TRIME

X-ECO

6x160W LED

Lighting Tower

USE MANUAL

CE

Dear customer,

We wish to thank you very much for having purchased our product. With proper handling and maintenance, this product will provide dependable, long-term service. Our customer service is always available, might you need it.

This manual is intended for users of the equipment. This manual is compiled from information available and current at time of approval for printing.

Please consider that this manual may refer to controls and optional equipment that are not present on your particular machine.

It is important that you know your machine and its equipment and how to operate it properly, so ***please read the operating instructions carefully and understand them before operating the machine.***

Machine specifications can be modified at any time without any obligation to update this publications. It is recommended to read this manual thoroughly because incorrect operation may result in the warranty being void.
It is also recommended to use only original factory spare parts

TRIME
Trime S.r.l.
Strada per Robecco 20081 Cassinetta di Lugagnano (MI) Italy.
Tel. +39029421724 - e-mail: info@trime.it - Internet: www.trime.it

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SAFETY RULES

SAFETY PRECAUTIONS TO BE OBSERVED

Read this manual and learn the operating characteristics and limitations of the machine before operating it.
The manufacturer declines all liability for injury to persons and damage to components due to not respecting the safety rules.

Report all malfunctions to a maintenance responsible. If there are any repairs to be done, do not operate the equipment. Normal service and maintenance, if performed as required, can prevent unexpected and unnecessary down time. This manual describes standard inspections, operation and servicing with the normal safety precautions required for normal servicing and operating conditions. Operators and maintenance personnel must be safety conscious and alert to recognize potential operating or servicing safety hazards at all times. They should immediately take the necessary precautions to ensure safe operation and servicing of the machine.

- ☐ Be aware of operating risks that may be created by weather changes. Follow the correct procedures in the event of heavy rain or electrical storm.

- ☐ Lower tower when not in use, or if high winds or electrical storms are expected in the area.
- ☐ Use protective clothing and safety equipment:
  gloves, safety boots, safety hard hat, goggles, ear protection, and dust masks when necessary.
- ☐ Know all side clearances and overhead obstructions for safe operation of the machine.
- ☐ **ALWAYS** make sure area above the tower is open and clear of any kind of obstruction.
- ☐ Position and operate the lighting tower on a firm surface.
- ☐ The machine must be levelled and outriggers extended before raising tower.
- ☐ Keep area around the machine clear of people while raising and lowering the mast.
- ☐ **ALWAYS** handle fuels and lubricants carefully, clean up spills to avoid fire and slipping risks.
- ☐ **NEVER** using the unit if is in need of repair.
- ☐ The area near the exhaust pipe become hot in use. Be careful if you need to work there.
- ☐ Check that winch cables are in good condition and are centered on each pulley.
- ☐ **DO NOT** use the unit if insulation on the electrical cord is cut or worn through.
- ☐ **DO NOT** permit to untrained personnel to operate the machine.
- ☐ **NEVER** operate a unit if you are tired, not concentrated or under the influence of drugs or alcohol.
- ☐ Keep children and animals away from the machine.

FIRE PRECAUTIONS

- ☐ Clean all dirt, oil and other fluids from components to minimize fire risks and aid in spotting loose or leaking components.

- ☐ Check the engine for oily rags or other debris that could be potential cause of fire before starting the unit.
- ☐ Have a fire extinguisher nearby. Be sure the extinguisher is properly maintained and be familiar with its use.
- ☐ In the event of fire, the following extinction means are appropriated: carbonate anhydride (or carbon dioxide), powder, foam, nebulized water. Avoid to use water jets.
- ☐ In the event of fire, wear a breathing apparatus if there is heavy smoke.

FLAMMABLE FLUID PRECAUTIONS

- ☐ Take due care when working with fuel. Diesel fuel is a health hazard. Be aware that there is also danger of fire and pollution.

- ☐ **DO NOT** clean the unit components using flammable fluids.
- ☐ Check and ensure that all-fluid systems caps, drain, valves, fittings, lines etc., are secure and leak free.
- ☐ **ALWAYS** shut off engine while refueling and be very cautious if engine is still hot.
- ☐ **NEVER** smoke while checking or adding fuel or handling fluid containers.
- ☐ **NEVER** refuel near an open flame
- ☐ **DO NOT** fill the tank completely.
- ☐ **DO NOT** refuel in an enclosed area with poor ventilation.
- ☐ **DO NOT** run engine without the fuel tank cap.
- ☐ **DO NOT** use the machine in areas with risk of explosion or fire.

SAFETY RULES

ELECTRICAL HAZARD

- ☐ **DO NOT** smoke or allow open flames or sparks near the batteries.

- ☐ Before doing repair works, **ALWAYS** disconnect batteries. Disconnect negative terminal first and reconnect last.
- ☐ Before carrying out any welding on the machine, ALWAYS make sure to disconnect batteries and alternator leads.
- ☐ The tools must **NOT** come into contact with the battery terminals with the risk of creating an electric arc.
- ☐ Use jumper cables only. Improper use can result in severe damage and safety risk.
- ☐ **NEVER** use the machine if insulation on electrical cord is cut or worn through.
- ☐ **NEVER** operate lights without protective lens cover in place or with a lens cover that is cracked or damaged!

LUBRICATION AND SERVICING

- ☐ Only authorized and trained personnel is allowed to perform the machine maintenance.
  Please read the operator's manual and maintenance manual before using or servicing the machine.

- ☐ HIGH VOLTAGE! This equipment utilizes high voltage circuits. Always exercise extreme caution when trouble shooting or repairing any electrical circuit.
- ☐ Only a qualified electrician should troubleshoot or repair electrical problems occurring on the machine.
- ☐ Before servicing the lighting tower, ensure that the engine start switch is turned to OFF.
- ☐ Disconnect electrical power and turn off engine before removing protective covers on high voltage electrical closures.
- ☐ NEVER perform even routine service (oil/filter changes, cleaning, etc.) if all electrical components aren't shut down.
- ☐ NEVER allow water to accumulate at the base of the machine. If water is present, DO NOT service!
- ☐ DO NOT service electrical components if your clothing or skin is wet.
- ☐ If the unit is stored outside, check the engine and generator for any moisture. If wet, dry the unit thoroughly before starting.
- ☐ Never wash the unit with a high pressure hose or with any kind of power washer.
- ☐ Open main circuit breaker before disconnecting battery cables.
- ☐ Ensure to always relieve pressure before servicing any pressurized system.
- ☐ Be aware of hot exhaust pipes and engine.
- ☐ KEEP AWAY from moving parts on generator and engine. Be aware of the hazard if you wear loose clothing.
- ☐ Check and replace all missing and hard-to-read labels.
- ☐ Make sure slings, chains, hooks, ramps, jacks, and other types of lifting devices are attached securely and have enough weight-bearing capacity to lift or hold the equipment safely.

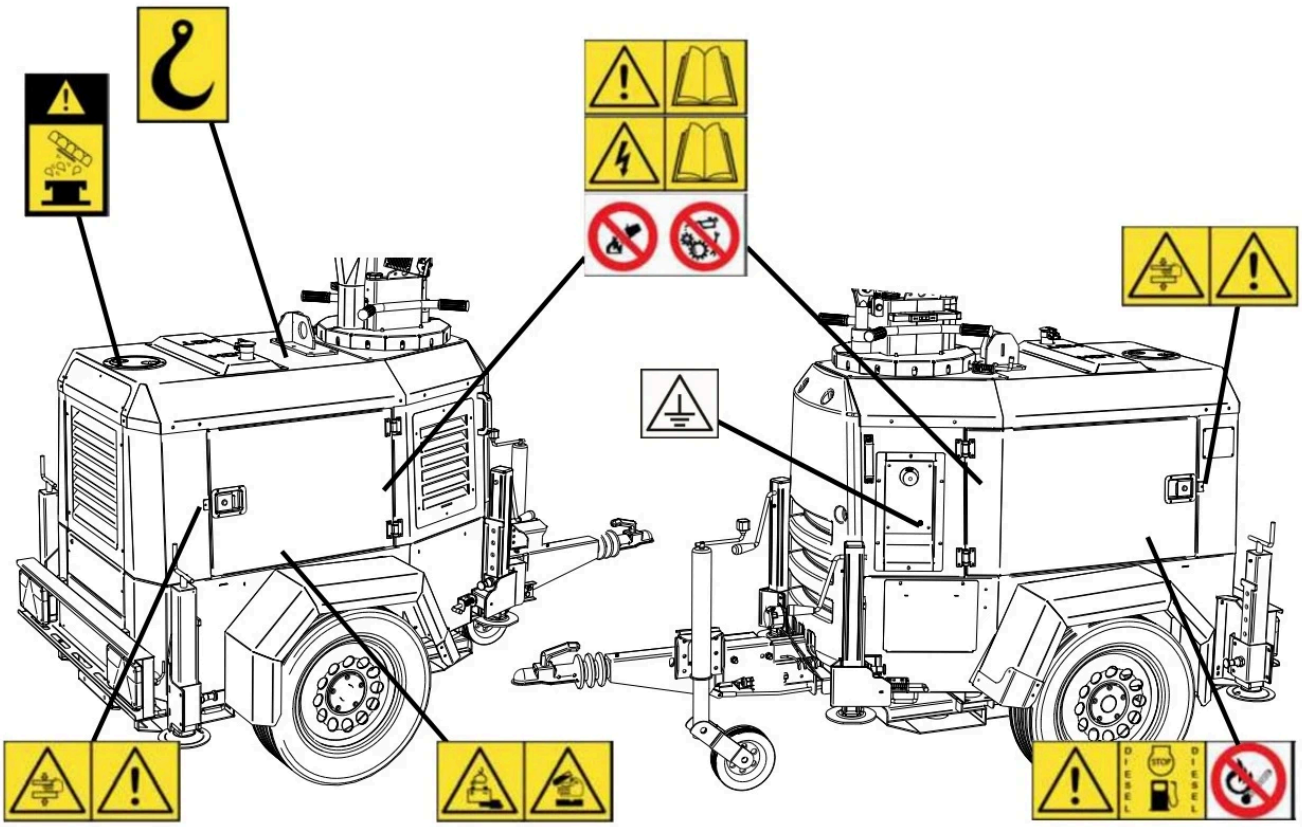
TOWING SAFETY

- ☐ **Be careful while towing a trailer!** Both the trailer and vehicle must be in good condition and securely fastened to each other.

- ☐ Check that the hitch and coupling on the towing vehicle are adequately dimensioned and rated to the trailer's "gross vehicle weight rating" (GVWR).
- ☐ Do not tow a trailer using defective parts coupling!
- ☐ Check the tires of the trailer: tread wear, tire pressure, general conditions.
- ☐ Connect breakaway safety line securely to towing vehicle.
- ☐ If fitted, connect safety chains in a crossing pattern under the connecting beam.
- ☐ Check that wheel nuts are ALL tight.
- ☐ Check that the road running lights are connected and operating, if applicable.
- ☐ Maximum recommended speed for highway towing is 75 km/h. Recommended maximum off-road towing speed is 15 km/h (less on uneven terrain).
- ☐ When towing, maintain extra space between vehicles and avoid soft shoulders, curbs and sudden lane changes. If you are not experts in tow, to practice in a far from heavy traffic area.

SAFETY RULES

SAFETY STICKERS GUIDE

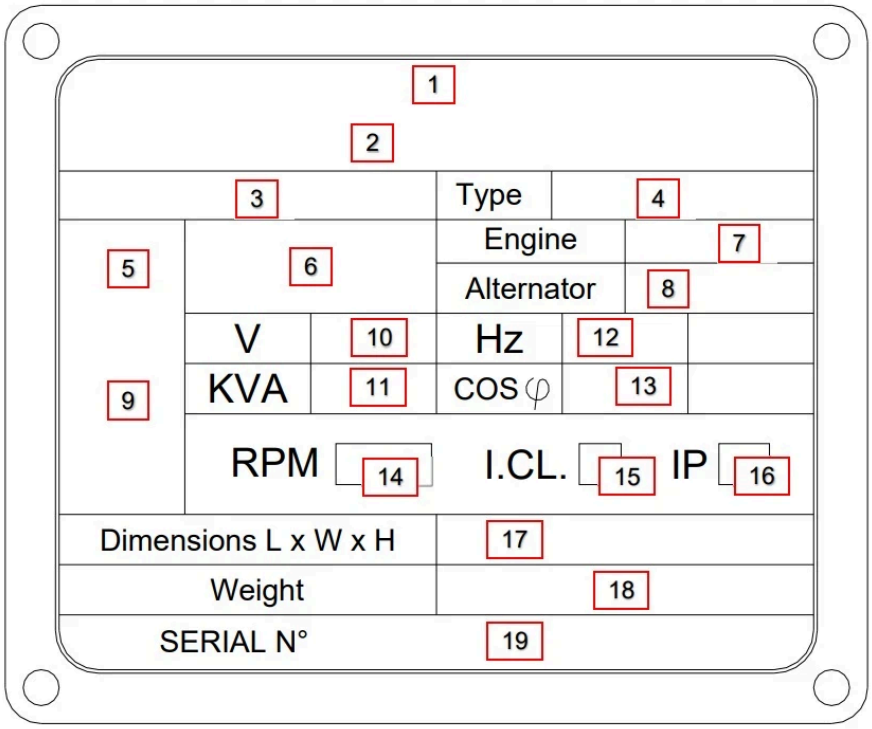


Safety stickers meanings

 Attention! Read user's manual before operating the machine.	 Attention, high voltage! Read user's manual before operating the machine.
 Do not extinguish with water! Attention, don't touch the moving parts.	 Attention! Danger of crushing.
 Attention, battery on board. Contains corrosive liquids.	 Attention! Hot liquid under pressure during machine use and immediately after. Pay attention when opening.
 Lifting point. Ensure lifting device has enough capacity to handle machine weight.	
 Attention! Diesel fuel on board. Stop the engine while refueling. Keep anything that could cause sparks, flame or fire at a safety distance from the machine.	 Earthing point. The grounding of the machine always needs to be done paying attention on the section of the cable to be used (never to be less than 10 mm2).

TECHNICAL SPECIFICATIONS

LIGHTONG TOWER IDENTIFICATION



1. Manufacturer's logo
2. Manufacturer's address
3. Manufacture year
4. Machine model
5. CE Logo
6. Generator symbol
7. Engine type
8. Alternator type
9. Single phase machine
10. Rated voltage
11. Rated power
12. Frequency
13. Power factor
14. Engine speed
15. Insulation class
16. Degree of protection
17. Machine dimensions
18. Dry weight
19. Machine serial number

Information regarding the machine model, code and year of production is on the unit serial number plate. Always quote the machine model and serial number when contacting your dealer, the factory and for any spare parts requests. All of our products comply with CE requirements. They are conform to directives and fulfill all the relevant safety requirements.

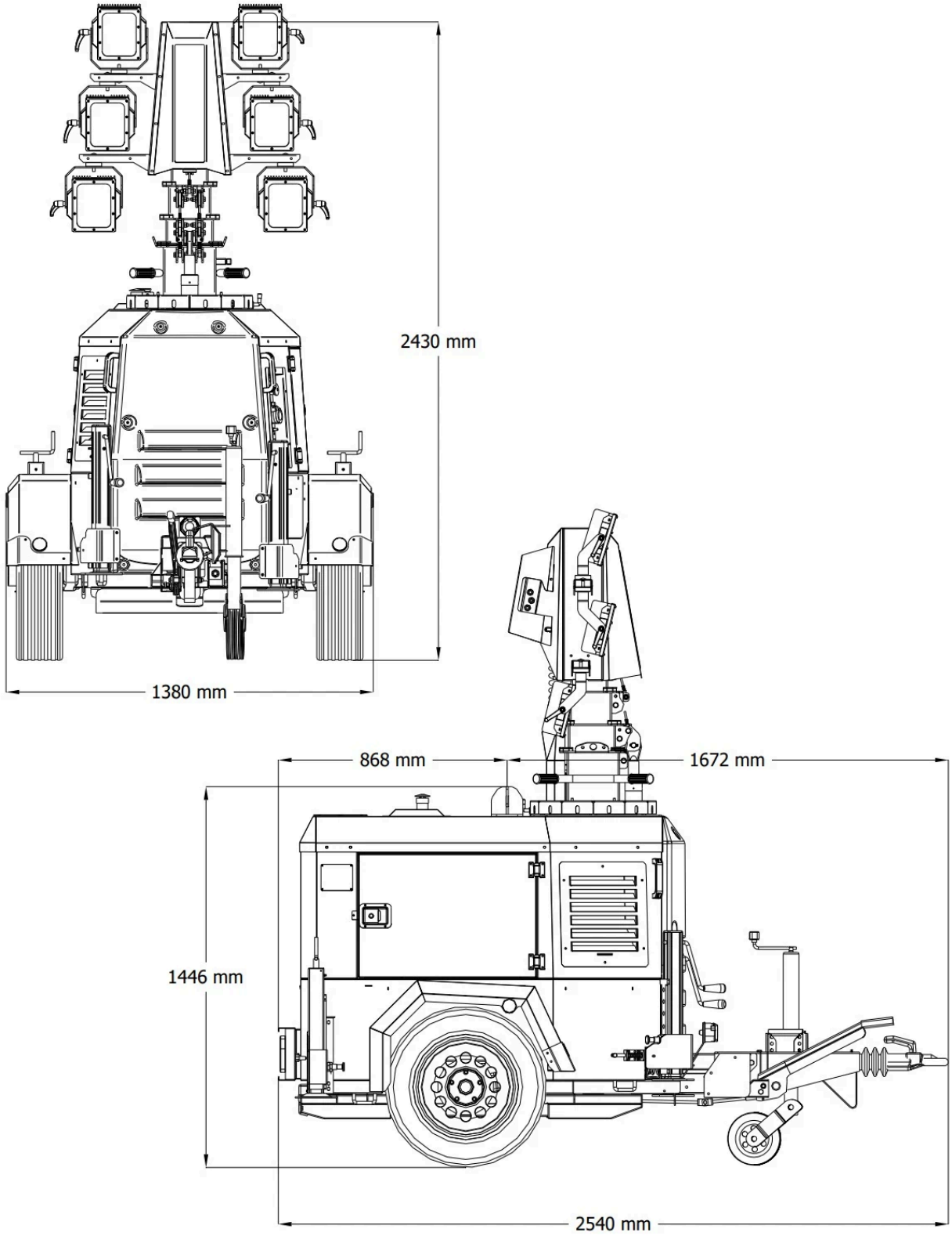
TECHNICAL SPECIFICATIONS

TECHNICAL DATA

Floodlights	Type	**Led**
	Power	**160W**
	Floodlight installed	**6**
	Illuminated area (5 lux min.) (sqm)	**3800**
	IP Level	**65**
Mast	Lifting Method	**Hydraulic**
	Maximum Height	**8,5 m**
	Maximum Wind Speed (km/h)	**110**
	Rotation	**340°**
Engine	Model	**Kubota Z482_Stage V**
	Governor	**Electronic**
	Cylinders number	**2**
	Displacement	**479 cm^3**
	Engine speed (rpm)	**1500**
	Fuel consumption (l/h)	**0,55 l/h**
	Average runtime before refueling (h)	**200**
	Cooling system	**Liquid**
Generator	Model	**Linz Alumen SB**
	Rated output	**3,5 kVA – 230V**
	Rated frequency	**50Hz**
General informations	Noise level	**65dBA 7m**
	Battery	**12 V – 62 Ah**
	Fuel tank capacity	**110 l**
	Dimensions in transport (L x W x H)	**2540 x 1380 x 2430 mm**
	Dimensions in operation (L x W x H)	**2540 x 1550 x 8500 mm**
	Dry weight	**936 kg**

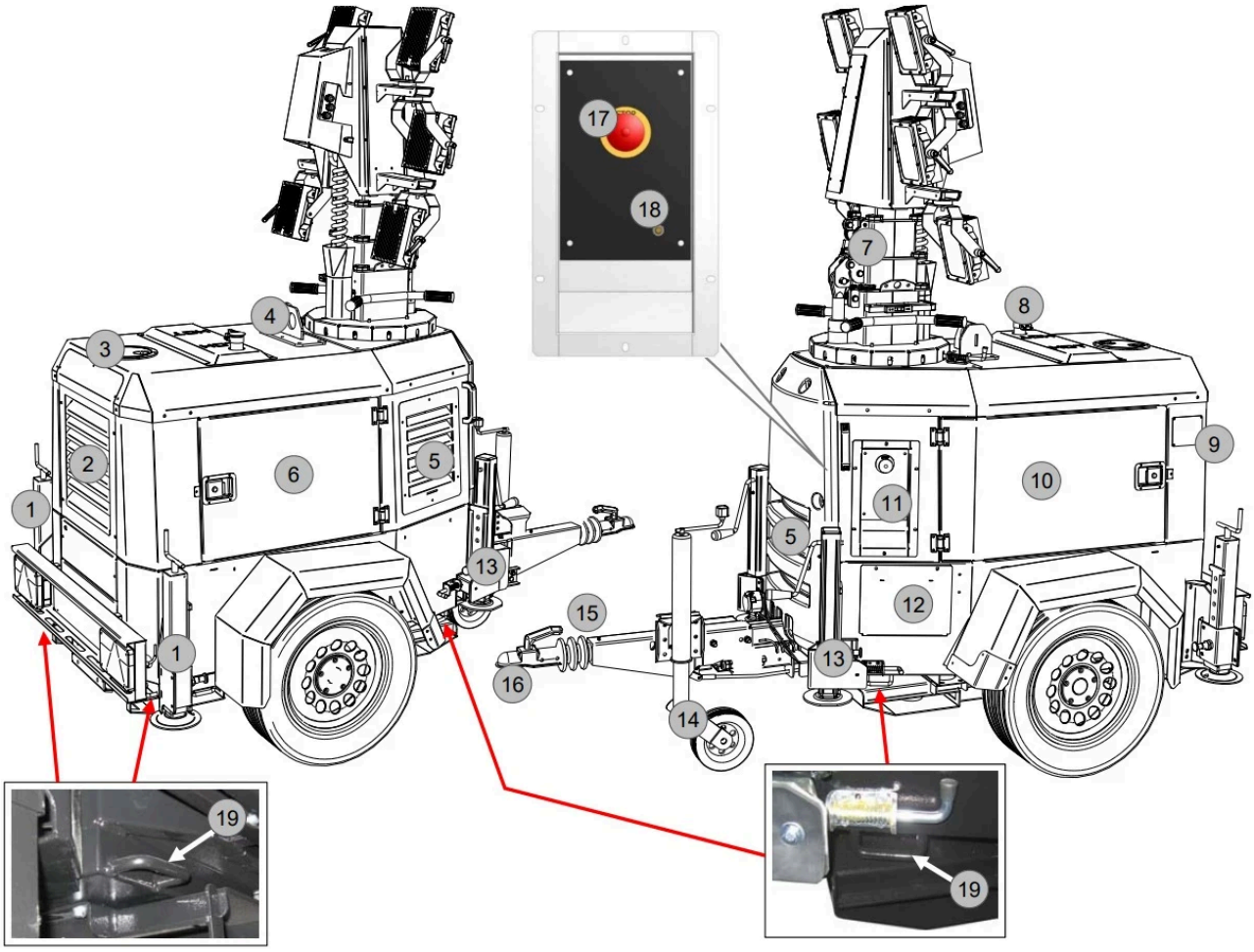
TECHNICAL SPECIFICATIONS

MACHINE LAYOUT



TECHNICAL SPECIFICATIONS

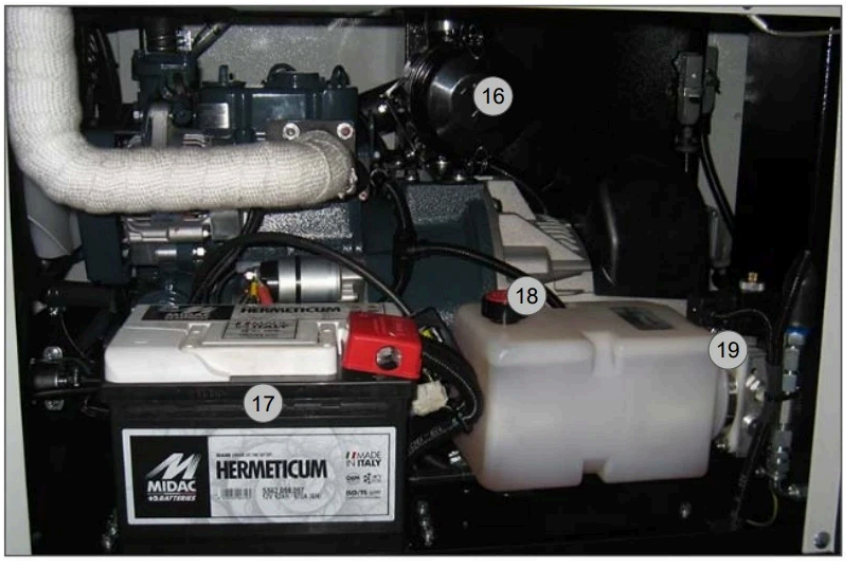
MACHINE COMPONENTS



1. Fixed stabilizers
2. Air output
3. Radiator cap cover
4. Lifting eye
5. Air inlet
6. Inspection door
7. Telescopic mast
8. Exhaust vent
9. Data plate
10. Inspection door
11. External control panel
12. Power supplies cover
13. Extended stabilizers
14. Rudder stabilizer with wheel
15. Handbrake lever
16. Tow hook
17. Emergency stop button
18. Grounding terminal
19. Tie down points

TECHNICAL SPECIFICATIONS

MACHINE COMPONENTS

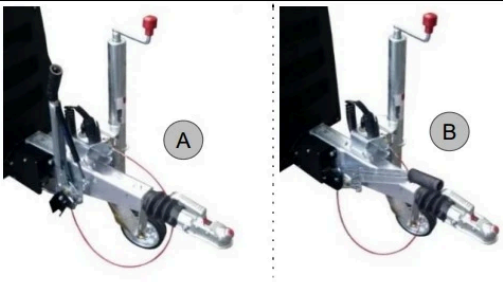


1.DSE3110 controller
2.Fuel level gauge
3.Mast control buttons
4.Power supply switch
5.Light sensor
6.13A RCD
7.Lamps switch
8.12A circuit breaker
9.Fuses
10.Oil drain manual pump
11.Fuel filler cap
12.Oil filter
13.Fuel filter
14.Oil level dipstick
15.Oil filler cap
16.Air filter
17.Battery
18.Hydraulic unit cap
19.Hydraulic unit

CONTROL DEVICES

Automatic Mast Operating Safety System

All the **STANDARD** units are fitted with the Automatic Mast Operating Safety System **(AMOSS)**. This system will prevent potentially dangerous situations of the trailer being moved while the mast is still in its raised, operational position. The system will lower the mast.
Automatically when the trailer handbrake is released and it will also inhibit the mast from being raised if the handbrake is not applied.
To apply the handbrake, pull the lever upwards **(A)**.
To release the handbrake, press the button at the tip of the lever and lower it **(B)**.



DSE 3110 manual & auto start control module

The **DSE 3110** is an compact control module that provides a comprehensive range of features for single-set applications. The controller can be used in manual or auto start mode.

Light sensor

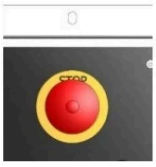
The light sensor is a device that automatically activated the illumination when sunlight falls: at dusk, for precisely.

Residual-current device (RCD)

The unit is equipped with an residual-current device (RCD) capable of ensuring user protection in case of accidental contact with live parts or failure of the insulation system of connected users. Press the test button T every month: the earth leakage circuit breaker should trip and de-energise the system. If this would not be the case, then it is advisable not to use the unit and immediately seek technical advice.

Emergency stop button

The lighting tower is fitted with a emergency stop button as standard. It is located on the external panel.
In case of need, push the emergency button and it will shut off the engine in a few seconds.
The engine will remain off until the emergency stop button is released.
To release the button, twist it in the direction of the arrows on the button (clockwise sense).

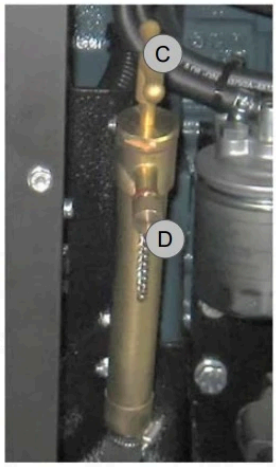


Engine oil drain manual pump

The lighting tower is fitted with a manual pump as standard, to facilitate the operator in the engine oil drain. Proceed as follows:

- ☐ Put under the cap **(D)** a container.
- ☐ Remove the cap **(D).**
- ☐ Operate the pump by acting to the handle **(C)**.
- ☐ Emptied all the oil replace the cap **(D)**.

Dispose of the oil according to local regulations.



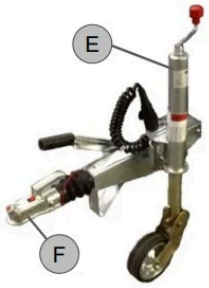
HANDLING AND TRANSPORT

TOWING & MOVING WITH TOWING VEHICLE

Do not move the trailer with the tower raised!
NEVER release the jokey wheel or the stabilizer (fixed to the rudder of the trailer) while are supporting the unit! The machine would tip forward and could cause damage or personal injury.

Before coupling the unit to a towing vehicle check the tyres and check that all the lights work properly.
Procedure:

- ☐ Turn off the lights and allow time for them to cool.
- ☐ Lower the tower.
- ☐ Ensure that the jokey wheel **(E)** or the stabilizer **(G)** are down so the unit will not tip over when the other stabilizer are raised.
- ☐ Raise all the stabilizer and retract the retractable ones.
- ☐ Couple the unit to a towing vehicle between the rudder eye **(F)**.
- ☐ The unit can be now be towed to the new location.



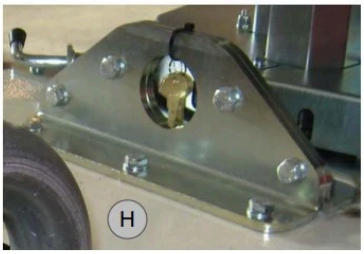
HANDLING AND TRANSPORT WITH CRANE

Handling by crane is allowed only if the machine is connected to the crane through the lifting eye.

- ☐ Ensure that the lifting capacity of the crane and lifting devices is suited to the weight of the machine to move. The weight is specified in the provided documentation (user's manual) and on the data plate.
- ☐ Connect the cable/hook to the lifting eye **(H)** and tension the cable.
- ☐ Lift the machine for about 10 cm (4 in.).
- ☐ Move slowly and position the machine on the ground or on the vehicle.

HANDLING AND TRANSPORT WITH FORKLIFT

- ☐ Ensure that the lifting capacity of the forklift is suited to the weight of the machine to move. The weight is specified in the provided documentation (user's manual) and on the data plate.
- ☐ Insert the forks into the forklift pockets (transversal **(I)** or longitudinal **(L)**, depending on machine and your moving requirements).
- ☐ Lift the machine for about 10 cm (4 in.).
- ☐ Move slowly and position the machine where needed.



- ☐ **All lifting operations must be carried out by qualified personnel, such as fork lift operators, crane operators and slingers. The operator should be deemed responsible for using the correct method of slinging and lifting the generator unit.**
- ☐ **Never leave the load insecure.**
- ☐ **When moving and transporting the machine, do not tilt it excessively.**
- ☐ **When lifting and moving the machine, do not stay or walk within it's proximity.**
- ☐ **Never leave the machine slung overhead.**

LIGHTING TOWER USE

STABILIZING THE UNIT

Jack up the unit as follows. Consider that the stabilizers are extendable **(M)**.

- ☐ Hold the stabilizer with one hand and pull the locking pin to release it. Pull the stabilizer outwards until it's fully extended and ensure that the locking pin locked it in place securely in the extended position.
- ☐ Jack the unit up by rotating the handle on the top of each stabilizer clockwise.
- ☐ Please refer to the bubble levels **(N)** installed on top of the machine (near the mast) in order to have the machine perfectly leveled and stable before rising the tower.
- ☐ The wheels of the machine have to touch the ground at all times.

DIRECTING THE FLOODLIGHTS

The tower can be rotated up to **340** degrees in order to direct the light as required.

- ☐ Release the rotation locking pin **(O)** and turn the tower using the rotation handles on the mast in order to direct the lights as needed. Don't forget to lock the rotation afterwards.
- ☐ Additionally to the mast rotation, each of the LEDs can be adjusted on two axes and tilted back and forth. This way the lights can be directed either vertically or horizontally. In order to adjust the light on the vertical axes, the encircled pin **(P)** needs to be unlocked by pulling it and then turning the floodlight. For any adjustments, the mast must be lowered to allow access.

PRELIMINARY CHECK & STARTING

Before starting and operating the unit, we suggest making the following routine checks for improved safety, better efficiency, longer product life and in order to avoid work disruptions.

- ☐ **Check that the machine is leveled correctly and stabilized firmly.**
- ☐ **Check that all the lamp lenses are clean and undamaged.**
- ☐ **After adjusting the lights, prepare to raise the tower by:**
  - **Inspecting the cable and replacing it, if damaged.**
  - **Checking mounting hardware for proper tightness and re-torquing if necessary.**
- ☐ **Check fuel, engine oil and coolant level. Top them if necessary.**
- ☐ **Ensure that the fuel lines are undamaged and correctly connected.**
- ☐ **Ensure that all the electrical cables are undamaged and correctly connected.**
- ☐ **Check that the main switch and the circuit breakers are in the OFF position.**
- ☐ **Ensure that all the light switches are turned off in order not to start the engine under load.**
- ☐ **Drive the earth picket into the ground (earth) following any risk assessment. (*)**
- ☐ **Check that the grounding cable is securely attached to the unit.**
- ☐ **Check that the emergency stop button is not pressed. If necessary, rotate the button clockwise to release it.**
- ☐ **Open the frontal door to access the control panel.**

For operators' safety, the grounding of the machine always needs to be done paying attention on the section of the cable to be used (never to be less than 10 mm2). For the connection of the grounding cable, please always use the clip located on the control panel, on the right side of the machine. Always perform grounding operations in compliance with local/international regulations.

LIGHTING TOWER USE

DSE 3110 MODULE: DESCRIPTION OF CONTROLS

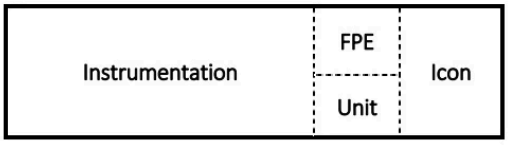
STOP/RESET
This button places the module into its **Stop/Reset** mode. This will clear any alarm conditions for which the triggering criteria have been removed. If the engine is running and the module is in Stop mode, the module will automatically instruct the changeover device to unload the generator ("**Close Generator**" becomes inactive (is used)). The fuel supply de-energises and the engine comes to a standstill. Should a **remote start signal** be present while operating in this mode, a remote start will not occur.

AUTO
This button places the module into its **Automatic** mode. This mode allows the module to control the function of the generator automatically. The module will monitor the remote start input and once a start request is made, the set will be automatically started and placed on load.
Upon removal of the starting signal, the module will automatically transfer the load from the generator and shut the set down observing the stop delay timer and cooling timer as necessary. The module will then await the next start event.

START
Pressing this button in auto mode will start the engine and run off load.
Pressing this button in Stop/Reset mode will turn on the CAN engine ECU (when correctly configured and fitted to a compatible engine ECU)

PAGE
Pressing this button scroll the display to show the various instruments.

DISPLAY
A 32x132 pixel LCD is available for the display of generator instrumentation and alarm conditions. The display is segmented into areas for instrumentation, unit, alarm icons and for Front Panel Editor (FPE) use.
When not in the Front Panel Editor (FPE) mode the FPE area of the display is used to display the currently active configuration. The letter 'M' is displayed for main configuration active, the letter 'A' for alternative configuration active.



DSE 3110 MODULE: PROTECTIONS

When an alarm is present, the Common alarm LED if configured will illuminate. The LCD display will show an icon to indicate the failure.

Warnings
Warnings are non-critical alarm conditions and do not affect the operation of the generator system, they serve to draw the operators attention to an undesirable condition. Warning alarms are self-resetting when the fault condition is removed. The icon will appear steady in the display.

Shutdowns
Shutdowns are critical alarm conditions that stop the engine and draw the operator's attention to an undesirable condition. Shutdown alarms are latching.
The fault must be removed and the button 

pressed to reset the module. The icon will appear flashing in the display.

LIGHTING TOWER USE

DSE 3110 MODULE: ICONS

	Description	
	Timer Icon	When the module is controlling the engine (starting and stopping) an animated timer icon will be displayed in the icon area to indicate that a timer is active, for example cranking time, crank rest etc.
	Stop mode - Stopped Icon	When there are no alarms present, an icon will be displayed to indicate the engine is stopped and what mode the unit is in. The hand is only displayed when the 'arming options' is enabled, otherwise the engine starts when entering the manual mode.
	Auto mode - Stopped Icon	
	Manual mode - Stopped Icon	
	Running Icon	When there are no alarms present, this animated icon is displayed to indicate the engine is running
	Usb Icon	When a USB connection is made to the module this icon is displayed
	Memory Corruption	If either the config. file or engine file becomes corrupted the unit will display this icon.

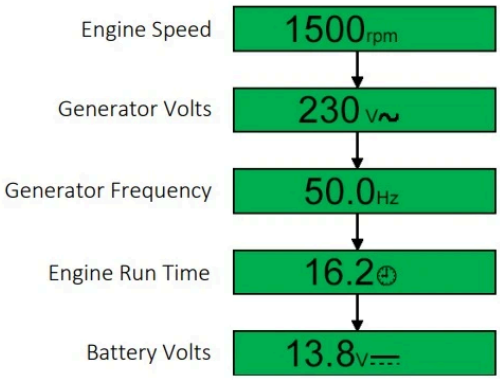
	Fail to start	The engine has not fired after the preset number of start attempts
	Fail to stop	The module has detected a condition that indicates that the engine is running when it has been instructed to stop. **NOTE: 'Fail to Stop' could indicat a faulty oil pressure sensor - If engine is at rest check oil sensor wiring and configuration.**
	Low oil pressure	The module detects that the engine oil pressure has fallen below the low oil pressure pre-alarm setting level after the *Safety On* timer has expired.
	Engine high temperature	The module detects that the engine coolant temperature has exceeded the high engine temperature pre-alarm setting level after the Safety On timer has expired.
	Charge failure	The auxiliary charge alternator voltage is low as measured from the W/L terminal.
	Low fuel level	The level detected by the fuel level sensor is below the low fuel level setting.
	Generator under voltage	The generator output voltage has fallen below the pre-set pre-alarm setting after the Safety On timer has expired.
	Generator over voltage	The generator output voltage has risen above the pre-set pre-alarm setting.
	Generator under frequency	The generator output frequency has fallen below the pre-set pre-alarm setting after the Safety On timer has expired.
	Generator over frequency	The generator output frequency has risen above the pre-set pre-alarm setting.
	Emergency stop	Pressing the emergency stop button, the machine automatically stops. **NOTE:- The Emergency Stop Positive signal must be present otherwise the unit will shutdown.**
	Internal memory error	Either the configuration file or engine file memory is corrupted. Contact your supplier for assistance.

DSE 3110 MODULE: VIEWING THE INSTRUMENTS

It is possible to scroll to display the different pages of information by repeatedly operating the scroll button:

Once selected, the page will remain on the LCD display until the user selects a different page or after an extended period of inactivity, the module will revert to the status display.
When scrolling manually, the display will automatically return to the Status page if no buttons are pressed for the duration of the configurable LCD Page Timer. If an alarm becomes active while viewing the status page, the display shows the Alarms page to draw the operator's attention to the alarm condition.

Page order

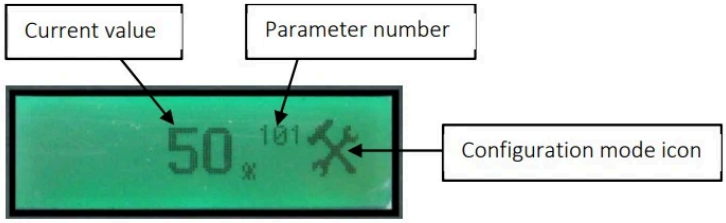


DSE 3110 MODULE: CONFIGURATION

This configuration mode allows the operator limited customizing of the way the module operates. Use the module's navigation buttons to traverse the menu and make value changes to the parameters.

Accessing The Front Panel Editor (FPE)

Press and buttons simultaneously.
The display shows the configuration icon:
The first parameter is also displayed.



Editing a parameter

Enter the editor as described before.

Press to select the required 'page' as detailed below:

Press (+) to select the next parameter or (-) to select the previous parameter within the current page.

When viewing the parameter to be changed, press the button. The value begins to flash.

Press (+) or (-) to adjust the value to the required setting.

Press the save the current value, the value ceases flashing.

Press and hold the button to exit the editor, the configuration icon is removed from the display.

NOTE: Values representing pressure will be displayed in Bar. Values representing temperature are displayed in degrees Celsius.

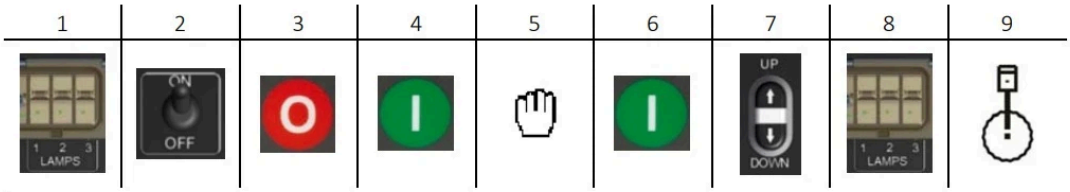
NOTE: When adjusting values in the FPE a press and hold of the increment button will cover the full range of the item being adjusted (min to max) in under 20 seconds.

NOTE: When the editor is visible, it is exited after 5 minutes of inactivity to ensure security.

LIGHTING TOWER USE

MANUAL MODE

1. Ensure that all the lamp switches are in OFF position.
2. Put the ON/OFF selector in ON position.
3. Manual mode allows the operator to start and stop the set manually, and if required change the state of the load switching devices. Module mode is active when the STOP button is pressed.
4. To begin the starting sequence, press the START button. If 'protected start' is disabled, the start sequence begins immediately.
5. If the display shows the manual mode icon and the corresponding LED flashes, It means that "protected start" is enabled.
6. The START button must be pressed once more to begin the start sequence.
7. Adjust the mast height using the UP/DOWN buttons.
8. Switch on the floodlights.
9. **Note: the mast can be raised and the lights can be turned on only if the running icon appears on the display.**



NOTE: There is no start delay in this mode of operation.
The fuel relay is energized and the engine is cranked.

NOTE: If the unit has been configured for CAN, compatible ECU's will receive the start command via CAN.
If the engine fails to fire during this cranking attempt then the starter motor is disengaged for the crank rest duration after which the next start attempt is made. Should this sequence continue beyond the set number of attempts, the start sequence will be terminated and the display shows ***Fail to Start.***

When the engine fires, the starter motor is disengaged. Speed detection is factory configured to be derived from the main alternator output frequency but can additionally be measured from a Magnetic Pickup mounted on the flywheel. Additionally, rising oil pressure can be used disconnect the starter motor (but cannot detect underspeed or overspeed).

NOTE: If the unit has been configured for CAN, speed sensing is via CAN.
After the starter motor has disengaged, the Safety On timer activates, allowing Oil Pressure, High Engine Temperature, Under-speed, Charge Fail and any delayed Auxiliary fault inputs to stabilize without triggering the fault.

LIGHTING TOWER USE

LIGHT SENSOR MODE

1. Ensure that all the lamp switches are in OFF position.
2. Put the ON/OFF selector in ON position.
3. If needed, set the light sensor sensitivity through the trimmer on the light sensor.
4. Press the AUTO button.
5. Adjust the mast height using the UP/DOWN buttons.
6. Switch on the floodlights.

1	2	3	4	5	6
					

The machine is now ready to start based on the lights sensor signal.
On the light sensor there is a red LED light:

- ☐ if it flashes slowly, there is power, but the sensor is off
- ☐ if it flashes quickly, the timing procedure is ongoing
- ☐ permanent light means that the power is on, the sensor is on, the machine starts and, after the engine has reached the operational temperature, the lamps will be turned on.

When the ambient light is strong enough, the machine will automatically turn off and put itself in stand-by.

ROUTINE MAINTENANCE

Poorly maintained equipment can become a safety hazard. In order, for the equipment, to operate safely and properly over a long period of time, periodic maintenance and occasional repairs are necessary.

Any kind of maintenance work on the lighting tower must be carried out by Authorized and trained personnel. It should be done in a safe working environment and with the machine well stabilized. The engine must be turned off and let cool down sufficiently before starting to work on it.

- ☐ While performing maintenance work, please use suitable tools and clothes.
- ☐ **If you need to work while the engine is running, pay attention to all moving parts, hot parts and electrical parts which may be unprotected while the machine is open.**
- ☐ DO NOT modify any component if not authorized.

The repairs cannot be considered among the routine maintenance activities. E.g. the replacement of parts that are subject to occasional damage and the replacement of electric and mechanic components that wear with use. This kind of work is not –in fact- covered by warranty.

The periodic maintenance should be performed according to the documentation provided by the engine and alternator manufacturers. Please refer to the relevant manual supplied with the machine and to the hour meter on the machine in order to determine when service is needed.

DISPOSAL AND DECOMMISSIONING

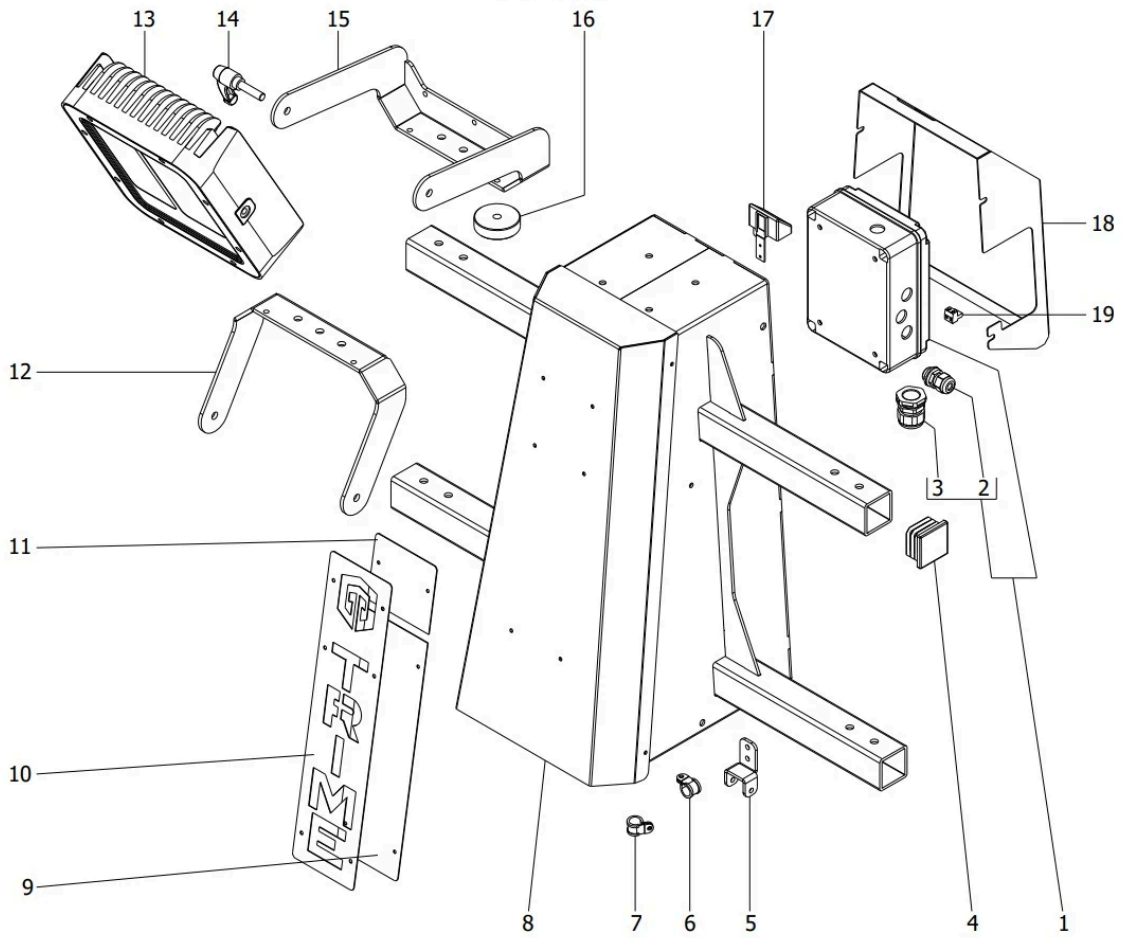
This machine is made of parts that, if not disposed of correctly, can damage the environment and create ecological hazards. The following parts and materials need to be brought to authorized waste treatment sites:

- Metallic structure;
- Batteries;
- Engine and hydraulic oils;
- Cooling liquid;
- Filters;
- Cables.

These components have to be disposed of accordingly to local laws and dispositions. Have qualified personnel disassemble the machine and dispose of parts.

The machine owner is responsible for dismantling and disposal of the machine and its components at the end of its working life.

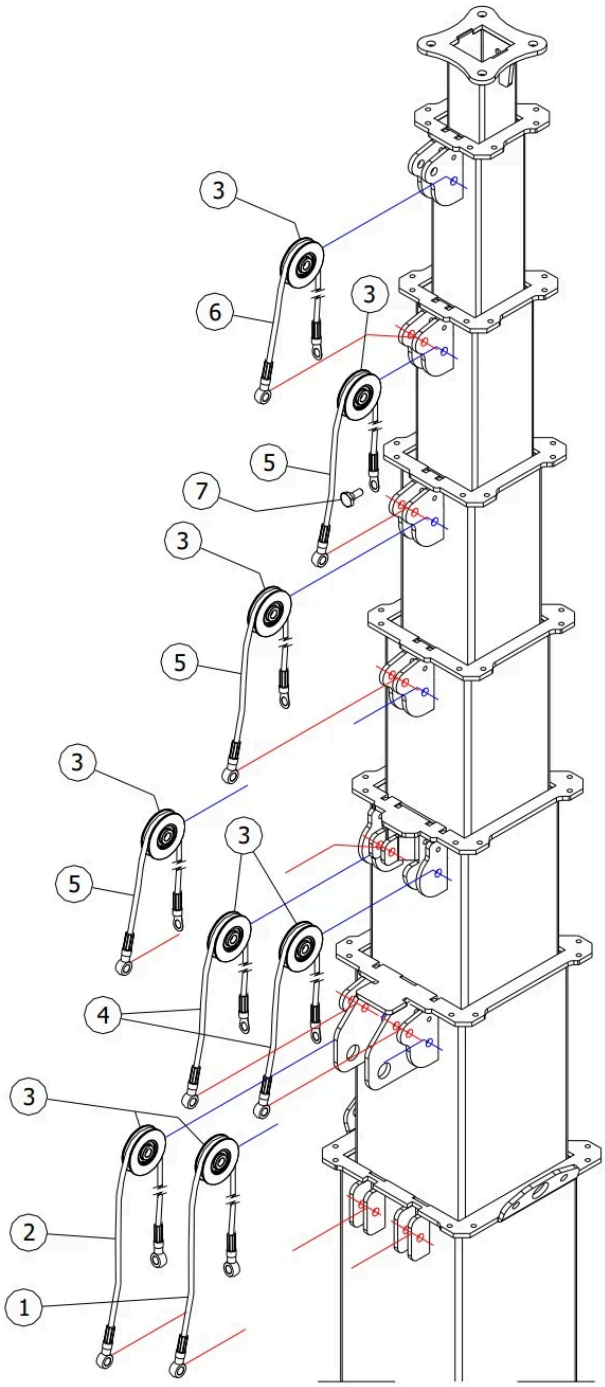
FLOODLIGHTS



N.	CODE	DESCRIPTION
1	AS000_E006_001	JUNCTION BOX
2	AC000_E018_008	PG11 WIRE HOLDER
3	AC000_E018_002	PG21 WIRE HOLDER
4	AC000_P037_010	CAP
5	PFI08_C031_069	CENTERING PLATE
6	AC000_E018_018	CLAMP WITH RUBBER
7	AC000_M038_007	CLAMP WITH RUBBER
8	LED06_C000_080	CENTRAL SUPPORT
9	PFM08_C000_071	WHITE PLATE
10	PFM08_C000_070	LOGO PLATE
11	PFM08_C000_072	RED PLATE
12	LED04_C000_101ZN	FLOODLIGHT LOWER / CENTRAL BRACKET
13	AC000_E026_087	FLOODLIGHT
14	AC000_M000_076	HANDLE
15	LED06_C000_081ZN	FLOODLIGHT UPPER BRACKET
16	AS000_M023_001	SPACER
17	AC000_E016_005	LIGHT SENSOR ELEMENT
18	LED06_C000_070	REAR COVER
19	AC000_E006_002	ELECTRICAL CLAMP

SPARE PARTS

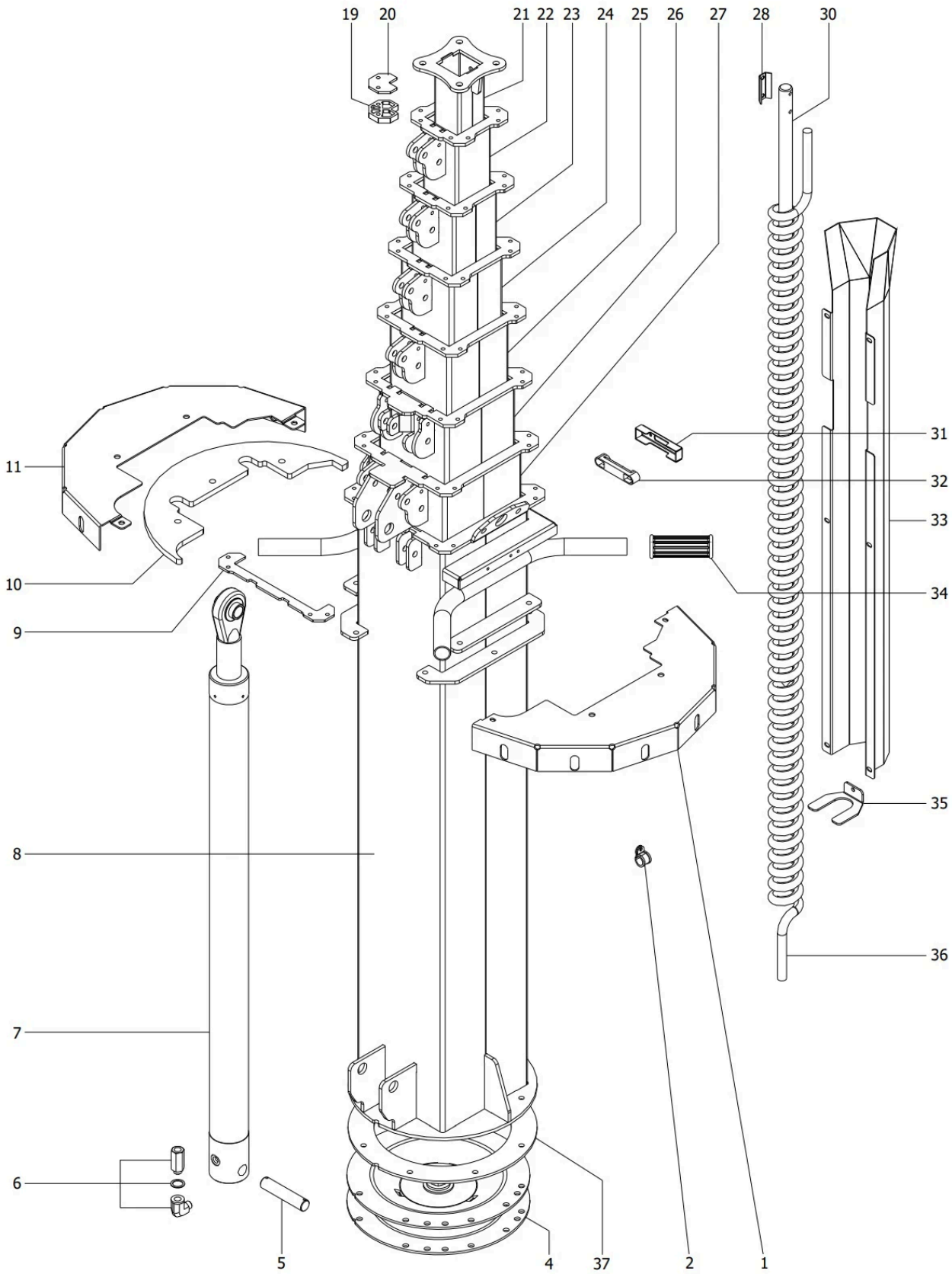
STEEL ROPES AND PULLEYS



N.	CODE	DESCRIPTION
1	AC000_M021_012	STEEL ROPE L.1440 mm
2	AC000_M021_005	STEEL ROPE L.1460 mm
3 (*)	AC000_M021_002	PULLEY D.60
	AC000_M021_003	PULLEY D.62
	AC000_M021_008	PULLEY D.63
4	AC000_M021_007	STEEL ROPE L.1385 mm
5	AC000_M021_006	STEEL ROPE L.1415 mm
6	AC000_M021_004	STEEL ROPE L.1440 mm
7	AS000_M000_029	SCREW

(*)	PLEASE AT THE TIME OF THE ORDER MEASURE THE DIAMETER

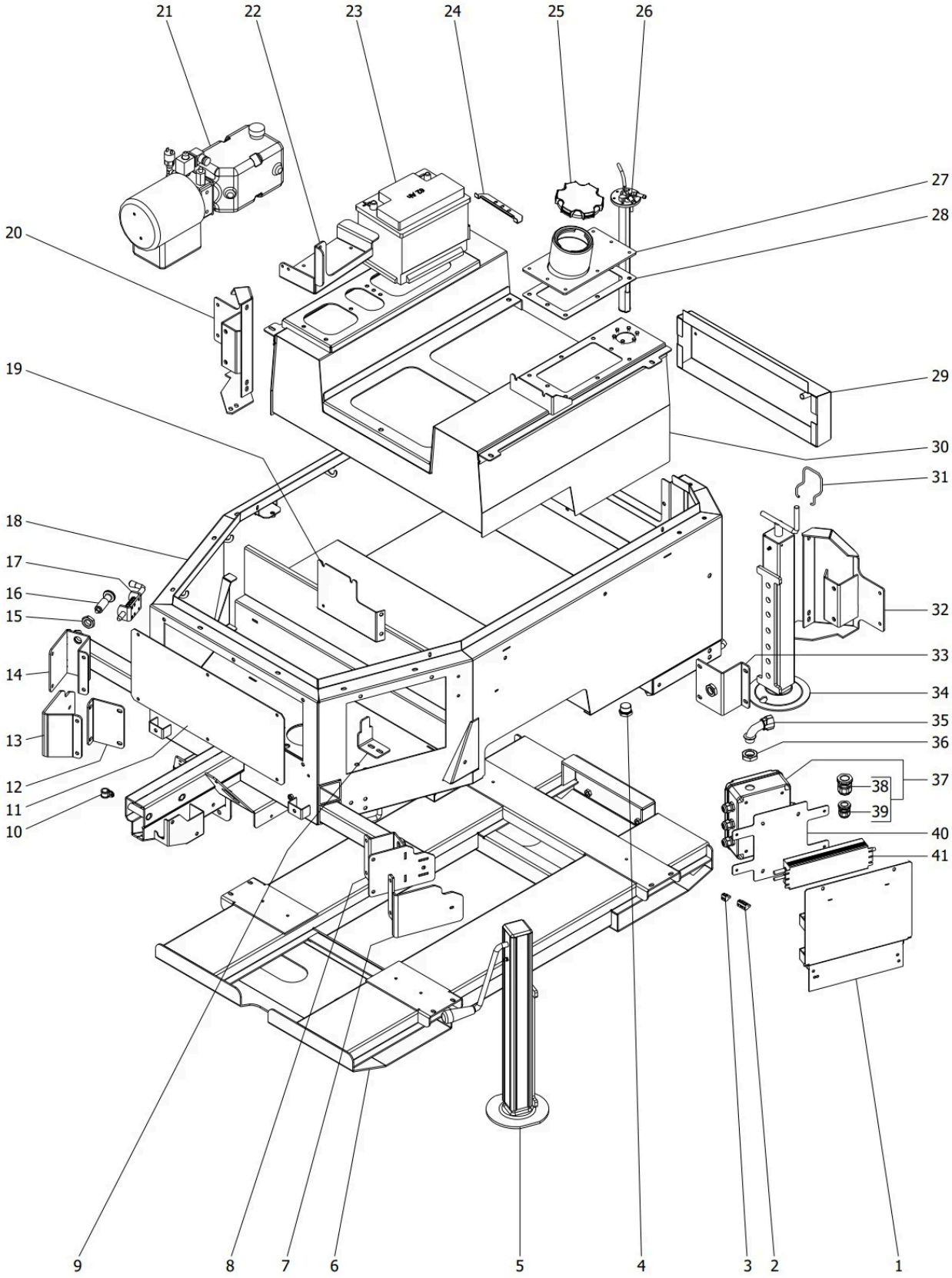
MAST



N.	CODE	DESCRIPTION
1	PFI08_C031_019ZN	MAST POSITIONING PLATE, LEFT
2	AC000_M038_007	CLAMP WITH RUBBER
4	PFM07_C031_070	MAST ROTATING SUPPORT
5	AS000_M023_026	HYDRAULIC PIPE PIN
6	AC000_G025_001	HYDRAULIC PIPE KIT
7	AS000_I025_001	HYDRAULIC PIPE
8	PFI08_C031_001ZN	1° SECTION MAST
9	PFI08_C031_024	SPACER
10	PFI08_C031_015	DRAG FLANGE
11	PFI08_C031_018ZN	MAST POSITIONING PLATE, RIGHT
19	AS000_M000_005	MAST ANGLE GUIDE
20	PFI08_C031_012ZN	MAST ANGLE GUIDE REINFORCEMENT
21	PFI08_C031_008ZN	8° SECTION MAST
22	PFI08_C031_007ZN	7° SECTION MAST
23	PFI08_C031_006ZN	6° SECTION MAST
24	PFI08_C031_005ZN	5° SECTION MAST
25	PFI08_C031_004ZN	4° SECTION MAST
26	PFI08_C031_003ZN	3° SECTION MAST
27	PFI08_C031_002ZN	2° SECTION MAST
28	PFM07_C000_019	CENTERING PIN CLAMP(OPTION)
30	PFM07_C000_014	CENTERING PIN (OPTION)
31	PFI08_C031_029	AIR BUBBLE LEVEL PROTECTION (OPTION)
32	AC000_M016_002	AIR BUBBLE LEVEL
33	PFI08_C031_009	COILED CABLE PROTECTION
34	AC000_P037_001	POMELLO
35	PFM08_C000_047	COILED CABLE LOCK
36	AC000_E006_016	COILED CABLE
37	XRENT_C031_087	MAST ROTATING SUPPORT FRAME

SPARE PARTS

BASE STRUCTURE

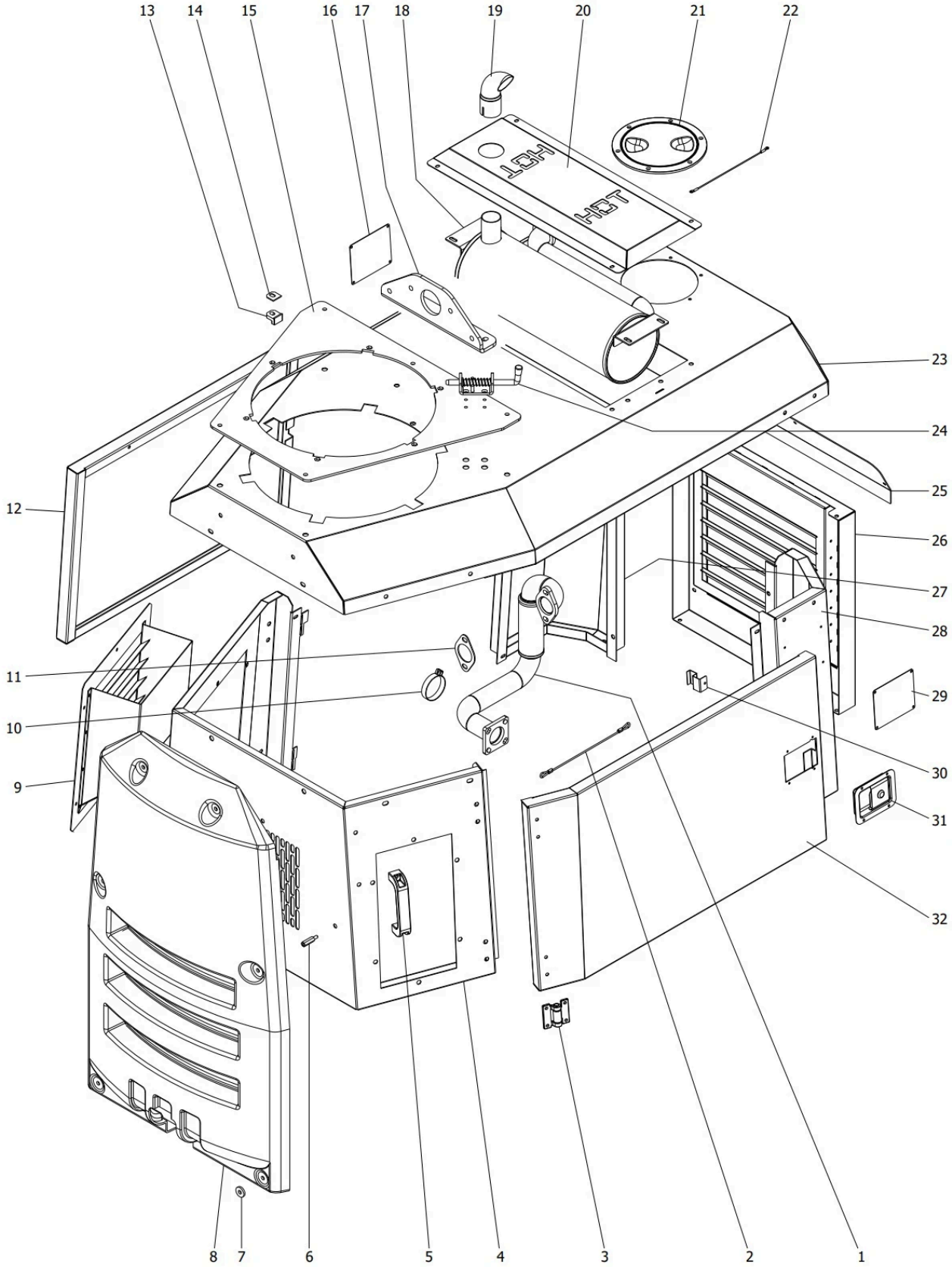


Manual Code – MI200A00110 Revision Level 00 - 27/05/2019

N.	CODE	DESCRIPTION
1	XECOK2_C006_049	POWER SUPPLIES SUPPORT
2	AC000_E006_004	4 POLES CLAMP
3	AC000_E006_002	2 POLES CLAMP
4	AC000_M000_081	DRAIN CAP
5	XECOK2_C003_200	STABILIZER
6	XECOK2_C000_226	FRAME FOR FORKLIFT
7	XECOK2_R008_190	RUBBER PROTECTION
8	XECOK2_C000_119ZN	RIGHT STABILIZER BEAM
9	XRENT_C000_037	ANTIROTATION PLATE
10	AC000_M038_007	RUBBERED CLAMP
11	XECOK2_C008_036	MAIN BASE STRUCTURE FRONT COVER
12	XECOK2_C000_117ZN	STABILIZER LOCK
13	XECOK2_R008_191	RUBBER PROTECTION
14	XECOK2_C000_120ZN	LEFT STABILIZER BEAM
15	AC000_M038_026	NUT
16	AC000_M000_077	PIN LOCK WITH SPRING
17	AC000_M000_086	CLOSING LOCK PIN
18	XECOK2_C004_128	MAIN BASE STRUCTURE
19	XECOK2_C006_111	CONTROL PANEL SUPPORT
20	XECOK2_C000_097	LEFT STABILIZER SUPPORT
21	AS000_I000_011	HYDRAULIC UNIT (ASG)
	AS000_I000_017	HYDRAULIC UNIT (HYDROVEN)
22	XECOK2_C000_084	HYDRAULIC UNIT SUPPORT
23	AC000_E000_027	BATTERY
24	TF8K1_C000_0014	BATTERY LOCK
25	AC000_M000_028	FUEL TANK CAP
26	AC000_E006_025	FUEL LEVEL TRANSMITTER
27	XECOK2_C005_149	FUEL TANK PLATE
28	XECOK_AS05_009	GASKET
29	XECOK2_C004_034	MAIN BASE STRUCTURE REAR COVER
30	XECOK2_C005_235	FUEL TANK
31	AC000_M000_062	STABILIZER SPRING
32	XECOK2_C000_095	RIGHT STABILIZER SUPPORT
33	XECOK2_C000_096	STABILIZER LOCK
34	XECOK2_C003_093	STABILIZER
35	AC000_E018_017	CURVED CONNECTOR
36	AC000_E018_014	CURVED CONNECTOR NUT
37	AS000_E006_003	JUNCTION BOX
38	AC000_E018_002	CABLE GLAND PG21
39	AC000_E018_009	CABLE GLAND PG16
40	XECOK2_C006_068	JUNCTION BOX SUPPORT
41	AC000_E026_088	POWER SUPPLY

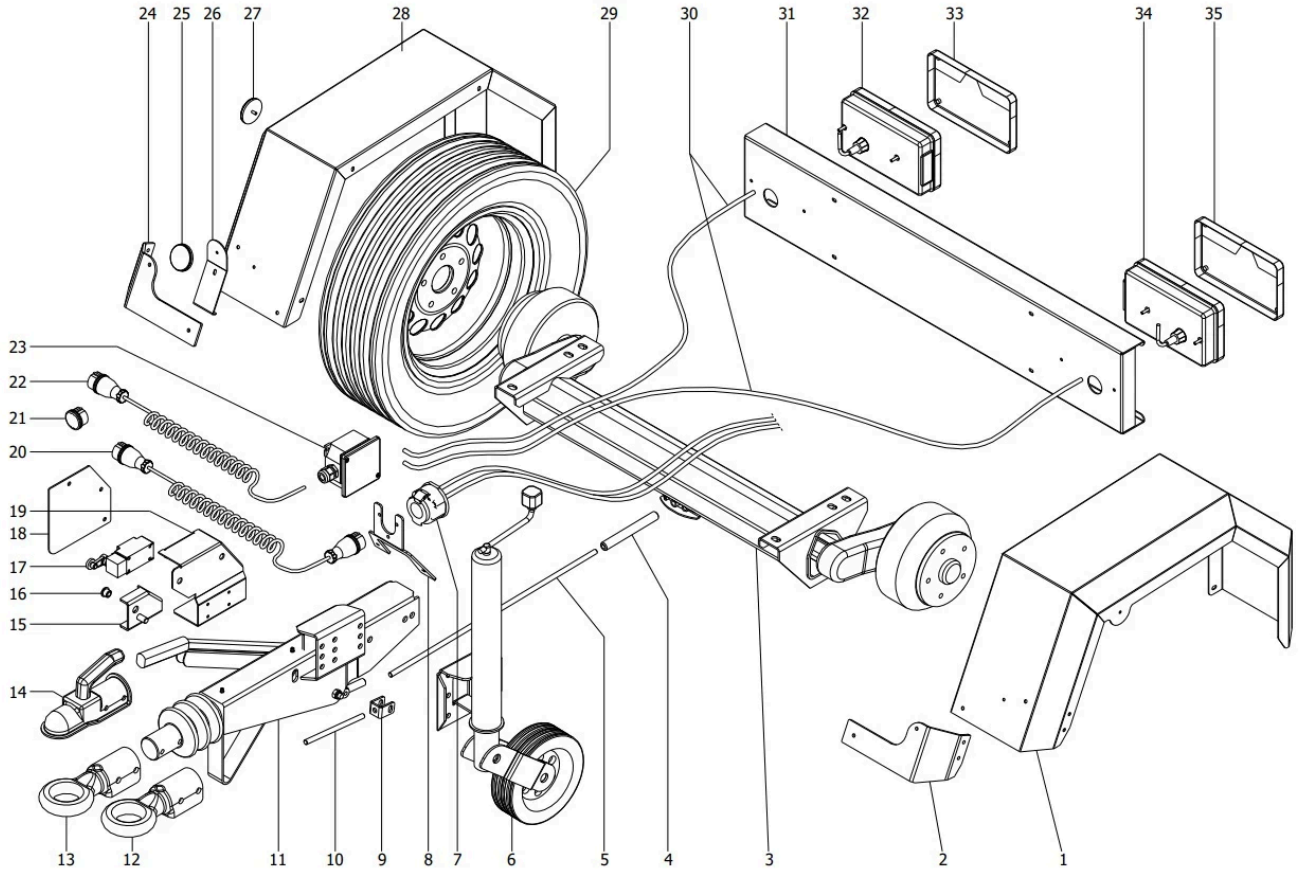
SPARE PARTS

CANOPY



N.	CODE	DESCRIPTION
1	XECOK2_C035_046	MUFFLER EXTENSION
2	XECOK2_M009_161	DOOR RETENTION ROPE
3	AC000_M000_009	DOOR HINGE
4	XECOK2_C007_046	FRONT PANEL
5	AC000_M000_005	HANDLE
6	AC000_M038_041	SPACER
7	AC000_P037_007	PLASTIC WASHER
8	XECO_AS009_058	PLASTIC COVER
9	XRENT_C008_044	AIR INLET GRID
10	AC000_M038_009	CLAMP
11	AC000_M001_007	MUFFLER EXTENSION GASKET
12	XECOK2_C008_132	LEFT DOOR
13	PFI08_C031_013	ROTATIONAL SLIDING PLATE
14	PFI08_C031_014ZN	ROTATIONAL SLIDING PLATE REINFORCEMENT
15	XECOK2_C000_050	MAST ROTATION GUIDE PLATE
16	XECOK2_S010_185B	APPROBATION PLATE
17	XECOK2_C036_386ZN	LIFTING EYE
18	XECOK_C035_045	MUFFLER
19	AC000_M000_105	RAIN COVER
20	XECOK_C007_032	MUFFLER COVER
21	AC000_M001_035	RADIATOR CAP COVER
22	AS000_M036_083	RADIATOR CAP COVER RETENTION ROPE
23	XECOK2_C007_129	TOP CANOPY
24	AC000_M000_003	CLOSING LOCK PIN
25	XECOK2_C007_113	REAR PLATE
26	XECOK2_C008_225	AIR OUTLET GRID
27	XECOK2_C007_133	REAR LEFT PANEL
28	XECOK2_C007_134	REAR RIGHT PANEL
29	XECOK2_S010_277B	DATA PLATE
30	XRENT_C000_040	LOCK CONTRAST
31	AC000_M000_017	DOOR LOCK
32	XECOK2_C008_131	RIGHT DOOR

TOW BAR, AXLE AND WHEELS



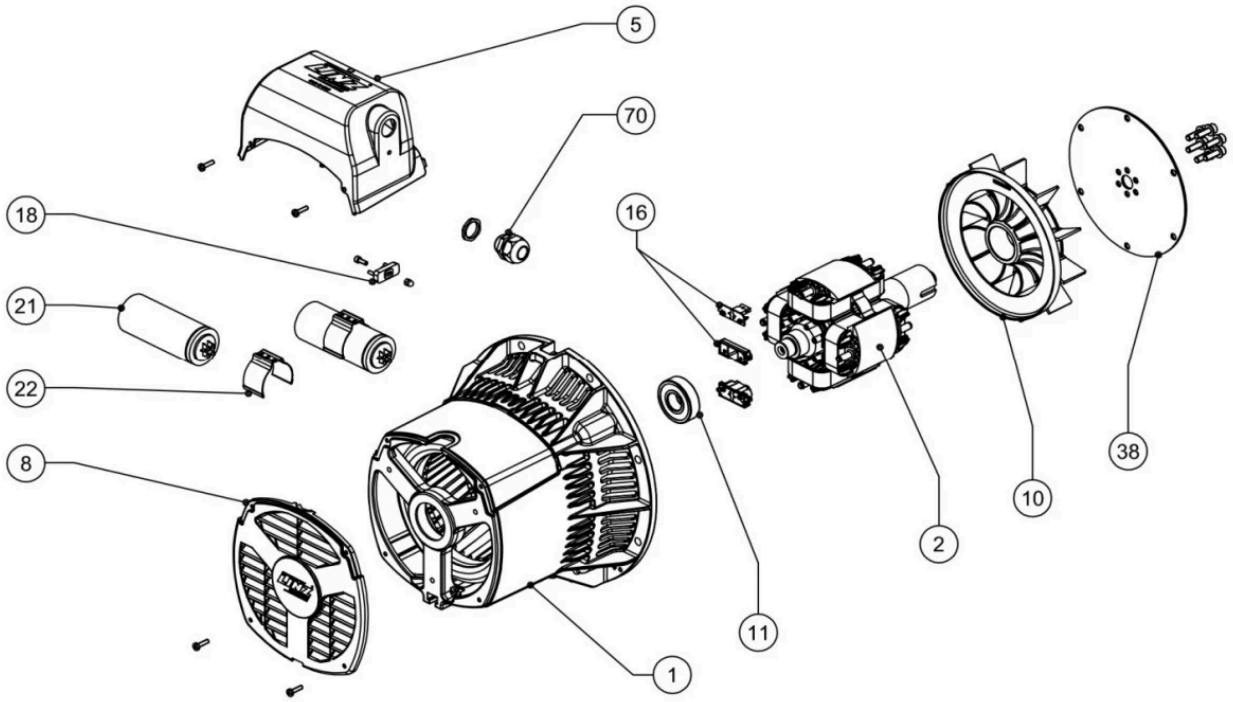
N.	CODE	DESCRIPTION
1	XECOK2_C004_069	RIGHT MUDGUARD
2	XECOK2_R008_188	RIGHT MUDGUARD RUBBER
3	AC000_T003_002	AXLE
4	AS000_M000_073	SLIDE PIN
5	XECOK2_C005_055ZN	REAR TIE ROD
6	AC000_T003_003	JOCKEY WHEEL
7	AC000_E050_016	CABLE WITH CONNECTOR
8	XECOK2_C006_197	CONNECTOR SUPPORT
9	XECOK2_C005_186ZN	TIE RODS JUNCTION
10	XECOK2_C005_059_03ZN	FRONT TIE ROD
11	AC000_T003_004	RUDDER
12	AC000_T003_008	HOOK EYE D.40
13	AC000_T003_016	HOOK EYE D.50
14	AC000_T003_007	HOOK BALL
15	XECOK2_C000_098	LIMIT SWITCHES PLATE
16	XECOK2_C001_101ZN	ADAPTATION BUSHING
17	SI000_G006_009	LIMIT SWITCHES
18	XECOK2_C000_100	COVER PLATE

N.	CODE	DESCRIPTION
19	XECOK2_C000_099	LIMIT SWITCHES SUPPORT
20	AC000_E050_017	CABLE WITH PLUGS
21	AC000_E000_062	ADAPTER
22	AC000_E050_096	CABLE WITH PLUG
23	AC000_G006_001	JUNCTION BOX
24	XECOK2_R008_189	LEFT MUDGUARD RUBBER
25	AC000_T013_001	WHITE REFLECTER
26	XECOK2_C004_312	REFLECTER SUPPORT
27	AC000_T013_002	ORANGE REFLECTER
28	XECOK2_C004_070	LEFT MUDGUARD
29	AC000_T003_001	WHEEL
30	AC000_E050_086	LIGHTS WIRING
31	XECOK2_C000_238	LIGHTS HOLDER BAR
32	AC000_E013_007 (**) AC000_E013_006 (*)	COMPLETE RIGHT SIDE REAR LIGHT
33	AC000_E013_009 (**)	LENS FOR RIGHT SIDE REAR LIGHT
34	AC000_E013_008 (**) AC000_E013_005 (*)	COMPLETE LEFT SIDE REAR LIGHT
35	AC000_E013_010 (**)	LENS FOR LEFT SIDE REAR LIGHT

(*) EUROPEAN VERSION
(**) UK VERSION

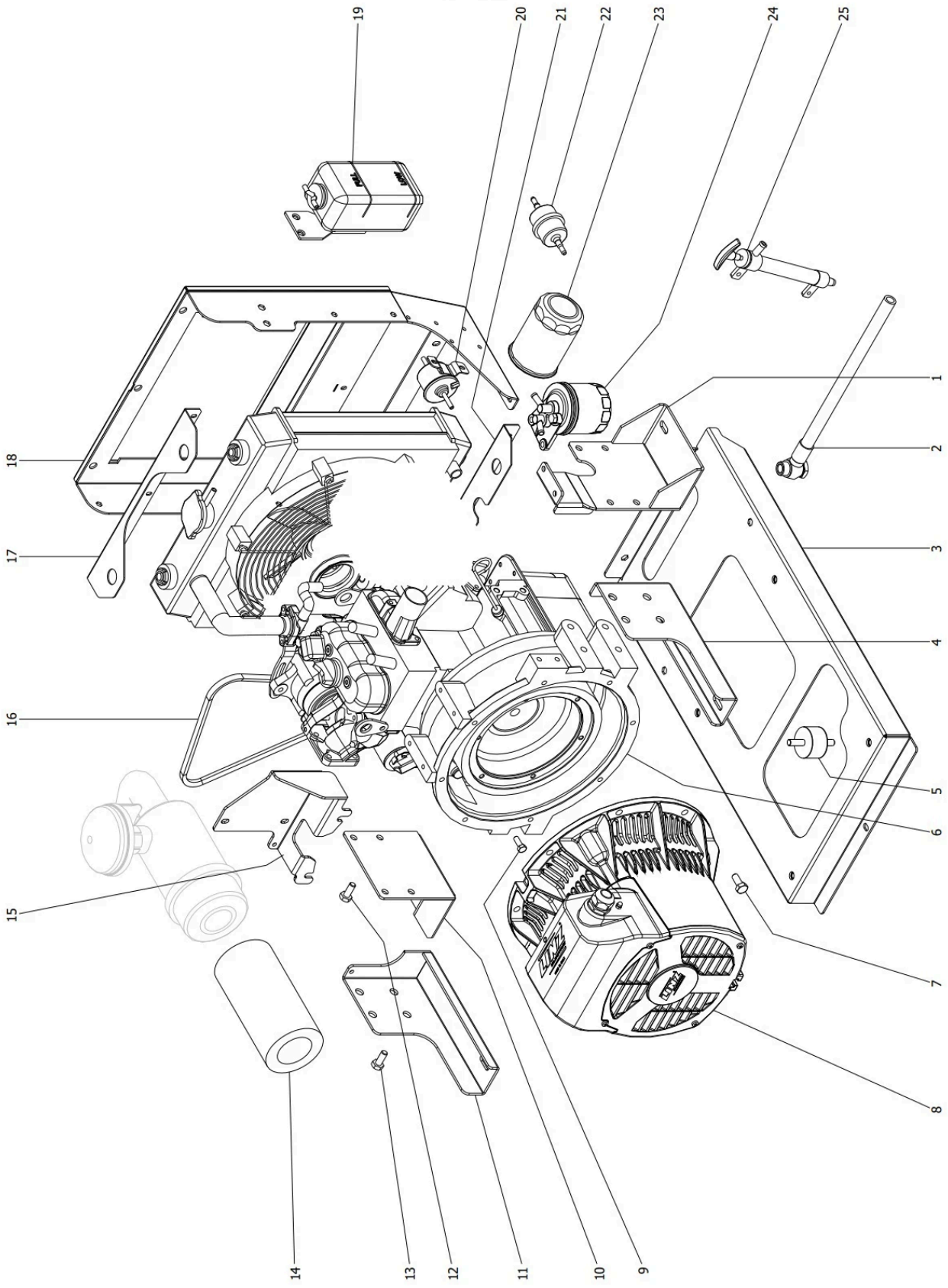
SPARE PARTS

ALTERNATOR



N.	CODE	DESCRIPTION
1	L-E13CA114AA1	FRAME WITH STATOR
2	L-E13RA491B	ROTATING INDUCTOR
5	L-E13QU068B00-002	TOP COVER
8	L-13KA089D	FRONT COVER
10	L-E13VE000C	FAN
11	L-EX411465325	BEARING
16	L-E13KA045A	WIRED DIODE
18	-----	-----
21	L-EX541511025	25uF 550V CAPACITOR
22A	L-E10KA109A	CAPACITOR CLAMP D. 40 SP10
22B	-----	-----
38	L-E13GE211A	SAE DISCS 6 ½
70	-----	-----

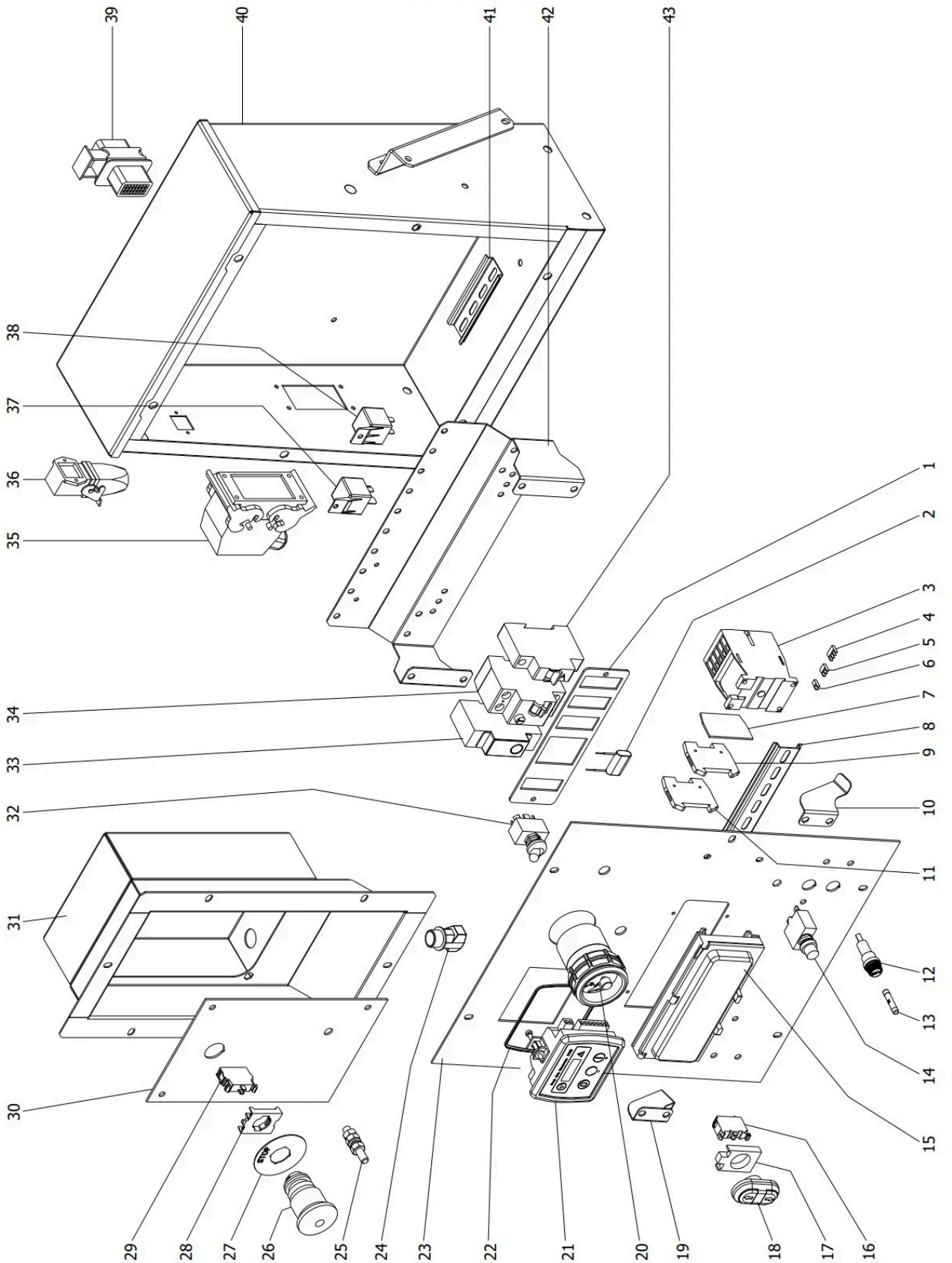
ENGINE



N.	CODE	DESCRIPTION
1	XECOK2_C001_006	ENGINE REAR RIGHT SUPPORT
2	AC000_G001_001	OIL DRAIN PIPE
3	XECOK2_C001_126	ENGINE / ALTERNATOR SUPPORT
4	XECOK2_C001_008	ENGINE FRONT RIGHT SUPPORT
5	AC000_M024_054	SCHOCK ABSORBER
6	AC000_M033_024	ENGINE Z482_STAGE V
7	AC000_M038_014	ALTERNATOR FIXING SCREW
8	AC000_E034_007	ALTERNATOR
9	AC000_M038_013	ENGINE FIXING SCREW
10	XECOK2_C001_005	ENGINE REAR LEFT SUPPORT
11	XECOK2_C001_007	ENGINE FRONT LEFT SUPPORT
12	AC000_M038_015	ENGINE REAR SUPPORTS SCREW
13	AC000_M038_047	ENGINE FRONT SUPPORTS SCREW
14	K-1921511220	AIR FILTER
15	XECOK2_C001_458	AIR FILTER SUPPORT
16	K-1980572530	ENGINE BELT
17	XE48_C001_005	RADIATOR TOP SUPPORT
18	XECOK2_C001_224	RADIATOR FRAME
19	K-1553172402	RADIATOR TANK
20	K-R140151352	ELECTRIC PUMP
21	XECOK2_C001_236	RADIATOR INFERIOR SUPPORT
22	AC000_M001_008	FUEL PRE-FILTER
23	K-W21ESO1500	OIL FILTER
24	K-1522143170	FUEL FILTER
25	AS000_M000_060	OIL DRAIN MANUAL PUMP

SPARE PARTS

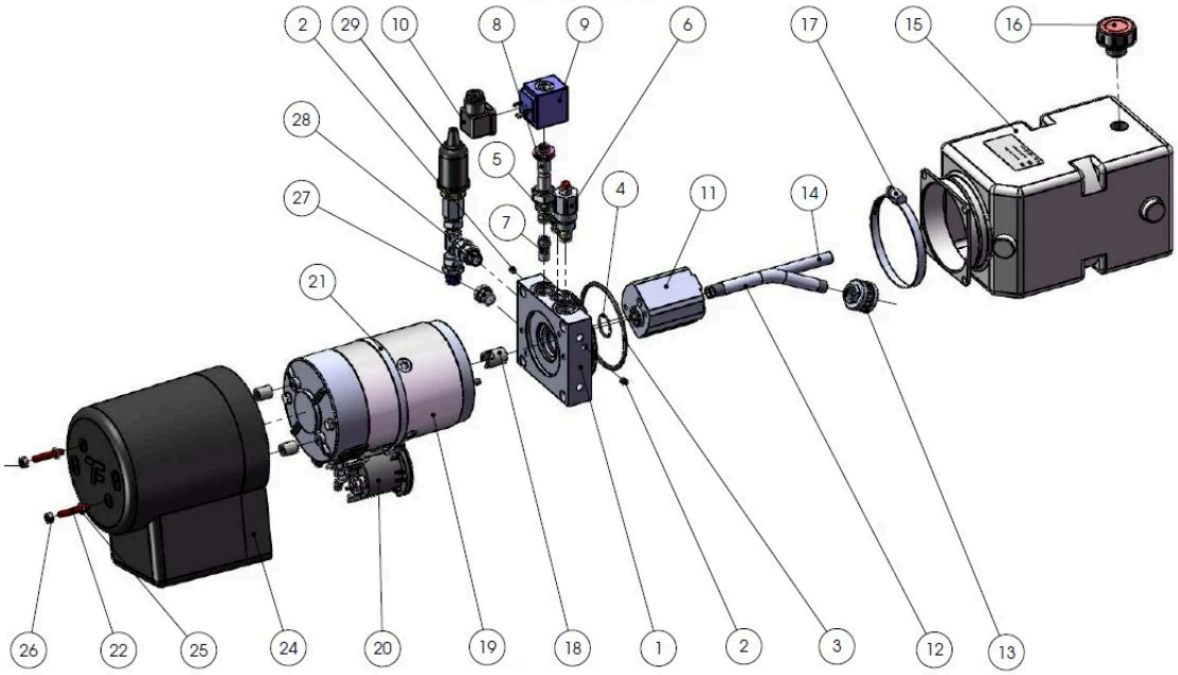
CONTROL PANELS



N.	CODE	DESCRIPTION
1	XRENT_C006_229	CIRCUIT BREAKERS FRAME
2	AC000_E000_070	CAPACITOR
3	AC000_E006_054	CONTACTOR SWITCH
4	AC000_E006_063	4 PIN BRIDGE
5	AC000_E006_062	3 PIN BRIDGE
6	AC000_E006_023	2 PIN BRIDGE
7	AC000_E006_024	TERMINAL BOARD ELEMENT PLATE
8	AC000_M038_037	BAR L.200
9	AC000_E006_022	TERMINAL BOARD ELEMENT COVER
10	XECOK2_C019_232	RIGHT LOCK PLATE
11	AC000_E006_021	TERMINAL BOARD ELEMENT
12	AC000_E012_030	FUSE HOLDER
13	AC000_E012_014	2A FUSE
14	AC000_E012_013	12A CIRCUIT BREAKER
15	AC000_E000_008	CIRCUIT BREAKERS COVER
16	AC000_E006_044	MAST BUTTONS
17	AC000_E006_043	MAST BUTTONS SUPPORT
18	AC000_E006_042	MAST BUTTONS CONTACT
19	XECOK2_C019_233	LEFT LOCK PLATE
20	AC000_E015_005	FUEL LEVEL GAUGE
21	AC000_E014_001	CONTROLLER
22	AC000_E006_001	CONTROLLER GASKET
23	XECOK2_S010_230B	CONTROL PANEL INSTRUMENTS PLATE
24	AC000_E018_019	CONNECTOR
25	AC000_M038_035	EARTHING TERMINAL
26	AC000_E006_051	EMERGENCY STOP BUTTON
27	AC000_E006_053	STOP BUTTON RATING PLATE
28	AC000_E006_043	CONTACT SUPPORT
29	AC000_E006_052	STOP BUTTON CONTACT
30	XECOK2_S010_276B	EXTERNAL PANEL INSTRUMENTS PLATE
31	XRENT_C006_097	EXTERNAL PANEL BOX
32	AC000_E000_016	SWITCH
33	AC000_E016_005	LIGHT SENSOR RELAY
34	AC000_E012_028	RCD 13A
35	AC000_G006_004	10 POLES CONNECTOR
36	AC000_E000_071	5 POLES CONNECTOR
37	AC000_E000_040	12V 40A RELAY
38	AC000_E000_041	12V 70A RELAY
39	AC000_G006_003	24 POLES CONNECTOR
40	XECOK2_C019_229	CONTROL PANEL BOX
41	AC000_M038_049	BAR L.100
42	XECOK2_C006_110	CIRCUIT BREAKERS SUPPORT
43	AC000_E012_027	LAMP SWITCH

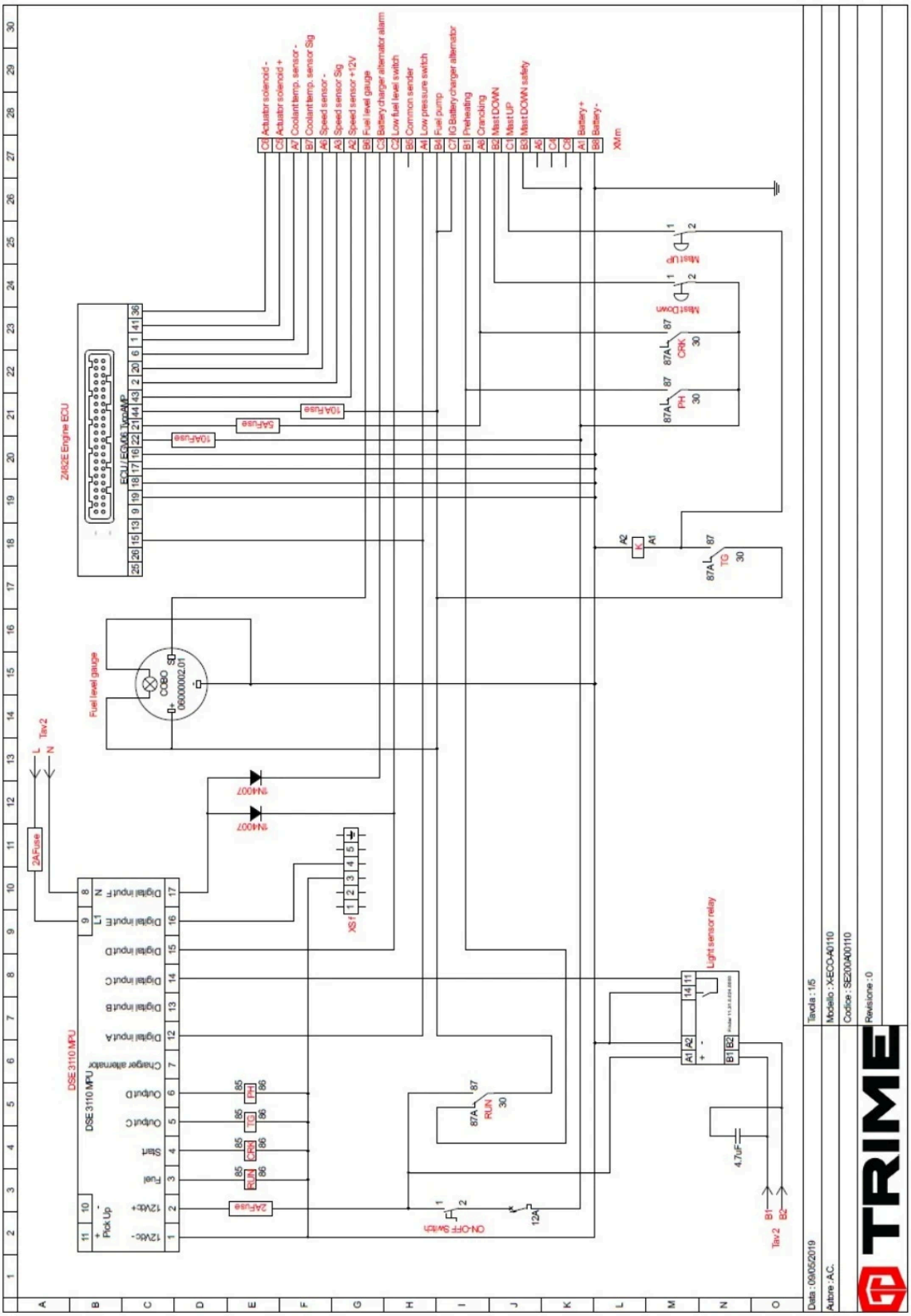
SPARE PARTS

HYDRAULIC UNIT

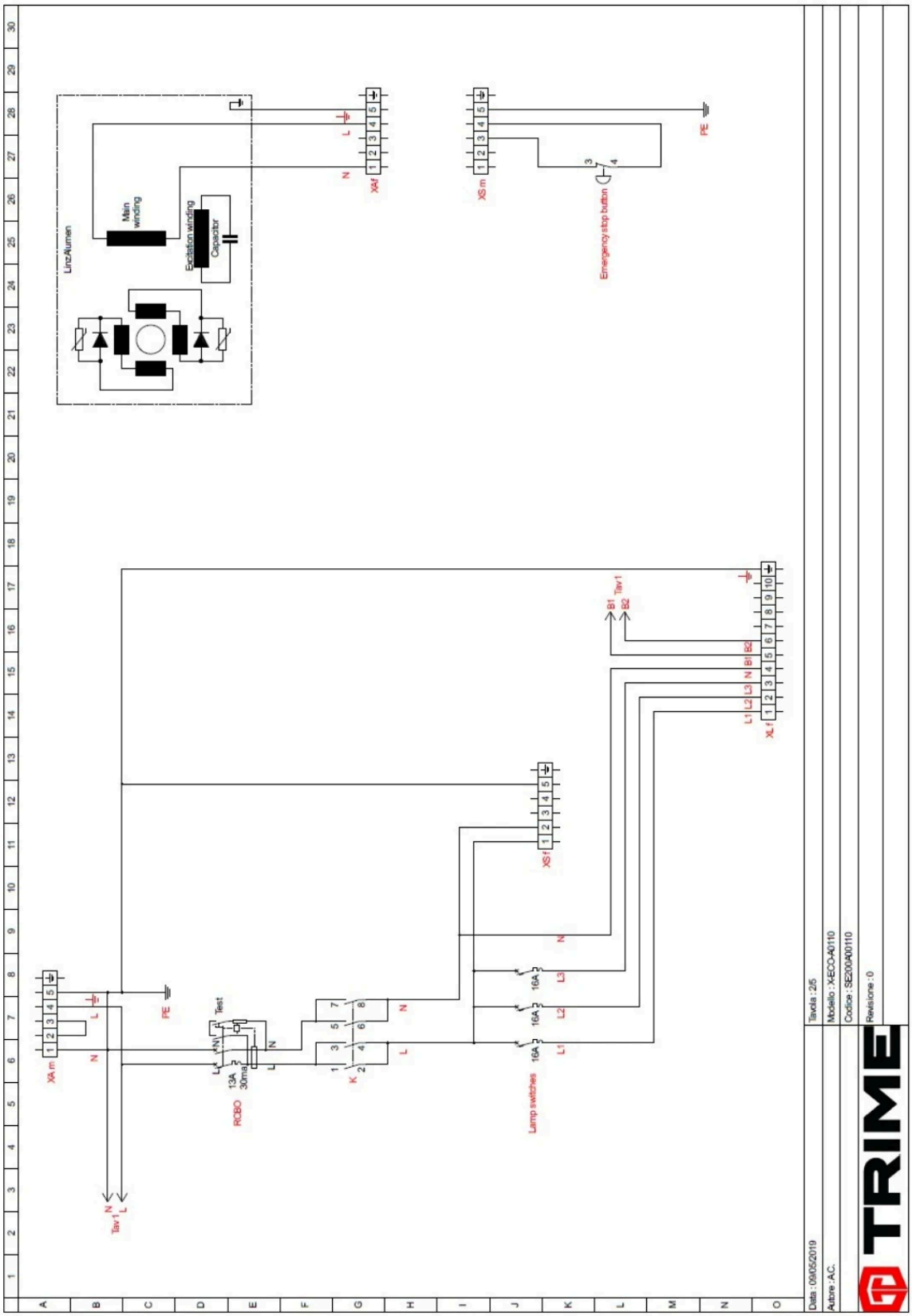


N.	CODE	DESCRIPTION
1	AS-ES516007	CONNECTOR M2A
2	AS-EC035M06	EXPANSION CAP
3	AS-EC114261	O-RING
4	AS-EC114024	O-RING
5	AS-F73200114	VALVE VR14
6	AS-F733006250	VALVE VMC1 250 BAR
7	AS-F7370212	VRF12 E-STROZ 5LT
8	AS-F720002B1	VALVE VE6-NC-EM 12.7 DC
9	AS-C150001OA	COIL
10	AS-EC167002	CONNECTOR DIN43650
11	AS-EC10901.50001	PUMP 00A1.50X047
12	AS-ES524FE009	PIPE ¼"
13	AS-ES506FR5.01759	FILTER
14	AS-ES52301105	EXHAUST HOSE PIPE
15	AS-ES512AA25B	TANK 2.5LT
16	AS-EC1270112	CAP + FILTER TMDF ½"
17	AS-C05609090110	CLAMP
18	AS-ES5085320020	JOINT
19	AS-EC106115	ENGINE CC 12V – 1600W
20	AS-EC108011	TELERUPTOR 12V-150A
21	AS-K180A01F	ELECTRIC KIT ENGINE-RELAY 0114-125
22	AS-EC008AB0635	GRAIN
23	AS-ES427002	THICKNESS RING
24	AS-ES513033	COVER FOR CC ENGINE
25	AS-EC010002	RING
26	AS-EC000BBB06	BOLT
27	AS-EC031001	CAP
28	AS-CL000008	FITTINGS KIT
29	AS-K4TAF1/P1	PRESSURE SWITCH

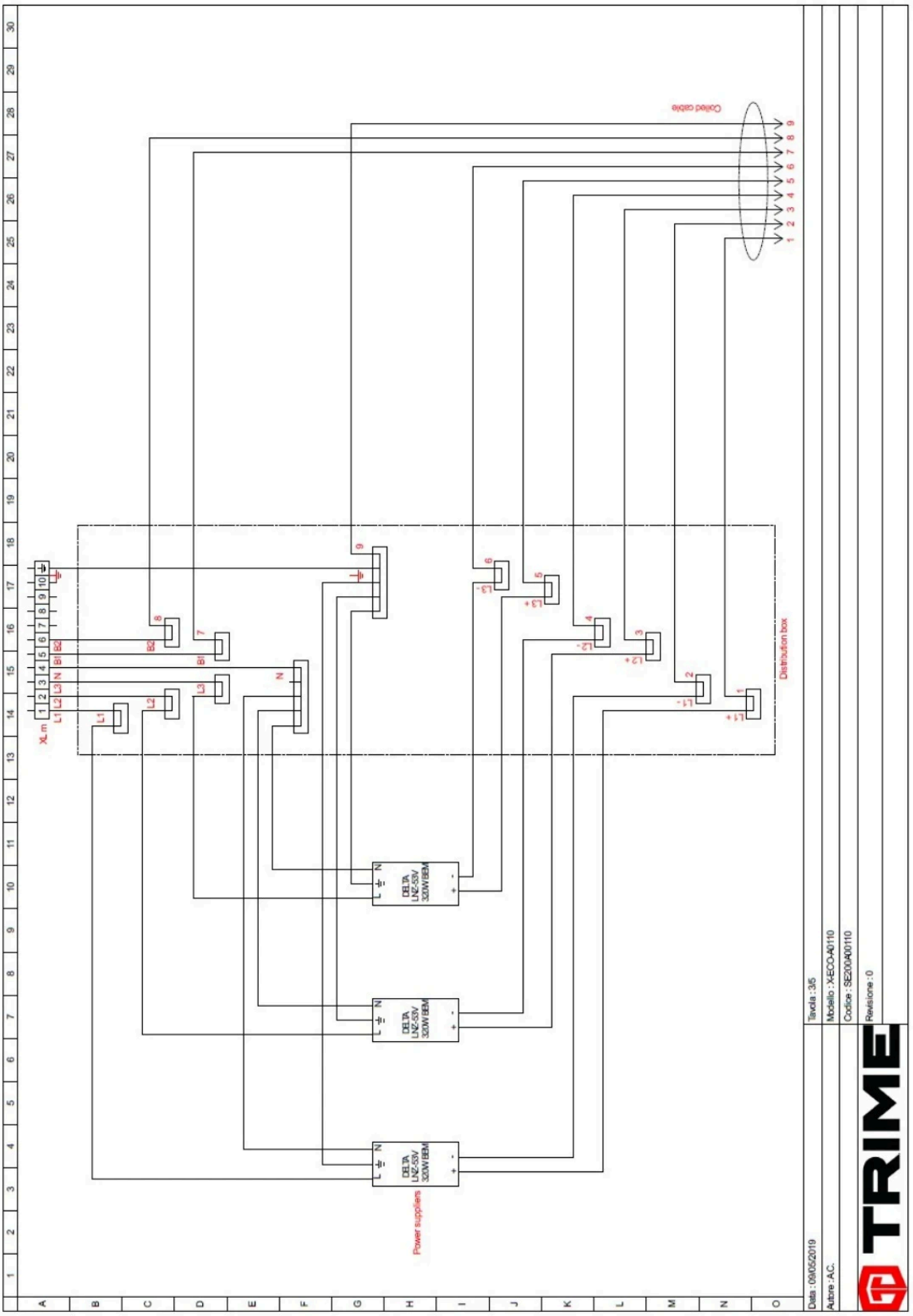
ELECTRICAL DIAGRAM



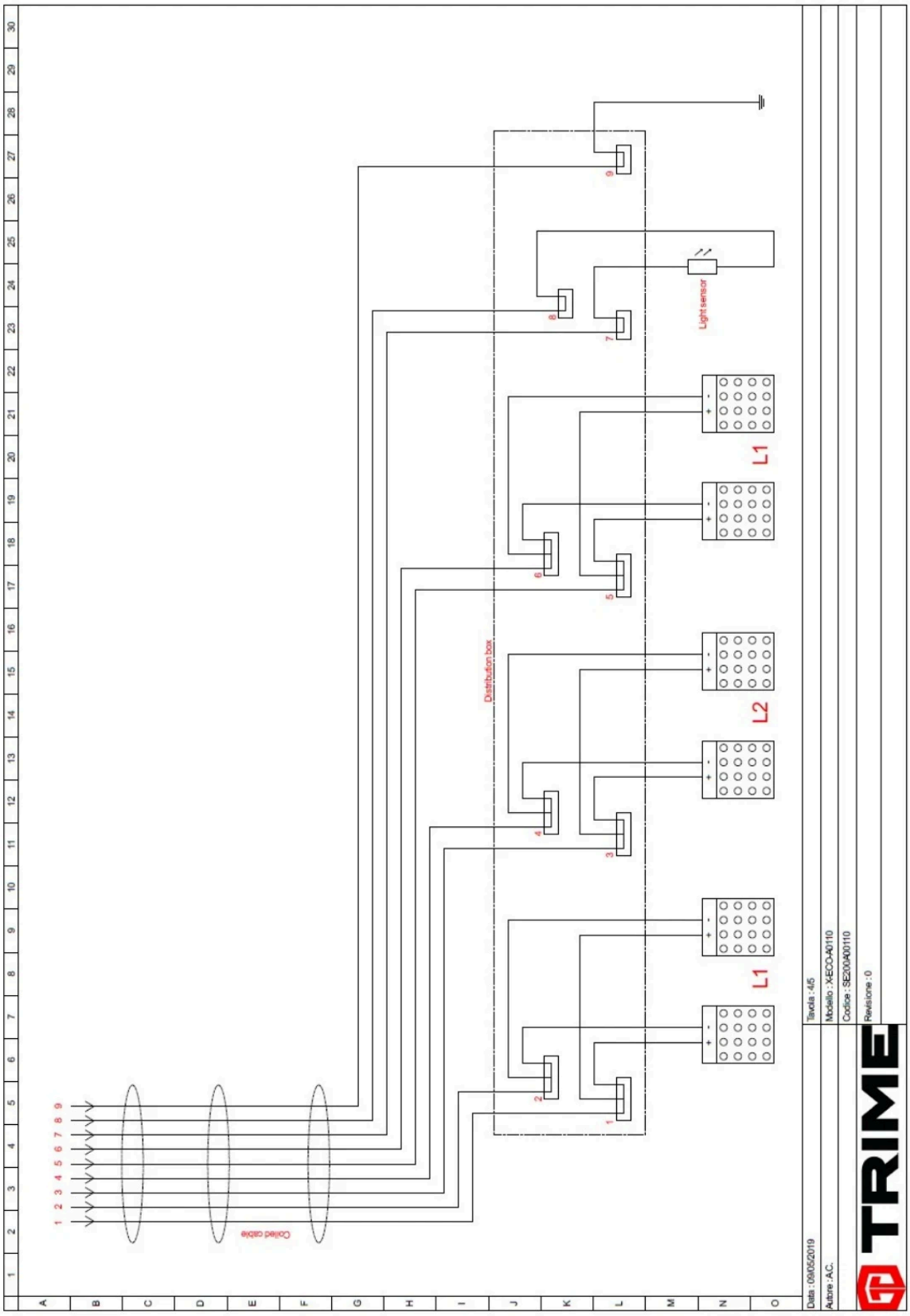
ELECTRICAL DIAGRAM



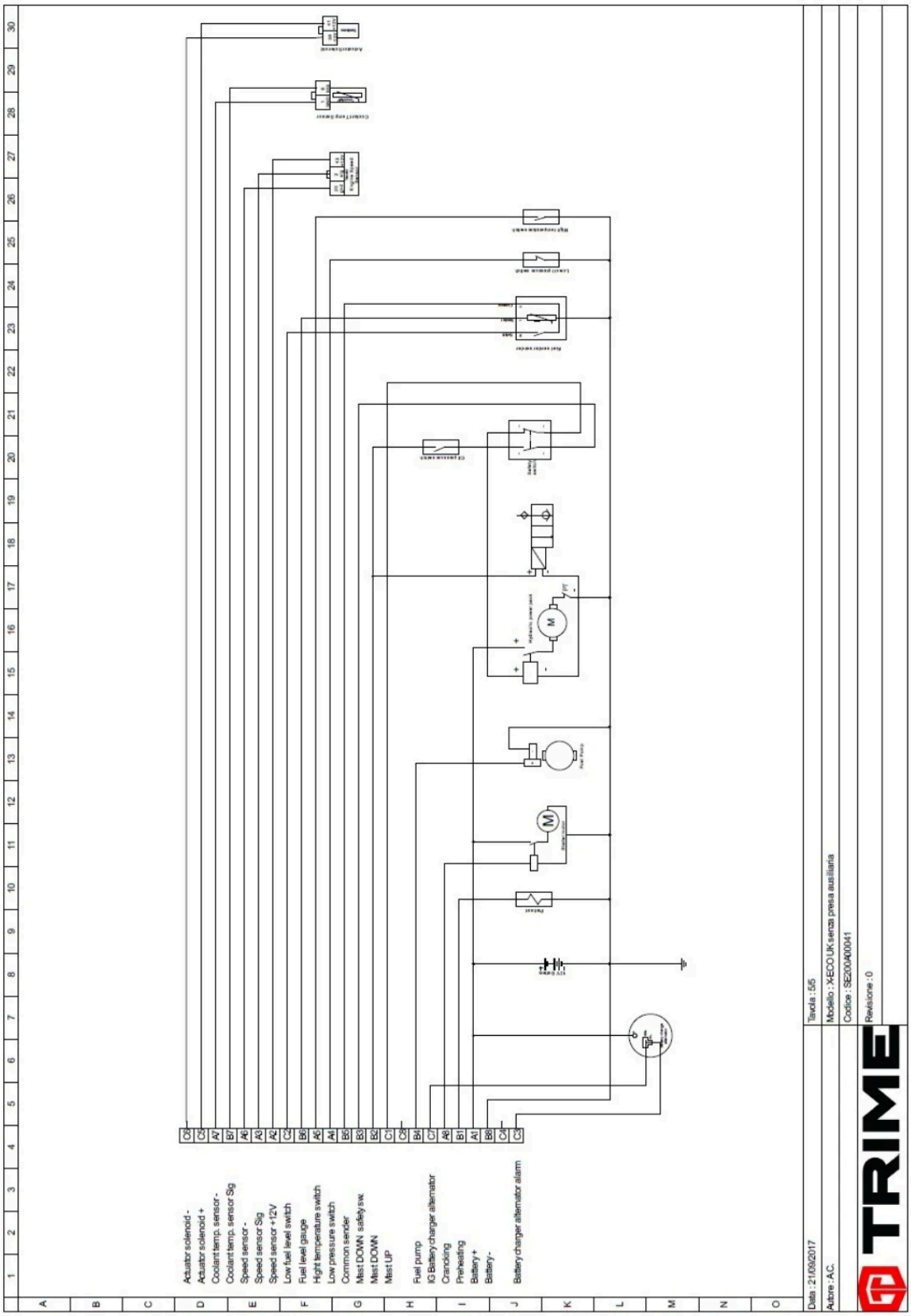
ELECTRICAL DIAGRAM



ELECTRICAL DIAGRAM



ELECTRICAL DIAGRAM



WARRANTY

The warranty period starts on the delivery date to the first purchaser.
The machine is covered by warranty for one year from the above mentioned date.
Only genuine parts should be used to carry out repairs.
Failure to use only genuine parts may invalidate the manufacturer's warranty.
We reserve the right to request the warranty replaced parts back for analysis.
All engine warranty issues must be directed to the engine manufacturer, or the manufacturer's approved engine dealer.

We will not be held responsible if:
- the machine has been used to perform tasks that it has not been designed for;
- the machine has undergone modifications not approved by us;
- conditions of use have been abnormal;
- normal maintenance, compliant to requirements as set out by the manufacturer, have not been adhered to.

No payment or expenses refund should be pretended from us for normal maintenance or servicing nor any materials used to carry out routine servicing. The warranty is intended to cover diagnosis, repair or replacement of the defective part, and actuating the repair, should a problem