

ROJO TRAILER

USER GUIDE

TIPPERS



ROJO TRAILER




ISO 9001
BUREAU VERITAS
Certification




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1- GENERAL NOTICE



This symbol will always accompany the instructions to prevent any material damages to the equipment, personal injuries or danger situations.

1.1- Manufacturer's responsibility

It is against the operating rules described for the tippers and accessories, not considering the notes and warnings appearing in this guide, the full or partial inappropriate use of the tipper, using non-authorized spare parts, and using the tipper by non-qualified personnel. ROJO TRAILER S.L. refuses any responsibility due to material or personal damages.

1.2- Regulations

This guide has been written according with the instructions described in the annex "1" of the directive 2006/42/CE, point 1.7.4.

1.3- Keep the certificate and user's guide


This guide is a part of the machine, keep it for future references.

1.4- Vehicle identification:

In order to ask for spare parts and to request some information and support, each vehicle will be provided with a plate where it is included, among other data, the serial number of the vehicle "*Ident. nr.*".

This plate shall be placed on the front part of the frame right beam of the chassis or on other similar structure of the machine. Observe the following picture.

	ROJO Trailer, S.L.	
	e9*2007/46*0560	
Ident. nr.		
	WEIGHT	TECHNICAL WEIGHT
GVW (kg.)	36.000	39.000
King Pin (kg.)	0-12.000	0-12.000
1° Axle (kg.)	1-8.000	1-9.000
2° Axle (kg.)	2-8.000	2-9.000
3° Axle (kg.)	3-8.000	3-9.000
4° Axle (kg.)		
5° Axle (kg.)		
Axle group(kg.)	T-24.000	T-27.000
O.P.	KT3 ST www.rojotrailer.com	

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2- DESCRIPTION AND LIMITS

2.1- Vehicle description:

ROJO tippers are designed for goods transport, loading and unloading by a tipping body. The operation of these vehicles is the same, without any substantial change but of those construction elements of the semi-trailer and measures or the quantity of axles (all these elements will not affect the behaviour and efficiency of the tipper).

2.2- Usage:


Intended use of the machines: transporting and unloading by the tipping system of the semi-trailer, for all type of bulk goods.

Transport: Industrial semi-trailers pulled by a tractor unit. The maximum speed for this kind of mixed vehicles (tractor + semi-trailer) is: 100 km/h.

Tilting: This equipment has been designed to be used by only one operator. It will always be operated from the driver's position in the tractor unit and the vehicle danger area will never be crossed (rear part). Do not tilt in front in the presence of people close to the working area or in contact with any point of the semi-trailer.

2.3- Bad usage:

Any use non-described in this guide will be considered inappropriate. It will not be used to load any different materials of the ones here described, as well as any machines, structures, people or animals. It is not allowed loading on the semi-trailer more than the maximum permissible laden weight according with the design and homologated for this model.

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3- SAFETY AND GENERAL WARNINGS



- The inappropriate use of the tipper, as well as not respecting the security rules can cause serious consequences for the staff and/or material.



BEFORE USING:

- Read carefully the guide
- Get informed about the sector security rules in force
- Do not modify the cylinder pressure valve
- Before tilting, make sure that there aren't any obstacles, electric cables, ceiling etc. If it can be any contact with a power line, low the vehicle immediately, avoiding any contact between the floor and the vehicle.
- Make sure that there is not anyone on the vehicles way.
- Before driving, make sure that the break, connections and lighting are operating properly
- Do not transport people in the semi-trailer



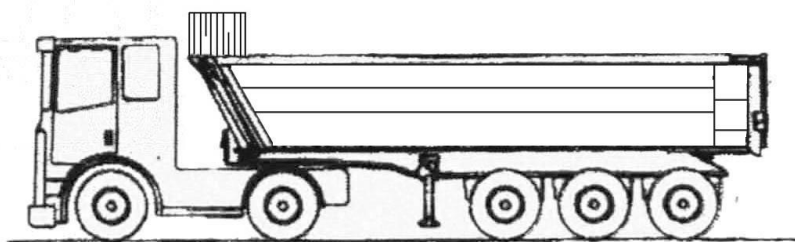
DURING OPERATION:


The tipper was designed to be used by only one operator. The operator position will always be into the truck cab while it is tilted, or on the left side of the tipper for other operations.

When it is operated on a public road, the vehicle must be duly signaled and it is compulsory wearing reflecting clothes.



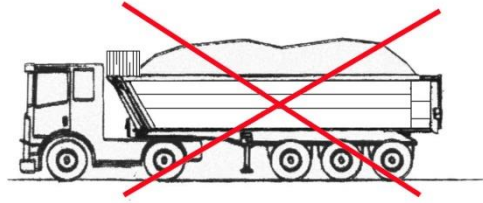
Before tilting or loading, remove the tarp.



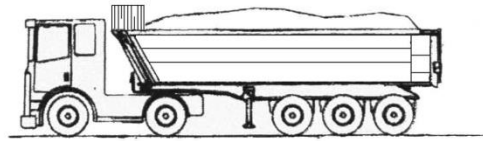
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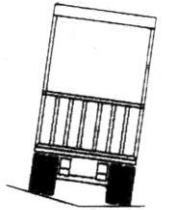
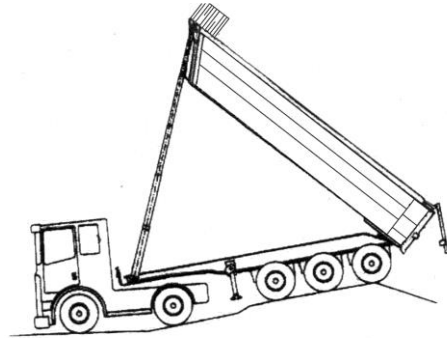
Do not overload the vehicle



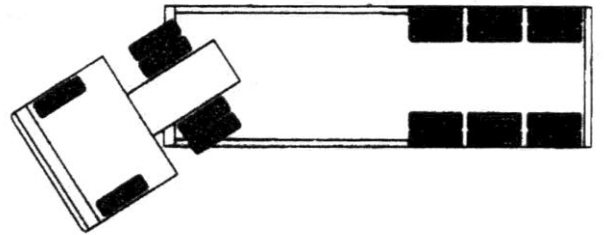
Divide the loading uniformly to avoid overloadings.



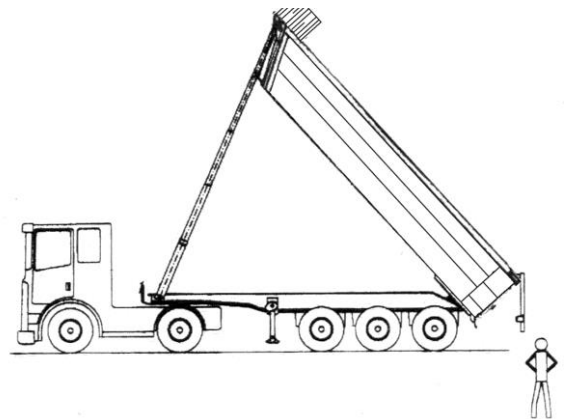
Do not tilt on irregular or soft surfaces




Do not tilt with the truck unit and the semi-trailer at an angle.



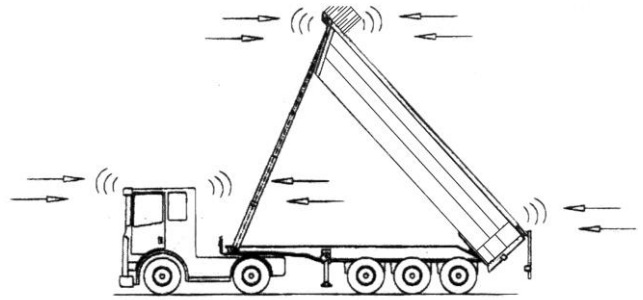
Do not stand in the operation area



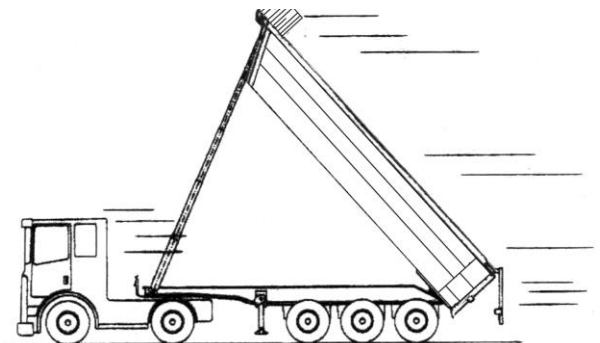
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Do not move the vehicle while tilting.



Do not drive with the box lifted



Stop the unloading, if the charge doesn't begin to be unloaded on half way (20° or 25°), or it is blocked or if the charge sticks.

Maintenance and controls:



Before doing any operation, read the instructions and advices of this manual.

- Wear the individual security equipment.
- Careful with the liquids under pressure, protect the hands and the body.
- To avoid any risks, low the hydraulic system and other systems pressure
- In order to do any welding in the tipper, disconnect the electronic equipment and do not put any mass on the hydraulic elements. Put the mass as close as possible to the welding area. Do not do the welding close to the wheels; if it needs to be done, cover them or disassemble them.
- Grease periodically the tipper joints for its proper operation.
- **DO NOT WORK UNDER THE TIPPER WITHOUT ANY SECURITY SUPPORT IN CASE THE BOX WILL GO DOWN.**
- For the maintenance operations, respect the proceeding for labour health and safety risks.
- Respect the advices for the environment preservation.

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Wear individual protection clothes



Do not use loose clothes, use tight working clothes.



Safety shoes



When handling, disassembling, doing the maintenance, etc. Use working gloves



Use face masks if there is there is some dust.



If the noise is very loud (the noise in some workshops is louder than 80 dB (A)), wear a hearing protection equipment and close the doors and windows of the cabin to reduce the noise.



Safety Equipment


It is recommended having a first aid box and an emergency phone list. Respect the fire extinguishers usage rules. If there are some flammable materials, a fire extinguisher should be in the cabin.

4- ATTACHMENT WITH THE TRACTOR UNIT:



Before starting, make sure that there aren't any people or obstacles close.

- Make sure that the semi-trailer is braked (push the red pusher button).
- Approximate the tractor unit looking for a correct alignment of the King Pin and the 5th wheel.
- If the 5th wheel height corresponds with the neck height, attach according with the standard procedure.
- If the 5th wheel height doesn't correspond with the neck height, level the neck using, preferably, the tractor unit suspension.

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Plug every connections between the tractor unit and the platform; hydraulic, electric and pneumatic connections (FIRST THE YELLOW LINE).



5-LOADING AND UNLOADING

Loading and unloading on a levelled surface; make sure that the brakes are on before loading/unloading. Do not overload the tipper or the tractor unit; observe the technical data to know the capacities of each one.




Before loading, make sure that the doors are closed and the accessories are tightened.

5.1- Loading process

Make sure that the tilt control of the truck is on a neutral or lowering position. So, the box will be supported directly on the chassis but not on the cylinder.

Follow the loader instructions, use rear-view mirror and maintain the visual contact to move the vehicle.

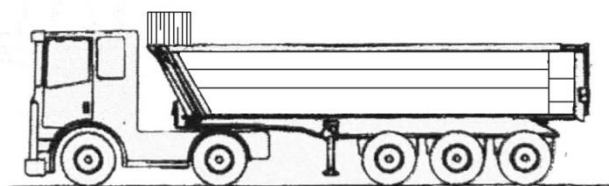
When the loading has been done, make sure that there aren't any remains which can fall on the road and can cause an accident to a third party.

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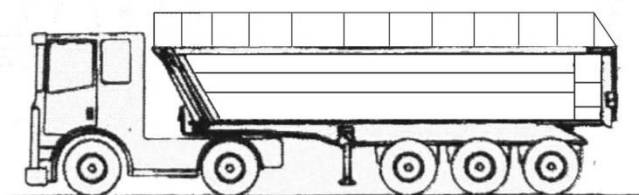
5.2- Tarp use



Before loading or unloading, the box has to be completely uncovered.



Do not drive the vehicle if there are strong gusts of wind. Drive always with the box completely covered.




Do not grease or lubricate the driving pulleys or the cables. Do not use the tarp to level the material to be transported.

5.3- Door opening and closing



Open the safety bolts before tilting (if they are closed).

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There are two doors models, oscillating or double door “book type”. Both of them with automatic opening in the horizontal plane, this opening can be either mechanical or hydraulic.


The book type door, or Universal door, can be manually open on the vertical axle.



Before opening the book door, make sure that the goods are not making any pressure against the doors. Otherwise, an abrupt opening can happen and it can be hit.



Stop the unloading process if the door is in contact with the unloading goods.

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6- TILTING:



PROCEED TO DO THE TILTING ONLY IF THE FOLLOWING CONDITIONS ARE FULFILLED:

- Every connection in the tractor unit and in the semi-trailer is well done. Make sure that both hydraulic terminals are well connected and the oil flows properly.
- The group is on a stable ground, flat, leveled and that the axles are aligned.
- There is no one in the unloading area.
- There are not lateral winds.
- There is not any contact risk with high-tension wires or other objects.



Stop the unloading if the light or sound pilot is activated. IT IS TIPPING HAZARD.




The hydraulic equipment installed in the tractor unit has to send a maximum pressure of 150 bars to the semi-trailer.

6.1- Box tilting

- Put at neutral or low position and start.
- Press the clutch pedal and put the tipper lever on an elevation position, leave the lever in this position and release the clutch. The tipper will lift until the clutch will be pressed or until the box will reach the maximum angle.
- When the box will be up, put the lever in a neutral or low position. **Do not leave it on a lifting position, since it can cause malfunctions in the cylinder or in the security valves.**



Do not accelerate the engine of the vehicle while the unloading is getting done, the revolutions range needs to be close to the idle speed.


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7- TRANSPORT:

- Do not drive with the tipper up, under tipping hazard, collision with electrical lines, jumper cables.
- Do not exceed the speed limit.
- Adapt the speed to the road conditions, the traffic and the weather conditions. Put tyre-chains if needed.
- After using the tipper, close the tarp and clean the vehicle to avoid any mood loosening or leaving any remains on the road.
- Before moving, make sure that the lights are clean and operating, they can be dirty.
- Some models are equipped with folding or retractable bombers, put in circulation mode before driving on public roads.



- Observe the loading height when passing under a bridge, a viaduct or tunnels.
- Do not put the vehicle into neutral to descend some hills, put a low gear depending on the hill and of the load. Using too much the brake on a hill can cause "Fading" in case of vehicle with drum brake, the drums will heat so much that they expand, and they will avoid a good braking on needed moments.

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8- SEMI-TRAILER DISCONNECTION AND PARKING:

Follow the instructions to disconnect the trailer from the unit truck:

- Park the trailer on a flat surface.
- Put the parking brake of the trailer.
- Raise the suspension of the tractor unit (if possible).
- Low the mechanic support until it will be on the floor, if necessary. The mechanical supports will have a “slow” position which will allow raising the 5th wheel of the tractor unit if it hasn't got any suspension control. In this case, raise around 50 mm from the floor.
- Pull the lever to open the 5th wheel lock.
- Accelerate slowly the tractor unit ahead to disconnect.
- Unplug the connecting tubes of the electric and hydraulic pneumatic system.
- Remove the tractor unit from the trailer and remember to close the drawers which could be opened.



Disconnect every connection (hydraulic, electric or pneumatic) between the tractor unit and the platform (FIRST THE RED LINE).

9- MAINTENANCE/ REPAIR:

9.1- General warnings




IF THE MAINTENANCE TASKS ARE NOT REGULARLY DONE, A RISK OF THE TIPPER BREAKDOWN AND DANGER IN THOROUGHFARE WILL EXIST. IT WILL ALSO BE A RISK OF DAMMAGE OF THE TIPPER DRIVER.

While the maintenance is getting done, the safety warnings described on the section number 3 of this manual need to be respected, as well as every safety advise:

Stop the tractor unit motor and take off the key before doing any repair, cleaning or lubrication operation or while any maintenance task is getting done.

While the box is getting raised and the maintenance works between the chassis and the box are getting done, put a safety wedge between both of them.

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9.2- Maintenance periods.

Everyday. Check visually the wheels fixing nuts, the tyres pressure and unwearing, the operation of the electrical system and the ABS or EBS system; this system provides any vehicle being more active safety and being more effective while breaking.

After driving 1000 km:

-Make sure that the wheel nuts are tightened.

This checking has to be done each time that a wheel is removed. The tightening torque must be between 600 and 700 Nm.

-Tighten again the suspension and align again the axles (Annex 1).

Everymonth: Change the grease of the 5th wheel disk after the disk and KP cleaning. Clean every vehicle element to grease to warrant its proper operation.

Every 3 months: Check the pads condition for the disk brake. It can be controlled on the brake caliper, as it is indicated on the axle's maintenance manual. For drum brakes, the control is on the automatic brake levers.

Every 6 months: Tighten again the suspension elements and clean the valves filters.

Once a year: Check the joints group and also the suspension tightening to warranty the good operation and align again the axles (Annex 1). Also the valves filters need to be clean.


These intervals have been considered for a normal use of the vehicle, so these periods would be shortened in case of using the vehicle under hard conditions.

In addition to basic checking, it is recommended doing an exhaustive inspection before any trip or if we think that it exist any malfunction.

Check the hydraulic installation of the tractor unit, specially the security valve and its tare, as well as the general condition of the oil, the terminals and the hoses.



The hydraulic equipment installed in the tractor unit, must send maximum pressure of 150 bar to the semi-trailer.

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9.3- Particularities of the maintenance operations

- Before doing the greasing, clean the dust, water and dump.
- Inject the grease until the lubrication point will get out clean grease.
- Do not mix different Brand or specifications oils.
- Greasing points:
 - Lifting equipment joints (cylinders).
 - Mobile parts, hinges, bolts, springs, etc.
 - Hinges of the door and of the lower closures.
 - Turning point of the box with the chassis.

The trailer is delivered with grease "GR MV/EP 2", (lithium grease). Use the same or equivalent grease.

TRACTOR UNIT OIL TANK:

In order to check the oil level, the trailer need to be in horizontal position and the oil must be cold. If you want to add the oil, check that the cover and that the whole area are clean and also check the hydraulic oil use according with the following basic information (for other specifications, ask the manufacturer).

DIM 51524 TEIL 2 HLP
ISO L-HM



GENERAL WARNINGS ABOUT THE HYDRAULIC OILS USE

- *Do never mix de oils*
- *Using good oil, of good quality, warranties a good lubrication and durability of the elements.*
- *The oil tank must be closed; the air is suctioned by a filling cap with the corresponding filter.*
- *Keep clean the return filters*
- *Check the oil level; it must have from 35% to 40% more than the working volume of the cylinder.*
- *The oil change must be done by experts. The oil removed should be kept and thrown away according with the environment protection rules.*


HYDRAULIC STRUCTURES:

Look for possible leaks

STICKER AND LIGHTING DEVICES:

Check the stickers and lighting cleaning.

WHEELS AND TYRES:

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Check the tyres condition, the traffic band, sides and make sure that there are not any fissures.

Check the tyres pressure.

SCREWS:

- Tighten the cylinder screws of the tipper.
- Tighten the support screws of the tilting axle.
- Check the tightening torque in the wheel.

CLEANING:

- Clean the trailer and remove the dirt left and sticking materials.

TARP:

After the first months of use, the tarp strain will be reduced. To avoid these problems, tighten the strains which are on each side of the tipper, on the upper part.

Grease the bearings of the transmission axle between the lever and the tarp pulley system.

AXLES:

Follow the instructions of annex 1 and, in general, those of the axle manufacture.

10.-ELECTRIC, HIDRAULIC AND PNEUMATIC SYSTEMS

LIFTING AXLE

Description: automatic axles lifting system


Operation: the axles lift automatically once the unloading was done and after starting operating it.

They will download progressively with the charge.

See schemas:

- 1 lifting axle, drawings: *EL038-01- ILV010-02*
- 2 lifting axle, drawings:
 - AXLE 1 AND 2: *EL038- ILV010*
 - AXLE1 AND 3: *EL038- ILV010-01*

TRACTION ASSISTANCE

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Description: It makes possible increasing the loading on the traction of the tractor unit lifting temporarily the first axle when the vehicle is loading and driving at low speed.

Operation: It will be activated by a push button placed in the cabin, which sends an electrical signal to the trailer by the terminal pin 6 ISO 3731 or the pin 12 of the ISO terminal 12098.

It will be activated pushing it for 1 second; it will be deactivated automatically when it will exceed the 30 km/h or pressing it for 5 seconds.

This system will not be activated if some of the following conditions will exist:

- Rear axles overloading
- Speed over 30 km/h.

LIFTING AXLES LOWERING

Description: The axles will lift automatically when it is getting unloaded. But we can unload them with two different processes:

- Applying 3 times, in less than 5 seconds, the tractor unit brake.
- Pressing for 5 seconds the traction assistance button.

Optional: it can be activated or deactivated from the “TIM” or the “iPAT”.


SELF-STEERING AXLE

Description: this system blocks the self-steering axle transforming this axle into rigid.

Operation: The axle blockage is automatic when the speed exceeds 40 km/h., to provide the vehicle more stability, as well as when it is driven in reverse. It is recommended aligned the tractor unit with the semi-trailer to make sure that the blockage has been done.

It can also be blocked permanently by the switch placed in the left side of the trailer.

See schema: drawings *ELC082-EN and ELC082-A-EN*

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BOX LIFTING

Description: this system is used to lift the box and to do the unloading.

See schema: drawing *H001*



BOTH HYDRAULIC TERMINALS MUST BE CONNECTED BETWEEN THE TRACTOR UNIT AND THE SEMI-TRAILER: PRESSURE AND RETURN

OPTIONAL- BOX LIFTING WITH HYDRAULIC BOX

Description: This system is used to lift the door by some hydraulic cylinders, before starting the merchandise unloading, protecting the door, against possible merchandise hits.

Operation: By a switch place in the left side of the chassis, activate the system; 0 off, 1 on.

In the off position, the door will work as a swing door.

Being activated: The door opens automatically with the tilting. The system will retard the hydraulic opening of the door until the box will be tilted $\pm 9^\circ$. Make sure that the bottom closures will be opened. When the hydraulic system acts, the door will open.



Note: *In order to make this system operating, it is needed being on the electric connection of the pin 4 in the terminal ISO3731, or the PIN 9 of the terminal ISO 12098.*

See schemas: drawings *H002, E001*

BRAKES SCHEMA: drawing *FE022*



ATTENTION: *This system operation must be done exclusively by the qualified staff and designed by ROJO TRAILER, SL, or by the manufacture of the brake system Knorr-Bremse.*

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LIGHTS AND CONNEXIONS SCHEMAS WITH THE TRUCK:

General Schema of the lighting electric installation:

Drawing 14M0D524/9M

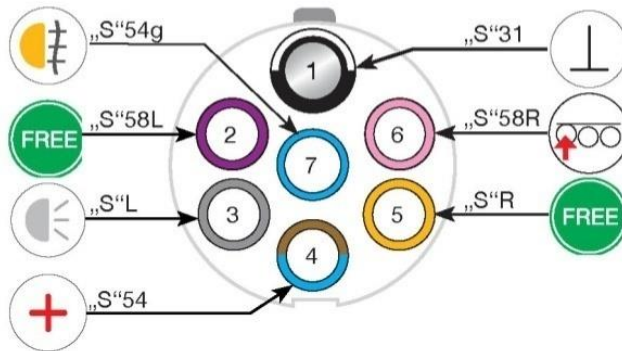
Connexions with the tractor unit:

SYMBOL LEGEND						SYMBOL LEGEND					
Symbol											Symbol
	Masse	Earth	massa	Masse	Masa	Terra	Massa	Jord	jord	maa	
	Blinker links	LH rear direction indicator	freccia sinistra	Ciñotant gauche	Intermitente izquierdo	Pisca esquerdo	knipperlicht Links	Venstre blinklys	blinker vänster	vilku vasen	
	Blinker rechts	RH rear direction indicator	freccia destra	Ciñotant droit	Intermitente derecho	Pisca direito	knipperlicht Rechts	Høyre blinklys	blinker höger	vilku oikea	
	Bremslicht	stop	stop	Feu stop	Luz de freno	Fieio	Rem licht	Bremselys	bromslyus	jarruvalo	
	Standlicht links	LH Tail	posizione sinistra	Feu de position gauche	Luz posición izquierda	Luz de posição esquerda	Achterlamp Links	Venstre parklys	parklyus vänster	parkki vasen	
	Standlicht rechts	RH Tail	posizione destra	Feu de position droit	Luz posición derecha	Luz de posição direita	Achterlamp Rechts	Høyre parklys	parklyus höger	parkki oikea	
	Nebelschlussleuchte	rear fog	retronebbia	Feu de brouillard	Luz antiniebla	Luz de neblina	Mist lamp	Tåkelys	dimijus	sumuvalo	
	Rückfahrleuchte	reverse	retromarcia	Feu de recul	Luz marcha atrás	Luz de Ré	Achteruitrij lamp	Baklys	backlyus	peruutusvalo	
	Alt. Stromversorgung (+)	permanent power supply	posito permanente	Alimentation électrique permanente (+)	corriente continua	corrente continua	Constante stroomvoorzorging	Allmenn strømforsyning	allmän strömförsörjning	jatkuva virta	
	Achsanhhebung	axle lift	Sollevatore	Relevage d'essieu	dispositivo de elevación del eje	dispositivo de elevação do eixo	Aslift	Akselløft	axellyft	akselnosto	
	Federeispeicheranzeige	braking control	Controllo funzionamento freni	Contrôle freinage remorque	Control de frenos para trailers	Controle de funcionamento dos freios	Remclinder markering	Bremseindikator	bromsindikator	jousijarrun ilmaisin	
	Verschleißanzeige	brake pad wear Indicator	Controllo usura pastiglie	Témoin d'usure des plaquettes de frein	Indicador de desgaste de las pastillas de freno	Indicador de desgaste de pastilhas de freio	Remslitage indicator	Sitasteindikator	sitasteindikator	jarrujen kuluminen ilmaisin	
	Masse für Elektro-niken	Earth - Data	Massa per elettronica	Massa des éléments électroniques	masa funciones electrónicas	Terra para funções eletrónicas	Massa Data	Jord for elektronikk	jord for elektronikk	elektronikan maa	
	freie Wahl	unallocated	libero	Libre	Libre elección	Livre	Vrije positie	Fritt valg	fritt val	vapaa	

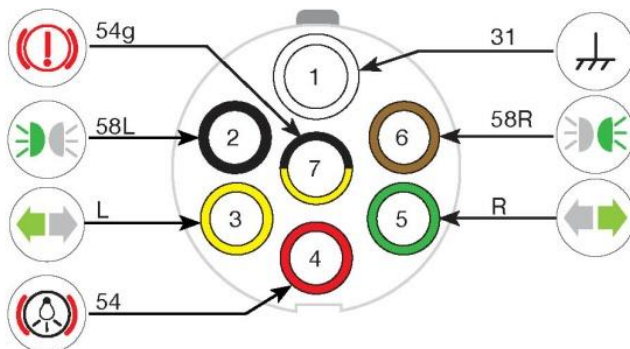
	TIPPERS		
OPERATION AND MAINTENANCE GUIDE	Translation of the original guide	Rev.: 7	25/10/2023




ISO 3731
7 pin



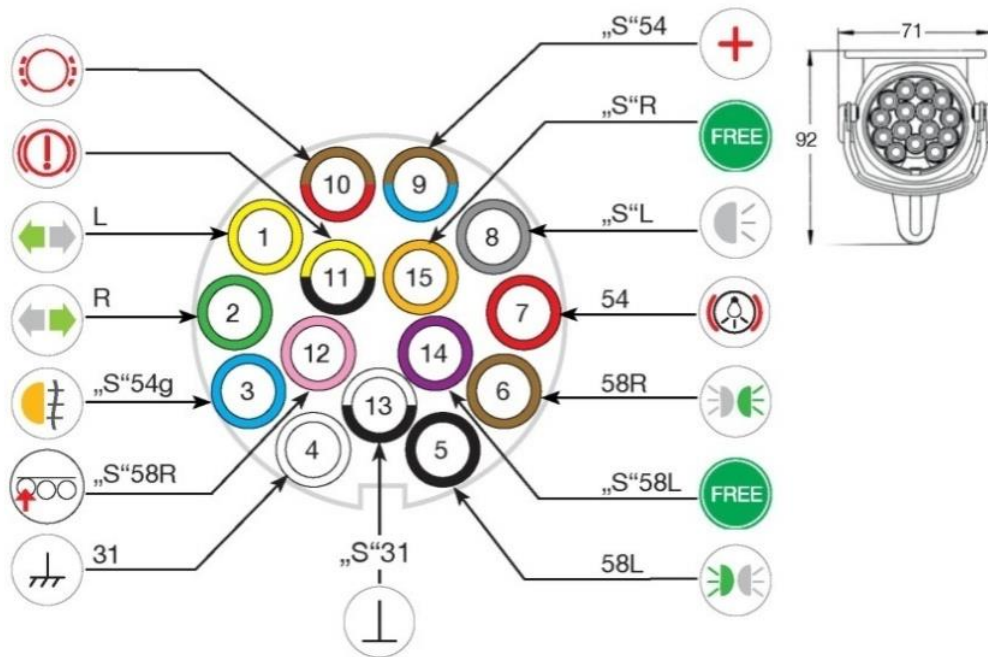
ISO 1185
7 pin




	TIPPERS		
OPERATION AND MAINTENANCE GUIDE	Translation of the original guide	Rev.: 7	25/10/2023



ISO
 12098
 15 pin



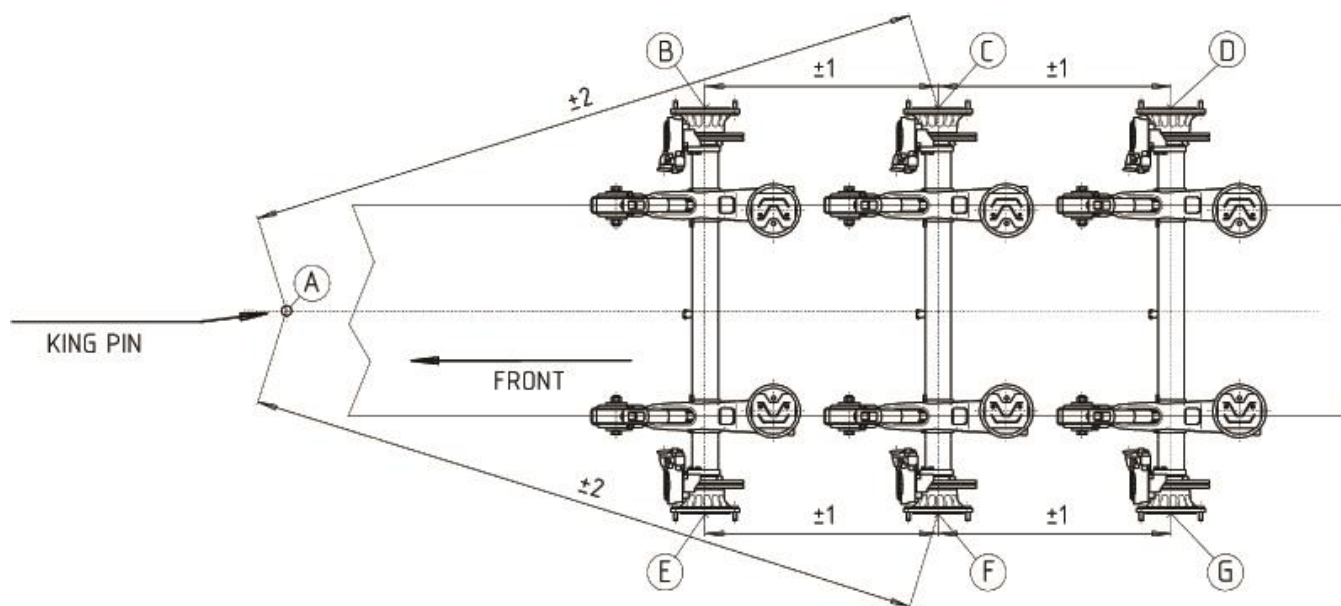
	TIPPERS		
OPERATION AND MAINTENANCE GUIDE	Translation of the original guide	Rev.: 7	25/10/2023


ANNEX 1

It must be done after 1000 km and every year.

Determine the lengths of the diagonals **A - C** and **A - F** for the middle axle(reference axle) by comparison measurements, observing the tolerances(± 2 mm).

Check the wheelbases **B - C** and **E - F** for the front axle and **C - D** and **F - G** for the rear axle and correct, if necessary, observing the tolerances (± 1 mm).



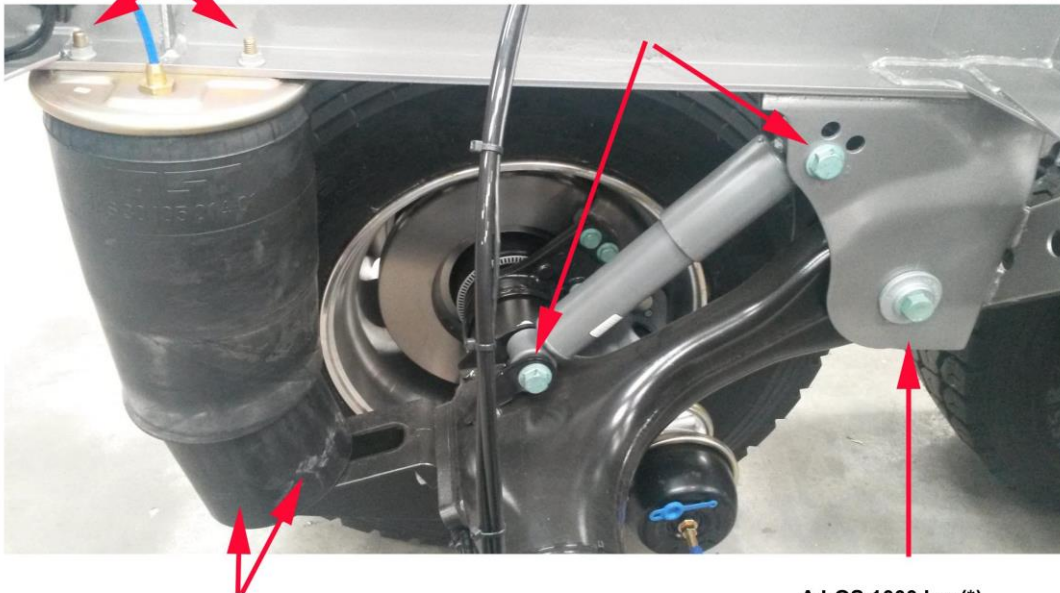
	TIPPERS		
OPERATION AND MAINTENANCE GUIDE	Translation of the	Page 7	05/10/2022

(*) IT MUST HAVE DONE ANY LOADED TRIP



**A LOS 1000 km.(*)
CADA AÑO
FIJACION FUELLE SUPERIOR
PAR DE APRIETE 60 Nm.**

**A LOS 1000 km.(*)
CADA AÑO
FIJACION AMORTIGUADOR
PAR DE APRIETE 400 Nm.**



**A LOS 1000 km.(*)
CADA AÑO
FIJACION FUELLE INFERIOR
PAR DE APRIETE 60 Nm.**

**A LOS 1000 km.(*)
CADA AÑO
CABALLETE DE SOPORTE
PAR DE APRIETE 900 Nm.**



**A LOS 150 Y 500 km.
CADA 3 MESES
CADA CAMBIO DE RUEDAS
REALIZAR LOS ANTERIORES PASOS
PAR DE APRIETE 600 Nm.**

(*) ES NECESARIO QUE SE HAYA REALIZADO ALGUN VIAJE CARGADO.

ROJO TRAILER	TIPPERS		
OPERATION AND MAINTENANCE GUIDE	Translation of the original guide	Rev.: 7	25/10/2023

SAF INTRA

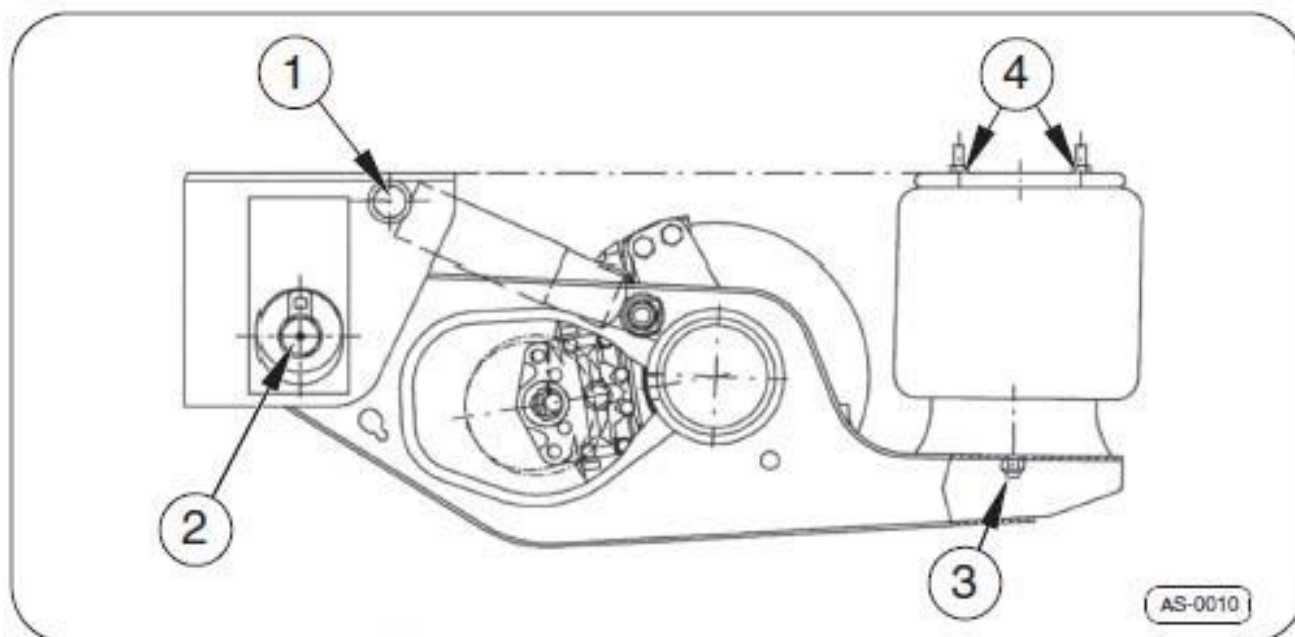


Fig. 11 - SAF INTRA inspection torque

Item.	Screw connection	Inspection torque (Nm)	Width across flats
-1-	M20x1,5	400	30
-2-	M30	1200	46
-3-	M16	80	24
-4-	M12	40	19

ROJO TRAILER	TIPPERS		
OPERATION AND MAINTENANCE GUIDE	Translation of the original guide	Rev.: 7	25/10/2023

SAF MODUL

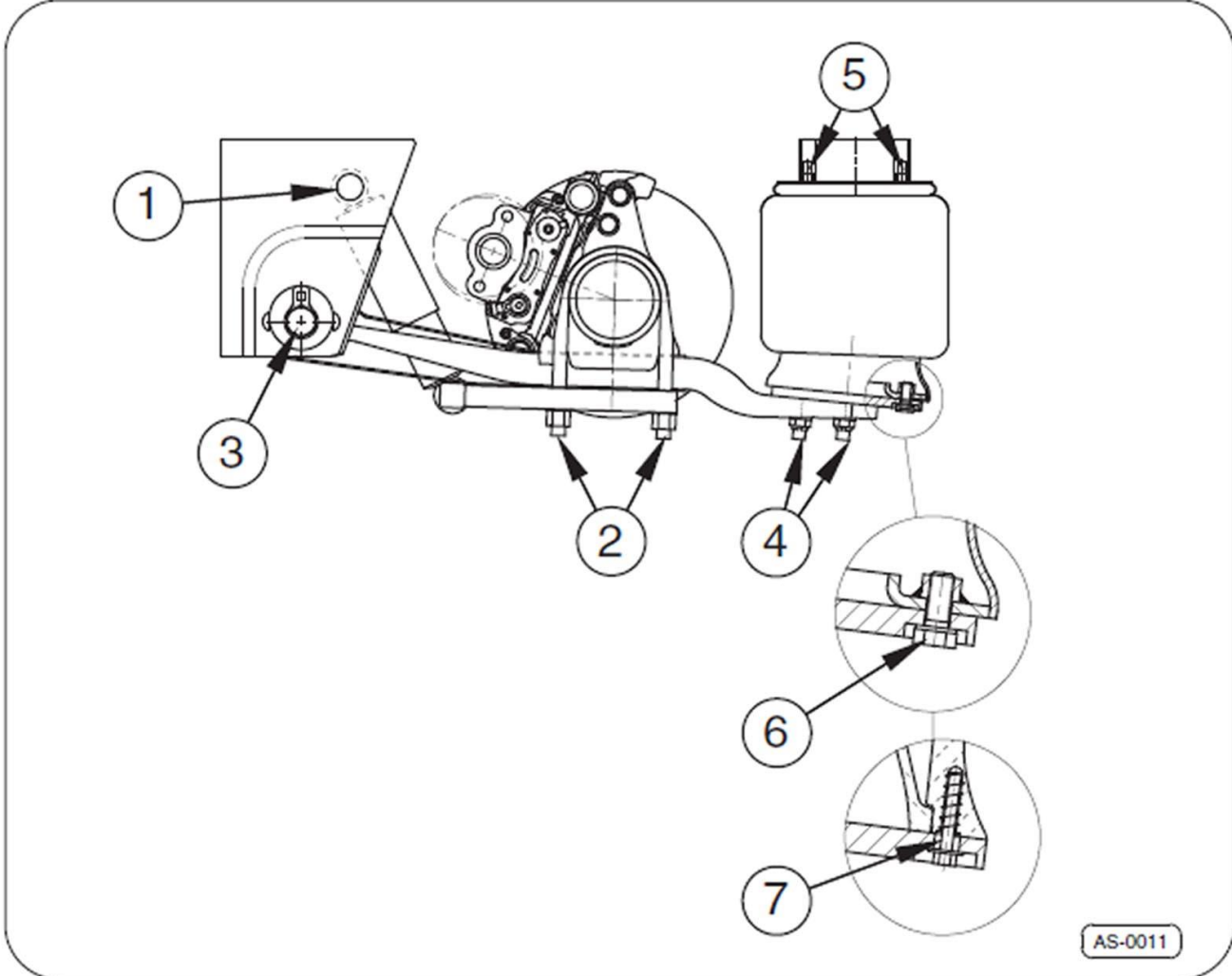



Fig. 12 · SAF MODUL inspection torque

Item.	Screw connection	Inspection torque (Nm)	Width across flats
-1-	M24x2	400	36
-2-	M22x1,5	580	32
-3-	M30	1200	46
-4-	M20	180	30
-5-	M12	40	19
-6- ²⁾	M12	80	19
-7- ³⁾	K100x40	20	10

	TIPPERS		
OPERATION AND MAINTENANCE GUIDE	Translation of the original guide	Rev.: 7	25/10/2023



OBSERVE CAREFULLY THE MAINTENANCE, GREASING, ETC. EXPLAINED IN THIS MANUAL



IT IS VERY IMPORTANT DOING THE FIRST MAINTENANCE AND THE RE-TIGHTENING OF EVERY FIXINGS, AS CLOSE AS POSSIBLE TO THE FIRST LOADING TRIP AND/OR 1000 KM.



THE 90% OF THE PROBLEMS ON AXLES AND SUSPENSION ARE DUE BECAUSE OF ABSENCE OF FOLLOWING-UP THE MAINTENANCE INSTRUCTIONS. NOT FOLLOWING THESE INSTRUCTIONS WILL BE CONSIDERED A DEFECT USE AND, THEREFORE, THE WARRANTY WILL BE

VOID.

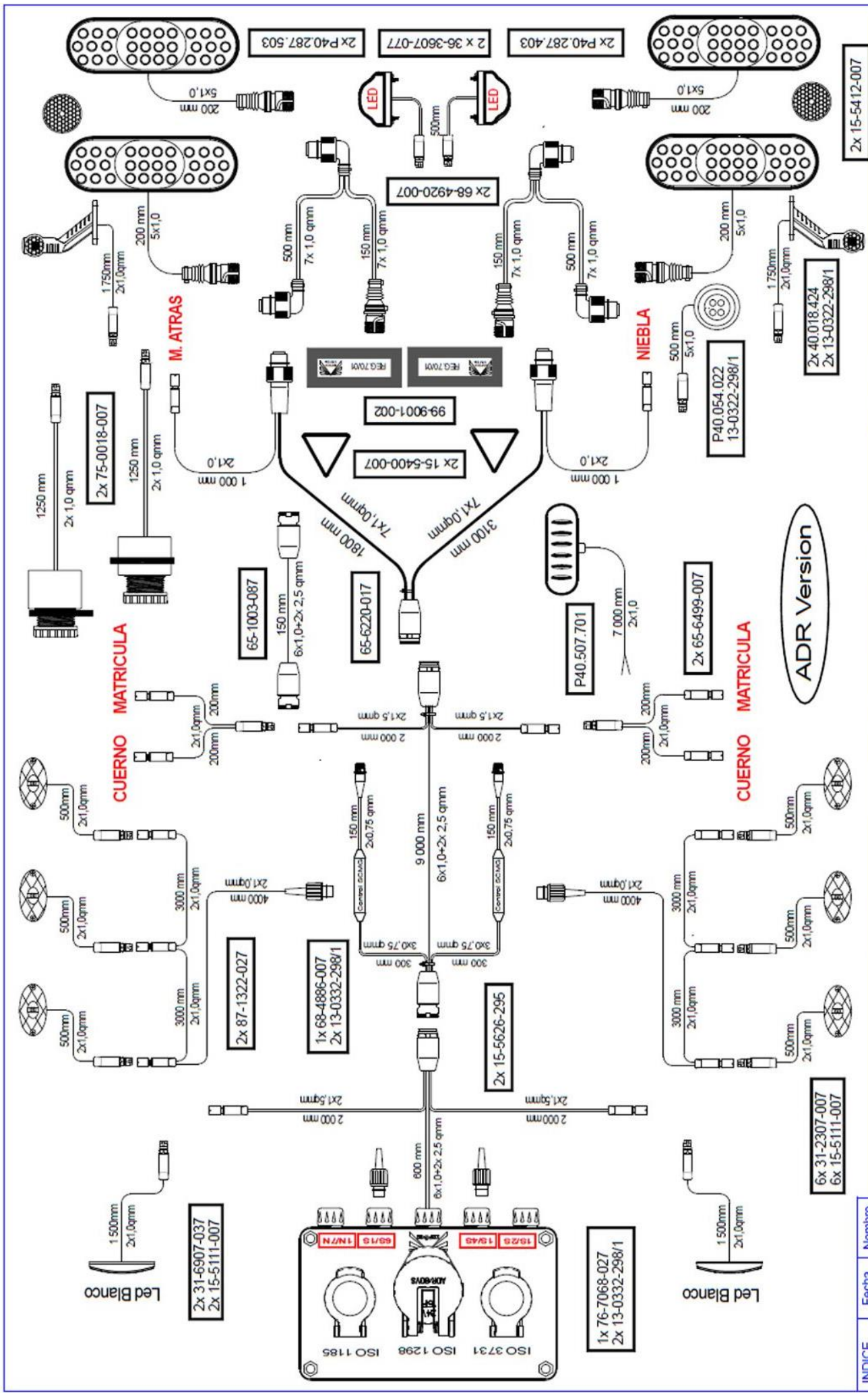


IMPORTANT: AFTER THE 1ST INSPECTION. THIS FILE NEEDS TO BE DULY FILLED AND SIGNED, AND SENT TO THE e-mail service@rojotrailer.com, TOROJO TRAILER SL , ATTACHING THE TECHNICAL DATA SHEET

IN CASE OF HAVING ANY DOUBTS OR IF ANY INFORMATION ABOUT MAINTENANCE IS NEEDED, CONTACT THE POST-SALES RESPONSABLE ON PHONE NUMBER: +34. 947 54 64 11.

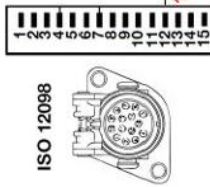
COMPANY NAME		V.A.T.	
ADDRESS		CITY	
		COUNTRY	
TELEPHONE N.			
UNIT INFORMATION		WARRANTY STARTING DATE	
MODEL		O.P.	
CHASSIS NUMBER			

DAY	WORK DONE	
WORKSHOP		STAMP



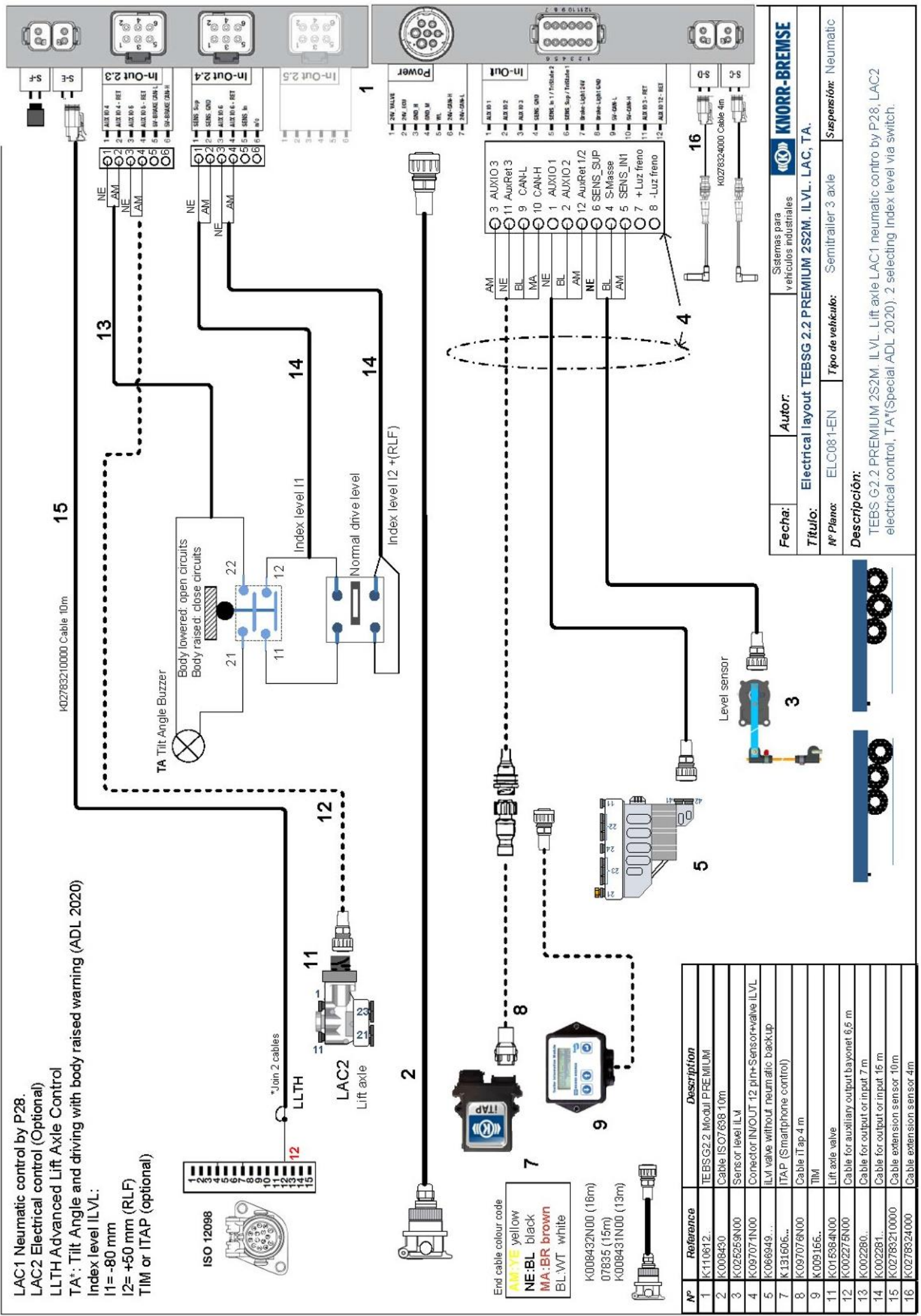
INDICE	Fecha	Nombre
Autor:	07.10.20	LD
Modificado:		
Comentario:	Nuevo R-48	
	BASC. 9M Ass3 PRO-HORIZ	

LAC1 Pneumatic control by P28.
 LAC2 Electrical control (Optional)
 LLTH Advanced Lift Axle Control
 TA*: Tilt Angle and driving with body raised warning (ADL 2020)
 Index level ILVL:
 I1= -80 mm
 I2= +50 mm (RLF)
 TIM or ITAP (optional)



End cable colour code
AM:YE yellow
NE:BL black
MA:BR brown
BL:WT white

K008432N00 (16m)
 07835 (15m)
 K008431N00 (13m)



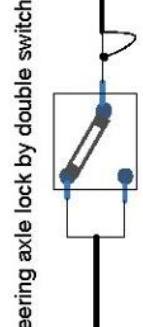
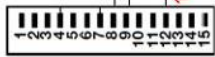
Nº	Reference	Description
1	K110612..	TEBSG2.2 Modul PREMIUM
2	K008430	Cable ISO7638 10m
3	K025259N00	Sensor level ILVL
4	K097071N00	Connector IN/OUT 12 pin+Sensor+valve ILVL
5	K066949...	ILVL valve without pneumatic backup
7	K131606...	ITAP (Smartphone control)
8	K097076N00	Cable IT ap 4 m
9	K009166..	TIM
11	K016384N00	Lift axle valve
12	K002275N00	Cable for auxiliary output bayonet 6,6 m
13	K002280..	Cable for output or input 7 m
14	K002281..	Cable for output or input 16 m
15	K02763210000	Cable extension sensor 10m
16	K0276324000	Cable extension sensor 4m

Fecha:		Autor:	Sistemas para vehículos industriales
Título:	Electrical layout	Aut:	TEBSG 2.2 PREMIUM 2S2M. ILVL. LAC, TA.
Nº Plano:	ELC081-EN	Tipo de vehículo:	Semitrailer 3 axle
Descripción:	TEBS G.2.2 PREMIUM 2S2M. ILVL. Lift axle LAC1 pneumatic control by P28, LAC2 electrical control, TA*(Special ADL 2020). 2 selecting Index level via switch.		
Suspensión:	Pneumatic		



LAC1 Pneumatic control by P28.
 SAL Steering axle lock
 Back-up Light: steering axle lock reverse light or 24V
 TA*: Tilt Angle and/or driving with body raised warning (ADL 2020)
 LLTH Advance lift axle control
 Index level ILVL:
 11= -80mm
 12= +50mm (RLF)
 TIM or ITAP (optional)

ISO 12098



15 K02783210000 Cable 10m
 15 K02783210000 Cable 10m

13

14

14

11 SAL

12

Steering axle lock control valve

2

7

8

9

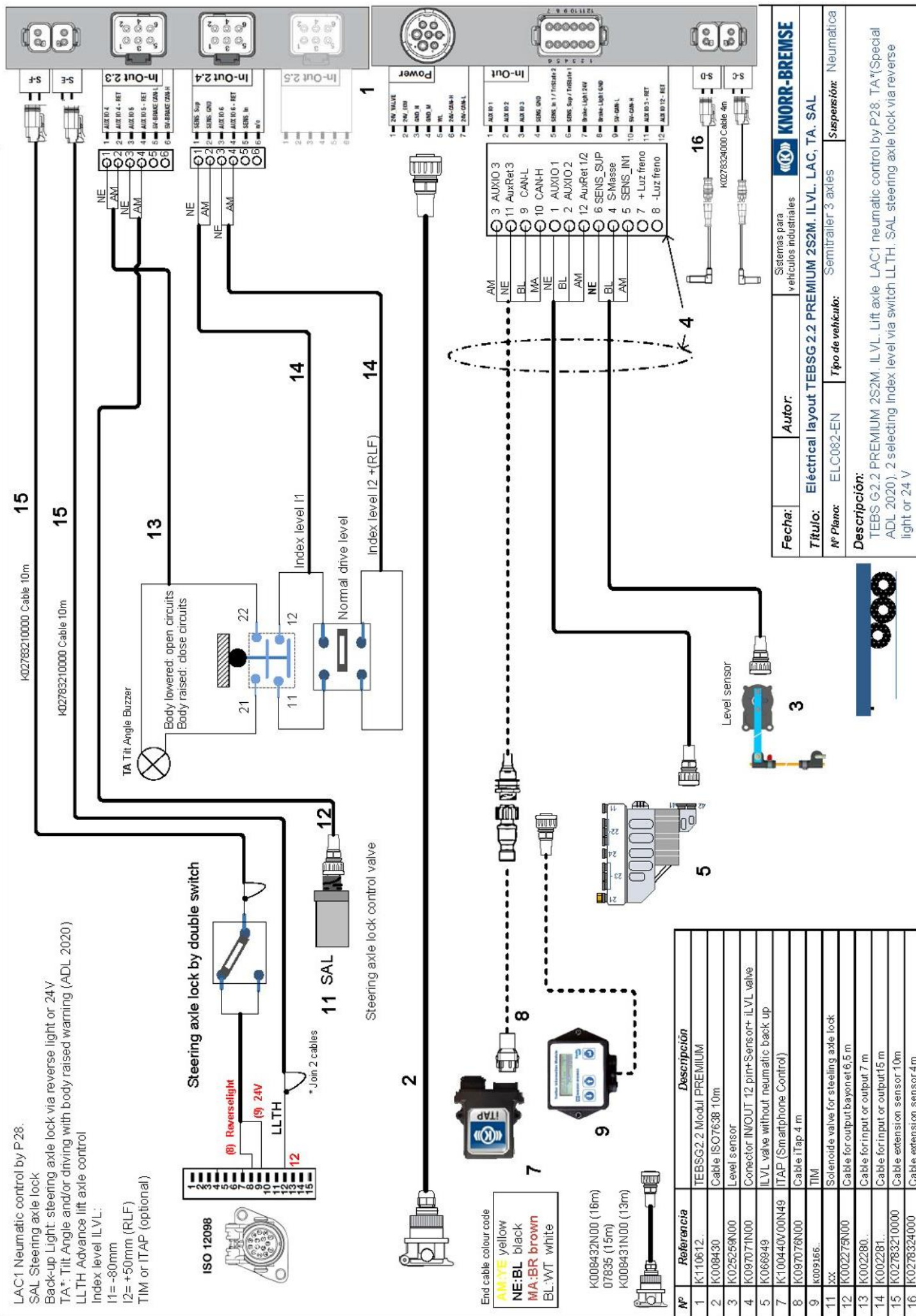
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5

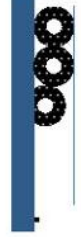
16

End cable colour code
 AM:YE yellow
 NE:BL black
 MA:BR brown
 BL:WT white

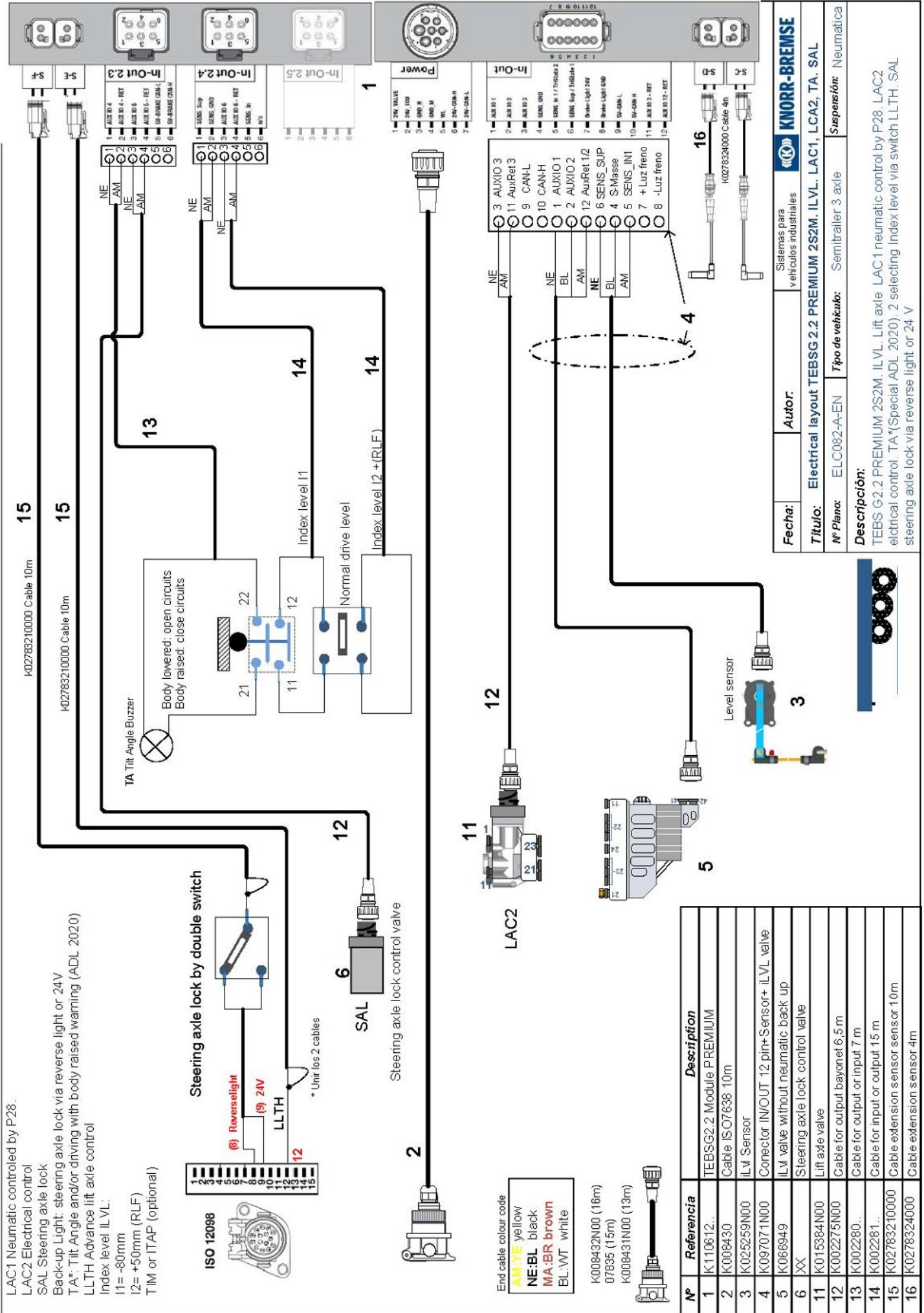
K008432N00 (16m)
 07835 (15m)
 K008431N00 (13m)



Fecha:		Autor:	Sistemas para vehículos industriales
Título:	Eléctrical layout TEBSG 2.2 PREMIUM 2S2M. ILVL. LAC. TA. SAL		
Nº Plano:	ELC082-EN	Tipo de vehículo:	Semirrailer 3 ejes
Descripción:	TEBS G.2.2 PREMIUM 2S2M. ILVL. Lift axle LAC1 pneumatic control by P28. TA*(Special ADL 2020). 2 selecting Index level via switch LLTH. SAL steering axle lock via reverse light or 24 V		
Suspensión:	Neumatica		



Nº	Referencia	Descripción
1	K110612..	TEBSG2.2 Modul PREMIUM
2	K008430	Cable ISO7638-10m
3	K025259N00	Level sensor
4	K09707N00	Connector IN/OUT 12 pin+Sensor+ iLVL valve
5	K066849	ILVL valve without pneumatic back up
7	K100440V00N49	ITAP (Smartphone Control)
8	K097078N00	Cable ITap 4 m
9	K09166..	TIM
11	xx	Solenoid valve for steering axle lock
12	K002275N00	Cable for output bayonet 6,5 m
13	K002280..	Cable for input or output 7 m
14	K002281..	Cable for input or output 15 m
15	K02783210000	Cable extension sensor 10m
16	K02783240000	Cable extension sensor 4m



Nº	Referencia	Description
1	K110612...	TEBSG2.2 Module PREMIUM
2	K008430	Cable ISO7838 10m
3	K025259N00	ILVL Sensor
4	K097071N00	Connector IN/OUT 12 pin+ Sensor+ ILVL valve
5	K066949	ILVL valve without pneumatic back up
6	XX	Steering axle lock control valve
11	K015384N00	Lift axle valve
12	K002275N00	Cable for output bayonet 6.5m
13	K002280...	Cable for output or input 7 m
14	K002281...	Cable for input or output 15 m
15	K02763210000	Cable extension sensor sensor 10m
16	K0276324000	Cable extension sensor 4m

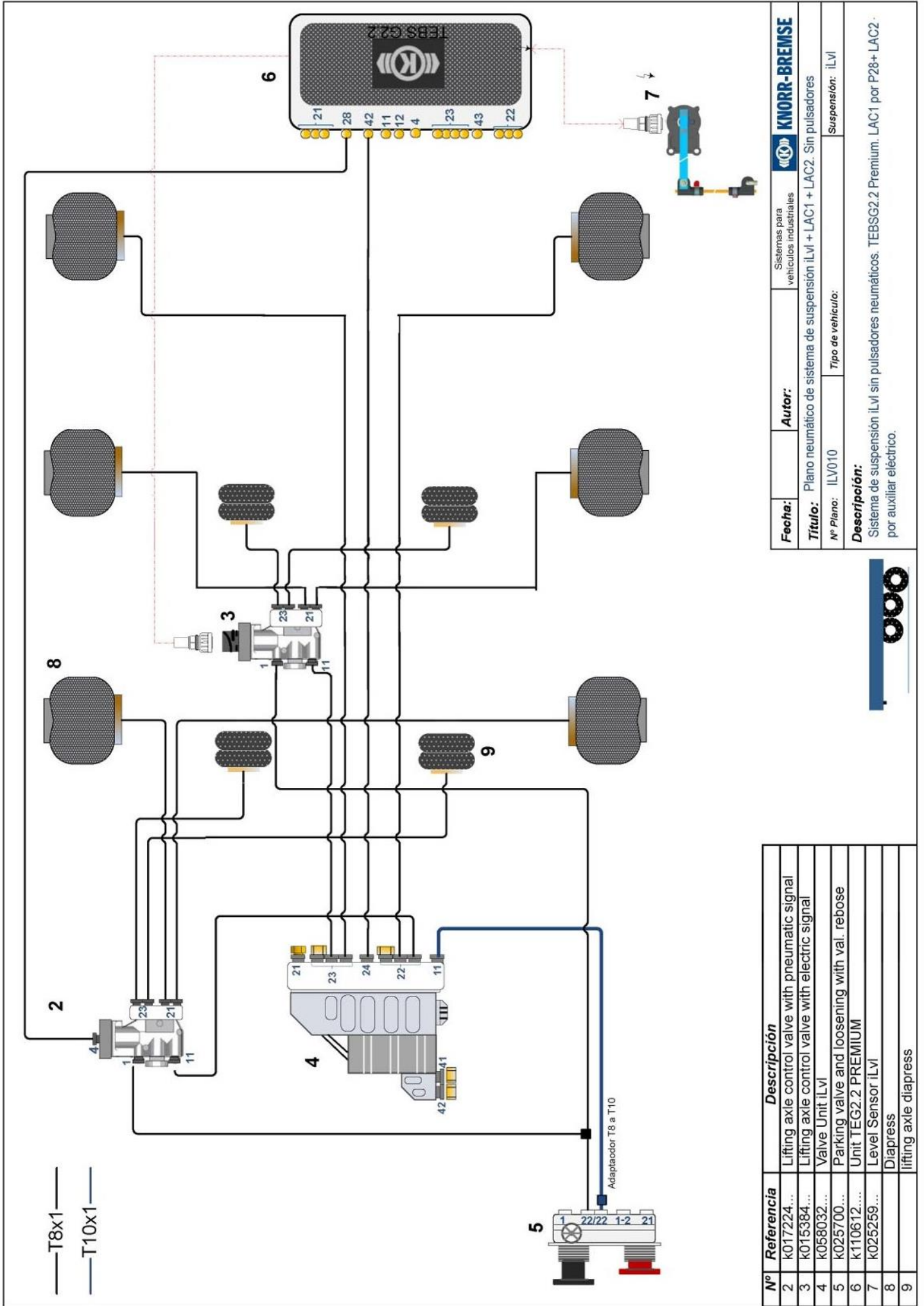
Fecha: **Autor:**

Título: Electrical layout TEBSG 2.2 PREMIUM 2S2M. ILVL. LAC1, LCA2, TA, SAL

Nº Plano: ELC082-A-EN **Tipo de vehículo:** Semitrailer 3 axle **Suspensión:** Neumatica

Descripción:
 TEBS G2.2 PREMIUM 2S2M. ILVL. Lift axle LAC 1 pneumatic control by P28. LAC2 electrical control. TA *(Special ADL 2020). 2 selecting index level via switch LLTH. SAL steering axle lock via reverse light or 24 V

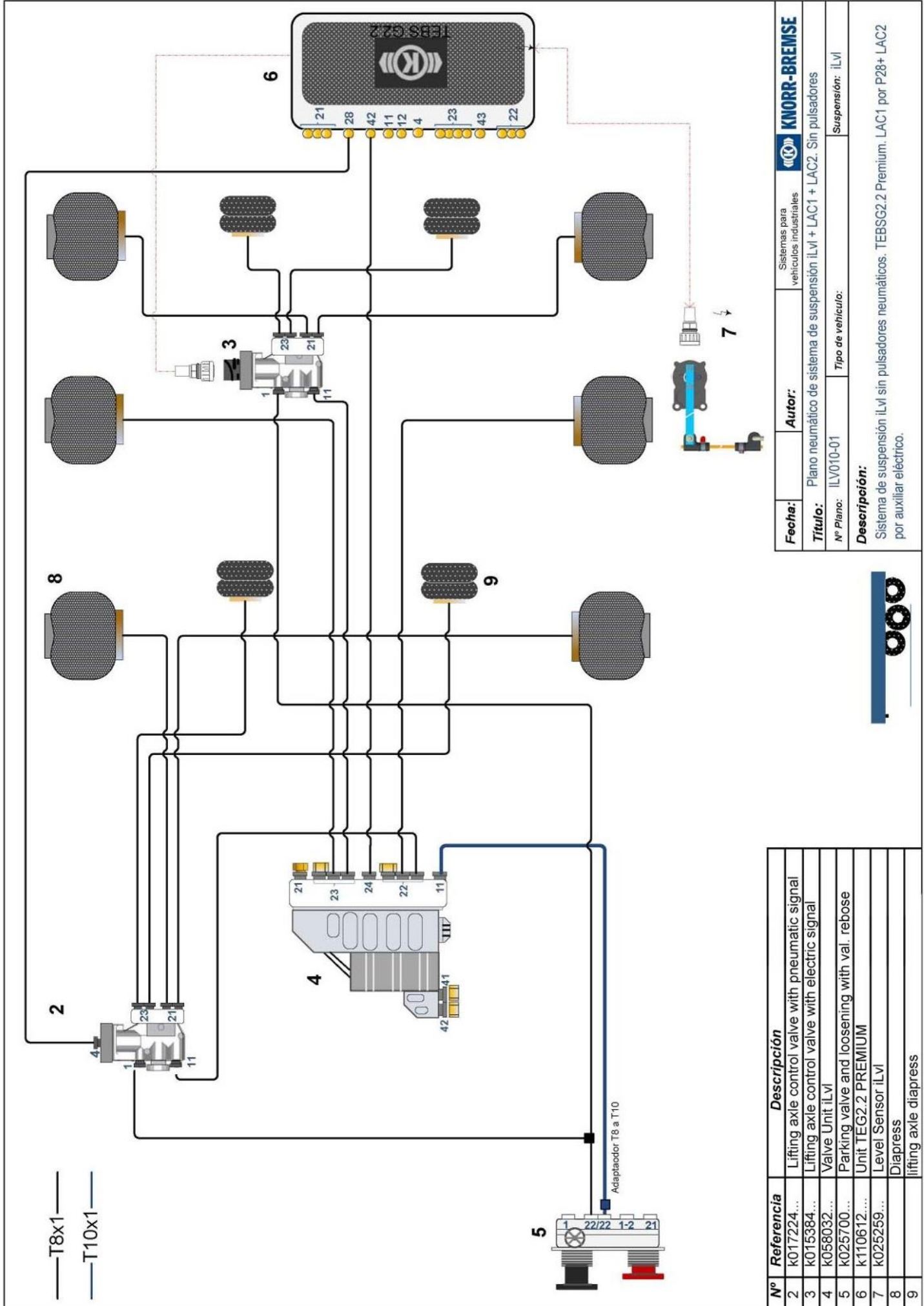




Fecha:		Autor:	Sistemas para vehículos industriales
Título:	Plano neumático de sistema de suspensión iLvi + LAC1 + LAC2. Sin pulsadores		
Nº Plano:	ILV010	Tipo de vehículo:	Suspensión: iLvi
Descripción:	Sistema de suspensión iLvi sin pulsadores neumáticos. TEBSG2.2 Premium. LAC1 por P28+ LAC2 por auxiliar eléctrico.		

Nº	Referencia	Descripción
2	k017224...	Lifting axle control valve with pneumatic signal
3	k015384...	Lifting axle control valve with electric signal
4	k058032...	Valve Unit iLvi
5	k025700...	Parking valve and loosening with val. rebose
6	k110612....	Unit TEG2.2 PREMIUM
7	k025259...	Level Sensor iLvi
8		Diapress
9		lifting axle diapress

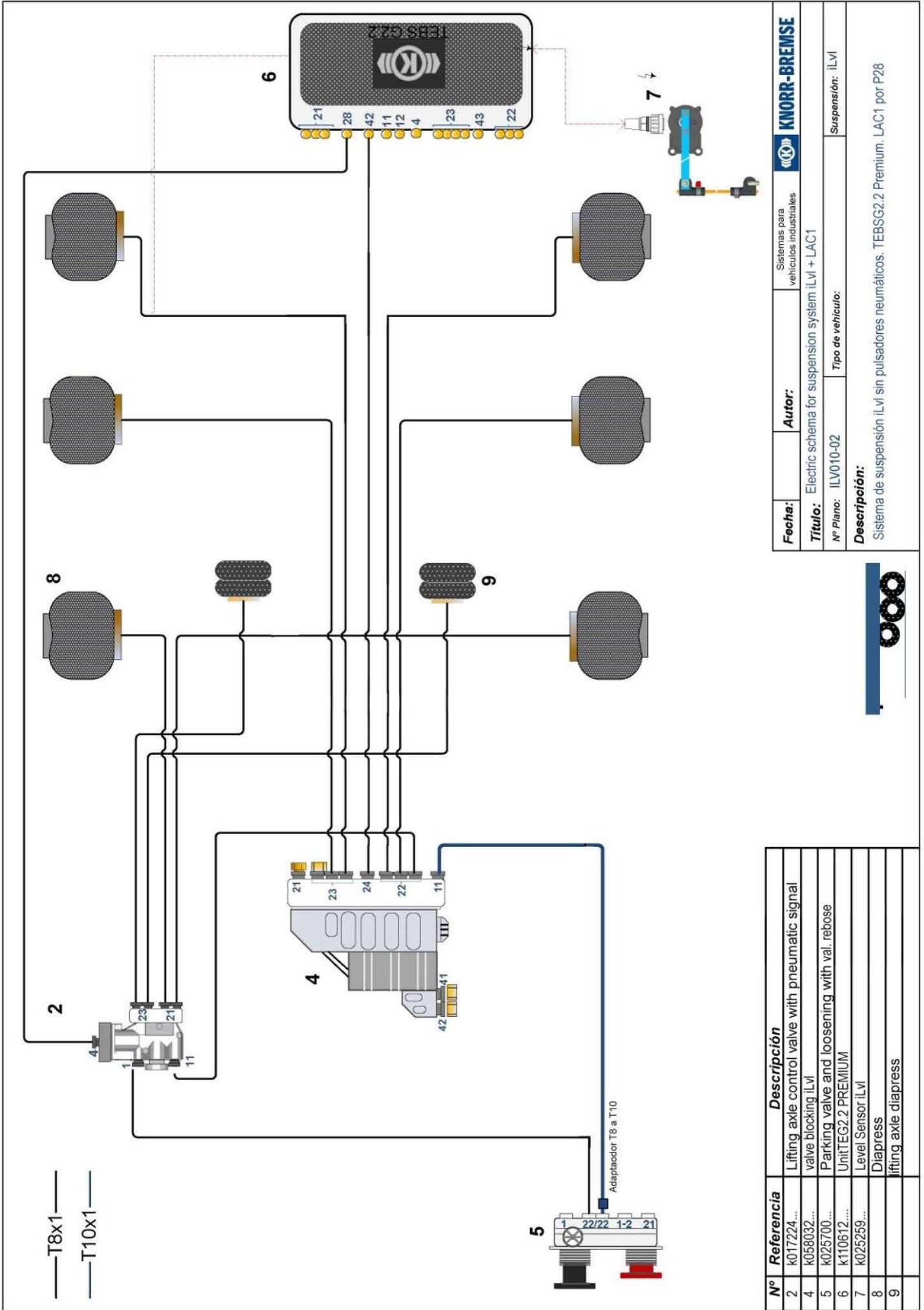




Fecha:		Autor:	Sistemas para vehículos industriales	KNORR-BREMSE
Título:	Plano neumático de sistema de suspensión iLvi + LAC1 + LAC2. Sin pulsadores			
Nº Plano:	ILV010-01	Tipo de vehículo:	Suspensión: iLvi	
Descripción:	Sistema de suspensión iLvi sin pulsadores neumáticos. TEBSG2.2 Premium. LAC1 por P28+ LAC2 por auxiliar eléctrico.			

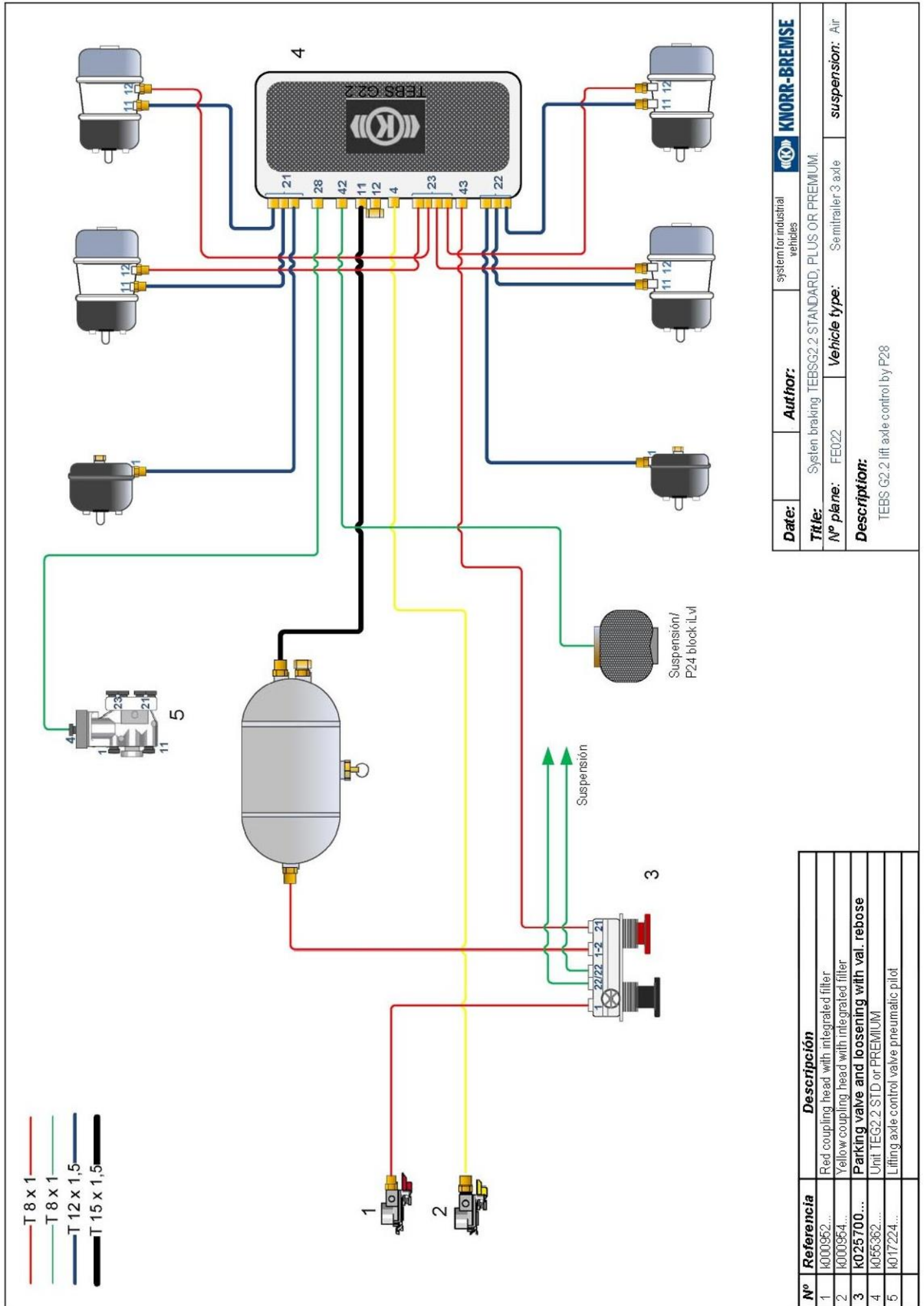


Nº	Referencia	Descripción
2	k017224...	Lifting axle control valve with pneumatic signal
3	k015384...	Lifting axle control valve with electric signal
4	k058032...	Valve Unit iLvi
5	k025700...	Parking valve and loosening with val. rebose
6	k110612...	Unit TEG2.2 PREMIUM
7	k025259...	Level Sensor iLvi
8		Diapress
9		lifting axle diapress



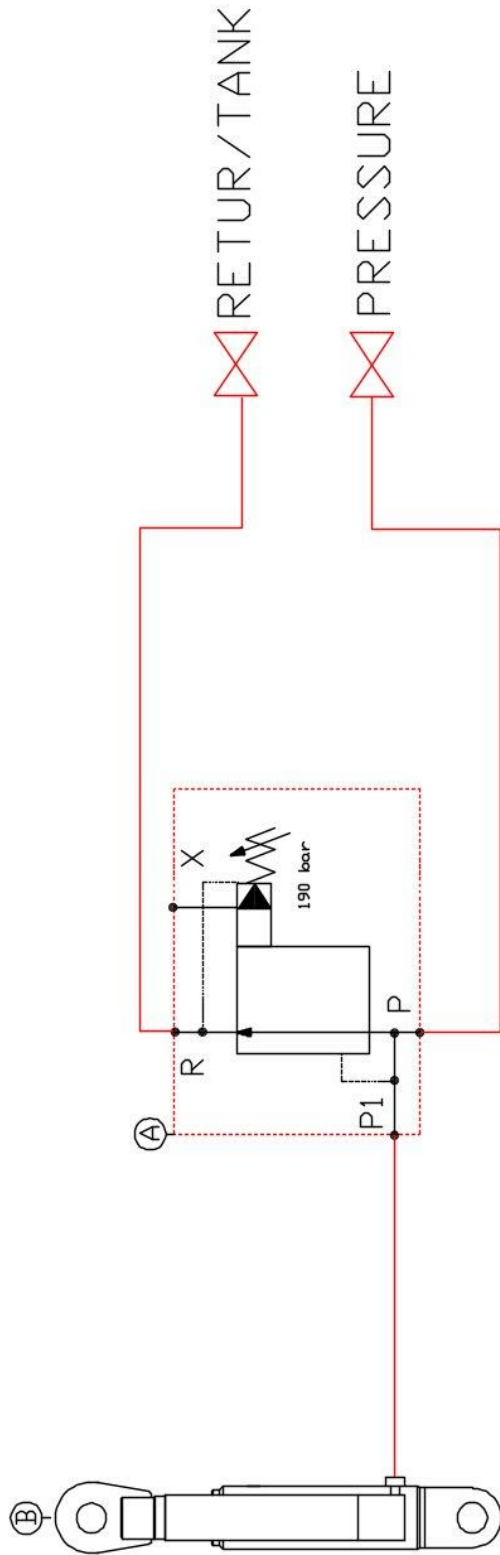
Fecha:		Autor:	Sistemas para vehículos industriales	KNORR-BREMSE
Título:	Electric schema for suspension system iLVI + LAC1			
Nº Plano:	ILV010-02	Tipo de vehículo:	Suspensión: iLVI	
Descripción:	Sistema de suspensión iLVI sin pulsadores neumáticos, TEBSG2.2 Premium, LAC1 por P28			

Nº	Referencia	Descripción
2	k017224...	Lifting axle control valve with pneumatic signal
4	k058032...	Lifting axle blocking iLVI valve
5	k025700...	Parking valve and loosening with val. rebose
6	k110612...	UnitTEG2.2 PREMIUM
7	k025259...	Level Sensor iLVI
8		Diaphragm
9		Lifting axle diaphragm



Date:		Author:	system for industrial vehicles		KNORR-BREMSE
Title:	System braking TEBSG2.2 STANDARD, PLUS OR PREMIUM.				
N° plane:	FE022	Vehicle type:	Semitrailer 3 axle	suspension:	Air
Description:	TEBS G2.2 lift axle control by P28				

N°	Referencia	Descripción
1	k000952...	Red coupling head with integrated filter
2	k000954...	Yellow coupling head with integrated filter
3	k025700...	Parking valve and loosening with val. rebose
4	k055362...	Unit TEG2.2 STD or PREMIUM
5	k017224...	Lifting axle control valve pneumatic pilot



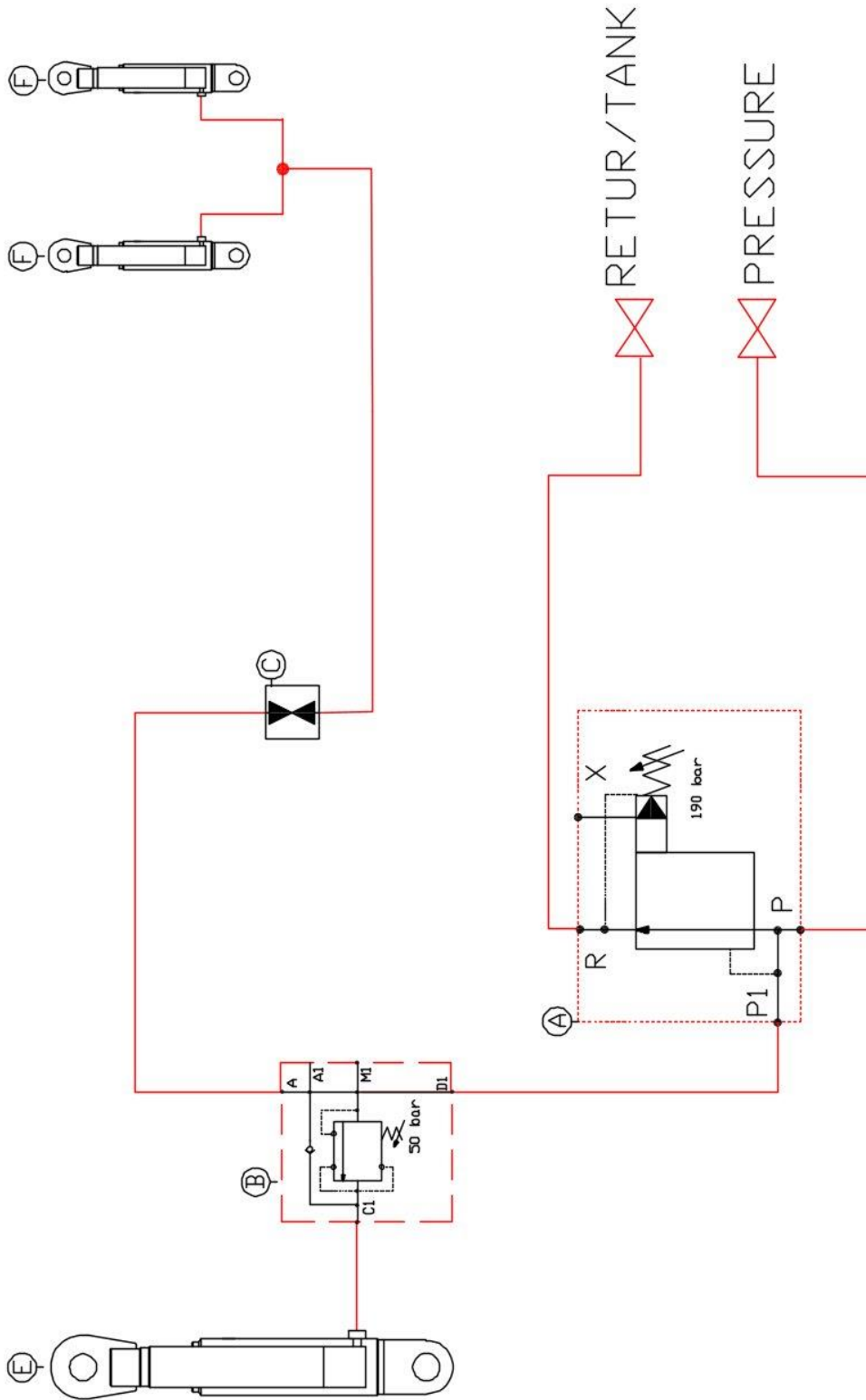
Revisión	FORMATO HOJA	MATERIAL	REFERENCIA	H001
Fecha	DIBUJADO CCC	PESO	TOLERANCIA SEGUN ISO 2768-v	
	Nº PIEZAS POR VEHICULO:	TRATAMIENTO		
Escala:	Designación:	TIPPER		
	Observaciones:			

	FUNCTION	REFERENCE
A	FRONT SECURITY VALVE (OPTIONAL)	Non ref.
B	CYLINDER FRONT	SEE CYLINDER PLATE

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HYDRAULIC DOOR



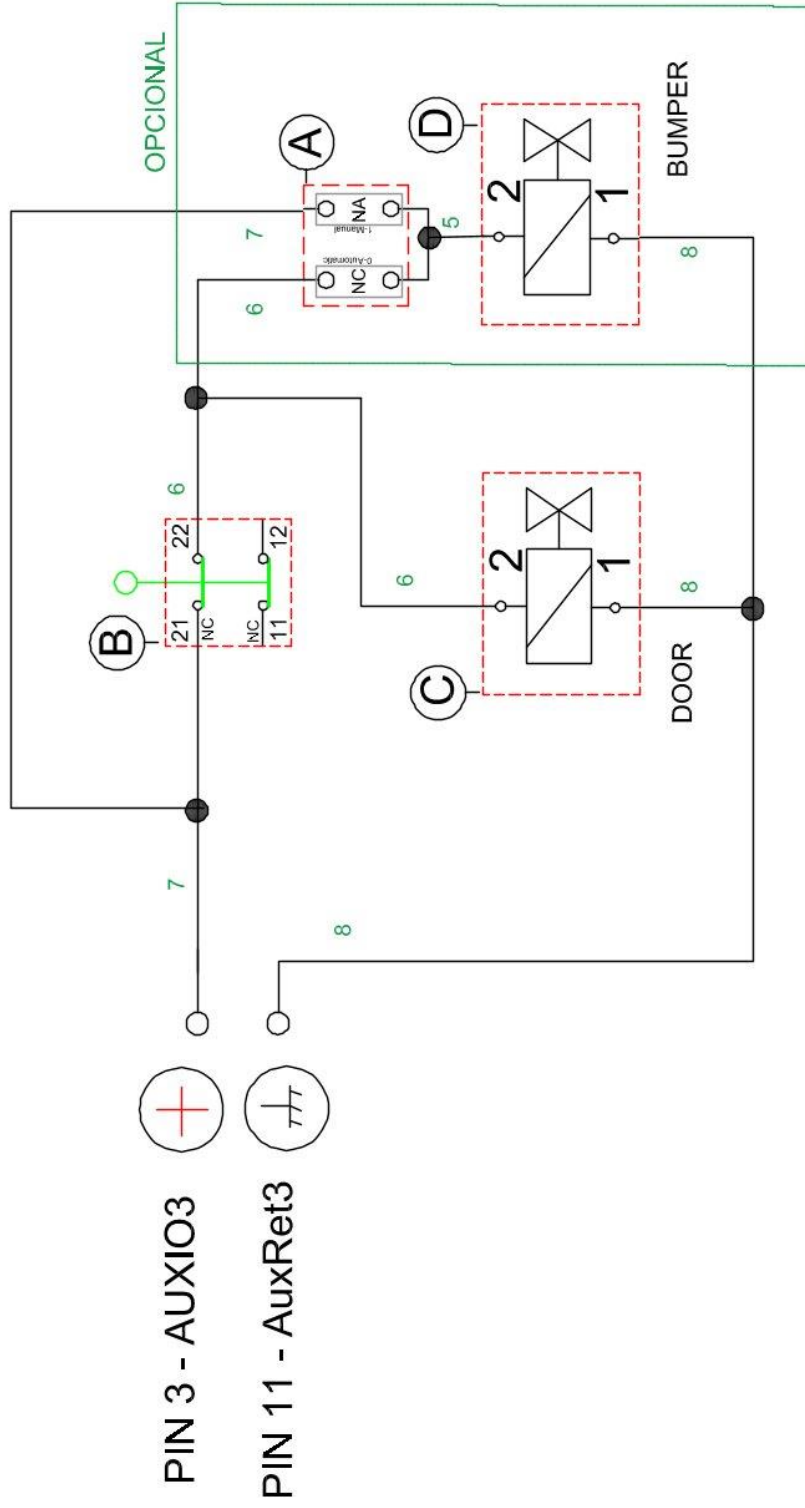
FUNCTION	REFERECE
A	FRONT SECURITY VALVE Non ref.
B	HIDRAULIC REAR DOOR OPENING BEZARES ref. 9029890
C	BALL VALVE 90° BECO ref. V2RH10
E	CYLINDER FRONT SEE CYLINDER PLATE
F	CYLINDER DOOR CICROSA ref. 640/4

Revisión	FORNATO HOJA	MATERIAL	REFERENCIA
Fecha	DIBUJADO CCC	PESO	H003
27/03/2020	Nº PIEZAS POR VEHICULO:	TRATAMIENTO	TOLERANCIA SEGUN ISO 2768-v
Escala:	Designación:	HYDRAULIC DOOR	
Observaciones:			

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AUTOMATIC DOOR OPENING AND BUMPER



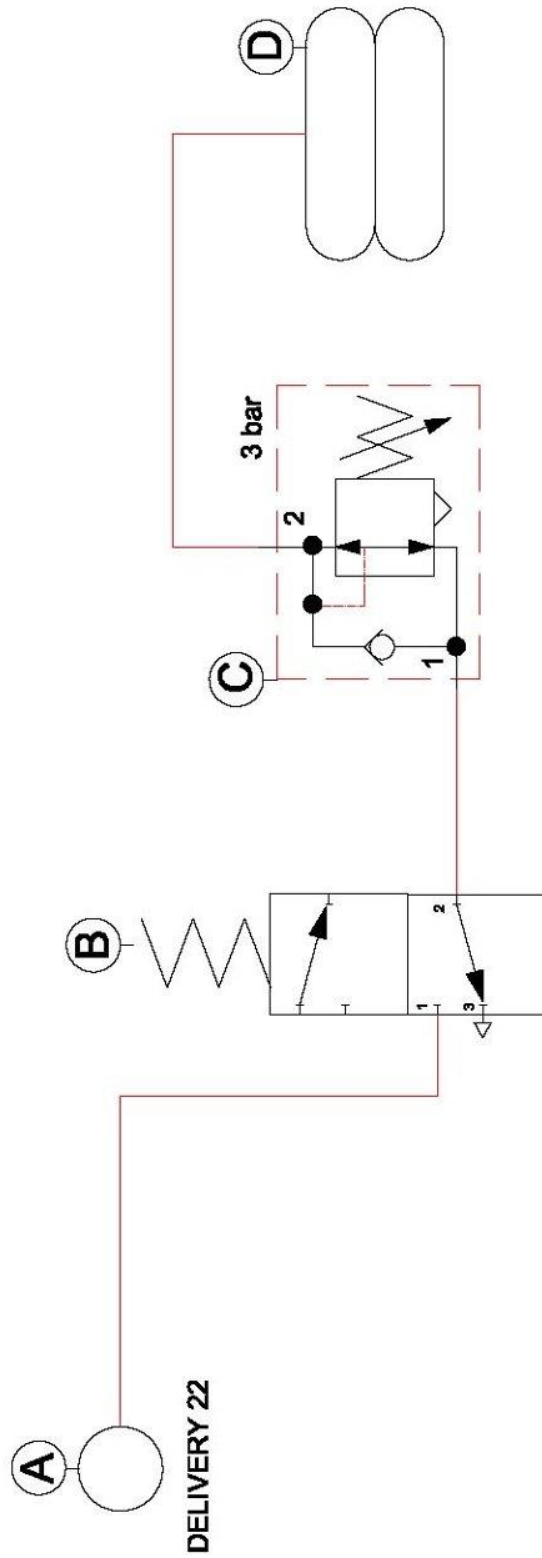
FUNCTION	REFERENCE
A SELECTOR SWITH.	SCHNEIDER ref. XALD134
	ZENL.1121
	ZENL.1111
B LIMIT SWITH	TELEMECANIQUE ref.ZCKM7
	ZCKDO5
	ZCKY59
	XE2NP
C ELECTROVALVE	ACCEVAL VEB-3
D ELECTROVALVE	ACCEVAL VEB-2

Revisión	FORMATO HOJA	MATERIAL	REFERENCIA
Fecha	CCC	PESO	E003
27/03/20	No PIEZAS POR VEHICULO:	TRATAMIENTO	TOLERANCIA SEGUN ISO 2768-v
Escala:	Designación:	AUTOMATIC DOOR OPENING AND BUMPER ALU450	
Observaciones:			

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AUTOMATIC BUMPER



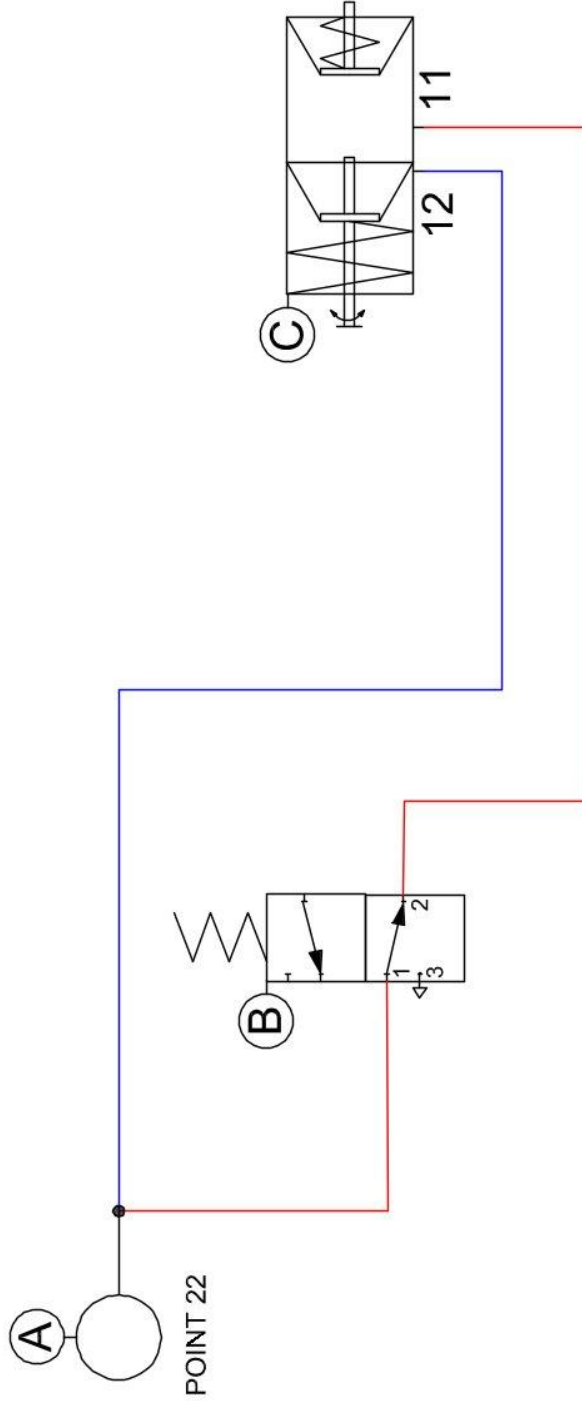
FUNCTION REFERENCE

A	PARKIN VALVE AND LOOSENING WITH VAL. REBOSE	K026700	
B	ELECTROVALVULA	CCEVAL - VEB-2	
C	PRESSURE REGULATOR	KNORR BREMSE- AC155F	
D	AIR SPRING	CONTI - FD200-22 CI	

Revisión	FORMATO HOJA	MATERIAL	REFERENCIA	MOD.1
Fecha	DIBUJADO CCC	PESSO		
18-09-18	Nº PIEZAS POR VEHICULO:	TRATAMIENTO	TOLERANCIA SEGUN ISO 2768-y	
Escala:	Designación:	AUTOMATIC BUMPER		
	Observaciones:			
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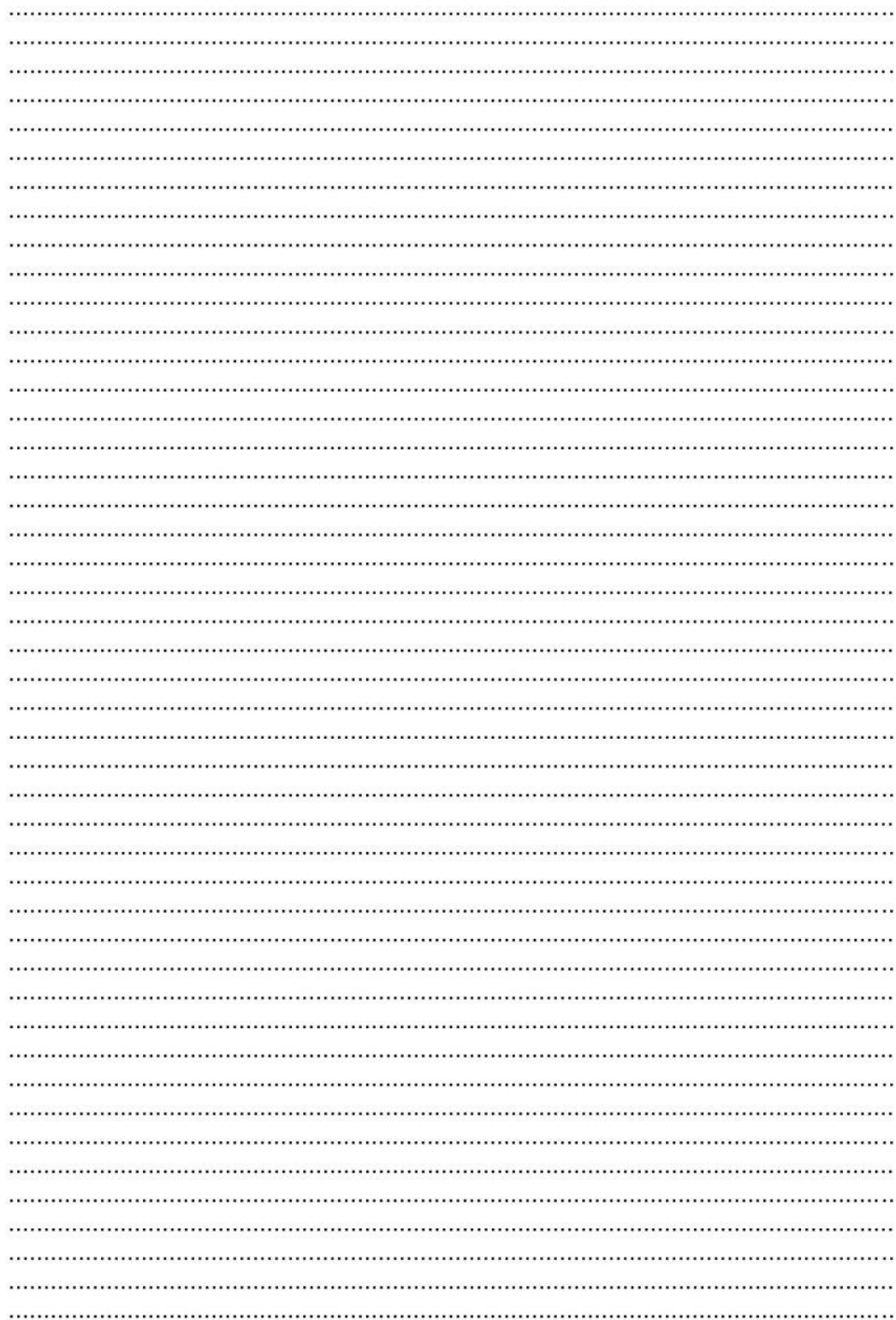
ROJO

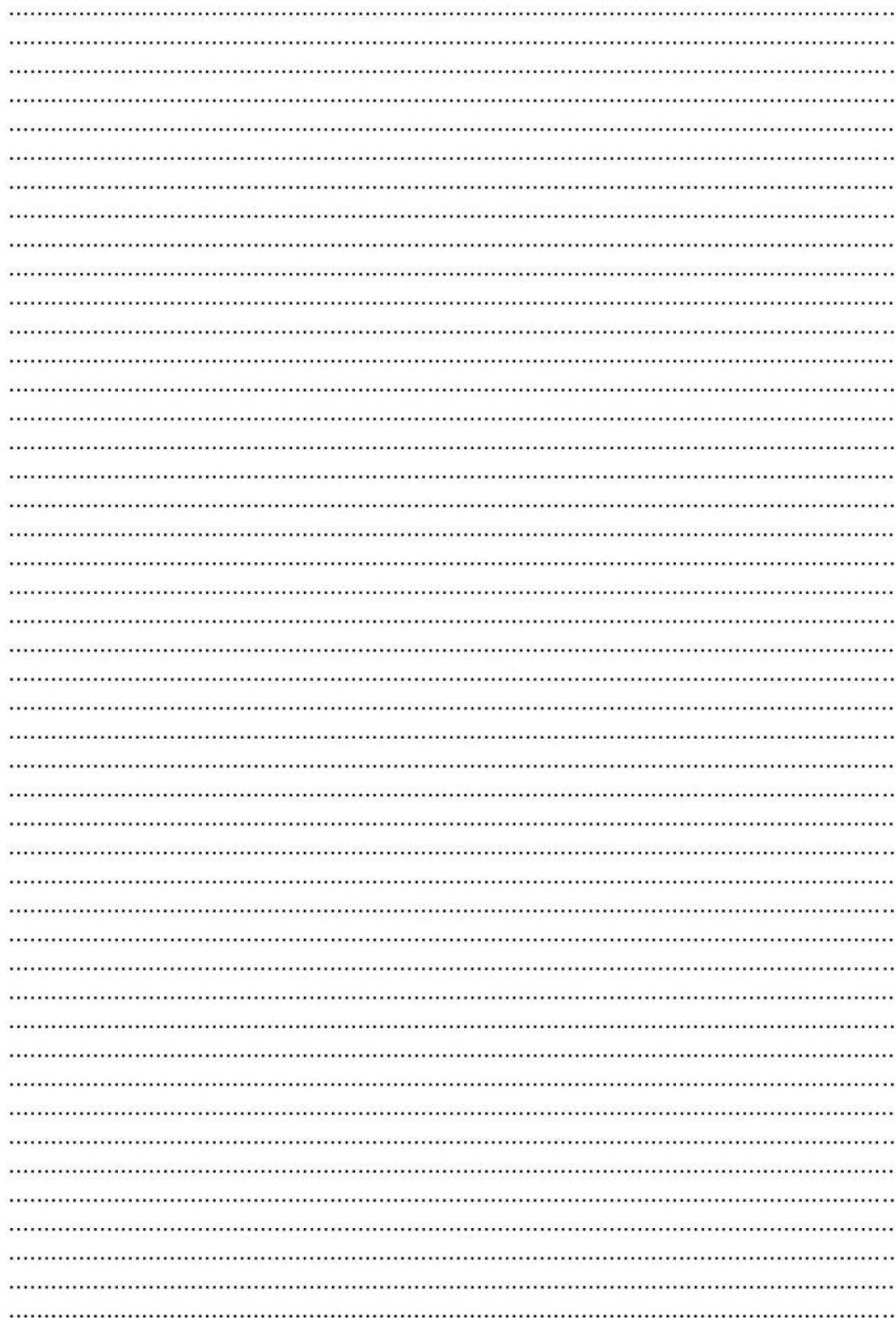
AUTOMATIC DOOR CLOSING



FUNCTION	REFERENCE
A EBS E PREMIUM + PEM C/RAC	400 652 565 0
B ELECTROVALVE .2/3	ACCEVAL VEB-3
C DOUBLE DIAPHRAGM TRISTOP	WABCO- 925 377 124 0

Revisión	FORMATO HOJA	MATERIAL	REFERENCIA	N002
Fecha 26/11/20	DSA	PESO		
Nº PIEZAS POR VEHICULO:		TRATAMIENTO		
Designación:	AUTOMATIC DOOR CLOSING			
Observaciones:				
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			TOLERANCIA SEGUN ISO 2768-M	
			ROJO	





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