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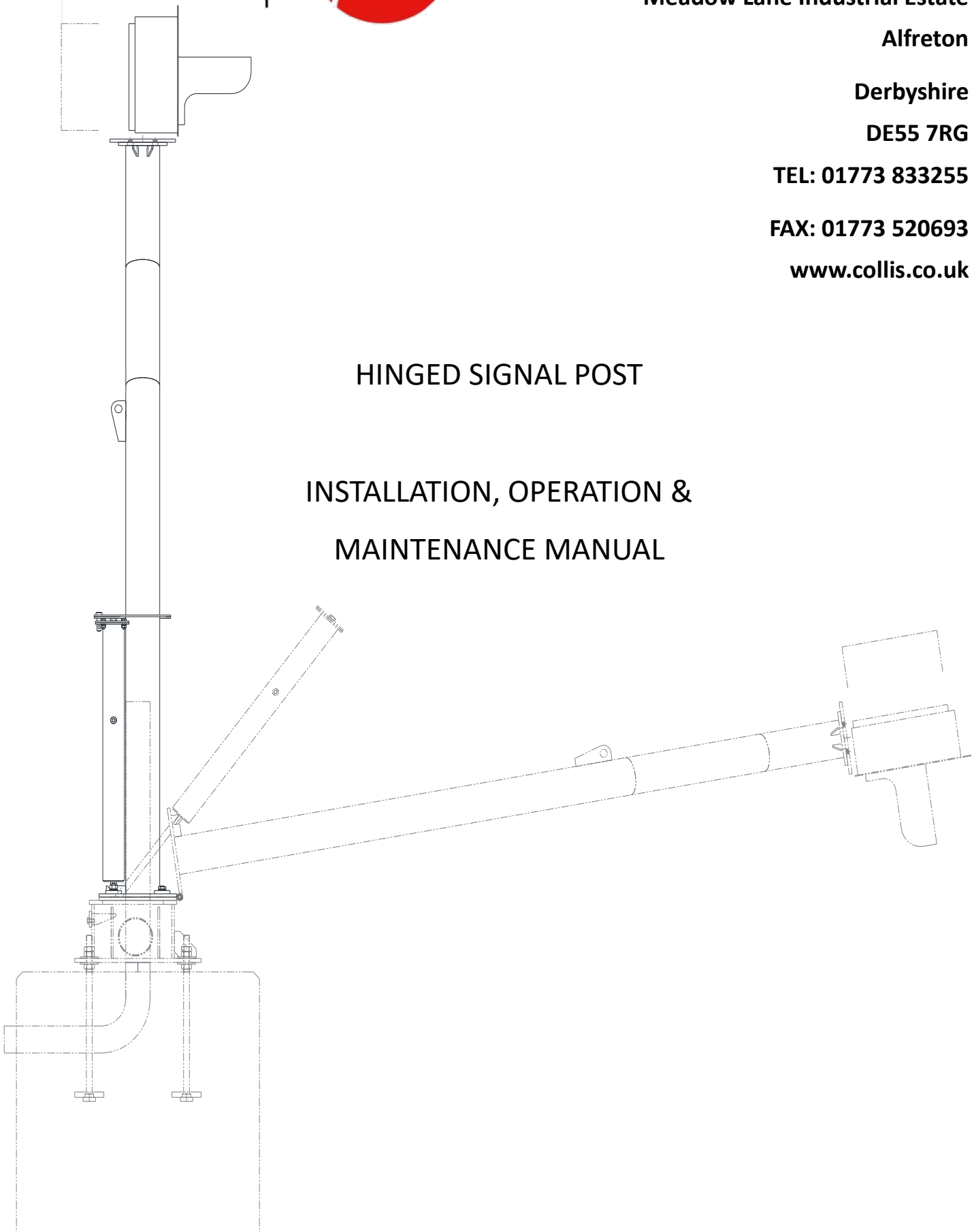
HINGED SIGNAL POST

INSTALLATION, OPERATION & MAINTENANCE MANUAL



REV	DESCRIPTION	DESIGN	CHECK	APP'D	DATE
A	ORIGINAL VERSION – DRAFT	TT	-	-	26/07/12
B	UPDATED	TT	-	-	15/08/12
C	UPDATED	TT	-	-	11/09/12
D	REVISED – DRAFT	AJJ	TT	TT	31/07/13
E	UPDATED	JH	TT	TT	21/05/15
F	UPDATED	JH	TT	TT	18/07/15
G	REWRITTEN	SD	TT	TT	12/03/19
H	SPRING PEG ADDED TO HLWP	SD	SH	TT	19/03/20
J	SPRING PEG CORRECTED	SD	S. Heart		08/03/21

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Collis Engineering Ltd.

Alfreton

Derbyshire, DE55 7RG

England

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If faults or operating problems occur, please contact Collis Engineering Limited on the above telephone number or by e-mail at sales@collis.co.uk

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HEALTH AND SAFETY

This manual is applicable only to the equipment supplied by Collis Engineering Limited. It is the responsibility of the user to integrate it with their own site safety documentation and instructions provided by others. Such documentation may include Work Package Plans, Method Statements and site specific risk assessments.

It has been written for competent personnel who have experience of the Collis Hinged Lightweight post and contains essential information that must be read and understood before equipment is installed, operated and maintained. Consult Collis Engineering Limited if doubt exists.

It should be noted that the units are not fully generic and are marked with the signal identification to assist allocation to the correct site. The HLWP should only be installed in the position of the corresponding ID it has been designed for.

The following symbol is used within this manual:

WARNING **THIS IS GIVEN WHERE FAILURE TO COMPLY WITH ITS INSTRUCTION COULD POTENTIALLY RESULT IN INJURY TO PERSONNEL OR/AND EQUIPMENT.**

POINTS TO OBSERVE

All supplies and services to the equipment can be dangerous and must be isolated before maintenance begins. Always check that isolation has been effective.

1. The wind speed should not exceed 38mph whilst operating this equipment. (This the equivalent of 7 on the Beaufort Scale and is described as "Large trees swaying and difficulty in walking into the wind").
2. The lowering and raising of the structure is a **minimum of a 2-person** task.
3. Damage or injury can occur if equipment is not operated correctly. The weight of each lift must be determined beforehand and only approved lifting methods and equipment used.
4. Only attempt to remove any guards after the equipment has been isolated and unintentional movement prevented. Always refit any guards after maintenance.
5. Mechanical operation and construction details are given in the technical information contained within the operating and maintenance instructions in this manual.
6. Whilst in operation no person shall be in the vicinity of or stand under its upper part without having read and understood the operating instructions.
7. The user must wear the correct PPE commensurate with the site conditions.
8. Additional working and/or safety instructions to those given in this manual may be issued by the end user or demanded by other regulations, for example:

The Health & Safety at Work Act, Manual Handling Regulations and the RSSB Rule Book (GE/RT8000)

GENERAL DESCRIPTION

The following description is general and refers to the COLLIS HINGED SIGNAL POST, which can be used for Network Rail approved COLOUR LIGHT SIGNALS as required by the customer/end user. This manual is provided for the operation and maintenance of the hinged lightweight post.

The overall height of the unit, foundation/grillage, signal position, signal head type and signal head mounting arrangement are determined during the design stage on a site-specific basis. Therefore, these features are outside the scope of this manual.

The construction and components parts of the unit are shown in the following images. Followed by a parts list and descriptions of the main components.

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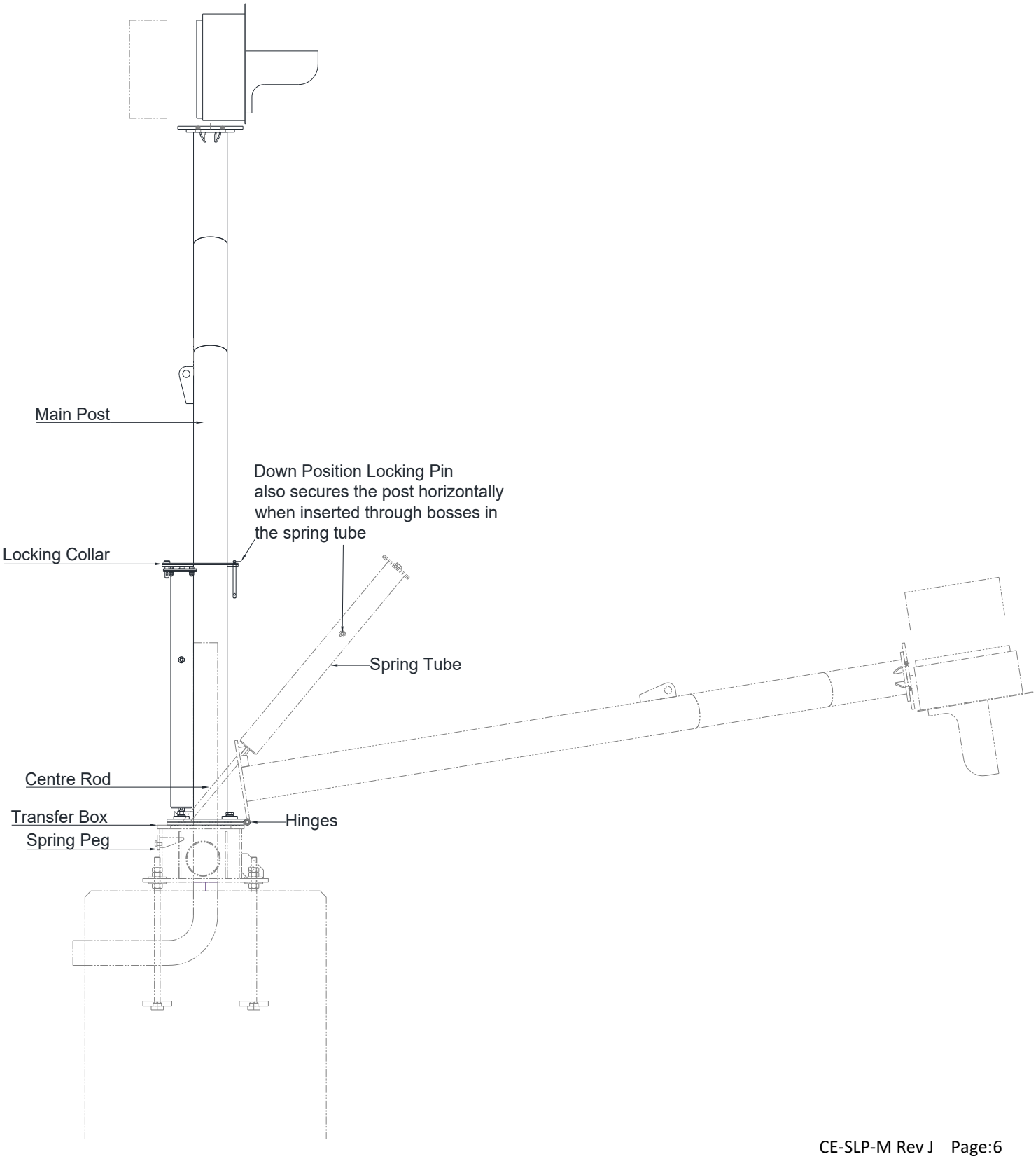
General Assembly



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KEY

01 - Spring

02 - Spring Tube

03 - Locking Collar

04 - Down Position Locking Pin

05 - Centre Rod

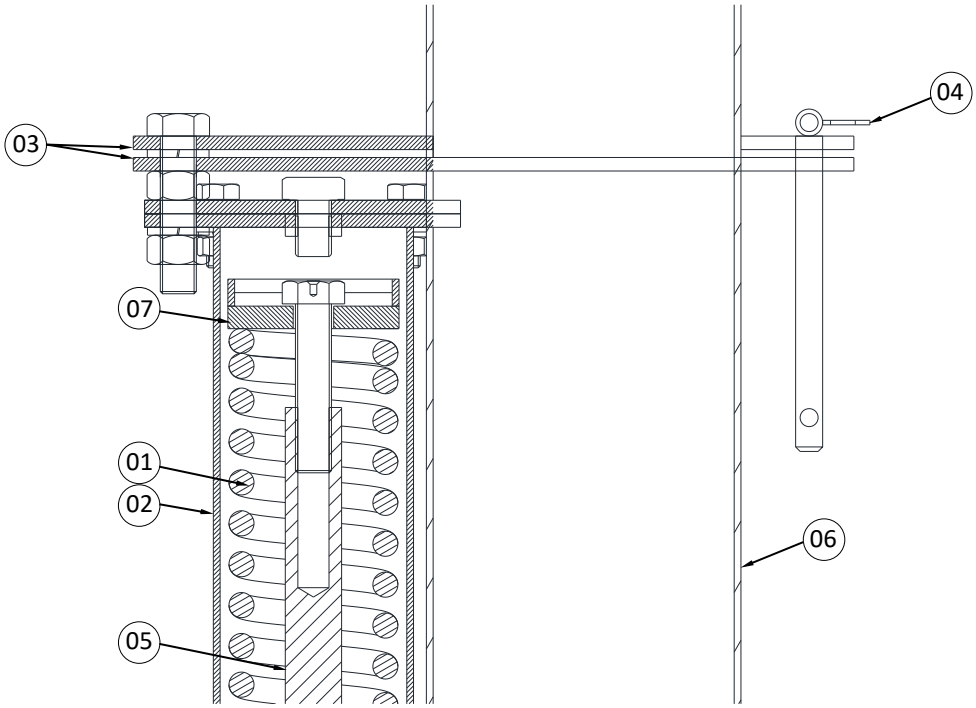
06 - Main Post

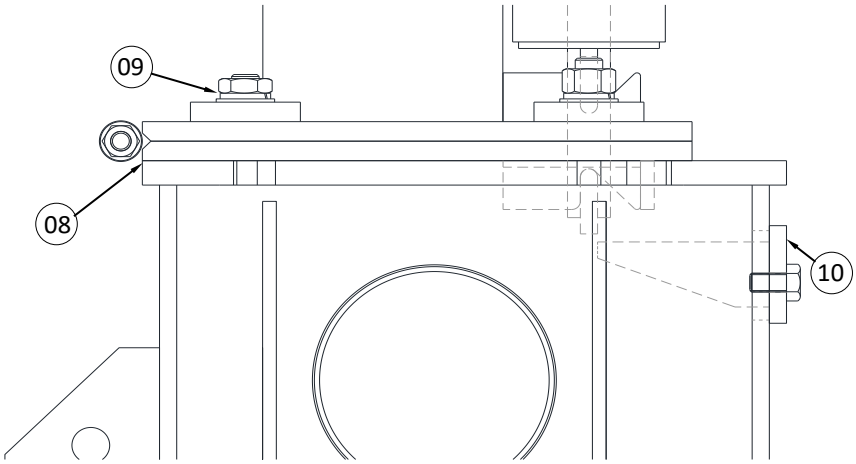
07 - Spring Retaining Plate

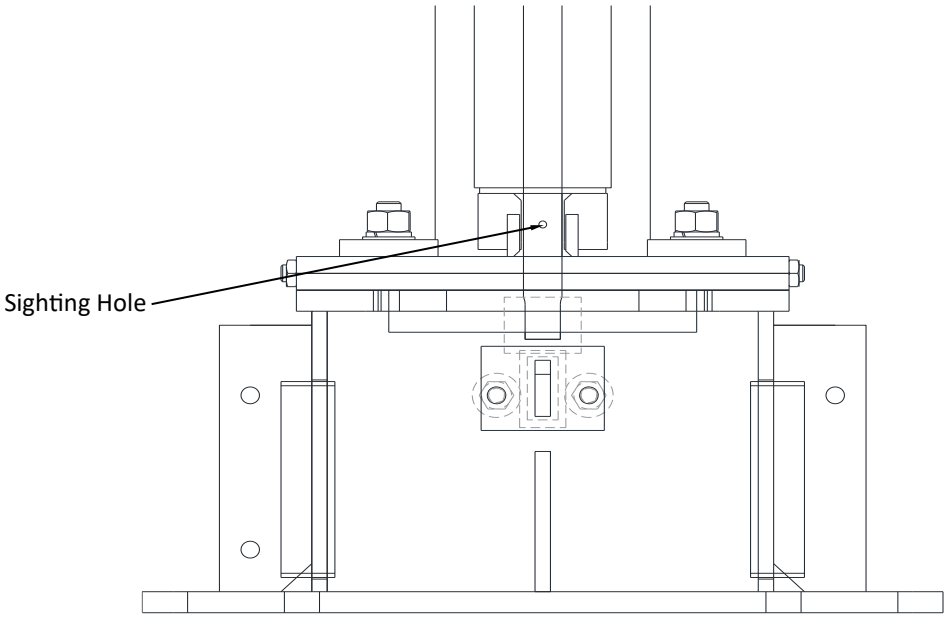
08 - Bottom Hinge Plate

09 - Spreader Washer

10 - Spring Peg







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Main Components

1. SPRING
Provides mechanical assistance in the raising and lowering operations. It is pre-compressed as part of the factory assembly to a pre-determined limit in order to optimise assisting force. A steel rod is fitted centrally to compress the spring further when lowering the post.

2. SPRING TUBE
Protects and encloses the spring, preventing its motion sideways. A pair of bosses in the side tube enables a locking pin to keep the post in the horizontal position.

3. LOCKING COLLAR
A provision to deter unauthorised lowering of the signal, fastens the spring tube assembly and main post together with the facility to add a railway padlock to lock the two together.

4. DOWN POSITION LOCKING PIN
A two-function bar used to keep the post in the horizontal position by inserting it through the bosses in the spring tube. When the post is vertical, it is used to prevent release of the locking collar in conjunction with a padlock.

5. CENTRE ROD
Transmits force from the spring during the raising and lowering operations and attaches the Spring Assembly to the base/adaptor box with a moveable joint.

6. MAIN POST
Circular hollow section tube of a length to suit a specific signal sighting form.

7. SPRING RETAINING PLATE
Transmits the force from the spring during the raising and lowering operations by travelling along the length of the centre rod.

8. BOTTOM HINGE PLATE
The fixed part of the hinge (baseplate) for direct connection of the post to the base box or grillage.

9. SPREADER WASHER
A special washer used to clamp the hinges together and hold the post securely in the upright position.

10. SPRING PEG
A spring peg, to retain the position of the centre rod and to prevent it becoming disengaged.

INSTALLATION

Delivery to site

WARNING: Exercise extreme care when handling in 3rd. Rail and OLE areas even with isolation.

The unit is supplied factory assembled. No additional components are required to complete its construction.

The unit is usually mounted to a transfer box for mounting onto the holding down bolts (for concrete foundations) or grillage (for screw pile or composite foundations) dependent on site specific design.

Checks required before installation

Check the signal I.D. corresponds to the site.

Check for transit or obvious signs of damage.

Check that all bolt joints are properly tightened and re-tighten if necessary.

Check that all ancillary items and fasteners are available. Refer to the parts list on the site specific drawings.

Check that the site specific design GA is available and that any site specific risks are identified.

WARNING: A clear area 1.5m. wide and 4.5m. long is required in front of the structure or as specified on the site specific design drawing(s)

The grillage/foundation is ready to accept the post.

Installation

The recommended method of installation is to use mechanised lifting to manipulate the complete lightweight post unit onto four pre prepared foundation fixings.

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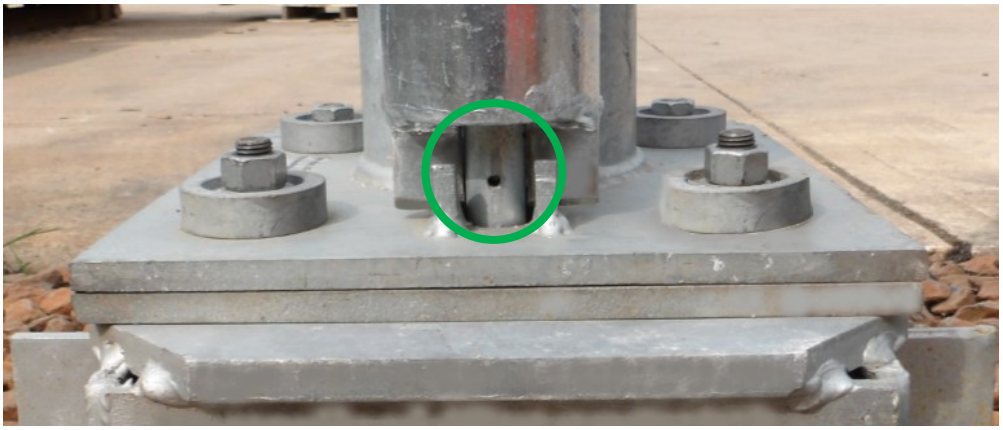
OPERATING INSTRUCTIONS

BEFORE operating the post, check the safety critical sighting hole which is drilled through the rod at the foot of the spring tube assembly. It **MUST** be visible and central, as shown in the photograph. It is unsafe to continue if this is not the case, make the structure safe and please contact CEL immediately for advice.



Safety Critical Sighting Hole

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Tools Required

Rotation, Lowering and Raising

All tools below with fit for standard and for heavy duty.

Socket set suitable for M16 fixings,

Socket set suitable for M20 fixings

Socket set suitable for M24 fixings

Socket set suitable for M30 fixings

Torque Wrench for applying torque as required.

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Rotation

1. Slacken the lower nuts which retain the post to the foundation or grillage.

2. Rotate the post in conjunction with a second person monitoring the signal sighting display.

3. Retighten the nuts when the signal/post is in optimum position.

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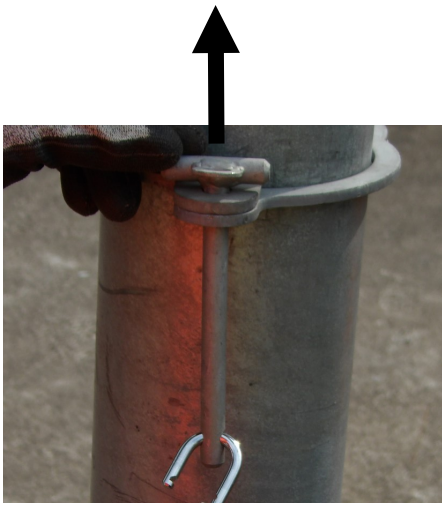
Lowering

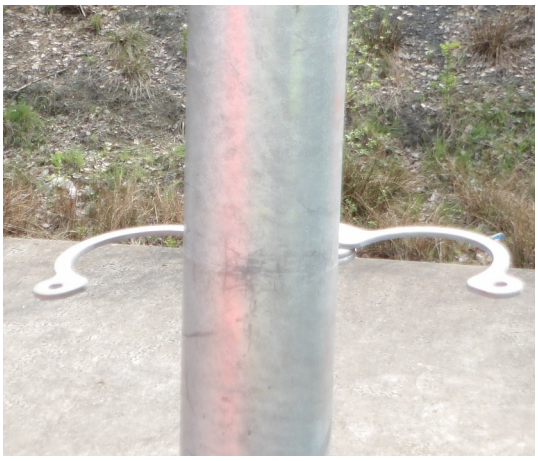
1. Before any other action, make sure the safety critical sighting hole is visible as shown below.

2. Remove the padlock attached to the down position locking pin.

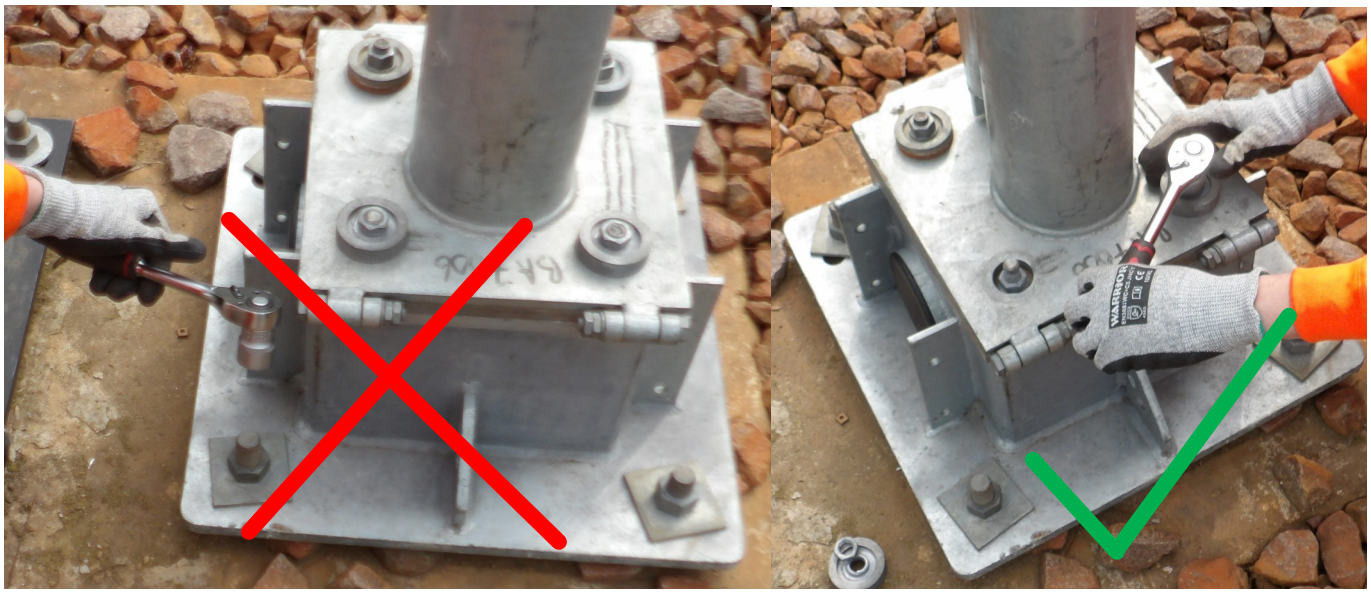
3. Take out the down position locking pin.



4. Open the collar, but leave it fastened to the spring tube assembly.



5. Remove the top four nuts and washers on the hinge plate spreader, not the lower four.



6. Two operatives positioned on the hinged side should move the post off vertical, then adjust their position to stand either side of the post as it moves in an arc down into a horizontal position. Operatives may find it easier to move sideways further along the length of the post as it gets lowered to control the movement.

7. Insert the down position locking pin in the horizontal hole within the spring tube. Ensure the pin protrudes out of the other side.

8. Now the post is ready for the required signal head works.

9. If the post is to be kept in the lowered position for a period longer than the maintenance procedure, a wedge is required, as shown below. A wedge would need to be ordered separately to the post. The part number for the support bracket is CE-SLP-38

The following instructions are for the use of the support bracket.

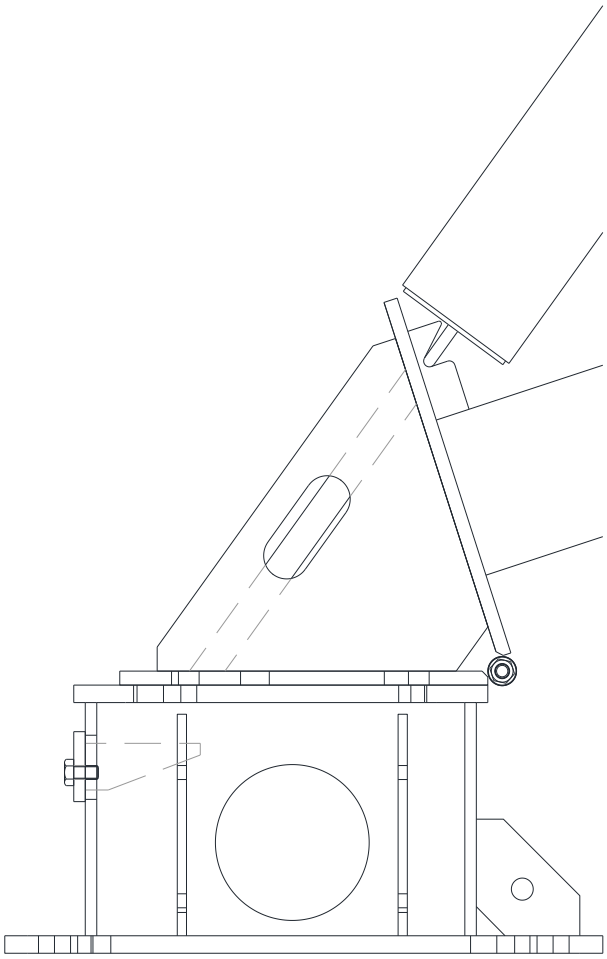
10. Fit support bracket to lower hinge.

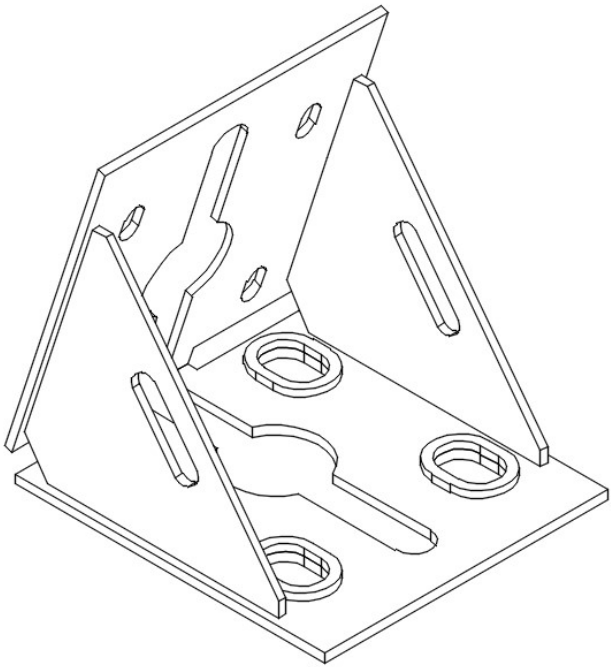
11. Fit the fastenings to attach the bottom hinge plate to the support bracket.

12. Remove the down position locking pin.

13. Fit the fastenings to attach the upper hinge plate to the support bracket.

14. Put the down position locking pin in the locking collar.





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Raising

1. Remove the down position locking pin.

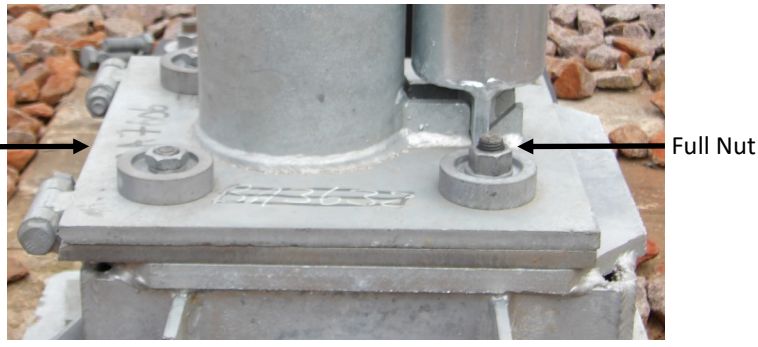
2. One person will walk the post back up into position, keeping hand high to avoid finger trapping, while the second person guides the post into position.

3. Put the collar back around the post.

4. Put the locking pin back into the holes within the collar.

5. Put the padlock back into the locking pin.

6. Replace the top four spacer nuts and washers. If the arrangement includes half nuts, as shown in the lower image below, these will need to go back nearest to the hinge.



The torque settings shown below apply when the arrangement does not include spring washers.

Thread		Torque Nm
M16x2.00	Baseplate Bolts (SLP)	161
M20x2.50	Baseplate Bolts (HDLP)	314
M24x3.00	Foundation Bolts	543

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*******END*******