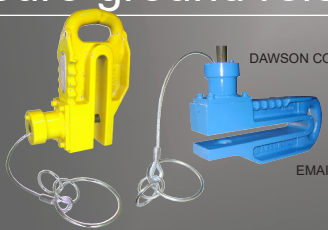
safety lifting equipment

EGRS

4t
7.5t
10t

owners manual
operators instructions
spare parts list
safety precautions
maintenance

euro ground release shackle



DAWSON CONSTRUCTION PLANT LTD.
CHESNEY WOLD,
BLEAK HALL
MILTON KEYNES
MK6 1NE, ENGLAND
TEL: +44 (0) 1908 240300
FAX: +44 (0) 1908 240222
EMAIL: DAWSON@DCPUK.COM

Original Instructions
Rev. 009

dcp
DAWSON
CONSTRUCTION PLANT LTD
www.dcpuk.com

preface

This manual is used to familiarise you with safety, assembly, operation, adjustment, troubleshooting, and maintenance. Read and follow the recommendations in this manual to ensure safe and efficient operation.

We want you to be completely satisfied with your new product. Feel free to contact your local authorized service dealer for help with service, replacement parts, or any other information you may require. If you need assistance in locating a dealer, visit our web site at www.dcpuk.com or call customer service at +44 (0) 1908 240300.

Whenever you contact your authorised service dealer, always have the model number and serial number of your product available. These numbers will help provide exact information about your specific product. You will find the model and serial numbers on an ID plate located on the product.

The descriptions and specifications in this manual are subject to change without notice. Dawson reserves the right to improve products. Some product improvements may have taken place after this manual was printed.

EC Declaration of Conformity

EC Declaration of Conformity according to
EC Machinery Directive 2006/42/EC of the 29th May 2006, Annex IIA.

We hereby declare that the machinery/equipment described below is designed and manufactured to comply with the Essential Health and Safety Requirements of the applicable EC Directive(s) and that the required conformity assessment procedures have been carried out. This declaration ceases to be valid if alterations are made to the machinery/equipment without agreement with Dawson Construction Plant Ltd.

Category:	Lifting Equipment
Description:	Euro [GRS/RRS] Assembly [Throat/SWL]
Type:	[Part Number]
Serial number:	[Serial Number]

Relevant Regulations:
2006/42/EC Machinery Directive

Applied harmonised standards, in particular:
EN ISO 12100:2010 Safety of machinery

Authorised representative for compiling the technical file:
D. A. Brown - contact details as per below.

Signature for and on behalf of Dawson Construction Plant Limited:

Name:

Date:

Location:

Dawson Construction Plant Ltd
Chesney Wold, Bleak Hall, Milton Keynes MK6 1NE, ENGLAND
Tel: (+44) 1908 240300 Fax: (+44) 1908 240222
dawson@dcpuk.com

DAWSON
CONSTRUCTION PLANT LTD

table of contents

introduction

This robust pile lifting shackle was designed and developed over many years of site use and abuse.

The use of these shackles compliments the “Feet on the Ground” approach to steel erection and pile installation. When used in conjunction with the Sheet Pile Threader, there is no need for site operatives to go above the safety of top frame level for interlocking sheet piles or releasing the lifting shackles.

The shackles are suitable for lifting all steel piles up to 28 mm thick and within the safe working load of the shackle. The shackle is stiffened to resist spreading of the forks when lifting at 90° to the axis of the pile. (See “Safety Check List”). When lifting sheet piles in pairs or individual piles weighing more than the Safe Working Load of the shackle, it is necessary to use multiple shackles in order to keep within the safe working load.

Pairs of shackles can be supplied mounted on a two-legged steel wire rope sling - the advantage being that the standard pair of shackles with lifting sling can be fitted to any pair of ‘U’ piles, ‘Z’ piles, pipe or box piles. No additional parts or change of components is necessary. The ring at the top of the sling can be hooked directly onto a standard crane hook block, ‘D’ shackle or fork anchor.

FEATURES

- Robust high strength cast steel body. High alloy steel plunger.
- Plunger mechanism concealed for maximum protection.
- Plunger mechanism easily detachable for maintenance.
- Heavy web stiffening to withstand side left (i.e. 90° to the axis) imposed when lifting piles from a stack. (See “Safety Check List” for correct working practice).
- Lifting ring at top of shackle to enable lifting from a variety of angles.
  Independently proof load tested to twice the Safe Working Load. Test certificates are supplied with each shackle.
- Indicator bar to give clear visual indication that plunger has engaged pile lifting hole completely.
- Shackle throat depth available in two sizes: 150mm (6”) or 250mm (10”) to suit all usual lifting hole positions.
- Quick coupling and release of shackle from piles ensuring maximum productivity.
- ‘Safety ring’ to protect against accidental plunger release caused by poor working practices.
- Design tested to 5x SWL. Every individual shackle tested to 2x SWL.

method of operation

1. Tie a length of soft rope to the pull ring on the pull wire. The rope should be 1 metre (3 feet) longer than the pile length. Do not use a continuous loop as this will become snagged.

2. Before positioning the lifting shackles, it is necessary to retract the plunger. Pull the pull wire until the trip mechanism holds the plunger in its retracted position.

3. With the plunger tube assembly uppermost, slide the fork of the shackle over the pile head with the pile in the throat of the shackle.

4. With the plunger over the pile lifting hole, firmly tap the indicator bar end. If the plunger does not locate directly through the hole, move the shackle body until the plunger goes through the pile hole and into the shackle body on the underside. The indicator bar should be flush with the plunger tube assembly.

5. Repeat this for both piles when lifting pairs of sheets.

6. Install the safety ring over the plunger tube assembly as shown in the installation diagram.

7. With the plunger properly located, the safety ring engaged, the piles can then be lifted into position for threading. It is advisable to tie the shackle ropes to the sheet pile threader to prevent them being trapped, snagged or getting blown out of reach in strong winds.

8. To release the shackles after threading is complete, the safety ring must first be unhitched by 'flicking' the release rope to remove the safety ring from the tube assembly. Then pull on the release rope. If the plunger doesn't disengage, support the weight of the shackle on the crane and then pull again.

Important: Unauthorised alterations invalidate the SWL of the shackle. If alterations are known or noticed, do not use!

lifting piles correctly

LIFTING PAIRS OF PILES

Prior to any lift, consult the lift planner.

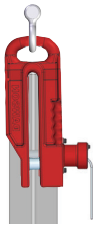
When lifting sheet piles in pairs, it is necessary to use a pair of shackles.

The ring at the top of the sling can be hooked directly onto a standard crane hook block, D shackle or fork anchor. The sling also enables the shackles to be turned to fit opposite faces of box or tube piles using the standard sling and shackles.

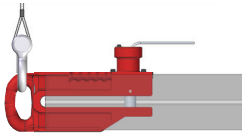
Downrate in accordance with national codes

continued-lifting piles correctly

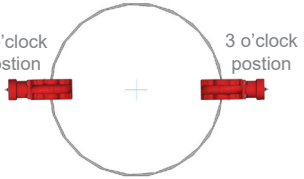
SAFE
Axial loading



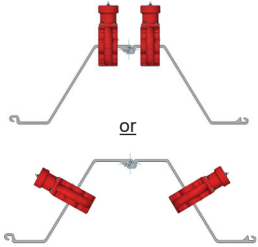
SAFE
Lifting off a stack at 90° to the axis of the pile



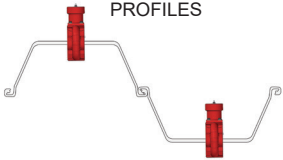
TUBE PILE



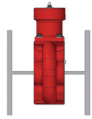
ALL 'Z' PROFILES



ALL 'U' or 'LARSSEN' PROFILES



'H' PILE



safety check list

1) PRE-INSTALLATION CHECKS

Prior to installing a shackle onto any steelwork, check the following:

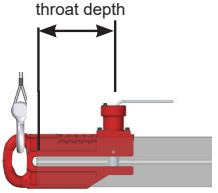
a. Ensure a competent person has conducted a visual inspection of the shackle and has authorised the shackle for use. If any doubts arise, do not use.

b. Establish the weight of the lift involved and ensure a shackle with an appropriate Safe Working Load is being used. The Safe Working Load rating of any shackle is based on a “best condition”. For uneven leg loading on slings, dynamic loading during the lift, or any other factor that increases component loading, the SWL of the equipment should be de-rated in accordance with instruction from the lift planner.

c. Ensure the lifting hole is at the correct distance from the top of the steelwork, i.e.:

150 mm for a 150 mm throat depth shackle;
250 mm for a 250 mm throat depth shackle;
300 mm for a 300 mm throat depth shackle.

Incorrect hole placement in steelwork may cause shackle failure!



d. The lifting hole should be neatly drilled or punched and of a suitable size to suit the plunger.

2) Do not use the lifting shackles for pulling or extracting.

3) Ensure that the plunger has gone through both sides of the shackle body - check the indicator bar position prior to lifting.

4) Do not modify the lifting shackles or any part of the lifting apparatus. Keep the burning torch well clear!

5) Keep the plunger mechanism well lubricated.

continued - safety check list

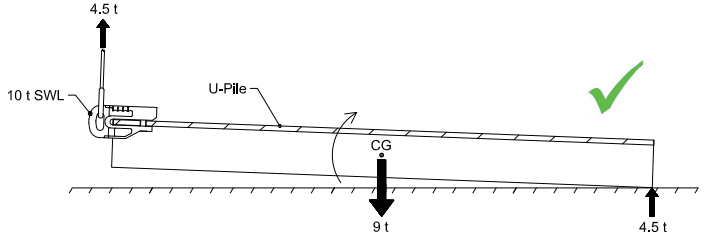
6) Care should be taken to avoid the pull ropes getting snagged.

7) The angle between the two legs of the lifting strap, where applicable, should not exceed 90°.

8) Ensure that all appropriate laws, bye-laws and regulations are complied with.

9) Always use the safety ring to prevent accidental release - it only takes an extra second or two!

When lifting steelwork from horizontal to vertical, or vice versa, the SWL rating of any DCP shackle is **halved**. In the example shown below, assume the shackle is rated at 10 t SWL. When using the shackle in the orientation shown to conduct a lift, the SWL is halved to 5 t. However, for example, 9 t steelwork can still be lifted as half of its load is supported by the ground. The load on the shackle is therefore 4.5 t (and hence within the 5 t SWL limit). **If in doubt, consult the lift planner.**



Keep **fingers out** of the shackle throat at all times.

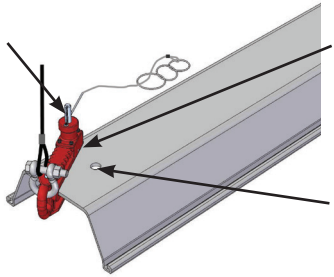
Keep all personnel out of the **danger zones / fall zones** at all times unless unavoidable.

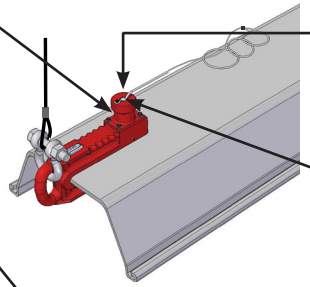
Do not use shackles in temperatures below **-15°C (5°F)**.
Consult the manufacturer for further information on low-temperature solutions.

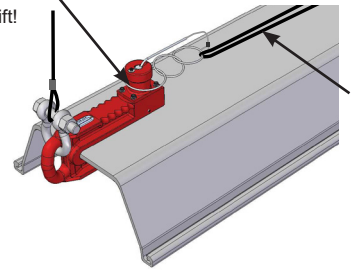
Shackles **must not** be subjected to vibrations from piling equipment.

installation diagram

FITTING SHACKLE TO 'U' SHEET PILE

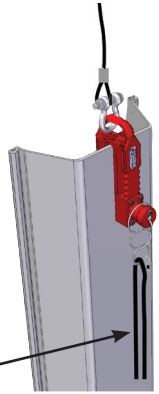






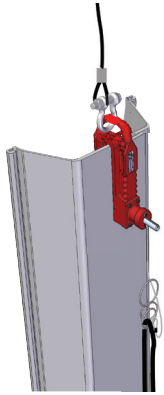
release diagram

FITTING SHACKLE TO 'U' SHEET PILE



Pile correctly positioned

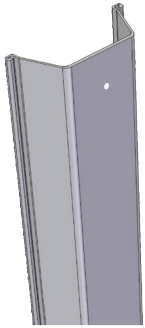
Release rope



1. Flick the release rope away from the top of the pile to disengage the safety ring

2. A firm pull on the release rope will retract the plunger. The indicator bar will protude out

Shackle is now ready for next lift



training

Before allowing operators to use the Shackle, it is important to ensure they have received basic training in lifting and control of heavy loads.

It is strongly recommended that the following areas are covered:

1. Basic safety in lifting operations.
2. Supervision during lifting operations.
3. Detailed instruction on how the Euro Shackle operates.
4. Safety Features of the Euro Shackle.
5. Dangers and mal-practices.
6. Correct choice of lifting equipment for the job.

maintenance & storage

The Shackle is manufactured from high quality material and assembled in a manner designed to offer long service with minimal maintenance.

In order to preserve the product in this state, it is necessary to ensure that it is not mis-used or used for purposes outside its recommended use. The user must carry out regular inspection and servicing.

The shackle must be thoroughly examined in accordance with local regulations & jurisdiction. DCP recommend a thorough examination every 6 months.

A competent person should visually inspect the shackle before every single lift.

The shackle body should be checked regularly for distortion arising from overload - if deformed - dispose.

The plunger should be checked for smooth travel and light oiling applied at moving surfaces.

If the product does not operate perfectly, contact the manufacturer for advice, or return for immediate attention.

Each unit is issued with a test certificate.

If any parts of the shackle are replaced with non standard parts or in a non-approved manner, the certificate is no longer valid.

Replacement of any load bearing components requires a re-test to twice safe working load.

During transport, handling & storage, it is imperative that the plunger is in the engaged position. The indicator bar must be flush with the tube assembly.

Shackles should be stored in a dry & secure environment, ensuring they are protected from adverse weather & accidental damage.

technical spec

STANDARD SHACKLES

Part No.

5983A/A - 4T EGRS 150 Throat General Assembly

5984A/A - 7.5T EGRS 150 Throat General Assembly

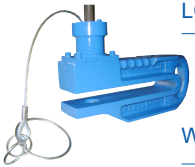
5985A/A - 10T EGRS 150 Throat General Assembly

5986A/A - 7.5T EGRS 250 Throat General Assembly

5987A/A - 10T EGRS 250 Throat General Assembly

GRS-017 - Optional Remote Release Detent Kit
5919-01A General Assembly

SPECIAL SHACKLES



LOW TEMPERATURE SHACKLE

5987A/AL - 10T EGRS 250 Throat General Assembly
Low Temperature -40C

WIDE THROAT SHACKLE

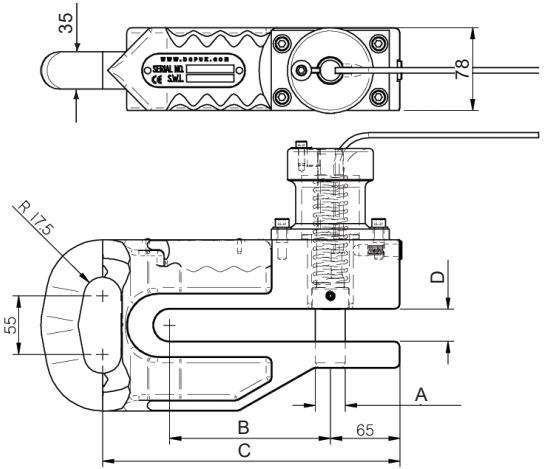
5990 - 10T EGRS 250 Throat General Assembly
Throat Width - 32.5mm

5991 - 5T EGRS 250 Throat General Assembly
Throat Width - 36mm

5992 - 10T EGRS 150 Throat General Assembly
Throat Width - 35mm

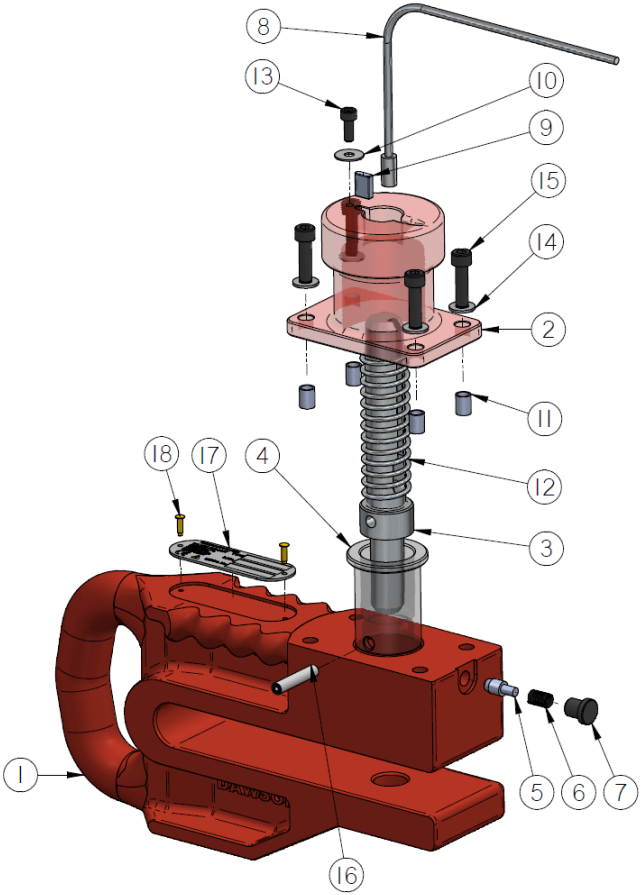
5993 - 7.5T EGRS 150 Throat General Assembly
Throat Width - 35mm

continued - technical spec.



	DRAWING No.									
	5983	5984	5985	5986	5987	5987A/AL	5990	5991	5992	5993
TYPE (COLOUR)	STANDARD (RED)					LOW TEMP. (BLUE)	WIDE THROAT (YELLOW)			
WEIGHT kg	17.5	17.5	17.5	21.5	21.5	21.5	21.5	21.5	17.5	17.5
A	Ø22	Ø28	Ø35	Ø28	Ø35	Ø35	Ø35	Ø28	Ø35	Ø28
B	150	150	150	250	250	250	250	250	150	150
C	277	277	277	377	377	377	377	377	277	277
D	30	30	30	30	30	30	32.5	36	35	35

GENERAL ASSEMBLY



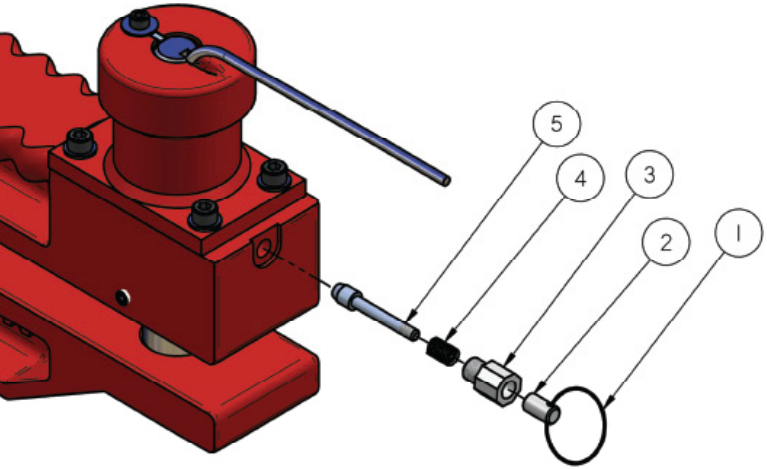
parts list

* Not available for part resale.

			STANDARD SHACKLES				
Item No.	Qty	Part Name	5983A/A	5984A/A	5985A/A	5986A/A	5987A/A
1	1	*EGRS Machined Casting	5903	5904	5905	5906	5907
2	1	Tube Assembly	5922A-B				
3	1	Plunger	5908	5909	5913	5909	5913
4	1	Sleeve	5931				
5	1	Detent Pin	5919				
6	1	Compression Spring	6935				
7	1	Plug, M12 x 1.5	5915				
8	1	Safety Pull Wire Assy	5930A				
9	1	Guide Key	5937				
10	1	Washer, M6 x Ø19 O.D.	5936				
11	4	Dowel Bushing	5916				
12	1	Compression Spring	5926				
13	1	Screw, Socket Cap, M6 x 16	0M06-016-02				
14	4	Washer, M8	0M08-000-20				
15	4	Screw, Socket Cap, M8 x 30	0M08-030-02				
16	1	Pin, Spring, M8 x 40	0M08-040-36				
17	1	ID Plate, Shackles	5938				
18	2	Screw, No. 6 x 1/2”	1-204-00-01				

			SPECIAL SHACKLES				
Item No.	Qty	Part Name	5987 A/AL	5990	5991	5992	5993
1	1	*EGRS Machined Casting	5907L	5907W	5906W	5905W	5904W
3	1	Plunger	5913L	5913	5909	5913	5909

continued - parts list



Ref. No	Qty	Part Name	Remark
5	1	Detent Pin	5919-01
4	1	Detent Spring	6935
3	1	Release Nut	5953
2	1	Release Cap	5954
1	1	Split Ring	0M38SPLITRING

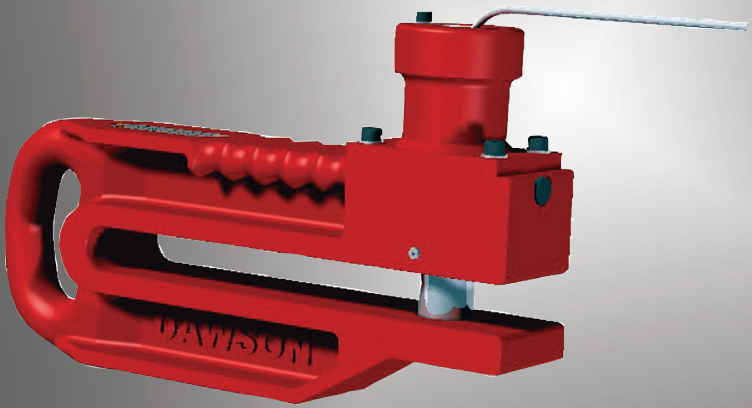
OPTIONAL REMOTE RELEASE
DETENT KIT 5919-01A
GENERAL ASSEMBLY

DRAWING No. GRS-017

ground release shackle EGRS

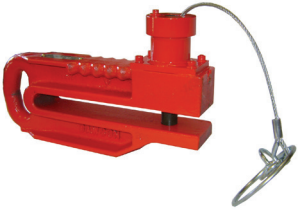
4t /7.5t /10t

A GUIDE TO CHANGING THE PULL WIRE ON A DAWSON GROUND RELEASE SHACKLE



DAWSON CONSTRUCTION PLANT LTD.
CHESNEY WOLD,
BLEAK HALL
MILTON KEYNES
MK6 1NE, ENGLAND
TEL: +44 (0) 1908 240300
FAX: +44 (0) 1908 240222
EMAIL: DAWSON@DCPUK.COM

dcp
DAWSON
CONSTRUCTION PLANT LTD
www.dcpuk.com



01

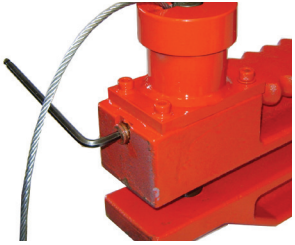
The Pull Wire may require changing if it is frayed, kinked or generally damaged.

02

First remove the guide key.
Unscrew the M6 cap head screw and washer.

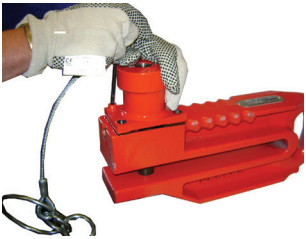
03

The guide key can now be retracted.



04

Remove the plug from the underside of the shackle body. The detent pin can be left in the shackle body.

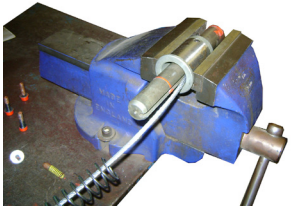


05

Remove the 4 No. M8 cap head screws holding the tube assembly to the shackle body.

06

Carefully retract the assembly from the body as shown.



07

The sleeve is attached to the plunger via a coiled pin. This needs to be removed.
Hold the sleeve securely.

08

Drive the coiled pin out using a 5mm punch.
REMEMBER TO WEAR EYE PROTECTION!
With the sleeve removed the old Pull Wire can be extracted.

09

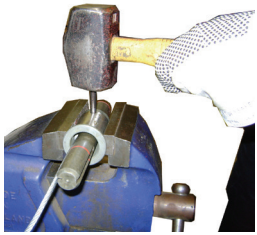
IMPORTANT:
The new Pull Wire tail must be threaded through the largest ring to ensure correct orientation at final assembly.

10

Thread the tail of the new Pull Wire into position.

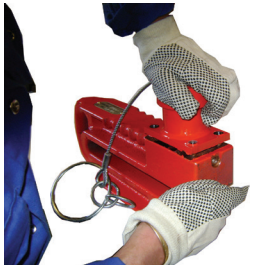
11

Locate tail end in plunger in the oval slot as shown.



12

The sleeve can now be replaced and coiled pin hammered back in place. A new coiled pin may be required if the old one is damaged.
IMPORTANT: Ensure the coiled pin is flush on both sides of the sleeve, this will allow smooth operation in the shackle body.

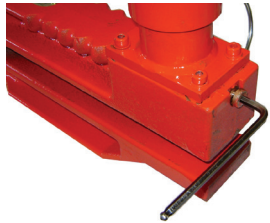


13

The assembly can now be reattached to the shackle body. A small amount of force is required to push the assembly against the spring to the shackle body. Tighten the 4x M8 cap heads to 43 Nm.

14

The plug and guide key can now be reinserted and tightened into position. The guide key M6 cap head should have a light coating of Loctite 270 applied.



15

Finally check correct operation of the mechanism.
Gloves should be worn for these operations!
First operate the Pull Wire to retract the plunger. This requires reasonable force. The plunger should remain in the retracted position.

16

A tap with a soft hammer should fire the plunger forward.

17

The indicator bar (item just hit with the hammer) should be flush to the tube assembly as shown
– this is critical!
If in doubt, contact the manufacturer.
www.dcpuk.com

notes

CE

D.C.P. RESERVES THE RIGHT TO DISCONTINUE EQUIPMENT AT ANY TIME, OR CHANGE SPECIFICATIONS OR DESIGNS WITHOUT NOTICE OR INCURRING OBLIGATIONS

INNOVATIVE PILING EQUIPMENT

HYDRAULIC PILING HAMMERS
EXCAVATOR MOUNTED VIBRATORS
EXCAVATOR MOUNTED DRILLS
QUIET, VIBRATIONLESS PUSH-PULL PILING
PILE EXTRACTION
SHEET PILE GUIDE FRAMES
SHEET PILE CAPPING SYSTEMS
CFA CLEANERS
PILE POINTS & SPLICERS
SAFETY HANDLING / LIFTING EQUIPMENT
SHEET PILE THREADERS

ground release shackle

4t /7.5t /10t

DAWSON CONSTRUCTION PLANT LTD.
CHESNEY WOLD,
BLEAK HALL
MILTON KEYNES
MK6 1NE, ENGLAND
TEL: +44 (0) 1908 240300
FAX: +44 (0) 1908 240222
EMAIL: DAWSON@DCPUK.COM

dcp
DAWSON
CONSTRUCTION PLANT LTD
www.dcpuk.com