STEVE VICK INTERNATIONAL

SOLUTIONS FOR THE REPAIR RENOVATION AND DECOMMISSIONING OF PIPELINES

Hexi 500m Pipe Coil Trailer

Operating Instructions

Steve Vick International Ltd

Treenwood Industrial Estate, Bradford on Avon, Wiltshire, BA15 2AU, UK

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1. INTRODUCTION

Since its foundation in 1981, Steve Vick International has been at the leading edge of trenchless techniques for the repair and renovation of underground **gas** distribution pipes.

In the UK, we are a major supplier to the gas distribution networks and many of our techniques have become accepted practice in the industry. We constantly seek to provide our customers with renewal methods which will minimise their costs and maximise their production.

The company has been supplying pipe handler equipment to the **water** utilities and their contractors for over 20 years. More recently we have entered the market with pipe cutting equipment and our sealant technology has been successfully adapted for use in the waste water sector.

In 2014 the company relocated and can be found at:

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2. PRODUCT DESCRIPTION

The Hexi Trailer is designed to transport and dispense a 500m coil of 63, 75 or 90mm PE pipe.

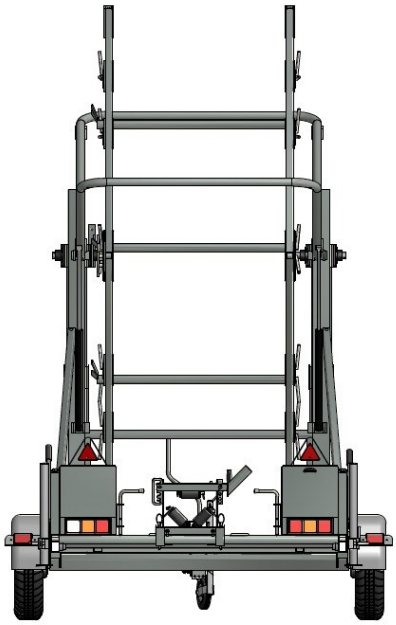


Figure 1 - Rear View

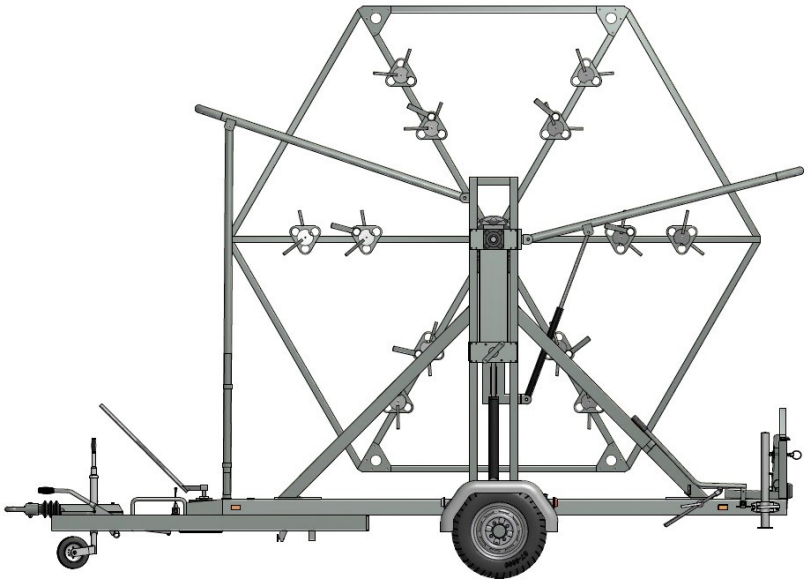


Figure 2 - Side View

2.1. TRAILER HIGHLIGHTS

By using 500m coils of PE, significant savings on pipe wastage is possible due to only having surplus at the end of 500 metres of pipe instead of at the end of every 100 or 120 metres.	Conforms to VCA - Vehicle Type Approval. Meets all current EU legislation. Confirms to Gas Industry Standards Specification for Polyethylene Pipe Coil Trailers (GISE-49).
Recycling of short sections of pipe is achieved y recoiling fused, cut off sections of pipe using the central drum.	Auto reverse brakes fitted as standard. Built-in full road lighting supplied as standard.
200m 125PE SDR17 can also be loaded onto the trailer. Standard 125PE SDR17 coils also fit.	All loading and dispensing procedures are carried out from ground level with no need for operatives to step or climb onto the frame.
Overall, loading is quicker as 500 metres of pipe is loaded in one go compared with 4 or 5 times with shorter coils.	Upon request Vent Stack in incorporated into the main frame of the trailer with a purge hose fitted.
With only a single axle, the trailer is easy to manoeuvre and transport.	Interlocking drum system - drum cannot be raised without road brake being engaged.
Hexagonal drum is raised allowing a swift, smooth and controlled dispensing operation using the central drum braking system which also helps recoiling.	Leading end of PE is strapped to the frame to prevent it ‘springing’ away thus avoiding injury hazard.
Hexagonal drum and rear gate are raised and lowered using lever operated hydraulics.	During dispensing, PE is fed through guide roller assembly (often referred to as the re-rounder unit).
During Live Gas Mains Insertion operations, pipe may be purged at 2.5m above ground by connecting to a fitting on the main frame - without the need to climb onto the trailer or attach a purge assembly to the end of the coil.	Can be loaded by a single operative using the drum extension bar and no need for operatives to put hands within the drum at any stage - although it is recommended to have two operatives loading the trailer.

2.2. TRAILER FEATURES

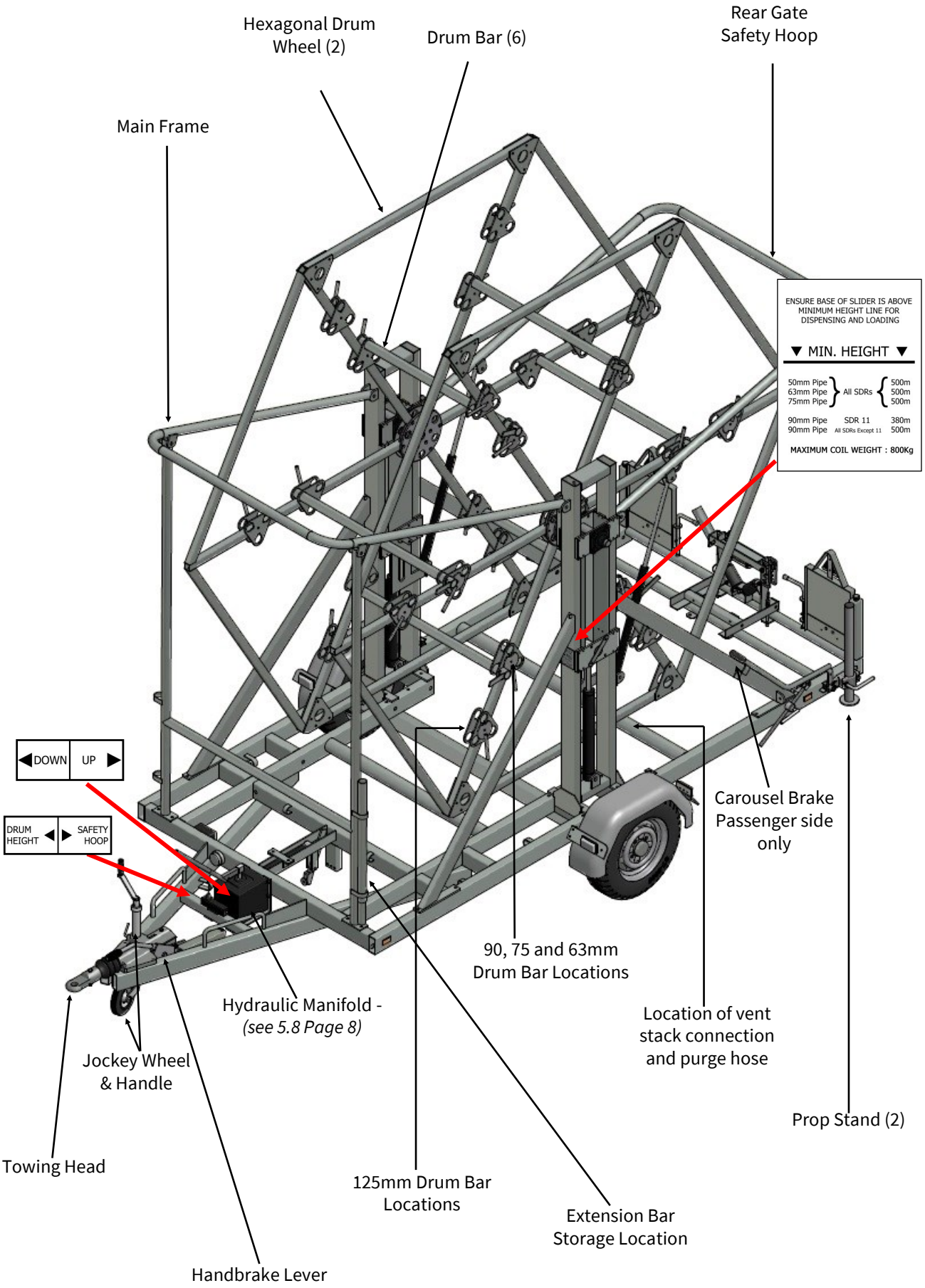


Figure 3 - Key features of The Hexi Pipe Coil Trailer

3. TRAILER SPECIFICATIONS

MAXIMUM COIL LENGTH	
PIPE DIAMETER	**COIL LENGTH**
63mm SDR11	Up to 500m
75mm SDR11	Up to 500m
90mm SDR17.6	Up to 500m
125mm SDR17.6	Up to 200m
MAXIMUM COIL DIMENSIONS	
MAXIMUM COIL O.D. - ALL SIZES	3.4m
MINIMUM COIL I.D. FOR 63, 75 & 90MM	1.8m
MINIMUM COIL I.D. FOR 125MM	2.5m
MAXIMUM COIL WIDTH	0.9m
TRAILER DIMENSIONS	
OVERALL LENGTH (LOADED OR UNLOADED)	5m
OVERALL WIDTH	2.4m
LOADING HEIGHT (MAXIMUM HEIGHT)	4.5m
DISPENSING HEIGHT (MINIMUM HEIGHT)	3.95m
TRAVEL HEIGHT	3.5m
TRAILER WEIGHTS	
UNLADEN DESIGN WEIGHT	1055kg
MAXIMUM GROSS WEIGHT	1900kg
MAXIMUM PAYLOAD	800kg

*Refer to PE pipe manufactures guide to weights of coils, paying attention to the SDR rating, length and size of coil. Ensure lifting equipment, for example straps and hooks are rated, certified and within specified date and the weight of the coil is under the SWL for the mechanical lifting equipment being used.

Vehicle Type Approval (VCA)

The Hexi Trailer has Vehicle Type Approval, VCA is designated UK Approval Authority and Technical Service for type approval to all automotive European Community (EC) Directives and the equivalent United Nations Economic Community for Europe (ECE) Regulations. **Vehicle Type Approval** is the confirmation that production samples of a design will meet specified performance standards.

4. SAFETY AND PRECAUTIONS

4.1 PREPARATION PRIOR TO LOADING

The following PPE must be worn at all times:

A) Eye protection
B) Hard hat
C) High visibility jacket
D) Gloves
E) Steel toe cap footwear

- Carry out daily trailer checks prior to loading procedure as per page 18.
- It is recommended a minimum of two operatives are available to carry out the task of safely loading a coil and have had relevant training.
- In most cases the coil is loaded using a certified strap correctly attached to a mechanical lifting device - **using a strap also prevents the possibility of damaging PE with unprotected fork blades.**
- Ensure towing vehicle is suitable for a hitch with a 30mm towing eye and is not exceeding its maximum towing weight for trailer and coil as per page 5.
- Ensure weight of coil does not exceed maximum capacity of lifting device when fully extended.
- Ensure straps/hooks used with the trailer are in good working order, certified and within service date to safely handle the weight of the coil.
- Check the lifting device can suspend the coil by a minimum of 550mm from the ground.

4.2 IMPORTANT POINTS

The trailer is designed to carry coils of PE in the size range stated and should not be used for anything else. Ensure the following points are adhered to:

- Do not strap ancillary equipment to the trailer. If a vent stack is installed this should be permanent fitting and carried out by a competent professional.
- Do not stand in the trailer especially when travelling.
- Do not tow the trailer if your licence does not permit you to do so - refer to up to date regulations.
- Do not drive above the relevant speed limit when towing the trailer.
- Observe driving conditions at all times when towing the trailer.

5. OPERATING INSTRUCTIONS

5.1 It is recommended to connect the trailer to a suitable vehicle for loading.

Ensure the locking pin is secured through the eyelet on the towing hitch and the breakaway cable is attached.

Figure 4

5.2 Manually apply the handbrake.

Figure 5

5.3 If the trailer is to be unhooked from the vehicle the roll back test must be carried out first. This process reverses the breaks maintaining a constant breaking force.

A banksman is needed for the roll back test.

Reverse the vehicle and trailer approximately six inches which pushes the handbrake lever into the 12 o'clock position.

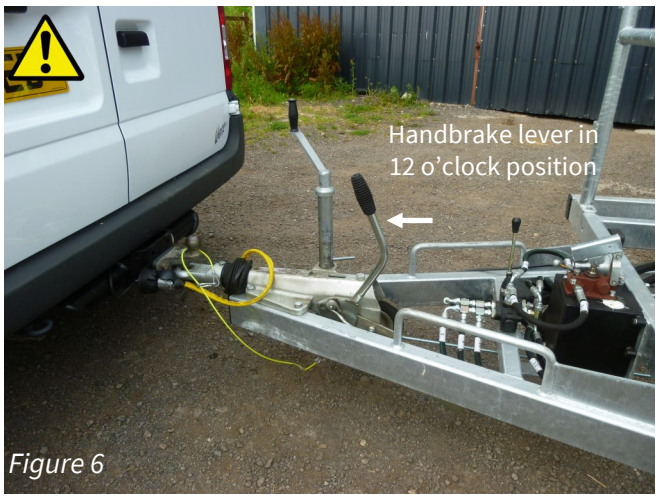


Figure 6

5.4 Before unhooking the trailer from the vehicle the jockey wheel must be lowered onto the ground and secured in place at a height that keeps the trailer level.

If required the trailer can be now be unhooked from the vehicle.

Figure 7

5.5 Rotate light panels towards main frame on both sides and secure with shoot bolts (*Figures 8 & 9)*

Figure 8

5.6 Information panel in the open position.

Figure 9

5.7 The pipe guide may need to be removed if it will foul the coil as it is loaded. If the coil can be loaded over the pipe guide then the pipe guide can remain attached to the trailer.

Remove the four swivel pins and hang them loose. The pipe guide should be lifted up off the bars at the lifting points shown. It may be necessary to consider a second operative to help if the weight is considered too much for the operative.

Never stand inside the trailer when lifting the pipe guide.

Figure 10

5.8 The hydraulic hose manifold controls two sections of the trailer: the raising and lowering of the safety hoop at the rear and the height of the hexagonal drum.

A. 'Drum Height' or 'Safety Hoop Function Lever.
B. Direction Lever (Up or Down).
C. Hydraulic Pump Handle.

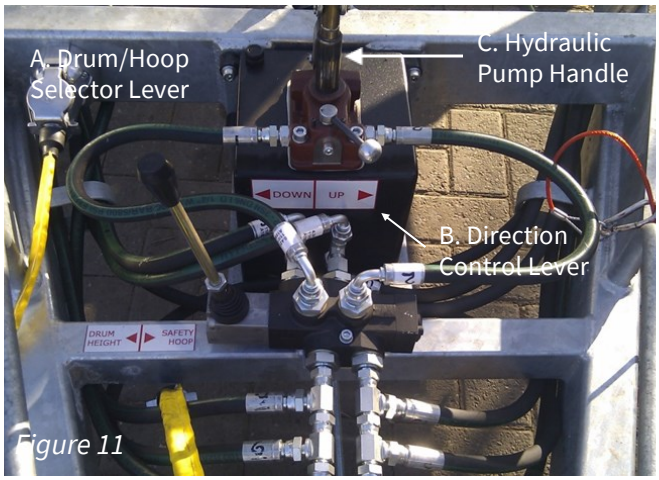


Figure 11

5.9 The Safety Hoop must be lowered before the hexagonal drum is raised for loading.

Referring to *Figure 11,* select 'Safety Hoop' and 'Down'. Pump the hydraulic handle backwards and forwards to lower the Safety Hoop.

Figure 12

5.10 The Safety Hoop will slowly lower to a position underneath the carousel and the pump handle becomes stiff.

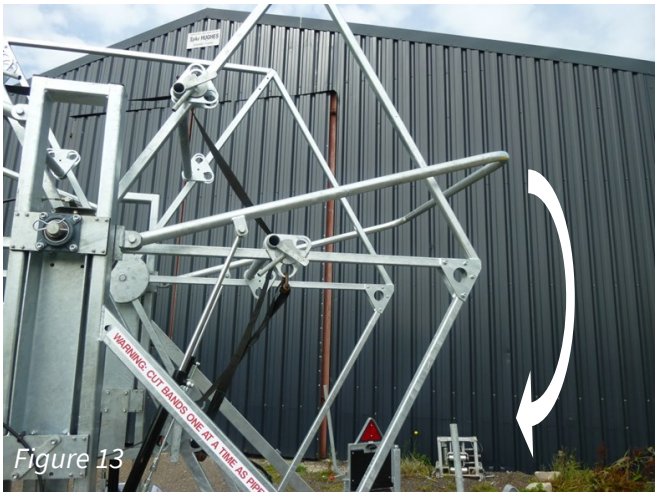


Figure 13

5.11 To raise the carousel, select 'Drum Height' on the manifold and select 'Up' using the Control Lever. Begin pumping the hydraulic pump handle to start raising the carousel.

Raise the carousel above the minimum height level plaque UNTIL MAXIMUM HEIGHT IS ACHIEVED ON BOTH SIDES. This will ensure the drum bar location triangles are square either side. This is achieved by pumping the handle until it becomes rigid.

For dispensing only, raise the drum wheel until the underside of the slider plate is above the MIN. HEIGHT mark on BOTH sides.

Figure 14

5.12 The next stage is to remove the drum bars but first the brake should be applied to the drum wheel to stop unwanted rotation.

As the drum rotates freely and smoothly a brake system is fitted to control the speed of the drum rotation. The brake should be applied when removing or replacing the drum bars to prevent the drum wheel from moving suddenly.

The drum brake is located on the near side of the trailer towards the rear. It comprises a hand lever, brake cable assembly and tensioner unit.

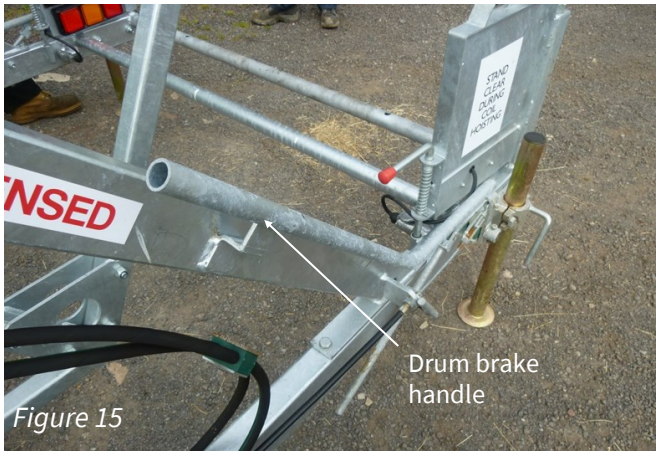


Figure 15

5.13 Apply the drum wheel brake by pulling the hand lever to the 12 o'clock position.

The Hexi trailer recently went through a design modification and the drum wheel arm was removed on the drivers side. All trailers manufactured from 2016 onwards do not have this second arm. All efforts have been made to modify existing trailers however contact Steve Vick International if the trailer in question has this second brake lever.

DO NOT USE THE TRAILER UNTIL THIS MODIFICTION HAS BEEN CARRIED OUT.

Figure 16

5.14 With the hand lever in the 12 o'clock position, tighten down the tensioner handle by rotating clockwise. This will maintain a braking force on the drum wheel. **Do not place any part of the body within the swinging zone of the lever arm.**

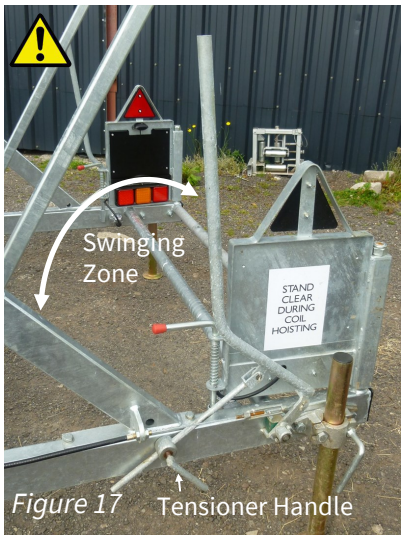


Figure 17

5.15 Remove the first drum bar by turning the drum bar securing wheel to unlock the drum bar. The safest place to do this is in the 5 o'clock or 7 o'clock position as you look at the trailer. **There is no need to stand on the trailer.**

Figure 18

5.16 Rotate drum bar so that the secondary locking wedge on the other end of the drum bar can slide through the slot; slide the drum bar partly out - do not place any limbs inside the drum wheel.

Insert drum bar extension tube into drum bar as shown in Figure 20. The extension bar is stored on the main frame when not in use - see drawing on page 4. 2.2 TRAILER FEATURES.

Figure 19

5.17 Removing the six drum bars can be a one-man operation using the drum bar extension tube. This tube allows the weight of the drum bar to be spread across the drum wheel and allows the drum bar to be easily lined up with the drum wheel on the other side. *However refer to relevant loading procedures.*

Release the carousel brake, rotate drum wheel and repeat process with the remaining drum bars. **Keep control of the drum wheel at all times and do not allow it to become unbalanced—ensure opposing drum bars are removed in sequence. Do not place any limbs inside the carousel.**

Figure 20

5.18 Using suitable lifting gear lift the coil towards the trailer. A suitable strap and lifting eye is recommended and the coils should never be hung from the blades of a forklift.

The leading end of the coil must be facing the gate end of the trailer (when inside the trailer) otherwise the pipe cannot be dispensed.

Figure 21

5.19 Any swinging movement of the coil can be controlled by an operative using a length of rope tied round the coil usually in the 5 or 7 o'clock position. Do not stand directly underneath the lifting gear.

Figure 22

5.20 Note: If it is not possible to load the coil directly onto the trailer in this manner, proceed as follows:

With the carousel in the fully lowered position, release handbrake and lift prop stands. Reverse trailer under the suspended coil. Re-apply handbrake, lower prop stands and raise drum wheel. Use guide ropes attached to the side of the coil to minimise any coil movements.

Figure 23

5.21 Begin to replace the drum bars. Choose the hole on the fixing triangle nearest to the inner diameter of the coil and use this position on all six drum bars. If this is not possible the inner hole can be used. The tighter the drum bars are to the inner diameter of the coil the smoother the rotation of the coil will be.

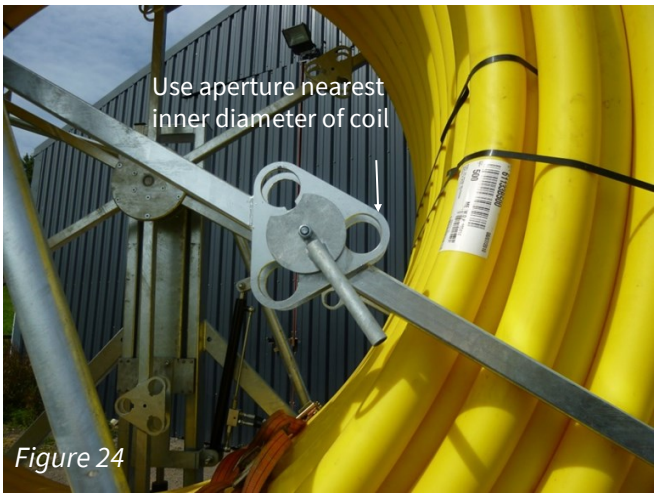


Figure 24

5.22 Re-insert the drum bar through the fixing triangle using the drum bar extension tube.

Do not place any limbs inside the carousel.

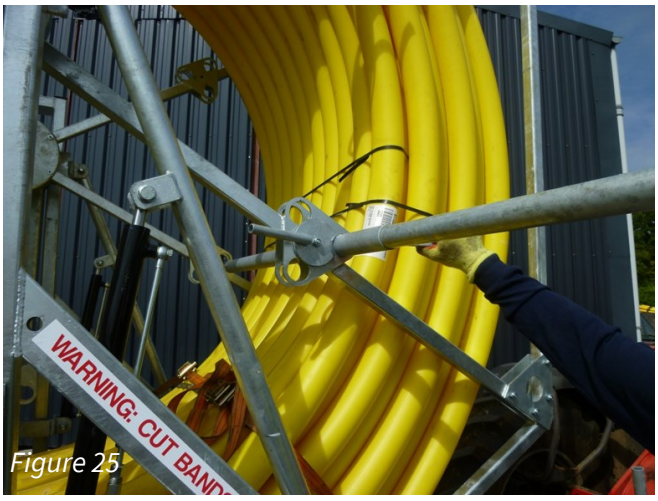


Figure 25

5.23 Relocate the drum bar through the fixing on the other side by lining up the wedge on the drum bar with the slot.

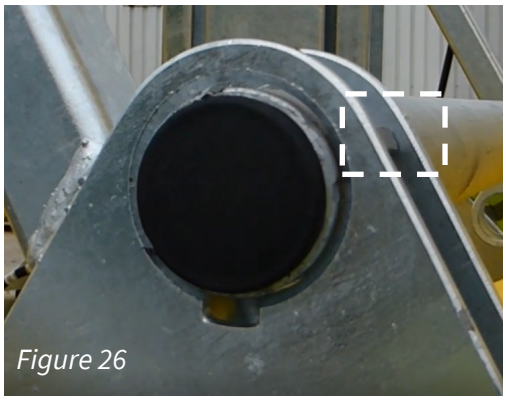


Figure 26

5.24 Secure the drum bar by rotating the drum bar securing wheel so that it slides inside the groove on the drum bar. Repeat process for the remaining drum bars.

When all six drum bars are in place, the coil can rest on the drum wheel and the sling from the lifting gear can be removed.

Figure 27

5.25 The slackened sling should be lowered to a height where it can be safely removed from the coil. Spin the coil to check if any of the drum bars can be positioned tighter to the coil. If so this can be carried out one drum bar at a time.

Figure 28

5.26 The leading end of the coil must be secured for travel. A test end or pipe end clamp is installed into the leading end of the coil. It is usually easy to do this before the carousel is lowered.

Ensure whatever arrangement is used complies with relevant codes of practice. Ensure ratchet straps, hooks and D-Shackles have all necessary certification.

Figure 29

5.27 A ratchet strap is attached to the eyelet of the test end or pipe end clamp. Alternatively use the ratchet strap with the sown in hook.

Ensure whatever arrangement is used complies with relevant codes of practice. Ensure ratchet straps, hooks and D-Shackles have all necessary certification.

Figure 30

5.28 The ratchet strap can be attached to the opposite drum bar position on the opposite side of the trailer.

Figure 31

5.29 Ratchet the strap tight which should pull the test end or pipe end clamp away from the side of the trailer and more inline with the coil.

Figure 32

5.30 The carousel must now be lowered for travel. To do so with the Function Lever in the 'Drum Height' position select 'Down, on the Direction Control Lever.

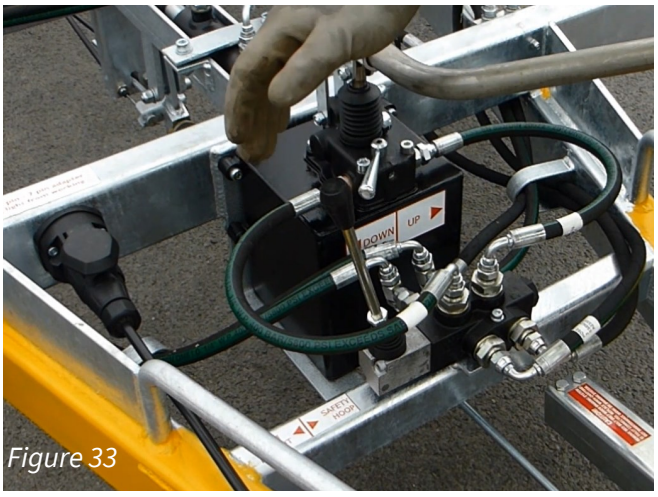


Figure 33

5.31 Ensure the carousel is level with the trailer frame and begin pumping the carousel downwards using the Hand Pump. If necessary secure carousel with the carousel brake. Visually check the decent of the carousel at all times ensuring there is no one near the trailer or any tools etc. that may be damaged during the process.

Figure 34

5.32 Keep pumping the handle until it becomes stiff to pump. This means that the piston on the ram sited behind the Hand Pump has retracted back into the ram leaving approximately 1/4 of the piston visible as shown in Figure 35. This action MUST be carried out as it allows the handbrake to be released and not accidently left on during towing which will result in damage to the brakes.

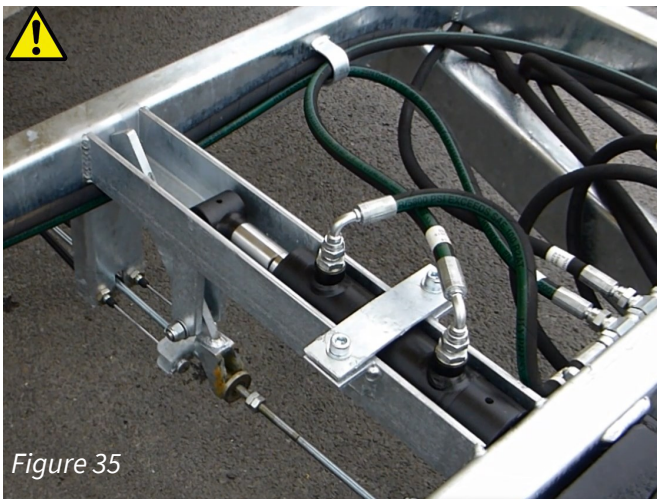


Figure 35

5.33 Raise the Safety Hoop to its travel position by selecting 'Safety Hoop' on the Function Lever and 'Up' on the Direction Control Lever. The travel position is when the Hand Pump becomes stiff to pump when raising.

Figure 36

5.34 For towing, return the information panels to their original position, securing it with the shoot bolts.

Figure 37

5.35 The trailer is now ready for transportation to site. **If the prop stands and jockey wheel were lowered for loading these must be fully retracted before towing the trailer.** If removed reinstall the pipe guide and secure. The electrics will need to be hooked up to the vehicle and the lights on the trailer checked before towing.

5.36 The process of **Live Mains Insertion** requires the Live Head to be inserted into the live host main and the air in the coil purged with gas. To facilitate this the carousel will have to be raised and the required length of pipe dispensed. Once the Live Head is inserted into the Glandbox the tail end of the PE can be connected to the purge hose incorporated into the main frame. (Please note some trailers may not have this facility and the air must be purged using a separate purge assembly stack.)

The testing on the coil and the purging process is not required for Dead Mains Insertion.

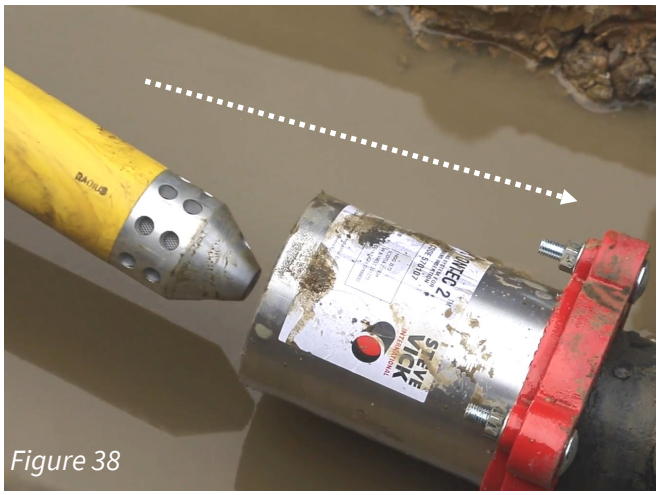


Figure 38

5.37 Prior to allowing the gas from the host main into the PE coil, the Purge Hose must be connected to the fitting on the tail end of the PE coil. Figure 40 shows the Purge Hose being screwed onto the 1" BSP valve on the Test End.


Figure 39

5.38 The other end of the Purge Hose is permanently connected to the trailer and once the gas is allowed to purge the air this can be measured using the test point incorporated into the purge assembly.

The vented gas is sent inside the vertical strut of the trailer frame and is released to atmosphere at **2.5m above ground** which is the top of the trailer.

Once the correct reading is obtained the Purge Hose can be removed off the PE and screwed onto its locking nut on the frame of the trailer.

Figure 40

5.39 When ready the PE coil can now be fully dispensed to the desired length.

- Cut the bands at the required time using a suitable blade and NOT when the coil is turning.
- Use the carousel brake if the coil is spinning too fast.
- Do not climb on or inside the trailer.


Figure 41

5.40 As the coil becomes almost fully spent, the pre-attached ratchet strap begins to take the strain of the coil, avoiding the risk of it springing away and potentially causing injury.

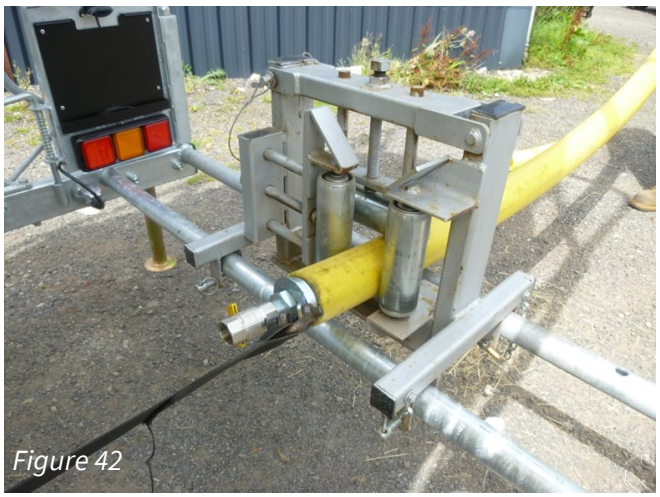


Figure 42

5.41 When the tail end of the coil relaxes as insertion is halted, the ratchet strap can be safely removed.

Figure 43

5.42 Rope may be required to replace the ratchet strap to help splay out the remaining metres of PE coil. This must only be fitted when there is no strain on the coil/ratchet strap.

Carefully follow and restrain the coil until the insertion is complete.

When only part of the coil is dispensed the coil should be cut close to the trailer and the remaining pipe re-coiled back onto the coil and secured.

Figure 44

5.43 The trailer can be towed away from site when required. Before towing the vehicle away ensure:

- The towing head is properly attached to the vehicle.
- The rear gate is closed.
- The carousel is locked in place using the carousel locking bolt/s.
- Both prop stands are raised.
- The jockey wheel is fully retracted.
- The trailer lights operate correctly.

6. SERVICE GUIDE

DAILY CHECKS	FIRST 160KM (100 MILES)
Check all lights are operating correctly	Service braking system
Check jockey wheel and prop stand clamps are secure	Clean grease from hubs, replace and adjust
Check for body damage	Lubricate coupling and brake linkages
Check handbrake is operating correctly	Check chassis and body for damage
Ensure End clamp and Ratchet Strap are fitted	Tighten all clamping bolts

WEEKLY CHECKS	FIRST 800KM (500 MILES)
Check nuts on tow hitch are tight (86NM)	Inspect condition of brake shoe lining
Check tyre pressure and inspect for damage	Service and adjust braking system, then check
Recommended Tyre Pressure: 2.4 Bar	Clean grease from hubs, replace and adjust
Check braking system is operating correctly	Lubricate coupling and brake linings
Check wheel nut torque setting - 115NM	Check chassis and body for damages
	Tighten all clamping bolts
	Check tyres for damage and wheel nut torque settings
	Check all lighting

Hydraulic Checks - *These checks are an ongoing process and should be continuously carried out*
Ensure oil reservoir is maintained at approximately one inch from the top filling hole with the carousel fully lowered down
Oil should be of a standard that is suitable for hydraulic pumps
Visually check for any leaks
A leaking fitting should be tightened up or replaced if damaged
If one drum wheel is significantly lower than the other an adjustment will be needed on the individual ram. Contact Steve Vick International for advice or speak directly to a specialist.

7. ROUTINE MAINTENANCE

Owing to the varied uses which coil trailers are subjected to it is difficult to lay down realistic maintenance intervals. While some will be in daily use, others will be used less frequently. With the latter it is advisable to thoroughly check the trailer's tyres, coupling, brakes, lights, jockey wheel, bearing adjustment and general condition before every journey, and with the more frequently used trailer every 800kms (500 miles).

7.1 WHEEL NUT TORQUE

It is most important that the torque setting is not exceeded. Over tightening can result in immediate shearing of the stud, or a fracture, breaking when the trailer is on the road. With the normal size manual wheel brace one is not likely to exceed the settings, but special care should be taken when using impact wrenches. A torque wrench should be used.

7.2 TAPER ROLLER BEARINGS

Tighten the axle nut to ensure 0,1mm end float. Since it is not practical to do this without special measuring equipment it is usually sufficient to first of all pre-compress the bearings to ensure the out bearing inserts are up to the machined shoulders of the hub and then 'back off' the slotted nut until the hub spins freely without any noticeable 'end float'. This is usually approximately 2 castellation bearings. On achieving the correct setting, insert the split pin and ensure it is opened up. Bearings should be readjusted on all new trailers after the first 160kms (100 miles).

Bearings should be kept packed with a good lithium based grease at all times. When checking grease always ensure that the grease seal, which will either be attached to the rear bearing or inserted into the rear of the hub, is not damaged in any way. If damaged, replace it.

7.3 BRAKING SYSTEMS

Brake System Adjustment and Maintenance
On level ground and with the brake lever in the off position, ensure that the security/transit key is fitted in place in the brake link shoulder bolt. (If the security/transit key is unavailable for a trailer already in service an M10x1.5 bolt will suffice if it is long enough to prevent the brake lever from going over-centre). This will prevent the use of the brake lever and lock out the pre-charged spring whilst the transmission system is being serviced.

Jack the trailer off the ground sufficiently to allow free movement of the wheels. If crawling under the trailer to maintain the system, ensure that the whole trailer is securely chocked. It may not be wise to rely on jacks alone.

Where the transmission rod and brake cables are already connected, take tension out of the system by winding back the nuts on the rod behind the balance bar. It is now possible to begin the set-up procedure starting with the wheel brakes. These can be adjusted by means of a M10, M12 or M14 bolt (dependent on brake type) at the rear of the brake back-plate.

Rotate each wheel in the forward direction of travel whilst tightening the bolt until the wheel locks. Then gradually release the tension on the adjuster by winding back the bolt until the wheel can rotate (forwards) with just slight resistance. (This is best judged with the wheel and tyre fitted to the drum). The adjuster bolt may need to be tapped with a soft hammer to centralise the components and ensure that there is no stiction in the mechanism. *Having repeated this procedure with each brake, ensure that the brake cables are fitted to the rear of each brake back-plate*

If not already connected, connect the sheathed brake cables to the anchor plate at the axle, using the nut provided. Connect the inner cables to the balance bars using two plain nuts to act as a lock at the front of the balance bar. Ensure that this assembly is now parallel to the axle or cross member.

7.3. BRAKING SYSTEMS - (CONTINUED)

If not already connected, connect the rear end of the transmission brake rod to the balance bar at the axle, by use of two plain nuts behind the balance bar. Then ensure that the front of the brake rod is connected to the clevis on the bottom of the coupling brake link, locking it with a further nut.

By further adjustment of the brake rod nuts behind the balance bar, ensure that the slack is taken out of the system, but without pre-loading the brakes. (Check this by rotating each wheel in the forward direction).

Now that the brakes and coupling are connected via the transmission rod, and the system tensioned, it is safe to remove the security/transit key (or M10 bolt) from the shoulder bolt. Apply the brake lever firmly and positively. By attempting to rotate the wheels in the forward direction check that the brakes are in fact operating. If it is possible to rotate the wheels in the forward direction it will be necessary to check the transmission again to ensure that all the slack has been taken out of the system. If it seems that the brake lever has not been able to travel fully over centre, it will be necessary to add a little more play in the system by reducing slightly the tension on the brake rod, adjusting the nuts at the rear of the balance bar.

Once satisfied with the brake operation in forward mode, with the brake lever applied, now rotate the wheels in the backward direction simulating the reversing action of the trailer. As each wheel is turned backwards you should note the rearward movement of the brake lever as the reservoir of power in the pre-charged spring takes up the slack when the reversing show slide backwards on its carrier and then reapplies. This action should occur once on the rearward turn of each wheel. If not, recheck all brake and rod adjustments from the start.

Having made all necessary adjustments, ensure that all nuts and other fasteners are locked off if applicable. The trailer can now be returned to the ground in preparation for the road test.

Bedding In and Testing Procedure

Fully apply the brake lever 5 or 6 times and then check the tension on the rods and cables. This procedure may have found some isolated stiction in the system which is now free. Readjust the system in accordance with the above instructions if necessary.

Road test – ensure any testing carried out on public or private roads is done taking due account of other road users.

- Drive in a straight line at 20/25mph; apply the brakes gradually and firmly to produce a smooth stop. Observe the behaviour of the trailer during braking. (This may be more easily done by a passenger in the towing vehicle). If the trailer is pulling to one side, under braking or the wheels are locking up on one side the system MUST be checked and reset before proceeding. Once smooth straight line braking is achieved at this speed, proceed to ‘b’.
- Drive in a straight line at 35/40mph (assuming speed limits allow) and apply the brakes firmly and steadily without locking up the trailer wheels. Once again observe the behaviour and handling of the trailer under braking and, as ‘a’ readjust the system if braking is not even on both sides.
- Finally, drive at 50mph (if speed limits allow) and apply the brakes to reduce speed to 30mph, accelerating back to 50mph. If satisfied that the trailer is braking evenly and steadily, repeat the manoeuvre 3 or 4 times.

Please note all braking has been gradual and sympathetic to the system. Aggressive and violent braking should be avoided during these procedures in order to safely judge the braking performance and obtain optimum bedding in of the brake linings. The linings will wear, improving in performance as they take on the contours of the drum.

7.3 BRAKING SYSTEMS - (CONTINUED)

They will also generate heat which in turn will optimise the coefficient of friction on the linings and provide improved braking performance as they “bed-in”. Dependent on the type of driving style used the brakes may not achieve optimum efficiency either in overrun or on the brake lever for 500 miles. Stop/start driving will bed the brakes in more quickly than motorway driving where the brakes are hardly used.

IMPORTANT: During the bedding in process the properties at the surface of the lining change. Until the brakes are bedded in according to this recommended procedure there is a possibility that the brake shoes

7.4 JOCKEY WHEEL

Release the inner portion of the jockey wheel handle until you are able to extract it. Thoroughly clean road dirt from both portions before smearing grease inside the threaded portion of the inner part and re-assemble. Finally check that the wheel itself spins freely and if not lubricate as required. Any damaged parts should be replaced.

7.5 ADJUSTING AND OPERATING COUPLINGS

Used with suspensions fitted with auto reversing brakes operated by Bowden style cables.

Adjusting and setting up.

7.5.1	Each wheel brake must be adjusted in turn as follows:
a.	Rotate wheel in forward direction at all times during adjustment.
b.	Adjust until brakes lock up using adjuster 'A'.
c.	Back off until slight resistance is felt during rotation.
N.B.	**This helps new brakes to bed-in and obtain optimum performance**
7.5.2	Having firmly and rigidly attached outer case of the Bowden cable to anchor plate attached to the chassis, connect inner wires to compensator using nuts 'B' supplied with cables.
7.5.3	Connect brake rod and locknut to turnbuckle.
7.5.4	Fully release parking brake and ensure gap of 10mm between brake link and end of tow shaft.
7.5.5	Take up slack and ensure all locknuts are secured.
7.5.6	Set gap between energy store and rod of 1-3mm by locknut at front of rod. The system is now ready for service.

Note: Until the brake shoes have bedded in, care should be taken to ensure that the handbrake and energy store are applied such that the trailer does not roll backwards when parked facing uphill.

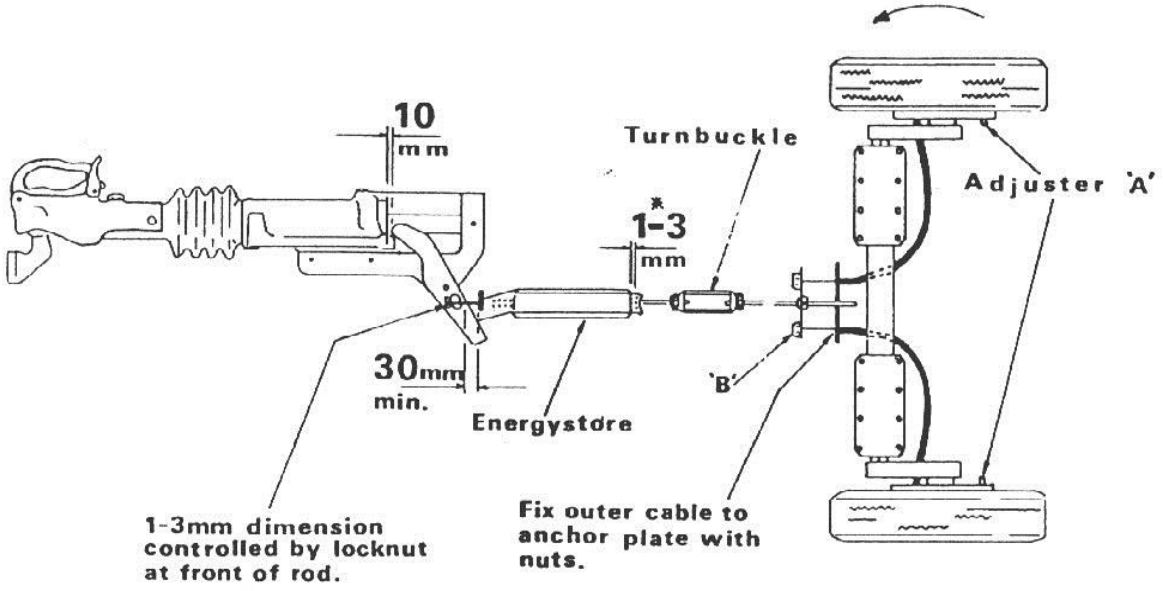


Figure 45 Braking System Layout

7.6 LIGHTS (to be checked against LEDS)

Connect plug to towing vehicle socket and visually check that lights function correctly. Malfunctions should be corrected before taking the trailer on public roads.

Almost all of the Hexi Trailers are supplied with LED lighting clusters. For filament type of lighting boards see the next page for fault finding.

Connect plug to towing vehicle socket and visually check that lights function correctly. Malfunctions should be corrected before taking the trailer on public roads. However with LED lighting clusters it is rare for there to be any random issues that cannot solved through detailed fault finding. If the lighting cluster fails to illuminate check all exposed wiring and confirm there are no breaks in the cables.

Confirm the main power cable from the vehicle to the trailer is in good working order including the connector plug.

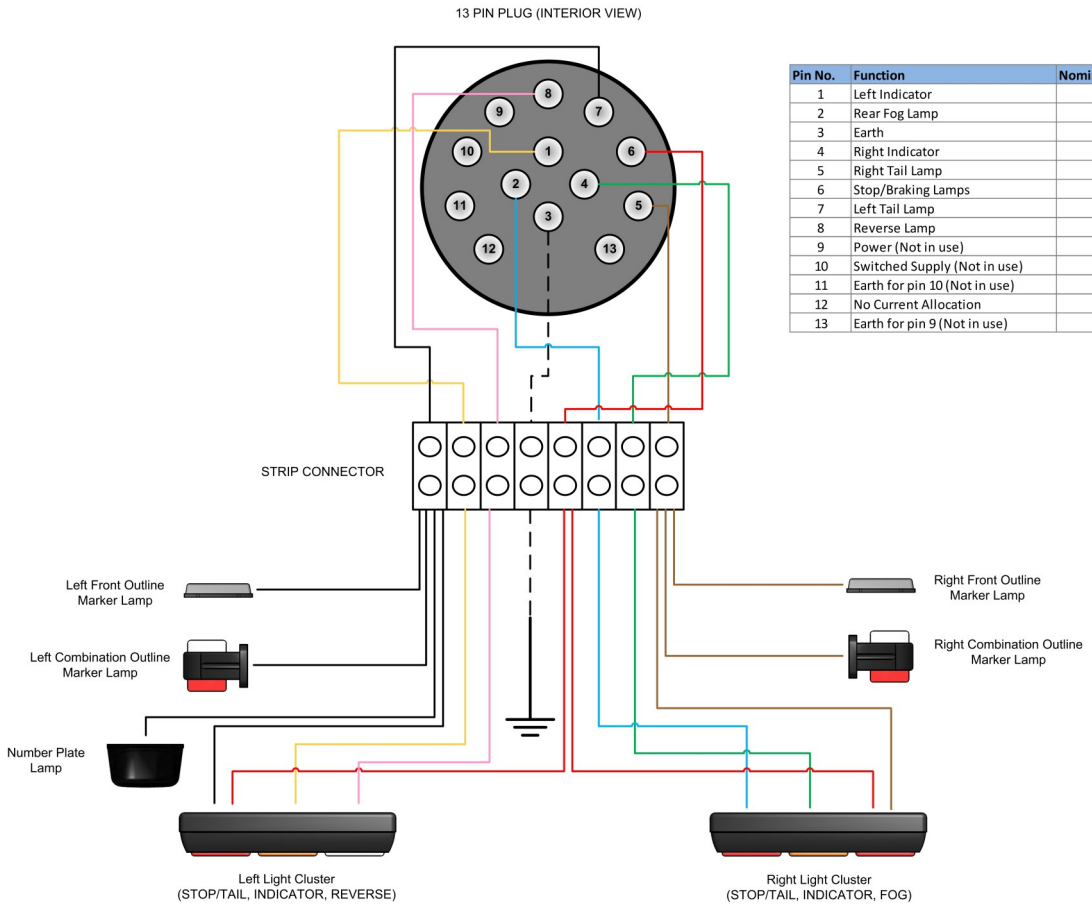
If visual confirmation shows no obvious problems it is possible the lighting cluster is faulty beyond repair. In these situations the cluster will need to be replaced with a new one.

FAULT FINDING	
FAULT	**POSSIBLE REMEDY**
A light fails to illuminate	Loose or blown fuse
	Defective bulb, or loose in its holder
	Corrosion within the bulb holder
	Poor earth connection (trailer or vehicle)
	Broken wire - insulation chafed (wire shorting to earth)
	Incorrect or faulty wiring connections

Warning light inoperative or remains illuminated	Defective warning light bulb
	Incorrectly wired warning light
	Poor earth on trailer or vehicle
	Indicator bulbs of incorrect wattage
	Dirty flasher unit terminals *N.B. If the above checks are satisfactory and the indicator lights operate at 60 - 120 per minute, but the warning light stays on or does not flash, then the flasher unit itself is at fault.*

Incorrect rate of flash	Incorrect bulb wattage (check flasher instructions)
	Poor bulb holder, switches or fuse connections/ contacts

7.6 LIGHTS



Pin No.	Function	Nominal Wire Size	Colour
1	Left Indicator	1.5mm	Yellow
2	Rear Fog Lamp	1.5mm	Blue
3	Earth	2.5mm	White
4	Right Indicator	1.5mm	Green
5	Right Tail Lamp	1.5mm	Brown
6	Stop/Braking Lamps	1.5mm	Red
7	Left Tail Lamp	1.5mm	Black
8	Reverse Lamp	1.5mm	Pink
9	Power (Not in use)	2.5mm	Orange
10	Switched Supply (Not in use)	2.5mm	Grey
11	Earth for pin 10 (Not in use)	2.5mm	White/Black
12	No Current Allocation		
13	Earth for pin 9 (Not in use)	2.5mm	White/Red

Figure 46 Wiring schematic and table for trailer lights - 13 pin

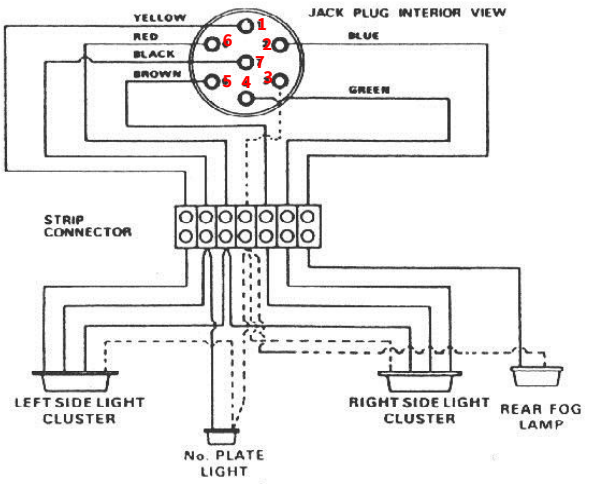


Figure 47 Wiring schematic table for trailer lights - 7 pin

NO.	REF	COLOUR	FUNCTION
1	L	Yellow	Nearside Indicator
2	54G	Blue	Rear Fog Lamp
3	31	White	Earth
4	R	Green	Offside Indicator
5	58R	Brown	Offside Tail
6	54	Red	Stop Lights
7	58L	Black	Nearside Tail and Number Plates