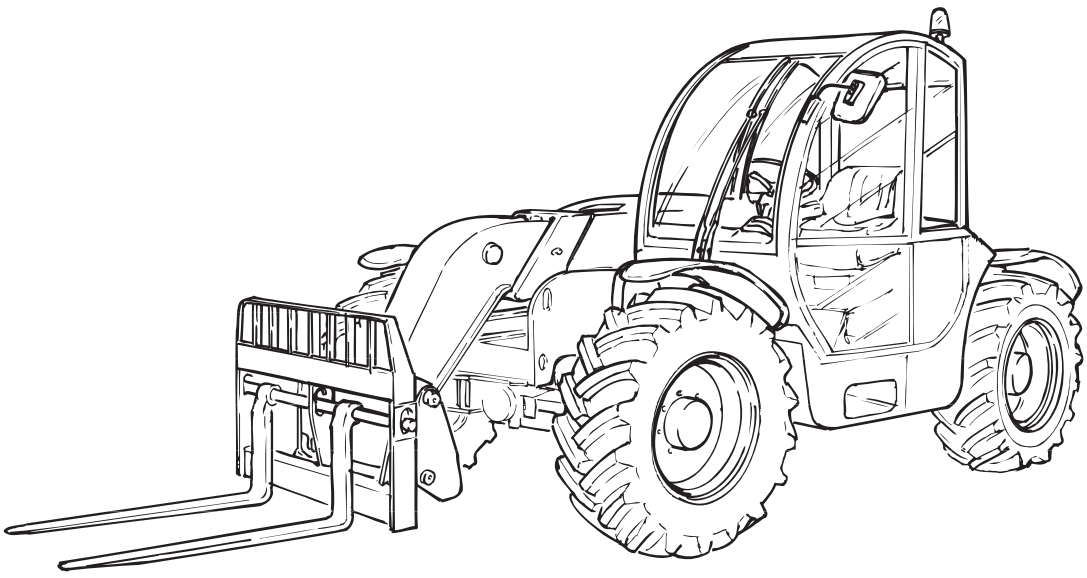
TEREXLIFT

WORKSHOP MANUAL

Code 57.4400.9200 - 1st Edition 11/2005

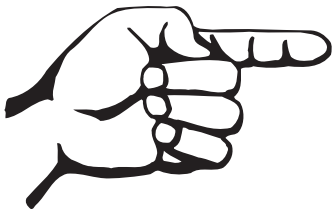
Agricultural machinery

AGRILIFT 737 - 1037



English
Edition

INDEX



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WORKSHOP MANUAL

Code 57.4400.9200 - 1st Edition 11/2005

Number: .....

Consigned to: .....

DECLARATION

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declare that I have received the ***Workshop manual for TEREXLIFT agricultural machinery series Agrilift 737 - 1037.***

Copies consigned: n° ..... on paper

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Yours sincerely

Date .....

For acceptance

The consignee

Company stamp
and signature of the Legal representative

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LIST OF REVISED PAGES

Revision No.	Revision date	Revised pages	Notes	Issued by
1	11-2005		Publication	
2				
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Sect. 2 TECHNICAL SPECIFICATIONS

Sect. 3 SCHEDULED MAINTENANCE INSPECTIONS

Sect. 4 SCHEDULED MAINTENANCE PROCEDURES

Sect. 5 TROUBLESHOOTING

Sect. 6 SCHEMES

Sect. 7 REPAIR PROCEDURES

Machine denomination	Literature valid up to serial number

INTRODUCTION

Important

Read, understand and obey the safety rules and operating instructions in the Agrilift 737 - 1037 Operator's Handbook before attempting any maintenance or repair procedure.
This manual provides the machine owner and user with detailed information on the scheduled maintenance. It also provided qualified service technicians with infromation on troubleshooting and repair procedures.
Basic mechanical, hydraulic and electrical skills are required to perform most procedures. However, several procedures require specialized skills, as well as specific tools and equipment.
In these instances, we strongly recommend letting service and repair the machine at an authorized TEREXLIFT service center.

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In pursuing a policy of constant quality improvement, TEREXLIFT srl reserves the right to make changes at any time and without undertaking to give prior notice; therefore, also this publication may be subject to modifications.

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DESCRIPTION OF THE MACHINE OPERATION

The source of mechanical energy of this machine is a Deutz turbo-compressed diesel engine **(pos. 1)**, model BF4M2012, with a max torque of 390 Nm at 1500 rev/min. and a power rating of 74.9 kW at 2300 rev/min.
The VDT12000 "power shift" mechanical transmission **(pos. 2**) produced by Dana is fitted to the flywheel side of the engine, and connected to this engine by a Technodrive coupler with elastic joint and with a 1-to-1 ratio. This transmission has 4 "forward" speed ratios and 3 "reverse" speed ratios.
The torque transmission between engine and drive is controlled by a Dana hydrodynamic torque converter.
On the special power takeoff (PTO) lodged in the transmission housing **(pos. 2)** there is a Casappa open-loop gear pump (with fixed displacement) **(pos. 3)** with priority valve integrated in the housing. The displacement of this pump is 43 cm^3. Its function is to provide hydraulic power, under form of pressure and capacity, to the steering cylinder of the machine (priority side) and to the telescopic boom cylinder (secondary side).
The diesel engine to pump revs ratio is 0.971:1, thus the pump turns just a bit faster than the engine.
A second Casappa open-loop gear pump (with fixed displacement) **(pos. 4)** with a displacement of 25 cm^3, is installed on the power takeoff (PTO) of the engine, on the distribution side. This pump feeds the servo-assisted braking system **(pos. 28)**, the (optional) distributor **(pos. 22)** operating the frame levelling and the rear (optional) hydraulic sockets, and the oil-dynamic circuit of the (optional) three-point hitch **(pos. 26)**.
The suction lines of the open-loop pumps **(pos. 3)** and **(pos. 4)** are protected by an immersed filter **(pos. 5)**, placed inside the 85-lt. hydraulic fluid tank **(pos. 6)**.
The mechanical torque at the VDT12000 transmission output **(pos. 2)** is transmitted to the front axle **(pos. 30)** and the rear axle **(pos. 29)**, both model 212 manufactured by Dana, through Cardan shafts.
The hydraulic drive **(pos. 7)** of the “load sensing” type with a displacement of 315 cm^3, receives oil from the priority line of the pump **(pos. 3)** in relation to the “load sensing” signal sent by the hydraulic drive and connected to such pump with function of pilot signal. In this way, the input flow to the hydraulic drive will be exactly the one needed for the instantaneous steering functions; any excess flow of the pump will be used for the operation of the telescopic boom.
The steering circuit is protected against input overpressures by a pressure reducing valve set at 140 bar. On the two delivery lines, there are other two reducing valves with anti-shock function set at 200 bar. The function of these two valves is limiting possible shocks on the steering wheel in case of overstress on the steering cylinders.

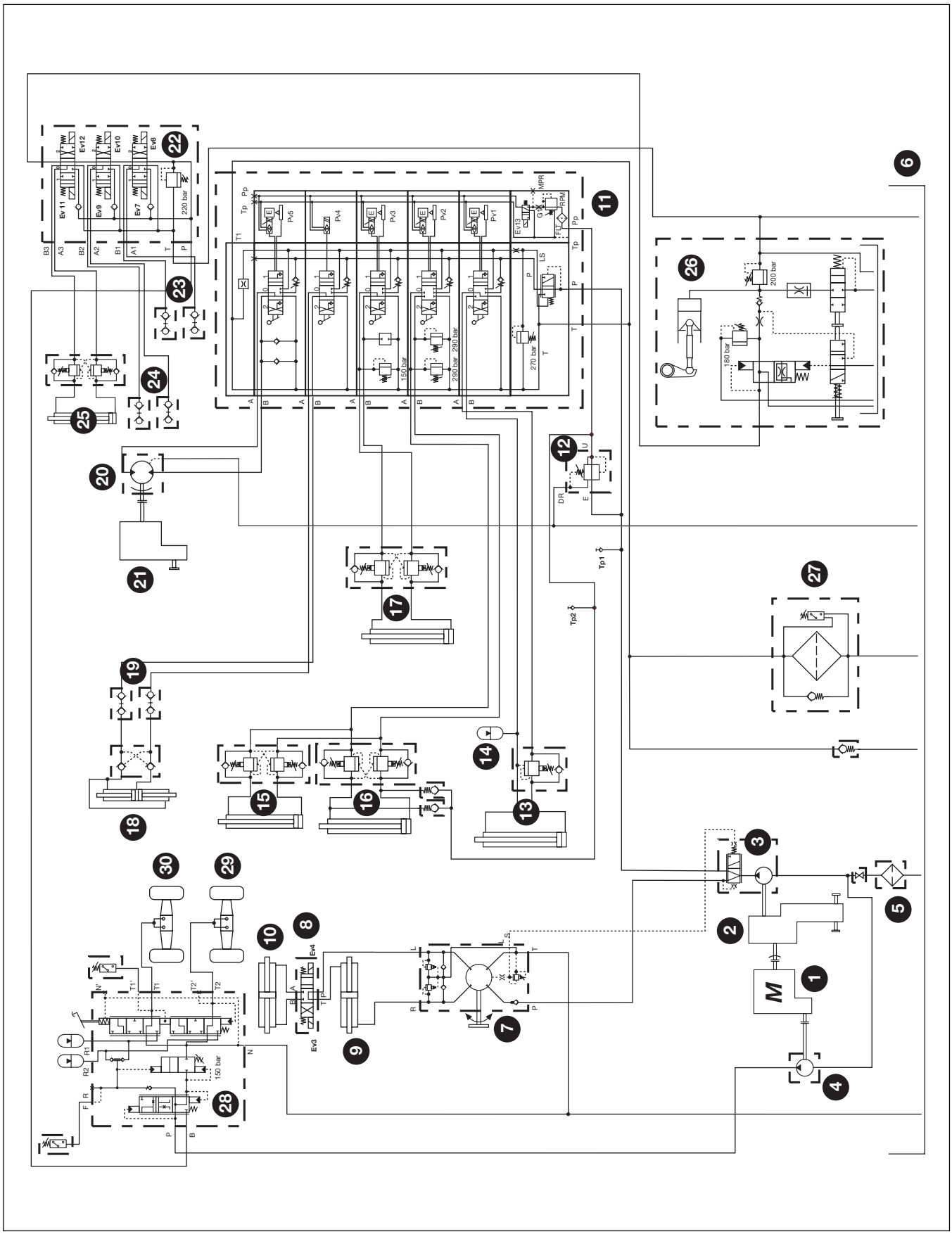
The three pressure reducing valves are installed in the hydraulic drive **(pos. 7)** and cannot be regulated from the outside.
The steering circuit is completed by the front steering cylinder **(pos. 9)**, the rear steering cylinder **(pos. 10)** [these cylinders being integral part of the front axle **(pos. 30)** and the rear axle **(pos. 29)** respectively] and by a 4-way/3-position solenoid valve **(pos. 8)** for the selection of the three different steer modes (rear wheels straight, co-ordinate front/rear steering and independent front/rear steering). When the solenoid valve **(pos. 8)** is not energised, the front steering cylinder is fed by the hydraulic drive and the rear cylinder is blocked. When one magnet or the other of the solenoid valve **(pos. 8)** is energised, the chambers of the cylinders are connected in a different manner thus causing the desired steering effect.
The Bucher/Tecnord electro-proportional modular distributor **(pos. 11)**, with 5 sections, receives oil from the secondary line of the pump **(pos. 3)** and feeds all of the movements of the telescopic boom, as well as the rear (optional) power takeoff. This distributor consists of an input head with a 3-way pressure compensator used as a flow regulator for the user which works at max load (load sensing), and as a discharge valve when the pump flow is not used for the boom movements, and of 5 modules, each of them controlling a specific movement of the telescopic boom (4 in total, that is lifting/lowering, attachment holding plate rotation, boom extension/retraction, attachment locking/unlocking) and the rear (optional) power takeoff.
In the head there is a pressure relief valve set at 270 bar which, acting on the line of the “load sensing” signal, limits the maximum pressure at the inlet of the distributor through such 3-way compensator. On the main inlet head of the distributor, there is the pilot line head which includes an inlet safety filter, a pressure relief valve acting on the pilots line, and a safety solenoid valve which, when de-excited, discharges the input pilot pressure, thus preventing the distributor from working. This solenoid valve is used as a “dead man” control and is activated by the relevant button on the joystick in the driving cab. The pilot head delivers oil at pressure to the 5 pilot modules of the distributor which are used to operate the relevant main sliders in relation to the command signal they receive from the joystick via the control unit.
Module 1 of the distributor controls the telescopic boom lifting cylinder **(pos. 13)**. This cylinder has one single-acting compensation valve with safety function. The pilot module of this element of the distributor is the electro-proportional type with electrical feed-back and integrated electronics. The 0.35-lt. accumulator prefilled at 50 bar **(pos. 14)** and located on the line of the differential chamber of the lifting cylinder **(pos. 13)**, allows damping the boom swings when the same boom

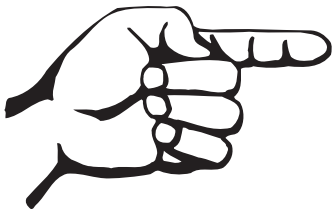
is moved down.
Module 2 of the distributor controls the cylinder operating the attachment holding plate of the telescopic boom **(pos. 15)**. This cylinder is equipped with a double-acting compensation valve with safety function. Paralleled to this cylinder there is the fork levelling (or balancing) cylinder **(pos. 16)** equipped with a special double-acting compensation valve. Inside this valve, the one-way valves are installed in a reverse manner with respect to the normal position to avoid the pressurisation of the cylinder when the rotation command of the attachment holding plate is operated. Again inside this valve, there are other two one-way valves set at 5 bar with anti-cavitation function. These are used to deliver oil, sucked from the low pressure line coming from the pressure relief valve **(pos. 12)**, to the fork levelling compensation circuit, when such circuit cannot do it alone.
The pilot module of element 2 of the distributor is the electro-proportional type with electrical feed-back and integrated electronics. On the two control lines of the cylinder **(pos. 15)**, and integral to module 2, there are two pressure relief valves set at 290 bar which protect the automatic levelling system of the forks when the boom is moved up and down and in case of overload on the attachment holding plate (ex. use of the bucket).
Module 3 of the distributor controls the extension cylinder of the telescopic boom **(pos. 17)**. This cylinder is equipped with a double-acting compensation valve with safety function. The pilot module of this element of the distributor is the electro-proportional type with electrical feed-back and integrated electronics.
On the control line of the circular chamber of the cylinder **(pos. 17)** and integral to module 3, there is a pressure relief valve set at 150 bar which limits the load when the boom is extended in those working zones where the electronic overload warning system cannot detect overload conditions with respect to the load chart of the machine.
Module 4 of the distributor controls the attachment locking cylinder **(pos. 18)**. This cylinder has a double one-way valve with hydraulic release and safety function. The control module of this element of the distributor is the ON/OFF electrical type with integrated electronics.
On the feeding lines of this cylinder, there are two quick-fit connectors **(pos. 19)** for the connection of the hydraulic lines to the optional attachments which need hydraulic power for their operation (ex. hydraulic winch and maintenance jib, mixing bucket, etc.).
Module 5 of the distributor controls the rear (optional) power takeoff (PTO) of the machine. This device is driven by a Casappa oil-dynamic gear motor **(pos. 20)** for open loop circuits of the reversible type with a displacement of 38 cm^3. The motor is flanged to a

mechanical reduction gear **(pos. 21)** with an output shaft conform to the agricultural regulations for the operation of different implements. A speed sensor senses the rotation speed of the PTO and sends a signal to the electronic control unit of the distributor **(pos. 11)** which keeps such speed constant regardless of the loads absorbed by the implement operated by the PTO.
Inside module 5 of the distributor, there are two anti-cavitation valves which are necessary for the operation of the oil-dynamic motors.
The pilot module of the 5th element of the distributor is of the electro-proportional type with electrical feed-back and integrated electronics.
The pressure relief valve **(pos. 12)** set at 25 bar is located upstream of the pressure port of the distributor **(pos. 11)**. This valve supplies oil at low pressure (25 bar) to the anti-cavitation circuits of the automatic levelling system of the forks and to feed the pilot valves line of the same distributor **(pos. 11)**.
The SAFIM S6 servo-assisted braking system with pedal **(pos. 28)** receives oil from the pump **(pos. 4)** and uses this oil to pressurise 2 hydraulic accumulators connected to this system. The oil at pressure contained in these accumulator is then used to operate the service brakes located inside the two axles **(pos. 29)** and **(pos. 30)**.
The fill valve inside the braking system receives the flow from the feeding line until the pressure in the line of the accumulators reaches the calibration value of the cutout valve set at 150 bar. When this pressure is reached, the valve gradually releases all the flow to line B for other uses.
The brake pedal located in the driving cab, which is an integral part of the S6 braking system, is connected to two proportional sliders which control the two separated lines of the service brake, one for each axle. In relation to the stroke of these sliders, a gradual communication between the feeding line, connected to two accumulators which, at their turn, are connected to ports R1 and R2 (the accumulators have a 0.5-lt. capacity and a fill pressure of 50bar), and the service brake lines is established so the flow is distributed to such lines and the discharge line increasing, in this way, the pressure (and as a result the braking force) on the lines of the service brakes. When the sliders are in the rest position, the lines of the service brakes are connected to the discharge.
The pressure switch set at 2-10 bar and connected in parallel to one of the two lines of the service brake, sends an electrical signal when the service brake is activated.
The pressure switch set at 70 bar and connected to port F sends an electrical signal when the pressure inside the feeding circuit of the brake lines is not enough to guarantee the minimum breaking capacity.

The Bucher electro-hydraulic modular distributor of the ON/OFF type for open loops **(pos. 22)** (on request) controls the frame levelling and supplies oil at pressure to the two additional rear oil-dynamic sockets equipped with quick-fit hydraulic connections **(pos. 23)** and **(pos. 24)**. It receives oil from port B of the braking system **(pos. 28)** and uses this to operate the cylinder controlling the frame levelling **(pos. 25)**, equipped with double-acting compensation valve which also acts as a safety valve, as well as the additional rear hydraulic sockets configured with quick-fit connections **(pos. 23)** and **(pos. 24)**.
On the inlet head of this distributor there is a pressure relief valve set at 220 bar.
The oil flow which is not used by the distributor to operate the outriggers and the frame levelling function, is sent to the (optional) three-point hitch **(pos. 26)** for the operation of the lifting arms and the controlled effort device. Finally, the excess oil which is not used by the hitch is sent back to the tank **(pos. 6)**.
The heat exchanger **(pos. 27)** is divided into three sectors; one absorbs heat from the cooling circuit of the diesel engine, the second cools down the hydraulic circuit of the torque converter of the power shift transmission and the third one cools down the hydraulic circuit of the machine. The flow of the pump **(pos. 3)** is conveyed to this third sector. The oil cooled down by the heat exchanger is sent back to the tank **(pos. 6)**.

Hydraulic scheme





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Section 1
SAFETY INFORMATION

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1.4-1 Working areas 5
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1.1 SAFETY RULES

1.1-1 Personal Safety

In this manual, any important information is preceded by a **SPECIAL SYMBOL**.
All operators who work or service the machine must know the exact meaning of these safety symbols.

There are six special (or safety) symbols in this manual, always combined with keywords that class the situations according to their danger degree.
The symbols are always followed by a text explaining the situation taken into account, the attention to be paid to such situation, the method and the behaviour to be adopted. When necessary, it stresses prohibitions or supplies instructions to prevent dangers.
Sometimes, it can be followed by illustrations.

We list below the special (or safety) symbols according to the relative seriousness of the hazard situation:



Draws the attention to situations that involve your own as well as the others' safety and that can result in serious or lethal injury.

⚠DANGER

Draws the attention to situations that involve your own as well as the others' safety and that can result in serious or lethal injury.

⚠WARNING

Draws the attention either to situations that involve your own as well as the others' safety and that can result in minor or moderate injury or to situations that involve the machine efficiency.

⚠CAUTION

Draws the attention either to situations that involve your own as well as the others' safety and that can result in minor or moderate injury or to situations that involve the machine efficiency.

CAUTION

Draws the attention to important technical information or practical advice that allows for a safer and more efficient use of the machine.

NOTICE

Draws the attention to important environment-related information.



Be sure to wear protective eye wear and other protective clothing if the situation warrants it.



Be aware of potential crushing hazards such as moving parts, free swinging or unsecured components when lifting or placing loads. Always wear approved steel-toed shoes.

1.1-2 Workplace Safety



Be sure to keep sparks, flames and lighted tobacco away from flammable and combustible materials like battery gases and engine fuels. Always have an approved fire extinguisher within easy reach.



Be sure that all tools and working areas are properly maintained and ready for use. Keep work surfaces clean and free of debris that could get into machine components and cause damage.



Be sure that your workshop or work area is properly ventilated and well lit.



Be sure any forklift, overhead crane or other lifting or supporting device is fully capable of supporting and stabilizing the weight to be lifted. Use only chains or straps that are in good condition and of ample capacity.



Be sure that fasteners intended for one time use (i.e., cotter pins and self-locking nuts) are not reused. These components may fail if they are used a second time.



Be sure to properly dispose of old oil or other fluids. Use an approved container. Please be environmentally safe.

1.2 GENERAL REMARKS

Most accidents occurring while working, servicing or maintaining operation machines, are caused by not complying with the basic safety precautions.
Therefore, it is necessary to pay steady attention to the potential hazards and the effects that may come of operations carried out on the machine.

CAUTION

***If you recognise hazardous situations, you can prevent accidents*!**

For instance, this handbook makes use of special ***safety symbols*** to highlight potentially hazardous situations.

⚠CAUTION

The instructions given in this handbook are the ones established by TEREXLIFT. They do not exclude other safe and most convenient ways for the machine commissioning, operation and maintenance that take into account the available spaces and means.

If you decide to follow instructions other than those given in this manual, you must:

- be sure that the operations you are going to carry out are not explicitly forbidden;
- be sure that the methods are safe and in compliance with the indications given in this section;
- be sure that the methods cannot damage the machine directly or indirectly or make it unsafe;
- contact TEREXLIFT Assistance Service for any suggestion and the necessary written permission.

CAUTION

Do not hesitate to pose questions if you are in doubt! Contact TEREXLIFT: the assistance service is at your disposal. Addresses, phone and fax numbers are given in the cover and in the title-page of this manual.

1.3 SERVICEMEN'S REQUISITES

The operators who use the machine regularly or occasionally (e.g. for maintenance or transport) shall have the following requisites:

health:
before and during any operation, operators shall never take alcoholic beverages, medicines or other substances that may alter their psycho-physical conditions and, consequently, their working abilities.

physical:
good eyesight, acute hearing, good co-ordination and ability to carry out all required operations in a safe way, according to the instructions of this manual.

mental:
ability to understand and apply the rules, regulations and safety precautions. They shall be careful and sensible for their own as well as for the others' safety and shall desire to carry out the work correctly and in a responsible way.

emotional:
they shall keep calm and always be able to evaluate their own physical and mental conditions.

training:
they shall read and familiarise with this handbook, its enclosed graphs and diagrams, the identification and hazard warning plates. They shall be skilled and trained about the machine use.

CAUTION

It is recommended to take part in at least one technical training course organised by TEREXLIFT Assistance Office.

CAUTION

Ordinary and extraordinary maintenance of the machineare quite complex from a technical point of view and should be performed by an authoirsed service centre.

1.3-1 PERSONAL PROTECTIVE EQUIPMENT

During work, but especially when maintaining or repairing the machine, operators must wear suitable protective clothing and equipment:

- Overalls or any other comfortable garments. Operators should wear neither clothes with large sleeves nor objects that can get stuck in moving parts of the machine
- Protective helmet when working under or in the vicinity of suspended load
- Protective gloves
- Working shoes
- Breathing set (or dust mask)
- Ear-protectors or equivalent equipment
- Goggles or facial screen.

CAUTION

Use only type-approved protective equipment in good condition.

1.4 SAFETY PRECAUTIONS

DANGER

Read and understand the following safety instructions before servicing the machine.
The following list contains safety rules which must absolutely be obeyed to prevent accidents and injuries.

1.4-1 WORKING AREA

- Make sure the area all around the machine is safe. Always be aware of potential risks.
- During work, keep the working area in order. Never leave objects scattered: they could hinder the machine movements and represent a danger for personnel.

1.4-2 PRECAUTIONS DURING WORK

- Do not walk or stop under raised loads or machine parts supported by hydraulic cylinders or ropes only.
- Keep the machine handholds and access steps always clean from oil, grease or dirt to prevent falls or slips.
- When entering/leaving the cab or other raised parts, always face the machine; never turn the back.
- When carrying out operations at hazardous heights (over **3 meters** from the ground), always use type-approved safety belts or fall preventing devices.
- Do not enter/leave the machine when it is running.
- Before servicing the engine, let its parts cool down.
- Do not leave the driving place when the machine is running.
- Neither stop nor carry out interventions under or between the machine wheels when engine is running. When maintenance in this area is needed, stop the engine, engage the parking brake and chock the wheels to prevent accidental movements.
- Do not carry out maintenance or repair works without a sufficient lighting.
- When using the machine lights, the beam should be oriented in order not to blind the personnel at work.
- Before applying voltage to electric cables or components, ensure they are properly connected and efficient.
- Do not carry out interventions on electric components with voltage over 48V.

- Do not connect wet plugs or sockets.
- Signs and stickers shall never be removed, hidden or become unreadable.
- Except for maintenance purposes, do not remove safety devices, covers, guards,. Should their removal be necessary, stop the engine, remove them with the greatest care and always remember to refit them before starting the engine and using the machine again.
- Aleays stop the engine and disconnect the batteries before maintenance or service.
- Do not lubricate, clean or adjust moving parts.
- Do not carry out operations manually when specific tools are provided for this purpose.
- Absolutely avoid to use tools in bad conditions or in an improper way.
- Before carrying out operations on hydraulic lines under pressure (hydraulic oil, compressed air) and/ or before disconnecting hydraulic components, ensure the relevant line has been previously depressurised and does not contain any hot fluid.

⚠ DANGER

Any intervention on the hydraulic or pneumatic circuit must be carried out by authorised personnel. Before any operation on lines under pressure, release any residual pressure from the circuit. Do not use your fingers to check for pressure leaks. Fine jets of air, oil or fuel can injure you.

- Neither smoke nor use open flames if there is a risk of fire or close to fuel, oil or batteries.
- Do not leave fuel cans or bottles in unsuitable places.
- Do not empty catalytic mufflers or other vessels containing burning materials without taking the necessary precautions.
- Carefully handle all flammable or dangerous substances.
- After any maintenance or repair work, make sure that no tool, cloth or other object has been left within compartments with moving parts or in which suction and cooling air circulates.
- Never give orders to several people at a ime. Instructions and signs must be given by one person only.
- Always pay the due attention to the instructions given by the foreman.
- Never distract the operator during working phases or crucial manoeuvres.
- Do not call an operator suddenly, if unnecessary.
- Do not frighten an operator or throw objects by no means.
- After work, never leave the machine under potentially dangerous conditions.

NOTICE

Treatment and disposal of used oils is subject to federal, national and local laws and regulations. Collect and deliver these wastes to authorised centres.

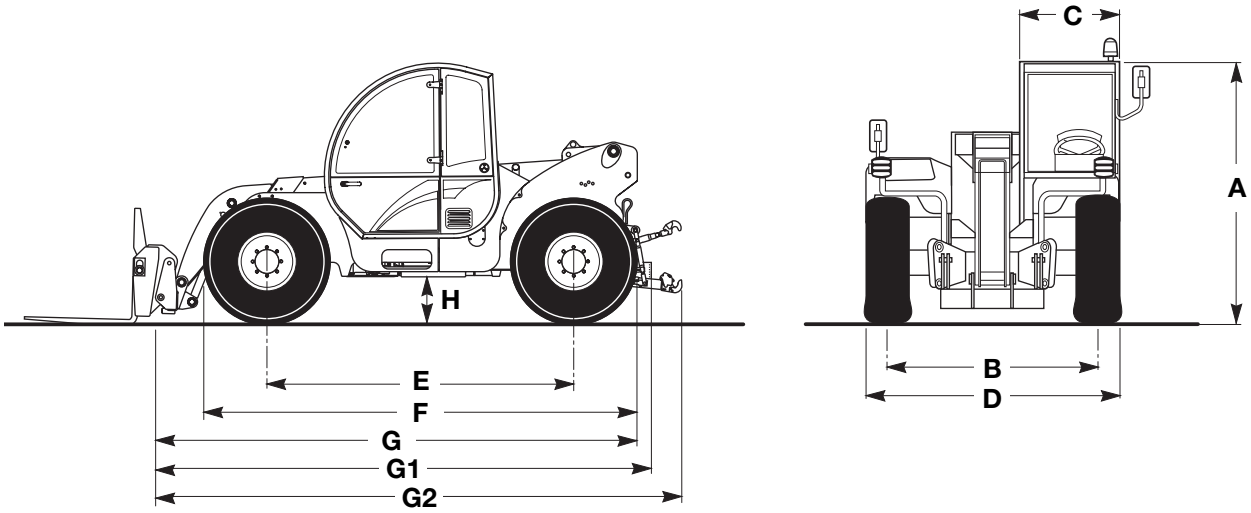
- Use the assistance of a second person to handle loads weighing 30 to 50 kg.
- For loads over 50 kg, the use of special hoisting equipment in good condition and equipped as per enforced regulations is mandatory.

Section 2
TECHNICAL SPECIFICATIONS

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2.1 MAIN DIMENSIONS



	AGRILIFT		737	1037
A	Overall height	mm ft	2445	2445
B	Overall width	mm ft	2325	2325
C	Cab width	mm ft	850	850
D	Track	mm ft	1920	1920
E	Wheel-base	mm ft	2850	2850
F	Length to the front tyres	mm ft	3760	3760
G	Length to the attachment holding plate	mm ft	4695	4875
G1	Length to towing hook	mm ft	-	-
G2	Length to arms of the rear lifter	mm ft	5371	5551
H	Ground clearance	mm ft	445	445
•	Internal steering radius	mm ft	1175	1175
•	External steering radius	mm ft	3500	3500

2.2 TYRES

	AGRILIFT		737	1037
-	Dimensions (front and rear)		405/70-24	405/70-24
-	P.R. (or load index)		14 pr 152B	14 pr 152B
-	Rim		13x24	13x24
-	Wheel disc		8 holes DIN 70361	8 holes DIN 70361
-	Pressure	bar/Psi	4.5/65.2	4.5/65.2

2.3 LIMIT OF USE

AGRILIFT		737	1037
• Angle of approach		90°	90°
• Departure angle (without rear lifter)		90°	90°
• Departure angle (with rear lifter fully up)		38°	38°
• Min/max ambient temperature	°C	-20°/+45°	-20°/+45°

2.4 WEIGHT

AGRILIFT		737	1037
• Weight in working order	kg lbs	7100	~ 8000

2.5 SPEED

AGRILIFT		737	1037
- Working speed	km/h	8	8
- Travel speed	km/h	37	35
- Max. slope with full load	%	144	144

2.6 PAYLOAD AND REACH

AGRILIFT		737	1037
- Max lifting height	mm ft	6950	9825
- Reach at max height	mm ft	320	1300
- Max reach forward	mm ft	3760	6630
- Attachment holding plate rotation		130°	130°
- Maximum payload	kg	3700	3700
- Payload at max height	kg	3000	-
- Payload at max reach	kg	1300	-

2.7 FORKS

AGRILIFT		737	1037
- Dimensions	mm ft	1200x120x45	1200x120x45
- Weight	kg lbs	58	58
- Fork holding frame - class		FEM III	FEM III

2.8 DIESEL ENGINE

AGRILIFT		737	1037
- Make		DEUTZ	DEUTZ
- Model/Type		BF4M2012	BF4M2012
- Features:		Diesel	Diesel
		4 cylinders in line 4 strokes direct injection	4 cylinders in line 4 strokes direct injection
- Bore x Stroke	mm ft	101 x 126	101 x 126
- Total displacement	cc	4038	4038
- Power at 2300 giri/min	kW	74,5	74,5

2.9 ELECTRICAL SYTEM

AGRILIFT		737	1037
- Voltage	V	12	12
- Battery	Ah	100	100

2.10 MACHINE SOUND LEVELS

AGRILIFT		737	1037
- Guaranteed sound power level (in accordance with the Directive 2000/14/CE)	dB	Lwa = ...	Lwa = …
- Measured sound pressure level (in accordance with the Directive 98/37/CE)	dB	Lpa = ...	Lpa = ...

2.11 VIBRATION LEVELS

AGRILIFT		737	1037
- Mean assessed vibration level transmitted to arms	m/s^2	< 2.5	< 2.5
- Mean assessed vibration level transmitted to body	m/s^2	< 0.5	< 0.5

Values calculated in accordance with standard prEN13059

CAUTION

This is a Class A device. In a residential environment, such device can cause radio disturbance. In such cases, the operator is required to take suitable measures.

2.12 REFUELLING

AGRILIFT		737	1037
- Diesel engine	l	13	13
- Engine cooling system	l	22	22
- Fuel tank	l	150	150
- Hydraulic system tank	l	100	100
- Gearbox	l	20	20
- Differential gears	l	8,7	8,7
- Wheel reduction gears	l	0,75	0,75
- PTO reduction gear	l	1	1

Products:

Engine oil: **SHELL RIMULA SAE 15W-40 (API CH-4/ CG-4/ CF-4/CF, ACEA E3, MB 228.3)**

Power divider-Differential gears-Reduction gears-PTO reduction gear: **FUCHS TITAN GEAR LS 85 W-90 (API GL-5 LS / GL-5)**

Hydraulic system and brakes: **SHELL TELLUS T 46 (DENISON HF-1 DIN 51524 part. 2 e 3)**

Gearbox: **ESSOLUBE HYDRAULIC 10W (API CD/SF VICKERS 35VQ25)**

2.13 TIGHTENING TORQUES

Thread diameter	Pitch	Wrench measure mm				Tightening torques Material class					
		S		S		8.8		10.9		12.9	
mm	mm		UNI 5931/32	UNI 5933÷36	UNI 5923÷30	Normal Nm	Galvanized Nm	Normal Nm	Galvanized Nm	Normal Nm	Galvanized Nm
4	0.7	7	3	2.5	2	3.2	2.8	4.4	3.9	5.3	4.8
5	0.8	8	4	3	2.5	6.1	5.5	8.7	7.8	10.3	9.3
6	1	10	5	4	3	10.6	9.5	14.8	13.3	17.8	16.0
8	1.25	13	6	5	4	25.1	22.5	35.4	31.8	42.5	30.2
	1	13	6	5	4	26.5	23.8	37.3	33.5	44.7	40.3
10	1.5	17	8	6	5	51.1	46.0	71.9	64.7	86.3	77.6
	1.25	17	8	6	5	53.4	48.1	75.1	67.5	90.2	81.1
12	1.75	19	10	8	6	86.5	77.8	121.4	109.2	145.9	131.3
	1.25	19	10	8	6	92.4	83.2	129.5	116.6	156.1	140.5
14	2	22	12	10	6	137.7	123.9	193.8	174.4	232.6	209.3
	1.5	22	12	10	6	145.9	131.3	206.1	185.5	246.9	222.0
16	2	24	14	10	8	209.1	188.2	293.8	264.4	353.0	317.7
	1.5	24	14	10	8	218.3	196.5	308.1	277.3	369.3	332.4
18	2.5	27	14	12	8	288.7	259.8	406.1	365.5	487.7	436.9
	1.5	27	14	12	8	314.2	282.8	442.8	398.5	530.6	477.5
20	2.5	30	17	12	10	408.1	367.3	573.4	516.1	687.7	618.9
	1.5	30	17	12	10	439.7	395.8	619.3	557.4	742.8	662.5
22	2.5	32	17	-	12	542.3	488.5	763.2	686.9	915.3	823.7
	1.5	32	17	-	12	582.6	524.3	819.3	737.4	983.6	885.3
24	3	36	19	-	12	705.1	634.5	990.8	891.7	1193.3	1074.4
	2	36	19	-	12	745.3	671.3	1051.0	945.9	1255.1	1129.5
27	3	41	19	-	-	1036.0	927.5	1448.9	1304.0	1734.6	1561.2
	2	41	19	-	-	1091.8	982.6	1530.6	1377.5	1836.7	1653.0
30	3.5	46	22	-	-	1307.9	1258.1	1989.3	1772.4	2357.1	2121.4
	2	46	22	-	-	1510.2	1359.1	2122.4	1910.2	2540.8	2286.7
33	3.5	50	24	-	-	2000.0	1800.0	2800.0	2520.0	3400.0	3060.0
	2	50	24	-	-	1610.0	1450.0	2300.0	2070.0	2690.0	2420.0
36	4	55	27	-	-	2600.0	2340.0	3700.0	3330.0	4300.0	3870.0
	3	55	27	-	-	2800.0	2520.0	3900.0	3510.0	4600.0	4140.0
39	4	60	27	-	-	3400.0	3060.0	4800.0	4320.0	5600.0	5040.0
	3	60	27	-	-	3600.0	3240.0	5100.0	4590.0	5900.0	5310.0

Thread diameter	Pitch	Standard nuts		Low nuts	
		5S Nm	8G Nm	5S Nm	8G Nm
4	0.7	5.5		3.5	
5	0.8	5.5		3.5	
6	1	9.5	13.0	6.0	8.0
8	1.25	23.0	32.0	14.0	20.0
	1	25.0	35.0	16.0	22.0
10	1.5	46.0	64.0	29.0	40.0
	1.25	49.0	68.0	31.0	42.0
12	1.75	80.0	110.0	50.0	69.0
	1.25	88.0	125.0	55.0	78.0
14	2	125.0	180.0	78.0	110.0
	1.5	140.0	195.0	88.0	120.0
16	2	195.0	275.0	120.0	170.0
	1.5	210.0	295.0	130.0	185.0
18	2.5	270.0	390.0	170.0	245.0
	1.5	305.0	425.0	190.0	265.0
20	2.5	305.0	540.0	190.0	340.0
	1.5	425.0	600.0	260.0	375.0
22	2.5	510.0	720.0	320.0	450.0
	1.5	570.0	800.0	360.0	500.0
24	3	660.0	930.0	410.0	580.0
	2	720.0	1000.0	450.0	630.0
27	3	980.0	1400.0	610.0	880.0
	2	1050.0	1500.0	660.0	940.0
30	3.5	1350.0	1850.0	850.0	1160.0
	2	1450.0	2050.0	910.0	1280.0
33	3.5	1650.0	2310.0	1050.0	1470.0
	2	1980.0	2770.0	1270.0	1780.0
36	4	2120.0	2970.0	1360.0	1900.0
	3	2550.0	3570.0	1630.0	2280.0
39	4	2730.0	3820.0	1750.0	2450.0
	3	3250.0	4550.0	2080.0	2910.0

2.14 DRILL DIAMETERS FOR THREADS

Thread x pitch	*DRILL DIAMETER LIMITS*		*DRILL BIT DIAMETER*
	max	*min*	
M 4 x 0.7	3.42	3.24	3.30
x 0.5	3.60	3.46	3.50
M 5 x 0.8	4.33	4.13	4.20
x 0.5	4.60	4.46	4.50
M 6 x 1	5.15	4.92	5.00
x 0.75	5.38	5.19	5.20
M 8 x 1.25	6.91	6.65	6.80
x 1	7.15	6.92	7.00
M 10 x 1.5	8.87	8.38	8.50
x 1.25	9.38	9.19	9.20
M 12 x 1.75	10.44	10.10	10.20
x 1.5	10.68	10.38	10.50
M 14 x 2	12.21	11.83	12.00
x 1.5	12.68	12.38	12.50
M 16 x 2	14.21	13.84	14.00
x 1.5	14.68	14.38	14.50
M 18 x 2.5	15.74	15.29	15.50
x 1.5	16.68	16.38	16.50
M 20 x 2.5	17.74	17.29	17.50
x 1.5	18.68	18.38	18.50
M 22 x 2.5	19.74	19.29	19.50
x 1.5	20.68	20.38	20.50
M 24 x 3	21.25	20.75	21.00
x 2	22.21	21.83	22.00
M 27 x 3	24.25	23.75	24.00
x 2	25.21	24.83	25.00
M 30 x 3.5	26.77	26.21	26.50
x 3	27.25	26.75	27.00
M 33 x 3.5	27.77	29.21	29.50
x 2	31.21	30.83	31.00
M 36 x 4	32.27	31.65	32.00
x 3	33.25	32.75	33.00
M 39 x 4	35.27	34.67	35.00
x 3	36.25	35.75	36.00

2.15 STANDARD TIGHTENING TORQUES FOR FITTING SEALS

■ 60° CONICAL SEALS

Thread diameter		TIGHTENING TORQUES (0+10%)
inc.	mm	60° CONICAL SEALS Nm
G 1/8"		15
G 1/4"	M 10 x 1	20
9/16"-18		25
11/16"-16		40
13/16"-16		55
3/4"-16		62
1"-14		80
7/8"-14		80
1.1/16"-12		110
1.3/16"-12		115
1.5/16"-12		160
1.7/16"-12		130
1.11/16"-12		190
1.5/8"-12		225
1.7/8"-12		270
2"-12		245
2.1/4"-12		360

■ FRONT O-LOK (Parker) SEALS

Thread diameter		TIGHTENING TORQUES (0+10%)
inc.	mm	FRONT O-LOK (Parker) SEALS Nm
9/16"-18		25
11/16"-16		40
13/16"-16		55
1"-14		80
1.3/16"-12		115
1.7/16"-12		130
1.11/16"-12		190
2"-12		245

■ 37° COUNTER-SUNK CONICAL SEALS (JIC)

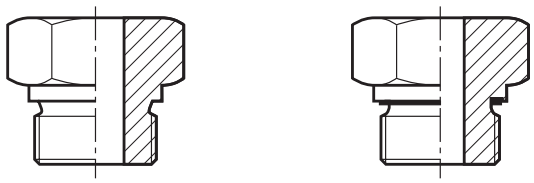
Thread diameter		TIGHTENING TORQUES (0+10%)
inc.	mm	37° CONICAL SEALS (JIC) Nm
7/16"-20	M10x1	15
1/2"-20	M12x1.5	20
9/16"-18	M14x1.5	28
	M16x1.5	62
3/4"-16	M18x1.5	62
7/8"-14	M22x1.5	80
1.1/16"-12	M27x2	110
1.3/16"-12		141
1.5/16"-12	M33x2	160
1.5/8"-12	M42x2	225
1.7/8"-12	M48x2	270
2.1/4"-12	M10x1	360

■ SEALS WITH GRIP-RING

Thread diameter inc.	Thread diameter mm	Fitting Series	Pipe ø mm	TIGHTENING TORQUE (0+10%) SEALS WITH GRIP-RING Nm
G 1/8"	M10x1	LL	4	10
G 1/8"	M10x1	LL	6	10
G 1/8"	M10x1	L	6	25
G 1/4"	M12x1.5	L	8	50
G 1/4"	M14x1.5	L	10	50
G 1/8"	M20x1.5	L	12	130
G 1/8"	M20x1.5	L	15	190
G 1/8"	M20x1.5	L	18	245
G 1/8"	M20x1.5	L	22	130
G 1/8"	M20x1.5	L	28	190
G 1/8"	M20x1.5	L	35	245
G 1/8"	M20x1.5	L	42	245
G 1/4"	M12x1.5	S	6	50
G 1/4"	M14x1.5	S	8	50
G 3/8"	M16x1.5	S	10	80
G 3/8"	M18x1.5	S	12	80
G 1/2"	M22x1.5	S	16	105
G 3/4"	M27x2	S	20	220
G 1"	M33x2	S	25	370
G 1.1/4"	M42x2	S	30	500
G 1.1/2"	M48x2	S	38	600

■ FITTING ASSEMBLY

Thread diameter inc.	Thread diameter mm	TIGHTENING TORQUES (0+10%) JOINTS A Nm	JOINTS B Nm
G 1/8"	M10x1	25	12
	M12x1.5	30	18
G 1/4"		40	18
	M14x1.5	50	20
	M16x1.5	60	35
	M18x1.5	80	50
G 3/8"		95	40
	M20x1.5	140	60
G 1/2"	M22x1.5	140	75
	M26x1.5	220	85
G 3/4"		250	110
	M27x2	250	100
G 1"		400	190
	M33x2	400	150
G 1.1/4"		600	240
	M42x2	600	260
G 1.1/2"		800	300
	M48x2	800	350



A B

A Male face
Mechanical seal or copper washer

B Male face
Soft seal with O-ring

2.16 LOCKING MATERIAL

THREAD LOCKERS

Product	*APPLICATION*	*Characteristics* *Temp. °C*	*Thread*	*Locking speed*	*Resistance*
Loctite 290	Thread locking	to 150°	M 12	Rapid	Medium
Loctite 222	Thread locking	to 150°	M 20	Moderate	Low
Loctite 243	Thread locking	to 150°	M 20	Rapid	Medium
Loctite 262	Thread locking	to 150°	M 20	Moderate	High
Loctite 270	Thread locking	to 150°	M 20	Moderate	Very high
Loctite 277	Thread locking	to 150°	M 36	Slow	High
Loctite 272	Thread locking	to 200°	M 36	Slow	High

THREAD SEALANT *For hermetic sealing. Not suitable for thermoplastic materials*

Product	*APPLICATION*	*Characteristics* *max °C*	*Thread max*	*type*	*Locking speed*	*Disassembly difficulty*
Loctite 511	Fitting sealant	150°	M80	Con./Cyl.	Rapid	Low
Loctite 542	Fitting sealant	150°	M36	Con./Cyl.	Rapid	Moderate
Loctite 545	Fitting sealant	150°	M36	Con./Con.	Moderate	Low
Loctite 565	Fitting sealant	150°	M80	Con./Cyl.	Instantaneous	Low
Loctite 572	Fitting sealant	150°	M80	Con./Cyl.	Moderate	Low
Loctite 577	Fitting sealant	150°	M80	Con./Cyl.	Rapid	Moderate

GASKETS *Total sealing in 24-72 hours*

Product	*APPLICATION*	*Characteristics* *max °C*	*Play max mm*	*Formation time*	*Resistance to fluids*
Loctite 518	Formed-in-place gasket	150°	0,5	Moderate	Excellent
Loctite 509	Formed-in-place gasket	150°	0,2	Moderate	Excellent
Loctite 573	Formed-in-place gasket	150°	0,2	Slow	Excellent
Loctite 574	Formed-in-place gasket	150°	0,5	Rapid	Excellent
Loctite 510	Formed-in-place gasket	200°	0,2	Moderate	Excellent
Loctite 5699	Formed-in-place gasket	200°	6,0	Rapid	Excellent
Loctite 5999	Formed-in-place gasket	200°	6,0	Instantaneous	Excellent
Loctite 5910	Formed-in-place gasket	200°	6,0	Rapid	Excellent
Loctite 5900	Formed-in-place gasket	200°	6,0	Instantaneous	Excellent
Loctite 5920	Formed-in-place gasket	250°	M 36	Slow	Good

2.17 HOISTING INSTRUCTIONS

DANGER

All parts weighing more than 25 kg MUST COMPULSORILY be handled with suitable hoisting means.
In the Disassembly and Assembly section there is a clear indication of the weight of the part to handle, while chapter A.12 contains a summary table with the weight of the single components.

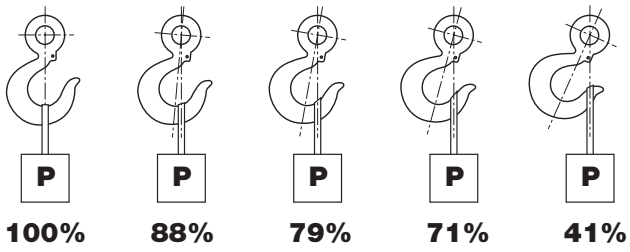
Before removing parts of the machine, make sure that:
- all fixing bolts have been removed
- all hydraulic and electrical parts have been disconnected
- the part to be removed is not blocked.

STRANDED ROPES
- Use ropes or other hoisting accessories suitable to the weight of the part to be handled. For ropes, refer to the following table:

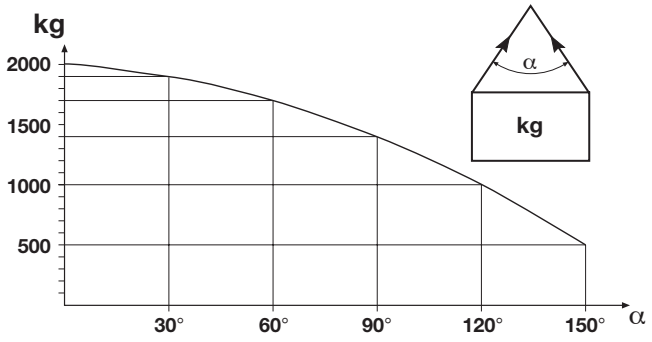
STRANDED ROPES	
Rope diameter mm	Max admissible load kg
10	1000
11.2	1400
12.5	1600
14	2200
16	2800
18	3600
20	4400
22.4	5600
30	10000
40	18000
50	28000
60	40000

The value of the admissible load has been considered as equal to 1/6 the rope breaking load.

- Attach the load to the natural seat of the hook. Attaching a load to an end can cause the load to fall down during raising and result in serious injury.



- Do not attach a heavy load to ropes forming a wide suspension angle. The total capacity of the ropes reduces proportionally to the angle as shown in the following chart.



2.18 ADVICE TO RENEW FLEXIBLE HOSES

NOTICE

Before disconnecting a hydraulic pipe, place containers of suitable size underneath to prevent oil spillage.

CAUTION

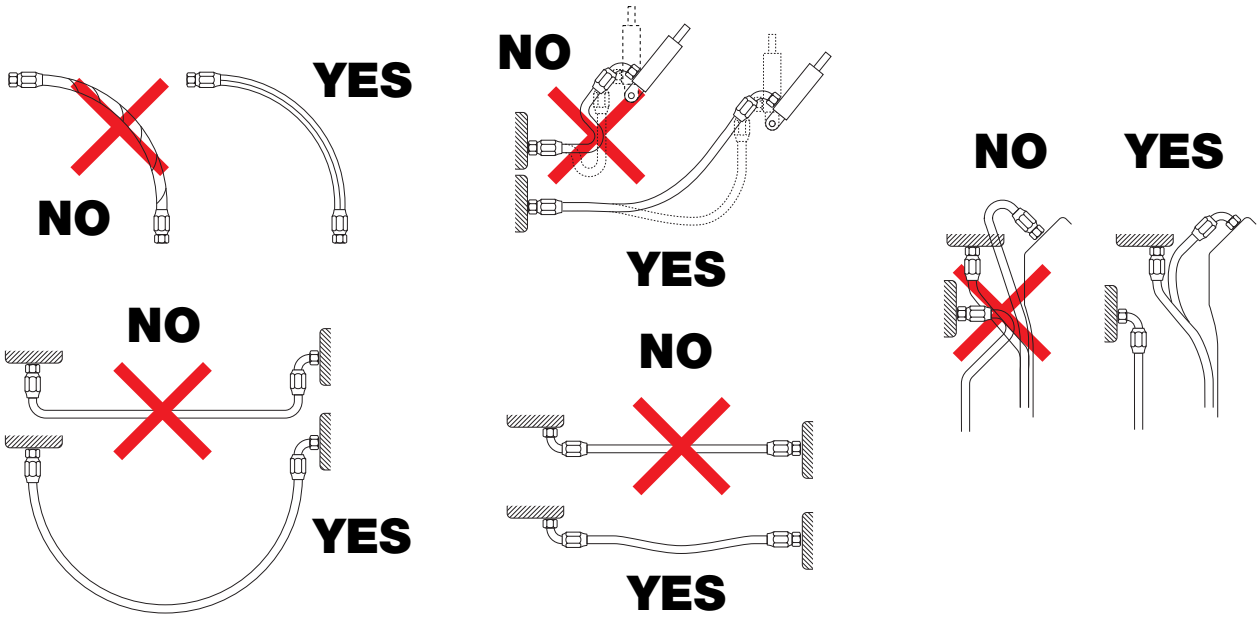
Plug all disconnected parts to prevent dust or impurities from entering the circuit. They can cause serious damage.

⚠DANGER

Before disconnecting the hydraulic pipe, check that there is no residual pressure. In case, eliminate the pressure operating the control levers with the engine stopped.
In any case, disconnect the hydraulic pipe with extreme caution and always wear suitable personal protection equipment -e.g. goggles, gloves, facial screen, etc.
Wrap up the end of the pipe to be disconnected with some rags and slowly loosen the pipe connector so that air comes out as slow as possible.

1 Before disconnecting or refitting a flexible hose, carefully clean the area all around.
2 Blow some compressed air to remove any impurity.
3 For an easier renewal of the hoses, whose run is not clearly visible, proceed as follows:
- disconnect the hose to be replaced from both sides
- tie a cord to one end of the hose
- remove the hose pulling the cord until it comes out completely
- untie the cord and tie it to the new hose
- pull the cord from the other side to refit the hose until reaching the connecting point to the line.

Useful advice for mounting flexible hoses:



2.19 LISTS OF RECOMMENDED SPARE PARTS

Agrilift 737

Code	Description	Q.ty
02.0117.0101	Grease nipple	2
04.0605.0293	Flexible hose	1
04.0605.0294	Flexible hose	1
05.4329.0000	Accumulator	1
05.4329.0001	Pressure switch	1
05.4329.0002	Pressure switch	1
07.0700.0020	Fuel prefilter	1
07.0703.0029	Starting switch	1
07.0703.0069	Fuse	4
07.0703.0125	Key	1
07.0703.0192	Relay	1
07.0703.0193	Fuse 5A	5
07.0703.0384	Bulb	2
07.0703.0425	Indicator	1
07.0703.0433	Switch	1
07.0703.0435	Switch	1
07.0703.0485	Relay	4
07.0703.0486	Relay	1
07.0703.0487	Relay	1
07.0703.0492	Proximity switch	1
07.0703.0494	Switch	1
07.0703.0535	Relay	1
07.0703.0571	Rear socket	1
07.0703.0577	Switch	1
07.0703.0584	Turn signals lever	1
07.0709.0584	Oil filter cartridge	2
07.0709.0678	Solenoid	1
07.0709.0686	Solenoid valve	1
07.0709.0705	Gasket kit	1
07.0728.0006	Gasket kit	1
07.0728.0007	Solenoid	1
07.0738.0000	Star wheel	1
07.0740.0002	Grease nipple	4
07.0740.0029	Handle	1
07.0740.0041	Glass	1
07.0740.0050	Handle	1
07.0740.0050	Handle	1
07.0740.0051	Lever-fitted lock	1
07.0740.0054	Stop belt	1
07.0740.0066	Filter	2
07.0740.0087	Glass	1
07.0740.0088	Wiper arm	1
07.0740.0089	Wiper blade	1
07.0740.0097	Support	1
07.0740.0104	Handle lock	1

Code	Description	Q.ty
07.0740.0119	Heater	1
07.0740.0157	Wiper blade	1
07.0740.0192	Lock	1
07.0740.0218	Tap	1
07.0741.0000	Solenoid	1
07.0741.0004	Modulus	1
07.0741.0006	Solenoid	1
07.0741.0009	Push button	1
07.0741.0011	Push button	1
07.0741.0015	Gasket kit	1
07.0741.0016	Gasket kit	1
07.0741.0019	Cap	1
07.0741.0020	Cap	1
07.4501.0070	Oil filter	2
07.4501.0071	Fuel filter	2
07.4501.0084	Cartridge	2
07.4501.0085	Air filter	2
07.4529.0071	Seal	2
07.4529.0072	Seal	2
07.4529.0073	Seal	2
07.4529.0096	Cylinder gasket kit	1
07.4529.0097	Gasket kit	1
07.4529.0098	Seal	1
07.4529.0099	Seal	2
07.4529.0100	Gasket kit	1
09.0610.0972	Cylinder	1
09.0802.0018	Load cell	1
09.0803.0017	Hose	1
09.0805.0014	Rubber hose	1
09.0805.0037	Rubber hose	1
09.4604.0004	Oil filter	2
09.4604.0046	Oil filter	2
09.4645.0000	Gas lever cord	1
09.4645.0003	Cable	1
09.4661.0014	Plug	1
09.4661.0014	Plug	1
09.4670.0006	Insulator	4
53.3301.0002	Seal	1
54.0001.0001	Pin	2
54.0200.0000	Bushing	6
54.0201.0012	Bushing	2
54.0702.0000	Sliding guide	4
54.0702.0005	Sliding guide	2
54.0702.0006	Sliding guide	4
56.0005.0001	Fuse	4
56.0009.0002	Horn	1
56.0010.0005	Pivoting beacon	1
56.0010.0034	Light	1
56.0010.0035	Light	1
56.0010.0036	Light	1

Code	Description	Q.ty
56.0010.0037	Light	1
56.0012.0009	Microswitch	1
56.0013.0000	Transmitter	1
56.0013.0001	Fuel level indicator	1
56.0013.0028	Level indicator	1
56.0016.0022	Display	1
56.0016.0033	Control lever	1
56.0016.0034	Speed lever	1
56.0021.0040	Relay	1
56.0021.0061	Tecnord control unit	1
634972	Fuse 7,5 A	5
634973	Fuse 15 A	5
634974	Fuse 10 A	5
636455	Gasket kit	1
637650	Fuse 3 A	5
638004	Gasket kit	1
639395	Gasket kit	1
640270	Gasket kit	1
640536	Gasket kit	1
640591	Bushing	1

Agrilift 1037

Code	Description	Q.ty
02.0117.0101	Grease nipple	2
04.0605.0374	Flexible hose	1
04.0605.0376	Flexible hose	1
05.4329.0000	Accumulator	1
07.0700.0000	Cartridge	1
07.0700.0020	Cartridge	1
07.0703.0029	Starting switch	1
07.0703.0069	Fuse	2
07.0703.0096	Removing battery	1
07.0703.0125	Key	1
07.0703.0192	Relay	1
07.0703.0193	Fuse	5
07.0703.0321	Bulb	1
07.0703.0384	Bulb	2
07.0703.0425	Indicator	1
07.0703.0429	Selector	1
07.0703.0431	Switch	1
07.0703.0433	Switch	1
07.0703.0435	Switch	1
07.0703.0485	Relay	5
07.0703.0486	Relay	1
07.0703.0487	Relay	2
07.0703.0494	Switch	1
07.0703.0532	Contact	1
07.0703.0535	Relay	1
07.0703.0569	Switch	1
07.0703.0571	Socket	1
07.0703.0572	Switch	1
07.0703.0576	Control board	1
07.0703.0578	Switch	1
07.0703.0584	Turn signals lever	1
07.0709.0584	Gearbox filter	1
07.0709.06181	Seal	2
07.0709.0678	Solenoid	2
07.0709.0679	Seal	2
07.0709.0680	Seal	2
07.0709.0682	Seal	2
07.0709.0705	Gearbox gasket kit	1
07.0712.0087	Plug	1
07.0728.0006	Gasket kit	1
07.0728.0007	Solenoid	2
07.0738.0000	Star wheel	2
07.0740.0029	Handle	1
07.0740.0041	Glass	1
07.0740.0050	Handle	1
07.0740.0050	Handle	1
07.0740.0051	Lever-fitted lock	1
07.0740.0054	Stop belt	1

Code	Description	Q.ty
07.0740.0058	Seal	1
07.0740.0066	Cab air filter	1
07.0740.0072	Wiper motor	1
07.0740.0076	Handle	2
07.0740.0087	Glass	1
07.0740.0088	Wiper arm	1
07.0740.0089	Wiper blade	1
07.0740.0098	Tank	1
07.0740.0135	Steering wheel	1
07.0740.0157	Wiper blade	1
07.0740.0202	Driving mirror	1
07.0740.0218	Tap	1
07.0740.0104	Handle lock	1
07.0741.0004	Modulus	1
07.0741.0005	Modulus	1
07.0741.0006	Solenoid	1
07.0741.0007	Cartridge	1
07.0741.0011	Push button	2
07.0741.0012	Push button	2
07.0741.0015	Gasket kit	1
07.0741.0016	Gasket kit	1
07.0741.0019	Cap	2
07.0741.0020	Cap	2
07.4501.0070	Oil filter	1
07.4501.0071	Fuel filter	1
07.4501.0084	Air filter cartridge	1
07.4501.0085	Air filter	1
07.4529.0072	Seal	4
07.4529.0097	Gasket kit	1
07.4529.0100	Gasket kit	1
09.0802.0018	Load cell	1
09.0803.0177	Left mud-guard	2
09.0803.0178	Right mud-guard	2
09.4604.0004	Oil filter	1
09.4605.0009	Fan	1
09.4610.0002	Driving mirror	1
09.4635.0033	Cardan	1
09.4635.0035	Cardan	1
09.4645.0000	Gas lever cord	1
09.4645.0000	Gas lever	1
09.4645.0003	Manual gas lever cord	1
09.4645.0022	Cable	1
09.4661.0014	Plug	1
09.4661.0014	Plug	1
53.3001.2000	Manifold	1
54.0001.0001	Pin	2
54.0200.0000	Bushing	8
54.0200.0001	Bushing	8
54.0702.0000	Sliding guide	4
54.0702.0000	Sliding guide	2

Code	Description	Q.ty
54.0702.0004	Sliding guide	2
54.0702.0005	Sliding guide	2
54.0702.001	Sliding guide	4
56.0005.0001	Fuse	2
56.0009.0002	Horn	1
56.0009.0003	Horn	1
56.0010.0005	Pivoting beacon	1
56.0010.0034	Light	1
56.0010.0035	Light	1
56.0010.0036	Light	1
56.0010.0037	Light	1
56.0012.0009	Limit switch	1
56.0013.0001	Fuel level indicator	1
56.0013.0028	Level indicator	1
56.0016.0022	Display	1
56.0016.0033	Handlever	1
56.0016.0034	Speed lever	1
56.0021.0040	Relay	1
56.0021.0061	Tecnord control unit	1
56.0021.0064	Card	1
632023	Nut	8
633179	Wheel stud	8
634972	Fuse	5
634973	Fuse	5
634974	Fuse	5
635455	Gasket kit	1
637650	Fuse	5
638004	Brake pump gasket kit	1
639395	Gasket kit	1
640101	Gasket kit	1
640102	Gasket kit	1
640270	Gasket kit	1
640536	Gasket kit	1
640594	Valve	2

2.20 MACHINE PAINT COLOUR

STANDARD machines

GREY RAL 7012

WHITE RAL 1013

MAT BLACK RAL 9005 (from June 2004 for cylinders)

AUSA machines

ORANGE RAL 2004

GENIE machines

BLUE MERCEDES 5928

MZ IMER machines

ORANGE RAL 2010

2.21 CHECKING THE CYLINDER MOVEMENT TIMES

CAUTION

The check of the movement times of the cylinders shall be done with the hydraulic oil at a temperature of 60°.

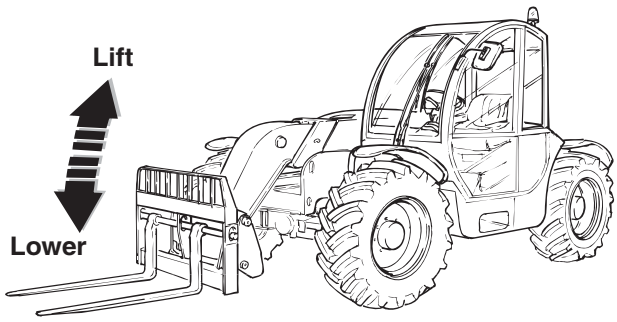
CAUTION

To check the engine speed, the area easy to reach is the external pulley of the output shaft.

BOOM LIFTING/LOWERING

Agrilift 737	Time (s)	
	up	down
Max engine speed	16”	12”
Min. engine speed	33”	27”

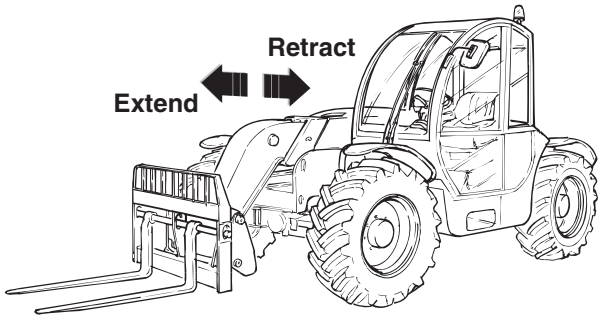
Agrilift 1037	Time (s)	
	up	down
Max engine speed	16”	12”
Min. engine speed	33”	27”



BOOM EXTENSION/RETRACTION

Agrilift 737	Time (s)	
	out	in
Max engine speed	9”	5”
Min. engine speed	21”	11”

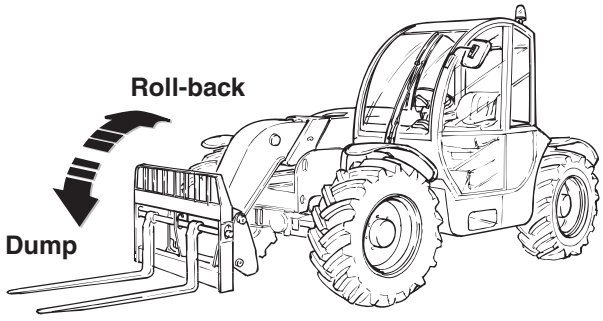
Agrilift 1037	Time (s)	
	out	in
Max engine speed	19”	12”
Min. engine speed	33”	22”



ATTACHMENT DUMPING

Agrilift 737	Time (s)	
	dumping	roll-back
Max engine speed	5”	4”
Min. engine speed	14”	9”

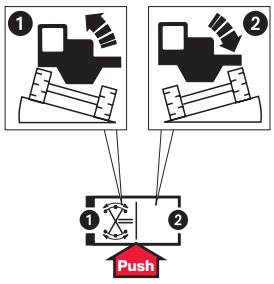
Agrilift 1037	Time (s)	
	dumping	roll-back
Max engine speed	5”	4”
Min. engine speed	14”	9”



MACHINE SWAY

Agrilift 737	Time (s)	
	right to left	left to right
Max engine speed	8”	8”
Min. engine speed	13”	13”

Agrilift 1037	Time (s)	
	right to left	left to right
Max engine speed	8”	8”
Min. engine speed	13”	13”



LIFTING/LOWERING OF THE REAR THREE-POINT HITCH (if any)

Agrilift 737	Time (s)	
	up	down
Max engine speed	3”	12”
Min. engine speed	5”	12”

Agrilift 1037	Time (s)	
	up	down
Max engine speed	3”	12”
Min. engine speed	5”	12”

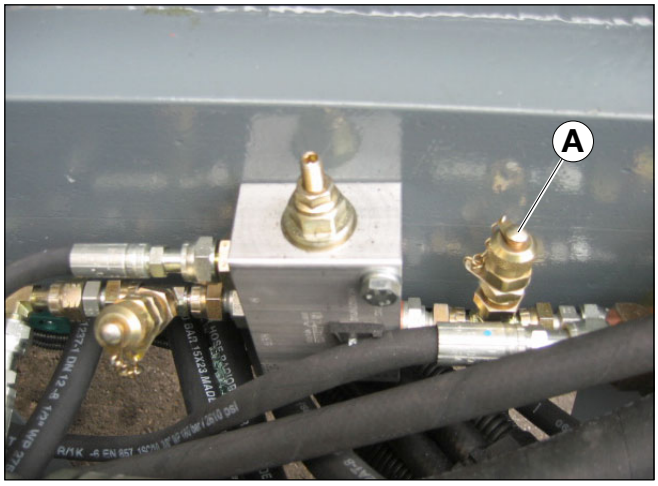
2.22 HYDRAULIC SETTINGS

1. PRELIMINARY OPERATIONS

Warm up the hydraulic oil to 60°C by keeping one of the elements of the boom distributor to full stroke under pressure.
To reach this temperature in a faster way, cover the oil core of the radiator with a carton in the case of a water-oil combined cooler, or the oil radiator if the machine is equipped with a separate oil radiator.

2. CALIBRATING THE BOOM DISTRIBUTOR

Find the mini-socket for pressure gauge **ref. A** inside the frame, under the boom.



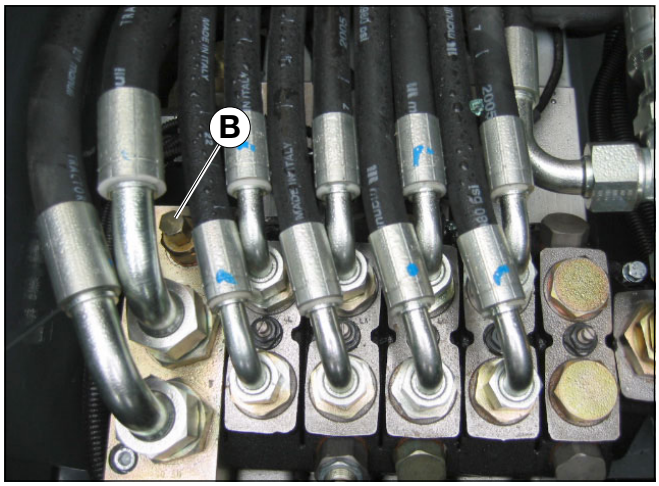
Connect a 0-400 bar pressure gauge to the mini-socket **ref. A**.
Extend the boom to end of stroke with the diesel engine fully accelerated and check that the pressure on the pressure gauge connected to socket **A** is 150 bar. Otherwise, act on valve **X** (annexes 4).



2.1 CALIBRATING THE DISTRIBUTOR PRESSURE CONTROL VALVE

Let the diesel engine run at max speed, then move the boom fully up to end of stroke.
Calibrate valve **B** of the distributor to 280 bar while keeping the lifting cylinder at end of stroke and under pressure and the diesel engine fully accelerated.
In order to check the setting of the safety valve of the bucket tilting cylinder **C** (annexes 1), proceed as follows:

- By means of valve **B** set the distributor pressure to 300 bar while moving one of the cylinders to stroke end.
- With the engine running at maximum speed, tilt the forks to one direction by means of the joystick and act on one of the two valves **C** until reaching a pressure of 290 bar.
- Proceed in calibrating the second valve **C** by tilting the forks to the opposite direction.
- When both fork inclination safety valves have been calibrated, reset the pressure control valve **B** to 280 bar by adjusting the register.

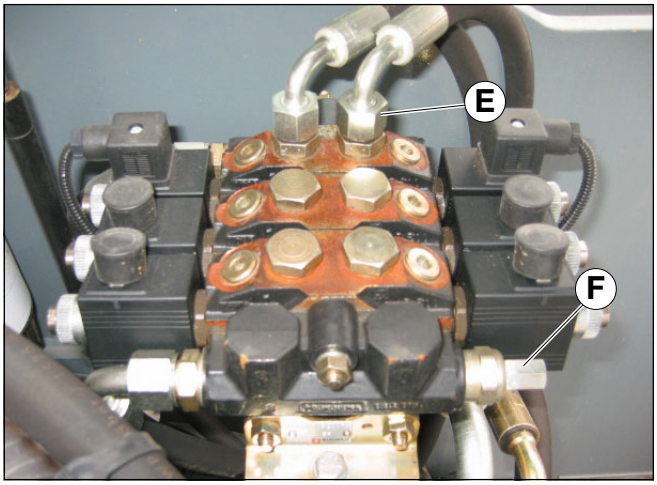


3. CALIBRATING THE BLOCK VALVES OF THE FORK BALANCE CYLINDER (annexes 2)

- Loosen the lock nuts of the valve and tighten the two registers of cartridges **D**.
- Re-loosen of one turn and a half both valves and re-tighten the lock nuts.

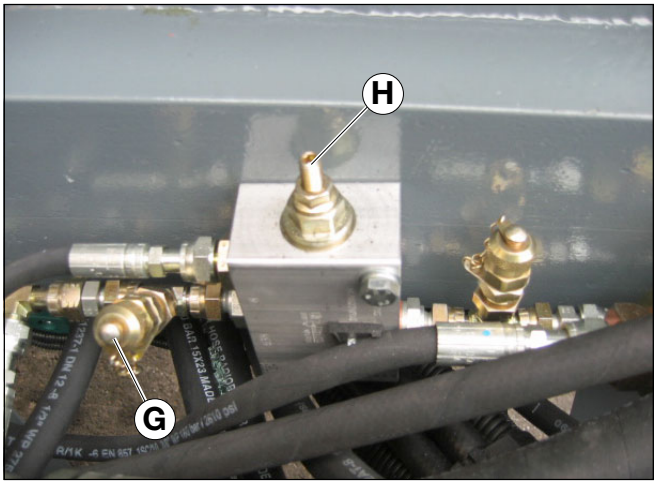
4. CALIBRATING THE LEVELLING DISTRIBUTOR AND THE REAR SOCKET

- Disconnect pipe **E** (annexes 3) and fit a tee-joint complete with mini-socket for the pressure gauge.
- Connect a 0-400 bar pressure gauge to the mini-socket.
- Start the diesel engine and let it run at max speed, then operate the balancing movement of the element which the pressure gauge is fitted to.
- Check the pressure reaches 180 bar. Otherwise act on valve **F**.



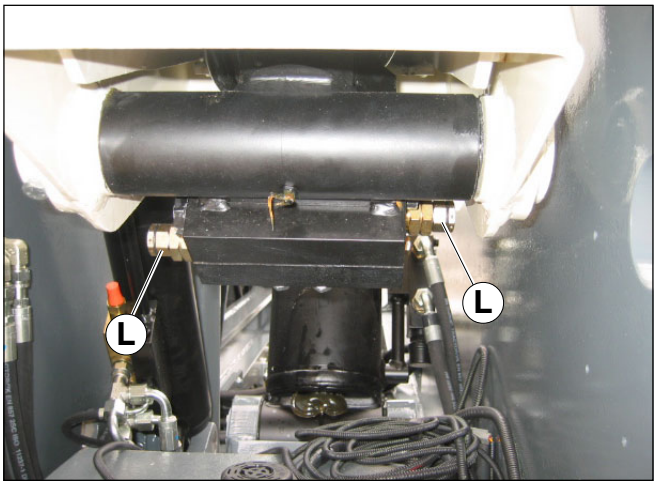
5. CALIBRATING THE PRESSURE REDUCING VALVE

- Connect a 0-400 bar pressure gauge to the mini-socket **G**.
- Start the diesel engine and let it run at idle, then check that the pressure is between 25 and 30 bar.
- If the pressure value isn't correct, act on valve **H**.

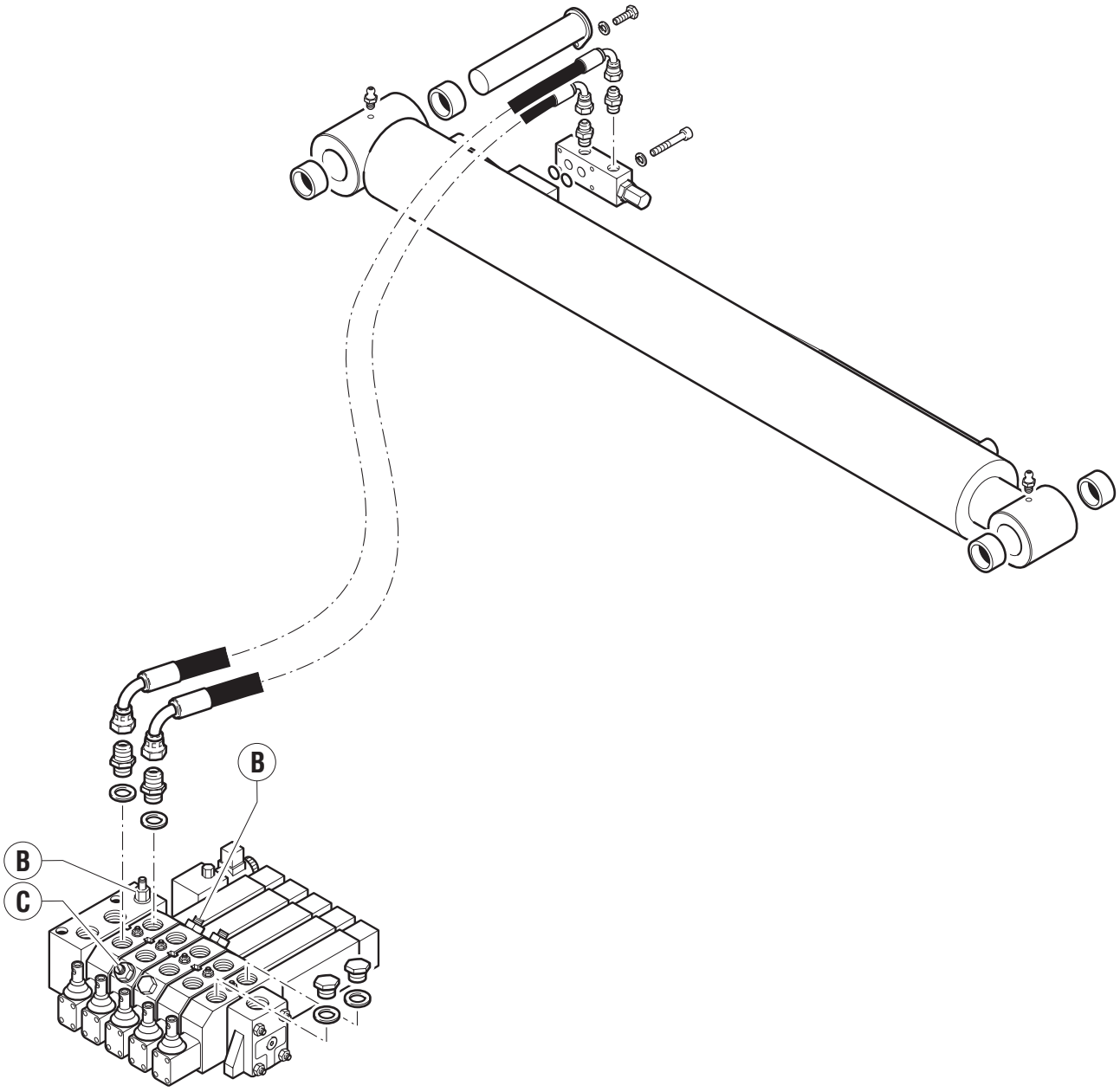


6. CALIBRATING THE BOOM VALVE

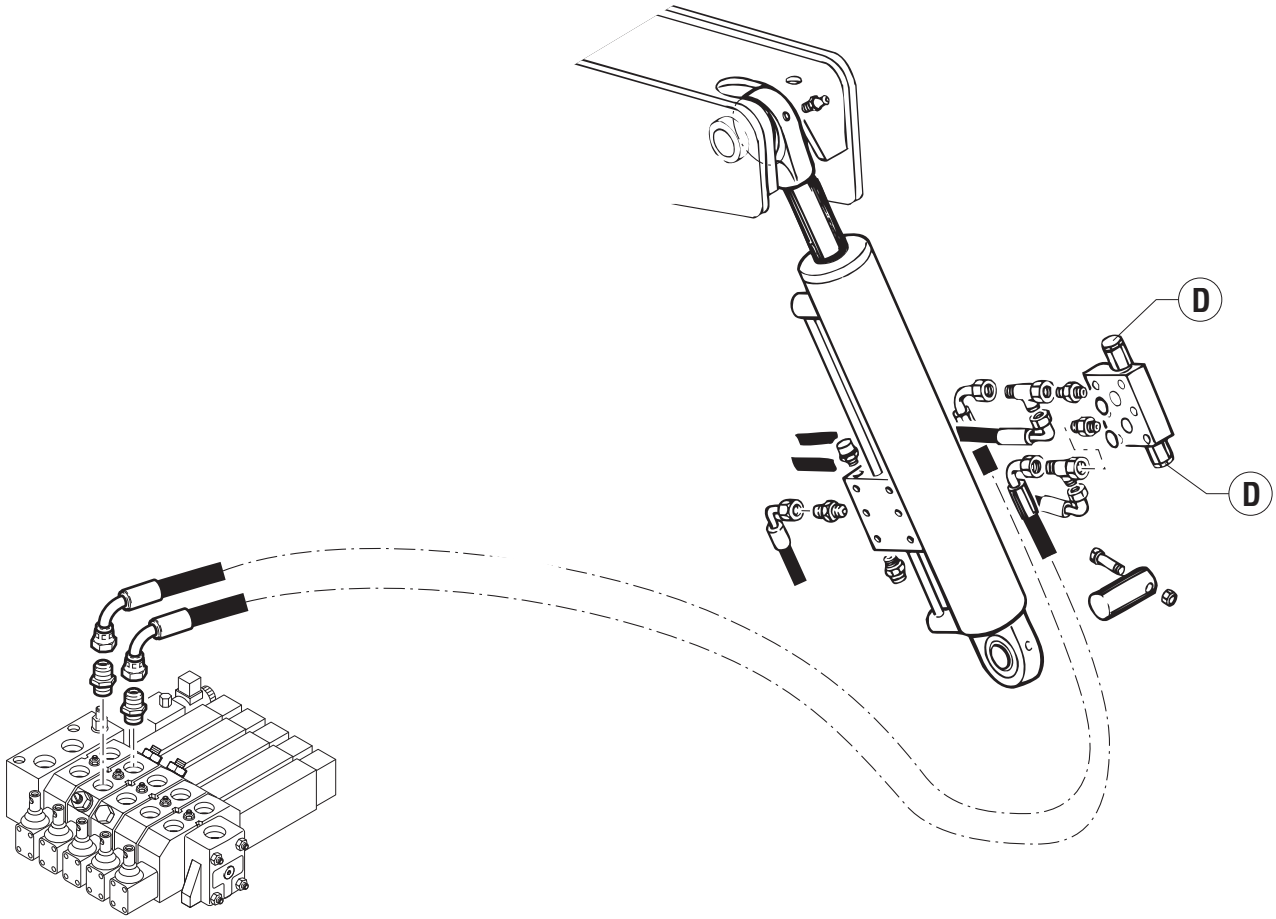
- If the boom movement is slow or discontinuous and unsmooth, act on valves **L**.
- Also check that the times for executing the different movements correspond to the data in paragraph 2.21 "Cylinder movement times".



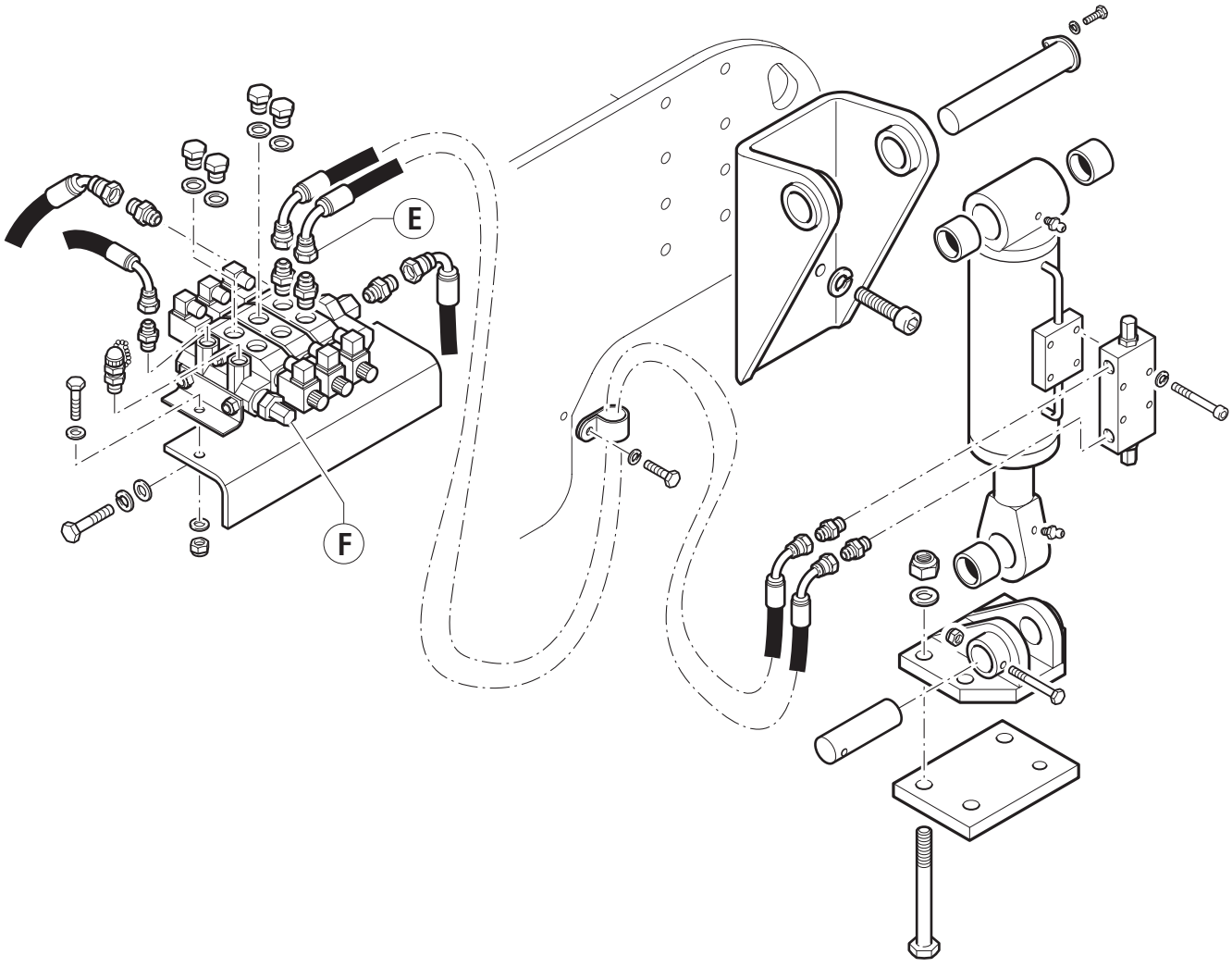
HYDRAULIC SYSTEM - LIFTING	annex 1



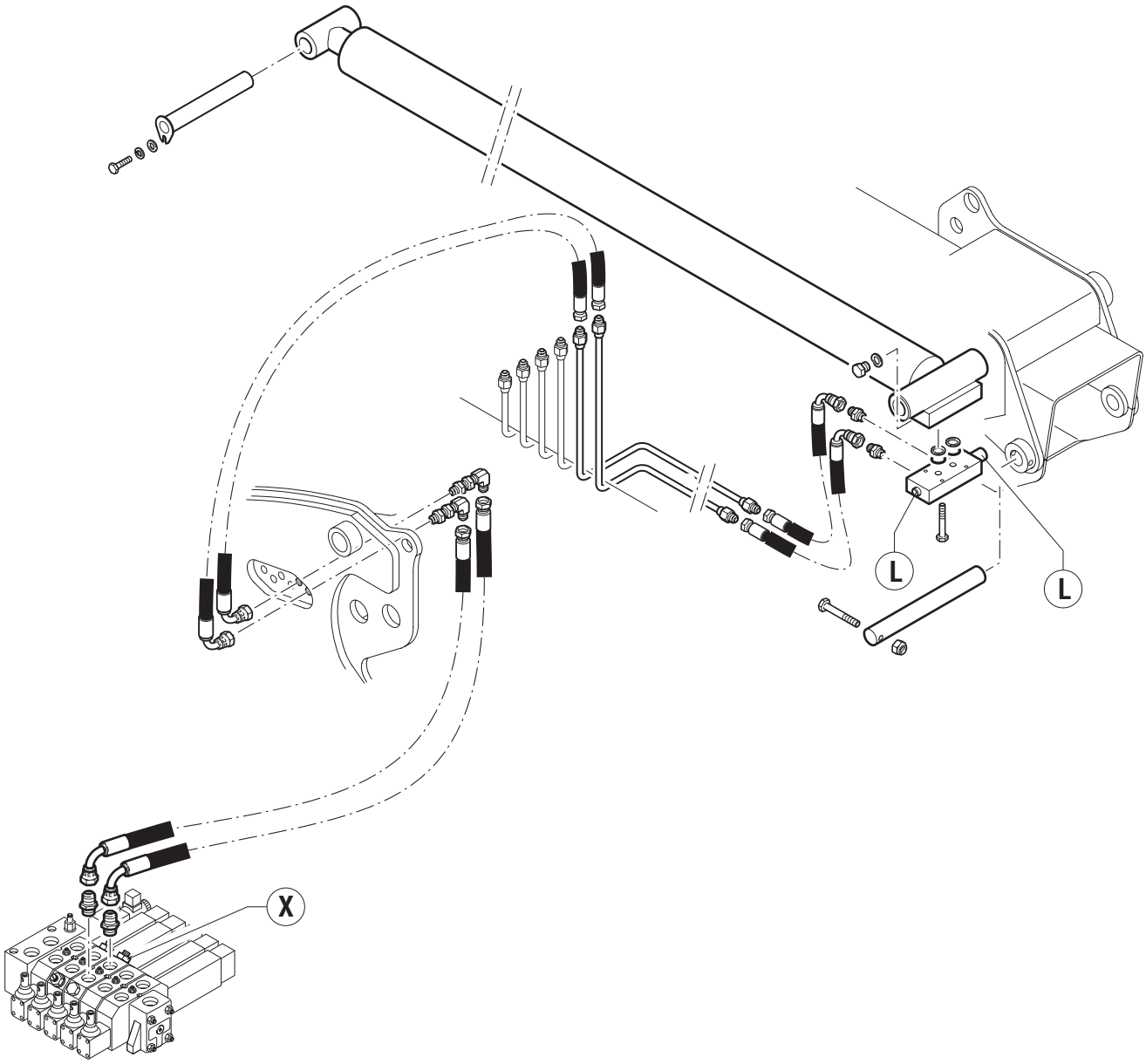
HYDRAULIC SYSTEM - FORK BALANCE	annex 2



HYDRAULIC SYSTEM - LEVELLING	annex 3



HYDRAULIC SYSTEM - BOOM EXTENSION	annex 4



2.23 CHECKING THE TECNORD CONTROL UNIT

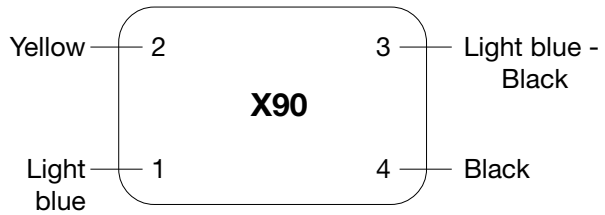
To check the operation data of the TECNORD control unit, proceed as follows:

- Go to the driving place and remove the cover located at the left bottom with respect to the steering wheel.
- Prepare the electrical cable code 55.0602.0203.

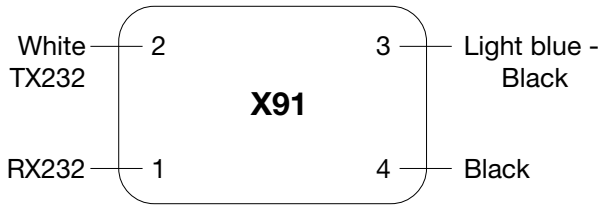


- Find socket **X90** for the control unit of boom and PTO.





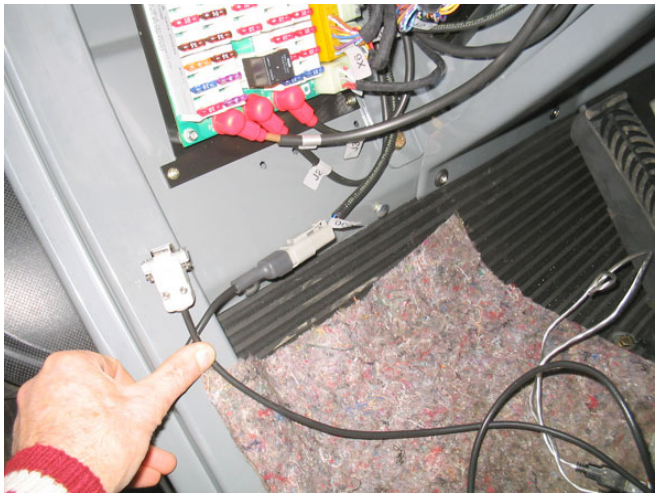
- Find socket **X91** for the control unit of the automatic levelling (behind the driver's seat).



- Remove the socket's protection cap and connect the end of the cable for the connection of the PC.



- Connect the other end of the cable to the special socket on the PC.



- Proceed with the checks and settings using the control and management program.



POWER UNIT CHARACTERISTICS

The electronic power unit is turned on by turning the ignition key to ON.

It reads the following analog signals:
- X-axis position of the cab joystick
- Y-axis position of the cab joystick
- Position of the proportional pushbutton located on the handle of the cab joystick

- Position of the joystick on the platform buttons panel used for the control of the boom movement
- Position of the joystick on the platform buttons panel used for the control of the boom telescopes

It reads the following ON/OFF buttons:
- Dead man on the handle of the cab joystick
- Activation button for the locking/unlocking function
- Left sway activation button
- Right sway activation button
- PTO activation button

It reads the following alarm and state signals:
- Overturning moment
- Boom up

It drives the following outputs:
- ON/OFF solenoid valve for left sway
- ON/OFF solenoid valve for right sway
- ON/OFF solenoid valve for locking function
- ON/OFF solenoid valve for unlocking function

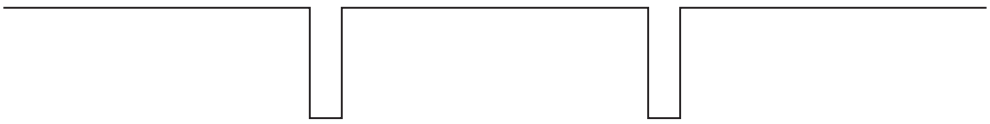
- Activation of the control module for the boom movement
- Activation of the control module for the boom telescopes movement
- Activation of the control module for the forks movement (up/down pitching)

The control unit also supplies the 5VDC power signal to the joystick/proportional button (+/- 5%).

When the joystick/proportional button is in the central neutral position, the relevant analog signal is 50% of the power signal.

The dynamics of the joystick signal changes from max 87.5% (joystick/pushbutton to one end) to min. 12.5% (the opposite end) for the joystick installed in the driving cab, and from max 90% to min. 10% for the joystick installed on the platform's buttons panel (the percentages are referred to the power signal of the joysticks/proportional button).

During normal operation (no anomalous condition detected), the red LED of the control unit flashes with a sequence of 3 seconds ON and 0.25 seconds OFF (say it switches off for a short instant every 3 seconds).



The control unit can detect the following malfunctions:

- Joystick and/or proportional button not in the central neutral position when the Jobsite/OFF/Platform selector is on Jobsite or Platform **(Alarm code 1)**
- ON/OFF buttons in the ON position when the Jobsite/OFF/Platform selector is on Jobsite or Platform **(Alarm code 1)**

Such conditions would activate the manoeuvres associated to the button without control if the signal were not OFF when the Jobsite or Platform mode is selected. Therefore,until the control unit does not detect a neutral position, the function is inhibited and the malfunction is signalled.

- Joystick and/or proportional button with analog signal below the minimum threshold (this case also includes the disconnection of the joystick/porportional button connection or the short circuit to ground of the proportional signal or the short circuit to ground of the power signal of the joysticks/proportional button) **(Alarm code 2)**

- Joystick and/or proportional button with analog signal above the maximum threshold (this case includes the short circuit to VBATT of the power signal or the ground disconnection in the joystick or proportional button connector) **(Alarm code 3)**

The malfunctions detected by the power unit are signalled by the red LED which remains OFF for about 2 seconds then flashes for a number of times equal to the code number associated to the detected alarm. The more the LED flashes, the more serious is the alarm and serious alarms have priority with respect to the "soft" alarms. In presence of more alarms, the most serious one is displayed first and, as soon as this is solved, the next one (whose seriousness was lower) is displayed.

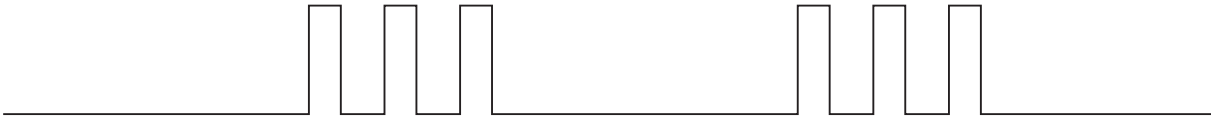
Alarm code 1



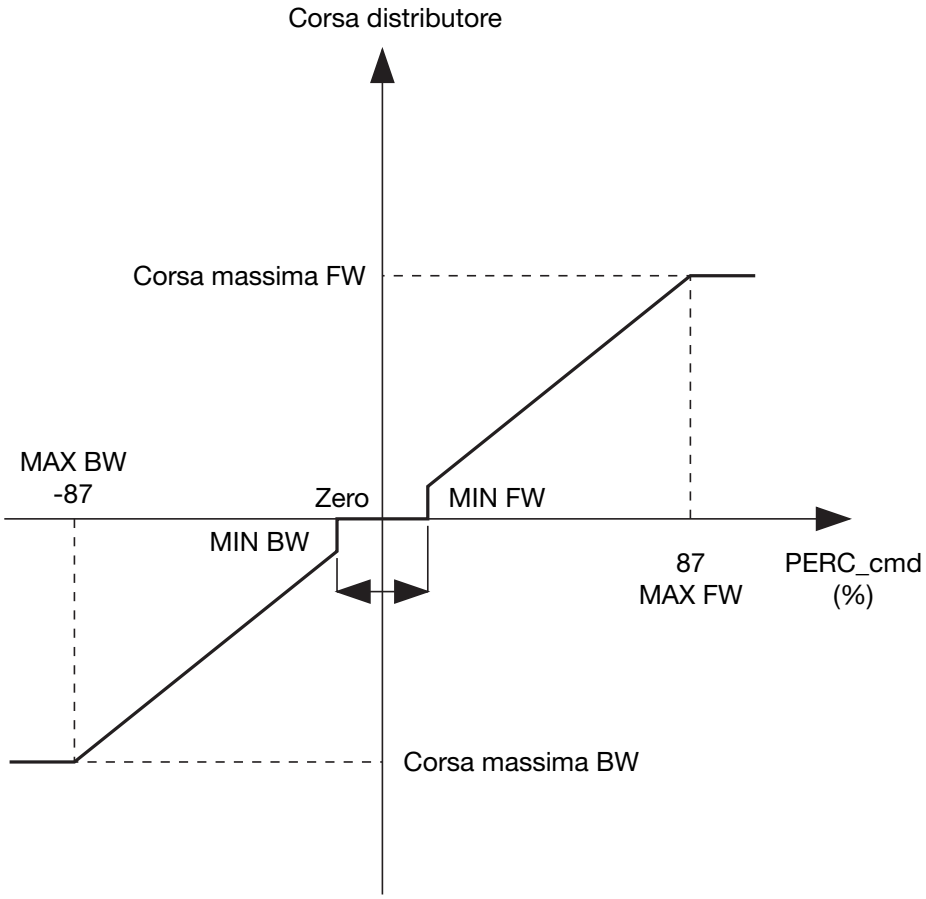
Alarm code 2



Alarm code 3



The analog command signals of the control modules of the boom, telescopes and inclination movements are signals between 0.9V (-84.2%) and 4.1V (+84.2%) with rest position at 2.5V (0%).



REMARK

- PERC_cmd = (Vcontrol – 2.5)/1.9
- Corsa MASSIMA FW e BW mean the maximum stroke in one direction and the maximum stroke in the opposite drection
- With the calibration program, you can change the piloting percentages of MAX FW, min FW, MAX BW and min BW for the three proportional manoeuvres.

DIAGNOSTIC CONTROL PROGRAM

Starting the application, you'll find the following window and a dialog box which says to push the CONNECT button after choosing a serial port.

CAUTION

Please note that this software doesen't work in offline.

In fig.1 you can see the setting windows. In the "**movements selector**" box you can choose the movement you want to set among "**braccio**" (boom raising and lowering), "**telescopico**" (boom extension and retraction) and "**movim. forche**" (fork forward/back pitching).

Once you've chosen the movement, you can set in the "**MIN**" and "**MAX**" boxes the value (in percentage) of the movement speed you desire:
MIN means the minimum speed you can have for that movement
MAX means the maximum speed.

"**RAMP UP**" and "**RAMP DOWN**" represent the acceleration in increasing and decreasing the movement speed.

As you can see from the pictures, using the man platform you can set different values from standard use in jobsite.

The "**LOAD SETTINGS FROM FILE**" is the button used to load in the machine a previous setting configuration saved in the PC and "**STORE SETTINGS INTO FILE**" button is the button used to save the current machine configuration in the PC.

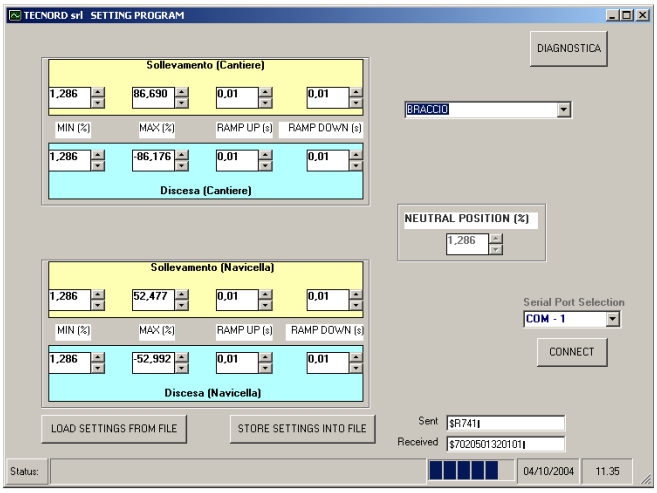


Fig. 1

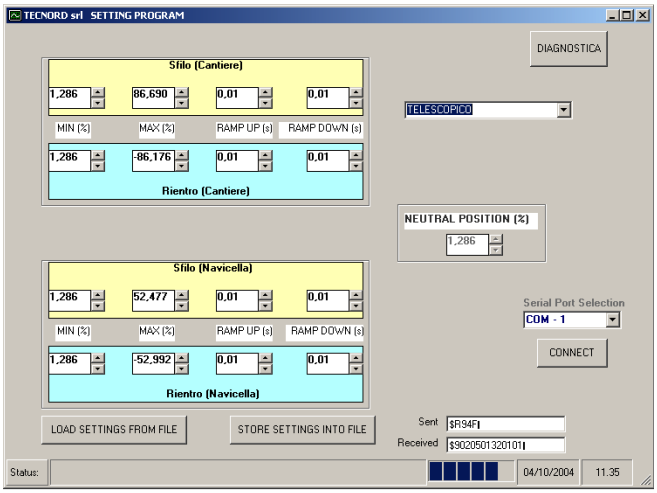


Fig. 2

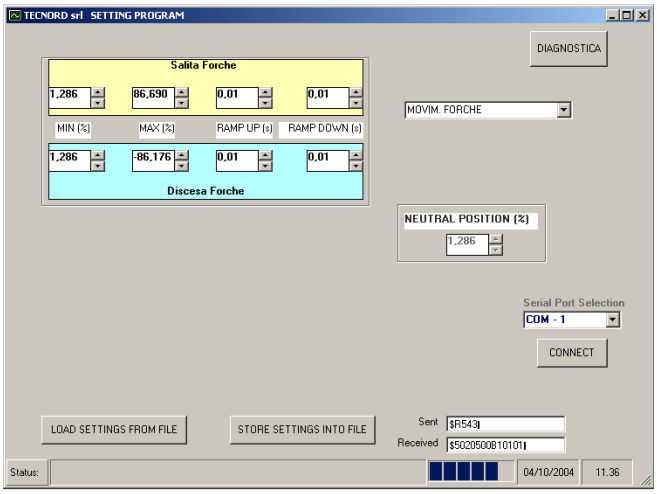


Fig. 3

In fig. 4 you'll find the window showed when you push the "**DIAGNOSTICA**" button.

In this page you'll find the system signals diagnostic. The graduated bars show you the movements of the boom and forks in real time, according to their effective speed.

The joystick control button and the 4th function button become ON and OFF depending if they are pushed or not.

The same is for outriggers and leveling UP and DOWN movements.

Regarding the Alarms, CHIUSO means OFF, APERTO means ON, in fig.4 you have, for example, an overload alarm while the outriggers are down.

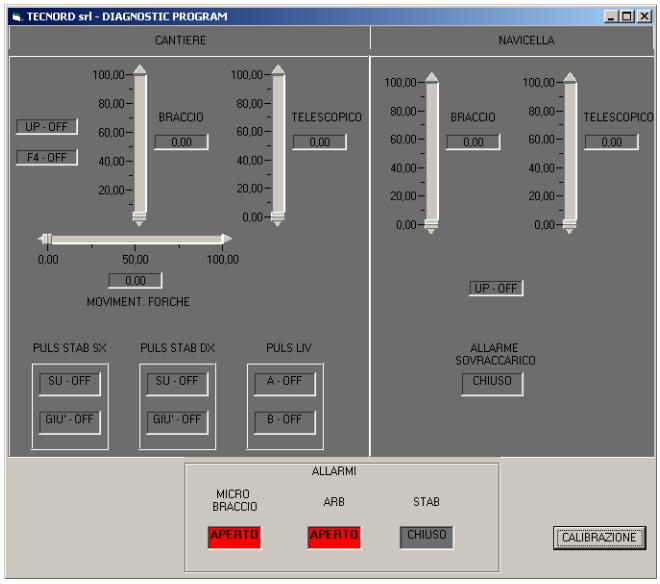
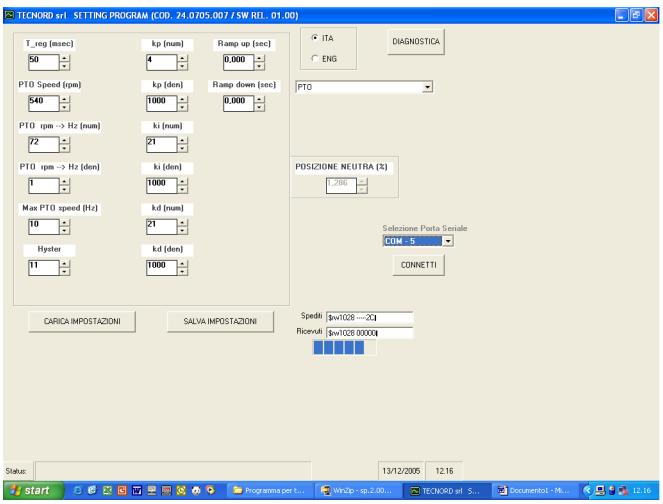
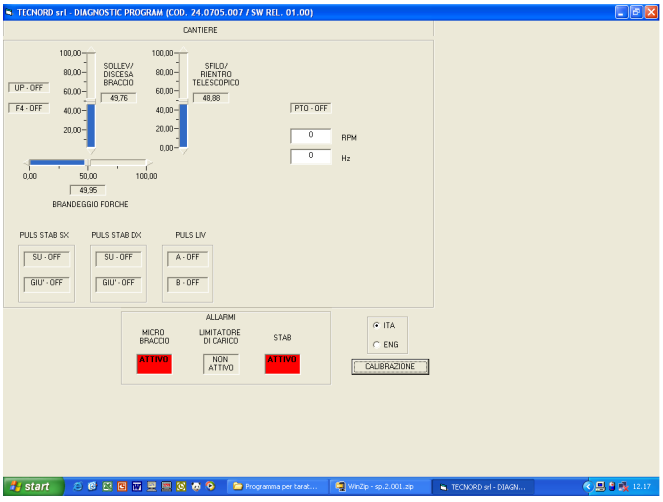


Fig. 4

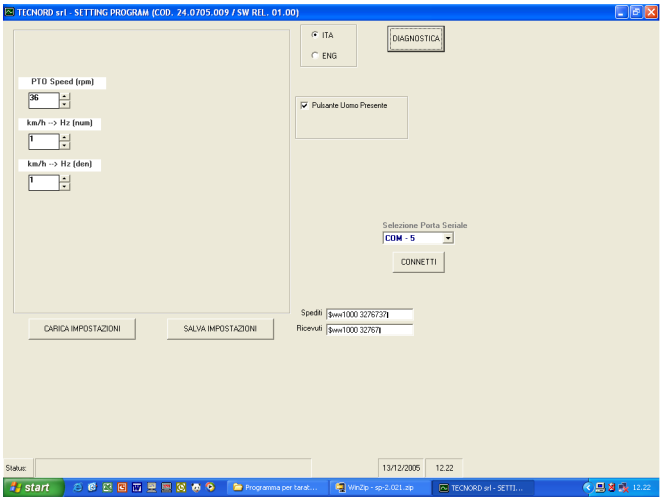
PTO CALIBRATION



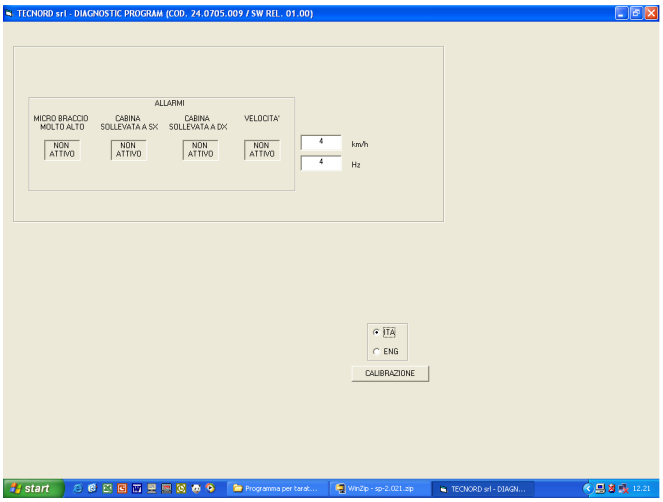
PTO DIAGNOSTIC



LEVELLING CALIBRATION



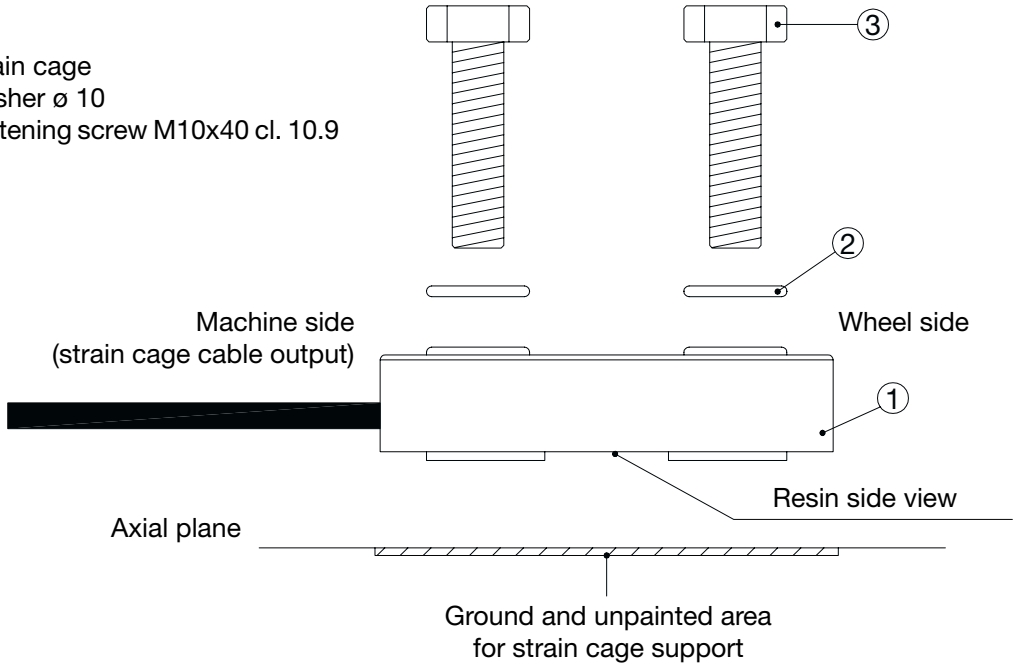
LEVELLING DIAGNOSTIC



2.24 DLE SYSTEM

INSTALLING THE EXTENSIMETRIC CELL

1 = Strain cage
2 = Washer ø 10
3 = Fastening screw M10x40 cl. 10.9



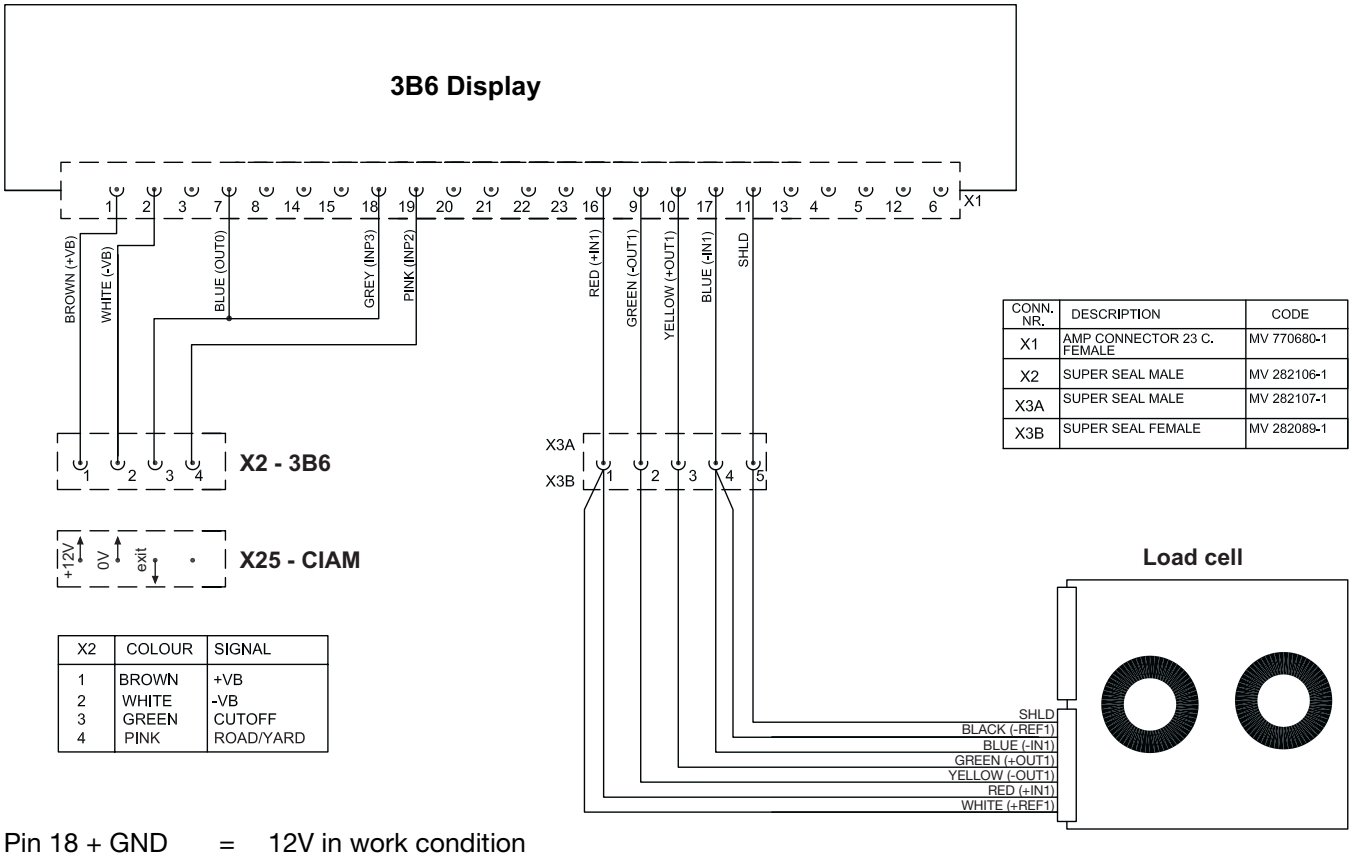
In order to get the best results and avoid damaging the strain cage, follow these precautionary measures:

1 - PREPARATION:

- Thoroughly clean the whole tightening system, especially the ground and unpainted area.

2 - ASSEMBLY:

- Apply the strain cage with its resinated side facing the axle and holding the cable(s) toward the machine.
- Tighten the two screws with a torque wrench at **70 N/m**.
- Mark the position of the screws with paint in order to make possible loosening visible to the eye.



CONN. NR.	DESCRIPTION	CODE
X1	AMP CONNECTOR 23 C. FEMALE	MV 770680-1
X2	SUPER SEAL MALE	MV 282106-1
X3A	SUPER SEAL MALE	MV 282107-1
X3B	SUPER SEAL FEMALE	MV 282089-1

X2	COLOUR	SIGNAL
1	BROWN	+VB
2	WHITE	-VB
3	GREEN	CUTOFF
4	PINK	ROAD/YARD

Pin 18 + GND = 12V in work condition
0V in overload condition

Pin 7 + GND = re-reading ok (12V)

Pin 9 positive
Pin10 = boom retracted with forks in horizontal position, without load: 1.3÷1.4 mV
= boom extended with forks in horizontal position, without load: 1.0÷1.2 mV

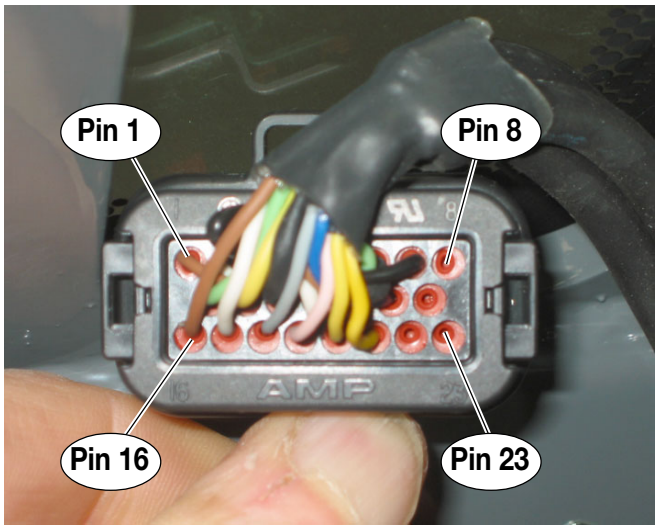
CONNECTOR X1 FOR CHECKS WITH TESTER

Electrical power to control unit (DLE)
Pin 1: 12 V
Pin 2: ground

Overload signal (12V generated by the DLE)
Pin 18: 12 V normal conditions, 0 V alarm overload
Pin 7: re-reading overload signal

Electrical power to load cell equal to 5 V
Channel 1: Pin 16: positive Pin 17: negative

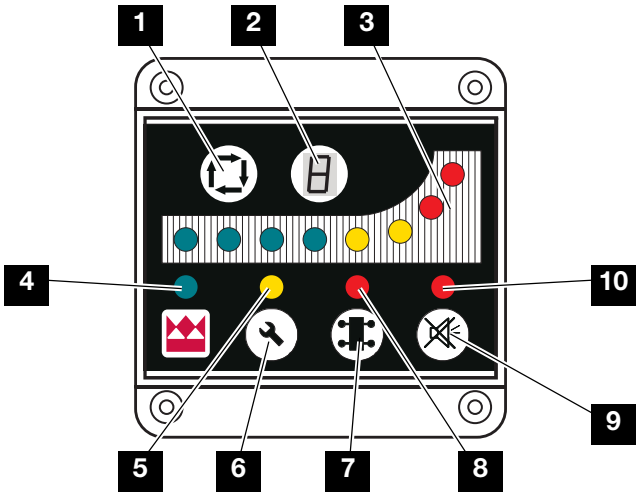
Load cell signal in range 0,1 - 2,5 mV
Channel 1: Pin 10: positive Pin 9: negative



2.23 CALIBRATING THE DLE LOAD LIMITER

CAUTION

- ***During the calibration mode the limiter device doesn't block any manoeuvres so the calibration can be done.***
- ***We recommend having the known load in the range of action of the machine.***
- ***The calibration of the machine should be done after a few minutes of use, in other words with the machine "warm".***



- Enter the calibration mode:

Within 5 seconds from when the instrument is activated (even if the display is still off) you should press the keys on the front panel in the right sequence.
The keys to use and the relevant meaning are shown below:

Press ◯ to enter number 0

Press ◯ to enter number 1

Press ◯ to confirm the sequence entered.

The access code currently used is **1001**. Therefore you should enter the following sequence:

◯ ◯ ◯ ◯

1 0 0 1 CONFIRM

If the sequence is correct the confirmation of the instrument functioning in the calibration mode is given by the LED near ◯ lighting with a fixed light.
The display shows a number that ISN'T blinking, starting from "0".

- Description of the controls:

1 Calibration selection button
2 Display
3 Stability indicator with LED-bar
4 Green light - power OK
5 Yellow light - calibration mode
6 Calibration confirmation button
7 Not used
8 Red light - outrigger position
9 Buzzer ON/OFF pushbutton
10 Red light - overload pre-alarm / alarm

The digit on display **2** shows the selected attachment.
The user can choose among:

0: Generic

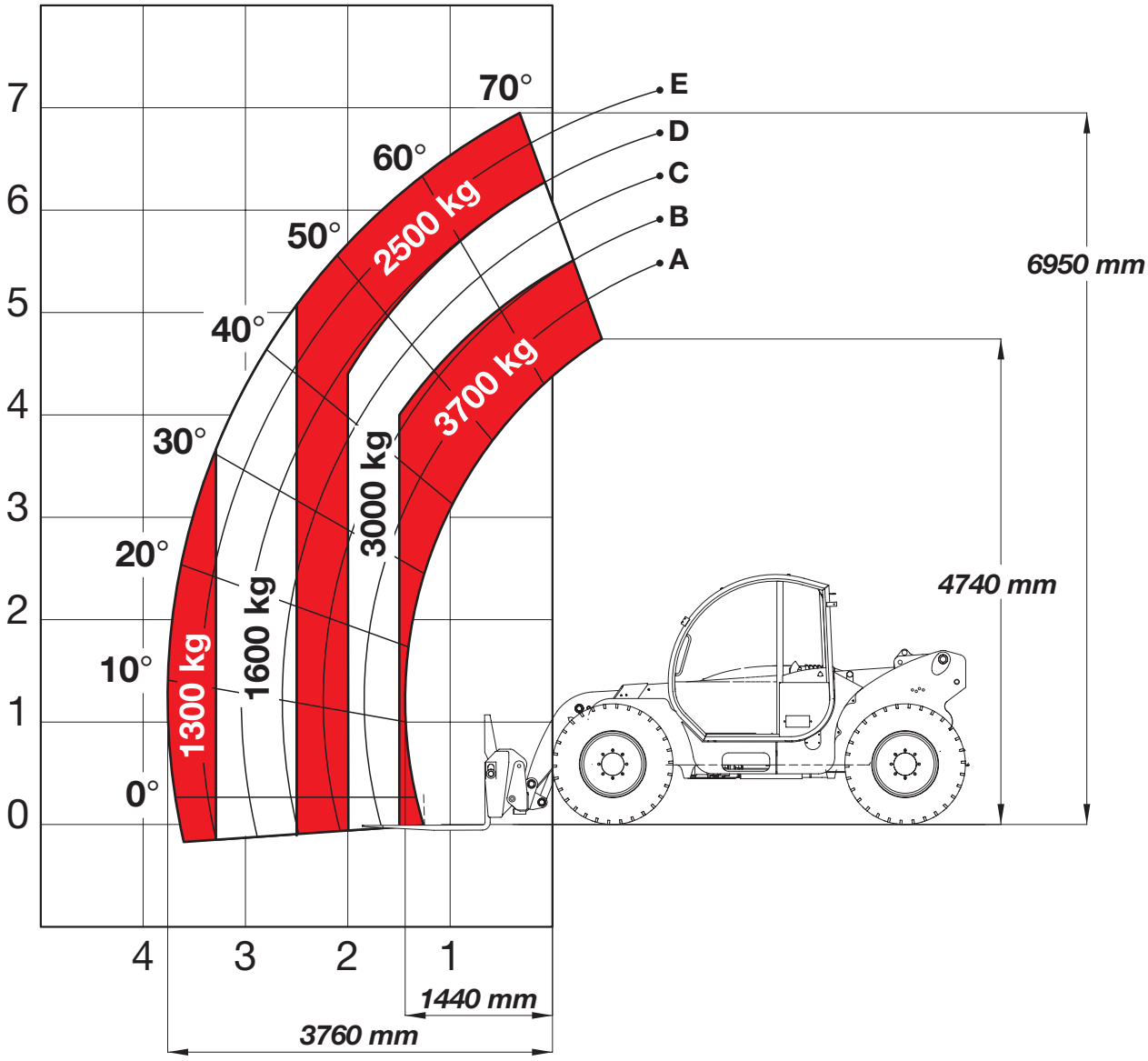
The system recognises the attachment fitted to the machine automatically.

DISPLAY	FUNCTION
0	The LED bar indicates the type of machine in use: 0 LEDs on - Agrilift 737/1037 Press  or  to select the machine to calibrate. If you are doing the first calibration, press  to reset the system and load the default parameters of the selected machine. If you are re-calibrating the instrument, skip the previous point. Press  to proceed to the next point (1).
1	Fully close the boom and hold it slightly above the horizontal with respect to the ground. **DON'T** lift loads. Press  to confirm the **EMPTY** calibration of the machine. Press  to proceed to the next point (2).
2	Place a load on the forks with a weight corresponding to the table below - in relation to the model -, extend the boom while holding it horizontal till reaching the overturning limit (ex: Agrilift 737: 1600 kg a 3,04 m referred to the front part of the wheels). Press  to confirm the **LOADED** calibration of the machine and check that the alarm triggers. Press  to proceed to the next point (F).
F	Press  to exit calibration and **SAVE** the changes made (the zero flashes). The limiter is no longer in the calibration mode. The LED  is not lit fixed any more. You should turn the machine off and then on again. Now you can start working.

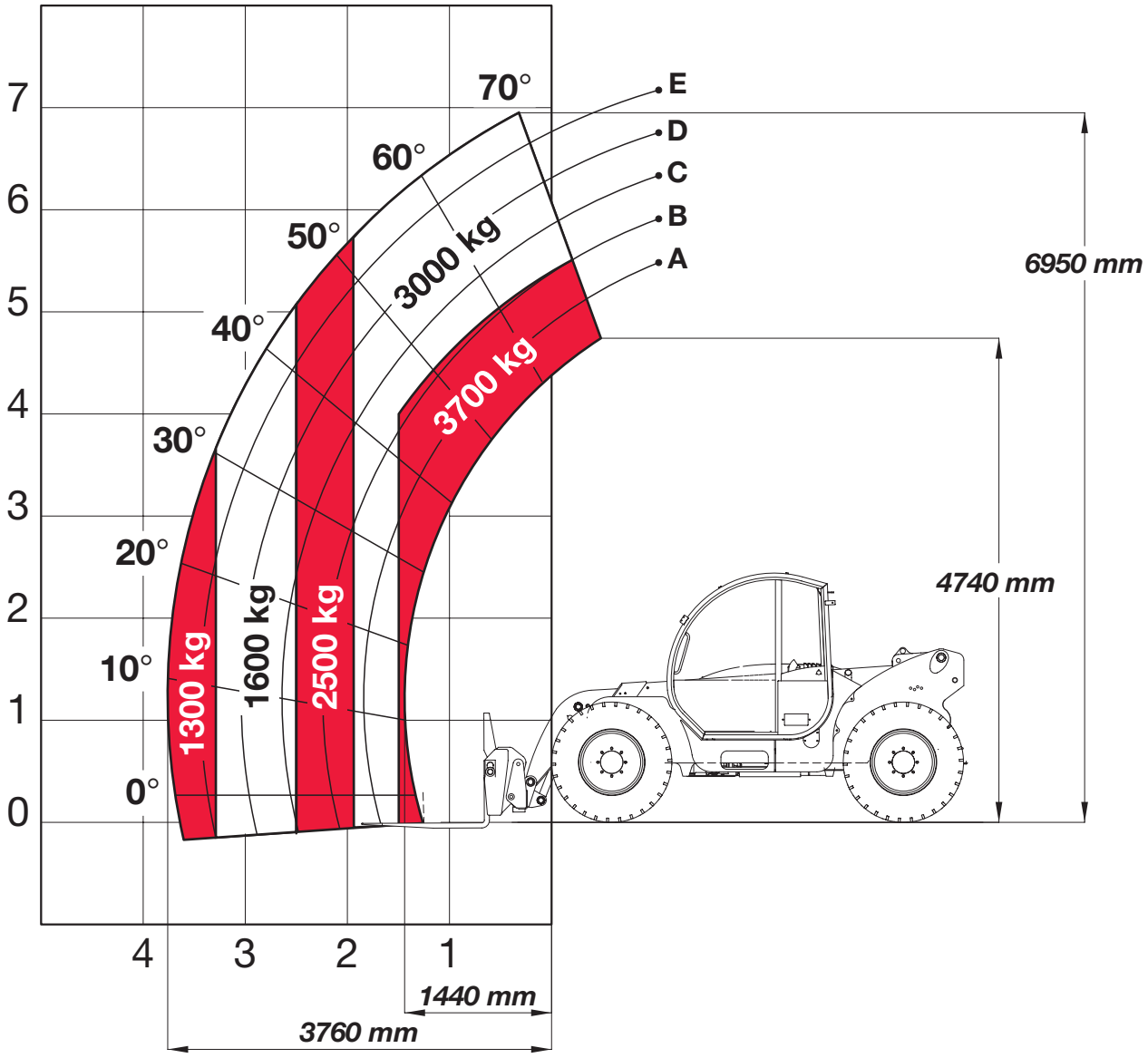
	load (kg)	activation of the overload warn. system (m)
Agrilift 737	1600	3,04
Agrilift 1037	2000	3,40

To test the machine with different weights after a calibration, strictly respect the values shown on the load diagram (the latter are the distance between the front part of the wheels and the centre of the load on the forks).

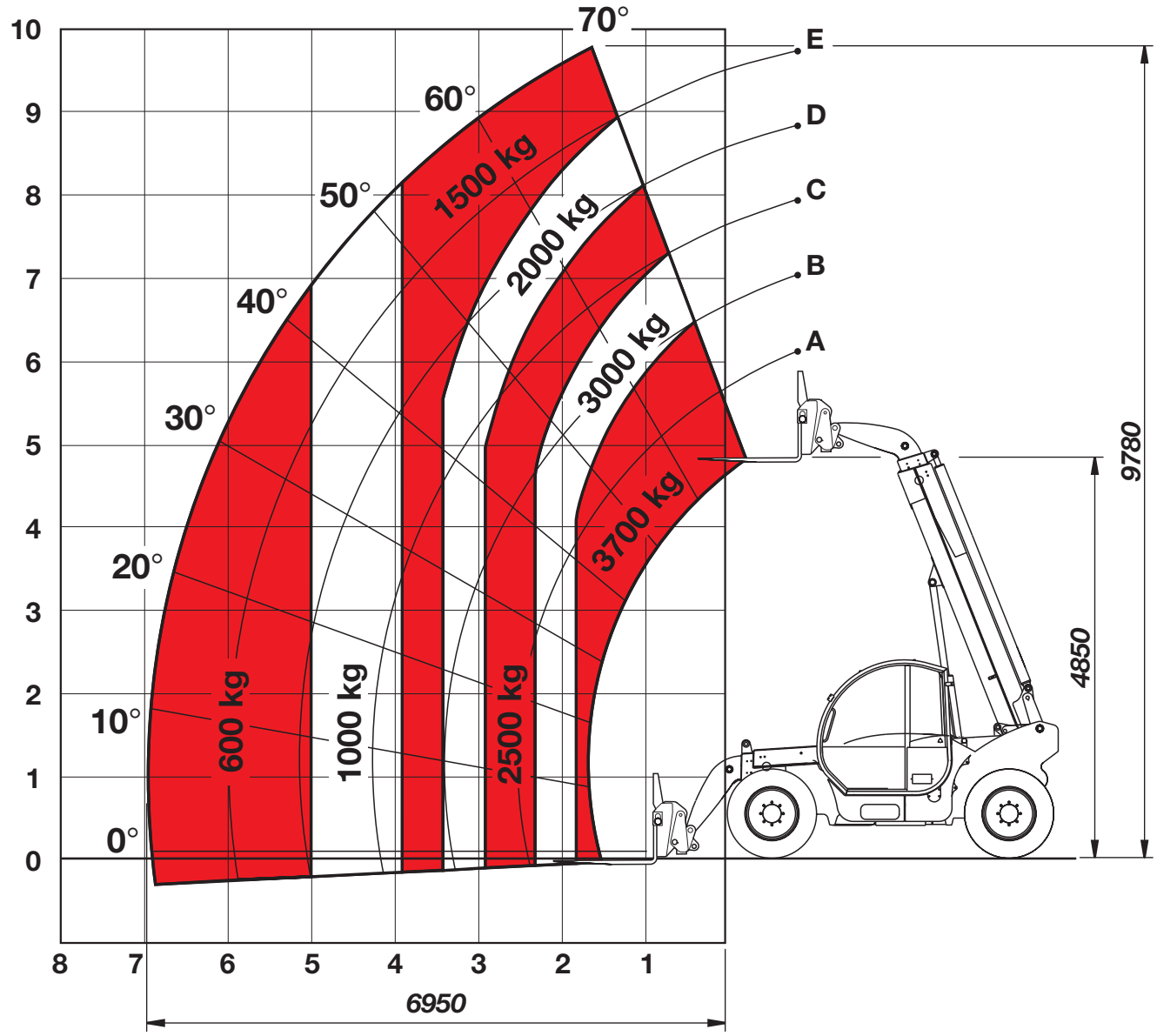
AGRILIFT 737 WITHOUT SELF-LEVELLING



AGRILIFT 737 WITH SELF-LEVELLING



AGRILIFT 1037



SETTINGS

FUNCTION	DISPLAY
A	Display of the value read by the ADC converter-cell channel 1 (A) and cell 2 (B). This diagnosis function allows you to check proper reading of the load cell. As you move the boom, you can see the LEDs of the load bar progressively go on/off (valid if calibration has already been done). Position the machine for a calibration without load. If function **A** is activated and the LED is completely ON or OFF, there could be a problem with the connection or in the cell thereof; if it is partly lit but there is no movement in the boom, make sure the cell is fixed.
C	Digital Inputs display: this function allows you to see if the following signals are properly delivered to the DLE device according to the lighted LEDs of the load bar: LED3: lit when the overload warning system disconnect key is turned. LED4: ON if the interlock relay is active (machine safe without alarms).
D	Software version existing in the DLE unit: this function allows you to see the software version included in the DLE unit according to the lighted LEDs of the load bar No LED: software 0 One LED: software 1…… Four LEDs: software 4
E	No function.
F	Press to escape from the calibration and **SAVE** all changes. (the buzzer and the LED activate to confirm storage). The limiter has now escaped from the calibration mode. The LED is no longer ON steadily. It is necessary to turn off and turn on the machine to eliminate all alarm messages (display flashing).

ALARM CODES

Alarm code **1**
Description ..... **E2PROM Error.** Internal comparison of data read from E2PROM failed.
Action ..... Switch off and switch on the machine. If the alarm continues, recalibrate the machine, otherwise replace DLE.

Alarm code **2**
Description ..... **CELL 1 reading out of range.**
Action ..... Check if the load cell is fixed well.
Check the connection between DLE and sensor for short circuits or signal interruptions due to a broken cable.
Check the DLE connector for signs of oxidation, short circuits or absence of electrical contact in some pins.
If the alarm persists, check if the cell is intact.

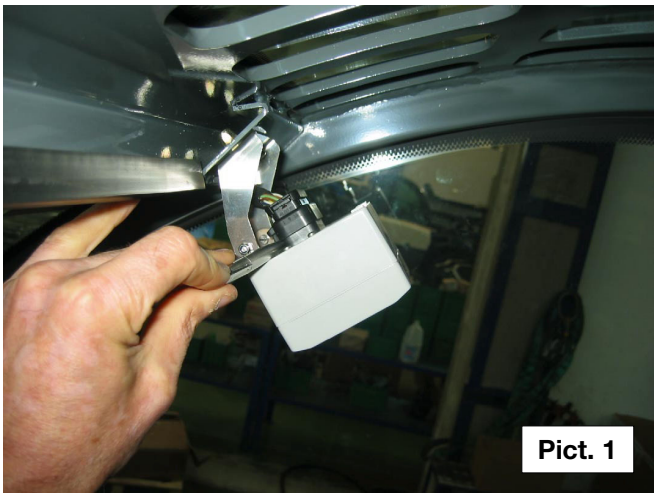
Alarm code **4**
Description ..... **Block Relay check error during work.** Check through.re-reading of the block output of the congruence with the current state of the limiter.
The alarm triggers even in the absence of malfunctions if the load limiter cutout key is usedo.
Action ..... The relay or the cable can be shorted; check.
The limiter's outputs do not deactivate. Switch off and on the machine and run a complete test of the outputs.
If the alarm persists, replace the DLE.

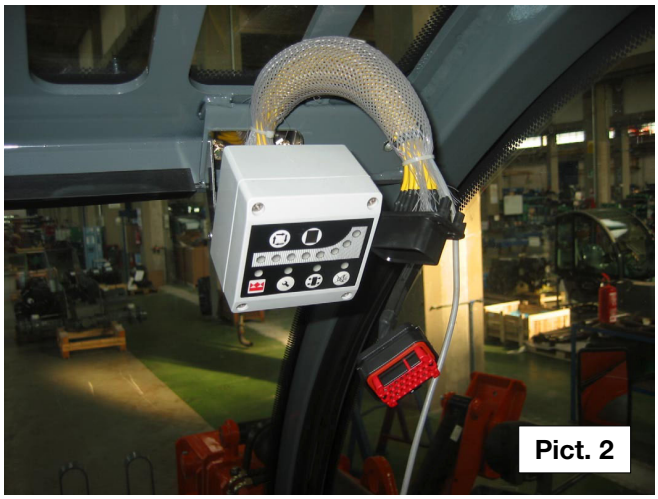
Alarm code **5-8**
Description ..... **Block Relay check error at start**. When the instrument is started, the re-reading of the block output is always OFF except when the two outputs of the DLE are connected in series.
5 - DLE output 0V or low voltage - 12V re-reading
8 - DLE output 12V - ow voltage or 0V re-reading
The alarm triggers even in the absence of malfunctions if the load limiter cutout key is used when the instrument is started.
Action ..... The relay or the cable can be shorted; check.
The limiter's outputs do not deactivate. Switch off and on the machine and run a complete test of the outputs.
If the alarm persists, replace the DLE.

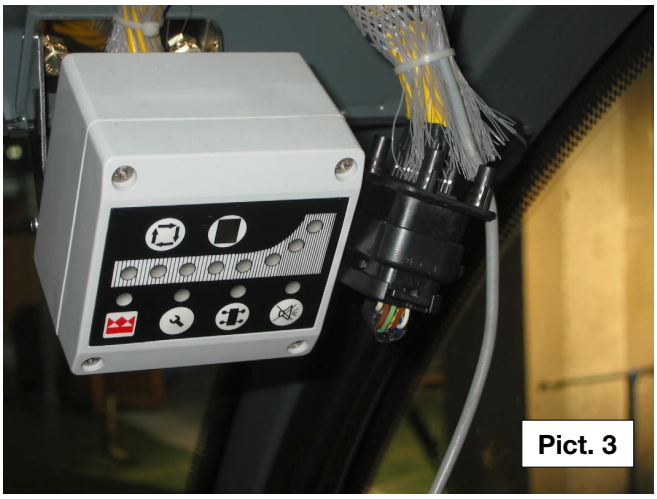
Alarm code ..... **A**
Description ..... **RAM data error.** Checks that the parameters load in the RAM at start-up remain unaltered.
Action ..... Switch off and on the limiter.

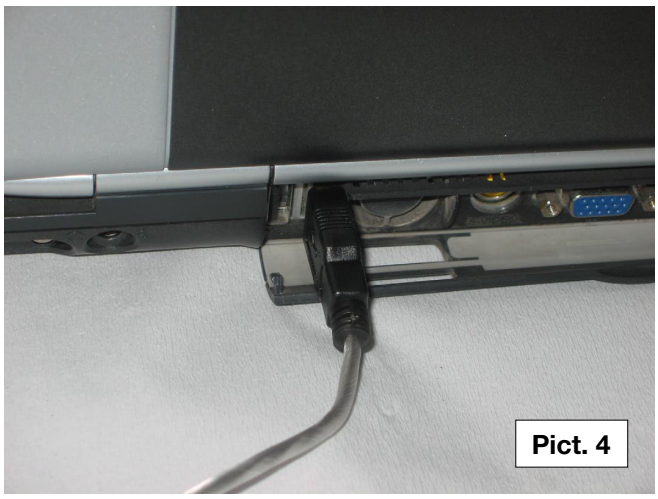
Alarm code ..... **C**
Description ..... **A.D.C. reading control error.** If the analog/digital converter works fine after special re-reading of the DLE board.
Action ..... Switch off and on the limiter.
If the alarm continues, replace DLE.

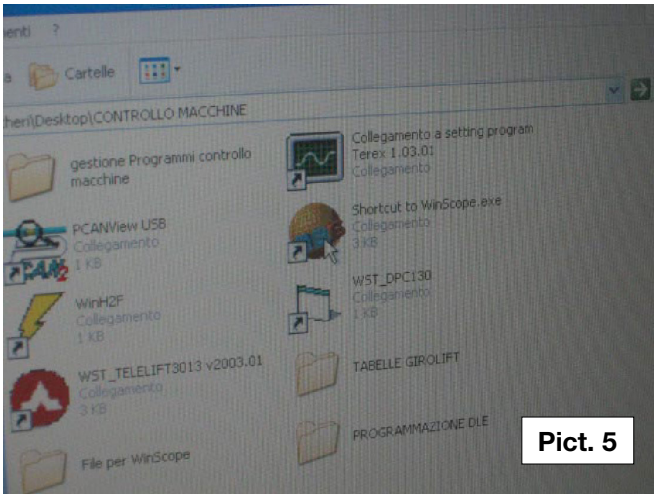
PC CONNECTION (WINSCOPE)


Pict. 1

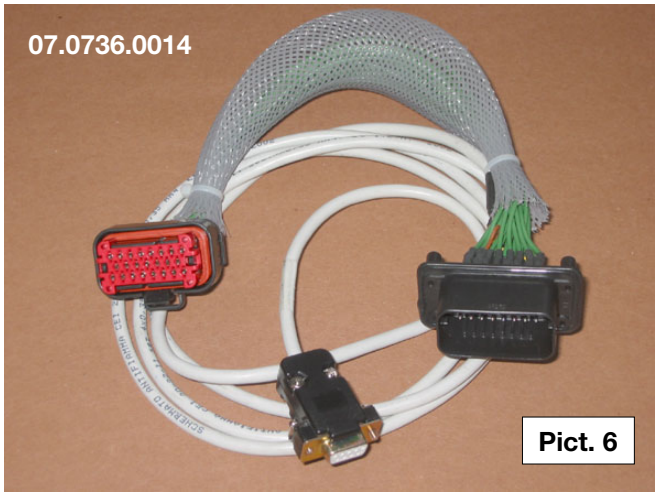

Pict. 2


Pict. 3


Pict. 4



Pict. 5



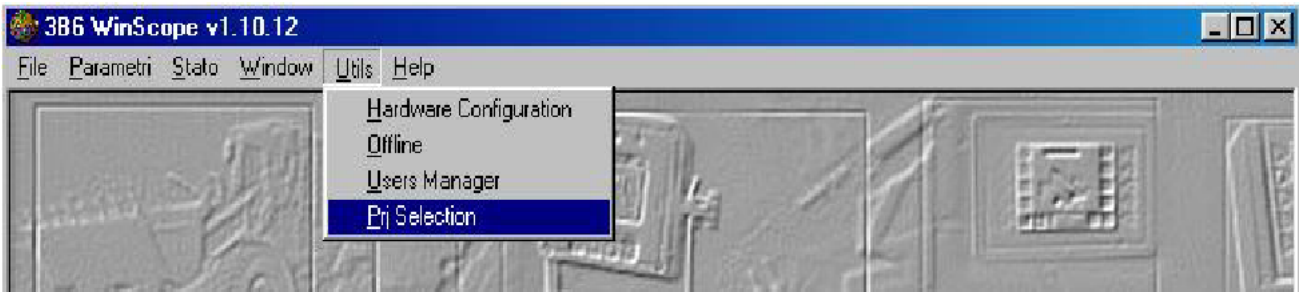
Pict. 6

If you want to check or save the system parameters and variables, you have to open the relevant windows and check the values contained in these.

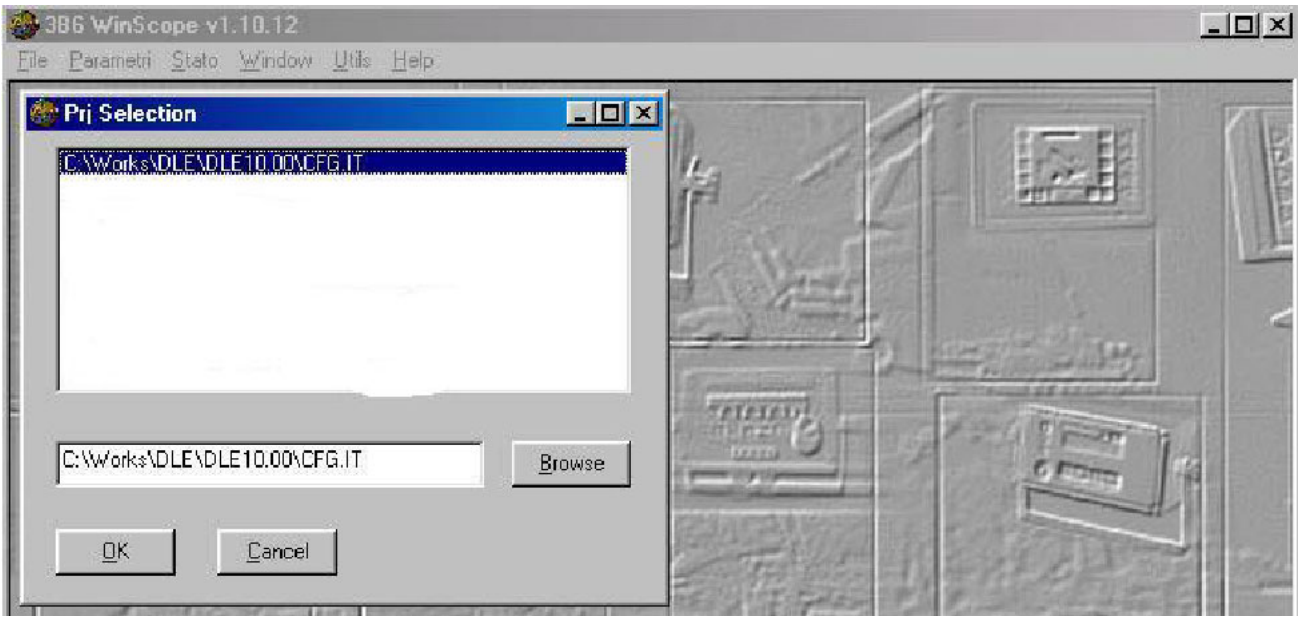
SAVING OR UPLOADING SETTINGS WITH WINSCOPE

When you launch the program the first time, you have to configure some options to guarantee a correct dialogue with the hardware (the machine) used.

Turn on the board to connect the PC and the unit aboard the machine.
From the "**Utils**" menu, select "**Prj Selection**".

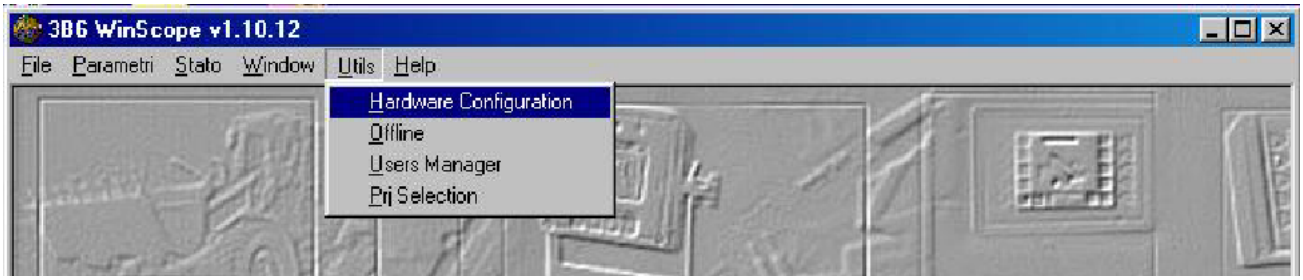


Type in the correct path of file **CFG.IT** or look for the same in the Windows folders suing the "**Browse**" function. The file must not necessarily be in the path shown in the following example as it is at the user's discretion.
It contains the menus and the name of the parameters corresponding to the hardware (and therefore to the machine) in use.

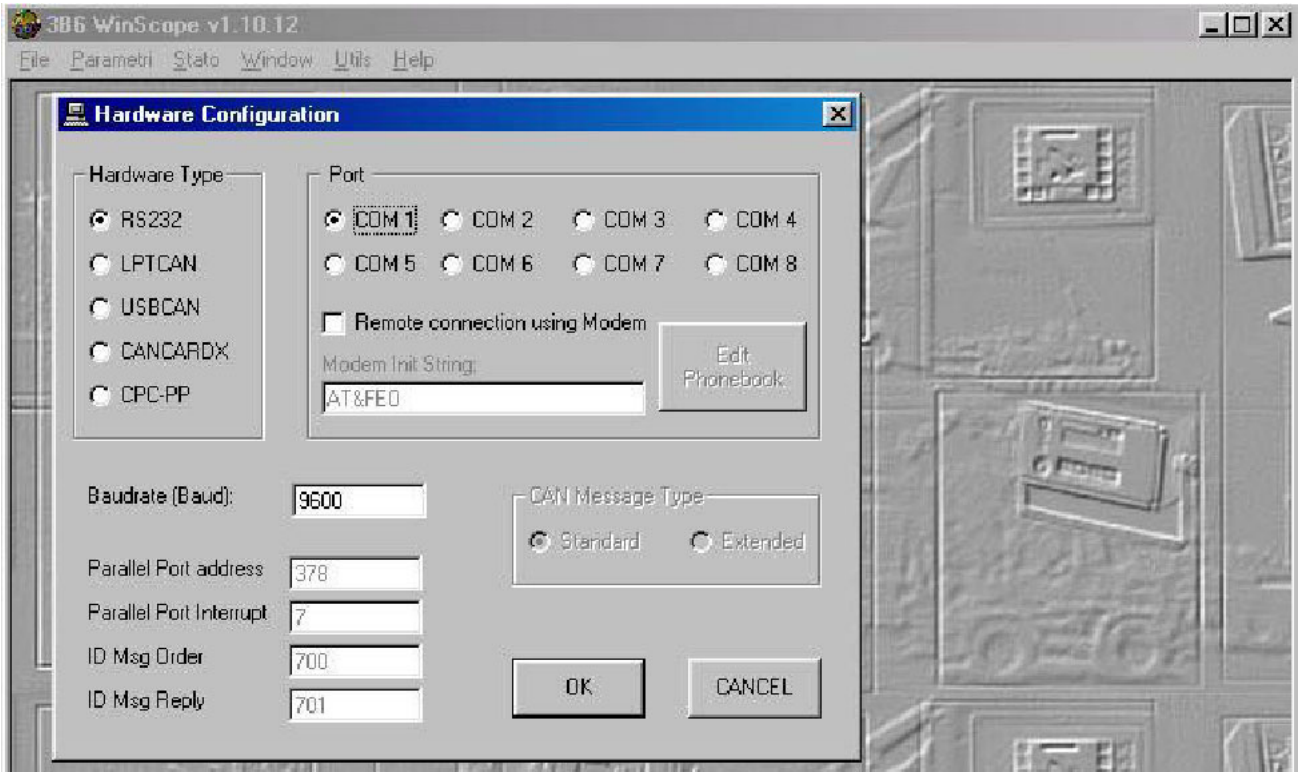


Press OK to close the window.

Now highlight “Hardware Configuration” in the “Utils” menu.



The following window will appear:



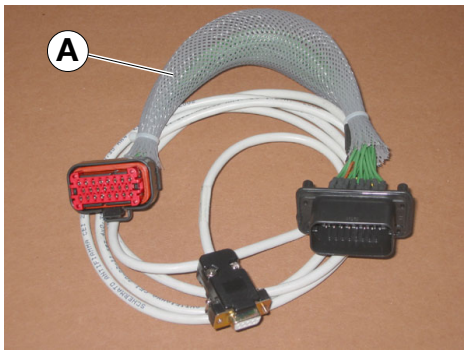
For each type of machine, you must select adequate parameters, that is:

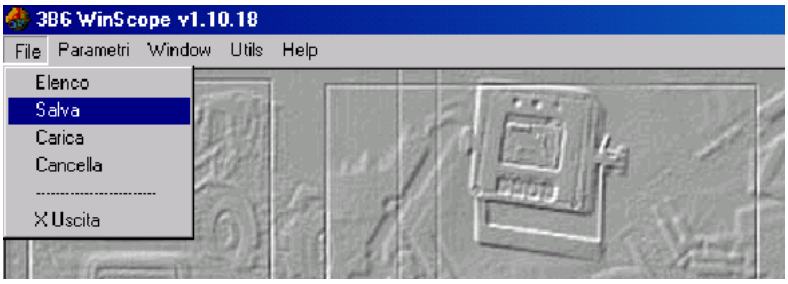
DLE (version _01 or higher)

- Hardware Type **RS232**
- Port **COM1** (usually this is the port, but it can change in relation to the connected PC)
- Baudrate **19200**

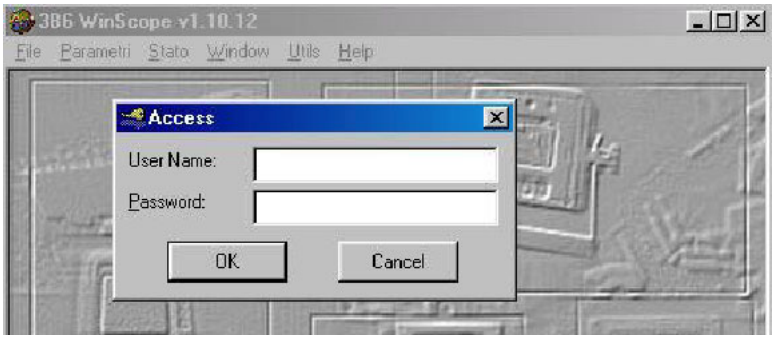
If these parameters are wrongly configured, it won't be possible to connect the units.
Press OK to confirm and close the window.
Now **close** and re-open the program.

Check that the PC is correctly connected to the relevant serial port and to the DLE unit with the special cord **A** (code 07.0736.0014), and that the unit is supplied with power.
In the "File" menu, select "Salva" (Save) if you want to download a setting of the machine onto a PC or "Carica" (Load) if you want to transfer a setting saved in the PC into the machine.

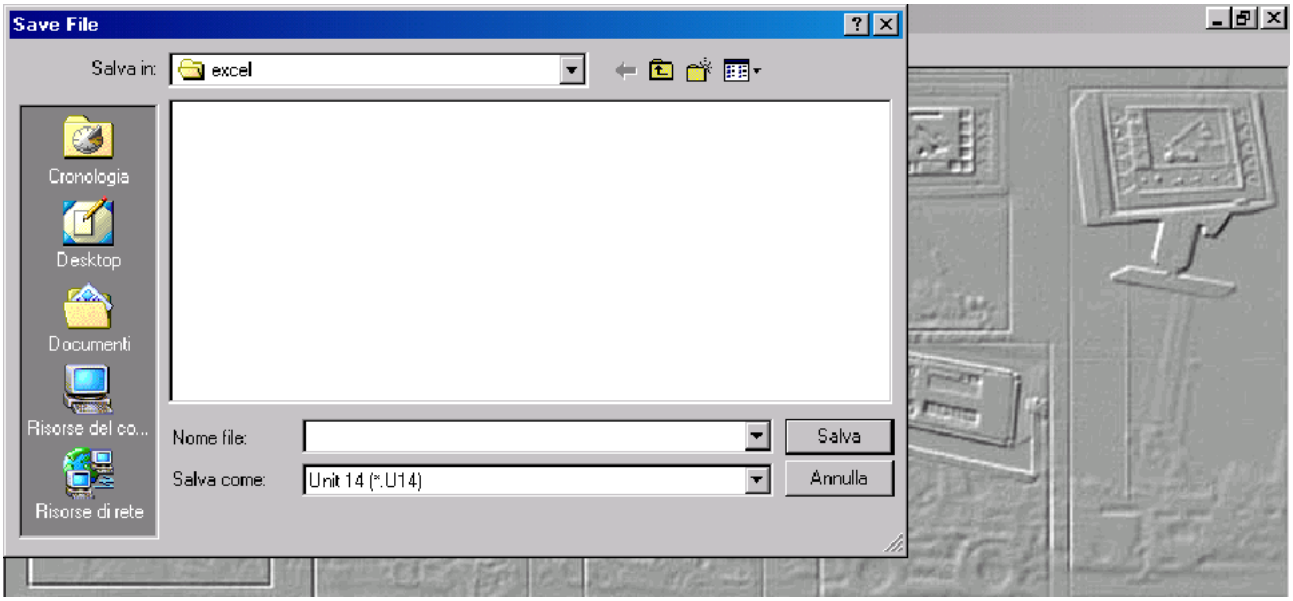




The following window will be displayed so you can type in the password.
For any changes, you must enter the following data:
User Name: ...(contact the TEREXLIFT Service Centre to get your ID-code)
Password: ....(contact the TEREXLIFT Service Centre to get your ID-code)

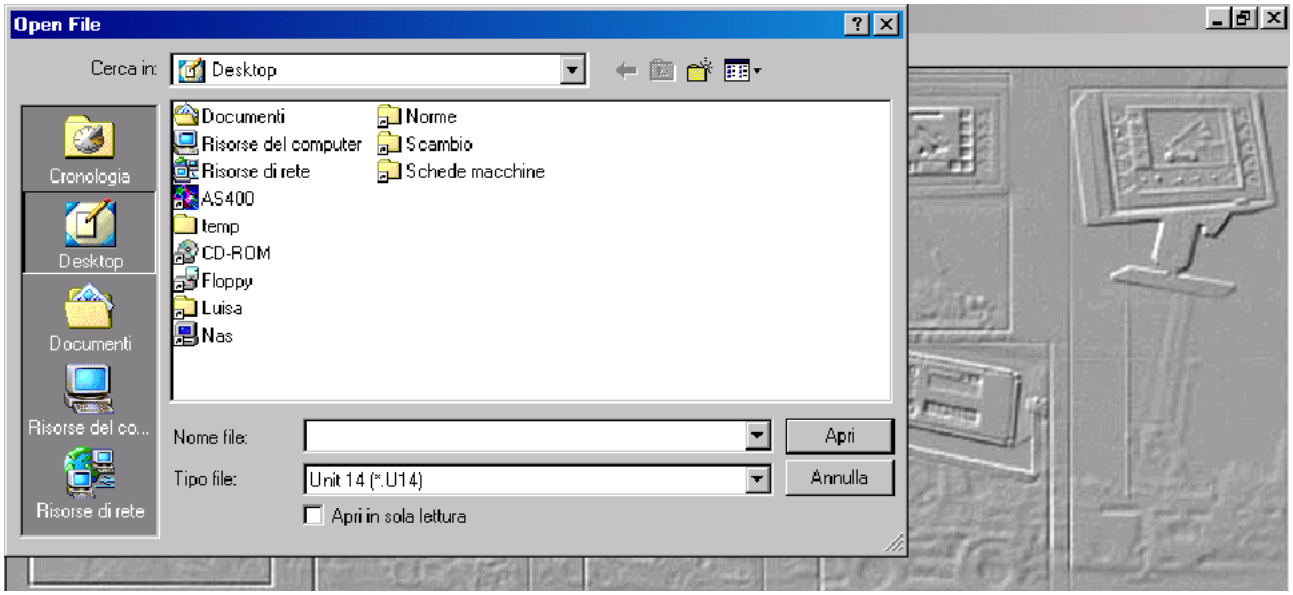


Enter the correct data and press OK. If you have selected "Salva" (Save), the following window will be displayed:



Choose the folder where to save the setting and save the file with a name showing the serial number of the machine (e.g. T3713 SX sn 10578).
Press the Save button.

If you have chosen to upload a setting previously saved in memory, select the "Carica" (Load) command from the File menu. The following window will be displayed:



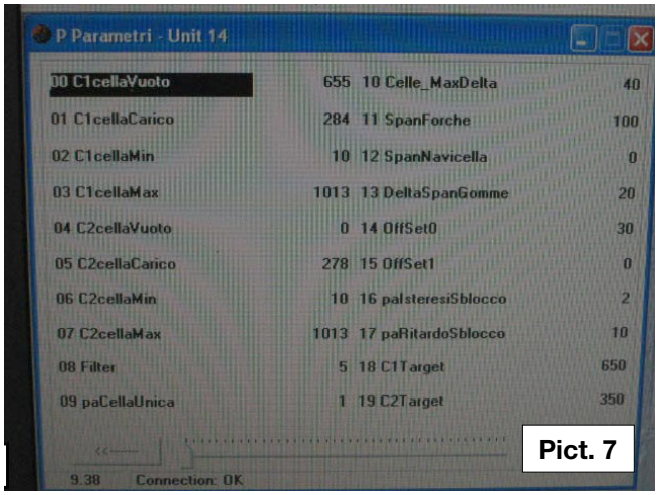
Choose the setting file you want to upload on the machine and press "Apri" (Open).
Save the setting as explained below:

DLE

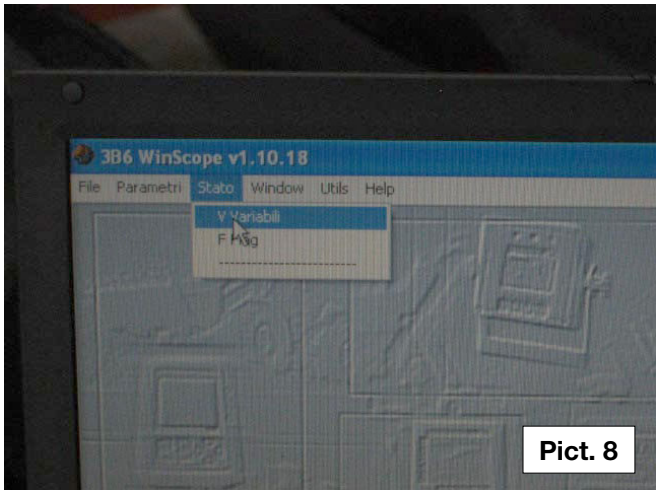
- If you want to save the setting, contact the TEREXLIFT Service Centre to get more information and be registered as an authorised user of the system.
- To gain access to the parameters and variables, no password is needed. All you have to do is connecting the DLE display with the power cord supplied by TEREXLIFT (code 07.0736.0014) and proceed as explained below.
- Connect the DLE connecting cable to the electrical system of the machine - see Pict. 1.
- Connect the PC power cord to the DLE and the computer - see Pict. 2 – 3 – 4
- Turn the ignition key of the machine to position I "board ON" and launch the Winscope program (see Pict. 5). If this is the very first time you use the system, follow the instructions described from the first page of this document. If you want to upload or download the setting from/to the machine DLE, you need a password which must be asked to TEREXLIFT (to avoid any tampering with the system).
  TEREXLIFT has also a database with all the values of the settings saved ordered by serial numbers which can be provided at any time for comparson purposes.

DISPLAYING/CHANGING THE PARAMETERS

A window appears (pict. 7) with the parameters within which the machine can work.

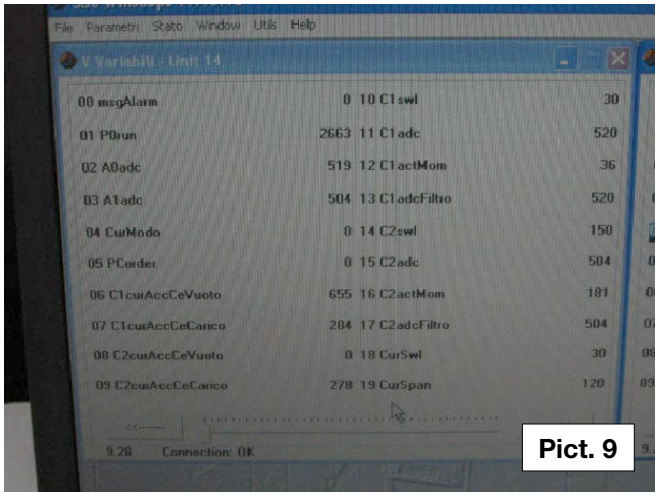


Pict. 7



Pict. 8

If you want to check the variables on the machine, open the "variables" window as shown in picture 8.
Clicking with the mouse, another window opens (see picture 9) which will display the real variations on the machine so you can compare the same with the parameters.

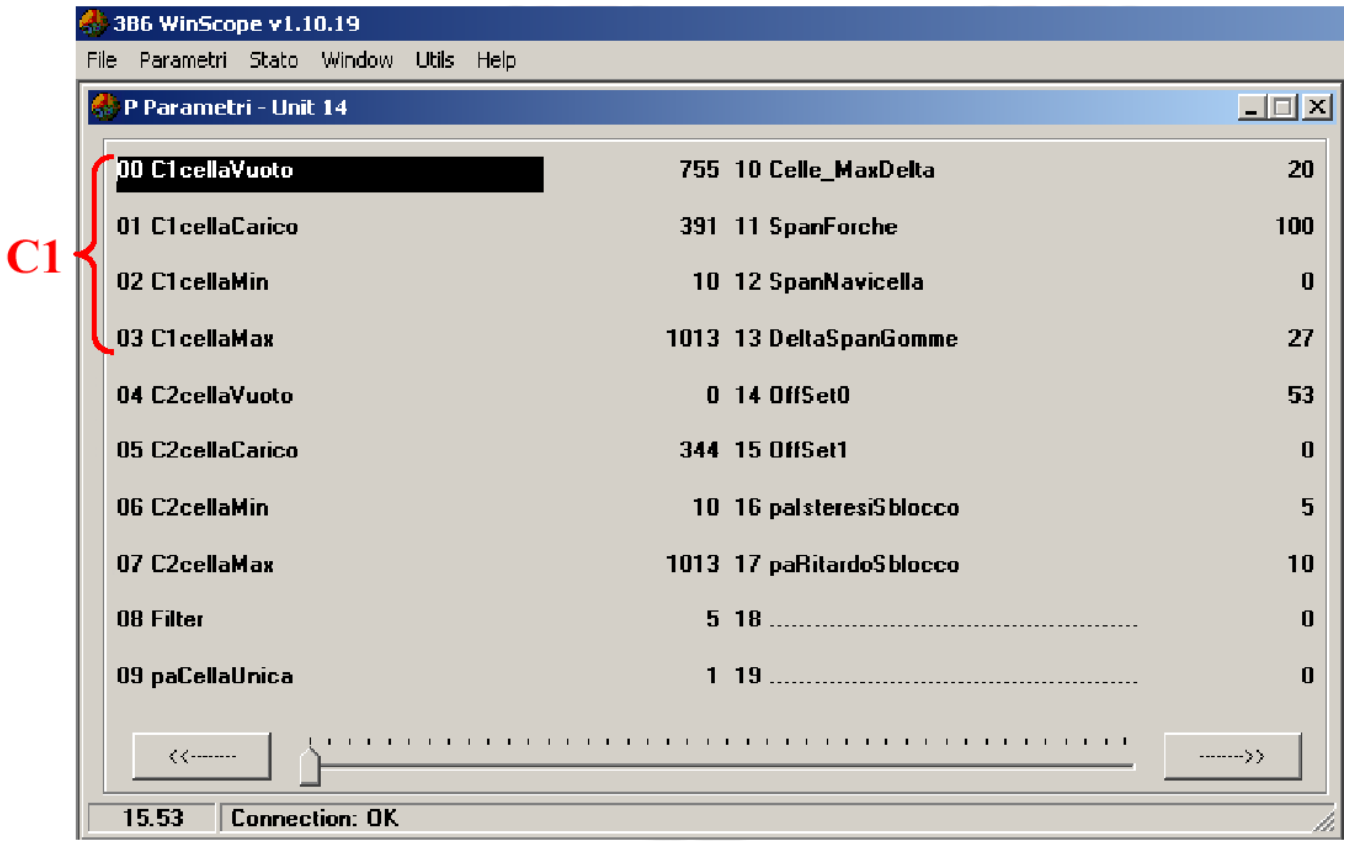


Pict. 9

If, during work, the variables keep within the limits set by the calibration parameters, the system is in efficient order; otherwise, an error message with the relevant identification code is displayed by the DLE.

DLE - MONITORING WITH 3B6 WINSCOPE - PARAMETERS

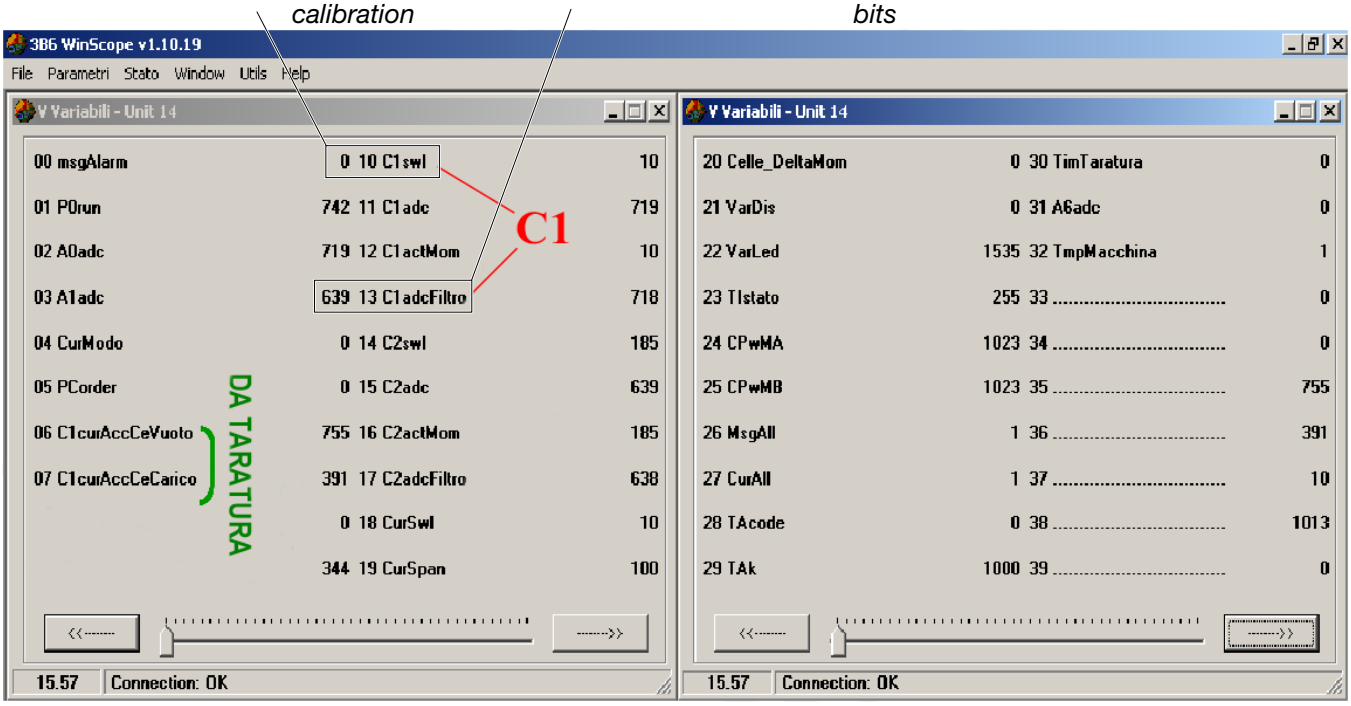
Displaying the parameters



Simulation of the variables

load % calculated in relation to the calibration

value of the analog signal read and converted into bits



LIST OF THE DLE PARAMETERS

N°	Winscope Name	Description
00	C1cellaVuoto	Value saved in analog channel 1 - calibration with unloaded machine (best setting around 700).
01	C1cellaCarico	Value saved in analog channel 1 - calibration with loaded machine (best setting around 300).
02	C1cellaMin	Min admissible value for analog channel 1 reading (if actual value is below: alarm 2) (value set at 10 roughly).
03	C1cellaMax	Max admissible value for analog channel 1 reading (if actual value is above: alarm 2) (value set at 1010).
04	C2cellaVuoto	Value save in analog channel 2 - calibration with unloaded machine (best setting around 300).
05	C2cellaCarico	Value save in analog channel 2 - calibration with loaded machine (best setting around 700).
06	C2cellaMin	Min admissible value for analog channel 1 reading (if actual value is below: alarm 3) (value set at 10 roughly).
07	C2cellaMax	Max admissible value for analog channel 1 reading (if actual value is above: alarm 3) (value set at 1010).
08	Filter	Number of filter samples, with mobile mean. Load cell reading . Max 5.
09	paCellaUnica	Sets to 1 automatically (during the machine selection) when the DLE is used in single channel mode.
10	Celle_MaxDelta	Max admissible delta between readings of analog channels 1 and 2, expressed as a %. Default value 10 (current 20).
11	SpanForche	Limiter intervention percentage in case of work with stabilised machine and forks. Default: 100 (as per calibration).
12	SpanNavicella	Limiter intervention percentage in case of work with stabilised machine and platform (changed by the relevant procedure during calibration). When the platform is selected, the limiter uses this % (default 110% - load increase of 10%) instead of the SpanForche datum (current value 125).
13	DeltaSpanGomme	Limiter intervention percentage in case of work with non-stabilised machine (changed by the relevant procedure during calibration). % value that adds to the calibration with forks and outriggers (SpanForche).
14	OffSet0	Command given to the digital potentiometer for cell 1 (value from 0 to 255) to set the reading scale during calibration with unloaded machine to a certain pre-set value (about900 bit ADC - C1cellaVuoto) (about 700).
15	OffSet1	Command given to the digital potentiometer for cell 2 (value from 0 to 255) to set the reading scale during calibration with unloaded machine to a certain pre-set value (about 200 bit ADC - C2cellaVuoto) (about 300).
16	palsteresiSblocco	Load % for the reset of the movements once the block condition has been rectified (default 5% = 95%).
17	paRitardoSblocco	Value expressed in tenths of second corresponding to the time that must elapse between the block condition and the movement reset (default 10 = 1 second).
20	C1NavicellaVuoto	Parameters 20, 21, 22 and 23 are usually equivalent to parameters 0, 1, 4 and 5, and they are used when the platform must be calibrated regardless of the calibration done with the forks. Value saved in analog channel 1 during calibration with empty machine
21	C1NavicellaCarico	Value saved in analog channel 1 during calibration with loaded machine
22	C2NavicellaVuoto	Value saved in analog channel 2 during calibration with empty machine
23	C2NavicellaCarico	Value saved in analog channel 2 during calibration with loaded machine
24	CurMacchina	Machine selected on point "0" of the calibration
28	VersioneSW	Software version
29	WPsum	Parameters CHECKSUM used by the safety functions

LIST OF THE DLE VARIABLES (useful for the diagnosis)

N°	Winscope Name	Typical value	Description
05	PCorder	0	You can save changes effected to the parameters by setting this variable to "1". The variable will return to 0 once the value has been saved.
10	C1swl	-	Load percentage of cell 1 (0% = calibration without load; 100% = calibration under load).
13	C1adcFilter	-	Current value of cell 1 (analog, converted into bits 0 - 1023).

2.25 REAR THREE-POINT HITCH

• OPERATION OF THE THREE-POINT HITCH

1 - Arms lifting phase
The lever of the distributor shaft (pos. **1** tab. 7) lets the oil coming from the pump reach the rear part of the pilot valve (pos. **23** tab. 7) through a transversal hole inside the distributor body. As the upper surface of this valve is greater than the lower one, the thrust upwards prevails and the valve remains closed. The oil at pressure can therefore flow into the cylinder through the valve (pos. **9** tab. 7) and push the piston (pos. **10** tab. 2) inside the cylinder (pos. **6** tab. 2), thus resulting in the arms lifting.

2 - Neutral phase (arms stop)
The shaft of the distributor moves to such a position that the oil at pressure acting on the pilot valve (pos. **23** tab. 7) and keeping the same closed, is drained through a longitudinal groove located in the distributor body.
In this way, the oil coming from the pump exerts a thrust on the rear part of the valve which opens and lets the fluid flow toward the internal body of the hitch, and not toward the cylinder.

3 - Arms lowering phase
By operating the lever (pos. **3** tab. 7), the shaft of the distributor connected to same, opens the drain valve (pos. **14** tab. 7) and, thanks to the action of the hitch piston, allows the oil to flow to the drain line.
The pressure relief valve (pos. **7** tab. 1), placed on the body of the hitch, is calibrated at a pressure of 200 - 210 bar, that is some 20 bar higher than the one of the pressure relief valve of the hydraulic circuit of the machine.

• ADJUSTING THE SENSITIVITY

For an efficient control of the position of the implement, the sensitivity of reaction of the distributor shaft should be adjusted at best. Such sensitivity depends on the position of the cam on the distributor shaft with respect to the cap of the drain valve (pos. **14** tab. 7).
Such position can be changed using the external adjustment ring nut (pos. **21** tab. 7) as follows:

- Undo the screw (pos. **17** tab. 7) and remove the external lever (pos. **19** tab. 7).
- Fit the implement you want to use to the three-point linkage system of the machine.
- Start the engine and let it run at normal speed, then lift the implement.
- Screw down the adjustment ring nut (pos. **21** tab. 7) until the load jumps slightly.
- Unscrew the ring nut so the movement stops.
- Refit the external lever (pos. **19** tab. 7) in the position shown by the relevant screw.

During work, adjust the sensitivity (if necessary) using the external ring nut.

• WORK IN CONTROLLED POSITION

The controlled position is used for any kind of labour, and especially for ploughing, as it adjusts and keeps the traction effort of the machine constant in relation to the type and condition of the ground being worked.
By partially lowering the external lever (pos. **12** tab. 5) operating the controlled position, the internal levers connected to it, make the distributor shaft (pos. **1** tab. 7) rotate. This rotation opens the oil drain ducts from the cylinder and causes the arms to move down (draining phase).
The proportionality between stroke of the external control lever (pos. **12** tab. 5) and stroke of the lifting arms is automatic, as the rotation of the arms supporting shaft (pos. **1** tab. 2) connected to the control levers, causes the distributor shaft to rotate. With the oil flowing through the special openings during rotation, the initial conditions are restored and the shaft moves back to the neutral position.

CAUTION

The control lever of the controlled position can only be operated with the controlled effort lever fully up.

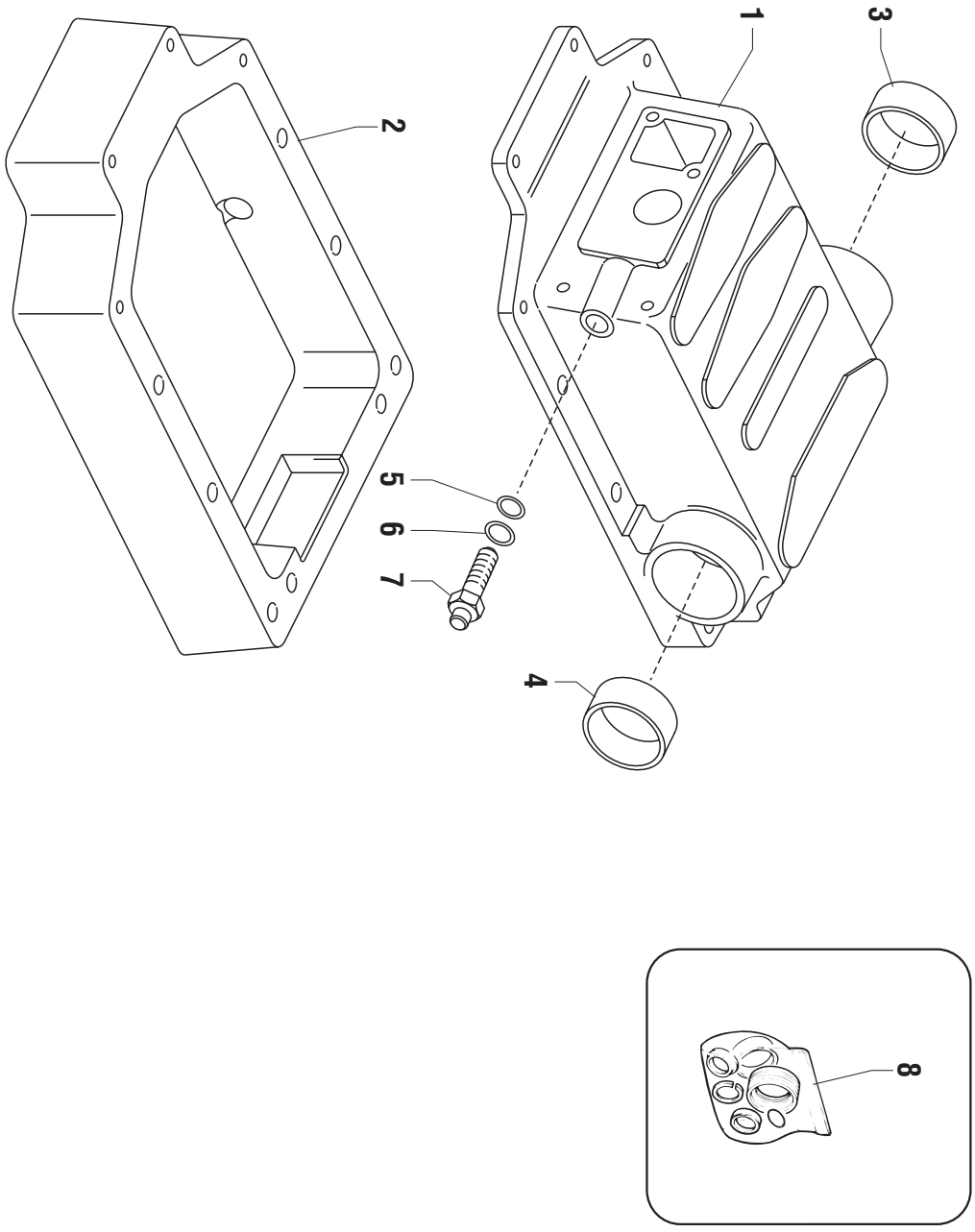
• WORK WITH CONTROLLED EFFORT

This function is used to move the implement to a fixed depth regardless of the ground conditions and the traction effort exerted by the machine.
Lowering the external lever of the controlled effort (pos. **6** tab. 5) makes the distributor shaft (pos. **1** tab. 7) rotate. Inside the end of the shaft, there is an eccentric pin supporting the control lever. This lever, the internal ones connected it and the eccentric pin, make the distributor shaft rotate clockwise, thus resulting in an oil discharge and the consequent lowering of the arms.
The lowering phase is continuous and total, unless an external cause (load reaction) intervenes which, by pressing on the feeler pin (pos. **13** tab. 6), directly connected to the third point of the system (leaf springs) of the machine causes the internal lever to move which, being connected to the distributor shaft, make it rotate and, as a result, make the arms lift.
In this way, an adjustment action of the lifting arms occurs in relation to the effort of reaction exerted by the implement fitted to the three-point linkage system of the tractor.

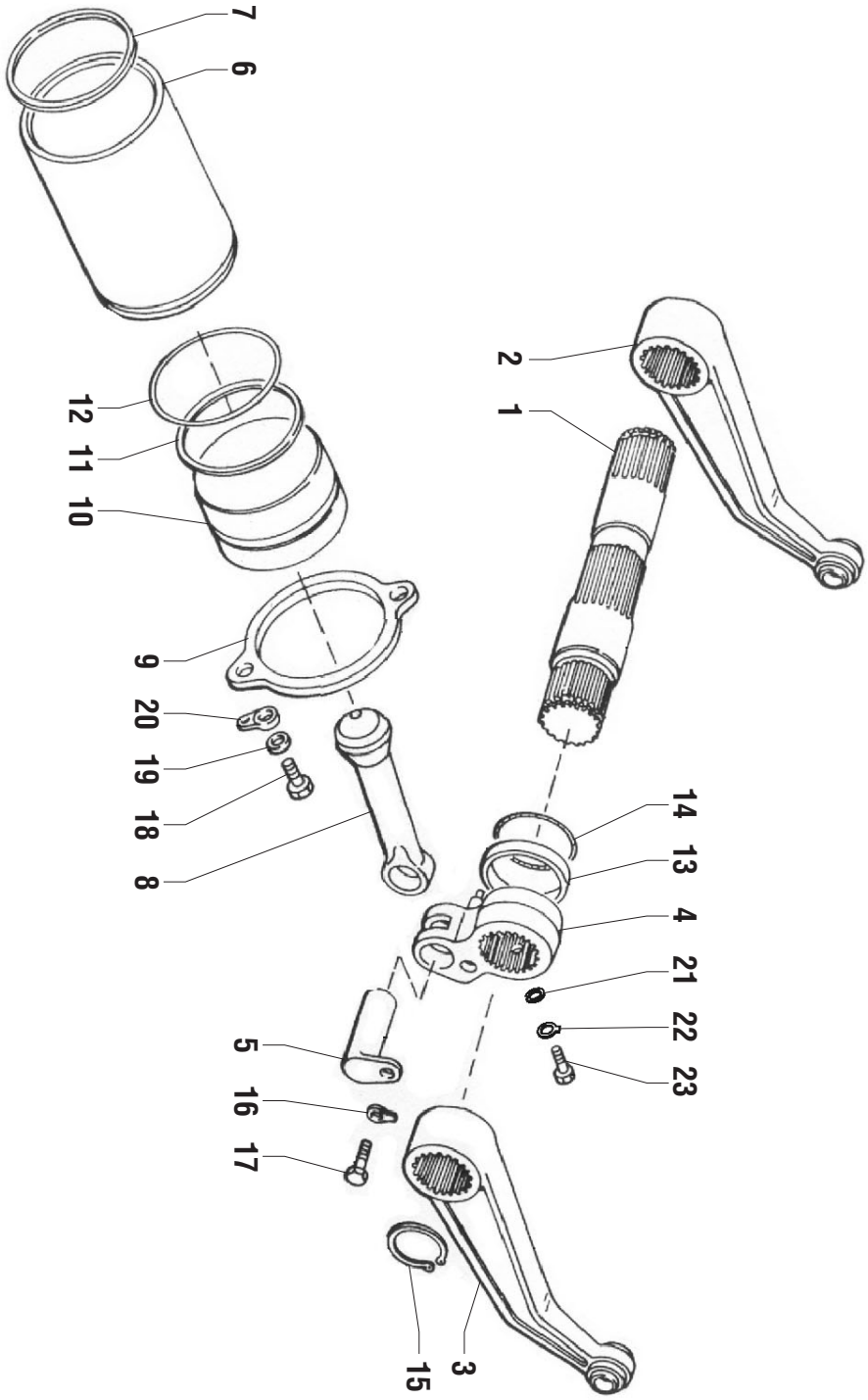
CAUTION

The control lever of the controlled effort can only be operated with the controlled position lever fully up.

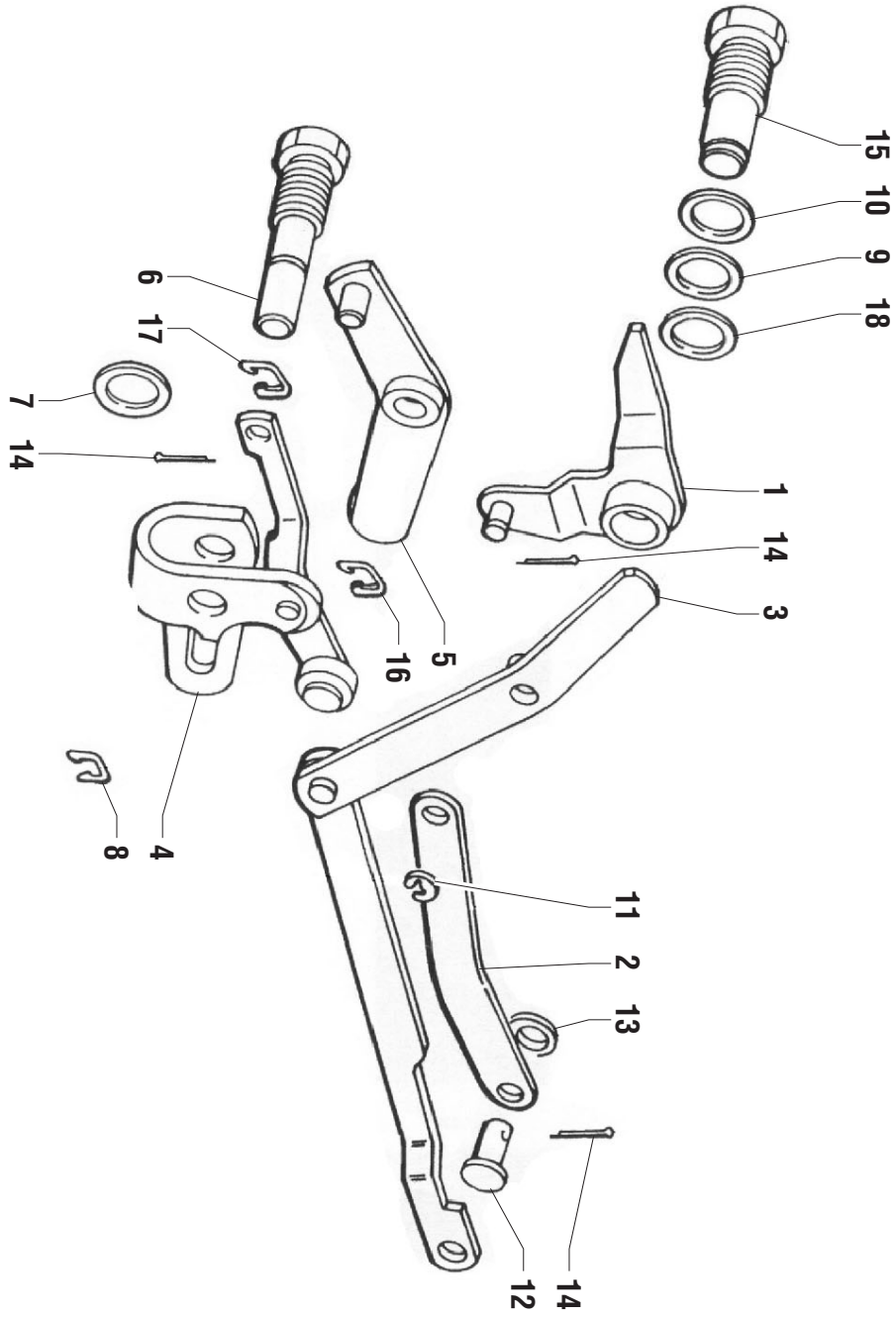
BOX	Tab. 1



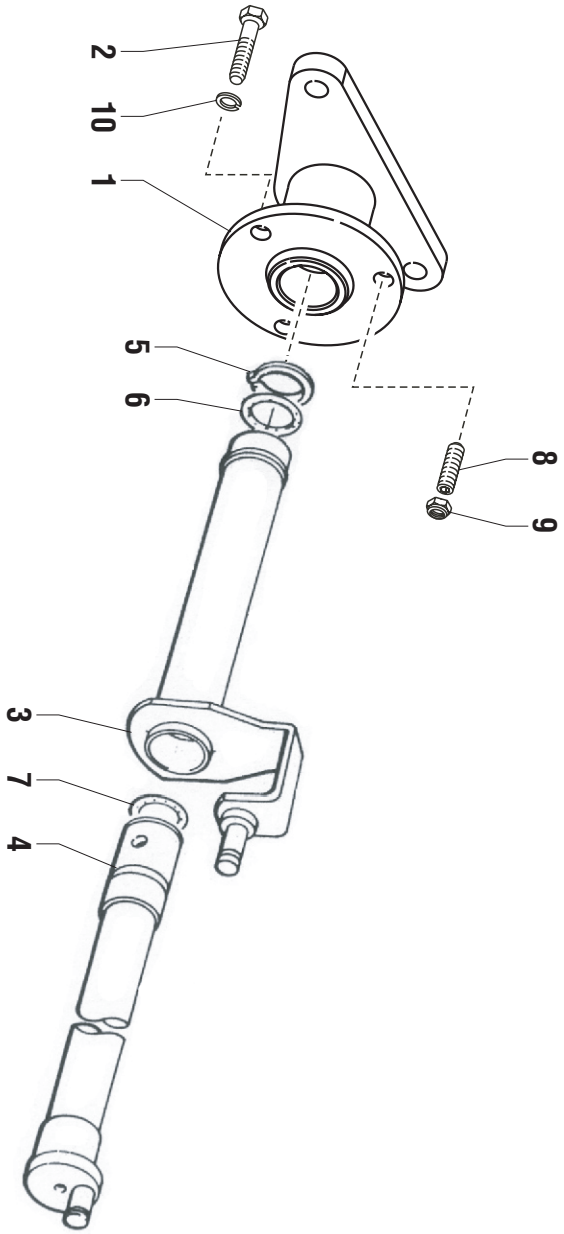
HITCH	Tab. 2



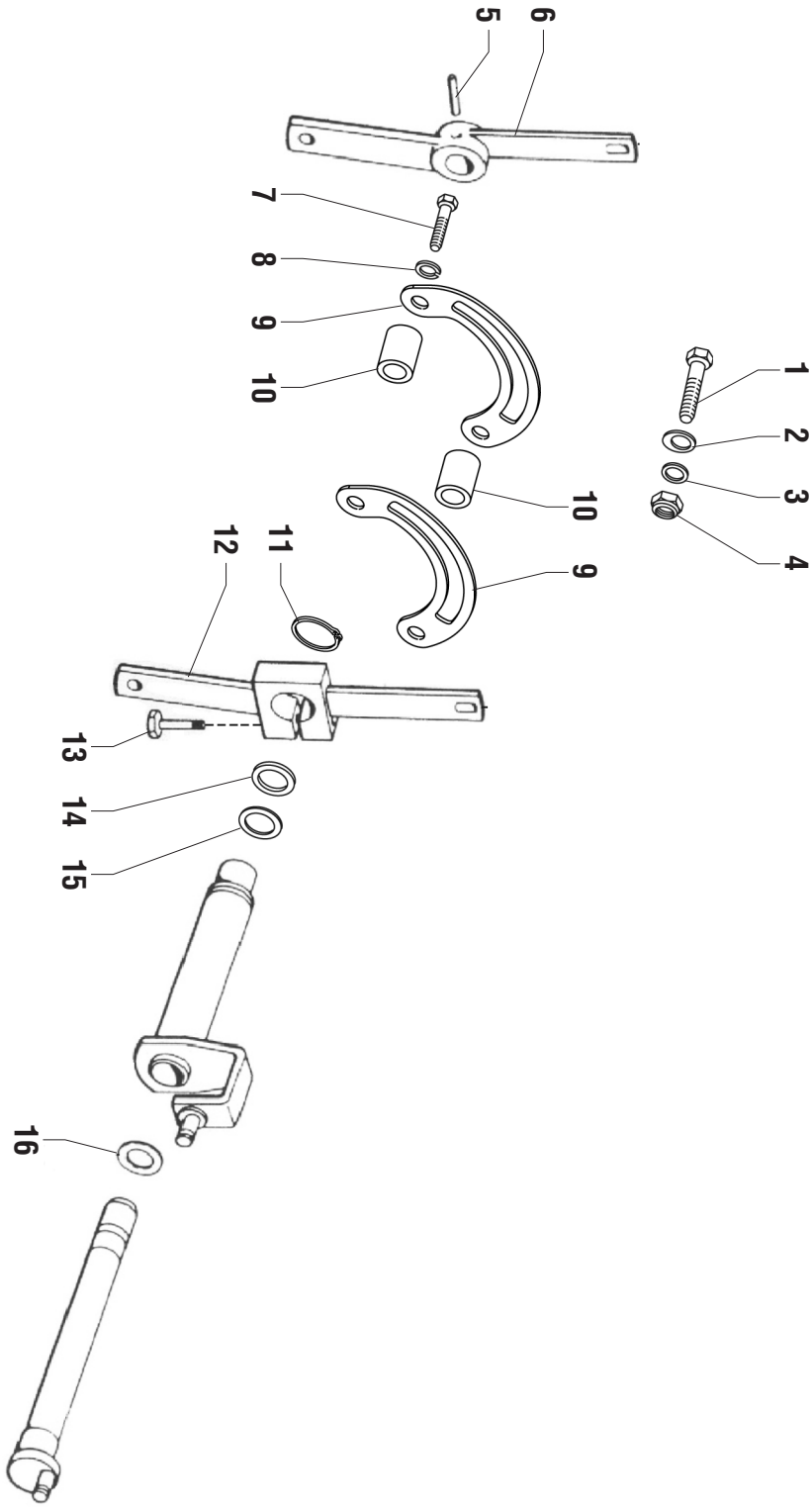
INTERNAL CONTROLS	Tab. 3



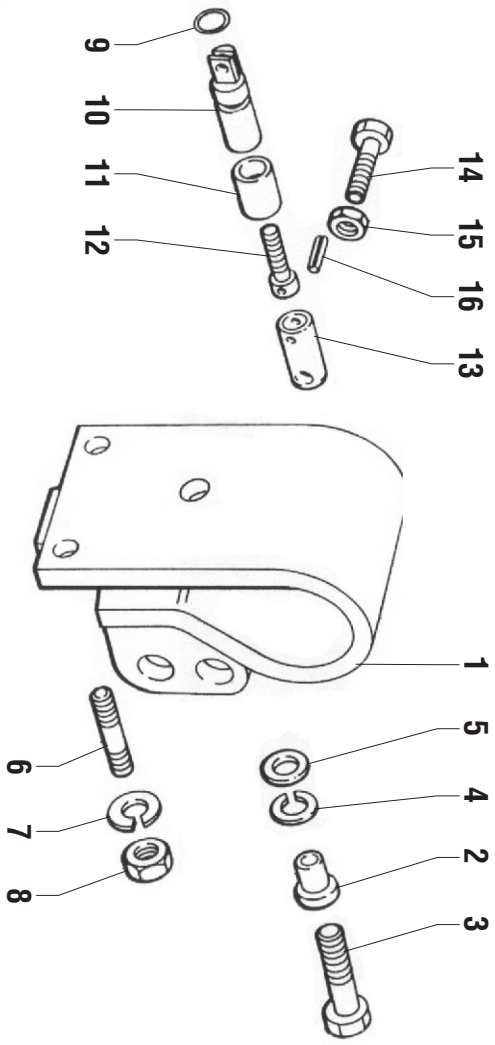
TIE-RODS	Tab. 4



CONTROL LEVERS	Tab. 5

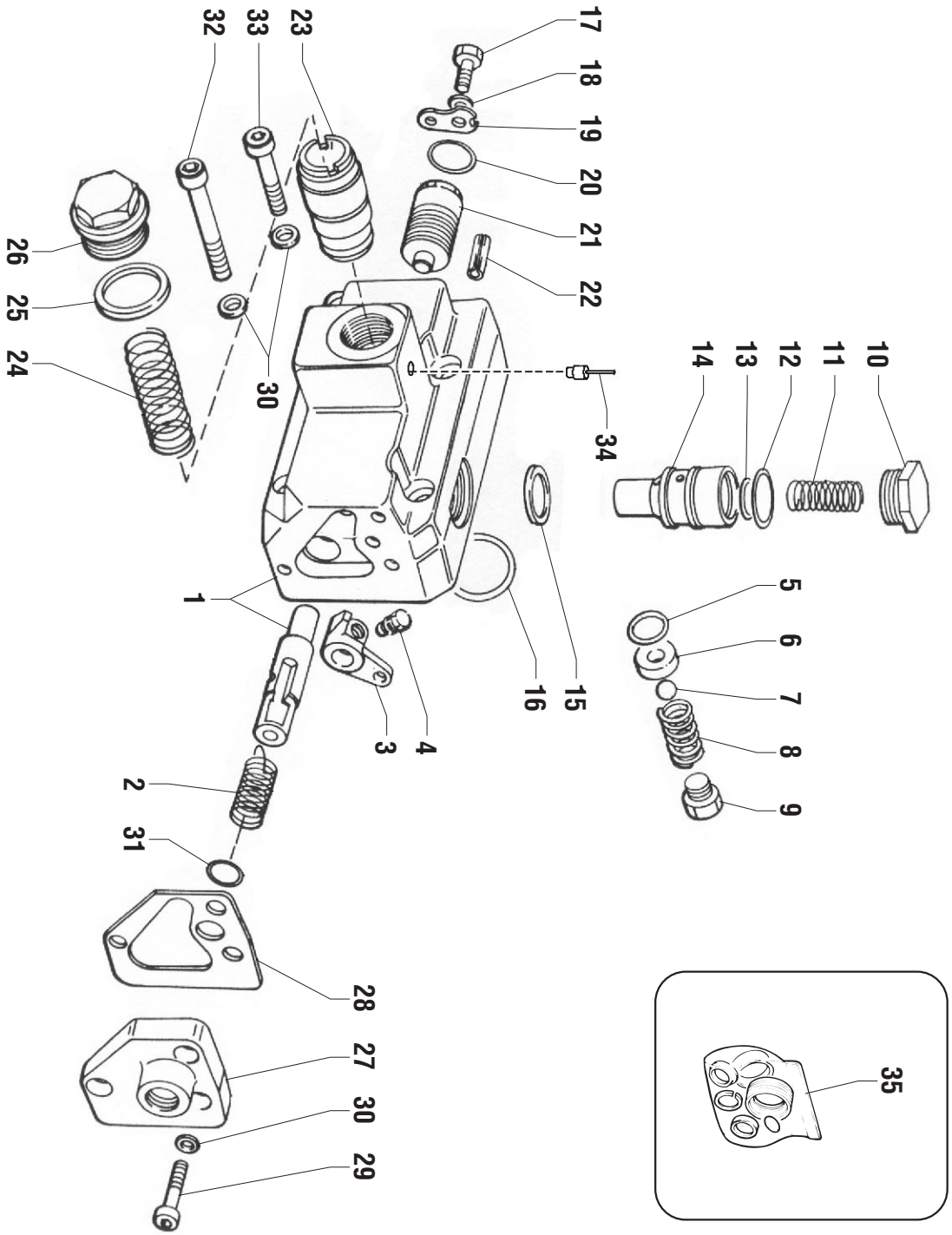


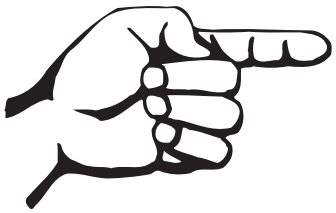
SENSITIVE PARTS	Tab. 6



REGULATOR DISTRIBUTOR

Tab. 7





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Section 3
SCHEDULED MAINTENANCE INSPECTIONS

SECTION INDEX

3.1 Introduction ..... page 2
3.2 About this section 3
3.3 Maintenance table 4
3.4 Maintenance inspection report 7

3.1 INTRODUCTION



- *Maintenance inspections shall be completed by a person trained and qualified on the maintenance of this machine.*
- *Scheduled maintenance must be carried out at the intervals indicated in the MAINTENANCE REPORT.*

⚠WARNING

Failure to properly complete each inspection when required may cause death, serious injury or substantial machine damage.

- *Immediately tag and remove from service a damaged or malfunctioning machine.*
- *Repair any machine damage or malfunction before operating machine.*

3.2 ABOUT THIS SECTION

Intervention times

Maintenance interventions have been divided into 6 different groups in relation to the time at which they must be carried out, say daily, weekly, monthly, every 6 months, yearly or every two years.
For ease of use, the service intervals have been grouped in different tables, as explained below:

Inspection	Table
Daily	A
Weekly	A+B
Monthly	A+B+C
Six month	A+B+C+D
Yearly	A+B+C+D+E
Two years	A+B+C+D+E+F

Maintenance table

The maintenance table contains general information on the type of intervention to be carried out at a certain interval.
For the explanation of the maintenance jobs to be done, please refer to chapter 4 "Maintenance Procedures".

Maintenance inspection report

The maintenance report summarises all of the interventions to be carried at a given interval and lets the maintenance technician note the result of the check or intervention carried out.
This card can be photocopied to be used at the different service intervals and to keep a trace of all interventions carried out.

3.3 MAINTENANCE TABLE

TABLE A

During the first 10 working hours:

A-1	Check the oil level within reduction gears, power divider and differential gears.
A-2	Check the tightening of the wheel bolts.
A-3	Check the tightening of all bolts and nuts.
A-4	Check the couplings for oil leaks.
A-5	Check the oil level of the gearbox.

Every 10 working hours or daily:

A-6	Inspect the Operator Manual.
A-7	Inspect the decals and placards.
A-8	Check the engine oil level.
A-9	Clean the air suction filter.
A-10	Check the engine coolant level.
A-11	Check and clean the radiator.
A-12	Check the hydraulic oil level in the tank.
A-13	Check the greasing of the boom section pads.
A-14	Grease the attachment holding frame.
A-15	Grease all joints of the boom, the rear axle shaft joint, the transmission shafts, the front and rear axles and any equipment of the machine.
A-16	Check the efficiency of the overload warning system.
A-17	Check the efficiency of the lighting electric system.
A-18	Check the efficiency of braking system and parking brake.
A-19	Check the efficiency of the steering selection system.
A-20	Check the efficiency of the fork balancing system.
A-21	Make sure the safety devices installed are in efficient working order.

TABLE B

Within the first 50 working hours:

B-1	Change the engine oil and renew the fuel filter.
B-2	Check the oil level of the PTO reduction gear.

Every 50 working hours or weekly:

B-3	Check the tension of the alternator belt.
B-4	Check the tyre inflation.
B-5	Check the tightening of the wheel nuts.
B-6	Check the tightening of the cardan shaft screws.
B-7	Clean the radiator fins.

Within the first 250 working hours:

C-1	Change the oil in the PTO reduction gear.

Every 250 working hours or monthly:

C-2	Change the engine oil and relevant filter.
C-3	Check the oil level in the front and rear differential gears.
C-4	Check the oil level in the four wheel reduction gears.
C-5	Check the main filtering element of the engine air filter. Replace, if necessary.
C-6	Check the clamping of the cableheads to the battery terminals.
C-7	Check the air suction hose between engine and filter.
C-8	Check the cylinder chromium-plated rods.
C-9	Check the hydraulic lines are not worn because of rubbing against the frame or other mechanical components.
C-10	Check the electric cables do not rub against the frame or other mechanical components.
C-11	Check the wear of the sliding pads of the boom sections.
C-12	Adjust the play of the sliding pads of the boom sections.
C-13	Remove any grease from the boom, then re-grease the sliding parts of the boom sections.
C-14	Check the level of the battery electrolyte.

TABLE C

Every 250 working hours or monthly:

C-15	Check the oil level of the gearbox.
C-16	Check the oil level of the PTO reduction gear.

TABLE D

Every 500 working hours or every six months:

D-1	Visually check the smoke quantity evacuated from the engine exhaust.
D-2	Check the tightening of the engine fixing screws.
D-3	Check the tightening of the cab fixing screws.
D-4	Check the backlash between pins and bushings in all joints.
D-5	Change the hydraulic oil filter on the intake line.
D-6	Have the hydraulic system checked by a skilled technician.
D-7	Change the main cartridge of the engine air filter.
D-8	Renew the cartridge of the engine oil filter and the fuel filter.
D-9	Change the oil of the front and rear differential casings.

TABLE E

Every 1000 working hours or yearly:

E-1	Change the safety element of engine air filter.
E-2	Change the oil of the gearbox.
E-3	Change the oil in the four wheel reduction gears.
E-4	Change the hydraulic oil.
E-5	Change the oil in the PTO reduction gear.
E-6	Change the hydraulic oil filter in the tank.
E-7	Change the gearbox oil filter.

TABLE F

Every 2000 working hours or every two years:

F-1	Change the engine coolant.

3.4 MAINTENANCE INSPECTION REPORT

Model

Serial number

Date

Hour meter

Machine owner

Inspected by

Inspector signature

Inspector title

Inspector company

Instructions:

- *Make copies of this page to use for each inspection.*
- *Select the appropriate checklist(s) for the type of inspection to be performed.*

☐ ***Every 10 hours: A***
☐ ***Every 50 hours: A+B***
☐ ***Every 250 hours: A+B+C***
☐ ***Every 500 hours: A+B+C+D***
☐ ***Every 1000 hours: A+B+C+D+E***
☐ ***Every 2000 hours: A+B+C+D+E+F***

- *Place a check in the appropriate box after each inspection procedure is completed.*
- *Use the maintenance tables in this section and the step-by-step procedures in section 4 to learn how to perform these inspection.*
- *If any inspection receives an "N", tag and remove the machine from service, repair and re-inspect it. After repair, place a check in the "R" box.*

Legend:

Y = yes, acceptable

N = no, remove from service

R = repaired.

Table A		Y	N	R
During the first 10 working hours:				
A-1	Check the oil level within reduction gears, power divider and differential gears.			
A-2	Check the tightening of the wheel bolts.			
A-3	Check the tightening of all bolts and nuts.			
A-4	Check the couplings for oil leaks.			
A-5	Check the oil level of the gearbox.			
Every 10 working hours:				
A-6	Inspect the Operator Manual.			
A-7	Inspect the decals and placards.			
A-8	Check the engine oil level.			
A-9	Clean the air suction filter.			
A-10	Check the engine coolant level.			
A-11	Check and clean the radiator.			
A-12	Check the hydraulic oil level in the tank.			
A-13	Check the greasing of the boom section pads.			
A-14	Grease the attachment holding frame.			
A-15	Grease all joints of the boom, the rear axle shaft joint, the transmission shafts, the front and rear axles and any equipment of the machine.			
A-16	Check the efficiency of the overload warning system.			
A-17	Check the efficiency of the lighting electric system.			
A-18	Check the efficiency of braking system and parking brake.			
A-19	Check the efficiency of the steering selection system.			
A-20	Check the efficiency of the fork balancing system.			
A-21	Make sure the safety devices installed are in efficient working order.			

Table B		Y	N	R
Within the first 50 working hours:				
B-1	Change the engine oil and renew the fuel filter.			
B-2	Check the oil level of the PTO reduction gear.			

Table B		Y	N	R
Every 50 working hours:				
B-3	Check the tension of the alternator belt.			
B-4	Check the tyre inflation.			
B-5	Check the tightening of the wheel nuts.			
B-6	Check the tightening of the cardan shaft screws.			
B-7	Clean the radiator fins.			

Table C		Y	N	R
Within the first 250 working hours:				
C-1	Change the oil in the PTO reduction gear.			
Every 250 working hours:				
C-2	Change the engine oil and relevant filter.			
C-3	Check the oil level in the front and rear differential gears.			
C-4	Check the oil level in the four wheel reduction gears.			
C-5	Check the main filtering element of the engine air filter.			
C-6	Check the clamping of the cableheads to the battery terminals.			
C-7	Check the air suction hose between engine and filter.			
C-8	Check the cylinder chromium-plated rods.			
C-9	Check the hydraulic lines.			
C-10	Check the electric cables do not rub against the frame or other mechanical components.			
C-11	Check the wear of the sliding pads of the boom sections.			
C-12	Adjust the play of the sliding pads of the boom sections.			
C-13	Remove any grease from the boom, then re-grease the sliding parts of the boom sections.			
C-14	Check the level of the battery electrolyte.			
C-15	Check the oil level of the gearbox.			
C-16	Check the oil level of the PTO reduction gear.			

Model

Serial number

Date

Hour meter

Machine owner

Inspected by

Inspector signature

Inspector title

Inspector company

Instructions:

- *Make copies of this page to use for each inspection.*
- *Select the appropriate checklist(s) for the type of inspection to be performed.*

- ☐ ***Every 10 hours: A***
- ☐ ***Every 50 hours: A+B***
- ☐ ***Every 250 hours: A+B+C***
- ☐ ***Every 500 hours: A+B+C+D***
- ☐ ***Every 1000 hours: A+B+C+D+E***
- ☐ ***Every 2000 hours: A+B+C+D+E+F***

- *Place a check in the appropriate box after each inspection procedure is completed.*
- *Use the maintenance tables in this section and the step-by-step procedures in section 4 to learn how to perform these inspection.*
- *If any inspection receives an "N", tag and remove the machine from service, repair and re-inspect it. After repair, place a check in the "R" box.*

Legend:

Y = yes, acceptable

N = no, remove from service

R = repaired.

Table D	Y	N	R
Every 500 working hours:			
D-1 Visually check the smoke quantity evacuated from the engine exhaust.			
D-2 Check the tightening of the engine fixing screws.			
D-3 Check the tightening of the cab fixing screws.			
D-4 Check the backlash between pins and bushings in all joints.			
D-5 Change the hydraulic oil filter on the intake line.			
D-6 Have the hydraulic system checked by a skilled technician.			
D-7 Change the main cartridge of the engine air filter.			
D-8 Renew the cartridge of the engine oil filter and the fuel filter.			
D-9 Change the oil of the front and rear differential casings.			

Table E	Y	N	R
Every 1000 working hours:			
E-1 Change the safety element of engine air filter.			
E-2 Change the oil of the gearbox.			
E-3 Change the oil in the four wheel reduction gears.			
E-4 Change the hydraulic oil.			
E-5 Change the oil in the PTO reduction gear.			
E-6 Change the hydraulic oil filter in the tank.			
E-7 Change the gearbox oil filter.			

Table F	Y	N	R
Every 2000 working hours:			
F-1 Change the engine coolant.			

Section 4
SCHEDULED MAINTENANCE PROCEDURES

SECTION INDEX

4.1 Introduction ..... page 2
4.2 About this section 3
4.3 TABLE A procedures 3
4.4 TABLE B procedures 24
4.5 TABLE C procedures 29
4.6 TABLE D procedures 42
4.7 TABLE E procedures 48
4.8 TABLE F procedures 55

4.1 INTRODUCTION



- *Maintenance inspections shall be completed by a person trained and qualified on the maintenance of this machine.*
- *Scheduled maintenance must be carried out at the intervals indicated in the MAINTENANCE REPORT.*

⚠WARNING

Failure to properly complete each inspection when required may cause death, serious injury or substantial machine damage.

- *Immediately tag and remove from service a damaged or malfunctioning machine.*
- *Repair any machine damage or malfunction before operating machine.*
- *Unless otherwise specified, perform each procedure with the machine in the following configuration:*
  - *machine parked on a flat level surface;*
  - *boom in the stowed position;*
  - *key switch in the OFF position with the key removed.*

4.2 ABOUT THIS SECTION

This section describes the maintenance interventions to be carried out on the machine according to the indications of the maintenance inspection report (see chapter 3).

Safety symbols:



Draws the attention to situations that involve your own as well as the others' safety and that can result in serious or lethal injury.

⚠DANGER

Draws the attention to situations that involve your own as well as the others' safety and that can result in serious or lethal injury.

⚠WARNING

Draws the attention either to situations that involve your own as well as the others' safety and that can result in minor or moderate injury or to situations that involve the machine efficiency.

⚠CAUTION

Draws the attention either to situations that involve your own as well as the others' safety and that can result in minor or moderate injury or to situations that involve the machine efficiency.

CAUTION

Draws the attention to important technical information or practical advice that allows for a safer and more efficient use of the machine.

NOTICE

Draws the attention to important environment-related information.

4.3 TABLE A PROCEDURES

A-1 CHECK THE OIL LEVEL WITHIN REDUCTION GEARS, POWER DIVIDER AND DIFFERENTIAL GEARS

To check the oil level within the **wheel reduction gears**:

- Stop the machine on a level ground and ensure the parking brake is engaged and plug **A** finds on the horizontal axis.
- Clean the plug all around, then remove it and check if oil is level with the hole.
- If necessary, add new oil through hole **A** until it is level.
- Refit the plug.

NOTICE

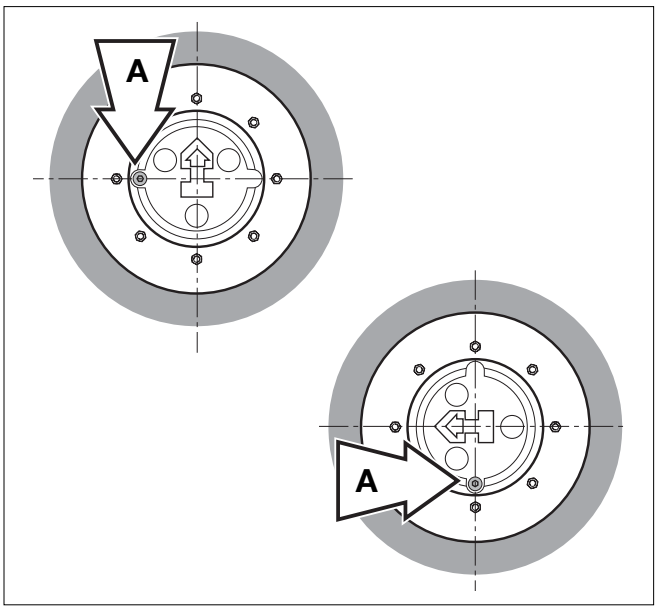
Place a container of suitable size under the plug.

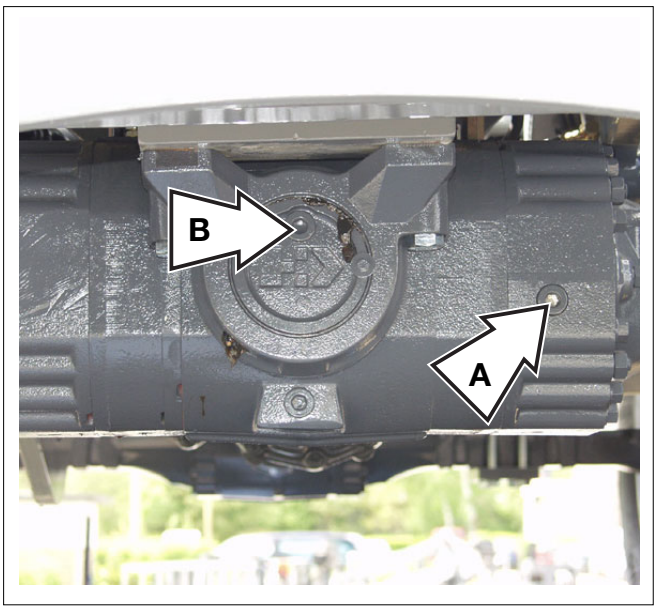
To check the oil level in the **front and rear differential gears**:

- Stop the machine on a level ground and engage the parking brake.
- Loosen level plug **A** and check if oil is level with the hole.
- If necessary, top-up through hole **B** until oil comes out from hole **A**.
- Refit and tighten plugs **A** and **B**.

NOTICE

Place a container of suitable size under the plug.



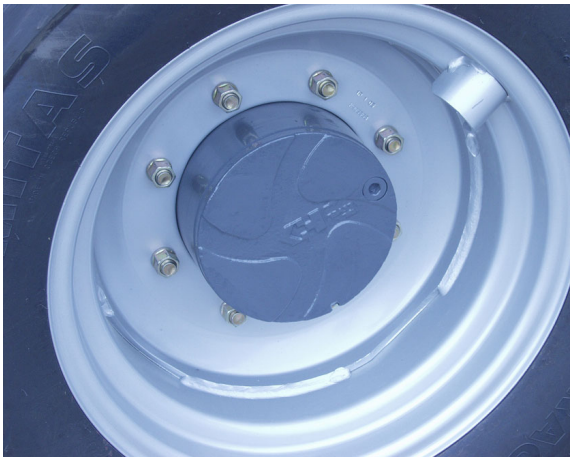


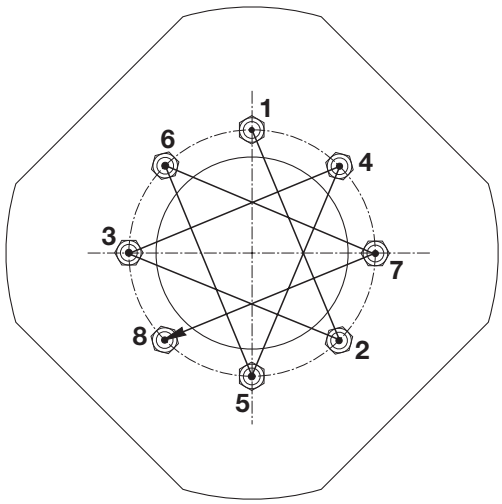
A-2 CHECK THE TIGHTENING OF THE WHEEL BOLTS

If you have to check the tightening of the wheel bolts or replace a wheel, proceed as follows:

- Raise the machine using a hydraulic jack.
- Remove the wheel rolling it on the ground.
- Line up the wheel with the axle and fit the 8 nuts.
- Tighten the nuts following the alternate sequence shown in the picture with a pneumatic screwdriving machine.
- Lower the machine to the ground.

Re-tighten all nuts to a torque 308 Nm.





⚠WARNING

Check the tightening of wheels one hour after the job. They might get loose until they do not stay correct.

⚠WARNING

On new machines, and when a wheel has been disassembled or replaced, check the nut torque of the wheels every 2 hours until they stay correct.

⚠WARNING

Always use tyres having the dimensions indicated in the vehicle registration card.

	STANDARD	
	Agrilift 737	**Agrilift 1037**
Dimensions (front and rear)	405/70-24	405/70-24
P.R. (or load index)	14 PR 152 B	14 PR 152 B
Rim	13x24	13x24
Wheel disc	8 holes DIN 70361	8 holes DIN 70361
Pressure (bar/Psi)	4.5/65.2	4.5/65.2

A-3 CHECK THE TIGHTENING OF ALL BOLTS AND NUTS

Before starting your daily work, proceed with a random check of the bolts.

For the correct tightening torques, please refer to par. 2.13 in section 2 “Technical Specifications”.

A-4 CHECK THE COUPLINGS FOR OIL LEAKS

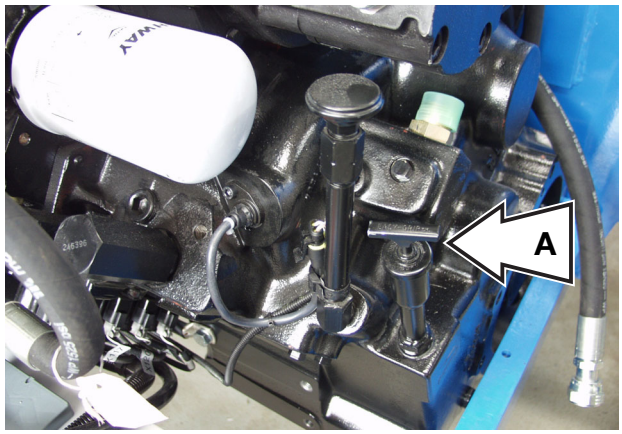
Before starting your work, do a walk-around inspection and check for oil leaks.

If you find them, rectify before starting using the machine.

A-5 CHECK THE OIL LEVEL OF THE GEARBOX

To check the oil level of the gearbox:

- Stop the machine on a level ground and make sure the parking brake is engaged.
- Clean the area all around dipstick **A**.
- Remove the dipstick and check that oil is between the min mark and the max marks.
- If necessary, add new oil through the hole of the dipstick.
- Refit and tighten the dipstick.



A-6 INSPECT THE OPERATOR MANUAL

Maintaining the operator manual in good condition is essential to safe machine operation.

Manual are included with each machine and should be stored in the cab. An illegible or missing manual will not provide safety and operational information necessary for a safe operating condition.

In particular:

- check to be sure the storage container is in good condition.
- check to make sure that the operator manual are present, complete and in the storage container in the cab.
- examine the pages of each manual to be sure that they are legible and in good condition.
- always return the manual to the storage container after use.

CAUTION

Contact Terexlift Service Centre if replacement manuals are needed.

A-7 INSPECT THE DECALS AND PLACARDS

Maintaining all of safety and instructional decals and placards in good condition is mandatory for safe machine operation. Decals alert operators and personnel to the many possible hazards associated with using this machine.

An illegible decal will fair to alert personnel of a procedure or hazard and could result in unsafe operating conditions.

- refer to the “labels and warning plates applied on the machine” section in the Operator Manual and use the decal list and illustrations to determine that all decals and placards are in place.
- inspect all decals for legibility and damage. Replace any damaged or illegible decal immediately.

CAUTION

Contact Terexlift Service Centre if replacement decals are needed.

A-8 CHECK THE ENGINE OIL LEVEL

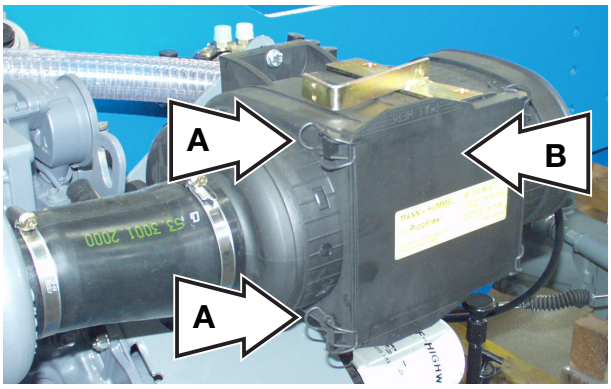
CAUTION

For the engine maintenance, please refer to the specific Operator handbook supplied with the machine.

A-9 CLEAN THE AIR SUCTION FILTER

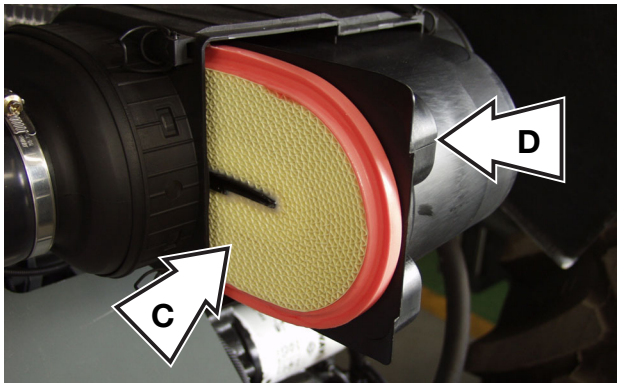
Clean the engine air filter every 10 hours:

- Stop the engine and engage the parking brake.
- Pull levers **A** and remove cover **B**.
- Pull off filter cartridge **C** using the relevant handles **D**.
- Clean the filter bowl.
- Blow out the cartridge from inside outwards using compressed air (max.6 bar).
- Check the filter box for cracks (light showing through).
- Refit the cartridge and make sure it is correctly fitted.
- Re-close cover **B** and lock with levers **A**.



WARNING

As soon as the warning lamp on the cab dashboard switches on, replace the outer element.



WARNING

Neither clean filters using compressed air or wash them with water and/or solvent.

A-10 CHECK THE ENGINE COOLANT LEVEL

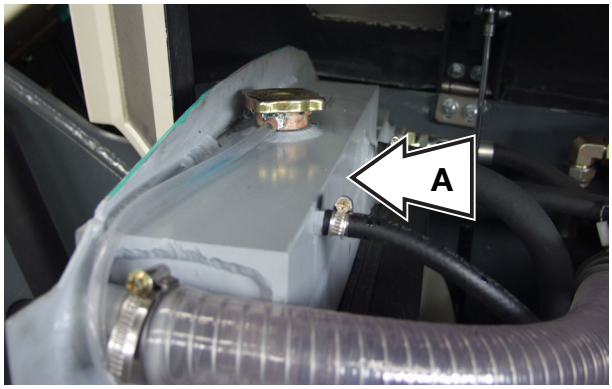
⚠DANGER

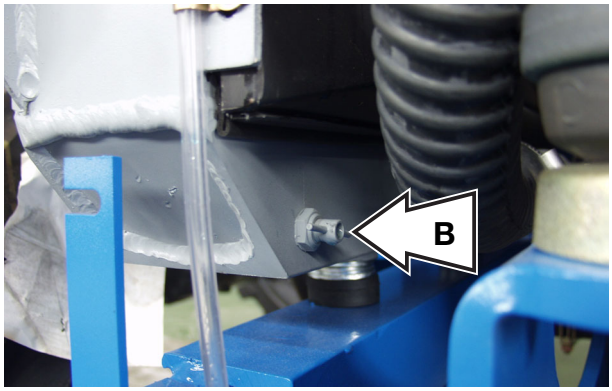
When the coolant is hot, the cooling system is under pressure. With warm engine, loosen the radiator plug slowly and carefully, without removing it, to drain the pressure. Use protection gloves and keep your face at a safe distance.

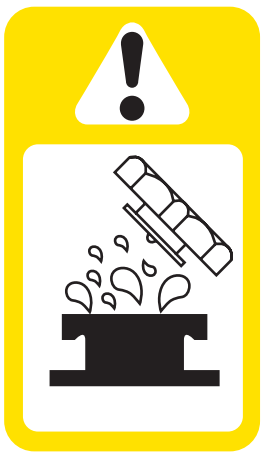
- Check the coolant level in radiator **A** every week before starting working (when coolant is cold).
- When necessary, add clean water or an antifreeze mixture through cap.
- Change the antifreeze mixture every two years.

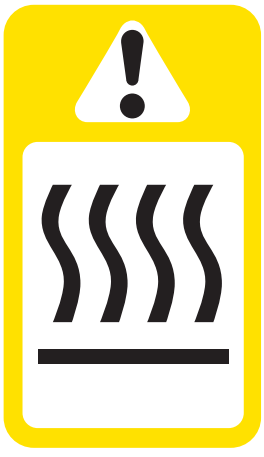
  To drain the antifreeze:

  - Let the engine cool down.
  - Unscrew the plug **B** at the bottom of the radiator. Let the coolant flow off the radiator into a collecting vessel.
  - Once the radiator has been emptied, refit plug **B** fill the radiator with fresh antifreeze (50% water-antifreeze). This proportion will provide protection up to -38°C.









A-11 CHECK AND CLEAN THE RADIATOR

DANGER

When using a steam-washer, always wear protective clothes. Hot steam may cause serious injury.

- Open the radiator panel.
- Check the fins of radiator for sediments.
- If necessary, prepare a compressed air nozzle (max. 2 bar) or a nozzle distributing water under pressure or steam.

Cleaning using compressed air

- Direct a jet of compressed air toward radiator paying attention not to damage its fins.
- Remove any loose particles of dirt with some water.

Cleaning using water under pressure or steam

- Spray radiator with a cold commercial detergent and wait for at least 10 minutes to allow the detergent to react.
- Wash radiator using a jet of water or steam.

CAUTION

The core fouling depends on the dust of the outside environment and the presence of oil and fuel leaks in the motor area. It is therefore advisable to remove oil and fuel leaks immediately in case of very dusty environments.

A-12 CHECK THE HYDRAULIC OIL LEVEL IN THE TANK

DANGER

Fine jets of hydraulic oil under pressure can penetrate the skin. Do not use your fingers, but a piece of cardboard to detect oil leaks.

Check the hydraulic oil level (visually) through the special level **A** fitted into the tank.

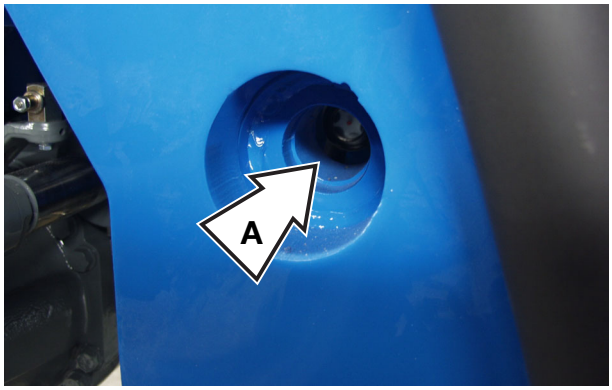
When necessary, add new oil through filler **B**.

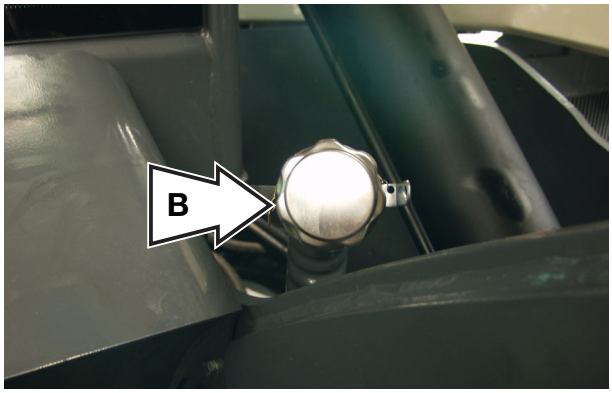
Recommended oil:

Arctic climates: Temperatures below -10°C
Use SHELL Tellus T22

Mild climates: Temperatures from -15°C to +45°C
Use SHELL Tellus T46

Tropical climates: Temperatures above +30°C
Use SHELL Tellus T68





NOTICE

The handling and disposing of used oils can be ruled by local or national regulations. Address to authorised centres.

A-13 CHECK THE GREASING OF THE BOOM SECTION PADS

Any boom section is fitted with adjustable pads located on the four sides of the profile. These pads are secured to both fixed and mobile part of every section.

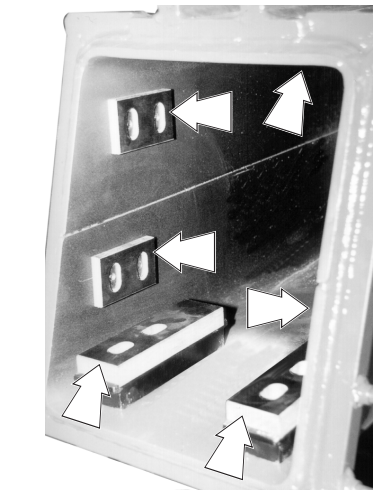
At regular intervals, check that the telescopes are well greased in correspondence of the sliding pads.

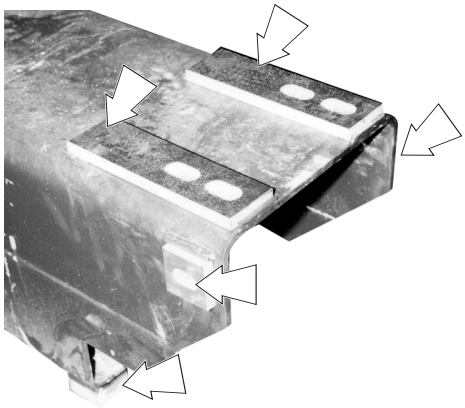
If necessary, scrape off the old grease and brush new grease. We recommend using:

- **INTERFLON grease FIN GREASE LS 2**

CAUTION

Avoid mixing greases of different type or features and do not use greases of lower quality.





A-14 GREASE THE ATTACHMENT HOLDING FRAME

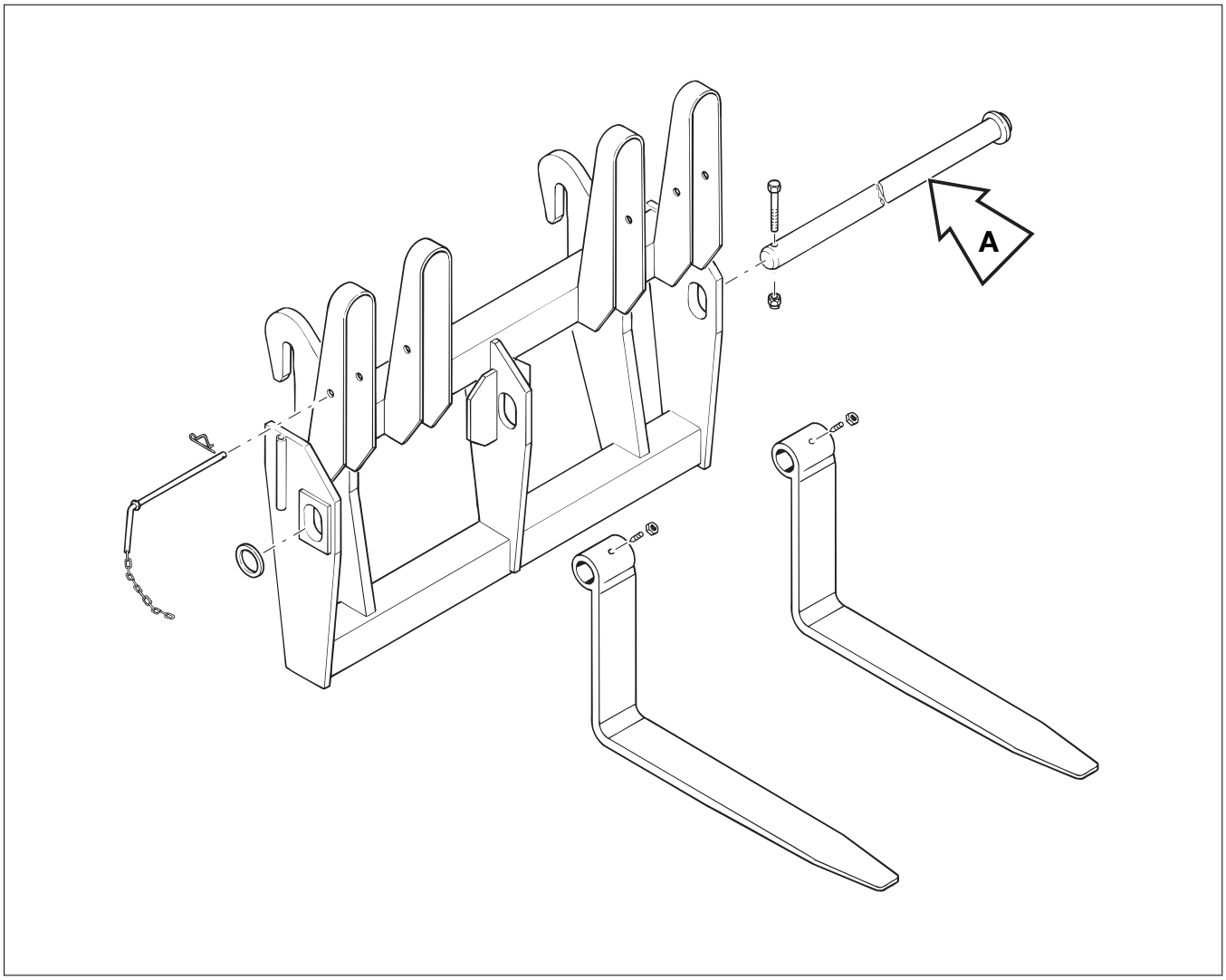
CAUTION

Before use grease, thoroughly clean the intervention zone to avoid that mud, dust or other matters can mix with the lubricant and reduce or annihilate the lubrication effect.
Remove any old grease with a degreaser from the telescopes before smearing them with new grease.

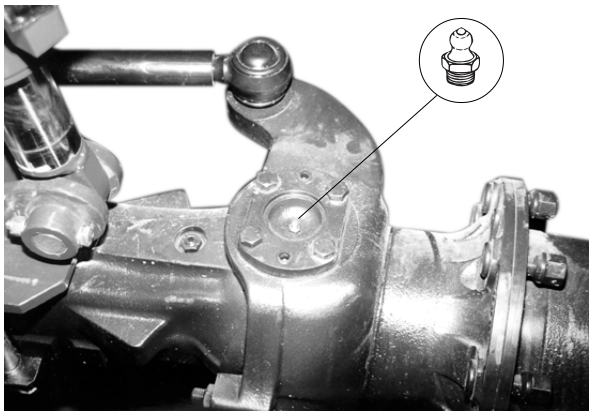
Smear pin **A** with grease to help the forks slide on it.

Recommended grease:

- **AGIP graphitized grease type GR NG 3**



A-15 GREASE ALL JOINTS OF THE BOOM, THE REAR AXLE SHAFT JOINT, THE TRANSMISSION SHAFTS, THE FRONT AND REAR AXLES AND ANY EQUIPMENT OF THE MACHINE



CAUTION

Before injecting grease into the greasers, thoroughly clean them to avoid that mud, dust or other matters can mix with the lubricant and reduce or annihilate the lubrication effect.
Remove any old grease with a degreaser from the telescopes before smearing them with new grease.

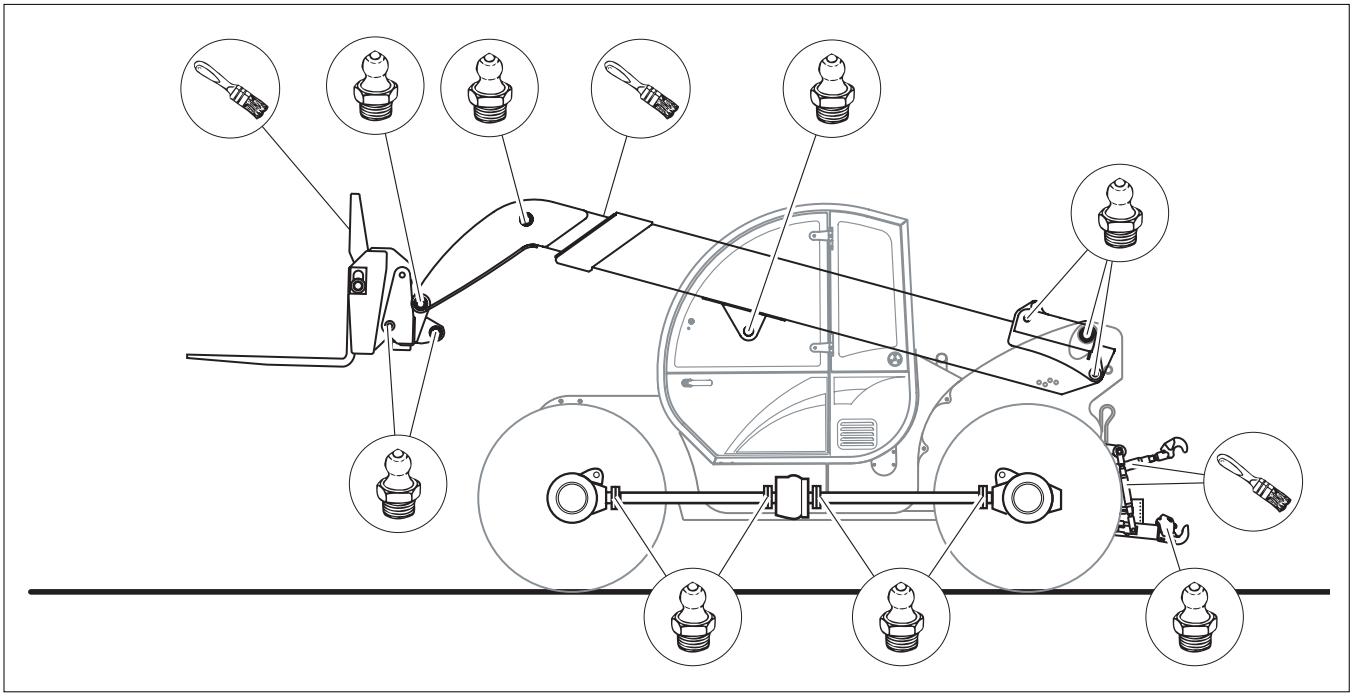
Regularly grease the machine to grant it efficient conditions and a long life.

By means of a pump, inject grease into the special greasers.

As the fresh grease comes out, stop the operation.

The greasing points are shown in the following figures:

- the symbol  represents the points to be greased by a pump
- the symbol  represents the points to be greased by a brush

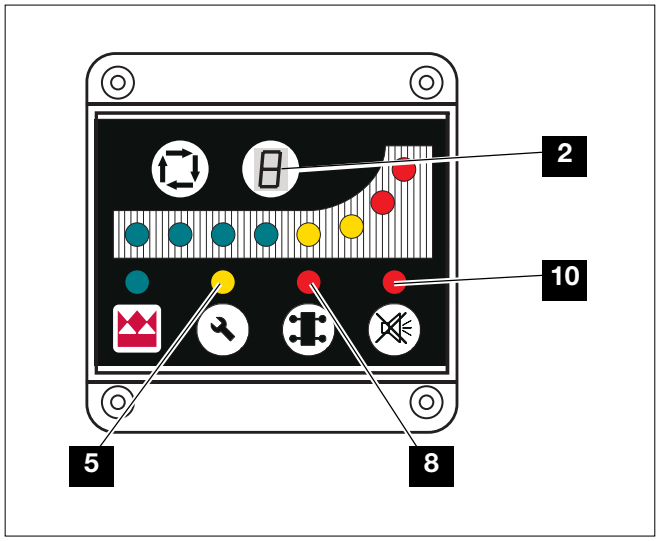


A-16 CHECK THE EFFICIENCY OF THE OVERLOAD WARNING SYSTEM

When power is turned on, the DLE load limiting system runs a self-test. In the case of troubles, LED's **5**, **8** and **10** start flashing, the buzzer sounds, an error code is shown on the display and the machine enters the alarm mode and cannot be operated.

The meaning of the error messages is shown in Section **2**.

To do a manual check, it will be enough to load a weight exceeding the maximum permitted with the boom fully out and attempt to lift it. The system shall enter in alarm.



CAUTION

If the system does not warn of the alarm, please contact the TEREXLIFT Service Centre.

A-17 CHECK THE EFFICIENCY OF THE LIGHTING ELECTRIC SYSTEM

Check every day that the electrical system powering the lights of the machine is in efficient working order. Use the assistance of a second technician to check that the front lights **A** (position lights, low and high beams and turn signals) and the rear lights **B** (position lights, stop/tail lights and turn signals) are in excellent state of repair.

Also check beacon **C** located on the cab roof.

If one lamp or more must be replaced, use the table below as a reference.

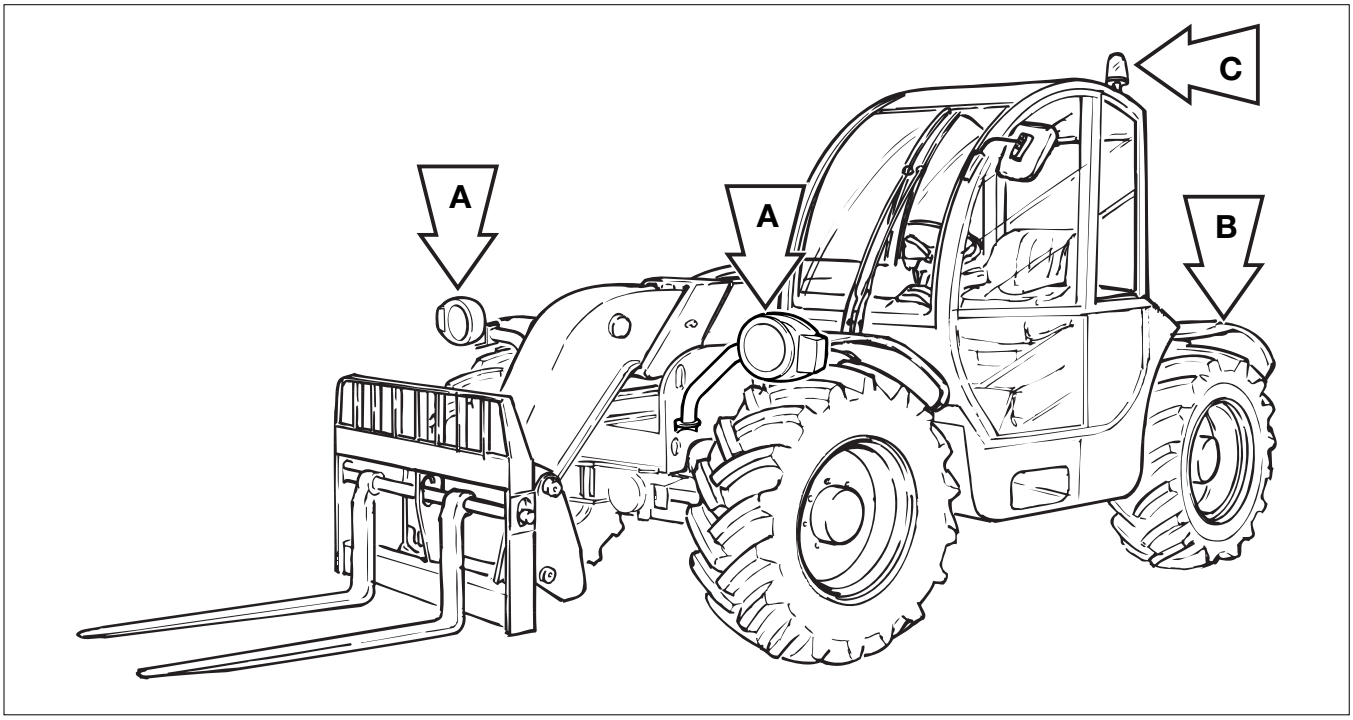
⚠WARNING

When switched on, lamps get hot. Before touching a lamp with your fingers, let it cool down.

⚠CAUTION

Never touch the bulb of halogen lamps (mount type H3) with your fingers: this may damage the lamp (use of a clean cloth or a paper tissue). If you touch it accidentally, thoroughly clean with a paper tissue and some ethyl alcohol.

Use	Voltage	Mount type	Power
• Front low/high beam	12 V	P45t	45/40 W
• Front position lights	12 V	BA 9s	3 W
• Side/tail turn signals	12 V	BA 15s	21 W
• Stop lights and rear position lights	12 V	BAY 15d	21/5 W
• Beacon - Work lights (OPTIONAL)	12 V	H3	55 W
• Dashboard indicators and cab lighting	12 V	W 2x4,6d	1,2 W
• Interior lamp	12 V	SV 8,5-8	5 W
• License plate lights	12 V	BA 15s	5 W
• Back-up lamps	12 V	BA 15s	21W



A-18 CHECK THE EFFICIENCY OF BRAKING SYSTEM AND PARKING BRAKE

For any intervention on the braking system (adjustment and/or substitution of the brake discs) address to the TEREXLIFT Technical Service Centre or the nearest TEREXLIFT authorised workshop.

A-19 CHECK THE EFFICIENCY OF THE STEERING SELECTION SYSTEM

During operation, the alignment of the front and rear axles of the machine can be subject to variations. This can depend on an oil blow-by from the steering control circuit, or on a steering of both axles when front and rear wheels are not perfectly aligned.

To fix this problem, rather than checking the alignment visually, follow the procedure below:

1 Move to a solid and level ground.

2 Set the steering selection switch **12** to “four-wheel steer” (pos. **2**).

3 Rotate the steering up to its stop (either to the right or to the left).

4 Set the steering selection switch to “two-wheel steer” (pos. **0**).

5 Rotate the steering up to its stop (turn in the same direction as above).

6 Reset the steering selection switch to “four-wheel steer” (pos. **2**).

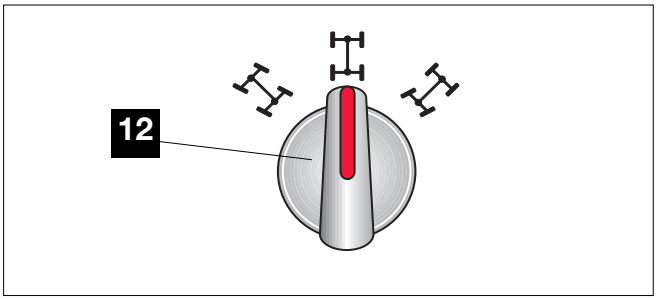
7 Rotate the steering (to the side opposite to point **3**) so that the rear axle reaches its stop

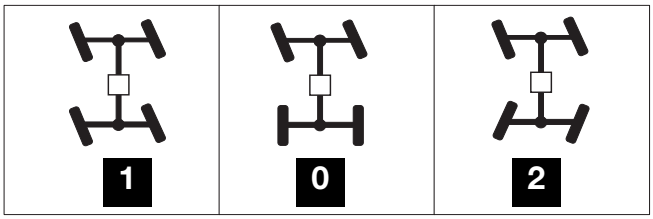
8 Reset the steering selection switch to “two-wheel steer” (pos. **0**)

9 Rotate the steering (to the same side as in point **7**) so that the front axle reaches its stop

10 Reset the steering selection switch to “four-wheel steer” (pos. **2**)

Now the wheels should be re-aligned.





A-20 CHECK THE EFFICIENCY OF THE FORK BALANCING SYSTEM

WARNING

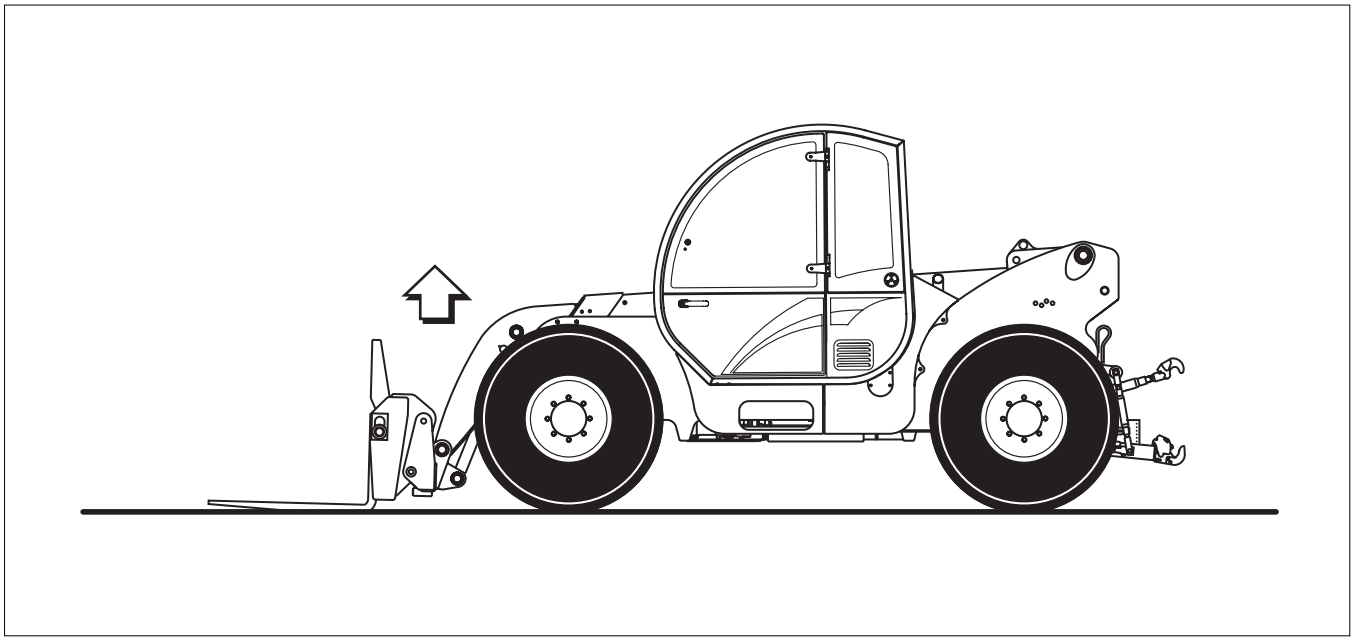
Test the system without any load on the machine's forks.

To check the efficiency of the fork balancing system, obey the instructions below:

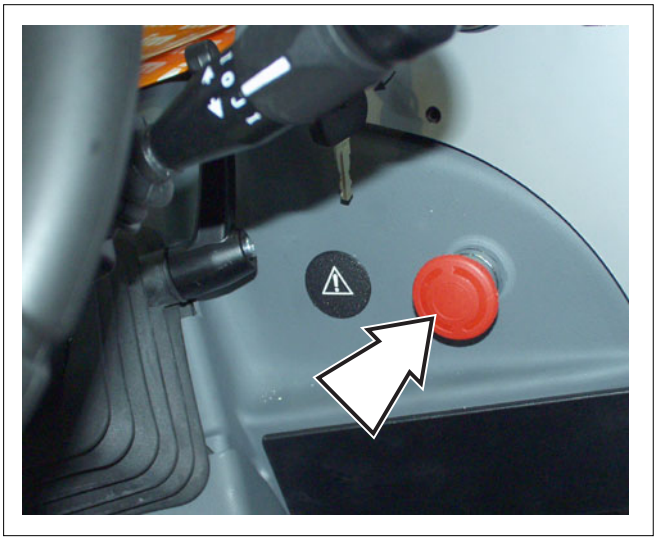
- Drive the machine to a flat, smooth ground.
- Move the retracted boom fully down and align the forks with the ground.
- Start lifting the boom and check that the forks remain parallel to the ground.

CAUTION

If the forks do not remain parallel to the ground, consult section 5 "Problems - Causes - Solutions".

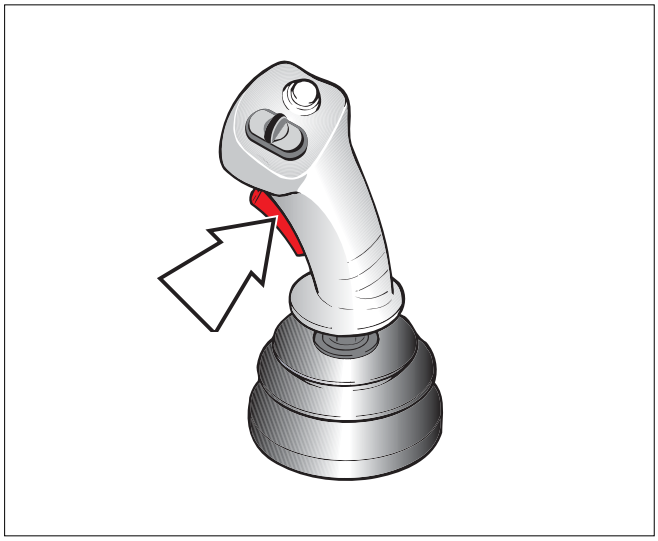


A-21 MAKE SURE THE SAFETY DEVICES INSTALLED ARE IN EFFICIENT WORKING ORDER



■ **Checking the emergency stop pushbutton**
(at every use)

To check the efficiency of this pushbutton, simply press it down during a movement. The pressure of the pushbutton shall cause the movement to stop and the engine to shut down.



■ **Checking the joystick pushbutton** (at every use)

To check if the pushbutton on the control lever is in efficient working order, it will be enough to attempt to operate the lever without pressing this button.
In this condition, the lever shall not operate any movement. Should that not be the case, contact the TEREXLIFT Technical Service.

■ **Checking the machine start control** (at every use)

Attempt to start the engine with the forward or reverse gear put.
The engine must not start. If the engine starts, contact the TEREXLIFT Technical Service.
Repeat the operation putting first one gear, then the other.

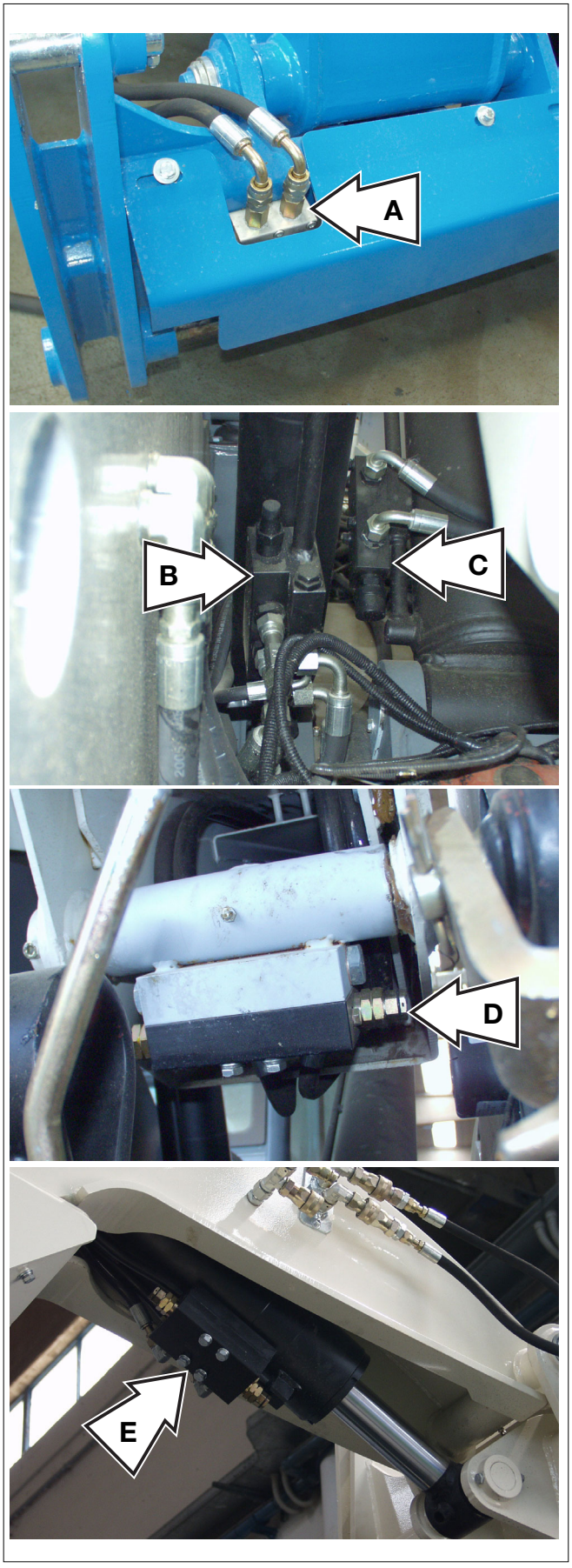
■ Checking the block valves (every 3 months)

The piloted blocking valves allow to held the load in position in case of burst of a flexible hose.

To check the efficiency of a valve, proceed as follows:

- Load a weight near the maximum payload onto the boom.
- Raise the load some centimetres above the ground (max 10 cm). To check the valve on the telescope extension cylinder move the boom to maximum height and extend it some centimetres.
- Loosen the oil hoses to the cylinder of which you are checking the valve with caution.

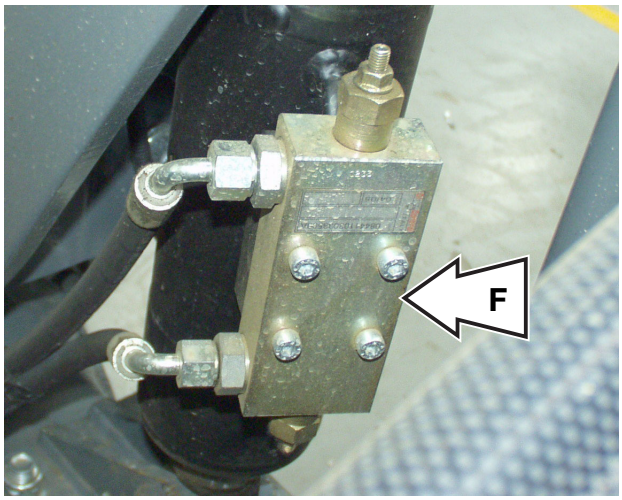
During the check, the oil will flow out of the hoses and the load shall remain blocked in position.
Should that not be the case, the valve must be replaced.
Contact TEREXLIFT Technical Service.



⚠ DANGER

Check the valves taking all the possible precautionary measures:

- ***Wear safety glasses***
- ***Wear safety gloves***
- ***Wear safety shoes***
- ***Wear suitable working clothes***
- ***Use guards against leaks of oil at high pressure***
- ***Do the check in a free space with barriers all around to keep non-authorised people away***
- ***Ensure that the part to be checked is in safe condition and that the action generated does not result in an uncontrolled movement of the machine.***



TO REMOVE THE BLOCK VALVES OR THE CYLINDERS

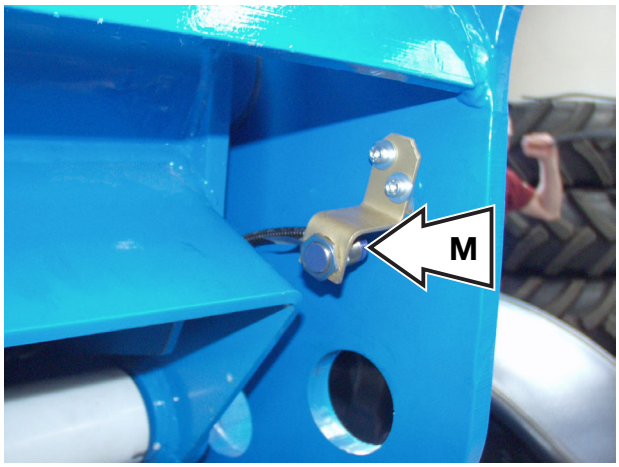
- ***Lower the boom to the ground in a firm way since the removal of the block valve or the cylinder can cause an uncontrolled down-movement.***
- ***After refitting the valve or the cylinder, replenish the circuit and eliminate any air before starting working. To eliminate the air from the circuit, move the involved cylinders to end-of-stroke in the two directions (opening/closing. To eliminate the air from the fork balance cylinder, move the boom up and down and tilt the fork plate forwards/back.***

■ Checking the proximity sensor M on the boom

(at every use)

- Raise the boom beyond the horizontal and check that the machine sway controls are blocked.
  Should this not be the case, contact the TEREXLIFT Technical Assistance Service.

For the adjustment of the proximity switches, read **chap. D-3.14** in the Use and Maintenance Manual.
If the trouble does not depend on the sensor adjustment, contact the TEREXLIFT Technical Assistance Service.

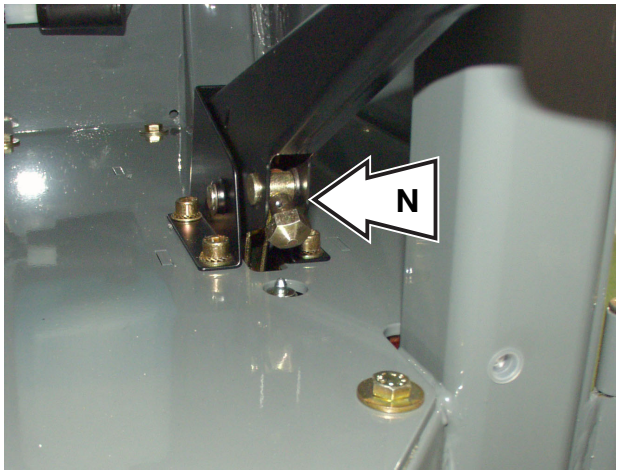


■ Checking the micro-switch N on the parking brake

(at every use)

To check the efficiency of the micro-switch on the parking brake, proceed as follows:

- Sit on the driving place, put the parking brake and attempt to move with the machine. The machine must stand still.
  Should this not be the case, contact the TEREXLIFT Technical Assistance Service.



4.4 TABLE B PROCEDURES

B-1 CHANGE THE ENGINE OIL AND RENEW THE FUEL FILTER

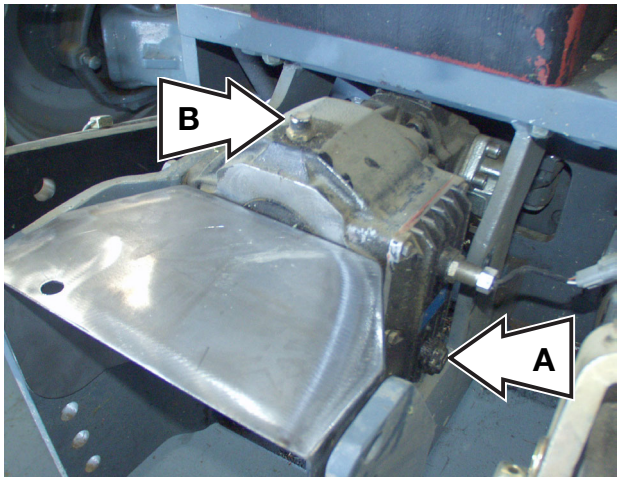
CAUTION

For the engine maintenance, please refer to the specific Operator handbook supplied with the machine.

B-2 CHECK THE OIL LEVEL OF THE PTO REDUCTION GEAR

Check the oil level of the PTO reduction gear as follows:

- Stop the machine on a level ground and make sure the parking brake is engaged.
- Clean the area all around level gauge **A**.
- Check the oil level on gauge **A**.
- If necessary, top up through the filling hole **B**.



B-3 CHECK THE TENSION OF THE ALTERNATOR BELT

CAUTION

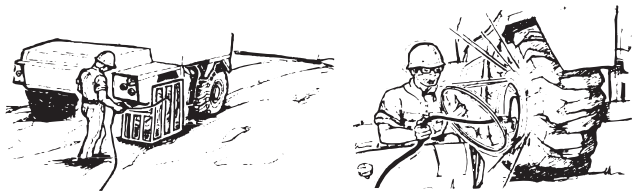
For the engine maintenance, please refer to the specific Operator handbook supplied with the machine.

B-4 CHECK THE TYRE INFLATION

DANGER

Over-inflated or overheated tyres can burst. Do not flame-cut or weld the wheel rims. For any repair work, call in a qualified technician.

OKAY *WRONG*



For the tyre inflation or substitution, please refer to the table below:

	STANDARD Agrilift 737-1037
Dimensions (front and rear)	405/70-24
P.R. (or load index)	14 PR 152 B
Rim	13x24
Wheel disc	8 holes DIN 70361
Pressure (bar/Psi)	4.5/65.2

On new machines, and when a wheel has been disassembled or replaced, check the nut torque of the wheels every 2 hours until they stay correct.

WARNING

Always use tyres having the dimensions indicated in the vehicle registration card.

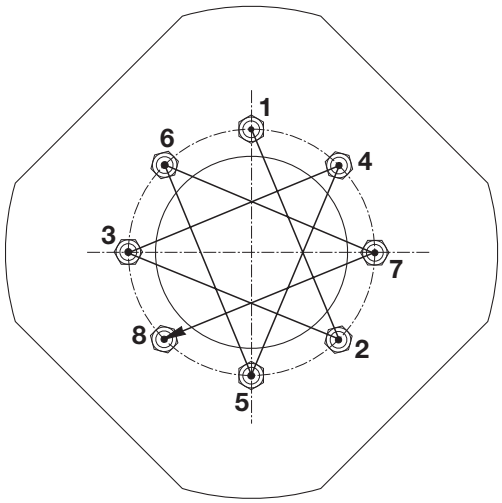
B-5 CHECK THE TIGHTENING OF THE WHEEL NUTS

If you have to check the tightening of the wheel bolts or replace a wheel, proceed as follows:

- Raise the machine using a hydraulic jack.
- Remove the wheel rolling it on the ground.
- Line up the wheel with the axle and fit the 8 nuts.
- Tighten the nuts following the alternate sequence shown in the picture with a pneumatic screwdriving machine.
- Lower the machine to the ground.

Re-tighten all nuts to a torque 308 Nm.





AWARNING

Check the tightening of wheels one hour after the job. They might get loose until they do not stay correct.

AWARNING

On new machines, and when a wheel has been disassembled or replaced, check the nut torque of the wheels every 2 hours until they stay correct.

AWARNING

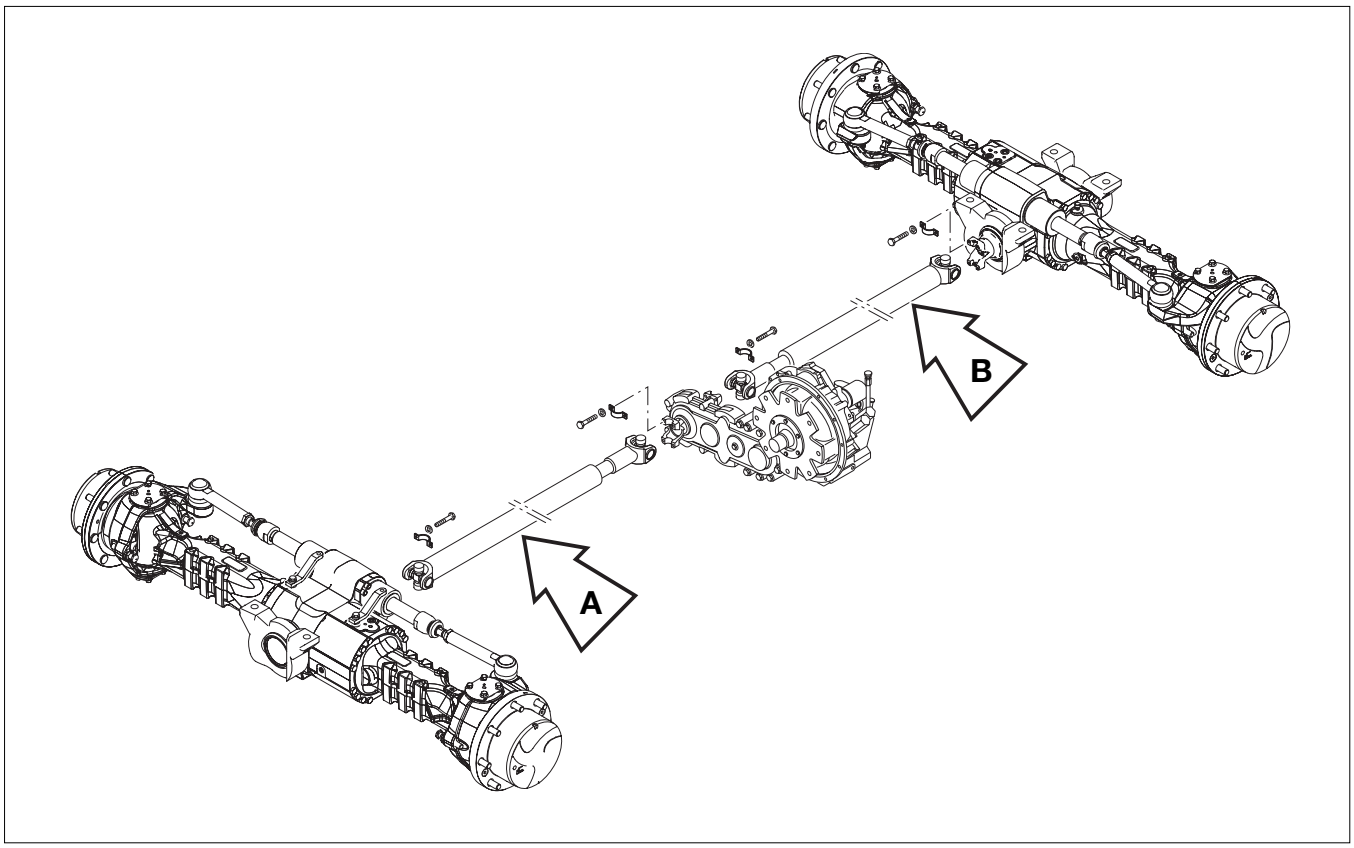
Always use tyres having the dimensions indicated in the vehicle registration card.

	STANDARD	
	Agrilift 737	**Agrilift 1037**
Dimensions (front and rear)	405/70-24	405/70-24
P.R. (or load index)	14 PR 152 B	14 PR 152 B
Rim	13x24	13x24
Wheel disc	8 holes DIN 70361	8 holes DIN 70361
Pressure (bar/Psi)	4.5/65.2	4.5/65.2

B-6 CHECK THE TIGHTENING OF THE CARDAN SHAFT SCREWS

Check every week that the screws of the Cardan shafts **A** and **B** are tight.

For the correct tightening torques, please refer to par. 2.13 in section 2 “Technical Specifications”.



B-7 CLEAN THE RADIATOR FINS

DANGER

When using a steam-washer, always wear protective clothes. Hot steam may cause serious injury.



- Open the radiator panel.
- Check the fins of radiator for sediments.
- If necessary, prepare a compressed air nozzle (max. 2 bar) or a nozzle distributing water under pressure or steam.

Cleaning using compressed air

- Direct a jet of compressed air toward radiator paying attention not to damage its fins.
- Remove any loose particles of dirt with some water.

Cleaning using water under pressure or steam

- Spray radiator with a cold commercial detergent and wait for at least 10 minutes to allow the detergent to react.
- Wash radiator using a jet of water or steam.

CAUTION

The core fouling depends on the dust of the outside environment and the presence of oil and fuel leaks in the motor area. It is therefore advisable to remove oil and fuel leaks immediately in case of very dusty environments.

4.5 TABLE C PROCEDURES

C-1 CHANGE THE OIL IN THE PTO REDUCTION GEAR

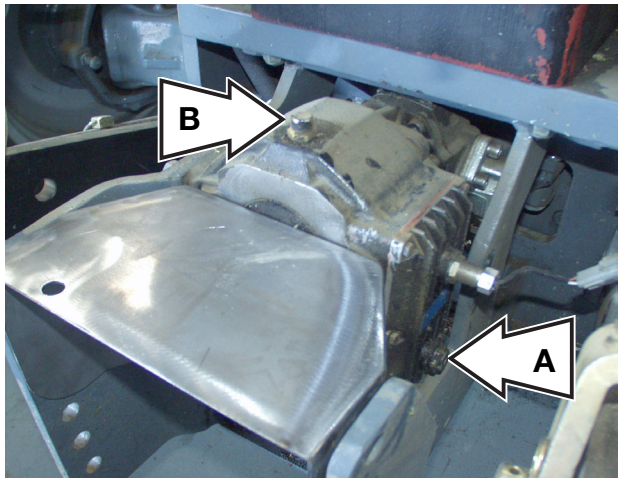
To change the oil:

- Stop the machine on a level ground and make sure the parking brake is engaged.

NOTICE

Place a container of suitable size under the plug.

- Remove drain plug **C** and let oil flow out of the reduction gear.
- Unscrew filler **B**.
- Refit and tighten the drain plug **C**.
- Pour in new oil through the filling hole **B**.
- While filling, check the level on gauge **A**.
- Re-tighten filler **B**.

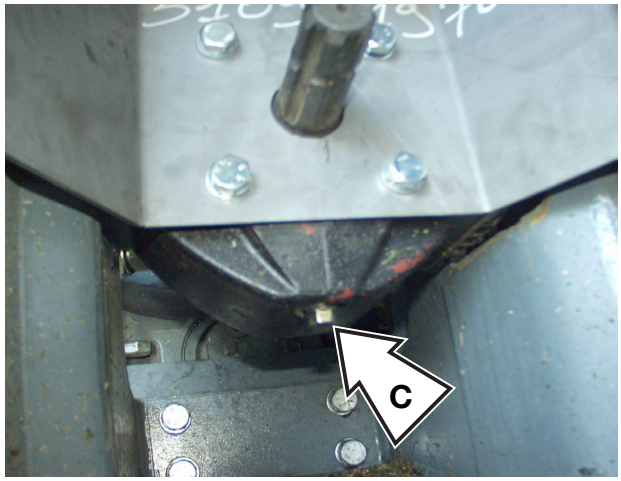


Recommended oil:

- **FUCHS TITAN GEAR LS 85 W-90 API GL-5 LS / GL-5**

NOTICE

Handling and disposal of used oils and filters may be ruled by local or national regulations. Address to authorised waste disposal centres.



C-2 CHANGE THE ENGINE OIL AND RELEVANT FILTER

CAUTION

For the engine maintenance, please refer to the specific Operator handbook supplied with the machine.

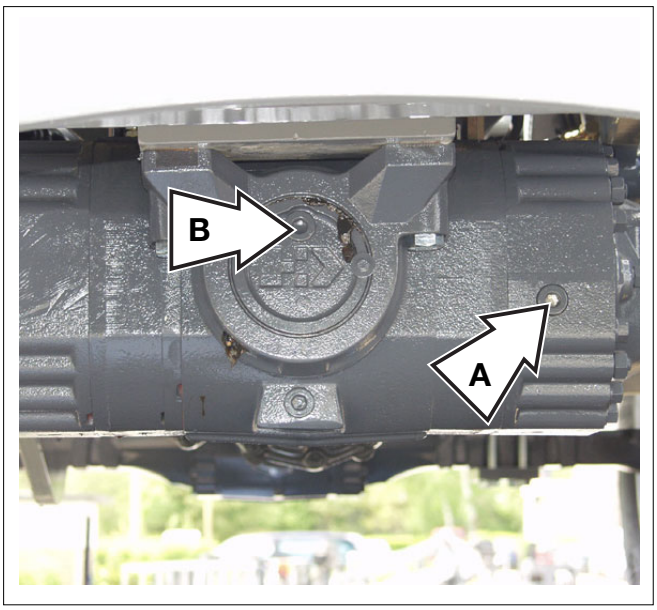
C-3 CHECK THE OIL LEVEL IN THE FRONT AND REAR DIFFERENTIAL GEARS

To check the oil level in the **front and rear differential gears**:

- Stop the machine on a level ground and engage the parking brake.
- Loosen level plug **A** and check if oil is level with the hole.
- If necessary, top-up through hole **B** until oil comes out from hole **A**.
- Refit and tighten plugs **A** and **B**.

NOTICE

Place a container of suitable size under the plug.



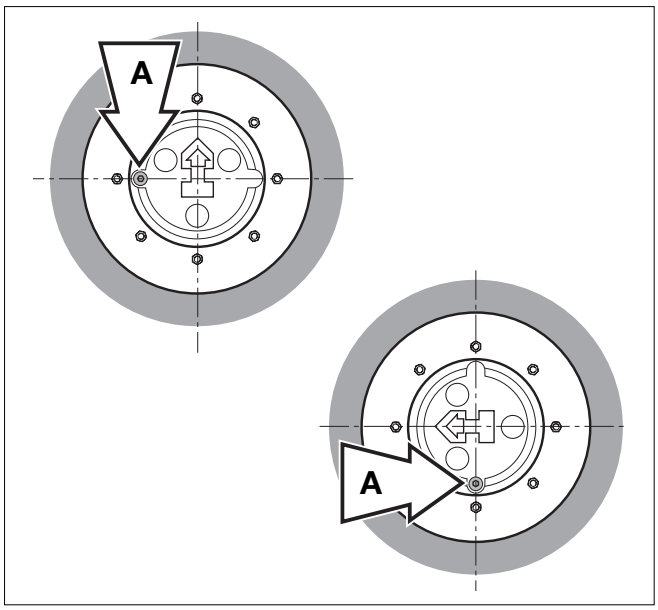
C-4 CHECK THE OIL LEVEL IN THE FOUR WHEEL REDUCTION GEARS

To check the oil level within the **wheel reduction gears**:

- Stop the machine on a level ground and ensure the parking brake is engaged and plug **A** finds on the horizontal axis.
- Clean the plug all around, then remove it and check if oil is level with the hole.
- If necessary, add new oil through hole **A** until it is level.
- Refit the plug.

NOTICE

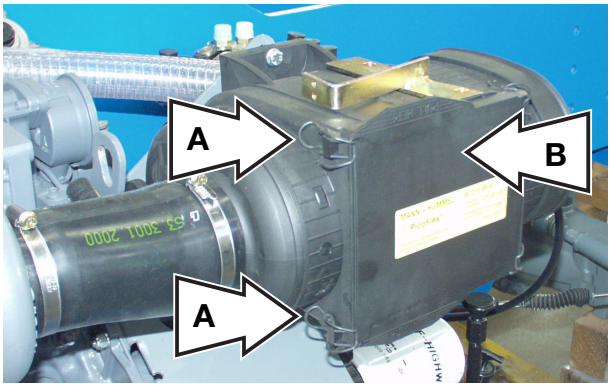
Place a container of suitable size under the plug.



C-5 CHECK THE MAIN FILTERING ELEMENT OF THE ENGINE AIR FILTER

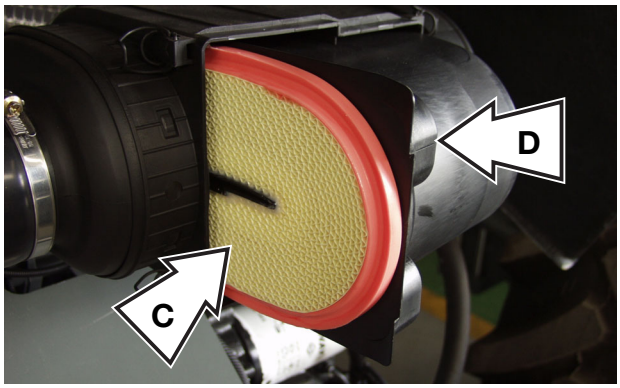
To reach the main cartridge of the air filter, follow the instructions below:

- Stop the engine and engage the parking brake.
- Pull levers **A** and remove cover **B**.
- Pull off filter cartridge **C** using the relevant handles **D**.
- Clean the filter bowl.
- Blow out the cartridge from inside outwards using compressed air (max.6 bar).
- Check the filter box for cracks (light showing through).
- Refit the cartridge and make sure it is correctly fitted.
- Re-close cover **B** and lock with levers **A**.



WARNING

As soon as the warning lamp on the cab dashboard switches on, replace the outer element.

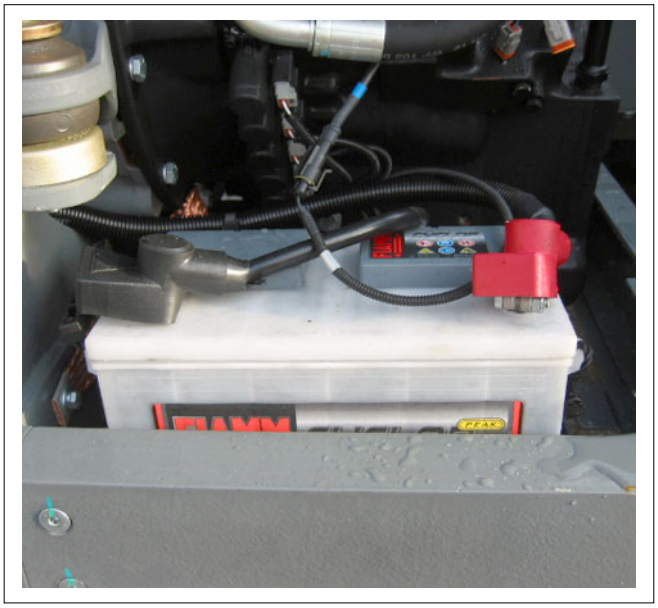


WARNING

Washing the filters with water and/or solvents is expressly forbidden.

C-6 CHECK THE CLAMPING OF THE CABLEHEADS TO THE BATTERY TERMINALS

Check the cable clips are well secured to the battery terminals. To tighten the clips, always use a box wrench, never pliers.



⚠ DANGER

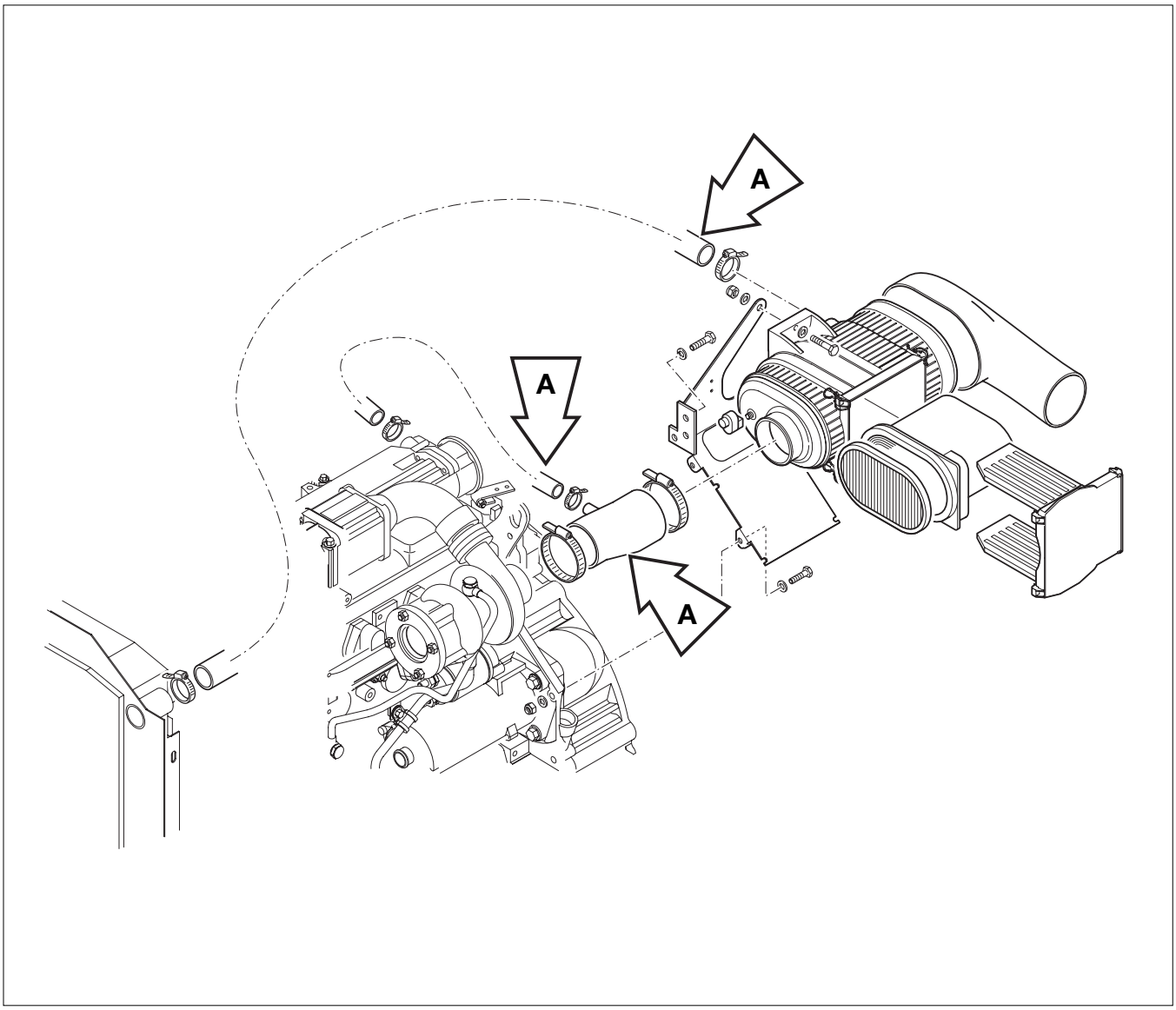
- ***Keep out of items which can produce sparks, of naked flames or lit cigarettes.***
- ***Do not rest metal objects onto the battery. This can result in a dangerous short especially during a recharge.***

C-7 CHECK THE AIR SUCTION HOSE BETWEEN ENGINE AND FILTER

Check the state of all the rubber sleeves and hoses **A** of the air suction line between engine and filter every month.

CAUTION

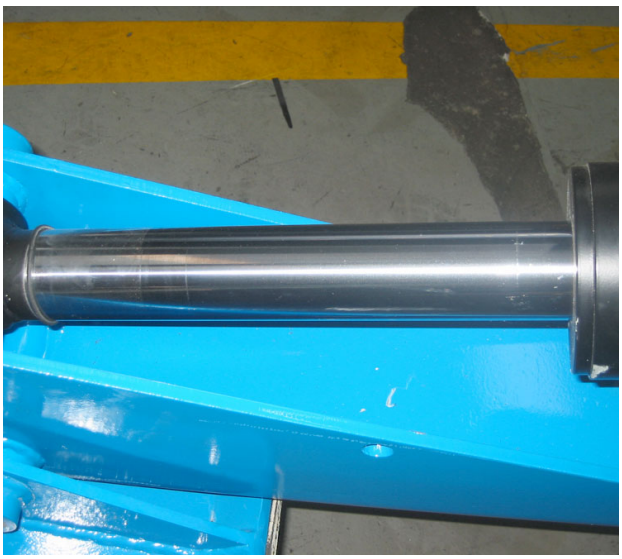
If you use the machine continuously for several days, check these sleeves, as well as the hose clamps more frequently.



C-8 CHECK THE CYLINDER CHROMIUM-PLATED RODS

Visually check the cylinder rods for scoring every month.

For this operation, fully extend all of the cylinders and check that their rods are intact.

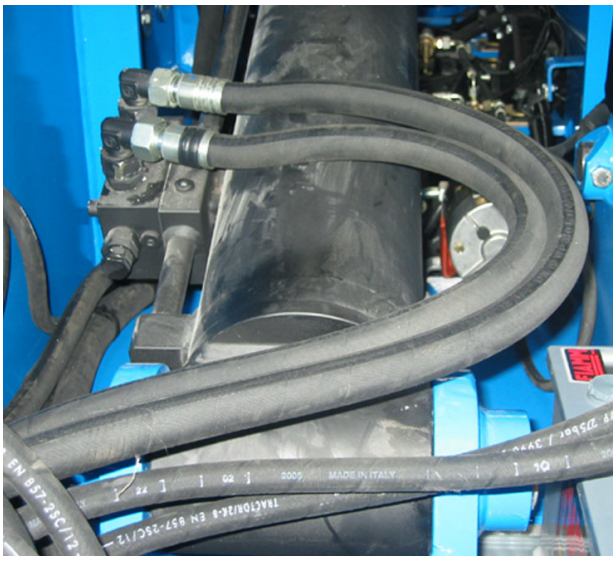


C-9 CHECK THE HYDRAULIC LINES

Every month, do a random check of the oil-dynamic hoses to be sure they are not worn. In particular, we recommend checking the hoses located near moving mechanical parts as they could rub against such parts and get damaged.

CAUTION

Replace any worn hoses immediately before using the machine again.

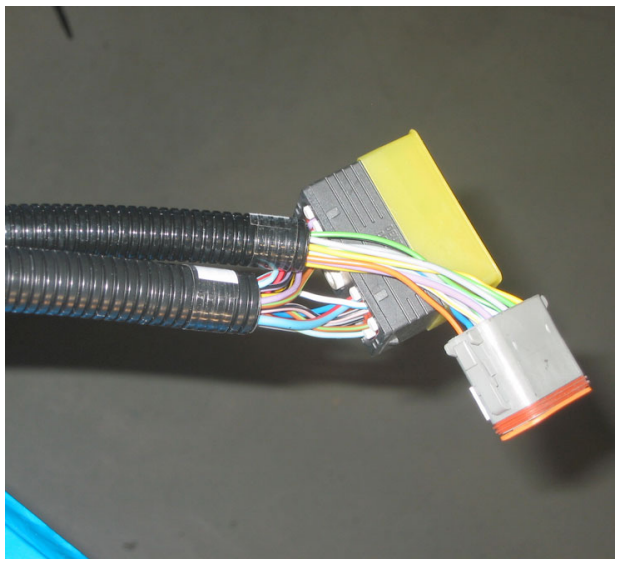


C-10 CHECK THE ELECTRIC CABLES

Every month, do a random check of the electrical cables to be sure they are not damaged. In particular, we recommend checking the cables located near moving mechanical parts as they could rub against such parts and get damaged.

CAUTION

Replace any worn cables immediately before using the machine again.



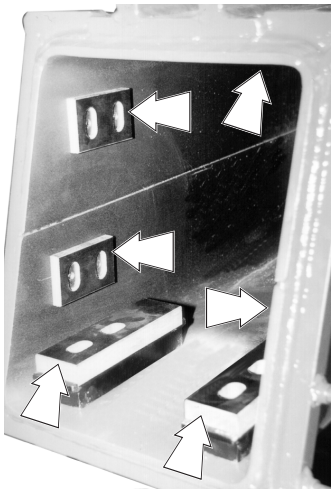
C-11 CHECK THE WEAR OF THE SLIDING PADS OF THE BOOM SECTIONS

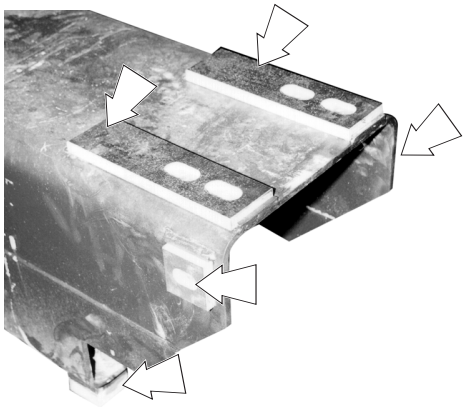
Any boom section is fitted with adjustable pads located on the four sides of the profile. These pads are secured to both fixed and mobile part of every section.

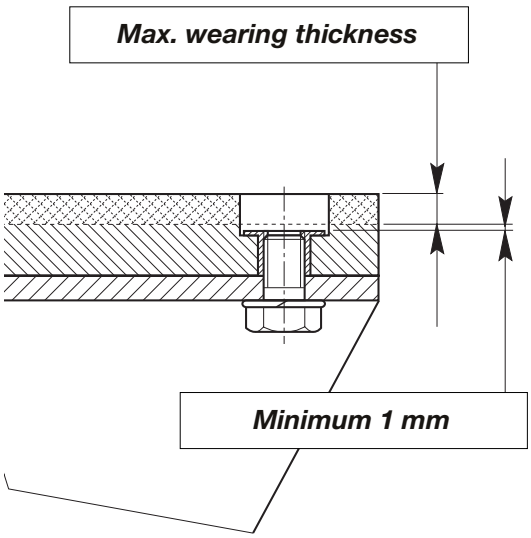
All pads can be adjusted by the special shims not supplied by TEREXLIFT.

CAUTION

Pads must compulsorily be replaced if the residual thickness of the plastic layer with respect to the iron bush fixing the block is equal or inferior to 1 mm.







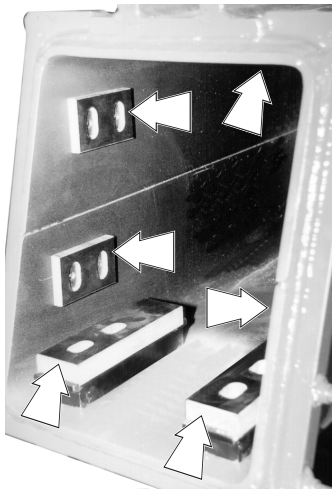
C-12 ADJUST THE PLAY OF THE SLIDING PADS OF THE BOOM SECTIONS

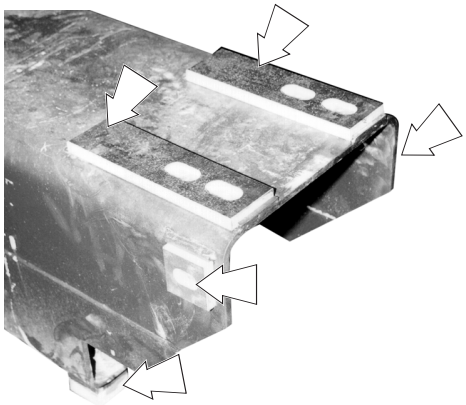
Any boom section is fitted with adjustable pads located on the four sides of the profile. These pads are secured to both fixed and mobile part of every section.

All pads can be adjusted by the special shims.

Adjusting the pads:

- Remove or loosen the screws fixing the pads in relation to type of shims used (with or without slots).
- Fit the necessary amount of shims.
- If the residual thickness of the pad is insufficient or near the maximum wearing limit, renew the pad.
- Tighten the screws fixing the pads at the recommended torque (see below). Use a dynamometric wrench.





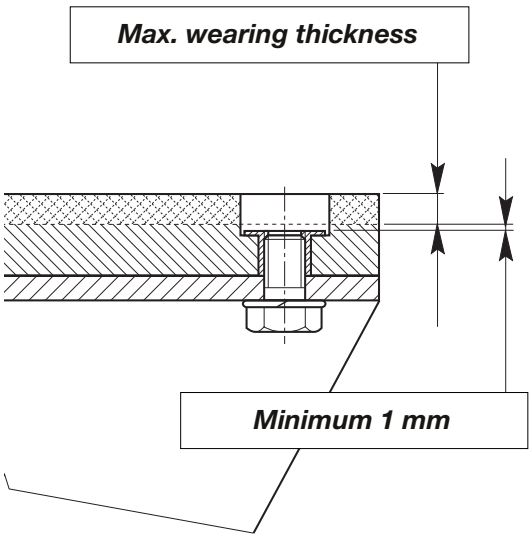
Tightening torques of the pad screws in relation to the screw diameter

Screws M10	Nm 30
Screws M14	Nm 50

Tightening torques higher than those recommended can cause the break of the pad or of the locking threaded bush.

CAUTION

Pads must compulsorily be replaced if the residual thickness of the plastic layer with respect to the iron bush fixing the block is equal or inferior to 1 mm.



C-13 GREASE THE SLIDING PARTS OF THE BOOM SECTIONS

Check every month that the telescopes are well greased in correspondence of the sliding pads.

If necessary, scrape off the old grease and brush new grease. We recommend using:

- **INTERFLON grease FIN GREASE LS 2**

CAUTION

Avoid mixing greases of different type or features and do not use greases of lower quality.

C-14 CHECK THE LEVEL OF THE BATTERY ELECTROLYTE

- Check the electrolyte level every 250 working hours; if necessary, add distilled water.
- Ensure the fluid is 5÷6 mm above the plates and the cell levels are correct.
- Protect the terminals smearing them with pure vaseline.
- Remove the battery and store it in a dry place, when the machine is not used for a long time.

⚠DANGER

Battery electrolyte contains sulphuric acid. It can burn you if it touches your skin and eyes. Always wear goggles and protective gloves, and handle the battery with caution to prevent spillage. Keep metal objects (watch straps, rings, necklaces) clear of the battery leads, since they can short the terminals and burn you.

⚠DANGER

- ***Before disconnecting the battery, set all switches within the cab to OFF.***
- ***To disconnect the battery, disconnect the negative (-) lead from the frame earth first.***
- ***To connect the battery, connect the positive (+) lead first.***
- ***Recharge the battery far from the machine, in a well-ventilated place.***
- ***Keep out of items which can produce sparks, of naked flames or lit cigarettes.***
- ***Do not rest metal objects onto the battery. This can result in a dangerous short especially during a recharge.***
- ***Because the electrolyte is highly corrosive, it must never come in contact with the frame of the handler or electric/electronic parts. If the electrolyte comes in contact with these parts, contact the nearest authorised assistance centre.***

⚠DANGER

Risk of explosion or shorts. During the recharge, an explosive mixture with release of hydrogen gas forms.

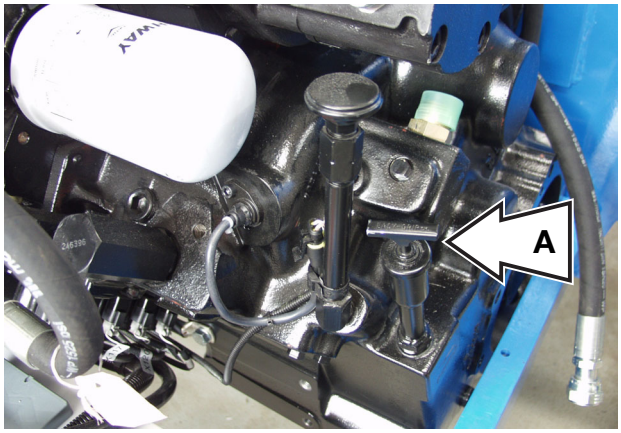
⚠DANGER

Do not add sulphuric acid; add only distilled water.

C-15 CHECK THE OIL LEVEL OF THE GEARBOX

To check the oil level of the gearbox:

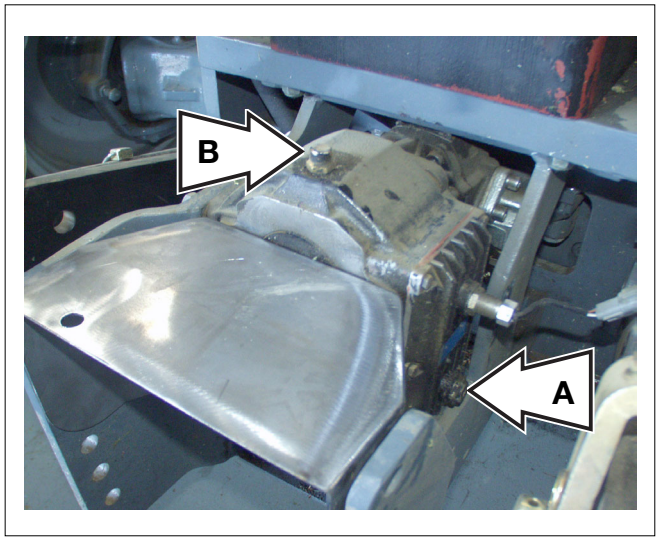
- Stop the machine on a level ground and make sure the parking brake is engaged.
- Clean the area all around dipstick **A**.
- Remove the dipstick and check that oil is between the min mark and the max marks.
- If necessary, add new oil through the hole of the dipstick.
- Refit and tighten the dipstick.



C-16 CHECK THE OIL LEVEL OF THE PTO REDUCTION GEAR

Check the oil level of the PTO reduction gear as follows:

- Stop the machine on a level ground and make sure the parking brake is engaged.
- Clean the area all around level gauge **A**.
- Check the oil level on gauge **A**.
- If necessary, top up through the filling hole **B**.



4.6 TABLE D PROCEDURES

D-1 VISUALLY CHECK THE SMOKE QUANTITY EVACUATED FROM THE ENGINE EXHAUST

To check the quantity of smoke evacuated from the engine exhaust, proceed as follows:

- Start the engine of the machine.
- Wait for a few minutes so the engine can warm up correctly.
- Visually check that the amount of smoke coming out of the exhaust is normal; repeat the check while accelerating the engine.

⚠CAUTION

Do this check outdoors or use an adequate smoke extraction system.

CAUTION

In case of excess smoke, strictly obey the instructions provided in the relevant Use and maintenance manual enclosed with the technical literature of the machine.

D-2 CHECK THE TIGHTENING OF THE ENGINE FIXING SCREWS

Every 6 months, check that the screws fixing the engine to the machine chassis are tight.

For this operation, use a torque wrench and tighten the screws to a torque of **84 Nm**.

D-3 CHECK THE TIGHTENING OF THE CAB FIXING SCREWS

Every 6 months, check that the screws fixing the cab to the machine chassis are tight.

For this operation, use a torque wrench and tighten the screws to a torque of **205 Nm**.

D-4 CHECK THE BACKLASH BETWEEN PINS AND BUSHINGS IN ALL JOINTS

Every 6 months, check the machine randomly to be sure the backlash between pins and relevant bushings on the joints is not too high.

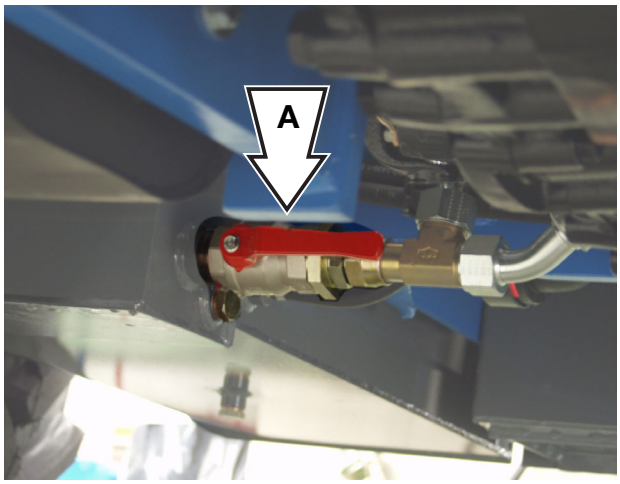
CAUTION

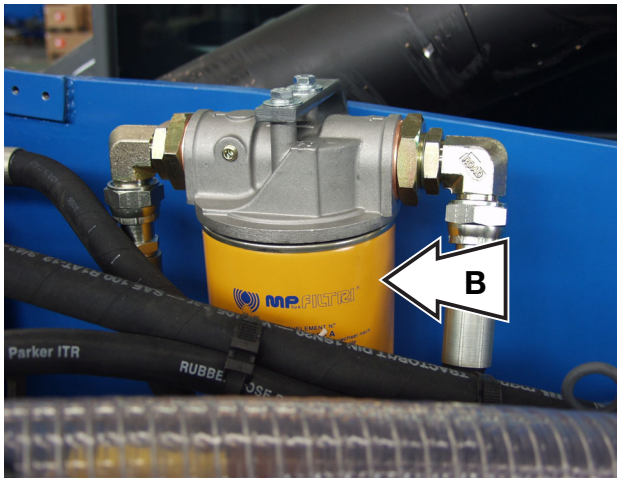
If you have to change some parts, please refer to the spare parts catalogue enclosed with the technical literature of the machine.

D-5 CHANGE THE HYDRAULIC OIL FILTER

To change the oil filter cartridge on the intake line, proceed as follows:

- Stop the machine on a level ground and engage the parking brake.
- Place a container of suitable size under the filter to collect any oil leaks, then close cock **A**.
- Remove the filter canister **B** with the special wrench provided.
- Renew the canister. Before fitting a new canister, thoroughly clean and grease both bowl and gasket.
- Hand-tighten and re-open cock **A**.





CAUTION

Hydraulic oil filter canisters cannot be cleaned or washed and refitted.
They must be replaced with new ones of the type recommended by the manufacturer:
Flow rate l/1' = 150
Filtering = 10 µ
Coupling = 1" 1/4 BSP

NOTICE

The handling and disposing of used oils may be ruled by local or national regulations. Address to authorised centres.

CAUTION

When changing the oil, drain it when it is still hot and the polluting substances are in suspension.

D-6 HAVE THE HYDRAULIC SYSTEM CHECKED BY A SKILLED TECHNICIAN

Every 6 months, we recommend have the efficiency of the hydraulic system checked by a skilled technician.

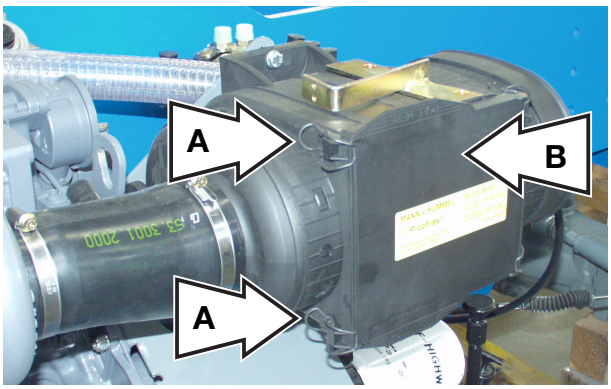
CAUTION

In case of need, please contact the Terexlift Service Centre.

D-7 CHANGE THE MAIN CARTRIDGE OF THE ENGINE AIR FILTER

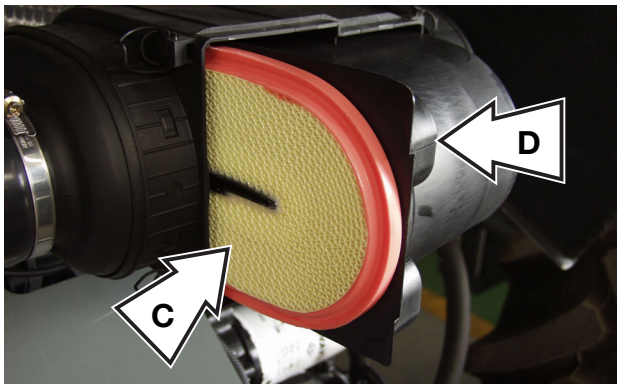
To reach the main cartridge of the air filter, follow the instructions below:

- Stop the engine and engage the parking brake.
- Pull levers **A** and remove cover **B**.
- Pull off filter cartridge **C** using the relevant handles **D**.
- Clean the filter bowl.
- Refit the new cartridge and make sure it is correctly fitted.
- Re-close cover **B** and lock with levers **A**.



WARNING

As soon as the warning lamp on the cab dashboard switches on, replace the outer element.



WARNING

Washing the filters with water and/or solvents is expressly forbidden.

D-8 RENEW THE CARTRIDGE OF THE ENGINE OIL FILTER AND THE FUEL FILTER

CAUTION

For the engine maintenance, please refer to the specific Operator handbook supplied with the machine.

D-9 CHANGE THE OIL OF THE FRONT AND REAR DIFFERENTIAL CASINGS

To change the oil in the **front and rear differential gears**:

- Stop the machine on a level ground and engage the parking brake.

NOTICE

Place a container of suitable size under the plug.

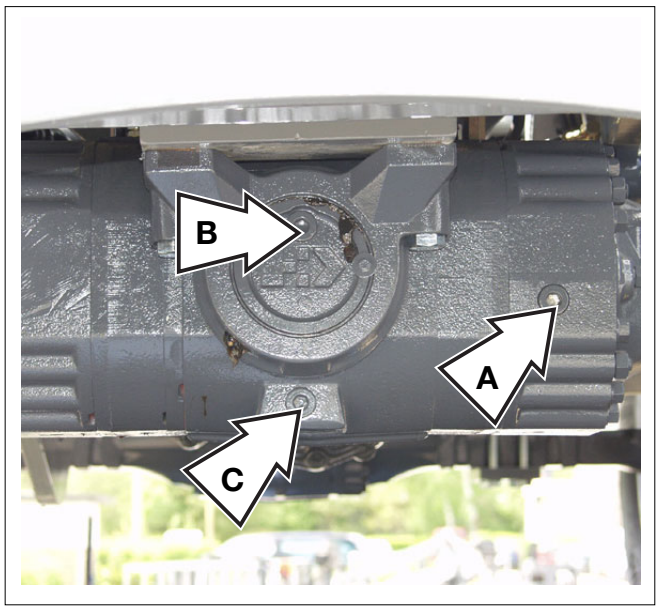
- Loosen the drain plug **C**, the level plug **A** and the filler **B** and allow oil to flow out from the reduction gear.
- Refit and tighten drain plug **C**.
- Add new oil through the filler until it is level with hole **B**.
- Refit and tighten plugs **A** and **B**.

Recommended oil:

- **FUCHS TITAN GEAR LS 85 W-90 API GL-5 LS / GL-5**

NOTICE

Handling and disposal of used oils and filters may be ruled by local or national regulations. Address to authorised waste disposal centres.

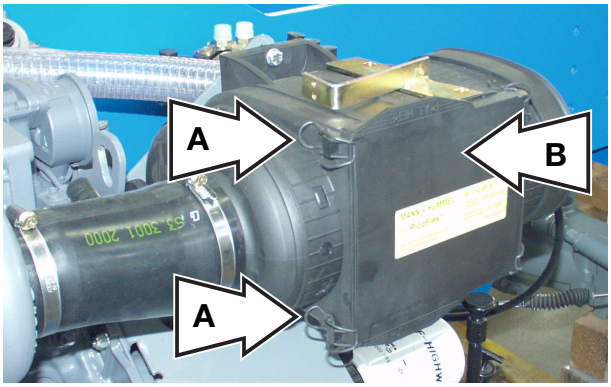


4.7 TABLE E PROCEDURES

E-1 CHANGE THE SAFETY ELEMENT OF ENGINE AIR FILTER

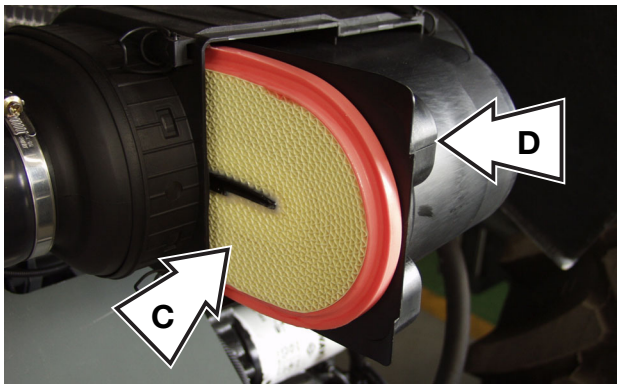
To reach the safety cartridge of the air filter, follow the instructions below:

- Stop the engine and engage the parking brake.
- Pull levers **A** and remove cover **B**.
- Pull off filter cartridge **C** using the relevant handles **D**.
- Clean the filter bowl.
- Pull off the internal filter cartridge **E**.
- Fit a new filter element and make sure it is correctly fitted.
- Refit the main filter and the cover.



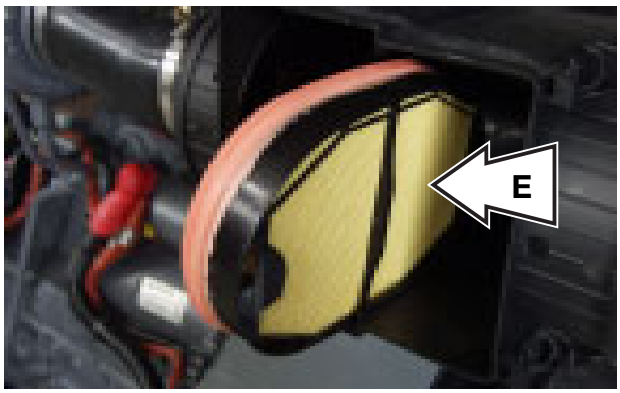
WARNING

As soon as the warning lamp on the cab dashboard switches on, replace the outer element.



WARNING

Washing the filters with water and/or solvents is expressly forbidden.



E-2 CHANGE THE OIL OF THE GEARBOX

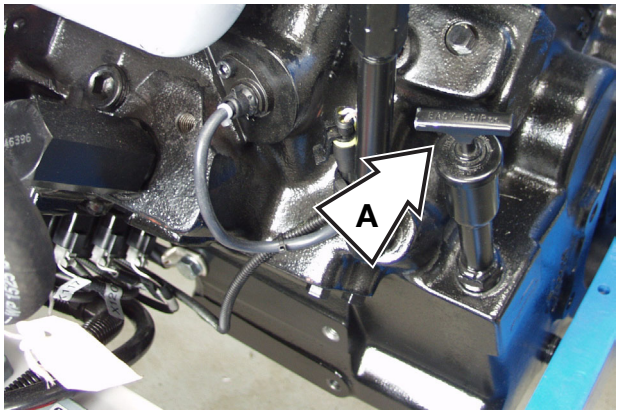
To change the oil in the **gearbox**:

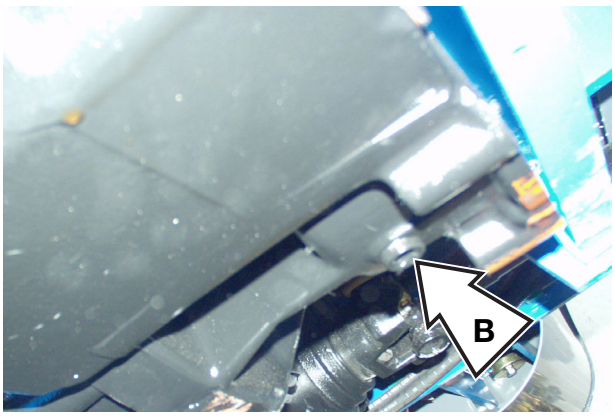
- Stop the machine on a level ground and make sure the parking brake is engaged.

NOTICE

Place a container of suitable size under the plug.

- Clean the area all around dipstick **A** and near drain plug **B**.
- Remove drain plug **B** and let oil flow out of the gearbox.
- Remove dipstick **A**.
- Refit and tighten drain plug **B**.
- Pour in new oil through the hole of the dipstick.
- While filling, check the level using the dipstick.
- Refit the dipstick.





Recommended oil:

- **ESSO LUBE HYDRAULIC 10W**
  API CD/SF VICKERS 35VQ25

E-3 CHANGE THE OIL IN THE FOUR WHEEL REDUCTION GEARS

To change the oil in the **wheel reduction gears**:

- Stop the machine on a level ground and ensure the parking brake is engaged and plug **A** is oriented along the vertical axis.

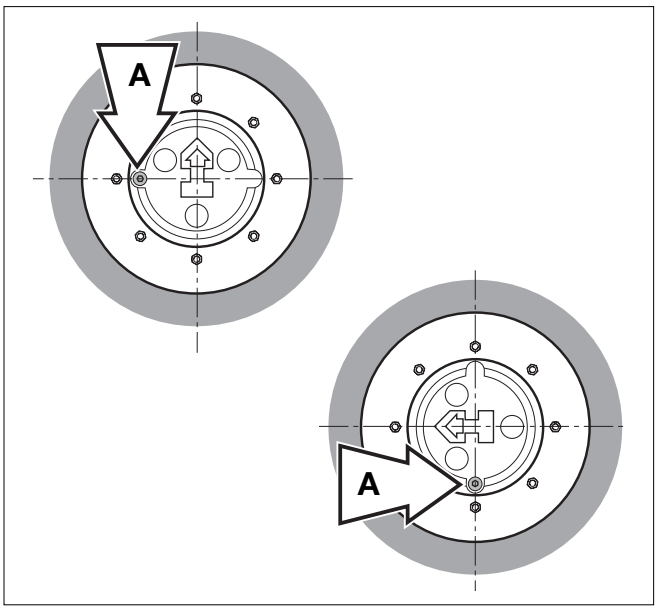
NOTICE

Place a container of suitable size under the plug.

- Unscrew plug **A** and drain any oil from the reduction gear.
- Rotate the wheel by 90° until the plug finds again on the horizontal axis.
- Add new oil through hole **A**.
- Refit and tighten plug **A**.

Recommended oil:

- **FUCHS TITAN GEAR LS 85 W-90 API GL-5 LS / GL-5**



E-4 CHANGE THE HYDRAULIC OIL

DANGER

Fine jets of hydraulic oil under pressure can penetrate the skin. Do not use your fingers, but a piece of cardboard to detect oil leaks.

To change the hydraulic oil:

- Stop the machine on a level ground and make sure the parking brake is engaged.
- Release the pressure from the hydraulic circuit.
- Place a container of suitable size under the drain plug **C**, placed in the lower part of the reservoir, and collect any oil leaks.
- Remove the drain plug **C** and allow oil to flow out into the container.
- Remove the inspection cover **D** of tank.
- Carefully wash the tank with Diesel oil and blow a jet of compressed air.
- Refit the drain plug **C** and the inspection cover **D**.
- Add new oil by making sure that it matches the recommended type indicated until it is level with **A**.

Recommended oil:

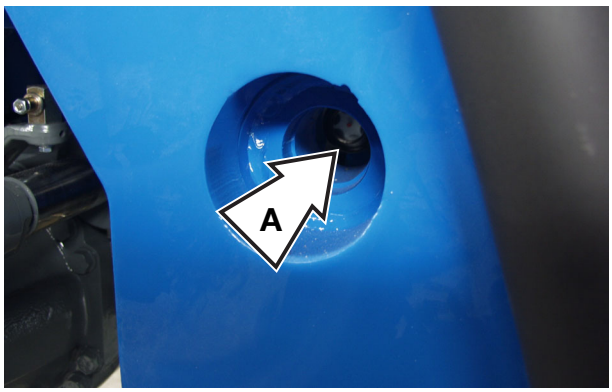
Arctic climates: Temperatures below -10°C
Use SHELL Tellus T22

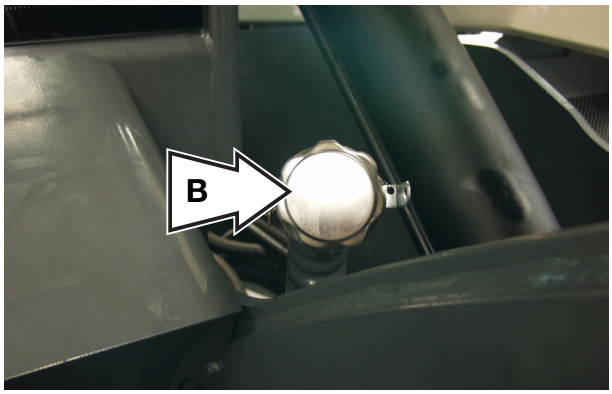
Mild climates: Temperatures from -15°C to +45°C
Use SHELL Tellus T46

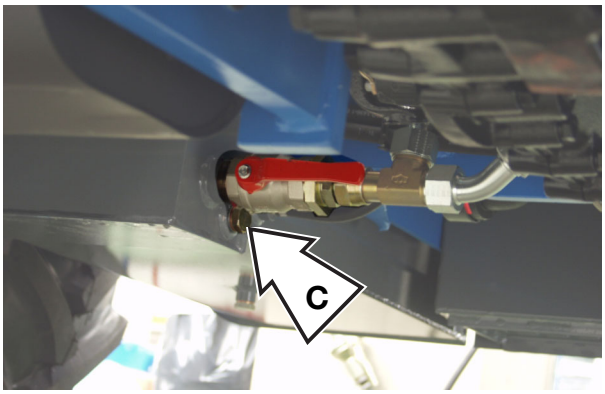
Tropical climates: Temperatures above +30°C
Use SHELL Tellus T68

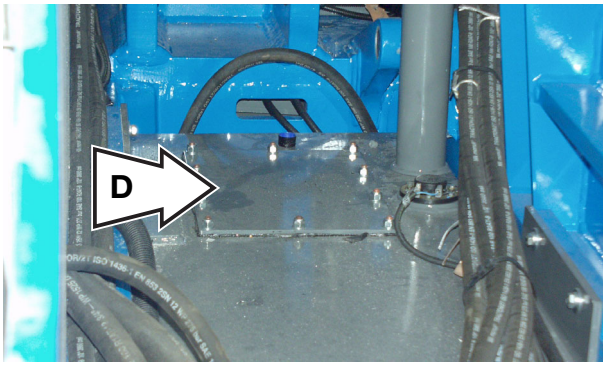
NOTICE

The handling and disposing of used oils can be ruled by local or national regulations. Address to authorised centres.









E-5 CHANGE THE OIL IN THE PTO REDUCTION GEAR

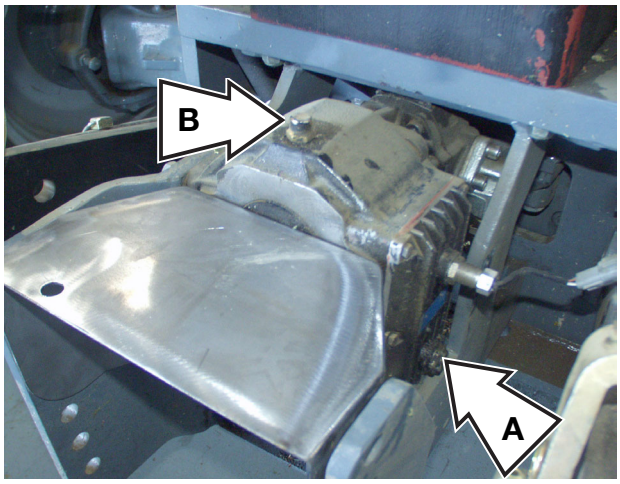
To change the oil:

- Stop the machine on a level ground and make sure the parking brake is engaged.

NOTICE

Place a container of suitable size under the plug.

- Remove drain plug **C** and let oil flow out of the reduction gear.
- Unscrew filler **B**.
- Refit and tighten the drain plug **C**.
- Pour in new oil through the filling hole **B**.
- While filling, check the level on gauge **A**.
- Re-tighten filler **B**.

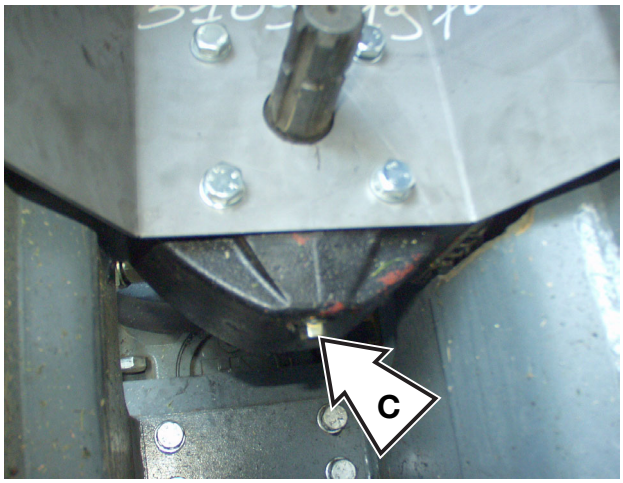


Recommended oil:

- **FUCHS TITAN GEAR LS 85 W-90 API GL-5 LS / GL-5**

NOTICE

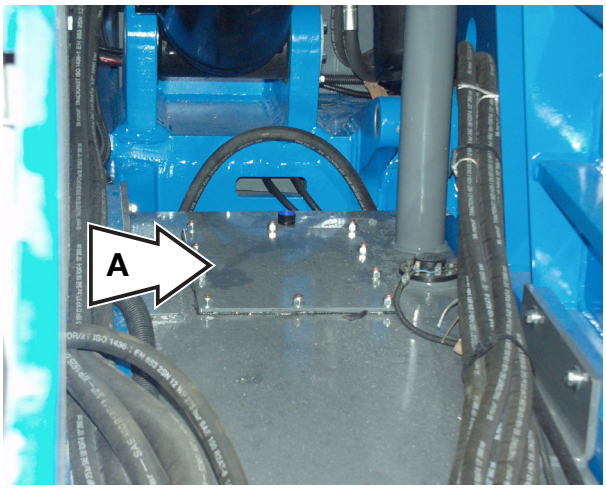
The handling and disposing of used oils can be ruled by local or national regulations. Address to authorised centres.



E-6 CHANGE THE HYDRAULIC OIL FILTER IN THE TANK

To renew the hydraulic oil filter of the return line, follow the instructions below:

- Stop the machine on a level ground and engage the parking brake.
- Place a suitable collecting vessel under the tank to collect the drained oil (capacity: roughly 90 litres).
- Remove inspection cover **A** and unscrew the oil filter fitted inside the tank.
- Check the tank is clean, then fit a new filtering element and refit the inspection cover.
- Check the oil level within the tank. Add new oil, if necessary



Recommended oil:

Arctic climates: Temperatures below -10°C
Use SHELL Tellus T22

Mild climates: Temperatures from -15°C to +45°C
Use SHELL Tellus T46

Tropical climates: Temperatures above +30°C
Use SHELL Tellus T68

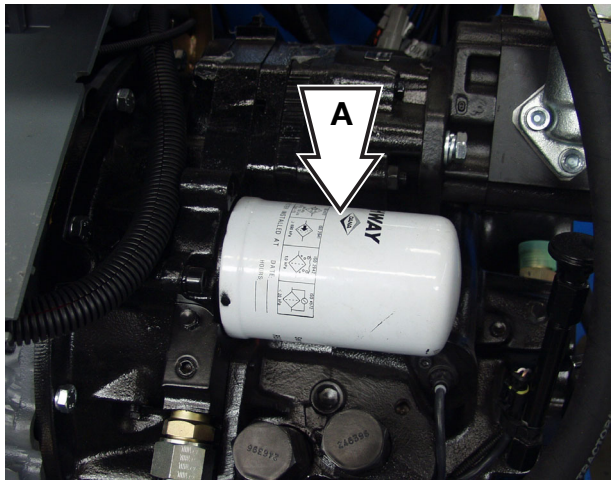
NOTICE

The handling and disposing of used oils can be ruled by local or national regulations. Address to authorised centres.

E-7 CHANGE THE GEARBOX OIL FILTER

To renew the oil filter cartridge of the gearbox, follow the instructions below:

- Stop the machine on a level ground and make sure the parking brake is engaged.
- Place an adequate collecting tray under the filter to catch any escaping oil.
- Remove the old filter cartridge **A** with the wrench provided.
- Fit a new cartridge after cleaning and greasing the filter bowl and gasket.
- Hand-tighten the filter cartridge.

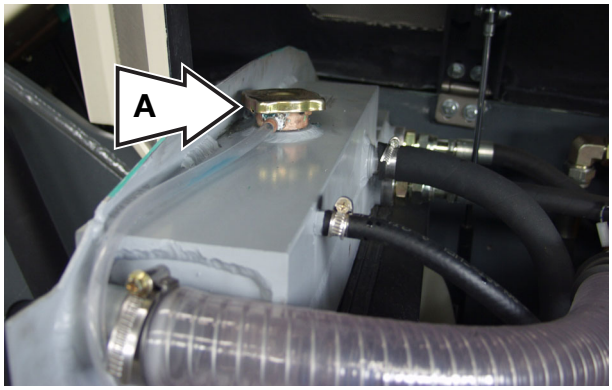


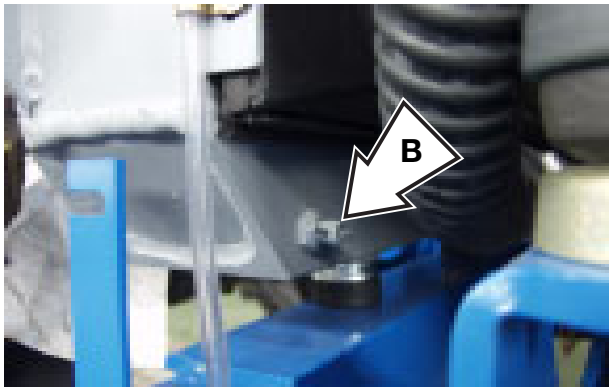
4.8 TABLE F PROCEDURES

F-1 CHANGE THE ENGINE COOLANT

⚠DANGER

When the coolant is hot, the cooling system is under pressure. With warm engine, loosen the radiator plug slowly and carefully, without removing it, to drain the pressure. Use protection gloves and keep your face at a safe distance.





To drain the antifreeze:

- Unscrew the plug **B** at the bottom of the radiator. Let the coolant flow off the radiator into a collecting vessel.
- Once the radiator has been emptied, refit plug **B,** remove plug **A** and fill the radiator with fresh antifreeze (50% water-antifreeze). This proportion will provide protection up to -38°C.

At the delivery, the machine is refilled with:

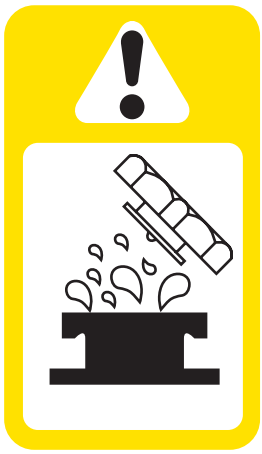
TEREX PRO COOL by VALVOLINE

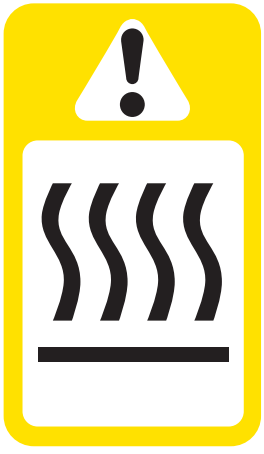
The use of this product guarantees protection to the circuit for 3 years or 7000 hours without having to add any dry coolant additive.

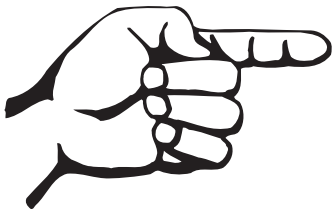
TEREX PRO COOL Protection against boiling / freezing		
Product %	Freezing point	Boiling point
33 40 50 70	-17 °C -24 °C -36 °C -67 °C	123 °C 126 °C 128 °C 135 °C

⚠WARNING

Use an antifreeze mixture in the proportions recommended by the manufacturer in relation to the ambient temperature of the jobsite.







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Section 5
TROUBLESHOOTING

SECTION INDEX

5.1 Introduction ..... page 2
5.2 About this section 3
5.3 Problems-Causes-Solutions 4
5.4 Problems-causes-solutions - three-point linkage system (if any) 22

5.1 INTRODUCTION



- *Maintenance inspections shall be completed by a person trained and qualified on the maintenance of this machine.*
- *Immediately tag and remove from service a damaged or malfunctioning machine.*
- *Repair any damage or malfunction before operating machine.*
- *Unless otherwise specified, perform each procedure with the machine in the following configuration:*
  - *machine parked on a flat level surface;*
  - *boom in the stowed position;*
  - *key switch in the OFF position with the key removed.*



Before troubleshooting:

- *Read, understand and obey the safety rules and operating instructions printed in the Operator Manual of the machine.*
- *Be sure that all necessary tools are available and ready for use.*
- *Read each appropriate flow chart thoroughly.*
- *Pay special attention to the following warnings:*

⚠DANGER

Crushing hazard. When testing or replacing any hydraulic component, always support the structure and secure it from movement.

⚠WARNING

Electrocution hazard. Contact with electrically charged circuits may result in death or serious injry. Remove all rings, watches and other jewerly.

⚠WARNING

Spraying hydraulic oil can penetrate and burn skin; loosen hydraulic connections very slowly to allow the oil pressure to dissipate gradually. Do not allow oil to squirt or spray.

CAUTION

Perform all troubleshooting on a firm level surface.

CAUTION

Two person will be required to safely perform some troubleshooting procedures.

5.2 ABOUT THIS SECTION

The tables on the following pages should be used to find and rectify problems that can occur when using the machine.

Prepare adequate tools, and especially a voltmeter and a pressure gauge to carry out the checks explained on next pages.

The initials of the electrical and hydraulic parts indicated in the following tables are given to help you find such parts on the schemes and diagrams in chapter 6.

The tables should be read as follows:

- once you have identified the problem, search this problem in the "**problem**" column;
- analyse the possible causes explained in the "**causes**" column;
- proceed with the check or replacement according to the instructions provided in the "**solutions**" column;
- check that the machine runs well;
- if the problem cannot be eliminated, check again all indications in the "**causes**" column and proceed accordingly.

CAUTION

For any further information, contact the TEREXLIFT Service Centre.

5.3 PROBLEMS-CAUSES-SOLUTIONS

Problem	Cause	Solution
The dashboard cannot be switched on	Battery disconnected	Connect the battery.
	Battery discharged	Check the battery charge; or replace the battery
	Fuse **FG3** in the engine box blown	Check the fuse; replace if necessary
	Battery disconnect switch **SB1** in wrong position or defective	Check position and operation of switch **SB1**.
The machine does not start ***The starting motor does not run***	Speed selector **S12** not in neutral position.	Turn the selector to position "**0**".
	Emergency button **S98** pressed or defective	Reset the emergency button and check its operation
	Starting motor **M122**.	Check the starting motor **M122** works fine; or replace the motor
	PTO switch **S34** operated or damaged (if any)	Deactivate the switch and check its operation; there shall be 12V between contact n.**7** and contact n.**8**
The machine does not start ***The starting motor runs, but the machine does not start***	No fuel	Refuel.
	Fuel filter restricted	Change the filter. See Deutz engine operator handbook.
	Fuel hose empty (fuel used up)	Refuel, then refer to the Deutz engine operator handbook.
	Fuse **FG1** in the engine box blown	Check the fuse; replace if necessary
	Solenoid valve **Y151**	Check there are 12V on valve **Y151** when the ignition key is turned
The machine does not move forward/ back	Speed selector **S12** in neutral position.	Engage a speed (either forward or reverse speed)
	Fuse **F13** blown	Check the fuse; replace if necessary

Problem	Cause	Solution
	Speed selector **S12** damaged	Check there are 12V on contact n. **5** of connector **X12** when the forward gear is put, and 12V on contact n.**6** of connector **X12** when the reverse gear is put. Change the selector, if necessary.
	Parking brake engaged	Release the brake.
	Parking b rake pressure switch damaged	Check there are 12V on contact n.**3** of connector **X61** located under the parking brake, when this brake is lowered.
The steering mode cannot be selected	Road/jobsite selector turned to road.	Turn to jobsite.
	Road/jobsite selector damaged	Check the efficiency of the steering selector; check the connections and, in case, replace the selector.
	Fuse **F26** blown	Check the fuse; replace if necessary
	Steering switch **S38** damaged	Check that the 12V on contact **A** of the selector are supplied to contact **B** and **D** of the same selector depending on the selected steer mode; in case, or change the selector.
	Solenoid valves **Y134** and **Y135**	Check there are 12V on solenoid valve **Y134** when the selector is turned to "4-wheel steer"; check there are 12V on solenoid valve **Y135** when the selector is turned to "crab steer".
The 1st forward speed cannot be put	EGS **S12** does not work	With the 1st forward gear put, check there are 12V on pins n.**4**-**5** and **6** of connector **X12**.
	Solenoid valves on gearbox do not work	With the 1st gear put, check that solenoid valves **X116**, **X118** and **X119** of the gearbox are supplied with power at the same time; in case replace the solenoids.

Problem	Cause	Solution
The 2nd forward speed cannot be put	EGS **S12** does not work	With the 2nd forward gear put, check there are 12V on pins n.**5** and **6** of connector **X12**.
	Solenoid valves on gearbox do not work	With the 2nd forward gear put, check that solenoid valves **X116** and **X119** of the gearbox are supplied with power; in case replace the solenoids.
The 3rd forward speed cannot be put	EGS **S12** does not work	With the 3rd forward gear put, check there are 12V on pin n. **6** of connector **X12**.
	Solenoid valves on gearbox do not work	With the 3rd forward gear put, check the solenoid valve **X116** of the gearbox is supplied with power; in case replace the solenoids.
The 4th forward speed cannot be put	EGS **S12** does not work	With the 4th forward gear put, check there are 12V on pins n.**6** and **13** of connector **X12**.
	Solenoid valves on gearbox do not work	With the 4th forward gear put, check that solenoid valves **X116** and **X120** of the gearbox are supplied with power; in case replace the solenoids.
The 1st reverse speed cannot be put	EGS **S12** does not work	With the 1st reverse gear put, check there are 12V on pins n.**4**-**5**-**7** of connector **X12**.
	Solenoid valves on gearbox do not work	With the 1st reverse gear put, check that solenoid valves **X117**, **X118** and **X119** of the gearbox are supplied with power; in case replace the solenoids.
The 2nd reverse speed cannot be put	EGS **S12** does not work	With the 2nd reverse gear put, check there are 12V on pins n.**5** and **7** of connector **X12**.
	Solenoid valves on gearbox do not work	With the 2nd reverse gear put, check that solenoid valves **X117** and **X119** of the gearbox are supplied with power; in case replace the solenoids.

Problem	Cause	Solution
The 3rd forward speed cannot be put	EGS **S12** does not work	With the 3rd reverse gear put, check there are 12V on pin n. **7** of connector **X12**.
	Solenoid valves on gearbox do not work	With the 3rd reverse gear put, check that solenoid valve **X117** of the gearbox is supplied with power; in case replace the solenoids.
No movement of the telescopic boom can be operated	Fuse **F26** blown	Check the fuse; replace if necessary.
	The road/jobsite selector **S35** is turned to road.	Turn to jobsite.
	The road/jobsite selector **S35** does not work.	With the selector in the jobsite position, check there are 12V on contacts n.**1** and n.**5** of the selector; if necessary, replace the selector.
	Dead man switch on joystick **S10** damaged	Check there are 5V on contact **A** of the joystick's connector **X10**; check there are 5V also on contact **D** when the dead man switch is operated. Change the button if necessary.
	Tecnord control unit damaged	With the dead man button pressed down, check there are 5V on contact **A2** of connector **XJ1** and on contact **C3** of connector **XJ2** of the Tecnord control unit.
	Main solenoid valve **X136** damaged	With the dead man button pressed down, check there are 12V on the coil of solenoid valve **X136**; or replace the coil.
The boom cannot be moved up	Fuse **F26** blown	Check the fuse; replace if necessary.
	Joystick **S10** damaged	With the joystick in the boom lifting position, check there are 4.40V on pin **C** of connector **X10**: or replace the joystick.
	Tecnord control unit damaged	With the joystick in the boom lifting position, check there are 4.40V on pin **1B** of connector **J1** and 4.10V on pin **5B** of connector **J2** of the Tecnord control unit. if there is no power, change the control unit.

Problem	Cause	Solution
	Relay **K16** damaged	With the joystick in the boom lifting position, check there are 4.10V roughly on pins n.**6** and n.**7** of connector **X18**. If necessary, replace the relay.
	Coil **Y141** damaged	With the joystick in the boom lifting position, check there are 4.10V between pin n.**2** and pin n.**3** of the coil; or replace the coil
The boom cannot be moved down	The machine could be in alarm	Check for alarm messages on the display of the overload warning system; also check there are 12V on pin n.**10** of connector **X18**.
	Fuse **F26** blown	Check the fuse; replace if necessary
	Joystick **S10** damaged	With the joystick in the boom lowering position, check there are 0.60V on pin **C** of connector **X10**: or replace the joystick.
	Tecnord control unit damaged	With the joystick in the boom lowering position, check there are 0.60V on pin **1B** of connector **J1**, and 0.90V on pin **5B** of connector **J2** of the Tecnonord control unit. If the control unit is not supplied with power, replace it.
	Relay **K16** damaged	With the joystick in the boom lowering position, check there are 0.90V roughly on pins n.**6** and n.**7** of connector **X18**. If necessary, replace the relay.
	Coil **Y141** damaged	With the joystick in the boom lowering position, check there are 4.10V between pin n.**2** and pin n.**3** of the coil; or replace the coil.
The boom cannot be moved out	The machine could be in alarm	Check for alarm messages on the display of the overload warning system; also check there are 12V on pin n.**10** of connector **X18**.
	Fuse **F26** blown	Check the fuse; replace if necessary

Problem	Cause	Solution
	Joystick **S10** damaged	With the joystick in the boom extension position, check there are 4.40V on pin **F** of connector **X10**; or replace the joystick.
	Tecnord control unit damaged	With the joystick in the boom extension position, check there are 4.40V on pin **1A** of connector **J1**, and 4.10V on pin **8C** of connector **J2** of the Tecnord control unit. If the control unit is not supplied with power, replace it.
	Relay **K15** damaged	With the joystick in the boom extension position, check there are 4.10V roughly on pins n.**5** and n.**11** of connector **X18**. If necessary, replace the relay.
	Coil **Y141** damaged	With the joystick in the boom extension position, check there are 4.10V between pin n.**2** and pin n.**3** of the coil; or replace the coil.
The boom cannot be moved in	Fuse **F26** blown	Check the fuse; replace if necessary
	Joystick **S10** damaged	With the joystick in the boom retraction position, check there are 0.60V on pin **F** of connector **X10**; or replace the joystick.
	Tecnord control unit damaged	With the joystick in the boom retraction position, check there are 0.60V on pin **1A** of connector **J1**, and 0.90V on pin **8C** of connector **J2** of the Tecnord control unit. If the control unit is not supplied with power, replace it.
	Relay **K15** damaged	With the joystick in the boom retraction position, check there are 0.90V roughly on pins n.**5** and n.**11** of connector **X18**. If necessary, replace the relay.
	Coil **Y141** damaged	With the joystick in the boom retraction position, check there are 0.90V between pin n.**2** and pin n.**3** of the coil; or replace the coil.

Problem	Cause	Solution
The forks cannot be rotated (extension)	The machine could be in alarm	Check for alarm codes on the display of the overload warning system.
	Joystick **S10** damaged	With the joystick in the fork pitching position, check there are 4.40V on pin **D** of connector **X10**; or replace the joystick.
	Tecnord control unit damaged	With the joystick in the fork pitching position, check there are 4.40V on pin **1C** of connector **J1**, and 4.40V on pin **7A** of connector **J2** of the Tecnonord control unit. If the control unit is not supplied with power, replace it.
	Coil **Y139** damaged	With the joystick in the fork pitching position, check there are 4.40V between pin n.**2** and pin n.**3** of the coil; or replace the coil.
The forks cannot be rotated (retraction)	The machine could be in alarm	Check for alarm codes on the display of the overload warning system.
	Fuse **F26** blown	Check the fuse; replace if necessary
	Joystick **S10** damaged	With the joystick in the fork pitching position, check there are 0.60 V on pin **D** of connector **X10**; or replace the joystick.
	Tecnord control unit damaged	With the joystick in the fork pitching position, check there are 0.90V on pin **1C** of connector **J1**, and 0.90V on pin **7A** of connector **J2** of the Tecnonord control unit. If the control unit is not supplied with power, replace it.
	Coil **Y139** damaged	With the joystick in the fork pitching position, check there are 0.90V between pin n.**2** and pin n.**3** of the coil; or replace the coil.
The attachment cannot be locked	The machine could be in alarm	Check for alarm codes on the display of the overload warning system.

Problem	Cause	Solution
	Fuse **F26** blown	Check the fuse; replace if necessary
	Movement shift button on joystick damaged	Press the movement shift button and check there are 5V on pin **G** of connector **X10**. if the signal is absent, change the button.
	Joystick **S10** damaged	With the joystick in the attachment locking position, check there are 5V on pin **3C** of connector **J1**; or replace the joystick.
	Tecnord control unit damaged	With the joystick in the attachment locking position, check there are 12V on pin **1B** of connector **J2**; or change the control unit.
	Coil **Y137** damaged	With the joystick in the attachment locking position, check there are 12V between contact **B** and contact **C** of the coil; in case, replace the coil.
The attachment cannot be unlocked	The machine could be in alarm	Check for alarm codes on the display of the overload warning system.
	Fuse **F26** blown	Check the fuse; replace if necessary
	Joystick **S10** damaged	With the joystick in the attachment unlocking position, check there are 5V on pin **3C** of connector **J1**; or replace the joystick.
	Tecnord control unit damaged	With the joystick in the attachment unlocking position, check there are 12V on pin **1C** of connector **J2**; or change the control unit.
	Coil **Y137** damaged	With the joystick in the attachment unlocking position, check there are 12V between contact **A** and contact **B** of the coil; in case, replace the coil.
No sway to the right (if envisaged)	The machine could be in alarm	Check for alarm codes on the display of the overload warning system.
	Fuse **F26** blown	Check the fuse; replace if necessary
	The road/jobsite selector **S35** is damaged	With selector **S35** in the jobsite position, check there 12V on contact n.**1** of the same selector.

Problem	Cause	Solution
	Low boom sensor **B132** damaged	Check there are 12V between contacts **A** and **B** of sensor **B132**, and with the boom lowered and the sensor energized, there are 12V between contacts **B** and **C** of the sensor; if necessary replace the sensor.
	Sway button **S31** damaged	Check there are 12V on contact n.**3** of the sway button **S31**, and that, by operating the sway button to the right, there are 12V on contact n.**1** of the sway button. If this last signal is absent, change the sway button.
	Tecnord control unit damaged	With the sway button **S31** operated to the right, check there are 12V on contact **6B** of connector **J1** and 12V on contact **6A** of connector **J2** of the control unit. If this last signal is absent, change the control unit.
	Sway to right coil **Y106** damaged	With the sway to right function activated, check there are 12V between contacts n.**1** and n.**2** of coil **Y106**; or replace the coil.
No sway to the left (if envisaged)	The machine could be in alarm	Check for alarm codes on the display of the overload warning system.
	Fuse **F26** blown	Check the fuse; replace if necessary
	The road/jobsite selector **S35** is damaged	With selector **S35** in the jobsite position, check there 12V on contact n.**1**.
	Low boom sensor **B132** damaged	Check there are 12V between contacts **A** and **B** of sensor **B132**, and with the boom lowered and the sensor energized, there are 12V between contacts **B** and **C** of the sensor; if necessary replace the sensor.
	Sway button **S31** damaged	Check there are 12V on contact n.**3** of the sway button **S31**, and that, by operating the sway button to the left, there are 12V on contact n.**7** of the sway button. If this last signal is absent, change the sway button **S31**.

Problem	Cause	Solution
	Tecnord control unit damaged	With the sway button **S31** operated to the left, check there are 12V on contact **6A** of connector **J1** of the control unit, and 12V on contact **5A** of connector **J2**. If this last signal is absent, change the control unit.
	Sway to left coil **Y105** damaged	With the sway to left function activated, check there are 12V between contacts n.**1** and n.**2** of coil **Y105**; or replace the coil.
The first hydraulic socket doesn't work (if fitted)	Fuse **F26** blown	Check the fuse; replace if necessary
	The road/jobsite selector **S35** is turned to road	Turn to jobsite.
	The road/jobsite selector **S35** is damaged	With the selector in the jobiste position, check there are 12V on contacts n.**5** , n.**6** and on contact n.**2**; if this last signal is absent, change the selector.
	Relay **K14** damaged	Check there are 12V on pins n.**9** and n.**8** of connector **X6** located in the fuses-relays board; otherwise, change the relay.
	Switch **S32** damaged	With the switch **S32** pressed forwards, check there are 12V on contacts n.**5** and n.**1** of the switch; if this last signal is absent, change the switch.
	Solenoid valve **Y103** damaged	With the switch **S32** pressed forwards, check there are 12V between contact n.**1** and contact n.**2** of coil **Y103**. If necessary, change the coil.
The reversal of the first hydraulic socket doesn't work (if envisaged)	Fuse **F26** blown	Check the fuse; replace if necessary.
	The road/jobsite selector **S35** is turned to road	Turn to jobsite.
	The road/jobsite selector **S35** is damaged	With the selector in the jobiste position, check there are 12V on contacts n.**5** , n.**6** and on contact n.**2**; if this last signal is absent, change the selector.
	Relay **K14** damaged	Check there are 12V on pins n.**9** and n.**8** of connector **X6** located in the

Problem	Cause	Solution
		fuses-relays board; otherwise, change the relay.
	Switch **S32** damaged	With the switch **S32** pressed backwards, check there are 12V on contacts n.**5** and n.**7** of the switch; if this last signal is absent, change the switch.
	Solenoid valve **Y107** damaged	With the switch **S32** pressed backwards, check there are 12V between contact n.**1** and contact n.**2** of coil **Y107**. If necessary, change the coil.
The second hydraulic socket doesn't work (if fitted)	Fuse **F26** blown	Check the fuse; replace if necessary
	The road/jobsite selector **S35** is turned to road	Turn to jobsite
	The road/jobsite selector **S35** is damaged	With the selector in the jobiste position, check there are 12V on contacts n.**5** , n.**6** and on contact n.**2**; if this last signal is absent, change the selector.
	Relay **K14** damaged	Check there are 12V on pins n.**9** and n.**16** of connector **X6** located in the fuses-relays board; otherwise, change the relay.
	Switch **S33** damaged	With the switch **S33** pressed forwards, check there are 12V on contacts n.**5** and n.**1** of the switch; if this last signal is absent, change the switch.
	Solenoid valve **Y104** damaged	With the switch **S33** pressed forwards, check there are 12V between contact n.**1** and contact n.**2** of coil **Y104**. If necessary, change the coil.
The reversal of the second hydraulic socket doesn't work (if envisaged)	Fuse **F26** blown	Check the fuse; replace if necessary
	The road/jobsite selector **S35** is turned to road	Turn to jobsite.
	The road/jobsite selector **S35** is damaged	With the selector in the jobiste position, check there are 12V on contacts n.**5** , n.**6** and on contact n.**2**; if this last signal is absent, change the selector.

Problem	Cause	Solution
	Relay **K14** damaged	Check there are 12V on pins n.**9** and n.**16** of connector **X6** located in the fuses-relays board; otherwise, change the relay.
	Switch **S33** damaged	With the switch **S33** pressed backwards, check there are 12V on contacts n.**5** and n.**7** of the switch; if this last signal is absent, change the switch.
	Solenoid valve **Y108** damaged	With the switch **S33** pressed backwards, check there are 12V between contact n.**1** and contact n.**2** of coil **Y108**. If necessary, change the coil.
The horn does not function	Fuse **F10** blown	Check the fuse; replace if necessary
	The horn button on the lights selector **S11** is damaged	With the button pressed down, check there are 12V on connector **X11**; if no power is supplied, change the button.
	Relay **K3** damaged	With the button pressed down, check there are 12V on contacts **86** and **87** of relay **K3**. If necessary, replace the relay.
	Fuses-relays board damaged	With the button pressed down, check there are 12V on pin n.**6** of connector **X17** of the fuses-relays board; if necessary, change the board.
	Horn **B142** damaged	With the button pressed down, check there are 12V between the two contacts on the horn.
The position lights do not function	Fuse **F17** blown	Check the fuse; replace if necessary
	Position lights switch **S80** damaged	With the switch **S80** in position 1, check there are 12V on contacts n.**2** and n.**6**; if this last signal is absent, change the switch.
	Fuses-relays board damaged	With the switch **S80** in position 1, check there are 12V at the input of pin n.**2** of connector **X5** located in the board.
	Fuses **F7** and **F8** damaged	Check the fuses and replace if necessary.

Problem	Cause	Solution
	Bulbs of the position lights damaged	Check the bulbs of all the position lights and replace if necessary.
The low beams do not function	Fuse **F10** blown	Check the fuse; replace if necessary
	Low beam switch **S80** damaged	With the low beam switch **S80** in position 2, check there are 12V on contact n.**3** and on contact n.**1**; if this last signal is absent, change the switch.
	Lights selector **S11** damaged	With the low beam switch **S80** in position 2, check there are 12V on pin n.**4** and n.**5** of connector **X11** of the light selector **S11**.
	Fuses-relays board damaged	With the low beam switch **S80** in position 2, check there are 12V on pins n.**15** and n.**11** of connector **X17** of the fuses-relays board.
	Fuse **F6** blown	Check the fuse; replace if necessary
	Low beam relay **K2** damaged	Check there are 12V between contacts **86** and **85** of the relay and that contact **87** is supplied with power; if this last signal is absent, change the relay.
	Bulbs of the low beams damaged	Check the bulbs of all the lights and replace if necessary.
The high beams do not function	Fuse **F10** blown	Check the fuse; replace if necessary
	Low beam switch **S80** damaged	With the low beam switch **S80** in position 2, check there are 12V on contact n.**3** and on contact n.**1**; if this last signal is absent, change the switch
	Lights selector **S11** damaged	With the low beam switch **S80** in position 2 and the lights selector turned to the high beam position, check there are 12V on pins n.**3** and n.**4** of connector **X11** of the lights selector **S11**.
	Fuses-relays board damaged	With the low beam switch **S80** in position 2 and the lights selector turned to the high beam position, check there are 12V on pins n.**4** and n.**16** of connector **X17** of the fuses-relays board.

Problem	Cause	Solution
	Fuse **F15** blown	Check the fuse; replace if necessary.
	Bulbs of the high beams damaged	Check the bulbs of all the lights and replace if necessary.
The turn signals do not function	On/off flash **K23** damaged	With the turn signals on, check there are 12V on pins n.**12** and n.**13** of connector **X9** of the fuses-relays board. If there is no power on pin n.**13**, change the on/off flash **K23**.
	Lights selector **S11** damaged	Check there are 12V on pin n.**11** of connector **X11** ci siano 12 V and, by operating the turn signals alternately, check there are 12V on pins n.**10** and n.**9** of connector **X11**. If the signal of the last power outputs fails, change the lights selector.
	Turn signals' lamps damaged	Check the bulbs of all the lights and replace if necessary
The beacon does not function	Fuse **F11** blown	Check the fuse; replace if necessary
	Fuses-relays board damaged	Check there are 12V on pin n.**5** of connector **X9**; or change the board.
	Beacon **E304** damaged	Check there are 12V on the power contact of beacon **E304**; or change the beacon.
The warning lights and the indicators on the indicator lights panel don't work	Fuse **F8** blown	Check the fuse; replace if necessary
	Fuses-relays board damaged	Check there are 12V on pin n.**11** of connector **X5**; if the signal fails, change the fuses-relays board.
The fuel gauge does not function	Fuel gauge float damaged	Connect to ground the violet-black wire connected to float **B125** and verify that the fuel gauge indicator reaches the bottom of the scale. If the indicator reaches the bottom of the scale, change the float.
	Fuel gauge indicator damaged	Connect to ground the violet-black wire connected to float **B125** and verify that the fuel gauge indicator reaches the bottom of the scale. If the indicator doesn't reach the bottom of the scale,

Problem	Cause	Solution
		change the indicator.
The fuel reserve light doesn't work	Fuel gauge float damaged	Connect to ground the pink-white wire connected to float **B125** and verify that the fuel reserve light comes on. If the light comes on, change the float.
	Fuel gauge indicator damaged	Connect to ground the pink-white wire connected to float **B125** and verify that the fuel reserve light comes on. If the light doesn't come on, change the light.
The engine coolant temperature indicator doesn't work	Bulb of the engine coolant temperature **B121** damaged	Connect to ground the grey-blue wire on bulb **B121** and verify that the indicator reaches the bottom of the scale; should this be the case, change the bulb.
	Engine coolant temperature indicator damaged	Connect to ground the grey-blue wire on bulb **B121** and verify that the indicator reaches the bottom of the scale. If not, change the engine coolant temperature indicator.
The warning light signalling a high temperature of the engine coolant doesn't work	Bulb of the engine coolant temperature **B121** damaged	Connect to ground the grey-red wire on bulb **B121** and verify that the warning light comes on; should this occur, change the bulb.
	Warning light signalling a high temperature of the engine coolant damaged	Connect to ground the grey-red wire on bulb **B121** and verify that the warning light comes on. Should this not be the case, change the warning light.
The water in fuel warning light doesn't function	Water in fuel sensor damaged	Check there are 12V between contacts n.**1** and n.**2** of sensor **B113**, then check that the light comes on when contact n.**3** of sensor **B113** is connected to ground. If the light comes on, change the sensor.
	Water in fuel sensor warning light damaged	Check there are 12V between contacts n.**1** and n.**2** of sensor **B113**, then check that the light comes on when contact n.**3** of sensor **B113** is connected to ground. If the light doesn't come on, change the light.

Problem	Cause	Solution
The warning light signalling a hydraulic oil filter restriction doesn't work	Hydraulic oil filter restriction sensor **B313** damaged	Connect to ground the light blue-green wire connected to sensor **B313**. If the light comes on, change the sensor.
	Hydraulic oil filter restriction warning light damaged	Connect to ground the light blue-green wire connected to sensor **B313**. If the light doesn't come on, change the light.
The hydraulic oil temperature indicator does not function	Fuse **F9** blown	Check the fuse; replace if necessary
	Hydraulic oil temperature sensor **B123** damaged	Connect to ground the grey-black wire on the hydraulic oil temperature sensor **B123** and verify the indicator reaches the bottom of the scale. If this occurs, change the sensor.
	Hydraulic oil temperature indicator **P75** damaged	Connect to ground the grey-black wire on the hydraulic oil temperature sensor **B123** and verify the indicator reaches the bottom of the scale. If this doesn't occur, change indicator **P75**.
The warning light signalling a low hydraulic oil level doesn't work	Low hydraulic oil level sensor **B124** damaged	Connect to ground the blue-white wire on the low hydraulic oil sensor **B124** and verify if the light comes on. Should this be the case, change the sensor.
	Low hydraulic oil level warning light damaged	Connect to ground the blue-white wire on the low hydraulic oil sensor **B124** and verify if the light comes on. Should this not be the case, change the light.
The air filter restriction warning light doesn't work	Air filter restriction sensor **B152** damaged	Connect to ground the light blue-yellow wire on the air filter restriction sensor **B152** and check if the light comes on. Should this be the case, change the sensor.
	Air filter restriction warning light damaged	Connect to ground the light blue-yellow wire on the air filter restriction sensor **B152** and check if the light comes on. Should this not be the case, change the light.

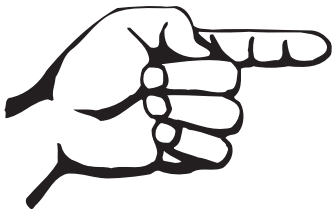
Problem	Cause	Solution
The warning light of the parking brake doesn't work	The parking brake has not been engaged	Engage the parking brake.
	Pressure switch **S6** damaged	Short out contact n.**1** and contact n.**2** of connector **X61** on the pressure switch and verify the relevant warning light comes on: If the light comes on, change the pressure switch.
	Parking brake warning light damaged	Short out contact n.**1** and contact n.**2** of connector **X61** on the pressure switch and verify the relevant warning light comes on: If the light doesn't come on, change it.
The heating fan doesn't work	Fuse **F2** blown	Check the fuse; replace if necessary
	Heating fan switch **S82** damaged	Check there are 12V on contact n.**3** of the switch; by turning the switch to position 1, check there are 12V on contact n.**5** and, by turning the switch to position2, there are 12V on contact n.**1**. In the absence of power in one of the last two conditions, change the switch.
	Motor of the heating fan **M305** damaged	With switch **S82** in position 1, check there are 12V between contacts n.**1** and n.**4** of connector **X305** located on the motor of the heating fan. With switch **S82** in position 2, check there are 12V between contacts n.**1** and n.**3** of connector **X305**. If there is power and the fan doesn't work, change the motor of the heating fan **M305**.
The display of the overload warning system does not turn on	Fuse **F25** blown	Check the fuse; replace if necessary.
	The DLE display is not supplied with power	Check there are 12V between contacts n.**1** and n. **2** of connector **X1** on the display.
The overload warning system is blocked (red LED's on)	Connecting cord damaged or wrongly plugged in	Check the connecting cord is not interrupted and is properly plugged in the relevant seat.
	Poor stability conditions	Using the overload warning system disconnect key, move the boom in to safe conditions, then turn the machine off and on again.

Problem	Cause	Solution
Alarm codes displayed by the overload warning system display	Code **1**: E2PROM error.	Turn power off and on and RESET the system. If the error message is still shown, contact TEREXLIFT Service Centre to re-calibrate the unit.
	Code **2**: **CELL 1** reading beyond the work range	Check the wiring between control panel and load cell; check that the load cell is fixed correctly. Check that between pins n.**9** and n.**10** of connector **X1** on the DLE you can read a value between 0.1 mV with the boom fully in up to 2.5 mV with the boom fully out. Verify that this voltage variation is proportional to the boom extension.
	Code **4**: Block relay error during operation (this alarm can occur also in the absence of failures if the overload warning system disconnect key is used)	Check that the overload warning system disconnect key is not activated; if so, deactivate. With the machine blocked, check there are 0V on pins n.**7** and n.**18** of connector **X1** on the DLE, and 12V on the same two pins with the machine in normal work conditions.
	Code **5-6-7-8:** Block relay error when power is turned on.	Check the wires and the block relay for shorts. Turn the machine off and on again to test the efficiency of all the outputs. If the alarm persists, change the DLE.

5.4 PROBLEMS-CAUSES-SOLUTIONS - THREE-POINT HITCH (if any)

Problem	Cause	Solution
The three-point hitch does not work	Filter restricted. No oil. Pilot valve damaged. Internal linkage defective.	Clean or renew the filter. Replenish the tank. Change the valve. Have an authorised repair shop check the three-point linkage.
The three-point hitch jerks while lifting.	Low oil level. Oil filter restricted. Air infiltration in the suction line.	Replenish. Clean or renew the filter. Check that couplings are tight and seals are in efficient order.
The three-point hitch starts lifting then stops and the pressure relief valve does not trigger.	The controlled effort rod is maladjusted.	Adjust.
The three-point hitch does not hold the load up. With the engine running, the load oscillates.	Wrong adjustment of the sensitivity of the distributor pin. Poor tightness or drain valve blocked. Relevant seals damaged. Poor tightness of the cylinder oil valve. Oil blow-by through the seals of the lifting piston or the cylinder seal.	Check the adjustment of the distributor pin. Dismantle and check the seals; clean and repair any defective parts. Dismantle, check and clean the parts. Change the seals.
With the lifting arms fully up, the pressure relief valve triggers.	Wrong adjustment of the sensitivity.	Adjust.
The lifting capacity is lower than the one rated.	Pressure relief valve not calibrated. Cylinder safety valve not calibrated. Poor efficiency of the pump with increase of the lifting time.	Check and adjust. Check and adjust. Replace the pump.

Problem	Cause	Solution
With the controlled effort activated, the equipment does not remain down to the desired depth.	The controlled effort rod is maladjusted. The reaction spring is broken or defective. The internal linkage is broken.	Adjust. Check or replace. Have an authorised repair shop check the three-point linkage.
The controlled position does not work. The three-point linkage system can be operated only with the controlled effort lever.	The internal linkage is broken.	Have an authorised repair shop check the three-point linkage.
The three-point linkage system remains blocked in the up position .	The lever of the distributor shaft is broken.	Have an authorised repair shop check the three-point linkage.
The three-point linkage system remains blocked in the down position.	The distributor shaft is blocked. The return spring is broken.	Have an authorised repair shop check the three-point linkage. Have an authorised repair shop check the three-point linkage.



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Section 6
SCHEMES

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6.1 HYDRAULIC SYMBOLS

MOTORS


Fixed motor with one direction of flow


Fixed motor with two directions of flow


Variable motor with two directions of flow


Reversible fixed motor with two directions of flow

PUMP


Fixed displacement pump with one direction of flow


Fixed displacement pump with two directions of flow


Variable displacement pump with one direction of flow

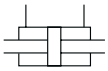

Variable displacement pump with flow regulator

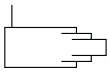
CYLINDERS


Single-acting cylinder


Single-acting cylinder with spring return


Double-acting cylinder


Double-acting cylinder with bilateral rod


Telescopic cylinder

COMMANDS AND CONTROLS


Shaft rotating in one direction


Shaft rotating in two directions


Hand-operated control


Hand-operated control with pushbutton


Hand-operated control with lever

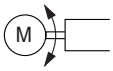

Hand-operated control with pedal


Mechanical control with pushbutton


Mechanical control with spring


Mechanical control with roller


Electro-magnetic control with winding (solendoid)



Control with electric motor


Direct pressure control


Indirect (piloted) pressure control


Control with electromagnet and piloted distributor

PIPES AND CONNECTIONS

Induction and return pipe

Piloting pipe

Blow-by pipe


Flexible hose

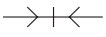

Connecting point

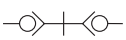

Pipe cross without connection


Breather


Closed pressure fitting


Pressure fitting with connected pipe


Quick fitting


Quick fitting with check valves

DISTRIBUTION - SETTING ELEMENTS


Non-return valve


Calibrated non-return valve


Unlockable non-return valve


Combined non-return and throttle valve


Switching valve

Pressure relief valve with direct control

Pressure relief valve with hydraulic control

Pressure reducing valve

Sequence valve

Adjustable throttle valve

Two-way flow regulator

Cut-out cock

POWER SOURCES

Electric motor

Thermal engine

OTHER EQUIPMENT

Accumulator

Water tank

Compressor

Filter

Cooler

Pressure gauge

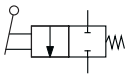
Thermometer

Flowmeter

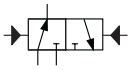
Pressure switch

Drain to tank indication

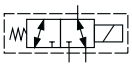
DISTRIBUTION - SETTING ELEMENTS



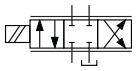
Two-position and two-way distributor, with manual lever control and spring return



Three-way and two-position distributor, with hydraulic control



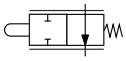
Two-position, three-way distributor, with electro-magnetic control and spring return



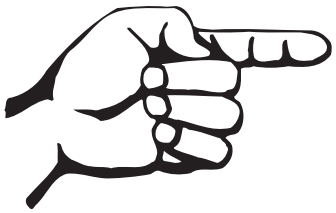
Distributor with mechanical control and span proportional to the action of the same control



Two-position, three-way distributor, with representation of transient connection during passage phase



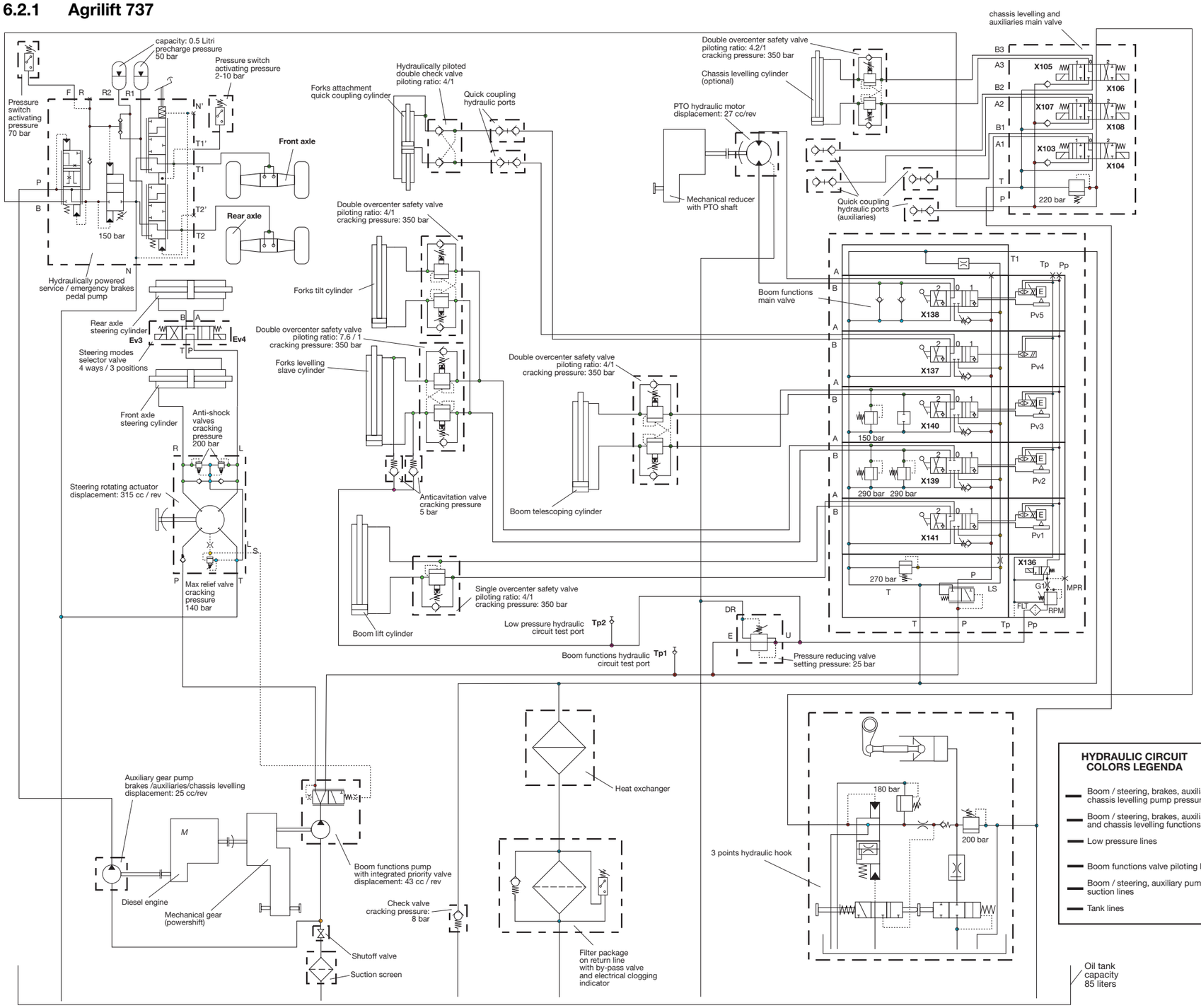
Electro-hydraulic single-acting servo valve



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6.2 HYDRAULIC SCHEME

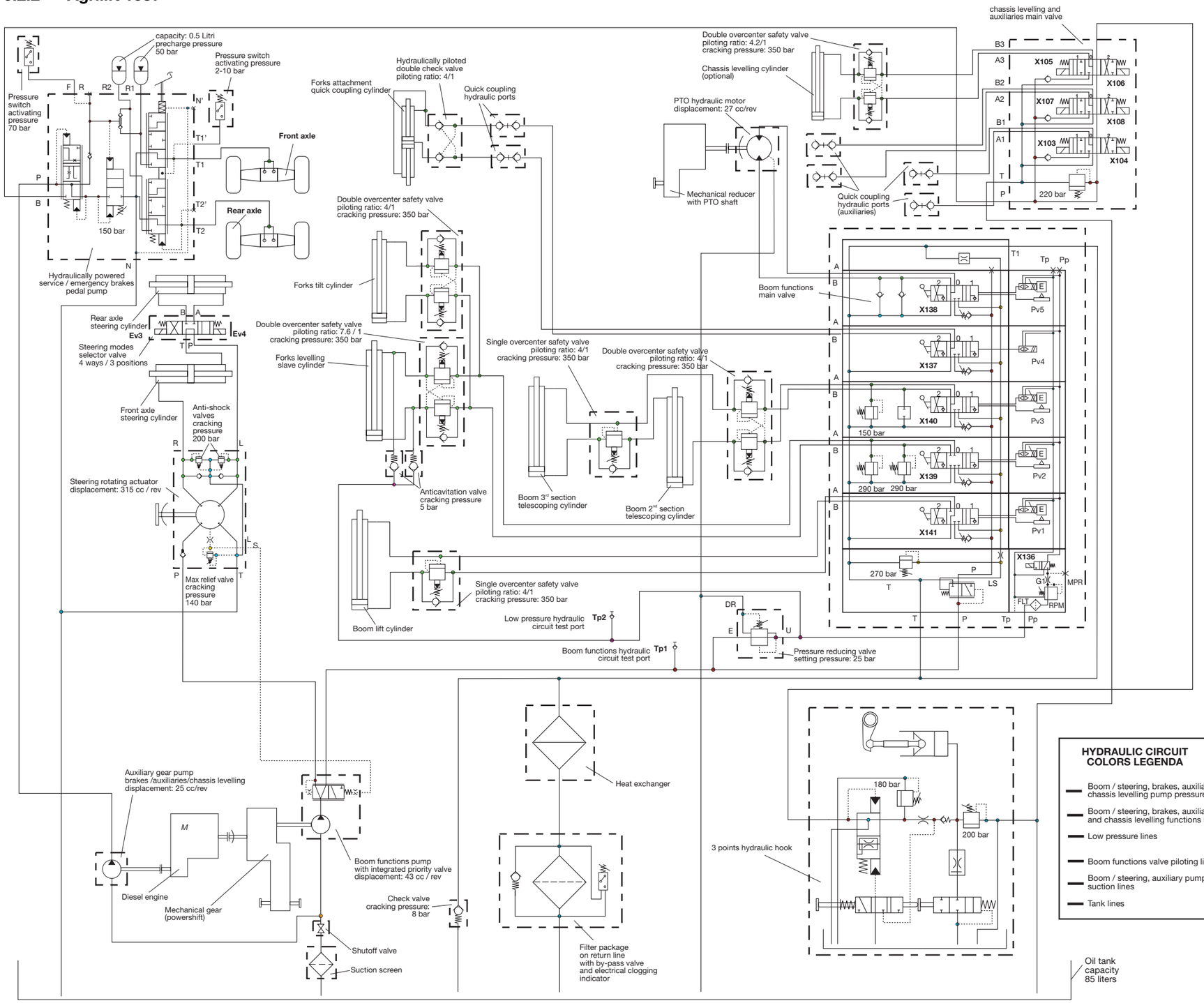
6.2.1 Agrilift 737



CAUTION

Initials "X..." shown next to the solenoid valves are exactly the same present on the machine.

6.2.2 Agrilift 1037



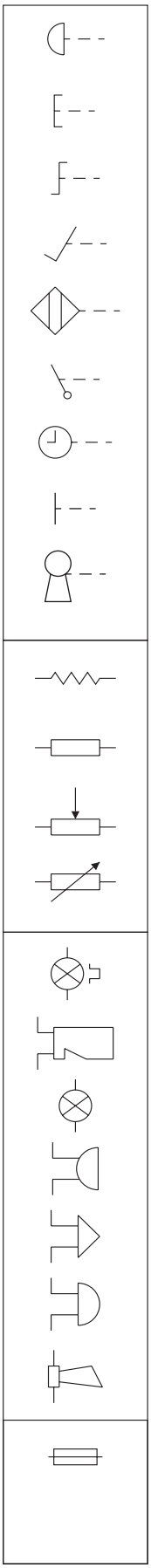
HYDRAULIC CIRCUIT COLORS LEGENDA

- Boom / steering, brakes, auxiliaries, chassis levelling pump pressure lines
- Boom / steering, brakes, auxiliaries, and chassis levelling functions lines
- Low pressure lines
- Boom functions valve piloting lines
- Boom / steering, auxiliary pumps suction lines
- Tank lines

CAUTION

Initials "X..." shown next to the solenoid valves are exactly the same present on the machine.

6.3 ELECTRICAL SYMBOLS

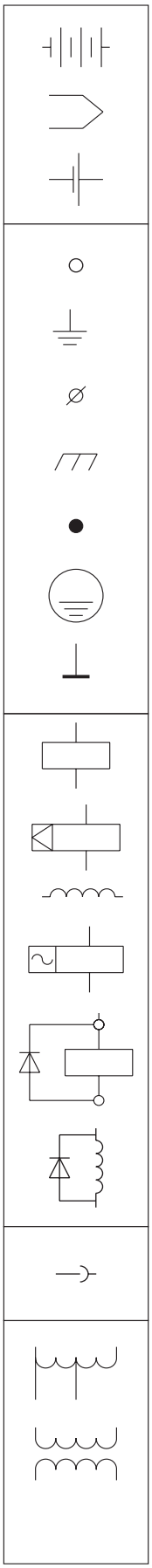


ACTUATORS
Emergency controls
Pushbutton control
Rotary control
Pedal control
Proximity control
Lever control
Timed control
Mechanical/manual control
Key control

RESISTANCES
Resistance
Resistor
Potentiometer
Variable resistance

SIGNALS
Intermittent lamp
Whistle
Lamp
Buzzer
Siren
Bell
Horn

FUSES AND RELAYS
Horizontal fuse
Relay



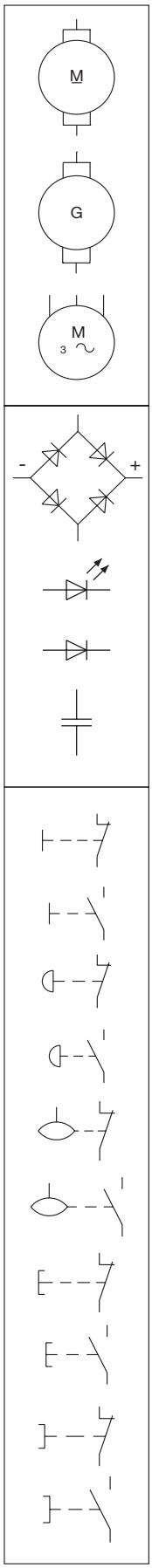
ACCUMULATORS
Battery
Thermocouple
Element

TERMINALS AND GROUNDS
Ring
Ground
Terminal
Ground to frame
Knot
Protection ground
Frame ground 2

COILS
Coil
Mechanical coupling coil
Winding
A/C coil
Coil with diode
Winding with diode

CONNECTORS
Connector

STATIC APPLICATIONS
Auto-transformer
Transformer



DYNAMIC APPLICATIONS
Motor
Generator
As_3p_motor

ELECTRONIC PARTS
Rectifier
Light-emitting diode
Diode
Condenser

PUSHBUTTONS
Manual NC contact
Manual NO contact
NC mushroom-head pushbutton
NO mushroom-head pushbutton
NC level
NO level
Pushbutton with NC return
Pushbutton with NO return
NC tie-rod
NO tie-rod

CONTACTS


Thermal


Normally open (NO)


Normally closed (NC)


NO limit switch


NC limit switch


Contactor

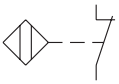

Magneto-thermal closure


Magneto-thermal opening


Thermal closure

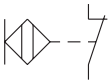

Thermal opening


Exchange


NC proximity


NO proximity


NO mechanical

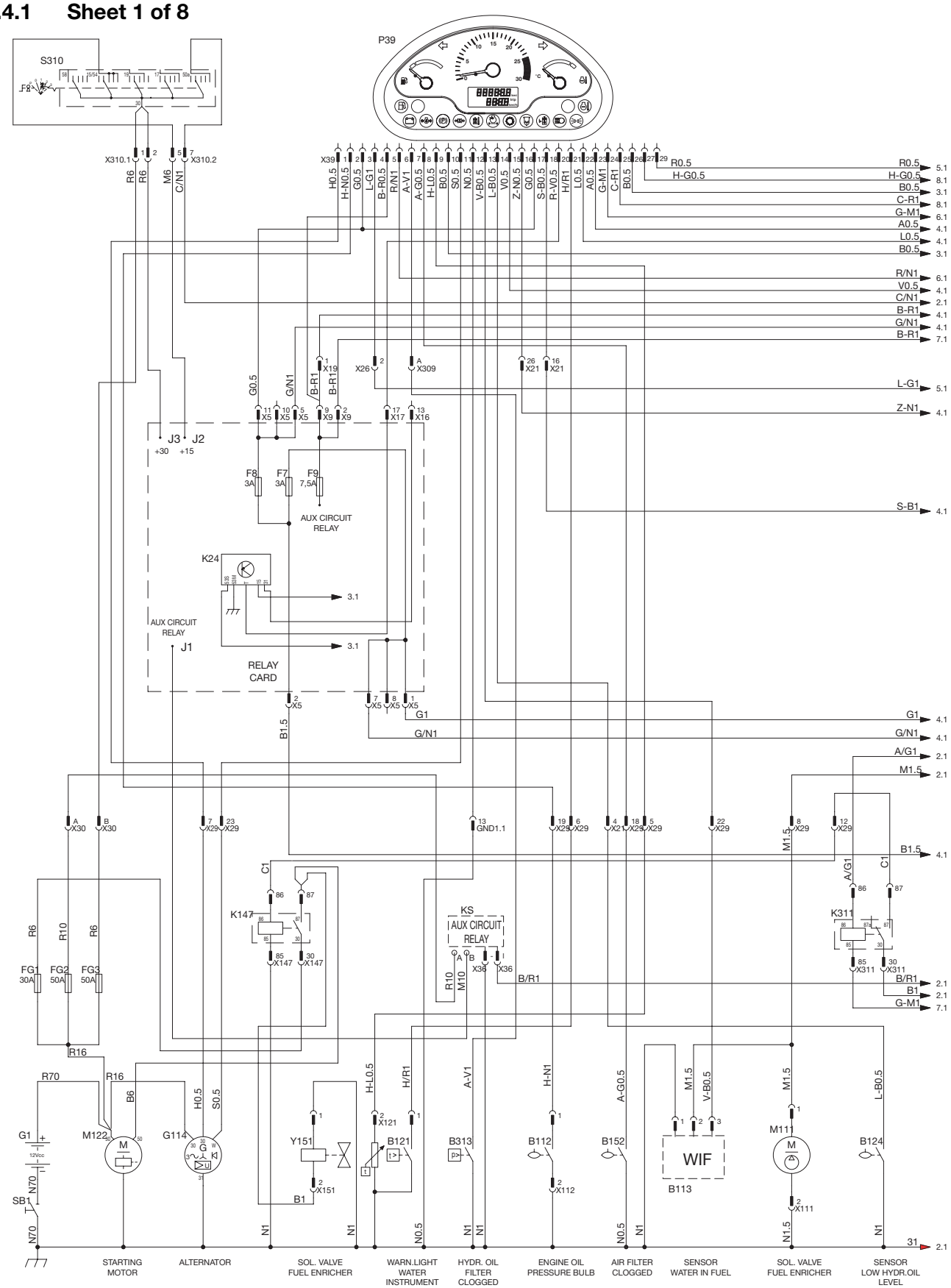

NC mechanical


Selector

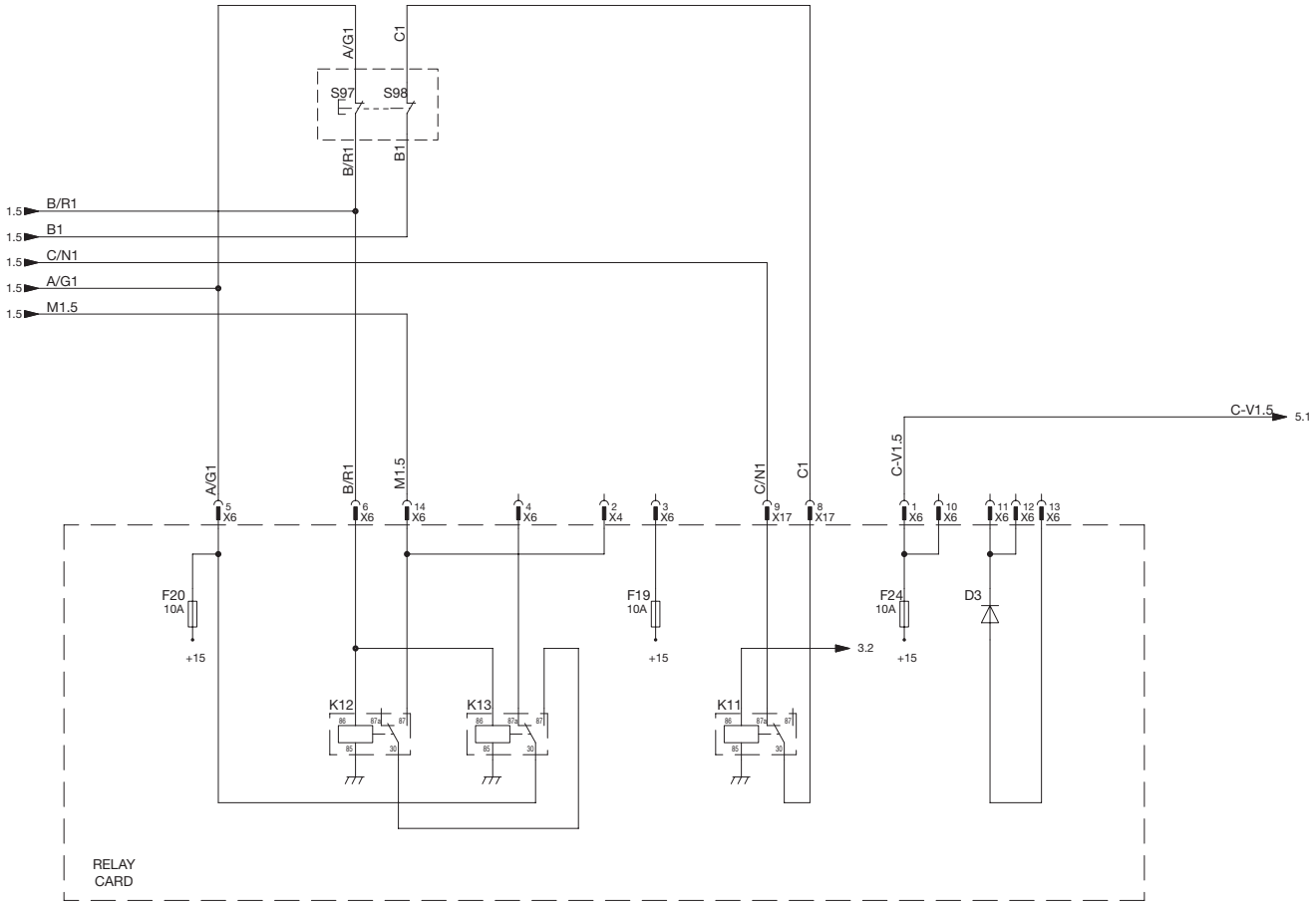

Selector2

6.4 WIRING DIAGRAMS

6.4.1 Sheet 1 of 8

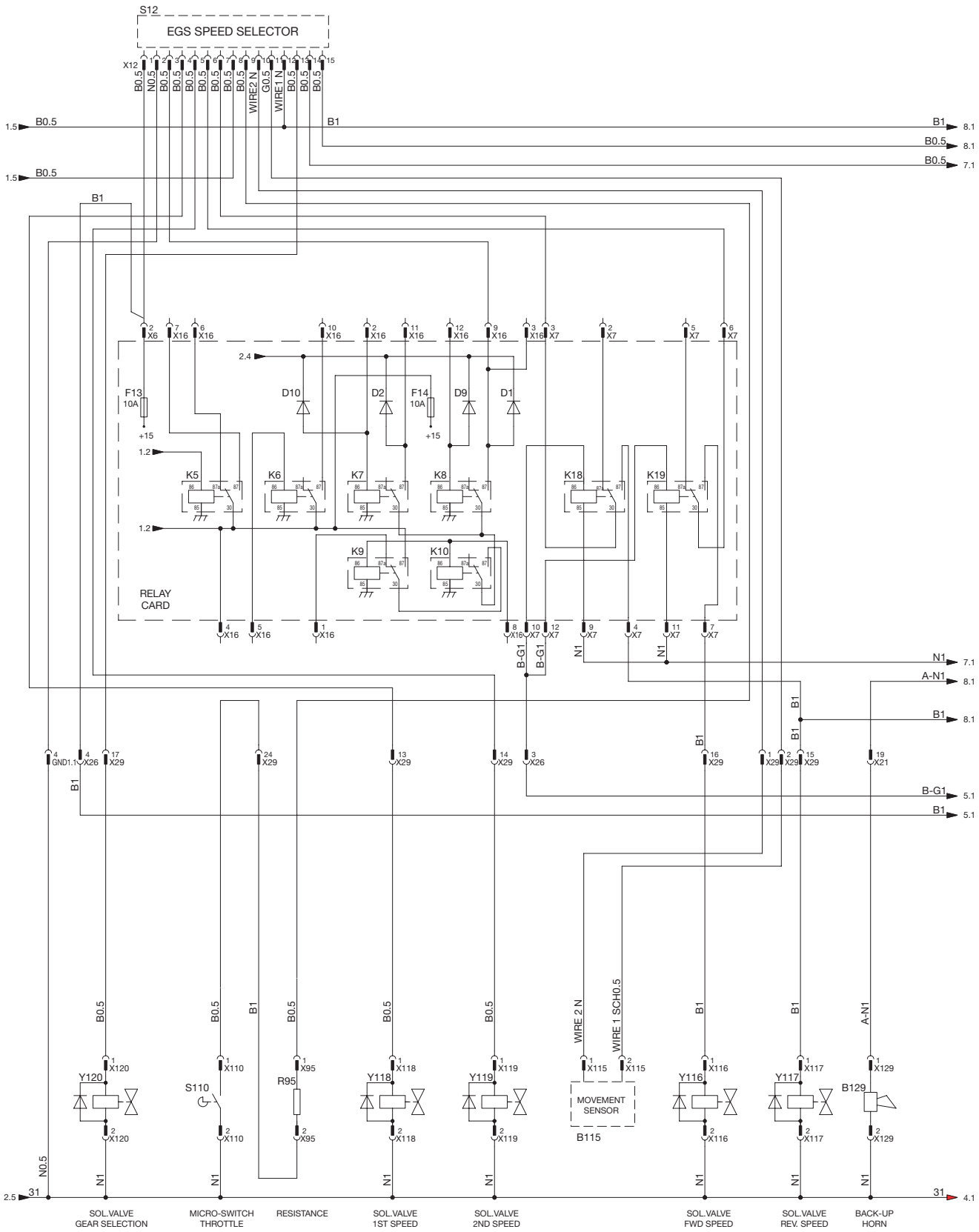


6.4.2 Sheet 2 of 8

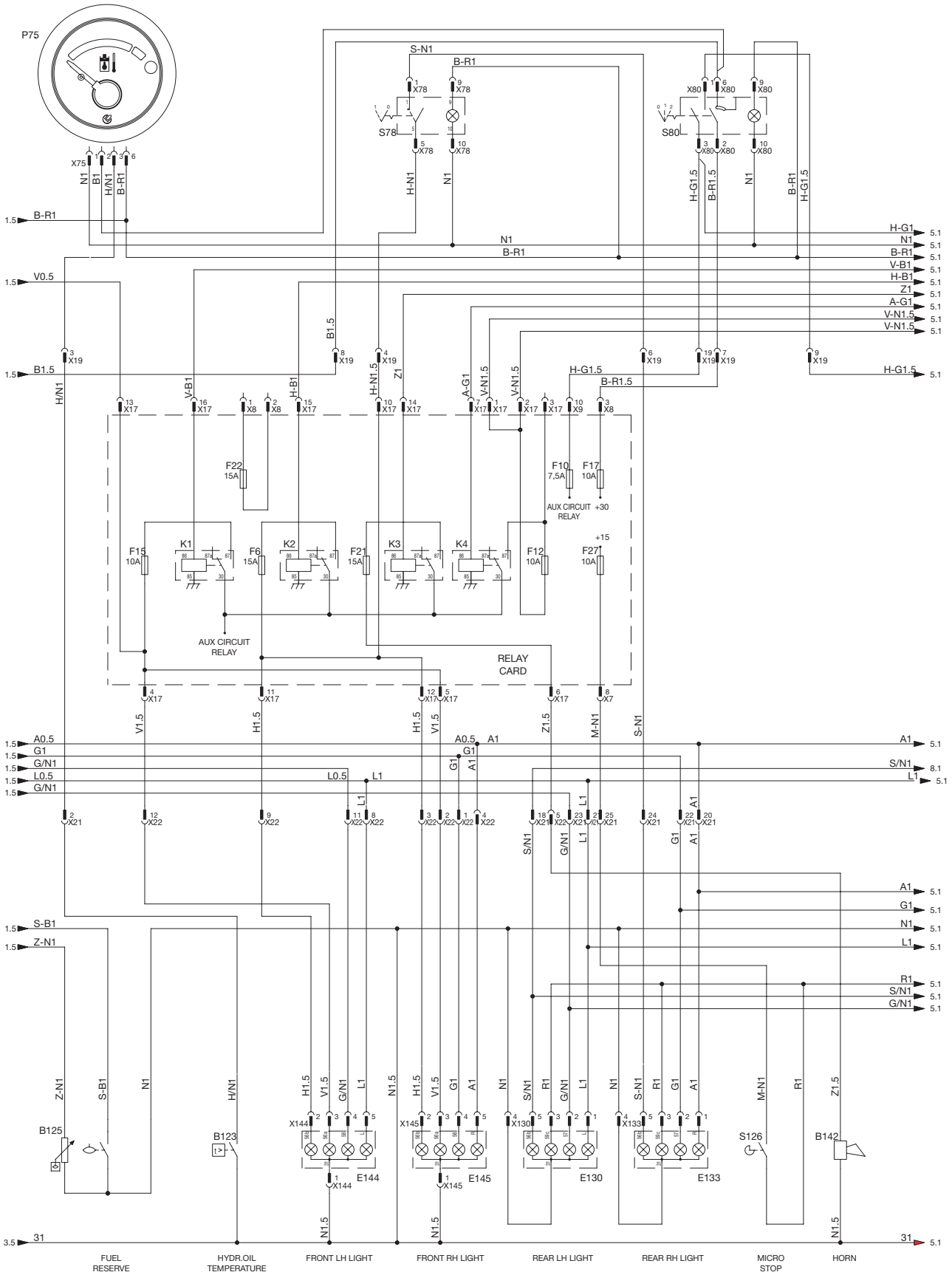


1.5 31 31 3.1

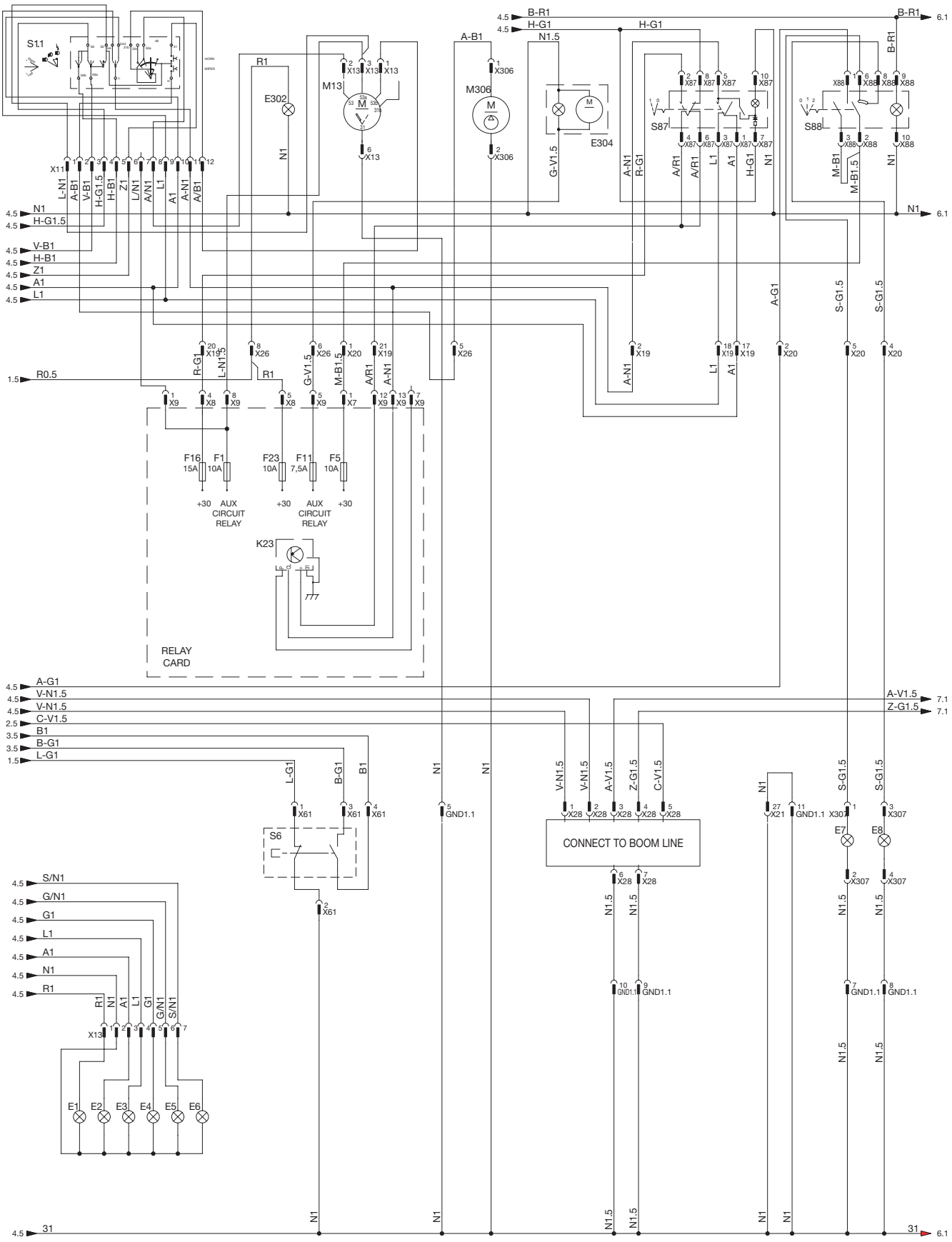
6.4.3 Sheet 3 of 8



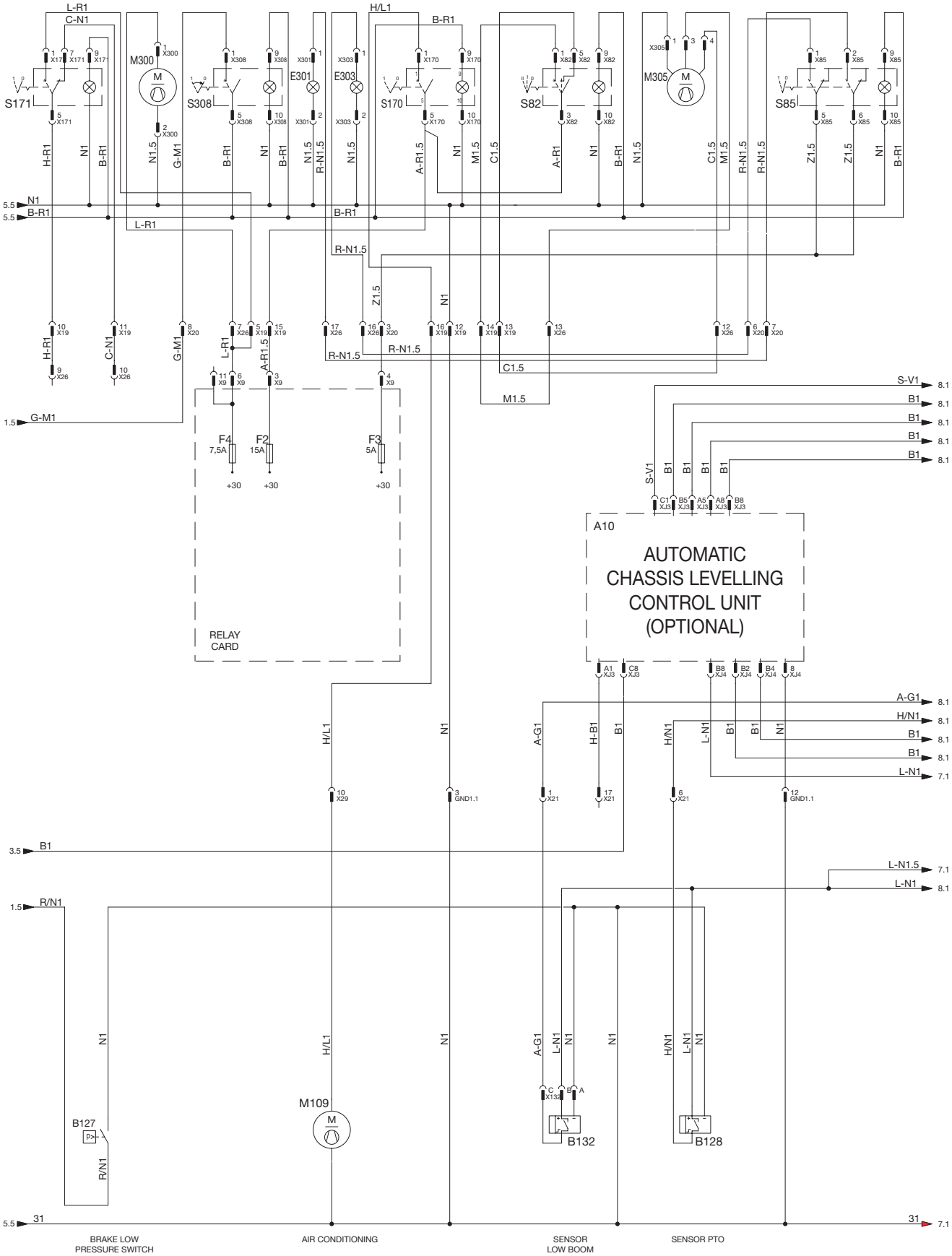
6.4.4 Sheet 4 of 8



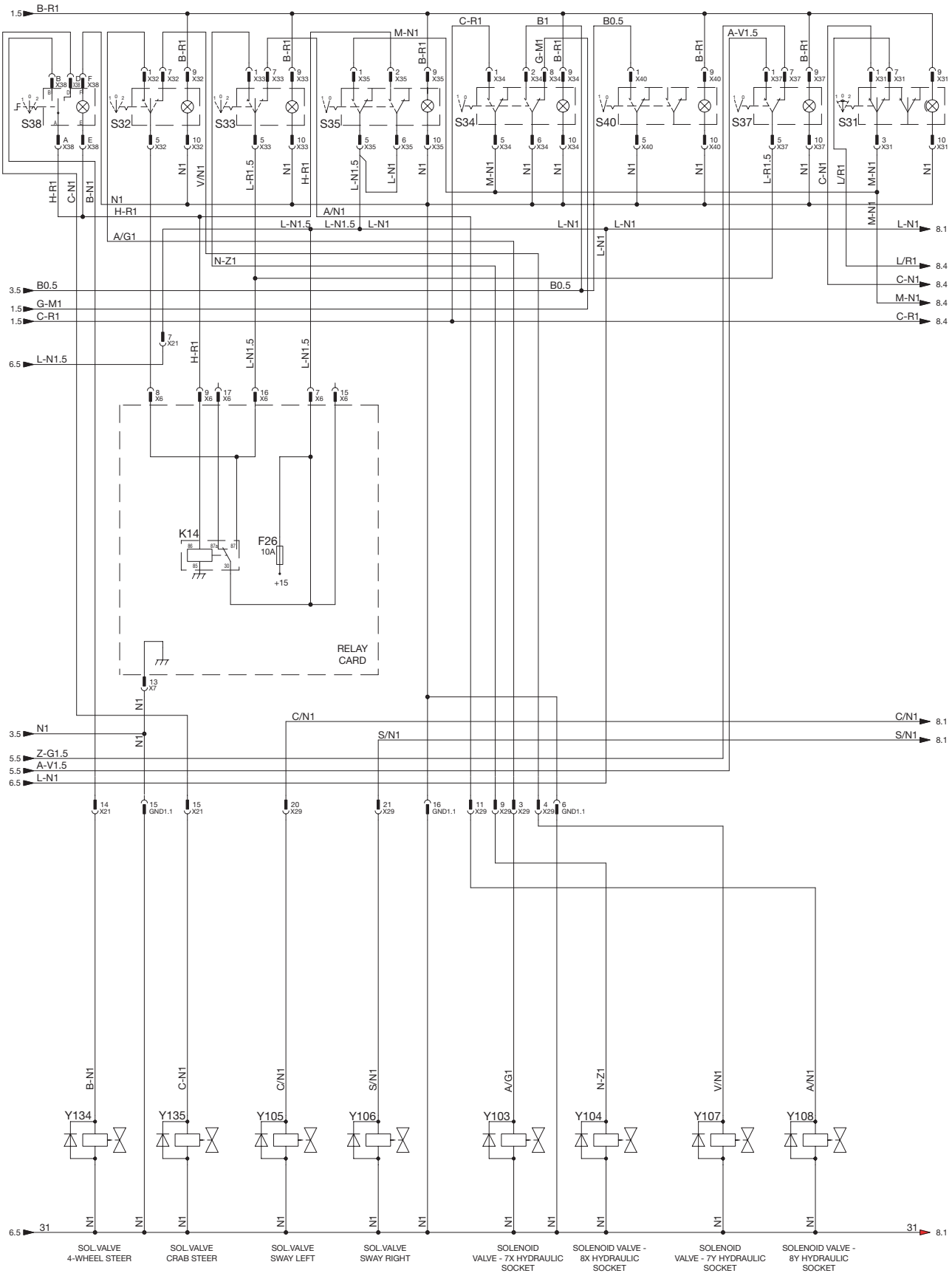
6.4.5 Sheet 5 of 8



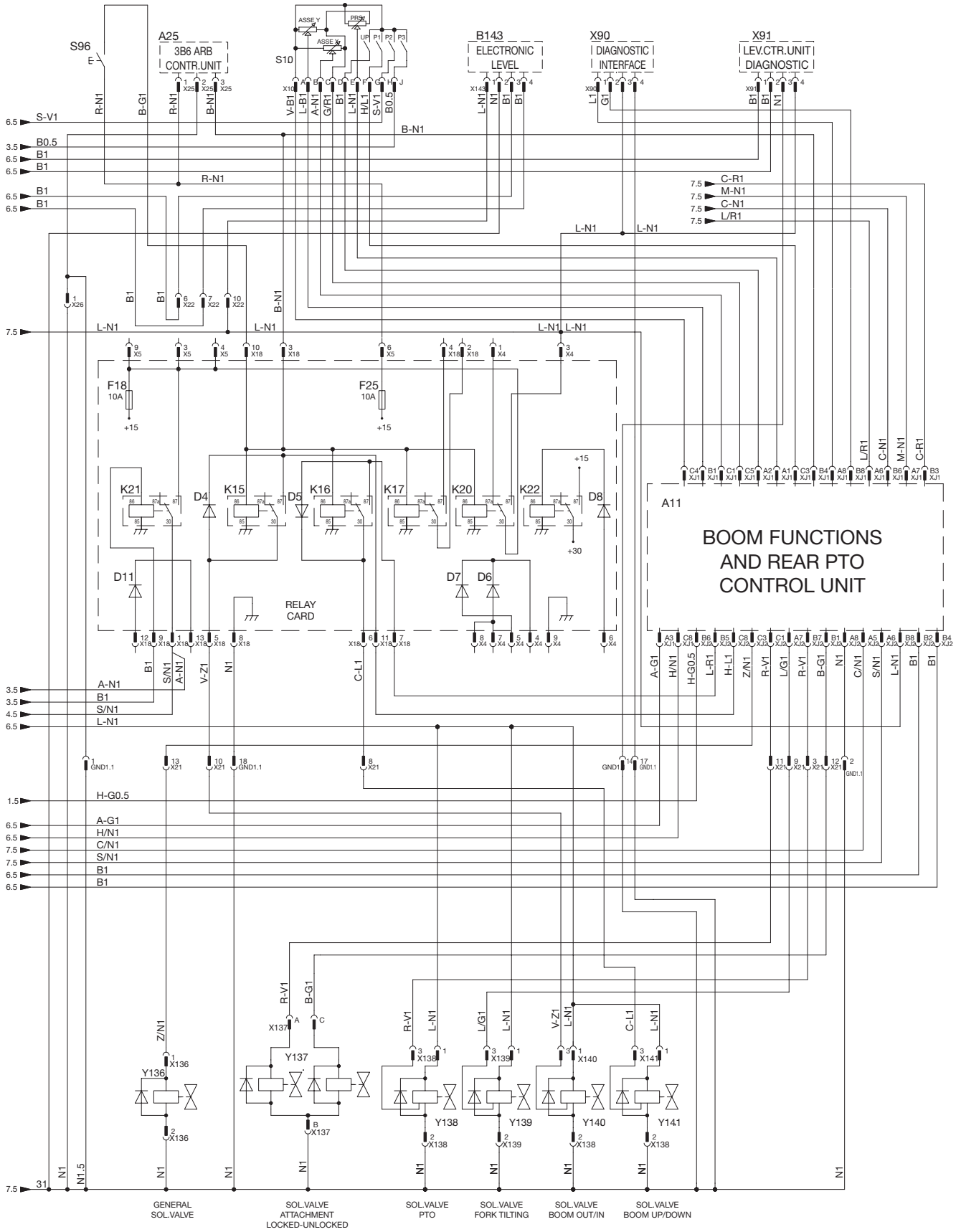
6.4.6 Sheet 6 of 8



6.4.7 Sheet 7 of 8



6.4.8 Sheet 8 of 8



6.4.9 Wiring diagram - Component description

Ref	Description	Sheet
A10	AUTOMATIC CHASSIS LEVELLING CONTROL UNIT (OPTIONAL)	6
A11	BOOM FUNCTIONS AND REAR PTO CONTROL UNIT	8
A25	3B6 CONTROL UNIT	8
B112	ENGINE OIL PRESSURE BULB	1
B113	WATER IN FUEL SENSOR	1
B115	MOVEMENT SENSOR	3
B121	WARNING LIGHT: WATER INSTRUMENT	1
B123	HYDRAULIC OIL TEMPERATURE	4
B124	LOW HYDRAULIC OIL LEVEL SENSOR	1
B125	FUEL RESERVE	4
B127	BRAKE LOW PRESSURE SWITCH	6
B128	PTO SENSOR	6
B129	BACK-UP HORN	3
B132	LOW BOOM SENSOR	6
B142	BACK-UP HORN	4
B143	ELECTRONIC WATER LEVEL	8
B152	AIR FILTER CLOGGED	1
B313	HYDRAULIC OIL FILTER CLOGGED	1
E1	STOP LIGHT	5
E2	RIGHT TURN SIGNAL	5
E3	LEFT TURN SIGNAL	5
E4	RIGHT POSITION LIGHT	5
E5	LEFT POSITION LIGHT	5
E6	BACK-UP LAMPS	5
E7	FRONT WORK LIGHT	5
E8	FRONT WORK LIGHT	5
E130	REAR LH LIGHT	4
E133	REAR RH LIGHT	4
E144	FRONT LH LIGHT	4
E145	FRONT RH LIGHT	4
E301	REAR RH WORK LIGHT	6
E302	CAB INTERIOR LAMP	5
E303	REAR LH WORK LIGHT	6
E304	BEACON	5
F1	FUSE: FRONT WIPER AND LIGHTS SWITCH (10A)	5
F2	FUSE: HEATER AND A/C SYSTEM SWITCH (15A)	6
F3	FUSE: REAR WORK LIGHTS SWITCH (5A)	6
F4	FUSE: REAR WIPER (7,5A)	6
F5	FUSE: FRONT WORK LIGHTS SWITCH (10A)	5
F6	FUSE: LOW BEAM (15A)	4
F7	FUSE: FRONT RH POSITION LIGHTS (3A)	1
F8	FUSE: FRONT LH POSITION LIGHTS (3A)	1
F9	FUSE: POWER SUPPLY - INSTRUMENTS AND SWITCH LIGHTS (7,5A)	1
F10	FUSE: POSITION LIGHTS (7,5A)	4
F11	FUSE: BEACON (7,5A)	5
F12	FUSE: BOOM WORK LIGHTS (10A)	4
F13	FUSE: POWER SUPPLY – SPEED SELECTOR AND TRANSMISSION DISENGAGEMENT (10A)	3
F14	NOT USED	3
F15	FUSE: HIGH BEAM (10A)	4
F16	FUSE: WARNING SWITCH (15A)	5
F17	FUSE: POSITION LIGHTS SWITCH (10A)	4
F18	NOT USED	8
F19	NOT USED	2
F20	FUSE: EMERGENCY MUSHROOM-HEAD PUSHBUTTON (10A)	2
F21	FUSE: BACK-UP HORN (15A)	4
F22	NOT USED	4
F23	FUSE: CAB INTERIOR LAMP (10A)	5
F24	FUSE: MAINTENANCE JIB AND WINCH SWITCH (10A)	2
F25	3B6 CONTROL UNIT – OVERLOAD WARNING SYSTEM SELECTOR (10A)	8
F26	FUSE: TECNORD CONTROL UNIT – HYDR. SOCKET SWITCH RELAY - BOOM UP/DOWN SOLENOID VALVE - FORKS SOLENOID VALVE - PTO SOLENOID VALVE - BOOM OUT/IN SOLENOID VALVE (10A)	7
F27	FUSE: STOP LIGHTS MICRO-SWITCH (10A)	4
FG1	30A GENERAL FUSE	1
FG2	50A GENERAL FUSE	1
FG3	50A GENERAL FUSE	1
G1	BATTERY	1
G114	ALTERNATOR	1
GND1.1	MIC 70 18-WAY CONNECTOR	3
H127	WARNING LIGHT: BRAKE LOW	6
K1	RELAY: HIGH BEAM	4
K2	RELAY: LOW BEAM	4
K3	RELAY: HORN	4
K4	RELAY: BOOM WORK LIGHTS	4
K5	RELAY: NOT MOUNTED	3
K6	RELAY: NOT MOUNTED	3
K7	RELAY: NOT MOUNTED	3
K8	RELAY: NOT MOUNTED	3
K9	RELAY: NOT MOUNTED	3
K10	RELAY: NOT MOUNTED	3
K11	RELAY: IGNITION ENABLING	2
K12	RELAY: ELECTROSTOP	2
K13	RELAY: ELECTROSTOP	2
K14	RELAY: HYDRAULIC SOCKET SWITCHES	7
K15	RELAY: BOOM OUT/IN	8
K16	RELAY: BOOM UP/DOWN	8
K17	RELAY: NOT MOUNTED	8
K18	RELAY: FWD SPEED DISENGAGEMENT	3
K19	RELAY: RELAY: REVERSE SPEED DISENGAGEMENT	3
K20	RELAY: NOT MOUNTED	8
K21	RELAY: RELAY: BUZZER AND BACK-UP LIGHTS	8
K22	RELAY: NOT MOUNTED	8
K23	INTERMITTENCE	5
K24	CONTROL UNIT – NOT MOUNTED	1

Ref	Description	Sheet
K147	RELAY: IGNITION	1
K311	RELAY: IGNITION SAFETY	1
KS	RELAY: AUX CIRCUITS	1
M13	FRONT WINDSCREEN WIPER/WASHER MOTOR	5
M109	AIR CONDITIONING	6
M111	INJECTION PUMP	1
M122	STARTING MOTOR	1
M300	REAR WINDSCREEN WIPER/WASHER	6
M305	HEATER	6
M306	WINDSCREEN WASHER PUMP	5
P39	FRONT INSTRUMENT	1
P75	HYDR.OIL TEMPERATURE INSTRUMENT	4
R95	1KOHM 2W RESISTANCE	3
S6	PARKING BRAKE PRESSURE SWITCH	5
S10	TECNORD CONTROL LEVER	8
S11	LIGHTS SWITCH	5
S12	SPEED SELECTOR	3
S31	SWITCH - LEVELLING	7
S32	SWITCH - HYDRAULIC SOCKET 1	7
S33	SWITCH - HYDRAULIC SOCKET 2	7
S34	SWITCH - PTO	7
S35	SWITCH - ROAD/SITE	7
S37	SWITCH - BOOM OPTIONAL DEVICES	7
S38	SWITCH - STEERING	7
S40	SWITCH - AUTO/MANUAL SELECTION	7
S78	SWITCH - REAR FOG LAMP	4
S80	SWITCH - POSITION LIGHTS	4
S82	SWITCH - HEATER	6
S85	SWITCH - REAR WORK LIGHTS	6
S87	WARNING SWITCH	5
S96	ARB SEG. FORCING	8
S97	STOP BUTTON +50	2
S98	EMERGENCY PUSHBUTTON	2
S110	THROTTLE MICRO-SWITCH	3
S126	STOP MICRO-SWITCH	4
S170	SWITCH - AIR CONDITIONER	6
S171	SWITCH - REAR WINDSCREEN WIPER/WASHER	6
S308	INSTRUMENT MODE SWITCH	6
S310	START-UP PANEL	1
SB1	BATTERY CUTOUT	1
X4	9-WAY MARK CONNECTOR	
X5	11-WAY MARK CONNECTOR	
X6	17-WAY MARK CONNECTOR	
X7	13-WAY MARK CONNECTOR	
X8	5-WAY MARK CONNECTOR	
X9	13-WAY MARK CONNECTOR	
X10	DEUTSCH 9-WAY POWER CONNECTOR	
X11	12-WAY DEUTSCH CONNECTOR	
X12	15-WAY MATE'N'LOCK CONNECTOR	
X13	6-WAY CONNECTOR	
X16	13-WAY MARK CONNECTOR	
X17	17-WAY MARK CONNECTOR	
X18	13-WAY MARK CONNECTOR	
X19	21-WAY MARK CONNECTOR	
X20	9-WAY MARK CONNECTOR	
X21	40-WAY DEUTSCH CONNECTOR - TYPE A	
X22	12-WAY DEUTSCH CONNECTOR	
X25	8-WAY DEUTSCH CONNECTOR	
X26	17-WAY MARK CONNECTOR	
X28	8-WAY DEUTSCH CONNECTOR	
X29	24-WAY DEUTSCH CONNECTOR	
X30	2-WAY CONNECTOR	
X31	JPT 10-WAY CONNECTOR	
X32	JPT 10-WAY CONNECTOR	
X33	JPT 10-WAY CONNECTOR	
X34	JPT 10-WAY CONNECTOR	
X35	JPT 10-WAY CONNECTOR	
X36	2-WAY 90° CONNECTOR	
X37	JPT 10-WAY CONNECTOR	
X38	CONNECTOR FOR MERIT SWITCH	
X39	TYCO 37-WAY CONNECTOR	
X40	JPT 10-WAY CONNECTOR	
X61	5-WAY MARK CONNECTOR	
X75	6-WAY DEUTSCH CONNECTOR	
X78	JPT 10-WAY CONNECTOR	
X80	JPT 10-WAY CONNECTOR	
X82	JPT 10-WAY CONNECTOR	
X85	JPT 10-WAY CONNECTOR	
X87	11-WAY CONNECTOR	
X88	11-WAY CONNECTOR	
X90	4-WAY DEUTSCH CONNECTOR - DIAGNOSTIC INTERFACE	8
X91	4-WAY DEUTSCH CONNECTOR - LEVELLING CONTROL UNIT DIAGNOSTIC SYSTEM	8
X95	2-WAY CONNECTOR	
X103	2-WAY DEUTSCH CONNECTOR	
X104	2-WAY DEUTSCH CONNECTOR	
X105	2-WAY DEUTSCH CONNECTOR	
X106	2-WAY DEUTSCH CONNECTOR	
X107	2-WAY DEUTSCH CONNECTOR	
X108	2-WAY DEUTSCH CONNECTOR	
X110	2-WAY DEUTSCH CONNECTOR	
X111	2-WAY CONNECTOR	
X112	2-WAY CONNECTOR	
X113	2-WAY CONNECTOR	
X115	2-WAY CONNECTOR	
X116	2-WAY DEUTSCH CONNECTOR	
X117	2-WAY DEUTSCH CONNECTOR	
X118	2-WAY DEUTSCH CONNECTOR	
X119	2-WAY DEUTSCH CONNECTOR	
X120	2-WAY DEUTSCH CONNECTOR	
X121	2-WAY CONNECTOR	
X128	3-WAY DEUTSCH CONNECTOR	
X129	2-WAY DEUTSCH CONNECTOR	
X130	6-WAY DEUTSCH CONNECTOR	
X131	8-WAY DEUTSCH CONNECTOR	
X132	3-WAY DEUTSCH CONNECTOR	
X133	6-WAY DEUTSCH CONNECTOR	

Ref	Description	Sheet
X134	2-WAY DEUTSCH CONNECTOR	
X135	2-WAY DEUTSCH CONNECTOR	
X136	3-WAY CONNECTOR	
X137	3-WAY CONNECTOR	
X138	3-WAY CONNECTOR	
X139	3-WAY CONNECTOR	
X140	CONNECTOR - BOOM OUT/IN SOLENOID VALVE	
X141	CONNECTOR - BOOM UP/DOWN SOLENOID VALVE	
X143	4-WAY DEUTSCH CONNECTOR	
X144	6-WAY DEUTSCH CONNECTOR	
X145	6-WAY DEUTSCH CONNECTOR	
X147	4-WAY MATE'N'LOCK CONNECTOR	
X151	3-WAY CONNECTOR	
X170	JPT 10-WAY CONNECTOR	
X171	JPT 10-WAY CONNECTOR	
X300	2-WAY CONNECTOR	
X301	2-WAY CONNECTOR	
X303	2-WAY CONNECTOR	
X305	4-WAY CONNECTOR	
X306	2-WAY 90° CONNECTOR	
X307	4-WAY CONNECTOR	
X308	JPT 10-WAY CONNECTOR	
X309	3-WAY DEUTSCH CONNECTOR	
X310.1	4-WAY CONNECTOR	
X310.2	11-WAY CONNECTOR	
X311	COMBINATI 1 5-WAY CONNECTOR	
XJ1	24-WAY DEUTSCH CONNECTOR	
XJ2	24-WAY DEUTSCH CONNECTOR	
XJ3	24-WAY DEUTSCH CONNECTOR	
XJ4	24-WAY DEUTSCH CONNECTOR	
Y103	SOLENOID VALVE - 7X HYDRAULIC SOCKET	7
Y104	SOLENOID VALVE - 8X HYDRAULIC SOCKET	7
Y105	SOLENOID VALVE - SWAY LEFT	7
Y106	SOLENOID VALVE - SWAY RIGHT	7
Y107	SOLENOID VALVE - 7Y HYDRAULIC SOCKET	7
Y108	SOLENOID VALVE - 8Y HYDRAULIC SOCKET	7
Y116	SOLENOID VALVE - FORWARD SPEED	3
Y117	SOLENOID VALVE - REVERSE SPEED	3
Y118	SOLENOID VALVE - 1ST SPEED	3
Y119	SOLENOID VALVE - 2ND SPEED	3
Y120	SOLENOID VALVE - GEAR SELECTION	3
Y134	SOLENOID VALVE - FOUR-WHEEL STEER	7
Y135	SOLENOID VALVE - CRAB STEER	7
Y136	GENERAL SOLENOID VALVE	8
Y137	SOLENOID VALVE - ATTACHMENT LOCKED-UNLOCKED	8
Y138	SOLENOID VALVE - PTO	8
Y139	SOLENOID VALVE - FORK TILTING	8
Y140	SOLENOID VALVE - BOOM OUT/IN	8
Y141	SOLENOID VALVE - BOOM UP/DOWN	8
Y151	FUEL ENRICHER SOLENOID VALVE	1

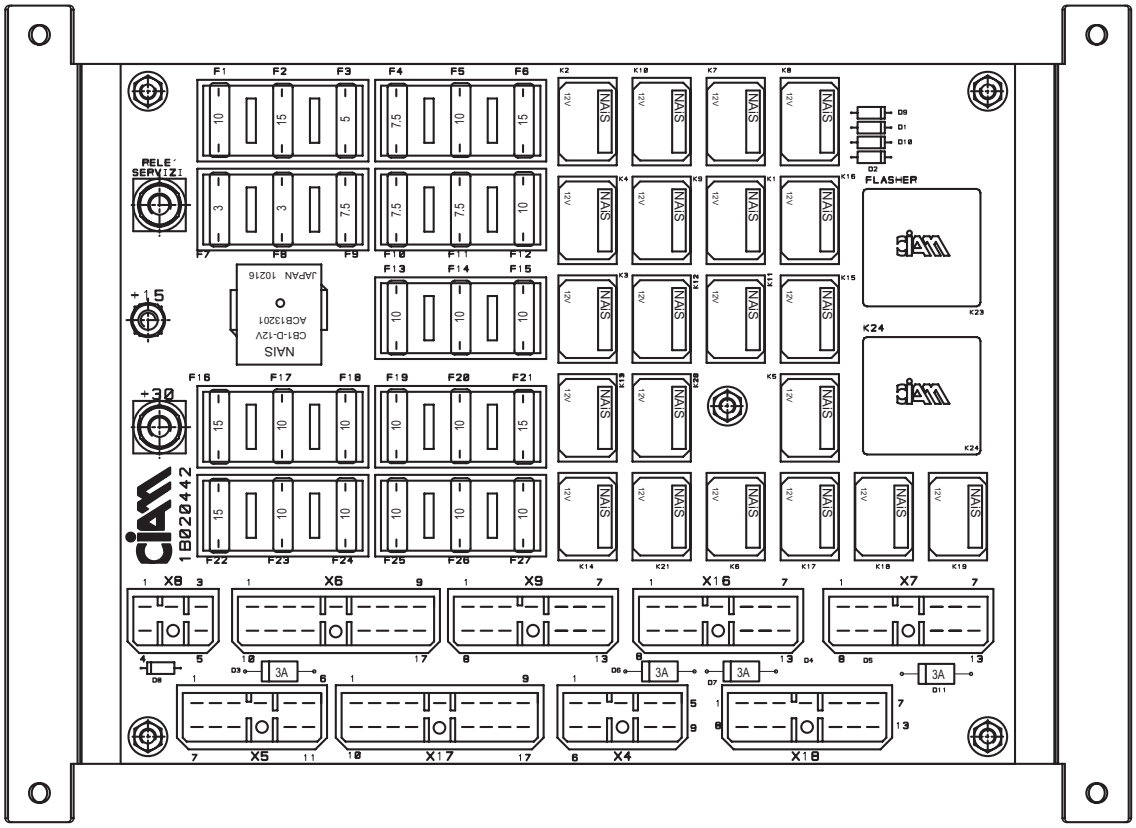
WIRE COLOURS

A LIGHT BLUE
B WHITE
C ORANGE
G YELLOW
H GREY
L BLUE
M BROWN
N BLACK
R RED
S PINK
V GREEN
Z PURPLE

REMARK: Two-colour wires are indicated through a combination of the aforesaid initials as follows:

G/V = YELLOW/GREEN (crosswise colouring)
G-V = YELLOW-GREEN (lengthswise colouring)

6.4.10 Fuses and relays board

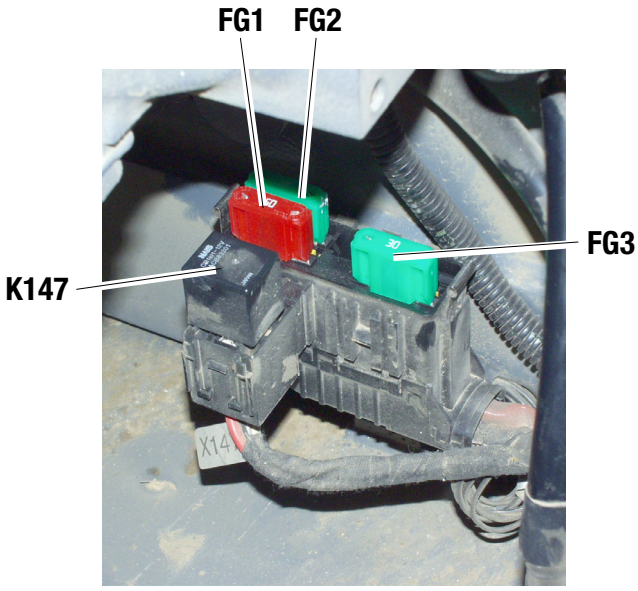


Pos.	Description	Amp.
F1	FUSE - FRONT WIPER AND LIGHTS SWITCH	10A
F2	FUSE - CAB HEATING AND A/C SWITCH	15A
F3	FUSE - REAR WORK LIGHTS SWITCH	5A
F4	FUSE - REAR WIPER	7.5A
F5	FUSE - FRONT WORK LIGHTS SWITCH	10A
F6	FUSE - LOW BEAM	15A
F7	FUSE - FRONT RH POSITION LIGHTS	3A
F8	FUSE - FRONT LH POSITION LIGHTS	3A
F9	FUSE - INSTRUMENTS AND SWITCH LIGHTS POWER SUPPLY	7.5A
F10	FUSE - POSITION LIGHTS	7.5A
F11	FUSE - BEACON	7.5A
F12	FUSE - BOOM WORK LIGHTS	10A
F13	FUSE - SPEED SEIECTOR AND TRANSMISSION DISENGAGEMENT POWER SUPPLY	10A
F14	NOT USED	
F15	FUSE - HIGH BEAM	10A
F16	FUSE - HAZARD WARNING LIGHS SWITCH	15A
F17	FUSE - POSITION LIGHTS SWITCH	10A
F18	NOT USED	
F19	NOT USED	
F20	FUSE - CAB EMERGENCY BUTTON	10A

Pos.	Description	Amp.
F21	FUSE - BACK-UP HORN	15A
F22	NOT USED	
F23	FUSE - CAB INTERIOR LIGHTING	10A
F24	FUSE - MAINTENANCE JIB AND WINCH SWITCH	10A
F25	FUSE - 3B6 CONTROL UNIT - OVERLOAD WARNING SYSTEM SELECTOR	10A
F26	FUSE - TECNORD CONTROL UNIT - HYDRAULIC SOCKET SWITCH RELAY - BOOM UP/DOWN MOV. SOLENOID VALVE - FORK SOLENOID VALVE - PTO SOLENOID VALVE - BOOM OUT//IN MOV. SOLENOID VALVE	10A
F27	FUSE - STOP MICRO-SWITCH	10A
FG1	MAIN FUSE	30A
FG2	MAIN FUSE	50A
FG3	MAIN FUSE	50A

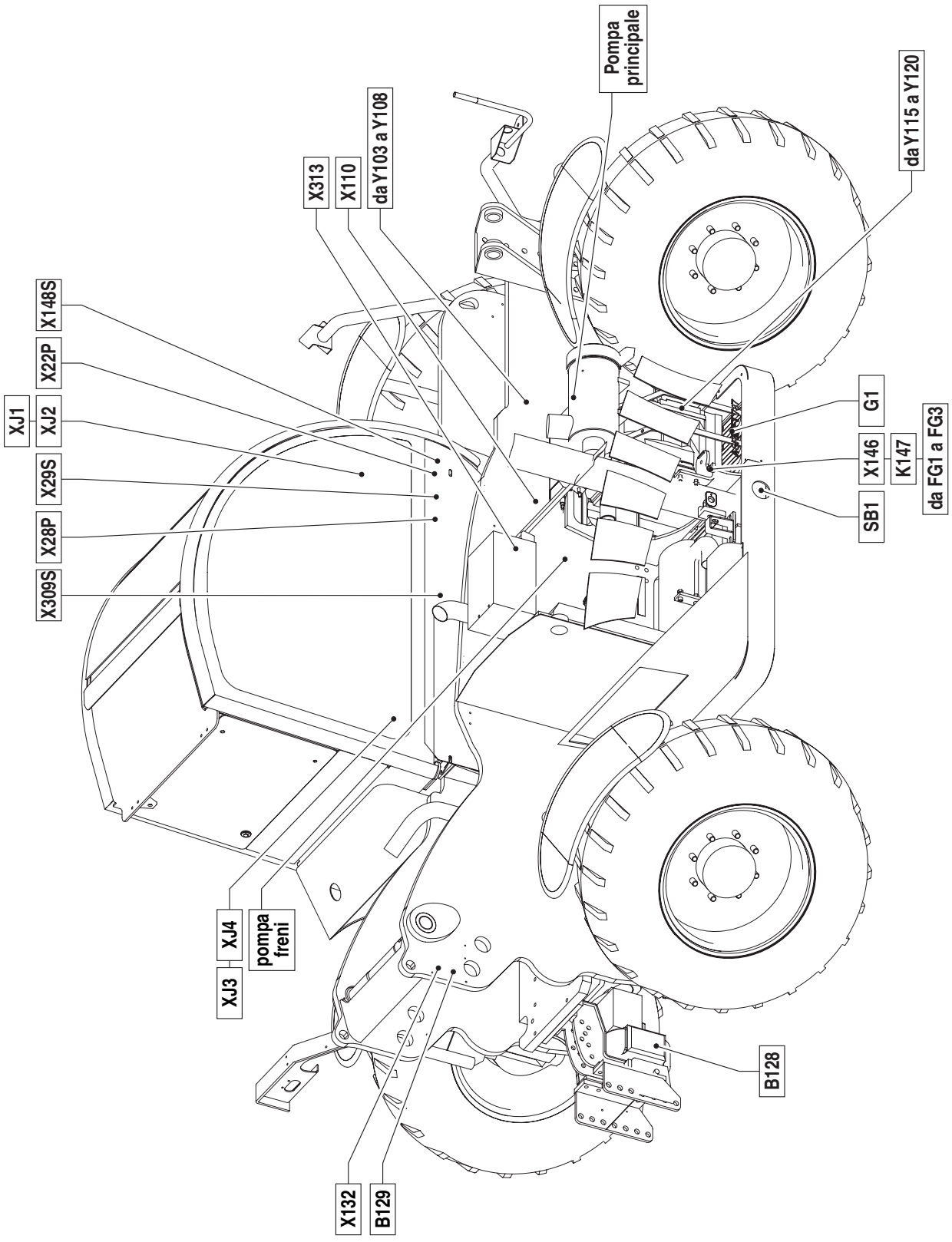
6.4.11 Engine compartment fuses and relays

Ref.	Circuit	Amp.
FG1	Main fuse	30
FG2	Main fuse	50
FG3	Main fuse	50
K147	Relay - start-up	

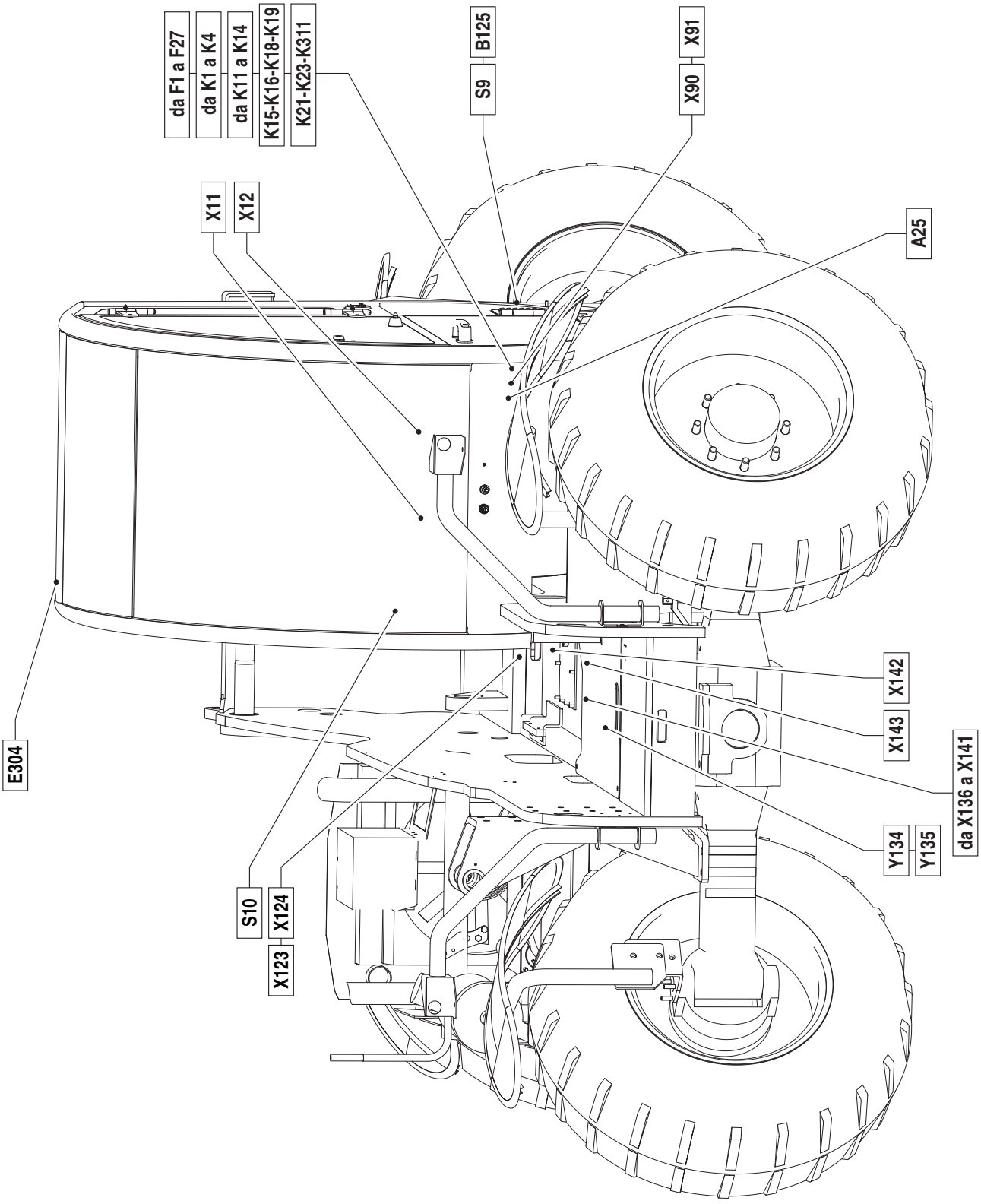


6.5 POSITION OF THE ELECTRICAL AND HYDRAULICAL COMPONENTS ON THE MACHINE

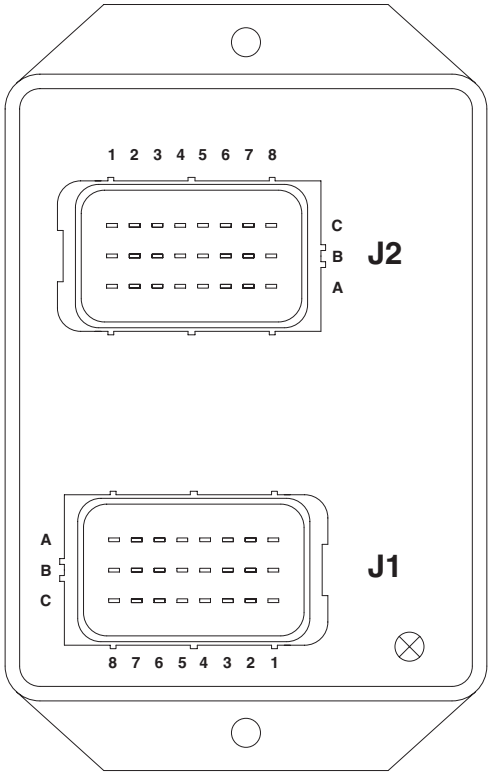
Agrilift 737-1037



Agrilift 737-1037



6.6 TECNORD CONTROL UNIT CONNECTIONS



CONNECTOR J1 - INPUT SIGNALS

1A = boom out/in signal (+ 2.5V with joystick in central position, from 0.7V to 4.25V when the joystick is moved)
2A = dead man from cabin (5V with button pressed down)
3A = low boom signal (12V with boom at less than 2 metres and sensor excited)
4A = blank
5A = blank
6A = sway left (12V)
7A = road/site selector (12V with selector turned to site)
8A = TX RS232

1B = boom up/down signal (+ 2.5V with joystick in central position, from 0.7V to 4.25V when the joystick is moved)
2B = blank
3B = ingresso interruttore PTO switch input (12V when the switch is operated)
4B = overload signal (12V when the machine is not in alarm)
5B = blank
6B = sway right (12V)
7B = blank
8B = RX RS232
1C = fork rotation signal (+ 2.5V with joystick in central position, from 0.7V to 4.25V when the joystick is moved)
2C = blank
3C = movement selector button (5V with white button pressed down)
4C = potentiometer common line (5V)
5C = ground
6C = blank
7B = blank
8B = PTO speed sensor signal

CONNECTOR J2 - OUTPUT SIGNALS

1A = blank
2A = blank
3A = blank
4A = blank
5A = sway left
6A = sway right
7A = fork rotation signal
8A = ground

1B = attachment locking signal
2B = RS 485-
3B = blank
4B = RS 485+
5B = boom lift/lower signal
6B = PTO rpm output
7B = PTO solenoid valve output
8B = 12V with inserted key

1C = attachment block signal
2C = blank
3C = general solenoid valve on distributor (12V)
4C = blank
5C = blank
6C = blank
7B = blank
8B = boom out/in signal

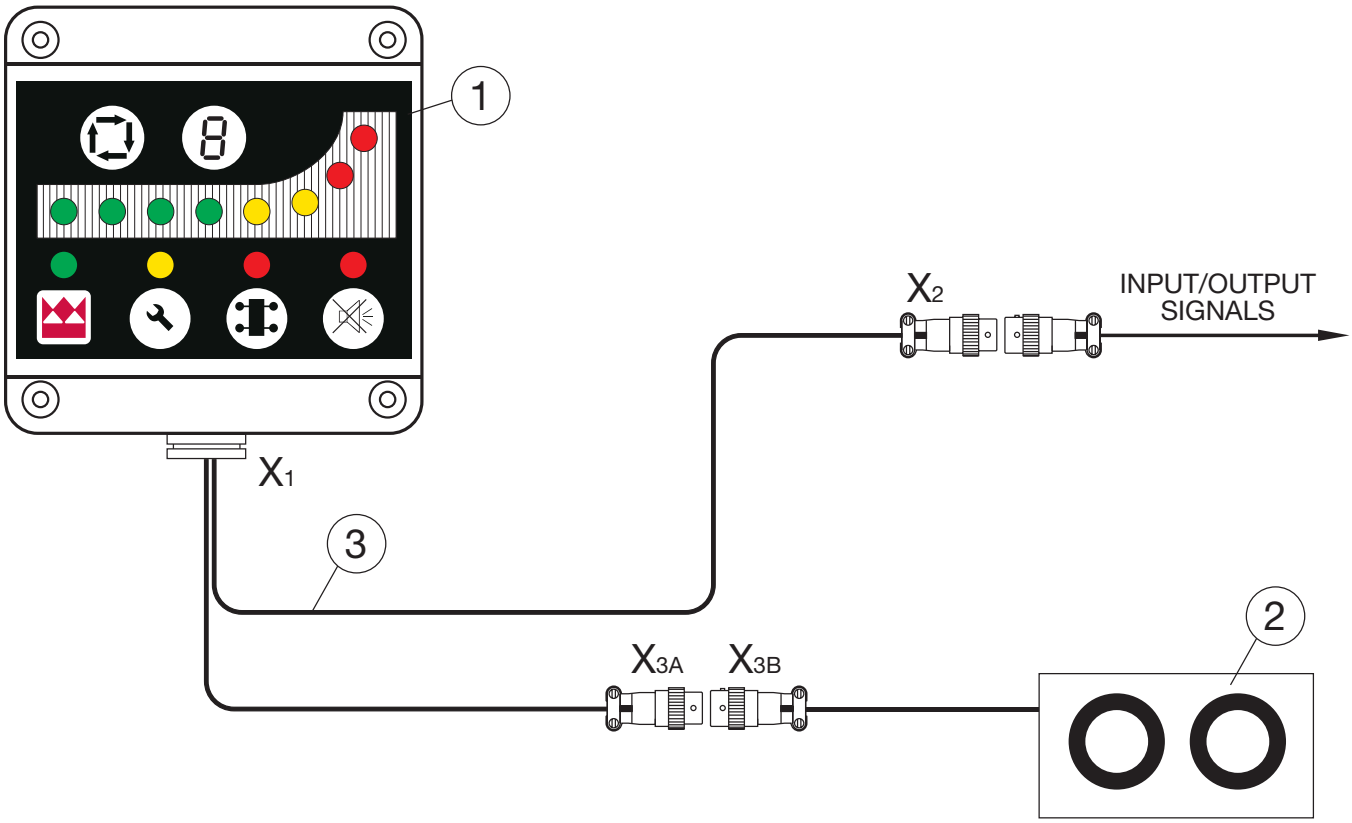
SUMMARISING TABLE OF THE VOLTAGE VALUES OF THE BOOM MOVEMENTS

	Up	Down	Out	In	Fork rotation - open	Fork rotation - close
Joystick in rest position 2.5V	•	•	•	•	•	•
0.7V		•		•		•
4.25V	•		•		•	

In order to lock/unlock the attachments, there shall be 12V available for both movements

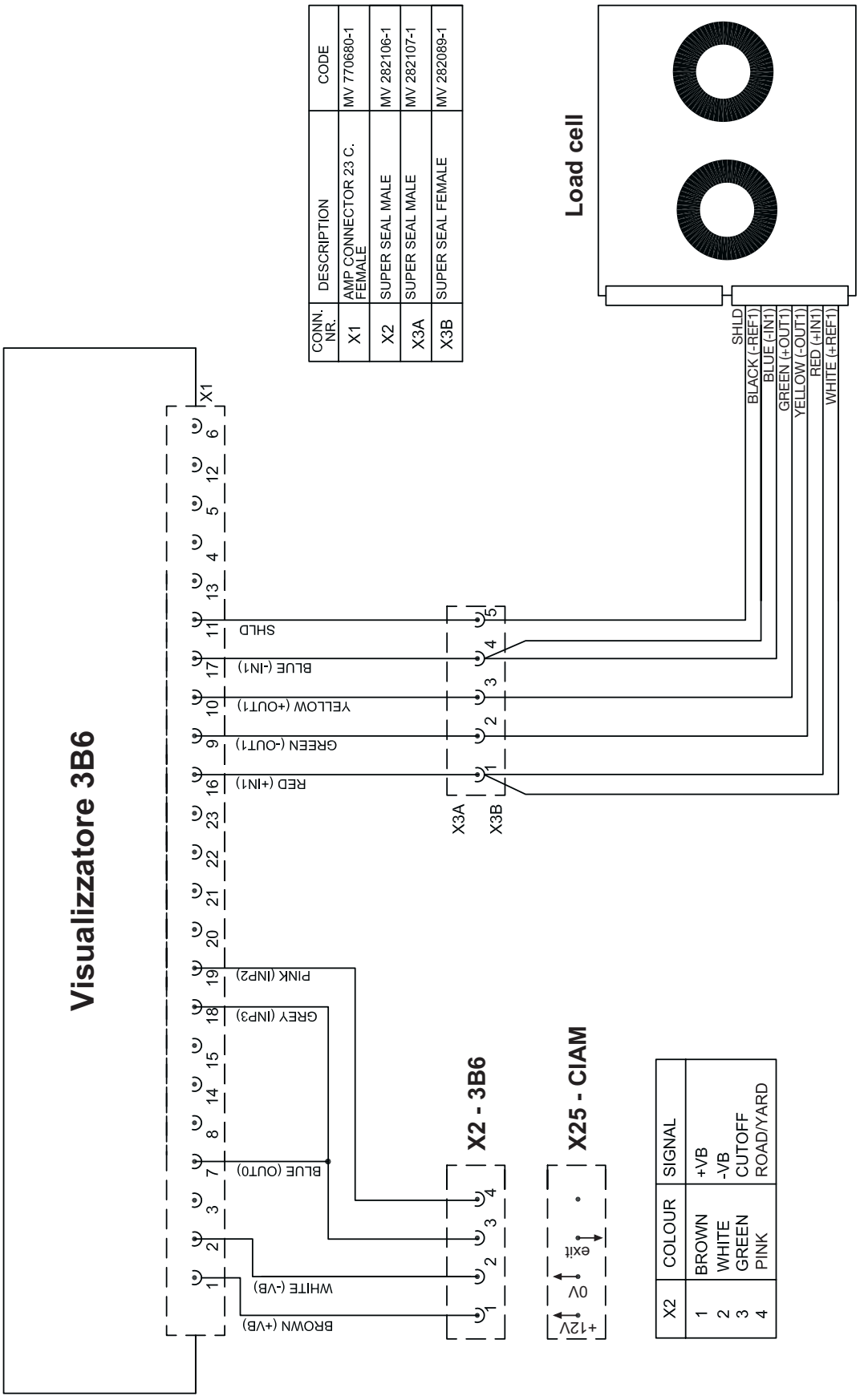
6.7 LOAD LIMITING SYSTEM WIRING DIAGRAM

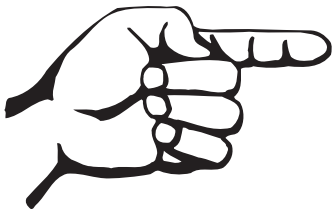
6.7.1 Lay-out



1 = main unit
2 = strain load cell double bridge
3 = connecting cable.

6.7.2 Internal connections





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Section 7
REPAIR PROCEDURES

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7.1 TIME SCHEDULE

Job	Operators needed	Expected time (h)
change the ignition key	1	1,00
change the speed switch	1	0,30
change the lights and horn switch	1	0,30
change the overload warning system display	1	0,15
re-calibrate the 3B6 system	1	1,00
change the load cell	1	2,00
change the overload warning system displayand calibrate	1	1,00
change the joystick	1	1,30
change the deadman button	1	0,30
change the joystick movement switch pushbutton	1	0,30
change the brake pump	1	1,00
change the low boom sensor	1	0,15
change the boom lifting cylinder	1	2,15
change the boom lifting cylinder kit (complete overhaul)	1	1,30
change the block valve of the boom lifting cylinder	1	0,30
change the cylinder inside the boom (only Agrilift 1037)	1	2,50
change the extension cylinder kit inside the boom	1	1,30
change the block valve of the extension cylinder inside the boom (Agrilift 1037)	1	0,30
change the extension cylinder on the boom	1	1,00
change the extension cylinder kit on the boom	1	1,30
change the valve of the extension cylinder on the boom	1	0,30
change the cylinder re-sequencing valve inside boom (Agrilift 1037)	1	2,00
change the fork pitching cylinder	1	1,30
change the fork pitching cylinder kit	1	1,30
change the valve of the fork pitching cylinder	1	0,30
change the attachment locking cylinder	1	1,00
change the attachment locking cylinder kit	1	1,15
change the block valve of the attachment locking cylinder	1	0,30
change the fork compensation cylinder	1	2,00
change the fork compensation cylinder kit	1	1,30
change the valve of the fork compensation cylinder	1	0,45
check the one-way valves of the fork compensation cylinder	1	0,20

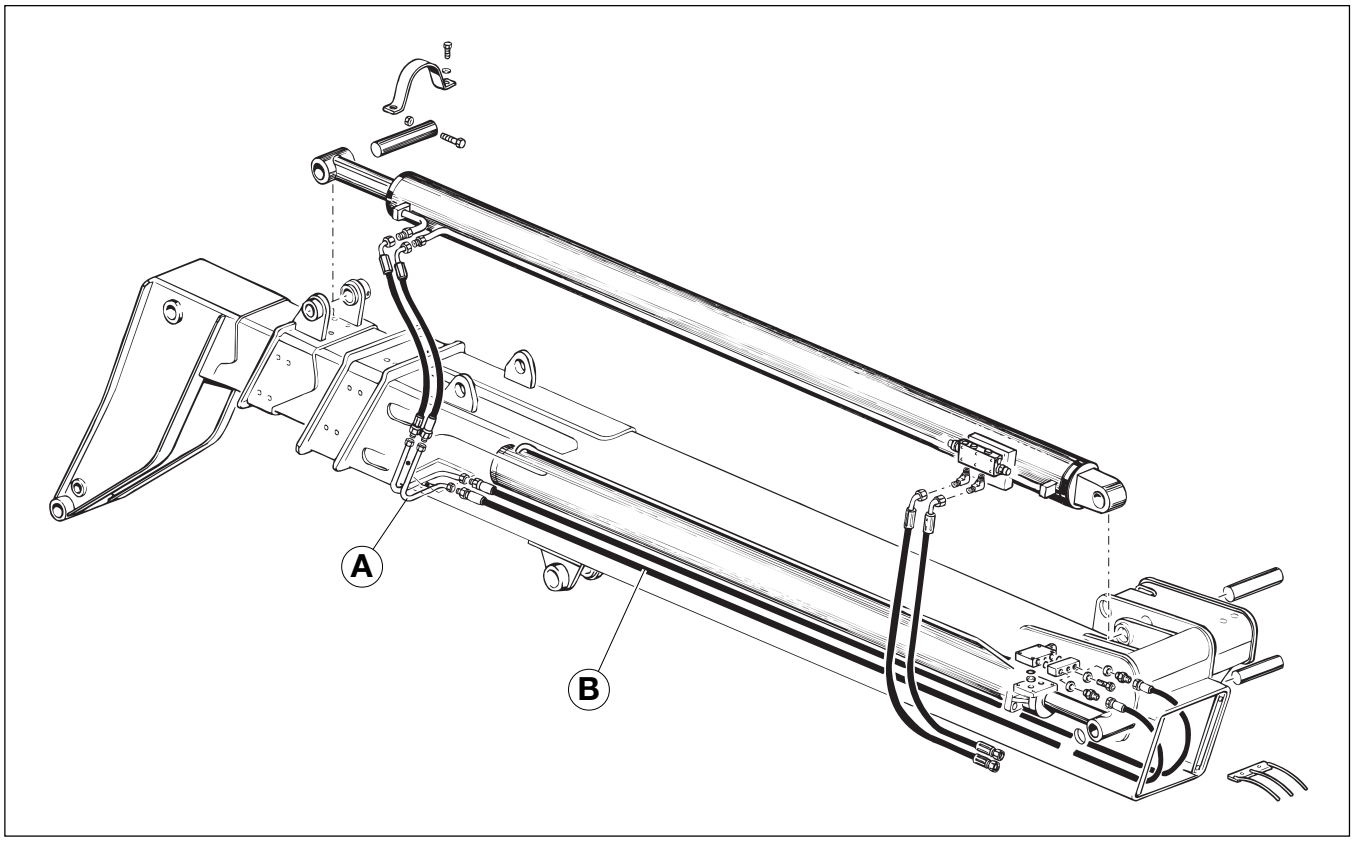
Job	Operators needed	Expected time (h)
change the machine sway cylinder	1	1,30
change the machine sway cylinder kit	1	1,30
change the machine sway cylinder valve	1	0,30
change the boom internal line for the boom extension (only Agrilift 1037)	1	1,00
change the boom internal line for the fork pitching (Agrilift 1037)	1	1,30
change the boom internal line for the fork locking	1	1,30
change the boom slide pads (Agrilift 737)	1	2,30
change the boom slide pads (Agrilift 1037)	1	3,00
check the pressure of the main actuator operating the boom movements	2	0,20 each
check the pressure of brake pump and hydrostatic steering unit	1	0,15
check the safety valves	1	0,15
change the gearbox	2	15,00
change the actuator control pump	1	1,30
change and calibrate the actuator	1	2,00
change the pump on the engine injection line	1	1,00
change relays and fuses	1	0,10
change the windscreen wiper motor	1	1,00
change a solenoid valve	1	0,20
change the gas pedal complete with cord	1	1,00
change the manual throttle complete with cord	1	0,30
change the front axle shaft	1	3,00
change the rear axle shaft	1	3,00
change 1 cardan joint	1	1,00
change the cardan joints	1	2,00
change the axle shaft hub	1	1,30
change the boom assy	2	5,00 each
change the boom anchoring pin	2	1,00 each
change the attachment locking cylinder pins	1	0,30
change a cab pushbutton	1	0,30
change and test the actuator pressure relief valve or the sliders	1	0,30
change and test the actuator safety valve	1	0,30
change the one-way valve	1	0,20
change the maxi-fuses and search for troubles	1	0,10
change the hydraulic oil filter of the drive pump injection line	1	0,20
change the hydrostatic steering unit	1	1,30

Job	Operators needed	Expected time (h)
change the beacon	1	0,20
change the battery	1	0,10
change the exhaust pipe	1	0,30
change the mud-guard supports	1	0,20
change the mud-guards	1	0,10
change the parking brake cord	1	0,30
change the steering wheel	1	0,10
dismantle the hydraulic oil tank	1	2,00
dismantle the fuel tank	1	2,00
change a wheel (n° 1)	1	0,15
change flexible hoses	1	0,15
change the parking brake lever	1	0,30

7.2 DISASSEMBLY AND REASSEMBLY

7.2.1 Changing the internal flex hoses of the boom - Agrilift 1037

If you must change a damaged flex hose of the boom, obey the following instructions:



- Remove the rear closing cover of the boom.
- Find the defective hose inside the boom.

NOTICE

Before disconnecting the hydraulic piping, place containers of suitable size underneath to avoid oil spillage.

- Disconnect the hose **B** to be replaced from the fitting of the iron pipe **A** after fixing a string of adequate length to help the assembly of the new hose.
- Plug the fitting of pipe **A** to avoid that dirt and dust can enter the circuit.
- Disconnect also the second end of hose **B** and plug the block valve.
- Move to the rear side of the machine and pull off the disconnected hose.

- Remove the string from the old hose, connect it to one end of the new hose, and pull this hose into the boom.
- Reconnect the ends of the hose to the fitting and the valve and check for oil leaks.
- Refit the rear cover and test the boom operation.