since 1972
ALTINORDU
Machine - Vehicle - Measurement

* Maintenance and User Manuals *

ALTINORDU TREYLER SANAYİ VE TİC. LTD. ŞTİ.

(TRAILER LTD. CO.)



TYPE: AL6S
(6 AXLE TANK CARRIER SEMI TRAILER)

2022

1 INTRODUCTION

Altınordu Trailer is committed to providing quality in both our Products and support services. We appreciate having you as customer and wish to thank you for including our product in your operation.

Your Altınordu Trailer was designed and manufactured with you, our customer, in mind. Through years of listening and working with customers, Altınordu Trailer has sought to continually improve our products with respect to safety, ease of maintenance and reliability. We will continue to build on this strategy and look forward to your comments regarding our products and services.

Safe, efficient operation and maintenance of your Altınordu Trailer requires that you, and anyone involved in operating or maintaining the trailer, read and understand this manual. You will find that using the safety, operation, maintenance and troubleshooting information contained within the manual will reduce the chance of injury and repairs.

2 ALTINORDU TRAILER QUALITY POLICY

To be the best value supplier of superior products, services and solutions to our customers in the transportation industry.

The objectives of the quality Managment System are:

1) To provide ‘Best Fit’ products of real value meeting customer expectations and regulatory requirements.

2) To promote ‘First Time Quality’ through the use of Preventive and Corrective Action.

3) To maintain a Quality Managment System Of ‘Continuous Improvement’ that enhances Customer Satisfaction and Company Performance.

3 WARRANTY

NEW EQUIPMENT WARRANTY:

3.1 Warranty Statement

NOTICE- **This document limits the liability of Altınordu Trailer to you, the customer.**

Altınordu Trailer warrants directly to you, the registered owner only that each new semi-trailer manufactured by us is free from defects in material and workmanship at the time of manufacture and will remain free from defects under normal use and service.

Components manufactured by other manufacturers and installed on a new Altınordu Trailer shall be subject to the various component manufacturers own warranties.

This warranty does not expand, enlarge upon, or alter in any way, the warranties provided by the original manufacturers and suppliers of component parts and accessories. All other Warranties, If any, extended by the makers and suppliers of components, parts, accessories or other goods included in the manufacture of Altınordu Trailers will be assigned, if contractually permitted, to the purchaser. This warranty excludes such parts or accessories which are not defective, but may wear out and have to be replaced during the warranty period including, but not limited to, light bulbs, sealed beam lights, paint, brake linings, brake drums, wood pieces and the like.

WARRANTY IS VOID IF SEMI TRAILER IS NOT REGISTERED WITH ALTINORDU TRAILER INDUSTRIES

3.2 Registration
Warranty claims will be subject to the following conditions:

1) We will not accept invoices for warranty under circumstances that have not received our prior authorization (including a warranty authorization number).

2) We are to supply all warranty parts unless agreed otherwise.

3) Any invoices covering warranty parts and/or labor that we consider excessive will be paid on the basis of our cost such parts and/or labor as if the work had been done at our factory.

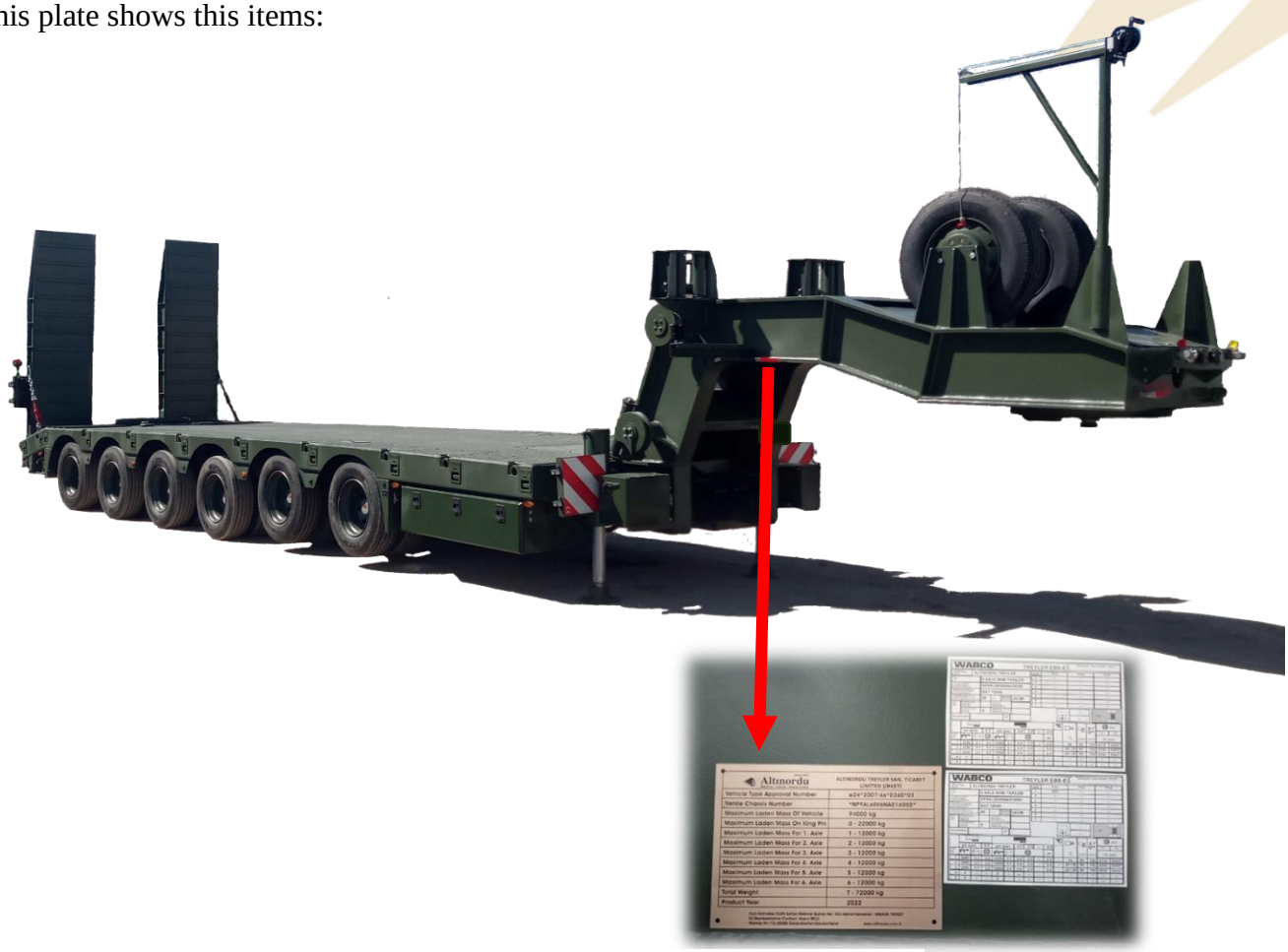
4) No warranty on parts will be paid for until faulty parts have been returned repaied for our inspection if so requested.

3.2.1 Time Limit on commencing legal action

It is agreed that you, the original purchaser, have two year from accrual of the cause of action to commence any legal action arising from the purchase or use of the vehicle.

4 TRAILER TYPE AND IDENTIFICATION

The plate of the Semi Trailer is located on the right side of your Semi Trailer on the Chassis
This plate shows this items:



since 1972 Altınordu Machine - Vehicle - Measurement	ALTINORDU TREYLER SAN. TİCARET LİMİTED ŞİRKETİ
Vehicle Type Approval Number	e24*2007/46*0240*01
Vehile Chassis Number	*NP9AL6SV6NA016049*
Maximum Laden Mass Of Vehicle	94000 kg
Maximum Laden Mass On King Pin	0 - 22000 kg
Maximum Laden Mass For 1. Axle	1 - 12000 kg
Maximum Laden Mass For 2. Axle	2 - 12000 kg
Maximum Laden Mass For 3. Axle	3 - 12000 kg
Maximum Laden Mass For 4. Axle	4 - 12000 kg
Maximum Laden Mass For 5. Axle	5 - 12000 kg
Maximum Laden Mass For 6. Axle	6 - 12000 kg
Total Weight	T - 72000 kg
Product Year	2022

Kışla Mahallesi Fatih Sultan Mehmet Bulvarı No: 433 Kahramankazan / ANKARA /TURKEY
EU Representative Contact: Kazım BELLİ
Wanner Str.110.45888 Gelsenkirchen/Deutschland www.altinordu.com.tr

5 SAFETY

5.1 General Safety

1) Read and understand all the information provided in the operator's manuel regarding maintenance, adjusting and operating of the Altınordu Trailer unit.

2) Stop the engine, remove ignition key and set the park brake before adjusting, servicing or maintaining any part of the semi trailer unit.

3) Review the operator's manuel and all related maintenance, operating and safety information annually with the personnel who will be maintaining or operating the Altınordu Trailer.

5.2 Travel Safety

1) Read and understand all information in the operator's manuel regarding procedures and safety when operating the Altınordu Trailer unit.

2) Make sure all lights and reflectors required by local highway and transport authorites are in place, are clean and can be clearly seen by all overtaking and oncoming traffic.

3) Drive carefully and defensively at all times and especially when negotiating uneven or hilly terrain.

4) Do not allow riders and any part of the trailer units during field operation or road and highway travel.

5) Make sure you comply with all local regulations with regards to transporting on public roads and highways. Consult your local law enforcement agency for futher details.

5.3 Safety Decals

1) Always maintain safety decals and signs so that they are clean and legible.

2) Replace all safety decals and signs that are missing or have become illegible.

3) Replaced parts that displayed a safety decal or sign should also display the current decal or sign.

6 OPERATION OF YOUR ALTINORDU TRAILER

6.1 General Guidelines

1) Read and understand the operator's manual and all of the safety signs before operating or adjusting the Altınordu Trailer.

2) Do not allow riders on any part of the trailer during field operations or road and highway travel.

3) Drive very carefully when negotiating hilly or uneven terrain.

4) Keep hands, feet, clothing and hair away from all moving parts.

5) Place all controls in neurtal, stop engine, set the park brake, remove the ignition key and wait for all moving parts stop before servicing, adjusting, repairing or maintaining.

6) Tie load securely before moving or transporting semi trailer.

7) Check tie-downs frequently during transport to prevent shifting or movement.

8) Clear the area of all bystanders, especially children, before starting up and operating the truck and trailer.

9) Ensure the lamps are functioning.

10) Before disconnecting the truck from the trailer unit(s) make sure that truck and semi trailer are on level ground and that the trailer wheels are securely blocked.

11) Before disconnecting the truck make sure that landing gear **(If any)** is down. If the ground area below the landing gear is so soft or of a questionable soil type, make sure that additional pad area is provided so that the landing gear will not sink. **Do not use landing gear When the trailer is loaded.**

12) Review the operator's manual including all related operating, maintenance and safety information annually with all personel who will be operating or maintaining the Altınordu Trailer.

6.2 Recommended Break-In

The normal break-in procedure for Altınordu trailer is specified by time and distance:

1) Your Altınordu trailer is factory equipped with slack adjusters. For the first three weeks of operation the movement of the slacks should be checked daily to ensure they are functioning correctly. Correct slack movement during brake applicationis should. If travel is too small, the brakes will drag, leading to over heating and possible brake failure. Slack travel that is too small may indicate the slack is malfunctioning. Slack travel that is too large may reduce the amount braking force available to stop yout truck/trailer combination. Slack travel that is too large may indicate that the self-adjusting slack is malfunctioning. In either case, slack travel too small or too large means maintenance is required.

2) Check hub oil level daily.

100 km Inspectıon:

1) Retorque hub nuts.

800 km Inspectıon:

After the first 800 km of service some 'settling' in will have occured, particularly in the suspension components. At this time:

1) Retorque all bolts and fasteners paying particular attantion to the, axle U-bolts (If so equipped), rim bolts, hub studs, and the suspension system. Refer to values in maintenance section when retorquing.

2) Check tires for proper inflation pressures and rim alignment. Retorque rim clamps and/or wheel nuts. Jack up the axle and spin the wheels. Check for brake drag and adjustment of the wheel bearings. Check slack adjuster travel.

Attention: Tire Size is 285 70R 19,5 and Air Pressure 130 PSI

3) Check oil levels in the hubs and top up as required.

4) Check axle aligment. See the maintenance section for procedure.

5) Check the air system for leaks. Drain moisture from all air tanks.

6) Check all lights for proper function.

16,000 km Inspection:

1) Check the function and adjustment of the brakes on each axle. No shoes drag on the drum when the brakes are not applied.

2) Check the tire inflation pressures and tread wear. If unusal or excessive tire wear occurs, it indicates something is wrong. Check further to determine the cause and correct it.

3) Retorque all bolts and bolted connections.

4) Visually check all weld and adjacent areas for cracks.

5) Ensure all suspension hangers and related members are tight and secure.

6) Check the bushing inside the suspension hanger brackets for excessive wear or movement. Failure is rare but if a problem is detected, contact your dealer. Check for wear on nylon or steel washers on either side of the bushing.

7) Check the axle alignment. See the maintenance section for procedure.

8) Check air system leaks. Drain moisture from all air tanks.

9) Check all lights for proper function.

10) Check brake slacks for proper travel.

32,000 km Inspectıon:

1) Check each brake lining for wear. Replace if worn beyond acceptable limits.

2) Check the wheel bearing adjustment. See the maintenance section for procedure.

3) Check the axle alignment. Refer to the maintenance section for procedure.

4) Replace the gear oil lubricant in each hub.

5) Check for air system leaks. Drain moisture from all air tanks.

6) Check all lights for proper function.

6.3 Pre-Operation Inspection

6.3.1 Order of Action

Step 1-Semi Trailer Frontal Area:

1) Air and Electrical Connections

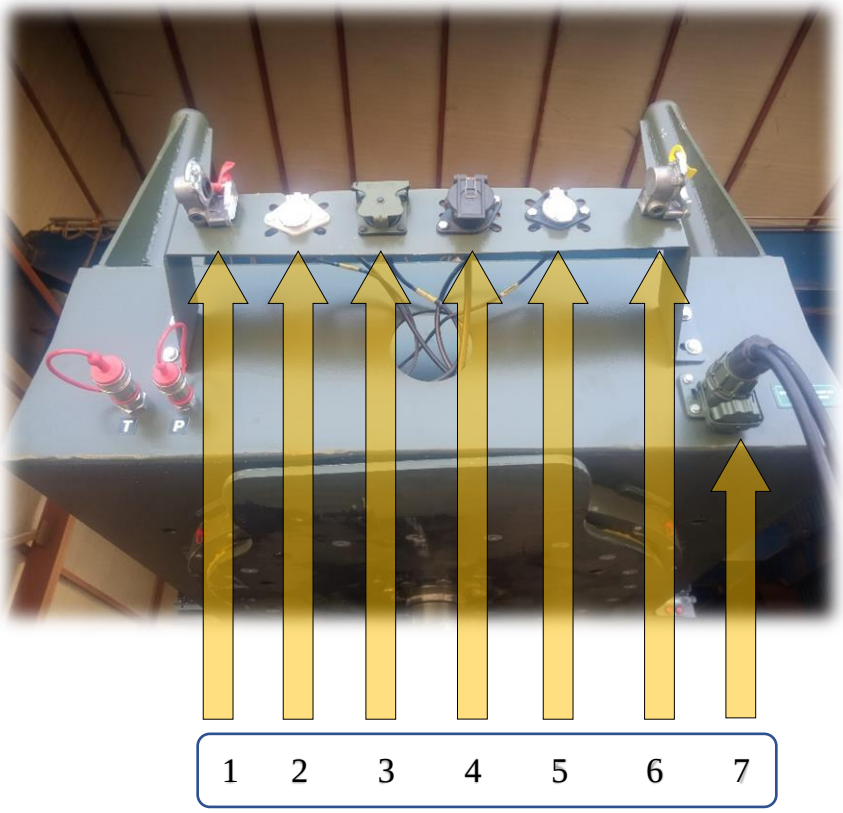
a) Gladhands properly mounted, free of damage, not leaking and not worn.

b) Electrical line receptacles are properly mounted, free of damage and plug adequately seated with safety catch engaged in order to prevent accidental disconnections.

c) Air and electrical lines properly secured against tangling, snagging and chafing with sufficent slacks for turns.

1- Red Air Connection (Brake)
2- Lighting Socket S
3- NATO Type Lighting (Stanag 4007)

4- EBS Connection (Wabco)
5- Lighting Socket N
6- Yellow Air Connection (Brake)
7- NATO Type Battery Connection



2) Lights

a) Front semi trailer clearance and identification lights-clean, operating and proper color.

b) Lights clean and proper color.



Step 2-Coupling System Area

1) King Pin

a) King pin is not worn, bent or damaged.

2) Fifth Wheel

a) Mechanism not worn, bent, damaged or parts missing.

b) Properly lubricated.

c) All locking pins present and locked in placed.

d) Check that fifth wheel is not so far forward that tractor frame will strike or rear semi trailer during turns.

3) Visible Air and Electrical Lines

a) Properly secured against tangling, snagging and chafing.

b) Free of damage, oil and grease.



Step 3- Semi Trailer Area

1) Frame Body

a) Frame and cross members not bent, cracked, damaged or missing.

b) Body parts not damaged or missing.

c) Proper identification of semi trailer's load.

2) Wheels/Axles:

a) Conditions of the wheels and rims-no cracked or bent rims, broken spacers, studs, clamps or lugs.
b) Conditions of tires-properly inflated, valve stems not touching wheel rims or brake drums, valve caps in place, no serious cuts, bulges, tread wear or any signs of misalignment and no depris stuck between the tires.
c) Tires all same type.

d) Wheel bearing and hub-no obvious leaking.

e) Mud flaps in place and in good condition. (If any)

f) Flexible air lines-not cracked, cut, crimped or otherwise damaged, secured against tangling, snagging or chafing.

3) Suspension:

a) Visually check the condition of spring(s), spring hangers, equalizers an U bolts.

b) Check the condition of torque rod arms and bushing.

Step 4-Brakes:

a) Check conditions of hoses, lines and valves.

b) Check slack adjusters.

c) Check air chamber mounting.

d) Check spring brakes.

e) Drain moisture from air tank, close petcock.

Step 5-Rear of Semi Trailer

1) Lights

a) Rear clearance and identification lights-clean, operating and proper color.





2) Cargo Securement

a) Ensure cargo is properly loaded-side to side and back to front.

b) Check cargo tie-downs and ensure they are tight.

c) Ensure concentrated load is positioned over structual beams.

Step 6-Semi Trailer(s) Functional Check (Truck Attached)

a) Check for proper connection of the air brake glad-hands and secure contact of electrical connection.

b) Start engine.

c) Build up air pressure in the truck-trailer system.

d) Turn on the lights and inspect for proper functions.

e) Check the Function of the brakes.

1- Apply service brakes

2- Apply parking brakes

3- Apply trailer brakes in emergency

4- Stop engine.

i. Release trailer emergency brakes

ii. Apply service brakes.

6.4 Coupling/Uncoupling Procedures

A. COUPLING

1) Check out the equipment before coupling.

a. Make sure fifth wheel is properly lubricated, that locks are open and that the ramps are tilted down in the proper position.

b. Make sure that mounting of the fifth wheel to the truck is in good condition and tight.

c. If using a sliding fifth wheel make sure the side locking plugers are engaged.

2) Back up close to the semi trailer, centering the kingpin on the throat of the fifth Wheel. STOP.

3) Block the trailer wheels, connect the light cord and the brake lines and be sure any slack in the lines is supported and the brake lines do not become tangled. Set the semi trailer brakes.

4) Check to see that the semi trailer is at the proper height for coupling. The leading edge of the trailer plate should initially contact the fifth wheel top bearing surface behind its pivot axis as the truck backs under the semi trailer. Raise or lower the semi trailer landing gears as required to obtain this position.

5) Back under the semi trailer, keeping the trailer kingpin centered in the crotch of the fifth wheel.

6) After picking up the semi trailer with the fifth Wheel –STOP- then continue backing until the fifth wheel locks firmly on the kingpin.

7) Back up tight to the kingpin. The pull forward to test the completeness of the coupling as an initial check.

8) Visiually check to see that the kingpin is in the fifth wheel locks, not overhanging the fifth wheel or caught in a grease groove.

9) Crank up the landing gear their full distance. Fold down or remove crank handle and place it in the crank handle holder.

10) Check the brake lights and light cord.

11) Remove the wheel blocks and continue with the pre-trip inspection

B) UNCOUPLING PROCEDURE:

1) Set the emergency brake on the truck.

2) Set the semi trailer brakes with the truck or trailer protection switch.

3) BLOCK THE SEMI TRAILER WHEELS!

On a semi trailer with air or hydraulic ride suspension it is necessary to dump the air or hydraulic pressure out of the suspension before lowering the landing gear. Failure to do so can result in bent landing gear as the trailer will walk forward later as the air bags or hydraulic cylinders deflate.

4) Crank down the landing gear until they touch the ground and give a few extra turns in low gear. Do not raise the semi trailer off the fifth wheel.

5) Fold down the crack handle and place it in the crank holder provided.

6) Disconnect the light cord and brake lines.

7) Unlock the fifth wheel, including the manual secondary lock if so equipped.

8) Release the truck emergency brake and pull out slowly from under the semi trailer. Let the trailer slide down the fifth wheel and pick up ramps with minimal impact of the semi trailer landing gear with the ground.

6.5 Loading/Unloading

It is the responsibility of the operator to review and be familiar with the semi trailer loading capacity spesification and be sure all loading limitations and/or restriction are complied with in the operating jurisdication. Exceeding the semi trailer weight spesification can result in damage to the structure. Exceeding the road restrictions is illegal.

Loading/Unloading procedures and instructions are covered but not limited to the ones that have been summarized below:

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6.5.1 LOADING:

1) Do not drop the load on the semi trailer. Place it on the floor at the position desired.

2) Determine the load carrying capacity of your semi trailer and the position of the load before you start loading.

3) Load must be placed to achieve a legal weight distirbution.

4) Do not exceed the load carrying spesification for the semi trailer.

NOTE:
Loading without the semi trailer being coupled to a truck is not recommended. Dynamic loaded encountered during loading can damage the landing gear structure.

NOTE:
The semi trailer air or hydraulic ride suspension should be inflated to full operating pressure while after loading.

6.5.2 Semi Trailer Weight Distribution

1) Semi trailers are designed for uniform load distribution. The load should be distributed equally between the front and the rear of the trailer.

2) The load should be equally distributed. A heavy load should not be loaded on one side because this will overload springs and tires on that side. Please load so that weight will be equal on rear tires, eliminating possible twisting of the frame and overloading of axle housings and wheel bearings.

6.6 Tires

When operating the trailer, It is the responsibility of the driver to check the tires frequently. Inflatıon pressures, wear patterns and matching are critical parameters that must be monitored. The following factors affect tire life:

1) **Inspection frequnecy**

2) **Inflation pressure:** Tires should always be operated at their specified pressure. The tire is designed to run with the full width of the tread flat on the contact surface. Operatingat other than specified pressures will change the tread contact patterns and this can dramatically shorten tire life. In addition, the tires will run hotter which can lead to blow-outs.

Attention:

Check tire pressure when the tire is cold. A hot tire can read as much as 20 psi higher than a cold tire. If tires are over inflated, check for poor load distribution, uneven surface contact, over-loading or poor operating conditions.

Refer to manufacturer spesification.

7 SERVICE AND MAINTENANCE

This section provides information and recommendations on daily and periodical maintenance, which if followed, will result in safe and dependable operation of the Altınordu Trailer.

Maintenance Safety:

1) Read and understand all the information in the operator's manual regarding maintaining, adjusting and operating the Altınordu Trailer unit.

2) Stop the engine, remove ignition key and set the park brake before adjusting, servicing or maintainingany part of the semi trailer unit.

3) Review the operator's manual and all related maintenance, operating and safety information annually with the personnel who will be maintaining or operating the Altınordu Trailer unit.

4) Stop and shut down all drivers to and on unloading systems before attempting to maintain, adjust or unplug the hopper components.

7.1 Service

7.1.1 Lubrication

Fifth Wheel- Keep a water resistant lithium based grease applied to the semi trailer contact surface of the fifth Wheel plate if using a fifth wheel that requires greasing. If your semi trailer equipped with the jost low lube fifth wheel then grease the fifth wheel kingpin lock through the grease with provided approximately every 3 months.

Landin Gear- Lubricate the landing gear grease fittings on a periodic basis (at least every 3 months) with a good lithium based artic grease.

Wheel Bearing Oil- For bearings lubricated with oil, changes are recommended whenever the seals are replaced or at brake reline time. Fill hub with oil to indicated level on the hub cap.

Brakes- Lubricate brake actuating components at 70,000km or at time of brake reline. Replace oil(If applicable) in wheel bearing.

7.1.2 Servicing Intervals

Daily, 10 hours or 800km,

1) Grease fifth wheel pivot pins and lock.

2) Lubricate Suspension system with gearbox oil on spring hanger surface.

3) Drain moisture from the air tank on trailer.

4) Lubricate All Parts of the Steering System and Suspension System with Grease. **(Periodic)**

Every 3 months

1) Grease landing gear gearbox and screw.

2) Grease Jost lube lower fifth kingpin lock.

3) Inspect lower fifth for damage, wear, and for lock adjustment.

Every 8,000km,

1) Check oil level in wheel hubs. Change oil if it is contaminated.
Replace seals and, brake linings changed annully.

2) Grease brake components.

Every 150,000km

1) Check brake linings for wear.

7.2 Periodic Mintenance and Adjustments

The safe and efficent operation of your Altınordu Trailer depends on following the maintenance and adjustment procedures outlined in this section.

Maintenance Safety

1) Set the park Brake.Stop Engine, remove ignition key before adjusting, servicing or maintaining any component on a semi trailer unit.

2) Clear the area of bystanders especially children, when carrying out any maintenance or making adjustment on the system or components.

3) Stop and shut down all drivers to and on unloading systems before attempting to maintain, adjustment on the system or components.

4) Keep hands, feet, clothing and hair from moving and/or rotating parts.

7.2.1 Kingpin and Upper Coupler

Inspect the kingpin and its structure on the trailer at regular intervals to be sure they have not suffered damage or undue wear. Kingpin should not be bent.

The Kingpin Should be checked for excessive wear, looseness, chipped out areas or cracks. Any kingpin bent or showing defects should be replaced at once.

To check the king pin for wear, use a gauge that can measure the diameters of the kingpin .Your trailer will be equipped with a 2 inch kingpin. If the diameter is less then 0.13 inch of those values, then the kingpin will need to be replaced.

To check the kingpin for straightness use a straight, and if the kingpin is over 1 degree from 90 degree in any direction the kingpin should be replaced.

Inspect the upper coupler assembly for any excessive bowing or cracks. Ensure the entire assembly is safely secured to the trailer by checking the conditions of the welds, bolts or rivets, as used in the original construction.

7.2.2 Fifth Wheel

IMPORTANT

All maintenance must be performed with the rear semi trailer uncoupled from the fifth wheel.

Note
All of the following must be performed every 50,000 km or 3 months, whichever comes first.

Inspection-General

a. Thoroughly clean the entire area using steam or pressure washer.

b. Inspect the fifth wheel mounting. Check bolt torque and replace any missing or damaged bolts. Check for broken or distorted components and repair or replace as needed.

c. Inspect the fifth Wheel assembly for bent, worn and broken parts. Replace with original manufacturer's part only.

d. Inspect low lube plates and replace if damaged or when the plate wears down to the mounting bolts.

e. Check adjustment of the kingpin lock with a lock tester to see if it is too loose or too tight

7.2.3 Axles

1 Suggested Preventative Maintenance Scheduled for Axle and Components

30,000 km to 40,000 km

* Check brake lining wear and reline as required.

* Check brake adjustment and inspect roller, shaft, anchor pins and bushings.

* Inspect brake pot, camshaft bushing, camshafts brackets and camshaft bracket bushing for any wear.

* Lubricate actuating brake components.

10,000 km or at time of brake reline

* Overhaul and lubricate all brake actuating components.
* Check all brake chambers.
* Replace oil in wheel bearings.

150,000 km or a minimum of twice a year:

* Inspect wheel bearings.
* Check all seals signs of wear.

2 Axle Alignment

Improper axle alignment with the vehicle frame or chassis will cause excessive tire wear and vehicle dog-tracking.

Proper axle alignment is a vital part of your operation and should be checked on a regular basis.

Each Altınordu trailer is checked for correct alignment before it leaves the factory, but settlement of suspension may necessitate realignment after first 800 km

The kingpin has a dead-center mark on the bottom side. To assure proper alignment a steel table measure should be run from center part of the kingpin to an identical location on either side of the front axle.

150,000 km or a minimum or twice a year

* Inspect wheel bearings.

* Check all seals for signs of wear.

7.2.4 Wheels

Your tariler may be equipped with either steel or aluminium wheels. Check for damage(bent) and loose wheels. Studys, bolts and nuts be checked regularly.

7.2.5 Suspension System (General)

The axles are attached to and carried by the suspension system. The suspension must be kept tight and in good working order to obtain maximum performance and life. Review the section that applies to your semi trailer to familiarize yourself with the service and maintenance procedures.

Inspection

1. Frequency

-During pre-delivery inspection.
-After first 800km of operation.
-Periodically.

2. Action

* Check that all fasteners are tightened to their spesific torque.

* Check for damaged or broken components.

* Check all suspension system and axle welds for crack.

* Eveluate tire wear patterns. Use the wear patterns as a guide to determine if maintenance or adjustments are required on the suspension system.

* Check the alignment of the axles.

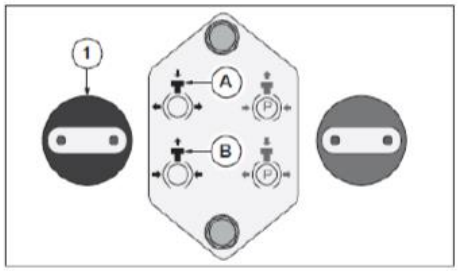
IMPORTANT: Repair or replace any components as required

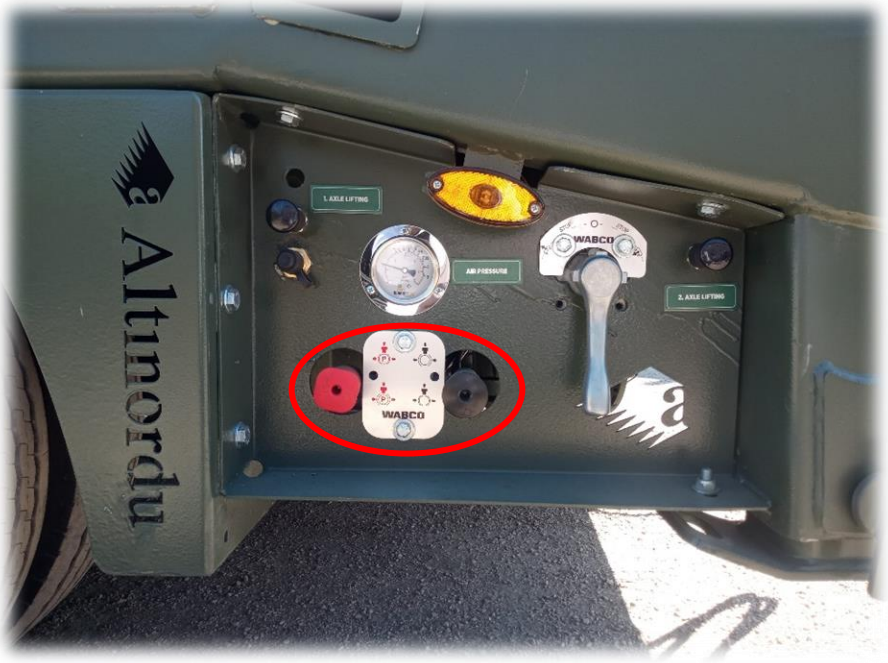
8 Operating Instructions

1- Park&Release Emergency Valve

A- Brake-Releasing Valve

It allows applying or releasing the service brakes of a disconnected vehicle. When the red coupling between the tractor and the trailer is disconnected, the vehicle applies the automatic brakes. When the red coupling is disconnected, push the button (A, ⬇) shown in the picture to release the trailer brakes and to manoeuvre the trailer. When the manoeuvre is completed, pull the button (B, ⬆) for the brakes of the semi-trailer to be re-applied. This button cannot be used when the red coupling between the tractor and the trailer is connected.

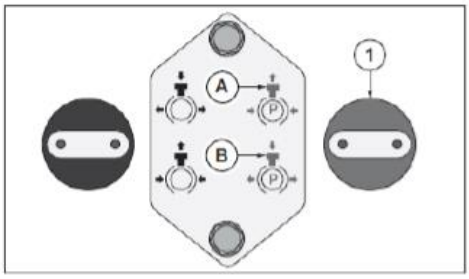




WARNING!	Long-term parking is not safe with the service brake. In this case, parking brake should be used.

B- Parking Brake

The parking brake allows the Lowbed to remain motionless on flat and inclined surfaces. When the parking brake is activated, the Lowbed cannot be moved.
To move the Lowbed, release the parking brake.
To apply parking brake: Pull red activation button to the direction specified with an arrow in the pictogram (⬆, A). In this case, parking brake is activated and semi-trailer cannot be moved.
To release the parking brake: Push red activation button (1) to the direction specified with an arrow in the pictogram (⬇, B). At this moment, the parking brake is released and there is no braking in the semi-trailer.





⚠ **WARNING!**	Long-term parking is not safe with the service brake. In this case, parking brake should be used.

2- Air Suspension System

Level Valve

Level valve stabilise the vehicle level by adjusting
the pressure at suspension bellows according to the load.

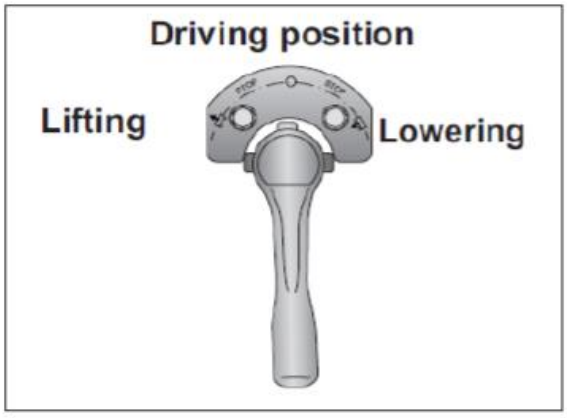


✓ Conventional level valve

Lifting-Lowering Control

Lifting/lowering valve is used to manually change the level of the trailer during
operations such as loading and unloading.

✓ Lifting-lowering valve



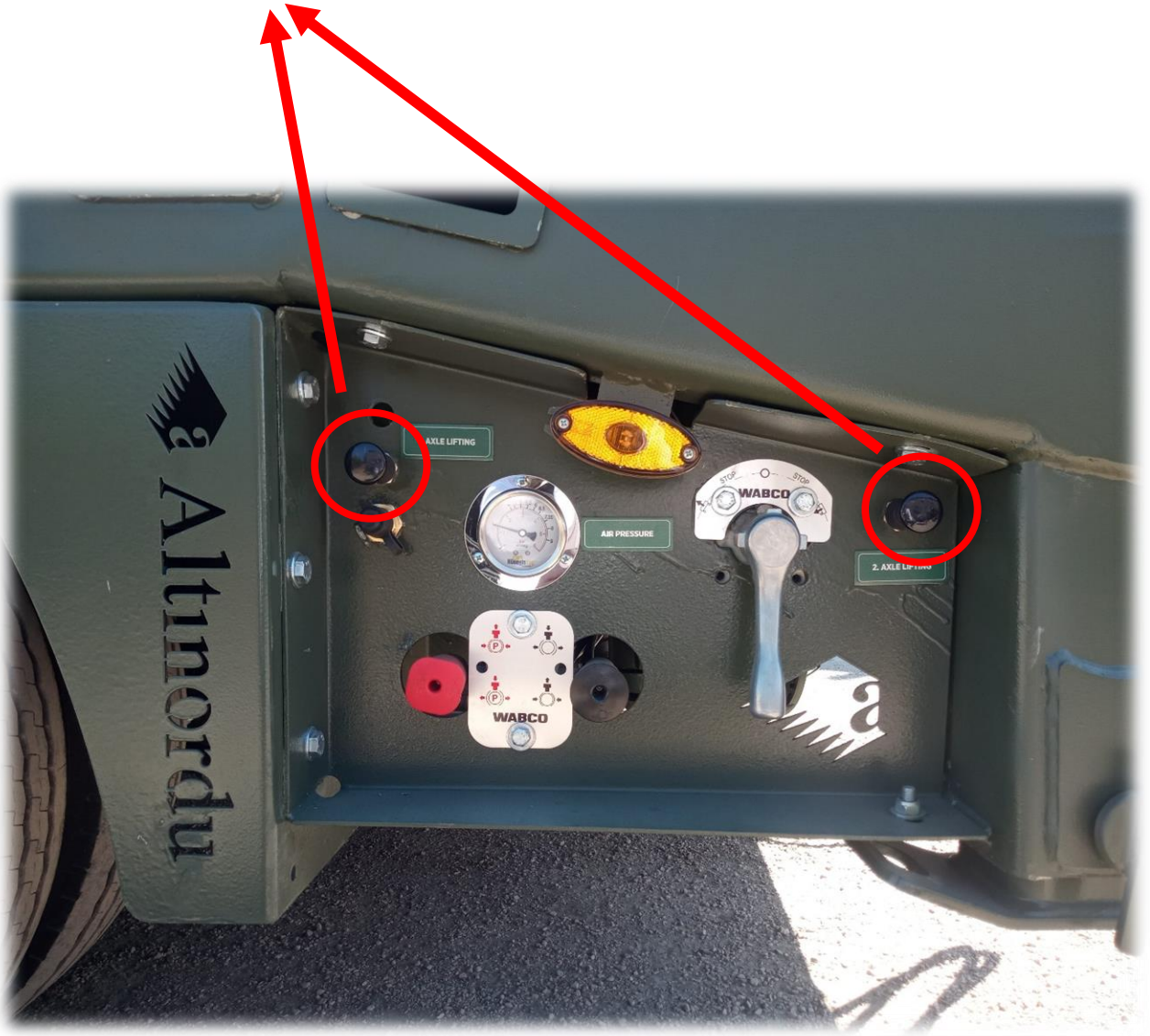
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NOTE!	Before starting the vehicle, the lifting-lowering valve must be in the driving position to operate the level valve.

3. Axle Lifting Systems (1. and 2. Axle)

If You Want Axle Lift (1st & 2nd Axles)
* Pull Axle Lift Knob.

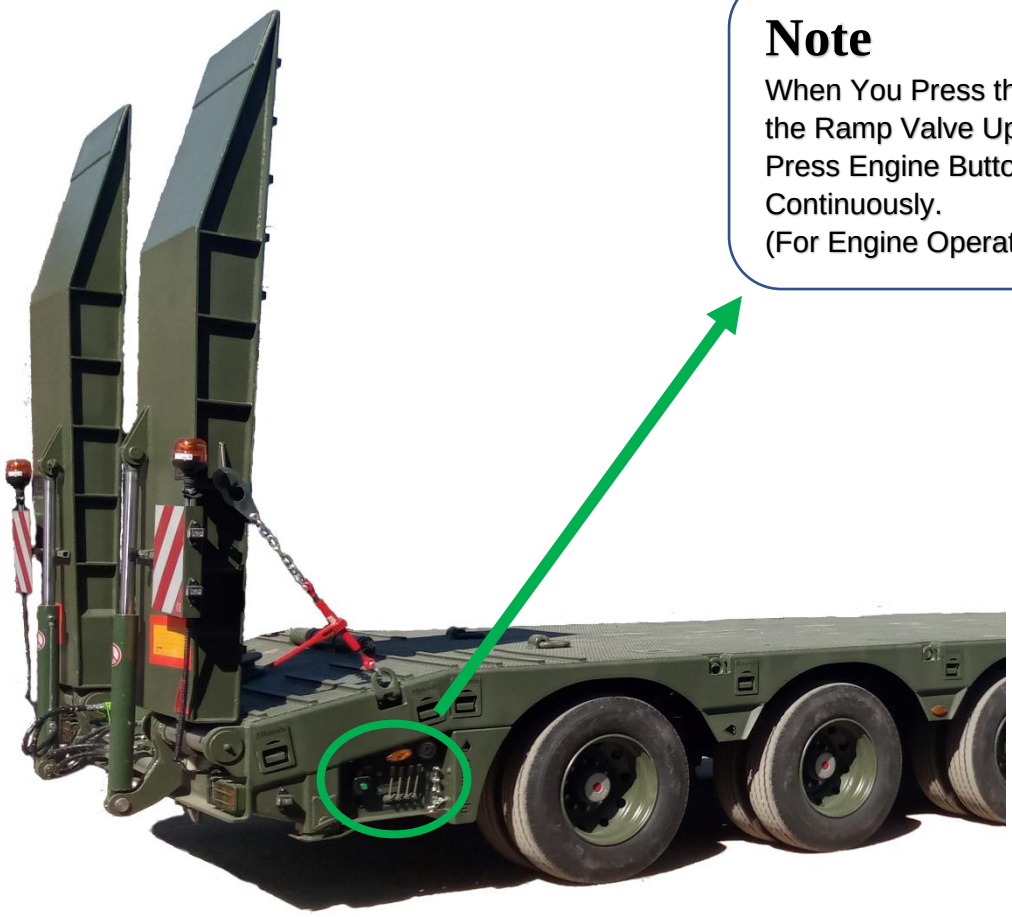
If You Want To Lower Axle (1st & 2nd Axle)
* Press Axle Lift Button.



IMPORTANT NOTE:
Semi-Trailer Loaded 1st and 2nd Axles Do not lifting systems.

4. Rear Loading Ramp Sytems

Ramp Hydraulic System Operation



Note

When You Press the Lever of the Ramp Valve Up-Down. Press Engine Button Continuously.
(For Engine Operation)

Ramp Action Valve

Engine Start Button



Ramp Action Valve

Direction of Movement of Valve Lever



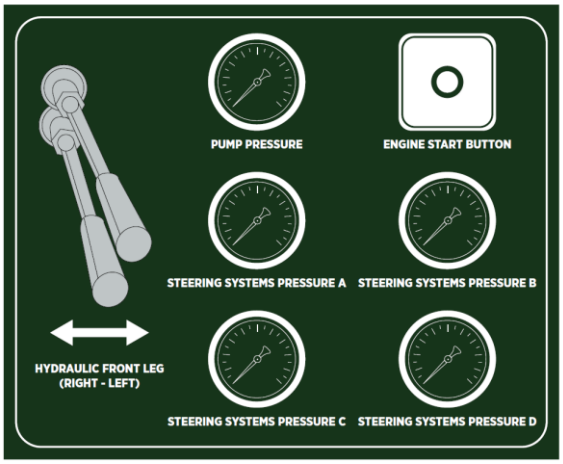
RAMP OUTSIDE(LEFT) RAMP OUTSIDE(RIGHT) RAMP UP(LEFT) RAMP UP(RIGHT)



RAMP INSIDE(LEFT) RAMP INSIDE(RIGHT) RAMP DOWN (LEFT) RAMP DOWN (RIGHT)

Manometer (Pressure Gauges) Information







P1 = Main Pressure 1
(Front Park Leg and Rear Ramp)

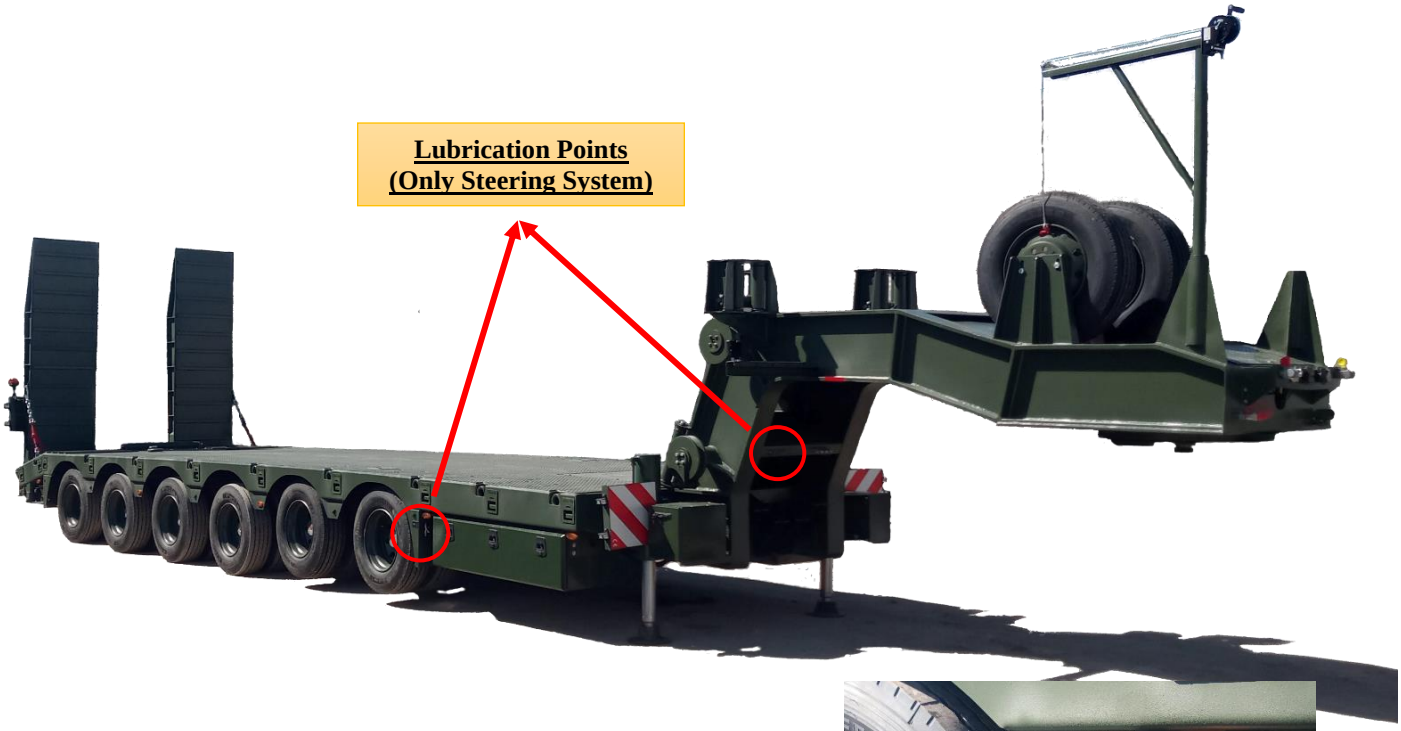
P2 = Main Pressure 2
(Hydraulic Steering System)

A = Steering Cylinder A
B = Steering Cylinder B
C = Steering Cylinder C
D = Steering Cylinder D

Note 1

Steering System Lubrication

(2 Main Lubrication Points Will Be Lubricated After Each Long Use.)



For Rear Steering System



For Front Steering System



Note 2

Steering System Attached. (Extra Document)
"Steering System User and Maintenance Manual"

Axle System Attached. (Extra Document)
"Axle System User and Maintenance Manual"

WARNING!

FIRST, THE MAINTENANCE-USE INSTRUCTIONS OF THE MANUFACTURERS OF THE PARTS USED ON THE SEMI TRAILER MUST BE FOLLOWED.

STEERING SYSTEM

USER MANUAL

2022

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Table of Contents

1. STEERING SYSTEM 4

1.1. STEERING SYSTEM OPERATION WHILE THE TRAILER AND TRACTOR COUPLED.....6

1.1.1. DRIVING FORWARD WITH THE TRACTOR.....6

1.1.2. DRIVING BACKWARD WITH THE TRACTOR.....7

1.2. MANUAL STEERING OPERATION.....8

1.2.1. MANUAL STEERING CONTROL FROM TRAILER PANEL.....8

1.2.2. MANUAL STEERING CONTROL FROM REMOTE CONTROL (RC) UNIT.....10

1.3. AUTOMATIC STEERING ALIGNMENT OPERATION 12

1.3.1. AUTOMATIC STEERING ALIGNMENT CONTROL FROM TRAILER PANEL ...13

1.3.2. AUTOMATIC STEERING ALIGNMENT CONTROL FROM REMOTE CONTROL (RC) UNIT.....14

1.4. STEERING PRESSURE LOW.....15

2. HYDRAULIC FRONT LEG 16

2.1. HYDRAULIC FRONT LEG CONTROL FROM TRAILER PANEL 16

2.1. HYDRAULIC FRONT LEG CONTROL FROM REMOTE CONTROL (RC) UNIT 17



BEFORE USING AND WHILE USING



READ AND UNDERSTAND
OPERATOR'S MANUAL
BEFORE USING THIS VEHICLE.



AUTHORIZED PERSONNEL
USE ONLY.



KEEP UNAUTHORIZED
PERSONNEL AWAY.

PLEASE OBSERVE ALL
SAFETY PRECAUTIONS.

DO NOT DRIVE BEFORE
STEERING ALIGNMENT.

MAKE SURE ALL RELATED VALVES (GOOSENECK COMPENSATION, 5TH WHEEL LOAD CAPACITY, AXLES, SUSPENSION ISOLATION AND GOOSNECK ETC.) ARE IN THE CORRECT POSITION.

1. STEERING SYSTEM

By combining the hydraulic steering system with the pendular axle suspension, allows the trailer to benefit from the optimum maneuverability.

When making a turn, the movement between the tractor (truck) and the trailer is transferred to the 2 cylinder groups by means of the 5th wheel unit. These cylinders are connected to 2 hydraulic cylinder groups in one of the axle groups by hydraulic lines and they steer the axles together. The remaining suspension legs are connected to each other by mechanical rods and transmit the steering movement to each other. With the tractor and semitrailer combination, turning the tractor also causes the semitrailer wheels to turn.

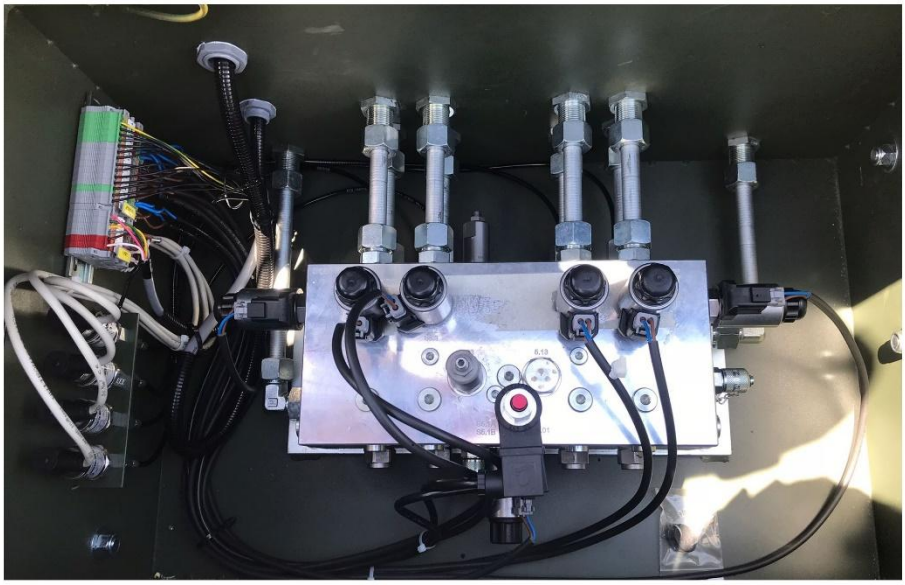
Trailer Steering System consists of the following parts:

1. Gooseneck Steering System (5th Wheel Unit)
2. Trailer Steering System
3. Steering Hydraulic System
4. Steering Electric Control Unit

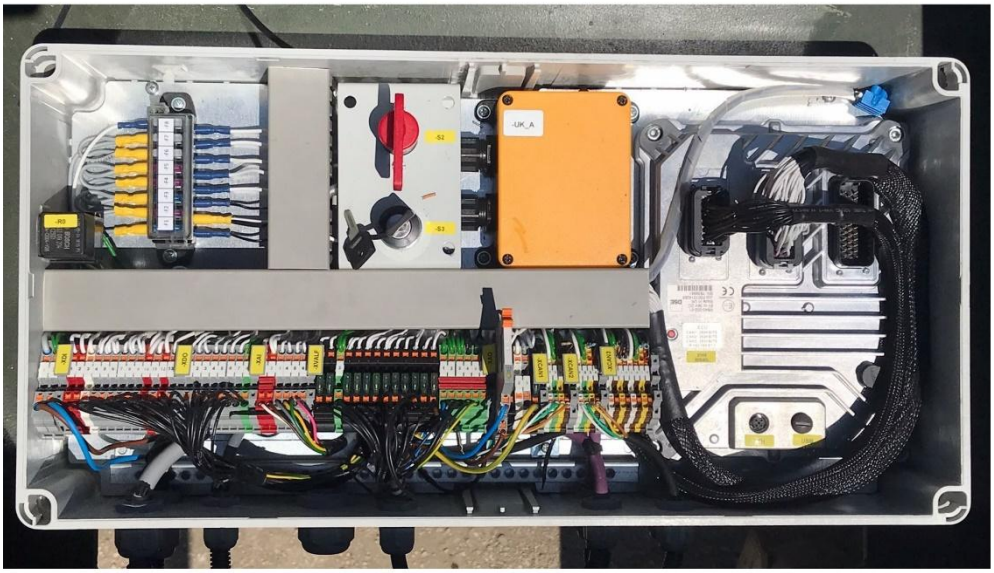
IMPORTANT

If the tractor (truck) speed is above 15 km/h, the steering system will not work.

The thermistor placed on the DC motor will stop the motor from running when the motor temperature reaches 50 degrees Celsius, please wait until the motor cools down.



STEERING HYDRAULIC CONTROL BLOCK



ELECTRICAL CONTROL PANEL



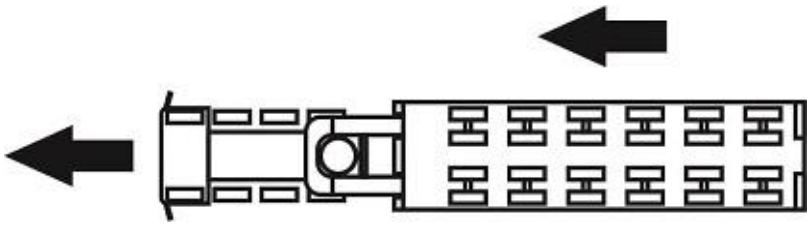
CONTROL PANEL

1.1. STEERING SYSTEM OPERATION WHILE THE TRAILER AND TRACTOR COUPLED

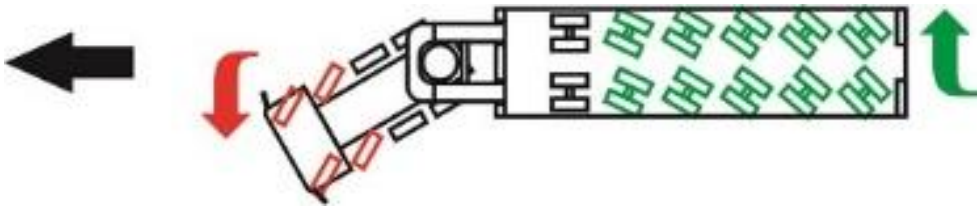
With the tractor and trailer combination, turning the tractor also causes the trailer wheels to turn.

1.1.1. DRIVING FORWARD WITH THE TRACTOR

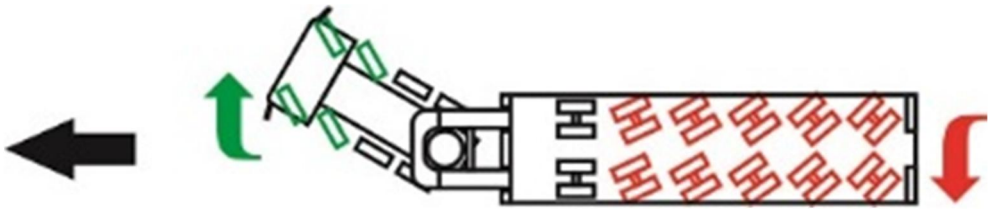
When the tractor moves direct forward, the Trailer axle wheels also go straight.



When the tractor turns forward left, the trailer axle wheels turn right.



When the tractor turns forward right, the trailer axle wheels turn left.

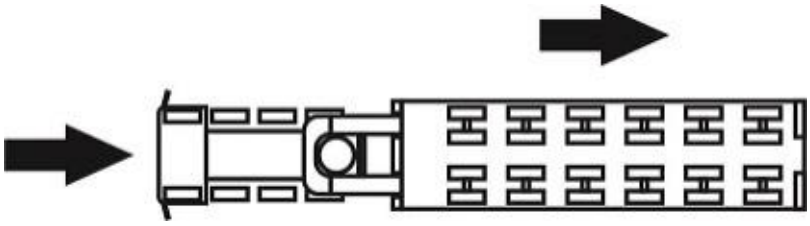


1.1.2. DRIVING BACKWARD WITH THE TRACTOR

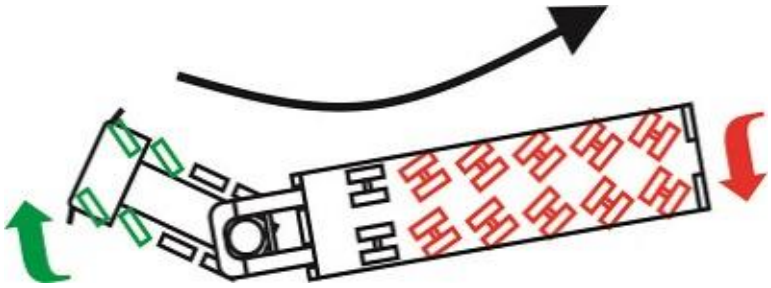
The trailer will not back like a normal trailer because of trailer steering system.

When backing, always use a spotter to guide you. Always use mirrors and watch the cameras when backing and keep spotter in sight at all times. When backing, rear of semitrailer will move in the same direction as front tractor wheels.

When the tractor moves direct backward, the Trailer axle wheels also go straight.

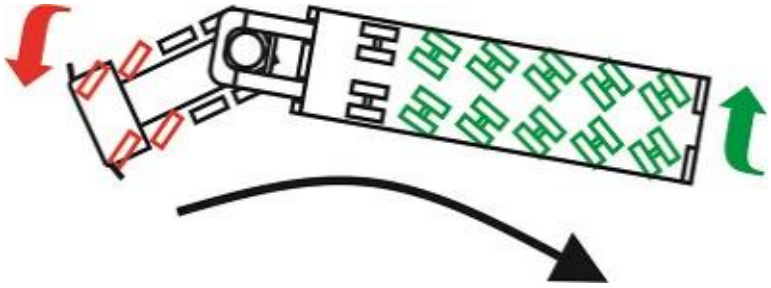


If tractor wheels are turned right, trailer wheels will steer left and cause trailer to back to the right with the tractor.



If tractor wheels are turned left, trailer wheels will steer right and cause trailer to back to the left with the tractor.

.

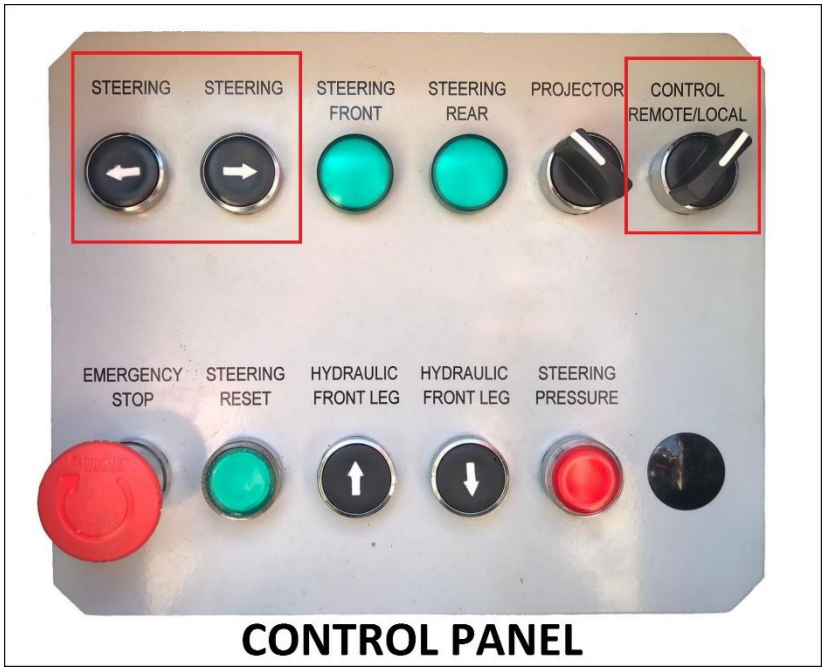


1.2. MANUAL STEERING OPERATION

If tractor / trailer is in an area with limited turning ability, trailer can be manually steered to allow clear passage. A spotter, located at the trailer hydraulic control panel, can steer trailer left or right to make room for tractor/trailer to pass through a tight area.

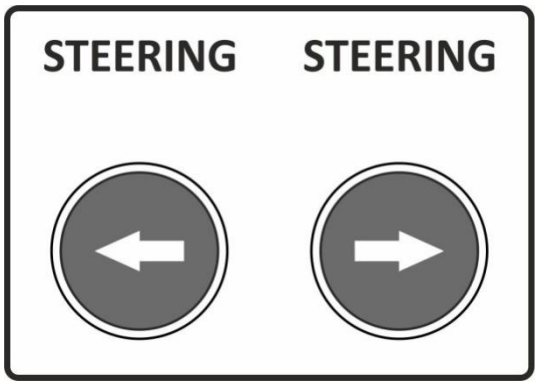
1.2.1. MANUAL STEERING CONTROL FROM TRAILER PANEL

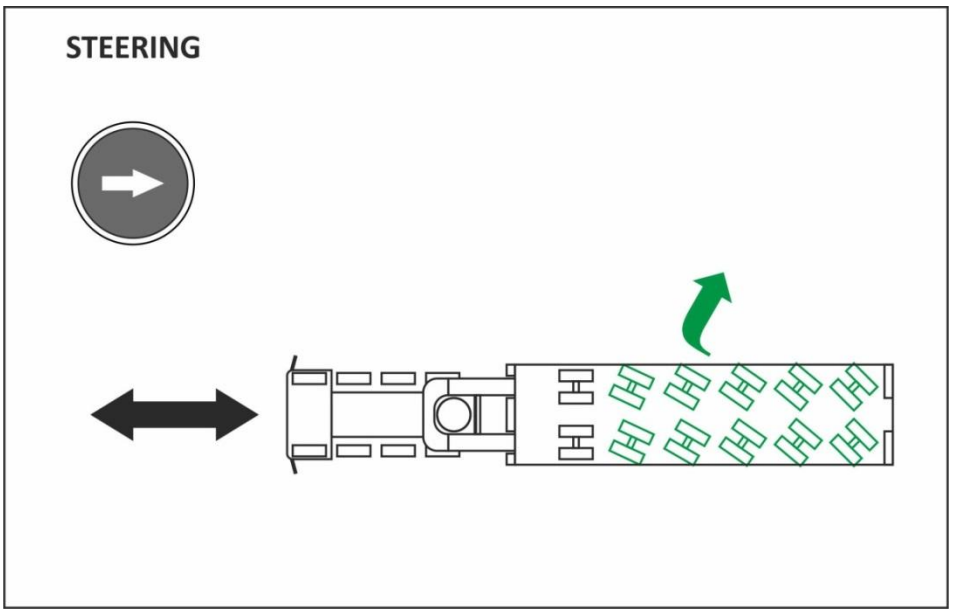
Set the "**CONTROL**" selector switch to the "**LOCAL**" position.

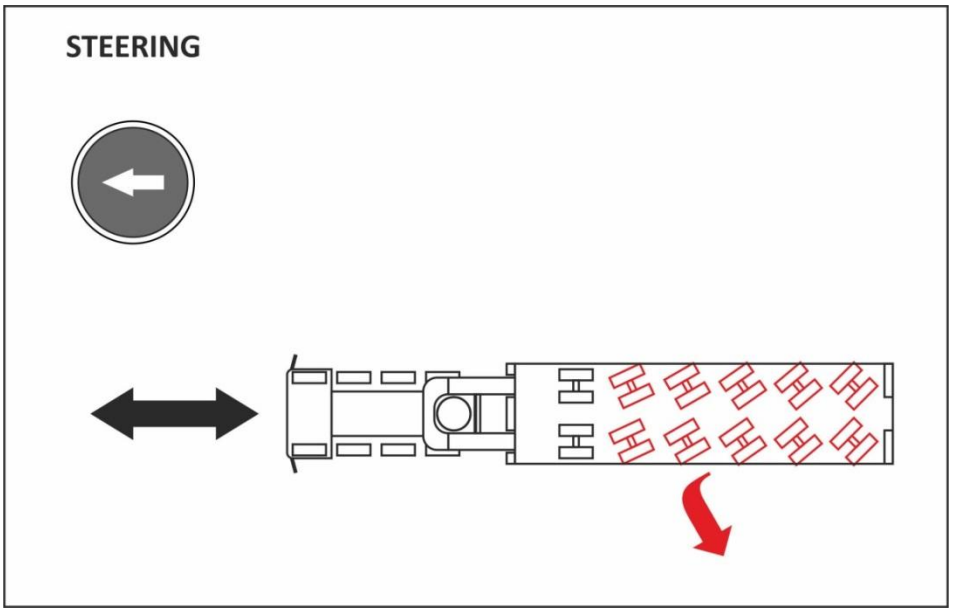


CONTROL PANEL




STEERING
STEERING


STEERING


STEERING

1.2.2. MANUAL STEERING CONTROL FROM REMOTE CONTROL (RC) UNIT

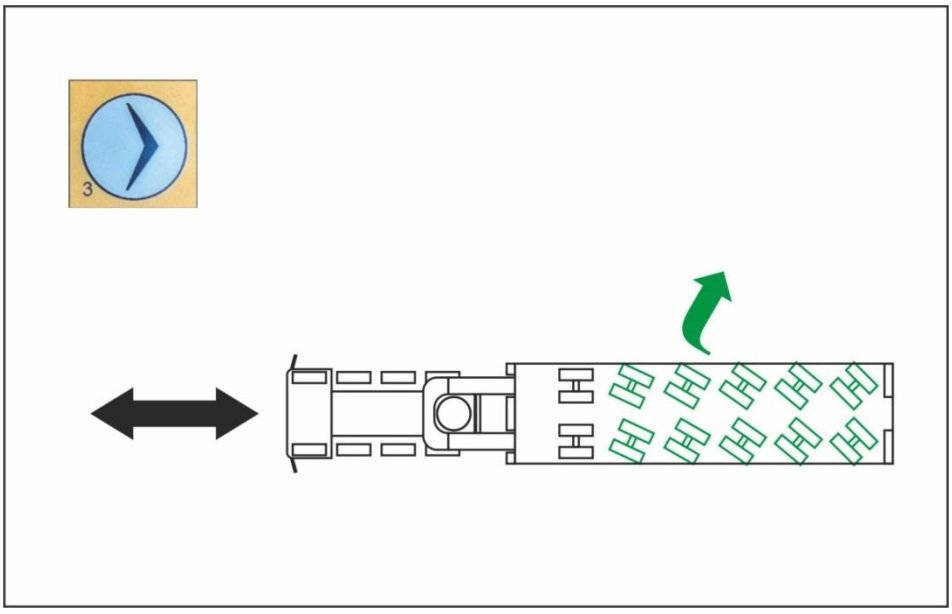
Set the "**CONTROL**" selector switch to the "**REMOTE**" position.

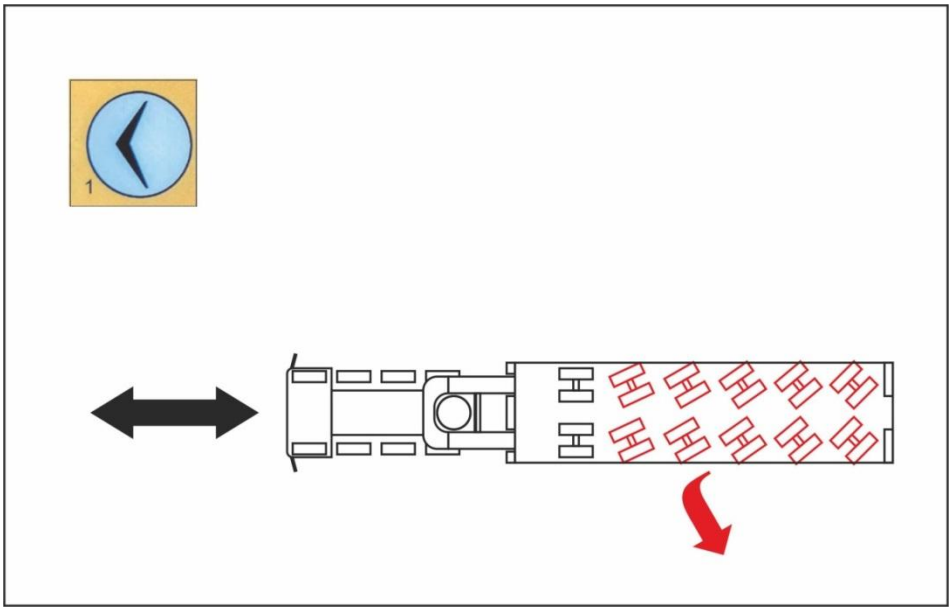






REMOTE CONTROL (RC) UNIT



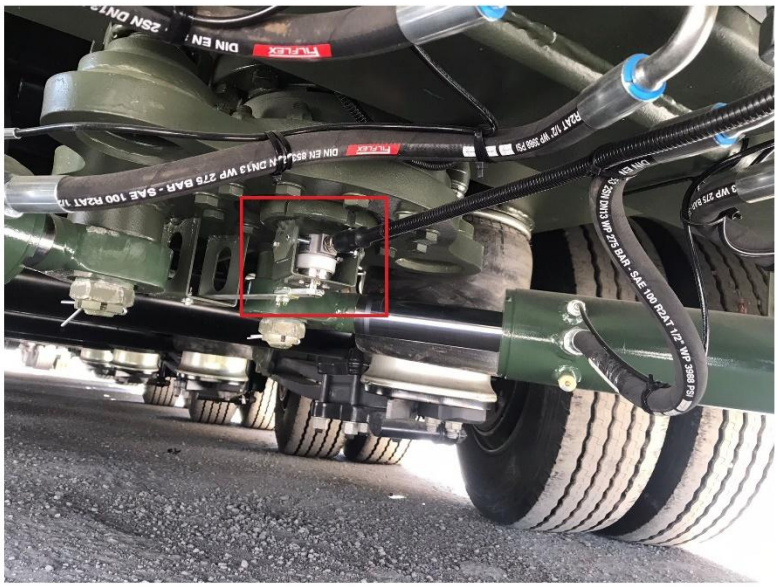


1.3. AUTOMATIC STEERING ALIGNMENT OPERATION

The automatic steering alignmet system is made with the help of a rotary encoder placed on the trailer. Automatic steering alignment can be done from the remote control or the control panel. The lamp of the lamp with the “Steering Reset” button flashes while the automatic steering alignment operation is performed. “Steering Reset” and “Steering Rear” lamps turn on permanently when automatic steering alignment is completed. If it cannot complete the steering alignment process 20 seconds after automatic steering alignment is activated, it times out and stops the operation.

IMPORTANT

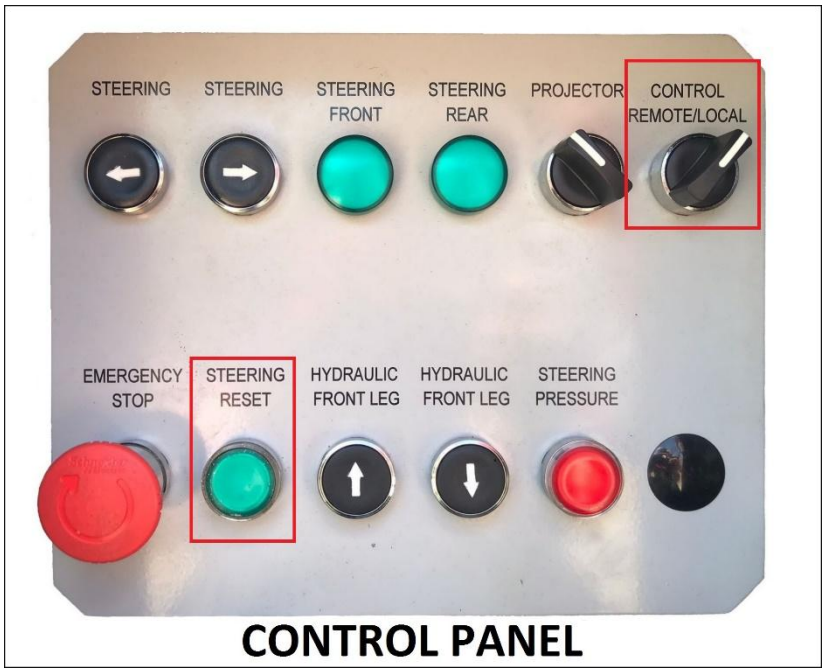
If the rotary encoder fails, automatic steering alignment is not performed.



STEERING ROTARY ENCODER

1.3.1. AUTOMATIC STEERING ALIGNMENT CONTROL FROM TRAILER PANEL

Set the "**CONTROL**" selector switch to the "**LOCAL**" position.



CONTROL PANEL



1.3.2. AUTOMATIC STEERING ALIGNMENT CONTROL FROM REMOTE CONTROL (RC) UNIT

Set the "**CONTROL**" selector switch to the "**REMOTE**" position.



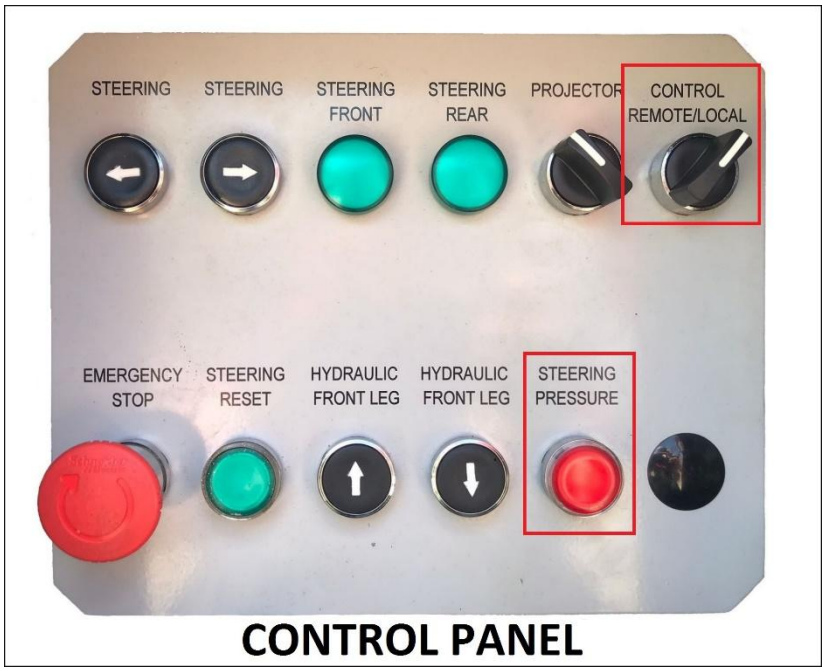




REMOTE CONTROL (RC) UNIT

1.4. STEERING PRESSURE LOW

The steering system works as hydraulic closed-loop control. In order for the steering system to work properly, there must be a minimum pressure of 10 bar inside the cylinders. 4 pressure sensors are used to measure the pressure inside the cylinders. When at least 2 of these sensors fall below 10 bar pressure, the lamp of the lamp with the "Low Steering Pressure" button will turn on continuously. “Low Steering Pressure” lamp should be checked before starting each journey with the vehicle. If the “Low Steering Pressure” light is constantly on, the steering cylinders are pressurized by holding the button. The “Low Steering Pressure” light will flash when pressure is applied to the steering cylinders. The “Low Steering Pressure” lamp will turn off when pressurization is complete.



CONTROL PANEL

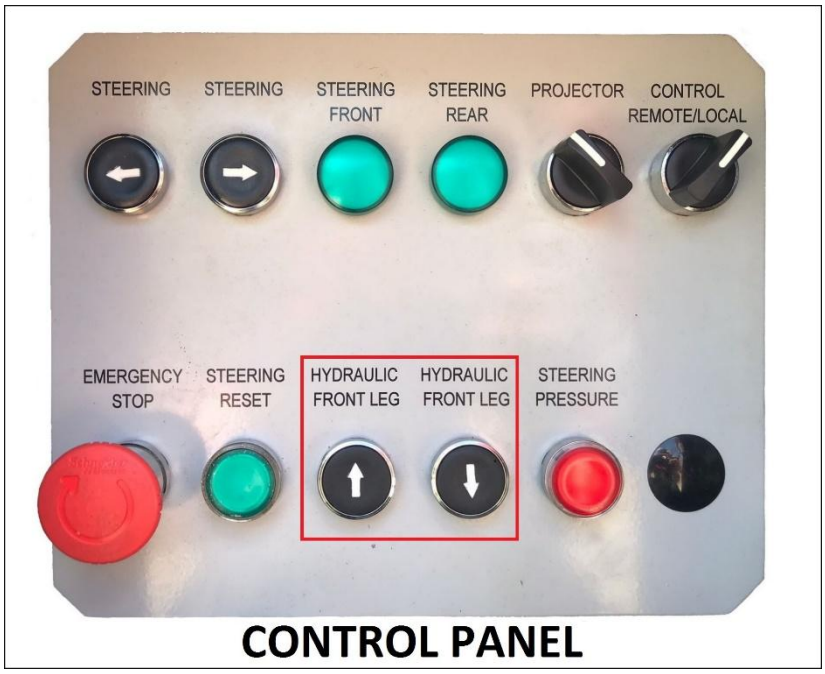
2. HYDRAULIC FRONT LEG

Trailer landing gear refers to retractable supports that keep a trailer level when the tractor is removed. A pair of landing legs are fixed near the front end to support the trailer after it is decoupled from the prime mover.



HYDRAULIC LEG

2.1. HYDRAULIC FRONT LEG CONTROL FROM TRAILER PANEL



CONTROL PANEL

2.2. HYDRAULIC FRONT LEG CONTROL FROM REMOTE CONTROL (RC) UNIT

Set the "**CONTROL**" selector switch to the "**REMOTE**" position.





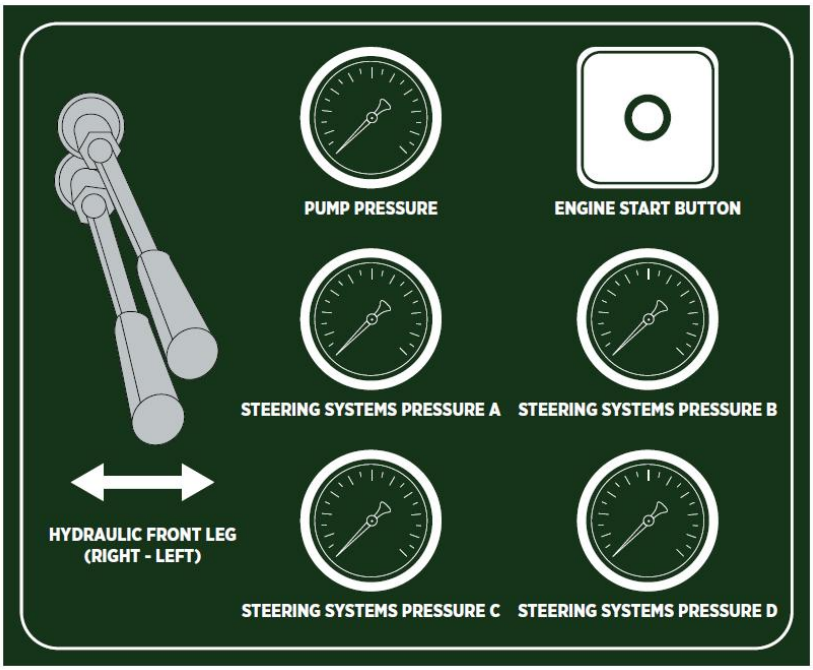


REMOTE CONTROL (RC) UNIT

2.3. MANUEL HYDRAULIC FRONT LEG CONTROL FROM CONTROL PANEL



- Press the “ENGINE START” button,
- Move lever-1 and lever-2 leftward to lower the hydraulic front leg
- Move lever-1 and lever-2 rightward to raise the hydraulic front leg
- When the hydraulic front leg is at the position you want, stop to press the "engine start" button and release the lever1-2


PUMP PRESSURE
ENGINE START BUTTON
STEERING SYSTEMS PRESSURE A
STEERING SYSTEMS PRESSURE B
HYDRAULIC FRONT LEG
(RIGHT - LEFT)
STEERING SYSTEMS PRESSURE C
STEERING SYSTEMS PRESSURE D

STEERING SYSTEM

MAINTENANCE MANUAL

2022

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Table of Contents

1. STEERING SYSTEM 4

1.1. BLEEDING AIR FROM THE HYDRAULIC STEERING SYSTEM: 7

1.1.1. BLEEDING OF BLUE AND GREEN CIRCUITS AT AXLE ASSEMBLY: 9

1.1.2. BLEEDING OF YELLOW AND RED CIRCUITS AT AXLE ASSEMBLY: 13

1.1.3. BLEEDING OF BLUE AND GREEN CIRCUITS AT GOOSENECK ASSEMBLY: 17

1.1.4. BLEEDING OF YELLOW AND RED CIRCUITS AT GOOSENECK ASSEMBLY: 21

1.2. ENCODER CALIBRATION 25

1.2.1. STEERING ENCODER CALIBRATION 25

1.2.2. GOOSENECK ENCODER CALIBRATION 26

1.3. OPERATOR / PERSONNEL TROUBLESHOOTING GUIDE 27

1.3.1. GENERAL TROUBLESHOOTING CHARTS 28





HIGH PRESSURE OIL!

STEERING AND SUSPENSION SYSTEM HYDRAULIC LINES ARE UNDER PRESSURE EVEN WHEN TRUCK PTO PUMP IS NOT RUNNING.
ALWAYS RELIEVE PRESSURE BEFORE PERFORMING SERVICE OR MAINTENANCE ON ANY HYDRAULIC COMPONENTS.



HIGH PRESSURE OIL CAN CAUSE SEVERE INJURY.

HYDRAULIC FLUID MAY BE ABSORBED THROUGH THE SKIN.
IF HYDRAULIC FLUID GETS INTO THE EYES, FLUSH THEM IMMEDIATELY WITH WATER AND SEEK MEDICAL ATTENTION.
IF HYDRAULIC FLUID GETS ON SKIN, WASH THOROUGLY WITH SOAP AND WATER.



DO NOT USE YOUR HAND TO CHECK FOR LEAKS.
USE A PIECE OF CARDBOARD OR PAPER TO SEARCH FOR LEAKS. WEAR PROPER HAND AND EYE PROTECTION WHEN SEARCHING FOR LEAKS. GET MEDICAL HELP IF SKIN PENETRATION OCCURS.



CIRCUIT WITH ACCUMULATOR!

DRAIN OIL TO TANK BEFORE STARTING ANY REPAIR OR MAINTENANCE.



HOT SURFACE!

HYDRAULIC OIL OR OTHER SURFACES MAY BE HOT IF SYSTEM HAS BEEN IN OPERATION.
ALLOW SYSTEM TO COOL BEFORE PERFORMING MAINTENANCE.
IT CAN CAUSE SEVERE INJURY.

1. STEERING SYSTEM

The steering system is one of the most important subgroups of the trailer. The malfunctioning of the steering system can cause various dangerous consequences for road and passenger safety.

The steering system of the trailer is a closed loop hydraulic system. When making a turn, the movement between the tractor (truck) and the trailer is transferred to the 2 cylinder groups by means of the 5th wheel unit. These cylinders are connected to 2 hydraulic cylinder groups in one of the axle groups by hydraulic lines and they steer the axles together. The remaining suspension legs are connected to each other by mechanical rods and transmit the steering movement to each other. With the tractor and semitrailer combination, turning the tractor also causes the semitrailer wheels to turn.

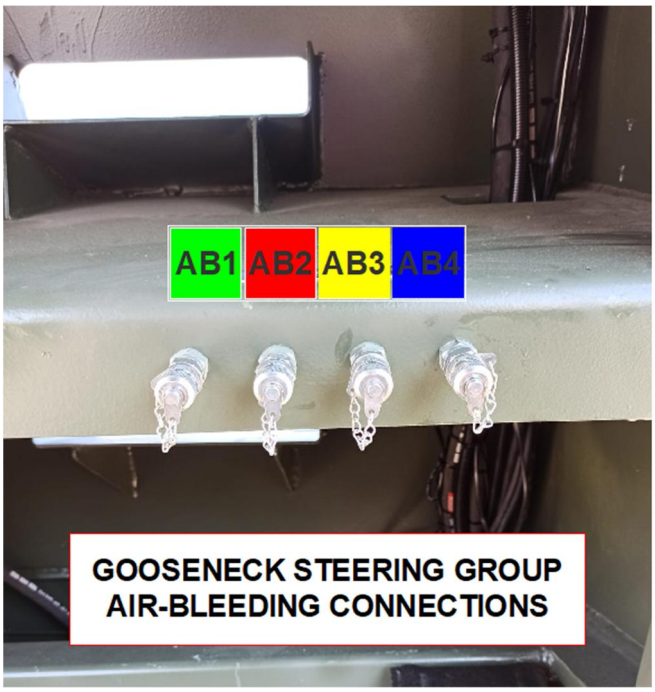
Because fluids are considered to be basically incompressible, great stiffness in a hydraulic system is expected. That is, the positioning of an actuator such as cylinder should be immediate (rapid response) and precise. Therefore, one of chief concerns is to make certain that there is no elastic, power absorbing component (such as air) in a hydraulic system. The larger the amount of free or entrained air in the system, makes more spongier (softer, less stiff) the system. This can lead to instability and delayed reactions in the steering system. It is very important to evacuate this air from the system.

For the following cases bleeding operations must be carried out :

a) when, the semi-trailer continues to move misaligned with respect to the tractor, despite the alignment operations,

b) when, there has been a significant leak of hydraulic oil, after the replacement of a cylinder or a hydraulic hose, or after having carried out maintenance operations on the steering hydraulic system,

The hydraulic cylinders of the hydraulic steering system are equipped with air-bleed connections. If required, these can be easily accessed with extension hoses and quick couplers. Stickers with their own color for each circuit show the location of these quick connectors of each individual circuit. See the pictures below.







The hydraulic steering system has 4 independent circuits. Each circuit is allocated its own colour, indicated with coloured stickers. Each circuit must be bled separately.

IMPORTANT

Always bleed the steering cylinders on the trailer side first. Then move the air-bleed hose to the Gooseneck side and bleed the steering cylinders on the Gooseneck.

Gooseneck steering cylinders are placed higher than the steering cylinders on the trailer side. If air bleeding is not done in this order, some air may remain in the system.

IMPORTANT

Before starting the air bleeding process;

- pull the tractor(truck) over level ground.



- Attach the chocks given in the picture above to the tractor (truck) wheels.
- release the emergency brake

1.1. BLEEDING AIR FROM THE HYDRAULIC STEERING SYSTEM:

- Steering system control panel



- Open control panel



- Make sure that the "**EMERGENCY STOP**" button is **NOT** pressed.
-

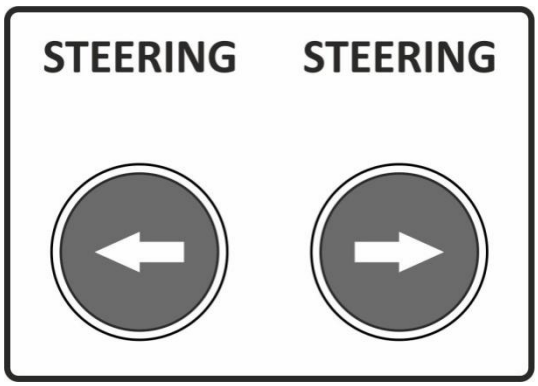


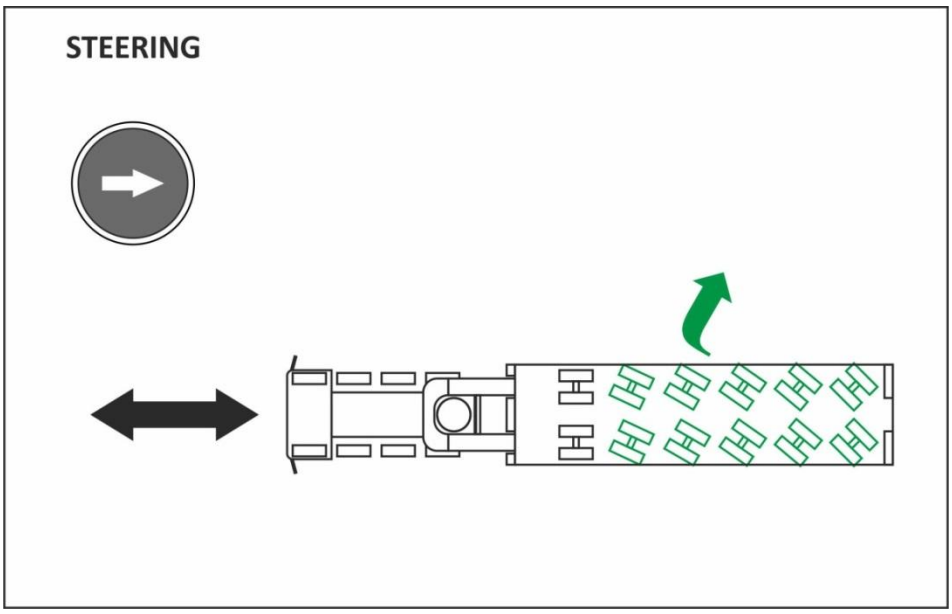
- Set the "**CONTROL MODE**" selector switch to the "**LOCAL**" position.

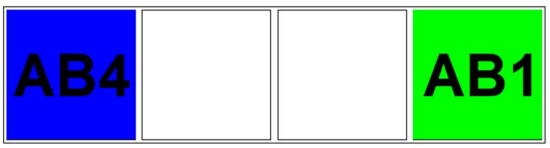


1.1.1. BLEEDING OF BLUE AND GREEN CIRCUITS AT AXLE ASSEMBLY:

Pressing the **Steering Control** to the **RIGHT** side and HOLDING IT AT THAT POSITION will bleed the hydraulic circuits **AB-1 (GREEN)** and **AB-4 (BLUE).**





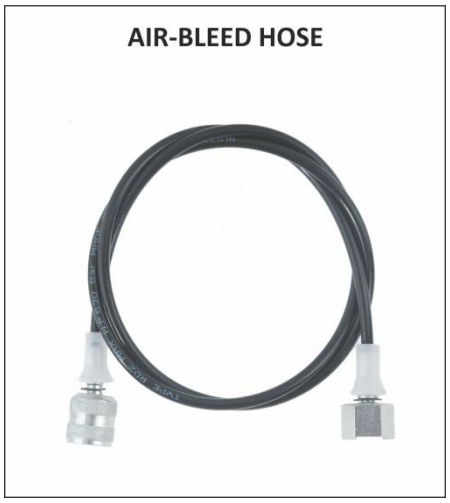


To bleed BLUE Circuit:

- **Remove** the dust cover of the **AB-4 (BLUE) Air-Bleed** connection of the steering cylinder in the axle assembly.

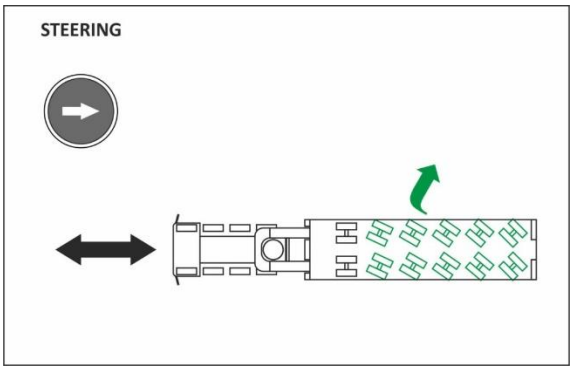


- Connect one end of the air bleed hose to the **AB-4 (BLUE) Air-Bleed** connector and drop the other end into the clean container where the oil will drain.





- **Press** the **Steering Control** button to the **RIGHT** side and **HOLD** until oil flows without air bubbles from the **AB-4 (BLUE) Air-Bleed** hose. Continue this process until 3-4 liters of oil flows from the circuit.



After the air-bleeding process is finished;

- **Release** the **Steering Control** button.
- Disconnect the Air-Bleed hose from the **AB-4 (BLUE) Air-Bleed** connector.
- Replace the dust cover of the **AB-4 (BLUE) Air-Bleed** connection.

To bleed GREEN Circuit:

- **Remove** the dust cover of the **AB-1 (GREEN) Air-Bleed** connection of the steering cylinder in the axle assembly.

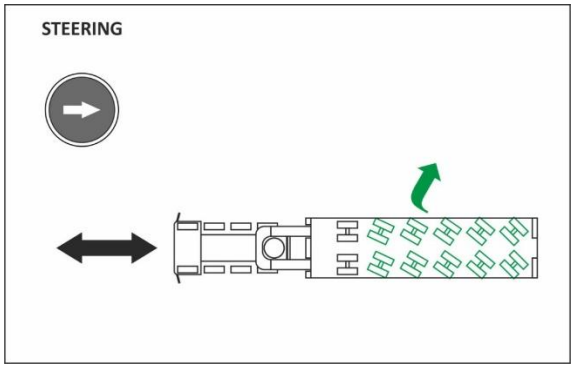


- Connect one end of the air bleed hose to the **AB-1 (GREEN) Air-Bleed** connector and drop the other end into the clean container where the oil will drain.





- **Press** the **Steering Control** button to the **RIGHT** side and **HOLD** until oil flows without air bubbles from the **AB-1 (GREEN) Air-Bleed** hose. Continue this process until 3-4 liters of oil flows from the circuit.

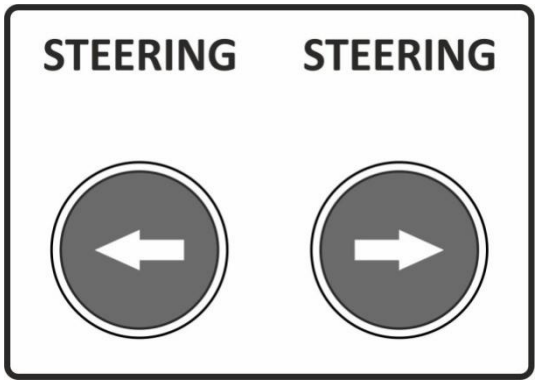


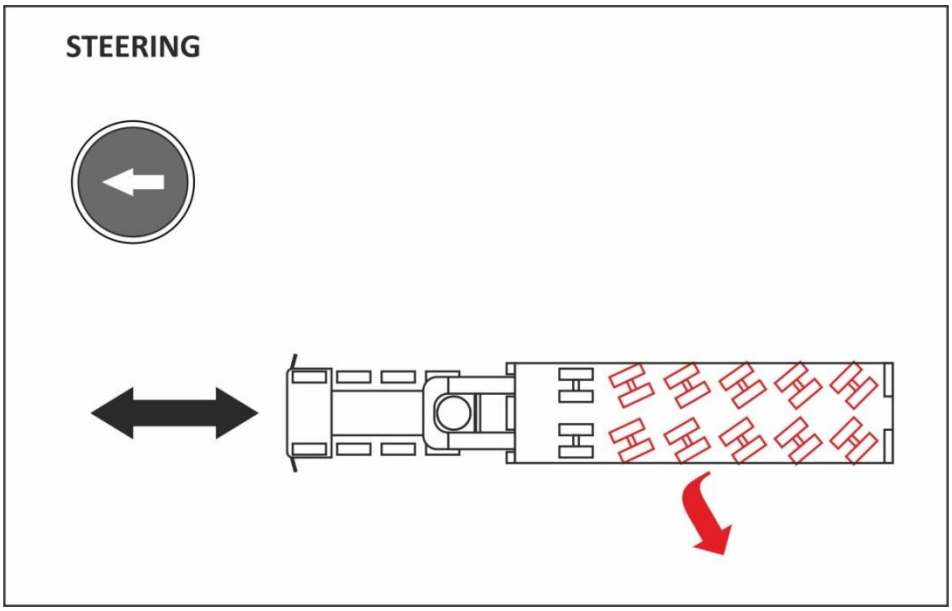
After the air-bleeding process is finished;

- **Release** the **Steering Control** button.
- Disconnect the Air-Bleed hose from the **AB-1 (GREEN) Air-Bleed** connector.
- Replace the dust cover of the **AB-1 (GREEN) Air-Bleed** connection.

1.1.2. BLEEDING OF YELLOW AND RED CIRCUITS AT AXLE ASSEMBLY:

Turning the **Steering Control** switch to the **LEFT** side and **Pushing** the **Gooseneck Upward** button at the same time and HOLDING THEM AT THAT POSITIONS will bleed the hydraulic circuits **AB-2 (YELLOW)** and **AB-3 (RED).**







To bleed YELLOW Circuit:

- **Remove** the dust cover of the **AB-3 (YELLOW) Air-Bleed** connection of the steering cylinder in the axle assembly.



- Connect one end of the air bleed hose to the **AB-3 (YELLOW) Air-Bleed** connector and drop the other end into the clean container where the oil will drain.

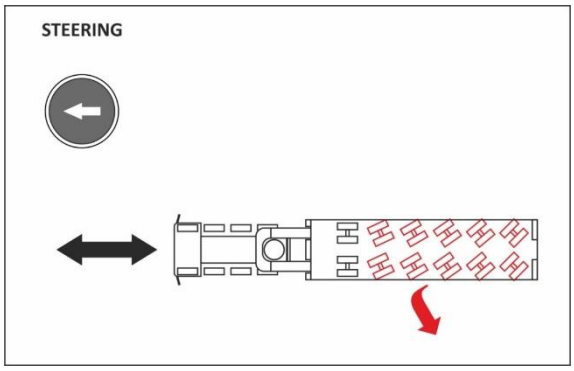
AIR-BLEED HOSE



OIL TRANSFER CONTAINER



- **Press** the **Steering Control** switch to the **LEFT** side and **HOLD** until oil flows without air bubbles from the **AB-3 (YELLOW) Air-Bleed** hose. Continue this process until 3-4 liters of oil flows from the circuit.



After the air-bleeding process is finished;

- **Release** the **Steering Control** button.

- Disconnect the Air-Bleed hose from the **AB-3 (YELLOW) Air-Bleed** connector.

- Replace the dust cover of the **AB-3 (YELLOW) Air-Bleed** connection.

To bleed RED Circuit:

- **Remove** the dust cover of the **AB-2 (RED) Air-Bleed** connection of the steering cylinder in the axle assembly.

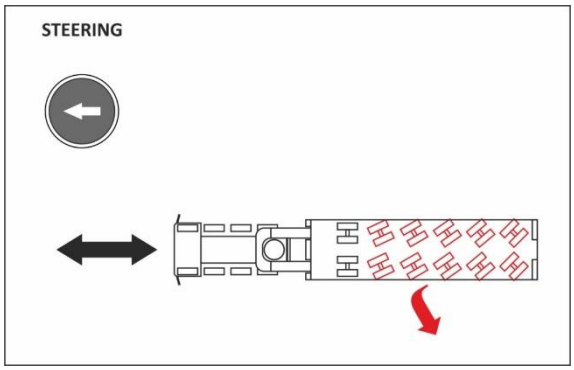


- Connect one end of the air bleed hose to the **AB-2 (RED) Air-Bleed** connector and drop the other end into the clean container where the oil will drain.





- **Push** the **Steering Control** button to the **LEFT** side and **HOLD** until oil flows without air bubbles from the **AB-2 (RED) Air-Bleed** hose. Continue this process until 3-4 liters of oil flows from the circuit.

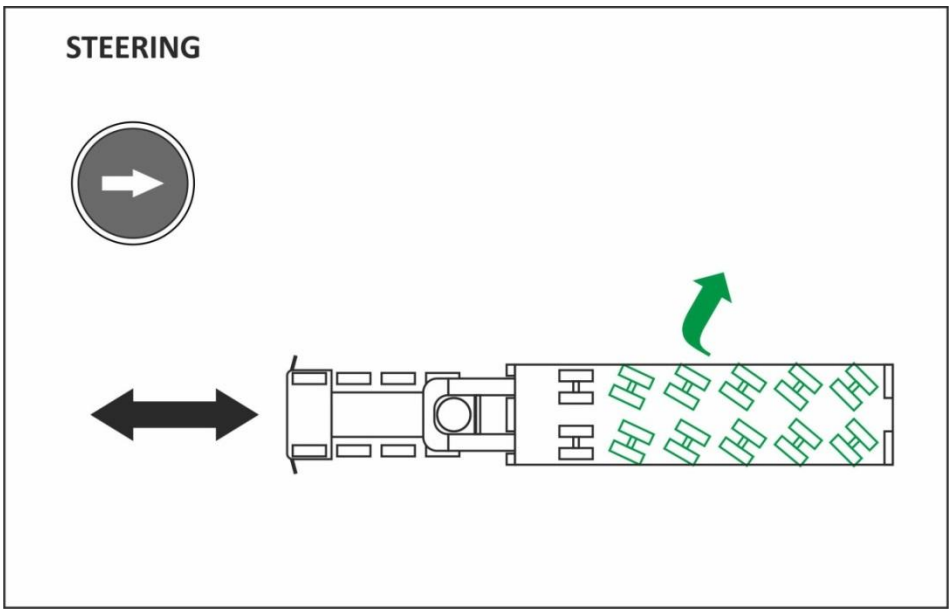


After the air-bleeding process is finished;

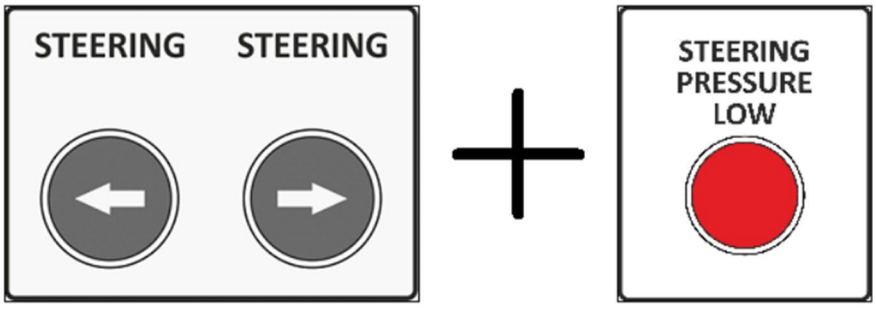
- **Release** the **Steering Control** button.
- Disconnect the Air-Bleed hose from the **AB-2 (RED) Air-Bleed** connector.
- Replace the dust cover of the **AB-2 (RED) Air-Bleed** connection.

1.1.3. BLEEDING OF BLUE AND GREEN CIRCUITS AT GOOSENECK ASSEMBLY:

- First of all turn the steering system all the way to the **RIGHT**



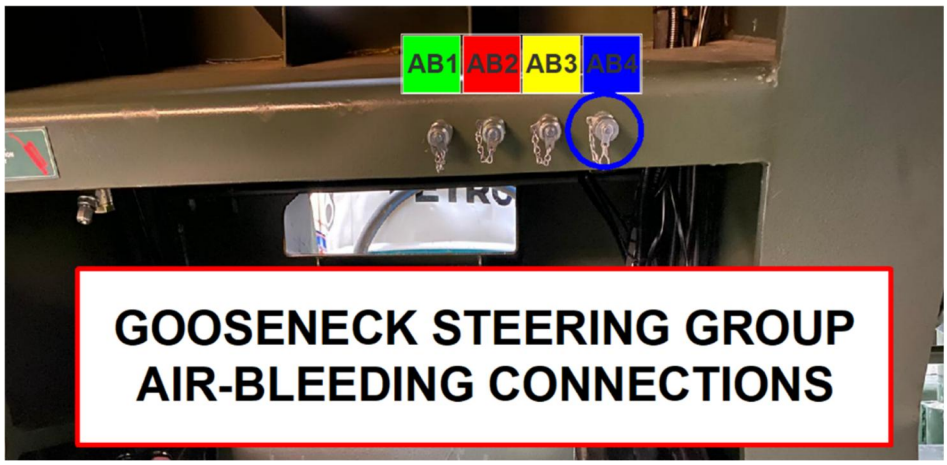
Pushing the **Steering Control RIGHT** button and the **Steering Control LEFT** button and **Pushing** the **Steering Pressure Low** button at the same time and HOLDING THEM AT THAT POSITIONS will bleed the hydraulic circuits **AB-1 (GREEN)** and **AB-4 (BLUE).**





To bleed BLUE Circuit:

- **Remove** the dust cover of the **AB-4 (BLUE) Air-Bleed** connection of the steering cylinder in the Gooseneck assembly.

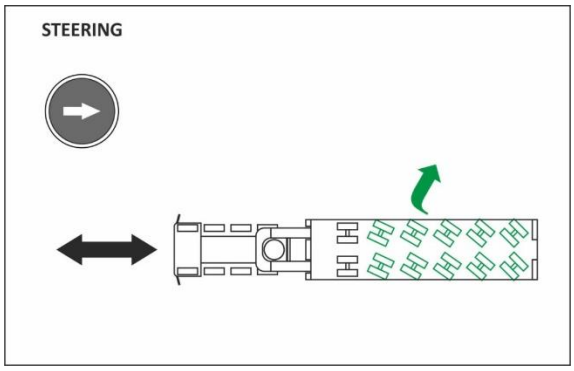


- Connect one end of the air bleed hose to the **AB-4 (BLUE) Air-Bleed** connector and drop the other end into the clean container where the oil will drain.





- **Pushing** the **Steering Control RIGHT** button and the **Steering Control LEFT** button and **Pushing** the **Steering Reset** button at the same time and **HOLD** until oil flows without air bubbles from the **AB-4 (BLUE) Air-Bleed** hose. Continue this process until 3-4 liters of oil flows from the circuit.



After the air-bleeding process is finished;

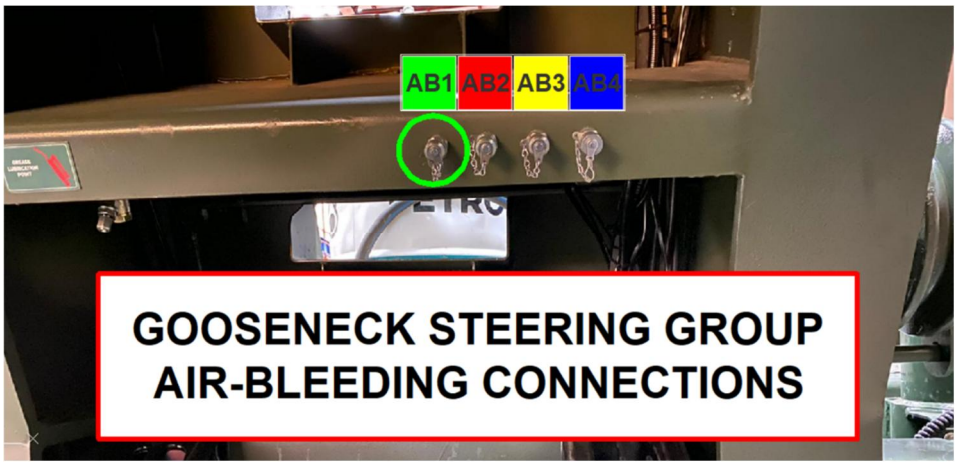
- **Release** the **Steering Control RIGHT** button and the **Steering Control LEFT** button and the **steering Pressure Low** button.

- Disconnect the Air-Bleed hose from the **AB-1 (BLUE) Air-Bleed** connector.

- Replace the dust cover of the **AB-1 (BLUE) Air-Bleed** connection.

To bleed GREEN Circuit:

- **Remove** the dust cover of the **AB-1 (GREEN) Air-Bleed** connection of the steering cylinder in the Gooseneck assembly.

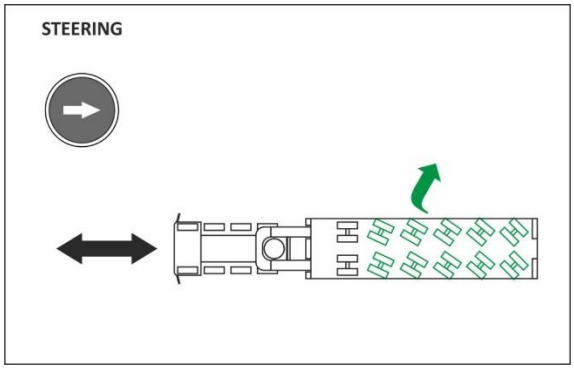


- Connect one end of the air bleed hose to the **AB-1 (GREEN) Air-Bleed** connector and drop the other end into the clean container where the oil will drain.





- **Pushing** the **Steering Control RIGHT** button and the **Steering Control LEFT** button and **Pushing** the **Steering Pressure Low** button at the same time and **HOLD** until oil flows without air bubbles from the **AB-1 (GREEN) Air-Bleed** hose. Continue this process until 3-4 liters of oil flows from the circuit.



After the air-bleeding process is finished;

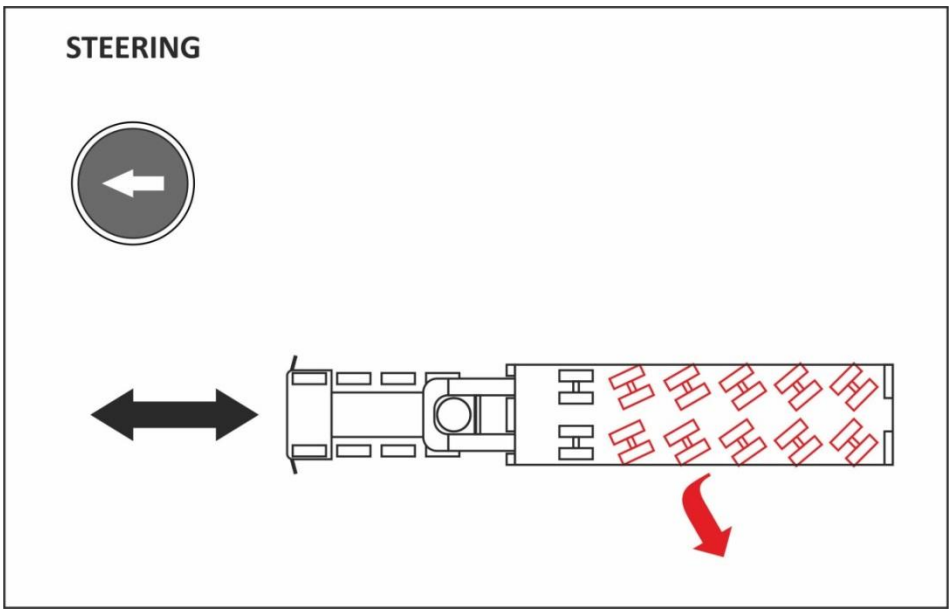
- **Release** the **Steering Control RIGHT** button and the **Steering Control LEFT** button and the **Steering Pressure Low** button.

- Disconnect the Air-Bleed hose from the **AB-1 (GREEN) Air-Bleed** connector.

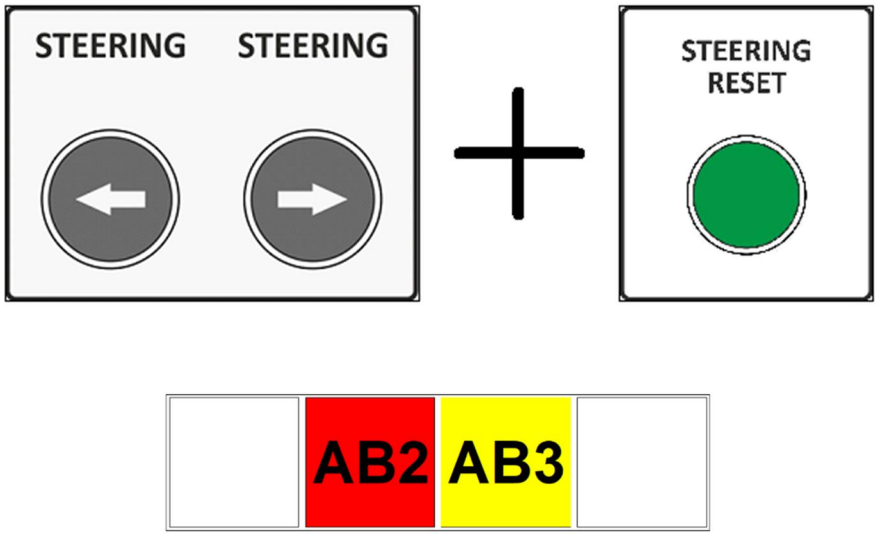
- Replace the dust cover of the **AB-1 (GREEN) Air-Bleed** connection.

1.1.4. BLEEDING OF YELLOW AND RED CIRCUITS AT GOOSENECK ASSEMBLY:

- First of all turn the steering system all the way to the **LEFT**

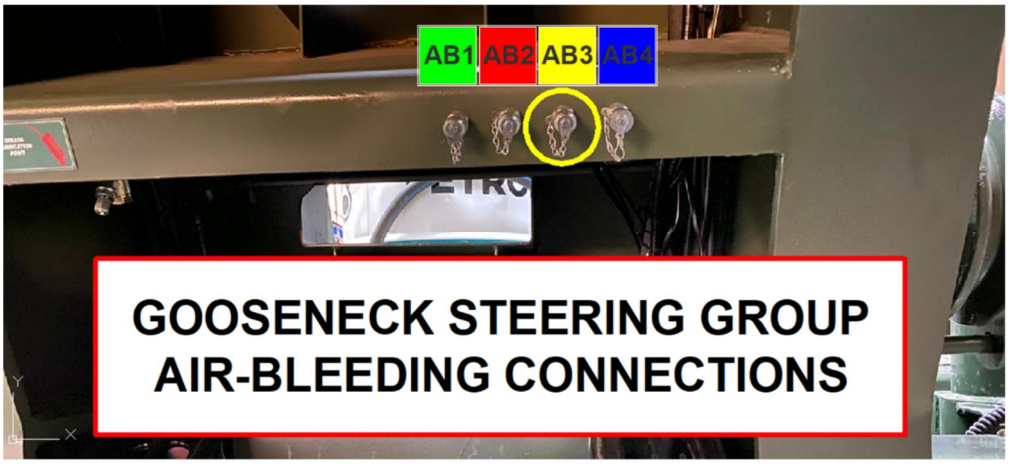


- **Pushing** the **Steering Control RIGHT** button and the **Steering Control LEFT** button and **Pushing** the **Steering Reset** button at the same time and HOLDING THEM AT THAT POSITIONS will bleed the hydraulic circuits **AB-2 (RED)** and **AB-3 (YELLOW).**



To bleed YELLOW Circuit:

- **Remove** the dust cover of the **AB-3 (YELLOW) Air-Bleed** connection of the steering cylinder in the Gooseneck assembly.

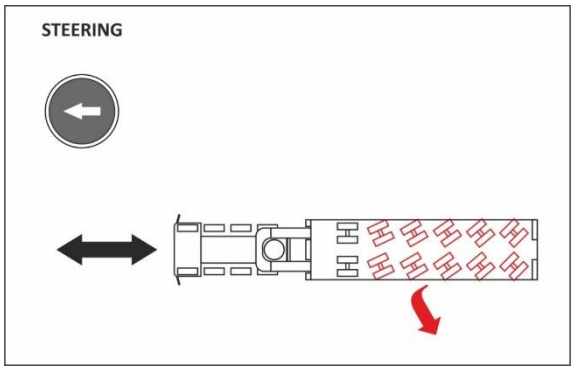


- Connect one end of the air bleed hose to the **AB-3 (YELLOW) Air-Bleed** connector and drop the other end into the clean container where the oil will drain.





-
- **Pushing** the **Steering Control RIGHT** button and the **Steering Control LEFT** button and **Pushing** the **Steering Reset** button at the same time and **HOLD** until oil flows without air bubbles from the **AB-3 (YELLOW) Air-Bleed** hose. Continue this process until 3-4 liters of oil flows from the circuit.



After the air-bleeding process is finished;

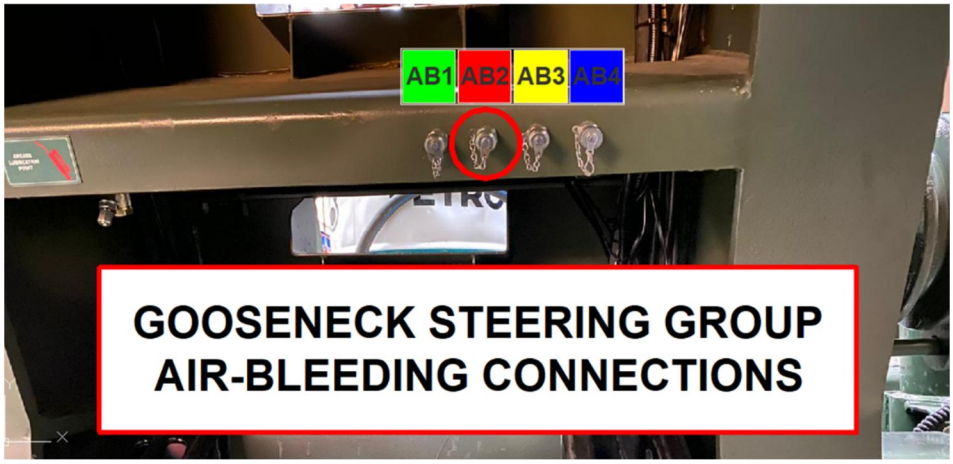
- **Release** the **Steering Control RIGHT** button and the **Steering Control LEFT** button and the **Steering Reset** button.

- Disconnect the Air-Bleed hose from the **AB-3 (YELLOW) Air-Bleed** connector.

- Replace the dust cover of the **AB-3 (YELLOW) Air-Bleed** connection.

To bleed RED Circuit:

- **Remove** the dust cover of the **AB-3 (RED) Air-Bleed** connection of the steering cylinder in the Gooseneck assembly.

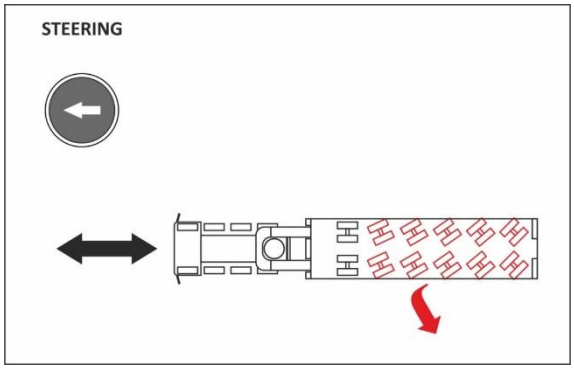


- Connect one end of the air bleed hose to the **AB-3 (RED) Air-Bleed** connector and drop the other end into the clean container where the oil will drain.





- **Pushing** the **Steering Control RIGHT** button and the **Steering Control LEFT** button and **Pushing** the **Steering Reset** button at the same time and **HOLD** until oil flows without air bubbles from the **AB-2 (RED Air-Bleed** hose. Continue this process until 3-4 liters of oil flows from the circuit.



After the air-bleeding process is finished;

- **Release** the **Steering Control RIGHT** button and the **Steering Control LEFT** button and the **Steering Reset** button.

- Disconnect the Air-Bleed hose from the **AB-3 (RED) Air-Bleed** connector.

- Replace the dust cover of the **AB-3 (RED) Air-Bleed** connection.

After bleeding the circuits, transfer the drained oil back to the tank after resting.

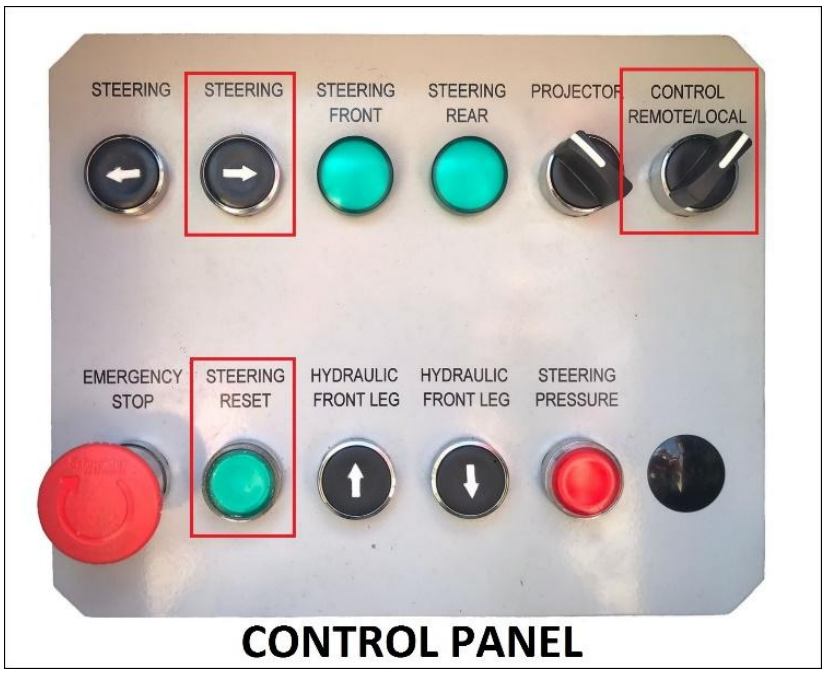


Environmental Advice!
Be careful not to spill hydraulic oil.

1.2. ENCODER CALIBRATION

1.2.1. STEERING ENCODER CALIBRATION

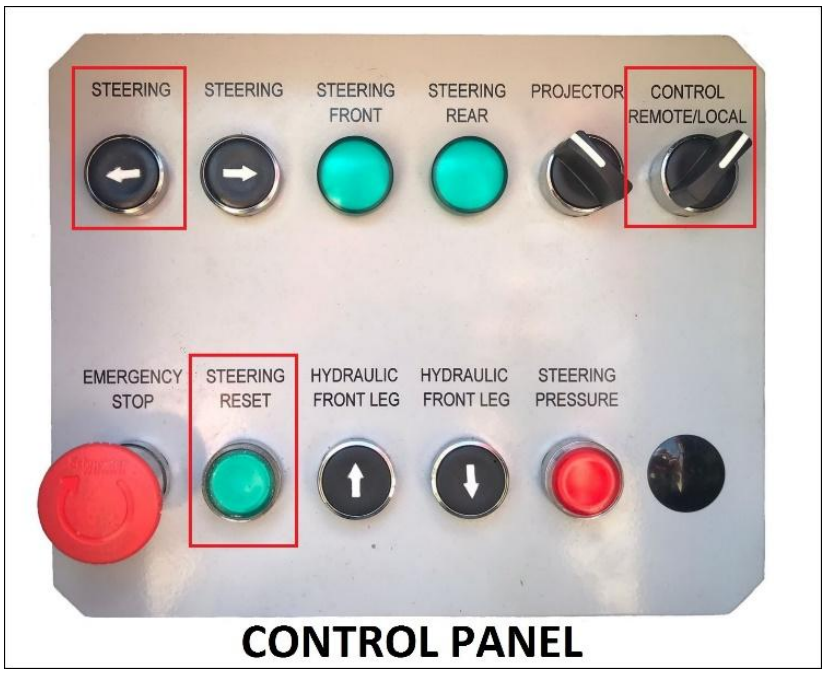
a) Turn the "Control" button on the control panel to the "Local" position.
b) Press and hold the “Steering Reset” and “Steering Right” buttons simultaneously for 5 seconds. The “Steering Rear” lamp will flash while the calibration process is in progress.
c) The operation is complete when the “Steering Rear” lamp lights up continuously.



CONTROL PANEL

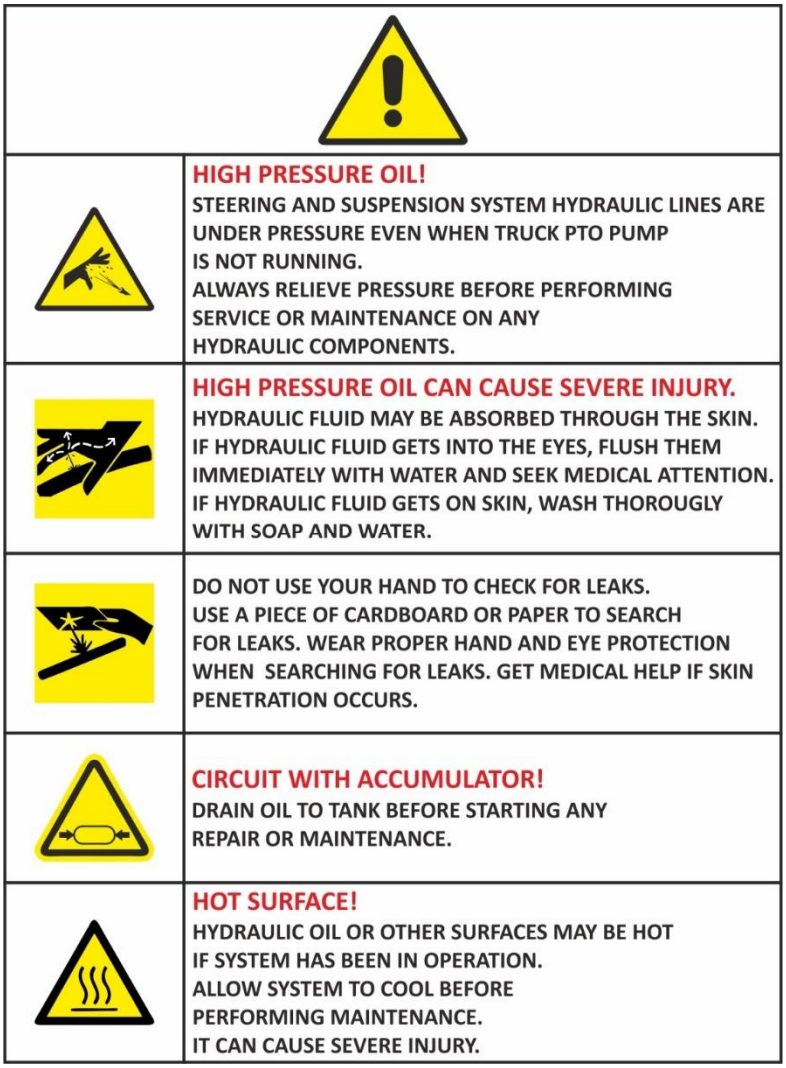
1.2.2. GOOSENECK ENCODER CALIBRATION

a) Turn the "Control" button on the control panel to the "Local" position.
b) Press and hold the “Steering Reset” and “Steering Left” buttons simultaneously for 5 seconds. The “Steering Front” lamp will flash while the calibration process is in progress.
c) The operation is complete when the “Steering Front” lamp lights up continuously.



CONTROL PANEL

1.3. OPERATOR / PERSONNEL TROUBLESHOOTING GUIDE



HIGH PRESSURE OIL!
STEERING AND SUSPENSION SYSTEM HYDRAULIC LINES ARE UNDER PRESSURE EVEN WHEN TRUCK PTO PUMP IS NOT RUNNING.
ALWAYS RELIEVE PRESSURE BEFORE PERFORMING SERVICE OR MAINTENANCE ON ANY HYDRAULIC COMPONENTS.

HIGH PRESSURE OIL CAN CAUSE SEVERE INJURY.
HYDRAULIC FLUID MAY BE ABSORBED THROUGH THE SKIN.
IF HYDRAULIC FLUID GETS INTO THE EYES, FLUSH THEM IMMEDIATELY WITH WATER AND SEEK MEDICAL ATTENTION.
IF HYDRAULIC FLUID GETS ON SKIN, WASH THOROUGLY WITH SOAP AND WATER.

DO NOT USE YOUR HAND TO CHECK FOR LEAKS.
USE A PIECE OF CARDBOARD OR PAPER TO SEARCH FOR LEAKS. WEAR PROPER HAND AND EYE PROTECTION WHEN SEARCHING FOR LEAKS. GET MEDICAL HELP IF SKIN PENETRATION OCCURS.

CIRCUIT WITH ACCUMULATOR!
DRAIN OIL TO TANK BEFORE STARTING ANY REPAIR OR MAINTENANCE.

HOT SURFACE!
HYDRAULIC OIL OR OTHER SURFACES MAY BE HOT IF SYSTEM HAS BEEN IN OPERATION.
ALLOW SYSTEM TO COOL BEFORE PERFORMING MAINTENANCE.
IT CAN CAUSE SEVERE INJURY.

1.3.1. GENERAL TROUBLESHOOTING CHARTS

The tables below contain general problem diagnosis and solutions for the hydraulic system.

System Inoperative	
Possible Causes	**Remedy**
a. No oil in system.	Fill to full mark. Check system for leaks.
b. Oil low in reservoir.	Check level and fi ll to full mark. Check system for leaks.
c. Oil of wrong viscosity.	Refer to specifications for proper viscosity.
d. Filter dirty or plugged.	Drain oil and replace filters. Try to find source of contamination.
e. Restriction in system.	Oil lines could be dirty or have inner walls that are collapsing, cutting off oil supply. Clean or replace lines. Clean orifices.
f. Air leaks in suction line..	Repair or replace lines.
g. Dirt in pump.	Clean and repair pump. If necessary, drain and flush hydraulic system. Try to find source of contamination.
h. Badly worn pump.	Repair or replace pump. Check for problems causing pump wear such as misalignment or contaminated oil.
i. Badly worn components.	Examine and test valves, motors, cylinders, etc. for external and internal leaks. If wear is abnormal, try to locate the cause.
j. Oil leak in pressure lines.	Tighten fittings or replace defective lines. Examine mating surfaces on couplers for irregularities.
k. Components not properly adjusted.	Refer to machine technical manual for proper adjustment of components.
l. Relief valve defective.	Test relief valves to make sure they are opening at their rated pressure. Examine seals for damage that could cause leaks. Clean relief valves and check for broken springs, etc.
m. Pump rotating in wrong direction.	Reverse to prevent damage.
n. Excessive load on system.	Check specification of unit for load limits.
o. Hoses attached improperly.	Attach properly and tighten securely.
p. Slipping or broken pump drive.	Replace couplers or belts if necessary. Align them and adjust tension.
q. Pump not operating.	Check for shut-off device on pump or pump drive.

System Operates Erratically	
Possible Causes	**Remedy**
a. Air in system.	Examine suction side of system for leaks. Make sure oil level is correct. Oil leaks on the pressure side of system could account for loss of oil.
b. Cold oil.	Viscosity of oil may be too high at start of warm-up period. Allow oil to warm up to operating temperature before using hydraulic functions.
c. Components sticking or binding.	Check for dirt or gummy deposits. If contaminated, try to fi nd the source of contamination. Check for worn or bent parts.
d. Pump damaged.	Check for broken or worn parts. Determine cause of pump damage.
e. Dirt in relief valves.	Clean relief valves or replace.
f. Restriction in filter or suction line.	Suction line could be dirty or have inner walls that are collapsing, cutting off oil supply. Clean or replace suction line. Also, check filter line for restrictions.

Overheating of Oil in System	
Possible Causes	**Remedy**
a. Operator holds control valves in power position too long, causing relief valve to open.	Return control lever to neutral position when not in use.
b. Using incorrect oil.	Use oil recommended by manufacturer. Be sure oil viscosity is correct.
c. Low oil level.	Fill reservoir. Look for leaks.
d. Dirty oil.	Drain and refill with clean oil. Look for source of contamination and replace filters.
e. Engine running too fast.	Reset governor or reduce throttle.
f. Incorrect relief valve pressure.	Check pressure and clean or replace relief valves.
g. Internal component oil leakage.	Examine and test valves, cylinders, motors, etc. for external and internal leaks. If wear is abnormal, try to locate cause.
h. Restriction in pump suction line.	Clean or replace.
i. Dented, obstructed or undersized oil lines.	Replace defective or undersized oil lines. Remove obstructions.
j. Oil cooler malfunctioning.	Clean or repair.
k. Control valve stuck open.	Free all spools so that they return to neutral position.
l. Heat not radiating properly.	Clean dirt and mud from reservoir, oil lines, coolers, and other components.
m. Automatic unloading control inoperative (if equipped).	Repair valve.

System Operates Slowly	
Possible Causes	**Remedy**
a. Cold oil.	Allow oil to warm up before operating machine.
b. Oil viscosity too heavy.	Use oil recommended by the manufacturer.
c. Insufficient engine speed.	Refer to operator's manual for recommended speed. If machine has a governor, it may need adjustment.
d. Low oil supply.	Check reservoir and add oil if necessary. Check system for leaks that could cause loss of oil.
e. Adjustable orifice restricted too much.	Back out orifice and adjust it. Check machine specifications for proper setting.
f. Air in system.	Check suction side of the system for leaks.
g. Badly worn pump.	Repair or replace pump. Check for problems causing pump wear such as misalignment or contaminated oil.
h. Restriction in suction line or filter.	Suction line could be dirty or have inner walls that are collapsing to cut off oil supply. Clean or replace suction line. Examine filter for plugging.
i. Relief valves not properly set or leaking.	Test relief valves to make sure they are opening at their rated pressure. Examine valves for damaged seats that could leak.
j. Badly worn components.	Examine and test valves, motors, cylinders, etc. for external and internal leaks. If wear is abnormal, try to locate the cause.
k. Valve or regulators plugged.	Clean dirt from components. Clean orifices. Check for source of dirt and correct.
l. Oil leak in pressure lines.	Tighten fittings or replace defective lines. Examine mating surfaces on couplers for irregularities.
m. Components not properly adjusted.	Refer to machine technical manual for proper adjustment of components.

Foaming of Oil in System	
Possible Causes	**Remedy**
a. Low oil level.	Fill reservoir. Look for leaks. Drain and replace oil.
b. Water in oil.	Check filler breather on reservoir. Heat exchanger may be cracked.
c. Wrong kind of oil being used.	Use oil recommended by manufacturer.
d. Air leak in line from reservoir to pump.	Tighten or replace suction line.
e. Kink or dent in oil lines.	Replace oil lines.
f. Worn pump shaft seal.	Clean sealing area and replace seal. Check oil for contamination or pump for misalignment.

Pump Makes Noise	
Possible Causes	**Remedy**
a. Low oil level.	Fill reservoir. Check system for leaks.
b. Oil viscosity too high.	Change to lighter oil.
c. Pump speed too fast.	Operate pump at recommended speed.
d. Suction line plugged or pinched.	Clean or replace line between reservoir and pump.
e. Sludge and dirt in pump.	Disassemble and inspect pump and lines. Clean hydraulic system. Determine cause of dirt.
f. Reservoir air vent plugged.	Remove breather cap, flush, and clean air vent.
g. Air in oil.	Tighten or replace suction line. Check system for leaks. Replace pump shaft seal.
h. Worn or scored pump bearings or shafts.	Replace worn parts or complete pump if parts are badly worn or scored. Determine cause of scoring.
i. Inlet screen plugged.	Clean screen.
j. Broken or damaged pump parts.	Repair pump. Look for cause of damage such as contamination or too much pressure.
k. Sticking or binding parts.	Repair binding parts. Clean parts and change oil if necessary.

Pump Leaks Oil	
Possible Causes	**Remedy**
a. Damaged seal around drive shaft.	Tighten packing or replace seal. Trouble may be caused by contaminated oil. Check oil for abrasives and clean entire hydraulic system. Try to locate source of contamination. Check the pump drive shaft. Misalignment could cause the seal to wear. If shaft is not aligned, check the pump for other damage.
b. Loose or broken pump parts.	Make sure all bolts and fittings are tight. Check gaskets. Examine pump castings for cracks. If pump is cracked, look for a cause like too much pressure or hoses that are attached incorrectly.

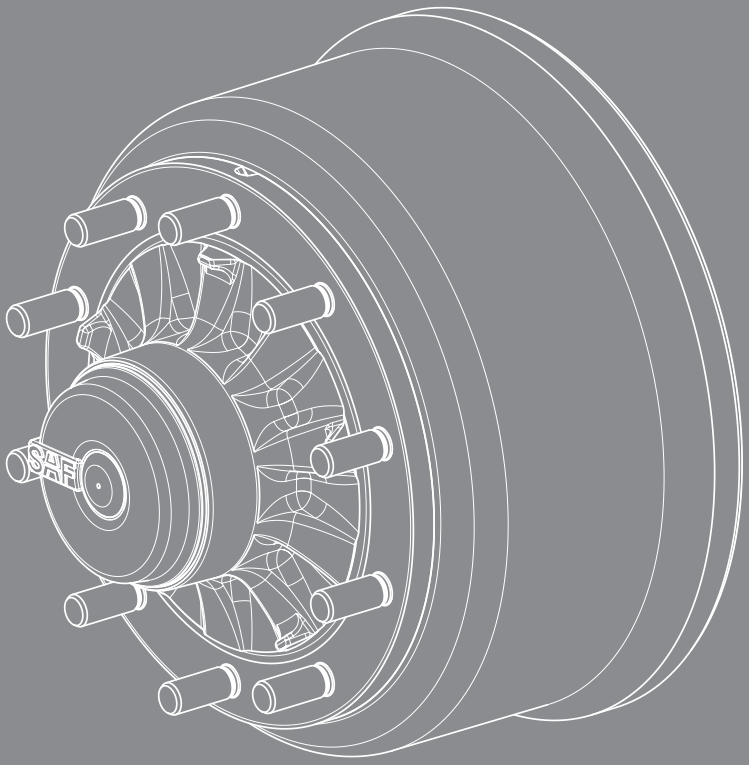
Cylinders Leak Oil	
Possible Causes	**Remedy**
a. Damaged cylinder barrel.	Replace cylinder barrel. Correct cause of barrel damage.
b. Rod seal leaking.	Replace seal. If contamination caused seal to wear, look for source. Wear may be caused by external as well as internal contaminants. Check piston rod for scratches or misalignment.
c. Loose parts.	Tighten parts until leakage has stopped.
d. Piston rod damaged.	Check rod for nicks or scratches that could cause seal damage or allow oil leakage. Replace defective rods.

Load Drops with Control Valve in Neutral Position	
Possible Causes	**Remedy**
a. Leaking or broken oil lines from control valve to cylinder.	Check for leaks. Tighten or replace lines. Examine mating surfaces on couplers for irregularities.
b. Oil leaking past cylinder packings or O-rings.	Replace worn parts. If wear is caused by contamination, clean hydraulic system and determine the contamination source.
c. Oil leaking past control valve or relief valves.	Clean or replace valves. Wear may be caused by contamination. Clean hydraulic system and determine the contamination source.
d. Oil leaking past load holding valve.	Check for proper adjustment. Remove and replace cartridge with spare. (Support Gooseneck before removing cartridge.) Do not attempt to repair.
e. Control lever not centering when released.	Check linkage for binding. Make sure valve is properly adjusted and has no broken or binding parts.

General Operating and Service Manual

Air suspension systems and axles with drum brakes

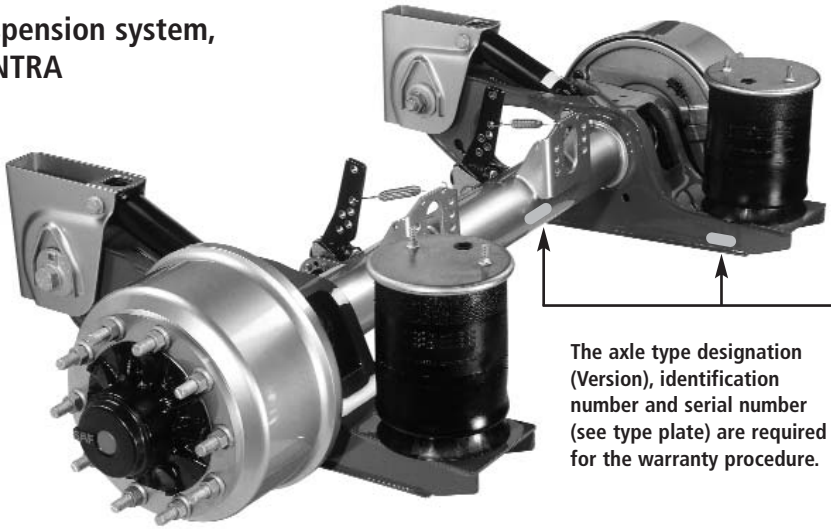
Edition 04/2007



SAF-Holland

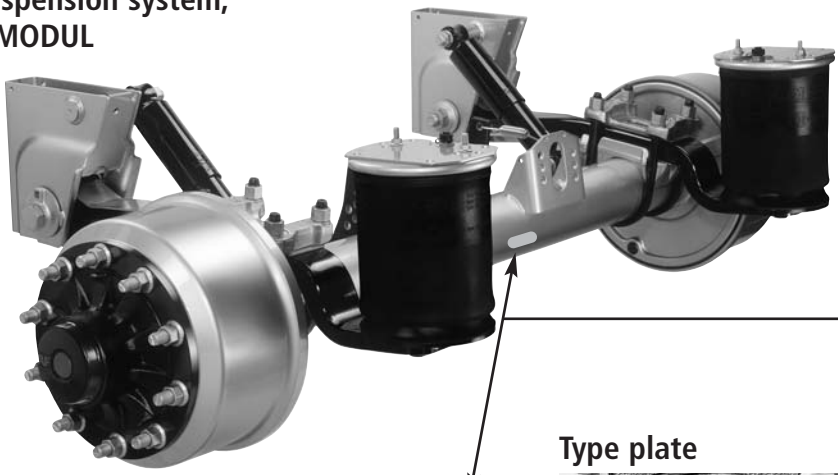
ORIGINAL PARTS

Air suspension system, Type INTRA



The axle type designation (Version), identification number and serial number (see type plate) are required for the warranty procedure.

Air suspension system, Type MODUL



Type plate

SAF-HOLLAND GMBH D-63856 BESSENBACH · GERMANY	SAF Holland
Version **S9-4218**	Serial No. **284 05 1 007**
Type **SNK4218-11S**	Ident No. **147 84 60 2 58 0**
Test Report **TDB0381**	Perm axle cap. stat. **9000** kg
	V max. **105** km/h
AN 1754524	SN 284051007



Identification if the type plate is missing:
The Serial No. of the axle is embossed in the axle end on the right-hand side (as seen in the direction of travel).

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Trailer manufacturer.....

Body type.....

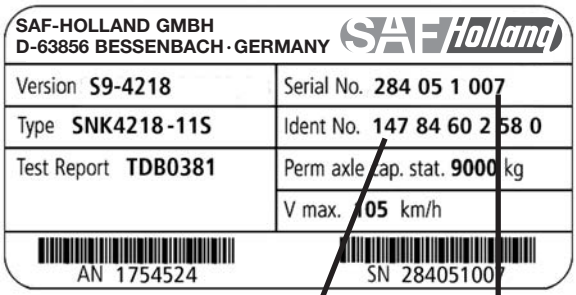
Chassis No. .....

Date of delivery/date of registration .....

Spare parts service for SAF-HOLLAND axles and suspension systems

Exact type designations are required for spare parts orders.

Please enter the identification data of the suspension system in the type plate illustrated below so that the correct information is available when necessary.



	Ident. No.	Prod. No. (Serial No.)
Example	147 84 60 2 58 0	284 05 1 007
1st axle		
2nd axle		
3rd axle		
4th axle		
5th axle		

Enter the axle data from the type plate

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SAF Contents

GB

Page

Identification of axles 2-3
General safety instructions 5
General service instructions 6
Tightening torques 7

Service schedule

S9-4218 / SL9-4218 / Z9-4218 / ZL9-4218 / S9-4220 / SL9-4220 / Z9-4220 / ZL9-4220 / S11-4218 / SL11-4218 / SZL11-4218 / Z11-4218 / ZL11-4218 / S11-4220 / SL11-4220 / SZL-4220 / Z11-4220 / ZL11-4220 / ZZLL-4220 8
SK RS / RZ 9042 / 11242 9
Z8-3718 / S9-3718 / SL9-3718 / Z9-3720 / ZL9-3720 / S11-3720 / SL11-3720 / Z11-3720 / ZL11-3720 10
SK RS / RZ 6537 / 9037 / 11037 11
S7-3015 / Z7-3015 / S9-3020 / Z9-3020 / ZL9-3020 / Z11-3020 / ZL11-3020 12
SK RS / RZ 6530 / 9030 / 11030 / RZ 12030 13
SK RS / RZ 12242 14
K RS / RZ 14242 / 16242 15

Tightening torques and adjustment instructions

for self-steering axles 16-17

General information

Check the brake setting 18
Adjustment of HALDEX automatic slack adjusters 19-20
Adjustment of S-ABA automatic slack adjusters 21
Tightening instructions for adjustable pivot bolt 22
Semi-trailer tilt angle 23
Tyre changing on fully loaded trailer with INTRA axle 24
Adjustment of the air suspension system ride height 25
Axle alignment 26

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Please observe the following safety instructions in order to maintain the operational and road safety of your SAF-HOLLAND axles and suspension systems:

1. The wheel contact surfaces between the wheel disc and wheel hub and the wheel nut contact surface at the wheel disc must not be additionally painted. The contact surfaces must be clean, smooth and free from grease. Failure to observe this may result in the wheel coming loose. Any additional instructions of the wheel manufacturer must also be observed.
2. Only the wheel and tyre sizes approved by the trailer builder may be used. The tyres must always have the specified inflation pressure.
3. The brake systems of the tractor and the trailer/semi-trailer must be synchronised by means of a tractor/trailer brake synchronisation not later than 5,000 km after the initial start of operation of the trailer/semi-trailer in order to ensure a safe and uniform braking behaviour and uniform brake pad wear. Tractor/trailer brake synchronisations should be carried out by appropriately qualified and equipped brake workshops.

   The use of an additional braking system, such as a trailer anti-jackknife brake is forbidden by law on vehicles with type approval after January 1999.
4. Before starting a journey, ensure that the maximum permissible axle load is not exceeded and that the load is distributed equally and uniformly.
5. On trailers with air suspension, ensure that the air bags are completely filled with air before starting the journey. Incompletely filled air bags may result in damage to axles, suspension, frame and superstructure and impair road safety.
6. Ensure that the brakes are not overheated by continuous operation.

   With drum brakes, overheating can result in a hazardous deterioration in the braking efficiency.

   With disc brakes, overheating can result in damage to surrounding components – in particular the wheel bearings. This can result in a significant deterioration in road safety, e.g. failure of wheel bearings.
7. The parking brake must not be immediately applied when the brakes are hot, as the brake discs and brake drums may be damaged by different stress fields during cooling.
8. Use the supports provided when loading and unloading in order to avoid damage to the axle.
9. Observe the operating recommendation of the trailer builder for off-road operation of the installed axles and suspension systems.

   The SAF-HOLLAND definition of OFF-ROAD means driving on non-asphalted / non-concreted routes, such as e.g. gravel roads, agricultural and forestry tracks, on construction sites and in gravel pits.

   Off-road operation of SAF-HOLLAND axles and suspension systems not designed for the purpose may result in damage and hence to an impairment of road safety.
10. SAF-HOLLAND axles and suspension systems require continuous care, service and maintenance in order to maintain operational and road safety and to be able to recognise natural wear and defects in good time.

    The daily inspection of the trailer for road safety before starting the journey is one of the driver's obligations.

    SAF-HOLLAND recommends that at least the inspections and maintenance operations described on page 6 should be carried out.

We recommend the use of original SAF-HOLLAND spare parts.

A close-knit service network of SAF-HOLLAND partner companies is available for the technical support of the SAF-HOLLAND axles and suspension systems and for the supply of original SAF-HOLLAND spare parts (see rear cover or on the Internet under www.safholland.com).

Updates will be published as necessary on the Internet under www.safholland.com.

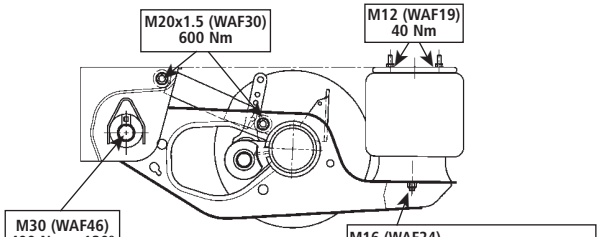
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- **Caution:** After every wheel change, always retighten the wheel nuts to the prescribed torque after 50 km and again after 150 km.
- Check the brake lining thickness at regular intervals.
- Carry out general visual inspections of the brakes, tyres and all suspension components at regular intervals and check for proper attachment, wear, leaks, corrosion and damage.
- Carry out regular visual inspections of the wheel bearing unit for grease leaks and axial clearance.
  Wheel bearing grease change, see pages 9, 11, 13, 14 and 15.
- Regularly check the camshaft for smooth return and the slack adjuster for proper function.
- Lubricate the camshaft at regular intervals.
- Inspect the brake drum for wear* and cracking at every brake lining change.
  Minimum wear limits*, see pages 8 to 15.
- Replace the brake shoe return springs at every brake lining change.
- Check the air suspension ride height at regular intervals in accordance with the trailer builder's specifications and adjust as described on page 25.
- With aluminium and stainless steel hanger brackets, check that the bolts of the spring brackets and shock absorbers are tightened to the prescribed torques as described on page 7.
- On all units, check that the bolts of the U-brackets are tightened to the prescribed torques as described on page 7.
- For steering axles, observe also the points on pages 16 and 17.
- Carry out a general safety check in accordance with the statutory provisions.
- We recommend the use of original SAF-HOLLAND spare parts.

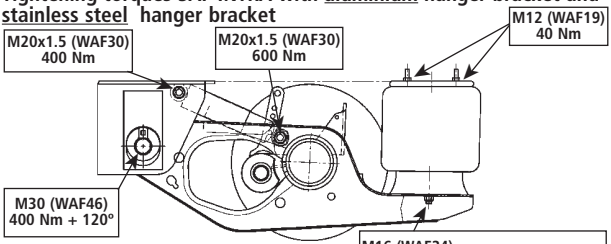
* We recommend that a general safety check is carried out when the minimum wear limit is reached.

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Tightening torques SAF INTRA with steel hanger bracket

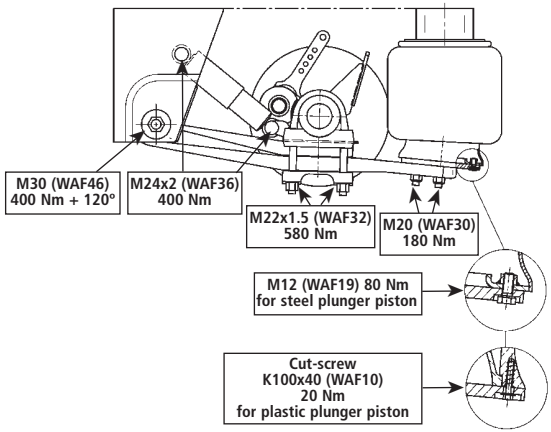


Tightening torques SAF INTRA with <u>aluminium</u> hanger bracket and <u>stainless steel</u> hanger bracket



NOT MAINTENANCE-FREE!

Tightening torques SAF MODUL



Attention!

- Threads not to be oiled or greased!
- Pivot bolt on steel hanger brackets maintenance-free.
- Service intervals for aluminium hanger brackets and stainless steel hanger brackets: first check after 500 km, further check after every 6 months
  Spring eye bolt: Inspection torque 1,200 Nm
  Shock absorber bolt: Inspection torque 400 Nm

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Axle types
S9-4218 / SL9-4218 / Z9-4218 / ZL9-4218 / S9-4220 / SL9-4220 / Z9-4220 / ZL9-4220 / S11-4218 / SL11-4218 / SZL11-4218 / Z11-4218 / ZL11-4218 / S11-4220 / SL11-4220 / SZL11-4220 / Z11-4220 / ZL11-4220 / ZZL11-4220

Wheel bearing play, wheel bearing grease

Adjustment of wheel bearing play not necessary.

Note during brake repairs:

Lubricate the camshafts, rotating the camshaft through 360° several times.

Use a vacuum cleaner to remove brake dust.

Use of a high-pressure cleaner or liquid cleanser is not permitted on the brake drum and brake hub.

Remove old grease from the stub axle and regrease.

Replace the O-ring.

Replace the brake shoe return springs at every brake pad change.

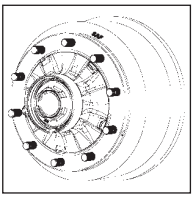
Grease specifications

For camshaft
Part No. 5 387 0011 05

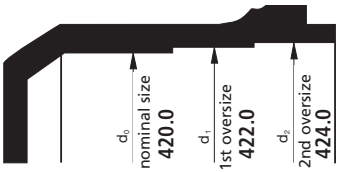
For axle stub end:
Mounting paste
Part No. 5 387 0021 05

For ball in brake carrier:
Copper paste
Part No. 5 387 0014 01

Tighten axle nuts



On left-hand side in direction of travel:
Left-hand thread
On right-hand side in direction of travel:
Right-hand thread
Pretightening: 150 Nm, then turn the hub unit slowly by 5 revolutions.
Final tightening: Retighten by 1 increment (30°)
Marking of the nuts with left-hand thread:
Milled groove on outside of hexagon.
Max. permissible axial backlash of hub unit:
0 - 0.20 mm



BRAKE SNK 420

Max. admissible brake drum machining diameter:	424.0 mm
Max. admissible brake drum wear diameter:	425.0 mm
Brake lining qualities recommended and approved by SAF-HOLLAND:	SAF 396, BREMSKERL 6386

Machine new brake linings to diameter + 0.3 mm of the brake drum.
When riveting on, observe the lining form (see instructions in the pack).

Brake size	Part No. Brake lining	Brake drum / brake lining Repair stages in mm			Brake lining	Rivet	Rivet DIN 7338
		Normal dimension	1st repair stage	2nd repair stage	Number per axle		
SNK 420		d_0-420.0	d_1-422.0	d_2-424.0			
x 180	3 057 3960 00	20.6 20.0	21.6 21.0	22.6 22.0	4 4	64	B 8 x 15
x 200	3 057 3966 00	20.6 20.0	21.6 21.0	22.6 22.0	4 4	64	B 8 x 15

Assembly tools	**Part No.**
Axle nut wrench	4 434 3828 00
Brake shoe tensioner	3 349 1001 00
Puller for wheel hub	4 434 3822 00

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Axle types
SK RS/RZ 9042/11242

Wheel bearing play, wheel bearing grease

Adjustment of wheel bearing play not necessary.

Change the wheel bearing grease after 500,000 km or 50 months.

Inspect taper roller bearing for serviceability at grease changes.

Replace the O-ring and fit the wheel cap.

Note during brake repairs:

Lubricate the camshafts, rotating the camshaft through 360° several times.

Do not dismantle the wheel bearing unit.

Use a vacuum cleaner to remove brake dust.

Use of a high-pressure cleaner or liquid cleanser is not permitted on the brake drum and brake hub.

Remove old grease from the stub axle and regrease.

Replace the brake shoe return springs at every brake pad change.

Grease specifications

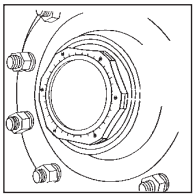
For wheel bearings:
Part No. 5 387 0011 05

For camshaft
Part No. 5 387 0011 05

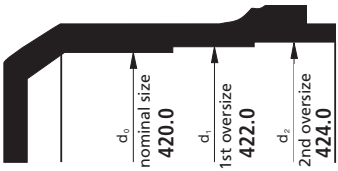
For axle stub end:
Mounting paste
Part No. 5 387 0021 05

For ball in brake carrier:
Copper paste
Part No. 5 387 0014 01

Tighten axle nuts



On left-hand side in direction of travel:
Left-hand thread
On right-hand side in direction of travel:
Right-hand thread
Tightening torque 900 Nm. Each hub unit must be rotated smoothly at least twice while tightening the bolts.
Marking of the nuts with left-hand thread:
Milled groove on outside of hexagon.
Max. permissible axial backlash of hub unit:
0 - 0.20 mm



BRAKE SNK 420

Max. admissible brake drum machining diameter:	424.0 mm
Max. admissible brake drum wear diameter:	425.0 mm
Brake lining qualities recommended and approved by SAF-HOLLAND:	SAF 396, BREMSKERL 6386

Machine new brake linings to diameter + 0.3 mm of the brake drum.
When riveting on, observe the lining form (see instructions in the pack).

Brake size	Part No. Brake lining	Brake drum / brake lining Repair stages in mm			Brake lining	Rivet	Rivet DIN 7338
		Normal dimension	1st repair stage	2nd repair stage	Number per axle		
SNK 420		d_0-420.0	d_1-422.0	d_2-424.0			
x 180	3 057 3960 00	20.6 20.0	21.6 21.0	22.6 22.0	4 4	64	B 8 x 15
x 200	3 057 3966 00	20.6 20.0	21.6 21.0	22.6 22.0	4 4	64	B 8 x 15

Assembly tools	**Part No.**
Axle nut wrench	1 012 0024 00
Brake shoe tensioner	3 349 1001 00
Brake drum mounting flanges	3 434 1040 01
Wheel bearing mounting mandrel	3 434 1043 00
Puller for wheel hub	4 434 3822 00

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Axle types
Z8-3718 / S9-3718 / SL9-3718 / Z9-3720 / ZL9-3720 / S11-3720 / SL11-3720 / Z11-3720 / ZL11-3720

Wheel bearing play, wheel bearing grease

Adjustment of wheel bearing play not necessary.

Note during brake repairs:

Lubricate the camshafts, rotating the camshaft through 360° several times.

Use a vacuum cleaner to remove brake dust.

Use of a high-pressure cleaner or liquid cleanser is not permitted on the brake drum and brake hub.

Remove old grease from the stub axle and regrease.

Replace the O-ring.

Replace the brake shoe return springs at every brake pad change.

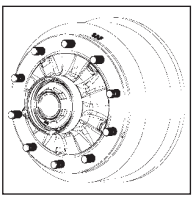
Grease specifications

For camshaft
Part No. 5 387 0011 05

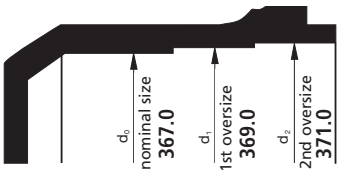
For axle stub end:
Mounting paste
Part No. 5 387 0021 05

For ball in brake carrier:
Copper paste
Part No. 5 387 0014 01

Tighten axle nuts



On left-hand side in direction of travel:
Left-hand thread
On right-hand side in direction of travel:
Right-hand thread
Pretightening: 150 Nm, then turn the hub unit slowly by 5 revolutions.
Final tightening: Retighten by 1 increment (30°)
Marking of the nuts with left-hand thread:
Milled groove on outside of hexagon.
Max. permissible axial backlash of hub unit:
0 - 0.20 mm



BRAKE SNK 367

Max. admissible brake drum machining diameter:	371.0 mm
Max. admissible brake drum wear diameter:	372.0 mm
Brake lining qualities recommended and approved by SAF-HOLLAND:	SAF 396, BREMSKERL 6386

Machine new brake linings to diameter + 0.3 mm of the brake drum.
When riveting on, observe the lining form (see instructions in the pack).

Brake size	Part No. Brake lining	Brake drum / brake lining Repair stages in mm			Brake lining	Rivet	Rivet DIN 7338
		Normal dimension	1st repair stage	2nd repair stage	Number per axle		
SNK 367		d_0-367.0	d_1-369.0	d_2-371.0			
x 180	3 057 3168 00	21.1 20.5	22.1 21.5	23.1 22.5	4 4	64	B 8 x 15
x 200	3 057 3170 00	21.1 20.5	22.1 21.5	23.1 22.5	4 4	64	B 8 x 15

Assembly tools	**Part No.**
Axle nut wrench	4 434 3828 00
Brake shoe tensioner	3 349 1001 00
Brake drum mounting flanges	3 434 1040 01
Puller for wheel hub	4 434 3822 00

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Axle types
SK RS / RZ 6537 / 9037 / 11037

Wheel bearing play, wheel bearing grease

Adjustment of wheel bearing play not necessary.

Change the wheel bearing grease after 500,000 km or 50 months.

Inspect taper roller bearing for serviceability at grease changes.

Replace the O-ring and fit the wheel cap.

Note during brake repairs:

Lubricate the camshafts, rotating the camshaft through 360° several times.

Do not dismantle the wheel bearing unit.

Use a vacuum cleaner to remove brake dust.

Use of a high-pressure cleaner or liquid cleanser is not permitted on the brake drum and brake hub.

Remove old grease from the stub axle and regrease.

Replace the brake shoe return springs at every brake pad change.

Grease specifications

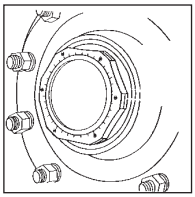
For wheel bearings:
Part No. 5 387 0011 05

For camshaft
Part No. 5 387 0011 05

For axle stub end:
Mounting paste
Part No. 5 387 0021 01

For ball in brake carrier:
Copper paste
Part No. 5 387 0014 01

Tighten axle nuts



On left-hand side in direction of travel:
Left-hand thread
On right-hand side in direction of travel:
Right-hand thread
Tightening torque 900 Nm. Each hub unit must be rotated smoothly at least twice while tightening the bolts.
Marking of the nuts with left-hand thread:
Milled groove on outside of hexagon.
Max. permissible axial backlash of hub unit:
0 - 0.20 mm



BRAKE SNK 367

Max. admissible brake drum machining diameter:	371.0 mm
Max. admissible brake drum wear diameter:	372.0 mm
Brake lining qualities recommended and approved by SAF-HOLLAND:	SAF 396, BREMSKERL 6386

Machine new brake linings to diameter + 0.3 mm of the brake drum.
When riveting on, observe the lining form (see instructions in the pack).

Brake size	Part No. Brake lining	Brake drum / brake lining Repair stages in mm			Brake lining	Rivet	Rivet DIN 7338
		Normal dimension	1st repair stage	2nd repair stage	Number per axle		
SNK 367		d_0-367.0	d_1-369.0	d_2-371.0			
x 150	3 057 3174 00	21.1 20.5	22.1 21.5	23.1 22.5	4 4	64	B 8 x 15
x 180	3 057 3168 00	21.1 20.5	22.1 21.5	23.1 22.5	4 4	64	B 8 x 15
x 200	3 057 3170 00	21.1 20.5	22.1 21.5	23.1 22.5	4 4	64	B 8 x 15

Assembly tools	**Part No.**
Axle nut wrench	1 012 0024 00
Brake shoe tensioner	3 349 1001 00
Brake drum mounting flanges	3 434 1040 01
Wheel bearing mounting mandrel	3 434 1058 00
Brass bush mounting device	1 434 1056 00
Brass bush mounting mandrel	1 434 1055 00
Puller for wheel hub	4 434 3822 00

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Axle types
S7-3015 / Z7-3015 / S9-3020 / SL9-3020 / Z9-3020 / ZL9-3020 / Z11-3020 / ZL11-3020

Wheel bearing play, wheel bearing grease

Adjustment of wheel bearing play not necessary.

Note during brake repairs:

Lubricate the camshafts, rotating the camshaft through 360° several times.

Use a vacuum cleaner to remove brake dust.

Use of a high-pressure cleaner or liquid cleanser is not permitted on the brake drum and brake hub.

Remove old grease from the stub axle and regrease.

Replace the O-ring.

Replace the brake shoe return springs at every brake pad change.

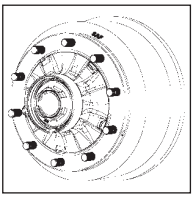
Grease specifications

For camshaft
Part No. 5 387 0011 05

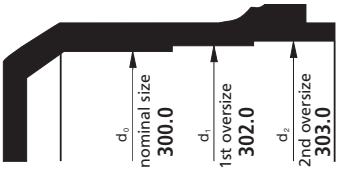
For axle stub end:
Mounting paste
Part No. 5 387 0021 05

For ball in brake carrier:
Copper paste
Part No. 5 387 0014 01

Tighten axle nuts



On left-hand side in direction of travel: Left-hand thread
On right-hand side in direction of travel: Right-hand thread
Pretightening: 150 Nm, then turn the hub unit slowly by 5 revolutions.
Final tightening: Retighten by 1 increment (30°)
Marking of the nuts with left-hand thread: Milled groove on outside of hexagon.
Max. permissible axial backlash of hub unit: 0 - 0.20 mm



BRAKE SNK 300

Max. admissible brake drum machining diameter:	303.0 mm
Max. admissible brake drum wear diameter:	304.0 mm
Brake lining qualities recommended and approved by SAF-HOLLAND:	SAF 396, BREMSKERL 6386

Machine new brake linings to diameter + 0.3 mm of the brake drum.
When riveting on, observe the lining form (see instructions in the pack).

Brake size	Part No. Brake lining	Brake drum / brake lining Repair stages in mm			Brake lining	Rivet	Rivet DIN 7338
		Normal dimension	1st repair stage	2nd repair stage	Number per axle		
SNK 300		d_0-300.0	d_1-302.0	d_2-303.0			
x 150	3 057 3133 00	15.5 16.5	16.7 17.7	17.1 18.1	4 4	64	B 8 x 15
x 200	3 057 3124 00	15.5 16.5	16.7 17.7	17.1 18.1	4 4	64	B 8 x 15

Assembly tools	**Part No.**
Axle nut wrench	4 434 3828 00
Puller for wheel hub	3 301 0010 00
Puller for wheel hub	4 434 3822 00

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Axle types
SK RS / RZ 6530 / 9030 / 11030 / RZ 12030

Adjust wheel bearing clearance:
Tighten the WAF 85 axle nut to 150 Nm, turning the wheel hub at the same time.
Turn back the axle nut by 2 1/2 holes of the lock washer.
Push on the lock washer and secure the axle nut with the locking pin.
Tighten the lock nut to 400 Nm.
Check the running and rock of the wheel bearing.
The wheel must turn without resistance and no rock may be felt at the wheel rim. Correct the adjustment, if necessary.
Replace the O-ring and fit the wheel cap.
Replace the brake shoe return springs at every brake pad change.

Grease specifications

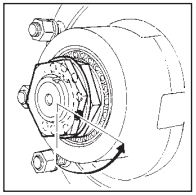
For wheel bearings:
Part No. 5 387 0011 05

For camshaft:
Part No. 5 387 0011 05

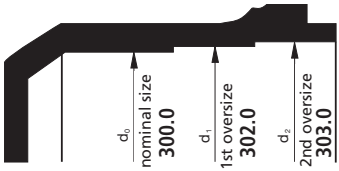
For axle stub end:
Mounting paste
Part No. 5 387 0021 01

For ball in brake carrier:
Copper paste
Part No. 5 387 0014 01

Tighten axle nuts



Note during brake repairs:
Lubricate the camshafts, rotating the camshaft through 360° several times.
Use a vacuum cleaner to remove brake dust.
Use of a high-pressure cleaner or liquid cleanser is not permitted on the brake drum and brake hub.
Remove old grease from the stub axle and regrease.
Max. permissible axial backlash of hub unit: 0 - 0.20 mm



BRAKE SNK 300

Max. admissible brake drum machining diameter:	303.0 mm
Max. admissible brake drum wear diameter:	304.0 mm
Brake lining qualities recommended and approved by SAF-HOLLAND:	SAF 396, BREMSKERL 6386

Machine new brake linings to diameter + 0.3 mm of the brake drum.
When riveting on, observe the lining form (see instructions in the pack).

Brake size	Part No. Brake lining	Brake drum / brake lining Repair stages in mm			Brake lining	Rivet	Rivet DIN 7338
		Normal dimension	1st repair stage	2nd repair stage	Number per axle		
SNK 300		d_0-300.0	d_1-302.0	d_2-303.0			
x 150	3 057 3133 00	15.5 16.5	16.7 17.7	17.1 18.1	4 4	64	B 8 x 15
x 200	3 057 3124 00	15.5 16.5	16.7 17.7	17.1 18.1	4 4	64	B 8 x 15

Assembly tools	**Part No.**
Axle nut wrench	4 434 3828 00
Puller for wheel hub	3 301 0010 00
Fitting mandrel for wheel bearing and seal ring	3 434 1014 00
Fitting mandrel for wheel bearing	3 434 3308 00
Brass bush mounting mandrel	1 434 1055 00
Brass bush mounting device	1 434 1056 00

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Axle types
SK RS/RZ 12242

Adjust wheel bearing clearance:

Tighten the WAF 85 axle nut to 150 Nm, turning the wheel hub at the same time.

Turn back the axle nut by 2 1/2 holes of the lock washer.

Push on the lock washer and secure the axle nut with the locking pin.

Tighten the lock nut to 400 Nm.

Check the running and rock of the wheel bearing.

The wheel must turn without resistance and no rock may be felt at the wheel rim. Correct the adjustment, if necessary.

Replace the O-ring and fit the wheel cap.

Replace the brake shoe return springs at every brake pad change.

Grease specifications

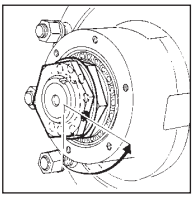
For wheel bearings:
Part No. 5 387 0011 05

For camshaft
Part No. 5 387 0011 05

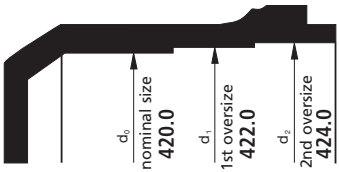
For axle stub end:
Mounting paste
Part No. 5 387 0021 01

For ball in brake carrier:
Copper paste
Part No. 5 387 0014 01

Tighten axle nuts



Note during brake repairs:
Lubricate the camshafts, rotating the camshaft through 360° several times.
Do not dismantle the wheel bearing unit.
Use a vacuum cleaner to remove brake dust.
Use of a high-pressure cleaner or liquid cleanser is not permitted on the brake drum and brake hub.
Remove old grease from the stub axle and regrease.
Max. permissible axial backlash of hub unit:
0 - 0.20 mm



BRAKE SNK 420

Max. admissible brake drum machining diameter: 424.0 mm
Max. admissible brake drum wear diameter: 425.0 mm
Brake lining qualities recommended and approved by SAF-HOLLAND: SAF 396, BREMSKERL 6386
Machine new brake linings to diameter + 0.3 mm of the brake drum.
When riveting on, observe the lining form (see instructions in the pack).

Brake size	Part No. Brake lining	Brake drum / brake lining Repair stages in mm			Brake lining	Rivet	Rivet DIN 7338
		Normal dimension	1st repair stage	2nd repair stage	Number per axle		
SNK 420		d_0-420.0	d_1-422.0	d_2-424.0			
x 180	3 057 3960 00	20.6 20.0	21.6 21.0	22.6 22.0	4 4	64	B 8 x 15
x 200	3 057 3966 00	20.6 20.0	21.6 21.0	22.6 22.0	4 4	64	B 8 x 15

Assembly tools	**Part No.**
Axle types 12242	
Axle nut wrench	4 434 3828 00
Puller for wheel hub	3 301 0010 00
Universal puller for wheel hub	4 434 3822 00
Fitting mandrel for wheel bearing and seal ring	3 434 3320 00
Fitting mandrel for cassette seal ring	3 434 1036 00
Brake shoe tensioner	3 349 1001 00

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Axle types
K RS / RZ 14242 / 16242

Adjust wheel bearing clearance:

Tighten the axle nut, turning the wheel hub until a slight resistance is felt.

Turn back the axle nut by 1/12 turn to the next locking possibility.
Lock the axle nut with the cotter pin.

Turn back the wheel hub slightly against the front bearing with the wheel hub puller.

Seal the thread of the wheel cap.

Screw on the wheel cap.

Check the running and rock of the wheel bearing.
The wheel must turn without resistance and no rock may be felt at the wheel rim. Correct the adjustment, if necessary.

Replace the brake shoe return springs at every brake pad change.

Grease specifications

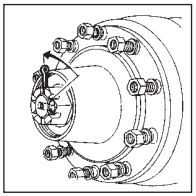
For wheel bearings:
Part No. 5 387 0011 05

For camshaft
Part No. 5 387 0011 05

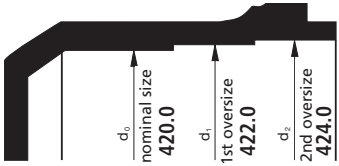
For axle stub end:
Mounting paste
Part No. 5 387 0021 01

For ball in brake carrier:
Copper paste
Part No. 5 387 0014 01

Tighten axle nuts



Note during brake repairs:
Lubricate the camshafts, rotating the camshaft through 360° several times.
Do not dismantle the wheel bearing unit.
Use a vacuum cleaner to remove brake dust.
Use of a high-pressure cleaner or liquid cleanser is not permitted on the brake drum and brake hub.
Remove old grease from the stub axle and regrease.
Max. permissible axial backlash of wheel bearing: 0 - 0.20 mm



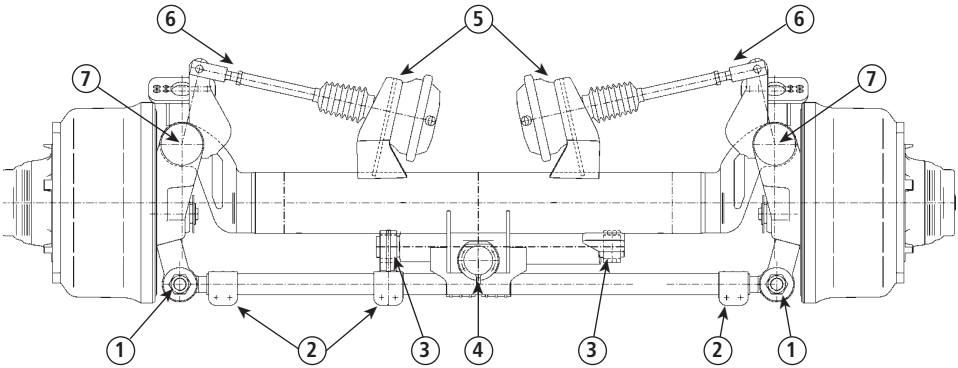
BRAKE SNK 420

Max. admissible brake drum machining diameter: 424.0 mm
Max. admissible brake drum wear diameter: 425.0 mm
Brake lining qualities recommended and approved by SAF-HOLLAND: SAF 396, BREMSKERL 6386
Machine new brake linings to diameter + 0.3 mm of the brake drum.
When riveting on, observe the lining form (see instructions in the pack).

Brake size	Part No. Brake lining	Brake drum / brake lining Repair stages in mm			Brake lining	Rivet	Rivet DIN 7338
		Normal dimension	1st repair stage	2nd repair stage	Number per axle		
SNK 420		d_0-420.0	d_1-422.0	d_2-424.0			
x 180	3 057 3960 00	20.6 20.0	21.6 21.0	22.6 22.0	4 4	64	B 8 x 15
x 200	3 057 3966 00	20.6 20.0	21.6 21.0	22.6 22.0	4 4	64	B 8 x 15

Assembly tools	**Part No.**	
Axle types	**14242**	**16242**
Axle nut wrench		1 012 0013 00
Puller for wheel hub		3 301 0007 01
Universal puller for wheel hub	4 434 3822 00	4 434 3822 00
Fitting mandrel for wheel bearing and seal ring		3 434 3301 00
Brake shoe tensioner	3 349 1001 00	3 349 1001 00
46 mm dia. brass bush driver mandrel	1 434 1056 00	1 434 1056 00
50/46 mm and 42/38 mm dia. mounting mandrel	1 434 1055 00	1 434 1055 00

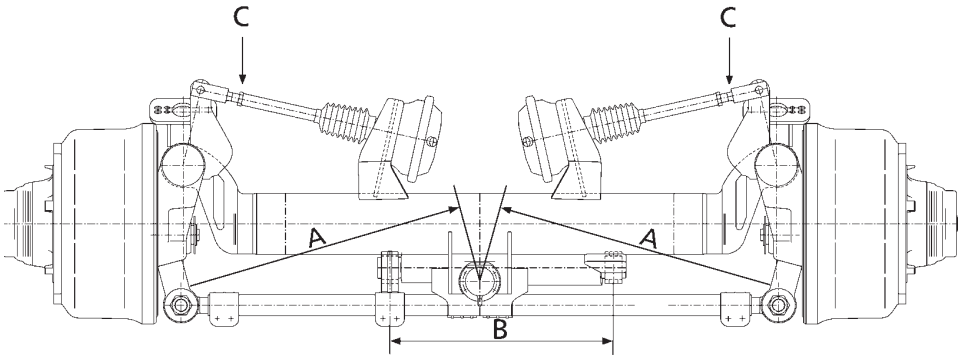
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Tightening torques

No.	Designation	Number per axle	Tightening torque
1	Ball joint screw	2	M30 (340 Nm)
2	Reatining clamp screw	10	M12 (80 - 90 Nm)
3	Steering damper screw	2	M24 (600 - 660 Nm)
4	Lock cylinder screw	4	M6 (8 - 10 Nm)
5	Stabilising cylinder screw	4	M16 (180 ± 30 Nm)
6	Lock nut	2	M20 (is locked against the thrust rod)
7	Cover plate screw	6	M8 (25 - 30 Nm)

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- Dimension "A" must be the same; observe the toe-in (approx. 4.0 mm/m)
- Dimension "B" is 537 mm; engage the reversing lock
- On versions with pneumatic stabilisation, a steering damper must be used.
- On versions without pneumatic stabilisation, a steering damper must be used.
- Check: Backlash-free seating of the piston rods of the stabilising cylinders.
  Apply stabilising pressure (min. 2 bar) to the cylinders. Piston and pressure rods must then be backlash-free (under slight pressure); otherwise adjust at "C".
- When setting the track width on the trailer, the cylinders must be under stabilising pressure and the correct ride height of the air suspension system must have been set.
- Tighten all bolts to the prescribed torque and lock the nuts or insert the cotter pin.

Note:

During lubrication work on the steering pin bearing, the axle must be relieved (raised).

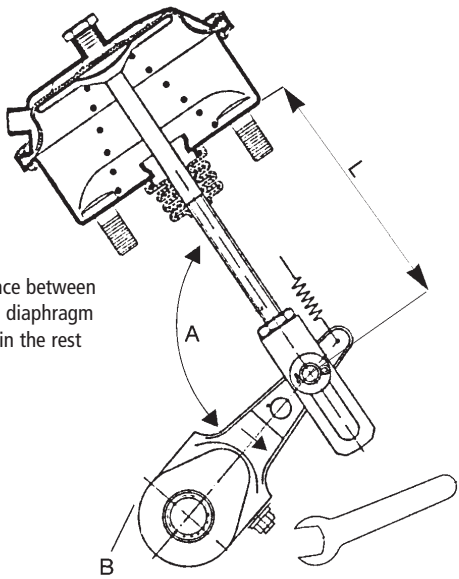
Lubrication at the bearing points of the king pin bolt
for the first time after 1 month,
then every 6 months

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Check the brake setting

Adjustment of S-cam brakes with manual slack adjusters

The natural wear of the brake drum and brake lining necessitate frequent adjustment of the wheel brakes in order to maintain the maximum stroke of the brake cylinders. In order to achieve good braking, it is essential to minimise the clearance between the brake drum and brake lining. In order to check the clearance, the service brake is applied with full pressure and the stroke of the brake cylinder checked. If the stroke at the yoke end is more than 2/3 of the maximum cylinder stroke, the brake must be urgently adjusted. If the brakes are correctly adjusted, it should not be possible to move the piston rod more than 15 mm by hand.



No clearance between piston and diaphragm permitted in the rest position.

Adjustment is performed at the adjustment screw (WAF 19)

1 

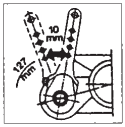
Turn the adjusting screw to the right until the

2 

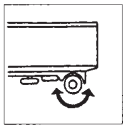
brake shoes are firmly up against the brake drum.

3 

Turn the adjusting screw to the left until

4 

the free travel of the slack adjuster (at 127 mm) is approx. 10 - 15 mm.

5 

It must be possible to turn the wheel freely without braking (without scraping noises).

Special instructions apply for automatic slack adjusters (see adjustment procedure on the following pages).

A = Angle must not exceed 90° at 1/2 stroke.
B = No contact permissible between slack adjuster and axle beam during emergency braking.
L = Observe piston rod length as per the SAF-HOLLAND specifications.

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HALDEX automatic slack adjuster

Note when changing over from mechanical slack adjuster to automatic slack adjuster:

In order to avoid damage to the wheel brake, install only the automatic slack adjuster with the prescribed adjustment gate and corresponding mounting point strap approved by SAF-HOLLAND for the respective axle type.

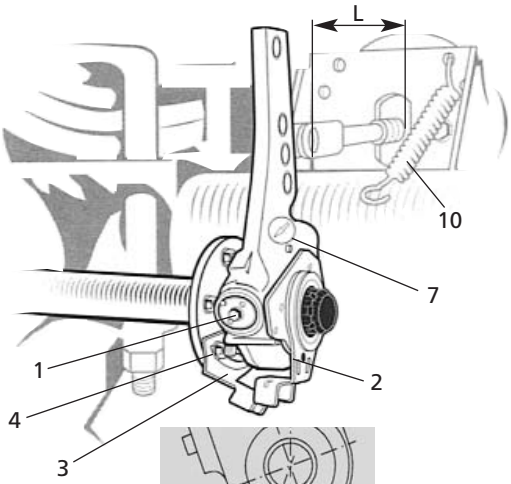
Changes to the effective brake lever lengths are not admissible.

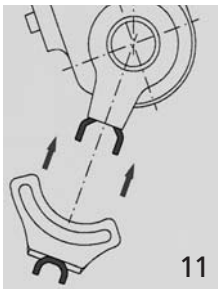
The field installation of automatic slack adjusters does not require type approval so that no inspection by the technical inspection authorities (TÜV) is necessary.

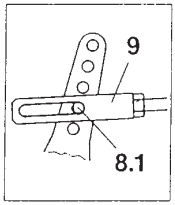
Technical information on SAF-HOLLAND spare part numbers and correspondence of slack adjusters and axle types can be obtained from the SAF-HOLLAND service partners.

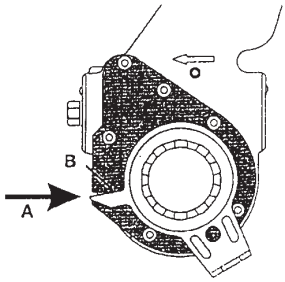
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Adjustment of HALDEX automatic slack adjusters









When correctly installed, the Tip of arrow B must match notch A in the control unit.

- Cams and brake shoes are in the zero position.
- Observe the correct piston rod length "L" as given in the SAF-HOLLAND specifications.
- **Brake chambers**
  Before installation, ensure that the brake chamber is in its starting position.
- **Spring brake chambers,** on the other hand, must be under full working pressure (min. 6 bar).

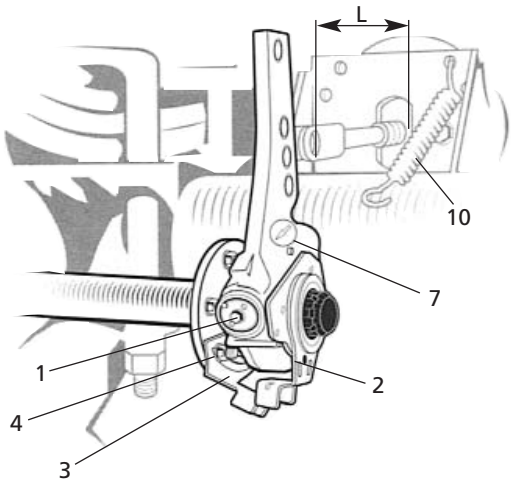
  IMPORTANT: If this is not observed, the basic setting will be wrong!
- Grease the camshaft.
- Install mounting point strap (3); be sure to use two mounting bolts (4).
- Install the slack adjuster on the camshaft.
- The arrow mark (7) points in the braking direction.
- Turn adjusting screw (1) until the bore in the slack adjuster (8.1) is aligned with the bore in the yoke end (9) (see figure).
- Grease cotter pin (8) and secure.
- Hook in return spring (10).
- Turn the control arm in the direction of the arrow (working direction of the slack adjuster) into its end position **without** using force
- In this end position of control arm (2), tighten mounting bolts (4).
- With the fixed mounting point (11), ensure that the 2 U-profiles engage correctly in one another.

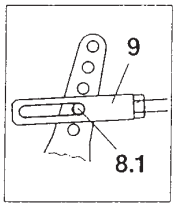
  NOTE FOR SELF-STEERING AXLES:
- Weld on mounting point strap (3) in this position.
- Fix the slack adjuster on the camshaft.
- Axial clearance: Adjust the nominal value of 0.5 - 2 mm using shims.
- Adjust the clearance of the brake lining by turning adjusting screw (1) in clock-wise direction until the brake lining is in contact with the brake drum. Then back off adjusting screw (1) by 3/4 turn.
  Do not use an impact wrench!

  FUNCTION CHECK
- If the adjustment coupling is functioning correctly, a torque of at least 18 Nm must be felt when backing off adjusting screw (1); a ratchet noise should also be clearly audible.
- Actuate the service brake several times, check the free running of the brake drum, check the clearance.
  If necessary, repeat the adjustment of the slack adjuster.

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Adjustment of S-ABA automatic slack adjusters

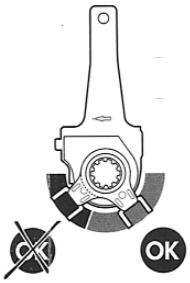




- Cams and brake shoes are in the zero position.
- Observe the correct piston rod length "L" as given in the SAF-HOLLAND specifications.
- **Brake chambers**
  Before installation, ensure that the brake chamber is in its starting position.
- **Spring brake chambers,** on the other hand, must be under full working pressure (min. 6 bar).

  IMPORTANT: If this is not observed, the basic setting will be wrong!
- Grease the camshaft.
- Install mounting point strap (3); be sure to use two mounting bolts (4).
- Install the slack adjuster on the camshaft.
- The arrow mark (7) points in the braking direction.
- Turn adjusting screw (1) until the bore in the slack adjuster (8.1) is aligned with the bore in the yoke end (9) (see figure).
- With the fixed mounting point, ensure that the 2 U-profiles engage correctly in one another.
- Grease cotter pin (8) and secure.
- Hook in return spring (10).
- Fix the slack adjuster on the camshaft.

- Axial clearance: Adjust the nominal value of 0.5 - 2 mm using shims.
- Adjust the control arm.
- Observe the possible setting range for the control lever position.



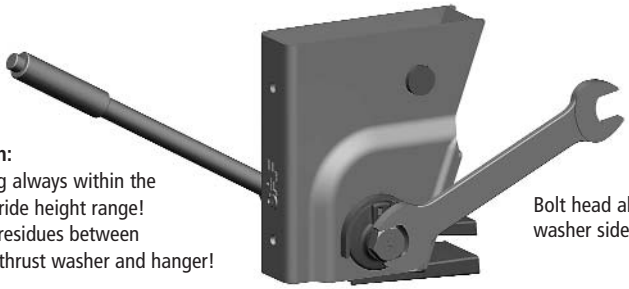
- Adjust the clearance of the brake lining by turning adjusting screw (1) in clock-wise direction until the brake lining is in contact with the brake drum. Then back off adjusting screw (1) by 3/4 turn.
  Do not use an impact wrench!

FUNCTION CHECK

- If the adjustment coupling is functioning correctly, a torque of at least 18 Nm must be felt when backing off adjusting screw (1); a ratchet noise should also be clearly audible.
- Actuate the service brake several times, check the free running of the brake drum, check the clearance.
  If necessary, repeat the adjustment of the slack adjuster.

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Tightening instructions for adjustable pivot bolt



Attention:
Tightening always within the specified ride height range!
No paint residues between eccentric/thrust washer and hanger!

Bolt head always on the eccentric washer side.

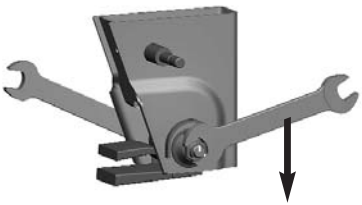
Pretightening 400 Nm
Use Torque wrench



Marking for angle tightening



Angle tightening 120°
Use impact wrench or extend lever to 2.5 m



Visual inspection



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Semi-trailer tilt angle

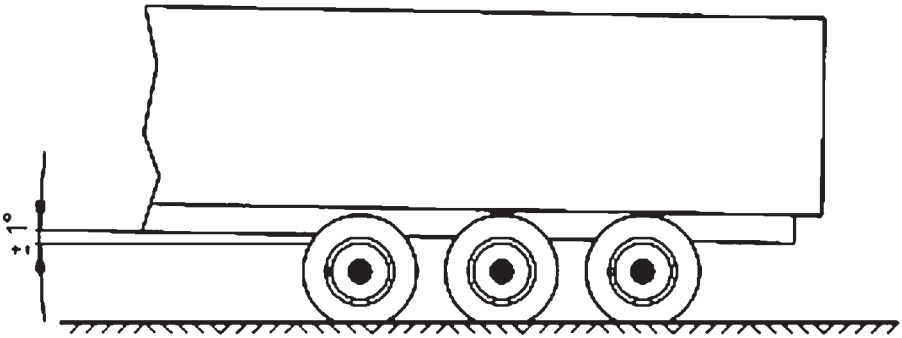
Ride heights

Adjust the ride height of the air suspension axles to the permissible range indicated in the corresponding SAF -HOLLAND documents.

With single axles, allow for a minimum suspension travel of 60 mm.

For trailers with multiple axles, allow for a minimum suspension travel of 70 mm.

Exception:
For multi-axle trailers with lift axles, the minimum suspension travel at the lift axle should not be less than 100 mm in order to ensure an adequate ground clearance.



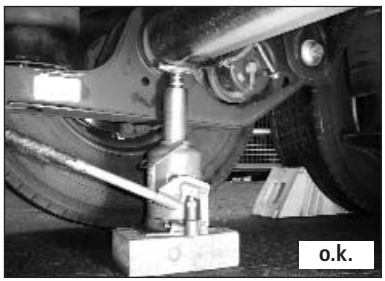
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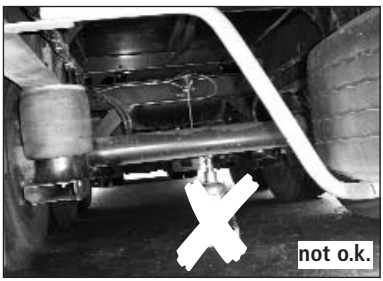
Tyre changing on fully loaded trailer with INTRA axle

Jack positioning points:

















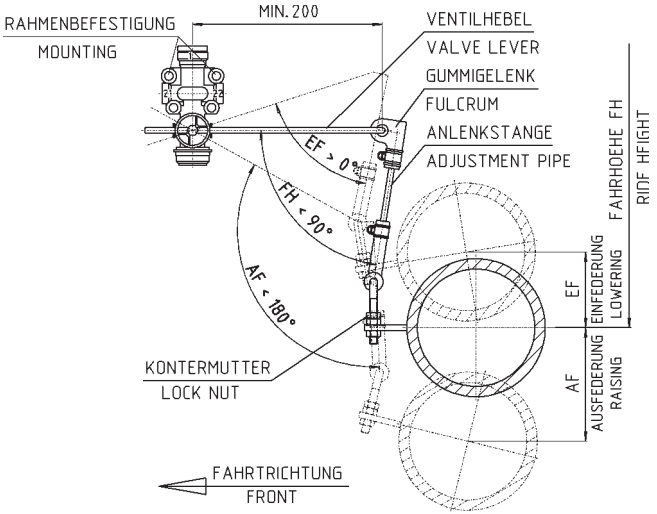
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Adjustment of the air suspension system ride height

Air suspension valve

As standard, SAF-HOLLAND air suspension axles and system require only one air suspension valve.
The air suspension valve controls the air bag pressure in relation to the trailer load in order to maintain a constant ride height in every load condition.
The air suspension valve is fastened to the trailer frame with screws and connected to the axle via the pivot joint (valve lever and adjustment pipe). On triple-axle trailers, the system is generally connected to the middle axle (normally in the middle of the axle), and on twin-axle trailers to the rear axle. In special cases (e.g. large trailer tilt angle), the air suspension valve can be installed in the rear axle.

For trailers with axle lifting system, the axle to which the system is connected depends on the axle to be lifted.



Installation

The valve lever should be at least 200 mm long and is horizontal when the trailer is in the driving position.
As a function check, move the lever down slightly. Air must now escape via the venting cap into the atmosphere. If air flows into the air bags when the lever is pushed down, the valve lever has to be turned through 180°. For this the valve lever has to be disconnected. The ride height is set by adjusting the adjustment pipe in the fulcrums and by turning the lock nuts.
The adjustment must be carried out with the trailer standing on level ground. It can be carried out with the trailer either empty or loaded.

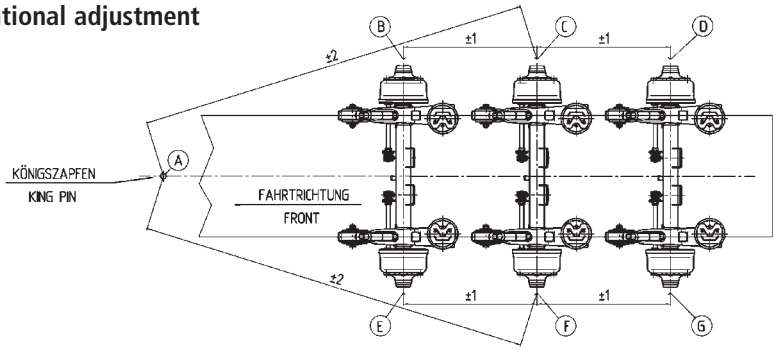
Note

For a final check, the air suspension system should be lowered to the suspension stop or raised to the limit (shock absorbers, stop ropes, air bag length). During this process, the specified angle between valve lever and adjustment pipe must not be exceeded in order that the valve lever does not move in the wrong direction.

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In order to compensate for production tolerances, an axle alignment and, if necessary, a correction should be carried out.
The maximum permissible deviations (tolerances) of the alignment values are specified by the tyre manufacturer.
The maximum possible wheelbase correction per axle is ± 6 mm.

Conventional adjustment



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

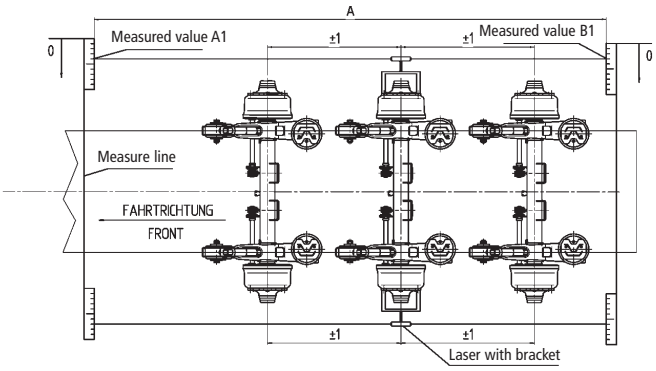
Optical adjustment

Observe the operating and setting instructions of the measuring system manufacturer.

Calculation of the toe-in and toe-out values:

$$\frac{A1 - B1\ (mm)}{A\ (m)} = S$$

S = positive value = Toe-in
S = negative value = Toe-out



Notes

1. In order to avoid tyre wear, we recommend that an axle alignment is performed at regular intervals.
2. We recommend the use of an optical measuring system for carrying out the axle alignment.
3. For alignment, only the centres of the middle of the wheel cap or the middle of the axle stub end are of interest as reference points.
4. Possible causes of deviations in the axle alignment are:
   - Loose U-bolts
   - Wear of the spring guide bearing
   - Deformation of the axle assembly components due to improper use

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En caso de avería, su nuevo número para asistencia técnica:
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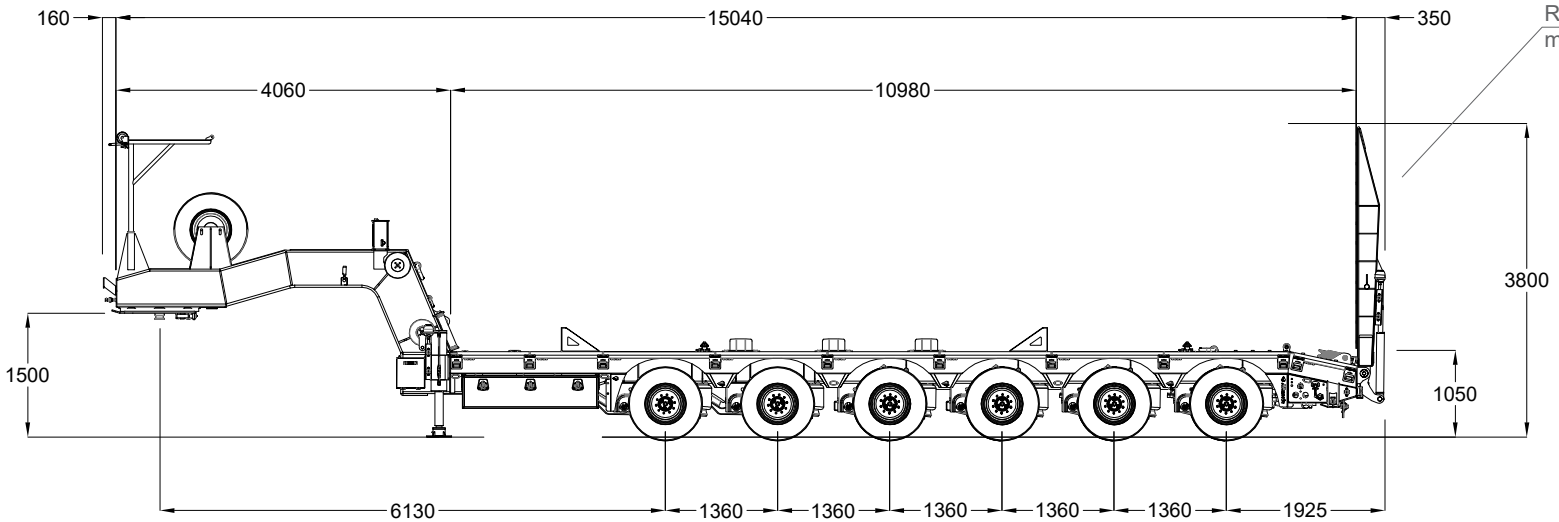
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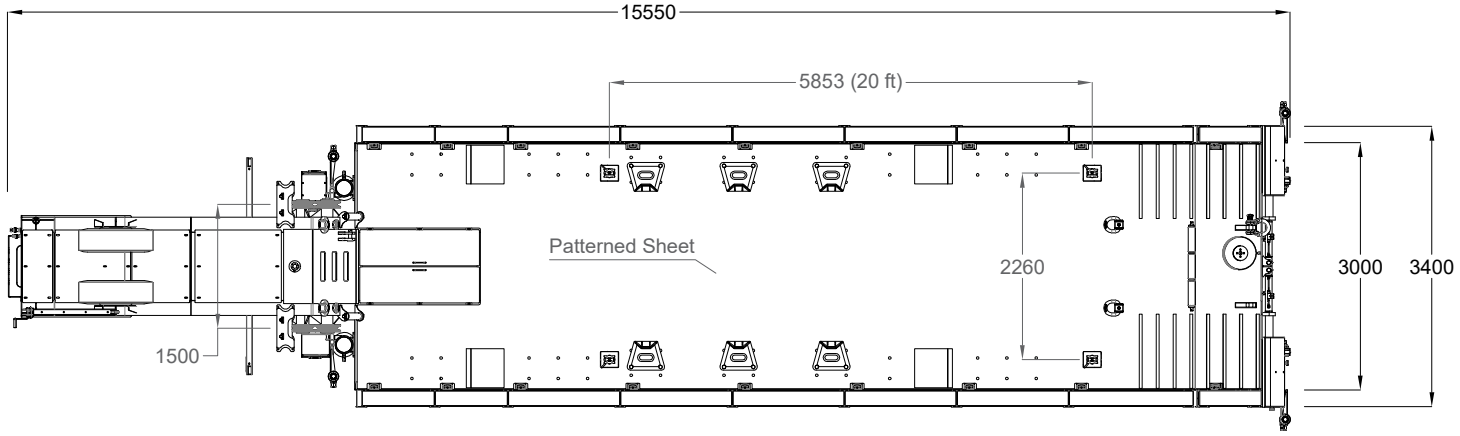
* Electric Lighting According to Stanag 4007 ** Pneumatic According to Stanag 2604

R6 *24.05.2022*



ALTINORDU
Machine - Vehicle - Measurement

Tires Size
285 70R 19,5 (24+2)

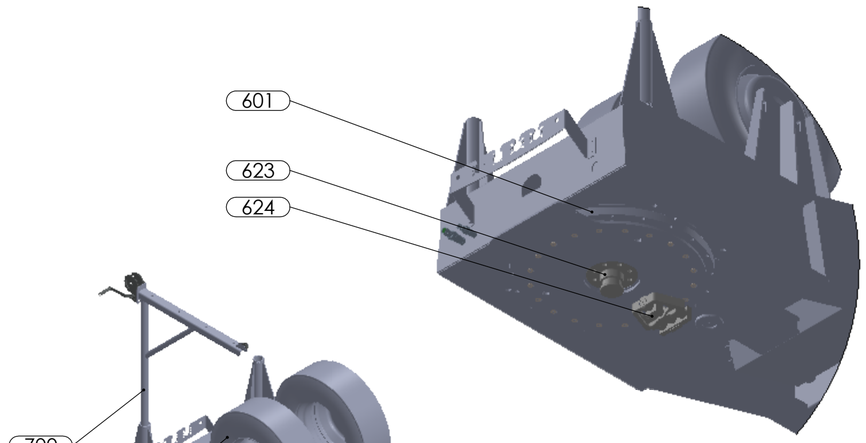


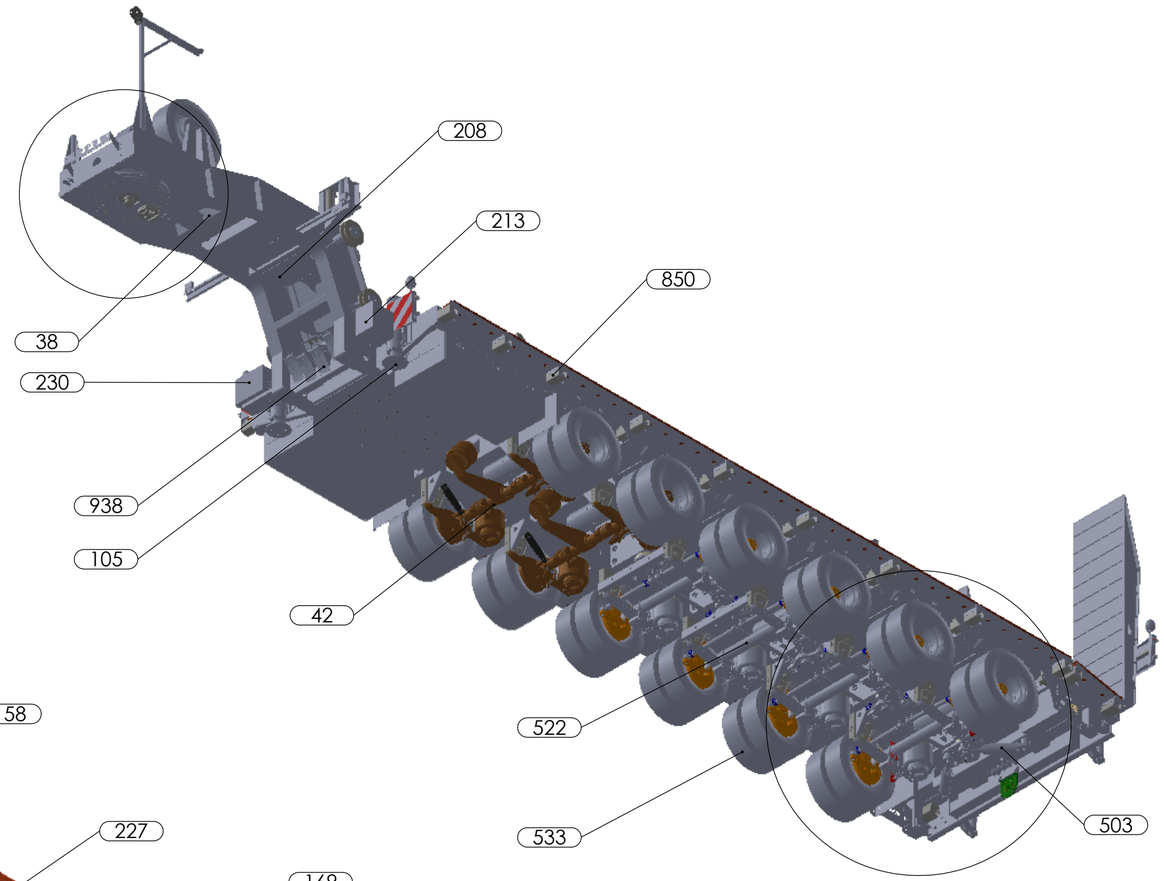
Color
Ral 6031 (Green)

Note: 2 Pieces 25 Ton Capacity Shackles
(on the Rear)

Designed by	Checked by	Approved by	Date		Date	
F Özcan	B Altınordu	F Cengiz	20.04.2020		20.04.2020	

ALTINORDU TRAILER COMPANY	Tank Carrier (6 Axles Semi-Trailer)		
	ALT-PRJST2004-201R6	Edition 001	Sheet / 0





General Parts List

Drw No 380-PK-2022

KD-13012016 REVISION NO - 00

Altınordu

DWG NO/ÇİZİM NO

ALT-FC-DKD-001001

DO NOT SCALE DRAWING / ÇİZİMDEN ÖLÇÜ ALMAYINIZ

PARTS LIST (GENERAL)

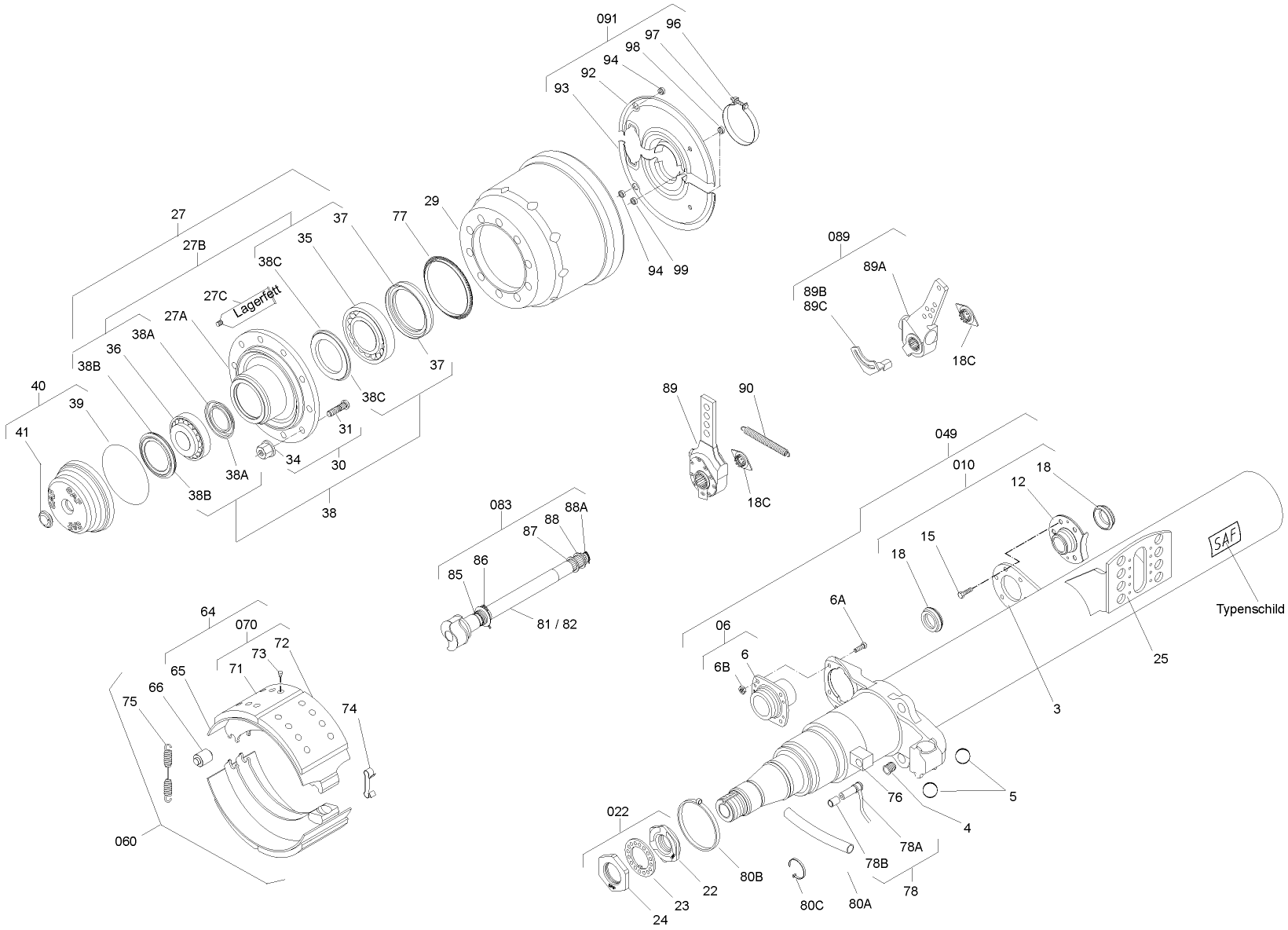
Sn	Part No		Description	Qt	Note
	Code	Drw. No			
1	ALT-E- 30		Rope Reel (Small)	4	
2	ALT-E- 38		Hydraulic Steering Box	1	
3	ALT-E- 42		Fixed Axle	2	Safhollad (Brand)
4	ALT-E- 79		Ramp Right-Left (Move) Hydraulic Cylinder	2	
5	ALT-E- 96		Rope Reel (Big)	1	
6	ALT-E- 105		Front Hydraulic Leg (Landing Gear)	2	105R - Right 106L - Left
7	ALT-E- 158		Large Sheet Wedge	4	
8	ALT-E- 169		Side Metal Wedge	6	
9	ALT-E- 182		Side Extension Wood No1	4	L= 875mm
10	ALT-E- 189		Side Extension Wood No2	10	L= 1345mm
11	ALT-E- 190		Side Extension Wood No3	2	L= 1500mm
12	ALT-E- 191		Side Extension Wood No4	2	L= 765mm
13	ALT-E- 193		Electronic CPU Box	1	193A - Electronic CPU 193B - Remote Control
14	ALT-E- 208		Oil Tank	1	
15	ALT-E- 213		Control Panel Box	1	
16	ALT-E- 214		Ramp Action Valve	1	Walvoil (Brand)
17	ALT-E- 215		Extendable Reflector (Front)	2	215R - Right 216L - Left
18	ALT-E- 221		Extendable Reflector (Rear)	2	221R - Right 221L - Left
19	ALT-E- 226		Tool Box	2	

PARTS LIST (GENERAL)

20	ALT-E-	227	Container Twist Lock	4	
21	ALT-E-	230	General Hydraulic Box	1	
22	ALT-E-	503	Steering Hydraulic Cylinder (Rear)	2	
23	ALT-E-	505	Rear Turntable (Small)	5	
24	ALT-E-	513	Vertical Rod System	2	
25	ALT-E-	522	Steering Axle	4	
26	ALT-E-	524	Horizontal Rod (For Axle)	16	524A - Right 524B - Left
27	ALT-E-	528	Accumulator Set (for Hydraulic Steering)	1	
28	ALT-E-	533	Tire and Rim (285 70R 19,5)	26	533A -Tire 533B - Rim
29	ALT-E-	601	Front Turntable (Big)	1	
30	ALT-E-	614	Steering Hydraulic Cylinder (Front)	2	
31	ALT-E-	623	3,5" King Pin	1	Safhollad (Brand)
32	ALT-E-	624	Steering Wedge	1	Safhollad (Brand)
33	ALT-E-	644	Ramp Lowering-Lifting Hydraulic Cylinder	2	
34	ALT-E-	700	Spare Tire Mechanical Lowering Winch	1	
35	ALT-E-	850	Side Extension Profile Set	22	
36	ALT-E-	938	Steel Wheel Chock	4	

Not: Axle Parts List are Attached Documents.

14712364671 - Axle SKRZ 12037 Brake SNK 367x200



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Spare parts list

Module **Axle SKRZ 12037 Brake SNK 367x200**

14712364671

Date May 23, 2022

Part No.	Part No.	Description	Year of manufacture	Brake version	Remark	Dimensions / reference	Quanti ty	incl. Pos.
01		Axle beam assembly					1	
3	01043104800	Spherical mounting plate				SNK 367	2	
4	04337202800	Protecting cap					2	
4A	04337202900	Protecting cap					2	
5	04199100200	Ball				Ø40	4	
06	03268005000	Compact cam bearing anchor bracket				SNK420/367	2	6, 6.2
6		Camshaft bearing				SNK420/367	2	
6A	04051700110	Bolt				M8x25	8	
6B	04247404210	Hex-nut				M8-10	8	
010	03268004700	Compact cam bearing anchor bracket					2	12, 15, 18
12		Camshaft bearing					2	
15		Hex-screw				M8x22-KL90	10	
18	04131000800	Bellow (Knorr)				Ø60/36,6x17	4	

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Spare parts list

Module **Axle SKRZ 12037 Brake SNK 367x200**

14712364671

Date May 23, 2022

Part No.	Part No.	Description	Year of manufacture	Brake version	Remark	Dimensions / reference	Quanti ty	incl. Pos.
18C	04187001000	Wearing gauge					2	
022	03011004001	Axle nut				M56x2/SW85	2	
23	01345000801	Locking plate				Ø93/TK74x4,75	2	
24	04011003901	Axle nut				M56x2/12H/SW85	2	
25	01171125301	Brake cylinder support					2	
27	03307205600	Hub unit					2	27, 35, 36, 37, 38.1, 38.2, 38.3
27B	03434301600	Repair kit wheel bearing					2	35, 36, 38
27C	05387003015	Grease			SAF LiLube Plus		2	
29	01064027800	Brake drum				258H/367/10-23 TK225	2	
30	03302107600	Wheel bolt assembly				M22x1,5x93 SW32	20	
31		Wheel bolt				M22x1,5x93	20	
34		Wheel bolt nut				M22x1,5x27H/SW32	20	
35	04200100600	Roller bearing				KHM218248/HM218210	2	

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Part No.	Part No.	Description	Year of manufacture	Brake version	Remark	Dimensions / reference	Quanti ty	incl. Pos.
36	04200006000	Roller bearing				33213 65/120x41	2	
37	04373003501	Shaft seal					2	
38	03434301700	Repair kit Grease change					2	27C, 37, 38A, 38B, 38C
38A		Protecting cap				Ø106/66x15	2	
38B		Sealing ring (outside)				Ø127/86x12	2	
38C		Sealing ring (inside)				Ø143/95x9	2	
39	04315006400	O-ring				Ø148x4	2	
40	03304008600	Hub cap incl. O-Ring				SNK300/SK500	2	39, 40, 41
41	04337202602	Protecting cap					2	
049	03434364001	Repair kit camshaft bearing					1	6, 8, 18.3, 84-88.1, 90
060	03434361600	Brake kit				SNK367x200	1	
64	03055012800	Brake shoe assembly with linings					4	65, 71-73
65	03054012800	Brake shoe assembly without linings					4	66

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Spare parts list

Module **Axle SKRZ 12037 Brake SNK 367x200**

14712364671

Date May 23, 2022

Part No.	Part No.	Description	Year of manufacture	Brake version	Remark	Dimensions / reference	Quanti ty	incl. Pos.
66	01265001900	Cam roller				Ø36,2x53	4	
070	03057397000	Brake lining kit				SNK367x200	1	
71		Brake lining				SNK367x200	4	
72		Brake lining				SNK367x200	4	
73	03267000764	Rivet kit				B8x15	1	
74	01151000800	Spring clamp				SNK367/420	2	
75	01447005801	Return spring				Ø32,8x232	2	
76	01189001101	Holder				4kt30x33	2	
76B	04343206700	Self-cutting screw				M6x12	4	
78	03029023100	ABV / WABCO					2	78.1, 78.2
78A		Sensor					2	
78B		Clamping bush					2	
80A	04338001000	Protective hose				17x1,5x250	2	

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Spare parts list

Module **Axle SKRZ 12037 Brake SNK 367x200**

14712364671

Date May 23, 2022

Part No.	Part No.	Description	Year of manufacture	Brake version	Remark	Dimensions / reference	Quanti ty	incl. Pos.
80B	04194201800	Collar				Ø120-140x9	2	
80C	04338001000	Protective hose				17x1,5x250	2	
81	02262113702	Camshaft left				711	1	
82	02262113602	Camshaft right				711	1	
083	03317001600	Repair kit camshaft					2	84, 84A, 85, 85A, 86, 87, 88, 88A
84		O-ring				Ø45x4	2	
84A		Spacer				52,5/46,7x4	2	
85		Disc spring				Ø63/43x1,75	2	
85A		Shaft seal				Ø45x60x7	2	
86		Spring clamp				Ø39	2	
87		Washer				Ø51/38,8x1,5	2	
88		Washer				Ø51/28,1x1,5	6	
88A		Spring clamp				Ø23	2	

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Spare parts list

Module **Axle SKRZ 12037 Brake SNK 367x200**

14712364671

Date May 23, 2022

Part No.	Part No.	Description	Year of manufacture	Brake version	Remark	Dimensions / reference	Quanti ty	incl. Pos.
089	03434350203	Automatic slack adjuster assembly			S-ABA		1	
89	02175029400	Slack adjuster					2	
89A	04175031400	Slack adjuster				S-ABA - V=0/20° - R105/127/140	2	
89B		Anchor bracket left					1	
89C		Anchor bracket right					1	
90	01447003700	Return spring				Ø25,8x2,8x148	2	
091	03005017100	Dust shield assembly					2	92-94, 96-99
92		Dust shield right					2	
93		Dust shield left					2	
94		Protecting cap				Ø31,75x9,52	4	
95		Cable clip					2	
97		Claming piece				Ø130x20	2	
98		Protecting cap					4	

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Spare parts list

Module **Axle SKRZ 12037 Brake SNK 367x200**

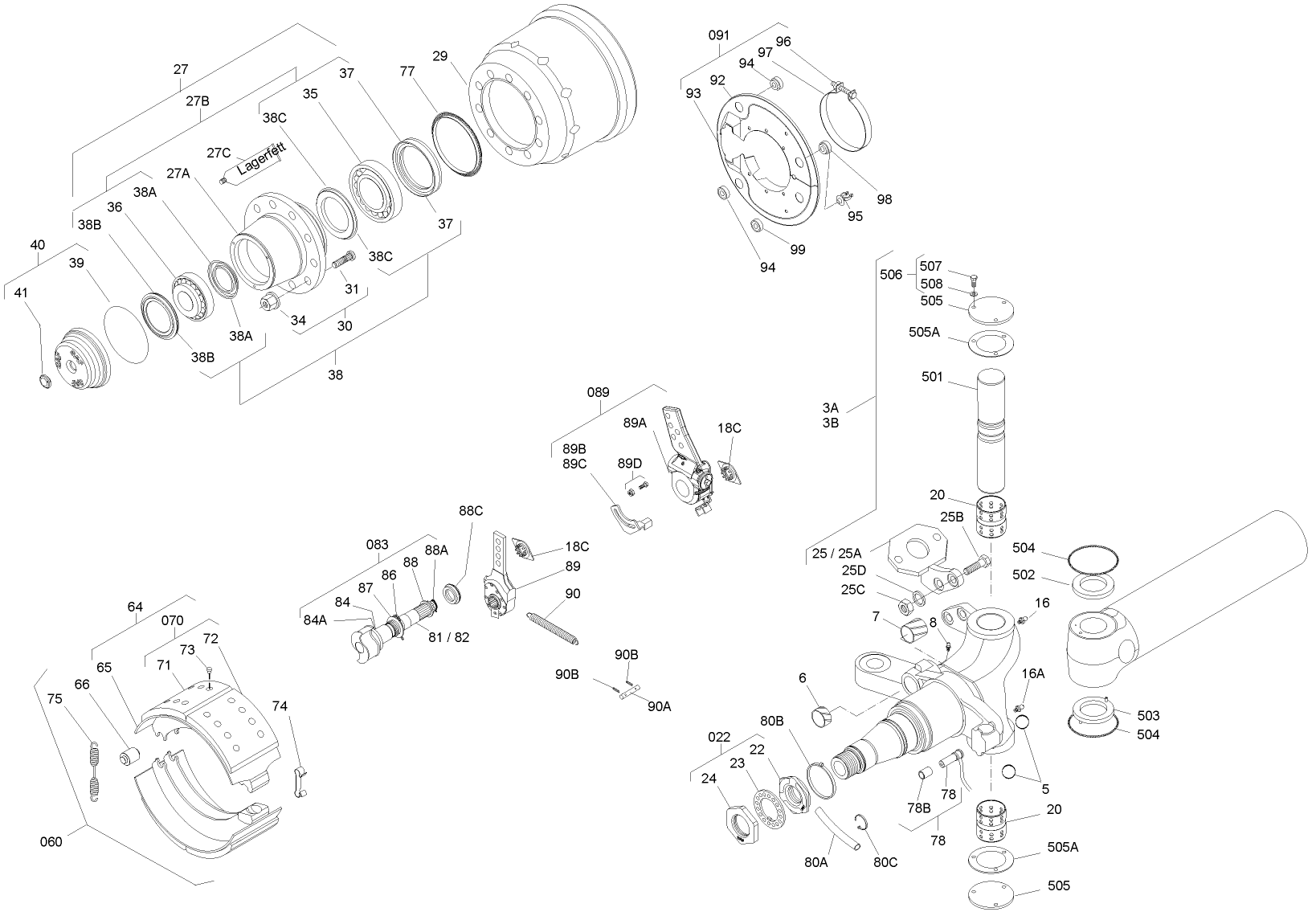
14712364671

Date May 23, 2022

Part No.	Part No.	Description	Year of manufacture	Brake version	Remark	Dimensions / reference	Quanti ty	incl. Pos.
99		Rubber funnel ABS				Ø18x8	2	

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17812374670 - Axle SK ZRLZ 12037 Brake SNK 367x200



SK_ZRLZ_12037_exd_nwm_003

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Spare parts list

Module **Axle SK ZRLZ 12037 Brake SNK 367x200**

17812374670

Date May 23, 2022

Part No.	Part No.	Description	Year of manufacture	Brake version	Remark	Dimensions / reference	Quanti ty	incl. Pos.
01		Axle beam assembly					1	
3A	03222163700	Steering knuckel assembly left					1	4-9, 16-20, 22 ,25, 501-506
3B	03222163800	Steering knuckel assembly right					1	5, 16-20, 022 ,25, 501-506
5	04199100200	Ball				Ø40	4	
6	04230018000	Bearing bush				Ø50/46x40	2	
7	01230010604	Bearing bush				Ø42/38,148x44,9	2	
8	04201002700	Grease nipple				BM8x1/38L	2	
16		Grease nipple				16L/AM8x1	2	
16A		Grease nipple				23,5L/BM8x1	2	
18C	04187001000	Wearing gauge					2	
20	04230017000	Bearing bush				Ø65/60x70	4	
022	03011004001	Axle nut				M56x2/SW85	2	
22	01011004002	Axle nut with lock bolt				M56x2/14,5/SW85	2	

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Spare parts list

Module **Axle SK ZRLZ 12037 Brake SNK 367x200**

17812374670

Date May 23, 2022

Part No.	Part No.	Description	Year of manufacture	Brake version	Remark	Dimensions / reference	Quanti ty	incl. Pos.
23	01345000801	Locking plate				Ø93/TK74x4,75	2	
24	04011003901	Axle nut				M56x2/12H/SW85	2	
25		Brake cylinder support					1	
25A		Brake cylinder support right					1	
27	03307205600	Hub unit					2	27, 35, 36, 37, 38.1, 38.2, 38.3
27B	03434301600	Repair kit wheel bearing					2	35, 36, 38
27C	05387003015	Grease			SAF LiLube Plus		2	
29	01064027800	Brake drum				258H/367/10-23 TK225	2	
30	03302107600	Wheel bolt assembly				M22x1,5x93 SW32	20	
31		Wheel bolt				M22x1,5x93	20	
34		Wheel bolt nut				M22x1,5x27H/SW32	20	
35	04200100600	Roller bearing				KHM218248/HM218210	2	
36	04200006000	Roller bearing				33213 65/120x41	2	

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Spare parts list

Module **Axle SK ZRLZ 12037 Brake SNK 367x200**

17812374670

Date May 23, 2022

Part No.	Part No.	Description	Year of manufacture	Brake version	Remark	Dimensions / reference	Quanti ty	incl. Pos.
37	04373003501	Shaft seal					2	
38	03434301700	Repair kit Grease change					2	27C, 37, 38A, 38B, 38C
38A		Protecting cap				Ø106/66x15	2	
38B		Sealing ring (outside)				Ø127/86x12	2	
38C		Sealing ring (inside)				Ø143/95x9	2	
39	04315006400	O-ring				Ø148x4	2	
40	03304008600	Hub cap incl. O-Ring				SNK300/SK500	2	39, 40, 41
41	04337202602	Protecting cap					2	
64	03055012800	Brake shoe assembly with linings					4	65, 71-73
65	03054012800	Brake shoe assembly without linings					4	66
66	01265001900	Cam roller				Ø36,2x53	4	
070	03057397000	Brake lining kit					1	
71		Brake lining				SNK367x200	4	

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Part No.	Part No.	Description	Year of manufacture	Brake version	Remark	Dimensions / reference	Quanti ty	incl. Pos.
72		Brake lining				SNK367x200	4	
73		Rivet				B8x15	1	
74	01151000800	Spring clamp				SNK367/420	2	
75	01447005801	Return spring				Ø32,8x232	2	
77	04029106100	Exciter ring				80 Zähne	2	
78	03029023200	ABV / WABCO (VGL.Nr. 441 032 922 2)					2	78.1, 78.2
78A		Sensor					2	
78B		Clamping bush					2	
80A	04338001000	Protective hose				17x1,5x250	2	
80B	04194202100	Collar				Ø140-160x9	2	
80C	01194400100	Clamp ring				Ø24,5/21,5x6	2	
81	02262113902	Camshaft left				271	1	
82	02262113802	Camshaft right				271	1	

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Spare parts list

Module **Axle SK ZRLZ 12037 Brake SNK 367x200**

17812374670

Date May 23, 2022

Part No.	Part No.	Description	Year of manufacture	Brake version	Remark	Dimensions / reference	Quanti ty	incl. Pos.
083	03317001600	Repair kit camshaft					2	84, 84A, 85, 85A, 86, 87, 88, 88A
84		O-ring				Ø45x4	2	
84A		Spacer				52,5/46,7x4	2	
85		Shaft seal				Ø45x60x7	2	
85A		Disc spring				Ø63/43x1,75	2	
86		Spring clamp				Ø39	2	
87		Washer				Ø51/38,8x1,5	2	
88		Washer				Ø51/28,1x1,5	6	
88A		Spring clamp				Ø23	2	
089	03434350601	Automatic slack adjuster assembly			S-ABA		2	
89A	04175032600	automatic slack adjuster right				S-ABA - V=-25/-20° - R127/140/	1	
89A	04175032500	automatic slack adjuster left				S-ABA - V=-25/-20° - R127/140/	1	
89B	03018102400	Sealing washer-Kit					2	

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Part No.	Part No.	Description	Year of manufacture	Brake version	Remark	Dimensions / reference	Quanti ty	incl. Pos.
90	01447003600	Return spring					2	
091	03005028200	Dust shield assembly					2	92-94, 96-99
92		Dust shield right					2	
93		Dust shield left					2	
94		Protecting cap				Ø31,75x9,52	4	
95		Cable clip					2	
96		Hex-screw				M8x22-KL90	8	
98		Protecting cap					4	
99		Rubber funnel ABS				Ø18x8	4	
501	01217001900	Steering bolt				Ø60x298	2	
502	01101000900	Thrust plate				Ø90/62x9,8	2	
503	02101001102	Thrust plate			underneath		2	
504	04315001101	O-ring				Ø84x11	4	

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Spare parts list

Module **Axle SK ZRLZ 12037 Brake SNK 367x200**

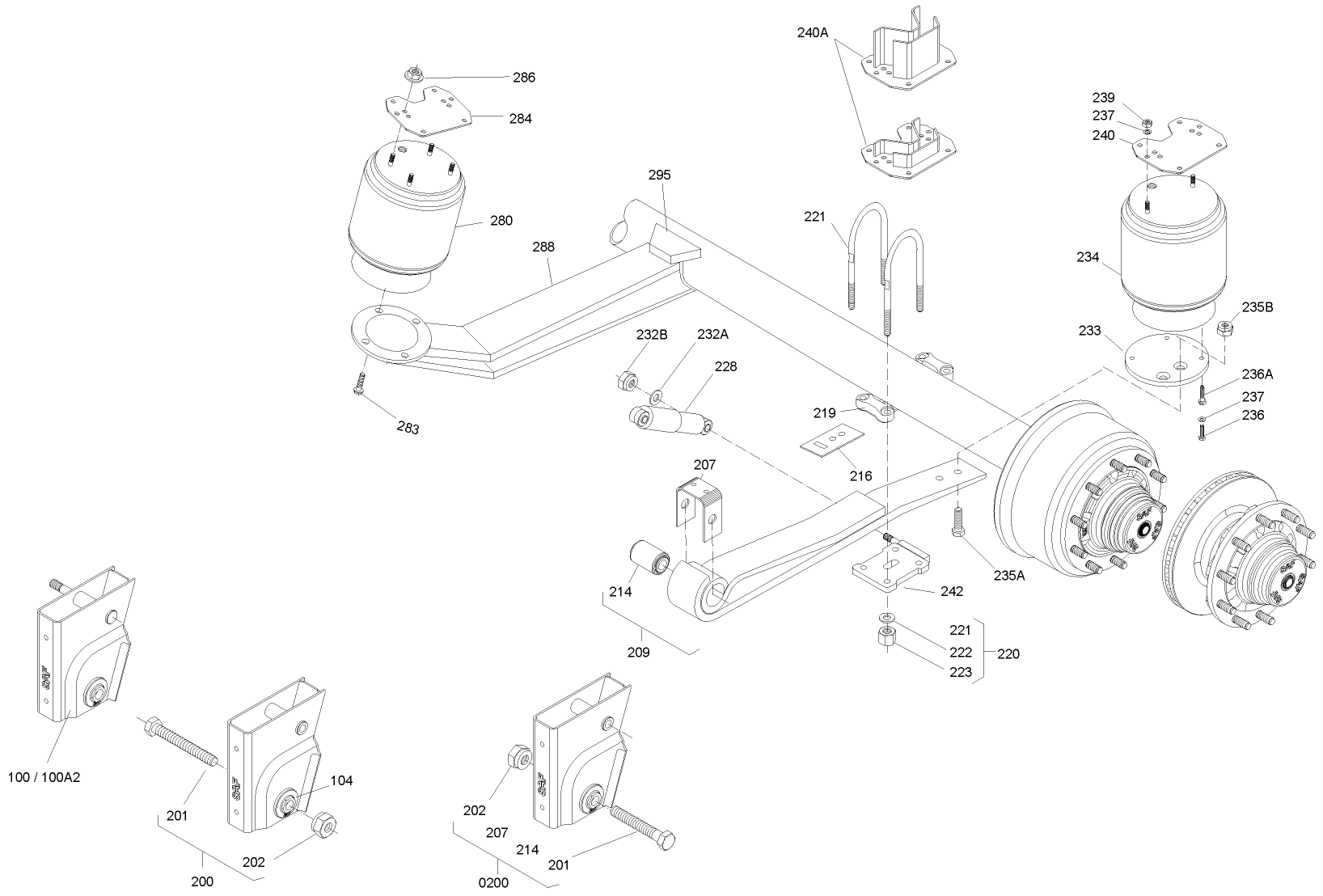
17812374670

Date May 23, 2022

Part No.	Part No.	Description	Year of manufacture	Brake version	Remark	Dimensions / reference	Quanti ty	incl. Pos.
505	01091003600	Cover plate				Ø100x6/TK80	4	
505A	01093001800	Gasket				Ø100/64,5x0,5	4	
506	03341101517	Screw assembly				M8x20	12	
507	04343101588	Hex-screw				M8x20	12	
508		Spring washer				A8	12	

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Air suspension U25/2900 S31



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Spare parts list

Module **Air suspension U25/2900 S31**

Date May 23, 2022

Part No.	Part No.	Description	Year of manufacture	Brake version	Remark	Dimensions / reference	Quanti ty	incl. Pos.
	14710017660	Axle SKRZ 11019K Brake SBK 1937 (SN6)						
100	02183074700	Hanger bracket left				290H	1	
100A	02183074800	Hanger bracket right				290H	1	
104	01251200300	Spigot flange				90x19,5 SW45	4	
0200	03434364400	Repair kit spring bearing					2	201, 202, 207, 214
200	03341104819	Screw assembly				M30	2	201, 202
201	04343104888	Hex-screw				M30x205	2	
202	04247402280	Hex-nut				M30	2	
207	04405207100	U-Profil				70x5x368,8	2	
209	03155104800	Spring assembly			U-43/43		2	
214	04177301000	Rubber bush - HD				68/30x104	2	
216	01345000703	Locking plate				95x5x225	2	
219	01010041200	Spring seat				130x171/26	2	

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Spare parts list

Module **Air suspension U25/2900 S31**

May 23, 2022

Date

Part No.	Part No.	Description	Year of manufacture	Brake version	Remark	Dimensions / reference	Quanti ty	incl. Pos.
220	03401009100	U-bolt assembly				Ø146mm - M22X1,5	4	221, 222, 223
221	01402009101	U-bolt				Ø146 - M22X1,5	4	
222	01331020400	Washer				Ø39/22,5x3,0	8	
223	04342004710	Nut				M22x1,5x25H	8	
228	02376002750	Shock absorber					2	
233	02043028900	Mounting plate left				Ø240x15 - V=70mm	1	
233	02043029000	Mounting plate right				Ø240x15 - V=70mm	1	
234	03229003100	Air bag			SAF2923V		2	
235A	04343500888	Countersink screw				M20x80	4	
235B	04247401280	Hex-nut				M20	4	
236A	04343292210	Hex-screw				M12x30	6	
239	04247404710	Hex-nut				M12	4	
240	01043026101	Air suspension plate				5Hx195x245	2	

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Spare parts list

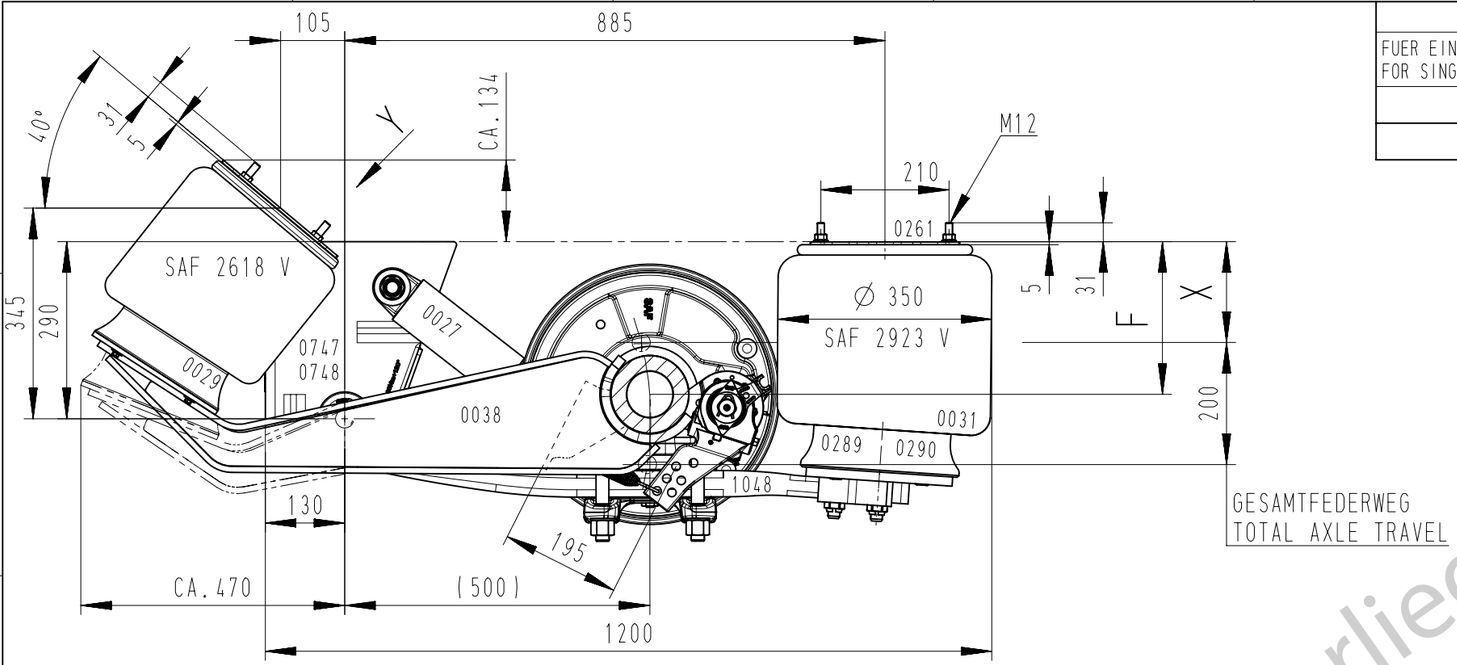
Module **Air suspension U25/2900 S31**

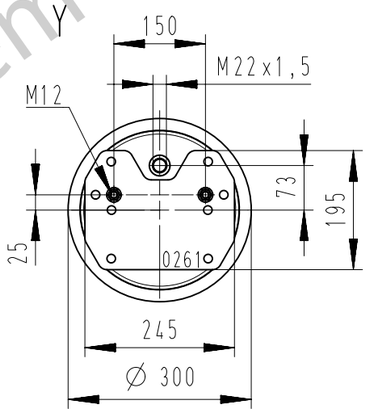
Date May 23, 2022

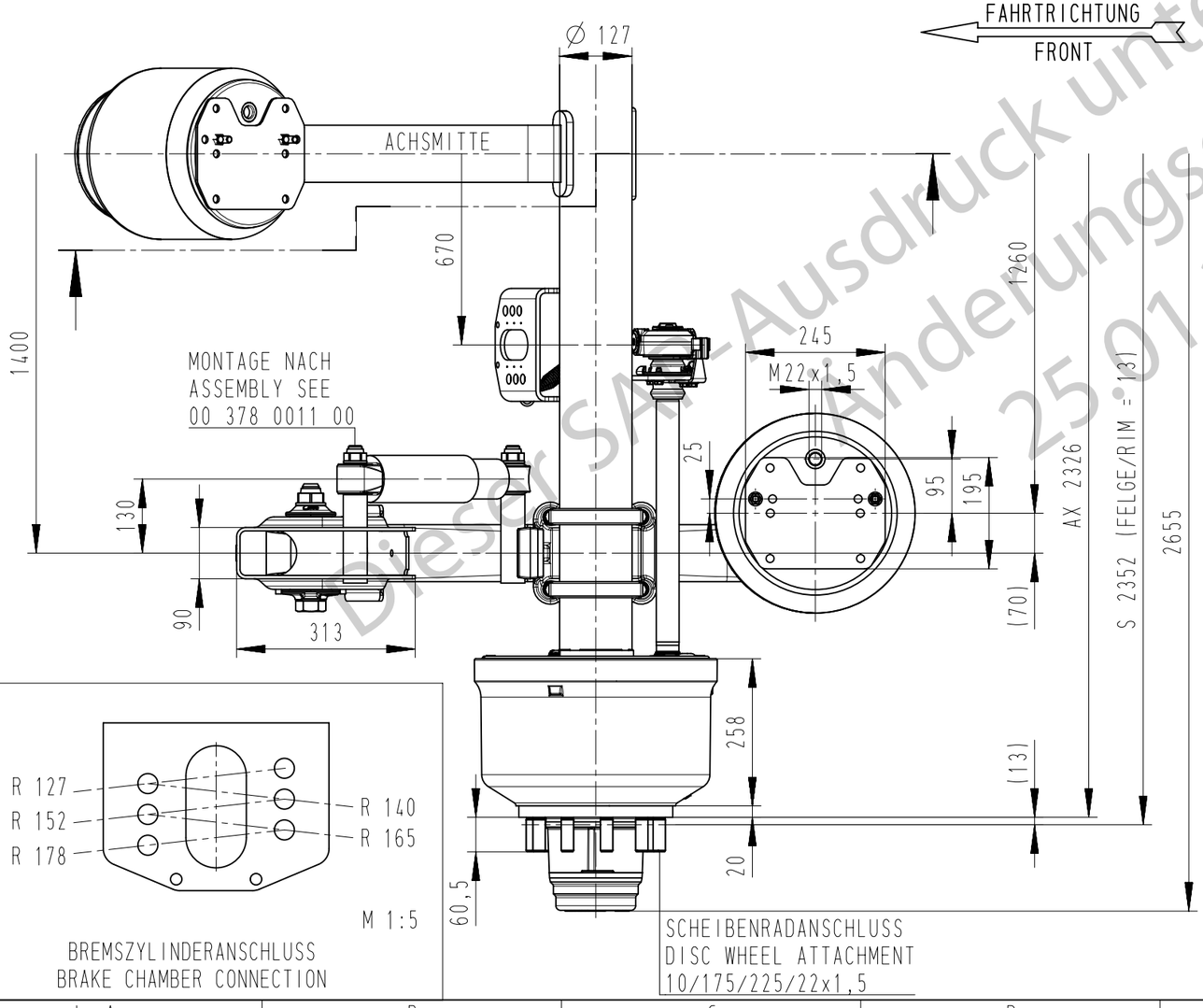
Part No.	Part No.	Description	Year of manufacture	Brake version	Remark	Dimensions / reference	Quanti ty	incl. Pos.
242	02350010500	Clamping sleeve left					1	
242	02350010600	Clamping sleeve right					1	
280	03229002900	Air bag			SAF2618V		1	
283	04343203700	Self-cutting screw				K100x40	3	
284	01043026101	Air suspension plate				5Hx195x245	2	
286	04247404710	Hex-nut				M12	2	
288	02104006600	Lifting arm				Ø146	1	
295	01204003700	Gusset plate				10x75x160	1	

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FAHRHOEHENBEREICH / RIDE HEIGHT RANGE			BAUHOEHE OHNE LUFT / HEIGHT WITHOUT AIR	
FUER EINZELACHSEN FOR SINGLE AXLES	FUER ACHSAGGREGATE FOR AXLES SYSTEMS	FUER ACHSAGGREGATE MIT LIFT FOR AXLES SYSTEMS WITH LIFT	LEER / UNLADEN ca. / approx	BELADEN / LADEN ca. / approx
		265 - 295	165	155
F			X	







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INFO: VERSTREBUNG / BRACING

http://designmanual.safholland.de

DER FAHRZEUGRAHMEN IST SO AUSZUSTEIFEN, DASS ER DIE EINGELEITETEN KRAEFTE AUFNEHMEN KANN. DIE HALTEBOECKE DER LUFTFEDERUNG MUESSEN ZUSAETZLICH VERSTREBT WERDEN.
ALMOST ALL FORCES ARE PASSED INTO TRAILER FRAME THROUGH FRONT HANGERS. THEREFORE TRAILER FRAME MUST BE STRENGTHENED AND HANGERS MUST BE BRACED.

SPECIALS:

BAUREIHE

MITTENLIFT/MIDDLELIFT 03 027 1192 00
DRUCKARM-EINSCHWEISSLAGE 00 104 0012 00

OPTIONS

ABS-SENSOREINBAU / INSTALLATION OF ABS CABLE ZAEHNEZAHL / NUMBER OF TEETH	03 029 0051 05 80
RADKAPPE FUER HUBODOMETER WHEEL CAP FOR ODOMETER	03 337 0041 01

STAHL-RAEDER STEEL WHEELS	KIT ACHSE / AXLE	283 12 62 4 67 0 147 12 36 4 67 1	ALU-RAEDER ALU WHEELS / KIT ACHSE / AXLE

ACHSLAST AXLE LOAD	12 000 kg bei at 105 km/h	REIFEN-BEISPIEL TIRE EXAMPLE	285/70 R 19,5	NOCKENWELLE CAMSHAFT 719 57575
AEL	00 010 3096 00	SEL		GRUNDPLATTENSTELLUNG BRAKE CHAMBER BRACKET POSITION 00 171 0215 00

	DATE	NAME
DR	2021-01-20	SCHELLER
CH	2021-01-25	PROESSLER
SIZE	A3	
SCALE	1:10	

ACHSE MIT LUFTFEDERUNG UND LIFT

AXLE WITH AIR SUSPENSION AND LIFT

SK RZ 12037 - U25/2900S31

BREMSE / BRAKE: SNK 367x200 — TEST REPORT: TDB0460

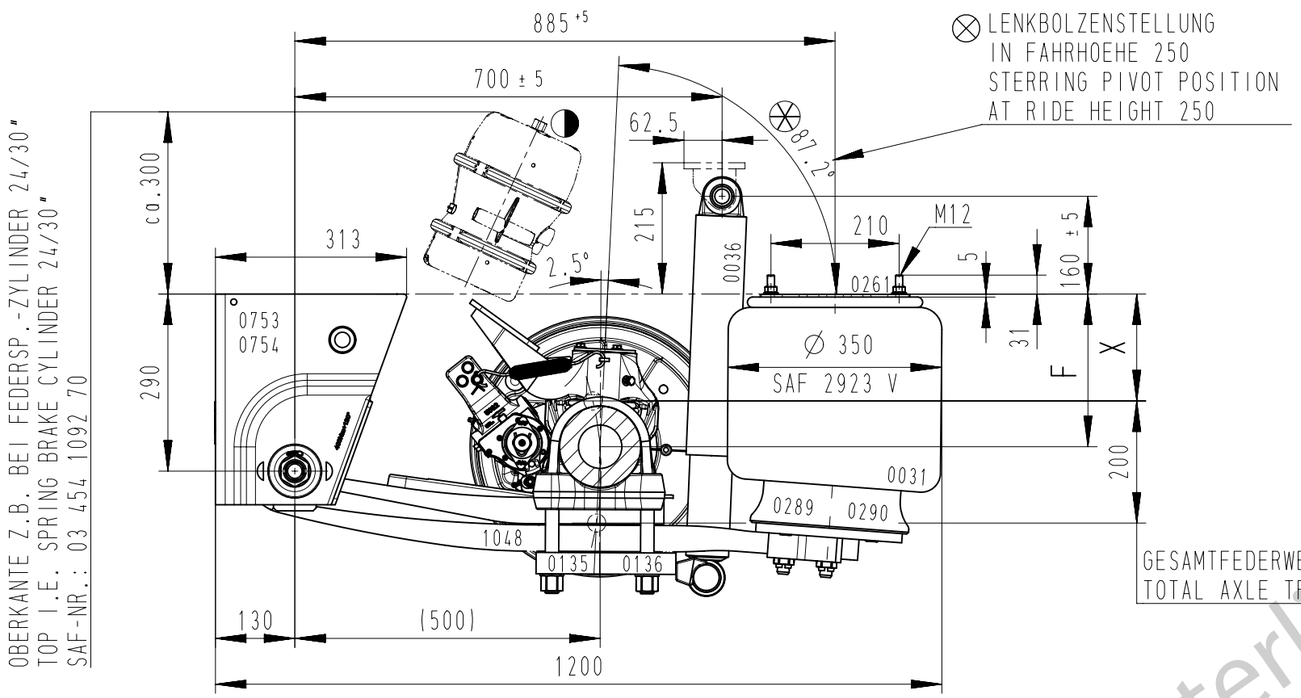
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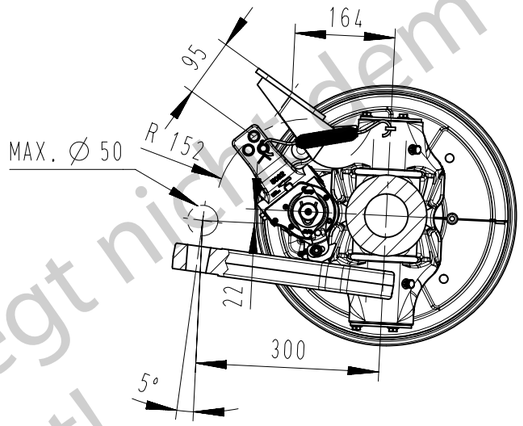
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FAHRHOEHENBEREICH / RIDE HEIGHT RANGE			BAUHOEHE OHNE LUFT / HEIGHT WITHOUT AIR	
FUER EINZELACHSEN FOR SINGLE AXLES	FUER ACHSAGGREGATE FOR AXLES SYSTEMS	FUER ACHSAGGREGATE MIT LIFT FOR AXLES SYSTEMS WITH LIFT	LEER / UNLADEN ca. / approx	BELADEN / LADEN ca. / approx
225-295	235-295		165	155
F			X	

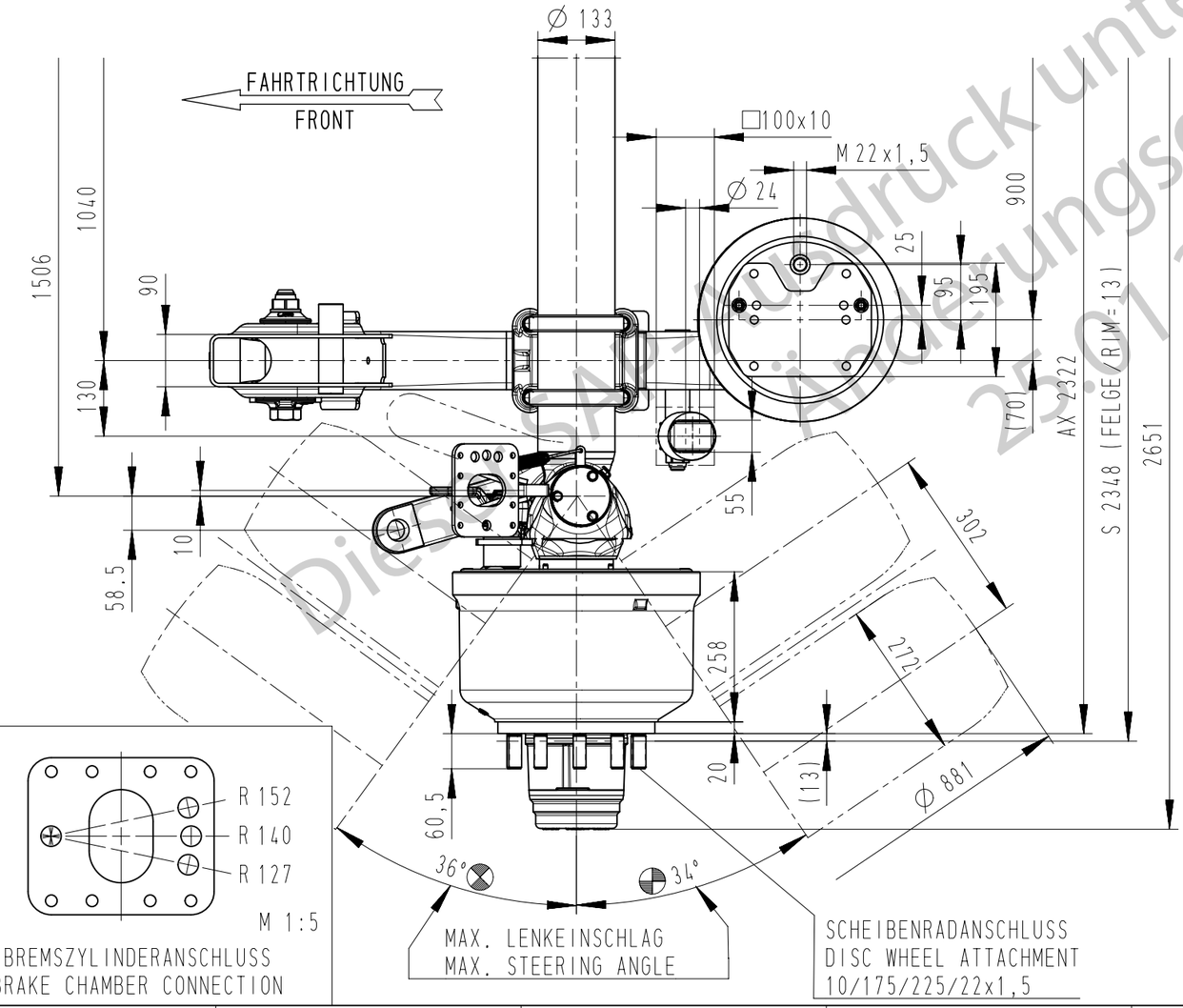
OBERKANTE Z.B. BEI FEDERSP.-ZYLINDER 24/30"
TOP I.E. SPRING BRAKE CYLINDER 24/30"
SAF-NR.: 03 454 1092 70





⊗ DER LENKBOLZENWINKEL AENDERT SICH MIT GEAENDERTER FAHRHOEHE
THE ANGLE AT THE STEERING PIVOT CHANGE WITH CHANGED RIDE HEIGHT

◑ AUF EINEN AUSREICHENDEN FREIRAUM ZWISCHEN BREMSZYLINDER UND CHASSIS ACHTEN !
A SUFFICIENT FREE AREA BETWEEN THE BRAKE CHAMBER AND CHASSIS FRAME IS REQUIRED !



BREMSZYLINDERANSCHLUSS
BRAKE CHAMBER CONNECTION

MAX. LENKEINSCHLAG
MAX. STEERING ANGLE

SCHEIBENRADANSCHLUSS
DISC WHEEL ATTACHMENT
10/175/225/22x1,5

⊗ OBERE STOSSDAEMPFERBEFESTIGUNG IST VOM FAHRZEUGBAUER ZU ERSTELLEN !
UPPER SHOCK ABSORBER FIXATION TO BE BUILT BY TRAILER MANUFACTURER !
OPTION SAF-HOLDER : 03 378 0107 00

INFO: VERSTREBUNG / BRACING

http://designmanual.safholland.de

DER FAHRZEUGRAHMEN IST SO AUSZUSTEIFEN, DASS ER DIE EINGELEITETEN KRAEFTE AUFNEHMEN KANN. DIE HALTEBOECKE DER LUFTFEDERUNG MUESSEN ZUSAETZLICH VERSTREBT WERDEN.
ALMOST ALL FORCES ARE PASSED INTO TRAILER FRAME THROUGH FRONT HANGERS. THEREFORE TRAILER FRAME MUST BE STRENGTHENED AND HANGERS MUST BE BRACED.

SPECIALS:

BAUREIHE
STOSSDAEMPFER 02 376 0036 00 LOSE

◑ LENKEINSCHLAEGE ABHAENGIG VON REIFEN UND FELGENMITTENABSTAND

OPTIONS

ABS-SENSOREINBAU / INSTALLATION OF ABS CABLE ZAEHNEZAHL / NUMBER OF TEETH	03 029 0185 05 80
RADKAPPE FUER HUBODOMETER WHEEL CAP FOR ODOMETER	03 337 0041 01

STAHL-RAEDER STEEL WHEELS	KIT ACHSE / AXLE	389 12 31 4 67 0 178 12 37 4 67 0	ALU-RAEDER ALU WHEELS	KIT ACHSE / AXLE	

ACHSLAST AXLE LOAD	12 000 kg bei 105 km/h	REIFEN-BEISPIEL TIRE EXAMPLE	285/70 R 19,5 ◑	NOCKENWELLE CAMSHAFT 271	57577
AEL	00 010 3119 00	SEL		GRUNDPLATTENSTELLUNG BRAKE CHAMBER BRACKET POSITION	00 171 4024 00

	DATE	NAME
DR	2021-01-20	SCHELLER
CH	2021-01-25	PROESSLER
SIZE	A3	
SCALE	1:10	

ACHSE MIT LUFTFEDERUNG
AXLE WITH AIR SUSPENSION
SK ZRLZ 12037 - U25/2900S31

BREMSE / BRAKE: SNK 367x200 — TEST REPORT: TDB0460

ID
38912314670-
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25.01.2021

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No:3/5 Yenimahalle/Ankara
Turkey
Phone : +90 312 395 99 20
Web : www.teknopar.com.tr

Company / Customer : ALTINORDU Treyler San. ve Tic. Ltd. Şti.

Project Description : 6 Axle Lowbed Esthonia

Project Number : **2107**

Project Release Date : **16.04.2022**

Project Rev. Number : **R0.0**

Project Rev. Date : **-**

Creator : **İrfan Kunduz**

Controller : **Kemal Taştekin**

Approving : **Altan Ünal**

Technical Spesification :

Main Power Voltage : **24VDC**

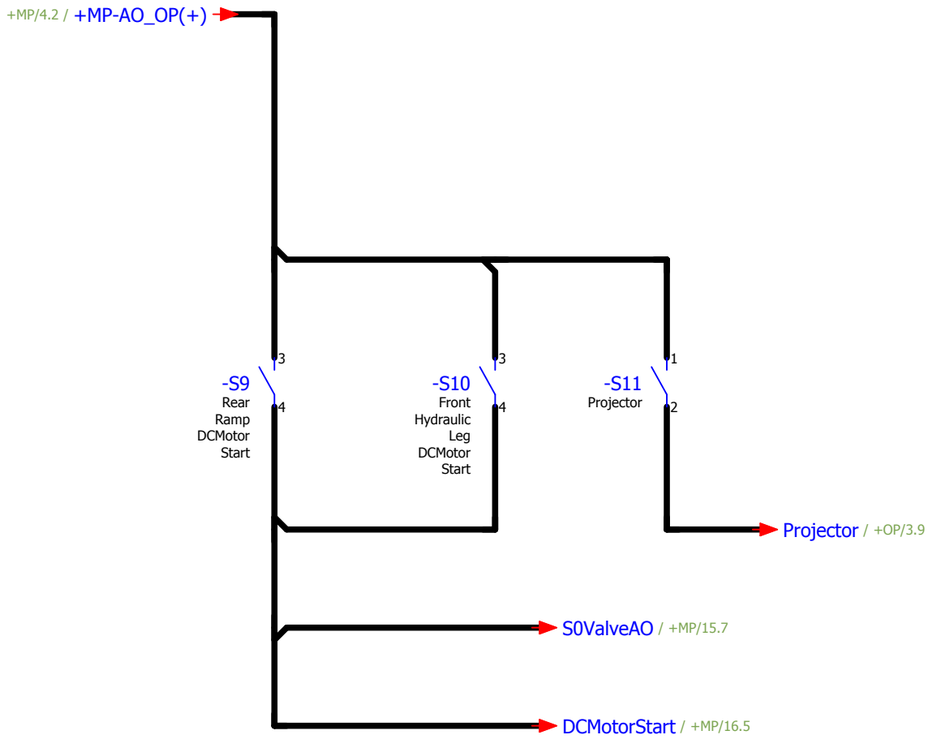
Controll Voltage: **24VDC**

Valve /Sensor Voltage : **24VDC**

Communication Type : **CANBUS**

Total Power : **350W**

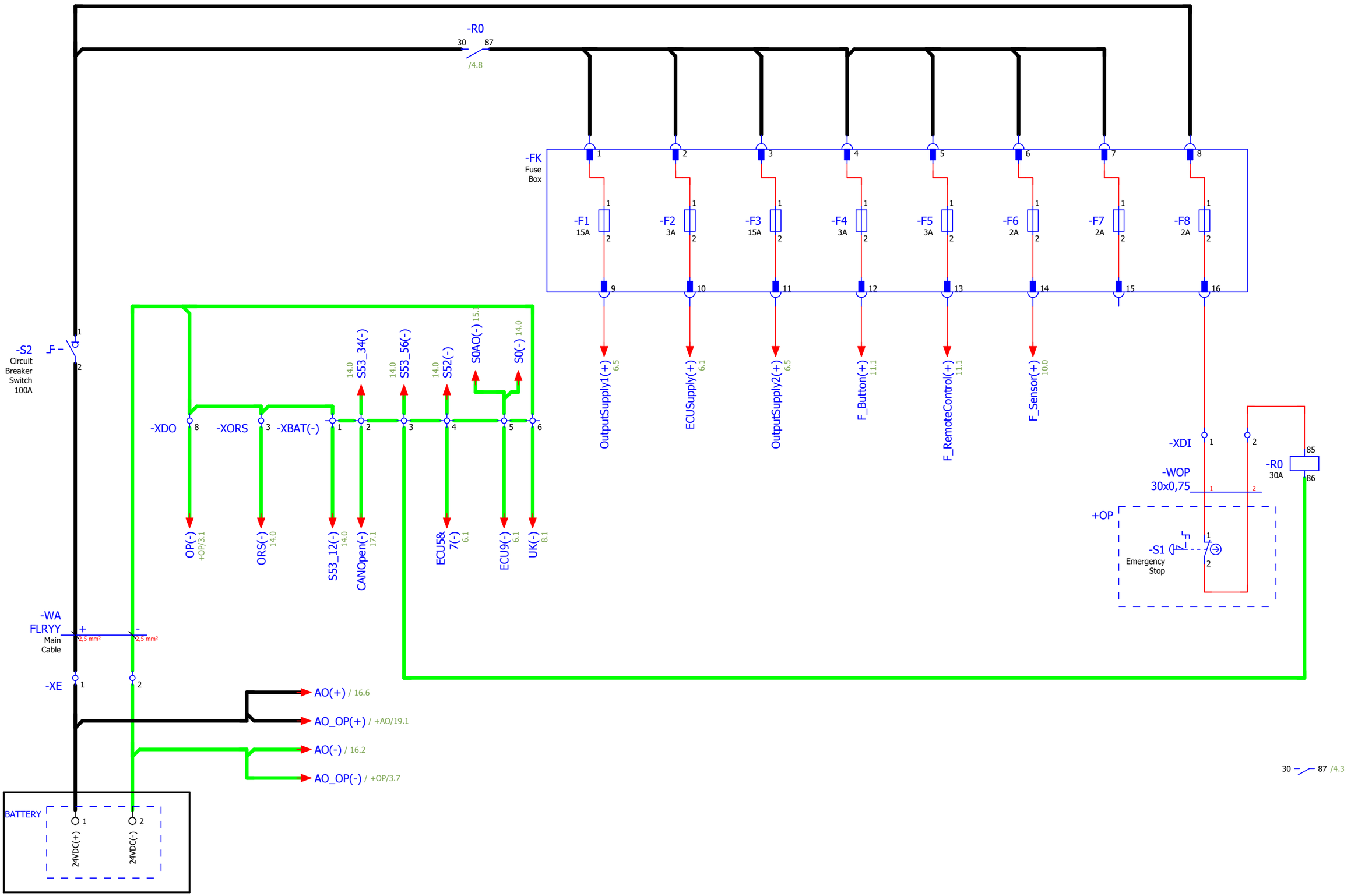
Total Page 19



+/1

+MP/4

Creator :	**İrfan Kunduz**	teknopar Endüstriyel Otomasyon	**ALTINORDU Treyler San. ve Tic. Ltd. Şti.** **6 Axle Lowbed Esthonia**	Project Number : **2107**	Release Date : **16.04.2022**	Page Description : **Button Connection**
Controller :	**Kemal Taştekin**			Doc. Number : **ES1656**	Rev. Number : **R0.0** Proje Rev. Tarihi : **-**	= + **AO**
Approving :	**Altan Ünal**					Page **19** 2 / 19

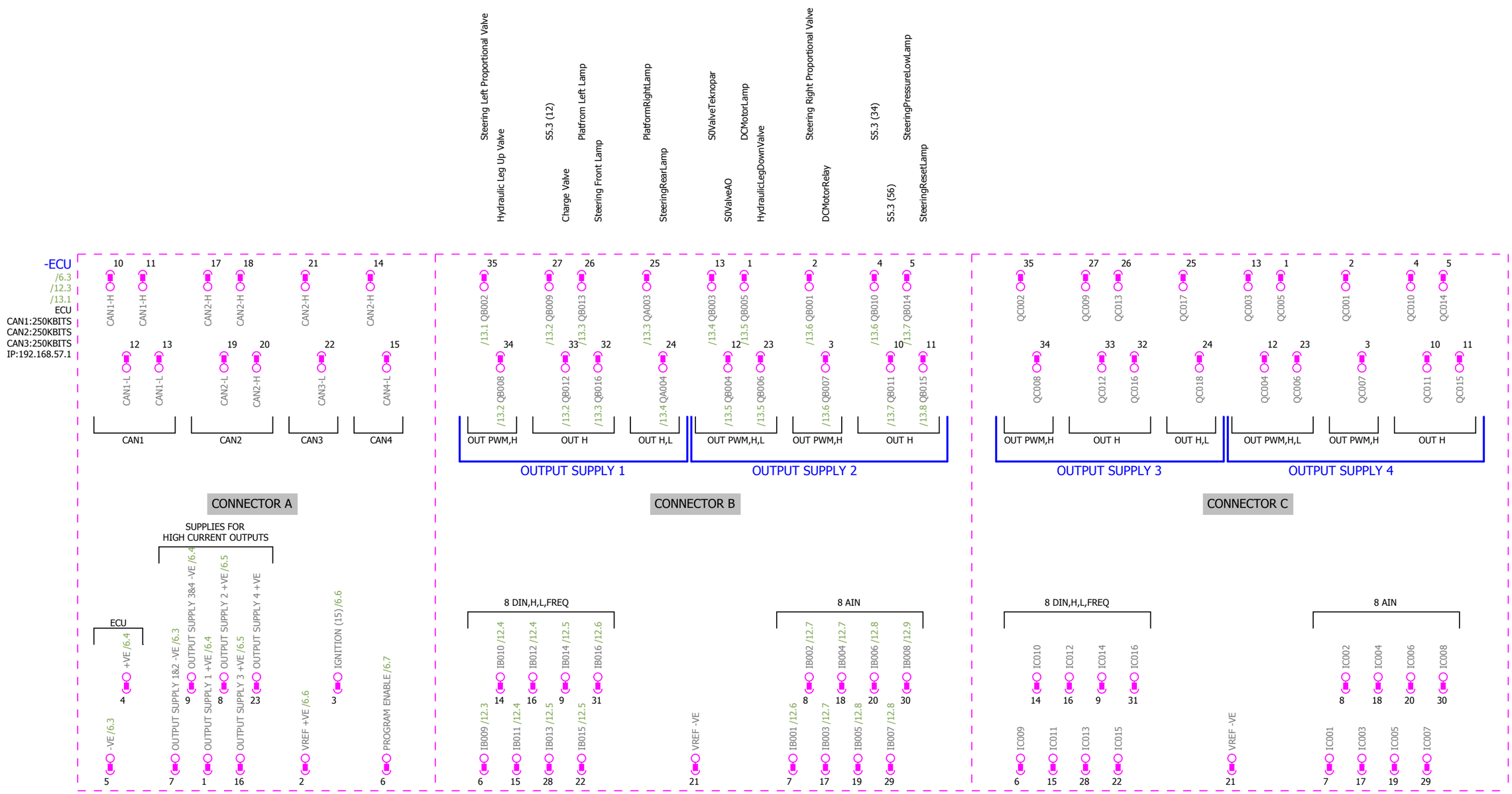


+AO/19

5

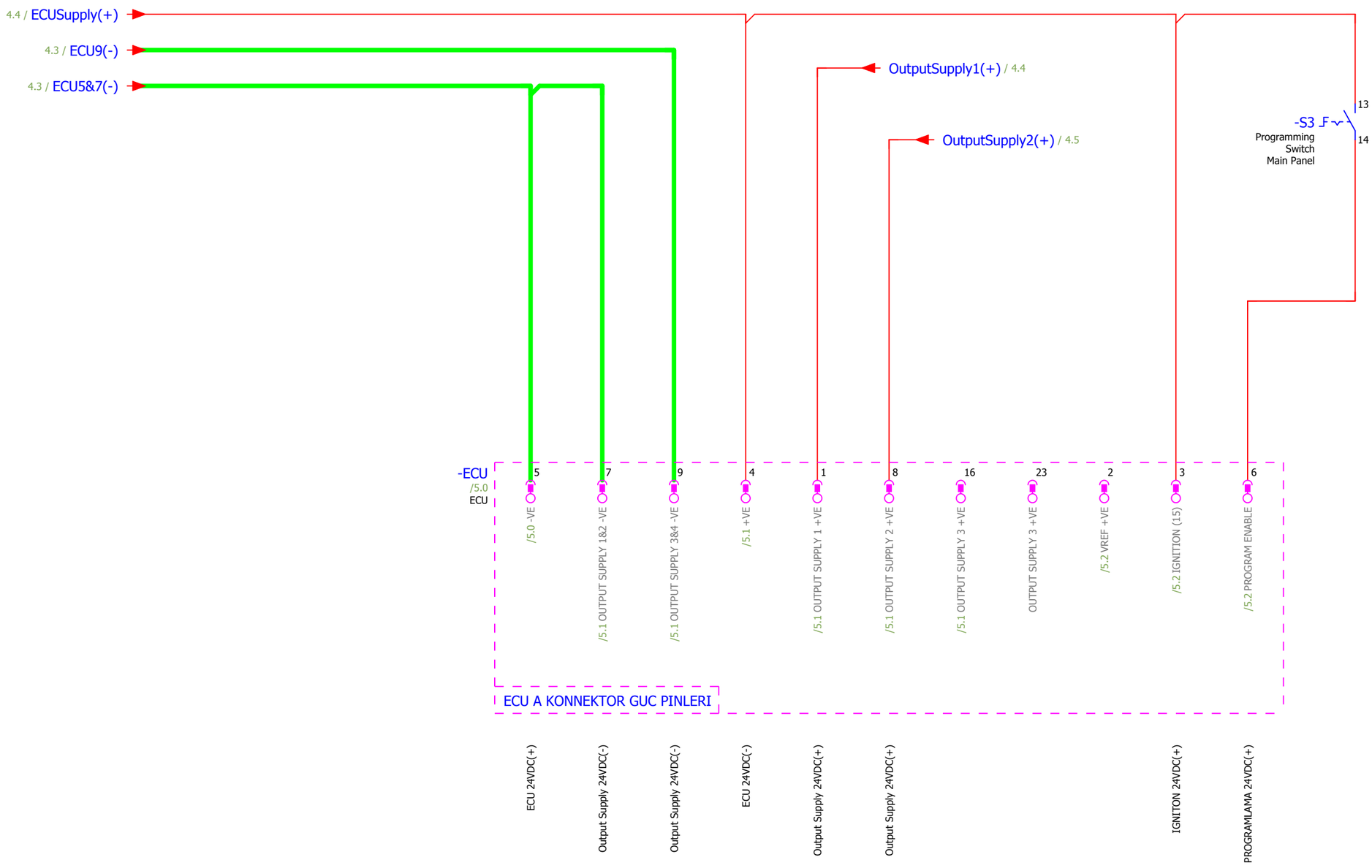
Creator :	**İrfan Kunduz**	teknopar Endüstriyel Otomasyon	**ALTINORDU Treyler San. ve Tic. Ltd. Şti.**	Project Number : **2107**	Release Date : **16.04.2022**	Page Description :	=
Controller :	**Kemal Taştekin**		**6 Axle Lowbed Esthonia**	Doc. Number : **ES1656**	Rev. Number : **R0.0** Proje Rev. Tarihi : **-**	**Energy Supply and Energy Distribution**	+ **MP**
Approving :	**Altan Ünal**						Page **4**
							3 / 19

Dok No:F.105 Rev No: 01



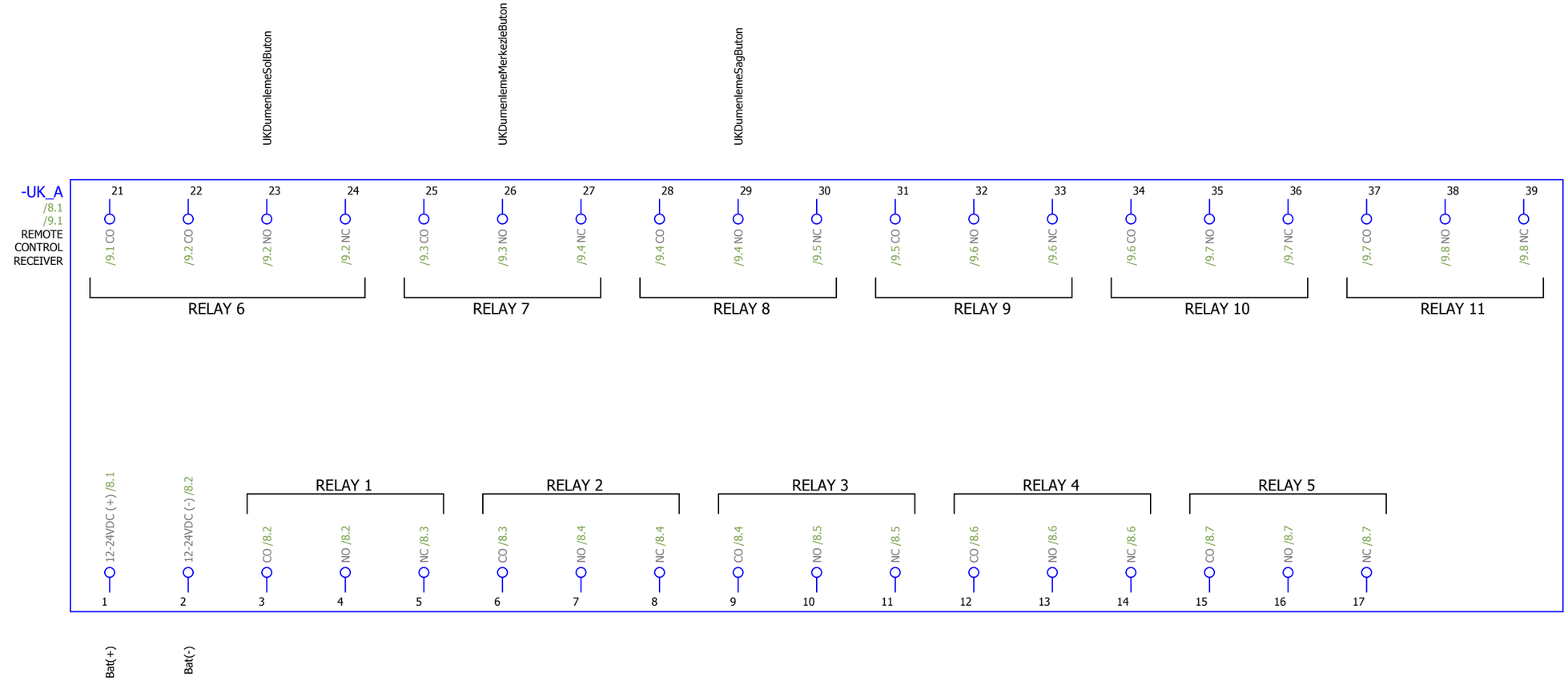
Yapan :	**İrfan Kunduz**	teknopar Endüstriyel Otomasyon	**ALTINORDU Treyler San. ve Tic. Ltd. Şti.**	Proje Numarası : **2107**	Proje İlk Yayın Tarihi : **16.04.2022**	Sayfa Açıklaması :	= + **MP**
Kontrol Eden :	**Kemal Taştekin**		**6 Axle Lowbed Esthonia**	Resim No : **ES1656**	Rev. No : **R0.0** Proje Rev. Tarihi :-	**ECU Overview**	Sayfa : **5**
Onaylayan :	**Altan Ünal**						4 / 19

Dok No:F.105 Rev No: 01

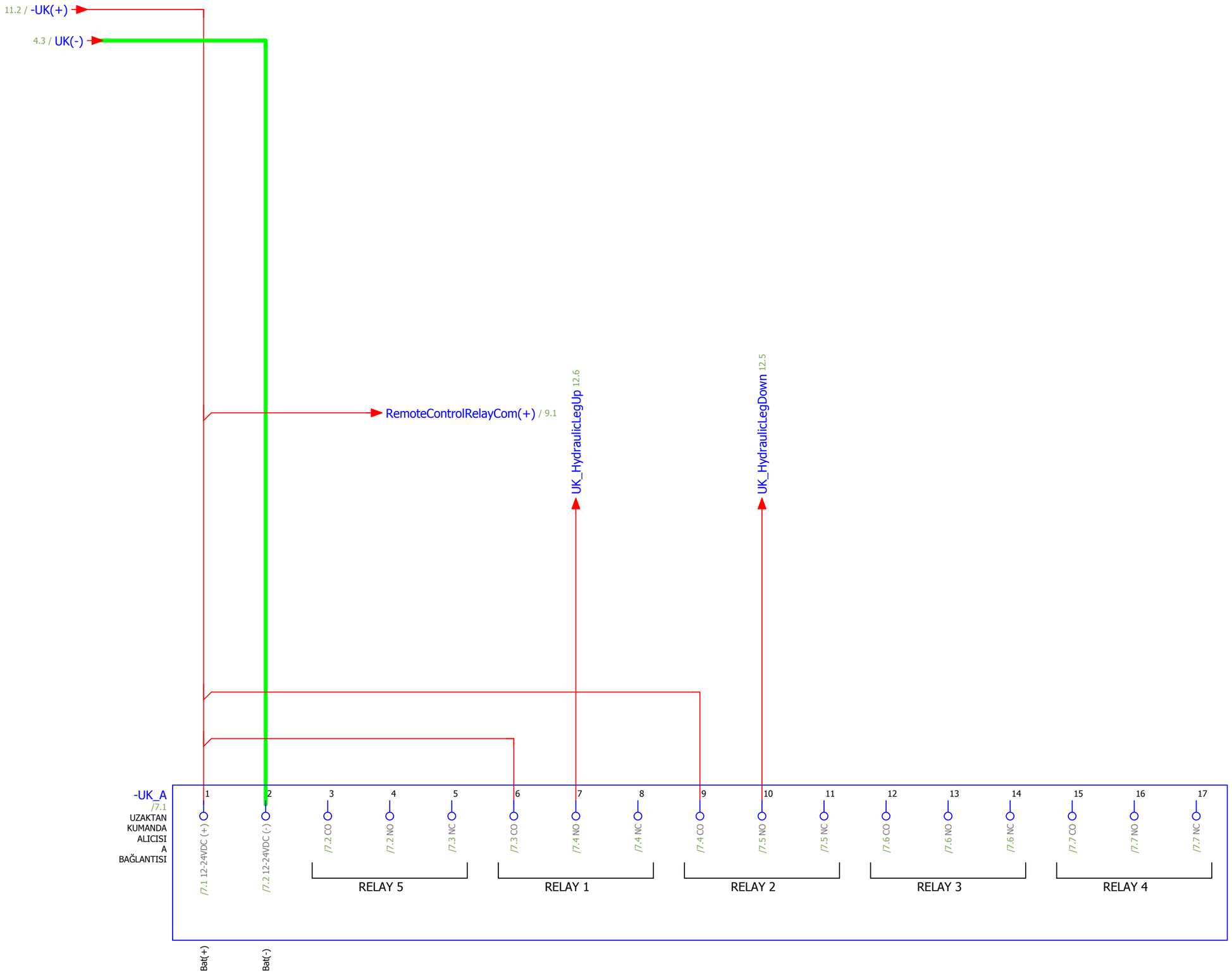


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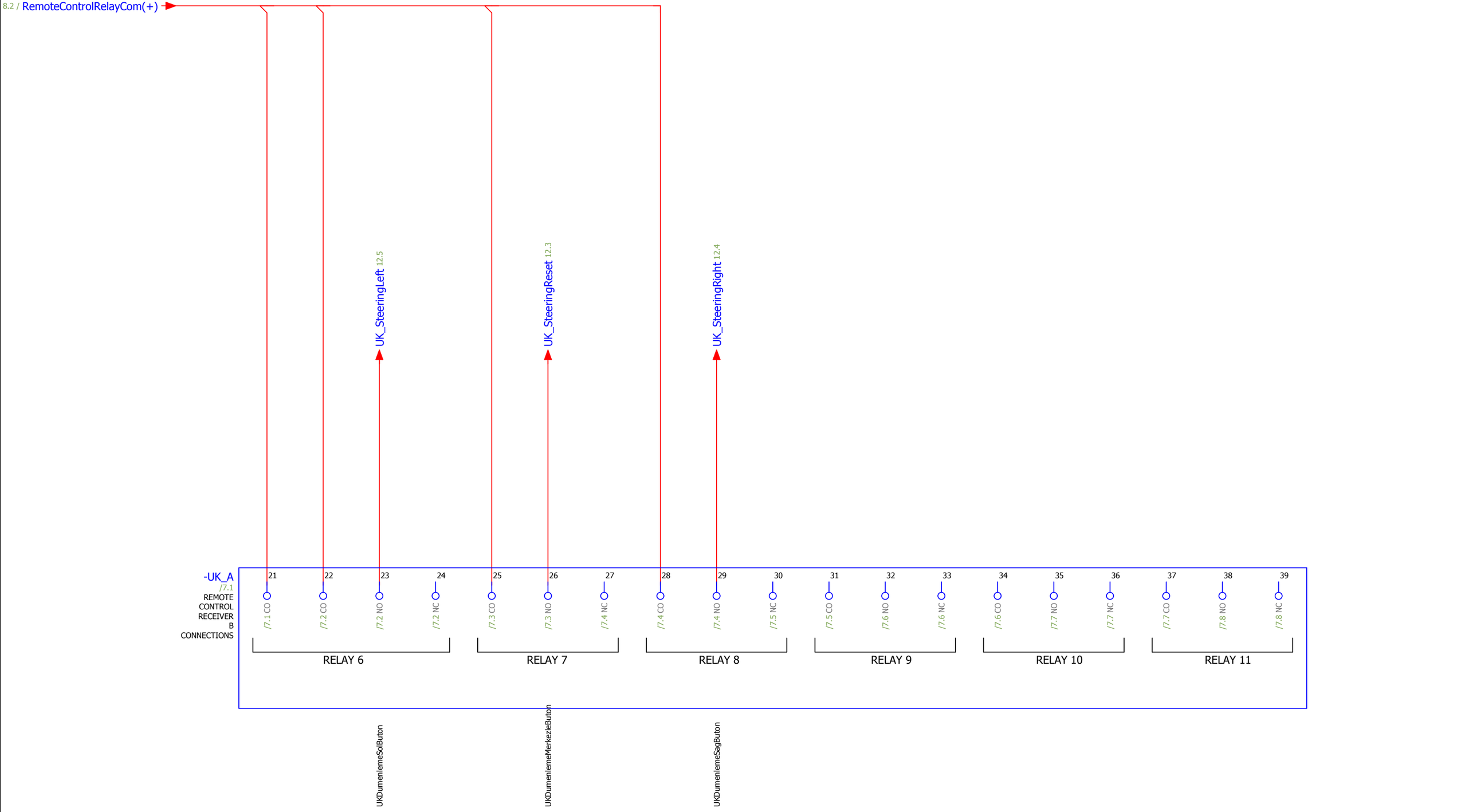
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Kontrol Eden :	**Kemal Taştekin**			Resim No : **ES1656**	Rev. No : **R0.0** Proje Rev. Tarihi :-	= + **MP**
Onaylayan :	**Altan Ünal**					Sayfa : **6**
						5 / 19



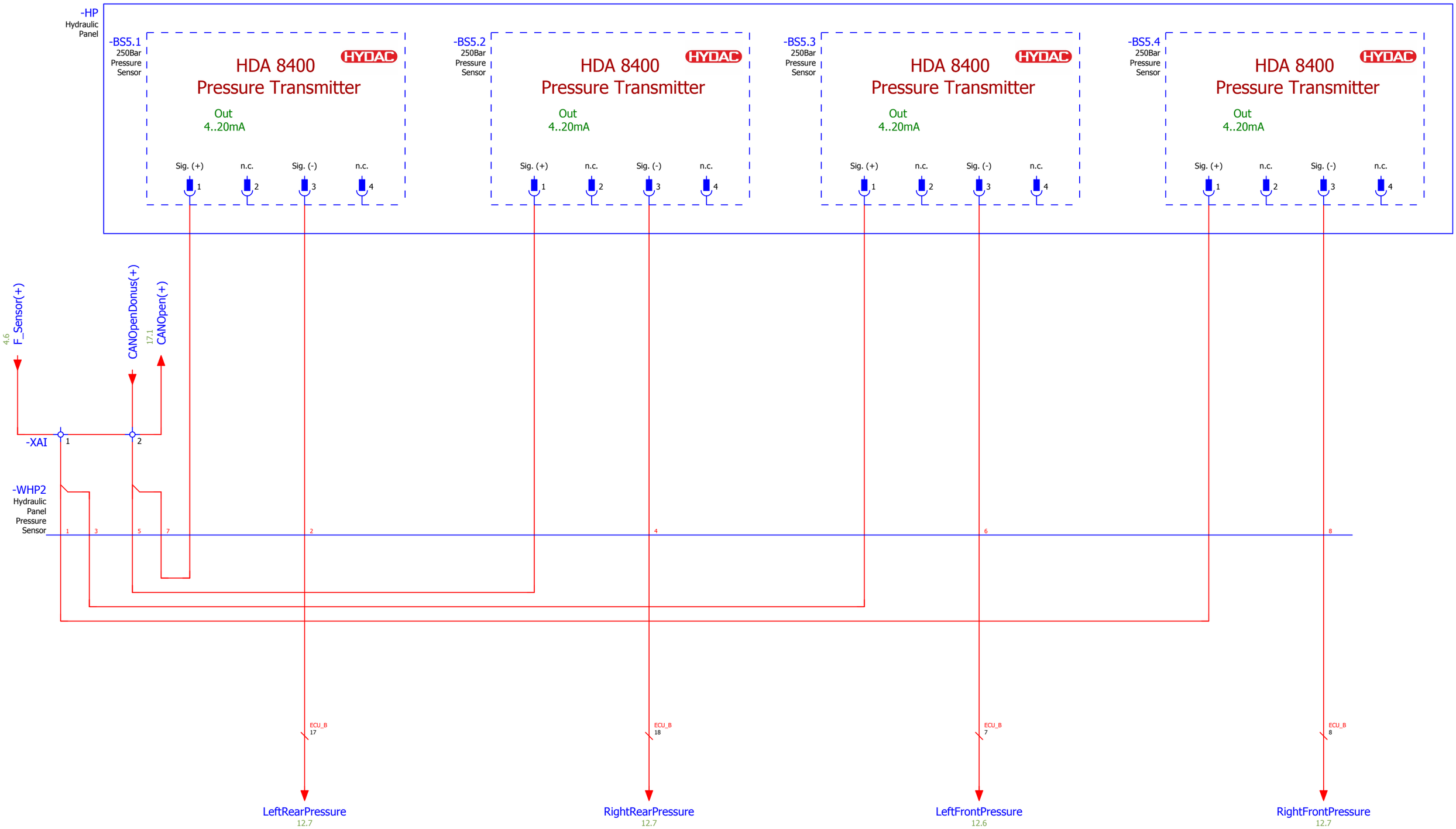
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Kontrol Eden :	**Kemal Taştekin**			Resim No : **ES1656**	Rev. No : **R0.0** Proje Rev. Tarihi :-		Sayfa : **7**
Onaylayan :	**Altan Ünal**						6 / 19



Yapan :	**İrfan Kunduz**	teknopar Endüstriyel Otomasyon	**ALTINORDU Treyler San. ve Tic. Ltd. Şti.** **6 Axle Lowbed Esthonia**	Proje Numarası : **2107**	Proje İlk Yayın Tarihi : **16.04.2022**	Sayfa Açıklaması : **Remote Control Receiver Supply**	= + **MP**
Kontrol Eden :	**Kemal Taştekin**			Resim No : **ES1656**	Rev. No : **R0.0** Proje Rev. Tarihi :-		Sayfa : **8**
Onaylayan :	**Altan Ünal**						7 / 19

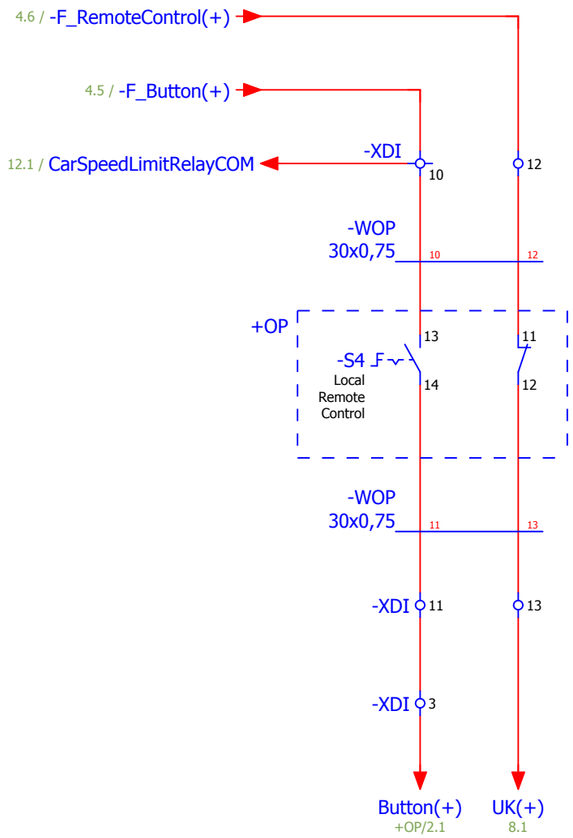


Yapan :	**İrfan Kunduz**	teknopar Endüstriyel Otomasyon	**ALTINORDU Treyler San. ve Tic. Ltd. Şti.** **6 Axle Lowbed Esthonia**	Proje Numarası : **2107**	Proje İlk Yayın Tarihi : **16.04.2022**	Sayfa Açıklaması : **Remote Control Receiver Input**	= + **MP**
Kontrol Eden :	**Kemal Taştekin**			Resim No : **ES1656**	Rev. No : **R0.0** Proje Rev. Tarihi :-		Sayfa : **9**
Onaylayan :	**Altan Ünal**						8 / 19

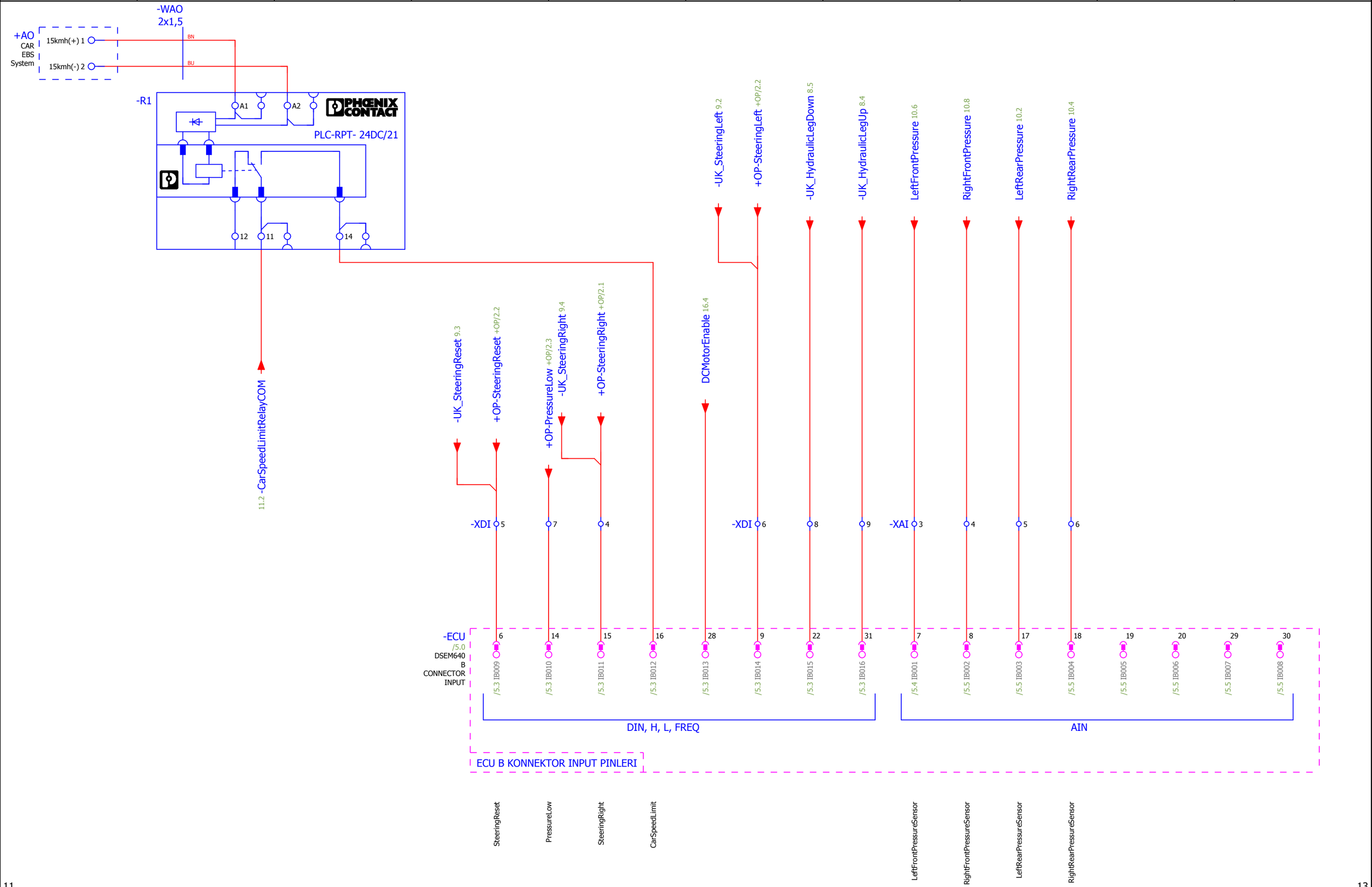


Yapan :	**İrfan Kunduz**	teknopar Endüstriyel Otomasyon	**ALTINORDU Treyler San. ve Tic. Ltd. Şti.**	Proje Numarası : **2107**	Proje İlk Yayın Tarihi : **16.04.2022**	Sayfa Açıklaması :	=
Kontrol Eden :	**Kemal Taştekin**		**6 Axle Lowbed Esthonia**	Resim No : **ES1656**	Rev. No : **R0.0** Proje Rev. Tarihi :-	**Analog Input**	+ **MP**
Onaylayan :	**Altan Ünal**						Sayfa : **10**
							9 / 19

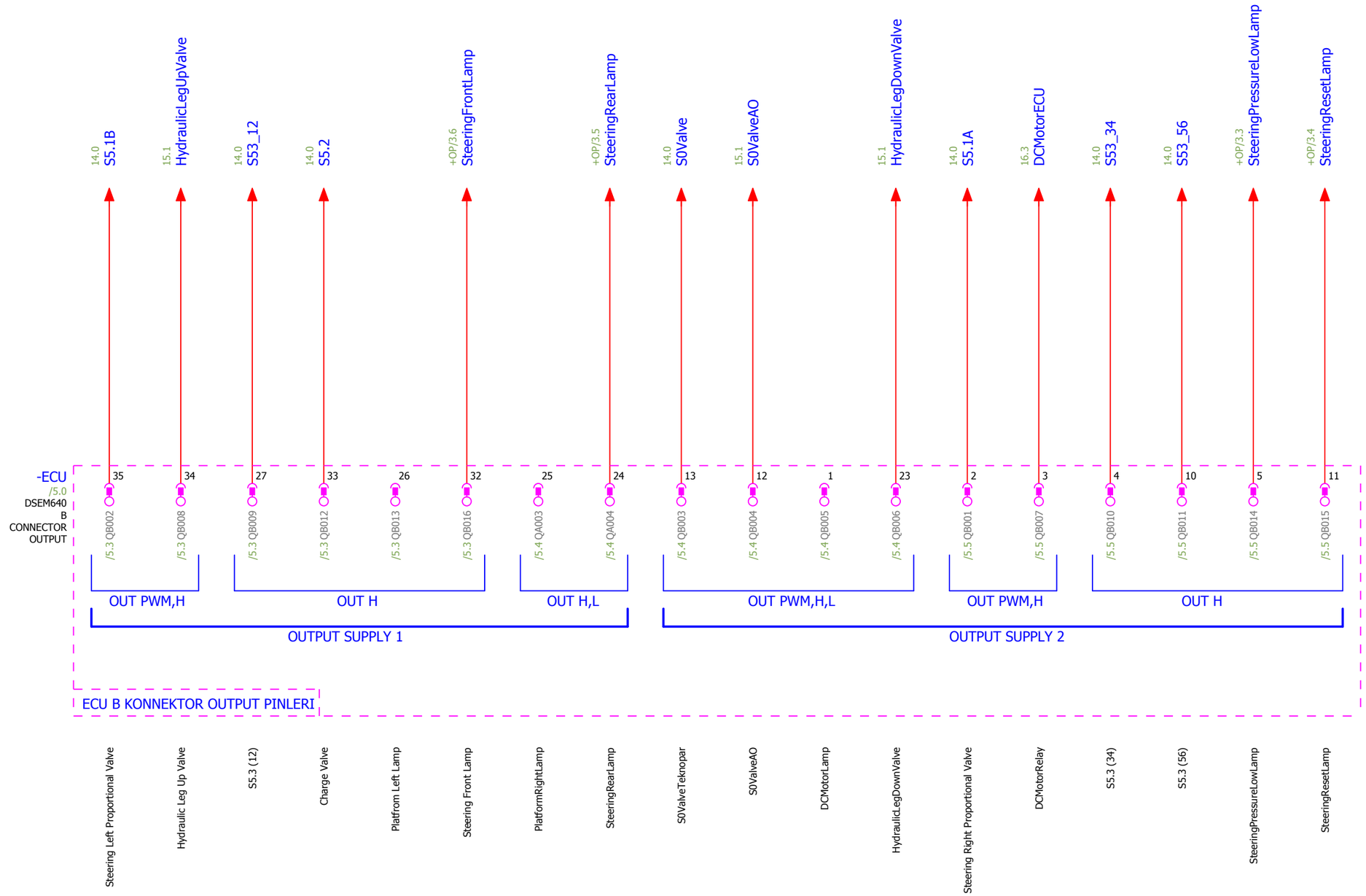
Dok No:F.105 Rev No: 01



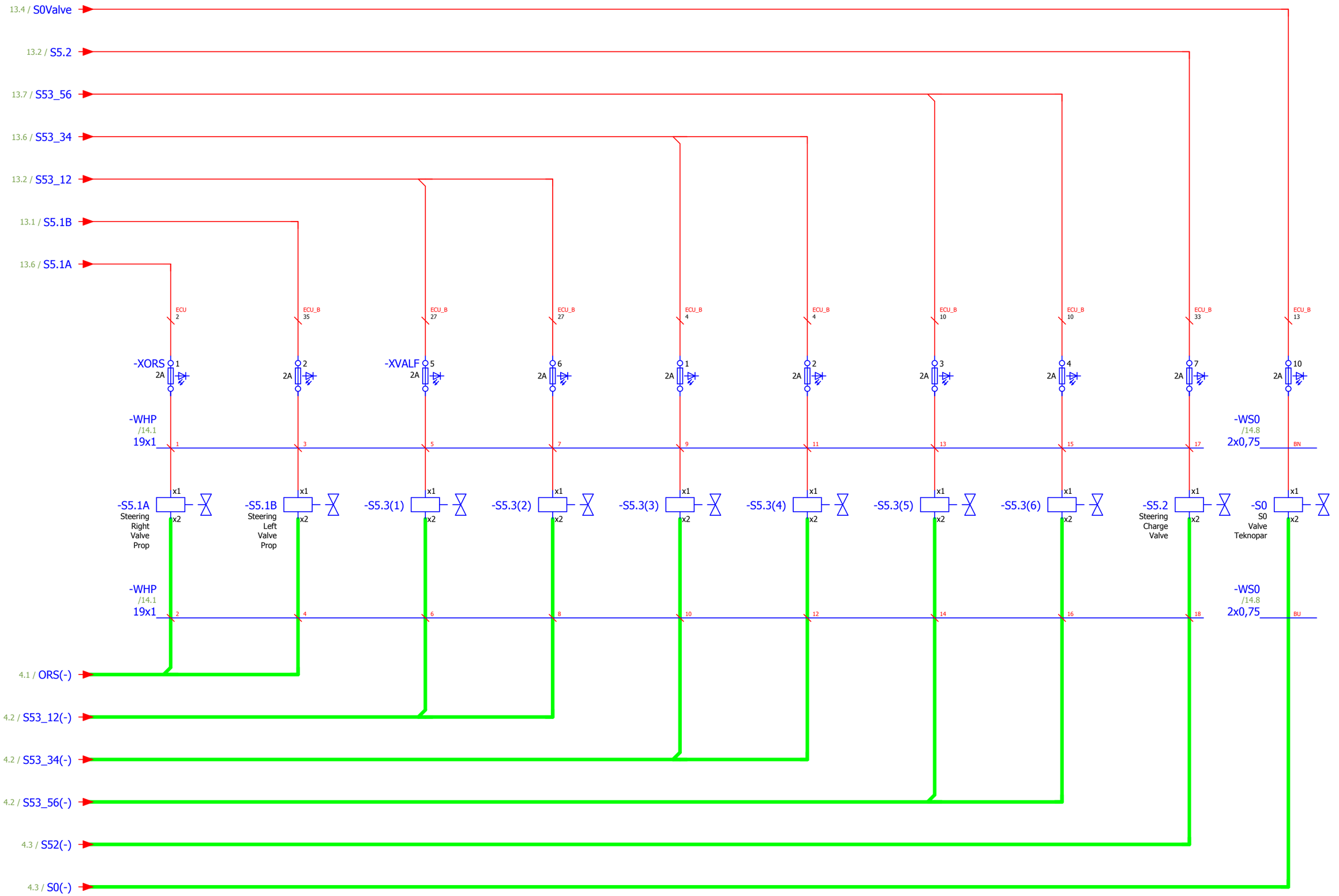
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Kontrol Eden :	**Kemal Taştekin**		**6 Axle Lowbed Esthonia**	Resim No : **ES1656**	Rev. No : **R0.0** Proje Rev. Tarihi :-	**Panel&Remote Control Connections**	+ **MP**
Onaylayan :	**Altan Ünal**						Sayfa : **11**
							10 / 19



Yapan :	**İrfan Kunduz**	teknopar Endüstriyel Otomasyon	**ALTINORDU Treyler San. ve Tic. Ltd. Şti.**	Proje Numarası : **2107**	Proje İlk Yayın Tarihi : **16.04.2022**	Sayfa Açıklaması :	=
Kontrol Eden :	**Kemal Taştekin**		**6 Axle Lowbed Esthonia**	Resim No : **ES1656**	Rev. No : **R0.0** Proje Rev. Tarihi :-	**ECU B Connector Input Connections**	+ **MP**
Onaylayan :	**Altan Ünal**						Sayfa : **12**
							11 / 19



Yapan :	**İrfan Kunduz**	teknopar Endüstriyel Otomasyon	**ALTINORDU Treyler San. ve Tic. Ltd. Şti.**	Proje Numarası : **2107**	Proje İlk Yayın Tarihi : **16.04.2022**	Sayfa Açıklaması :	=
Kontrol Eden :	**Kemal Taştekin**		**6 Axle Lowbed Esthonia**	Resim No : **ES1656**	Rev. No : **R0.0** Proje Rev. Tarihi :-	**ECU B Connector Output Connections**	+ **MP**
Onaylayan :	**Altan Ünal**						Sayfa : **13**
							12 / 19

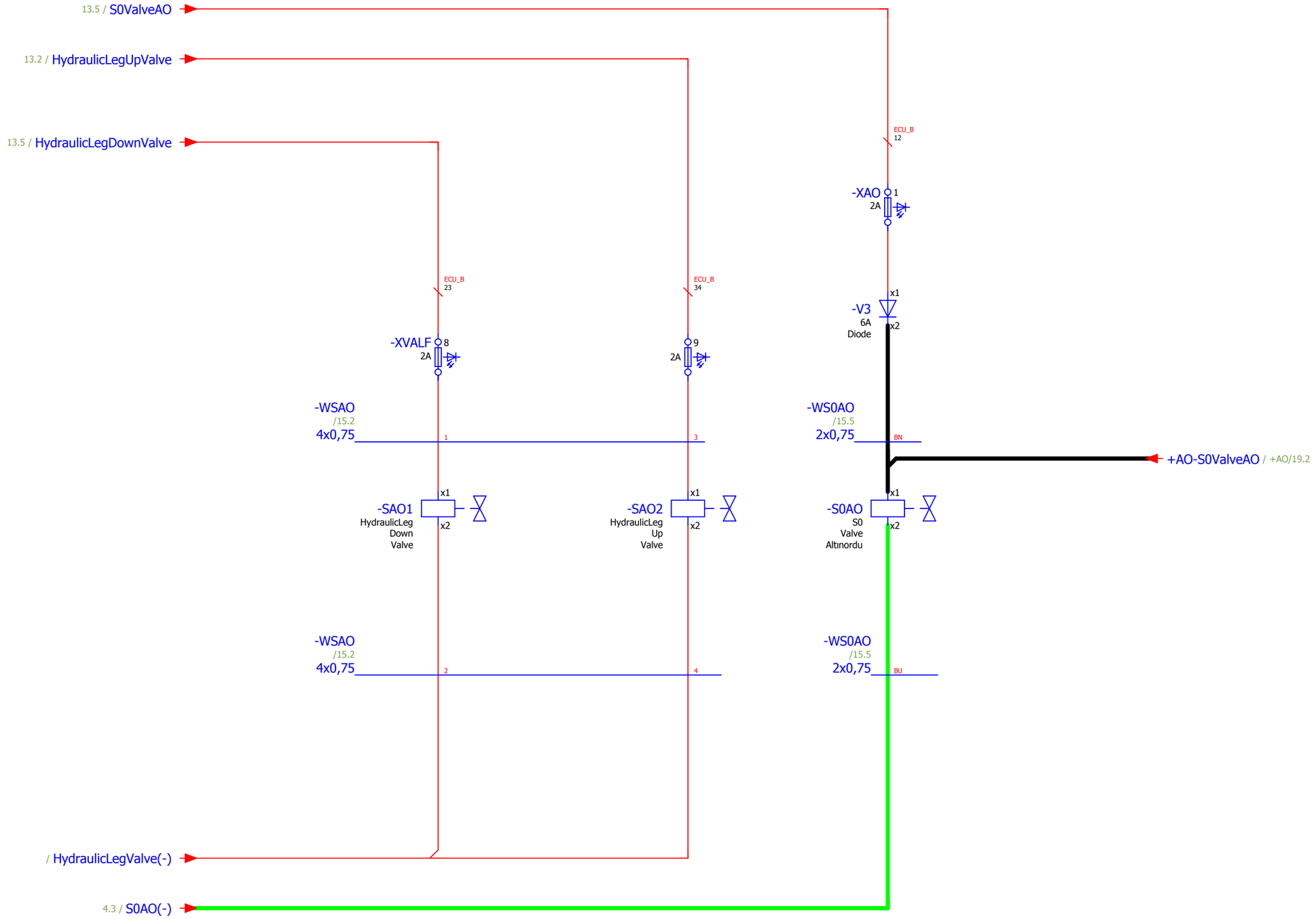


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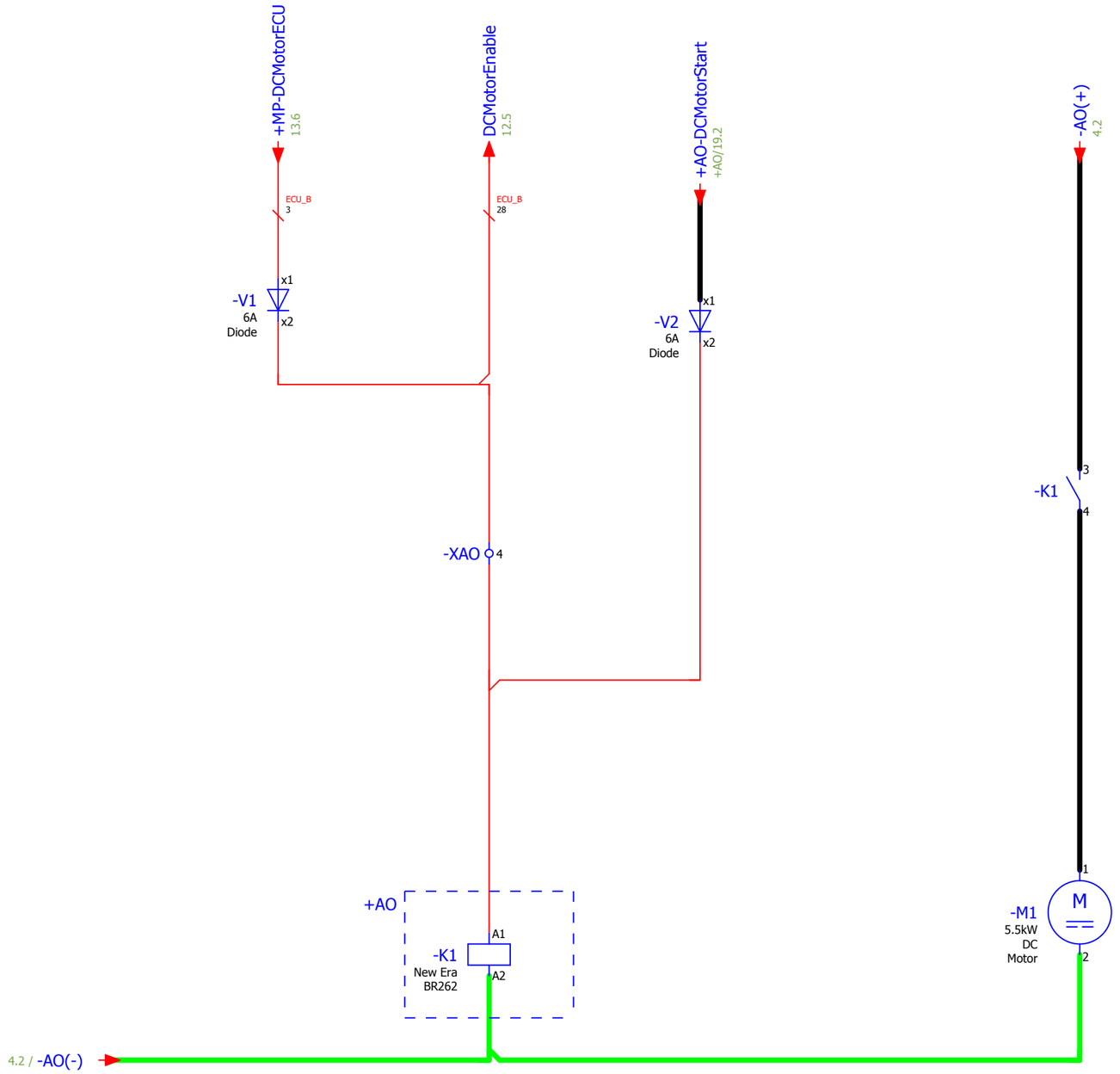
15

Yapan :	**İrfan Kunduz**	teknopar Endüstriyel Otomasyon	**ALTINORDU Treyler San. ve Tic. Ltd. Şti.** **6 Axle Lowbed Esthonia**	Proje Numarası : **2107**	Proje İlk Yayın Tarihi : **16.04.2022**	Sayfa Açıklaması : **Valve Connections**
Kontrol Eden :	**Kemal Taştekin**			Resim No : **ES1656**	Rev. No : **R0.0** Proje Rev. Tarihi :-	= + **MP**
Onaylayan :	**Altan Ünal**					Sayfa : **14** 13 / 19

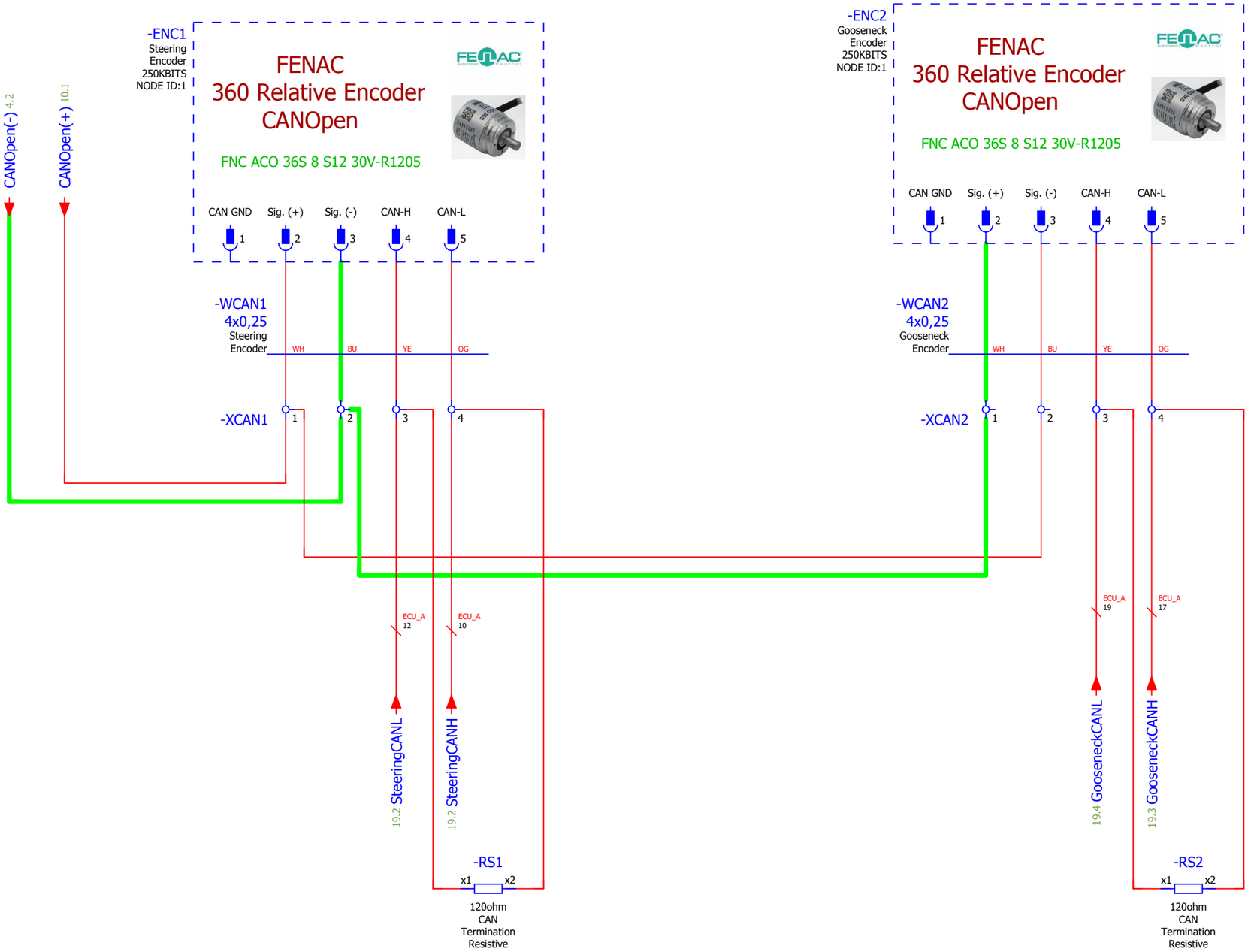
Dok No:F.105 Rev No: 01



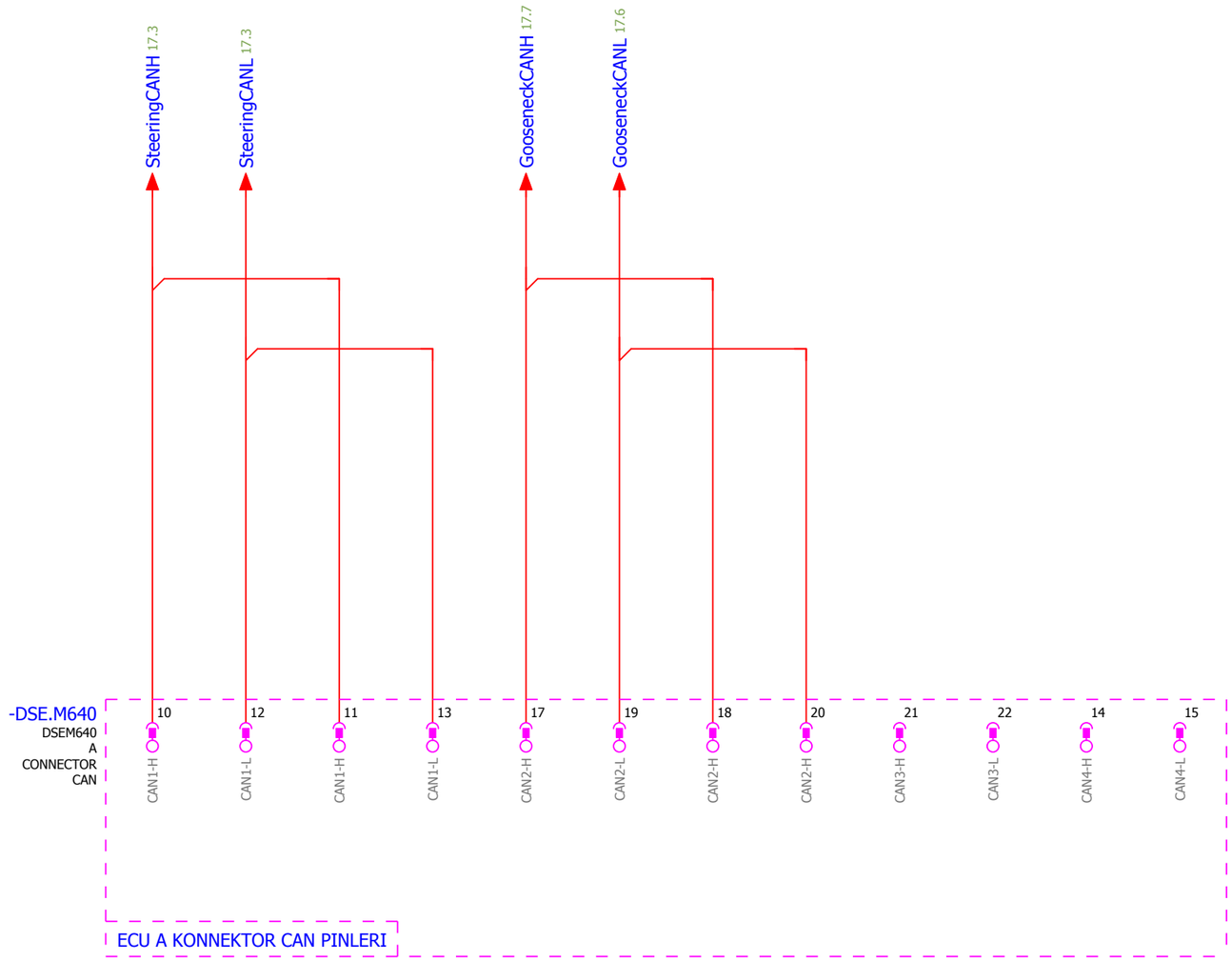
Creator :	**İrfan Kunduz**	teknopar Endüstriyel Otomasyon	**ALTINORDU Treyler San. ve Tic. Ltd. Şti.**	Project Number : **2107**	Release Date : **16.04.2022**	Page Description :	=
Controller :	**Kemal Taştekin**		**6 Axle Lowbed Esthonia**	Doc. Number : **ES1656**	Rev. Number : **R0.0** Proje Rev. Tarihi : **-**	**Valve Connections 2**	+ **MP**
Approving :	**Altan Ünal**						Page **15** 14 / 19



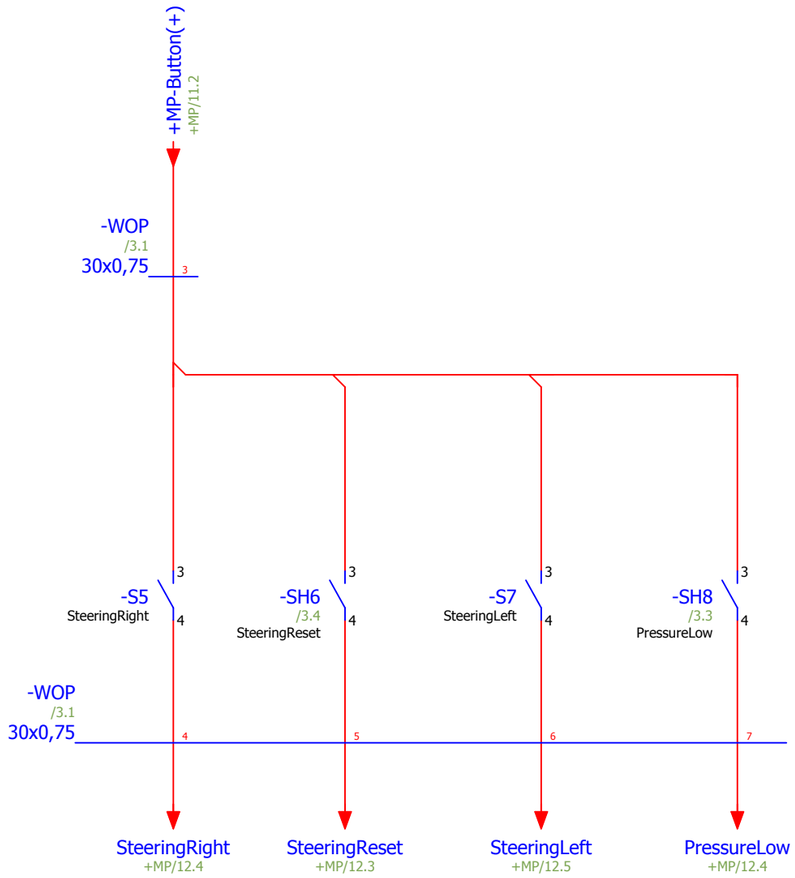
Yapan :	**İrfan Kunduz**	teknopar Endüstriyel Otomasyon	**ALTINORDU Treyler San. ve Tic. Ltd. Şti.**	Proje Numarası : **2107**	Proje İlk Yayın Tarihi : **16.04.2022**	Sayfa Açıklaması :	=
Kontrol Eden :	**Kemal Taştekin**		**6 Axle Lowbed Esthonia**	Resim No : **ES1656**	Rev. No : **R0.0** Proje Rev. Tarihi :-	**DC Motor Start**	+ **MP**
Onaylayan :	**Altan Ünal**						Sayfa : **16**
							15 / 19



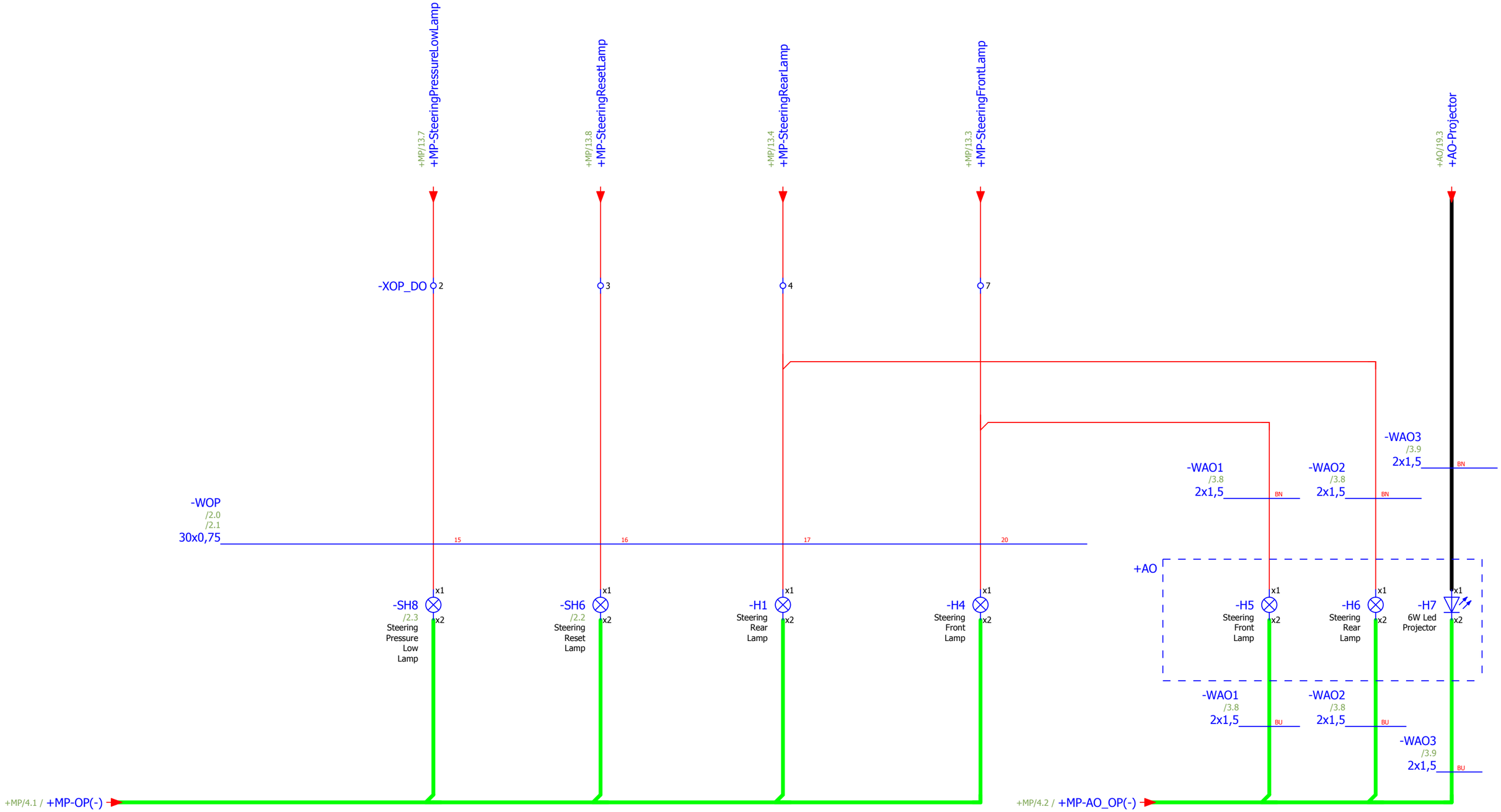
Yapan :	**İrfan Kunduz**	teknopar Endüstriyel Otomasyon	**ALTINORDU Treyler San. ve Tic. Ltd. Şti.**	Proje Numarası : **2107**	Proje İlk Yayın Tarihi : **16.04.2022**	Sayfa Açıklaması :	=
Kontrol Eden :	**Kemal Taştekin**		**6 Axle Lowbed Esthonia**	Resim No : **ES1656**	Rev. No : **R0.0** Proje Rev. Tarihi :-	**CANOpen Connections**	+ **MP**
Onaylayan :	**Altan Ünal**						Sayfa : **17**
							16 / 19



Yapan :	**İrfan Kunduz**	teknopar Endüstriyel Otomasyon	**ALTINORDU Treyler San. ve Tic. Ltd. Şti.**	Proje Numarası : **2107**	Proje İlk Yayın Tarihi : **16.04.2022**	Sayfa Açıklaması :	=
Kontrol Eden :	**Kemal Taştekin**		**6 Axle Lowbed Esthonia**	Resim No : **ES1656**	Rev. No : **R0.0** Proje Rev. Tarihi :-	**ECU CAN Connections**	+ **MP**
Onaylayan :	**Altan Ünal**						Sayfa : **19**
							17 / 19



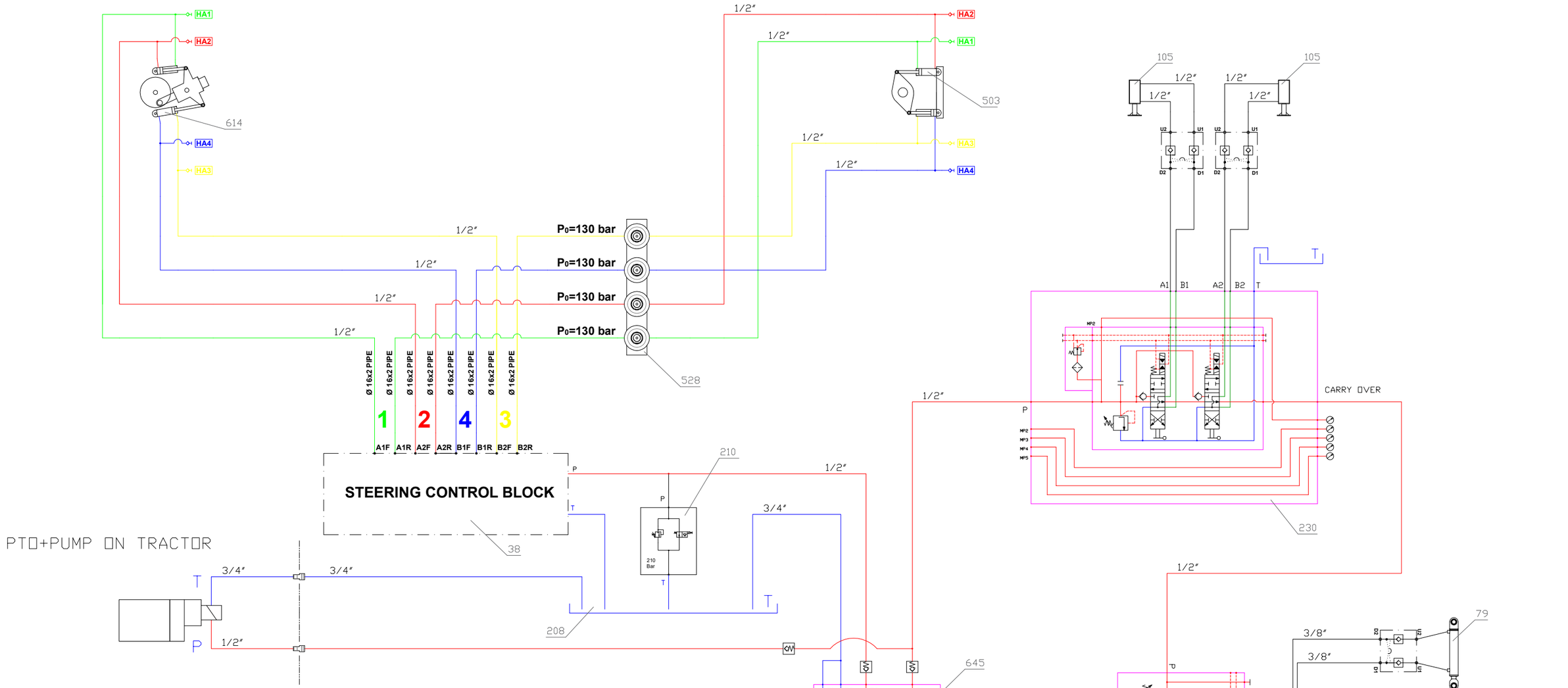
Yapan :	**İrfan Kunduz**	teknopar Endüstriyel Otomasyon	**ALTINORDU Treyler San. ve Tic. Ltd. Şti.**	Proje Numarası : **2107**	Proje İlk Yayın Tarihi : **16.04.2022**	Sayfa Açıklaması :	=
Kontrol Eden :	**Kemal Taştekin**		**6 Axle Lowbed Esthonia**	Resim No : **ES1656**	Rev. No : **R0.0** Proje Rev. Tarihi :-	**Button Connections**	+ **OP**
Onaylayan :	**Altan Ünal**						Sayfa : **2**
							18 / 19



2

Yapan :	**İrfan Kunduz**	teknopar Endüstriyel Otomasyon	**ALTINORDU Treyler San. ve Tic. Ltd. Şti.**	Proje Numarası : **2107**	Proje İlk Yayın Tarihi : **16.04.2022**	Sayfa Açıklaması :	=
Kontrol Eden :	**Kemal Taştekin**		**6 Axle Lowbed Esthonia**	Resim No : **ES1656**	Rev. No : **R0.0** Proje Rev. Tarihi :-	**Lamp Connections**	+ **OP**
Onaylayan :	**Altan Ünal**						Sayfa : **3**
							19 / 19

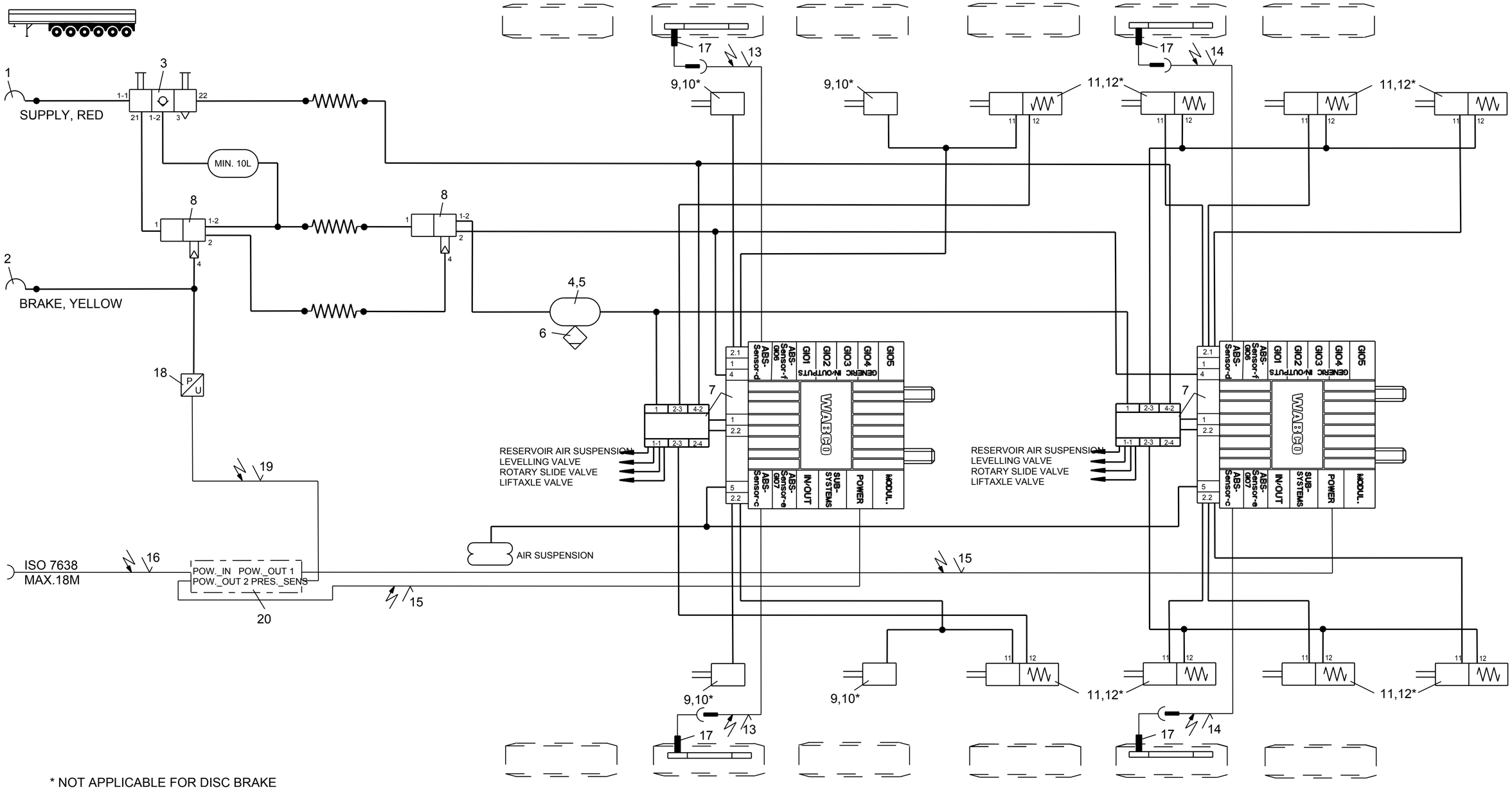
Dok No:F.105 Rev No: 01



Drw No	Code	Part No	Description	Qt
HS01	ALT-T-	38	Steering Control Block	1
HS02	ALT-T-	79	Ramp Right-Left (Move) Hydraulic Cylinder	2
HS03	ALT-T-	105	Landing Gear (Hydraulic)	2
HS04	ALT-T-	208	Oil Tank	1
HS05	ALT-T-	210	Reset Valve (Safe)	1
HS06	ALT-T-	214	Hydraulic Valve (4 Levers)	1
HS07	ALT-T-	230	Special Valve Box (for Landing Gear)	1
HS08	ALT-T-	503	Hydraulic Steering Cylinder	2
HS09	ALT-T-	528	Accumulator Set (for Hydraulic Steering Systems)	1
HS10	ALT-T-	614	Hydraulic Steering Cylinder	2
HS11	ALT-T-	644	Ramp Lowering-Lifting Hydraulic Cylinder	2
HS12	ALT-T-	645	Power Pack	1

Hydraulic Systems

ALT-TTA-380-HS



Pos.	Pcs.	Denomination		Product Identification No.	Pos.	Pcs.	Denomination		Product Identification No.	Pos.	Pcs.	Denomination		Product Identification No.
12	8	KIT	*	423 903 532 2	24									
11	8	TRISTOP BRAKE ACTUATOR		925 0	23									
10	4	KIT	*	423 000 ... 2	22									
9	4	BRAKE CHAMBER		423 10. ... 0	21									
8	2	TRAILER EMERGENCY VALVE		971 002 301 0	20	1	CAN-ROUTER		446 122 054 0					
7	2	TRAILER-MODULATOR		480 102 063 0	19	1	CABLE-PRESSURE SENSOR		449 425 000 0					
6	1	DRAIN VALVE		934 300 001 0	18	1	PRESSURE SENSOR		441 044 101 0					
5	2	HOSE CLAMP		451 999 ... 2	17	4	ABS-SENSOR		441 032 808 0					
4	1	RESERVOIR		950 0	16	1	SUPPLY CABLE		449 135 ... 0					
3	1	RELEASE VALVE		963 001 051 0	15	2	CABLE TO EBS MODULATOR		449 347 000 0					
2	1	COUPLING HEAD W. INT. LINE FILTER		952 201 001 0	14	2	EXTENSION CABLE FOR SENSOR		449 723 ... 0					
1	1	COUPLING HEAD W. INT. LINE FILTER		952 201 002 0	13	2	EXTENSION CABLE FOR SENSOR		449 723 ... 0					

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Date	Signature
Drawn 2013-12-03	BURMESTER
Checked 2013-12-03	GONG
Expert	BURMESTER

WABCO

TRAILER - EBS E

FOR 6-AXLES-SEMITRAILER
2S/2M AND 2S/2M

Mass	Scale	Material No.	Date of first issue:2013-12-03		
- KG	-	841 701 300 0	Doc.Code	Language	Sheet
			002	EN	1/1
Size	CAD System	ECN-No. / Revision / Techn. Resp.	Replacement for		
A 2	Pro/E	- / 4990			

100mm

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1	+24V
2	GND

1	+24V
2	GND

1	+24V
2	GND

1	+24V
2	GND

1	+24V
2	GND

POSITION-2

POSITION-3

POSITION-4

POSITION-5

POSITION-6

POP UP POSITION

1	+24V
2	GND

58L	N/C
54	N/C
58R	+24V
31	GND

1	BLACKOUT STOP LIGHT
2	STOP LIGHT
3	POSITION LIGHT
4	POSITION BLACKOUT LIGHT
5	GND
6	SIGNAL LIGHT

RIGHT STOP LAMP

RIGHT POP UP POSITION

1	+24V
2	GND

1	+24V
2	GND

58L	N/C
54	N/C
58R	+24V
31	GND

REVERSE LAMP

RIGHT PARKING LAMP

1	+24V
2	GND

SIGNAL CROSSES LAMP

1	+24V
2	GND

RIGHT LICENSE PLATE LAMP

1	+24V
2	GND

1	GND
2	LEFT POSITION LIGHT
3	LEFT INDICATOR LIGHT
4	STOP LIGHT
5	RIGHT IDICATOR LIGHT
6	RIGHT POSITION LIGHT
7	N/C

TRAILER
N ISO 1185

LEFT LICENSE PLATE LAMP

1	+24V
2	GND

A	SIGNAL CROSSES LAMP
B	LEFT DIRECTION LIGHT
C	POSITION BLACKOUT LIGHT
D	GND
E	POSITION LIGHT
F	BLACKOUT STOP LIGHT
H	REAR FOG LIGHT
J	RIGHT DIRECTION LIGHT
K	AUX POWER
L	GND
M	STOP LIGHT
N	REVERSE LAMP

TRAILER
STANAG 4007

LEFT STOP LAMP

1	BLACKOUT STOP LIGHT
2	STOP LIGHT
3	POSITION LIGHT
4	POSITION BLACKOUT LIGHT
5	GND
6	SIGNAL LIGHT

58L	N/C
54	N/C
58R	+24V
31	GND

LEFT POP UP POSITION

1	+24V
2	GND

FOG LIGHT

1	+24V
2	GND

LEFT PARKING LAMP

1	+24V
2	GND

RIGHT POSITION

1	+24V
2	GND

1	GND
2	N/C
3	REVERSE LIGHT
4	AUX POWER
5	N/C
6	AUX POWER
7	REAR FOG LIGHT

TRAILER
S ISO 3731

58L	N/C
54	N/C
58R	+24V
31	GND

POP UP POSITION

POSITION-2

POSITION-3

POSITION-4

POSITION-5

POSITION-6

1	+24V
2	GND

1	+24V
2	GND

1	+24V
2	GND

1	+24V
2	GND

1	+24V
2	GND

22	ALT-PRJST2004-201-0002	POP UP POSITION LAMP	ALTINORDU
21	ALT-PRJST2004-201-0001	POP UP POSITION LAMP	ALTINORDU
20	420065-01/B3D401	LEFT REAR STOP LAMP	TEKOM
19	420065-02/B3D401	RIGHT REAR STOP LAMP	TEKOM
18	420057/B3D200	REAR FOG LAMP	TEKOM
17	420056/B3D200	REVERSE LAMP	TEKOM
16	420023-03/B4D000	LICENSE PLATE LAMP	TEKOM
15	420073/B32200	SIGNAL CROSSES LAMP	TEKOM
14	31-3104-057	SIDE MARKER LAMP	ASPÖCK
13	31-3104-047	SIDE MARKER LAMP	ASPÖCK
12	31-7704-037	FRONT MARKER LAMP	ASPÖCK
11	31-2307-017	SIDE MARKER LAMP	ASPÖCK
10	282109-1	TERMINAL	TE CONNECTIVITY (TE)
9	282104-1	CONNECTOR	TE CONNECTIVITY (TE)
8	13-3128-027	SOCKET	ASPÖCK
7	13-3129-027	SOCKET	ASPÖCK
6	VG 96923 A-12P	SOCKET	ERICH JAEGER
5	776492-2	TERMINAL	TE CONNECTIVITY (TE)
4	776494-2	CONNECTOR	TE CONNECTIVITY (TE)
3	281934-2	SEAL	TE CONNECTIVITY (TE)
2	282110-1	TERMINAL	TE CONNECTIVITY (TE)
1	282080-1	CONNECTOR	TE CONNECTIVITY (TE)
NO	**PART NO**	**AÇIKLAMA**	**ÜRETİCİ**

Correction		-	
First Release		22.04.2022	
INDEX	**CHANGE**	**DATE**	**SIGNATURE**

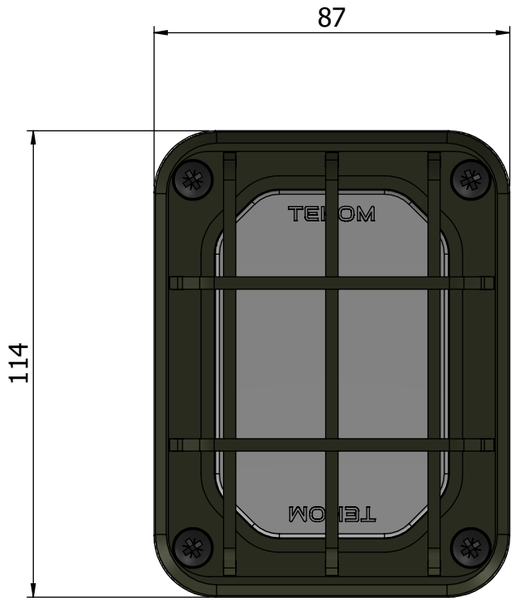
ALTINORDÜ Makina Metal Mühendislik

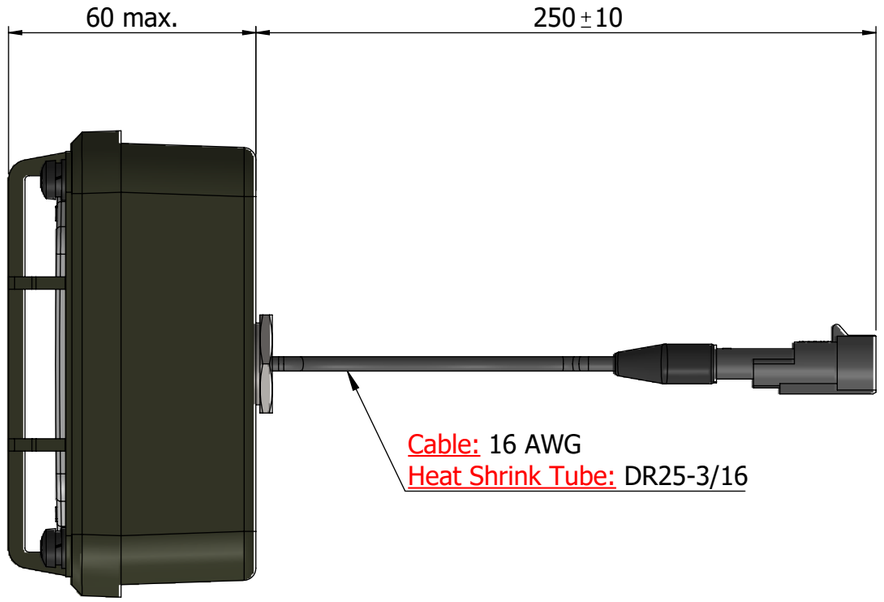
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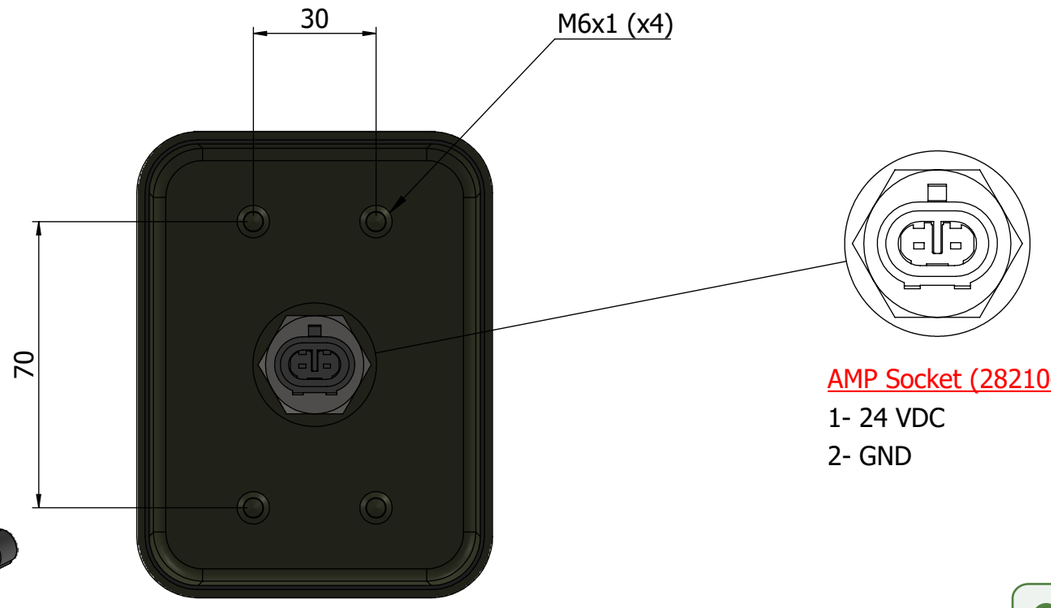
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SEMI PRODUCT					**NO of ASSEMBLY:**
STANDART					
DRAWN BY	SEMİH YELKEN	**DATE DRAWN**	22.04.2022		
CHECKED BY	ÖNER KIRKAYAK	**APPROVED BY**			**SCALE:**
TECHNOLOGIST		**DATE**	22.04.2022		
DRAWING NAME:	TRAILER HARNESS DRAWING	**PART NO:**	-		**PROJECTION:**
PROJECT NAME:	-	**PART NAME:**	ALT-PRJST2004-201RS TRAILER HARNESS	**SHEET**	1/1

TECHNICAL INFORMATION

1. Functions:
   - Reverse Lamp (White)
2. Part Number:
   - 420056/B3D200 (LED Reverse Lamp)
3. Material:
   - Body and Cover: Aluminum (Etial-160)
   - Lens: Polycarbonate (PC)
   - Cage: Steel (St37)
   - Gasket: EPDM
   - Fasteners (Exterior): Steel (Zn-Ni Plated)
   - Fasteners (Interior): Inox (A2-304)
4. Coating:
   - Body and Cover: Alodine
   - Cage: Cataphoresis
   - Fasteners (Exterior): Zinc-Nickel (Zn-Ni)
5. Painting:
   - Electrostatic Powder Coating
6. Colour:
   - Ral 6003 (Olive Green)
7. Operation Test:
   - Low Temperature: MIL-STD-810G, Method 502.5, Procedure II (-40˚C)
   - High Temperature: MIL-STD-810G, Method 501.5, Procedure II (+55˚C)
8. Storage Test:
   - Low Temperature: MIL-STD-810G Method 502.5, Procedure I (-45˚C)
   - High Temperature: MIL-STD-810G Method 501.5, Procedure I (+71˚C)
9. Shock Test:
   - MIL-STD-810F, Method 516.5, Procedure-I, 40g–11m Sawtooth
10. Vibration Test:
    - MIL-STD-810F, Method 514.5, Procedure-I, Category 20, Figure 514.5C-3
11. Sealing:
    - IP68 (1 meter / 60 minutes)
12. Operating Voltage:
    - 24 VDC
13. Input Power:
    - 1,3 W @ 24 VDC
14. Lighting Equipments:
    - SMD Led
15. Socket:
    - Socket
      AMP Body: 282104-1
      AMP Terminal: 282109-1
      AMP Seal: 281934-2
    - Mating Socket
      AMP Body: 282080-1
      AMP Terminal: 282110-1
      AMP Seal: 281934-2







AMP Socket (282104-1)
1- 24 VDC
2- GND



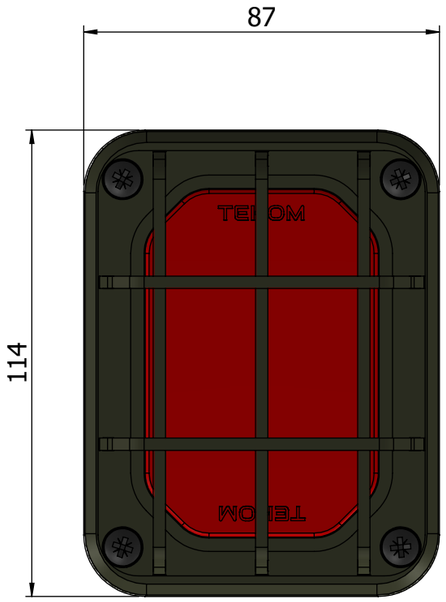
420056/B3D200
(LED Reverse Lamp)

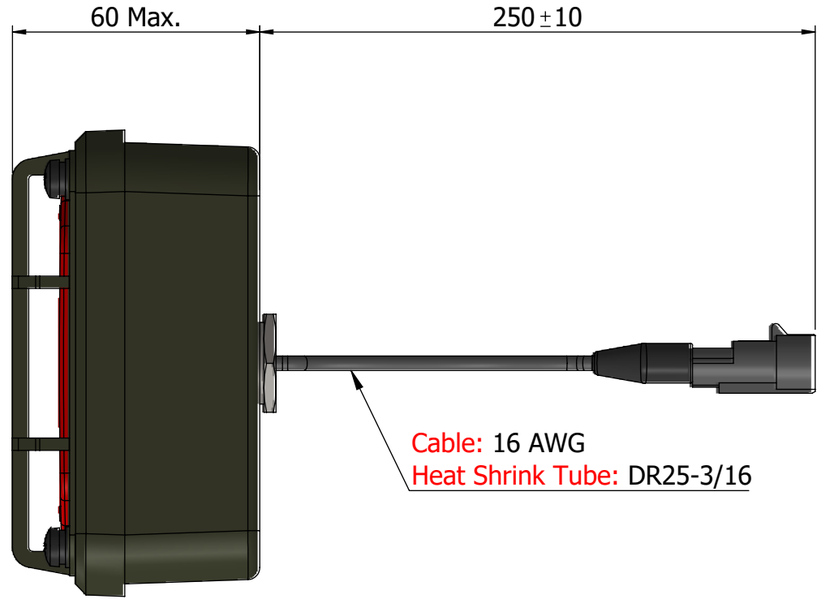
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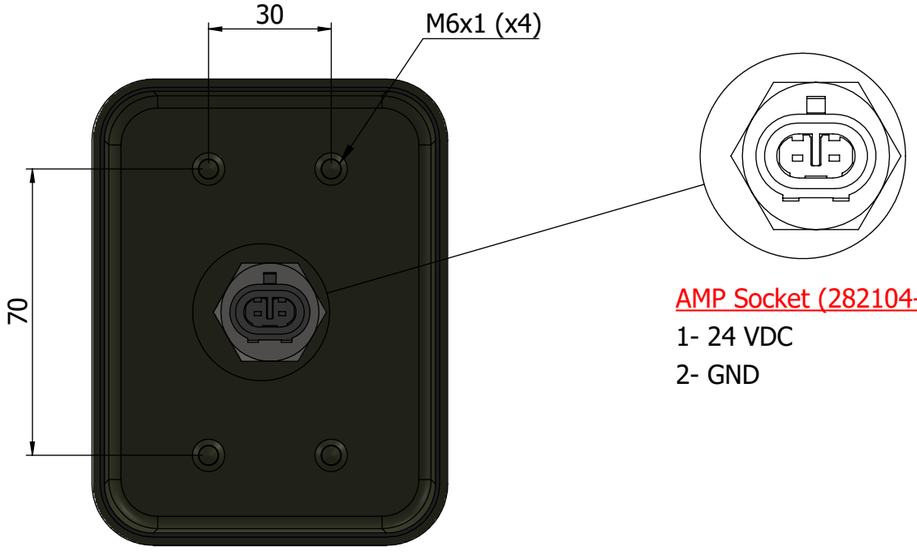
Name Surname		Date	Sign	TEKOM DEFENCE and AVIATION INDUSTRY INC.			
Drawn	Onurcan DEMİRCİ	25.11.2020					
Control	Ece YÜCEL	25.11.2020		LED Reverse Lamp			
Appr.	Serhat TÜYSÜZ	25.11.2020					
P/N	420056/B3D200	Rev. Code	00				
Drawing No	MT01_420056/B3D200	Rev. Date		Pr. Group	Armored Vehicle Lighting		
General Tolerance	Material	Coating	Painting	Weight	Scale	Size	Page
± 0,5 mm	See Note-3	See Note-4	See Note-5		1/1.5	A3	1/1

TECHNICAL INFORMATION

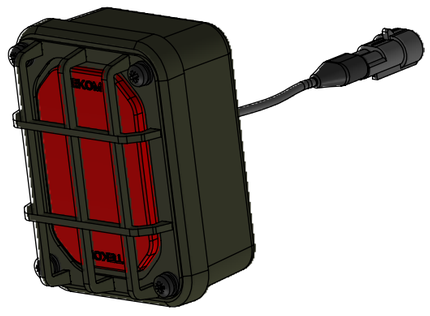
1. Functions:
   - Rear Fog (Red)
2. Part Number:
   - 420057/B3D200 (LED Rear Fog Lamp)
3. Material:
   - Body and Cover: Aluminum (Etial-160)
   - Lens: Polycarbonate (PC)
   - Cage: Steel (St37)
   - Gasket: EPDM
   - Fasteners (Exterior): Steel (Zn-Ni Plated)
   - Fasteners (Interior): Inox (A2-304)
4. Coating:
   - Body and Cover: Alodine (Cr+3)
   - Cage: Cataphoresis
   - Fasteners (Exterior): Zinc-Nickel (Zn-Ni)
5. Painting:
   - Electrostatic Powder Coating
6. Colour:
   - Ral 6003 (Olive Green)
7. Operation Test:
   - Low Temperature: MIL-STD-810G, Method 502.5, Procedure II (-40°C)
   - High Temperature: MIL-STD-810G, Method 501.5, Procedure II (+55°C)
8. Storage Test:
   - Low Temperature: MIL-STD-810G Method 502.5, Procedure I (-45°C)
   - High Temperature: MIL-STD-810G Method 501.5, Procedure I (+71°C)
9. Shock Test:
   - MIL-STD-810F, Method 516.5, Procedure-I, 40g–11m Sawtooth
10. Vibration Test:
    - MIL-STD-810F, Method 514.5, Procedure-I, Category 20, Figure 514.5C-3
11. Sealing:
    - IP68 (1 meter / 60 minutes)
12. Operating Voltage:
    - 24 VDC
13. Input Power:
    - 3,5 W @ 24 VDC
14. Lighting Equipments:
    - SMD Led
15. Socket:
    - Socket
      AMP Body: 282104-1
      AMP Terminal: 282109-1
      AMP Seal: 281934-2
    - Mating Socket
      AMP Body: 282080-1
      AMP Terminal: 282110-1
      AMP Seal: 281934-2







AMP Socket (282104-1)
1- 24 VDC
2- GND



420057/B3D200
(LED Rear Fog Lamp)

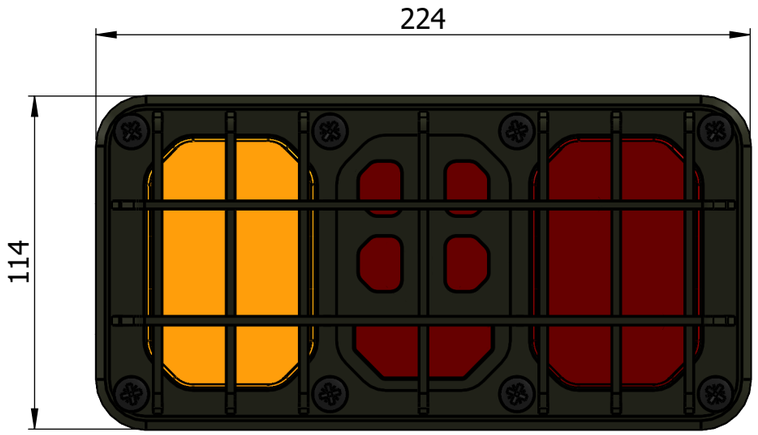
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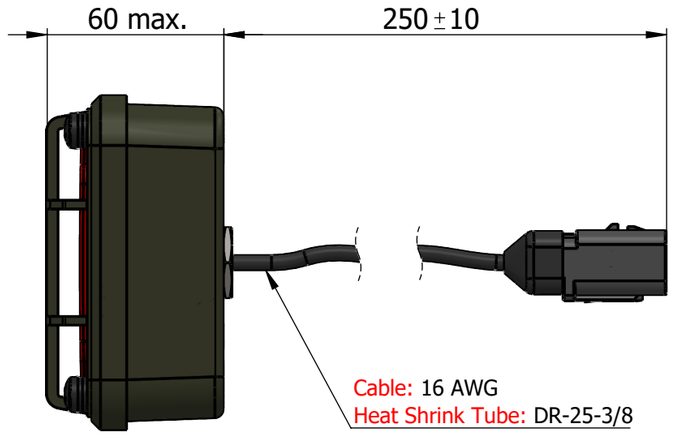
Name Surname		Date	Sign	TEKOM DEFENCE and AVIATION INDUSTRY INC.			
Drawn	Onurcan DEMİRCİ	25.11.2020					
Control	Ece YÜCEL	25.11.2020					
Appr.	Serhat TÜYSÜZ	25.11.2020		LED Rear Fog Lamp			
P/N	420057/B3D200	Rev. Code	00				
Drawing No	MT01_420057/B3D200	Rev. Date		Pr. Group	Armored Vehicle Lighting		
General Tolerance	Material	Coating	Painting	Weight	Scale	Size	Page
± 0,5 mm	See Note-3	See Note-4	See Note-5		1/1.5	A3	1/1

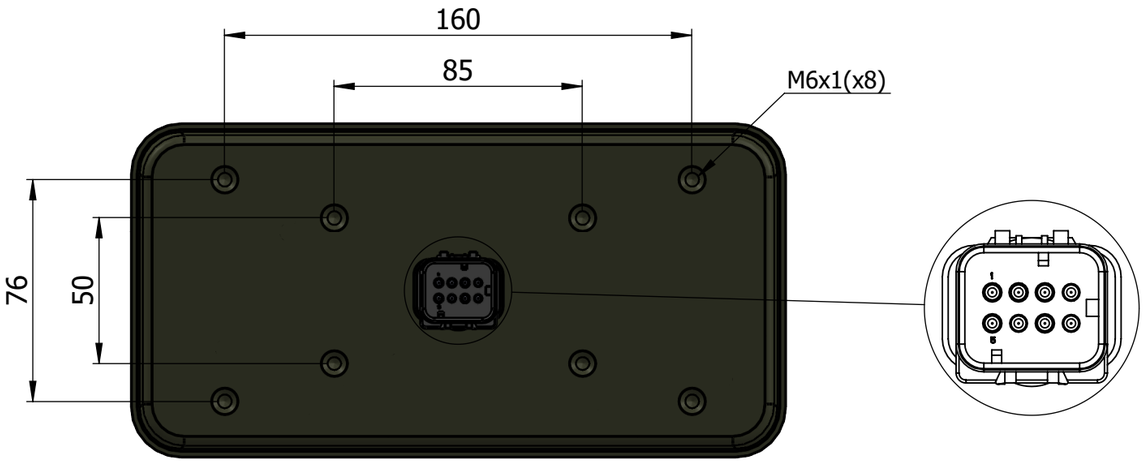
REVISIONS			
REV.	DEFINITION	DATE	REVISED BY
01	Heat shrink tube has been changed. (DR-25-3/16-->DR-25-3/8)	25.10.2021	G.ÖZDEN

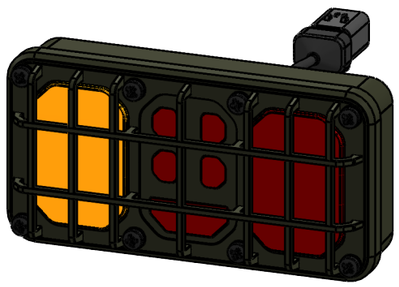
TECHNICAL INFORMATION

1. Functions:
   - Signal (Amber)
   - Position (Red)
   - Stop (Red)
   - Blackout Position (Red)
   - Blackout Stop (Red)
2. Part Number:
   - 420065-01/B3D401 (LED Rear Stop Lamp-Left)
   - 420065-02/B3D401 (LED Rear Stop Lamp-Right)
3. Material:
   - Body and Cover: Aluminum (Etial-160)
   - Cage: St37 (3 mm)
   - Lens: Polycarbonate (PC)
   - Gasket: EPDM
   - Fasteners (Exterior): Steel (Zn-Ni Plated)
   - Fasteners (Interior): Inox (A2-304)
4. Coating:
   - Body and Cover: Alodine
   - Cage:Cataphoresis
   - Fasteners (Exterior): Zinc-Nickel (Zn-Ni)
5. Painting:
   - Electrostatic Powder Coating
6. Colour:
   - Ral 6003 (Oliver Green)
7. Operation Test:
   - Low Temperature: MIL-STD-810G, Method 502.5, Procedure II (-40 C)
   - High Temperature: MIL-STD-810G, Method 501.5, Procedure II (+55 C)
8. Storage Test:
   - Low Temperature: MIL-STD-810G Method 502.5, Procedure I (-45 C)
   - High Temperature: MIL-STD-810G Method 501.5, Procedure I (+71 C)
9. Shock Test:
   - MIL-STD-810F, Method 516.5, Procedure-I, 40g–11m Sawtooth
10. Vibration Test:
    - MIL-STD-810F, Method 514.5, Procedure-I, Category 20, Figure 514.5C-3
11. Sealing:
    - IP68 (1 meter / 60 minutes)
12. Operating Voltage:
    - 24 VDC
13. Lighting Equipments:
    - SMD Led
14. Socket:
    - Socket
      AMP Body: 776495-2
      AMP Terminal: 638078-3
      AMP Seal: 281934-2
    - Mating Socket
      AMP Body: 776494-2
      AMP Terminal: 776492-2
      AMP Seal: 281934-2

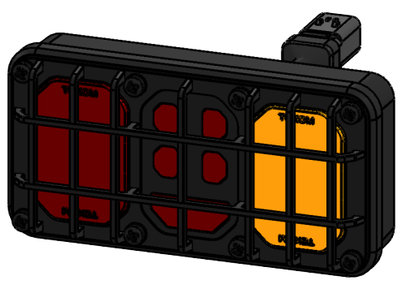








420065-01/B3D401
(LED Rear Stop Lamp - Left)



420065-02/B3D401
(LED Rear Stop Lamp - Right)

776495-2 (AMP Socket)

Function	Socket
Signal	6
Position	3
Stop	2
Blackout Position	4
Blackout Stop	1
GND	5

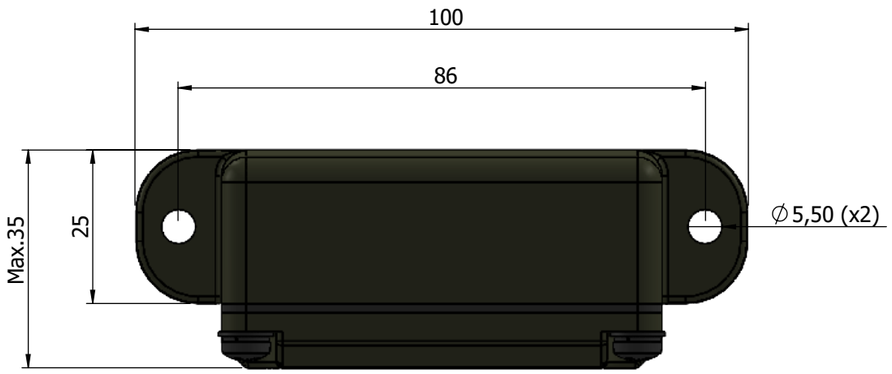
ONAYLANDI
Tekom_Dokümantasyon_2 10:40, 25.10.21

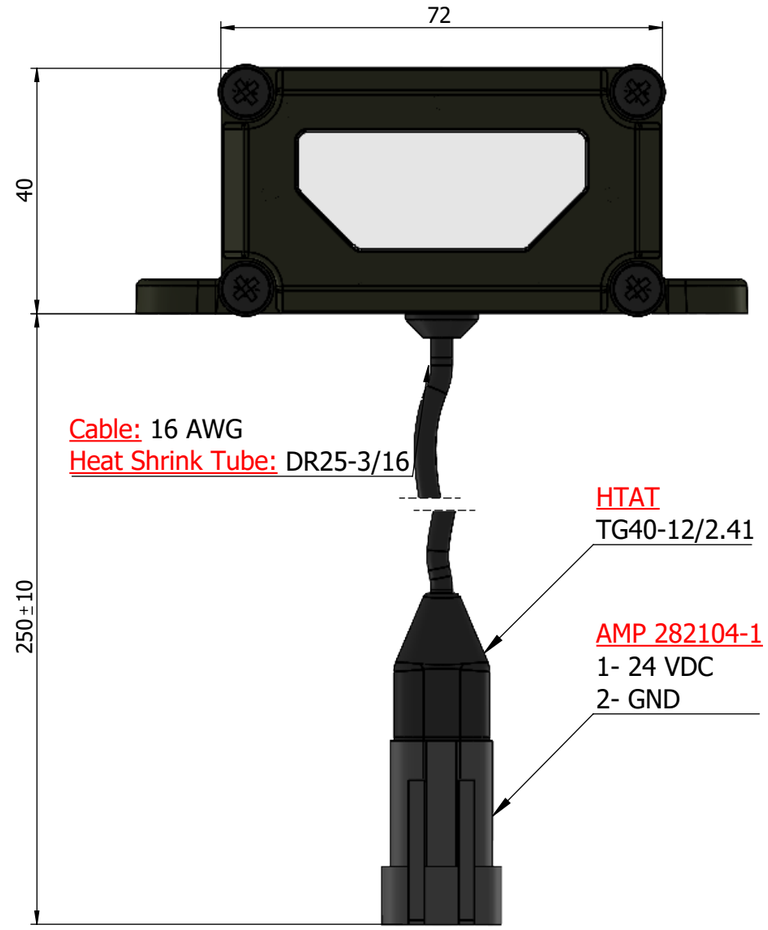
Name Surname		Date	Sign	
Drawn	Onurcan DEMİRCİ	18.11.2020		TEKOM DEFENCE and AVIATION INDUSTRY INC.
Checked	Ece YÜCEL	18.11.2020		
Approved	Serhat TÜYSÜZ	18.11.2020		LED Rear Stop Lamp
P/N (Left)	420065-01/B3D401	Rev. Code	01	
P/N (Right)	420065-02/B3D401	Rev. Date	25.10.2021	Pr. Group: Armored Vehicle Lighting

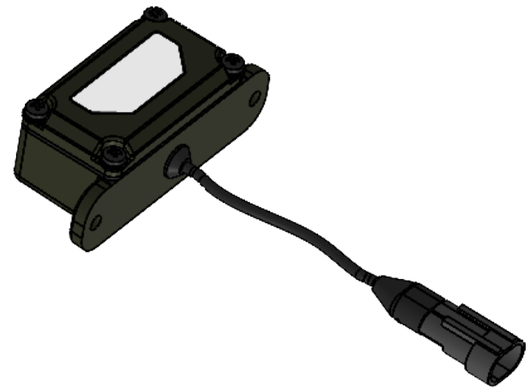
General Tolerance	Material	Coating	Painting	Weight	Scale	Size	Page
±0,5 mm	See Note-3	See Note-4	See Note-5		1/1	A3	1/1

TECHNICAL INFORMATION

1. Functions:
   - License Plate Lamp
2. Part Number:
   - 420023-03/B4D000 (LED License Plate Lamp)
3. Material:
   - Body and Cover: Aluminum (Etial-160)
   - Lens: Polycarbonate (PC)
   - Gasket: EPDM
   - Fasteners (Exterior): Steel (Zn-Ni Plated)
   - Fasteners (Interior): Inox (A2-304)
4. Coating:
   - Body and Cover: Alodine (Cr+3)
   - Fasteners (Exterior): Zinc-Nickel (Zn-Ni)
5. Painting:
   - Electrostatic Powder Coating
6. Colour:
   - Ral 6003 (Olive Green)
7. Operation Test:
   - Low Temperature: MIL-STD-810G, Method 502.5, Procedure II (-40˚C)
   - High Temperature: MIL-STD-810G, Method 501.5, Procedure II (+55˚C)
8. Storage Test:
   - Low Temperature: MIL-STD-810G Method 502.5, Procedure I (-45˚C)
   - High Temperature: MIL-STD-810G Method 501.5, Procedure I (+71˚C)
9. Shock Test:
   - MIL-STD-810F, Method 516.5, Procedure-I, 40g–11m Sawtooth
10. Vibration Test:
    - MIL-STD-810F, Method 514.5, Procedure-I, Category 20, Figure 514.5C-3
11. Sealing:
    - IP68 (1 meter / 60 minutes)
12. Operating Voltage:
    - 24 VDC
13. Lighting Equipments:
    - SMD LED
14. Sockets:
    - Socket
      AMP Body: 282104-1
      AMP Terminal: 282109-1
      AMP Seal: 281934-2
    - Mating Socket:
      AMP Body: 282080-1
      AMP Terminal: 282110-1
      AMP Seal: 281934-2







420023-03/B4D000
(LED Licence Plate Lamp)

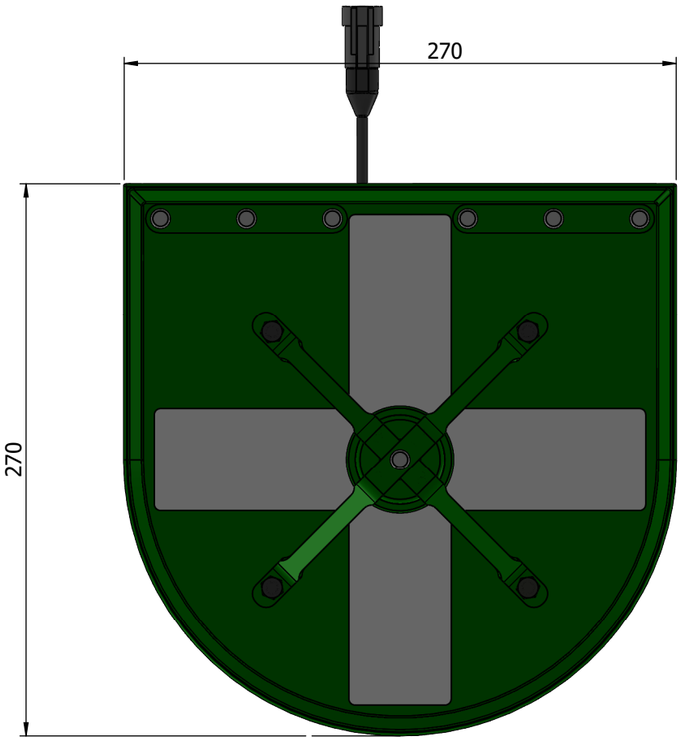
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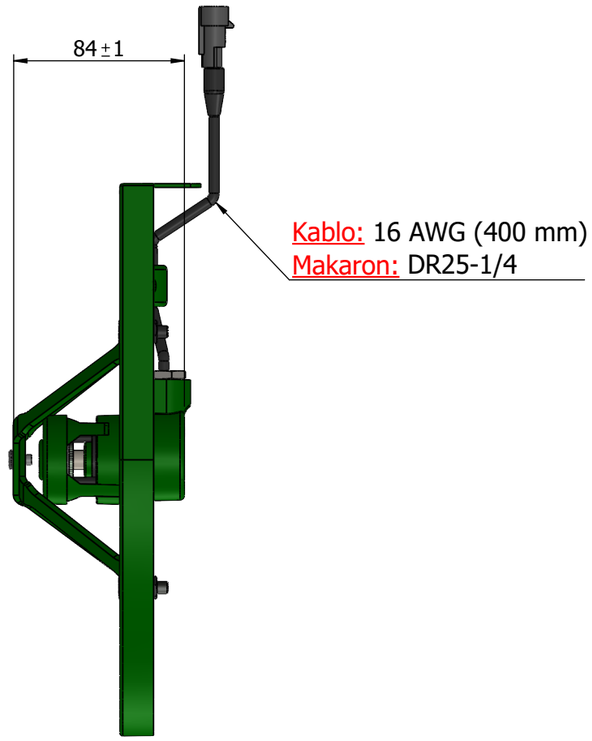
Name Surname		Date	Sign	TEKOM DEFENCE and AVIATION INDUSTRY INC.			
Drawn	Gizay ÖZDEN	05.07.2021					
Checked	Ece YÜCEL	05.07.2021					
Approved	Serhat TÜYSÜZ	05.07.2021		LED LICENCE PLATE LAMP			
P/N	420023-03/B4D000	Rev. Code	00				
Dwg No	MT01-420023-03/B4D000	Rev. Date		Pr. Group	Armored Vehicle Lighting		
General Tolerance	Material	Coating	Painting	Weight	Scale	Size	Page
±0,5 mm	See Note-3	See Note-4	See Note-5		1/1	A3	1/1

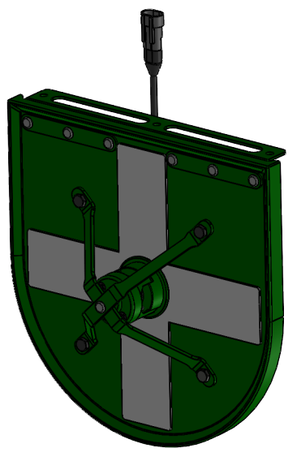
REVİZYONLAR			
REV.	TANIM	TARİH	REVİZE EDEN
01	Çelik parçaların malzemesi güncellendi.(Zn-Ni-->Kataforez) Antet güncellendi. Makaron güncellendi. (DR25-3/16-->DR25-1/4)	15.10.2021	G.ÖZDEN

TEKNİK BİLGİLER

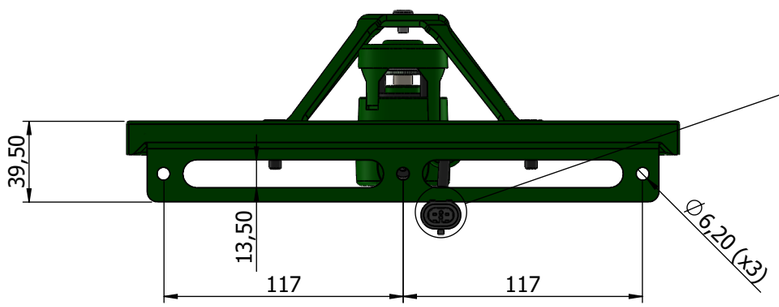
1. Fonksiyonlar:
   - İz Takip
2. Parça Numarası:
   - 420073/B32200 (İz Takip Lambası)
3. Malzeme:
   - Gövde: Kauçuk (EPDM)
   - Montaj Mesnedi: Çelik (St37)
   - Döküm Parçalar: Zamak-5
   - Lens: Polikarbonat (PC)
   - Bağlantı Elemanları (Dış): Çelik (Zn-Ni Kaplamalı)
   - Bağlantı Elemanları (İç): Inox (A2-304)
4. Kaplama:
   - Döküm Parçalar: Alodin (Cr+3)
   - Çelik Parçalar: Kataforez
   - Bağlantı Elemanları (Dış): Çinko-Nikel (Zn-Ni)
5. Boyama:
   - Elektrostatik Toz Boya
6. Renk:
   - Ral 6015 (Black Olive)
7. Çalışma Testi:
   - Düşük Sıcaklık: MIL-STD-810G, Metot 502.5, Prosedür II (-40˚C)
   - Yüksek Sıcaklık: MIL-STD-810G, Metot 501.5, Prosedür II (+55˚C)
8. Depolama Testi:
   - Düşük Sıcaklık: MIL-STD-810G Metot 502.5, Prosedür I (-45˚C)
   - Yüksek Sıcaklık: MIL-STD-810G Metot 501.5, Prosedür I (+71˚C)
9. Şok Testi:
   - MIL-STD-810F, Metod 516.5, Prosedür-I, 40g–11m Testere Dişi
10. Titreşim Testi:
    - MIL-STD-810F, Metod 514.5, Prosedür-I, Kategori 20, Figür 514.5C-3
11. Sızdırmazlık:
    - IP67 (1 metre / 30 dakika)
12. Çalışma Gerilimi:
    - 24 VDC
13. Aydınlatma Elemanı:
    - Ampul (OSRAM 3797)
14. Soketler:
    - Soket
      AMP Gövde: 282104-1
      AMP Terminal: 282109-1
      AMP Seal: 281934-2
    - Karşılık Soketi
      AMP Gövde: 282080-1
      AMP Terminal: 282110-1
      AMP Seal: 281934-2

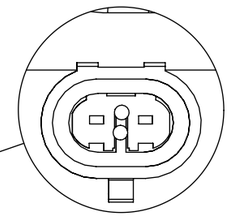






420073/B32200
(İz Takip Lambası)





AMP 282104-1
1- 24 VDC
2- GND

ONAYLANDI
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Adı Soyadı		Tarih	İmza				
Çizen	Mak.Mh.S.TÜYSÜZ	21.07.2017		TEKOM SAVUNMA ve HAVACILIK SANAYİ A.Ş.			
Kontrol	Mh.Y.FİDAN	21.07.2017					
Onay	Y.Mh.M.FİDAN	21.07.2017		İz Takip Lambası			
Parça No	420073/B32200	Rev. Kodu	01				
Resim No	MT01_420073/B32200	Rev. Tarihi	15.10.2021	Üst Grup	Zırhlı Araç Aydınlatma		
Genel Tolerans	Malzeme	Kaplama	Boyama	Ağırlık	Ölçek	Boyut	Sayfa
±0,50 mm	Bknz. Not3	Bknz. Not4	Bknz. Not5		1/3	A3	1/1