

**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



DANGER

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



CAUTION

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



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 (4-11/10).
- (2) Set the drive switch (4-10/12) to "0".



NOTE

The preparations described in steps (3), (5), (6) and (11) are only to be carried out if the rescue location is **not** on a public road:

- (3) After the front-axle wheels have been straightened, switch the switching lever for the steering (4-9/2) to the "rear-axle steering" position.
- (4) Apply the parking brake (4-10/4).



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 (5-3/arrow).
- (6) Insert the plug of the bucket protector into the socket (5-4/arrow, option).
- (7) Push the valve lever for the working hydraulics (4-10/9) beyond its pressure point into the forward position.

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

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

(10) Close the ball block valve for the working and auxiliary hydraulics (1-2/arrow).

(11) Block the swivel unit by inserting the blocking wedge (1-3/arrow) into the swivel block (1-4/arrow).

(12) Attach the tow rod to the loader to be towed [7-2/1 – forwards towing – or 7-4/1 – rearwards towing] and to the towing vehicle.

CAUTION

If the front of the loader does not have a shunting and towing coupling, the loader may only be towed rearwards.

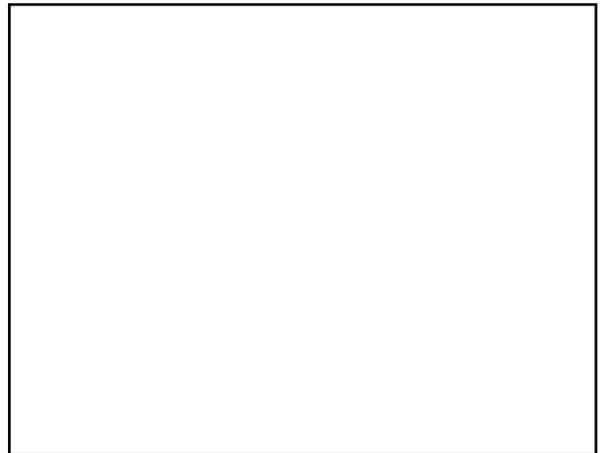


Figure 7-1

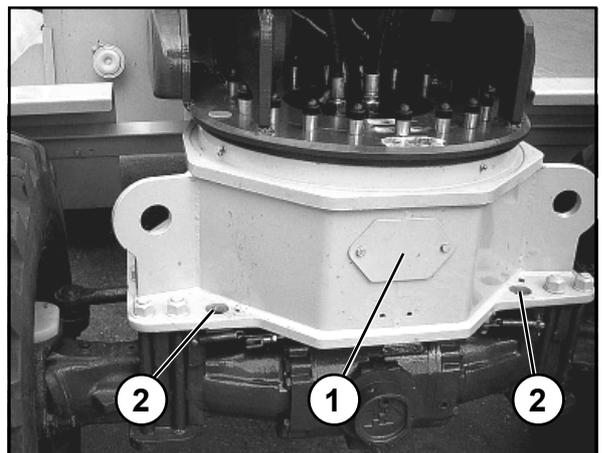


Figure 7-2

(13) Switch the hydrostatic drive motor to free oil flow before towing. For this purpose, screw in the setscrews at both high-pressure relief valves (7-3/arrows) of the drive pump until they are level with the hexagon nuts (size 13) loosened beforehand. Then tighten the hexagon nuts.

NOTE

After towing has been completed, loosen the hexagon nuts again. Screw the setscrews out of both high-pressure relief valves until they stop. Tighten the lock nuts.

(14) Remove the chocks (if applicable).

(15) Release the parking brake (4-10/4).

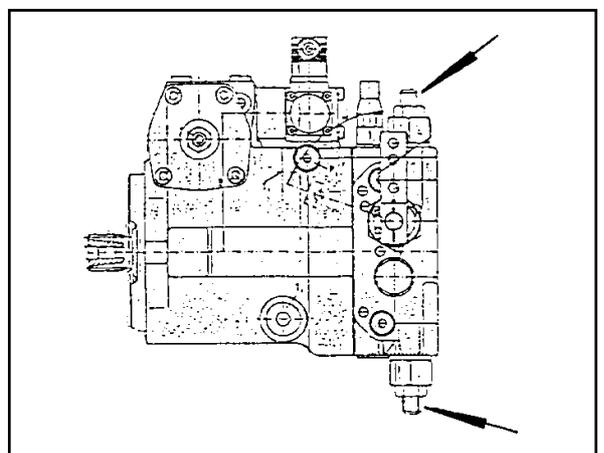


Figure 7-3



Figure 7-4

DANGER

- 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 7-2/1 and 7-2/2 or 7-4/1 and 7-4/2).
- The max. permissible load of the shunting and towing coupling (7-2/1) is 8.0 t horizontally in the longitudinal direction.
- The max. permissible load of the rear shunting and towing coupling (7-4/1) is 8.0 t horizontally in the longitudinal direction.
- The max. permissible load of the lashing points/load-bearing points (7-2/2 and 7-4/2) is 2.0 t at an assumed bracing angle of 45°.

7.1.1.2 Towing the loader if the drive has failed

- (1) Actuate the toggle switch for the hazard flasher (4-11/10).
- (2) Set the drive switch (4-10/12) to "0".



NOTE

The preparations described in steps (3), (5), (6) and (9) are only to be carried out if the rescue location is **not** on a public road:

- (3) After the front-axle wheels have been straightened, switch the switching lever for the steering (4-9/2) to the "rear-axle steering" position.
- (4) Apply the parking brake (4-10/4).



CAUTION

If the rescue location is on an uphill/downhill grade, 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 (5-3/arrow).
- (6) Insert the plug of the bucket protector into the socket (5-4/arrow, option).
- (7) Lift and mechanically prop up the telescope arm [e.g. by inserting the telescope arm support (option) (1-1/arrow)] and lower the telescope arm until it rests on the telescope arm support.

(8) Close the ball block valve for the working and auxiliary hydraulics (1-2/arrow).

(9) Block the swivel unit by inserting the blocking wedge (1-3/arrow) into the swivel block (1-4/arrow).

(10) Attach the tow rod to the loader to be towed [7-2/1 – forwards towing – or 7-4/1 – rearwards towing] and to the towing vehicle.

CAUTION

If the front of the loader does not have a shunting and towing coupling, the loader may only be towed rearwards.



(11) Switch the hydrostatic drive motor to free oil flow before towing. For this purpose, screw in the setscrews at both high-pressure relief valves (7-3/arrows) of the drive pump until they are level with the hexagon nuts (size 13) loosened beforehand. Then tighten the hexagon nuts.

NOTE

After towing has been completed, loosen the hexagon nuts again. Screw the setscrews out of both high-pressure relief valves until they stop. Tighten the lock nuts.



(12) Remove the chocks (if applicable).

(13) Release the parking brake (4-10/4).

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 7-2/1 and 7-2/2 or 7-4/1 and 7-4/2).

**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 (4-10/12) to "0".
- (2) Set transmission stage "I" (4-11/13) (applies to fast loaders only).
- (3) Set hydraulic drive stage "I" (4-10/13).
- (4) Apply the parking brake (4-10/4).

7 Rescue, towing, lashing, lifting by crane

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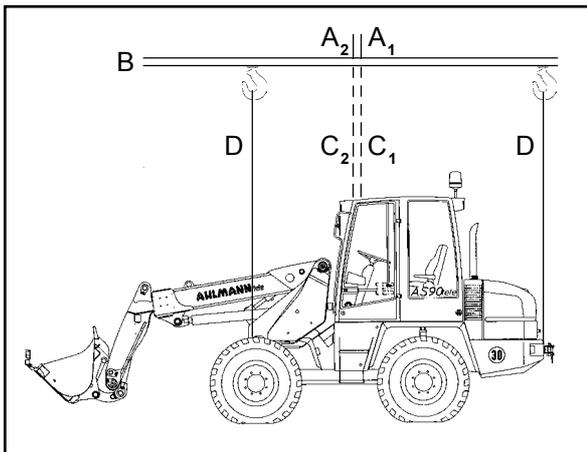


Figure 7-5

(5) Lift or lower the telescope arm until the lowest point of the telescope arm or of the bucket is at least 30 cm above the road (5-2).

(6) Close the ball block valve for the working and auxiliary hydraulics (1-2/arrow).

(7) Block the swivel unit by inserting the blocking wedge (1-3/arrow) into the swivel block (1-4/arrow).

(8) Lock both doors.

(9) Fold the outside mirror inwards.

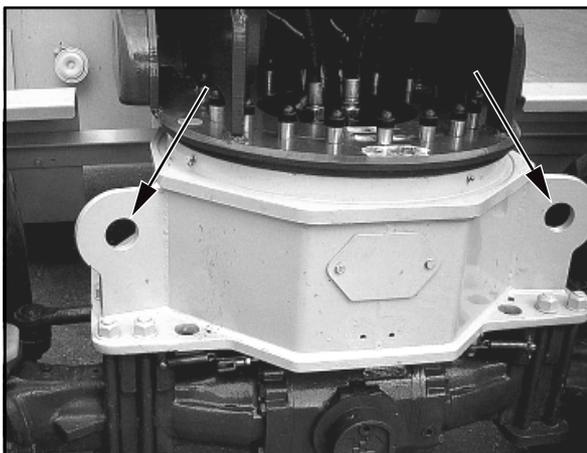


Figure 7-6

CAUTION

The following items must be observed when lifting the loader by crane (Figure 7-5):

- The lifting point (A_1 - loader without standard bucket or A_2 - loader with standard bucket) of the lifting device (B) must be precisely vertically over the centre of gravity (C_1 or C_2) 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 (7-6/arrows and 7-7/arrows).

DANGER

The lifting gear must have a lifting capacity of at least 4.0 t.



Figure 7-7