Genie®
A TEREX COMPANY

# Operator's Manual

Serial number range

## GTH-4010 SX

From s/n: 19461
To s/n: 20590

## GTH-3512 SX

From s/n: 19260
To s/n: 20669

With Maintenance Information

First Edition
Third Printing
Part No. 57.0009.0458

## Important

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

For any further information, please call Terexlift.

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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

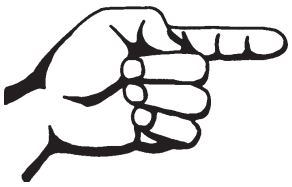
***Yellow: indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.***

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.***

## MODEL AND TYPE

Handler with telescopic boom:

models: ***GTH-4010 SX - GTH-3512 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* |
|---|---|
| 98/37/CE | Machinery Directive |
| 89/336/CEE | Electromagnetic compatibility |
| 2000/14/CE | Environment Acoustic Emissions |

| *Standard* | *Title* |
|---|---|
| EN 1459:1988 | Harmonised standard. Safety of industrial trucks - Self- propelled variable reach trucks. |
| EN 281:1988 | Self-propelled industrial trucks sit-down rider-controlled. Rules for the construction and layout of pedals. |
| EN 1175-2:1998 | Electrical requirements - General requirements of internal combustion engine powered trucks. |
| ISO 2330:1995 | Fork-lift trucks - Fork arms - Technical characteristics and testing. |
| ISO 3287: 1999 | Powered industrial trucks - Symbols for operator controls. |
| ISO 3449:1992 | Earth-moving machinery - Falling-object protective structures - Laboratory tests and performance requirements. |
| EN 13510: 2002 | Earth-moving machinery - Roll-over protective structures - Laboratory tests and performance requirements. |
| ISO 6292:1996 | Powered industrial trucks and tractors - Brake performance and component strength. |
| EN 13059:2002 | Safety of Industrial trucks- Test methods for measuring vibration |
| ISO 2867:1994 | Earth-moving machinery - Access systems |
| EN ISO 6683:2005 | Earth-moving machinery - Seat belts and seat belt anchorages - Performance requirements and tests |
| ISO 11112: 1995 | Earth-moving machinery - |
| + AMD 1: 2001 | Operator's seat - Dimensions and requirements |

## 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.

# Machine Identification

**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.

## 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.

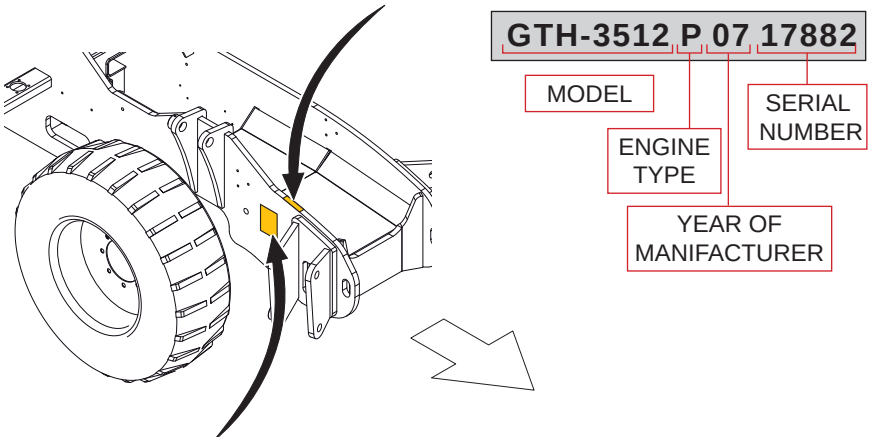
## IDENTIFICATION PLATES OF THE MAIN PARTS

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 left part of the chassis side member)




**Machine data plate**

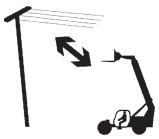
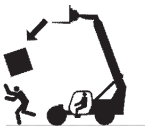
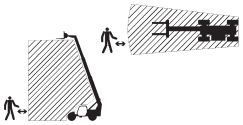
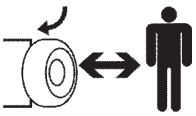
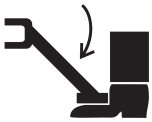
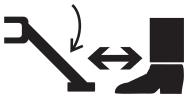
(On machines destined for the Italian market, the machine data plate is installed in the driving cab, on the right, and is well-visible when the door is opened. On the machines destined for foreign markets, the data plate is applied on the front right side of the chassis)

# Symbols Used On The Machine

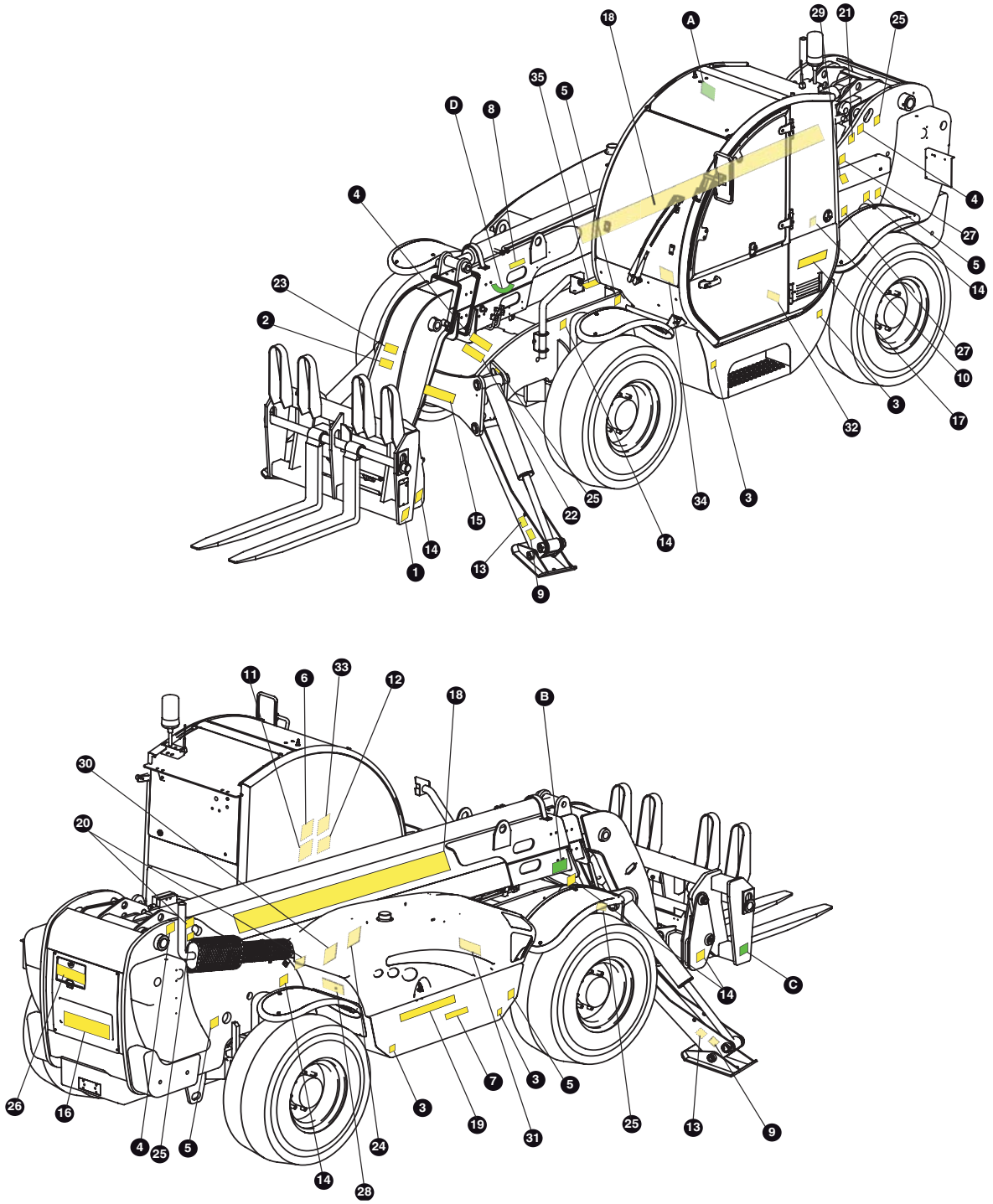
| | | | | |
|---|---|---|---|---|
|  Fuel Level |  Brake pressure |  Fog lamp |  Parking Brake |  Battery Charge |
|  Low Engine Oil Pressure |  Hydraulic Oil Filter Clogged |  Low Hydraulic Oil Level |  Turn Signals |  High Beam |
|  Hydraulic Oil Temperature Indicator |  Air Filter Restricted |  Glow 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

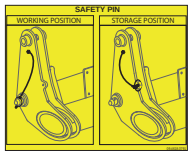
| | | | | |
|---|---|---|---|---|
|  Electrocution Hazard |  Maintain required clearance. |  Falling Object Hazard |  No people under load. |  Fall Hazard |
|  No riders. |  Burn Hazard |  Allow system to cool. |  Explosion/Burn Hazard |  No smoking. No open flame. |
|  Read the operator's manual. |  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 clear of moving outriggers. | | | |

# Labels And Plates Applied On The Machine

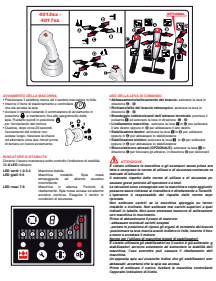
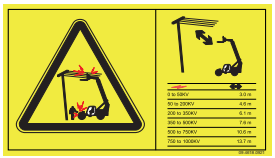


# Labels And Plates Applied On The Machine

***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 |  | 09.4618.0547 | **Tyre inflat. P=5.5bar/80psi** | 4 |
| 4 |  | 09.4618.0918 | **Falling Object Hazard** | 3 |
| 5 |  | 09.4618.0919 | **Crush Hazard** | 4 |
| 6 |  | 09.4618.0563 | **Guaranteed sound power level** | 1 |
| 7 |  | 09.4618.0920 | **Compartment Access** | 1 |
| 8 | Kg 4000<br>Kg 3500 | 09.4616.0040<br>09.4616.0006 | **Max Capacity for GTH-4010 SX**<br>**Max Capacity for GTH-3512 SX** | 1<br>1 |

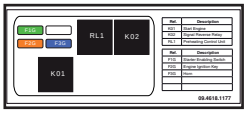
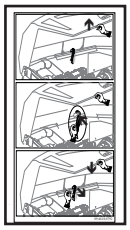
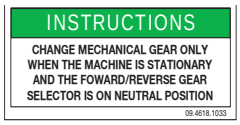
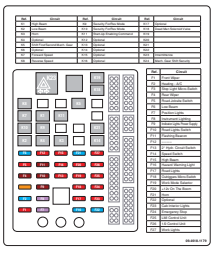
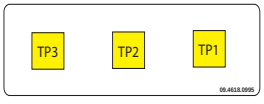
# Labels And Plates Applied On The Machine

| Ref. | Decal | Code | Description | Qt. |
|---|---|---|---|---|
| 9 |  | 09.4618.0990 | **Label - Stabilizer Max Pressure** | 2 |
| 10 |  | 09.4618.0776 | **Label - Upper Door Internal Unlock System** | 1 |
| 11 |  | 09.4618.0909 | **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** | 2 |
| 14 |  | 09.4618.0922 | **Crush Hazard** | 6 |
| 15<br>16<br>17 |  | 09.4618.0243<br>09.4618.0241<br>09.4618.0242 | **Cosmetic - GENIE Logo in WHITE** | 1<br>1<br>1 |

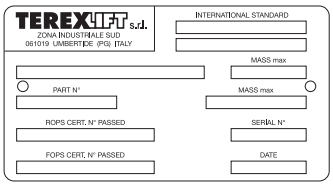
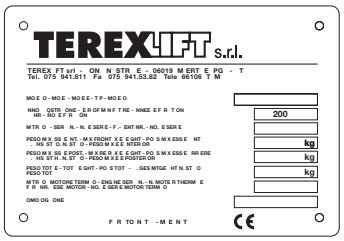
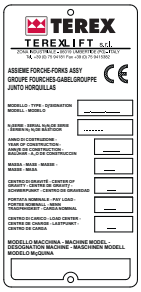
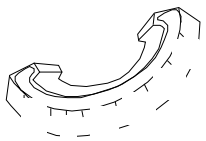
# Labels And Plates Applied On The Machine

| Ref. | Decal | Code | Description | Qt. |
|---|---|---|---|---|
| 18 | Genie GTH-4010 SX | 09.4618.0831<br>09.4618.0830 | **Cosmetic - Genie GTH-4010 SX** | 2<br>1 |
| 19 | Genie GTH-3512 SX | 09.4618.0833<br>09.4618.0832 | **Cosmetic - Genie GTH-3512 SX** | 2<br>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 |  | 09.4618.1177 | **Label - Engine Fuses & Relays Board** | 1 |
| 29 |  | 09.4618.1001 | **Label - Maintenance Collar** | 1 |
| 30 |  | 09.4618.0792 | **Label - Engine Cover Closing** | 1 |
| 31 |  | 09.4618.0986 | **Crush Hazard** | 1 |
| 32 |  | 09.4618.1028 | **Label - Parking Brake** | 1 |
| 33 |  | 09.4618.1033 | **Label - Mechanical Gear Instructions** | 1 |
| 34 |  | 09.4618.1179 | **Label -Cabin Fuses & Relays Board** | 1 |
| 35 |  | 09.4618.0995 | **Testing Ports** | 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.

# 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**

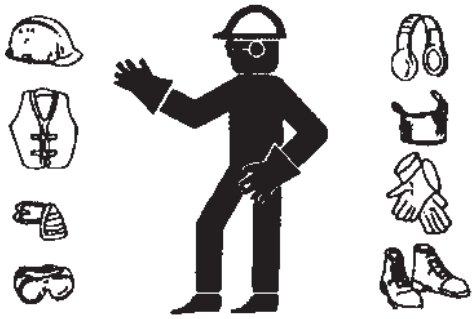
***From a technical point of view, the ordinary maintenance of the machine is not a complex intervention and can be carried out by the machine operator, too, provided he has a basic knowledge of mechanics.***

# 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.
- 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).
- Ear-protectors or equivalent equipment.
- Goggles or facial masks.

***Use only type-approved protective equipment in good condition.***

## ■ 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!***

*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 |

- 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.

**DANGER**

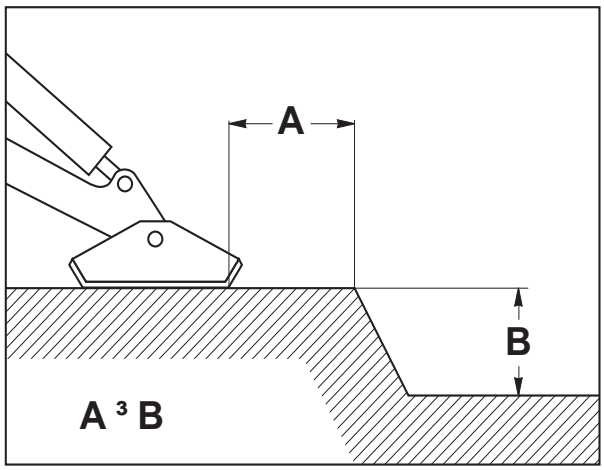
***Do not at any time use the machine during a storm.***

# 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.

# Safety precautions

- When working, do not give instructions or signs to several people at the same time. Instructions and signs must be given by one person only.
- Always pay due attention to the instructions given by the foreman.
- Never distract the operator during working phases or crucial manoeuvres.
- Do not call an operator suddenly, if unnecessary.
- Do not frighten an operator or throw objects by any means.
- After work, never leave the machine under potentially dangerous conditions.

## 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.

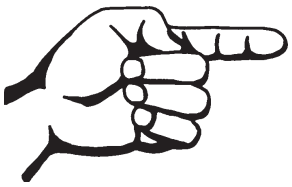
## DAMAGED COMPONENT hazards

- 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.



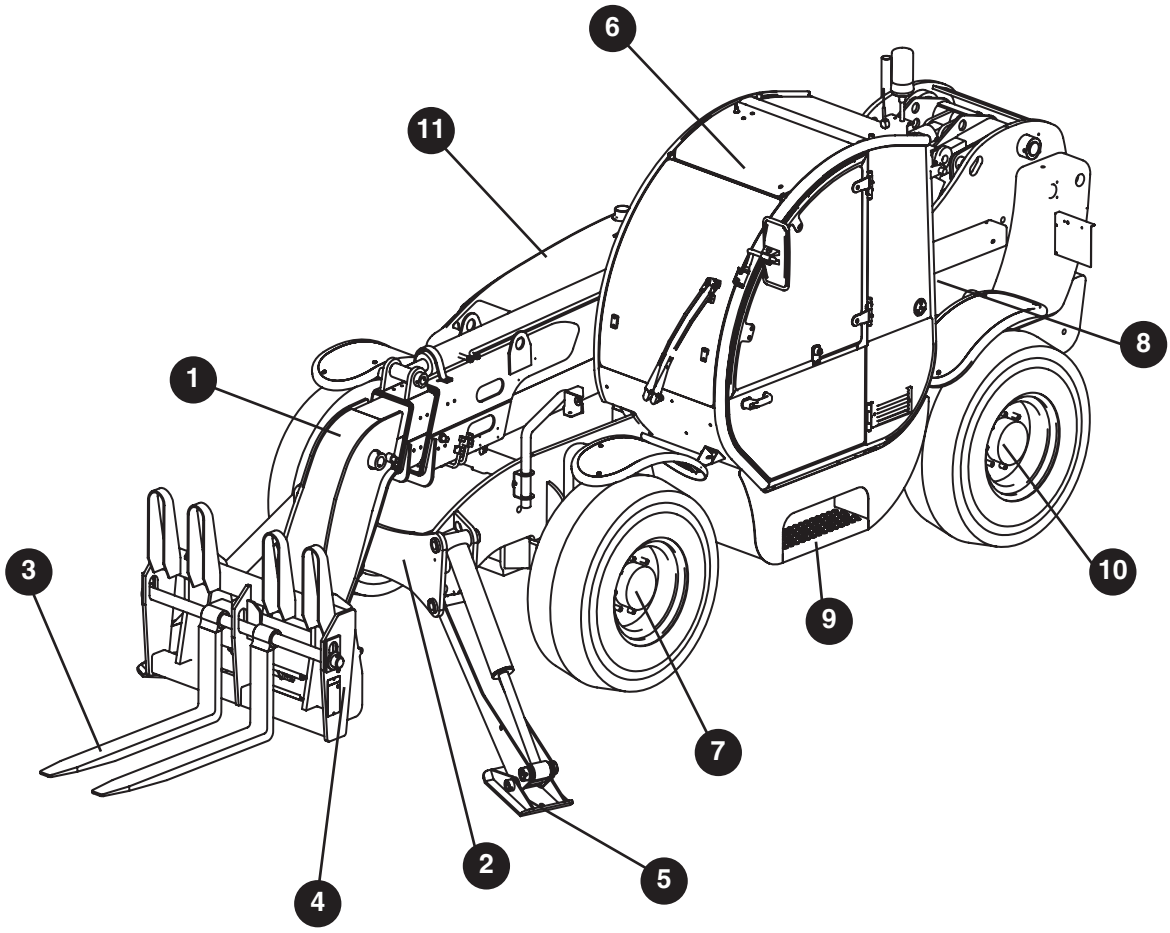
## PERSONAL INJURY hazards

- 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.

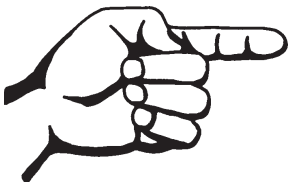


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# Description Of The Main Components

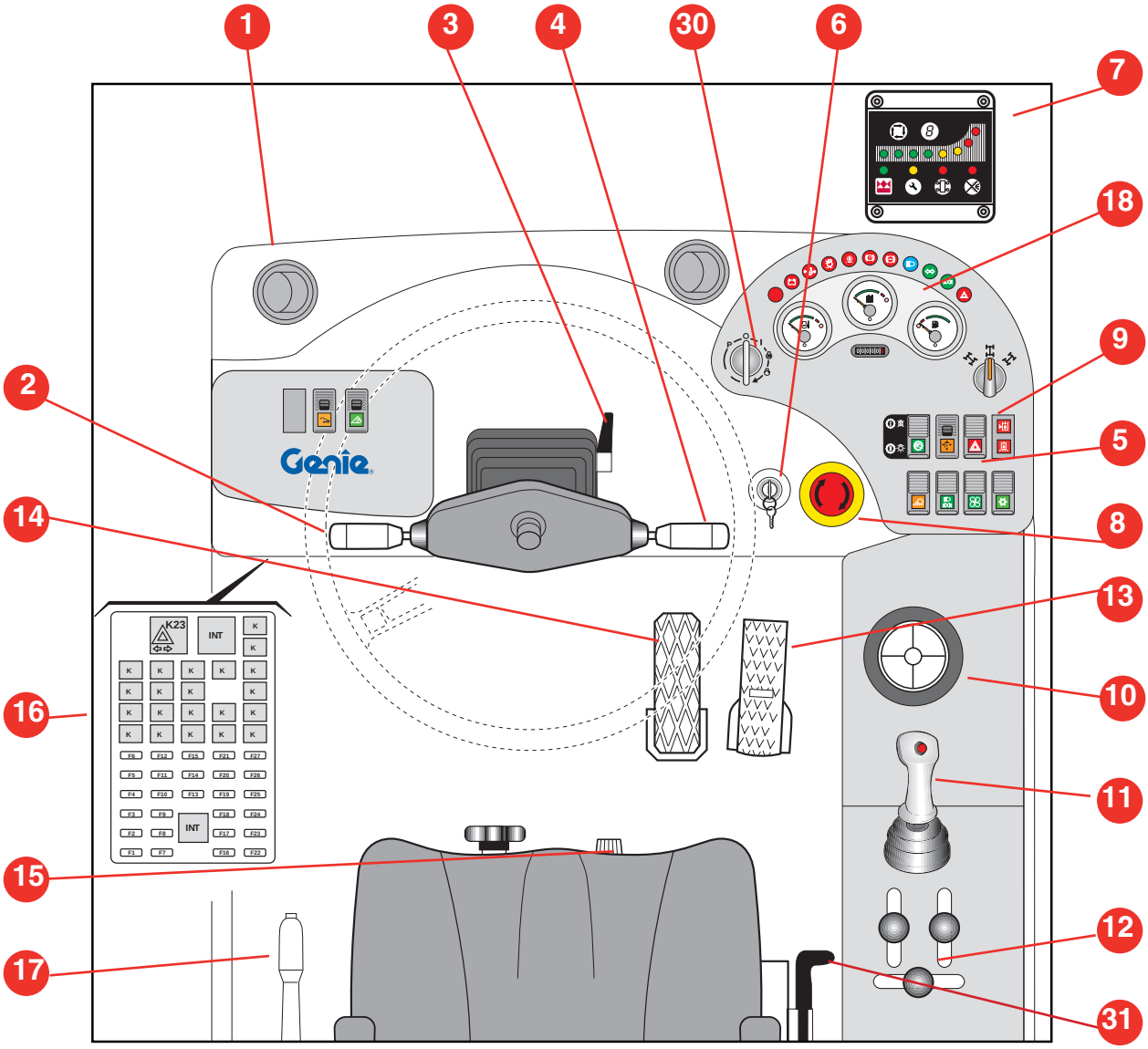



1. Boom
2. Chassis
3. Forks
4. Attachment holding frame
5. Outrigger
6. Driving cab according to ROPS-FOPS provisions
7. Front axle
8. Fuel tank
9. Access step
10. Rear axle
11. Engine



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# 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
31. Manual Accelerator

# Controls and Instruments

## ■ Ignition switch

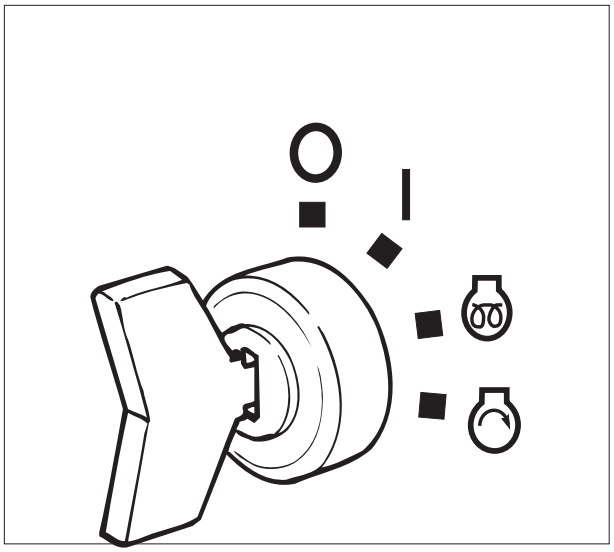
Four-position switch (**30**):

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.



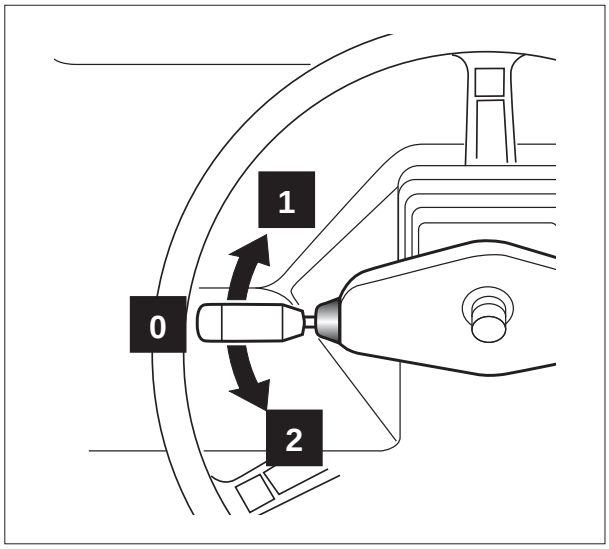

## ■ Forward/reverse gear selector switch

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

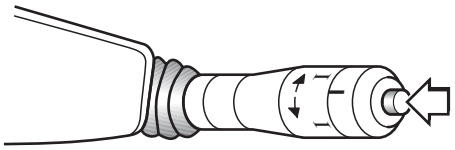


# Controls and Instruments

## ■ Turn signals - Windscreen wiper - Horn - Lights

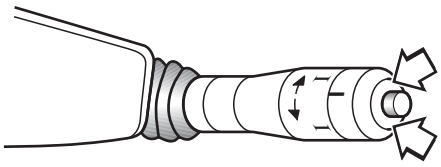
### ■ *Horn function*:

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*:

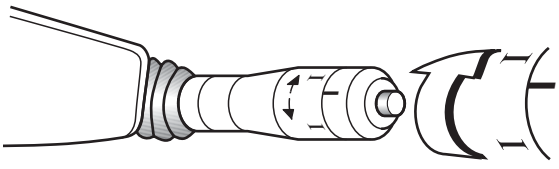
To operate the windscreen wiper, rotate the lever tip to one of the four positions:

**I** Intermittence (not activated)

**0** Wiper OFF

**J** Low speed

**I I** High speed



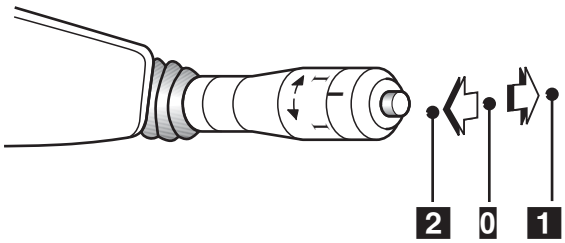
### ■ *Lights function*:

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

**0** low beam ON, stable condition

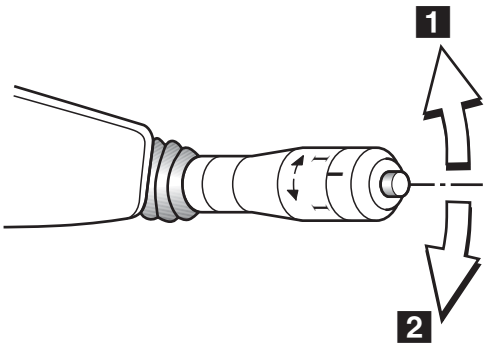
**1** high beam ON, stable condition

**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*

Gradually step on the brake pedal to decelerate and stop the machine. The pedal operates on the front axle.

Fully depressing the brake pedal causes a reset of the displacement of the power drive pump and makes the braking action more powerful.

### *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

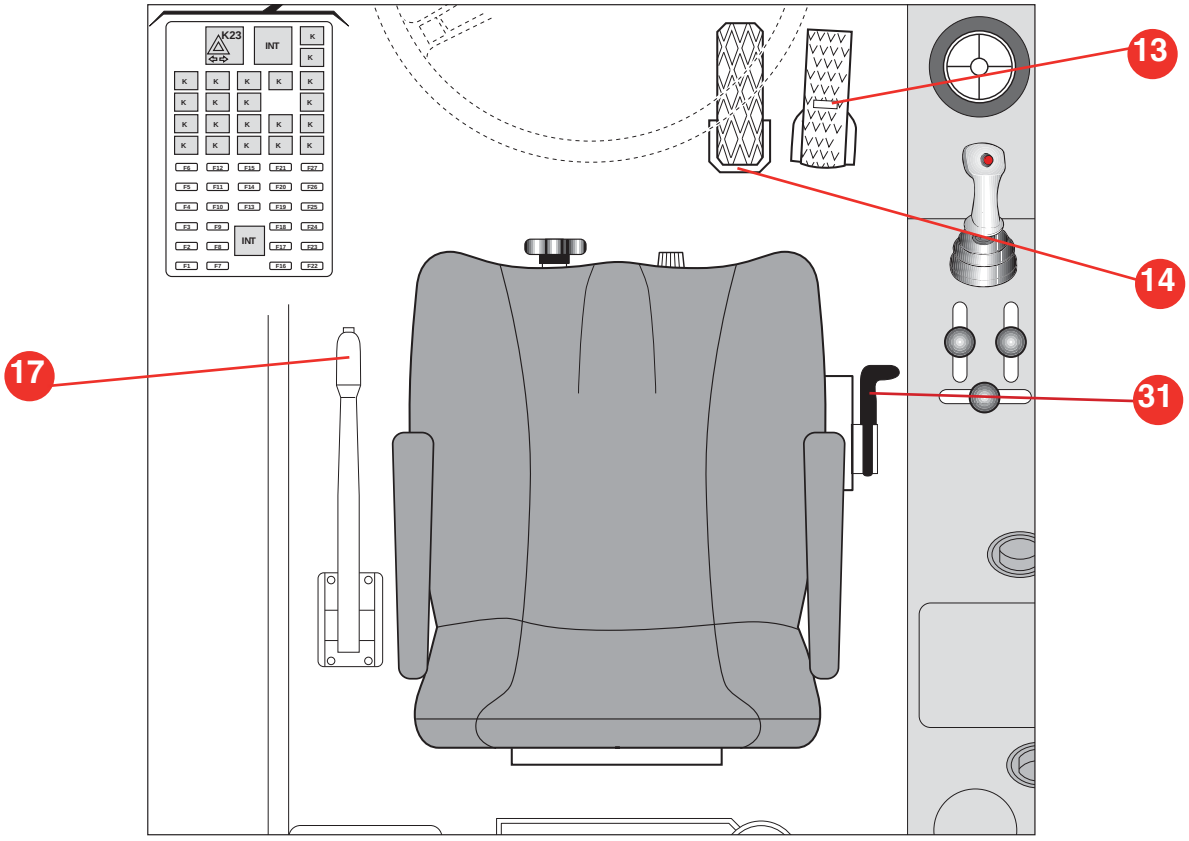
### *13 Gas pedal*

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

### *31 Manual Accelerator*

By pulling the lever up, the engine rpm increases gradually. To reduce the rpm, set the lever down.

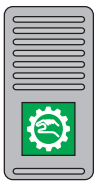
***The manual gas control can only be used with winch, mixing bucket, hook and maintenance jib.***



# Controls and Instruments

### *21 Mechanical Gear switch*

Pushbutton with green glass cap, it is used to engage 1st or 2nd gear. Push the button to select the required speed: each pressure corresponds to the selection of a new speed.



**0** No speed change

**1** Engage a new speed

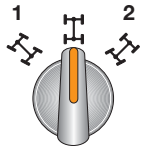
***The green glass cap switch on only when the second speed is engaged.***

***To select a new speed you must control that the machine is not moving and that the forward/ reverse gear selector switch is in neutral position.***

## ■ 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

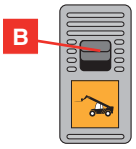
### *20 Rear wheel alignment indicator light (OPTIONAL)*

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.

## ■ 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.

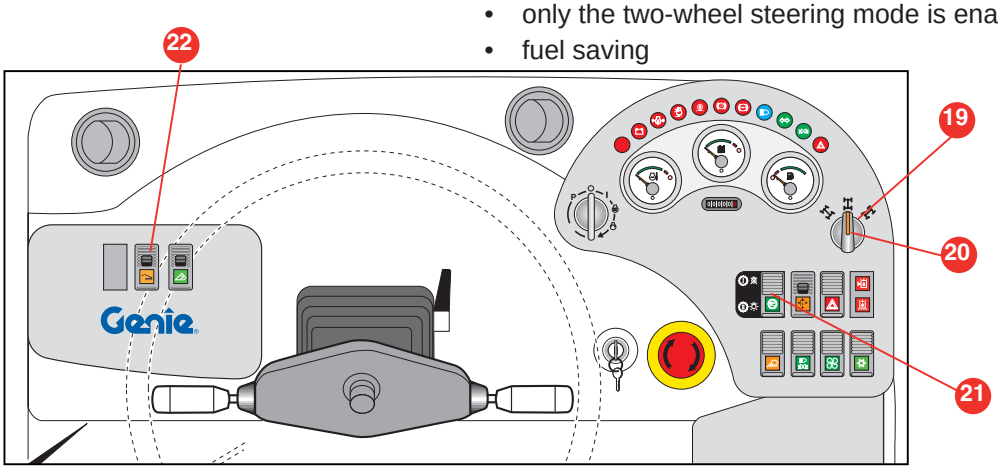
The selector has a safety block to avoid any accidental switching. Before switching the selector to another position, unlock control **B** at the top of the selector.

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.

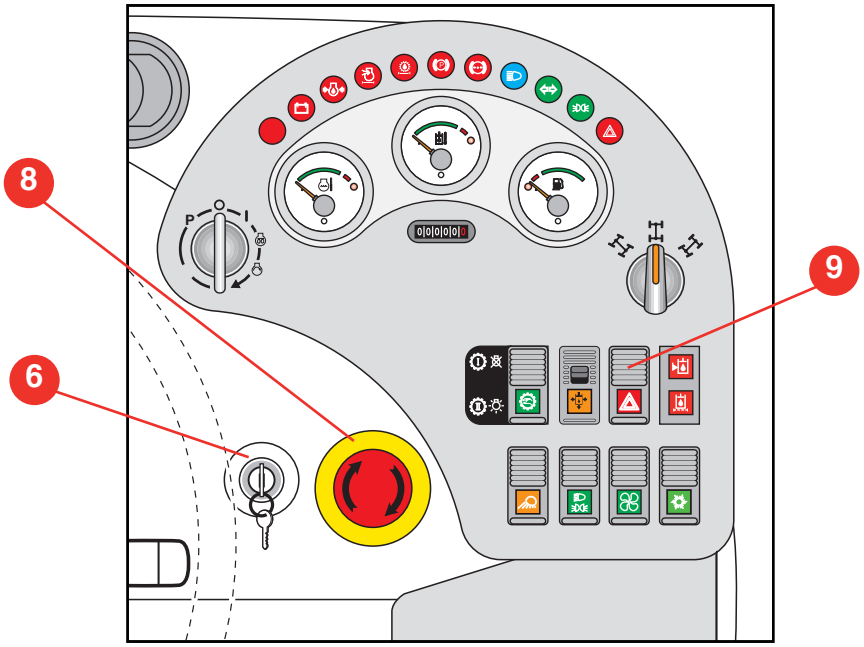


### *6 Load Limiter Disable Selector*

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

### *30 _ Air Condition Switch (OPTIONAL)*

Two-position switch:



**0** OFF

**1** ON

### *31 _ Work Lights Switch (OPTIONAL)*

Two-position switch



**0** Lights OFF

**1** Lights ON

### *24 _ Road lights switch*

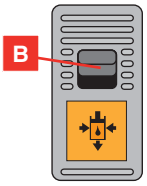
Three-position switch



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

### *32 _ Auxiliary Hydraulic Circuit (OPTIONAL)*

Two-position switch. The pressure of this button causes the switching of the hydraulic circuit for the movement of the attachments equipped with auxiliary lines.



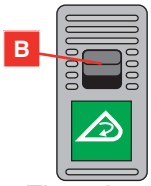

**0** Oil to the main circuit

**1** Attachments hydraulic circuit Switching

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

### *33 _ Mixing Bucket Switch (OPTIONAL)*

Two-position switch. The pressure of this button enables the movement of the internal mixer of the bucket.




**0** Mixer OFF

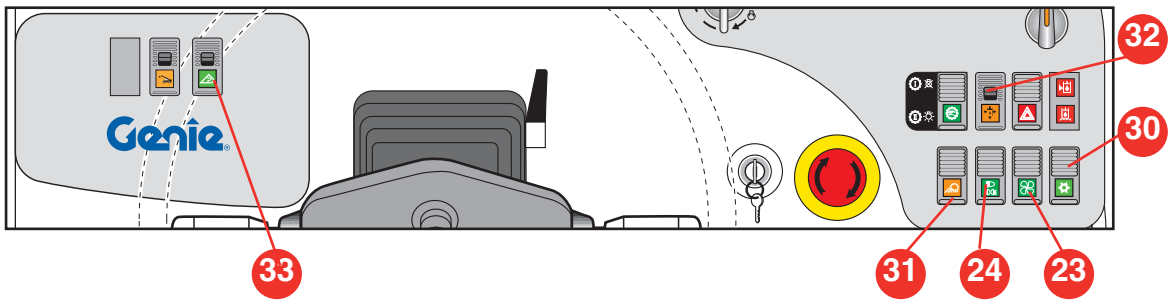
**1** Mixer ON

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

### *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***

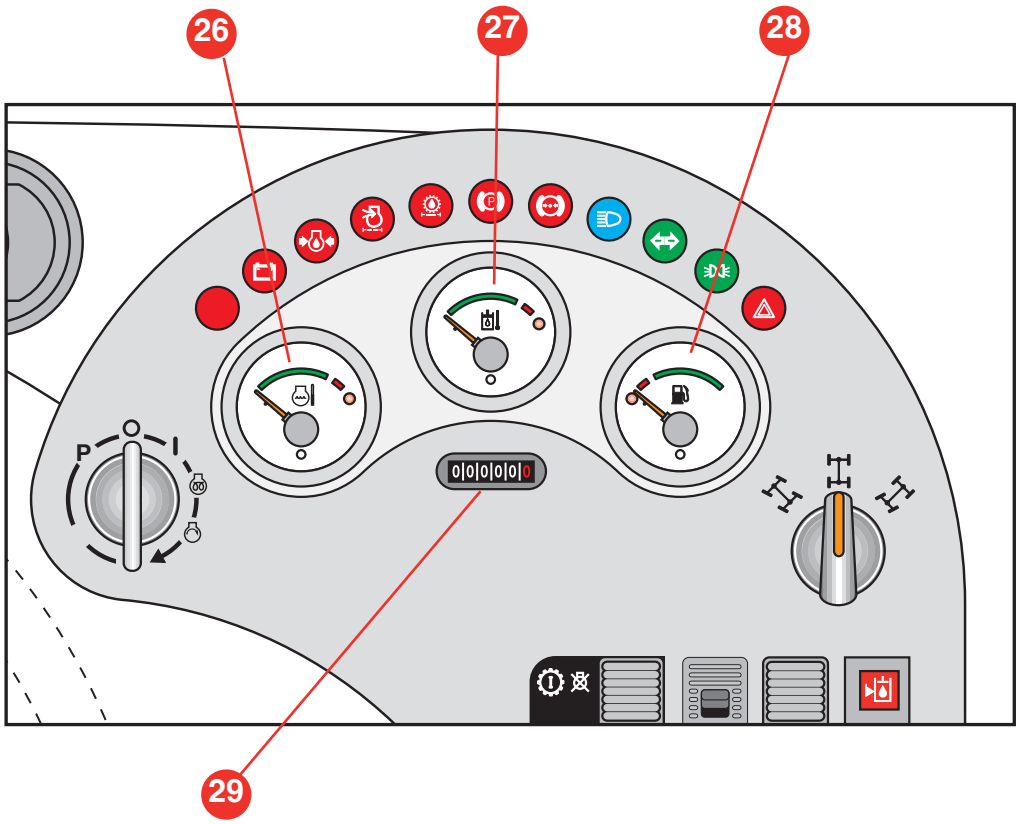
This indicates the temperature of the hydraulic oil in the tank. If the temperature rises above the permissible value or the red warning light comes on, you must stop the machine and find and rectify the problem.

***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***
This red light comes on to warn of a problem of the mechanical gear. Contact the TEREXLIFT Service Centre.

***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.

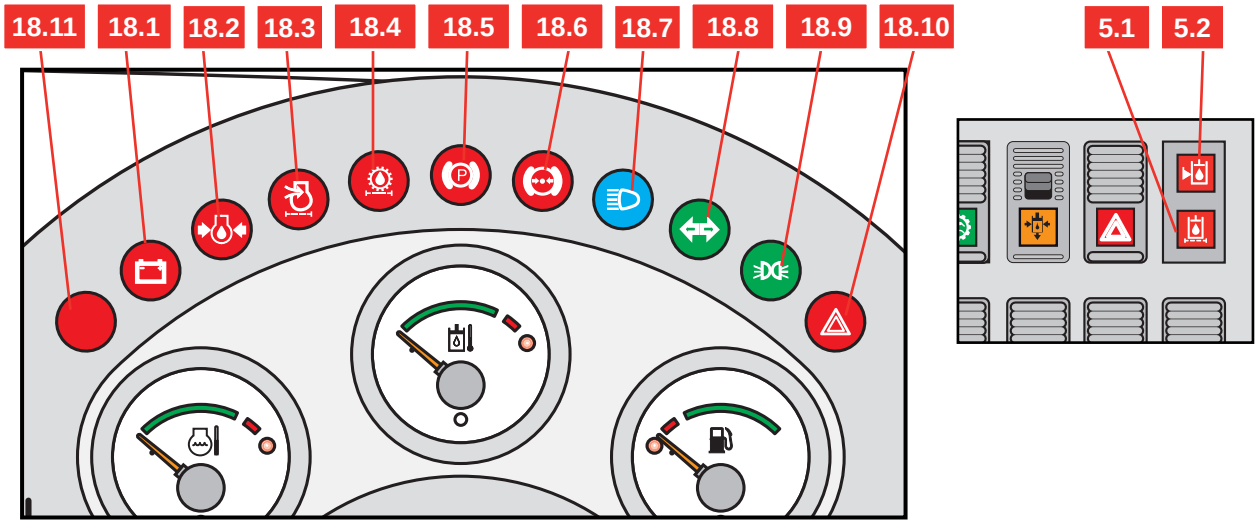
***18.9 Warning light - position lights***
Green warning light that signals when position lights are ON.

***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.

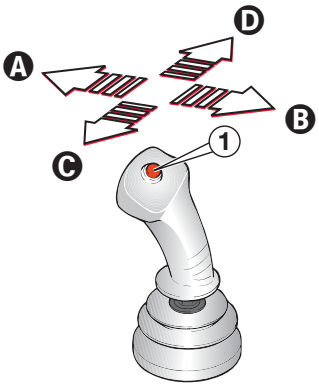
***5.2 Warning light - low hydraulic oil level***
This light comes on to alert to a low level of the hydraulic oil for a correct functioning. Replenish and eliminate the oil leak

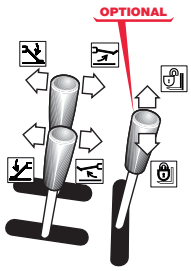


# Controls and Instruments

## CONTROL LEVER

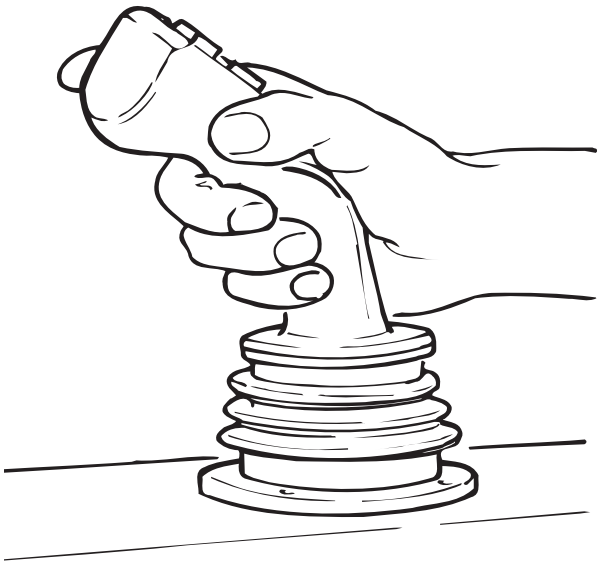
The handlers are equipped with a joystick with servo-assisted hydraulic control for the boom lifting/lowering movements and the boom telescopes in/out movements. Pressing the red button **1** on the joystick switches the telescope out/in-movement to the attachment frame pitching.




On the right side, at the back of the joystick, there are two levers for the independent operation of the following functions: 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.***

**DANGER**

***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**:

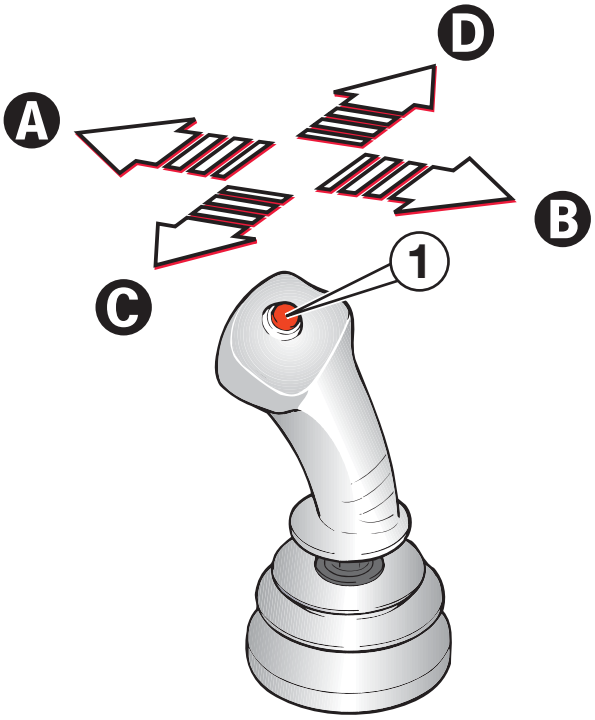
- **Boom lifting/lowering**
  shift the control lever to **A** or **B**
- **Attachment frame forward/back pitching**
  shift the control lever to **C** or **D**

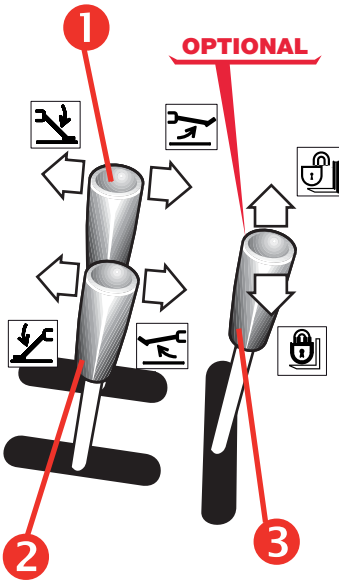
The three levers control the following functions in an independent way:

**1** Right outrigger movement

**2** Left outrigger movement

**3** Attachment locking/unlocking (*OPTIONAL*)



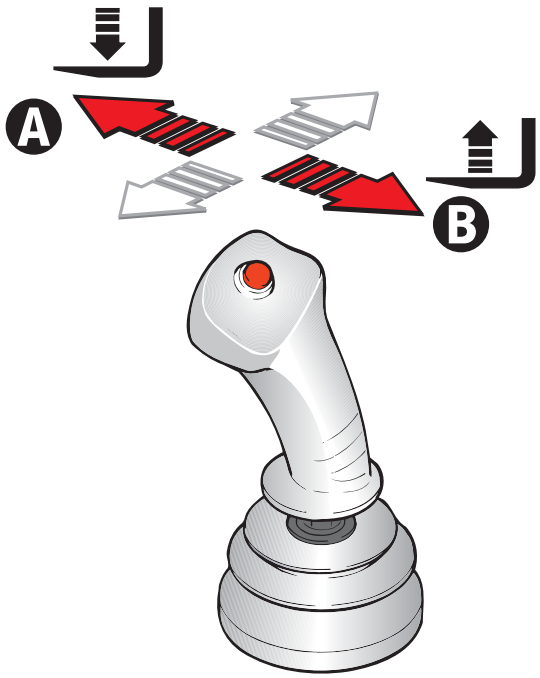



# Controls and Instruments

## Lifting/lowering the boom

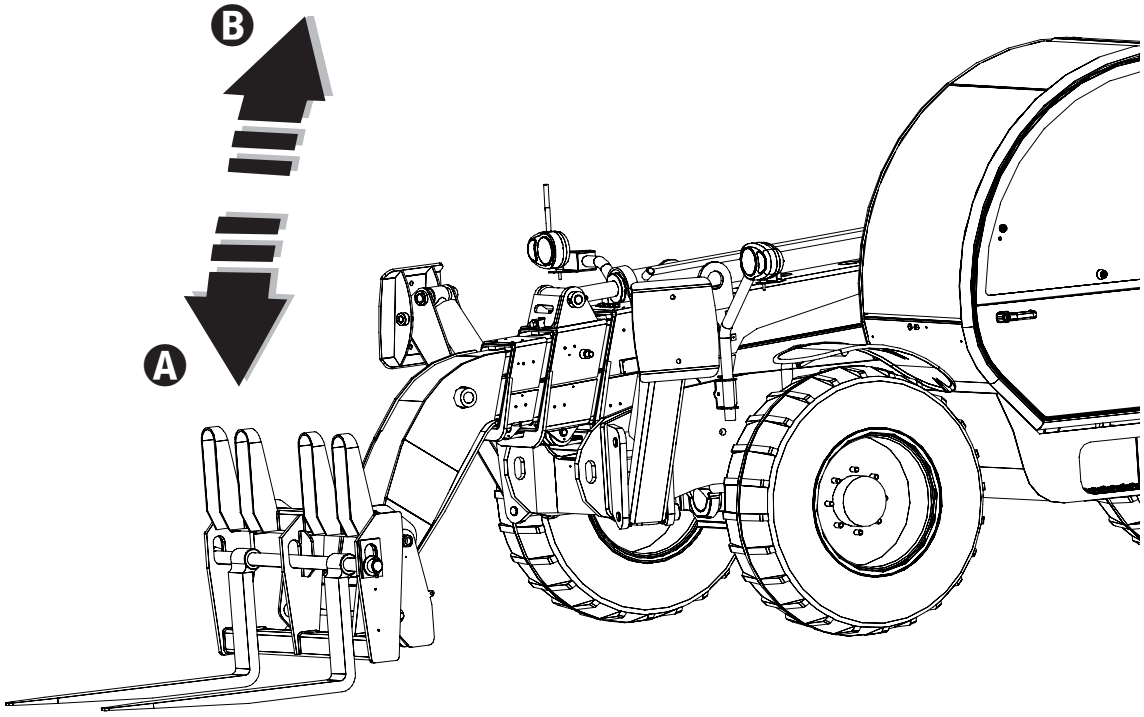
**DANGER**

***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

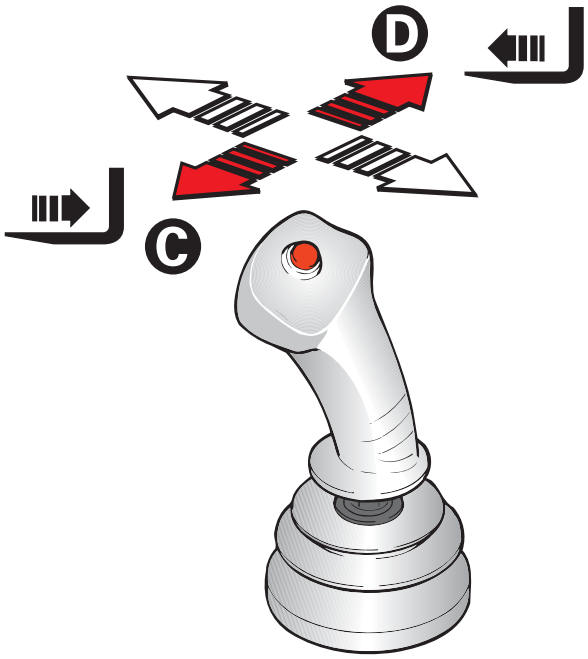
## Extending/retracting the boom

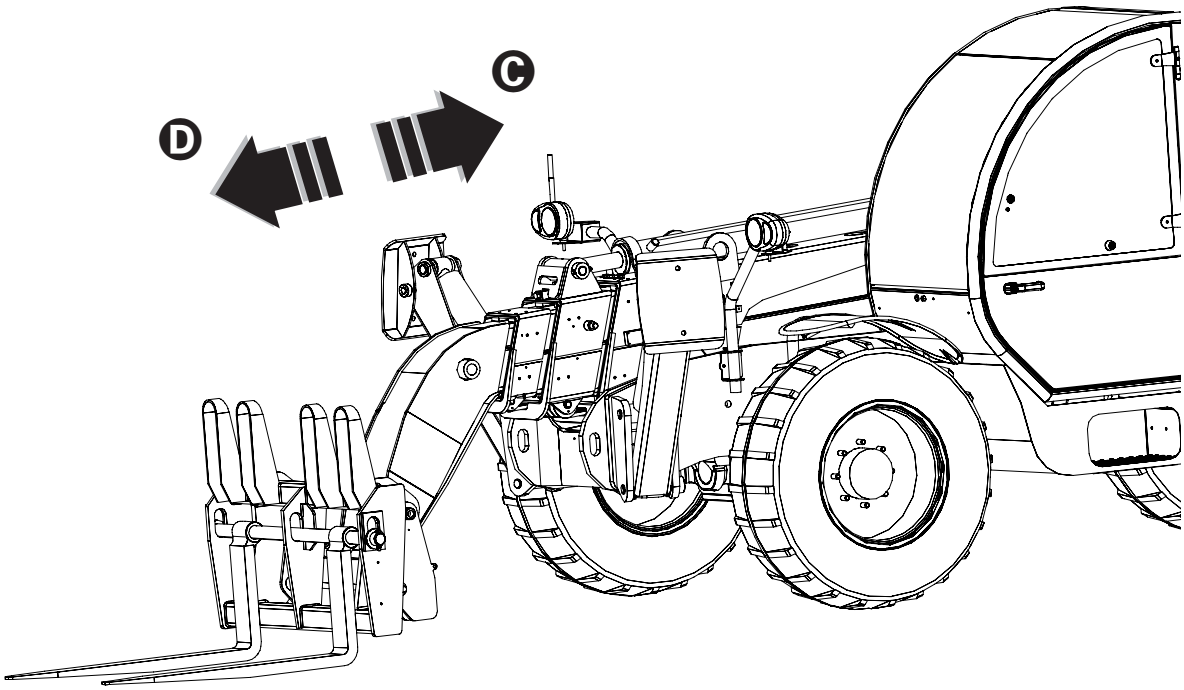
**DANGER**

***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

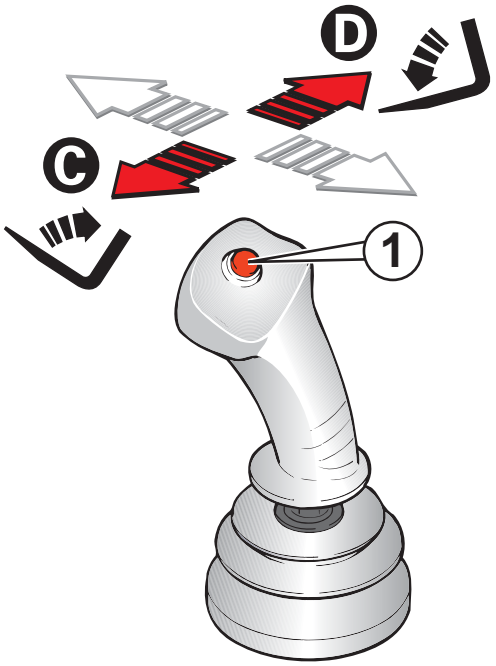
## Pitching the attachment holding frame forward/back

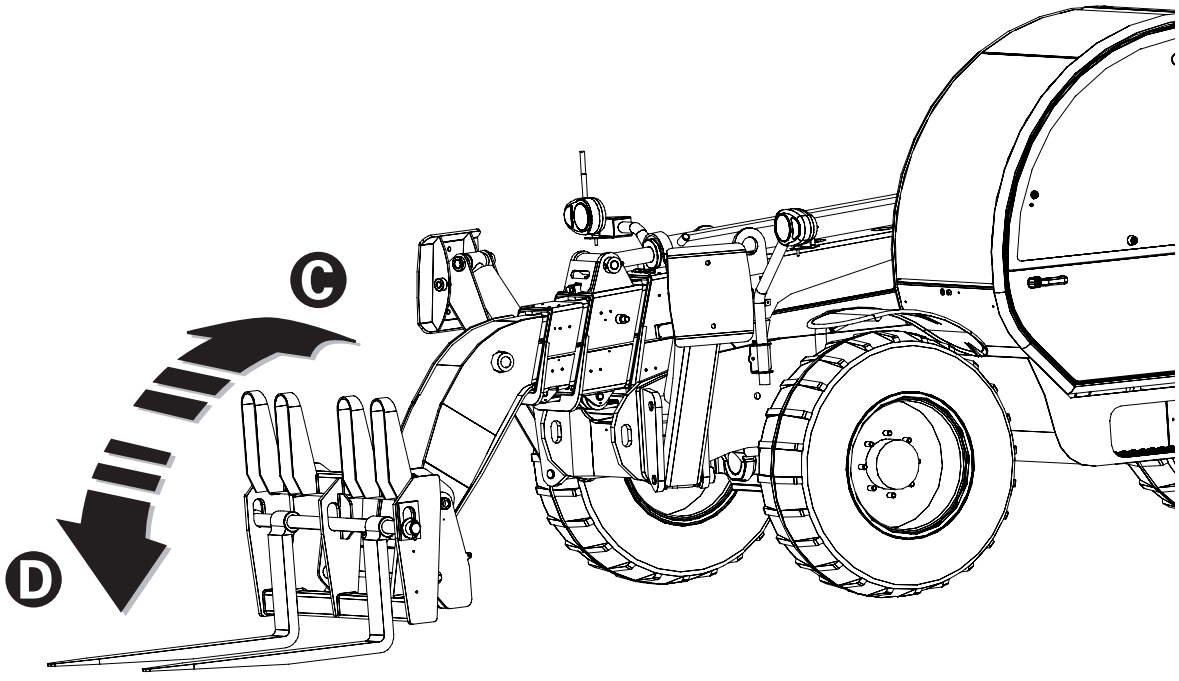
**DANGER**

***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

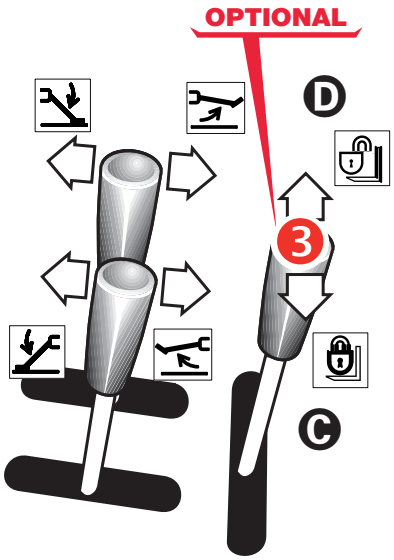
## ■ Quick-coupling the attachments (*OPTIONAL*)

**DANGER**

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

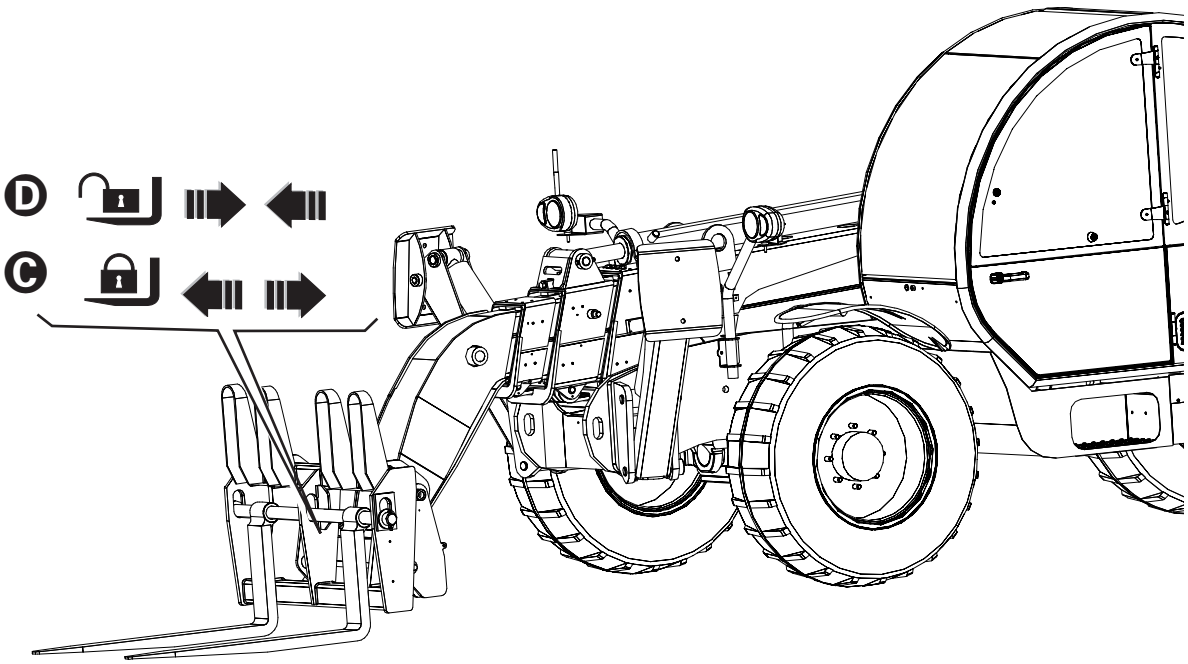
To lock/unlock the attachments:

- Shift the lever **3** 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

## ■ Stabilizers movements

**DANGER**

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

To operate the outriggers:

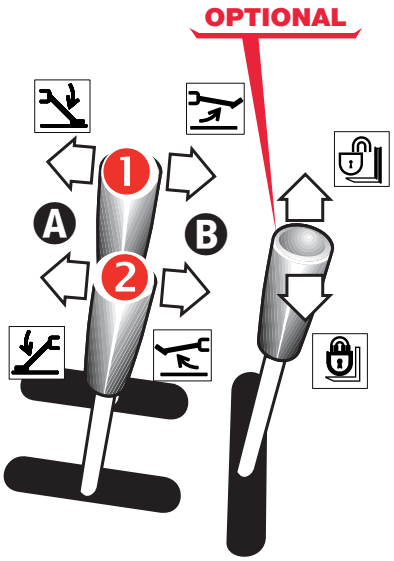
- Shift the lever **1** or **2** (depending on the stabilizer to move, right and left respectively) to position **A** to lower the stabilizer
- Shift the lever to position **B** to raise the outrigger.

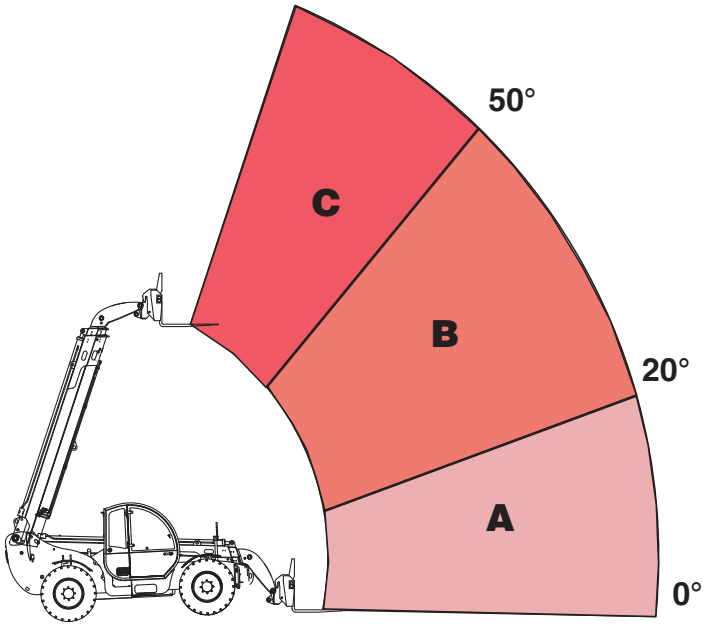
***~~Stabilizer~~ controls activation is affected by the boom position and extension, as shown in the chart below:***

***• 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.***



# 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 the interior rear view mirror and the exterior right hand mirror, if required.

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 **3**, 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 Pull the parking brake lever upward.

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

## Test the Stabilizers

26 Using the control lever **1** and **2,** fully lower and raise the stabilizers.

⊙ Result: The stabilizers should operate moothly.

27 Raise the boom over 20° and extend it.

⊙ Result: 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

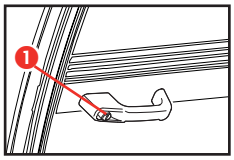
**CAUTION**

***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.

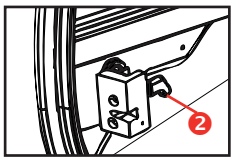



**Door closing from inside:**

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.

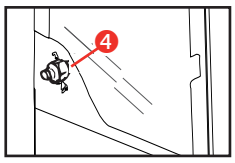



**CAUTION**

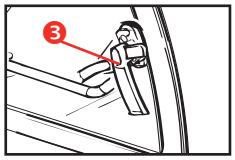
***The upper section of the door must be secured to the rear part of the driving cab or latched to the lower section of the same door.***

**To unlock the door latched in open position:**

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

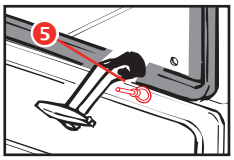



- Once released, re-close the upper section of the door by means of handle **3**.




### ■ 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.

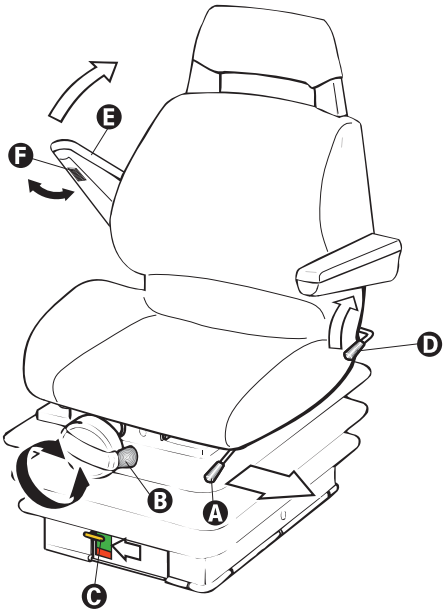
- **Adjusting seat height and springing**
  Free the lever of knob **B** and turn clockwise or counter-clockwise until reaching the desired springing. Once you'are correctly seated in the seat check that the yellow indicator **C** is in the green field.

- **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**

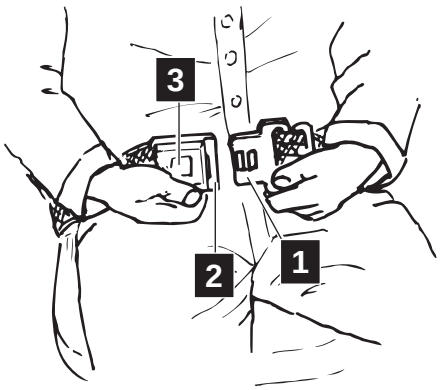
- ***The seat is for one person only.***
- ***Don't adjust the seat when the machine is moving.***




## 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.



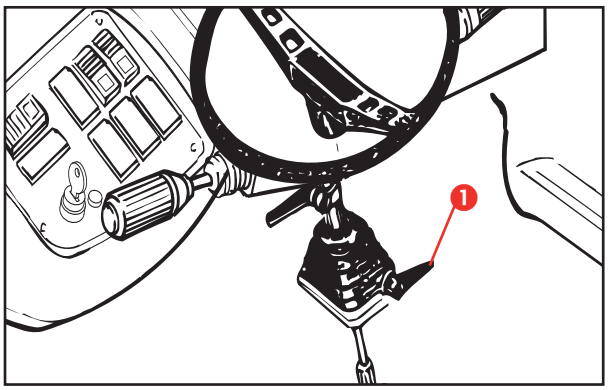
# Operating Instructions

## 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.***



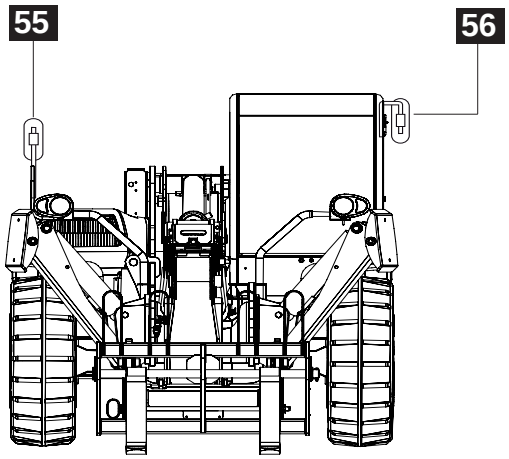

## SWITCHING ON THE CAB INTERIOR LAMP

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 REAR VIEW MIRRORS

The machine is fitted with two rear view mirrors:

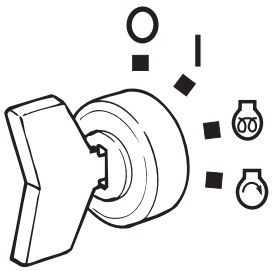
- Rear view mirror **55** is located on a special supporting bracket in advanced position and allows checking the area behind the machine, on the right-hand side. To adjust its position, manually rotate the joint it is fitted with.
- Rear view mirror **56** is placed on the left upper post of the windscreen 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.



# 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.***

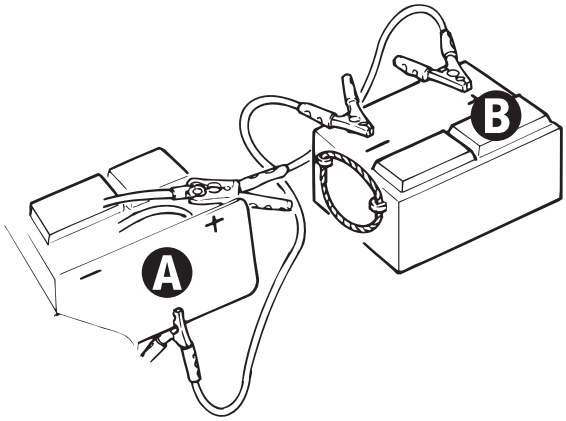
***Keep any metal object like buckles, watch straps, etc. clear of the battery positive (+) terminal. These elements can short between the terminal and nearby metal work and the operator can get burned.***

***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



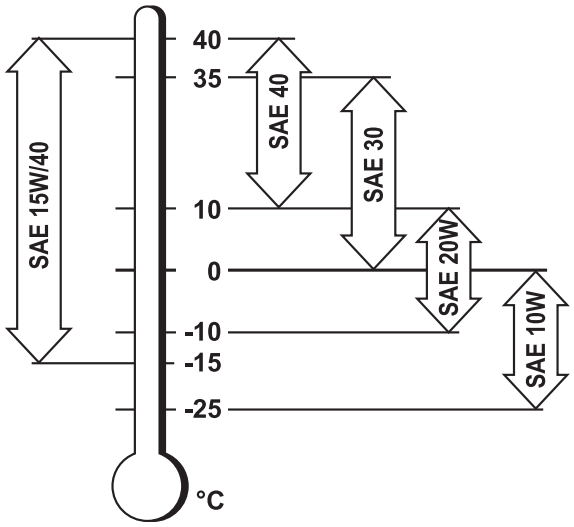

- Turn the ignition key and start the handler.
- Disconnect the cables. Remove first the negative terminal from the frame earth, then from the booster supply. Disconnect the positive terminal from the machine battery, then from the booster supply.

**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 **18.11** 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

## 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

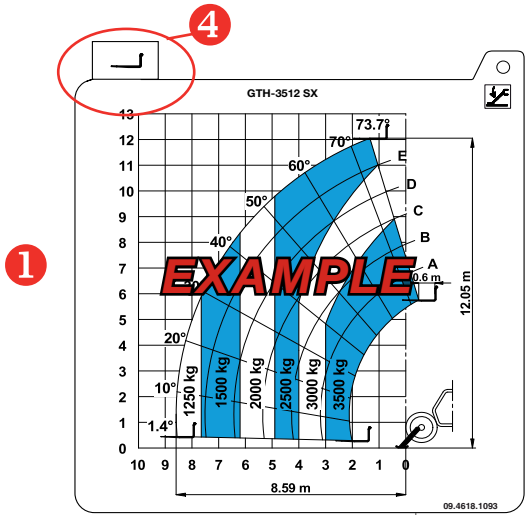
## ■ USING THE LOAD CHARTS

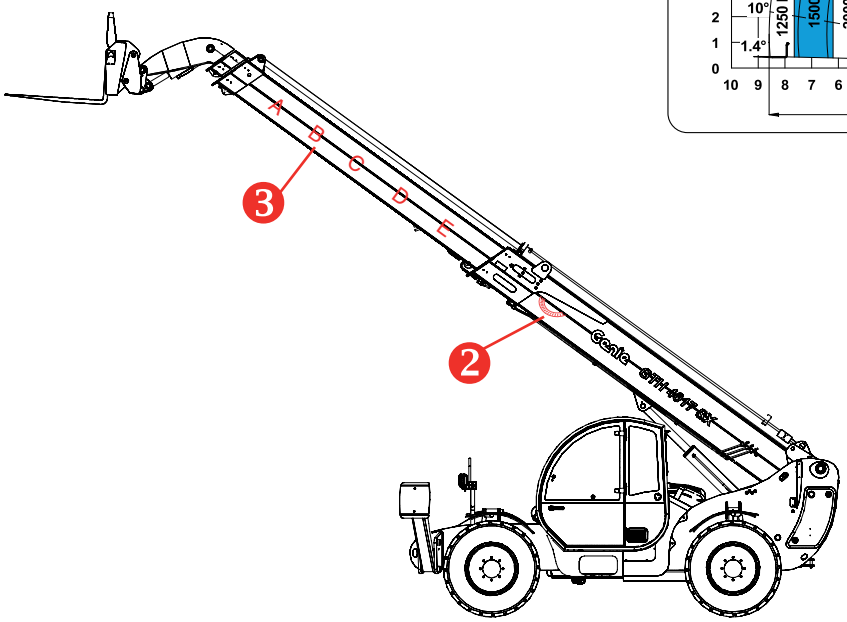
The load charts **1** indicates the maximum permissible load in relation to the boom extension and the type of attachment used. To operate under safe conditions, always refer to these charts.
The extension level of the boom can be checked with the help of the letters (**A**, **B**, **C**, **D**, **E**) 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

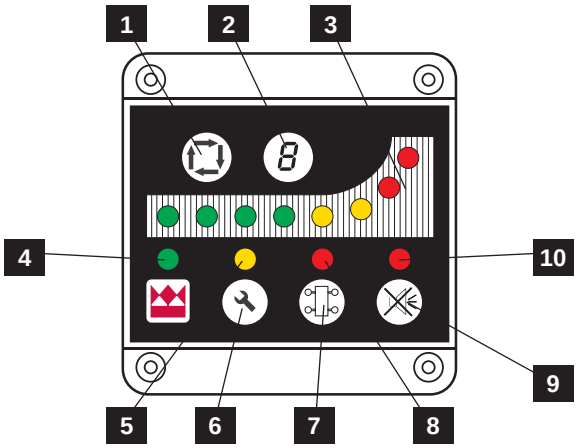
**1** Calibration selection button
**2** Display
**3** Stability indicator with LED-bar
**4** Green light - power OK
**5** Yellow light - calibration mode
**6** Calibration confirmation button
**7** Not used
**8** Red light - outrigger position
**9** Buzzer ON/OFF pushbutton
**10** Red light - overload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

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

## Operation

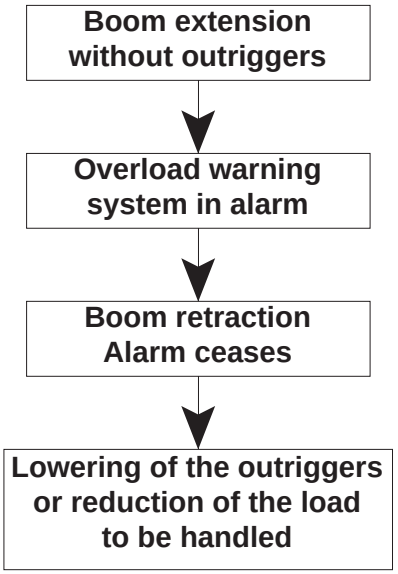
When power is turned on, light **4** comes on. The display **2** remains off and the monitoring system runs a self-test before displaying the digit corresponding to the used attachment on display **2**. At this time, the system is activated.
During operation, the led-bar **3** lights up gradually depending 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.

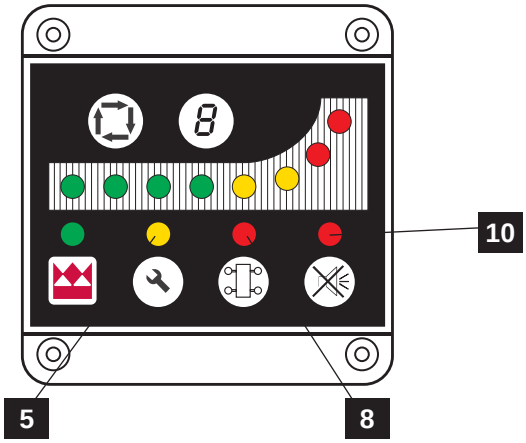
**Example of use of the overload warning system**



# 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

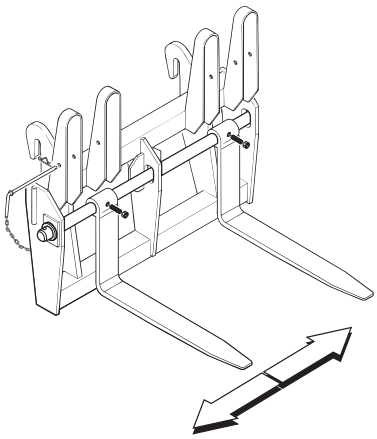
## ■ Adjusting the forks

**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

When forks are correctly spaced, the handler is ready to use.
Work can be subdivided into three different phases: loading, transfer and unloading.

### 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.

### Transfer phase

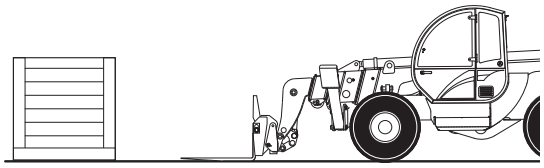
- Do not start or brake abruptly.
- Drive to the unloading point cautiously and keep the load 20÷30 cm from the ground.
- Suit the machine speed to the ground conditions to avoid dangerous jumps, side skids of the vehicle and possible load falls.
- When driving on slopes or ramps, hold the load uphill.

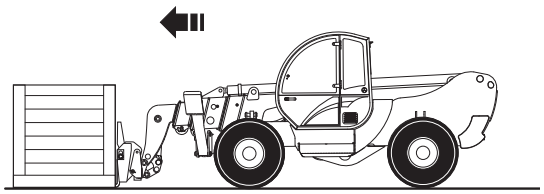
**DANGER**

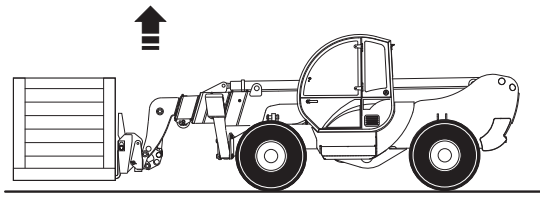
***Do not drive on slopes sideways; this wrong manoeuvre is one of the main reasons for accidents due to vehicle overturning.***

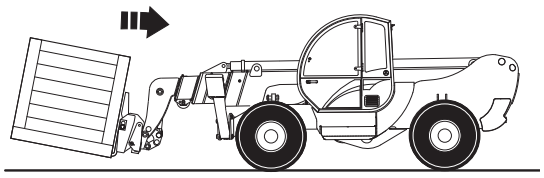
### Unloading phase

- 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.***

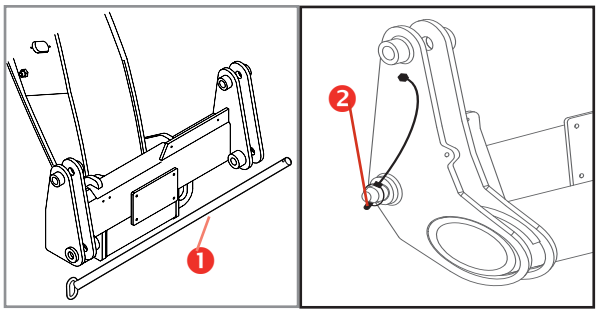
**WARNING**

***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.***

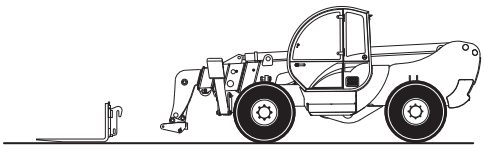
**Version with MECHANICAL LOCKING**

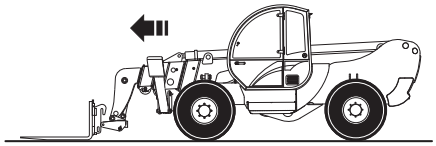
To change an attachment, operate as follows:

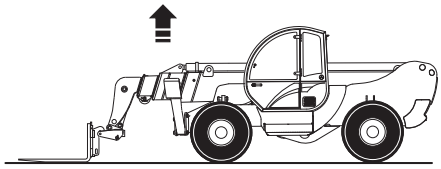
- Drive to the place where you will release the mounted attachment (when possible, a solid and sheltered site).
- Disconnect the quick connectors of the attachment (if any).
- Pull out pin **1** locking the attachment after removing the safety split-pin **2** at its end.

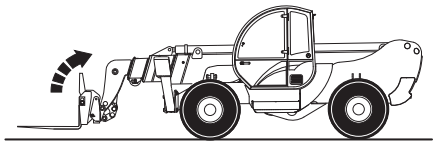


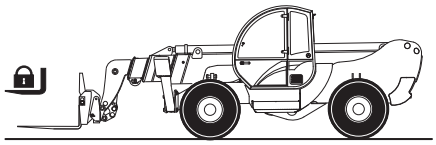

- Rest the attachment flat on the ground.
- Pitch the attachment holding frame forward and lower the boom to release the attachment upper lock.
- Move back with the machine and drive to the new attachment to be coupled.
- Hold the frame pitched forward and hook the upper lock of the new attachment.
- 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).







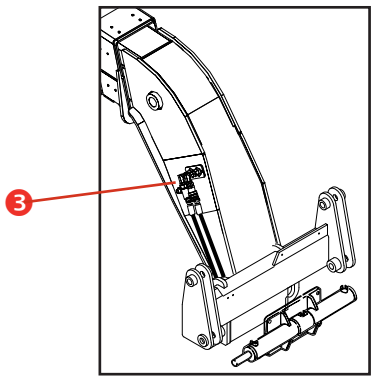




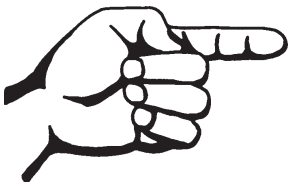
# Operating Instructions

**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).



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# Transporting The Machine

## MOVING A DISABLED MACHINE

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

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

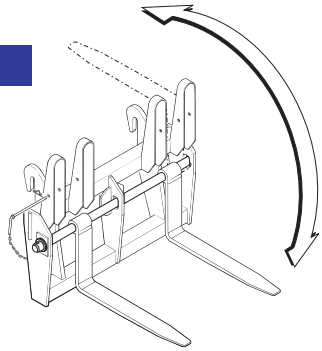
## ROAD OR SITE TRANSFER

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**

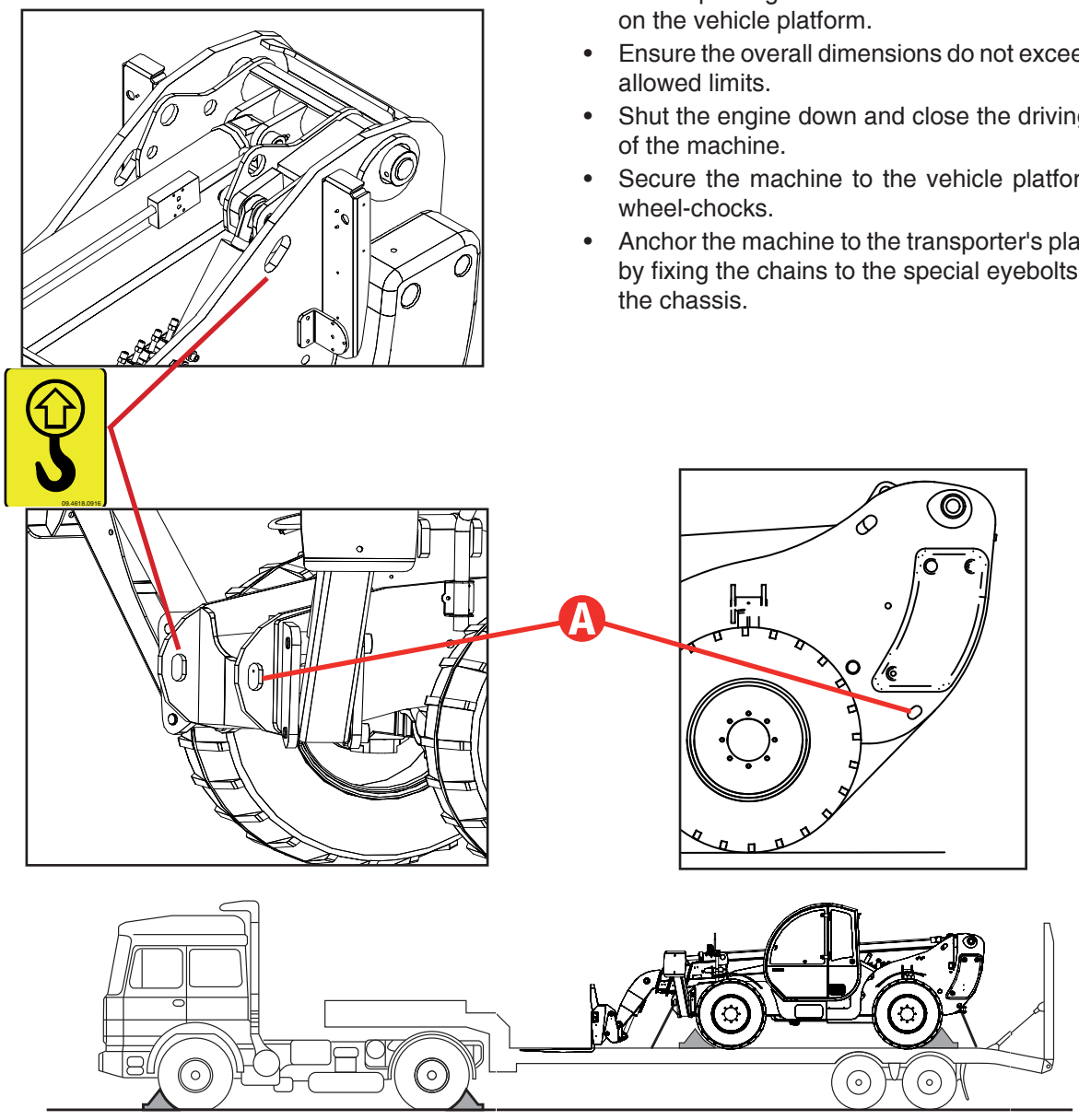
***Public road circulation is allowed only for transferring an unloaded machine.***
***Do not use the machine to tow trailers.***

# Transporting The Machine

## ■ LIFTING THE MACHINE

When the machine shall be lifted, use only means having a suitable capacity. The characteristic data are detailed in the relevant chapter of this manual and on the identification plate.

For the machine lifting, anchor the chains to the special lugs on the machine (marked with the decal below).




## ■ TRANSPORTING THE MACHINE ON OTHER VEHICLES

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

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



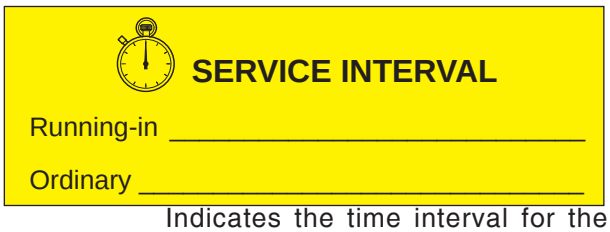
Indicates that tools are required to perform the procedure.



Indicates that new parts are required to perform the procedure.



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




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.***

# Maintenance

## 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.

### 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.***

# Maintenance

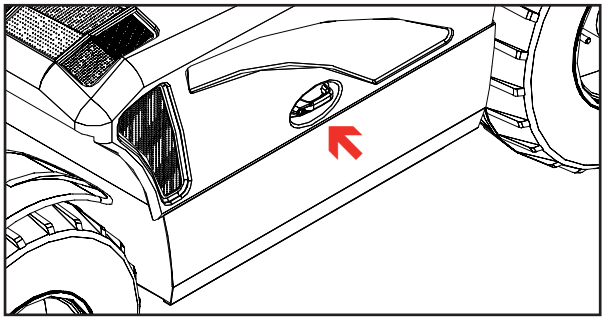
## ACCESS TO THE ENGINE COMPARTMENT

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 outer element:

- Shut the engine down and engage the parking brake.
- Unlatch the fasteners **A** and remove cover **B**
- Pull out the filter cartridge **C**.
- Clean the filter bowl.
- Dry clean the cartridge (at max. 6 bar pressure) and direct the air jet from inside to outside.
- Check the filter element for cracks by introducing a lamp inside.
- Refit the cartridge and make sure it is properly positioned.
- Close cover **B** and lock in place with fasteners **A**.

**NOTICE**

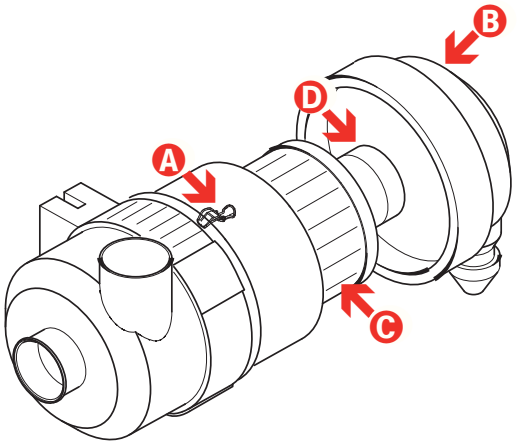
***As soon as the warning lamp 11.3 on the cab dashboard switches on, replace the outer element.***
***Never wash the cartridge with water or solvents.***

**2** ***Changing the internal element***

- See step **1** for removing the outer element.
- Extract the internal cartridge **D**.
- Clean the filter bowl.
- Mount the new element and make sure it is correctly positioned.
- Fit the main filter and the cap as described in point **1**.

**NOTICE**

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




**SERVICE INTERVAL**

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

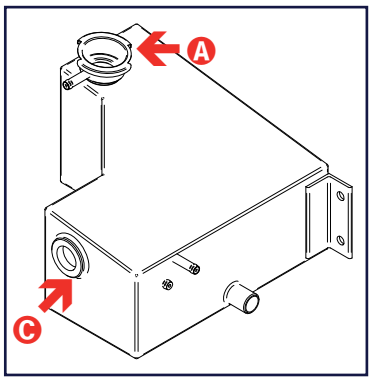
# Maintenance

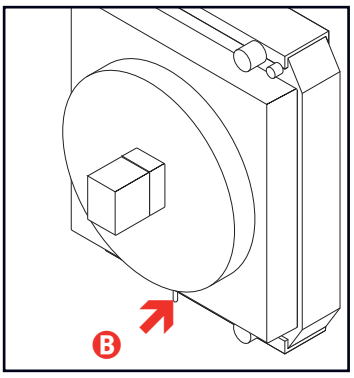
## ENGINE COOLING SYSTEM

**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.








**SERVICE INTERVAL**

Running-in _____ **None**

Ordinary _____ **Every 50 hours**

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 |

# 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**.

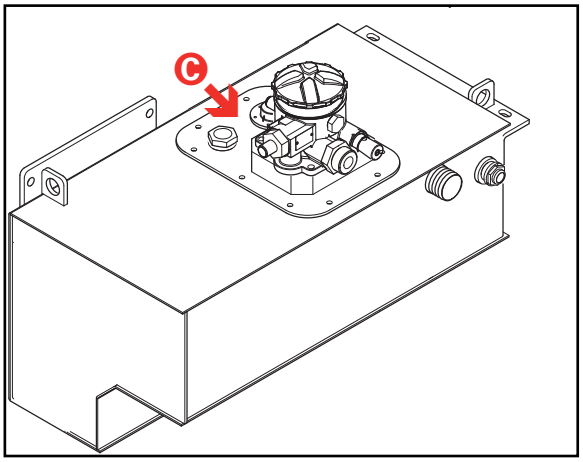
**SERVICE INTERVAL**

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

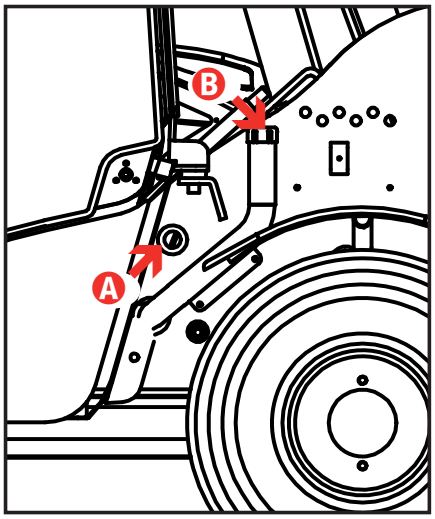
To change the hydraulic oil, proceed as follows:

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 and allow oil to flow out into the container.
5. Remove the inspection cover of tank **C**.
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**



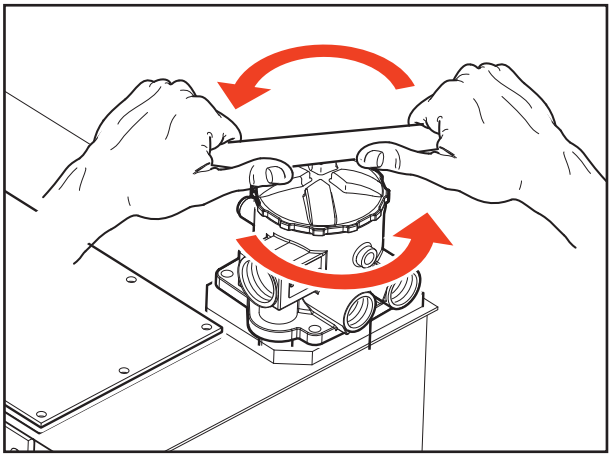
# Maintenance

## CHANGING THE OIL FILTER CARTRIDGE



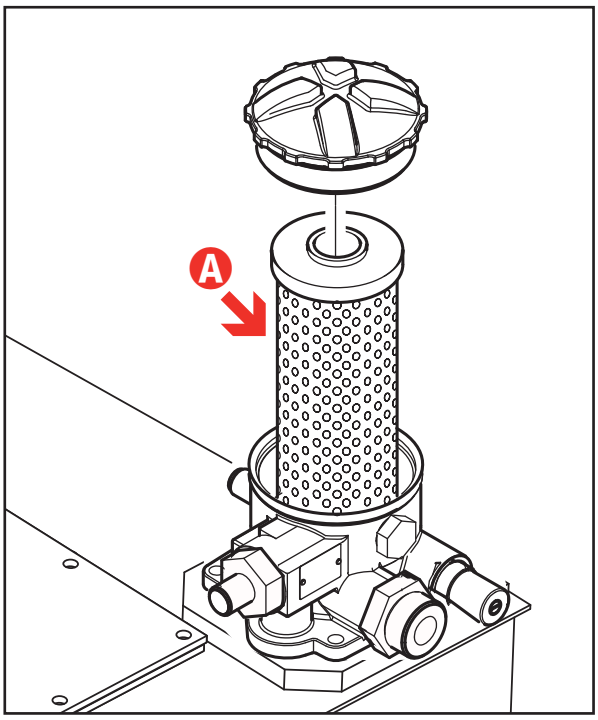
To change the hydraulic oil filter element, proceed as follows:

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.***

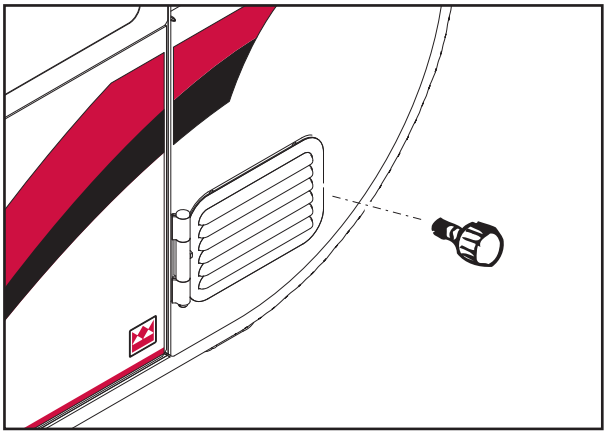
**SERVICE INTERVAL**

| | |
|---|---|
| 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.

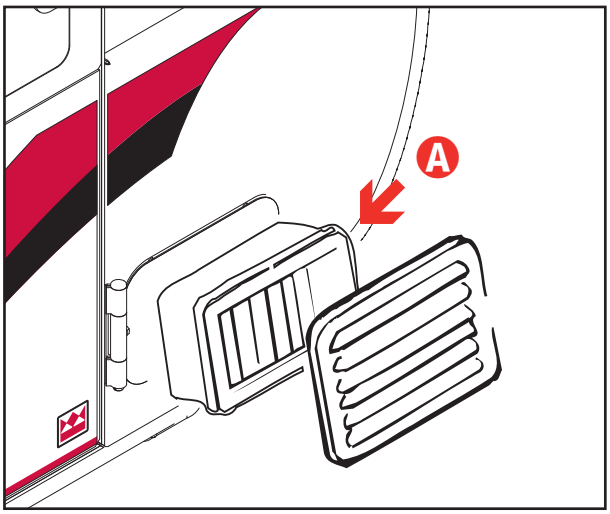


*1 **Cleaning and changing the cartridge:***

- 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

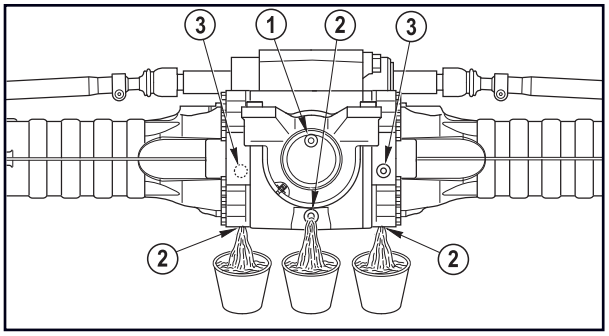
To check the oil level in the front and rear differential gears:

- 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**

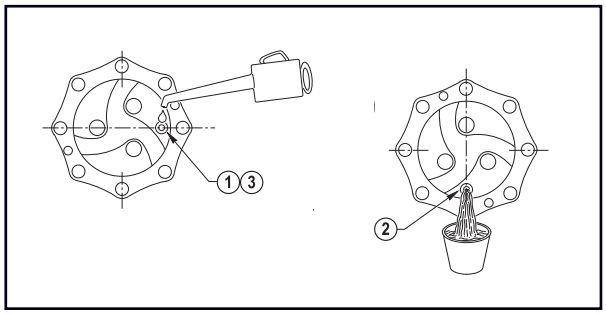
## OIL LEVEL IN THE (front/rear) WHEEL REDUCTION GEARS

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

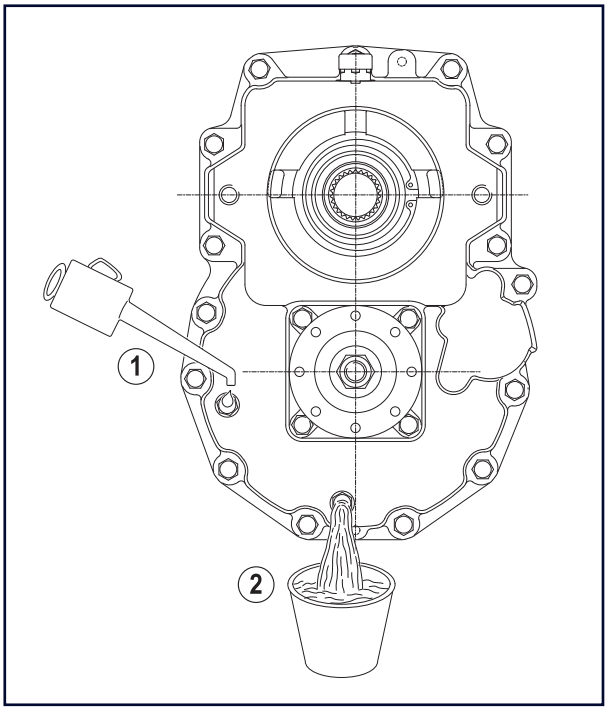
To check the oil level in the power diver gearbox:

- 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 dasher lines are referred just to the GTH-3512 SX.

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

**SERVICE INTERVAL**

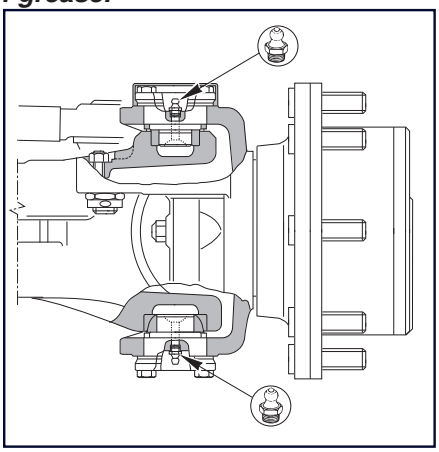
| | |
|---|---|
| Running-in | **None** |
| Ordinary | **Every 10 hours** |

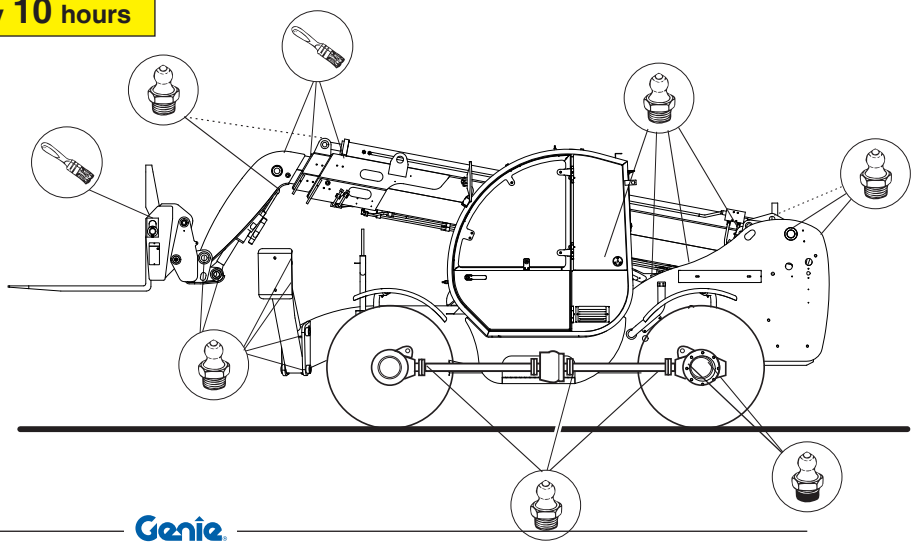
**CAUTION**

***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.***





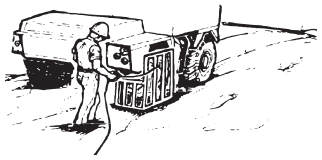
# Maintenance

## ■ TYRES AND WHEELS

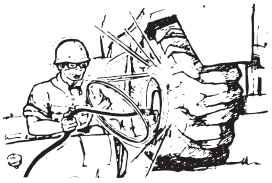
***Over-inflated tyres can burst.***

***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-4010 SX / GTH-3512 SX |
|---|---|
| **Dimensions** (front and rear) | 405/70-24 |
| **P.R.** (or load index) | 14 pr |
| **Rim** | 13x24 |
| **Wheel disc** | 8 holes DIN 70361 |
| **Pressure** bar/Psi | 4.5/65 |

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

**Torque: 400 N/m.**

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

**SERVICE INTERVAL**

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

Ordinary _____ **Every 250 hours**

## ■ BRAKES

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

# Maintenance

## SHAFTING ALIGNMENT

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

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

**1)** Move to a solid and level ground

**2)** Set the steering selection switch **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**)

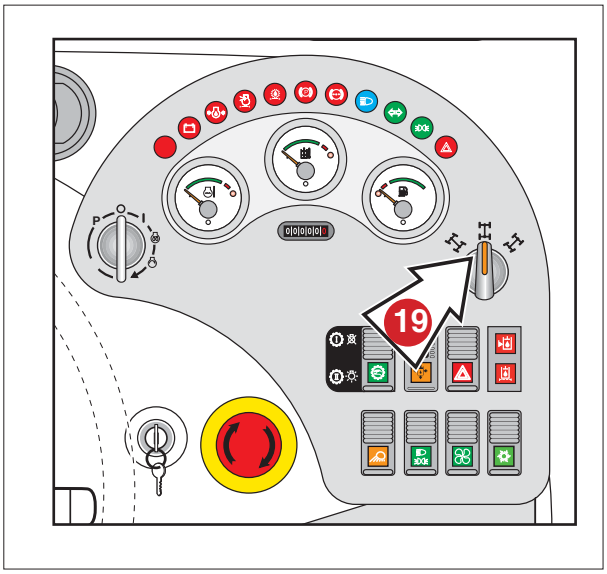
**7)** Rotate the steering (to the side opposite to point **3**) so that the rear axle reaches its stop

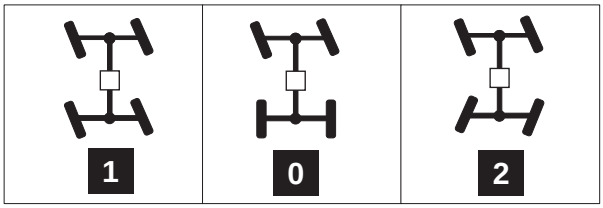
**8)** Reset the steering selection switch to "two-wheel steer" (pos. **0**)

**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.**

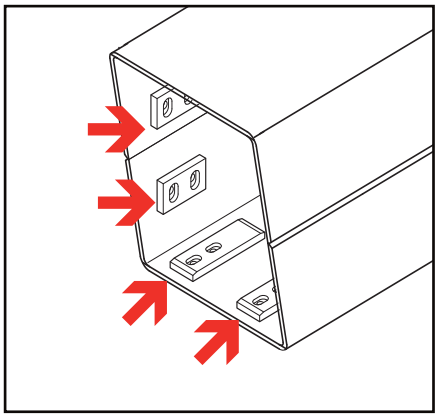
**CAUTION**

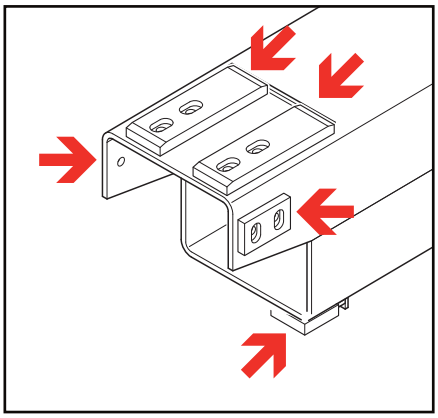
***Pads must compulsorily be replaced if the residual thickness of the plastic layer with respect to the iron bush fixing the block is equal or inferior to 1 mm.***

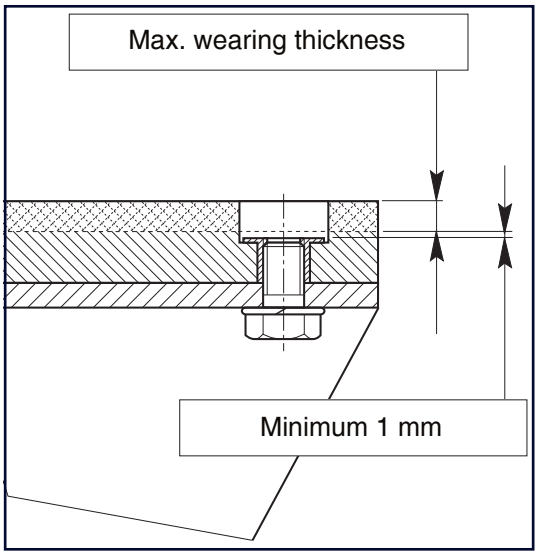
**SERVICE INTERVAL**

Running-in _____ **None**

Ordinary _____ **When necessary**







# Maintenance

## RE-SEQUENCING THE TELESCOPIC BOOM (Only for GTH-3512 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** |

# 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).

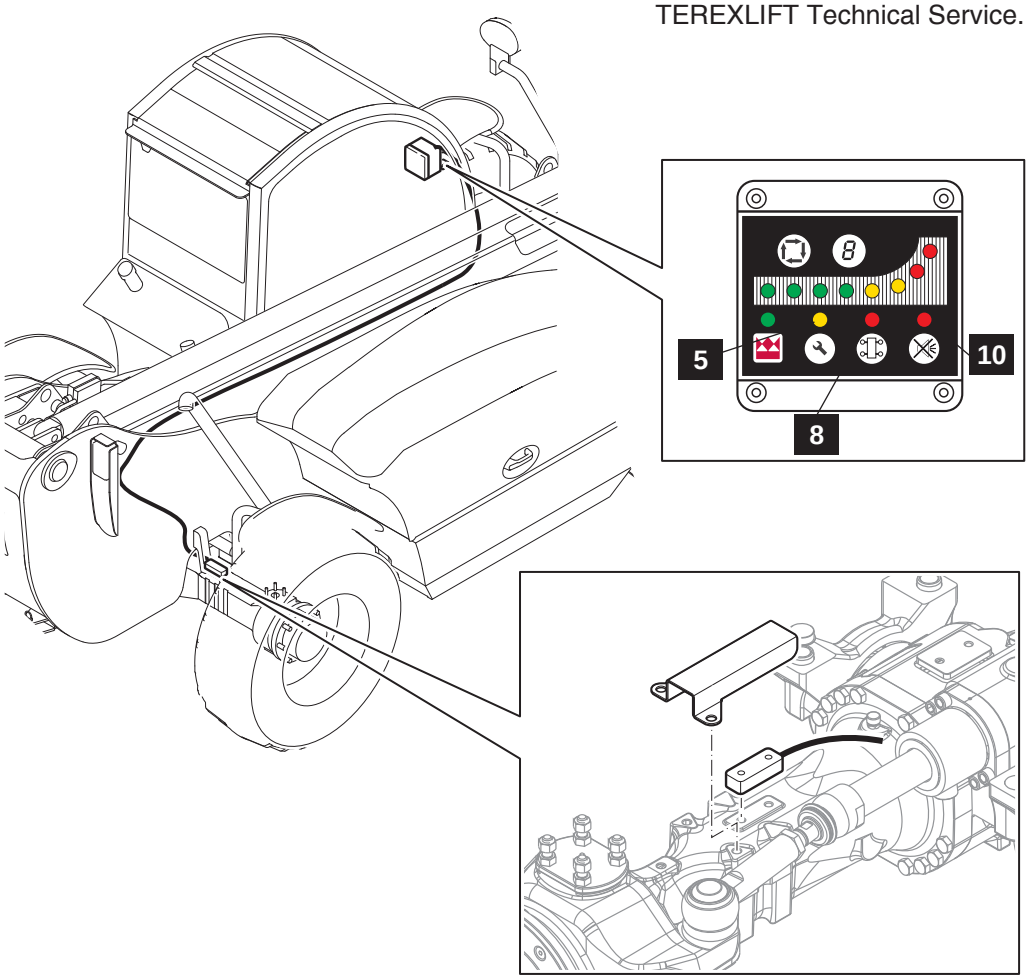
### ■ Checking the LOAD LIMITING SYSTEM

(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.

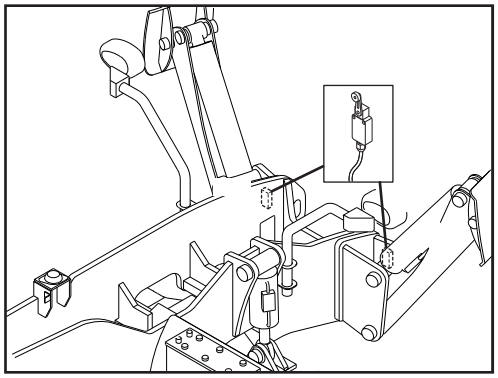
The meaning of the error messages is shown in Section "**Faults and Troubleshooting**".

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

■ **LIMIT 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 limit switches of the outriggers** (at every use)

To check the limit 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.

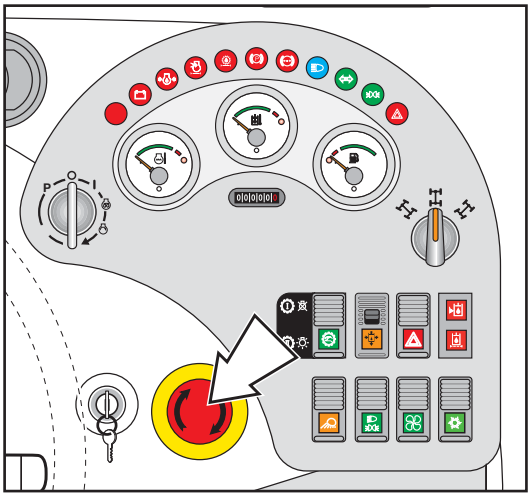
Proceed on one outrigger at a time.

- 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 limit 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

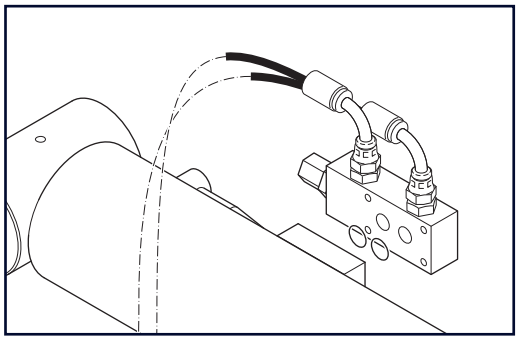
All machine's cylinders are equipped with block valves:

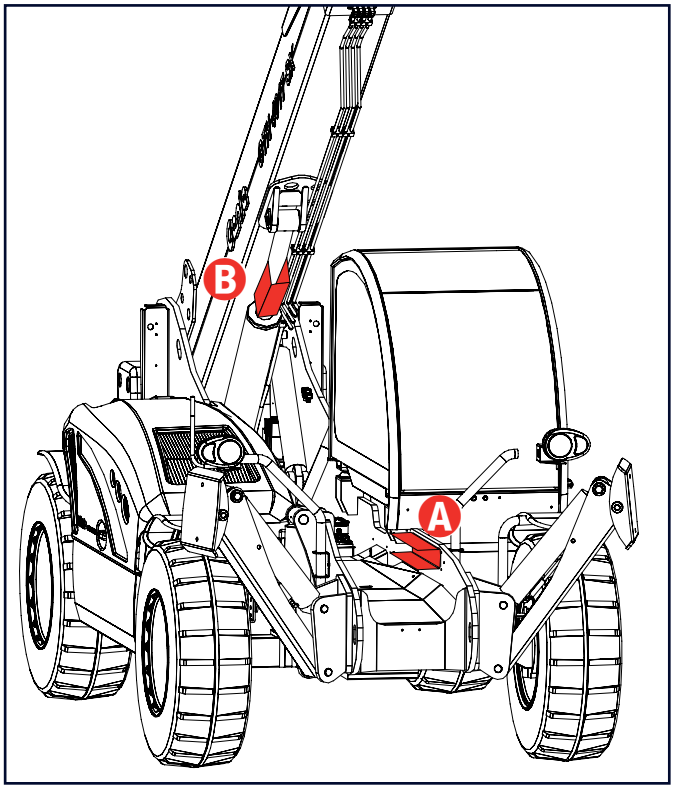
- Compensation cylinder
- Lifting cylinder
- Telescopic boom extension cylinder
- Attachment swinging cylinder
- Stabilizing cylinders

**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

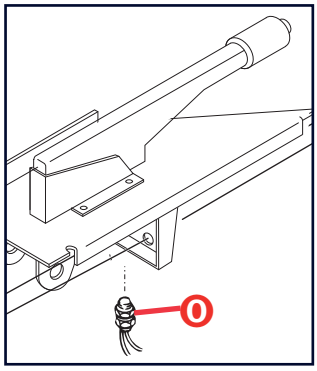
■ **SAFETY SWITCHES**:

**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.

**O** ***Switch on the parking brake*** to prevent forward-backward transmission engaging.




■ **Switch control**
(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 outriggers' controls can be activated.
  If it 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 outriggers' controls is disabled.
  If it is not disabled, call TEREXLIFT Technical Assistance Service.

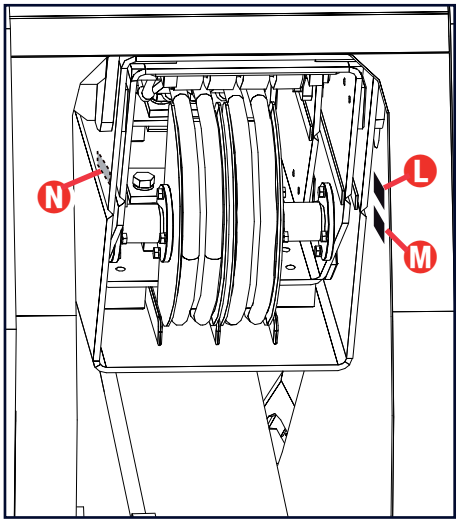
**Switch N on boom**

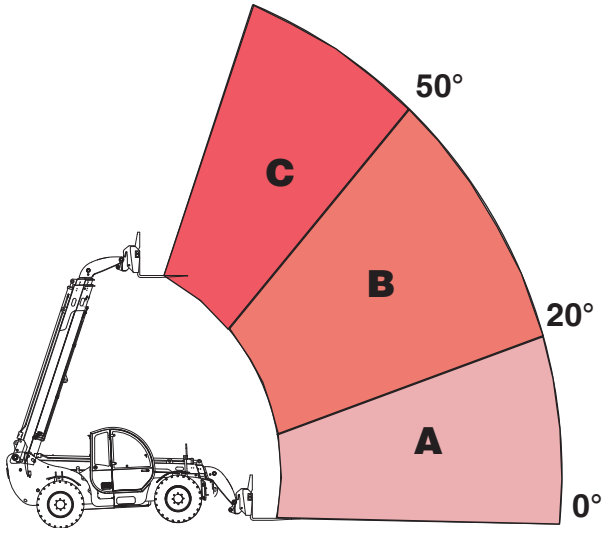
- Lift the boom with a tilt angle over **20°**, extend the boom and make sure the outriggers' controls is disabled.
  If it is not disabled, call TEREXLIFT Technical Assistance Service.

**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

■ **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.***

# 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.***

### BATTERY

- 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.

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

**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

## FUSES AND RELAYS

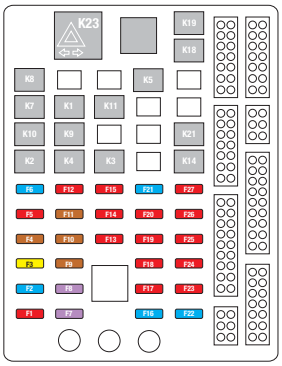
The electrical system is protected by fuses placed in the driving cab, on the left. Before replacing a blown fuse with a new one having the same amperage, find out and rectify the fault.

### Fuses

| Ref. | Circuit | Amp. |
|---|---|---|
| F1 | FRONT WIPER | 10 |
| F2 | HEATING | 15 |
| F3 | STOP LIGHT MICRO-SWITCH | 5 |
| F4 | REAR WIPER | 7.5 |
| F5 | ROAD-JOBSITE | 10 |
| F6 | LOW BEAM | 15 |
| F7 | POSITION LIGHTS | 3 |
| F8 | INSTRUMENT LIGHTING | 3 |
| F9 | INDICATOR LIGHTS POWER SUPPLY | 7.5 |
| F10 | ROAD LIGHTS SWITCH | 7.5 |
| F11 | FLASHING BEACON | 7.5 |
| F12 | ---------- | 10 |
| F13 | 2° HYDR. CIRCUIT SWITCH | 10 |
| F14 | SPEED SWITCH | 10 |
| F15 | HIGH BEAM | 10 |
| F16 | HAZARD WARNING LIGHT | 15 |
| F17 | ROAD LIGHTS | 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 INTERIOR LIGHT | 10 |
| F24 | EMERGENCY STOP | 10 |
| F25 | LMI CONTROL | 10 |
| F26 | 1/0 CONTROL UNIT | 10 |
| F27 | WORK LIGHTS | 10 |

### Relays

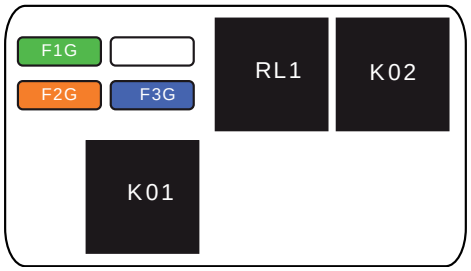
| Ref. | Circuit |
|---|---|
| K1 | HIGH BEAM |
| K2 | LOW BEAM |
| K3 | HORN |
| K4 | OPTIONAL |
| K5 | SPEED SWITCH POWER SUPPLY |
| K6 | OPTIONAL |
| K7 | FORWARD SPEED |
| K8 | REVERSE SPEED |
| K9 | SECURITY FOWARD/REVERSE MODE |
| K10 | SECURITY FOWARD/REVERSE MODE |
| K11 | START-UP ENABLING COMMAND |
| K12 | |
| K13 | |
| K14 | |
| K15 | |
| K16 | |
| K17 | |
| K18 | DEAD MAN SOLENOID VALVE |
| K19 | |
| K20 | |
| K21 | |
| K22 | |
| K23 | INTERMITTENCE |
| K24 | MECHANICAL GEAR SECURITY |



# Maintenance

## Engine compartment fuses and relays

| Ref. | Circuit | Amp. |
|---|---|---|
| F1G | Starter Enabling Switch | 30 |
| F2G | Engine Ignition Key | 50 |
| F3G | Glow Plugs | 40 |
| K01 | Engine Start | |
| K02 | Reverse Signal | |
| RL1 | Preheating Control Unit | |




**NOTICE**

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

# Maintenance

## REFUELLING

### REFUELLING

| Part | Product | Capacity (litres) GTH-4010SX / GTH3512SX |
|---|---|---|
| Diesel engine | Engine oil | 10 |
| Engine cooling system | Water+antifreeze | 15 |
| Fuel tank | Diesel fuel | 90 |
| Hydraulic system tank | Hydraulic oil | 80 |
| 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 |

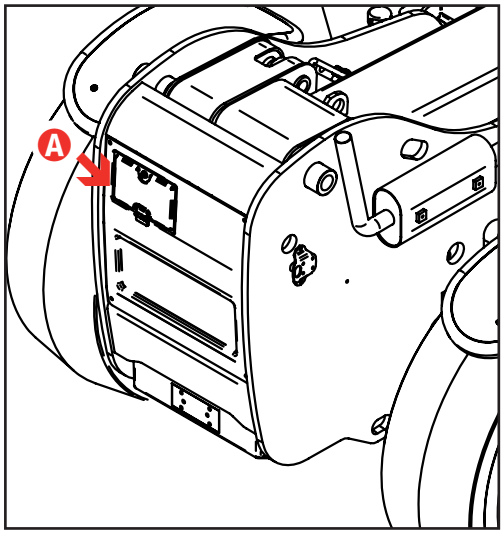
# Maintenance

## ■ Fuel

Refuel opening cover **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.***

# 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<br>• Fuse in the engine compartment box blown | • Check the battery condition<br>• 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<br>• Battery down | • Set the switch to **0**<br>• Recharge or replace the battery |
| **THE STARTER RUNS, BUT THE ENGINE DOES NOT START** | • No fuel<br>• Fuel filter clogged<br>• Fuel hose empty (fuel used up) | • Refuel<br>• Change the filter. See engine operator handbook)<br>• Refuel, then refer to engine operator handbook |
| **THE MACHINE DOES NOT MOVE FORWARD/BACK** | • Changeover switch in neutral<br>• Parking brake engaged<br>• Fuse **F14** blown | • Set the gear switch to correct position<br>• Disengage<br>• Check the fuse and replace if necessary. |
| **NO SELECTION OF THE STEERING MODE** | • Fuse **F5** blown | • Check the fuse and replace if necessary. |
| **THE DLE LOAD LIMITING SYSTEM IS IN ALARM** | • Fuse **F25** blown<br>• System failure | • Check and replace fuse, if necessary<br>• 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<br>• Check that the load cell is fixed correctly<br>• Check the connecting cable or the connectors is/are not shorted.<br>• 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.<br>• 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 LMI unit. |
| | **5-8** Block relay error when power is turned on | • Check the efficiency of relay and wiring.<br>• 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 LMI 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 LMI 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.

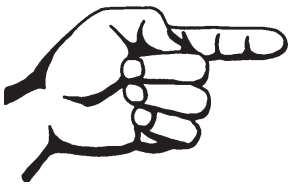
# Faults and Troubleshooting

## 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.***



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# 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.***

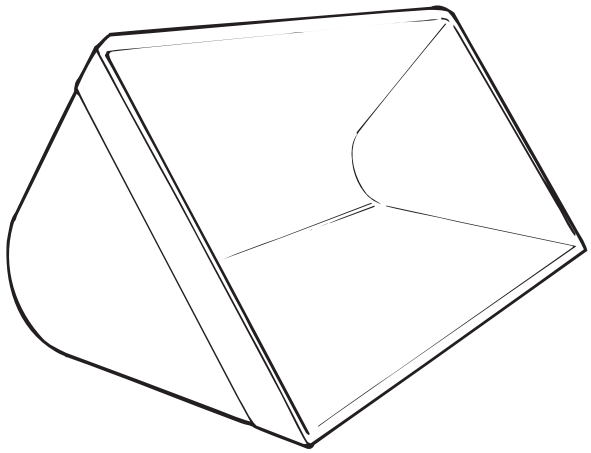
**DANGER**

***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.***

# Optional Attachments

## 800 LITRES SHOVEL

***(code 59.0202.0000)***



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

**CAUTION**

***Attachment suitable for moving loose material. Do not use for digging operations.***

***Application***
Quick coupling attachment for moving soil, sand, debris, cereals, etc.

***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.

**CAUTION**

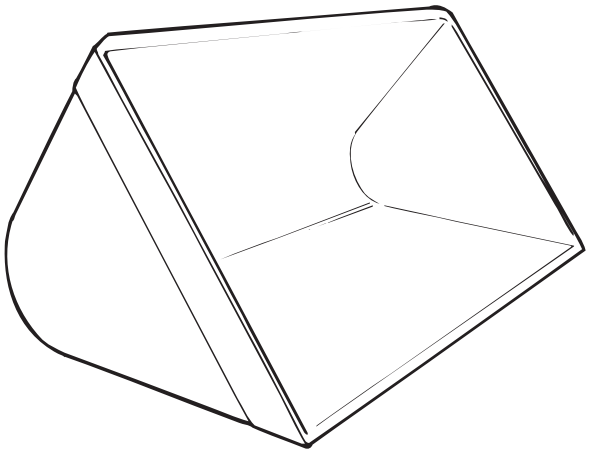
***When using a shovel, load the material only when the boom is completely retracted and push against the heap with straight wheels.***

***Maintenance***
Visually check the shovel for damage before using it.

# Optional Attachments

## 2000 LITRES CEREAL SHOVEL

***(code 59.0202.1000)***



| TECHNICAL DATA | |
|---|---|
| Capacity | 2000 litres |
| Width | 2270 mm |
| Length | 1600 mm |
| Height | 1350 mm |
| Weight | 550 kg |

**NOTICE**

***Attachment suitable for moving loose material. Do not use for digging operations.***

***Application***
Quick coupling attachment for loading cereals or inert materials, etc.

***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.

**CAUTION**

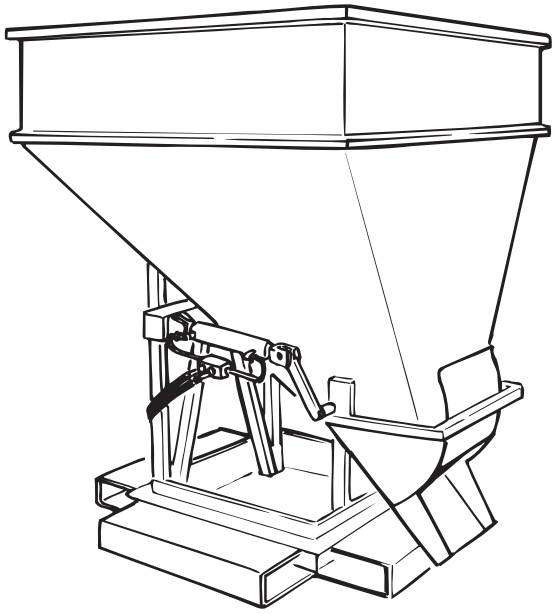
***When using a shovel, load the material only when the boom is completely retracted and push against the heap with straight wheels.***

***Maintenance***
Visually check the shovel for damage before using it.

# 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**".

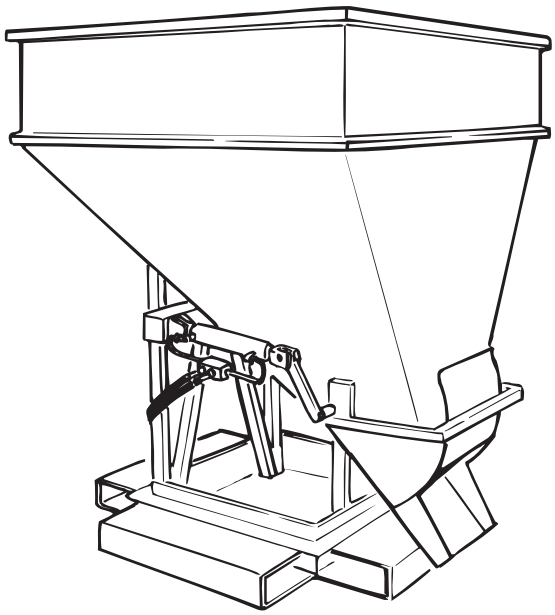
***Operation***
Fork the skip bearing in mind the side where the product will be unloaded.
Secure the skip to the forks using the chains provided.
To unload the concrete:
- *Manual Version:* manually operate the gate opening lever
- *Hydraulic Version:* operate the attachment locking lever after connecting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

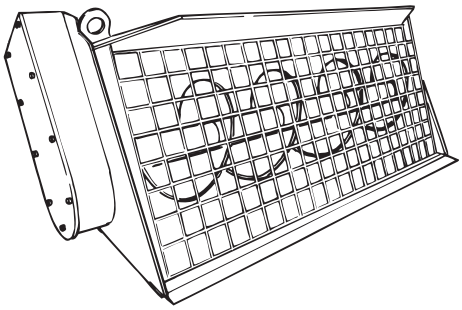
***Operation***
Fork the skip bearing in mind the side where the product will be unloaded.
Secure the skip to the forks using the chains provided.
To unload the concrete:
- *Manual Version:* manually operate the gate opening lever
- *Hydraulic Version:* operate the attachment locking lever after connecting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

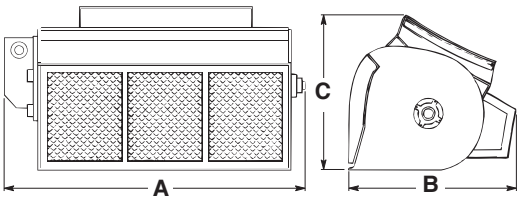
# Optional Attachments

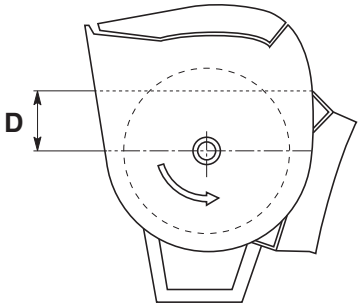
## 500 LT MIXING BUCKET

***(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.

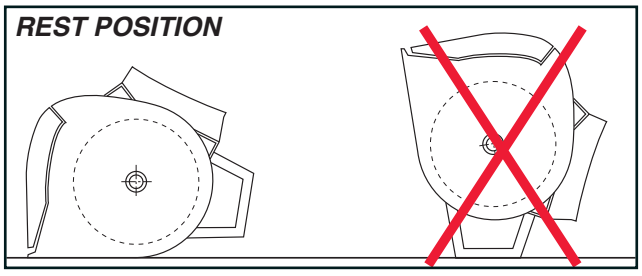
***Safety***
Strictly obey the general safety precautions given in section "**Safety**".

***Operation***
To load/unload the material, operate the rotation lever of the attachment holding plate.
To enable the mixer movement, press switch **33**, located on the left side of the driving seat base. For further information, see paragraph "***Auxiliary drive controls***" in the section "**Controls And Instruments**"

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

**WARNING**

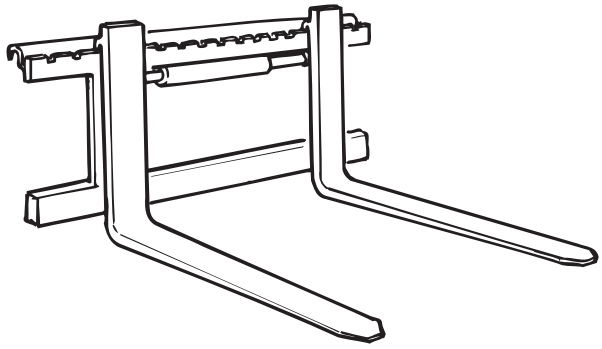
***Before any maintenance, rest the bucket on the ground, stop the machine, remove the starter key and lock the cab door to prevent anybody from gaining access to the control panel.***



# 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.

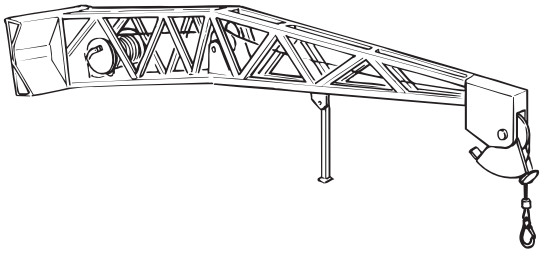
Check for hydraulic oil leaks.

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

# Optional Attachments

## 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 |

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

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

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

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

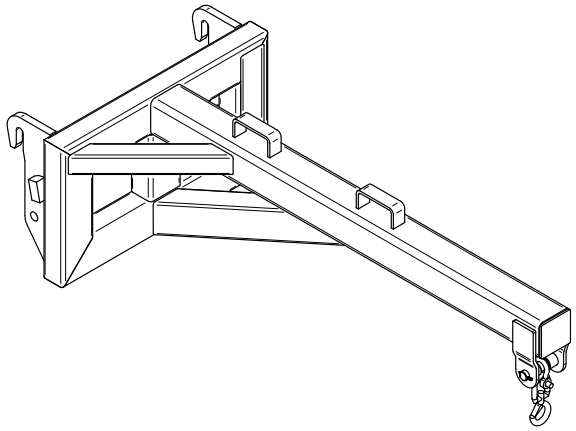


***Make sure this attachment can be used in the destination country of the machine.***
***Application must be submitted directly by the user.***

# Optional Attachments

## 2000 KG EXTENSION JIB

***(code 59.0802.3001 _ Mechanical Version)***



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

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

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

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

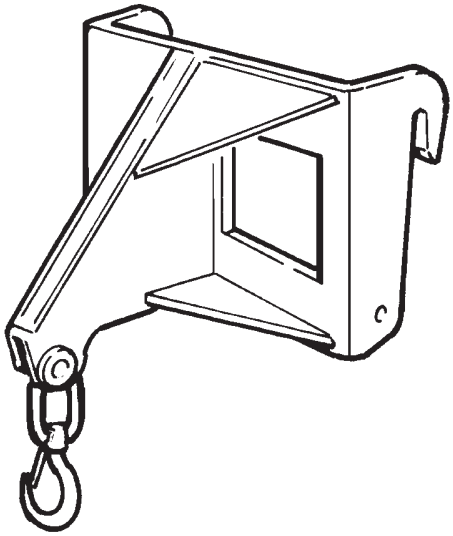
***Maintenance***
Visually check the jib for damage before using it.
Check the safety catch is in good working order.
Daily grease the joints using the greasing gun.

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

# 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**

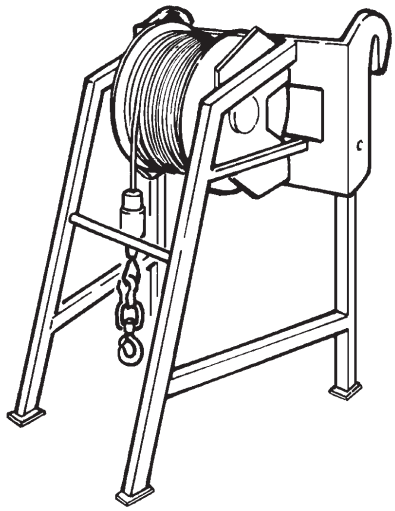
***The fixed hook has been designed to support a load of 4000 kg. The max payload corresponds to the nominal capacity rating of the handler on which it is installed and is indicated on the load charts supplied with the equipment.***

***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 |

***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.

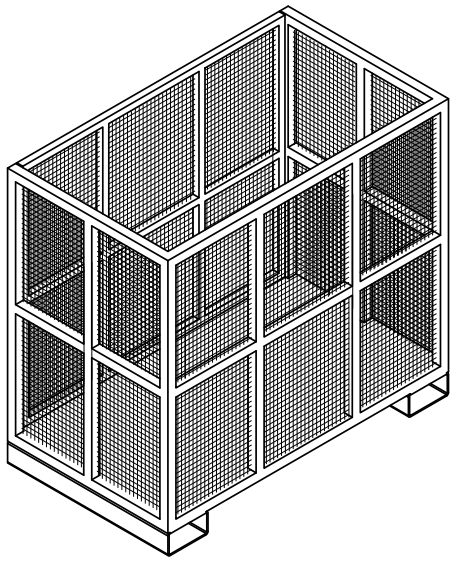


***Make sure this attachment can be used in the destination country of the machine.***
***Application must be submitted directly by the user.***

# 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.

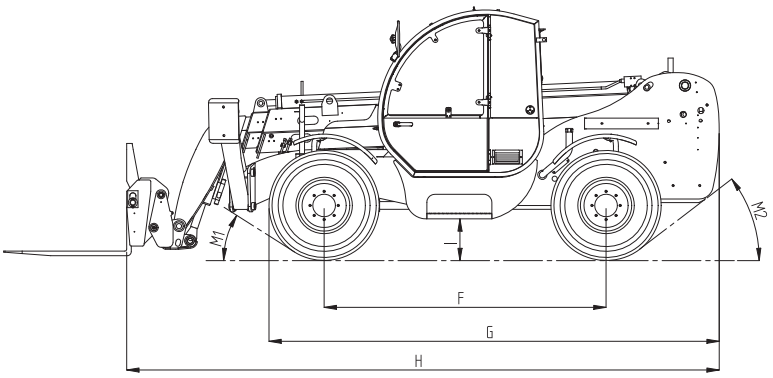
**Safety**
Strictly obey the general safety precautions given in section "**Safety**".

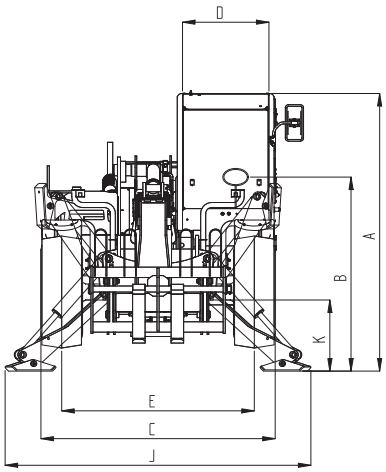
**Operation**
Fork the basket from the rear side being careful that the door that can be opened is at the front.
Secure the basket to the forks using the chains supplied.

**Maintenance**
Visually check the attachment for damage before using it.

| TECHNICAL DATA | |
|---|---|
| Width | 800 mm |
| Length | 1100mm |
| Height | 1150 mm |

# Specifications



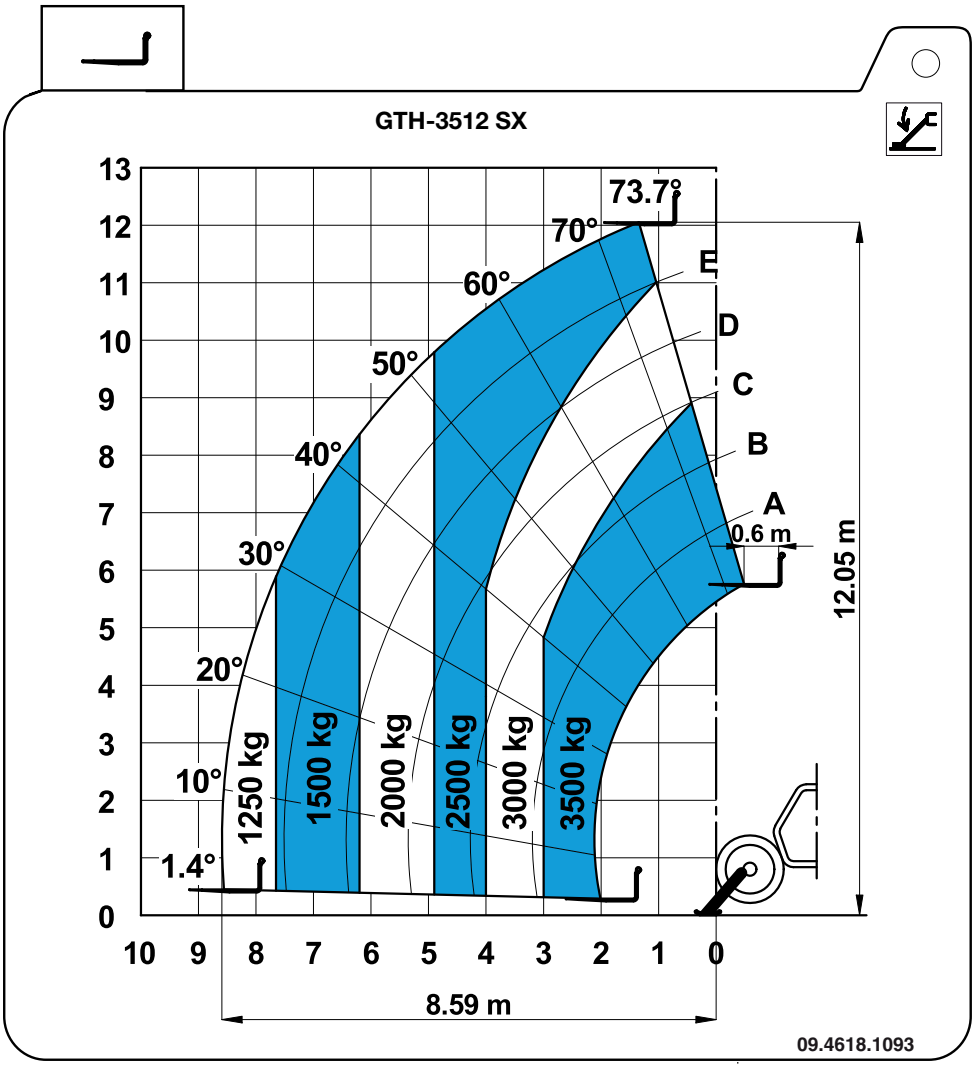

| | GTH 4010 SX | GTH 3512 SX |
|---|---|---|
| **■ MAIN DIMENSIONS** | | |
| **A** Overall height ..... mm | 2410 | 2410 |
| **B** Height to the steering wheel ..... mm | 1650 | 1650 |
| **C** Overall width ..... mm | 2250 | 2250 |
| **D** Cab width ..... mm | 780 | 780 |
| **E** Track ..... mm | 1850 | 1850 |
| **F** Wheel-base ..... mm | 2750 | 2750 |
| **G** Length to the front tyres ..... mm | 4390 | 4390 |
| **H** Length to the attachment holding plate ..... mm | 6060 | 5780 |
| **I** Ground clearance, center ..... mm | 405 | 405 |
| **J** Max width with extended outriggers ..... mm | 2935 | 2935 |
| **K** Ground clearance, axle ..... mm | 400 | 400 |
| • Internal steering radius ..... mm | 1800 | 1800 |
| • External steering radius ..... mm | 3850 | 3850 |
| **■ LIMITS OF USE** | | |
| **M1** Obstruction angle ..... | 32° | 32° |
| **M2** Departure angle ..... | 31° | 37° |
| • Min/max ambient temperature ..... °C | -20°/+40° | -20°/+40° |
| **■ WEIGHT** | | |
| • Weight in working order ..... kg | 9200 | 8900 |
| **■ SPEED** | | |
| • Max travel speed (max load) ..... km/h | 5 | 5 |
| • Max travel speed (with fork) ..... km/h | 35 | 35 |

# Specifications

| | GTH 4010 SX | GTH 3512 SX |
|---|---|---|
| **■ PAYLOAD AND REACH** | | |
| • Lifting height (max) with outriggers ..... mm | 9740 | 12050 |
| • Lifting height (max) without outriggers ..... mm | 9470 | 11780 |
| • Reach at maximum height..... mm | 1300 | 1340 |
| • Forward reach (max) ..... mm | 6220 | 8590 |
| • Attachment holding plate rotation..... | 128° | 128° |
| • Lifting capacity (max) .....kg | 4000 | 3500 |
| • Lift capacity at max height.....kg | 3500 | 2500 |
| • Lift capacity at max reach.....kg | 2000 | 1200 |
| **■ FORKS (FLOATING TYPE)** | | |
| • Dimensions..... mm | 1200x120x45 | |
| • Weight .....kg | 70 | |
| • Fork holding frame - class ..... | FEM III | |
| **■ DIESEL ENGINE** | | |
| • Make..... | DEUTZ | |
| • Model/Type..... | TD2011 L04W | |
| • Features ..... | Diesel<br>4 cylinders in line<br>4 strokes<br>direct injection | |
| • Total displacement .....cc | 3600 | |
| • Max Power at 2200 rpm ..... kW | 68 | |
| • Max Torque at 1400 rpm .....Nm | 288 | |
| **■ ELECTRICAL SYSTEM** | | |
| • Voltage ..... V | 12 | 12 |
| • Battery ..... Ah | 120 | 120 |
| **■ VIBRATION LEVELS** | | |
| • Vibrations (at seat level)..... $m/s^2$ | 0.23 | 0.23 |

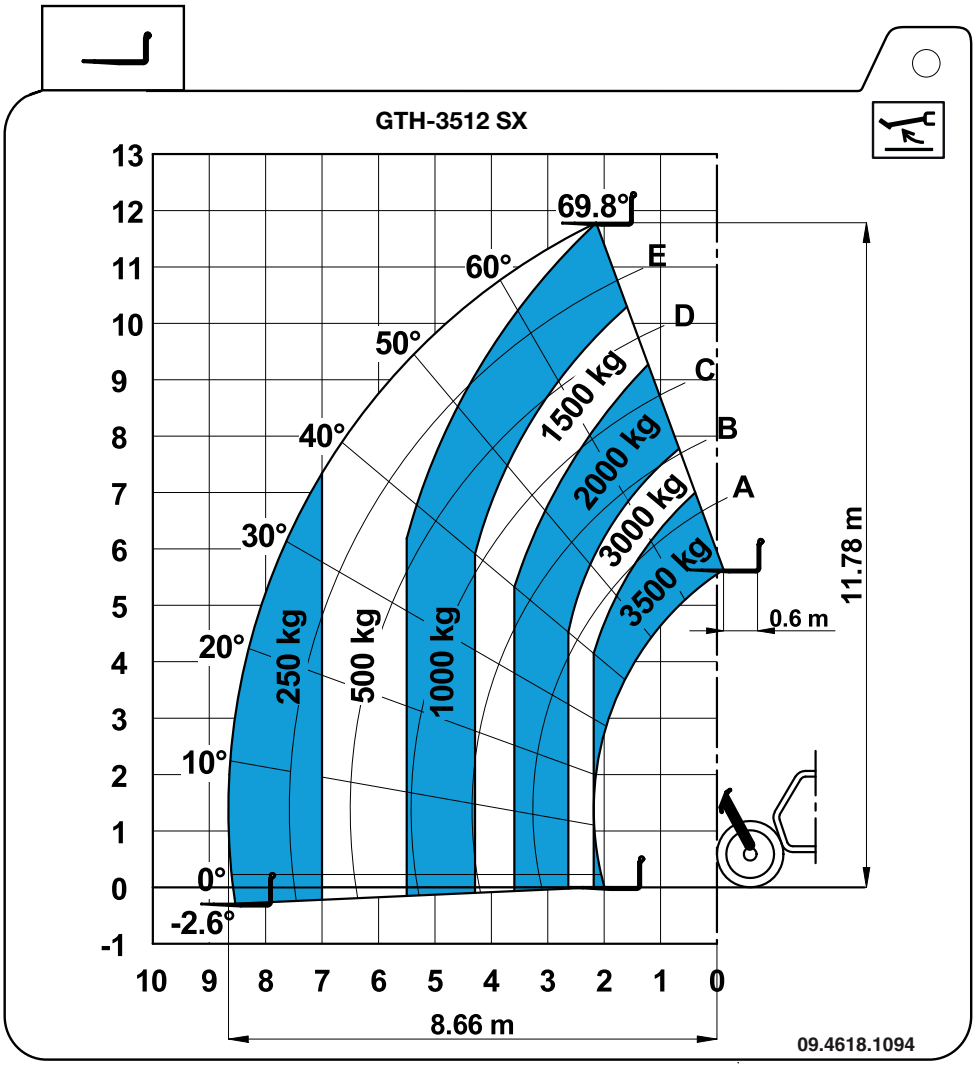
# Load Charts

## LOAD CHART WITH FORKS GTH 3512 SX ON OUTRIGGERS



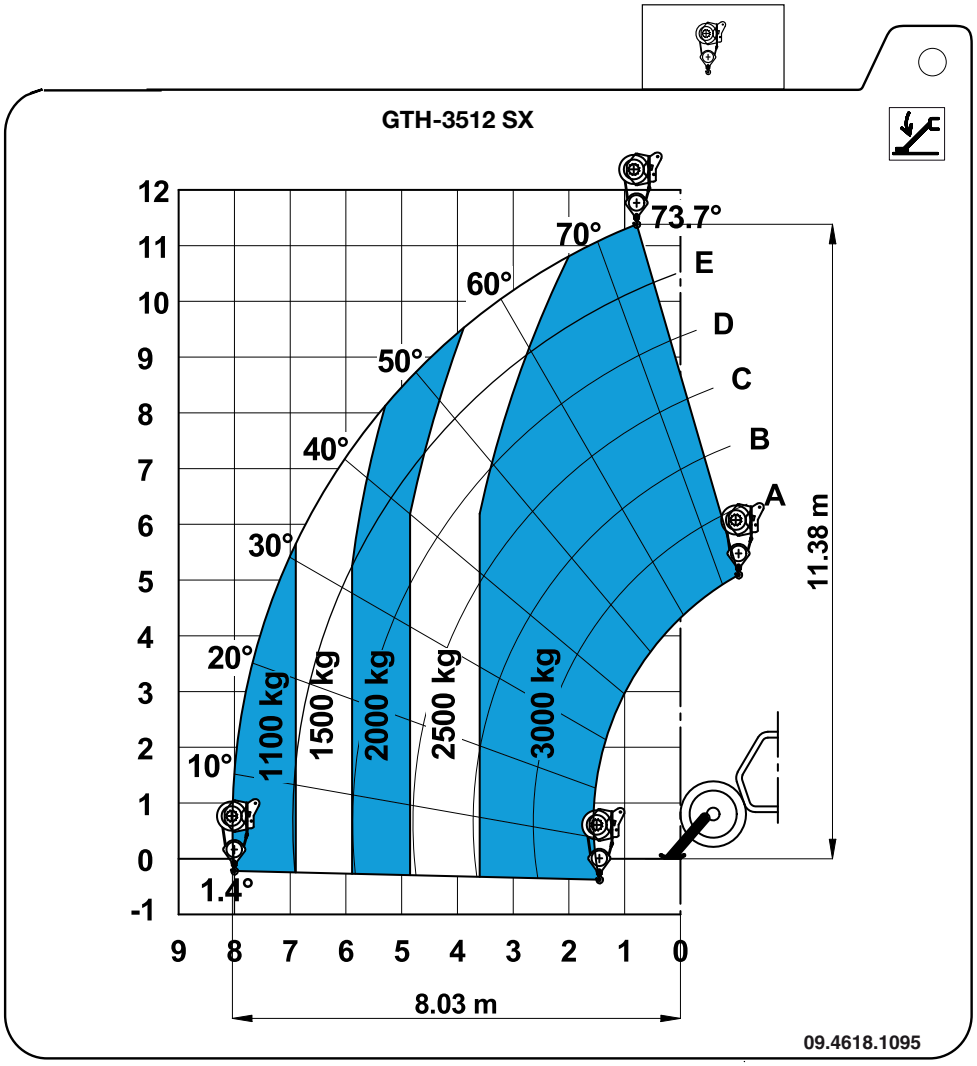
# Load Charts

## LOAD CHART WITH FORKS GTH 3512 SX ON WHEEL



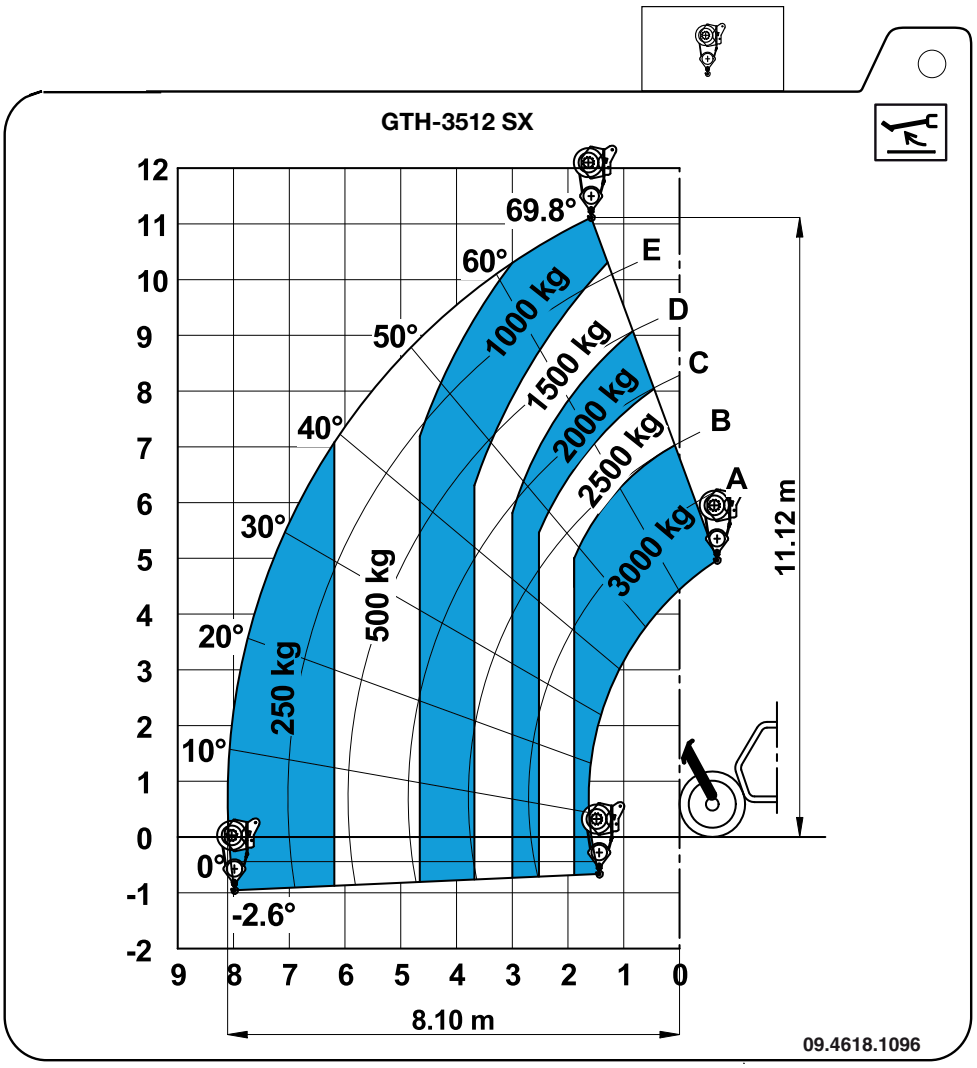
# Load Charts

## LOAD CHART WITH WINCH GTH 3512 SX ON OUTRIGGERS



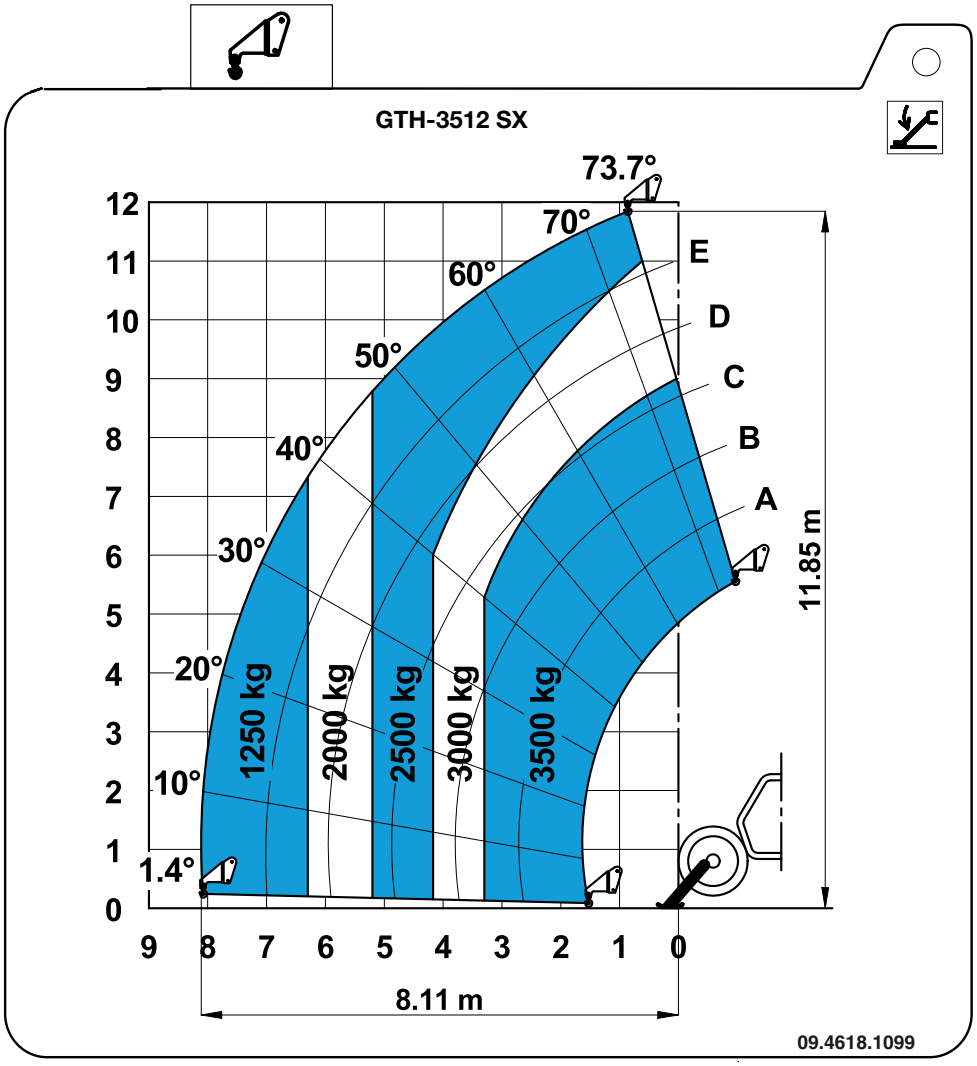
# Load Charts

## LOAD CHART WITH WINCH GTH 3512 SX ON WHEEL



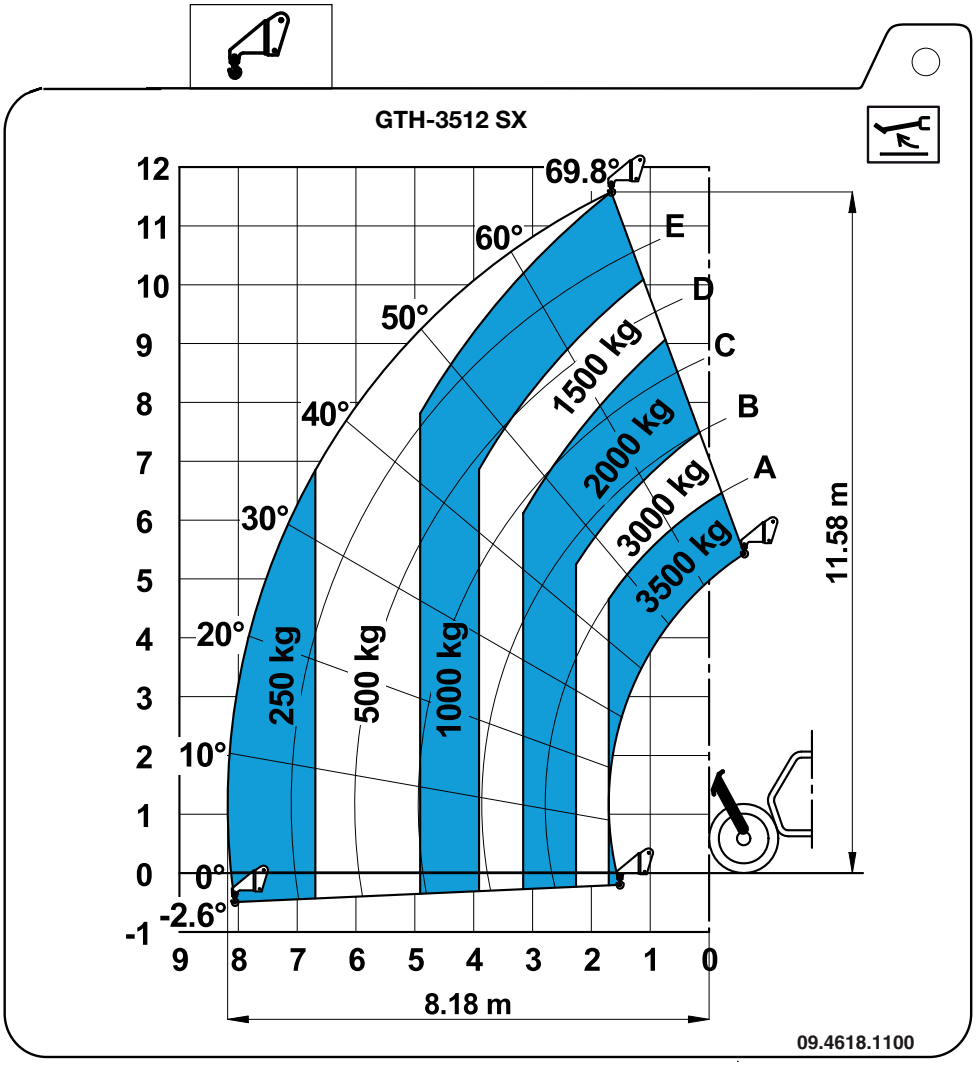
# Load Charts

## LOAD CHART WITH HOOK GTH 3512 SX ON OUTRIGGERS



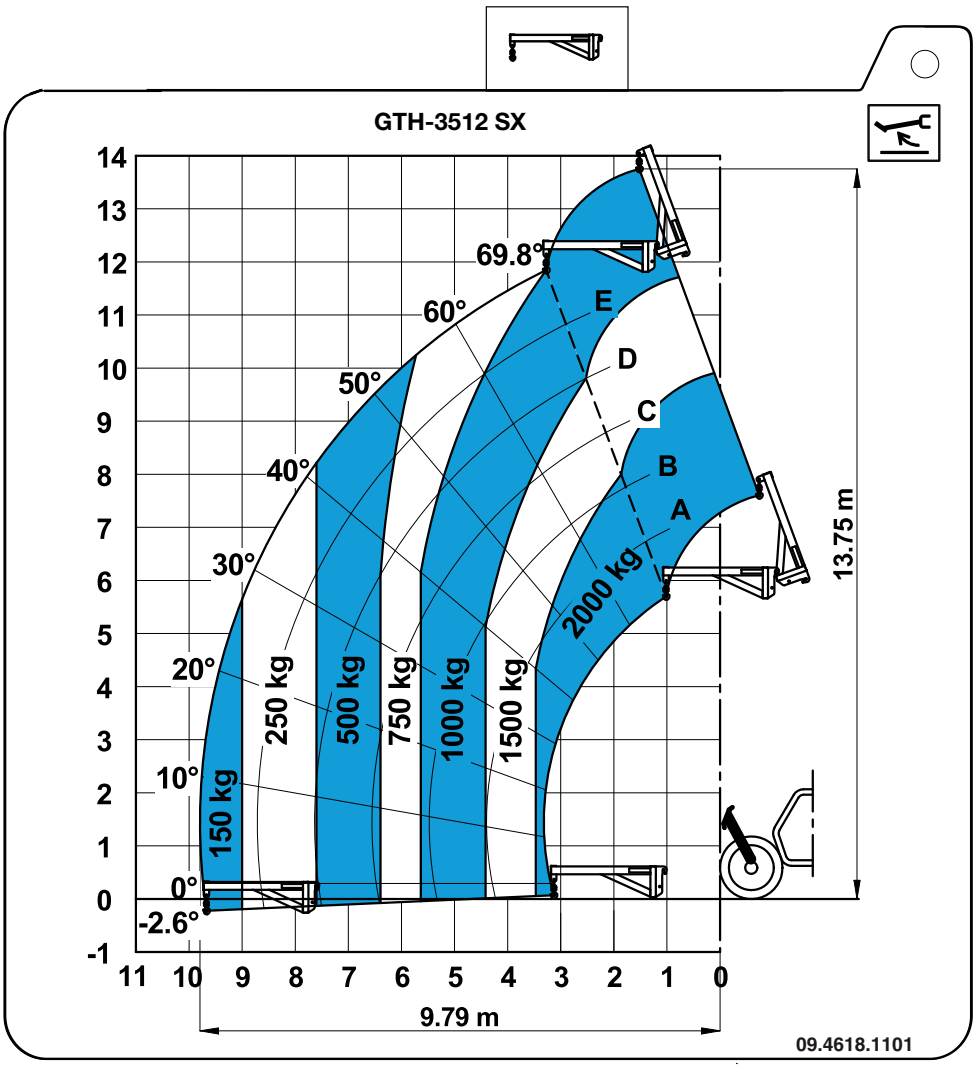
# Load Charts

## LOAD CHART WITH HOOK GTH 3512 SX ON WHEEL



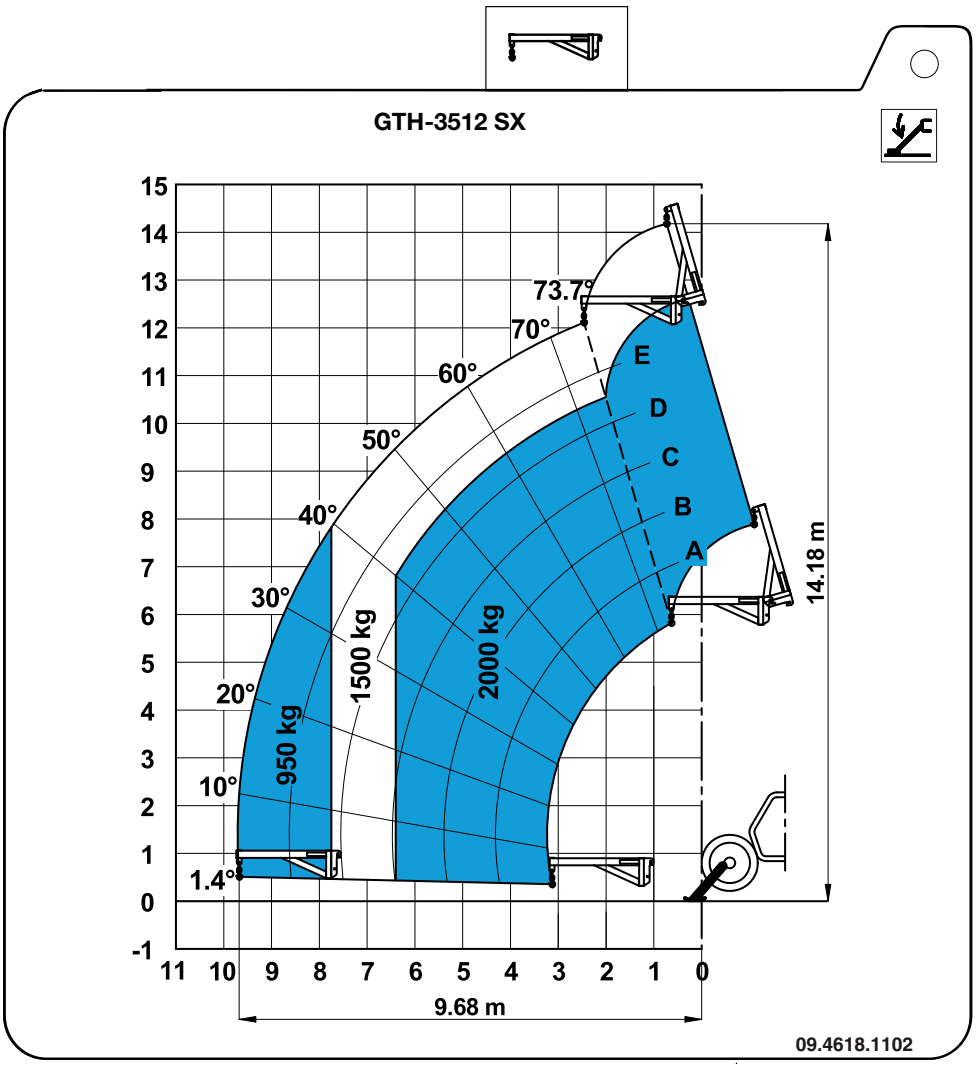
# Load Charts

## LOAD CHART WITH 2000 KG JIB GTH 3512 SX ON WHEEL



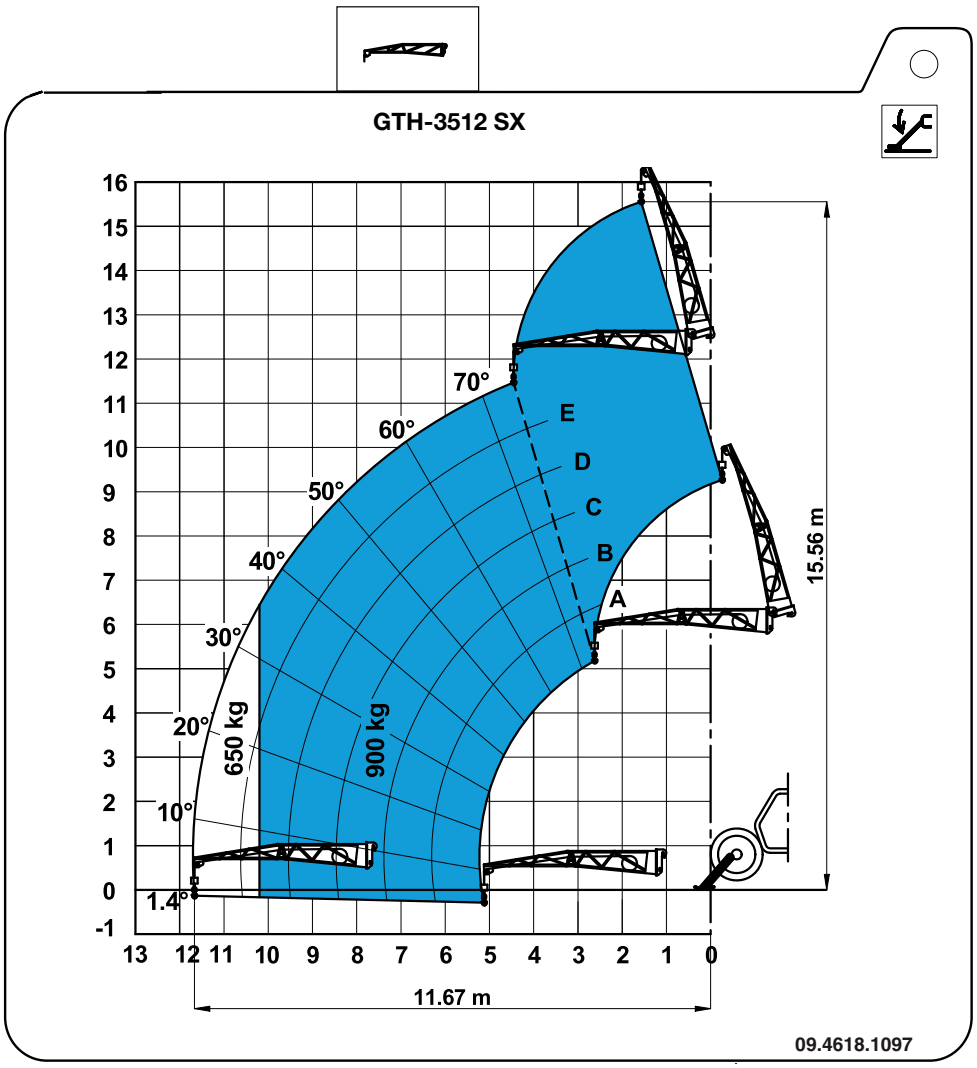
# Load Charts

## LOAD CHART WITH 2000 KG JIB GTH 3512 SX ON OUTRIGGERS



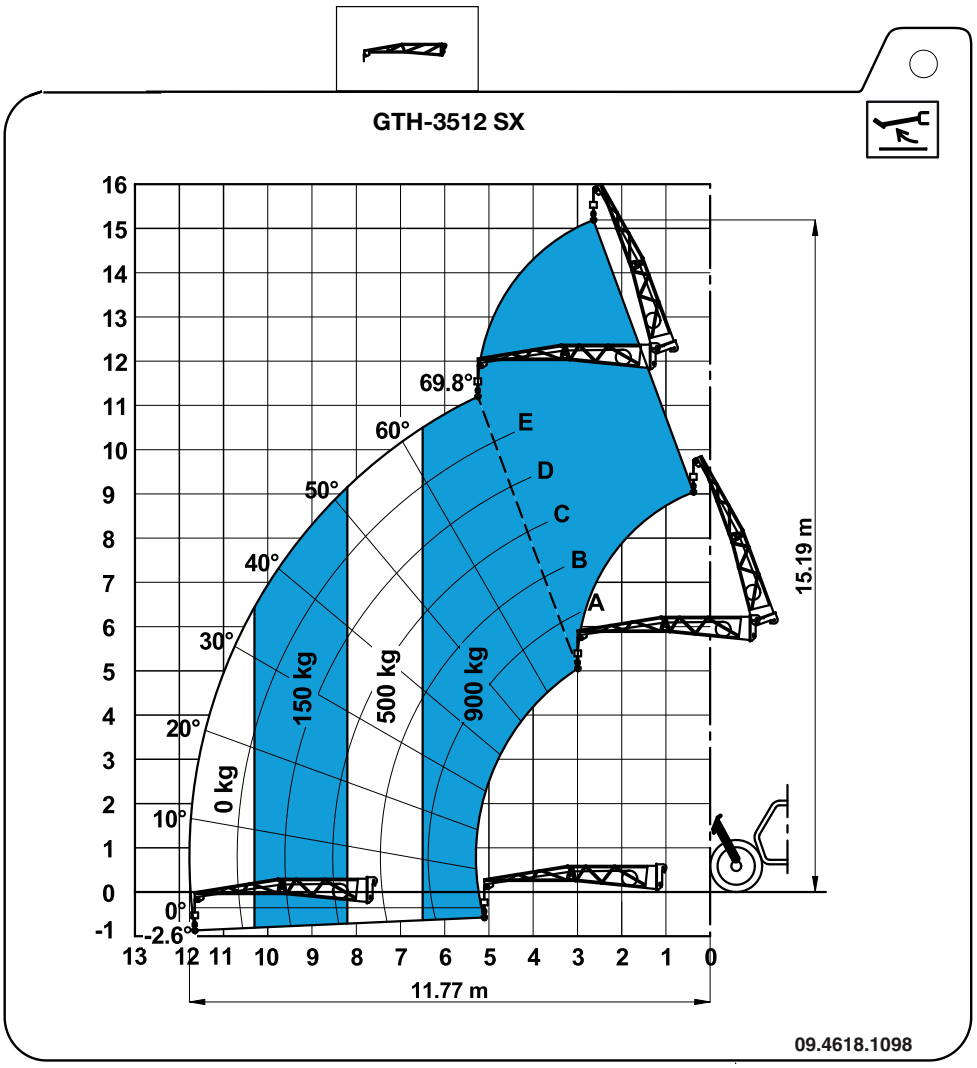
# Load Charts

## LOAD CHART WITH 900 KG JIB GTH 3512 SX ON OUTRIGGERS



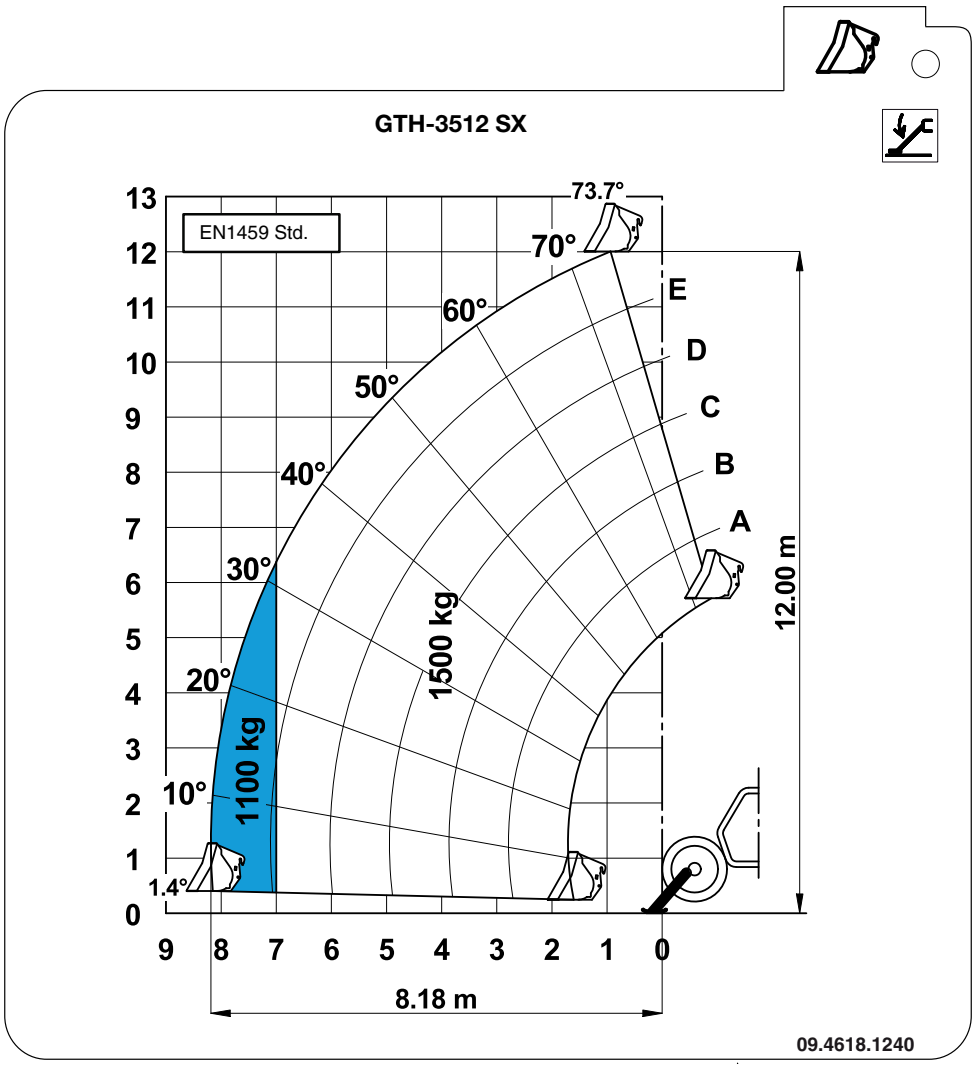
# Load Charts

## LOAD CHART WITH 900 KG JIB GTH 3512 SX ON WHEEL



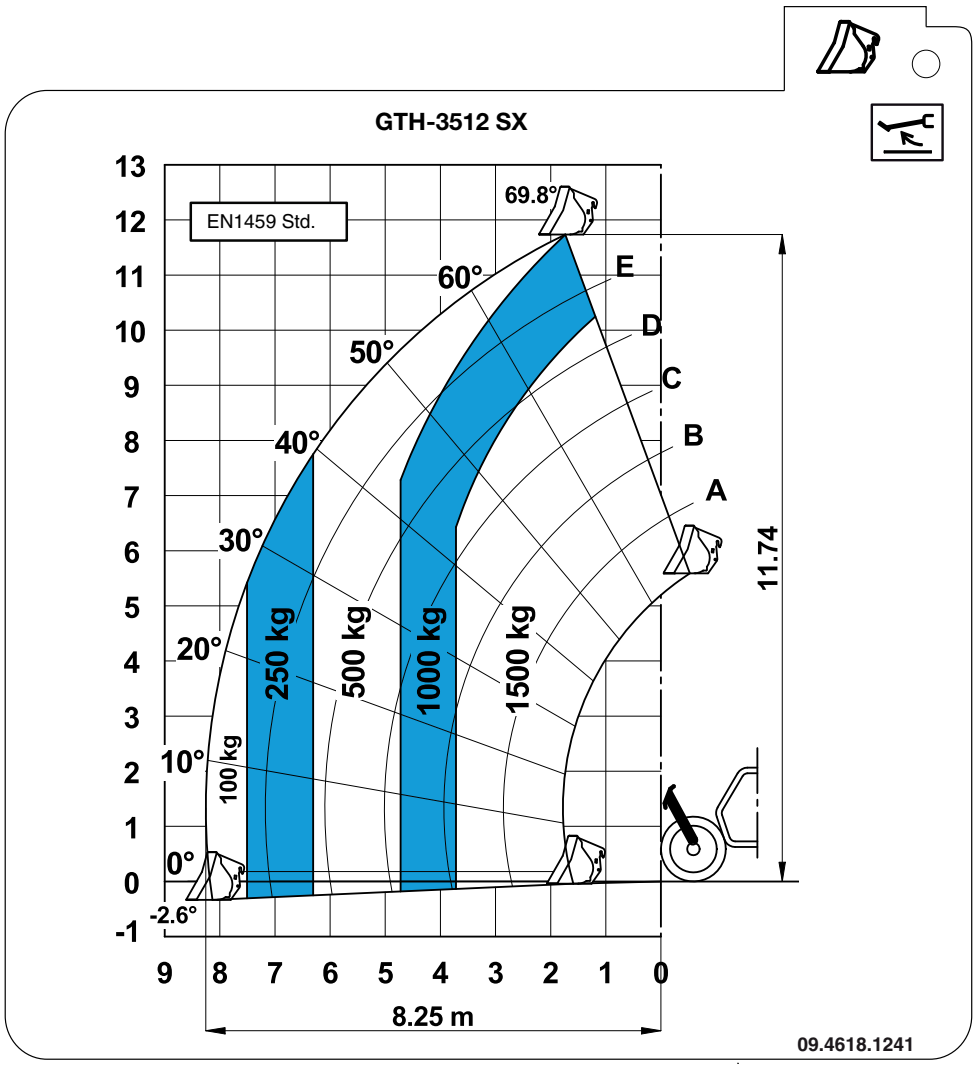
# Load Charts

## LOAD CHART WITH SHOVEL GTH 3512 SX ON OUTRIGGERS



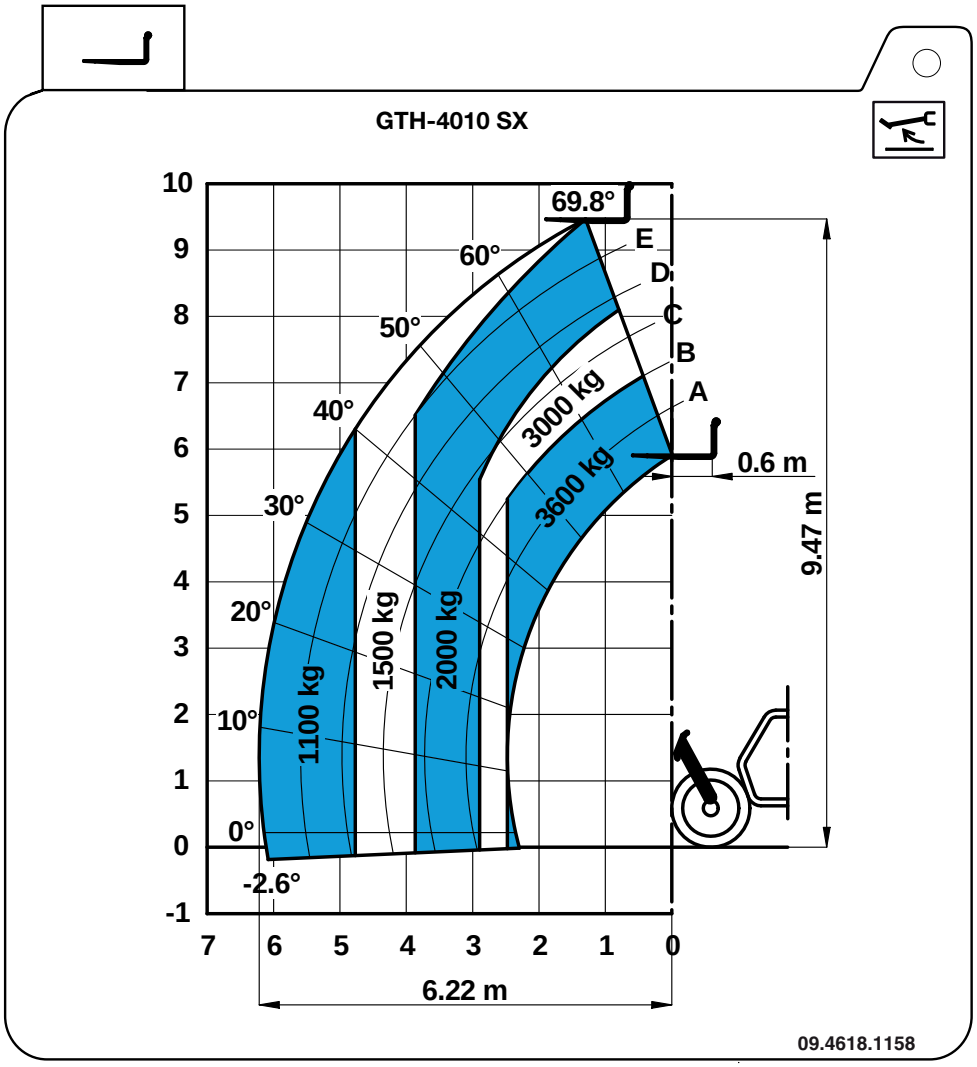
# Load Charts

## LOAD CHART WITH SHOVEL GTH 3512 SX ON WHEEL



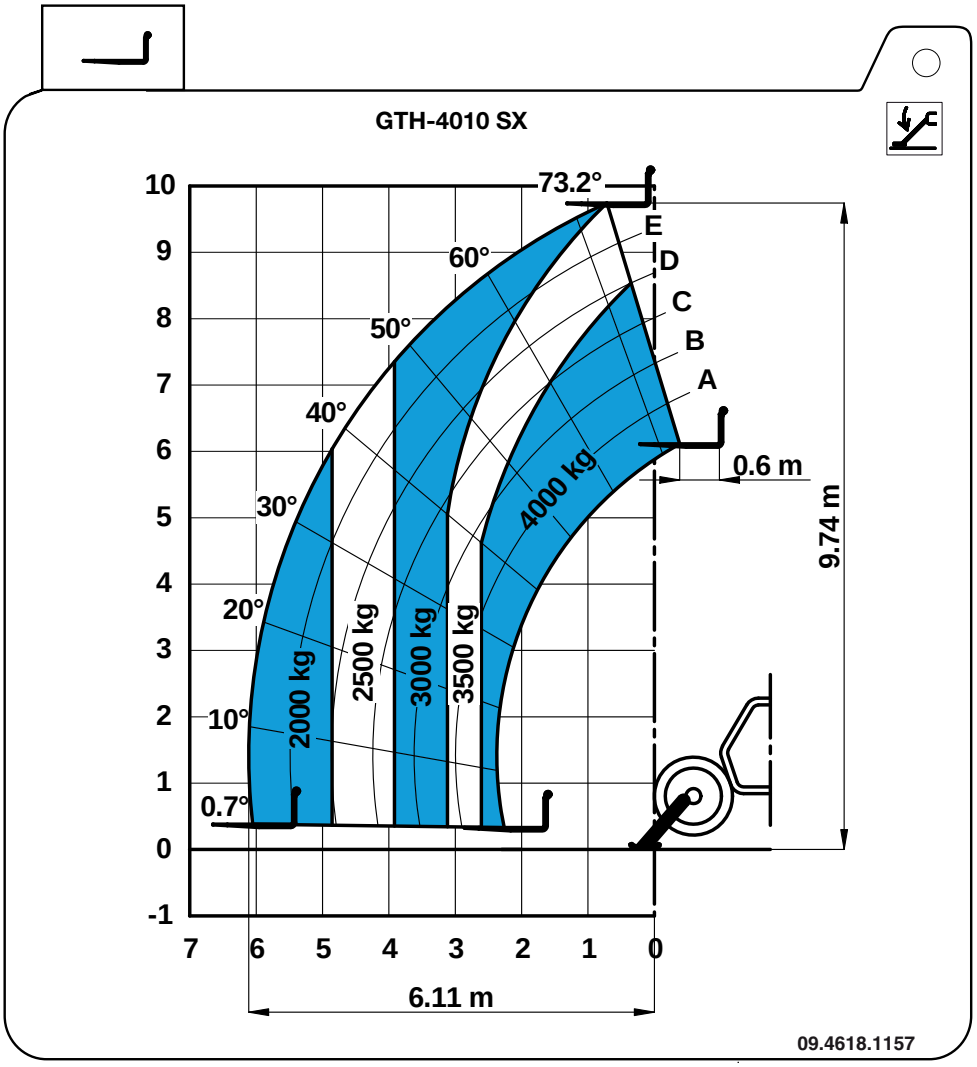
# Load Charts

## LOAD CHART WITH FORK GTH 4010 SX ON WHEEL



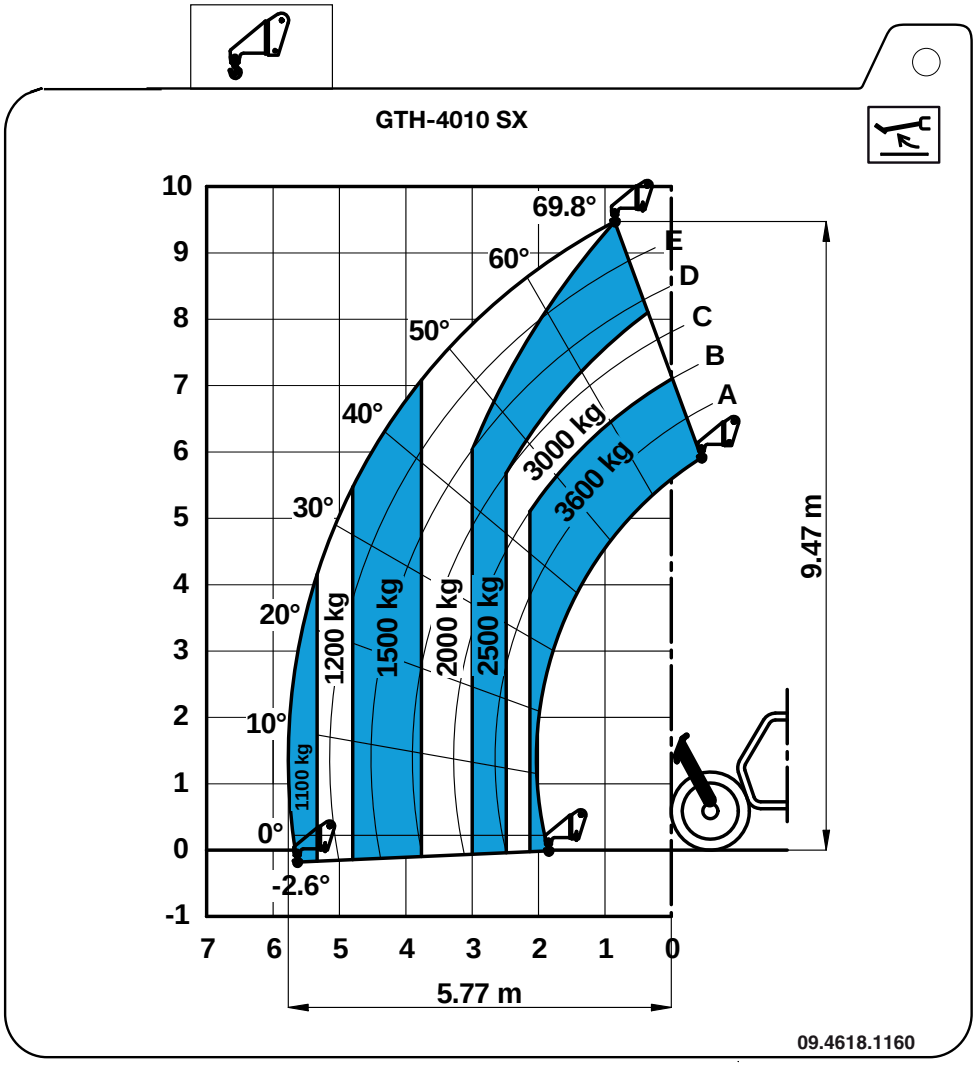
# Load Charts

## LOAD CHART WITH FORK GTH 4010 SX ON OUTRIGGERS



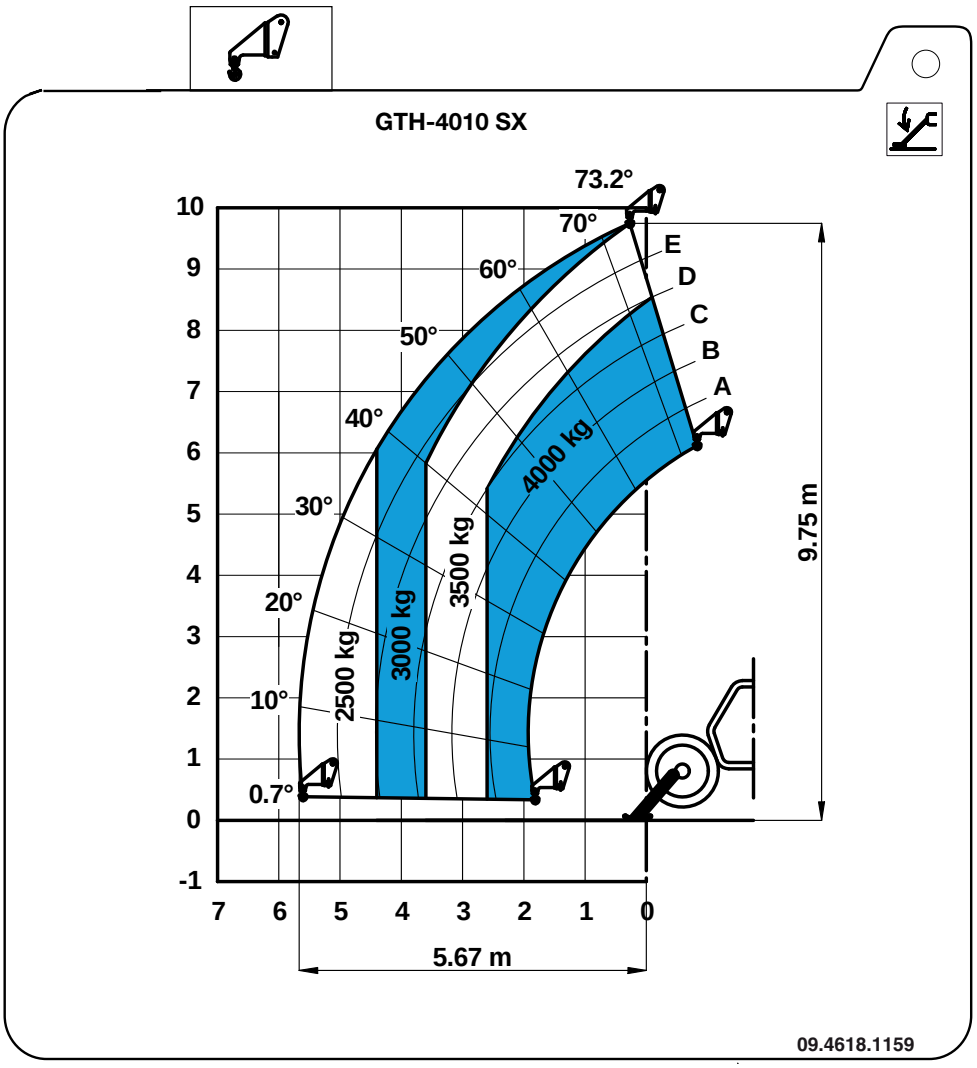
# Load Charts

## LOAD CHART WITH HOOK GTH 4010 SX ON WHEEL



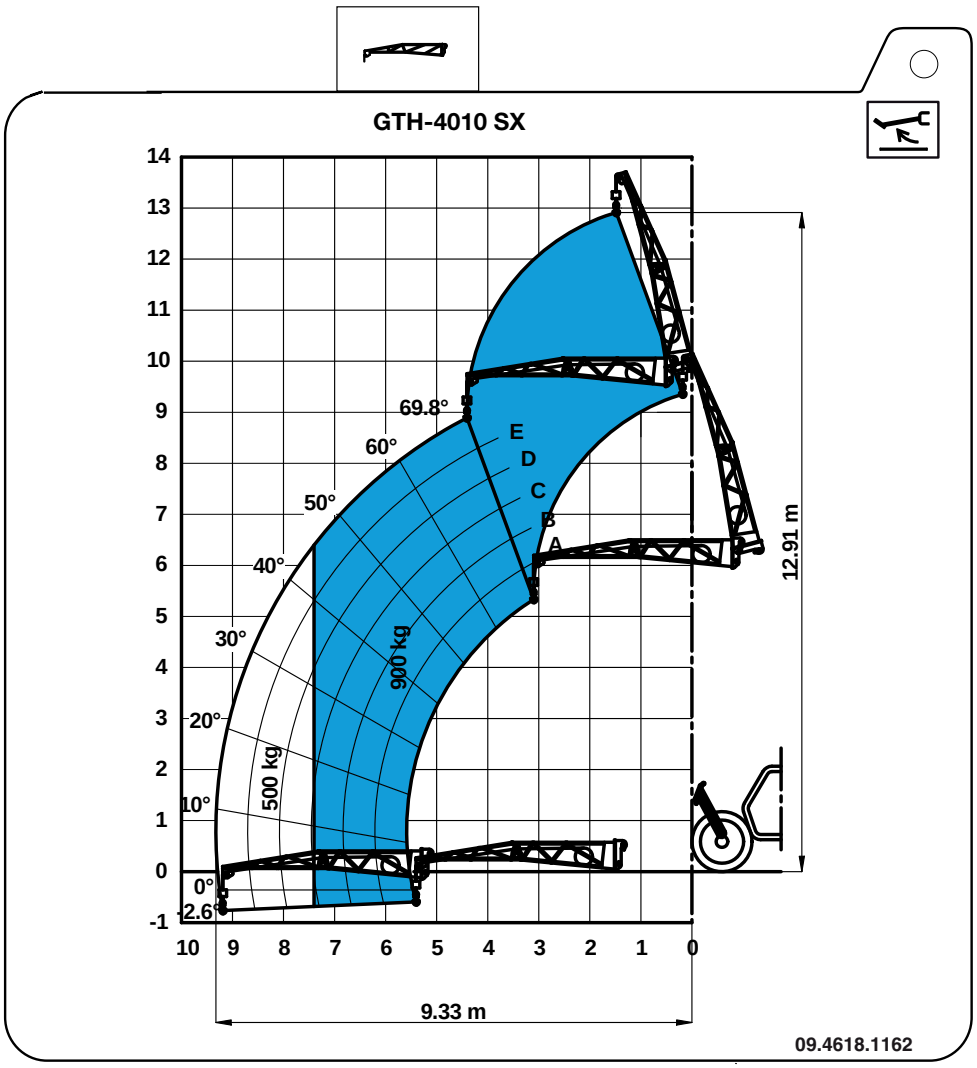
# Load Charts

## LOAD CHART WITH HOOK GTH 4010 SX ON OUTRIGGERS



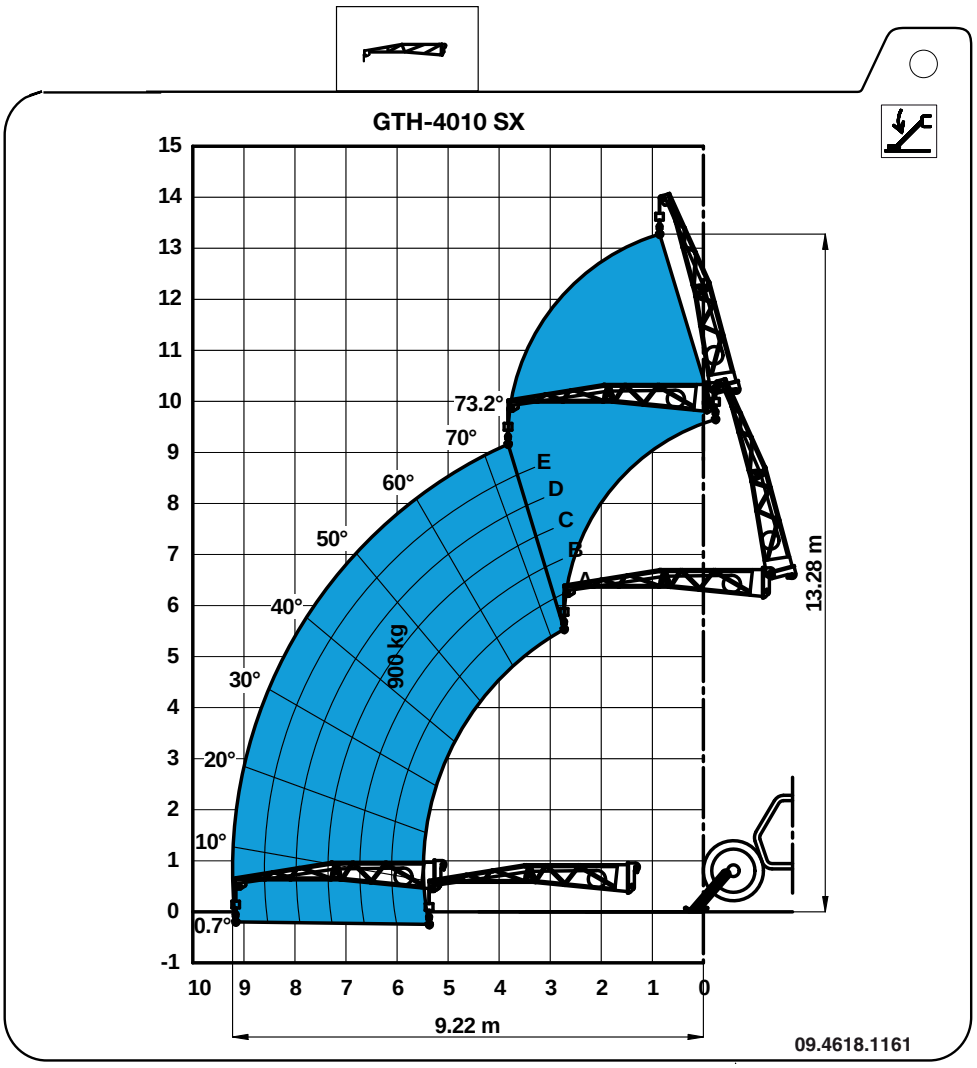
# Load Charts

## LOAD CHART WITH 900 KG JIB GTH 4010 SX ON WHEEL



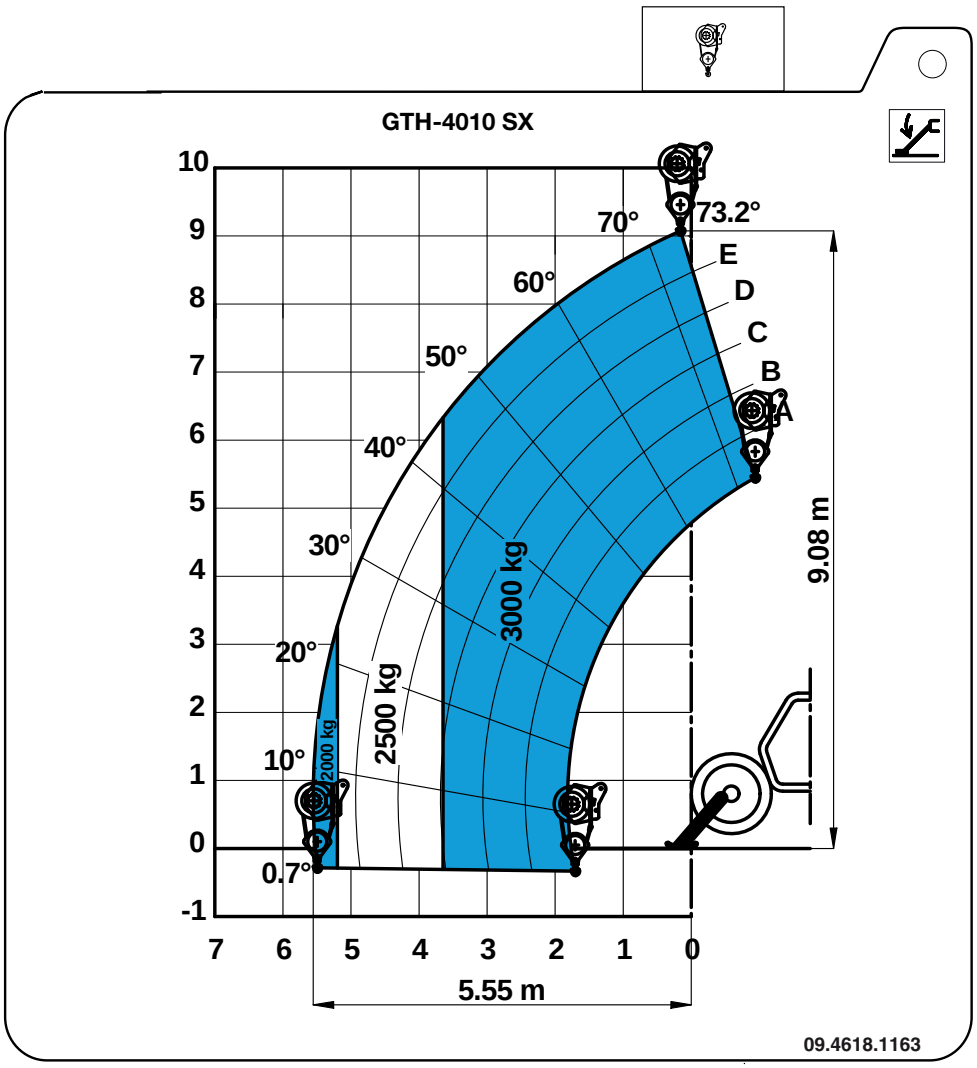
# Load Charts

## LOAD CHART WITH 900 KG JIB GTH 4010 SX ON OUTRIGGERS



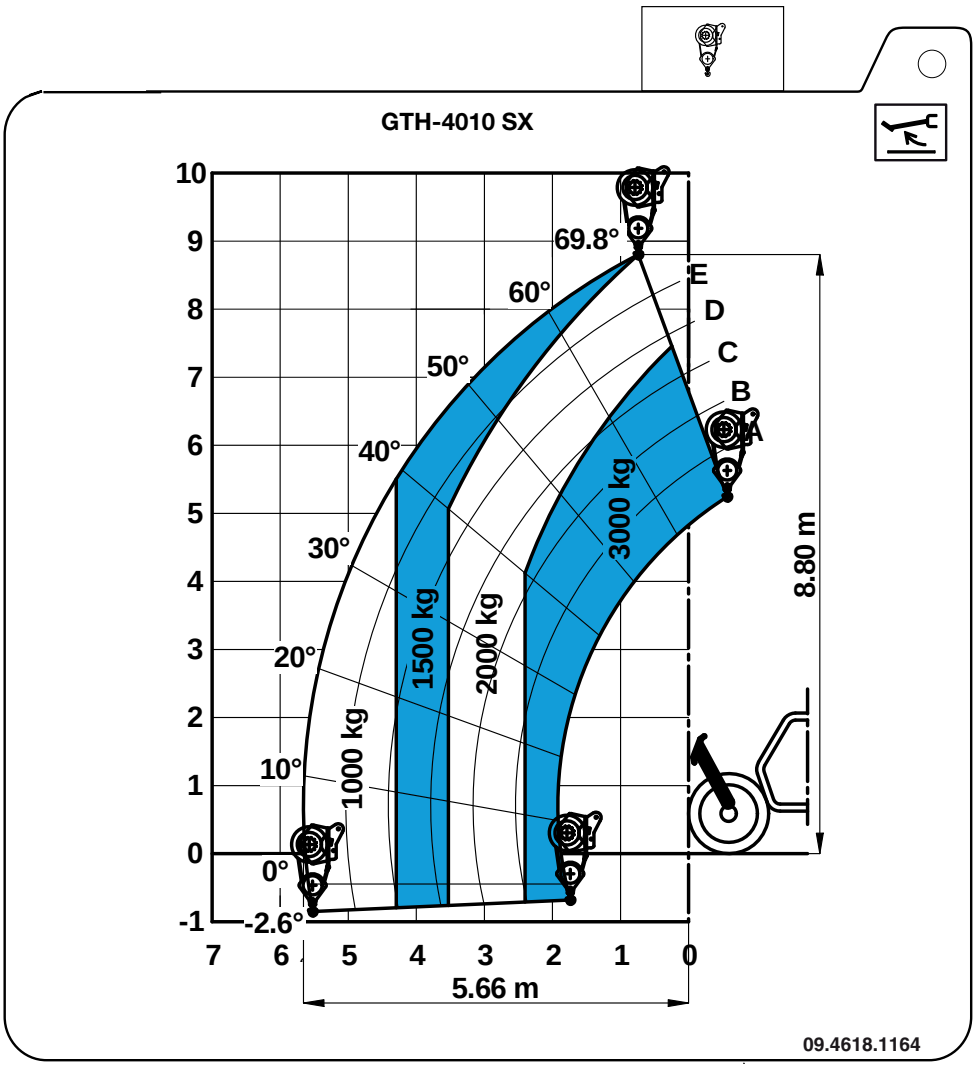
# Load Charts

## LOAD CHART WITH WINCH GTH 4010 SX ON OUTRIGGERS



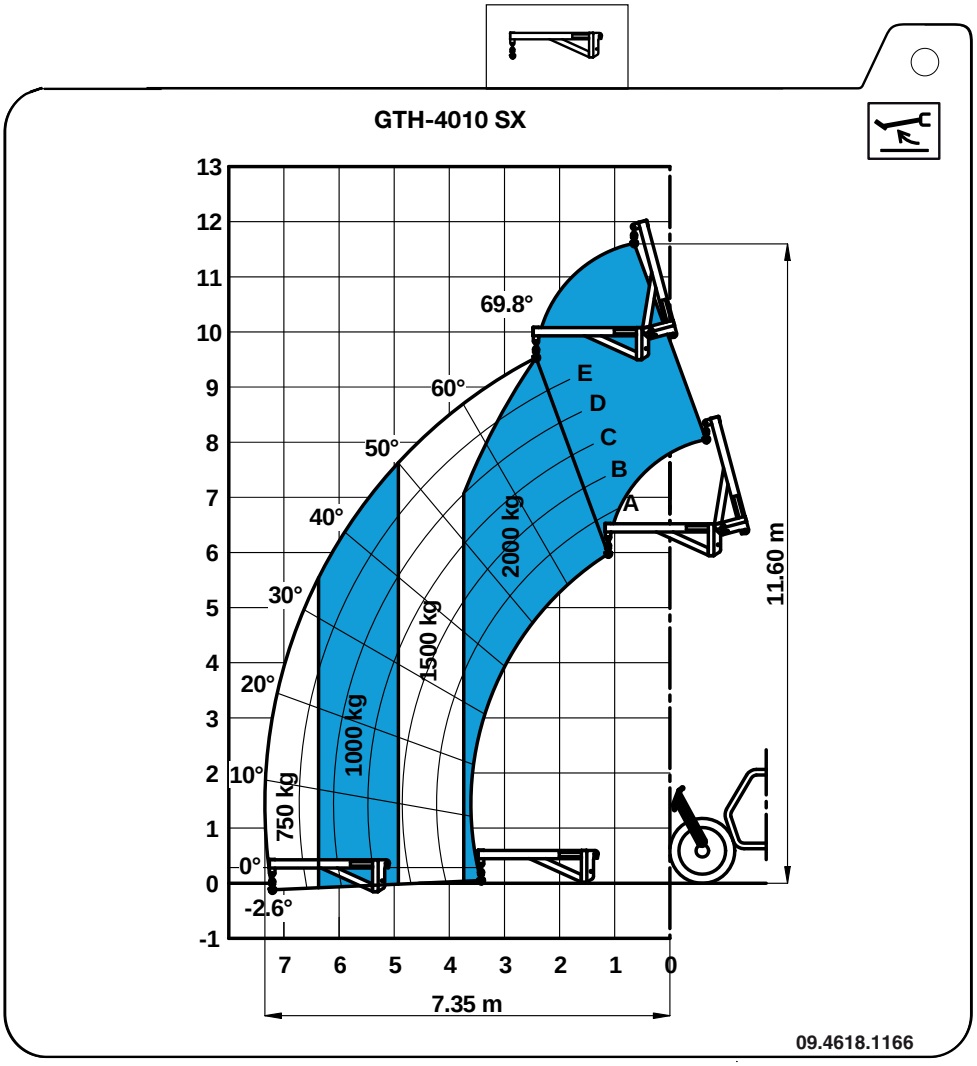
# Load Charts

## LOAD CHART WITH WINCH GTH 4010 SX ON WHEEL



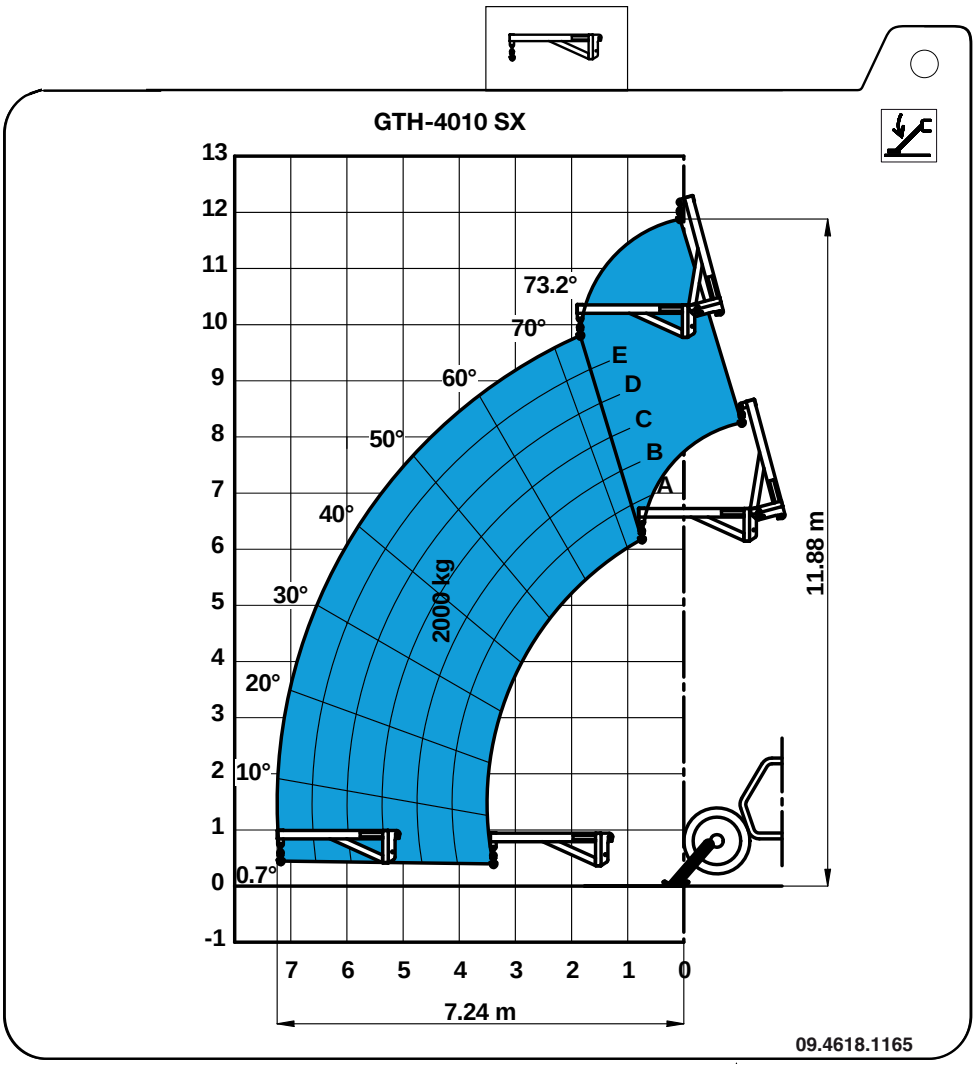
# Load Charts

## LOAD CHART WITH 2000 KG JIB GTH 4010 SX ON WHEEL



# Load Charts

## LOAD CHART WITH 2000 KG JIB GTH 4010 SX ON OUTRIGGERS



# Load Charts

## LOAD CHART WITH SHOVEL GTH 4010 SX ON WHEEL

UNDER CONSTRUCTION

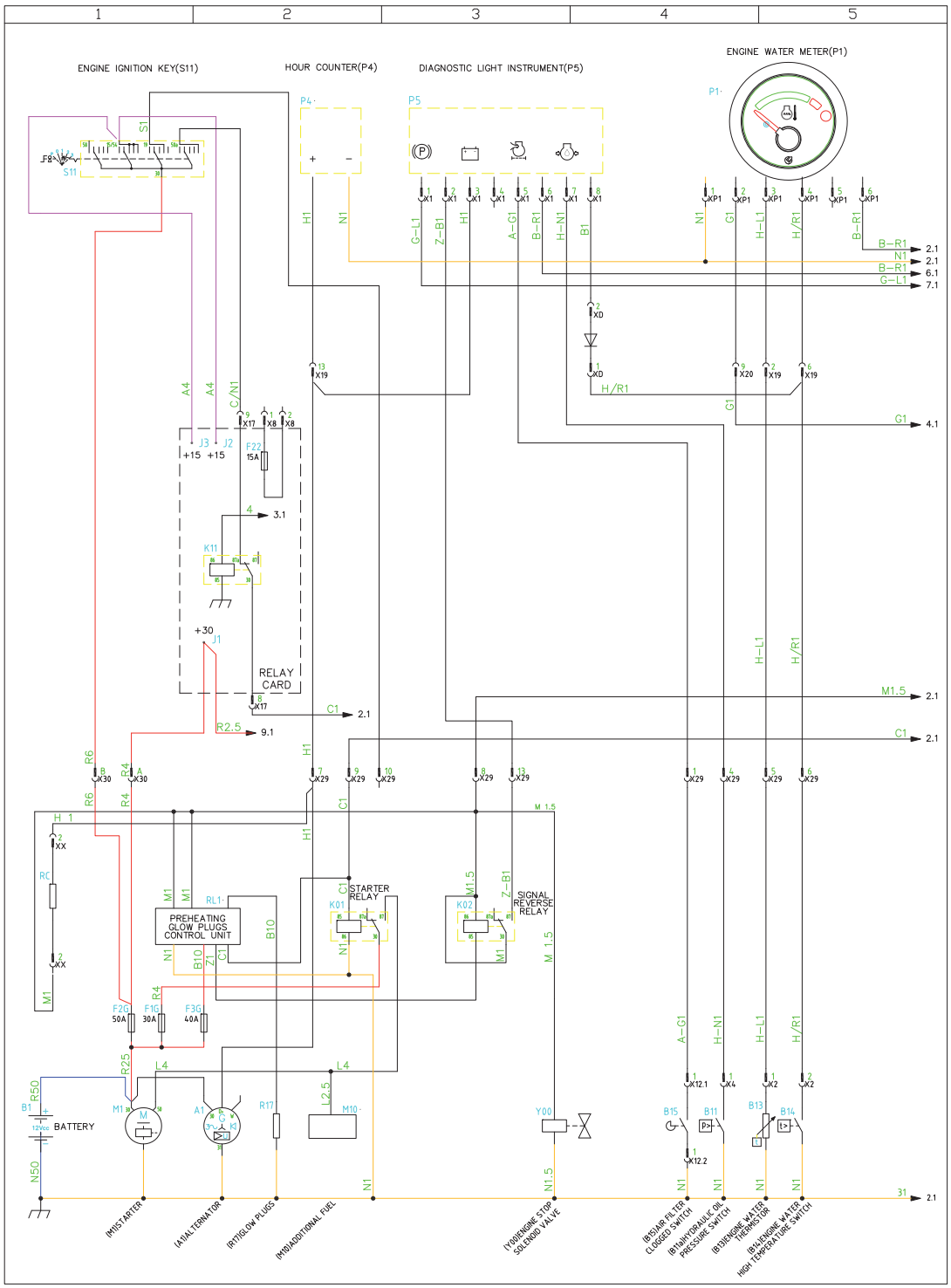
# Load Charts

## LOAD CHART WITH SHOVEL GTH 4010 SX ON OUTRIGGERS

UNDER CONSTRUCTION

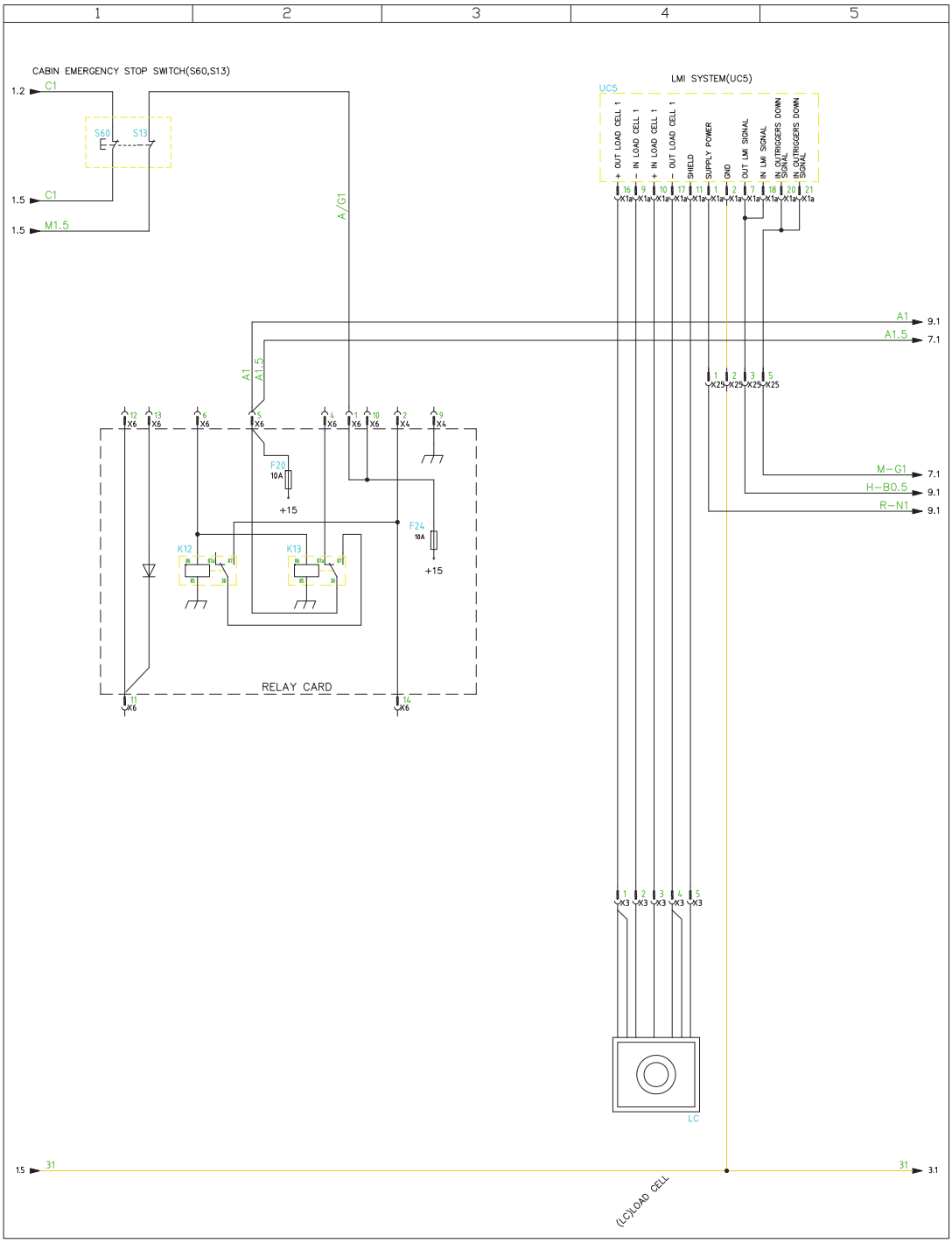
# Diagrams and Schemes

## GTH-4010 SX & GTH-3512 SX WIRING DIAGRAM 1/10



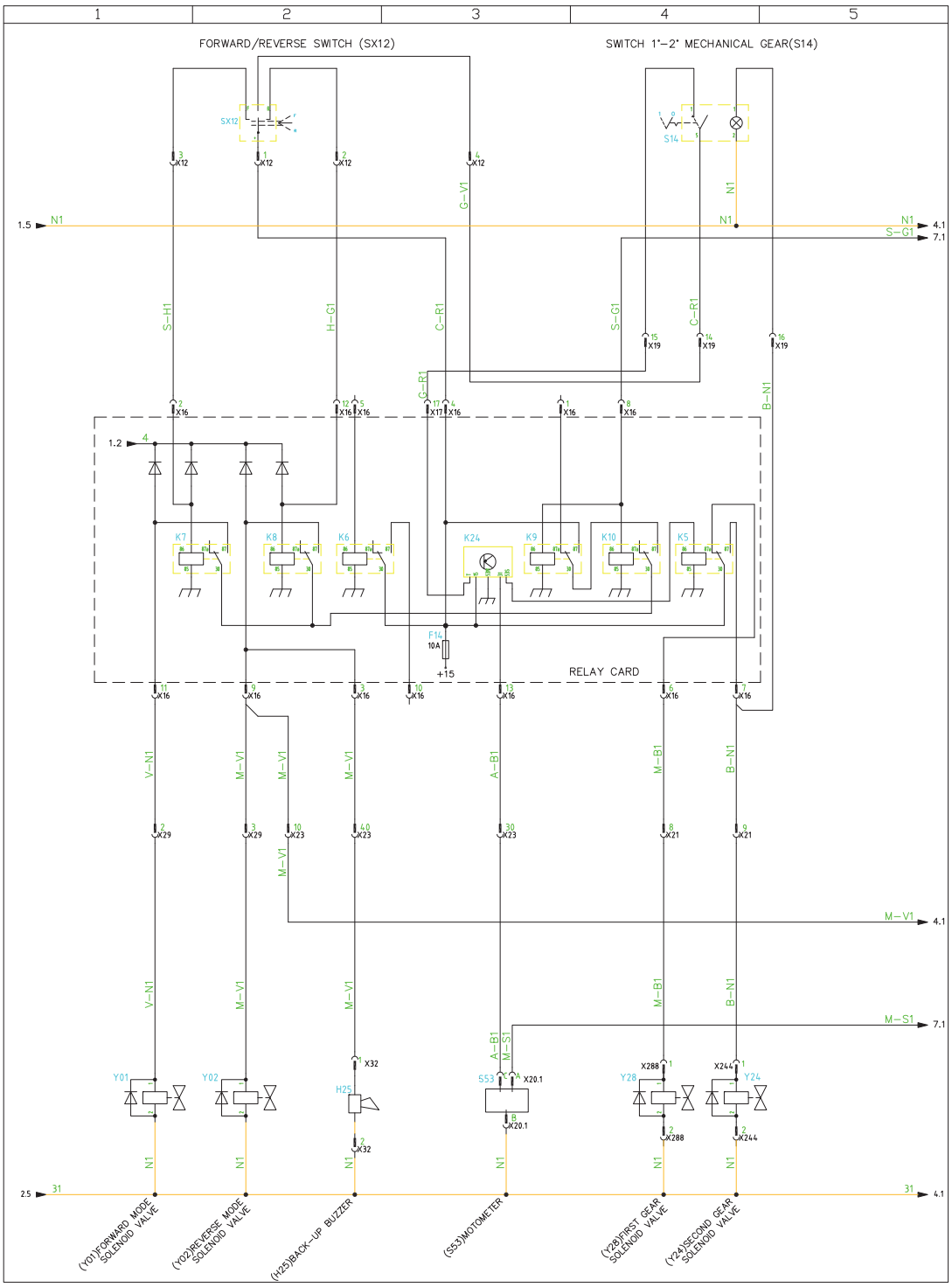
# Diagrams and Schemes

## GTH-4010 SX & GTH-3512 SX WIRING DIAGRAM 2/10



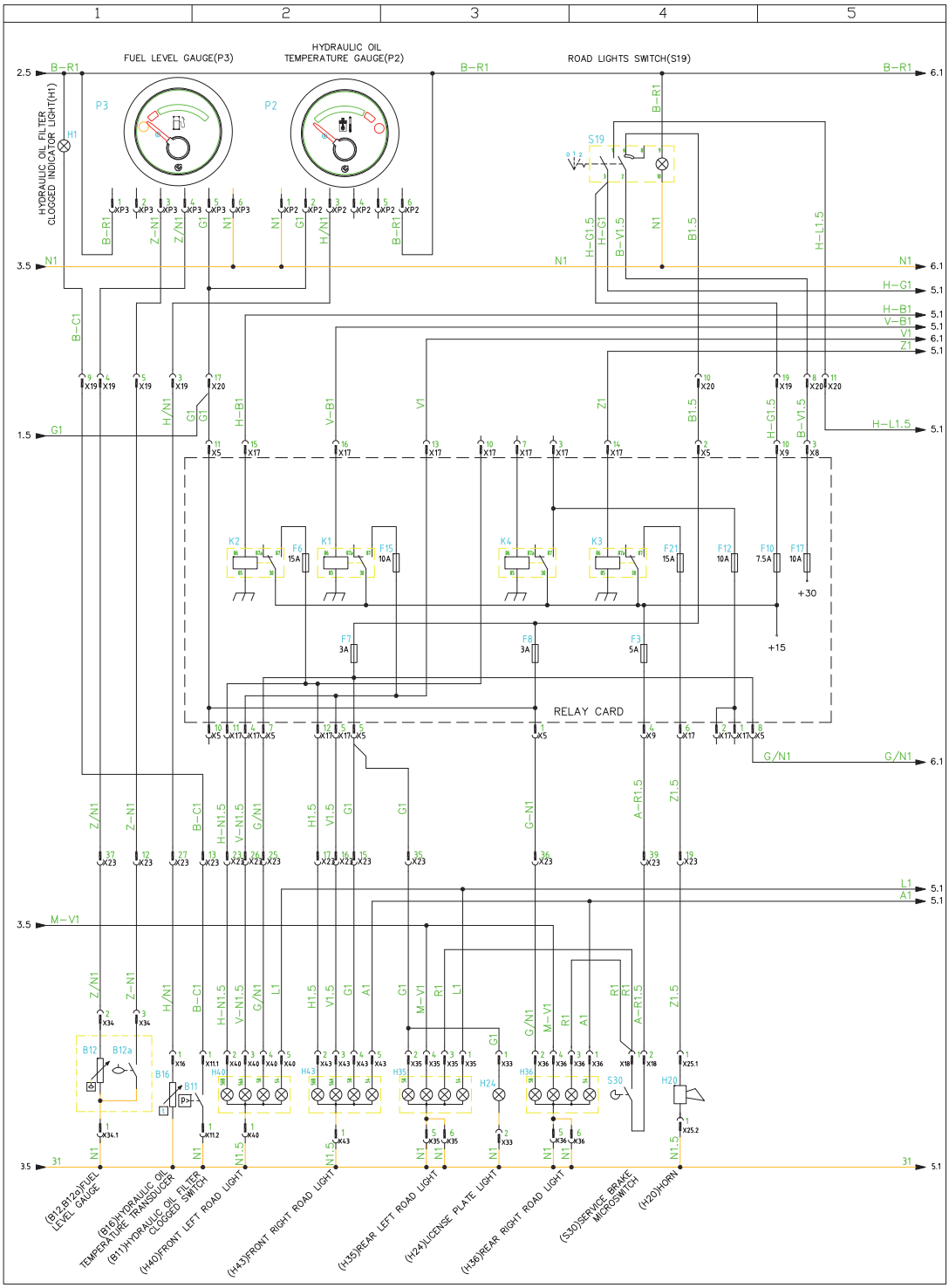
# Diagrams and Schemes

## GTH-4010 SX & GTH-3512 SX WIRING DIAGRAM 3/10



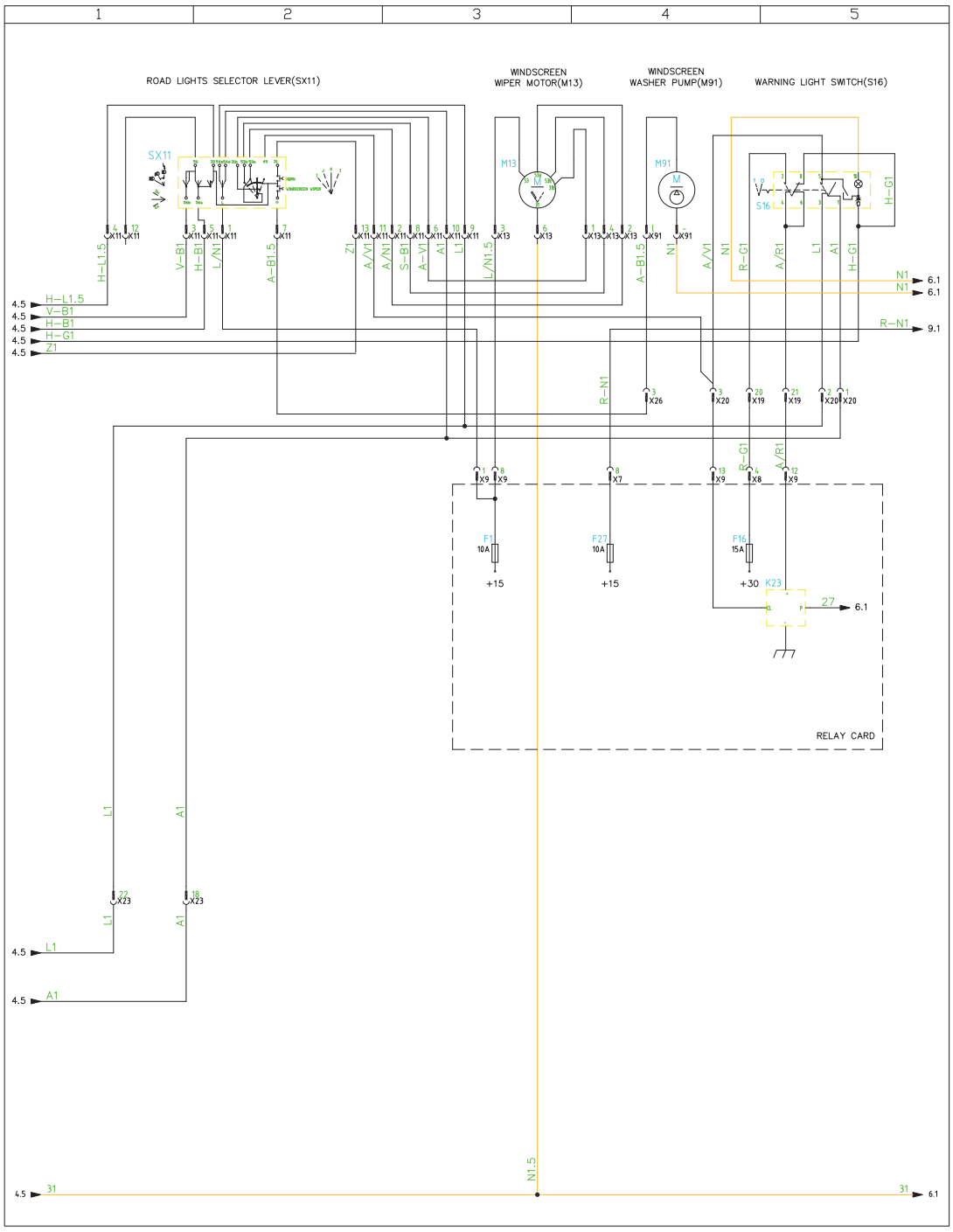
# Diagrams and Schemes

## GTH-4010 SX & GTH-3512 SX WIRING DIAGRAM 4/10



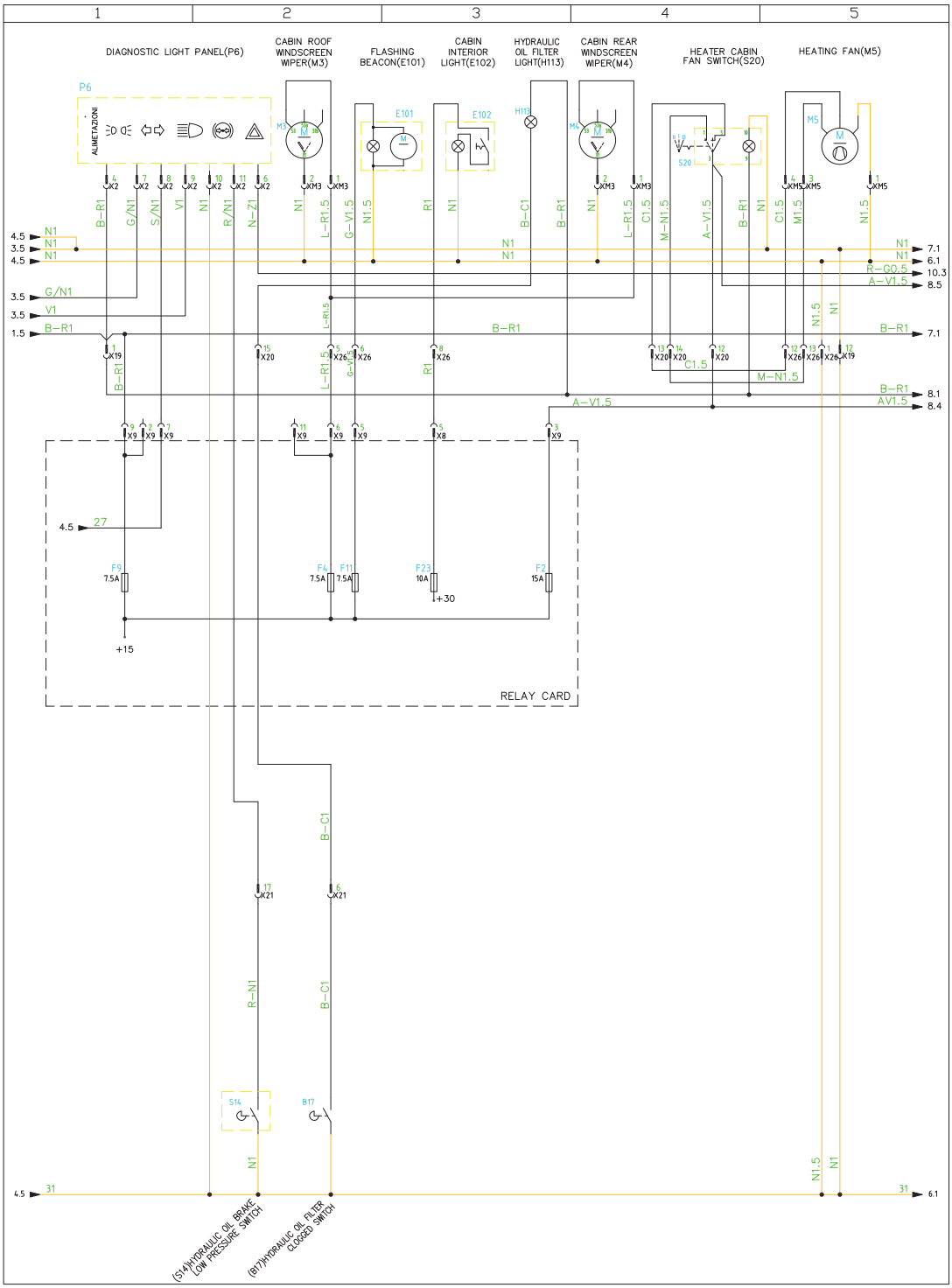
# Diagrams and Schemes

## GTH-4010 SX & GTH-3512 SX WIRING DIAGRAM 5/10



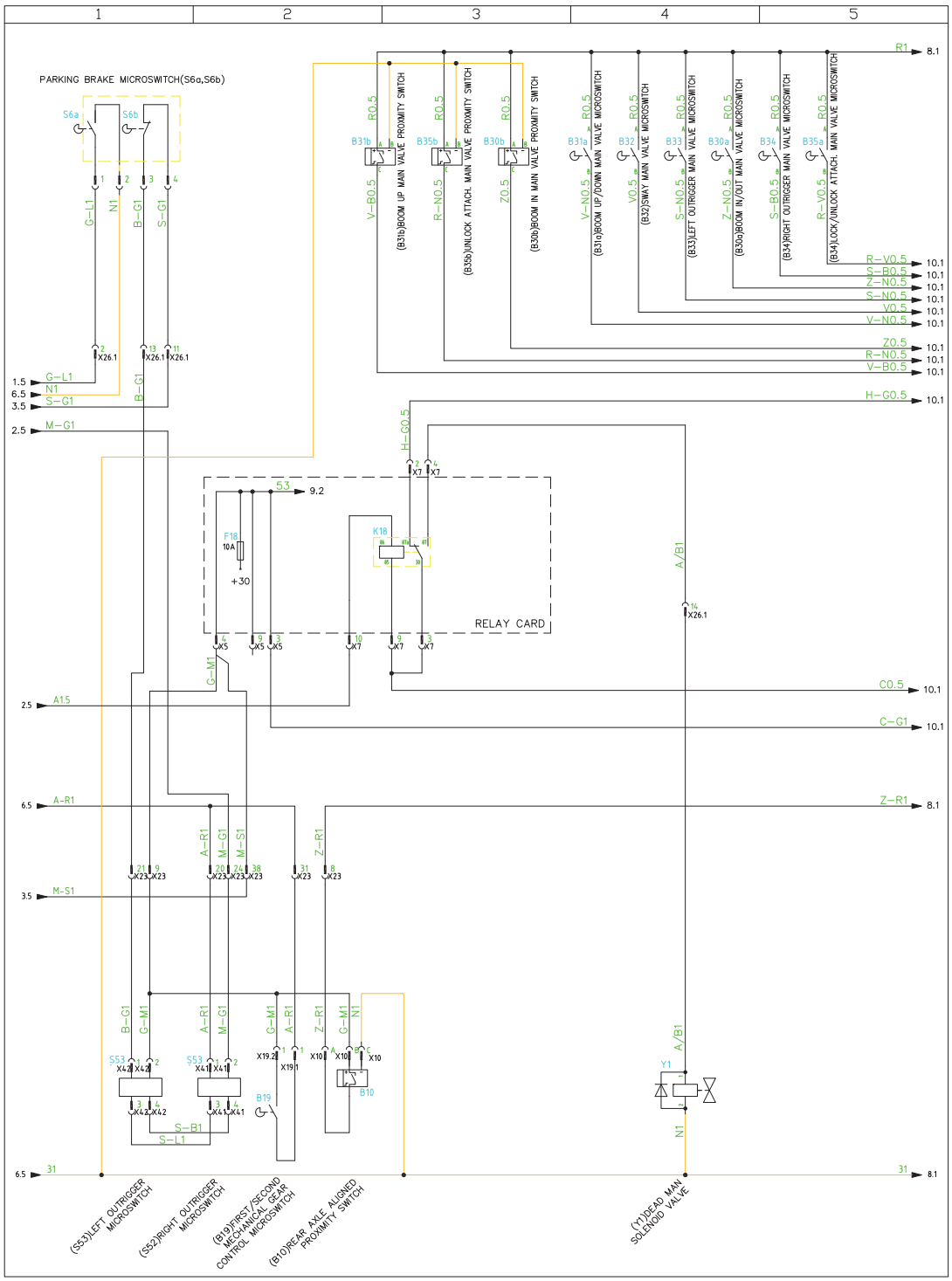
# Diagrams and Schemes

## GTH-4010 SX & GTH-3512 SX WIRING DIAGRAM 6/10



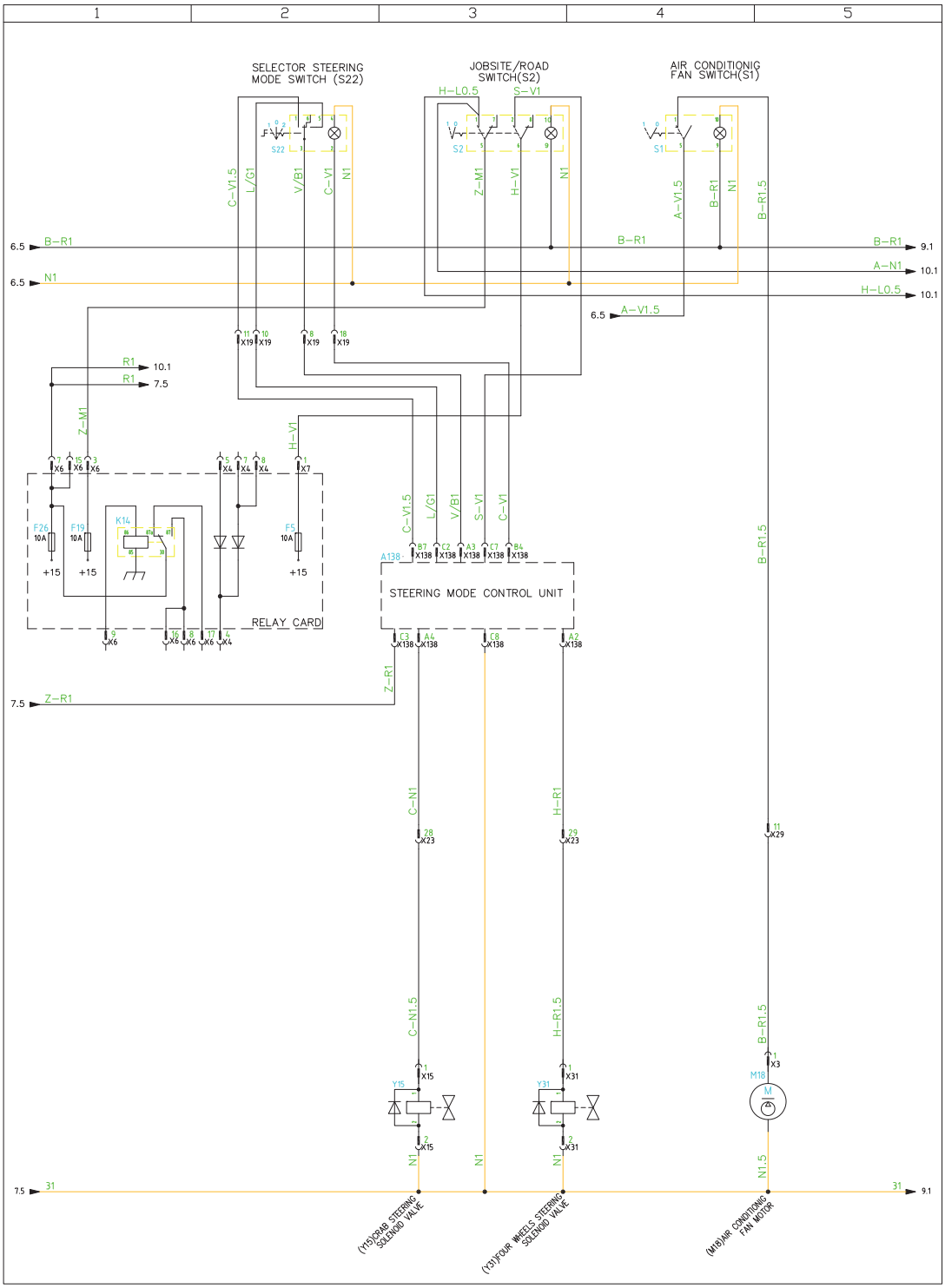
# Diagrams and Schemes

## GTH-4010 SX & GTH-3512 SX WIRING DIAGRAM 7/10



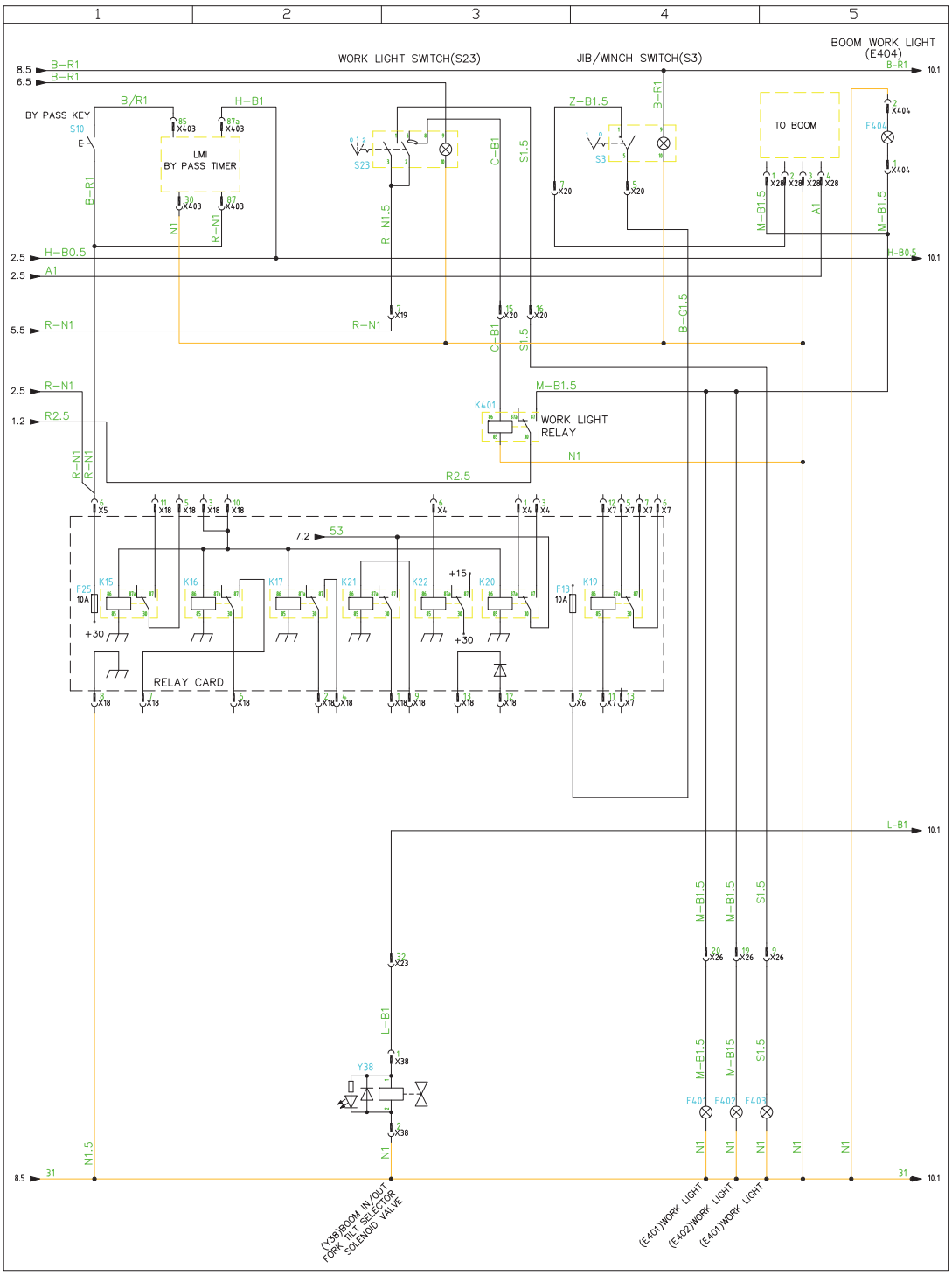
# Diagrams and Schemes

## GTH-4010 SX & GTH-3512 SX WIRING DIAGRAM 8/10



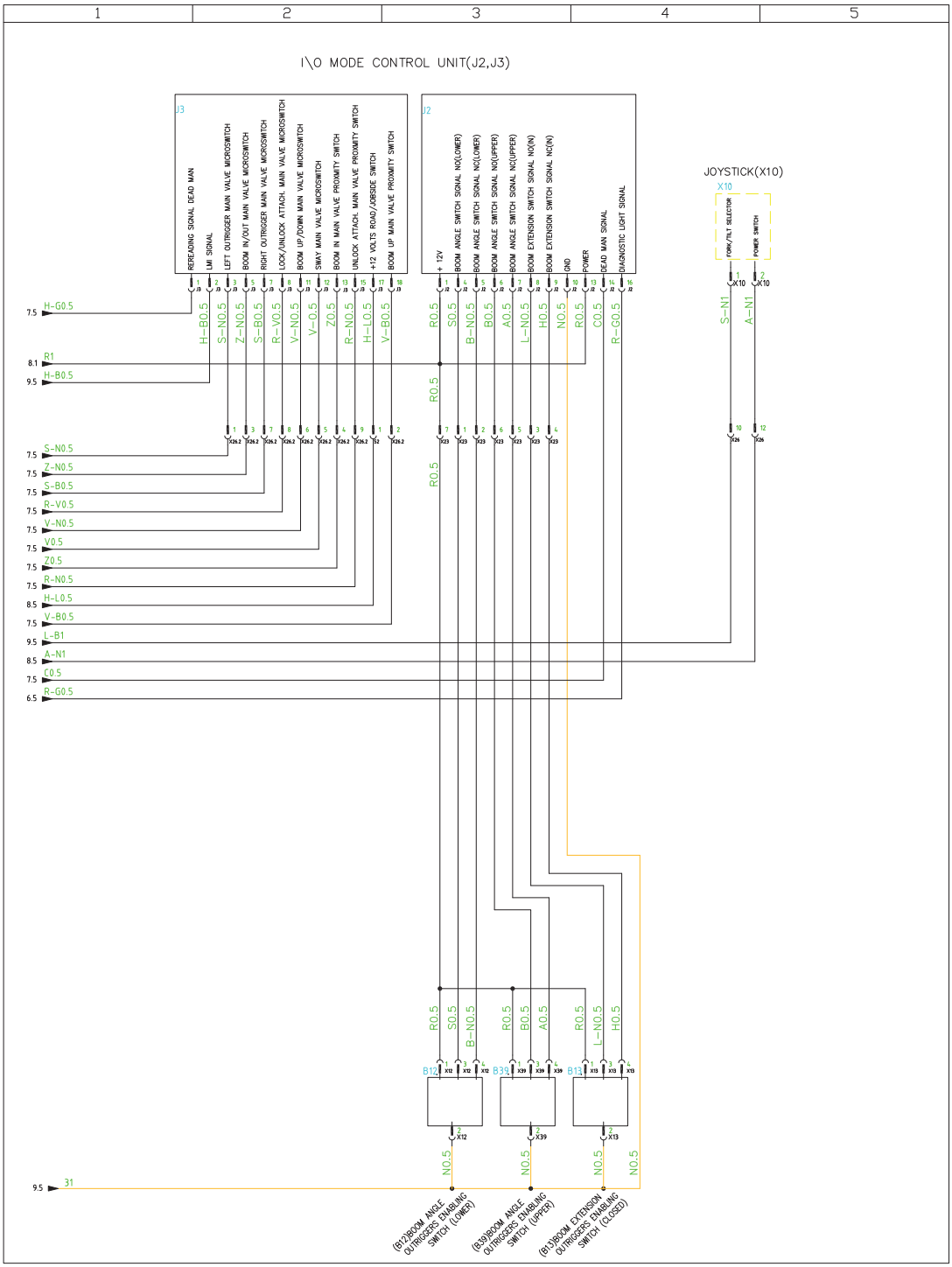
# Diagrams and Schemes

## GTH-4010 SX & GTH-3512 SX WIRING DIAGRAM 9/10



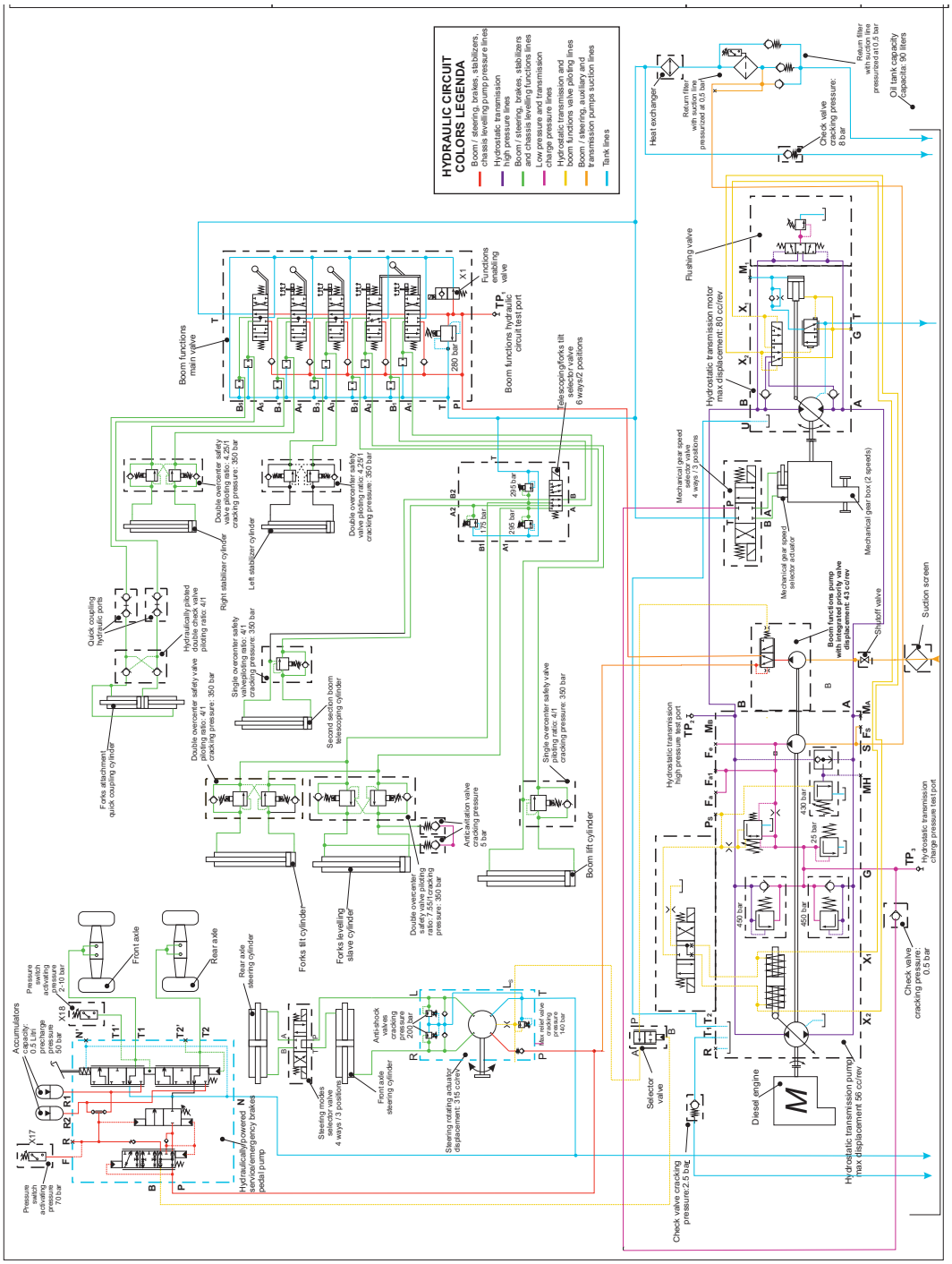
# Diagrams and Schemes

## GTH-4010 SX & GTH-3512 SX WIRING DIAGRAM 10/10



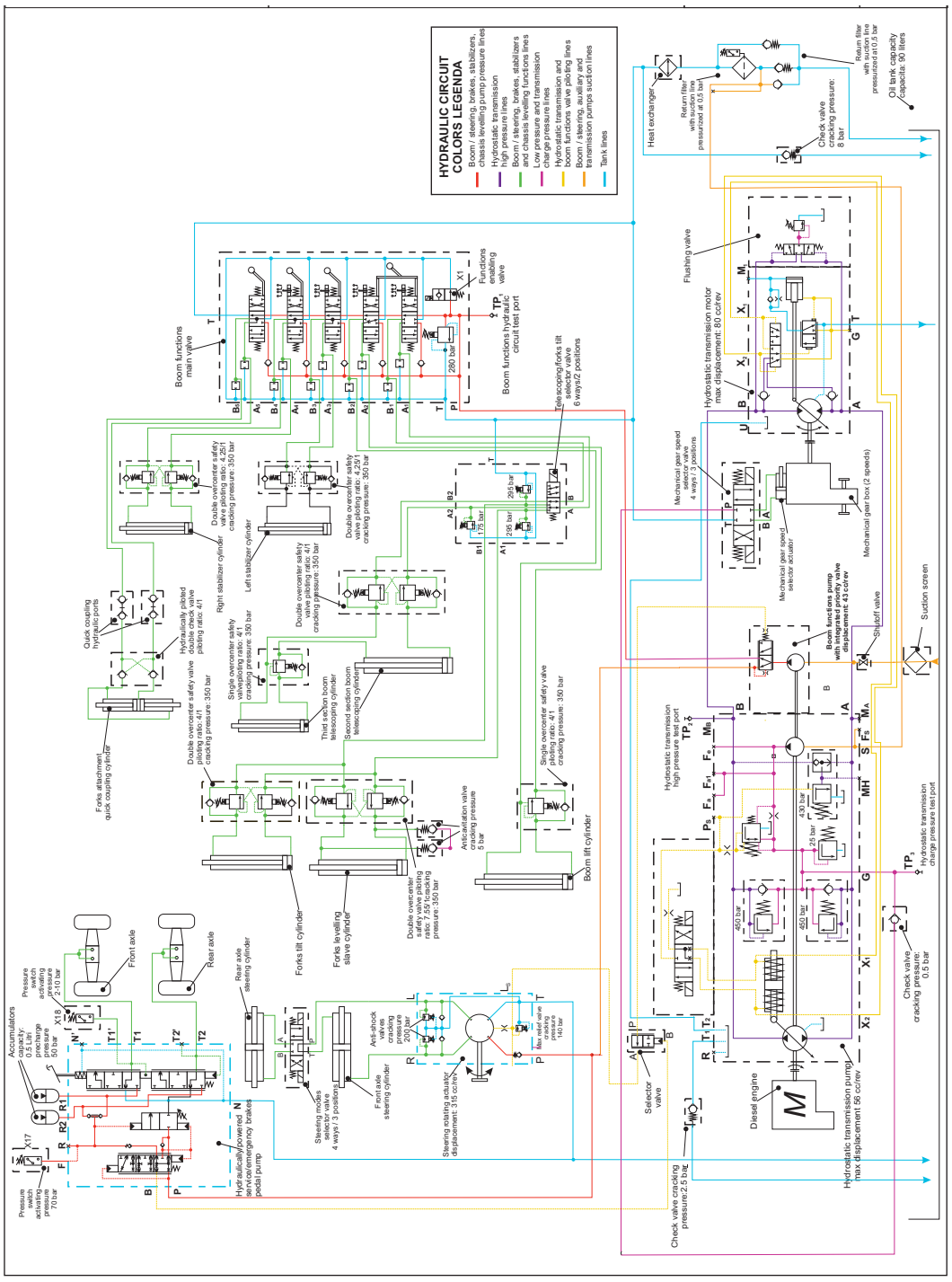
# Diagrams and Schemes

## GTH-4010 SX HYDRAULIC DIAGRAM



# Diagrams and Schemes

## GTH-3512 SX HYDRAULIC DIAGRAM



# 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.
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 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.***

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.

# Warranty

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. 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.
4. **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.
5. **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.
6. **Transportation Cost and/ or Damage**: any damage caused by carrier handling is a transportation claim and should be filed immediately with the respective carrier.
7. **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

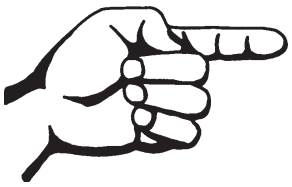
8. **Secondary Failures**: should the owner or operator continue to operate a machine after It has been noted that a failure has occurred, seller will not be responsible under the warranty for resultant damage to other parts due to that continued operation.
9. **Workmanship of Others**: seller does not accept responsibility for improper installation or labor costs or costs of any kind from personnel other than personnel authorized by seller.
10. **Stop and Go Warranty**: seller does not recognize "stop and go" warranties.
11. **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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Genie
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

Genie
A TEREX COMPANY

WARRANTY - HANDING OVER CERTIFICATE

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Telephone:_____ Telefax: _____

Signature: _____

Note
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TEREXLIFT Copy