4-11/1)] gear.

(3) Apply the parking brake (4-12/2).

(4) Lift or lower the bucket arm until the lowest point of the bucket arm or of the bucket is at least 30 cm above the road (5-4).

(5) Actuate the toggle switch for switching off pilot control [AS 700 (4-10/3), AS 900 (4-10/2)] "up".

(6) Block the swivel unit by inserting the blocking wedge into the swivel block (1-3/arrow).

(7) Lock both doors.

(8) Fold the outside mirror inwards.



Figure 7-8



Figure 7-9



### CAUTION

The following items must be observed when lifting the loader by crane (Figure 7-7):

- The lifting point (A<sub>1</sub> - loader without standard bucket or A<sub>2</sub> - loader with standard bucket) of the lifting device (B) must be precisely vertically over the centre of gravity (C<sub>1</sub> or C<sub>2</sub>) of the loader so that the lifting device is **horizontally** above the longitudinal centre axis of the loader.
- The lifting gear (D) must lead vertically upwards from the lifting points of the loader (7-8/arrows and 7-9/arrows).



### DANGER

The lifting gear must have a lifting capacity of at least 3.0 t.