USE AND MAINTENANCE MANUAL

Translation of the "original instructions"

series
ERGIT 100

SRX 7800

series
ERGIT S

SX 7800 S

ed December - 2018 / **code 47302753**

EN

Congratulations! You made an excellent choice. Your machine has been designed and built with advanced technological processes.
"Antonio Carraro" machines are extremely versatile and can be used for various purposes in several sectors: in farming, in industry, for public bodies, etc. In the national and international field, "Antonio Carraro" represents a high technological value and corresponds to development programs with the aim of confirming the leadership of this strong and highly innovative brand.

00-1218 - © Copyright Antonio Carraro

Antonio Carraro S.p.A.
Via Caltana, 24 - 35011 CAMPODARSEGO (Padova) Italy

Tel. 049/9219921 - **Fax** 049/9219999
http://www.antoniocarraro.com

Use and maintenance manual supplied with the machine identified by the elements listed.

. Model of machine.....

. Serial number.....

. Year of manufacture.....

00-1218 - © Copyright Antonio Carraro

INDEX

01. GENERAL INFORMATION.....7

01.1. Purpose of this manual 7
01.2. Requesting technical assistance 8
01.3. Accompanying documentation 9
01.4. Terms and definitions.....9

02. SAFETY INFORMATION.....15

02.1. Introduction to safety warnings.....15
02.2. General safety warnings 17
02.3. Safety warnings for the employer.....18
02.4. Safety warnings for handling and transport 19
02.4.1. Incorrect uses 20
02.5. Safety warnings for the driver 21
02.5.1. Incorrect uses 22
02.6. Safety warnings regarding circulation on roads.....23
02.6.1. Incorrect uses 24
02.7. Safety warnings before use.....24
02.7.1. Incorrect uses 26
02.8. Safety warnings for hitching and disconnection of tools (carried or towed).....28
02.8.1. Incorrect uses 30
02.9. Safety warnings during use.....31
02.9.1. Incorrect uses 32
02.10. Safety warnings during use on sloping or uneven terrains.....33
02.10.1. Incorrect uses 34
02.11. Safety warnings regarding use with tools (carried or towed).....35
02.11.1. Incorrect uses 36
02.12. Warnings for use with spraying tools.....37
02.12.1. Incorrect uses 37
02.13. Safety warnings regarding use in forestry (Structure not certified FOPS and/or OPS).....38
02.13.1. Incorrect uses 38
02.14. Safety warnings regarding use in forestry (FOPS certified structure).....39
02.14.1. Incorrect uses 39
02.15. Safety warnings regarding use with ballasts installed.....40
02.15.1. Incorrect uses 40
02.16. Safety instructions for proper tyre maintenance.....41
02.16.1. Incorrect uses 42
02.17. Safety warnings at end of use.....43
02.17.1. Incorrect uses 43
02.18. Safety warnings for adjustments and maintenance 44
02.18.1. Incorrect uses 45
02.19. Safety warnings regarding environmental impact.....47
02.20. Warnings on residual risks.....48
02.21. Description of safety signs.....49

03. TECHNICAL INFORMATION.....51

03.1. Identification of manufacturer and machine (EU 1322/2014) 52
03.2. General description of the machine (SRX).....54
03.3. General description of the machine (SX).....56
03.4. Description of the main parts (machine).....58
03.5. Description of the main parts ("cab" version).....62
03.6. Description of hydraulic circuits (Configuration with two hydraulic pumps).....64
03.7. Description of hydraulic circuits (Configuration with one hydraulic pump).....65
03.8. Description of the front power lifting unit.....66
03.9. Description of rear power lift unit ("quick coupling" version).....67
03.10. Description of rear power lift unit ("ball joint" version).....68
03.11. Description of the equipment on request (SRX).....69
03.12. Description of the equipment on request (SX).....72

03.13. Description of devices for driving on public roads **74**
03.14. Description of safety devices **75**
03.15. Position of safety signals and information **77**
03.16. Dangerous areas and zones **78**

04. INFORMATION ON HANDLING AND TRANSPORT 79

04.1. Recommendations for handling, loading and unloading **79**
04.2. Method of transport **80**
04.3. Loading and unloading method **80**
04.4. Machine emergency towing method **81**
04.4.1. Releasing the "Superbrake" device (optional) (if available) **82**

05. INFORMATION ON ADJUSTMENTS 83

05.1. Recommendations regarding adjustments **83**
05.2. Adjusting the driving position **84**
05.3. Adjustment of headlights **85**
05.4. Adjustment of the rear lifting unit with "quick coupling" **86**
05.5. Adjustment of the rear lifting unit with "ball joint" **87**
05.6. Adjustment of the front power lift unit **88**
05.7. Adjustment of tow hook height **88**
05.8. Position adjustment of the oscillating tow bar **90**
05.9. Track change-over **90**

06. OPERATING INSTRUCTIONS 91

06.1. Recommendations for use and functioning **91**
06.2. Description of controls **92**
06.3. Description of instruments and LEDs **93**
06.4. Description of the multifunction display **96**
06.4.1. HOME Screen **96**
06.4.2. Service Indicator **97**
06.4.3. Hour Counter **98**
06.4.4. Menu **99**
› *Pedal Sensitivity Menu* **100**
› *Memo RPM Menu (If present)* **102**
› *Additional Information Menu* **103**
› *Warning Menu* **104**
› *Service Menu* **105**
› *Time and date setting menu* **106**
› *Info Menu* **107**
› *General Settings Menu* **108**
06.5. Description of dashboard controls **111**
06.6. Use of the "Superbrake" device (if present) **114**
06.7. Description of drive and stop controls **116**
06.8. Description of work controls **117**
06.9. Description of lifting unit controls (standard) **119**
06.9.1. Standard power lift unit controls **119**
06.9.2. Draft control power lift unit controls (only for SX model machines) **120**
06.10. "Draft control" power lift unit use mode (SX) **121**
› ***Position control*** **121**
› ***Draft control*** **121**
› ***Intermix*** **121**
06.11. Description of hydraulic coupling controls (standard) **122**
06.12. Description of the vertical lift rod and top link controls (optional) **123**
06.13. Description of hydraulic coupler and front lift controls (optional) **124**
06.14. Description of "Proportional Joystick" type controls **126**
06.15. Description of cab controls **129**
› *Defogging of the cab windows* **130**
06.16. Description of control plates **131**
06.17. Using a ROPS safety arch (with easy opening and closing) **132**
06.18. Access to driver's seat **133**
06.19. Starting and stopping the engine **135**
06.20. Moving and stopping the machine **138**
06.21. DPF regeneration (Diesel Particulate Filter) **140**

00-1218 - © Copyright Antonio Carraro

00-1218 - © Copyright Antonio Carraro

06.22. Starting the engine with a flat battery 145
06.23. Set-up for driving on public roads 146
06.24. Procedure for reversing the driving seat (SRX) 147
06.25. Hitching and unhitching implements - rear power lift unit ("quick coupling" version) 148
06.26. Hitching and unhitching implements - rear power lift unit ("ball joint" version) 150
06.27. Hitching and unhitching implements - front power lift unit 152
06.28. Hitching and disconnecting tool - tow hook 154
06.29. Connection and disconnection of the rear cardan shaft 155
06.30. Hydraulic couplers connection 157
06.31. Electric couplings hitching 157
06.32. Formula for calculating ballasts with carried tool 158
06.33. Installation of lateral ballasts 159
06.34. Installation of front wheel ballasts 161
06.35. Rear wheel ballasts installation 162
06.36. Installation of ballasts with flange (rear wheels) 163
06.37. Operating reminders 164
06.38. Refuelling 166
06.39. Prolonged tractor inactivity 167
06.40. Putting the machine back into service 168

07. INFORMATION ON MAINTENANCE 169

07.1. Maintenance recommendations 169
07.2. Maintenance during the running-in period 170
07.3. Maintenance interval table 171
07.4. Cleaning the machine 174
07.5. Engine components 175
07.6. Cleaning the radiator 176
07.7. Cleaning the engine air filter 177
07.8. Cleaning the cab air filter (paper) 178
07.9. Checking the tyre pressure 179
07.10. Location of lubrication points 182
07.11. Lubricant table 184
07.12. Cooling liquid table 185
07.13. Checking the engine oil level 185
07.14. Checking the engine coolant level 186
07.15. Checking the front and rear transmission oil level (configuration with one hydraulic pump) 187
07.16. Checking the front and rear transmission oil level (configuration with two hydraulic pumps) 188
07.17. Checking brakes and clutch system oil level 189
07.18. Changing the front and rear transmission oil (configuration with one hydraulic pump) 190
07.19. Changing the front and rear transmission oil (configuration with two hydraulic pumps) 192
07.20. Changing the hydraulic oil filters 193
07.21. Bleed brakes and clutch system 194
07.22. Extraordinary maintenance 194

08. INFORMATION REGARDING FAULTS 195

08.1. Problems, causes and corrective actions 195

09. INFORMATION REGARDING REPLACEMENTS 207

09.1. Part replacement instructions 207
09.2. Replacing the gas spring (bonnet) 208
09.3. Replacing the gas spring (safety arch) 208
09.4. Replacing the engine air filter 209
09.5. Changing the battery 210
09.6. Changing tyres 210
09.7. Replacing light bulbs (front) 211
09.7.1. Direction indicator lights 212
09.7.2. Side lights 212
09.7.3. Low and full beam lights 212
09.8. Replacing indicator light bulbs (rear) 213
09.8.1. Direction indicator lights 213

09.8.2. Position lights and brake lights....213
09.8.3. Licence plate light....214
09.9. Replacing the work light lamp....214
09.10. Replacement of cab bulb....215
09.11. Replacement of courtesy light....215
09.12. Replacement of fuses and relays....216
09.12.1. Engine compartment fuses and relays....217
09.12.2. Dashboard fuses....219
09.12.3. Cab fuses....221
09.13. Disposal and scrapping of the machine....222

10. TECHNICAL DATA TABLES....223

10.1. Technical data tables introduction....223
10.2. Kerb weight....224
10.3. Machine maximum permissible weight....225
10.4. Front power lift dimensions....229
10.5. Ballasts....230
10.6. Dimensions....231
10.7. Engine, transmission and systems features....234
10.8. Cardan shaft....240
10.9. PTO features....241
10.10. Noise level....242
10.11. Vibrations transmitted to the driver....242
10.12. Machine tracks....243
10.13. Machine speed....249
10.14. Rear tow hook....256
10.14.1. Fixed Hook....256
10.14.2. Rotating Hook....258
10.15. Maximum vertical load provided for on the coupling hook....260
10.15.1. Fixed Hook....261
10.15.2. Rotating Hook....265
10.16. Maximum drawbar pull on the machine tow hook....269
10.16.1. Fixed Hook (Italy approval)....269
10.16.2. Rotating Hook (EU approval)....271
10.16.3. Fixed Hook (EU approval)....273

11. ATTACHMENTS....275

11.1. Engine line wiring diagram....276
11.2. Instrument panel wiring diagram....278
11.3. Front harness wiring diagram....280
11.4. Rear harness wiring diagram....282
11.5. "JOYSTICK" controls wiring diagram....284
11.6. "JOYSTICK" connection wiring diagram....286
11.7. Lifting assembly wiring diagram (with hydraulic tie-rods)....288
11.8. "CAB" version wiring diagram....290
11.9. "SUPERBRAKE" wiring diagram....292

00-1218 - © Copyright Antonio Carraro

01
GENERAL INFORMATION

01.1. PURPOSE OF THIS MANUAL

- The purpose of this manual is to transfer the 'User instructions' to the addressees (driver and operators), to prevent and minimise risks in man-machine interaction.
- The information is professionally written by the manufacturer in the original language (ITALIAN), in compliance with ISO 3600:1996 and the current Standards.
- **To facilitate reading and understanding the information, principles of communication most suitable to the addressees' characteristics have been adopted.**
- **To know the exact definition of certain specific terms used in the manual.** *(→ p. 9)*
- **The information may be translated into other languages to satisfy commercial and/or legal requirements.**
- **The manuals must be translated directly, without changes, from the ORIGINAL INSTRUCTIONS.**
- **Every translation (including that realised by the sender or whoever introduces the machine in the linguistic area in question) must have the wording "TRANSLATION OF THE ORIGINAL INSTRUCTIONS".**
- The manual addressees must know the machine features, respect the safety warnings and comply with the laws in force in the work place.

00-1218 - © Copyright Antonio Carraro

- Keep this manual safe for the working life of the machine, in a known and easily accessible place so that it is always readily available for consultation.
- Consult the analytic index to easily trace the specific subjects of interest.
- Some information might not completely match the actual configuration of the delivered machine or the available optional equipment and therefore cannot be disputed.
- The eventually inserted additional information does not influence legibility and does not jeopardise the level of safety.
- The illustrations may represent the machine without safety protections and devices, to make the information clearer and more immediate.
- The illustrations without the safety protections and devices MUST NOT be taken as reference during the normal operation of the machine.
- The manufacturer reserves the right to change the information without prior notice of any kind, as long as these modifications do not alter the safety level.
- The symbols represented and described below are used to highlight particularly important text or specifications.

DANGER
Warnings accompanied by this symbol indicate situations of imminent danger which, if not avoided, may cause death or serious injuries.

ATTENTION
Warnings accompanied by this symbol indicate potentially dangerous situations which, if not avoided, may cause slight or moderate injuries.

IMPORTANT_Indicates technical and operating information of particular importance that must not be neglected, to avoid damage to the products, the processes, or contamination of the environment.

***NOTA**_Indicates the presence of additional information.*

STOP The symbol identifies situations in which the machine must be stopped as soon as possible.

01.2. REQUESTING TECHNICAL ASSISTANCE

For any need, please contact our official service network.

- When making a request for technical assistance relating to the machine, indicate the details shown on the i/d data plate, the approximate number of hours operation, and the nature of the defect.

00-1218 - © Copyright Antonio Carraro

01.3. ACCOMPANYING DOCUMENTATION

Customers receive the following documentation along with this manual.

- Operation and service manual for the engine
- Certificate of warranty

01.4. TERMS AND DEFINITIONS

The list shows some terms and definitions, with a brief explanation of the meaning to facilitate understanding when reading.

Terms

- **ACTIO™ (Antonio Carraro Integral Oscillating Frame)**: the code identifies the solid cast-iron chassis fixed to the axles and housing the tractor transmission, with longitudinal oscillation of up to 15°.
- **RSG™ (Rev-Guide System)**: the code identifies the reversible driving system on a rotating turret, which allows inversion of the direction of driving.
- **CATEGORY 1 (cab)**: the code identifies that the cab DOES NOT have specific protection for the driver when spraying dangerous substances.
- **CATEGORY 4 (cab)**: the code identifies that the cab protects the driver against dusts, aerosols and vapours.
- **PPE (Personal Protective Equipment)**: must be worn by the operators, depending on the type of risk, to protect their safety during work.
- **EGR (Engine Gas Recirculation):** the code identifies the valve of the engine exhaust gas recirculation system.
- **DPF (Diesel Particulate Filter)**: the code identifies the filter for reducing the polluting emissions caused by fine dust.
- **FOPS (Falling Objects Protective Structure):** the code identifies the structure that protects the driver from the risk of objects falling from above.
- **OPS (Operator Protective Structure):** the code identifies the structure that protects the driver from the risk of side penetration by objects.
- **ROPS (Roll Over Protective Structure):** the code indicates that the protective arch and the chassis/cab structures are approved and reduce the risks of injury to the driver in the event of tipping.

00-1218 - © Copyright Antonio Carraro

- **ITAC (Intelligent Tractor Antonio Carraro)**: the code identifies the operative system that manages all the machine functions.
- **TMC System (Tractor Management Control)**: the code identifies the operative system that automatically manages multiple working activities of the machine.
- **SIM (Shift In Motion)**: the code identifies the technology that manages range shift with the machine in motion.
- **SIS (Shift In Standstill)**: the code identifies the technology that manages range shift with the machine at a standstill.

  › ***PTO (Power Take Off)****: the code identifies the power take-off.*
  › ***D.E.****: the code identifies the double-acting hydraulic couplings.*
  › ***S.E.****: the code identifies the single-acting hydraulic couplings.*

Definitions

- Some definitions are written in simplified form (e.g. 'machine stopped in safe condition') without repeating the full explanation to avoid excessive redundancies.

Machine stopped in safe conditions

This state foresees the listed conditions to be carried out in the indicated order.
- Position the machine on to a stable and flat surface.
- Engage the reverser lever in the 'forward gear' or 'reverse gear' position. (if present)
- Place the gear lever in 'first gear' position.
- Engage the parking brake of the tractor.
- Deactivate the PTO of the tractor.
- a) With equipment carried: lower the power lift unit until it rests on the ground.
- b) With equipment towed: engage the parking brake of the equipment.
- Switch off the engine and remove the ignition key.
- Place the safety wedges below the wheels to improve stopping conditions.

00-1218 - © Copyright Antonio Carraro

Machine stopped and on in safe condition

This state foresees the listed conditions to be carried out in the indicated order.
- Position the machine on to a stable and flat surface.
- Bring the reverser lever to the 'neutral gear' position. (if present)
- Bring the gear lever to the 'neutral gear' position.
- Engage the parking brake of the tractor.
- Deactivate the PTO of the tractor.
- a) With equipment carried: lower the power lift unit until it rests on the ground.
- b) With equipment towed: engage the parking brake of the equipment.
  Place the safety wedges below the wheels if operating conditions so require.

Machine operation

The definition indicates 'all intended uses where man-machine interaction happens'.
The man-machine interaction includes, for example, transport, driving, use, routine maintenance, etc.

"Cab" machine version

The definition indicates 'driver's seat equipped with closed cab'. May also be with air conditioning system.

"Chassis" machine version

The definition indicates 'driver's seat equipped with cab without doors and lateral windows'.

Routine maintenance

The definition indicates 'the set of service operations that must be performed in order to keep the machine functional and fully effective'.
The routine maintenance is normally scheduled by the manufacturer, who states the intervals and the necessary instructions.

Expert maintenance mechanic

The definition indicates 'a person who has received the necessary qualifications and instructions to perform interventions without risks and is authorised to do so'.

00-1218 - © Copyright Antonio Carraro

Extraordinary maintenance

The definition indicates 'the set of service operations that must be performed in order to keep the machine functional and fully effective'.
The extraordinary maintenance is not described in the 'use and maintenance' manual and must be executed by the service engineer.

Authorised workshop

The definition indicates 'structure selected and authorised by the machine manufacturer to perform routine and extraordinary maintenance'.

Residual risk

The definition indicates 'all residue risks despite all safety solutions have been used and integrated during designing'.

Operator

The definition indicates 'staff with recognised capacities able to interact during the different working phases of the machine'.

Transporter

The definition indicates 'staff with recognised capacities in charge of loading and unloading the machine onto transport means'.

Incorrect use

The definition indicates 'different use of machine to that indicated in the user manual, that may derive from easily predictable human behaviour'.

Danger area

The definition indicates 'any area in and/or near a machine in which the presence of a person constitutes a risk for his health and safety'.

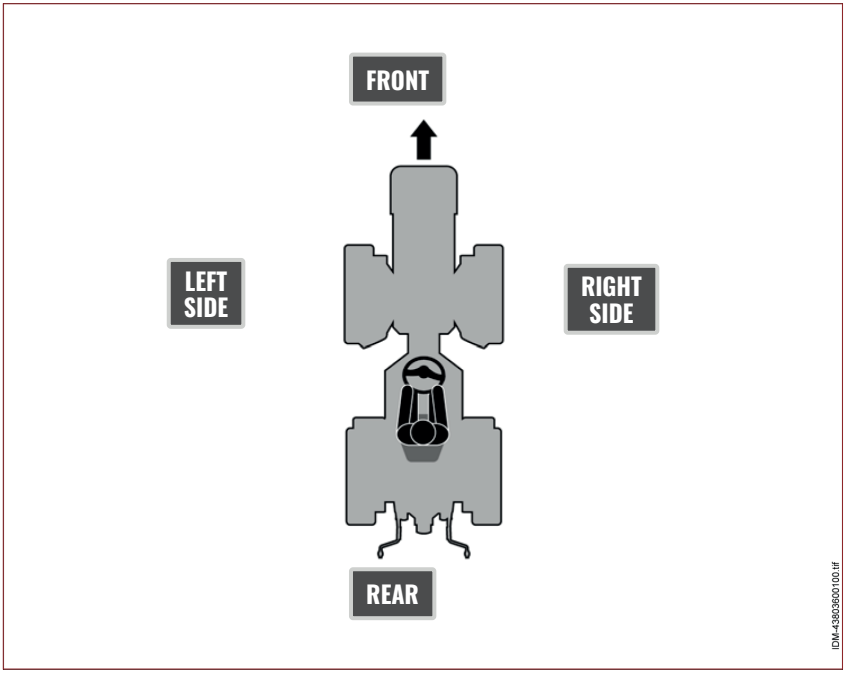
Driver

The definition indicates 'staff with recognised capacities able to drive the machine during the different working phases'.

C143803606_en

00-1218 - © Copyright Antonio Carraro

- The illustration carries the directional preferences used in the manual.



00-1218 - © Copyright Antonio Carraro

02
SAFETY INFORMATION

02.1. INTRODUCTION TO SAFETY WARNINGS

The "Safety information" section contains the warnings to make the addressees (driver and operator) interacting with the machine pay particular attention.

- The information recalls attention on the behaviours to have, in order to minimise risks during man-machine interaction.
- The list shows the safety warnings divided according to operational activity.
- **General safety warnings**
- **Safety warnings for the employer**
- **Safety warnings for handling and transport**
- **Safety warnings for the driver**
- **Safety warnings regarding circulation on roads**
- **Safety warnings before use**
- **Safety warnings for hitching and disconnection of tools (carried or towed)**
- **Safety warnings during use**
- **Safety warnings during use on sloping or uneven terrains**
- **Safety warnings regarding use with tools (carried or towed)**

00-1218 - © Copyright Antonio Carraro

- **Warnings for use with spraying tools**
- **Safety warnings regarding use in forestry**
- **Safety warnings regarding use with ballasts installed**
- **Safety instructions for proper tyre maintenance**
- **Safety warnings at end of use**
- **Safety warnings for adjustments and maintenance**
- **Safety warnings regarding environmental impact**
- **Warnings on residual risks**
- Also reported in the safety warnings are the INCORRECT USES associated with the relative operational activity.

IMPORTANT_The safety warnings are also repeated in view of operational phases, to emphasise the necessary caution and behaviours the operators must have.

00-1218 - © Copyright Antonio Carraro

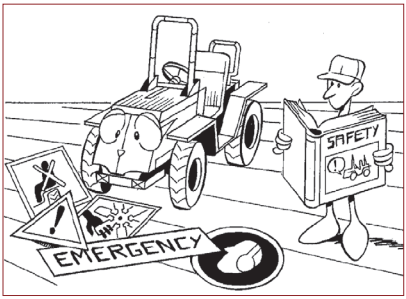
02.2. GENERAL SAFETY WARNINGS

The general safety warnings indicate some principles to be respected during man-machine interaction, to prevent and minimise risks over the entire envisaged life span.
Accidents (often serious) involving the use of farming implements and machines depend on many factors.
One factor that may affect safety is often the environmental condition when working, where it is not always possible to foresee all risks.
Other factors that may determine risks during man-machine interaction, are the poor attention, behaviour and incompetence of the operators.



- As well as complying with the laws in force, during designing the manufacturer has adopted all correct manufacturing techniques.
- The Evaluation of Risks has been carried out to identify the limits of use, the dangers and estimate risk to protect personal safety.
- It has arisen from the Evaluation of Risks that the machine has been equipped with all devices that make safety intrinsic.
- The incorrect or 'negligent' use of the machine by the driver can cause accidents (even fatal) despite the adopted safety solutions.
- Use the machine ONLY with original safety devices installed by the manufacturer.
- The tampering and avoidance of the safety devices can cause risks (even fatal) for the operators.
- Caution is always necessary. Safety is also in the hands of the operators working the tractor throughout its life span.
- It is always too late to remember what should have been done when it has already occurred.

00-1218 - © Copyright Antonio Carraro



- Carefully read the 'User instructions' in this manual and those directly applied on the machine.
- It is important to read the 'User instructions' to minimise risks and avoid dangerous accidents.
- The driver must ensure he has understood the 'User instructions' before interacting with the machine.
- Carefully read the SAFETY WARNINGS in the 'User instructions' and those directly applied on the machine.
- Ensure the information signals are legible and respect the reported indications.
- The information signals can be of different shapes and colours, to signal dangers, obligations, prohibitions and indications.
- **Failure to observe the information provided can result in risks to the safety and health of persons and may cause financial damage.**

02.3. SAFETY WARNINGS FOR THE EMPLOYER

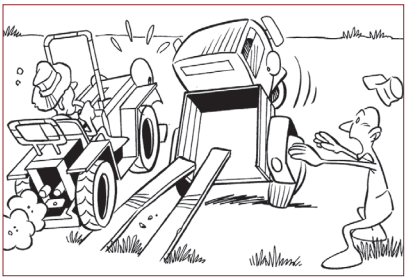
- Entrust driving of the machine ONLY to operators who are competent and experienced in using farming machines or similar sectors.
- Foresee a training plan for operators that may not have the necessary skills for using the machine.
- Inform the operators on the reasonably predictable INCORRECT USES and on the RESIDUAL RISKS.
- The operator must be able to read and understand the user manual and recognise the safety signals.
- The operator must prove to have the adequate competences and be in adequate conditions to carry out the activities safely.
- The employer should document the training attended by the operators, so that it can be produced in the event of a dispute.
- To avoid inadequate safety conditions DO NOT entrust unsuitable operators with driving the machine.
- **Failure to observe the information provided can result in risks to the safety and health of persons and may cause financial damage.**

00-1218 - © Copyright Antonio Carraro

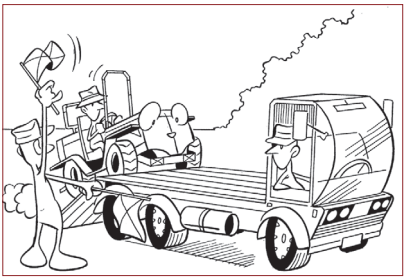
02.4. SAFETY WARNINGS FOR HANDLING AND TRANSPORT

The safety warnings indicate some principles that the staff (driver and operators) should respect when handling and transporting the machine.

- The machine can be transported directly with the driver in the driver's seat, or with the machine loaded onto a vehicle.
- Carry out loading, unloading and transfer following the information reported directly on the machine and in the 'User instructions'.



- Staff in charge of loading and unloading onto a vehicle to transfer the machine must be competent and skilful and work cautiously.
- ONLY use suitable ramps or other systems able to ensure safe conditions during loading and unloading from the vehicle.
- ONLY use the relevant bar (correctly hooked to the hitching points of the machine) when the towed machine must be loaded/ unloaded.



- An assistant may be used (situated at a safe distance) to signal the manoeuvres during loading and unloading of the machine onto the vehicle.
- ALWAYS deactivate the PTO of the machine before loading it onto the vehicle.
- Disconnect the interchangeable equipment from the machine in the event of health risks during loading and unloading onto the vehicle.
- Ensure the machine and its components are safely anchored to the vehicle.
- Verify and arrange the opportune signals, if the shape of the machine exceeds the admitted clearance for road circulation.
- Perform transport using suitable means with adequate capacity.
- On reception, check the integrity of the machine and components. In the event of damage or lack of parts, contact the manufacturer or local authorised dealer to agree on the procedure to be followed.

- **Failure to observe the information provided can result in risks to the safety and health of persons and may cause financial damage.**

02.4.1. Incorrect uses

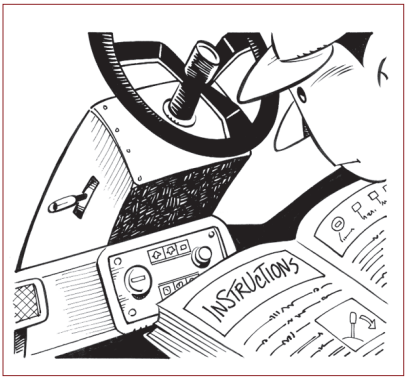
- **The listed prohibitions represent the most common incorrect uses. Non compliance can entail risks for personal health and safety.**
- DO NOT lift the machine using lifting devices with a hook (crane) or forks (lifting truck).

00-1218 - © Copyright Antonio Carraro

00-1218 - © Copyright Antonio Carraro

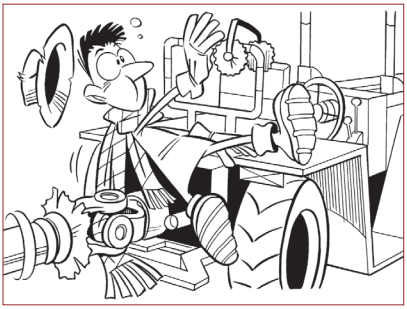
02.5. SAFETY WARNINGS FOR THE DRIVER

The safety warnings highlight the attention and behaviour that the driver of the machine should adopt, in order to interact in safe conditions.
Accidents (often serious) involving the use of farming implements and machines depend on many factors.
One factor that may affect safety is often the environmental condition when working, where it is not always possible to foresee all risks.
Other factors that may determine risks during man-machine interaction, are the poor attention, behaviour and incompetence of the operators.



- ONLY use the machine after having read the manual, having identified the control functions and having simulated some manoeuvres, particularly start and stop.
- Drive the machine ONLY if experienced in using farming machines or similar sectors.
- The machine must ONLY be used by persons having the requirements requested by the legislations in force in the country of use.
- Learn the functions of all controls to correctly and naturally manoeuvre the machine.
- Drive the machine carefully and responsibly, and try to perceive potential risks that may exist.
- The machine must ONLY be driven in suitable psycho-physical conditions and having suitable skills to perform the activities requested.
- Pay attention when driving and avoid being distracted (use of communication devices, drinking and eating etc.).
- ONLY use the machine for the uses and with methods intended by the manufacturer.
- The driver's seat must ONLY be occupied by the driver.
- ONLY wear conforming clothing and shoes, to be able to correctly activate the controls and not become entangled in moving parts.

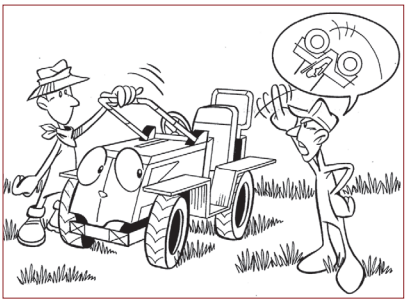
- Use the PPE indicated in the 'User instructions' and those envisaged by the laws in force at work.
- Always keep the first-aid kit at hand in the driver's seat (without being an obstruction) and keep it filled.
- **Failure to observe the information provided can result in risks to the safety and health of persons and may cause financial damage.**



00-1218 - © Copyright Antonio Carraro

02.5.1. Incorrect uses

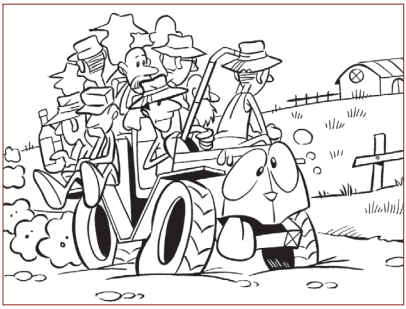
- **The listed prohibitions represent the most common incorrect uses. Non compliance can entail risks for personal health and safety.**
- Do NOT drive the machine 'recklessly'.
- DO NOT use the machine under the influence of substances or medicines altering reflexes during driving.
- DO NOT use the machine if you do not know the function of the controls and how to perform manoeuvres naturally, correctly and without risks.
- DO NOT tamper with, exclude, eliminate or by-pass the safety devices installed on the machine.
- NEVER let inadequately trained, documented and authorised operators use the machine.
- NEVER let operators unable to read and understand the 'User instructions' and recognise the safety signals use the machine.



- DO NOT carry out different activities (e.g. answer communication devices) that may distract your attention when using and driving the machine.

00-1218 - © Copyright Antonio Carraro

- DO NOT transport persons, pets or any object in the driver's seat, in other parts of the machine or on the hitched tools.
- DO NOT wear clothing that may become entangled in moving parts or accidentally activate the controls.
- DO NOT use unsuitable shoes (bare feet, slippers, etc.) that may obstruct or prevent correctly activating the controls.



02.6. SAFETY WARNINGS REGARDING CIRCULATION ON ROADS

The safety warnings indicate some principles that the driver should observe, as well as respecting the highway code, to prevent accidents when driving on the road.

- ONLY circulate on public roads with the machine configured as envisaged upon approval.
- Before taking the machine on the road for whatever purpose, activate all the required safety devices, and those designed to ensure proper braking and road-holding. Secure any parts that could cause sudden shifting movements.
- The machine equipped with oscillating tow bar is not approved for travelling on public roads.
- Before circulating on public roads, check the effectiveness of the signal and lighting devices of the machine, the pressure and wear of tyres.
- Adjust the drive during road circulation (town or out of town roads) to the traffic and route conditions.
- Moderate speed during road circulation with hitched tools (carried or towed).
- Consider that hitched tools modify the distribution of weights, alter stability and reduce braking efficiency.
- ONLY drive the machine on public roads with the driver's seat in the normal position and not in reverse position.
- ONLY use the accelerator with pedal control (with hand lever in 'minimum' position) when circulating on public roads.
- Travel on public roads ONLY with the lifting device locked in high position.
- When there are overhead power lines and/or underpasses, make sure that the clearance above the machine's maximum height is sufficient to avoid hazardous contact.

00-1218 - © Copyright Antonio Carraro

- When driving on flat ground, it is recommended to disconnect the front-wheel drive during road circulation to avoid unnecessary wear of tyres and to improve manoeuvring of the tractor.
- In downhill routes, especially with hitched interchangeable tools, the front wheel drive MUST be engaged to achieve a greater braking action.
- Before taking the machine on the road, ALWAYS ensure that the brake pedals are in 'latched' position to avoid dangerous skidding when braking.
- Consult your vehicle registration document, when changing tyres, so as to identify which tyres can be fitted according to the type approval.
- **Failure to observe the information provided can result in risks to the safety and health of persons and may cause financial damage.**

02.6.1. Incorrect uses

- **The listed prohibitions represent the most common incorrect uses. Non compliance can entail risks for personal health and safety.**
- DO NOT use the machine equipped with tyres ballasted with liquids during road circulation.
- DO NOT use the machine with the driver's seat turned in reverse position during road circulation.
- DO NOT use the machine configured differently from that envisioned upon approval during road circulation.
- DO NOT travel on public roads with towed equipment if the machine is equipped with oscillating tow bar, since it is not approved for that.
- DO NOT use the accelerator control lever during road circulation.
- DO NOT use the brake pedals in 'independent' position during road circulation.

02.7. SAFETY WARNINGS BEFORE USE

The safety warnings indicate some principles that the staff (driver and operators) should respect during man-machine interaction.

- For operator safety, ALWAYS evaluate the dangers associated with use, to establish whether the machine is adequately equipped.
- The dangers to be considered are risk of overturning, the falling of objects and/or materials from a height, the risk of inhaling spray plant protection products, etc.
- Clean the machine to better identify any defects and breaks.

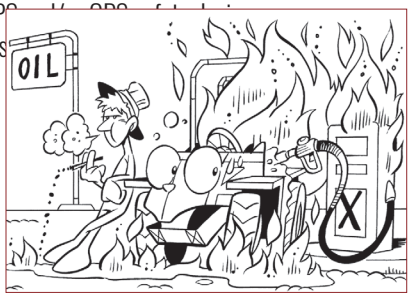
00-1218 - © Copyright Antonio Carraro

- For correct operation, visually check the machine is in good state, without fluid leaking and without loose components.
- ONLY use the machine if the scheduled maintenance interventions have been regularly carried out.
- Check the general conditions of the tyres (intact chassis, without damage, etc.) and that the track is not excessively worn.
- Check that the silencer is in efficient conditions for the good operation of the engine and to limit acoustic pollution.
- ALWAYS keep the ascent platforms and control pedals clean and free from mud and/or debris.
- Check that the driver's seat is clear from objects so as not to obstruct the activating of the controls.
- Check the position of the seat, of the wheel and the rearview mirrors to assure correct ergonomics and visibility from the driver's seat.
- Orientate the driver's seat (normal or turned into the reverse position) depending on the travel direction necessary for the activity to be carried out.
- Turn the driver's seat ONLY with machine not steered and stopped in safe conditions.
- After having turned the driver's seat, always check that the control devices function correctly.
- Check that all guards, protection and safety devices installed (sensors, safety arch, safety belts, etc.) are intact and efficient.
- Refill fuel in an open and aired space, with engine at ambient temperature and machine stopped in safe conditions.
- When there are overhead power lines and/or underpasses, make sure that the clearance above the machine's maximum height is sufficient to avoid hazardous contact.
- Refuel the machine without completely filling the tank in order to avoid fuel leaking (it expands if temperature rises).
- Fuel leaks or spillage on hot surfaces and on electrical components can cause fires.
- ALWAYS make sure that the safety arch is blocked correctly in the lifted position and fasten safety belts, to reduce risks in case of overturning.
- It is possible to lower the safety arch ONLY to move the tractor temporarily in areas without RISK of overturning and for short distances.
- When the safety arch is lowered, the driver MUST NOT fasten the safety belts and, as he is not protected in case of overturning, he must manoeuvre the tractor with the utmost caution.

- Keep cab windows clean (inside and outside) to assure maximum visibility. If fogged, activate the relative controls.
- Before doing work where there is a risk of falling objects, make sure that your protective structure is certified as a FOPS and/or OPS safety device.
  See cab approval plate *(→ p. 53)*, then consult the respective paragraph. *(→ p. 39)*
- The machine equipped with pressurised cab and active charcoal filters allows hitching tools to spray plant protection products with lower risk of inhaling.
- ALWAYS wear the PPE to spray plant protection products to minimise the risk of inhaling, even if the cab is pressurised and with active charcoal filters.
- **Failure to observe the information provided can result in risks to the safety and health of persons and may cause financial damage.**

02.7.1. Incorrect uses

- **The listed prohibitions represent the most common incorrect uses. Non compliance can entail risks for personal health and safety.**
- DO NOT use the machine if the scheduled maintenance interval has expired.
- DO NOT use the machine if the tyres are not in good condition or have technical and dimensional features different from those envisioned by the manufacturer.
- DO NOT use the tractor with ballasts installed and tools disconnected, to avoid risk of instability.
- DO NOT use the machine with safety arch lifted, without having fastened the safety belts.
- Unless absolutely necessary and temporarily, DO NOT use the machine with the safety arch lowered.
- DO NOT fasten the safety belts if it is necessary to temporarily, and for short distances, move the machine with the safety arch lowered.
- DO NOT spray plant protection products without wearing the PPE, even if the cab is pressurised and with active charcoal filters.
- DO NOT do work where there is a risk of falling objects if your protective structure is not certified as a FOP
  See cab approval plate *(→ p. 53)*, then cons



- DO NOT smoke while filling up with fuel and DO NOT fill the machine in potentially dangerous environments (risk of fire and/or explosion).

00-1218 - © Copyright Antonio Carraro

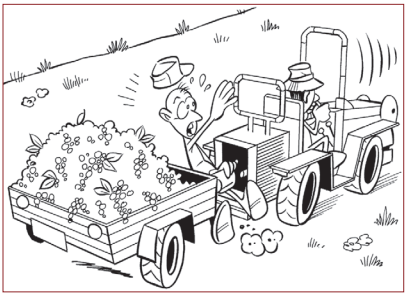
00-1218 - © Copyright Antonio Carraro

- DO NOT hitch towed tools unless compatible with the machine (power, effort at the tow hook, number of PTO revs, braking system, etc.).
- DO NOT use the machine with the safety devices not perfectly installed and effective.

02.8. SAFETY WARNINGS FOR HITCHING AND DISCONNECTION OF TOOLS (CARRIED OR TOWED)

The safety warnings indicate some principles that the staff (driver and operators) should respect during man-machine interaction.

- Do not allow persons not involved in the hitching and disconnection of the interchangeable tools to approach the operational area.
- Based on the work to be carried out, evaluate the most suitable tools to be hitched (carried or towed), to prevent dangers and minimise the risks.
- Refer to the 'User instructions' of the tool to be hitched to understand the operating methods and risks associated with its use.
- Apply the specific formula (indicated by the machine manufacturer) to calculate the compatibility of the carried tool to be hitched.
- ONLY hitch carried tools conforming with the values obtained with the specific formula to maintain the machine stable.
- Anyone who plans to combine equipment NOT MANUFACTURED by the machine manufacturer must identify the risks in the machine-equipment matching and take responsibility to eliminate them.
- The machine manufacturer has evaluated and eliminated ONLY the risks of the machine with no equipment or combined with equipment manufactured by it (only for combinations specified by the manufacturer).
- Correctly install the necessary ballasts (calculated with specific formula), to ensure stability and correct adherence of the machine.
- Carry out all hitching and disconnection operations of the tools (carried or towed) ALWAYS with machine stopped in safe conditions.
- Correctly hitch the carried tools to the power lift unit to avoid accidental disconnection.
- Check that the carried tools are correctly fastened and that the power lift unit does not oscillate to avoid accidental disconnection.



- ONLY hitch the towed tools to the tow hook and NOT to the machine's trailer hook.
- The towed tools must be compatible with the machine features (power, effort at the tow hook, admitted towable weight, number of PTO revs, braking system, etc.)

00-1218 - © Copyright Antonio Carraro

00-1218 - © Copyright Antonio Carraro

- Verify that the number of PTO revolutions of the tool is compatible with that of the machine.
- ALWAYS select, using the relative machine control, the requested number of revolutions for the correct operation of the tools.
- Check that all safety protections of the cardan shaft are integral and efficient and respect the relative 'User instructions'.
- The incorrect installation of the cardan shaft and inefficiency of the safety protections can cause accidents (even fatal).
- Connect the cardan shaft first to the tool PTO (carried or towed) and then to that of the machine.
- Respect the connection sequence of the cardan shaft, to avoid fatal whiplash if the machine's PTO accidentally starts.
- ALWAYS correctly connect the safety chains to prevent the rotation of the cardan shaft protections.
- Verify that the cardan shaft (in particular upon first machine-tool coupling) has a suitable length so as not to 'stop dead' or 'slip out' during use.
- Clean and check integrity of the quick couplings and the couplings, before hydraulically connecting the tool to the machine.
- In the tool disconnection phase, insert the relative plugs to protect the hydraulic couplings and put away the pipes correctly to avoid damaging them.
- The machine can tow equipment without brakes (trailers, tankers, etc.) or with an inertia braking system or an independent mechanical system.
- The brake control with the independent mechanical system is operated via the lever to be placed in the holder on the machine. *(→ p. 58)*
- The towed equipment that can be attached to the machine must have a maximum weight that falls within the limits indicated by the manufacturer. *(→ p. 269)*
- Adjust the tow hook so that the drawbar of the towed tools is correctly positioned to avoid altering the vertical and drive effort.
- Insert the retainer devices (plugs, cotter pins, etc.) to avoid accidental disconnections and make correct electric and hydraulic tools connections.
- Use different coloured quick couplings to connect the hydraulic system of tools hitched to the machine, at front and rear of the machine (carried or towed).
- **Failure to observe the information provided can result in risks to the safety and health of persons and may cause financial damage.**

00-1218 - © Copyright Antonio Carraro

02.8.1. Incorrect uses

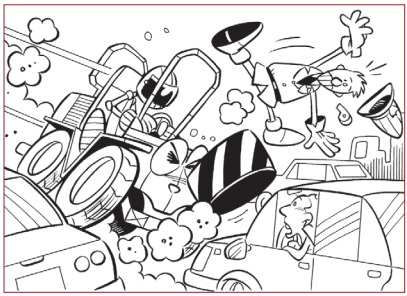
- **The listed prohibitions represent the most common incorrect uses. Non compliance can entail risks for personal health and safety.**
- DO NOT use the front tow hook to tow interchangeable tools or to perform other non-pertinent activities.
- DO NOT hitch tools (carried or towed) if not compatible with the technical features of the machine.
- DO NOT hitch the front loader to the machine, if not equipped by the manufacturer with hitching points for these tools.
- DO NOT hitch tools (carried or towed) if not equipped with all safety devices correctly installed and efficient.
- DO NOT hitch the tools to the machine if the information in the relative manuals is not thorough, to avoid unforeseen residual risks.
- DO NOT use the tools (carried or towed) if the cardan shaft is not correctly connected and the safety protections are not intact.
- DO NOT connect and disconnect the tools and connect the power supply, if the machine is not stopped in safe conditions.
- DO NOT use same coloured quick couplings to connect the hydraulic system of tools hitched to the machine, at front and rear of the machine (carried or towed).
- NEVER use the emergency hook (front) to tow any interchangeable tool.

00-1218 - © Copyright Antonio Carraro

02.9. SAFETY WARNINGS DURING USE

The safety warnings indicate some principles that the staff (driver and operators) should respect during man-machine interaction.

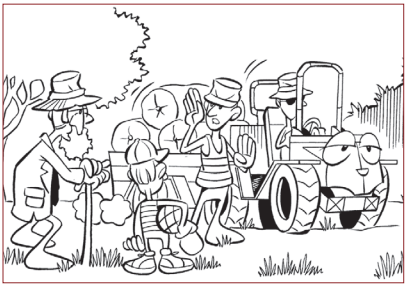
- ONLY use the machine in compliance with the laws disciplining the work and, in case of circulation on public roads, those requested by the highway code.
- Climb into and out of the driver's seat ONLY using the foreseen points and the appropriate platforms and handrail to avoid risk of falling.
- Before starting the engine, check that all controls are in neutral to prevent uncontrolled and dangerous start-ups.
- ONLY start the engine when sitting in the driver's seat and fasten the safety belts during working activity.
- Pre-heat the engine suitably (ticking over) using the accelerator control lever, before starting work activities.
- It is recommended to pre-heat the engine, in particular during running in and in the event of low temperatures.
- Use the accelerator control lever ONLY when starting and/or to run the engine at a constant speed during the work phases.
- Immediately stop the machine and switch the engine off if anomalies, noises and/or suspect vibrations are detected during use.
- Re-start the machine ONLY after having restored the normal use conditions.
- Moderate engine rpm to avoid disturbing when using the machine in built-up areas.
- Verify that, with the machine equipped with tools, the view from the driver's seat is sufficient to note the presence of persons or other dangers.
- Check that the work area has suitable manoeuvring space and ideal environmental conditions.



- ONLY use the machine at night with lighting devices perfectly intact and efficient.

00-1218 - © Copyright Antonio Carraro

- Immediately stop the machine if there are unauthorised persons (children, elderly people, animals, etc.) within the action range.
- ONLY climb on, descend and/or leave the driver's seat with the tractor stopped in safe conditions.
- Activate the lighting devices when in poor visibility conditions and adjust driving to the environmental conditions.



- **Failure to observe the information provided can result in risks to the safety and health of persons and may cause financial damage.**

02.9.1. Incorrect uses

- **The listed prohibitions represent the most common incorrect uses. Non compliance can entail risks for personal health and safety.**
- DO NOT access the driver's seat from points different to those envisioned and indicated by the manufacturer in the 'User instructions'.
- DO NOT use the machine without having pre-heated the engine at adequate rev, in particular during running in or in the event of low temperatures.
- DO NOT continue using the machine if anomalies, noise or suspect vibrations are encountered.
- DO NOT continue using the machine if, from the driver's seat, the action range is not clearly visible and if there are persons and/or animals present.
- DO NOT climb on or off the machine if it is not stopped in safe conditions.
- Never leave the engine running in closed or inadequately ventilated environments. Exhaust fumes are potentially dangerous to health.
- DO NOT work at night unless all lighting devices on the machine and on the tools are perfectly intact and efficient.
- DO NOT work with risk of dangerous substances being emitted without wearing the PPE, even if the cab is pressurised and with active charcoal filters.

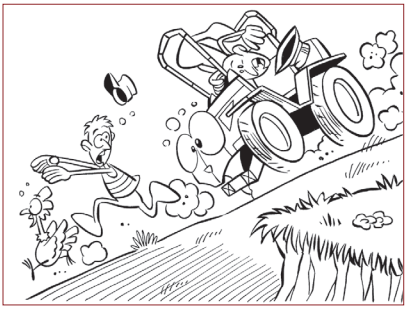


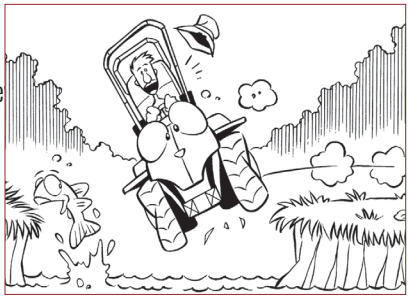
00-1218 - © Copyright Antonio Carraro

02.10. SAFETY WARNINGS DURING USE ON SLOPING OR UNEVEN TERRAINS

The driver must drive the machine appropriately and ALWAYS proceed with caution, especially in conditions entailing the risk of overturning.
It is difficult to formulate a complete list of all the conditions linked to behavioural and environmental factors which can cause the risk of overturning.
Compliance with the listed warnings can decrease but NOT completely eliminate the risk of overturning.

- ALWAYS adapt the advancement speed of the machine to the conditions of the ground and always proceed with great care.
- Pay attention to the risk of overturning when using the front loader or the three-point hitch to lift loads that can alter the machine's center of gravity.
- Pay attention to risk of overturning when working on sloping terrains, in particular with machine equipped with tools and ballasts.
- Avoid any type of obstacle which can endanger stability with the risk of the machine overturning, especially on steep terrains (ditches, holes, soft ground, etc.).
- Activate the four-wheel drive to improve holding on the ground in critical conditions (uneven, soft, with excessive gradient, etc.).
- Drive safely, with four-wheel drive engaged, to reduce the risk of the machine overturning.
- Insert a low transmission ratio before facing steep descents (to make use of the engine brake) and steep ascents (to have good traction).
- Be careful when the machine is in conditions in which it can easily tip up (such as coming out of the ditch) to avoid the risk of tipping over backwards.
- The risk of overturning increases suddenly and uncontrollably when driving too fast or if the machine is configured with
- Be careful when working on soft ground (e (heavy rains, flooded fields, etc.)
- Pay maximum attention when operating near to ditches, slopes, channels etc. as the ground is less compact and could slide.





- Maintain control of the machine, stay in the driver's seat and avoid instinctive and unreasonable gestures in case of risk of overturning.
- In case of overturning, hold tightly onto the steering wheel and at the same time, lean towards the opposite side, pressing feet onto the footboard and back into the seat.
- Identify the escape routes (indicated in the manual) to react in case of overturning with machine equipped with cab.
- **Failure to observe the information provided can result in risks to the safety and health of persons and may cause financial damage.**

02.10.1. Incorrect uses

- **The listed prohibitions represent the most common incorrect uses. Non compliance can entail risks for personal health and safety.**
- DO NOT perform sudden steering actions at high speed, in order to prevent the loss of stability of the machine and the risk of overturning.
- NEVER change gear during descent on steep ground, in order to prevent the gear not being inserted correctly (gear in neutral).

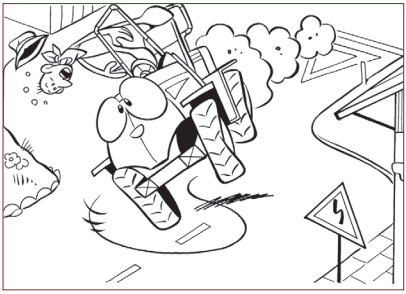
00-1218 - © Copyright Antonio Carraro

00-1218 - © Copyright Antonio Carraro

02.11. SAFETY WARNINGS REGARDING USE WITH TOOLS (CARRIED OR TOWED)

The safety warnings indicate some principles that the staff (driver and operators) should respect during man-machine interaction.

- Pair the machine with interchangeable equipment ONLY after having assessed the compatibility of the technical and operational characteristics of both.
- Combining the machine with interchangeable equipment reduces stability and increases the risk of overturning.
- Pair ONLY equipment that is compatible with the machine's technical and operational characteristics.
- Drive the machine properly and with caution, particularly when it is equipped with tall, heavy interchangeable equipment.
- To maintain stability and reduce the risk of overturning, proceed at low speed, avoid suddenly steering or reversing.
- The risk of instability and overturning increases on steep terrain or steep slopes.
- ONLY activate PTO with tools (carried or towed) in work position.
- Lift the carried tool and block it suitably during circulation on roads, so as to prevent uncontrolled and unexpected movements.
- Travel on public roads ONLY with the lifting device locked in high position.
- ONLY transfer the machine with carried tools in lifted position and activate the safety devices to hold the position.



- Moderate speed during road circulation with hitched tools (carried or towed).
- Drive cautiously to limit the risk of instability if tools (carried or towed) are hitched to the machine.
- Consider that hitched tools modify the distribution of weights, alter stability and reduce braking efficiency.
- Drive cautiously during use of hitched tools (carried or towed) envisioning the presence of other operators, to protect their safety.
- Provide information on the behaviour and methods to be respected for safety purposes, when the use of tools (hitched to machine) envisages the presence of operators.

- Adopt suitable measures to prevent dangerous movements, if the machine is equipped with tools that work in static mode (saw, woodcutter, etc.).
- Take appropriate measures in the event of falling and/or lateral penetration of material during operation.
- Before doing work where there is a risk of falling objects, make sure that your protective structure is certified as a FOPS and/or OPS safety device.
  See cab approval plate *(→ p. 53)*, then consult the respective paragraph. *(→ p. 39)*
- **Failure to observe the information provided can result in risks to the safety and health of persons and may cause financial damage.**

02.11.1. Incorrect uses

- **The listed prohibitions represent the most common incorrect uses. Non compliance can entail risks for personal health and safety.**
- DO NOT hitch interchangeable tools to the machine (carried or towed) with technical and operational features that are not compatible with those supplied by the machine (power, mass, effort at the tow hook, category, number of PTO revs, etc.).
- DO NOT perform sudden braking or manoeuvres but adjust speed if the machine is equipped with tools (carried or towed).
- DO NOT activate the PTO of tools (carried or towed) hitched to the machine when they are not in work position or during road circulation.

00-1218 - © Copyright Antonio Carraro

00-1218 - © Copyright Antonio Carraro

02.12. WARNINGS FOR USE WITH SPRAYING TOOLS

The safety warnings indicate some principles that the staff (driver and operators) should respect during man-machine interaction.

- Refer to the 'User instructions' of the tool to be hitched to understand the operating methods and risks associated with its use.
- The driver's seat, even if equipped with CATEGORY 1 cab, does not protect the driver against dangerous substances.
- Refer to the instructions on the plant protection products to be used, to evaluate the type of PPE to wear as protection against inhalation and contact.
- Comply with the information on the plant protection products (in particular those relating to safety), and arrange adequate preventive measures.
- Interrupt spraying if there are persons within the action range, exposed to risk of inhaling the plant protection products.
- Always keep the doors and windows closed during spraying to avoid inhaling plant protection products.
- After spraying, wash the tools and also the machine (if necessary) to eliminate plant protection product residues deposited on the surfaces.
- Carry out washing in a suitable place to avoid dispersing the washing residue in the environment.
- Park the machine with spraying tools in a non-accessible place, to avoid unauthorized persons coming into contact with the plant protection products.
- Accurately clean the PPE used during spraying and deposit them in a suitable place to maintain them efficient and functioning.
- **Failure to observe the information provided can result in risks to the safety and health of persons and may cause financial damage.**

02.12.1. Incorrect uses

- The listed prohibitions represent the most common incorrect uses. Non compliance can entail risks for personal health and safety.
- DO NOT spray plant protection products without wearing the PPE, even if the cab is pressurised and with active charcoal filters.

00-1218 - © Copyright Antonio Carraro

02.13. SAFETY WARNINGS REGARDING USE IN FORESTRY (STRUCTURE NOT CERTIFIED FOPS AND/OR OPS)

The safety warnings indicate some principles that the staff (driver and operators) should respect during man-machine interaction.

- The list gives the most common risks when using the machine in forestry.
  - › *Risk of trees, logs or other material falling from a height into the area reserved to the driver.*
  - › *Risk of side penetration of trees, logs or other material into the area reserved to the driver.*
- Carry out forestry work ONLY with the machine at a standstill, with tool hitched and driven by the PTO.
- Take appropriate measures in the event of falling and/or lateral penetration of material during operation.
- The driver protection structure IS NOT CERTIFIED as a FOPS and OPS safety device.
- The machine has no points for fitting FOPS and OPS protective devices and no attachment points for fitting front loaders.
- **Failure to observe the information provided can result in risks to the safety and health of persons and may cause financial damage.**

02.13.1. Incorrect uses

- The listed prohibitions represent the most common incorrect uses. Non compliance can entail risks for personal health and safety.
- DO NO use the machine in forestry, even equipped with a cab, if there is the risk of falling and/or lateral penetration of material.

00-1218 - © Copyright Antonio Carraro

02.14. SAFETY WARNINGS REGARDING USE IN FORESTRY (FOPS CERTIFIED STRUCTURE)

The safety warnings indicate some principles that the staff (driver and operators) should respect during man-machine interaction.

- The driver protection structure IS CERTIFIED as a FOPS agricultural safety device, code 10 OECD, and IS NOT CERTIFIED as an OPS safety device.
- Work with the risk of objects falling from a height is allowed ONLY in an **agricultural environment**, with applications that envisage the use of equipment of handling agricultural products.
- Use in **forestry** is allowed only for work of a stationary nature, or the transport and use of the power take-off for which there is NO risk of objects falling from a height.
- Any use in forestry not included in those above is NOT allowed.
- The use of the machine for purely forestry uses IS NOT ALLOWED since it involves the following risks:
  - › *Risk of trees, logs or other material falling from a height into the area reserved to the driver.*
  - › *Risk of side penetration of trees, logs or other material into the area reserved to the driver.*
- Where there is the risk of objects falling from a height and/or of side penetration of material, operator protections must be provided with a higher safety level.
- The machine does not have points for applying OPS protection devices.
- **Failure to observe the information provided can result in risks to the safety and health of persons and may cause financial damage.**

02.14.1. Incorrect uses

- The listed prohibitions represent the most common incorrect uses. Non compliance can entail risks for personal health and safety.
- DO NOT use the machine in forestry for applications other than those listed, even if equipped with a cab certified as a FOPS agricultural safety device, code 10 OECD.
- DO NOT use the machine (even with cab) with risk of side penetration of material, as IT IS NOT CERTIFIED as an OPS safety device.

02.15. SAFETY WARNINGS REGARDING USE WITH BALLASTS INSTALLED

The safety warnings indicate some principles that the staff (driver and operators) should respect during man-machine interaction.

- To correctly balance the machine, ONLY proportionally install the necessary amounts of ballasts.
- To keep the tractor balanced, install the same amount of ballasts on both sides.
- Have the machine ballasting carried out with the insertion of liquid in the tyres, ONLY by expert staff.
- During cold periods, to prevent the liquid inserted in the tyres freezing, insert specific antifreeze liquid.
- Apply the ballasts in the front part in order to maintain stability, when heavy and long interchangeable tools are hitched to the vehicle.
- ALWAYS remove the ballasts when disconnecting the carried tools in order to maintain machine stability unaltered.
- The tractor with ballasts installed, but without carried tools disconnected, becomes unstable,with premature wear of the tyres and consumption of more fuel.
- **Failure to observe the information provided can result in risks to the safety and health of persons and may cause financial damage.**

02.15.1. Incorrect uses

- **The listed prohibitions represent the most common incorrect uses. Non compliance can entail risks for personal health and safety.**
- DO NOT use the tractor with ballasts installed and tools disconnected, to avoid risk of instability.
- DO NOT use the tractor with the ballasts not suitably distributed depending on the type of interchangeable tool hitched and the conditions of the ground where the operations must be performed.
- DO NOT use the tractor equipped with the ballasts, if they are not necessary, so as not to jeopardise its performance and functionality.
- DO NOT overload the tractor with ballasts over the maximum weight allowed.

00-1218 - © Copyright Antonio Carraro

00-1218 - © Copyright Antonio Carraro

02.16. SAFETY INSTRUCTIONS FOR PROPER TYRE MAINTENANCE

The safety warnings indicate some principles that the staff (driver and operators) should respect during man-machine interaction.

- Changing and repairing tyres may entail risks, also in consideration of the overall weight of the machine.
- These jobs must be carried out by staff with recognized skills and knowledge, to operate properly and without risk.
- The staff must strictly comply with the instructions and the technical data of the manufacturer of the tyres and rims.
- The equipment needed to carry out this work must be compliant and be used by skilled personnel.
- Strictly observe the instructions for use provided by the manufacturer of the equipment.
- Have the work performed by tyre change and repair centres if you do not have the skills and equipment compliant with applicable laws.
- When changing tyres, make sure they are all properly seated on the rim.
- Incorrect tyre-rim pairing may involve risks (even serious ones) for people, due to a sudden, dangerous explosion.
- When the tyre is not properly seated, deflate it completely, lubricate the seat of the rim and inflate it to the correct pressure value.
- Observe the pressure values indicated in the instructions given by the tyre and rim manufacturer.
- Seating a tyre onto a rim at a higher pressure than is permissible can cause risks and jeopardize the job.
- Tyre pressure must be checked when the machine has NO additional weights and NO interchangeable equipment installed.
- Remove the tyres before doing any welding on the rims or flanges.
- The heat emitted by the welding system increases the pressure of the tyre with the risk of it suddenly and dangerously exploding.
- **Failure to observe the information provided can result in risks to the safety and health of persons and may cause financial damage.**

00-1218 - © Copyright Antonio Carraro

02.16.1. Incorrect uses

- **The listed prohibitions represent the most common incorrect uses. Non compliance can entail risks for personal health and safety.**
- Do NOT install any flanges, tyres or rims that are damaged and not efficient.
- Do NOT do any work without observing the instructions given by the tyre and rim manufacturer.
- Do NOT use equipment for carrying out work on the wheels if you do not have the necessary skills for operating safely.
- Do NOT use any flammable products when working on the wheels (tyres and rims).
- Do NOT do any welding on the rims or flanges without having removed the tyres.
- Do NOT inflate tyres to values higher than those allowed.
- Do NOT do any work on the wheels (tyres and rims) if you do not have the skills and equipment compliant with applicable laws.
- Do NOT perform any work with non-compliant equipment and without the instructions for use.
- Do NOT strike the tyre to seat it onto the rim without having deflated it completely.
- Do NOT check the tyre pressure when the machine is equipped with additional weights or has interchangeable equipment installed.

C243803606_en

00-1218 - © Copyright Antonio Carraro

02.17. SAFETY WARNINGS AT END OF USE

The safety warnings indicate some principles that the staff (driver and operators) should respect during man-machine interaction.

- Safely park and stop the machine in an adequate place, so that it is not an obstruction and danger.
- Set-up suitable conditions and lock the doors (machine equipped with cab) to prevent access to unauthorised persons.
- If parking the machine in a closed place, check the environment is sufficiently aired.
- To avoid any risk of fire, allow the engine to cool down properly.
- In cold periods, remove the battery to prevent the electrolyte from freezing.
- Disconnect the battery cable (negative pole) and cover the two battery poles with Vaseline.
- In case of prolonged machine inactivity, adopt adequate procedures to preserve functioning and prevent deteriorations.
- **Failure to observe the information provided can result in risks to the safety and health of persons and may cause financial damage.**

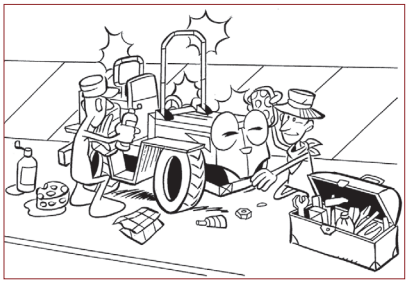
02.17.1. Incorrect uses

- **The listed prohibitions represent the most common incorrect uses. Non compliance can entail risks for personal health and safety.**
- Do not park the machine in enclosed or unventilated spaces with the engine still warm.
- DO NOT abandon the driver's seat without having stopped the machine in safe conditions.

02.18. SAFETY WARNINGS FOR ADJUSTMENTS AND MAINTENANCE

The safety warnings indicate some principles that the staff (driver and operators) should respect when adjusting and servicing the machine.

- The warranty expires if the periodical service and the inspection and maintenance intervals indicated in the user manual are not respected.
- Services must be carried out at enabled and authorised workshops according to the manufacturer procedures.
- Keep the machine in perfect running conditions and carry out scheduled maintenance according to the frequency and methods provided by the manufacturer.
- Refer to the maintenance table to avoid using the machine if the scheduled interval has expired.



- Good maintenance will maintain the best performance, a longer working duration and a constant preservation of the safety requirements through time.
- Keep all main parts constantly clean (engine, battery, fuel tank etc.) to prevent the risk of fire owing to the accumulation of dust and residues.
- Keep the silencer in efficient conditions for the good operation of the engine and to limit acoustic pollution.
- The normal adjustments and routine maintenance must be performed by operators having competence and experience acquired and recognised in the sector of intervention.
- Carry out the interventions following indications in the user manual, ONLY using suitable tools, not worn, and with adequate equipment and/or devices.
- Provide adequate safety conditions for working in high, not easily accessible or dangerous areas.
- Access to high areas without adequate equipment can pose safety risks.
- Before carrying out adjustment and maintenance interventions in dangerous areas, set-up adequate safety conditions complying with the laws in the work place.
- Safely block the machine elements that must be lifted during adjustment and maintenance, to avoid the risk of sudden lowering.

00-1218 - © Copyright Antonio Carraro

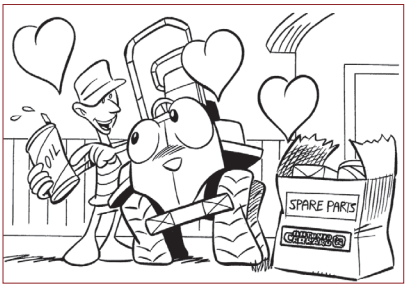
00-1218 - © Copyright Antonio Carraro

- Wear the PPE indicated in the 'User instructions' and/or on the machine and those envisioned by the laws in force at work.
- In searching for pressurised oil leaks, use suitable individual protection devices to avoid perforations of body parts.
- Before carrying out maintenance and adjustment interventions, activate all machine safety devices.
- Carry out adjustment and maintenance operations with machine stopped in safe conditions.
- Before carrying out adjustment and maintenance interventions on the engine or near-by areas, ensure the temperature of the components does not entail risk of burns.

- The operators authorised to carry out any intervention on the machine, must have experience acquired and recognised in the specific sector.
- Have the extraordinary maintenance interventions carried out ONLY by experts, able to work in compliance with the laws at work.



- Replace parts that are too worn, especially those relative to safety, ONLY using original spare parts or parts that have the exact same features.
- The use of the machine equipped with non-original components or those with different features (in particular the components relative to safety) exonerates the manufacturer from any liability and makes the warranty rights in force become null and void.



- ONLY use lubricants (oils and greases), refrigerant gas and cooling liquids recommended by the manufacturer. All this assures machine functioning and the envisaged safety level.
- **Failure to observe the information provided can result in risks to the safety and health of persons and may cause financial damage.**

02.18.1. Incorrect uses

- **The listed prohibitions represent the most common incorrect uses. Non compliance can entail risks for personal health and safety.**

- DO NOT perform interventions different to those indicated in the user manual without the manufacturer's express authorisation.
- DO NOT perform any intervention on the machine or interchangeable tools if the machine has not been stopped in the safe conditions indicated.
- Do not climb but use adequate equipment to reach high areas
- DO NOT carry out any interventions on the electric plant or welding operations on the machine without first disconnecting the battery and any circuit board connectors, thus preventing irreversible damage to the components.
- DO NOT clean the machine using pressurised jets of water aimed directly onto the electric components and do not use inflammable and/or corrosive products so as not to damage the components.
- DO NOT perform any intervention on the components of any pressurised circuit (hydraulic plant, air conditioning, etc.), without first having eliminated the pressure and having controlled that there is not residual energy present.
- Do not dispose of polluting materials in the environment. Dispose of all such materials in compliance with applicable legislation.

00-1218 - © Copyright Antonio Carraro

00-1218 - © Copyright Antonio Carraro

02.19. SAFETY WARNINGS REGARDING ENVIRONMENTAL IMPACT

- Every organisation has the task of applying procedures in order to identify, evaluate and control the effect that its activities (products, services, etc.) have on the environment.
- The procedures to follow in order to identify significant impact on the environment must consider the following factors:
  - › *Emissions into the atmosphere*
  - › *Discharging liquids*
  - › *Management of waste*
  - › *Contamination of the ground*
  - › *Use of raw materials and natural resources*
  - › *Local problems related to environmental impact*
- With the purpose of minimising environmental impact, the manufacturer supplies some indications below that must be taken into consideration by anyone who, for any reason, interacts with the machine during its envisaged life span.
  - › *All packaging components must be disposed of with respect to the laws in force on this subject.*
  - › *With the machine engine running in closed environments, make sure that there is suitable fresh air in order to prevent the concentration of unhealthy air for persons.*
  - › *During use and maintenance, do not disperse polluting substances into the environment (oils, greases, etc.) and dispose of them separately depending on the composition of the different products and with respect for the laws in force regarding this subject.*
  - › *Keep noise levels to a minimum to reduce acoustic pollution.*
  - › *Do not dispose of polluting materials in the environment. Dispose of all such materials in compliance with applicable legislation.*
  - › *The WEEE can contain dangerous substances with potentially noxious effects on the environment and the health of persons. Disposal must be performed correctly.*
  - › *In the disposal phase, select all components depending on their chemical features and dispose of them separately with respect to the laws in force regarding this subject.*
  - › *With reference to the WEEE Directive (Waste Electric and Electronic Elements), in the disposal phase the user must separate the electric and electronic components and dispose of them in relative authorised centres or return them still installed to the dealer on making a new purchase.*
  - › *All components, which must be separated and disposed of in a specific manner, are marked by the relevant sign.*
  - › *The abusive disposal of Waste Electric and Electronic Elements (WEEE) is punished with legal sanctions regulated by the laws in force in the territory where the infraction is committed.*

02.20. WARNINGS ON RESIDUAL RISKS

Residual risk

The definition indicates "all residue risks despite all safety solutions have been used and integrated during designing".

- The list shows the residual risks typical of this type of machine.
- **Risk of instability:** the driver must drive prudently and responsibly to avoid the risk of overturning and/or tipping the machine.
- The risk of instability could increase if work tools are hitched to the machine, if ballasts are installed, if it operated in proximity of ditches and precipices, on soft ground, on unlevelled ground and in unfavourable environmental conditions.
- **Risk of tripping:** when getting into and out of the driver's seat, the driver must take care to avoid tripping over any control devices.
- **Risk of impact or projection:** during installation of the mechanical transmission cardan shaft, the driver MUST CONNECT IT FIRST to the interchangeable tool and then to the machine.
- In the shaft disconnection phase, the driver MUST ALWAYS DISCONNECT IT FIRST from the machine transmission.
- To prevent the very dangerous 'WHIPLASH', the hitching and disconnection phases of the cardan shaft of the machine MUST be carried out correctly and in the sequence envisioned.
- **Risk of crushing:** the driver must hitch and disconnect the interchangeable tools ONLY from the driver's seat and must NOT allow anyone to enter the hitching area.
- **Risk of shearing:** DO NOT approach the cooling fan or moving parts without guards, with the upper limbs.
- **Risk of inhaling harmful substances:** the driver MUST NOT use the machine in closed or insufficiently aired environments.
- ALWAYS wear PPE to carry out work with risk of dangerous substances being emitted, even if the cab is pressurised and with active charcoal filters.
- **Risk of dragging and entangling:** DO NOT go near the rear and front mechanical transmission shaft in motion in order to avoid the danger of becoming entangled and being dragged.
- **Risk of friction or abrasion:** the driver must NEVER touch the types when the machine is in motion.

00-1218 - © Copyright Antonio Carraro

00-1218 - © Copyright Antonio Carraro

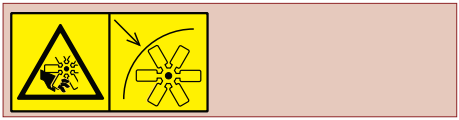
02.21. DESCRIPTION OF SAFETY SIGNS

The illustrations represent the safety signs and information applied to the machine. The meaning is given at the side of every sign.

A. **General danger:** before any type of intervention, turn off the engine and remove the key.



B. **Risk of cutting upper limbs:** do not insert your hands among the moving parts.



C. **Danger of scalds:** pay attention to hot surfaces.

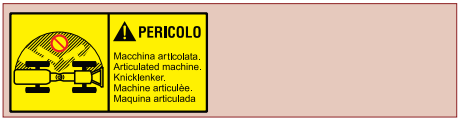


D. **Danger of falling and being run over:** never transport persons if suitable seats are not provided, in addition to the driver's seat, to protect their safety.

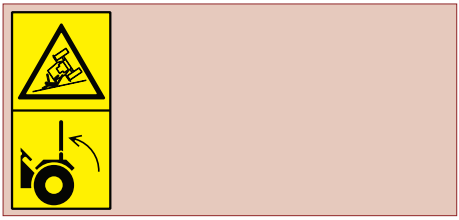


- **DO NOT climb on or off the machine if it is not stopped in safe conditions.**

E. **Danger of crushing the body:** do not stand in the operative area of the machine.



F. **Danger of tipping:** do not use the machine if the safety arch (ROPS) is not positioned correctly.



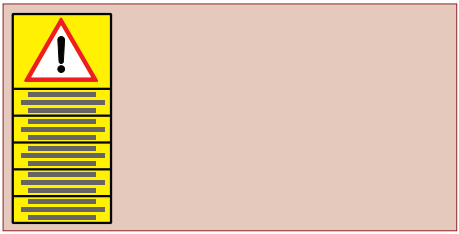
G. **Danger of crushing the body:** do not access the area with moving parts.



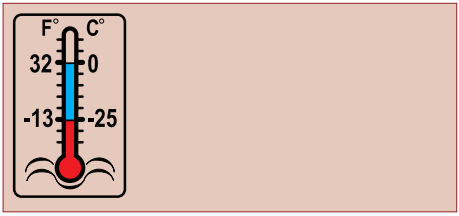
H. **Danger of entangling:** do not approach the moving mechanical parts.



L. **General danger:** the power take-off must be turned on exclusively to activate the equipment installed on the machine.



M. **Warning signal:** indicates the temperature at which the coolant starts to freeze.



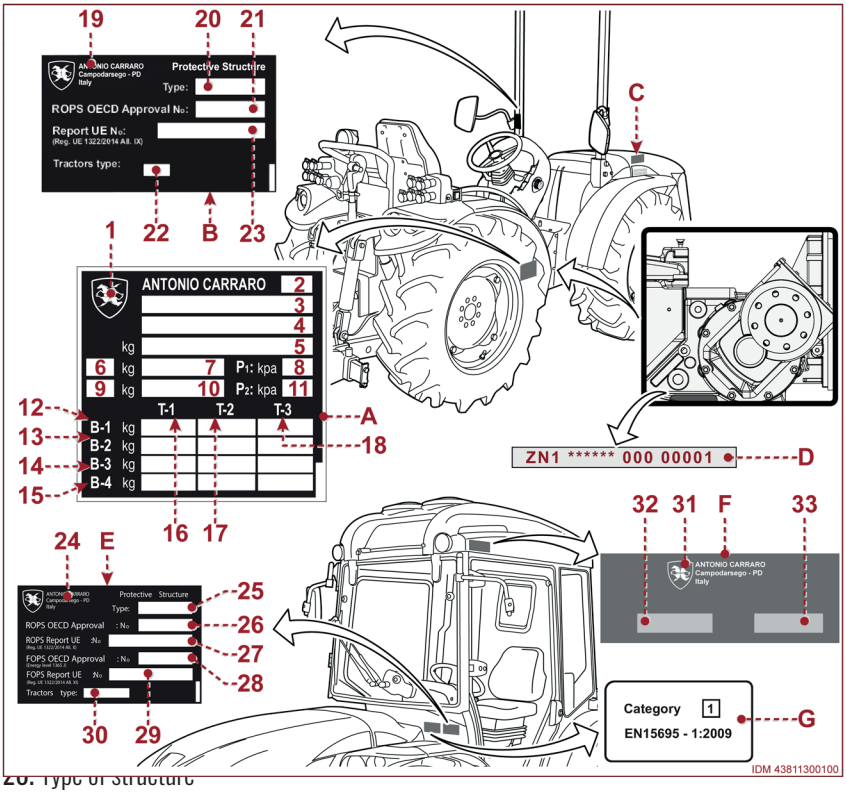
IMPORTANT_With temperatures near to those indicated in the sign, it is necessary to replace the cooling liquid with an mixture that is effective also at lower temperatures.

00-1218 - © Copyright Antonio Carraro

03
TECHNICAL INFORMATION

03.1. IDENTIFICATION OF MANUFACTURER AND MACHINE (EU 1322/2014)

The illustration represents the identification plates and their position.



20. Type of structure
21. Approval number ROPS OECD
22. Model of machine
23. Approval number ROPS EU

C. Engine identification data plate

IMPORTANT_See the electric motor's own instruction manual for motor identification data.

D. Machine serial number (V.I.N.)

ZN1 02A365 000 00001: identifies SRX models
ZN1 91A365 000 00001: identifies SX models

E. Approval plate of cab with protective structure (ROPS)

24. Name of manufacturer
25. Type of structure

00-1218 - © Copyright Antonio Carraro

00-1218 - © Copyright Antonio Carraro

26. Approval number ROPS OECD
27. Approval number ROPS EU
28. Approval number FOPS OECD
29. Approval number FOPS EU
30. Model of machine

F. **Cab identification data plate**

31. Name of manufacturer
32. Cab model
33. Cab serial number

G. **Cab category sticker**

00-1218 - © Copyright Antonio Carraro

03.2. GENERAL DESCRIPTION OF THE MACHINE (SRX)

- The 'Ergit 100 SRX' range machine is designed and manufactured to satisfy the different needs of the agricultural market.
- The machine is suitable for pushing, pulling and driving carried, semi-carried and towed interchangeable equipment.

IMPORTANT_The machine has no points for fitting FOPS and OPS protective devices and no attachment points for fitting front loaders.

- The machine is characterised by an ACTIO™ integral oscillating 'centrally articulated' type frame, to allow rapid manoeuvres even in confined spaces.
- The four-wheel drive system ensures a good hold even on difficult ground.
- The 'sharknose' line improves visibility from the driver's seat and its conformation facilitates maintenance operations.
- The engine compartment is protected by a large honeycomb grille, which guarantees efficient heat exchange.
- The machine is equipped with a RGS™ reversible driver's seat and is extremely versatile for operations on flat or hilly ground, even with accentuated gradients.
- The short width and small size, low centre of gravity and the minimum turning radius, made possible by the articulated frame, make the machine particularly suited for working with specialized crops, narrow row crops, etc.
- All the functional and dimensional characteristics (power, dimensions, weights, etc.) are given in the technical specifications tables.
- The machine is available as per standard with three-point rear hydraulic power lift, tow hook, PTO and rear hydraulic couplers to control and drive the different interchangeable tools, installed to satisfy all operational requirements.
- To increase the performance, on request the machine can be equipped in the front part with 3 point hydraulic power lift and hydraulic hitches.
- From the driver's seat the driver has direct and indirect visibility (rear-view mirrors) to operate the machine for the declared uses and under safe conditions.
- To make the driver's seat more comfortable, on request the tractor can be supplied in the 'cab' version. *(→ p. 62)*
- The machine has been subjected to various lab trials to test its performance, in particular to identify the maximum permissible gradients and the overturning limits.

00-1218 - © Copyright Antonio Carraro

ATTENTION

Respect of maximum admitted slopes does not exclude the risk of overturning, as it is difficult to foresee and reproduce the possible environmental conditions in the lab.

- The machine is approved for operation on public roads ONLY with the driver's seat in the normal position and NOT turned into the reverse position.
- JUST ONE OPERATOR (driver) is requested for use of the machine, sitting at the driver's seat, with the safety arch locked in the raised position, the safety belts fastened correctly and all safety devices integral and efficient.
- The driver, as well as being adequately trained and informed on the use of the machine, MUST have adequate capability and skills for the type of working activity to be carried out and MUST be in suitable conditions to safely do so.
- **IT IS FUNDAMENTAL THAT THE DRIVER IS RESPONSIBLE AND AWARE OF THE LIMITS OF USE and behaves suitably, to safeguard his own safety and that of other persons that could be involved.**

03.3. GENERAL DESCRIPTION OF THE MACHINE (SX)

- The 'Ergit S SX' range machine is designed and manufactured to satisfy the different needs of the agricultural market.
- The machine is suitable for pushing, pulling and driving carried, semi-carried and towed interchangeable equipment.

IMPORTANT_The machine has no points for fitting FOPS and OPS protective devices and no attachment points for fitting front loaders.

- The machine is characterised by an ACTIO™ integral oscillating 'centrally articulated' type frame, to allow rapid manoeuvres even in confined spaces.
- The four-wheel drive system ensures a good hold even on difficult ground.
- The 'sharknose' line improves visibility from the driver's seat and its conformation facilitates maintenance operations.
- The engine compartment is protected by a large honeycomb grille, which guarantees efficient heat exchange.
- The machine is extremely versatile for operations on flat or hilly ground, also with accentuated gradients.
- The short width and small size, low centre of gravity and the minimum turning radius, made possible by the articulated frame, make the machine particularly suited for working with specialized crops, narrow row crops, etc.
- All the functional and dimensional characteristics (power, dimensions, weights, etc.) are given in the technical specifications tables.
- The machine is available as per standard with three-point rear hydraulic power lift, tow hook, PTO and rear hydraulic couplers to control and drive the different interchangeable tools, installed to satisfy all operational requirements.
- From the driver's seat the driver has direct and indirect visibility (rear-view mirrors) to operate the machine for the declared uses and under safe conditions.
- To make the driver's seat more comfortable, on request the machine can be supplied in the 'cab' version. *(→ p. 62)*
- The machine is equipped with a device that enables setting the forward mode (constant speed or constant rpm) without having to operate the controls of the accelerator (pedal or lever).
- The machine has been subjected to various lab trials to test its performance, in particular to identify the maximum permissible gradients and the overturning limits.

00-1218 - © Copyright Antonio Carraro

00-1218 - © Copyright Antonio Carraro

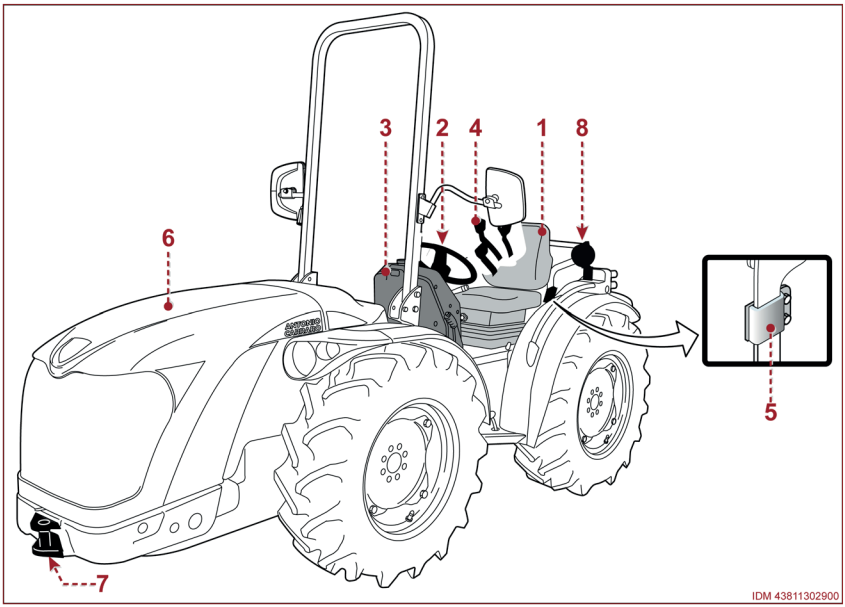
ATTENTION

Respect of maximum admitted slopes does not exclude the risk of overturning, as it is difficult to foresee and reproduce the possible environmental conditions in the lab.

- The machine is type-approved for road use.
- JUST ONE OPERATOR (driver) is requested for use of the machine, sitting at the driver's seat, with the safety arch locked in the raised position, the safety belts fastened correctly and all safety devices integral and efficient.
- The driver, as well as being adequately trained and informed on the use of the machine, MUST have adequate capability and skills for the type of working activity to be carried out and MUST be in suitable conditions to safely do so.
- **IT IS FUNDAMENTAL THAT THE DRIVER IS RESPONSIBLE AND AWARE OF THE LIMITS OF USE and behaves suitably, to safeguard his own safety and that of other persons that could be involved.**
-

03.4. DESCRIPTION OF THE MAIN PARTS (MACHINE)

The illustration represents the main components and the list gives the description and their function.



1. **Driver's seat:** designed and built with ergonomic principles and can be adjusted by the driver to obtain different posture conditions.

- The driver's seat can be turned into the reverse position or into the normal position.

- The driver can easily control and activate all machine controls from the driver's seat.

2. **Steering unit:** allows the two articulated bodies to steer proportionally to the rotation of the steering wheel. The rotation takes place via the power steering that acts on two hydraulic cylinders connected to the articulated bodies.
3. **Instrument panel:** it is equipped with control devices (speedometer, indicators, etc.) and with controls for operating services and utilities. *(→ p. 111)*
4. **Hydraulic service operating levers:** they are used to control the power lift unit and the interchangeable tools (carried or towed).

- The hydraulic system is an integral part of the machine construction. *(→ p. 64)*

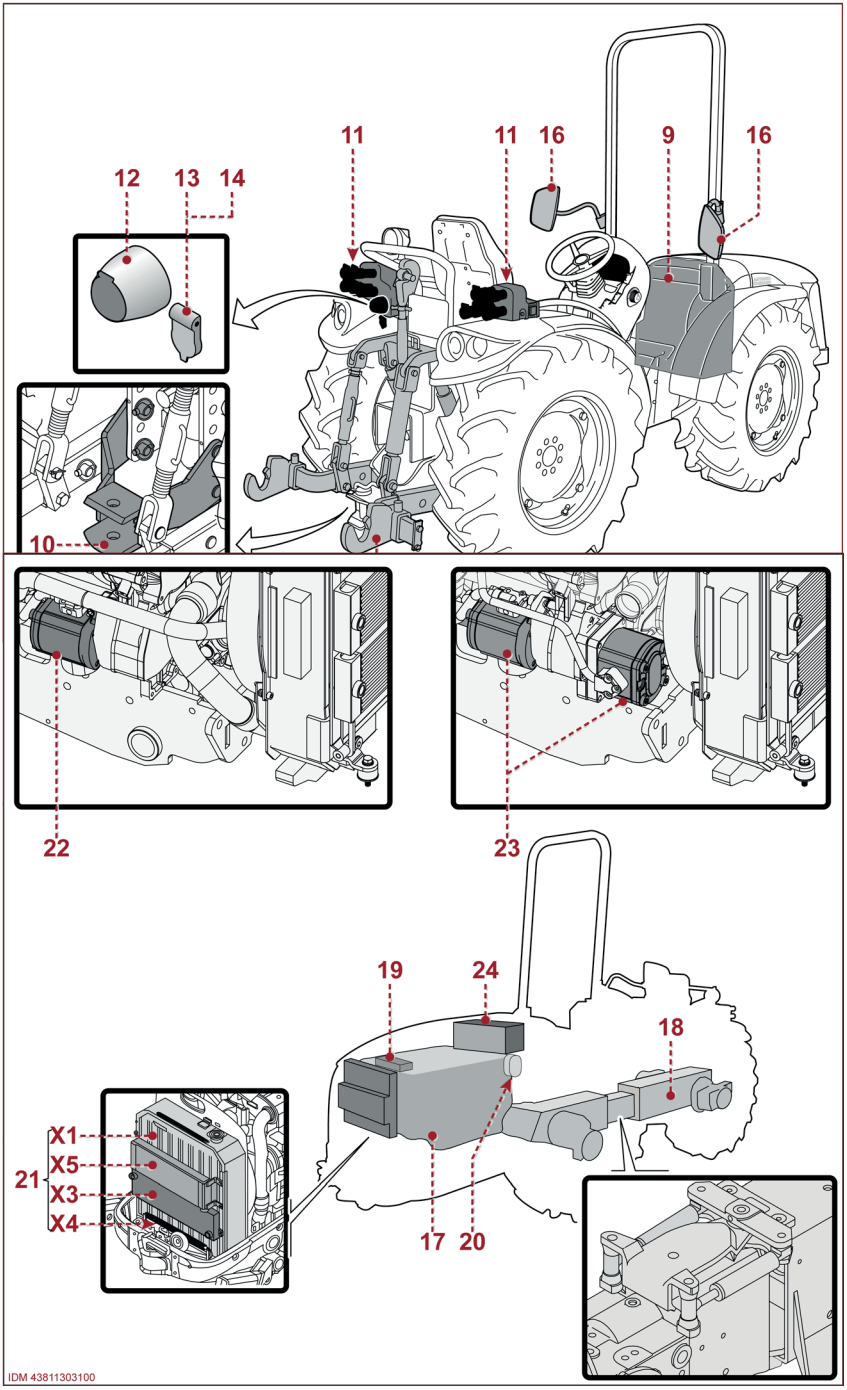
5. **Support:** used to support the lever device of the towed interchangeable tool braking system.
6. **Bonnet:** it is equipped with a key lock and can be opened for the necessary inspections.

- The key for opening it must be kept by the person responsible for the machine so that it is not accessible to unauthorised personnel.

7. **Front towing bracket:** for towing the machine in case of breakdown.

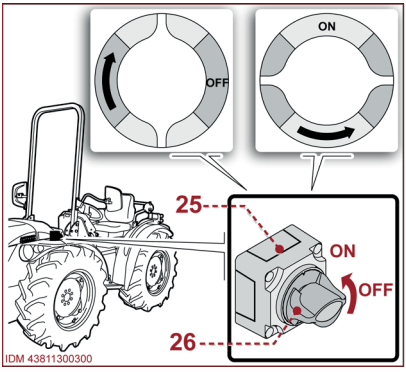
00-1218 - © Copyright Antonio Carraro

8. **Rear work light (adjustable)**: to light the work areas in conditions with poor visibility.



00-1218 - © Copyright Antonio Carraro

17. **Combustion engine:** develops the power to drive all the main power users on the machine (For further details refer to the technical data table).
18. **Transmission unit:** it is of the mechanical type with four-wheel drive and includes the elements listed.
    - › ***Front axle:*** *equipped with independent gearboxes (one on each wheel) and electro-hydraulic differential lock.*
    - › ***Gearbox****: features 32 speed ratios (16 forward and 16 reverse) and is equipped with a shuttle.*
    - › ***Power take-off (PTO):*** *it is used to transmit the power from the machine to the interchangeable tool (carried or towed).*
    - › ***The PTO has progressive electro-hydraulic engagement and can operate at independent speed or synchronized with the ground speed of the machine.***
    - › ***Rear axle:*** *equipped with independent gearboxes (one on each wheel) and electro-hydraulic differential lock.*
19. **Air filter:** cleans the air entering the engine intake. On request the filter can be equipped with safety filtering cartridge.
20. **DPF:** the code identifies the filter for reducing the polluting emissions caused by fine dust.
21. **Heat exchanger:** it reduces the working temperature (engine cooling liquid, hydraulic oil etc.) and includes the elements listed.
    - › ***Radiator (X1):*** *it cools the liquid of the engine cooling circuit.*
    - › ***Radiator (X3):*** *cools the oil of the hydraulic system.*
    - › ***Finned pipe (X4):*** *cools the engine fuel.*
    - › ***Radiator (X5) (optional):*** *it cools the oil of the hydraulic circuit of the 'Joystick unit'.*
22. **One hydraulic pump**: for feeding all the machine services (standard for SX machines).
23. **Two hydraulic pumps**: for feeding all the machine services (standard for SRX machines) (On request for SX machines, if available).
24. **Battery:** it is securely fastened to the machine and is used to power the electric system.



- The connection between the battery and the electric system can be isolated using the battery cut-off switch **(25)**.
    - › ***Control in the "ON" position:*** *the battery is connected (the key **(26)** remains inserted).*
    - › ***Control in the "OFF" position:*** *the battery is disconnected (remove the key **(26)**).*
- The battery cut-off switch is used to perform interventions on the electric system, leave the machine inactive for long periods and prevent start-up by unauthorised persons.
- Before doing any welding on the machine disconnect the battery cables and connectors of any electronic boards so as not to permanently damage the components.

00-1218 - © Copyright Antonio Carraro

00-1218 - © Copyright Antonio Carraro

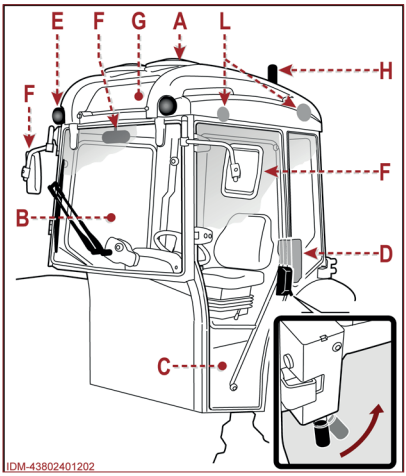
IMPORTANT_To isolate the electric system from the battery, position the control on "OFF", remove the **(26)** and keep it so that it cannot be accessed by unauthorised staff.

03.5. DESCRIPTION OF THE MAIN PARTS ("CAB" VERSION)

The "cab" version machine is approved for road circulation and is an optional outfit that must be requested in the order phase.

ATTENTION
The cab is CATEGORY 1 and does not protect the driver against dangerous substances.

- Always wear the PPE to avoid exposure to dangerous substances, even if the cab is pressurised and equipped with active carbon filters.
- Refer to the instructions on the plant protection products to be used, to evaluate the type of PPE to wear as protection against inhalation and contact.
- Always keep the doors and windows closed during spraying to avoid inhaling plant protection products.
- The 'cab' version is not set-up with hitching points for the FOPS and OPS devices.
- The illustration represents the main components and the list gives the description and their function.



A. **Cab:** it is approved as a ROPS safety device and it is the sound-proof version to improve driver comfort.

- The cab is equipped with the controls to activate all its devices (lights switch-on, windscreen washer, etc) and with an air-conditioning system (heating and air conditioning) *(→ p. 129)*

IMPORTANT_The cab IS NOT CERTIFIED as FOPS and OPS safety device against the risk of falling and/or side penetration of material.

B. **Front and rear windscreen:** made of tempered glass.

- The windshields are hinged at the top to be able to open them by tilting and they are equipped with gas struts to keep them in the open position.
- Both windscreens are equipped with electric windscreen wipers, with washing system and independent activation controls.

00-1218 - © Copyright Antonio Carraro

00-1218 - © Copyright Antonio Carraro

C. **Doors**: they are positioned on both sides of the cab and are equipped with an anti-intrusion closure system.

- Use the lever **(C1)** to open the corresponding door.
- **In case the machine overturns, the doors have the emergency exit function.**

D. **Tank**: contains the detergent solution used to wash the front and rear windscreens.

E. **Lights**: they can be moved manually to aim the light beam at the area of interest.

F. **Rear-view mirrors**: they are mandatory to approve the machine for road circulation.

G. **Air filter**: withholds impurities in the air-conditioning system.

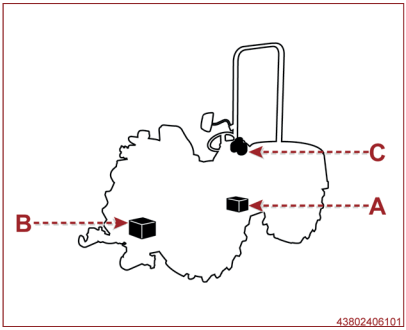
- In the order phase, the machine can be requested with other types of filter.*(→ p. 69) (→ p. 51)*

H. **Flashing light support**: it is equipped with a single-pole electric socket for installation of the flashing light (rotating light).

L. **Lights (adjustable)**: for lighting the rear of the machine when working at night or in conditions of poor visibility.

03.6. DESCRIPTION OF HYDRAULIC CIRCUITS (Configuration with two hydraulic pumps)

The illustration represents the main components and the list gives the description and their function.



A. **Tank:** supplies the oil to the pump of UNIT 2, which feeds the hydraulic circuits listed.
   - › *Rear power lifting unit supply circuit*
   - › *Rear hydraulic couplings supply circuit*
   - › *Steering system supply circuit*

B. **Tank:** supplies the oil to the pump of UNIT 1, which feeds the hydraulic circuits listed.
   - › *Front wheel drive supply circuit*
   - › *Differential locking device supply circuit*
   - › *PTO drive supply circuit*

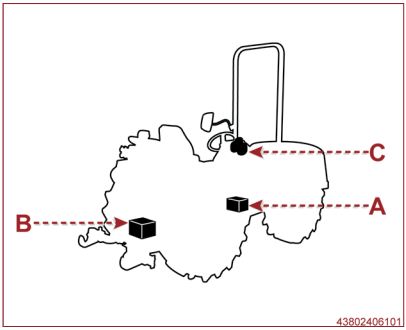
C. **Tank:** supplies the oil to the hydraulic circuits listed.
   - › *Machine braking system supply circuit*
   - › *Clutch control supply circuit*

00-1218 - © Copyright Antonio Carraro

00-1218 - © Copyright Antonio Carraro

03.7. DESCRIPTION OF HYDRAULIC CIRCUITS (Configuration with one hydraulic pump)

The illustration represents the main components and the list gives the description and their function.



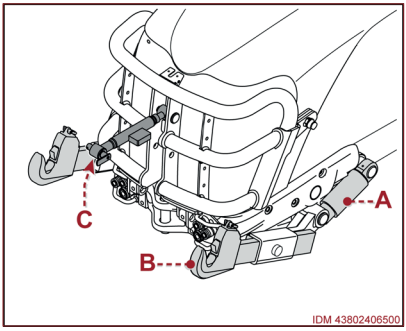
A. **Tank:** supplies the oil for lubricating the front crown wheel and pinion.

B. **Tank:** supplies the oil to the pump, which feeds the hydraulic circuits listed.
   - › *Rear power lifting unit supply circuit*
   - › *Rear hydraulic couplings supply circuit*
   - › *Steering system supply circuit*
   - › *Front wheel drive supply circuit*
   - › *Differential locking device supply circuit*
   - › *PTO drive supply circuit*

C. **Tank:** supplies the oil to the hydraulic circuits listed.
   - › *Machine braking system supply circuit*
   - › *Clutch control supply circuit*

03.8. DESCRIPTION OF THE FRONT POWER LIFTING UNIT

The front three-point power lift unit is equipped with a "quick coupling" implement hitching/unhitching system.



- The illustration represents the main components and the list gives the description and their function.

A. **Hydraulic cylinders:** activate the movement of the power lift unit.

B. **Arms:** adjustable to adapt to the type of interchangeable tool to be hitched.

C. **Strut:** used to hitch the third point of the interchangeable tool.

- **For information regarding the technical and dimensional features of the three-point lifting unit, see chapter "Technical data tables".**

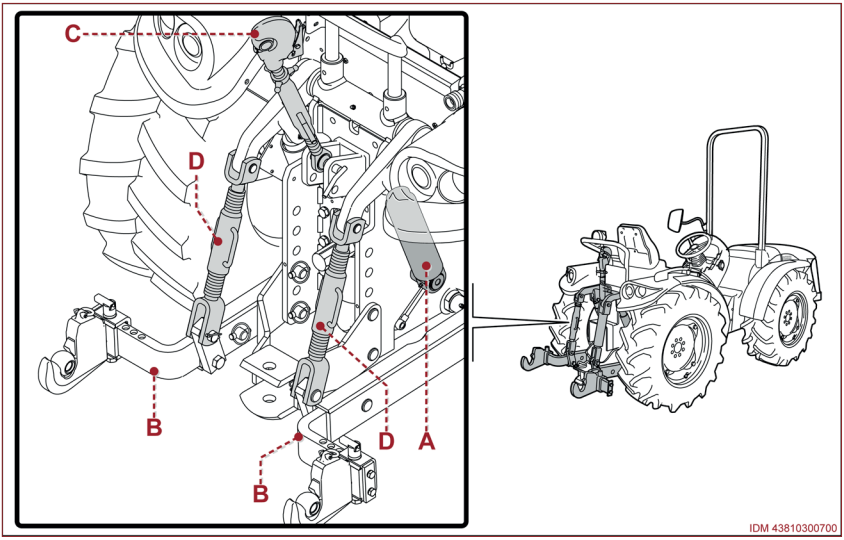
00-1218 - © Copyright Antonio Carraro

00-1218 - © Copyright Antonio Carraro

03.9. DESCRIPTION OF REAR POWER LIFT UNIT ("QUICK COUPLING" VERSION)

The rear three-point power lift unit is equipped with a "quick coupling" implement hitching/unhitching system.

- The illustration represents the main components and the list gives the description and their function.



A. **Hydraulic cylinders:** activate the movement of the power lift unit.

B. **Arms**: equipped with tie-rod **(D)** for adjusting the height.

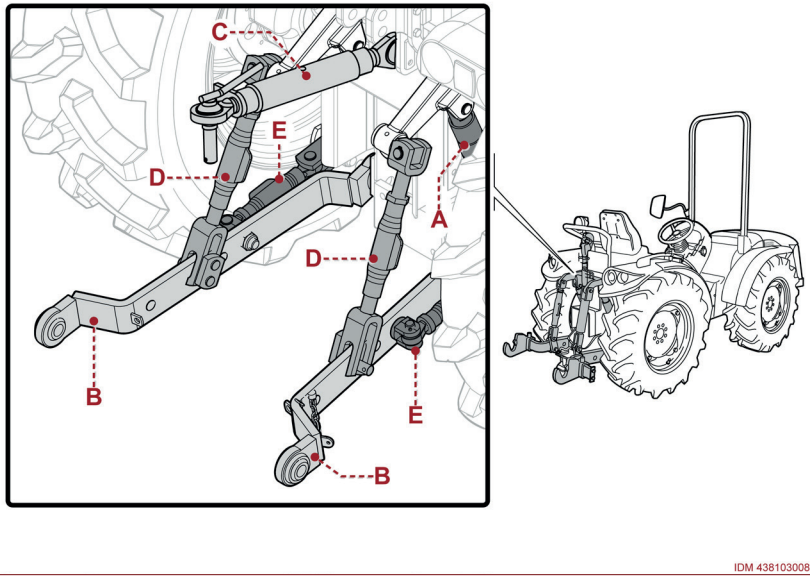
C. **Strut:** used to hitch the third point of the interchangeable tool.

- **For information regarding the technical and dimensional features of the three-point lifting unit, see chapter "Technical data tables".**

03.10. DESCRIPTION OF REAR POWER LIFT UNIT ("BALL JOINT" VERSION)

The rear three-point power lift unit is equipped with a "ball joint" implement hitching/unhitching system.

- The illustration represents the main components and the list gives the description and their function.



A. **Hydraulic cylinders:** activate the movement of the power lift unit.

B. **Arms**: they are equipped with tie-rods **(D)** to adjust the height and with tie-rods **(E)** to facilitate connecting the interchangeable tools and stabilizing them.

C. **Strut:** used to hitch the third point of the interchangeable tool.

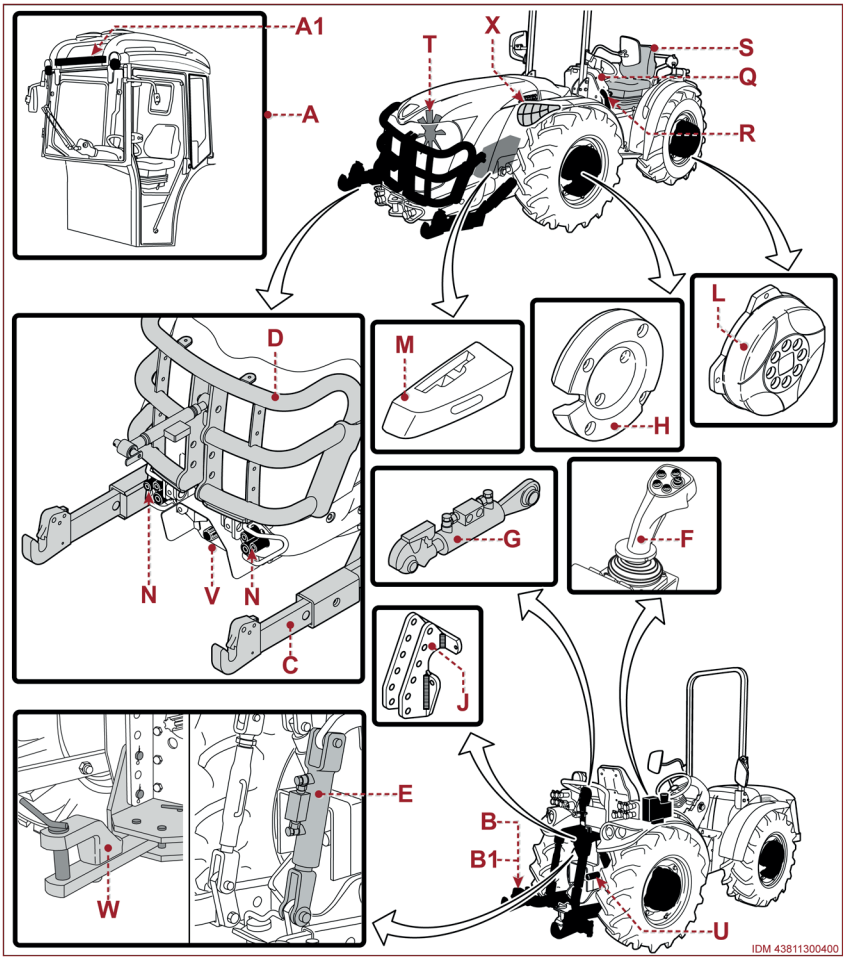
- **For information regarding the technical and dimensional features of the three-point lifting unit, see chapter "Technical data tables".**

00-1218 - © Copyright Antonio Carraro

00-1218 - © Copyright Antonio Carraro

03.11. DESCRIPTION OF THE EQUIPMENT ON REQUEST (SRX)

The illustration shows the optional accessories that can be supplied on request and the list gives their description and function.



A. **Cab:** type-approved as a ROPS safety system and for on-road use and it is the soundproof version to improve driver comfort. *(→ p. 62)*

A1. **Active carbon air filter:** for decreasing the exposure of the driver to harmful substances when spraying plant protection products.

B. **Rear lifting unit (with ball joint)**: the 'three-point' type with the 'ball joint' coupling system.

- With the 'ball joint' system, the lifting arms are equipped with tie-rods, to stabilise the interchangeable tool and facilitate its hitching and disconnection.

B1 **Rear lifting unit (with quick coupling):** the 'three-point' type with the implement quick coupling system.

C. **Front lifting unit:** 'three point' type.

- The unit is always supplied in combination with the protection structure (bullbar) **(D)**.

D. **Protection structure (Bullbar):** protects the radiator and the engine and serves as a connection for the strut of the front lifting unit.

E. **Hydraulically controlled tie-rod:** installed on the rear right side, to adjust the height of the interchangeable tool coupling arm directly with the driving seat control.

F. **"Joystick" type control:** used to activate, when combined with one of the selection buttons and with the hold-to-run control, the auxiliary services of the interchangeable implements that are hitched to the machine.

- When the machine is equipped with the 'Joystick' type of controls, the hydraulically controlled tie rod **(E)** is always supplied as well.

G. **Strut with hydraulic control:** installed on the rear side, to adjust the height of the interchangeable tool directly with the driving seat control.

H. **Wheel ballasts:** used to increase machine traction and can be installed on front or rear wheels.

J. **Raised three-point hitch:** enables connecting the different interchangeable implements more easily.

- The equipment is particularly suitable for connecting implements (eg. fork device) that must operate horizontally.

L. **Ballast flange (rear wheels):** used to improve machine traction and must be fitted with wheels of a certain size.

- This type of equipment can only be installed by the manufacturer or by authorised service centres.

M. **Side ballasts:** used to increase the stability of the machine with carried equipment attached to the rear lifting unit.

IMPORTANT_To determine the weight and quantity of ballasts to install depending on the working requirements, see the respective paragraph. *(→ p. 159) (→ p. 161) (→ p. 162)*

N. **Front hydraulic couplings:** they have quick coupling to connect the hydraulic services of the interchangeable implements.

R. **"Superbrake" device:** acts on all the wheels to increase the braking action. *(→ p. 114)* (if available)

00-1218 - © Copyright Antonio Carraro

00-1218 - © Copyright Antonio Carraro

S. **Seat with pneumatic suspension:** for improving driver comfort.

T. **"Clean fix" device:** used for automatically cleaning dust from the front grille. (if available)

- With this equipment it is not possible to also install the front PTO **(V)**.

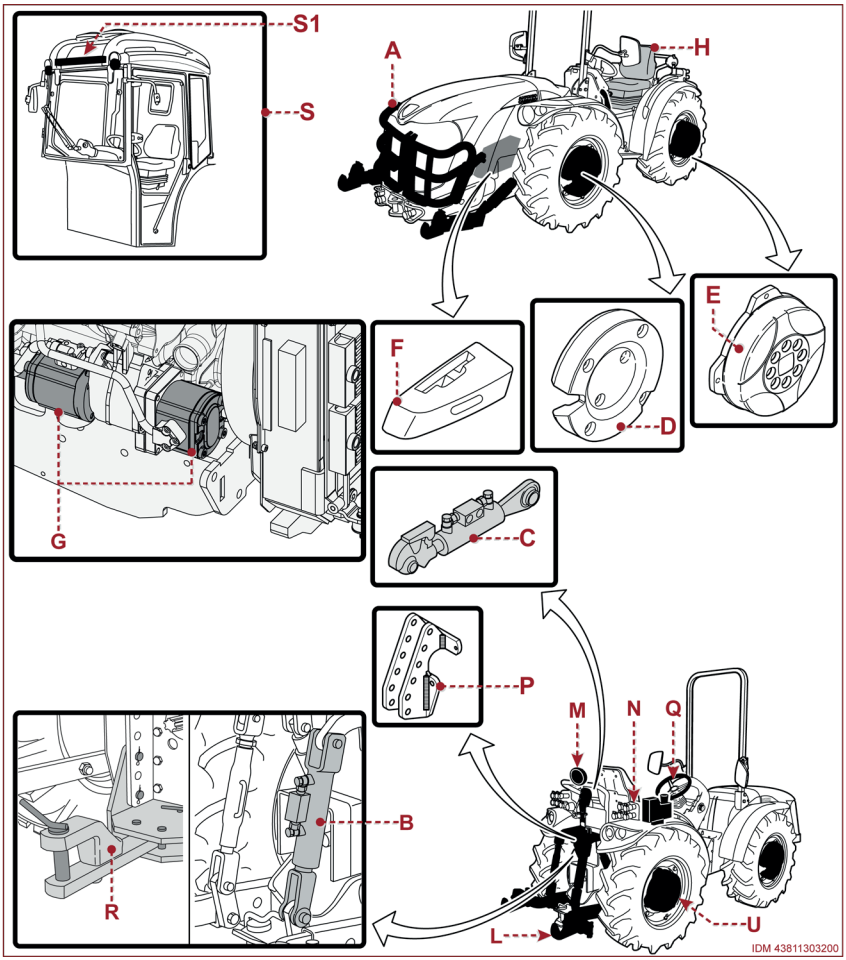
U. **Power take-off (1000 version)**

W. **Oscillating tow bar:** allows you to adjust the angle of the point of attachment of the towed interchangeable equipment easily and fast.

X. **Protection grilles**

03.12. DESCRIPTION OF THE EQUIPMENT ON REQUEST (SX)

The illustration shows the optional accessories that can be supplied on request and the list gives their description and function.



A. **Protection structure (Bullbar)**: protects the radiator and the engine and serves as a connection for the strut of the front lifting unit.

B. **Hydraulically controlled lift rod**: installed on the rear right side, to adjust the height of the implement coupling arm directly with the driving seat control.

C. **Top link with hydraulic adjustment**· installed on the rear side, to adjust the height of the implement directly from the driving seat.

00-1218 - © Copyright Antonio Carraro

00-1218 - © Copyright Antonio Carraro

D. **Wheel ballasts**: used to increase machine traction and can be installed on front or rear wheels.

E. **Ballasts with flange (rear wheels)**: used to improve machine traction and must be fitted with wheels of a certain size.

- This type of equipment can only be installed by the manufacturer or by authorised service centres.

F. **Side ballasts**: used to increase the stability of the machine with carried equipment attached to the rear power lift unit.

IMPORTANT_To determine the weight and quantity of ballasts to install depending on the working requirements, see the respective paragraph. *(→ p. 161) (→ p. 162)*

G. **Additional hydraulic pump**: combined with the standard hydraulic pump, for splitting the hydraulic system and guaranteeing a greater flow of oil (If available).

H. **Seat with pneumatic suspension**: for improving driver comfort.

L. **Rear lifting unit (with quick coupling)**: the 'three-point' type with the implement quick coupling system.

M. **Rear work light (adjustable)**: to light the work areas in conditions with poor visibility

N. **"Draft control" device**: enables keeping a constant thrust of the carried implement on the ground.

P. **Raised three-point hitch**: enables connecting the different interchangeable implements more easily.

- The equipment is particularly suitable for connecting implements (eg. fork device) that must operate horizontally.

Q. **Steering wheel with adjustable inclination**: for improving driver comfort.

R. **Oscillating tow bar**: allows you to adjust the angle of the point of attachment of the towed interchangeable equipment easily and fast.

S. **Cab**: type-approved as a ROPS safety system and for on-road use and it is the soundproof version to improve driver comfort.

S1. **Active carbon air filter**: for decreasing the exposure of the driver to harmful substances when spraying plant protection products.

X. **Front lifting unit**: 'three point' type.

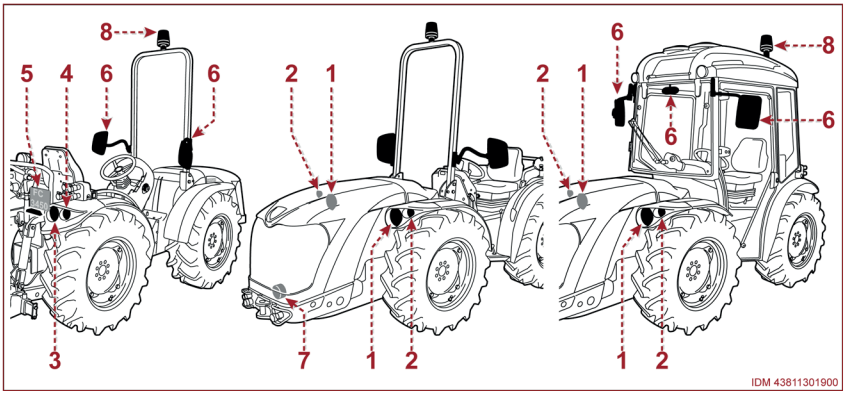
- The unit is always supplied in combination with the protection structure (bullbar) **(A)**.

Y. **Transmission assembly with 45° gearboxes**: enables obtaining greater stability due to the lower position of the centre of gravity.

IMPORTANT_With 45° gearboxes you cannot fit 24" tyres.

03.13. DESCRIPTION OF DEVICES FOR DRIVING ON PUBLIC ROADS

The illustration indicates the position of the devices on the machine.



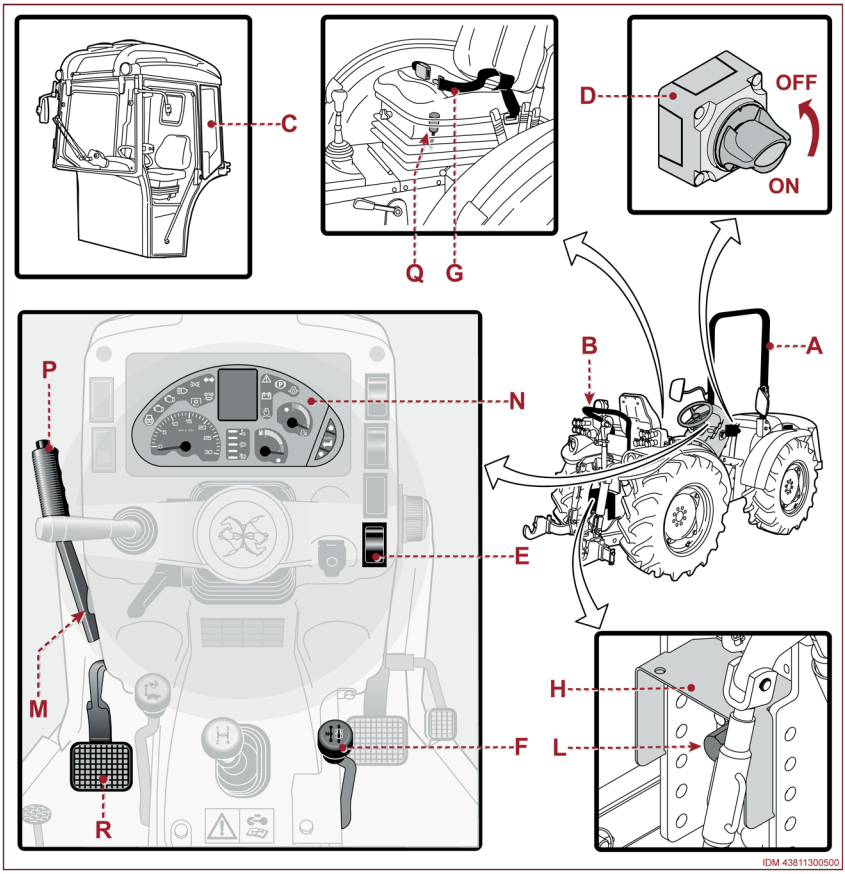
1. Headlights
2. Front direction indicators
3. Tail lights
4. Rear direction indicators
5. Licence plate light
6. Rear-view mirror
7. Horn
8. Blinking light (orange) (Optional).

00-1218 - © Copyright Antonio Carraro

00-1218 - © Copyright Antonio Carraro

03.14. DESCRIPTION OF SAFETY DEVICES

The illustration represents the position of the devices and the list gives the description and their function.



A. **Front safety arch (ROPS):** protects the driver in the case of overturning of the machine.

B. **Rear safety arch (ROPS):** protects the driver in the case of overturning of the machine.

C. **Cab:** type-approved as a ROPS safety system and for on-road use and it is the soundproof version to improve driver comfort. *(→ p. 62)*

IMPORTANT_The ROPS devices are subjected to tests to carry out the safety device function in case of overturning or side tilting.

D. **Battery cut-off switch:** for disconnecting the battery from the electrical system of the machine.

E. **Sensor**: detects the operating status of the power take-off control. When the PTO is activated, the sensor prevents the start-up of the engine.

- Whenever the power take-off is deactivated because the vehicle is switched off or unmanned, to reactivate it turn switch **(E)** to zero and turn it on again.

F. **Sensor:** detects the operating status of the reverser. When the reverser is activated, the sensor prevents the start-up of the engine (**Only for machines equipped with standard controls**).

G. **Safety belt**

H. **Protection screen:** combined with the protection of the cardan shaft, prevents contact with the power take-off of the machine.

L. **Protective cap:** prevents accidental contact with the coupling of the power take-off and keeps it intact.

M. **Horn:** in combination with the lighting of the LEDs on the dashboard, indicates an operating fault.

- With the machine running and moving, it indicates that the operator is not sitting in the driving seat or has not applied the parking brake.

N. **Warning lights:** individually or in combination, they indicate an operating fault or the activation of a work control. *(→ p. 93)*

P. **Sensor:** detects the position of the parking brake. When the parking brake is not activated, the sensor prevents the start-up of the engine.

Q. **Sensor:** detects whether the operator is sitting in the driving seat.

- If the operator is not sitting correctly in the driving seat, the sensor prevents the start-up of the engine.

- If the operator leaves the driving seat without applying the parking brake, the sensor activates the horn **(M)** to indicate the danger condition.

- If the operator leaves the driving seat, the PTO stops.

R. **Sensor:** detects the position of the clutch pedal. When the pedal is not pressed, the sensor prevents the start-up of the engine.

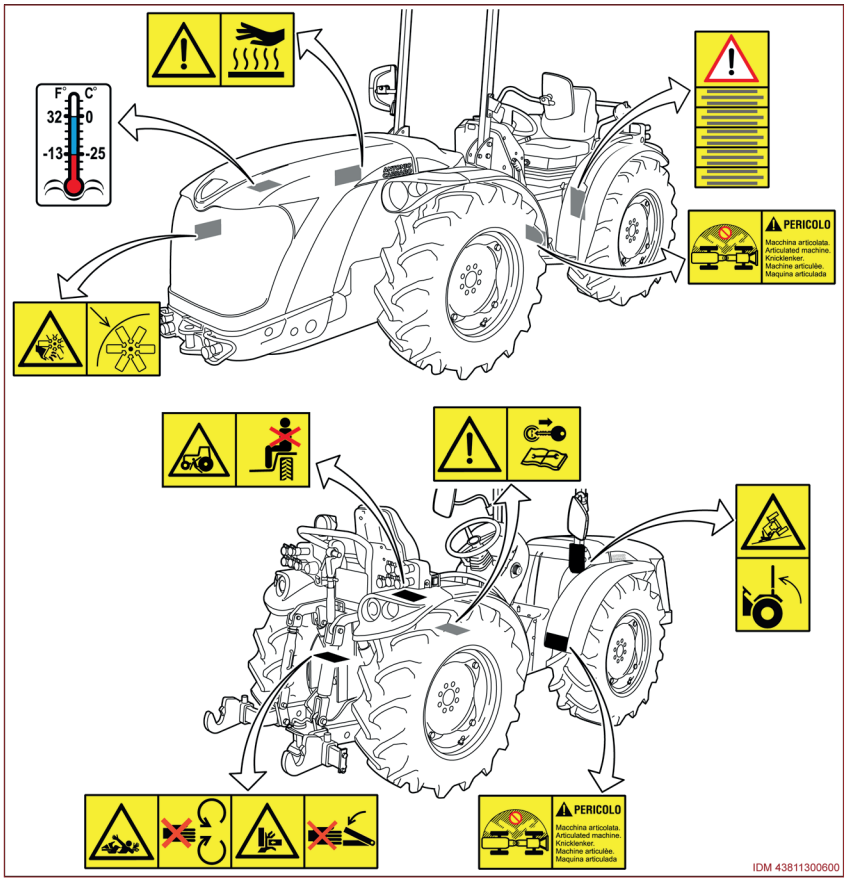
00-1218 - © Copyright Antonio Carraro

00-1218 - © Copyright Antonio Carraro

03.15. POSITION OF SAFETY SIGNALS AND INFORMATION

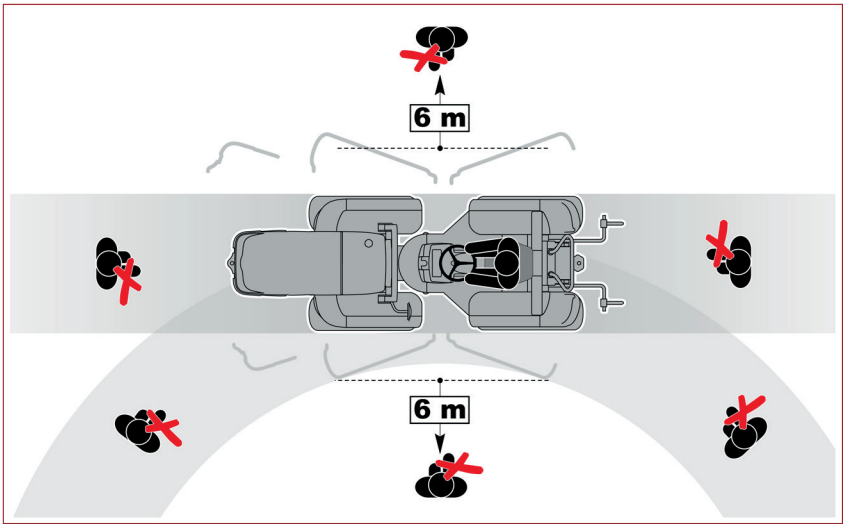
The illustration indicates the positions of the safety plates. For their meaning, see the respective paragraph. *(→ p. 69)*

IMPORTANT_Make certain that all plates and stickers are clearly legible; if not, wipe clean, or if necessary renew, positioning the replacement at the same point on the machine.



03.16. DANGEROUS AREAS AND ZONES

The figure shows the potentially dangerous areas in which nobody should stand while the machine is in use. It is the operator's responsibility to ensure that nobody enters these areas. If necessary, stop the machine immediately and move people to a safe distance.



00-1218 - © Copyright Antonio Carraro

04

INFORMATION ON HANDLING AND TRANSPORT

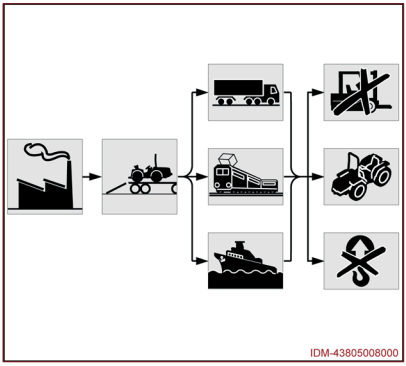
04.1. RECOMMENDATIONS FOR HANDLING, LOADING AND UNLOADING

- When handling and loading, refer to the information provided by the manufacturer, indicated directly on the machine, at the driving position and in the operating manual.

00-1218 - © Copyright Antonio Carraro

04.2. METHOD OF TRANSPORT

- Depending on the place of destination, transport can be carried out with different vehicles.
- The figure shows typical transport solutions.



04.3. LOADING AND UNLOADING METHOD

Proceed as indicated to perform this operation.

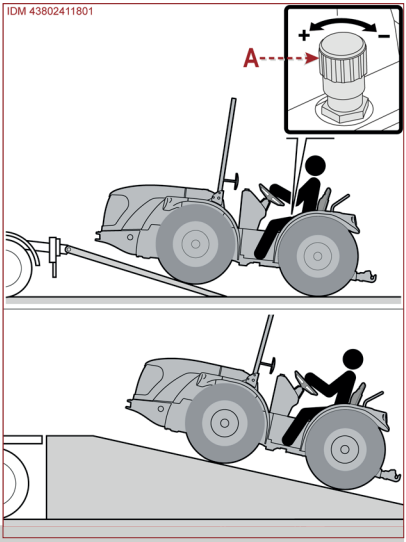
1\ Start the engine.

2\ Raise the power lift by operating the respective controls.
For further details, refer to the paragraph *(→ p. 119)*.

- If the machine is started up in order to move it, operators must be aware of the procedures necessary to do so in safety.

3\ Screw the knob **(A)** completely to lock the power lift unit in the raised position.

4\ Remain properly seated in the driving position, and drive the machine onto the transporting vehicle.



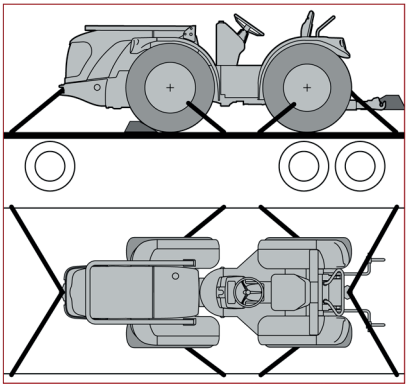
ATTENTION
Make sure that the ramps used to load the machine onto the vehicle are suitable for the weight of the machine.

5\ Switch off the engine, engage the parking brake and a low gear and remove the ignition key.

00-1218 - © Copyright Antonio Carraro

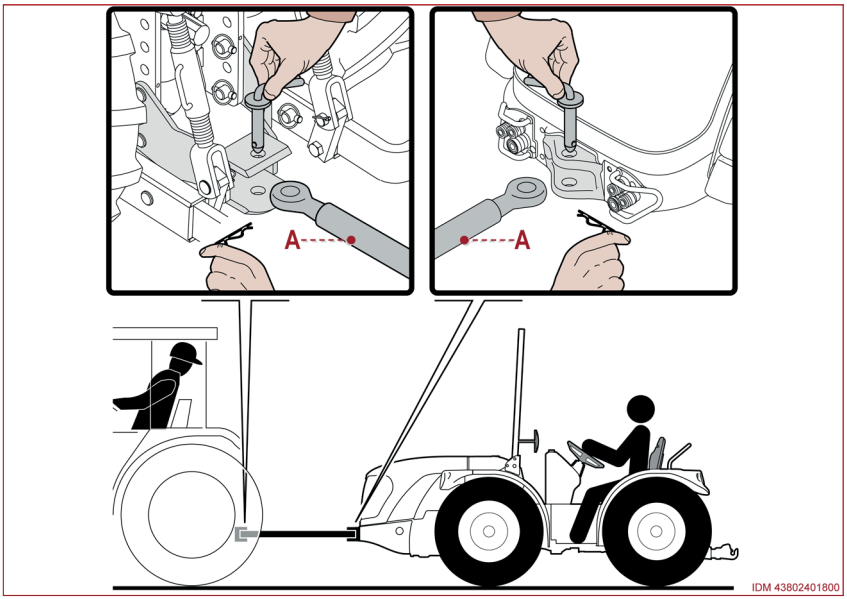
6\ Anchor the machine to the vehicle with ropes and wheel chocks, as in the illustration.

7\ Check that the shape of the machine does not exceed the maximum clearance of the means of transport and, if necessary, lower the safety arch.



04.4. MACHINE EMERGENCY TOWING METHOD

Proceed as indicated to perform this operation.



1\ Hitch the bar **(A)** to the front emergency hook of the machine and to that of the vehicle used to tow it.

IMPORTANT_Check that the hitching pins are correctly inserted and blocked using the relative safety cotters in order to prevent accidental disconnection.

2\ Place the gear and reverser lever in 'neutral gear' position.
3\ Disengage the parking brake.
4\ Tow the machine with an operator seated in the driving seat.

- If possible, tow the machine with its engine running to permit the hydrostatic steering system to operate.
- The steering will feel heavier if the machine is towed with the engine off.

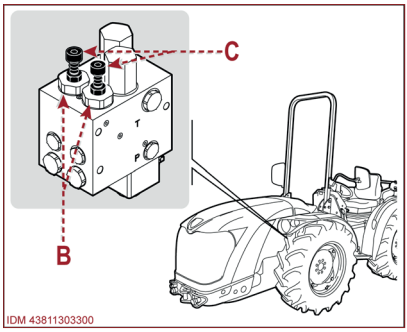
IMPORTANT_Only use vehicles of adequate size and power to tow the machine.

- **The machine can be towed only for short distances at a speed not exceeding 10 km/h.**

5\ On completion of towing, return the machine immediately to normal operating conditions.

04.4.1. Releasing the “Superbrake” device (optional) (if available)

- If the machine is towed with the engine off, it is necessary to release the “Superbrake” device temporarily.



1\ Loosen the locknuts **(B)**.
2\ Tighten the screws **(C)** by about 3 and a half turns.
3\ Tighten the locknuts **(B)**.
4\ Tow the machine with an operator seated in the driving seat.

- After towing ALWAYS restore the machine to its original conditions as indicated.

1\ Loosen the locknuts **(B)**.
2\ Undo the screws **(C)** by about 3 and a half turns.
3\ Tighten the locknuts **(B)**.

ATTENTION
When the machine is in motion with the engine off, the “Superbrake” device is activated only by pressing the brake pedal.

- **Take great care in situations of danger which could occur due to sudden braking.**

00-1218 - © Copyright Antonio Carraro

05
INFORMATION ON ADJUSTMENTS

05.1. RECOMMENDATIONS REGARDING ADJUSTMENTS

- Staff carrying out interventions must know the procedures, respect the safety warnings and adopt the necessary measures for safety in the work place.
- Unless otherwise indicated, every adjustment must be carried out with machine stopped in safe conditions.

Machine stopped in safe conditions

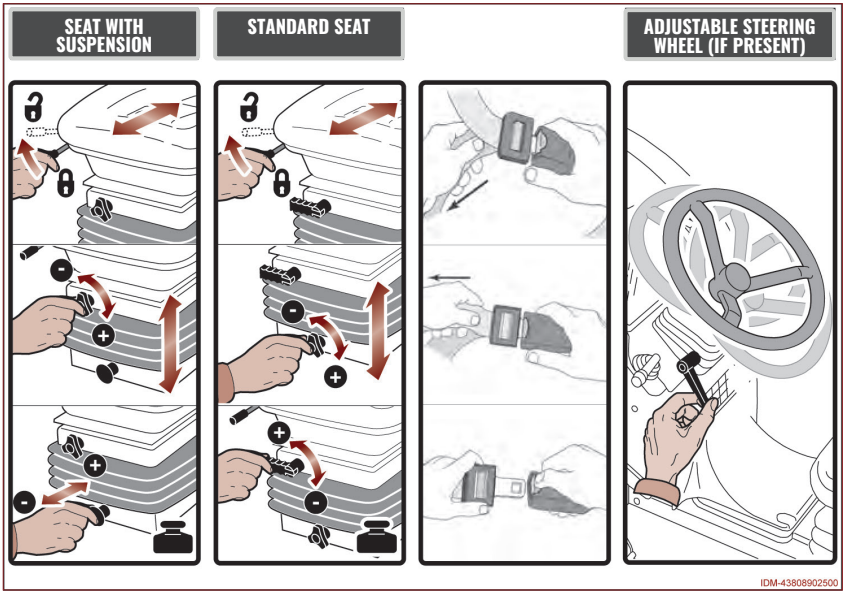
This state foresees the listed conditions to be carried out in the indicated order.
- Position the machine on to a stable and flat surface.
- Engage the reverser lever in the 'forward gear' or 'reverse gear' position. (if present)
- Place the gear lever in 'first gear' position.
- Engage the parking brake of the tractor.
- Deactivate the PTO of the tractor.
- a) With equipment carried: lower the power lift unit until it rests on the ground.
- b) With equipment towed: engage the parking brake of the equipment.
- Switch off the engine and remove the ignition key.
- Place the safety wedges below the wheels to improve stopping conditions.

05.2. ADJUSTING THE DRIVING POSITION

To obtain suitable ergonomic conditions, the steering wheel and the driver's seat can be adjusted by the driver.

- The illustrations represent how to perform the necessary adjustments.

ATTENTION
Only make adjustments with the machine stationary.
After the adjustment has been made, check that the steering wheel is blocked in position.

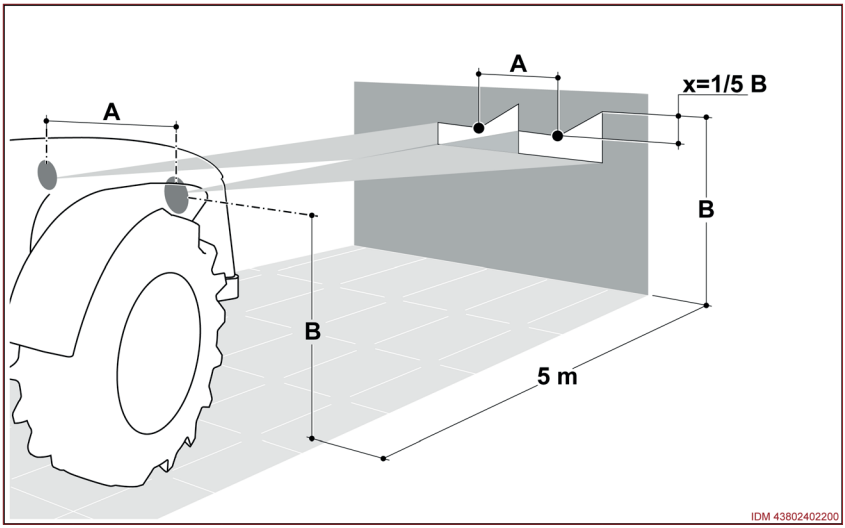


00-1218 - © Copyright Antonio Carraro

00-1218 - © Copyright Antonio Carraro

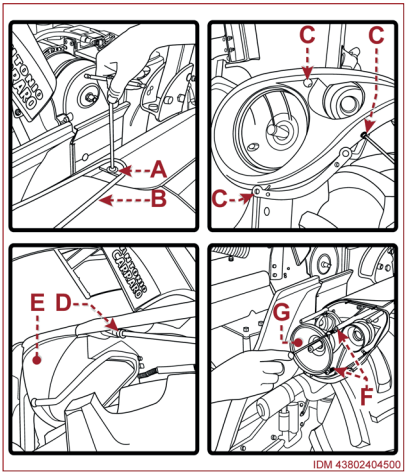
05.3. ADJUSTMENT OF HEADLIGHTS

Position the machine on level ground at a distance of 5 metres from a wall. Check that there is no load on the machine and that the pressure of the tyres is normal and correct.



- Switch on the low beam lights and check that orientation is correct (see figure).
- If the orientation is not correct, proceed as indicated.

1\ Undo the screws **(A)** and remove the protection grid **(B)** (if present).
2\ Undo the screws **(C)**.
3\ Undo the screw **(D)** and remove the support **(E)**.
4\ Turn the screws **(F)** to adjust the position of the headlights **(G)**.



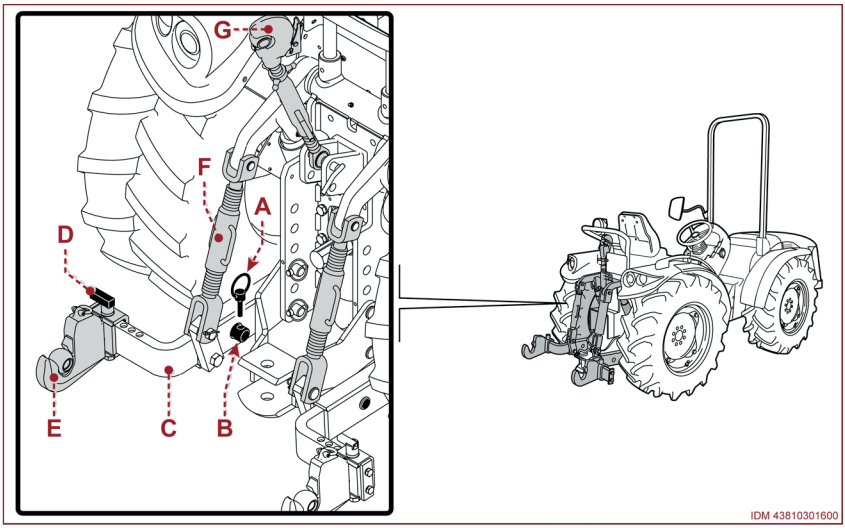
IMPORTANT_When driving on the road, the headlights must be adjusted so as not to dazzle the drivers of other vehicles, and in accordance with the regulations of the highway code.

5\ Refit the support **(E)** and the protection grid **(B)** when you have finished.

05.4. ADJUSTMENT OF THE REAR LIFTING UNIT WITH "QUICK COUPLING"

This adjustment must be made whenever the machine is coupled with an interchangeable tool that has different hitching points from the one fitted previously.

- If it is the first time that coupling is performed with a type of carried interchangeable tool, it is necessary to check that the weight (at its barycentre) is compatible with the maximum capacity accepted at the machine hitching point.
- Evaluate whether it is necessary to install ballasts, in order to maintain the stability of the machine during working phases.



1\ Approach the machine to the interchangeable tool to be hitched.
2\ Lower the booms of the power lift unit to the height of the hitching points of the interchangeable tool.
3\ Stop the machine in safe conditions.
4\ Remove the safety cotters **(A)** and slide out the pins **(B)**.
5\ Adjust the projection of the boom **(C).**
6\ Insert the pins **(B)** and block them with the safety cotters **(A)**.
7\ Repeat the operation on the other side.
8\ Lift the pin **(D)**, adjust the position of the hook **(E)** and release the pin to lock the hook in position.
9\ Repeat the operation on the other side.
10\ Release the safety retainers of the tie-rods **(F)** and adjust them to define the height of the booms **(C)**.
11\ Release the safety retainer of the strut **(G)**, adjust its length and block the retainer again.

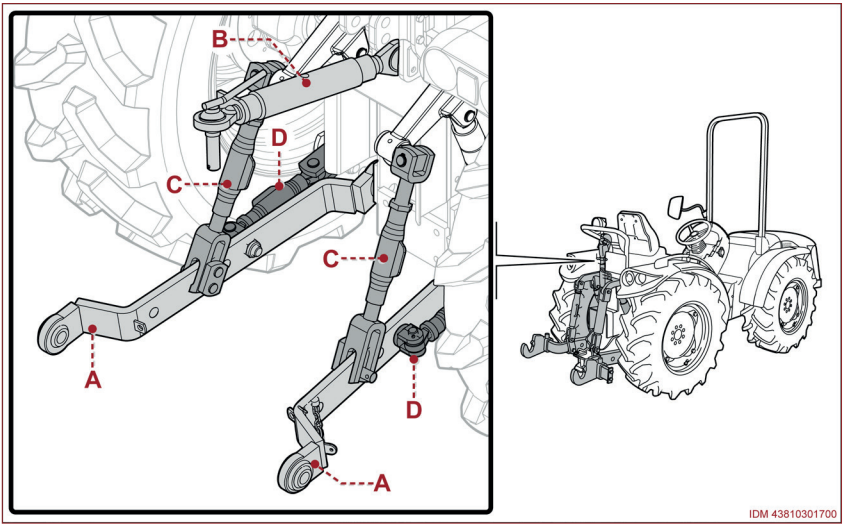
00-1218 - © Copyright Antonio Carraro

00-1218 - © Copyright Antonio Carraro

05.5. ADJUSTMENT OF THE REAR LIFTING UNIT WITH "BALL JOINT"

This adjustment must be made whenever the machine is coupled with an interchangeable tool that has different hitching points from the one fitted previously.

- If it is the first time that coupling is performed with a type of carried interchangeable tool, it is necessary to check that the weight (at its barycentre) is compatible with the maximum capacity accepted at the machine hitching point.
- Evaluate whether it is necessary to install ballasts, in order to maintain the stability of the machine during working phases.



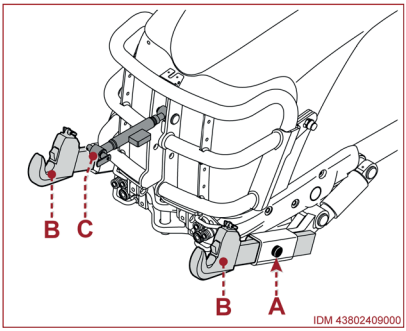
1\ Approach the machine to the interchangeable tool to be hitched.
2\ Lower the booms of the power lift unit to the height of the hitching points of the interchangeable tool.
3\ Stop the machine in safe conditions.
4\ Release the safety retainers of the tie-rods **(C)** and adjust them to define the height of the booms **(A)**.
5\ Release the safety retainer of the strut **(B)**, adjust its length and block the retainer again.
6\ The tie-rods **(D)** stabilise the lifting booms **(A)** after having hitched the interchangeable tool.

00-1218 - © Copyright Antonio Carraro

05.6. ADJUSTMENT OF THE FRONT POWER LIFT UNIT

This adjustment must be made whenever the machine is coupled with an interchangeable tool that has different hitching points from the one fitted previously.

- If it is the first time that coupling is performed with a type of carried interchangeable tool, it is necessary to check that the weight (at its barycentre) is compatible with the maximum capacity accepted at the machine hitching point.
- Evaluate whether it is necessary to install ballasts, in order to maintain the stability of the machine during working phases.



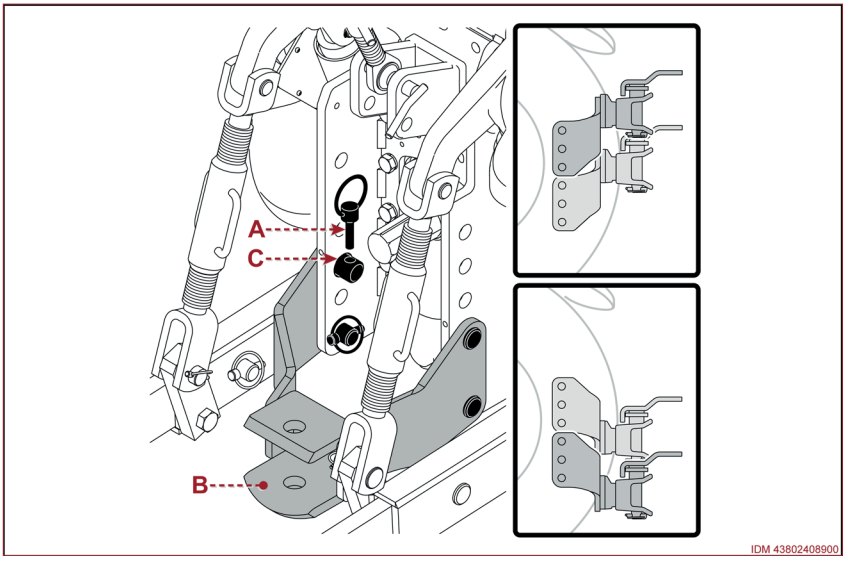
1\ Approach the machine to the interchangeable tool to be hitched.
2\ Lower the booms (B) of the power lift unit to the height of the hitching points of the interchangeable tool.
3\ Stop the machine in safe conditions.
4\ Remove the safety cotters and slide out the pins **(A)**.
5\ Adjust protrusion of the arm **(B).**
6\ Insert the pins **(A)** and block them with the safety cotters.
7\ Repeat the operation on the other side.
8\ Release the safety retainer of the strut **(C)**, adjust its length and block the retainer again.

05.7. ADJUSTMENT OF TOW HOOK HEIGHT

This adjustment must be made whenever the machine is coupled with an interchangeable tool that has different hitching points from the one fitted previously.

- If it is the first time that coupling is performed with a type of interchangeable tool, it is necessary to check that the maximum drive effort and the vertical effort are compatible with those of the machine tow hook.
- Evaluate whether it is necessary to install ballasts, in order to maintain the stability of the machine during working phases.

00-1218 - © Copyright Antonio Carraro



1\ Approach the machine to the interchangeable tool to be hitched.
2\ Remove the safety cotters of the pins **(A)**.
3\ Support the rear hook **(B)** and slip out the pins **(C)**.

- **If necessary, carry out the operation with the aid of an assistant.**

4\ Adjust the height and position (normal or inverted) of the tow hook **(B)** and insert the pins **(C)**.
5\ Lock the pins **(C)** with the safety cotters **(A)**.

ATTENTION
Do not hitch any towed interchangeable tool if the tow hook is damaged.

- **Check that the pins and safety cotters are correctly inserted and in good condition.**

00-1218 - © Copyright Antonio Carraro

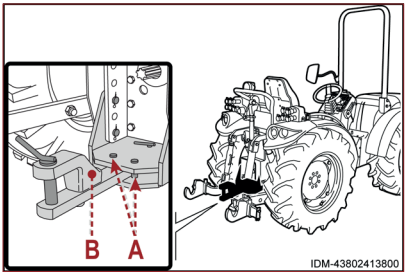
05.8. POSITION ADJUSTMENT OF THE OSCILLATING TOW BAR

This adjustment must be made whenever the machine is coupled with an interchangeable tool that has different hitching points from the one fitted previously.

- If it is the first time that coupling is performed with a type of interchangeable tool, it is necessary to check that the maximum drive effort and the vertical effort are compatible with those of the machine tow hook.
- Evaluate whether it is necessary to install ballasts, in order to maintain the stability of the machine during working phases.

IMPORTANT_The machine equipped with oscillating tow bar is not approved for travelling on public roads.

1\ Approach the machine to the interchangeable tool to be hitched.
2\ Stop the machine in safe conditions.
3\ Remove the safety cotters and slide out the pins **(A)**.
4\ Turn the tow bar **(B)** in the point corresponding to the area of interest.
5\ Insert the pins **(A)** and block them with the safety cotters.



ATTENTION
Do not hitch any towed interchangeable equipment if the drawbar is damaged or if the engagement devices do not function correctly.

05.9. TRACK CHANGE-OVER

Before changing track, see the paragraph "Machine tracks" to assess and identify the one best suited to the actual operating requirements.

IMPORTANT_This operation must be performed in a workshop equipped with suitable tools and by staff with precise technical skills.

- After every track change operation it must be checked that the wheels do not interfere with the bodywork or other parts of the machine.

06
OPERATING INSTRUCTIONS

06.1. RECOMMENDATIONS FOR USE AND FUNCTIONING

- The incidence of accidents related to the use of machines depends on many factors that are not always possible to prevent and control.
- Some accidents may depend on unforeseeable environmental factors. Many, however, are caused by 'reckless' driving.
- At first use, the driver must ONLY use the machine after having read the use and maintenance manual, having identified the control functions and having simulated some manoeuvres.
- The knowledge of the functions of all controls is important in order to perform the manoeuvres correctly and naturally.
- The machine must be driven carefully and responsibly, without losing attention in order to perceive potential risks that may exist.
- The machine must be driven ONLY if the driver is in suitable psycho-physical conditions and has suitable skills to perform the activities requested.
- Before operating the machine, the driver must make sure that all safety devices are correctly installed and functioning.

- Caution is always necessary. Safety is also in the hands of the operators working the tractor throughout its life span. It is always too late to remember what should have been done when it has already occurred.

06.2. DESCRIPTION OF CONTROLS

For easier traceability and identification, the controls have been subdivided as follows.

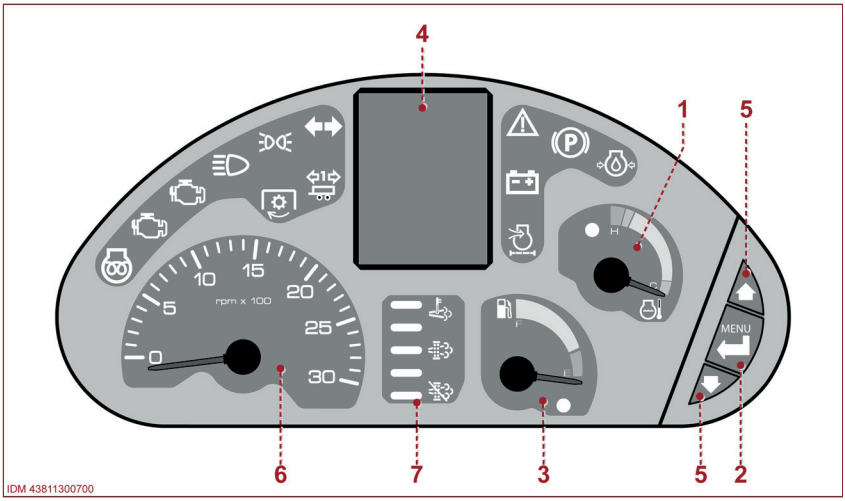
- Instruments and warning lights. *(→ p. 93)*
- Dashboard controls *(→ p. 111)*
- Drive and stop controls *(→ p. 116)*
- Work controls *(→ p. 117)*
- Standard power lift unit controls *(→ p. 119)*
- 'Draft control' power lift unit controls *(→ p. 121)*
- Description of front power lift unit controls *(→ p. 124)*
- Description of “Joystick” controls *(→ p. 126)* (only for SRX model machines)
- Cab controls *(→ p. 129)*

00-1218 - © Copyright Antonio Carraro

00-1218 - © Copyright Antonio Carraro

06.3. DESCRIPTION OF INSTRUMENTS AND LEDS

The illustration represents the devices, while the list gives their description and function.



1. **Temperature gauge**: indicates the temperature of the engine coolant.
2. **“Menu”/“Enter” button**: for entering the menu of the multifunction display and confirming the choices made.
3. **Fuel level indicator**: indicates the fuel level in the tank.
4. **Multifunction display**. *(→ p. 96)*
5. **"Up"/"Down" buttons**: for selecting the items on the menu.
6. **Engine tachometer**: indicates the engine revolutions (RPM).
7. **Indicator of level of clogging of the DPF filter**.

Symbol	Description	Type of signal	See
	General alarm: operating fault.	Intermittent red LED + audible warning	(**)
	Parking: parking brake activated.	Red LED	*(→ p. 116)*
	Oil pressure: engine oil pressure insufficient.	Red LED	

Symbol	Description	Type of signal	See
	**Battery charge**: the alternator is not charging the battery.	Red LED	
	**Air filter clogged**.	Red LED	
	**Engine breakdown**: engine breakdown.	Red LED	*(→ p. 111)*
	**Rear PTO**: rear power take-off activated.	Amber LED	*(→ p. 111)*
	**Glow plugs**: preheating of the glow plugs.	Amber LED	*(→ p. 135)*
	**Engine breakdown**: engine breakdown.	Amber LED	*(→ p. 111)*
	High temperature of the exhaust gases	Amber LED	*(→ p. 111)*
	**DPF clogged**	Fixed amber LED Intermittent amber LED + audible warning	(**) *(→ p. 140)*
	Regeneration inhibited	Amber LED	*(→ p. 140)*
	**Fuel reserve**: fuel in reserve.	Amber LED	
	**Engine temperature**: temperature of the coolant is too high.	Red LED	
	**Full beam lights**: full beam lights activated.	Blue LED	*(→ p. 111)*

00-1218 - © Copyright Antonio Carraro

00-1218 - © Copyright Antonio Carraro

Symbol	Description	Type of signal	See
	**Indicators**: direction indicators activated.	Green LED blinking	*(→ p. 111)*
	**Side lights**: side lights or low beam lights activated.	Green LED	*(→ p. 111)*
	**Trailer indicators**: direction indicators of the interchangeable equipment activated.	Green LED blinking	*(→ p. 111)*

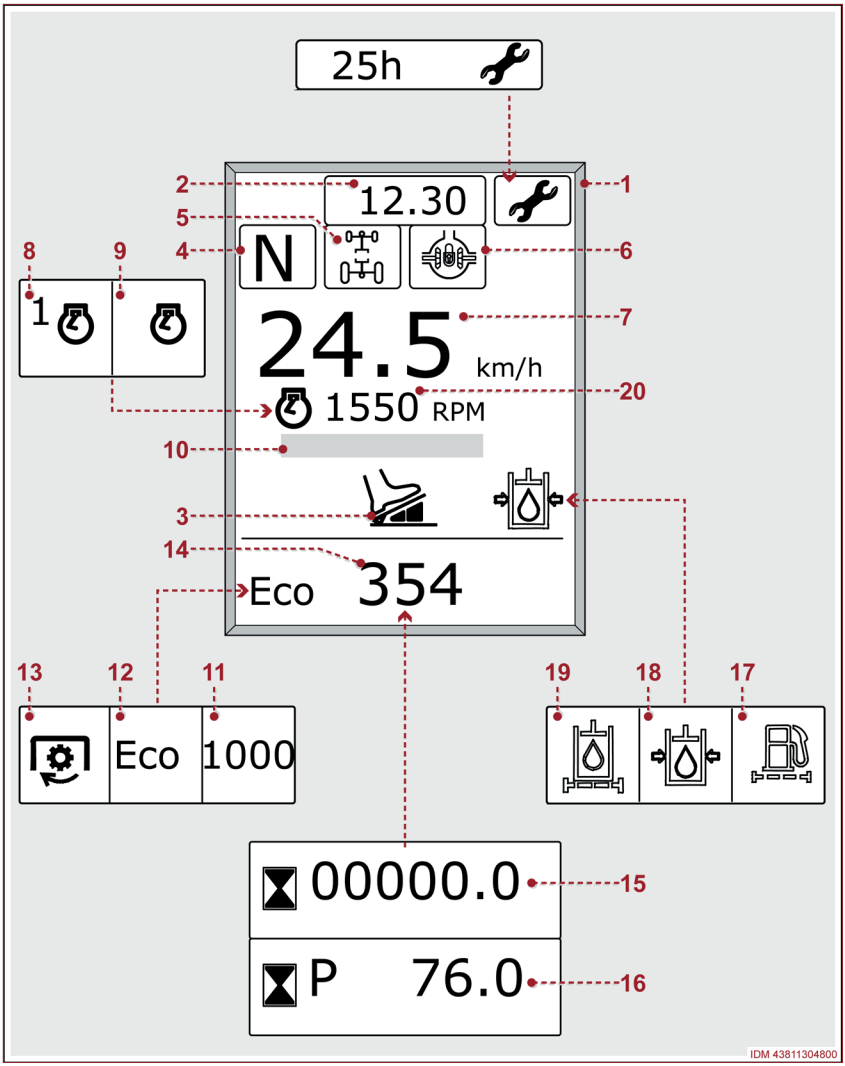
(**) The audible warning remains active only if the engine is running, until the problem is eliminated.

IMPORTANT_When the LEDs combined with the audible warning switch on, stop the engine immediately so as not to cause damage.
The fault continues to be signalled by the reference warning light being on even with the engine off, provided the machine has been stopped with the ignition key in position 2 (stand-by).

06.4. DESCRIPTION OF THE MULTIFUNCTION DISPLAY

06.4.1. HOME Screen

This is the normal working screen.



00-1218 - © Copyright Antonio Carraro

00-1218 - © Copyright Antonio Carraro

1. **Service indicator**: indicates the servicing deadlines. *(→ p. 97)*
2. **Clock**: indicates the present time. *(→ p. 106)*
3. **Drive pedal sensitivity**: indicates the drive mode selected. *(→ p. 100)*
4. **Neutral·** indicates that the reverser is in neutral. *(→ p. 116)*
5. **Drive disengaged**: indicates that front-wheel drive is deactivated
6. **Differential lock**: indicates that the differential locking device is active.
7. **Speed**: shows the current tractor speed.
8. **Memo RPM**: indicates that the Memo RPM function is active. (If present) *(→ p. 116)*
9. **Instant RPM**: indicates that the Instant RPM function is active. (If present) *(→ p. 116)*
10. **Additional information**: allows you to view some data after selecting from the appropriate menu. *(→ p. 103)*
11. **PTO 1000**: indicates that the 1000 function of the PTO is active. *(→ p. 117)*
12. **PTO ECO**: indicates that the ECO function of the PTO is active. *(→ p. 117)*
13. **PTO Standard**: indicates that the standard PTO is active. *(→ p. 117)*
14. **PTO revolutions**: indicates that the independent PTO is active and shows the number of revolutions. *(→ p. 117)*
15. **Total hour counter**: shows the total number of hours worked. *(→ p. 98)*
16. **Partial hour counter**: shows the partial number of hours worked. *(→ p. 98)*
17. **Clogged separator filter** *(→ p. 195)*
18. **Hydraulic oil pressure**: hydraulic oil pressure insufficient (unit 1). *(→ p. 195)*
19. **Hydraulic oil filter**: hydraulic circuit filter clogged. *(→ p. 195)*
20. **Saved RPM**: shows the number of revolutions of the Memo RPM/Instant RPM functions (If present).

06.4.2. Service Indicator

The service indicator indicates only the maintenance that requires changing the oil. All the other servicing deadlines (replacing parts, checking levels, cleaning, etc.) are indicated in the respective table. *(→ p. 171)*.

Starting the tractor

After the check phase, the service message appears each time on the display for 5 seconds. Next to it are indicated the hours left until the next service.



IDM 43811304900

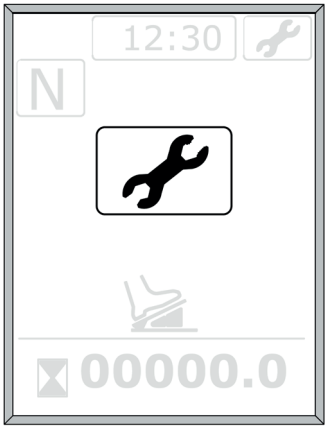
20 hours or less to the next service
The service icon remains fixed on the display even during work phases.

Service overdue
After the service deadline, the minus sign appears before the indication of the hours.

50 hours after the service deadline (-50)

At each start, after the check phase, a warning screen is displayed for 5 seconds accompanied by the continuous buzzer for 3 seconds.
Any other error signals are not displayed until the 5 seconds are up.

IMPORTANT_At any time, with the panel on, the engine off and the vehicle stationary, it is possible to see the hours remaining until the next service by consulting the appropriate menu. *(→ p. 105)*



IDM 43811305000

06.4.3. Hour Counter

By default displays the total working hours of the machine.
To change from total to partial hours and vice versa, press the button .

***NOTE**_with PTO active, the type of PTO activated and the number of revolutions of the PTO always appear in this area of the display.*

Resetting the partial hour counter
1\ Show the partial hour counter on the display.
2\ Hold down the button for 2 seconds.



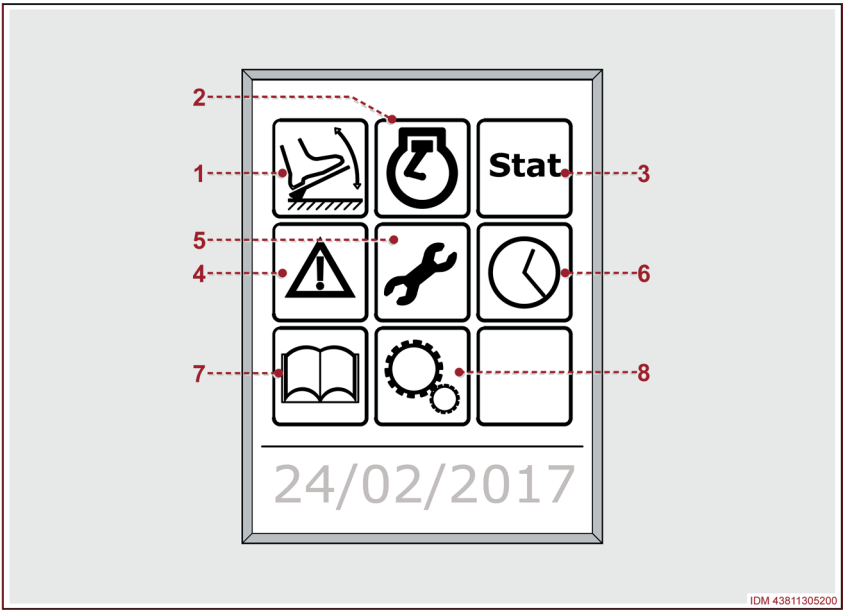
IDM 43811305100

00-1218 - © Copyright Antonio Carraro

00-1218 - © Copyright Antonio Carraro

06.4.4. Menu

With the panel on, the engine off and the vehicle stationary, it is possible to access the Menu. To access the menu, press the button MENU.



1. **Pedal Sensitivity** Menu
2. **Memo RPM** Menu (If present).
3. **Additional Information** Menu
4. **Warning** Menu.
5. **Service** Menu.
6. **Date/Time** Menu.
7. **Info** Menu.
8. **General Settings** Menu

- To leave the menus or the various sub-menus without saving the settings, press the button MENU, again or wait 30 seconds.

NOTE_In each sub-menu, after the settings have been confirmed, the word "WAIT" appears, followed by "OK" when the setting is made. The display returns to the main menu. If the word "FAIL" appears, it has not been possible to make the changes. The operation must therefore be repeated.

Pedal Sensitivity Menu

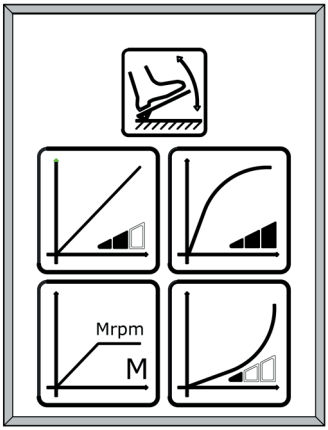
IMPORTANT_In order to change the settings, the vehicle must be stationary.

1\ Press the button MENU.
2\ Select the menu icon as in the figure using the buttons ▼ and ▲.
3\ Press button MENU to confirm.



IDM 43811307000

4\ Set the curve using the buttons ▼ and ▲.
5\ Press button MENU to confirm.



IDM 43811307100

Menu icon	Display icon	Name	Description	Notes
		Drive Mode 1 (default)	Linear drive Linear management of the engine speed 100% of the maximum speed available.	Ideal for most operations.
		Drive Mode 2	Gradual drive without jerking POWER (²) management of the engine speed 100% of the maximum speed available.	Ideal for travelling on the road with mounted or trailed implements.

00-1218 - © Copyright Antonio Carraro

00-1218 - © Copyright Antonio Carraro

Menu icon	Display icon	Name	Description	Notes
		Drive Mode 3 (If present)	Linear drive Linear management of the engine speed The maximum engine speed available is that of the parameter M1 set in the RPM Memo Menu (If present)	Ideal for operations where a low noise impact is required and a reduced fuel consumption.
		Drive Mode 4	Precise and prompt drive ECO management (1) of the engine speed 100% of the maximum speed available.	Ideal for very small movements (use of forklift or working in rows).

(1) ECO: in the first 3/4 of the drive pedal stroke, few engine revolutions are supplied. The rest are supplied in the last quarter.
(2) POWER: in the first quarter of the drive pedal stroke it supplies most of the engine revolutions. The rest are supplied in the last 3/4.

Memo RPM Menu (If present)

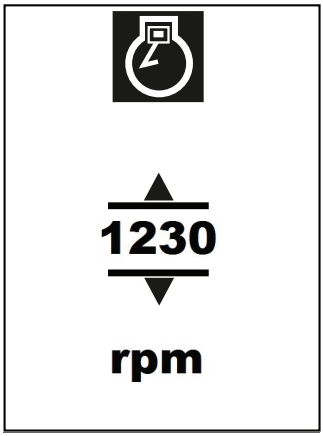
IMPORTANT_In order to change the settings, the Memo RPM function must not be active and the vehicle must be stationary.

1\ Press the button MENU.
2\ Select the menu icon as in the figure using the buttons ▼ and ▲.
3\ Press button MENU to confirm.



IDM 43811305400

4\ Set the value using the buttons ▲ and ▼.
5\ Press button MENU to confirm.



NOTE_*The variation is of 10 rpm.*
Minimum settable value: min engine rpm.
Maximum settable value: max engine rpm

IMPORTANT_It is possible to save the engine revolutions also by setting a value from the gas control and holding down the Memo RPM button for more than 5 seconds. *(→ p. 111)*

00-1218 - © Copyright Antonio Carraro

00-1218 - © Copyright Antonio Carraro

Additional Information Menu

1\ Press the button MENU.
2\ Select the menu icon as in the figure using the buttons ▼ and ▲.
3\ Press button MENU to confirm.

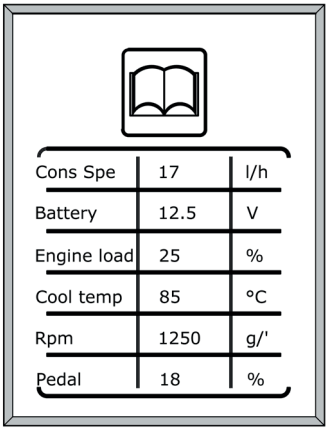


IDM 43811307200

4\ Select the value that you want to display using the buttons ▼ and ▲.
- › *Cons Spec: displays the instantaneous fuel consumption (l/h)*
- › *Battery V: displays the instantaneous battery voltage (V)*
- › *Eng Load: Displays the engine load (%). The percentage refers to the absorbed power*
- › *Cool Temp: displays the temperature of the engine coolant (°C)*
- › *Rpm: displays the engine speed (RPM).*
- › *Pedal: shows the used percentage of the engine gas.*
- › *No Value: no value is displayed*

5\ Press button MENU to confirm.

6\ The selected value will be shown in the display area.



IDM 43811307300



IDM 43811307400

Warning Menu

The error codes are displayed in this menu. *(→ p. 195)*

1\ Press the button MENU.
2\ Select the menu icon as in the figure using the buttons ▼ and ▲.
3\ Press button MENU to confirm.

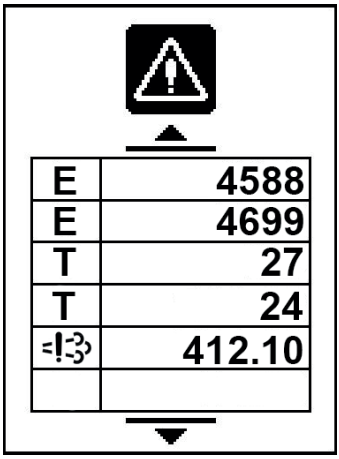


IDM 43811305500

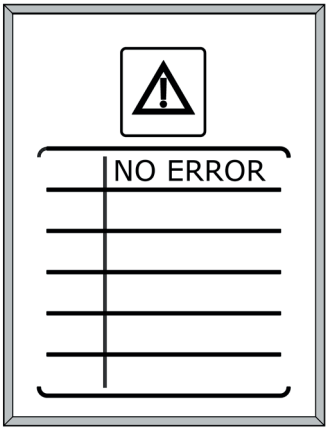
4\ Read any error codes and notify them to the authorised workshop.

The error codes are composed of a letter, indicating the type of error, and a series of numbers that identify it.

The error codes will be present until the fault is eliminated.



If there are no active errors, a screen appears with the message 'NO ERR'



IDM 43811305700

00-1218 - © Copyright Antonio Carraro

00-1218 - © Copyright Antonio Carraro

Service Menu

The hours remaining until the next service are displayed in this menu. *(→ p. 97)*

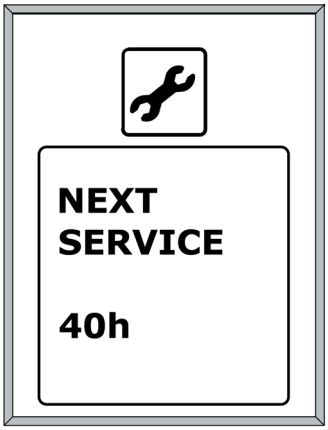
1\ Press the button MENU.
2\ Select the menu icon using the buttons ▼ and ▲.
3\ Press button MENU to confirm.



IDM 43811305800

4\ The screen indicates the hours remaining until the next service.

After the service deadline, the minus sign appears before the indication of the hours.



IDM 43811305900

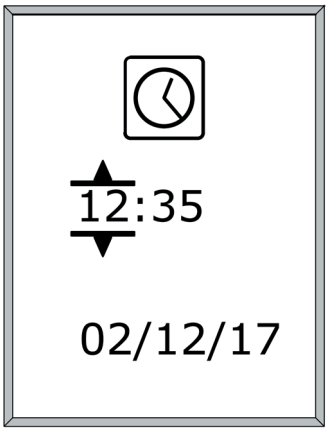
Time and date setting menu

1\ Press the button MENU.
2\ Select the icon as in the figure using the buttons ▼ and ▲.
3\ Press button MENU to confirm.



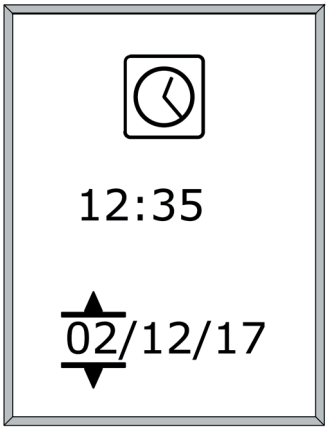
IDM 43811305300

4\ Set the hour (0-24) using the buttons ▲ and ▼.
5\ Press button MENU to confirm.
6\ Set the minutes using the buttons ▼ and ▲.
7\ Press button MENU to confirm.



IDM 43811306000

8\ Set the day using the buttons ▼ and ▲.
9\ Press button MENU to confirm.
10\ Set the month using the buttons ▼ and ▲.
11\ Press button MENU to confirm.
12\ Set the year using the buttons ▼ and ▲.
13\ Press button MENU to confirm.



IDM 43811306100

00-1218 - © Copyright Antonio Carraro

00-1218 - © Copyright Antonio Carraro

Info Menu

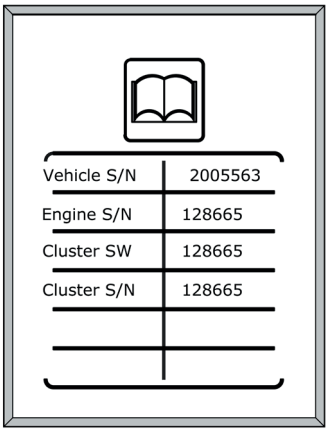
1\ Press the button MENU.
2\ Select the icon as in the figure using the buttons ▼ and ▲.
3\ Press button MENU to confirm.



IDM 43811306200

The INFO page shows:

- VEHICLE S/N: Serial number of the tractor.
- ENGINE S/N: Serial number of the engine.
- Cluster SW: Software of the multifunction instrument.
- Cluster S/N: Serial Number of the multifunction instrument



IDM 43811306300

General Settings Menu

1\ Press the button MENU.
2\ Select the icon as in the figure using the buttons ▼ and ▲.
3\ Press button MENU to confirm.

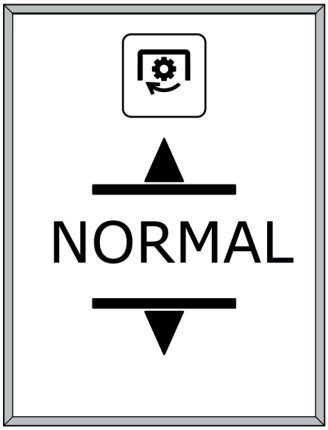


IDM 43811306400

PTO engagement ramps

- Select “Normal” or “Plus” using the buttons ▼ and ▲.
- Press button MENU to confirm.
- The “Normal” or “Plus” functions allow you to choose the time with which the PTO is activated.

  › *Normal: rapid PTO activation, recommended for implements with low inertia.*



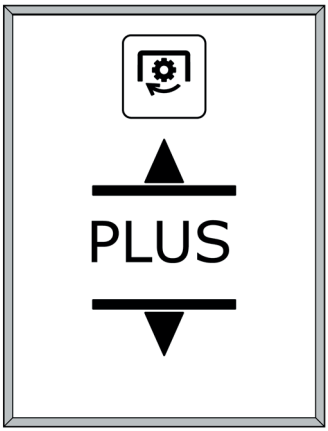
IDM 43811306500

00-1218 - © Copyright Antonio Carraro

00-1218 - © Copyright Antonio Carraro

› *Plus: slow PTO activation, recommended for implements with high inertia.*

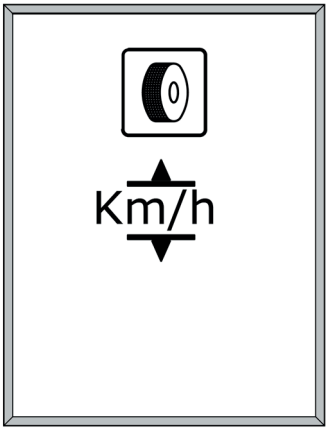
NOTE_At each new start the PTO ramp set is "Normal".



IDM 43811306600

Speed unit of measure

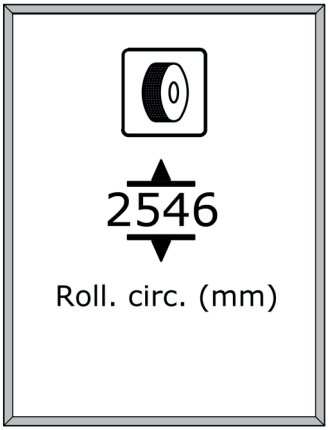
4\ Select the speed unit of measure using the buttons ▲ and ▼.
5\ Press button MENU to confirm.



IDM 43811306700

Rolling circumference of the tyres

6\ Set the rolling circumference of the tyres using the buttons ▲ and ▼.
7\ Press button MENU to confirm.

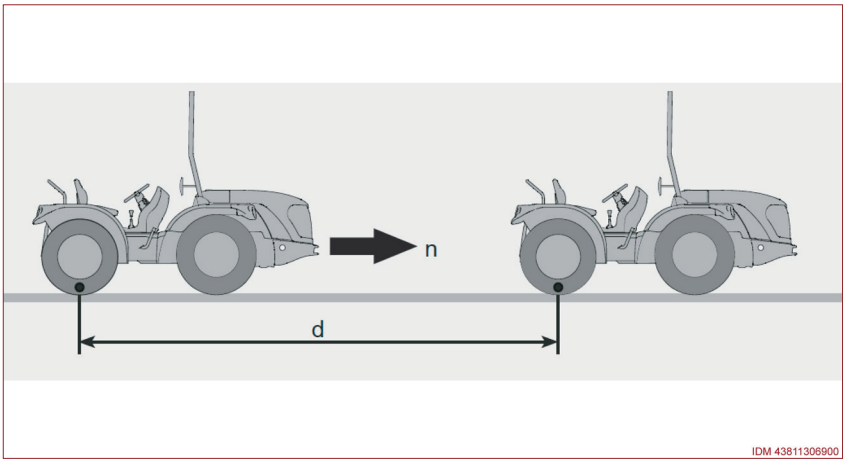


IDM 43811306800

00-1218 - © Copyright Antonio Carraro

The rolling circumference can be measured in the field as indicated below:

- Deactivate front wheel drive.
- Mark the rear tyre on the side in the point corresponding to the centre of the impression.
- Mark the ground in the point corresponding to the reference made on the tyre.
- Move forward at least 2 turns of the rear wheels.
- Mark the reference at the end of the turns on the ground.
- Measure the distances travelled by the rear wheels.



Calculation of the rolling circumference: $Cdr = \frac{d}{n}$

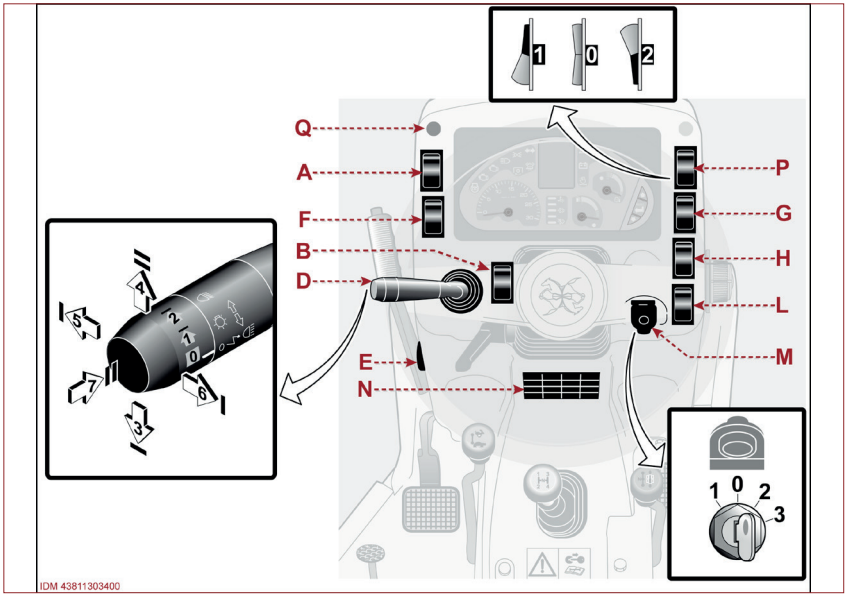
Key
Cdr = rolling circumference
d = distance travelled by the rear wheels
n = number of turns made by the rear wheels

IMPORTANT_It is recommended to check the actual rolling circumferences frequently on the field, to obtain more precise speed values.

00-1218 - © Copyright Antonio Carraro

06.5. DESCRIPTION OF DASHBOARD CONTROLS

The illustration represents the devices while the list gives the description and their function.



A. **Rotating light**: used to activate the rotating light.

B. **Hazard lights**: used to activate the hazard lights.

- The light on (flashing) signals that the function is activated.

D. **Multi-function control**: used to activate the functions listed.

- › ***Control in position 0 (OFF)****: disabled.*
- › ***Control in position 1****: the parking lights switch on.*
- › ***Control in position 2****: the low beam headlights switch on.*
- › ***Control in position 3****: the high beam headlights switch on.*
- › ***Control in position 4****: when this control is activated the high beam headlights flash repeatedly.*
- › ***Control in position 5****: the direction indicators (right) switch on.*
- › ***Control in position 6****: the direction indicators (left) switch on.*
- › ***Control in position 7****: when the control is pressed it activates the audible warning (horn).*

E. **Horn**: signals, in combination with a warning light coming on, a fault with the functioning of the machine. The fault is signalled by the audible warning only if the engine is running.

00-1218 - © Copyright Antonio Carraro

- The fault continues to be signalled by the reference warning light being on even with the engine off, provided the machine has been stopped with the ignition key in position 1 (stand-by). In the event of a fault with a sensor connected to the horn, the fault will continue to be signalled as long as the machine has been stopped with the ignition key in position "1" (stand-by).

F. **P. PTO for stationary use**: used to activate the rear PTO when work of a stationary nature has to be performed without the operator sitting in the driver's seat.

Proceed as indicated to activate·

1\ Sit in the driver's seat.

ATTENTION
Start the engine ONLY when sitting in the driver's seat.

- Before starting the engine, make sure that:
  - › *the power take-off is deactivated.*
  - › *the reverser lever is in neutral position.*
  - › *the parking brake is engaged.*
  - › *the clutch pedal is pressed.*

2\ Start the engine.
3\ Activate the power take-off.
4\ Press the switch **(F)** (for about 3 seconds) to activate. The display shows the icon .

Deactivation·

- Press the button **(F)**.
- Deactivate the power take-off.
- Disengage the parking brake without sitting in the driver's seat

G. **4 wheel drive on/off**: to enable/disable front wheel drive.

- The icon on the display  indicates that front wheel drive is disabled.

IMPORTANT_When driving on flat ground, it is recommended to disconnect the front-wheel drive during road circulation to avoid unnecessary wear of tyres and to improve manoeuvring of the machine. In downhill routes, especially with hitched interchangeable tools, the front wheel drive MUST be engaged to achieve a greater braking action.

H. **Differential lock**: used to activate the differential lock device.

- › ***Control in position 0****: the differentials of the front and rear axle unlock (no icon on the display).*
- › ***Control in position 1·*** *the differentials of the front and rear axle lock (the icon*  *lights up on the display).*

00-1218 - © Copyright Antonio Carraro

› ***Control in position 2****: the differential of the rear axle locks (the icon*  *lights up on the display).*

L. **PTO**: used to activate the rear power take-off.

- The LED lights to show that the function is active.

IMPORTANT_Whenever the power take-off is deactivated by the system (vehicle switched off, unmanned...), to reactivate it turn switch (L) to zero and turn it on again.

M. **Ignition switch**: used to switch on the engine.

- Keep the key pressed in slightly when turning the starter switch.

› ***Control in position "0"****: operation off and key can be removed.*
› ***Control in position "1"****: the dashboard lights and the parking lights switch on. The key can be removed.*
› ***Switch in position "2"****: engine glowplugs preheating starts and machine is checked.*
› ***Control in position "3"****: keep the key in position to start the engine.* On release, the key goes back to position '2'.

N. **Fuse box**: contains the fuses protecting the electrical system

P. **Regeneration**: for manual control of regeneration of the DPF filter *(→ p. 140)*

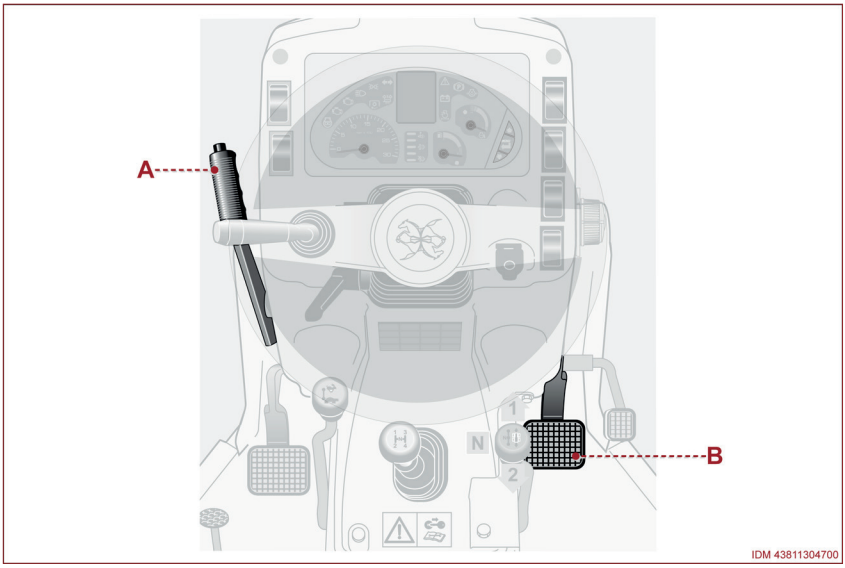
Q. **Memo RPM Button**: used to save and recall the engine speed (If present).

Recall:
- Press the button to recall the saved engine speed *(→ p. 102)*
- To deactivate the control, press the button again.

Saving:
1\ Set the engine speed with the gas control.
2\ Press and hold down the button for approximately 3 seconds to set the number of revolutions. In this way an instantaneous value is blocked which does not remain in the memory once the control is deactivated. To deactivate the control, press the button again.

06.6. USE OF THE “SUPERBRAKE” DEVICE (IF PRESENT)

The machine is equipped with an auxiliary electro-hydraulic device of the parking brake (Superbrake) that acts on all the wheels.



- The device increases the braking capacity and thus guarantees parking of the machine for a duration of about one hour.
- The device can be activated either with the machine off or with the machine on.

DANGER
Never leave the machine on sloping ground (engine on or off), even if the "Superbrake" device has been activated.

- **Always stop the machine under safe conditions when parking on sloping ground.**

00-1218 - © Copyright Antonio Carraro

00-1218 - © Copyright Antonio Carraro

- To activate the device, proceed as described.

1\ Sit in the driver's seat.
2\ Use the lever **(B)** to engage the parking brake.
3\ Fully press the brake pedal **(A)**.

- Alternatively, press down the brake pedal **(A)** and, at the same time, activate the parking brake **(B)**.

ATTENTION
The device is activated even with the machine in motion.

- **Take great care in situations of danger which could occur due to sudden braking.**

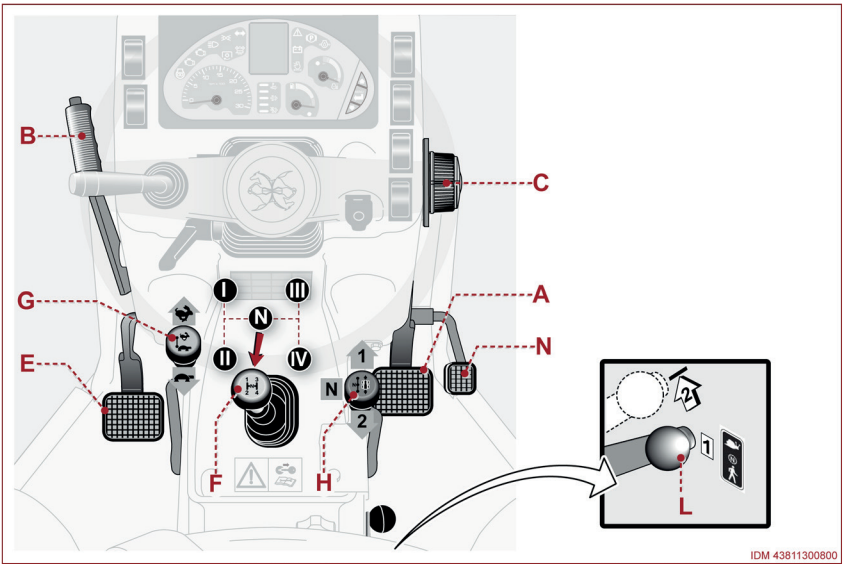
- To deactivate the device, proceed as described.

1\ Sit in the driver's seat.
2\ Use the lever **(B)** to engage the parking brake.
3\ Start the machine engine.
4\ Use the lever **(B)** to disengage the parking brake.

IMPORTANT_To deactivate the device with the machine off, see the respective paragraph. *(→ p. 81)*

06.7. DESCRIPTION OF DRIVE AND STOP CONTROLS

The illustration represents the devices while the list gives the description and their function.



A. **Service brake pedal:** for slowing and/or stopping the machine.

B. **Parking brake lever:** for blocking the machine in position when stopping or parking.

C. **Accelerator knob:** sets a constant engine speed.

ATTENTION
This lever is used only in starting and during use when a constant engine speed is required.

E. **Clutch pedal:** used to activate the clutch when engaging the gears.

F. **Gear change lever:** for selecting the gear.

G. **Lever:** for selecting the speed range ("high" or "low").
   - ***Control in "hare" position:*** *range of "high" speeds.*
   - ***Control in "tortoise" position:*** *range of "low" speeds.*

H. **Shuttle lever**: for selecting the direction of movement.
   - ***Control in position (N):*** *in neutral gear.*
   - ***Control in "forward arrow" position:*** *the machine moves in the direction of the arrow.*

00-1218 - © Copyright Antonio Carraro

00-1218 - © Copyright Antonio Carraro

› ***Control in "backward arrow" position:*** *the machine moves in the direction of the arrow.*

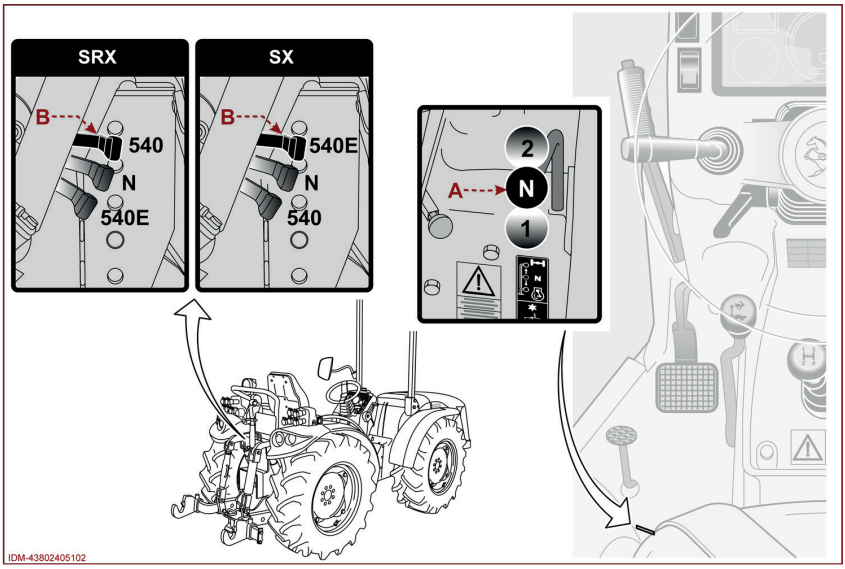
L. **Gear reduction lever:** for selecting the transmission ratio of the gears (normal or reduced).

› ***Control in position 1:*** *normal transmission ratio.*
› ***Control in position 2:*** *reduced transmission ratio.*

N. **Accelerator pedal:** varies the drive speed of the machine.

06.8. DESCRIPTION OF WORK CONTROLS

The illustration represents the devices while the list gives the description and their function.



A. **Power take-off lever:** for selecting the power take-off operating mode.

› ***Control in position (N):*** *drive OFF.*
› ***Control in position 1:*** *the power take-off works in 'independent mode' (speed synchronised with the number of engine revolutions).*
› ***Control in position 2:*** *the power take-off works in 'synchronised mode' (speed synchronised with the machine drive speed).*

B. **Lever:** for selecting the power take-off operating mode (number of revolutions per minute).

› ***Control in position (N):*** *drive OFF.*

- ***Control in position 540:*** *the power take-off works at 540 rpm.*
- ***Control in position 540E:*** *the power take-off works at 540 rpm with the engine at a lower (reduced consumption).*

IMPORTANT_The machine is equipped with a PTO safety brake that automatically activates when the levers **(A-B)** are in neutral position.

- **In the case of connection with towed drive equipment, put also the reduction gear of the equipment in neutral position or disconnect the cardan shaft to avoid damage to the PTO of the machine.**

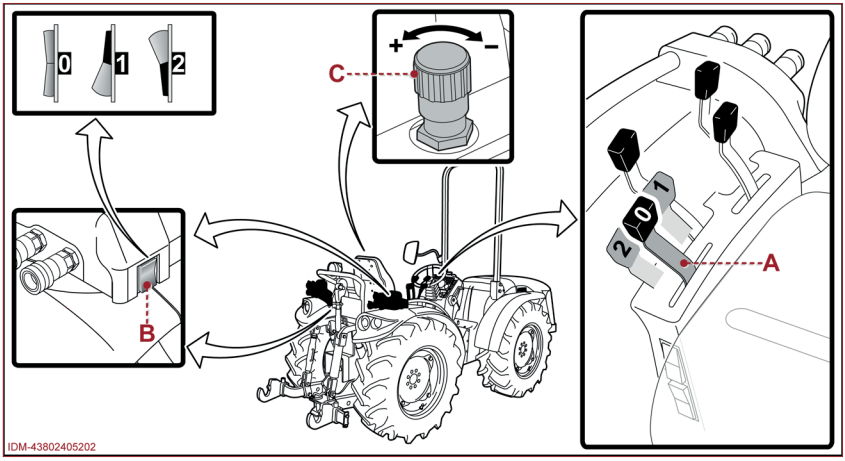
00-1218 - © Copyright Antonio Carraro

00-1218 - © Copyright Antonio Carraro

06.9. DESCRIPTION OF LIFTING UNIT CONTROLS (STANDARD)

The illustration represents the devices, while the list gives their description and function.

06.9.1. Standard power lift unit controls



A. **Lever**: used to activate the arms of the rear power lift unit.

- ***Control in position 0****: the arms of the power lift unit remain in their position.*
- ***Control in position 1****: the arms of the power lift unit are raised.*
- *On release from position 1, the control goes back to position 0.*
- ***Control in position 2****: the arms of the power lift unit are lowered.*
- *To stop the action, shift the control to position 0.*

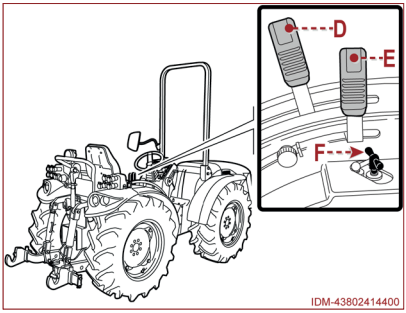
B. **Switch (maintained action)**: used to raise the power lift unit (with driver on the ground at the side of the machine) during hitching of the carried interchangeable tool (**Only for "Joystick" controls**)

- ***Control in position 0****: drive OFF.*
- ***Control in position 1****: the unit is raised.*
- ***Control in position 2****: the unit is lowered.*
- *On release from position 1-2, the control goes back to position 0.*

C. **Knob**: for adjusting the flow rate of the oil to the power lift unit.

06.9.2. Draft control power lift unit controls (only for SX model machines)

The illustration represents the devices while the list gives the description and their function.



D. **Lever**: for adjusting the position of the equipment during use.

E. **Lever**: for adjusting the force on the equipment during use.

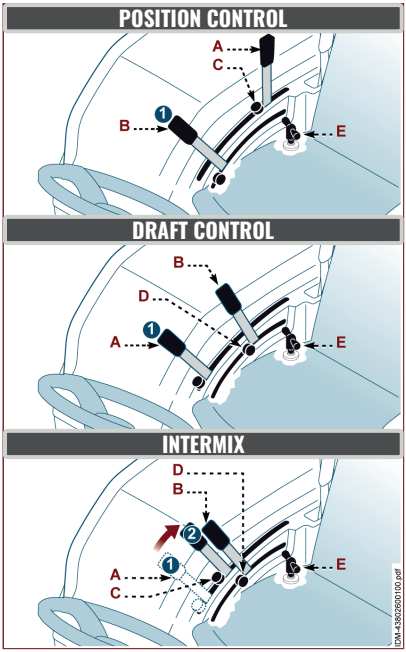
F. **Control knob**: used to adjust the rate of descent of the implement or lock it in a stable position

00-1218 - © Copyright Antonio Carraro

00-1218 - © Copyright Antonio Carraro

06.10. "DRAFT CONTROL" POWER LIFT UNIT USE MODE (SX)

Different operating modes can be selected, according to the type of implement and the soil conditions.



Position control

- This type of control keeps the implement at a constant soil-engaging depth.

1\ Use the lever **(B)** and bring it to its limit stop (pos. 1).
2\ Use the lever **(A)** to lower the implement until the desired position is reached.
3\ Position the retainer **(C)** aligned with the lever **(A)** to define the working position.
4\ Use the lever **(A)** to raise and lower the implement during use.

Draft control

- This type of control maintains a constant soil-engaging force at the implement.

1\ Use the lever **(A)** and bring it to its limit stop (pos. 1).
2\ Use the lever **(B)** to lower the implement until the desired position is reached.
3\ Position the retainer **(D)** aligned with the lever **(B)** to define the working position.
4\ Use the lever **(A)** to raise and lower the implement during use.

Intermix

- This type of control maintains a constant soil-engaging force at the implement and keeps it at a constant working depth.

1\ Use the lever **(A)** and bring it to its limit stop (pos. 1).
2\ Use the lever **(B)** to lower the implement until the desired position is reached.
3\ Position the retainer **(D)** aligned with the lever **(B)** to define the working position.
4\ Operate lever **(A)** until the lift arms start to rise.
5\ Position the retainer **(C)** aligned with the lever **(A)** to define the working position.
6\ Use the lever **(A)** to raise and lower the implement during use.

IMPORTANT_During operation, use the knob (E) to adjust the speed of the lifting assembly.

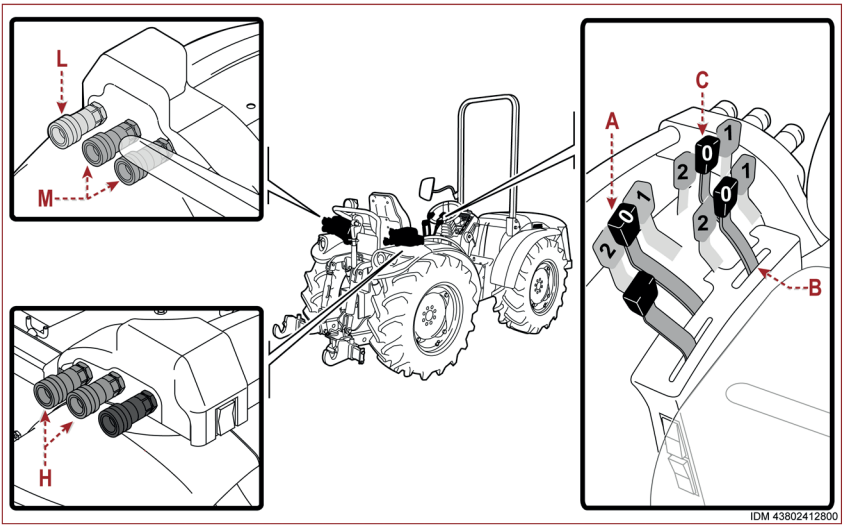
06.11. DESCRIPTION OF HYDRAULIC COUPLING CONTROLS (STANDARD)

The levers (A-B-C) activate the interchangeable tool hitched to the machine.

- As an alternative to the functions described, the levers **(A-B)** may be used to activate the front power lift unit.

IMPORTANT_DO NOT connect the quick couplings of the rear part and those of the front part (that have the same colour) to activate two interchangeable implements at the same time.

- The illustration represents the devices while the list gives the description and their function.



A. **Lever (maintained action)**: used to activate the red hydraulic couplings **(H)**.
   - › ***Control in position 0****: drive OFF.*
   - › ***Control in position 1-2****: activates the interchangeable implement.*
   - › *On release from position 1-2, the control goes back to position 0.*

B. **Lever**: used to activate the yellow hydraulic coupling **(L)**.
   - › ***Control in position 0****: drive OFF.*
   - › *On release from position 1, the control goes back to position 0.*
   - › ***Control in position 1****: activates the interchangeable implement.*
   - › ***Control in position 2****: activates the interchangeable implement, with opposite function to the one obtained with the control in position 1.*
   - › *On release from position 1-2, the control goes back to position 0.*

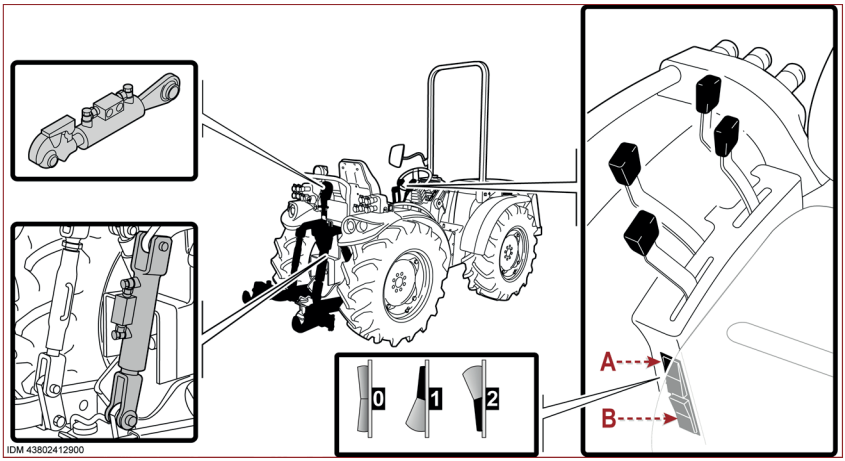
00-1218 - © Copyright Antonio Carraro

00-1218 - © Copyright Antonio Carraro

C. **Lever (maintained action)**: used to activate the green hydraulic couplings **(M)**.
   - › ***Control in position 0****: drive OFF.*
   - › ***Control in position 1-2****: activates the interchangeable implement.*
   - › *On release from position 1-2, the control goes back to position 0.*

06.12. DESCRIPTION OF THE VERTICAL LIFT ROD AND TOP LINK CONTROLS (OPTIONAL)

The illustration represents the devices while the list gives the description and their function.



A. **Luminous button with maintained action (yellow light)**: used to adjust the hydraulic control third point strut (rear power lift unit).

- The control is available only if the unit is equipped with this type of device.
   - › ***Control in position 0****: drive OFF.*
   - › ***Control in position 1****: the strut is lengthened.*
   - › ***Control in position 2****: the strut is shortened.*
     On release from position 1-2, the control goes back to position 0.

B. **Luminous button with maintained action (red light)**: used to activate the hydraulic tie-rod of the right arm of the rear power lifting unit.

- The control is available only if the unit is equipped with this type of device.
   - › ***Control in position 0****: drive OFF.*
   - › ***Control in position 1****: the arm is lowered.*
   - › ***Control in position 2****: arm is raised.*
     On release from position 1-2, the control goes back to position 0.

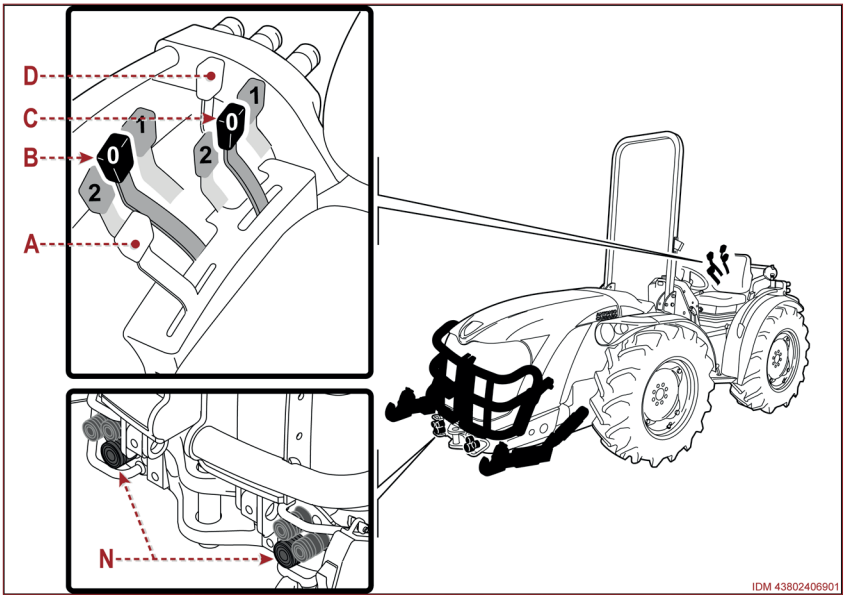
00-1218 - © Copyright Antonio Carraro

06.13. DESCRIPTION OF HYDRAULIC COUPLER AND FRONT LIFT CONTROLS (OPTIONAL)

The drives of the interchangeable implement hitched to the front lift unit are activated with the levers (B-C) .

IMPORTANT_DO NOT connect the quick couplings of the rear part and those of the front part (that have the same colour) to activate two interchangeable implements at the same time.

- The illustration represents the devices while the list gives the description and their function.



A. **Lever**: used to activate the arms of the rear power lift unit.

B. **Lever (maintained action)**: used to activate the red hydraulic couplings **(N)**.

   › ***Control in position 0****: drive OFF.*
   › ***Control in position 1-2****: activates the interchangeable implement.*
   › *On release from position 1-2, the control goes back to position 0.*

C. **Lever**· used to activate the arms of the front power lift unit.

   › ***Control in position 0****: the arms of the power lift unit remain in their position.*
   › ***Control in position 1****: the arms of the power lift unit are raised.*
   › *On release from position 1, the control goes back to position 0.*

00-1218 - © Copyright Antonio Carraro

› ***Control in position 2****: the arms of the power lift unit are lowered. To stop the action, shift the control to position 0.*

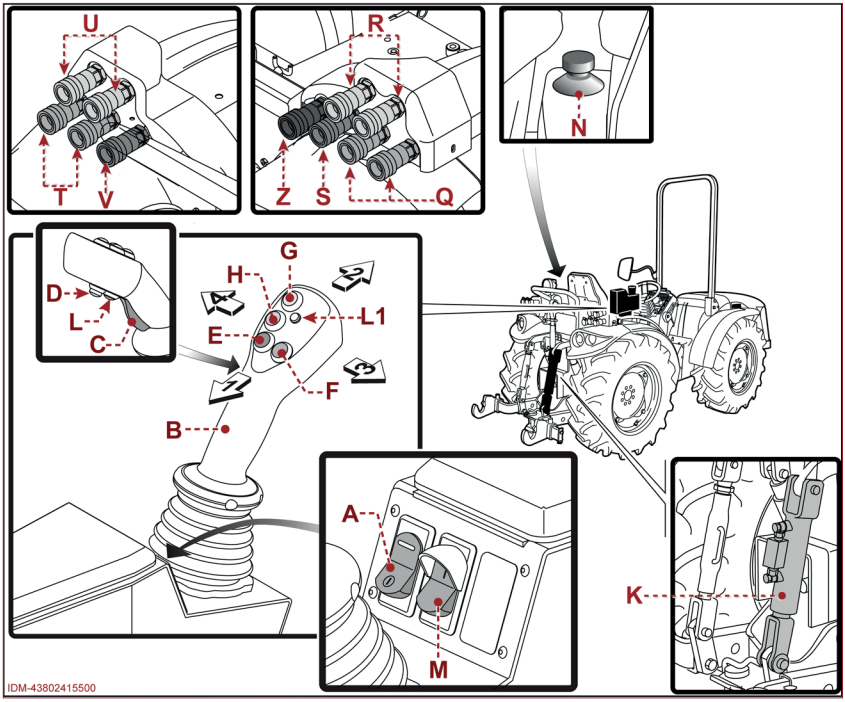
D. **Lever (maintained action)**: used to activate the green hydraulic couplings.

- For information on the specific functions of the levers **(A-D)**. For further details, refer to the paragraph *(→ p. 119)*.

06.14. DESCRIPTION OF “PROPORTIONAL JOYSTICK" TYPE CONTROLS

To activate the lifting unit with the "Joystick" controls it is necessary to lower the levers completely and close the valve to disable the "draft control" controls. (If present) *(→ p. 119)*

- The illustration represents the devices, while the list gives their description and function.



A. **Illuminated switch (green)**: used to define the state of operation of all the 'Joystick' controls.
   - › ***Control in position “O”****: drives off (light off).*
   - › ***Control in position “I”****: drives on (light on).*

B. **Lever for “Joystick” control**: used, in combination with the hold-to-run control **(C)** and possibly with one of the selection buttons, to activate the auxiliary services of the interchangeable implements that are connected to the machine.

- Some of the lever functions are for direct activation while others are of the proportional type with electronic control: the greater the movement of the control, the greater the activation speed of the selected function and vice versa.

00-1218 - © Copyright Antonio Carraro

00-1218 - © Copyright Antonio Carraro

- If you press and hold down only button **(C)**, the listed functions are activated (with proportional action).
  - › ***Control operated in direction 1****: activates the green hydraulic coupling **(Q)**.*
  - › ***Control operated in direction 2****: deactivates the green hydraulic coupling **(Q)**.*
  - › ***Control operated in direction 3****: activates the blue hydraulic coupling **(R)**.*
  - › ***Control operated in direction 4****: deactivates the blue hydraulic coupling **(R)**.*
- With button **(C)** held down and function selection by pressing the yellow button **(D)**, you (directly) activate the listed functions.
  - › ***Control operated in direction 1****: activates the yellow hydraulic coupling, right-hand side **(S)**.*
  - › ***Control operated in direction 2****: deactivates the yellow hydraulic coupling, right-hand side **(S)**.*
  - › ***Control operated in direction 3****: activates the external solenoid valve (electric control).*
  - › ***Control operated in direction 4****: no function is activated.*
- With button **(C)** held down and function selection by pressing the red button **(E)**, you (directly) activate the listed functions.
  - › ***Control operated in direction 1****: activates the brown hydraulic coupling **(T)**.*
  - › ***Control operated in direction 2****: deactivates the brown hydraulic coupling **(T)**.*
  - › ***Control operated in direction 3****: activates the red hydraulic coupling **(U)**.*
  - › ***Control operated in direction 4****: deactivates the red hydraulic coupling **(U)**.*
  - › ***Control operated in directions 1-2****· raises and lowers the rear power lift unit.*
  - › ***Control operated in directions 3-4****: raises and lowers the right arm **(K)** of the rear power lift unit.*

C. **Button (red)**: this hold-to-run button is used to enable the functions of the lever **(B)**.

D. **Button (yellow)**: used to enable the functions of the 'joystick' **(B)**.

E. **Button (red)**: used to enable the functions of the 'joystick' **(B)**.

F. **Button (green)**: used to enable the functions of the 'joystick' **(B)**.

G. **Button (white)**: hold-to-run control for operating the hydraulic motor of the fitted interchangeable implement.

- The implement's hydraulic motor is powered via the yellow delivery coupling **(V)** (left side) and via the black return coupling **(Z)** (right side).

H. **Button (orange)**: used to activate and deactivate the power take-off.

- Press the button (for about 2 seconds) to activate the power take-off.
- Press the button again to deactivate the power take-off.

IMPORTANT_The control is enabled only if the power take-off has been activated by means of the switch on the dashboard. *(→ p. 111)*

L. **Push-button (green)·** used to activate and deactivate the floating effect of the power lift unit.

- Press the button to activate the floating effect. The LED **(L1)** lights up.
- Press the button again to deactivate the floating effect. The LED **(L1)** will go out.
- The floating effect can also be turned off with one of the listed modes.
  - › *Activation of the lift upwards by simultaneously actuating the push-buttons **(F)** and **(C)** and the lever of the Joystick in direction 1.*
  - › *Activation of the lift upwards by actuating the push-buttons located beside the hydraulic couplings.*

M. **Illuminated switch (red light)**: used to activate 'continuous flow' of the yellow single-acting hydraulic coupling on the right-hand side **(S)**.

- › ***Control in position "O"**: drive off.*
- › ***Control in position "I"**: drive on.*

N. **Knob**: used to activate the oil flow regulator to the single-acting hydraulic couplings.

- The oil flow regulator is installed only on machines equipped with 'Joystick' controls.

IMPORTANT_At the end of each working day cover the "joystick" with the special protection.

ATTENTION
The "Joystick" controls activate the rear and front hydraulic couplings that have the same colour.

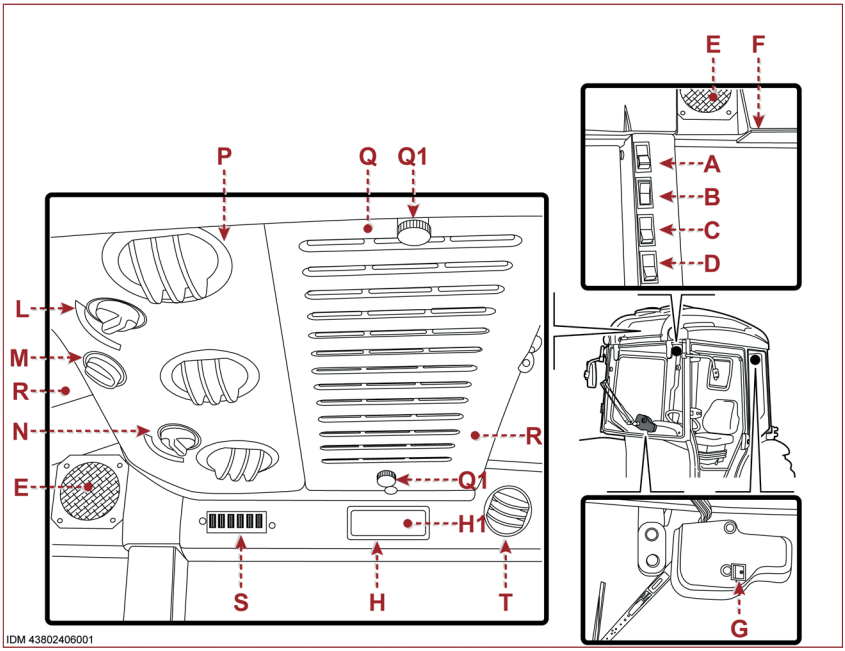
- **DO NOT connect the quick couplings of the rear part and those of the front part (that have the same colour) to activate two interchangeable tools at the same time.**

00-1218 - © Copyright Antonio Carraro

00-1218 - © Copyright Antonio Carraro

06.15. DESCRIPTION OF CAB CONTROLS

The illustration represents the devices, while the list gives their description and function.



A. **Switch**: used to switch the rear lights on and off.

- This control is available only on machines equipped with rear lights.

B. **Switch**: used to activate the flashing light (rotating light).

C. **Switch**: used to spray the screenwasher fluid.

D. **Switch**: used to switch the front lights on and off.

E. **Stereo system speakers**

F. **Radio housing compartment (on request)**

G. **Switch**: used to activate the windscreen wiper.

H. **Ceiling light**: used to light the driver's position.

H1. **Switch**: used to turn the overhead lights on and off.

L. **Knob**: used to activate and deactivate the fan and to adjust its operation (3 speeds).

M. **Knob**: used to adjust the heating of the cab compartment.

N. **Knob**: used to activate, deactivate and adjust the temperature of the air conditioning.

P. **Air vents**: used to regulate the flow of air in the cab.

Q. **Air recirculation grille**: equipped with a filter for purifying the air.

Q1. **Knobs**: used to adjust air recirculation.

- **Grille open**: cab air is circulated with air taken from the outside.
- **Grille closed**: only air taken from outside is put into circulation.

R. **Sun blind**: used to protect the driver from the direct rays of the sun.

S. **Fuse box**: contains the fuses protecting the electrical system.
For further details, refer to the paragraph. *(→ p. 216)*

T. **Air vents**: used to direct the airflow towards the front windscreen.

Defogging of the cab windows

- Proceed as indicated to perform this operation.

1\ Direct the air vents **(P-T)** towards the windows to be defogged.
2\ Activate the air conditioner using knob **(N)**.
3\ Adjust the cab temperature to maximum using knob **(M)**.
4\ Activate the fan at maximum speed using knob **(L)**, in order to accelerate operation.
5\ Gradually decrease the temperature if the windows continue being fogged.

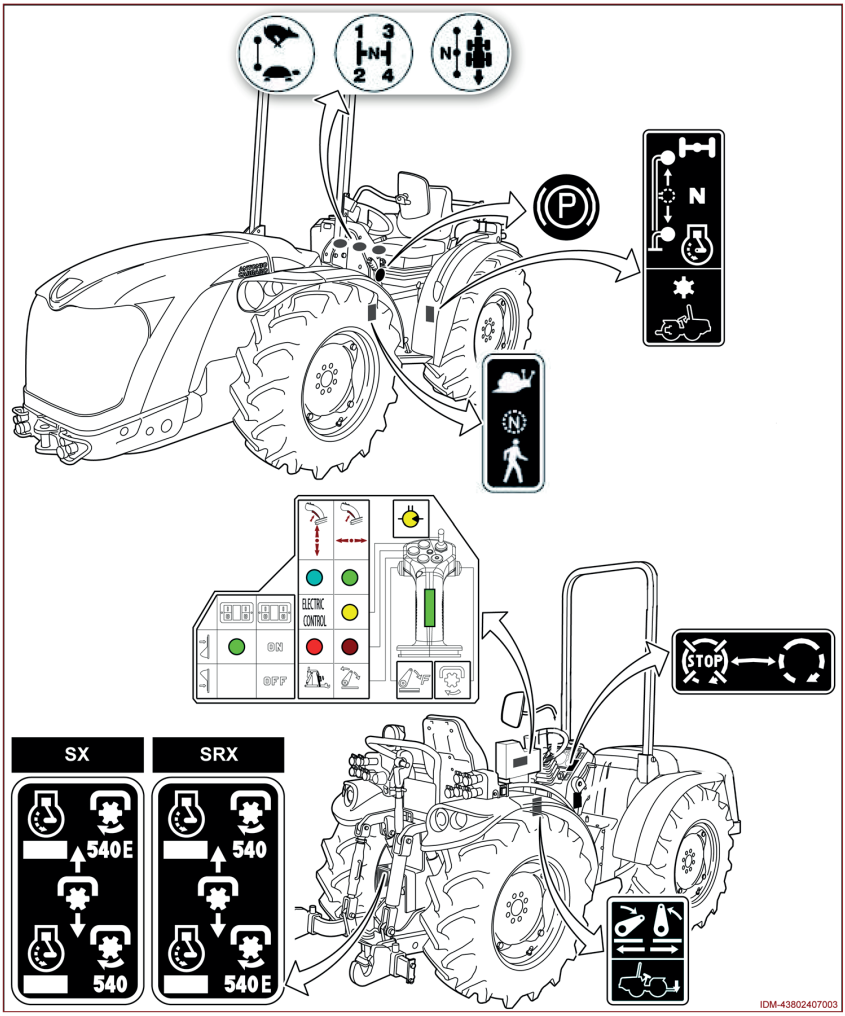
IMPORTANT_A few minutes before stopping the machine, deactivate the air-conditioning and leave the heating and fan active to prevent condensation from forming.

00-1218 - © Copyright Antonio Carraro

00-1218 - © Copyright Antonio Carraro

06.16. DESCRIPTION OF CONTROL PLATES

The illustration represents the control plates.



00-1218 - © Copyright Antonio Carraro

06.17. USING A ROPS SAFETY ARCH (WITH EASY OPENING AND CLOSING)

ALWAYS make sure that the safety arch is blocked correctly in the lifted position and fasten the safety belts properly.

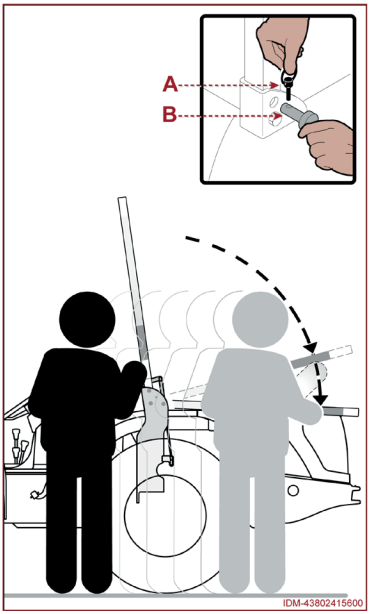
- It is possible to lower the safety arch ONLY to move the tractor temporarily in areas without RISK of overturning and for short distances.
- When the safety arch is lowered, the driver MUST NOT fasten the safety belts and, as he is not protected in case of overturning, he must manoeuvre the tractor with the utmost caution.

- The illustration shows the action points and the description indicates the procedures to be followed.

1\ Check that the action area is in a suitable condition to avoid the risks of tripping and entanglement.

2\ Remove the safety cotters **(A)** and slide out the pins **(B)**.

3\ Take hold of the safety arch (see figure) and slowly lower it to the closed position.



- Do the work according to ergonomic principles, even if the safety arch features easy opening and closing.
- The ergonomic principles to be employed depend on the capability and the physical characteristics of the person doing the work.
- During the work, adjust the position of the hands on the component and move the body to keep an upright ergonomic position.

ATTENTION
Do NOT attempt to open and close the safety arch from an unfavorable ergonomic position to avoid the risk of biomechanical overload.

4\ After doing the work, make sure the safety arch is in the correct position to avoid sudden movements.

5\ Insert the pins **(B)** and the cotters **(A)** to block the safety arch.

DANGER
When the safety arch is lowered, the driver MUST NOT fasten the safety belts.

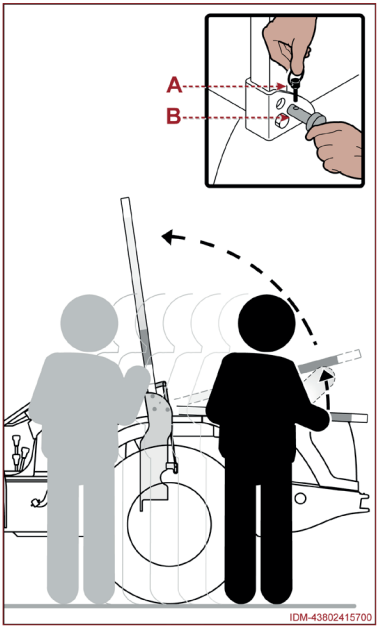
00-1218 - © Copyright Antonio Carraro

- **On completion of work activities, take the safety arch immediately back to the lifted position as indicated.**

6\ Check that the action area is in a suitable condition to avoid the risks of tripping and entanglement.

7\ Remove the safety cotters **(A)** and slide out the pins **(B)**.

8\ Take hold of the safety arch (see figure) and slowly raise it to the open position.



- Do the work according to ergonomic principles, even if the safety arch features easy opening and closing.
- The ergonomic principles to be employed depend on the capability and the physical characteristics of the person doing the work.
- During the work, adjust the position of the hands on the component and move the body to keep an upright ergonomic position.

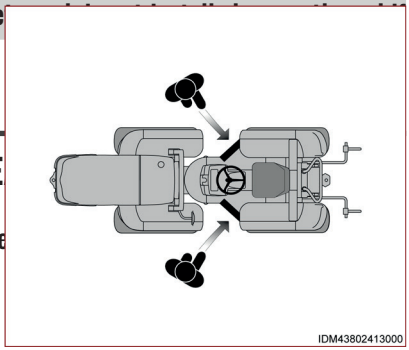
ATTENTION
Do NOT attempt to open and close the safety arch from an unfavorable ergonomic position to avoid the risk of biomechanical overload.

9\ After doing the work, make sure the safety arch is in the correct position to avoid sudden movements.

10\ Insert the pins **(B)** and the cotters **(A)** to block the safety arch.

ATTENTION

REPLACE THE OPENING AND CLOSING FACILITATORS IF YOU MEET WITH ANY EXCESSIVE DIFFICULTY WHEN HANDLING THE SAFETY ARCH. DANGER
Do not use the machine if the safe
it is damaged.



06.18. ACCESS TO DRIVER'S SE

The list gives some behaviour and measure
for safety reasons.

- Climb into and out of the driver's seat ONLY using the foreseen points and the appropriate platforms and handrail to avoid risk of falling.
- ALWAYS keep the ascent platforms and control pedals clean and free from mud and/or debris.
- Check that the driver's seat is clear from objects so as not to obstruct the activating of the controls.
- Check that the cab windows (inside and outside) are clean and not fogged to assure maximum visibility.
  For further details, refer to the paragraph *(→ p. 129)*.
- Check the position of the seat, of the wheel and the rearview mirrors to assure correct ergonomics and visibility from the driver's seat.

ATTENTION
The driver's seat must ONLY be occupied by the driver.

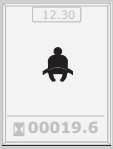
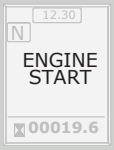
- **ONLY climb on, descend and/or leave the driver's seat with the tractor stopped in safe conditions.**

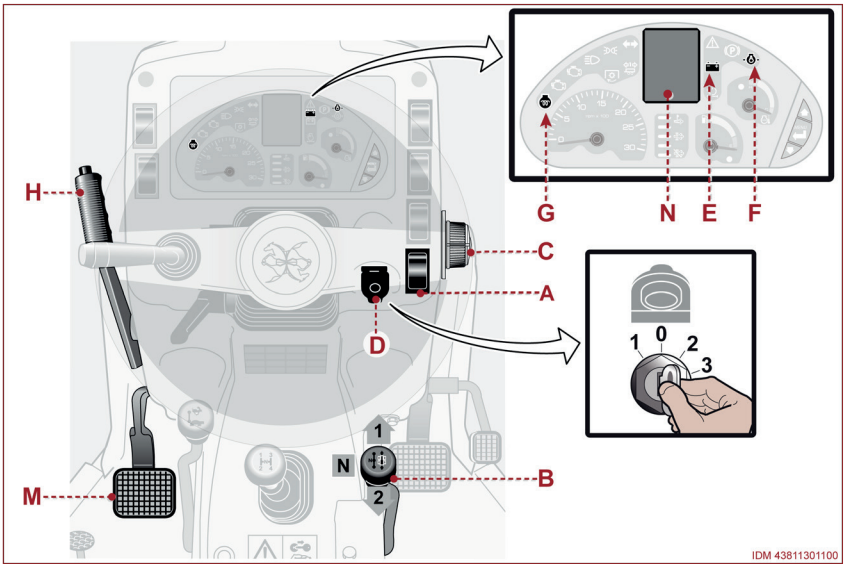
00-1218 - © Copyright Antonio Carraro

00-1218 - © Copyright Antonio Carraro

06.19. STARTING AND STOPPING THE ENGINE

The tractor is equipped with safety devices that prevent it starting. During starting, the multifunction display **(N)** provides information on the conditions that must be satisfied to start the engine.

Symbol	Description
	Apply the parking brake. **DANGER** **The parking brake must always be engaged when the tractor is stopped.**
	Sit in the driver's seat.
	Press and hold down the clutch pedal **(M)**
	Put the reverser lever **(B)** in neutral position.
	Deactivate the PTO control
	It is possible to start the engine



Proceed as indicated to perform this operation.

1\ Sit in the driver's seat.

ATTENTION
ONLY start the engine when sitting in the driver's seat and fasten the safety belts during working activity.

2\ Ensure that the parking brake **(H)** is engaged.

DANGER
The parking brake must always be engaged when the tractor is stopped.

3\ Press and hold down the clutch pedal **(M).**

4\ Before starting the engine, make sure that the power take-off is deactivated (switch **(A)**) and that the reverser control **(B)** is in neutral gear position.

5\ Set the gas control **(C)** in minimum speed position

6\ Insert the key **(D)** and turn it clockwise to position '2'.

- The LEDS **(E-F-G)** light up.
- If the LEDs **(E-F-G)** do not light up, contact an authorised workshop.

IMPORTANT_When you start the machine' s engine, the control unit of the system takes about 2 seconds to run a few checks.

7\ When the words "ENGINE START" appear on the display, turn the ignition key **(D)** clockwise (pos. '3') to start the engine, then release it.

00-1218 - © Copyright Antonio Carraro

00-1218 - © Copyright Antonio Carraro

- **Do not make too many starting attempts in rapid succession, to avoid damaging the starting motor.**
- **To make a new starting attempt, it is necessary to return the key to position "0".**
- **Wait at least one minute between one attempt and the next to let the starting motor cool down.**

8\ Pre-heat the engine suitably (when ticking over) before starting work activities.

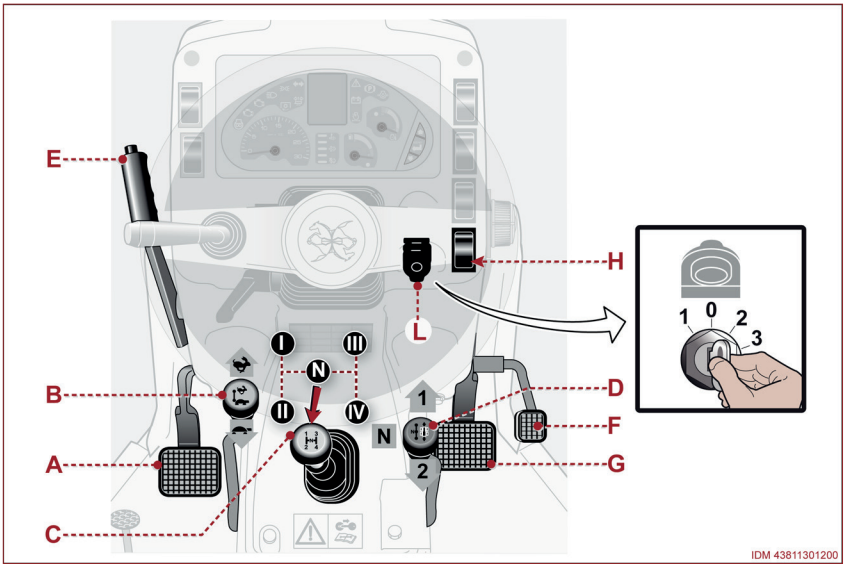
- **It is recommended to pre-heat the engine, in particular during running in and in the event of low temperatures.**

ATTENTION
Never leave the engine running in closed or inadequately ventilated environments. Exhaust fumes are potentially dangerous to health.

- Before stopping the engine, lower the mounted implement to the ground.

1\ Set the gas control **(C)** in minimum speed position.
2\ Press the switch **(A)** to deactivate the power take-off.
3\ Use the lever **(B)** to put the reverser into neutral position.
4\ Use the lever **(H)** to engage the parking brake.
5\ Turn the ignition key **(D)** anti-clockwise to stop the engine, then remove it and fit the switch guard.

06.20. MOVING AND STOPPING THE MACHINE



Proceed as indicated to perform this operation.

1\ Sit in the driver's seat.

ATTENTION
ONLY start the engine when sitting in the driver's seat and fasten the safety belts during working activity.

2\ Ensure that the parking brake **(E)** is engaged.

DANGER
The parking brake must always be engaged when the tractor is stopped.

3\ Press and hold down the clutch pedal **(A)**.
4\ Before starting the engine, make sure that the power take-off is deactivated (switch **(H)**) and that the reverser control **(D)** is in neutral gear position.
5\ Set the gas control **(C)** in minimum speed position
6\ Start the tractor engine.
7\ Use the lever **(B)** to select the speed range.
8\ Use the lever **(C)** to engage the gear.
9\ Use the lever **(D)** to select the direction of movement.
10\ Use the lever **(E)** to disengage the parking brake.
11\ Release the clutch pedal **(A)** to move the machine.
12\ Use the accelerator pedal **(F)** and the brake pedal **(G)** to suitably adapt the machine speed.

00-1218 - © Copyright Antonio Carraro

00-1218 - © Copyright Antonio Carraro

- To stop the machine, proceed as described.

1\ Release the accelerator pedal **(F)**.
2\ Press the clutch and brake pedals **(A-G)** to stop the machine.
3\ Use the levers **(D-C)** to put the gear selector and the reverser into neutral position.
4\ Press the switch **(H)** to deactivate the power take-off.
5\ Use the lever **(E)** to engage the parking brake.
6\ Turn the ignition key **(L)** anti-clockwise to turn off the engine, then remove it and fit the switch guard.

IMPORTANT_Always use the guard to prevent water from entering and oxidising the components inside and causing the electrical system to shortcircuit, creating irreparable damage.

IMPORTANT_The machine must be stopped in such a way that it cannot be activated from the driver's position by unauthorised persons and it must be parked in a suitable area so that it is not an obstruction and danger to circulation.

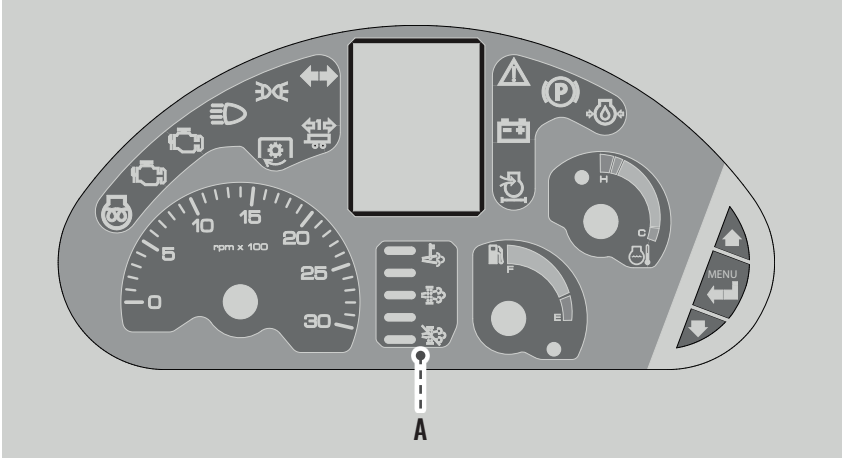
06.21. DPF REGENERATION (DIESEL PARTICULATE FILTER)

The machine has a filter (DPF) that withholds the fine dust resulting from combustion, reducing polluting emissions.
In normal working conditions, when the engine is subjected to a high load, regeneration is managed automatically.
If the working conditions envisage use of the engine with a low load, regeneration might not take place automatically.
In this case it is advisable to perform regeneration manually before the filter gets more clogged.*(→ p.143)*

ATTENTION
Regeneration causes a high increase in temperature of the exhaust gases. The hazard is highlighted by illumination of the warning light . Beware of the potential risk of fire.

ATTENTION
Manual regeneration can cause high levels of smoke, resulting in the risk of carbon monoxide poisoning. Carry out manual regeneration with the machine stationary and ONLY in open spaces, placing the machine away from people, things and animals.

The management of the various phases is indicated by the lighting of the lights and LEDs on the respective indicator of the multi-function instrument (A)



00-1218 - © Copyright Antonio Carraro

00-1218 - © Copyright Antonio Carraro

	Symbol	LED	Description
Automatic Regeneration			- Regeneration is taking place automatically. (Low temperature)
		 Amber, Fixed	- Regeneration is taking place automatically. (High temperature)
Clogged Filter	 Blinking	 Amber, Fixed	- The filter is clogged. - The buzzer sounds intermittently. - **The engine torque is reduced.** - The engine does not carry out regeneration automatically. **IMPORTANT_Manual regeneration MUST be carried out as soon as possible!** *(→ p. 143)*
		 Amber, Blinking	
Blocked Filter	 Blinking	 Amber, Fixed	- The filter is clogged. - The buzzer sounds intermittently. - **The engine torque is reduced.** - At the previous level, manual regeneration has not been carried out **IMPORTANT_Contact an authorised workshop immediately to avoid damage to the engine.**
		 Red, Fixed	

Disabling regeneration

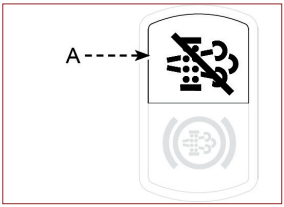
For the best management of working activity, it is possible to disable automatic regeneration.

ATTENTION
Disabling must be selected ONLY when regeneration can cause damage to persons or property. As soon as the working conditions allow it, manual regeneration MUST be carried out *(→ p.143).*

Proceed as indicated to disable.

1\ Press the button **(A)**, for about two seconds, to deactivate regeneration.

NOTE_At each new start the deactivation control is reset.



Symbol	LED	Description
	Amber, Fixed	- Disabling has been selected when the machine is not regenerating
Blinking	Amber, Blinking Amber, Fixed	- Disabling has been selected during one of the **"Automatic Regeneration"** phases
Blinking	Amber, Fixed Amber, Fixed Red, Fixed Amber, Blinking	- Disabling has been selected during the "**Manual Regeneration"** phase

00-1218 - © Copyright Antonio Carraro

00-1218 - © Copyright Antonio Carraro

Manual regeneration

Manual regeneration MUST be performed when the LEDs of the **"Clogged Filter"** phase light up. Proceed as indicated to perform this operation:

1\ Pre-heat the engine suitably (about 65°C) at a speed of 1200 rpm. The temperature can be viewed by selecting from the Additional Information Menu *(→ p. 103)*.
2\ The machine should be stopped and on in safe condition.

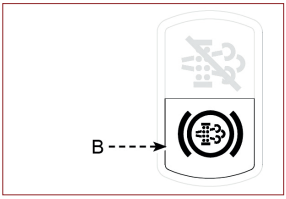
ATTENTION
Manual regeneration must be performed ONLY with the tractor stopped and in open spaces, positioning the tractor far from persons and property.

3\ Bring the reverser lever to the 'neutral gear' position.
4\ Deactivate the PTO of the tractor.
5\ Bring the engine speed to idling.
6\ Engage the parking brake of the tractor.
If all these conditions have been met, the LED shown in the figure starts blinking to indicate that manual regeneration is possible.

Symbol

Blinking

7\ Press the button **(B)**, for about four seconds, to perform regeneration.



The amber  LED, the amber  LED, the red  LED and the buzzer switch off.

Throughout the regeneration phase, the following LEDs will remain lit:

Symbol	LED
 Fixed	 Amber, Fixed

***NOTE**_Regeneration lasts about 30 minutes.*

***NOTE**_During manual regeneration:*
- DO NOT alter the engine speed.
- DO NOT release the parking brake.
Failure to comply with these conditions will cause regeneration to be interrupted. In this case, repeat the regeneration procedure.

ATTENTION
Regeneration causes a high increase in temperature of the exhaust gases. The hazard is highlighted by illumination of the warning light . Beware of the potential risk of fire.

ATTENTION
Manual regeneration can cause high levels of smoke, resulting in the risk of carbon monoxide poisoning. Carry out manual regeneration with the machine stationary and ONLY in open spaces, placing the machine away from people, things and animals.

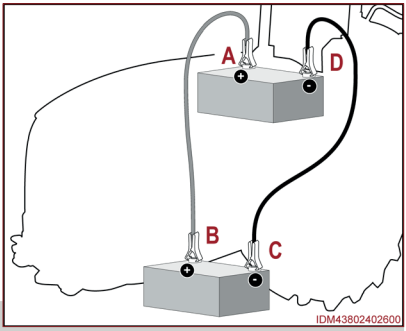
ATTENTION
During the regeneration period, DO NOT leave the tractor unattended.

00-1218 - © Copyright Antonio Carraro

00-1218 - © Copyright Antonio Carraro

06.22. STARTING THE ENGINE WITH A FLAT BATTERY

If the battery is flat, start the engine using another battery with identical nominal voltage and amperes the same or greater than that of the flat battery.



- To jump start the machine, DO NOT use as a rescue battery the one installed in another machine or other charging devices, to avoid damage due to overcurrent peaks.

ATTENTION
Before proceeding with a jump start, every precaution must be taken to ensure there is no risk either of harm to individuals or of damage to the electrical components of both machines.

- **Do not cause sparks or flames to ignite anywhere near the battery.**
- **Avoid contact with the battery electrolyte.**
- Proceed as indicated to perform this operation.

1\ Procure jump leads of suitable cross section, with insulated clips.
2\ Disable all electrical accessories not essential for the purpose of starting the machine.
3\ Make certain the machine is properly at a standstill with the parking brake applied, the gear lever in neutral, the PTO disengaged and the ignition key in the '0' position.
4\ Unscrew the knobs and remove the guard.
5\ Connect the cables in sequence, according to the order **(A-B-C-D)**.
6\ Start the engine of the rescue machine and throttle the engine to a speed of at least 1500 rpm.
7\ Sit in the driving position of the inoperative machine.
8\ Start the engine.
9\ Disconnect the cables in sequence, according to the order **(D-C-B-A)**.
10\ Reassemble the guard on completing this operation.

06.23. SET-UP FOR DRIVING ON PUBLIC ROADS

Machines can be driven on a public highway provided that they are type-approved and that the driver is in possession of the necessary licence.

IMPORTANT_Before taking the machine on the road, check that the tyres and track width are in conformity with highway code regulations in the country of use.

- **ONLY drive the machine on roads with the driver's seat in the normal position and NOT turned into the reverse position.**
- Proceed as indicated to perform this operation.

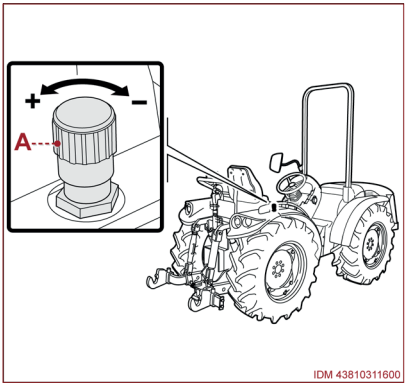
1\ Secure all parts that could cause sudden and unexpected movements.
2\ Clean any caked soil from the machine so that it will not be scattered on the road surface.
3\ Check that the overall length, width and height are within permissible limits. Fit the appropriate warning signs and/or lights, if necessary.
4\ Check that all road lights and indicators are in full working order.

- **Remove the headlights protection grid so that the visible ray is not obstructed.**

5\ Raise any implement carried and lock it in place with the safety devices provided.

ATTENTION
Do not engage the differential lock when driving on a public road.

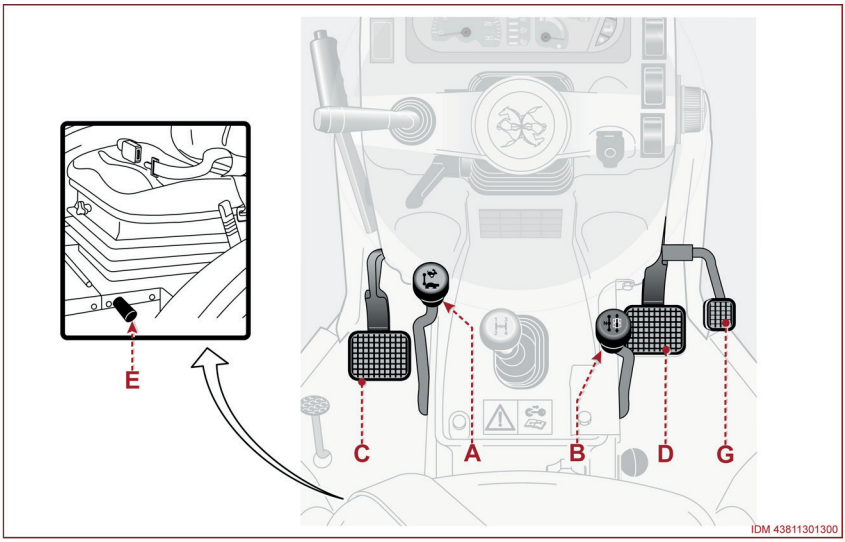
6\ Tighten the regulator **(A)** completely to lock the lifting unit in the raised position.



00-1218 - © Copyright Antonio Carraro

00-1218 - © Copyright Antonio Carraro

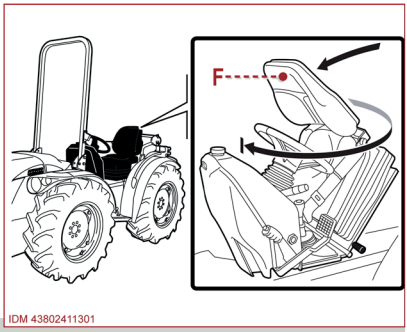
06.24. PROCEDURE FOR REVERSING THE DRIVING SEAT (SRX)



Proceed as indicated to perform this operation.

1\ Fully press the clutch pedal **(C)** and bring the lever **(B)** to neutral position.
2\ Stop the machine in safe conditions.
3\ Lower the levers **(A-B)** (towards the outside) until they are horizontal.
4\ Lift the pedals **(C-D)** and block them in the lifted position.
5\ Lift the pedal **(G)**.
6\ Release the driver's seat using the lever **(E)**.

7\ Lift the seat **(F)** and turn it clockwise by 180°.
8\ Lower the seat **(F)** and make sure that it is blocked in the new position.
9\ Return the levers **(A-B)** to their original position.
10\ Lower the pedals **(C-D)** and take them to the original position.
11\ Lower the pedal **(G)**.



DANGER
Every time the driver's seat is reversed, before starting the machine, check that all controls (steering, brakes, accelerator etc.) function correctly.

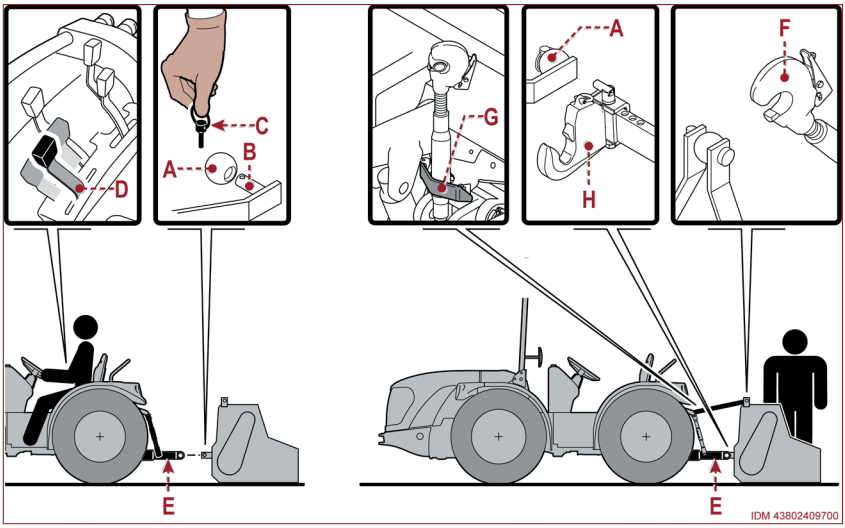
06.25. HITCHING AND UNHITCHING IMPLEMENTS - REAR POWER LIFT UNIT ("QUICK COUPLING" VERSION)

The hitching and unhitching of implements must be performed by a single person (the driver) on compact, level ground.

- A helper can be used (situated in an area without risks), who indicates correct machine approach to the tool hitch points to the driver.
- The method indicated to perform the operation starts from the assumption that the machine-interchangeable tool coupling has already been defined.

IMPORTANT_Anyone who plans to combine equipment NOT MANUFACTURED by the machine manufacturer must identify the risks in the machine-equipment matching and take responsibility to eliminate them.

- **The machine manufacturer has evaluated and eliminated ONLY the risks of the machine with no equipment or combined with equipment manufactured by it (only for combinations specified by the manufacturer).**
- To make the adjustments necessary for a new matching of machine and interchangeable tool, see the respective paragraph. *(→ p. 86)*



1\ Insert the ball joints **(A)** in the pins **(B)** and block them using the safety cotters **(C).**
2\ Approach the machine to the interchangeable tool and act on lever **(D)** until the lifting booms **(E)** are hitched correctly to the ball joints **(A)**.
3\ Stop the machine in safe conditions.
4\ Connect the strut **(F)** of the third point to the interchangeable tool.
5\ Act on the lever **(D)** to lift the tool.

00-1218 - © Copyright Antonio Carraro

00-1218 - © Copyright Antonio Carraro

6\ Lift the support foot of the interchangeable tool.

- If the interchangeable tool is not parallel to the ground, release the safety retainer of the strut **(F)**, regulate its length and block the retainer again.

7\ Make the electric, hydraulic connections etc. of the interchangeable tool with the machine sockets.

8\ Make the connection to the cardan shaft PTO (tool with mechanical power transmission). For further details, refer to the paragraph *(→ p. 155)*.

- **Connect the cardan shaft correctly and with the safety devices perfectly efficient. The incorrect installation and inefficiency of safety protections are the cause of most accidents (even fatal).**

- To disconnect the interchangeable tool, identify a suitable area and stop the machine.

1\ Act on the lever **(D)** to rest the tool on the ground.

2\ Switch off the engine and remove the ignition key.

3\ Lower the support foot of the interchangeable tool.

4\ Disconnect the electric, hydraulic connections etc. from the machine sockets.

5\ Disconnect the cardan shaft from the machine PTO and rest it on the relative support so as not to damage it.

6\ Disconnect the strut **(F)** of the third point and block it with the relevant strap **(G)**.

7\ Disconnect the lifting booms **(E)**.

8\ Remove the ball joints **(A)** from the pins and put them back into the housing of the hooks **(H)**.

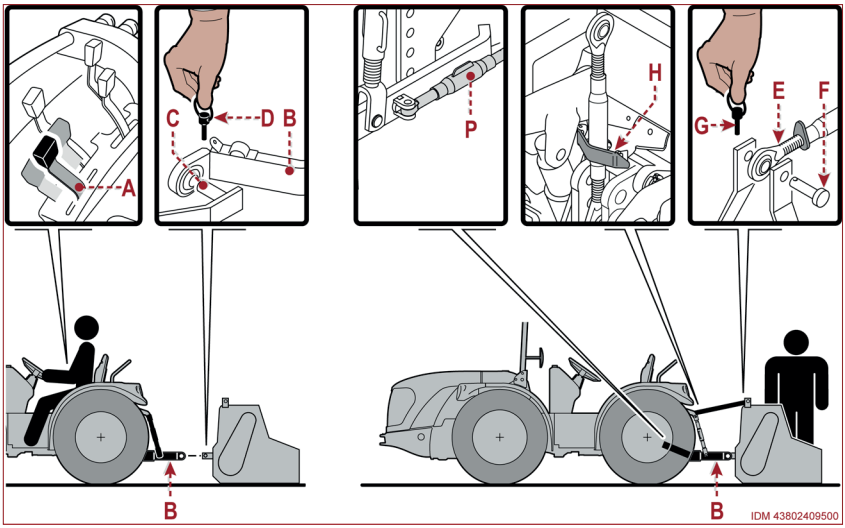
06.26. HITCHING AND UNHITCHING IMPLEMENTS - REAR POWER LIFT UNIT ("BALL JOINT" VERSION)

The hitching and unhitching of implements must be performed by a single person (the driver) on compact, level ground.

- A helper can be used (situated in an area without risks), who indicates correct machine approach to the tool hitch points to the driver.
- The method indicated to perform the operation starts from the assumption that the machine-interchangeable tool coupling has already been defined.

IMPORTANT_Anyone who plans to combine equipment NOT MANUFACTURED by the machine manufacturer must identify the risks in the machine-equipment matching and take responsibility to eliminate them.

- **The machine manufacturer has evaluated and eliminated ONLY the risks of the machine with no equipment or combined with equipment manufactured by it (only for combinations specified by the manufacturer).**
- To make the adjustments necessary for a new matching of machine and interchangeable tool, see the respective paragraph. *(→ p. 87)*.



1\ Approach the machine to the tool and act on lever **(A)** until the lifting booms **(B)** are aligned with the connections.
2\ Stop the machine in safe conditions.
3\ Slacken the tie-rods **(P)**.
4\ Insert the booms **(B)** in the pins **(C)** and insert the safety cotters **(D)**.
5\ Connect the strut **(E)** to the third point of the interchangeable tool with the pin **(F)**.

00-1218 - © Copyright Antonio Carraro

00-1218 - © Copyright Antonio Carraro

6\ Insert the safety cotter **(G).**
7\ Act on the lever **(A)** to lift the tool.
8\ Lift the support foot of the interchangeable tool.

- If the interchangeable tool is not parallel to the ground, release the safety retainer of the strut **(E)**, regulate its length and block the retainer again.

9\ Adjust the tie-rods **(P)** to eliminate the oscillations of the lifting booms.
10\ Make the electric, hydraulic connections etc. of the interchangeable tool with the machine sockets.
11\ Make the connection to the cardan shaft PTO (tool with mechanical power transmission). For further details, refer to the paragraph *(→ p. 155)*.

- **Connect the cardan shaft correctly and with the safety devices perfectly efficient. The incorrect installation and inefficiency of safety protections are the cause of most accidents (even fatal).**

- To disconnect the interchangeable tool, identify a suitable area and stop the machine.

1\ Act on the lever **(A)** to rest the tool on the ground.
2\ Switch off the engine and remove the ignition key.
3\ Lower the support foot of the interchangeable tool.
4\ Disconnect the electric, hydraulic connections etc. from the machine sockets.
5\ Disconnect the cardan shaft from the machine PTO and rest it on the relative support so as not to damage it.
6\ Remove the safety cotter **(G)** and draw out the pin **(F)**.
7\ Disconnect the strut **(E)** of the third point and block it with the relevant belt **(H)**.
8\ Slacken the tie-rods **(P)**.
9\ Take out the safety cotters **(D)** and draw the booms **(B)** out of the pins to disconnect the tool.

06.27. HITCHING AND UNHITCHING IMPLEMENTS - FRONT POWER LIFT UNIT

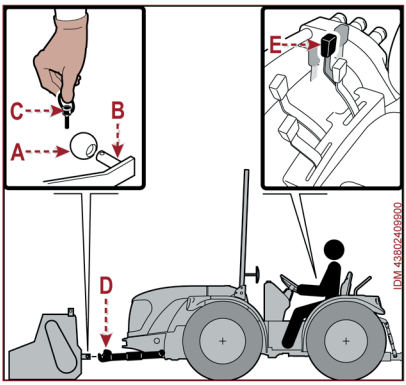
The hitching and unhitching of implements must be performed by a single person (the driver) on compact, level ground.

- A helper can be used (situated in an area without risks), who indicates correct machine approach to the tool hitch points to the driver.
- The method indicated to perform the operation starts from the assumption that the machine-interchangeable tool coupling has already been defined.

IMPORTANT_Anyone who plans to combine equipment NOT MANUFACTURED by the machine manufacturer must identify the risks in the machine-equipment matching and take responsibility to eliminate them.

- **The machine manufacturer has evaluated and eliminated ONLY the risks of the machine with no equipment or combined with equipment manufactured by it (only for combinations specified by the manufacturer).**
- To make the adjustments necessary for a new matching of machine and interchangeable tool, see the respective paragraph. *(→ p. 88)*.

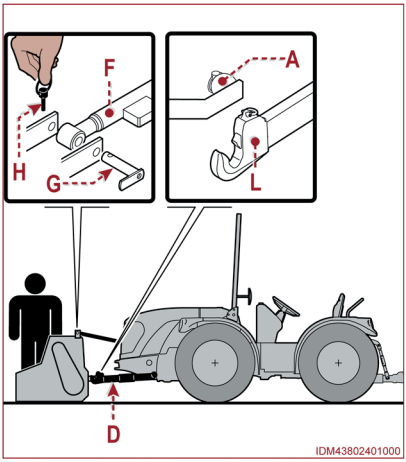
1\ Insert the ball joints **(A)** in the pins **(B)** and secure them using the safety cotters **(C)**.
2\ Approach the machine to the interchangeable tool and act on lever **(E)** until the lifting booms **(D)** are hitched correctly to the ball joints **(A)**.
3\ Stop the machine in safe conditions.



00-1218 - © Copyright Antonio Carraro

00-1218 - © Copyright Antonio Carraro

4\ Connect the strut **(F)** of the third point to the interchangeable tool with the pin **(G)**.
5\ Insert the cotter pin **(H).**
6\ Act on the lever **(E)** to lift the interchangeable tool.
7\ Lift the support foot of the interchangeable tool.



- If the interchangeable implement is not parallel to the ground, release the safety retainer of the top link **(F)**, adjust its length and block the retainer again.

8\ Make the electric, hydraulic connections etc. of the interchangeable implement with the machine sockets.

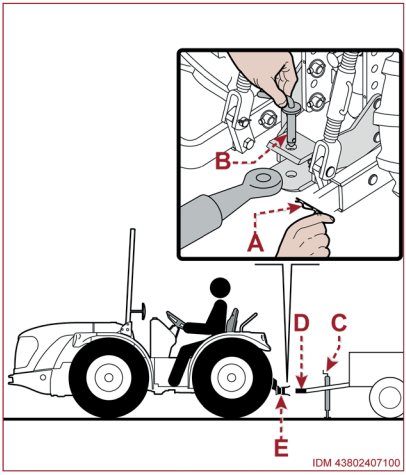
- To disconnect the interchangeable implement, identify a suitable area and stop the tractor.

1\ Act on the lever **(E)** to rest the tool on the ground.
2\ Switch off the engine and remove the ignition key.
3\ Lower the support foot of the interchangeable implement.
4\ Disconnect the electric, hydraulic connections etc. from the machine sockets.
5\ Remove the safety cotter **(H)** and draw out the pin **(G)**.
6\ Disconnect the strut **(F)** of the third point and secure it to the protection structure.
7\ Disconnect the lifting booms **(D)**.
8\ Remove the ball joints **(A)** from the pins **(B)** and put them back into the housing of the hooks **(L)**.

06.28. HITCHING AND DISCONNECTING TOOL - TOW HOOK

The hitching and unhitching of implements must be performed by a single person (the driver) on compact, level ground.

- **A helper can be used (situated in an area without risks), who indicates correct machine approach to the tool hitch points to the driver.**
- **The method indicated to perform the operation starts from the assumption that the machine-interchangeable tool coupling has already been defined.**
- **To make the adjustments necessary for a new matching of machine and interchangeable tool, see the respective paragraph.** *(→ p. 88)*



1\ Remove the safety cotter **(A)** and draw out the pin **(B)**.
2\ Approach the machine to the interchangeable tool.
3\ Act on the support foot **(C)** of the interchangeable tool until the towing eye **(D)** of the drawbar is aligned with the tow hook **(E)**.
4\ Back the machine up to bring the towing bracket into alignment with the towing eye.
5\ Stop the machine in safe conditions.
6\ Insert the coupling pin **(B)** and the safety cotter **(A)**.
7\ Lift the support foot **(C)** of the interchangeable tool.
8\ Make the electric, hydraulic connections etc. of the interchangeable tool with the machine sockets.
9\ Make the connection to the cardan shaft PTO (tool with mechanical power transmission). For further details, refer to the paragraph *(→ p. 155)* .

- **Connect the cardan shaft correctly and with the safety devices perfectly efficient. The incorrect installation and inefficiency of safety protections are the cause of most accidents (even fatal).**

- To disconnect the interchangeable tool, identify a suitable area and stop the machine.

1\ Switch off the engine and remove the ignition key.
2\ Lower the support foot **(C)** of the interchangeable tool.
3\ Disconnect the electric, hydraulic connections etc. from the machine sockets.
4\ Disconnect the cardan shaft from the machine PTO and rest it on the relative support so as not to damage it.
5\ Remove the safety cotter **(A)** and draw out the pin **(B)**.

00-1218 - © Copyright Antonio Carraro

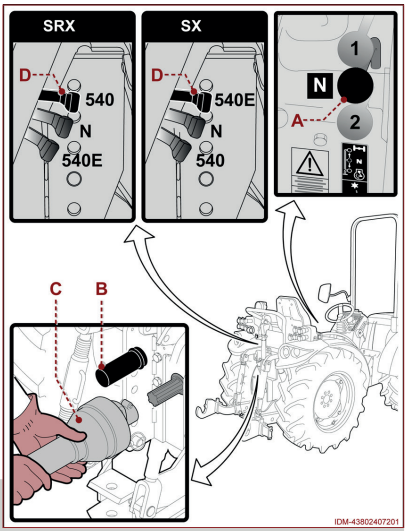
00-1218 - © Copyright Antonio Carraro

06.29. CONNECTION AND DISCONNECTION OF THE REAR CARDAN SHAFT

The connection and disconnection of the cardan shaft from the power take-off is part of the procedure for hitching and unhitching the interchangeable implement (mounted or towed) from the tractor.

- To connect the cardan shaft to the interchangeable tool (carried or towed), proceed as indicated.

1\ Shift the lever **(A)** to neutral position (pos. **N**).
2\ Shift the lever **(D)** to neutral position (pos. **N**).
3\ Remove the protection **(B)** of the PTO.
4\ Clean and check the integrity of the machine PTO shaft and the coupling of the cardan shaft.
5\ Couple the cardan shaft **(C)** to the power take-off.



DANGER
The cardan shaft must be connected first to the PTO of the implement and then to the PTO of the machine. If the shaft is connected first to the machine and the PTO accidentally activated, the resulting whiplash could cause fatal injury.

6\ Connect the safety chains correctly to prevent the rotation of the cardan shaft protections.
7\ Make the electric, hydraulic connections etc. of the interchangeable tool with the machine sockets.
8\ Test the setup to make certain that there are no problems when the shaft is at minimum and maximum length, and that there is enough space for the shaft to operate normally without being damaged.

- To disconnect the cardan shaft from the interchangeable tool (carried or towed), proceed as indicated.

1\ Shift the lever **(A)** to neutral position (pos. **N**).
2\ Shift the lever **(D)** to neutral position (pos. **N**).
3\ Disconnect the electrical and hydraulic systems of the implement.
4\ Release the safety chains of the cardan shaft.
5\ Disconnect the cardan shaft **(C)** from the machine PTO and rest it on the relative support so as not to damage it.
6\ Re-mount the protection **(B)** of the PTO.

IMPORTANT_Further information on the cardan drive shaft can be found in the relative manual provided by the manufacturer.

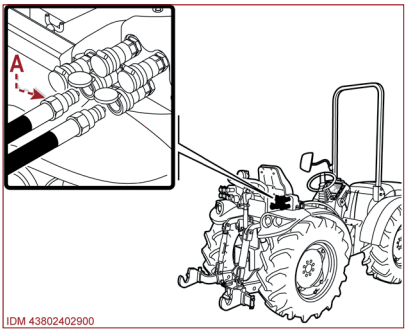
00-1218 - © Copyright Antonio Carraro

00-1218 - © Copyright Antonio Carraro

06.30. HYDRAULIC COUPLERS CONNECTION

The connection and disconnection of the hydraulic pipes to the couplers is part of the procedure for hitching and unhitching the interchangeable implement (mounted or towed) from the machine.

1\ Clean and check integrity of the quick couplings **(B)** and the hydraulic couplings.
2\ Engage the quick couplings to the hydraulic couplings.
3\ Check that the connections have been made correctly and the movements of the controls correspond to the movements of the implement.
4\ In the disconnection phase, protect the hydraulic couplings with the respective lids **(A)** and lay down the hydraulic pipes in such a way that the quick couplings are not damaged.

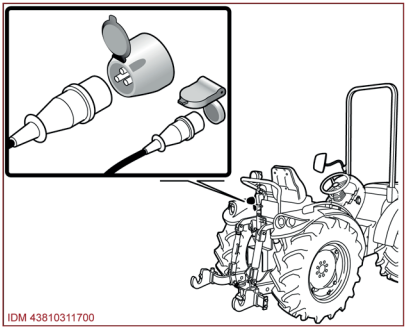


IMPORTANT_Only for configuration with one hydraulic pump. The tools connected to the hydraulic couplings must use the same oil contained in the rear gearbox or an oil with the same characteristics, to avoid causing serious damage to the machine. For further details, refer to the paragraph "Lubricant table" *(→ p. 184)*.

06.31. ELECTRIC COUPLINGS HITCHING

The connection and disconnection of the electrical connections is part of the procedure for hitching and unhitching the interchangeable implement (mounted or towed) from the machine.

- Make the electrical connection as shown in the illustration.



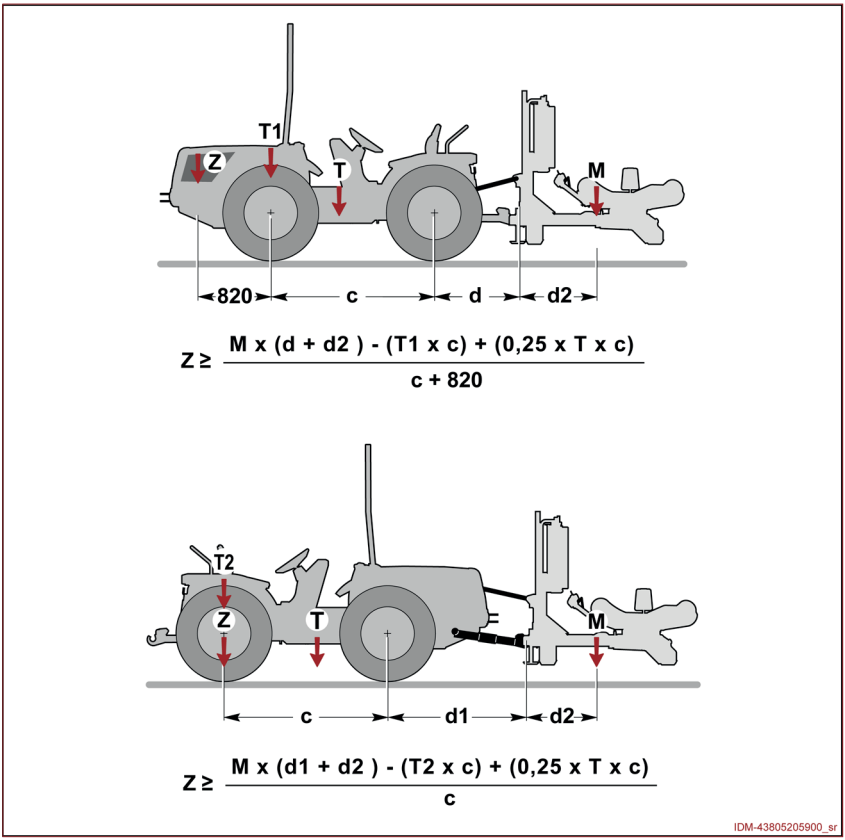
ATTENTION
Make the electric connections ONLY when the ignition key is removed.

- Check that all electrical power and signalling devices on the implement operate as they should.

06.32. FORMULA FOR CALCULATING BALLASTS WITH CARRIED TOOL

When hitching a mounted implement, calculate the amount of ballast to be installed to compensate for the load on the front or rear axle.

- The illustration shows the diagram with the necessary quota to calculate the total weight of the ballasts to be installed.



- Key

Z = Total weight of ballasts to be installed
M = Weight of mounted implement to be hitched (Refer to the implement's user manual).
d = Distance between rear axle centre and the caps *(⟶ p. 231)*.
d1 = Distance between front axle centre and the caps *(⟶ p. 231)*.
d2 = Distance between barycentre of the hitched carried tool and the caps (Refer to the tool's user manual).
T = Kerb weight *(⟶ p. 224)*.

00-1218 - © Copyright Antonio Carraro

00-1218 - © Copyright Antonio Carraro

T1 = Front axle empty weight (in running order) *(→ p. 224)*.
T2 = Rear axle empty weight (in running order) *(→ p. 224)*.
c = Wheels axle *(→ p. 231)*.

- The value obtained corresponds to the weight of the ballasts to be installed to maintain a sufficient load on the front axle.
- Value with '-' (minus) sign: it is not necessary to install ballast.
- **Value between "0" (zero) and the maximum weight of the installable ballasts:** it is necessary to install the necessary amount of ballasts to reach the obtained value.
- **Value above maximum weight of the installable ballasts:** hitching of the chosen tools is not possible.

06.33. INSTALLATION OF LATERAL BALLASTS

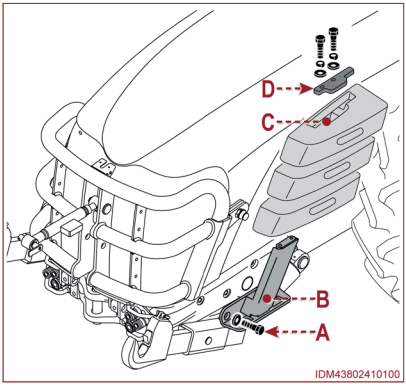
ONLY install ballasts when a implement (mounted and/or towed) is hitched, to make the machine more stable and improve traction capacity.

- All installation and removal operations of the ballasts should be performed with the machine positioned in a suitably equipped area (e.g. workshop) in order to perform the interventions in safe conditions.
- **Before installing the ballasts, consult the chapter "Technical data" to identify the type and quantity of ballasts to be installed.**

IMPORTANT_The side ballasts must NOT be installed when a carried implement is attached to the front lifting unit.

- Proceed as indicated to perform this operation.

1\ Remove the screws **(A)** (right and left side) from the machine frame.
2\ Install the support **(B)** and fix it with the screws **(A)**.
3\ Repeat the operation on the other side.
4\ Define the quantity of ballasts **(C)** necessary to be inserted in the supports **(B)**.
5\ Mount the retainer **(D)** and fix it using the relative screws and the washers.
6\ On completion, check that the ballasts are fixed correctly.



ATTENTION
During mounting and/or removal of the ballasts, staff MUST pay attention to preventing the risk of crushing parts of the body.

- **To keep the tractor balanced, install the same amount of ballasts on both sides.**
- **The tractor with ballasts installed, but without interchangeable implements, becomes unstable (braking and steering), with premature wear of the tyres and higher fuel consumption.**
- **ALWAYS remove the ballasts when unhitching implements in order to maintain tractor stability.**
- **DO NOT use the tractor equipped with ballast if not necessary, so as not to jeopardise its performance and functionality.**
- **DO NOT overload the tractor with ballasts over the maximum weight allowed.**

00-1218 - © Copyright Antonio Carraro

00-1218 - © Copyright Antonio Carraro

06.34. INSTALLATION OF FRONT WHEEL BALLASTS

ONLY install ballasts when a implement (mounted and/or towed) is hitched, to make the machine more stable and improve traction capacity.

- All installation and removal operations of the ballasts should be performed with the machine positioned in a suitably equipped area (e.g. workshop) in order to perform the interventions in safe conditions.
- **Before installing the ballasts, consult the chapter "Technical data" to identify the type and quantity of ballasts to be installed.**

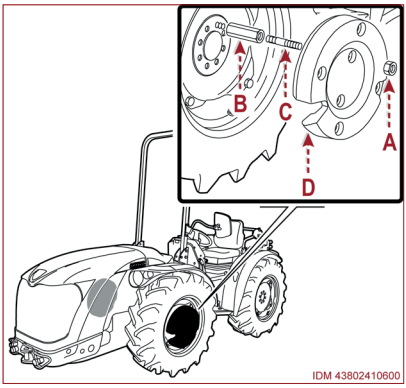
IMPORTANT_The side ballasts must NOT be installed when a carried implement is attached to the front lifting unit.

Installation of 35 kg ballasts

- Proceed as indicated to perform this operation.

1\ Remove two fixing nuts **(A)** from the wheel (in diametrically opposite positions).

IMPORTANT_When choosing the nuts to be removed, consider that in the mounting phase, the recess of the ballast must correspond with the inflation valve.



2\ Mount the two extensions **(B)** and the studs **(C)**.
3\ Mount the ballast **(D)** and fix it using the nuts **(A)**.
4\ Repeat the operation on the other side.
5\ On completion, check that the ballasts are fixed correctly.

ATTENTION
During mounting and/or removal of the ballasts, staff MUST pay attention to preventing the risk of crushing parts of the body.

- **To keep the tractor balanced, install the same amount of ballasts on both sides.**
- **The tractor with ballasts installed, but without interchangeable implements, becomes unstable (braking and steering), with premature wear of the tyres and higher fuel consumption.**
- **ALWAYS remove the ballasts when unhitching implements in order to maintain tractor stability.**

00-1218 - © Copyright Antonio Carraro

- **DO NOT use the tractor equipped with ballast if not necessary, so as not to jeopardise its performance and functionality.**
- **DO NOT overload the tractor with ballasts over the maximum weight allowed.**

06.35. REAR WHEEL BALLASTS INSTALLATION

ONLY install ballasts when a implement (mounted and/or towed) is hitched, to make the machine more stable and improve traction capacity.

- All installation and removal operations of the ballasts should be performed with the machine positioned in a suitably equipped area (e.g. workshop) in order to perform the interventions in safe conditions.
- **Before installing the ballasts, consult the chapter "Technical data" to identify the type and quantity of ballasts to be installed.**

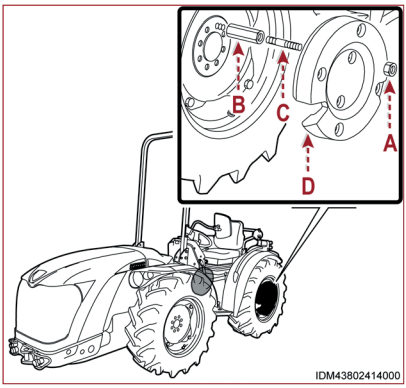
IMPORTANT_The side ballasts must NOT be installed when a carried implement is attached to the front lifting unit.

Installation of 35 kg ballasts

- Proceed as indicated to perform this operation.

1\ Remove two fixing nuts **(A)** from the wheel (in diametrically opposite positions).

IMPORTANT_When choosing the nuts to be removed, consider that in the mounting phase, the recess of the ballast must correspond with the inflation valve.



2\ Mount the two extensions **(B)** and the studs **(C)**.
3\ Mount the ballast **(D)** and fix it using the nuts **(A)**.
4\ Repeat the operation on the other side.
5\ On completion, check that the ballasts are fixed correctly.

ATTENTION
During mounting and/or removal of the ballasts, staff MUST pay attention to preventing the risk of crushing parts of the body.

- **To keep the tractor balanced, install the same amount of ballasts on both sides.**

00-1218 - © Copyright Antonio Carraro

- **The tractor with ballasts installed, but without interchangeable implements, becomes unstable (braking and steering), with premature wear of the tyres and higher fuel consumption.**
- **ALWAYS remove the ballasts when unhitching implements in order to maintain tractor stability.**
- **DO NOT use the tractor equipped with ballast if not necessary, so as not to jeopardise its performance and functionality.**
- **DO NOT overload the tractor with ballasts over the maximum weight allowed.**

06.36. INSTALLATION OF BALLASTS WITH FLANGE (REAR WHEELS)

ONLY install ballasts when a implement (mounted and/or towed) is hitched, to make the machine more stable and improve traction capacity.

- The ballasts with flange, requested in the contract phase, are installed directly by the manufacturer. If requested after purchase of the tractor, they must be installed at an authorised workshop.

ATTENTION
During mounting and/or removal of the ballasts, staff MUST pay attention to preventing the risk of crushing parts of the body.

06.37. OPERATING REMINDERS

The following are a number of indications to be observed when using the tractor.

- Even after having carefully read the documentation, when using the machine for the first time, simulate a number of test operations to identify the controls and the main functions.
- Let the engine warm up thoroughly before operating in cold weather.
- Check all levels (oil, water, fuel).
- Inspect the tyres for wear and check the pressure.
- Check that the nuts and screws securing all main parts are tight.
- Change the range and the direction of movement only when the machine is stopped.
- Use the vehicle with the safety arch (ROPS) in its raised position and wear correctly adjusted seatbelts.
- It is possible to lower the safety arch ONLY to move the tractor temporarily in areas without RISK of overturning and for short distances.
  When the safety arch is lowered, the driver MUST NOT fasten the safety belts and, as he is not protected in case of overturning, he must manoeuvre the tractor with the utmost caution.
- **Keeping the safety arch (ROPS) in its raised position and wearing correctly adjusted safety belts can reduce the risk of injury in the event of the vehicle tipping or overturning.**
- Fully press the clutch pedal when changing speed.
- Do not keep the clutch pressed down with the machine in motion.
- Verify the gradient of the soil so as to identify the conditions that will best ensure safe operation.
- Always suitable gears for the gradient and the type of soil.
- Select the ground speeds appropriate for the type of implement hitched to the machine.
- Do not use the machine on steep ground or in descent with the gear in neutral.
- Stop the machine and take the engine to minimum speed, before starting the PTO.
- When in transit, deactivate the PTO so as to immobilize the functions of the implement.
- Deactivate the PTO and raise the implement when reversing the machine.
- If a trailed implement with cardan drive shaft is hitched to the machine, disengage the PTO when steering so as to avoid damaging the universal joint of the shaft.

00-1218 - © Copyright Antonio Carraro

00-1218 - © Copyright Antonio Carraro

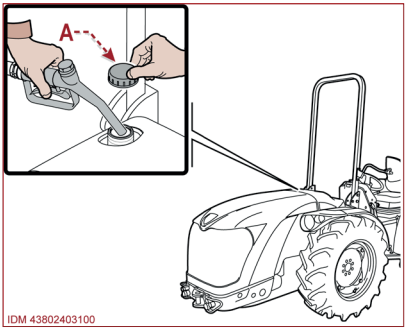
- The mechanical components of the implement do not stop moving instantaneously when the PTO is disengaged: make certain all movement has ceased before approaching the implement.
- When moving the machine, also with engine off and the gear in neutral, pay attention to the synchronised PTO because its activation depends on the rotation of the wheels.
- The synchronised power take-off is driven by the machine transmission.
- The direction of rotation of the synchronised PTO inverts with the selection of forward and reverse drive from the shuttle.
- Before applying the differential lock, take the engine to minimum speed.
- Use the differential lock to counteract wheelslip or when there is a lack of grip at the wheels.
- Use the differential lock only when strictly necessary, and then only for short periods.
- Do not apply the differential lock when entering or negotiating bends.
- Do not steer the machine with the differential lock applied.
- Before leaving the machine unattended or carrying out any repair or servicing operation, ensure the following conditions are in place:

  › *Disengage the PTO so that all implement functions are immobilized.*
  › *Apply the parking brake.*
  › *Lower the hydraulic lift so that a mounted or semi-mounted implement will rest directly on the ground.*
  › *Turn off the engine.*
  › *Remove the ignition key from the starter switch and protect the switch with the special cover to prevent oxidation of the contacts or a short-circuit in the electrical system.*

06.38. REFUELLING

Proceed as indicated to perform this operation.

1\ Remove the filler cap **(A)** and top up the fuel tank. Do not overfill.



IMPORTANT_The fuel must be for traction and conform with the rules specified by the engine manufacturer.

- **Refer to the manual accompanying the engine.**

2\ Close the filler cap **(A)** on completing this operation.

ATTENTION
All types of fuel are highly flammable. Fuel leaks or spillage on hot surfaces and on electrical components can cause fires. Never smoke while refuelling or while in a refuelling area.

IMPORTANT_During top-up do not disperse fuel into the environment. If necessary, prepare a container that corresponds to the fuel draining point.

00-1218 - © Copyright Antonio Carraro

00-1218 - © Copyright Antonio Carraro

06.39. PROLONGED TRACTOR INACTIVITY

If the machine is to stand idle for any length of time, proceed as follows:

- Perform general cleaning.
- Clean the radiator
- Clean the air filter.
- Grease all the parts with grease nipples.
- Disconnect the battery.
- Apply an anti-corrosion treatment to all unpainted parts.
- Check all the parts of the machine and, if necessary, replace them.
- Check that the nuts and screws securing all main parts are tight.
- Let the engine cool and drain the fuel tank before laying the machine up.

ATTENTION
Empty the fuel tank in a suitably well ventilated place to avoid any possible risk of explosion or fire.

- Store the machine in a secure place where only authorised personnel have access to it.
- To prevent rust from forming on the surfaces of the machine, locate any areas where the paint has removed or where there are signs of wear, and touch up.
- To ensure the engine stays in efficient working order, start it up periodically and allow the crankshaft to turn over at idling speed for about (10-15) minutes.

06.40. PUTTING THE MACHINE BACK INTO SERVICE

Before returning the tractor to service following a prolonged idle period, inspect the main components to ensure they are in efficient working order.
In particular, complete the following procedure:

- Check the condition of the battery.
- Check all levels (oil, water, fuel).
- Check the tightness of the main fastening screws and bolts.
- Check the general condition of hydraulic pipelines.
- Lubricate at all grease points.
- Carry out any routine servicing that may be needed.
- Start the engine and run on idle until warm.
- Check the efficiency of all safety devices.
- Give the machine a general clean, taking particular care over the driving position and controls.
- Check the pressure of the tyres.

00-1218 - © Copyright Antonio Carraro

07
INFORMATION ON MAINTENANCE

07.1. MAINTENANCE RECOMMENDATIONS

- Before carrying out any maintenance operation or adjustment, activate all safety devices on the machine and establish whether there is any need to inform persons close by, working or otherwise. In particular, post suitable warnings around the work area and disallow access to any devices that could, if activated, generate unexpected hazard conditions and constitute a risk to the health and safety of individuals.
- Keep the machine in perfect running conditions and carry out scheduled maintenance operations.
- ALWAYS perform the overhauls envisioned (indicated in the table) at the manufacturer's authorised workshop, according to the frequencies indicated or at least once a year.
- Good maintenance will maintain the best performance, a longer working duration and a constant preservation of the safety requirements through time.
- Check the tightness of hydraulic fittings, of the main fastening bolts and of the wheel bolts.
- Only replace worn parts with original spare parts.
- Use oils and grease recommended by the manufacturer. Do not mix oils with different brand names or features.

00-1218 - © Copyright Antonio Carraro

IMPORTANT_The manufacturer disclaims any liability arising from the use of "Long Life" lubricants.

- Do not disperse pollutant liquids, worn parts and maintenance residues in the environment. Observe the legislation in force on waste disposal.
- Unless explicitly instructed otherwise, perform all maintenance with the engine switched off, and with the ignition key removed and kept safe by the operator.
- Before carrying out any work on the engine or adjacent parts, make certain it has cooled down completely.
- Personnel authorised to perform maintenance must implement all measures necessary to ensure the safety of all persons involved, and must comply with all applicable legislation on safety at work.
- When performing interventions on the engine, ALWAYS make sure that the bonnet is completely raised correctly in order to prevent it being able to close unexpectedly with the risk of crushing the body.

IMPORTANT_The warranty expires if the periodical service and the inspection and maintenance intervals indicated in the user manual are not respected. Services must be carried out at enabled and authorised workshops according to the manufacturer procedures.

07.2. MAINTENANCE DURING THE RUNNING-IN PERIOD

The machine is delivered from the factory in running order and with a short initial running-in.

- In the first period of use it is fundamental to respect the maintenance intervals indicated.

Frequency	Operation	Reference
After the first 50 hours	Change the engine oil.	*For further details refer to the engine user manual.*
	Replace the engine oil filter	
	Replace the hydraulic oil filters	*See (→ p.176)*
	Check alternator fan belt tension	Refer to the manual accompanying the engine.

00-1218 - © Copyright Antonio Carraro

07.3. MAINTENANCE INTERVAL TABLE

Frequency	Component	Type of operation	Type of activity
When necessary or yearly	Cab air filter, replacement	Clean	*(→ p. 178)*
	Engine air filter	Clean	*(→ p. 177) (→ p. 178)*
		Replace	*(→ p. 209)*
	Gas springs	Replace	*(→ p. 208) (→ p. 208)*
	Radiator	Clean	*(→ p. 176)*
	Machine	Clean	*(→ p. 174)*
	Bleed brakes and clutch system	Bleed the circuit	Consult an authorised workshop
	Hydraulic system pipes	Inspect and verify wear and corrosion	Consult an authorised workshop
Each workday	Engine oil	Check level	*(→ p. 185)*
Every 50 h	Engine air filter (2)	Clean	*(→ p. 177) (→ p. 178)*
	Water separator filter	Bleed the circuit	Refer to the engine user manual. (*)
	Windscreen washing liquid	Check level	Top-up to suitable level
	Coolant	Check level	*(→ p. 186)*
	Front and rear transmission oil	Check level	*(→ p. 188)*
	Clutch oil	Check level	*(→ p. 189)*
	Brake oil	Check level	*(→ p. 189)*
	Machine components	Lubricate	*(→ p. 182)*

Frequency	Component	Type of operation	Type of activity
Every 150 h	Tyres	Check pressure	*(→ p. 179)*
	Wheel bolts	Check tightness	*(→ p. 210)*
	Machine components	Lubricate	*(→ p. 182)*
Every 250 h	Alternator fan belt	Check voltage	For further details refer to the engine user manual.
	Fuel tank	Empty	Consult an authorised workshop
Every 500 h	Fuel filter	Replace (3)	Refer to the engine user manual. (*)
	Water separator filter	Replace	Refer to the engine user manual. (*)
	Engine oil (1)	Replace (3)	Refer to the engine user manual.
	Engine oil filter (1)	Replace (3)	Refer to the engine user manual. (*)
	Front and rear transmission oil	Replace	*(→ p. 188)*
	Hydraulic oil filters (1)	Replace	*(→ p. 193)*
	Alternator fan belt	Replace	For further details refer to the engine user manual.
	Battery	Check the charge level.	Maintenance-free battery
Every 1000 hours or at the end of every year	Engine air filter	Replace	*(→ p. 209)*
	Coolant	Replace	Refer to the engine user manual.
Every 2000 hours or at the end of every two years	Clutch oil	Replace	Consult an authorised workshop
	Brake oil	Replace	Consult an authorised workshop
Every 6000 h	DPF filter	Clean	Refer to the engine user manual.

00-1218 - © Copyright Antonio Carraro

00-1218 - © Copyright Antonio Carraro

Frequency	Component	Type of operation	Type of activity
Every 5 years	Hydraulic system pipes Brakes hydraulic system pipes Clutch hydraulic system pipes	Replace	Consult an authorised workshop

(1) The first replacement must be performed after the first 50 hours
(2) Replace the element after 6 cleaning operations or every 12 months.
- In machines with filter unit equipped with internal cartridge, replace it every 2 replacements of the external one.

(3) Replace annually when the hours of operation have not reached the scheduled maintenance interval. If the working conditions require many regenerations of the DPF, it is advisable to replace the engine oil earlier than expected. For more information, contact an authorized workshop.
(*) For the component position, see 'Engine components' *(→ p. 175)*

07.4. CLEANING THE MACHINE

Proceed as indicated to perform this operation.

1\ Remove the ignition key from the starter switch and protect the switch with the special cover to prevent oxidation of the contacts or a short-circuit in the electrical system.

2\ Remove all residues of grass and leaves.

3\ Wash the machine with a jet of water, taking care to avoid spraying directly onto electrical parts.

- **Clean with biodegradable detergents for industrial use.**
- DO NOT use aggressive chemical products and/or hydrocarbon or alcohol based solvents, especially for plastic components.
- **Do not direct the jet of water onto the motor, the exhaust pipe or near components that could get damaged due to the water pressure.**

4\ Blow the implement dry with compressed air, then grease all greasing points and sliding surfaces with water-repellent grease.

00-1218 - © Copyright Antonio Carraro

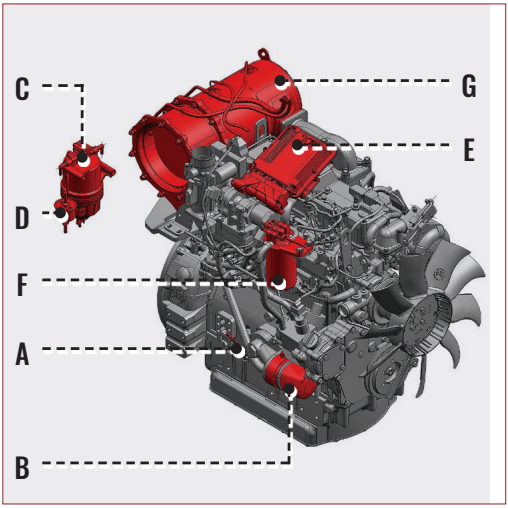
00-1218 - © Copyright Antonio Carraro

07.5. ENGINE COMPONENTS

The illustration represents the engine components and their position.

For all the components not listed, refer to the engine's user manual.

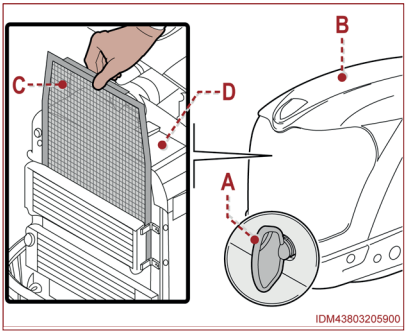
A. Dipstick
B. Engine oil filter
C. Water separator filter
D. Electric pump
E. Engine ECU
F. Fuel filter
G. DPF



07.6. CLEANING THE RADIATOR

Proceed as indicated to perform this operation.

1\ Stop the machine in safe conditions.
2\ Allow the engine to cool down, so that there will be no risk of scalding.
3\ Open the bonnet **(B)** with the key **(A)**.
4\ Remove the protection grid **(C)**. (if present)
5\ Clean the grid **(C)** and the radiator **(D)** with a jet of compressed air.



- **Do not aim the jet of air too near to the radiator fins in order to prevent damage.**

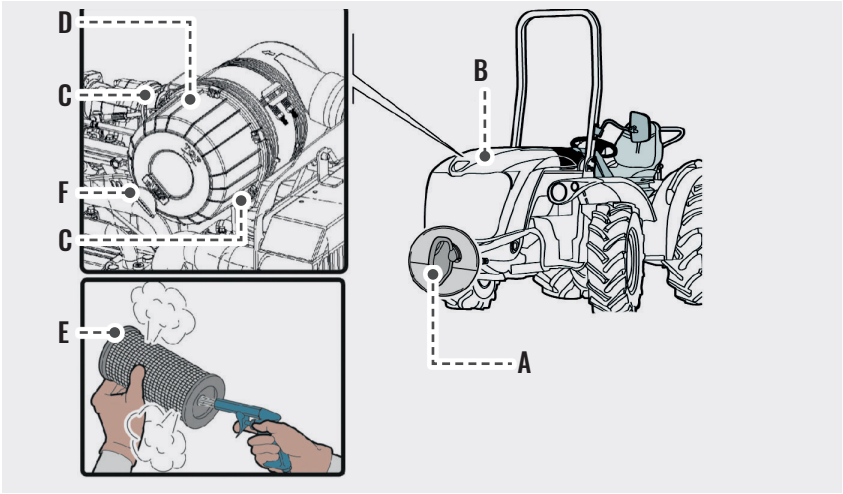
6\ Reassemble the protection grid **(C)**. (if present)
7\ Shut the bonnet when the operation is concluded.

ATTENTION
Wear the eye protections and the mask to prevent the danger generated by dusts that can come into contact with the eyes and respiratory tract.

00-1218 - © Copyright Antonio Carraro

00-1218 - © Copyright Antonio Carraro

07.7. CLEANING THE ENGINE AIR FILTER



Proceed as indicated to perform this operation.

1\ Stop the machine in safe conditions.
2\ Allow the engine to cool down, so that there will be no risk of scalding.
3\ Open the bonnet **(B)** with the key **(A)**.
4\ Unfasten the hooks **(C)** to remove the cover **(D)**.
5\ Take out the cartridge **(E)**.
6\ Clean the cartridge **(E)** with a jet of air (max 3 bar) directed towards the outside.
7\ Clean the discharge valve **(F)** and the internal part of the filter container with a damp cloth.
8\ Reassemble the cartridge **(E)** and the cover **(D)**.
9\ Shut the bonnet when the operation is concluded.

ATTENTION

Wear the eye protections and the mask to prevent the danger generated by dusts that can come into contact with the eyes and respiratory tract.

07.8. CLEANING THE CAB AIR FILTER (PAPER)

Proceed as indicated to perform this operation.

1\ Stop the machine in safe conditions.

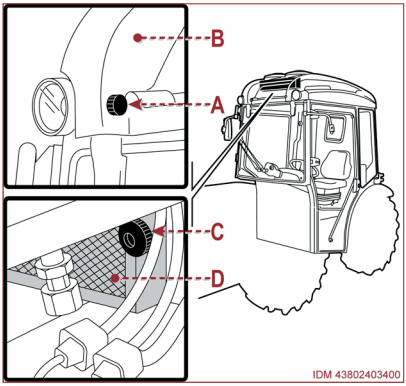
2\ Unscrew the knobs **(A)** and lift the roof **(B)**.

3\ Slacken the knobs **(C)**.

4\ Extract the filter **(D)** and clean it with a jet of compressed air.

- Blow air from the inside towards the outside, until all the dust is completely removed.
- **Do not aim the jet of air too near to the filter in order to prevent damage.**

5\ Reassemble the filter **(D)**.



IMPORTANT_Check that the arrow on the filter faces towards the inside of the cab.

6\ Tighten the knobs **(C)**.

7\ Lower the roof **(B)** and tighten the knobs **(A)**.

ATTENTION

Wear the eye protections and the mask to prevent the danger generated by dusts that can come into contact with the eyes and respiratory tract.

00-1218 - © Copyright Antonio Carraro

00-1218 - © Copyright Antonio Carraro

07.9. CHECKING THE TYRE PRESSURE

Proceed as indicated to perform this operation.

1\ Position the machine on compact, level ground, stop it and remove the ignition key.
2\ Inspect the tyres for wear and check the pressure.

IMPORTANT_Check the pressure without additional weights on the machine and without any interchangeable tool hitched.

- To ensure tyres are inflated to the correct pressure, be certain of:
  - › *the make and type of tyre*
  - › *the tyre size*
  - › *the equipment installed on the machine*
  - › *the nature of the work to be carried out.*

IMPORTANT_For maximum confidence when setting tyre pressures, it will always be advisable to follow the indications given by the manufacturer of the tyre.

Tyre pressures for use on loose soils

A. **Inflation pressure correct**: Tyres inflated to the minimum pressure indicated for the load on the machine will give satisfactory results: the soil is penetrated correctly by the tyre lugs, good grip is obtained, and the tread stays clean.

B. **Inflation pressure too low**: Tyres inflated to a pressure insufficient for the load on the machine will give unsatisfactory results: the soil is not penetrated correctly by the tyre lugs, grip is poor, and the carcass of the tyre suffers damage, especially when subjected to traction forces.

C. **Inflation pressure too high**: Tyres inflated to a pressure higher than necessary for the load on the machine will give unsatisfactory results: less grip between tread and soil, a greater likelihood of the carcass being cut and damaged in the event of impact, and a conspicuous degrading effect on the soil.

00-1218 - © Copyright Antonio Carraro

Tyre pressures for use on firm soils or road surfaces

D. **Inflation pressure correct:** Tyres inflated to the maximum pressure indicated for the load on the machine will give satisfactory results: less wear on the lugs of the tread, and better preservation of the carcass.

E. **Inflation pressure too low:** Tyres inflated to a pressure insufficient for the load on the machine will give unsatisfactory results: rapid and irregular wear on the tread, damage to the carcass, and unstable rotation of the tyre.

F. **Inflation pressure too high:** Tyres inflated to a pressure higher than necessary for the load on the machine will give unsatisfactory results: a less than comfortable ride for the driver, rapid and irregular wear on the tread, and a greater likelihood of the carcass being cut and damaged in the event of impact.



Table 7.2· Tyre pressure

Tyre type	Inflation pressure (front). bar	Inflation pressure (rear). bar	Maximum pressure bar
33x12.50-15	1.4	1.4	1.9
425/55 R17 134G	1.4	1.4	3.5
440/50 R17 135D IMP TL	1.4	1.4	3.6
400/55-17,5 110 A5	0.8	0.8	2

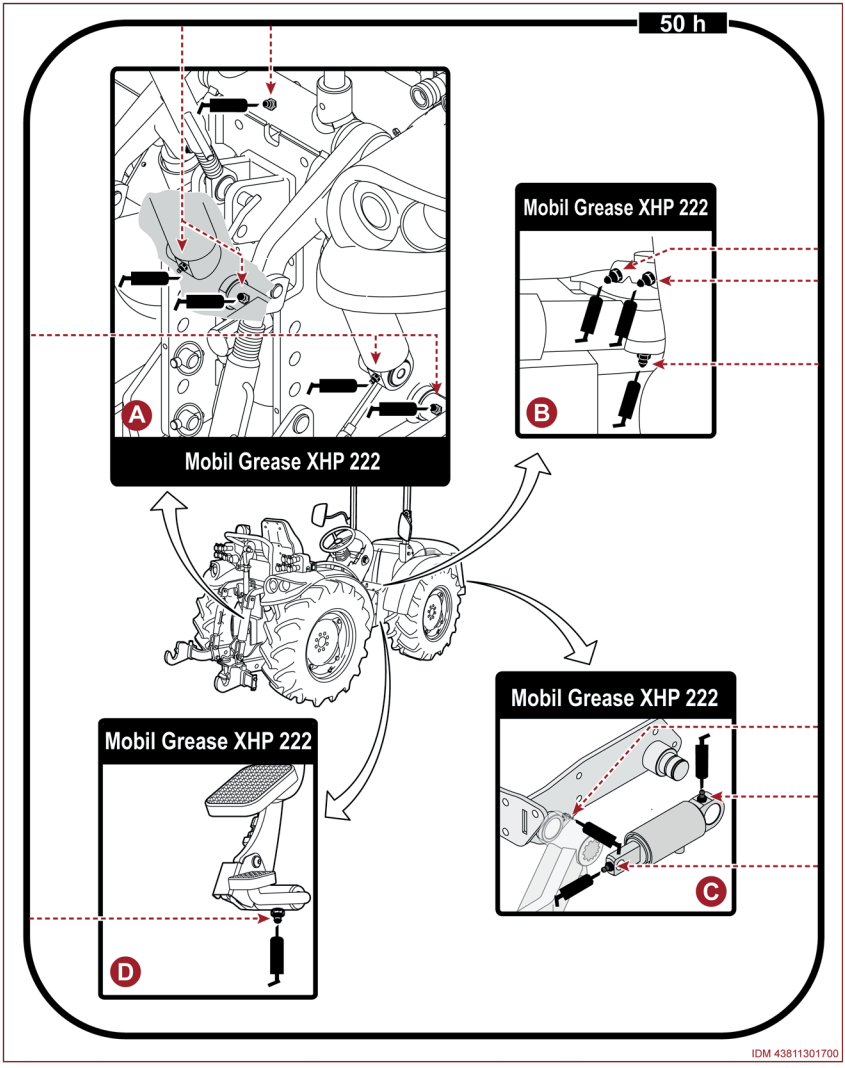
00-1218 - © Copyright Antonio Carraro

Tyre type	Inflation pressure (front). bar	Inflation pressure (rear). bar	Maximum pressure bar
350/60-17.5	0.8	0.8	1
275/80 R18 142 A2/130B	1.4	1.4	3.8
280/70 R18 114 A8	1.4	1.4	2.4
320/65 R18 109 A8	1.4	1.4	1.6
340/65 R18 113 A8/110B	1.4	1.4	1.6
8.00-20 TR135 8 PR	1.4	1.4	2.8
9.5 R20 108 A8 (*)	1.4	1.4	3.2
9.5 R20 8 PR	1.4	1.4	2.8
250/85 R20 116 A8 (**)	1.4	1.4	2.4
280/85 R20 112 A8	1.4	1.4	1.6
300/70 R20 110 A8	1.4	1.4	1.6
320/70 R20 113 A8	1.4	1.4	1.6
400/55-22,5 112 A5	0.8	0.8	1
320/70 R24	1.4	1.4	1.6

(*) Standard tyre (SRX)
(**) Standard tyre (SX)

07.10. LOCATION OF LUBRICATION POINTS

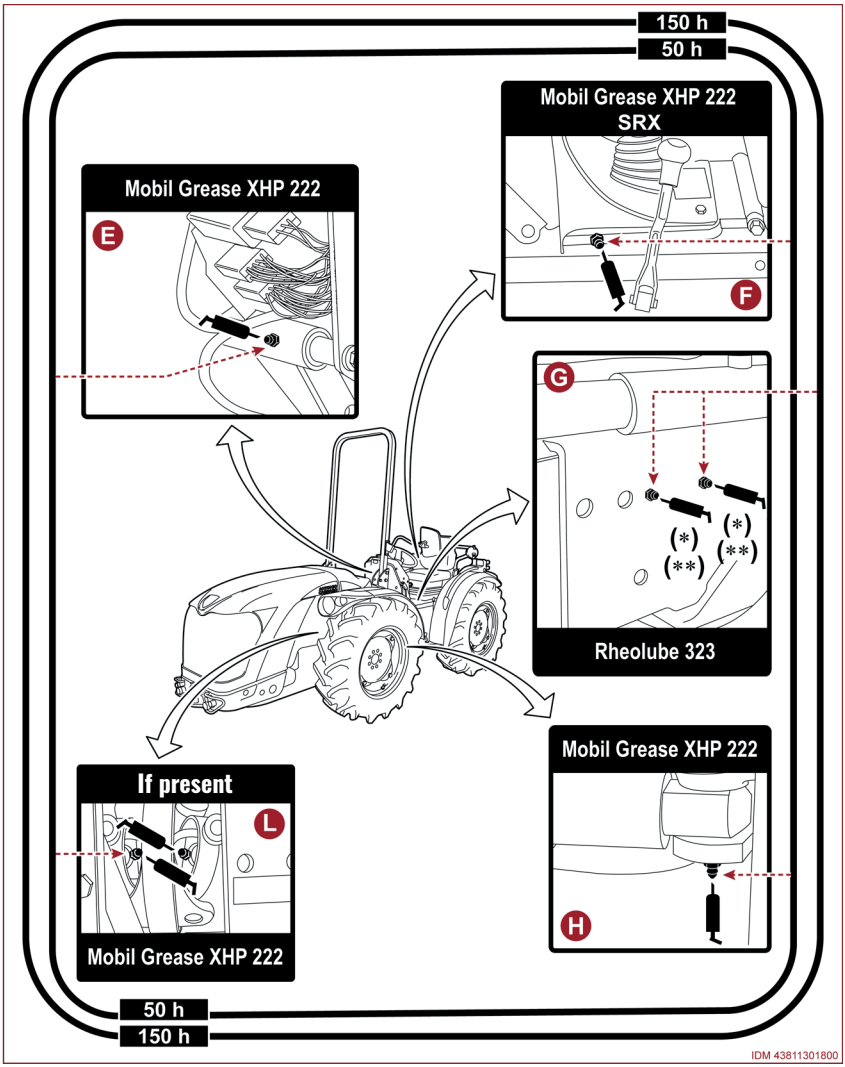
- Lubricate all the parts shown at the intervals specified.



(*) Use RHEOLUBE 393 grease.

00-1218 - © Copyright Antonio Carraro

00-1218 - © Copyright Antonio Carraro



(*) Use RHEOLUBE 393 grease.
(**) Stop applying when grease comes out of the vent valve on the grease nipple.

IMPORTANT_Clean the areas around grease nipples before injecting grease, to avoid injecting dirt together with the grease.

00-1218 - © Copyright Antonio Carraro

07.11. LUBRICANT TABLE

Antonio Carraro machines need lubricants that can ensure high performance in compliance with the technical specifications.

- With this goal, Antonio Carraro has selected special formulations of lubricants that will also be made available for 'maintenance' after the initial filling in the factory.
- 'Tony Gold Premium' is the only line of lubricants guaranteed by Antonio Carraro, which helps to reduce fuel consumption and, while being environmentally friendly, maintains high performance and maximum reliability.
- Ask your dealer for lubricants in the 'Tony Gold Premium' line, available in handy, convenient packs.

Table 7.3· Lubricant features

Lubricant type	Parts to be lubricated	Quantity (litres) (1)
Tony Gold SYNTHETIC ENGINE OIL 10W40 or Mobil Delvac XHP ESP 10W40	Engine	see the manual accompanying the engine
Tony Gold POWERFLUID XP oil or Mobilfluid 424	Front transmission + Front reduction gears (right + left) (Configuration with 1 hydraulic pump) **(SX)**	9.5
	Front transmission + Front reduction gears (right + left) (Configuration with 2 hydraulic pumps) **(SRX)**	14.5
	Rear transmission + Rear reduction gears (right + left)	25
Tony Gold POWERFLUID XP oil or Shell Spirax S6 TXME	Brake and clutch control	-
Grease MOBIL Grease XHP 222	Grease nipples **(A-B-C-D-E-F-H-L)**	-
Grease RHEOLUBE 393	Central joint **(G)**	-

(1) Approximate values that do not consider possible topping up after starting the machine.

00-1218 - © Copyright Antonio Carraro

07.12. COOLING LIQUID TABLE

Table 7.4· Cooling liquid concentration percentage

Concentration percentage (Gisteda-Flù antifreeze)	Operating temperature
18%	down to -8°C
28%	down to -13°C
36%	down to -20°C
40%	down to -24°C
50%	down to -38°C

07.13. CHECKING THE ENGINE OIL LEVEL

Proceed as indicated to perform this operation.

1\ Stop the machine in safe conditions.

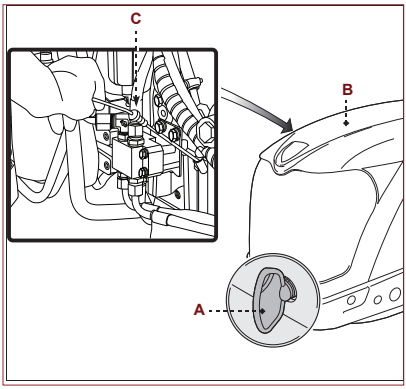
2\ Allow the engine to cool down, so that there will be no risk of scalding.

- **Perform this check with the machine on a perfectly level surface and with the engine cold.**

3\ Open the bonnet **(B)** with the key **(A)**.

4\ Take out the dipstick **(C)** and check the oil level. Add oil as necessary, up to but not beyond the maximum level mark (Consult the manual accompanying the engine).

5\ Shut the bonnet when the operation is concluded.



07.14. CHECKING THE ENGINE COOLANT LEVEL

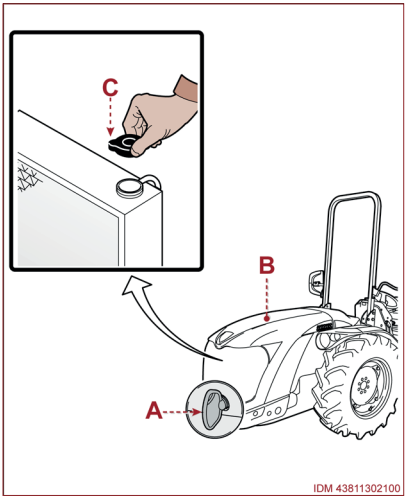
Proceed as indicated to perform this operation.

1\ Stop the machine in safe conditions.
2\ Allow the engine to cool down, so that there will be no risk of scalding.
3\ Open the bonnet **(B)** with the key **(A)**.

ATTENTION
DO NOT open the radiator cap before the cooling liquid has reached environment temperature (cold engine).

- Unscrew the cap **(C)** to check the level of the liquid in the radiator and top up if necessary.

4\ Screw the cap on again.
5\ Shut the bonnet when the operation is concluded.



IMPORTANT_The radiator must be maintained at the correct level with a mixture of distilled water and antifreeze liquid for its protection. Check the concentration of the mixture with the appropriate tool at least once a year.

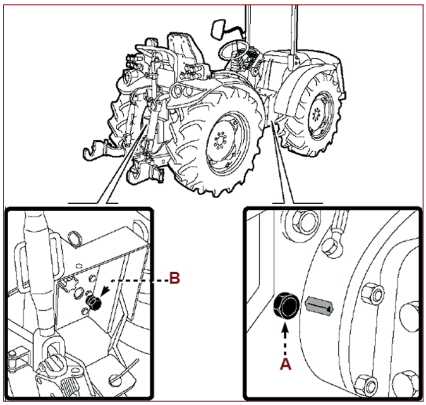
00-1218 - © Copyright Antonio Carraro

00-1218 - © Copyright Antonio Carraro

07.15. CHECKING THE FRONT AND REAR TRANSMISSION OIL LEVEL (CONFIGURATION WITH ONE HYDRAULIC PUMP)

Proceed as indicated to perform this operation.

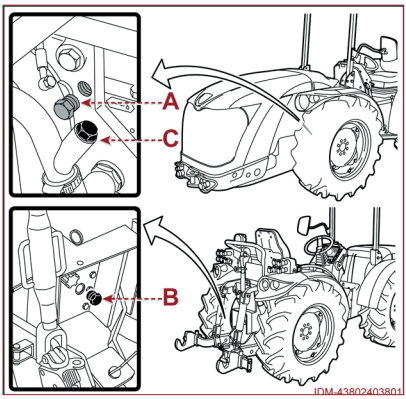
1\ Lower the power lift unit completely.
2\ Stop the machine in safe conditions.
3\ Allow the engine to cool down, so that there will be no risk of scalding.
4\ Unscrew the cap **(A)** and check that the oil level comes close to the lower edge of the hole.
5\ Top up (if necessary) through the hole and screw the cap **(A)** on again.
6\ Unscrew the cap **(B)** and check that the oil level comes close to the lower edge of the hole.



7\ Top up (if necessary) through the hole and screw the cap **(B)** on again.
8\ On completion of all operations, check that there are no leaks in proximity of the caps.

IMPORTANT_Use oil with specifications identical to those indicated in the “Lubricant table”.

07.16. CHECKING THE FRONT AND REAR TRANSMISSION OIL LEVEL (CONFIGURATION WITH TWO HYDRAULIC PUMPS)



Proceed as indicated to perform this operation.

1\ Lower the power lift unit completely.
2\ Stop the machine in safe conditions.
3\ Allow the engine to cool down, so that there will be no risk of scalding.
4\ Unscrew the filler cap **(C)**.
5\ Unscrew the cap **(A)** and check that the oil level comes close to the lower edge of the hole.
6\ Pour new oil in through the hole in the cap **(C)** until it reaches the lower edge of the hole of the cap **(A)**.
7\ Screw the caps **(A-C)** on again**.**
8\ Unscrew the cap **(B)** and check that the oil level comes close to the lower edge of the hole.
9\ Top up (if necessary) through the hole and screw the cap **(B)** on again.
10\ On completion of all operations, check that there are no leaks in proximity of the caps.

IMPORTANT_Use oil with specifications identical to those indicated in the “Lubricant table”.

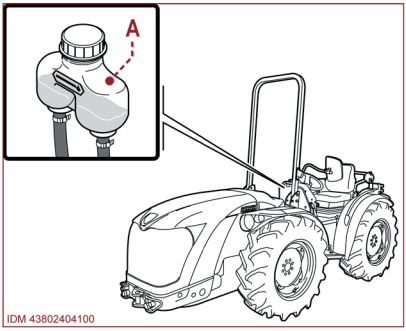
00-1218 - © Copyright Antonio Carraro

00-1218 - © Copyright Antonio Carraro

07.17. CHECKING BRAKES AND CLUTCH SYSTEM OIL LEVEL

Proceed as indicated to perform this operation.

1\ Lower the power lift unit completely.
2\ Stop the machine in safe conditions.
3\ Check the correct level of the oil in the tank **(A)** and top up if necessary.



IMPORTANT_Check that the oil level never falls below the minimum level marked.

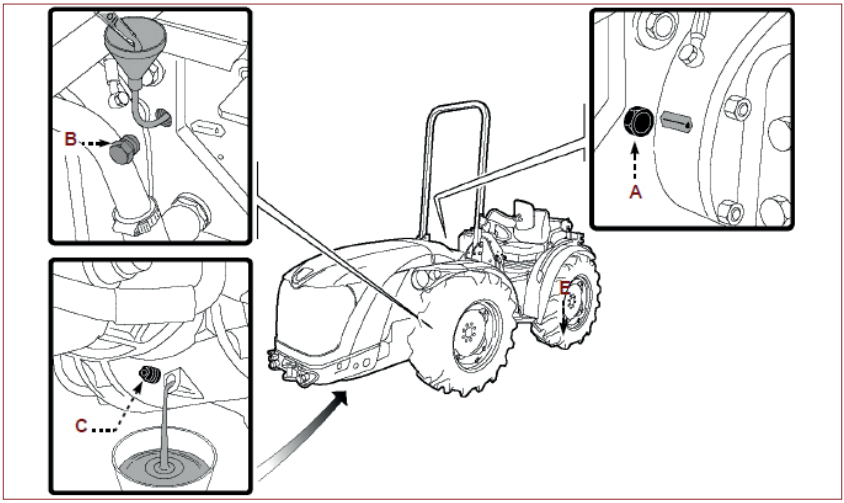
- Use oil with specifications identical to those indicated in the “Lubricant table”.

07.18. CHANGING THE FRONT AND REAR TRANSMISSION OIL (CONFIGURATION WITH ONE HYDRAULIC PUMP)

Proceed as indicated to perform this operation.

1\ Lower the power lift unit completely.
2\ Stop the machine in safe conditions.
3\ Allow the engine to cool down, so that there will be no risk of scalding.
4\ Prepare a container with suitable capacity, which corresponds with the drain caps.

Front transmission (UNIT 2)

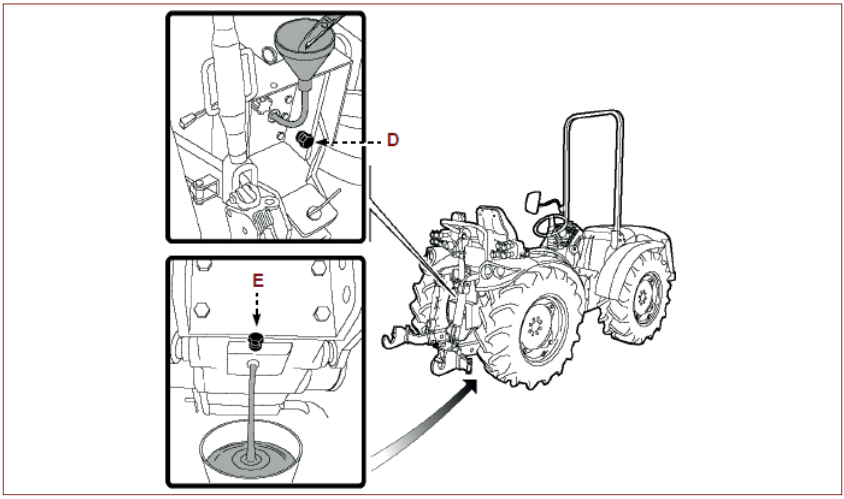


5\ Unscrew the filler cap **(A)**.
6\ Unscrew the level cap **(B)**.
7\ Unscrew the drain cap **(C)** and let all the oil drain into the container.
8\ Screw the drain cap **(C)** on again.
9\ Pour new oil in through the hole in the filler cap **(A)** until it reaches the lower edge of the hole of the cap **(B)**.
10\ Screw the caps **(A-B)** on again.

00-1218 - © Copyright Antonio Carraro

00-1218 - © Copyright Antonio Carraro

Rear transmission (UNIT 1)



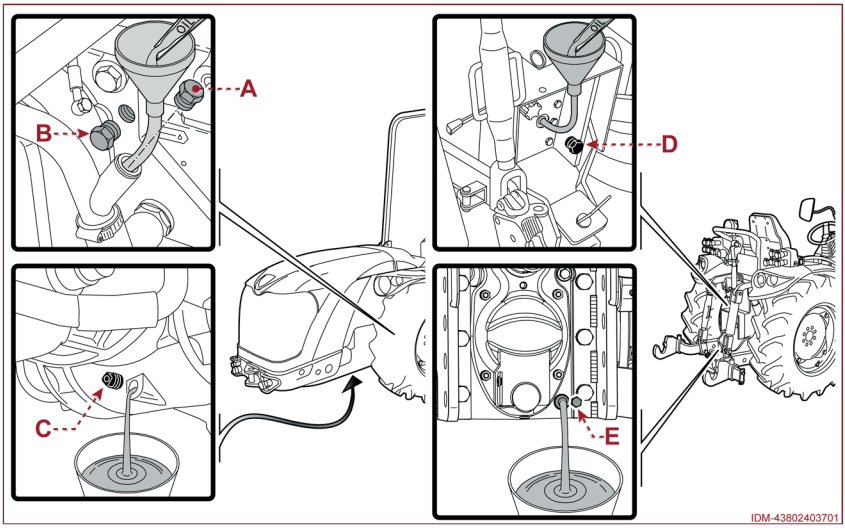
11\ Unscrew the plug **(D)**.
12\ Unscrew the drain cap **(E)** and let all the oil drain into the container.
13\ Screw the drain cap **(E)** on again.
14\ Pour new oil in through the hole in the cap **(D)** until it reaches the lower edge of the hole of the cap.
15\ Screw the cap **(D)** on again.
16\ On completion of all operations, check that there are no leaks in proximity of the caps.

IMPORTANT_Use oil with specifications identical to those indicated in the “Lubricant table”.

- **Do not dispose of polluting materials in the environment. Dispose of all such materials in compliance with applicable legislation.**

07.19. CHANGING THE FRONT AND REAR TRANSMISSION OIL (CONFIGURATION WITH TWO HYDRAULIC PUMPS)

Proceed as indicated to perform this operation.



1\ Lower the power lift unit completely.
2\ Stop the machine in safe conditions.
3\ Allow the engine to cool down, so that there will be no risk of scalding.
4\ Prepare a container with suitable capacity, which corresponds with the drain caps.

Front transmission (UNIT 2)

5\ Unscrew the filler cap **(A)**.
6\ Unscrew the level cap **(B)**.
7\ Unscrew the drain cap **(C)** and let all the oil drain into the container.
8\ Screw the drain cap **(C)** on again.
9\ Pour new oil in through the hole in the filler cap **(A)** until it reaches the lower edge of the hole of the cap **(B)**.
10\ Screw the caps **(A-B)** on again.

Rear transmission (UNIT 1)

11\ Unscrew the plug **(D)**.
12\ Unscrew the drain cap **(E)** and let all the oil drain into the container.
13\ Screw the drain cap **(E)** on again.
14\ Pour new oil in through the hole in the cap **(D)** until it reaches the lower edge of the hole of the cap.
15\ Screw the cap **(D)** on again.
16\ On completion of all operations, check that there are no leaks in proximity of the caps.

00-1218 - © Copyright Antonio Carraro

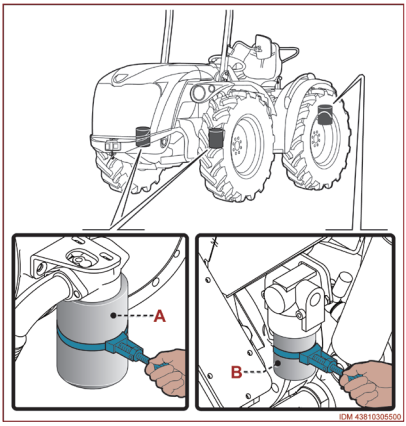
00-1218 - © Copyright Antonio Carraro

IMPORTANT_Use oil with specifications identical to those indicated in the "Lubricant table".

- **Do not dispose of polluting materials in the environment. Dispose of all such materials in compliance with applicable legislation.**

07.20. CHANGING THE HYDRAULIC OIL FILTERS

***NOTE**_Depending on the version, there may be 1 or 2 hydraulic oil filters on the suction **(A)**.*



Proceed as indicated to perform this operation.

1\ Stop the machine in safe conditions.
2\ Allow the engine to cool down, so that there will be no risk of scalding.

- **Perform this check with the machine on a perfectly level surface and with the engine cold.**

3\ Position a container with suitable capacity in the oil draining area.

IMPORTANT_Do not dispose of polluting materials in the environment. Dispose of all such materials in compliance with applicable legislation.

4\ Unscrew the hydraulic oil suction filter **(A)**.
5\ Lubricate the new filter gasket with hydraulic oil.
6\ Mount the new filter and screw it only by hand.
7\ Tighten the filter fully home using an appropriate band wrench.
8\ Check the hydraulic oil level. *(→ p. 188)*
9\ Unscrew the hydraulic oil pressure filter **(B)**.
10\ Remove the filtering cartridge and clean the container.
11\ Insert a new filtering cartridge in the container.
12\ Put the filter back in position.
13\ Check the hydraulic oil level. *(→ p. 188)*

07.21. BLEED BRAKES AND CLUTCH SYSTEM

This operation must be performed in a workshop equipped with suitable tools and by staff with precise technical skills.

07.22. EXTRAORDINARY MAINTENANCE

Although the machine has been designed and made to work in difficult environmental conditions, after a few years it is necessary to carry out extraordinary maintenance to keep it in perfect working order and to safeguard its general safety.

- Servicing operations must be carried out by technicians with the proper skills, in suitably equipped workshops authorised by the manufacturer.

00-1218 - © Copyright Antonio Carraro

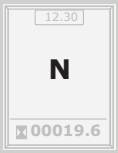
08
INFORMATION REGARDING FAULTS

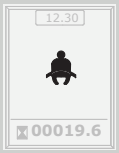
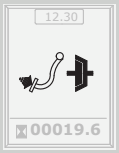
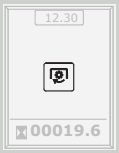
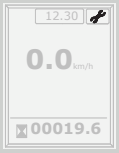
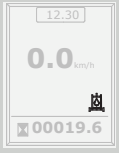
08.1. PROBLEMS, CAUSES AND CORRECTIVE ACTIONS

The following instructions are designed to help you identify the cause of faults and anomalies that may occur during the course of normal operation and the corrective actions to undertake.

IMPORTANT_To ensure maximum fault finding efficiency, have the machine checked by an authorized service centre that can also perform a general service.

Table 8.1· Warning Messages on the multifunction display

Problem	Causes	Solution
	The reverser is not in neutral.	Shift the shuttle lever to neutral position.

Problem	Causes	Solution
	The operator is not sitting correctly in the driver's seat.	Sit correctly in the driver's seat.
	The operator present sensor is not working properly.	Consult an authorised workshop.
	The clutch pedal is not pressed.	Press the clutch pedal.
	The PTO control is activated	Deactivate the PTO control
	Service overdue.	Consult an authorised workshop.
	Service overdue for more than 50h.	Consult an authorised workshop.
	Unit 1 hydraulic circuit filter clogged.	Replace filter

00-1218 - © Copyright Antonio Carraro

00-1218 - © Copyright Antonio Carraro

Problem	Causes	Solution
	Unit 1 or 2 hydraulic system filter damaged (pump, valve, sensor)	Consult an authorised workshop
	Unit 1 or 2 hydraulic oil level low.	STOP Stop and turn off the engine! Check the oil level and top up if necessary. If the problem persists, contact an authorised workshop.
	Unit 1 or 2 hydraulic oil filter clogged	STOP Stop and turn off the engine! Replace the hydraulic oil filter
	Clogged fuel filter	Replace: - fuel filter - fuel pre-filter
	Error in the CAN line	Consult an authorised workshop
	Engine fault	STOP Stop and turn off the engine! Consult an authorised workshop.
	Engine fault.	STOP Stop and turn off the engine! Consult an authorised workshop.
	Vehicle fault	STOP Stop and turn off the engine! Consult an authorised workshop.

00-1218 - © Copyright Antonio Carraro

00-1218 - © Copyright Antonio Carraro

Table 8.2: Problems at engine start-up phase

Problem	Causes	Solution
Starter motor does not turn	Battery flat	Recharge or replace the battery *(→ p. 210)*
	Battery terminals oxidised	Clean the terminals and smear with grease to prevent oxidation
	Battery cut-off switch faulty	Check the battery cut-off switch and replace it if necessary.
	Main fuse damaged	Replace the fuse *(→ p. 216)*
	Starter motor damaged	Consult an authorised workshop.
	Starter switch damaged	Consult an authorised workshop.
	Shuttle lever not in neutral position	Put the lever into neutral
	PTO switch activated	Deactivate the PTO with the switch
	Safety sensors damaged	Consult an authorised workshop.
	Clutch pedal not pressed	Press the clutch pedal
	Operator is not sitting correctly in the driver's seat	Sit correctly in the driver's seat
	Parking brake not engaged	Apply the parking brake
	Drive pedal is not in position 0	Take your foot off the drive pedal
		Make sure that the drive pedal is in position 0

00-1218 - © Copyright Antonio Carraro

Problem	Causes	Solution
Engine does not start	Clogged fuel filter	Clean or replace the filter (Refer to the engine user manual).
	Air in the fuel feed circuit	Bleed the circuit (Refer to the engine user manual).
	Engine control unit fuse damaged	Replace the fuse *(→ p. 216)*
	Clogged fuel circuit	Refer to the engine user manual.
	Engine control unit detects a fault	Consult an authorised workshop.
	Engine control unit breakdown	Consult an authorised workshop.
	No fuel in the tank	Refuel *(→ p. 166)*
	Injection pump rack actuator blocked (FIP)	Consult an authorised workshop.
	Safety sensors damaged	Consult an authorised workshop.
Black smoke coming from exhaust	Injectors fouled or defective	Consult an authorised workshop.
	Engine overloaded	Select a lower range or reduce the load
	Enging oil fumes recovery air filter clogged	Consult an authorised workshop
	Air filter clogged	Clean or replace filter *(→ p. 177)* *(→ p. 178)*
Coolant temperature warning indicator lit with engine running	Radiator dirty	Clean the radiator
	Level of coolant in radiator too low or too high	Restore the correct level of coolant in the radiator
Excessive fuel consumption	Air filter clogged	Clean or replace filter *(→ p. 177)* *(→ p. 178)*
	Engine overloaded	Select a lower range or reduce the load
	Injectors fouled or defective	Consult an authorised workshop.

Table 8.3: Problems in the PTO and differential units

00-1218 - © Copyright Antonio Carraro

Problem	Causes	Solution
Power take-off does not turn	PTO selector levers in neutral position	Shift the lever to select power take-off
	Fuse damaged	Replace the fuse *(→ p. 216)*
	PTO electrovalve breakdown	Consult an authorised workshop.
	Services solenoid valve block maximum pressure valve breakdown	Consult an authorised workshop.
	The PTO has been deactivated by the system	Disengage the PTO and engage it again
PTO clutch slipping	PTO electrovalves breakdown	Consult an authorised workshop
	Services solenoid valve block maximum pressure valve breakdown	Consult an authorised workshop
Four-wheel drive does not disengage	Fuse damaged	Replace the fuse *(→ p. 216)*
	Drive disconnection solenoid valve breakdown	Consult an authorised workshop.
	Services solenoid valve block maximum pressure valve breakdown	Consult an authorised workshop.
Differential lock does not engage	Fuse damaged	Replace the fuse *(→ p. 216)*
	Differential locking electrovalve breakdown	Consult an authorised workshop.
	Services solenoid valve block maximum pressure valve breakdown	Consult an authorised workshop.
	Differential locking control transmission damaged	Consult an authorised workshop.

Table 8.4: Power lift unit problems

00-1218 - © Copyright Antonio Carraro

Problem	Causes	Solution
The implement fails to lift	The implement weighs more than the maximum load capacity of the lifting device	Disconnect the implement. Before connecting an implement assess whether its characteristics are in line with those of the machine
	Oil level low in transmission	Restore the oil level *(→ p. 188)*
	Oil pressure too low	Consult an authorised workshop.
	Hydraulic pump damaged	Consult an authorised workshop.
	Priority valve damaged	Consult an authorised workshop.
	Relief valve damaged on auxiliary spool valve controlling external ports	Consult an authorised workshop.
Spool valve safety valve trips with arms fully raised (1)	Position idler rod not adjusted properly	Consult an authorised workshop.
The implement fails to maintain the set depth in draft control mode (1)	Spool valve sensitivity not properly adjusted	Consult an authorised workshop.
The 'draft control' mode is not working (1)	Draft idler rod not adjusted properly	Consult an authorised workshop.
The 'position control' mode is not working (1)	Position idler rod not adjusted properly	Consult an authorised workshop.
	Position control lever not properly adjusted	
	Control lever tie-rods damaged	Consult an authorised workshop.

(1) For machines with draft control hydraulic lift system only.

Table 8.5: Clutch, brake and steering units problems

Problem	Causes	Solution
Difficulty engaging the gears	Air in the hydraulic circuit	Consult an authorised workshop
	Worn out clutch discs	Consult an authorised workshop

00-1218 - © Copyright Antonio Carraro

Problem	Causes	Solution
Insufficient braking action and excessive brake pedal travel	Air in the hydraulic circuit	Consult an authorised workshop
	Discs worn	Consult an authorised workshop.
	Brake pump(s) damaged or worn	Consult an authorised workshop.
	Oil level low	Restore the oil level *(→ p. 189)*
Difficulty applying the parking brake	Presence of rust or dirt in the control mechanisms.	Remove the dirt and grease the mechanisms
	The control cable is not sliding correctly in the sheath.	Lubricate the cable
When the machine is off, it cannot be moved with the parking brake disengaged	"Superbrake" device is active	Deactivate the device *(→ p. 114)*
Uneven wear on tyres	Inflation pressure incorrect	Inflate to correct pressure *(→ p. 179)*
The steering wheel is hard to turn	Oil pressure too low	Consult an authorised workshop.
	Hydraulic pump damaged	Consult an authorised workshop.
	Power steering defective	Consult an authorised workshop.
The steering wheel does not steer the machine accurately	Air in the hydraulic circuit	Consult an authorised workshop.
	The steering cylinder seals are worn	Consult an authorised workshop.
	Hoses not securely connected	Consult an authorised workshop.
The machine does not steer at all	Oil pressure too low	Consult an authorised workshop.
	Hydraulic pump damaged	Consult an authorised workshop.
	Power steering defective	Consult an authorised workshop.
	Oil level low in front transmission	Restore the oil level *(→ p. 188)*

00-1218 - © Copyright Antonio Carraro

Table 8.6: Electrical system problems

Problem	Causes	Solution
No power in electrical circuit	Main fuse damaged	Replace the fuse *(→ p. 216)*
	Battery flat	Recharge or replace the battery
	Battery terminals oxidised	Clean the terminals and smear with grease to prevent oxidation
Alternator warning indicator remains lit with engine running	Alternator drive belt slack or damaged	Adjust the tension or, if necessary, replace the belt (Refer to the engine user manual).
	Alternator damaged	Replace the alternator (Refer to the engine user manual).
Engine oil pressure warning indicator remains lit with engine running	Oil level low	Restore the oil level (Refer to the engine user manual)
	Engine oil filter clogged	Replace the filter (Refer to the engine user manual).
Coolant temperature warning indicator lit with engine running	Radiator dirty	Clean the radiator *(→ p. 176)*
	Level of coolant in radiator too low	Restore the correct level of coolant in the radiator *(→ p. 186)*
	Engine cooling liquid pump breakdown	Replace the pump (Refer to the engine user manual)
Air filter clogged indicator lit	Air filter clogged	Clean or replace the filter cartridge. *(→ p. 177) (→ p. 178)*
The engine anomaly signalling LED flashes	Engine breakdown	Consult an authorised workshop.
The hydraulic oil pressure signalling LED flashes during engagement of the power take-off	Delay in response of the electronic control unit	Wait a few seconds until the LED switches off

00-1218 - © Copyright Antonio Carraro

Table 8.7: Cab unit problems

Problem	Causes	Solution
The cab heating system does not work	Engine coolant level too low	Restore the correct level of engine coolant *(→ p. 186)*
	Air-conditioning control device damaged	Consult an authorised workshop.
	Electric fan breakdown	Replace the fuse
		Consult an authorised workshop.
The air conditioning system is not working	Cab protection circuit fuses blown	Replace the fuse *(→ p. 216)*
	Air-conditioning system condenser dirty	Clean the condenser *(→ p. 178)*
	Air-conditioning system compressor breakdown	Consult an authorised workshop.
	Electric fans breakdown or blocked.	Consult an authorised workshop.
	Air-conditioning system coolant gas too low	Consult an authorised workshop.

00-1218 - © Copyright Antonio Carraro

09
INFORMATION REGARDING REPLACEMENTS

09.1. PART REPLACEMENT INSTRUCTIONS

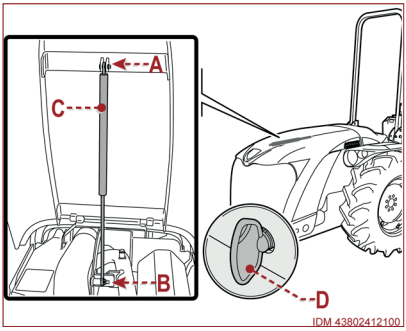
- Before performing any maintenance on the machine, engage all the safety devices provided and assess whether you need to inform other personnel working with you or nearby.

ATTENTION
Unless explicitly instructed otherwise, perform all maintenance with the engine switched off, parking brake engaged, and with the ignition key removed and kept safe by the operator. Personnel authorized to perform these interventions must implement all measures necessary to ensure the safety of all persons involved, and must comply with all applicable legislation on safety at work.

- Replace worn parts only with original spare parts. The manufacturer accepts no responsibility for injury or damage caused by the use of non-original spare parts or unauthorized repairs that may affect safety requirements. Follow the instructions given in the spare parts catalogue when ordering spare parts.

09.2. REPLACING THE GAS SPRING (BONNET)

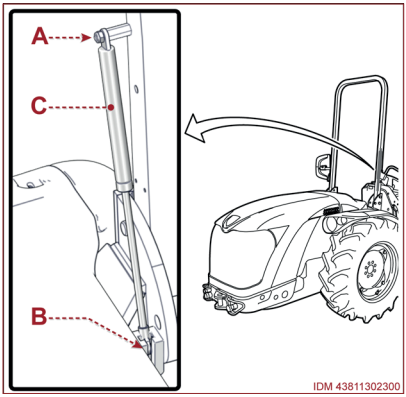
Proceed as indicated to perform this operation.



1\ Stop the machine in safe conditions.
2\ Allow the engine to cool down, so that there will be no risk of scalding.
3\ Open the bonnet with the key **(D)**.
4\ Lock the bonnet in the open position with a safety rod.
5\ Take out the stop ring and remove the pin **(A)**.
6\ Unscrew the nut **(B)**.
7\ Replace the gas spring **(C)** with a new one.
8\ Tighten the nut **(B)**.
9\ Insert the pin **(A)** and block it with the stop ring.
10\ Remove the safety rod and check that the bonnet remains in the open position.
11\ Shut the bonnet when the operation is concluded.

09.3. REPLACING THE GAS SPRING (SAFETY ARCH)

Proceed as indicated to perform this operation.



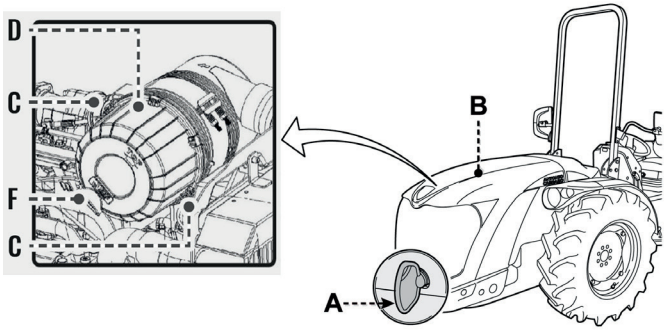
1\ Stop the machine in safe conditions.
2\ Ensure that the safety arch is correctly blocked in the raised position.
3\ Unscrew the nut **(A)**.
4\ Take the gas spring out of its seat **(B)** and replace it with a new one
5\ Insert the gas spring **(C)** in its seat **(B)**.
6\ Screw on the nut **(A)**.

00-1218 - © Copyright Antonio Carraro

00-1218 - © Copyright Antonio Carraro

09.4. REPLACING THE ENGINE AIR FILTER

Proceed as indicated to perform this operation.



1\ Stop the machine in safe conditions.
2\ Allow the engine to cool down, so that there will be no risk of scalding.
3\ Open the bonnet **(B)** with the key **(A)**.
4\ Unfasten the hooks **(C)** to remove the cover **(D)**
5\ Take out the cartridge to be replaced.
6\ Clean the discharge valve **(F)** and the internal part of the filter container with a damp cloth.
7\ Fit the new filter cartridge.
8\ Fit the cover **(D)** and secure it with the hooks **(C)**.
9\ Shut the bonnet when the operation is concluded.

ATTENTION
Wear the eye protections and the mask to prevent the danger generated by dusts that can come into contact with the eyes and respiratory tract.

00-1218 - © Copyright Antonio Carraro

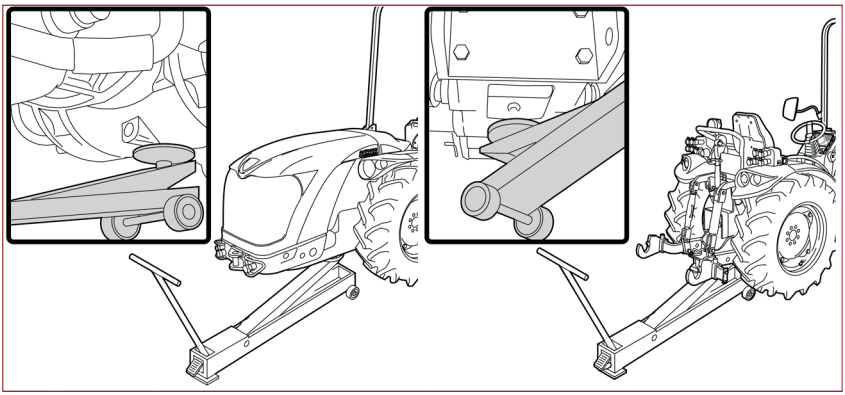
09.5. CHANGING THE BATTERY

The battery used for the machine has been expressly designed for the type of housing provided and it is equipped with special safety devices.

If the battery has to be replaced, before buying it, apply to an authorised workshop for information on the size and performance of the new battery.

It is therefore recommended to have the job done at an authorised workshop.

09.6. CHANGING TYRES



Proceed as indicated to perform this operation.
1\ Stop the machine in safe conditions.
2\ Place the jack in the indicated points for lifting.

ATTENTION
Tyre replacement is an operation that can lead to risks, even considering the total weight of the machine. To avoid risks (even serious ones), it is recommended to have the operation carried out by expert personnel (for example, a tyre repairer), able to do the job correctly and safely.

3\ At the end of the replacement, check that the tightening torque of the screws or fixing nuts of the wheels is correct.

IMPORTANT_If fixing requires washers, these must be replaced.

Table 9.1: Torque settings

00-1218 - © Copyright Antonio Carraro

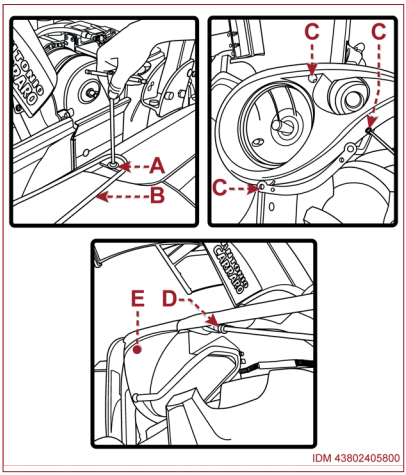
Dimensions of screws / nuts	Torque setting Nm (kgm)
M14 x 1.5	140 (14.3)
M16 x 1.5	210.7 (21.5)
M16 x 1.5 (Flare nut).	210.7 (21.5)

IMPORTANT_Consult your vehicle registration document, when changing tyres, so as to identify which tyres can be fitted according to the type approval.

09.7. REPLACING LIGHT BULBS (FRONT)

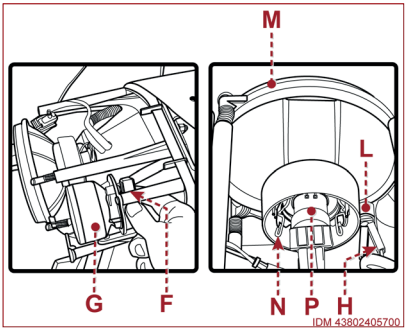
Proceed as indicated to perform this operation.

1\ Stop the machine in safe conditions.
2\ Undo the screws **(A)** and remove the protection grid **(B)** (if present).
3\ Undo the screws **(C)**.
4\ Undo the screw **(D)** and remove the support **(E)**.



09.7.1. Direction indicator lights

5\ Disconnect the connector **(F)**.
6\ Turn the bulb holder **(G)** and extract it.
7\ Remove the bulb and replace with a new one of identical rating.
8\ Insert the bulb holder **(G)** and turn it to block it.
9\ Connect the connector **(F)**.



09.7.2. Side lights

10\ Disconnect the connector **(H)**.
11\ Take out the bulb holder **(L)** and replace the bulb with a new one of identical rating.
12\ Reinsert the bulb holder **(L)**.
13\ Connect the connector **(H)**.

09.7.3. Low and full beam lights

14\ Disconnect the connector.
15\ Remove the protection **(M)**.
16\ Release the spring **(N)**.
17\ Take out the bulb holder **(P)** and replace the bulb with a new one of identical rating.

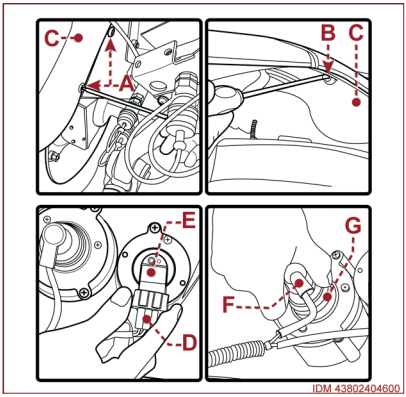
00-1218 - © Copyright Antonio Carraro

00-1218 - © Copyright Antonio Carraro

09.8. REPLACING INDICATOR LIGHT BULBS (REAR)

Proceed as indicated to perform this operation.

1\ Stop the machine in safe conditions.
2\ Unscrew the screws **(A-B)** to remove the light cluster **(C)**.



09.8.1. Direction indicator lights

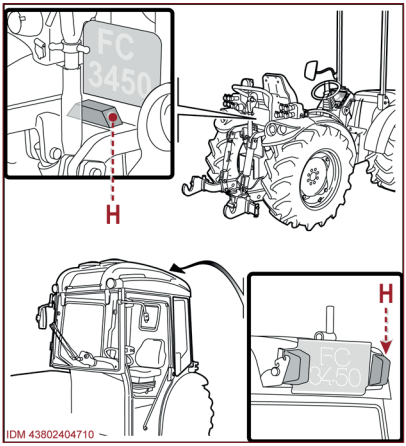
3\ Disconnect the connector **(D)**.
4\ Turn the bulb holder **(E)** and extract it.
5\ Remove the bulb and replace with a new one of identical rating.
6\ Insert the bulb holder **(E)** and turn it to block it.
7\ Connect the connector **(D)**.

09.8.2. Position lights and brake lights

8\ Disconnect the connector **(F)**.
9\ Turn the bulb holder **(G)** and extract it.
10\ Remove the bulb and replace with a new one of identical rating.
11\ Insert the bulb holder **(G)** and turn it to block it.
12\ Connect the connector **(F)**.

09.8.3. Licence plate light

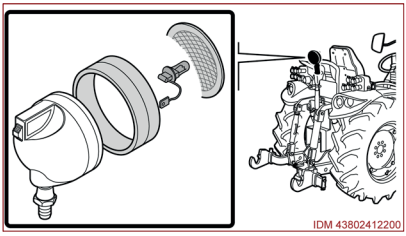
13\ Undo the screws and remove the protection **(H)**.
14\ Remove the bulb and replace with a new one of identical rating.
15\ Reassemble the protection **(H)** and tighten the screws.



09.9. REPLACING THE WORK LIGHT LAMP

Proceed as indicated to perform this operation.

1\ Stop the machine in safe conditions.
2\ Take off the gasket **(A)** and remove the protection **(B)**.
3\ Remove the bulb **(C)** and replace with a new one of identical rating.
4\ Refit the protection **(B)** and secure it with the gasket **(A)**.



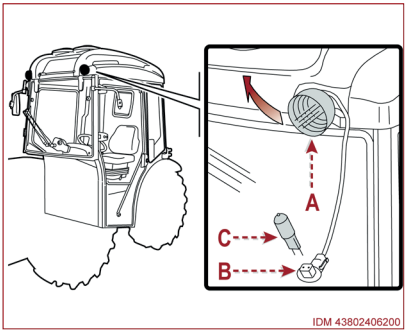
00-1218 - © Copyright Antonio Carraro

00-1218 - © Copyright Antonio Carraro

09.10. REPLACEMENT OF CAB BULB

Proceed as indicated to perform this operation.

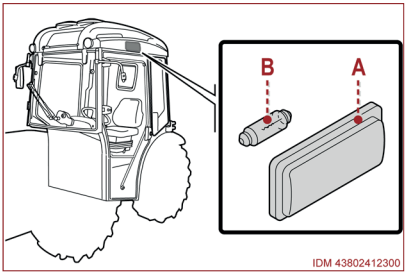
1\ Stop the machine in safe conditions.
2\ Turn the lamp **(A)**, turn the bulb-holder **(B)** and extract it.
3\ Remove the bulb **(C)** and replace with a new one of identical rating.
4\ Insert the bulb holder **(B)** and turn it to block it.



09.11. REPLACEMENT OF COURTESY LIGHT

Proceed as indicated to perform this operation.

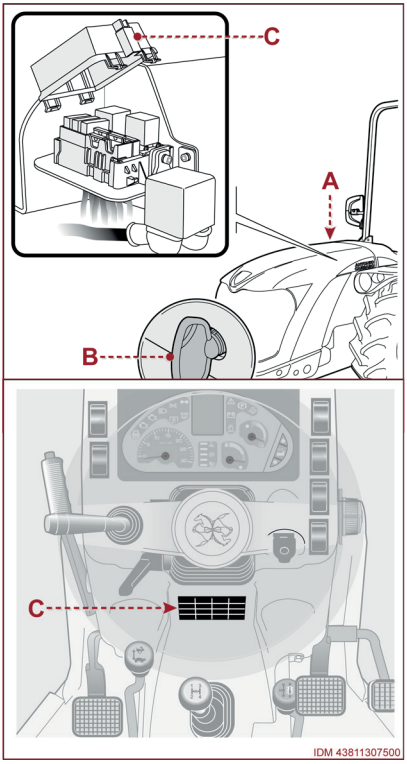
1\ Stop the machine in safe conditions.
2\ Turn the lamp **(A)**, turn the bulb-holder **(B)** and extract it.
3\ Remove the bulb **(C)** and replace with a new one of identical rating.
4\ Insert the bulb holder **(B)** and turn it to block it.



09.12. REPLACEMENT OF FUSES AND RELAYS

Proceed as indicated to perform this operation.

1\ Stop the machine in safe conditions.
2\ Allow the engine to cool down, so that there will be no risk of scalding.
3\ Open the bonnet **(A)** with the key **(B)**.
4\ Take out the protection **(C)** and replace the fuse with one of identical rating.
5\ Reassemble the protection **(C)**.
6\ Shut the bonnet when finished.



Dashboard

7\ Open the cover **(C)**.
8\ Replace the fuse with one of identical rating using the appropriate extractor.
9\ Close the cover **(C)** on completing this operation.

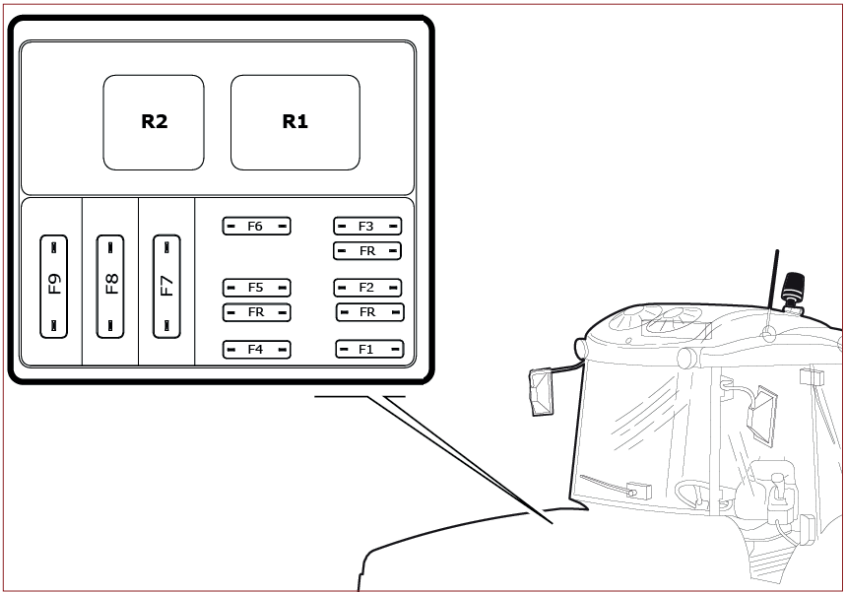
IMPORTANT_Replace any burnt out fuses with ones of the same properties stated in the table.

00-1218 - © Copyright Antonio Carraro

00-1218 - © Copyright Antonio Carraro

09.12.1. Engine compartment fuses and relays

The illustration represents the position of the fuses and relays and the list gives their functionality.

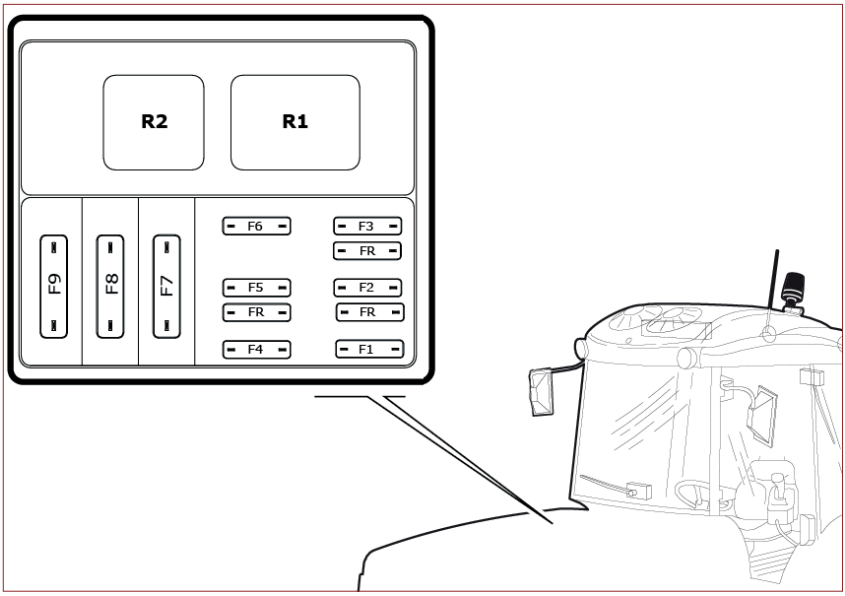


IMPORTANT_Replace any burnt out fuses with ones of the same properties stated in the table.

Table 9.2: description of fuses in engine compartment

Position	Description	Units of measurement	Value
Machine fuses			
F1	Starter motor	A	25
F2	Starting enable (for ECU control unit)	A	5
F3	Engine control unit (supplied by battery)	A	20
F4	Alternator	A	5
F5	Engine control unit (supplied by key)	A	5
F6	EGR valve	A	20

Position	Description	Units of measurement	Value
F7	Glow plugs	A	80
F8	Cab	A	50
F9	Machine power supply	A	50
FR	Spare fuse	-	-
R1	Engine starting relay	A	70
R2	Glowplug relay	A	70

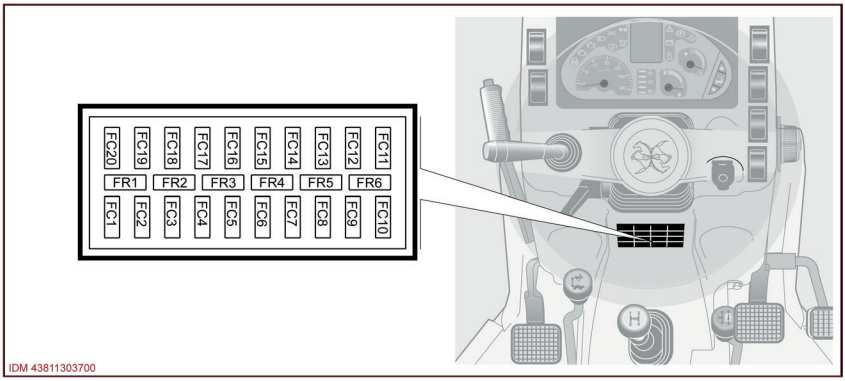


00-1218 - © Copyright Antonio Carraro

00-1218 - © Copyright Antonio Carraro

09.12.2. Dashboard fuses

The illustration represents the position of the fuses and the list gives their functionality.



IMPORTANT_Replace any burnt out fuses with ones of the same properties stated in the table.

Table 9.4: description of fuses in dashboard

Position	Description	Value
FC1	Acoustic warning	10
FC2	Rear kit	15
	Joystick kit	
FC3	Cab electric supply circuit	5
	3-pole socket (signal line)	
	3-pole socket relay signal	
	CAN service tool connection	
FC4	Work light	10
	Lamp rotation	
	Pneumatic seat	
FC5	Engine users (engine ECU)	10

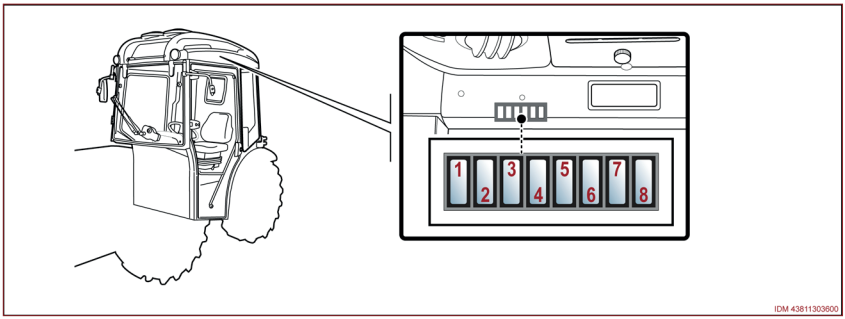
Position	Description	Value
FC6	Engine accessories (ac pump, engine sensors)	10
	Drive signalling LED, differential lock, PTO	
	Optional HI-LO	
	Buzzer	
FC7	Robotic controls options	7.5
	Speed sensor on transmission	
FC8	Sensor on gas lever and gas pedal	10
FC9	Front kit	15
	Emergency lights	
	Superbrake, trailer brake (supplied by key)	
FC10	Differential lock	7.5
FC11	Multifunction instrument (supplied by battery)	10
FC12	Front right, rear left position lights	5
FC13	Front left, rear right position lights	5
FC14	Right low beam light	7.5
FC15	Left low beam light	7.5
FC16	Right low beam light	7.5
FC17	Left high beam light	7.5
FC18	Brake lights	10
FC19	Direction indicators	15
	Front kit	
	Superbrake, Trailer brakes (supplied by battery)	
FC20	3-pole socket (power line)	25
FR	Spare fuses	-

00-1218 - © Copyright Antonio Carraro

00-1218 - © Copyright Antonio Carraro

09.12.3. Cab fuses

The illustration represents the position of the fuses and the list gives their functionality.



IMPORTANT_Replace any burnt out fuses with ones of the same properties stated in the table.

Table 9.5: description of cab fuses

Position	Description	Unit of measurement	Value
1	Condenser left fan	A	15
2	Condenser right fan	A	15
3	Air-conditioner evaporator and compressor	A	15
4	Cab ceiling light and radio	A	5
5	Screenwasher fluid pump and flashing light	A	7.5
6	Front and rear windscreen	A	10
7	Rear lighting	A	15
8	Front lighting	A	15

09.13. DISPOSAL AND SCRAPPING OF THE MACHINE

This operation must be performed by expert operators, in compliance with the legislation in force on safety in the workplace. Do not disperse non-biodegradable material, lubricant oils and non-ferrous parts (rubber, PVC, plastic, etc.) into the environment. Observe the legislation in force on waste disposal.

00-1218 - © Copyright Antonio Carraro

10
TECHNICAL DATA TABLES

10.1. TECHNICAL DATA TABLES INTRODUCTION

IMPORTANT_For ease of research and consultation, the technical data have been divided into several tables.

- The tables show all the generic and specific technical data (in particular pertaining to the vehicle approval).

10.2. KERB WEIGHT

The tables show the vehicle kerb weight values (without equipment and ballasts) with the tank full of fuel and a driver of 75 kg.

Table 10.1: Kerb weight

SRX			
Description	Unit of measurement	Value	
		With safety arch	With cab
Total empty weight	kg	2180 to 2370	2350 to 2540
Front axle empty weight	kg	1410 to 1510	1465 to 1565
Rear axle empty weight	kg	770 to 860	885 to 975

Table 10.2: Kerb weight

SX			
Description	Unit of measurement	Value	
		With safety arch	With cab
Total empty weight	kg	2170 to 2360	2340 to 2530
Front axle empty weight	kg	1420 to 1520	1455 to 1555
Rear axle empty weight	kg	750 to 840	885 to 975

00-1218 - © Copyright Antonio Carraro

00-1218 - © Copyright Antonio Carraro

10.3. MACHINE MAXIMUM PERMISSIBLE WEIGHT

The tables show the maximum weight values (including kerb weight) of the vehicle.

Table 10.3: Maximum permissible weight

SRX			
Tyre type	**Weight on front axle (kg)**	**Weight on rear axle (kg)**	**Total weight (kg)**
33x12.50-15	1800	1800	3600
425/55 R17 134G	2300	2300	4000
440/50 R17 135D IMP TL	2300	2300	4000
350/60-17.5	1630	1630	3260
275/80 R18 142 A2/130B	2300	2300	4000
280/70 R18 114 A8	2300	2300	4000
320/65 R18 109 A8	2060	2060	4000
340/65 R18 113 A8/110B	2300	2300	4000
8.00-20 TR135 8 PR	1960	1960	3920
9.5 R20 108 A8 (*)	2000	2000	4000
9.5 R20 8 PR	1760	1760	3520
280/85 R20 112 A8	2240	2240	4000
300/70 R20 110 A8	2120	2120	4000
320/70 R20 113 A8	2300	2300	4000
400/55x22.5	1970	1970	3500

(*) Standard tyre

00-1218 - © Copyright Antonio Carraro

Table 10.4: Maximum permissible weight

SX (with horizontal gearboxes)			
Tyre type	**Weight on front axle (kg)**	**Weight on rear axle (kg)**	**Total weight (kg)**
33x12.50-15	1800	1800	3600
440/50 R17 135D IMP TL	2300	2300	4000
400/55-17.5	1860	1860	3700
320/65 R18 109 A8	2060	2060	4000
340/65 R18 113 A8/110B	2300	2300	4000
250/85 R20 116 A8 (*)	2300	2300	3700
280/85 R20 112 A8	2240	2240	4000
300/70 R20 110 A8	2120	2120	4000
320/70 R20 113 A8	2300	2300	4000
400/55-22.5 111 A8 (**)	1970	1970	3700
320/70 R24 116 A8 (**)	2300	2300	3700

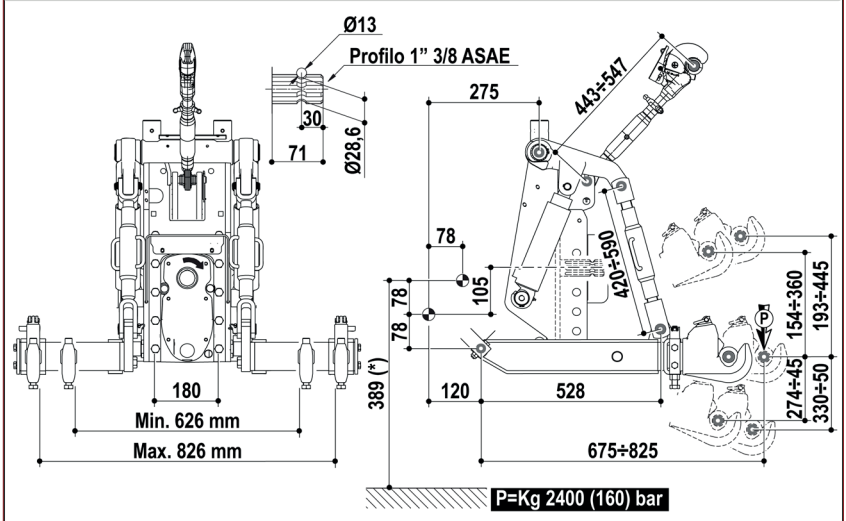
(*) Standard tyre
(**) Tyre not available with 45° gearboxes

00-1218 - © Copyright Antonio Carraro

REAR POWER LIFT DIMENSIONS

The illustration shows the technical data of the rear "quick coupling" power lift unit.

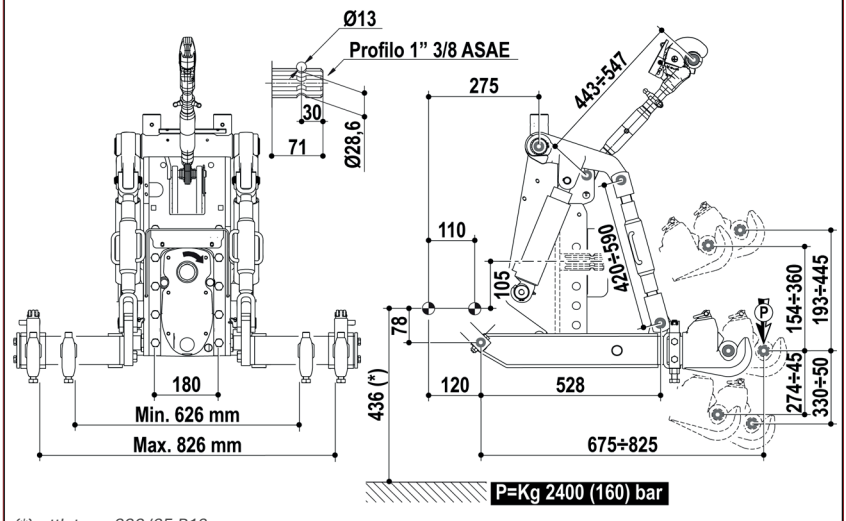
SRX - SX (with 45° gearboxes)



(*) with tyres 320/65 R18

IDM-43811400100

SX (with horizontal gearboxes)

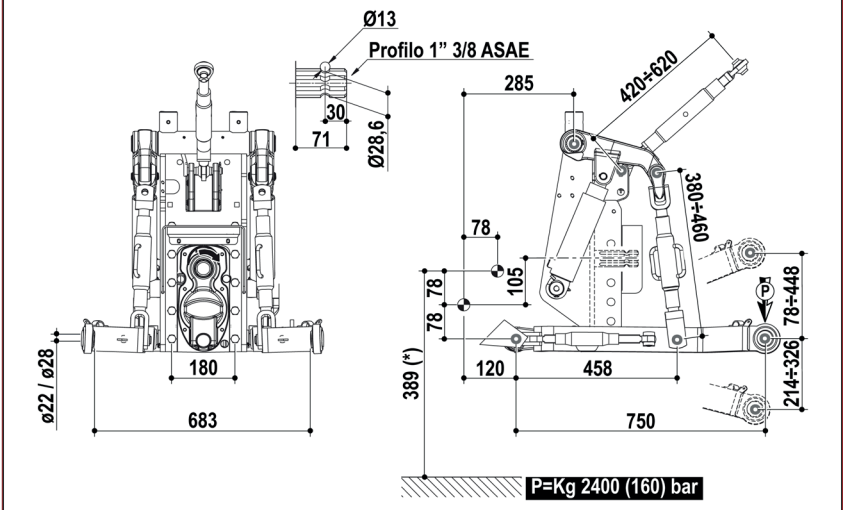


(*) with tyres 320/65 R18

IDM-43811400300

The illustration shows the technical data of the rear "ball joint" power lift unit.

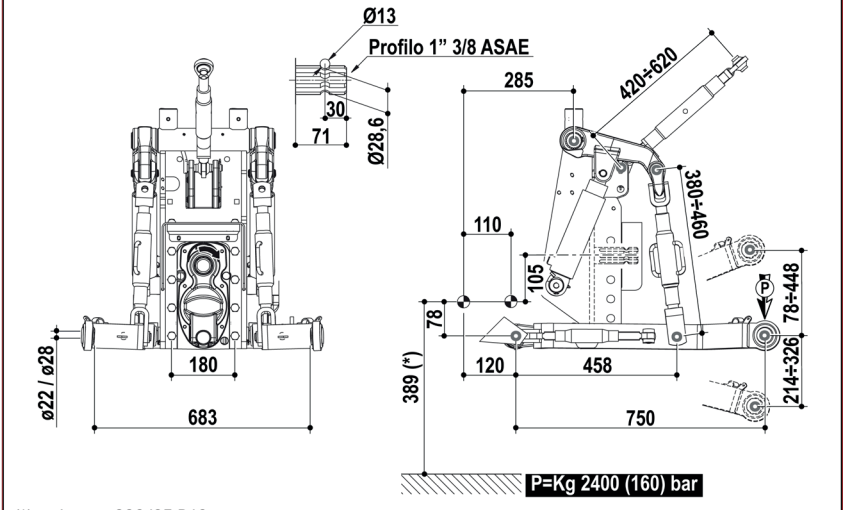
SRX - SX (with 45° gearboxes)



(*) with tyres 320/65 R18

IDM-43811400200

SX (with horizontal gearboxes)



(*) with tyres 320/65 R18

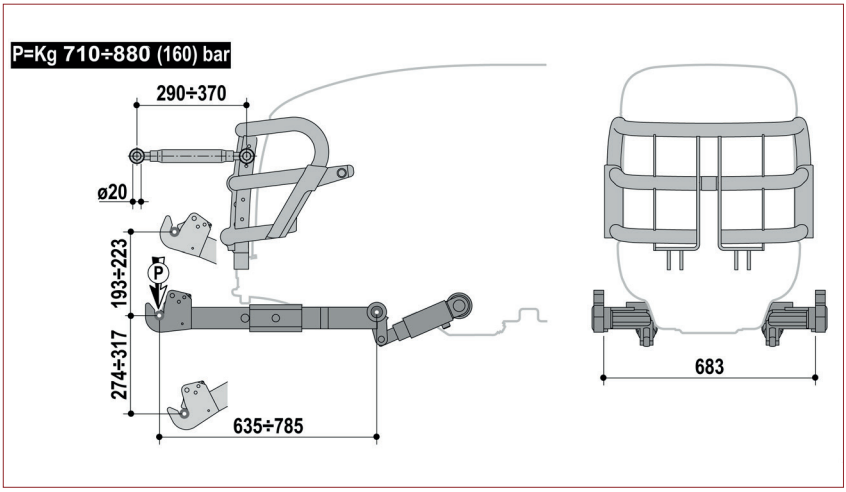
IDM-43811400400

00-1218 - © Copyright Antonio Carraro

00-1218 - © Copyright Antonio Carraro

10.4. FRONT POWER LIFT DIMENSIONS

The illustration shows the technical data of the front "quick coupling" power lift unit.



00-1218 - © Copyright Antonio Carraro

10.5. BALLASTS

The table indicates the type and quantity of ballasts allowed that can be installed to make the machine more stable and improve its traction capacity if a very heavy implement is being used.

- For the installation procedure, see the respective paragraph. *(→ p. 159) (→ p. 161) (→ p. 162) (→ p. 163)*

Table 10.6: Ballasts weight

Type	Unit weight	Number of ballasts (for each side)	Number of ballasts (for each wheel)	Number of ballasts (for each axle)	Ballast quantity (maximum total weight on the machine)
Side ballasts	22 kg	3	-	-	6 (132 kg)
Wheel ballasts (for front and rear wheels)	35 kg	-	2	4	8 (280 kg)
Ballasts with flange (only for rear wheels)	65 kg	-	1	2	2 (130 kg)

IMPORTANT_On the rear axle it is not possible to install wheel ballast (35 kg) and flange ballast (65 kg) simultaneously.

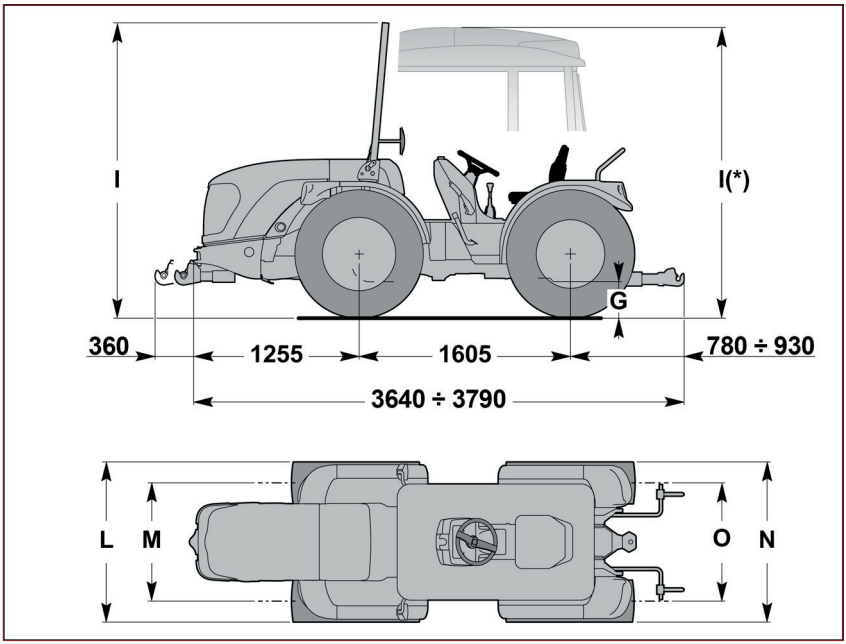
- **ALWAYS remove the ballasts when unhitching implements in order to maintain tractor stability.**
  The tractor with ballasts installed, but without interchangeable implements, becomes unstable (braking and steering), with premature wear of the tyres and higher fuel consumption.

IMPORTANT_To keep the machine balanced, install the same amount of ballasts on both sides.

IMPORTANT_ It is forbidden to install ballasts over the maximum weight allowed on the machine.

00-1218 - © Copyright Antonio Carraro

10.6. DIMENSIONS



SRX							
Tyre type	**G**	**I**	**I (*)**	**L**	**M**	**N**	**O**
8.00-20 (*)	210	-	2130	1085 to 1435	To identify the size, see the respective paragraph. *(→ p. 243)*	1085 to 1435	To identify the size, see the respective paragraph. *(→ p. 243)*
8.00-20 (**)	210	2365	-	1045 to 1435		1045 to 1435	
9.5 R20	210	2365	2130	1080 to 1370		1080 to 1370	
300/70 R20	210	2365	2130	1240 to 1435		1240 to 1435	
280/85 R20	235	2390	2155	1200 to 1435		1200 to 1435	
320/70 R20	235	2390	2155	1225 to 1460		1225 to 1460	
340/65 R18	175	2330	2095	1280 to 1510		1280 to 1510	
275/80 R18	175	2330	2095	1145 to 1415		1145 to 1415	
320/65 R18	175	2330	2095	1215 to 1420		1215 to 1420	
280/70 R18	180	2335	2100	1140 to 1410		1140 to 1410	
350/60-17.5	170	2325	2100	1285 to 1335		1285 to 1335	
33x12.50-15	160	2315	2080	1260		1260	
425/55 R17	175	2330	2095	1545		1545	
440/50 R17	165	2320	2085	1550		1550	
400/55-22.5	235	2390	2155	1350 to 1420		1350 to 1420	

(*) With cab
(**) With arch

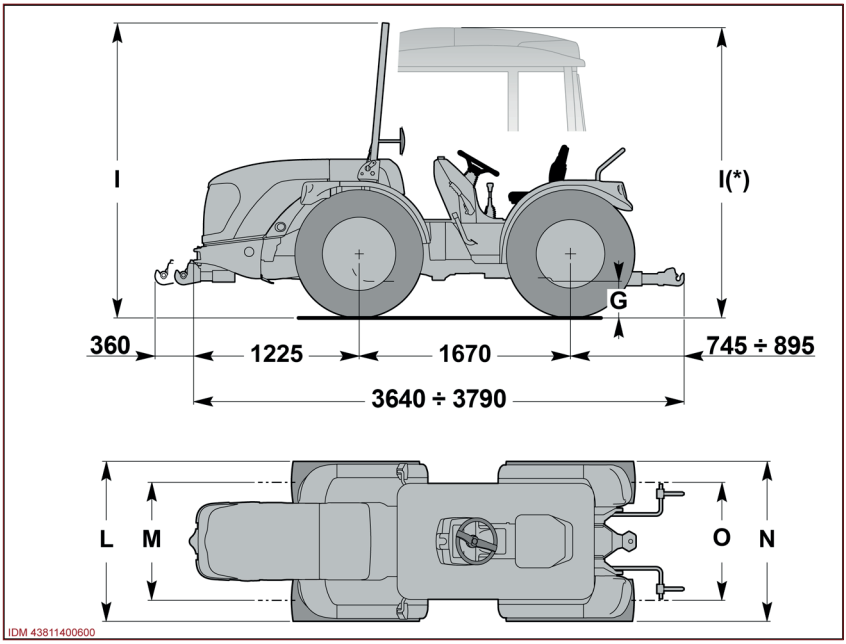


Table 10.8: Machine dimensions

SX (with horizontal gearboxes)							
Tyre type	**G**	**I**	**I (*)**	**L**	**M**	**N**	**O**
320/70 R24	390	2510	2290	1240 to 1440	To identify the size, see the respective paragraph. *(→ p. 243)*	1240 to 1440	To identify the size, see the respective paragraph. *(→ p. 243)*
250/85 R20	320	2440	2220	1090 to 1280		1090 to 1280	
300/70 R20	320	2440	2220	1200 to 1435		1200 to 1435	
280/85 R20	345	2465	2245	1185 to 1435		1185 to 1435	
320/70 R20	345	2465	2245	1225 to 1460		1225 to 1460	
340/65 R18	285	2405	2185	1285 to 1505		1285 to 1505	
320/65 R18	285	2405	2185	1215 to 1420		1215 to 1420	
400/55-17.5	275	2395	2175	1420		1420	
33x12.50-15	270	2390	2170	1240		1240	
440/50 R17	275	2395	2175	1550		1550	

(*) With cab

00-1218 - © Copyright Antonio Carraro

00-1218 - © Copyright Antonio Carraro

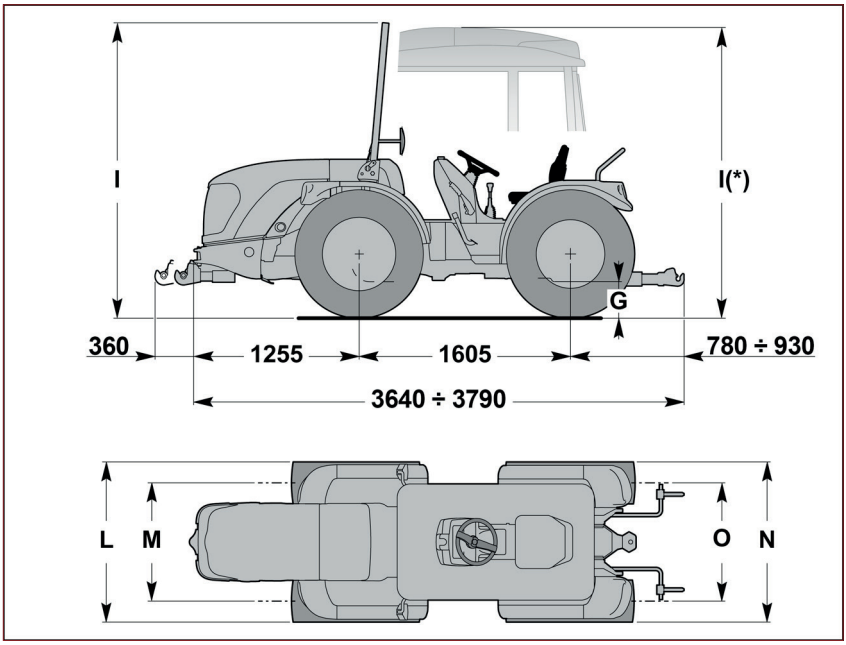


Table 10.9: Machine dimensions

SX (with 45° gearboxes)							
Tyre type	**G**	**I**	**I (*)**	**L**	**M**	**N**	**O**
300/70 R20	210	2365	2130	1240 to 1435	To identify the size, see the respective paragraph. *(→ p. 243)*	1240 to 1435	To identify the size, see the respective paragraph. *(→ p. 243)*
280/85 R20	235	2390	2155	1200 to 1435		1200 to 1435	
320/70 R20	235	2390	2155	1225 to 1460		1225 to 1460	
340/65 R18	175	2330	2095	1280 to 1510		1280 to 1510	
320/65 R18	175	2330	2095	1215 to 1420		1215 to 1420	
33x12.50-15	160	2315	2080	1260		1260	
440/50 R17	165	2320	2085	1550		1550	
250/85 R20	210	2365	2130	1090 to 1280		1090 to 1280	
400/55-17.5	165	2320	2085	1420		1420	

(*) With cab

10.7. ENGINE, TRANSMISSION AND SYSTEMS FEATURES

SRX				
Description and features			**Unit of measurement**	**Value**
Motorisation				
combustion engine	YANMAR			
Model	4TNV98C-NCR	4TNV98C-NCRV		
Exhaust gas emission class	Phase 3B	Phase V		
4 stroke diesel supply				
Common Rail direct injection				
Electronic injection control				
Forced cooling by water				
Balancer counterweights				
Number of cylinders				4
Displacement			cm^3	3319
Power			kW (CV)	51.7 (70)
Rotation speed (max)			rpm	2500
Maximum torque (at 1625 rpm)			Nm	235
Specific consumption			g/kWh (g/hph)	228 (167)
Ratio between engine speed and engine PTO speed				1.23
Fuel tank capacity (With safety arch)			l	41
Fuel tank capacity (With cab)			l	42
Cooling circuit capacity			l	11
Transmission parts				
Four-wheel drive transmission and axles with final drives				
Synchronized mechanical transmission with 32 speeds (16 forward - 16 reverse)				
Electro-hydraulically engaged differential lock				

00-1218 - © Copyright Antonio Carraro

00-1218 - © Copyright Antonio Carraro

SRX		
Description and features	**Unit of measurement**	**Value**
Electro-hydraulically controlled front-wheel drive disengagement system		
Single plate dry clutch, hydraulically operated via pedal		
Steering unit		
Hydraulic, with two single-acting cylinders, on central joint		
Turning radius (inside) (with 320/70 R20 tyres and 4-wheel drive).	mm	1745
Turning radius (outside) (with 320/70 R20 tyres and 4-wheel drive)	mm	3000
Braking system		
Hydraulic service brake, with discs in oil bath and control pedal, acting on all wheels.		
Mechanical parking brake, with lever control, acting on the central transmission		
Mechanical parking brake, with lever control, acting on the central transmission and with auxiliary control acting on all the wheels (Only for machines equipped with the "Superbrake" device) (if available)		
Hydraulic system		
Cartridge oil filter with filtering rating	µ	25
Hydraulic gear pump (unit 1)		
Displacement	cm^3	14
Flow rate (at 2500 rpm)	l/min	43
Hydraulic gear pump (unit 2)		
Displacement	cm^3	8
Flow rate (at 2500 rpm)	l/min	24.6
Hydraulic couplers with quick coupling for single-acting, double-acting and double acting with float system services		
Maximum working pressure	bar	160
Electrical system		
Power supply voltage.	V	12

SRX		
Description and features	**Unit of measurement**	**Value**
Alternator	V - A	12 - 90
Starter motor	kW	3.2
"Maintenance free" battery		
Capacity	Ah	75
Hill-starting ability when cold (EN) CCA (-18°C)	A	975
Warning signals and road lights		
Low beam light bulb (asymmetrical headlights) **(B)**	W	55
High beam light bulb (asymmetrical headlights) **(B)**	W	60
Sidelights bulb (front) **(D)**	W	4
Lamp, direction indicators **(F)**	W	21
Side lights lamp (rear) **(G)**	W	5
Rear brake lights lamp **(G)**	W	21
Number plate light lamp **(E)**	W	5
Work light lamp, with bulb (with cab) **(C)**	W	50
Work light lamp, with LED (with cab)		
Lamp, work light (with safety arch) **(A)**	W	55
Courtesy light lamp, with LED (with cab).		
Lift unit		
Hydraulic power lifting unit with three-point hitch (category 1-2). *(→ p. 227)*		

(A) Halogen bulbs H3
(B) Halogen bulbs H4
(C) Halogen bulbs 886
(D) Bulbs with wedge base (transparent)
(E) Double-ended bulbs
(F) Single-ended bulbs (amber)
(G) Single-ended bulbs (transparent)

00-1218 - © Copyright Antonio Carraro

00-1218 - © Copyright Antonio Carraro

SX				
Description and features			**Unit of measurement**	**Value**
Motorisation				
combustion engine	YANMAR			
model	4TNV98C-NCR	4TNV98C-NCRV		
Exhaust gas emission class	Phase 3B	Phase V		
4 stroke diesel supply				
Common Rail direct injection				
Electronic injection control				
Forced cooling by water				
Balancer counterweights				
Number of cylinders				4
Displacement			cm^3	3319
Power			kW (CV)	51.7 (70)
Rotation speed (max)			rpm	2500
Maximum torque (at 1625 rpm)			Nm	235
Specific consumption			g/kWh (g/hph)	228 (167)
Ratio between engine speed and engine PTO speed				1.23
Fuel tank capacity (With safety arch)			l	41
Fuel tank capacity (With cab)			l	42
Cooling circuit capacity			l	11
Transmission parts				
Four-wheel drive transmission and axles with final drives				
Synchronized mechanical transmission with 32 speeds (16 forward - 16 reverse)				
Electro-hydraulically engaged differential lock				
Electro-hydraulically controlled front-wheel drive disengagement system				
Single plate dry clutch, hydraulically operated via pedal				

SX		
Description and features	**Unit of measurement**	**Value**
Steering unit		
Hydraulic, with two single-acting cylinders, on central joint		
Turning radius (inside) (with 320/70 R20 tyres and 4-wheel drive).	mm	1745
Turning radius (outside) (with 320/70 R20 tyres and 4-wheel drive)	mm	3000
Braking system		
Hydraulic service brake, with discs in oil bath and control pedal, acting on all wheels.		
Mechanical parking brake, with lever control, acting on the central transmission		
Mechanical parking brake, with lever control, acting on the central transmission and with auxiliary control acting on all the wheels (Only for machines equipped with the "Superbrake" device) (if available)		
Hydraulic system		
Cartridge oil filter with filtering rating	µ	25
Hydraulic gear pump (standard)		
Displacement	cm^3	14
Flow rate (at 2500 rpm)	l/min	43
Hydraulic gear pump (optional)		
Displacement	cm^3	8
Flow rate (at 2500 rpm)	l/min	24.6
Hydraulic couplers with quick coupling for single-acting, double-acting and double acting with float system services		
Maximum working pressure	bar	160
Electrical system		
Power supply voltage.	V	12
Alternator	V - A	12 - 90
Starter motor	kW	3.2
"Maintenance free" battery		

00-1218 - © Copyright Antonio Carraro

00-1218 - © Copyright Antonio Carraro

SX		
Description and features	**Unit of measurement**	**Value**
Capacity	Ah	75
Hill-starting ability when cold (EN) CCA (-18°C)	A	975
Warning signals and road lights		
Low beam light bulb (asymmetrical headlights) **(B)**	W	55
High beam light bulb (asymmetrical headlights) **(B)**	W	60
Sidelights bulb (front) **(D)**	W	4
Lamp, direction indicators **(F)**	W	21
Side lights lamp (rear) **(G)**	W	5
Rear brake lights lamp **(G)**	W	21
Number plate light lamp **(E)**	W	5
Work light lamp, with bulb (with cab) **(C)**	W	50
Work light lamp, with LED (with cab)		
Lamp, work light (with safety arch) **(A)**	W	55
Courtesy light lamp, with LED (with cab).		
Lift unit		
Hydraulic power lifting unit with three-point hitch (category 1-2). *(→ p. 227)*		

(A) Halogen bulbs H3
(B) Halogen bulbs H4
(C) Halogen bulbs 886
(D) Bulbs with wedge base (transparent)
(E) Double-ended bulbs
(F) Single-ended bulbs (amber)
(G) Single-ended bulbs (transparent)

10.8. CARDAN SHAFT

During work it is opportune to keep the rotation axes of the power take-off and of the driven shaft of the implement as aligned as possible.

- The table shows the values of the admitted joint angles of the cardan shaft connected with the machine.

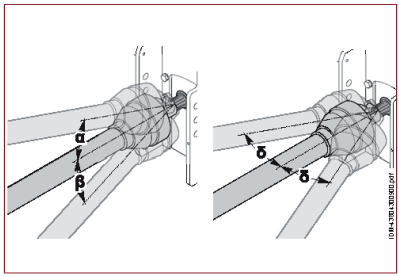


Table 10.12: Cardan shaft joint angles

Description	Maximum value
Vertical deviation (top) **(α)**	45°
Vertical deviation (bottom) **(β)**	35°
Side deviation (with power lift unit installed) **(δ)**	30°
Side deviation (without power lift unit installed) **(δ)**	50°

IMPORTANT_The maximum admitted joint angles of the Cardan shaft are given in the manual issued by its manufacturer.

00-1218 - © Copyright Antonio Carraro

00-1218 - © Copyright Antonio Carraro

10.9. PTO FEATURES

- PTO with independent electrohydraulic control. Clockwise rotation (Looking at the splined shaft from the rear of the vehicle).

- PTO synchronized with the gearbox
  Clockwise rotation with forward drive, anticlockwise with reverse drive (Looking at the splined shaft from the rear of the vehicle).

- Splined shaft ASAE 1' 3/8

The tables show the values of the number of revolutions of the PTO (independent or synchronized with the gearbox).

IMPORTANT_Before connecting an interchangeable implement, refer to the manual to verify the required speed and select it for the vehicle.

SRX		
Engine speed PTO (independent of transmission)		**PTO synchronized with the gearbox**
Power take-off revolutions	**Engine rpm**	**PTO rpm/wheel revolution**
540	2357	3.543
540E	1650	5.062
1000 (optional)	2366	6.538

SX			
Engine speed PTO (independent of transmission)		**PTO synchronized with the gearbox**	
Power take-off revolutions	**Engine rpm**	**PTO rpm/wheel revolution**	
		with 45° gearboxes	**with horizontal gearboxes**
540	2383	3.506	4.023
540E	1716	4.867	5.585
1000 (optional)	2369	6.529	7.492

00-1218 - © Copyright Antonio Carraro

10.10. NOISE LEVEL

The tables show the noise levels detected with the machine in determined operating conditions and in the configurations indicated.

- The values have been detected in compliance with the Directives and the Laws in force regarding this subject.

Table 10.14: Noise level

Description		Measured value	
		With safety arch	With cab
Noise level emission in the environment (1)	Noise level with machine at standstill	79 dB(A)	79 dB(A)
	Noise level with machine in motion	81 dB(A)	81 dB(A)
Noise level at driver's seat (2)	Noise level at driver's ear	85 dB(A)	83 dB(A)

(1) The values have been detected in compliance with Directive EU 1322/2014.
(2) The values have been detected in compliance with Directive EU 1322/2014.

ATTENTION
If the machine is to be operated for lengthy and unbroken periods, wear personal protective devices (ear defenders) to limit the level of noise audible when seated in the driving position.

10.11. VIBRATIONS TRANSMITTED TO THE DRIVER

The vibration level, detected at the driver's seat, is always 1.25 m/s^2 or less.

- The value was detected in compliance with Directive EU 1322/2014, and subsequent amendments, and can vary depending on the driver's weight.

00-1218 - © Copyright Antonio Carraro

10.12. MACHINE TRACKS

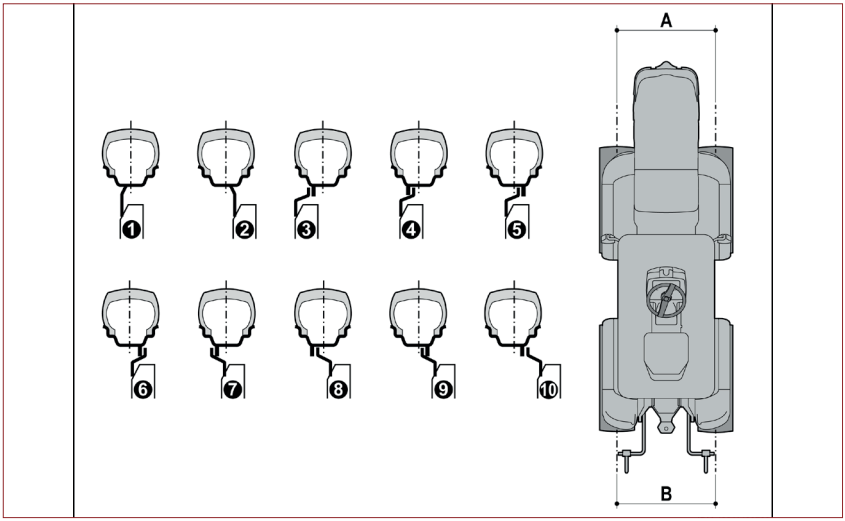


Table 10.15: Track dimensions

SRX												
Tyres	C	Size	Type									
			1	2	3	4	5	6	7	8	9	10
8.00-20	235	A				815	880	950	1045	1095	1160	1230
		B				815	880	950	1045	1095	1160	1230
9.5 R20	245	A				825	975	1025	905	955	1105	1155
		B				825	975	1025	905	955	1105	1155
300/70 R20	295	A					950	1020	910	980	1080	1150
		B					950	1020	910	980	1080	1150
280/85 R20	295	A					950	1020	910	980	1080	1150
		B					950	1020	910	980	1080	1150
320/70 R20	320	A					950	1020	910	980	1080	1150
		B					950	1020	910	980	1080	1150

SRX												
Tyres	C	Size	Type									
			1	2	3	4	5	6	7	8	9	10
340/65 R18	345	A					940	1015	910	985	1095	1170
		B					940	1015	910	985	1095	1170
275/80 R18	280	A				870	975	1055	880	960	1060	1140
		B				870	975	1055	880	960	1060	1140
320/65 R18	320	A	910	1025								
		B	910	1025								
280/70 R18	280	A				870	975	1055	880	960	1060	1140
		B				870	975	1055	880	960	1060	1140
350/60-17.5	350	A	990	940								
		B	990	940								
33x12.50-15	345	A	1005	920								
		B	1005	920								
425/55 R17	425	A		1130								
		B		1130								
440/50 R17	430	A		1130								
		B		1130								
400/55x22.5	365	A	975	955								
		B	975	955								

IMPORTANT_After every track change operation it must be checked that the wheels do not interfere with the bodywork or other parts of the machine.

IMPORTANT_At the end of the track change operations, check that the tightening torque of the screws or fixing nuts of the wheels is correct . *(→ p. 210)*

00-1218 - © Copyright Antonio Carraro

00-1218 - © Copyright Antonio Carraro

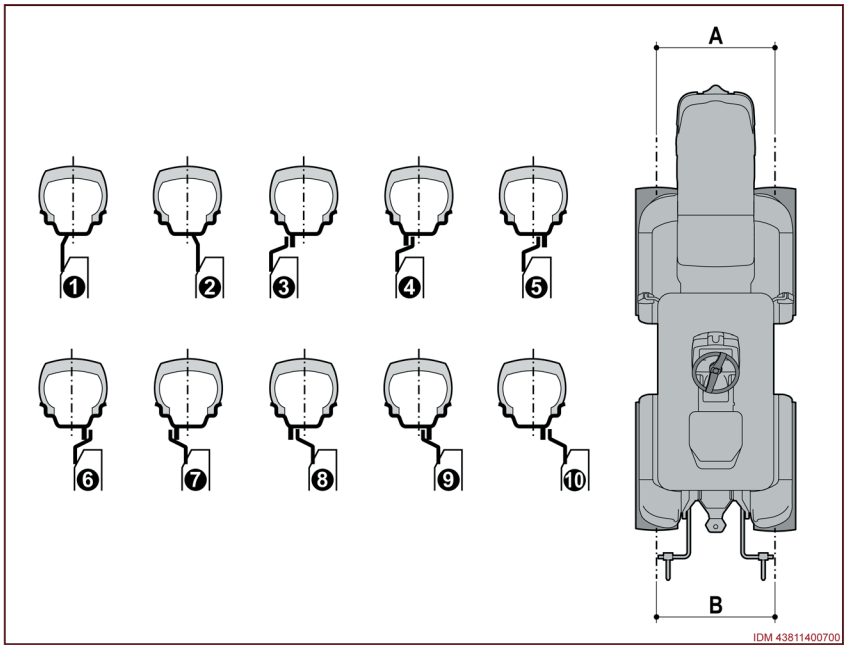


Table 10.16: Track dimensions

SX (with horizontal gearboxes)												
Tyres	C	Size	Type									
			1	2	3	4	5	6	7	8	9	10
340/65 R18	323	A					940	1015	910	985	1095	1170
		B					940	1015	910	985	1095	1170
33x12.50-15	320	A	1005	920			940					
		B	1005	920								
320/65 R18	309	A					940	1015	910	985	1095	1170
		B					940	1015	910	985	1095	1170
440/50 R17	431	A		1130								
		B		1130								
250/85 R20	250	A					975	1025	905	955	1105	1155
		B				825	975	1025	905	955	1105	1155

SX (with horizontal gearboxes)												
Tyres	C	Size	Type									
			1	2	3	4	5	6	7	8	9	10
320/70 R20	319	A					950	1020	910	980	1080	1150
		B					950	1020	910	980	1080	1150
280/85 R20	295	A					950	1020	910	980	1080	1150
		B					950	1020	910	980	1080	1150
300/70 R20	295	A					950	1020	910	980	1080	1150
		B					950	1020	910	980	1080	1150
400/55-17.5	400	A		1025								
		B		1025								
320/70 R24	319	A						920	1010	1080	1060	1130
		B						920	1010	1080	1060	1130

IMPORTANT_After every track change operation it must be checked that the wheels do not interfere with the bodywork or other parts of the machine.

IMPORTANT_At the end of the track change operations, check that the tightening torque of the screws or fixing nuts of the wheels is correct . *(→ p. 210)*

00-1218 - © Copyright Antonio Carraro

00-1218 - © Copyright Antonio Carraro

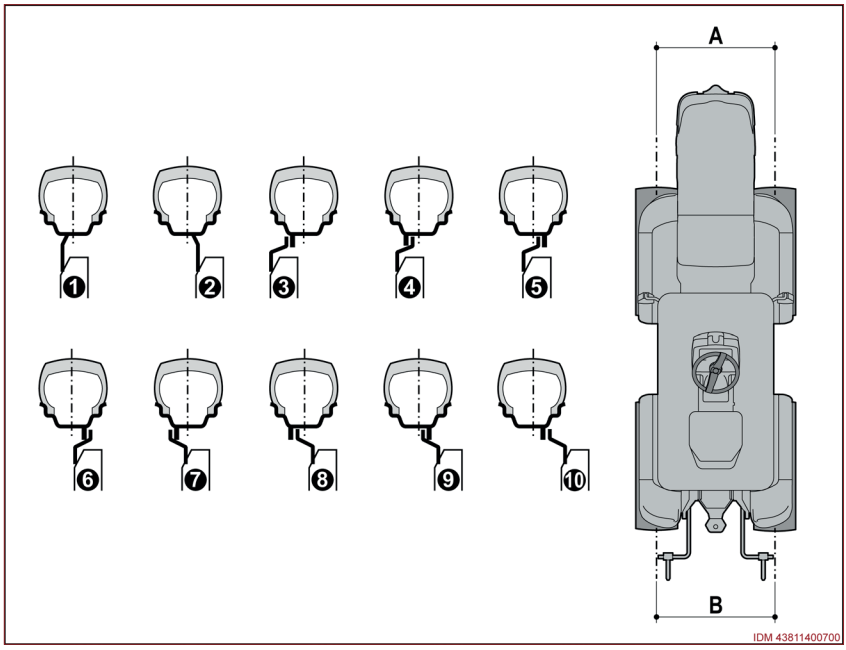


Table 10.17: Track dimensions

SX (with 45° gearboxes)												
Tyres	C	Size	Type									
			1	2	3	4	5	6	7	8	9	10
340/65 R18	323	A					940	1015	910	985	1095	1170
		B					940	1015	910	985	1095	1170
33x12.50-15	320	A	1005	920			940					
		B	1005	920								
320/65 R18	309	A					940	1015	910	985	1095	1170
		B					940	1015	910	985	1095	1170
440/50 R17	431	A		1130								
		B		1130								

SX (with 45° gearboxes)												
Tyres	C	Size	Type									
			1	2	3	4	5	6	7	8	9	10
250/85 R20	250	A					975	1025	905	955	1105	1155
		B				825	975	1025	905	955	1105	1155
320/70 R20	319	A					950	1020	910	980	1080	1150
		B					950	1020	910	980	1080	1150
280/85 R20	295	A					950	1020	910	980	1080	1150
		B					950	1020	910	980	1080	1150
300/70 R20	295	A					950	1020	910	980	1080	1150
		B					950	1020	910	980	1080	1150
400/55-17.5	400	A		1025								
		B		1025								

IMPORTANT_After every track change operation it must be checked that the wheels do not interfere with the bodywork or other parts of the machine.

IMPORTANT_At the end of the track change operations, check that the tightening torque of the screws or fixing nuts of the wheels is correct . *(→ p. 210)*

00-1218 - © Copyright Antonio Carraro

00-1218 - © Copyright Antonio Carraro

10.13. MACHINE SPEED

Table 10.18: Machine speed (with engine at 2500 rpm)

SRX									
Tyre type	Brand	Speed (km/h)							
									
									
									
33x12.50-15	1	0.61	1.92	3.77	11.81	0.57	1.78	3.48	10.92
	2	0.99	3.11	6.09	19.09	0.92	2.87	5.63	17.65
	3	1.30	4.08	7.99	25.04	1.20	3.77	7.39	23.16
	4	1.78	5.59	10.96	34.37	1.65	5.18	10.14	31.79
280/70 R18	1	0.62	1.95	3.81	11.96	0.57	1.80	3.53	11.06
	2	1.00	3.15	6.16	19.33	0.93	2.91	5.70	17.88
	3	1.32	4.13	8.09	25.36	1.22	3.82	7.48	23.46
	4	1.81	5.67	11.10	34.81	1.67	5.24	10.27	32.20
350/60-17.5	1	0.62	1.95	3.82	11.98	0.58	1.80	3.54	11.09
	2	1.01	3.15	6.18	19.37	0.93	2.92	5.71	17.91
	3	1.32	4.14	8.10	25.41	1.22	3.83	7.50	23.50
	4	1.81	5.68	11.12	34.88	1.67	5.25	10.29	32.26
440/50 R17	1	0.64	1.99	3.90	12.24	0.59	1.84	3.61	11.32
	2	1.03	3.22	6.31	19.78	0.95	2.98	5.84	18.30
	3	1.35	4.23	8.28	25.96	1.25	3.91	7.66	24.01
	4	1.85	5.80	11.36	35.63	1.71	5.36	10.51	32.96
320/65 R18	1	0.64	2.00	3.93	12.31	0.59	1.85	3.63	11.39
	2	1.03	3.24	6.35	19.90	0.96	3.00	5.87	18.41
	3	1.36	4.25	8.33	26.11	1.25	3.93	7.70	24.15
	4	1.86	5.83	11.43	35.83	1.72	5.40	10.57	33.15

SRX									
Tyre type	Brand	Speed (km/h)							
									
									
									
425/55 R17	1	0.64	2.02	3.96	12.42	0.60	1.87	3.66	11.49
	2	1.04	3.27	6.40	20.07	0.96	3.02	5.92	18.56
	3	1.37	4.29	8.40	26.33	1.26	3.96	7.77	24.35
	4	1.88	5.88	11.52	36.13	1.74	5.44	10.66	33.42
275/80 R18	1	0.66	2.07	4.05	12.69	0.61	1.91	3.74	11.74
	2	1.06	3.34	6.54	20.51	0.98	3.09	6.05	18.97
	3	1.40	4.38	8.58	26.90	1.29	4.05	7.94	24.89
	4	1.92	6.01	11.78	36.93	1.77	5.56	10.89	34.16
340/65 R18	1	0.66	2.08	4.08	12.80	0.61	1.93	3.78	11.84
	2	1.07	3.37	6.60	20.68	0.99	3.11	6.10	19.13
	3	1.41	4.42	8.65	27.13	1.30	4.09	8.00	25.10
	4	1.93	6.06	11.88	37.24	1.79	5.61	10.99	34.45
300/70 R20	1	0.68	2.15	4.20	13.18	0.63	1.99	3.89	12.19
	2	1.11	3.47	6.79	21.30	1.02	3.21	6.28	19.71
	3	1.45	4.55	8.91	27.95	1.34	4.21	8.24	25.85
	4	1.99	6.25	12.23	38.36	1.84	5.78	11.32	35.49
9.5 R20	1	0.69	2.16	4.23	13.28	0.64	2.00	3.92	12.28
	2	1.11	3.49	6.84	21.46	1.03	3.23	6.33	19.85
	3	1.46	4.58	8.98	28.15	1.35	4.24	8.30	26.04
	4	2.01	6.29	12.32	38.64	1.86	5.82	11.40	35.74
8.00-20	1	0.69	2.17	4.25	13.33	0.64	2.01	3.93	12.33
	2	1.12	3.51	6.87	21.55	1.03	3.24	6.36	19.93
	3	1.47	4.60	9.02	28.27	1.36	4.26	8.34	26.15
	4	2.01	6.32	12.37	38.80	1.86	5.84	11.45	35.89

00-1218 - © Copyright Antonio Carraro

00-1218 - © Copyright Antonio Carraro

SRX									
Tyre type	Brand	Speed (km/h)							
									
									
									
320/70 R20	1	0.71	2.22	4.35	13.65	0.66	2.06	4.03	12.63
	2	1.15	3.59	7.04	22.06	1.06	3.32	6.51	20.41
	3	1.50	4.71	9.23	28.95	1.39	4.36	8.54	26.78
	4	2.06	6.47	12.67	39.73	1.91	5.98	11.72	36.75
280/85 R20	1	0.72	2.26	4.42	13.87	0.67	2.09	4.09	12.83
	2	1.16	3.65	7.15	22.42	1.08	3.38	6.61	20.74
	3	1.53	4.79	9.38	29.41	1.41	4.43	8.68	27.21
	4	2.10	6.57	12.88	40.37	1.94	6.08	11.91	37.35
400/55-22.5	1	0.74	2.33	4.56	14.31	0.69	2.15	4.22	13.24
	2	1.20	3.76	7.38	23.13	1.11	3.48	6.82	21.39
	3	1.58	4.94	9.68	30.34	1.46	4.57	8.95	28.07
	4	2.16	6.78	13.28	41.65	2.00	6.27	12.28	38.52

Table 10.19: Machine speed (with engine at 2500 rpm)

SX (with horizontal gearboxes)									
Tyre type	Brand	Speed (km/h)							
									
									
									
33x12.50-15	1	0.53	1.68	3.28	10.29	0.49	1.55	3.04	9.52
	2	0.86	2.71	5.30	16.63	0.80	2.50	4.91	15.39
	3	1.13	3.55	6.96	21.82	1.05	3.29	6.44	20.19
	4	1.55	4.88	9.55	29.95	1.44	4.51	8.84	27.70
400/55-17.5	1	0.55	1.72	3.37	10.56	0.51	1.59	3.11	9.77
	2	0.89	2.78	5.44	17.06	0.82	2.57	5.03	15.78
	3	1.16	3.64	7.14	22.39	1.08	3.37	6.60	20.71
	4	1.60	5.00	9.80	30.73	1.48	4.63	9.06	28.42
440/50 R17	1	0.55	1.74	3.40	10.67	0.51	1.61	3.15	9.87
	2	0.90	2.81	5.50	17.24	0.83	2.60	5.09	15.95
	3	1.17	3.68	7.21	22.62	1.09	3.41	6.67	20.92
	4	1.61	5.05	9.90	31.05	1.49	4.68	9.16	28.72
320/65 R18	1	0.56	1.75	3.42	10.73	0.52	1.62	3.17	9.93
	2	0.90	2.82	5.53	17.34	0.83	2.61	5.12	16.04
	3	1.18	3.70	7.26	22.75	1.09	3.43	6.71	21.04
	4	1.62	5.08	9.96	31.23	1.50	4.70	9.21	28.88
340/65 R18	1	0.58	1.82	3.56	11.15	0.54	1.68	3.29	10.32
	2	0.94	2.93	5.75	18.02	0.87	2.71	5.32	16.67
	3	1.23	3.85	7.54	23.65	1.14	3.56	6.97	21.87
	4	1.68	5.28	10.35	32.45	1.56	4.89	9.57	30.02
300/70 R20	1	0.60	1.87	3.66	11.49	0.55	1.73	3.39	10.63
	2	0.96	3.02	5.92	18.57	0.89	2.80	5.48	17.17
	3	1.26	3.97	7.77	24.36	1.17	3.67	7.19	22.53
	4	1.74	5.44	10.66	33.43	1.61	5.03	9.86	30.92

00-1218 - © Copyright Antonio Carraro

00-1218 - © Copyright Antonio Carraro

SX (with horizontal gearboxes)									
Tyre type	Brand	Speed (km/h)							
									
									
									
250/85 R20	1	0.60	1.88	3.68	11.55	0.55	1.74	3.41	10.68
	2	0.97	3.04	5.95	18.66	0.90	2.81	5.51	17.26
	3	1.27	3.99	7.81	24.49	1.18	3.69	7.22	22.65
	4	1.74	5.47	10.72	33.61	1.61	5.06	9.91	31.09
320/70 R20	1	0.62	1.94	3.79	11.90	0.57	1.79	3.51	11.01
	2	1.00	3.13	6.13	19.23	0.92	2.90	5.67	17.78
	3	1.31	4.11	8.04	25.23	1.21	3.80	7.44	23.33
	4	1.80	5.64	11.04	34.62	1.66	5.21	10.21	32.03
280/85 R20	1	0.63	1.97	3.86	12.09	0.58	1.82	3.57	11.18
	2	1.01	3.18	6.23	19.54	0.94	2.94	5.76	18.07
	3	1.33	4.17	8.17	25.63	1.23	3.86	7.56	23.71
	4	1.83	5.73	11.22	35.18	1.69	5.30	10.38	32.54
400/55-22.5	1	0.65	2.03	3.98	12.47	0.60	1.88	3.68	11.54
	2	1.05	3.28	6.43	20.15	0.97	3.03	5.95	18.64
	3	1.37	4.30	8.43	26.44	1.27	3.98	7.80	24.46
	4	1.88	5.91	11.57	36.29	1.74	5.46	10.71	33.57
320/70 R24	1	0.70	2.19	4.30	13.47	0.65	2.03	3.97	12.46
	2	1.13	3.54	6.94	21.78	1.05	3.28	6.42	20.14
	3	1.48	4.65	9.11	28.57	1.37	4.30	8.43	26.43
	4	2.04	6.38	12.50	39.21	1.88	5.90	11.57	36.27

Table 10.20: Machine speed (with engine at 2500 rpm)

SX (with 45° gearboxes)									
Tyre type	Brand	Speed (km/h)							
									
									
									
33x12.50-15	1	0.61	1.92	3.77	11.81	0.57	1.78	3.48	10.92
	2	0.99	3.11	6.09	19.09	0.92	2.87	5.63	17.65
	3	1.30	4.08	7.99	25.04	1.20	3.77	7.39	23.16
	4	1.78	5.59	10.96	34.37	1.65	5.18	10.14	31.79
400/55-17.5	1	0.63	1.97	3.86	12.12	0.58	1.82	3.57	11.21
	2	1.02	3.19	6.24	19.58	0.94	2.95	5.78	18.11
	3	1.33	4.18	8.19	25.69	1.23	3.87	7.58	23.76
	4	1.83	5.74	11.24	35.26	1.69	5.31	10.40	32.61
440/50 R17	1	0.64	1.99	3.90	12.24	0.59	1.84	3.61	11.32
	2	1.03	3.22	6.31	19.78	0.95	2.98	5.84	18.30
	3	1.35	4.23	8.28	25.96	1.25	3.91	7.66	24.01
	4	1.85	5.80	11.36	35.63	1.71	5.36	10.51	32.96
320/65 R18	1	0.64	2.00	3.93	12.31	0.59	1.85	3.63	11.39
	2	1.03	3.24	6.35	19.90	0.96	3.00	5.87	18.41
	3	1.36	4.25	8.33	26.11	1.25	3.93	7.70	24.15
	4	1.86	5.83	11.43	35.83	1.72	5.40	10.57	33.15
340/65 R18	1	0.66	2.08	4.08	12.80	0.61	1.93	3.78	11.84
	2	1.07	3.37	6.60	20.68	0.99	3.11	6.10	19.13
	3	1.41	4.42	8.65	27.13	1.30	4.09	8.00	25.10
	4	1.93	6.06	11.88	37.24	1.79	5.61	10.99	34.45
300/70 R20	1	0.68	2.15	4.20	13.18	0.63	1.99	3.89	12.19
	2	1.11	3.47	6.79	21.30	1.02	3.21	6.28	19.71
	3	1.45	4.55	8.91	27.95	1.34	4.21	8.24	25.85
	4	1.99	6.25	12.23	38.36	1.84	5.78	11.32	35.49

00-1218 - © Copyright Antonio Carraro

00-1218 - © Copyright Antonio Carraro

SX (with 45° gearboxes)									
Tyre type	Brand	Speed (km/h)							
									
									
									
250/85 R20	1	0.69	2.16	4.23	13.25	0.64	2.00	3.91	12.26
	2	1.11	3.49	6.83	21.42	1.03	3.23	6.32	19.81
	3	1.46	4.57	8.96	28.10	1.35	4.23	8.29	25.99
	4	2.00	6.28	12.30	38.57	1.85	5.81	11.38	35.68
320/70 R20	1	0.71	2.22	4.35	13.65	0.66	2.06	4.03	12.63
	2	1.15	3.59	7.04	22.06	1.06	3.32	6.51	20.41
	3	1.50	4.71	9.23	28.95	1.39	4.36	8.54	26.78
	4	2.06	6.47	12.67	39.73	1.91	5.98	11.72	36.75
280/85 R20	1	0.72	2.26	4.42	13.87	0.67	2.09	4.09	12.83
	2	1.16	3.65	7.15	22.42	1.08	3.38	6.61	20.74
	3	1.53	4.79	9.38	29.41	1.41	4.43	8.68	27.21
	4	2.10	6.57	12.88	40.37	1.94	6.08	11.91	37.35

10.14. REAR TOW HOOK

10.14.1. Fixed Hook

EU approval: e3*2015/208*2015 /208NS*6001*00
ITALY approval: DGM*6*0041 GA

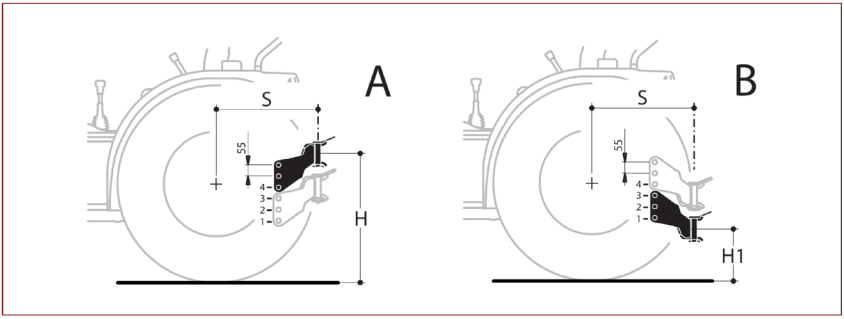


Table 10.21: Tow hook height

SRX			
	A	B	
Tyre type	H (mm)	H1 (mm)	S (mm)
8.00-20	430 to 595	210 to 375	505
9.5 R20	430 to 595	210 to 375	505
300/70 R20	430 to 595	210 to 375	505
280/85 R20	455 to 620	235 to 400	505
320/70 R20	455 to 620	235 to 400	505
340/65 R18	395 to 560	175 to 340	505
275/80 R18	395 to 560	175 to 340	505
320/65 R18	395 to 560	175 to 340	505
280/70 R18	400 to 565	180 to 345	505
350/60-17.5	390 to 555	170 to 335	505
33x12.50-15	380 to 545	160 to 325	505
400/55-22.5	455 to 620	235 to 400	505
425/55-17	395 to 560	175 to 340	505
440/50 R17	385 to 550	165 to 330	505

00-1218 - © Copyright Antonio Carraro

00-1218 - © Copyright Antonio Carraro

Table 10.22: Tow hook height

SX (with horizontal gearboxes)			
	A	B	
Tyre type	H (mm)	H1 (mm)	S (mm)
320/70 R24	580 to 745	360 to 525	415
250/85 R20	510 to 675	290 to 455	415
300/70 R20	510 to 675	290 to 455	415
280/85 R20	535 to 700	315 to 480	415
320/70 R20	535 to 700	315 to 480	415
340/65 R18	475 to 640	255 to 420	415
320/65 R18	475 to 640	255 to 420	415
400/55-17.5	465 to 630	245 to 410	415
33x12.50-15	460 to 625	240 to 405	415
400/55-22.5	535 to 700	315 to 480	415
440/50 R17	465 to 630	245 to 410	415

Table 10.23: Tow hook height

SX (with 45° gearboxes)			
	A	B	
Tyre type	H (mm)	H1 (mm)	S (mm)
250/85 R20	430 to 595	210 to 375	445
300/70 R20	430 to 595	210 to 375	445
280/85 R20	455 to 620	235 to 400	445
320/70 R20	455 to 620	235 to 400	445
340/65 R18	395 to 560	175 to 340	445
320/65 R18	395 to 560	175 to 340	445
400/55-17.5	385 to 550	165 to 330	445
33x12.50-15	380 to 545	160 to 325	445
440/50 R17	385 to 550	165 to 330	445

10.14.2. Rotating Hook

EU approval: e13*2015/208*2015/208ND*00006*00

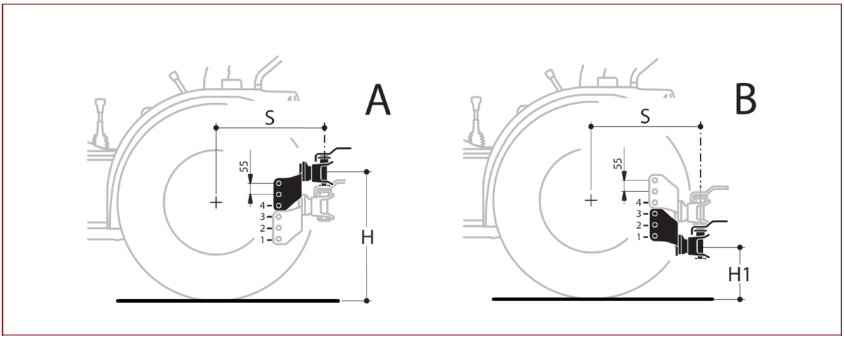


Table 10.24: Tow hook height

SRX			
	A	B	
Tyre type	H (mm)	H1 (mm)	S (mm)
8.00-20	430 to 595	210 to 375	535
9.5 R20	430 to 595	210 to 375	535
300/70 R20	430 to 595	210 to 375	535
280/85 R20	455 to 620	235 to 400	535
320/70 R20	455 to 620	235 to 400	535
340/65 R18	395 to 560	175 to 340	535
275/80 R18	395 to 560	175 to 340	535
320/65 R18	395 to 560	175 to 340	535
280/70 R18	400 to 565	180 to 345	535
350/60-17.5	390 to 555	170 to 335	535
33x12.50-15	380 to 545	160 to 325	535
425/55 R17	395 to 560	175 to 340	535
400/55x22.5	455 to 620	235 to 400	535
440/50 R17	385 to 550	165 to 330	535

00-1218 - © Copyright Antonio Carraro

00-1218 - © Copyright Antonio Carraro

Table 10.25: Tow hook height

SX (with horizontal gearboxes)			
	A	B	
Tyre type	H (mm)	H1 (mm)	S (mm)
320/70 R24	580 to 745	360 to 525	445
250/85 R20	510 to 675	290 to 455	445
300/70 R20	510 to 675	290 to 455	445
280/85 R20	535 to 700	315 to 480	445
320/70 R20	535 to 700	315 to 480	445
340/65 R18	475 to 640	255 to 420	445
320/65 R18	475 to 640	255 to 420	445
400/55-17.5	465 to 630	245 to 410	445
33x12.50-15	460 to 625	240 to 405	445
400/55-22.5	535 to 700	315 to 480	445
440/50 R17	465 to 630	245 to 410	445

Table 10.26: Tow hook height

SX (with 45° gearboxes)			
	A	B	
Tyre type	H (mm)	H1 (mm)	S (mm)
250/85 R20	430 to 595	210 to 375	475
300/70 R20	430 to 595	210 to 375	475
280/85 R20	455 to 620	235 to 400	475
320/70 R20	455 to 620	235 to 400	475
340/65 R18	395 to 560	175 to 340	475
320/65 R18	395 to 560	175 to 340	475
400/55-17.5	385 to 550	165 to 330	475
33x12.50-15	380 to 545	160 to 325	475
440/50 R17	385 to 550	165 to 330	475

10.15. MAXIMUM VERTICAL LOAD PROVIDED FOR ON THE COUPLING HOOK

Before hitching a towed interchangeable tool, it is necessary to consult the table of maximum vertical loads and maximum drawbar pull provided for on the tow hook of the machine.

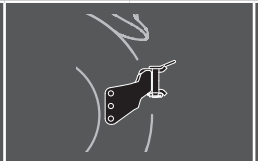
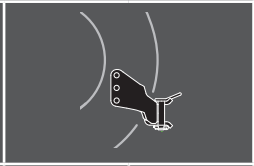
- DO NOT hitch interchangeable tools to the machine (carried or towed) with technical and operational features that are not compatible with those supplied by the machine (power, mass, effort at the tow hook, category, number of PTO revs, etc.).

00-1218 - © Copyright Antonio Carraro

00-1218 - © Copyright Antonio Carraro

10.15.1. Fixed Hook

EU approval: e3*2015/208*2015 /208NS*6001*00
Italy approval: DGM*6*0041 GA

SRX						
Version	Tyre type	Unit of measurement				
			Without ballasts	With ballasts	Without ballasts	With ballasts
With safety arch	8.00-20 TR135 8 PR	N (kg)	8142 (830)	7161 (730)	8142 (830)	7161 (730)
	9.5 R20 8 PR		6671 (680)	5592 (570)	6671 (680)	5592 (570)
	9.5 R20 108 A8 (*)		8437 (860)	7456 (760)	8437 (860)	7456 (760)
	300/70 R20 110 A8		9320 (950)	8339 (850)	9320 (950)	8339 (850)
	280/85 R20 112 A8		10202 (1040)	9221 (940)	10301 (1050)	9221 (940)
	320/70 R20 113 A8		10202 (1040)	9221 (940)	10693 (1090)	9614 (980)
	340/65 R18 113 A8/110B		10693 (1090)	9614 (980)	10693 (1090)	9614 (980)
	275/80 R18 142 A2/130B		10693 (1090)	9614 (980)	10693 (1090)	9614 (980)
	320/65 R18 109 A8		8927 (910)	7848 (800)	8927 (910)	7848 (800)
	280/70 R18 114 A8		10693 (1090)	9614 (980)	10693 (1090)	9614 (980)
	350/60-17.5		5690 (580)	4611 (470)	5690 (580)	4611 (470)
	33x12.50-15		6965 (710)	5886 (600)	6965 (710)	5886 (600)
	400/55-22.5 111 A8		8240 (840)	7161 (730)	8240 (840)	7161 (730)
	425/55 R17 134G		10693 (1090)	9614 (980)	10693 (1090)	9614 (980)
	440/50 R17 135D IMP TL		10693 (1090)	9614 (980)	10693 (1090)	9614 (980)

SRX						
Version	Tyre type	Unit of measurement				
			Without ballasts	With ballasts	Without ballasts	With ballasts
With cab	8.00-20 TR135 8 PR	N (kg)	7259 (740)	6278 (640)	7259 (740)	6278 (640)
	9.5 R20 8 PR		5788 (590)	4807 (490)	5788 (590)	4807 (490)
	9.5 R20 108 A8 (*)		7652 (780)	6573 (670)	7652 (780)	6573 (670)
	300/70 R20 110 A8		8535 (870)	7456 (760)	8535 (870)	7456 (760)
	280/85 R20 112 A8		9418 (960)	8339 (850)	9418 (960)	8339 (850)
	320/70 R20 113 A8		9810 (1000)	8829 (900)	9810 (1000)	8829 (900)
	340/65 R18 113 A8/110B		9810 (1000)	8829 (900)	9810 (1000)	8829 (900)
	275/80 R18 142 A2/130B		9810 (1000)	8829 (900)	9810 (1000)	8829 (900)
	320/65 R18 109 A8		8044 (820)	6965 (710)	8044 (820)	6965 (710)
	280/70 R18 114 A8		9810 (1000)	8829 (900)	9810 (1000)	8829 (900)
	350/60-17.5		4807 (490)	3826 (390)	4807 (490)	3826 (390)
	33x12.50-15		6082 (620)	5101 (520)	6082 (620)	5101 (520)
	400/55-22.5 111 A8		7357 (750)	6376 (650)	7357 (750)	6376 (650)
	425/55 R17 134G		9810 (1000)	8829 (900)	9810 (1000)	8829 (900)
	440/50 R17 135D IMP TL		9810 (1000)	8829 (900)	9810 (1000)	8829 (900)

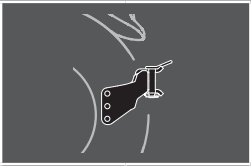
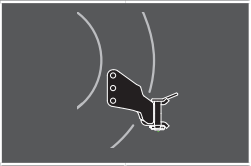
(*) Standard tyre (SRX)

00-1218 - © Copyright Antonio Carraro

00-1218 - © Copyright Antonio Carraro

SX (with horizontal gearboxes)						
Version	Tyre type	Unit of measurement				
			Without ballasts	With ballasts	Without ballasts	With ballasts
With safety arch	33x12.50-15	N (kg)	8240 (840)	7161 (730)	8240 (840)	7161 (730)
	440/50 R17 135D IMP TL		11085 (1130)	10006 (1020)	11085 (1130)	10006 (1020)
	400/55-17,5 110 A5		7750 (790)	6671 (680)	7750 (790)	6671 (680)
	320/65 R18 109 A8		9712 (990)	8633 (880)	9712 (990)	8633 (880)
	340/65 R18 113 A8/110B		11085 (1130)	10006 (1020)	11085 (1130)	10006 (1020)
	250/85 R20 116 A8 (**)		10497 (1070)	9418 (960)	11085 (1130)	10006 (1020)
	280/85 R20 112 A8		10006 (1020)	9025 (920)	10693 (1090)	9614 (980)
	300/70 R20 110 A8		9712 (990)	8633 (880)	9712 (990)	8633 (880)
	320/70 R20 113 A8		10006 (1020)	9025 (920)	11085 (1130)	10006 (1020)
	320/70 R24		9221 (940)	8044 (820)	11085 (1130)	9810 (1000)
With cab	33x12.50-15	N (kg)	7161 (730)	6082 (620)	7161 (730)	6082 (620)
	440/50 R17 135D IMP TL		10104 (1030)	9025 (920)	10104 (1030)	9025 (920)
	400/55-17,5 110 A5		6671 (680)	5690 (580)	6671 (680)	5690 (580)
	320/65 R18 109 A8		8731 (890)	7562 (780)	8731 (890)	7562 (780)
	340/65 R18 113 A8/110B		10104 (1030)	9025 (920)	10104 (1030)	9025 (920)
	250/85 R20 116 A8 (**)		9908 (1010)	8829 (900)	10104 (1030)	9025 (920)
	280/85 R20 112 A8		9418 (960)	8339 (850)	8614 (980)	8535 (870)
	300/70 R20 110 A8		8731 (890)	7652 (780)	8731 (890)	7652 (780)
	320/70 R20 113 A8		9418 (960)	8339 (850)	10104 (1030)	9025 (920)
	320/70 R24		8633 (880)	7358 (750)	10104 (1030)	8829 (900)

(**) Standard tyre (SX)

SX (with 45° gearboxes)						
Version	Tyre type	Unit of measurement				
			Without ballasts	With ballasts	Without ballasts	With ballasts
With safety arch	33x12.50-15	N (kg)	6965 (710)	5886 (600)	6965 (710)	5886 (600)
	440/50 R17 135D IMP TL		10693 (1090)	9614 (980)	10693 (1090)	9614 (980)
	400/55-17,5 110 A5		7456 (760)	7377 (650)	7456 (760)	7377 (650)
	320/65 R18 109 A8		8927 (910)	7848 (800)	8927 (910)	7848 (800)
	340/65 R18 113 A8/110B		10693 (1090)	9614 (980)	10693 (1090)	9614 (980)
	250/85 R20 116 A8 (**)		10693 (1090)	9614 (980)	10693 (1090)	9614 (980)
	280/85 R20 112 A8		10202 (1040)	9221 (940)	10301 (1050)	9221 (940)
	300/70 R20 110 A8		9320 (950)	8339 (850)	9320 (950)	8339 (850)
	320/70 R20 113 A8		10202 (1040)	9221 (940)	10693 (1090)	9614 (980)
With cab	33x12.50-15	N (kg)	6082 (620)	5101 (520)	6082 (620)	5101 (520)
	440/50 R17 135D IMP TL		9810 (1000)	8829 (900)	9810 (1000)	8829 (900)
	400/55-17,5 110 A5		6573 (670)	5493 (560)	6573 (670)	5493 (560)
	320/65 R18 109 A8		8044 (820)	6965 (710)	8044 (820)	6965 (710)
	340/65 R18 113 A8/110B		9810 (1000)	8829 (900)	9810 (1000)	8829 (900)
	250/85 R20 116 A8 (**)		9810 (1000)	8829 (900)	9810 (1000)	8829 (900)
	280/85 R20 112 A8		9418 (960)	8339 (850)	9418 (960)	8339 (850)
	300/70 R20 110 A8		8535 (870)	7456 (760)	8535 (870)	7456 (760)
	320/70 R20 113 A8		9810 (1000)	8829 (900)	9810 (1000)	8829 (900)

(**) Standard tyre (SX)

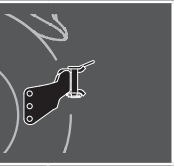
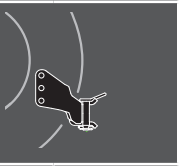
00-1218 - © Copyright Antonio Carraro

00-1218 - © Copyright Antonio Carraro

10.15.2. Rotating Hook

EU approval: e13*2015/208*2015/208ND*00006*00

SRX						
Version	Tyre type	Unit of measurement				
			Without ballasts	With ballasts	Without ballasts	With ballasts
With safety arch	8.00-20 TR135 8 PR	N (kg)	8044 (820)	7063 (720)	8044 (820)	7063 (720)
	9.5 R20 8 PR		6573 (670)	5592 (570)	6573 (670)	5592 (570)
	9.5 R20 108 A8 (*)		8339 (850)	7358 (750)	8339 (850)	7358 (750)
	300/70 R20 110 A8		9221 (940)	8240 (840)	9221 (940)	8240 (840)
	280/85 R20 112 A8		9810 (1000)	9123 (930)	10104 (1030)	9123 (930)
	320/70 R20 113 A8		9810 (1000)	8927 (910)	10595 (1080)	9516 (970)
	340/65 R18 113 A8/110B		10595 (1080)	9516 (970)	10595 (1080)	9516 (970)
	275/80 R18 142 A2/130B		10595 (1080)	9516 (970)	10595 (1080)	9516 (970)
	320/65 R18 109 A8		8829 (900)	7750 (790)	8829 (900)	7750 (790)
	280/70 R18 114 A8		10595 (1080)	9516 (970)	10595 (1080)	9516 (970)
	350/60-17.5		5592 (570)	4610 (470)	5592 (570)	4610 (470)
	33x12.50-15		6867 (700)	5886 (600)	6867 (700)	5886 (600)
	400/55-22.5 111 A8		8142 (830)	7063 (720)	8142 (830)	7063 (720)
	425/55 R17 134G		10595 (1080)	9516 (970)	10595 (1080)	9516 (970)
	440/50 R17 135D IMP TL		10595 (1080)	9516 (970)	10595 (1080)	9516 (970)

SRX						
Version	Tyre type	Unit of measurement				
			Without ballasts	With ballasts	Without ballasts	With ballasts
With cab	8.00-20 TR135 8 PR	N (kg)	7161 (730)	6180 (630)	7161 (730)	6180 (630)
	9.5 R20 8 PR		5690 (580)	4709 (480)	5690 (580)	4709 (480)
	9.5 R20 108 A8 (*)		7456 (760)	6475 (660)	7456 (760)	6475 (660)
	300/70 R20 110 A8		8339 (850)	7358 (750)	8339 (850)	7358 (750)
	280/85 R20 112 A8		9221 (940)	8240 (840)	9221 (940)	8240 (840)
	320/70 R20 113 A8		9712 (990)	8633 (880)	9712 (990)	8633 (880)
	340/65 R18 113 A8/110B		9712 (990)	8633 (880)	9712 (990)	8633 (880)
	275/80 R18 142 A2/130B		9712 (990)	8633 (880)	9712 (990)	8633 (880)
	320/65 R18 109 A8		7946 (810)	6867 (700)	7946 (810)	6867 (700)
	280/70 R18 114 A8		9712 (990)	8633 (880)	9712 (990)	8633 (880)
	350/60-17.5		4807 (490)	3728 (380)	4807 (490)	3728 (380)
	33x12.50-15		5984 (610)	5003 (510)	5984 (610)	5003 (510)
	400/55-22.5 111 A8		7259 (740)	6278 (640)	7259 (740)	6278 (640)
	425/55 R17 134G		9712 (990)	8633 (880)	9712 (990)	8633 (880)
	440/50 R17 135D IMP TL		9712 (990)	8633 (880)	9712 (990)	8633 (880)

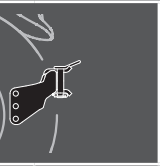
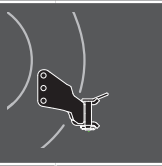
(*) Standard tyre (SRX)

00-1218 - © Copyright Antonio Carraro

00-1218 - © Copyright Antonio Carraro

SX (with horizontal gearboxes)						
Version	Tyre type	Unit of measurement				
			Without ballasts	With ballasts	Without ballasts	With ballasts
With safety arch	300/70 R20 110 A8	N (kg)	9614 (980)	8535 (870)	9614 (980)	8535 (870)
	280/85 R20 112 A8		9712 (990)	8731 (890)	10497 (1070)	9418 (960)
	320/70 R20 113 A8		9712 (990)	8731 (890)	10987 (1120)	9908 (1010)
	340/65 R18 113 A8/110B		10791 (1100)	9810 (1000)	10987 (1120)	9908 (1010)
	320/65 R18 109 A8		9614 (980)	8535 (870)	9614 (980)	8535 (870)
	33x12.50-15		8044 (820)	7063 (720)	8044 (820)	7063 (720)
	440/50 R17 135D IMP TL		10987 (1120)	9908 (1010)	10987 (1120)	9908 (1010)
	400/55-17,5 110 A5		7652 (780)	6572 (670)	7652 (780)	6572 (670)
	250/85 R20 116 A8 (**)		10104 (1030)	9123 (930)	10987 (1120)	9908 (1010)
	320/70 R24		8927 (910)	7750 (790)	10987 (1120)	9712 (990)
With cab	300/70 R20 110 A8	N (kg)	8535 (870)	7554 (770)	8535 (870)	7554 (770)
	280/85 R20 112 A8		9123 (930)	8142 (830)	9516 (970)	8437 (860)
	320/70 R20 113 A8		9123 (930)	8142 (830)	9908 (1010)	8927 (910)
	340/65 R18 113 A8/110B		9908 (1010)	8927 (910)	9908 (1010)	8927 (910)
	320/65 R18 109 A8		8535 (870)	7554 (770)	8535 (870)	7554 (770)
	33x12.50-15		7063 (720)	5984 (610)	7063 (720)	5984 (610)
	440/50 R17 135D IMP TL		9908 (1010)	8927 (910)	9908 (1010)	8927 (910)
	400/55-17,5 110 A5		6670 (680)	5592 (570)	6671 (680)	5592 (570)
	250/85 R20 116 A8 (**)		9516 (970)	8535 (870)	9908 (1010)	8927 (910)
	320/70 R24		8339 (850)	7161 (730)	9908 (1010)	8731 (890)

(**) Standard tyre (SX)

SX (with 45° gearboxes)						
Version	Tyre type	Unit of measurement				
			Without ballasts	With ballasts	Without ballasts	With ballasts
With safety arch	300/70 R20 110 A8	N (kg)	9221 (940)	8240 (840)	9221 (940)	8240 (840)
	280/85 R20 112 A8		9810 (1000)	9123 (930)	10104 (1030)	9123 (930)
	320/70 R20 113 A8		9810 (1000)	8927 (910)	10595 (1080)	9516 (970)
	340/65 R18 113 A8/110B		10595 (1080)	9516 (970)	10595 (1080)	9516 (970)
	320/65 R18 109 A8		8829 (900)	7750 (790)	8829 (900)	7750 (790)
	33x12.50-15		6867 (700)	5886 (600)	6867 (700)	5886 (600)
	440/50 R17 135D IMP TL		10595 (1080)	9516 (970)	10595 (1080)	9516 (970)
	400/55-17,5 110 A5		7358 (750)	6278 (640)	7358 (750)	6278 (640)
	250/85 R20 116 A8 (**)		10301 (1050)	9320 (950)	10595 (1080)	9516 (970)
With cab	300/70 R20 110 A8	N (kg)	8339 (850)	7358 (750)	8339 (850)	7358 (750)
	280/85 R20 112 A8		9221 (940)	8240 (840)	9221 (940)	8240 (840)
	320/70 R20 113 A8		9712 (990)	8633 (880)	9712 (990)	8633 (880)
	340/65 R18 113 A8/110B		9712 (990)	8633 (880)	9712 (990)	8633 (880)
	320/65 R18 109 A8		7946 (810)	6867 (700)	7946 (810)	6867 (700)
	33x12.50-15		5984 (610)	5003 (510)	5984 (610)	5003 (510)
	440/50 R17 135D IMP TL		9712 (990)	8633 (880)	9712 (990)	8633 (880)
	400/55-17,5 110 A5		6475 (660)	5396 (550)	6475 (660)	5396 (550)
	250/85 R20 116 A8 (**)		9712 (990)	8633 (880)	9712 (990)	8633 (880)

(**) Standard tyre (SX)

00-1218 - © Copyright Antonio Carraro

00-1218 - © Copyright Antonio Carraro

10.16. MAXIMUM DRAWBAR PULL ON THE MACHINE TOW HOOK

The machine can tow equipment without brakes (trailers, tankers, etc.) or with an inertia braking system or an independent mechanical system.

- The brake control with the independent mechanical system is operated via the lever to be placed in the holder on the tractor *(→ p. 58)*.

10.16.1. Fixed Hook (Italy approval)

Type of approval: DGM*6*0041 GA
Type of coupling eyes: ISO 5692-3:2011
CUNA: E, E1, E2, E3

Table 10.33: Maximum drawbar pull

SRX		
	type of braking	Value N (kg)
		min
With Arch	towed tool not braked	990 to 1600
	towed tool with independent braking (mechanical)	4360 to 4740
	towed tool with inertia braking	4360 to 4740
	Towed tool with single line hydraulic braking (CUNA)	4360 to 4740
	Towed tool with single line hydraulic braking (EU)	-
	Towed tool with double line hydraulic braking	-
With Cab	towed tool not braked	990 to 1800
	towed tool with independent braking (mechanical)	4700 to 5000
	towed tool with inertia braking	4700 to 5080
	Towed tool with single line hydraulic braking (CUNA)	4700 to 5080
	Towed tool with single line hydraulic braking (EU)	-
	Towed tool with double line hydraulic braking	-

00-1218 - © Copyright Antonio Carraro

Table 10.34: Maximum drawbar pull

SX (with horizontal gearboxes)		
	type of braking	Value N (kg)
		min
With Arch	towed tool not braked	920 to 1600
	towed tool with independent braking (mechanical)	4340 to 4720
	towed tool with inertia braking	4340 to 4720
	Towed tool with single line hydraulic braking (CUNA)	4340 to 4720
	Towed tool with single line hydraulic braking (EU)	-
	Towed tool with double line hydraulic braking	-
With Cab	towed tool not braked	920 to 1800
	towed tool with independent braking (mechanical)	4680 to 5060
	towed tool with inertia braking	4680 to 5060
	Towed tool with single line hydraulic braking (CUNA)	4680 to 5060
	Towed tool with single line hydraulic braking (EU)	-
	Towed tool with double line hydraulic braking	-

Table 10.35: Maximum drawbar pull

SX (with 45° gearboxes)		
	type of braking	Value N (kg)
		min
With Arch	towed tool not braked	990 to 1600
	towed tool with independent braking (mechanical)	4340 to 4720
	towed tool with inertia braking	4340 to 4720
	Towed tool with single line hydraulic braking (CUNA)	4340 to 4720
	Towed tool with single line hydraulic braking (EU)	-
	Towed tool with double line hydraulic braking	-
With Cab	towed tool not braked	990 to 1800
	towed tool with independent braking (mechanical)	4680 to 5060
	towed tool with inertia braking	4680 to 5060
	Towed tool with single line hydraulic braking (CUNA)	4680 to 5060
	Towed tool with single line hydraulic braking (EU)	-
	Towed tool with double line hydraulic braking	-

00-1218 - © Copyright Antonio Carraro

10.16.2. Rotating Hook (EU approval)

Type of approval: e13 00006 ND / e13 6016 / e11 2111
Type of coupling eyes: ISO 5692-2:2002; ISO 8755:2001; (ISO 1102:2001 combined only with ISO 6489-2:2002 form A not automatic)

Table 10.36: Maximum drawbar pull

SRX		
	type of braking	**Value N (kg)**
With Arch	towed tool not braked	990 to 1600
	towed tool with independent braking (mechanical)	-
	towed tool with inertia braking	6000
	Towed tool with single line hydraulic braking (CUNA)	-
	Towed tool with single line hydraulic braking (EU)	-
	Towed tool with double line hydraulic braking	-
With Cab	towed tool not braked	990 to 1800
	towed tool with independent braking (mechanical)	-
	towed tool with inertia braking	6000
	Towed tool with single line hydraulic braking (CUNA)	-
	Towed tool with single line hydraulic braking (EU)	-
	Towed tool with double line hydraulic braking	-

00-1218 - © Copyright Antonio Carraro

Table 10.37: Maximum drawbar pull

SX (with horizontal gearboxes)		
	type of braking	**Value N (kg)**
With Arch	towed tool not braked	920 to 1600
	towed tool with independent braking (mechanical)	-
	towed tool with inertia braking	6000
	Towed tool with single line hydraulic braking (CUNA)	-
	Towed tool with single line hydraulic braking (EU)	-
	Towed tool with double line hydraulic braking	-
With Cab	towed tool not braked	920 to 1800
	towed tool with independent braking (mechanical)	-
	towed tool with inertia braking	6000
	Towed tool with single line hydraulic braking (CUNA)	-
	Towed tool with single line hydraulic braking (EU)	-
	Towed tool with double line hydraulic braking	-

Table 10.38: Maximum drawbar pull

SX (with 45° gearboxes)		
	type of braking	**Value N (kg)**
With Arch	towed tool not braked	990 to 1600
	towed tool with independent braking (mechanical)	-
	towed tool with inertia braking	6000
	Towed tool with single line hydraulic braking (CUNA)	-
	Towed tool with single line hydraulic braking (EU)	-
	Towed tool with double line hydraulic braking	-
With Cab	towed tool not braked	990 to 1800
	towed tool with independent braking (mechanical)	-
	towed tool with inertia braking	6000
	Towed tool with single line hydraulic braking (CUNA)	-
	Towed tool with single line hydraulic braking (EU)	-
	Towed tool with double line hydraulic braking	-

00-1218 - © Copyright Antonio Carraro

10.16.3. Fixed Hook (EU approval)

Type of approval: e3 6001 NS
Type of coupling eyes: ISO 5692-3:2011
CUNA: E, E1, E2, E3

Table 10.39: Maximum drawbar pull

SRX		
	type of braking	**Value N (kg)**
With Arch	towed tool not braked	990 to 1600
	towed tool with independent braking (mechanical)	4360 to 4740
	towed tool with inertia braking	6000
	Towed tool with single line hydraulic braking (CUNA)	4360 to 4740
	Towed tool with single line hydraulic braking (EU)	-
	Towed tool with double line hydraulic braking	-
With Cab	towed tool not braked	990 to 1800
	towed tool with independent braking (mechanical)	4700 to 5000
	towed tool with inertia braking	6000
	Towed tool with single line hydraulic braking (CUNA)	4700 to 5080
	Towed tool with single line hydraulic braking (EU)	-
	Towed tool with double line hydraulic braking	-

00-1218 - © Copyright Antonio Carraro

Table 10.40: Maximum drawbar pull

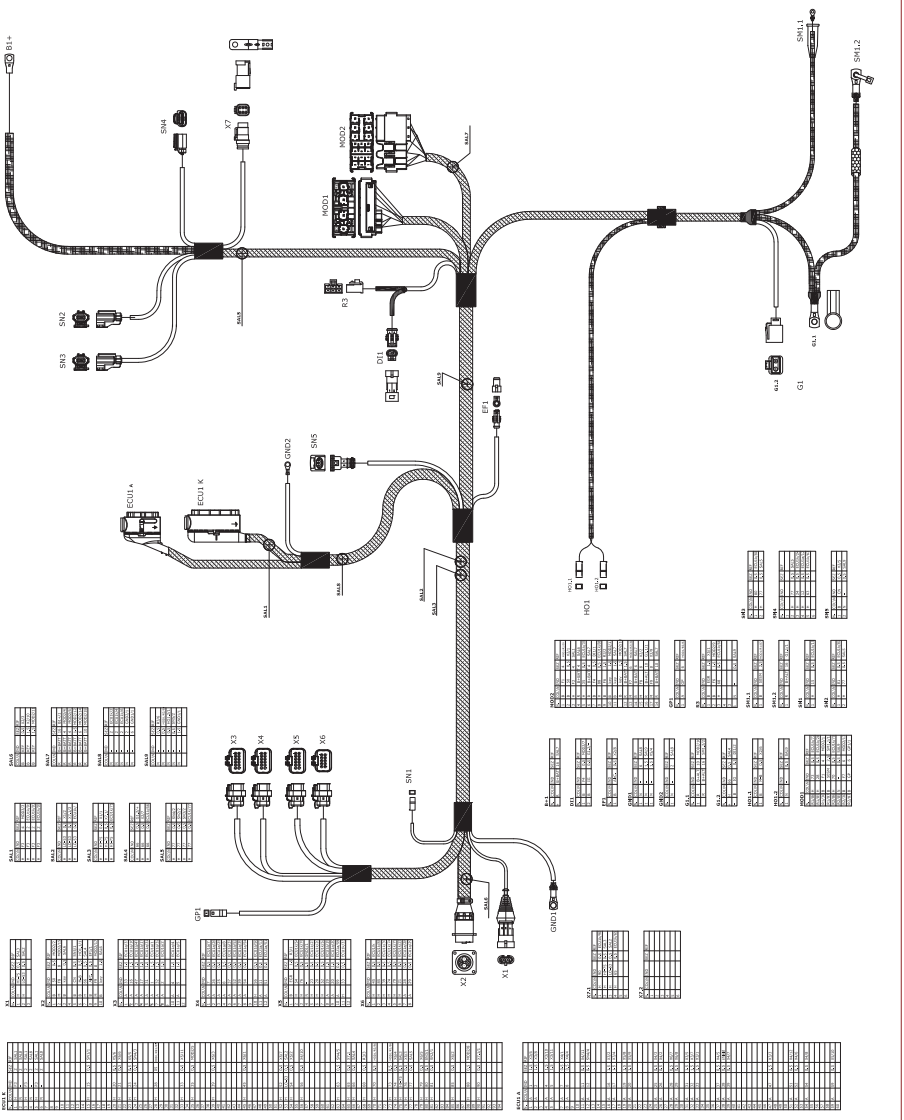
SX (with horizontal gearboxes)		
	type of braking	**Value N (kg)**
With Arch	towed tool not braked	920 to 1600
	towed tool with independent braking (mechanical)	4340 to 4720
	towed tool with inertia braking	6000
	Towed tool with single line hydraulic braking (CUNA)	4340 to 4720
	Towed tool with single line hydraulic braking (EU)	-
	Towed tool with double line hydraulic braking	-
With Cab	towed tool not braked	920 to 1800
	towed tool with independent braking (mechanical)	4680 to 5000
	towed tool with inertia braking	6000
	Towed tool with single line hydraulic braking (CUNA)	4680 to 5000
	Towed tool with single line hydraulic braking (EU)	-
	Towed tool with double line hydraulic braking	-

Table 10.41: Maximum drawbar pull

SX (with 45° gearboxes)		
	type of braking	**Value N (kg)**
With Arch	towed tool not braked	990 to 1600
	towed tool with independent braking (mechanical)	4340 to 4720
	towed tool with inertia braking	6000
	Towed tool with single line hydraulic braking (CUNA)	4340 to 4720
	Towed tool with single line hydraulic braking (EU)	-
	Towed tool with double line hydraulic braking	-
With Cab	towed tool not braked	990 to 1800
	towed tool with independent braking (mechanical)	4680 to 5000
	towed tool with inertia braking	6000
	Towed tool with single line hydraulic braking (CUNA)	4680 to 5060
	Towed tool with single line hydraulic braking (EU)	-
	Towed tool with double line hydraulic braking	-

11
ATTACHMENTS

11.1. ENGINE LINE WIRING DIAGRAM



00-1218 - © Copyright Antonio Carraro

00-1218 - © Copyright Antonio Carraro

Ref.	Description
ECU1 K	Engine ECU
ECU1 A	Engine ECU
B+1	Positive from battery
DI1	Diode (Alternator)
EF1	Air Conditioning
GND1	Engine ground connection
GND2	ECU1 ground connection
G1.1	Alternator connection
G1.2	Battery warning light connection
HO1.1	Horn
HO1.2	Horn ground connection
MOD1	Relay holder
MOD2	Fuse holder
GP1	Pre-heating glow plugs connection
R3	EGR relay connection
SM1.1	Engine starting connection
SM1.2	Connection from alternator (B+)
SN1	Engine oil pressure sensor
SN2	DPF inlet temperature sensor
SN3	DPF intermediate temperature sensor
SN4	DPF differential pressure sensor
SN5	Air filter sensor
X1	CAN Bus line connection
X2	Machine/intermediate line connection

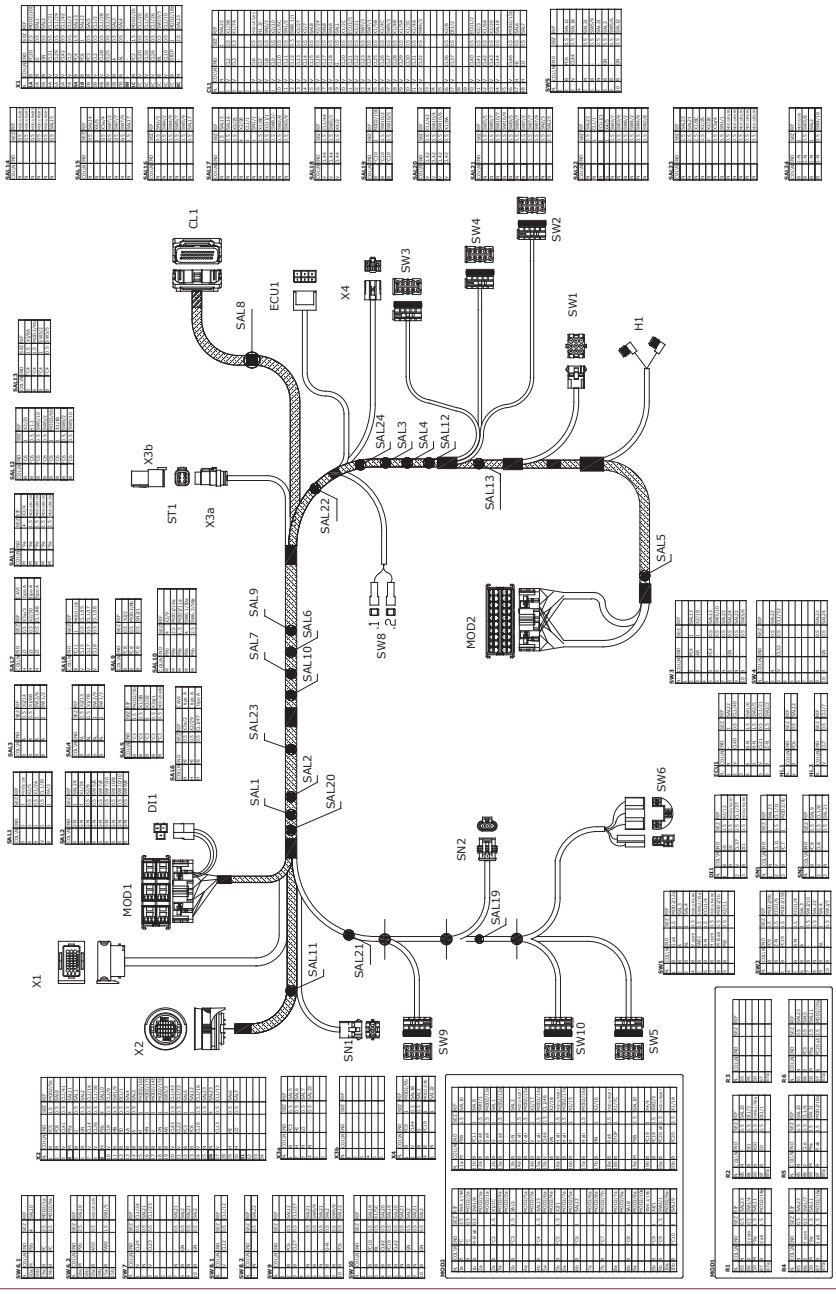
Ref.	Description
X3	Engine/intermediate line connection (yellow)
X4	Engine/intermediate line connection (grey)
X5	Engine/intermediate line connection (red)
X7.1	CAN service tool line connection
X7.2	CAN service tool line connection
SAL1-9	Welding

Table: Electric cables colour key

Code	Colour
A	Light blue
B	White
C	Orange
G	Yellow
H	Grey
L	Blue

Code	Colour
M	Brown
N	Black
R	Red
S	Pink
V	Green
Z	Purple

11.2. INSTRUMENT PANEL WIRING DIAGRAM



00-1218 - © Copyright Antonio Carraro

00-1218 - © Copyright Antonio Carraro

Ref.	Description
X1	Rear central line
X2	Front line
X3a	CAN service tool line
X3b	CAN service tool line
X4	Front options line
SW1	Lights switch
SW2	Hazard lights switch
SW3	Lamp rotation switch
SW4	Stationary PTO switch
SW5	PTO switch
SW6.1	Ignition switch
SW6.2	Ignition switch
SW7	DPF regeneration switch
SW8.1	RPM memory button
SW8.2	RPM memory button
SW9	Drive disengagement switch
SW10	Differential lock switch
SN1	Speedometer sensor
SN2	Hand throttle control
MOD1	Relay microswitch module
MOD2	Dashboard mini fuses module
CL1	Cluster
DI1	Anti cutoff diodes
ECU1	Flasher unit
HI.1	Alarms buzzer
HI.2	Alarms buzzer
SAL1	Front RH rear LH position lights
SAL2	Front LH rear RH position lights
SAL3	RH indicator

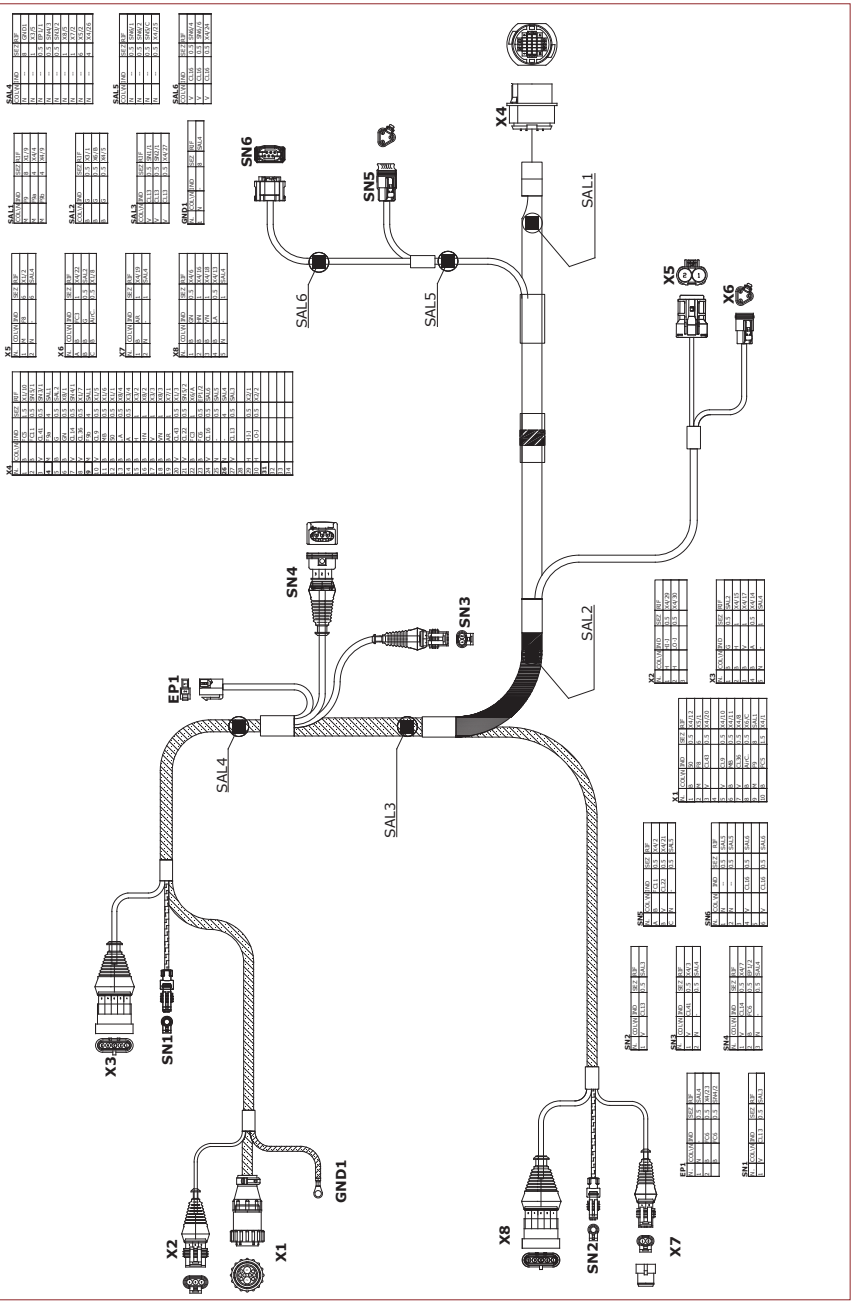
Ref.	Description
SAL4	LH indicator
SAL5	Vcc from FC3
SAL6	CAN HI
SAL7	CAN LO
SAL8	B+ from Fc11
SAL9	Vcc from Fc8
SAL10	Vcc from F9 (B+) X2/9
SAL11	Vcc from F9 (B+) X2/4
SAL12	Vcc from FC6
SAL13	Vcc from FC4
SAL14	gnd
SAL15	gnd
SAL16	gnd
SAL17	gnd
SAL18	PTO
SAL19	Vcc from FC10
SAL20	Rear lock differential
SAL21	GND
SAL22	GND
SAL23	GND
SAL24	Front LH rear RH position lights back lighting SW

Table: Electric cables colour key

Code	Colour
A	Light blue
B	White
C	Orange
G	Yellow
H	Grey
L	Blue

Code	Colour
M	Brown
N	Black
R	Red
S	Pink
V	Green
Z	Purple

11.3. FRONT HARNESS WIRING DIAGRAM



00-1218 - © Copyright Antonio Carraro

00-1218 - © Copyright Antonio Carraro

Ref.	Description
X1	Machine/engine line
X2	CAN bus line
X3	Right lights line
X4	Dashboard central line
X5	Cab 1 central connection
X6	Cab line connection signals
X7	Rotating lamp
X8	Left lights line
GND1	Chassis gnd connection
EP1	Fuel pump
SN1	Suction oil sensor Unit1

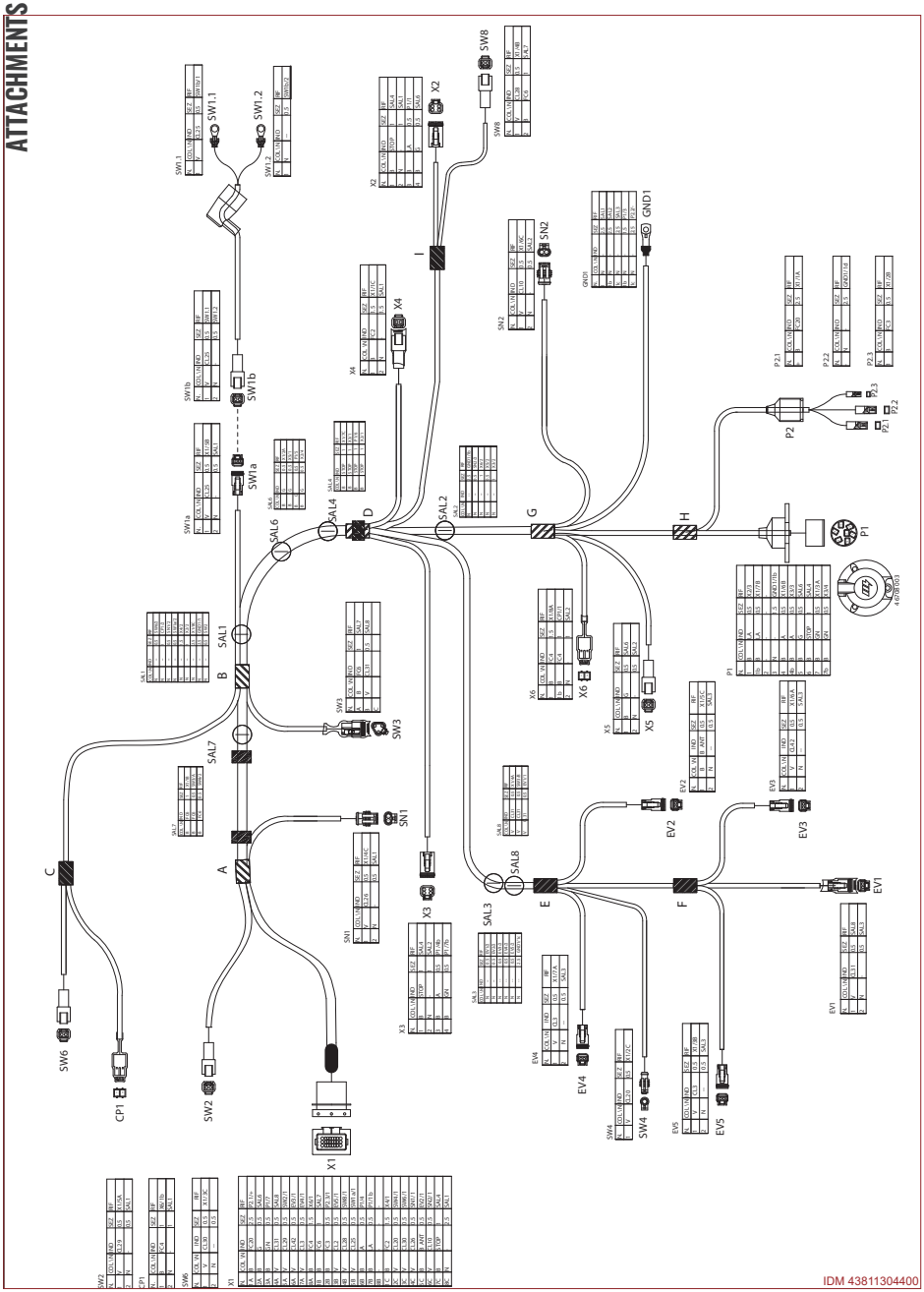
Ref.	Description
SN2	Suction oil sensor Unit2
SN3	Fuel gauge sensor
SN4	Water in fuel indicator sensor
SN5	Foot throttle control
SN6	2-way gas potentiometer control
SAL1	VCC B+ from F9
SAL2	Left position and number plate lights
SAL3	Oil and suction sensors
SAL4	GND
SAL5	GND
SAL6	2-way gas potentiometer output

Table: Electric cables colour key

Code	Colour
A	Light blue
B	White
C	Orange
G	Yellow
H	Grey
L	Blue

Code	Colour
M	Brown
N	Black
R	Red
S	Pink
V	Green
Z	Purple

11.4. REAR HARNESS WIRING DIAGRAM



00-1218 - © Copyright Antonio Carraro

00-1218 - © Copyright Antonio Carraro

Ref.	Description
X1	dashboard central line
X2	LH light
X3	RH light
X4	joystick rear kit
X5	licence plate light
X6	work light
EV1	HI-LO control solenoid valve
EV2	front lock solenoid valve
EV3	rear lock solenoid valve
EV4	4WD off switch
EV5	PTO switch
P1	7-pole trailer coupling
P2.1	3-pole socket (Vcc)
P2.2	3-pole socket (GND)
P2.3	3-pole socket (signal)
CP1	pneumatic springs
SW1.a	reverser neutral switch
SW1.b	reverser neutral switch
SW1.1	reverser neutral switch
SW1.2	reverser neutral switch
SW2	handbrake on switch
SW3	HI-LO control button
SW4	services low pressure switch

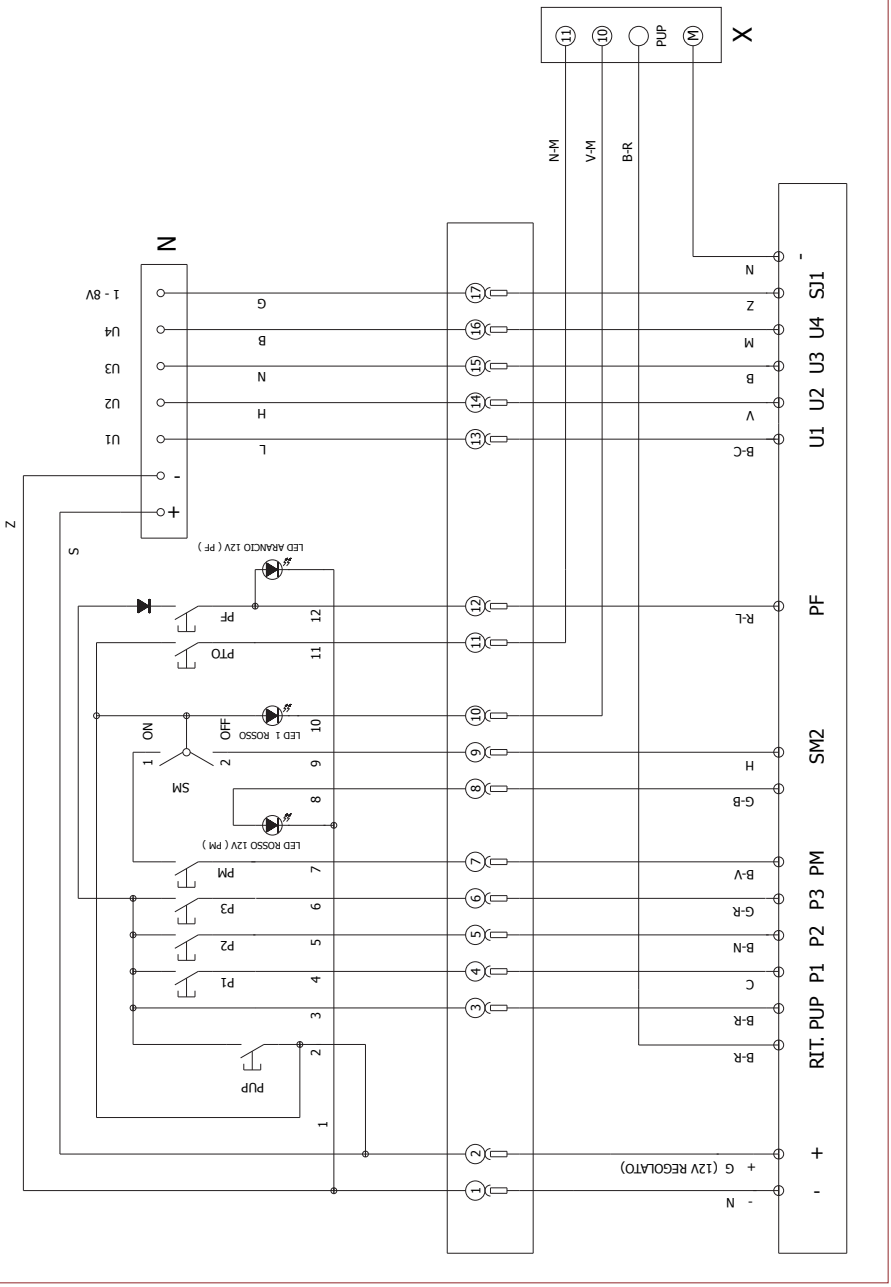
Ref.	Description
SW6	OPC switch
SW8	eco PTO switch
SN1	clutch pressed sensor
SN2	brake pressed sensor
GND1	ground connection
SAL1	welding (ground connection)
SAL2	welding (ground connection)
SAL3	welding (ground connection)
SAL4	welding (brake lights)
SAL5	welding (LH position and number plate lights)
SAL6	welding (function LEDs alarm)
SAL7	welding (HI-LO)

Table: Electric cables colour key

Code	Colour
A	Light blue
B	White
C	Orange
G	Yellow
H	Grey
L	Blue

Code	Colour
M	Brown
N	Black
R	Red
S	Pink
V	Green
Z	Purple

11.5. "JOYSTICK" CONTROLS WIRING DIAGRAM



00-1218 - © Copyright Antonio Carraro

00-1218 - © Copyright Antonio Carraro

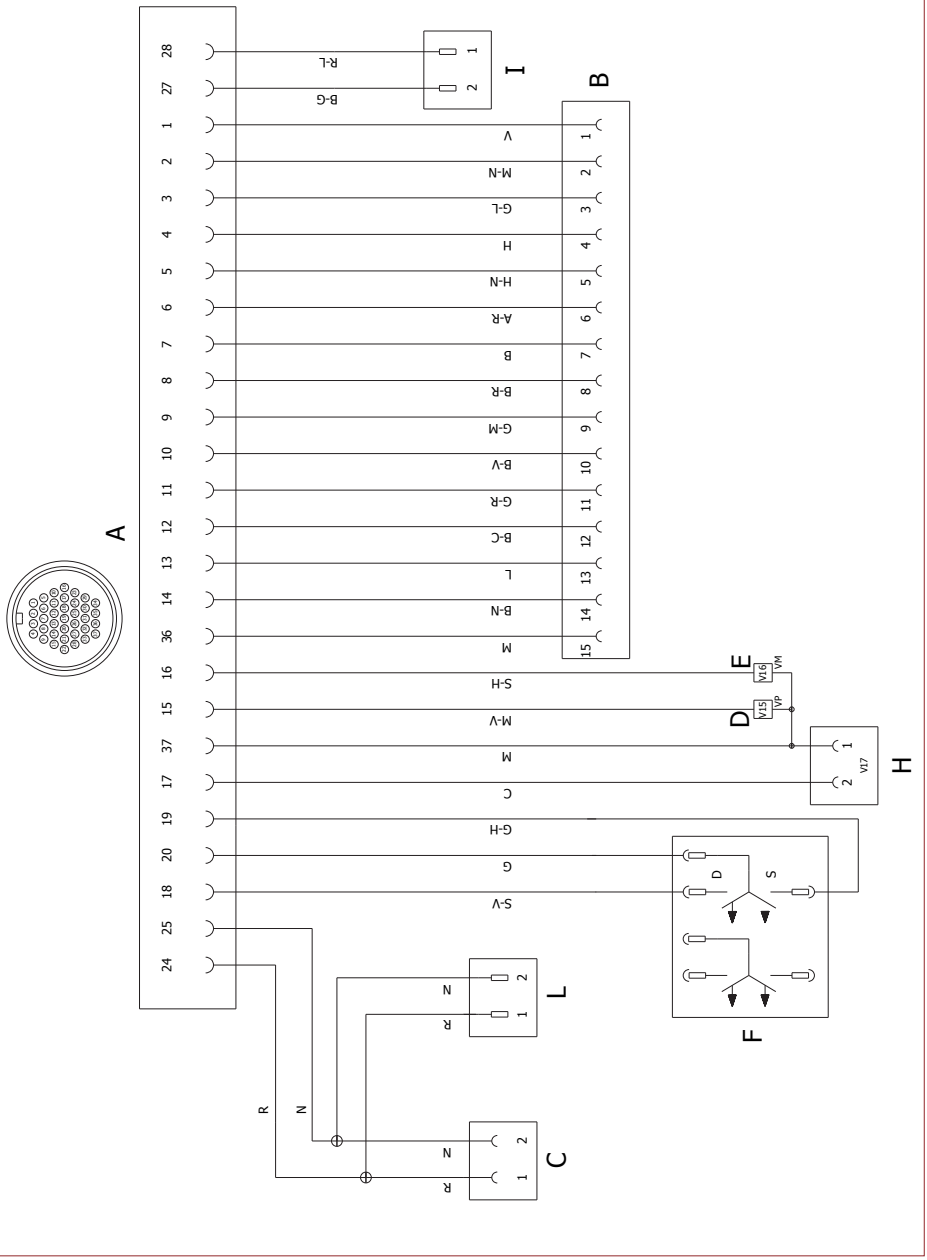
Ref.	Description
PUP	Dead man button
P1	RED button
P2	GREEN button
P3	YELLOW button
PM	WHITE button with LED
PTO	PTO activation ORANGE button
PF	Floating function GREEN button
SM	Engine consent activation switch
N	Joystick electronic outlets
X	To 'PTO' card

Table: Electric cables colour key

Code	Colour
A	Light blue
B	White
C	Orange
G	Yellow
H	Grey
L	Blue

Code	Colour
M	Brown
N	Black
R	Red
S	Pink
V	Green
Z	Purple

11.6. "JOYSTICK" CONNECTION WIRING DIAGRAM



00-1218 - © Copyright Antonio Carraro

00-1218 - © Copyright Antonio Carraro

Ref.	Description
A	37-pole CPC connector to Joystick armrest
B	16-pole CPC connector to solenoid valves box
C	Supply connector
D	Proportional solenoid valve connector
E	3-way solenoid valve connector
F	Connector to external rear lifting unit button
H	Electric control function connector
I	PTO control connector

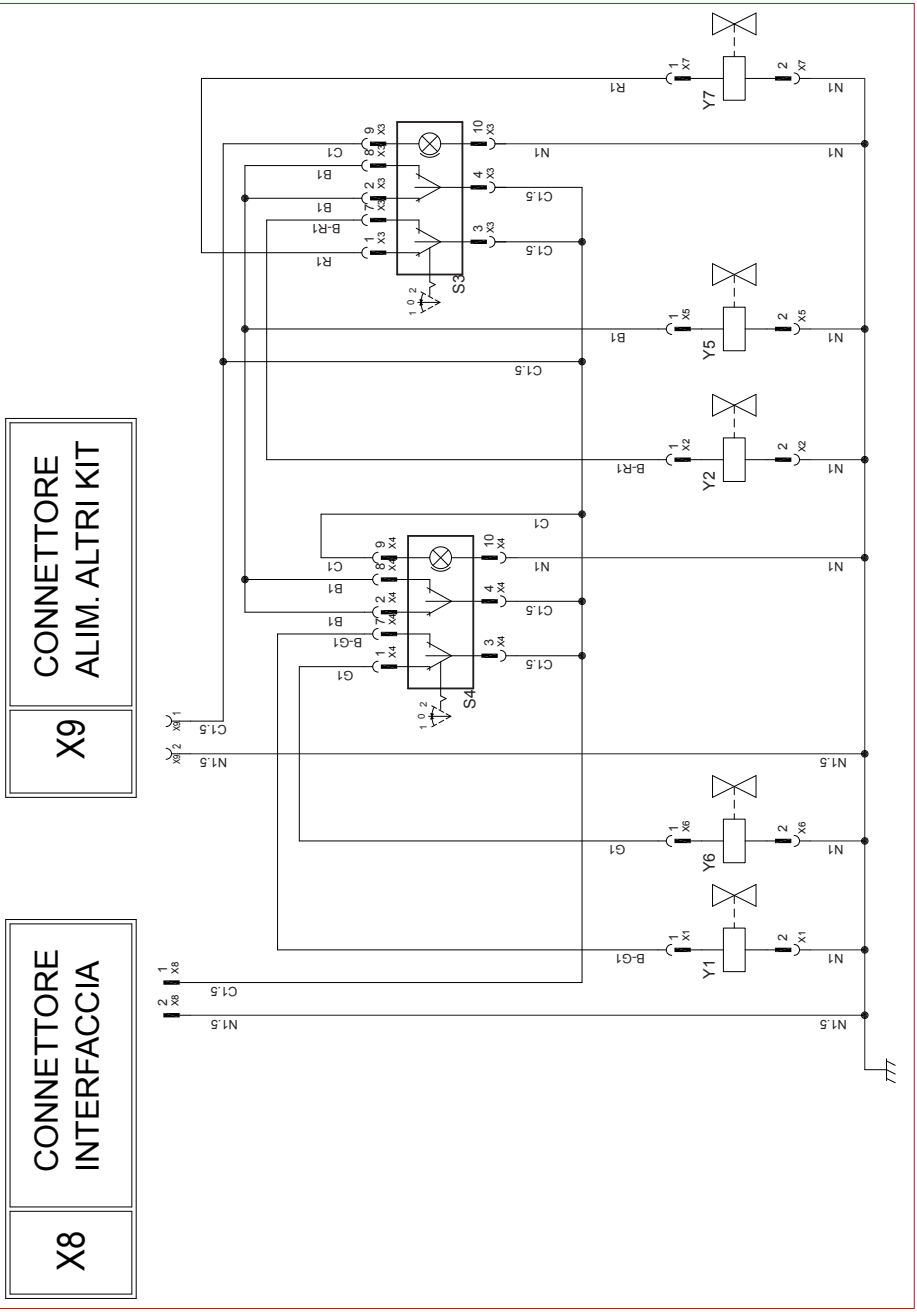
Ref.	Description
L	Supply connector

Table: Electric cables colour key

Code	Colour
A	Light blue
B	White
C	Orange
G	Yellow
H	Grey
L	Blue

Code	Colour
M	Brown
N	Black
R	Red
S	Pink
V	Green
Z	Purple

11.7. LIFTING ASSEMBLY WIRING DIAGRAM (WITH HYDRAULIC TIE-RODS)



00-1218 - © Copyright Antonio Carraro

00-1218 - © Copyright Antonio Carraro

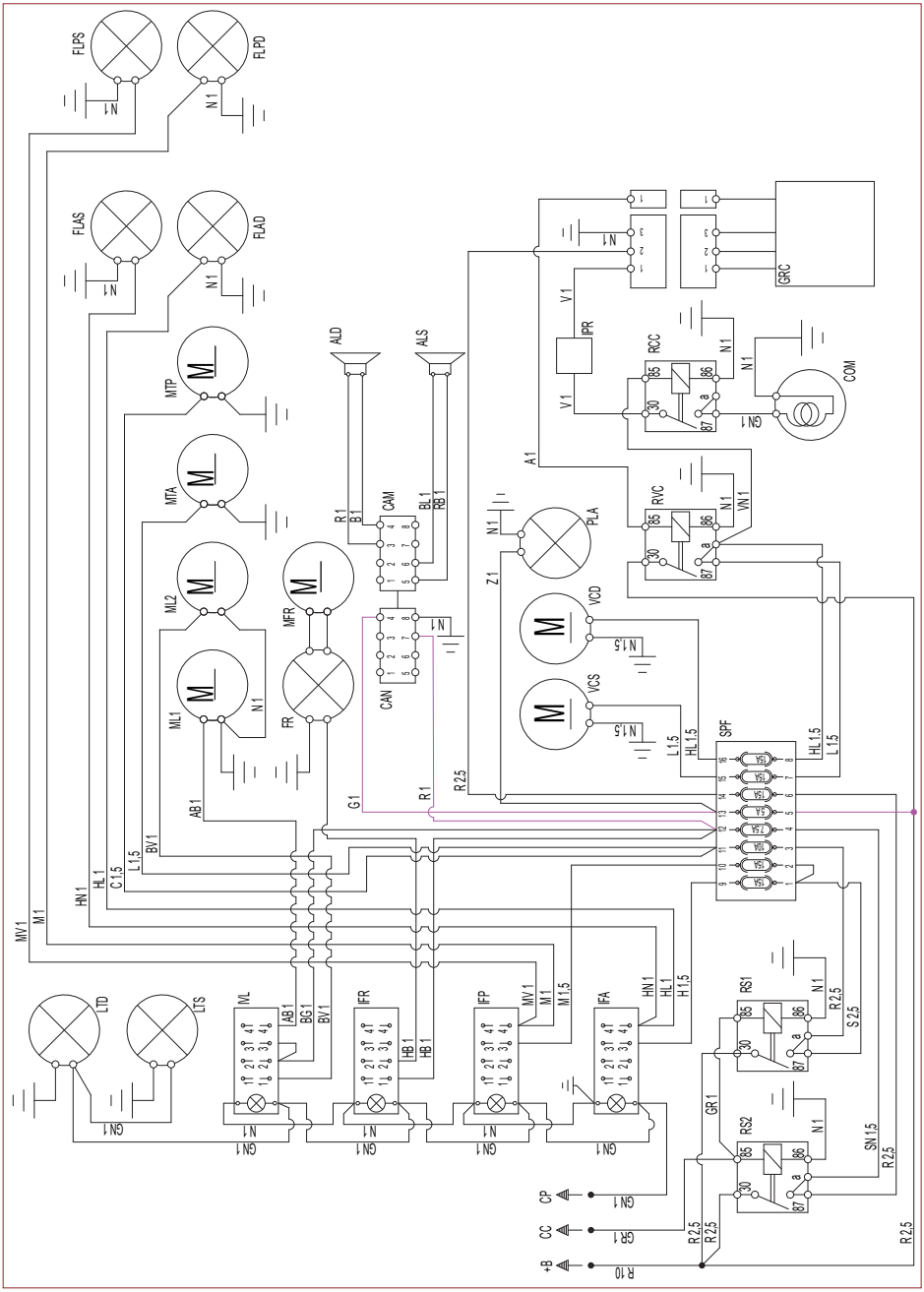
Ref.	Description
S3	Vertical tie-rod switch
S4	Hydraulic top link switch
Y1	Hydraulic top link solenoid valve
Y2	Vertical arm solenoid valve
Y5	On/off solenoid valve
Y6	Hydraulic top link solenoid valve
Y7	Vertical arm solenoid valve
X8	Interface connector
X9	Connector supplying other kits

Table: Electric cables colour key

Code	Colour
A	Light blue
B	White
C	Orange
G	Yellow
H	Grey
L	Blue

Code	Colour
M	Brown
N	Black
R	Red
S	Pink
V	Green
Z	Purple

11.8. "CAB" VERSION WIRING DIAGRAM



00-1218 - © Copyright Antonio Carraro

00-1218 - © Copyright Antonio Carraro

Ref.	Description
+B	Battery positive pole
CC	Ignition key enable positive
CP	Side lights enable positive
RS1	Ignition on relay no. 1
RS2	Ignition on relay no. 2
RVC	Condenser fan relay
RCC	Compressor electric clutch control relay
SPF	Fuse box
VCS	Left condenser fan
VCD	Right condenser fan
PLA	Ceiling light
IPR	Pressure switch
COM	Compressor electric clutch
GRC	Evaporator/heater unit
IFA	Front work lights switch
IFP	Rear work lights switch
IFR	Flashing light switch
IVL	Screenwasher tank switch
LTS	LH licence plate light

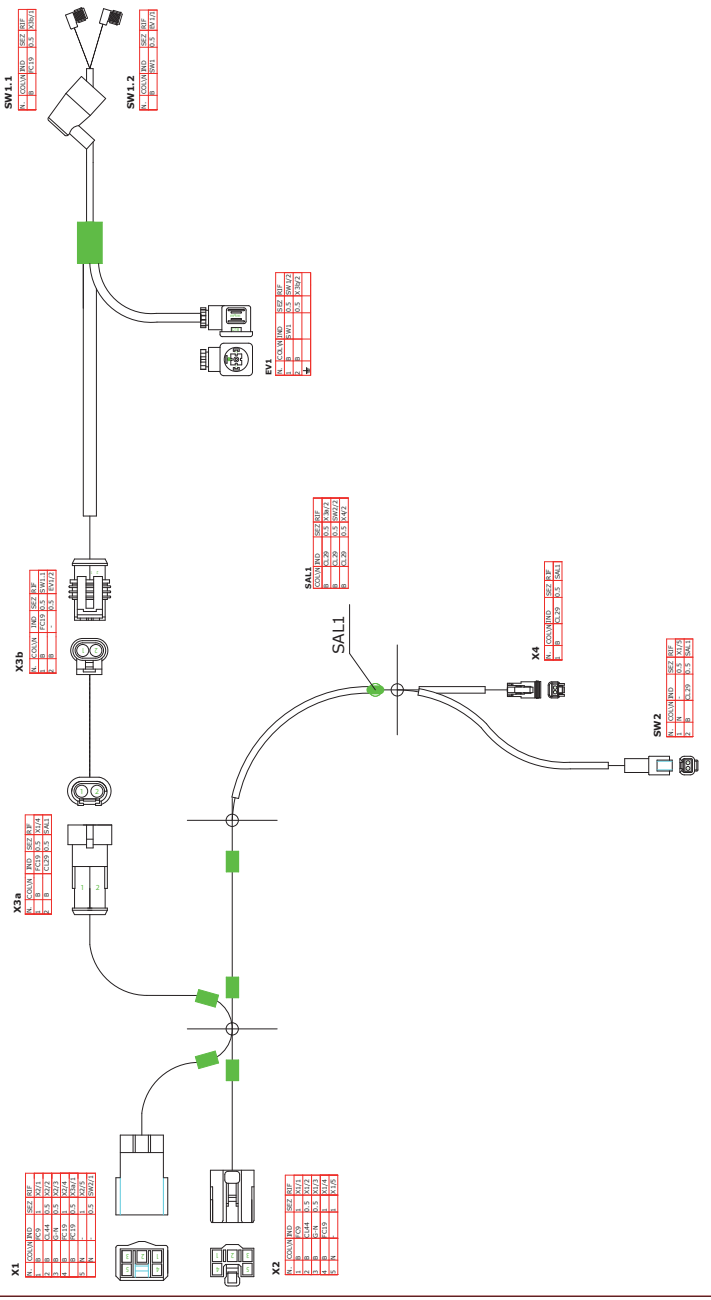
Ref.	Description
LTD	RH licence plate light
ML1	Screenwasher tank motor no.1
ML2	Screenwasher tank motor no. 2
MTA	Front windscreen wiper motor
MTP	Rear window wiper motor
FR	Rotating light
MFR	Rotating light motor
CAN	Black radio connector (power supply)
CAM	Brown radio connector (audio signals)
ALD	RH speaker
ALS	LH speaker
FLAS	LH front work light
FLAD	RH front work light
FLPS	LH rear work light
FLPD	RH rear work light

Table: Electric cables colour key

Code	Colour
A	Light blue
B	White
C	Orange
G	Yellow
H	Grey
L	Blue

Code	Colour
M	Brown
N	Black
R	Red
S	Pink
V	Green
Z	Purple

11.9. "SUPERBRAKE" WIRING DIAGRAM



00-1218 - © Copyright Antonio Carraro

00-1218 - © Copyright Antonio Carraro

Ref.	Description
C1 j	Multi-function instrument
C1 k	Multi-function instrument
CP1	Pneumatic compressor
ECU2	Flasher unit
ECUx46	Transmission control unit
ECUx47	Transmission control unit
MB1	RH pushbutton panel
MB2	LH pushbutton panel
MOD1	Relay box
MOD2	Fuse box
R11	Joystic controls relay
R12	Drive disengagement control relay
R13	Main ECU power relay
SAL	Welding
SN18	Hand throttle control
SN19	Drive control sensor
SN20	Direction sensor
SN21	Clutch sensor
SW1	Steering stalk
SW2	Lock engagement switch

Ref.	Description
SW3	Drive disengagement switch
SW4	Rear PTO engagement switch
SW5	OPC switch
SW6,1	Starter board
SW6,2	Starter board
SW7	Lights control stalk
SW8	Flashing light switch
SW9	Four direction indicators switch
SW10	Park brake switch
SW11	Switch Stationary PTO
SW12	Regeneration control
X20a	CAN service tool connection
X20b	CAN service tool connection
X15	Machine line (red)
X16	Machine line (green)
X17	Trailer brake kit connection
X18	Front kit connection
X19a	Joystick line
X19b	Joystick line

Table: Electric cables colour key

Code	Colour
A	Light blue
B	White
C	Orange
G	Yellow
H	Grey
L	Blue

Code	Colour
M	Brown
N	Black
R	Red
S	Pink
V	Green
Z	Purple

00-1218 - © Copyright Antonio Carraro

00-1218 - © Copyright Antonio Carraro

INDEX

A

Access to driver's seat 133
Accompanying documentation 9
Additional Information, menu 103
Adjusting the driving position 84
Adjustment of headlights 85
Adjustment of the front power lift unit 88
Adjustment of the rear power lift unit with "ball joint" 87
Adjustment of the rear power lift unit with "quick coupling" 86
Adjustment of tow hook height 88
attachments 275

B

ballasts, formula for calculating 158
Ballasts, quantity 230
ballasts with flange (rear wheels), installation 163
battery, replacement 210
Bleed brakes and clutch system 194
brakes and clutch, bleeding the system 194
brakes and clutch system oil, checking level 189

C

cab air filter (paper), cleaning 178
cab bulb, replacement 215
cab, controls description 129
"CAB" version wiring diagram 290
Cardan shaft 240
Changing the battery 210
Changing the front and rear transmission oil (configuration with one hydraulic pump) 190
Changing the front and rear transmission oil (configuration with two hydraulic pumps) 192
Changing the hydraulic oil filters 193
Changing tyres 210
Checking brakes and clutch system oil level 189
Checking the engine coolant level 186
Checking the engine oil level 185
Checking the front and rear transmission oil 188
Checking the front and rear transmission oil level (configuration with one hydraulic pump) 187
Checking the pressure of the tyres 179
Cleaning the cab air filter (paper) 178
Cleaning the engine air filter (Type A) 177
Cleaning the engine air filter (Type B) 178
Cleaning the machine 174
Cleaning the radiator 176
Connection and disconnection of the rear cardan shaft 155
control plates 131
coolant, table 185
Cooling liquid table 185
courtesy light bulb, replacement 215

D

Dangerous areas and zones 78
dashboard controls, description 111
date and time, adjustment 106
definitions 9
Description of cab controls 129
Description of control plates 131
Description of controls 92
Description of dashboard controls 111
Description of devices for driving on public roads 74
Description of drive and stop controls 116
Description of hydraulic circuits (Configuration with one hydraulic pump) 65
Description of hydraulic circuits (Configuration with two hydraulic pumps) 64
Description of hydraulic coupler and front lift controls (optional) 124
Description of hydraulic coupler controls (standard) 122
Description of instruments and LEDs 93
Description of lifting unit controls (standard) 119
Draft control power lift unit controls (only for SX

model machines) 120
Standard power lift unit controls 119
Description of “Proportional Joystick” type controls 126
Description of rear power lift unit (“ball joint” version) 68
Description of rear power lift unit (“quick coupling” version) 67
Description of safety devices 75
Description of safety signs 49
Description of the equipment on request (SRX) 69
Description of the equipment on request (SX) 72
Description of the front power lift unit 66
Description of the main parts (“cab” version) 62
Description of the main parts (machine) 58
Description of the multifunction display 96
HOME Screen 96
Hour Counter 98
Menu 99
Service Indicator 97
Description of the vertical lift rod and top link controls (optional) 123
Description of work controls 117
Dimensions 231
Disabling regeneration 142
Disposal and scrapping of the machine 222
DPF (Diesel Particulate Filter), regeneration 140
DPF REGENERATION (Diesel Particulate Filter) 140
“Draft control” power lift unit use mode (SX) 121
drive and stop controls, description 116
driver’s seat, access 133
driver’s seat, adjustment 84
driver’s seat (SRX), reversing 147

E

Electrical connections 157
electric couplings, hitching 157
engine air filter, cleaning 177
engine air filter, replacement 209
engine, checking the coolant level 186
engine, components 175
Engine components 175
engine coolant, checking level 186
Engine line wiring diagram 276
engine oil, checking level 185
engine, transmission and systems, features 234
Engine, transmission and systems features 234
Extraordinary maintenance 194

F

Faults, information about 195
flat battery, engine start-up 145
Formula for calculating ballasts with mounted implements 158
front and rear transmission oil (configuration with one hydraulic pump), changing 190
front and rear transmission oil (configuration with one hydraulic pump), checking the level 187
front and rear transmission oil (configuration with two hydraulic pumps), changing 192
front and rear transmission oil (configuration with two hydraulic pumps), checking the level 188
Front harness wiring diagram 280
front power lift, adjustment 88
front power lift, dimensions 229
Front power lift dimensions 229
front wheels ballasts, installation 161
fuses and relays, replacement 216

G

gas spring (bonnet), replacement 208
gas spring (safety arch), replacement 208
General description of the machine (SRX) 54
General description of the machine (SX) 56
General safety warnings 17
General Settings, menu 108

H

handling 79
headlights, adjustment 85
Hitching and unhitching implements - front power lift unit 152

00-1218 - © Copyright Antonio Carraro

00-1218 - © Copyright Antonio Carraro

Hitching and unhitching implements - rear power lift unit (“ball joint” version) 150
Hitching and unhitching implements - rear power lift unit (“quick coupling” version) 148
Hitching and unhitching implements - tow hook 154
hydraulic coupler and front lift controls (optional), description 124
Hydraulic couplers connection 157
hydraulic coupling controls (standard), description 122
hydraulic couplings, hitching 157
hydraulic oil filter, changing 193

I

Identification of manufacturer and machine (EU 1322/2014) 52
indicator light bulbs (rear), replacement 213
Info, menu 107
Installation of ballasts with flange (rear wheels) 163
Installation of front wheel ballasts 161
Installation of lateral ballasts 159
Installation of rear wheel ballasts 162
Instrument panel wiring diagram 278
instruments and LEDs, description 93
Introduction to safety warnings 15

J

“JOYSTICK” connection wiring diagram 286
“JOYSTICK” controls wiring diagram 284

K

Kerb weight 224

L

lateral ballasts, installation 159
LEDs and instruments, description 93
Lifting assembly wiring diagram (with hydraulic tie-rods) 288
light bulbs (front), replacement 211
loading 79
Loading and unloading method 80
Location of lubrication points 182
lubricants, table 184
Lubricant table 184
lubrication, layout 182

M

machine, cleaning 174
machine emergency towing 81
Machine emergency towing method 81
Releasing the “Superbrake” device (optional) (if available) 82
Machine maximum permissible weight 225
Machine speed 249
Machine tracks 243
Maintenance during the running-in period 170
maintenance, intervals table 171
Maintenance interval table 171
maintenance, recommendations 169
Maintenance recommendations 169
Manual regeneration 143
Maximum drawbar pull on the machine tow hook 269
Maximum vertical load provided for on the coupling hook 260
Method of transport 80
Moving and stopping the machine 138
multifunction display, description 96

N

noise level 242
Noise level 242

O

Operating reminders 164
oscillating tow bar, adjustment 90

P

Part replacement instructions 207
parts replacement, instructions regarding 207
Pedal sensitivity, menu 100
Position adjustment of the oscillating tow bar 90
Position of safety signals and information 77
power lift unit controls (standard), description 119
power take-off, characteristics 241
Problems, causes and corrective actions 195
Procedure for reversing the driving seat (SRX) 147
Prolonged tractor inactivity 167
proportional Joystick, controls description 126
PTO, engagement ramps 108
PTO features 241
PTO for stationary use 112
Purpose of this manual 7

R

radiator, cleaning 176
rear cardan shaft, connection and disconnection 155
Rear harness wiring diagram 282
rear lifting unit with “ball joint”, adjustment 87
rear lifting unit with “quick coupling”, adjustment 86
rear power lift, dimensions 227
Rear power lift dimensions 227
Rear tow hook, heights 256
rear wheels ballasts, installation 162
Recommendations for handling, loading and unloading 79
Recommendations for use and functioning 91
Recommendations regarding adjustments 83
refuelling 166
Refuelling 166
relays and fuses, replacement 216
Replacement of courtesy light 215
Replacement of fuses and relays 216
Replacement of the work light lamp 214
Replacing cab bulb 215
Replacing front lighting bulbs 211
Direction indicator lights 212
Low and full beam lights 212
Side lights 212

Replacing fuses
Cab fuses 221
Dashboard fuses 219
Engine compartment fuses 217

Replacing indicator light bulbs (rear) 213
Direction indicator lights 213
Licence plate light 214
Position lights and brake lights 213

Replacing the engine air filter (Type A) 209
Replacing the gas spring (bonnet) 208
Replacing the gas spring (safety arch) 208
Requesting technical assistance 8
Returning the tractor to service 168
road circulation, set-up for 146
Rolling circumference of the tyres 109
ROPS safety arch, use 132
running in phase, maintenance in 170

S

Safety instructions for proper tyre maintenance 41
Incorrect uses 42
safety warnings 15
Safety warnings at end of use 43
Incorrect uses 43
Safety warnings before use 24
Incorrect uses 26
Safety warnings during use 31
Incorrect uses 32
Safety warnings during use on sloping or uneven terrains 33
Incorrect uses 34
Safety warnings for adjustments and maintenance 44
Incorrect uses 45

00-1218 - © Copyright Antonio Carraro

00-1218 - © Copyright Antonio Carraro

Safety warnings for handling and transport 19
Incorrect uses 20
Safety warnings for hitching and disconnection of tools (carried or towed) 28
Incorrect uses 30
Safety warnings for the driver 21
Incorrect uses 22
Safety warnings for the employer 18
Safety warnings regarding circulation on roads 23
Incorrect uses 24
Safety warnings regarding environmental impact 47
Safety warnings regarding use in forestry (FOPS certified structure) 39
Incorrect uses 39
Safety warnings regarding use in forestry (Structure not certified FOPS and/or OPS) 38
Incorrect uses 38
Safety warnings regarding use with ballasts installed 40
Incorrect uses 40
Safety warnings regarding use with tools (carried or towed) 35
Incorrect uses 36
scrapping the machine 222
Service, menu 105
Set-up for driving on public roads 146
speed, unit of measure 109
Speed unit of measure 109
Starting and stopping the engine 135
Starting the engine with a flat battery 145
stopping the engine, and starting 135
stopping the machine, and moving 138
Superbrake, release 82
Superbrake, use mode 114
“SUPERBRAKE” wiring diagram 292

T

technical data tables 223
technical data, tables 223
Technical data tables introduction 223
Terms 9
Terms and definitions 9
time and date, setting 106
tow hook, adjustment 88
track, change-over 90
Track change-over 90
transmission, systems and engine, features 234
tyre pressure, checking 179
tyre, replacement 210
tyres, checking pressure 179

U

unloading 79
Use of the “Superbrake” device (if present) 114
Using a ROPS safety arch (with easy opening and closing) 132

V

vertical tie-rod and strut (optional), description 123
Vibrations transmitted to the driver 242

W

Warning, menu 104
Warnings for use with spraying tools 37
Incorrect uses 37
Warnings on residual risks 48
work controls, description 117
work light lamp, replacement 214

00-1218 - © Copyright Antonio Carraro

00-1218 - © Copyright Antonio Carraro



00-1218 - © Copyright Antonio Carraro

00-1218 - © Copyright Antonio Carraro

When ordering any spare part from
local ANTONIO CARRARO dealers,
always indicate:

The type and serial number of the machine.
These details are stamped
on the identification data plate *(→ p. 52)*

ONLY WHEN GENUINE SPARE PARTS ARE USED,
ANTONIO CARRARO S.P.A.
WILL RECOGNISE THE RIGHT TO THE GUARANTEE AND IT WILL BE POSSIBLE
TO OBTAIN MAXIMUM MACHINE PERFORMANCE AND DURABILITY.

The factory works constantly to improve all its models.
We therefore ask you to understand if we reserve the right to introduce modifications to the supply at any time regarding shape, equipment, and technical features. It will therefore not be possible to claim rights on the basis of the data, instructions and descriptions contained in this «Use and Maintenance» manual.

Our AREA DEALER is always at your complete disposal
for any information or advice.

00-1218 - © Copyright Antonio Carraro