A TEREX BRAND

Operator's Manual

Serial number range

GTH 4013 SX

From s/n: 20203
To s/n: 20672

GTH 4017 SX

From s/n: 19978
To s/n: 20670

With Maintenance Information

Second Edition
First Printing
Part No. 57.0009.0300

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.

Contact us:

ZONA INDUSTRIALE I-06019 UMBERTIDE (PG) - ITALY
Telephone +39 075 941811
Telefax +39 075 9415382

Technical Assistance Service
Telephone: +39 075 9418129
+39 075 9418175
e-mail: UMB.Service@terex.com

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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

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

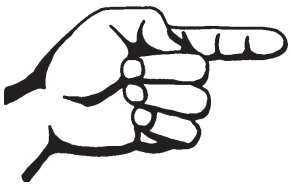
DANGER ***Red: indicates a hazardous situation which, if not avoided, will result in death or serious injury.***

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 hazardous situation which, if not avoided, could result in property damage.***

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-4013 SX / GTH-4017 SX*

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.

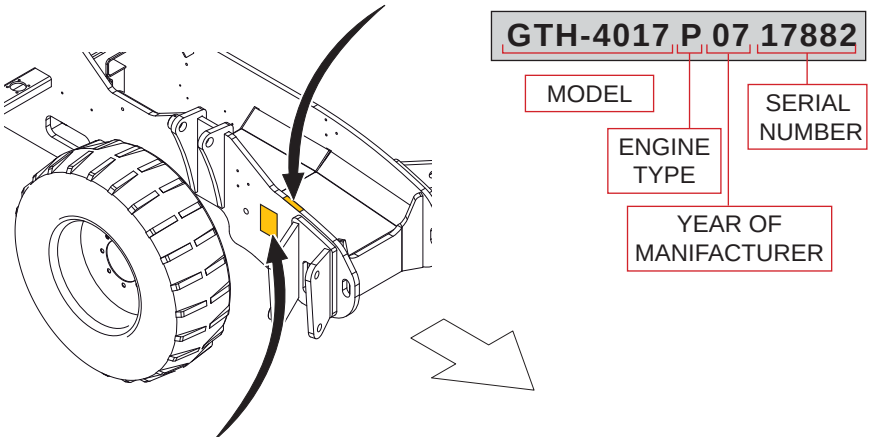
IDENTIFICATION PLATES OF THE MAIN PARTS

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

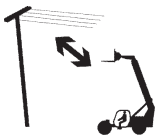
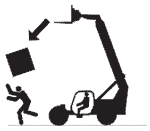
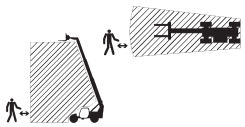
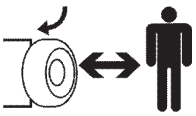
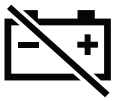
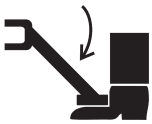
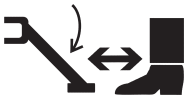
(On machines destined for the Italian market, the machine data plate is installed in the driving cab, on the right, and is well-visible when the door is opened. On the machines destined for foreign markets, the data plate is applied on the front right side of the chassis)

Symbols Used On The Machine

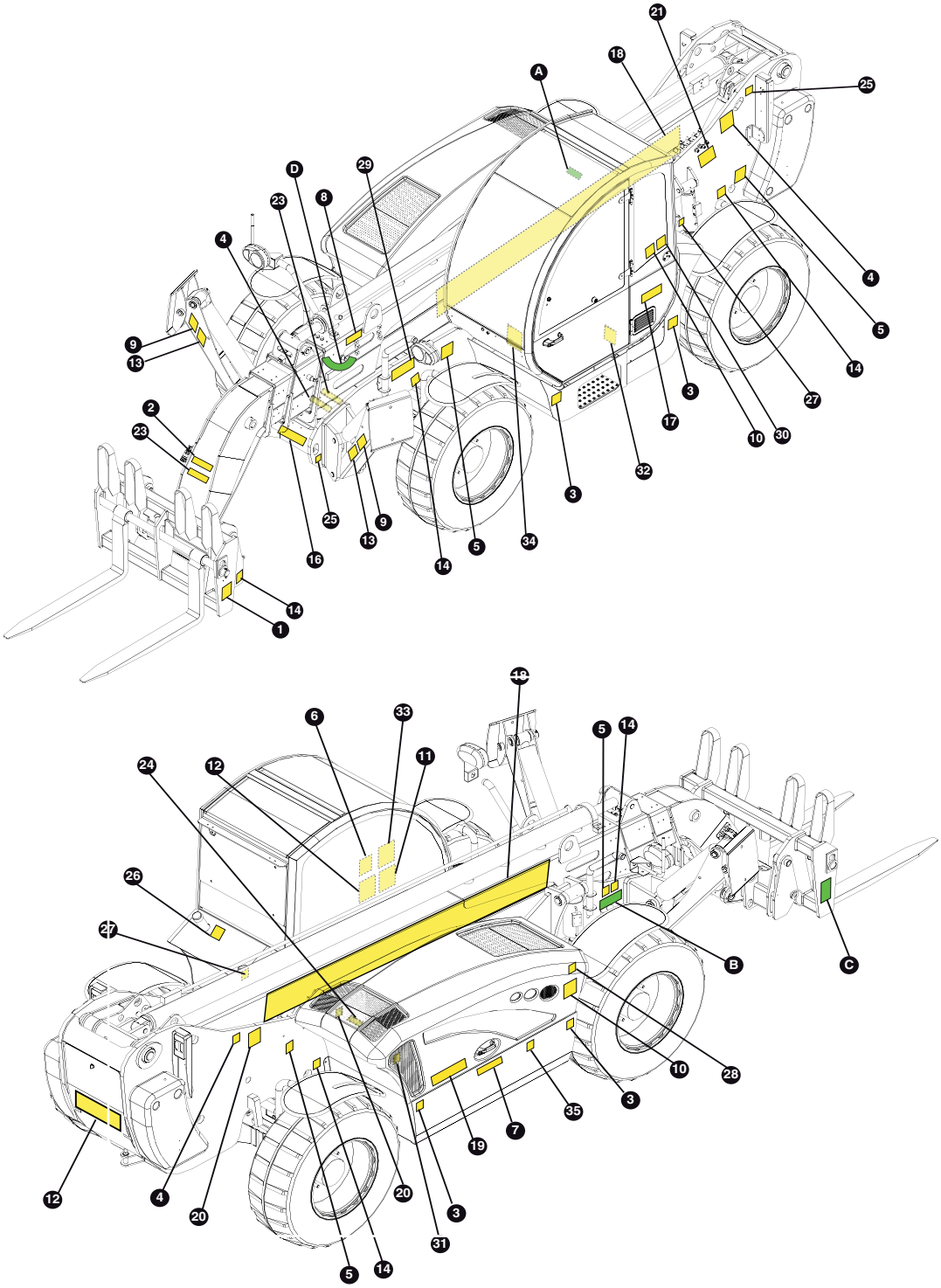
 Fuel Level	 Brake pressure	 Fog lamp	 Parking Brake	 Battery Charge
 Low Engine Oil Pressure	 Hydraulic Oil Filter Clogged	 Low Hydraulic Oil Level	 Turn Signals	 High Beam
 Hydraulic Oil Temperature Indicator	 Air Filter Restricted	 Glow Plugs Preheating	 High Coolant Tempe-rature	 Low Beam
 Steering Mode	 Cab Ventilation Fan	 Transfer Mode	 Hazard Warning Lights	 Position Lights
 Fuel Cap	 Hydraulic Oil	 Lift Point		

Symbols Used On The Machine

HAZARD PICTORIAL DESCRIPTIONS

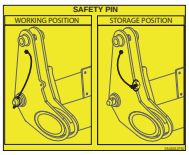
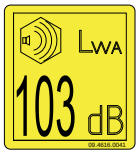
 Electrocution Hazard	 Maintain required clearance.	 Falling Object Hazard	 No people under load.	 Fall Hazard
 No riders.	 Burn Hazard	 Allow system to cool.	 Explosion/Burn Hazard	 No smoking. No open flame.
 Read the operator's manual.	 Support boom when performing maintenance.	 Crush Hazard	 Burn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

Labels And Plates Applied On The Machine

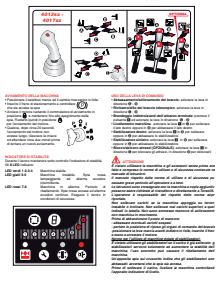
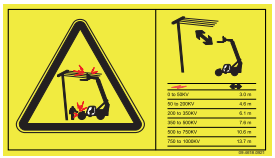


Labels And Plates Applied On The Machine

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		09.4618.0791	**Safety pin operation**	1
2		09.4618.0784	**The capacity of the truck and attachment combination shall be complied with.**	1
3		09.4618.0061 09.4618.0547	**Tyre inflat. P=4.5bar/65psi GTH-4017 SX** **Tyre inflat. P=5.5bar/80psi GTH-4013 SX**	4
4		09.4618.0918	**Falling Object Hazard**	3
5		09.4618.0919	**Crush Hazard**	4
6		09.4616.0041	**Guaranteed sound power level**	1
7		09.4618.0920	**Compartment Access**	1
8	Kg 4000	09.4616.0040	**Max Capacity**	1

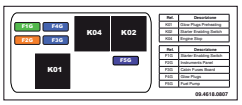
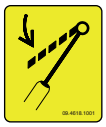
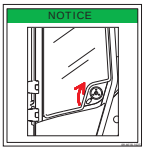
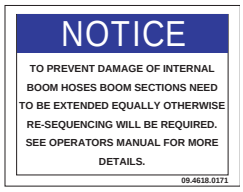
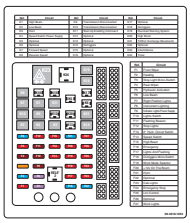
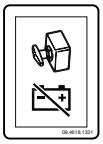
Labels And Plates Applied On The Machine

Ref.	Decal	Code	Description	Qt.
9		09.4618.0989 09.4618.0991	**Label - Stabilizer Max Pres. GTH-4017 SX** **Label - Stabilizer Max Pres. GTH-4013 SX**	2 2
10		09.4618.0776	**Label - Upper Door Internal Unlock System**	1
11		09.4618.0859	**Quick guide and 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**	6
15 16 17	Genie®	09.4618.0240 09.4618.0241 09.4618.0242	**Cosmetic - GENIE Logo in WHITE**	1 1 1

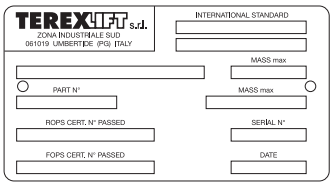
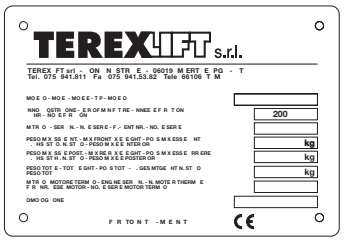
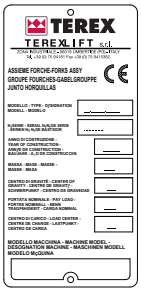
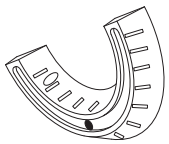
Labels And Plates Applied On The Machine

Ref.	Decal	Code	Description	Qt.
18 19	Genie GTH-4017 SX Genie GTH-4013 SX	09.4618.0821 09.4618.0822 09.4618.0721 09.4618.0722	**Cosmetic - Genie GTH-4017 SX** **Cosmetic - Genie GTH-4013 SX**	2 1 2 1
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**	4
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		09.4618.0807	**Label - Engine Fuses & Relays Board**	1
29		09.4618.1001	**Label - Maintenance Collar**	1
30		09.4618.1025	**Label - Upper Door External Unlock System**	1
31		09.4618.0986	**Crush Hazard**	1
32		09.4618.1028	**Label - Parking Brake**	1
33		09.4618.0171	**Re-sequencing the telescopic boom extension.** If, during normal operation, a change in the boom extended lengths is noticed, proceed with re-sequencing as indicated in the operator's manual. **JUST FOR GTH 4013 SX**	1
34		09.4618.1053	**Label -Cabin Fuses & Relays Board**	1
35		09.4618.1331	**Battery Cut-Out Switch**	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.
D		09.0803.0357	**Boom Tilting Degree**

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

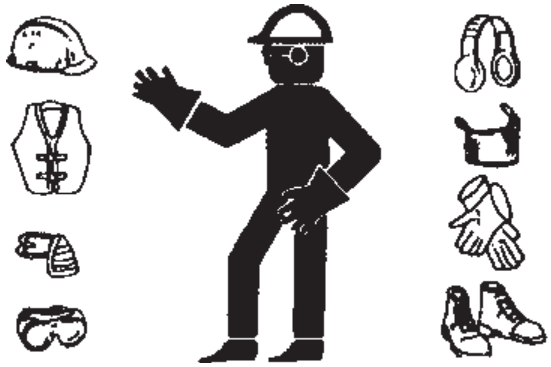
From a technical point of view, the ordinary maintenance of the machine is not a complex intervention and can be carried out by the machine operator, too, provided he has a basic knowledge of mechanics.

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

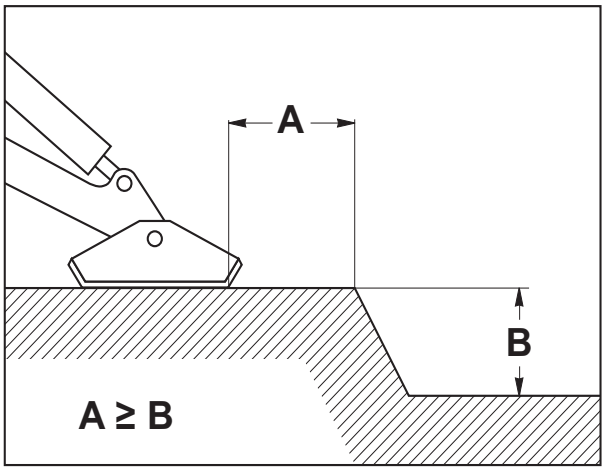
Operator have to survey his/her field of vision when operating the truck.

Safety precautions

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.

- 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.



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.



Safety precautions

- 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.
- 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.

Safety precautions

- 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.

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.

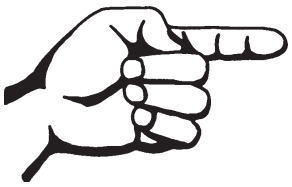
DAMAGED COMPONENT hazards

- 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.



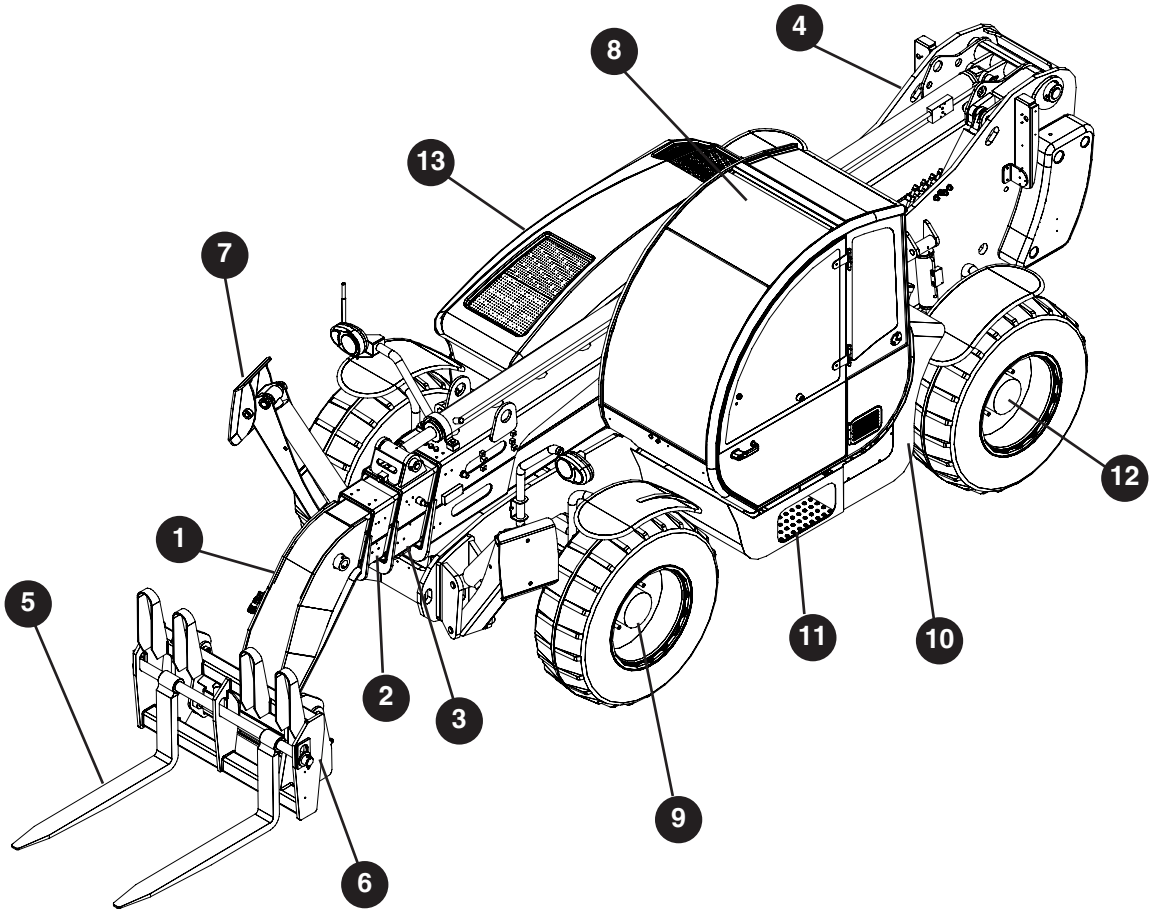
PERSONAL INJURY hazards

- 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.



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Description Of The Main Components



1 - 3rd boom section
2 - 2nd boom section
3 - 1st boom section
4 - Chassis
5 - Forks
6 - Attachment holding frame
7 - Outrigger
8 - Driving cab according to ROPS-FOPS provisions
9 - Front axle
10 - Fuel tank
11 - Access step
12 - Rear axle
13 - Engine

Description Of The Machine

Machine General Description for GTH-4013 SX

The machine mainly consists of a mobile carriage, 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 machine and controlled by a mechanical 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 chassis, 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 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 drop box installed on a central structural beam linking the two sides of the chassis.
The mechanical torque generated by the hydrostatic motor and passing through the drop box, is transmitted to the front and rear axles by two drive shafts located on the machine centerline so providing a 4X4 wheels drive capability.
Both the hydrostatic pump and motor are electronically controlled by an electronic control unit located inside the operator's cabin immediately behind the operator's seat.
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 gear 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 and the load handling attachment articulation, to operate the front stabilizers and the chassis leveling system 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.
These three pumps are fed through oil suction lines which are linked to the hydraulic oil tank installed on the bottom center of the chassis.
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 fixed lower bay made in steel and of a upper bonnet which can be opened to allow servicing activities in the engine compartment.
The engine compartment also includes the engine and hydraulic system cooler, provided with an internal coolant expansion tank, the air intake duct and filter, the electrical alternator, the battery, the fuel and the engine oil filters and the engine exhaust muffler.
The engine exhaust duct is then routed from the bottom f the engine compartment to the lateral back side of the chassis with a geometry capable to eject the engine exhaust gas up and back from the machine.
The telescopic boom, hinged on the back of the chassis, mainly consists in three 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 chassis and moved by an hydraulic cylinder linked between its bottom surface and the central bottom area of the chassis.
The extension/retraction of this cylinder produces the boom outer section to rotate between the boom up and down limits.
The boom intermediate section can telescope with respect the outer one by a boom extension cylinder which is installed on the top of the boom. The inner section is moved by anther telescope cylinder internally installed.
These two cylinders are hydraulically linked in series

Description Of The Machine

and are designed in such a way the extension of the bigger one (moving the intermediate boom section) produces the same extension of the smaller one (moving the inner boom section).
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.
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 are driven through a main valve which is mechanically controlled through a main joystick lever located in the operator's cabin.
The same valve also controls the front stabilizers, hinged on the front area of the machine and actuated by specific hydraulic cylinders hinged between the chassis and the stabilizers legs, and the chassis lateral leveling system, activated by another specific cylinder hinged between the right side of the chassis and the front axle.
The operator can activate the stabilizers and the chassis leveling through mechanical levers located behind the main joystick controlling the boom functions.
The other main controls available in the operator's cabin are the steering wheel (to control the machine steering function), the service brake pedal and the parking brake mechanical lever.
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 package (wet type) which is installed inside the rear axle and works on the axle internal shafts.
The same brake disks package is operated by the parking brake system through a mechanical lever and cables located inside the cabin immediately on the left side of the operator's seat.
Another hydraulic cylinder is installed on the back left side of the chassis and is hinged between the chassis and the rear axle.
The aim of this cylinder is to improve the lateral stability of the machine by locking the rear axle when the boom angle is higher than a specified value.
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 and showing the stability status of the machine to the operator and a strain sensor installed on the rear axle and measuring the residual load on the axle.
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 chassis to improve the longitudinal stability of the machine.

Description Of The Machine

Machine General Description for GTH-4017 SX

The machine mainly consists of a mobile carriage, 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 machine and controlled by a mechanical 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 chassis, 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 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 drop box installed on a central structural beam linking the two sides of the chassis.
The mechanical torque generated by the hydrostatic motor and passing through the drop box, is transmitted to the front and rear axles by two drive shafts located on the machine centerline so providing a 4X4 wheels drive capability.
Both the hydrostatic pump and motor are electronically controlled by an electronic control unit located inside the operator's cabin immediately behind the operator's seat.
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 gear 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 and the load handling attachment articulation, to operate the front stabilizers and the chassis leveling system 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.
These three pumps are fed through oil suction lines which are linked to the hydraulic oil tank installed on the bottom center of the chassis.
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 fixed lower bay made in steel and of a upper bonnet which can be opened to allow servicing activities in the engine compartment.
The engine compartment also includes the engine and hydraulic system cooler, provided with an internal coolant expansion tank, the air intake duct and filter, the electrical alternator, the battery, the fuel and the engine oil filters and the engine exhaust muffler.
The engine exhaust duct is then routed from the bottom of the engine compartment to the lateral back side of the chassis with a geometry capable to eject the engine exhaust gas up and back from the machine.
The telescopic boom, hinged on the back of the chassis, 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 chassis and moved by an hydraulic cylinder linked between its bottom surface and the central bottom area of the chassis.
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

Description Of The Machine

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.
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 are driven through a main valve which is mechanically controlled through a main joystick lever located in the operator's cabin.
The same valve also controls the front stabilizers, hinged on the front area of the machine and actuated by specific hydraulic cylinders hinged between the chassis and the stabilizers legs, and the chassis lateral leveling system, activated by another specific cylinder hinged between the right side of the chassis and the front axle.
The operator can activate the stabilizers and the chassis leveling through mechanical levers located behind the main joystick controlling the boom functions.
The other main controls available in the operator's cabin are the steering wheel (to control the machine steering function), the service brake pedal and the parking brake mechanical lever.
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 package (wet type) which is installed inside the rear axle and works on the axle internal shafts.
The same brake disks package is operated by the parking brake system through a mechanical lever and cables located inside the cabin immediately on the left side of the operator's seat.
Another hydraulic cylinder is installed on the back left side of the chassis and is hinged between the chassis and the rear axle.
The aim of this cylinder is to improve the lateral stability of the machine by locking the rear axle when the boom angle is higher than a specified value.
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 and showing the stability status of the machine to the operator and a strain sensor installed on the rear axle and measuring the residual load on the axle.
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 chassis to improve the longitudinal stability of the machine.

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.

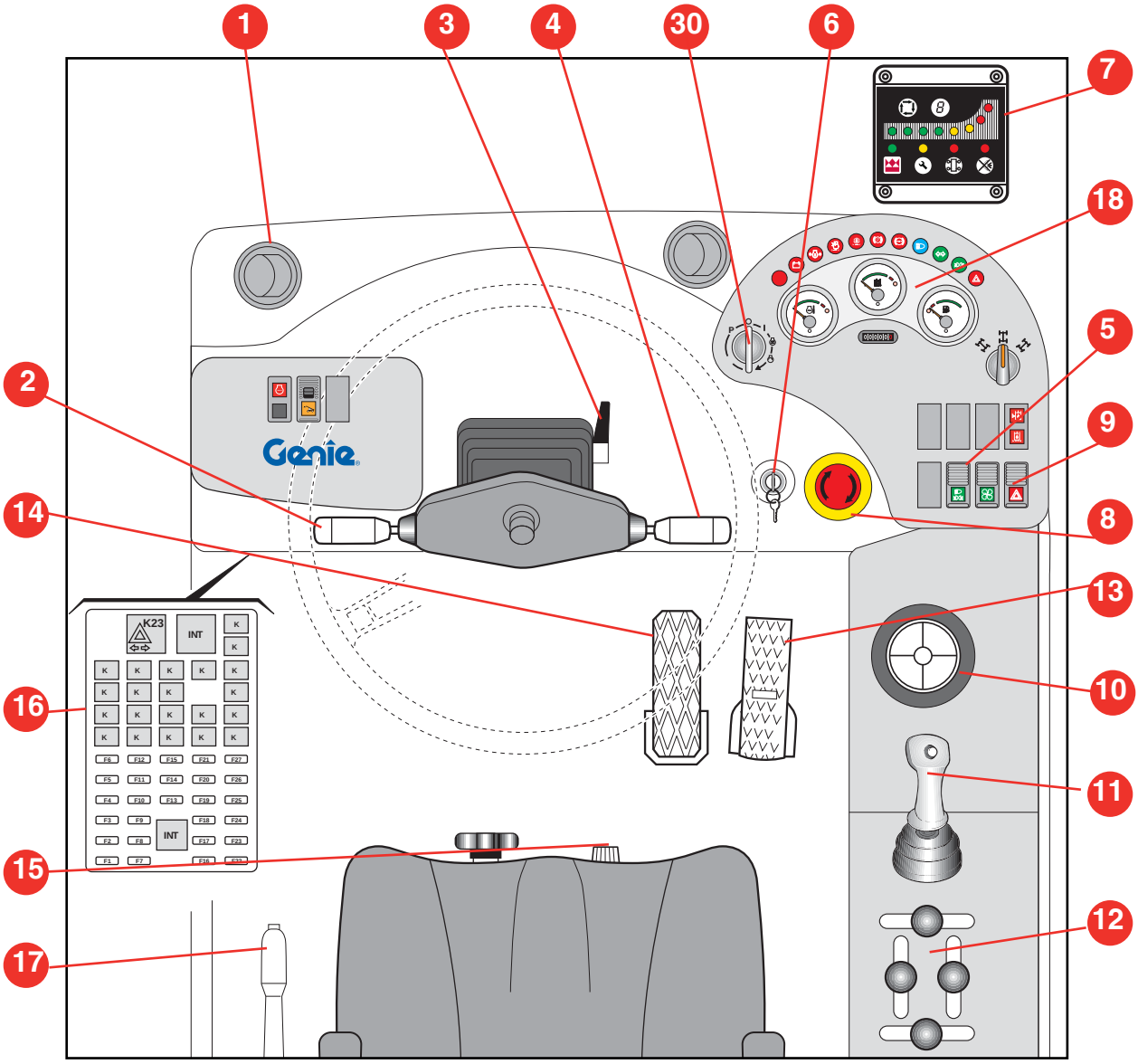
Improper use

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.

Controls and Instruments



1. Fresh Air Flap
2. Forward/Reverse Gear Selector
3. Steering Column Angle Adjustment
4. Turn Signals - Windscreen Washer - Horn - Lights
5. Auxiliary Drive Controls
6. Load Limiter Disable Selector
7. Load Moment Indicator
8. Emergency Stop Pushbutton
9. Hazard Warning Lights Switch
10. Inclinometer
11. Multipurpose Control Lever
12. Mouvements Control Levers
13. Gas Pedal
14. Service Brake Pedal
15. Cab Heater Control Cock
16. Fuses And Relays Board
17. Parking Brake Lever
18. Instruments Dashboard
30. Ignition Switch

Controls and Instruments

■ Ignition switch

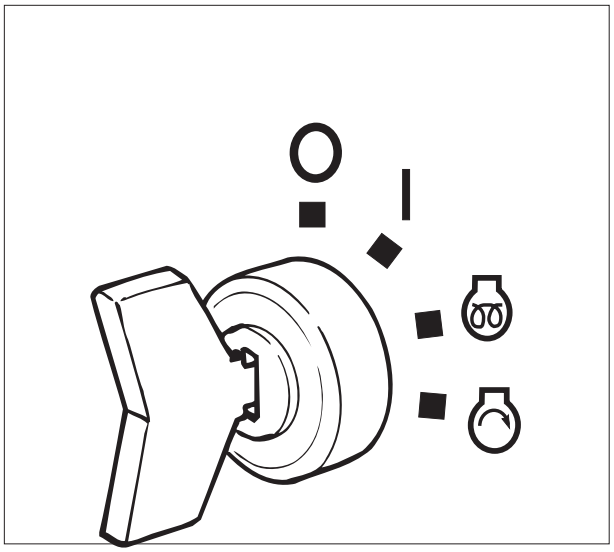
Four-position switch (**30**):

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

I — Circuits under voltage, presetting for the engine starting. Board controls and instruments are on.

Thermal starter for cold climates. Turn the key to this position and hold it for 10÷15 seconds, then turn it to pos. **I** to start the engine.

Engine starting; when released, key springs back to pos. **I** automatically.



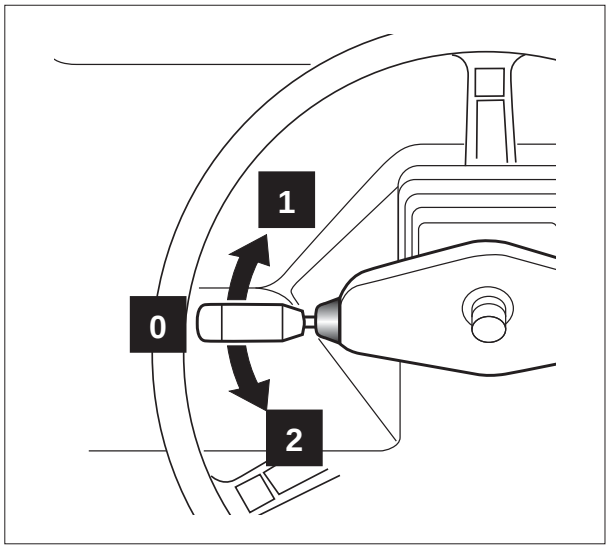
■ Forward/reverse gear selector switch

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

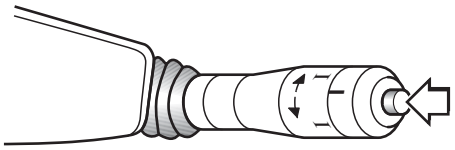


Controls and Instruments

Turn signals - Windscreen wiper - Horn - Lights

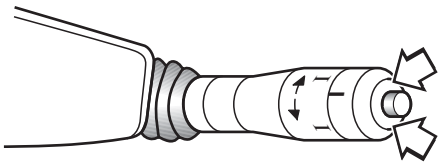
Horn function:

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:

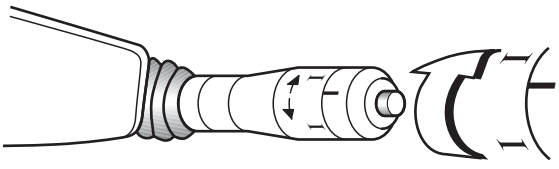
To operate the windscreen wiper, rotate the lever tip to one of the four positions:

I Intermittence (not activated)

0 Wiper OFF

J Low speed

I I High speed



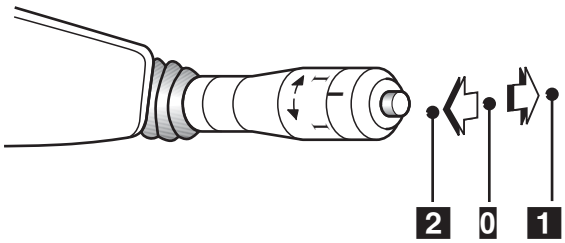
Lights function:

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

0 low beam ON, stable condition

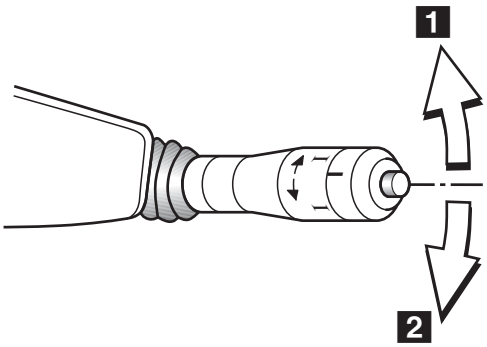
1 high beam ON, stable condition

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

14 Service brake pedal

By gradually pressing the pedal, translation is slowed down with no speed reduction for the boom movements (**Inching**).
By stepping the pedal down to end of stroke, the machine is stopped.

17 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.

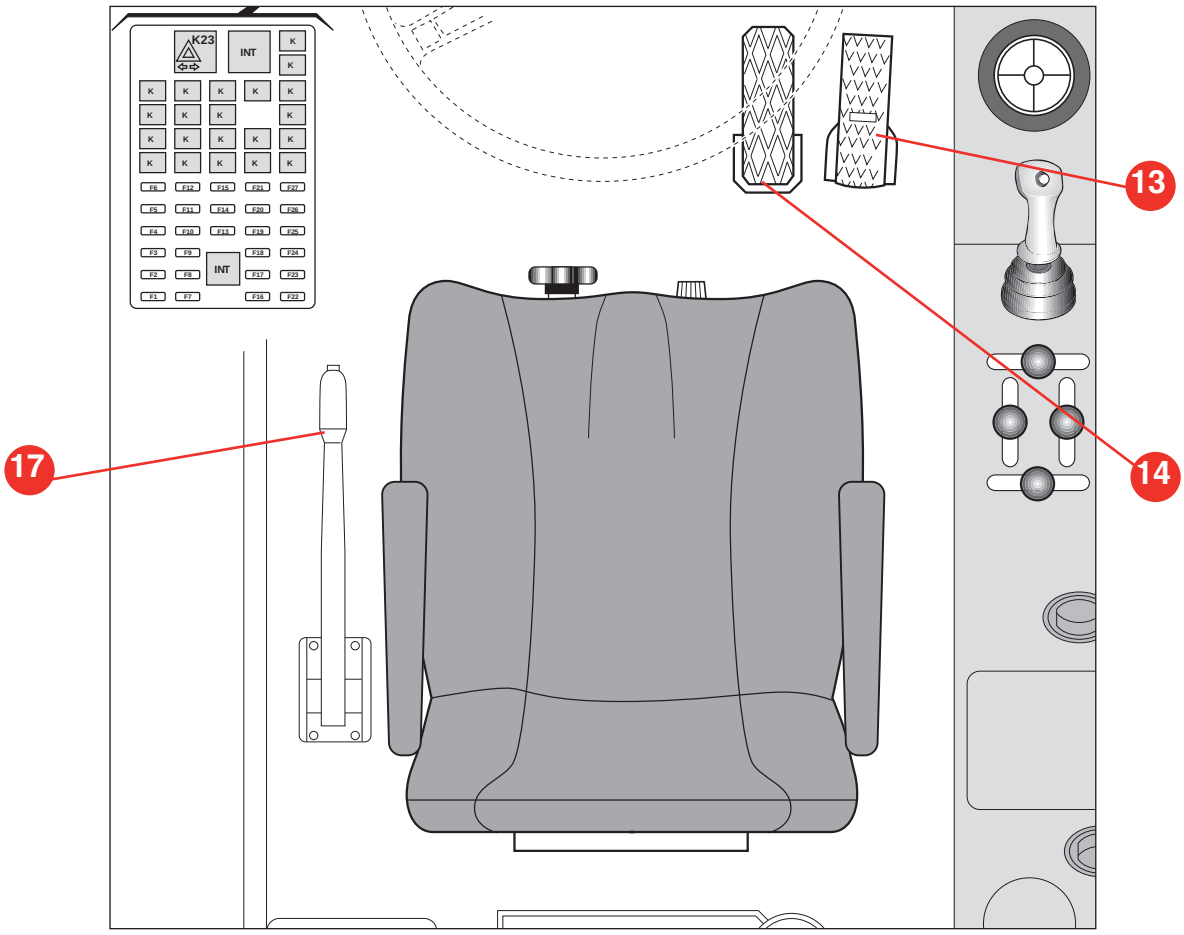
CAUTION

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

■ Accelerator control

13 Gas pedal

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

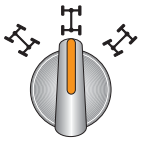


Controls and Instruments

■ Steering mode selection

19 Steering mode switch

Three-position switch for the selection of the steering mode:



1 Crab steering

0 Two-wheel steering

2 Four-wheel steering

20 Rear wheel alignment indicator light (OPTIONAL)

The indicator light comes on when turning the steering selector switch from position **1** to position **0** or from position **2** to position **0**, and wheels are aligned.

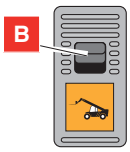
21 Transmission indicator light

The indicator light comes in case of transmission failure. To decode the series of blinks of the indicator light and identify the problem, see section "**Failure and breakdown identification**".

■ Road/Jobsite selection

22 Road/Jobsite switch

Switch with two positions, fitted with a position locking device **B** :



1 The switch is on and the jobsite mode is enabled.

2 The switch is off and the machine is set to road transfer mode.

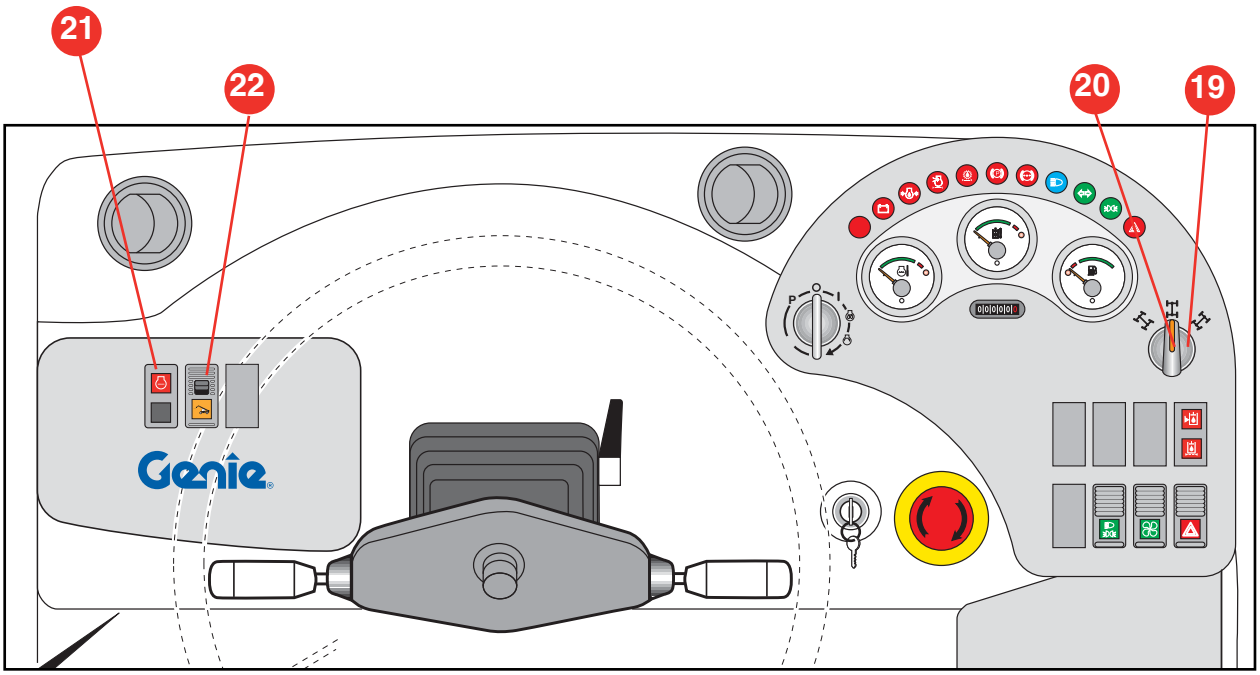
The selector has a safety block to avoid any accidental switching. Before switching the selector to another position, unlock control **B** at the top of the selector.

In **Jobsite** mode:

- all the machine functions are enabled

In **Road transfer** mode:

- the boom movement is disabled
- only the two-wheel steering mode is enabled
- fuel saving



Controls and Instruments

■ Safety and emergency devices

9 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.



8 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.

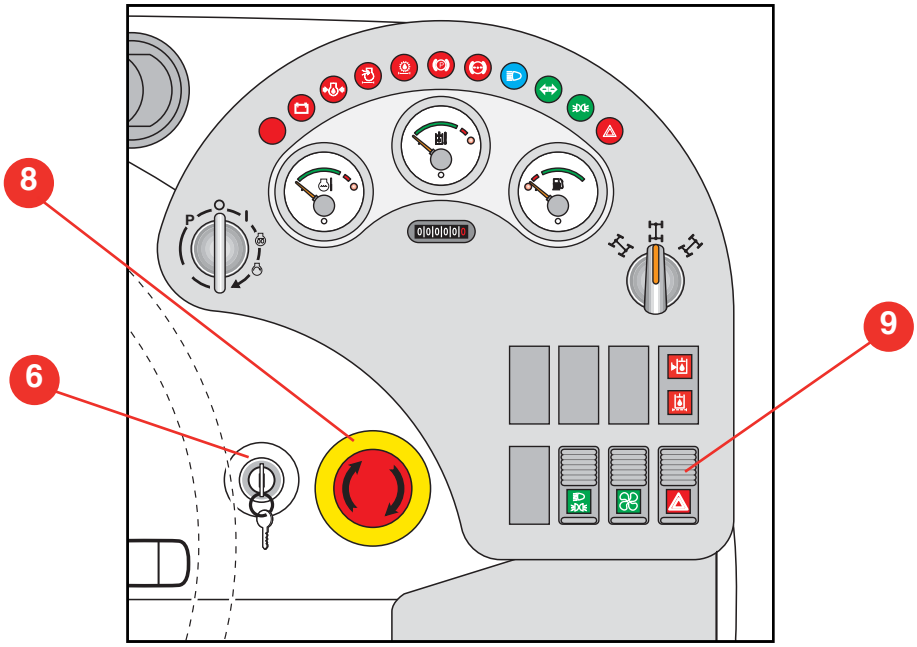


6 Load Limiter Disable Selector

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.



Controls and Instruments

■ Auxiliary drive controls

23 Cab Heater fan switch

Three-position switch:



0 OFF
1 Low speed
2 High speed

24 Road lights switch

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

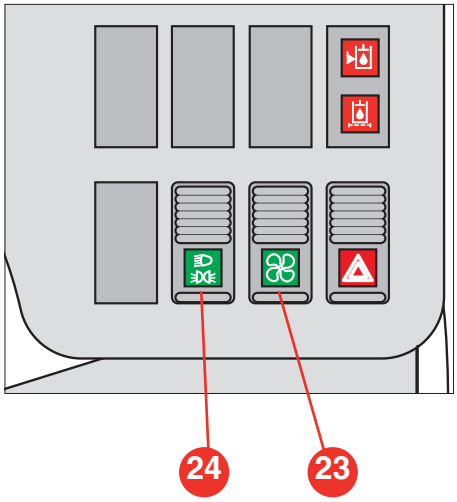


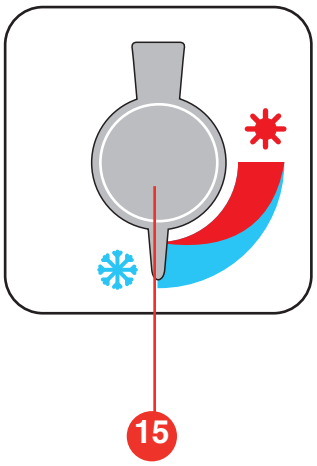
0 Lights OFF
1 Position lights ON (the switch indicator lights up partially).
2 Low beam ON (the switch indicator fully lights up).

15 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 switch **23**.





Controls and Instruments

Instruments

26 Engine coolant temperature indicator

This indicates the engine coolant temperature. If the finger is in the red zone and the warning light comes on, you must stop the machine and find and rectify the problem.

27 Hydraulic oil temperature indicator

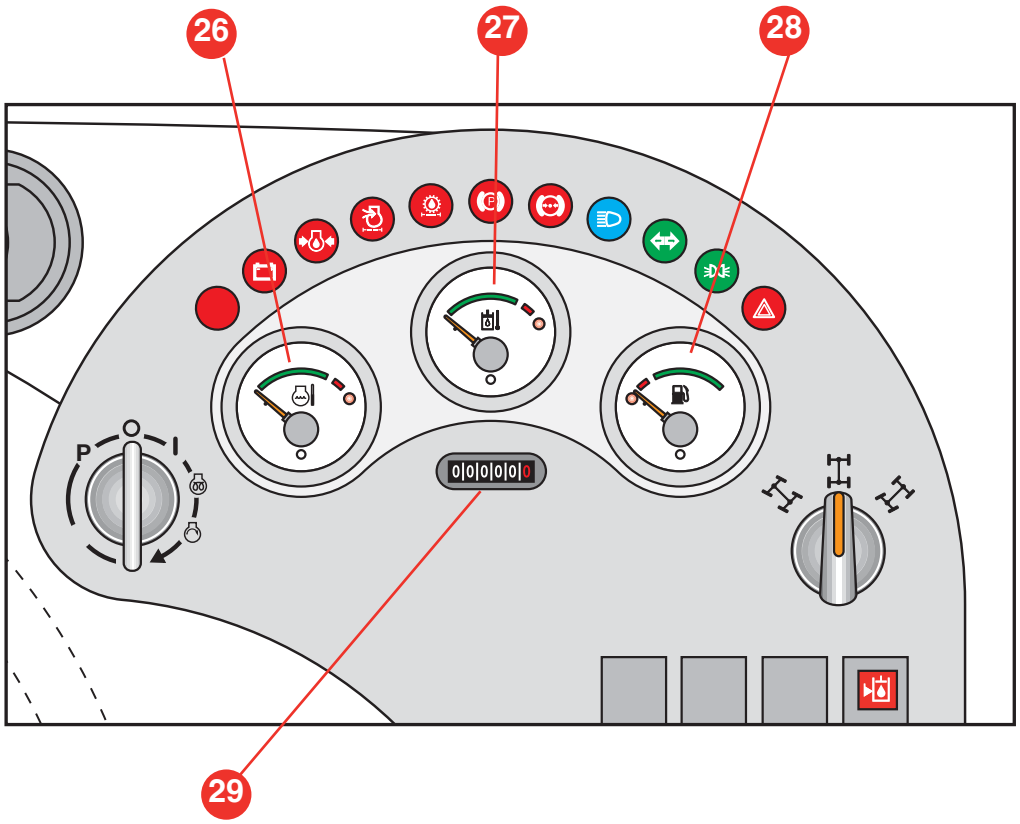
This indicates the temperature of the hydraulic oil in the tank. If the temperature rises above the permissible value or the red warning light comes on, you must stop the machine and find and rectify the problem.

28 Fuel gauge

This indicates the fuel level in the tank.
If the fuel level is low (reserve), the relevant warning light comes on.

29 Hour-meter

Signals the total operating hours of the machine. Use the hour-meter to gauge the routine maintenance jobs.



Controls and Instruments

■ Warning lights (ref. 18 and 5)

18.1 Warning light - low battery charge
Signals a low charge by the alternator.

18.2 Warning light - low engine oil pressure
It lights when the engine oil pressure is too low.

18.3 Warning light - air filter restricted
When this lamp come on, proceed with cleaning or changing the air filter cartridge.

18.4 Warning light - mechanical gear
Not Active

18.5 Warning light - parking brake engaged
When ON, this light indicates that the parking brake is engaged.

18.6 Warning light - low brake pressure
It lights when the pressure of the braking circuit is too low for a correct functioning.

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

18.8 Warning light - turn signals
Green indicator light that signals when turn signals are ON.

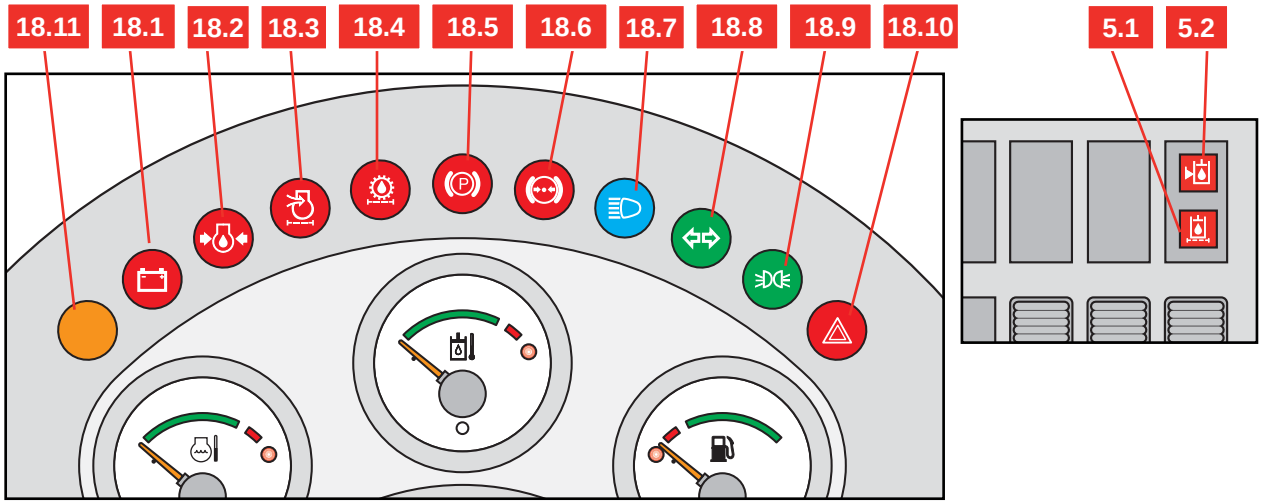
18.9 Warning light - position lights
Green warning light that signals when position lights are ON.

18.10 General alarm warning light
This red light comes on to warn of a problem of the machine. Contact the TEREXLIFT Service Centre.

18.11 Warning light - glow plugs preheating
This orange light comes on during the pre-heating of the engine glow plugs. Before starting the engine wait for this light to go off.

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

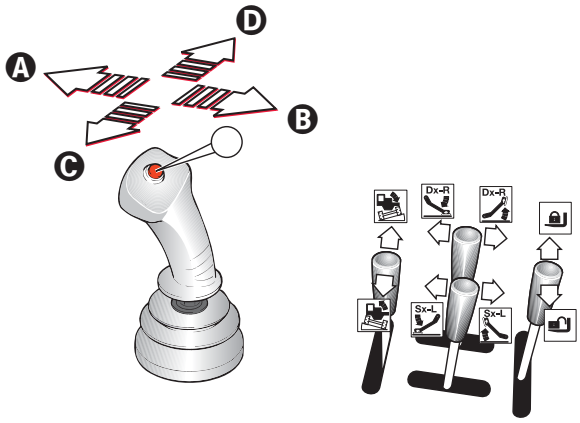
5.2 Warning light - low hydraulic oil level
This light comes on to alert to a low level of the hydraulic oil for a correct functioning. Replenish and eliminate the oil leak



Controls and Instruments

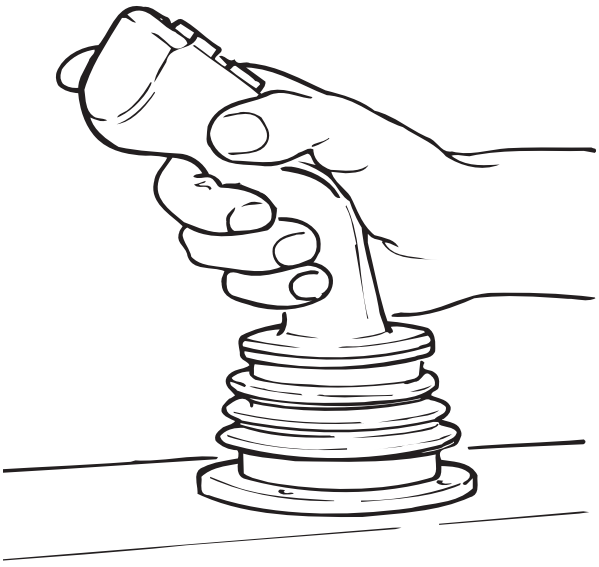
CONTROL LEVER

The handlers are equipped with a joystick with servo-assisted hydraulic control for the boom lifting/lowering movements and the boom telescopes in/out movements. Pressing the red button **1** on the joystick switches the telescope out/in-movement to the attachment frame pitching.



On the right side, at the back of the joystick, there are three levers for the independent operation of the following functions: machine sway control, left and right outrigger movement.

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.



WARNING

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

WARNING

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

Controls and Instruments

Function selection

The lever is enabled to carry out the following functions:

Without pressing button **1**:

- **Boom lifting/lowering**
  shift the control lever to **A** or **B**
- **Boom extension/retraction**
  shift the control lever to **C** or **D**

Pressing button **1**:

- **Boom lifting/lowering**
  shift the control lever to **A** or **B**
- **Attachment frame forward/back pitching**
  shift the control lever to **C** or **D**

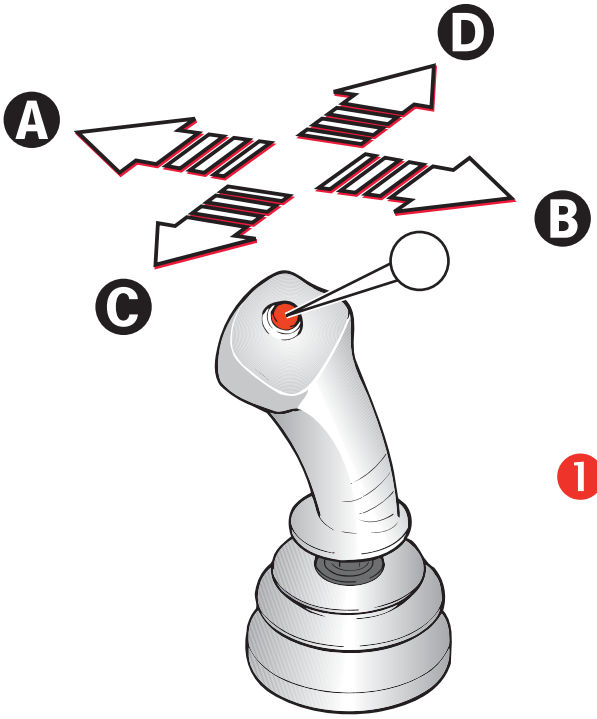
The four levers control the following functions in an independent way:

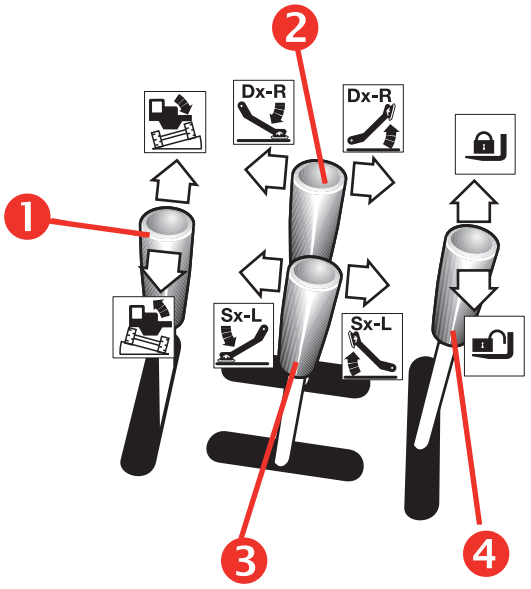
1 Machine sway function

2 Right outrigger movement

3 Left outrigger movement

4 Attachment locking/unlocking (*OPTIONAL*)



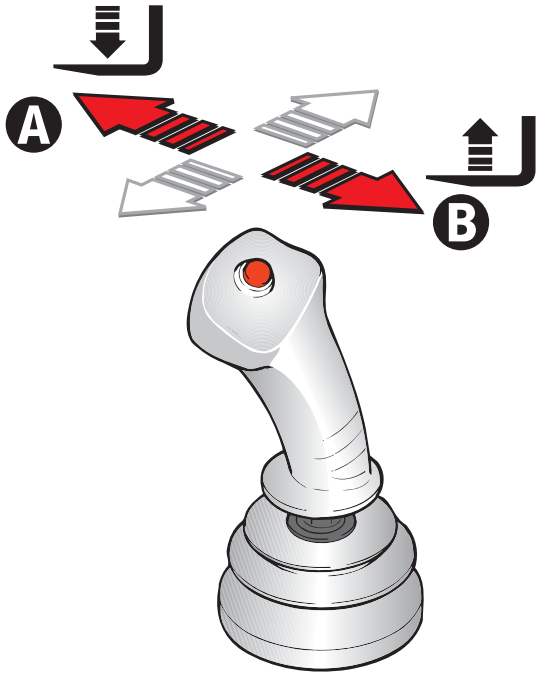


Controls and Instruments

Lifting/lowering the boom

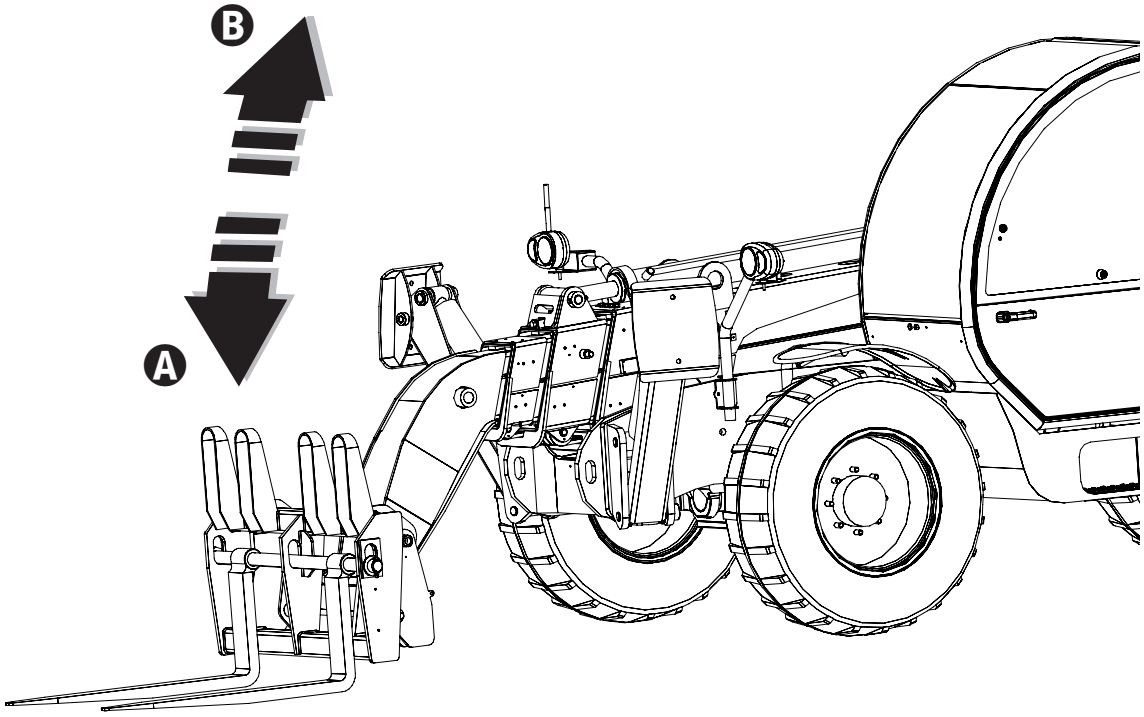
DANGER

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



To lift or lower the boom:

- Smoothly shift the lever to position **B** to lift the boom or to position **A** to lower it.



Controls and Instruments

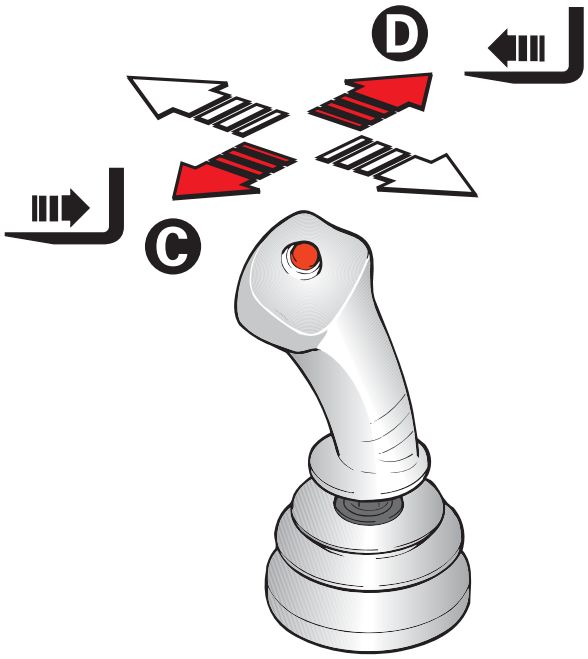
Extending/retracting the boom

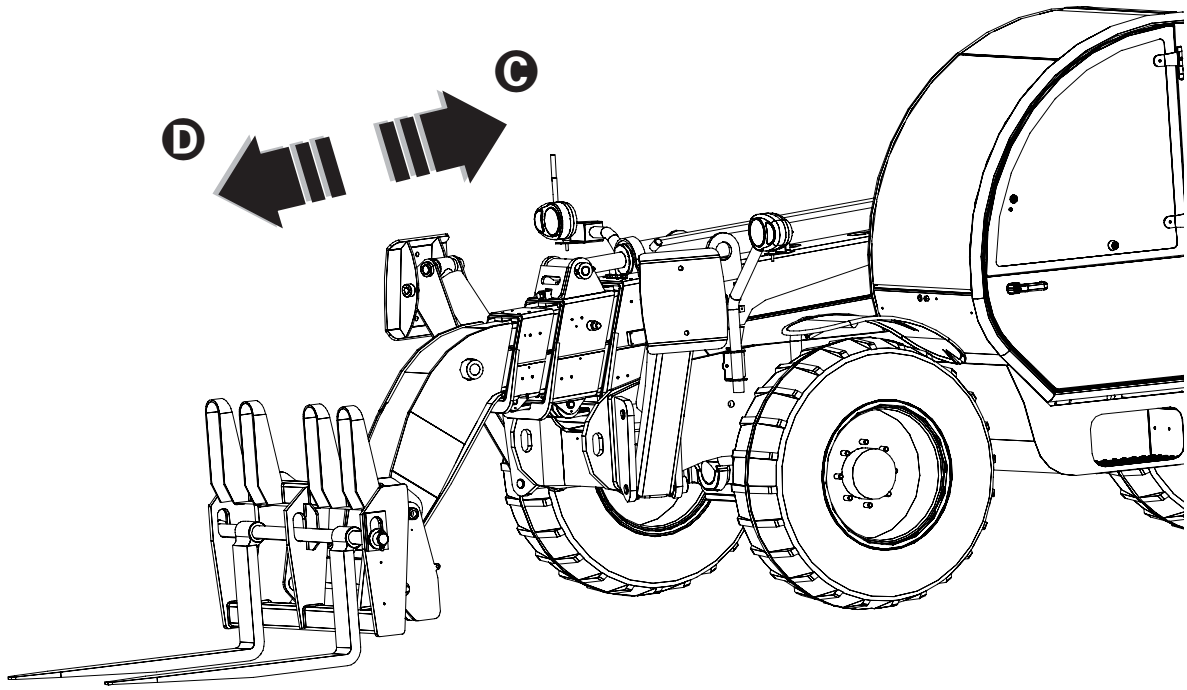
DANGER

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

To extend or retract the telescopic elements of the boom:

- Smoothly shift the lever to position **D** to extend the boom or to position **C** to retract it.





Controls and Instruments

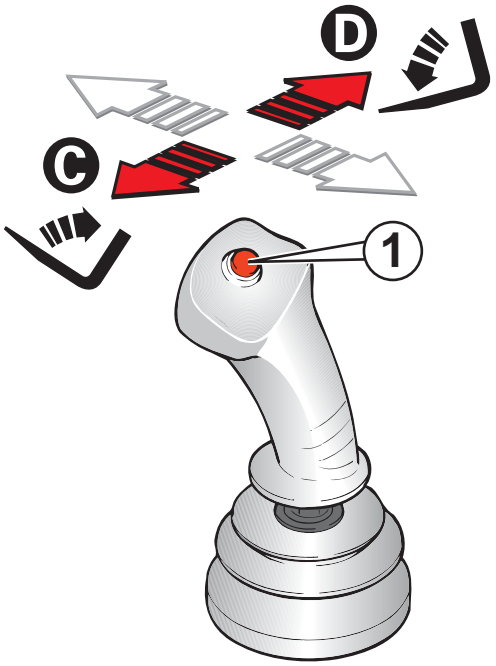
Pitching the attachment holding frame forward/back

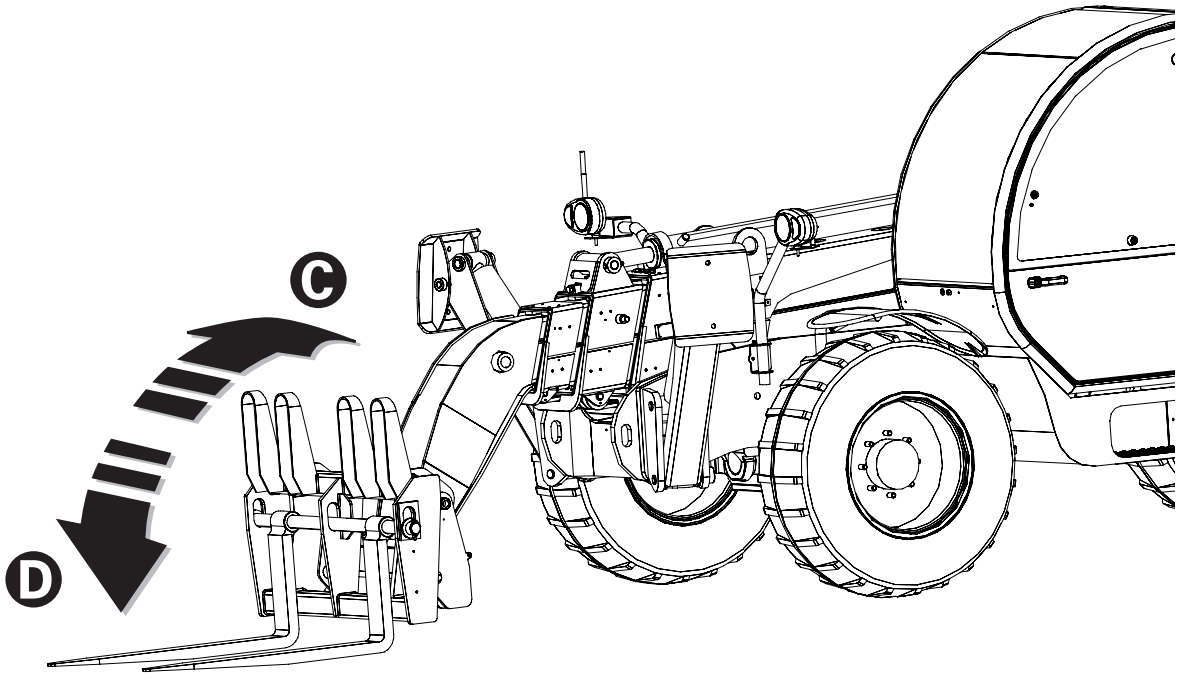
DANGER

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

To tilt forward/back the attachment holding frame:

- Press the button **1** on the joystick
- Smoothly shift the lever to position **D** to pitch the holding frame forward or to position **C** to pitch the holding frame back.



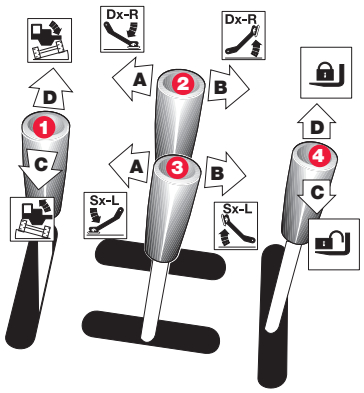


Controls and Instruments

■ Quick-coupling the attachments (*OPTIONAL*)

DANGER

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

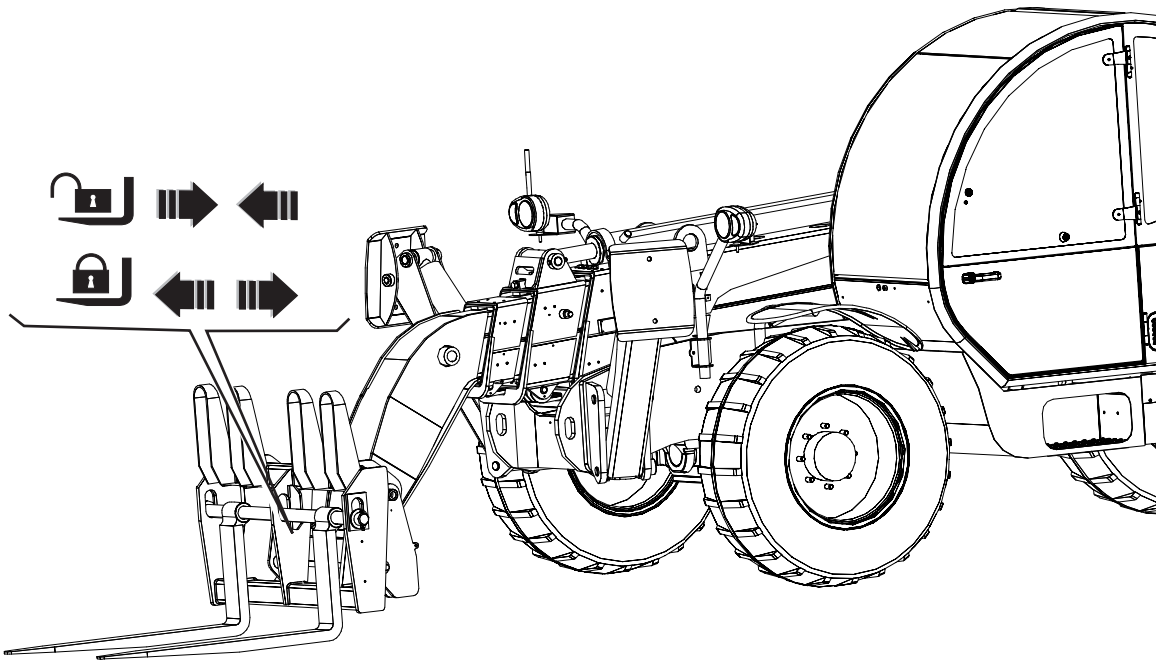


To lock/unlock the attachments:

- Shift the lever **4** toward the cab windscreen **D** to release the attachment
- Shift the lever toward the operator's seat **C** to lock the attachment.

WARNING

Before using the machine, visually check the attachment is correctly coupled.



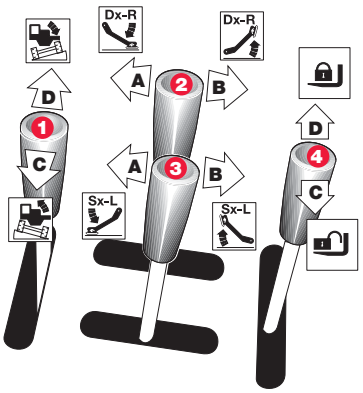
Controls and Instruments

■ Machine sway control

Check that the machine is level on inclinometer 20. The water level must be right in the middle of the instrument.

To sway the machine:

- Shift the lever **1** toward the cab windscreen **D** o sway the machine by lowering the right side
- Shift the lever toward the operator's seat **C** to sway the machine by lowering the left side.



■ Outrigger movements

DANGER

Before lowering the outriggers, make sure that nobody is within the working range of the machine.

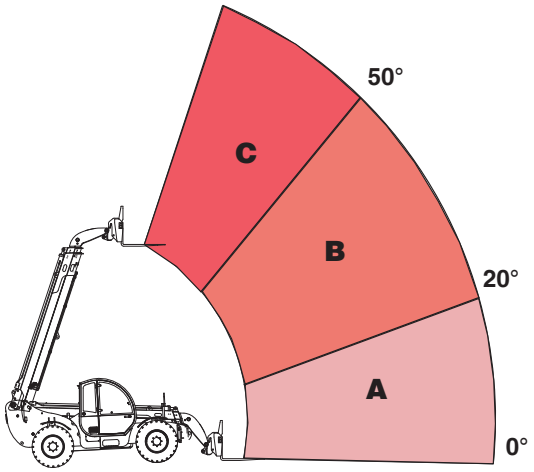
To operate the outriggers:

- Shift the lever **2** or **3** (depending on the outrigger to move, right and left respectively) to position **A** to lower the outrigger
- Shift the lever to position **B** to raise the outrigger.

Machine levelling and outrigger controls activation is affected by the boom position and extension, as shown in the chart below:

FOR GTH-4013 SX

- ***AREA A, within this area controls can be always activated, regardless of boom angle and extension.***
- ***AREA B, within this area controls cannot be activated unless the boom is fully retracted.***
- ***AREA C, within this area controls cannot be activated.***



FOR GTH-4017 SX

- ***controls cannot be activated if the boom is over 20°.***

Inspections



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.

Inspections

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 all the mirrors. See "Adjusting the Mirrors" section.

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 Lever

7 Using the control lever, momentarily raise and lower the boom, extend and retract the boom.

⊙ Result: All functions should operate smoothly.

8 Using the control lever and the red button, momentarily tilt the forks up and tilt the forks down.

⊙ Result: The function should operate smoothly.

9 Using the control lever **4**, momentarily lock and unlock the attachment (OPTIONAL).

⊙ Result: The function should operate smoothly.

Test the Steering

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

11 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.

12 Straighten the wheels.

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

14 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.

15 Straighten the wheels.

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

17 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.

Inspections

Test the Transmission and Brakes

18 Be sure the boom is fully lowered and retracted.

19 Step on the service brake pedal.

20 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.

21 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.

22 Move the transmission control lever to neutral.

23 Push the top of the parking brake switch.

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

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

⊙ Result: The machine should not move.

25 Push the bottom of the parking brake switch. The parking brake is off when the indicator light is off.

Test the Stabilizers and the Sway Control

26 Using the control lever **2** and **3,** fully lower and raise the stabilizers.

⊙ Result: The stabilizers should operate moothly.

27 Using the control lever **1**, sway the machine

⊙ Result: The machine should sway moothly.

28 Raise the boom over 20° and extend it.

⊙ Result: The sway function and the stabilizers should not work.

Test the Road Lights

29 Verify that all lights are functional.

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

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

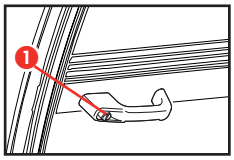
CAUTION

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.

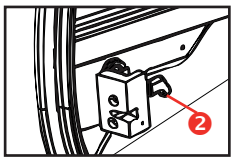


Door closing from inside:

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.

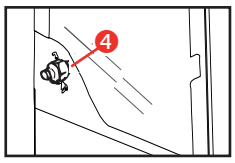


CAUTION

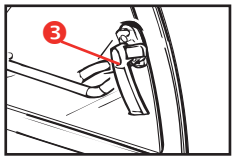
The upper section of the door must be secured to the rear part of the driving cab or latched to the lower section of the same door.

To unlock the door latched in open position:

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

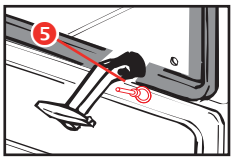


- Once released, re-close the upper section of the door by means of handle **3**.



■ 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.

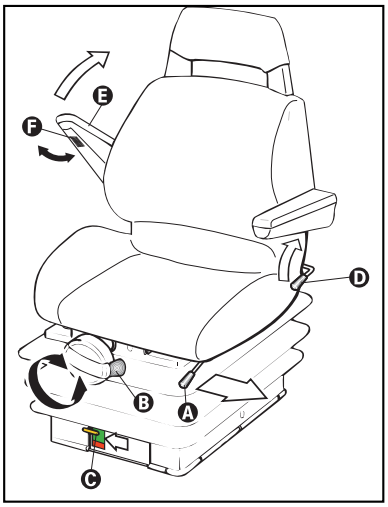
- **Adjusting seat height and springing**
  Free the lever of knob **B** and turn clockwise or counter-clockwise until reaching the desired springing. Once you'are correctly seated in the seat check that the yellow indicator **C** is in the green field.

- **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

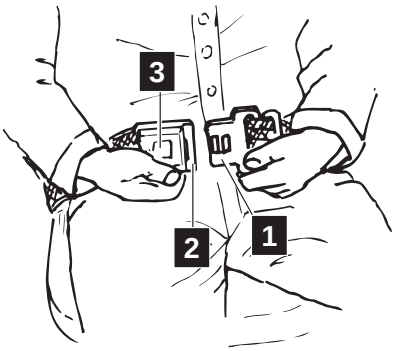
- ***The seat is for one person only.***
- ***Don't adjust the seat when the machine is moving.***



■ 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.



⚠ DANGER

Not fasting the seat belts could result in death or serious injury.

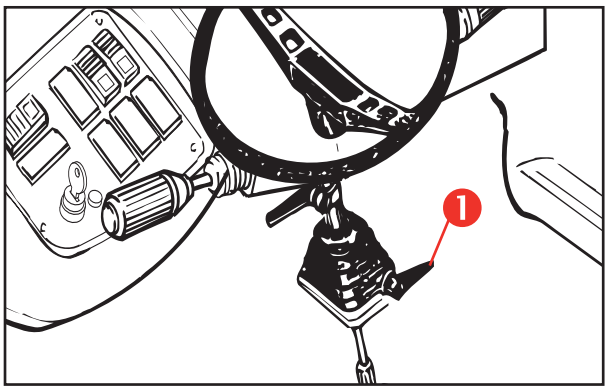
Operating Instructions

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.



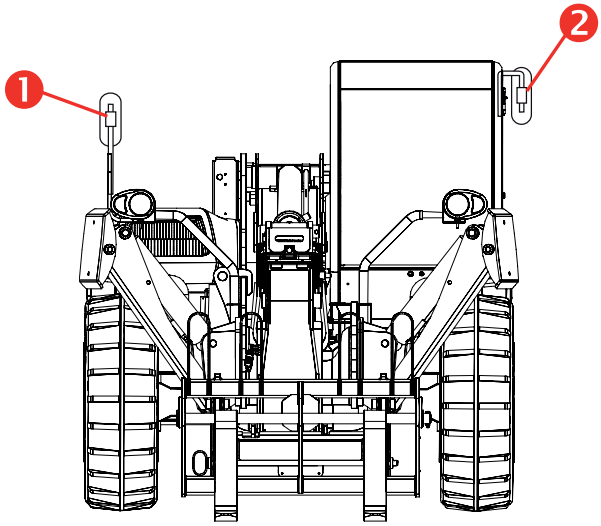
SWITCHING ON THE CAB INTERIOR LAMP

The ceiling light fixture is fixed to the rear top strut of the cab. The relevant lamp is switched on/off by switch.

ADJUSTING THE MIRRORS

The machine is fitted with two mirrors:

- The right rear view mirror ❶ is located on a special supporting bracket and allows checking the carriageway behind the machine. To adjust its position, manually rotate the joint it is fitted with.
- The left rear view mirror ❷ 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.



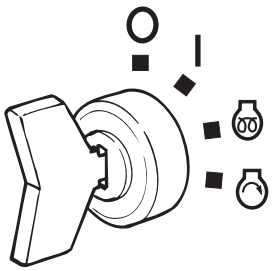
DANGER

Modification of the telehandler may affect the operator's visibility.

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.

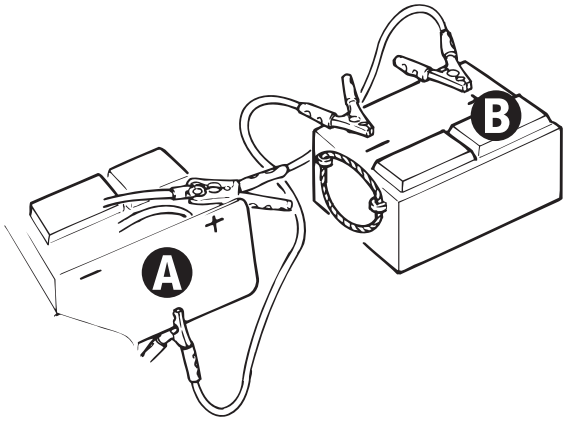
Keep any metal object like buckles, watch straps, etc. clear of the battery positive (+) terminal. These elements can short between the terminal and nearby metal work and the operator can get burned.

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



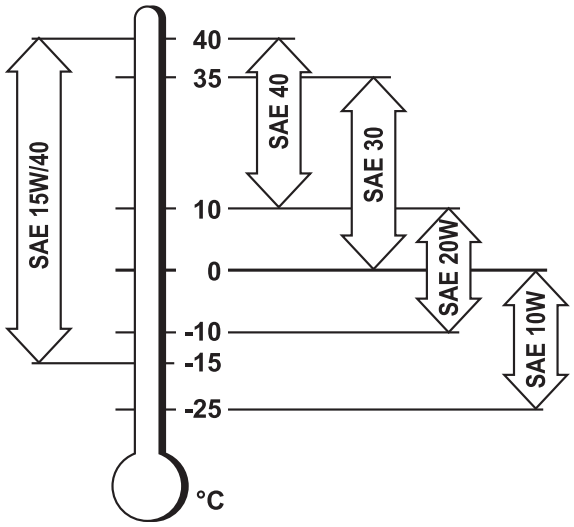
- Turn the ignition key and start the handler.
- Disconnect the cables. Remove first the negative terminal from the frame earth, then from the booster supply. Disconnect the positive terminal from the machine battery, then from the booster supply.

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.

■ 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.



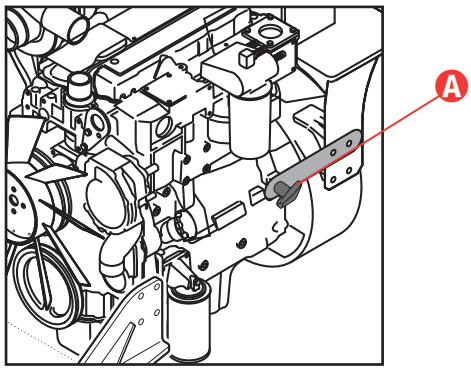
To start the engine from cold, proceed as follows:

- Set the forward/back speed lever to neutral position.
- Turn the ignition switch to the glow plugs preheating position and wait until the relevant warning light **11.11** goes off. 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

DISCONNECTING THE BATTERY

During maintenance or repair works, and while welding, turn off the battery cut-out switch Ⓐ, located into the engine compartment below the engine air filter.



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

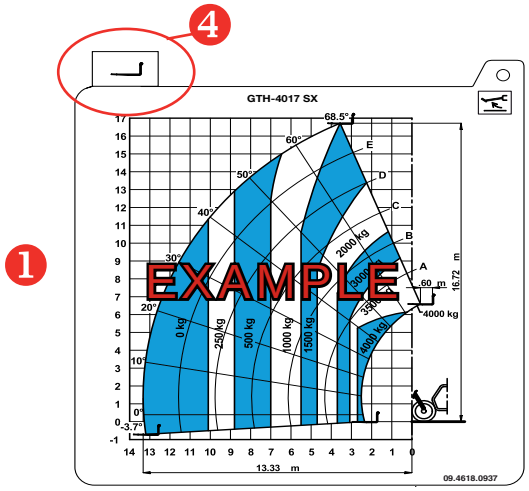
■ USING THE LOAD CHARTS

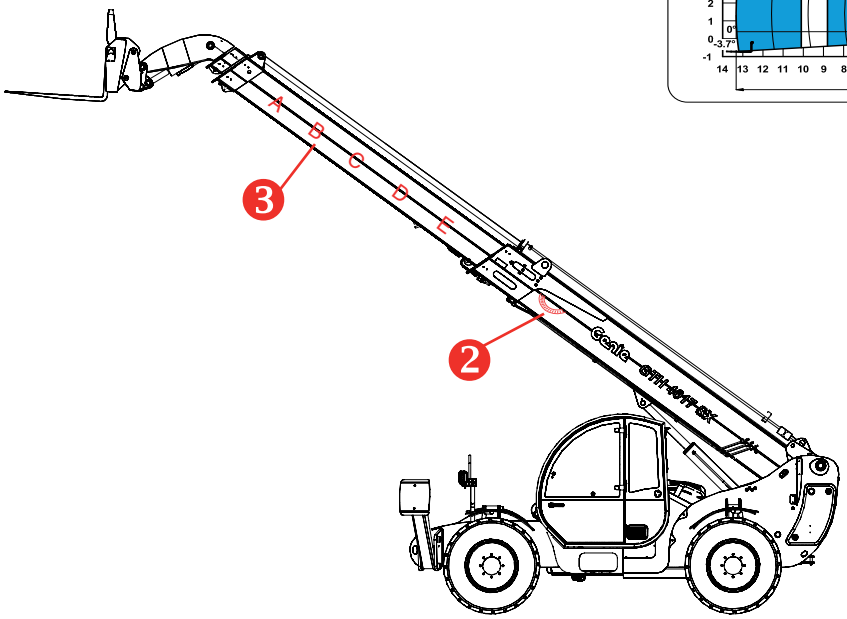
The load charts **1** indicates the maximum permissible load in relation to the boom extension and the type of attachment used. To operate under safe conditions, always refer to these charts.
The extension level of the boom can be checked with the help of the letters (**A**, **B**, **C**, **D**, **E**) painted on the same boom (pos.**3**), while the actual degrees of inclination of the boom are shown by the angle indicator **2.**
All the load charts are placed into a dedicated holder installed in the right side of the cabin, on the top of the dashboard.
The tag **4** located at the top of each load chart, indicates the type of attachment used**.**

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.

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.





Operating Instructions

LOAD LIMITER

On the front top strut of the cab, there is limiter **7** which warns the operator of the variation of stability of the machine and blocks any manoeuvre before the same reaches a critical condition.

Description of the controls

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

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

0:Generic

Operation

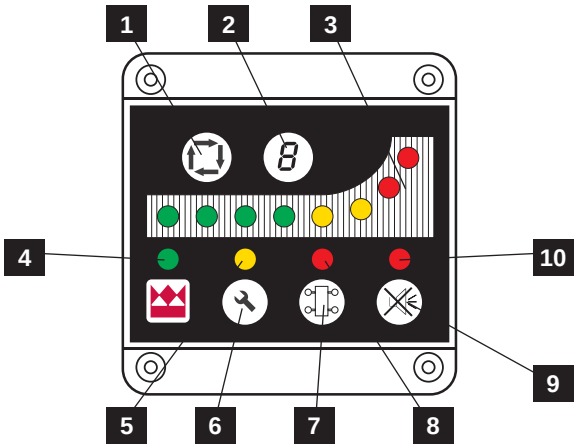
When power is turned on, light **4** comes on. The display **2** remains off and the monitoring system runs a self-test before displaying the digit corresponding to the used attachment on display **2**. At this time, the system is activated.

During operation, the led-bar **3** lights up gradually depending on the variation of stability.

Green LED's: during normal operation when the percentage of overturning moment is between 0 and 89, these LED's are ON. The machine is stable.

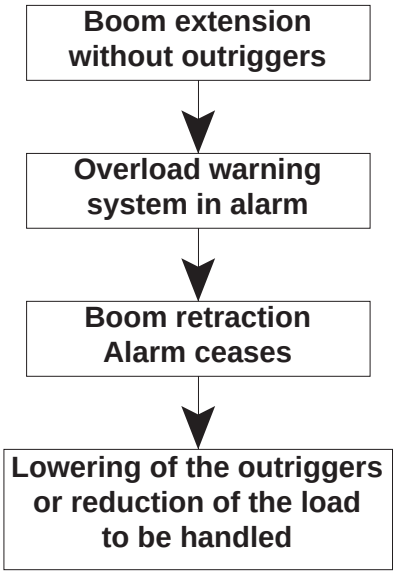
Yellow LED's: they light up when the machine tends to overturn and the percentage of overturning moment with respect to the threshold value is between 90 and 100. The system enters the **pre-alarm** mode, light **10** flashes and the buzzer sounds with an intermittent sound.

Red LED's: risk of overturning: the percentage of overturning moment is above 100 with respect to the threshold value.



The machine enters the **alarm** mode: light **10** is lit, the buzzer sounds continuously and any dangerous manoeuvre is blocked. The operator can only retract the load within safety limits.

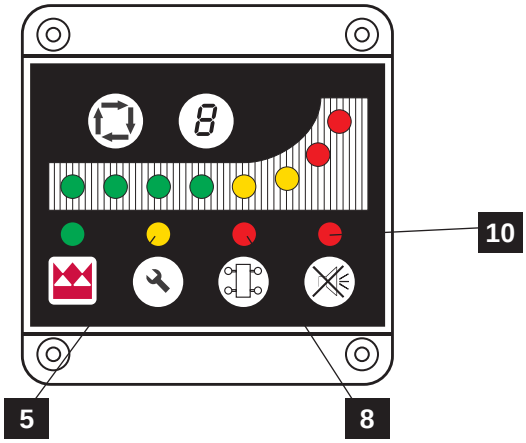
Example of use of the overload warning system



Operating Instructions

■ Alarm codes and resetting

The limiter has diagnostic facilities to aid in the identification of failures of the transducers, breakages of the cables or defects of the electronic system.
When a failure is signalled, the limiter enters the safety mode blocking any dangerous manoeuvres. Lights **5**, **8** and **10** start flashing, the buzzer start sounding and an error message is shown on the display.
The meaning of the error messages is shown in Section "**Faults and Troubleshooting**".



DANGER

Before using the machine, make sure that the first green LED of the overload warning system is ON.
The overload warning system must not be used to check the load going to be lifted: it has only been designed to signal possible unbalances of the machine along its motion axis.
Such unbalances may also be caused by an abrupt operation of the levers during the load handling. If, during work, several indicators light up, operate the levers more smoothly.

■ HANDLING LOADS

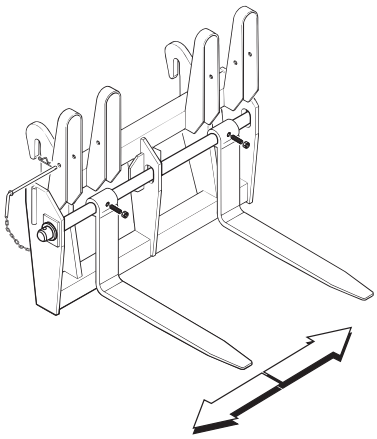
■ Adjusting the forks

With FEM forks (*OPTIONAL*)
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

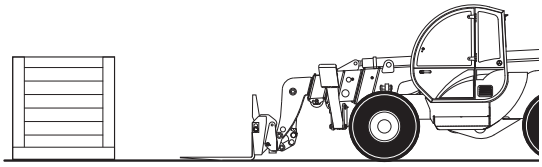
- ***The centre of gravity of the load must always be halfway between the forks.***
- ***Ensure you exactly know the weight of the load before handling it.***
- ***When extending the boom, do not exceed the payload limit.***
- ***Refer to the payload limits given in the load chart applied on the cab.***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

Operating Instructions

WORKING PHASES

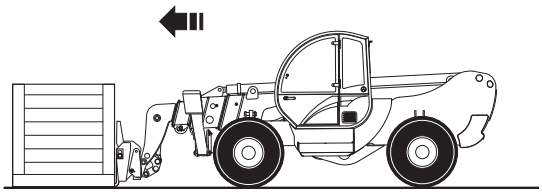
WARNING

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



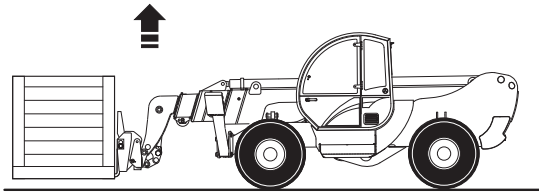
Loading phase

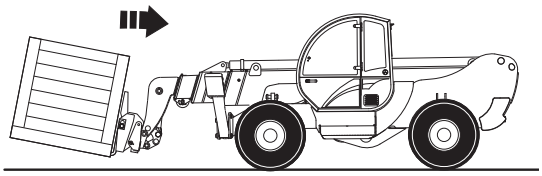
- Approach the load to the handled perpendicularly and check that the machine is level on the inclinometer.
- Insert the forks under the load and raise the load some centimetres.
- Pitch the forks back to retract the load.



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.

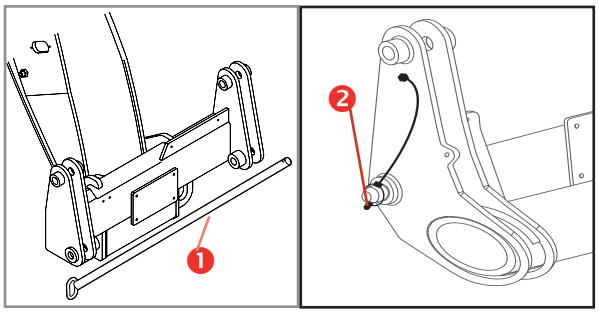
WARNING

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.

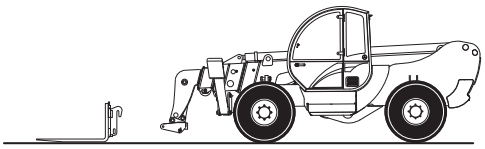
Version with MECHANICAL LOCKING

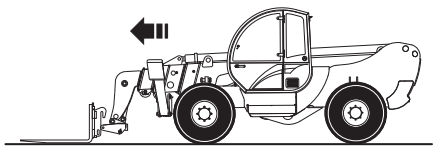
To change an attachment, operate as follows:

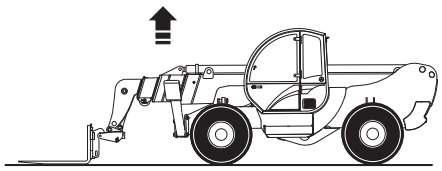
- Drive to the place where you will release the mounted attachment (when possible, a solid and sheltered site).
- Disconnect the quick connectors of the attachment (if any).
- Pull out pin **1** locking the attachment after removing the safety split-pin **2** at its end.

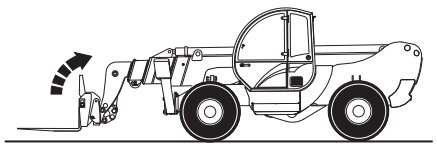


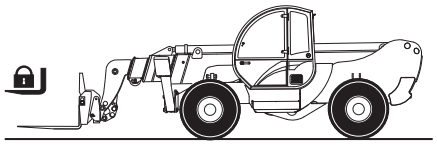
- Rest the attachment flat on the ground.
- Pitch the attachment holding frame forward and lower the boom to release the attachment upper lock.
- Move back with the machine and drive to the new attachment to be coupled.
- Hold the frame pitched forward and hook the upper lock of the new attachment.
- Retract and raise the attachment some centimetres. It will centre automatically on the quick coupling frame.
- Refit pin **1** fixing it with its safety split-pin **2**.
- Re-couple the connectors of the attachment (if any).







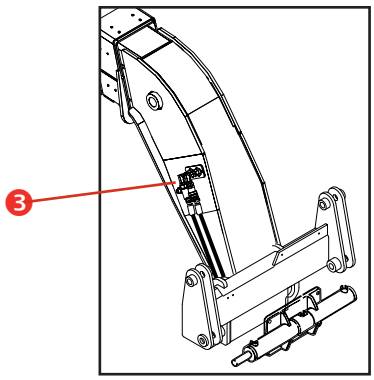




Operating Instructions

Version with HYDRAULIC LOCKING (optional)
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 **3**.



- 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 lever (optional) and secure the attachment in place with safety pin **2** previously removed.
- Re-couple the connectors of the attachment (if any).

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.
- Raise the front wheels of the machine.
- When possible, start the engine and use the hydraulic drive and the braking system.

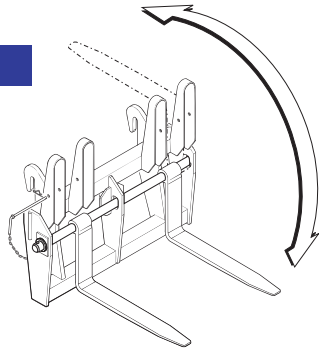
ROAD OR SITE TRANSFER

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.
- Select the two-wheel steering setting.
- Set the **Road/Jobsite switch 22** to "ROAD".
- 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.
- Start the engine: the flashing flashing beacon will switch on automatically.
- 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.

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).

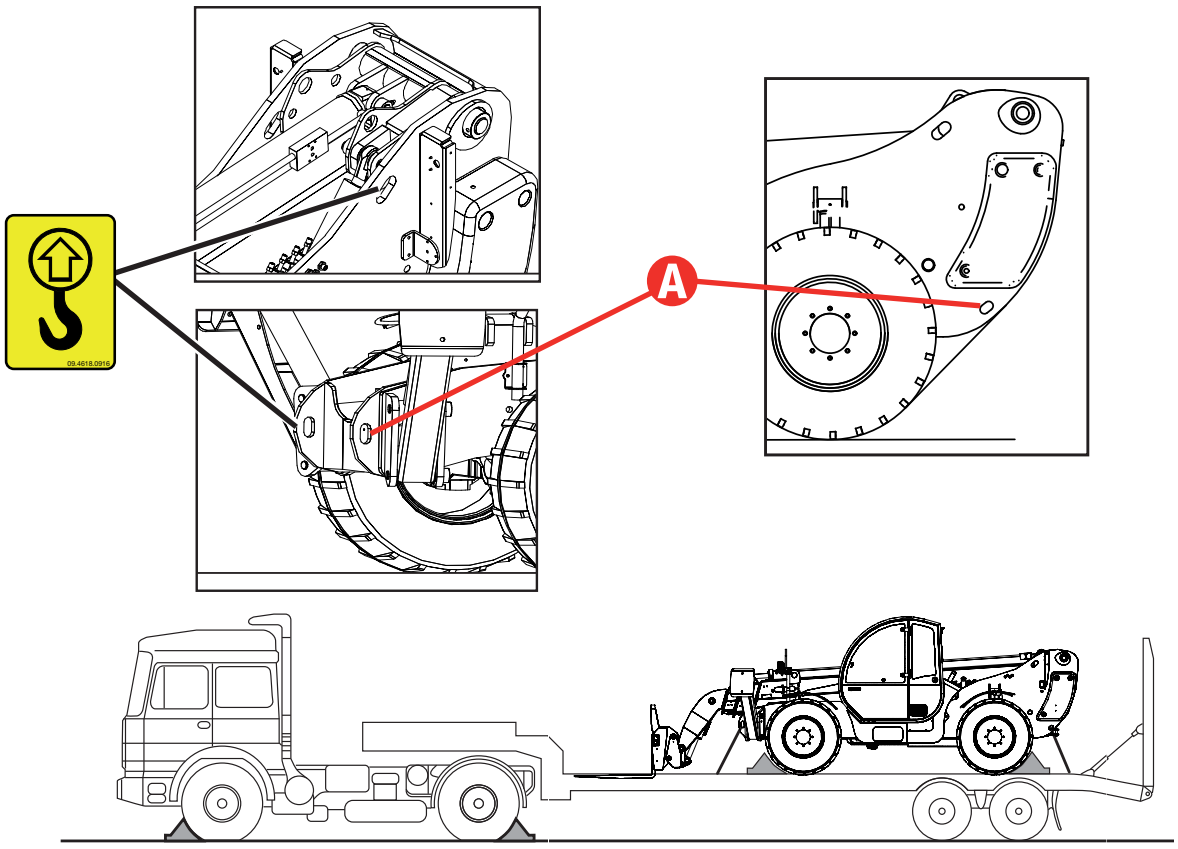
CAUTION

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.
- Retract 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

PROTECT THE ENVIRONMENT

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

PROTECT THE ENVIRONMENT

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	
Load Cell	09.0802.0018
LMI Display & Board	56.0016.0022
Emergency Stop Pushbutton	07.0703.0441
Seat Switch	07.0703.0484
Levelling Cylinder Safety Valve	04.4239.0003
Lifting Cylinder Safety Valve	04.4239.0005
2nd Telescope Extension Cylinder Safety Valve for GTH-4013SX	04.4239.0079
2nd Telescope Extension Cylinder Safety Valve for GTH-4017SX	04.4239.0041
3rd Telescope Extension Cylinder Safety Valve	04.4239.0001
Attachment Swinging Cylinder Safety Valve	04.4239.0000
Axle Locking Cylinder Safety Valve	04.4240.0024
Axle Levelling Cylinder Safety Valve	04.4239.0007
Outrigger Cylinder Safety Valves	04.4239.0007
Outigger Micro-switches	56.0012.0017
Parking Brake Sensor	07.0740.0267
Boom Safety Switches	56.0012.0000

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 gears, power divider and differential gears
2. Regularly check the tightening of the wheel bolts
3. Check the tightening of all bolts and nuts
4. Check the couplings for oil leaks

Within the first 100 working hours

1. Change the oil of the differential casing, the wheel reducer and the power divider gearbox.

Every 10 working hours or daily

1. Check the engine oil level.
2. Clean the air suction filter.
3. Check the engine coolant level.
4. Clean the radiator, if necessary.
5. Check the hydraulic oil level in the tank.
6. Check the greasing of the boom section pads.
7. Grease the attachment holding frame.
8. Grease all joints of the boom, the rear axle shaft joint, the transmission shafts, the front and rear axles and any equipment of the machine.
9. Check the efficiency of the overload warning system.
10. Check the efficiency of the lighting electric system.
11. Check the efficiency of braking system and parking brake.
12. Check the efficiency of the steering selection system.
13. Check the efficiency of the fork balancing system.
14. Make sure the safety devices installed are in efficient working order.
15. Check or re-sequence the boom telescopes.

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. Clean the radiator fins.

Every 250 working hours or monthly

Jobs to be done in addition to those above

1. Check the oil level in the front and rear differential gears.
2. Check the oil level in the four wheel reduction gears.
3. Check the main filtering element of the engine air filter. Replace, if necessary.

Maintenance

4. Check the clamping of the cableheads to the battery terminals.
5. Check the air suction hose between engine and filter.
6. Check the cylinder chromium-plated rods.
7. Check the hydraulic lines are not worn because of rubbing against the frame or other mechanical components.
8. Check the electric cables do not rub against the frame or other mechanical components.
9. ▲ Check the wear of the sliding pads of the boom sections.
10. ▲ Adjust the play of the sliding pads of the boom sections.
11. Remove any grease from the boom, then re-grease the sliding parts of the boom sections.
12. Check the level of the battery electrolyte.

Every 3 working months

Jobs to be done in addition to those above

1. Check the efficiency of the block valves.

Every 500 working hours or every six months

Jobs to be done in addition to those above

1. Visually check the smoke quantity evacuated 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. Change the hydraulic oil filter in the tank.
6. Have the hydraulic system checked by a skilled technician.
7. Change the main cartridge of the engine air filter.
8. Renew the cartridge of the engine oil filter and the fuel filter.
9. Change the oil of the front and rear differential casings.
10. Proceed with boom chain tensioning.

Every 500 working hours or yearly

Jobs to be done in addition to those above

1. Change the engine oil and renew the fuel filter.

Every 1000 working hours or yearly

Jobs to be done in addition to those above

1. Change the safety element of engine air filter.
2. Change the oil in the power divider gearbox.
3. Change the oil in the four wheel reduction gears.
4. Change the hydraulic oil.

Every 2000 working hours or every two years

Jobs to be done in addition to those above

1. Change the engine coolant.

At 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.

Maintenance

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 gearbox	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	SHELL TELLUS T 46 DENISON HF-1, DIN 51524 part 2 & 3
	First change	-	-	
	Subsequent changes	1000	yearly	

* 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

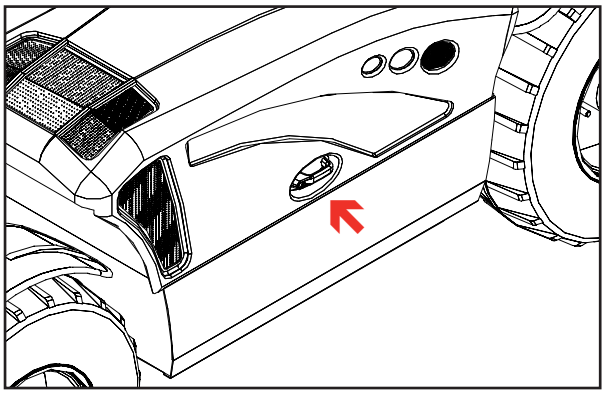
During maintenance or repair works, and while welding, turn off the disconnected battery switch, located into the engine compartment below the engine air filter.

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

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

1 Cleaning and changing the external element

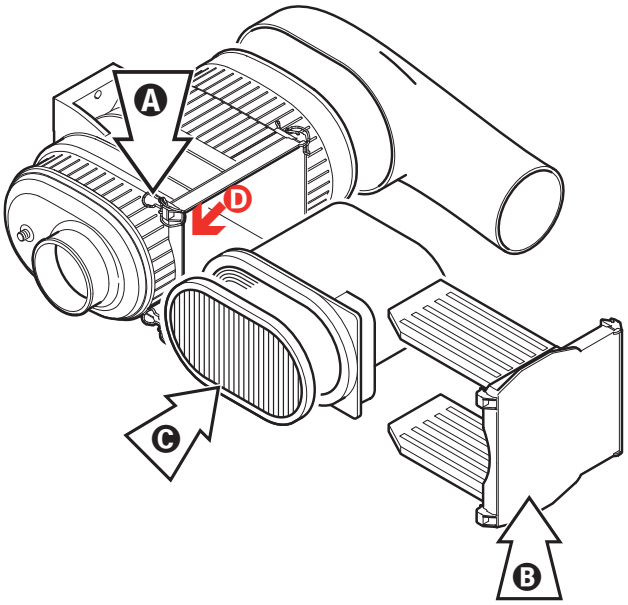
- Shut the engine down and put the parking brake.
- Open the four latches **A**.
- Remove the protection cap **B**.
- Extract the external cartridge **C**.
- Clean the filter bowl.
- Beat the cartridge against a piece of wood surface to eliminate any dust.
- Dry clean the cartridge (max. pressure: 6 bar).
- Check for cracks in the filtering element.
- Before refitting the cleaned cartridge or a new one, smear its seal with a thin coat of grease; fit the cartridge and make sure it is properly positioned.
- Refit cap **A**.

NOTICE

As soon as the warning lamp 18.3 on the cab dashboard switches on, replace the outer element.
Never wash the cartridge with water or solvents.

NOTICE

The inner element should be replaced every two times the outer element is replaced.
Never wash the cartridge with water or solvents.



2 Changing the internal element

- See step **1** for removing the outer element.
- Extract the internal cartridge **D**.
- Clean the filter bowl.
- Smear the seal with grease, then mount the new element and make sure it is correctly positioned.
- Refit the main filter and the cap as described in point **1**.

SERVICE INTERVAL

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

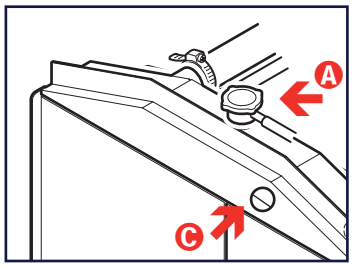
Maintenance

ENGINE COOLING SYSTEM

CAUTION

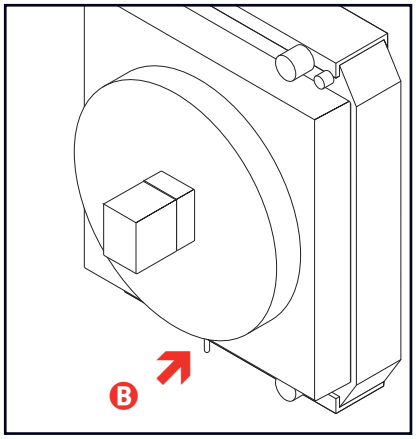
When the coolant is hot, the cooling system is under pressure. With warm engine, loosen the radiator plug slowly and carefully, without removing it, to drain the pressure. Use protection gloves and keep your face at a safe distance.

- Weekly check the coolant level through the level window **C**, before starting working (when fluid is cold).
- When necessary, add clean water or an antifreeze mixture through cap **A**.
- Change the antifreeze mixture every two years.
  To drain the antifreeze:
  - Let the engine cool down
  - Unscrew the plug **B** at the bottom of the radiator or disconnect the rubber hose, if no plug is present. Allow the coolant to flow out into a special container.
  - Refit the hose and pour new antifreeze (50% water-antifreeze). This proportion will provide protection up 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.

Visually check the hydraulic oil level through level **A** located on the reservoir and visible through the slot on the right side of the chassis.

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

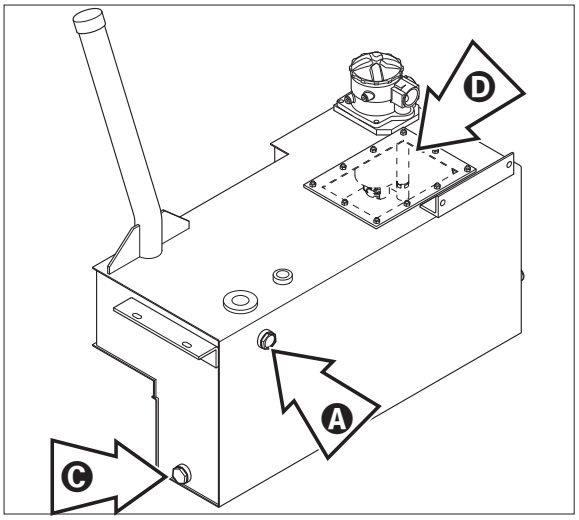
SERVICE INTERVAL

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

Ordinary _____ **Every 50 hours**

PROTECT THE ENVIRONMENT

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



■ CHANGING THE HYDRAULIC OIL

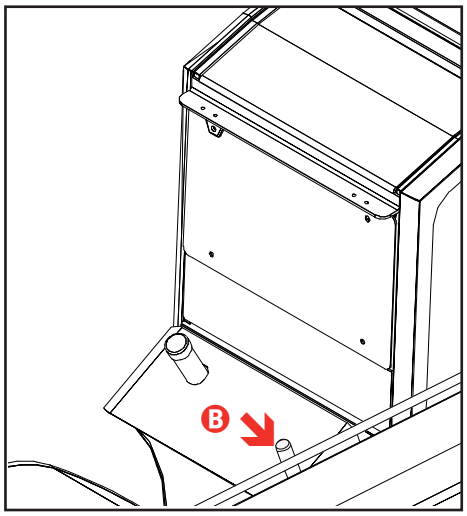
To change the hydraulic oil, proceed as follows:

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, 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. Remove the inspection cover of tank **D**.
6. Carefully wash the tank with Diesel oil and blow a jet of compressed air.
7. Refit the drain plug and the inspection cover.
8. 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**

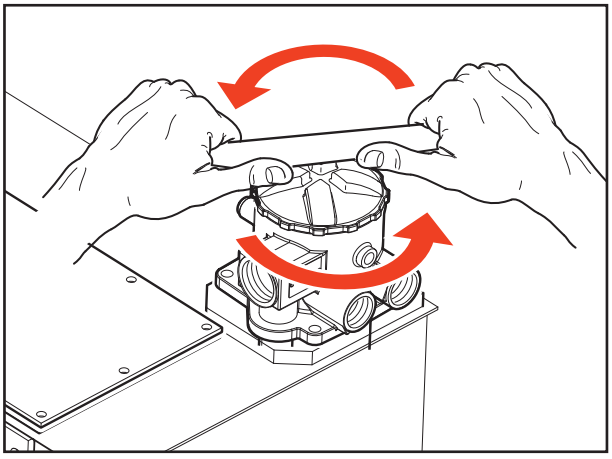


Maintenance

CHANGING THE OIL FILTER CARTRIDGE

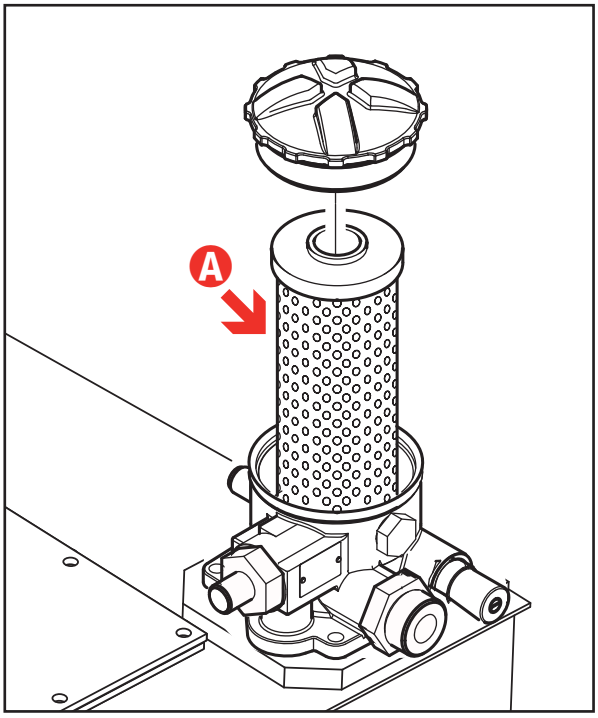
To change the hydraulic oil filter element, proceed as follows:

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 clogging indicator light on the control board 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

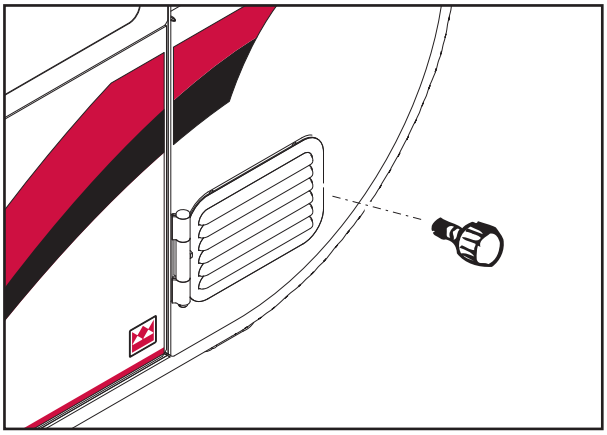
Running-in	**None**
Ordinary	**Every 500 hours**

Maintenance

CAB AIR FILTER



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

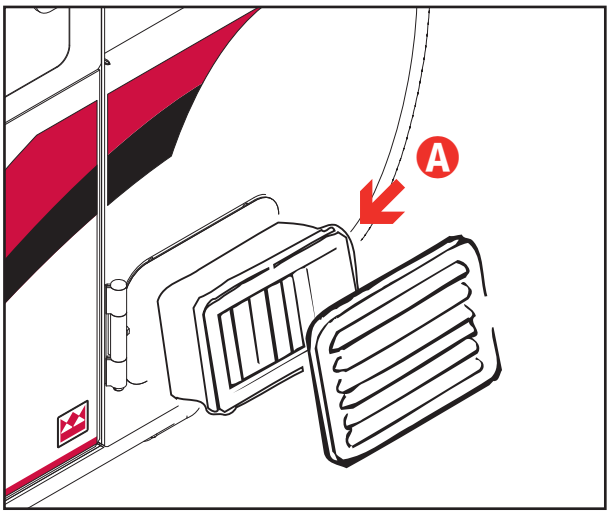


*1 **Cleaning and changing the cartridge:***

- 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

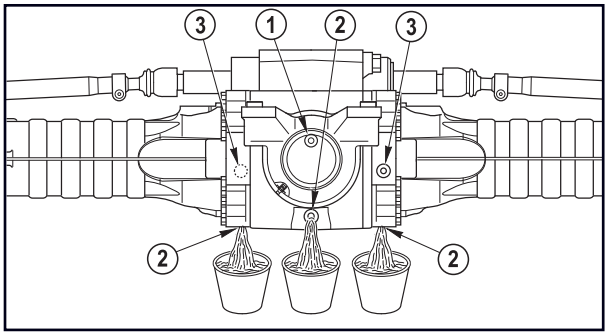
To check the oil level in the front and rear differential gears:

- 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**

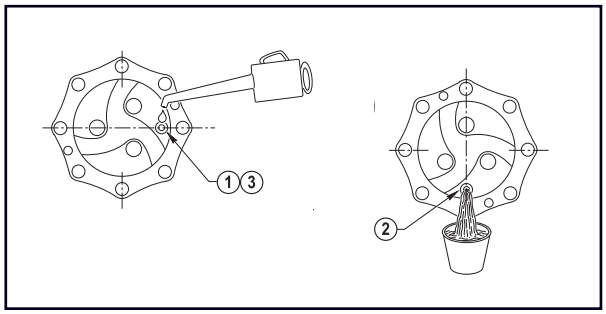
OIL LEVEL IN THE (front/rear) WHEEL REDUCTION GEARS

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

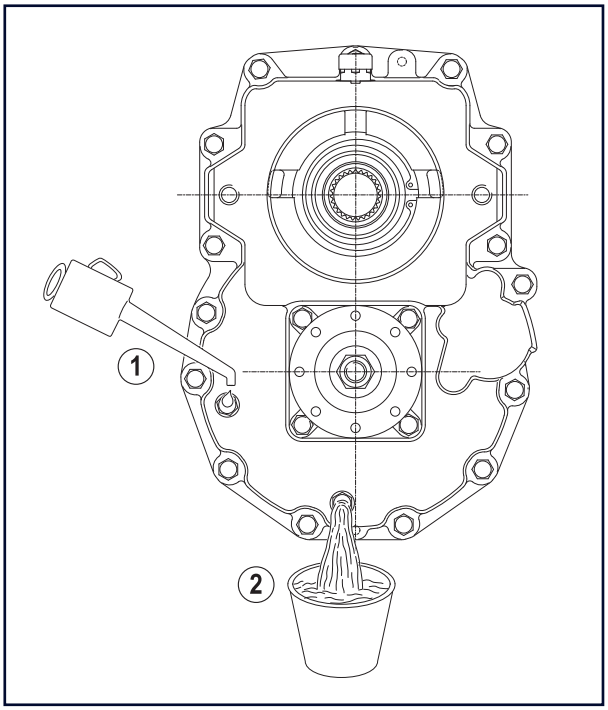
To check the oil level in the power diver gearbox:

- 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

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.

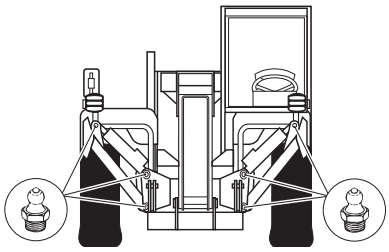
As the fresh grease comes out, stop the operation.

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**

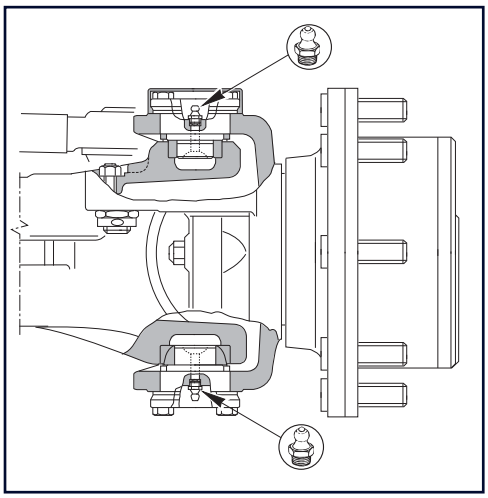


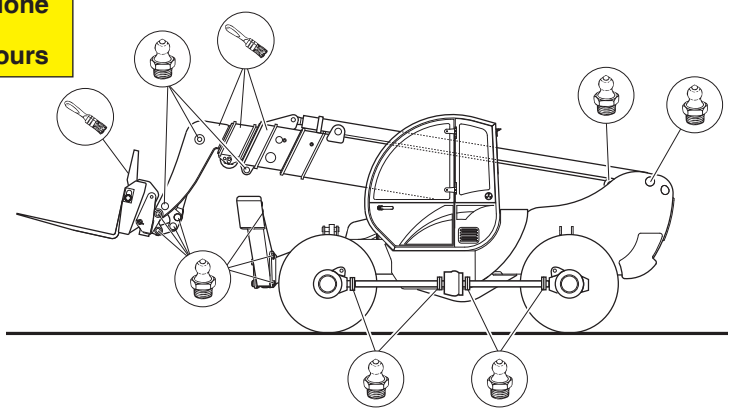
CAUTION

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.





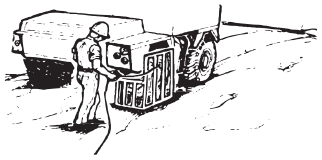
Maintenance

TYRES AND WHEELS

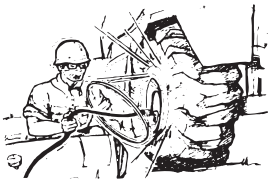
Over-inflated tyres can burst.

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 4017 SX	GTH 4013 SX
Dimensions (front and rear)	405/70-24	405/70-20
P.R. (or load index)	14 pr	14 pr
Rim	13x24	13x20
Wheel disc	8 holes DIN 70361	
Pressure bar/Psi	4.5/65	5.5/80
Optional	**Part Number**	
Polyurethane Filled Tyres	----------	55.0403.0022

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

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.

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

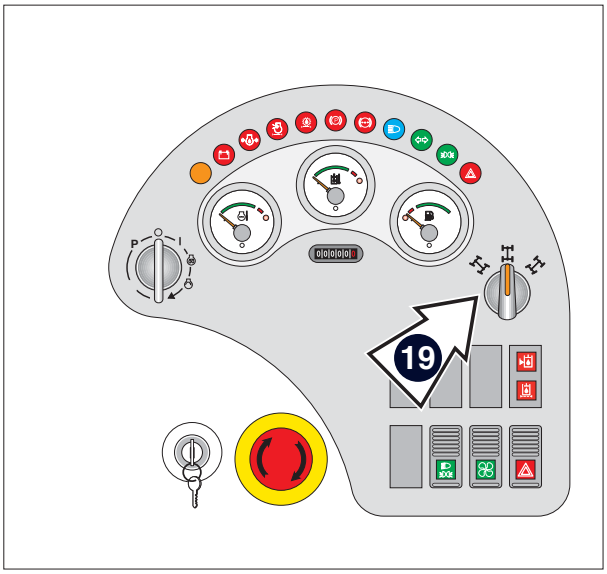
SHAFTING ALIGNMENT

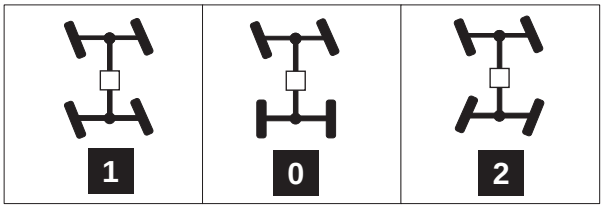
During operation, the alignment of the front and rear axles of the machine can be subject to variations. This can depend on an oil blow-by from the steering control circuit, or on a steering of both axles when front and rear wheels are not perfectly aligned.

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 **19** 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.





If the machine is equipped with the optional rear wheel shafting indicator light (see paragraph* Controls and Instruments*), the light comes on automatically when, by turning the steering selector switch from position 1 to position 0 or from position 2 to position 0, rear wheels are 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.

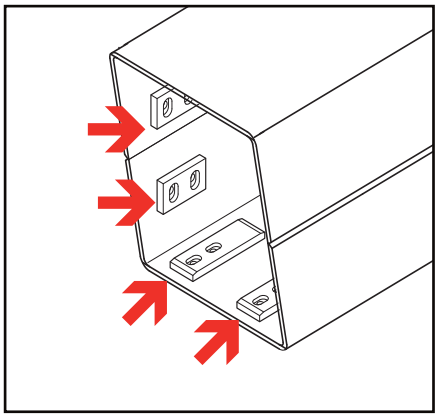
CAUTION

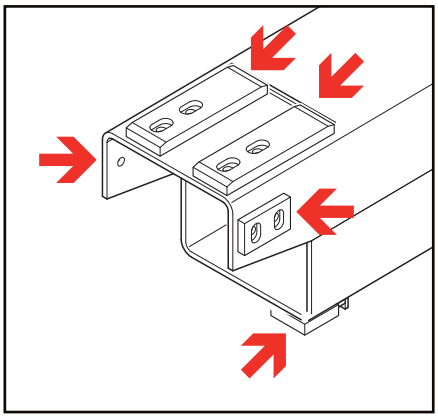
Pads must compulsorily be replaced if the residual thickness of the plastic layer with respect to the iron bush fixing the block is equal or inferior to 1 mm.

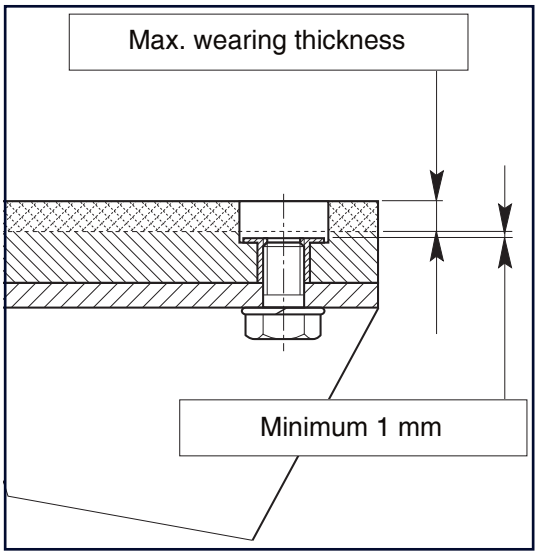
SERVICE INTERVAL

Running-in _____ **None**

Ordinary _____ **When necessary**







Maintenance

RE-SEQUENCING THE TELESCOPIC BOOM (Only for GTH 4013 SX)

If, during normal operation, a change in the boom extended lengths of 150 mm or more is noticed when the boom is retracted, proceed as follows:

1. Fully retract the telescope cylinder and hold the system over relief (approx. 15 seconds); the boom sections should become equal.

If after performing this procedure the boom still remains out of sequence, proceed with the steps below:

2. Move the boom to the zero position, fully retract the boom and hold the retract system over relief for approx. 20 seconds.
3. Raise the boom to approx. 60° and operate the retract function over relief for approx. 20 seconds.
4. Lower the fully retracted boom to the lowest angle possible without striking the ground and hold the retract system over relief for approx. 20 seconds.

If, despite these procedures, the boom does not return in sequence, raise the boom to approx. 60°, fully extend and retract it to full stroke and hold the system over relief (approx. 20 seconds) in each direction.

By following these procedures the boom re-sequencing should be correct.

SERVICE INTERVAL

Running-in _____ **None**

Ordinary _____ **When necessary**

TENSIONING THE BOOM CHAINS (Only for GTH 4017 SX)

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

■ LOAD LIMITING SYSTEM.

It consists of a load cell fitted to the rear axle and a display installed in the driving place. This device enables the operator to check the stability variation through a bar with 8 LED's (4 green, 2 yellow and 2 red).

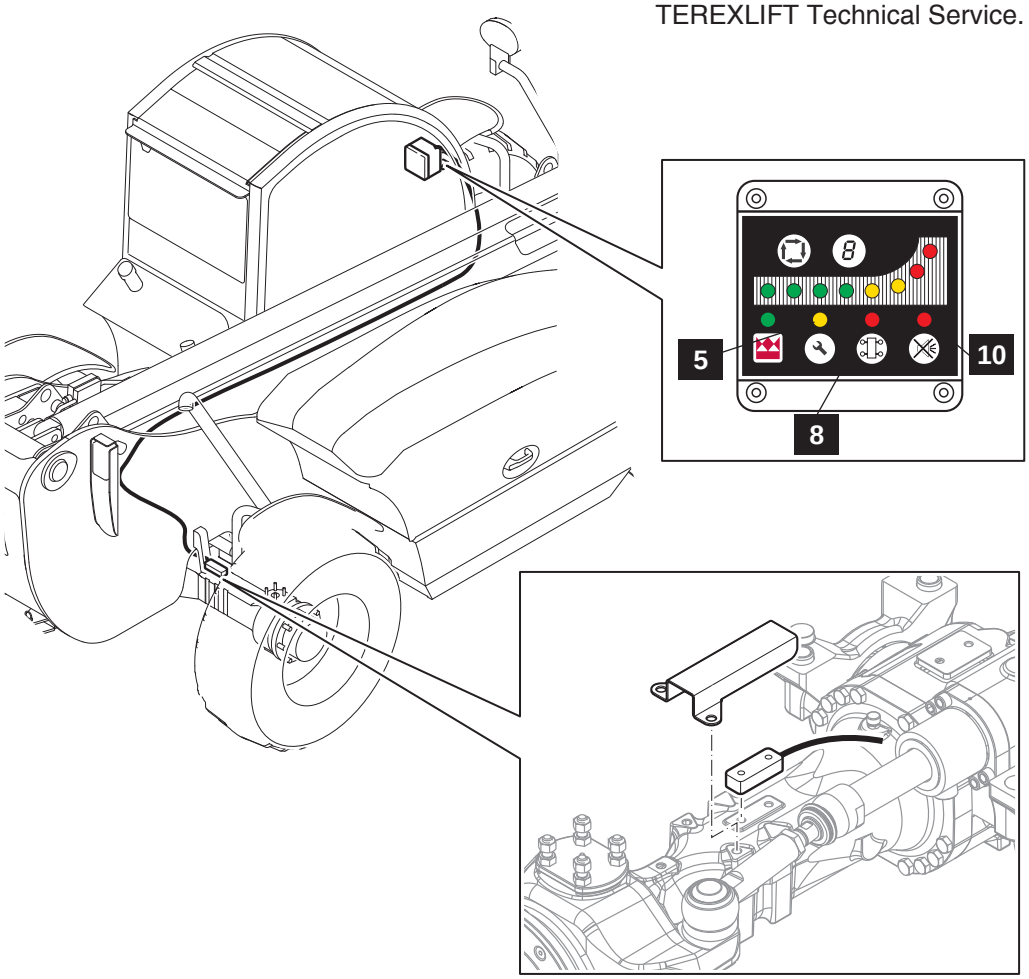
■ Checking the LOAD LIMITING SYSTEM

(at every use)

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

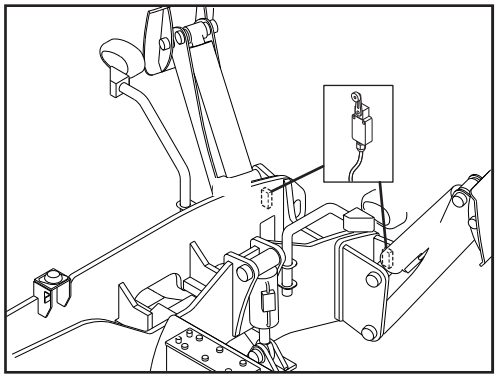
The meaning of the error messages is shown in Section "**Faults and Troubleshooting**".

To do a manual check, it will be enough to load a weight exceeding the maximum permitted with the boom fully out and attempt to lift it. The system shall enter in alarm; should that not be the case, contact TEREXLIFT Technical Service.



Maintenance

■ **MICRO-SWITCHES on the OUTRIGGERS**
When the outriggers are lowered to the ground:
- the overload warning system changes the meter scale
- the transmission is deactivated



■ **Checking the micro-switches of the outriggers** (at every use)

To check the micro-switches of the outriggers:

- Lower the outriggers to the ground and attempt to engage a gear.
  If the gear can be engaged, contact the TEREXLIFT Technical Assistance Service.

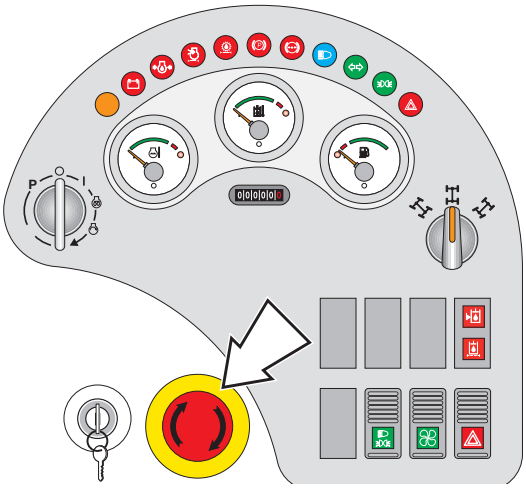
Proceed on one outrigger at a time.

- With the outriggers up, light **8** on the load limiter panel must be off; with the outriggers down to the ground, the same light must be on. Should it not be the case, contact the TEREXLIFT Technical Service.

WARNING

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

■ **EMERGENCY STOP PUSHBUTTON** 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)

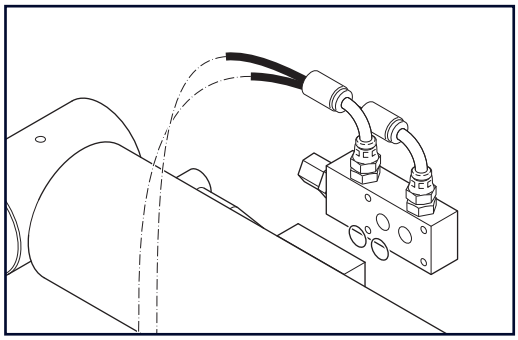
To check the efficiency of this pushbutton, simply press it down during a movement. The pressure of the pushbutton shall cause the movement to stop and the engine to shut down.

Maintenance

■ BLOCK VALVES fitted to all CYLINDERS

All machine's cylinders are equipped with block valves:

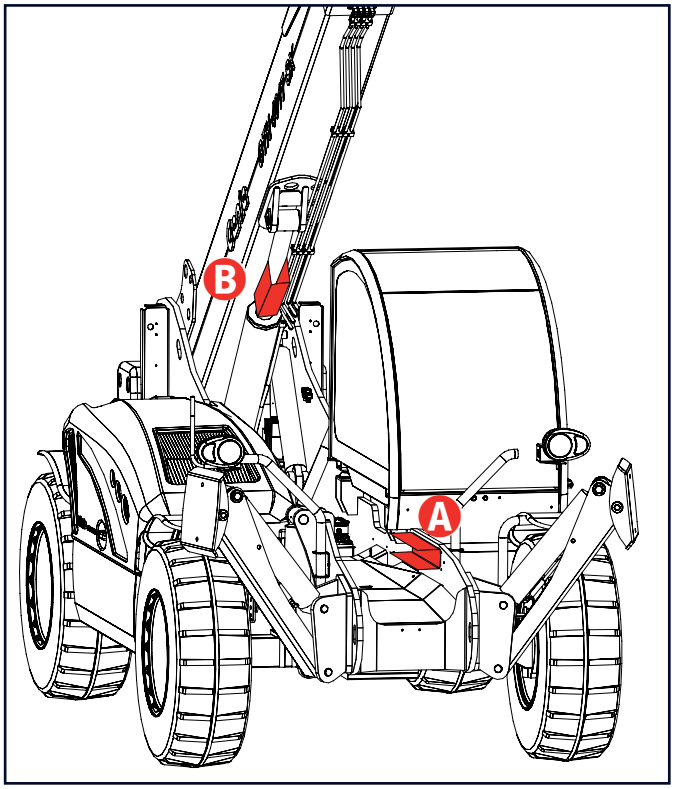
- Compensation cylinder
- Lifting cylinder
- Telescopic boom extension cylinder
- Attachment swinging cylinder
- Outirigger cylinders
- Machine rear axle locking cylinder
- Machine levelling cylinder



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 (pos. B)
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

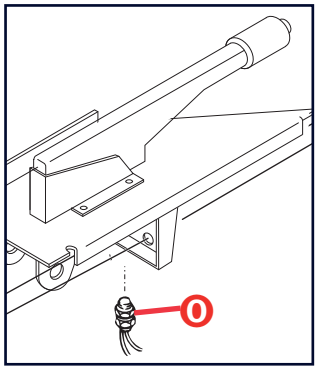
■ **SAFETY SWITCHES**:

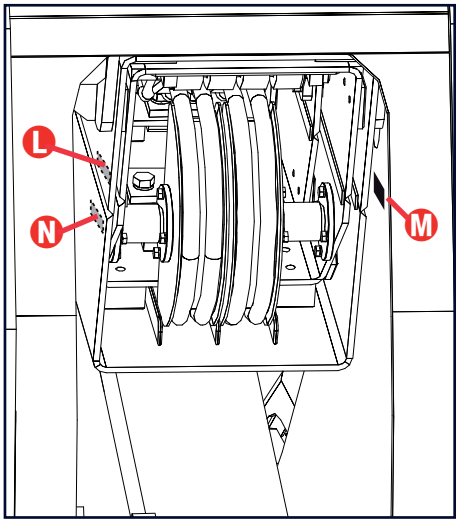
L ***Low boom sensor***: switch installed at the back of the boom.

M ***High boom sensor***: switch installed at the back of the boom.

N ***Extended boom sensor***: switch installed at the back of the boom. (**ONLY FOR GTH-4013 SX**)

O ***Parking brake sensor*** to prevent forward-backward transmission engaging.





■ **Switch control** (**ONLY FOR GTH-4013 SX**) (at every use)

Switch L on boom

- Lift the boom with a tilt angle below **20°** and check if, regardless of the boom extension, machine sway function and outriggers' controls can be activated.

  If they cannot be activated, call TEREXLIFT Technical Assistance Service.

Switch M on boom

- Lift the boom with a tilt angle over **50°** and make sure the machine sway function and outriggers' controls are disabled.

  If they are not disabled, call TEREXLIFT Technical Assistance Service.

Switch N on boom

- Lift the boom with a tilt angle over **20°**, extend the boom and make sure the machine sway function and outriggers' controls are disabled.

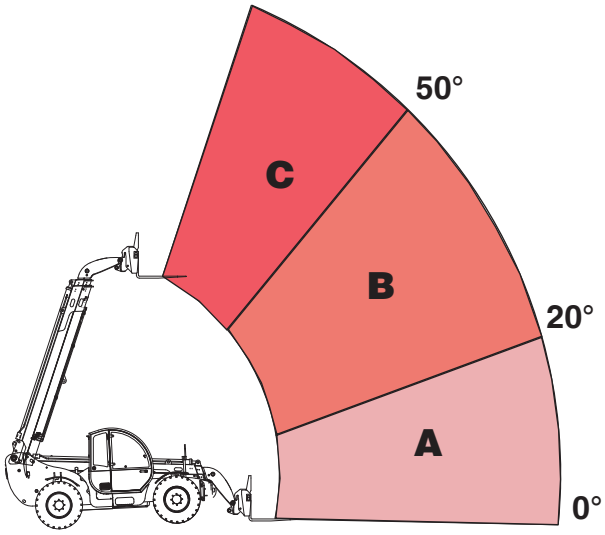
  If they are not disabled, call TEREXLIFT Technical Assistance Service.

Switch O on the parking brake

- Sit in the driving seat, engage the parking brake and make sure the machine does not move.

  If the machine moves, replace or adjust the distance of the micro-switch on the parking brake

.



Maintenance

■ Switch control (ONLY FOR GTH-4017 SX) (at every use)

Switch L on boom

- Raise and tilt the boom more than 50° and check if the axle is blocked.

  If they cannot be activated, call TEREXLIFT Technical Assistance Service.

Switch M on boom

- Raise the boom more than 20° and ensure the sway control and the outrigger conttrol are blocked.

  If they are not disabled, call TEREXLIFT Technical Assistance Service.

Switch O on the parking brake

- Sit in the driving seat, engage the parking brake and make sure the machine does not move.

  If the machine moves, replace or adjust the distance of the micro-switch on the parking brake

■ Checking the MACHINE START CONTROL (at every use)

Attempt to start the engine with the forward or reverse gear put.

The engine must not start. If the engine starts, contact the TEREXLIFT Technical Service.

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

■ CHECKING THE STATE OF THE STRUCTURE

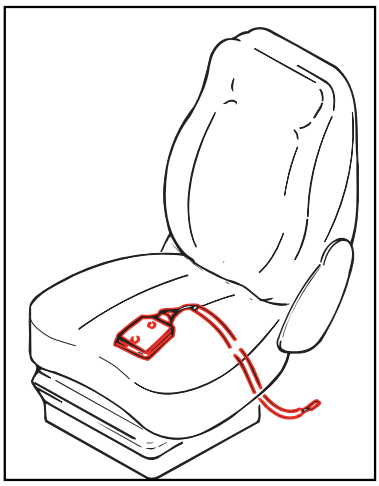
Five years or 6000 hours after the first placing into operation of the machine (whichever occurs first), check the state of the structure paying an extreme attention to the welded supporting joints and the pins of both boom and platform (if present).

WARNING

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

■ 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.

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

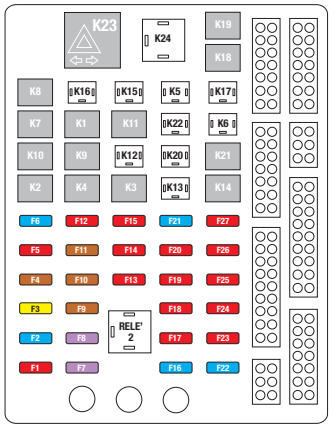
The electrical system is protected by fuses placed in the driving cab, on the left. Before replacing a blown fuse with a new one having the same amperage, find out and rectify the fault.

Fuses

Ref.	Circuit	Amp.
F1	FRONT WIPER	10
F2	HEATING	15
F3	STOP LIGHT MICRO-SWITCH	5
F4	REAR WIPER	7.5
F5	HYDRAULIC ACTIVATION	10
F6	LOW BEAM	15
F7	RIGHT POSITION LIGHTS	3
F8	INSTRUMENT LIGHTING	3
F9	INDICATOR LIGHTS POWER SUPPLY	7.5
F10	LIGHTS SWITCH	7.5
F11	FLASHING BEACON	7.5
F12	STOP LIGHTS	10
F13	2° HYDR. CIRCUIT SWITCH	10
F14	SPEED SWITCH	10
F15	HIGH BEAM	10
F16	EMERGENCY	15
F17	LIGHTS AND FLASHING	10
F18	OUTRIGGERS MICRO-SWITCH	10
F19	WORK MODE SELECTOR	10
F20	+12V ON THE BOOM	10
F21	HORN	15
F22	OPTIONAL	15
F23	CAB LIGHTS	10
F24	EMERGENCY STOP	10
F25	LMI CONTROL	10
F26	CONT. FLOW ENABLING SWITCH	10
F27	WORK LIGHTS	10

Relays

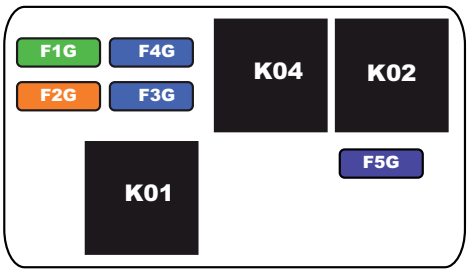
Ref.	Circuit
K1	HIGH BEAM
K2	LOW BEAM
K3	HORN
K4	SPEED SWITCH POWER SUPPLY
K5	OPTIONAL
K6	OPTIONAL
K7	FORWARD SPEED
K8	REVERSE SPEED
K9	TRANSMISSION DISCONNECTED
K10	TRANSMISSION DISCONNECTED
K11	START-UP ENABLING COMMAND
K12	OPTIONAL
K13	OPTIONAL
K14	OUTRIGGERS
K15	OPTIONAL
K16	OPTIONAL
K17	OPTIONAL
K18	OUTRIGGERS
K19	OVERLOAD WARNING SYSTEM
K20	HIGH BOOM
K21	D.F.E.
K22	TILT/EXT. EXCHANGE MOVEMENTS
K23	INTERMITTENCE
K24	TIMER



Maintenance

■ Engine compartment fuses and relays

Ref.	Circuit	Amp.
F1G	Starter Enabling Switch	30
F2G	Instruments Panel	40
F3G	Cabin Fuses Board	60
F4G	Glow Plugs	60
F5G	Fuel Pump	15
K01	Glow Plugs Preheating	
K02	Starter Enabling Switch	
K04	Engine Stop	



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.***

■ 12V DC LAMPS

Use	Voltage	Mount type	Power
Front low/high beam	12 V	P45t	45/40 W
Front position lights	12 V	BA 9s	3 W
Side/tail turn signals	12 V	BA 15s	21 W
Stop lights and rear position lights	12 V	BAY 15d	21/5 W
Beacon - Work lights (OPTIONAL)	12 V	H3	55 W
Dashboard indicators and cab lighting	12 V	W 2x4.6d	1.2 W
Interior lamp	12 V	SV 8.5-8	5 W
License plate lights	12 V	BA 15s	5 W
Back-up lamps	12 V	BA 15s	21 W

NOTICE

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

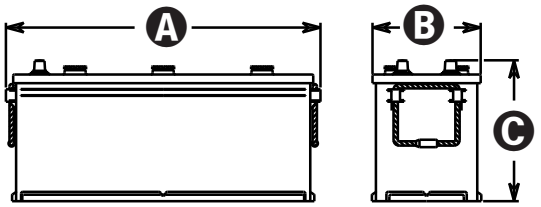
NOTICE

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

Maintenance

BATTERY

STARTER BATTERY SPECIFICATIONS	
Volt	12
Ah	120
Length Ⓐ	510 mm
Width Ⓑ	175 mm
Height Ⓒ	228 mm
Weight	36 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 (litres)
Diesel engine	Engine oil	7
Engine cooling system	Water+antifreeze	15
Fuel tank	Diesel fuel	135
Hydraulic system tank	Hydraulic oil	150
Gearbox	Oil	1.5
Differential gears	Oil	8.7
Wheel reduction gears	Oil	0.75

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 and relevant filtering elements

Refill the machine with following lubricants:

Use	Product	Definition
Power divider-Differential gears-Reduction gears	TRACTORENAULT THFI 208 LF SAE 80W	API GL4 / FORD M2C 86B Massey Ferguson M1135
Hydraulic system and brakes	SHELL TELLUS T46	DENISON HF-1 DIN51524 part 2 & 3

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 SHELL Tellus T46
Tropical climates:	Temperatures above +30°C	Use SHELL Tellus T68

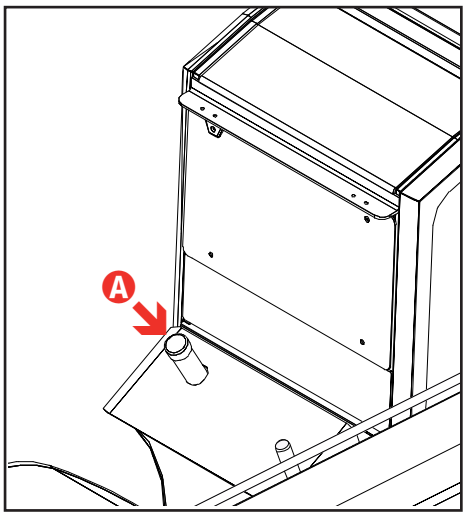
Maintenance

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:

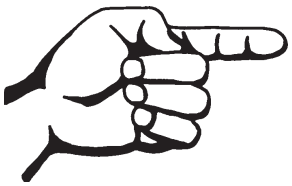
TEREX PRO COOL by VALVOLINE

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 main fuse in the engine compartment and replace if necessary
THE STARTER DOES NOT RUN	• Forward/reverse gear selector not in neutral position • Battery down	• Set the switch to **0** • Recharge or replace the battery
THE STARTER RUNS, BUT THE ENGINE DOES NOT START	• Engine start fuse **F5G** blown • No fuel • Fuel filter clogged • Fuel hose empty (fuel used up)	• Check the fuse located i and replace if necessary • 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 • Operator is not correctly seated in the driving seat • Parking brake engaged • Fuse **F18** blown	• Set the gear switch to correct position • Sit correctly in the driving seat • Disengage • Check the fuse and replace if necessary.
NO SELECTION OF THE STEERING MODE	• Fuse **F26** blown	• Check the fuse and replace if necessary.
THE DLE LOAD LIMITING SYSTEM IS IN ALARM	• Fuse **F25** blown • System failure	• Check and replace fuse, if necessary • Check the load cell functionality

Faults and Troubleshooting

PROBLEM	CAUSES	SOLUTIONS
ERROR MESSAGES OF THE DLE LOAD LIMITING SYSTEM SHOWN ON THE DISPLAY	**1** E2PROM error	• Stop and restart the machine to RESET the system. If the error message is still shown, address to the TEREXLIFT service centre to re-calibrate the machine.
	2 The value read from **CELL 1** is higher than max permissible	• Check the wiring between control panel and load cell • Check that the load cell is fixed correctly • Check the connecting cable or the connectors is/are not shorted. • If the error message is still shown, address to the TEREXLIFT service centre and let the load cell be checked.
	4 Block relay error during operation	• Check the efficiency of relay and wiring. • Stop and restart the machine and check the outputs. If the error message is still shown, address to the TEREXLIFT service centre to replace the DLE unit.
	5-8 Block relay error when power is turned on	• Check the efficiency of relay and wiring. • Stop and restart the machine and run a new test. If the error message is still shown, address to the TEREXLIFT service centre to replace the DLE unit.
	A Data error in RAM	• Stop and restart the machine. If the error message is still shown, address to the TEREXLIFT service centre.
	B Outrigger incongruence	• An input is not read. Check the wiring, the power cord and the connector of the DLE unit. If the error message is still shown, address to the TEREXLIFT service centre.
	C Error in A.D.C. reading check	• Stop and restart the machine. If the error message is still shown, address to the TEREXLIFT service centre.

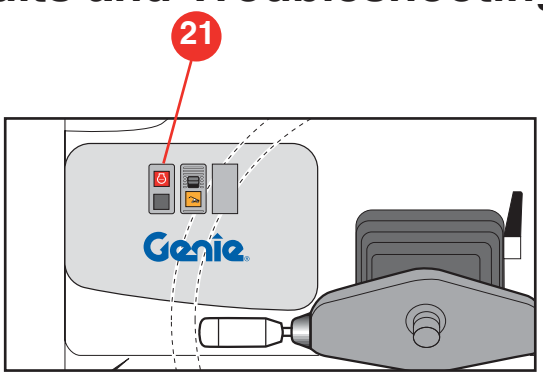
NOTICE

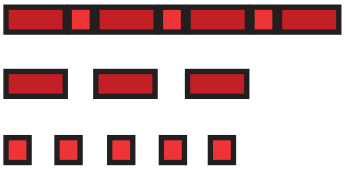
In case of faults not listed in this chapter, address to the TEREXLIFT Technical Assistance, your nearest authorised workshop or dealer.

Faults and Troubleshooting

TRANSMISSION PROBLEMS DIAGNOSTICS

By interpreting the series of blinks of the transmission indicator light **21** (see paragraph **Controls and Instruments**), it is possible to identify the problems occurred in electric components.
Each sequence is a number where long blinks mean tens and short blinks mean units
.





Short shimmering before code transmission

Long blinks: tens (in this case 3)

Short blinks: units (in this case 5)

ERROR CODE 35

FAULT TABLE

Error code	Error description	Machine state
15	Battery Voltage or Sensor Voltage Error	SAFE-Mode
19	Pump Current Forward Error	SAFE-Mode
23	Pump Current Reverse Error	SAFE-Mode
27	Motor Current Error	SAFE-Mode
31	Engine Speed RPM Error	SAFE-Mode
35	FNR Shortcut Error	LIMITED-Mode
39	Inching Error	SAFE-Mode
43	CREEP DRIVE Error	LIMITED-Mode
47	CREEP MODE Error	LIMITED-Mode
55	Parking Brake Error	SAFE-Mode
59	HST Motor RPM Error	LIMITED-Mode
70	CAN line Error	LIMITED-Mode

SAFE-Mode: the machine stops and restarts only when the panel is switched off and on again, after eliminating the detected problem.
LIMITED-Mode: the machine moves adjusting the pump but without controlling the engine; therefore, it moves at limited speed.

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

(code 59.0202.0000)

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

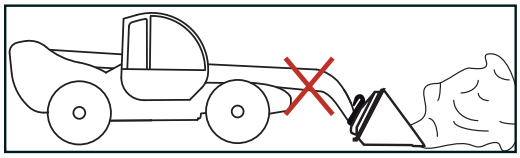
Visually check the shovel for damage before using it.

Safety

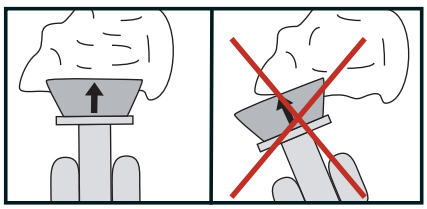
Strictly obey the general safety precautions given in section "**Safety**".

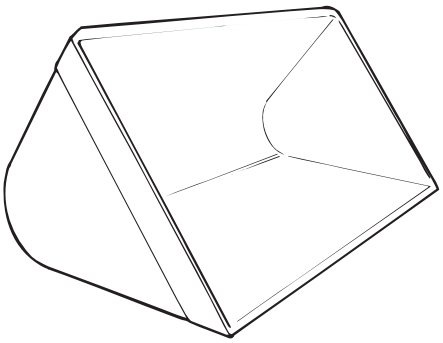
CAUTION

- ***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 .***





TECHNICAL DATA	
Capacity	800 litres
Width	2340 mm
Length	1000 mm
Height	850 mm
Weight	440 kg

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.***

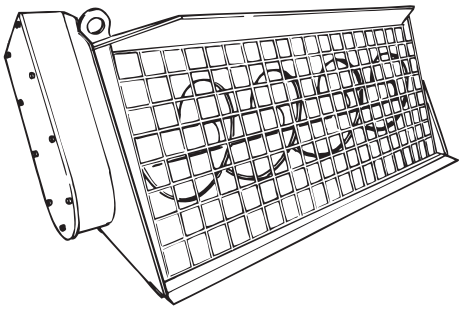
CAUTION

Do not use for digging operations.

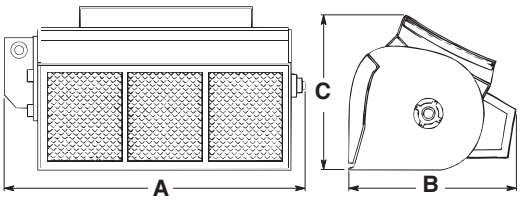
Optional Attachments

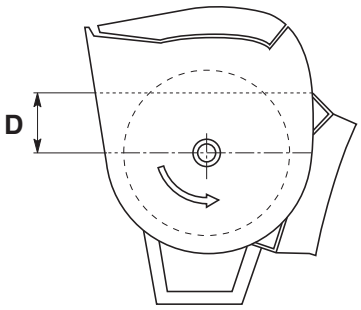
500 LT MIXING BUCKET

(code 59.0401.0000)



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.

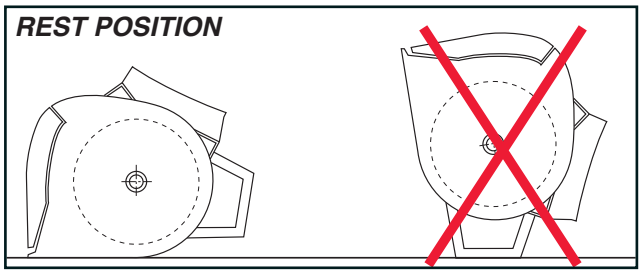
Safety
Strictly obey the general safety precautions given in section "**Safety**".

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.

CAUTION

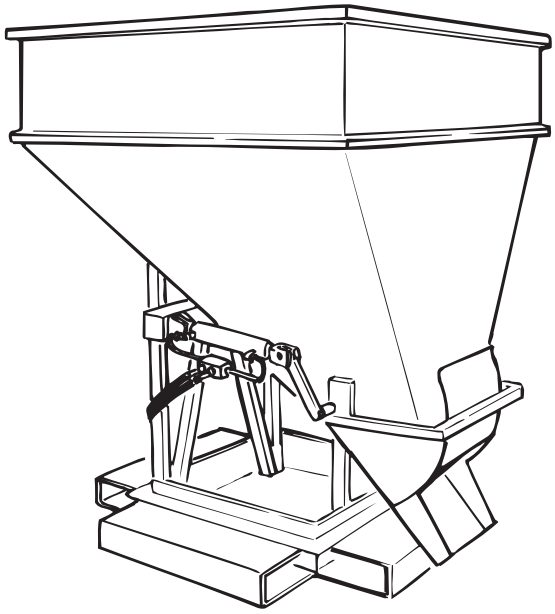
Before any maintenance, rest the bucket on the ground, stop the machine, remove the starter key and lock the cab door to prevent anybody from gaining access to the control panel.



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**".

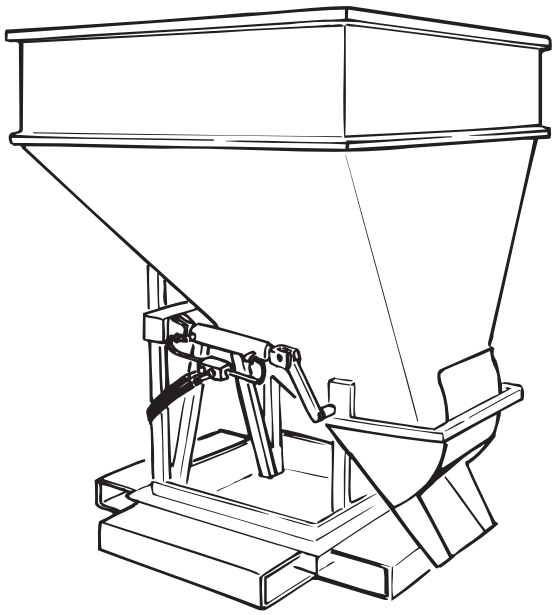
Operation
Fork the skip bearing in mind the side where the product will be unloaded.
Secure the skip to the forks using the chains provided.
To unload the concrete:
- *Manual Version:* manually operate the gate opening lever
- *Hydraulic Version:* operate the attachment locking lever after connecting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

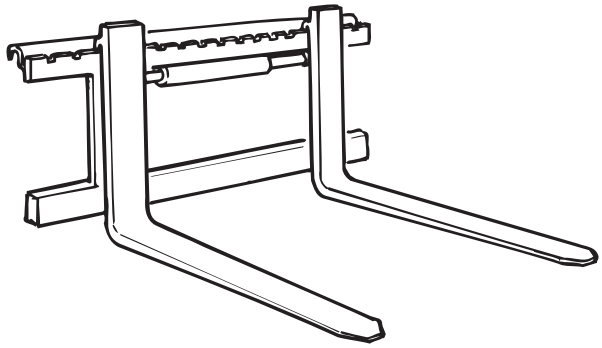
Operation
Fork the skip bearing in mind the side where the product will be unloaded.
Secure the skip to the forks using the chains provided.
To unload the concrete:
- *Manual Version:* manually operate the gate opening lever
- *Hydraulic Version:* operate the attachment locking lever after connecting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

FORKS WITH HYDRAULIC SIDE-SHIFT

(code 59.0601.2000)



TECHNICAL DATA	
Payload	4000 kg
Width	1400 mm
Length	1600 mm
Height (with protection)	1140 mm
Weight	180 kg
Stroke	± 100
Fork Attachments	FEM 3

Application

Quick-coupling fitted attachment for handling palletised loads with possibility of shifting the load to the side by ± 100 mm.

Safety

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

- Do not load loose materials
- Do not move superposed pallets

Operation

To adjust the tilting, operate the rotation lever of the attachment holding plate.

To side-shift, operate the attachment locking lever after connecting the feeding lines of the new attachment to the quick couplings (see page F-2).

Maintenance

Visually check the attachment for damage before using it.

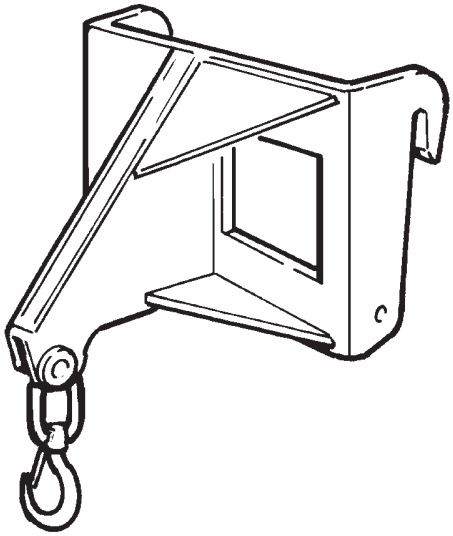
Check for hydraulic oil leaks.

Daily grease the joints using a greasing gun, and smear the sliding guides with graphitized grease.

Optional Attachments

4000 KG FIXED HOOK ON PLATE

(code 59.0700.4000)



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.

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

CAUTION

The fixed hook has been designed to support a load of 4000 kg. 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.

DANGER

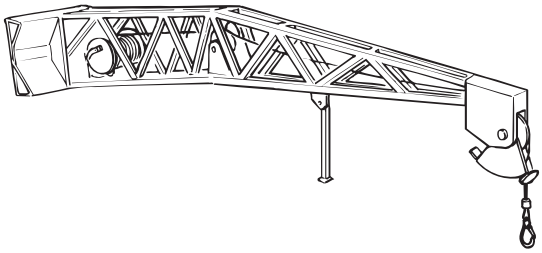
- ***Do not allow suspended loads to oscillate. Do not drag loads when they are hooked up.***
- ***A suspended load has a dynamic, and therefore an unpredictable effect on machine stability, operate with caution.***

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

Optional Attachments

900 KG EXTENSION JIB

(code 59.0802.0000 _ Mechanical Version)
(code 59.0801.9000 _ Hydraulic Version)



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.

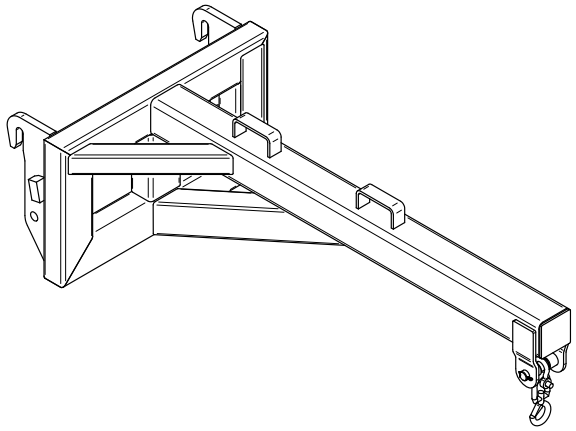
Maintenance
Visually check the jib for damage before using it.
Check the safety catch is in good working order.
Daily grease the joints using the greasing gun.

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

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.

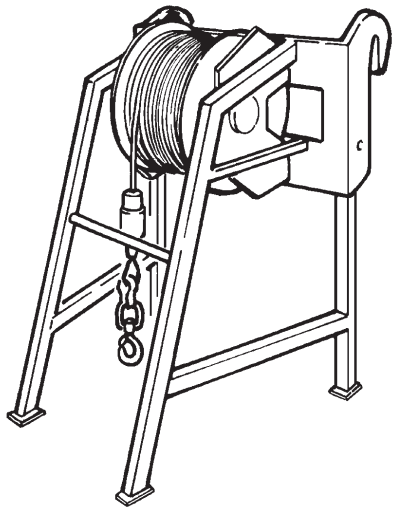
Maintenance
Visually check the jib for damage before using it.
Check the safety catch is in good working order.
Daily grease the joints using the greasing gun.

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

Optional Attachments

3000 KG HYDRAULIC WINCH

(code 59.0901.4000)



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.

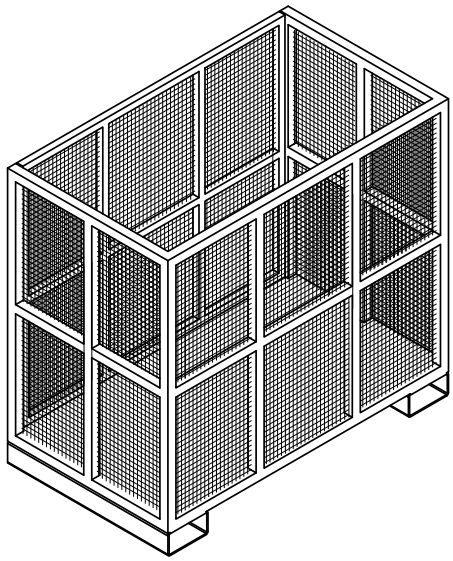
Maintenance
Visually check the hook for damage before using it.
Check the safety catch is in good working order.

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

Optional Attachments

BASKET FOR BRICKS

(code 59.0400.7000)



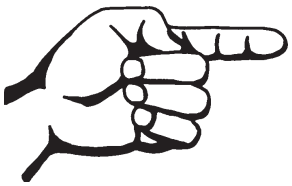
Application
Attachment used to handle construction manufactured products, to be fixed to the standard forks of the handler and locked in position with the chains with shackles supplied.

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.

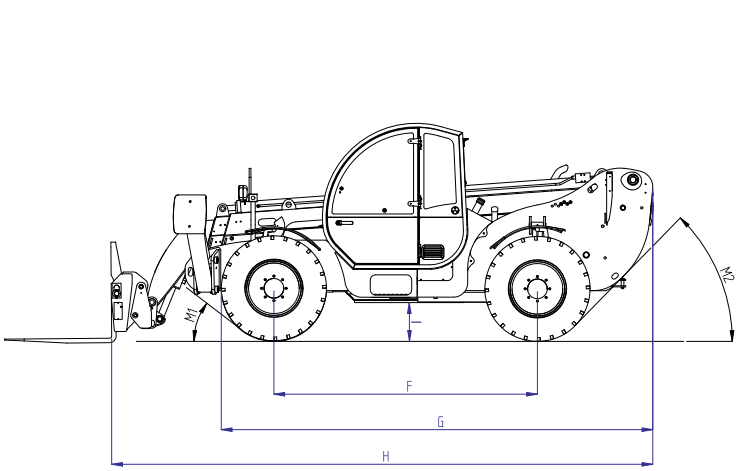
Maintenance
Visually check the attachment for damage before using it.

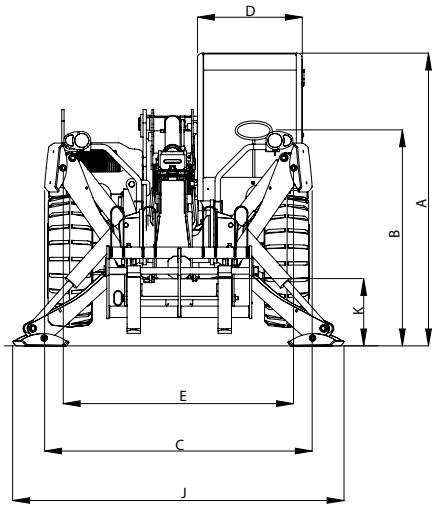
TECHNICAL DATA	
Width	800 mm
Length	1100mm
Height	1150 mm



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Specifications





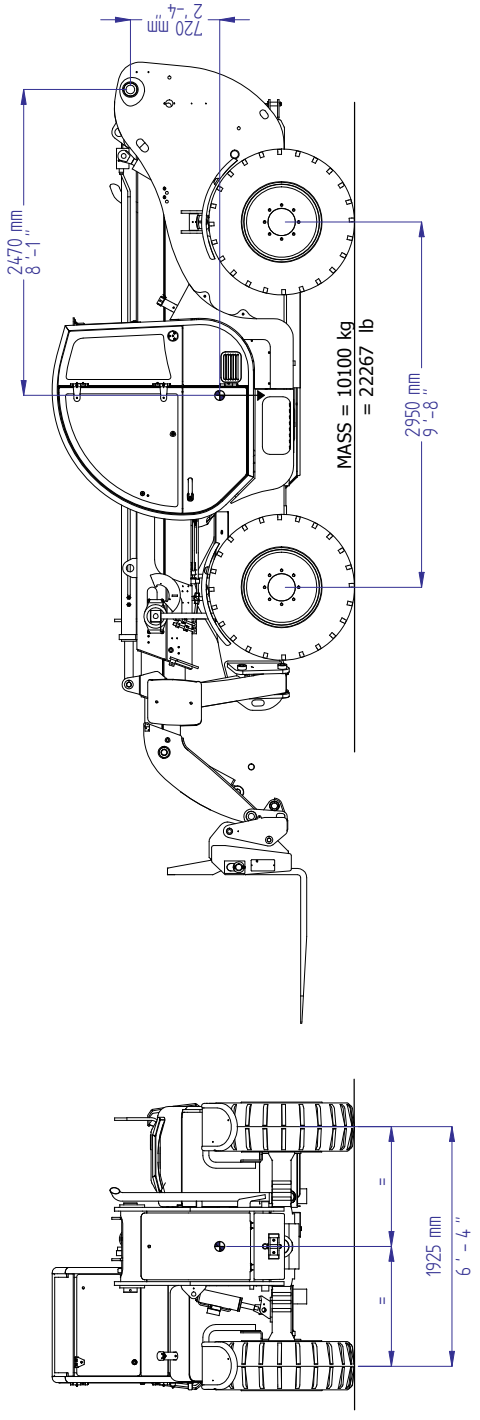
	GTH 4017 SX	GTH 4013 SX
■ MAIN DIMENSIONS		
A Overall height ..... mm	2440	2400
B Height to the steering wheel ..... mm	1600	1600
C Overall width ..... mm	2320	2320
D Cab width ..... mm	780	780
E Track ..... mm	1920	1920
F Wheel-base ..... mm	2950	2950
G Length to the front tyres ..... mm	4830	4790
H Length to the attachment holding plate ..... mm	6570	6060
I Ground clearance, center ..... mm	430	390
J Max width with extended outriggers ..... mm	2890	2890
K Ground clearance, axle ..... mm	491	441
• Internal steering radius ..... mm	2425	2425
• External steering radius ..... mm	4650	4650
■ LIMITS OF USE		
M1 Obstruction angle	40°	40°
M2 Departure angle	46°	46°
• Min/max ambient temperature ..... °C	-20°/+40°	-20°/+40°
■ WEIGHT		
• Weight in working order ..... kg	11.600	9.850
■ SPEED		
• Max travel speed (max load) ..... km/h	5	5
• Max travel speed (with fork) ..... km/h	28	28

Specifications

	GTH 4017 SX	GTH 4013 SX
■ PAYLOAD AND REACH		
• Lifting height (max) with outriggers ..... mm	17190	13000
• Lifting height (max) without outriggers ..... mm	16720	12810
• Reach at maximum height..... mm	3560	1900
• Forward reach (max) ..... mm	13330	9080
• Attachment holding plate rotation.....	138°	138°
• Lifting capacity (max) .....kg	4000	4000
• Lift capacity at max height.....kg	2000	3000
• Lift capacity at max reach.....kg	700	1250
■ DIESEL ENGINE		
• Make.....	PERKINS	PERKINS
• Model/Type.....	1104 D-44T	1104 D-44T
• Features	Diesel 4 cylinders in line 4 strokes direct injection	Diesel 4 cylinders in line 4 strokes direct injection
• Bore x Stroke..... mm	105x127	105x127
• Total displacement cc	4400	4400
• Power at 2200 rpm ..... kW	74,5	74,5
■ VIBRATION LEVEL		
Mean assessed vibration level transmitted to arms	2,5 m/s^2	2,5 m/s^2
Mean assessed vibration level transmitted to body	0,23 m/s^2	0,23 m/s^2
Highest root mean square value of weighted acceleration to which the whole body is subjected	xxx	xxx
Uncertainty of vibration measurements	± 0,13 m/s^2	± 0,13 m/s^2
Values calculated in accordance with standard EN13059		
■ SOUND LEVEL		
Sound pressure level at the operator position (in accordance with the standard EN12053)	83 dB	xxx
Guaranteed sound power level (in accordance with the Directive 2000/14/CE) LwA	103 dB	103 dB
■ FLOOR LOADING SPECIFICATIONS		
Occupied Floor Area Tire	5,66 m^2	5,66 m^2
Occupied Floor Area Outrigger	8,73 m^2	8,73 m^2
Occupied Floor Pressure Tire	19,65 kPa	16,97 kPa
Occupied Floor Pressure Outrigger	12,75 kPa	11,00 kPa
Max. Tire Load	6865 kg	6460 kg
Max. Outrigger Load	5275 kg	5650 kg
Max Axle Load	13750 kg	12920 kg
Max Tip Axis Load	10550 kg	11300 kg
Tire Contact Pressure	520 kPa	490 kPa
Outrigger Contact Pressure	390 kPa	820 kPa

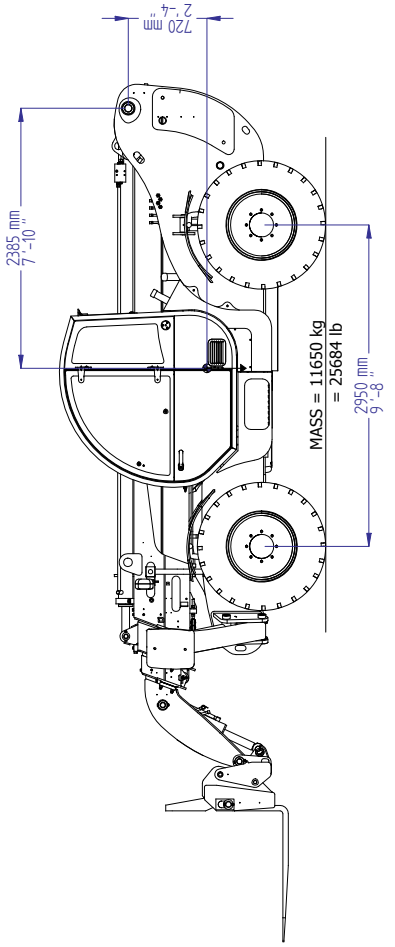
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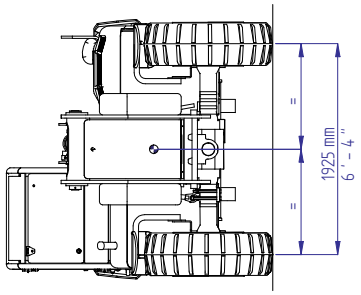
CENTER OF GRAVITY GTH-4013 SX



Specifications

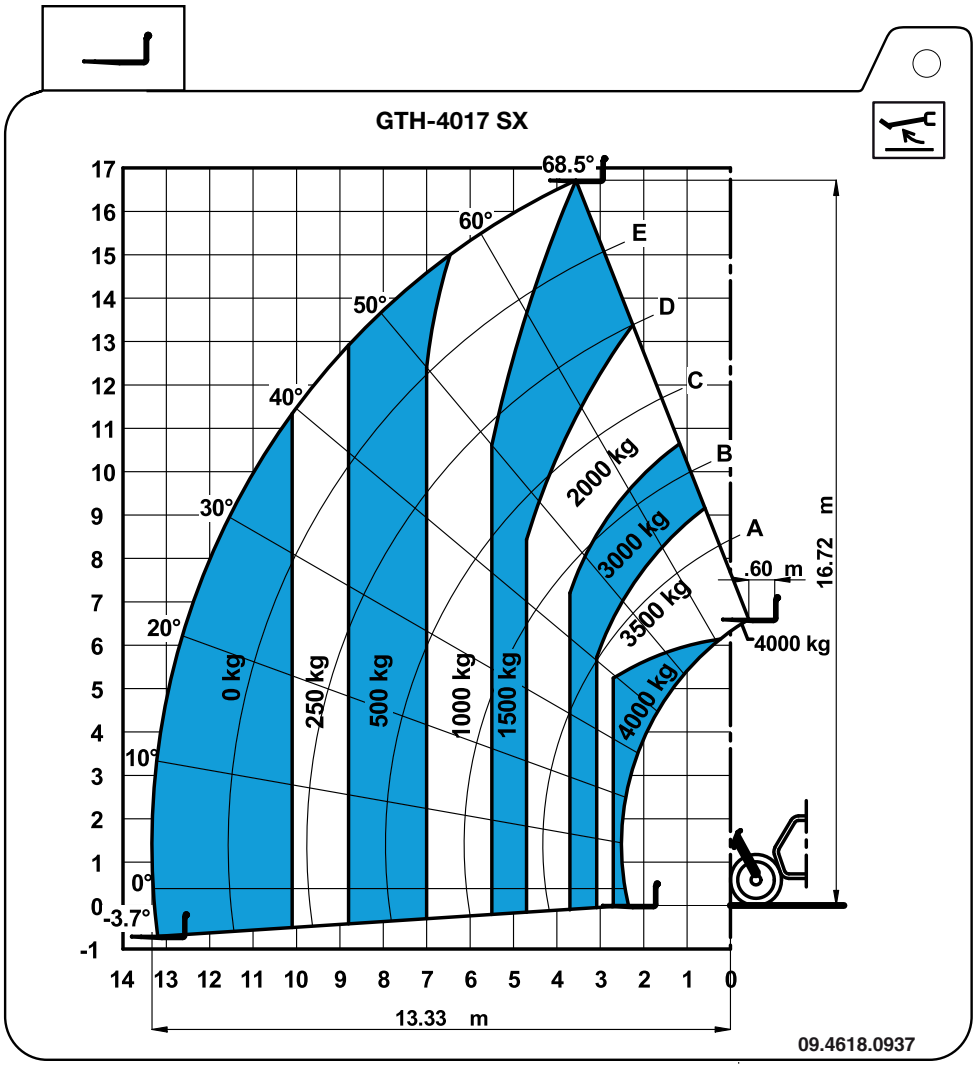
CENTER OF GRAVITY GTH-4017 SX





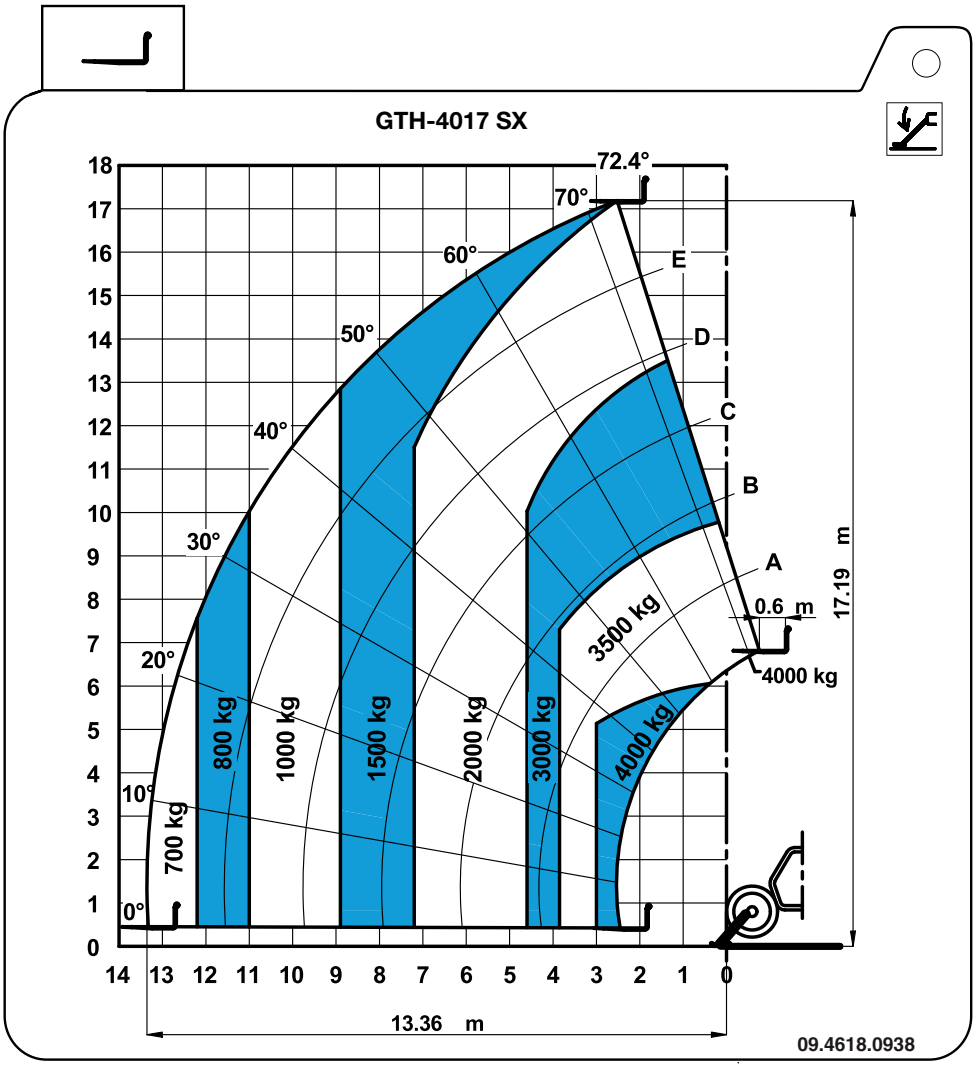
Load Charts

LOAD CHART WITH FORKS GTH 4017 SX ON WHEEL



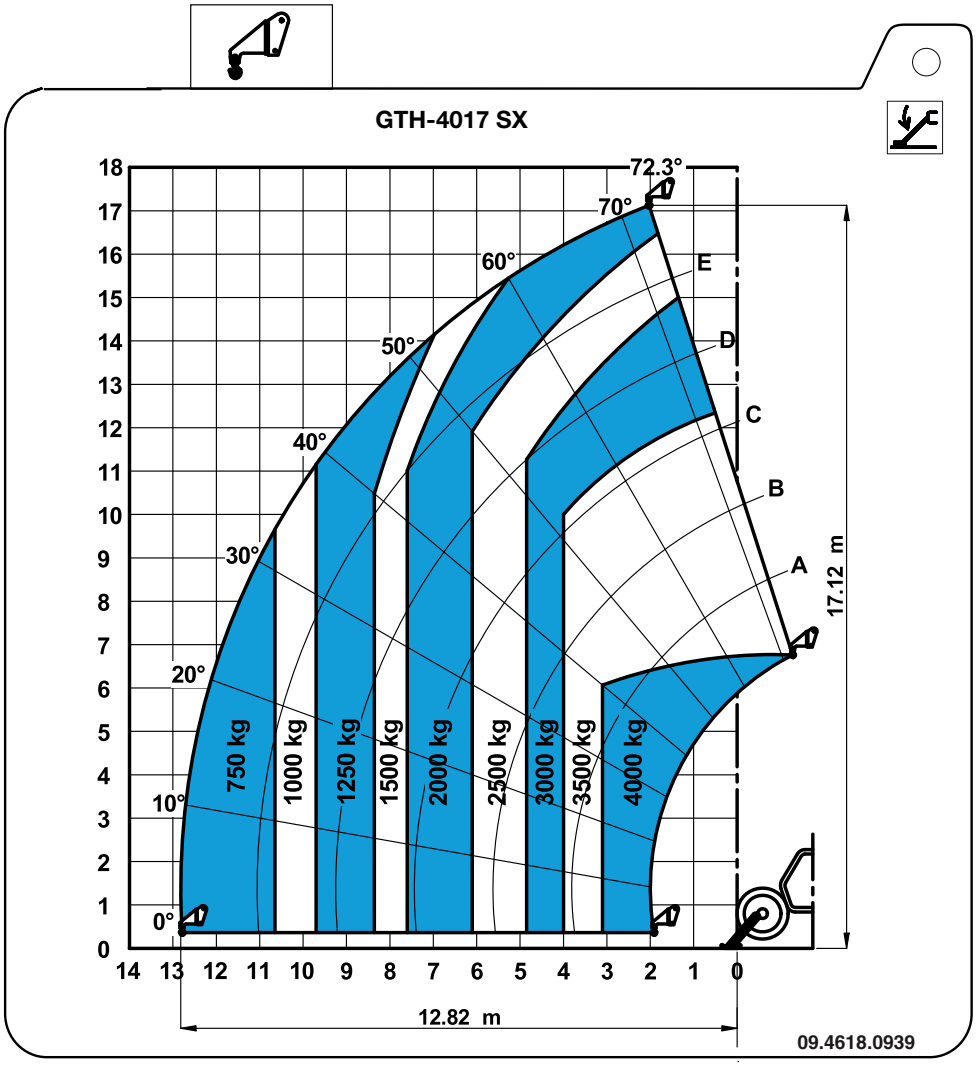
Load Charts

LOAD CHART WITH FORKS GTH 4017 SX ON OUTRRIGGERS



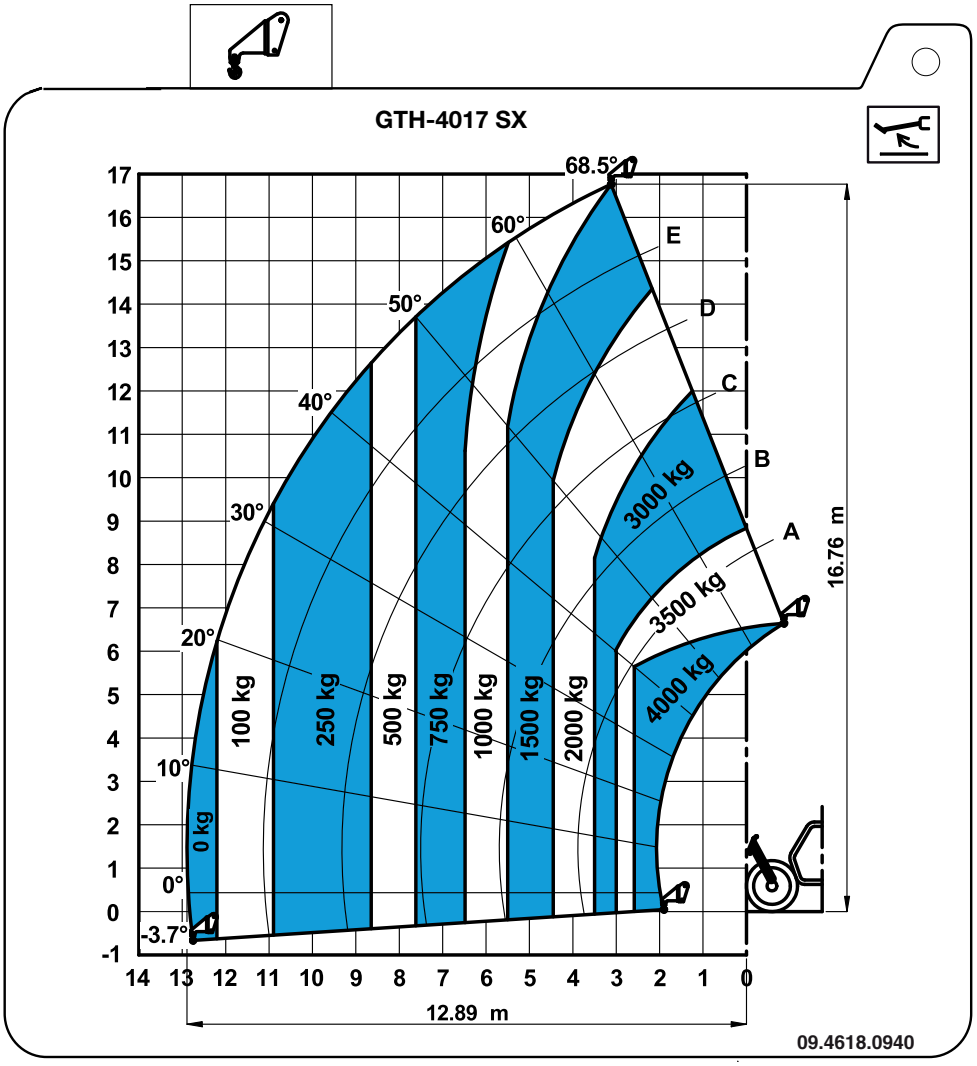
Load Charts

LOAD CHART WITH HOOK GTH 4017 SX ON OUTRIGGERS



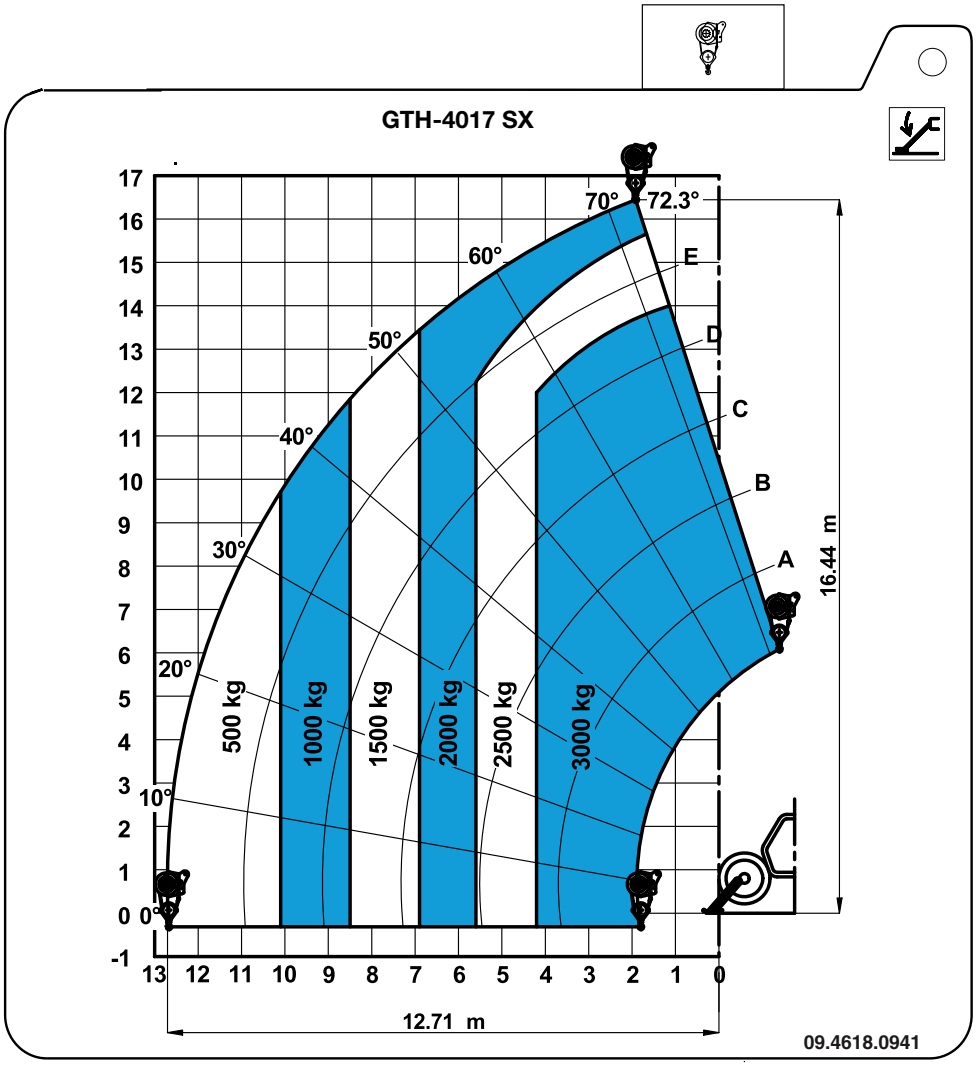
Load Charts

LOAD CHART WITH HOOK GTH 4017 SX ON WHEEL



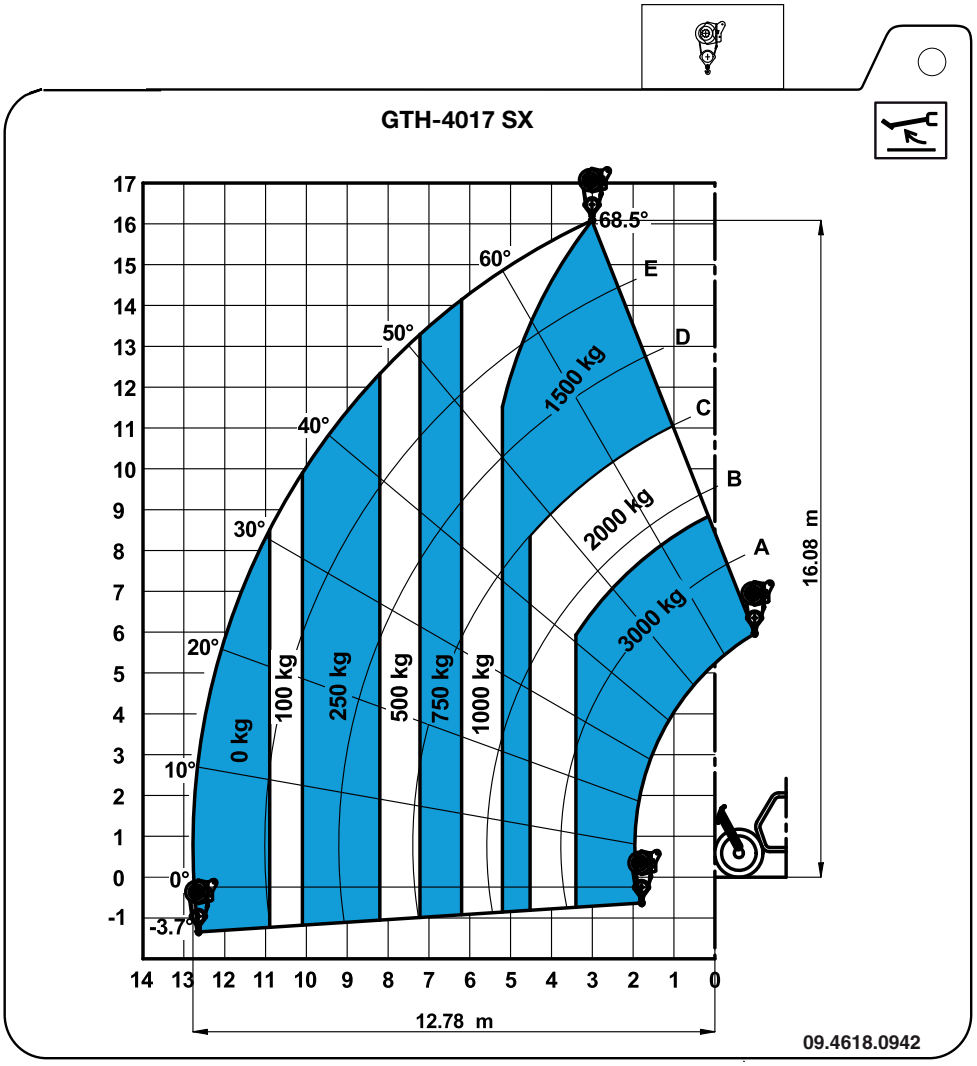
Load Charts

LOAD CHART WITH WINCH GTH 4017 SX ON OUTRIGGERS



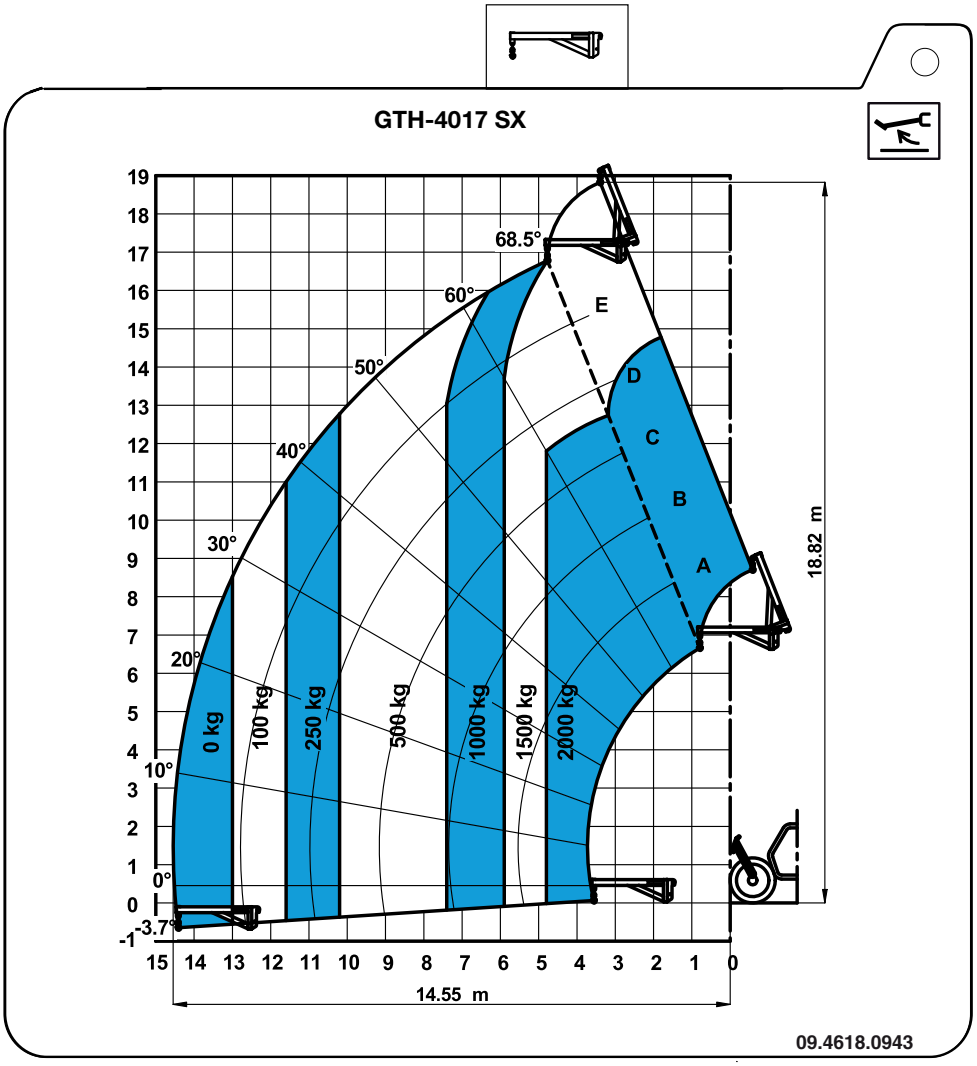
Load Charts

LOAD CHART WITH WINCH GTH 4017 SX ON WHEEL



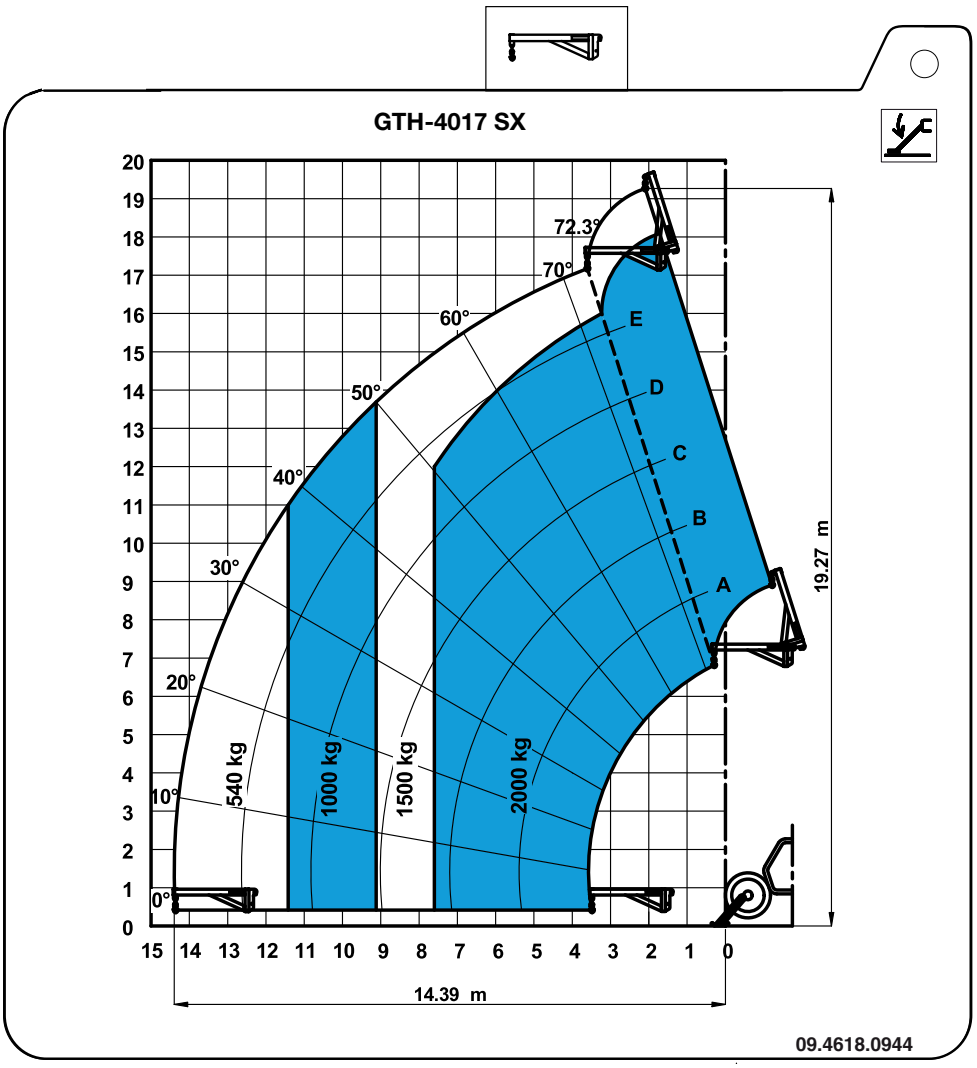
Load Charts

LOAD CHART WITH 2000 KG JIB GTH 4017 SX ON WHEEL



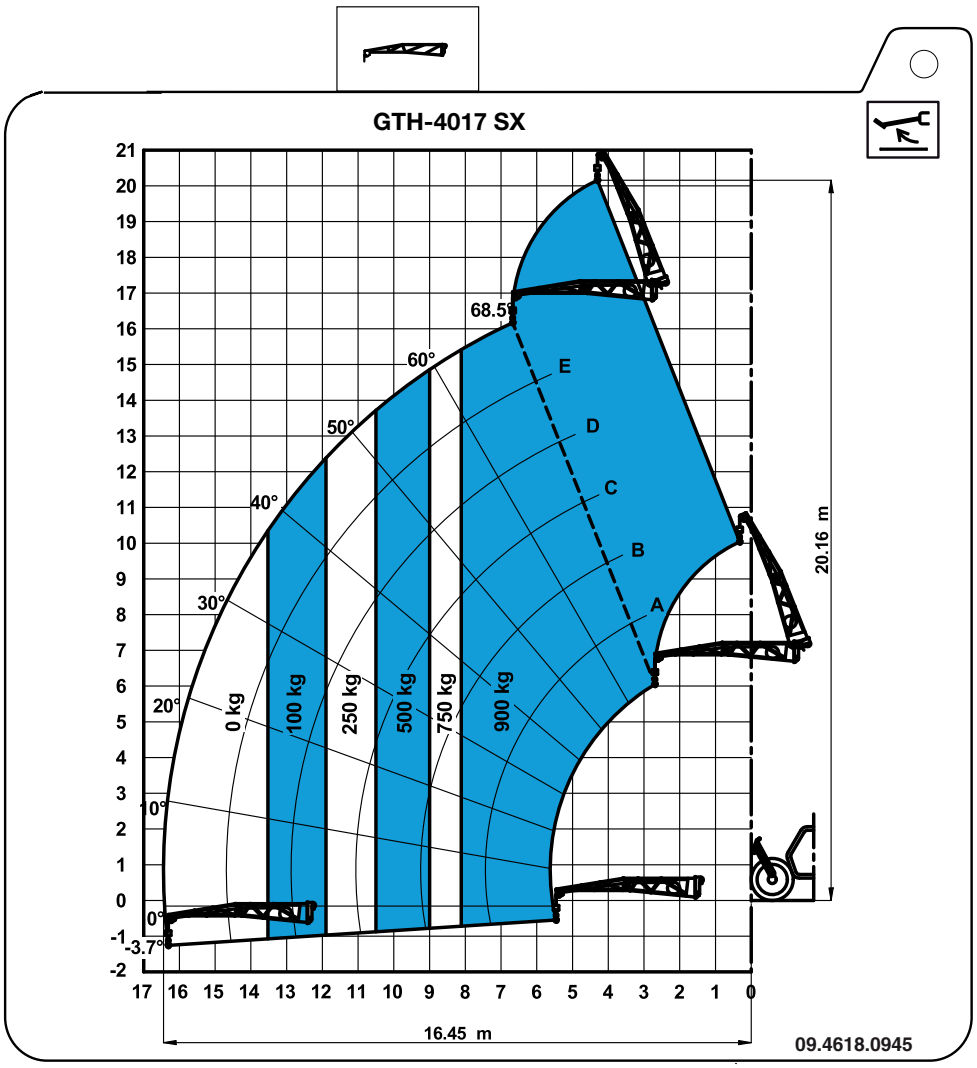
Load Charts

LOAD CHART WITH 2000 KG JIB GTH 4017 SX ON OUTRIGGERS



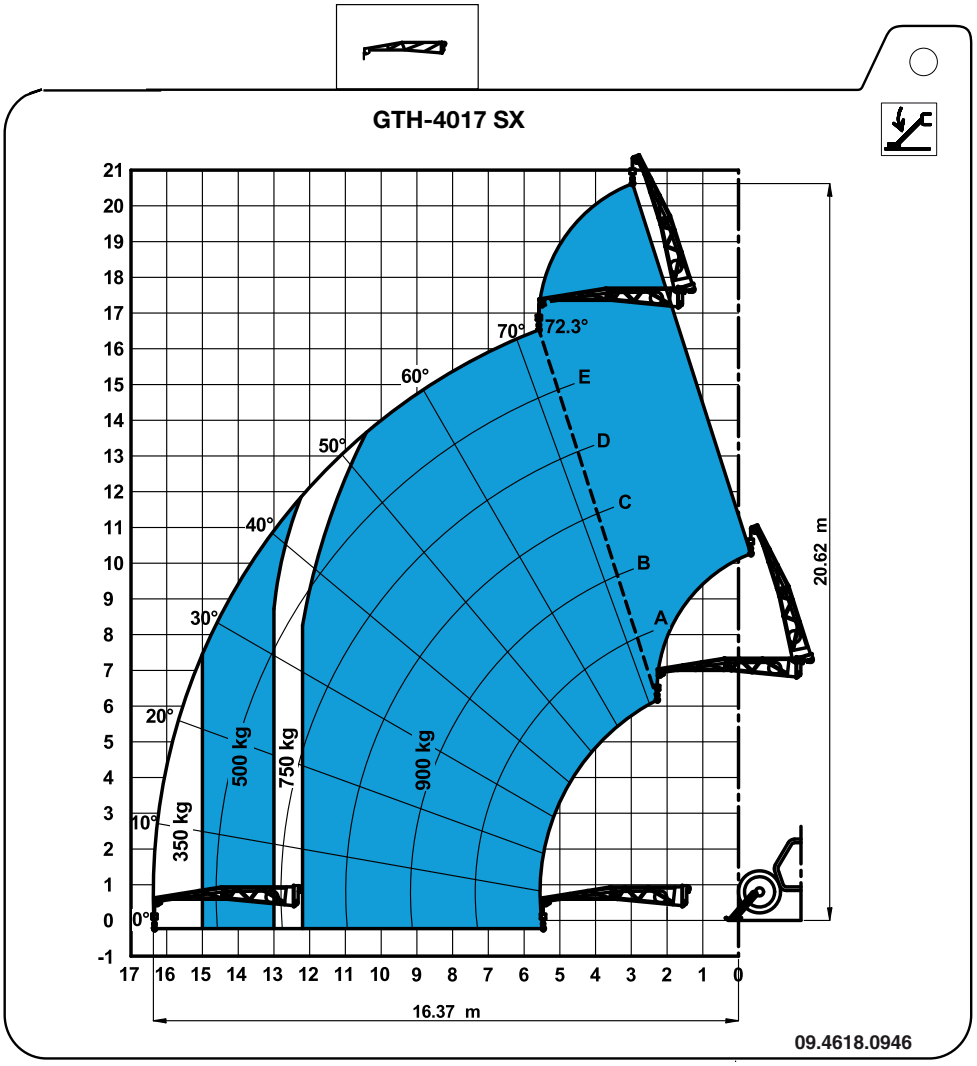
Load Charts

LOAD CHART WITH 900 KG JIB GTH 4017 SX ON WHEEL



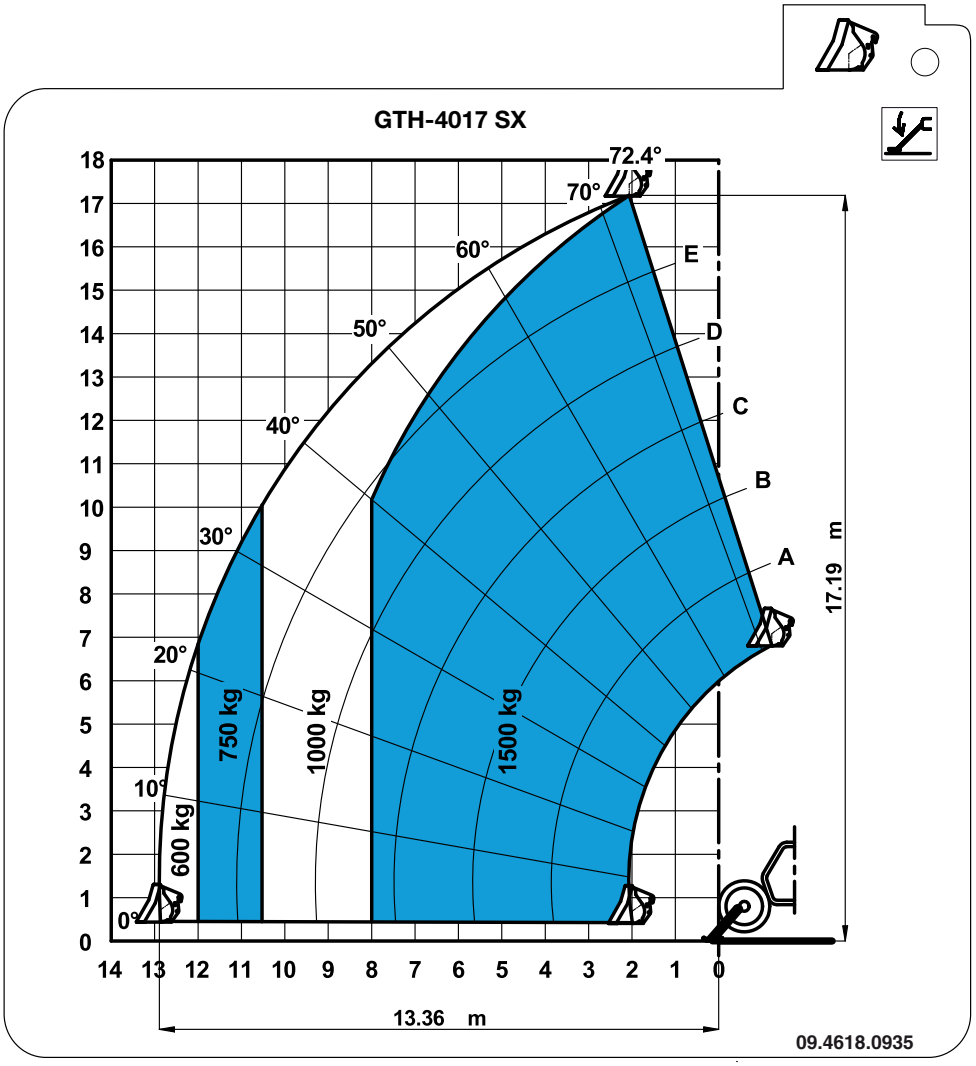
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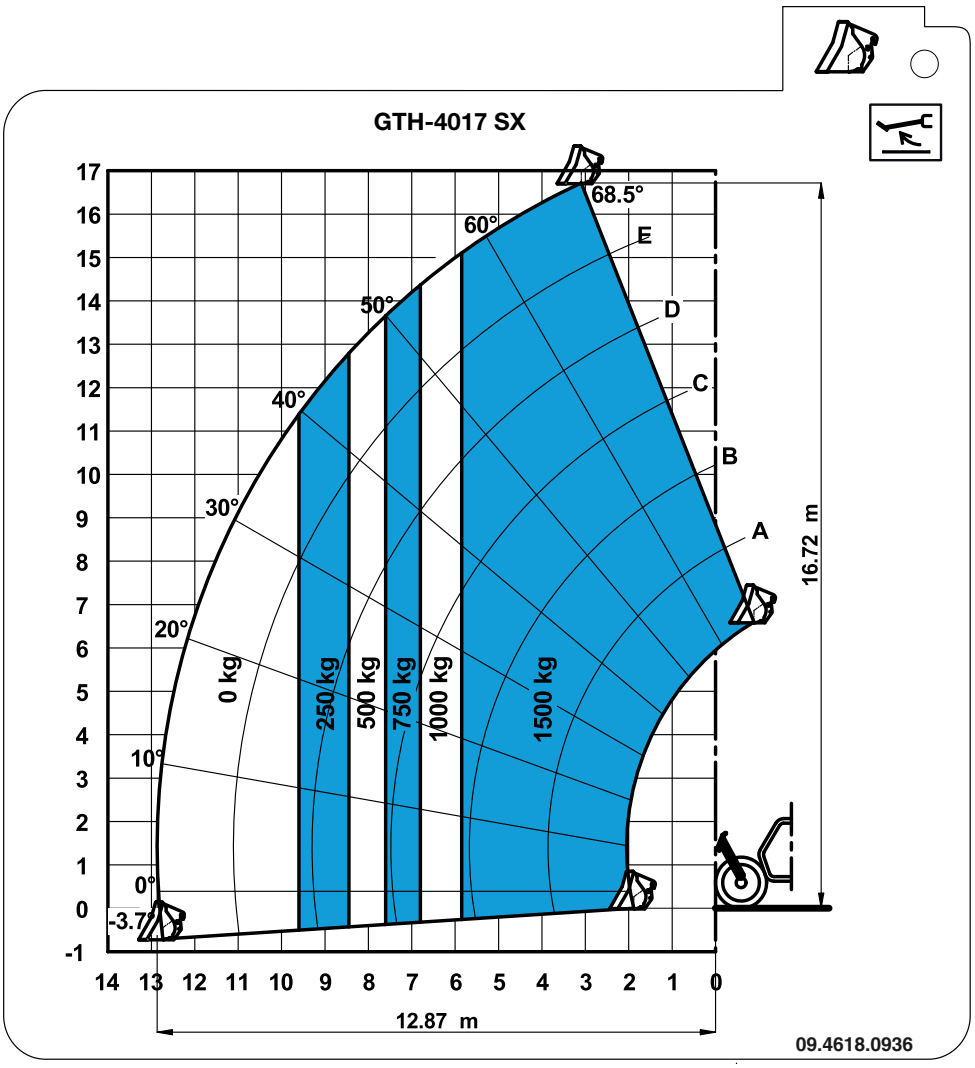
Load Charts

LOAD CHART WITH SHOVEL GTH 4017 SX ON OUTRIGGERS



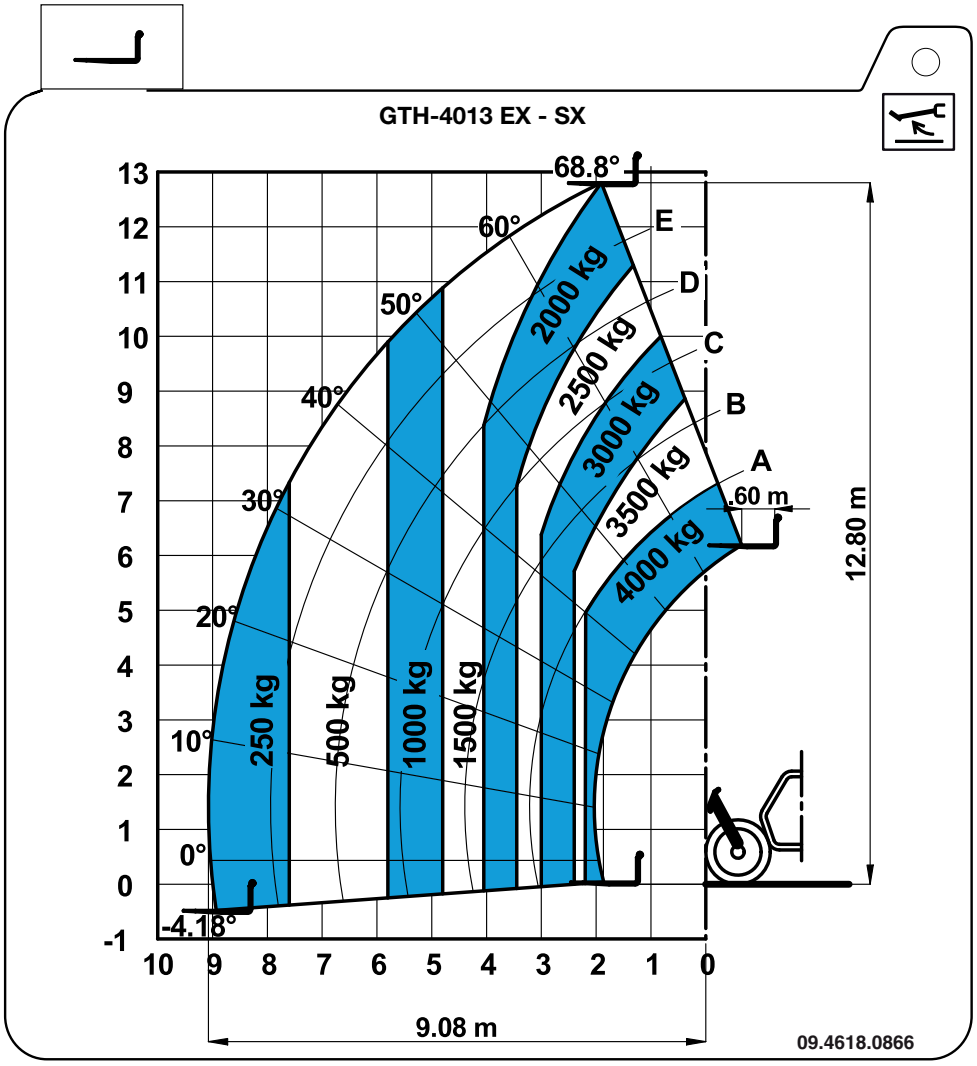
Load Charts

LOAD CHART WITH SHOVEL GTH 4017 SX ON WHEEL



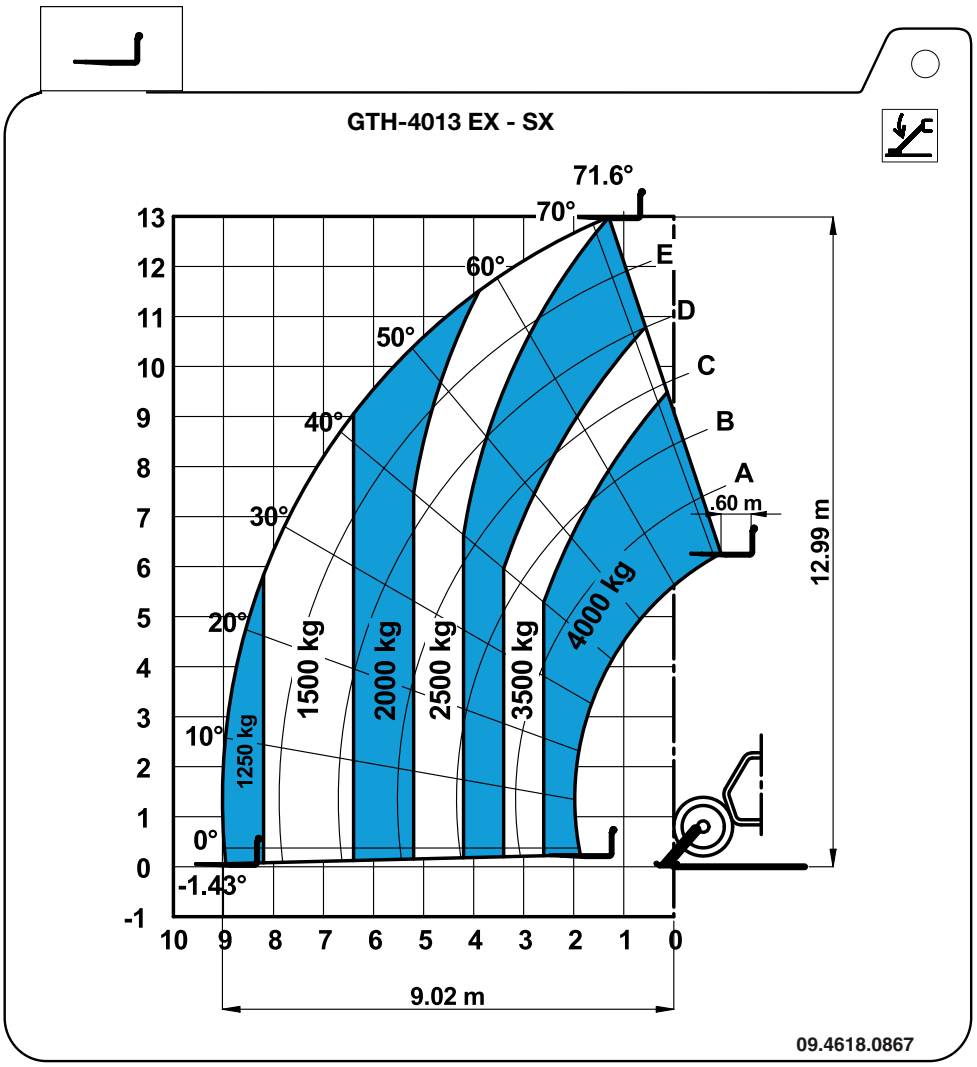
Load Charts

LOAD CHART WITH FORK GTH 4013 SX ON WHEEL



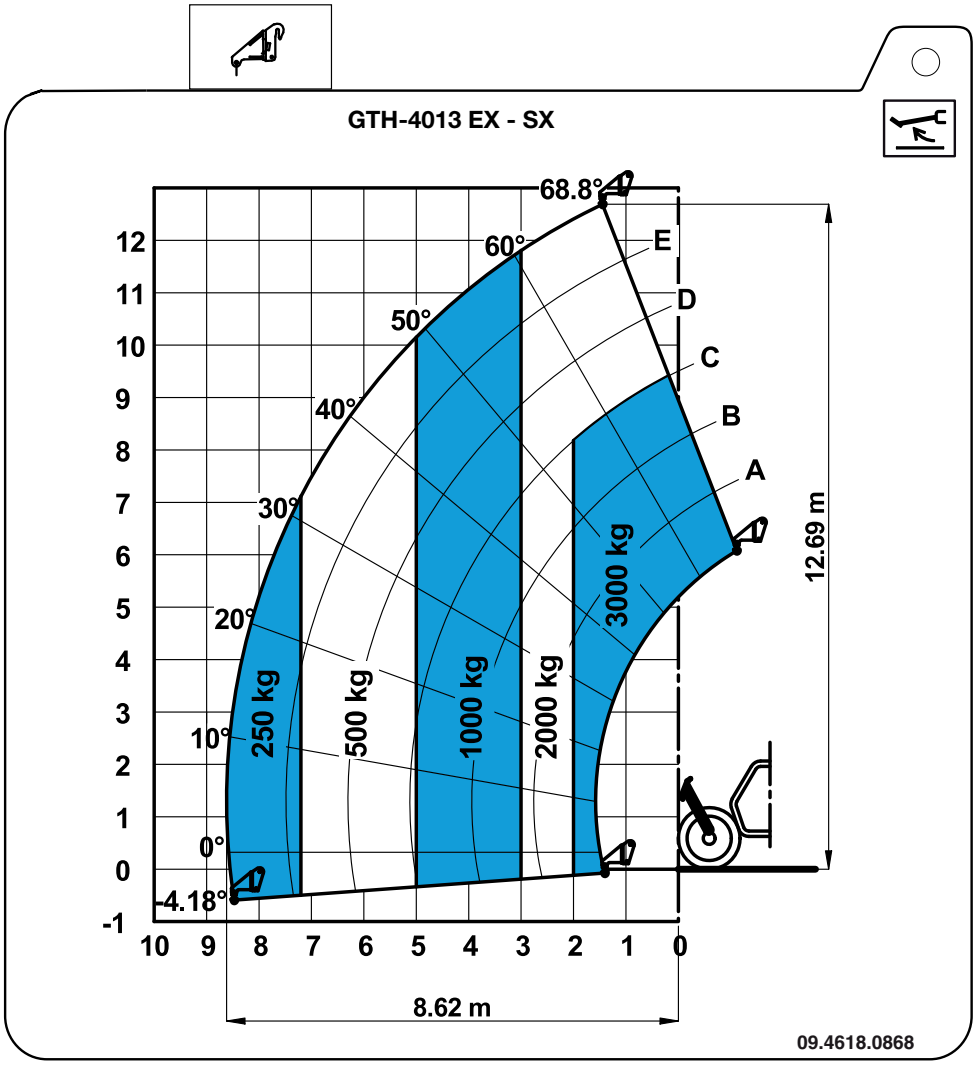
Load Charts

LOAD CHART WITH FORK GTH 4013 SX ON OUTRIGGERS



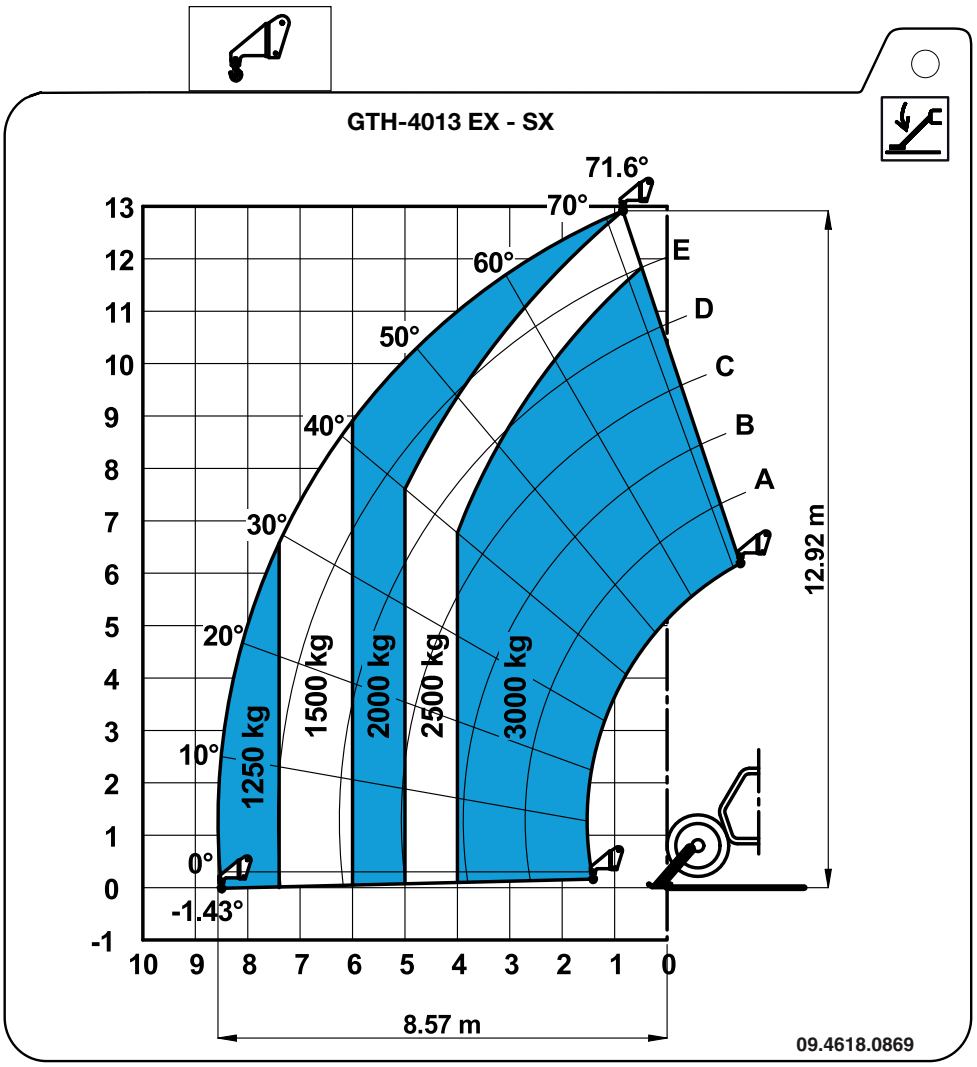
Load Charts

LOAD CHART WITH HOOK GTH 4013 SX ON WHEEL



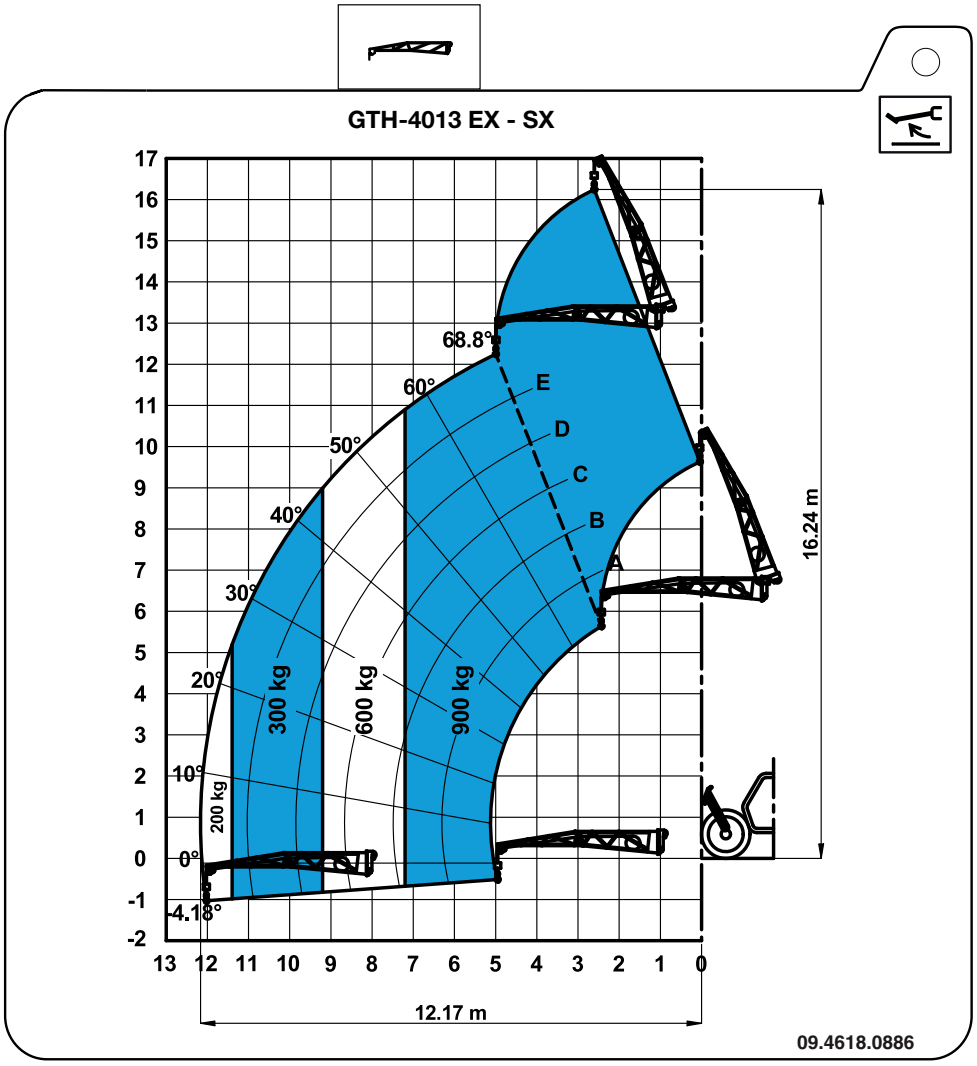
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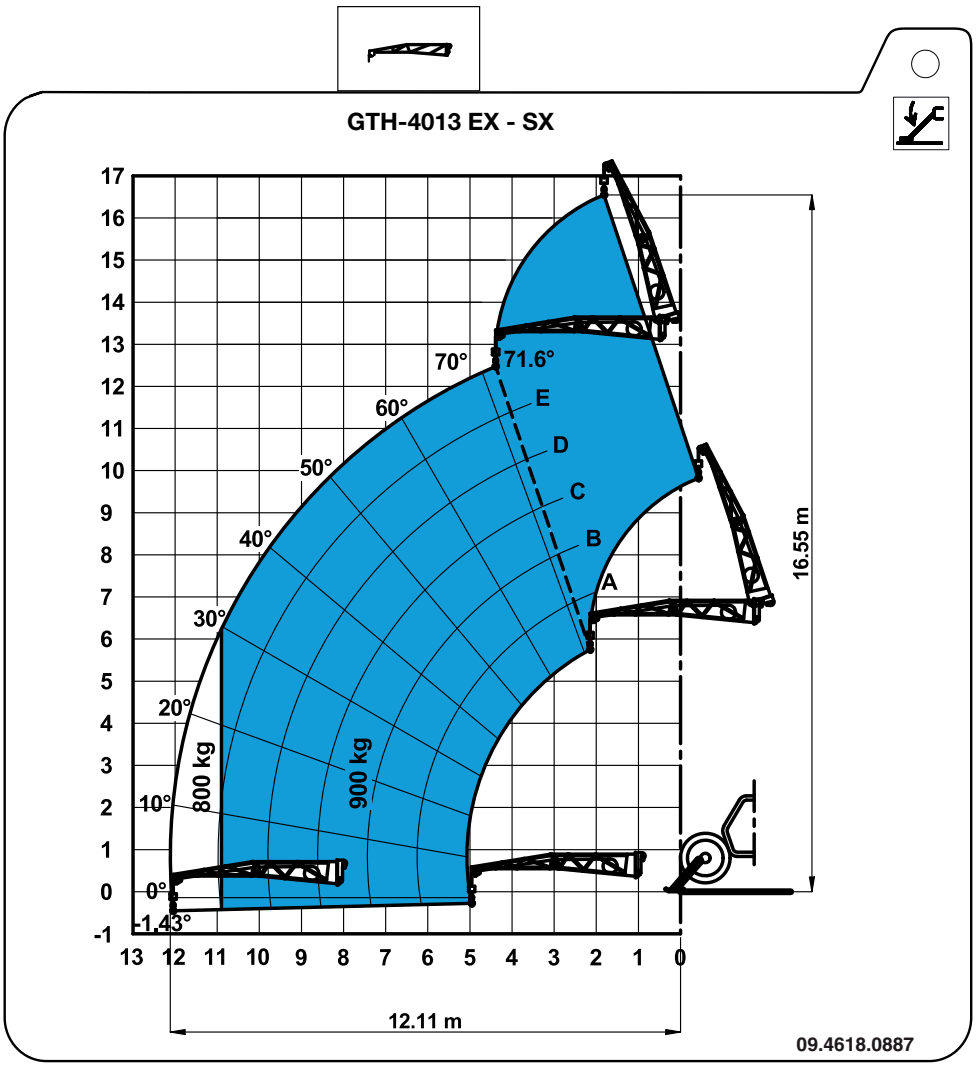
Load Charts

LOAD CHART WITH 900 KG JIB GTH 4013 SX ON WHEEL



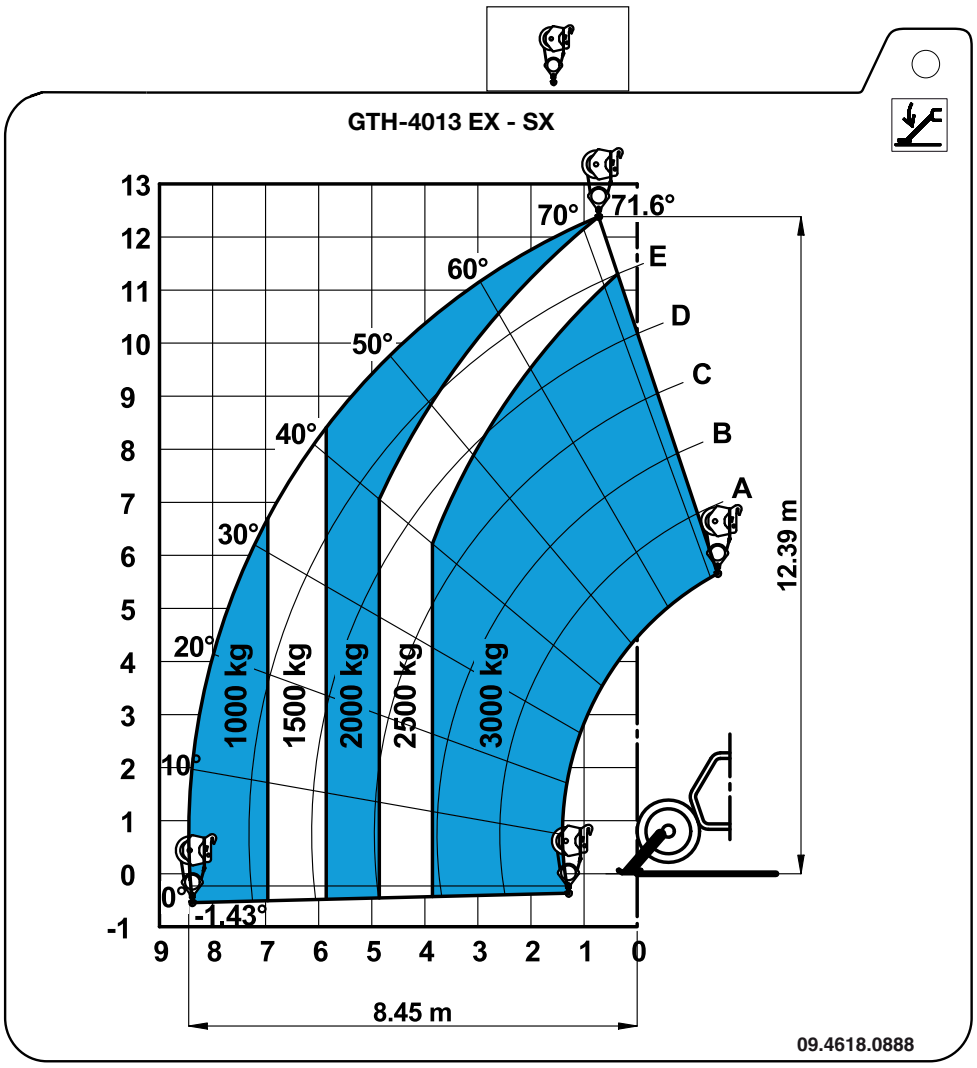
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LOAD CHART WITH 900 KG JIB GTH 4013 SX ON OUTRIGGERS



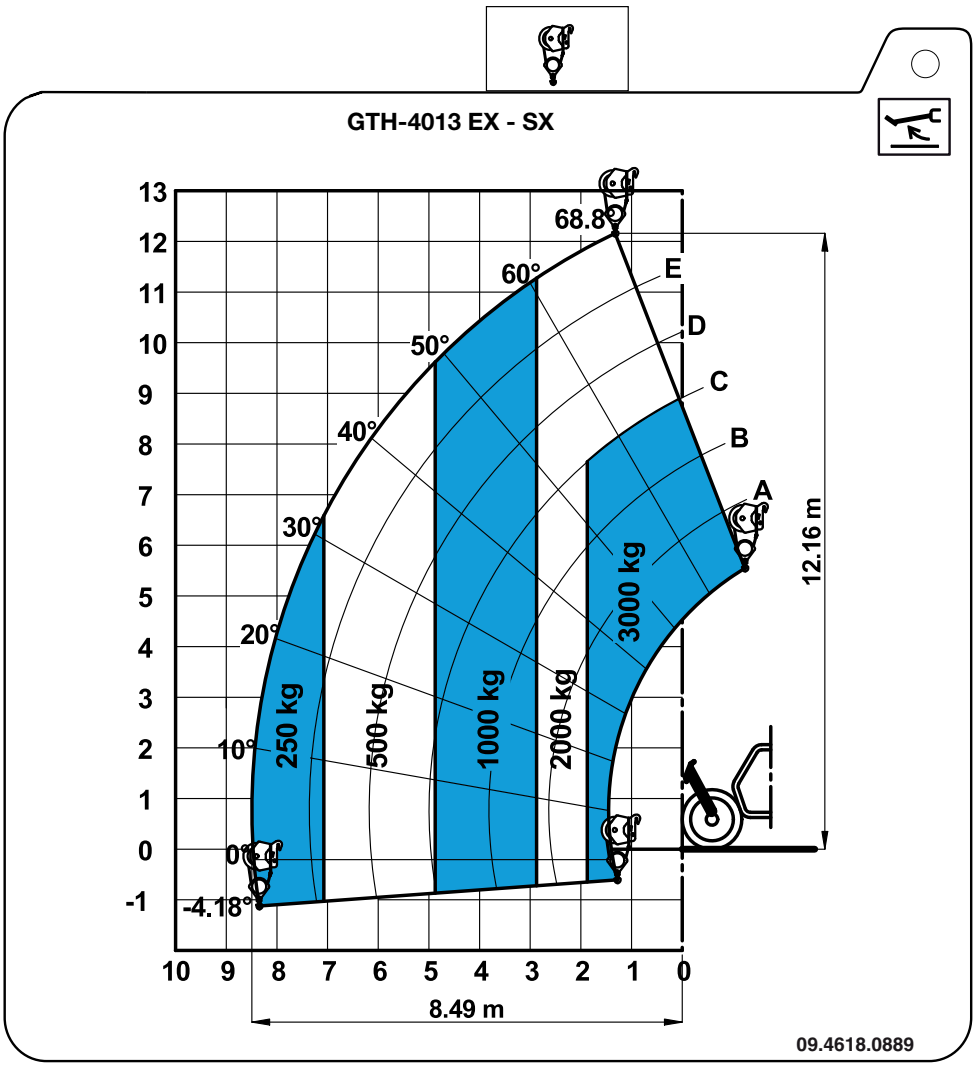
Load Charts

LOAD CHART WITH WINCH GTH 4013 SX ON OUTRIGGERS



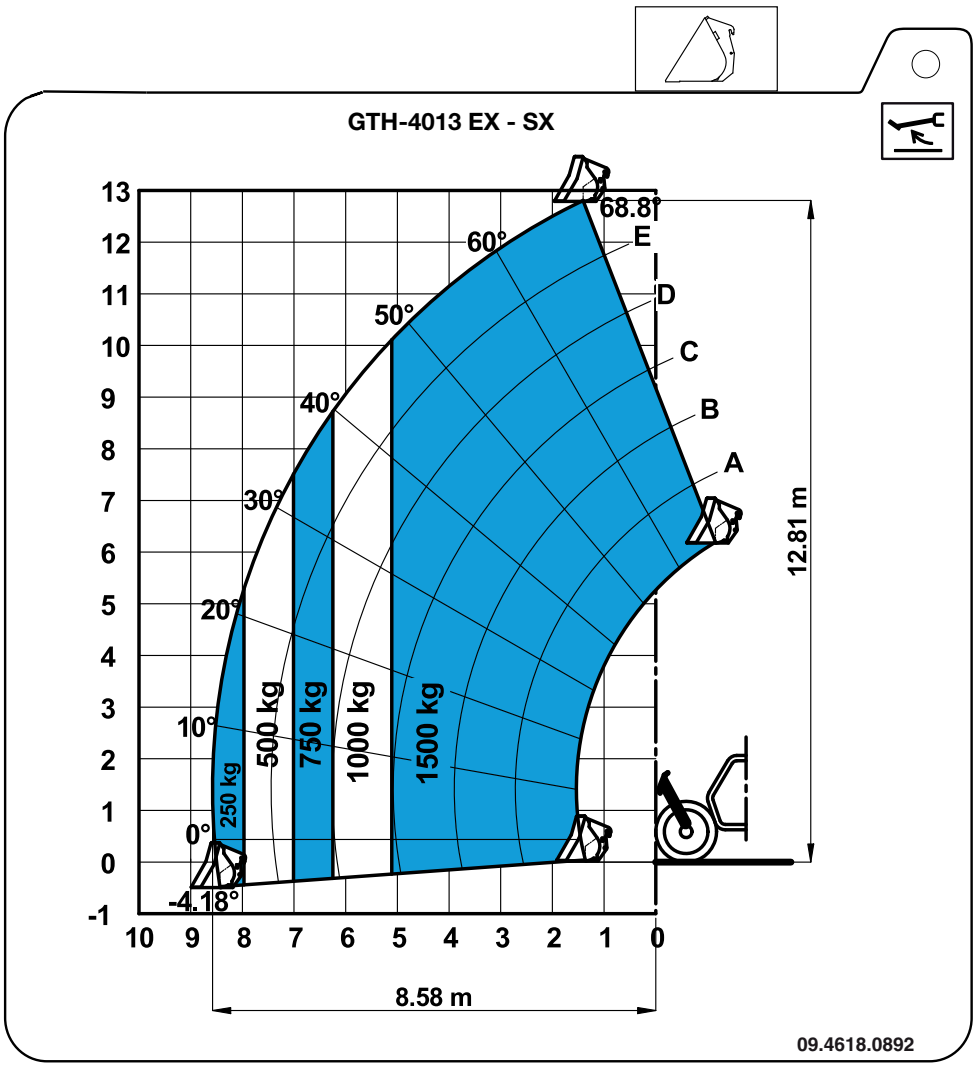
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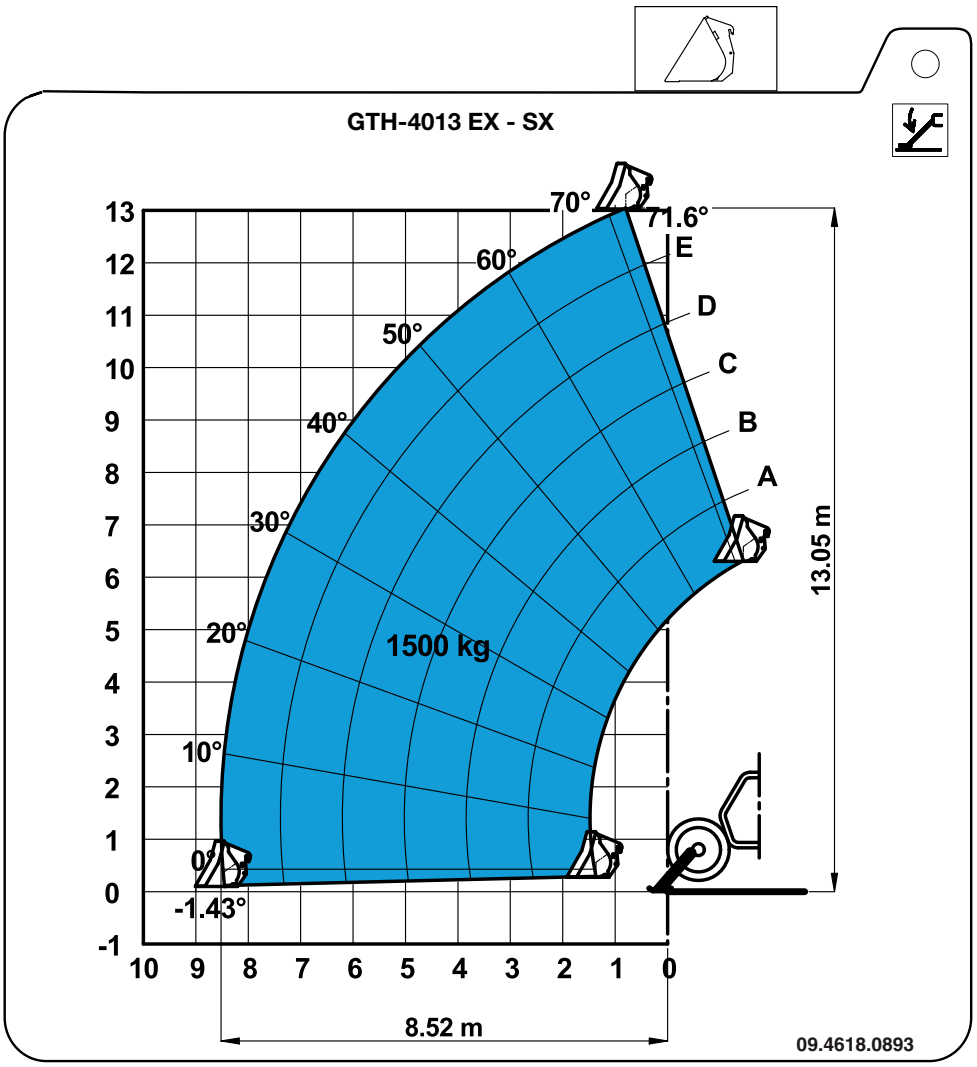
Load Charts

LOAD CHART WITH SHOVEL GTH 4013 SX ON WHEEL



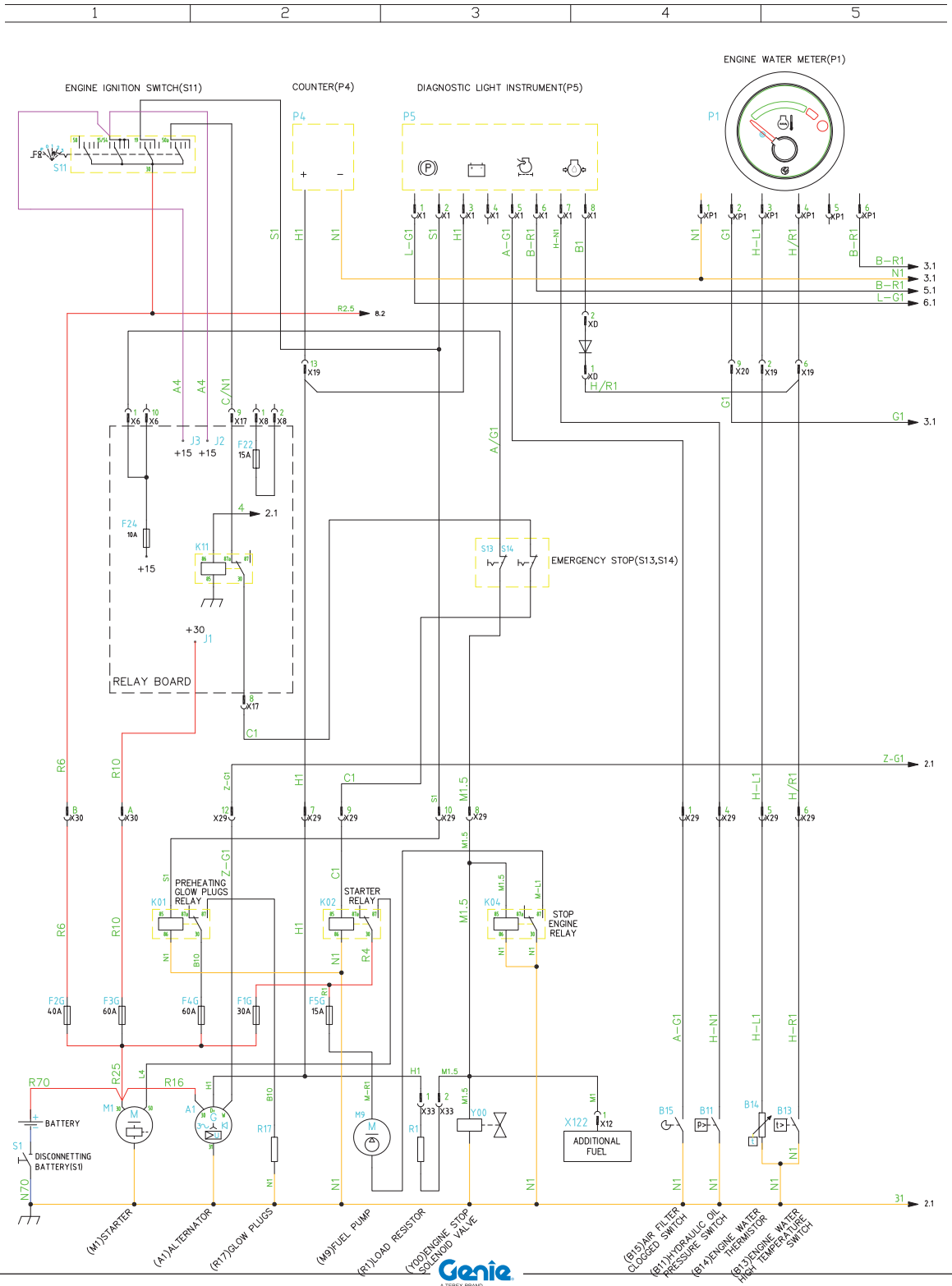
Load Charts

LOAD CHART WITH SHOVEL GTH 4013 SX ON OUTRIGGERS



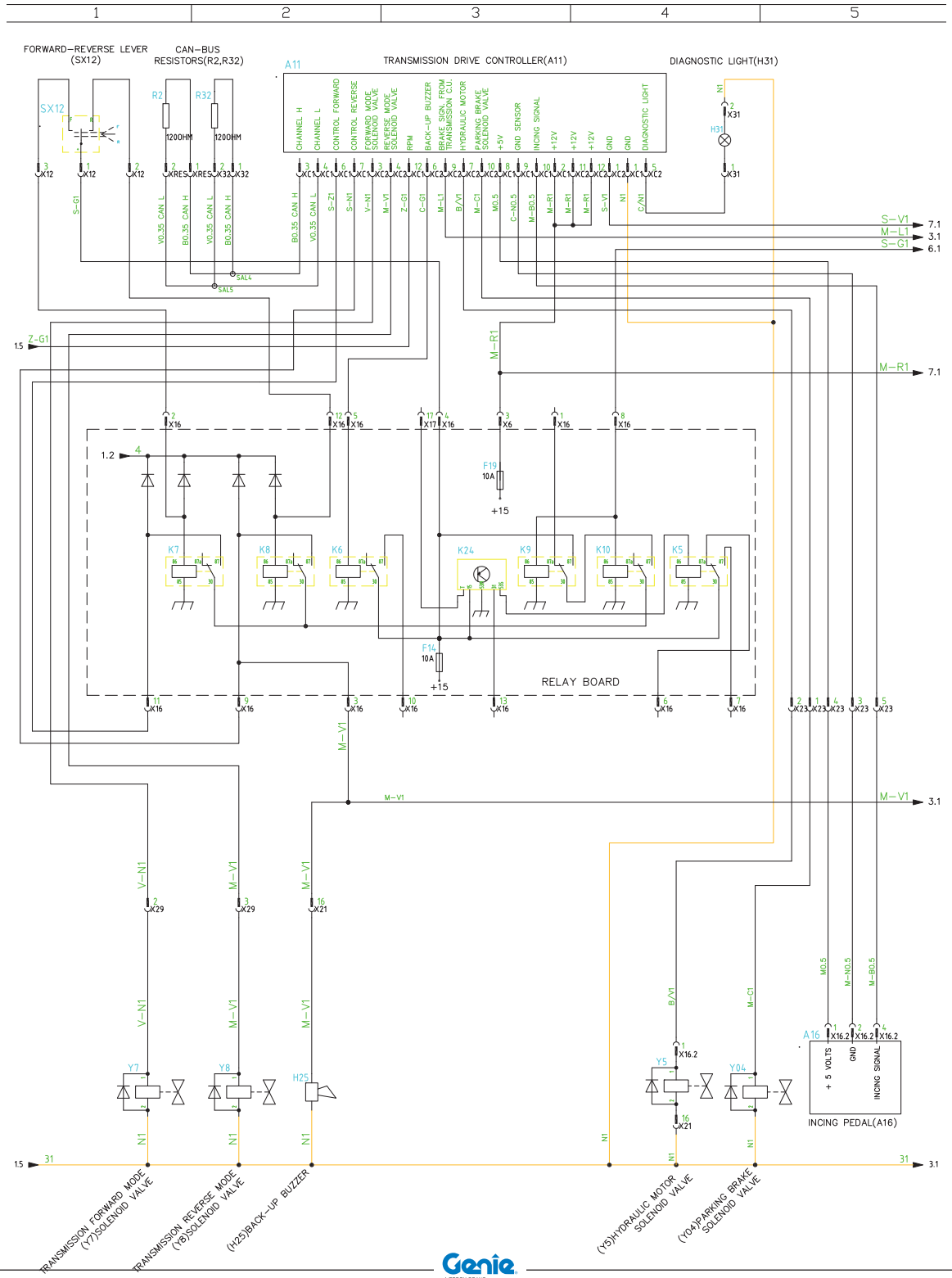
Diagrams and Schemes

GTH-4013 SX & GTH-4017 SX WIRING DIAGRAM 1/10



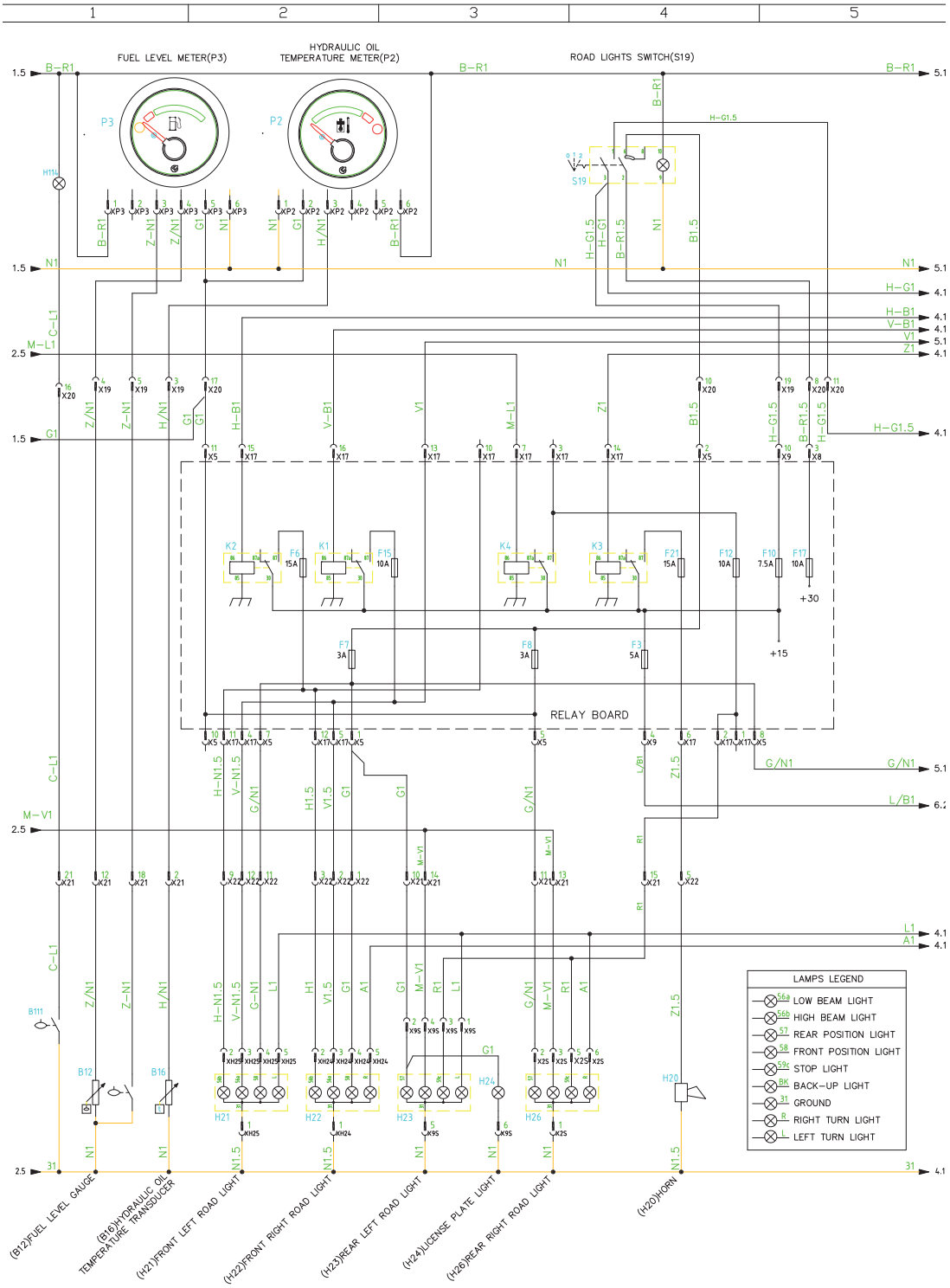
Diagrams and Schemes

GTH-4013 SX & GTH-4017 SX WIRING DIAGRAM 2/10



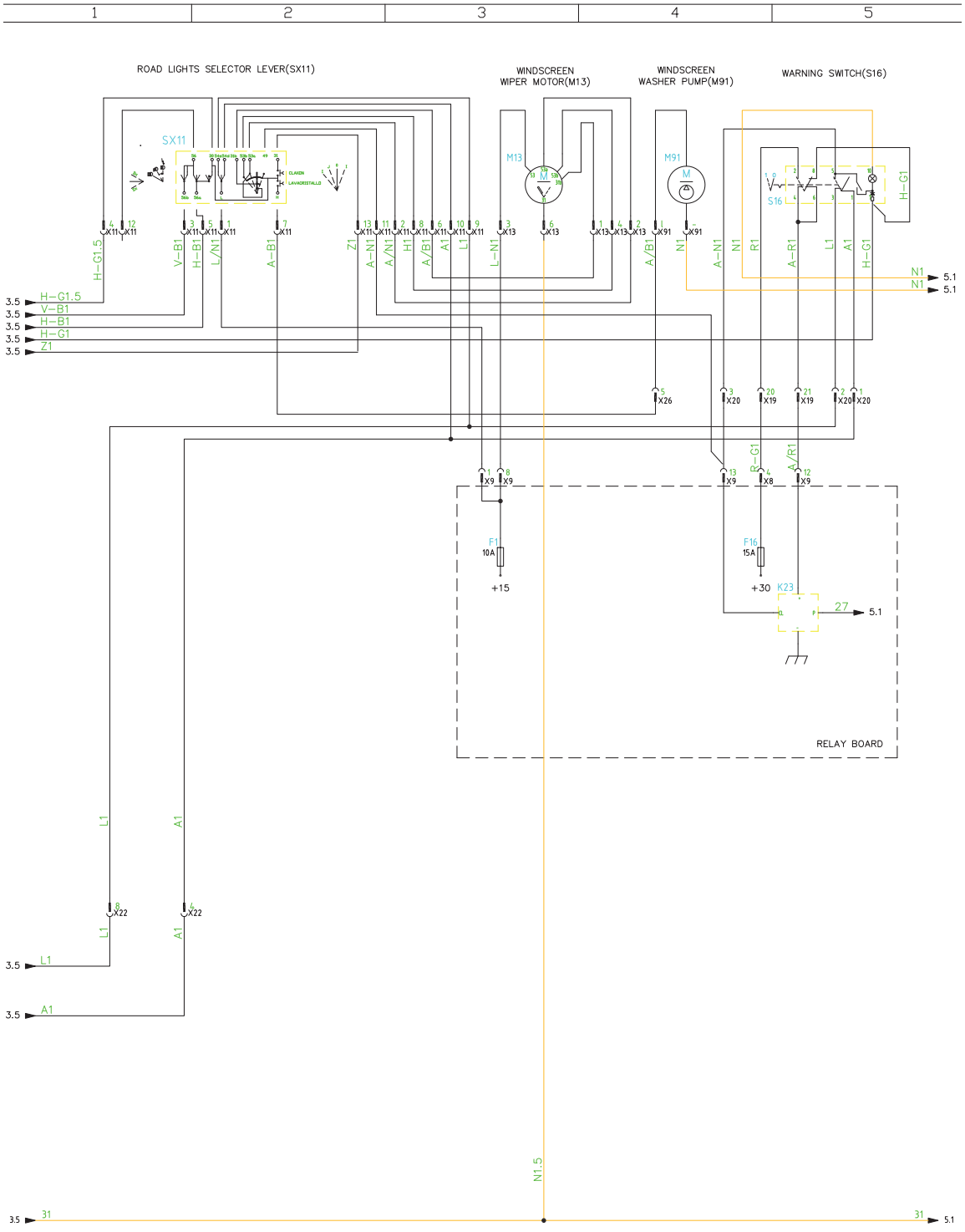
Diagrams and Schemes

GTH-4013 SX & GTH-4017 SX WIRING DIAGRAM 3/10



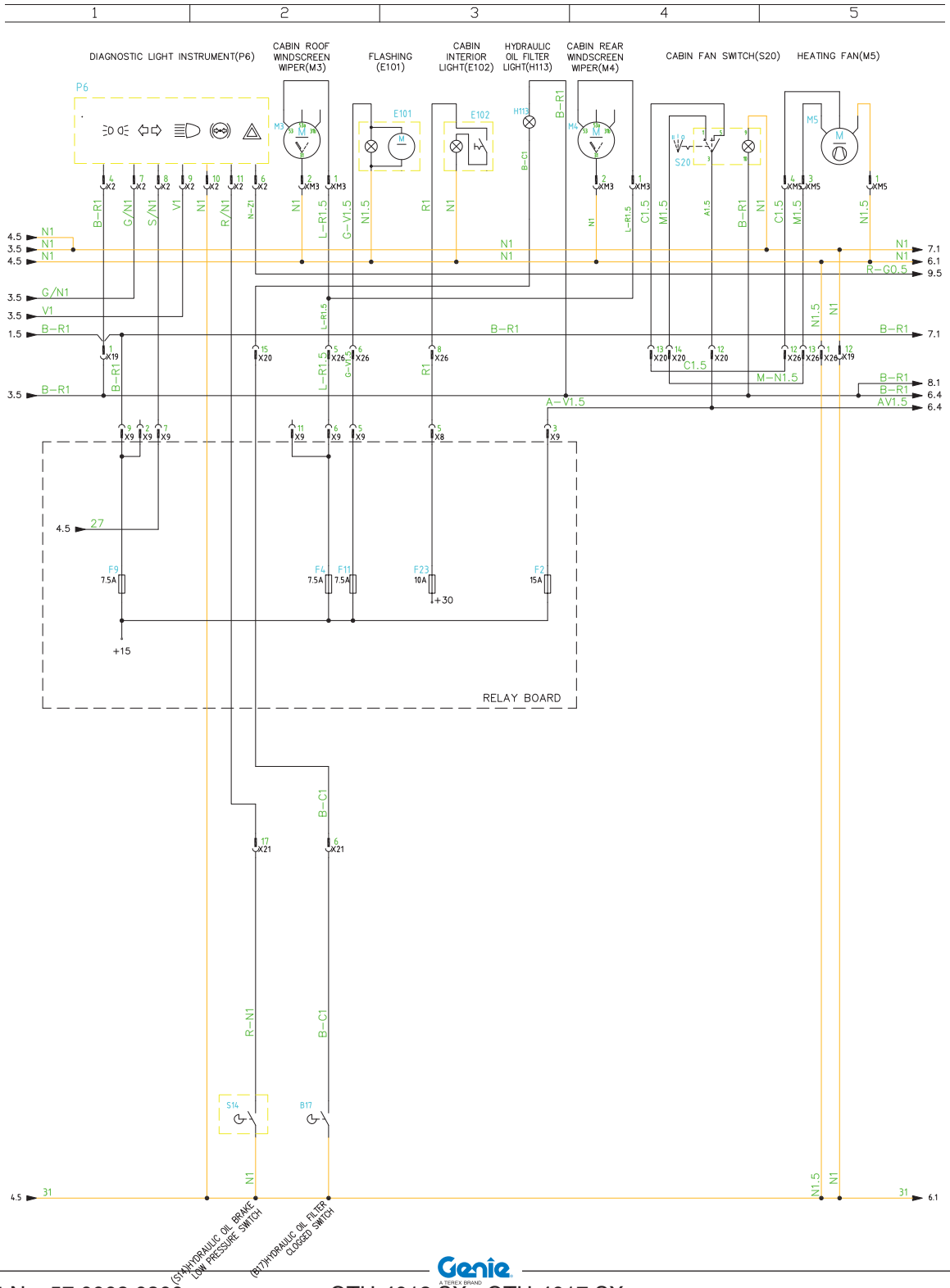
Diagrams and Schemes

GTH-4013 SX & GTH-4017 SX WIRING DIAGRAM 4/10



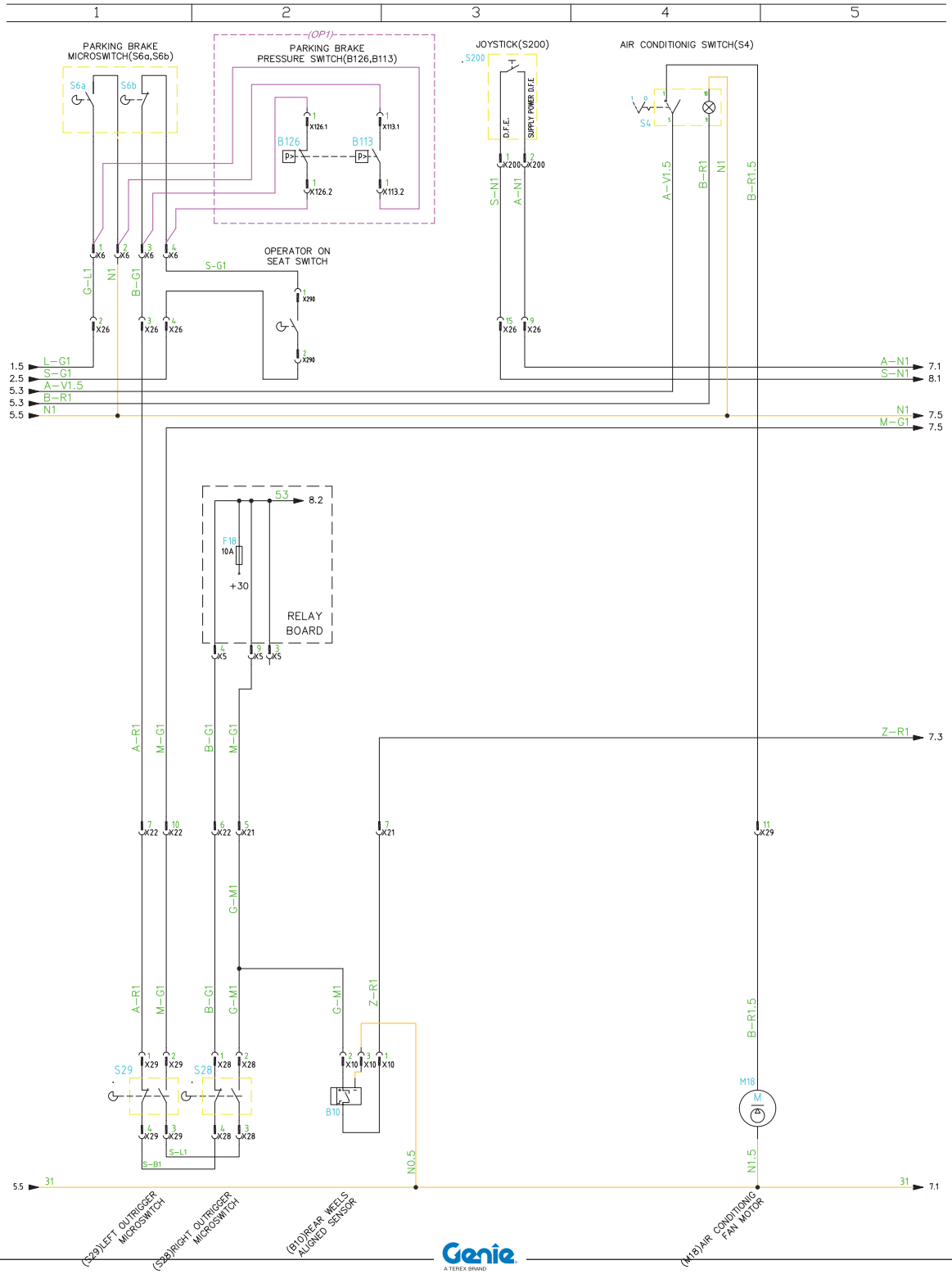
Diagrams and Schemes

GTH-4013 SX & GTH-4017 SX WIRING DIAGRAM 5/10



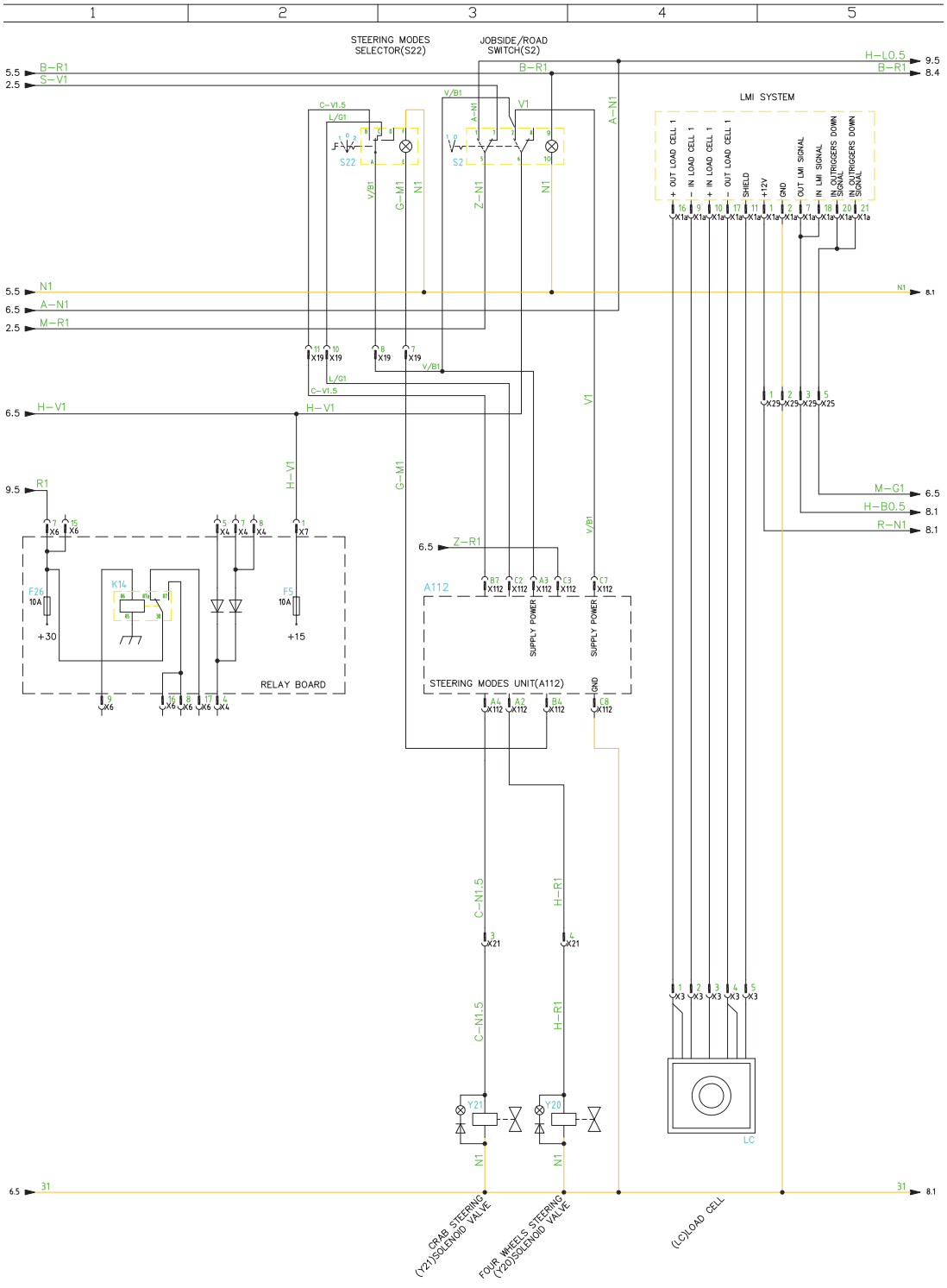
Diagrams and Schemes

GTH-4013 SX & GTH-4017 SX WIRING DIAGRAM 6/10



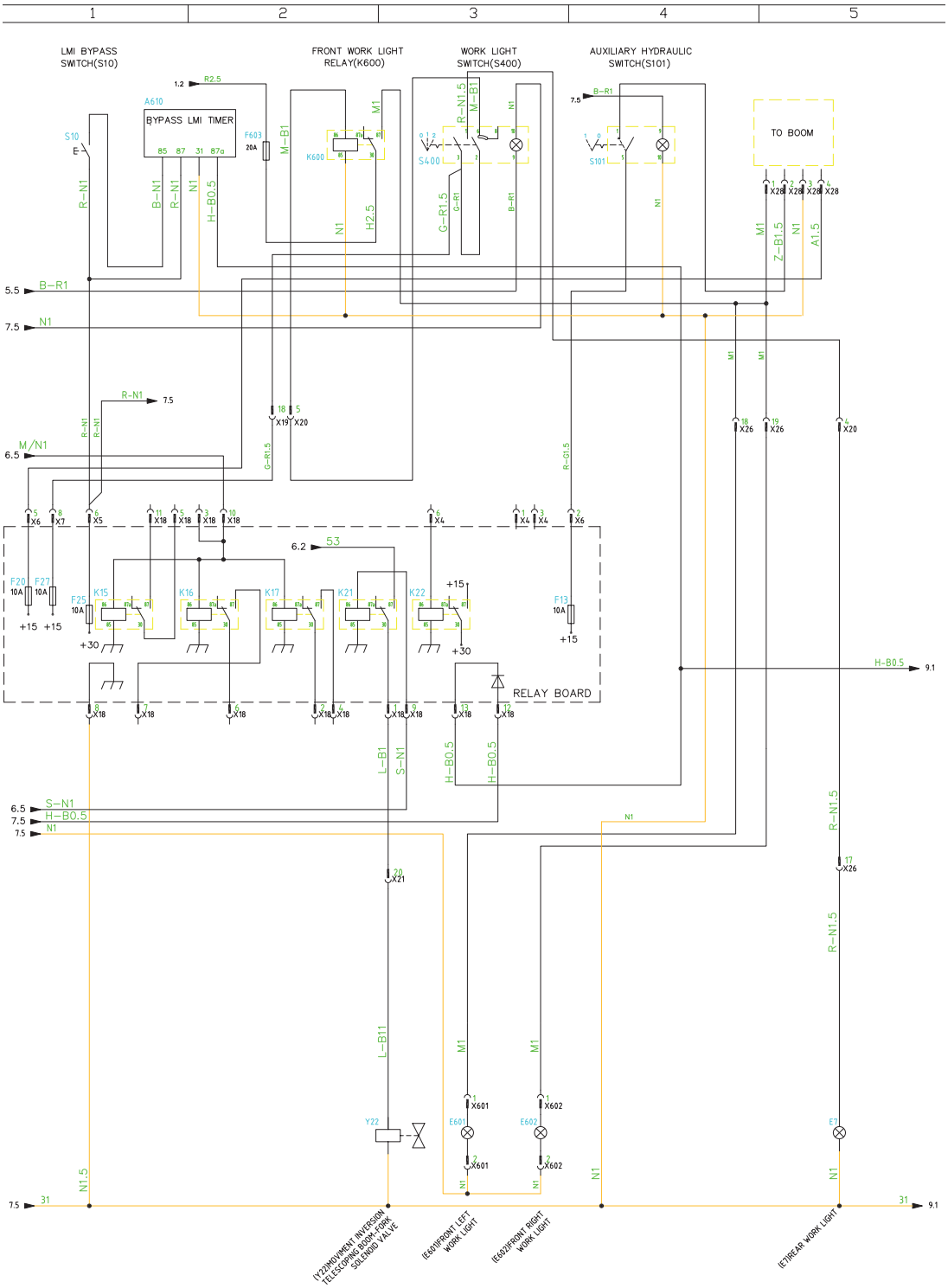
Diagrams and Schemes

GTH-4013 SX & GTH-4017 SX WIRING DIAGRAM 7/10



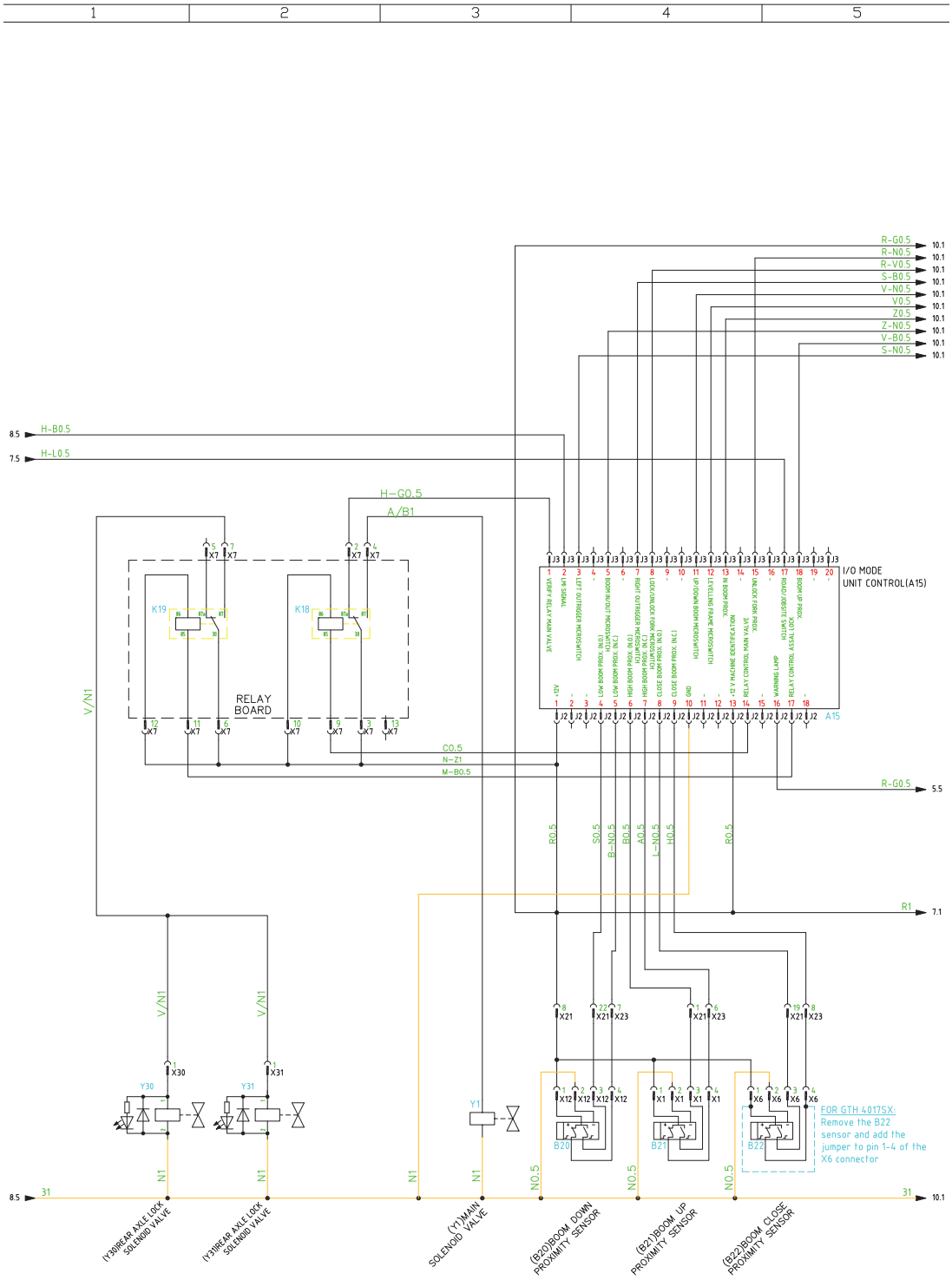
Diagrams and Schemes

■ GTH-4013 SX & GTH-4017 SX WIRING DIAGRAM 8/10



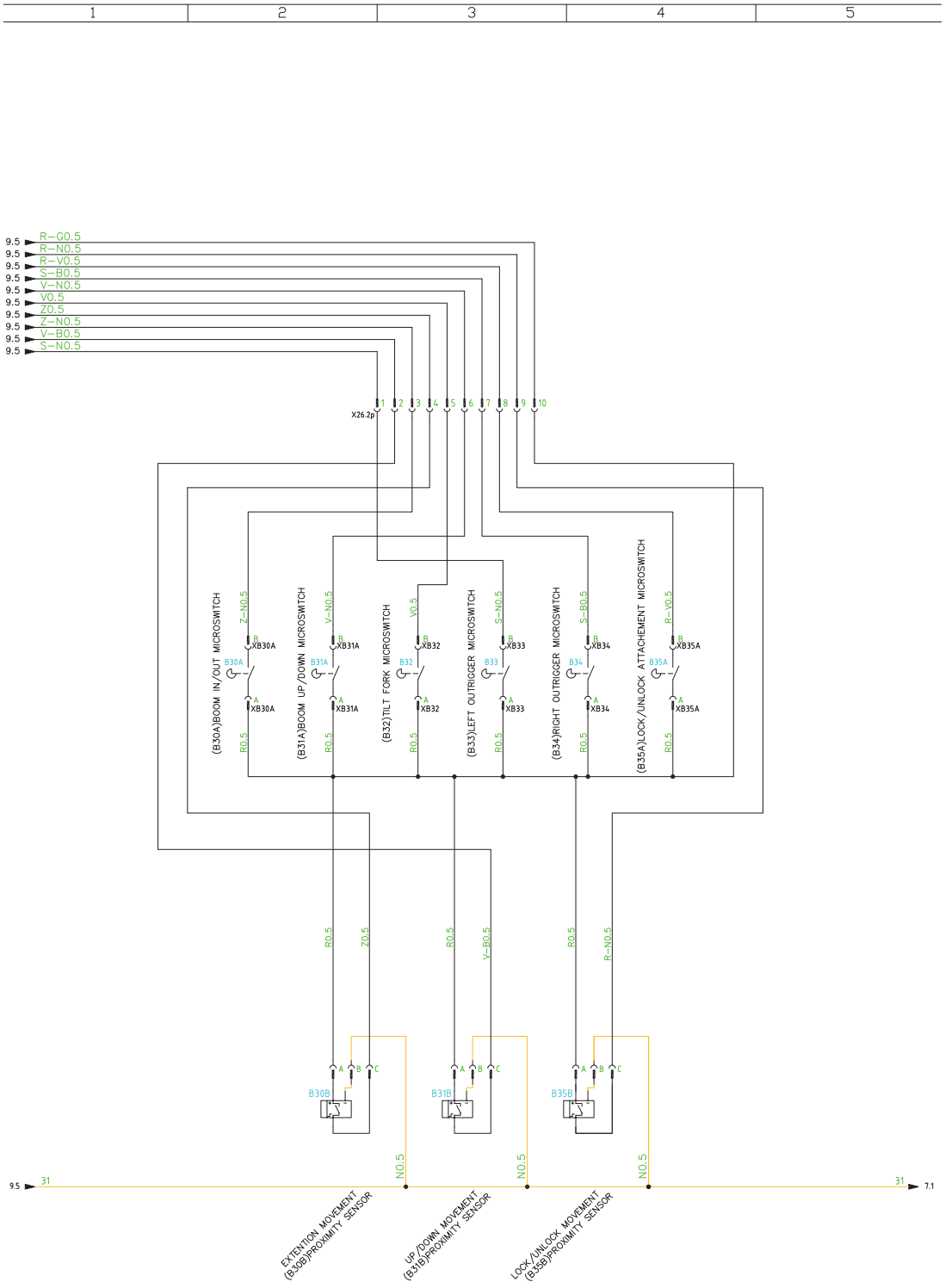
Diagrams and Schemes

GTH-4013 SX & GTH-4017 SX WIRING DIAGRAM 9/10



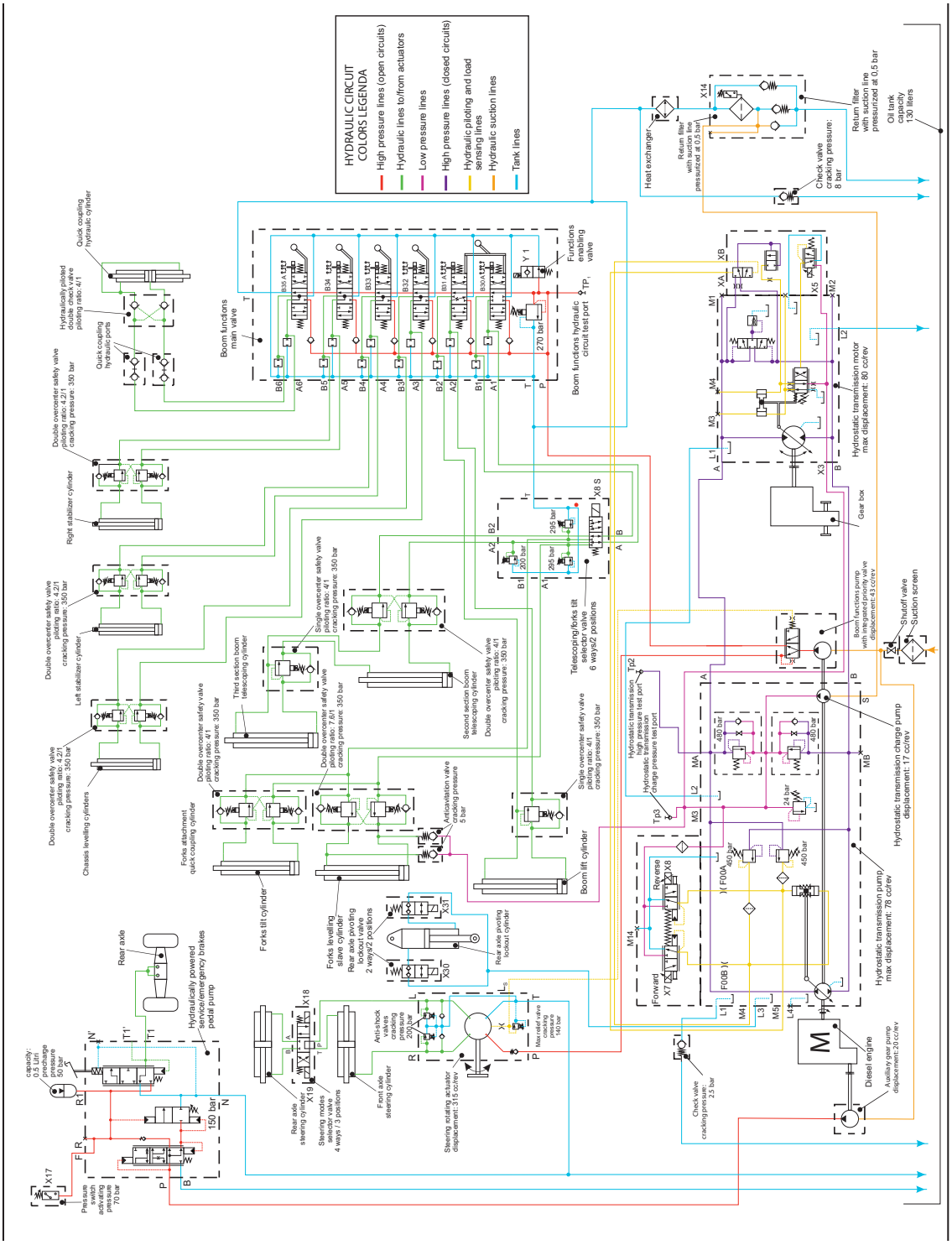
Diagrams and Schemes

GTH-4013 SX & GTH-4017 SX WIRING DIAGRAM 10/10



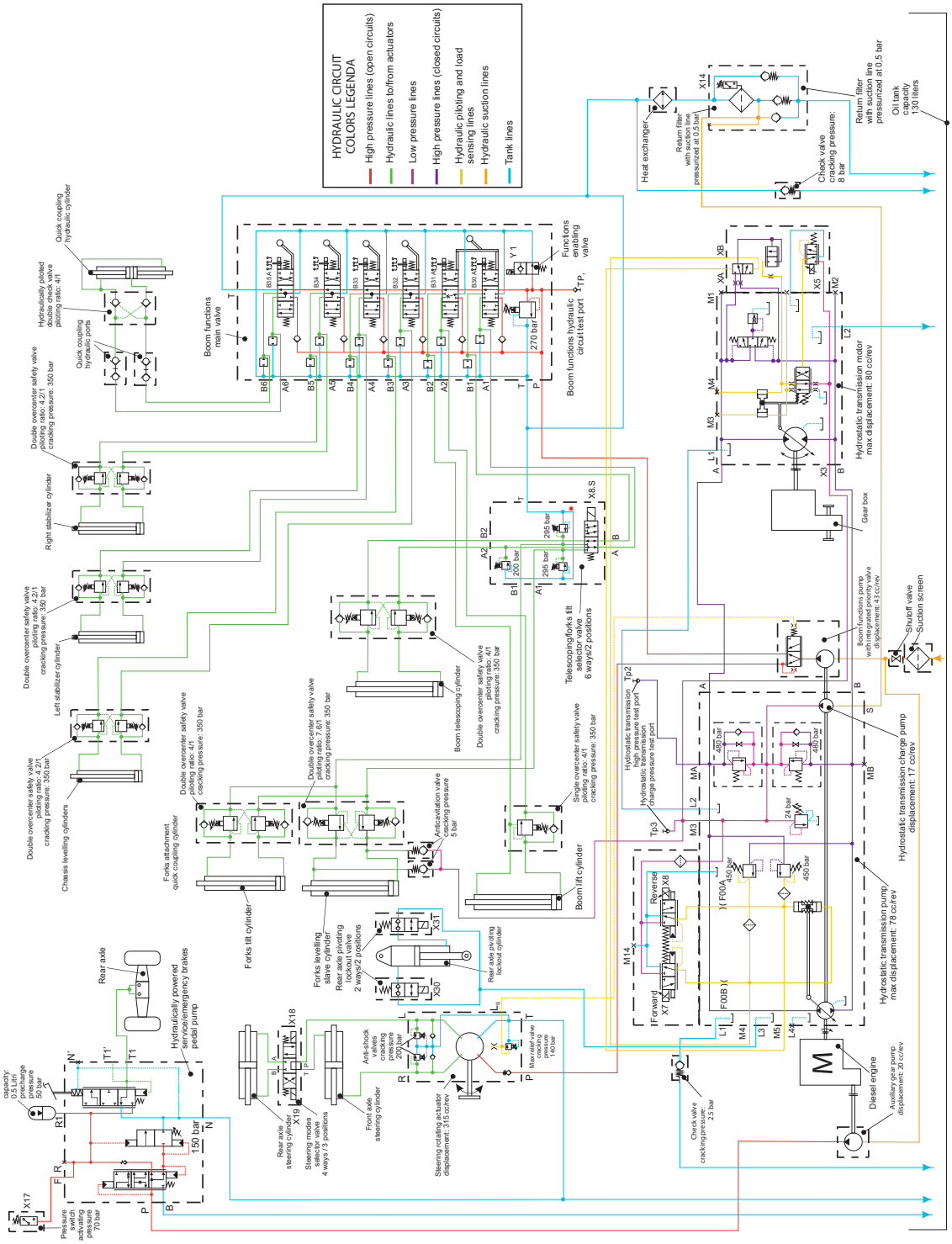
Diagrams and Schemes

GTH-4013 SX HYDRAULIC DIAGRAM



Diagrams and Schemes

GTH-4017 SX HYDRAULIC DIAGRAM

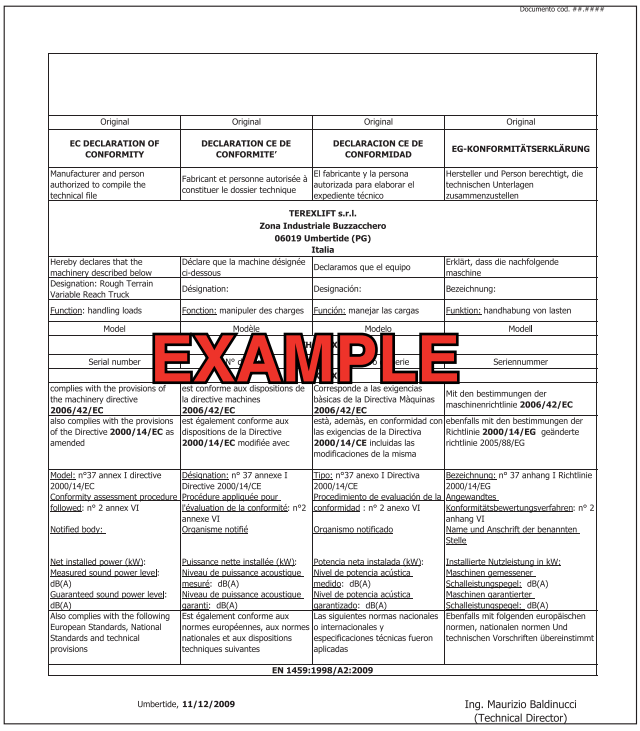


EC Declaration of Conformity

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

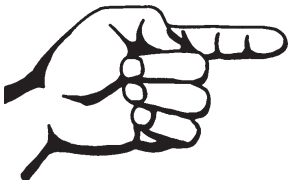


Documento cod. ##.####

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	[illegible]	[illegible]erio	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 nichtlinie 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 Schallleistungspegel: dB(A) Maschinen garantierter Schallleistungspegel: 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)



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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

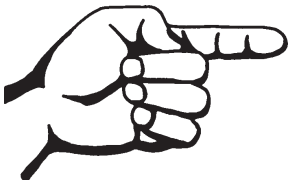
9. **Secondary Failures**: should the owner or operator continue to operate a machine after It has been noted that a failure has occurred, seller will not be responsible under the warranty for resultant damage to other parts due to that continued operation.
10. **Workmanship of Others**: seller does 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 COMPANY

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 COMPANY

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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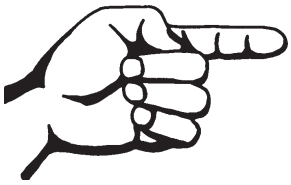
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TEREXLIFT Copy



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Routine Check Schedule

SAFETY DEVICES DAILY CHECKING

DATE _____

COMPONENT	RESULT	NOTE	SIGNATURE
Load Cell	❒ positive ❒ negative		
LMI Display & Board	❒ positive ❒ negative		
Emergency Stop Pushbutton	❒ positive ❒ negative		
Seat Switch	❒ positive ❒ negative		
Levelling Cylinder Safety Valve	❒ positive ❒ negative		
Lifting Cylinder Safety Valve	❒ positive ❒ negative		
2nd Telescope Extension Cylinder Safety Valve for GTH-4013SX	❒ positive ❒ negative		
2nd Telescope Extension Cylinder Safety Valve for GTH-4017SX	❒ positive ❒ negative		
3rd Telescope Extension Cylinder Safety Valve	❒ positive ❒ negative		
Attachment Swinging Cylinder Safety Valve	❒ positive ❒ negative		
Axle Locking Cylinder Safety Valve	❒ positive ❒ negative		
Axle Levelling Cylinder Safety Valve	❒ positive ❒ negative		
Outrigger Cylinder Safety Valves	❒ positive ❒ negative		
Outigger Micro-switches	❒ positive ❒ negative		
Parking Brake Sensor	❒ positive ❒ negative		
Boom Safety Switches	❒ positive ❒ negative		