Genie®
A TEREX BRAND

Operator's Manual

	Serial number range
GTH-4518 ER	From serial n.: 20112 To serial n.: 20300
GTH-4020 ER	From serial n.: 20118 To serial n.: 21643
GTH-6025 ER	From serial n.: 19309 To serial n.: 24410

With Maintenance Information

Second Edition
First Printing
Part No. 57.0009.0404

Important

Read, understand and obey these safety rules and operating instructions before operating the machine. Only trained and qualified personnel shall be authorized to operate the machine. This manual shall be kept with the machine at all times.

For any further information, please call Terexlift.

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Original Instructions
Second Edition: First Printing, January 2010

For the electronic version of this manual visit
www.genielift.com/operator_manuals.asp

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Produced by:
TEREXLIFT Technical Literature Dept.
Umbertide (PG) Italy

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Introduction

Symbols



Safety alert symbol: used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death

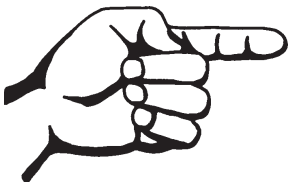
DANGER ***Red: indicates a hazardous situation which, if not avoided, will result in death or serious injury.***

WARNING ***Orange: indicates a hazardous situation which, if not avoided, could result in death or serious injury.***

CAUTION ***Yellow : indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.***

NOTICE ***Blue: indicates a property damage message.***

PROTECT THE ENVIRONMENT ***Green: used to draw the attention to important information on environment protection.***



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Machine Identification

Check that the operator handbook refers to the delivered machine.

DESIGNATION:

ROUGH TERRAIN VARIABLE REACH TRUCK

MODEL:

GTH-4518ER / GTH-4020ER

GTH-6025ER

MANUFACTURER:

TEREXLIFT srl

Zona Industriale - I-06019 UMBERTIDE (PG) - ITALY

Enrolled in the register of companies at the Court of Perugia under no. 4823

C.C.I.A.A. 102886

Fiscal Code/V.A.T. no. 00249210543

APPLICABLE STANDARDS

For the operator's safety, the following standards were obeyed during the risk assessment of the handler fitted with telescopic boom norme:

Directive	*Title*
2006/42/EC	Machinery Directive
2008/104/EC	Electromagnetic compatibility
2000/14/CE	Environment Acoustic Emissions

Standard	*Title*
EN 1459:1988	Harmonised standard. Safety of
A2:2009	Industrial trucks - Self- propelled variable reach trucks.

MACHINE IDENTIFICATION PLATES

The following data plates are applied on the machine:

Machine data plate

The identification plate contains the main identification data of the machine like model, serial number and year of manufacture.

On machines destined for the Italian market, the data plate is installed in the driving cab, on the right, and is well-visible when the door is opened.
On the machines destined for foreign markets, the data plate is applied on the front right side of the chassis.

Road traffic data plate

The road traffic data plate is installed on the front right side of the chassis (only on machines destined for the Italian market).
This plate shows the road traffic related data and the weights of the specific machine model.

ROPS-FOPS cab type-approval plate

The ROPS - FOPS type-approval plate is located inside the driving cab above the rear glass.

Fork data plate

Placed on the left side of the fork frame.

This plate shows the identification data of fork such as model, serial number, year of manufacture, weight, nominal payload, centre of the load and model of the machine on which the forks are installed.

Machine Identification

CE MARKING

This machine fulfils the safety requirements of the Machinery Directive.The conformity has been certified and the placing of the **CE** marking on the machine demonstrates compliance with the regulatory requirements.
The **CE** marking is placed directly on the identification plate of the machine.

CHASSIS SERIAL NUMBER

The chassis serial number is punched on the front left part of the chassis side member.

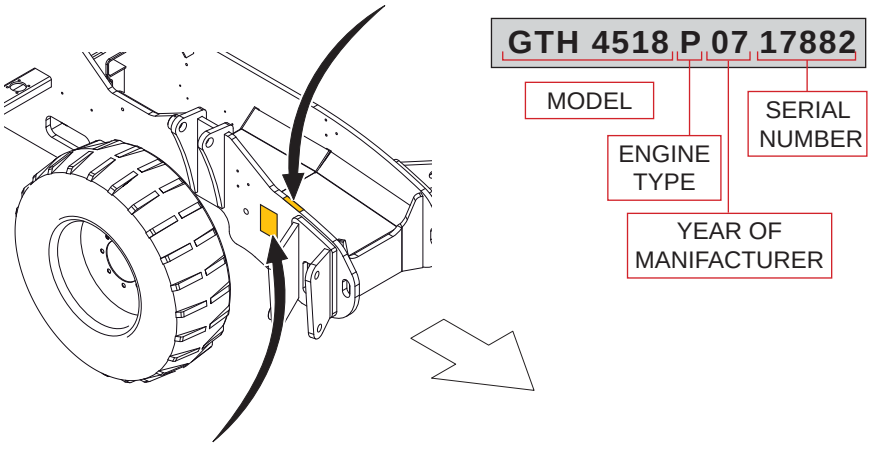
IDENTIFICATION PLATES OF THE MAIN PARTS

The plates of the main components, not directly manufactured by **TEREXLIFT srl** (for instance, engines, pumps, etc.), are located where originally applied by the manufacturers.

HOW TO READ YOUR SERIAL NUMBER

Chassis serial number

(The chassis serial number is punched on the front right part of the chassis side member)



Machine data plate

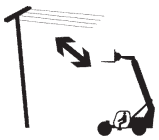
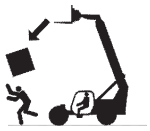
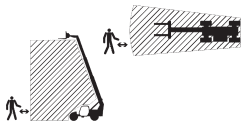
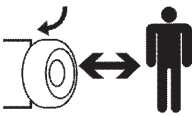
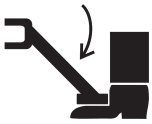
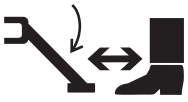
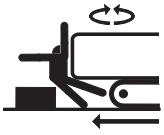
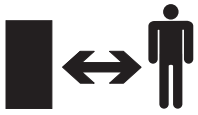
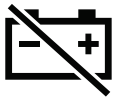
(On machines destined for the Italian market, the machine data plate is installed in the driving cab, on the right, and is well-visible when the door is opened. On the machines destined for foreign markets, the data plate is applied on the front right side of the chassis)

Symbols Used On The Machine

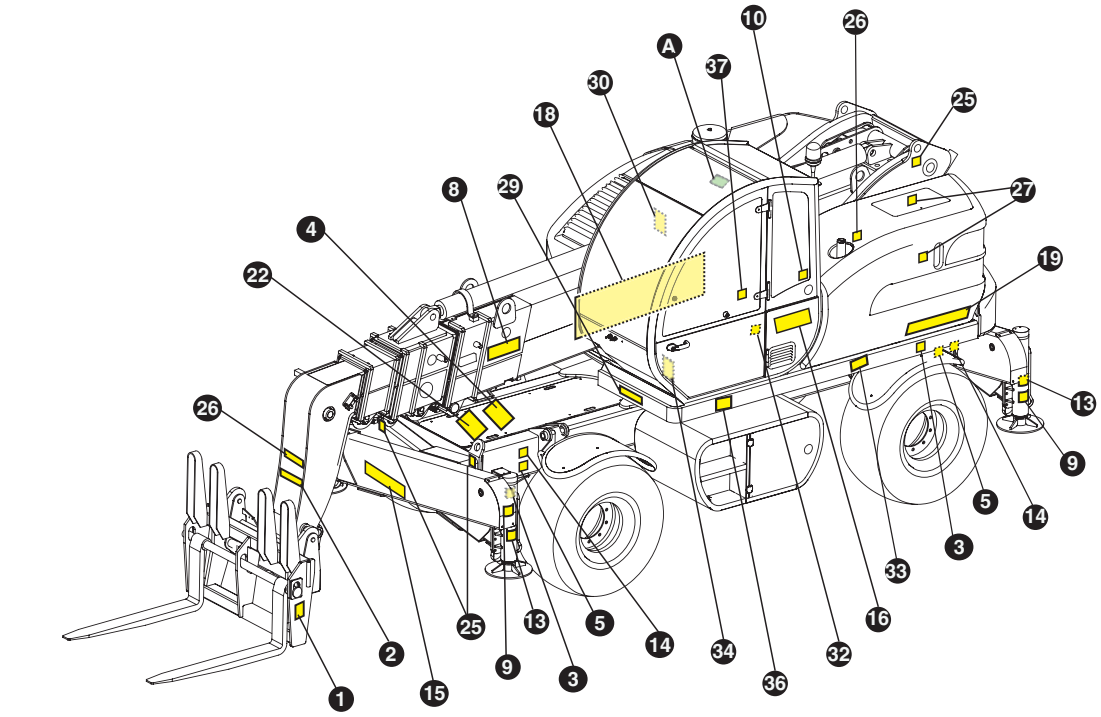
 Not Active	 Parking Brake	 High Beam	 Turn Signals	 Low Beam	 Turret Rotation Lock
 Turret Aligned	 Differential Lock	 2° speed engaged	 1° speed engaged	 Machine Sway	 Retract Outrigger
 Extend Outrigger	 Raise Outrigger	 Lower Outrigger	 Right Machine Sway	 Left Machine Sway	 Turret Rotation Unlock
 Fuel Level	 Glow Plugs Preheatinh	 Service	 Engine Coolant Temperature	 Battery Charge	 Engine Oil Pressure
 Brake Pressure	 Hydraulic Oil Filter	 Air Filter	 Not Active	 Water in Fuel	 Hydraulic Oil Level
 General Warning	 Shift-on-Fly	 Comando luci retronebbia	 Emergency Pump	 Hazard Warning Lights	 Heating Cab Fan
 Job-site mode	 Man-Platform	 Road Transfer	 Steering Mode		

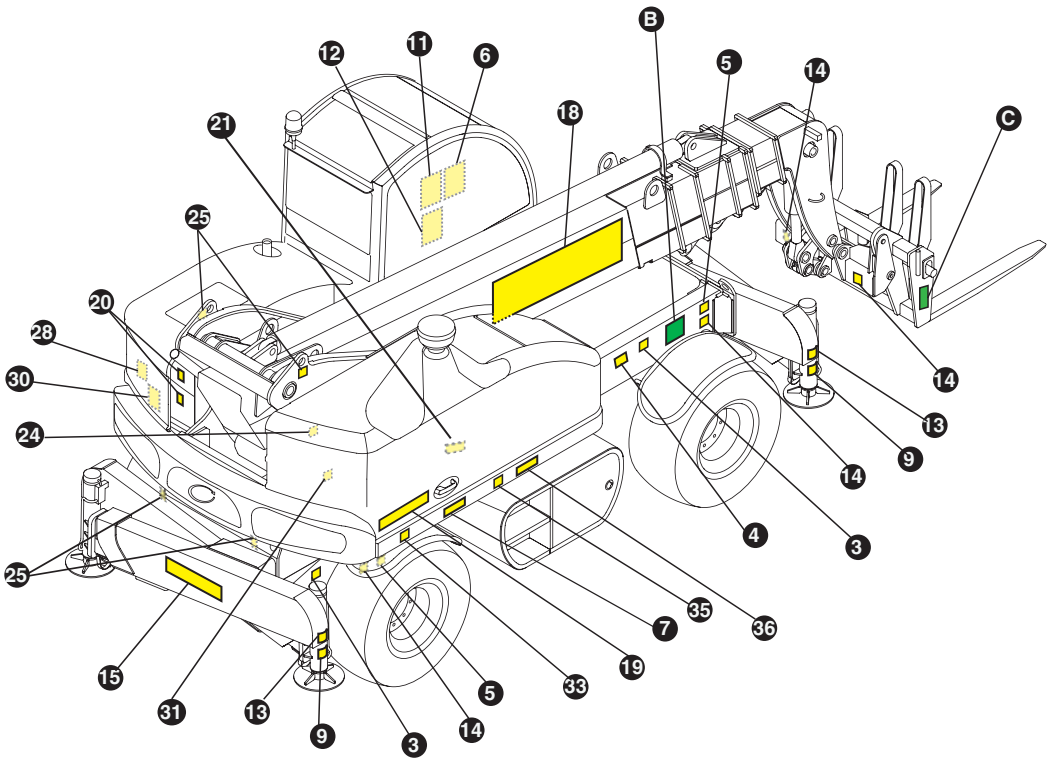
Symbols Used On The Machine

HAZARD PICTORIAL DESCRIPTIONS

 Electrocution Hazard	 Maintain required clearance.	 Falling Object Hazard	 No people under load.	 Fall Hazard
 No riders.	 Burn Hazard	 Allow system to cool.	 Explosion/Burn Hazard	 No smoking. No open flame.
 Read the operator's manual.	 Support boom when performing maintenance.	 Crush Hazard	 Burn Hazard	 Allow surfaces to cool.
 Crush Hazard	 Keep away from moving parts.	 Crush Hazard	 Keep clear of moving parts.	 Allow compartment access
 Crush Hazard	 Keep clear of moving outriggers.	 Tip-over Hazard	 Crush Hazard	 Keep away from obstacles
 Crush Hazard	 Keep away from belt.	 Insert Maintenance Collar	 Battery Cut-Out	 Safety Alert Simbol

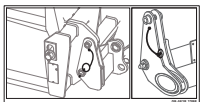
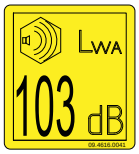
Labels And Plates Applied On The Machine



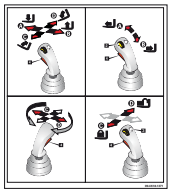
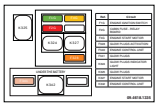


Labels And Plates Applied On The Machine

Use the pictures on these pages to verify that all decals are legible and in place.
The following chart shows quantities and description too.

Ref.	Decal	Code	Description	Qt.
1		09.4618.1398	**Safety pin operation**	1
2		09.4618.1375	**The capacity of the truck and attachment combination shall be complied with.**	1
3		09.4618.0547 09.4618.0754	**Tyre inflat. P=5,5bar / 80psi GTH-4518 ER / GTH4020 ER** **Tyre inflat. P=8bar/116psi GTH-6025 ER**	4
4		09.4618.0918	**Falling Object Hazard**	3
5		09.4618.0919	**Crush Hazard**	4
6		09.4616.0041	**Sound power level**	1
7		09.4618.0920	**Compartment Access**	1
8	**Kg 4000** **Kg 4500** **Kg 6000**	09.4616.0040 09.4618.0373 09.4618.0757	**Max Capacity** **Kg 4000 (GTH-4020 ER)** **Kg 4500 (GTH-4518 ER)** **Kg 6000 (GTH-6025 ER)**	1

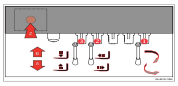
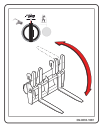
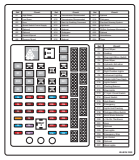
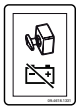
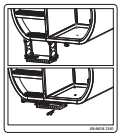
Labels And Plates Applied On The Machine

Ref.	Decal	Code	Description	Qt.
9		09.4618.1048 09.4618.1049	**Label - Stabilizer Max Pres. GTH-6025ER** **Label - Stabilizer Max Pres. GTH-4518ER GTH-4020ER**	4 4
10		09.4618.0776	**Label - Upper Door Internal Unlock System**	1
11		09.4618.1371	**Control lever decal**	1
12		09.4618.0921	**Label - Use limits close to electric power lines**	1
13		09.4618.0933	**Crush Hazard**	4
14		09.4618.0922	**Crush Hazard**	7
15 16	Genie®	09.4618.0243 09.4618.0241	**Cosmetic - GENIE Logo in WHITE**	2 1
17		09.4618.1335	**Label - Engine Fuses & Relays Board for GTH-6025 ER**	1

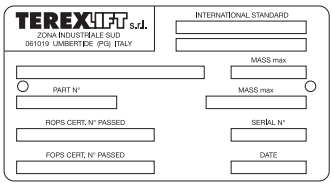
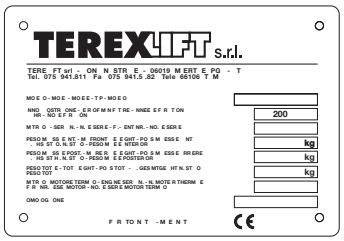
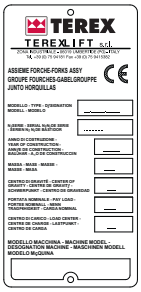
Labels And Plates Applied On The Machine

Ref.	Decal	Code	Description	Qt.
18 19	Genie GTH-4518 ER Genie GTH-4020 ER Genie GTH-6025 ER	09.4618.0824 09.4618.0825 09.4618.0826 09.4618.0827 09.4618.0828 09.4618.0829	**Cosmetic - Genie GTH-4518 ER** **Cosmetic - Genie GTH-4020 ER** **Cosmetic - Genie GTH-6025 ER**	2 2 2 2 2 2
20		09.4618.0923	**Burn Hazard**	2
21		09.4618.0924	**Burn/Explosion Hazard**	1
22		09.4618.0925	**Crush Hazard**	1
23		09.4618.0926	**No Riders**	1
24		09.4618.0927	**Burn Hazard**	1
25		09.4618.0916	**Lift Point**	6
26		09.4618.0917	**Diesel Fuel Cap**	1
27		09.4618.0928	**Hydraulic Oil**	2

Labels And Plates Applied On The Machine

Ref.	Decal	Code	Description	Qt.
28		09.4618.1132 09.4618.1384	**Label - Manual Controls Instructions GTH-4518 ER / GTH4020 ER** **Label - Manual Controls Instructions GTH-6025 ER**	1
29		09.4618.1001	**Label - Maintenance Collar**	1
30		09.4618.1381	**Forks**	1
31		09.4618.0986	**Crush Hazard**	1
32		09.4618.1028	**Label - Parking Brake**	1
33		09.4618.1120	**Crush Hazard**	2
34		09.4618.1336	**Label -Cabin Fuses & Relays Board**	1
35		09.4618.1331	**Battery Cut-Out Switch**	1
36		09.4618.1341	**Battery Cut-Out Switch**	2
37		09.4618.1374	**Left Joystick**	1

Labels and plates applied on the machine

Ref.	Decal	Code	Description
A		09.4616.0100	**ROPS-FOPS cab type-approval plate**. This plate shows the type-approval data of the driving cab according to ROPS - FOPS regulations.
B		09.4616.0112	**Machine data plate**. The identification plate contains the main identification data of the machine.
C		09.4616.0109	**Fork data plate**. This plate shows the main data of the fork installed on the machine.

Safety precautions

DAMAGED MACHINE HAZARDS

- Do not use a damaged or defective machine.
- Do a thorough pre-operation inspection of the machine and test all functions before each work shift. Tag and remove from service a damaged or defective machine.
- Make sure that all maintenance jobs have been carried out as specified in this manual and the appropriate service manual.
- Make sure that all decals are in place and legible.
- Make sure that the operator's is intact, legible and placed in the special container located in the machine.

PERSONAL INJURY HAZARDS

- Do not operate the machine in case of hydraulic oil or air leak. Air or hydraulic oil leaks can penetrate or burn the skin.
- Always operate the machine in a well ventilated area to avoid carbon monoxide poisoning.
- Do not lower the boom if the area underneath is not clear of personnel or obstructions.

SAFETY DEVICES



Several safety devices have been fitted to the machine. They must never be tampered with or removed.
Regularly check the efficiency of such devices. In case of faults, stop working immediately and proceed in replacing the defective device.
For the checking procedures, read chap. "Maintenance".

MOMENT LIMITING SYSTEM

The moment limiting system has been developed to help the operator to maintain the machine longitudinal stability. Audible and visual messages are provided when the limits of longitudinal stability are being approached.
However this device cannot replace the experience of the operator. It is up to the user to adopt the necessary safety measures to work within the rated limits of the machine.

SEAT SWITCH

This micro switch is located inside the seat cushion, and it prevents any machine transmission movements if the operator is not correctly seated in the driving seat

Safety precautions

Not observing the instructions and safety rules in this manual may result in death or serious injury.

Do not operate the machine unless:

- You learn and practice the principles of safe machine operation contained in this operator's manual.
  1. **Avoid hazardous situations.** Read and understand the safety instructions before going on to the next chapter.
  2. **Always perform a pre-operation inspection.**
  3. **Always test the machine functions prior to use.**
  4. **Inspect the work place.**
  5. **Only use the machine for the intended application.**

- Read, understand and obey the manufacturer's instructions and the safety rules, the safety and operator's manuals, and the decals applied on the machine.
- Read, understand and obey the employer's safety rules and worksite regulations.
- Read, understand and obey the applicable national regulations.
- Only trained personnel informed on the safety rules can operate the machine.

GENERAL REMARKS

Most accidents occurring while working, repairing or maintaining 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.

If you recognise hazardous situations, you can prevent accidents!

DANGER

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 installation, 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 shall absolutely:

- be sure that the operations you are going to carry out are not explicitly forbidden;
- be sure that the methods are safe, say, in compliance with the rules and provisions 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.

Safety precautions

REQUISITES OF THE PERSONNEL IN CHARGE

Requisites of the MACHINE OPERATORS

The operators who use the machine regularly or occasionally (i.e. for transport reasons) shall have the following prerequisites:

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 enforced 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 be familiar with this handbook, its enclosed graphs and diagrams, the identification and hazard warning plates. They shall be skilled and trained about the machine use.



The operator shall have a licence (or a driving licence) when provided for by the laws enforced in the country where the machine works. Please, ask the competent bodies. In Italy the operator must be at least 18 year old.

Requisites of the SERVICEMEN

The personnel charged with the machine maintenance shall be qualified, specialised in the maintenance of telehandlers, and shall have the following prerequisites:

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

mental:
ability to understand and apply the enforced 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.

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

NOTICE

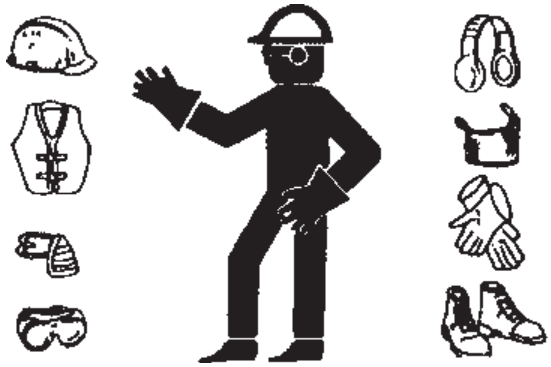
From a technical point of view, the ordinary maintenance of the machine is not a complex intervention and can be carried out by the machine operator, too, provided he has a basic knowledge of mechanics.

Safety precautions

■ WORKING CLOTHES

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

- Overalls or any other comfortable garments. Operators should not wear clothes with large sleeves or objects that can get stuck in moving parts of the machine.
- Ear-protectors or equivalent equipment.
- Protective helmet.
- Protective gloves.
- Working shoes.



Use only type-approved working clothing in good condition.

■ Personal PROTECTIVE EQUIPMENT

Under special working conditions, the following personal protective equipment should be used:

- Breathing set (or dust mask).
- Goggles or facial masks.

■ OTHER DANGERS

■ Hazards on the JOBSITE

Always take into account the features of the job site where you are going to work:

- Always examine the working area and compare it with the machine dimensions in the different configurations.

DANGER

The machine is not electrically insulated and does not provide protection from contact with or proximity to electrical power lines.
Always keep at a minimum safe distance from the telescopic boom and the lifted load. Electrical hazards!

- Keep away from the machine in case of contact with energized power lines. Personnel on the ground must never touch or operate the machine until energized power lines are shut off.

DEATH OR INJURY CAN RESULT FROM CONTACTING ELECTRIC POWER LINES.

ALWAYS CONTACT THE ELECTRIC POWER LINES OWNER. THE ELECTRIC POWER SHALL BE DISCONNECTED OR THE POWER LINES MOVED OR INSULATED BEFORE MACHINE OPERATIONS BEGIN

POWER LINE VOLTAGE			REQUIRED CLEARANCE	
0	to	50 kV	10 ft	3.00 m
50	to	200 kV	15 ft	4.60 m
200	to	350 kV	20 ft	6.10 m
350	to	500 kV	25 ft	7.62 m
500	to	750 kV	35 ft	10.67 m
750	to	1000 kV	45 ft	13.72 m

DANGER

Do not at any time use the machine during a storm.

WARNING

Operator have to survey his/her field of vision when operating the truck.

Safety precautions

- The machine shall be parked on a ground adequate to the maximum admissible payload. If the subsoil collapses, the machine could tip over. To avoid any risk of overturning, the following precautions should be taken:

1. Ask your employer (site manager or manager assistant) if there may be buried pipes, pits, old tanks, cellar floor, dung yards, etc. under the ground onto which the outriggers shall be lowered.
2. A rough estimate of the ground consistency can be done using the tables and picture in this page.
3. The resistance of the subsoil is in relation to the ground type and geomorphological characteristics.
   Table 1 indicates the superficial pressure which can be admitted under the outriggers of the machine.

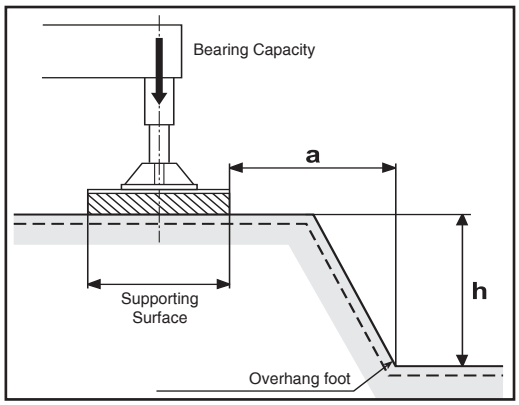
Type of ground, geomorphological features		**Admissible superficial pressure**	
		kg/cm²	**N/mm²**
loose, non-compact soil		generally speaking, not solid; special precautions needed	
loamy, peaty,pasty soil			
rippable, soft ground			
non-cohesive, well compact soil, sand, gravel		**2.0**	**0.2**
rippable soil	solid	**1.0**	**0.1**
	semi-solid	**2.0**	**0.2**
	hard	**4.0**	**0.4**
Rocks, concrete, heavy traffic paved roads		**above 10.0**	**above 1.0**

Table 1

WARNING

Make sure the machine (wheels and stabilisers) rests on a firm ground to prevent hazardous unstable conditions.
If the ground is not firm enough, position some supporting planks under the stabilisers or the wheels. These plates must grant a specific pressure of 8.7 to 9.2 kg/cm².

- Look for the best route to the job site.
- When the machine is running, nobody can enter its working range.
- While working, keep the working area in order. Never leave objects scattered: they could hinder the machine movements and represent a danger for personnel.
- In presence of trenches, lower the outriggers at a safe distance from the trench edge.



The distance (a) from the foot of the overhang shall be adequate to height (h) of the same overhang.
If the ground fulfils the required conditions:

a : h = 1 : 1

(values with a grey background in table 1)
In the case of doubts:

a : h = 2 : 1

Safety precautions

■ OPERATION or MAINTENANCE hazards

Before any operation, following precautions should be taken:

- First of all, make sure that the maintenance interventions have been carried out with care according to the established schedule.

⚠WARNING

Set the machine to working configuration and sway it. Use the special inclinometer to the right of the driving place to check that the machine is level before operating it.

- Ensure you have enough fuel to avoid a sudden stop of the engine, especially during a crucial manoeuvre.
- Clean instruments, data plates, lights and the cab windscreen thoroughly.
- Check the correct functioning of all the safety devices installed on the machine and in the job site.
- In case of troubles or difficulties, inform the foreman at once. Never start working under unsafe conditions.
- Do not carry out any repair work in a makeshift way to start working!

During work, and especially maintenance, always pay the greatest attention:

- 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.



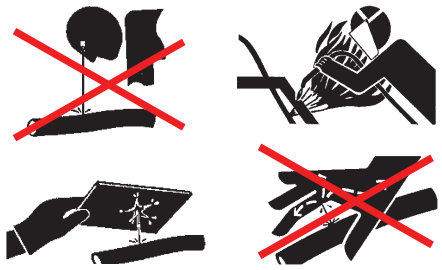
- When carrying out operations at hazardous heights (over **1.5** meters from the ground), always use approved fall restraint or fall arrest devices.
- Do not enter/leave the machine while it is running.
- Do not leave the driving place when the machine is running.
- Neither stop nor carry out interventions under or between the machine wheels when engine is running. When maintenance in this area is required, stop the engine.
- 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, check their connection and proper functioning.
- Do not carry out interventions on electric components with voltage over **48V**.
- Do not connect wet plugs or sockets.
- Plates and hazard warning stickers shall never be removed, hidden or become unreadable.
- Except for maintenance purposes, do not remove safety devices, shields, protection cases, etc. 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.
- Before any maintenance or repair work, stop the engine and disconnect the batteries.

Safety precautions

- Do not lubricate, clean or adjust moving parts.
- Do not carry out operations manually when specific tools are provided for this purpose.
- Avoid the use of tools in bad condition or use in an improper way i.e. pliers instead of adjustable wrenches, etc.
- Applying loads in different points of the attachment holding plate is forbidden.

WARNING

Any intervention on the hydraulic circuit must be carried out by authorised personnel.
The hydraulic circuit of this machine is fitted with pressure accumulators. You and others could be seriously injured if accumulators are not completely depressurised.
For this purpose, shut the engine down and step on the brake pedal 8/10 times.



- Before carrying out operations on hydraulic lines under pressure or disconnecting hydraulic components, ensure the relevant line has been previously depressurised and does not contain any hot fluid.
- Do not empty catalytic mufflers or other vessels containing burning materials without taking the necessary precautions.
- After any maintenance or repair work, make sure that no tool, cloth or other object has been left within machine compartments, fitted with moving parts, or where suction and cooling air circulates.
- When working, do not give instructions or signs to several people at the same time. Instructions and signs must be given by one person only.
- Always pay 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 any means.
- After work, never leave the machine under potentially dangerous conditions.
- Before any maintenance or repair work, remove the attachment.

■ MACHINE OPERATION hazards

Absolutely avoid the following work situations:

- Do not handle loads beyond the maximum capacity of the machine.
- Do not raise or extend the boom if the machine is not on a firm, level surface.
- Do not operate the machine in strong wind. Do not increase the surface area of the machine or forked load exposed to the wind. Increasing the area exposed to the wind will decrease machine stability.
- Use extreme caution and slow speeds when the machine is driven across uneven or unstable grounds, slippery surfaces or near trenches or drop-offs.
- Limit travel speed according to ground conditions, slopes, presence of personnel or other factors which may cause collision.
- Do not place or attach overhanging loads to any part of the machine.

Safety precautions

EXPLOSION OR FIRE hazards

- Do not start the engine if you smell or detect LPG, gasoline, diesel fule or other explosive substances.
- Do not refuel the machine with the engine running.
- Refuel the machine and charge the battery only in a well ventilated area away from sparks, naked flames and lighted cigarettes.
- Do not operate the machine in dangerous environments or in places with flammable or explosive gases or materials.
- Do not inject ether in engines equipped with glow plugs.
- Do not leave fuel cans or bottles in unsuitable places.
- Neither smoke nor use open flames in areas subject to fire dangers and in presence of fuel, oil or batteries.
- Carefully handle all flammable or dangerous substances.
- Do not tamper with fire-extinguishers or pressure accumulators.



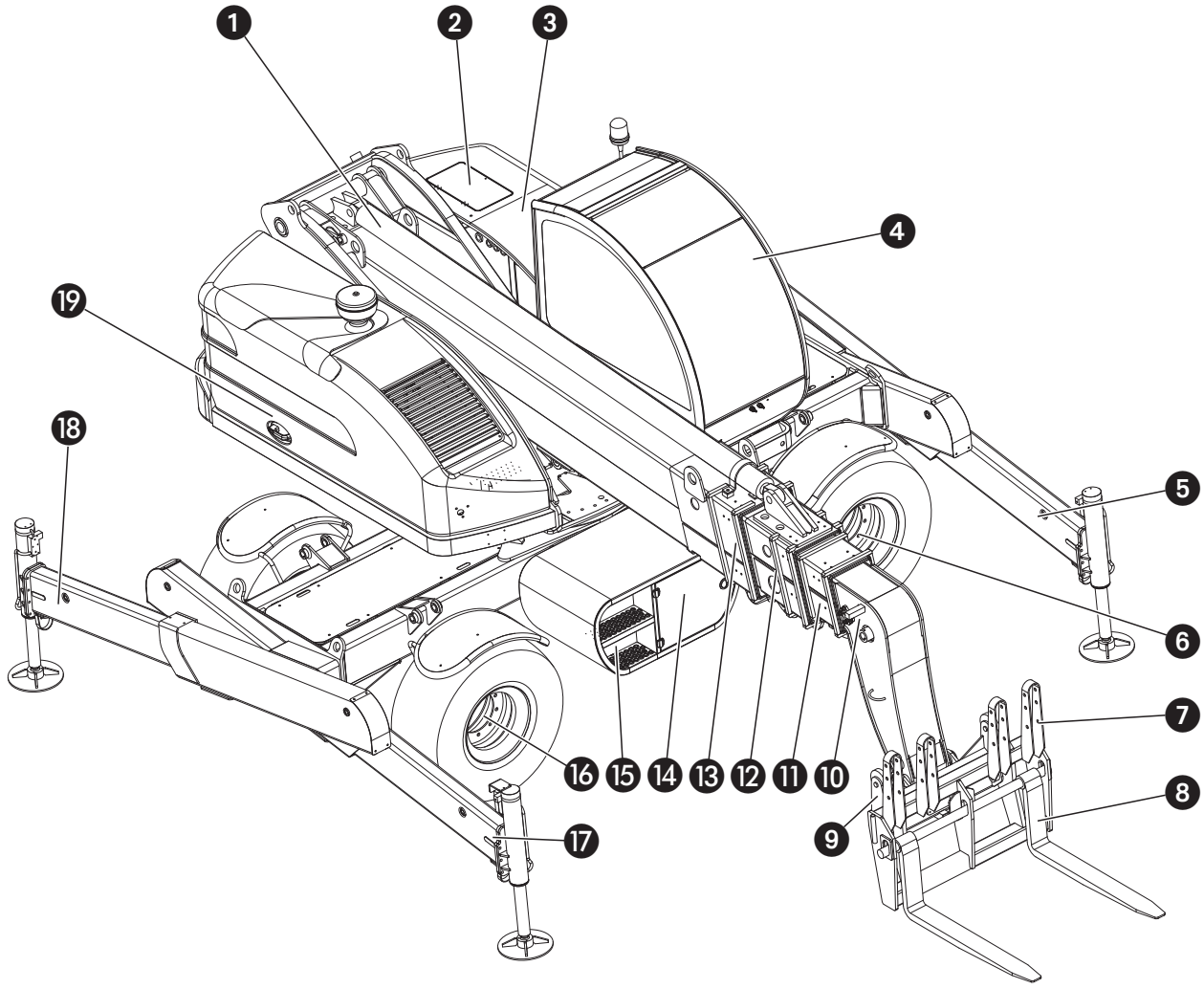
DAMAGED COMPONENT hazards

- Do not use battery chargers or batteries with a voltage above 12V to start the engine.
- Do not use the machine as a ground for welding.

PERSONAL INJURY hazards

- Do not operate the machine in case of hydraulic oil or air leak. Air or hydraulic oil leaks can penetrate or burn the skin.
- Always operate the machine in a well ventilated area to avoid carbon monoxide poisoning.
- Do not lower the boom if the area underneath is not clear of personnel or obstructions.

Description Of The Main Components



1 - Cylinder for telescopic boom
2 - Oil tank compartment
3 - Fuel tank compartment
4 - Driving cab according to ROPS-FOPS provisions
5 - Rear left outrigger
6 - Rear axle
7 - Protection for forked loads and fork locking during transfer
8 - Collapsible forks for palletised loads
9 - Attachment holding frame
10 - 4th boom section
11 - 3rd boom section
12 - 2nd boom section
13 - 1st boom section
14 - Left-hand side tool compartment
15 - Access step
16 - Front axle
17 - Front left stabilizer
18 - Front right stabilizer
19 - Engine compartment

Description Of The Machine

■ Machine General Description for GTH-4518 ER, GTH-4020 ER, GTH-6025 ER

The machine mainly consist of a mobile undercarriage, provided with a complete transmission driveline with wheels and a slewing turret, provided with a power system and equipped with an operator's cabin and a telescopic boom with a load handling attachment articulation capable to handle and carry payloads not exceeding the rated capacity of the machine. The mechanical power necessary to move the machine and to operate the load handling mechanism is provided by a diesel engine installed on the right side of the slewing turret and controlled by an electrical pedal located inside the operator's cabin. The diesel fuel feeding the engine is contained in a steel tank located on the left side of the turret, immediately behind the operator's cabin. The engine powers three hydraulic pumps. The bigger one, which is a piston type variable displacement pump, is directly flanged to the engine flywheel housing and is hydraulically linked, through a rotating joint installed on the slewing ring center axis, to a piston type variable displacement hydraulic motor, which generates the torque necessary for the machine translation. These two units are the main components of the hydrostatic transmission which is mechanically linked to the machine axles and wheels. In particular, the hydraulic motor is flanged to a mechanical two speed gear box (shift-on-fly type) installed on a central structural beam linking the two sides of the undercarriage. The mechanical torque generated by the hydrostatic motor and passing through the gear box, is transmitted to the front and rear axles by two drive shafts located on the undercarriage centerline so providing a 4X4 wheels drive capability. Both the hydrostatic pump and motor are electronically controlled and automatically adjust their functioning parameters against the engine rpm and the power requested by the pumps. The four wheels are equipped with tires suitable to operate the machine in all the working conditions which have been foreseen for this model and capable to withstand the maximum loads generated by the machine weight and payloads. The second piston type pump, flanged on the back of the bigger one and mechanically linked to that by a passing through PTO, produces the flow and pressure to move the telescopic boom, the load handling attachment articulation and the slewing device, to operate the front and rear stabilizers and to power the steering system. The third gear type pump is flanged to the engine distribution lateral PTO and powers the service brakes system and the two fans which are part of the hydraulic system and engine coolers. These three pumps are fed through oil suction lines which are linked to the hydraulic oil tank installed on the left side of the turret, immediately close the fuel tank and behind the operator's cabin. This oil tank, steel made, is provided also with the oil filter package (return type), the oil level gauges and the oil charging cap. The engine and the three pumps are installed inside a suitable engine compartment consisting of a fiberglass bonnet which can be completely opened to allow servicing activities in the engine compartment. The engine compartment also includes the engine cooler (which for the GTH-4518 ER and the GTH-4020 ER is integral with the hydraulic system cooler), provided with an external coolant expansion tank, the air intake duct and filter, the electrical alternator, the battery, the battery disconnection device and the fuel and the engine oil filters. The engine exhaust muffler and duct are then routed from the bottom of the engine compartment to the internal back area of the turret and finally to the back of the turret, with a geometry capable to eject the engine exhaust gas back from the machine. On the GTH-6025 ER only an additional cooler is installed between the operator's cabin and the fuel and oil tanks to provide the requested cooling capability for the hydraulic system. The four stabilizers, installed on the four external corners of the undercarriage, provide machine extended load capacity through a larger stability support area when the four stabilizer feet are completely deployed on the ground. Each of the four stabilizer mechanisms consists of a telescopic leg moving outward/inward of the undercarriage and sliding inside suitable guides made on the undercarriage front and rear ends plus a stabilizer foot which can be moved vertically up and down during the stabilizers deployment and stowage phases. The leg is moved through a specific telescopic cylinder, installed internally of the leg,

Description Of The Machine

equipped with a safety locking valve and hinged between the telescopic leg and the stabilizer guide. The stabilizer foot is installed at the bottom end of another cylinder which is assembled at the outward end of the stabilizer leg. This cylinder is equipped with a safety locking valve as well. The deployment of the stabilizers consists of two distinct movements: first the stabilizer telescopic leg is fully extended and then the stabilizer foot arm is completely extended down. In the stabilizers stowage phase these two movements are reversed: first the stabilizer foot is fully retracted up and then the stabilizer telescopic leg is fully retracted. These two distinct movements are activated through specific buttons located on a dashboard control panel installed in the front and left area of the operator's cabin. The telescopic boom, hinged on the back of the slewing turret, mainly consists in four steel tubes having rectangular sections and provided with a load handling attachment articulation for payload stuffing/unstuffing and transportation purposes. The outer section is hinged in the back top area of the slewing turret and is moved by an hydraulic cylinder linked between its bottom surface and the central bottom area of the turret. The extension/retraction of this cylinder produces the boom outer section to rotate between the boom up and down limits. The boom bigger intermediate section can telescope with respect the outer one by a boom extension cylinder which is installed on the top of the boom. The smaller intermediate and the inner sections are moved by a chains system made by special chains, specifically designed for load lifting purposes, and by pulleys and pins necessary to the chains to properly operate. At the top of the inner section a load handling attachment articulation is provided with a rotating carriage, which can be easily interfaced with a number of different attachments, and which is activated by another specific cylinder. This cylinder is hydraulically linked to another cylinder (on the GTH-6025 ER this cylinder is doubled), hinged between the boom first section left side and the slewing turret bottom plate, providing an automatic forks leveling mechanism which maintains the forks automatically leveled when the boom is moved up and down. The different attachments selected for this machine can be easily replaced and are secured by a mechanical pin (standard feature) or by a hydraulic quick lock/unlock cylinder. The boom cylinders described before and the turret slewing hydraulic motor and gear box are driven through a main valve which is electrically controlled through two main joystick levers located on the right and on the left armrests of the operator's seat. The same valve also controls the turret slewing movement, the chassis tilting device and the front and rear stabilizers. The operator can activate the stabilizers and the chassis tilt through distinct buttons located on the left front dashboard panel. The other main controls available in the operator's cabin are the steering wheel (to control the machine steering function), the service brake pedal, the parking brake mechanical lever, the transmission gearbox speeds shifting switch and the turret slewing lock device. The steering wheel is mechanically connected to a steering unit which feeds the steering cylinders installed on the front and rear axles in such a way the steering angle is proportional to the steering wheel turns. The service brake pedal is linked to a brake pump which is hydraulically powered and, according to the stroke of the pedal, generates a hydraulic pressure activating the service brakes disks packages (wet type) which are installed inside the front and rear axles and work on the axles internal shafts. The same brake disks package installed on the front axle is operated by the parking brake system through an internal mechanism which is mechanically actuated and hydraulically released. When the parking brake is released, through the relevant handle located in the operator's cabin immediately on the left side of the operator's seat, a hydraulic pressure is applied to the internal mechanism so releasing the force on the brake disks. When the parking brake is activated this pressure is removed and the internal mechanism pushes on the brake disks so developing the requested braking force. Two hydraulic cylinders, located on the two sides of the machine, are hinged between the undercarriage and the front axle, and control the chassis tilt function. Two further hydraulic cylinders are installed on the

Description Of The Machine

back side of the undercarriage and maintain locked the rear axle in some desired conditions. The aim of these cylinders is to improve the lateral stability of the machine by locking the rear axle when the boom angle is higher than a specified value or when the turret is not aligned with the undercarriage middle plane. The operator's cabin is of full enclosed type and provided with windshield and glasses to protect the operator and to the maximum visibility. The operator is seated on a cushioned and adjustable seat and can operate the machine using the specific controls which have been properly located inside the cabin. A dedicated dashboard is provided with all the necessary controls and gauges necessary to properly and safely operate the machine. An automatic stability control system is provided with a display located inside the cabin showing the stability status of the machine and the payload on the selected attachment. This system works using signals coming from the following sensors: pressure sensors installed on the piston and rod chambers of the boom lift and forks tilt slave cylinders and boom extension and angle sensors which are enclosed in the same device installed on the boom first section left side . The machine is also equipped with a complete set of road lights allowing a safe circulation on public roads in dark conditions. A counterweight system is installed on the back area of the slewing turret to improve the longitudinal stability of the machine. All the electrical and hydraulic links between the undercarriage and the turret are provided through dedicated electrical and hydraulic joints which are installed with their rotating axes aligned with the slewing turret axis.

Description Of The Machine

Allowed use

The telehandlers have been designed and manufactured for lifting, handling and transporting agricultural or industrial products by means of specific attachments (See "**Optional Attachments**" chapter) manufactured by TEREXLIFT.
Any other use is considered contrary to that established and, therefore, improper.
The compliance with and the strict respect of the operation, maintenance and repair conditions, indicated by the Manufacturer, represent an essential part of the allowed use.
The telehandler must be used and serviced only by operators knowing its characteristics and the safety procedures in depth.
It is also essential to comply with the safety at work legislation, the precautions concerning safety and industrial medicine as well as the local and national road traffic regulations.
The telehandler can be used in residential and commercial environment, light industry and industry.

WARNING

Effecting changes or carrying out interventions on the machine other than those of routine maintenance is expressly forbidden. Any modification of the machine not carried out by TEREXLIFT or an authorised assistance centre involves the automatic invalidation of the conformity of the machine to the Directive 2006/42/EC.

NOTICE

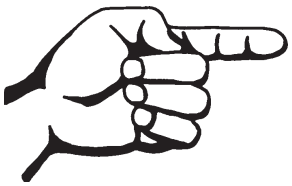
Please check the accessories available for your machine.

Improper use

Improper use means a utilisation of the telehandler following working criteria that do not comply with the instructions of this manual, and that, in general, may result in risks for both operators and bystanders.

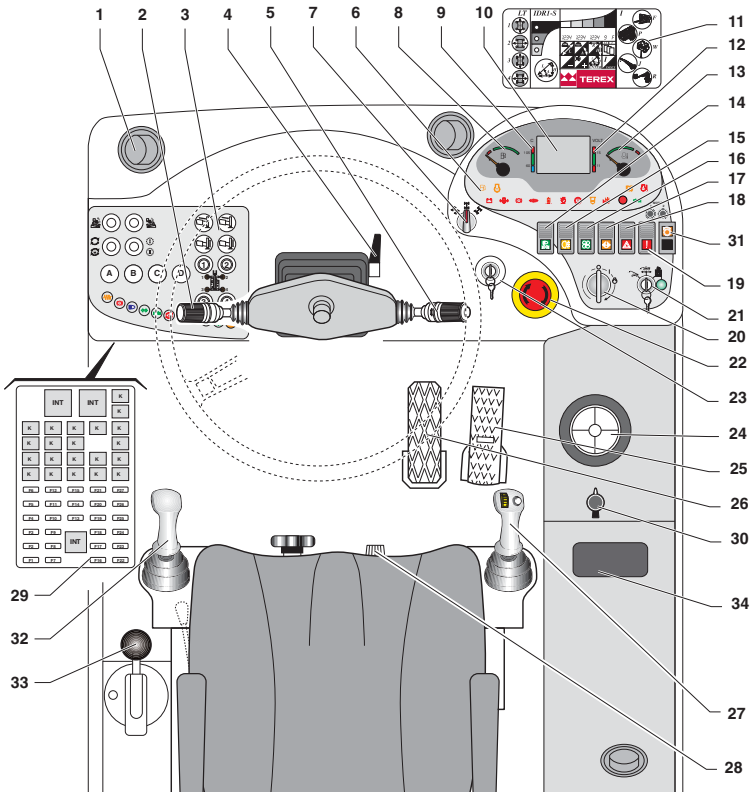
DANGER

We list below some of the most frequent and hazardous situations of improper use:
- Carrying passengers on the machine
- Not strictly complying with the operation and maintenance instructions of this handbook
- Working beyond the handler working limits
- Working on unstable edges of ditches
- Driving crosswise on slopes or hills
- Working during a storm
- Working on steep slopes
- Using attachments other than those recommended
- Using attachments not approved or directly manufactured by TEREXLIFT
- Working in potentially explosive areas
- Working in confined and non-ventilated environments.
- Working in poorly enlighted area.



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Controls And Instruments



1 Fresh air flap
2 Forward/reverse gear selector
3 Control panel
4 Locking lever - steering column angle adjustment
5 Switch: turn signals - lights - windscreen washer - windscreen wiper
6 Light indicators and warning lights
7 Steering mode selector
8 Fuel gauge
9 Hydraulic oil temperature
10 Multipurpose display
11 Load limiter display
12 Battery voltage indicator graduated scale
13 Engine coolant temperature indicator
14 Road lights switch
15 Fog lamp switch
16 Cab air conditioning fan switch
17 Differential locking switch
18 Hazard warning light switch
19 Emergency pump pushbutton
20 Ignition switch
21 Cab-Road-Platform switch
22 Emergency stop switch
23 Load limiter disable selector
24 Inclinometer
25 Throttle pedal
26 Service brake pedal
27 Multipurpose joystick (right)
28 Cab heater control cock
29 Fuse and relay box
30 Manual potentiometric accelerator
31 Warning light - Shift-on-fly system enabled
32 Multipurpose joystick (left)
33 Parking brake
34 Optional switches dashboard

Controls And Instruments

Control Panel

51 Turntable rotation locking/unlocking button

52 Machine sway button: lifts the right side

53 Machine sway button: lifts the left side

54 Mechanical gearbox button

55 Button - Telescopic stabilizer retraction

56 Button - Telescopic stabilizer extension

57 Stabilizer lifting button

58 Stabilizer lowering button

59 Button 1: front left stabilizer selection/de-selection

60 Button 2: front right stabilizer selection/de-selection

61 Button 3: rear left stabilizer selection/de-selection

62 Button 4: rear right stabilizer selection/de-selection

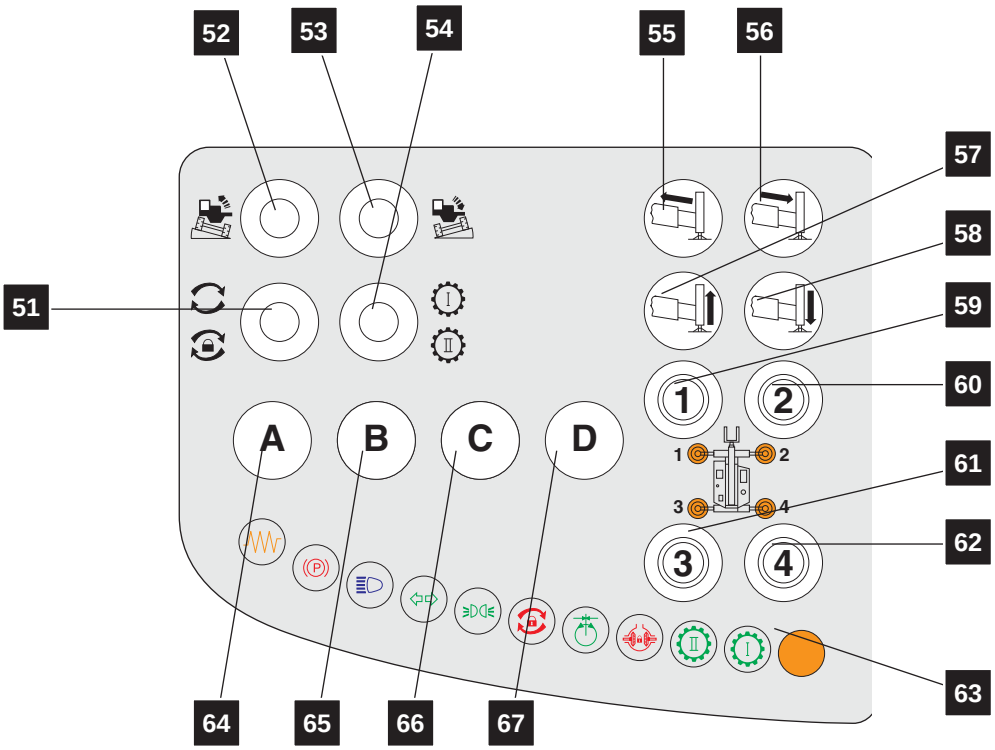
63 Warning lights and luminous indicators

64 Function button A: automatic machine levelling

65 Function button B: not active

66 Function button C: not active

67 Function button D: stabilizer lifting/lowering flush with wall



Controls And Instruments

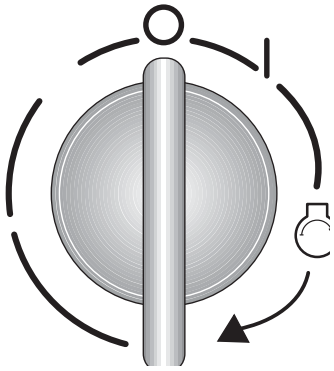
■ 20 _ Ignition Switch

Three-position switch:

O No circuit under voltage, key can be removed and engine is stopped.

I Circuits under voltage for engine start-up. Board controls and instruments are on. Wait until the warning light **6.2** signalling the glow plugs preheating goes off before proceeding with the engine starting.

Engine start-up; when released, key springs back to pos. **I** automatically.



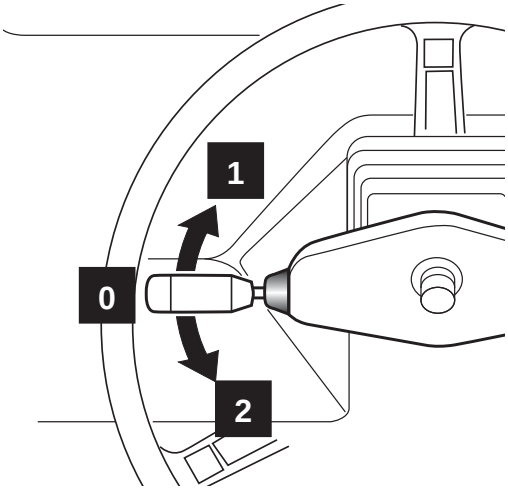
■ 2 _ Forward/Reverse Gear Selector Switch

The lever lets you select the forward or reverse speed. The lever must be pulled upwards before engaging the selected speed.
Three-position switch with lock in neutral position:

0 Neutral position; no gear engaged

1 Shift lever to pos. 1 to select the forward gear

2 Shift lever to pos. 2 to select the reverse gear

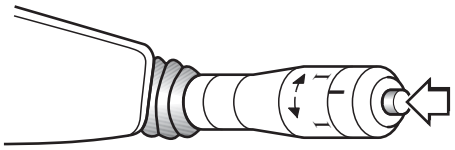


Controls And Instruments

5 _ Turn Signals - Windscreen Wiper - Horn - Lights

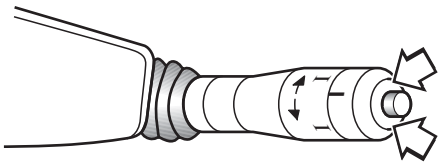
Horn function:

When sliding the lever along its axis, horn switches on, independently from other pre-set functions.



Windscreen washer function:

Push the second stage of the lever along its axis to direct a jet of water onto the cab windscreen.



Windscreen wiper function:

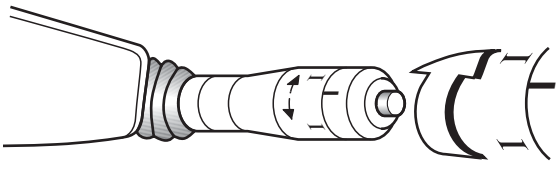
To operate the windscreen wiper, rotate the lever tip to one of the four positions:

I Intermittence (not activated)

0 Wiper OFF

J Low speed

I I High speed



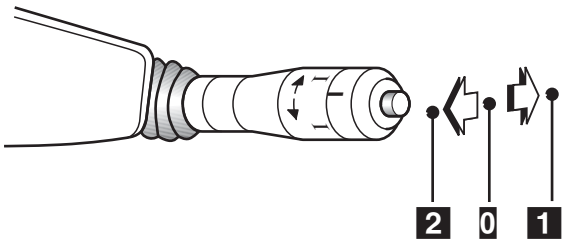
Lights function:

To switch the handler lights, lever can be set to three different positions along its horizontal axis:

0 low beam ON, stable condition

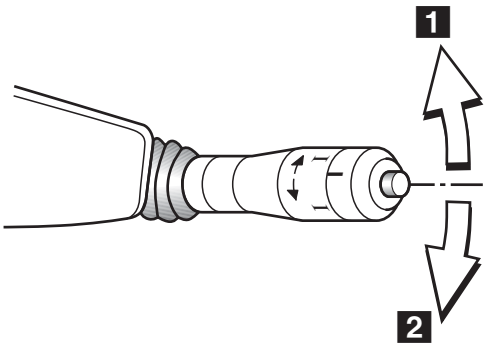
1 high beam ON, stable condition

2 high beam used for intermittent signalling; when released, the lever springs back to position **0**.



Turn signals function:

Set lever to pos. **1** to indicate a turn leftwards or to pos. **2** to indicate a turn rightwards.



Controls And Instruments

Brakes

26 _ Service Brake Pedal

By gradually pressing the pedal, translation is slowed down and, by stepping the pedal down to end of stroke, the machine is stopped.

33 _ Parking Brake

To engage the parking brake, pull the lever upward while holding the locking button pressed down. Release the button when reaching the required braking tension. It operates on the axle shafts of the rear axle and, when engaged, it cuts both forward and reverse gear off.

CAUTION

Never use the parking brake to slow down the machine, unless in an emergency. It may reduce the brake efficiency.

Accelerator control

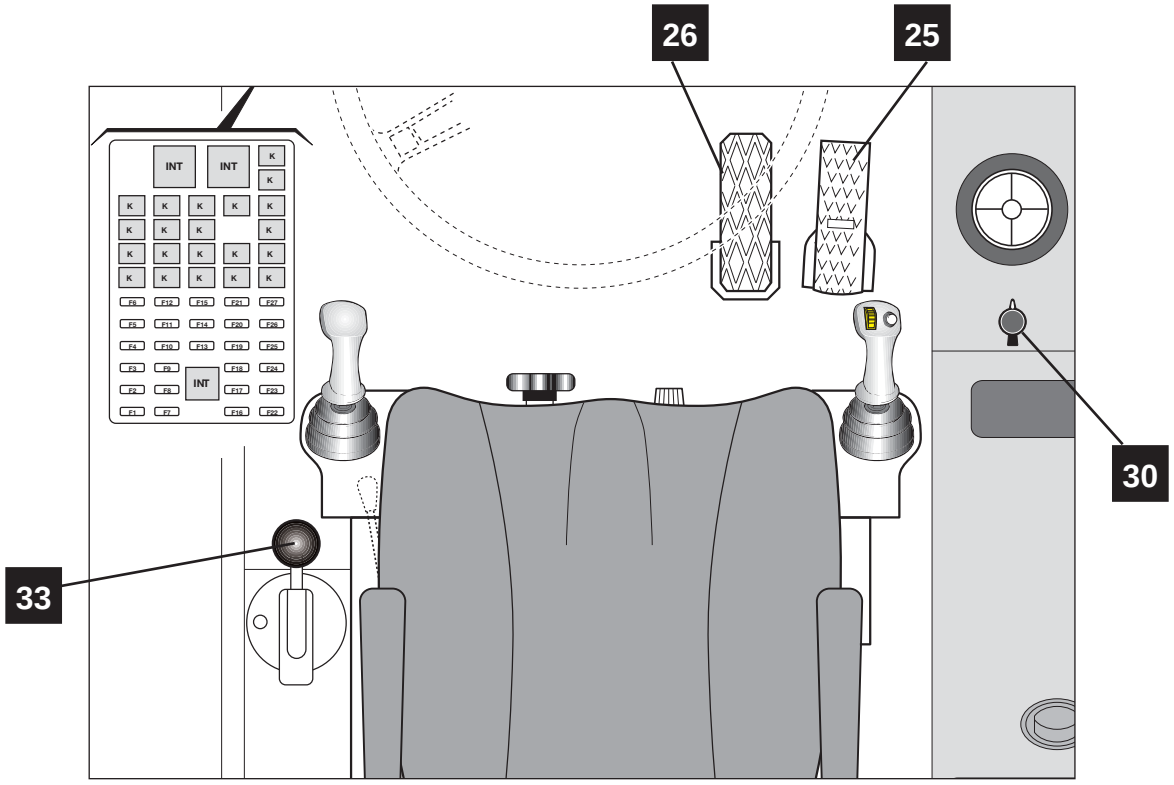
25 _ Throttle Pedal

Its pressure controls the engine rpm and the machine speed. It is fitted with an adjustable stop in the lower part.

30 _ Manual Potentiometric Accelerator

Turning the regulator **30** clockwise lets you increase the engine speed.
Turning the regulator counter-clockwise lets you decrease the engine speed.

The manual gas control can only be used with man-platform, winch, mixing bucket, hook and maintenance jib.



Controls And Instruments

■ Safety and Emergency Devices

22 _ Emergency Stop Pushbutton

By pressing this button, the engine of the machine is shut down.
Before restarting the machine, it is necessary to reset the pushbutton by rotating it clockwise.

23 _ Load Limiter Disable Selector

The load limiter can be deactivated operating the key-selector placed under the protection cover.

DANGER

WORKING WITH THE LOAD LIMITING SYSTEM CUT OUT CAN RESULT IN A MACHINE OVERTURNING AND IN SERIOUS INJURY.

18 _ Hazard Warning Lights Switch

Fitted with on-off position, it switches on the turn signals simultaneously. When the hazard warning light is lit, the relevant switch and the turn signals light start flashing.

19 _ Emergency Pump Control

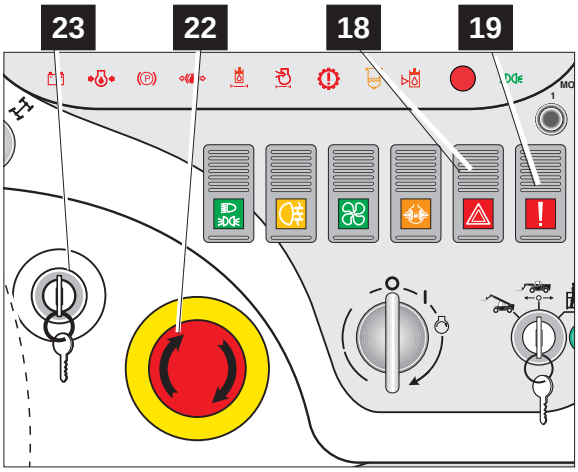
It is located on the left side of the dashboard and has two positions with automatic return to centre.
When the button is held pressed down, the emergency pump is activated. Releasing the button stops the pump.
The activation of the emergency pump should be done with the simultaneous operation of the cab controls or the main valve manual controls.
Correct operation sequence:

- Turn the ignition key **20** to position **I**.
- Shift the control lever to the desired position.
- Press the emergency pump control button **19**.

Do not start the emergency pump before shifting the control lever. The emergency pump is driven by an electric motor. Therefore, it is advisable to let the motor run for about 30 seconds, then stop for about 2 minutes to let the motor cool down.

NOTICE

Check the operation of the emergency pump every week as it could get damaged if it is not used.



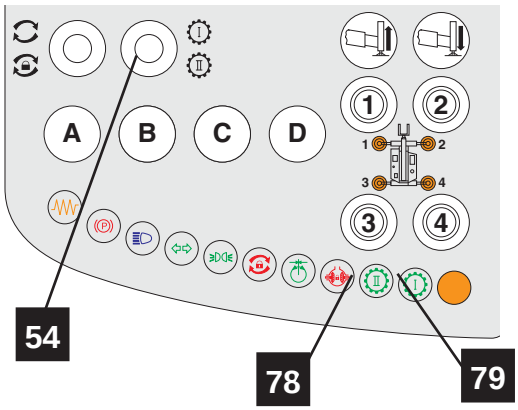
Controls And Instruments

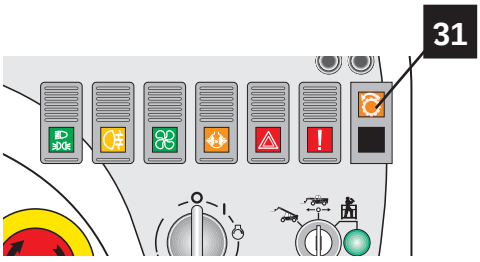
Speed Controls

MECHANICAL Gear Change Control

Pushbutton **54** lets you select the mechanical speed you wish.

- Pressing the button lets you shift from the first speed to the second speed.
- Indicator lights **78** and **79** show the selected speed:
  - indicator **79** comes on with a green flashing light to indicate that the first speed has been selected
  - indicator **78** comes on with a green flashing light to indicate that the second speed has been selected

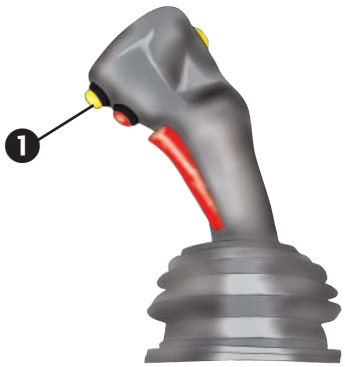




Shift-On-Fly Pushbutton

The ***Shift-on-fly*** system lets you shift from one gear to another when the machine is travelling.
The yellow activation pushbutton 1 is located at the back of the joystick handle and shall be pressed down only when the warning light **31** is lit.
This warning light flashes to warn of any errors or problems. In such case, gear won't be shifted.
When the warning light **31** is lit with a solid light, pressing the button lets you shift from one gear to another (from 1st speed to 2nd speed and from 2nd speed to 1st speed).
Indicator lights **78** and **79** show the selected speed.

The Shift-on-fly system can only be used within the admissible speed range. Always check that warning light 31 is lit before using the system.

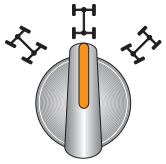


Controls And Instruments

■ Steering Mode Selection

7 _ Steering Mode Selector

The three-position switch for the selection of the steering mode is located on the dashboard to the right,:



1 Crab steering

0 Two-wheel steering

2 Four-wheel steering

■ Road/Jobsite/Platform Selection

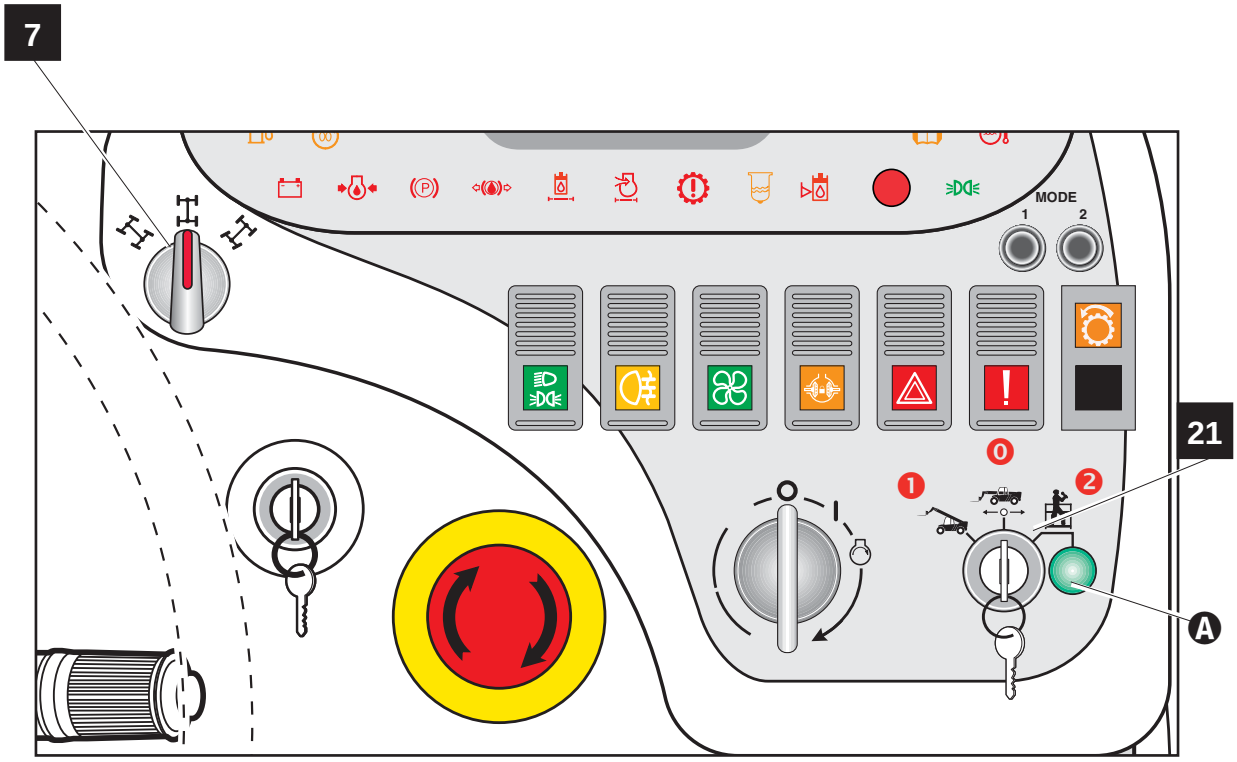
21 _ Road/Jobsite/Platform Selector

Three-position switch located on the dashboard, to the right:

- Rotating the switch to position **1** activates the cab controls
- Rotating the switch to position **0** configures the machine for road circulation
- When the switch is rotated to position **2**, the ignition key can be removed and the platform controls are activated. The green indicator light **A** comes on.

NOTICE

Before switching the controls from the cab to the platform, rotate the ignition switch to position I.



Controls And Instruments

Auxiliary Drive Controls

14 _ Road Lights Switch

Three-position switch placed on the right side of the dashboard:

0 Lights OFF

1 Position lights ON (the switch indicator lights up partially).

2 Low beam ON (the switch indicator fully lights up).

15 _ Fog Lamp Switch

Two-position switch placed on the right side of the dashboard:

0 Fog lamp OFF

1 Fog lamp ON (the switch indicator lights up).

16 _ Air Conditioning Fan Switch

Three-position switch:

0 OFF

1 Low speed

2 High speed

28 _ Cab Heater Control Cock

Located on the left side of the driving seat base.

- Turn the cock clockwise to switch off heated air.
- Turn the cock counter-clockwise to switch on the cab heater.
- Adjust the flow of heated air in the cab operating the A/C fan switch **16**.

17 _ Differential Lock Switch

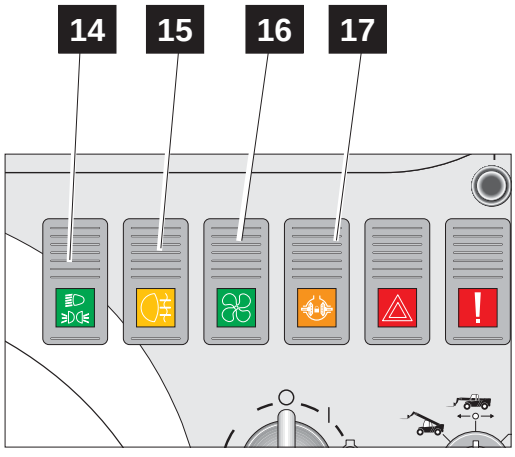
The button is located on the right side of the dashboard and has two stable positions:

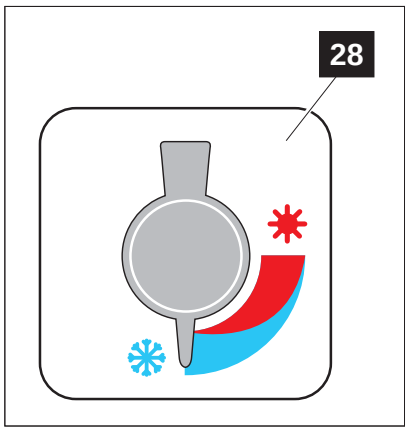
0 Axle differential unlocked

1 Axle differential locked.

The locked condition is signalled by indicator light **77**.

The differential lock device must only be used in the event of a stall situation(very uneven ground, mud, wheels not evenly resting on the ground). In all other events, the Limited-Slip device(fitted to the front axle) lets you face all normal operation condition.





Controls And Instruments

34 _ Optional switches dashboard

Air Condition Switch (OPTIONAL)
Two-position switch:



0 OFF

1 ON

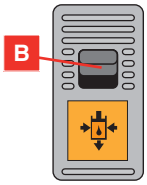
Work Lights Switch (OPTIONAL)
Two-position switch



0 Lights OFF

1 Lights ON

Auxiliary Hidraulic Circuit (OPTIONAL)
Two-position switch. The pressure of this button causes the switching of the hydraulic circuit for the movement of the attachments equipped with auxiliary lines.

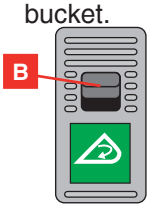


0 Oil to the main circuit

1 Attachments hydraulic circuit Switching

The selector has a block to keep the switch pressed. Before switching the selector to another position, unlock control **B** at the top of the selector.

Mixing Bucket Switch (OPTIONAL)
Two-position switch. The pressure of this button enables the movement of the internal mixer of the bucket.



0 Mixer OFF

1 Mixer ON

The selector has a block to keep the switch pressed. Before switching the selector to another position, unlock control **B** at the top of the selector.

Controls And Instruments

Instruments

8 _ Fuel Gauge

This indicates the fuel level in the tank. When the indicator reaches the red zone, there are roughly 5 litres in the tank and the warning light **6.1** comes on.

13 _ Engine Coolant Temperature Indicator

It indicates the engine coolant temperature.
If the red warning light **6.15** comes on (temperature above 100 °C), stop the engine and find and rectify the problem (radiator dirty, low engine coolant level, etc.).

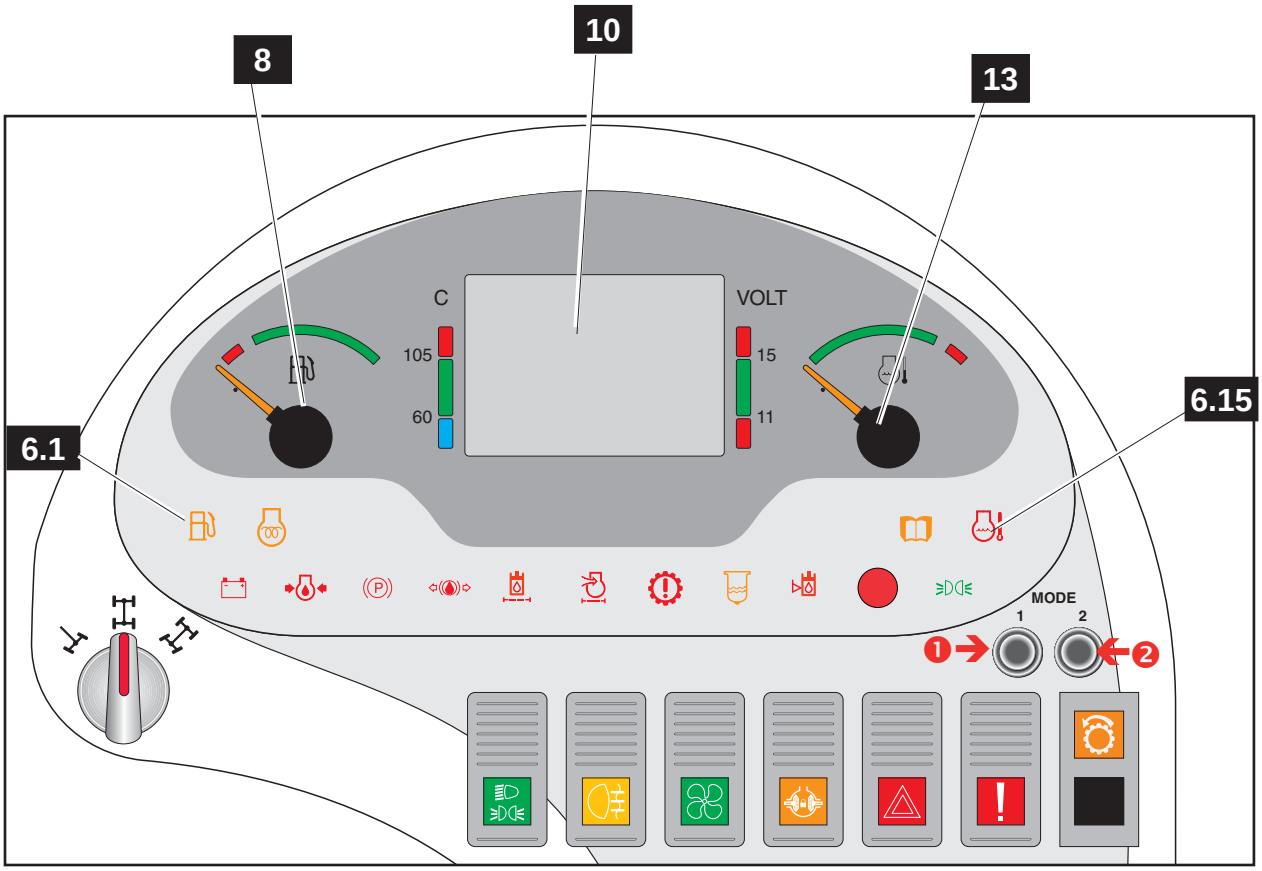
10 _ Multipurpose Display

When the machine is started, the graphic display shows:

- Engine rpm
- Hour-meter / speed
- Hydraulic oil temperature
- Battery voltage
- Service (next service intervals)

Additionally, the function buttons **MODE** 1 and **MODE 2** let you access to and scroll through the menus and sub-menus with the following functions:

- Language selection (Italian/English)
- Service (password-protected function reserved to authorised repair shops)
- Display of the diesel engine errors

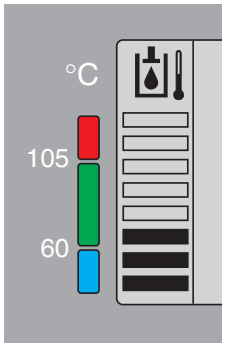


Controls And Instruments

■ Multipurpose Display

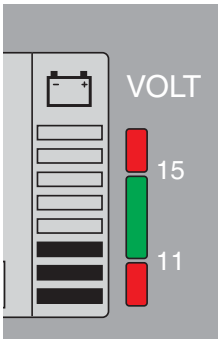
When the machine is started, the display shown in fig. **A** will appear:

- The black bars **41** on the left indicate the hydraulic oil temperature.



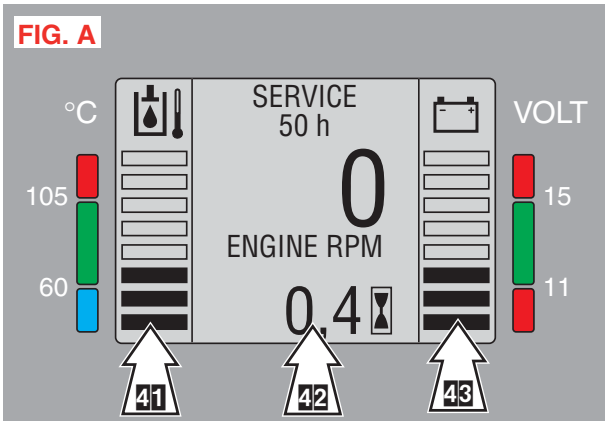
During normal operation, the temperature should be comprised between 60 and 105 degrees corresponding to the green section of the scale shown on the left of the display.
If a higher temperature is reached (and the bars of the red zone of the scale come on), you should stop the machine and find and rectify the problem before restarting the machine.

- The black bars **43** on the right show the battery charge when the engine is stopped, and the alternator charge voltage when the engine is running.



During normal operation, the temperature should be comprised between 11 and 15 volt corresponding to the green section of the scale on the right of the display.

FIG. A



If the voltage displayed is less than 11 Volt, the alternator charge could be insufficient or the battery could be discharged. If the voltage is above 15 Volt, the alternator voltage is above the normal working voltage. In both cases, you should stop the machine and find and rectify the problem.

- In the central part **42** of the display, starting from the top, you find:



This indicates when next maintenance operations should be done.
Pressing the **MODE** 1 button, the speed is displayed.



This indicates the diesel engine rpm.



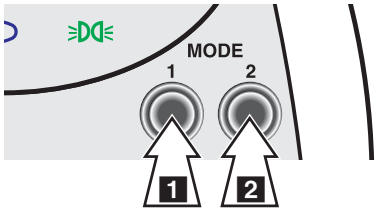
This is the hour-meter indicating the running time of the machine.Use this meter to correctly gauge the service intervals.

Controls And Instruments

Use of menus and sub-menus

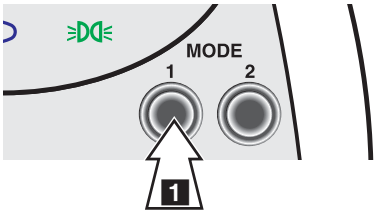
Use the two buttons **MODE** 1 and **MODE** 2 to gain access and scroll through menus and sub-menus.

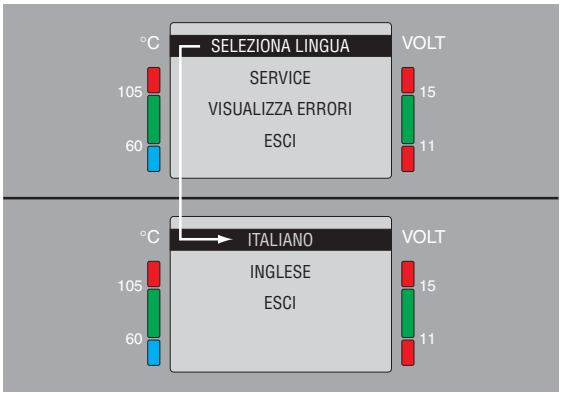
Press the two buttons **MODE** 1 and **MODE** 2 simultaneously to access to the menu.



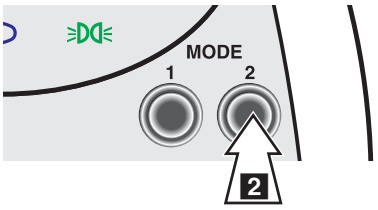


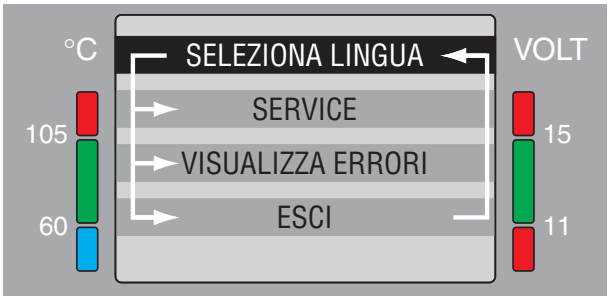
Press button **MODE** 1 to confirm any selection made.





Press button **MODE** 2 to scroll through the menu lists (when the last item of the list is reached, the first item is displayed).



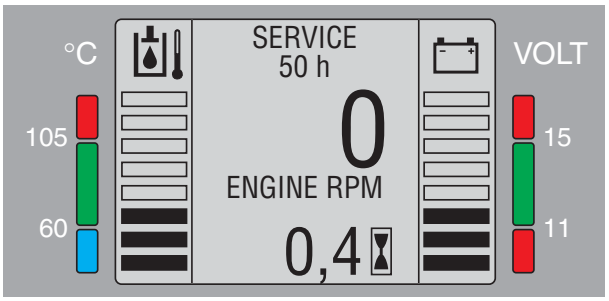


Quitting the menu

- Select **EXIT** using button **MODE** 2.



- Press button **MODE** 1 to quit and display the home page.



Controls And Instruments

Language selection sub-menu

- Select **SELECT LANGUAGE** using button **MODE** 2.



- Press button **MODE** 1 to open the sub-menu.
- Press button **MODE** 2 to scroll through the list.



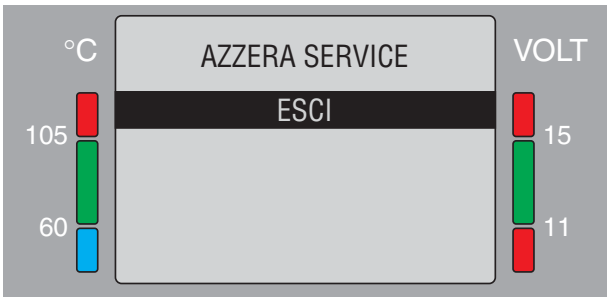
- Press button **MODE** 2 to select the language and quit the sub-menu (the **EXIT** command lets you quit the menu without changing any settings).
- By quitting the sub-menu, you will go back to the **SERVICE** window of the main menu.

Password protected service sub-menu (reserved to authorised service centres)

- Access to this sub-menu is reserved to authorised service centres and is therefore password protected.



- If you have entered the **SERVICE** menu accidentally, press button**MODE** 2, select **EXIT** and then press button **MODE** 1 to confirm.



- By quitting the sub-menu, you will go back to the **DISPLAY ERRORS** window of the main menu.

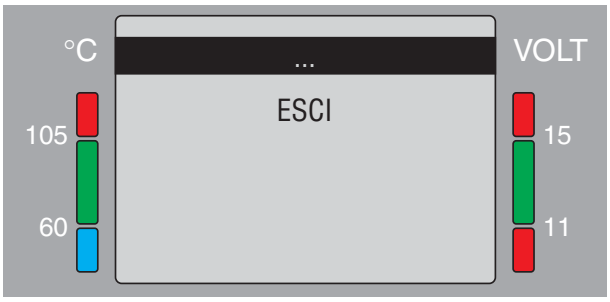
Controls And Instruments

Error display sub-menu

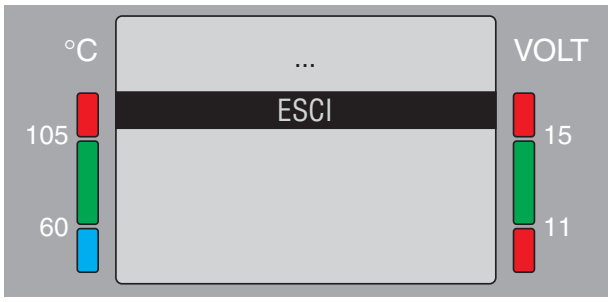
- Select **DISPLAY ERRORS** using button **MODE 2**.



- Press button **MODE 1** to open the sub-menu.



- Press button **MODE 2** to scroll through the errors list.
- To quit the sub-menu, select **EXIT** (using button **MODE 2**) and then press button **MODE 1** to confirm.



- By quitting the sub-menu, you will go back to the **EXIT** window of the main menu.

Controls And Instruments

Right Panel Luminous Indicators (ref.6)

6.1 Warning light - fuel reserve
This red light comes on to alert to a low fuel level in the tank.

6.2 Warning light - glow plugs preheating
This amber light indicates the pre-heating of the engine glow plugs. Before starting the engine wait for this light to go off.
If the light fails to go off, a glow plug could be broken.
The machine can be started normally without pre-heating up to a temperature of -12°C.

6.3 Warning light - low battery charge
This red light comes on to alert to a low charge by the alternator.

6.4 Warning light - low engine oil pressure
This red light comes on to warn that the pressure in the engine lubrication system is not enough for a proper operation.
Stop the engine and find and rectify the problem.

6.5 Warning light - parking brake engaged
This red light comes on to warn that the lever of the parking brake is not in the neutral position (parking brake engaged).

6.6 Warning light - low brake pressure
This red light comes on to warn that the braking circuit pressure is not enough for a proper operation.

6.7 Warning light - hydraulic oil filter clogged
When this lamp sets to on, immediately change the oil filter on the return line to the tank.

6.8 Warning light - air filter restricted
When this red light comes on, clean or change the air filter cartridges (see "Maintenance" section).

6.9 Warning light - not active

6.10 Warning light - water in fuel
This yellow light comes on to alert to the presence of water in fuel.

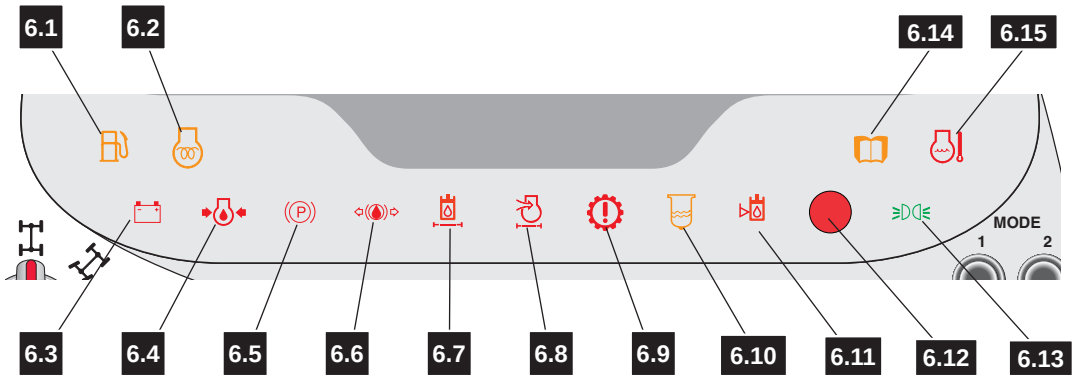
6.11 Warning light - low hydraulic oil level
This light comes on to alert to a low level of the hydraulic oil for a correct functioning. Replenish and eliminate the oil leak.

6.12 General Warning light
This red light comes on to warn of a problem of the machine. Contact TEREXLIFT Service Center.

6.13 Warning light - position lights
Green warning light that signals when the position lights are ON.

6.14 Warning light - Read the manual"
This amber light indicates a failure of the machine. For the error codes, please refer to the engine operation and maintenance manual.

6.15 Warning light - high coolant temperature
This red light comes on to alert to a too high temperature of the cooling medium.
Stop the engine and find and rectify the problem.



Controls And Instruments

■ Left Panel Luminous Indicators

70 Warning light - not active

71 Warning light - parking brake engaged
This red light comes on to warn that the lever of the parking brake is not in the neutral position (parking brake engaged).

72 Warning light - high beam
Blue warning light that signals when the high beam is ON.

73 Warning light - turn signals
Green flashing indicator light that signals when the turn signals are ON.

74 Warning light - position lights
Green warning light that signals when the position lights are ON.

75 Warning light - turntable rotation blocked
This red light comes on to warn that the turntable rotation is blocked. Remove the locking pin before turning the turntable.

76 Warning light - turntable aligned
This green light comes on to warn that the turntable is in line with the longitudinal axis. In this condition, the locking pin can be driven in.

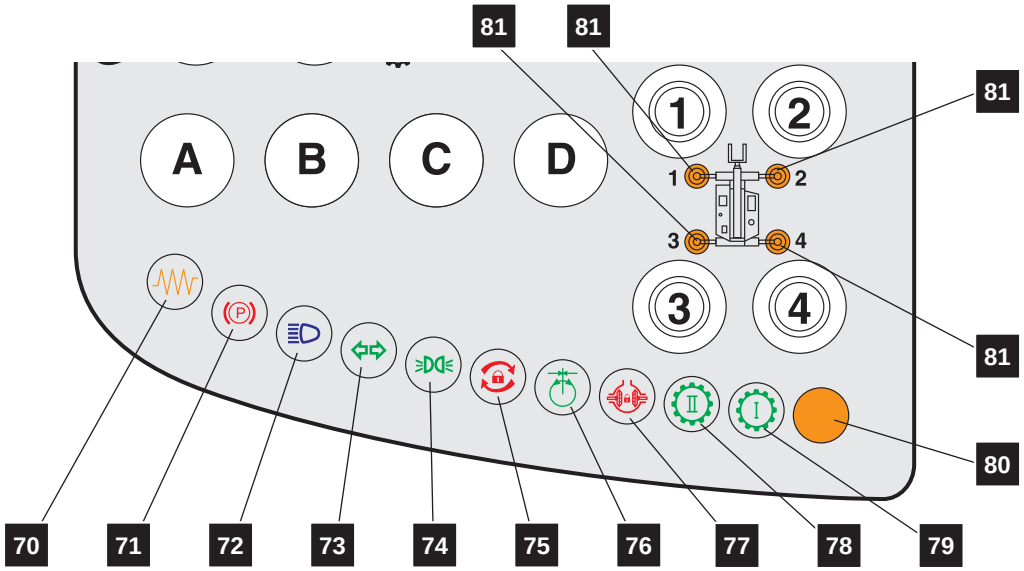
77 Warning light - differential lock
This red light comes on to warn that the differential lock has been activated.

78 Warning light - second speed engaged
This green flashing light comes on to warn that the second speed has been engaged.

79 Warning light - first speed engaged
This green flashing light comes on to warn that the first speed has been engaged.

80 Warning light - machine levelled
This amber light comes to indicate that:
- the machine is levelled (fixed light)
- levelling is in progress (flashing light)

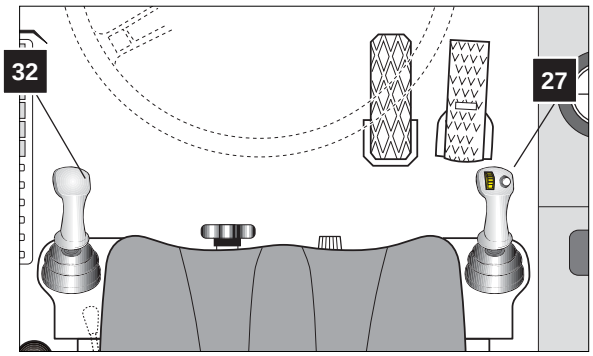
81 Warning lights - stabilizer movements
These amber lights come on to indicate the selected stabilizer:
1 front left stabilizer
2 front right stabilizer
3 rear left stabilizer
4 rear right stabilizer

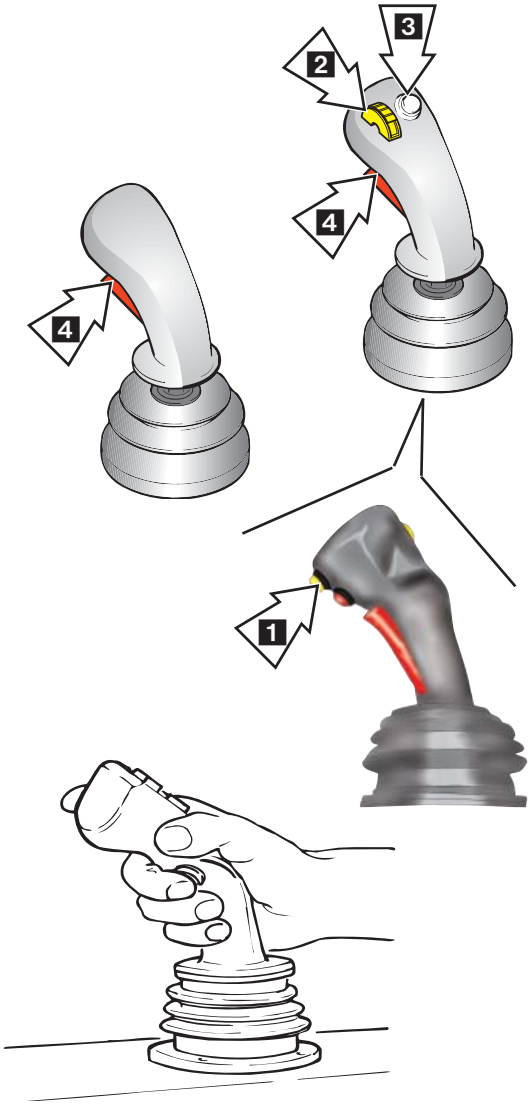


Controls And Instruments

CONTROL LEVERS

The handlers are equipped with two multipurpose joysticks **27** and **32** that let you operate all the machine movements.
The right joystick **27** is installed to one side of the driver's seat; the left joystick **32** is installed on a rotating arm which can moved up to enter or leave the control place.
At the front of both joysticks, there is the intentional control button **4** which must be held pressed down until the manoeuvre has been completed. If this button is not pressed, shifting the joystick to any direction won't activate any function.
The joysticks can be shifted to any of the four directions, that is forward, backward, to the right or to the left.
The right joystick has two additional buttons **2** and **3** at the top for the activation of further functions.
Pushbutton **1** lets you use the mechanical "Shift-on fly" system.





Seize the control lever correctly and move it gently.
The motion speed of the actuators depends on the lever position: a small motion results in a slow motion of the actuators; vice versa, a full range motion of the lever corresponds to the max. speed of the actuator.

CAUTION

The control lever shall be operated only when correctly seated in the driving place.

DANGER

Before operating the control lever, make sure that nobody is within the working range of the machine.

Controls And Instruments

Function Selection

Right Joystick:

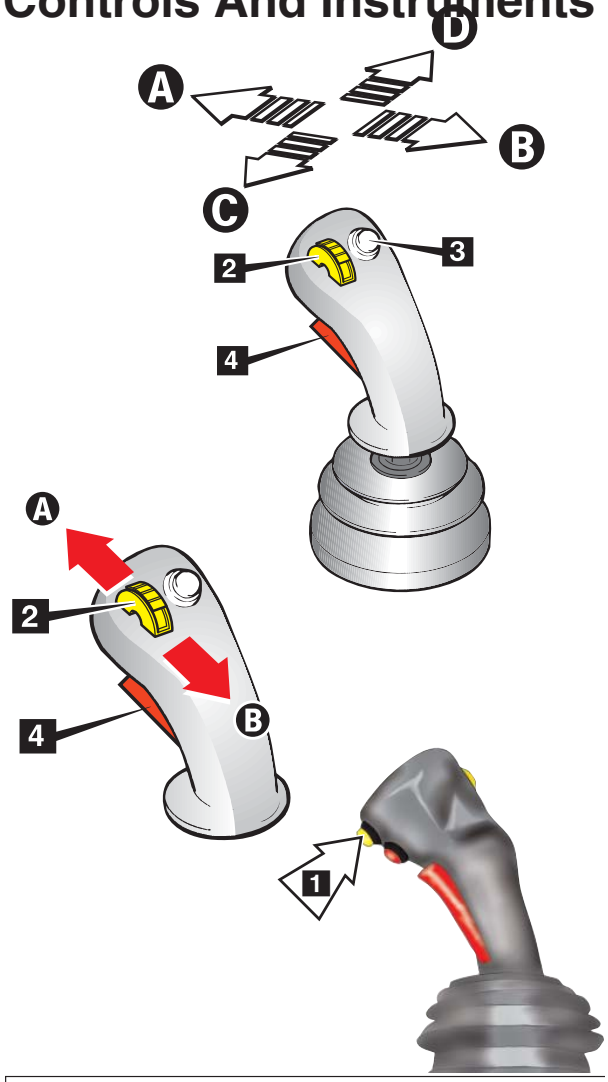
Once the intentional control pushbutton 4 has been pressed, you can use the joystick to activate the following functions:

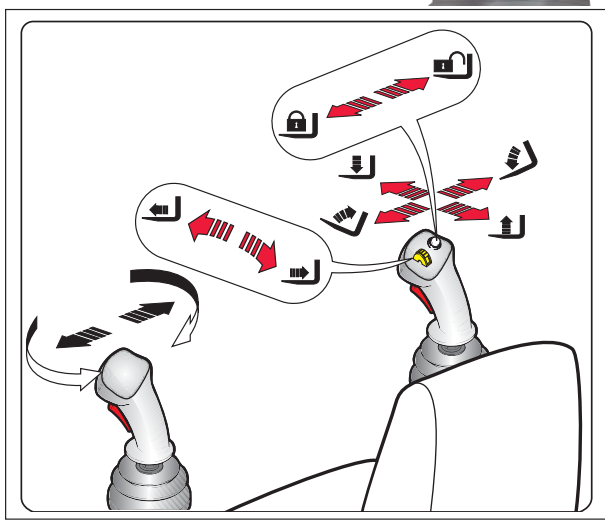
- **Boom lowering/lifting**
  To activate the function, shift the joystick to **A** - **B**.
- **Telescope retraction/extension**
  To activate the function, press button **2** to **A** - **B** without shifting the joystick.
- **Attachment frame forward/back pitching**
  To activate the function, shift the joystick to **C** - **D**.
- **Attachment coupling/release**
  To activate the function, hold button **3** pressed down and move the joystick to **C** or **D**

The following controls do not need you to press the intentional control button **4** for their operation:

- **Shift-on-fly**
  To change mechanical gear, press the yellow button **1** when the relevant warning light on the dashboard is lit with a solid light.

If, during operation, button 4 is released for more than 0.5 seconds, the movement stops.
To restart the movement, re-select the function.





Controls And Instruments

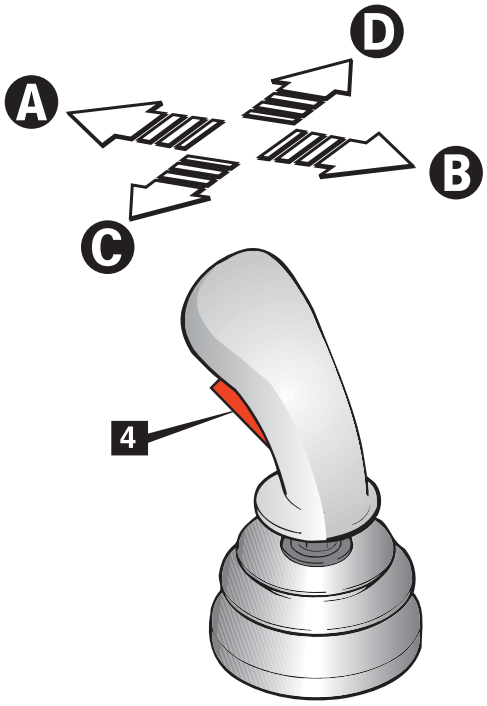
■ ***Left Joystick*:**

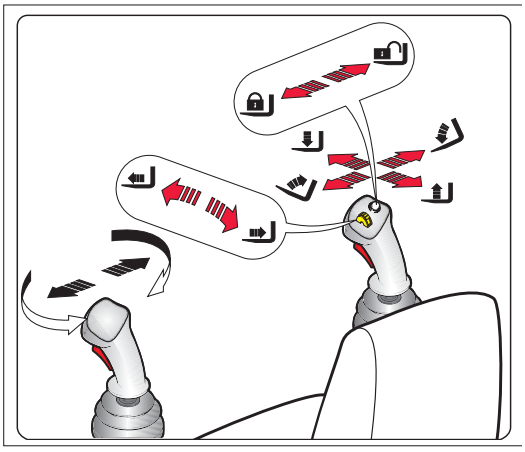
Once the intentional control pushbutton 4 has been pressed, you can use the joystick to activate the following functions:

- **Turntable rotation**
  to activate the function, shift the joystick to **C** or **D**.



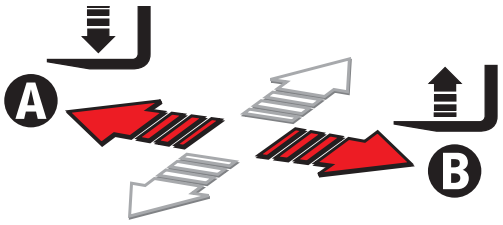
If, during operation, button 4 is released for more than 0.5 seconds, the movement stops.
To restart the movement, re-select the function.

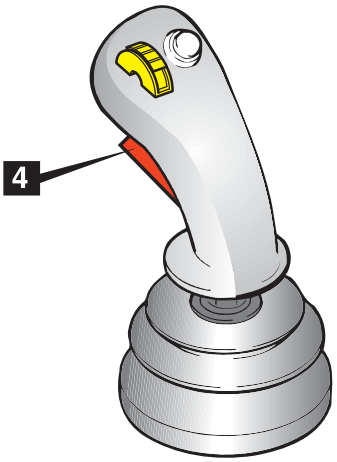




Controls And Instruments

Lifting/Lowering The Boom





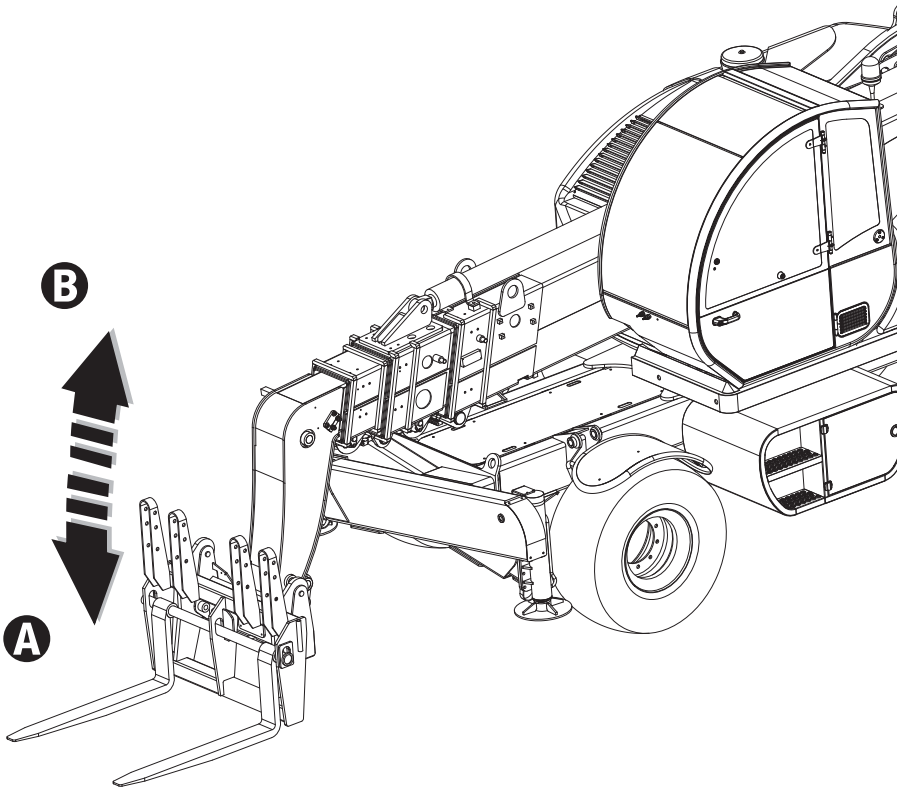
RIGHT JOYSTICK

DANGER

Before operating the boom, make sure that nobody is within the working range of the machine.

To lift or lower the boom:

- Set thecontrol lever to central position and press button **4**.
- Smoothly shift the lever to position **B** to lift the boom; shift the lever to position **A** to lower the boom.



Controls And Instruments

■ Extending/Retracting The Boom

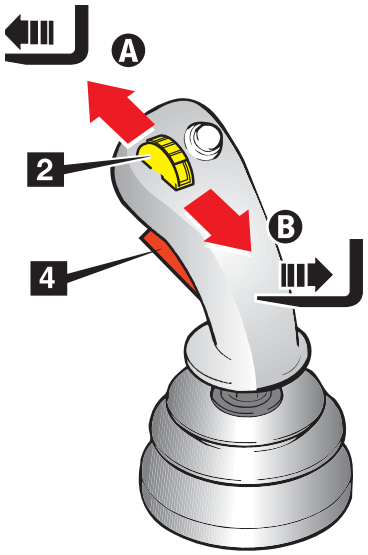
RIGHT JOYSTICK

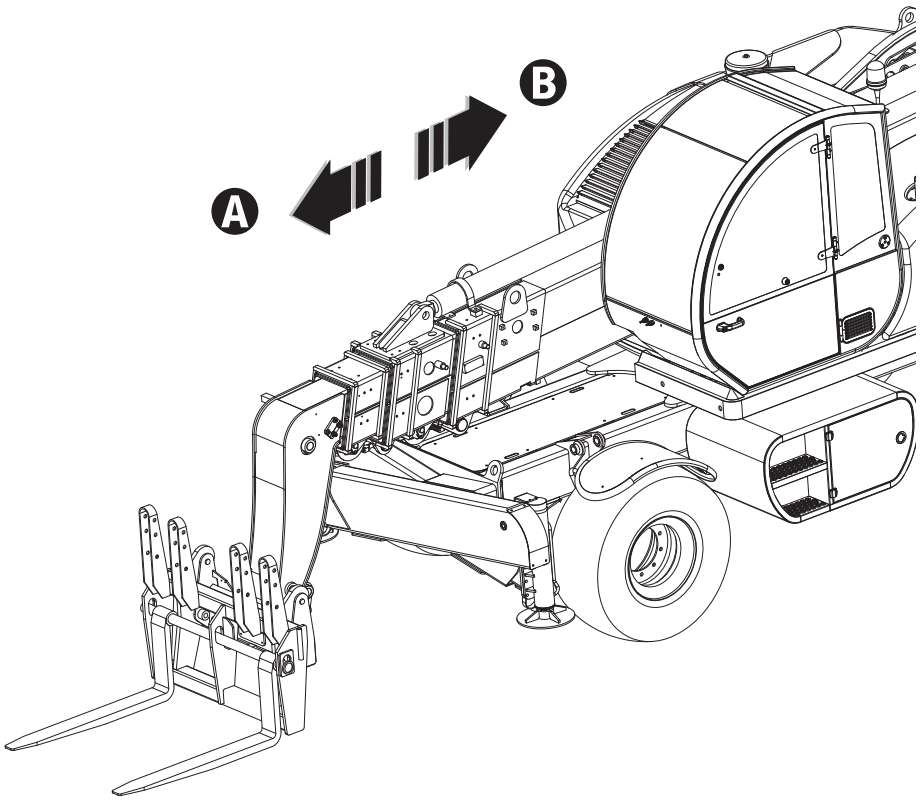
DANGER

Before operating the boom, make sure that nobody is within the working range of the machine.

To extend or retract the boom telescopes:

- Set the control lever to central position and press button **4**.
- Press button **2** to **A** to move out the boom telescope; press the same button to **B** to move in the boom telescope.





Controls And Instruments

■ Pitching The Attachment Holding Frame Forward/Back

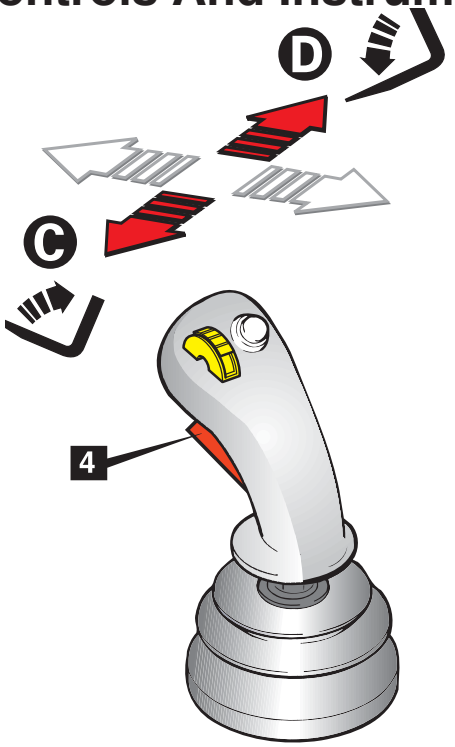
RIGHT JOYSTICK

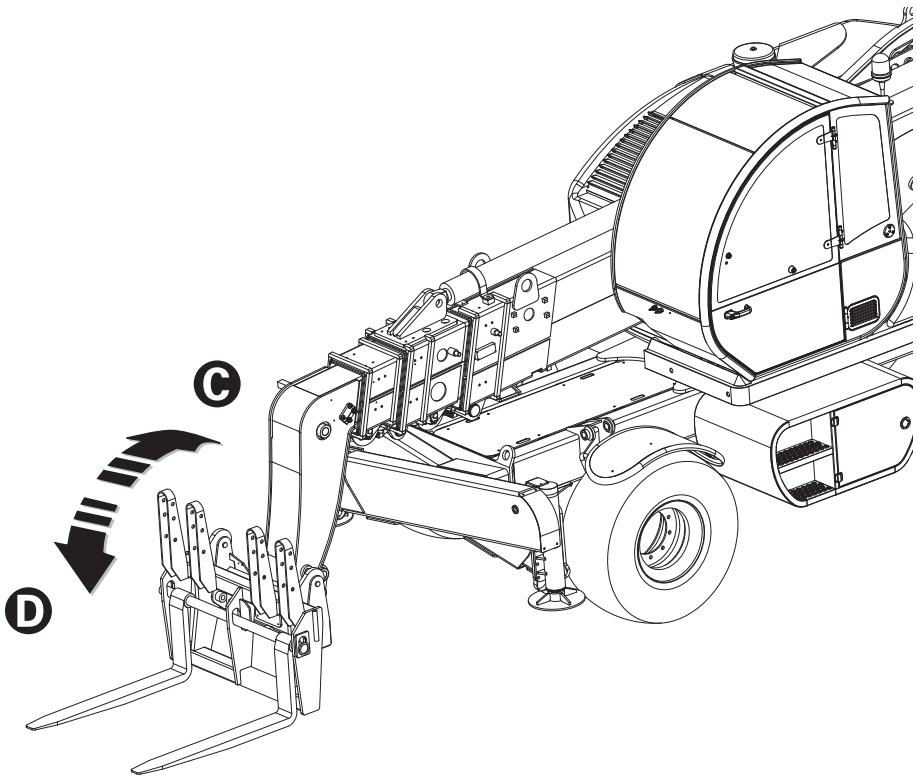
DANGER

Before operating the boom, make sure that nobody is within the working range of the machine.

To pitch forward/back the attachment holding frame:

- Set the control lever to central position and press button **4**.
- Smoothly shift the lever to position **D** to pitch the holding plate forward; shift the lever to position **C** to pitch the plate back.





Controls And Instruments

■ Quick-Coupling The Attachments

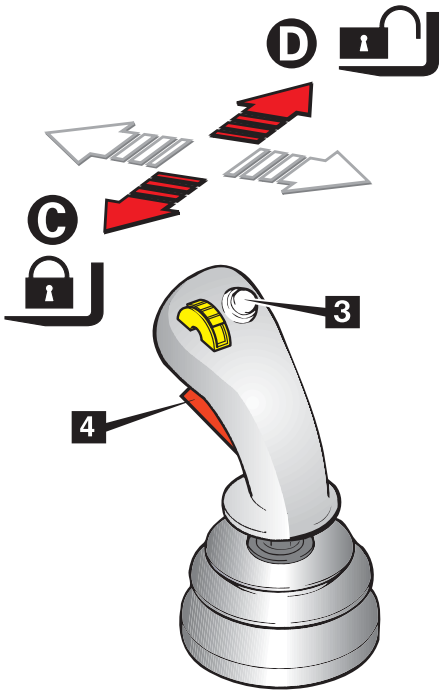
RIGHT JOYSTICK

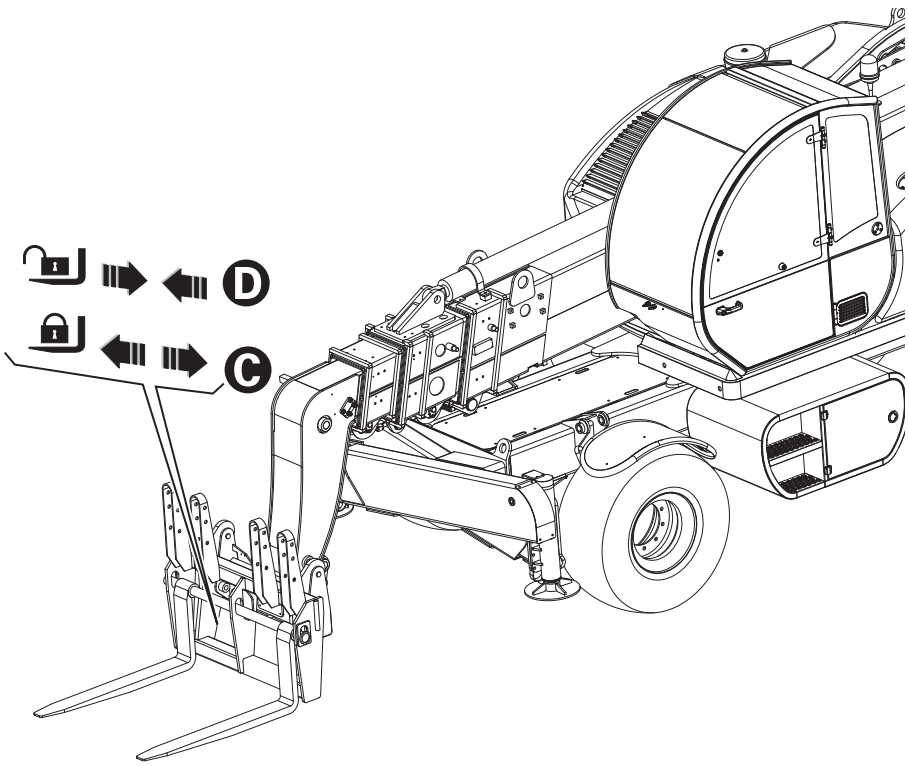
DANGER

Before operating the boom, make sure that nobody is within the working range of the machine.

To lock the attachments:

- Set the control lever to central position and press button **4**.
- Press button **3** to select the attachment locking function and hold it pressed until the end of the motion.
- Smoothly shift the lever to position **C** to lock the attachment; shift the lever to position **D** to unlock the attachment.





Controls And Instruments

Turntable Rotation Control

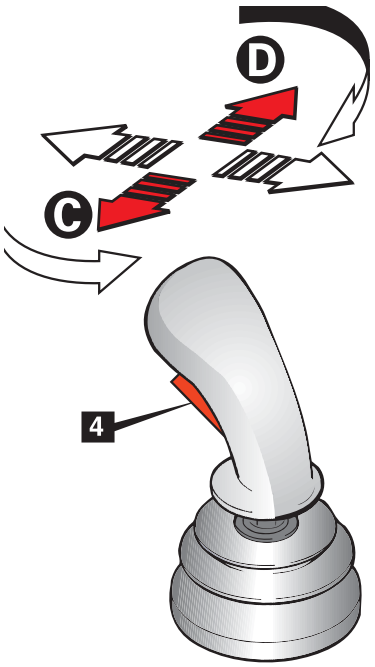
LEFT JOYSTICK

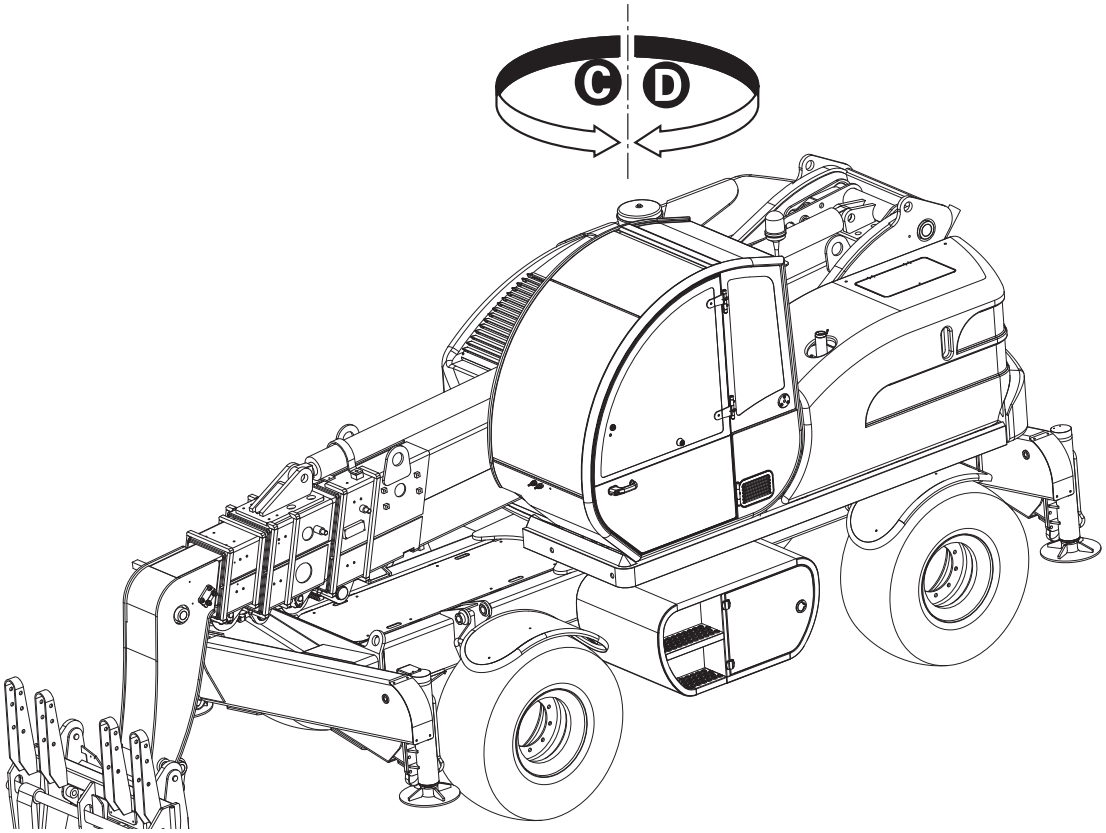
NOTICE

Before operating the turntable rotation control, check that the locking pin has been removed.

To rotate the turntable:

- Shift the control lever to central position and press button **4**.
- Smoothly shift the lever to direction **D** to rotate the turntable clockwise; shift the lever to direction **C** to rotate the turntable counter-clockwise.





Controls And Instruments

MACHINE SWAY CONTROL

Automatic levelling

To level the machine:

- Press button **52** to raise the right side of the machine.
- Press button **53** to raise the left side of the machine.

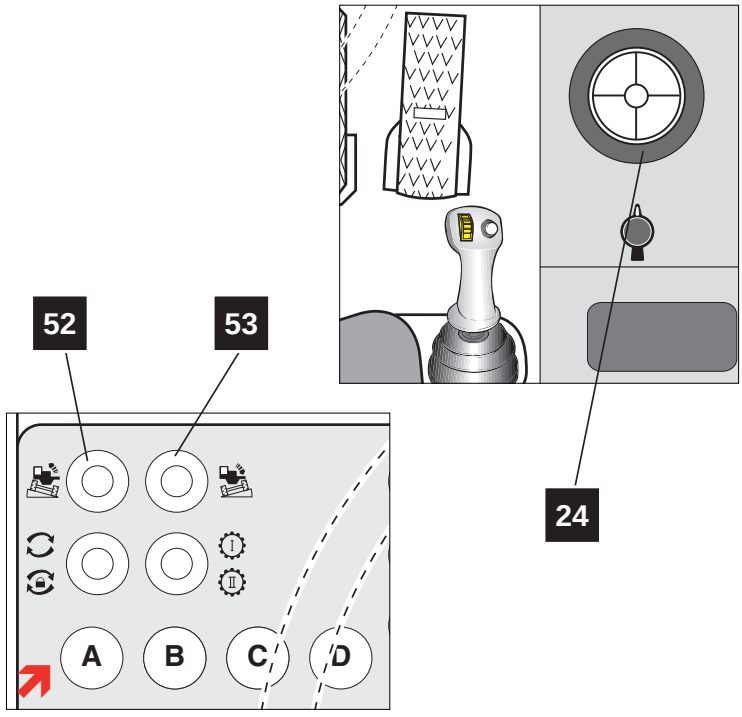
Automatic levelling of the stabilized machine

• lower all the stabilizers to the ground and press button **A**. During operation, the machine will level automatically.

Check that the machine is level on the inclinometer 24. The air bubble must be right in the middle of the instrument.

NOTICE

Operate the sway control only when the turntable is locked in central position and the boom is at max 10° .



Controls And Instruments

STABILIZER CONTROL

On the left control panel, there are a series of controls for operating the stabilizers.

Pressing or releasing buttons **1** - **2** - **3** - **4** lets you select or de-select the corresponding stabilizer:

1 Front left stabilizer
2 Front right stabilizer
3 Rear left stabilizer
4 Rear right stabilizer

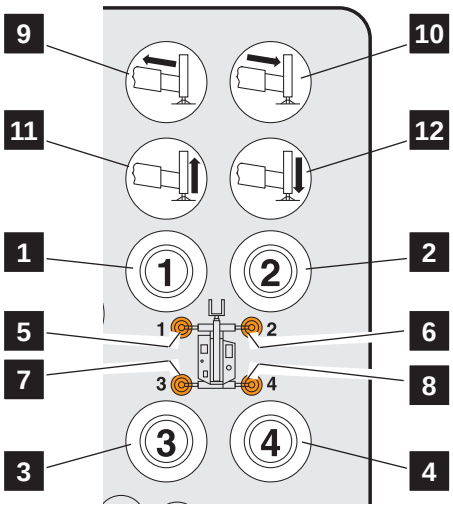
Stabilizers can be moved one at a time or all at the same time by repeating for each of them the same operating sequence.

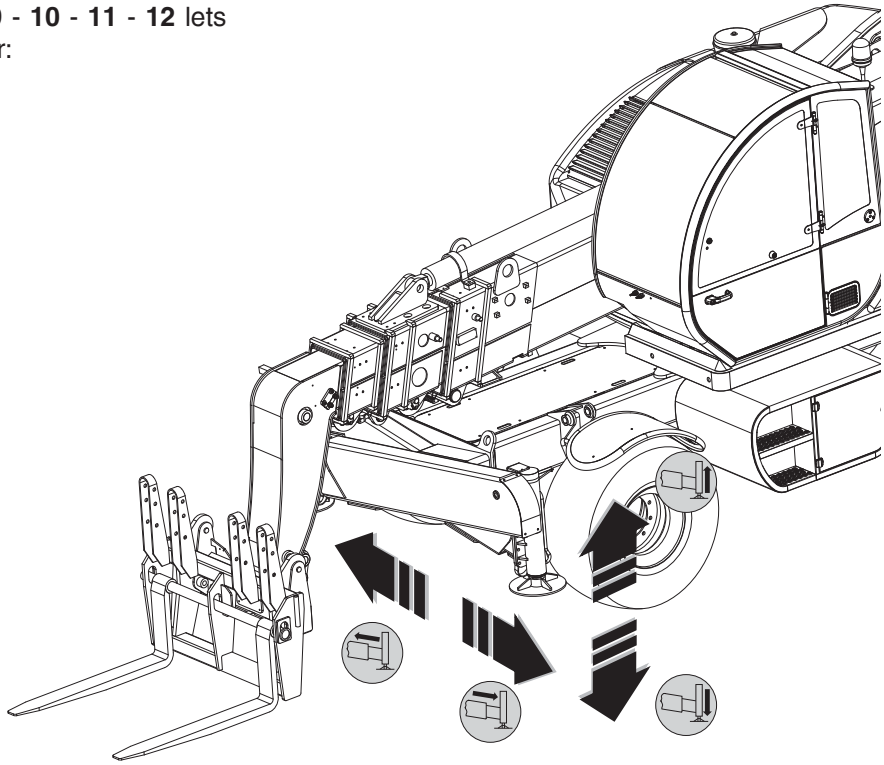
Indicator lights **5** - **6** - **7** - **8** show the selected stabilizer.

5 Front left stabilizer
6 Front right stabilizer
7 Rear left stabilizer
8 Rear right stabilizer

Pressing or releasing buttons **9** - **10** - **11** - **12** lets you move the selected stabilizer:

9 Stabilizer in
10 Stabilizer out
11 Stabilizer pad up
12 Stabilizer pad down





Controls And Instruments

Using the stabilizers:

- Select the stabilizer you wish to use by pressing the relevant selection button **1** - **2** - **3** - **4**, and check that the indicator light of the selected stabilizer comes on.
- Hold button **10** pressed down to extend the stabilizer.
- Hold button **12** pressed down to lower stabilizer pad to the ground.
- De-select the stabilizer by pressing the relevant button **1** - **2** - **3** - **4**, and check that the indicator light of the de-selected stabilizer goes off.

Bringing the stabilizers to the rest position:

- Select the stabilizer you wish by pressing the relevant selection button **1** - **2** - **3** - **4**, and check that the indicator light of the selected stabilizer comes on.
- Hold button **11** pressed down to raise the stabilizer pad.
- Hold button **9** pressed down to retract the stabilizer.
- De-select the stabilizer by pressing the relevant button **1** - **2** - **3** - **4**, and check that the indicator light of the de-selected stabilizer goes off.

NOTICE

Correct sequence to lower the stabilizers:

- ***Extend the stabilizer to end of stroke***
- ***Lower the stabilizer pad and make sure it rests on a firm ground.***

To raise the stabilizers:

- ***Raise the stabilizer pad to end of stroke and retract the stabilizer.***

WARNING

Before lowering the stabilizer pads to the ground, make sure no one is within their working range.

NOTICE

Operate the sway control only when the turntable is locked in central position and the boom is at max 10° .

Controls And Instruments

■ TURNTABLE ROTATION LOCKING CONTROL

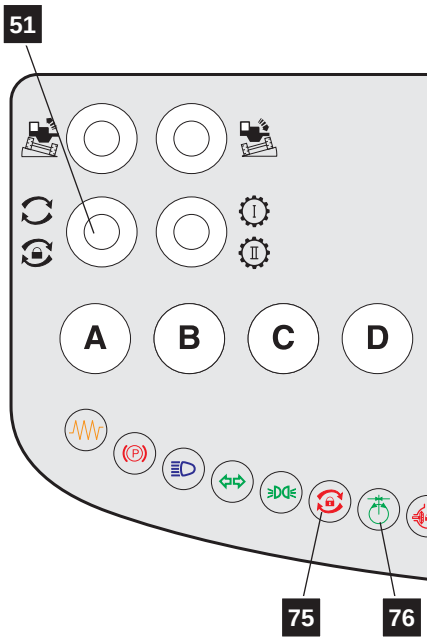
To lock/unlock the turntable rotation:

Rotation locking

- Rotate the turntable until the light indicator **76** signalling that the machine is lined up, comes on.
- Hold button **51** pressed down for some seconds to lock the turntable. The corresponding indicator light **75** in the indicator lights' bar will come on to warn that the turntable rotation is blocked.

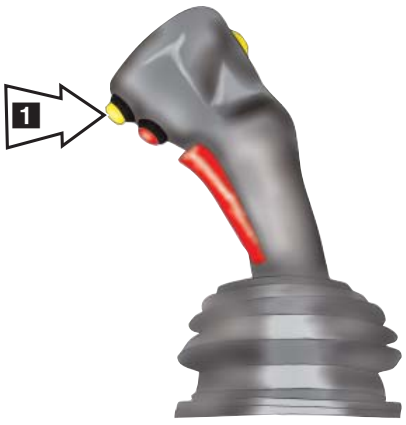
Rotation unlocking

- Hold button **51** pressed down for some seconds to unlock the turntable. The corresponding indicator light **75** in the indicator lights' bar will go off.



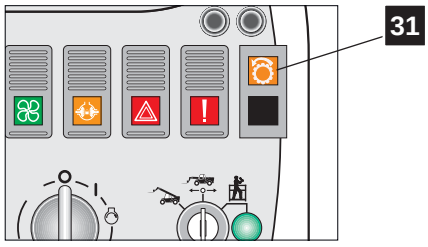
■ Shift-on-fly control

The yellow "**Shift-on-fly**" pushbutton **1**, lets you shift from one gear to another when the machine is travelling. Use this button only when the warning light **31** is lit with a solid light.
When the warning light is OFF, the travelling speed is beyond the admissible speed range and, by pressing the button, gear won't be shifted.
If the warning light flashes, there are errors or problems. Try to modulate the machine speed and check if the light comes on with a solid light.
For the use of the **Shift-on-fly** control, you don't need to operate the intentional control button.



NOTICE

The machine is equipped with an automatic system which hinders downshifting when the advance speed is such to cause engine runaway.



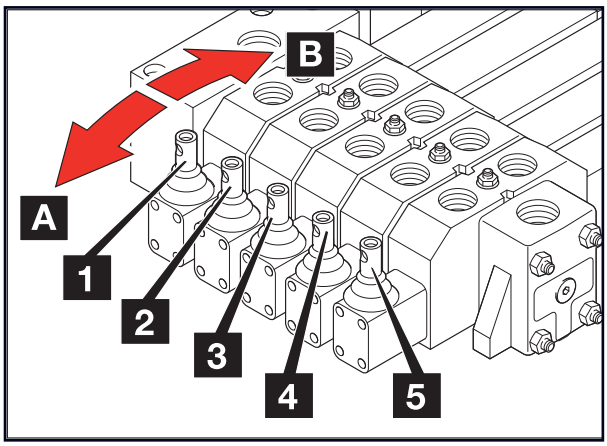
Controls And Instruments

MANUAL CONTROLS FOR GTH-4518ER & GTH-4020ER

If the control lever is defective or a function cannot be operated, it is possible to use the emergency controls of the main valve.
The main valve has 5 small control levers that operate the following functions:

Lever 1	In position **A**	Boom telescope out
	In position **B**	Boom telescope in
Lever 2	In position **A**	Boom up
	In position **B**	Boom down
Lever 3	In position **A**	Plate pitched back
	In position **B**	Plate pitched forward
Lever 4	In position **A**	Attachment locked
	In position **B**	Attachment unlocked
Lever 5	In position **A**	Turntable rotated counter-clockwise
	In position **B**	Turntable rotated clockwise

The manual controls can be used only if the machine is running or it is equipped with the emergency pump.



In order to operate the emergency pump with the manual controls, follow the instructions below:

- Open the rear hatch to access to the main valve.
- Fit the control levers (supplied) to the elements of the main valve.
- Activate the emergency pump by holding button **Z** pressed down. If the button is released, the pump stops.
- Shift the lever of the main valve to the position corresponding to the movement you wish to obtain.

DANGER

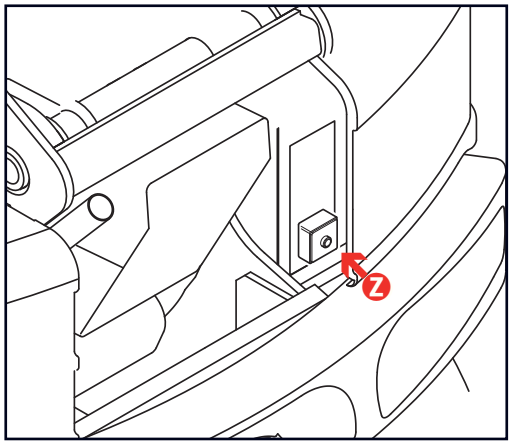
- ***When operating the emergency controls in manual mode, the load limiting device is disabled.***
- ***Do not operate lever 3 (forward/back pitching) using the manual controls.***

WARNING

For the use of the emergency controls, observe the following sequence:

Lever 1 in B ***Boom fully retracted***

Lever 2 in B ***Boom lowered***



Controls And Instruments

MANUAL CONTROLS FOR GTH-6025ER

If the control lever is defective or a function cannot be operated, it is possible to use the emergency controls of the main valve.
The main valve has 3 small control levers that operate the following functions:

Lever 1	In position **A**	Turntable rotated clockwise
	In position **B**	Turntable rotated counter-clockwise
Lever 2	In position **A**	Boom telescope out
	In position **B**	Boom telescope in
Lever 3	In position **A**	Boom down
	In position **B**	Boom up

The manual controls can be used only if the machine is running or it is equipped with the emergency pump.

In order to operate the emergency pump with the manual controls, follow the instructions below:

- Fit the control levers (supplied) to the elements of the main valve, placed at the back of the cabin, right under the turret chassis.
- Activate the emergency pump by holding button **Z** pressed down. If the button is released, the pump stops.
- Shift the lever of the main valve to the position corresponding to the movement you wish to obtain.

DANGER

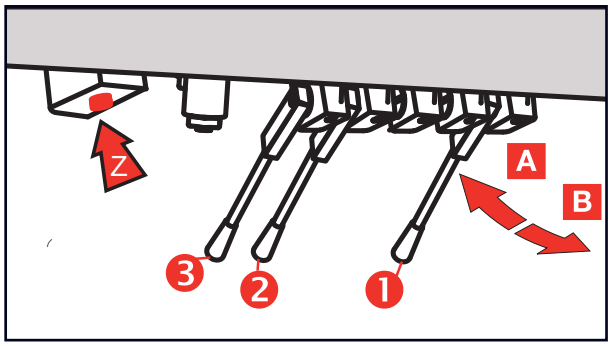
- ***When operating the emergency controls in manual mode, the load limiting device is disabled.***

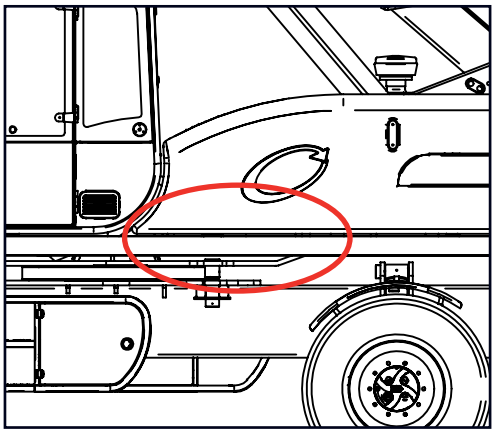
WARNING

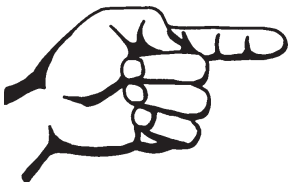
For the use of the emergency controls, observe the following sequence:

Lever 2 ***in*** B ***Boom fully retracted***

Lever 3 ***in*** A ***Boom lowered***







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Inspection



Make sure:

☑ You learn and practice the principles of safe machine operation contained in this operator's manual.

1 Avoid hazardous situations.

2 Always perform a pre-operation inspection.

Know and understand the pre-operation inspection before going on to the next section.

3 Always perform function tests prior to use.

4 Inspect the workplace.

5 Only use the machine as it was intended.

Pre-operation Inspection Fundamentals

It is the responsibility of the operator to perform a pre-operation inspection and routine maintenance.

The pre-operation inspection is a visual inspection performed by the operator prior to each work shift. The inspection is designed to discover if anything is apparently wrong with a machine before the operator performs the function tests.

The pre-operation inspection also serves to determine if routine maintenance procedures are required. Only routine maintenance items specified in this manual may be performed by the operator.

Refer to the list on the next page and check each of the items.

If damage or any unauthorized variation from factory delivered condition is discovered, the machine must be tagged and removed from service.

Repairs to the machine may only be made by a qualified service technician, according to the manufacturer's specifications. After repairs are completed, the operator must perform a pre-operation inspection again before going on to the function tests.

Scheduled maintenance inspections shall be performed by qualified service technicians, according to the manufacturer's specifications.

Inspection

PRE-OPERATION INSPECTION

- Make sure the operator's manual is intact, legible and placed inside the machine.
- Make sure all decals are present and legible. See "**Labels and plates applied on the machine**" chapter.
- Check for engine oil leaks and proper oil level. Top up if necessary. See "**Maintenance**" chapter.
- Check for axle oil leaks and proper oil level. Top up if necessary. See "**Maintenance**" chapter.
- Check for hydraulic oil leaks and proper oil level. Top up if necessary. See "**Maintenance**" chapter.
- Check for engine coolant leaks and proper coolant level. Add coolant if necessary. See "**Maintenance**" chapter.
- Check for battery fluid leaks and proper fluid level. Add distilled water if necessary. See "**Maintenance**" chapter.

Check the following components or zones for damage, missing or wrongly fitted parts or non-authorised modifications:

- electrical components, wiring and electrical cables
- hydraulic hoses, fittings, cylinders and main valves
- fuel and hydraulic oil tanks
- drive pump and motor and transmission axles
- steering system
- braking system
- boom telescopes sliding pads
- clean glasses, lights and rear view mirrors
- engine and relevant components
- horn
- lights
- machine ignition control
- nuts, bolts and other fasteners

Check the entire machine for:

- cracks on welds or structural components
- dents or damage to the machine

* Make sure that all structural and other critical components are present and the relevant fasteners and pins are fitted and properly tightened.
* After inspection, check that all the compartment covers are in place and latched.

WARNING

If even one single item is damaged or defective, do not start work. Stop the machine and repair the fault.

Checking the tyres

* Check the correct inflation of the tyres; see par. "**Tyres and Wheels**" in the Maintenance section.
* Make sure that the tyre plies are not cut or worn.

WARNING

A tyre burst may result in serious injury; never use the machine if tyres are worn, wrongly inflated or damaged.

NOTICE

If the machine shall be used in a marine or equivalent environment, protect it against salt deposits with an adequate treatment against saltiness to prevent rust formation.

Inspections

FUNCTION TESTS FUNDAMENTALS

The function tests are designed to discover any malfunctions before the machine is put into service. The operator must follow the step-by-step instructions to test all machine functions. A malfunctioning machine must never be used. If malfunctions are discovered, the machine must be tagged and removed from service. Repairs to the machine may only be made by a qualified service technician, according to the manufacturer's specifications. After repairs are completed, the operator must perform a pre-operation inspection and function tests again before putting the machine into service.

Make sure:

☑ You learn and practice the principles of safe machine operation contained in this operator's manual.

1 Avoid hazardous situations.

2 Always perform a pre-operation inspection.

Know and understand the pre-operation inspection before going on to the next section.

3 Always perform function tests prior to use.

4 Inspect the workplace.

5 Only use the machine as it was intended.

TESTS

1 Select a test area that is firm, level and free of obstruction. Be sure there is no load on the forks or attachment.

2 Enter the operator's compartment and sit on the seat.

3 Fasten the seat belt.

4 Adjust the interior rear view mirror and the exterior mirrors (right hand and rear ones).

5 Be sure the parking brake is on and the transmission control is in neutral.

6 Start the engine. See par. "**Starting the Engine**" in the Operating Instructions section.

Test the Control Levers *(always pressing button 4)*

7 Using the right control lever, momentarily raise and lower the boom, tilt the forks up and tilt the forks down.

⊙ Result: All functions should operate smoothly.

8 Using the right lever and the yellow button, momentarily extend and retract the boom.

⊙ Result: The function should operate smoothly.

9 Using the right lever and the white button, momentarily lock and unlock the attachment.

⊙ Result: The function should operate smoothly.

10 Using the left lever, momentarily rotate the turntable.

⊙ Result: The function should operate smoothly.

Test the Steering

11 Push the right side of the steer selector switch to select four-wheel steer.

12 Check the steering operation by turning the steering wheel approximately ¼ turn in each direction.

⊙ Result: The front wheels should turn in the same direction as the steering wheel. The rear wheels should turn in the opposite direction.

13 Straighten the wheels.

14 Push the steer selector switch to the middle position to select two-wheel steer.

15 Check the steering operation by turning the steering wheel approximately ¼ turn in each direction.

⊙ Result: The front wheels should turn in the same direction as the steering wheel. The rear wheels should not turn.

Inspections

16 Straighten the wheels.

17 Push the left side of the steer selector switch to select crab steer.

18 Check the steering operation by turning the steering wheel approximately ¼ turn in each direction.

⊙ Result: The front wheels and rear wheels should turn in the same direction as the steering wheel.

■ Test the Transmission and Brakes

19 Be sure the boom is fully lowered and retracted.

20 Step on the service brake pedal.

21 Move the transmission control lever to forward. Slowly let up on the service brake pedal. As soon as the machine starts to move, push the service brake pedal.

⊙ Result: The machine should move forward, then come to an abrupt stop.

22 Move the transmission control lever to reverse. Slowly let up on the service brake pedal. As soon as the machine starts to move, push the service brake pedal.

⊙ Result: The machine should move in reverse, then come to an abrupt stop. The back-up alarm should sound when the transmission control lever is in reverse.

23 Move the transmission control lever to neutral.

24 Pull the parking brake lever upward.

⊙ Result: The parking brake indicator light should come on, indicating the parking brake is on.

25 Move the transmission control lever forward, then in reverse.

⊙ Result: The machine should not move.

26 Push the parking brake lever downward. The parking brake is off when the indicator light is off.

■ Test the Outiriggers

27 Using the buttons **55, 56, 57** and **58,** fully lower and raise the stabilizers.

⊙ Result: The stabilizers should operate moothly.

28 Raise the boom over 10°.

⊙ Result: The stabilizers should not work.

■ Test the Sway Control

29 Using the buttons **52** and **53, sway the machine**

⊙ Result: The machine should sway moothly.

30 Raise the boom over 10°.

⊙ Result: The machine shouldn't sway.

■ Test the Road Lights

31 Verify that all lights are functional.

Inspections

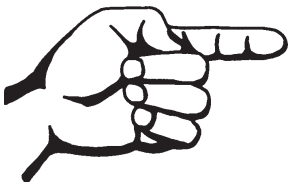
WORKPLACE INSPECTION

The workplace inspection helps the operator determine if the workplace is suitable for safe machine operation. It should be performed by the operator prior to moving the machine to the workplace.

It is the operator's responsibility to read and remember the workplace hazards, then watch for and avoid them while moving, setting up and operating the machine

Be aware of and avoid the following hazardous situations:

- drop-offs or holes
- bumps, floor obstructions or debris
- sloped surfaces
- unstable or slippery surfaces
- overhead obstructions and high voltage conductors
- hazardous locations
- inadequate surface support to withstand all load forces imposed by the machine
- wind and weather conditions
- the presence of unauthorized personnel
- other possible unsafe conditions



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Operating Instructions

This chapter describes some techniques and provides instructions for a safe use of the machine fitted with standard forks. Before using different attachments, thoroughly read the chapter "Optional attachments".

WARNING

Before using the machine, inspect the job site and check for possible hazardous conditions. Make sure that there are no holes, moving banks or debris that may cause you to lose the control of the machine.

DANGER

Pay the greatest attention when working close to electric lines. Check their position and ensure that no part of the machine operates at less than 6 meters from the power lines.

WARNING

For a safe use of the machine, always check the weight of the loads going to be handled.

Operating Instructions

■ ENTERING THE MACHINE

■ ENTERING THE CAB

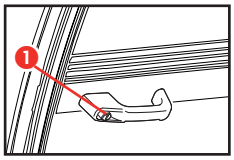
CAUTION

Always make sure that your hands and shoe soles are clean and dry before getting into the driving cab. Always face the machine when entering and leaving it and hold to the suitable handles.

The handler cab is equipped with an access door on the left-hand side.

Door opening from outside:

- Insert the key and release lock **1**.
- Press the pushbutton **1** and open the door.

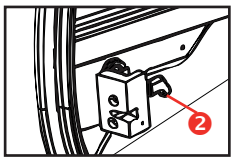


Door closing from inside:

Pull the door with force: it locks automatically.

Door opening from inside:

- Lower lever **2** and release the lock to open the door completely.
- Rotate handle **3** to open the upper section of the door and lock it against the special catch.

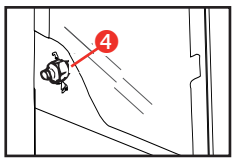


CAUTION

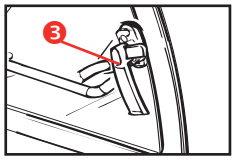
The upper section of the door must be secured to the rear part of the driving cab or latched to the lower section of the same door.

To unlock the door latched in open position:

- Press button **4** to unlock the door from the catch

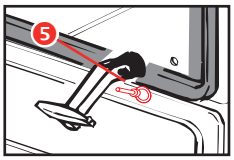


- Once released, re-close the upper section of the door by means of handle **3**.



■ Leaving the cab in an emergency

In an emergency, use the rear window of the cab as safety exit-way.
This window has special locking handles with plastic pins **5** easy to pull out when you need to fully open the glass.



Operating Instructions

■ ADJUSTING THE SEAT

Position the seat so you can comfotarbly reach all the controls. The handler seat is fitted with devices which let you adjust the seat springing, height and distance from the controls, the backrest angle and the armrest height.

- **Adjusting the seat distance from the controls**
  To slide the seat forward or back, rotate lever **A** and push the seat to the desired direction. Then release the bar and make sure that the seat locks in position.

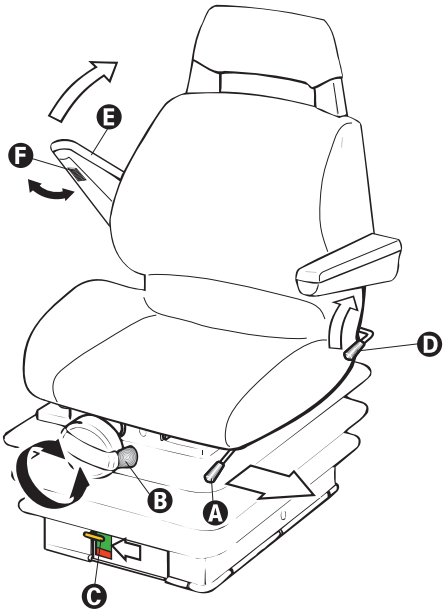
- **Adjusting seat height and springing**
  Free the lever of knob **B** and turn clockwise or counter-clockwise until reaching the desired springing. Once you'are correctly seated in the seat check that the yellow indicator **C** is in the green field.

- **Adjusting the backrest angle**
  Operate lever **D**, press your back firmly against the backrest and put the backrest at the angle you wish, then release the lever.

- **Adjusting the armrest height**
  Raise armrest **E** and turn wheel **F** to put the armrest at the height you want.

⚠CAUTION

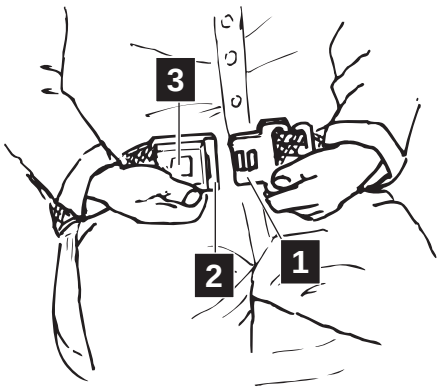
- ***The seat is for one person only.***
- ***Don't adjust the seat when the machine is moving.***



■ FASTENING THE SEAT BELTS

Sit correctly in the driving seat; then:

- The safety belts are equipped with reel retractor. To fasten the belt, pull tab **1** and push it into buckle **2**.
- To release the belt, push button **3** and remove the tab from the buckle.
- Make sure that the buckle is correctly located at the hip point and not on the stomach.
- Operate the end adjusters to reach the length you wish and make sure the buckle is always in the middle.



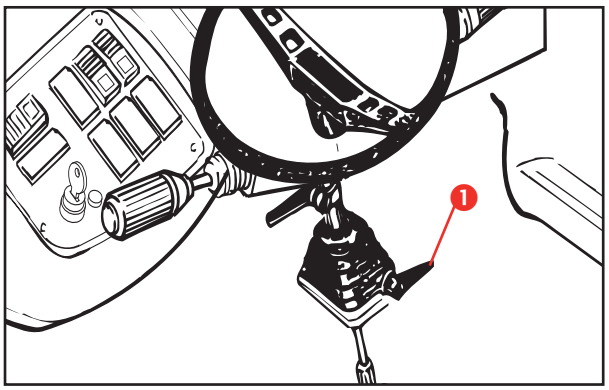
Operating Instructions

ADJUSTING THE STEERING COLUMN

Both steering column and dashboard can be set to a different angle.
To adjust the steering wheel angle, unlock lever **1** and pull or push the steering wheel to the required position, then re-lock lever **1**.

WARNING

Before driving the machine, ensure the steering wheel is perfectly clamped.



SWITCHING ON THE CAB INTERIOR LAMP

The cab ceiling fitting **A** has a three-position switch **B** which lets you:

switch on the interior light

- press the bottom of the switch to switch on the interior light

switch off the light

- press the switch to the central position to switch off the light

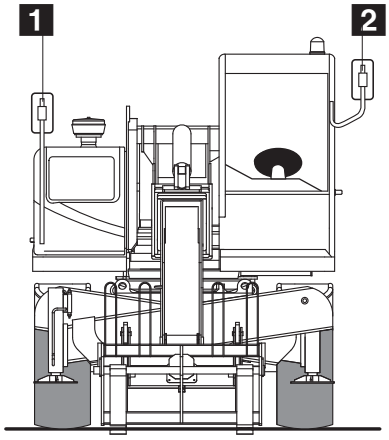
switch on the interior light when the door is opened

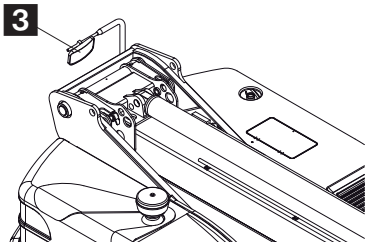
- press the top of the switch to switch the interior light on/off when the door is opened/closed.

ADJUSTING THE REAR VIEW MIRRORS

The machine is fitted with three rear view mirrors:

- Rear view mirror **1** is located on a special supporting bracket in advanced position and allows checking the area behind the machine, on the right-hand side. To adjust its position, manually rotate the joint it is fitted with.
- Rear view mirror **2** is placed on the left upper post of the windscreen and allows checking the area behind the machine, on the left-hand side. To adjust its position, manually rotate the joint it is fitted with.
- Rear view mirror **3** is placed on a special bracket located at the back of the boom and allows checking the area behind the machine as well as the rear right stabilizer. To adjust its position, manually rotate the joint it is fitted with.

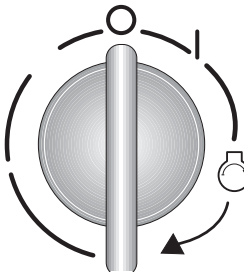




Operating Instructions

STARTING THE ENGINE

- Set the forward/back speed lever to neutral position.
- To start the engine, rotate the ignition switch to position , and release when the engine starts. If the engine does not start within 20 seconds, release the key and wait at least 2 minutes before attempting again.
- After the engine starting, slow down the rpm and wait some seconds before engaging a gear; this allows for a gradual warm up of the engine oil and a better lubrication.
- In case of engine jump-starting, remove the connecting cables (see following chapter).



NOTICE

If the light indicators do not switch off/on when engine is running, immediately stop the machine and find and rectify the fault.

WARNING

Once it has been started, the engine continues to run even if you leave the driving place. DO NOT LEAVE THE DRIVING PLACE BEFORE HAVING SHUT THE ENGINE DOWN, LOWERED THE BOOM TO THE GROUND, TURNED THE SPEED SWITCH TO THE NEUTRAL POSITION AND ENGAGED THE PARKING BRAKE.



Engine can not be started if the speed switch is not in the neutral position.

JUMP-STARTING THE ENGINE

NOTICE

Do not start the engine using a quick charge booster to avoid any damage to the electronic boards.

DANGER

When jump-starting the engine through the battery of another machine, make sure that the two vehicles cannot collide to prevent formation of sparks. Batteries give off a flammable gas and sparks may burn it and cause an explosion

Do not smoke when checking the electrolyte level.

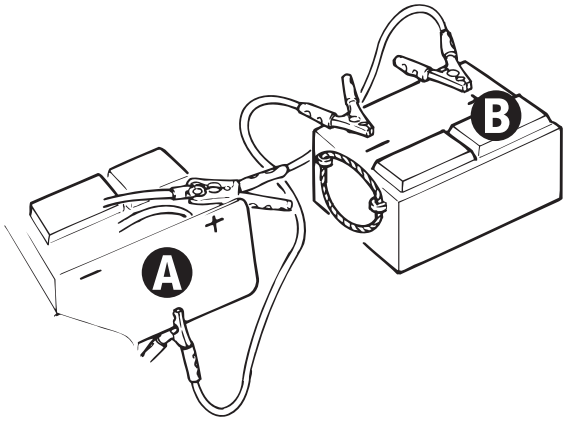
Keep any metal object like buckles, watch straps, etc. clear of the battery positive (+) terminal. These elements can short between the terminal and nearby metal work and the operator can get burned.

The booster supply must have the same rated voltage and output of the battery installed on the handler.

To jump-start the engine:

- Turn any users off by the special control levers.
- Put the gear lever to neutral and engage the parking brake.
- Ensure the machine battery **A** is connected to the frame earth, the terminals are well tightened and the electrolyte level is regular.
- Connect the two batteries as shown in the figure. Connect first the positive terminals of the two batteries, then the negative terminal of the booster supply **B** to the machine frame earth.
- If the booster supply is installed on a second vehicle, make sure that the latter does not touch the handler. **To avoid damage to the electronic instruments of the machine, the engine of the machine where the booster supply is installed, must be stopped.**

Operating Instructions



- Turn the ignition key and start the handler.
- Disconnect the cables. Remove first the negative terminal from the frame earth, then from the booster supply. Disconnect the positive terminal from the machine battery, then from the booster supply.

DANGER

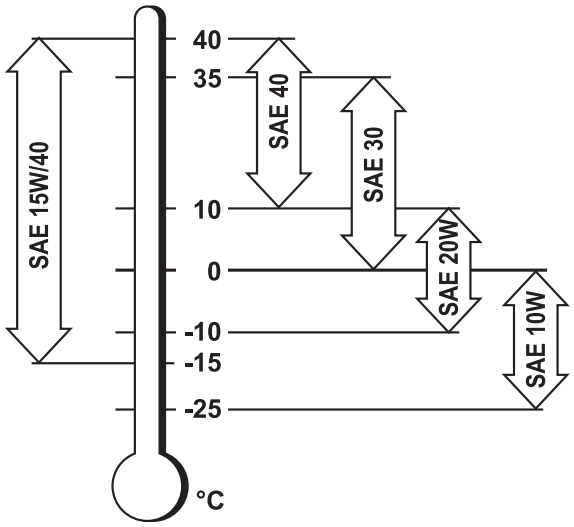
Use only a 12V battery; other devices like battery chargers, etc. may cause an explosion of the battery or result in damage to the electrical system.

DISCONNECTING THE BATTERY

During maintenance or repair works, and while welding, turn off the battery cut-out switch, located under the engine compartment, beside the cabin.

LOW TEMPERATURE STARTING

In case of cold starting, use an oil with a SAE viscosity adequate to the ambient temperature.
Please refer to the engine use and maintenance manual.
The machine is supplied with oil SAE 15W/40.



To start the engine from cold, proceed as follows:

- Set the forward/back speed lever to neutral position.
- Turn the ignition switch to the glow plugs preheating position: the relevant warning light **46** goes on. Step down on the gas pedal and start the engine by turning the ignition switch. Release the switch as soon as the engine fires.
- Let the engine run at idle for a few seconds before putting a gear; this allows for a gradual warm up of the engine oil and a better lubrication.

Operating Instructions

STARTING THE MACHINE

When the engine reaches the running temperature, ensure all parts are in transfer position and the gearbox lever is in neutral. Then, proceed as follows:

- Select the required steering mode.
- Select the required gear (forward or reverse).
- Release the parking brake.
- Slowly step on the gas pedal to start moving off.

WARNING

Do not operate the forward/reverse gear lever when the machine is running. The machine would reverse the running direction abruptly and you could seriously be injured.

STOPPING AND PARKING THE MACHINE

When possible, stop the machine on a dry, level and solid ground. Then:

- Bring the machine to a smooth stop by easing up the gas pedal and stepping down on the brake pedal.
- Set the forward/back speed lever to neutral position.
- Engage the parking brake and ensure its indicator light switches on.
- Release the service brake pedal.
- Rest the attachment coupled to the boom flat on the ground.
- Rotate the ignition key to "**0**" and remove the key.
- Leave the driving cab and lock the cab door.

WARNING

Always face the machine when getting off the driving cab; make sure that your hands and shoe soles are clean and dry, and hold to the handholds to prevent falls or slips.

WARNING

Always engage the parking brake after stopping the machine to prevent possible accidental motions of the vehicle.

Operating Instructions

■ USING THE LOAD CHARTS

The charts **1** indicating the maximum permissible load in relation to the boom extension and the type of attachment used are installed on the cab. The different charts dipending on the use or not of the outriggers and on the position of the turntable. To operate under safe conditions, always refer to these charts.

The extension level of the boom can be checked with the help of the letters (**A**, **B**, **C**, **D**, **E**) painted on the same boom (pos.**2**) and compared with the load chart.

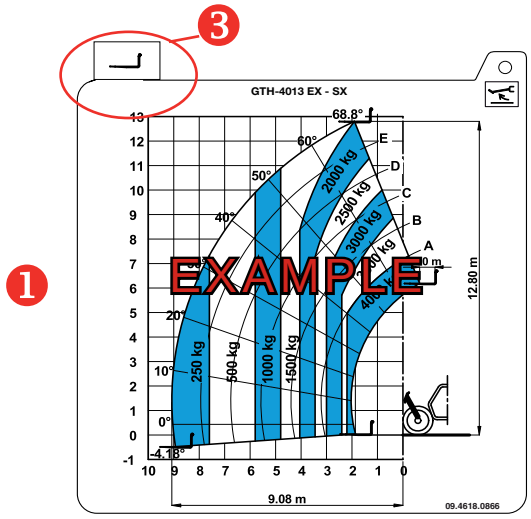
The tag **3** located at the top of each load chart, indicates the type of attachment used**.**

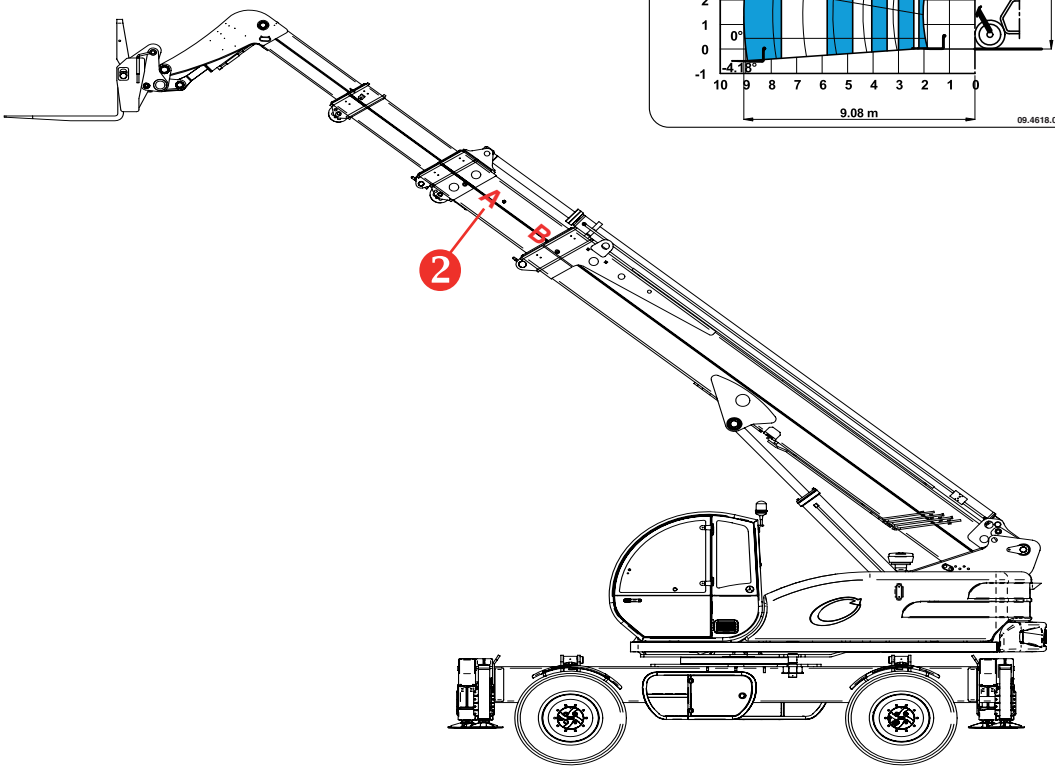
The load charts illustrated in this manual are given only as a mere example. To define the payload limits, refer to the load charts applied within the cab of your machine.

WARNING

The load charts applied on the cab refer to a stationary machine standing on a solid and level ground.

Raise the load some centimetres and check its stability before raising it completely.





Operating Instructions

■ 11 _ LOAD LIMITER

At the back of the driving place there is a unit which lets you manage the moment limiting system of the machine.
The collected data, processed in relation to the attachment used, are continuously compared with the data stored in the program memory. The processing of these data results in three different situations which are displayed by the load limiter display located at the top right corner.

1 ***Green LED ON***
Stability condition. The raised load does not exceed 90% of maximum allowed load of the chart in that defined working position.

2 ***Yellow LED ON***
Pre-alarm condition. The raised load exceeds 90% of maximum allowed load, but it is still inferior to it. The buzzer emits an intermittent sound.

3 ***Red LED ON***
Alarm condition. The raised load exceeds the maximum allowed load, the buzzer emits a continuous sound and the machine motions are stopped, but for those allowing to return the load within safety limits.

The display of the limiting device is divided into four areas:

LT area: operating modes

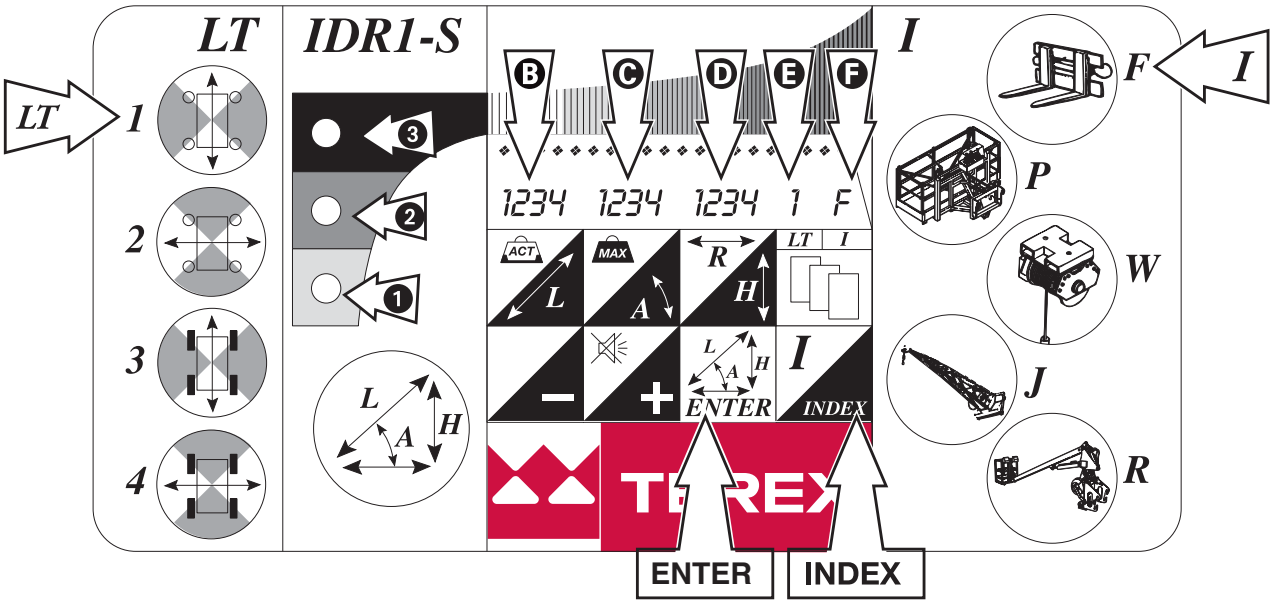
1 Front operation with stabilizers
2 Side operation with stabilizers
3 Front operation without stabilizers
4 Side operation without stabilizers

LED's area: Three LED's warn of the variation of the working condition:

1 **green LED** - machine stable
2 **yellow LED** - machine in pre-alarm
3 **red LED** - machine in alarm

Display area and control keys

Display B Indicates the weight raised for the system calibration
C Indicates the max. load that can be raised
D Indicates the distance of the load from the slewring axis
E Indicates the operating mode (**1-2-3-4**)
F Indicates the attachment used (**F-P-W-J-R**)



Operating Instructions

Keys ***INDEX*** To change the operating mode ***I*** (E in the display).

ENTER To confirm.

To set the buzzer off. Buzzer is reset automatically to on in an alarm or pre-alarm condition.

I area: ***attachments***

F Pallet fork
P Platform
W Winch
J Extension jib
R Robot

WARNING

The automatic recognition system of some attachments is a mere help for the operator who must, in any case, verify that the attachment on the display is the one actually in use.

When using an attachment other than those stated above, but supplied by TEREXLIFT, select the F - pallet fork operation mode.

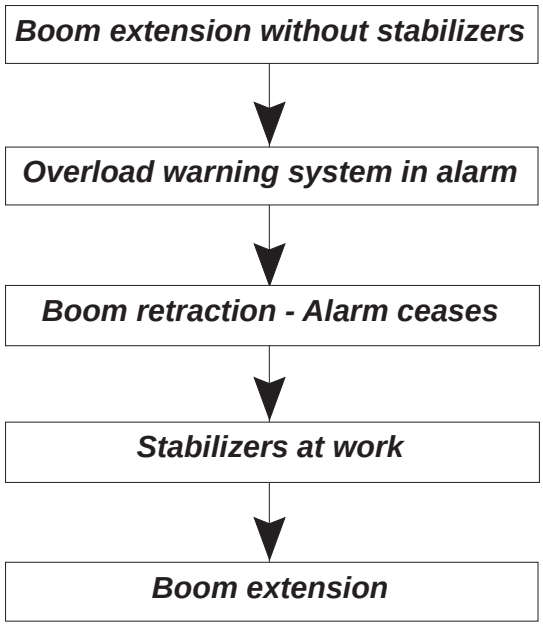
■ *Operation*

At the machine starting, the overload warning system runs an automatic check.
After about 10 seconds, the date and the machine model are displayed followed by the first page showing the last attachment used or the new attachment with electrical recognition.
Once the automatic diagnosis is completed, the machine is ready for use.
If the attachment used is of "mechanical" type, proceed with the manual search and selection. Press ***INDEX*** until the letter corresponding to the used attachment is displayed in the F window.
Press ***ENTER*** to confirm.
The machine is ready to use.

DANGER

Before using the machine, make sure that the first green LED is ON, and that the operating mode shown in window E ***and the attachment shown in window*** F ***are those actually used.***
The moment limiter must not be used to check the load to be handled: it has only been designed to alert the operator to instable conditions of the machine during lifting.
Such instable conditions may also be caused by an abrupt operation of the control lever during the load handling. If, during work, several LED's switch on simultaneously, operate the levers more smoothly.

Examples of use of the overload warning system



Operating Instructions

HANDLING LOADS

Adjusting the forks

With FEM forks

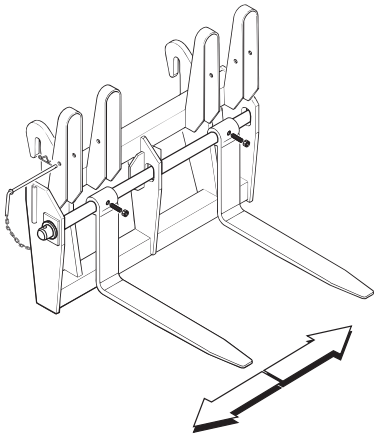
Forks shall be spaced to suit the load going to be handled. For this purpose:

- Lift the clamping lever of the forks.
- Slide the forks to the desired position, then re-lock the lever.

With floating forks

In the case of floating forks:

- Loosen the nut of the locking screws.
- Raise the forks and slide them on the pivot until correct spacing.
- Lock the screws re-tightening the nut.



WARNING

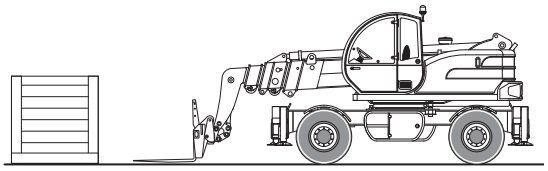
- ***The centre of gravity of the load must always be halfway between the forks.***
- ***Ensure you exactly know the weight of the load before handling it.***
- ***When extending the boom, do not exceed the payload limit.***
- ***Refer to the payload limits given in the load chart applied on the cab windscreen or in the quick user's guide.***
- ***Space the forks as wide as possible to suit the load being handled.***

Operating Instructions

WORKING PHASES

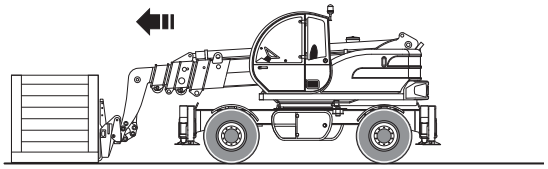
WARNING

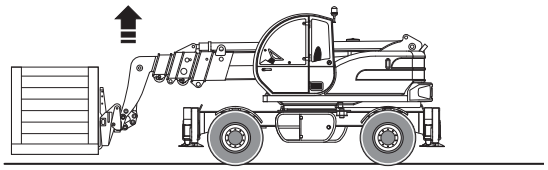
Operator have to survey his/her field of vision when operating the truck.



Loading phase

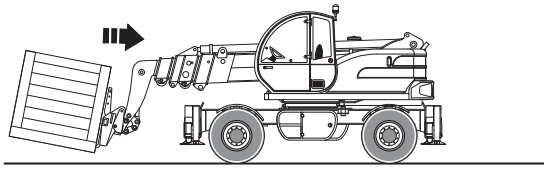
- Approach the load to the handled perpendicularly and check that the machine is level on the inclinometer.
- Insert the forks under the load and raise the load some centimetres.
- Pitch the forks back to retract the load.





WARNING

The risks during load handling are principally in the rearward direction during the reversing part of the manoeuvre.



Operating Instructions

Transfer phase

- Do not start or brake abruptly.
- Drive to the unloading point cautiously and keep the load 20÷30 cm from the ground.
- Suit the machine speed to the ground conditions to avoid dangerous jumps, side skids of the vehicle and possible load falls.
- When driving on slopes or ramps, hold the load uphill.

WARNING

If a suspended load or the resulting boom geometry creates a substantial blockage that the user should consider alternative carrying means.

DANGER

Do not drive on slopes sideways; this wrong manoeuvre is one of the main reasons for accidents due to vehicle overturning.

Unloading phase

- Drive to the unloading point with straight wheels and bring the machine to a smooth stop leaving enough space to operate the boom.
- Put the parking brake and set the transmission to neutral.
- Position the load some centimetres above the desired position and set the forks level.
- Lower the load and make sure it is level.
- Carefully withdraw the forks by operating the boom retraction control and, if necessary, raise or lower the boom as forks come out.
- When the forks are clear of the load, set them to transfer position.
- Release the parking brake and start a new working cycle.

Operating Instructions

■ CHANGING THE ATTACHMENT

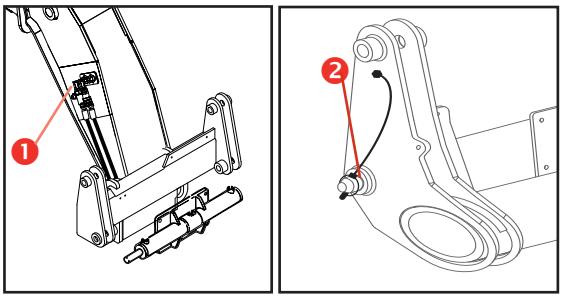
CAUTION

Use only attachments directly manufactured or recommended by Terexlift and detailed in the "Optional Attachments" section.

Version with HYDRAULIC LOCKING

To change an attachment, operate as follows:

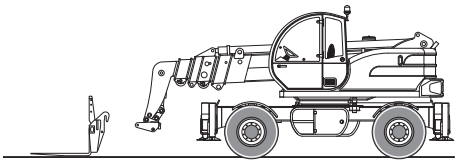
- Drive to the place where you will release the mounted attachment (when possible, a solid and sheltered site).
- Disconnect the quick connectors of the attachment (if any), and connect the hydraulic locking pipes of the attachments to couplings **1**.

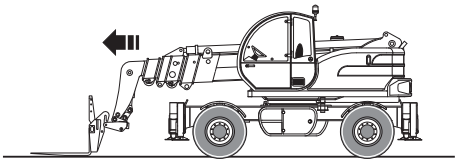


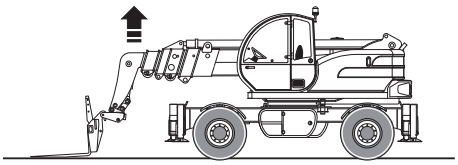
- Rest the attachment flat on the ground.
- Remove the safety pin **2** placed at its end.
- Free the attachment operating the control of the attachment locking/unlocking cylinder
- Pitch the attachment holding frame forward and lower the boom to release the attachment upper lock.
- Move back with the machine and drive to the new attachment to be coupled.
- Hold the frame pitched forward and hook the upper lock of the new attachment.
- Retract and raise the attachment some centimetres. It will centre automatically on the quick coupling frame.
- Operate the attachment locking joystick and secure the attachment in place with safety pin **2** previously removed.
- Re-couple the connectors of the attachment (if any).

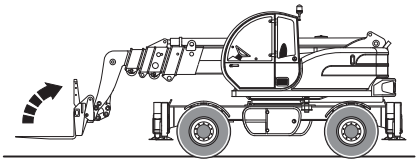
WARNING

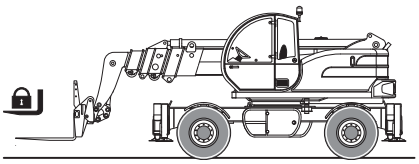
After substitution, visually check the attachment is correctly coupled to the boom, before operating the machine. A wrongly coupled attachment may result in damage to persons or things.











Operating Instructions

USE OF THE MAN-PLATFORM

For the use of the man-platform, proceed as follows:

1. Couple the man-platform to the attachment holding frame.
2. Fully extend the stabilizers.
3. Completly lower the stabilizers and sway the machine; check the operation on the inclinometer **24** in the cab.
4. Unlock the rotation of the counter-frame/ turntable.
5. Level the platform floor.

The platform floor cannot be levelled once the controls have been switched from the driving cabin to the platform. Before starting using the platform, make sure the floor is level.

6. Turn the ignition switch to **I** position.
7. Turn the cab/road/platform switch to the "**Platform**" position (the green LED comes on).
8. Remove the key from the cab/road/platform switch to use it for the platform controls.
9. Open the protection cover of the power socket on the boom and plug in the platform plug.
10. Enter the man-platform and insert the key, previously removed, in the controls switch.

WARNING

If the platform controls remain disabled after the key insertion, check the correct position of the sensors controlling the attachments and stabilizers connecting pin.

For the use and maintenance of the man-platform, read the specific manual .

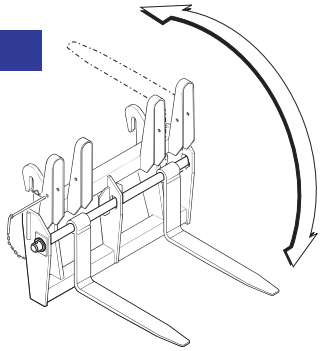
ROAD OR SITE TRANSFER

When travelling on public roads, strictly obey the local or national road traffic regulations.
Besides, take into account the following general precautions:

- Align the rear wheels.
- Sway the machine.
- Cover the teeth of the conventional forks with the special guard; or withdraw the floating forks.

NOTICE

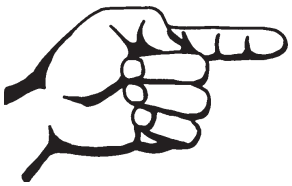
With the floating forks pitched back, do not move the fork pitching cylinder as the machine could suffer from damage.



- Retract boom and attachment to transfer position.
- Set the **Road/Jobsite/Platform** to "***ROAD***".
- Make sure that lights, horn and turn signals are in working order.
- Engage the gear.
- The transfer speed of the vehicle will depend on the engine rpm and the position of the control lever.

NOTICE

Public road circulation is allowed only for transferring an unloaded machine.
Do not use the machine to tow trailers.



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Transporting The Machine

■ MOVING A DISABLED MACHINE

Tow the machine only when no alternative is possible, since this operation may result in serious damage to the transmission. When possible, repair the machine on site.

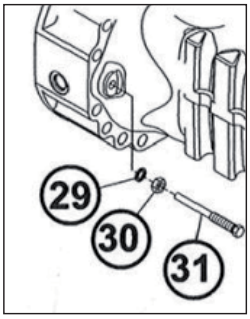
When the machine shall absolutely be towed:

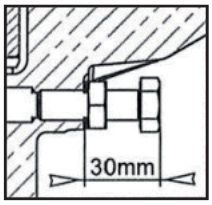
- Unlock the parking brake.
- Tow the machine for short distances and at a low speed only (less than 5 km/h).
- Use a rigid drawbar.
- Select the two-wheel steer.
- Set the forward/back speed lever to neutral position.
- Put the gearbox lever to neutral (see below)
- Raise the front wheels of the machine.
- When possible, start the engine and use the hydraulic drive and the braking system.

Unlocking the negative brake

To unlock the negative brake of a faulty machine, use the four screws **31** on the two sides of the front differential casing as follows:

- Loosen the four counter-nuts fixing screws **31,** then move the nuts backwards by approx. 8 mm.
- Tighten screws **31** so as to fasten them onto the pressure plate.
- Using a wrench, tighten the screws **31** in an alternate sequence by 1/4 turn a time so as to compress the Belleville washers and disengage the braking disks. Tighten max. by one turn.
- After the manual release, adjust screws **31** to obtain a jut of 30 ± 0.5 mm in relation to the arm.





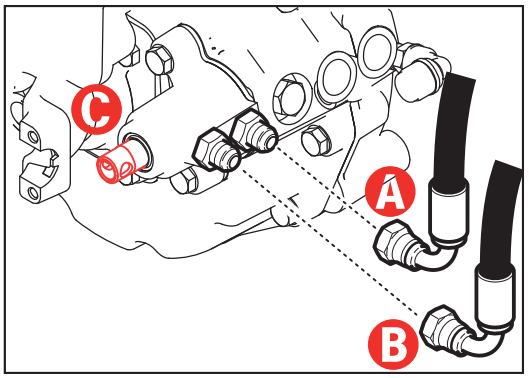
Setting the gear lever in neutral

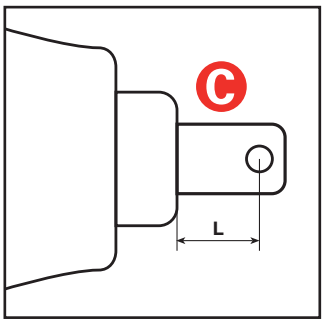
NOTICE

Do not tow the machine without setting the mechanical gear lever to neutral position.

To set the gear lever to neutral:

- Disconnect the cylinder hoses **A** and **B**.
- Pry the cursor of the gearbox lever **C** to neutral position (***L = 20 mm***).
- Riconnect the cylinder hoses **A** and **B**.





Transporting The Machine

■ LIFTING THE MACHINE

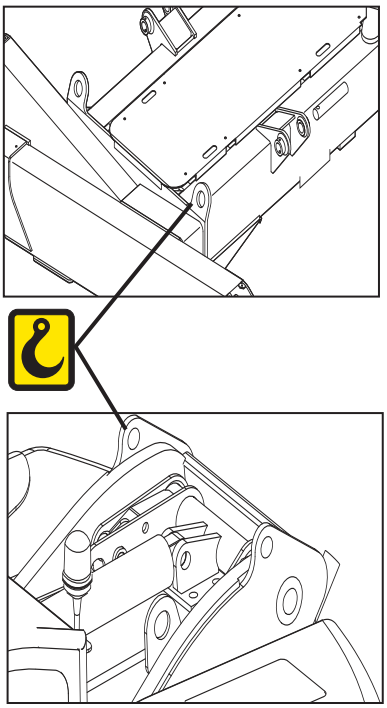
When the machine shall be lifted, use only means having a suitable capacity. The characteristic data and the center of gravity details are listed in the section "***Specifications***" .

For lifting the machine, proceed as follow:

- Retract the boom to transfer position.
- Put the parking brake and rest the attachment flat.
- Shut the engine down and close the driving cab of the machine.
- Anchor the chains to the four special lugs on the machine (marked with the decal below).

⚠CAUTION

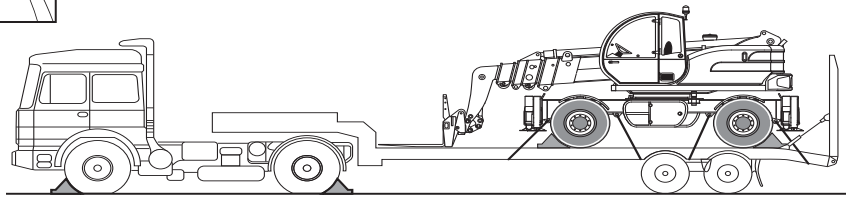
Lift the machine only when the chains has been anchored to all the lugs.



■ TRANSPORTING THE MACHINE ON OTHER VEHICLES

To transport the machine on another vehicle, follow the steps below:

- Ensure ramps are correctly positioned.
- Retraact the boom to transfer position.
- Carefully drive the machine onto the transporting vehicle.
- Put the parking brake and rest the attachment flat on the vehicle platform.
- Ensure the overall dimensions do not exceed the allowed limits.
- Shut the engine down and close the driving cab of the machine.
- Secure the machine to the vehicle platform by wheel-chocks.
- Anchor the machine to the transporter's platform by fixing the chains to the special eyebolts on the chassis.



Transporting The Machine

■ PARKING AND STORAGE

■ Short inactivity

Always park the machine in a safe way after a working day, a shift and at night.
Take all precautions to prevent damage to those persons who will approach the machine while stationary:

- Park the machine so that it does not hinder other operations.
- Lower the boom fitted with attachment on the ground.
- Disengage the transmission and put the parking brake.
- Remove the key from the ignition switch and lock the cab door.

CAUTION

Leaving a battery connected can result in shorts and, as a consequence, in a fire.

■ Machine storage

In case of extended inactivity of the machine, follow the above precautions. Additionally:

- Wash the machine thoroughly. For a better cleaning, remove grills and protection casings.
- Carefully dry all machine parts by blowing some compressed air.
- Lubricate the machine thoroughly.
- Do a walk-around inspection and replace any worn or damaged part.
- Re-paint any worn or damaged part.
- Remove the battery, smear its terminals with vaseline and store it in a dry place. Battery can be used for other purposes. Otherwise, periodically check its charge level.
- Refuel the tank to prevent internal oxidation.
- Store the machine in a sheltered and well-ventilated place.
- Start the engine for about 10 minutes at least once a month.
- When weather is particularly cold, empty the radiator.

NOTICE

Always remember that the ordinary maintenance must be carried out even during the machine inactivity. Pay particular attention to the fluid levels and to those parts subject to ageing. Before re-starting the machine, carry out an extraordinary maintenance and carefully check all mechanical, hydraulic and electrical components.

Transporting the machine

■ CLEANING AND WASHING THE MACHINE

Clean the machine in accordance with the following instructions:

- Remove any oil or grease traces with a dry solvent or a volatile mineral alcohol
- Before assembling a new part, remove any protection product (rust-preventer, grease, wax etc.).
- Remove any trace of rust from metal parts with some emery cloth before smearing the part with a protection product (rust-preventer, paint, oil etc.).

NOTICE

Do not use water at high pressure for washing the machine and especially the main valve, the solenoid valves and electrical parts.

External washing

Before washing the machine, check that the engine is shut down and the doors and windows are closed.
Do not, at any times, use fuel to clean the machine.
Use water or some steam. In cold climates, dry the locks after washing or smear them with an antifreeze.
Before using the machine again, check its conditions.

Internal washing

Wash the machine interior with some water and a sponge. Do not use water at high pressure. After washing, dry with a clean cloth.

Washing the engine

Before washing the engine, protect the air intake filter to prevent water from entering the circuit.

NOTICE

If the machine shall be used in a marine or equivalent environment, protect it against salt deposits with an adequate treatment against saltiness to prevent rust formation.

■ MACHINE DISPOSAL



At the end of the machine life, call in a specialised firm to dispose of it in compliance with the local or national regulations.

■ Battery disposal



Used lead-acid batteries cannot be disposed of as normal industrial solid wastes. Because of the presence of harmful substances, they must be collected, eliminated and/or recycled in accordance with the laws of the UE.
Used batteries must be kept in a dry and confined place. Make sure the battery is dry and the cell plugs are tight. Place a sign on the battery to warn of not using it. If before disposal the battery is left in the open air, it will be necessary to dry, smear the box and the elements with a coat of grease and tighten the plugs. Do not rest the battery on the ground; it is always advisable to rest it on a pallet and cover it. The disposal of batteries shall be as rapid as possible.

Maintenance

Observe and obey:

* The operator can only perform the routine maintenance operations envisaged in this manual.
* Scheduled maintenance procedures shall be completed by qualified technical personnel according to the manufacturer's specifications.

Maintenance symbol legend:

The following symbols are used in this manual to help you understand better the instructions provided. When one or more symbols appear at the beginning of a maintenance procedure, they indicate the following:



Indicates that tools are required to perform the procedure.



Indicates that new parts are required to perform the procedure.



Indicates that a cold engine is required to perform the procedure.



SERVICE INTERVAL

Running-in _____

Ordinary _____

Indicates the time interval for the maintenance jobs expressed in working hours.

INTRODUCTION

A thorough and regular maintenance keeps the machine in a safe and efficient working condition.

For this reason, it is advisable to wash, grease and service the machine properly, especially after having worked under particular conditions (muddy or dusty environments, heavy operations, etc.).

Always ensure all machine components are in good condition. Check for oil leaks or loosening of guards, and make sure that the safety devices are efficient. In case of defects, find and rectify them before using the machine again.

Not respecting the ordinary maintenance schedule of this manual automatically voids TEREXLIFT warranty.

NOTICE

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

CAUTION

Before any maintenance or repair work, remove the attachment.

Maintenance

SPARE PARTS

CAUTION

Use only original spare parts. Please refer to the specific Spare Parts Catalogue.

SAFETY DEVICES SPARE PARTS	
LMI Display & Board	56.0016.0028
Enabling Function Switch on Joystick	07.0741.0012
Emergency Pump Switch	07.0703.0430
Emergency Stop Pushbutton	07.0703.0441
Seat Switch	07.0703.0484
Outrigger Extension Potentiometer	56.0013.0026
Lowered Outrigger Switch	56.0012.0016
Extended Outrigger Switch	56.0012.0010
Turret Rotation Lock Cylinder Safety Valve	04.4239.0002
Fork Attachment Quick Coupling Cylinder Safety Valve	04.4239.0002
Balancing Cylinder Safety Valve	04.4239.0003
Lifting Cylinder Safety Valve	04.4239.0078
Extension Cylinder Safety Valve	04.4239.0041
Parking Brake Sensor 1	05.4329.0016
Parking Brake Sensor 2	05.4329.0017
Boom Strain Gauge	56.0012.0028

LUBRICANTS - HEALTH AND SAFETY PRECAUTIONS

Health

A prolonged skin contact with oil can cause irritation. Use rubber gloves and protective goggles. After handling oil, carefully wash your hands with soap and water.

Storage

Always keep lubricants in a closed place, out of the children's reach. Never store lubricants on the open air and without a label indicating their contents.

Disposal

New or exhausted oil is always polluting! Never drain oil on the ground. Store new oil in a suitable warehouse. Pour exhausted oil into cans and deliver them to specialised firms for disposal.

Oil leaks

In case of accidental oil leaks, cover with sand or type-approved granulate. Then scrape off and dispose of it as chemical waste.

First aid

Eyes : In case of accidental contact with the eyes, wash with fresh water. If the irritation persists, seek medical advice.

Intake : In case of oil intake, do not induce vomiting, but seek medical advice.

Skin : In case of a prolonged contact, wash with soap and water.

Fire

In case of fire, use carbon dioxide, dry chemical or foam extinguishers. Do not use water.

Maintenance

ORDINARY MAINTENANCE

A wrong or neglected maintenance can result in possible risks for both operator and bystanders. Make sure maintenance and lubrication are carried out according to the manufacturer's instructions to keep the machine safe and efficient.
The maintenance interventions are based on the machine working hours. Regularly check the hour-meter and keep it in good conditions to define the maintenance intervals correctly. Make sure any defect detected during the maintenance is promptly rectified before using the machine.

⚠ CAUTION

All "▲" marked operations must be carried out by a skilled technician.

During the first 10 working hours

1 Check the oil level within reduction and differential gears
2 Regularly check the tightening of the wheel bolts
3 Check the tyre inflation
4 Check the tightening of all bolts and nuts
5 Check the couplings for oil leaks

Within the first 50 working hours

1. Grease the sliding parts and the pivot pin of the telescopic boom

Within the first 250 working hours

1 Grease the sliding parts and the pivot pin of the telescopic boom

Every 10 working hours or daily

1 Check the engine oil level
2 Clean the air suction filter
3 Clean the air suction pre-filter
4 Remove the dust from the filter by squeezing the special rubber element on the same filter
5 Check the engine coolant level
6 Clean the radiator, if necessary
7 Check the hydraulic oil level within the reservoir
8 Make sure that the boom sections are well - greased close to the sliding pads
9 Grease the counterframe/turntable slewring
10 Grease the attachment holding plate
11 Grease all joints of boom and stabilisers, the front and rear axle shaft joints, the transmission shafts and any equipment of the machine
12 Ensure the lighting system is efficient
13 Ensure both braking system and parking brake are efficient
14 Ensure the differential locking is efficient
15 Ensure the steering selection system is efficient
16 Ensure the mechanical gear selection system is efficient
17 Ensure the back/forward selector switch is efficient
18 Ensure the fork balance system is efficient
19 Make sure the safety devices installed are in efficient working order

Maintenance

Every 50 working hours or weekly

Jobs to be done in addition to those above.

1 Check the tension of the alternator belt
2 Check the tyre inflation
3 Check the tightening of the wheel nuts
4 Check the tightening of the Cardan shaft screws
5 Check the tightening of the screws fixing the counterframe/turntable rotation slewring
6 Check the tightening of the telescope sliding blocks
7 Check the sleeves connecting the air filter to the engine cooling system
8 Check the operation of the emergency pump

Every 250 working hours or monthly

Jobs to be done in addition to those above.

1 Change the engine oil and relevant filter
2 Check the oil level in the gearbox
3 Check the oil level in the front and rear differential gears
4 Check the oil level in the four wheel reduction gears
5 Check the oil level in the counterframe/turntable rotation reduction gear
6 Check the condition of the engine air filter. Replace, if necessary
7 Check the clamping of the cable heads to the battery terminals
8 Check the condition of the air suction hose between engine and filter
9 Check the condition of the cylinder chrome-plated rods
10 Check the hydraulic lines are not worn due to a rubbing against the frame or other mechanical components
11 Ensure electrical cables do not rub against the frame or other mechanical components
12 Check the wear of the sliding pads of the boom sections
13 ▲ Adjust the clearance of the sliding pads of the boom sections
14 ▲ Adjust the parking brake
15 Check the level of the battery electrolyte

Every 3 working months

1 Check the efficiency of the block valves

Every 500 working hours or every two months

Jobs to be done in addition to those above.

1 Visually check the quantity of smoke from the engine exhaust
2 Check the tightening of the engine fixing screws
3 Check the tightening of the cab fixing screws
4 Check the backlash between pins and bushings in all joints
5 Check the clearance of the slewring
6 Change the engine air filtering element
7 Change the engine Diesel-oil filter
8 Change the hydraulic oil filter of the transmission
9 Have the hydraulic system checked by a qualified technician

Every 1000 working hours or every six months

Jobs to be done in addition to those above.

1 Change the oil in the front and rear differential gears
2 Change the oil in the gearbox
3 Change the oil in the counterframe/turntable rotation reduction gear
4 Change the oil in the four wheel reduction gears
5 Change the hydraulic oil
6 Remove any grease from the boom, then re-grease the sliding parts of the boom sections.
7 Clean or replace, if nececessary, the air filter in the cab
8 Grease the sliding parts and the pivot pin of the telescopic boom

Maintenance

Every 2000 working hours or yearly
Jobs to be done in addition to those above.

1 Change the engine coolant

Every 6000 hours or 5 years and, subsequently, every 2 years
Jobs to be done in addition to those above.

1 Check that the structure is intact paying a special attention to the welded supporting joints and the boom pins.

■ OIL CHANGE SCHEDULE

	Job	Operating hours *	Service interval *	Oil type
Engine	Oil level check	10	daily	SHELL RIMULA 15W-40 (API CH-4/CG-4/CF-4/CF; ACEA E3; MB228.3)
	First change	500	-	
	Subsequent changes	500	yearly	
Axles and power divider	Oil level check	250	monthly	TRACTORENAULT THFI 208 LF SAE 80W; API GL4 / FORD M2C 86B; MASSEY FERGUSON M 1135
	First change	-	-	
	Subsequent changes	1000	yearly	
Hydraulic oil	Oil level check	10	daily	GAZPROMNEFT HYDRAULIC HDZ 46 (DIN 51524 part 3 HVLP, ASTM D6158 HV, SAE MS1004 MS)
	First change	-	-	
	Subsequent changes	1000	6 month	
Turntable rotation reduction gear	Oil level check	250	monthly	SHELL OMALA 150 DN 51 517-3 CLP, ISO 12295-1 TYPE CKC, US STEEL 224, DAVID BROWN 51.53.101
	First change	-	-	
	Subsequent changes	1000	6 month	

* whichever occurs first.

Maintenance

MAINTENANCE INTERVENTIONS

WARNING

All maintenance interventions must be carried out with engine stopped, parking brake engaged, working attachments flat on the ground and gear lever in neutral.

WARNING

When raising a component for maintenance purposes, secure it in a safe way before any maintenance intervention.

WARNING

Any intervention on the hydraulic circuit must be carried out by skilled personnel.
The hydraulic circuit of this machine is fitted with pressure accumulators. You and others could be seriously injured if accumulators are not completely depressurised.
For this purpose, shut the engine down and step on the brake pedal 8/10 times.

WARNING

Before any operation on hydraulic lines or components, make sure there is no residual pressure. For this purpose, stop the engine, engage the parking brake and operate the control levers of the main valve in both working directions (alternately) to depressurise the hydraulic circuit.

CAUTION

High pressure lines must be replaced by qualified personnel only.
Any foreign matters entering the closed circuit may result in a sudden deterioration of the transmission.

CAUTION

The qualified staff charged with the maintenance of the hydraulic circuit must clean all areas around with care before any intervention.

PROTECT THE ENVIRONMENT

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

NOTICE

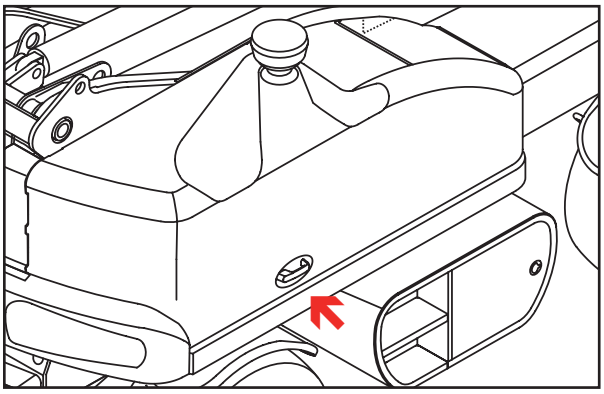
During maintenance or repair works, and while welding, turn off the disconnected battery switch, located under the engine compartment, beside the cabin.

Maintenance

ACCESS TO THE ENGINE COMPARTMENT

For any operation within the engine compartment, open the protection bonnet.
The bonnet is equipped with pneumatic shock absorbers which unburdens and hold the bonnet in raised position. To open the bonnet:

- Shut the engine down and put the parking brake.
- Turn the key to unlock and open the bonnet.



CAUTION

Take all precautions when approaching the engine compartment. Some parts of the engine may be very hot. Always use protective gloves.



Maintenance

■ ENGINE AIR FILTER

(FOR GTH-4518 ER - GTH-4020 ER)

Clean the engine air filter and replace the elements, when necessary.

1 Cleaning and changing the outer element:

- Raise the boom and secure it in a stable and safe way.
- Shut the engine down and engage the parking brake.
- Unscrew wing nut **A** and remove cover **B**.
- Remove the outer element **C**.
- Clean the filter bowl.
- Dry clean the cartridge (at max. 6 bar pressure) and direct the air jet from inside to outside.
- Check the filter element for cracks by introducing a lamp inside.
- Smear the seal with grease, then refit the element.
- Close cover **B** and tighten it with wing nut **A**. Make sure that the rubber element **E** is oriented downwards..

NOTICE

As soon as the indicator light 6.8 switches on, replace the outer element.

2 Changing the inner element

- See step **1** for removing the outer element.
- Remove the inner element **D**.
- Clean the filter bowl.
- Smear the seal with grease, then fit the new element and make sure it is correctly positioned.
- To refit the outer element and the cover, see step **1**.

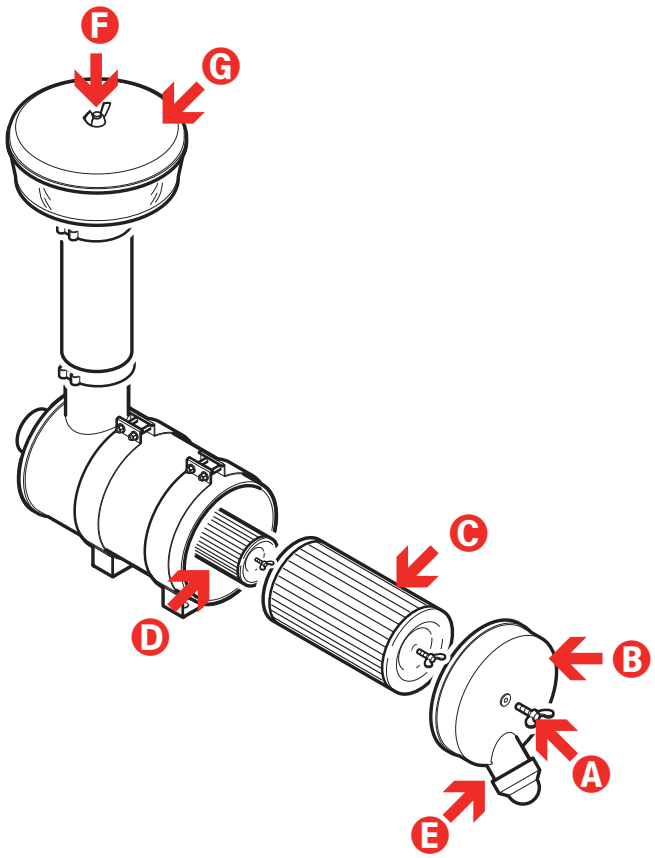
NOTICE

The inner element should be replaced every two times the outer element is replaced.

3 Changing the cyclone pre-filter

Daily clean the cyclone pre-filter:

- Shut the engine down and engage the parking brake.
- Loosen wing nut **F** and remove cover **G**.
- Remove the dust container and empty it.
- Refit the dust container and the cover and tighten the wing nuts.



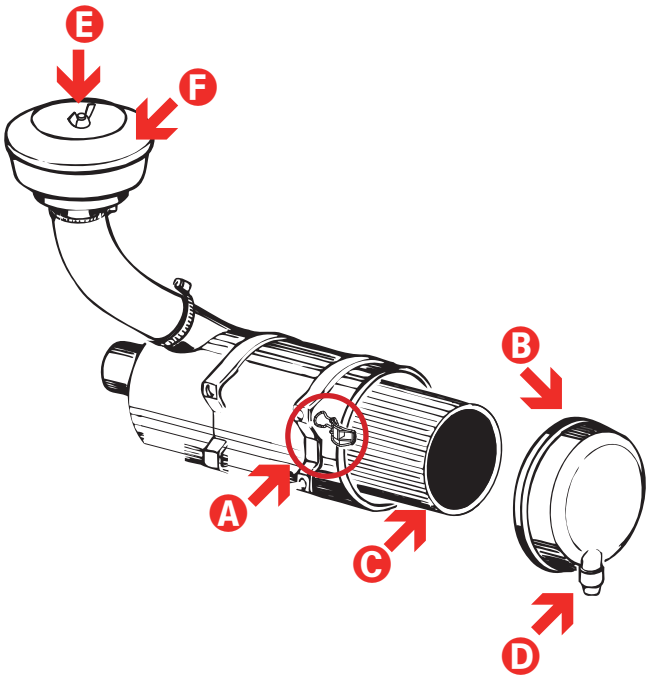
SERVICE INTERVAL

Running-in	None
Cleaning	Every 10 hours
Outer element change	Every 500 hours
Inner element change	Every 1000 hours

Maintenance

■ ENGINE AIR FILTER (FOR GTH-6025 ER)

Clean the engine air filter and replace the elements, when necessary.



1 Cleaning and changing the outer element:

- Raise the boom and secure it in a stable and safe way.
- Shut the engine down and engage the parking brake.
- Unlock the three clamps **A** of the filter cover **B**.
- Remove the outer element **C**.
- Clean the filter bowl.
- Dry clean the cartridge (at max. 6 bar pressure) and direct the air jet from inside to outside.
- Check the filter element for cracks by introducing a lamp inside.
- Smear the seal with grease, then refit the element.
- Refit cover **B** and lock it with the special clamps. Make sure that the rubber element **D** is oriented downwards..

NOTICE

As soon as the indicator light 6.8 switches on, replace the outer element.

2 Changing the cyclone pre-filter

Daily clean the cyclone pre-filter:

- Shut the engine down and engage the parking brake.
- Loosen wing nut **E** and remove cover **F**.
- Remove the dust container and empty it.
- Refit the dust container and the cover and tighten the wing nuts.

SERVICE INTERVAL

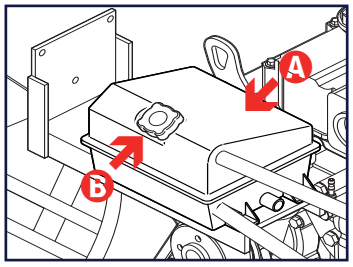
Running-in	**None**
Cleaning	**Every 10 hours**
Outer element change	**Every 500 hours**
Inner element change	**Every 1000 hours**

Maintenance

ENGINE COOLING SYSTEM

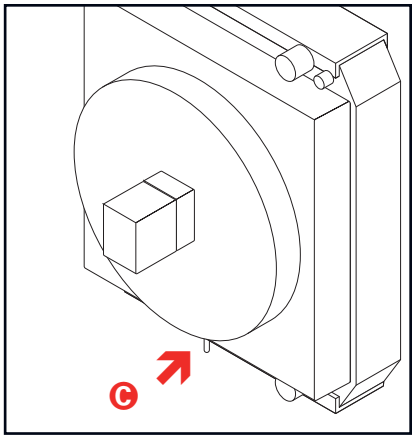
CAUTION

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.









- Weekly check the coolant level within pan **A** before starting working (when coolant is cold).
- When necessary, add clean water or an antifreeze mixture through cap **B**.
- Change the antifreeze mixture every two years.
  To drain the antifreeze:
  - Let the engine cool down.
  - Unscrew the plug **C** at the bottom of the radiator. Allow the coolant to flow out into a special container.
  - Once the coolant has been drained, refit plug C and pour fresh mixture (50% water and 50% antifreeze) in the radiator. This proportion will provide protection down to -38°C.
- Daily clean the radiator grille using a brush with hard bristles or compressed air at a max pressure of 6 bar.

On delivery, the machine is filled with a cooling mixture consisting of 50% water and 50% anti-freeze.

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

SERVICE INTERVAL

Running-in _____ **None**

Ordinary _____ **Every 50 hours**

Maintenance

CHECKING THE OIL LEVEL IN THE TANK

CAUTION

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**.

SERVICE INTERVAL

Running-in _____ **Within the first 10 hours**

Ordinary _____ **Every 50 hours**

PROTECT THE ENVIRONMENT

Handling and disposal of exhausted oils may be ruled by local or national regulations. Dispose of the exhausted oils through the special authorised centres.

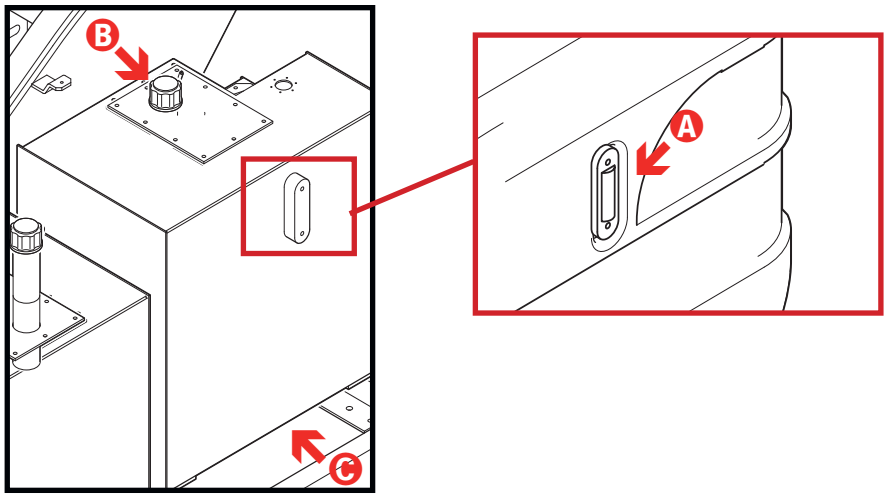
CHANGING THE HYDRAULIC OIL

1 Stop the machine on a level ground and make sure the parking brake is engaged.
2 Release the pressure from the hydraulic circuit.
3 Place a container of suitable size under the drain plug **C**, placed in the lower part of the reservoir, and collect any oil leaks.
4 Remove the drain plug **C** and allow oil to flow out into the container.
5 Refit the drain plug **C**.
6 Add new oil by making sure that it matches the recommended type until it is level with **A**.

SERVICE INTERVAL

Running-in _____ **None**

Ordinary _____ **Every 1000 hours**

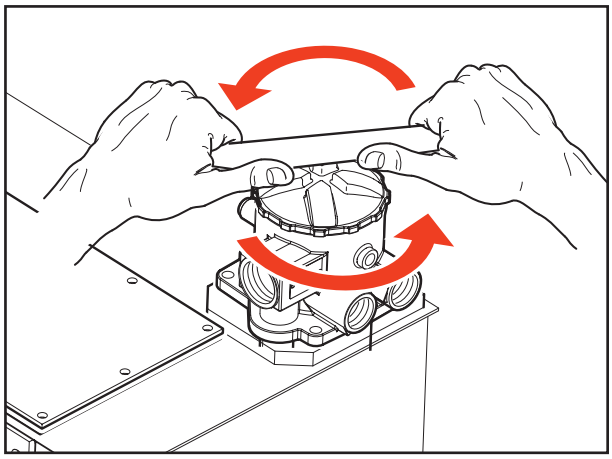


Maintenance

■ CHANGING THE OIL FILTER CARTRIDGE

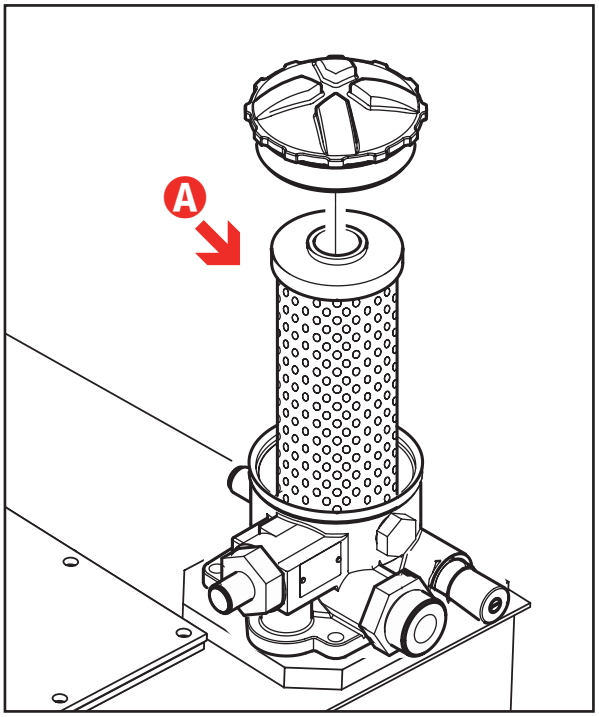
To change the hydraulic oil filter element, proceed as follows:

1 Stop the machine on a level ground and engage the parking brake.
2 Place a container of suitable size under the filter to collect any oil leaks.
3 Remove the filter cover to get access to the filter element **A**.
4 Change the filter element, then, before fitting a new one, thoroughly clean and grease both seat and gasket.
5 Refit and tighten the filter cover.



NOTICE

The hydraulic oil filter cartridge shall be replaced as soon as the warning light 6.7 comes on (see par.* Controls and instruments*).



NOTICE

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.

PROTECT THE ENVIRONMENT

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

SERVICE INTERVAL

Running-in _____ **None**

Ordinary _____ **Every 500 hours**

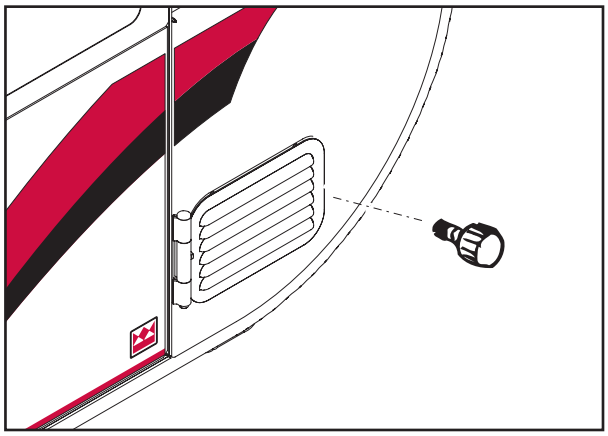
Maintenance

CAB AIR FILTER



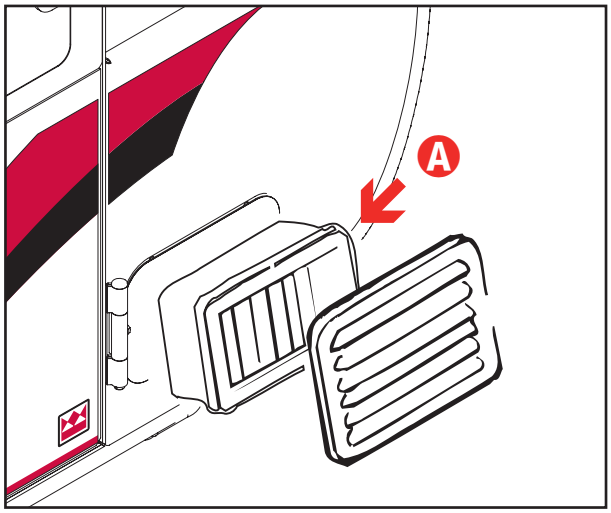
Every six months clean the air filter in the cab. Replace the cartridge if the filtering cloth is damged.

1 ***Cleaning and changing the cartridge:***
- Shut the engine down and engage the parking brake.
- Pull filter **A** out of the housing accessible from the outside of the cab.
- Clean the filter bowl.
- Clean the filter cartridge by beating it against a piece of wood. Replace the cartridge if damaged.



NOTICE

Paper filters must never be cleaned using compressed air or washed with water and/or solvents.



Maintenance

■ OIL LEVEL IN THE DIFFERENTIAL GEARS

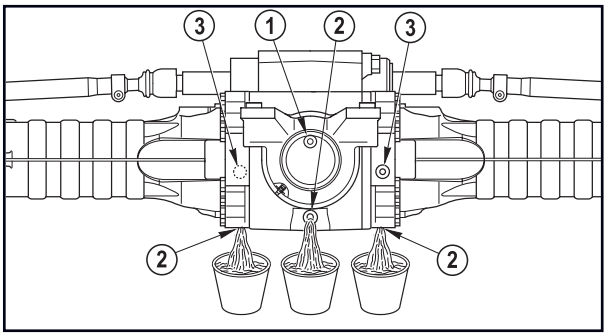
To check the oil level in the front and rear differential gears:

- Stop the machine on a level ground and engage the parking brake.
- Loosen level plug ③ and check if oil is level with the hole.
- If necessary, top-up through hole ① until oil comes out from hole ③.
- Refit and tighten plugs ③ and ①.

To change the oil:

- Place a container of suitable size under drain plug ②.
- Loosen the drain plug, the level plug ③ and the filler ① and allow oil to flow out from the reduction gear.
- Refit and tighten drain plug ②.
- Add new oil through the filler until it is level with hole ①.
- Refit and tighten plugs ③ and ①.

①	***Filling plug***
②	***Drain plug***
③	***Level plug***



SERVICE INTERVAL

Running-in _____ **Within the first 10 hours**

Ordinary _____ **Every 250 hours**

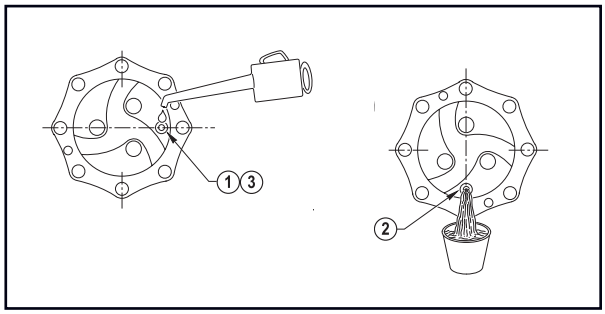
■ OIL LEVEL IN THE (front/rear) WHEEL REDUCTION GEARS

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 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 until it is level.
- Refit the plug.

To change the oil:

- Stop the machine and ensure the plug is oriented along the vertical axis.
- Place a container of suitable size under the reduction gear plug.
- Unscrew plug 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 ①.
- Refit and tighten plug.



SERVICE INTERVAL

Running-in _____ **Within the first 10 hours**

Ordinary _____ **Every 250 hours**

Maintenance

OIL LEVEL IN THE POWER DIVIDER GEARBOX

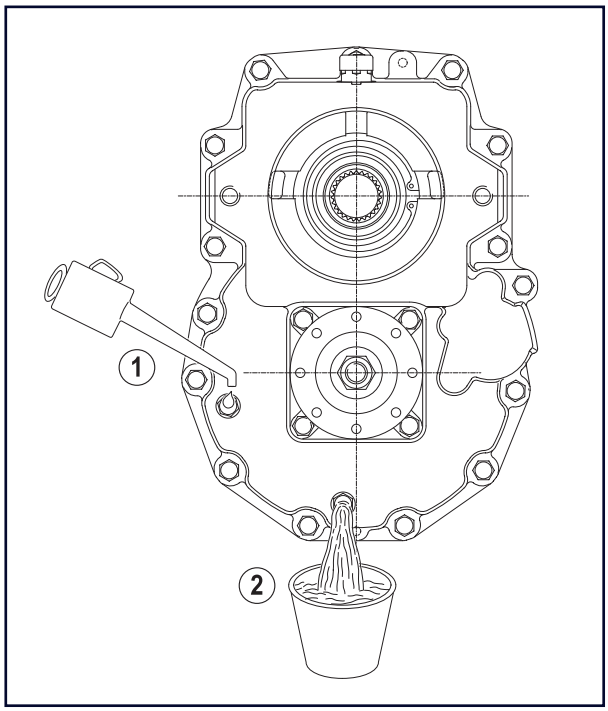
To check the oil level in the power diver gearbox:

- Stop the machine on a level ground and make sure the parking brake is engaged.
- Clean level plug ① all around.
- Remove the plug and check if oil is level with the hole.
- When necessary, add new oil through plug ① until it is level with the hole.
- Refit and tighten the plug.

To change the oil:

- Place a container of suitable size under the drain plug.
- Remove the plug ①.
- Remove the drain plug ② and empty the power divider gearbox.
- Refit and tighten the drain plug ②.
- Pour in new oil through the filler ① placed at the top of the reduction gear of the power divider. Stop when oil is level with hole ①.
- Refit and tighten plug ①.

① ***Filling plug***
② ***Drain plug***



SERVICE INTERVAL

Running-in _____ **Within the first 10 hours**

Ordinary _____ **Every 250 hours**

Maintenance

■ TURNTABLE ROTATION REDUCTION GEAR

■ Checking the oil level of the turntable rotation reduction gear

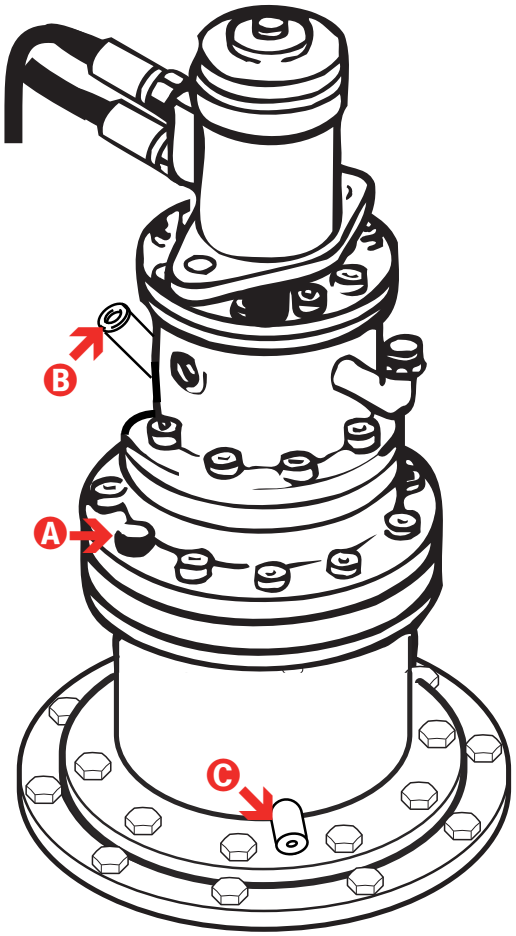
To check the oil level of the turntable rotation reduction gear:

- Stop the machine on a level ground and engage the parking brake.
- Clean level plug **A** all around.
- Loosen level plug **A** and check if oil is level with the hole.
- If necessary, unscrew the filling plug **B** and pour new oil through the hole until it starts flowing out of hole **A**.
- Refit and tighten plugs **A** and **B**.

SERVICE INTERVAL

Running-in _____ **None**

Ordinary _____ **Every 250 hours**



■ Change the oil in the turntable rotation reduction gear

If you shall change the oil in the turntable rotation reduction gear:

- Stop the machine on a level ground and engage the parking brake.
- Place a container of suitable size under drain plug **C**.
- Remove drain plug **C** and let oil flow out of the reduction gear.
- Unscrew the filling plug **B**.
- Clean level plug **A** all around.
- Loosen level plug **A**.
- Refit and tighten drain plug **C**.
- Pour new oil through the hole of plug **B** until it starts flowing out of hole **A**.
- Refit and tighten plugs **A** and **B**.

SERVICE INTERVAL

Running-in _____ **None**

Ordinary _____ **Every 1000 hours**

Maintenance

GREASING

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.

SERVICE INTERVAL

Running-in _____ **None**

Ordinary _____ **Every 10 hours**

CAUTION

Use only PTFE INTERFLON FIN GREASE LS 2 to lubricate the sliding parts of the telescopic section. Observe the following schedule:

- ***After the first 50 operating hours (1 week)***
- ***After the first 250 operating hours (1 month)***
- ***Every 1000 operating hours (6 months)***

Remove any old grease from the boom and smear the sliding area of the blocks with a thin coat of grease.

Maintenance

■ TYRES AND WHEELS

Over-inflated tyres can burst.

Overheated can burst. Do not 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:

	GTH-6025 ER	GTH-4518 ER GTH-4020 ER
Dimensions (front and rear)	445/65 22.5	18 - 19.5
P.R. (or load index)	169 F	16 pr
Rim	14x22.5	14x19.5
Wheel disc	10 holes DIN 70361	
Pressure bar/Psi	8/116	5.5/80

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.

Torque: 400 N/m.

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

SERVICE INTERVAL

Running-in _____ **Within the first 10 hours**

Ordinary _____ **Every 250 hours**

■ BRAKES

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

Maintenance

SHAFTING ALIGNMENT

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 **7** 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**)

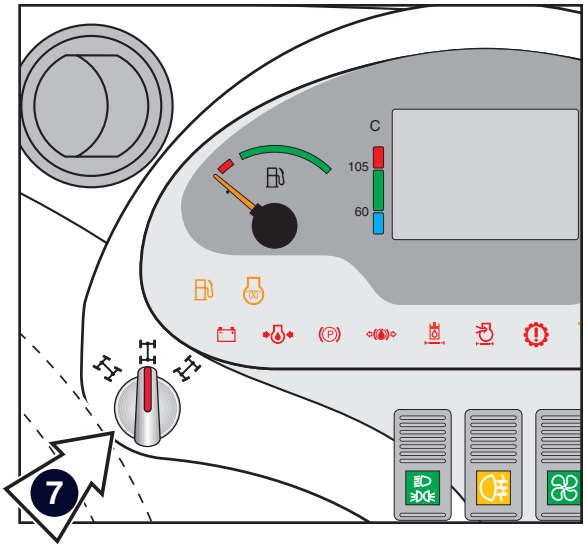
7) Rotate the steering (to the side opposite to point **3**) so that the rear axle reaches its stop

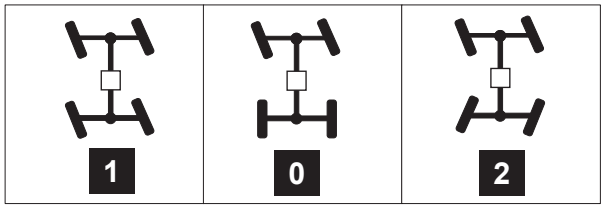
8) Reset the steering selection switch to "two-wheel steer" (pos. **0**)

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.





SERVICE INTERVAL

Running-in	**None**
Ordinary	**When necessary**

Maintenance

ADJUSTING 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 supplied by TEREXLIFT upon demand.

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.

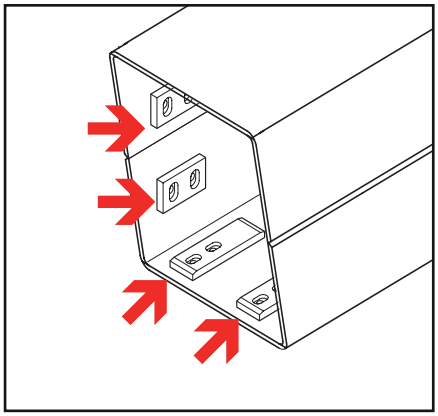
CAUTION

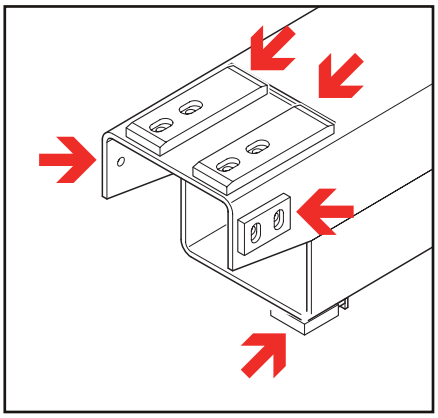
Pads must compulsorily be replaced if the residual thickness of the plastic layer with respect to the iron bush fixing the block is equal or inferior to 1 mm.

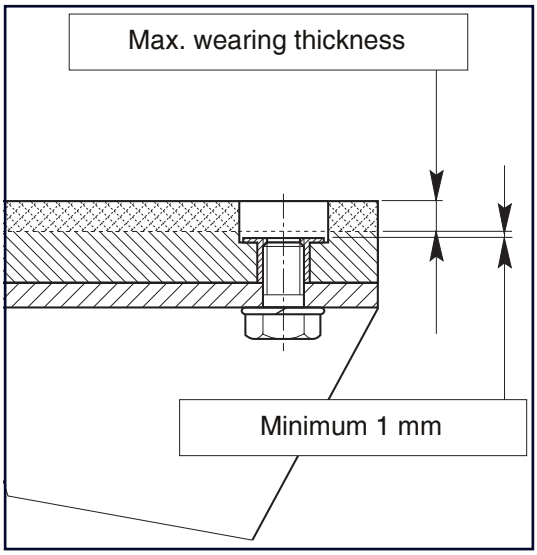
SERVICE INTERVAL

Running-in _____ **None**

Ordinary _____ **When necessary**

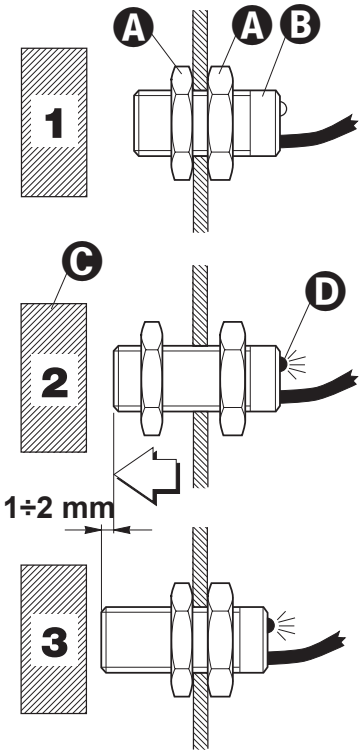






Maintenance

ADJUSTING THE SENSOR DISTANCE



In case of a failure or complete malfunctioning of the sensors due to a loosening of their fixing ring nuts, re-adjust their position:

1 Loosen nuts **A** fixing sensor **B**.

2 Set the mobile part **C** of the machine, controlled by the sensor, as close as possible to it.
Near the sensor to the component until the LED indicator **D** lights up.

3 Further near the sensor by 1÷2 mm.
Smoothly tighten the sensor fixing nut and the relevant lock nut.

The machine is fitted with the following proximity switches:

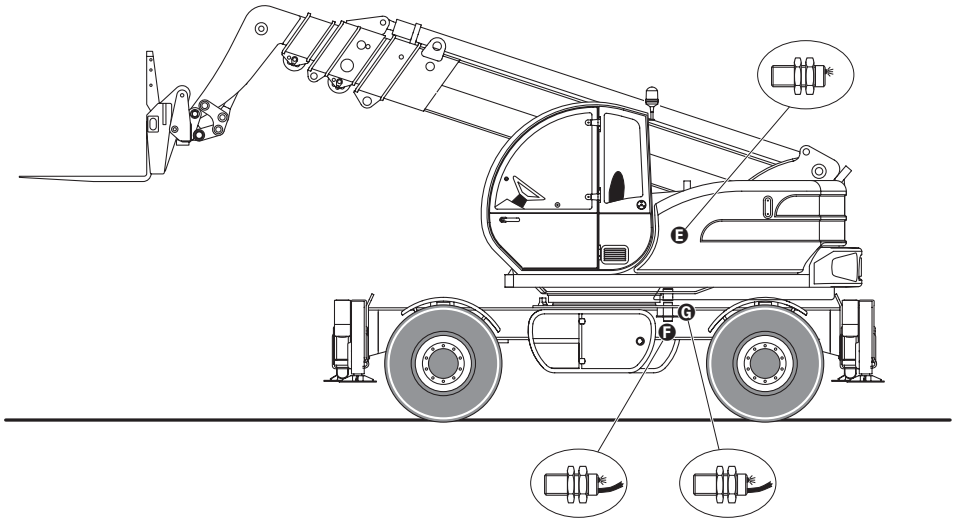
E N° 1 turntable unlocking cylinder sensor

F N° 1 turntable rotation locking sensor.

G N° 1 turntable alignment sensor.

SERVICE INTERVAL

Running-in	**None**
Ordinary	**When necessary**



Maintenance

TENSIONING THE BOOM CHAINS

To tighten the boom chains, follow the instructions below:

1. Fully extend the boom
2. Retract the boom by some 20/30 cm.
3. Tighten the chain up to a maximum tension value of 25 Nm.
4. Check that all chains have been equally tensioned. If not, repeat the operation described above
5. Lock the chain tensioners by means of a counter-nut and locknut.



SERVICE INTERVAL

Running-in _____ **None**

Ordinary _____ **Every 500 hours**

Maintenance

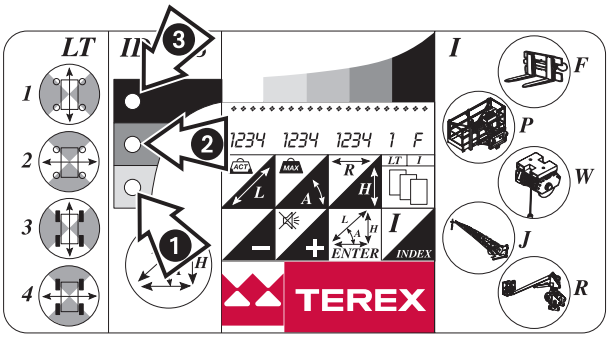
CHECKING THE SAFETY DEVICES

Checking the MOMENT LIMITING SYSTEM
(at every use)

At the machine start-up, the moment limiting system runs an automatic check. In the case of troubles, the red LED **3** will come on and the buzzer will sound to warn of the error. The machine will enter the alarm mode and no operation will be allowed.

To check the system manually, proceed as follows:

- Load a weight of 1000 kg.
- Raise the boom about 30 cm above the ground.
- Extend the telescope and check if the system enters the alarm mode once reached the distance indicated in the load charts for the attachment fitted to the machine.
  If the system does not enter the alarm mode, contact the TEREXLIFT Technical Service.

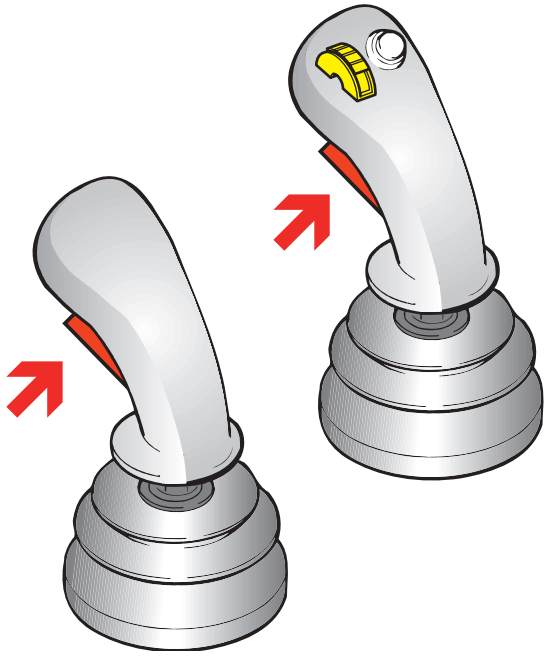


Do this check in the two positions: with the turntable longitudinal and rotated 90°.

SAFETY PUSHBUTTON on JOYSTICKS

Both joysticks are equipped with a safety system (deadman system).

The red pushbutton must be held pressed down until the end of the manoeuvre operated using the joystick. If the button is released, the manoeuvre stops.



Checking the JOYSTICK SAFETY PUSHBUTTON
(at every use)

To check the efficiency of the deadman pushbutton on the two joysticks, it is enough to attempt to operate the joystick without pressing this button.

In this condition, the joystick shall not activate any movement. Should that not be the case, contact the TEREXLIFT Technical Service.

Maintenance

■ **Checking the machine START CONTROL (20)**
(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 GENIE Technical Service.

Repeat the operation putting first one gear, then the other.

■ **Checking the operation of the EMERGENCY PUMP (19)** (weekly)

If the machine is equipped with an emergency pump, check it is in efficient working order every week.

This pump is not used regularly and, as a result, it could get damaged and be out of order in case of need.

To check that the pump is in efficient order, stop the engine, press the on-off button for some seconds and check that the pump works regularly.

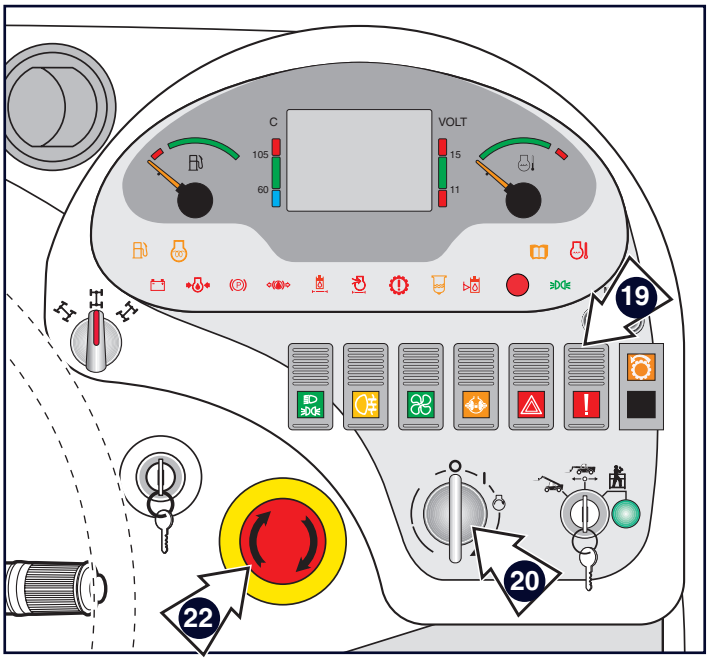
■ **EMERGENCY STOP PUSHBUTTON (22)**

Set on the dashboard, to the right of the steering wheel.Pressing down this button stops the engine of the machine.

Before starting work again, find and rectify the relevant causes, then reset the button to neutral position turning it clockwise.

■ **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.



Maintenance

Sensors on OUTRIGGERS

Each outrigger is equipped with two micro-switches and one position potentiometer.

A Outrigger extension potentiometer: It indicates the moment limiting system when a stabiliser is extended and adapts the stabilising area of the machine in a continuous way.

B This micro-switch senses when the outrigger is lowered. It indicates the condition of lowered outrigger and blocks the transmission when a outrigger is lowered to the ground.

C This micro-switch senses when the outrigger is extended. It indicates the conditions of extended stabiliser.

These three sensors, in conjunction with the moment limiter, determine the exact stabilising area instant after instant by adapting the max load that can be supported in each configuration.

Checking the limit switches of the outriggers (at every use)

To check the efficiency of the limit switches installed in the outriggers:

- Lower or raise all the outriggers.
- The display of the ***MIDAC*** moment limiter will change the scale of the admissible payloads accordingly.

Should that not be the case, contact the TEREXLIFT Technical Service.

WARNING

If a limit switch is faulty or a lever is deformed, immediately replace the part.

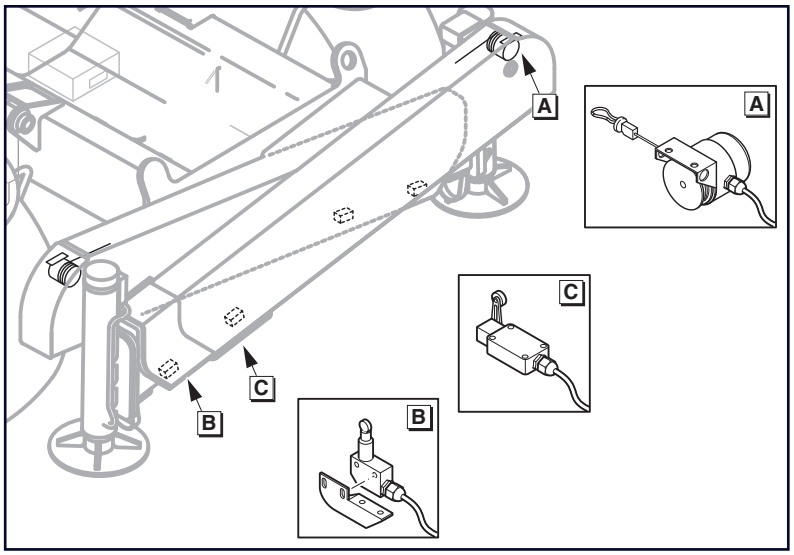
Outrigger strain gauge (every 40 hours or whenever an anomalous capacity is noticed)

To verify the efficiency of the extensometer on the outriggers, follow the instructions below:

- Using an Allen wrench, unscrew the 4 fixing screws of the protection cover
- Remove the protection cover and visually check the wire for damage.

If the wire is damaged, address to GENIE Technical Service.

If the strain gauge gets damaged, the display will show an error message.
If the wire of the strain gauge is broken, the machine does not detect the extension of the arm of the outrigger (even when extended) and therefore the scale of the permissible payloads is not adapted accordingly.



Maintenance

BLOCK VALVES fitted to all CYLINDERS

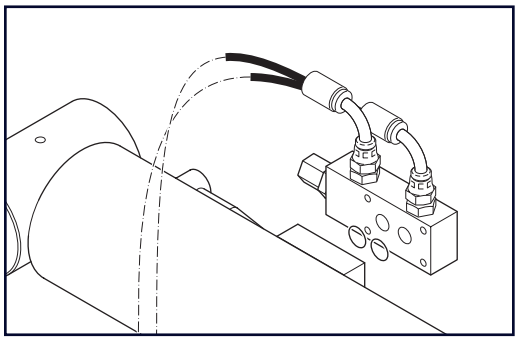
All machine's cylinders are equipped with block valves:

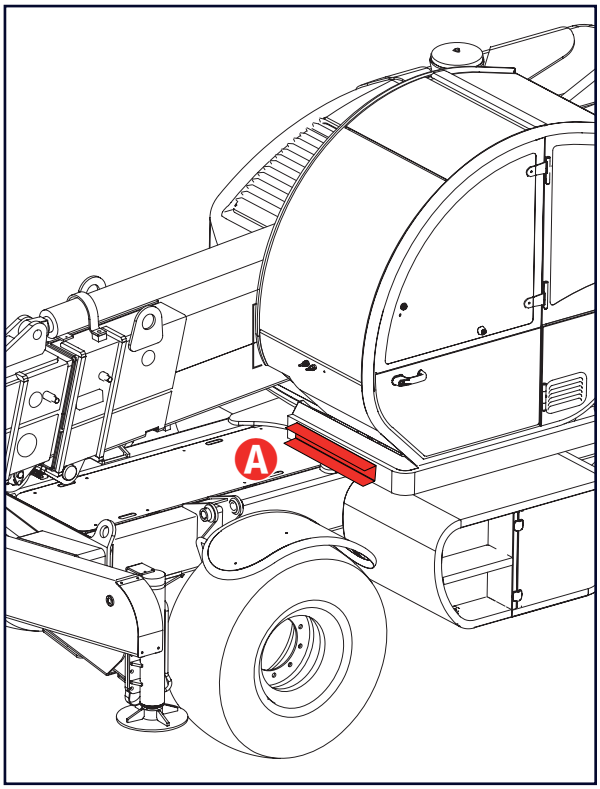
- Block valve on attachment coupling cylinder
- Block valve on lifting cylinder
- Block valve on balance cylinder
- Block valve on boom extension cylinder
- Block valve on attachment pitching cylinder
- Block valve on stabiliser lifting/lowering cylinder
- Block valve on stabiliser extension/retraction cylinder
- Block valve on machine sway cylinders
- Block valve on the turntable anti-rotation pin

DANGER

Always use the lock ring of the lift cylinder (see picture below), when carrying out maintenance on the lift cylinder block valve or, in general, any operation in the area under the boom:

I. Lift and extend the boom
II. Unscrew the two screws on the frame (pos. A) to release the ring
III. Put the ring on the lift cylinder rod
IV. Lock the ring by tightening the screws provided on the ring





Maintenance

■ 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.
- To check the efficiency of the block valves of the outriggers, lower them to the ground and unload the weight of the tyres without raising them. Loosen the cylinder hoses to check the efficiency of the valve.

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.

■ 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.

⚠ WARNING

Do the check of the valves taking all the possible precautionary measures:

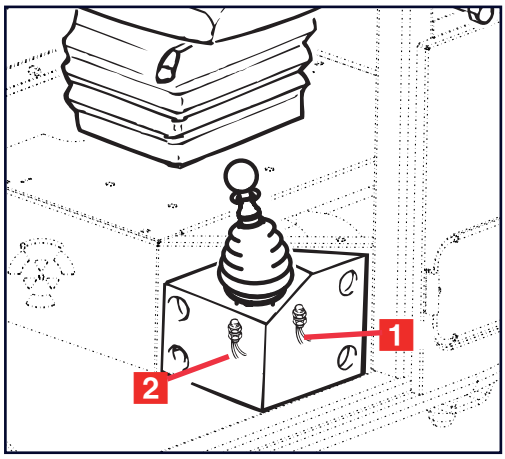
- ***Wear safety glasses***
- ***Wear safety gloves***
- ***Wear safety shoes***
- ***Wear suitable working clothes***
- ***Use guards against leaks of oil at high pressure***
- ***Do the check in a free space with barriers all around to keep non-authorised people away***
- ***Ensure that the part to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

Maintenance

Pressure switches on parking brake (1 and 2)

1- When the parking brake is engaged, this pressure switch stops the machine travel but the engine can still be started.

2- When the parking brake is engaged, this pressure switch activates the warning lights **41** presents in the instruments panel.



Checking the pressure switch on the parking brake (at every use)

To check the efficiency of this pressure switch, proceed as follows:

- Engage the parking brake and start the engine.
- Attempt to move with the machine. The machine must not move.

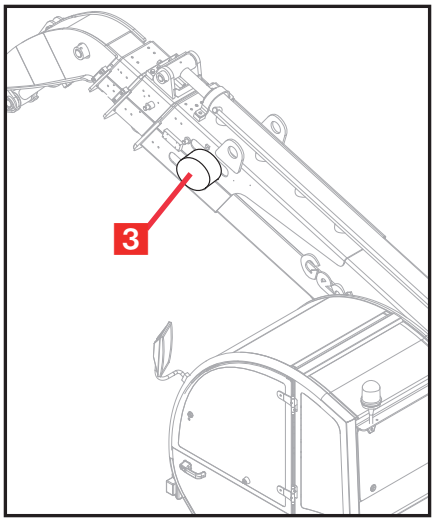
Should that not be the case, contact the TEREXLIFT Technical Service.

Boom strain gauge (3) (at every use)

To verify the efficiency of the strain gauge on the boom:

- Visually check the wire for damage..

If the wire is damaged, address to GENIE Technical Service.

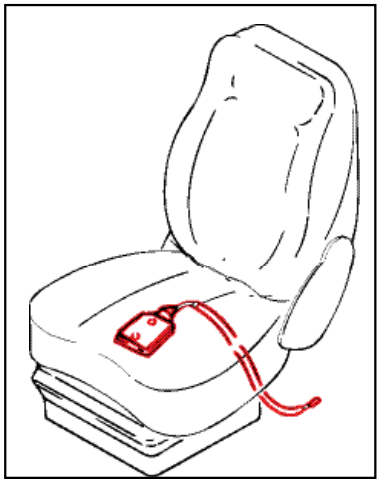


If the strain gauge is defective or its wire is broken, the display will show an error message.

Maintenance

SEAT SWITCH

Located inside the seat cushion, this micro switch prevents any machine transmission movements if the operator is not correctly seated in the driving seat.



Checking the seat switch (at every use)

To check if the seat switch is in efficient working order, it will be enough to attempt to make the machine to move without sitting on the drive seat.
In this condition, the machine shall not move.
Should that not be the case, contact TEREXLIFT Technical Service.

NOTICE

See section ROUTINE CHECK SCHEDULE for noting the result of the daily safety devices checking.

CHECKING THE STATE OF THE STRUCTURE

Five years or 6000 hours after the first placing into operation of the machine (whichever occurs first), check the state of the structure paying an extreme attention to the welded supporting joints and the pins of both boom and platform (if present).

WARNING

After the first 5 years, repeat this check every 2 years.

Maintenance

ELECTRICAL SYSTEM

WARNING

All maintenance interventions must be carried out with engine stopped, parking brake engaged, working attachments on the ground and gearbox lever in neutral.

WARNING

When raising a component for maintenance purposes, secure it in a safe way before carrying out any maintenance.

WARNING

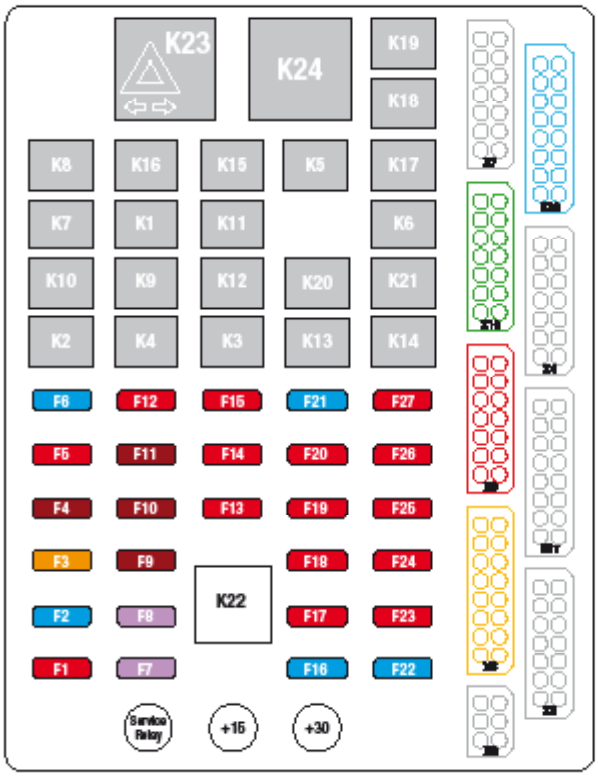
Any intervention on the electrical system unless performed by authorized personnel, is expressly forbidden.

NOTICE

Modifications and/or adds to the machine's electronic components and systems must comply to the provisions of EN12895.

CAUTION

- ***Do not use fuses having a higher amperage than that recommended, since they can damage the electric system seriously.***
- ***If the fuse blows after a short time, look for the fault source by checking the electric system.***
- ***Always keep some spare fuses for an emergency.***
- ***Never try to repair or short blown fuses.***
- ***Make sure the contacts of fuses and fuse-sockets ensure a good electric connection and are not oxidised.***



Maintenance

FUSES AND RELAYS

The electrical system is protected by fuses placed in the driving cab, on the left. Before replacing a blown fuse with a new one having the same amperage, find out and rectify the fault.

Cabin Fuses

Ref.	Circuit	Amp.
F1	FRONT WIPER POWER UNIT	10
F2	HEATING	15
F3	STOP LIGHT	5
F4	REAR & ROOF WIPERS	7.5
F5	FLASHING BEACON	10
F6	ROAD LIGHT	15
F7	POSITION LIGHTS	3
F8	POSITION LIGHTS	3
F9	DASHBOARD LIGHT	7.5
F10	POSITION LIGHTS SWITCH	7.5
F11	CONTROL INSTRUMENT - SWITCH LIGHTING	7.5
F12	OPTIONAL	10
F13	WORK LIGHT	10
F14	FOWARD-REVERSE MODE	10
F15	ROAD LIGHT	10
F16	HAZARD WARNING LIGHT	15
F17	POSITION LIGHTS SWITCH	10
F18	OPTIONAL	10
F19	OPTIONAL	10
F20	OPTIONAL	10
F21	HORN	15
F22	OPTIONAL	15
F23	CAB INTERIOR LIGHT	10
F24	SOLENOID VALVE BOOM FUN-CTIONS	10
F25	OPTIONAL	10
F26	BRAKE SENSOR	10
F27	SUPPLY POWER CONTROL UNIT	15

Cabin Relays

Ref.	Circuit
K1	HIGH BEAM
K2	LOW BEAM
K3	HORN
K4	OPTIONAL
K5	JOYSTICK ENABLING FUNCTION SWITCH
K6	BACKWARDS MODE/BUZZER AND LIGHT
K7	FORWARD MODE
K8	BACKWARDS MODE
K9	CUT OFF FORWARD/BACKWARD MODE
K10	CUT OFF FORWARD/BACKWARD MODE
K11	ENABLING START ENGINE
K12	OPTIONAL
K13	OPTIONAL
K14	OPTIONAL
K15	OPTIONAL
K16	OPTIONAL
K17	PLATFORM EMERGENCY BY-PASS
K18	SUPPLY POWER MANPLATFORM / EL. CONTROL BOX
K19	FORWARD/REVERSE MODE NEUTRAL POSITION
K20	OPTIONAL
K21	OPTIONAL
K22	NOT USED
K23	WARNING LIGHTS
K24	SEAT SWITCH TIMER

Maintenance

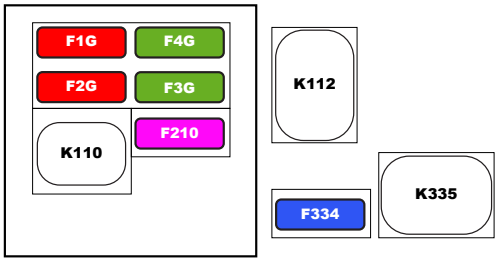
■ Engine compartment fuses and relays for GTH-4518 ER and GTH-4020 ER

Ref.	Circuit	Amp.
F1G	CABIN FUSE - RELAY BOARD	40
F2G	SERVICE FUSE - RELAY BOARD	40
F3G	ENGINE START MOTOR	30
F4G	TRASMISSION POWER SUPPLY	30
F210	ELECTRONIC CONTROL BOX TRANSMISSION	1
F334	POWER CONTROL BOX TRANSMISSION	15
K110	ENGINE START MOTOR	
K112	SERVICE POWER SUPPLY	
K335	TRANSMISSION POWER SUPPLY	



■ Engine compartment fuses and relays for GTH-6025 ER

Ref.	Circuit	Amp.
F1G	ENGINE IGNITION SWITCH	30
F2G	CABIN FUSE - RELAY BOARD	50
F4G	ENGINE START MOTOR	20
F328	GLOW PLUGS ACTIVATION	5
F340	ENGINE CONTROL UNIT	25
F341	GLOW PLUGS	80
K324	GLOW PLUGS INDICATOR LIGHT	
K325	GLOW PLUGS	
K327	ENGINE START MOTOR	
K342	ENGINE CONTROL UNIT	



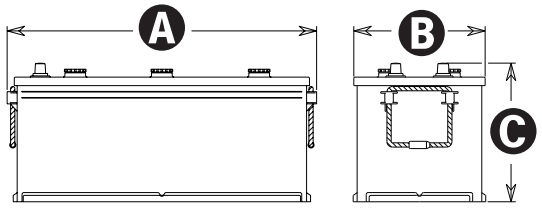
NOTICE

- ***Do not use fuses having a higher amperage than that recommended, since they can damage the electric system seriously.***
- ***If the fuse blows after a short time, look for the fault source by checking the electric system.***
- ***Always keep some spare fuses for an emergency.***
- ***Never try to repair or short blown fuses.***
- ***Make sure the contacts of fuses and fuse-sockets ensure a good electric connection and are not oxidised.***

Maintenance

BATTERY

STARTER BATTERY SPECIFICATIONS	
Volt	12
Ah	185
Length Ⓐ	510 mm
Width Ⓑ	218 mm
Height Ⓒ	228 mm
Weight	45 kg



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

⚠ WARNING

- ***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.***
- ***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.***

⚠ WARNING

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

⚠ CAUTION

Do not add sulphuric acid; add only distilled water.

Maintenance

REFUELLING

REFUELLING

Part	Product	Capacity (L) GTH-4518 ER	Capacity (L) GTH-4020 ER	Capacity (L) GTH-6025 ER
Diesel engine	Engine oil	11.5	11.5	18
Engine cooling system	Water+antifreeze	40	40	45
Fuel tank	Diesel fuel	145	145	145
Hydraulic system tank	Hydraulic oil	230	230	230
Gearbox	Oil	2.7	2.7	2.7
Differential gears	Oil	8.5	8.5	8.5
Wheel reduction gears	Oil	0.6 + 0.6	0.6 + 0.6	0.6 + 0.6
Turret rotation gear	Oil	2.8	2.8	2.8

PRODUCT SPECIFICATIONS

Engine oil

Use the oil recommended by the Diesel engine Manufacturer (see the relevant handbook delivered with the machine).
At the delivery, the machine is refilled with:

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

Lubrication oils

Refill the machine with following lubricants:

Use	Product	Definition
Gearbox-Differential gears-Reduction gears	TRACTORENAULT THFI 208 LF SAE 80W	API GL4 / FORD M2C 86B Massey Ferguson M1135
Turntable rotation reduction gear	SHELL OMALA 150	DIN 51 517-3 CLP, ISO 12295-1 TYPE CKC, US STEEL 224, DAVID BROWN 51.53.101
Hydraulic system and brakes	GAZPROMNEFT HYDRAULIC HDZ 46	DIN 51524 part 3 HVLP, ASTM D6158 HV, SAE MS1004 MS

NOTICE

Never mix different oils: this may result in troubles and component breaks.

Oils for hydraulic system:

Arctic climates:	Temperatures below -10°C	Use SHELL Tellus T22
Mild climates:	Temperatures from -15°C to + 45°C	Use HDZ 46
Tropical climates:	Temperatures above +30°C	Use SHELL Tellus T68

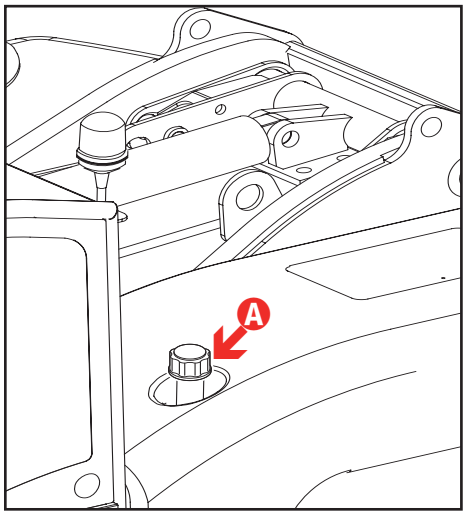
Maintenance

Fuel

Refuel through cap **A**. Use only Diesel fuel with less than 0.5% sulphur content, according to the specifications of the diesel engine operation handbook.

NOTICE

In cold climates (temperature under -20°C) use only Arctic type Diesel fuel, or oil-diesel fuel, or oil-diesel fuel mixtures. The composition of the latter can vary in relation to the ambient temperature up to max. 80% oil.



Grease

For the machine greasing, use:

Lithium-based Vanguard LIKO grease, type EP2	When greasing by pump.
Graphitized AGIP grease, type GR NG 3	When greasing by brush.
INTERFLON FIN GREASE LS 2	On the telescopic boom

NOTICE

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

Engine coolant

It is advisable to use an antifreeze mixture (50% water-50% antifreeze). At the delivery, the machine is refilled with:

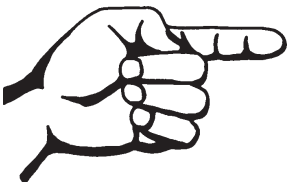
TEREX PRO COOL by VALVOLINE

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	-17°C	123°C
40	-24°C	126°C
50	-36°C	128°C
70	-67°C	135°C

NOTICE

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



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Faults and Troubleshooting

FAULTS AND TROUBLESHOOTING

This chapter represents a practical guide for the operator for fixing the most common failures and, at the same time, detecting those interventions that must be carried out by qualified technical engineers.
If you are unsure about anything, do not carry out operations on the machine, but call in a skilled technician.

WARNING

Any repair work, maintenance or troubleshooting must be carried out with machine stopped, boom in rest position or laid on the ground, parking brake engaged and ignition key removed.

PROBLEM	CAUSES	SOLUTIONS
THE DASHBOARD DOES NOT TURN ON	• Battery down • Fuse in the engine compartment box blown	• Check the battery condition • Check the fuse **FG1** in the engine compartment and replace if necessary
THE STARTER DOES NOT RUN	• Forward/reverse gear selector not in neutral position • Emergency button ON • Fuse blown • Battery down	• Set the switch to **0** • Reset the button • Check fuse **FG3** and replace if necesary • Recharge or replace the battery
THE STARTER RUNS, BUT THE ENGINE DOES NOT START	• No fuel • Fuel filter clogged • Fuel hose empty (fuel used up)	• Refuel • Change the filter. (See engine operator handbook) • Refuel, then refer to engine operator handbook
THE MACHINE DOES NOT MOVE FORWARD/BACK	• Changeover switch in neutral • Parking Brake engaged • One or more stabilisers down • Lowered stabiliser limit switches tripped • Fuse blown • Low hydraulic oil level • Operator is not correctly seated in the driving seat	• Set the gear switch • Disengage • Raise the stabilizers • Deactivate • Check fuse **F18** • Check oil in the reservoir • Sit correctly on the driving seat
NO SELECTION OF THE STEERING MODE	• Steering mode selector damaged • ROAD/JOSITE/PLATFORM selector turned to ROAD	• Check the selector and replace if necessary. • Turn to JOBSITE
OUTRIGGGERS DO NOT WORK	• ROAD/JOSITE/PLATFORM selector turned to ROAD • Boom lifted over 10°	• Turn to JOSITE • • Lower the boom under 10°

Faults and Troubleshooting

PROBLEM	CAUSES	SOLUTIONS
BOOM MOVEMENTS CANNOT BE OPERATED	• ROAD/JOSITE/PLATFORM selector turned to ROAD	• Turn to JOBSITE
MACHINE IN ALARM (red LED on the IDR display lit)	• Alarm of the moment limiter	• Retract or raise the boom whitin safe limits (see Load Charts)

NOTICE

In case of faults not listed in this chapter, address to the TEREXLIFT Technical Assistance, your nearest authorised workshop or dealer.

Faults and Troubleshooting

ERROR MESSAGES ON "IDR" DISPLAY

The following codes indicate the reason why a manoeuvre cannot be performed.

1001	Machine not stopped
1002	Emergency pressed or no power supply
1003	Alarm - see code list
1004	No deadman signal
1005	Moment limiter block activated
1006	Platform overload
1007	Manoeuvre not admitted for angle above 55 degrees
1008	Angle congruency
1009	Extension congruency
1010	Manoeuvre not admitted due to generic causes
1011	Slow-down when top stop is reached
1012	Slow-down due to Pre-alarm
1013	Turntable NOT locked
1014	Stabiliser on the ground
1015	Manoeuvre not admitted for angle above 10 degrees
1016	Verticality command blocked as max extension has been reached
1017	Verticality command blocked as max extension has been reached
1018	Command not permitted in "ROAD" configuration
1019	Command not permitted in "PLATFORM" configuration
1020	Turntable NOT unlocked
1021	Horizontality command blocked as max extension has been reached
1022	Horizontality command blocked as min. extension has been reached
1023	Slow-down in relation to extension
1024	Machine not stabilised
1025	Only retraction manoeuvre permitted
1026	Stop due to boom/stabiliser collision

Faults and Troubleshooting

Alarms from Midac

Code	Description
1	Data saved in E2PROM corrupted
2	Signal from angle transducer A below the minimum threshold
3	Signal from angle transducer A above the maximum threshold
4	Signal from extension transducer A below the minimum threshold
5	Signal from extension transducer A above the maximum threshold
6	Value of extension A below the value with the boom retracted
7	Value of extension B below the value with the boom retracted
8	Signal from the low chamber pressure transducer of the lifting cylinder below the minimum value
9	Signal from the low chamber pressure transducer of the main cylinder above the maximum value (when applied)
10	Signal from the high chamber pressure transducer of the lifting cylinder below the minimum value
11	Signal from the high chamber pressure transducer of the main cylinder above the maximum value
18	Signal from the low chamber pressure transducer of the compensation cylinder below the minimum value
19	Signal from the low chamber pressure transducer of the compensation cylinder above the maximum value (when applied)
20	Signal from the high chamber pressure transducer of the compensation cylinder below the minimum value
21	Signal from the high chamber pressure transducer of the compensation cylinder above the maximum value
22	Error in the feedback of the watchdog relay
30	The 2 readings of the signal of deployed stabilisers are not congruent
31	The 2 readings of the signal of stabilisers on ground are not congruent
32	The readings of the 2 angle transducers of the main boom, read by the winders, are not congruent
33	The readings of the 2 extension transducers of the main boom, read by the winders, are not congruent
34	Error from ACT A board
35	Error from ACT B board
36	Signal from extension transducer B below the minimum value
37	Signal from extension transducer B above the maximum value
38	The reading of the sensor of front turntable is not congruent with the reading of the Rotax angle
41	Error in the CRC check of the memory during RunTime
42	Error in the CRC check of the system program
43	Error in the CRC check of the load charts
49	The chart with the selected attachment is not installed
50	An error in the RAM memory where load chart data are saved, has been detected
51	An error in the RAM memory where unladen moment data is saved, has been detected
52	An error in the RAM memory where attachment parameters are saved, has been detected
53	An error in the RAM memory where machine parameters are saved, has been detected

Faults and Troubleshooting

Alarms from CLIO A

81	CRC error - parameter area
82	CLIOA CPU link alarm
83	Error on the watch dog relay control
84	Error on the block relay control
85	Error on the output control
86	Error on the + 5V check
90	Lower cell reading at minimum
91	Upper cell reading at minimum
92	Congruency error of the load read by the 2 cells (detected by CLIOA)
95	Can Bus does not receive message 2
96	Can Bus does not receive message 3
99	Congruency error of the load read by the 2 cells (detected by Midac)

Alarms from CLIO B

101	CRC error - parameter area
102	
103	Error on the watch dog relay control
104	Error on the block relay control
105	Error on the output control
106	Error on the + 5V check
110	Lower cell reading at minimum
111	Upper cell reading at minimum
112	Congruency error of the load read by the 2 cells (detected by CLIOA)
115	Can Bus does not receive message 2
116	Can Bus does not receive message 3
119	Congruency error of the load read by the 2 cells (detected by Midac)
120	Can Bus does not receive from ACT1A
121	Can Bus does not receive from ACT1B
130	Error in the reading of the transducer on the front right stabiliser
131	Error in the reading of the transducer on the front left stabiliser
132	Error in the reading of the transducer on the rear right stabiliser
133	Error in the reading of the transducer on the rear left stabiliser

Alarms from Rotax

135	Error in the reading of height A
136	Error in the reading of height B
137	Error in the congruency of 2 angles read by Rotax
138	Can Bus does not receive message 1
139	Can Bus does not receive message 2

Faults and Troubleshooting

Head alarm list

Code	Sub Code	Description
1001		Error in the CRC control of the calibration data
1032		The readings of the 2 main boom angle transducers, read by the winders,
		are not congruent.
1033		The readings of the 2 extension transducers read by the winders are not congruent. Error in the reading of the extension transducer B.
1100		No CanBus message from ACT1A board
1101		No CanBus message from ACT1A
1110		Error or fault detected on ACT1B board
1111		No CanBus message from ACT1B
1120		Error or fault detected on Carrier ASA board
1121		No CanBus message from Carrier ASA
1151	1	No CanBus1 message from CLS
1151	2	No CanBus 2 message from CLS
1151	3	No CanBus 3 message from CLS
1161	1	No CanBus 2 message from ClioA
1161	2	No CanBus 3 message from ClioA
1171	1	No CanBus 2 message from ClioB
1171	2	No CanBus 3 message from ClioB
1200		Error or fault detected on ARM board - Boom
1201	1	No CanBus 1 message from ARM - Boom
1201	2	No CanBus 2 message from ARM - Boom
1201	3	No CanBus 3 message from ARM - Boom
1201	4	No CanBus 4 message from ARM - Boom
1201	5	No CanBus 5 message from ARM - Boom
1201	6	No CanBus 6 message from ARM - Boom
1210		Error or fault detected on ARM board - Front carrier
1211	1	No CanBus 1 message from ARM - Front carrier
1211	2	No CanBus 2 message from ARM
1211	3	No CanBus 3 message from ARM
1211	4	No CanBus 4 message from ARM
1211	5	No CanBus 5 message from ARM
1211	6	No CanBus 6 message from ARM
1220		Error or fault detected on ARM board - Front carrier
1221	1	No CanBus 1 message from ARM - Front carrier
1221	2	No CanBus 2 message from ARM
1221	3	No CanBus 3 message from ARM
1221	4	No CanBus 4 message from ARM

Faults and Troubleshooting

Code	Sub Code	Description
1221	5	No CanBus 5 message from ARM
1221	6	No CanBus 6 message from ARM
1300		Error or fault detected on Lifting driver
1301		No CanBus message
1310		Error or fault detected on Extension driver
1311		No CanBus message
1320		Error or fault detected on Fork driver
1321		No CanBus message
1330		Error or fault detected on Rotation driver
1331		No CanBus message
1340		Error or fault detected on Aux. circuit driver
1341		No CanBus message
1089		Error or fault detected on Lifting Bucher board
1090		Error or fault detected on Extension Bucher board
1091		Error or fault detected on Fork Bucher board
1092		Error or fault detected on Rotation Bucher board
1093		Error or fault detected on Aux. Circuit Bucher board
1094		No CanBus message from Midac
1027		No CanBus message from Engine
1028		No CanBus message from Drive
1095		Joystick activated at machine starting
1096		Deadman button detected at machine starting
1097		Bypass key detected at machine starting

Faults and Troubleshooting

"CUMMINS" ERROR MESSAGES LIST

CUMMINS		
ID Error	CanBus	
	FMI	SPN
-	524287	31
-	0	0
001	629	12
002	612	2
003	102	3
004	102	4
005	91	3
006	91	4
007	974	3
008	974	4
009	100	3
010	100	4
011	100	18
012	110	3
013	110	4
014	110	16
015	91	1
016	91	0
017	110	0
018	105	3
019	105	4
020	105	0
021	1080	4
022	111	3
023	111	4
024	111	18
025	1484	31
026	175	3
027	175	4
028	175	0
029	108	3
030	108	4
031	1080	3
032	109	3
033	109	4
034	109	18
035	190	0
036	111	1
037	644	2
038	611	4
039	84	2
040	84	10
041	647	4
042	171	3
043	171	4
044	174	16
045	174	3
046	174	4
047	94	2
048	1347	4
049	1347	3
050	1347	7
051	1347	7
052	1043	4
053	639	9
054	639	13
055	91	19
056	974	19
057	441	3
058	441	4
059	108	2
060	1388	14
061	1388	3
062	1388	4
063	251	2
064	651	5
065	655	5
066	653	5
067	656	5
068	652	5
069	654	5
070	110	2
071	1267	3
072	1267	4
073	630	2
074	630	13
075	629	12
076	629	12
077	1079	4
078	1079	3
079	1043	3
080	100	1
081	97	15
082	111	2
083	175	2
084	97	3
085	97	4
086	558	2
087	558	13
088	102	2
089	627	2
090	100	2
091	168	18
092	168	16
093	1043	4
094	157	0
095	157	3
096	157	4
097	105	16
098	1377	2
099	611	2
100	702	3
101	93	2
102	703	3
103	558	4
104	157	16
105	157	2
106	157	18
107	677	3
108	677	4
109	103	16
110	167	16
111	167	18
112	167	1
113	1378	31
114	103	18
115	190	2
116	1172	3
117	1172	4
118	1136	3
119	1136	4
120	22	3
121	22	4
122	723	7
123	723	2
124	611	31
125	723	2
126	703	11
127	166	2
128	627	2
129	651	7
130	652	7
131	653	7
132	654	7
133	655	7
134	656	7
135	2623	3
136	2623	4
137	91	2
138	1563	2
139	1563	2
140	157	0
141	32	3
142	52	4
143	52	16
144	52	0
145	2981	3
146	2981	4
147	2981	18
148	611	3
149	611	4
150	703	14
151	94	18
152	94	1
153	630	31
154	157	1
155	1075	3
156	1075	4
157	611	16
158	611	18
159	633	31
160	190	2
161	723	2
162	103	10
163	2789	15
164	2629	15
165	1072	4
166	1073	4
167	1072	3
168	1073	3
169	647	3
170	641	4
171	641	3
172	729	3
173	729	4
174	697	3
175	697	4
176	110	15
177	105	15
178	102	2
199	All Other Values	

UNIDECK	
ID Error	Error
998	Cluster Internal Error
999	Idraulic Oil OverTemp

REXROTH		
ID Error	CanBus	
	Byte	Bit
301	0	0
302	0	1
303	0	2
304	0	3
305	0	4
306	0	5
307	0	6
308	0	7
309	1	0
310	1	1
311	1	2
312	1	3
313	1	4
314	1	5
315	1	6
316	1	7
317	2	0
318	2	1
319	2	2
320	2	3
321	2	4
322	2	5

Faults and Troubleshooting

"CUMMINS" ERROR MESSAGES DESCRIPTIONS

Fault Code	J1939 SPN	J1939 FMI	Lamp Color	J1939 SPN Description	Cummins Description
111	629	12	Red	Controller #1	Engine Control Module Critical internal failure - Bad intelligent Device or Component
115	612	2	Red	System Diagnostic Code # 2	Engine Speed/Position Sensor Circuit lost both of two signals from the magnetic pickup sensor - Data Erratic, Intermittent, or incorrect
122	102	3	Amber	Boost Pressure	Intake Manifold Pressure Sensor Circuit – Voltage Above Normal, or Shorted to High Source
123	102	4	Amber	Boost Pressure	Intake Manifold Pressure Sensor Circuit – Voltage Below Normal, or Shorted to Low Source
131	91	3	Red	Accelerator Pedal Position	Accelerator Pedal or Lever Position Sensor Circuit - Voltage Above Normal, or Shorted to High Source
132	91	4	Red	Accelerator Pedal Position	Accelerator Pedal or Lever Position Sensor Circuit - Voltage Below Normal, or Shorted to Low Source
133	974	3	Red	Remote Accelerator	Remote Accelerator Pedal or Lever Position Sensor Circuit – Voltage Above Normal, or Shorted to High Source
134	974	4	Red	Remote Accelerator	Remote Accelerator Pedal or Lever Position Sensor Circuit – Voltage Below Normal, or Shorted to Low Source
135	100	3	Amber	Engine Oil Pressure	Oil Pressure Sensor Circuit - Voltage Above Normal, or Shorted to High Source
141	100	4	Amber	Engine Oil Pressure	Oil Pressure Sensor Circuit - Voltage Below Normal, or Shorted to Low Source
143	100	18	Amber	Engine Oil Pressure	Oil Pressure Low – Data Valid but Below Normal Operational Range - Moderately Severe Level
144	110	3	Amber	Engine Coolant Temperature	Coolant Temperature Sensor Circuit – Voltage Above Normal, or Shorted to High Source
145	110	4	Amber	Engine Coolant Temperature	Coolant Temperature Sensor Circuit – Voltage Below Normal, or Shorted to Low Source
146	110	16	Amber	Engine Coolant Temperature	Coolant Temperature High - Data Valid but Above Normal Operational Range - Moderately Severe Level
147	91	1	Red	Accelerator Pedal Position	Accelerator Pedal or Lever Position Sensor Circuit – Abnormal Frequency, Pulse Width, or Period
148	91	0	Red	Accelerator Pedal Position	Accelerator Pedal or Lever Position Sensor Circuit – Abnormal Frequency, Pulse Width, or Period
151	110	0	Red	Engine Coolant Temperature	Coolant Temperature Low - Data Valid but Above Normal Operational Range - Most Severe Level
153	105	3	Amber	Intake Manifold #1 Temp	Intake Manifold Air Temperature Sensor Circuit - Voltage Above Normal, or Shorted to High Source
154	105	4	Amber	Intake Manifold #1 Temp	Intake Manifold Air Temperature Sensor Circuit - Voltage Below Normal, or Shorted to Low Source
155	105	0	Red	Intake Manifold #1 Temp	Intake Manifold Air Temperature High – Data Valid but Above Normal Operational Range - Most Severe Level
187	1080	4	Amber	5 Volts DC Supply	Sensor Supply Voltage #2 Circuit – Voltage Below Normal, or Shorted to Low Source
195	111	3	Amber	Coolant Level	Coolant Level Sensor Circuit - Voltage Above Normal, or Shorted to High Source
196	111	4	Amber	Coolant Level	Coolant Level Sensor Circuit - Voltage Below Normal, or Shorted to Low Source
197	111	18	Amber	Coolant Level	Coolant Level - Data Valid but Below Normal Operational Range - Moderately Severe Level
211	1484	31	None	J1939 Error	Additional Auxiliary Diagnostic Codes logged - Condition Exists
212	175	3	Amber	Oil Temperature	Engine Oil Temperature Sensor 1 Circuit - Voltage Above Normal, or Shorted to High Source
213	175	4	Amber	Oil Temperature	Engine Oil Temperature Sensor 1 Circuit - Voltage Below Normal, or Shorted to Low Source
214	175	0	Red	Oil Temperature	Engine Oil Temperature - Data Valid but Above Normal Operational Range - Most Severe Level

Faults and Troubleshooting

Fault Code	J1939 SPN	J1939 FMI	Lamp Color	J1939 SPN Description	Cummins Description
221	108	3	Amber	Barometric Pressure	Barometric Pressure Sensor Circuit – Voltage Above Normal, or Shorted to High Source
222	108	4	Amber	Barometric Pressure	Barometric Pressure Sensor Circuit – Voltage Below Normal, or Shorted to Low Source
227	1080	3	Amber	5 Volts DC Supply	Sensor Supply Voltage #2 Circuit – Voltage Above Normal, or Shorted to High Source
231	109	3	Amber	Coolant Pressure	Coolant Pressure Sensor Circuit - Voltage Above Normal, or Shorted to High Source
232	109	4	Amber	Coolant Pressure	Coolant Pressure Sensor Circuit - Voltage Below Normal, or Shorted to Low Source
233	109	18	Amber	Coolant Pressure	Coolant Pressure - Data Valid but Below Normal Operational Range - Moderately Severe Level
234	190	0	Red	Engine Speed	Engine Speed High - Data Valid but Above Normal Operational Range - Most Severe Level
235	111	1	Red	Coolant Level	Coolant Level Low - Data Valid but Below Normal Operational Range - Most Severe Level
237	644	2	Amber	External Speed Input	External Speed Input (Multiple Unit Synchronization) - Data Erratic, Intermittent, or Incorrect
238	611	4	Amber	System Diagnostic code # 1	Sensor Supply Voltage #3 Circuit – Voltage Below Normal, or Shorted to Low Source
241	84	2	Amber	Wheel-based Vehicle Speed	Vehicle Speed Sensor Circuit - Data Erratic, Intermittent, or Incorrect
242	84	10	Amber	Wheel-based Vehicle Speed	Vehicle Speed Sensor Circuit tampering has been detected – Abnormal Rate of Change
245	647	4	Amber	Fan Clutch Output Device Driver	Fan Control Circuit - Voltage Below Normal, or Shorted to Low Source
249	171	3	Amber	Ambient Air Temperature	Ambient Air Temperature Sensor Circuit - Voltage Above Normal, or Shorted to High Source
256	171	4	Amber	Ambient Air Temperature	Ambient Air Temperature Sensor Circuit - Voltage Below Normal, or Shorted to Low Source
261	174	16	Amber	Fuel Temperature	Engine Fuel Temperature - Data Valid but Above Normal Operational Range - Moderately Severe Level
263	174	3	Amber	Fuel Temperature	Engine Fuel Temperature Sensor 1 Circuit - Voltage Above Normal, or Shorted to High Source
265	174	4	Amber	Fuel Temperature	Engine Fuel Temperature Sensor 1 Circuit - Voltage Below Normal, or Shorted to Low Source
268	94	2	Amber	Fuel Delivery Pressure	Fuel Pressure Sensor Circuit - Data Erratic, Intermittent, or Incorrect
271	1347	4	Amber	Fuel Pump Pressurizing Assembly #1	High Fuel Pressure Solenoid Valve Circuit – Voltage Below Normal, or Shorted to Low Source
272	1347	3	Amber	Fuel Pump Pressurizing Assembly #1	High Fuel Pressure Solenoid Valve Circuit – Voltage Above Normal, or Shorted to High Source
275	1347	7	Amber	Fuel Pump Pressurizing Assembly #1	Fuel Pumping Element (Front) – Mechanical System Not Responding Properly or Out of Adjustment
281	1347	7	Amber	Fuel Pump Pressurizing Assembly #1	High Fuel Pressure Solenoid Valve #1 – Mechanical System Not Responding Properly or Out of Adjustment
284	1043	4	Amber	Internal Sensor Voltage Supply	Engine Speed/Position Sensor (Crankshaft) Supply Voltage Circuit - Voltage Below Normal, or Shorted to Low Source
285	639	9	Amber	SAE J1939 Datalink	SAE J1939 Multiplexing PGN Timeout Error - Abnormal Update Rate
286	639	13	Amber	SAE J1939 Datalink	SAE J1939 Multiplexing Configuration Error – Out of Calibration
287	91	19	Red	Accelerator Pedal Position	SAE J1939 Multiplexing Accelerator Pedal or Lever Sensor System Error - Received Network Data In Error
288	974	19	Red	Remote Accelerator	SAE J1939 Multiplexing Remote Accelerator Pedal or Lever Data Error - Received Network Data In Error
293	441	3	Amber	OEM Temperature	Auxiliary Temperature Sensor Input # 1 Circuit - Voltage Above Normal, or Shorted to High Source
294	441	4	Amber	OEM Temperature	Auxiliary Temperature Sensor Input # 1 Circuit - Voltage Below Normal, or Shorted to Low Source
295	108	2	Amber	Barometric Pressure	Barometric Pressure Sensor Circuit - Data Erratic,

Faults and Troubleshooting

Fault Code	J1939 SPN	J1939 FMI	Lamp Color	J1939 SPN Description	Cummins Description
					Intermittent, or Incorrect
296	1388	14	Red	Auxiliary Pressure	Auxiliary Pressure Sensor Input 1 - Special Instructions
297	1388	3	Amber	Auxiliary Pressure	Auxiliary Pressure Sensor Input # 2 Circuit - Voltage Above Normal, or Shorted to High Source
298	1388	4	Amber	Auxiliary Pressure	Auxiliary Pressure Sensor Input # 2 Circuit - Voltage Below Normal, or Shorted to Low Source
319	251	2	Maint	Real Time Clock Power	Real Time Clock Power Interrupt - Data Erratic, Intermittent, or Incorrect
322	651	5	Amber	Injector Cylinder #01	Injector Solenoid Cylinder #1 Circuit – Current Below Normal, or Open Circuit
323	655	5	Amber	Injector Cylinder #05	Injector Solenoid Cylinder #5 Circuit – Current Below Normal, or Open Circuit
324	653	5	Amber	Injector Cylinder #03	Injector Solenoid Cylinder #3 Circuit – Current Below Normal, or Open Circuit
325	656	5	Amber	Injector Cylinder #06	Injector Solenoid Cylinder #6 Circuit – Current Below Normal, or Open Circuit
331	652	5	Amber	Injector Cylinder #02	Injector Solenoid Cylinder #2 Circuit – Current Below Normal, or Open Circuit
332	654	5	Amber	Injector Cylinder #04	Injector Solenoid Cylinder #4 Circuit – Current Below Normal, or Open Circuit
334	110	2	Amber	Engine Coolant Temperature	Coolant Temperature Sensor Circuit – Data Erratic, Intermittent, or Incorrect
338	1267	3	Amber	Vehicle Accessories Relay Driver	Idle Shutdown Vehicle Accessories Relay Driver Circuit - Voltage Above Normal, or Shorted to High Source
339	1267	4	Amber	Vehicle Accessories Relay Driver	Idle Shutdown Vehicle Accessories Relay Driver Circuit - Voltage Below Normal, or Shorted to Low Source
341	630	2	Amber	Calibration Memory	Engine Control Module data lost - Data Erratic, Intermittent, or Incorrect
342	630	13	Red	Calibration Memory	Electronic Calibration Code Incompatibility - Out of Calibration
343	629	12	Amber	Controller #1	Engine Control Module Warning internal hardware failure - Bad Intelligent Device or Component
351	629	12	Amber	Controller #1	Injector Power Supply - Bad Intelligent Device or Component
352	1079	4	Amber	5 Volts DC Supply	Sensor Supply Voltage #1 Circuit – Voltage Below Normal, or Shorted to Low Source
386	1079	3	Amber	5 Volts DC Supply	Sensor Supply Voltage #1 Circuit – Voltage Above Normal, or Shorted to High Source
387	1043	3	Amber	Internal Sensor Voltage Supply	Accelerator Pedal or Lever Position Sensor Supply Voltage Circuit - Voltage Above Normal, or Shorted to High Source
415	100	1	Red	Engine Oil Pressure	Oil Pressure Low – Data Valid but Below Normal Operational Range - Most Severe Level
418	97	15	Maint.	Water in Fuel Indicator	Water in Fuel Indicator High - Data Valid but Above Normal Operational Range – Least Severe Level
422	111	2	Amber	Coolant Level	Coolant Level - Data Erratic, Intermittent, or Incorrect
425	175	2	Amber	Oil Temperature	Engine Oil Temperature - Data Erratic, Intermittent, or Incorrect
428	97	3	Amber	Water in Fuel Indicator	Water in Fuel Sensor Circuit - Voltage Above Normal, or Shorted to High Source
429	97	4	Amber	Water in Fuel Indicator	Water in Fuel Sensor Circuit - Voltage Below Normal, or Shorted to Low Source
431	558	2	Amber	Accelerator Pedal Low Idle Switch	Accelerator Pedal or Lever Idle Validation Circuit - Data Erratic, Intermittent, or Incorrect
432	558	13	Red	Accelerator Pedal Low Idle Switch	Accelerator Pedal or Lever Idle Validation Circuit - Out of Calibration
433	102	2	Amber	Boost Pressure	Intake Manifold Pressure Sensor Circuit - Data Erratic, Intermittent, or Incorrect
434	627	2	Amber	Power Supply	Power Lost without Ignition Off - Data Erratic, Intermittent, or Incorrect

Faults and Troubleshooting

Fault Code	J1939 SPN	J1939 FMI	Lamp Color	J1939 SPN Description	Cummins Description
435	100	2	Amber	Engine Oil Pressure	Oil Pressure Sensor Circuit - Data Erratic, Intermittent, or Incorrect
441	168	18	Amber	Electrical Potential (Voltage)	Battery #1 Voltage Low - Data Valid but Below Normal Operational Range – Moderately Severe Level
442	168	16	Amber	Electrical Potential (Voltage)	Battery #1 Voltage High - Data Valid but Above Normal Operational Range – Moderately Severe Level
443	1043	4	Amber	Internal Sensor Voltage Supply	Accelerator Pedal or Lever Position Sensor Supply Voltage Circuit - Voltage Below Normal, or Shorted to Low Source
449	157	0	Red	Injector Metering Rail 1 Pressure	Fuel Pressure High - Data Valid but Above Normal Operational Range – Moderately Severe Level
451	157	3	Amber	Injector Metering Rail 1 Pressure	Injector Metering Rail #1 Pressure Sensor Circuit - Voltage Above Normal, or Shorted to High Source
452	157	4	Amber	Injector Metering Rail 1 Pressure	Injector Metering Rail #1 Pressure Sensor Circuit - Voltage Below Normal, or Shorted to Low Source
488	105	16	Amber	Intake Manifold	Intake Manifold 1 Temperature - Data Valid but Above Normal Operational Range - Moderately Severe Level
497	1377	2	Amber	Switch Circuit	Multiple Unit Synchronization Switch Circuit - Data Erratic, Intermittent, or Incorrect
523	611	2	Amber	System Diagnostic code # 1	OEM Intermediate (PTO) Speed switch Validation - Data Erratic, Intermittent, or Incorrect
527	702	3	Amber	Circuit - Voltage	Auxiliary Input/Output 2 Circuit - Voltage Above Normal, or Shorted to High Source
528	93	2	Amber	Switch - Data	Auxiliary Alternate Torque Validation Switch - Data Erratic, Intermittent, or Incorrect
529	703	3	Amber	Circuit - Voltage	Auxiliary Input/Output 3 Circuit - Voltage Above Normal, or Shorted to High Source
551	558	4	Amber	Accelerator Pedal Low Idle Switch	Accelerator Pedal or Lever Idle Validation Circuit - Voltage Below Normal, or Shorted to Low Source
553	157	16	Amber	Injector Metering Rail 1 Pressure	Injector Metering Rail #1 Pressure High – Data Valid but Above Normal Operational Range - Moderately Severe Level
554	157	2	Amber	Injector Metering Rail 1 Pressure	Fuel Pressure Sensor Error - Data Erratic, Intermittent, or Incorrect
559	157	18	Amber	Injector Metering Rail 1 Pressure	Injector Metering Rail #1 Pressure Low – Data Valid but Below Normal Operational Range - Moderately Severe Level
584	677	3	Amber	Starter Solenoid Lockout Relay Driver Circuit	Starter Relay Circuit - Voltage Above Normal, or Shorted to High Source
585	677	4	Amber	Starter Solenoid Lockout Relay Driver Circuit	Starter Relay Circuit - Voltage Below Normal, or Shorted to Low Source
595	103	16	Amber	Turbocharger 1 Speed	Turbocharger #1 Speed High - Data Valid but Above Normal Operational Range – Moderately Severe Level
596	167	16	Amber	Alternate Potential (voltage)	Electrical Charging System Voltage High – Data Valid but Above Normal Operational Range - Moderately Severe Level
597	167	18	Amber	Alternate Potential (voltage)	Electrical Charging System Voltage Low – Data Valid but Below Normal Operational Range - Moderately Severe Level
598	167	1	Red	Alternate Potential (voltage)	Electrical Charging System Voltage Low – Data Valid but Below Normal Operational Range - Most Severe Level
649	1378	31	Maint	Engine Oil Change Interval	Change Lubricating Oil and Filter – Condition Exists
687	103	18	Amber	Turbocharger 1 Speed	Turbocharger #1 Speed Low - Data Valid but Below Normal Operational Range – Moderately Severe Level
689	190	2	Amber	Engine Speed	Primary Engine Speed Sensor Error – Data Erratic, Intermittent, or Incorrect
691	1172	3	Amber	Turbocharger #1Compressor Inlet Temperature	Turbocharger #1 Compressor Inlet Temperature Sensor Circuit – Voltage Above Normal, or Shorted to High Source

Faults and Troubleshooting

Fault Code	J1939 SPN	J1939 FMI	Lamp Color	J1939 SPN Description	Cummins Description
692	1172	4	Amber	Turbocharger #1Compressor Inlet Temperature	Turbocharger #1 Compressor Inlet Temperature Sensor Circuit – Voltage Below Normal, or Shorted to Low Source
697	1136	3	Amber	Sensor Circuit - Voltage	ECM Internal Temperature Sensor Circuit - Voltage Above Normal, or Shorted to High Source
698	1136	4	Amber	Sensor Circuit - Voltage	ECM Internal Temperature Sensor Circuit - Voltage Below Normal, or Shorted to Low Source
719	22	3	Amber	Crankcase Pressure	Extended Crankcase Blow-by Pressure Circuit - Voltage Above Normal, or Shorted to High Source
729	22	4	Amber	Crankcase Pressure	Extended Crankcase Blow-by Pressure Circuit - Voltage Below Normal, or Shorted to Low Source
731	723	7	Amber	Engine Speed Sensor #2	Engine Speed/Position #2 mechanical misalignment between camshaft and crankshaft sensors - Mechanical System Not Responding Properly or Out of Adjustment
753	723	2	Amber	Engine Speed Sensor #2	Engine Speed/Position #2 Camshaft sync error - Data Erratic, Intermittent, or Incorrect
757	611	31	Amber	Electronic Control Module	Electronic Control Module data lost - Condition Exists
778	723	2	Amber	Engine Speed Sensor #2	Engine Speed Sensor (Camshaft) Error – Data Erratic, Intermittent, or Incorrect
779	703	11	Amber	Auxiliary Equipment Sensor Input	Warning Auxiliary Equipment Sensor Input # 3 (OEM Switch) - Root Cause Not Known
951	166	2	None	Cylinder Power	Cylinder Power Imbalance Between Cylinders - Data Erratic, Intermittent, or Incorrect
1117	627	2	None	Power Supply	Power Lost With Ignition On - Data Erratic, Intermittent, or Incorrect
1139	651	7	Amber	Injector Cylinder # 01	Injector Cylinder #1 - Mechanical System Not Responding Properly or Out of Adjustment
1141	652	7	Amber	Injector Cylinder # 02	Injector Cylinder #2 - Mechanical System Not Responding Properly or Out of Adjustment
1142	653	7	Amber	Injector Cylinder # 03	Injector Cylinder #3 - Mechanical System Not Responding Properly or Out of Adjustment
1143	654	7	Amber	Injector Cylinder # 04	Injector Cylinder #4 - Mechanical System Not Responding Properly or Out of Adjustment
1144	655	7	Amber	Injector Cylinder # 05	Injector Cylinder #5 - Mechanical System Not Responding Properly or Out of Adjustment
1145	656	7	Amber	Injector Cylinder # 06	Injector Cylinder #6 - Mechanical System Not Responding Properly or Out of Adjustment
1239	2623	3	Amber	Accelerator Pedal Position	Accelerator Pedal or Lever Position Sensor 2 Circuit - Voltage Above Normal, or Shorted to High Source
1241	2623	4	Amber	Accelerator Pedal Position	Accelerator Pedal or Lever Position Sensor 2 Circuit - Voltage Below Normal, or Shorted to Low Source
1242	91	2	Red	Accelerator Pedal Position	Accelerator Pedal or Lever Position Sensor 1 and 2 - Data Erratic, Intermittent, or Incorrect
1256	1563	2	Amber	Control Module Identification Input State	Control Module Identification Input State Error - Data Erratic, Intermittent, or Incorrect
1257	1563	2	Red	Control Module Identification Input State	Control Module Identification Input State Error - Data Erratic, Intermittent, or Incorrect
1911	157	0	Amber	Injector Metering Rail	Injector Metering Rail 1 Pressure - Data Valid but Above Normal Operational Range - Most Severe Level
2111	32	3	Amber	Coolant Temperature	Coolant Temperature 2 Sensor Circuit - Voltage Above Normal, or Shorted to High Source
2112	52	4	Amber	Coolant Temperature	Coolant Temperature 2 Sensor Circuit - Voltage Below Normal, or Shorted to Low Source
2113	52	16	Amber	Coolant Temperature	Coolant Temperature 2 - Data Valid but Above Normal Operational Range - Moderately Severe Level
2114	52	0	Red	Coolant Temperature	Coolant Temperature 2 - Data Valid but Above Normal Operational Range - Most Severe Level
2115	2981	3	Amber	Coolant Pressure	Coolant Pressure 2 Circuit - Voltage Above Normal, or Shorted to High Source
2116	2981	4	Amber	Coolant Pressure	Coolant Pressure 2 Circuit - Voltage Below Normal, or Shorted to Low Source

Faults and Troubleshooting

Fault Code	J1939 SPN	J1939 FMI	Lamp Color	J1939 SPN Description	Cummins Description
2117	2981	18	Amber	Coolant Pressure	Coolant Pressure 2 - Data Valid but Below Normal Operational Range - Moderately Severe Level
2185	611	3	Amber	System Diagnostic code # 1	Sensor Supply Voltage #4 Circuit – Voltage Above Normal, or Shorted to High Source
2186	611	4	Amber	System Diagnostic code # 1	Sensor Supply Voltage #4 Circuit – Voltage Below Normal, or Shorted to Low Source
2195	703	14	Red	Auxiliary Equipment Sensor	Auxiliary Equipment Sensor Input 3 Engine Protection Critical - Special Instructions
2215	94	18	Amber	Fuel Delivery Pressure	Fuel Pump Delivery Pressure - Data Valid but Below Normal Operational Range - Moderately Severe Level
2216	94	1	Amber	Fuel Delivery Pressure	Fuel Pump Delivery Pressure - Data Valid but Above Normal Operational Range – Moderately Severe Level
2217	630	31	Amber	Calibration Memory	ECM Program Memory (RAM) Corruption - Condition Exists
2249	157	1	Amber	Injector Metering Rail 1 Pressure	Injector Metering Rail 1 Pressure - Data Valid but Below Normal Operational Range - Most Severe Level
2265	1075	3	Amber	Electric Lift Pump for Engine Fuel	Fuel Priming Pump Control Signal Circuit – Voltage Above Normal, or Shorted to High Source
2266	1075	4	Amber	Electric Lift Pump for Engine Fuel	Fuel Priming Pump Control Signal Circuit – Voltage Below Normal, or Shorted to Low Source
2292	611	16	Amber	Fuel Inlet Meter Device	Fuel Inlet Meter Device - Data Valid but Above Normal Operational Range - Moderately Severe Level
2293	611	18	Amber	Fuel Inlet Meter Device	Fuel Inlet Meter Device flow demand lower than expected - Data Valid but Below Normal Operational Range - Moderately Severe Level
2311	633	31	Amber	Fuel Control Valve #1	Fueling Actuator #1 Circuit Error – Condition Exists
2321	190	2	None	Engine Speed	Engine Speed / Position Sensor #1 - Data Erratic, Intermittent, or Incorrect
2322	723	2	None	Engine Speed Sensor #2	Engine Speed / Position Sensor #2 - Data Erratic, Intermittent, or Incorrect
2345	103	10	Amber	Turbocharger 1 Speed	Turbocharger speed invalid rate of change detected - Abnormal Rate of Change
2346	2789	15	None	System Diagnostic Code #1	Turbocharger Turbine Inlet Temperature (Calculated) - Data Valid but Above Normal Operational Range – Least Severe Level
2347	2629	15	None	System Diagnostic Code #1	Turbocharger Compressor Outlet Temperature (Calculated) - Data Valid but Above Normal Operational Range – Least Severe Level
2362	1072	4	Amber	Engine Compression Brake Output # 1	Engine Brake Actuator Circuit #1 – Voltage Below Normal, or Shorted to Low Source
2363	1073	4	Amber	Engine Compression Brake Output # 2	Engine Brake Actuator Circuit #2 – Voltage Below Normal, or Shorted to Low Source
2366	1072	3	Amber	Engine Compression Brake Output # 1	Engine Brake Actuator Circuit #1 – Voltage Above Normal, or Shorted to High Source
2367	1073	3	Amber	Engine Compression Brake Output # 2	Engine Brake Actuator Circuit #2 – Voltage Above Normal, or Shorted to High Source
2377	647	3	Amber	Fan Clutch Output Device Driver	Fan Control Circuit - Voltage Above Normal, or Shorted to High Source
2384	641	4	Amber	Variable Geometry Turbocharger	VGT Actuator Driver Circuit - Voltage Below Normal, or Shorted to Low Source
2385	641	3	Amber	Variable Geometry Turbocharger	VGT Actuator Driver Circuit - Voltage Above Normal, or Shorted to High Source
2555	729	3	Amber	Inlet Air Heater Driver #1	Intake Air Heater #1 Circuit - Voltage Above Normal, or Shorted to High Source
2556	729	4	Amber	Inlet Air Heater Driver #1	Intake Air Heater #1 Circuit - Voltage Below Normal, or Shorted to Low Source
2557	697	3	Amber	Auxiliary PWM Driver #1	Auxiliary PWM Driver #1 - Voltage Above Normal, or Shorted to High Source
2558	697	4	Amber	Auxiliary PWM Driver #1	Auxiliary PWM Driver #1 - Voltage Below Normal, or Shorted to Low Source

Faults and Troubleshooting

Fault Code	J1939 SPN	J1939 FMI	Lamp Color	J1939 SPN Description	Cummins Description
2963	110	15	None	Engine Coolant Temperature	Engine Coolant Temperature High - Data Valid but Above Normal Operational Range - Least Severe Level
2964	105	15	None	Intake Manifold #1 Temperature	Intake Manifold Temperature High - Data Valid but Above Normal Operational Range - Least Severe Level
2973	102	2	Amber	Boost Pressure	Intake Manifold Pressure Sensor Circuit - Data Erratic, Intermittent, or Incorrect

Faults and Troubleshooting

TORQUE WRENCH SETTINGS

D x p	Pre-loading (N)				Torque wrench setting (Nm)			
	4.8	**8.8**	**10.9**	**12.9**	**4.8**	**8.8**	**10.9**	**12.9**
M 4 x 0,7	1970	3930	5530	6640	1,5	3,1	4,3	5,2
M 5 x 0,8	3180	6360	8950	10700	3	6	8,5	10,1
M 6 x 1	4500	9000	12700	15200	5,2	10,4	14,6	17,5
M 8 x 1,25	8200	16400	23100	27700	12,3	24,6	34,7	41,6
M 8 x 1	8780	17600	24700	29600	13	26	36,6	43,9
M 10 x 1,5	13000	26000	36500	43900	25,1	50,1	70,5	84,6
M 10 x 1,25	13700	27400	38500	46300	26,2	52,4	73,6	88,4
M 12 x 1,75	18900	37800	53000	63700	42,4	84,8	119	143
M 12 x 1,25	20600	41300	58000	69600	45,3	90,6	127	153
M 14 x 2	25800	51500	72500	86900	67,4	135	190	228
M 14 x 1,5	28000	56000	78800	94500	71,7	143	202	242
M 16 x 2	35200	70300	98900	119000	102	205	288	346
M 16 x 1.5	37400	74800	105000	126000	107	214	302	362
M 18 x 2,5	43000	86000	121000	145000	142	283	398	478
M 18 x 1,5	48400	96800	136000	163000	154	308	434	520
M 20 x 2,5	54900	110000	154000	185000	200	400	562	674
M 20 x 1,5	60900	122000	171000	206000	216	431	607	728
M 22 x 2,5	67900	136000	191000	229000	266	532	748	897
M 22 x 1,5	74600	149000	210000	252000	286	571	803	964
M 24 x 3	79100	158000	222000	267000	345	691	971	1170
M 24 x 2	86000	172000	242000	290000	365	731	1030	1230
M 27 x 3	103000	206000	289000	347000	505	1010	1420	1700
M 27 x 2	111000	222000	312000	375000	534	1070	1500	1800
M 30 x 3,5	126000	251000	353000	424000	686	1370	1930	2310
M 30 x 2	139000	278000	391000	469000	738	1480	2080	2490

NOTICE

Sensor maximum driving torque: 15 Nm.

Optional Attachments

INTRODUCTION

This section provides information on the optional interchangeable attachments, especially manufactured for the handlers.
Use only genuine attachments, described in this section, after having read their features thoroughly and understood their use.
To install and remove the attachments, follow the instructions supplied in the "**Operating Instructions**" section.

DANGER

When replacing interchangeable attachments, keep any person clear of the working area.

DANGER

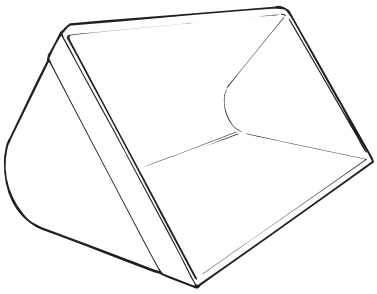
Mounting optional attachments, and especially the extension jib, can change the centre of gravity of the machine. Before handling a load, check its weight and compare it with the values on the load charts. The weight of the used attachment must always be deducted from the rated payload.

CAUTION

Before any maintenance or repair work, remove the attachment.

Optional Attachments

■ 800 LITRES SHOVEL



Attachment suitable for moving and loading loose material such as soil, sand debris, cereals, inert material.

Operation

To load/unload the material, operate the rotation lever of the attachment holding plate.

Maintenance

Visually check the shovel for damage before using it.

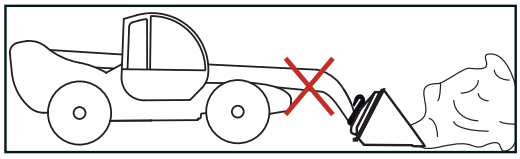
Safety

Strictly obey the general safety precautions given in section "**Safety**".

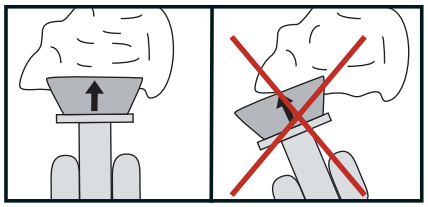
Model	GTH-4518ER & GTH-4020ER	GTH-6025ER
Code	59.0200.7000	59.0202.6000
TECHNICAL DATA		
Capacity	800 litres	800 litres
Width	2340 mm	2440 mm
Length	1000 mm	1165 mm
Height	850 mm	875 mm
Weight	440 kg	475 kg

⚠ CAUTION

- ***When using a shovel, load the material only when the boom is completely retracted and push against the heap with straight wheels.***



- ***Approach the load to the handled perpendicularly and check that the machine is level on the inclinometer .***



⚠ WARNING

- ***When driving on a rise with loaded material, proceed in forward gear and travel with load in the lowest possible position.***
- ***When sloping downward with loaded material, proceed into reverse***
- ***When driving on a rise with empty shovel, proceed into reverse.***
- ***When sloping downward with empty shovel, proceed in forward gear.***
- ***Don't use the shovel for rising or transporting people***
- ***When loading round-shaped objects (as petrol drums, etc) bind them with straps or ropes and travel at reduced speed.***

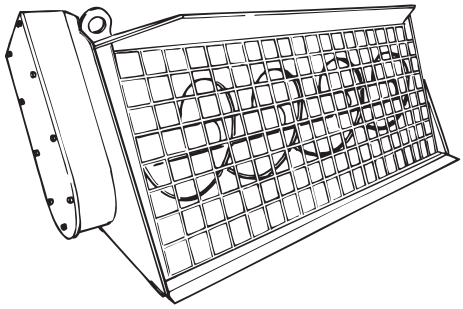
⚠ CAUTION

Do not use for digging operations.

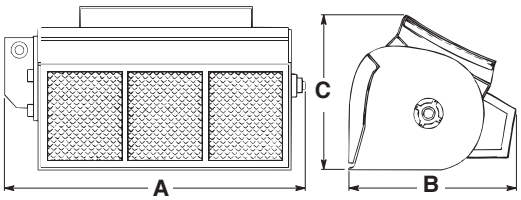
Optional Attachments

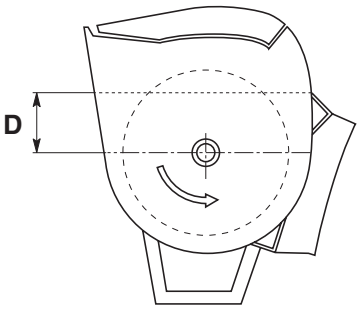
500 LT MIXING BUCKET

(code 59.0400.8000)



TECHNICAL DATA	
Width (A)	1850 mm
Length (B)	1080 mm
Height (C)	1120 mm
Empty Weight	780 kg
All Up Weight	2000 kg
Output Capacity	500 lt
Total capacity	785 lt
Output level from shaft centre (D)	140 mm





Application
Quick coupling attachment for mixing and distributing concrete.

Safety
Strictly obey the general safety precautions given in section "**Safety**".

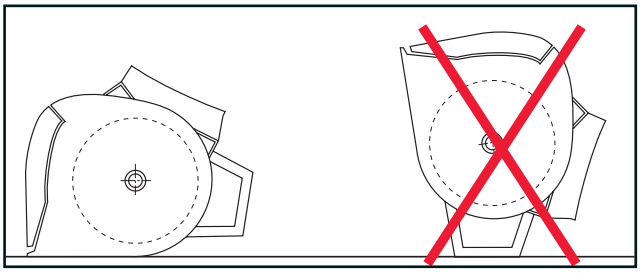
Operation
To load/unload the material, operate the rotation lever of the attachment holding plate.

Maintenance
Visually check the bucket for damage before using it. Wash thoroughly with water after use or in case of prolonged inactivity to prevent the mix or residues from hardening.
Check for oil leaks from hoses and connectors.
Carefully protect the quick connectors once disconnected to prevent impurities from entering the circuit.

WARNING

Before any maintenance, rest the bucket on the ground, stop the machine, remove the starter key and lock the cab door to prevent anybody from gaining access to the control panel.

REST POSITION

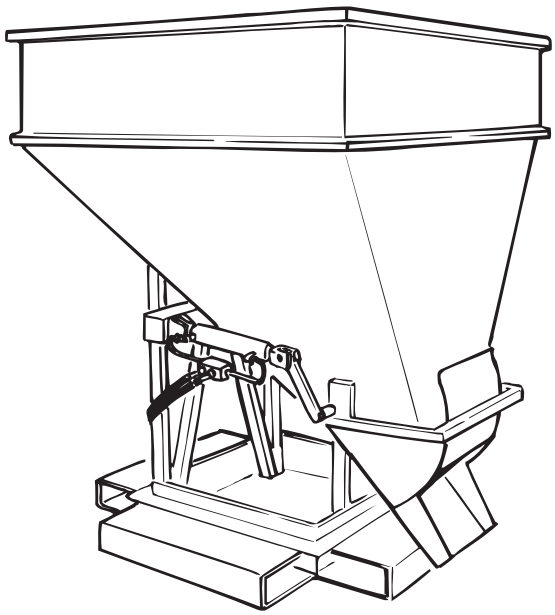


Optional Attachments

500 LITRES CONCRETE SKIP

(code 59.0400.0000 _ Manual Version)

(code 59.0400.1000 _ Hydraulic Version)



TECHNICAL DATA	
Capacity	500 litres
Width	1200 mm
Length	1200 mm
Height	1270 mm
Weight	220 kg
SAE Capacity	0.5 m^3

Application

Attachment coupled to the standard forks of the handler and fixed by means of the special chains with shackle provided.

Safety

Strictly obey the general safety precautions given in section "**Safety**".

Operation

Fork the skip bearing in mind the side where the product will be unloaded.
Secure the skip to the forks using the chains provided.
To unload the concrete:

- *Manual Version:* manually operate the gate opening lever
- *Hydraulic Version:* operate the attachment locking lever after connecting the feeding lines of the new attachment to the quick couplings

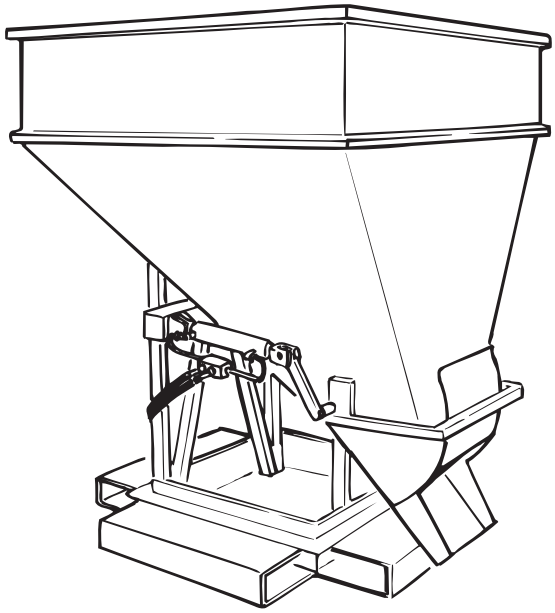
Maintenance

Visually check the skip for damage before using it.
Wash with water after use or in case of prolonged inactivity to prevent the mix or residues from hardening.
Check for oil leaks from hoses and connectors.
Carefully protect the quick connectors once disconnected to prevent impurities from entering the circuit.
Check the chains after every use and replace them if worn or damaged.

Optional Attachments

800 LITRES CONCRETE SKIP

(code 59.0400.2000 _ Manual Version)
(code 59.0400.3000 _ Hydraulic Version)



TECHNICAL DATA	
Capacity	800 litres
Width	1200 mm
Length	1200 mm
Height	1520 mm
Weight	260 kg
SAE Capacity	0.8 m^3

Application
Attachment coupled to the standard forks of the handler and fixed by means of the special chains with shackle provided.

Safety
Strictly obey the general safety precautions given in section "**Safety**".

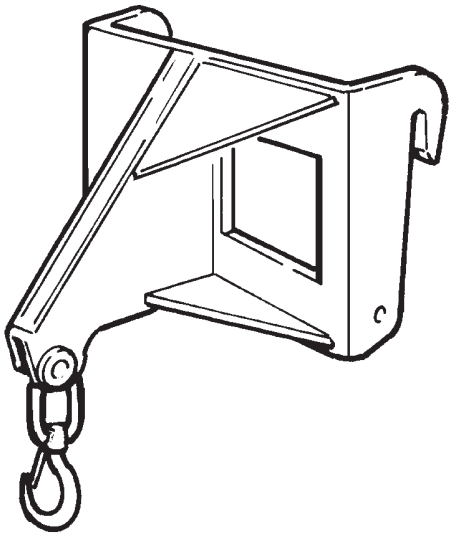
Operation
Fork the skip bearing in mind the side where the product will be unloaded.
Secure the skip to the forks using the chains provided.
To unload the concrete:
- *Manual Version:* manually operate the gate opening lever
- *Hydraulic Version:* operate the attachment locking lever after connecting the feeding lines of the new attachment to the quick couplings

Maintenance
Visually check the skip for damage before using it.
Wash with water after use or in case of prolonged inactivity to prevent the mix or residues from hardening.
Check for oil leaks from hoses and connectors.
Carefully protect the quick connectors once disconnected to prevent impurities from entering the circuit.
Check the chains after every use and replace them if worn or damaged.

Optional Attachments

■ FIXED HOOK ON PLATE

(code 59.0700.4000 for GTH-4518ER and GTH-4020ER)
(code 59.0701.0000 for GTH-6025ER)



TECHNICAL DATA for 59.0700.4000	
Payload	4000 kg
Width	930 mm
Length	370 mm
Height	415 mm
Weight	120 kg

TECHNICAL DATA for 59.0701.0000	
Payload	6000 kg
Width	990 mm
Length	675 mm
Height	655 mm
Weight	155 kg

Application
Quick-coupling fitted attachment for lifting loads by means of special slings.
Safety
Strictly obey the general safety precautions given in section "Safety".
Do not oscillate the load.
Do not drag hooked loads.
Lift the load before extending the boom.
Operation
Fork the hook and hold it in position by means of the locking cylinder.
All loads must be bridled with special textile slings or chains in compliance with all pertinent regulations.
To handle the load, raise and rotate the telescopic boom of the handler.
Maintenance
Visually check the hook for damage before using it. Check the safety catch is in good working order.

⚠ CAUTION

The fixed hook has been designed to support the load declared beside. The max payload corresponds to the nominal capacity rating of the handler on which it is installed and is indicated on the load charts supplied with the equipment.

⚠

Make sure this attachment can be used in the destination country of the machine.
Application must be submitted directly by the user.

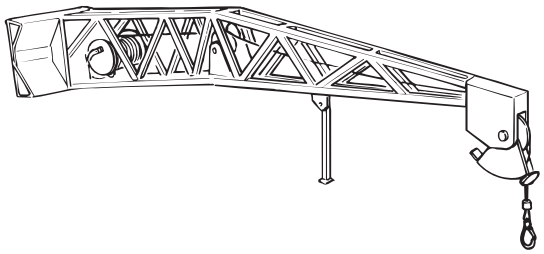
⚠ DANGER

- ***Do not allow suspended loads to oscillate. Do not drag loads when they are hooked up.***
- ***A suspended load has a dynamic, and therefore an unpredictable effect on machine stability, operate with caution.***

Optional Attachments

900 KG EXTENSION JIB

(code 59.0802.0000 _ Mechanical Version)
(code 59.0802.3000 _ Hydraulic Version for GTH-4518ER and GTH-4020ER)
(code 59.0801.8000 _ Hydraulic Version for GTH-6025ER)



TECHNICAL DATA	
Payload	900 kg
Width	990 mm
Length	4125 mm
Height	600 mm
Weight	262 kg

DANGER

- ***Do not allow suspended loads to oscillate. Do not drag loads when they are hooked up.***
- ***A suspended load has a dynamic, and therefore an unpredictable effect on machine stability, operate with caution.***

Application
Quick-coupling fitted attachment for maintenance interventions at high working heights.

Safety
Strictly obey the general safety precautions given in section "**Safety**".
Never lift wrongly slung loads.
Avoid abrupt acceleration or deceleration.
Avoid load oscillations, and especially do not move the load from the vertical pull line.
Do not pull crosswise and do not tow.

Operation
To change the working height, operate the rotation lever of the attachment holding plate.

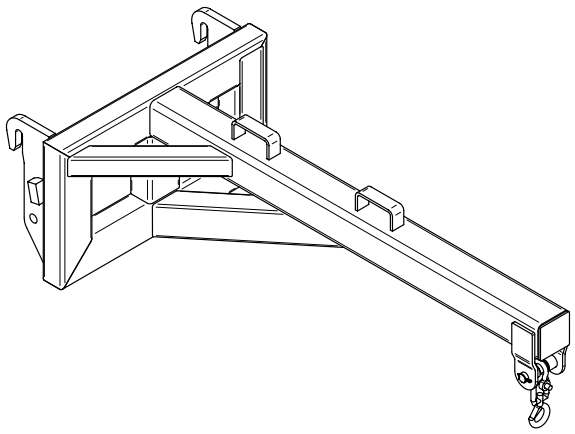
Maintenance
Visually check the jib for damage before using it.
Check the safety catch is in good working order.
Daily grease the joints using the greasing gun.

Make sure this attachment can be used in the destination country of the machine.
Application must be submitted directly by the user.

Optional Attachments

■ 2000 KG EXTENSION JIB

(code 59.0802.3001 _ Mechanical Version)



TECHNICAL DATA	
Payload	2000 kg
Width	1000 mm
Length	2200 mm
Height	660 mm
Weight	200 kg

Application
Quick-coupling fitted attachment for maintenance interventions at high working heights.

Safety
Strictly obey the general safety precautions given in section "**Safety**".
Never lift wrongly slung loads.
Avoid abrupt acceleration or deceleration.
Avoid load oscillations, and especially do not move the load from the vertical pull line.
Do not pull crosswise and do not tow.

Operation
To change the working height, operate the rotation lever of the attachment holding plate.

Maintenance
Visually check the jib for damage before using it.
Check the safety catch is in good working order.
Daily grease the joints using the greasing gun.

Make sure this attachment can be used in the destination country of the machine.
Application must be submitted directly by the user.

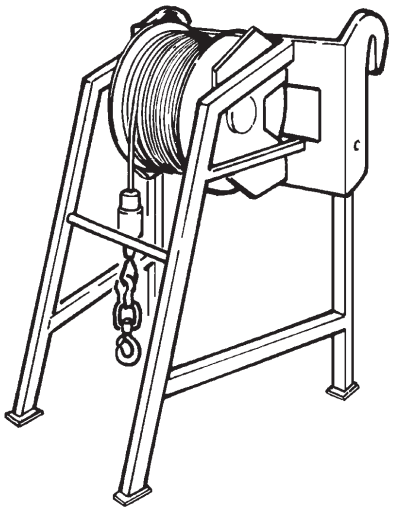
DANGER

- ***Do not allow suspended loads to oscillate. Do not drag loads when they are hooked up.***
- ***A suspended load has a dynamic, and therefore an unpredictable effect on machine stability, operate with caution.***

Optional Attachments

3000 KG HYDRAULIC WINCH

(code 59.0901.7000
ONLY for GTH-4518ER
& GTH-4020ER)



TECHNICAL DATA	
Payload	3000 kg
Width	960 mm
Length	880 mm
Height	1650 mm
Weight	280 kg

DANGER

- ***Do not allow suspended loads to oscillate. Do not drag loads when they are hooked up.***
- ***A suspended load has a dynamic, and therefore an unpredictable effect on machine stability, operate with caution.***

Application
Quick-coupling fitted attachment for lifting loads by means of special slings.

Safety
Strictly obey the general safety precautions given in section "Safety".
Do not oscillate the load.
Do not drag hooked loads.
Lift the load before extending the boom.

Operation
Fork the hook and hold it in position.
All loads must be bridled with special textile slings or chains in compliance with all pertinent regulations.
To handle the load, raise and rotate the telescopic boom of the handler.

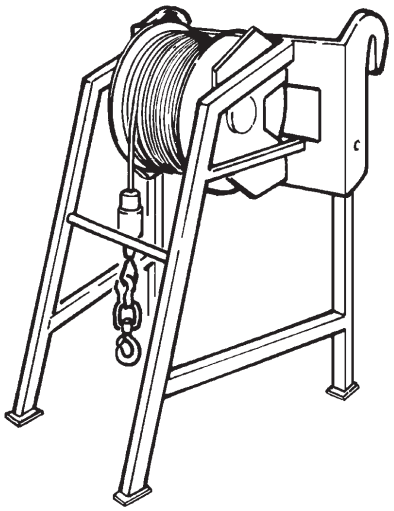
Maintenance
Visually check the hook for damage before using it.
Check the safety catch is in good working order.

Make sure this attachment can be used in the destination country of the machine.
Application must be submitted directly by the user.

Optional Attachments

5000 KG HYDRAULIC WINCH

(code 59.0901.2000
ONLY for GTH-6025ER)



TECHNICAL DATA	
Payload	5000 kg
Width	960 mm
Length	880 mm
Height	1650 mm

Application
Quick-coupling fitted attachment for lifting loads by means of special slings.

Safety
Strictly obey the general safety precautions given in section "Safety".
Do not oscillate the load.
Do not drag hooked loads.
Lift the load before extending the boom.

Operation
Fork the hook and hold it in position.
All loads must be bridled with special textile slings or chains in compliance with all pertinent regulations.
To handle the load, raise and rotate the telescopic boom of the handler.

Maintenance
Visually check the hook for damage before using it.
Check the safety catch is in good working order.

Make sure this attachment can be used in the destination country of the machine.
Application must be submitted directly by the user.

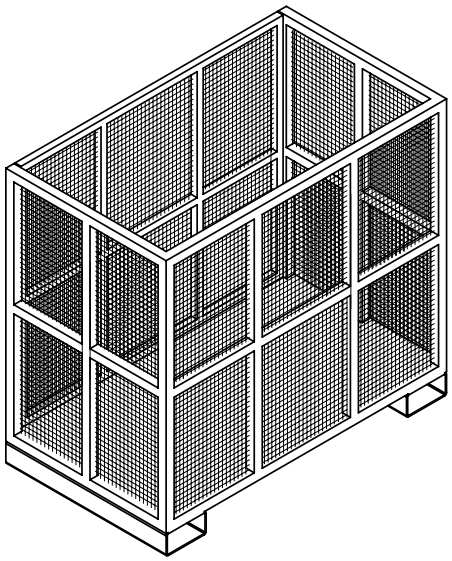
DANGER

- ***Do not allow suspended loads to oscillate. Do not drag loads when they are hooked up.***
- ***A suspended load has a dynamic, and therefore an unpredictable effect on machine stability, operate with caution.***

Optional Attachments

BASKET FOR BRICKS

(code 59.0400.7000)



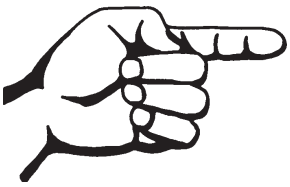
Application
Attachment used to handle construction manufactured products, to be fixed to the standard forks of the handler and locked in position with the chains with shackles supplied.

Safety
Strictly obey the general safety precautions given in section **"Safety"**.

Operation
Fork the basket from the rear side being careful that the door that can be opened is at the front.
Secure the basket to the forks using the chains supplied.

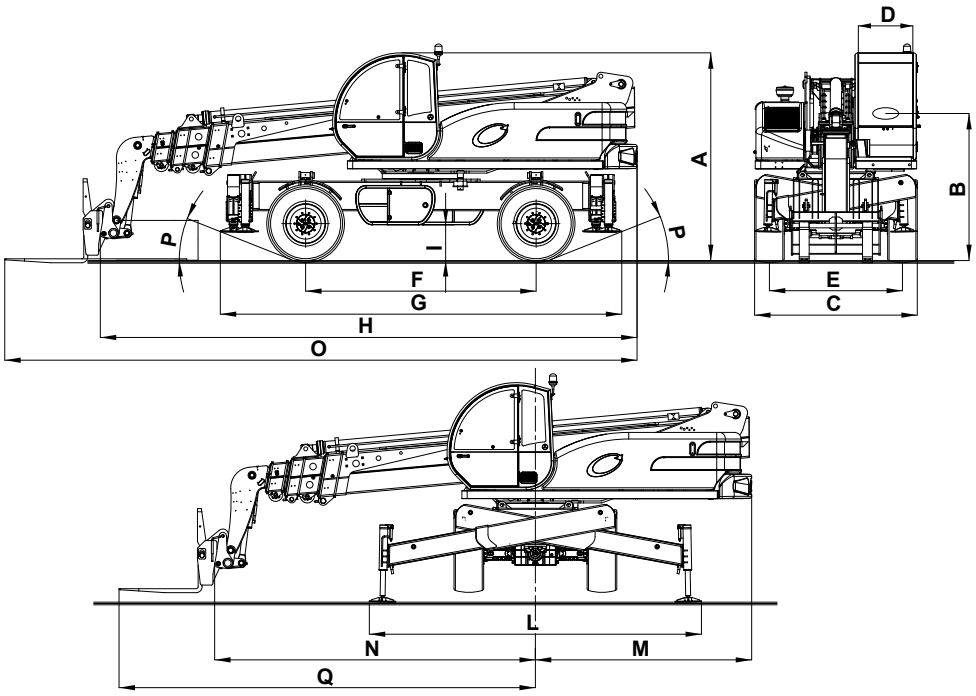
Maintenance
Visually check the attachment for damage before using it.

TECHNICAL DATA	
Width	800 mm
Length	1100mm
Height	1150 mm



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Specifications



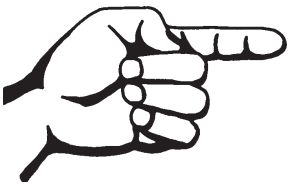
	GTH-4518 ER	GTH 4020 ER	GTH 6025 ER
■ MAIN DIMENSIONS			
A Overall height .....mm	3025	3025	3150
B Height to the steering wheel .....mm	2135	2135	2230
C Overall width .....mm	2430	2430	2470
D Inside cab width .....mm	780	780	780
E Track .....mm	1950	1950	2020
F Wheel-base .....mm	3030	3030	3500
G Length to the front tyres .....mm	5280	5280	6090
H Length to the fork holding plate .....mm	6485	7250	8400
I Ground clearance, center .....mm	440	440	540
L Max width with extended outriggers .....mm	5015	5015	5040
M Side rear overhang .....mm	2425	2425	3280
N Front overhang .....mm	3845	4825	5120
O Overall lenght .....mm	7900	8660	9600
Q Overall front overhang .....mm	5260	6020	6310
• Internal steering radius .....mm			2750
• External steering radius .....mm			4850

Specifications

	GTH-4518 ER	GTH 4020 ER	GTH 6025 ER
■ LIMITS OF USE			
P Obstruction angle	20°	20°	21.5°
P Departure angle	20°	20°	21.5°
• Min/max ambient temperature .....°C	-20°/+40°	-20°/+40°	-20°/+40°
■ WEIGHT			
• Weight in working order .....kg	14.800	15.2000	20.450
■ SPEED			
• Max travel speed (max load) ..... km/h	5	5	5
• Max travel speed (with fork) .....km/h			35
■ PAYLOAD AND REACH			
• Lifting height (max) .....mm	17230	19640	24840
• Reach at maximum height .....mm	3500	4200	3650
• Forward reach (max) .....mm	14900	17420	20850
• Attachment holding plate rotation	146°	146°	124°
• Lifting capacity (max) .....kg	4500	4000	6000
• Lift capacity at max height .....kg	3000	2500	2000
• Lift capacity at max reach .....kg	750	250	250
■ FORKS (FLOATING TYPE)			
• Dimensions .....mm	1200x120x50	1200x120x50	1200x150x60
• Weight .....kg	70	70	70
• Fork holding frame - class	FEM III	FEM III	FEM III
■ DIESEL ENGINE			
• Make	DEUTZ	DEUTZ	CUMMINS
• Model/Type	TC-D2012L042V	TC-D2012L042V	QSB4.5
• Features	Diesel 4 cylinders in line 4 strokes direct injection	Diesel 4 cylinders in line 4 strokes direct injection	Diesel 4 cylinders in line 4 strokes direct injection
• Total displacement cc	4000	4000	4500
• Power .....kW	88@2400rpm	88@2400rpm	119@2300rpm
• Torque .....N-m	420@1600rpm	420@1600rpm	624 @1500rpm

Specifications

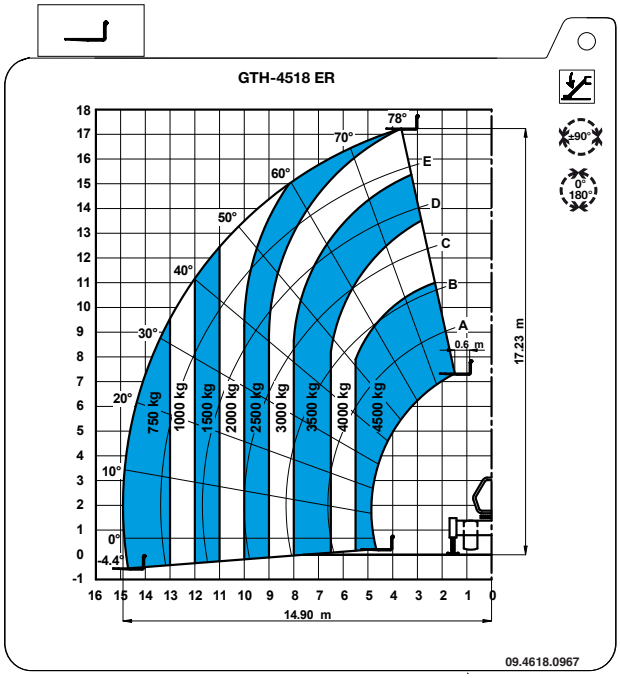
	GTH-4518 ER	GTH 4020 ER	GTH 6025 ER
■ VIBRATION LEVEL			
Mean assessed vibration level transmitted to arms ..... Mean assessed vibration level transmitted to body ..... Highest root mean square value of weighted acceleration to which the whole body is subjected ..... Uncertainty of vibration measurements ..... Values calculated in accordance with standard EN13059	0,32 m/s^2	0,32 m/s^2	0,32 m/s^2
■ SOUND LEVEL			
Sound pressure level at the operator position (in accordance with the standard EN12053)	dB	dB	dB
Guaranteed sound power level (in accordance with the Directive 2000/14/CE) LwA	103 dB	103 dB	103 dB
■ FLOOR LOADING SPECIFICATIONS			
Occupied Floor Area Tire	6,00 m^2	6,00 m^2	7,10 m^2
Occupied Floor Area Outrigger	22,30 m^2	22,30 m^2	25,50 m^2
Occupied Floor Pressure Tire	25,50 kPa	25,20 kPa	28,50 kPa
Occupied Floor Pressure Outrigger	6,50 kPa	6,70 kPa	7,90 kPa
Max. Tire Load	8595 kg	8580 kg	11620 kg
Max. Outrigger Load	7685 kg	7755 kg	11435 kg
Max Axle Load	17190 kg	17160 kg	23235 kg
Max Tip Axis Load	15370 kg	15510 kg	22865 kg
Tire Contact Pressure	530 kPa	530 kPa	720 kPa
Outrigger Contact Pressure	785 kPa	790 kPa	890 kPa

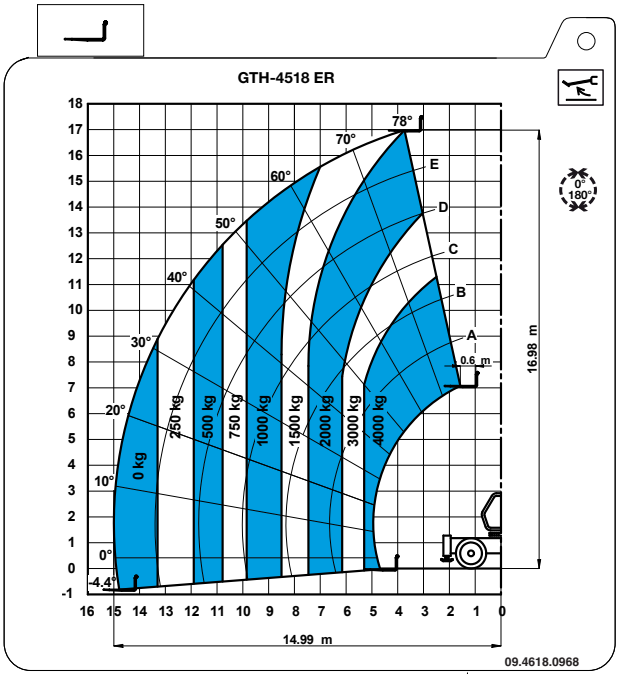


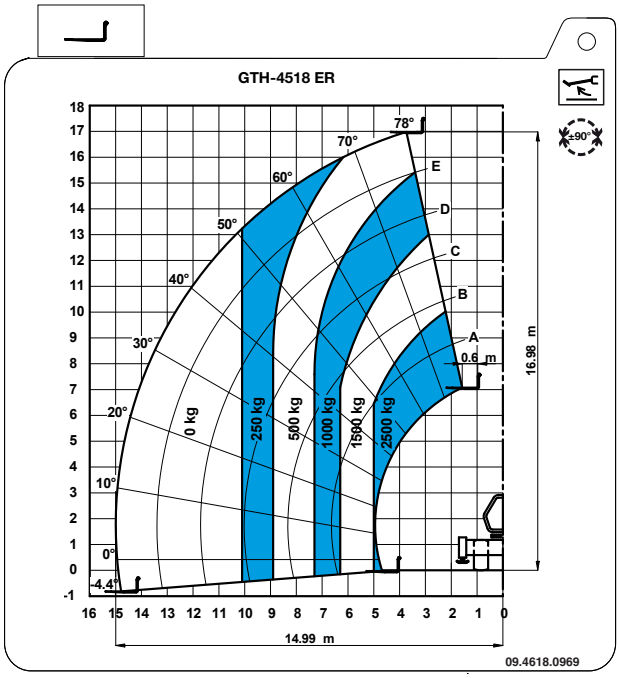
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Load Charts

LOAD CHART WITH FORKS GTH-4518 ER

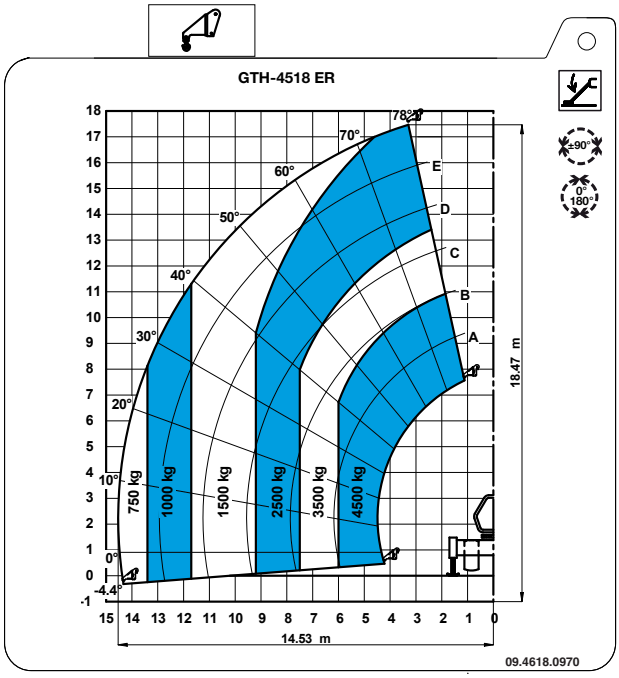


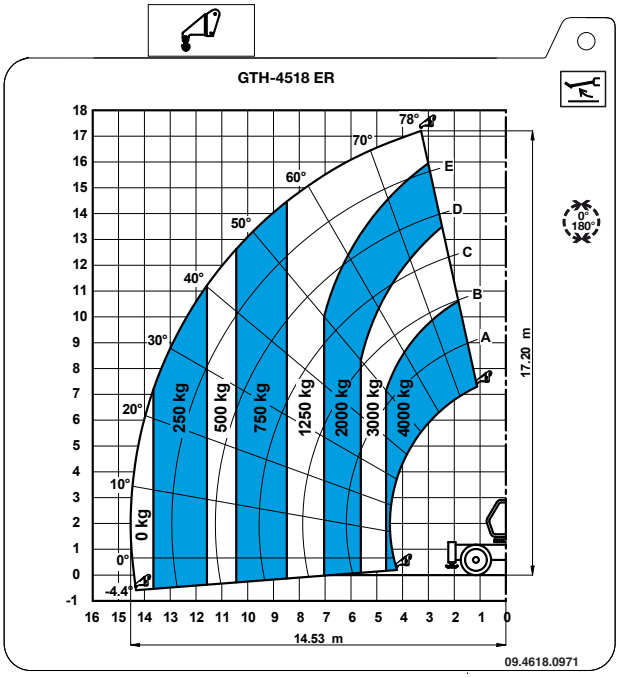


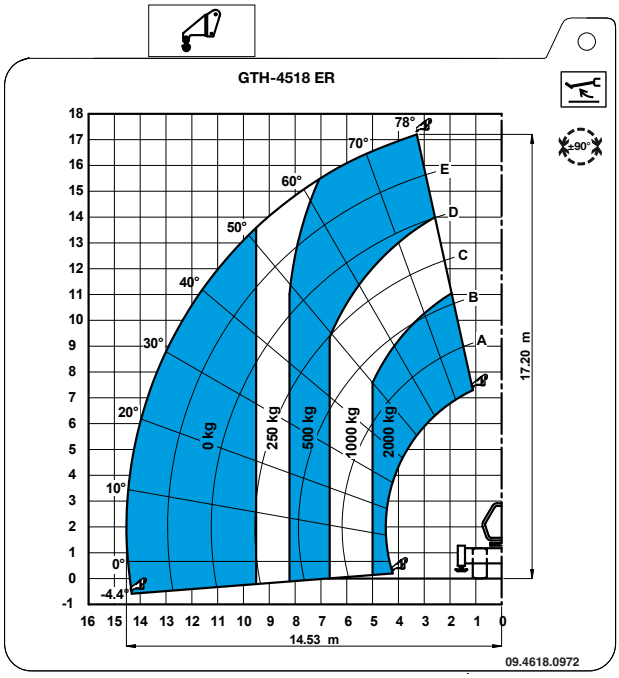


Load Charts

LOAD CHART WITH HOOK GTH-4518 ER

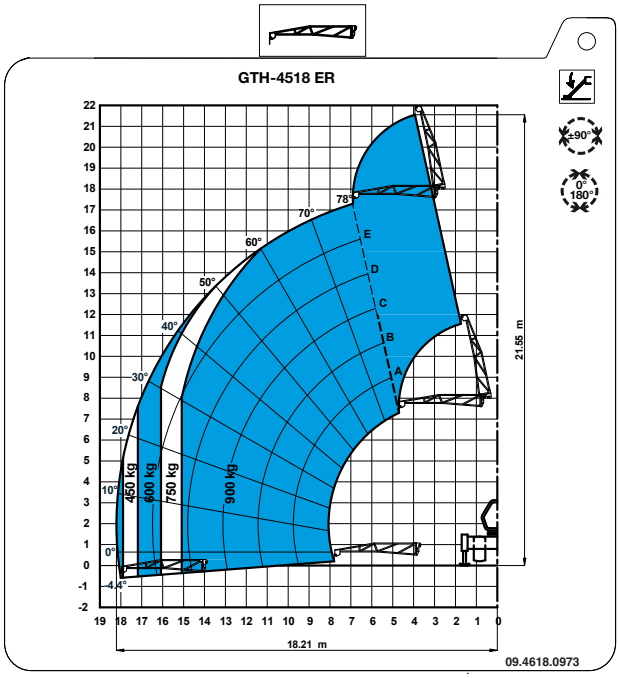


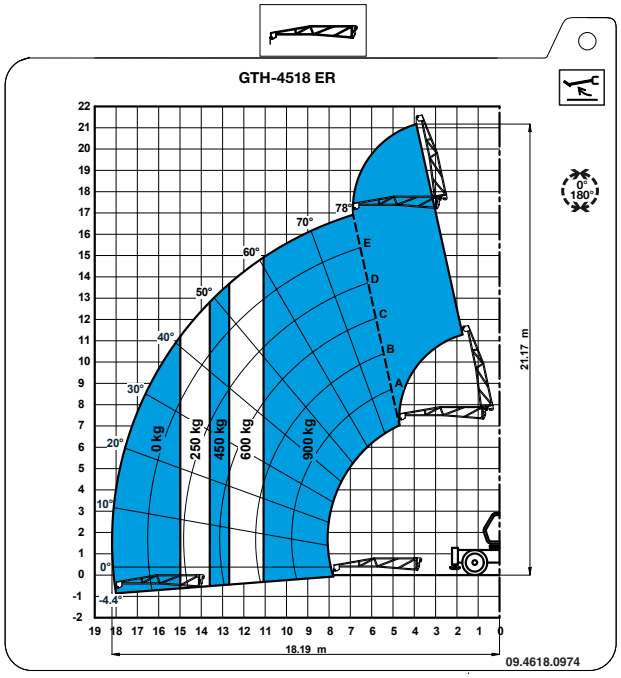


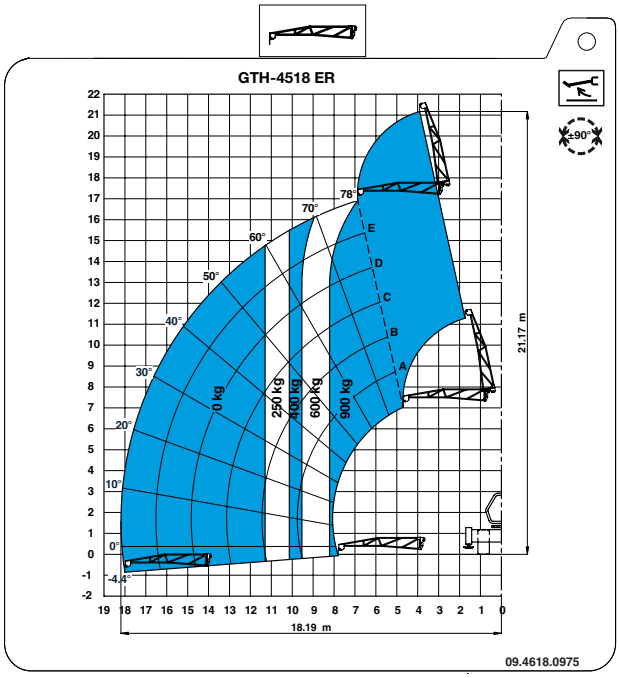


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LOAD CHART WITH 900 KG JIB GTH-4518 ER

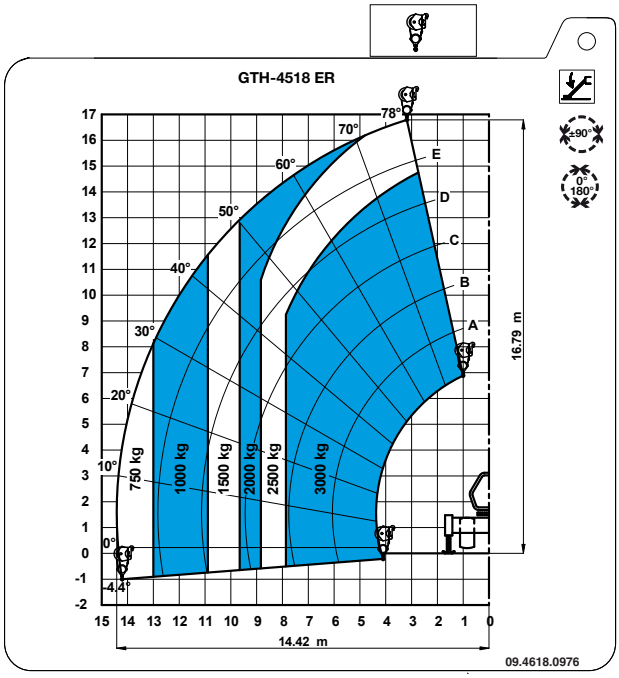


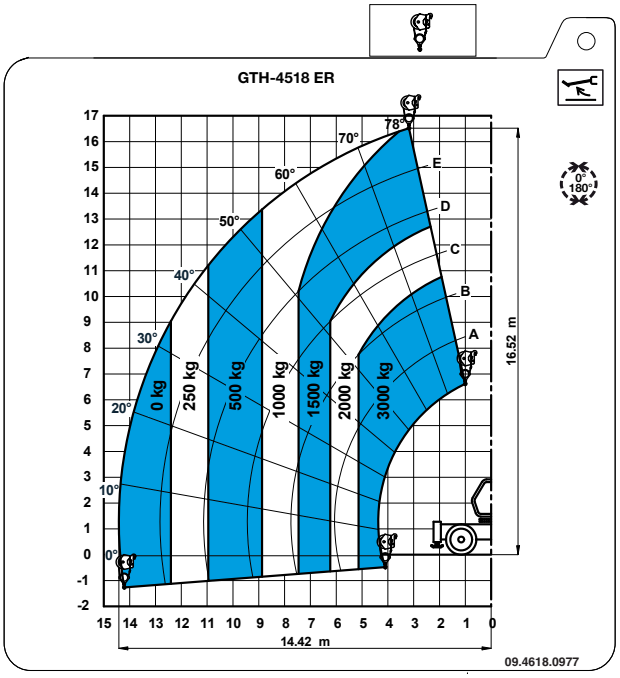


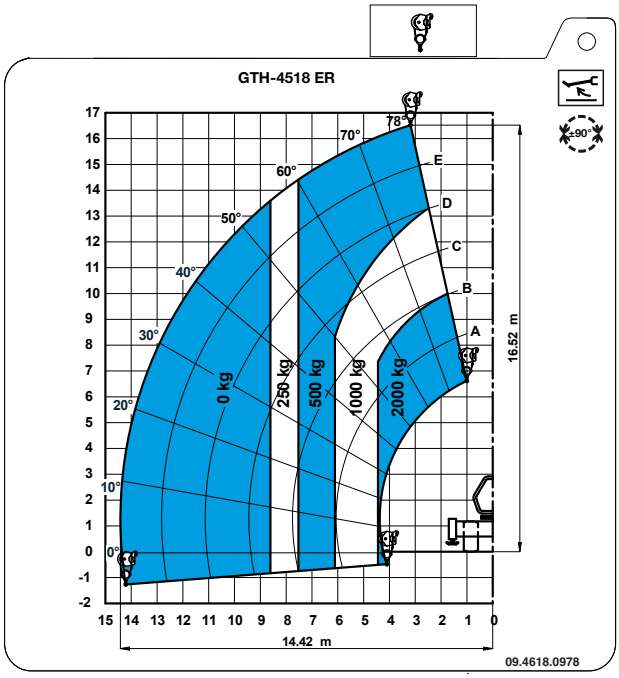


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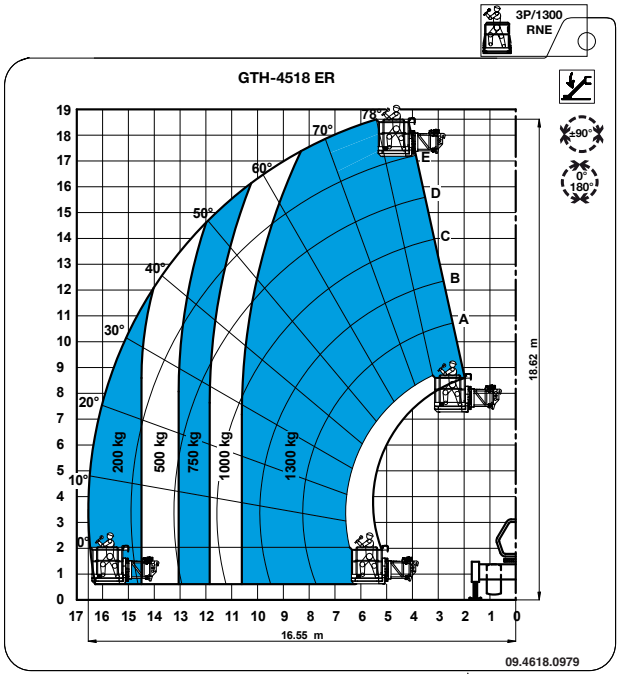


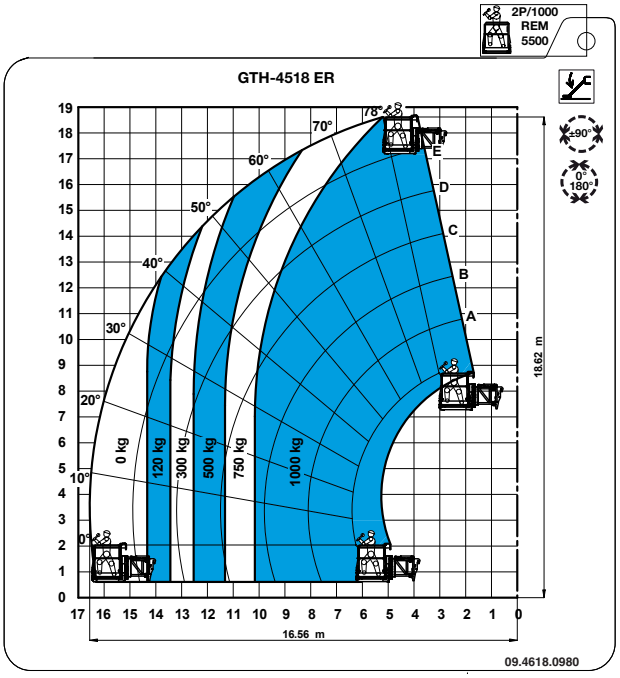


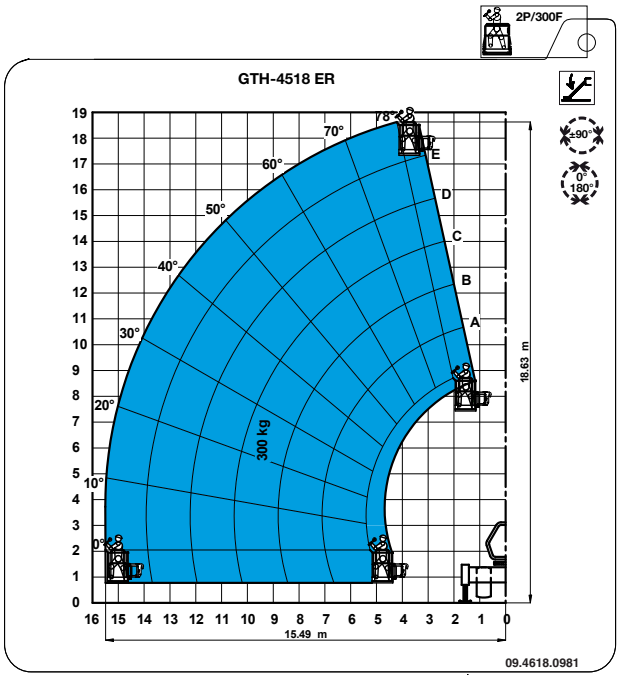


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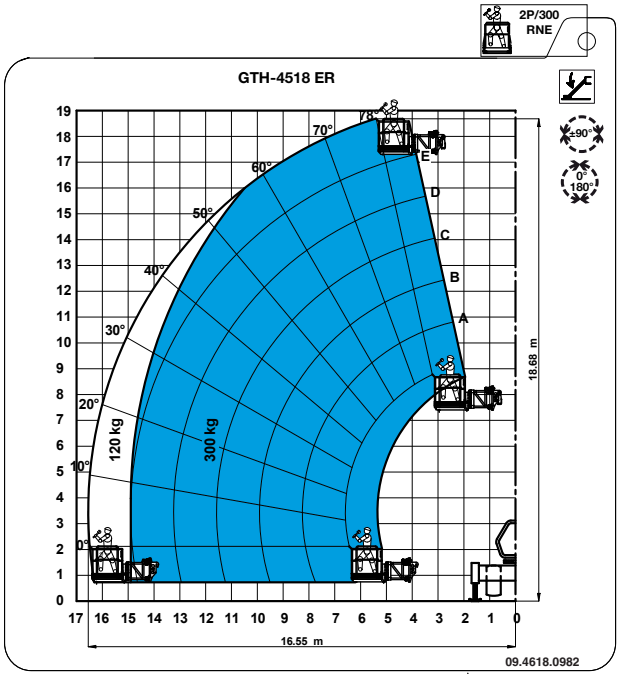


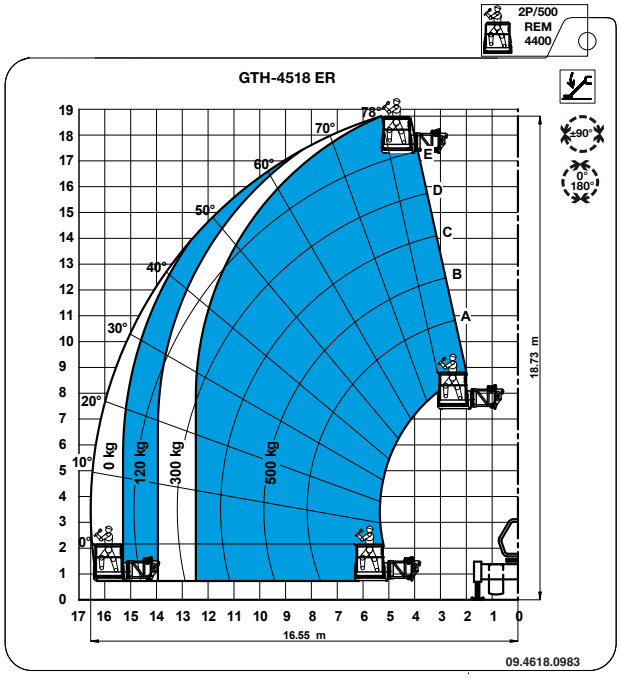




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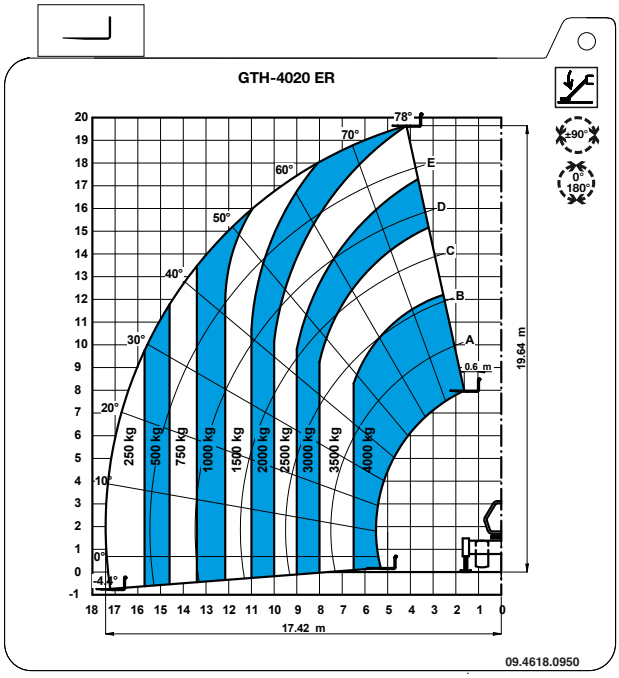
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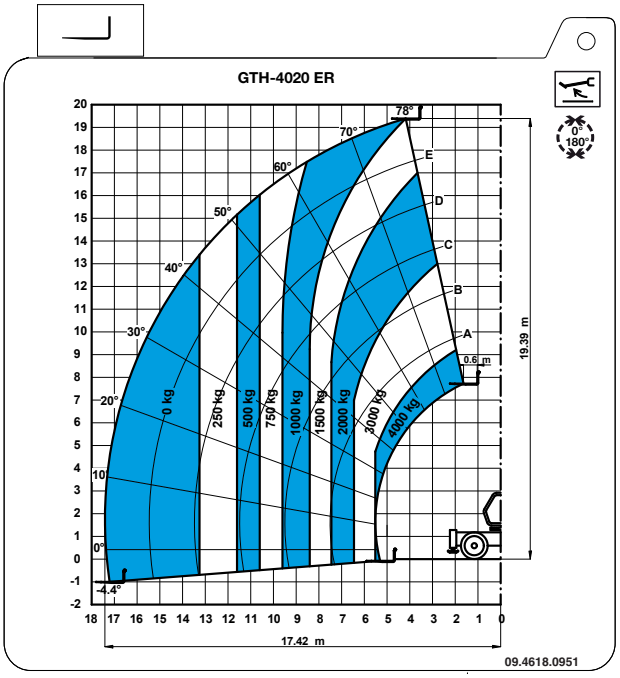


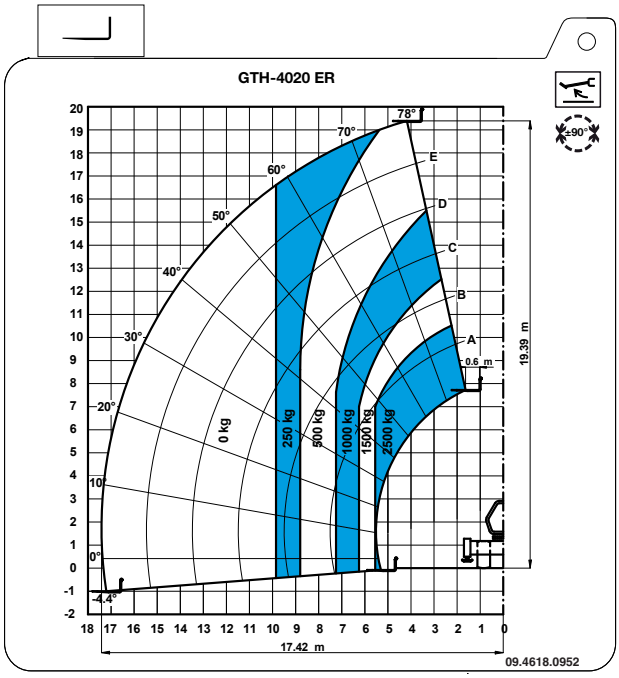


Load Charts

LOAD CHART WITH FORK GTH-4020 ER

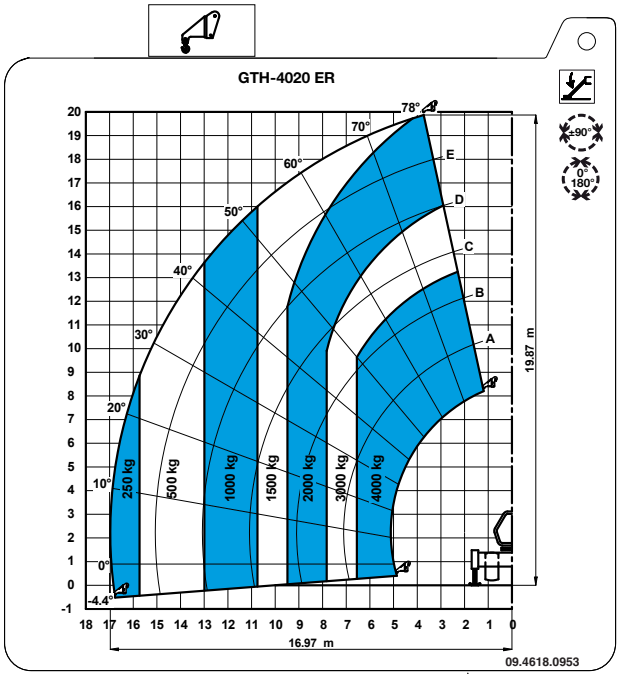


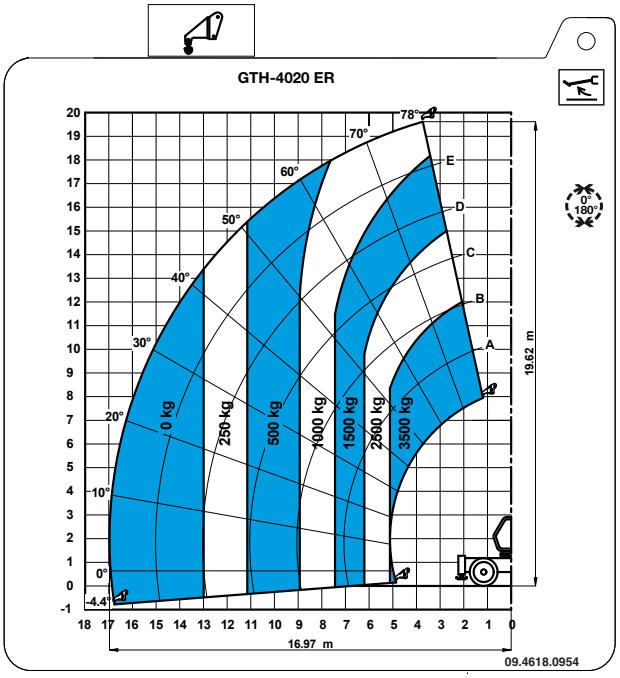


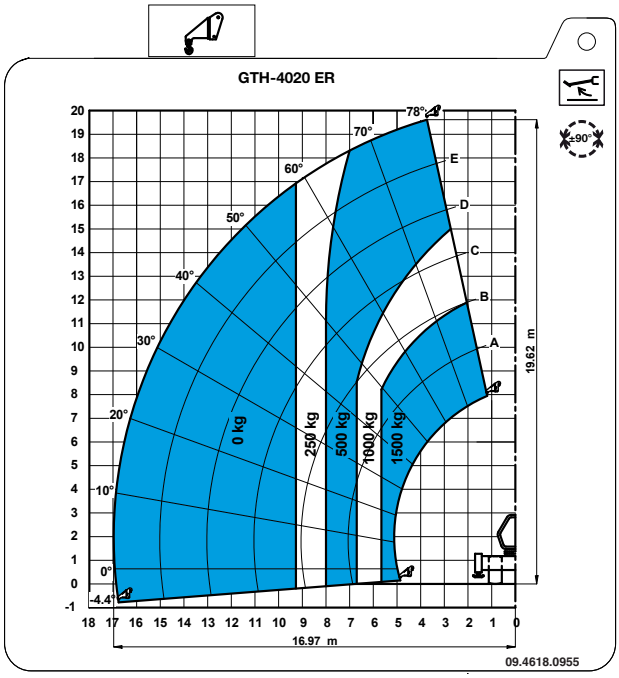


Load Charts

LOAD CHART WITH HOOK GTH-4020 ER

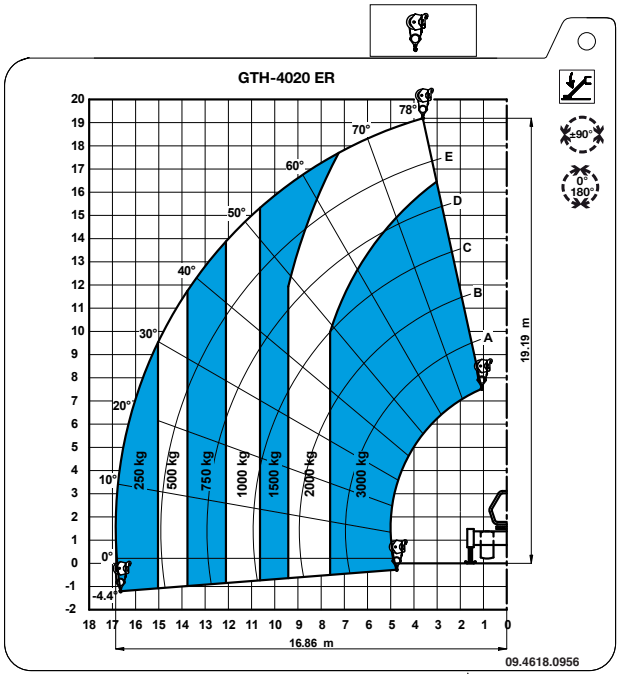


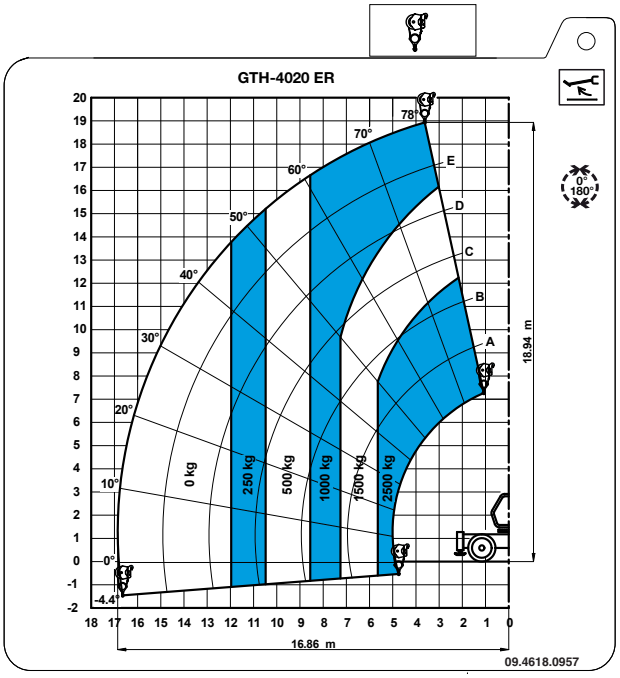


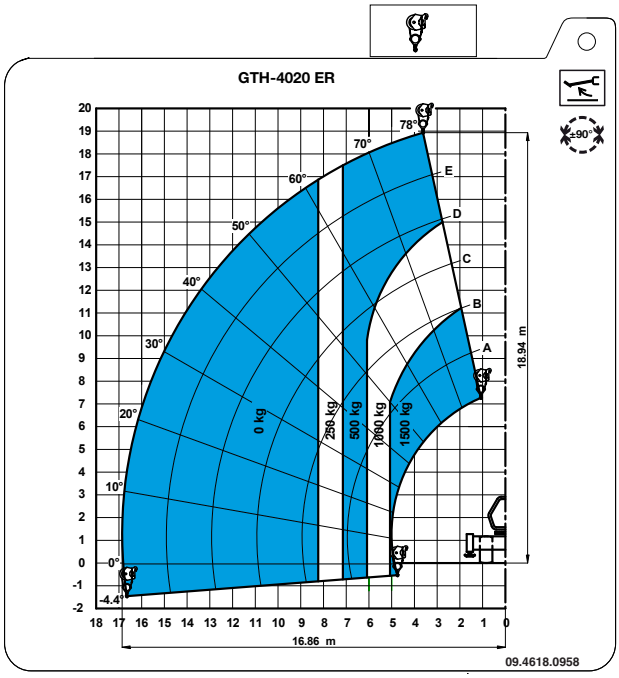


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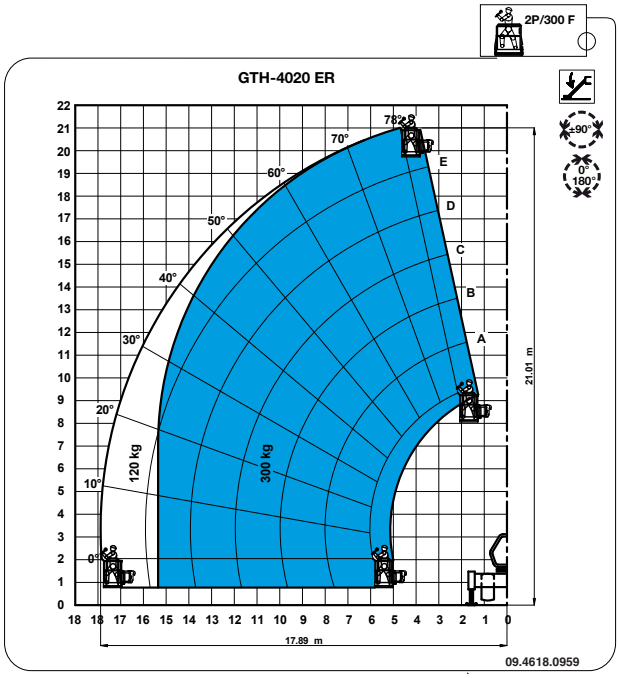


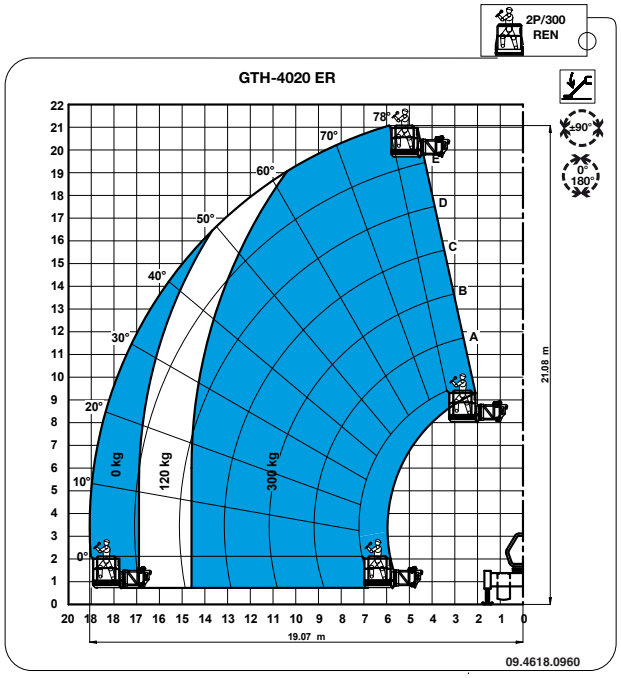


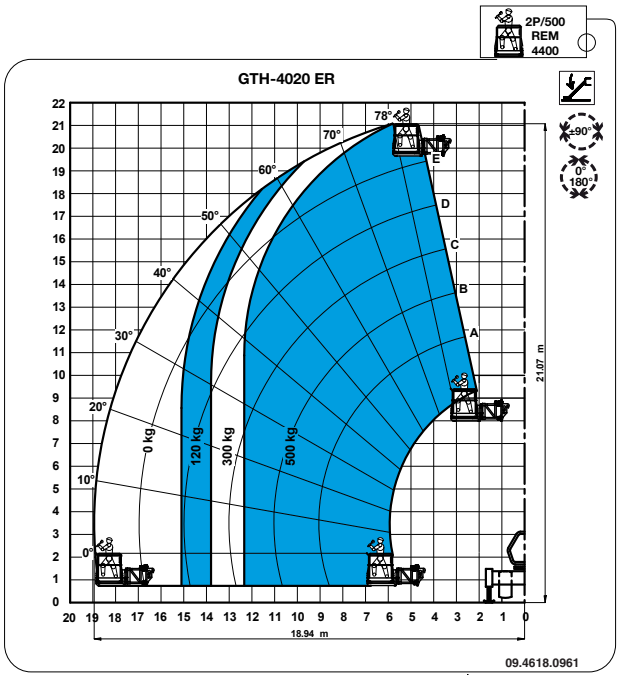


Load Charts

LOAD CHART WITH MAN-PLATFORM GTH-4020 ER

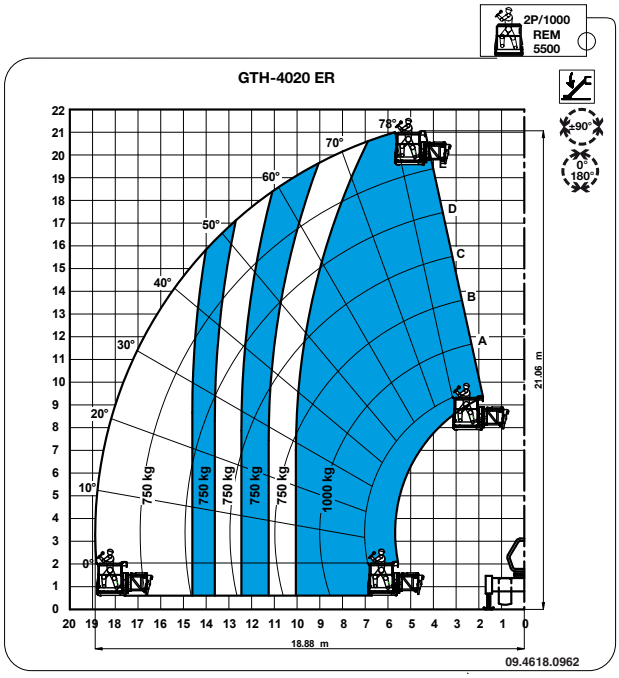


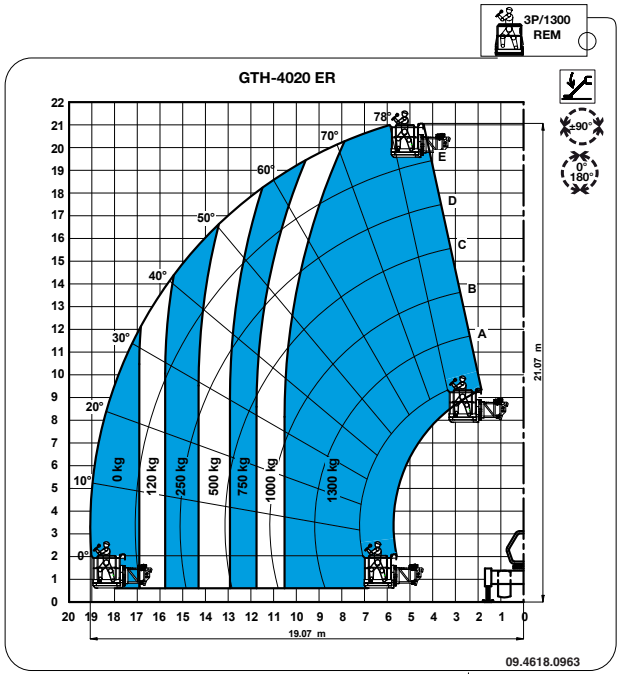




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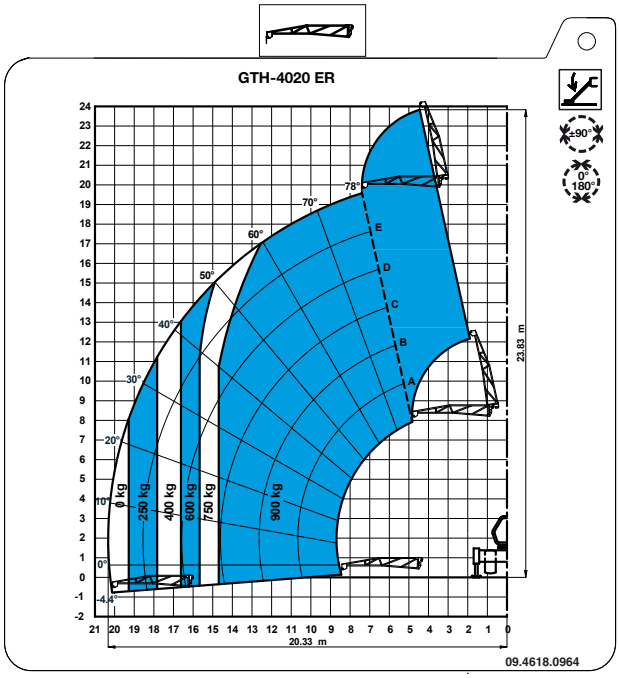
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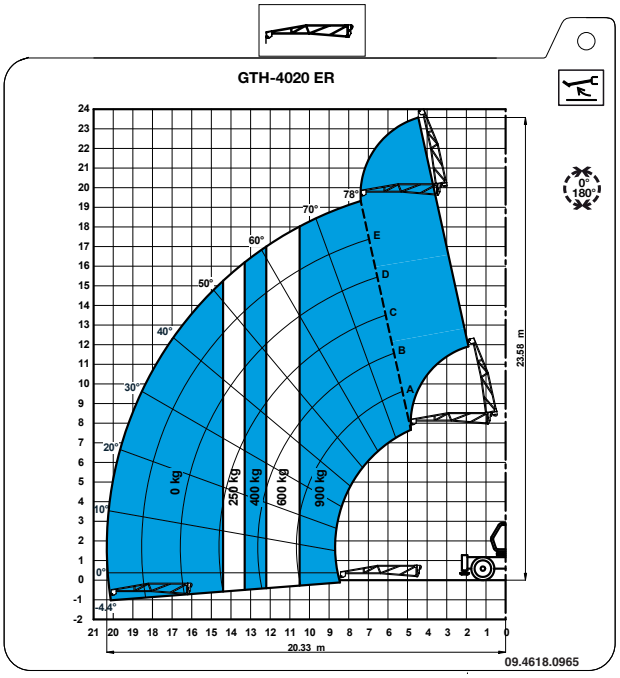


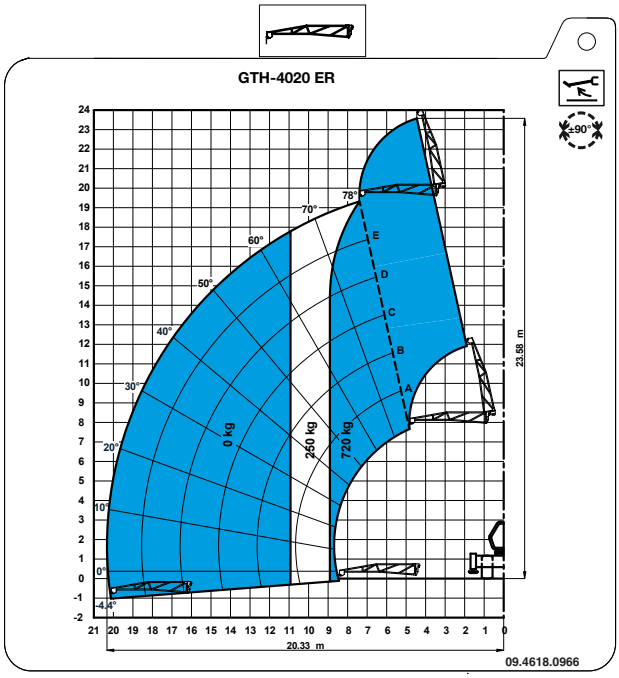


Load Charts

LOAD CHART WITH 900 KG JIB GTH-4020 ER

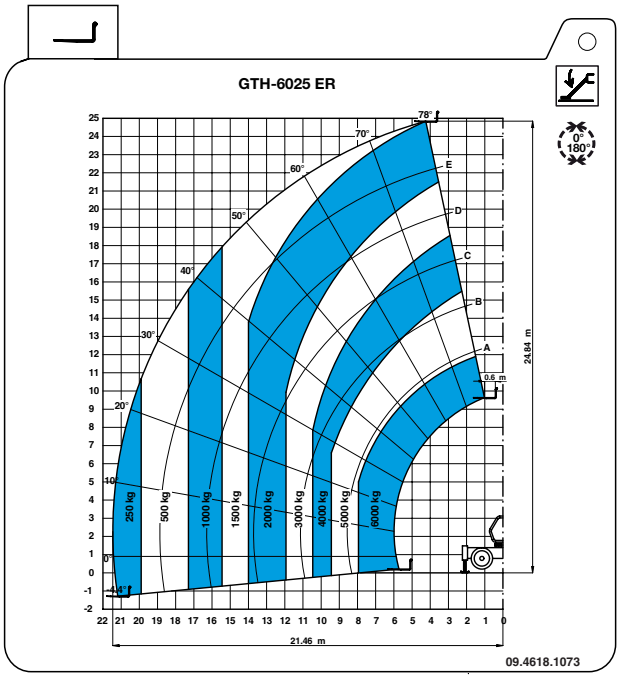


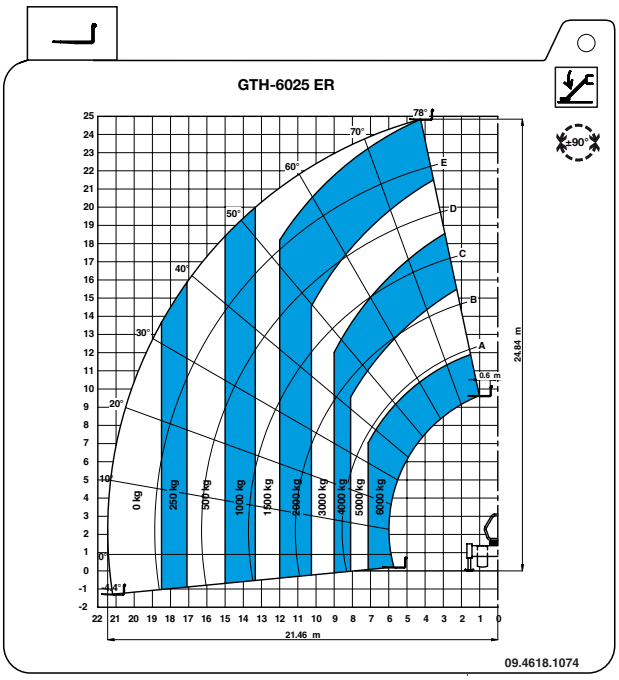


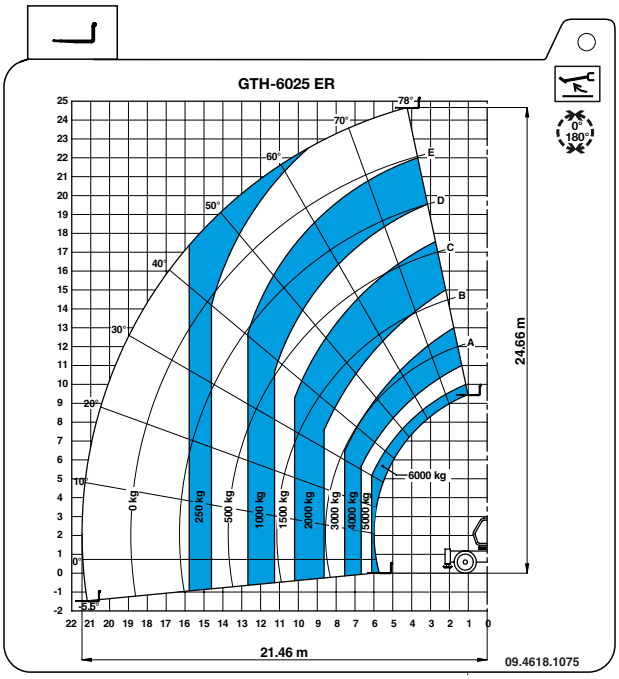


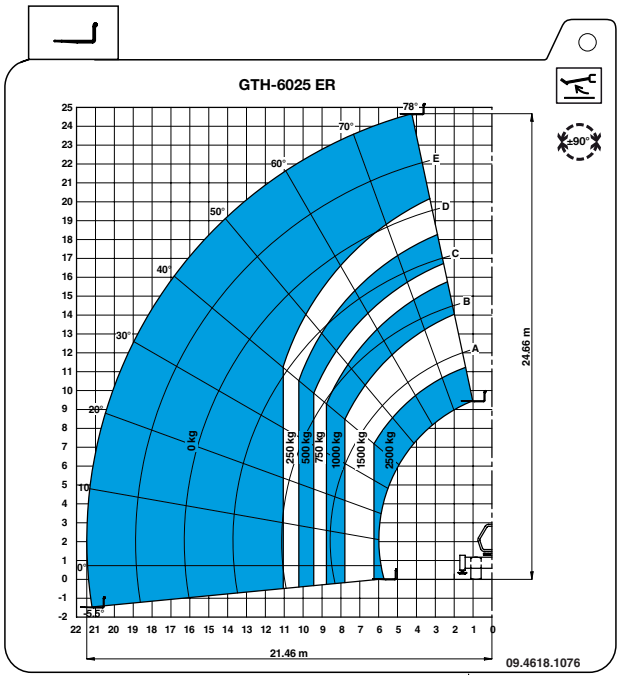
Load Charts

LOAD CHART WITH FORK GTH-6025 ER



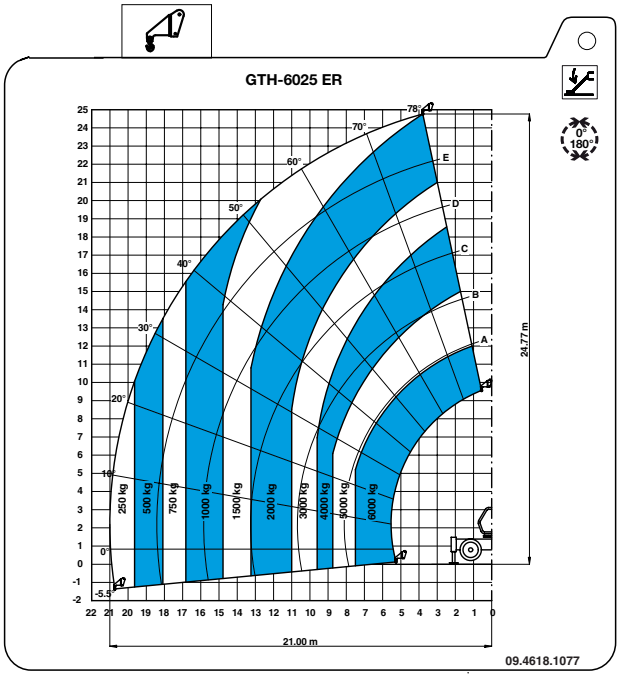


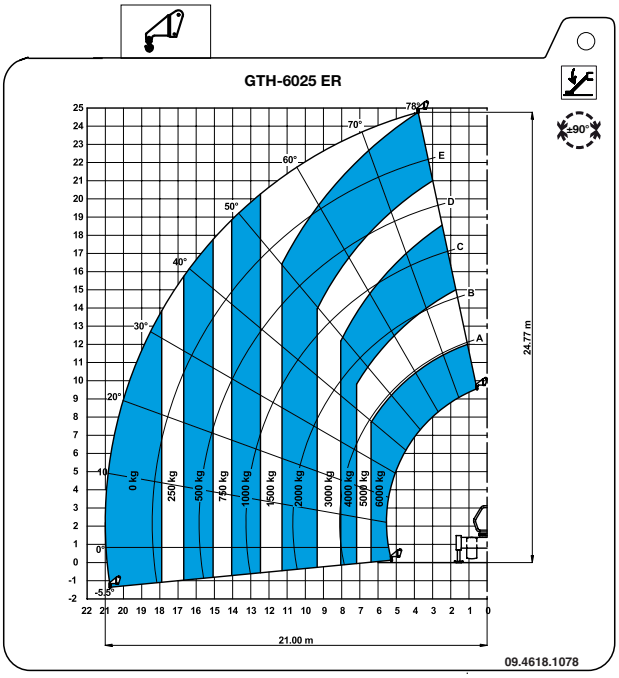


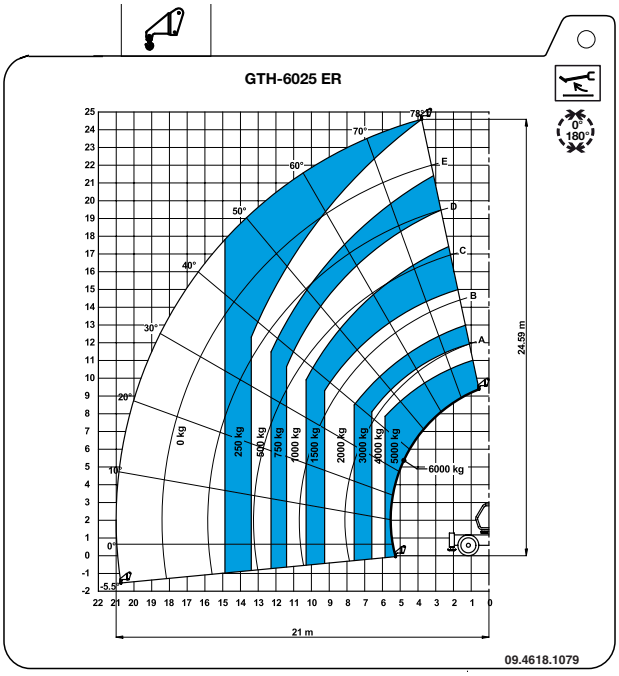


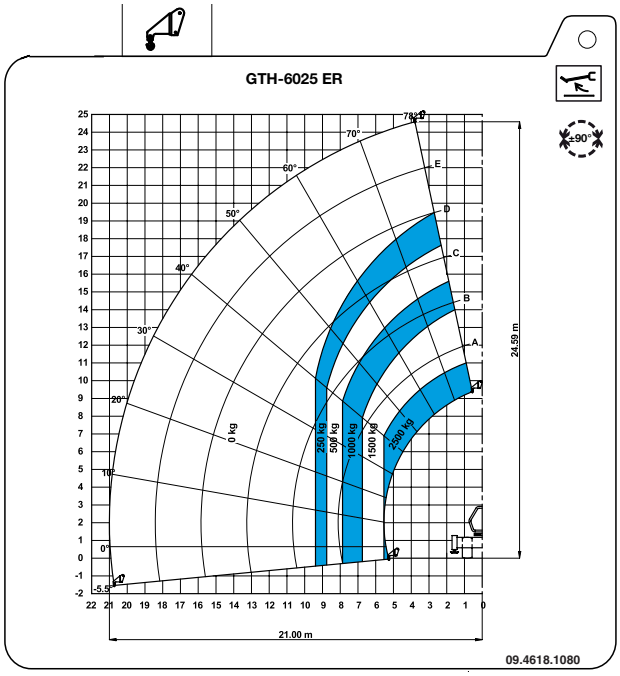
Load Charts

LOAD CHART WITH HOOK GTH-6025 ER



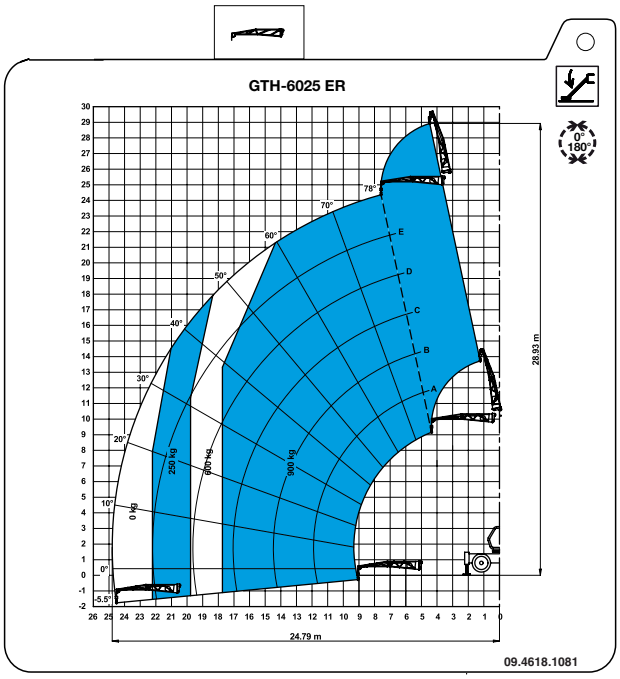


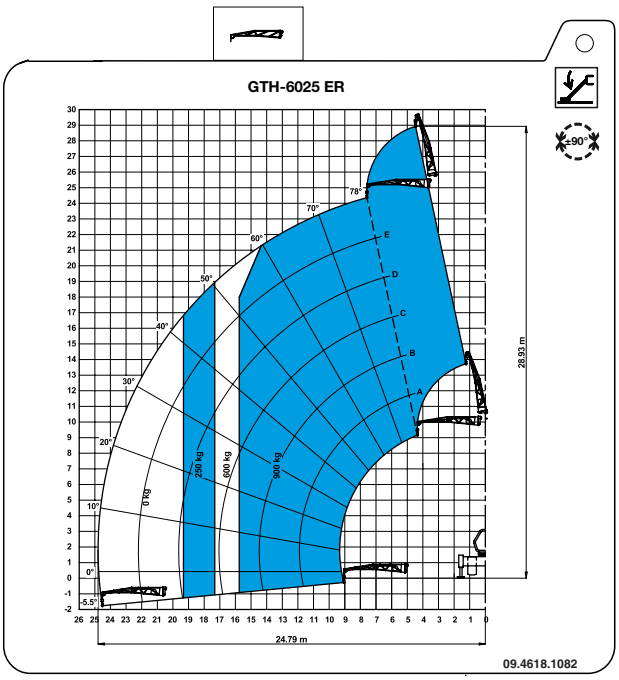


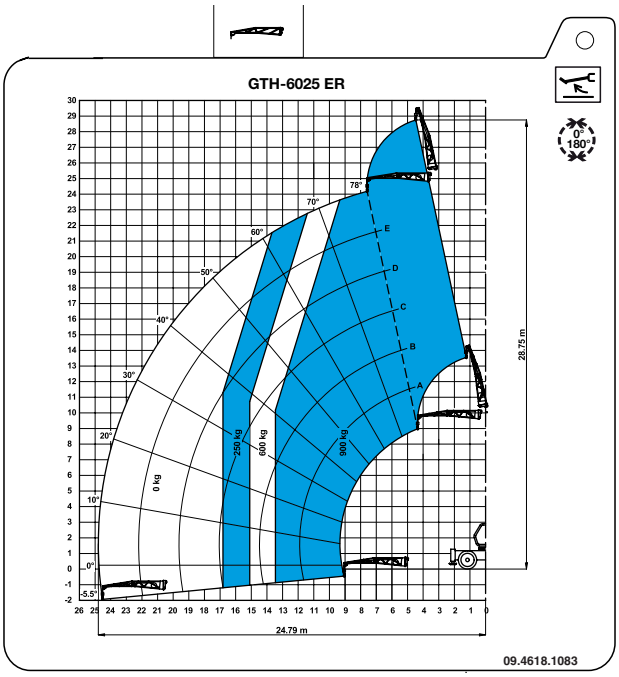


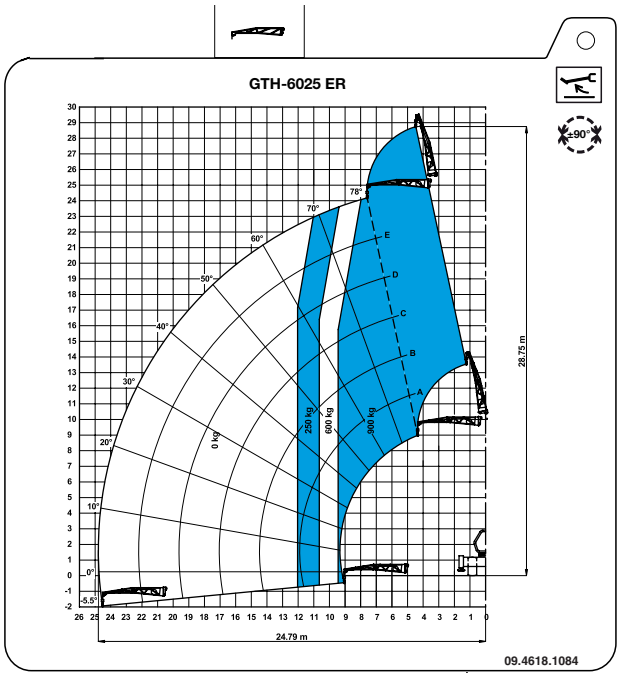
Load Charts

LOAD CHART WITH 900 KG JIB GTH-6025 ER



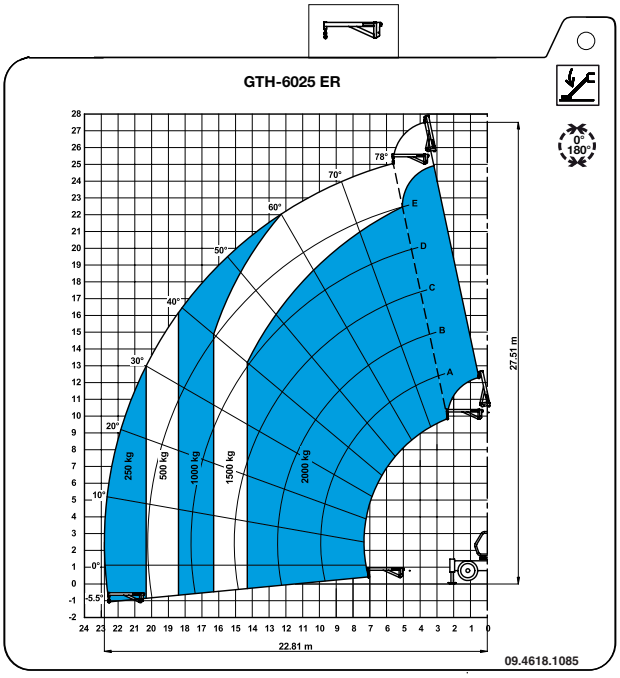


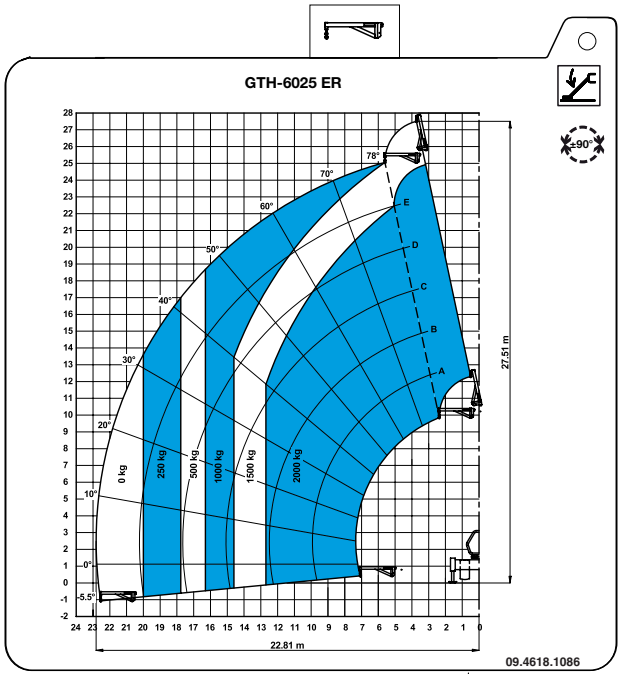


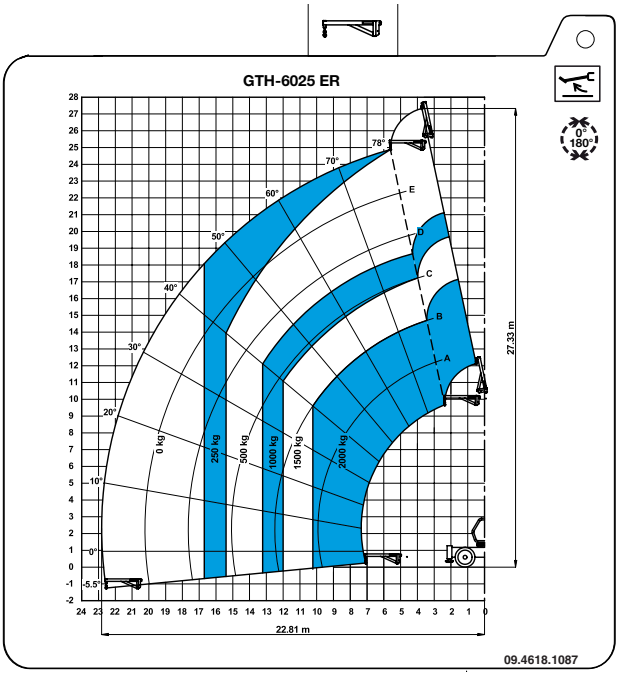


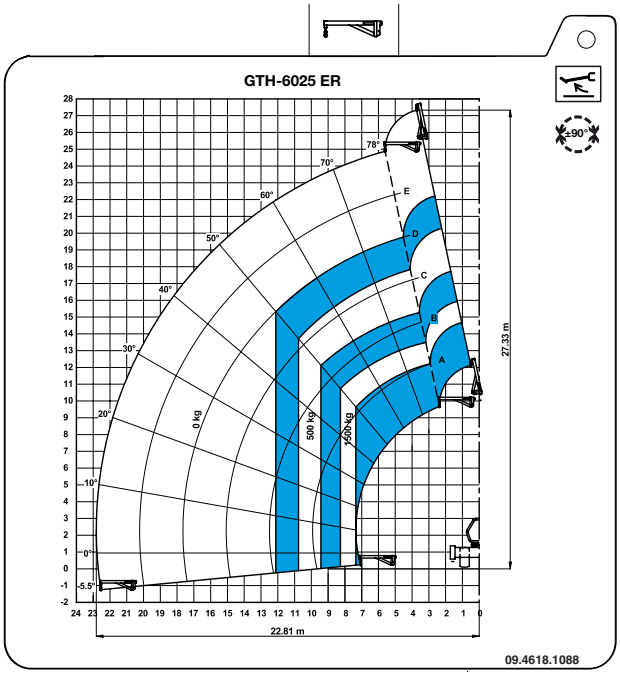
Load Charts

LOAD CHART WITH 2000 KG JIB GTH-6025 ER



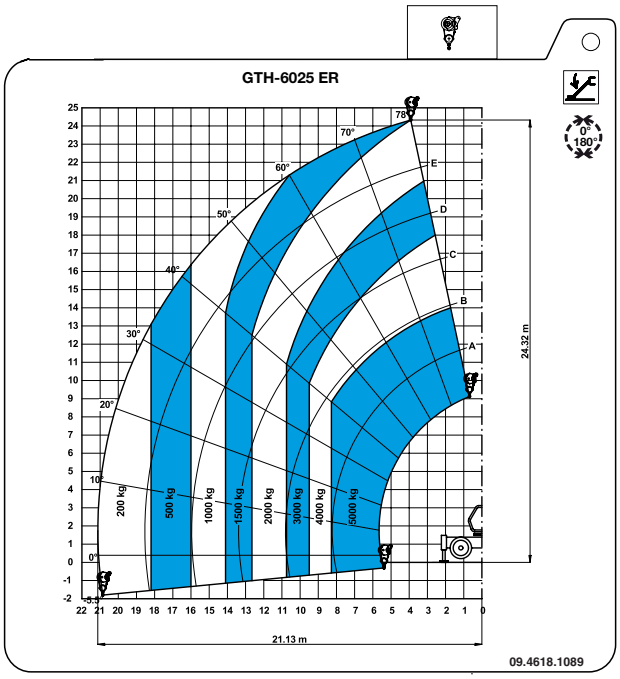


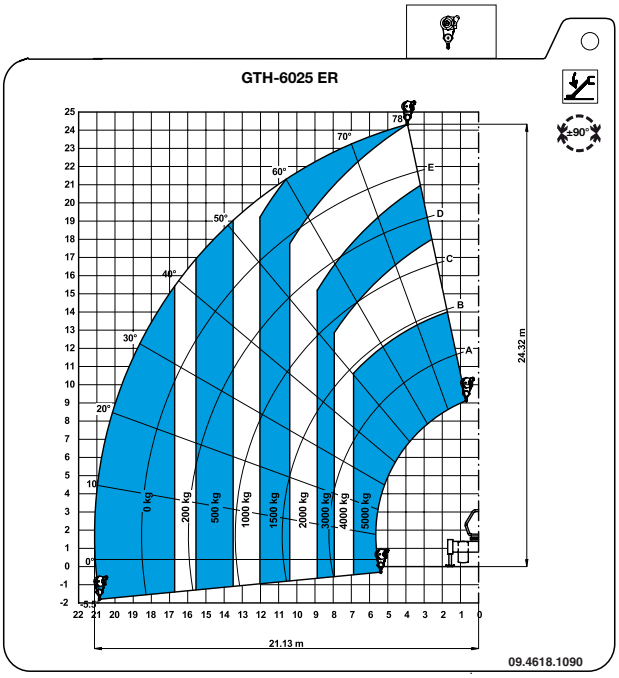


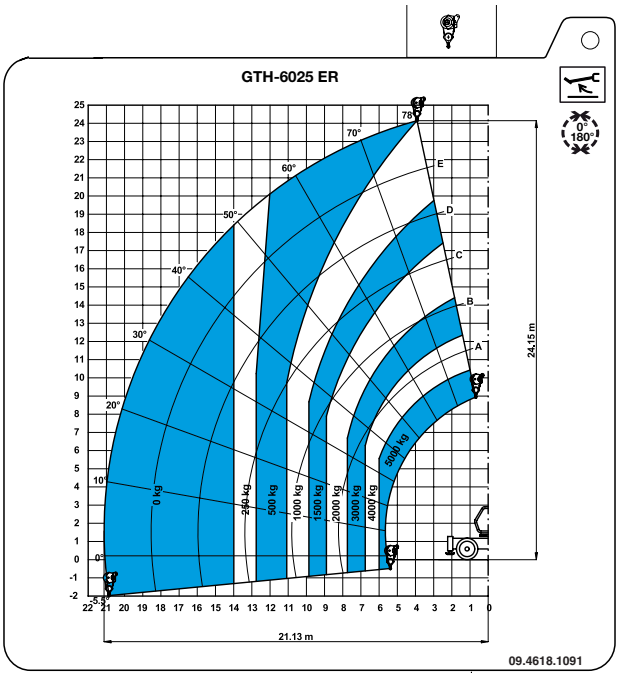


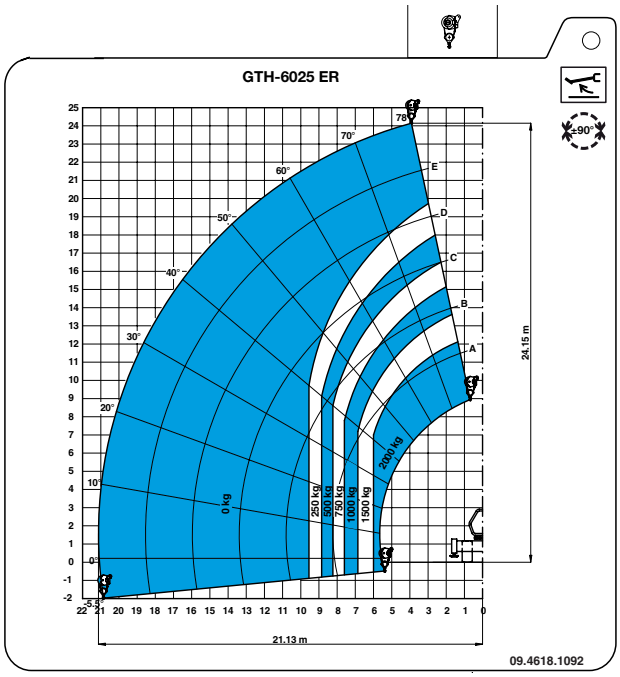
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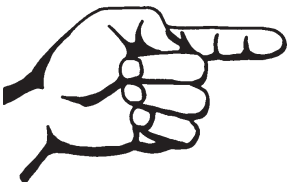
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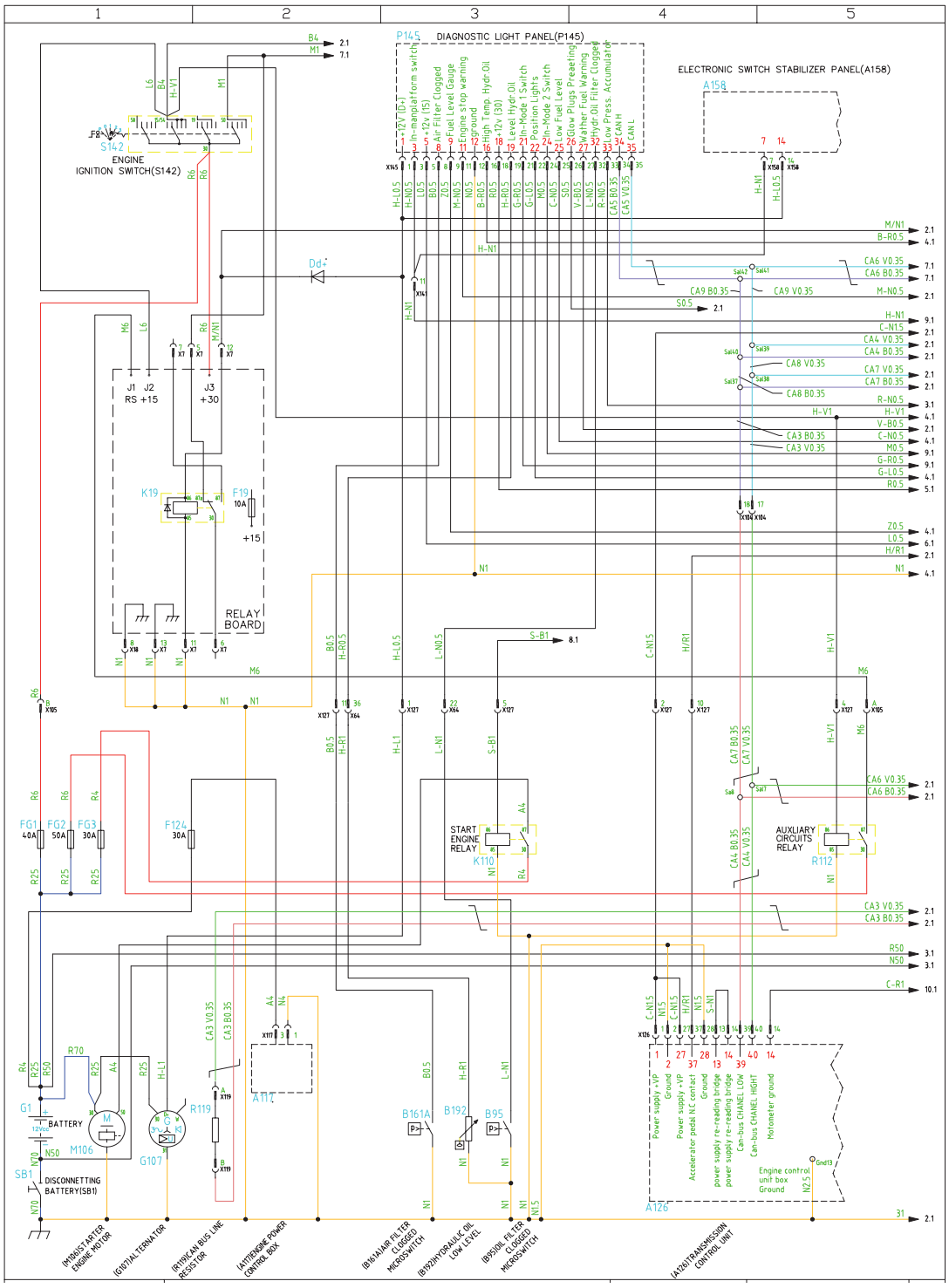




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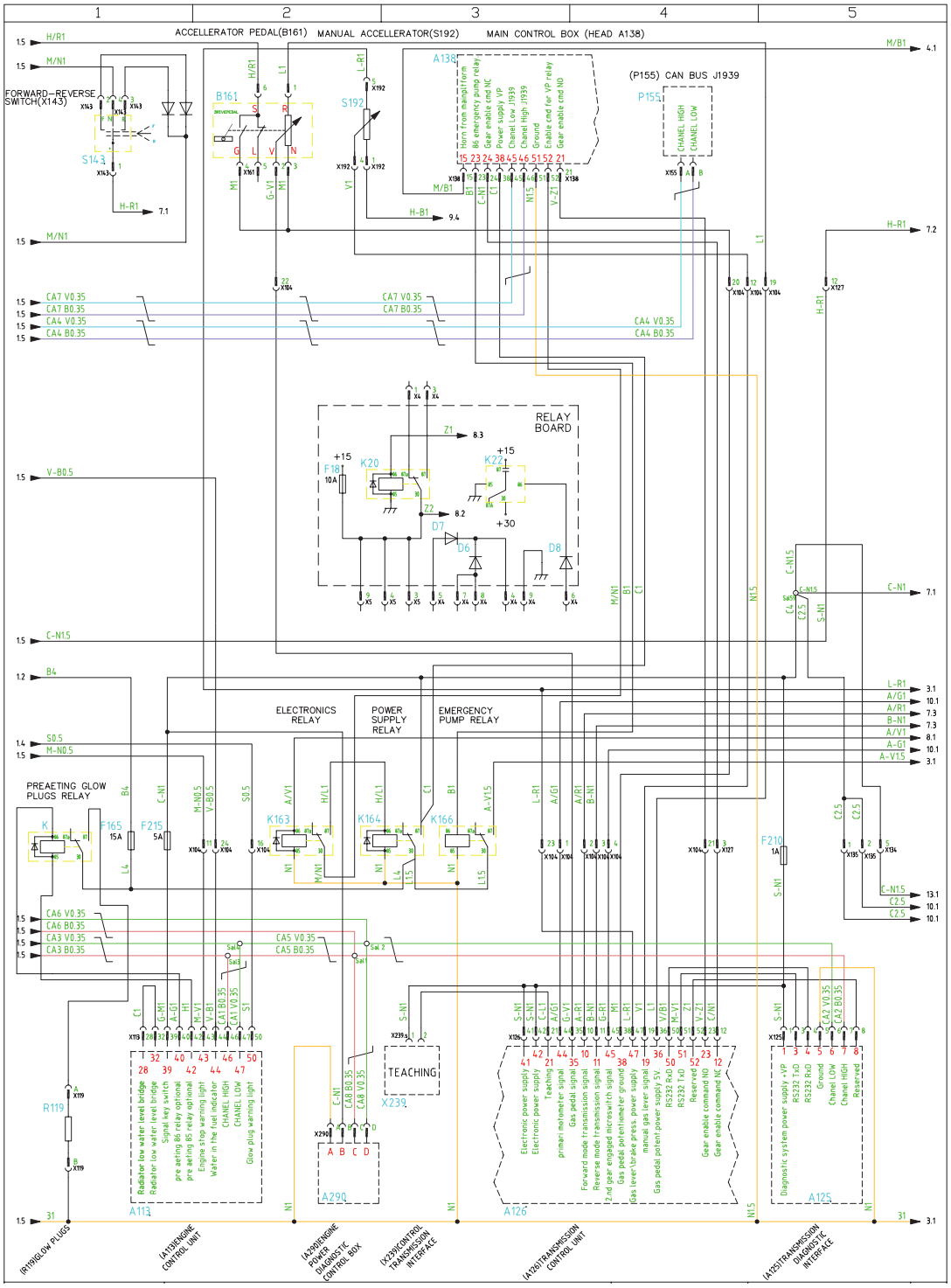
Diagrams and Schemes

GTH-6025 ER WIRING DIAGRAM 1/17



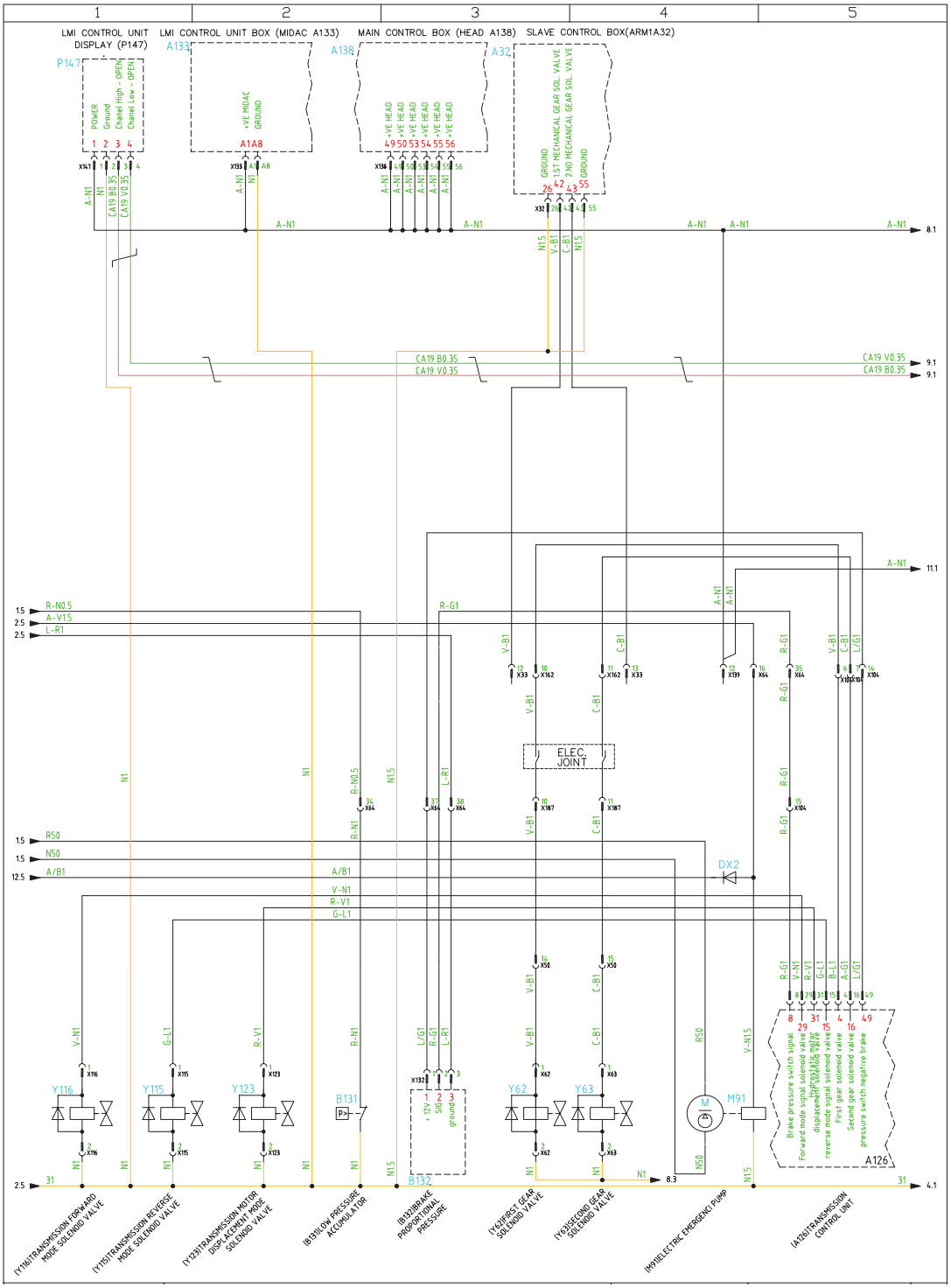
Diagrams and Schemes

GTH-6025 ER WIRING DIAGRAM 2/17



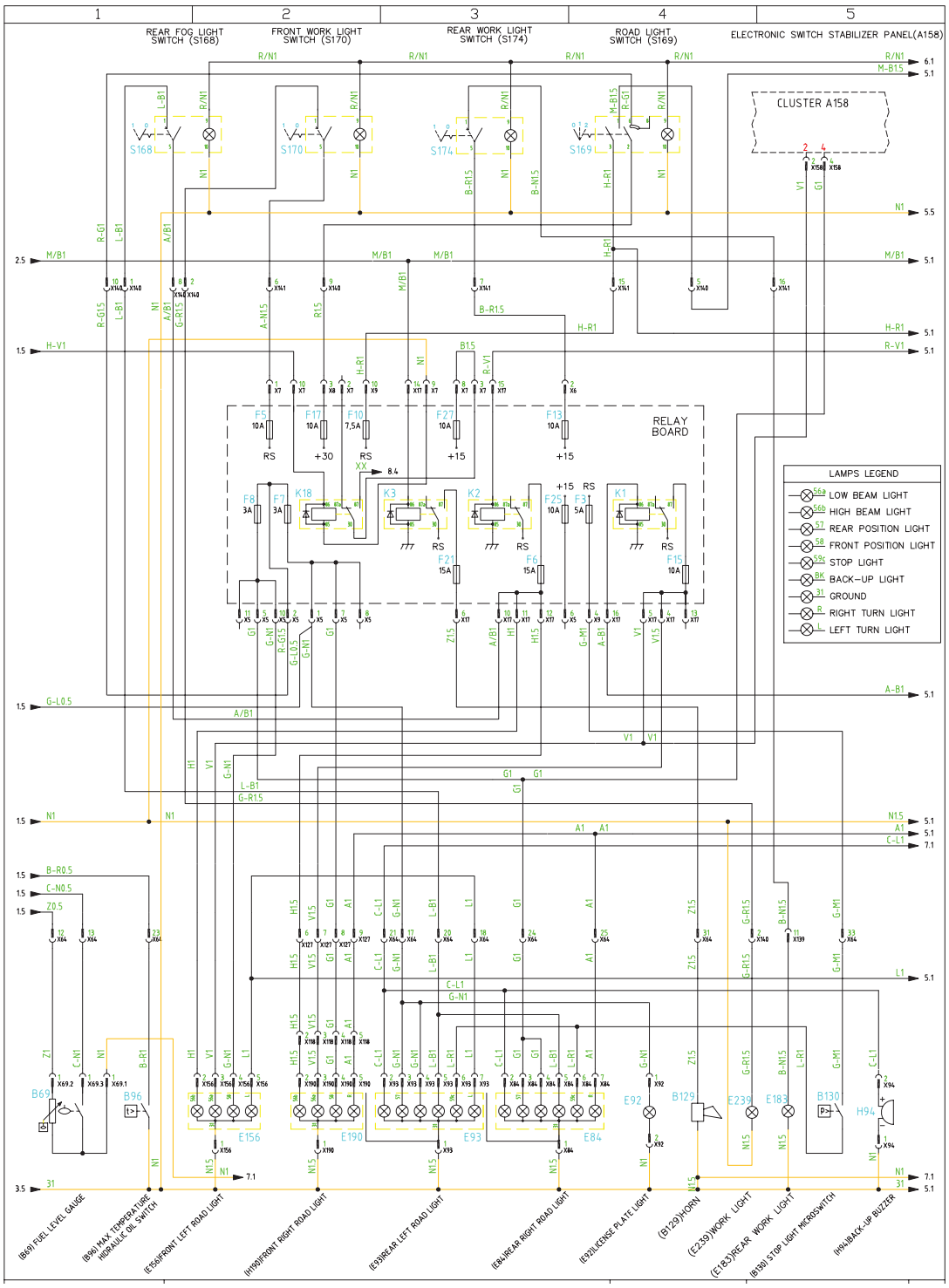
Diagrams and Schemes

GTH-6025 ER WIRING DIAGRAM 3/17



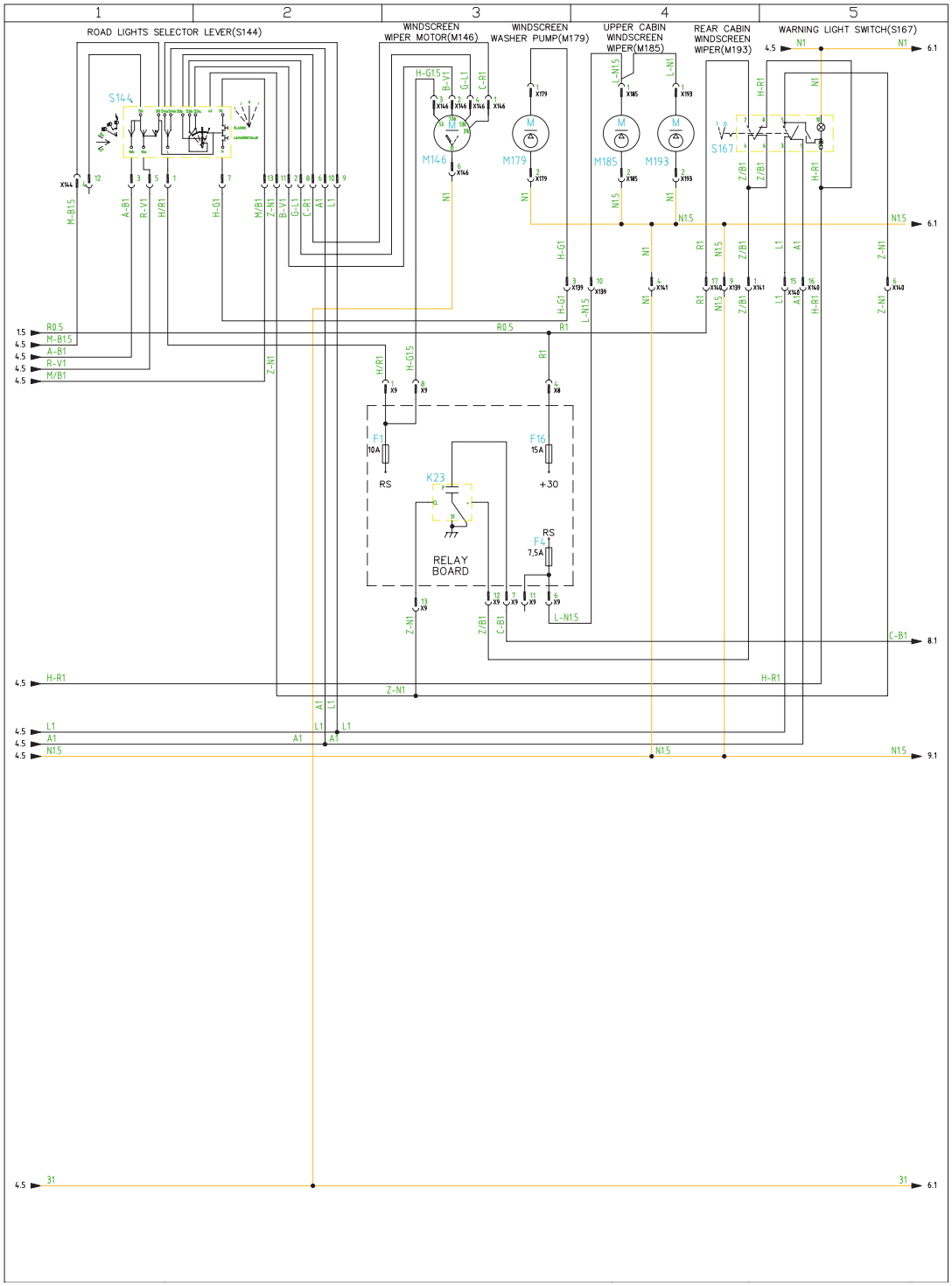
Diagrams and Schemes

■ GTH-6025 ER WIRING DIAGRAM 4/17



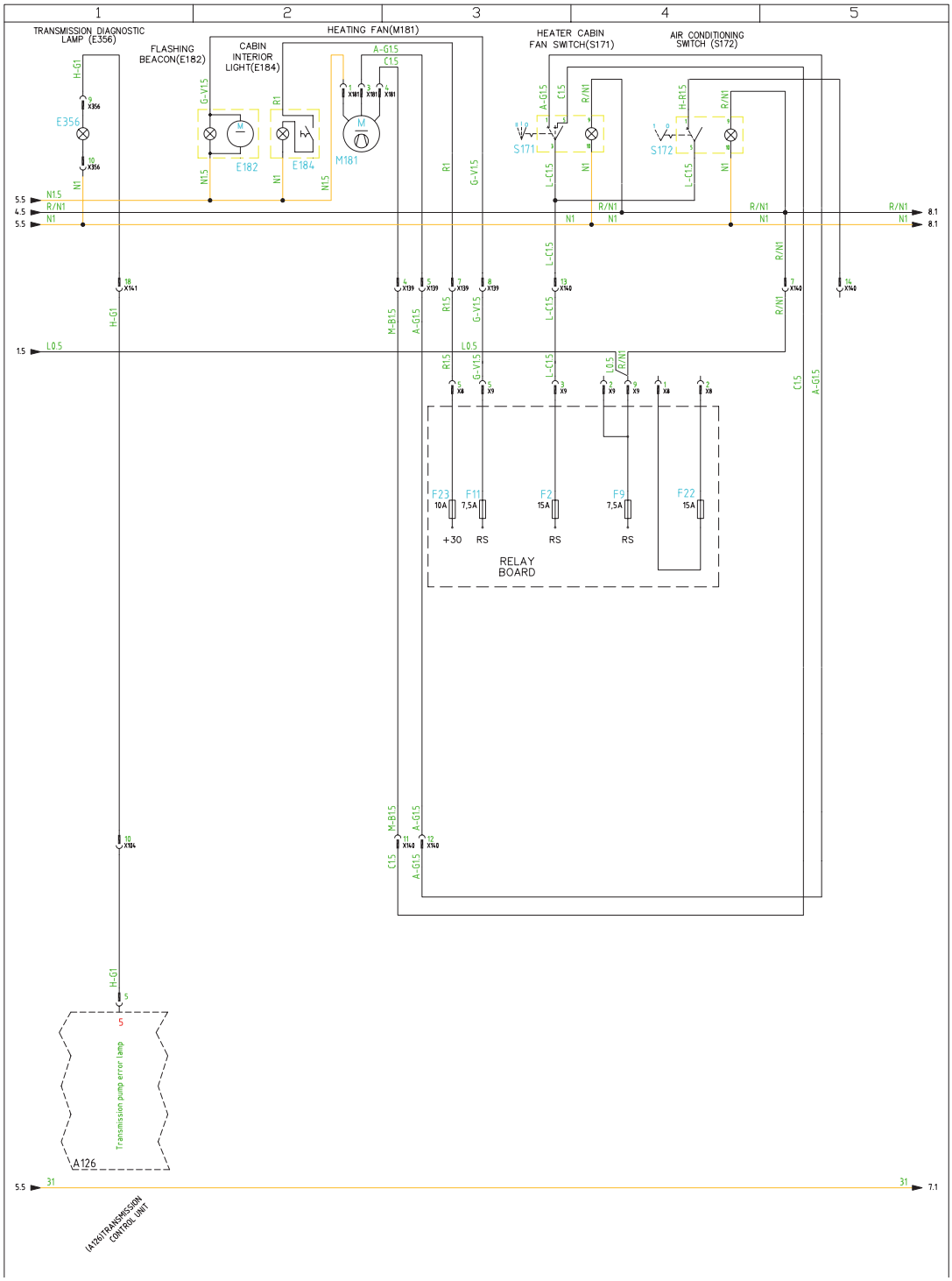
Diagrams and Schemes

GTH-6025 ER WIRING DIAGRAM 5/17



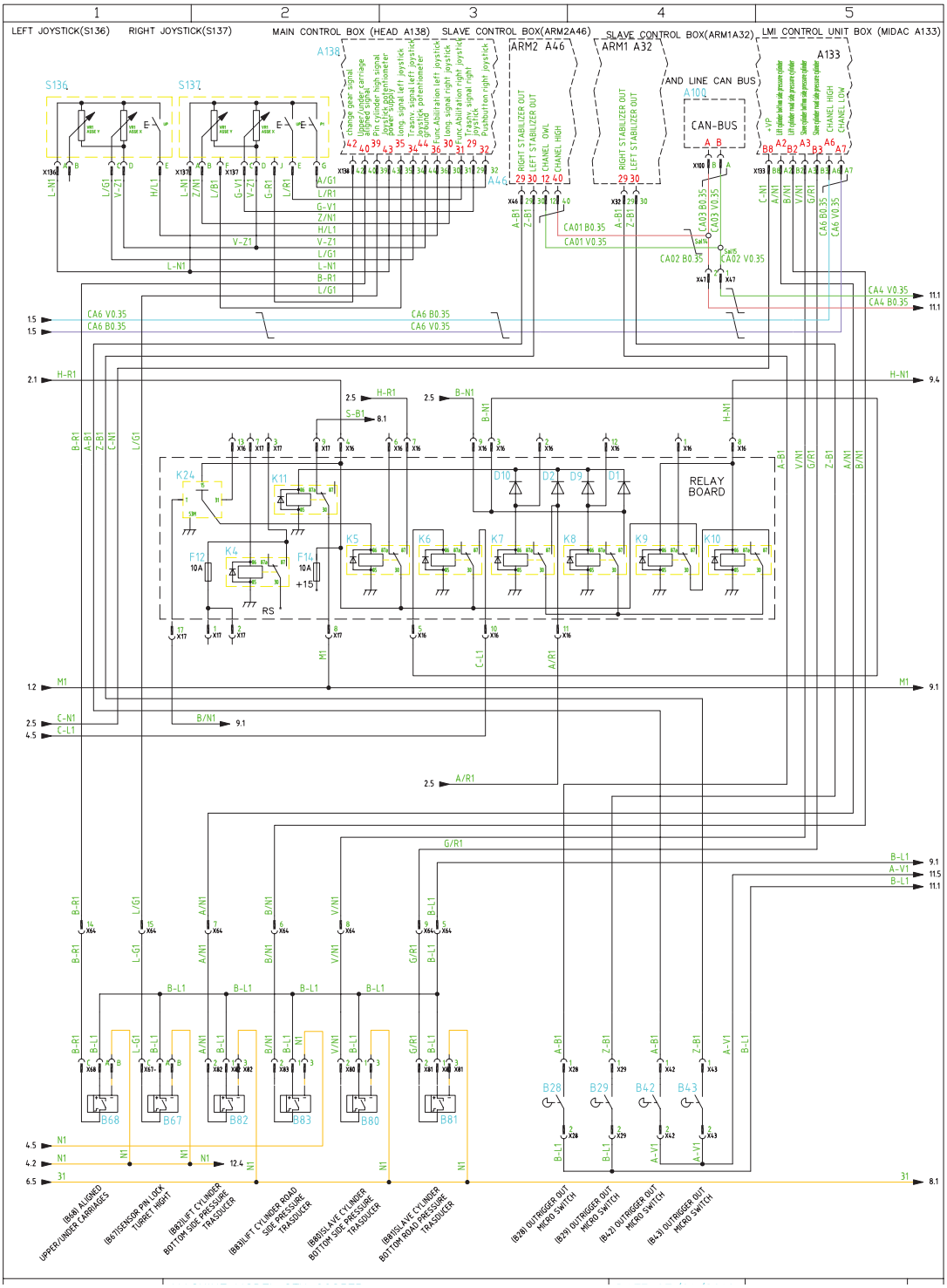
Diagrams and Schemes

GTH-6025 ER WIRING DIAGRAM 6/17



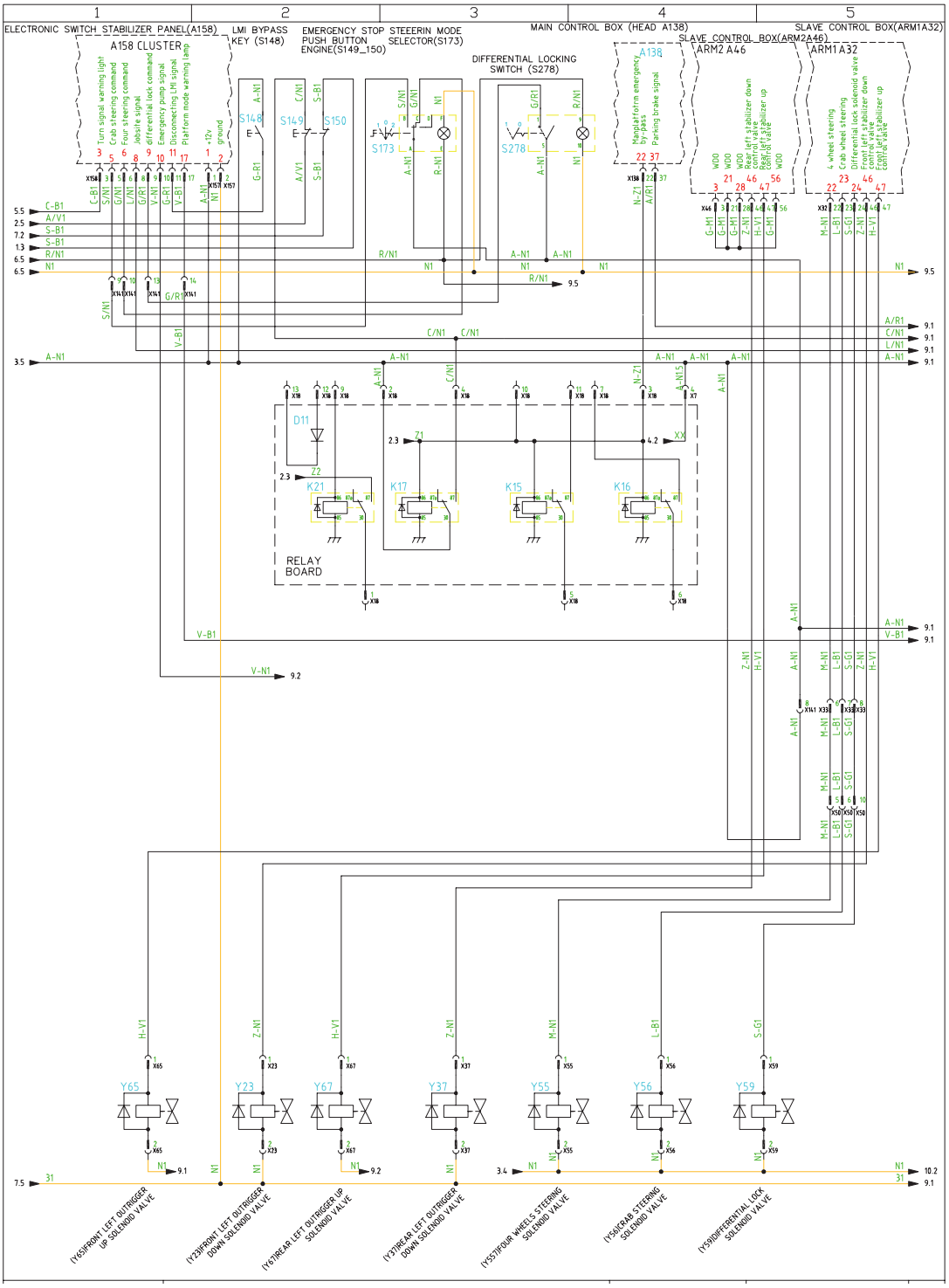
Diagrams and Schemes

GTH-6025 ER WIRING DIAGRAM 7/17



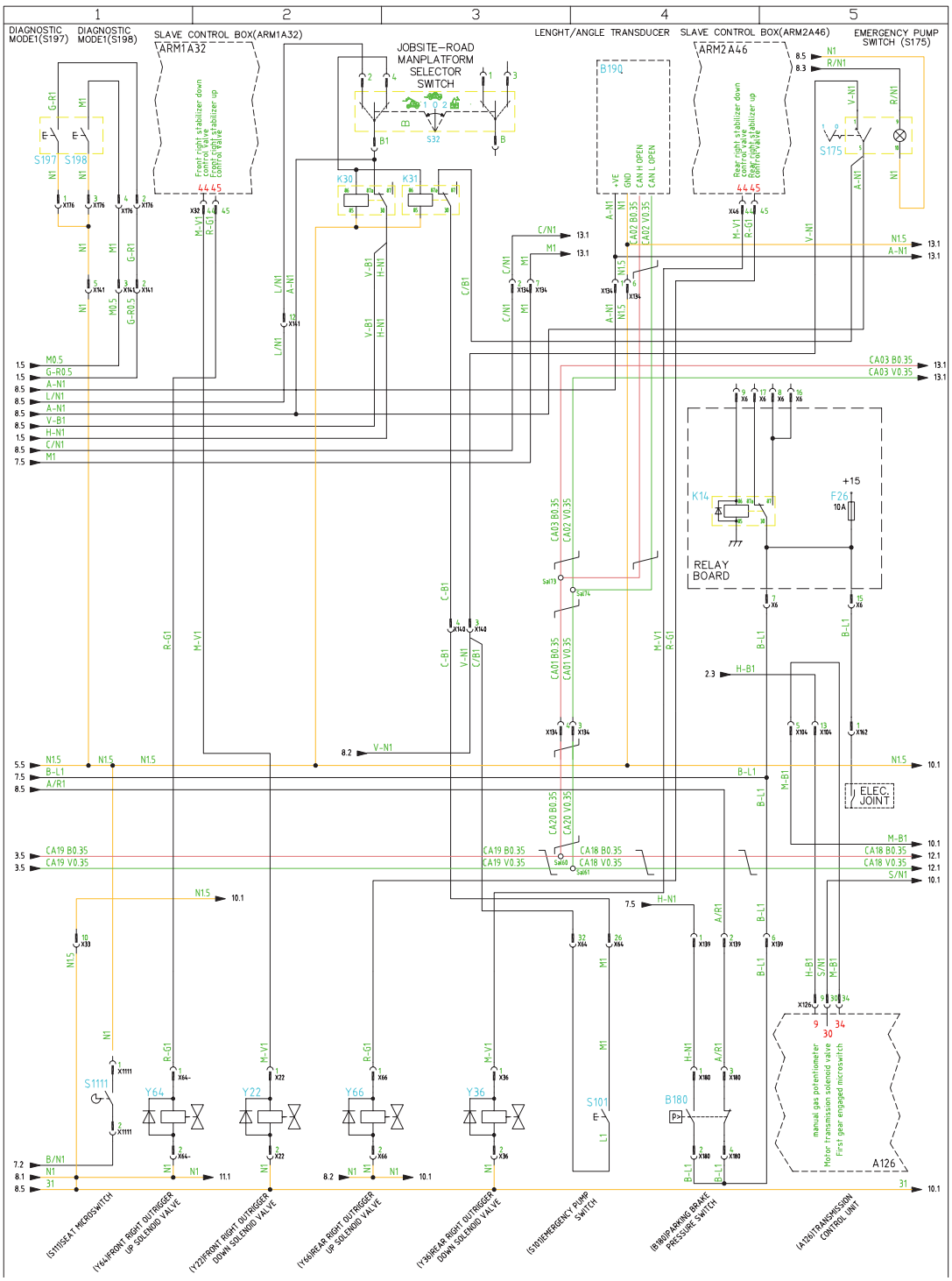
Diagrams and Schemes

GTH-6025 ER WIRING DIAGRAM 8/17



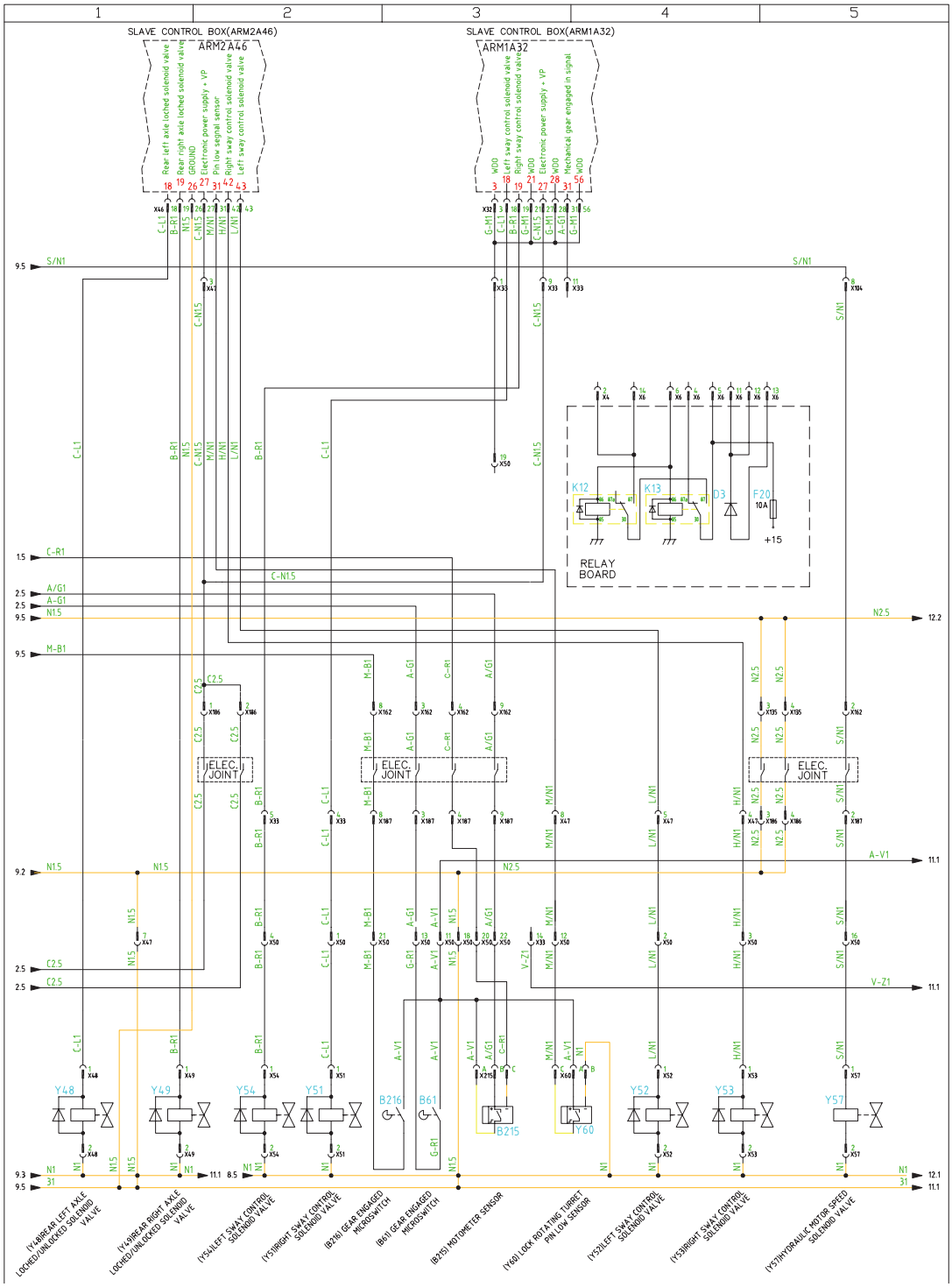
Diagrams and Schemes

GTH-6025 ER WIRING DIAGRAM 9/17



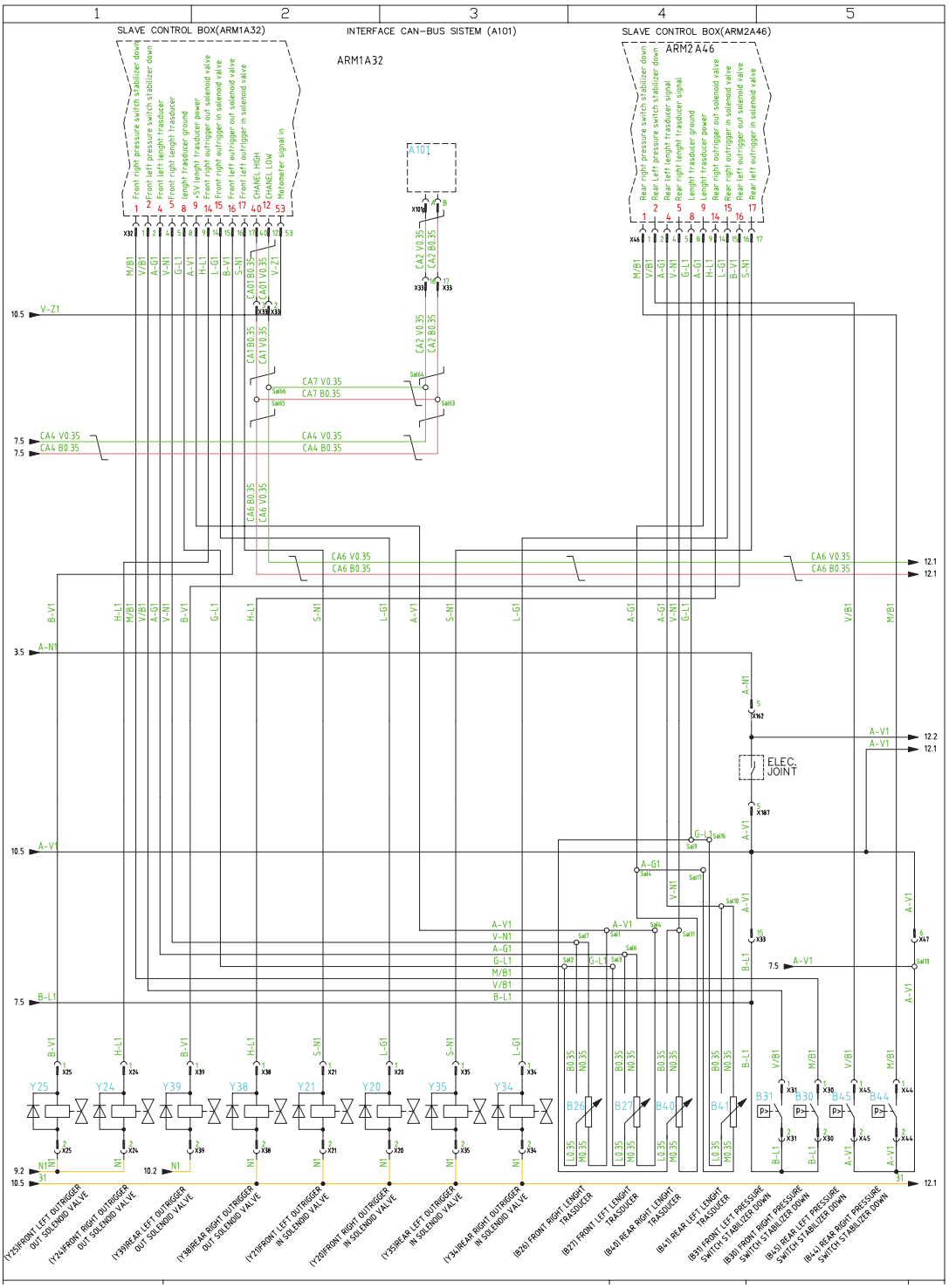
Diagrams and Schemes

GTH-6025 ER WIRING DIAGRAM 10/17



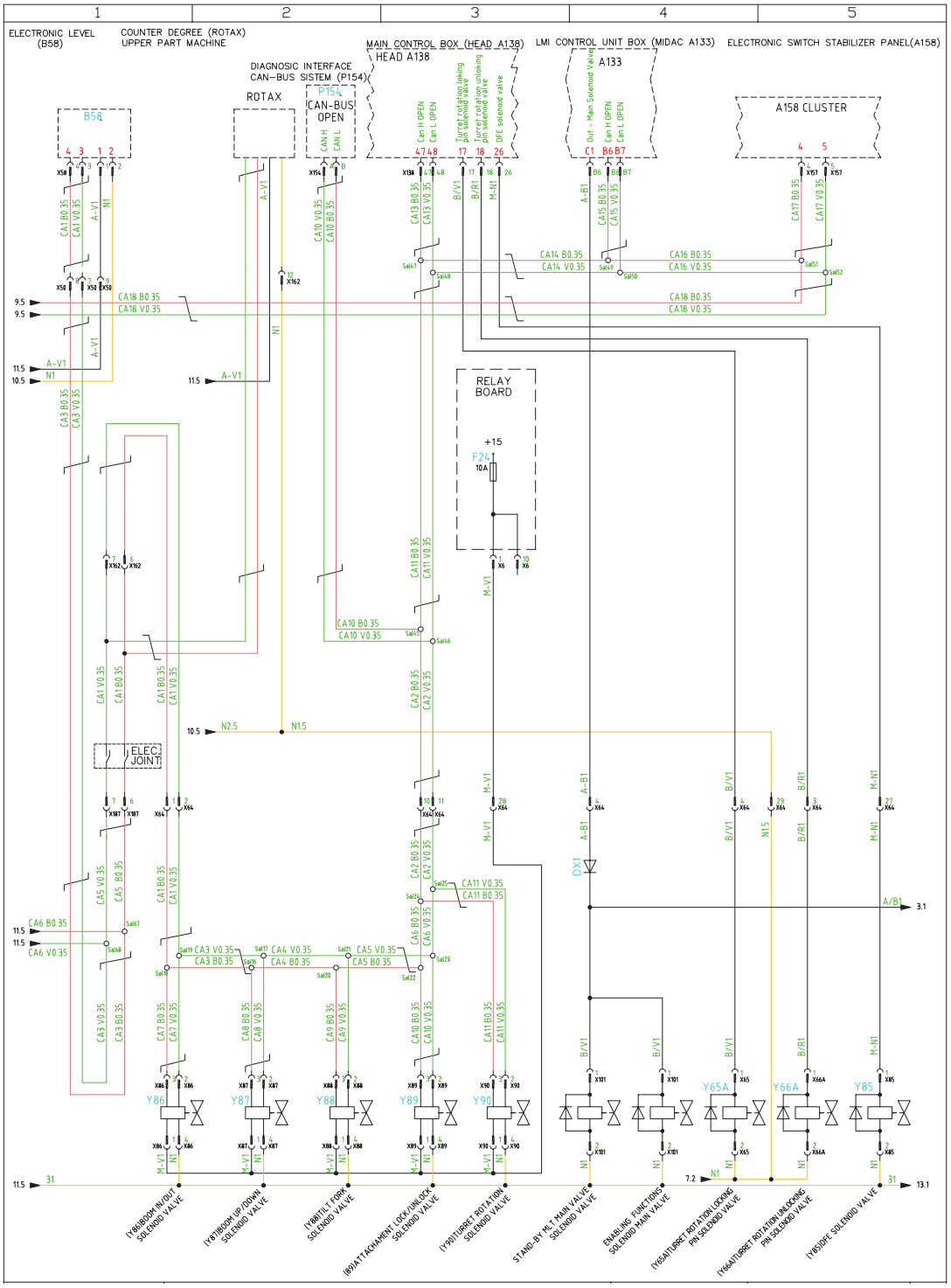
Diagrams and Schemes

GTH-6025 ER WIRING DIAGRAM 11/17



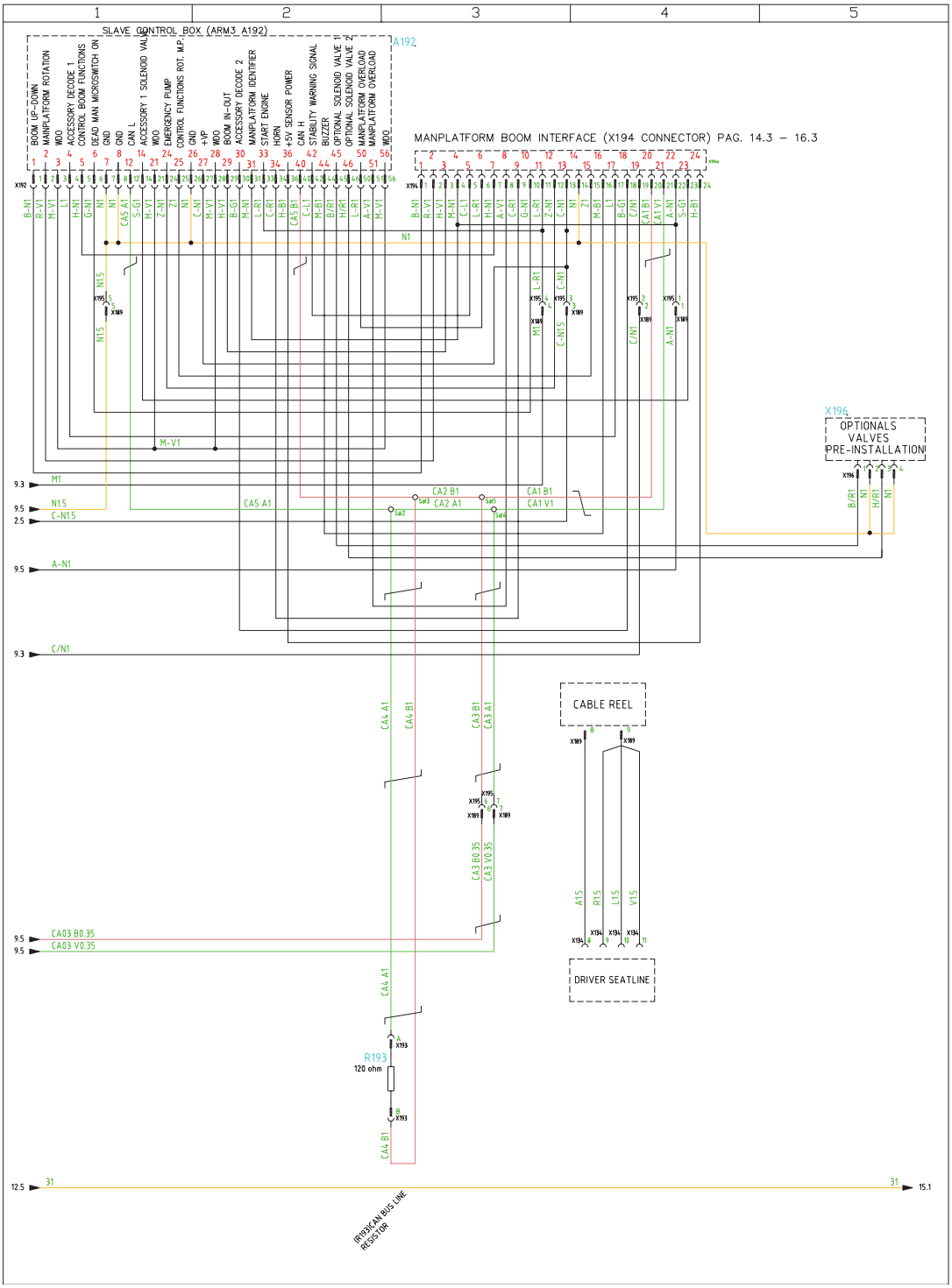
Diagrams and Schemes

■ GTH-6025 ER WIRING DIAGRAM 12/17



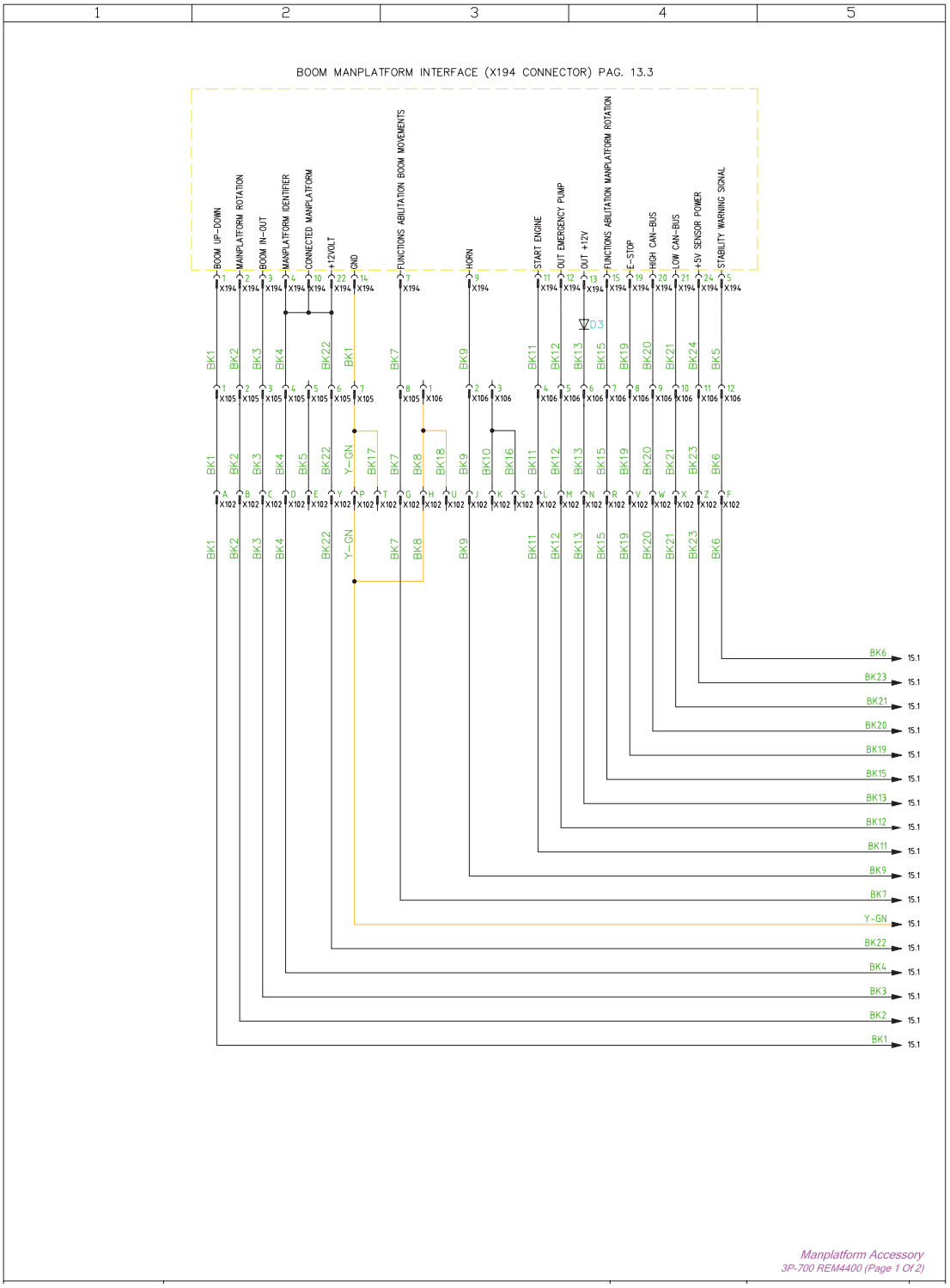
Diagrams and Schemes

GTH-6025 ER WIRING DIAGRAM 13/17



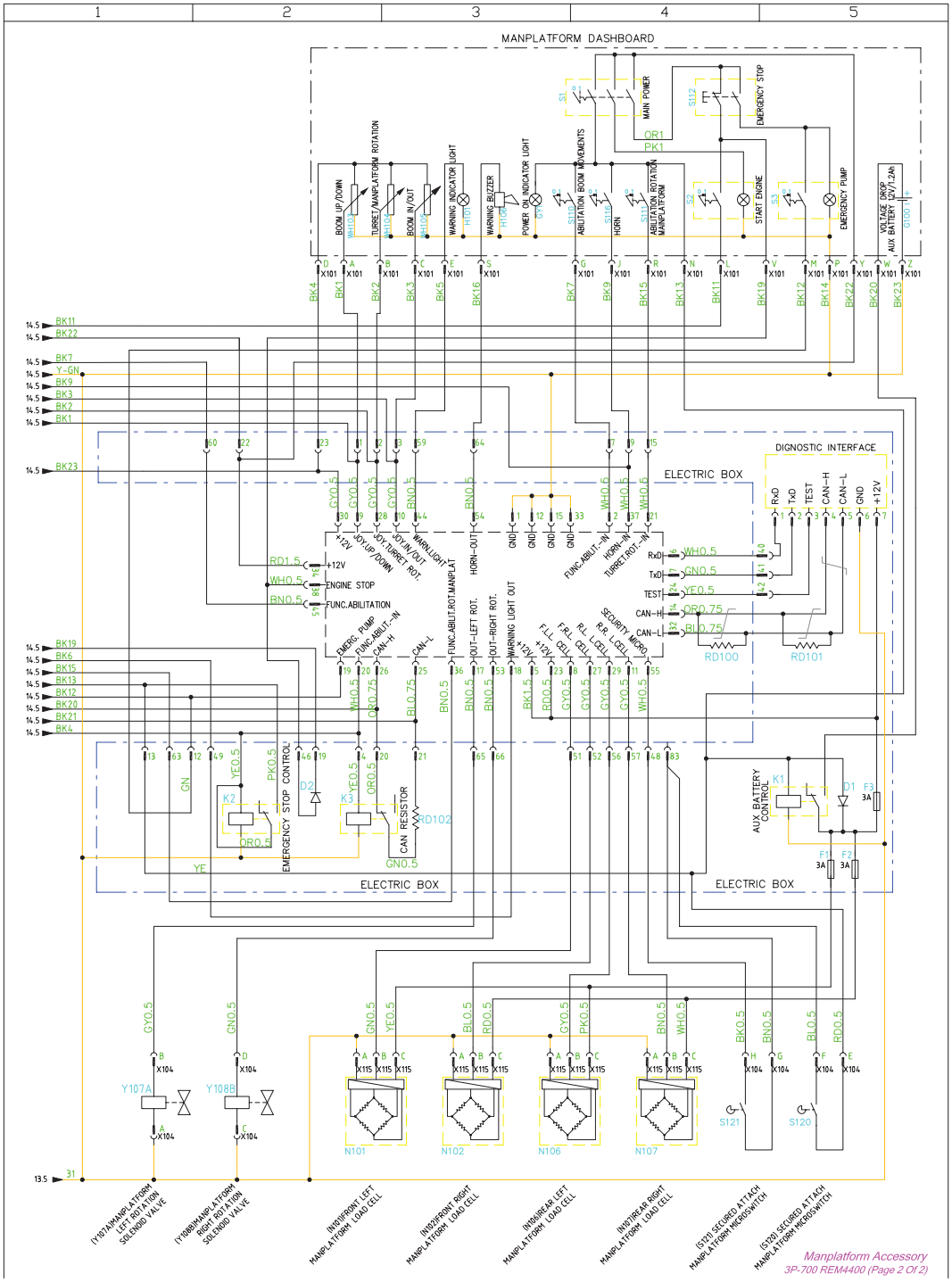
Diagrams and Schemes

GTH-6025 ER WIRING DIAGRAM 14/17



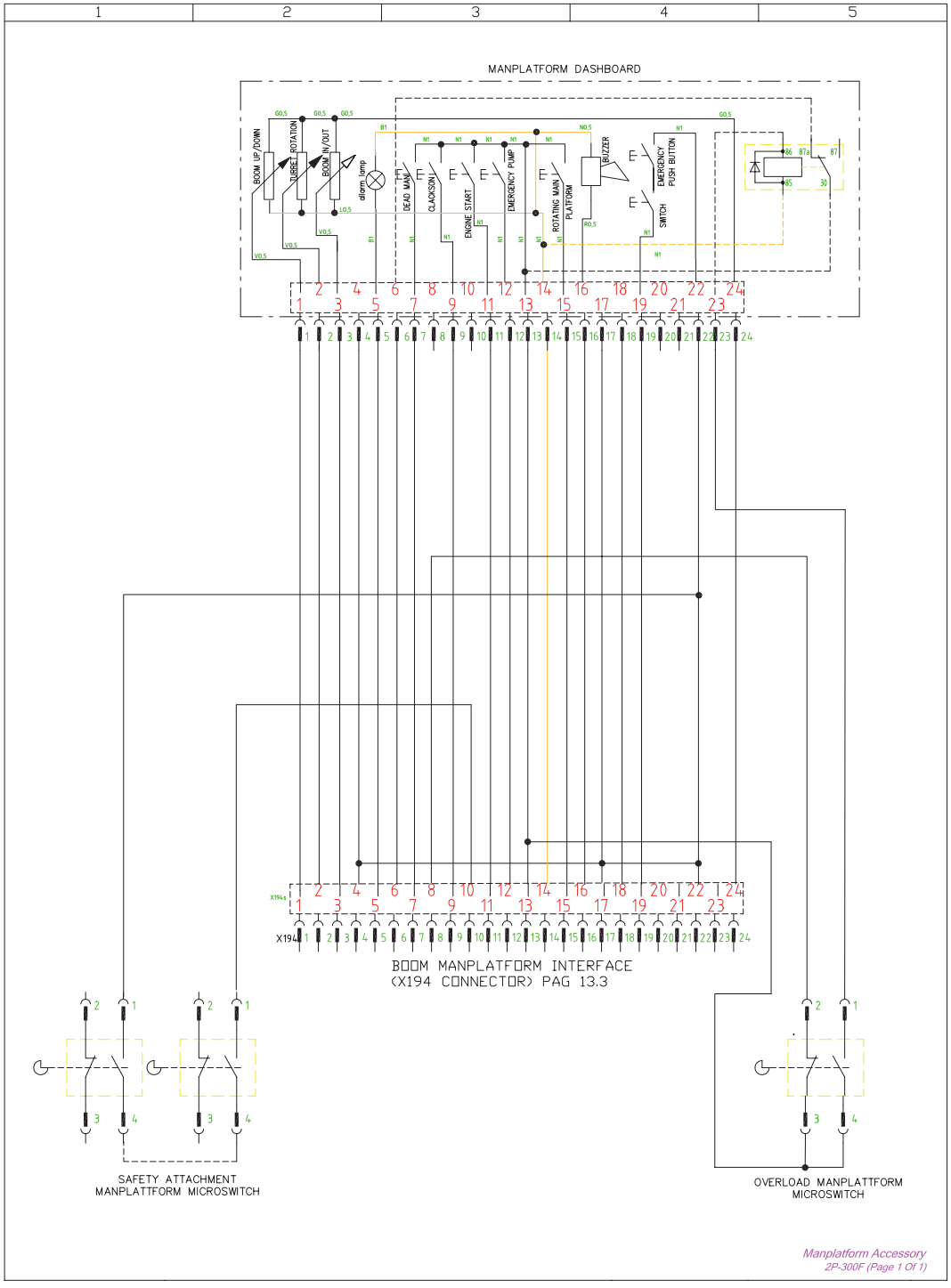
Diagrams and Schemes

GTH-6025 ER WIRING DIAGRAM 15/17



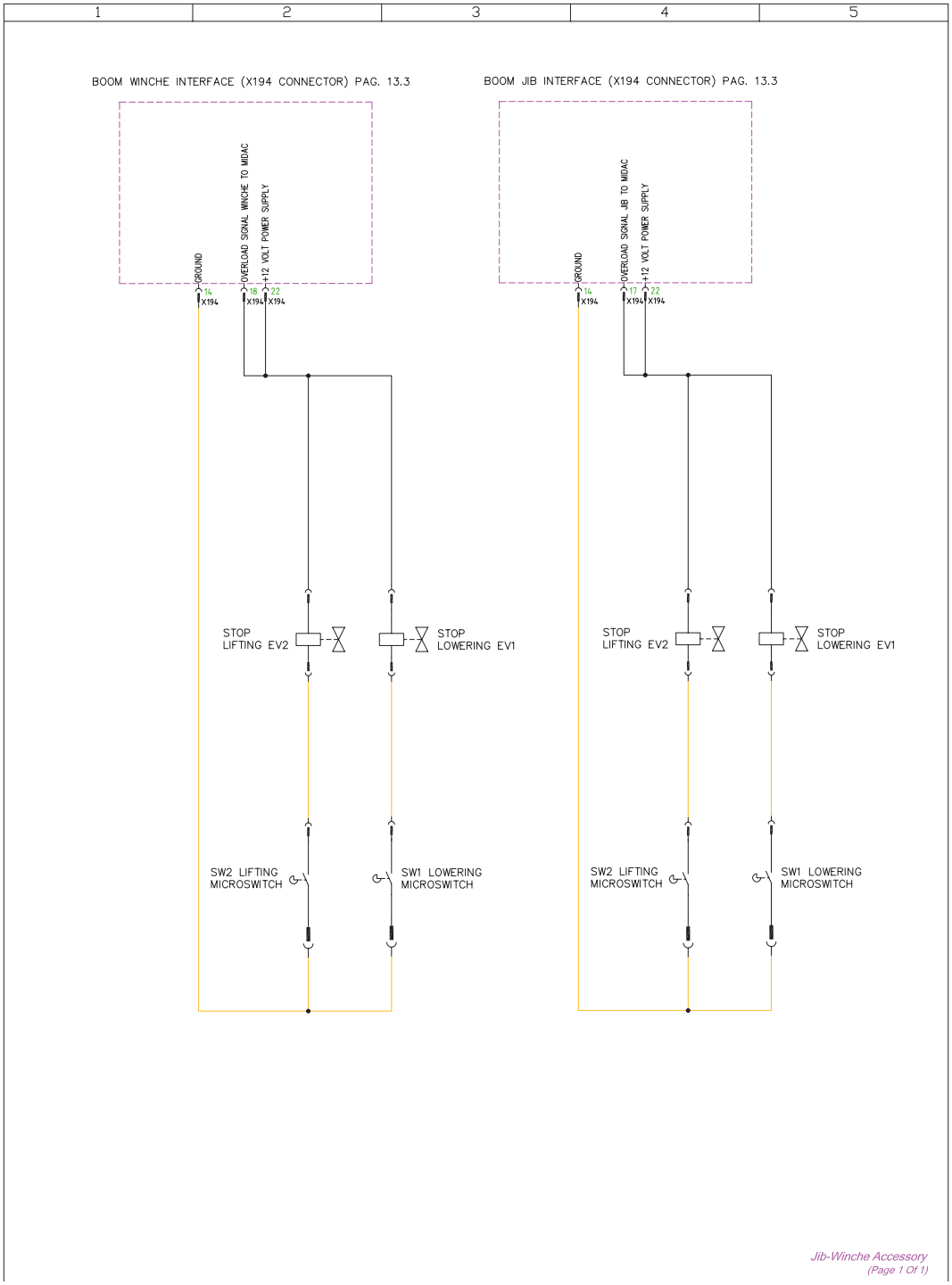
Diagrams and Schemes

GTH-6025 ER WIRING DIAGRAM 16/17



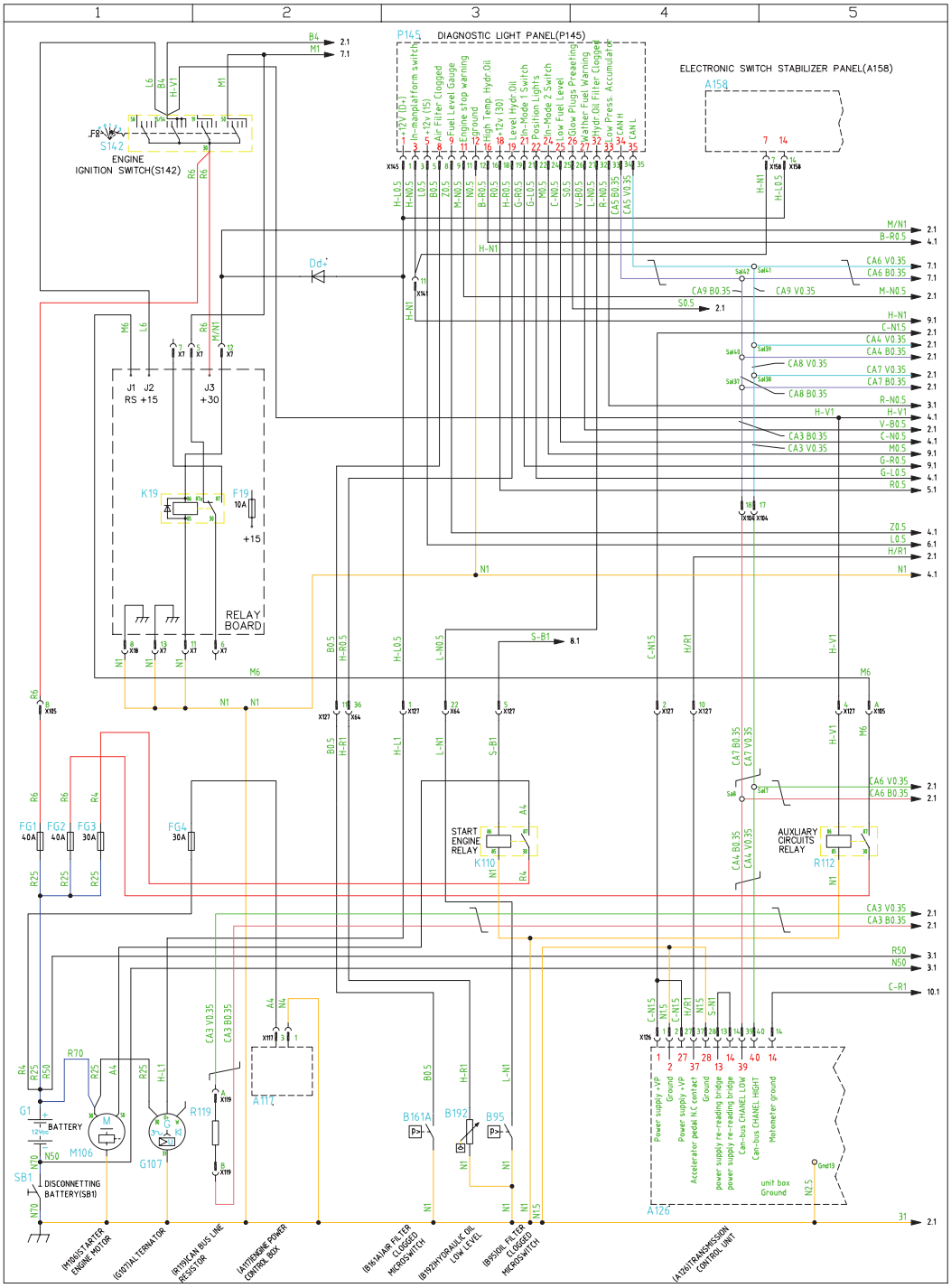
Diagrams and Schemes

GTH-6025 ER WIRING DIAGRAM 17/17



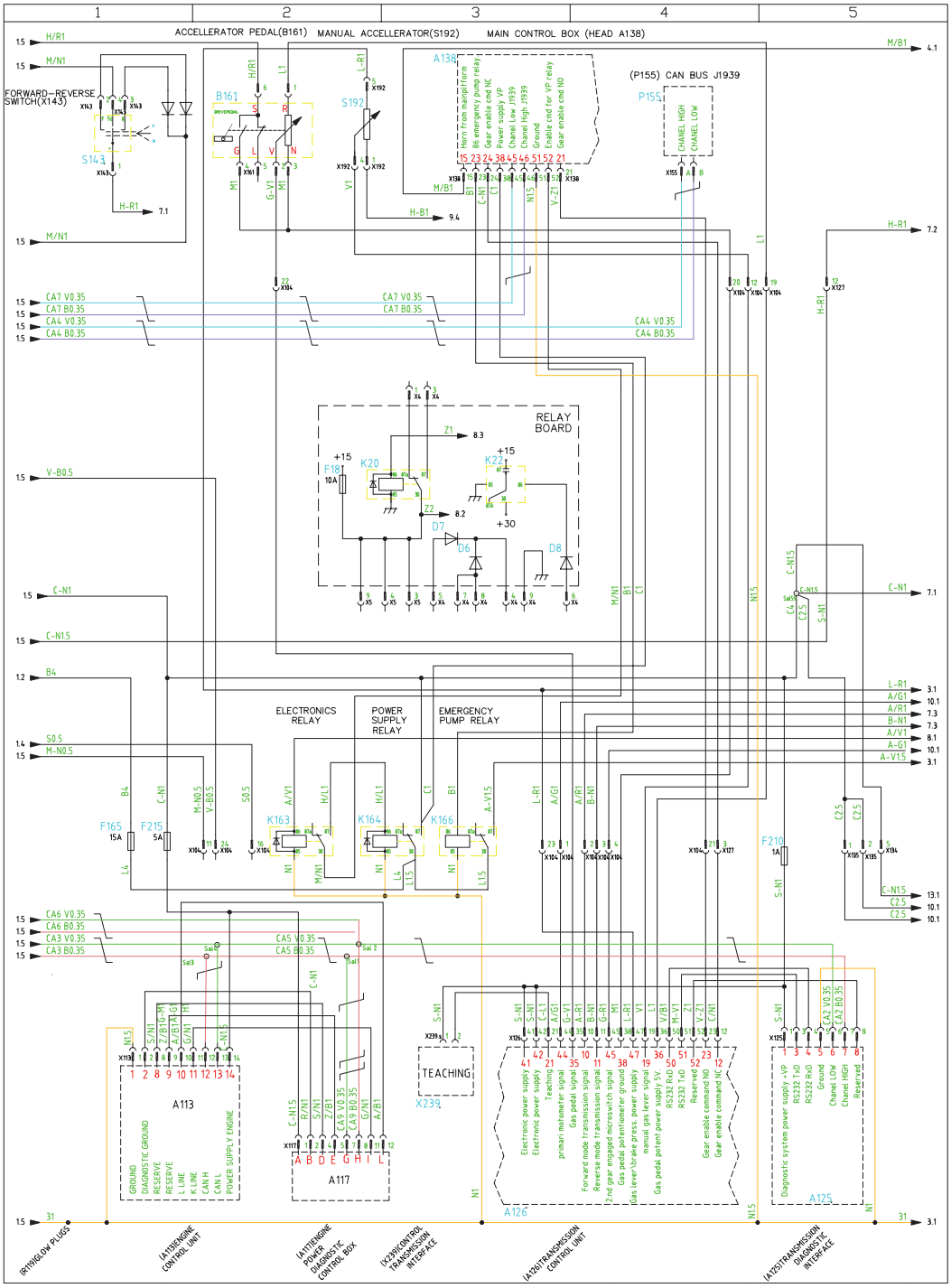
Diagrams and Schemes

GTH-4518 ER & GTH-4020 ER WIRING DIAGRAM 1/16



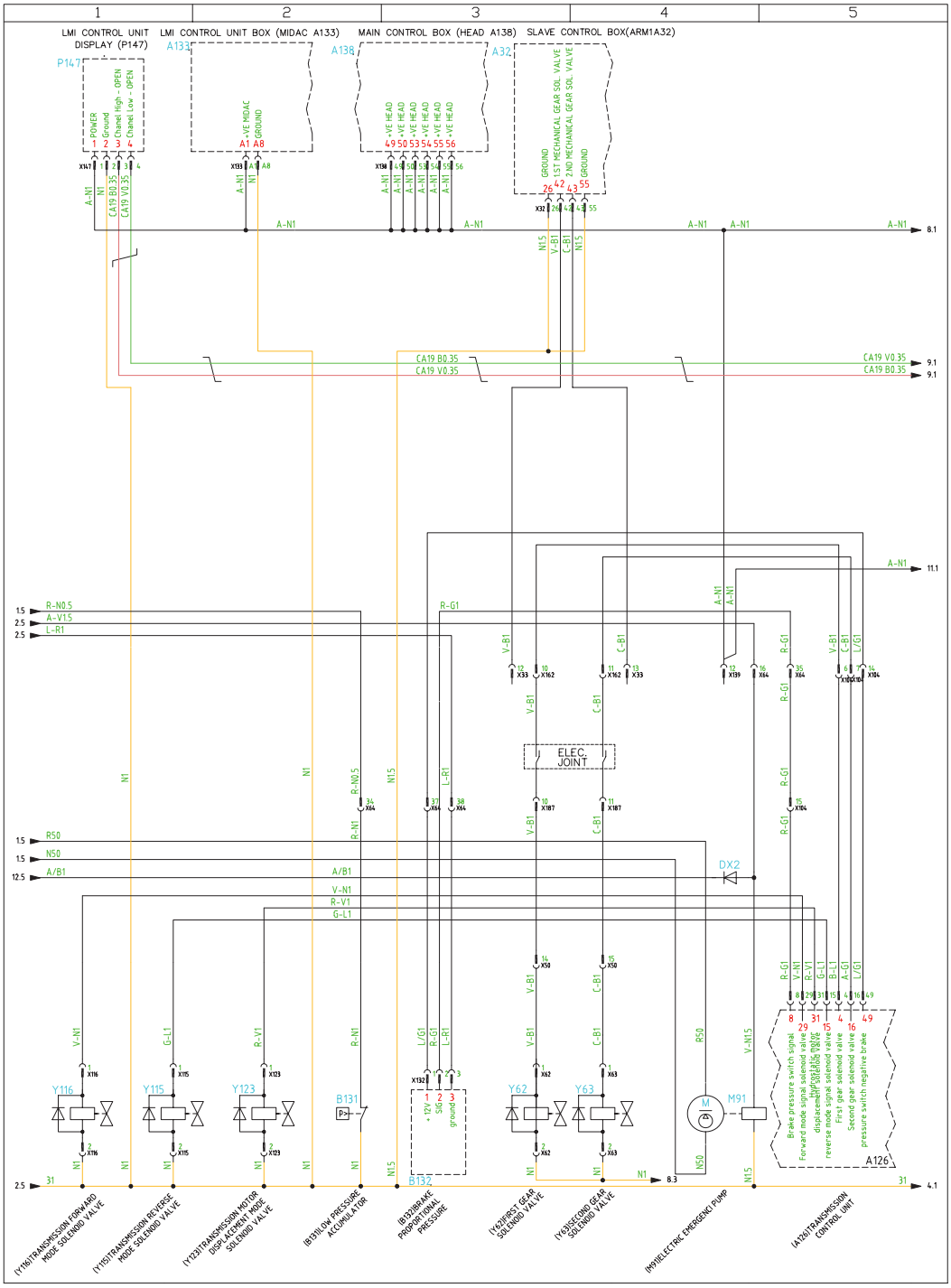
Diagrams and Schemes

GTH-4018 ER & GTH-4020 ER WIRING DIAGRAM 2/16



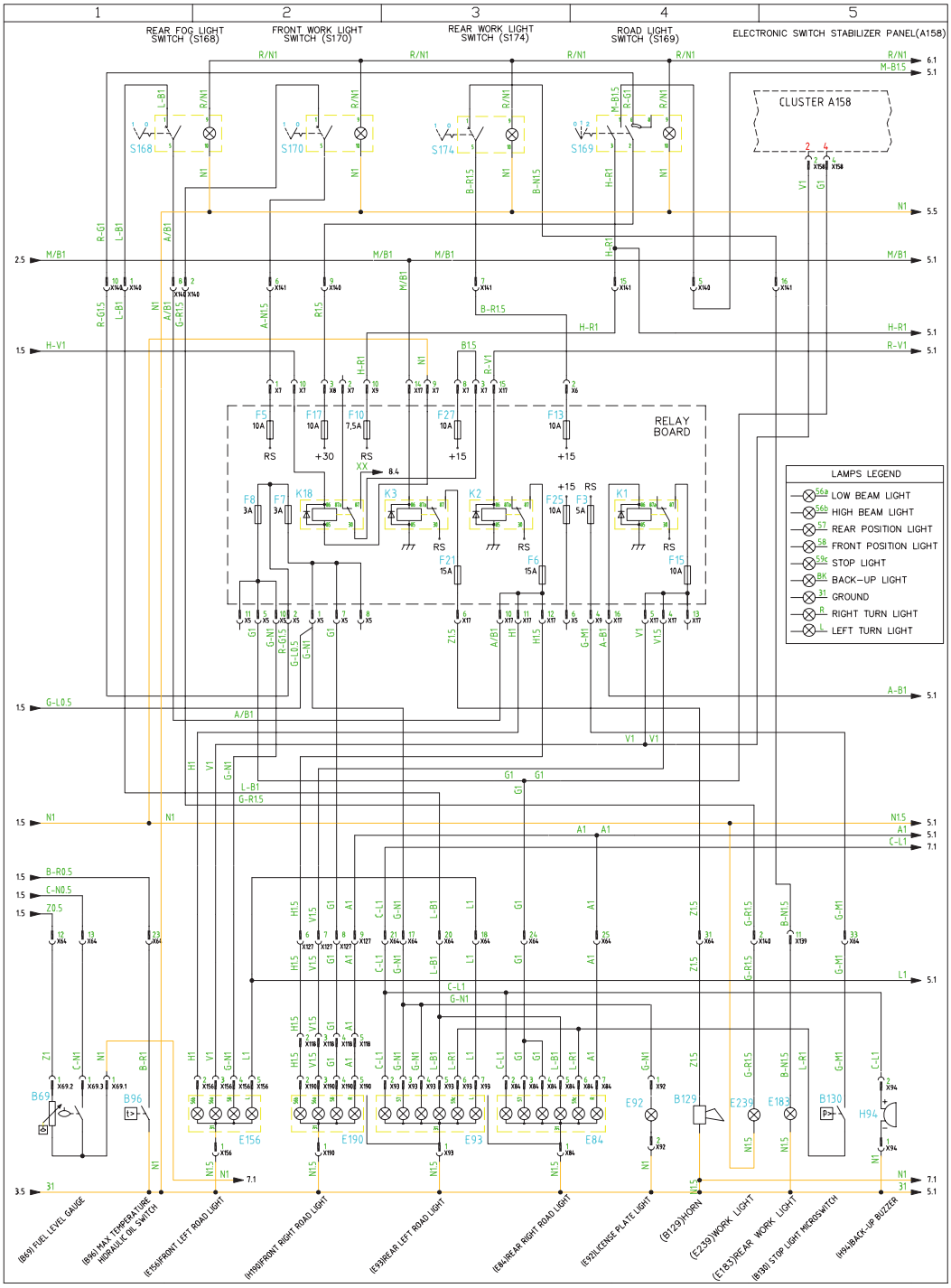
Diagrams and Schemes

GTH-4518 ER & GTH-4020 ER WIRING DIAGRAM 3/16



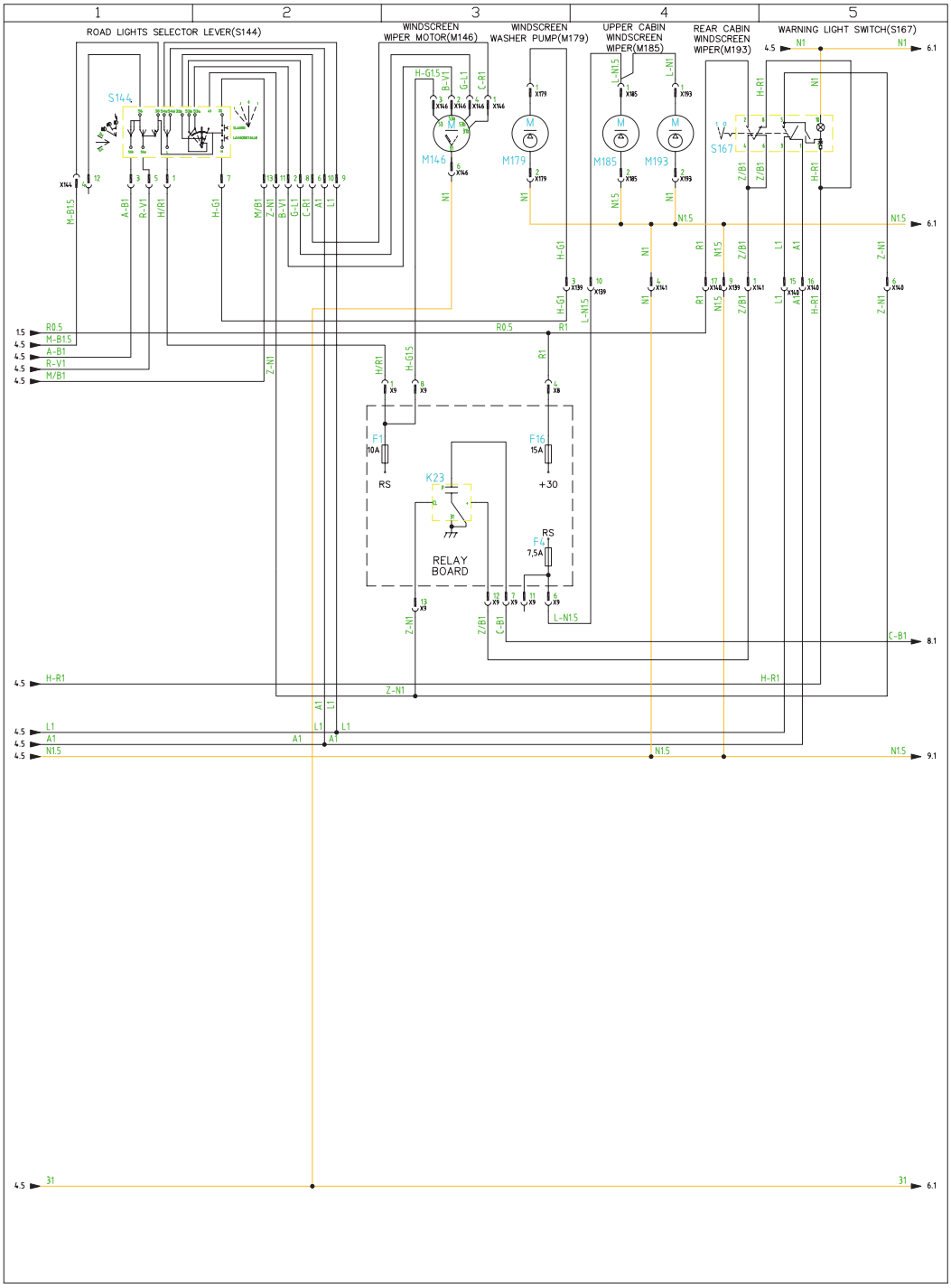
Diagrams and Schemes

GTH-4018 ER & GTH-4020 ER WIRING DIAGRAM 4/16



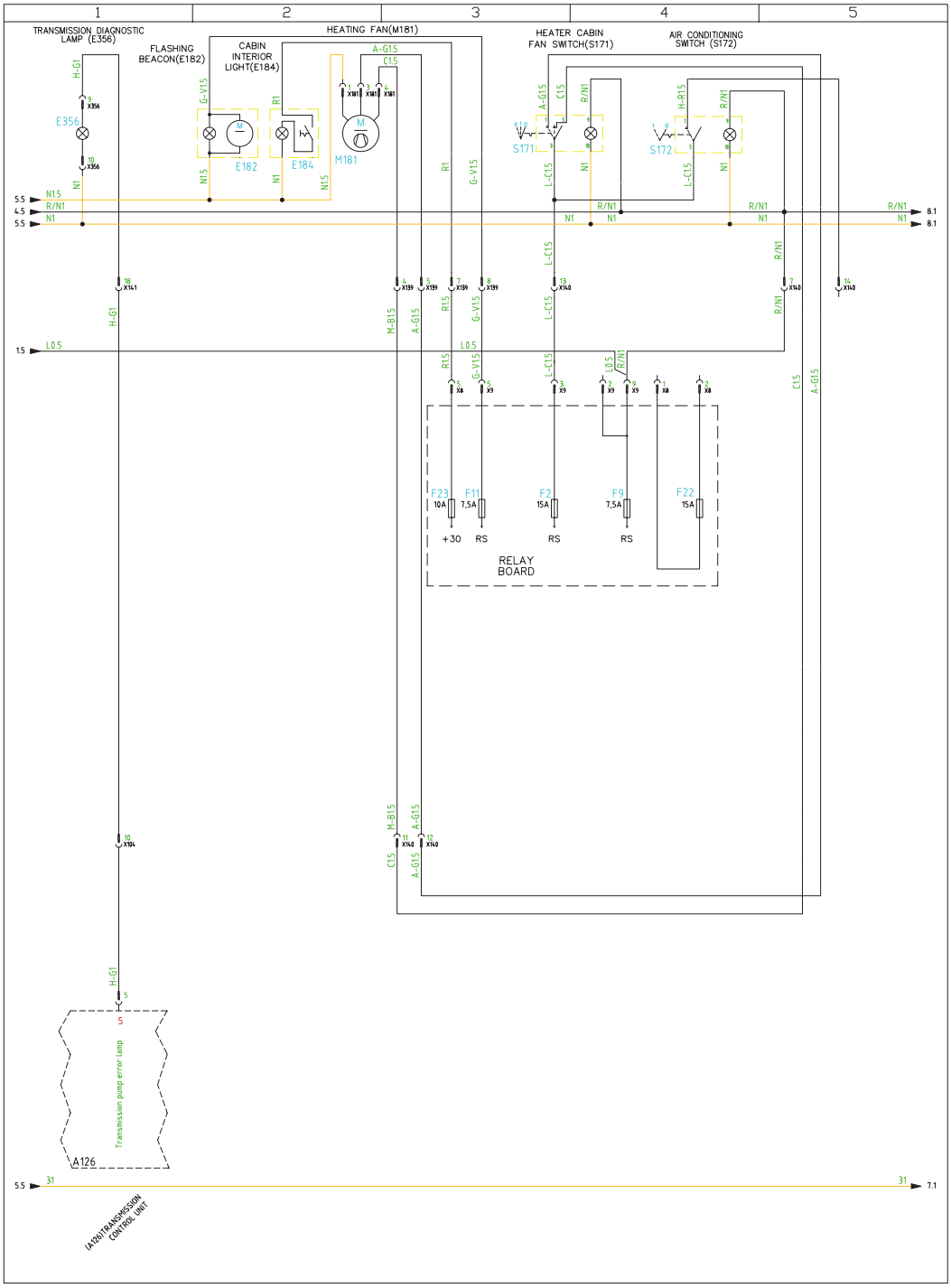
Diagrams and Schemes

GTH-4518 ER & GTH-4020 ER WIRING DIAGRAM 5/16



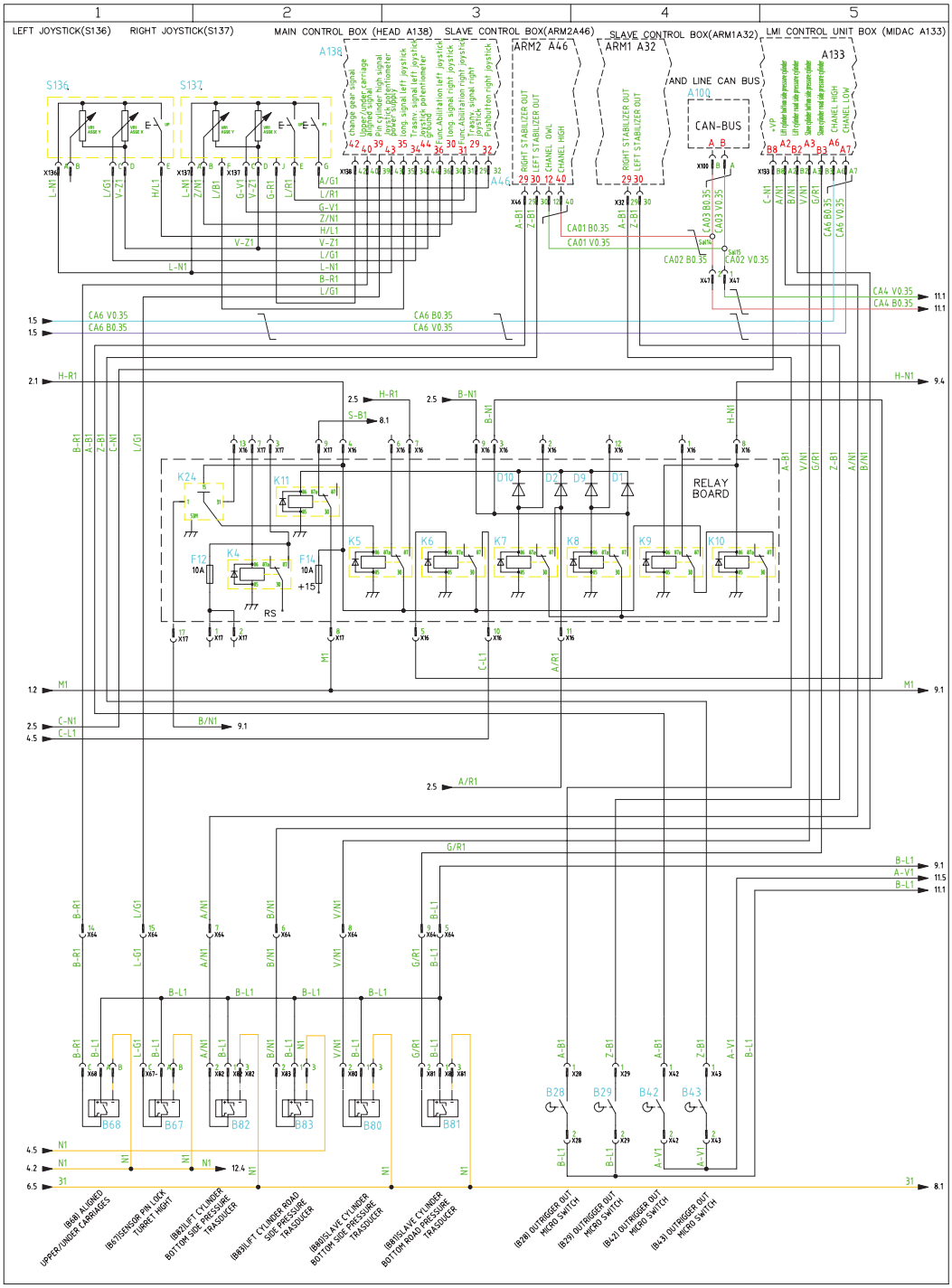
Diagrams and Schemes

GTH-4018 ER & GTH-4020 ER WIRING DIAGRAM 6/16



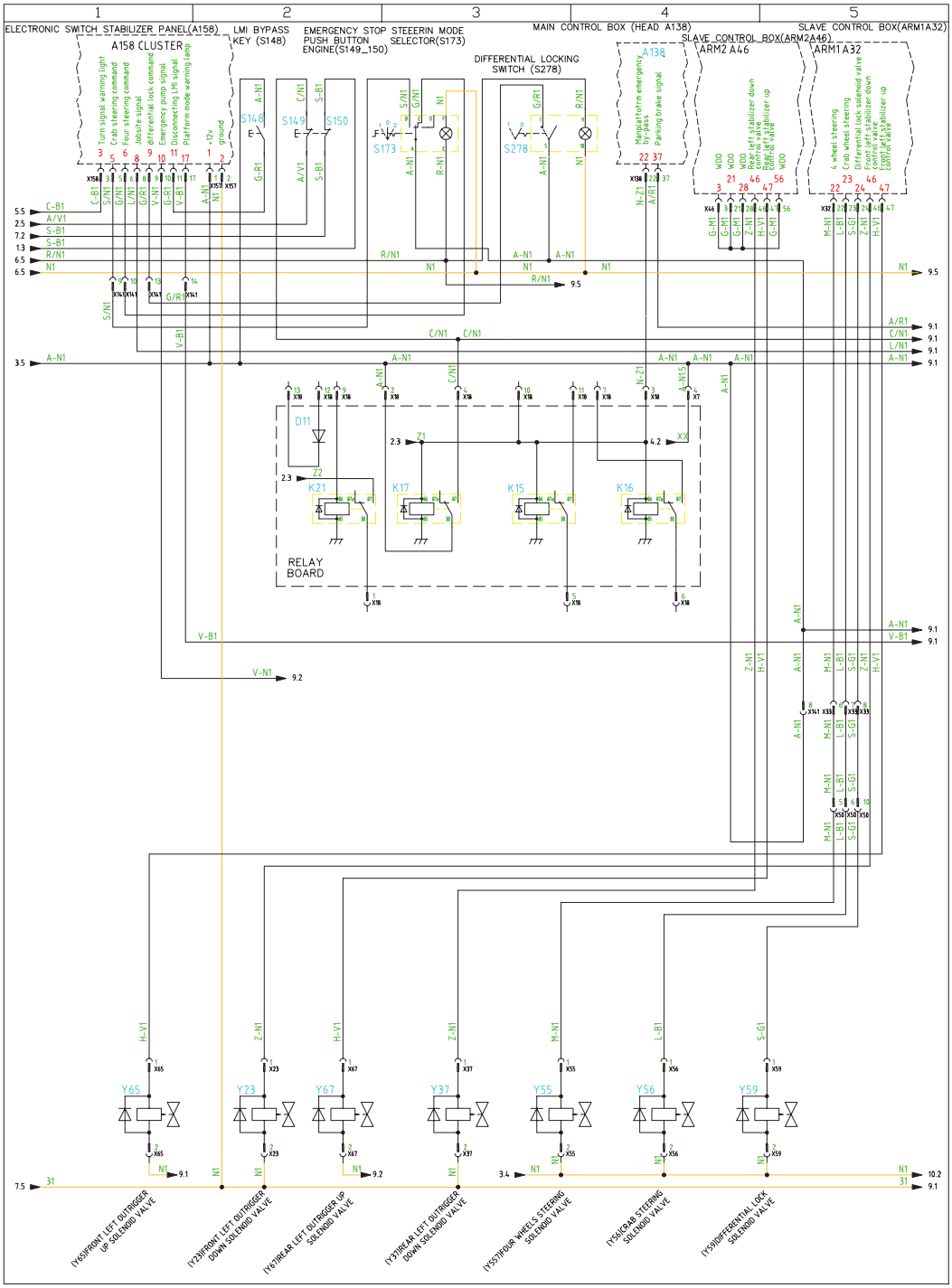
Diagrams and Schemes

GTH-4518 ER & GTH-4020 ER WIRING DIAGRAM 7/16



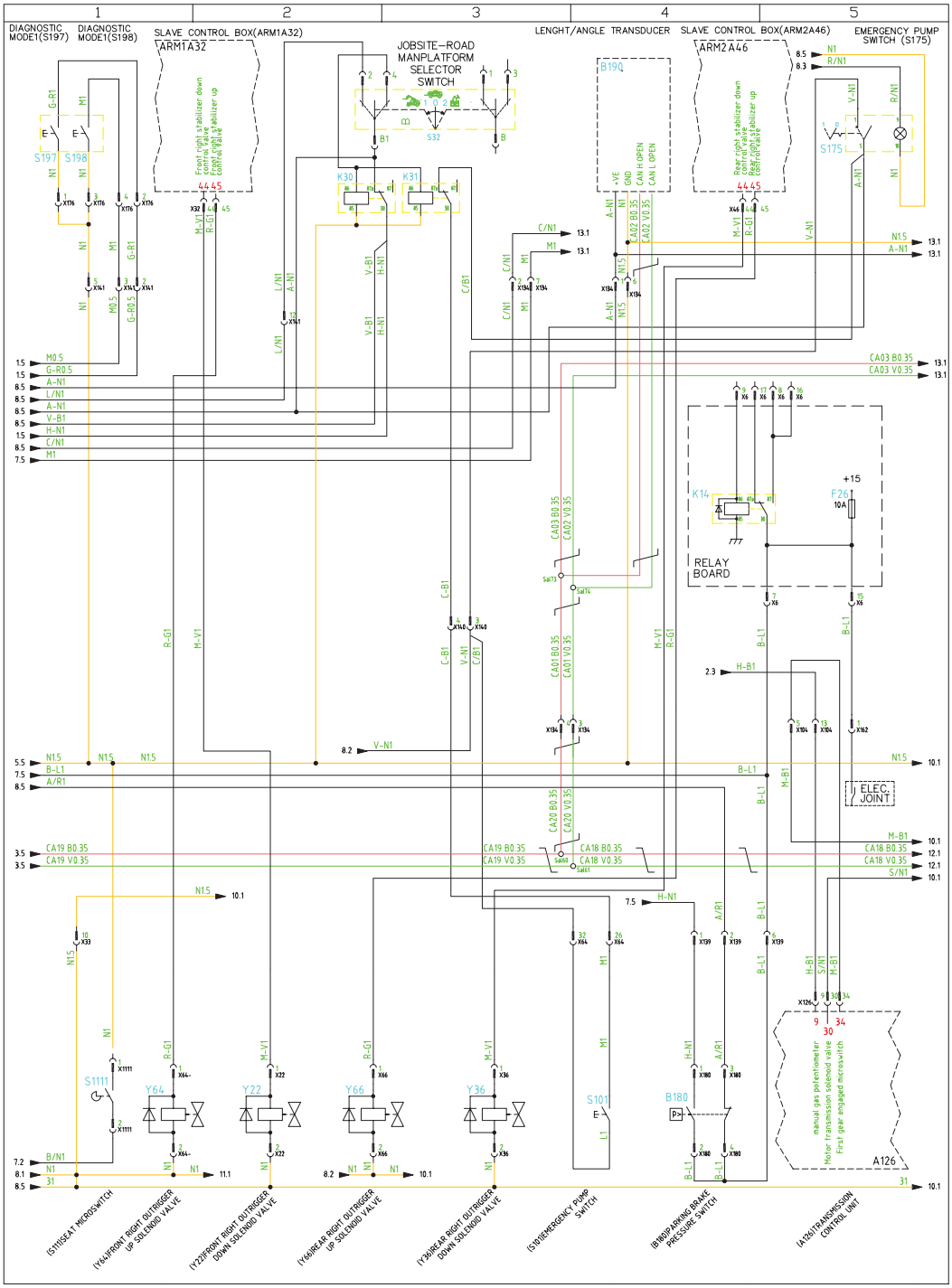
Diagrams and Schemes

GTH-4018 ER & GTH-4020 ER WIRING DIAGRAM 8/16



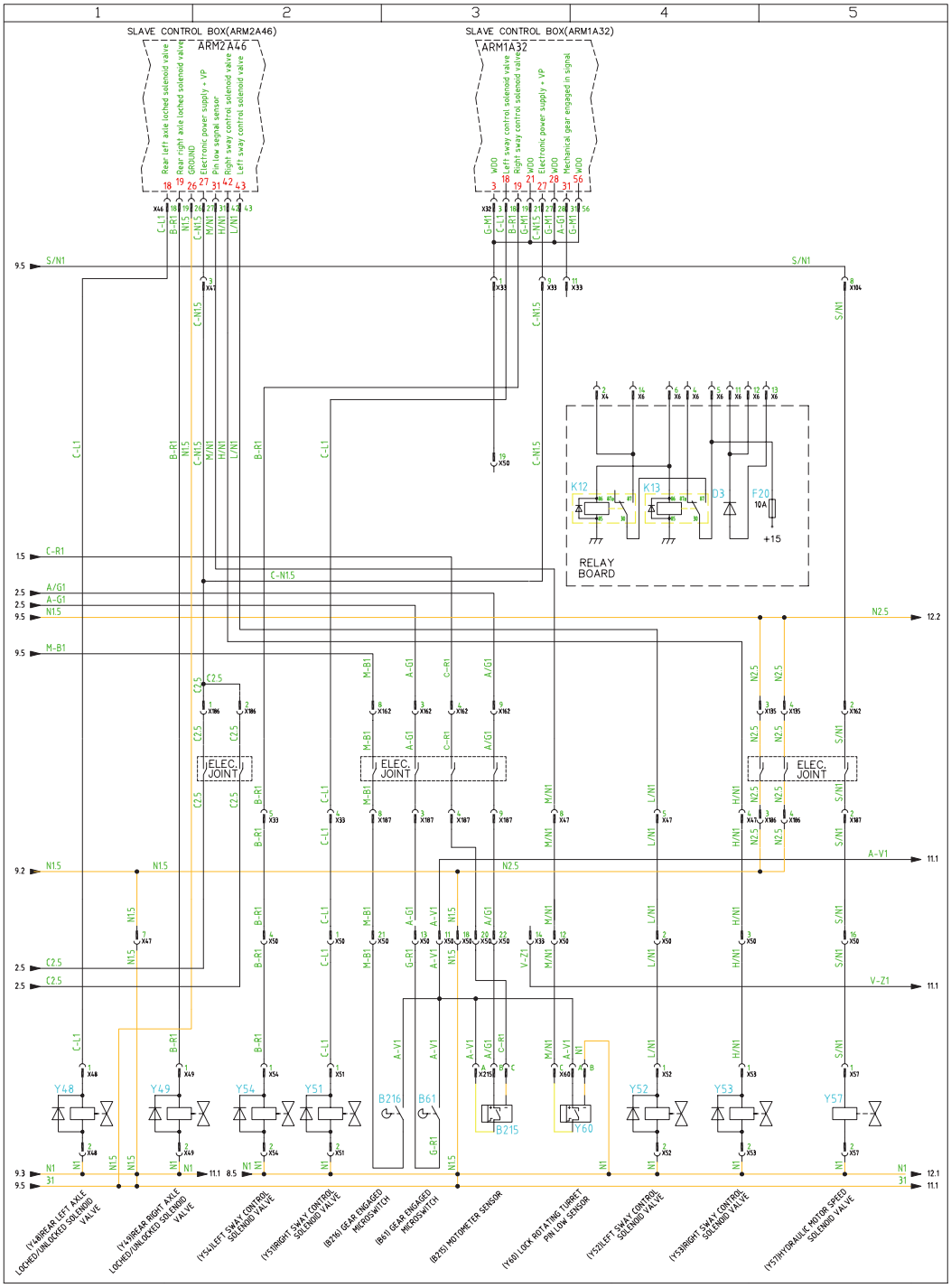
Diagrams and Schemes

GTH-4518 ER & GTH-4020 ER WIRING DIAGRAM 9/16



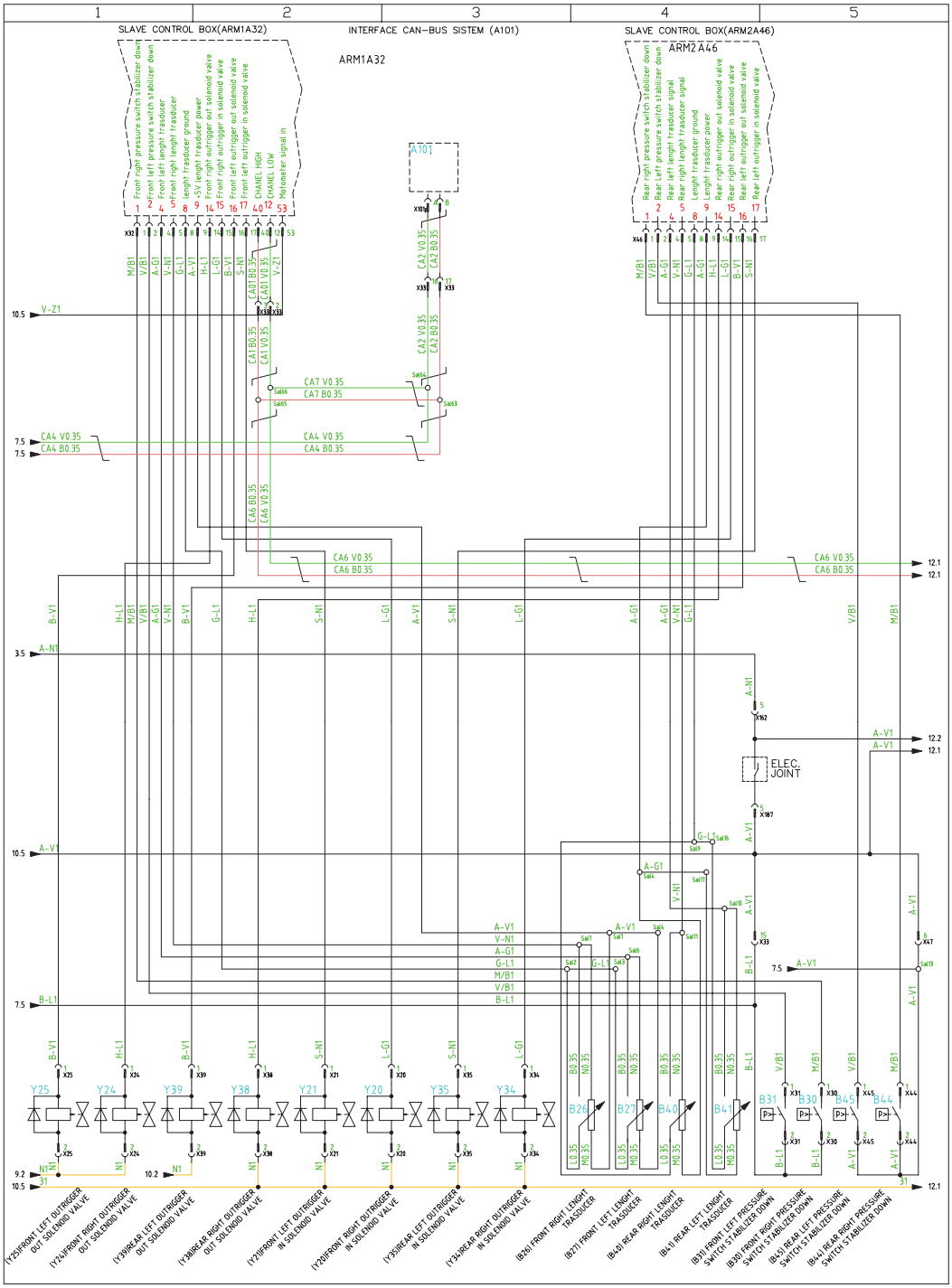
Diagrams and Schemes

GTH-4018 ER & GTH-4020 ER WIRING DIAGRAM 10/16



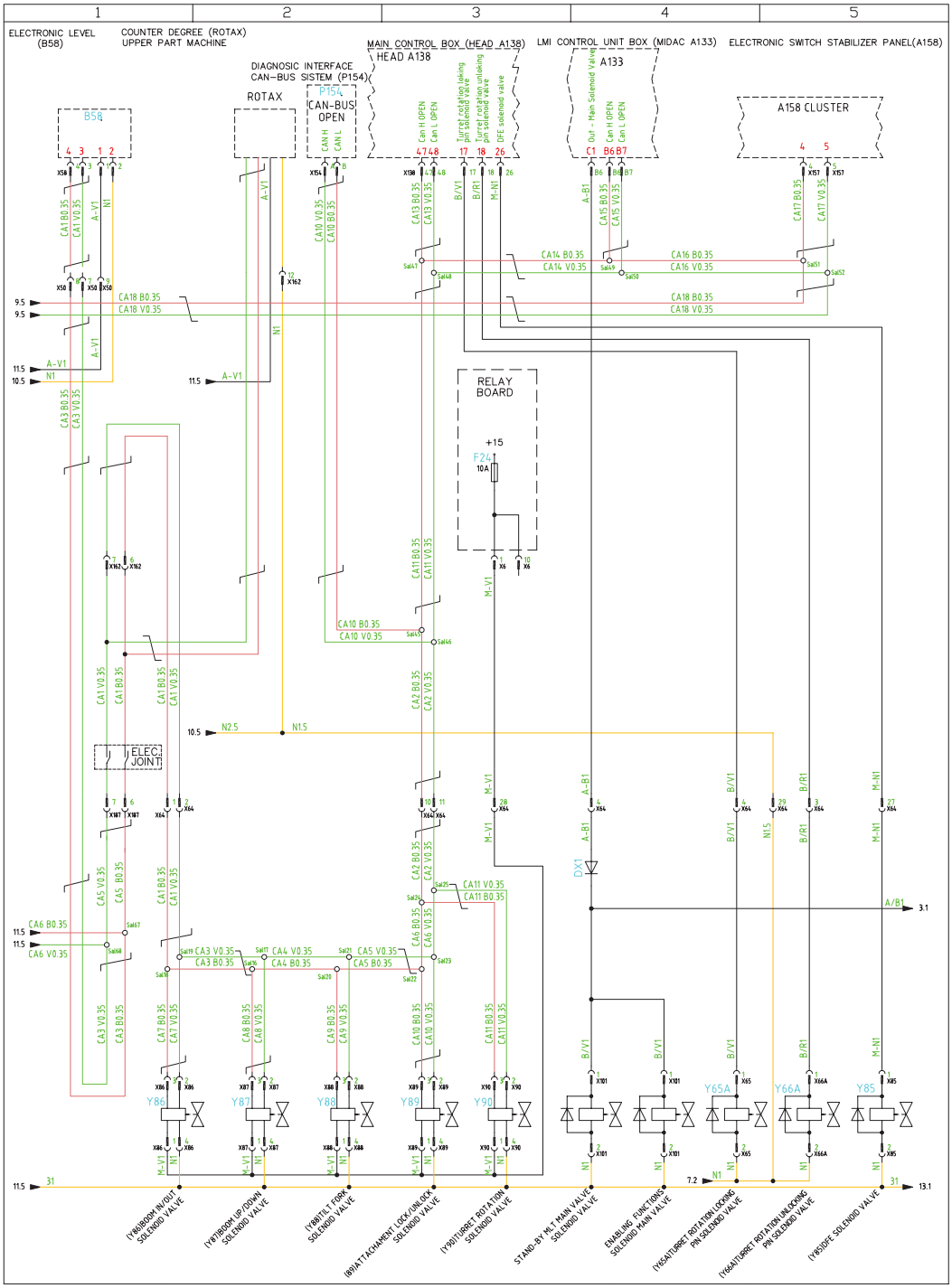
Diagrams and Schemes

GTH-4518 ER & GTH-4020 ER WIRING DIAGRAM 11/16



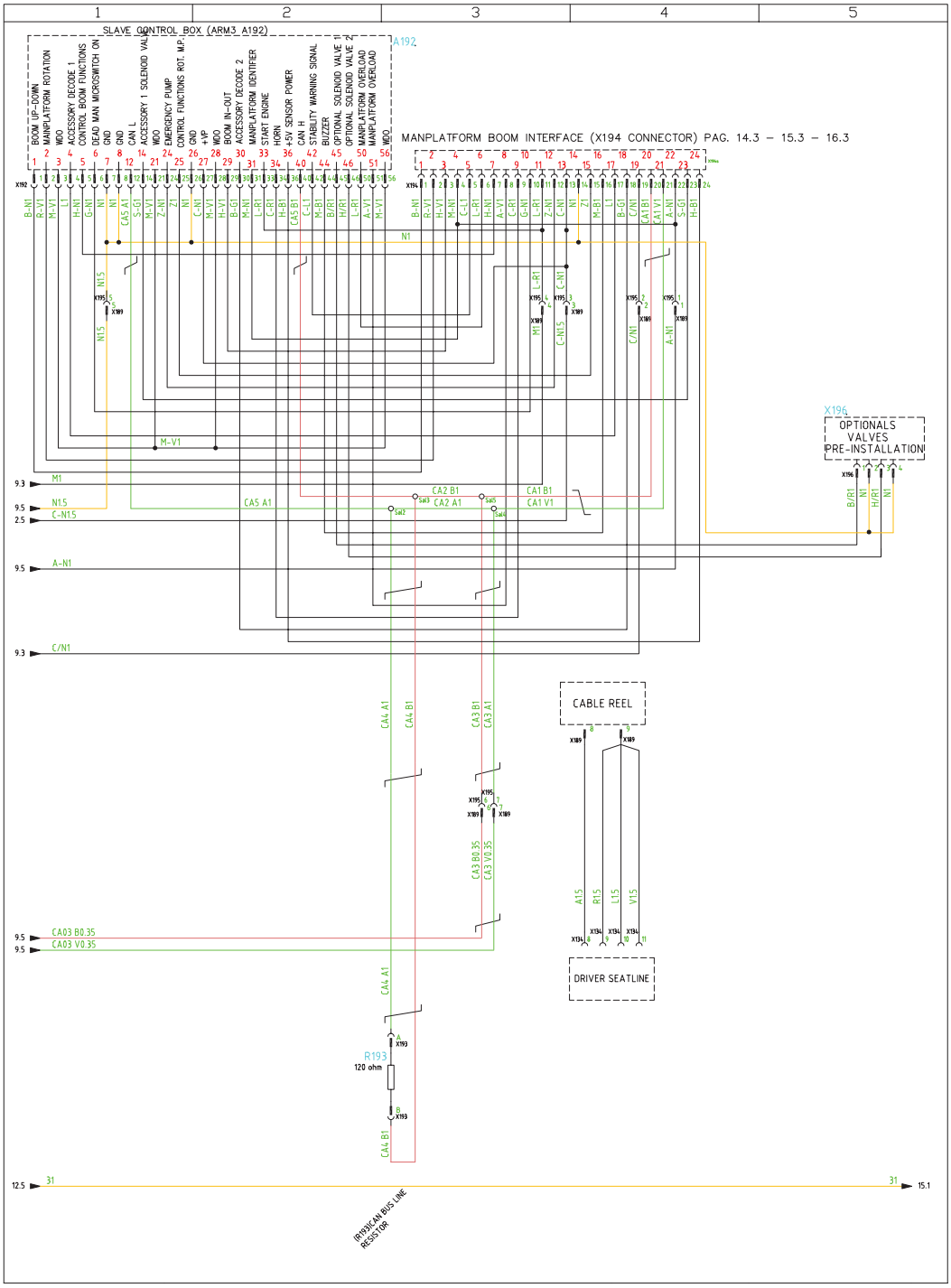
Diagrams and Schemes

GTH-4018 ER & GTH-4020 ER WIRING DIAGRAM 12/16



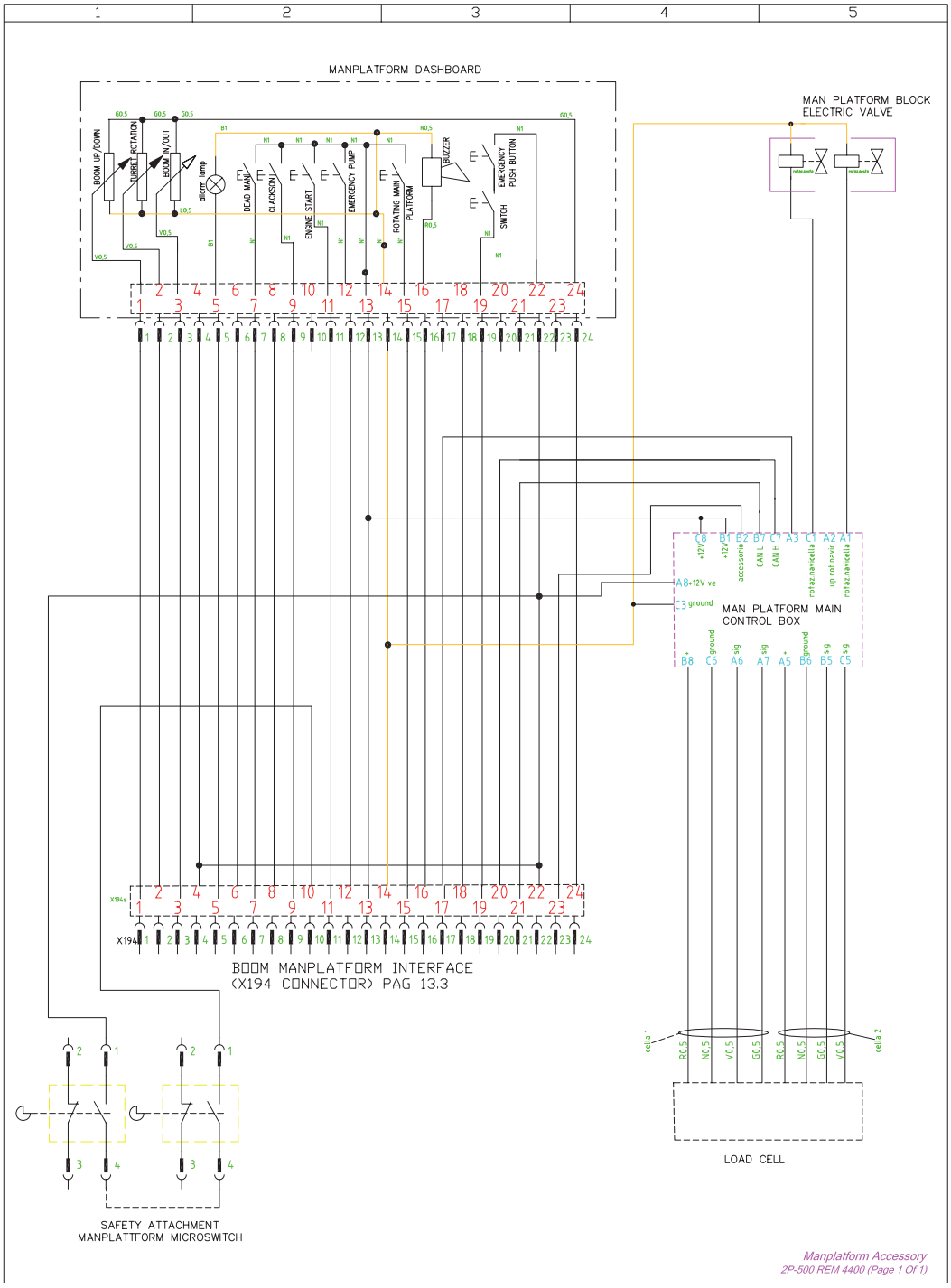
Diagrams and Schemes

GTH-4518 ER & GTH-4020 ER WIRING DIAGRAM 13/16



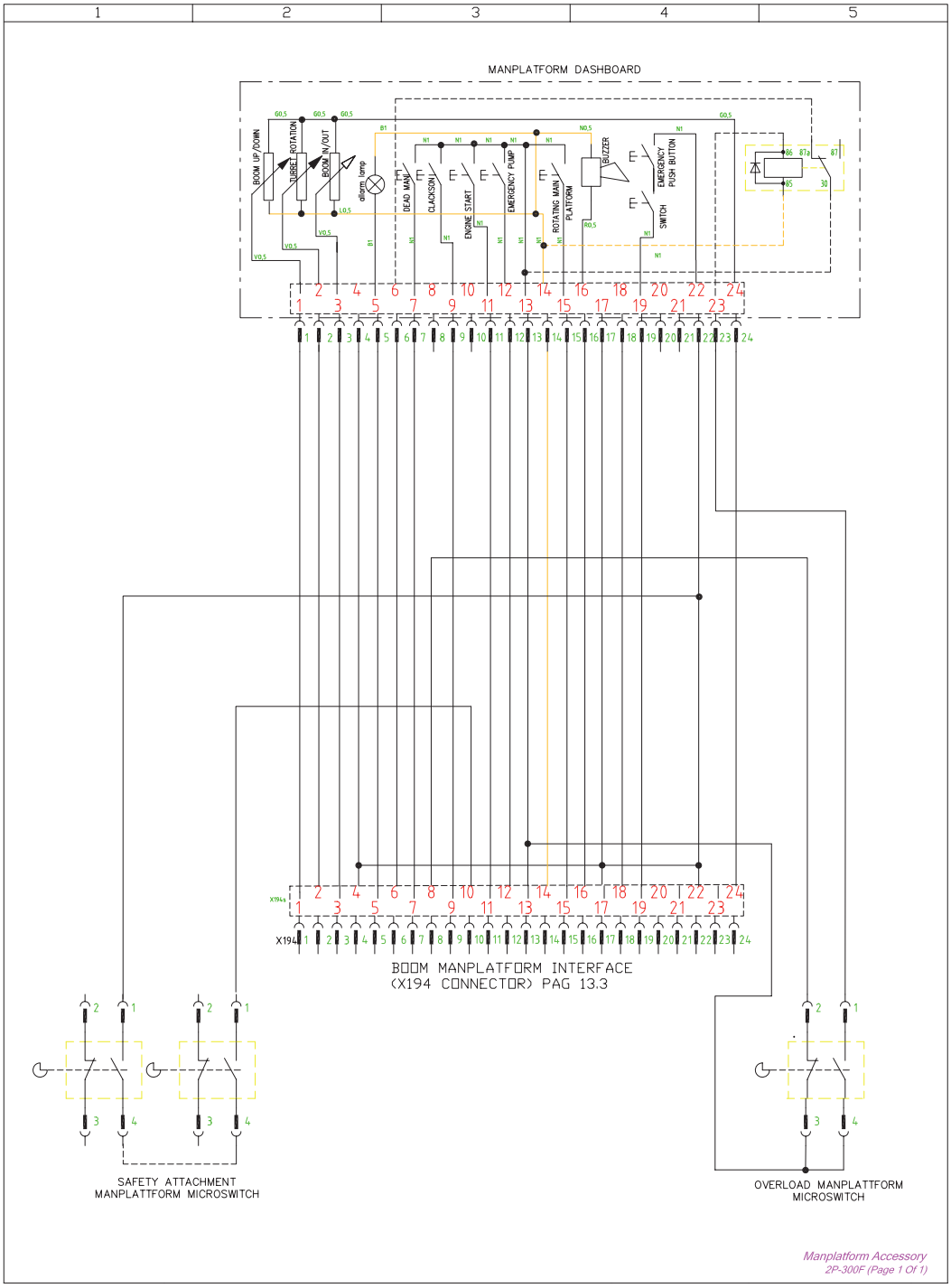
Diagrams and Schemes

GTH-4018 ER & GTH-4020 ER WIRING DIAGRAM 14/16



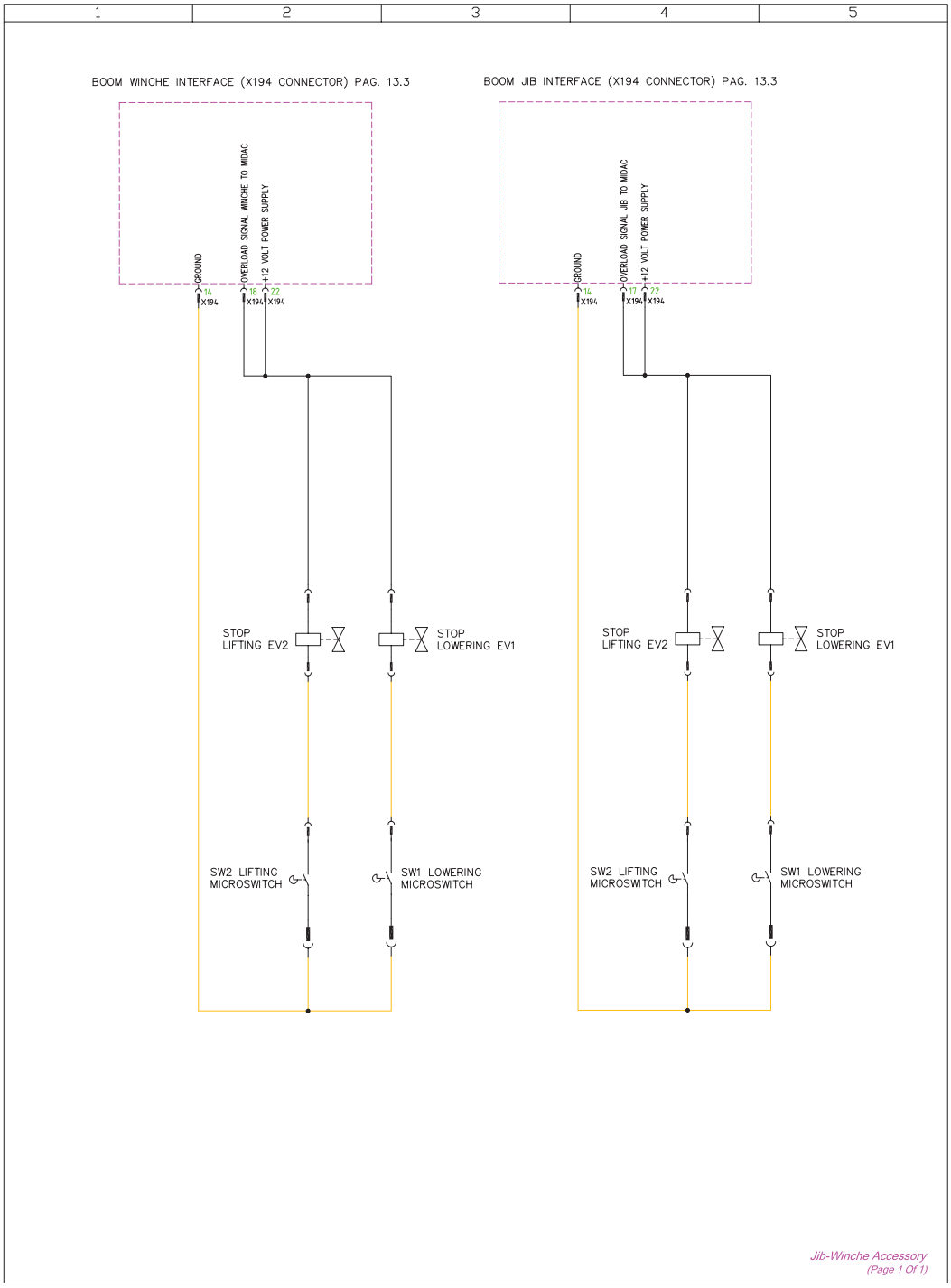
Diagrams and Schemes

GTH-4518 ER & GTH-4020 ER WIRING DIAGRAM 15/16



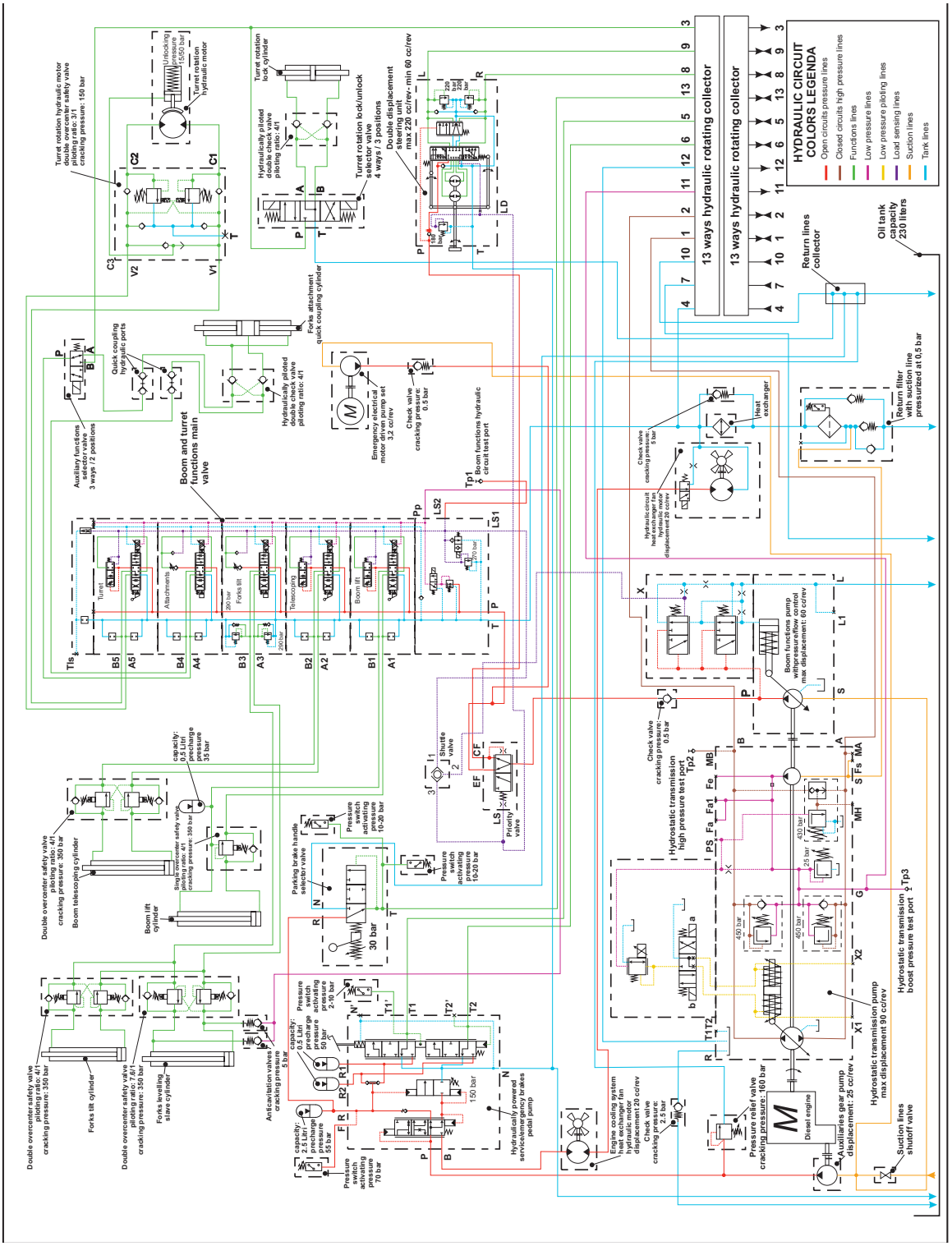
Diagrams and Schemes

GTH-4018 ER & GTH-4020 ER WIRING DIAGRAM 16/16



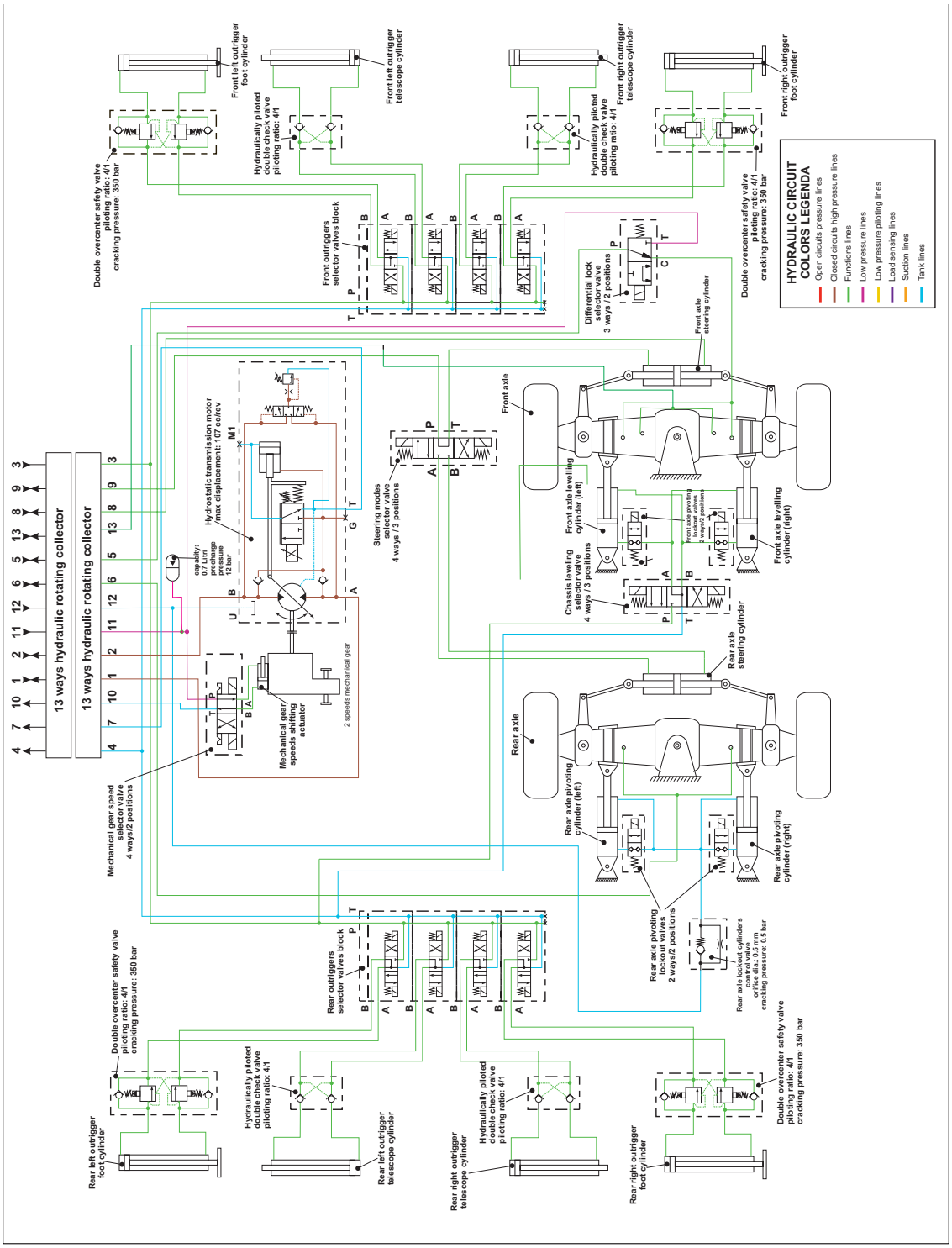
Diagrams and Schemes

GTH-6025 ER HYDRAULIC DIAGRAM 1/2



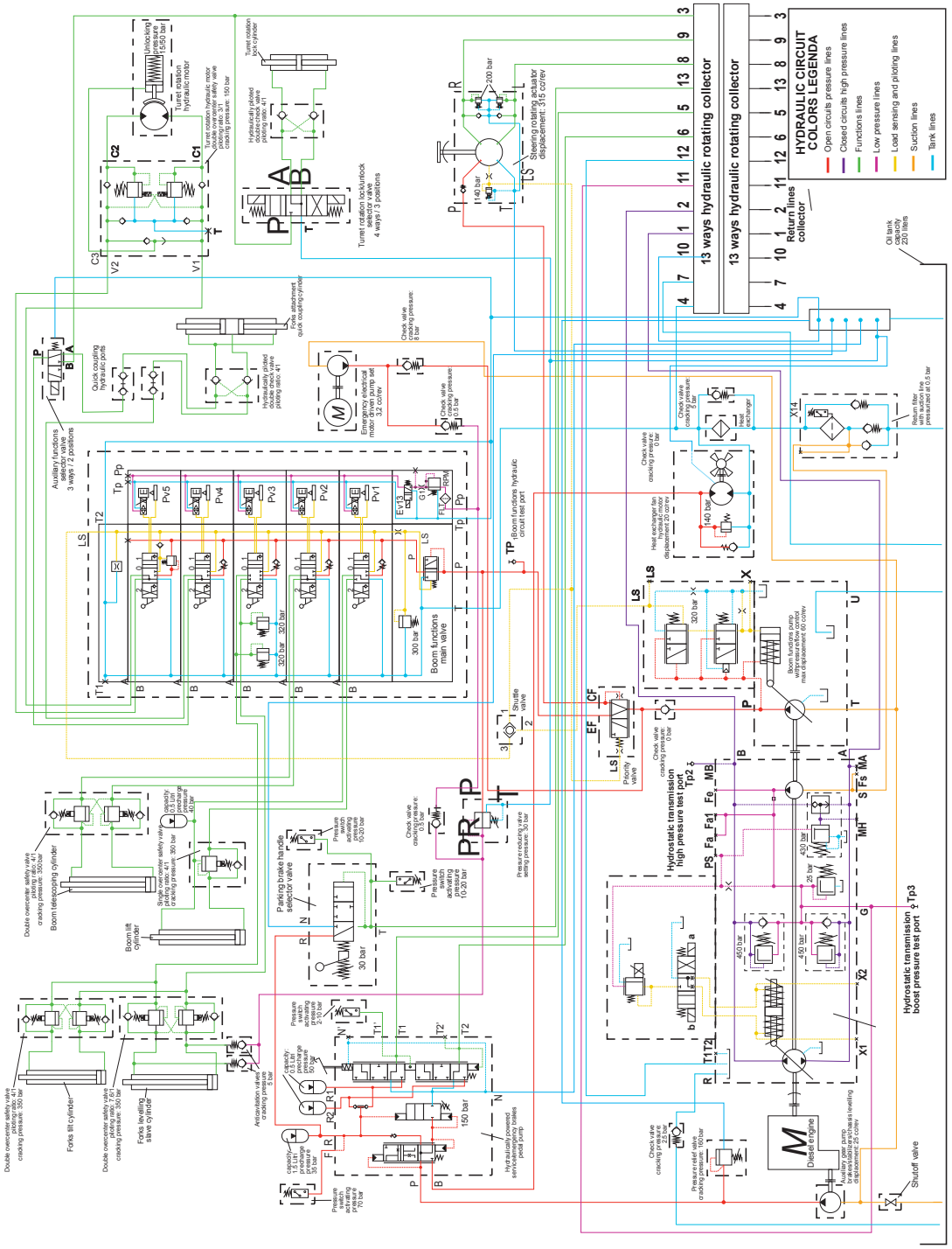
Diagrams and Schemes

GTH-6025 ER HYDRAULIC DIAGRAM 2/2



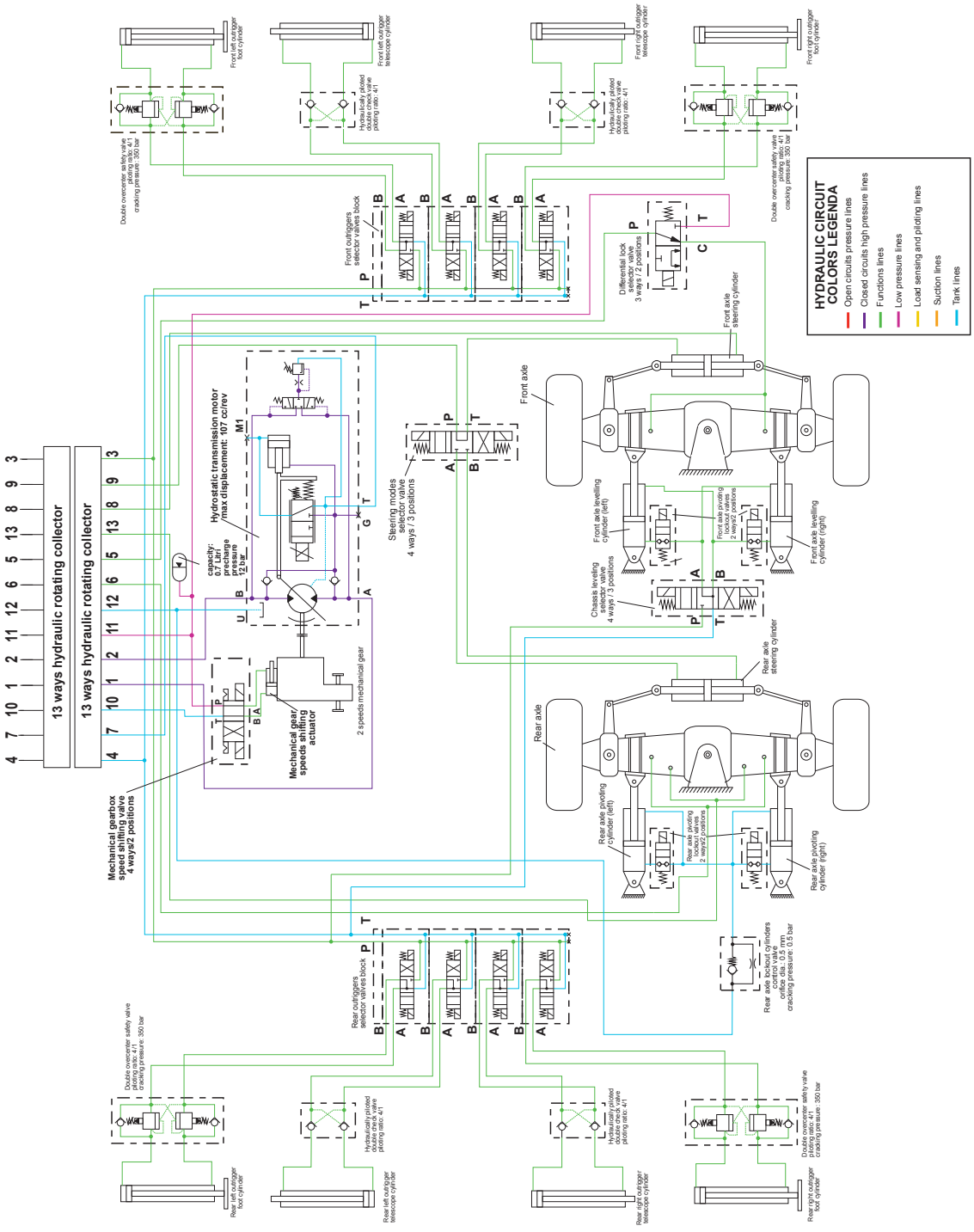
Diagrams and Schemes

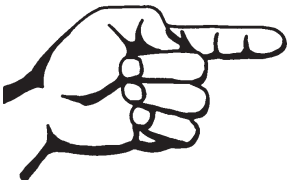
GTH-4518 ER AND GTH-4020 ER HYDRAULIC DIAGRAM 1/2



Diagrams and Schemes

GTH-4518 ER AND GTH-4020 ER HYDRAULIC DIAGRAM 2/2





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EC Declaration of Conformity

EC DECLARATION OF CONFORMITY FULL TEXT

Manufacturer and person authorized to compile the technical file **TEREXLIFT s.r.l. Zona Industriale Buzzacchero 06019 Umbertide (PG) Italia**
Hereby declares that the machinery described below
Designation: Rough Terrain Variable Reach Truck
Function: handling loads
Model **GTH XXXX YY**
Serial Number **XXXXX**
complies with the relevant previsions of the machinery directive **2006/42/EC**
complies with the relevant previsions of the directive **2004/108/EC**
also complies with the provisions of the Directive **2000/14/EC** as amended
Model: n°37 annex I directive 2000/14/EC
Conformity assessment procedure followed: n° 2 annex VI
Notified body: xxxxx
Net installed power (kW):
Measured sound power level: dB(A)
Guaranteed sound power level: dB(A)
Also complies with the following European Standards, National Standards and technical provisions:
EN 1459:1998/A2:2009

EXAMPLE OF LAYOUT

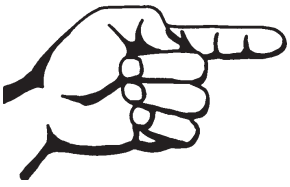
Documento cod. ##.####

Original	Original	Original	Original
EC DECLARATION OF CONFORMITY	**DECLARATION CE DE CONFORMITE'**	**DECLARACION CE DE CONFORMIDAD**	**EG-KONFORMITÄTSERKLÄRUNG**
Manufacturer and person authorized to compile the technical file	Fabricant et personne autorisée à constituer le dossier technique	El fabricante y la persona autorizada para elaborar el expediente técnico	Hersteller und Person berechtigt, die technischen Unterlagen zusammenzustellen
TEREXLIFT s.r.l. Zona Industriale Buzzacchero 06019 Umbertide (PG) Italia			
Hereby declares that the machinery described below	Déclare que la machine désignée ci-dessous	Declaramos que el equipo	Erklärt, dass die nachfolgende maschine
Designation: Rough Terrain Variable Reach Truck	Désignation:	Designación:	Bezeichnung:
Function: handling loads	Fonction: manipuler des charges	Función: manejar las cargas	Funktion: handhabung von lasten
Model	Modèle	Modelo	Modell
Serial number	N° de série	Nº de serie	Seriennummer
complies with the provisions of the machinery directive **2006/42/EC**	est conforme aux dispositions de la directive machines **2006/42/EC**	Corresponde a las exigencias básicas de la Directiva Máquinas **2006/42/EC**	Mit den bestimmungen der maschinenrichtlinie **2006/42/EC**
also complies with the provisions of the Directive **2000/14/EC** as amended	est également conforme aux dispositions de la Directive **2000/14/EC** modifiée avec	está, además, en conformidad con las exigencias de la Directiva **2000/14/CE** incluidas las modificaciones de la misma	ebenfalls mit den bestimmungen der Richtlinie **2000/14/EG** geänderte richtlinie 2005/88/EG
Model: n°37 annex I directive 2000/14/EC Conformity assessment procedure followed: n° 2 annex VI Notified body: Net installed power (kW): Measured sound power level: dB(A) Guaranteed sound power level: dB(A)	Désignation: n° 37 annexe I Directive 2000/14/CE Procédure appliquée pour l'évaluation de la conformité: n°2 annexe VI Organisme notifié Puissance nette installée (kW): Niveau de puissance acoustique, mesuré: dB(A) Niveau de puissance acoustique, garanti: dB(A)	Tipo: nº37 anexo I Directiva 2000/14/CE Procedimiento de evaluación de la conformidad : nº 2 anexo VI Organismo notificado Potencia neta instalada (kW): Nivel de potencia acústica medido: dB(A) Nivel de potencia acústica garantizado: dB(A)	Bezeichnung: n° 37 anhang I Richtlinie 2000/14/EG Angewandtes Konformitätsbewertungsverfahren: n° 2 anhang VI Name und Anschrift der benannten Stelle Installierte Nutzleistung in kW: Maschinen gemessener Schalleistungspegel: dB(A) Maschinen garantierter Schalleistungspegel: dB(A)
Also complies with the following European Standards, National Standards and technical provisions	Est également conforme aux normes européennes, aux normes nationales et aux dispositions techniques suivantes	Las siguientes normas nacionales o internacionales y especificaciones técnicas fueron aplicadas	Ebenfalls mit folgenden europäischen normen, nationalen normen Und technischen Vorschriften übereinstimmt
EN 1459:1998/A2:2009			

Umbertide, **11/12/2009**

Ing. Maurizio Baldinucci
(Technical Director)

EXAMPLE



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Warranty

LIMITED PRODUCT WARRANTY

Genie Industries ("Seller") warrants its new equipment manufactured and sold worldwide, to be free, under normal use and service, of any defects in manufacture or materials for the following time periods, commencing on the date on which such equipment is invoiced to the original purchaser or the date on which such equipment is first put into service, whichever occurs first:

- with respect to **structural elements: 5 years**;
- with respect to **electrical componentry: 2 years**
- with respect to **hydraulic componentry (except as provided below): 2 years**
- with respect to **o-rings, seals, hoses and brakes: 1 year**

provided that:

1. Seller receives written notice of the defect within fourteen (14) days of its discovery and Buyer establishes that
   i. the equipment has been maintained and operated within the limits of rated and normal usage
   ii. the defect did not result in any manner from the intentional or negligent action or inaction by Buyer, its agents or employees
2. a new machine registration certificate has been completed, signed and delivered to Seller within fourteen (14) days of the equipment's "in-service" date.

If requested by Seller, Buyer must return the defective equipment to Seller's manufacturing facility, or other location designated by Seller, for inspection, and if Buyer cannot establish that conditions (1) (i) and (1) (ii) above have been met, then this warranty shall not cover the alleged defect.
Delivery inspection certificates are required to be completed, signed and delivered to Seller within one hundred twenty (120) days of the equipment's "in-service" date and on file with Seller's service department for warranty validation and processing.
Seller's obligation and liability under this warranty is expressly limited to, at Seller's sole option, repairing or replacing, with new or remanufactured parts or components, any part, which appears to Seller upon inspection to have been defective in material or workmanship.
Such parts shall be provided at no cost to the owner, FOB Seller's parts facility. Freight charges are not coverd.
If requested by Seller, components or parts for which a warranty claim is made shall be returned to Seller at a location designated by Seller.
All return freight charges are the responsability of the buyer. All components and parts replaced under this limited product warranty become the property of Seller.
This warranty shall be null and void if parts (including wear parts) other than genuine OEM Seller parts are used in the equipment.
Accessories, assemblies and components included in the Seller equipment, which are not manufactured by Seller, are subject to the warranty of their respective manufacturers.
Normal maintenance, adjustments, or maintenance/wear parts, including without limitation, glass, clutch and brake linings, filters, wire rope and paint, are not covered by this warranty and are the sole maintenance responsibility of Buyer.



Seller makes no other warranty, express or implied, and makes no warranty of merchantability or fitness for any particular purpose.

Warranty

No employee or rapresentative is authorized to modify this warranty unless such modification is made in writing and signed by an authorized officer of Seller.

Seller's obligation under this warranty shall not include duty, taxes, environmental fees, including without limitation, disposal or handling of tires, batteries, petrochemical items, or any other charges whatsoever, or any liability for direct, indirect, incidental, or consequential damages.
Improper maintenance, improper use, abuse, improper storage, operation beyond rated capacity, operation after discovery of defective or worn parts, accident, sabotage or alteration or repair of the equipment by persons not authorized by Seller shall render this warranty null and void.

Seller reserves the right to inspect the installation of the product and review maintenance procedures to determine if the failure was due to improper maintenance, improper use, abuse, improper storage, operation beyond rated capacity, operation after discovery of defective or worn parts, or alteration or repair of the equipment by persons not authorized by Seller.



NO TRANSFERABILITY OF WARRANTY: This warranty is limited to the original end-user and is not assignable or otherwise transferable without the written agreement of Seller.

■ ITEMS NOT COVERED BY SELLER WARRANTY

The following items are not covered under the seller warranty (the following list is not Exhaustive):

1. Lamps, lenses, filters, consumable items, utility trailer decks, shop supplies.
2. Items sold by any individual, corporation, partnership or any other organization or legal Entity that is not an authorized seller distributor.
3. Inbound freight for replacement components or outbound freight for any part requested as a warranty return.
4. Components which are not manufactured by seller are not covered by seller's warranty. Such components are covered only by the warranty, if any, that is provided by the Manufacturer of such components. Such components may include, but are not limited to, Engines, batteries, tires, customer-supplied products, transmissions, generators/gensets, Axles.
5. **Replacement of Assemblies**: seller has the option to repair or replace any defective part or assembly. It is seller's policy to refuse claims for the replacement of a complete assembly that is field repairable by the replacement or repair of defective part(s) within the assembly.
6. **Normal Operational Maintenance Services and Wear Parts**: maintenance services and wear parts are excluded from warranty claims. Maintenance services and wear parts **not covered** include, but are not limited to, such items as: seals, gaskets, hoses, glass, clutch and brake linings, wire rope, exterior coatings, proper tightening of bolts, nuts and fittings, adding or replacing of fluids, breathers, belts, nozzles, adjustments of any kind, services supplies such as lubricants, inspections, diagnostic time, travel time.
7. **Transportation Cost and/ or Damage**: any damage caused by carrier handling is a transportation claim and should be filed immediately with the respective carrier.
8. **Deterioration**: repairs, work required or parts exposed as the result of age, storage, weathering, lack of use, demonstration use, or use for transportation of corrosive chemicals.

Warranty

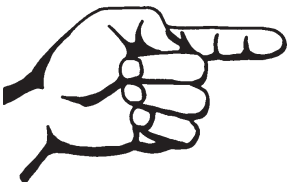
9. **Secondary Failures**: should the owner or operator continue to operate a machine after It has been noted that a failure has occurred, seller will not be responsible under the warranty for resultant damage to other parts due to that continued operation.
10. **Workmanship of Others**: seller does not accept responsibility for improper installation or labor costs or costs of any kind from personnel other than personnel authorized by seller.
11. **Stop and Go Warranty**: seller does not recognize "stop and go" warranties.
12. **Incidental or Consequential Damage**: **SELLER SHALL NOT BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES OF ANY KIND, INCLUDING, BUT NOT LIMITED TO, LOST PROFITS, LOSS OF PRODUCTION, INCREASED OVERHEAD, LOSS OF BUSINESS OPPORTUNITY, DELAYS IN PRODUCTION, COSTS OF REPLACEMENT COMPONENTS AND INCREASED COSTS OF OPERATION THAT MAY ARISE FROM THE BREACH OF THIS WARRANTY**. Customer's sole remedy shall be limited to (at seller's sole option) repair or replacement of the defective part.

THIS WARRANTY IS EXPRESSLY IN LIEU OF AND EXCLUDES ALL OTHER WARRANTIES, EXPRESS OR IMPLIED (INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE) AND ALL OTHER OBLIGATIONS OR LIABILITY ON SELLER'S PART. THERE ARE NO WARRANTIES THAT EXTEND BEYOND THE LIMITED WARRANTY CONTAINED HEREIN.

Seller neither assumes nor authorizes any other person to assume for seller any other liability in connection with the sale of seller's equipment. This warranty shall not apply to any of seller's equipment or any part thereof which has been subject to misuse, alteration, abuse, negligence, accident, acts of god or sabotage.

No action by any party shall operate to extend or revive this limited warranty without the prior written consent of seller. In the event that any provision of this warranty is held unenforceable for any reason, the remaining provisions shall remain in full force and effect.

IN THE EVENT OF ANY BREACH OF THE WARRANTY BY SELLER, SELLER'S LIABILITY SHALL BE LIMITED EXCLUSIVELY TO THE REMEDIES (AT SELLER'S SOLE OPTION) OF REPAIR OR REPLACEMENT OF ANY DEFECTIVE EQUIPMENT COVERED BY THE WARRANTY. IN NO EVENT SHALL SELLER, OR ANY SUBSIDIARY OR DIVISION THEREOF BE LIABLE FOR INCIDENTAL, INDIRECT, CONSEQUENTIAL OR OTHER DAMAGES OR LOSSES RESULTING FROM A BREACH OF WARRANTY INCLUDING, WITHOUT LIMITATION, LABOR COSTS, LOSS OF USE OF OTHER EQUIPMENT, THIRD PARTY REPAIRS, LOST PROFITS, LOST TIME, TOWING OR HAULING OF EQUIPMENT, RENTAL COSTS, PERSONAL INJURY, EMOTIONAL OR MENTAL DISTRESS, IMPROPER PERFORMANCE OR WORK, PENALTIES OF ANY KIND, LOSS OF SERVICE OF PERSONNEL, OR FAILURE OF EQUIPMENT TO COMPLY WITH ANY FEDERAL, STATE OR LOCAL LAWS.



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A TEREX BRAND

WARRANTY - HANDING OVER CERTIFICATE

Warranty is subject to delivery according to the regulation and the submission of this certificate to TEREXLIFT s.r.l.

Model	Serial Number	Delivery date	Dealer's stamp and signature
_____	_____	_____	

We hereby acknowledge that we received the machine in perfect condition, as well as the Operator's Manual.

DATAS OF THE OWNER:

Name: _____

City: _____ Address: _____

Postal Code: _____ Country: _____

Telephone:_____ Telefax: _____

Signature: _____

Note

_____

_____

_____

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Client's Copy

A TEREX BRAND

WARRANTY - HANDING OVER CERTIFICATE

Warranty is subject to delivery according to the regulation and the submission of this certificate to TEREXLIFT s.r.l.

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Signature: _____

Note

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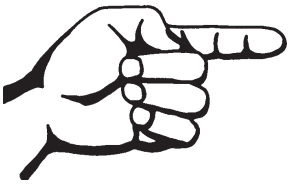
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TEREXLIFT Copy



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Routine Check Schedule

SAFETY DEVICES DAILY CHECKING

DATE _____

COMPONENT	RESULT	NOTE	SIGNATURE
LMI Display & Board	❒ positive ❒ negative		
Enabling Function Switch on Joystick	❒ positive ❒ negative		
Emergency Pump Switch	❒ positive ❒ negative		
Emergency Stop Pushbutton	❒ positive ❒ negative		
Seat Switch	❒ positive ❒ negative		
Outrigger Extension Potentiometer	❒ positive ❒ negative		
Lowered Outrigger Switch	❒ positive ❒ negative		
Extended Outrigger Switch	❒ positive ❒ negative		
Turret Rotation Lock Cylinder Safety Valve	❒ positive ❒ negative		
Fork Attachment Quick Coupling Cylinder Safety Valve	❒ positive ❒ negative		
Balancing Cylinder Safety Valve	❒ positive ❒ negative		
Lifting Cylinder Safety Valve	❒ positive ❒ negative		
Extension Cylinder Safety Valve	❒ positive ❒ negative		
Parking Brake Sensor 1	❒ positive ❒ negative		
Parking Brake Sensor 2	❒ positive ❒ negative		
Boom Strain Gauge	❒ positive ❒ negative		