



DY25

Operating Manual



These instructions belong with the vehicle

NOTES

General pages refer to all models mentioned in the header. Text that refers to particular models is marked correspondingly.

The engine Operating Manual must be observed.

CAUTION!

BEFORE STARTING THE VEHICLE THIS OPERATING MANUAL MUST CAREFULLY READ, UNDERSTOOD AND OBSERVED.

THE REGULATIONS AND LAWS VALID IN THE COUNTRY IN WHICH THE

VEHICLE IS OPERATED MUST BE OBSERVED. INOBSERVANCE COULD CAUSE INJURIES OR FATAL ACCIDENTS. THE REGULATIONS OF THE TRADE CO-OPERATIVE ASSOCIATIONS ARE LAW.

USE OF THE OPERATING MANUAL:

This operating manual is a guide for safe operation of the vehicle.

CAUTION!

!!! A RESPONSIBLE DRIVER IS A SAFE DRIVER !!!

Before you use the vehicle, read this operating manual careful. The safety instructions contained herein must be observed. Read the safety instructions regularly so that you do not forget them.

These instructions belong with the vehicle and must be always available.

If you have any questions, please contact your dealer or your nearest TAIAN representative.

USE OF THE VEHICLE:

Your wheel loader can be used for various types of work. A thorough knowledge of the operating controls and their functions is a precondition for a safe and efficient use.

This operating manual is not an instruction book for loading work.

New drivers must always be appropriately trained before starting or operating the vehicle.

Without an appropriate training an efficient operation of the vehicle is not possible. A risk of injury to the driver and other persons is also presented.

Operating Manual, Part A
Safety Instructions

Read Before Use



DY25

These instructions belong with the vehicle

TABLE OF CONTENTS, PART A

1.GENERAL.....	5
1.1 Scope.....	5
1.2. Naming Definitions.....	5
1.3. Construction and Equipment.....	5
1.3.1. Identification and Marking.....	5
1.4. Operating Manual.....	6
1.5. Prevention against Unauthorised Use.....	6
1.6. Tubes and Pipes.....	6
1.7. Operation.....	6
1.7.1. Driver Requirements.....	6
1.7.2. Driving Licence Requirements for Loader.....	7
2.OPERATION.....	7
3.GUIDE.....	9
4.TRANSPORTATION OF PASSENGERS.....	9
5.PREVENTATION AGAINST TIPPING AND ROLLING OVER.....	9
6.PROTECTION AGAINST FALLING OBJECTS.....	10
7.OPERATION IN ENCLOSED SPACES.....	10
8.ACTIONS ON THE INTERRUPTION OF WORK.....	10
9.INSTALLATION, SERVICE, MAINTENANCE.....	11
9.1. Servicing.....	11
9.2.Towing, Transporting.....	11
9.3.Modifications and Welding Work.....	12
9.4.Roll-over Protection Structure (ROPS).....	12
10.MONITORING.....	13
10.1.Control.....	13
10.2.Testing.....	13
11.GENERAL SAFETY INSTRUCTIONS.....	14
11.1.Attachments.....	14
12.PROPER USE.....	16
13.WARNING SYMBOLS – SYMBOLES ADVERTISEMENT-WARNBILDZEICHEN.....	1

1 General

1.1 Scope

These safety instructions apply to loaders, Hoftracs, dozers, diggers and special machines, that are referred to as **loader**. This includes their attaching parts.

1.2 Naming Definitions

Loader

In these safety instructions, are vehicles with attachment tools to loosen, scoop, transport and drop earth, stones and other materials, whereby, the transport of the load is mainly performed by moving the loader.

Dozer

In these safety instructions, are vehicles with attachment tools to loosen, move and level earth, stones and other materials, whereby, the material is not transported.

Digger

In these safety instructions, are vehicles with digging attachments that can loosen, pick up, transport and deposit earth, whereby, the loosening and picking up of earth is achieved through movement of the attachment.

Special Machines

In these safety instructions, are vehicles or equipment to load, move, transport or level earth or stones, whereby, according to its construction, this type of vehicle can only be used for special earth moving work.

1.3 Construction and Equipment

1.3.1 Identification and Marking

Every loader must have a durable identification plate with the following information on it:

- Manufacturer
- Year of manufacture
- Model number
- Type

On loaders that are centre-pivot steered, additional signs that contain the following information must be placed where they are clearly visible in the area of the centre-pivot:



STANDING IN THE AREA OF THE CENTRE-PIVOT IS STRICTLY FORBIDDEN!

1.4 Operating Manual

An operating manual must be available for each loader. It must contain information for the safe operation of the vehicle, that is presented in a clear and easily understandable form. The instructions must be presented in the language of the country in which the vehicle is operated.

The operating manual must always accompany the vehicle, or, be available in the operating environment.

1.5 Prevention against Unauthorized Use

The use of unattended loaders must be prevented. This can be achieved by removing the ignition key or locking the vehicle.

1.6 Tubes and Pipes

Tubes and pipes on loaders must be installed so that eventual mechanical and thermal damage is avoided. **Tubes and pipes must always be inspected prior to using the vehicle.**

Tubes and pipes in the area of the driver and operating areas, must be installed or covered so that the driver cannot be injured if a tube or pipe bursts.

The existence and effectivity of this safety measure must be checked before every use.

1.7 Operation

Loaders may only be properly operated through observation of the manufacturer's operating manual.

1.7.1 Driver Requirements

Driving or servicing of loaders may only be performed by persons who:

1. Are 18 years of age.
2. Are physically and mentally fit.
3. Have been instructed on how to drive or service earth moving machinery and have proved their competence to the employer.
4. It is to be expected from, that they can reliably perform the tasks with which they have been entrusted.

They must have the permission of the employer to drive or service the loader.

1.7.2 Driving Licence Requirements for Loader

For driving on public roads:

Wheel loaders with up to 20 km/h maximum speed according to construction type

do not require registration and can be driven with a class L driving licence. The only requirement is an operation permit, in which the vehicle is entered as a “self-driving working vehicle”. The operation permit is given by the vehicle registration office. **The operator is responsible to effect a corresponding policy of insurance.** He has to settle with the insurance company whether the wheel loader is insured via the company liability insurance or whether a separate liability insurance is required.

Wheel loaders with over 20 - 25 km/h maximum speed according to construction type

May also be driven with a class L driving licence, however, they must be registered for road use. For this, an official number plate (green) and a vehicle third party insurance is required.

Wheel loaders with over 25 - 40 km/h maximum speed according to construction type

Vehicles with up to 3.5 t permitted maximum weight are only allowed to be driven on open roads with a class B driving licence. Vehicles with over 3.5 t and up to 7.5 t permitted maximum weight are only allowed to be driven on open roads with a class C and class T driving licence.



CAUTION!

**DIFFERENT REGULATIONS MAY APPLY IN OTHER COUNTRIES!
PLEASE OBTAIN THE APPLICABLE INFORMATION BEFORE USING THE VEHICLE.**

2 Operation

1. The driver must restrict the vehicle speed to the applicable environmental conditions, so that the vehicle can be stopped at all times and cannot be turned over.
2. During vehicle movement, the driver must ensure at all times that the attachments remain as close to the ground as possible.
3. On particularly steep slopes and inclines, the load must be kept on the upward slope side of the vehicle.
4. Freewheeling (driving with the clutch depressed), is not permitted on downward slopes. On loaders without a load adjustable gearbox, the appropriate gear for the conditions is to be selected before driving a downward slope, and is not to be changed during the vehicle movement.
5. The driver must apply the seat belt at all times when operating loaders, dozers and diggers with roll protection.

6. Never drive backwards with the **accelerator fully depressed**, make sure that the speed is always appropriate to the prevailing conditions.
7. Operating the **drive-direction switch** during operation can lead to accidents. The loader will drive, without warning, in the opposite direction.
8. **Operating controls** are only allowed to be operated from the **driver's or operator's position**. Before leaving the vehicle, the driver must lower the load arm, set all control- valves to the neutral position and apply the brake.
9. The driver is only allowed to work with the loader when **no persons are present in the danger areas**.
10. The driver must display warning signs when a danger for persons is present.
11. The driver must be aware of soft ground, electrical cables (exposed and sub surface), gas and water pipes. He must mark the position of underground cables and pipes and leave sufficient distance between himself and exposed electrical cables and buildings.
12. Collapsing materials can cause accidents e.g. avoid loading in front of a high wall or digging below walls.
13. During vehicle **mounting and dismounting**, you must always face the direction of the vehicle. Make sure that foot steps and shoe soles are clean and dry. Do not jump from the vehicle. Do not hold on to vehicle levers, but instead, on to the vehicle handrails.
14. Incorrect **working clothes** can lead to injuries, as loose clothing can become caught on parts of the vehicle. You should always wear appropriate protective clothing during your work, this includes a protective helmet, overalls, ear protection and gloves.
15. Turn spotlights off when you drive on public roads to avoid blinding other road users.
16. Before driving on public roads you must make sure that the vehicle equipment (lighting equipment etc.) complies with the rules of the motor vehicle construction and use regulations, and, that the vehicle has a certificate to operate from the motor vehicle testing authority. With this certificate to operate, the vehicle is accepted as a self-driving working vehicle.

3 Guide

1. If the driver's vision is restricted in his working area due to influences on the working conditions (obstructions), he must be guided, or, the working area must be cordoned off.
2. Only reliable personnel are permitted to be employed as a guide. They must be trained in their tasks before beginning their responsibilities.
3. Hand signals must be established to enable good communication between the driver and guide. The signals are only to be given by the driver and guide.
4. The guide must be clearly visible at all times. He must remain within the driver's field of vision.

4 Transportation of Passengers

1. Drivers of loaders are only allowed to carry passengers in areas in which the transporting of passengers is permitted by the manufacturer.
2. Loaders may only be mounted or dismounted after permission has been granted by the driver and the vehicle has been brought to a halt.
3. Passengers are not permitted to be transported on the vehicle's working attachments.
4. Loader attachments may not be used as a platform.

5 Prevention against Tipping and Rolling Over

1. To avoid the danger of tipping over, earth moving vehicles must always remain at a safe distance from the edges of crumbling land, excavations, mounds and slopes. The employer, or his appointed deputy, must determine the safe distance from such danger areas according to the firmness of the underlying ground.
2. Earth moving vehicles must be secured against the danger of rolling or slipping when used in the vicinity of trenches, shafts, graves, slopes and banks.
3. Loaders are only permitted to be used in dedicated tipping areas, when installations in the tipping area are present that prevent the vehicle from running off or crashing.

6 Protection against Falling Objects

1. When a danger of falling objects is present, earth moving vehicles must be fitted with a resistant protective roof for the driver's or operator's positions.
2. When undertaking earth or rock movement in quarries or trenches, diggers are to be positioned so that the driver's position and access to the driver's position are not on the wall side of the vehicle.
3. For the transport of large bails, see page 22.

7 Operation in Enclosed Spaces

In enclosed spaces, loaders that are driven by a combustion engine are only allowed to be used when they have a low exhaust emission.

Engines must be operated and serviced so that exhaust emissions remain as low as possible. When loaders with a combustion engine are operated in closed rooms, you must make sure that the room has a sufficient air flow (opening of windows and doors etc.) so that a good supply of breathable air is constantly present.

8 Actions on the Interruption of Work

1. Before leaving the driver's (operator's) position, the driver (operator) must ensure that:
 - the attachments are turned off and
 - unintentional movement of the vehicle is prevented through engaging the safety measures designed to prevent such movement.
2. If the driver leaves the vehicle, in addition to the requirements of paragraph 1 above, he must ensure that use of the vehicle by unauthorised persons is sufficiently prevented.
3. During breaks and on the cessation of work, the loader driver must ensure that the vehicle is on hard and even ground; in sloping areas the vehicle must also be prevented from rolling or slipping.
4. Never leave the vehicle in unsupervised areas. Accidents can be avoided through the erecting of warning barriers in public areas or when vision is reduced (e.g. at night).

9 Installation, Service, Maintenance

9.1 Servicing

1. Loaders may only be loaded, transferred or removed in accordance with the operating manual and under the supervision of a qualified person who has been appointed by the employer.
2. Loaders must be sufficiently braked during installation work, servicing and maintenance.
3. The engine must be switched off before all servicing and maintenance work. This may only be contravened when the servicing or maintenance work cannot be performed without the engine being on.
4. Before any servicing and maintenance work on non-isolated electrical equipment is carried out, the loader's engine must be disconnected from the battery or starter motor to avoid an inadvertent starting of the engine.
5. Servicing and maintenance work may only be carried out when the working equipment has been prevented from moving through placing on the ground, supporting or equivalent procedures.
6. During servicing and maintenance work the centre-pivot joint must be locked. Standing in the area of the centre-pivot is strictly forbidden when the engine is running.
7. The circuit diagram must be observed when electrical parts are connected or disconnected. Incorrect connection can lead to damage.

9.2 Towing, Transporting

1. Loaders may only be towed with an approved tow bar or rope, together with suitable equipment for the connection of tow bars and ropes to the loader.
2. Drive slowly when towing. Persons are not permitted to stand in the area of the tow bar or rope.
3. Loaders are only permitted to be towed when the brake system and steering are fully functional.
4. During loading or transporting of loaders, aids are to be used to prevent the inadvertent movement of the loader. The loader is to be kept free from mud, snow and ice so that ramps can be negotiated without the danger of slipping.

9.3 Modifications and Welding Work

Technical modifications are not permitted to be undertaken by the vehicle operator without the express permission of the manufacturer. Some machine parts are made of cast-iron. Welded joints in cast-iron can lead to weak points or cracks.

9.4 Roll-over Protection Structure (ROPS)

The vehicle is equipped with a Roll-over Protection System (ROPS). Working with a damaged ROPS can lead to serious accidents. A modified or improperly repaired ROPS is also dangerous. After an accident, a ROPS is only to be repaired by an approved person.

The EC permits the delivery and operation of vehicles that do not have roll protection if accepted by the relevant employer's liability insurance association. This is entirely dependent on the type of terrain on which the vehicle is to be used. Before the removal of roll protection, or, before buying a vehicle without roll protection, the permission from the governing employer's liability insurance association must be obtained.

10 Monitoring

10.1 Control

1. The driver must check the correct function of the controls before every shift. He must also visually inspect the loader for any obvious faults.
2. The driver must check the correct function of the brake and the limit installation and limit warning device before using the hoist.
3. The driver must report any problems found to his superior, he must also inform his relief driver of any problems.
4. Where faults mean a deterioration of the operating safety of the loader, the loader is not to be operated until the problem has been cured.
5. You must perform the following checks when the vehicle has been standing for a long period of time. We recommend that you also carry out these checks after particularly long shifts.



THE CHECKS HELP TO ENSURE THE FUNCTIONAL ABILITY OF THE VEHICLE AS WELL AS YOUR OWN SAFETY.

- Check the following items for cleanliness and damage:
 - rods, cylinder, rod eye-ends, radiator
 - handrails and footsteps
- Make sure warning signs are present
- Inspect the engine for signs of damage or missing parts
- Check working attachments for completeness
- Check rod eye-ends and joints for condition and rigidity
- Check the engine for oil, fuel and antifreeze
- Check all screws for security of attachment
- Check tire pressure

10.2 Testing

1. Loaders must be inspected by a trained person prior to first operation (commissioning), and, before being put into operation after major modifications.
2. Loaders should be inspected by a trained person (approved workshop) once a year. They should also be inspected at more regular intervals by an appropriately trained person depending on their operating conditions and prevailing circumstances.
3. The inspection results must be recorded in writing and kept at least until the next inspection.

11 General Safety Instructions

11.1 Attachments

Only use TAIAN approved attachments for your vehicle.

Attachments may only be installed and operated after the applicable operating manual has been carefully read and understood.

Before use, it must be ascertained through practice, that the operating person is familiar with the attachments, the controls and their function.

Remember:



SAFETY FIRST



For all work, the appropriate tool must be used for the job to be carried out, for example, if too big a shovel is used for heavy materials, this could weigh down the equipment causing undue stress which will ultimately shorten the vehicle life.

Before disconnection, the working attachment must be lowered to ground level and supported against falling over. If this is not done, the attachment could tip over and cause serious injury. You must exercise particular care on slopes and inclines.

Engine/Steering Failure:

The engine must be immediately turned off after an engine or steering failure.

Engine:

The engine cover may not be removed when the engine is running.

Spark Emission from the Exhaust:

Spark emissions from the exhaust or electrical installation can cause explosions or fires. Avoid working in closed environments where inflammable materials, steam or dust is present.

Only park or leave the vehicle in a place that is secured against fire.

Battery:

Batteries that contain frozen electrolyte can explode when used or charged. Working with a frozen battery is strictly forbidden. Fully charged batteries cannot freeze.

Battery Gases:

Batteries give off gases that can explode. Keep all sparks and naked flames away from batteries. Closed rooms in which batteries are used or charged must have a sufficient supply of fresh air.

Never check the charged state by connecting the terminals together, always use approved test equipment instead.

Battery Connections:

The negative pole of the vehicle is connected to earth. When connecting the battery, the negative (-) cable is always connected last. When disconnecting the battery, the negative (-) cable is always disconnected first.

Diesel Fuel:

Diesel fuel is flammable. Keep naked flames away from the vehicle and never smoke in the vicinity of the vehicle when filling up or working on the engine. Turn the engine off when you fill up with fuel. You can avoid fires and burns by observing these precautions.

Petrol Mixture:

Never fill the vehicle with petrol, or mix petrol with diesel fuel. Petrol gives off highly inflammable fumes.

Hydraulic Oil:

A fine jet of hydraulic oil ejected under great pressure can penetrate the skin. Use a piece of card when you look for small leaks. If oil does penetrate the skin you must immediately seek the assistance of a doctor.

Hydraulic Pressure:

Hydraulic oil under system pressure can lead to serious injuries. Before the connection or disconnection of equipment the engine must be switched off and the lever selected to "pressure release of pipes". Make sure that the engine cannot be switched on when a pipe is open.

Different high pressure pipes are used on TAIAN vehicles. When demanding replacement pipes note the DIN (German Standard) number on the pipe or the connector.

Monitoring Equipment

Working with the vehicle is not permitted when one of the control lights is not working.

When the engine is running no control lights may be illuminated. If this happens, turn the engine off immediately. Let the fault be immediately cured. The vehicle may only be operated once the failure has been cured.

Protection against Injuries by Metal Splinters:

You must wear protective glasses when driving bolts in or out. Flying metal splinters can cause serious injuries. Always use a soft face hammer or a brass drift.

tire Condition

Exploding tires can cause serious injuries. Do not work with damaged, incorrect or worn tires.

Standing under Attached Parts

Standing under attachments is not permitted.

Before each operation, the attachment must be lowered and the brake applied.

12 Proper Use



WHEELLOADERS ARE NOT ALLOWED TO BE USED IN OPEN TERRAIN OR FOR CONSTRUCTION WORKS.

Loaders are not permitted to be used as towing vehicles for trailers or trailer equipment.

TAIAN loaders are built in accordance with current technology and technical safety standards.

However, dangerous situations can still arise when using our vehicles. Therefore, our loaders and attachments are only to be used in a technically perfect condition. The safety regulations must be strenuously observed. When failures arise, the use of the vehicle and attachments is to be immediately ceased, the vehicle may only be used again once the problem has been cured.

According to the rules for the prevention of accidents of the agricultural trade-cooperative association vehicles that are used to stack large bales have to be equipped with protective devices against falling objects (VSG 3.1, paragraph 13).

Some of our vehicles are fitted with devices to prevent driving off or starting, which should never be immobilized. If these devices are faulty, the vehicle is not to be used until the fault has been cured.

Compliance with the operating and servicing instructions and the servicing regulations constitute proper use of the vehicle.

Loaders are to be used exclusively for the breaking up, loosening, loading, stacking, moving and distribution of bulk and unit loads.

Pallet forks are for the picking up, transportation, stacking and placing of unit loads and pallet materials.

Feed transport and **distribution appliances** are exclusively for the transportation, loading, and distribution of feed, silage and straw.

The **crocodile gripper** serves the safe transport of straw and dung and the breaking-up of compressed dung; as well as materials that could fall from a fork.

Other **special appliances** are to be exclusively used for the purpose for which they are designed.

Loaders are only permitted to be used on level ground, in yards, and - with the appropriate operating permission of the motor vehicle construction and use regulations - in suitable public areas. The maximum stable operating load must be observed.

 **CAUTION!**

OPERATION IS STRICTLY FORBIDDEN ON SLOPES, OR, IF A DANGER OF TIPPING OR FALLING OBJECTS IS PRESENT.

A DANGER OF FIRE THROUGH SPARKS IS PRESENT WHEN OPERATING IN THE VICINITY OF FLAMMABLE MATERIALS (HAY, STRAW, PAPER ETC.). IN SUCH ENVIRONMENTS, HOFTRAC AND WHEEL LOADERS ARE ONLY TO BE USED IN ACCORDANCE WITH THE PERTAINING LEGAL DIRECTIVES.

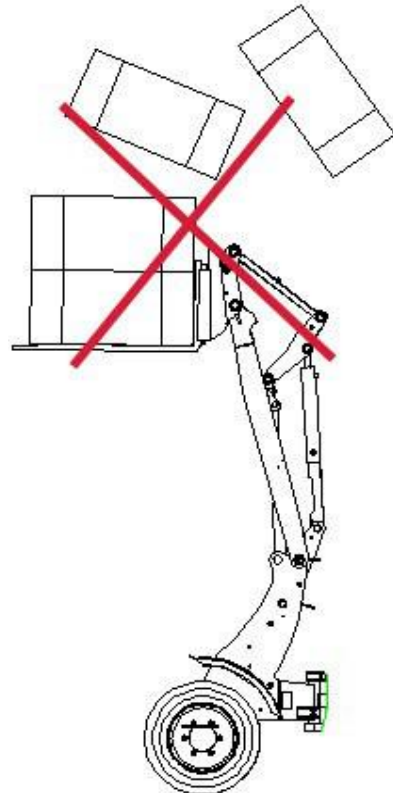
CAUTION

During the transportation of bails, **NEVER** transport more than one bail at a time. Falling bails can cause serious injuries.



You must work with great care at all times.



The manufacturer also offers special stacking equipment and safety appliances. These include:

- Round and oblong bail stackers
- Round and oblong bail stacking appliance cabin
- Driver's cabin
- Driver's protective cabin
- Bail protection bar (can be retro-fitted)



13 Warning Symbols – Symboles d'avertissement - Warnbildzeichen

SYMBOL/SYMBOLS/ SYMBOL	EXPLANATION/EXPLICATION/ERKLÄRUNG
	<p>Stay clear of articulation area while engine is running.</p> <p>Rester à l'écart de la zone de balayage lorsque le moteur tourne.</p> <p>Während des Betriebes nicht im Knickbereich aufhalten.</p>
	<p>Attach support before getting into hazardous area.</p> <p>Mettre en place le support avant de pénétrer dans une zone de danger.</p> <p>Der Aufenthalt im Gefahrenbereich ist nur bei eingelegter Sicherheitsstütze zulässig.</p>

	<p>Do not open or remove safety shields while engine is running.</p> <p>Ne pas ouvrir ni déposer les protecteurs lorsque le moteur tourne.</p> <p>Während des Betriebs Schutzeinrichtungen nicht öffnen oder entfernen.</p>
	<p>Stay clear of raised boom and bucket.</p> <p>Rester à l'écart de la zone de travail du bras de levage du chargeur frontal.</p> <p>Nicht im Arbeitsbereich der Frontladerschwinge aufhalten.</p>

Operating Manual, Part B

Description and Operation



DY25

These instructions belong with the vehicle

TABLE OF CONTENTS, PART B

14	Operating Levers and Instruments.....	24
14.1	Operating Lever.....	24
14.2	Multifunction Lever.....	25
14.2.1	Drive Switch.....	25
14.3	Control and Warning Lights.....	26
14.4	Switches and Buttons.....	27
14.5	Check Instruments.....	27
14.6	Switches and Buttons Optional Extras.....	28
14.7	Lever for Load Arm.....	29
14.8	Lever for Additional Hydraulic.....	30
15	Mechanic Quick Change System for Tool Attachments.....	31
15.1	Coupling.....	31
15.2	De-coupling.....	32
16	Operation.....	33
16.1	Before Getting into the Vehicle.....	33
16.2	Adjustment of the Driver's Seat.....	33
16.3	Safety Belt.....	33
16.3.1	Putting on the Safety Belt.....	33
16.3.2	Detaching the Safety Belt.....	33
16.4	Battery disconnecting switch.....	33
16.5	Before Switching on the Engine.....	34
16.6	Starting the Engine.....	35

16.7	Preparation for Road Use.....	36
16.8	Departure.....	36
16.9	Parking the Vehicle.....	38
16.10	Departure.....	39
16.11	Inching.....	40
16.12	Change of Drive Direction.....	40
16.13	Parking the Vehicle.....	41
16.14	Working at High Temperatures.....	41
16.15	Operation at Low Temperatures.....	42
16.16	Fuel System.....	43
16.16.1	Fuel Types.....	43
16.16.2	Fuel Filter.....	43
16.16.3	Fuel for Low Temperatures.....	43
16.16.4	Petrol.....	43
16.16.5	Refuelling.....	44
16.16.6	Draining of Deposits from the Fuel Tank.....	44
17	Optional Ancillary Equipment.....	45
17.1	Introduction.....	45
17.2	Light Material Shovel / Earth Shovel.....	46
17.2.1	Safety.....	46
17.2.2	Installing the Load Shovel.....	46
17.2.3	Operation.....	46
17.2.4	Operating Devices.....	46
17.2.5	Working with the Load Shovel.....	47
17.3	Crocodile Gripper.....	49
17.3.1	Safety.....	49

17.3.2	Working with the Crocodile Gripper.....	49
17.3.3	Installing the Crocodile Gripper.....	49
17.3.4	Operation.....	49
17.3.5	Operating Element.....	49
18	Towing.....	50
18.1	Towing over Longer Distances.....	50
18.2	Towing over Shorter Distances.....	50
18.2.1	50
19	Transport.....	51
20	Technical Data.....	52
20.1	Engine.....	52
20.2	Dimensions.....	54

14 OPERATING LEVERS AND INSTRUMENTS

14.1 Operating Lever

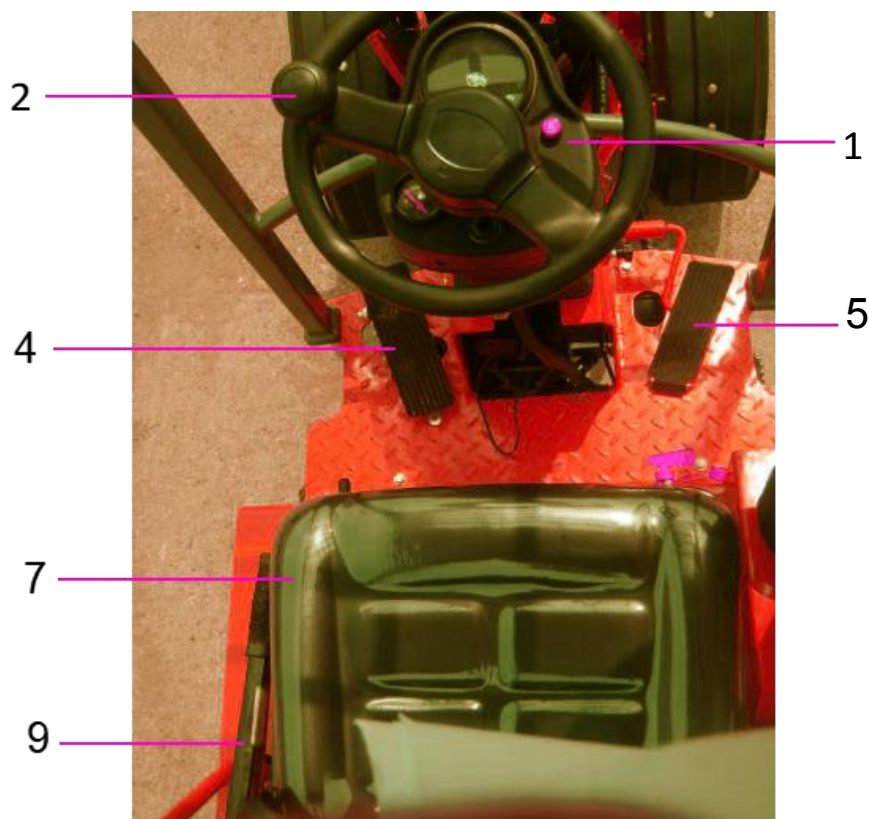


Fig. B- 2

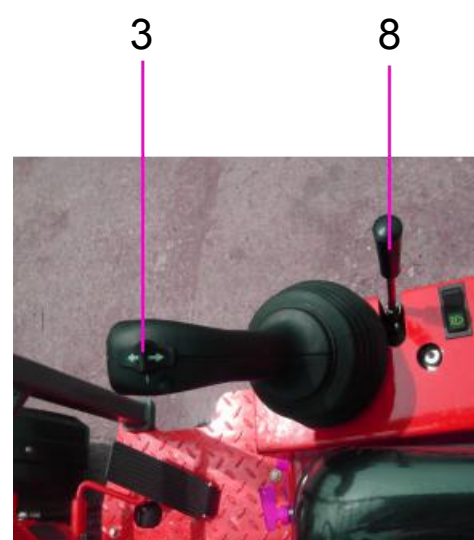


Fig. B- 3

- 1 Instrument panel
- 2 Steering wheel turning knob
- 3 Operating lever for load arm/drive
- 4 Inch pedal
- 5 Accelerator pedal
- 7 Parking brake

To apply the parking brake, pull the lever up. Push the button and lower the lever to release the brake. When the button is released, the control light goes off. When parking the vehicle, the parking brake must always be applied.

- 8 Operating lever for additional hydraulic equipment connection
- 9 Driver's seat

After cold start the idle speed RMP can be increased slightly with this screw. **Set the desired engine RMP with the accelerator pedal and then fix the set position with the setting screw.** When the system runs smoothly (system warm), reduce the idle speed RPM. A high idle speed can cause accidents as the loader starts immediately after the throttle pedal has been operated.

14.2 Multifunction Lever

The multifunction-lever is mounted on the operating lever of the control valve. The load arm is operated by moving the lever, the drive is selected by operating the switch.

14.2.1 Drive Switch

Fig. B- 4/1

- Push the switch forward to select the forward drive direction.
- Push the switch rearward to the neutral position to select the neutral drive direction.
- Push the switch rearward to select the rearward drive direction.
- Change into neutral position by pushing the rocker switch forward again.



Fig. B-4

The drive direction is indicated on the display.



CAUTION!

OPERATING THE DRIVE-DIRECTION SWITCH DURING FAST DRIVE CAN CAUSE ACCIDENTS. THE VEHICLE WILL DRIVE SUDDENLY IN THE OPPOSITE DIRECTION. APPLYING THE PARKING BRAKE WILL CAUSE THE VEHICLE TO STOP. CONSULT A QUALIFIED PERSON BEFORE DRIVING THE VEHICLE FOR THE FIRST TIME.

WHEN YOU DRIVE THE VEHICLE FOR THE FIRST TIME, CHOOSE A LARGE, FLAT AREA.

14.3 Control and Warning Lights

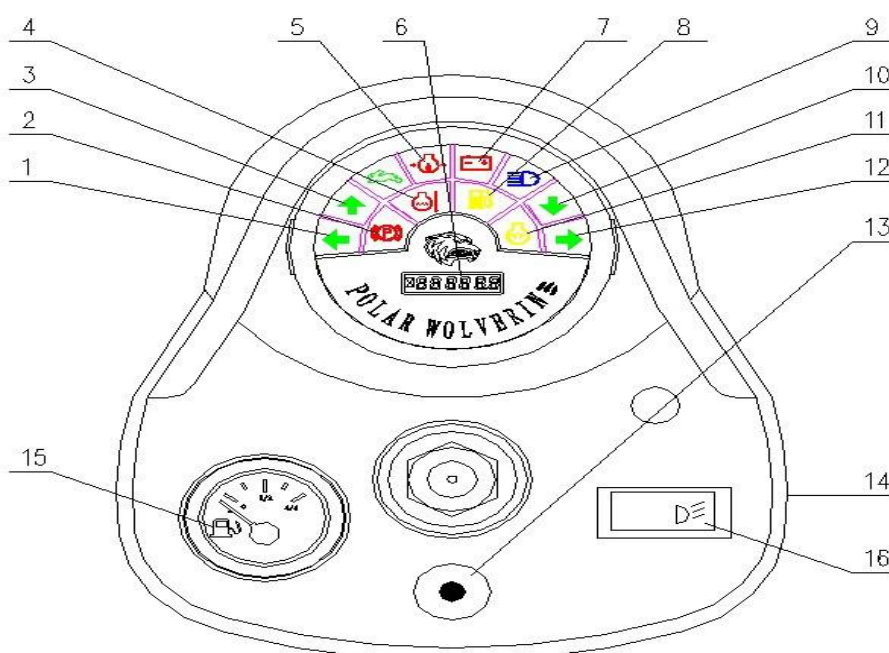


Fig. B-5

Item	Designation	Function	Symbol
2	Parking brake control light	The parking brake has been applied	
3	Forward drive control light	Forward drive-direction	
7	Generator warning light	Illuminates when the battery has not been charged - switch off engine.	
4	Engine/hydraulic oil temperature (switch off vehicle!)	Illuminates when the engine/hydraulic oil temperature is too high (corrective action see part C, 'Cleaning the radiator')	
5	Engine oil pressure warning light	Illuminates when the engine oil pressure is too low – switch off the engine.	
8	Fuel indicator control light	The fuel level has reduced to 5 l	
11	Glow plug control light	Illuminates when the engine is preheated	
10	Rearward drive control light	Rearward drive-direction	
13	Preheating controller	Switch on the engine when the glowing filament glows	

14.4 Switches and Buttons

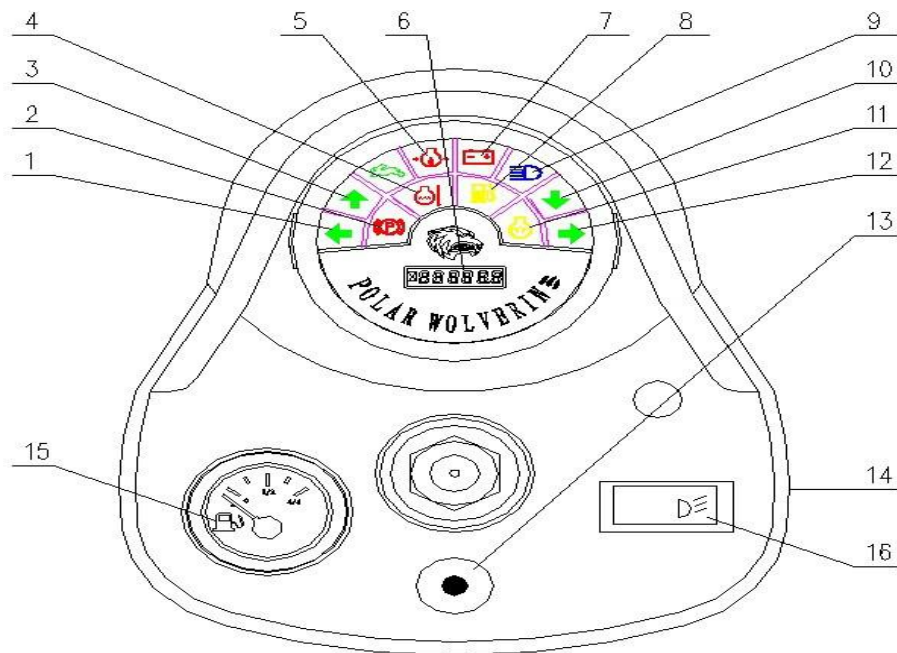
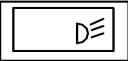



Fig. B- 7

Item	Designation	Function	Symbol
14	Ignition switch	To switch off the electric system and the engine.	
16	Front spotlights rocker switch	Push the switch downward to switch on the front spotlights.	

14.5 Check Instruments

Item	Designation	Function	Symbol
6	Operating time counter	Calculates the operating time of the vehicle. Maintenance and inspection have to be scheduled based on the reading of the counter.	
15	Fuel gauge	Indicates the fuel level.	

14.6 Switches and Buttons Optional Extras

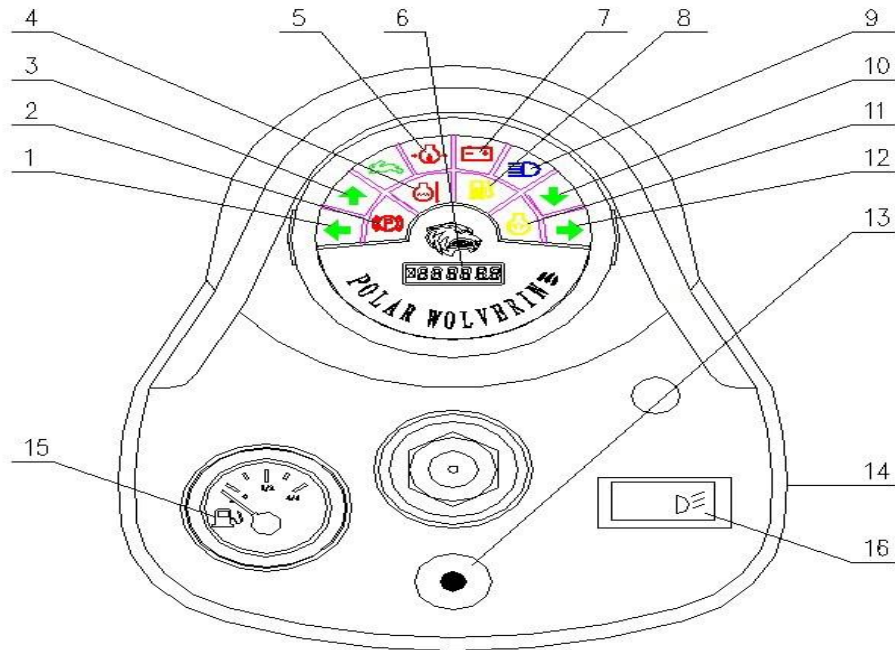
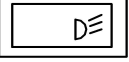


Fig. B- 8

Item	Designation	Function	Symbol
14	Ignition switch	To switch off the electric system and the engine.	
16	Front spotlights rocker switch	Push the switch downward to switch on the front spotlights.	

14.7 Lever for Load Arm

The lever [A] (Fig. B- 10) operates the load arm and other tool attachments.

The single movements are executed as follows:

- rearward position - to raise the load arm
- forward position - to lower the load arm
- forward position (against resistance) - to engage the floating position of the load shovel
- to the right side - to extend the shovel
- to the left side - to retract the shovel

For combined movements, the lever can be moved between the four main positions. For example, to raise the shovel, pull the lever rearward and then push the lever to the left side to retract the shovel.

The working speed is dependant on the RPM of the engine and on the position of the lever.

The lever is returned to its neutral position from each position (except floating) by a return-spring.

When operating with floating position selected, the shovel remains on the ground due to its own weight. Depending on the ground conditions, the shovel position moves to adapt to the ground unevenness. With models DY35 the load arm is operated with the multifunctional lever.

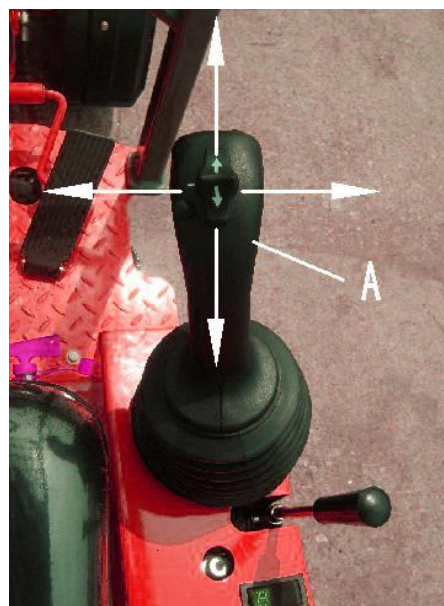


Fig. B-10

14.8 Lever for Additional Hydraulic

To operate the "hydraulic connection of the load arm/hydraulic locking of the quick change system", move the control lever (Fig. B- 11/8) on the right side of the load arm lever, this lever returns automatically to its neutral position.

- lever in left position (L) - unlocked
- lever in right position (R) - locked

Operation of the hydraulic connection when the three-way cock is in the forward position:

- Lever in left position (L)
 - left coupling under pressure
 - return flow through right coupling
- Lever in right position (R)
 - right coupling under pressure
 - return flow through left coupling

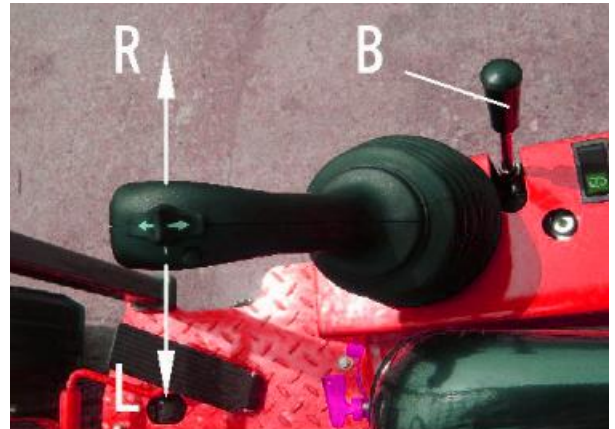


Fig. B-11

During normal operation, the three-way cock remains in the "Locking" position, so that the tool attachments can be coupled or uncoupled from the driver's position. The three-way cock is only moved if hydraulically operated tool attachments are to be used.

When the vehicle is equipped with an **electro valve** (optional extra) the lever for the additional hydraulic equipment is omitted. In this case the hydraulic equipment is operated via the lower button of the multifunction lever. During normal operation the functions of the control lever are the same as described under item 1.6. If you want to use the functions of the additional control lever, press the lower button at the multifunction lever

15 MECHANIC QUICK CHANGE SYSTEM FOR TOOL ATTACHMENTS

The vehicle is equipped with a mechanic quick change system, for different tool attachments, as standard. This allows the driver to make a quick and uncomplicated coupling and de-coupling of the attachments from his position.

The handle for the remote control of the mechanical quick-change system is located on the top left side of the arm spar. The operator can reach this handle without getting off the vehicle.



Fig. B-13

15.1 Coupling

Drive towards the tool attachment and push the quick change system of the vehicle into the receptacle of the attachment. Then lift the load arm and retract the attachment. Turn the lever of the locking bolt to the left. The locking bolt is pushed under spring pressure into the lock of the attachment. Make sure that the bolt has entered the lock.

CAUTION!

FOR HYDRAULICALLY OPERATED TOOL ATTACHMENTS, AFTER HAVING PICKED UP AND LOCKED THE TOOL ATTACHMENT, THE ENGINE MUST BE SWITCHED OFF. AFTERWARDS, MOVE THE OPERATING LEVER SEVERAL TIMES IN BOTH DIRECTIONS, SO THAT THE HYDRAULIC CONNECTION IS WITHOUT PRESSURE.

Pass the hydraulic tubes through the eyes provided therefor on the attachment and the load arm, to the hydraulic connection. Remove the protective cap of the hydraulic rapid action coupling and make sure that the connections are clean. Plug the rapid action coupling into the connections of the additional hydraulic equipment. Put the protective caps together to prevent them from getting dirty. Check the hydraulic system of the tool attachment and the hydraulic rapid action

coupling for tightness. To do this, switch on the engine and move the tool attachment in both directions.

CAUTION!

A FINE JET OF HYDRAULIC OIL EJECTED UNDER GREAT PRESSURE CAN PENETRATE THE SKIN. DO NOT USE YOUR FINGERS WHEN LOOKING FOR SMALL LEAKS. DO NOT MOVE YOUR HEAD TOO CLOSE TO THE SUSPECTED SPOT. USE A PIECE OF CARD AND INSPECT IT FOR OIL. IF OIL DOES PENETRATE THE SKIN IMMEDIATELY CONSULT A DOCTOR.

15.2 De-coupling

CAUTION!

BEFORE DE-COUPLING, LOWER THE TOOL ATTACHMENT ON EVEN GROUND. ON UNEVEN GROUND TOOL ATTACHMENTS CAN TIP OVER RESULTING IN PERSONAL INJURIES.

Close the tool attachment and shut off the engine. Move the operating lever for the additional hydraulic equipment several times in both directions to release the hydraulic connection of pressure.

Pull the locking bolt up and press it to the right to unlock the tool attachment.



Fig. B-15

CAUTION!

A SMALL QUANTITY OF OIL MAY ESCAPE WHEN YOU DISCONNECT THE HYDRAULIC RAPID ACTION COUPLING. COLLECT ANY OIL IN A SUITABLE CONTAINER TO PREVENT ENVIRONMENTAL POLLUTION (LEAK-FREE COUPLINGS ARE AVAILABLE AS AN OPTIONAL EXTRA).

Disconnect the hydraulic coupling and put on the protective caps. Draw the hydraulic tubes out of their conduits and place them over the tool attachment. Pull up the locking bolt and press it to the right. Set the tool attachment onto the ground, extend and lower the attaching frame.

CAUTION!

ONLY EXTEND THE ATTACHING FRAME UNTIL THE LOCK DOES NOT IMPEDE THE LOWERING OF THE ATTACHING FRAME.

16 OPERATION

16.1 Before Getting into the Vehicle

Observe the daily maintenance schedule (see part C, Maintenance/Trouble Shooting). Do not hold on to the levers when getting in the vehicle.



ATTENTION! ONLY GET IN THE VEHICLE FROM THE LEFT SIDE.

16.2 Adjustment of the Driver's Seat

The driver's seat can be adjusted as required to prevent strains and fatigue. Adjust the driver's seat so that all operating levers are easy to reach and the pedals can be depressed completely when you are seated with your back against recline.

The following adjustments are possible:

- forward/ backward– adjustment [1]
Pull the lever up, adjust the seat, then push the lever down.
Make sure that the seat has completely engaged
- weight adjustment [2]
Push the lever down depending on the driver's weight.
Low weight:
Push the lever down completely and release. The handle moves automatically up and the seat can be adjusted to the corresponding weight



Fig.B-17



CAUTION!

ALWAYS PUT ON THE SAFETY BELT WHEN OPERATING THE VEHICLE. EXCHANGE DAMAGED PARTS OF THE SAFETY BELT OR THE LOCK.

16.3 Safety Belt

16.3.1 Putting on the Safety

Belt Sit down correctly.

Pull the belt over your hips and engage the lock.

Do not adjust the belt too loose or too tight.

16.3.2 Detaching the Safety Belt

Press the button and remove the belt from the belt lock. Repair or replace damaged parts of the belt or the lock.

16.4 Battery disconnecting switch

(Optional Extras)

The battery disconnecting switch is located under the engine cover and is used to disconnect the complete electrical system from the battery in case of an emergency (e.g. cable burning). We recommend to switch off the battery overnight to prevent a possible discharge of the battery or cable burning. If the switch head is pulled off, the switch can also be used as additional theft protection.

When the switch head is pulled off, the aperture must be imperatively covered with the protective cap, to prevent any moisture from penetrating into the switch.



CAUTION!

THE BATTERY DISCONNECTING SWITCH MUST NOT BE SWITCHED UNDER LOAD. BEFORE INSERTING THE IGNITION KEY, THIS SWITCH MUST FIRST BE OPERATED. FOR SWITCHING OFF PROCEED IN REVERSE ORDER.

16.5 Before Switching on the Engine

1. Apply the parking brake
After having parked the vehicle, the parking brake must always be applied.
2. Checks before starting the engine:
 - Walk round the vehicle (see "Before getting in").
 - Remove dirt and waste from the driver's cabin.



THE OPERATING ELEMENTS OF THE VEHICLE MUST ALWAYS BE CLEAN AND DRY.

- Remove or fix all loose parts.
 - Check the driver's cabin for loose or missing screws, bolts etc. Insert or tighten, when necessary.
 - Verify the function of the following equipment:
lights, control lights, signal horn, indicators, all switches, direction indicator, hazard lights, screen washer and screen wipers.
3. Adjust the driver's seat.
 4. Put on the safety belt.
 5. Push the forward/reverse drive lever into the neutral position.
The engine can only be started, when the drive-direction lever is in the neutral (-0-) position.

16.6 Starting the Engine

1. Before starting the engine, make sure that nobody is within the danger areas of the engine or the vehicle. After repair, check that all protective devices have been installed and all tools have been removed from the engine. Do not use any further starting aids (e.g. starting pilot). Danger of accidents!
2. Depress the accelerator pedal.
3. Start the engine.



Fig. B-18

- Insert the key - position 0 = no operating voltage
- Turn key left against spring pressure - position 3 = Preheating.
- When the preheating controller illuminates
- Turn key right - position 2 = Starting
- Release the key as soon as the engine starts. The key returns to position 1 and the control lights extinguish.

CAUTION!

AT TEMPERATURES BELOW 0° C, THE ENGINE TURNS AT A LOWER SPEED FOR A CERTAIN TIME DUE TO THE GREATER VISCOSITY OF THE HYDRAULIC AND ENGINE OIL. THE LOWER THE AMBIENT TEMPERATURE, THE LONGER THE TIME REQUIRED FOR PREHEATING. TO AVOID DAMAGE TO THE ENGINE, DO NOT INCREASE THE RPM IMMEDIATELY. OBSERVE THE PRESSURE INDICATOR OF THE HYDRAULIC FILTER.

4. Use the engine RPM regulator to set the idle, and verify that all control lights have extinguished. Repair eventual faults.
5. RPM regulator:
After cold start the idle speed RPM can be increased slightly with this screw. **Set the desired engine RMP with the accelerator pedal and then fix the set position with the setting screw.** When the system runs smoothly (system warm), reduce the idle speed RPM. A high idle speed can cause accidents as the loader starts immediately after the throttle pedal has been operated.
6. Start without interruption for max. 20 seconds. If the engine does not start, repeat starting after one minute. If the engine fails to start again, look for the cause using the trouble shooter's guide (see Engine Operating Manual)

16.7 Preparation for Road Use



CAUTION!

BEFORE DRIVING ON OFFICIAL ROADS, MAKE SURE THAT THE VEHICLE CORRESPONDS TO THE APPROPRIATE REGULATIONS AND THAT THE DRIVER HAS A VALID DRIVING LICENCE.

1. Secure the tool attachments!
2. Attach the protective cover to the shovel.
3. The shovel must be empty and lifted into the transport position!
4. Check the lights!
Make sure that the headlights and the rotating light, if fitted, are in working order!
5. Set all hydraulic control valves to position O.
6. When driving on public roads the vehicle must have the corresponding certificates for road use (TÜV-certificate in Germany, equivalent in other countries!)
7. Lock the operating lever!

16.8 Departure (DY25)

After preheating the engine (IMPORTANT) and releasing the parking brake, start the vehicle as described below.



OPERATING INSTRUCTIONS

AFTER HAVING RELEASED THE PARKING BRAKE, THE VEHICLE IS STARTED BY DEPRESSING THE ACCELERATOR PEDAL. THE VEHICLE MUST ALWAYS STAY UNDER CONTROL. WHILE DRIVING PAY ATTENTION TO OBSTACLES AND POSSIBLE DANGERS.

DO NOT PLACE YOUR FEET ON THE BRAKE INCH PEDAL.



CAUTION!

WHEN DRIVING, REGULATE THE ENGINE RPM WITH THE ACCELERATOR PEDAL ONLY. THE RPM MAY NOT BE ADJUSTED BY MEANS OF THE THROTTLE HAND LEVER.

1. Check the driver's seat and the safety belt

- Make sure that the safety belt is put on correctly.
- Make sure that the driver's seat is adjusted correctly.

a) Release the parking brake

b) Make sure that it is safe to drive off, then depress the throttle pedal into the desired drive direction.

Throttle pedal to the front = Forward drive

Throttle pedal to the rear = Rearward

drive The vehicle starts smoothly.

c) By operating the throttle pedal and the accelerator pedal the drive speed can be adjusted infinitely variable. To stop the vehicle depress the brake pedal and move the throttle pedal in the 0-position.

Drive slowly and monitor the steering and the brakes. Stop when steering or brakes are not working correctly. If in doubt, assume that there is a part or parts which are damaged.

2. Hydraulic overdrive

By operating the corresponding lever at the control valve for the lifting hydraulic the hydraulic overdrive is switched on. The tool attachment, however, cannot be lifted or retracted.

3. Stopping the vehicle

1. Decelerate
2. Move the throttle pedal slowly to the 0-position.



CAUTION!

THE HYDRAULIC SYSTEM HAS ONLY A POOR BRAKE FUNCTION. ALWAYS USE THE SERVICE = FOOT BRAKE WHEN A HIGHER BRAKE FUNCTION IS REQUIRED.

4. Change of drive direction

1. Decelerate.
2. When the vehicle has almost stopped, move the throttle pedal into the other drive direction.
3. Drive off.



CAUTION!

OPERATING THE THROTTLE PEDAL WHEN DRIVING CAN CAUSE FATAL ACCIDENTS OR PERSONAL INJURY.

5. Pushing operation

The more the throttle pedal and the accelerator pedal have been depressed, the higher is the pushing force. The maximum pushing force is achieved just before the tyres start to slip.

16.9 Parking the Vehicle

- only in designated areas that are fire-protected
- 1. Stop the vehicle
- 2. Apply the parking brake



CAUTION!

BEFORE SETTING DOWN THE TOOL ATTACHMENTS, MAKE SURE THAT NO PERSONS ARE WITHIN THE DANGER AREAS AS THIS COULD CAUSE FATAL ACCIDENTS OR PERSONAL INJURY.

3. Lower the tool attachments onto the ground.
After having lowered the tool attachments onto the ground, continue until the attachments start to bear the weight of the vehicle.
4. Stop the engine by turning the ignition key and remove the ignition key when you leave the vehicle.
5. Switch off all switches that are not required.
Before leaving the vehicle, make sure that all switches have been switched off. If required, hazard warning lights and/or the parking light may be switched on.
6. Getting out of the vehicle and securing the vehicle.
When getting out of the vehicle use the hand rails and the foot step.
7. When parking on inclines use a wheel chock.

16.10 Departure

OPERATING INSTRUCTIONS

AFTER HAVING RELEASED THE PARKING BRAKE AND CHOSEN THE DRIVE-DIRECTION, THE VEHICLE IS STARTED BY DEPRESSING THE ACCELERATOR PEDAL. WHILE DRIVING, KEEP THE SHOVEL NEAR TO THE GROUND TO ENSURE A GOOD VISIBILITY AND A HIGHER STABILITY OF THE VEHICLE. THE VEHICLE MUST ALWAYS STAY UNDER CONTROL. PAY ATTENTION TO OBSTACLES AND POSSIBLE DANGERS. DO NOT PLACE YOUR FEET ON THE BRAKE OR THE INCH PEDAL.



CAUTION!

WHEN DRIVING, REGULATE THE ENGINE RPM WITH THE ACCELERATOR PEDAL ONLY. THE RPM MAY NOT BE ADJUSTED BY MEANS OF THE RPM CONTROLLER (IF INSTALLED).

1. Release the parking brake.
2. Operating the drive-direction switch
Choose the speed according to the actual circumstances and the work to be done. After having chosen the drive direction, the vehicle is only started when the parking brake (visual indication) has been released.
 - Make sure that the tool attachments are in the drive position. Release the parking brake.
 - Make sure that it is safe to drive off, and then depress the accelerator pedal. The vehicle starts smoothly.
 - Drive slowly and monitor the steering and the brakes. Stop when steering or brakes are not working correctly. If in doubt, assume that there is a part or parts which are damaged.

16.11 Inching

The speed of the vehicle is proportional to the accelerator pedal position:

- low engine RPM = low driving speed
- high engine RPM = high driving speed

The pump flow rate is infinitely variable and can be reduced by depressing the Inch pedal on the left side of the steering column. Therefore, a very slow driving speed is also possible at a high engine RPM.

16.12 Change of Drive Direction

1. Decelerate.
2. When the vehicle has almost stopped, move the drive-direction switch into the other position.
3. Depress the accelerator pedal.
It is not necessary to operate the Inch pedal at each change of the drive direction.



OPERATING THE DRIVE-DIRECTION SWITCH AT A HIGH DRIVING SPEED CAN CAUSE FATAL ACCIDENTS OR PERSONAL INJURY. THE VEHICLE WILL DRIVE, WITHOUT WARNING, IN THE OPPOSITE DIRECTION.

16.13 Parking the Vehicle (DY25)

- only in designated areas that are fire-protected
- 1. Stopping the vehicle
Stop the vehicle smoothly by releasing the accelerator pedal and gradually depressing the Inch pedal. Then depress the foot brake.
- 2. Applying the Parking Brake
Pull up the parking brake lever. Make sure that the control light illuminates (visual indicator).



BEFORE SETTING DOWN THE TOOL ATTACHMENTS, MAKE SURE THAT NO PERSONS ARE WITHIN THE DANGER AREAS.

- 3. Lower the tool attachments onto the ground.
After having lowered the tool attachments onto the ground, continue until the attachments start to bear the weight of the vehicle.
- 4. Stop the engine by turning the ignition key.
- 5. Remove the ignition key when you leave the vehicle.
- 6. Switch off all switches that are not required.
Before leaving the vehicle, make sure that all switches have been switched off. If required, hazard warning lights and/or the parking light may be switched on.
- 7. Getting out of the vehicle and securing the vehicle.
When getting out of the vehicle use the hand rails and the foot step. The tank cover should be locked. When parking on inclines use a wheel chock.

16.14 Working at High Temperatures

To avoid damaging the vehicle, take the following precautions when you work at high temperatures:

- 1. Use engine oil of the correct viscosity.
(see liquids, lubricants, volumes and specifications)
- 2. Use the correct coolant mixture.
- 3. Regularly check the radiator and the oil cooler.
Ensure the correct level of coolant. Make sure that there are no leaks.
- 4. Keep the radiator clean.
Regularly remove dirt from the radiator and engine. (**See chapter C "Cooling Systems"**).
- 5. Regularly check the fan belt and the oil cooler fan.
- 6. Regularly check the preliminary filter of the engine (if fitted).
Check the dust valve and remove dust if necessary (see engine air filter).

16.15 Operation at Low Temperatures

At low temperatures, take the following precautions to facilitate starting and to avoid damaging the vehicle.

CAUTION!

AT TEMPERATURES BELOW 0° C, THE ENGINE TURNS AT A LOWER SPEED FOR A CERTAIN TIME DUE TO THE GREATER VISCOSITY OF THE HYDRAULIC AND ENGINE OIL. THE LOWER THE AMBIENT TEMPERATURE, THE LONGER THE TIME REQUIRED FOR PREHEATING. TO AVOID DAMAGE TO THE ENGINE, DO NOT INCREASE THE RPM IMMEDIATELY. OBSERVE THE PRESSURE INDICATOR OF THE HYDRAULIC FILTER.

1. Use engine oil of the correct viscosity (see liquids, lubricants, volume and specifications).
2. Use fuel for low temperatures.
3. Use the correct coolant mixture.
4. Check if the battery is completely charged.
5. Top up the fuel tank at the end of each working shift.
6. Protect the vehicle during breaks.
7. Install a cold starting aid.
At low temperatures of -18°C or less, an additional starting aid, such as fuel, oil and coolant heaters, can become necessary. For an appropriate starting aid, please consult your local dealer or one of our representatives.

CAUTION:

DO NOT CONNECT TWO BATTERIES IN SERIES TO GENERATE A STARTING VOLTAGE OF 24 V. THIS MAY LEAD TO A BURNING OUT OF THE INTAKE MANIFOLD HEATER AND THE STARTER MOTOR.

16.16 Fuel System

16.16.1 Fuel Types

Diesel of high quality is a precondition for a correct engine performance.

16.16.2 Fuel Filter

A preliminary filter with water separator is installed before the fuel pump to eliminate large dirt particles. A plastic ring is located inside the casing of the preliminary filter. If this plastic ring floats, water has penetrated into the filter casing, and the casing, as well as the filter, have to be cleaned. Replace the fuel filter and the preliminary filter at regular intervals as specified. See the Engine Operating Manual!

16.16.3 Fuel for Low Temperatures

Use special winter fuel types at temperatures below 0° C. These fuel types have a lower viscosity and restrict the formation of wax in the fuel (the wax may impede the fuel flow through the filter). To reduce the formation of wax, it is also possible to add special agents which improve the fuel flow.

16.16.4 Petrol



DO NOT USE PETROL FOR THIS VEHICLE. DO NOT MIX PETROL WITH DIESEL; THE PETROL RISES TO THE SURFACE INSIDE THE FUEL TANK AND GIVES OFF INFLAMMABLE VAPOURS. FUEL IS FLAMMABLE. KEEP THE VEHICLE AWAY FROM OPEN FLAMES. DO NOT SMOKE WHEN REFUELLING OR WHEN WORKING ON THE ENGINE. STOP THE ENGINE BEFORE FUELLING. IGNORANCE OF THESE INSTRUCTIONS MAY CAUSE FIRE.

16.16.5 Refuelling

- Unscrew the cap of the filler neck.
- Top up fuel.

If possible use a fine filter in the filling line.

Use only clean fuel, as even the smallest dirt particles can cause rapid wear or malfunctions. Use only fuel types of known brands. As the best method of cleaning fuel is through precipitation, the fuel should not be circulated after delivery and must be stored for at least one day. Do not keep opened barrels outdoors, as variations in temperature may

result in heavy condensation. Use only winter fuel types at temperatures near and below freezing- point (see Engine Operating Manual). Refuelling out of large, stationary containers is recommended. Avoid as far as possible refuelling from barrels. If you do, observe the following instructions:

1. To avoid disturbing deposited contamination, do not roll or tilt the barrels before refuelling.
2. Protect the end of the refuelling pipe with a fine-meshed sieve and keep it approximately 15cm away from the bottom of the barrel.
3. Topping up of the fuel tank should be done using a funnel sieve with cloth filter and a fine sieve in the tank neck of the vehicle.
4. Always keep the barrels used for refuelling tidy. Gross negligence when refuelling cannot be compensated by an efficient fuel filter, as this only separates the smallest impurities out of the fuel.

Top up the tank with the correct fuel type at the end of each day to avoid condensation during the night.

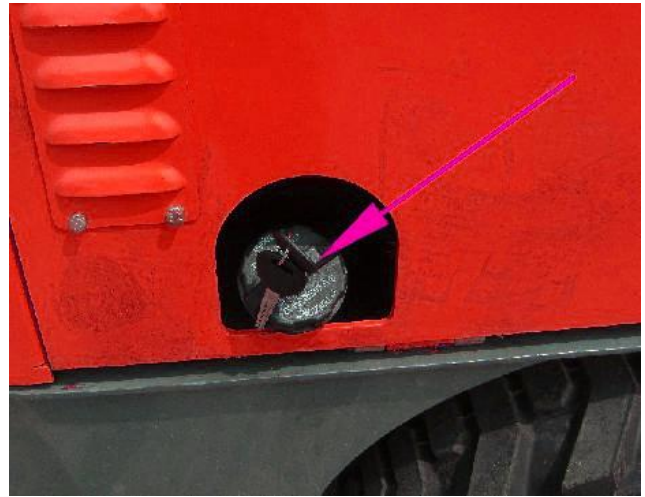


Fig. B-19

16.16.6 Draining of Deposits from the Fuel Tank

From time to time, water and deposits that have collected at the bottom of the fuel tank must be drained off. This is especially recommended at temperatures below freezing-point and in weather conditions that accelerate condensation. Before refuelling, remove the drain plug at the bottom of the fuel tank and drain all deposits that have collected.

17 OPTIONAL ANCILLARY EQUIPMENT

17.1 Introduction

This part of the manual contains information on the optional TAIAN ancillary equipment. Some of these are already installed on the vehicle. Contact the responsible representative when you are interested in further equipment.

Before installing, operating and servicing the equipment, read carefully the corresponding operating instructions of the manufacturer. Consult the responsible representative if you have any questions.

If the hydraulic system of your vehicle has to be modified for the use of ancillary equipment, consult our representative. The laying of hydraulic tubes has to be carried out by qualified personnel.



REMEMBER:

SAFETY FIRST

Use the appropriate tool for the job to be carried out. Do not use too big a shovel for heavy material, this could weigh down the equipment causing undue stress which will ultimately shorten the vehicle life.



CAUTION!

REMEMBER THAT SNOW, LOOSE MATERIAL, AND MUD ALTER THE GROUND CONDITIONS. GROUND SUBSIDIENCE OR COLLAPSING MATERIALS CAN CAUSE ACCIDENTS.

17.2 Light Material Shovel / Earth Shovel

17.2.1 Safety

Observe the safety instructions and the maximum admissible load capacities (see technical data).



THERE ARE MANY DIFFERENT MATERIALS, EACH HAVING THEIR OWN SPECIAL PROPERTIES. USE THE LIGHT MATERIAL SHOVEL FOR LIGHT BULK MATERIALS, SUCH AS CORN, CONCENTRATED FEED STUFF ETC., AND THE EARTH SHOVEL FOR HEAVY BULK MATERIAL, SUCH AS GRAVEL, SAND ETC.

17.2.2 Installing the Load Shovel

See "Coupling of the Tool Attachments".

17.2.3 Operation

Practice using the load shovel before first application.

Depending on the experience of the driver, the work to be done and the type of material, certain deviations from these instructions may become necessary.

17.2.4 Operating Devices

The load shovel is operated with the operating lever (see operating instructions). Use extreme care when operating the load shovel.

When emptying the load shovel and to load other vehicles it is recommended to execute two movements simultaneously, e.g. lifting and extending or lowering and retracting. To do this the movements on the control lever must be superimposed (Fig. B- 35).

- 0 = neutral position
- 1 = lifting
- 2 = lowering
- 2a = floating position
- 3 = retracting
- 4 = extending

The floating position is used to level a surface. Lower the point of the load shovel on to the ground. Engage the control lever in position 2a so that the load shovel lies on the ground, born by its own weight.

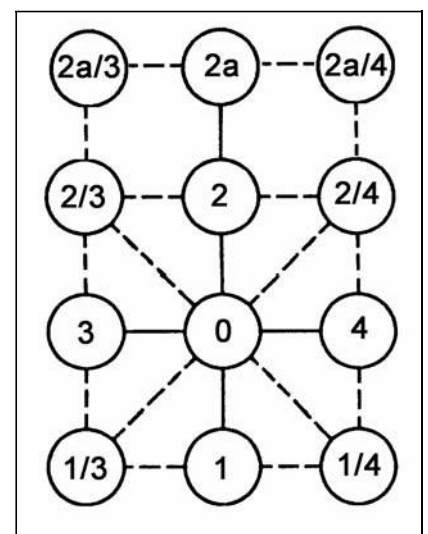


Fig. B-20

17.2.5 Working with the Load Shovel

To take up loose material, lower the load shovel and adjust the edge parallel to the ground.

Now drive towards the material to be loaded. The driving speed depends on the type of material and the working conditions.

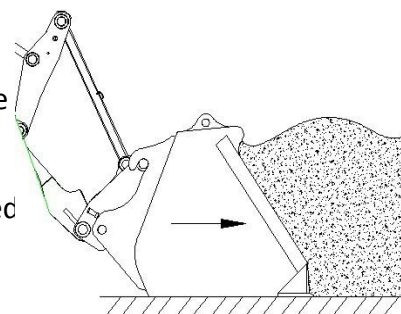


Fig. B-21

Lift the load arm slightly to load the front axle and to avoid a slipping of the tyres (also manually possible by "inching"). Retract the shovel when it is full.

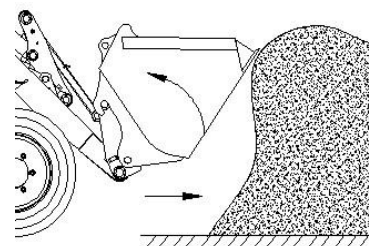


Fig. B-22

Retract the filled load shovel. Change the drive-direction and move the shovel in to the transport position to guarantee secure driving and steering.

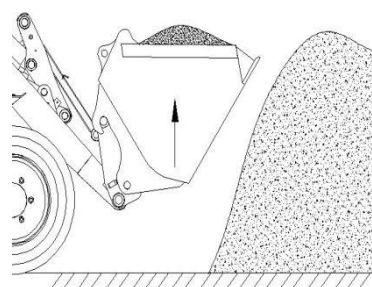


Fig. B-23

When loading material which the load shovel has difficulties penetrating, lift and lower the load shovel by operating the tipping operating lever.

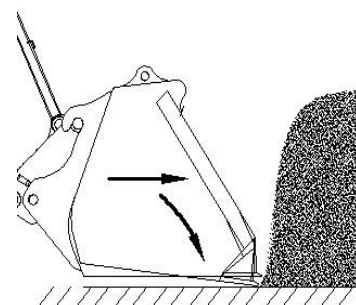


Fig. B-24

If the transport distance to the dumping place is relatively far, lift the shovel to a position where it does not touch the ground.

! CAUTION!

TRANSPORTING WITH A LIFTED AND FULLY LOADED SHOVEL IS DANGEROUS; THE LOWER THE POSITION OF THE SHOVEL, THE MORE FAVOURABLE THE DISTRIBUTION OF VEHICLE WEIGHT. THIS IS ESPECIALLY IMPORTANT WHEN TURNING OR DRIVING.

To take up soft material, lower the shovel onto the ground and extend it until a digging angle has developed. Drive forward so that the edge of the shovel penetrates the ground. Afterwards, reduce the tipping angle to cut an even layer of ground and to avoid a slipping of the tyres.

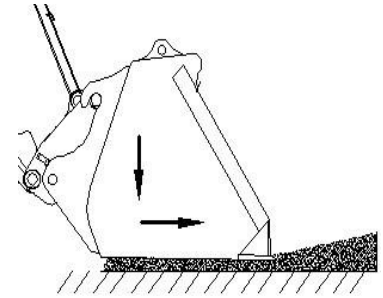


Fig. B-25

To take up hard material, lower the shovel onto the ground and extend until a digging angle has developed. When driving forward, press the shovel slightly downward, so that it penetrates the ground. Avoid an extreme slipping of the tyres. Then reduce the tipping angle, and, while driving forward, operate the tipping operating lever to lower and lift the shovel, and to load the front axle constantly.

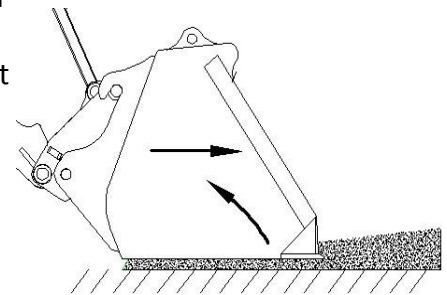


Fig. B-26

17.3 Crocodile Gripper

17.3.1 Safety

Observe the safety instructions as well as the maximum admissible load capacities (see technical data).

17.3.2 Working with the Crocodile Gripper

To guarantee stability, make sure that the crocodile gripper is always kept near to the ground. Tip the upper part of the crocodile gripper hydraulically downward.

Different tasks are possible with the crocodile gripper, such as: transport of silage fodder, loose hay, round bales, green fodder and farmyard manure, loading of towed vehicles and fertilizer spreader, mucking out of cow, pig and horse stables and many more.

The crocodile gripper is especially suited for the gripping of load material. In certain circumstances it can also be used to grip loose branches and smaller trunks or for feeding tasks.

17.3.3 Installing the Crocodile Gripper

See "Coupling of Tool Attachments".

After having attached the crocodile gripper with the quick change system, the additional hydraulic connection must be connected.

17.3.4 Operation

Practice using the crocodile gripper before first application.

17.3.5 Operating Element

The crocodile gripper is operated with the operating lever for the additional hydraulic equipment (see operating instructions). When working with the crocodile gripper operate the lever with extreme care

18 TOWING

Never forget that towing may cause further damage to the vehicle. If possible, repair the vehicle on the spot.

If the engine is operative, the tool attachment is de-coupled. The operation depends on the actual condition of the vehicle and the hydraulic circuits.

Towing is only allowed with tow ropes of a sufficient diameter. The breaking strain of the ropes must be triple that of the traction power of the towing vehicle. The tow rope can be fixed at the support in the rear part of the vehicle or at the plate of the load arm.

18.1 Towing over Longer Distances

Only tow for a short distance that is necessary to bring the vehicle out of the danger area. Never tow the vehicle over longer distances as the hydraulic motors may be damaged. Load the machine on an appropriate transporter.

18.2 Towing over Shorter Distances

Only tow at a slow driving speed (approx. 5 km/h) and for a maximum distance of 0.5 km. Only tow for a distance that is necessary to bring the vehicle out of danger areas. When towing over longer distances, the engine may overheat and become damaged.

18.2.1 DY25

Move the throttle pedal into the desired direction. Tow the vehicle.

19 TRANSPORT

1. Before loading the vehicle on a transporter, remove any dirt.
2. For further instructions on parking the vehicle on the transporter please refer to the chapter "Stopping and Parking". For transport, secure the vehicle correctly on the loading area. Lashing straps can be passed over the centre joint and the foot step. When handling by crane, lifting tackle is required.

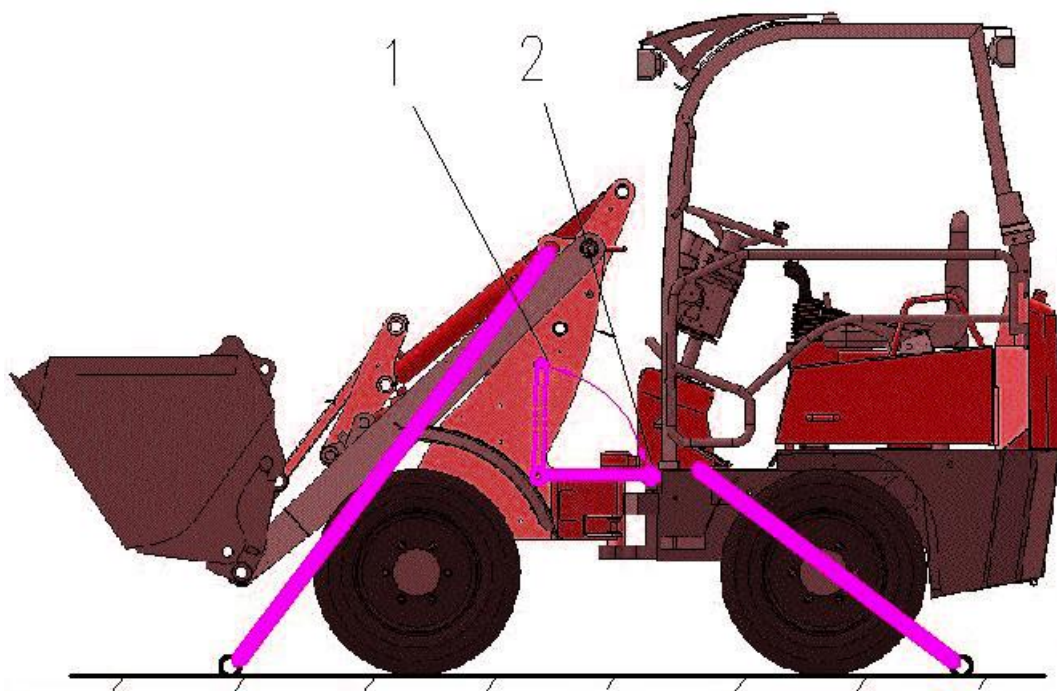


Fig. B-29

CAUTION!

BLOCK THE CENTRE-PIVOT STEERING.

3. Blocking the centre-pivot steering:
 - The vehicle must be parked straight.
 - Loosen the locking pins (Fig. B– 29/1) and move the lever to the rear.
 - Secure the lever with the locking pin (Fig. B– 29/2) on the bolt provided therefore on the rear carriage.
4. To loosen the centre-pivot steering locking proceed in reverse order

20 TECHNICAL DATA

20.1

Engine

- 3 cylinder Yanmar diesel engine
- Displacement:1,116L
- Power: 18.7kw/ 25HP at 3200rpm

Loader capacity

- Operating weight:1,360kg
- Tipping load in shovel, vehicle straight, load arm horizontal: 809 kg
- Tipping load in shovel, vehicle at angle 68°, load arm horizontal: 500 kg
- Tipping load in pallet fork, vehicle straight, load arm horizontal: 527 kg
- Tipping load in pallet fork, vehicle at angle 68°, load arm horizontal: 320 kg

Admissible load capacity

- On uneven ground: 60% of the tipping load, vehicle at angle
- On even ground: 80% of the tipping load, vehicle at angle

(the operating weight, lifting forces, the tipping load etc. will change depending on the ancillary equipment and the tires used)

Capacities please refer to table “Capacities“, part C

- Hydraulic system incl. tank: 30 l
- Diesel tank: 23L
- Engine oil: 4 L
- Gear:
 - Rear axle: 1.5 L
 - Front axle: 1.5L

Hydraulic system

- Working hydraulic:
 - Flow rate: abt. 35l/min.
 - Working pressure: 205bar
- Driving hydraulic:
 - Flow rate: abt. 90l/min.
 - Working pressure: 305 bar

Drive (driving speed):

- 1. gear: 0-13km/h

Electrical system:

- Operating voltage: 12Volt
- Battery: 60 Ah

Steering:

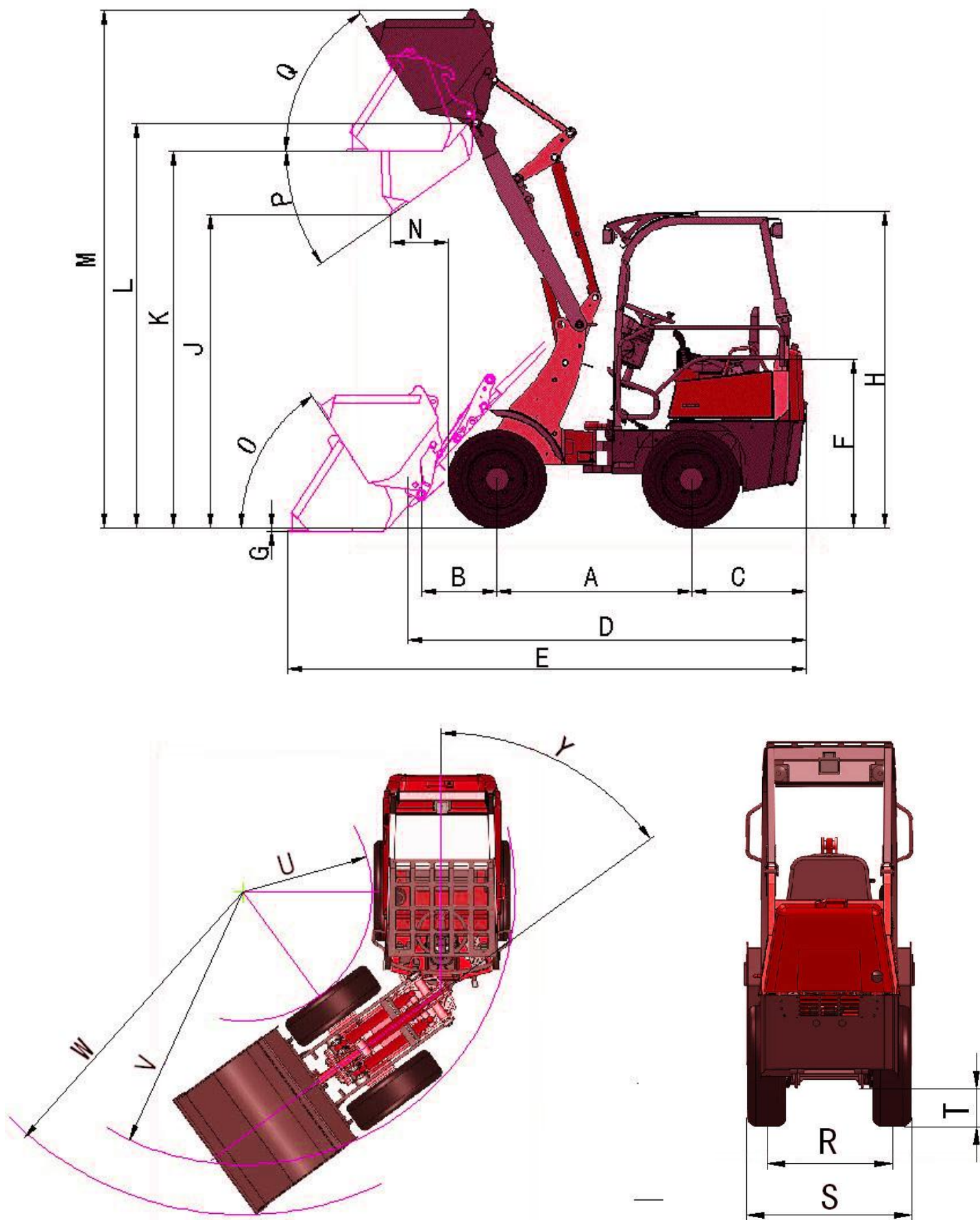
- Fully-hydraulic centre-pivot steering with double action cylinder
- Rotating angle: $\pm 12^\circ$
- Steering hydraulic:
 - Flow rate: abt. 30l/min.
 - Working pressure: 205bar

Noise rating:

- DY25 .. dB (A)

2\0.2 Dimensions

Fig. B-30



Item	Designation	Units	Axle
A	Wheel base	mm	1345
B	Axle centre to shovel pivot-point	mm	502
C	Rear overhang	mm	798
D	Overall length without standard shovel	mm	2764
E	Overall length incl. standard shovel	mm	3615
F	Height to seat	mm	1186
G	Ground clearance	mm	25
H	Height to ROPS bar	mm	2192
J	Max. dumping height	mm	2030
K	Overhead loading height	mm	2536
L	Shovel pivot-point max. height	mm	2811
M	Maximum working height	mm	3593
N	Reach during H	mm	501
O	Reverse roll-angle on ground	°	57
P	Max. dumping angle	°	35
Q	Reverse roll-angle at maximum lift	°	57
R	Wheel gauge	mm	714
S	Standard total width	mm	930
T	Ground clearance	mm	208
U	Turning-circle (inner)	mm	865
V	Turning-circle (outer)	mm	1829
W	Max. turning-circle radius	mm	2210
Y	Turn angle	°	54

Operating Manual, Part C

Maintenance / Trouble Shooting



DY25

These instructions belong with the vehicle

CONTENTS, PART C

21	General.....	63
21.1	Securing the vehicle.....	63
21.2	Safety Support of the Load Arm.....	63
21.3	General Safety Check.....	63
22	Maintenance.....	64
22.1	Maintenance Intervals.....	64
	22.1.1 Daily Maintenance.....	65
	22.1.2 Weekly Maintenance.....	66
	22.1.3 Inspection after 500 Operating Hours (or after the First 6 Months).....	67
	22.1.4 Further Maintenance Intervals.....	69
22.2	Maintenance of the Engine.....	72
	22.2.1 Tilting the Driver's Cabin.....	72
	22.2.2 Changing the Engine Oil.....	73
	22.2.3 Replacing the Engine Oil Filter.....	74
	22.2.4 Checking the Oil Level of the Engine / Replenishment.....	74
22.3	Maintenance of the Fuel System.....	75
	22.3.1 Fuel system.....	75
	22.3.2 Water separator.....	75
	22.3.3 Replacing the Fuel Preliminary Filter.....	76
	22.3.4 Replacing the fuel main filter.....	76
	22.3.5 Purging the Fuel System.....	76
22.4	Maintenance of the Air Intake.....	77
	22.4.1 Removing Main Filter, Checking and Cleaning.....	77
	22.4.2 Checking / Replacing the Safety Filter.....	77
22.5	Maintenance of the Cooling System.....	78

22.5.1	Checking the Antifreeze Mixture.....	78
22.5.2	Filling the radiator.....	79
22.5.3	Cleaning the Cooling System.....	79
22.6	Maintenance of the Hydraulic System.....	80
22.6.1	Description of the Hydraulic System.....	80
22.6.2	Description of the Hydraulic System.....	80
22.6.3	Oil Cooler.....	81
22.6.4	Hydraulic Oil Level.....	81
22.6.5	Purge Filter.....	81
22.6.6	Return Filter.....	82
22.6.7	Changing the Hydraulic Oil.....	82
22.6.8	Purge of the Working and Steering Hydraulic.....	83
22.7	Steering Mechanism.....	83
22.8	Maintenance of the axles.....	84
22.8.1	Checking the Level of the Gear Oil and Changing the Oil.....	84
22.9	Track Widening.....	84
22.10	ROPS.....	85
22.11	Cleaning the Vehicle.....	85
22.12	Safety Belt.....	85
22.13	Tyres and Wheels.....	86
22.13.1	Inflating the Tyres.....	86
22.13.2	Checking the Seat of the Wheels.....	86
22.14	Maintenance of the brake system.....	87
22.14.1	Brakes (DY25).....	87
22.14.2	Brakes (DY25).....	87

22.14.3	Adjusting the brakes.....	87
22.15	Electrical System.....	88
22.15.1	The assignment of the fuses.....	89
22.15.2	Maintenance of the Electrical System.....	90
22.15.3	Battery.....	91
23	Trouble Shooting and Correction.....	92
24	Capacities and Fuel and Oil Types.....	96
24.1	Capacities.....	96
24.1.1	DY25.....	96
24.2	Hydraulic Fluids (Mineral Oil Based).....	97
24.3	Environmentally Friendly Hydraulic Fluids.....	98
25	Lubrication Schedule.....	100
26	tire Pressure.....	102
27	Ordering of Spare Parts.....	103

Service Schedule

! To guarantee proper functioning of the machine, the first inspection is to be carried out after 30 operating hours, or three months after commissioning at the latest, by a **TAIAN dealer or a mechanic of a **TAIAN** factory salesman. The proof of the inspection must be returned to the TAIAN Company as otherwise all warranty claims will be-forfeited!**

Work to be done (please mark (0))	1st Service
* Check gear-box, engine and hydraulic system for leaks	0
* Check that hydraulic and engine oil cooler and radiator are clean	0
* Check level of coolant and antifreeze	0
* Check tension and condition of V-belt	0
* Check the tubes and conduits for correct seat.	0
* Check position of tubes and conduits	0
* Check the piston rods of the hydraulic cylinders	0
* Check the position of the Bowden cables and the electric cables	0
* Tighten all screws Check carefully the engine and axle mounts and the cardan shaft.	0
* Check the instruments and the acoustic warning devices	0
* Check the electrical system	0
* Check and adjust, if necessary, the foot brake and the parking brake	0
* Check the hydraulic steering	0
* Check the lighting equipment (if fitted)	0
* Check the idle speed RPM	0
* Check and adjust, if necessary, the tappet clearance – only Yanmar 1004-4 engines	0
* Check the locking function of the door and the engine cover	0
* Check the ROPS bar / cabin	0
* Check the tire condition	0
* Change motor oil and oil filter	0
* Clean air filter and replace, if necessary	0
* Replace hydraulic return filter	0
* Check that all lubrication nipples are lubricated	0
* Lubricate cardan shafts (universal joint)	0
* Lubricate all levers, Bowden cables and hinges	0
* Check all oil levels, including the oil levels of the gears and axles!	0

Observe the engine operating manual.

Place, Date

Signature/Stamp of the Dealer

Please complete and return the service schedule overleaf to:

Taian Tengyu Heavy Industrial Co., Ltd

Address: North Nanliu Street, Shigao Industrial Zone, Taian City, Shandong China

Zip Code: 271000

Details on the vehicle / customer

Type: _____ Chassis-No.: _____ Date of delivery: _____

Address of the customer

Address of the Dealer

Name:

Name:

Street:

Street:

Postal code & Town:

Postal code & Town:

Phone:

Phone:

Fax:

Fax:

Kind of use:

Agriculture / Farming

Building industry

Community

Industry

Hire

Others (.....)

MACHINE DATA

The nameplate on the right side of the front carriage near to the centre joint, contains the most important vehicle data. When ordering spare parts etc. this data should be entered in the following form:

Taian Tengyu Heavy Industrial Co., Ltd

Model:.....Serial No.of machine:

Engine-Type:.....Engine No.:

Operating weight:Date of delivery:

Importer (Name, Address):

Service workshop (name, address):

Space for additional notes:

21 GENERAL

21.1 Securing the vehicle

Before any maintenance or repairs, the vehicle must be secured as described below:

1. Park the vehicle on even and load-carrying ground.
2. Put the tool attachments on to the ground.
3. Block the centre-pivot steering.
4. Shut off the engine.
5. Withdraw the key from the ignition switch.
6. Secure the vehicle against rolling away by blocking the wheels.
7. Disconnect the batteries before working on the electrical system or before welding.

21.2 Safety Support of the Load Arm



A LOAD ARM HAVING BEEN LIFTED CAN DROP SUDDENLY AND CAUSE SEVERE INJURIES. BEFORE MAINTENANCE AND REPAIR, SECURE THE LOAD ARM WITH A SUITABLE SUPPORT.

21.3 General Safety Check

1. Check the steel parts for damage and note eventual damages of the enameling for subsequent repair.
2. Make sure that all pivot pins are in their correct position and secured by the locking devices.
3. Check condition and correct position of the step and straps.
4. Check the windows for cracks and replace damaged windows.
5. Check condition and correct position of the shovel teeth.
6. Check all spreader disks for damage.
7. Check the tires for damage and penetration of sharp-edged objects.
8. Make sure that all warning signs are mounted. If necessary, attach new warning signs.

22 MAINTENANCE

Correct and regular maintenance is precondition for a consistent optimal vehicle performance.

Only use TAIAN original parts

A vehicle that is not correctly maintained represents a danger for your employees.

Keep your vehicle in an operative and efficient condition through regular maintenance and lubrication. The service intervals are dependant on the operating hours and the daily work to be carried out. The operating time counter has to be read regularly to define the maintenance intervals. When maintenance is due, the vehicle may not be used. Any malfunctions must be repaired immediately and carefully. The first service after 30 operating hours should be carried out by a TAIAN dealer or one of our representatives.



MAINTENANCE SHOULD BE DONE BY PERSONS WHO HAVE RECEIVED AN APPROPRIATE TRAINING. SECURE THE VEHICLE BEFORE STARTING MAINTENANCE. LOWER THE LOAD ARM AND PARK THE VEHICLE ON EVEN GROUND. SHOULD IT BECOME NECESSARY TO LIFT THE LOAD ARM DURING MAINTENANCE, THE SAFETY SUPPORTS MUST BE INSTALLED.

22.1 Maintenance Intervals

The intervals indicated refer to average operating conditions and loads. Different maintenance intervals must be observed in hours or in months, which ever comes first. The intervals indicated are based on the quality of the operating materials specified in this manual.

22.1.1 Daily Maintenance



DAILY SERVICE (PERFORM DAILY OR AT LEAST EVERY 10 OPERATING HOURS)

- Clean the vehicle
- Clean the air filter
- Check for general damage
- Check the level and condition of coolant
- Check the hydraulic oil cooler, the radiator and the engine oil cooler for cleanliness
- Check the level and condition of the motor oil
- Check for engine leaks
- Check the level of the hydraulic oil
- Check the hydraulic system
- Check the condition of the tires and the tire pressure
- Check, that all screws are tight
- Check the wheel nuts
- Check the function of the brakes
- Check the safety belt
- Check the instruments and control lights as well as the acoustic warning devices
- Check the electrical system
- Check the foot brake
- Check the hydraulic steering
- Check the function of the hydraulic devices
- Check the ancillary equipment
- Check the exhaust for defects or excessive smoke development
- Check the lubrication of all pivot pins
- Lubricate according to lubrication chart
- Lubricate the tool attachments
- Lubricate centre joint
- Lubricate pivot pin of steering cylinder
- Check that all screws of the ROPS structure are tight

22.1.2 Weekly Maintenance

NOTE:

WHEN CHECKING THE HYDRAULIC OIL LEVEL, THE VEHICLE MUST BE PARKED ON EVEN GROUND AND THE LOAD ARM BE LOWERED.



WEEKLY SERVICE (PERFORM WEEKLY OR AT LEAST EVERY 30 - 50 OPERATING HOURS)

- Clean the fuel filter preliminary separator
- Check the front and rear axles for oil leaks and check the oil level
- Check the condition of the radiator and the tubes
- Check the tension and condition of the fan belt
- Check the ancillary equipment
- Check the piston rods of the hydraulic cylinders
- Check the position of pipes and tubes
- Check the air filter pipe
- Check the position of the electric cables
- Lubricate the cardan shafts (universal joint)
- Lubricate all levers
- Lubricate all Bowden cables and hinges
- Tighten all screws
- Check carefully the engine and axle mounts

22.1.3 Inspection after 500 Operating Hours (or after the First 6 Months)

The inspection and maintenance personal must have adequate knowledge of the inspection and maintenance tasks to be carried out on this or comparable vehicles.

Maintenance: (Operating hours) <u>or after the first twelve months at the latest</u> Maintenance work to be carried out:	500 hours
- Check shift gear, engine and hydraulic system for leaks	X
- Check that hydraulic and hydraulic oil cooler and radiator are clean	X
- Check level of coolant and antifreeze	X
- Check tension and condition of V-belt	X
- Check position of pipes and tubes	X
- Check the piston rods of the hydraulic cylinders	X
- Check the air filter pipe	X
- Check the laying of the Bowden cables and the electric cables	X
- Tighten all screws. Check carefully the engine and axle mounts and the cardan shafts	X
- Check the rubber buffer of the engine mount	X
- Check the acid level of the battery	X
- Check: the instruments, control lights and acoustic warning devices	X
- Check the electrical system	X
- Check and adjust if necessary the foot brake and the parking brake	X
- Check the hydraulic steering	X
- Check the lighting equipment (if fitted)	X
- Check the exhaust system	X
- Check the drive shaft pivot pins and bushings	X

Maintenance: (Operating hours) or after the first twelve months at the latest Maintenance work to be carried out:	500 hours
- Check the bolts and the bearing of the centre joint	X
- Check the idle speed RPM	X
- Check and adjust the locking of the engine cover and the door, if necessary	X
- Check the condition of the tires and the tire pressure	X
- Change engine oil and replace filter	X
- Replace fuel filter - clean preliminary filter	X
- Clean or replace the air filter, if necessary	X
- Adjust the tappet clearance (only Yanmar 100 and 400 series)	X
- Change hydraulic oil	X
- Replace hydraulic return filter	X
- Replace hydraulic pressure filter	X
- Change the oil in the transfer gear-box	X
- Change the oil in the axles	X
- Check, that all lubrication nipples are lubricated	X
- Lubricate cardan shafts	X
- Lubricate all levers, Bowden cables, and hinges	X
- Check all oil levels	X

NOTE

OBSERVE THE ENGINE OPERATING MANUAL.

23.1.4 Further Maintenance Intervals

The inspection and maintenance personal must have adequate knowledge of the inspection and maintenance tasks to be carried out on this or comparable vehicles.

Maintenance: (Operating hours)	Monthly At least every 200-250 hours	Once per year At least every 1000 hours
- Check shift gear, engine and hydraulic system for leaks	X	X
- Check that hydraulic cooler and radiator are clean	X	X
- Check level of coolant and antifreeze	X	X
- Check tension and condition of V-belt	X	X
- Check position of pipes and tubes		X
- Check the piston rods of the hydraulic cylinders		X
- Check the air filter pipe	X	X
- Check the laying of the Bowden cables and the electric cables		X
- Tighten all screws. Check carefully the engine and axle mounts and the cardan shafts		X
- Check the acid level of the battery	X	X
- Clean the battery terminals and check the acid density		X
- Check: the instruments, control lights and acoustic warning devices	X	X
- Check the electrical system	X	X
- Check and adjust if necessary the foot brake and the parking brake	X	X
- Check the hydraulic steering	X	X
- Check the lighting equipment (if fitted)	X	X
- Check the exhaust system		X
- Check the drive shaft pivot pins and bushings		X
- Check the bolts and the bearing of the centre joint		X
- Check the pressure control valves of the hydraulic system		X
- Check the idle speed RPM	X	X
- Check the RPM under max. load/without load		X
- Check the starter and the generator (refer to engine manual)		X
- Check the heater plugs and the injection nozzles (see engine operating manual)		X
- Check and adjust the tappet clearance, if necessary		X
- Tighten the cylinder head studs (only Yanmar 100 series)		X

Maintenance: (Operating hours)	Monthly At least every 200-250 hours	Once per year At least every 1000 hours
- With Deutz engines: Check the toothed belt for the engine control and the secondary drive, if fitted (do not restretch, Replace the toothed belt every 5 years or after 4500 operating hours)		X
- Check the injection nozzles (only Deutz engines, every 3000 operating hours)		X
- Check and adjust the locking of the engine cover, if necessary	X	X
- Check the ROPS bar/cabin		X
- Check the condition of the tyres and the tire pressure	X	X
- Change the engine oil and the oil filter (Yanmar 100 series, every 100 operating hours (1))	X	X
- Replace fuel filter - clean preliminary filter		X
- Clean the fuel pump (only for Deutz engines)		X
- Clean or replace the air filter, if necessary	X	X
- Change hydraulic oil		X
- Replace hydraulic return filter		X
- Pressure filter (1st change after 500 operating hours, following changes as required)		
- Change the oil in the transfer gear-box		X
- Change the oil in the axles		X
- Change the coolant – every 2 years		
- Check, that all lubrication nipples are lubricated	X	X
- Lubricate all cardan shafts (universal joint and sliding joint)	X	X
- Lubricate all levers, Bowden cables, and hinges	X	X
- Check all oil levels	X	
- Inspect according to the rules for the prevention of accidents		X

(1) The interval can be increased to 200 operating hours, if the operating hours exceed 30 hours per week and a high-quality mineral oil (specification CF or CG) is used.

NOTE

OBSERVE THE ENGINE OPERATING MANUAL.

Tappet clearance Yanmar engine, 100 series: inlet and outlet 0.2 mm with cold engine
tappet clearance Yanmar engine, 1000 series: inlet 0.2 mm and outlet 0.45 mm with cold engine.

Please enter the regular inspections below:

At operating hours

1st inspection carried out on: _____

Operating hours: _____

Stamp / Signature: _____

At operating hours

2nd inspection carried out on: _____

Operating hours: _____

Stamp / Signature: _____

At operating hours

3rd inspection carried out on: _____

Operating hours: _____

Stamp / Signature: _____

At operating hours

4th inspection carried out on: _____

Operating hours: _____

Stamp / Signature: _____

At operating hours

5th inspection carried out on: _____

Operating hours: _____

Stamp / Signature: _____

22.2 Maintenance of the Engine

Service and maintain the engine as specified in the operating and the engine manual. Observe especially the service schedule.

22.2.1 Tilting the Driver's Cabin

CAUTION!

THE ENGINE COVER MUST NOT BE OPENED WHEN THE ENGINE IS RUNNING.

1. If necessary, the driver's seat must be slightly pushed forward.
2. Depress the lever (fig. C- 32/A) to unlock the locking of the driver's seat.
3. At the same time take the driver's seat by the lever (fig C- 31/B) and tilt it upwards.
4. When the driver's seat is completely tilted, it is secured by the rope (fig. C- 32/C).

Closing is done in reverse order.

Fig. C-31

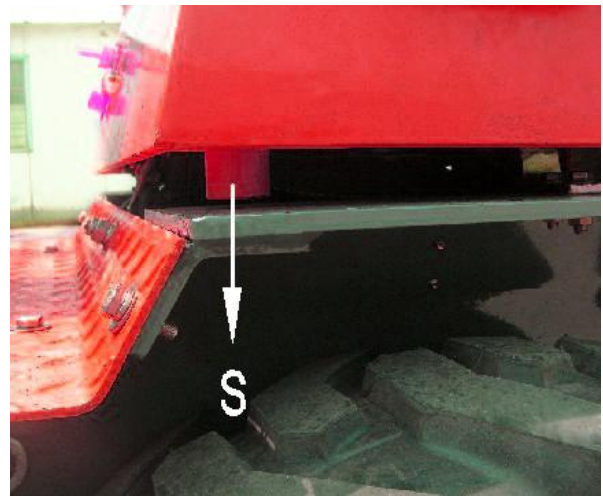


Fig. C-32



ATTENTION!

WHEN YOU TILT THE DRIVER'S SEAT BACK, MAKE SURE THAT THE LOCKING ENGAGES CORRECTLY

22.2.2 Changing the Engine Oil



Caution! Danger of scalding through hot engine oil!

Collect the waste oil and dispose of it in an environmentally friendly way.

1. Run the engine until it reaches operating temperature.
2. Park the vehicle on even ground and secure against rolling away.
3. Stop the engine.
4. Put a collecting container under the opening. The capacity of the container required is determined in the capacity chart in this operating manual.
5. Unscrew the cap and drain the engine oil.
6. After the engine oil has been drained off:
 - Replace the engine oil filter.
 - Mount the cap in the oil sump and tighten the screw with the correct torque of Yanmar = 30 ... 40 Nm.
 - Replenish the engine oil through the filler neck until the oil level has reached the "max" mark.
 - Start the engine and run at idle speed for approx. 2 minutes.
 - Check the oil level and replenish the oil - if necessary - to the "max" mark.
 - Check the engine for leaks.

22.2.3 Replacing the Engine Oil Filter

The engine is equipped with a screw type filter. Remove the cap behind the left rear wheel.

Before unscrewing the filter case (with a tightening strap) position a collecting container to collect the drained off oil. Remove the old filter element and clean the filter case. Fill the new filter element with oil and insert the filter element in the filter case. Before screwing on the filter case, moisten the sealing surface with oil. Screw the filter on by hand (without the tightening strap).

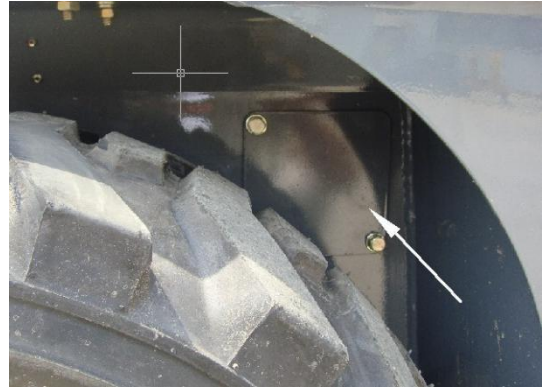


Fig. C - 33

NOTE:

THE FILTER CARTRIDGE IS EQUIPPED WITH A BY-PASS VALVE WHICH OPENS WHEN THE FILTER IS CLOGGED.

22.2.4 Checking the Oil Level of the Engine / Replenishment

1. Park the vehicle on even ground and secure against rolling away.
2. Stop the engine.
3. Draw out the oil-level gauge (Fig. C- 34/1) after one minute.
4. Wipe off the oil level gauge with a clean lint-free cloth and put it in again.
5. Draw out the oil level gauge, the oil level should be within the marks. If the oil level is only slightly above the "min." mark, replenish oil through the filler neck (Fig. C- 34/2).

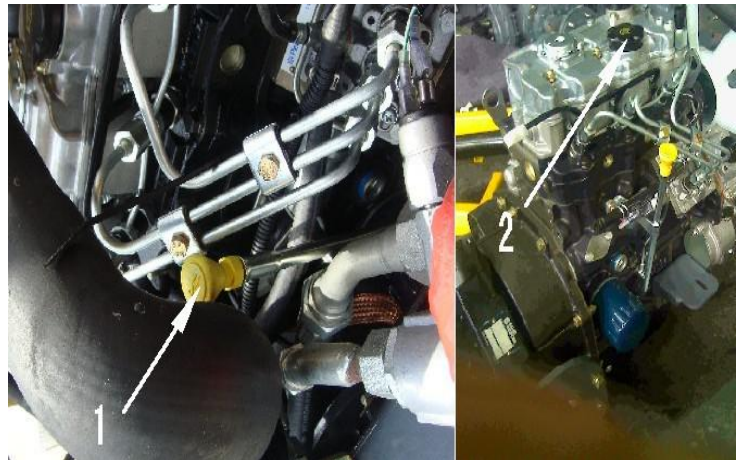


Fig. C-34

CAUTION!

THE OIL LEVEL MAY NOT DROP BELOW THE "MIN" MARK.

22.3 Maintenance of the Fuel System

22.3.1 Fuel system

From the tank the fuel flows through a sieve with water separator [No. 1] and a filter [No. 2] and is pumped by an electric pump [3] through a second filter [4] to the injection pump.

All filters and sieves must be cleaned at regular intervals.



Fig. C-35

22.3.2 Water separator

The water separator is located beside the front left engine bearing.

When the red plastic ring floats in the viewing glass of the water separator, the water that has collected in the viewing glass must be drained off.

1. Close the stop valve at the water separator (lever in horizontal position).
2. Loosen the ferrule nut.
3. Take off and clean the viewing glass.
4. Replace the filter cartridge.
5. Install the viewing glass with ferrule nut.
6. Open the stop valve (lever in vertical position).

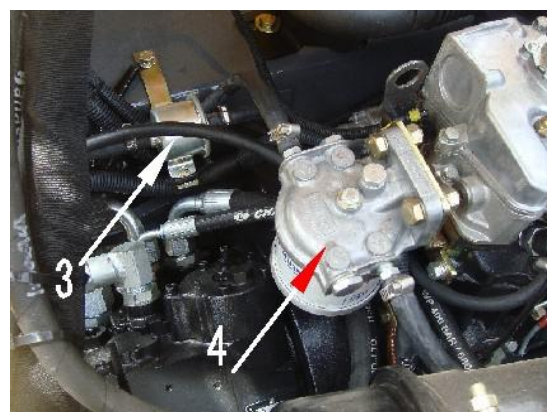


Fig. C-36

22.3.3 Replacing the Fuel Preliminary Filter

The fuel preliminary filter can only be replaced together with the housing.

22.3.4 Replacing the fuel main filter

1. Open the seat base cover.
2. Loosen and unscrew the filter cartridge (Fig. C – 37/1) with standard tools. Collect any leaking fuel.
3. Clean the sealing surface of the filter support (Fig. C – 37/2) from any dirt that might have collected. Lightly oil the rubber seal (Fig. C – 37/3) of the new filter cartridge or moisten with Diesel fuel.
4. Screw on the filter cartridge manually until the seal is correctly seated.
5. Tighten the filter with a further 1/2 turn. Check for tightness.

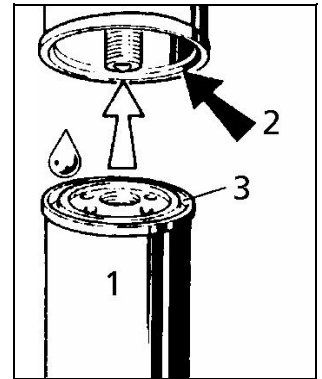


Fig. C-37

22.3.5 Purging the Fuel System

- Replenish the fuel tank completely.
- Move the ignition key to position 1 (operation).
- Wait for a minute. The system is purged automatically.

CAUTION!

COLLECT THE BLED OFF FUEL AND DISPOSE OF IT IN AN ENVIRONMENTALLY FRIENDLY WAY.

22.4 Maintenance of the Air Intake

For having access to the air intake open the engine cover and tilt the seat base cover.

WARNING!

DANGER OF INJURY BY HOT ENGINE PARTS! STOP ENGINE BEFORE STARTING WORK NEAR THE AIR INTAKE. NEVER START THE ENGINE WITH PARTS OF THE AIR INTAKE REMOVED. THE ENGINE CAN BE DAMAGED, WHEN THE ENGINE TAKES IN UNCLEAR AIR.

The wheel loader is equipped with a dry-type filter consisting of a main filter and a safety filter.

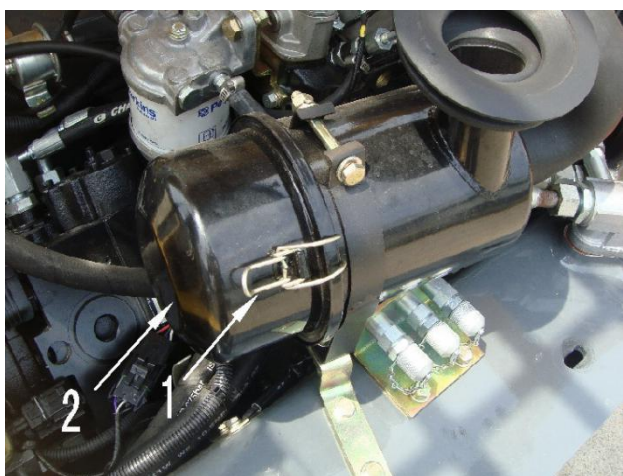


Fig. C-38

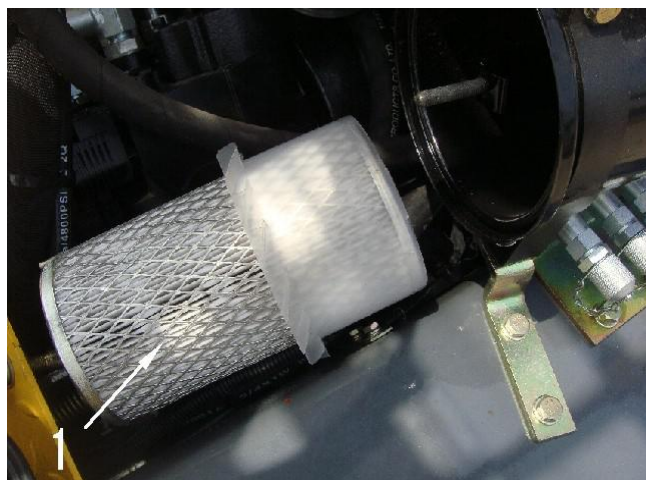


Fig. C-39

22.4.1 Removing Main Filter, Checking and Cleaning

1. Loosen spring-clips (Fig. C– 38/1), and remove the cap (Fig. C– 38/2).
2. Pull out the main filter element (Fig. C– 39/1).
3. Clean or replace the filter cartridge.
4. The new or the cleaned filter element is installed in reverse order. Replace the filter, when the filter paper or the seal is damaged.
5. Check the intake pipe between the filter and the engine for security of attachment and correct sit. The exterior of the intake pipe may not be damaged. The exterior of the hose coupling between the filter and the intake pipe may not be damaged.

22.5 Maintenance of the Cooling System

The oil cooler is mounted behind the diesel engine. It is accessible when you tilt the tailgate. To do so, unscrew the two ring nuts (fig. C- 40).

If the hydraulic system gets too hot during longer road journeys or high ambient temperatures, check that the cooler is clean and the V-belt for the fan is correctly tensioned.

The level of the coolant must be checked at regular intervals. When you look into the radiator opening from above, the radiator ribs must be covered with coolant. When coolant must be topped up, make sure that enough antifreeze has been added. The antifreeze prevents the coolant from freezing at low temperatures and protects the engine block and the radiator from internal corrosion

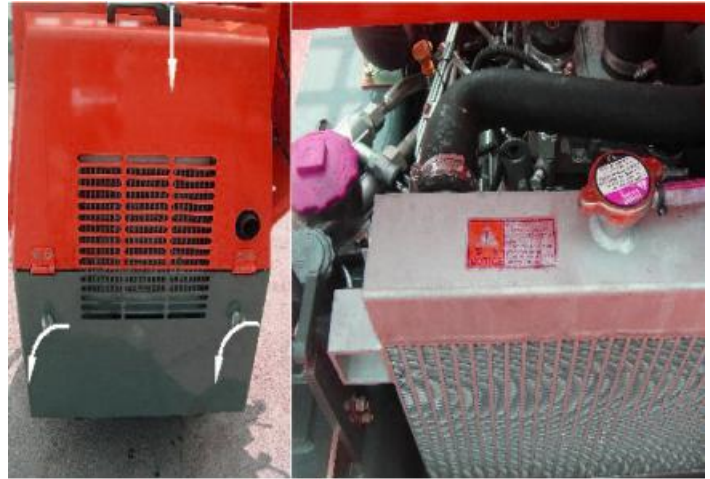


Fig. C-40

22.5.1 Checking the Antifreeze Mixture

The antifreeze prevents freezing of the coolant at temperatures below 0° and protects the engine unit and the radiator from internal corrosion. Under normal conditions antifreeze content between 20 and -30° C is sufficient. The antifreeze content can be determined with a standard measurement tool (see Fig. C- 41).

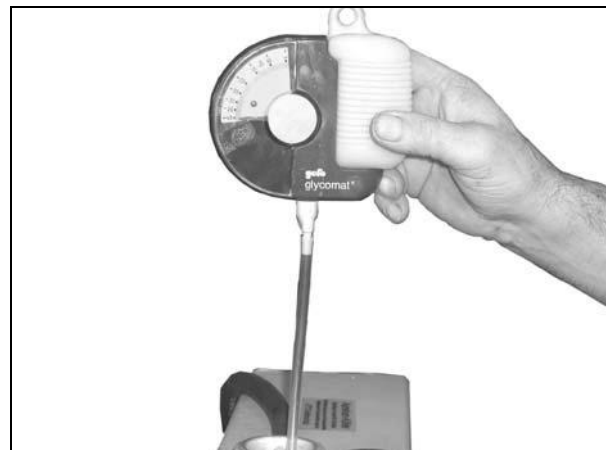


Fig. C- 41

22.5.2 Filling the radiator



CAUTION!

DANGER OF BURNING THROUGH HOT COOLANT – NEVER OPEN THE RADIATOR SYSTEM WHEN THE ENGINE IS HOT OR THE SYSTEM IS UNDER PRESSURE.

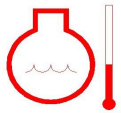
The coolant should consist of equal quantities of water and antifreeze to guarantee an optimum relationship between cooling capacity and protection from corrosion.

When the coolant is filled in (if the total quantity has to be filled in, for example when the coolant is changed), do not top up too quickly (**maximum 5 l/min!**), in order to prevent the inclusion of air bubbles in the system which may result in an overheating of the engine.



Fig. C-42

22.5.3 Cleaning the Cooling System



When the control light „4“ at the instrument panel lights up, switch off the engine immediately. To determine whether engine or hydraulic oil (or both) have got overheated, disconnect the cable at one of the temperature indicators

The higher the dust contents in the air the more often the cooling systems need to be checked.

When you hold a portable light behind one of the coolers you must be able to see light through all of the openings.

Clean the cooler with compressed air. If the cooler is highly contaminated use water under high pressure to remove the dirt collected. Make sure not to bend the cooler ribs. Ribs that have been bent must be straightened.

- Clean the engine cooler
- Clean the hydraulic oil cooler
- Clean the generator with compressed air

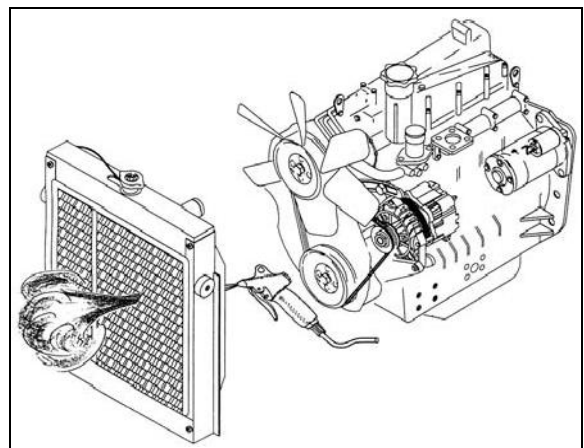


Fig. C-43

22.6 Maintenance of the Hydraulic System

22.6.1 Description of the Hydraulic System (DY25)



MAKE SURE THAT MAINTENANCE WORK IS DONE WITH EXTREME CLEANLINESS. DIRT OR WATER IN THE OIL MAY CAUSE PREMATURE WEAR OR COMPLETE FAILURE OF THE COMPLETE SYSTEM. ONLY USE AN APPROPRIATE HYDRAULIC OIL (SEE SELECTION CHART) OUT OF CLOSED CONTAINERS. BEFORE INSTALLATION, CLEAN THE INSIDE OF THE HYDRAULIC TUBES.

A hydraulic tandem gear pump is flange-mounted on to the diesel engine. The rear pump is controlled by the foot valve and supplies pressure to the drive. The system is protected from overpressure by the pressure control valve. When the foot valve is not operated, the oil returns without pressure to the oil tank.

The front pump supplies the steering and the lifting hydraulic. The oil flow to the hydraulic cylinders of the load arm or to the front hydraulic connection is controlled via the four-way control valve. The oil can also be supplied to the drive circuit by operating an additional lever (hydraulic overdrive). The oil return flow to the tank passes a return filter. The capacity of the hydraulic oil tank is indicated in the capacity chart. The oil temperature may not exceed 80° C. The oil level can be read on the oil level gauge.

22.6.2 Description of the Hydraulic System (DY25)

A hydraulic variable displacement pump is flange-mounted on to the diesel engine. The displacement is automatic and infinitely variable, but speed and load controlled. The speed of the vehicle is determined by the RPM of the engine and the load. Forward drive is effected by depressing the accelerator pedal, the maximum speed is limited by the max. RPM of the engine. Depending on the load of the loader, the variable displacement pump is automatically adjusted to maintain optimum engine torque. The greater the vehicle load (e.g. during loading or driving uphill), the lower the driving speed. This ensures that maximum efficiency is obtained throughout the complete performance range. The displacement can be further influenced by depressing the Inch pedal (the pedal on the left side looking in the drive-direction) to achieve a gradual throttling of the loader, throughout the RPM range, until the vehicle has stopped.

The working hydraulic of the loader is supplied by a hydraulic gear pump. The pump is flange-mounted on to the variable displacement pump and supplies the steering and the control valve of the load arm. The oil temperature may not exceed 80° C. The oil level can be read on the oil level gauge. Change the oil and replace the filter in accordance with the inspection schedule.

22.6.3 Oil Cooler (DY25)

The oil cooler is mounted on the front carriage for the load arm. The electric fan is switched on via a thermal switch which is incorporated in the variable displacement pump, when the oil temperature has reached 45° C the switch turns the fan on.

If the hydraulic system gets too hot during longer road journeys or high ambient temperatures, check that the cooler is clean.

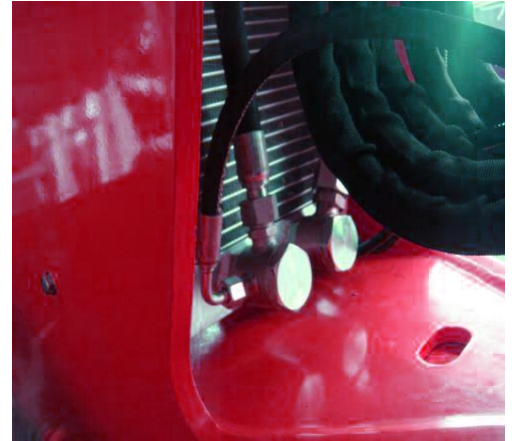


Fig. C-44

22.6.4 Hydraulic Oil Level

CAUTION!

PARK THE WHEEL LOADER ON AN EVEN SURFACE AND LOWER THE TOOL ATTACHMENTS ON TO THE GROUND. APPLY THE PARKING BRAKE. STOP THE ENGINE. OPERATE THE CONTROL LEVERS FOR THE TOOL ATTACHMENTS UNTIL ALL WORKING MOVEMENTS OF THE TOOL ATTACHMENTS ARE STOPPED TO RELEASE PRESSURE FROM THE HYDRAULIC SYSTEM. SECURE THE VEHICLE AS DESCRIBED IN CHAPTER "PARKING THE VEHICLE".

CAUTION!

THE HYDRAULIC TANK CAN BE UNDER SLIGHT PRESSURE.

1. To check the hydraulic oil level, loosen the cap (Fig. C- 45/2) by one turn and close again immediately (pressure escapes).
2. Screw out the oil level gauge (Fig. C- 45/1).
3. The oil level should be in the upper range of the two marks.
4. If the oil level is low, loosen the purge filter (Fig. C- 45/2) and replenish the hydraulic oil through the opening until the oil level has reached the marks. Screw in the purge filter again.

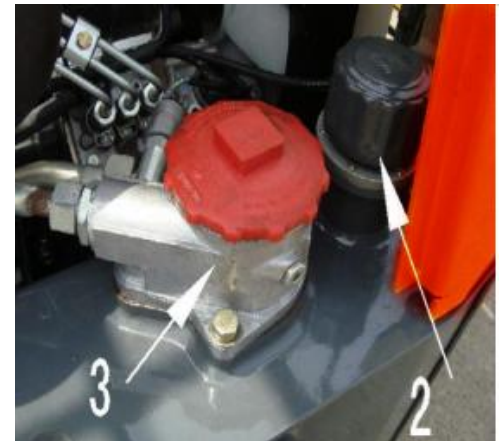


Fig. C-45

23.6.5 Purge Filter (DY25)

A purge filter (Fig. C– 45/2) guarantees purging of the hydraulic tank when the hydraulic oil levels varies. The purge filter contains one filter cartridge to prevent the entrance of dust and dirt and the flowing out of oil. It can not be cleaned. Replace the complete purge filter after 1000 operating hours.

22.6.6 Return Filter

The hydraulic system is equipped with one return filter (Fig. C- 45/3). An incorporated by-pass valve protects the return filter from excess pressure.

When the by-pass valve is open, the filter is not efficient. Therefore, you must replace the filter cartridge as soon as possible.

1. Unscrew the cover (Fig. C- 46/1). Remove the filter cartridge (Fig. C- 46/3).
2. Install the new filter cartridge
3. Check the seal (Fig. C- 46/2). Replace the seal, if damaged.
4. Screw on the cover.

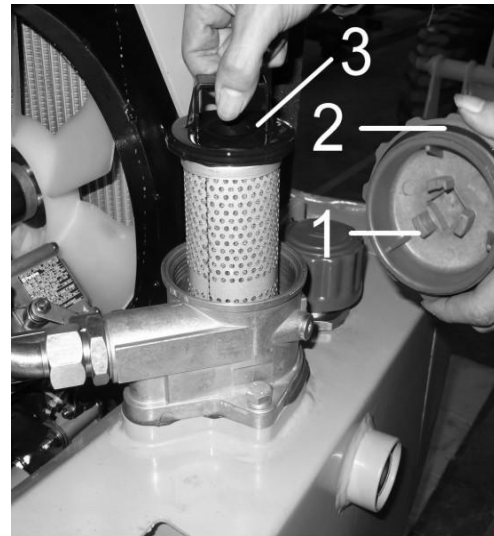


Fig. C-46

22.6.7 Changing the Hydraulic Oil



DANGER OF SCALDING BY HOT HYDRAULIC OIL. COLLECT THE HYDRAULIC OIL FLOWING OUT AND DISPOSE OF IT IN AN ENVIRONMENTALLY FRIENDLY WAY. READ AND OBSERVE "INSPECTION, MAINTENANCE, SAFETY". NEVER START THE ENGINE WHEN THE HYDRAULIC TANK IS EMPTY. SECURE THE VEHICLE FROM UNAUTHORISED USE.

1. Lower the tool attachments on to the ground.
2. Stop the engine and apply the parking brake.
3. Put a container under the hydraulic tank. The capacity required is indicated in the capacity chart.
4. Loosen the purge filter.
5. Unscrew the drain plug at the bottom of the hydraulic tank.
6. Unscrew the cover (Fig. C- 46/1). Clean the bottom of the tank and the inner surfaces with hydraulic oil or scavenge oil. Screw on drain plug.
7. Replenish hydraulic oil through the sieve below the purge filter until the upper mark of the oil level gauge. Screw on the purge filter and purge the complete system.

22.6.8 Purge of the Working and Steering Hydraulic

The hydraulic system must be purged after each hydraulic oil change, longer periods of non use or malfunctions of the hydraulic system.

Working Hydraulic

1. Check the oil level of the hydraulic tank and replenish if required.
2. Start the engine and run at idle speed for several minutes. Retract and extend the piston rods of all hydraulic cylinders several times.

Steering Hydraulic

1. Turn the steering wheel to the full extent in both directions while the engine is running.
2. Repeat the procedure until the steering can be operated perfectly without any noise.
3. After purging check the hydraulic oil level again and replenish oil, if necessary.

22.7 Steering Mechanism

The vehicle is equipped with a centre-pivot steering combined with a self-aligning bearing that ensures that all four wheels make contact with the ground at all times. The centre joint must be lubricated daily with multipurpose grease.

22.8 Maintenance of the axles

CAUTION!

PARK THE VEHICLE ON EVEN GROUND AND LOWER THE TOOL ATTACHMENTS ON TO THE GROUND. STOP THE ENGINE AND APPLY THE PARKING BRAKE. SECURE THE VEHICLE (SEE CHAPTER "PARKING"). DANGER OF SCALDING BY HOT OIL. COLLECT THE OIL FLOWING OUT AND DISPOSE OF IT IN AN ENVIRONMENTALLY FRIENDLY WAY.

Serve the axles according to the service schedule.

22.8.1 Checking the Level of the Gear Oil and Changing the Oil

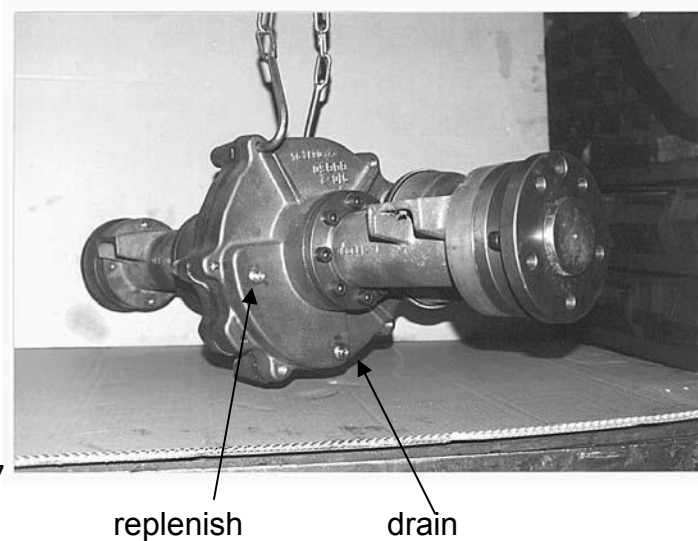


Fig. C- 47

1. Screw out the hexagon socket (at the side of the casing). The oil level should reach the bottom edge of the threaded boring.
2. Screw out the hexagon socket at the right bottom of the differential casing cover.
3. Drain off and collect the oil.
4. Mount the hexagon socket with sealing agent.
5. Replenish oil until the oil level has reached the upper edge of the boring.
6. Mount the filling neck.

22.9 Track Widening

A track widening or equipping with twin tires must be approved by the manufacturer.

22.10 ROPS

The vehicle is equipped with a roll-over protective structure (ROPS). Working with a ROPS that is not fitted or faulty may cause fatal accidents or serious injuries. A changed or improperly repaired ROPS is dangerous. When the ROPS has been damaged by an accident, the vehicle may only be used after repair and check of the ROPS by a qualified person.

Contact your TAIAN dealer or one of our representatives. Ignorance of these instructions may cause fatal accidents or serious injuries.

1. Check the ROPS for damages.
2. Make sure that all screws are tight.
3. Check the torque of the screws. If necessary, torque screws.

 **IF THE ROPS IS TO BE REMOVED, SPECIAL INSTRUCTIONS HAVE TO BE OBSERVED.**

22.11 Cleaning the Vehicle

As long as the vehicle is new (first three months) it should only be cleaned with a sponge. As the coating has not hardened completely, cleaning with a water jet may cause damage to the finish

When you clean the vehicle pay particular attention to the underside. No mud may collect at the engine and the gear-box. Make sure that the radiator grid is not clogged. The vehicle is splash-proof. Do not clean the dashboard, the generator, the compact connector or the radiator with a sharp water jet (high-pressure cleaner). Cover the multifunction-lever before cleaning.

 **CAUTION!**

BEFORE CLEANING THE ENGINE, THE AIR FILTER SOCKET MUST BE COVERED.

22.12 Safety Belt

The safety belt must be replaced when it is damaged, worn or after an accident. Beyond that the safety belt should be renewed every three years.

Check the safety belt for fraying and elongation. Make sure that the seams are not damaged and check the function of the lock.

Make sure that the screws are fitted correctly and are tight.

22.13 tire s and Wheels



INFLATED TYRE CAN GET VERY HOT, EXPLODE AND CAUSE FATAL ACCIDENTS. DO NOT CUT OR WELD THE WHEEL RIMS. REPAIRS SHOULD BE DONE BY A tire OR WHEEL SPECIALIST.

22.13.1 Inflating the tire s

The following instructions refer to the inflation of the tire s after a drop in pressure. After a complete drop in tire pressure, this task should be undertaken by a trained tire mechanic with appropriate equipment.

1. Preparing the Wheel:
Check that the tire is correctly seated.
2. Preparing the Equipment:
Use only a pressure supply with a pressure regulator. Adjust the regulator to max. 1.38 bar above the recommended tire pressure. Use an air hose with self-locking pneumatic chuck and remote stop valve.
3. Inflation:
Make sure that the air hose is fitted correctly to the tire valve. Keep persons away. When inflating, stand to the rear of the tire and inflate until the recommended pressure has been reached (see air pressure table).

22.13.2 Checking the Seat of the Wheels

When the vehicle is new, or, after having replaced one wheel, check the torque of wheel nuts every two hours until the value does not change. Make sure every day before vehicle use that the wheel nuts are tight.

The correct torques are indicated in the chart below:

	Front Wheels	Rear Wheels
Wheel nuts M 18 x 1.5	28-30 kgf.m	28-30 kgf.m



WHEN REPLACING A WHEEL BOLT, ALL BOLTS OF THE CORRESPONDING WHEEL MUST BE RENEWED, AS THE OTHER BOLTS MAY ALSO BE DAMAGED.

22.14 Maintenance of the brake system

Damaged brakes can cause fatal accidents. Therefore, have your brake system checked regularly by your dealer. During service, check the function of the brake system and adjust the brakes if necessary. Only continue to work with the vehicle after the fault has been corrected.

22.14.1 Brakes (DY25)

The vehicle is equipped with a foot brake and a parking brake. The brake system consists of a drum brake located on the differential at the input to the rear axle. It is operated via Bowden cables of the parking brake lever or the foot brake pedal. Although the brake drum is fitted to the rearward axle, it has a mechanical effect on all four wheels via the drive.

22.14.2 Brakes (DY25)

The hydrostatic drive is used as service brake. The vehicle service brake is operated via the Inch brake pedal which acts on all four wheels by removing pressure from the hydraulic drive. The loader is also equipped with a foot brake and a parking brake. The brake system consists of a drum brake on the differential at the input to the rear axle. It is operated via Bowden cables of the parking brake lever or the foot brake pedal. Although the brake drum is only fitted to one axle, it has a mechanical effect on all four wheels via the drive.

22.14.3 Adjusting the brakes

When adjusting the brakes check that the brake drum can rotate freely. The brake pedal, however, must not be depressed until stop. When the brake is released you must be able to press the brake lever at the brake drum upwards by about 5 mm. The brakes are adjusted with the nuts (Fig. C- 48/1).

The parking brake cable can also be regulated at the setting screw of the parking brake lever. Release the brake to stretch the cable and turn the setting screw carefully to the left. Take care not to exceed a torque of 7 Nm.

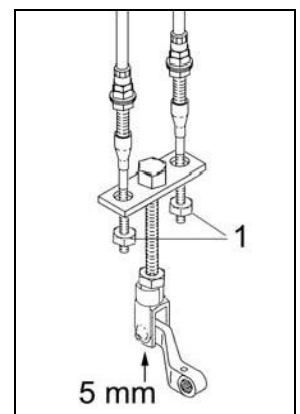


Fig. C-48

22.15 Electrical System

The electrical system has a nominal voltage of 12 Volts and is supplied by an alternator.

The battery capacity is 60 Ah. The battery is located in the tail of the vehicle and becomes accessible when the tailgate is tilted. To do so, unscrew the two ring nuts (fig. C -49).

The electrical consumers and their supply lines are protected by fuses which are mounted in the fuse boxes on the right-hand side of the steering column.



Fig. C-49

22.15.1 The assignment of the fuses

Vehicles with lighting equipment

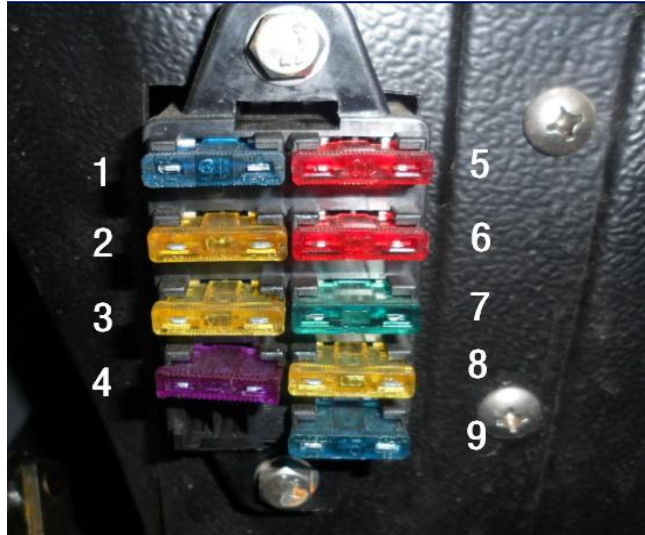


Fig. C-51

Box 1		
Item	Protected function	Capacity (A)
1	Oil pump	15
2	illuminate	30
3	magnetism	10
4	meter	10
5	backup light	10
6	blinker	10
7	reserve	15
7	reserve	15
7	reserve	15

22.15.2 Maintenance of the Electrical System

The vehicle is splash-proof. Do not clean the dashboard, the generator, or the compact connector with a sharp water jet (high-pressure cleaner).

The electrical system must be serviced as necessary. Make sure to avoid short circuits when you are working on the electrical system. First disconnect the battery starting with the negative pole or operate the battery disconnecting switch. To avoid an internal short circuit do not place any tools on the battery. Keep the pole ends and the terminals clean and lubricate with slushing grease. Do not touch bulbs and headlight reflectors with your fingers. Have faults at the starter and the generator repaired by your dealer. Small devices, such as relays, regulators, the ignition switch, direction indicators etc. should be replaced when they are defective. Make sure that the connecting lines and the fuses are correctly connected. The reason for blown fuses is normally a short circuit. Check the cables and make sure that the contact points of the fuses are insulated.

CAUTION!

To avoid damage to the electrical system observe the following instructions:

1. When welding, connect the ground terminal of the welding device directly with the part to be welded. The generator must be disconnected. Remove the battery before starting welding.
2. Electrical lines must not be disconnected when the engine is running.
3. Do not bridge fuses and the preheating controller. Replace defective parts by original parts of the same size.

22.15.3 Battery

Batteries give off gases that can explode. Do not smoke and keep the battery away from sparks and flames.

Battery electrolyte contains sulfuric acid which can irritate skin and eyes. Wear protective glasses. Be careful not to spill the acid. Keep metal parts away from the terminals to avoid short circuits and burning.

Before disconnecting the battery and reconnecting it, set all switches in the driver's cabin and the battery disconnecting switch to "Off". The earth cable (-) must be disconnected first.

When connecting the battery, first connect the positive (+) cable.

Charge the battery at some distance from the machine in a well ventilated area. Switch off the charge circuit before disconnecting or connecting the battery. After installation wait for five minutes before connecting the battery.

The exterior of the casing is marked with "Min/Max" marks. The electrolyte level should be within these marks and be visible through the battery casing. If this is not true, remove the battery plug and check the electrolyte level from above (10 mm above the battery plates). Replenish distilled water, if necessary.

23 TROUBLE SHOOTING AND CORRECTION

Failure / Trouble	Possible Cause	Correction
Engine does not start off	Fuel tank empty.	Refill fuel tank and purge the fuel system, if necessary.
	Fuel filter clogged, paraffin sedimentation in winter.	Replace the fuel filter, use fuel for cold temperatures.
	Fuel solenoid not released.	Check the fuses.
	Leaky fuel pipe.	Tighten all screws and clamps.
	Starting RPM too low.	Check and charge battery, check fit of battery terminals.
Vehicle does not drive while engine running.	Parking brake applied.	Release parking brake.
	Parking brake switch damaged.	Replace parking brake switch.
	Inch cartridge not in 0 position.	Check the Bowden cable and return spring, replace if necessary.
	Drive pump solenoid supply failure.	Check fuses. Have the multifunction-lever and the electronic system checked by the workshop.
Engine gets too hot.	Radiator/oil cooler is dirty.	Clean.
	Coolant level too low.	Replenish coolant.
	Thermostat jammed.	Have thermostat replaced by the workshop.
	V-belt loose	Tension V-belt.
	Oil level too high or too low.	Correct oil level.

Failure / Trouble	Possible Cause	Correction
Hydraulic system gets too hot.	Hydraulic oil cooler dirty.	Clean.
	Hydraulic oil level too low.	Replenish hydraulic oil.
	Load too high.	Reduce load of the vehicle, stop working.
Degraded vehicle performance.	Air filter dirty	Replace.
	Fuel filter dirty	
	Incorrect fuel type.	Change fuel type.
	Inch pedal jammed.	Check and repair.
	Engine RPM too low.	Adjust RPM.

Observe the engine operating manual!

TROUBLE SHOOTING - PUMP / ENGINE

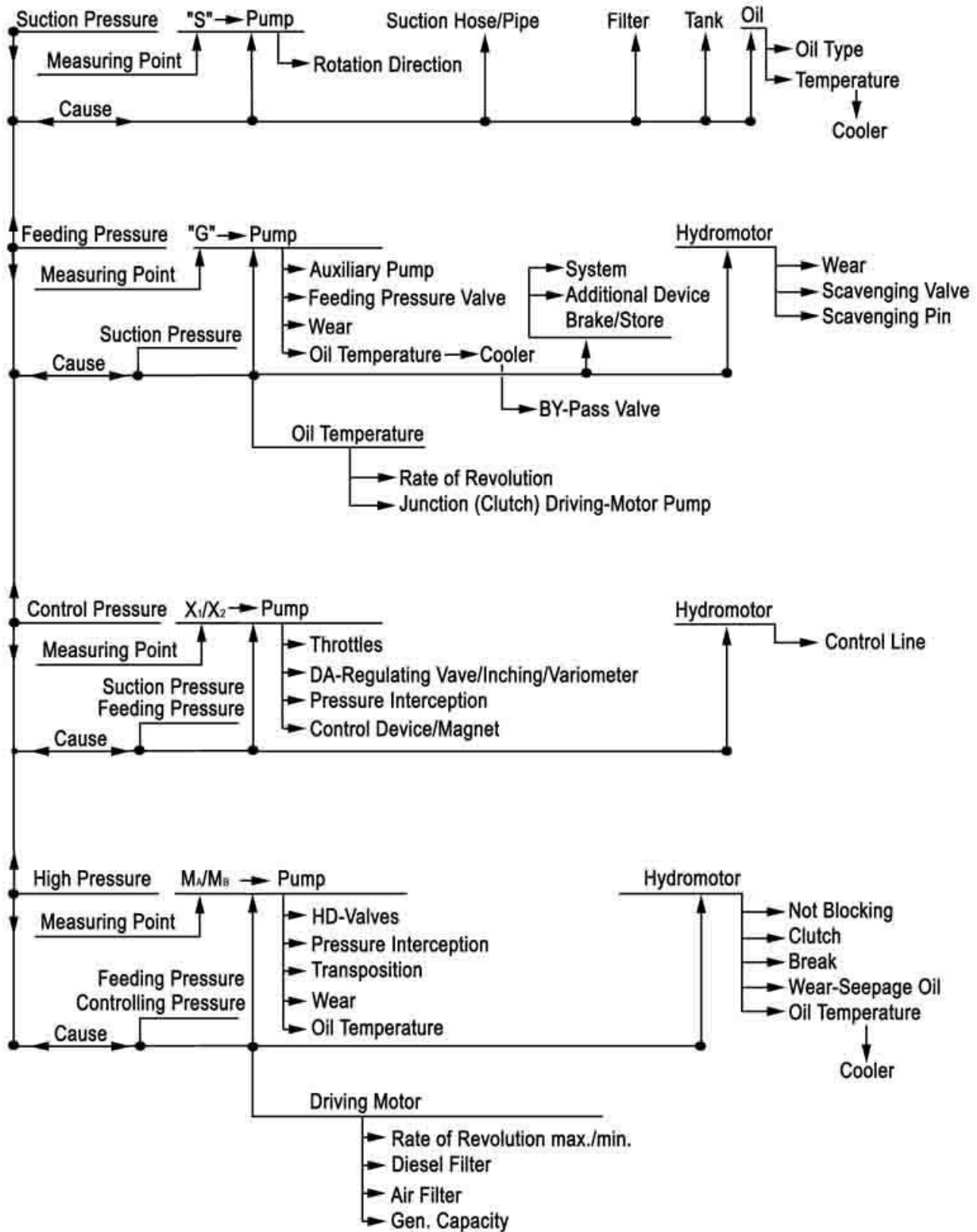


Fig. C-52

TROUBLE SHOOTING - VEHICLE

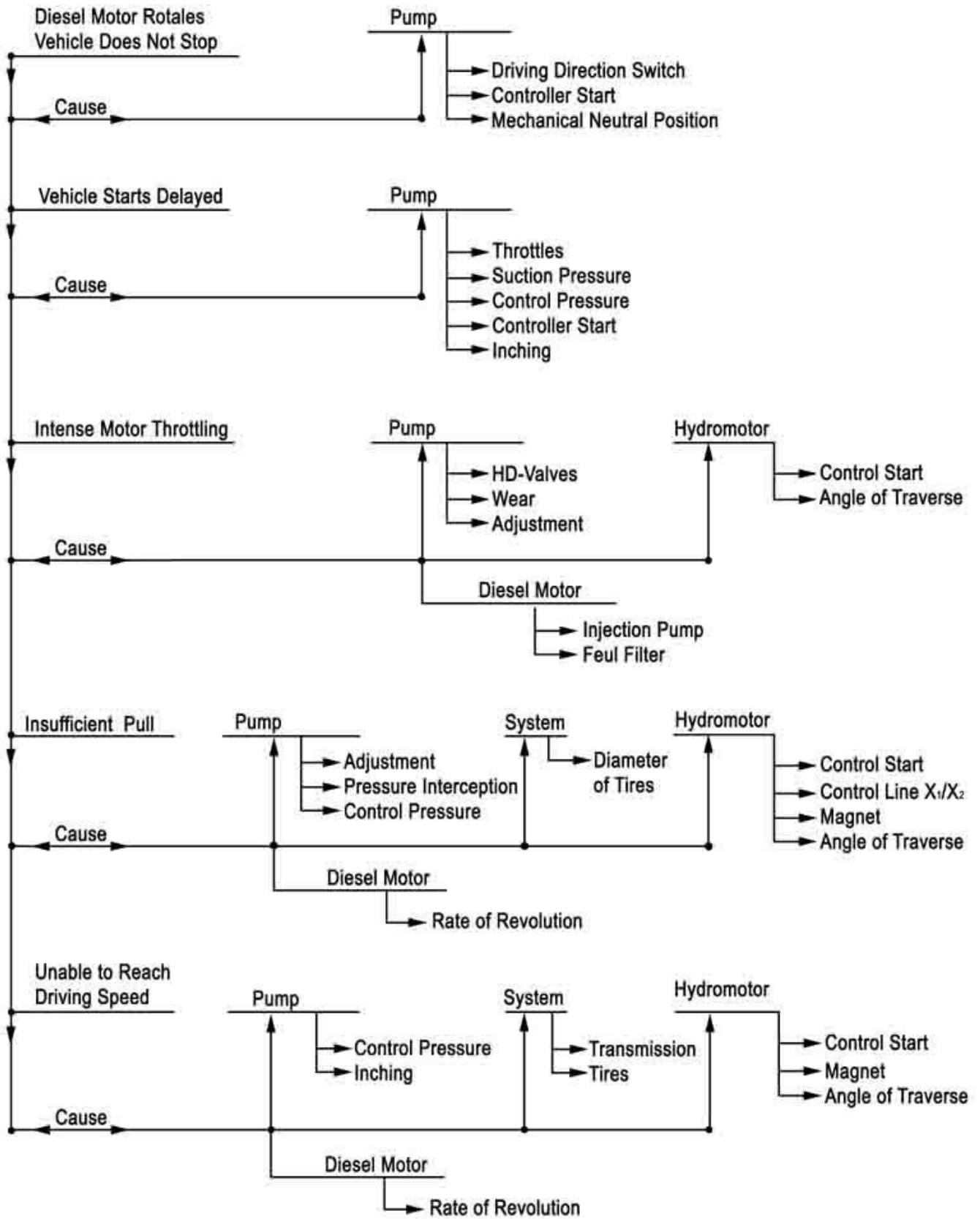


Fig. C-53

24 CAPACITIES AND FUEL AND OIL TYPES

24.1 Capacities

24.1.1 DY25

Item	Capacity (litre)	Liquid / Lubrication Nipple	Specification
Fuel tank	23	Diesel	Standard DIN 51601, see engine operating manual
Engine oil with filter	4	Engine oil SAE 15 W 40 Ambient temp.. -20° - more than 30°	API CD, see engine operating manual
Capacity of complete axle	1.5	Gear oil SAE 85 W 90 GL 5	Hypoid
Complete hydraulic system	32	Hydraulic oil HLP	ISO VG 46 (see selection chart)
Hydraulic tank	23	Hydraulic oil HLP	ISO VG 46 (see selection chart)
Grease points		Multipurpose grease	water resistant
Contents of cooling system	4,3		



ATTENTION!!!

FOR ALLTAIAN HOFTRAC AND WEIKOTRAC VEHICLES

WITH ZF TYPE MULTI-DISK LIMITED-SLIP DIFFERENTIALS

WE RECOMMEND THE FOLLOWING OIL TYPES:

GEAR OIL AFI - GL 5

FUCHS RENOGIER LS

80 W 90 / 85 W 90

24.2 Hydraulic Fluids (Mineral Oil Based)

ISO Viscosity Class	VG 32	VG32	VG 46 *2	VG46	VG 68	VG68
	HV	HLP	HV	HLP	HV	HLP
	VG32=winter conditions		VG46=summer conditions		VG68=tropical conditions	

Manufacturer						
			1stfillingby TAIAN			
AGIP	_	OSO32	Arnica645	OSO46	_	OSO68
Aral„Vitam“	HF32	GF32 DE32	HF46	GF46 DE46	_	GF68
AVIVA„Avilub“	HVI32	RSL32	HVI46	RSL46	HVI68	RSL68
BP„Energol“	SHF32	HLP32 HLP-D32	SHF46	HLP46 HLP-D46	_	HLP68 HLP-D68
Castrol„Hyspin“	AWH32	AWS32	AWH46	AWS46	AWH68	AWS68
Chevron „EPOil“	32HV	OIL32	_	Oil46	68HV	Oil68
DEFROL	HVP32	HLP32	HVP46	HLP46	HVP68	HLP68
ESSO	UNIVISJ32	NUTOH32	UNIVISN56	NutoH46	UNIVISN68	NUTOH68
FINA„Hydran“	HV32	32	HV46	46	HV68	68
FUCHS„Renolin“	MR520	MR10 B10	MR1030	MR15 B15	_	MR20 B20
Optimol„Hydo“	MV5035	5035	MV5045	5045	MV5065	5065
MOBIL	DTE13	DTE24HLPD32	DTE15	DTE25HLPD46	DTE16	DTE26HLPD68
ÖMV	HLP-M32	HLP32	HLP-M46	HLP46	_	HLP68
SHELL	Tell.T32	Tellus32	Tell.T46	Tellus46	Tell.T68	Tellus68
Texaco„Rando“	HDAZ-32	HDA-32	_	HDB-46	HDCZ-68	HDC-68
VALVOLINE	_	ETC25	_	ETC30	_	ETC35
VEEDOL	_	_	_	Andarin46	_	Andarin55
HD-EngineOil		SAE10W	SAE10W30		SAE10W30	SAE20W20

*1) for API-CC/SE or CD or MIL-L-46152 or MIL-L-2104C

*2) all ATF-specifications with FZG test load stage ≥ 10 ; as well as HD engine oil SAE 10 W 30

24.3 Environmentally Friendly Hydraulic Fluids

Selection Chart - only after prior agreement of the manufacturer
HETG, HEPG, HEE for axial piston vehicles.

Type	Synthetic Hydraulic Fluid	On Basis of Estern, HEE	
Iso-Viscosity Class	VG 32	VG 46	VG 68
Manufacturer			
ARAL		EHF 46 Vitam	
ASEOL		Terra 46	Terra 68
AGIP		Agip Arnica S 46	Agip Arnica S 68
AVIA		Avia Syntofluid 46	Avia Syntofluid 68
BECHEM	Hydrostar TMP 32	Hydrostar TMP 46	Hydrostar TMP 68
BLASER		Blasol LP 8905	
BP		Biohyd 46 SE	Biohyd 68 SE
BUCHER & CIE MOTOREX	Oekosynt 2246		
DEA		Econa E 46	
ELF		Hydrelf Bio46	
ESSO		EGL 45947	
FINA	Biohydran TMP 32	Biohydran TMP 46	Biohydran TMP 68
FUCHS	Plantohyd S 32	Plantohyd S 46	Plantohyd S 68
GLOBOIL	BHF 32	BHF 46	BHF 68
KENDALL Demmler & Co., Switzerland		Synth. Natura 46 HV	
Kuwait Petrol Q 8	Holbein 32	Holbein 46	
Molyduval	Chemlube 5126		

Type	Synthetic Hydraulic Fluid	On Basis of Estern, HEE	
Iso-Viscosity Class	VG 32	VG 46	VG 68
Manufacturer			
ÖMV	Biohyd MT 32 MS 32	Biohyd MT 46 MS 46	Biohyd MS 68
OEST		Bio Synth. HYD 46	
PANOLIN, Switzerland	HLP Synth 32	HLP Synth 46	HLP Synth 68
QUAKER Chemical		Quintolubric Greensalve 46	
RAISION TEHTAAT, Finland TEBIOL, Germany New Process, CH		Ester hyd HE 46	
SHELL		Naturelle HF-E 46	Naturelle HF-E 68
Strub & Co	Hydrosint HLP ISO 32	Hydrosint HLP ISO 46	Hydrosint HLP ISO 68
TOTAL		Equivis Bio 46	Equivis Bio 68
Wenzel & TAIAN		Ukabiol HE 46	
Westfalen AG		Bio-Forbex E 46	
YORK Ginouves		LT 777 Bio	

The above chart does not claim to be complete and contains no recommendations. Subject to alterations!



CAUTION!

WHEN CHANGING TO ENVIRONMENTALLY FRIENDLY HYDRAULIC FLUIDS, THE HYDRAULIC SYSTEM MUST BE FLUSHED SEVERAL TIMES. DO NOT MIX WITH MINERAL OIL!

25 LUBRICATION SCHEDULE

Lubricate all lubrication points daily with water-resistant multipurpose grease.

Lubricate all movable parts, such as parking brake lever, foot pedals, Bowden cables etc. with an oilcan!

NOTE:

MAKE SURE THAT ALL STEERING CYLINDER LUBRICATION NIPPLES ARE LUBRICATED!!!

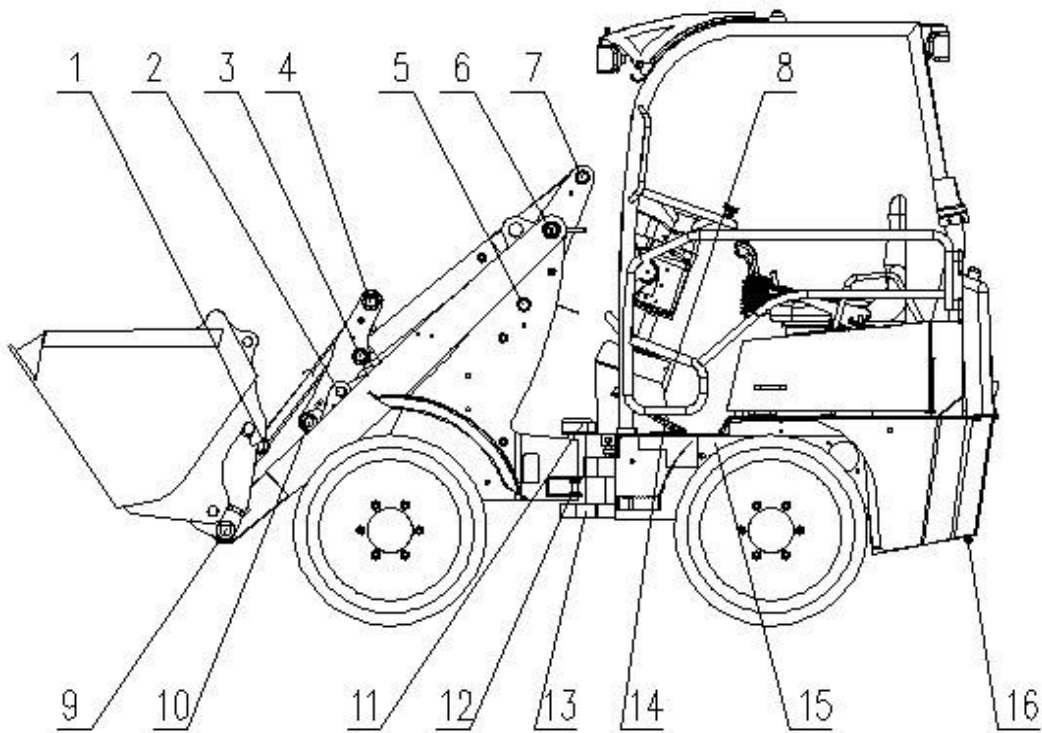


Fig. C- 54

Item	Lubricating Points	No. of Nipples
1	Front tow-bar	1
2	Front lifting cylinder	2
3	Front tipping cylinder	1
4	Rear tow-bar	1
5	Rear lifting cylinder	2
6	Bearing of load arm	2
7	Rear tipping cylinder	1
8	Accelerator pedal bearing	1
	The DY25 also with brake pedal bearing	1
9	Seat for tool attachments	2
10	Reversing lever bearing	1
11	Top centre joint bearing	2
12	Front steering cylinder	1
13	Bottom centre joint bearing	1
14	Throttle pedal bearing	1
	Brake- inch pedal bearing	2
15	Rear steering cylinder	1
16	Hinge of tailgate	2

26 tire PRESSURE

Designation	PR	ET	Max. Admissible Air Pressure
10.0/75 - 15.3 AS-Farmer	8	+10	3,00
10.0/75 - 15.3 AS-Farmer	8	- 5	3,00
10.0/75 - 15.3 E3-Grader	8	+40	3,00
10 x 16.5	6	0	3,50
10 x 16.5	6	+30	3,50
10,5 / 80 - 18 Goodyear AS	10	0	3,75
11.5 / 80 x 15.3 AS-Farmer	8	+40	3,75
12 x 16.5	8	+40	aprox. 3,50
12,5 x 18	10	0	aprox. 4,00
15.0 / 55 - 17 AS-Farmer	10	0	3,75
15.5 / 55 R 18 SPG 7	14	0	4,00
15.5 / 70 x 18	18	0	aprox. 3,75
27 x 10.5 - 15 Dico	4	0	3,50
28 x 8.50 - 15 Dico	4	-10	2,50
27 x 8.50 - 15 Dico	4	+30	2,50
27 x 8.50 - 15 Dico	4	-40	2,50
29 x 12.50 - 15 T 411	4	-21	2,50
29 x 12.50 - 14 T 411	4	-5	2,50
4.50 - 14 AS Farmer	4	+26	3,50
7.00 - 12 AS Farmer	6	+45	2,70
7.00 - 12 AS-Farmer	4	+45	2,50
7.00 - 12 AS-Farmer	6	-40	2,70
7.00 - 12 AS-Farmer	4	-40	2,50
7.00 - 12 AS-Farmer	4	-21	2,50

27 ORDERING OF SPARE PARTS

When you order spare parts, please give the following information to guarantee a smooth handling of your order and delivery.

- TAIAN vehicle type
- Vehicle and chassis identification number (see identification plate) and the corresponding engine number
- Article number and nomenclature of the spare part
- Your address and telephone number (for eventual queries)
- Customer-number (if any)
- Name of the person placing order
- Mode of dispatch (please see below)

Please note that the illustrations in our spare parts lists may not always be a true representation of the corresponding original part. We reserve the right of modification for technical improvements.

Parts for which the article number is not known, should be sent to TAIAN as an example to avoid incorrect deliveries. Parts which are not requested to be returned will be scrapped.

Please inform us of your address if you are a new customer, so that the correct processing of subsequent deliveries can be guaranteed. For initial orders, the goods are sent cash on delivery.

Parts must be returned prepaid, when, for particular reasons a free compensation is requested. Please do not forget to indicate the mode of dispatch desired when ordering:

- Overnight
- Parcel service
- Haulage

Use only original TAIAN spare parts which have been produced in our works and guarantee an optimal installation and an excellent quality.