

OPERATING & MAINTENANCE INSTRUCTIONS

LOWBED SEMI-TRAILER

3-, 4- AND 5-AXLE SEMI-LOW-LOADER
WITH HYDRAULIC LOADING RAMPS



DOCUMENT
UM-04

TYPES
STUL3 · STUL4 · STUL5

LANGUAGE
EN-GB

EDITION
10 / 2026

FOREWORD

Thank you for choosing an STU lowbed semi-trailer. It has been designed and built to move heavy, indivisible loads – construction and earth-moving machinery, plant, industrial equipment – safely and economically, day after day.

This manual is an integral part of the trailer. It explains how the trailer is built, how to couple, drive, load and secure it correctly, and how to keep it in a safe, roadworthy condition throughout its service life. Read it carefully before you use the trailer for the first time and make sure that every driver, loader and workshop technician who works with the trailer has read and understood the chapters that apply to them.

Your trailer complies with the European whole-vehicle type-approval requirements of Regulation (EU) 2018/858 and the UN Regulations listed in its Certificate of Conformity (CoC). Safe operation, however, also depends on the people who use it. The instructions, warnings and limits in this manual exist to protect you, other road users and your investment.

If anything in this manual is unclear, or if your trailer is fitted with equipment that is not described here, contact your STU dealer or STU directly before using the trailer.

We wish you many safe and profitable kilometres.

STU Treyler Dorse İthalat İhracat Ltd. Şti.

Keep this manual with the trailer. Store it in the document holder or the cab of the towing vehicle so that it is always available. If the trailer is sold, hired out or transferred, hand this manual over with it.

ABOUT THIS DOCUMENT

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TABLE 0.1 – REVISION HISTORY

REVISION	DATE	DESCRIPTION OF CHANGE
00	10/2026	First edition of the restructured manual; supersedes UM-04 dated 14.10.2021.

The information in this manual reflects the design of the trailer at the date of publication. As part of continuous product development, STU reserves the right to change the design, equipment and specifications of its trailers without prior notice and without obligation to modify trailers already delivered. Illustrations may show optional equipment or differ in detail from your trailer; they are intended to explain principles.

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ABOUT THIS MANUAL



This chapter explains who this manual is written for, how it is organised and how the safety information in it is presented.

1.1 SCOPE

This manual applies to STU lowbed semi-trailers (semi-low-loaders) of the following types:

TABLE 1.1 – TYPES COVERED BY THIS MANUAL

TYPE	VARIANT	AXLES	TYPICAL USE
STUL3	3-axle lowbed semi-trailer	3	Medium-weight construction machinery, compact excavators, rollers, agricultural machinery
STUL4	4-axle lowbed semi-trailer	4	Heavy excavators and dozers, cranes, industrial plant
STUL5	5-axle lowbed semi-trailer	5	Heavy and abnormal indivisible loads, transported under special permit where required

Wherever the instructions differ between variants, this is stated in the text. Optional equipment (for example a lift axle, self-steering axle, deck widening or a hydraulic emergency hand pump) is described where relevant and marked (*if fitted*).

The trailer may also be fitted with components from third-party suppliers – axles, braking system, landing legs, king pin, hydraulic power pack. Their own operating and maintenance instructions are part of the trailer documentation and must also be observed. If those instructions contradict this manual on a component-specific point, the component manufacturer's instructions take precedence.

1.2 TARGET GROUPS

TABLE 1.2 – TARGET GROUPS

TARGET GROUP	REQUIRED QUALIFICATION	RELEVANT CHAPTERS
--------------	------------------------	-------------------

Owner / operator (fleet owner)	Responsible for organising safe use, training and maintenance	All chapters
Driver	Valid driving licence for articulated vehicles (category C+E or national equivalent); instructed on this trailer	2, 3, 4, 5, 6, 8.2
Loading personnel / banksman	Instructed in loading, load securing and the danger zones of the trailer	2, 6
Workshop technician	Trained commercial-vehicle technician; brake and hydraulic work only by qualified specialists	2, 7, 8, 9

1.3 SIGNAL WORDS AND SYMBOLS

Safety information in this manual is graded according to ISO 3864-2. The signal word tells you how serious the hazard is. Always read the complete safety message, not only the signal word.

DANGER



DANGER indicates a hazardous situation which, if not avoided, **will** result in death or serious injury.

WARNING



WARNING indicates a hazardous situation which, if not avoided, **could** result in death or serious injury.

CAUTION



CAUTION indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

NOTICE



NOTICE indicates information considered important but not hazard-related – for example a risk of damage to the trailer, the load or the environment.



Information provides useful tips, cross-references and background that help you work more efficiently.



Environment marks instructions that help you prevent pollution and dispose of materials correctly.

Other conventions used in this manual:

- Numbered steps (1, 2, 3 ...) must be carried out in the order shown.
- Bullet points list items that do not need to follow a particular order.
- Boxes ☐ in checklists are intended to be ticked off during an inspection.
- Item numbers in illustrations are referenced in the text, for example (*Figure 3.1, item 8*).

- Values marked with a highlighted field such as **value** are specific to the individual trailer and must be taken from its statutory plate or Certificate of Conformity.

1.4 UNITS AND ABBREVIATIONS

All dimensions are given in millimetres (mm), masses in kilograms (kg) or tonnes (t), pressures in bar (1 bar = 100 kPa) and torques in newton metres (N·m), unless stated otherwise.

TABLE 1.3 – ABBREVIATIONS

ABBREVIATION	MEANING
ABS	Anti-lock braking system
CoC	Certificate of Conformity
CoG	Centre of gravity
EBS	Electronic braking system
GVW	Gross vehicle weight (technically permissible maximum laden mass)
LC	Lashing capacity (EN 12195)
PPE	Personal protective equipment
PREV	Park release emergency valve
RSS	Roll stability support
VIN	Vehicle identification number

SAFETY

02

A lowbed semi-trailer moves very high masses at low deck height. Most serious accidents with this type of vehicle happen during loading and unloading, during coupling, and when a load is not secured correctly. Read this chapter in full before you work with the trailer.

2.1 INTENDED USE

The lowbed semi-trailer is intended exclusively for the road transport of indivisible loads – in particular self-propelled tracked or wheeled machinery and plant, and goods placed on the deck with lifting equipment – within the technically permissible masses and dimensions stated on the statutory plate and in the Certificate of Conformity.

Intended use also includes:

- coupling the trailer only to a towing vehicle that is approved and suitable for the fifth-wheel load, the trailer's gross vehicle weight and the king pin size fitted;
- complying with this manual and the instructions of the component suppliers;
- carrying out the inspections and maintenance described in Chapter 8 at the prescribed intervals;
- complying with the traffic, weights-and-dimensions and load-securing regulations of every country in which the trailer is used, including any special permits required for abnormal loads.

2.2 FORESEEABLE MISUSE

Any use other than that described above is regarded as misuse. STU accepts no liability for damage resulting from misuse. Examples of foreseeable misuse are:

- exceeding the permissible payload, axle loads or fifth-wheel load, or loading in a way that does not respect the load-distribution limits;
- transporting persons or animals on the trailer;
- transporting bulk goods or liquids without suitable, approved containment;
- driving with the loading ramps lowered or not locked in the transport position;
- using the hydraulic ramps as a lifting platform, jack or working platform;
- driving with the air suspension raised or lowered out of the ride position;
- carrying out welding, drilling or other modifications to the chassis, running gear or braking system without the written approval of STU;
- operating the trailer under the influence of alcohol, drugs or medication that impairs the ability to drive or work safely.

2.3 RESPONSIBILITIES OF THE OWNER / OPERATOR

The owner or operator of the trailer must ensure that:

- only trained, authorised and suitably licensed persons drive, load or maintain the trailer;
- every person working with the trailer has access to this manual and has been instructed in its content – and that this instruction is documented;
- the trailer is presented for statutory periodic roadworthiness tests and maintained as described in Chapter 8;
- defects that affect safety are rectified immediately and the trailer is withdrawn from service until the repair has been completed;
- the required personal protective equipment is provided and worn;
- national accident-prevention and occupational-safety regulations are observed.

2.4 GENERAL SAFETY RULES

Apply the following rules every day:

- Inspect the trailer before every journey (see Section 5.1). Do not use a trailer with a safety-relevant defect.
- Never leave the trailer unattended unless the parking brake is applied and, when uncoupled, wheel chocks are in place.
- Never drive with the loading ramps, side extensions or other movable parts unsecured.
- Make sure that the brake air lines, the EBS connector and the electrical connectors are correctly connected and that the compressed-air system holds pressure.
- Check that the fifth-wheel lock of the towing vehicle has fully engaged around the king pin.
- Wear the prescribed PPE (see Section 2.6).
- Check that all safety labels are present and legible (see Section 2.7).
- Do not stand or walk under a raised load, a raised ramp or a trailer that is only supported by a jack.
- Never climb onto the deck or ramps when they are wet, icy, oily or covered in mud without suitable footwear and extra care.

2.4.1 COMPRESSED-AIR SYSTEM

- The pneumatic system operates at high pressure. Before working on it, switch off the engine of the towing vehicle and release the pressure from the trailer circuit.
- When connecting the air lines, make sure that the couplings are clean and that no pressure is present in the lines being connected.
- Replace air hoses at least every five years, and immediately if they are damaged, porous or kinked.
- Work on the braking system may only be performed by qualified specialists authorised by the brake-system manufacturer.

2.4.2 TYRES AND WHEELS

- Secure the trailer against rolling before working on wheels or tyres.
- Tyres and wheels may only be repaired or fitted by trained personnel using suitable tools and inflation cages.
- Wherever possible, change wheels with the trailer unladen.
- Protect the tyres from direct sunlight if the trailer is parked for long periods.

2.4.3 MAINTENANCE AND REPAIR

- Switch off the engine of the towing vehicle and remove the ignition key before any cleaning, maintenance or repair work.
- Support the chassis securely with axle stands of sufficient capacity before working underneath it. A jack alone is never sufficient.
- Before welding on the trailer, disconnect it from the towing vehicle, disconnect the EBS modulator and any on-board batteries, and connect the welding earth as close as possible to the welding point.
- Replace bolts and nuts only with parts of the same size, property class and coating.
- Use only original STU spare parts or parts approved by STU.

2.5 DANGER ZONES

The following zones are danger zones in which persons may only be present when necessary and when the driver can see them:

- **Between the towing vehicle and the trailer** during coupling and uncoupling – risk of crushing.
- **The swing area of the loading ramps** while they are raised or lowered – risk of being struck or crushed.
- **The loading path** in front of and on the ramps while a machine is driven on or off – risk of being run over or struck by a tipping machine.
- **Around the rear overhang and the gooseneck** when the vehicle is turning – the rear of the trailer swings out and the gooseneck sweeps across the towing vehicle.
- **Under the trailer** whenever the air suspension is being raised or lowered.

DANGER



Crushing hazard between towing vehicle and trailer. Nobody may stand between the towing vehicle and the trailer while the towing vehicle is moving or while the air suspension is being adjusted. Use a banksman with an agreed set of signals if the driver cannot see the coupling area.

2.6 PERSONAL PROTECTIVE EQUIPMENT

Wear the following PPE when working with the trailer, as required by the task and by the rules of the site:

TABLE 2.1 – PERSONAL PROTECTIVE EQUIPMENT

SYMBOL	PPE	REQUIRED FOR
	High-visibility vest	All work on public roads and on construction sites
	Safety footwear	Coupling, loading, maintenance
	Work gloves	Handling lashing equipment, ramps, couplings, maintenance

	Safety helmet	Loading with cranes and on construction sites
	Safety goggles	Working under the trailer, cleaning, compressed-air and hydraulic work
	Hearing protection	Work in noisy environments, high-pressure cleaning
	Face shield	Grinding and high-pressure cleaning
	Respiratory protection	Painting, sand-blasting, working with solvents
	Welding helmet	Welding repairs (authorised workshops only)

2.7 SAFETY LABELS ON THE TRAILER

Safety and information labels are attached at the relevant points of the trailer. They must not be removed or painted over. Replace damaged or illegible labels immediately – replacement labels are available from STU.

TABLE 2.2 – SAFETY LABELS

NO.	LABEL	MEANING
1		General warning – observe the instructions in this manual
2		Danger of falling – do not stand on the edge of the deck or on raised ramps
3		Crushing hazard when turning – keep clear of the area between towing vehicle and trailer
4		Danger from moving load – keep clear during loading and unloading
5		Electrical hazard – keep a safe distance from overhead power lines
6		Hand injury hazard – keep hands away from moving parts

7		Stop – function must be stopped before access
8		Emergency stop – location of the emergency stop button (hydraulic ramps)
9		Danger when turning – rear overhang and gooseneck swing out
10		Keep a safe distance
11		Use wheel chocks when the trailer is parked
12		Lubrication point – lubricate at the prescribed interval
13		Jacking point – place a jack only here
14		Check wheel-nut torque after the first 100 km and 200 km
15		Remove the ignition key of the towing vehicle before servicing

2.8 RESIDUAL RISKS

The trailer has been designed and built according to the state of the art and the recognised safety rules. Nevertheless, some risks cannot be eliminated completely by design. They arise mainly from incorrect behaviour, lack of attention or lack of knowledge.

TABLE 2.3 – RESIDUAL RISKS AND PREVENTIVE MEASURES

RESIDUAL RISK	HOW TO AVOID IT
Crushing between towing vehicle and trailer	Keep the coupling area clear; use a banksman; follow Section 4.3 exactly
Machine sliding or tipping during loading	Load only on firm, level ground with the parking brake applied; drive slowly and straight; use a banksman; observe ramp gradient and surface condition
Load shifting or falling during transport	Secure every load according to EN 12195-1 (Section 6.5); re-check lashings after the first kilometres
Overturning in bends	Keep the load centre of gravity as low and central as possible; adapt speed, especially with high or narrow loads

Contact with overhead structures or power lines	Measure the total height after loading; plan the route; keep at least the safety distance prescribed by the network operator
Hydraulic or pneumatic fluid under pressure	Depressurise before work; never search for leaks with your hand
Falling from deck or ramps	Use the access steps and handholds; keep surfaces clean; do not jump down

PRODUCT DESCRIPTION

This chapter gives an overview of the trailer's main assemblies, its identification plates, its technical data and its standard and optional equipment.

3.1 OVERVIEW

The STU lowbed semi-trailer is a semi-low-loader with a fixed gooseneck, a low loading deck over the running gear and hydraulically operated loading ramps at the rear. The low deck height keeps the overall height of tall machinery within legal limits, while the ramps allow self-propelled machines to be driven on and off without a loading dock.

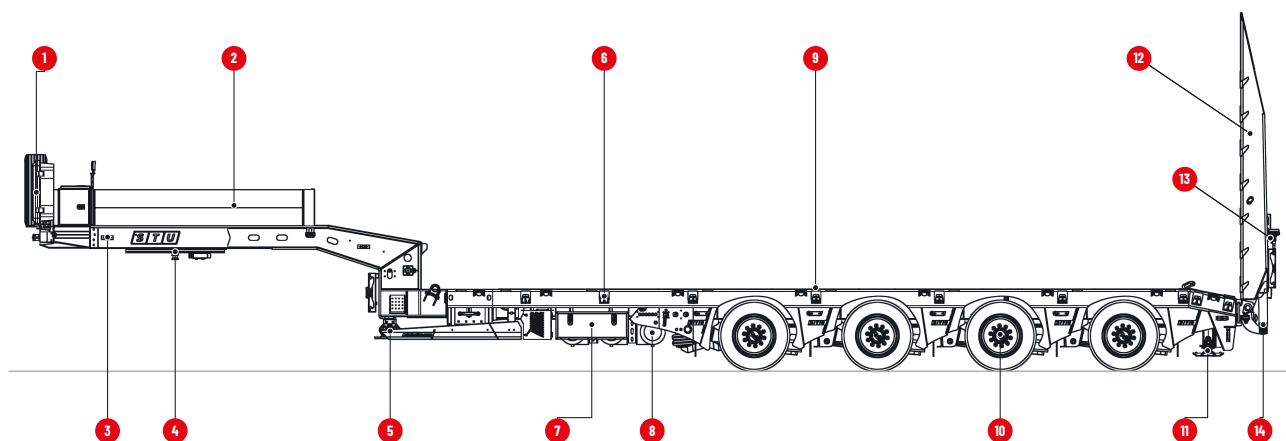


FIGURE 3.1 STUL4 lowbed semi-trailer – main assemblies (STUL3 and STUL5 are identical apart from the number of axles)

- | | |
|-----------------------------------|--|
| 1 Spare-wheel carrier | 2 Gooseneck with upper deck and side boards |
| 3 Side marker lamps | 4 King pin (2" or 3½") |
| 5 Landing legs | 6 Lashing points |
| 7 Toolbox | 8 Compressed-air reservoir |
| 9 Loading deck | 10 Running gear – axles with air suspension |
| 11 Rear support legs | 12 Hydraulic loading ramps (transport position) |
| 13 Ramp hydraulic cylinder | 14 Rear lamp cluster and rear underrun protection |

3.2 MAIN ASSEMBLIES

3.2.1 CHASSIS

The main frame is a welded steel structure made of high-strength I-section or box-section longitudinal beams, joined by cross-members and outer edge profiles. Longitudinal welds are produced by submerged-arc welding for consistent penetration and strength. The frame is shot-blasted and protected by a multi-layer coating system.



FIGURE 3.2 Welded main frame before coating

3.2.2 GOOSENECK AND KING PIN

The gooseneck connects the loading deck to the towing vehicle. It carries the king pin plate with a bolted, exchangeable king pin to ISO 337 (2", 50.8 mm) or ISO 4086 (3½", 89 mm), approved according to UN Regulation No. 55. The size fitted to your trailer is shown on the king pin plate and in the CoC. The upper deck of the gooseneck can also be used to carry smaller items such as buckets or attachments, provided the fifth-wheel load is not exceeded.

3.2.3 LOADING DECK

The deck is covered with hardwood planks and/or chequer plate. Lashing points are recessed into or welded onto the outer frame along both sides of the deck (see Section 6.5). Wheel recesses or excavator-arm troughs may be fitted depending on the specification.

3.2.4 RUNNING GEAR

The trailer runs on three, four or five rigid axles with disc or drum brakes, mounted on air suspension. Single 19.5" or 22.5" wheels are fitted as standard. Depending on the specification, the first axle can be a lift axle and the last axle(s) can be self-steering axles (*if fitted*). The axle make and type fitted to your trailer are shown on the axle type plates.



FIGURE 3.3 Air-suspended axle (example)



FIGURE 3.4 Mechanical (leaf-spring) suspension (alternative)

3.2.5 BRAKING SYSTEM

The trailer has a dual-line compressed-air braking system with electronic brake control (EBS) including ABS and Roll Stability Support (RSS), designed in accordance with UN Regulation No. 13. Spring brake chambers act as the parking and emergency brake. See Section 5.4.

3.2.6 HYDRAULIC LOADING RAMPS

Two hydraulic ramps at the rear of the deck are raised and lowered by two double-acting cylinders supplied by an electro-hydraulic power pack (24 V DC). The ramps can be moved sideways to suit the track width of the machine being loaded (*if fitted*). See Section 6.3.

3.2.7 ELECTRICAL AND LIGHTING SYSTEM

The trailer has a 24 V lighting installation according to UN Regulation No. 48 with rear lamp clusters, side marker lamps, front and rear position lamps, number-plate lamp and retro-reflective conspicuity marking. Power is supplied via the ISO 12098 15-pole or the ISO 1185 / ISO 3731 7-pole connectors.

3.2.8 PROTECTIVE DEVICES

A rear underrun protective device approved to UN Regulation No. 58 is fitted. Where required for the variant, lateral protection to UN Regulation No. 73 is fitted, or the exemption applicable to low-loaders is stated in the CoC. Mudguards with spray-suppression flaps are fitted above every wheel.

3.3 IDENTIFICATION

3.3.1 VEHICLE IDENTIFICATION NUMBER (VIN)

The 17-character VIN begins with STU's world manufacturer identifier (WMI). It is stamped into the right-hand front side member of the chassis. The VIN identifies the trailer throughout its life – quote it in every enquiry and spare-parts order.

3.3.2 STATUTORY PLATE

The statutory plate is riveted to the right-hand front of the chassis. It shows, among other data:

- manufacturer's name and EU type-approval number;

- VIN;
- technically permissible maximum laden mass of the trailer;
- technically permissible maximum mass on the coupling point (king pin);
- technically permissible maximum mass on each axle or axle group.

NOTICE



Never remove or alter the statutory plate or the VIN. Doing so invalidates the type approval and the registration of the trailer. If the plate is damaged, order a replacement from STU quoting the VIN.

3.3.3 TYPE, VARIANT AND VERSION

Under Regulation (EU) 2018/858, each trailer belongs to a **type**, a **variant** and a **version**:

TABLE 3.1 – TYPE, VARIANT AND VERSION

LEVEL	DEFINED BY (EXAMPLES)
Type	Manufacturer, vehicle category (04), concept of the trailer (semi-trailer), number of axles group, essential chassis construction
Variant	Chassis design (rigid / extendable), stage of completion, bodywork code (e.g. low-loader)
Version	Number and position of lift and steering axles, technically permissible maximum laden mass

The type, variant and version of your trailer are given in its Certificate of Conformity (CoC).

3.4 TECHNICAL DATA

The values below are the nominal values of the standard STU lowbed types. The binding values for an individual trailer are those on its statutory plate and in its Certificate of Conformity (CoC). All dimensions in mm.

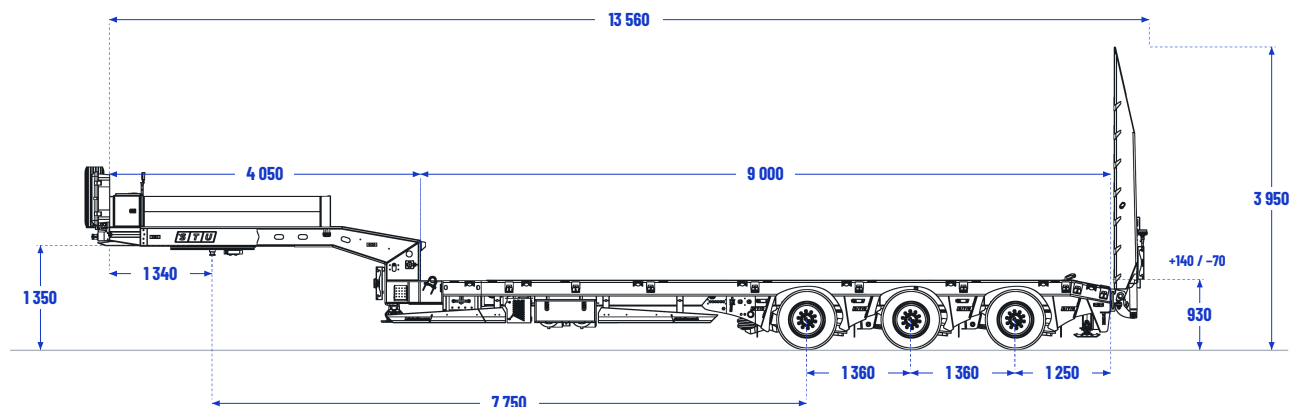


FIGURE 3.5 STUL3 – 3-axle

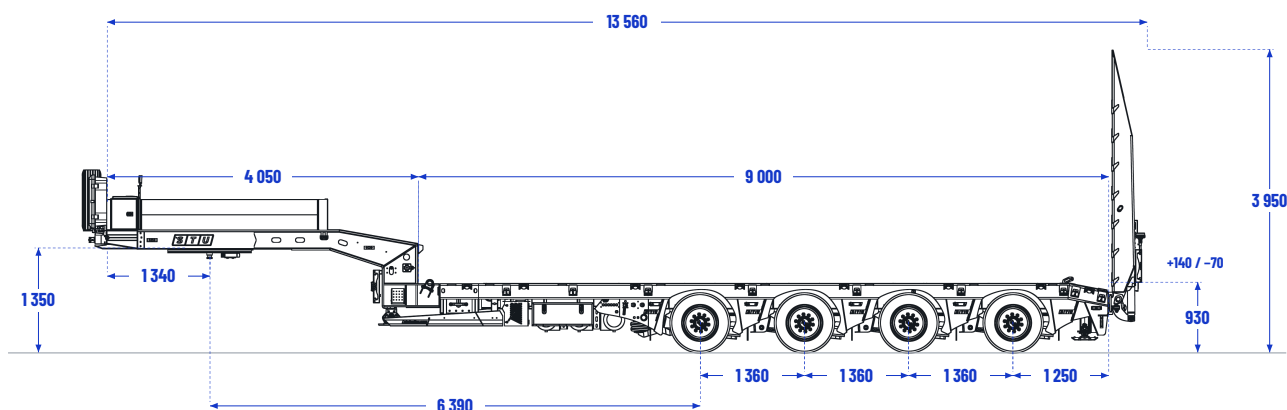
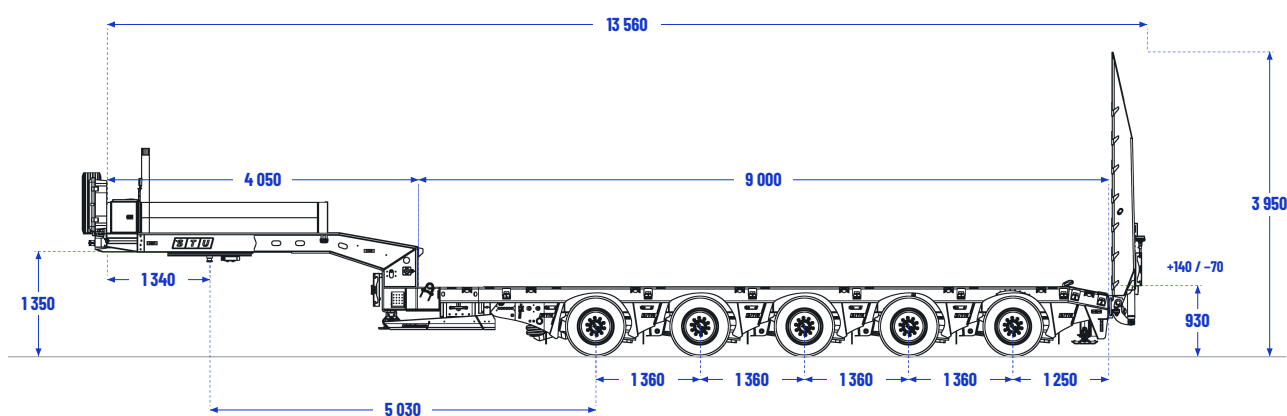

FIGURE 3.6 STUL4 – 4-axle

FIGURE 3.7 STUL5 – 5-axle. Deck height 930 mm at ride height; the air suspension allows +140 / -70 mm

TABLE 3.2 – TECHNICAL DATA (NOMINAL VALUES)

SPECIFICATION	UNIT	STUL3	STUL4	STUL5
Number of axles	—	3	4	5
Vehicle category	—	04	04	04
Overall length (gooseneck front to ramp tip)	mm	13,560	13,560	13,560
Gooseneck length	mm	4,050	4,050	4,050
Loading-deck length	mm	9,000	9,000	9,000
Overall width	mm	2,540	2,540	2,540
Width with deck extensions (2 × 250)	mm	3,040	3,040	3,040
Overall height, ramps raised	mm	3,950	3,950	3,950
Coupling height (under gooseneck)	mm	1,350	1,350	1,350
Loading-deck height (ride height)	mm	930 (+140 / -70)	930 (+140 / -70)	930 (+140 / -70)
Gooseneck front to king pin	mm	1,340	1,340	1,340

King pin to first axle	mm	7,750	6,390	5,030
Axle spacing	mm	1,360	1,360	1,360
Last axle to rear of deck	mm	1,250	1,250	1,250
Front swing radius (king pin to gooseneck corner)	mm	2,250	2,250	2,250
Ramp width (each)	mm	850	850	850
Unladen mass (from)	kg	9,100	TBC	TBC
Technically permissible max. laden mass	kg	up to 58,000	TBC	TBC
King pin	—	2" / 3½"	2" / 3½"	2" / 3½"
Suspension	—	Air	Air	Air
Braking system	—	EBS / ABS / RSS	EBS / ABS / RSS	EBS / ABS / RSS
Supply voltage / ramp power pack	V	24	24	24

3.5 STANDARD EQUIPMENT

- Welded steel chassis with fixed gooseneck
- King pin, 2" or 3½"
- Two landing legs with two-speed gearbox
- Rear support legs for loading
- Spare-wheel carrier on the gooseneck
- Upper gooseneck deck with side boards
- Air suspension with ride-height control and lift / lower valve
- EBS with ABS and RSS, spring-brake parking brake
- Two hydraulic loading ramps with 24 V DC power pack
- 24 V LED lighting with side marker lamps and conspicuity marking
- Lashing points along both sides of the deck
- Two wheel chocks with holders
- Toolbox
- User manual and warranty certificate

3.6 OPTIONAL EQUIPMENT

Depending on the order specification, your trailer may be fitted with some of the following options:

- Lift axle (first axle), operated automatically by the EBS or manually
- Self-steering rear axle(s) with automatic reversing lock
- Hydraulically or mechanically sliding ramps
- Deck widening (outriggers) and removable side boards
- Excavator-arm trough or wheel recesses
- Hydraulic emergency hand pump for the ramps
- Rotating beacons and "Abnormal load" / "Long vehicle" marker boards

- Additional lashing points and stake pockets

COUPLING AND UNCOUPLING



Coupling and uncoupling are among the most hazardous everyday tasks with a semi-trailer. Follow the sequences in this chapter exactly, every time.

WARNING



Risk of crushing. Make sure that nobody is between the towing vehicle and the trailer during coupling and uncoupling. Apply the parking brake of the trailer and place wheel chocks before you start.

4.1 REQUIREMENTS FOR THE TOWING VEHICLE

Only couple the trailer to a towing vehicle that:

- is approved for the gross combination weight and for the fifth-wheel load of the trailer;
- has a fifth wheel to UN Regulation No. 55 that matches the king pin size (2" or 3½") of the trailer;
- has a fifth-wheel height that suits the gooseneck height of the trailer so that the trailer is approximately level when coupled;
- provides a compressed-air supply of at least 6.5 bar at the trailer supply coupling (red), and an ISO 7638 EBS connector;
- provides the electrical connections required by the trailer (15-pole ISO 12098, or 7-pole ISO 1185 / ISO 3731);
- has sufficient clearance between the rear of the cab (or accessories) and the gooseneck at full articulation.

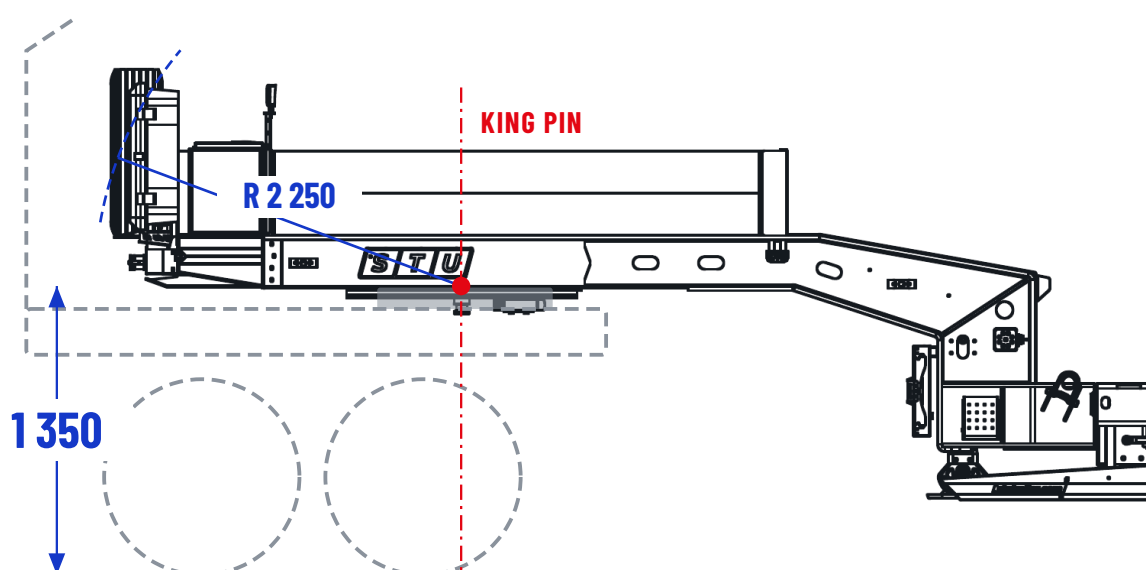


FIGURE 4.1 Coupling geometry — coupling height 1,350 mm under the gooseneck; front swing radius of the gooseneck $R = 2,250$ mm around the king pin. The cab, its accessories and the rear of the towing-vehicle chassis must clear this radius at full articulation

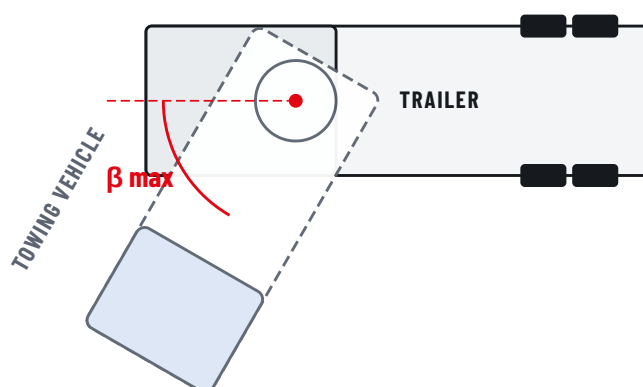


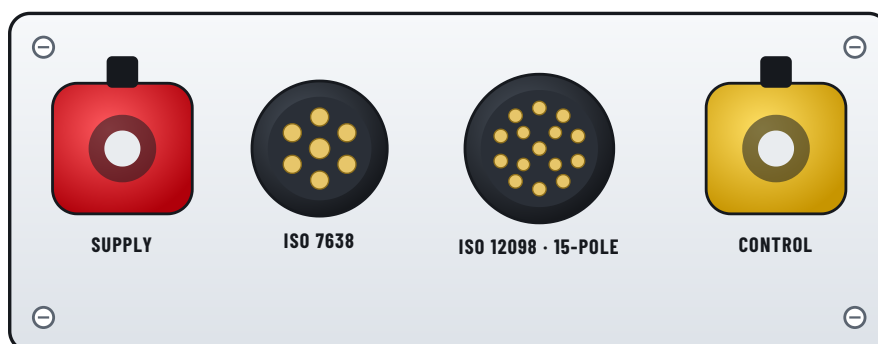
FIGURE 4.2 Maximum articulation angle β_{max} — do not exceed 90° between towing vehicle and trailer

NOTICE



Damage to gooseneck or cab. The gooseneck of a low-loader is long and low. At large articulation angles it can strike the cab, the exhaust, wind deflectors or the tractor's rear wings. Check the clearance by turning slowly to full lock once with the combination unladen.

4.2 CONNECTIONS BETWEEN TOWING VEHICLE AND TRAILER



FRONT VIEW · LAYOUT MAY VARY BY SPECIFICATION

FIGURE 4.3 Connection panel at the front of the gooseneck – front view (layout may vary with the specification)

TABLE 4.1 – CONNECTIONS BETWEEN TOWING VEHICLE AND TRAILER

CONNECTION	COLOUR / STANDARD	FUNCTION
Supply line coupling	RED · ISO 1728	Compressed-air supply to the trailer reservoir; emergency braking when disconnected
Control line coupling	YELLOW · ISO 1728	Pneumatic brake control signal
EBS connector	7-pin · ISO 7638	Power supply and CAN data for the EBS
Lighting connector	15-pole · ISO 12098	Lighting, reversing signal, lift-axle and diagnostic functions
7-pole connectors (if fitted)	BLACK 24N · ISO 1185 / WHITE 24S · ISO 3731	Alternative lighting supply for towing vehicles without a 15-pole socket
Hydraulic couplings (if fitted)	RED pressure / BLUE return	Ramp operation from the towing vehicle's hydraulics

4.2.1 EBS CONNECTOR ISO 7638 (7-PIN)

TABLE 4.2 – PIN ASSIGNMENT ISO 7638

PIN	WIRE COLOUR	FUNCTION
1	Red	+24 V permanent supply (solenoid valves)
2	Black	+24 V switched supply (ECU, via ignition)
3	Yellow	Earth for pin 2 (electronics)
4	Brown	Earth for pin 1 (solenoid valves)
5	White	Warning lamp
6	White / green	CAN High (ISO 11992)

7 White / brown

CAN Low (ISO 11992)

4.2.2 LIGHTING CONNECTORS

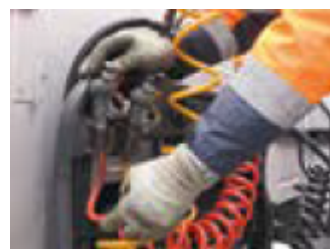
TABLE 4.3 – PIN ASSIGNMENT OF THE LIGHTING CONNECTORS

FUNCTION	7-POLE BLACK ISO 1185 (24N)	7-POLE WHITE ISO 3731 (24S)	15-POLE ISO 12098
Direction indicator, left	3	—	1
Direction indicator, right	5	—	2
Rear fog lamp	—	7	3
Earth	1	1	4
Position / tail lamp, left	2	—	5
Position / tail lamp, right	6	—	6
Stop lamps	4	—	7
Reversing lamp	—	3	8
Permanent supply +24 V	—	4	9
Brake-lining wear indicator ¹	—	—	10
Spring-brake status ¹	—	—	11
Lift-axle control (<i>if fitted</i>)	—	6	12
Earth for pins 9 – 12	—	—	13
Trailer brake control / data ¹	7	—	14, 15
Free	—	2, 5	—

¹ Not available on every trailer. Always check the wiring diagram supplied with your trailer before making any changes to the electrical system.

4.2.3 HANDLING THE LINE COUPLINGS

- Before connecting, check that the coupling heads and seals are clean and undamaged.
- Connect the **yellow** control line first, then the **red** supply line. When disconnecting, disconnect the **red** line first.
- After disconnecting, close the coupling heads on the trailer with their protective caps and hang the lines of the towing vehicle in their holders. Dirt entering the lines can damage the EBS modulator and valves.
- Route the lines and cables so that they cannot rub, kink or become trapped at full articulation.


FIGURE 4.4 Close the protective cap after disconnecting

FIGURE 4.5 Connect lines without twisting or stretching them

4.3 COUPLING

Before coupling, check that the king pin, the king pin plate and the fifth wheel are clean, undamaged and lubricated, and that the locking mechanism of the fifth wheel is open.

- 1 Position the towing vehicle in a straight line in front of the trailer, on firm and level ground.
- 2 Make sure that the trailer's parking brake is applied and that wheel chocks are in place.
- 3 Adjust the height of the towing vehicle's air suspension (or the trailer's landing legs) so that the fifth-wheel plate is slightly below the king pin plate – the trailer should be lifted slightly as the tractor reverses under it, by approximately 20 – 50 mm.
- 4 Reverse slowly and in a straight line until the king pin engages in the fifth-wheel lock. Do not ram the trailer.
- 5 Get out of the cab and check visually that the lock has fully closed around the king pin and that the safety device is engaged. Follow the instructions of the fifth-wheel manufacturer.
- 6 Perform a **pull test**: with the trailer parking brake still applied, try to pull forward gently in a low gear. The trailer must not separate.
- 7 Connect the air lines, the EBS connector and the electrical connectors (Section 4.2).
- 8 Raise the landing legs fully using the crank in high-speed gear (Section 4.6) and stow the crank handle in its holder.
- 9 Remove the wheel chocks and stow them in their holders.
- 10 Release the parking brake of the trailer (Section 4.5).
- 11 Carry out the pre-departure inspection (Section 5.1), including a lighting check and a brake test at low speed.


FIGURE 4.6 Raise the landing legs until the feet are clear of the ground (approx. 50 mm), then fully retract them before driving off

4.4 UNCOUPLING

WARNING



Risk of tipping. Only uncouple a laden trailer if the load is positioned so that the trailer cannot tip forwards or backwards, and only on firm, level ground that can carry the landing-leg loads. Never uncouple a loaded trailer on soft ground.

- 1 Park the combination in a straight line on firm, level ground.
- 2 Apply the parking brake of the towing vehicle and place the wheel chocks in front of and behind the trailer wheels.
- 3 Lower the landing legs until the feet are approximately 50 mm above the ground, then switch to the low-speed gear and lower them until they carry part of the trailer's weight.
- 4 Disconnect the red supply line first — the trailer's spring brakes are applied automatically. Then disconnect the yellow control line, the EBS connector and the electrical connectors. Fit the protective caps.
- 5 Lower the towing vehicle's air suspension until the fifth-wheel plate is free of the king pin plate.
- 6 Open the fifth-wheel lock according to the fifth-wheel manufacturer's instructions.
- 7 Drive the towing vehicle slowly forward out from under the trailer, without touching the trailer.

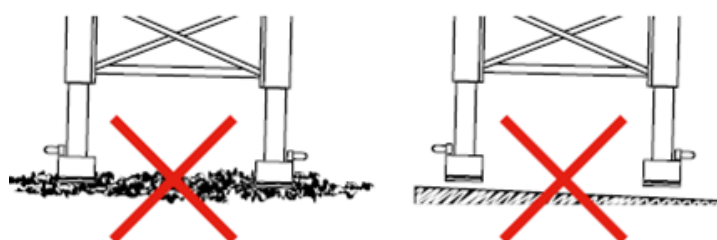


FIGURE 4.7 Do not land the legs on soft or uneven ground — use load-spreading plates if necessary

4.5 PARKING BRAKE AND PREV VALVE

The trailer is fitted with a combined park-release emergency valve (PREV) on the side of the gooseneck or front chassis. It has two push-buttons:

TABLE 4.4 — CONTROLS OF THE PREV VALVE

BUTTON	COLOUR	FUNCTION
Parking brake	Red	Pull out: parking brake applied (spring brakes exhausted). Push in: parking brake released — only possible when the reservoir pressure is sufficient.
Shunting / release	Black	Push in: releases the emergency brake after the supply line has been disconnected so that the trailer can be shunted with a shunting vehicle. Pull out: normal operating position.



FIGURE 4.8 Park release emergency valve (PREV) – example

- When the **red supply line is disconnected**, the trailer brakes are applied automatically (emergency braking function).
- To release the parking brake for driving, the reservoir pressure must be at least 6.5 bar; with less than approx. 4 bar the service brake cannot be released.
- Always pull out the red button before uncoupling and before leaving a coupled trailer.

WARNING



Uncontrolled rolling. Pushing in the black button releases the brakes of an uncoupled trailer. Only do this when the trailer is coupled to a shunting vehicle with a working brake and nobody is near the wheels.

4.6 LANDING LEGS

The two landing legs support the front of the trailer when it is uncoupled. They are connected by a cross-shaft and operated with a crank handle on one side. The gearbox has two speeds:

TABLE 4.5 – LANDING-LEG GEARS

GEAR	SELECTION	USE
High speed	Pull the crank handle out	Raising or lowering the legs without load (to bridge the gap to the ground)
Low speed	Push the crank handle in	Lifting or lowering the trailer under load

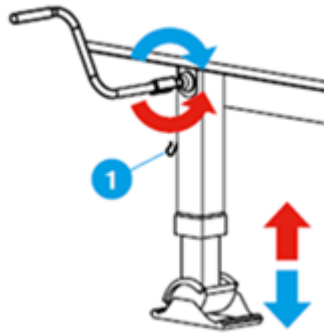


FIGURE 4.9 Remove the crank from its holder

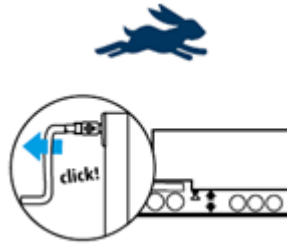


FIGURE 4.10 High speed – pull out

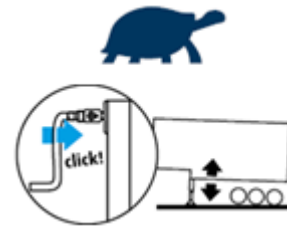


FIGURE 4.11 Low speed – push in

- Change gear only when the legs are not under load. Turning the crank slightly makes it easier to engage the gear.
- Beware of kick-back of the crank handle when the legs take up load.
- Do not drive with the legs partially extended. Always stow the crank in its holder before driving off.
- On soft ground, place load-spreading plates under the feet.

4.7 WHEEL CHOCKS

Two wheel chocks are supplied with the trailer in holders on the chassis. Use them every time the trailer is uncoupled, even on level ground, and whenever the trailer is being loaded or unloaded.



FIGURE 4.12 Wheel chocks in their holders



FIGURE 4.13 Place the chocks in the possible rolling direction

CAUTION



Do not forget the wheel chocks. After coupling, remove the chocks and return them to their holders before driving off. A chock left on the road is a serious hazard to other road users.

DRIVING AND OPERATION

05

A low-loader combination behaves differently from a standard articulated vehicle: it is often longer, heavier and lower, and its load is frequently tall, narrow or top-heavy. This chapter covers the checks and driving practices that keep it safe on the road.

5.1 PRE-DEPARTURE INSPECTION

Carry out this walk-round inspection before every journey and after every loading operation. Do not drive off until every item is in order.

- ☐ Fifth-wheel lock closed and secured; pull test carried out
- ☐ Air lines, EBS connector and electrical connectors connected, routed without chafing
- ☐ No audible air leaks; reservoir pressure built up (at least 6.5 bar)
- ☐ Parking brake released; brake test at walking pace successful
- ☐ No EBS / ABS warning lamp lit in the cab after the system check
- ☐ Landing legs fully raised; crank stowed
- ☐ Wheel chocks removed and stowed in their holders
- ☐ Air suspension at ride height (driving position)
- ☐ Loading ramps raised, locked in the transport position and safety devices engaged
- ☐ Load secured according to Section 6.5; loose items removed from the deck
- ☐ All lamps, indicators, stop lamps and reflectors working, clean and undamaged
- ☐ Tyres: correct pressure, no visible damage, sufficient tread depth
- ☐ Wheel nuts present and tight; no rust streaks around the nuts
- ☐ Mudguards and spray-suppression flaps secure
- ☐ Number plate fitted, clean and legible
- ☐ Total height, width and length of the laden vehicle known and within the permitted limits or the special permit
- ☐ Marker boards, beacons and warning flags fitted where required for wide, long or overhanging loads

5.2 DRIVING BEHAVIOUR

5.2.1 GENERAL

- Adapt your speed to the load, the road, the weather and the traffic. A laden low-loader needs considerably longer braking distances than a standard articulated vehicle.

- Accelerate and brake smoothly. Abrupt manoeuvres cause the load to shift and put extreme stress on the lashing equipment.
- Reduce speed well before bends and roundabouts. Loads with a high centre of gravity – excavators with raised booms, cranes, forestry machines – significantly increase the risk of overturning.
- Stop and re-check the lashings after the first few kilometres and at regular intervals afterwards.

5.2.2 TURNING AND MANOEUVRING

- The rear overhang of the trailer swings out when turning, and the long gooseneck sweeps across a wide area. Watch both sides of the vehicle in your mirrors.
- Do not exceed the maximum articulation angle (Section 4.1). Gooseneck and cab can collide.
- On trailers with self-steering axles, the steering is locked automatically when reversing (*if fitted*). If the steering is not locked, the trailer will not reverse straight.

5.2.3 GROUND CLEARANCE

The low deck height is the main advantage of a lowbed trailer – and its main hazard on uneven terrain.

- Before crossing humps, ramps, railway level crossings, kerbs or site entrances, check that the gooseneck transition and the lowest points of the chassis will clear the ground.
- On construction sites, drive slowly over uneven ground and avoid ruts deeper than the ground clearance.
- If the vehicle grounds on a level crossing, evacuate the cab and alert the railway operator immediately using the emergency number at the crossing.

DANGER



Overhead power lines and structures. Contact with, or even approaching, an overhead power line can be fatal. Before every journey with a tall load, measure the total height of the laden vehicle and plan the route accordingly. Observe all height restrictions for bridges, tunnels, gantries and overhead lines.

5.2.4 DIMENSIONS, WEIGHTS AND ABNORMAL LOADS

- The laden vehicle must comply with the maximum dimensions and weights applicable in each country of travel (within the EU, Directive 96/53/EC and the corresponding national rules).
- If the load exceeds these limits, an abnormal-load or special-transport permit is required and its conditions – route, times, escort vehicles, marking – must be followed. In Great Britain, for example, movements of abnormal indivisible loads are governed by the Road Vehicles (Authorisation of Special Types)(General) Order 2003.
- Mark loads that project beyond the sides or the rear of the vehicle in accordance with the applicable regulations.

5.3 AIR SUSPENSION

The air suspension keeps the trailer at a constant ride height regardless of the load. A lift / lower valve on the side of the chassis allows the deck height to be adjusted for loading and coupling.

TABLE 5.1 – LIFT / LOWER VALVE POSITIONS

LEVER POSITION	FUNCTION
Raise	Raises the chassis above ride height
Stop	Holds the current height

Ride (driving position)	Automatic ride-height control — only position permitted while driving
Lower	Lowers the chassis below ride height

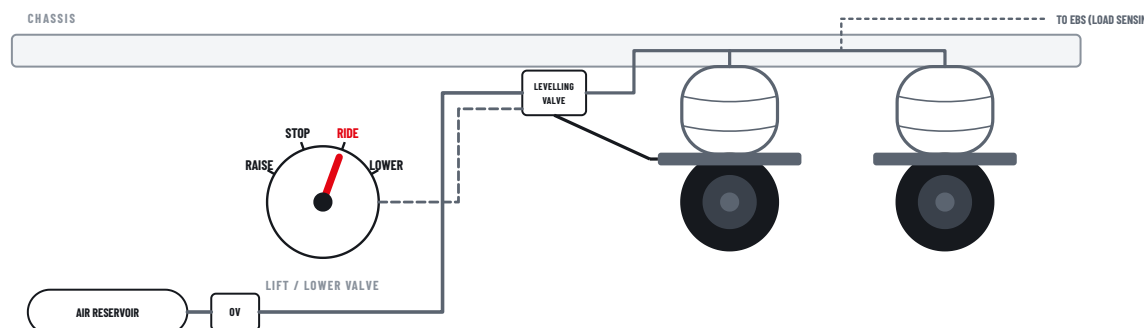


FIGURE 5.1 Air suspension — function principle: the levelling valve keeps the ride height constant; the lift / lower valve overrides it for loading and coupling

- Always return the valve to the **ride** position before driving off. Depending on the specification, the EBS returns the suspension to ride height automatically above approximately 15 km/h (*if fitted*) — do not rely on this function.
- Before raising or lowering the trailer, make sure that nobody is under or next to the trailer.
- Driving with the air suspension fully raised or fully lowered damages the bellows, shock absorbers and axles and impairs the road holding of the trailer.

5.4 BRAKING SYSTEM

The trailer is braked by the towing vehicle's brake pedal via the dual-line compressed-air system and the EBS. The EBS:

- adjusts the brake pressure to the load (load-sensing) automatically;
- prevents the wheels from locking (ABS);
- applies the trailer brakes automatically if there is a risk of the trailer rolling over in a bend (RSS).

These systems support the driver but do not override the laws of physics. The driver remains fully responsible for driving at a speed appropriate to the conditions.

WARNING



Loss of braking performance. The EBS connector (ISO 7638) must be connected whenever the trailer is driven. Without it, ABS and RSS do not work and the brake force may not be correctly distributed. If the EBS / ABS warning lamp in the cab stays on after the system check, or comes on while driving, drive carefully to the nearest suitable stopping place and have the fault rectified by a brake specialist.

- If the air pressure in the supply line drops, the trailer brakes are applied automatically.
- Brake work may only be carried out by authorised specialists of the brake-system manufacturer.

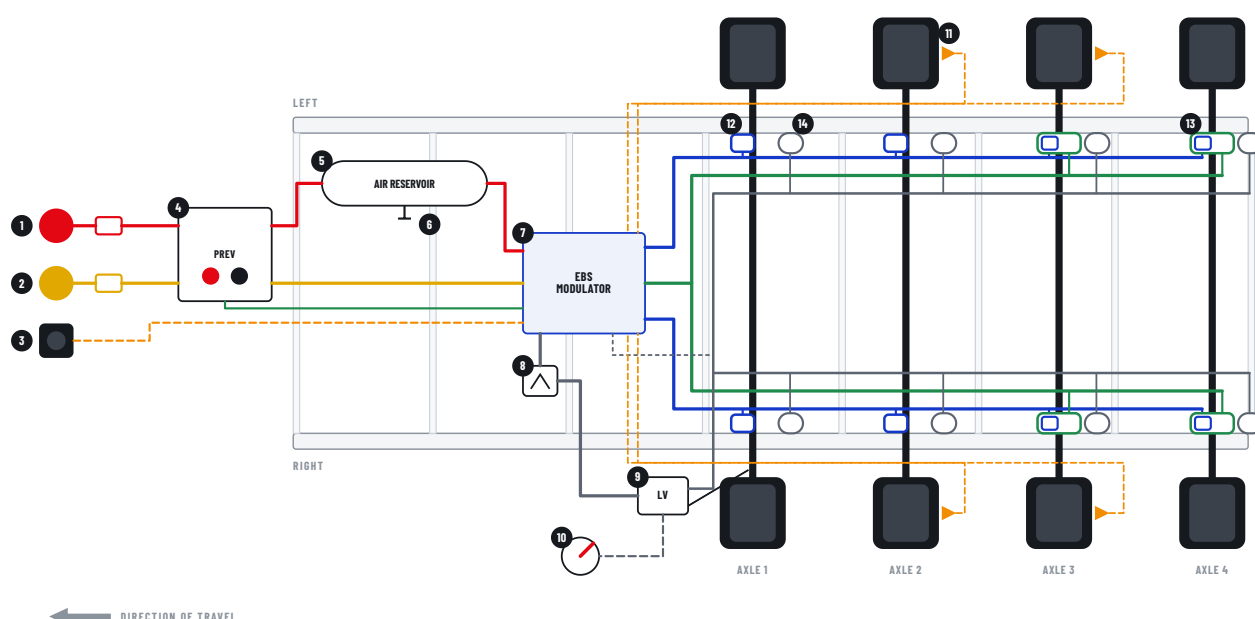


FIGURE 5.2 Braking and air-suspension system – STUL4, 4S/2M EBS layout (schematic, top view). Red: supply · Yellow: control · Blue: service brake · Green: spring brake · Grey: air suspension · Orange: electrical. Diagrams for STUL3 and STUL5 are given in Appendix E

- | | |
|---|--|
| 1 Supply line coupling – RED, with line filter | 2 Control line coupling – YELLOW, with line filter |
| 3 ISO 7638 EBS connector (power and CAN data) | 4 Park release emergency valve (PREV) |
| 5 Air reservoir | 6 Drain valve |
| 7 EBS modulator with integrated ECU and pressure sensors | 8 Overflow valve (protects the brake circuit) |
| 9 Levelling valve (LV) with linkage to the axle | 10 Lift / lower valve (rotary slide valve) |
| 11 ABS wheel-speed sensors | 12 Service brake chamber |
| 13 Combination spring brake chamber (service and parking brake) | 14 Air suspension bellows |



System layout. The schematic follows the standard architecture of the WABCO TEBS E and Knorr-Bremse TEBS G2 trailer EBS families. The exact make, valve types, number of modulated channels and sensor positions of your trailer are given in the brake-system documentation and on the EBS plate on the chassis.

5.5 LIFT AXLE (IF FITTED)

On trailers with a lift axle, the first axle can be raised when the trailer is unladen or partly laden to reduce tyre wear and improve manoeuvrability.

- In automatic mode the EBS raises and lowers the axle depending on the axle load. The axle is lowered automatically when the load exceeds the permissible value for the remaining axles.
- If a manual control is fitted, only raise the axle when the trailer is unladen or the axle loads of the remaining axles are not exceeded.

- Raising the lift axle increases the load on the king pin and on the remaining axles. Never raise it to improve traction on a slippery surface unless the towing vehicle manufacturer and national rules allow this traction-help function.

5.6 SELF-STEERING AXLE *(IF FITTED)*

Self-steering axles follow the curve of the trailer and reduce tyre wear and swept path.

- When reversing, the steering is locked automatically via the reversing-lamp signal. Make sure that the reversing-lamp circuit of the towing vehicle works (15-pole pin 8 or 24S pin 3).
- Check regularly that the steering axle returns to the straight-ahead position and that the locking cylinder works.
- Lubricate the steering knuckles at the intervals specified by the axle manufacturer.

LOADING, LOAD SECURING AND UNLOADING

06

Loading and unloading machinery is the most hazardous phase in the life of a low-loader. Plan every loading operation, use a banksman, and never take short cuts with load securing.

DANGER



Machine tipping or sliding off the ramps. A machine that slides or tips during loading can kill the operator and anyone nearby. Load only on firm, level ground; drive straight and slowly; keep everyone except the banksman out of the danger zone; never load when the ramps or tracks are wet, icy, muddy or oily without taking additional measures.

6.1 PLANNING THE LOAD

Before loading, determine:

- the mass of the machine or load, including attachments, fuel and accessories — from the manufacturer's data or by weighing;
- the position of its centre of gravity;
- its dimensions (length, width, height) in the transport configuration;
- the lashing points provided on the machine by its manufacturer;
- the resulting total height, width and length of the laden vehicle, and whether a special permit is required.

6.2 LOAD DISTRIBUTION

Where the load is placed along the deck determines how its weight is shared between the king pin (fifth-wheel load) and the axle group of the trailer. Both must stay within the permissible values shown on the statutory plate.

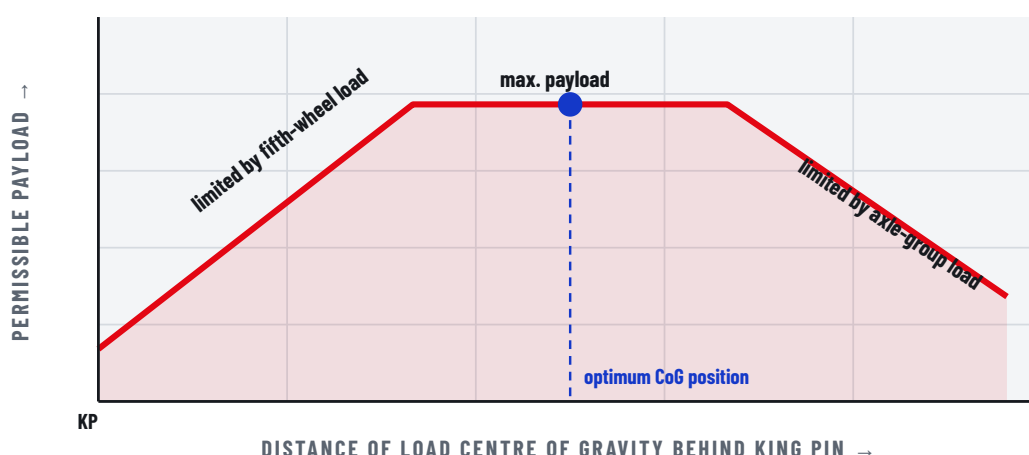


FIGURE 6.1 Principle of a load-distribution diagram – the permissible payload depends on the position of the load’s centre of gravity (illustration; use the diagram for your trailer)

- **Too far forward:** the fifth-wheel load and the load on the tractor’s drive axle(s) become too high.
- **Too far rearward:** the trailer’s axle group is overloaded and the steering axle of the towing vehicle is unloaded – steering and braking performance deteriorate.
- Place the centre of gravity of the load on the longitudinal centre line of the trailer. An off-centre load overloads the tyres and suspension on one side and increases the risk of overturning.
- Concentrated loads (small footprint, high mass) must be placed over the main beams or on load-spreading timbers so that the deck and cross-members are not overloaded locally.



Load-distribution diagram. A load-distribution diagram for your trailer, showing the permissible payload as a function of the load’s centre-of-gravity position, is available from STU on request. Quote the VIN of your trailer.

6.3 HYDRAULIC LOADING RAMPS

The ramps are raised and lowered by an electro-hydraulic power pack. Depending on the specification, the power pack is supplied from the towing vehicle (permanent +24 V) or from on-board batteries.

6.3.1 CONTROLS

TABLE 6.1 – RAMP CONTROLS (LAYOUT MAY VARY)

CONTROL	FUNCTION
Main switch / ignition	Switches on the power supply of the power pack
Push-button “ramp down”	Lowers the ramp(s) while the button is pressed (hold-to-run)
Push-button “ramp up”	Raises the ramp(s) while the button is pressed (hold-to-run)
Emergency stop	Stops all ramp movements immediately
Mechanical ramp lock	Locks the ramps in the transport position

Emergency hand pump (if fitted)

Raises the ramps if the electrical supply fails

6.3.2 LOWERING THE RAMPS

- 1 Park the trailer on firm, level ground with the combination in a straight line. Apply the parking brake and place the wheel chocks.
- 2 Lower the air suspension to the lowest position if this reduces the ramp gradient (Section 5.3).
- 3 Check that the area behind the trailer and the swing area of the ramps are clear of people and obstacles, including overhead.
- 4 Release the mechanical ramp locks.
- 5 Press and hold "ramp down" until the ramp feet rest fully on the ground. Watch the ramps throughout the movement.
- 6 If the ramps can be moved sideways, adjust their spacing to the track width of the machine.
- 7 Check that both ramps rest firmly and evenly on the ground. Place timber under the ramp feet on soft ground.

6.3.3 RAISING THE RAMPS TO THE TRANSPORT POSITION

- 1 Check that nobody is in the swing area of the ramps.
- 2 Press and hold "ramp up" until the ramps reach the end position.
- 3 Engage the mechanical ramp locks and check that they are fully engaged.
- 4 Switch off the power pack.
- 5 Check that the total height of the vehicle with the ramps raised is within the permitted limit.

WARNING



Ramps falling. Never stand or walk under raised ramps. Never drive with the ramps unlocked – the hydraulic cylinders alone are not a transport lock. Do not use the ramps as a lifting device or working platform.

NOTICE



Overheating of the power pack. The power pack is designed for intermittent operation. Do not keep the button pressed after the ramps have reached their end position. If the motor becomes hot, allow it to cool down.

6.4 LOADING

6.4.1 BEFORE LOADING

- ☐ Trailer coupled to the towing vehicle, parking brake applied, wheel chocks in place
- ☐ Ground firm and level; combination standing straight
- ☐ Air suspension in the required position
- ☐ Ramps lowered and resting firmly on the ground; spacing matched to the machine

- ☐ Deck, ramps and machine tracks / tyres clean and free of mud, ice, oil and loose material
- ☐ Lighting units at the rear protected if necessary
- ☐ Lashing equipment ready, in good condition and of sufficient capacity
- ☐ Banksman briefed and signals agreed; danger zone cleared

6.4.2 DURING LOADING

- 1 Align the machine exactly with the ramps before it starts to climb. Do not correct the direction while on the ramps.
- 2 Drive up slowly and steadily in the lowest gear or speed range. Avoid sudden acceleration, braking or steering.
- 3 Keep attachments (bucket, blade, boom) low – just above the ramp and deck surface – so that the machine's centre of gravity stays low.
- 4 Pay particular attention at the transition from the ramps to the deck, where the machine tilts forward.
- 5 Position the machine according to the planned load distribution (Section 6.2), centrally on the deck.
- 6 Lower all attachments onto the deck (on timber if necessary), apply the machine's parking brake, engage all locks, switch off the engine and remove the key.

6.4.3 AFTER LOADING

- 1 Secure the load (Section 6.5).
- 2 Raise and lock the ramps (Section 6.3).
- 3 Return the air suspension to the ride position.
- 4 Measure and record the total height of the laden vehicle.
- 5 Remove the wheel chocks and release the parking brake only when the vehicle is ready to depart.

6.5 LOAD SECURING

The driver, the loader and the operator are jointly responsible for securing the load in accordance with the applicable national rules and the European standard EN 12195-1. The load restraint must withstand the following inertia forces:

TABLE 6.2 – DESIGN ACCELERATIONS FOR LOAD SECURING

DIRECTION	ACCELERATION (EN 12195-1, ROAD TRANSPORT)
Forwards (braking)	0.8 g
Rearwards	0.5 g
Sideways	0.5 g (0.7 g for loads at risk of tipping)

6.5.1 SECURING METHODS

- **Direct lashing** – chains or webbing run directly from the lashing points on the machine to the lashing points on the trailer. This is the preferred method for construction machinery.
- **Blocking** – the load is held by a form-fit against the gooseneck step, chocks or stops on the deck.
- **Friction** – anti-slip mats under tracks, tyres and attachments increase friction considerably and reduce the number of lashings required. Friction alone is never sufficient.

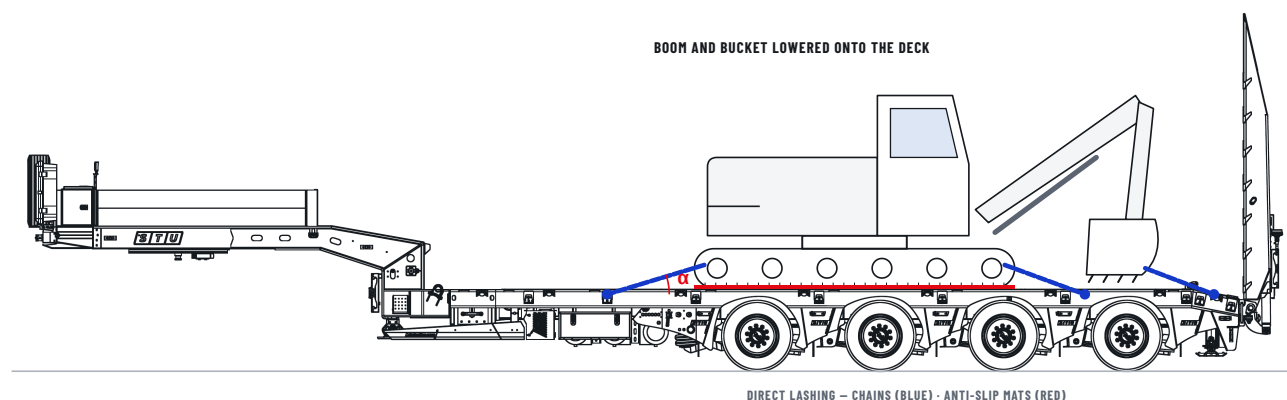


FIGURE 6.2 Direct lashing of a tracked excavator on an STUL4 – chains from the machine's lashing eyes to the trailer's lashing points, boom and bucket lowered onto the deck, anti-slip mats under the tracks. Keep the vertical lashing angle α within the range assumed in the load-securing calculation

6.5.2 RULES FOR LASHING

- Use only lashing equipment that is marked, in good condition and suitable for the load: chains to EN 12195-3, web lashings to EN 12195-2.
- Attach lashings only to the lashing points on the trailer and to the lashing points designated by the machine manufacturer – never to hydraulic lines, pipes, handrails or mudguards.
- Use at least four lashings for every machine – two acting forwards, two acting rearwards – arranged symmetrically.
- The lashing capacity (LC) of each lashing must not exceed that of the lashing point used. Lashing-point capacity on this trailer: **LC = ... daN per point.**
- Secure attachments, buckets and loose items separately.
- After the first kilometres, and after heavy braking or rough roads, check the tension of all lashings and re-tension them if necessary.

WARNING



Overloaded lashing points. Lashing points on the trailer are designed for a defined load. Overloading them can cause the lashing point or the frame to fail. Never attach more than one lashing to a lashing point unless its rated capacity allows it.

6.6 UNLOADING

6.6.1 BEFORE UNLOADING

- 1 Park on firm, level ground in a straight line; apply the parking brake and place the wheel chocks.
- 2 Lower the air suspension if required, then lower the ramps (Section 6.3) and adjust their spacing.
- 3 Brief the banksman and clear the danger zone.
- 4 Remove the lashings one at a time, starting with those on the side away from the operator. Check that the load has not shifted and cannot move once released.

6.6.2 DURING UNLOADING

- Drive down slowly and straight in the lowest speed range. Keep attachments low.
- Pay particular attention at the deck-to-ramp transition, where the machine tilts backwards and then forwards.
- Do not let the machine or its attachments strike the deck, the ramps or the rear lighting.

6.6.3 AFTER UNLOADING

- 1 Clean the deck and ramps of mud, stones and oil.
- 2 Raise and lock the ramps; switch off the power pack.
- 3 Return the air suspension to the ride position.
- 4 Stow and inspect the lashing equipment; replace damaged items.
- 5 Remove the protection from the rear lighting units and check that they work.

DELIVERY AND COMMISSIONING

07

A correct handover and a careful first few hundred kilometres lay the foundations for a long and trouble-free service life.

7.1 HANDOVER

The trailer is delivered fully assembled and ready for operation, with the standard equipment listed in Section 3.5. Optional equipment is supplied as ordered.

At handover, the dealer or STU representative will introduce the new owner to the design and operation of the trailer, its safety devices, the maintenance requirements and the warranty conditions. The owner should check that:

- ☐ The trailer is complete and undamaged and all standard and ordered equipment is present
- ☐ The VIN on the chassis and on the statutory plate matches the VIN in the CoC and the warranty certificate
- ☐ The Certificate of Conformity, this user manual and the component manufacturers' documentation have been handed over
- ☐ The warranty certificate has been completed and signed (Appendix D)
- ☐ The handover and the instruction of the driver(s) have been recorded (Appendix C)

7.2 COMMISSIONING

Before the first journey, and before every use after a long period out of service:

- 1 Familiarise yourself with the names and positions of the main assemblies (Section 3.1).
- 2 Check the tyre pressures (Section 8.6).
- 3 Couple the trailer to a suitable towing vehicle (Chapter 4).
- 4 With the engine of the towing vehicle switched off and the parking brake applied, check the electrical and pneumatic connections for correct function and leaks.
- 5 Check that all lamps work.
- 6 Check the function of the air suspension, the ramps and – if fitted – the lift axle and steering axle.
- 7 Release the parking brake and carry out a brake test at low speed.

7.3 RUNNING-IN

During the first operating period, components settle and must be checked:

TABLE 7.1 – RUNNING-IN CHECKS

WHEN	CHECK
After the first 100 km (laden)	Re-tighten the wheel nuts to the specified torque (Section 8.6)
After 200 km	Re-tighten the wheel nuts again
After the first 1,000 km	Check the wheel-bearing play; check the brake adjustment; check the U-bolts / axle fixings to the axle manufacturer's specification
After the first loading and after approx. 10 loading operations	Check the tightness of the deck fixings and the ramp hinges
After 1 month	Check all bolted joints on the running gear, the king pin and the landing legs

NOTICE



Wheel nuts settle. New wheels, and wheels that have been refitted, settle on the hub during the first kilometres. Re-tightening the wheel nuts after 100 km and 200 km is essential – loose wheel nuts can lead to the loss of a wheel. This also applies after every wheel change.

New brake linings and pads reach their full performance only after they have bedded in. Brake gently and progressively during the first 1,000 km where traffic allows, and avoid long periods of continuous braking.

MAINTENANCE AND SERVICING

08

Regular inspection and maintenance keep the trailer safe, roadworthy and in compliance with the type approval – and they are a condition of the warranty. Small defects found early are quick and inexpensive to correct.

8.1 SAFETY DURING MAINTENANCE

WARNING



Risk of injury from moving parts and stored energy. Before any maintenance work: park the trailer on firm, level ground; apply the parking brake and place the wheel chocks; switch off the engine of the towing vehicle and remove the key; lower the ramps or lock them mechanically; depressurise the pneumatic and hydraulic systems before opening them. Never work under a trailer that is supported only by its air suspension or a jack – always use axle stands of sufficient capacity.

- Wear the PPE listed in Section 2.6: at least safety footwear, gloves and safety goggles.
- Work on brakes, hydraulics and electronics may only be carried out by qualified specialists.
- Use only original STU spare parts or parts approved by STU. Order spare parts quoting the VIN.
- Dispose of used oils, greases, filters, batteries and cleaning agents in accordance with environmental regulations.
- Record every maintenance operation in the maintenance log (Appendix B).

8.2 MAINTENANCE SCHEDULE

The intervals below apply to normal operating conditions. Under severe conditions – construction sites, off-road use, high-pressure cleaning, de-icing salt, extreme temperatures – shorten the intervals. Where a component manufacturer specifies shorter intervals, those apply.

TABLE 8.1 – MAINTENANCE SCHEDULE (● = CARRY OUT)

ASSEMBLY / TASK	DAILY	WEEKLY	MONTHLY	3 MONTHS OR 25,000 KM	ANNUALLY
COUPLING AND CONNECTIONS					

Air couplings: clean, seals intact, protective caps present	●			
Electrical connectors and cables: damage, corrosion	●			
King pin and king pin plate: clean, lubricate, check for damage		●		
King pin wear check (Section 8.9)				●
RUNNING GEAR AND BRAKES				
Tyres: visual check for damage	●			
Tyre pressure		●		
Wheel nuts: check for tightness and rust streaks	●			
Wheel hubs: heating and grease leakage after a journey	●			
Air bellows and shock absorbers: damage, leaks	●			
Lift-axle and steering-axle function (<i>if fitted</i>)		●		
Brake linings / pads: wear			●	
Brake adjustment (slack adjusters)				●
Wheel-bearing play				●
Axle fixings, U-bolts, suspension pivots				●
Wheel-bearing grease change (or per axle manufacturer)				●
Brake test on roller dynamometer				●
PNEUMATIC SYSTEM				
Air leaks (listen)	●			
Drain the compressed-air reservoir		●		
Air lines and hoses: chafing, porosity			●	
Clean the line filters in the couplings				●
HYDRAULIC RAMPS				
Ramp locks, hinges and safety devices: function	●			
Hydraulic hoses and cylinders: leaks, damage		●		
Hydraulic oil level			●	
Lubricate ramp hinges and cylinder pins			●	
Hydraulic oil and filter change				●
CHASSIS AND BODY				
Lighting, reflectors, conspicuity marking	●			
Deck: damage, loose planks, deck bolts	●			
Lashing points: deformation, cracks		●		

Landing legs: function	●		
Lubricate landing legs		●	
Chassis welds and structure: cracks, deformation, corrosion			●
Underrun protection, mudguards, spray flaps, toolbox		●	
Paint damage: repair			●

8.3 LUBRICATION

Proper lubrication is one of the most important factors for the service life of the trailer's moving parts.

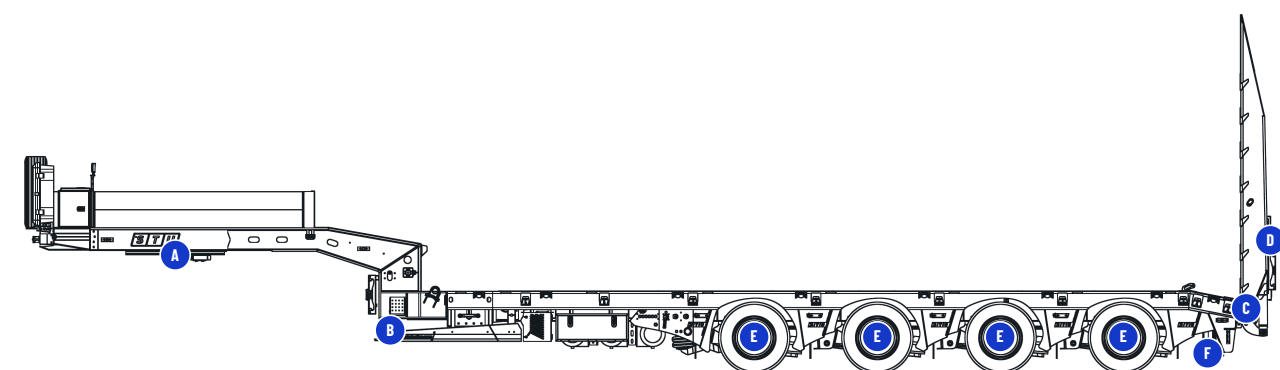


FIGURE 8.1 Lubrication points — STUL4 shown; identical on STUL3 and STUL5

TABLE 8.2 — LUBRICATION CHART

POINT	LOCATION	LUBRICANT	INTERVAL
A	King pin and king pin plate	Fifth-wheel grease or graphite grease	Weekly / when coupling after cleaning
B	Landing-leg gearbox and spindles	Multi-purpose lithium grease (NLGI 2)	Monthly
C	Ramp hinges	Multi-purpose lithium grease (NLGI 2)	Monthly
D	Ramp cylinder pins	Multi-purpose lithium grease (NLGI 2)	Monthly
E	Brake camshaft bearings and slack adjusters (drum brakes)	Per axle manufacturer	Per axle manufacturer, at least 3-monthly
F	Rear support legs — spindles and pivots	Multi-purpose lithium grease (NLGI 2)	Monthly
—	Steering knuckles of self-steering axle (if fitted)	Per axle manufacturer	Per axle manufacturer
—	Wheel bearings	High-temperature wheel-bearing grease per axle manufacturer	Annually or per axle manufacturer

—	Locks, hinges, toolbox, ramp locks	Multi-purpose grease or spray lubricant	Monthly
---	------------------------------------	---	---------

Rules for lubricating:

- Clean grease nipples before applying the grease gun.
- Pump in grease until fresh grease emerges from the bearing gap; wipe off the old grease that is pushed out.
- Leave a small amount of grease on the nipple head as protection.
- Do not over-lubricate brake components — grease on linings or discs severely reduces braking performance.
- Never drive without hub caps. Dirt and water entering the hub will destroy the wheel bearings.

8.4 RUNNING GEAR

8.4.1 WHEEL-BEARING PLAY

Check the wheel-bearing play after the first 1,000 km and then at the intervals in Section 8.2. Many modern axles have maintenance-free, pre-adjusted hub units — in that case follow the axle manufacturer's instructions and do not attempt to adjust them.

For adjustable taper-roller bearings:

- 1 Couple the trailer, apply the towing vehicle's parking brake and chock the wheels on the opposite side.
- 2 Raise the axle with a jack placed under the axle beam close to the wheel until the tyre is clear of the ground. Support the axle securely on an axle stand.
- 3 Check for play by rocking the wheel at the top and bottom. If the play is excessive, remove the hub cap and the axle-nut locking device.
- 4 Turn the wheel and at the same time tighten the axle nut until the wheel just begins to drag.
- 5 Back off the axle nut to the next locking position (typically $\frac{1}{6}$ to $\frac{1}{3}$ of a turn), as specified by the axle manufacturer.
- 6 Secure the nut with a new locking device; refit the hub cap with a new seal.
- 7 Check that the wheel turns freely without noticeable drag, apart from light contact of the brake linings.
- 8 After a short test drive, check the hub temperature by hand. A hub that is clearly hotter than the others indicates incorrect adjustment, contaminated grease or bearing damage.

8.4.2 SUSPENSION

- Check air bellows for cracks, chafing and leaks; check that the ride height is correct.
- Check shock absorbers for leaks and secure mounting.
- Check suspension arms, pivot bushes and U-bolts for wear and tightness. Tighten U-bolts only to the axle manufacturer's specified torque, with the trailer standing on its wheels.

8.5 BRAKES

8.5.1 PNEUMATIC SYSTEM

- Drain condensed water from the compressed-air reservoir weekly — pull or tilt the drain valve while the reservoir is under pressure. Clean the drain valve before winter.

- If oil or a large quantity of water comes out, the air supply from the towing vehicle is not clean and dry; have the towing vehicle's air dryer checked. Damage caused by contaminated compressed air is not covered by the warranty.
- Find leaks by listening for hissing, or by applying soapy water to the connections. Replace leaking seals, lines and components.
- The operating pressure of the dual-line system is approximately 6.5 – 8.5 bar.

8.5.2 BRAKE ADJUSTMENT AND WEAR

- Check the brake linings / pads for wear monthly and replace them in axle sets when the wear limit is reached.
- The trailer is normally fitted with automatic slack adjusters. Check their function every 3 months: the stroke of the brake chamber push rod must stay within the axle manufacturer's limits. Do not use automatic slack adjusters to adjust the brakes manually except during brake re-lining.
- After new linings or pads have been fitted, bed them in and re-check the adjustment.
- Have the brakes checked annually on a roller brake tester. Under UN Regulation No. 13, the service brake of a semi-trailer must achieve a braking rate of at least 45 % of the permissible load, and the parking brake must be able to hold the laden trailer on an 18 % gradient. The difference in braking force between the left and right wheels of an axle must not exceed the limit set by the periodic-inspection rules in force.

WARNING



Brake failure. Work on the braking system – including the EBS – may only be carried out by trained specialists using the brake manufacturer's diagnostic equipment. Never cage a spring brake chamber or open a brake valve without following the manufacturer's instructions.

8.6 WHEELS AND TYRES

8.6.1 TYRES

Use only tyres of the size, load index, speed category and type approved for the trailer (see the CoC). Do not mix tyres of different sizes or construction on one axle.

TABLE 8.3 – APPROVED TYRE SIZES AND RECOMMENDED INFLATION PRESSURES (COLD TYRES, MAXIMUM LOAD)

TYRE SIZE	LOAD INDEX	SPEED SYMBOL	INFLATION PRESSURE
445/45 R19.5	160	J	9.0 bar
435/50 R19.5	160	J	8.5 – 9.0 bar
385/55 R22.5	160	K / L / M	8.5 – 9.0 bar
385/65 R22.5	160	J / K / L	8.5 – 9.0 bar
445/65 R22.5	160	K	9.0 bar
315/80 R22.5	156/150	K / L / M	8.5 – 9.0 bar
11 R22.5	148/145	K	8.5 – 9.0 bar

- Check the tyre pressure weekly with a calibrated gauge, with the tyres cold. Observe the tyre manufacturer's recommendations.
- Correct tyre pressure prevents irregular wear and tyre failure, and reduces fuel consumption.

- Check tyres daily for cuts, bulges, embedded objects and exposed cords. Minimum tread depth: as required by national law (in the EU generally 1.6 mm; national rules may be stricter).



FIGURE 8.2 Check the pressure with a calibrated gauge



FIGURE 8.3 Gauge in good condition (left) – damaged gauge (right)

8.6.2 WHEEL NUTS

TABLE 8.4 – WHEEL-NUT TIGHTENING TORQUES – ALWAYS CHECK THE VALUE SPECIFIED BY THE AXLE MANUFACTURER

THREAD	TIGHTENING TORQUE
M18 × 1.5	330 – 370 N·m
M20 × 1.5	450 – 550 N·m
M22 × 1.5	600 – 660 N·m
M24 × 1.5	820 – 960 N·m

- Tighten wheel nuts diagonally in several stages using a calibrated torque wrench.
- Re-tighten after 100 km and again after 200 km following every wheel change.
- Do not lubricate the threads unless the axle manufacturer specifies it.

8.6.3 WHEEL ALIGNMENT

Correct axle alignment ensures that the trailer follows the towing vehicle in a straight line, minimises tyre wear and rolling resistance and saves fuel. Have the axle alignment checked whenever uneven tyre wear is found, after an accident and after work on the suspension.

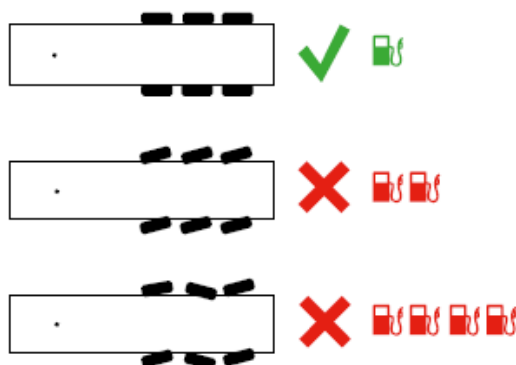


FIGURE 8.4 Correct and incorrect axle alignment

8.7 HYDRAULIC SYSTEM

- Check the oil level in the power-pack reservoir monthly with the ramps raised. Top up only with the oil type specified on the power pack, typically HLP 32 or HLP 46 hydraulic oil (ISO 6743-4 HM).
- Change the hydraulic oil and the filter annually, or earlier if the oil is contaminated.
- Check hoses and cylinders for leaks and damage. Replace hydraulic hoses at the latest six years after their date of manufacture, including a maximum of two years' storage, or immediately if they are damaged.
- Keep the battery terminals (if fitted) clean and the batteries charged.

WARNING



Hydraulic oil under pressure. Escaping hydraulic oil can penetrate the skin and cause serious injury. Never feel for leaks with your hand. Lower the ramps fully and depressurise the system before opening any hydraulic connection. If oil penetrates the skin, seek medical help immediately.

8.8 ELECTRICAL SYSTEM

- Check all lamps daily. Replace defective lamps and lenses at once.
- When replacing lamps or lighting components, check that the connections and lens seals are watertight.
- Keep connectors clean and protect the contacts with a suitable contact spray.
- Before welding, disconnect the EBS modulator and the batteries.

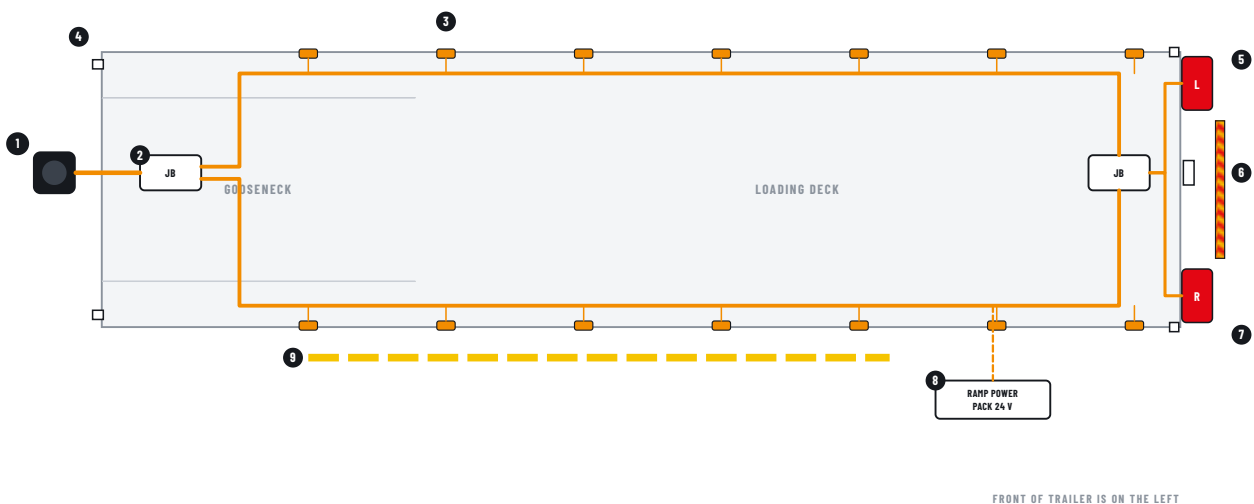


FIGURE 8.5 Lighting installation – schematic top view

- | | |
|---|-----------------------------------|
| 1 15-pole socket ISO 12098 (7-pole sockets optional) | 2 Junction boxes (front and rear) |
| 3 Side marker lamps – amber, at intervals of max. 3 m | 4 Front position lamps – white |
| 5 Rear lamp clusters, left and right | 6 Number-plate lamp |

- 7 End-outline marker lamps
- 8 Ramp power pack, 24 V
- 9 Retro-reflective conspicuity marking (UN R104)

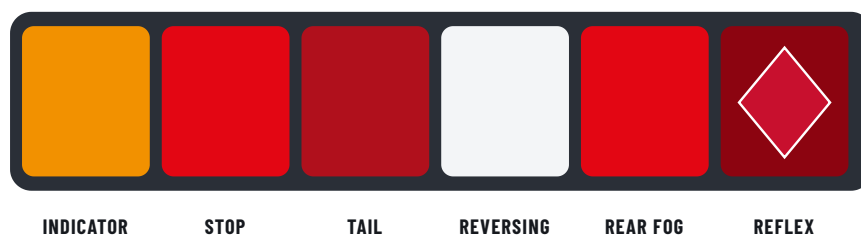


FIGURE 8.6 Rear lamp cluster — typical function layout

8.9 KING PIN

The king pin is a safety-critical component approved under UN Regulation No. 55.

- Keep the king pin and the king pin plate clean and lubricated.
- Check the king pin every 3 months with a king pin gauge. Replace the king pin if its diameter at the locking zone falls below **49.0 mm** (2" king pin) or **86.0 mm** (3½" king pin), or if it is cracked, bent or otherwise damaged — or earlier if the king pin manufacturer specifies stricter limits.
- Check the tightness of the king pin fixing bolts to the manufacturer's specified torque.
- Only replace the king pin with an approved king pin of the same type and fix it with new bolts.



FIGURE 8.7 King pin (example)

8.10 BOLT TIGHTENING TORQUES

Check bolted joints regularly and re-tighten if necessary. Unless a different value is specified for a particular joint, use the following torques for metric coarse-thread bolts:

TABLE 8.5 — GENERAL TIGHTENING TORQUES

THREAD	PROPERTY CLASS 8.8	PROPERTY CLASS 10.9	PROPERTY CLASS 12.9
M6	9.9 N·m	14 N·m	17 N·m
M8	24 N·m	34 N·m	41 N·m
M10	48 N·m	68 N·m	81 N·m
M12	85 N·m	120 N·m	145 N·m

M14	135 N·m	190 N·m	225 N·m
M16	210 N·m	290 N·m	350 N·m
M18	290 N·m	400 N·m	480 N·m
M20	400 N·m	570 N·m	680 N·m
M22	550 N·m	770 N·m	920 N·m

8.11 CLEANING AND CORROSION PROTECTION

- Clean the trailer regularly, particularly after use on construction sites and in winter when de-icing salt is used.
- When using a high-pressure washer, keep a distance of at least 30 cm and do not aim the jet directly at bearings, seals, air bellows, valves, electrical connectors, the EBS modulator, the hydraulic power pack or labels.
- Use only cleaning agents that are suitable for painted steel and plastic components.
- Repair paint damage promptly: clean and degrease the damaged area, apply primer and top coat of the same colour and film thickness.



Protect the environment. Clean the trailer only at washing bays with an oil separator. Collect used oils, greases, hydraulic fluid and contaminated cleaning materials and dispose of them through an authorised waste-disposal company.

TROUBLESHOOTING

The table below lists common faults, their likely causes and the remedy. If a fault cannot be clearly identified or rectified, or if it affects the brakes, the coupling or the structure of the trailer, contact an authorised workshop or STU.

TABLE 9.1 – FAULT-FINDING TABLE

FAULT	POSSIBLE CAUSE	REMEDY
Brake drums / discs overheat	Brakes incorrectly adjusted; slack adjuster faulty; brake sticking	Check the adjustment and the slack adjusters (Section 8.5); have the brake overhauled
Wheel hub overheats	Wheel-bearing play too small; grease contaminated or insufficient; bearing damaged	Adjust the bearing play (Section 8.4); renew the grease; replace damaged bearings
Grease on brake linings	Hub seal damaged, worn or incorrectly fitted	Replace the seal; clean the brake; replace contaminated linings; adjust the bearings
Uneven braking, trailer pulls to one side	Linings contaminated or worn; brakes incorrectly adjusted; brake chamber faulty	Inspect and clean or replace the linings; adjust; replace faulty components
Insufficient braking performance	Brakes out of adjustment; linings glazed or worn; low air pressure; EBS fault	Check the air supply (≥ 6.5 bar); have the brakes and EBS checked by a specialist
Parking brake cannot be released	Insufficient reservoir pressure; supply line not connected; red PREV button pulled out	Connect the supply line; build up pressure; push in the red button (Section 4.5)
EBS / ABS warning lamp lit	ISO 7638 connector not connected or damaged; sensor or modulator fault	Check the connector and cable; have the fault memory read by a brake specialist
Air leak at couplings or connections	Loose connection; damaged seal	Tighten or replace the connection or seal
Air leak at a valve or brake chamber	Worn seals; mechanical damage	Replace the seals or the complete component

Trailer not level / air suspension does not reach ride height	Lift / lower valve not in ride position; levelling valve linkage damaged; bellows leaking	Set the valve to ride; check the linkage and the bellows
Lights do not work	Bulb or LED unit defective; fuse; connector corroded; cable damaged	Replace the lamp; check the fuse; clean the connector; repair the cable
Ramps do not move	No power supply; emergency stop pressed; low oil level; fuse; motor overheated	Check the supply and fuses; reset the emergency stop; top up the oil; allow to cool
Ramps sink slowly	Internal leak in a cylinder or valve	Do not stand under the ramps; lock mechanically; have the hydraulics repaired
Uneven tyre wear	Incorrect tyre pressure; axle misalignment; overloading	Correct the pressure; have the alignment checked; observe the axle loads
Landing legs hard to operate	Lack of lubrication; bent spindle; gear not fully engaged	Lubricate; check for damage; engage the gear correctly

STORAGE, DECOMMISSIONING AND DISPOSAL

10

10.1 TEMPORARY STORAGE

If the trailer is taken out of service for a longer period:

- 1 Clean the trailer thoroughly and repair any paint damage.
- 2 Park it on firm, level, well-drained ground — preferably under cover.
- 3 Lower the ramps onto timbers or lock them in the transport position.
- 4 Support the chassis so that the tyres are relieved of load, or check the tyre pressure monthly. Protect the tyres from direct sunlight.
- 5 Drain the compressed-air reservoir.
- 6 Lubricate all lubrication points and protect bright metal parts with a corrosion inhibitor.
- 7 Disconnect on-board batteries (*if fitted*) and keep them charged.
- 8 Secure the trailer against unauthorised use and against access by children.

Before putting the trailer back into service, carry out the commissioning procedure in Section 7.2.

10.2 DISPOSAL

At the end of its service life, the trailer must be disposed of in an environmentally responsible manner.

- Hand the trailer over to an authorised end-of-life vehicle treatment facility.
- The certificate of destruction issued by the facility is required to de-register the trailer.
- Drain hydraulic oil, lubricants and other fluids beforehand and dispose of them separately.
- Steel, aluminium, timber, rubber and plastic components can be recycled.



Recycling. Most of the trailer's mass is steel and can be recycled almost completely. Usable components may be reconditioned and reused, provided they are inspected and approved for further use.

WARRANTY

11

11.1 WARRANTY PERIOD

TABLE 11.1 – WARRANTY PERIODS

WARRANTY	SCOPE	PERIOD
Standard warranty	Defects in material and workmanship of the trailer	12 months from the date of delivery
Production (structural) warranty	Chassis and welded structure	24 months or 250,000 km from the date of delivery, whichever comes first
Paint warranty	Coating system (provided by the paint supplier)	24 months from the date of delivery

11.2 WARRANTY PROCEDURE

- Warranty claims must be notified to STU **before** any repair is carried out. Repairs that have not been notified and approved in advance will not be accepted.
- Warranty repairs must be carried out by an STU-authorised service partner or a workshop approved by STU in writing.
- Only original STU parts or parts from STU-approved suppliers may be used.
- Replaced parts must be kept by the authorised service partner for 180 days and made available to STU on request. Parts replaced under warranty must then be scrapped so that they cannot be re-used.
- STU reserves the right to inspect the trailer before and during the repair.
- A warranty repair does not extend or renew the warranty period of the trailer.
- Warranty claims can only be made by the owner of the trailer or by a party acting on the owner's behalf.
- Invoices for approved warranty work must quote the STU authorisation number and the VIN.
- The general terms and conditions of STU apply. The full warranty terms are available from STU and at www.stutrailer.com.

11.3 EXCLUSIONS

The following are **not** covered by the warranty:

- wear parts and consumables, such as tyres, brake linings and pads, brake drums and discs, air bellows, bulbs, timber flooring, filters, oils and greases;
- damage caused by improper use, overloading, accidents, abnormal driving behaviour or operation under abnormal conditions;
- damage caused by inadequate or incorrect maintenance, or by contaminated compressed air from the towing vehicle;
- damage caused by modifications or repairs not approved by STU;
- consequential and indirect costs, including recovery, towing, replacement vehicles, trailer hire, transport costs, call-out charges, subsistence, loss of revenue and damage to the load;
- routine maintenance costs.

STU may refuse a warranty claim if the warranty conditions or the general terms and conditions have not been observed.

APPENDICES

12

12.1 APPENDIX A – TRAILER DATA SHEET

Complete this sheet at handover from the statutory plate and the Certificate of Conformity.

TABLE 12.1 – TRAILER DATA

ITEM	VALUE
VIN	
Type / variant / version	
EU type-approval number	
Number of axles / lift axle / steering axle	
Technically permissible max. laden mass	kg
Permissible mass on the king pin	kg
Permissible axle / axle-group load	kg
Unladen mass	kg
King pin size	2" ☐ 3½" ☐
Tyre size	
Axle make and type	
Brake system make and type	
Date of first registration	
Registration number	

12.2 APPENDIX B – MAINTENANCE LOG

TABLE 12.2 – MAINTENANCE LOG

DATE	KM READING	WORK CARRIED OUT	WORKSHOP / NAME	SIGNATURE

12.3 APPENDIX C – HANDOVER AND INSTRUCTION RECORD

The undersigned confirm that the trailer identified below has been handed over complete and in working order, and that the persons named have been instructed in its safe operation, loading, load securing and maintenance on the basis of this user manual.

TABLE 12.3 – HANDOVER DATA

ITEM	DETAILS
VIN	
Date of handover	
Dealer / STU representative	
Customer	
Persons instructed	

Signature – dealer / STU

Signature – customer

12.4 APPENDIX D – WARRANTY CERTIFICATE

TABLE 12.4 – MANUFACTURER

MANUFACTURER	
Name	STU Treyler Dorse İthalat İhracat Ltd. Şti.
Address	Fevzi Çakmak Mah. 10664 Sk. No: 30 / 1, Karatay / Konya, Türkiye
Telephone	+90 541 336 63 77
E-mail	info@stutrailer.com
Website	www.stutrailer.com

TABLE 12.5 – AUTHORISED PARTNER

AUTHORISED PARTNER / DEALER	
Name	
Address	

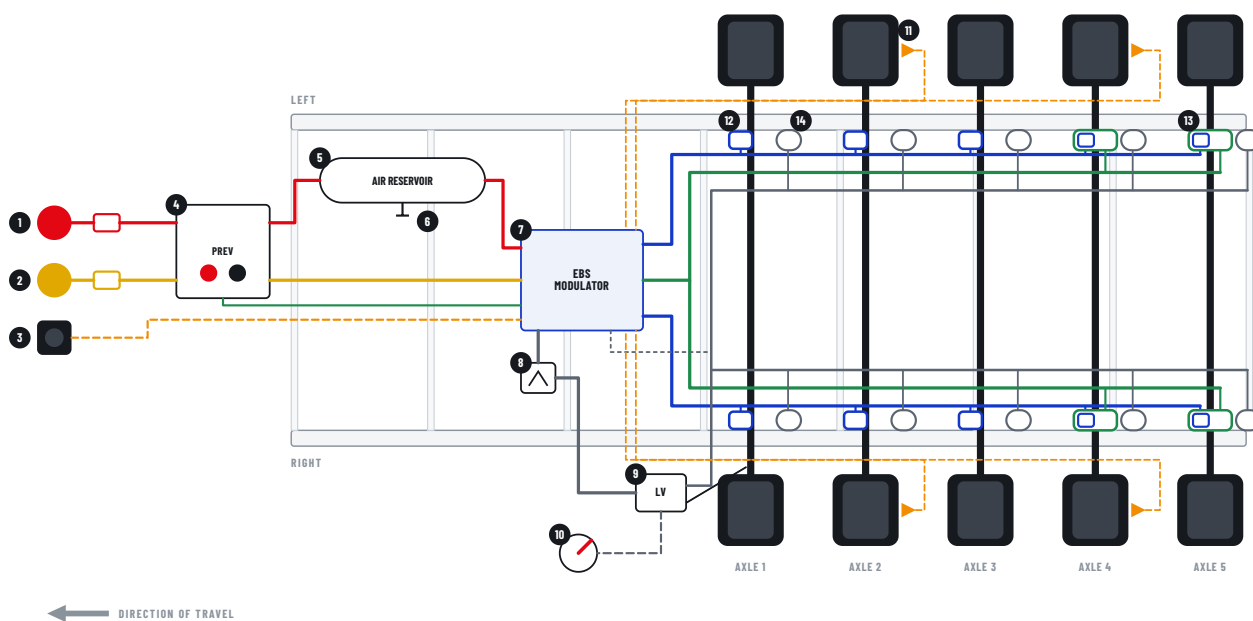


FIGURE 12.2 Braking and air-suspension system – STUL5, 4S/2M EBS layout (schematic). Legend as in Section 5.4

**READ THIS MANUAL BEFORE USE.
KEEP IT WITH THE TRAILER AT ALL
TIMES.**



STU TREYLER DORSE İTHALAT İHRACAT LTD. ŞTİ.

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