AHLMANN

Ahlmann Baumaschinen GmbH
Am Friedrichsbrunnen 2
D-24782 Büdelsdorf

Telefon +49 4331/351-325
Telefax +49 4331/351404
Internet: www.ahlmann-baumaschinen.de
E-Mail: info@ahlmann-baumaschinen.de

GB

Use and maintenance manual

ARTICULATED LOADER

Trade name AL 150

CE

THIS SYMBOL MEANS “SAFETY WARNING!” AND HIGHLIGHTS IMPORTANT SAFETY INFORMATION.
WHEN YOU SEE THIS SYMBOL CAREFULLY READ THE MESSAGE THAT FOLLOWS. EXERCISE EXTREME CAUTION SINCE THERE IS DANGER OF SERIOUS PHYSICAL INJURY.

W A R N I N G

IMPROPER MACHINE USE OR INOBSERVANCE OF SAFETY STANDARDS, COULD LEAD TO SERIOUS, EVEN FATAL, INJURY.

BEFORE USING THE MACHINE:

1) READ THIS MANUAL CAREFULLY

2) MAKE SURE THAT THE MACHINE HAS BEEN EQUIPPED WITH THE RIGHT TOOLS FOR THE JOB.

3) MAKE SURE YOU KNOW THE STANDARDS REGARDING THIS SECTOR OF WORK AND THE ON-SITE REGULATIONS.

4) OBSERVE THE HIGHWAY CODE DURING ON-ROAD TRANSFERS.

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Stempel des Händlers

Ahlmann Baumaschinen GmbH
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Telefax +49 4331/351404
E-Mail: info@ahlmann-baumaschinen.de
Internet: www.ahlmann-baumaschinen.de

TO THE OWNER

The machine you have just purchased has been designed and built with one goal in mind: quality. This machine complies with the safety standards in force (See the "Certification" chapter). This does not mean, however, that there is no risk of danger. It is, therefore, vital that you observe the safety regulations and take a few elementary precautions.
First of all, we strongly advise that you read this manual and observe safety standards as well as use and maintenance instructions in order to avoid work-related danger.
This manual is intended as a guide for machine use: Proper machine maintenance will ensure long-lasting product satisfaction.
The standard machine equipment permits a full earth-moving work range.
The machine must only be used for the work purposes described in this manual.
It is absolutely forbidden to transport or lift on the vehicle passengers (either sitting or standing) Should you need to use it for work that requires special equipment we advise you to get in touch with your **Ahlmann** Distributor to ensure that modifications comply with machine technical specifications and safety standards.
Machine modifications unauthorised by the manufacturer could compromise compliance with such safety standards.
The machine should be checked periodically according to use: contact your **Ahlmann** Distributor.
Before handing the machine over to a driver make sure:
1) that he/she has received proper safety and use training at one of our training centres or from a specialised authority.
2) that he/she has read and understood the instructions in this manual.
Always keep a copy of this manual in the vehicle cab: keep it complete and in good condition. To obtain extra manual copies or copies in other languages contact your **Ahlmann** Distributor.
Should you require further information your **Ahlmann** Distributor is at your complete disposal; Do not hesitate to get in touch should you require technical assistance or original spare parts (the only ones that guarantee compatibility and quality).

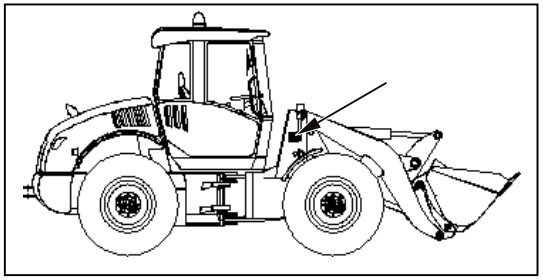
CERTIFICATION

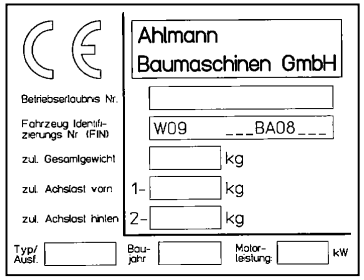
- **CE Certificate** for new mass-produced building site machinery in compliance with modified Directive 89/392/EEC - 91/368/EEC
- **Test report on noise levels**
  in compliance with Directive 86/662/EEC (dynamic test)
  Acoustic power 103 LwA - Acoustic pressure in driving seat 74 LpA
- **ROPS certification** in compliance with Directive 86/295/EEC
- **FOPS certification** in compliance with Directive 86/296/EEC
- **Vibration levels** below 2.5 m/s^2

MACHINE IDENTIFICATION

Identification Plate

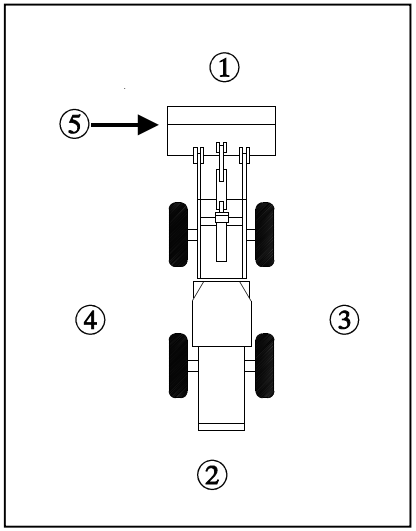
When ordering spare parts and requesting information or assistance, always give your **Ahlmann** Distributor the machine type and serial number shown on the identification plate.





Terminology used to indicate machine sides

The words "right", "left", "front" and "rear" used in this manual indicate the machine sides as seen from the driver seat.



1 Front
2 Rear
3 Right
4 Left
5 Loader equipment

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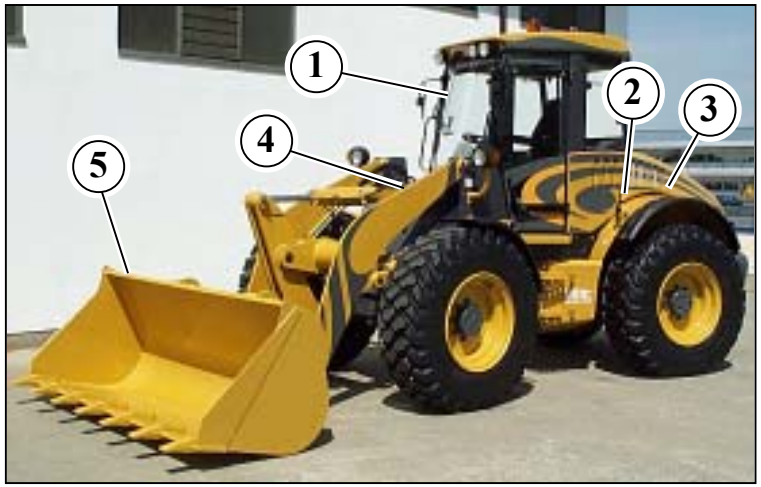
PRESENTATION

The **AL 150** model is a hydraulic machine. It is made up of loader parts, an engine, hydraulic systems and a driver cab. When the driver operates the controls the engine-driven pump sends hydraulic fluid towards the distributor which, in turn, directs it towards the various components. A cooler, installed next to the engine water radiator, keeps the hydraulic fluid at standard operating temperature.



Designazione dei principali componenti

1 Cab/driver's seat
2 Thermal engine
3 Radiator
4 Fuel tank
5 Loader equipment

SUMMARY

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SAFETY STANDARDS

Your safety and the safety of those working nearby depends on you! It is absolutely vital that you have a full understanding of the manual instructions concerning proper machine operation, inspection and maintenance work.

Read this manual carefully and in particular make sure:
- that you understand the control symbols and the safety recommendations both in this manual and on the machine.
- that you are perfectly aware of machine performance data such as speed, stability, braking and steering radius. Should you have any doubts whatsoever please get in touch with your **Ahlmann** Distributor.

The safety information contained in this manual refers to situations which may occur during normal machine use and maintenance work, and gives various ways of dealing with such situations. The manual also contains safety information concerning other dangers.

Whatever the work being carried out, the applicable private and public work site safety regulations are those which comply with standards in force in the country or professional sector in which the machine is being used (e.g. mines, quarries, underground works).

The safety regulations described in this manual summarise basic safety rules which should be observed at all times and do not exonerate the user from observance of the highway code or conditions of insurance.

Foot board and handholds

⚠ To get in and out of the drive cab, use the footboard and the handholds.

⚠ Never use the steering wheel, the loading gear control levers or the door handles to get in and out of the cab.

⚠ Clean footboard and handholds and wipe away all traces of grease, oil, mud and ice (in winter).

⚠ Never jump down from the machine. Always face the vehicle when getting down from the driver's cab and use the footboard and the handholds.

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Before using the machine

Do not drive the vehicle until the instructions and warnings contained in this manual have been read and fully understood.

Vehicle control requires great care: prudence will help you avoid accidents. Make sure you are aware of machine performance, limitations and necessary steering space.
The steering zone has blind spots: it is therefore advisable to have someone guide work when visibility cannot be ensured.

Lubricant, oil, mud or ice (in winter) on the footboard and handholds may cause accidents. Keep them clean at all times.

Check the machine every day in order to make sure there are no oil or hydraulic fluid leaks. Tighten and replace wherever necessary.

Maximise visibility by cleaning the windshield, windows and rear-view mirrors.
In case of poor visibility do not use the vehicle.

Make sure you understand on-site hand signals. This will ensure that you are properly guided during precision machine manoeuvres or when direct visibility is impaired.

Before transferring to another site or starting night work make sure that all lights/indicators are working properly.

Before moving the vehicle always make sure that the doors, the engine hood and the front inspection hatch are properly closed.

Never leave anything (tools etc.) lying on the machine or in the driver's seat.

Only the driver should be in the vehicle. Make sure that there is nobody near or on the vehicle.

When getting in and out of the cab always use the footboard and the handholds.

Make sure that you are fully aware of the position and function of all the controls. Incorrect use of the controls could cause serious physical injury.

Check that all controls and safety devices are working properly and that you are in a safe, obstacle-free area before starting work.

Keep well away from danger zones such as ditches, overhangs, subsidence-prone areas etc. Inspect the work zone before using the machine and carefully evaluate the risks.

Check out and weigh up all possible risks before driving the vehicle in a new work zone. Holes, obstacles, rubble and other risk factors may cause serious physical injury.

Be ready in case of an emergency! Always keep a first-aid kit nearby and a fire extinguisher on board the vehicle, within the driver's reach. Have the extinguisher regularly serviced in compliance with the manufacturer's instructions.

Make sure you clearly understand the safety sticker symbols on the machine. Make sure they are clean and legible at all times.

Always fasten your seat belt before starting. The vehicle is equipped with a roll-over protection system (ROPS) which ensures safety. The seat belt must not be too slack: it will protect the driver efficiently if fastened correctly and worn at all times. The belt must not even be twisted or jammed in the seat.

In order to avoid accidents, dress properly. Do not wear too large clothes which may be trapped by the machinery.

Before driving the vehicle on the road fasten the loading gear into place and make sure all safety devices are in place as required by the standards in force.

Periodically check tire pressure and wear.

Operator must be in perfect physical conditions. In case of tiredness he/ she must not drive the vehicle. Should the operator have drunk spirits or taken drugs/ medicines which could lower attention, he/ she must avoid driving.

Machine use

Vehicle must be driven only by expert and authorised personnel. For on-road transfers the drivers must have a regular driving licence ("B" or upper category); the use of a pivotable headlight is compulsory.

When working on a roadside site, use the standard traffic signs, bearing in mind the machine steering radius. Local legislation will define the number, type and position of signs and reflectors.

Do not run the engine in a closed space. Always provide adequate ventilation.

Never authorise anybody to get on the vehicle since a passenger could fall or cause an accident.

It is forbidden to carry passengers on the vehicle. The vehicle has been approved for the transport of one person only. It is not allowed to use the vehicle (bucket, forks, etc.) as a base plate for lifting people.

Never operate a loader control or vehicle drive device unless you are properly seated in the drive seat.

Do not work near live overhead power cables without first ensuring observance of minimum distances. Less than 57.000 Volt: 3 metres, more than 57.000 Volt: 5 metres.

Locate pipes/ducts/cabling etc. before digging. Electrical cables, gas mains, water pipes and other underground works could cause serious physical injury.

Before manoeuvring the vehicle, take working conditions (slopes, rough terrain), road conditions and weather conditions into careful consideration. Behave and drive accordingly. The max on-road-transfer speed is 32 km/h (20 km/h in Germany). The max on-site speed is 7 km/h.

Never allow anyone to enter the vehicle work zone. A wrong move by the driver could cause an accident. Stop all movement until the person has left the area.

Use the controls in sequence to ensure proper machine operation.

When transporting the machine on a trailer position the speed selector at on-site speed. Keep the loading bucket at least 20 cm from the ground.

Using the digging gear to "sweep" the ground to level dug out material or push objects (side-on gear stress) is absolutely forbidden.

Stop the engine even during brief pauses.

Never leave the driver's cab with the engine running.

When getting in and out of the driver's seat the loading gear controls MUST categorically be locked in place. NEVER disobey this safety regulation.

Dust, smoke and fog reduce visibility, increasing the likelihood of an accident. Stop or slow down until visibility is restored.

Never jump down from the machine. When getting out of the cab always use the footboard and the handholds.

In the event of malfunction or breakdown, immediately set the digging gear down on the ground, stop the engine and pull the hand brake. Identify the fault and/or report it: take any necessary measures to prohibit machine use.

All on-road transfers must be effected in forward gear.

Should the machine be stopped on a gradient, chock the wheels (law in certain countries).

Parking the vehicle

When parking the vehicle proceed as follows:
1. Bring the machine to a halt on a flat horizontal surface, away from unstable ground, digging works or a poorly propped hole/ditch.
2. Set the loader bucket down on the ground.
3. Turn the speed selector switch to neutral.
4. Immobilise the vehicle with the hand brake.
5. Stop the engine and remove the ignition key.
6. Reduce hydraulic pressure by acting on the control lever both ways.
7. Lock the loader gear control levers into place.
8. Check that the doors, the engine hood and the front inspection hatch are properly bolted and the driver cab doors locked.
9. Make sure that no vehicle parts protrude into a traffic lane. If this is unavoidable position warning signs in compliance with the standards in force.

Maintenance and checks

Never carry out maintenance work until the instructions contained in this manual have been read and fully understood.

When carrying out maintenance work wear appropriate clothing.

Before commencing maintenance work place a “DO NOT START” sticker on the side panel.

Always use protective eyewear when using a tool that could cause dispersion of metallic particles. When fitting gudgeons use a “soft”-headed hammer (e.g. in copper).

Sub-standard maintenance and adjustment work could lead to serious injury. If you are unsure about any of the maintenance or adjustment procedures get in touch with your **Ahlmann** Distributor.

Certain machine components must be certified. Should they need to be replaced make sure that all spare parts comply with safety regulations. Use original **Ahlmann** spare parts.

Removing equipment or manoeuvring the machine without the operator may cause serious injury. Before carrying out maintenance work on the machine proceed as follows:
1. Bring the machine to a halt on a flat horizontal surface.
2. Set the loader gear down on the ground.
3. Stop the engine.
4. Pull the handbrake lever.
5. Lock the loader gear controls into place.
6. Chock the wheels to keep the vehicle perfectly still.

Should maintenance/adjustment work require that the loader gear be raised, the pneumatic jack stabiliser must be used.

Unauthorised machine modifications could cause serious injury. Never carry out modifications without obtaining prior authorisation from your **Ahlmann** Distributor. All modifications must be compatible with machine technical features and comply with the safety standards in force.

Penetration of hydraulic fluid or pressurised grease into the skin could cause serious bodily harm. Take the necessary precautions (suitable clothing plus gloves and protective eyewear) to avoid such risks. Also, read the manufacturer’s advice carefully before handling these products. Should hydraulic fluid penetrate the skin seek medical advice immediately.

Before carrying out any welding work disconnect the battery and connect the welding gear earth to the part to be welded. Never connect the earth to a hydraulic circuit component.
Before carrying out any welding make sure that the working area is well ventilated.

A tire blow-out could cause serious injury.
Periodically check the tires for wear and always keep them at the right pressure in accordance with tire type and terrain conditions.

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When checking tire pressure or inflating the tire always position yourself in line with tire tread, not in front of the tire wall. When removing a wheel from the vehicle always use an inflation cage. Keep all personnel well away from the area.

Never do any welding near a tire. The tire MUST be removed before doing any welding.

Machine structure complies with FOPS and ROPS safety standards. Any modifications (drilling, welding etc.) may annul compliance with such standards.

Before carrying out maintenance work on the vehicle still warm, pay special attention to hot fluids and components which may cause burns.

Stickers

An illegible or missing sticker could have serious consequences. Check them every day.

Ensure that all stickers are perfectly legible. Replace them with new ones if ruined, missing or faded. Should a sticker-carrying part be replaced make sure you put a new sticker on the new part.

Preventing fire and explosions

Engine fuel could provoke an explosion or a fire.
- Never fill up the fuel tank with the engine running.
- Never smoke during refuelling.
- Take all necessary safety precautions during welding and adjustment work or in the presence of naked flames.

Always use a non-flammable solvent when cleaning parts.

A spark or naked flame could cause the hydrogen in one of the batteries to explode. To prevent explosions always observe the following rules:
-When disconnecting the battery cables always detach the negative cable (-) first.
-When reconnecting the battery cables always connect the negative cable (-) last.
-Never short circuit the battery terminals with two pieces of metal.
-Never weld, carry out adjustments or smoke near the battery.

Engine electric and/or exhaust systems may give off sparks. If operating in an area which might contain inflammable vapours ventilate it properly before utilising the machine.

Always keep a fire extinguisher within reach in the cab. Make sure that it is serviced regularly in compliance with the maker's instructions.

Periodically clean the vehicle. Remove all possibly inflammable deposits.

Inspect for leaks, replace damaged hoses, piping and connecting pieces. After repair work has been completed clean the vehicle before using it.

E' assolutamente vietato l'avviamento e l'utilizzo della macchina in ambienti a rischio di incendi o di eplosioni.

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Preventing burns

Battery electrolyte can cause serious burns. The battery contains sulphuric acid. Avoid contact with skin, eyes and clothing.
Treatment:
EXTERNAL: rinse with water.
INTERNAL: drink lots of water or milk. Then drink milk of magnesia, one beaten egg or some vegetable oil. Seek medical advice immediately.
EYES: rinse with water for 15 minutes and seek medical advice immediately.

When battery electrolyte is frozen it may explode if you try to charge the battery or jump-start the engine with another battery. To prevent the electrolyte freezing always keep the battery charged.

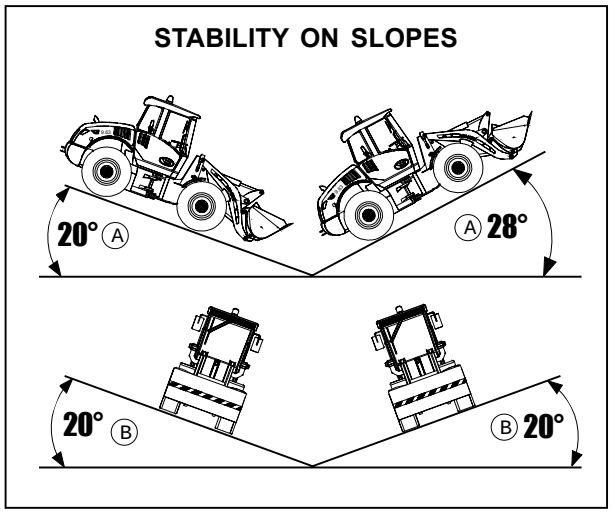
Should the radiator cap be removed when the engine is still hot boiling coolant could be released. Let the system cool down first, then rotate the cap as far as the first notch and wait until pressure is completely released. Then remove the cap.

Declared performances

Working conditions
Standard use (continuous running), working temperature:
- Max 48° C
- Min -15° C (standard vehicle)

R.p.m.
Medium: vehicle usually works at medium r.p.m and load levels, with peaks near max.values.

Expected life-span
Provided that all the required checks, maintenance works and overhauls prescribed in this manual are carried out, the actual vehicle life-span will be 10,000 hours. Once this hour amount has been reached, it is not allowed to use the vehicle if not overhauled and checked by the Constructor.



Note A: - 25° continuous (35° intermittent max 15 sec.)
Note B: - 20° Vehicle on a horizontal surface (not steered)

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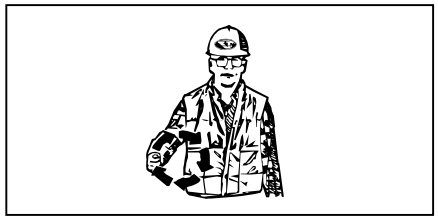
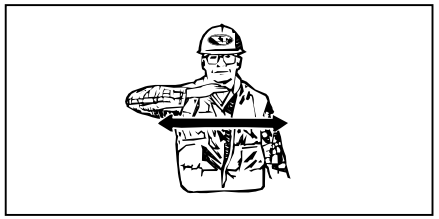
Hand signals

Should the machine be used in precision manoeuvres or for jobs with restricted visibility it is advisable to have the driver guided by a ground-based assistant using hand signals. Make sure that both driver and assistant understand the signals to be used.

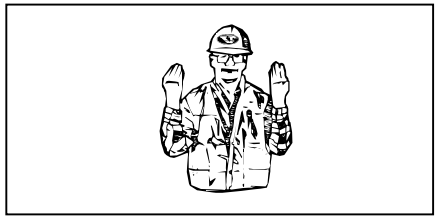
Start the engine



Switch off the engine

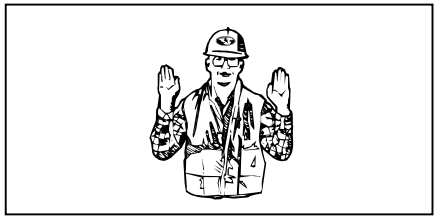


Come forward



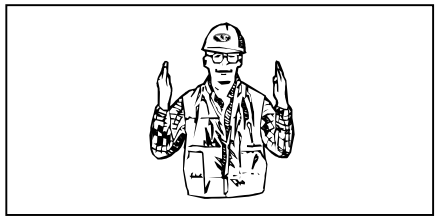
Move hands back and forth
(palm facing inwards).

Reverse

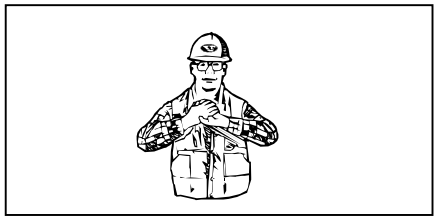


Move hands back and forth
(palm facing outwards).

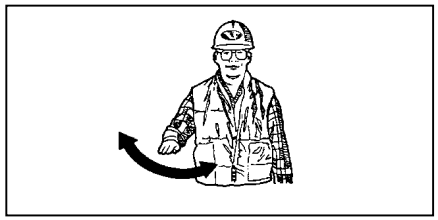
Move



Stop and wait

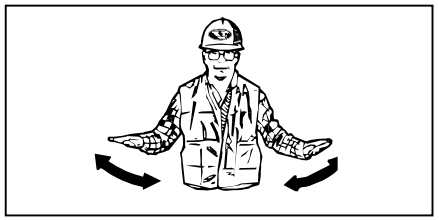


Stop



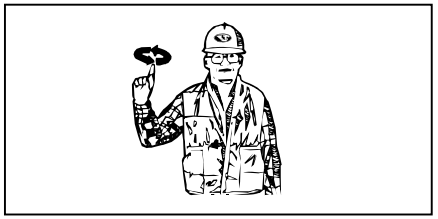
Move one hand back and forth

Emergency stop



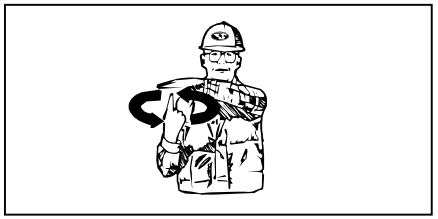
Move hands back and forth

Lift the load or loader equipment

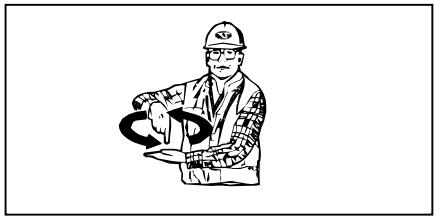


Lower the load or loader equipment

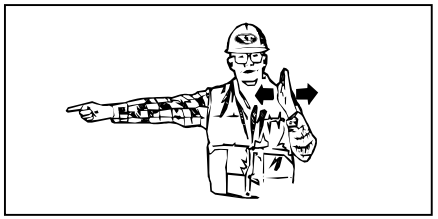
Lift the load or loader equipment slowly



Lower the load or loader equipment slowly

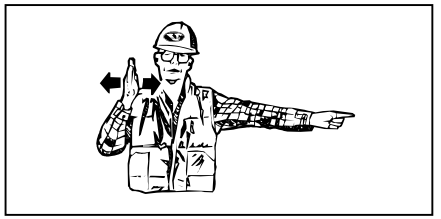


Turn the vehicle to the left (turn load to the left)



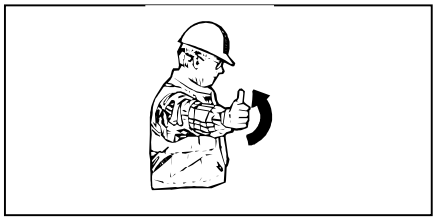
To stop the manoeuvre stop
moving your hand and make a fist.

Turn the vehicle to the right (turn load to the right)

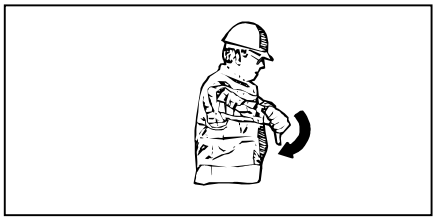


To stop the manoeuvre stop
moving your hand and make a fist.

Raise the loader bucket



Lower the loader bucket



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CONTROLS

Cab door controls

Opening from the outside
The left door is opened from the outside by pressing the push-button indicated in the picture.

Note: A key-operated lock ensures that unauthorised personnel are denied access to the cab.

Opening from the inside
To open the left door from the inside pull the handle indicated in the picture.

To open the emergency door (right) from the inside rotate upwards the handle indicated in the picture.

Open door release
To release the left door from its open position pull the handle indicated in the picture.

To open the emergency door (right) from the inside rotate the knob clockwise as shown in the picture.

⚠ Do not leave the doors ajar. Make sure they are open or closed.

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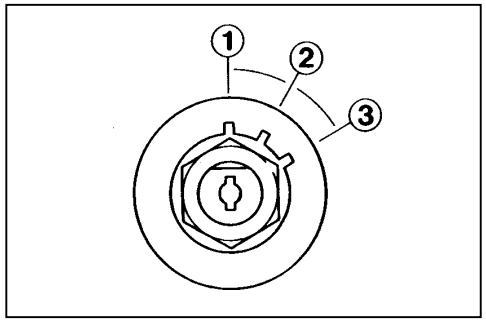
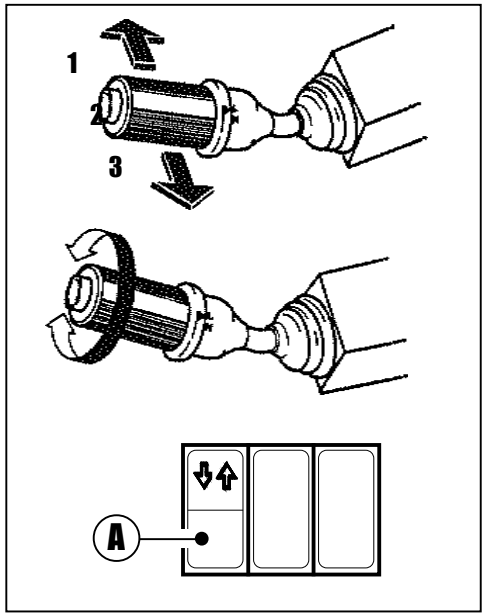
Driver cab controls



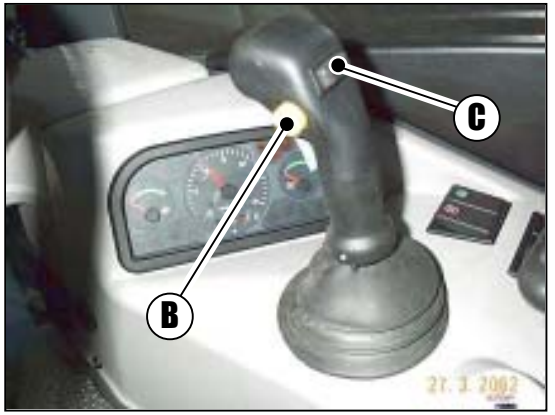
Ignition
Located on the Abs vehicle dashboard on the right of the driver seat.
Key positions:
1. Stop
2. Contact and pre-heating
3. Start
Note: The "Start" position is only enabled if the speed selector switch is in the neutral position.



Speed and directional selector switch
Located on the steering column on the left of the steering wheel, this control has three positions:
Selector in position **2:** Neutral
Selector in position **1:** Forward gear
Selector in position **3:** Reverse gear
Different speed can be selected by rotating the selector knob.
1. Work gear
2. Automatic work gear
3. Transfer gear
4. Automatic transfer gear
Note: It is possibile to switch from position (3) to position (4) or from position (4) to position (3) without passing through positions (1) (2).

(A) switch:
a) ON position: (warning light) – controls on the manipulator
b) OFF position: – controls on the switch

To let the manipulator move forwards and backwards the **(A) switch** must be in position ON, (warning light), the gear selector in neutral position (2) and the 2nd (or the 1st) speed selected. In case the 2nd gear is selected it is possible to switch to the 1st speed (before the automatic system activates) by pushing the **yellow (B) button** located on the manipulator. As soon as this button is released, the engine passes immediately to the 2nd speed.



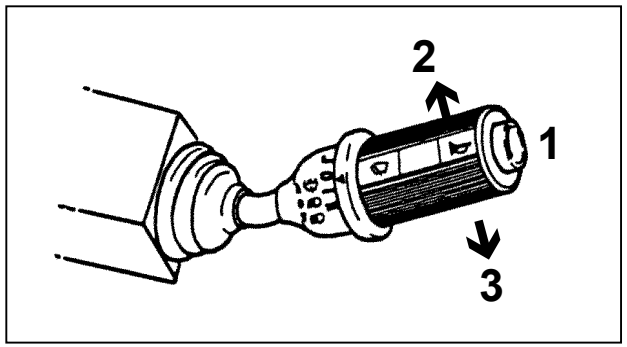
(C) switch. Forwards and backwards control.
Red (E) buttons. Various machinery controls.

Note: In case the 3rd or the 4th gear is selected, it is not possibile to operate on the manipulator, thus the (A) switch, when these gears are used, must necessarily be in the OFF position (controls on the switch); otherwise the vehicle does not move.
Note: The engine can only be started with the speed selector switch positioned at neutral.
Note: When the selector switch is in reverse an acoustic warning signal is given.

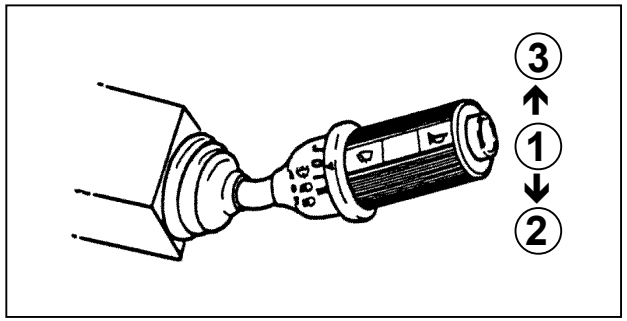
Note: Maximum admissible vehicle speeds are:

	Forward	**Reverse**
1st	0÷7	0÷7
2nd	0÷14	0÷14
3rd	0÷24	0÷24
4th	0÷34	(20 km/h - for Germany only)

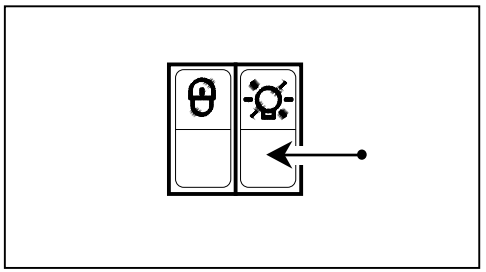
GB



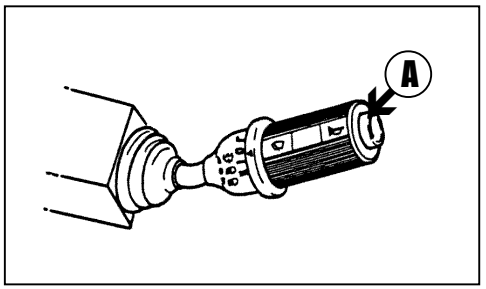
Directional indicator control
Located on the right-hand side of the steering column, this control has three positions:
Pos. 1: Stop
Pos. 2: Left-hand flashing indicators on.
Pos. 3: Right-hand flashing indicators on.



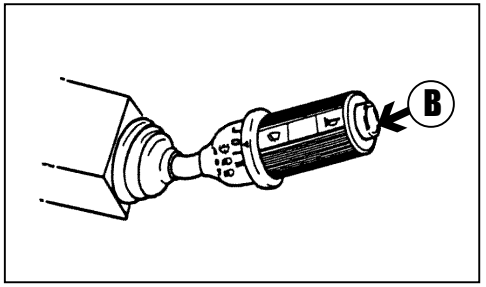
Dipped headlights/high-beam control
Located on the right-hand side of the steering-wheel this control has three positions.
Pos. 1: Dipped headlights
Pos. 2: High-beam
Pos. 3: High-beam flash (momentary click-shift operation)



Light control
Located on the dahboard to the right of the driver seat, this control has 3 positions:
Pos. 1: Stop.
Pos. 2: Side lights always on.
Pos. 3: Dipped headlights enabled only when the ignition contact is on.

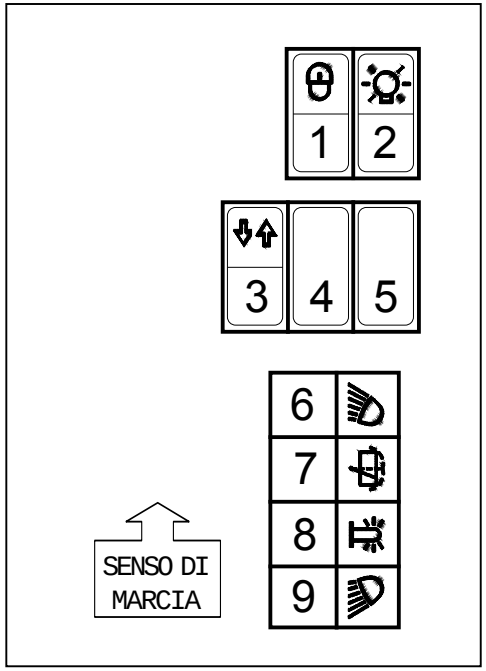


Front windshield wiper/washer control
Located on the right-hand side of the steering wheel this control has four positions:
Pos. J: Intermittence (on request)
Pos. 0: Stop
Pos. I: Operating.
Pos. II: Fast (on request)
Button A: Push to operate the windshield washer.



Horn control
Press push-button " **B** " to operate the horn.

GB

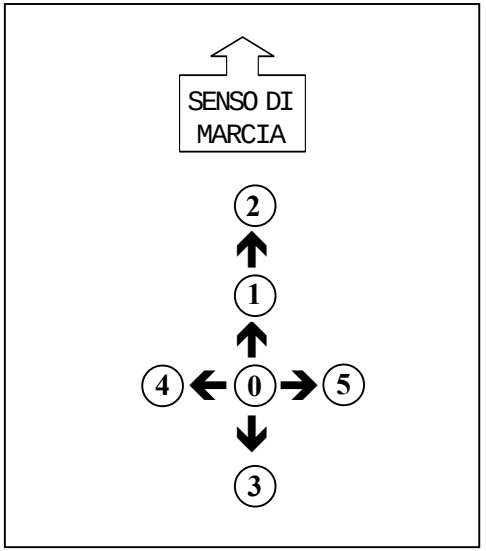


Switches on right-hand side-dashboard

1. This switch disables hydraulic system of the manipulator.
2. General lighting switch
3. Manipulator - switch button.
4. Plug (anti-pitch device on request)
5. Plug (lift blocking valves on request).

Switches on right-hand side-dashboard

6. Front work light switch
Pos. 0: lights off
Pos. I 2 Lights operating
Pos. II 4 Lights operating
7. Rear windshield wipe / washer (3rd position, mobile)
8. Pivotable headlight switch
9. Rear work light switch

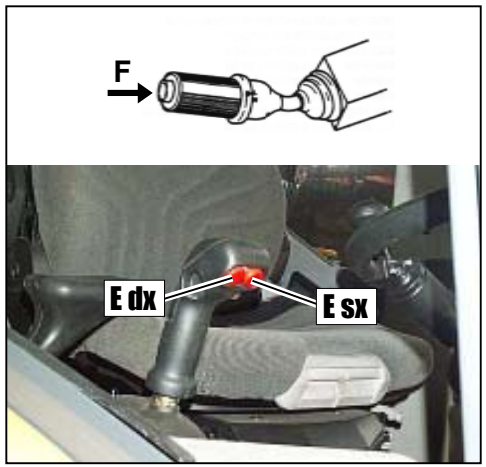


Loader control lever

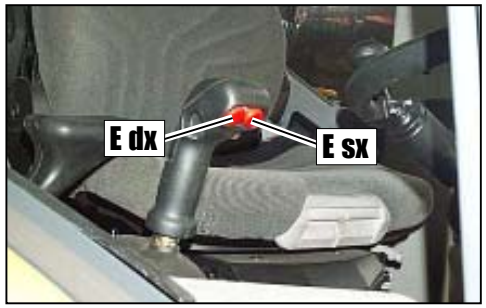
Located to the right of the seat, this lever has 6 positions:
0. Neutral
1. Loader equipment down
2. Loader equipment in “swaying” mode (the bucket follows the unevenness of the terrain without having to operate the lever).
3. Loader equipment up.
4. Bucket up.
5. Bucket dump.
Only position 2 leaves the lever locked in place.
All other positions have automatic return to the neutral position.

Note: Loader gear manoeuvre speed depends on how far the lever is inclined.

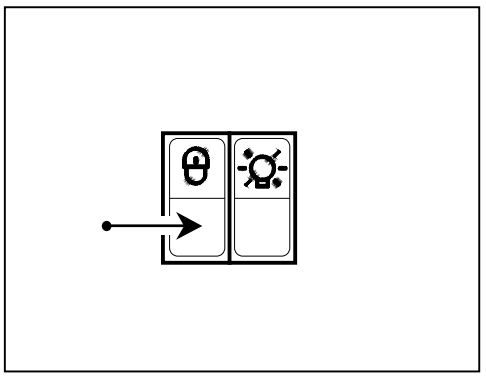
GB



Quick hydraulic coupling control switches (on request)
To couple or disconnect the equipment from the quick coupling operate simultaneously on the **"F"**-button positioned on the speed direction selector and on the **"E"-buttons** on the loader control lever.
E left: disconnect equipment
E right: couple equipment



Multi-purpose bucket control switches (on request)
Positioned on the front side of the manipulator:
E right: Half-clamp opening
E left: Half-clamp closure
Note: These control switches may also be used for any other loader gear with hydraulic device.



Loader control locking switch
Located on the dashboard, on the right side.
This switch disables the loader control.

⚠ When the machine is stopped it is absolutely necessary to position this switch in the control locking position .
Never disobey this safety regulation.

Parking brake lever
Located to the left of the seat, this lever locks all four wheels when pulled.
To release the brake, press the button at the end of the lever and lower the lever.
Note: An acoustic warning signal is given if the handbrake is pulled and the speed selector switch is in the forward or reverse position.

GB

Engine hood release handle
Located inside the cab Distance control through flex cable for the lock located under the engine hood.

Engine hood
After having unlocked the lock by pulling the lever located in the cab, the engine hood opens by pulling the handles placed on the sides.

⚠ Open the hood with the engine off only. Before driving the vehicle make sure that the hood is closed properly.

Adjusting the driver seat

Proper machine use with maximum efficiency and comfort also depends on careful seat adjustment to suit the driver's build. Seat belts are fitted as standard.

IMPORTANT: Never operate a loader or vehicle control unless you are properly seated and wearing a correctly-adjusted seat belt.

1. Suspension
Act on the lever to harden or soften suspension. Pull the handle and give it a half-turn to obtain the suspension desired.

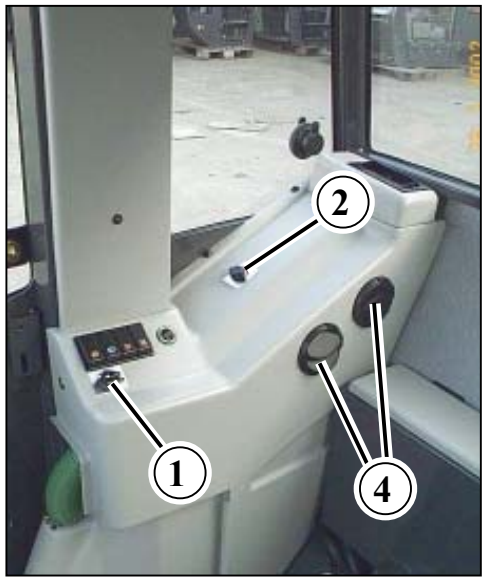
2. Seat position back/forth
Pull the seat lock control upwards, slide the seat forwards or rearwards until the desired position is reached; then release the control lever, making sure that it is locked in place.

3. Seat tilt
Pull the lever upwards until the desired position is obtained. Then release the lever.

GB

Heating and ventilation controls

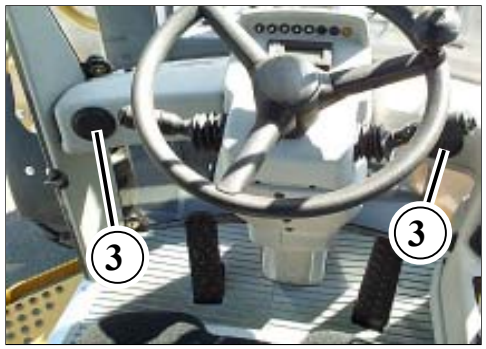
Heating and ventilation controls are located on the right-hand side of the cab.



Heating
Rotate the heating faucet (2) until the desired position is obtained.
The lower (3), front and rear vents establish airflow direction.

Ventilation
Choose desired fan speed by acting on the handle (1).

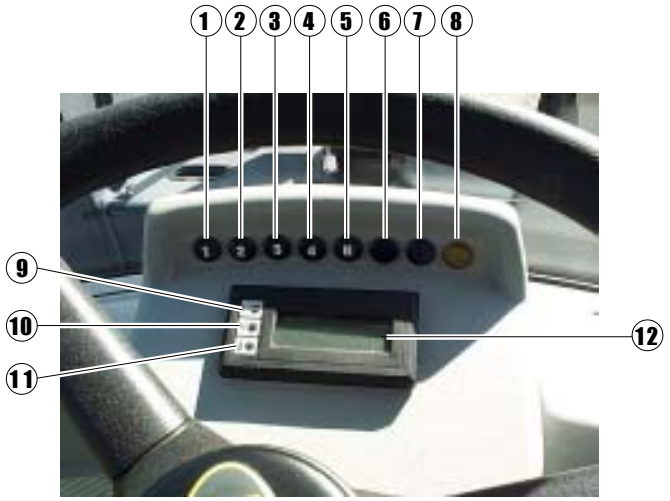
Vents
The front (3) and right-hand-side rear (4) vents establish airflow direction.



Front vents

INSTRUMENTS

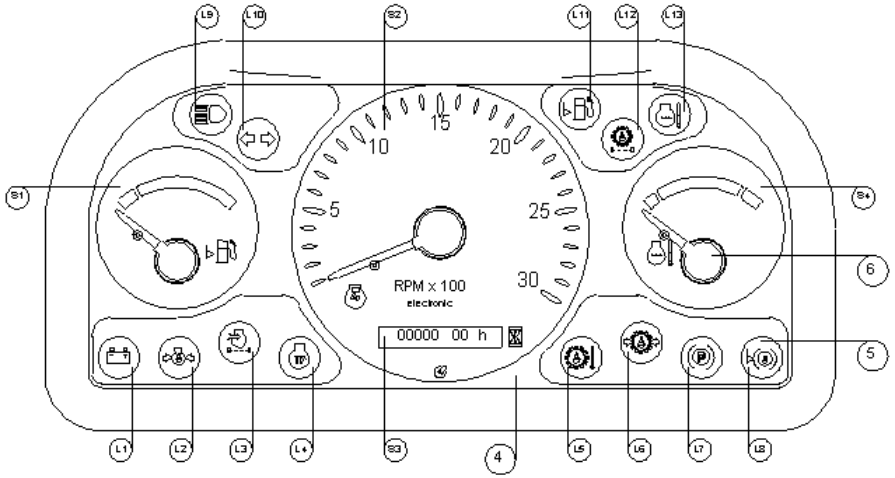
Central dashboard

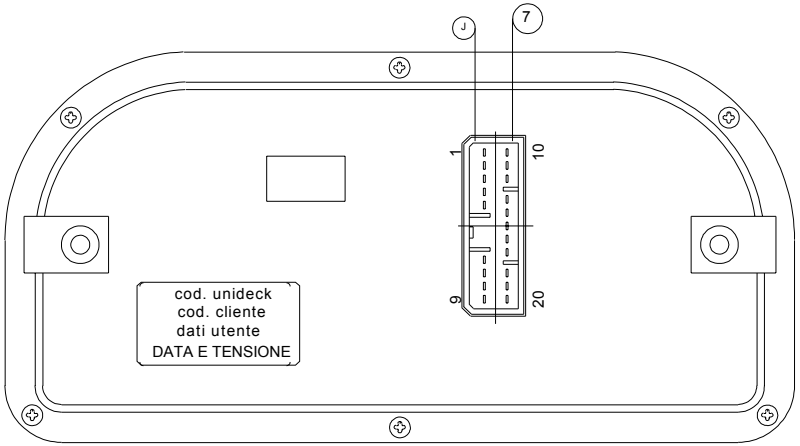


1 First gear warning light
2 Second gear warning light
3 Third gear warning light
4 Fourth gear warning light
5 Neutral gear warning light
6 Forward gear warning light
7 Reverse gear warning light
8 Bucket positioner warning light
9 Hours setting
10 Minutes setting
11 External temperature setting
12 Electronic instrument

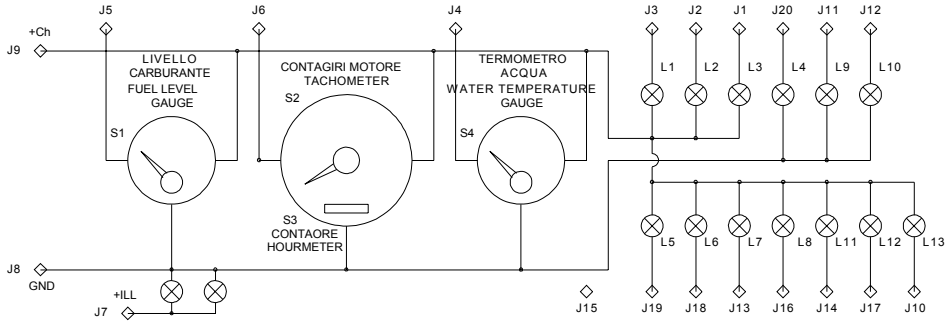
GB

Switches on side-dashboard





Wiring scheme of the panel on the side dashboard

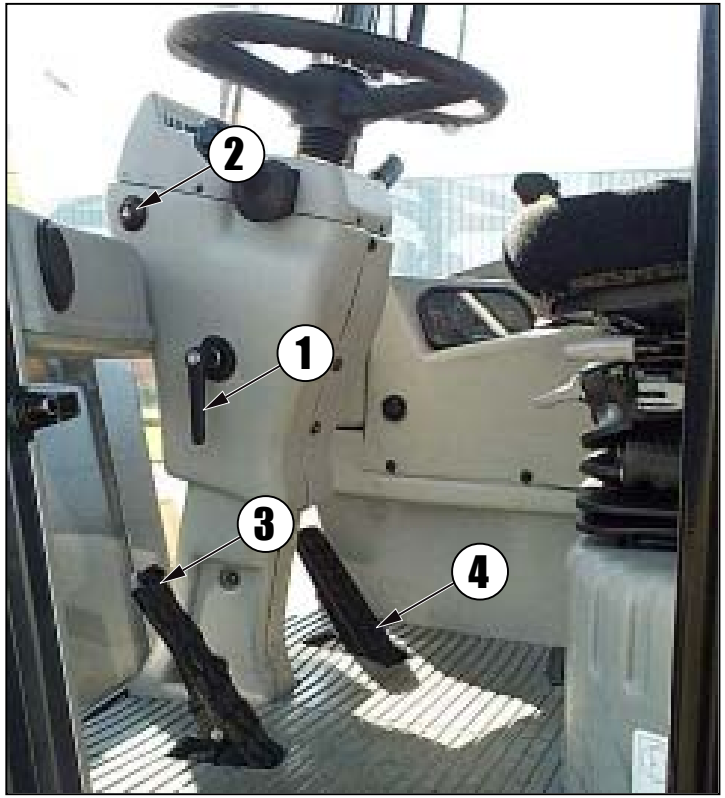


CONNECTOR: AMP 070 Multilock 20 ways

POS. POS.	PIN PIN	FUNZIONE CONNESSA FUNCTION	SEGNALE SIGNAL	COLORE FILO WIRE COLOR	POS. POS.	PIN PIN	FUNZIONE CONNESSA FUNCTION	SEGNALE SIGNAL	COLORE FILO WIRE COLOR
L3	J1	SPIA FILTRO ARIA (ROSSA) AIR CLEANER LAMP (RED)	NEGATIVO NEGATIVE		L9	J11	SPIA LUCI ABBAGLIANTI (BLU) DRIVING BEAMS LAMP (BLUE)	POSITIVO POSITIVE	
L2	J2	SPIA PRESS. OLIO MOTORE (ROSSO) ENGINE OIL PRESSURE LAMP (RED)	NEGATIVO NEGATIVE		L10	J12	SPIA IND. DI DIREZIONE (VERDE) DIRECTION INDICATOR LAMP (GREEN)	POSITIVO POSITIVE	
L1	J3	SPIA GENERATORE (ROSSO) GENERATORE LAMP (RED)	NEGATIVO NEGATIVE		L7	J13	SPIA FRENO A MANO (ROSSA) HAND BRAKE LAMP (RED)	NEGATIVO NEGATIVE	
S4	J4	STRUMENTO TERM. ACQUA WATER TEMPERATURE GAUGE	ohm		L11	J14	SPIA RISERVA CARBURANTE (GIALLO) FUEL RESERVE LAMP (YELLOW)	NEGATIVO NEGATIVE	
S1	J5	STRUMENTO IND. LIV. CARB. FUEL LEVEL GAUGE	ohm		B	J15	NC NC		
S2	J6	STRUMENTO CONTAGIRI TACHOMETER	Hz		L8	J16	SPIA LIVELLO OLIO FRENI (ROSSA) BRAKE OIL LEVEL LAMP (RED)	NEGATIVO NEGATIVE	
+ ILL	J7	ILLUMINAZIONE NOTTURNA (+) BACKLIGHTING (+)	+ LUCI		L12	J17	SPIA FITRO OLIO TRASMIS. (ROSSA) TRANSM. OIL FILTER LAMP (RED)	NEGATIVO NEGATIVE	
GND	J8	MASSA NEGATIVE			L6	J18	SPIA PRESS. ACCUMULAT. FRENI E MANIPOLAT. IDRAUL. (ROSSA)	NEGATIVO NEGATIVE	
+Ch	J9	POSITIVO (+ Chiave) POSITIVE (+ Key)			L5	J19	SPIA TEMP. OLIO TRASM. (ROSSA) TRANSM. OIL TEMP. LAMP (RED)	NEGATIVO NEGATIVE	
L13	J10	SPIA ALTA TEMP. ACQUA (ROSSA) WATER TEMPERATURE LAMP (RED)	NEGATIVO NEGATIVE		L4	J20	SPIA PRERISC. CANDELETTE (GIALLO) ENGINE PREHEATING LAMP (YELLOW)	POSITIVO POSITIVE	

GB

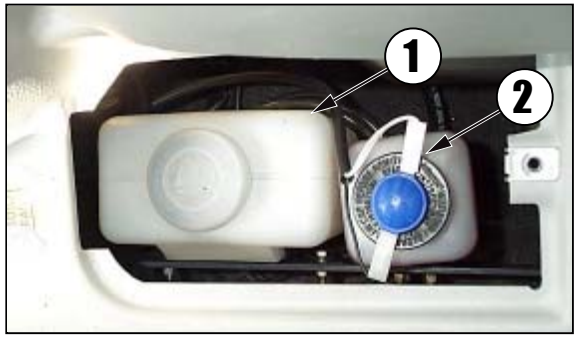
Steering column



1. Steering wheel adjustment lever
Located on the left side of the steering wheel.
Loosen the lever indicated in the picture, adjust the steering wheel in a suitable position, then lock the lever again.
2. Warning lights switch
Located on the right side of the steering wheel.
Simultaneously operates all directional indicators on the machine and the warning light in the switch at the same time.
Warning lights can be operated even if you do not turn on the ignition.
3. Brake pedal
Located on the cab floor on the left of the steering column.
4. Accelerator pedal
Located on the cab floor to the right of the steering column. Inclination of this pedal determines the Diesel rotation running and with gear on, vehicle transfer speed.

GB

ACCESSORIES



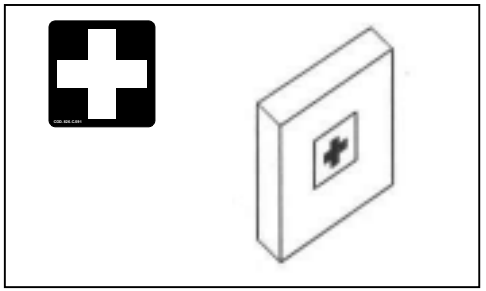
1. Windshield washer tank
Positioned to the right of the driver seat under the inspection cover plate.
Note: In winter add antifreeze to the water.
IMPORTANT: Never use the windshield washer when the tank is empty as it could damage the electric pump.

2. Brake oil tank
Positioned to the right of the driver seat under the inspection cover plate.

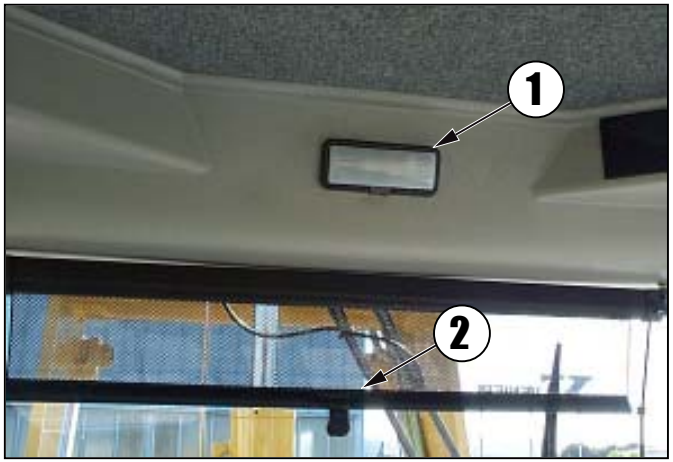
Glove compartments

Located on the left side of the cab and behind the driver seat, this useful compartment may be used for vehicle document storage.

First Aid Box



(To be installed on the vehicle before driving)
Always keep a first aid box handy. Make sure that it is complete and ready to be used: If not replace it immediately.



1. Cab light

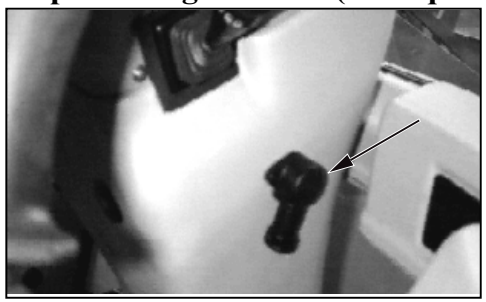
Located on the roof, it is controlled by a switch integrated into the light housing.

2. Sun visor

Located at the front of the cab, the visor can quickly be positioned when needed.

GB

Inspection light socket (on request)



Located to the left of the front dashboard, this socket provides a connection point for an inspection light or any other 12 V electrical accessory.

Fire Extinguisher

(To be installed on the vehicle before driving)
To be positioned in the rear-right part of the driver seat. Before positioning it on the vehicle, carefully read the instructions printed on the extinguisher. Pull to release from support.

⚠ Have the extinguisher serviced by an expert every year.

Rear-view mirrors

Before driving the vehicle make sure that the rear-view mirrors are positioned properly.

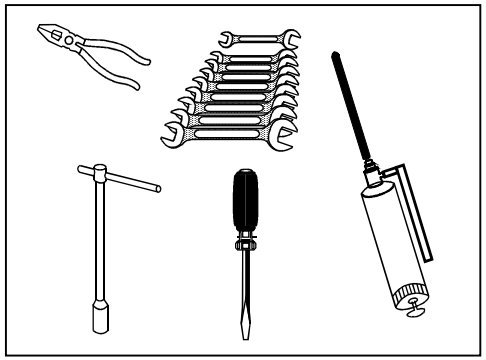
IMPORTANT: Do not position the mirrors right up against the windshield as this could damage the wipers if used.

Keil (Spezialkeil für einige Länder)

The wheel chocks are housed in two supports located on the front mudguards of the vehicle.
Take the wheel chocks out of their supports by pulling their handles, then wedge them under the wheels.

⚠ Use the wheel chock whenever the vehicle is parked on a slope.

Tool-kit



The vehicle is equipped with a special maintenance tool-kit which includes:

-A pump for lubrication
-An all-purpose wrench
-A screwdriver
-An open-headed spanner set
-A wheel-nut spanner

GB

START- UP AND WORK
TOWING - TRANSPORT - LIFT
ON-ROAD TRANSFER

START- UP AND WORK

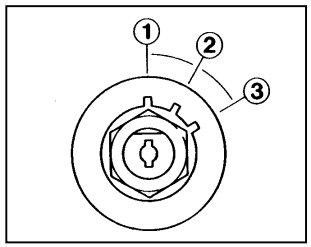
Start-up

Anyone operating this vehicle for the first time must carefully read and observe the regulations laid down in this manual.
To start the engine proceed as follows:

a) Check the following levels:
- diesel engine oil
- diesel engine radiator water
- hydraulic oil

b) Check that the reverse lever is in the neutral position: if the lever is not in this position the engine does not start.

c) If the engine is hot press the accelerator all the way down and operate the starter motor by turning the key clockwise to position "**3**".



IGNITION

1 - Key extracted
2 - Contact made
3 - Start up

d) If the engine is cold or if external temperatures are low proceed as follows:
- Take the engine acceleration lever to the max.speed pos.
- Turn the ignition key clockwise to pos."**3**" to start the engine, then let the key turn back to pos."**2**" as soon as the engine starts.
- Adjust acceleration lever to obtain a uniform slow running.

If the engine doesn't start within 30 seconds, have the ignition key turn back to pos."**2**" for other 30 seconds, then start the starter once again for max.30 sec.
e) Once the engine has been started, warm it up before working or driving.

Bleeding air trapped in the fuel line

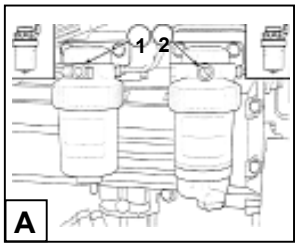
Air bubbles may form in the fuel supply system after prolonged engine idleness, after work on the fuel filter and fuel feed lines, or if the fuel tank is allowed to run dry. Air may be present in the fuel feed pipes causing feeding difficulties.
Air must be bled before starting. Procedure:

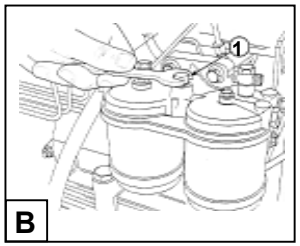
1) Loosen the drilled screw on the prefilter lid (**A2**). Operate the fuel pump lever (**C**) until the outgoing diesel is free of bubbles. Retighten the screw.
2) Repeat the operation described above for the revolving connection of filter (**A1**).

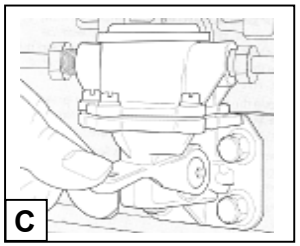
Note:
If the fuel pump cam is on its highest position it is not possible to operate the lever: In such a condition you must turn the engine shaft by 360°.

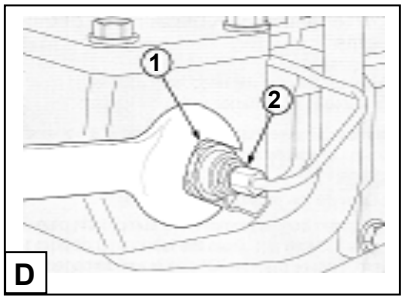
3) Repeat this operation on the connection nut (**D1**) of the thermostarter.
4) Loosen the high pressure pipes connection nuts (**E1**) of two of the injectors, operate on the starter until the outgoing fuel is free of bubbles, then retighten the connection nuts.
5) The engine is ready to be started up.

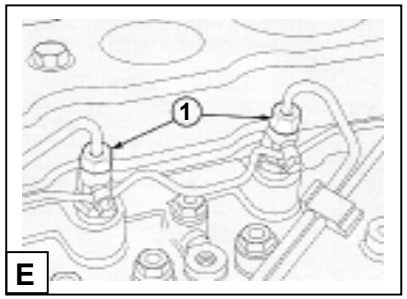
Note:
For further instructions see the engine handbook.











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Machine use: basic rules

Ensure that all machine parts and equipment work properly during machine use. Remember: the majority of inconveniences and breakdowns that occur during machine use are caused by loosening of machine components and leaks that have not been dealt with quickly enough.
Since running in produces a general settling of all mechanical components and hydraulic connections, highly rigorous machine checks **ARE ESSENTIAL**.

Bear in mind the following regulations:

- During initial machine manoeuvres do not rev the engine too high (1,200 - 1,500 r.p.m.) so that transmission oil (converter, inverter, gears, pinion set, governors) and hydraulic oil reach operating temperature gradually.

- Move all the levers gently to avoid damaging loads and knocks.

- Do not insist in using the hydraulic cylinders if they are unable to oppose the necessary resistance: this, in fact, opens the main hydraulic valve and could lead to dangerous oil overheating.

- Periodically check the warning lights and panels: If a warning light comes on or if an indicator exceeds the allowed limits stop the vehicle immediately and switch off the diesel engine to carry out the necessary checks. If the cause is not found do not restart work since highly expensive components could be damaged. Wait until authorised service personnel have carried out repairs.

- Spinning the wheels not only transmits just a fraction of engine power, but rapidly wears down tire tread.

- The working load bucket must be in the right position. An arm indicator, which helps position the bucket horizontally on the ground, has been installed for this purpose.

- To ensure maximum bucket efficiency, just follow the above rules: forcing the machine beyond its own performance levels is unnecessary and ineffectual.

⚠ Use the vehicle with the bucket down as much as possible. This position improves machine stability and gives better visibility. If the vehicle must be moved with a full bucket over uneven or slippery ground, drive slowly. If this basic safety rule is ignored you could lose control of the vehicle and cause it to roll.

TOWING

Towing pin

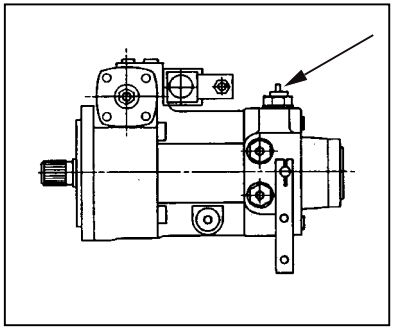
⚠ Towing is a delicate operation performed at the operator's risk. The Manufacturer declines all liability for damage and accident that may occur.

⚠ The vehicle must be towed very slowly over flat and horizontal terrain for short distances only and only when absolutely necessary.

⚠ Towing must be absolutely performed with the use of the tow bar.

Towing procedure

In case of the repair or malfunction of the vehicle, disable the hydrostatic pump's high pressure valve (see photo) by rotating the part of the valve indicated in the photo by approximately one and a half turns.



When towing the vehicle, the hydraulic motor works as a pump and via the high pressure system valve delivers sufficient oil to protect the system.
Bear in mind the following during towing:
1) maintain adequate towing speed (e.g. 1 km/h);
2) limit towing to short distances (1-2 km);
3) avoid the overheating of the hydraulic motor (at approx.80°)
4) return the valve part to its original position after towing.

⚠ Always switch on the emergency lights and the rotating light during towing.

GB

VEHICLE RECOVERY

Tow flaps

If the vehicle must be towed due to malfunction, use a fixed bar suited to its weight fastened to the tow flaps located at the front of the vehicle. (see photo).

If possible, perform the recovery of the vehicle with the engine running in order to keep the brakes and steering system in operation.
If the engine is not kept running, bear in mind the following:
-remove the transmission shafts;
-limit towing to short distances;
-maintain a towing speed of less than 8 km/h.

Vehicle recovery is a delicate operation performed at the operator's risk. The Manufacturer declines all liability for damage and accident that occur.

Before proceeding to any vehicle recovery operations, set the parking brake and insert the wheel block beneath the wheels in order to prevent undesired shifting of vehicle position. Proceed with the maximum attention while making the vehicle recovery connection in order to avoid accident.

Always switch on the emergency lights and the rotating light during vehicle recovery operations.

TRANSPORT

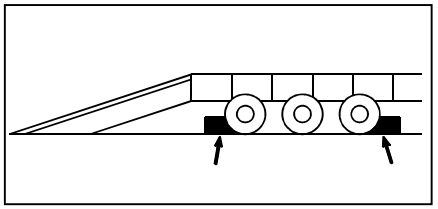
Loading onto a railway wagon

Rail transport is governed by specific standards. Consult the relevant authorities.

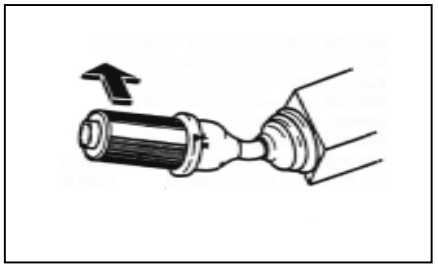
Loading onto a trailer bed

This vehicle could slip and fall off a trailer bed or ramp, causing serious injury. Make sure that both trailer bed and ramp are clean. Before loading make sure the vehicle is aligned with the trailer.

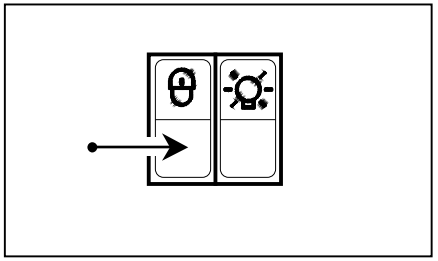
Before transporting the vehicle make sure you are fully aware of safety regulations and standards. Make sure that the trailer and vehicle are equipped with the proper safety equipment.



Stage 1
Chock the trailer wheels. Fit the trailer bed widening gear (if applicable).



Stage 2
Raise the loader bucket 20 cm above the trailer ramps. Load the vehicle onto the bed with maximum caution (use the lowest speed possible) then place the speed selector at neutral and pull the parking brake.



Stage 3
Lower the loader bucket onto the trailer ground slowly and lock the loader controls by using the lock pin.

GB

Stage 4
Insert the central articulated joint locking pin (located on the right-hand side of the joint). Then stop the engine and disconnect key.

Stage 5
Turn the rear view mirrors inwards and make sure that the two doors and the rear cab window are closed.

Stage 6
Use chocks and chains to immobilise the vehicle and equipment on the trailer.

Stage 7
You should be aware of maximum headroom: measure the distance separating the ground from the highest loader part.

LIFT

Stage 1
Lower the loader bucket onto the ground and lock the loader controls inside the driver's cab by using the lock pin.

Stage 2
Insert the central articulated joint locking pin. Then stop the engine and disconnect key.

Stage 3
Use the 4 points indicated (2 front and 2 rear) with the appropriate stickers to lift the machine.

⚠ Observe the machine user standards described in this chapter, any other use must be considered forbidden unless you have prior authorisation from the manufacturer.

GB

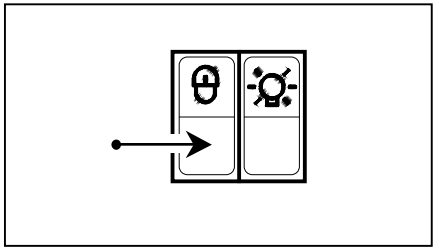
ON-ROAD TRANSFER

> ⚠ Observe the machine user standards described in this chapter, any other use must be considered forbidden unless you have prior authorisation from the manufacturer.

Before driving the vehicle on the road lock the loader gear into place by means of the special lever and ensure that all regulation-required safety devices are operative.

Stage 1
Insert the locking rod for bucket and loader booms.

Stage 2
Install the loader bucket teeth-protection.



Stage 3
Lock the loader controls by using the special lever.

Stage 4
Adjust rear view mirrors correctly, position the pivotable headlight on top of the cab and turn it on.

Stage 5
Lower the hand brake and start the engine.

> ⚠ Before driving the vehicle check tire wear and pressure.

> ⚠ Always wear the seat belt before driving the vehicle.

> ⚠ When on the road always use forward gears.

> ⚠ Monitor dials and warning lights during the transfer.

> ⚠ Before driving the vehicle on the road or working at night check that all lights and indicators are working properly.

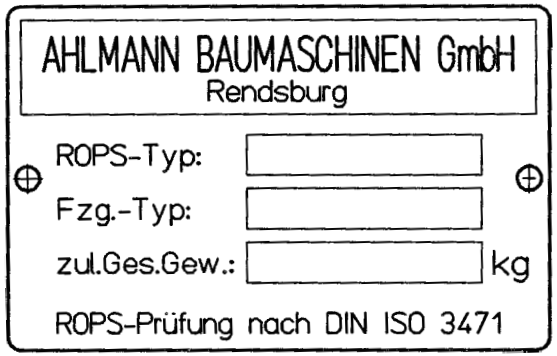
GB

ROPS/FOPS PROTECTION STRUCTURE

1.General Features

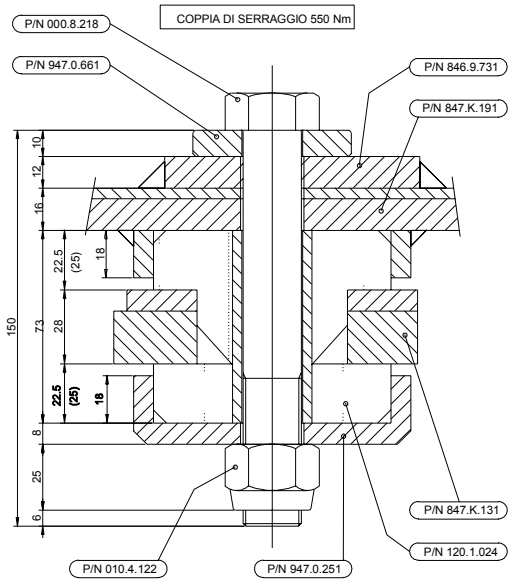
The structure is suited to installation only on the vehicle AL 150.
It has been sized for a maximum weight of 11,300 kg. The structure is composed of uprights with a 4 mm thick plate welded to the top.

The structure is bolted to the frame.

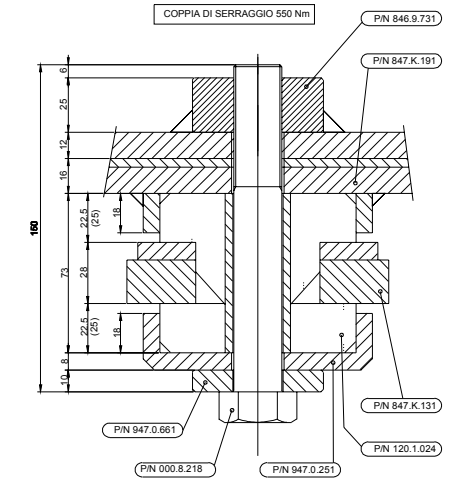


The structure is fastened to the frame as shown in the assembly drawing below:

Front Fasteners



Rear Fasteners



GB

2. Safety standards

The operator must observe the following rules of general safety. The structure guarantees the protection of the operator against the risk of overturning and falling objects:

- operate the vehicle always and only from the driving position;
- fasten the seat belt immediately upon entering the vehicle - refrain from making applications to the vehicle that may alter the characteristics of maximum weight;
- refrain from performing modifications on the vehicle that may weaken the protection structure or its anchor points;
- if the vehicle overturns, permanent deformation may be made to the protection structure in the parts connecting to the main frame;
- and/or cracks in the welding seams; in this case, the protection structure's ROPS/FOPS will no longer be valid. Consult the Manufacturer of the vehicle or his authorised agent before performing any repairs on the protection structure;
- if the vehicle ever catches fire, proceed to an accurate inspection of the protection structure to make sure that no permanent deformation has been caused by high temperature;
- refrain from operation under dangerous conditions and respect the local safety standards in force and any general safety rules adopted;

The maximum permissible weight of the vehicle is 11.300 kg.

3. Installation

The structure is suited to installation only on the vehicles listed in Point 1.

Assembly must be performed only after first positioning the vehicle and the protection structure on a level surface and making sure that there is sufficient space to manoeuvre the structure and that there are no people in the radius of operation of the lifting equipment.

In order to lift the structure and position it beneath the vehicle, lifting equipment of adequate capacity must be employed.
Sling the protection structure using the lifting eyebolts foreseen for the purpose.
Make sure that all the lifting accessories (cables, slings, grates, etc.) are suited to the weight to be lifted and in good condition.
Lift the structure and position it on the vehicle near the anchor points.
Connect the structure using the bolts supplied and screw them into place using a tightening torque of 550 Nm.

Use only the bolts supplied by the Manufacturer together with the structure. The Manufacturer declines all liability for the damages caused by the use of non-original bolts.
Bolt tightening torque: 550 Nm.

4. Maintenance

The structure must be regularly checked in order to guarantee the safety of the operator.
Check the following each day before starting to work:
- The structure's welding does not show signs of cracking;
- The anchor point supports on the frame and the respective welding seams do not show signs of or breaking or cracking;
- The anchor bolts have been tightened to the correct tightening torque.

Each month, check the following:
- The support structure of the anchor points to the frame and the respective welding have not been rusted or corroded whenever the vehicle operates in a salty environment.
- There are no unpainted parts on the structure. If necessary, touch up all unpainted parts to avoid the formation of rust.

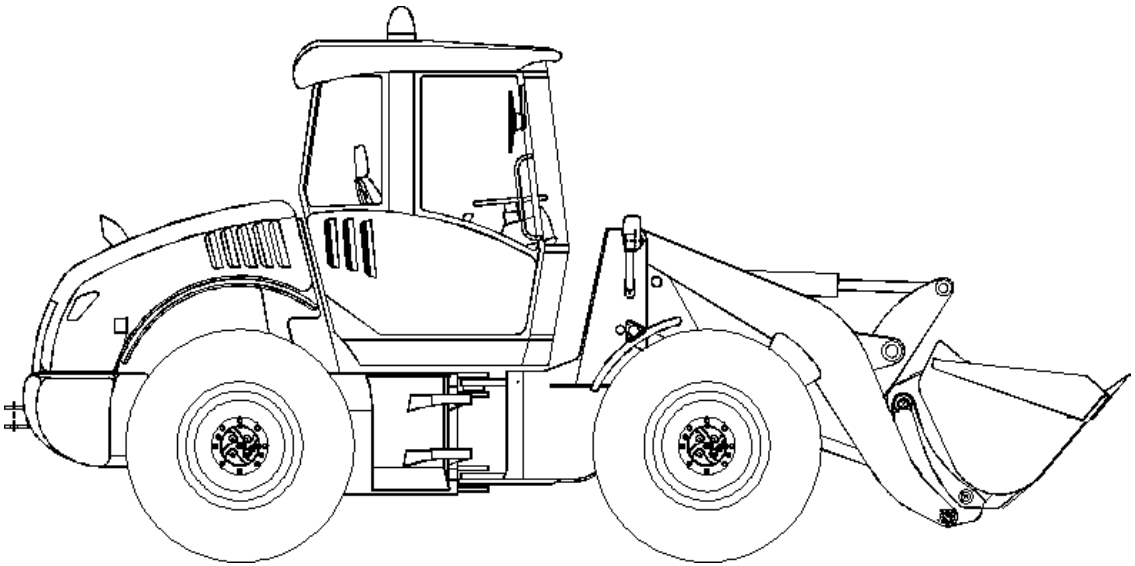
Every one thousand working hours, check the following:
- The protection structure, the frame anchor point supports, and the respective welding do not show signs of breakage that may compromise integrity.

GB

RATING PLATES AND ADHESIVE STICKERS FOR INFORMATION AND WARNING

The rating plates and adhesive stickers on the vehicle provide information or warnings in the form of texts or drawings that the operator must learn and respect.
Whenever they are no longer legible, damaged, or covered by paint, they must be replaced. The code number is indicated on the respective rating plate/adhesive sticker or in the Spare Parts Catalogue.

1. Loader controls
2. Wear helmet
3. Fasten seat belt
4. Read Manual before operating
5. Warning: for towing the vehicle ….
6. Safety rod on lifting cylinder
7. Reflective film
8. Keep out of moving arm radius
9. Do not lift
10. Lifting point
11. Warning! Battery acid
12. Do not lift
13. Do not tread
14. Warning! various warnings
15. Do not open when engine is running.
16. Acoustic power LwA 103
17. Acoustic power LpA 74
18. Fire Extinguisher
19. First Aid Box
20. Safety Exit
21. Contains antifreeze
22. Danger! Articulated joint
23. Diesel
24. To close the door…….
25. Hydraulic oil
26. Stop
27. CE
28. Burns may occur.
29. Brake oil tank
30. Centralised pressure taps
31. Warning! fan activated



25
826.B.251
L OLIO IDRAULICO
GB HYDRAULIC OIL
D HYDRAULIKFLÜSSIGKEIT
F HUILE HYDRAULIQUE
E ACEITE HIDRAULICO
NL HYDRAULIKOLIE

29
SERBATOIO OLIO FRENI
UTILIZZARE SOLO OLIO MINERALE

19

14
ATTENZIONE

20

18

15
NON APRIRE QUANDO IL MOTORE E' IN MOTO
826.B.131

1

2

3

4

30

31

23
826.B.211
L GASOLIO
GB FUEL
D DIESELKRAFTSTOFF
F GAZOLE
E COMBUSTIBLE DIESEL
NL DIESEL

28

10

27

26
STOP

6

12

7

17
LpA 74

16
LWA

13

11

22

21
826.B.231
L CONTIENE ANTIGELO
GB WITH ANTIFREEZE
D ENTHÄLT FROST SCHUTZMITTEL
F AVEC ANTIGEL
E CONTIENE ANTICONGELANTE
NL BEVAT ANTIVRIES

5
ATTENZIONE PER TRAINARE LA MACCHINA A MOTORE SPENTO VEDERE NORME SULL'USO E MANUTENZIONE

24
826.B.471
L PER CHIUDERE LA PORTIERA AZIONARE L'APPOSITA LEVETTA DI SBLOCCAGGIO
GB TO CLOSE THE DOOR RELEASE THE DOOR RETAINING CATCH
D ZUM SCHLIESSEN DER TÜR IST DER ENTRIEGELUNGSHEBEL ZU BETÄTIGEN
F POUR FERMER LA PORTIERE AGIR SUR LE LEVIER DE BLOCAGE
E PARA CERRAR LA PUERTA ACCIONAR LA PALANCA DE DESBLOQUEO
NL HET PORTIER SLUITEN MET BEHULP VAN DE DAARVOOR BESTEMDE DEBLOKKEERHANDEL

8
826.B.261

GB

PERIODIC MAINTENANCE

BASIC MAINTENANCE INFORMATION

Observe the maintenance schedules carefully: read the hour counter every day. When doing maintenance work position the vehicle on a solid, obstacle-free stretch of ground and set the bucket down. Unless specifically stated otherwise, all maintenance work must be carried out with the engine OFF and the ignition keys removed. It is good practice to let the engine cool down before starting work.

Before lubricating clean the nipples. Clean the outer edges of plugs and filler holes before pouring in oil. No dirt or dust must get into parts or circuits.

⚠ If maintenance and repair work is not carried out correctly there is high risk of serious personnel injury. If you have any doubts regarding maintenance procedures contact your **Ahlmann** distributor.

⚠ A raised operating arm or driver less machine movement could cause serious injury. Before carrying out any maintenance work proceed as follows:
1. Park the vehicle on the flat.
2. Lower the operating arm until it is resting on the ground.
3. Turn off the engine (thermal).
4. Chock the wheel to keep the vehicle in place.

Locking bar working

Locking bar not working

⚠ Should maintenance work require the bucket to be in raised position, position the lock bar (which prevents the loader booms to come down) against the lift cylinder head.

Whenever maintenance work is being done place a sign which says “DO NOT START” on the dashboard. Never abandon the cab with the engine running.

Never carry out modifications without authorisation. Unauthorised modifications may cause serious injury.

IMPORTANT: if the machine is used in a particularly tough environment (dusty, corrosive etc.) carry out maintenance work more frequently.

IMPORTANT: strictly observe all machine filter change schedules. Engine life depends on filter cleanliness.

The hour counter lets you know when its is time to carry out maintenance. With the engine running the counter works as a clock.

Maintenance schedules are clearly stated in order to make machine operation safe and efficient.

Note: A separate manual giving more detailed **diesel engine** maintenance information will be supplied with every vehicle.

GB

Servo brake safety device

The braking system is also equipped with a power accumulator in order to ensure a certain number of brakings, also when the engine is off.
Therefore, press the brake pedal completely down before moving the vehicle, when the engine is on, so that the above mentioned safety accumulator is automatically loaded.
In case of system power lack a warning light on the warning light block located on the right side box lights up (see. pag. 17 pos. L8)

RUNNING-IN PERIOD

Good engine care during the first 20 working hours will give longer-lasting top level performance and more economic running.
During this period you must:
Monitor the dashboard instruments carefully.
Check oil and coolant levels frequently
Use the vehicle at low engine r.p.m. during the first 8 hours.
Never “force” the engine in low gears (wheels turning slowly or at a standstill with engine at full speed).
Keep the engine at standard operating temperature.
Never run the engine at idle speed for long periods.
Besides routine Maintenance Schedule work, the running-in period also requires the following:

AFTER THE FIRST 10 WORKING HOURS:
Check that the wheel nuts and the axle fastening bolts are tight with the right tightening torque.

AFTER THE FIRST 20÷40 WORKING HOURS
Change engine oil and oil filter.

AFTER THE FIRST 200 WORKING HOURS
Change hydraulic oil filter.

AFTER THE FIRST 1000 WORKING HOURS
Change the hydraulic circuit oil.

INTERVALLI DI MANUTENZIONE

TASK CHECK AND CLEAN	FREQUENCY (in h)							
	10	50	100	200	250	500	1000	2000
CHECK ENGINE OIL LEVEL	•							
CHECK ENGINE RADIATOR WATER LEVEL	•							
CHECK HYDRAULIC OIL	•							
CHECK BOLTS AND WHEELS FOR TIGHTNESS	•							
CHECK DRY AIR FILTER		•						
CHECK TIRE PRESSURE			•					
CHECK BATTERY			•					
CHECK ALL BOLTS/NUTS			•					
CHECK EPICYCLIC REDUCTION GEAR OIL				•				
CHECK DIFFERENTIAL OIL				•				
CHECK TRANSFER BOX OIL				•				
CHECK ALTERNATOR AND FAN BELT TENSION					•			
CLEAN DIESEL TANK							•	
CLEAN DIESEL RADIATOR							•	
CLEAN MULTISTAGE CENTRIFUGAL BLOWER								•
LUBRICATION AND REPLACEMENT								
LUBRICATE BUSHES AND PINS	•							
LUBRICATE CENTRAL JOINT		•						
LUBRICATE CARDAN JOINTS		•						
REPLACE HYDR. OIL FILTER CARTRIDGE				•				
REPLACE ENGINE SUMP OIL						•		
REPLACE ENGINE OIL FILTERS						•		
REPLACE FUEL FILTER CARTRIDGES						•		
REPLACE HYDRAULIC OIL							•	•
REPLACE REDUCER OIL							•	
REPLACE EPICUCLIC REDUCTION GEAR OIL							•	
REPLACE DIFFERENTIAL OIL							•	

GB

every 10 working hours

1. Check diesel engine oil level

The level should be checked with the engine OFF and must be between the min and max notches.

WARNING: the oil level must be checked with the vehicle perfectly horizontal.
Always top up with the same oil type.

2. Check diesel engine radiator water level

The level must be about 2 - 2.5 cm below the filler hole edge.
Antifreeze must be used in winter. See the relevant supply table for correct quantity.

⚠ Should the radiator cap be removed when the engine is still hot, boiling coolant could be released. Let the system cool then remove the cap down first, then rotate the cap as far as the first notch and wait until pressure is completely released. Then remove the cap.

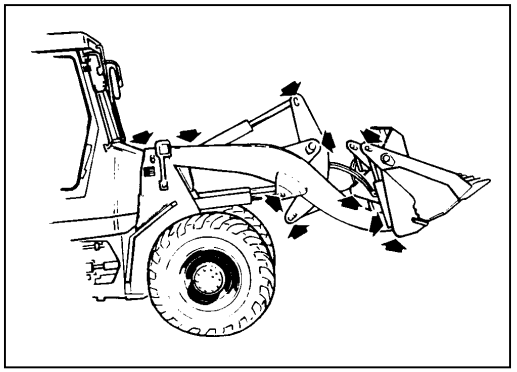
3. Check hydraulic oil

Check the level with the engine OFF and cold. The level must be between the min and max notches with the operating arm laying on the ground.

4. Tighten wheel nuts

Check the wheel nuts (tightening torque 55÷60 kgm). Do this after the first 10 working hours and then regularly every 200 hours.

Note: This check should be effected at the above-mentioned intervals whenever the wheels are removed.



5. Lubricate articulation pins and bushes.

Inject grease (via the special pump) until the old grease flows out.

Note: Greasing points are highlighted by a red protection plug.

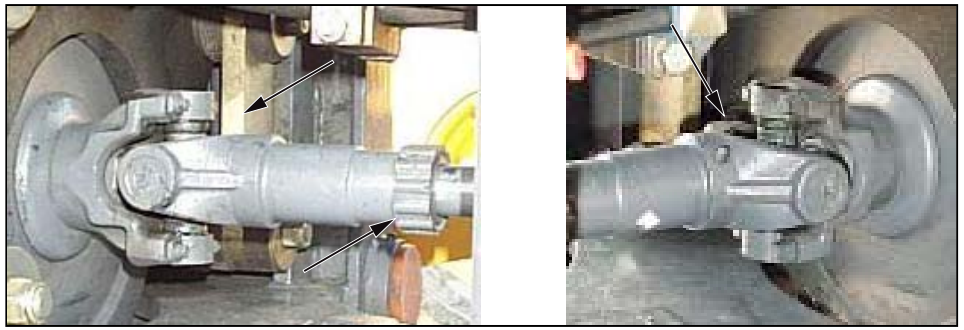
GB

every 50 working hours

6. Lubricate central joint

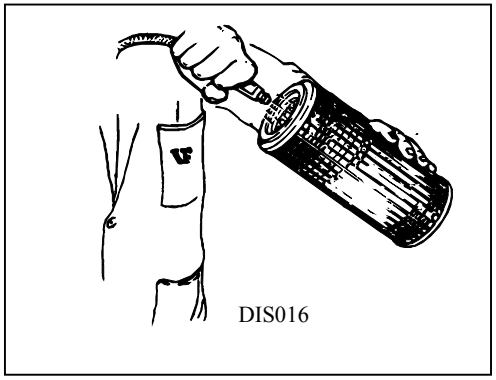
Inject grease (via the special pump) until the old grease flows out.

Note: Greasing points are highlighted by a red protection plug.



7. Lubricate cardan joints between engine reducer gear and differentials

Inject grease (via the special pump) until the old grease flows out.

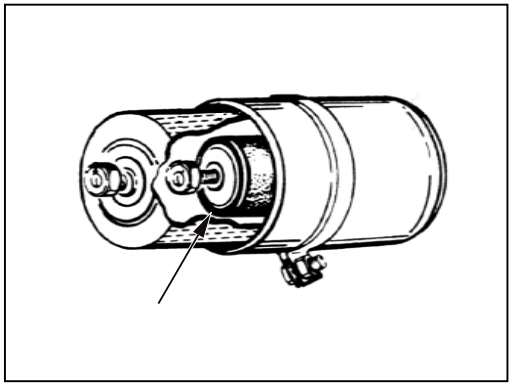


8. Check dry air filter

Main Filter

Dismantle the cartridge and clean with dry air at a maximum pressure of 7 kg/cm2. Direct the air from the interior towards the exterior. Pass the jet over the filter in line with the grill flaps at a distance of 3 cm.
Before replacing the cartridge carry out the following checks:

a) Check the plastic flaps for wear. Replace the seals if damaged.
b) Check the condition of the cartridge by inserting a light inside. This will reveal any holes: replace if there are any.
c) Check the hoses between filter and engine.
Note: Change the cartridge every 10 cleanings or once a year.



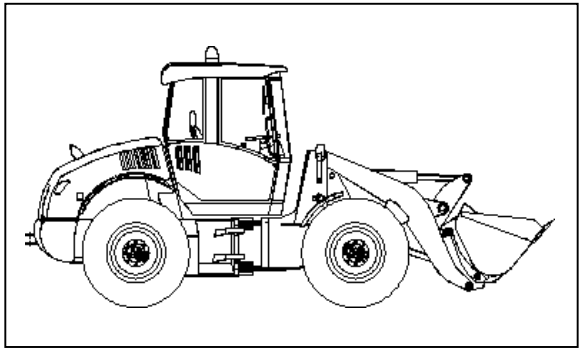
Secondary Filter (on request)

This filter works as a protection filter should main filter be damaged.
Replace the secondary filter if required.
Do not perform any cleaning.
Replace the secondary filter after 3 main filter replacements or after 2,000 working hours.
Never remove the secondary filter. Remove it only in case of replacement.

GB

every 100 working hours

9. Check tire pressure



When checking tire pressure or inflating the tire always position yourself in line with tire tread, not in front of the tire wall. When removing a wheel from the vehicle always use an inflation cage. Keep all personnel well away from the area.

- 15.5 - 25 (12 pr)
Front 3,5 kg/cm^2 Rear 2,5 kg/cm^2
- 17,5 - 25 (12 pr)
Front 3,5 kg/cm^2 Rear 2,5 kg/cm^2
- 15,5 R 25
Front 2,5 kg/cm^2 Rear 2 kg/cm^2
- 17,5 R 25
Front 2,5 kg/cm^2 Rear 2 kg/cm^2
- 405/80 R25
Front 2,5 kg/cm^2 Rear 2 kg/cm^2

Note: Should the tire be replaced, always make sure that the tread is positioned as it is shown.

10. Battery

Check that the battery is clean and that the terminals are properly insulated. These must always be covered with grease. Check electrolyte (distilled water) level and top up if necessary; the electrolyte should just cover the electrodes. Should the vehicle remain idle for a long period, dismantle the battery and keep it in a dry place. Dislodge fuel feeding pipe support (no.2 nuts M8) to remove battery.
(double battery on request)

Battery knife switch

The battery knife switch is located in the vehicle cab, under the parking brake lever. If the vehicle is left unguarded, disconnect the knife switch.

11. Tighten nuts and bolts.

Check all bolt-held connections. (See tightening torque table).

GB

12. Replace hydraulic oil filter cartridge.

Change after the first 200 working hours and then every 1,000 hours.
Remove the filter element (1) from the filter body and replace it with a new one.
Check the lid gasket (2) for wear and replace if necessary.

Wash the container with naphtha. Wait until it is completely dry then insert the new cartridge.

13. Check epicyclic reduction gear oil

Turn the wheel until the inscription "OIL LEVEL" (on the reduction unit) is parallel to the ground and the level-filler cap is on the right position; remove the cap: Oil should just be at the level of the hole.
Top up by introducing the oil via the filler hole when this is in the upper position.

Note: The level must be checked with the vehicle perfectly horizontal.

14. Check differential oil

Check that the level reaches the plug as shown in the picture. If necessary top up via the same.
Note: The level must be checked with the vehicle perfectly horizontal.

Front axle

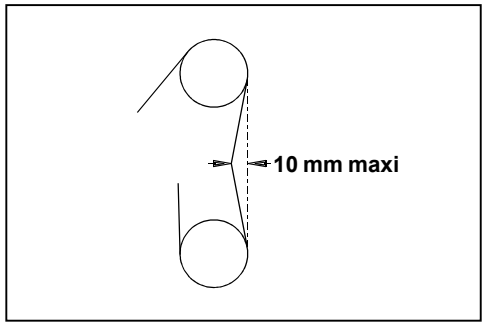
Rear axle

15. Check transfer box oil

Check that the level reaches the plug as shown in the picture. If necessary top up via the same.
Note: The level must be checked with the vehicle perfectly horizontal and engine off.

GB

every 250 working hours



16. Alternator belt and fan

Loosen the alternator from its support and move it (by means of a lever placed between the monobloc frame and generator body) until belt tension is such that pressing it with your thumb on the longest side produces a dip of about 10 mm.
Belt replacement must be followed by a follow-up tension check a few working hours later.

ogni 500 ore di lavoro

17. Diesel engine sump oil

Empty the oil sump and fill it with new oil up to the dip stick "**MAX"** mark and no further. Run the engine in neutral to fill the circuit; stop the engine and after few minutes re-check the level, topping up if necessary.

18. Engine oil filter

a) Unscrew the filter to be replaced.

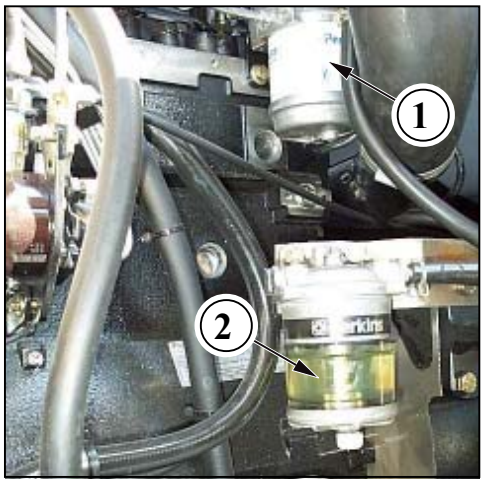
b) Clean the filter support contact surface.

c) Spread a film of clean oil on the rubber sealing ring of the new filters.

d) Screw on the new filters.

e) Start the engine and check for oil leaks.

⚠ Start the engine only when the hood is closed.



19. Replace fuel filter cartridge

Dismantle the filter housing (1) and replace the filter cartridge with two new ones, making sure that the rubber seals are in good condition: if they are not, replace them.
Note: Every time the fuel filter is replaced dismantle the precleaner container (2), clean it and reassemble.

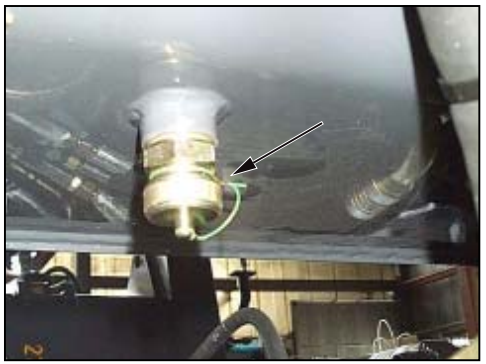
1. Fuel filter
2. Fuel prefilter

every 1000 working hours

Tappo di riempimento

20. Replace hydraulic oil

Change after the first 1,000 working hours and then every 2,000 hours.
To change the oil remove the filler plug and then release the oil via the lower drain plug. Make use of the hydraulic oil drainage kit (in compliance with environment-friendly Din standards). Make sure that all hydraulic cylinders are closed and the engine is OFF.
When all the oil has been drained, remove the inspection flange and wash the tank interior thoroughly with naphtha.
Leave to dry and replace the flange. Then fill via the filler tube.
This operation should be carried out by your **AHLMANN** distributor.



Drain plug

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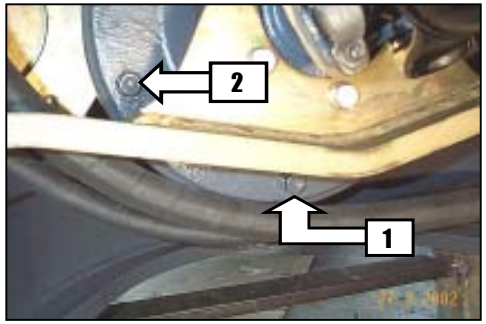


21. Replace the transfer box oil

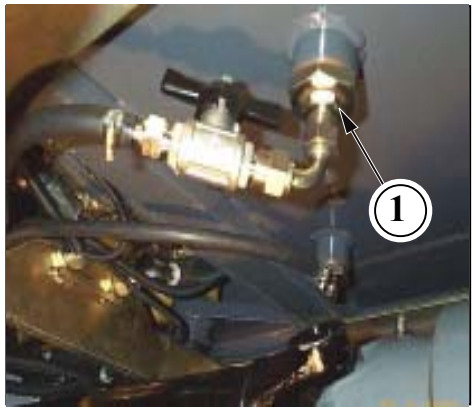
- Remove the drain plug "**1**".
- Remove the level-filler cap "2" to ease oil outflow and let oil drain completely.
- Screw the drain plug "1"
- Pour oil into the cap "**2**" hole until it flows out.
- Screw the drain plug "1".

22. Change epicyclic reduction gear oil

- Position the wheel with the drain/filler plug as shown in the picture.
- Unscrew the plug and let the oil drain completely.
- Turn the wheel, bringing the plug into its upper position.
- Introduce new oil until it flows out of the hole.
- Screw the plug again.

23. Clean the diesel tank

- Drain all the diesel (and water if any) via the drain plug (1).
- Screw the plug again.
- Refill via the filler tube (2).

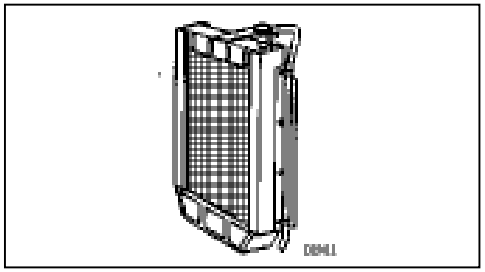


24. Replace differential oil

- Remove the plug indicated in the picture to aid oil outflow and ensure complete emptying.
- Pour oil into the plug hole until it flows out.
- Screw the plug again.

Front axle

Rear axle



25. Engine radiator cleaning

After removing the engine compartment closing panel to the right, clean the radiator and the coolant:
- Dry dust: use compressed air.
- Mud: use a water jet.
- Greasy dust: use perchloroethylene.

IMPORTANT : The use of trichloroethylene is strictly forbidden.

⚠ Never leave tools or other objects inside the air inlet casing.

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26. Multistage centrifugal blower cleaning

The compressor rotor, its volute and the oil return pipe from the multistage centrifugal blower to the oil sump must be cleaned every 2,000 working hours by a Perkins authorised workshop.

Supply Table				Ahlmann machines use exclusively SHELL lubricants
Part	Qnt.		NORMS AND SPECIFICATIONS	
	kg	l.		
ENGINE OIL	9	9.9	API CD/SE MIL-L-2104D	MIRINA D 15W40
FRONT AXLE OIL (self-locking)	6.2	6.8	API CD/SE MIL-L-2104D	SPIRAX A 90 LS
REAR AXLE OIL (self-locking)	6.3	6.9	API CD/SE MIL-L-2104D	SPIRAX A 90 LS
REDUCTION GEAR OIL	1.3	1.4	FORD M-2C-134D ALLISON C4	DONAX TD
EPICYCLIC REDUCTION GEAR OIL (each)	0.7	0.8	FORD M-2C-134D ALLISON C4	DONAX TD
HYDRAULIC OIL *	109	120	FORD M-2C-134D ALLISON C4	DONAX TD
BRAKES OIL	1	1.1	GM ATF TIPO A SUFF. A ALLISON C2	DONAX TM
FUEL TANK		130	ASTM D975-66T	DIESEL
COOLING SYSTEM		27		WATER
ANTIFREEZE down to -10° C		3.5		ANTIFREEZE
ANTIFREEZE down to-20° C		5		ANTIFREEZE
ANTIFREEZE down to-35° C		7		ANTIFREEZE
GREASE	-	-	EP-LITIO NGLI 2	RETINAX HD2
* THIS OIL IS FOR HYDRAULIC MOVEMENT AND HYDROSTATIC TRANSMISSION				

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Lubricants Comparative Table

Part	Q n t.		IP	MOBIL	ESSO	AGIP	GULF
	kg	l					
ENGINE OIL	9	9.9	AXIA 15W40	DELVAC SUPER	HEAVY TRUCK DIESEL M.O.	SUPERDIESEL	MULTI DUTY
FRONT AXLE OIL (self locking)	6.2	6.8	PONTIAX LS	-	L.S. A90	ROTRA LS	-
REAR AXLE OIL (self locking)	6.3	6.9	PONTIAX LS	-	L.S. A90	ROTRA LS	-
REDUCTION GEAR OIL	1.3	1.4	GEO PONTIAX TR	MOBIL FLUID 422	TORQUE FLUID 62	ROTRA MULTI THT	UNIVERSAL TRACTORS FLUID
EPICYCLIC REDUCTION GEAR OIL (each)	0.7	0.8	GEO PONTIAX TR	MOBIL FLUID 422	TORQUE FLUID 62	ROTRA MULTI THT	UNIVERSAL TRACTORS FLUID
HYDRAULIC OIL *	109	120	GEO PONTIAX TR	MOBIL FLUID 422	TORQUE FLUID 62	ROTRA MULTI THT	UNIVERSAL TRACTORS FLUID
BRAKE OIL	1	1.1	TRASMISS. FLUID	ATF 200	ATF TIPO A SUFF. A	ROTRA ATF	ATF DEXRON
FUEL TANK		130	DIESEL	DIESEL	DIESEL	DIESEL	DIESEL
COOLING SYSTEM		27	WATER	WATER	WATER	WATER	WATER
ANTIFREEZE down to -10° C		3.5	ANTIFREEZE	ANTIFREEZE	ANTIFREEZE	ANTIFREEZE	ANTIFREEZE
ANTIFREEZE down to -20° C		5	ANTIFREEZE	ANTIFREEZE	ANTIFREEZE	ANTIFREEZE	ANTIFREEZE
ANTIFREEZE down to -35° C		7	ANTIFREEZE	ANTIFREEZE	ANTIFREEZE	ANTIFREEZE	ANTIFREEZE
GREASE	-	-	ATHESIA EP1/EP2	MOBILUX EP 2	BEACON EP2	GR MU/E 2	CROWN EP 2
* THIS OIL IS FOR HYDRAULIC MOVEMENT AND HYDROSTATIC TRANSMISSION							

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SUMMARY TABLES

Valve setting summary table

ABBREVIATION	NAME	PRESSURE kg/cmq
- **V.G.C.**	GENERAL LOADER VALVE (on distributor)	230
- **V.A.B.C.F.**	LOADER BUCKET ANTI-SHOCK VALVE (end-plate side)	300 *
- **V.A.B.C.A.**	LOADER BUCKET ANTI-SHOCK VALVE (rod side)	240 *
- **V.A.S.C.**	LOADER LIFT ANTI-SHOCK VALVE (end-plate side)	300 *
- **V.G.I.**	GEN. HYDRAULIC POWER STEERING VALVE	175
- **V.A.I.**	HYD. POWER STEERING ANTI-SHOCK VALVE	240 *
- **V.P.E.T.I.**	HYDROSTATIC TRANSMISSION OPERATING PRESSURE VALVE	460±5 bar with engine at 2200±25 RPM
- **V.T.I.**	SAFETY VALVE	490
- **V.S.T.I.**	HYDROSTATIC TRANSMISSION SUPERCHARGER	30±1 bar with engine at 2200±25 RPM
-	HYDROSTATIC MOTOR ADJUSTMENT START PRESSURE	280±5
	VALVE DIAPHRAGM	ø
	PUMP CASING PRESSURE 60°	
	HYDRAULIC SYSTEM VACUUM PRESSURE	MAX 8

Note: Valves having pressure values marked with an asterisk (*) should be tested on inspection bench. Pressure values refer to a flow rate of 2÷3 litres.

Diesel engine revs	2200 loaded		2360 load-free	
Cardan shaft revs	1st 600	2nd 925	3rd 1030	4th 2580
Valve of 4 : 1 equipment				
Revs (stall status): n° 2 RPM 2200 - 2300				
Note: Setting values, where not specified, must be considered with a tolerance of ± 5 bar				

The Company declines all liabilities for damages due to any valve tampering. Therefore all work on the valves must be carried out by authorised personnel only.

Tightening torque table

SCREW CLASS		SCREW DIAMETER									
ISO	**DIN**	**M 12**	**M 14**	**M 16**	**M 18**	**M 20**	**M 22**	**M 24**	**M 27**	**M 30**	**M 33**
8.8	8 G	7	12	18	26	33	44	57	80	105	145
10.9	10 K	8.5	15	22	32	41	53	69	100	127	175
12.9	12 K	10	18	26	38	49	63	82	115	150	205

Assembly notes

- The screws must be lubricated with engine oil.

- Should one or more screws be fixed, tightening must be progressive and alternate until desired torque is achieved.

- Whenever flat washers are required, use steel washer with a minimum strength of 80 kg/mm^2 only.

Draught must be carried on the screwhead 784±30 Nm (80±3 Kgm)

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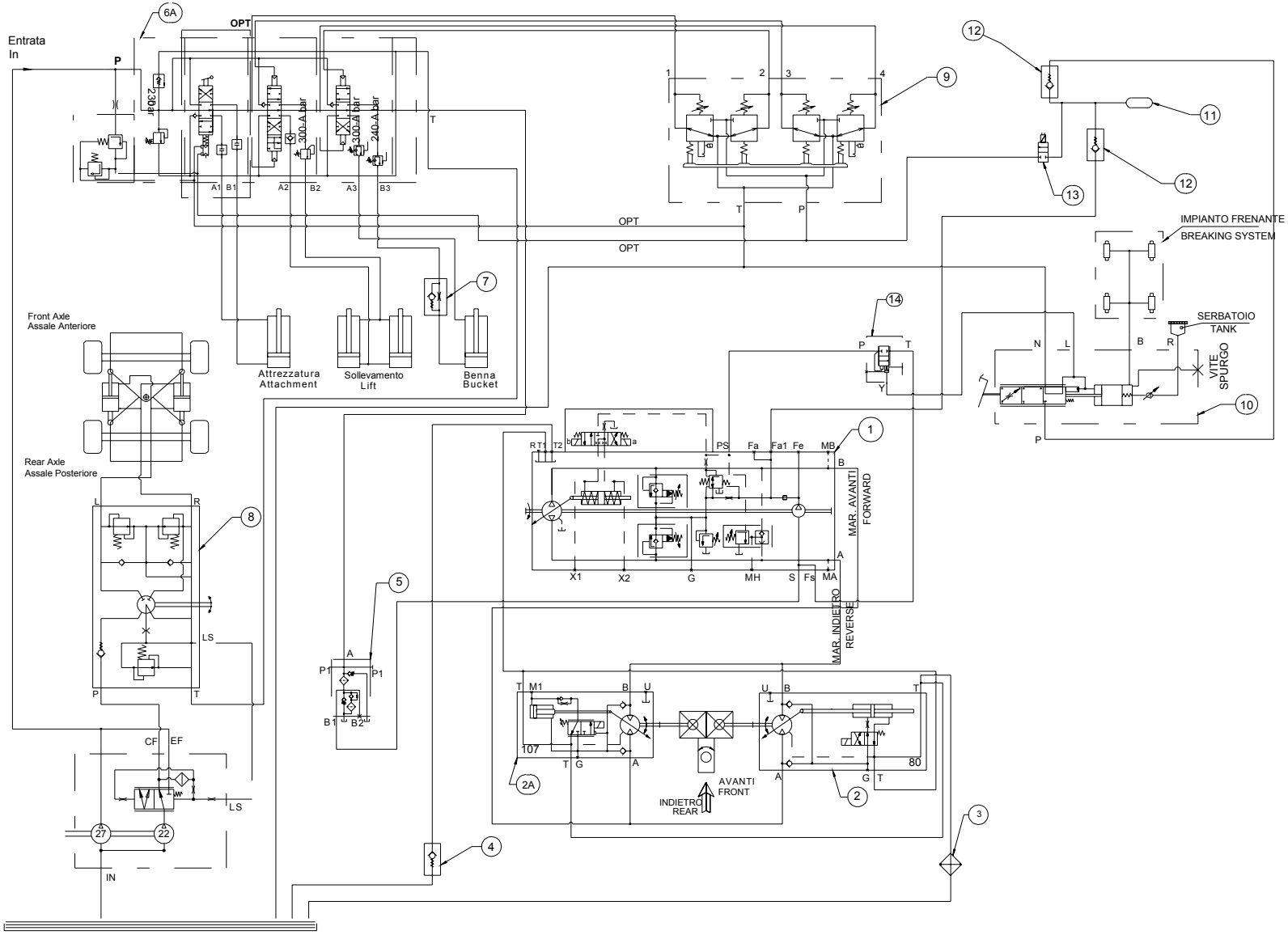
Hydraulic system scheme



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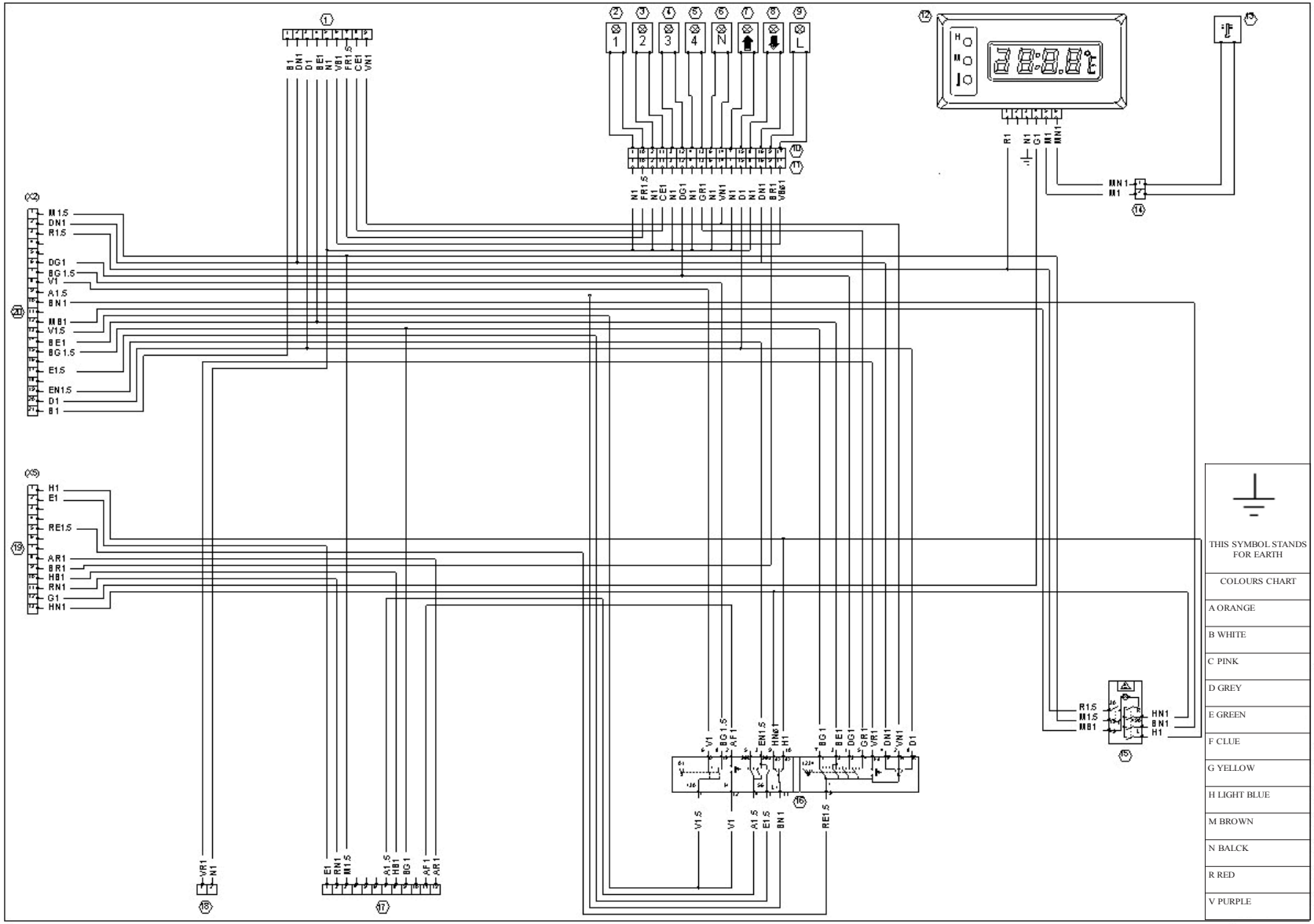
Max capacity 108 (59.5 + 48.5) litres/m 2200 rpm - LOADER
Loader pressure setting 230 bar
Pressure setting of hydraulic power steering: 175 bar

POS.	DESCRIPTION
1	HYDROSTATIC PUMP (A4VG 90DA)
2	HYDROSTATIC ENGINE (A6VM 80EZ)
2A	HYDROSTATIC ENGINE (A6VM 107HA)
3	COMPLETE RADIATOR
4	UNIDIRECTIONAL VALVE
5	HYDRAULIC OIL FILTER
6	2 SECTION DISTRIBUTOR
6A	3 SECTION DISTRIBUTOR
7	THROTTLING VALVE
8	HYDRAULIC POWER STEERING
9	MANIPULATOR (HC-RLC 1385)
10	BRAKE PUMP WITH SERVO CONTROL
11	ACCUMULATOR
12	UNIDIRECTIONAL VALVE
13	ELECTROVALVE
14	INCH - PEDAL VALVE

Wiring scheme impianto colonnetta



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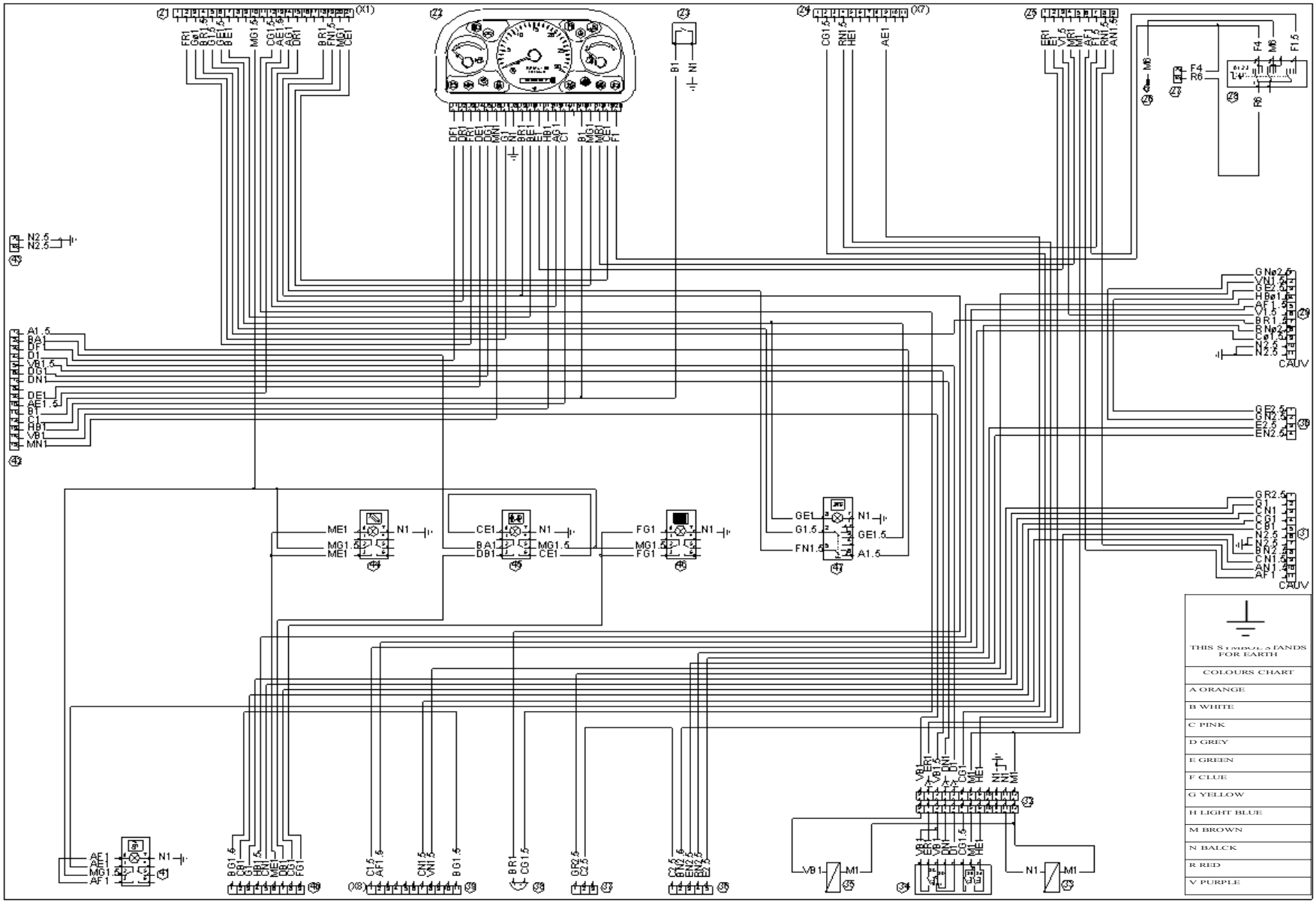
Wiring scheme - side dashboard line



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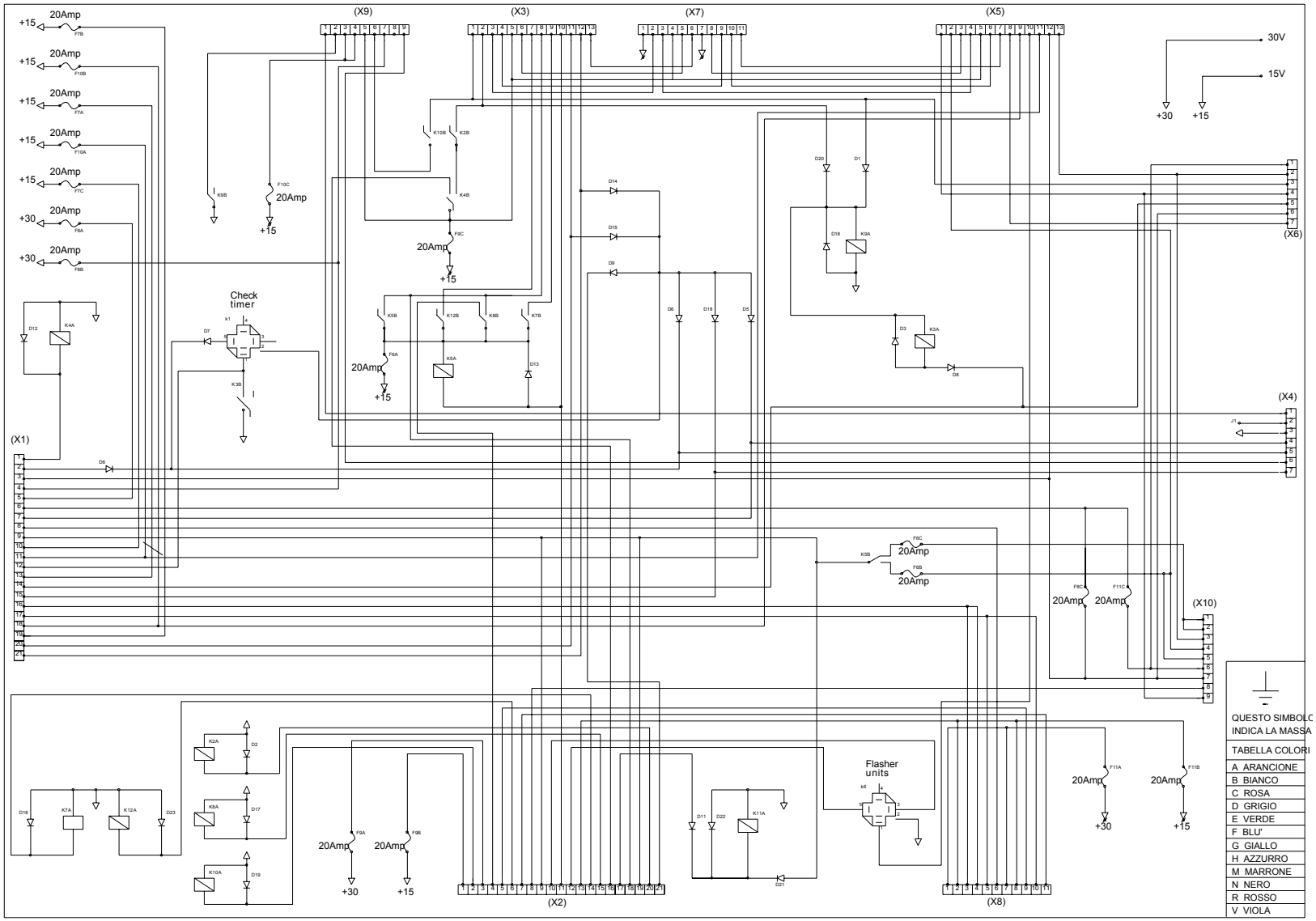
Wiring scheme - central unit



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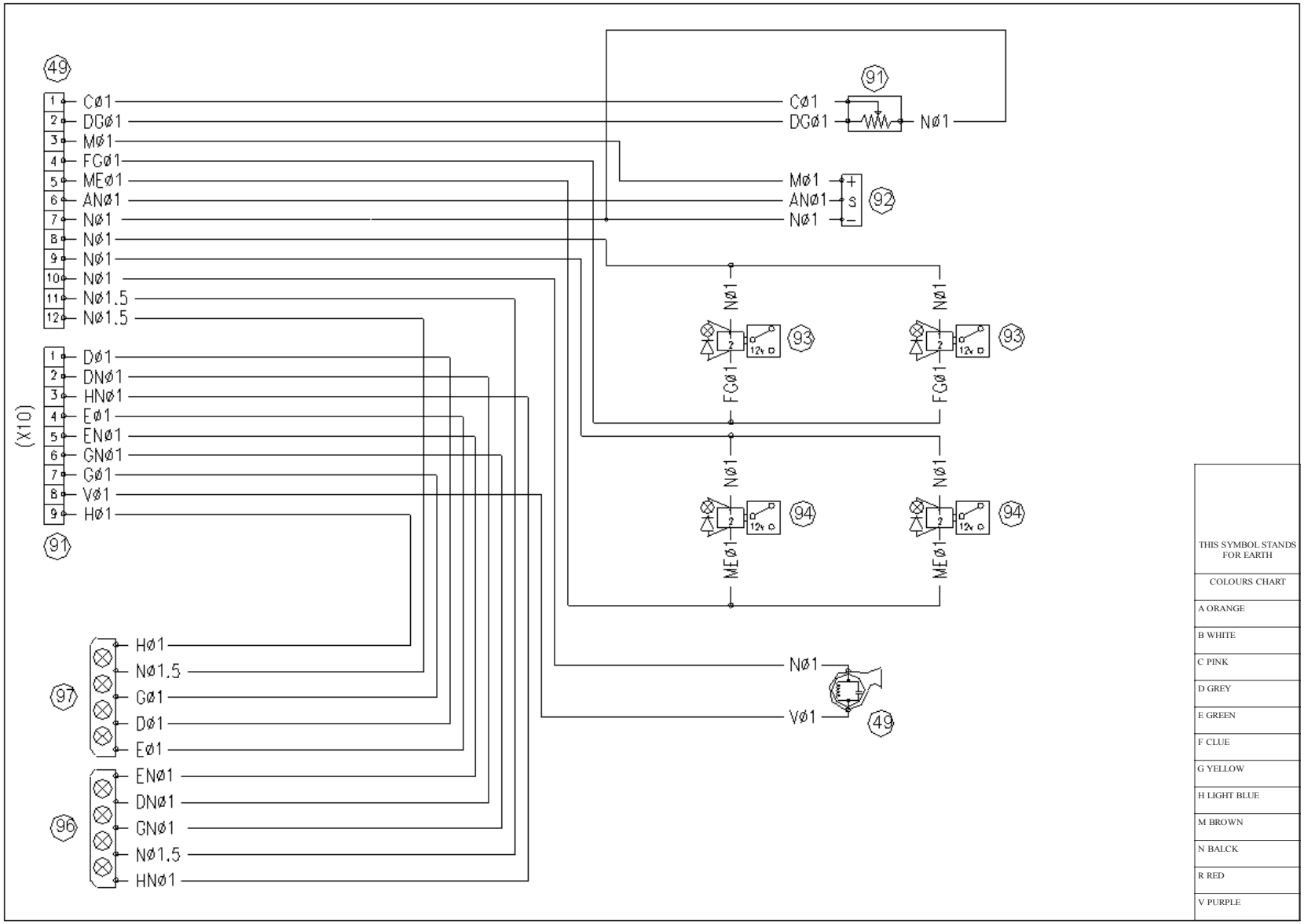
Wiring scheme - front light line

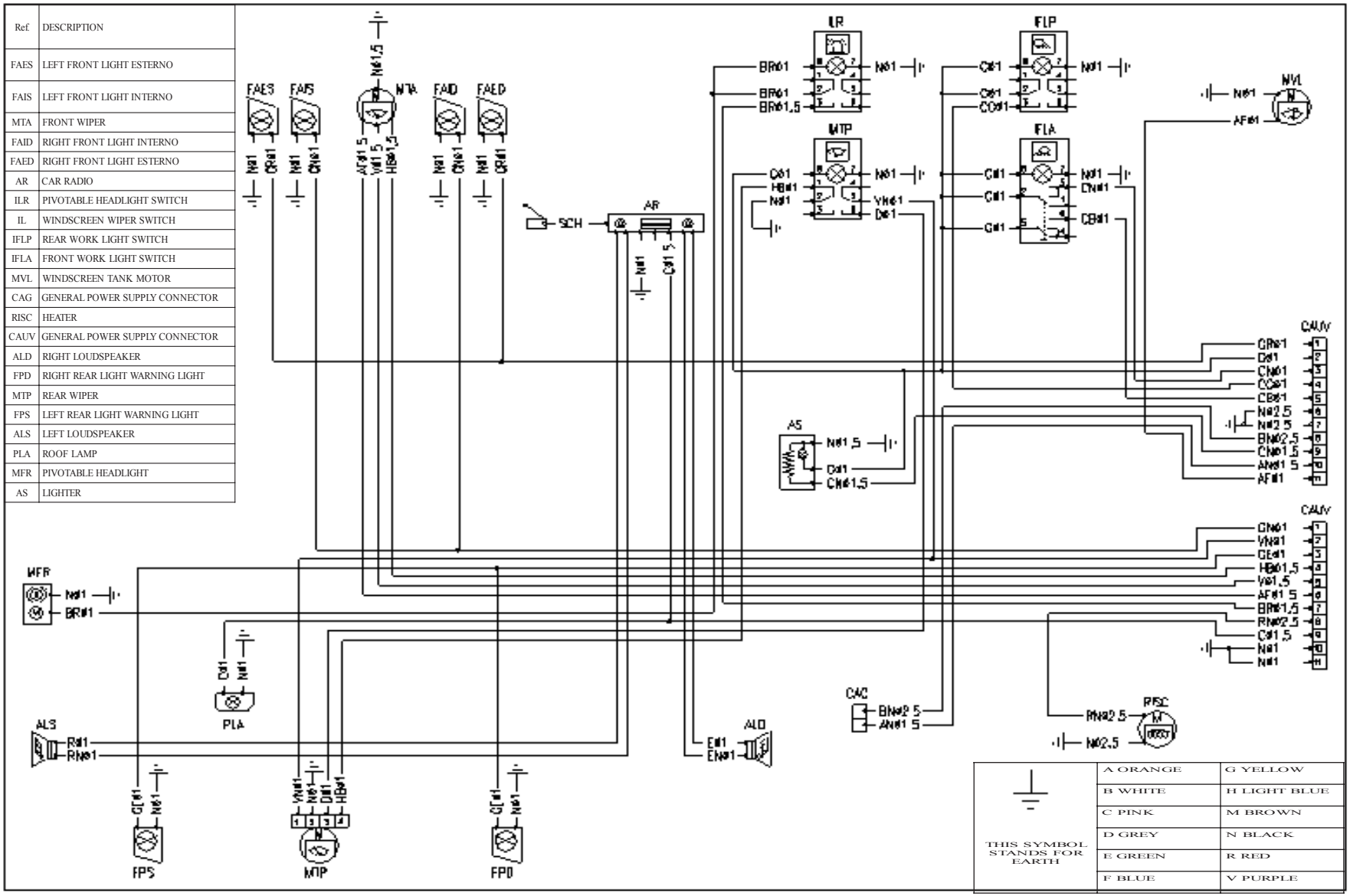


THIS SYMBOL STANDS FOR EARTH
COLOURS CHART
A ORANGE
B WHITE
C PINK
D GREY
E GREEN
F CLUE
G YELLOW
H LIGHT BLUE
M BROWN
N BALCK
R RED
V PURPLE

GB

Wiring scheme - cab

Ref.	DESCRIPTION
FAES	LEFT FRONT LIGHT ESTERNO
FAIS	LEFT FRONT LIGHT INTERNO
MTA	FRONT WIPER
FAID	RIGHT FRONT LIGHT INTERNO
FAED	RIGHT FRONT LIGHT ESTERNO
AR	CAR RADIO
ILR	PIVOTABLE HEADLIGHT SWITCH
IL	WINDSCREEN WIPER SWITCH
IFLP	REAR WORK LIGHT SWITCH
IFLA	FRONT WORK LIGHT SWITCH
MVL	WINDSCREEN TANK MOTOR
CAG	GENERAL POWER SUPPLY CONNECTOR
RISC	HEATER
CAUV	GENERAL POWER SUPPLY CONNECTOR
ALD	RIGHT LOUDSPEAKER
FPD	RIGHT REAR LIGHT WARNING LIGHT
MTP	REAR WIPER
FPS	LEFT REAR LIGHT WARNING LIGHT
ALS	LEFT LOUDSPEAKER
PLA	ROOF LAMP
MFR	PIVOTABLE HEADLIGHT
AS	LIGHTER



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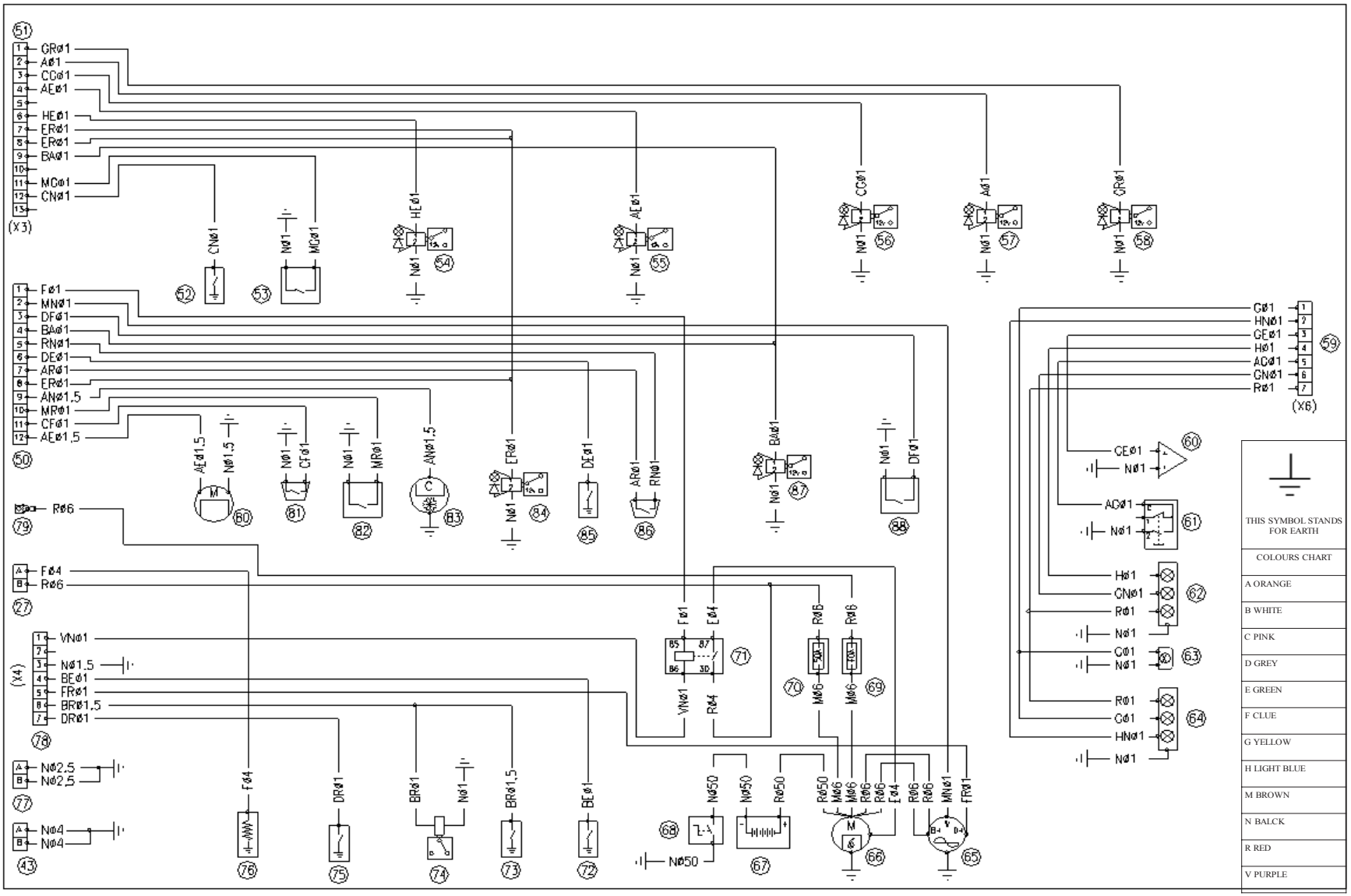
Schema impianto elettrico - engine rear line



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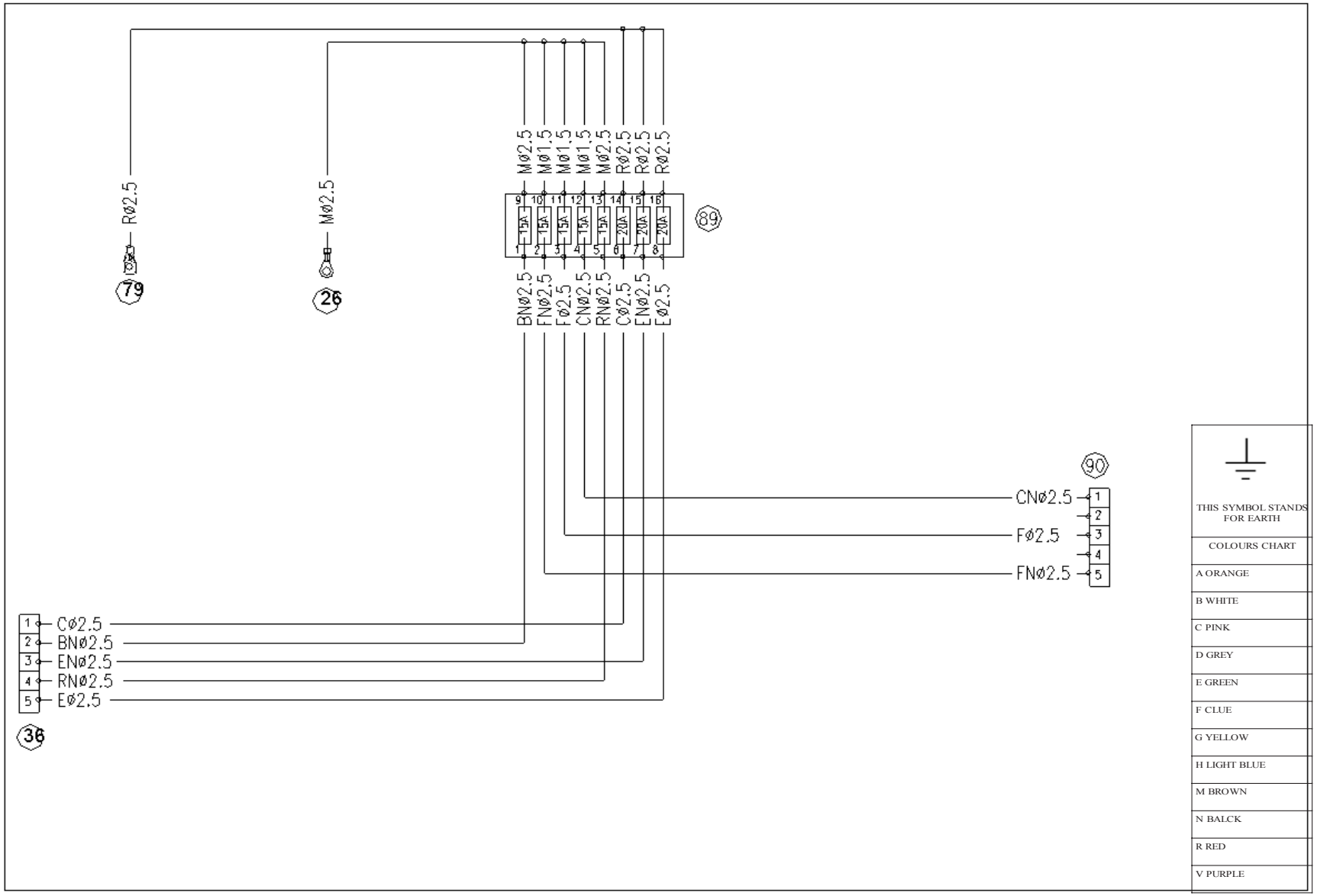
Wiring scheme - fuse carrier line



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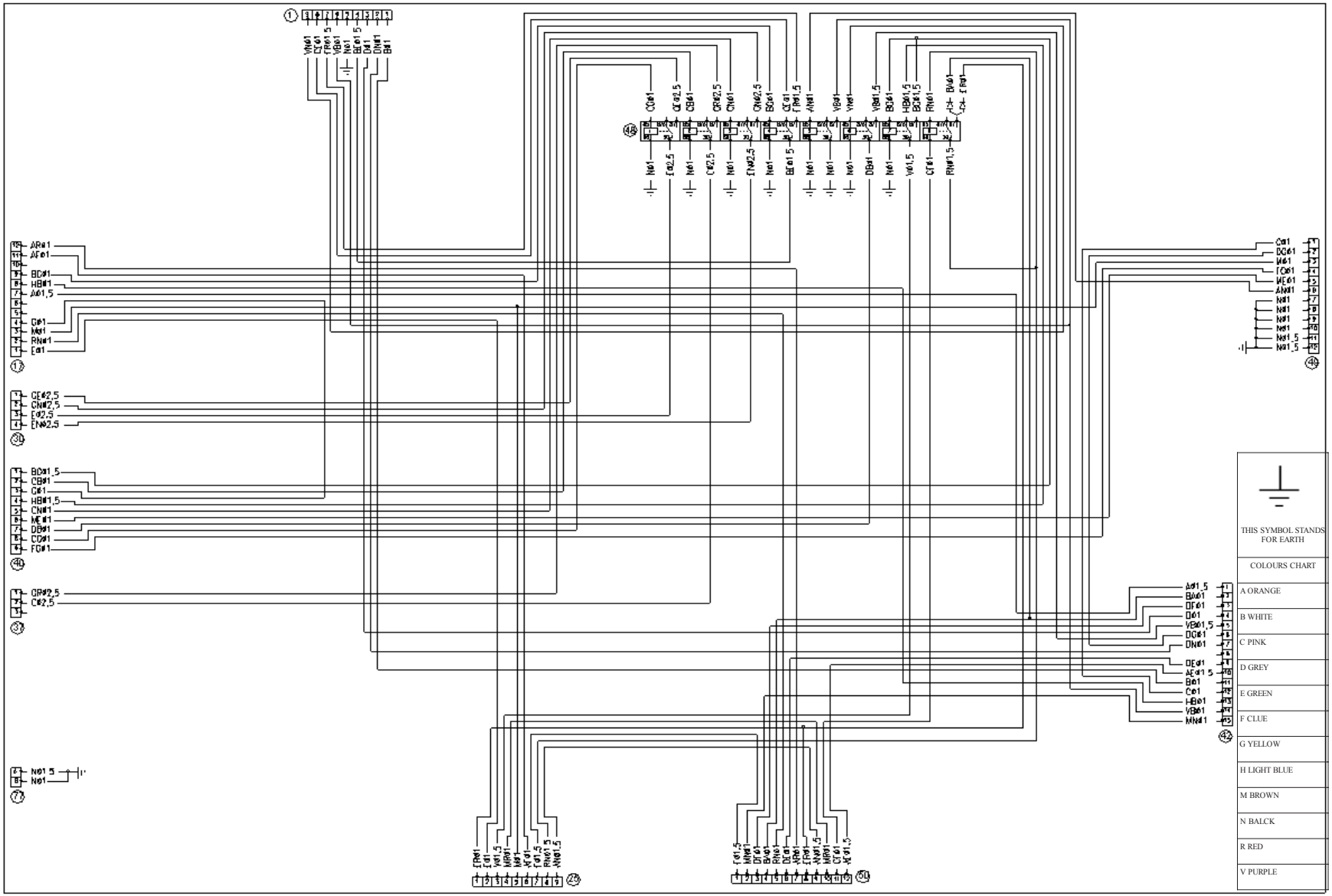
Wiring scheme - relay diagram



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Wiring scheme - description 1

NAME	DESCRIPTION
1	SYSTEM CONNECTION 9 WAY F CONNECTOR
2	FIRST GEAR WARNING LIGHT
3	SECOND GEAR WARNING LIGHT
4	THIRD GEAR WARNING LIGHT
5	FOURTH GEAR WARNING LIGHT
6	NEUTRAL GEAR POSITION WARNING LIGHT
7	FORWARD GEAR WARNING LIGHT
8	REVERSE GEAR WARNING LIGHT
9	BUCKET LEVEL SENSOR WARNING LIGHT
10	WARNING LIGHTS UNIT 17 WAY M CONNECTOR
11	WARNING LIGHTS UNIT 17 WAY F CONNECTOR
12	THERMOMETER-CLOCK INSTRUMENT
13	TEMPERATURE PROBE
14	TEMPERATURE PROBE 2 WAY CONNECTOR
15	DIRECTION INDICATORS EMERGENCY SWITCH
16	LIGHT SWITCH- CHANGE GEAR SWITCH
17	SYSTEM CONNECTION 2 WAY M CONNECTOR (BLACK)
18	OPTIONAL CONNECTION 2 WAY F CONNECTOR
19	SYSTEM CONNECTION (YELLOW) (X5) 13 WAY M CONNECTOR
20	SYSTEM CONNECTION (YELLOW) (X2) 21WAY M CONNECTOR
21	CENTRAL UNIT CONNECTION (X1) 21WAY M CONNECTOR
22	CONTROL PANEL
23	BRAKE LIQUID LEVEL SENSOR
24	CENTRAL UNIT CONNECTION (X2) 11WAY M CONNECTOR
25	SIDE DASHBOARD LINE 9 WAY CONNECTOR
26	
27	SIDE DASHBOARD LINE CONNECTION 2 WAY POWER CONNECTOR
28	IGNITION KEY SWITCH
29	CAB CONNECTION 11WAY M CONNECTOR
30	SIDE DASHBOARD LINE CONNECTION 11WAY POWER CONNECTOR
31	CAB CONNECTION 11WAY M CONNECTOR
32	MANIPULATOR ACTIVATING CONNECTION 12 WAY CONNECTOR
33	JOYSTICK LOCKING ELECTROMAGNET
34	FORWARD MOVEMENT JOYSTICK
35	JOYSTICK LOCKING ELECTROMAGNET
36	SIDE DASHBOARD LINE CONNECTION 5 WAY CONNECTOR
37	SIDE DASHBOAR LINE CONNECTION 2 WAY POWER CONNECTOR
38	ALARM BUZZER
39	CENTRAL UNIT (X8) 11WAY M CONNECTOR
40	SIDE DASHBOARD LINE CONNECTION 9 WAY CONNECTOR
41	ROAD SAFETY SWITCH
42	SIDE DASHBOARD LINE CONNECTION 15 WAY CONNECTOR
43	SIDE DASHBOARD LINE CONNECTION 2 WAY POWER CONNECTOR
44	HYDRAULIC CYLINDERS BLOCK SWITCH
45	MANIPULATOR OPERATION ACTIVATING SWITCH
46	ANTI – PITCH SWITCH
47	SIDE LIGHTS SWITCH

NAME	DESCRIPTION
48	RELAY UNIT
49	FRONT LIGHTS LINE CONNECTION 12 WAY CONNECTOR
50	REAR ENGINE LINE CONNECTION 12 WAY CONNECTOR
51	CENTRAL UNIT (X3) CONNECTION 13 WAY M CONNECTOR
52	HYDRAULIC OIL TEMPERATURE SENSOR
53	CLOGGED HYDRAULIC OIL FILTER SENSOR
54	MANIPULATOR SOLENOID VALVE (ON REQUEST)
55	ROAD SAFETY SOLENOID VALVE
56	MANIPULATOR SOLENOID VALVE (ON REQUEST)
57	FORWARD GEAR SOLENOID VALVE
58	REVERSE GEAR SOLENOID VALVE
59	CENTRAL UNIT (X6) CONNECTION 9 WAY M CONNECTOR
60	RIVERSE GEAR BUZZER
61	PARKING BRAKE SWITCH
62	REAR RIGHT LIGHT
63	NUMBER PLATE LIGHT
64	REAR LEFT LIGHT
65	ALTERNATOR
66	STARTER
67	12 V BATTERY
68	BATTERY DISCONNECTION SWITCH
69	SYSTEM PROTECTION MAXIFUSE
70	STARTING DEVICE RELAY PROTECTION MAXIFUSE
71	STARTING DEVICE RELAY
72	WATER TEMPERATURE WARNING LIGHT SENSOR
73	COLD START SENSOR
74	MOTOR STOP SOLENOID VALVE
75	ENGINE OIL PRESSURE SENSOR
76	THERMOSTARTER
77	RELAY LINE CONNECTION 2 WAY POWER CONNECTOR
78	CENTRAL UNIT (X4) CONNECTION 2 WAY M CONNECTOR
79	
80	PNEUMATIC SEAT MOTOR
81	HYDRAULIC POWER STEERING PRESSURE SWITCH
82	HYDRAULIC OIL AND BRAKE ACCUMULATOR PRESSURE SENSOR
83	AIR CONDITIONING COMPRESSOR
84	FIRST GEAR SOLENOID VALVE
85	WATER TEMPERATURE INDICATOR SENSOR
86	HYDROSTOP
87	SECOND GEAR SOLENOID VALVE
88	CLOGGED AIR FILTER SENSOR

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NAME	DESCRIPTION
89	FUSE CARRIER BOX
90	FUSE CARRIER BOX CONNECTION 5 WAY F CONNECTOR
91	FUEL LEVEL FLOATER
92	BOOM SENSOR
93	ANTI – PITCH DEVICE SOLENOID VALVE
94	HYDRAULIC CYLINDER BLOCK SOLENOID VALVE
95	BUZZER
96	FRONT LEFT LIGHT
97	FRONT RIGHT LIGHT
98	CENTRAL UNIT (X10) CONNECTION 9 WAY M CONNECTOR
99	
100	

GB

Wiring scheme - connectors

	21-WAY-X1 CONNECTOR
1	ON REQUEST
2	GENERATOR WARNING LIGHT
3	EQUIPMENT LIGHTING
4	PIVOTABLE HEADLIGHT PUSH SWITCH FEED
5	SIDE LIGHTS SWITCH FEED
6	SIDE LIGHTS SWITCH 58
7	H 20 WARNING LIGHT
8	ON REQUEST
9	ON REQUEST
10	SWITCH FEEDS FOR HYDRAULIC CYLINDERS BLOCK, ACTIVATION OF MANIPULATOR, ANTI-PITCH DEVICE, ROAD SAFETY
11	ON REQUEST
12	ALARM BUZZER
13	PNEUMATIC SEAT MOTOR FEED
14	PARKING BRAKE WARNING LIGHT
15	MOTOR OIL PRESSURE WARNING LIGHT
16	ON REQUEST
17	ON REQUEST
18	CONTROL PANEL FEED, ALARM BUZZER
19	SIDE LIGHTS SWITCH FEED
20	OIL FILTER WARNING LIGHT
21	HYDRAULIC OIL TEMPERATURE WARNING LIGHT
	21-way-X2 connector
1	EMERGENCY DIRECTIONAL INDICATORS SWITCH FEED + 15, BOOM SENSOR, MANIPULATOR ACTIVATING
2	REVERSE GEAR
3	CLOCK – THERMOMETER INSTRUMENT FEED, EMERGENCY DIRECTIONAL INDICATORS
4	ON REQUEST
5	ON REQUEST
6	THIRD GEAR
7	WINDSCREEN WIPER FIRST SPEED POSITION
8	WINDSCREEN WIPER SWITCH FEED
9	ON REQUEST
10	DIRECTIONAL INDICATORS INTERMITTENCE L
11	ON REQUEST
12	DIRECTIONAL INDICATORS INTERMITTENCE FEED
13	WINDSCREEN WIPER SWITCH FEED
14	SECOND GEAR
15	FIRST GEAR
16	ON REQUEST
17	SWITCH FEED 56
18	ON REQUEST
19	HIGH/LOW BEAM FEED

20	FORWARD GEAR
21	BRAKE LIQUID LEVEL SENSOR
	13-way-X3 Connector
1	SOLENOID VALVE FOR REVERSE GEAR
2	SOLENOID VALVE FOR FORWARD GEAR
3	SOLENOID VALVE FOR MANIPULATOR (ON REQUEST)
4	SOLENOID VALVE FOR ROAD SAFETY
5	ON REQUEST
6	SOLENOID VALVE FOR MANIPULATOR (ON REQUEST)
7	SOLENOID VALVE FOR FIRST GEAR
8	SOLENOID VALVE FOR FIRST GEAR
9	SOLENOID VALVE FOR SECOND GEAR
10	ON REQUEST
11	CLOGGED HYDRAULIC OIL FILTER SENSOR WARNING LIGHT
12	HYDRAULIC OIL TEMPERATURE SENSOR
13	ON REQUEST
	7-way-X4 Connector
1	START-UP RELAY EXCITATION
2	ON REQUEST
3	GROUND
4	WATER TEMPERATURE WARNING LIGHT SENSOR
5	GENERATOR WARNING LIGHT
6	COLD START SENSOR, ENGINE STOP SOLENOID
7	MOTOR OIL PRESSURE SENSOR
	13-way-X5 Connector
1	RIGHT DIRECTIONAL INDICATOR
2	HIGH BEAMS WARNING LIGHT
3	ON REQUEST
4	ON REQUEST
5	FORWARD MOVEMENT SWITCH FEED
6	ON REQUEST
7	ON REQUEST
8	STOPLIGHTS
9	REVERSE GEAR WARNING LIGHT
10	DIRECTIONAL INDICATORS WARNING LIGHT
11	HYDROSTOP FEED
12	THERMOMETER-CLOCK INSTRUMENT LIGHTING
13	LEFT DIRECTIONAL INDICATOR
	7-way-X6 Connector
1	LEFT REAR SIDE LIGHT, NUMBER PLATE LIGHT
2	LEFT DIRECTIONAL INDICATOR
3	REVERSE GEAR BUZZER
4	RIGHT DIRECTIONAL INDICATOR

5	PARKING BRAKE
6	RIGHT REAR SIDE LIGHT
7	STOPLIGHTS
	11-way-X7 Connector
9	ON REQUEST
10	B STEERED SOLENOID VALVE
11	ON REQUEST
12	POWER UNIT GENERAL FEED
13	B STEERED SOLENOID VALVE
14	ON REQUEST
15	ON REQUEST
16	ON REQUEST
17	FRONT SENSOR
18	ON REQUEST
19	ON REQUEST
20	11-way-X8 Connector
21	CAR RADIO AND CAB ROOF LAMP
	P/A FRONT WINDSCREEN WIPER ENGINE FEED
1	ON REQUEST
2	ON REQUEST
3	ON REQUEST
4	ON REQUEST
5	LIGHTER FEED
6	FRONT WINDSCREEN WIPER SWITCH FEED, FRONT WINDSCREEN WIPER ENGINE
7	ON REQUEST
8	ON REQUEST
9	FRONT WIPER RETURN
10	9-way-X9 CONNECTOR
11	CONNECTION CONNECTOR FOR ANTITHEFT DEVICE (ON REQUEST)
12	9-way-X10 Connector
13	RIGHT DIPPED HEADLIGHT
14	LEFT DIPPED HEADLIGHT
15	FRONT LEFT DIRECTIONAL INDICATOR
16	RIGHT HIGH BEAM
17	LEFT HIGH BEAM
18	FRONT LEFT SIDE LIGHT
19	FRONT RIGHT SIDE LIGHT
20	11-way-X7 Connector
21	ON REQUEST
	B STEERED SOLENOID VALVE
	ON REQUEST

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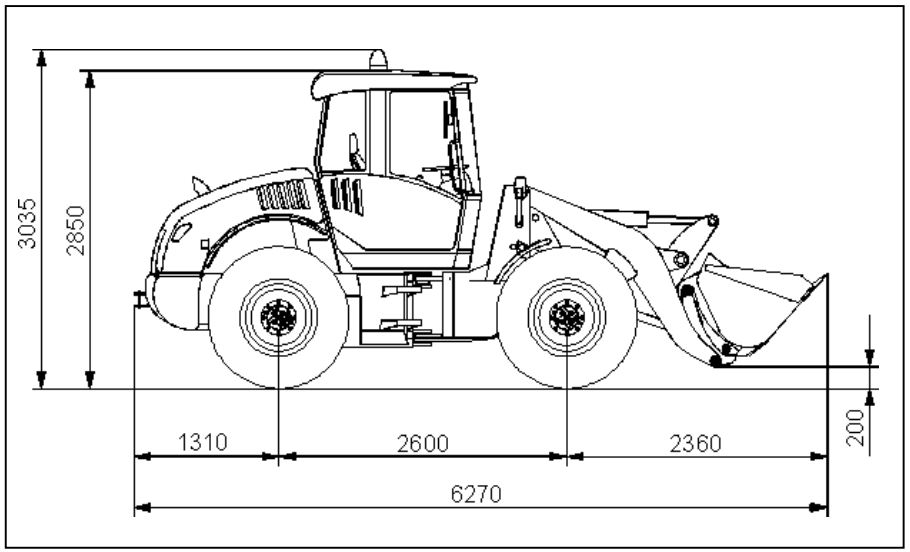
TECHNICAL SPECIFICATIONS

Tread width	mm. 1760
Maximum width without bucket	mm. 2164
Ground clearance	mm. 475
Tires (standard)	N° 4 15.5 x 25
Alternative tire size	N° 4 405/80 R25
	N° 4 17.5 R 25 R25
Bucket cutting width	mm. 2350
Turnover static load on a horizontal surface	kg. 5800
Turnover static load with steered vehicle (40°)	kg. 5200
Standard operating weight	kg. 8200
Max operating weight	kg. 8800



ENGINE

Make and type	Perkins 1004-40T
Number of cylinders	4 in line
Cycle	4 stroke Diesel
Diameter and stroke in mm.	100 x 127
Total displacemente cm^3	4.000
Compression ratio	17,25 : 1
Injection	Direct
Set power DIN 70020/6271 at 2,200 r.p.m.	75 kW - 102 CV
Aspiration	Turbocharged

ENGINE LUBRICATION

Type	Forced
Pump type	Rotor pump
Min. pressure at peak r.p.m.	280 kPa (2,5 kgf/cm^2)
No 1 oil filter	Integral cartridge

FEEDING

Type	Diesel
Feeding pump	Diaphragm pump
Fuel filter	2
Injection pump	Lucas
Injection order	1 - 3 - 4 - 2
Air filter	Dry

COOLING

Type	Water - cooled
Circulation	Forced
Type	Centrifuge pump
Fan	Blower
Thermostat starts to open at	77° - 85°C

IGNITION

Type	Electric starter motor
Power	2,8 kw
Electrical system	12 Volt
Battery	N° 1
Battery power	100 Ah
Self-adjusted alternator	540 Watt

SPEED

Forward ..... 1st 0:7 - 2nd 0:14 - 3rd 0:24 - 4th 0:35 (GERMAN version 0:20)
Reverse ..... 1st 0:7 - 2nd 0:14 - 3rd 0:24 (GERMAN version 0:20)

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TRANSMISSION

Make ..... HYDROMATIK
Type ..... Hydrostatic closed circuit
Pump ..... Variable cylinder capacity
Hydrostatic motor ..... Double displacement

AXLES

Front ..... Rigid
Rear ..... Oscillating
Total oscillation ..... 25°
Total reduction ..... 19,5 : 1
Differential ..... Conventional
Final reduction gears ..... Epicyclic

LOADER HYDRAULIC SYSTEM

Loader gear lift hydraulic cylinders ..... N° 2
Bore ..... 95 mm.
Stroke ..... 660 mm.
Double action ..... Yes
Loader dump hydraulic cylinder ..... N° 1
Bore ..... 120 mm.
Stroke ..... 420 mm.
Double action ..... Yes
Loader steering cylinder ..... N° 2
Bore ..... 65 mm.
Stroke ..... 255 mm.
Double action ..... Yes
Loader hydraulic distributor ..... Modular type
Sections ..... N° 2
Loader hydraulic pump type ..... Gear pump
Flow-rate at 2.200 r.p.m. ..... 112 litres
Return oil filter ..... Total filtration
Steering system ..... Hydraulic power steering
Service brake ..... Disk brake in oil on the four tires
With ..... Double circuit
Emergency circuit ..... By means of accumulator
Hydraulic control ..... Servo controlled
Parking brake ..... Block-type on manually operated transfer box

TROUBLESHOOTING

Problem	Possible cause	Solution
The engine overheats	Not enough water in radiato	Top up
	Limescale deposits in radiator	Contact your Ahlmann Distributor
	Alternator belt loose	Set correct belt tension
	Water pump faulty	Contact your Ahlmann Distributor
	Radiator cap valve stuck	Replace cap
	Water temperature probe malfunctioning	Contact your Ahlmann Distributor
The engine fails to start	Flat battery	Charge or replace battery
	Battery cable terminals loose or corroded	Check them over, clean, and coat with Vaseline
	Air in fuel line	Eliminate air intrusion source and bleed
	Starter motor will not turn	Contact your Ahlmann Distributor
	Water in fuel	Drain fuel, clean tank, replace with new fuel
Engine exhaust fumes white	Engine cold	Warm up engine for 5 - 10 minutes at 1100 - 1200 r.p.m.
	Injectors faulty	Contact your Ahlmann Distributor
	Delayed injection	
Engine exhaust fumes black	Air filter clogged	Clean air filter
	Timing off	Contact your Ahlmann Distributor
	Faulty injector	
Engine exhaust fumes blue	Abnormal oil infiltration into combustion chamber	Contact your Ahlmann Distributor
The engine lacks power	Fuel filter dirty	Sostituire il filtro
	Insufficient fuel delivery	Contact your Ahlmann Distributor
	Delayed injection	
The engine knocks	Timing off	Contact your Ahlmann DistributorI
	Faulty injectors	

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Problem	Possible cause	Solution
The vehicle moves neither forwards nor backwards, or it moves with a certain delay	Air inlet filter clogged	Replace filter
	Abundant foam formation, or oil level too low	Check oil state and level: change if necessary
	Inlet pipe broken or twisted	Contact your Ahlmann Distributor
	Elastic diesel engine - pump coupling faulty	
	Supercharger faulty	
	Drive direction selection solenoid valve fails to operate	
	Maximum pressure valves dirty or faulty	
	Faulty hydrostatic motor	
Engine vibration	Engine mountings faulty	Contact your Ahlmann Distributor
	Faulty injectors	
	Fan broken	
	Faulty injector pump	
	Engine breakdown	
Insufficient tractive force in both directions	Engine fails to max r.p.m. or is heavily overloaded	Contact your Ahlmann Distributor
	Supercharger feed pressure is too low	
	Maximum working pressure valve set too low	
	In-tank hydraulic oil temperature too high	
	Faulty hydrostatic motor	
Insufficient tractive force in first gear in both directions	Hydrostatic motor fails to maintain maximum displacement	Contact your Ahlmann Distributor
The vehicle decelerates erratically	Temporary magnet power supply interruption	Contact your Ahlmann Distributor

Problem	Possible cause	Solution
Extreme in-tank oil overheating	Oil level too low or wrong oil type	Check level or change oil
	Oil draw piping not airtight	Check draw piping
	Pump faulty check working pressure	Contact your Ahlmann Distributor
	Hydrostatic motor faulty: check oil draw flow-rate	
	Inefficient oil-water exchanger	
The vehicle does not reach max speed	Air inlet valve clogged	Replace it
	Max rated r.p.m. unattainable	Check diesel engine r.p.m.
	Second gear insertion magnet on hydrostatic motor not working	Contact your Ahlmann Distributor
Oil leaks at engine or draw pump drive shaft	Sealing ring faulty or hardened	Contact your Ahlmann Distributor
Reduced hydraulic cylinder force	Hydraulic circuit pressure too low	Contact your Ahlmann Distributor
Reduced working manoeuvre speed	Low-performance loader hydraulic pump.	Contact your Ahlmann Distributor
Loader hydraulic oil overheating	Low-performance loader hydraulic pump	Contact your Ahlmann Distributor
	Incorrect hydraulic circuit pressure	
	Oil draw in the cylinder pistons	
Noisy hydraulic pump	Oil level too low	Contact your Ahlmann Distributor
	Air present in drawing	
	Faulty pump	
Hydraulic system whistles	Air in hydraulic circuit	Contact your Ahlmann Distributor
Oil leakage at cylinders between cylinder head and piston	O-Ring seals worn	Contact your Ahlmann Distributor

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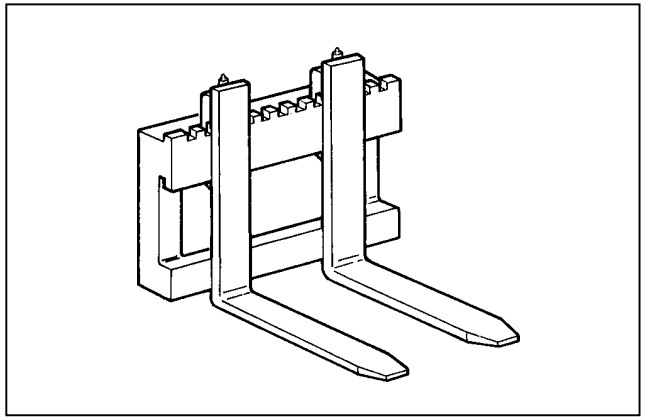
Problem	Possible cause	Solution
Oil leakage at cylinders between rod and piston	O-Ring seals worn	Contact your Ahlmann Distributor

UNIVERSAL FORKS



The **universal forks** are fitted on the front part.
The coupling may be of the pin type with quick mechanical coupling or with a quick hydraulic coupling.
For fork attachment see the **"Dismantling the equipment"** chapter.
Note: Since this is an equipment item that has no hydraulic movement there is no hose disassembly stage.

When the vehicle is equipped with universal forks the load must be at a maximum above-ground of 500 mm when the vehicle is moved.

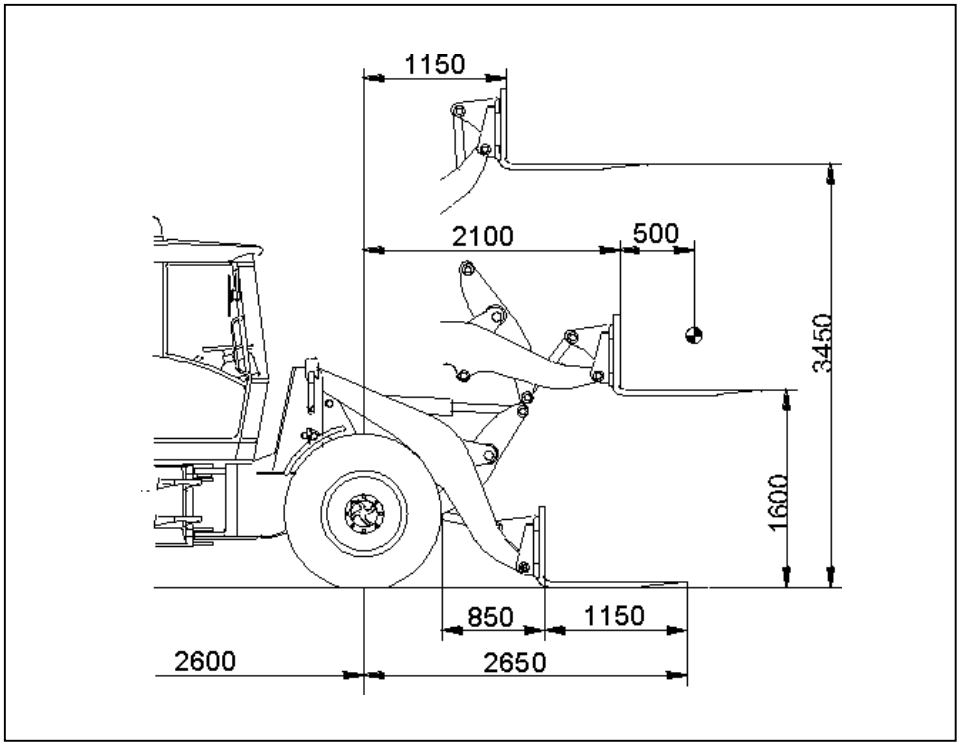
Transfer speed must not exceed 15 km/h when loaded.

The load barycentre must not be more than 500 mm from either the horizontal or vertical fork teeth plane.

ISO

The indicated load values must not be exceeded.
* The load marked with this symbol is for the machine use on not even ground (60% of articulated tipping load).
** The load marked with this symbol is for the machine use on an even hard surface (80% of articulated tipping load).

OVERALL DIMENSIONS WITH FORKS
(without quick coupling)
Load with forks - Load centre at 500 mm



* Load **2,600** kg. (with quick coupling 2,400 kg)
** Load **3,500** kg. (with quick coupling 3,300 kg)

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NOTES

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