

safety lifting equipment

ERRS

3.5t
5t
7.5t
10t
25t
40t



owners manual
operators instructions
spare parts list
safety precautions
maintenance

euro ratchet release shackle

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Original Instructions
Rev. 013



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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:



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| · E.C. Declaration of Conformity | |

introduction

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

The use of these shackles complements 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 28mm thick and within the Working Load Limit 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 Working Load Limit of the shackle, it is necessary to use multiple shackles in order to keep within the Working Load Limit.

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 pin.
- Pin mechanism concealed for maximum protection.
- Heavy web stiffening to withstand side lift (i.e. 90° to the axis) imposed when lifting piles from a stack.
- Pin mechanism easily detachable for maintenance.
- Lifting ring at top of shackle to enable lifting from a variety of angles.
- Independently proof load tested to twice the Working Load Limit. Test certificates are supplied with each shackle.
- Shackle throat depth available in two sizes: 150 mm (6") or 250 mm (10") to suit typical lifting hole positions.
- Quick coupling and release of shackle from piles ensuring maximum productivity.
- Can be used for lifting columns, pipe piles, sheet piles & steel fabrications.
- Positive pin release at the proper time.
- Design tested to 5x WLL. Every individual shackle tested to 2x WLL.

method of operation

1. With the pin retracted, slide the shackle over the head of the pile to be lifted until the pin is appropriately over the lifting hole. Press the ratchet pawl down with the thumb of one hand and turn the release nut of the shackle with the other hand.

Turning in a clockwise direction will propel the pin through the lifting hole. The indicator bar should finish flush with the release nut which means that the pin is fully entered into the opposite side of the shackle.

2. Two soft ropes should be attached to the small 'D' shackles at each end of the toothed belt.
3. The unit may then be lifted. It is prudent to tie the ends of the shackle release ropes to the bottom of the unit of lift to prevent the ropes becoming snagged or being caught by the wind and become inaccessible.
4. After securing the unit of lift, the shackle is released by pulling the release ropes first one way then the other until fully released. The ratchet action withdraws the pin. The stroke of the pull is limited by the 'D' shackles at the end of the toothed belt (450 mm maximum length).

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

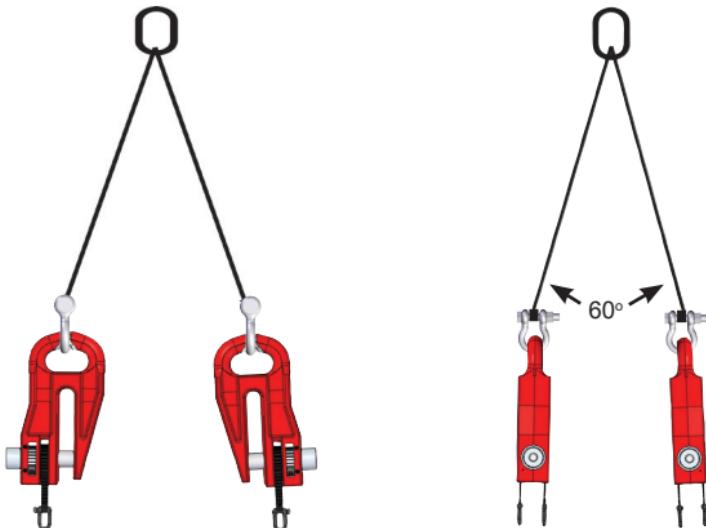
lifting piles correctly

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.

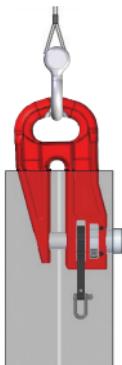
The ring at the top of the sling can be hooked directly onto a standard crane hook block, D shackle or fork anchor. The sling also enables the shackles to be turned to fit opposite faces of box or tube piles using the standard sling and shackles.



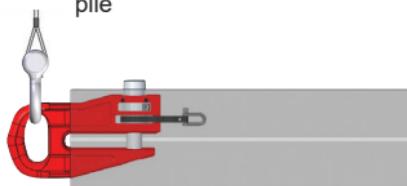
Downrate in accordance with national codes

continued-lifting piles correctly

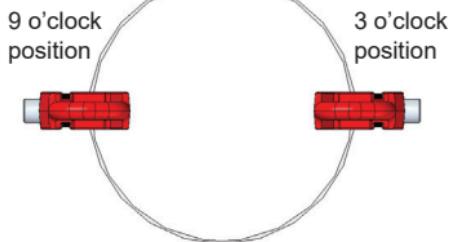
SAFE
Axial loading



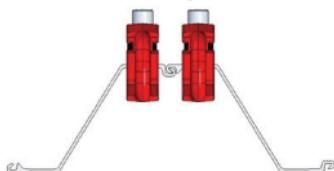
SAFE
Lifting off a stack at
90° to the axis of the
pile



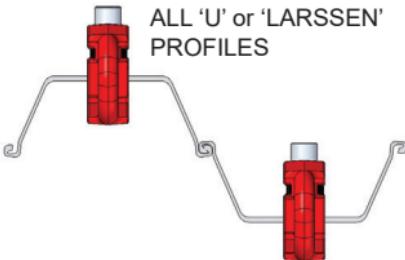
TUBE PILE



ALL 'Z' PROFILES



ALL 'U' or 'LARSEN'
PROFILES



'H' PILE



safety check list

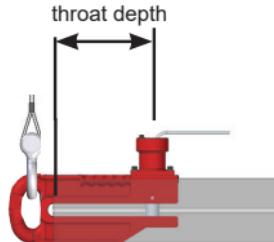
1) PRE-INSTALLATION CHECKS

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 Working Load Limit is being used. The Working Load Limit 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 WLL of the equipment should be derated 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!



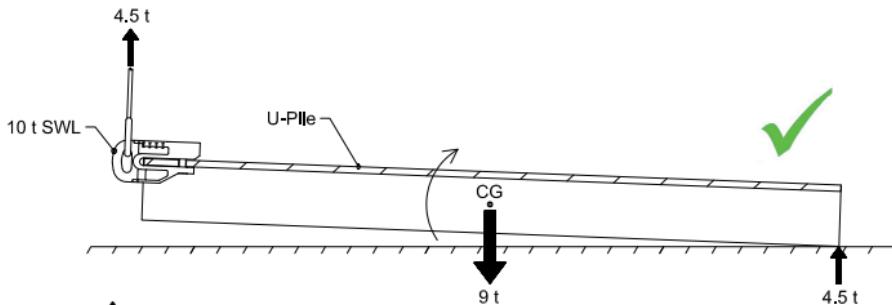
- d. The lifting hole should be neatly drilled or punched and of a suitable size to suit the threaded pin.
- 2) Do not use the lifting shackles for pulling or extracting.
- 3) Ensure that the pin has gone through both sides of the shackle body.
- 4) Do not modify the lifting shackles or any part of the lifting apparatus. Keep the burning torch well clear!
- 5) Keep the release 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.



When lifting steelwork from horizontal to vertical, or vice versa, the WLL rating of any DCP shackle is **halved**. In the example shown below, assume the shackle is rated at 10 t WLL. When using the shackle in the orientation shown to conduct a lift, the WLL 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 WLL 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).

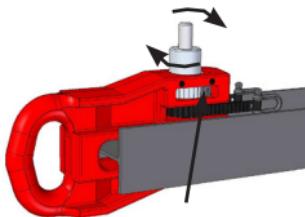
Consult the manufacturer for further information on low-temperature solutions.



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

installation & release diagrams

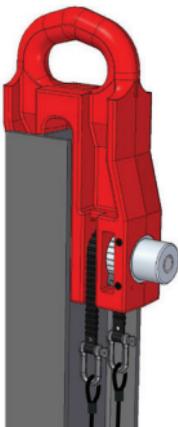
1. Insert pin.



With the pin retracted, slide the shackle over the material to be lifted until the pin is approximately over the lifting hole. Press the ratchet pawl down with thumb of one hand and turn the release nut of the shackle clockwise with the other hand. Continue turning until the pin has gone through the hole in the material to be lifted and into the opposite of the shackle. The indicator bar should be flush with the face of the release nut.

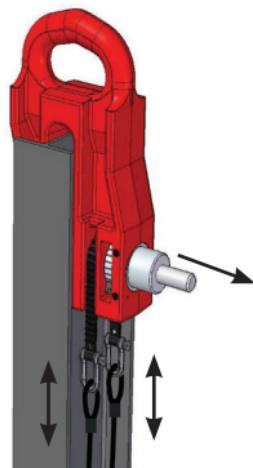
2. Hoist to position

Two soft ropes should be attached to the 'D' shackles at each end of the toothed belt. The material may then be lifted.



3. Release shackle after material has been secured.

After lifting & securing the material, the shackle is released by pulling the release ropes first one way then the other, until fully retracted. The ratchet action withdraws the pin. The stroke of the pull is limited by the 'D' shackles at each end of the toothed belt (450mm maximum length).



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 pin should be checked for smooth travel and moving surfaces should be lightly oiled.

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 Working Load Limit.

During transport, handling & storage, it is imperative that the threaded pin is in the engaged position. The indicator bar must be flush with the release nut.

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

technical spec

| | MODEL No. | | | | | | | | | |
|--------|-----------|--------|--------|--------|--------|--------|--------|--------|-------|-------|
| | 681A/A | 682A/A | 683A/A | 684A/A | 686A/A | 687A/A | 688A/A | 689A/A | 692A | 693A |
| A | Ø20 | Ø20 | Ø24 | Ø24 | Ø27 | Ø35 | Ø35 | Ø27 | Ø27 | Ø35 |
| B | 158 | 258 | 158 | 258 | 258 | 158 | 258 | 158 | 303 | 303 |
| C | 277 | 377 | 277 | 377 | 377 | 277 | 377 | 277 | 360 | 360 |
| D | 78 | 78 | 78 | 78 | 78 | 78 | 78 | 78 | 80 | 80 |
| E | 35 | 35 | 35 | 35 | 35 | 35 | 35 | 35 | 40 | 40 |
| F | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 32 | 32 |
| G | 160 | 160 | 160 | 160 | 160 | 160 | 160 | 160 | 202 | 202 |
| H | 55 | 55 | 55 | 55 | 55 | 55 | 55 | 55 | 60 | 60 |
| J | R17.5 | R17.5 | R17.5 | R17.5 | R17.5 | R17.5 | R17.5 | R17.5 | R20 | R20 |
| WEIGHT | 15 kg | 19 kg | 15 kg | 19 kg | 19 kg | 15 kg | 19 kg | 15 kg | 22 kg | 22 kg |

Model No. - Size

681A/A - 3.5T ERRS 150 Throat

682A/A - 3.5T ERRS 250 Throat

683A/A - 5T ERRS 150 Throat

684A/A - 5T ERRS 250 Throat

686A/A - 7.5T ERRS 250 Throat

687A/A - 10T ERRS 150 Throat

688A/A - 10T ERRS 250 Throat

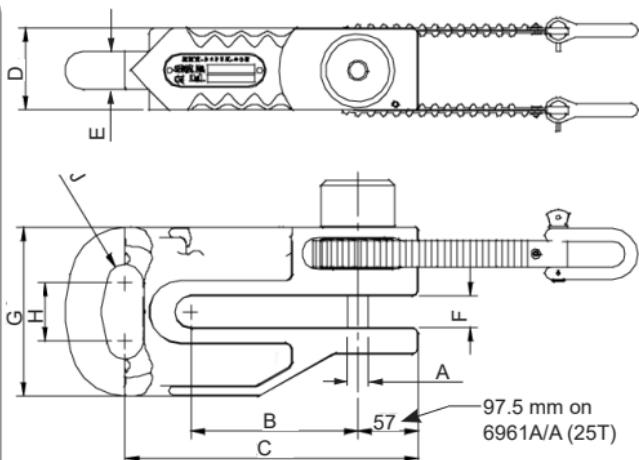
689A/A - 7.5T ERRS 150 Throat

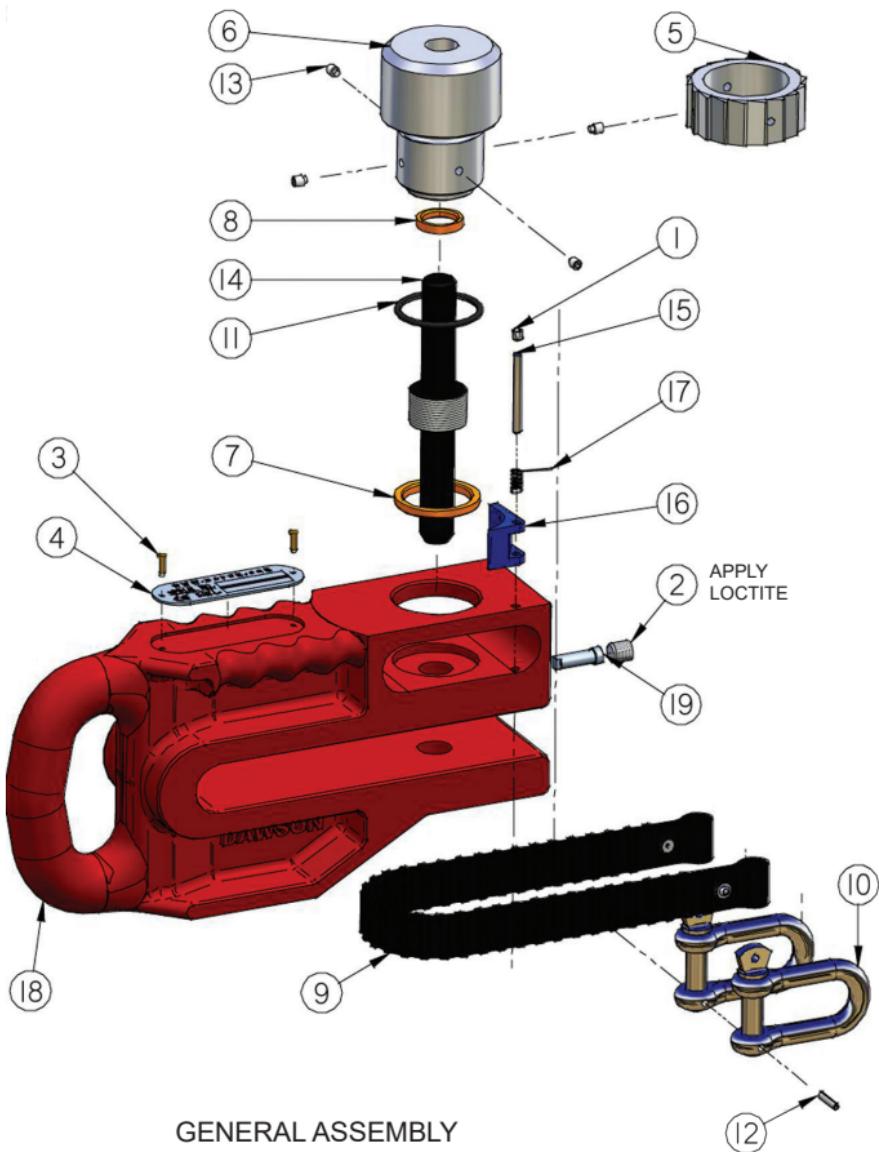
692A - 7.5T ERRS 300 Throat

693A - 10T ERRS 300 Throat

6961A/A - 25T ERRS 250 Throat

6962A/A - 40T ERRS 250 Throat



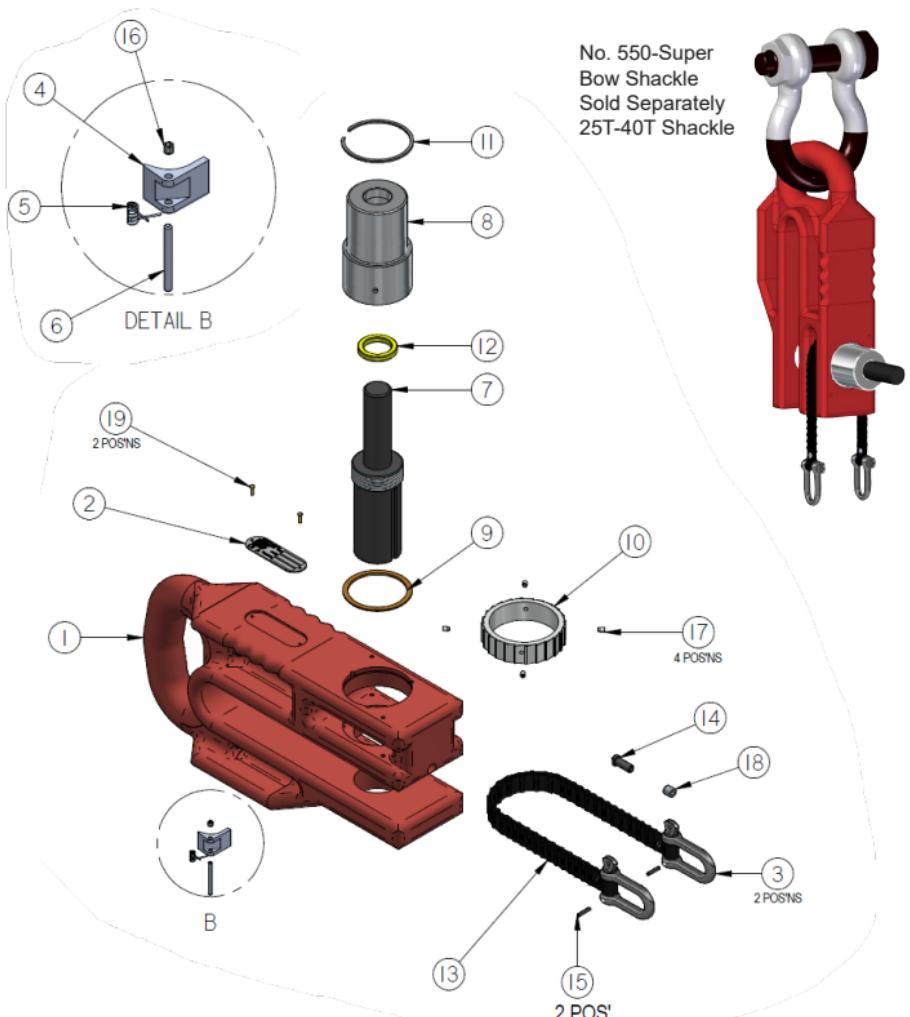


parts list

| Item No. | Qty | Part Name | MODEL No. | | | | | | | | | |
|----------|-----|---------------------------|-------------|---------|---------|---------|---------|---------|---------|---------|------|------|
| | | | 681 A/A | 682 A/A | 683 A/A | 684 A/A | 686 A/A | 687 A/A | 688 A/A | 689 A/A | 692A | 693A |
| 1 | 1 | Socket Set Screw M6 x 6 | 0M06-006-05 | | | | | | | | | |
| 2 | 1 | Socket Set Screw M12 x 12 | 0M12-012-05 | | | | | | | | | |
| 3 | 2 | No.6 x 1/2" Rivet | 1-204-00-01 | | | | | | | | | |
| 4 | 1 | Shackle ID Plate | 5938 | | | | | | | | | |
| 5 | 1 | Ratchet Collar Machined | 604 | | | | 642 | 642 | 604 | 604 | 642 | |
| 6 | 1 | Release Nut | 605 | | | | 643 | 643 | 605 | 605 | 643 | |
| 7 | 1 | Nylon Ring | 606 | 606 | 606 | 606 | 606 | 644 | 644 | 606 | 606 | 644 |
| 8 | 1 | Rubber Buffer Stop | 607R | | | | | | | | | |
| 9 | 1 | Ratchet Belt Assy | 608A | | | | | | | | | |
| 10 | 2 | Small D Shackle | 609 | | | | | | | | | |
| 11 | 1 | O-Ring | 610 | | | | | | | | | |
| 12 | 2 | Spring Pin | 0M04-020-22 | | | | | | | | | |
| 13 | 4 | Dog P't Grub Screw | 0M06-008-16 | | | | | | | | | |
| 14 | 1 | Threaded Pin | 621 | 621 | 671 | 671 | 601 | 641 | 641 | 601 | 601 | 641 |
| 15 | 1 | Dowel, Ø50 x 50 | 626 | | | | | | | | | |
| 16 | 1 | Pawl | 627 | | | | | | | | | |
| 17 | 1 | Pawl Spring | 628 | | | | | | | | | |
| 18 | 1 | *ERRS Main Body | 661/A | 666/A | 662/A | 667/A | 668/A | 664/A | 669/A | 663/A | 678 | 679 |
| 19 | 1 | Guide Peg | 672 | | | | | | | | | |

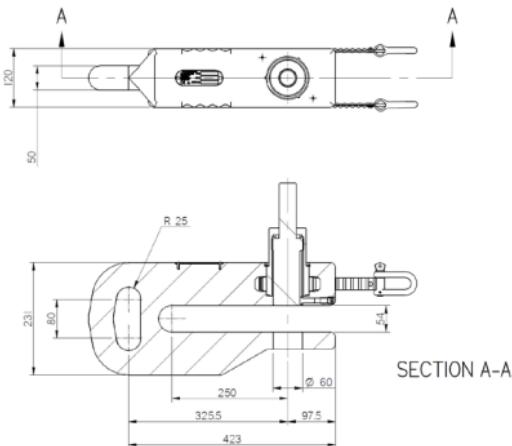
* Not available for part resale.

parts list - 25t shackle



25T ERRS 250 THROAT - 6961A/A

continued - parts list



GENERAL NOTE: WEIGHT 48 kg

* Not available for part resale.

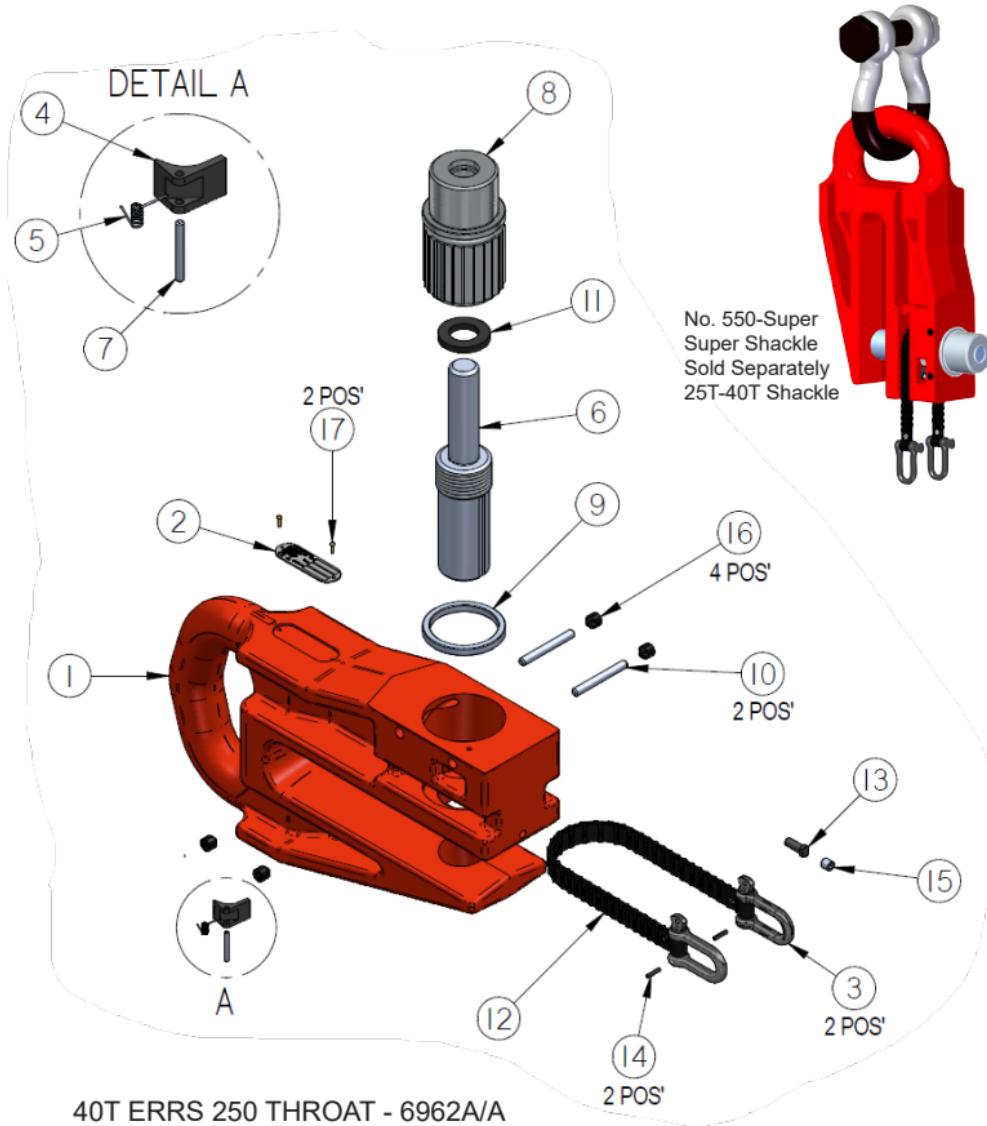
| Item No. | Quantity | Part Name | 6961A/A |
|----------|----------|------------------------------------|-------------|
| 1 | 1 | *25 Series RRS Shackle Casting | ZCAST25RRS |
| 2 | 1 | ID Plate, Shackles | 5938 |
| 3 | 2 | Small D Shackle | 609 |
| 4 | 1 | Ratchet Pawl | 627 |
| 5 | 1 | Ratch Pawl Spring | 628 |
| 6 | 1 | Dowel, Ø50 x 50, A2 St. Steel | 626 |
| 7 | 1 | Threaded Pin | 674 |
| 8 | 1 | Release Nut | 690 |
| 9 | 1 | Bearing Washer | 692 |
| 10 | 1 | Ratchet Collar | 694 |
| 11 | 1 | Snap Ring | 697 |
| 12 | 1 | Rubber Buffer Stop | 6932R |
| 13 | 1 | Ratchet Belt Assembly | 6936A |
| 14 | 1 | Guide Pin | 6942 |
| 15 | 2 | Pin, Spring, M4 x 20 | 0M04-020-22 |
| 16 | 1 | Screw, Grub, M6 x 6 | 0M06-006-05 |
| 17 | 4 | Screw, Dog Point Grub, M6 x 6 | 0M06-008-16 |
| 18 | 1 | Screw, Grub, M12 x 12 | 0M12-012-05 |
| 19 | 2 | Screw, Electro-brass, No. 6 x 1/2" | 1-204-00-01 |

25T ERRS 250 THROAT
GENERAL ASSEMBLY

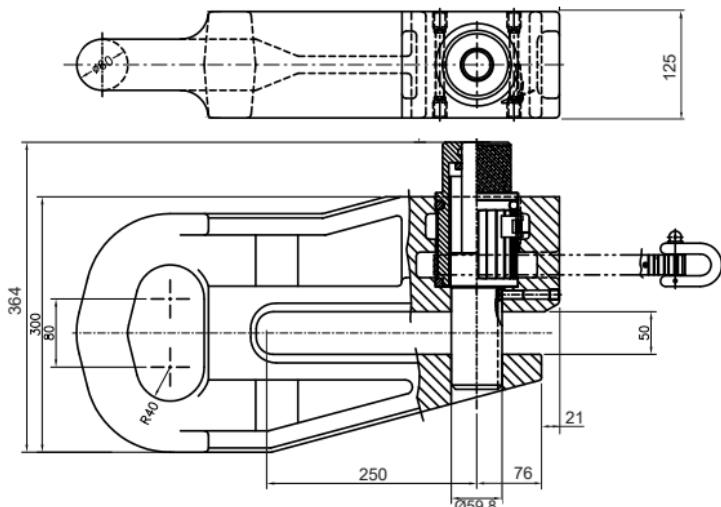
MODEL No. 6961A/A

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parts list - 40t shackle



continued - parts list



GENERAL NOTE: WEIGHT 67 kg

* Not available for part resale.

| Item No. | Quantity | Part Name | Part Number |
|----------|----------|------------------------------------|-------------|
| 1 | 1 | *40T ERRS Shackle Machined | 6902A |
| 2 | 1 | ID Plate, Shackles | 5938 |
| 3 | 2 | Small 'D' Shackle | 609 |
| 4 | 1 | Pawl | 627 |
| 5 | 1 | Pawl Spring | 628 |
| 6 | 1 | Threaded Pin | 6912 |
| 7 | 1 | Dowel, Ø5 x 40, A2. St. Steel | 6923 |
| 8 | 1 | Release Nut | 6920 |
| 9 | 1 | Bearing Washer | 6930 |
| 10 | 2 | Location Bar | 6931 |
| 11 | 1 | Rubber Buffer Stop | 6932R |
| 12 | 1 | Ratchet Belt Assembly | 6936A |
| 13 | 1 | Guide Pin | 6942 |
| 14 | 2 | Pin, Spring, M4 x 20 | 0M04-020-22 |
| 15 | 1 | Screw, Grub, M12 x 12 | 0M12-012-05 |
| 16 | 4 | Screw, Grub, M16 x 16 | 0M16-016-05 |
| 17 | 2 | Screw, Electro-Brass, No. 6 x 1/2" | 1-204-00-01 |

40T ERRS 250 THROAT
GENERAL ASSEMBLY

MODEL No. 6962A/A

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euro ratchet release shackle

A GUIDE TO CHANGING THE PAWL,
PAWL SPRING AND BELT ON A DAWSON
RATCHET RELEASE SHACKLE



01

The Pawl and its return spring may require changing if badly worn or generally damaged.

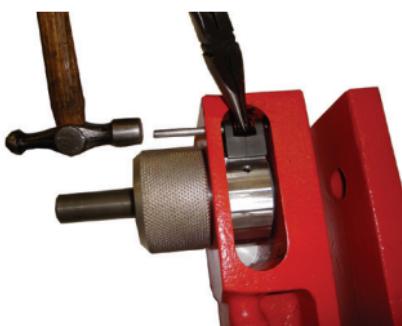
SAFETY GLASSES SHOULD BE WORN. THE SPRING IS UNDER COMPRESSION AND MAY FLY OUT DURING THIS PROCEDURE!

First, remove the M6 socket set screw.



02

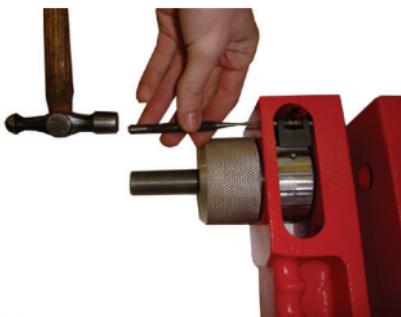
Note the arrangement of pawl and spring. Slide the pivot pin out to allow removal of the pawl and spring.



03

Insert the new pawl. Hold the spring in place with pliers and gently tap the pivot pin through pawl and spring.

Note that the short arm of the pawl is uppermost and the "legs" of the spring are between the pawl and the body of the shackle.



04

Tap home the pivot pin with a small pin punch.



05

Refit and tighten the socket set screw. Carefully check the action of the pawl before allowing the shackle back into service.



06

Cut, remove and discard the old belt. Thread the new belt though the gap between the shackle body and the pawl collar.



07

The flush head of the pop rivet must be towards the pawl collar and the head of the screw in any "D" shackle should be towards the middle of the shackle.



08

Fit the new "D" shackle(s), passing the screw through the loop in the belt as shown.

Tighten the screw, aligning the 4mm diameter holes and tap in the roll pin until flush.

REMEMBER TO WEAR EYE PROTECTION!!!!

Check the action of the belt and ratchet before allowing the shackle back into service.



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

euro ratchet release shackle
3.5t / 5t / 7.5t / 10t / 25t / 40t

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