



1

STANDARDS AND GENERAL DESCRIPTION

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1.1. INTRODUCTION

Thank you for choosing us and purchasing our product.

To obtain the best performance, it is best to strictly comply with the provisions of this manual.



NOTE

The equipment in question is produced solely according to the European Machinery Directive 2006/42/EC and is CE marked.

As a result, Cometto S.p.A. will not be considered in any way liable for any non-compliance with local legislation regarding the equipment.



WARNING

It is strictly forbidden to make changes or tamper with the vehicle when not expressly authorised by Cometto S.p.A.

Do not hesitate to contact our support service technicians.



WARNING

All operations, both in use and maintenance, not expressly described in this manual are forbidden, unless authorised by Cometto S.p.A.

1.2. GENERAL WARNINGS

Important warnings

To protect the safety of people, animals, property and the operators responsible for management and operation of the vehicle, and to avoid possible damage to equipment, before carrying out any operation on the vehicle, it is essential to know the entire content of the use and maintenance manual.

Symbols used in the manual

The following symbols will be used in the manual to highlight instructions and warnings of particular importance:



WARNING

This symbol indicates safety standards for the operators and/or any exposed people.



ATTENTION

This symbol indicates that, if the instructions given are not complied with, there is the possibility of damaging the equipment and/or its components.



NOTE

This symbol signals useful information.



Further information is outlined in other paragraphs or chapters of this manual.



This symbol indicates you must consult the manufacturer's manual.



This symbol indicates a warning for environmental protection.

[1] [67A] [CLOSED]

When a numerical/alphanumerical reference or indication in the text is in square brackets, it means that:

- This reference or indication is effectively present, using the plates; on the vehicle or on an accessory supplied (for example a pushbutton panel);
- This reference or indication refers to the relevant code on the electrical, hydraulic or pneumatic system.

INDICATIVE FIGURE

The image represented is generic, but the reference made corresponds to the accessory or component actually on the vehicle.

Continued →

Continued "General instructions" →

Intended users of the use and maintenance manual

This document is intended for staff who have experience or qualifications capable of operating in compliance with the necessary safety standards.
 The professional figures for which this document is intended are:

- Handlers;
- Installation technicians;
- Users;
- Maintenance technicians.



WARNING

These instructions are intended for professional operators with specific professional skills in all phases of vehicle use. The authorised manager must ensure the operators have the ability and training necessary for their roles.

Liability limitations



WARNING

Any technical changes that affect operation or safety of the system must only be carried out by technical staff formally authorised by Cometto S.p.A..

All interventions not authorised by Cometto S.p.A. are considered as "tampering with the vehicle", therefore the manufacturer Cometto S.p.A. cannot be held in any way liable for harm to people, animals or damage to property and the equipment, due to improper use.

Plates/signs concerning mandatory actions, restrictions and danger



NOTE





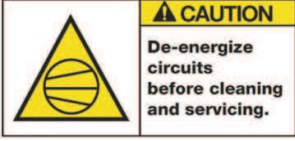





Check the plates positioned on the vehicle are intact. If not, ensure their reintegration.

 Code: 177.2167  Code: 177.2177	<p>PLEASE REFER TO THE MANUAL FOR THE CORRECT USE OF THE VEHICLE</p> <p>This plate indicates that further information is outlined in other paragraphs or chapters of this manual or in other attached documents.</p>
 Code: 177.2117  Code: 177.2179	<p>CRUSHING HAZARD</p> <p>This plate indicates danger of crushing for the operator, due to parts in motion.</p>
 Code: 177.2178	<p>DANGER OF CRUSHING HANDS</p>

Continued →

Continued →





Plates/signs concerning mandatory actions, restrictions and danger

 <p>Code: 177.2181</p>	<p>DO NOT WORK ON MECHANICAL PARTS IN MOTION</p>
 <p>Code: 177.2116</p>  <p>Code: 177.2175</p>	<p>HOT SURFACES – WEAR PROTECTIVE CLOTHING This plate indicates a danger of burning due to hot surfaces. DO NOT TOUCH.</p>
 <p>Code: 177.2137</p>	<p>DANGER OF BATTERY ACID LEAK</p>
 <p>Code: 177.2180</p>	<p>DANGER OF PRESSURISED CIRCUIT Do not re-tighten or open pressurised rigid and flexible tubing: Danger of burning or scalding due to exiting liquids.</p>
 <p>Code: 553.2313 Code: 553.2387</p>	<p>DANGER ELECTRICAL VOLTAGE This plate indicates to the operator that works are forbidden on live electrical equipment.</p>
 <p>Code: 177.2119</p>	<p>DO NOT APPROACH This plate indicates to unauthorised staff to stay away from the vehicle.</p>
 <p>Code: 177.2168</p>  <p>Code: 177.2169</p>	<p>SMOKING AND USE OF OPEN FLAMES FORBIDDEN</p>
 <p>Code: 177.3220</p>	<p>USE OF WATER FORBIDDEN ON ELECTRICAL/ELECTRONIC SYSTEMS This plate indicates to the operator that it is forbidden to use water on the electrical/electronic systems.</p>








Continued →

Continued "General instructions" →

Plates/signs concerning mandatory actions, restrictions and danger

	Code: 177.3181	LOAD CONNECTION POINTS
 <p>ATTENTION Do not use the load connection points to lift the ECO1000 motorized module.</p>		
	Code: 177.2164	EXTINGUISHER This plate indicates to the operator that an extinguisher is present.
	Code: 177.1637	EMERGENCY STOP This plate indicates to the operator that an emergency stop is present.

Symbols for obligations, restrictions and danger outlined in the manual, but not on the vehicle

	Code: 177.1687	POWER PACK OR MOTORIZED MODULE LIFTING POINT
	Code: 177.1660	DANGER OF CRUSHING HANDS
	Code: 177.2166	DO NOT WORK ON MECHANICAL PARTS IN MOTION
	Code: 177.1968	DANGEROUS SURFACE This plate indicates to the operator the presence of a slippery surface.
	Code: 177.2165	DANGER OF FALLING
	Code: 177.2165	DANGER OF BURNING OR SCALDING DUE TO EXITING LIQUIDS
	Code: 177.2182	CORROSIVE SUBSTANCES Danger chemical products inside the area or shell.

1.3. MANUAL CONSULTION METHOD

Structure of the manual

This manual is divided into chapters, gathering all the information necessary by topic for risk-free use of the vehicle.

Each chapter is sub-divided into paragraphs containing the essential points. Each paragraph can have titles with sub-titles and a description.

The start of each chapter is marked with a right hand page that references the number and title of the chapter.

Each chapter contains, for example chapter 1:

- 1 Chapter heading
 - 1.1 Paragraph title.
 - 1.1.1 Sub-title heading.
 - 1.1.1.1 Any further sub-title.
-

**Storage
the manual**

Every part of this manual must be intact and legible. The end user and the specialist technicians authorised for maintenance must be capable of consulting it at any time.

Reproduction rights

All rights reserved by Cometto S.p.A. for reproduction of this manual.

The text cannot be used in other publications without the written authorisation of Cometto S.p.A.

THIS MANUAL IS THE PROPERTY OF COMETTO S.P.A. ALL REPRODUCTION,
EVEN PARTIAL, IS FORBIDDEN.

1.4. DECLARATION CE OF CONFORMITY (if planned)



DICHIARAZIONE CE DI CONFORMITÀ
DECLARATION OF CONFORMITY

(in conformità alla Direttiva Macchine 2006/42/CE, allegato II ,paragrafo 1, lettera A)
(in conformity to Machinery Directive 2006/42/EC, annex II, paragraph 1, letter A)

CE

IL FABBRICANTE
the manufacturer

COMETTO S.p.A. Via Cuneo, 20 - 12011 Borgo San Dalmazzo - Italy
Azienda **Indirizzo**
Enterprise *Address*

DICHIARA CHE LA MACCHINA
declares that the machine

Descrizione <i>Description</i>	Macchina destinata al trasporto specifico secondo quanto indicato nel manuale di uso e manutenzione e nei documenti relativi agli accordi contrattuali, è conforme a quanto prescritto dalla Direttiva 2006/42/CE, eccetto per il paragrafo 5 allegato 1. <i>Machine intended for specific transport based on the indications in the use and maintenance manual and in the documents relative to contractual agreements, it complies with the requirements of Directive 2006/42/EC, except for paragraph 5 attachment 1.</i>
Tipo <i>Type</i>	
Modello <i>Model</i>	
Matricola macchina <i>Serial number</i>	
Codice Macchina <i>Code of the machine</i>	
Anno di costruzione <i>Year of manufacture</i>	
Nome Cliente <i>Client name</i>	
N° Ordine <i>Order number</i>	

È CONFORME ALLE DIRETTIVE:
complies with the following directives:

- 2006/42/CE eccetto per il paragrafo 5 allegato 1, 2006/42/EC except for paragraph 5 attachment 1

E AUTORIZZA A COSTITUIRE IL FASCICOLO TECNICO:
and it authorizes to build the technical file:

Cometto S.p.A. Via Cuneo, 20 - 12011 Borgo San Dalmazzo - Italy
Nominativo **Indirizzo**
Nominative *Address*

Borgo San Dalmazzo, ___/___/___

Dott. Ing. _____
Technical Manager

Luogo e data
Place and date

Nome, funzione e firma
Name, position and signature

1.5. IDENTIFICATION PLATE C € (if planned)

Preliminary information

This vehicle was manufactured in a state of the European Union, therefore it complies with the safety requirements required by Machinery Directive 2006/42/EC.

The EC plate outlines the identification data of the vehicle, necessary if you need to contact the manufacturer Cometto S.p.A..



NOTE

It is strictly forbidden to damage or remove the EC identification plate.

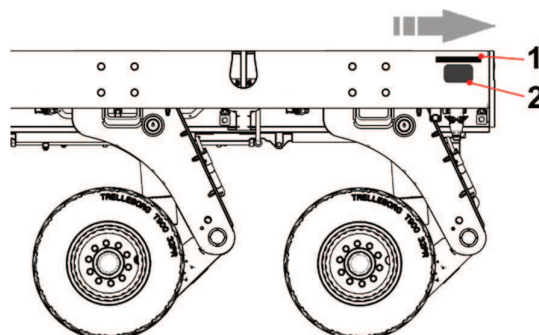
Nameplate

VIA CUNEO, 20 - 12011 BORGO SAN DALMAZZO - ITALY TEL. (0171) 263300 FAX (0171) 266335			
DESIGNAZIONE DESIGNATION	3		
TIPO TYPE	4	TARA DEAD WEIGHT	8 kg
TELAIO N. CHASSIS N.	5	PORTATA MAX PAYLOAD	9 kg
PART. N.	6	POTENZA POWER	10 kW
ANNO YEAR	7	VOLTAGGIO VOLTAGE	11 V

Legend

1	Manufacturer's company name and address.
2	Trademark C €.
3	Vehicle designation.
4	Vehicle type.
5	Chassis number.
6	BOM reference.
7	Year of manufacture.
8	Tare weight.
9	Useful payload.
10	Engine power.
11	Voltage.

Positioning.



1	Frame serial no.
2	CE nameplate

1.6. APPLIED REFERENCE STANDARDS



Legal provisions

Reference	Title
L. D. 27/01/2010 no. 17	Implementation of the directive 2006/42/EC relating to machinery.
L. D. 09/04/2008 no. 81	Implementation of Article 1 of Law no. 123 dated August 3, 2007, no. 123, on occupational health and safety.
CEI 11-27 on 2014-01	Works on electrical systems.

European Standards

Reference	Title
Directive no. 2006/42/CE	Machinery Safety Directive.
Directive no. 2014/35/UE	Low Voltage (if applicable).
Directive no. 2014/30/UE	Electromagnetic compatibility

1.7. REQUIREMENTS CONCERNING THE AUTHORIZED STAFF

Intended users of the use and maintenance manual	<p>This manual is intended for the following users:</p> <ul style="list-style-type: none"> • Handlers; • Installation technicians; • Users; • Maintenance technicians. <p>Authorised staff must possess the specific professional requirements for each operation planned.</p>
Handlers' requirements	<p>They must be capable of transporting the vehicles, the equipment, the materials, etc. to the destination and unloading them from the carrier vehicle, in safe conditions for people, the vehicle and the environment.</p>
Installation technicians' requirements	<p>They must be capable of setting the equipment in safe operating conditions for people, for the vehicle and for the environment.</p>
User requirements	<p>They must be capable of activating the vehicle in safe conditions for people, for the vehicle and for the environment, interpreting the fault diagnostics and the irregular operating conditions and carry out simple operations for adjustment, maintenance and repair.</p> <p>They must have a valid driver's permit to operate similar vehicles, even if the vehicle is used in private areas.</p> <p>The driver must always regulate speed of the vehicle based on:</p> <ul style="list-style-type: none"> • the characteristics and conditions of the road, • the characteristics and condition of the vehicle, • the load transported and its respective freeing. <p>the way to avoid any danger to ensure the safety of people and property.</p> <p>The driver must always be in control of the vehicle and be able to carry out all the manoeuvres in safe conditions and, especially, promptly stop the vehicle if necessary.</p> <p>The driver must always moderate speed (some examples follow, by way of example and not limited to them):</p> <ul style="list-style-type: none"> • in the event of poor visibility, • on bends, • in poor atmospheric conditions and for other causes, • during the night, • in narrow or awkward passageways.
Electrical maintenance technician's requirements	<p>The mechanical maintenance technicians must be qualified technicians capable of:</p> <ul style="list-style-type: none"> • operating the vehicle in normal conditions or have it work with guards disabled; • carrying out adjustment, maintenance and repair operations on the mechanical, pneumatic or hydraulic parts. <p> WARNING The specialist maintenance technician is not authorized to work on live electric parts.</p> <p> DANGER ELECTRICAL VOLTAGE It is forbidden to carry out works on live electrical equipment.</p>

Continued →

Continued "Requirements concerning the authorized staff" →

Electrical maintenance technicians' requirements

The electrical maintenance technicians must be qualified technicians capable of:

- operating the vehicle in normal conditions or have it work with guards disabled;
- carrying out adjustment, maintenance and repair operations on the electrical components, even if the voltage inside the electrical cabinets and junction boxes is live.

1.8. TRAINING**Operator training**

Each of the professional figures listed above must be adequately trained in vehicle functions and in each component with specific reference to the general safety provisions to comply with for its use.

The employer must, therefore, provide a specific course within the company where general information relating to the machine will be provided, such as:

- the meanings of the symbols and signs on the machine;
- general behaviour to prevent accidents;
- use of safety devices;
- use of guards and emergency stops;
- the work cycles of the machine and work organisation;
- the personal protective equipment to use;
- generic danger;
- the noise emitted by the vehicle;
- etc.

The employer and/or the safety manager of the company can directly infer the safety guidelines from this manual.

**WARNING**

Lack of information and training can lead to wrong operations and manoeuvres which could cause serious accidents.

Operating instructions for training**NOTE**

Cometto S.p.A. provides a training course for all authorised operators to train them in management and maintenance operations according to the specific technical and safety requirements necessary.

1.9. INSTRUCTIONS FOR REQUESTING SPARE PARTS AND SUPPORT

Communicating with the support centre

For any communication with the support centre, always state the following data:

- the model and type of vehicle;
- the serial number;
- year of manufacture;
- when possible, specify the nature of the problem or the fault found on the vehicle, e.g. electrical, mechanical or in terms of quality of work.

Technical support office

Our main technical support office in Italy is located in:



Cometto S.p.A. a socio unico

Via Cuneo 20
 12011 Borgo San Dalmazzo (Italia)

Tel.: (+39) 0171 263300

Fax: (+39) 0171 266335

Internet: www.cometto.com

Email: cometto@cometto.com



1.10. GENERAL DESCRIPTION OF THE VEHICLE – PLANNED AND UNPLANNED USE

Features characteristics

The vehicle power unit provides:

- Hydraulic energy for motorization, lifting, steering and service braking.
 - Electrical and electronic energy for the command and control systems.
-

Intended use – expected use

The vehicle in this manual was designed and manufactured to transport oversize loads of vehicles, equipment, materials, etc., according to the instructions and technical specifications in this manual.

Unplanned use

The vehicle in question in this manual cannot be used for purposes other than those indicated in the “Intended use – Planned use” section. The following uses are also forbidden:

**WARNING**

It is strictly forbidden to use the vehicle in this manual to transport people, animals and anything not expressly indicated in this manual and in the documentation attached.

Explosive atmosphere**WARNING**

The vehicle in this manual was not designed to work in environments potentially at risk of explosion, as defined by 99/92/EC ATEX137. It does not comply with the provisions of 2014/34/UE and, therefore, installation and use in such environments is forbidden.

Underground works**WARNING**

The vehicle does not meet the requirements of paragraph 5 annex 1 2006/42/EC. Therefore, it is not suitable for use in underground work.

Sound power of the Power Pack**WARNING**

The A-weighted sound power level emitted by the vehicle (with the operator at a distance of 2 metres and the machine operating at a rotation speed of 1500 rpm) is equal to 85±1 dB(A).

1.11. VEHICLE ECO1000

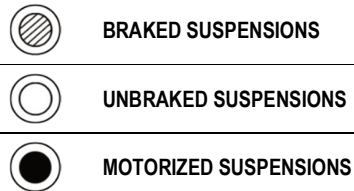
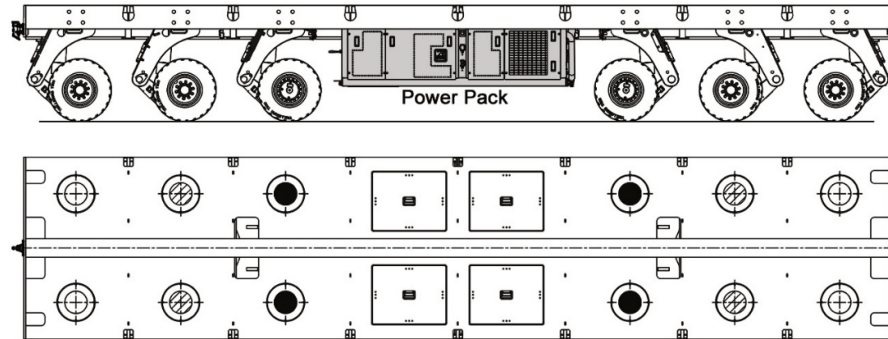
Preliminary information

The vehicle classification suggests some of the characteristics of the type the vehicle belongs to, as shown in the following table:

ECO1000	6	/	4
Vehicle name	N° of axle lines		N° of motorized suspensions

Vehicle

ECO1000 6/4 (6 axle lines / 4 motorized suspensions)



1.12. ACCESSORIES

Preliminary information

According to what is provided in your order, some of the here represented accessories could not be included.

Command and control



Remote control.

For driving and controlling single self-propelled vehicles or coupled in convoy, both in normal conditions and, when possible, in emergencies.



NOTE

All emergency procedures which require or not the use of the remote control are provided in this manual.



Emergency stop button.

It allows to immediately stop the engine during all the vehicle maintenance interventions and/or checks which require the engine on. One operator must be in charge of the button control.

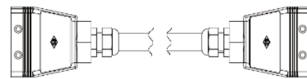


Suspension steering pushbutton.

It allows to steer one single suspension during maintenance interventions and/or controls.

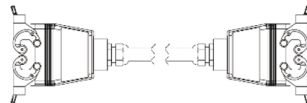
Vehicle coupling

ECO1000 modules can be coupled in side-by-side or longitudinal configurations or both together. Vehicle coupling entails an electrical connection of the units and, when needed and feasible, hydraulic and mechanical connections too, based on the convoy stability configurations and the distances among the modules. Used accessories can be divided in the following categories:



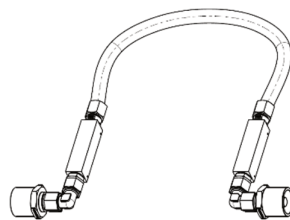
XPCO cable.

Electrically and electronically connects the vehicles to each other.



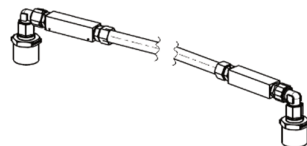
XPCO adapter cable.

Joins more XPCO cables together as the distance between coupled vehicles requires it.



Side-by-side coupling hydraulic hose.

Hydraulically connects two side-by-side coupled ECO1000 modules.

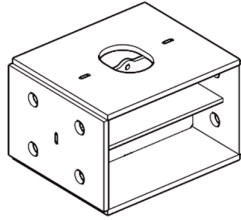


Longitudinal coupling hydraulic hose.

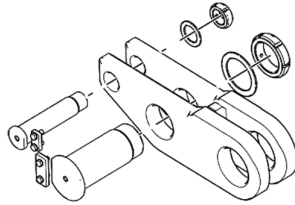
Hydraulically connects two longitudinal coupled ECO1000 modules.

Continued →

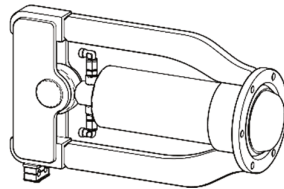
Continued →

Vehicle coupling**Side-by-side coupling box.**

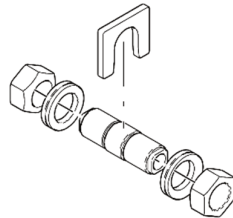
Allows to fix two ECO1000 modules on their shared side. Fastenings are included.

**Longitudinal coupling hinge.**

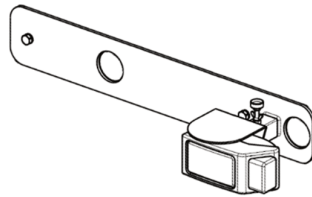
Two hinges permit to fix two vehicles in a front-back longitudinal coupling by means of the hinge-pin hydraulic-puller kit.

**Hinge-pin hydraulic-puller kit.**

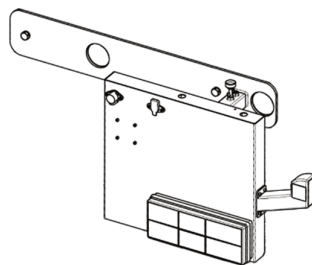
It mechanically secures two ECO1000 modules in a front-back coupling. Fastenings are included.

**Tie rods kit.**

It finishes the front-back coupling of two modules.

Lighting**Removable front headlamps.**

Including low beam, high beam, sidelights and direction indicators.

**Removable rear lamps.**

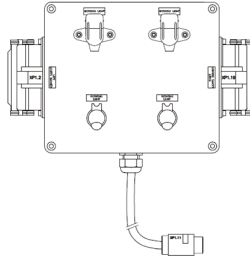
Including reverse lights, stop lights, sidelights, rear fog lights and direction indicators.

In addition, there are connectors for rotating lights and other work lights/lamps.

Continued →

Continued "Accessories" →

Lighting



Magnetic power strip.

The power strip connects directly to the vehicle's electrical system and supplies power to the removable lamps.

In addition, there are connectors for rotating lights and for other work lights/lamps.

1.13. DESCRIPTION OF MAIN PARTS ON THE VEHICLE

Preliminary information

The main components of the vehicle are:

- Chassis;
- Hydraulic system;
- Electrical system;
- Electronic steering control system;
- Electronic lifting system;
- SCR system;
- Emergency stop devices.

1.13.1 Frame

General Description

The frame consists of longitudinal load-bearing beams of high-strength steel, connected to each other by means of welded crossbars.

It is designed for intensive use and has an excellent torsional and flexural stiffness to ensure the best stability during lifting, lowering and movement.

The upper cover of the chassis has some removable panels to allow easy access to some components during maintenance operations.

1.13.2 Hydraulic system

Use Type

The hydraulic system performs the following functions:

- Motorization.
- Steering
- Lifting/Lowering.
- Service braking.

1.13.3 Electrical system

Use Type

The electrical system works at 24V DC.

Power supply comes from two batteries in series and from an alternator driven by the Diesel motor (connected in parallel to the batteries).

The electrical system includes:

- The Diesel motor start and control circuit.
- The vehicle light system.
- The control of the electro-pneumatic and electro-hydraulic users (if any).
- The command and control devices of the vehicle.

The main electric parts are placed inside of panels [EB1].



NOTE

For further information on electric system components and topology, refer to the "ELECTRIC SYSTEM" manual.



1.13.4 Electronic steering control system

Use type

The electronic steering system controls the position of each suspension based on the selected steering program and on the operation of the transmitter joystick (radio control).

1.13.5 Electronic lifting system

Use type

The electronic lifting system controls the position of the load surface and its movement.

1.13.6 SCR (Selective Catalytic Reduction) System ⁽¹⁾

Use type

The Diesel engine, which complies with Stage IV emission standard, is equipped with SCR system to reduce exhaust emissions.

The SCR system uses a reduction agent, called AdBlue®, which is injected into the flow of exhaust gas, where it is further converted into ammonia and carbon dioxide. During the next phase, the nitrogen oxide contained in the exhaust gas reacts with the ammonia, forming water and nitrogen.

This treatment obtains:

- Reduced nitrogen oxide emissions.
- Reduced particulate emissions.
- Reduced fuel consumption.

AdBlue® is the commercial name of a water-urea solution that offers the following advantages:

- Odourless composition.
- No toxicity.
- Non-flammable.
- No colouration.
- Availability.



NOTE

See all specific information in the Diesel engine instruction manual.



NOTE

For more information, see paragraph 13.10.3.



⁽¹⁾ = the SCR system is available only on some of the Diesel engine equipped vehicles.

1.13.7 Emergency stop devices

Use Type

To ensure proper control of all the possible manoeuvres and avoid any hazardous conditions, one or more emergency stop buttons (red buttons) are installed on the vehicle and on the radio control transmitter.



WARNING

It is of fundamental importance that these devices are controlled before each work shift and kept perfectly efficient to guarantee safe conditions.



NOTE

For further information, see chapter 11 of this manual.



1.14. DESCRIPTION OF THE COMMAND AND CONTROL DEVICES

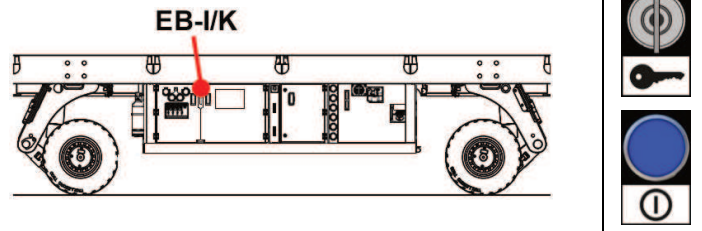
General description

All vehicle command and control devices are installed on the radio control transmitter, on board **[EB-I/K]** and on the control board of the vehicle panel **[EB1]**.

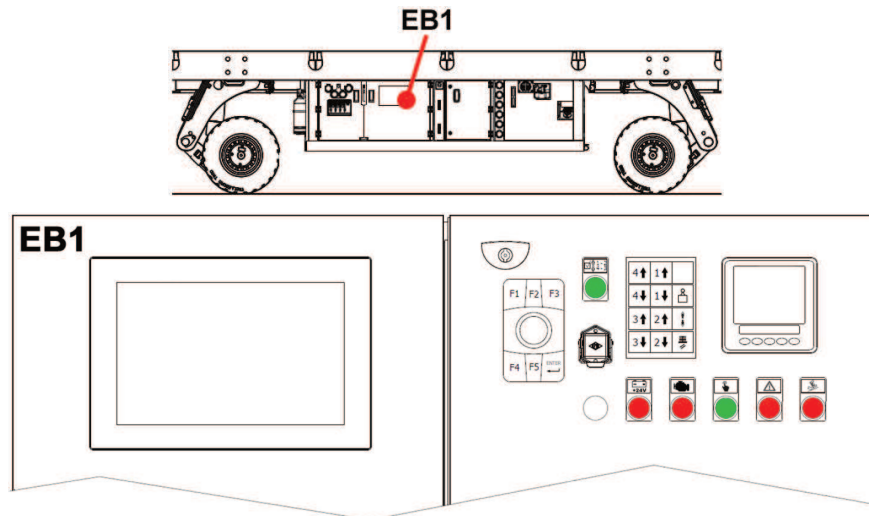
The description of all the command and control devices on the radio control can be found in chapter 5.



The description of the controls on the **[EB-I/K]** control board of the vehicle is given in chapter 3.



The description of all command and control devices on the control board of panel **[EB1]** of the vehicle is given in chapter 3.



1.15. GENERAL SAFETY INSTRUCTIONS

1.15.1 Scope of workplace safety procedures

Preliminary information

These workplace procedures apply to everyone involved in industrial transport, as for example drivers, maintenance teams, or people carrying out vehicle loading and unloading operations.

Scope of the safety procedures

The safety procedures outlined here have the purpose of:

- Avoiding accidents and injuries to operators or people working in the surroundings where the vehicle operates.
- Offer safety procedures when working on the vehicle.
- Indicate any equipment or safety devices on the vehicle, to eliminate or minimise specific risks.

**WARNING**

For any procedure that implies movement of the vehicle, ensure the manoeuvre area is free of people and/or property.

**WARNING**

To guarantee safe working conditions, the user is obliged to apply all the safety provisions mentioned in this “Use and maintenance” manual and ensure their implementation.



1.15.2 Precautionary measures

Standards for authorised manager

Management staff are appointed with the general responsibility of ensuring these procedures are divulged and implemented by everyone necessary.

The managers must ensure that:

- the equipment and the safety devices installed on the vehicle, are always used correctly;
- avoid the equipment and the safety devices being bypassed or excluded, modified or however tampered with.



WARNING

It is strictly forbidden to tamper with the equipment and the safety devices. Cometto S.p.A. cannot be held in any way liable for damage to property or the vehicle, harm to people or animals, in the event of non-compliance with this provision.

Standards for staff authorised to operate the vehicle

Operators authorised to operate the vehicle must apply the following safety procedures.

- 1) Use the equipment and safety devices planned or indicated.
- 2) Avoid damaging the safety equipment or its improper use.
- 3) Promptly inform your managers if any defects are found on the vehicle or the safety devices.



WARNING

Do not get in the vehicle without the equipment and safety devices required.

- 4) Promptly inform your managers if removable safety guards are missing (for example the safety casings of the kinematic systems in general).
- 5) Keep the work zone always clean and tidy.
- 6) Before operating the vehicle, operators should be perfectly physically fit.
- 7) Strictly avoid positions that can generate danger.
- 8) Pay particular attention when working on the loading surface since the latter may be slippery.



WARNING

The load surface can be slippery, avoid walking in these areas and keep away from the edges to avoid falling.



Each time maintenance work has to be carried out, the team appointed for intervention must be in at least two units, with adequate professional preparation.



WARNING

Before carrying out any intervention on the vehicle, all unauthorised staff must be asked to leave.



Activity limitations



WARNING

All operations, both in use and maintenance, not expressly described in this manual are forbidden, unless authorised by Cometto S.p.A.

1.15.3 Instructions for safety of workers operating near the motorized unit

Safety provisions

- To access the zones near the units in motion, it is compulsory to wear and use all the personal protective equipment mentioned below (see paragraph 1.15.5).
- It is strictly forbidden to work on mechanical units in motion during maintenance operations.



- In the event of maintenance intervention, follow the intervention procedures indicated.
- It is strictly forbidden to remove the safety guards.
- It is mandatory to keep the vehicle clean and maintain its good efficiency.
- It is dangerous and forbidden to operate the vehicle with damaged and worn parts: therefore, inefficient parts must be replaced.



1.15.4 Safety instructions during transport

Scope of the safety procedures

Transport carried out with the vehicle must take place in safe conditions and must comply with standards in force.

The dimensions of the vehicle or the size of the load could prevent the operator from having a full view of it. In this case, avail of a sufficient number of operators to ensure there are no unauthorised staff or obstacles during the entire transport.

**WARNING**

The load surface must not have elements that could fall during transport.

All the mobile parts of the load must be appropriately secured and all the equipment or elements foreign to the load must be removed.

1.15.5 Recommended personal protective equipment

Preliminary information

These specifications relate to clothing to wear, in particular in the following conditions:

- when the risk of catching cannot be efficiently controlled with a physical guard on the mechanism or parts in motion;
- when the work environment causes direct exposure of the operators to on average high temperatures.

Safety standards










WARNING

For anyone working on the vehicle, long hair worn loose or tied up, is dangerous and must be adequately protected to avoid catching in the units in motion.

It is strictly forbidden to wear ties, necklaces and pendant jewellery, since they could get caught in the mechanisms.



Protective equipment to wear

	<p>PROTECTIVE GLOVES Heat-proof safety gloves must always be worn suitable for the type of work to carry out, to handle hot parts during replacement, adjustment and control or for cleaning.</p> <p> WARNING Gloves must fit perfectly. If they are not fitted, the fingers of the gloves may be too long, resulting in risk of catching in the mechanisms.</p> 
	<p>SAFETY CLOTHING During work on the vehicle, wear a proper fitting overalls.</p> <ul style="list-style-type: none"> • Use overalls in natural fibre and self-extinguishing. • The overalls must not be pleated, must not have buttons or pockets on the outside, and the closure system must allow rapid opening in an emergency. • Any inside pockets must be closable. Cuffs must be adjustable to fit the pulse properly.
	<p>SAFETY HELMET When operating in the vicinity of the vehicle, your head must be protected with a light helmet, certified by an accredited body.</p>
	<p>PROTECT HEARING When near the vehicle, always wear ear protection (headset or plugs).</p>
	<p>PROTECT EYES Wear safety goggles during operations on the hydraulic system or with compressed air (for example during cleaning of the radiators).</p>

1.15.6 Requirements for maintenance site

Preliminary information

Periodic maintenance must be carried out in an environment with suitable lighting and cleaning characteristics.
Extraordinary maintenance must however comply with the minimum requirements to guarantee the worker's safety.

Lighting

Lighting must be such not to create shadows or reflections which can cause disturbance or glare.
When working in areas where outdoor lighting does not guarantee adequate visibility, portable lamps must be used to light the intervention area.

Cleanliness

If working on mechanical units or on the hydraulic system, the environment must be as clean as possible.
Avoid dust and foreign bodies penetrating the various hydraulic circuit and mechanical elements.

1.15.7 Decommissioning and disposal of the vehicle

Disposal exhausted materials

The vehicle is composed of recyclable parts (chassis) and parts that must be disposed of in respect of nature and in compliance with legislation in force.
Therefore, these activities must be carried out by a specialist disposal centre.

**WARNING**

Hydraulic liquids, engine oil, batteries and diesel are harmful products for human health and for the environment. They must be disposed of in specialist centres.

**ATTENTION**

It is strictly forbidden to re-use parts of this vehicle without the express authorisation of Cometto S.p.A.
