

# **EXCAVATOR AUTOMATIC QUICK COUPLER.**



# **OWNER'S MANUAL**

**IMPORTANT**—This manual should be kept in the excavator at all times after the installation of the Coupler.

Operators should be fully trained with regards to all aspects of this type of coupler.

## **Dromone Multi– Lock Quick Coupler**

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## **Introduction.**

Thank you for purchasing the Dromone 'MULTI-LOCK QUICK Coupler'. This hitch has been designed and manufactured with ease of use and operator safety in mind.

This product has undergone extensive testing and benchmarking against similar competitor products and we believe the Dromone 'MULTI-LOCK QUICK Coupler' product is unique, and is the best available in today's market place with safety first.

The 'MULTI-LOCK QUICK Coupler' is characterised in the manner in which both front and rear pin of the attachment is are independently hydraulically released by the coupler and both front and rear pins are independently locked through the full working cycle.

This hitch is capable of being fully operated from the comfort and safety of the machine cab.

This 'MULTI-LOCK Quick Coupler's product, when used correctly and with proper OEM (Original Equipment Manufacturer) excavator buckets and attachments will provide a safe and reliable means of quick attachment and changeover of various implements, thus allowing the user to get maximum productivity from the machine.

To guarantee satisfactory and safe operation of the equipment, we insist that only experienced and qualified personnel install and operate the product.

Failure to follow the correct procedures in this manual could result in injury or death.



Dromone Engineering LTD, will accept no responsibility or liability for equipment installed or operated unless it is full accordance with the information provided in this manual.

Dromone recommend that genuine Dromone Coupler replacement parts are only fitted. Please contact Dromone on +353 44 966346 or sales@dromone.ie to order parts, quoting the coupler serial number

**Dromone Multi– Lock Quick Coupler**

This 'MULTI-LOCK Quick Coupler' product, when used correctly and with proper OEM (Original Equipment Manufacturer) excavator buckets and attachments will provide a safe and reliable means of quick attachment and change-over of various implements, thus allowing the user to get maximum productivity from the machine.

The Coupler can operate with a range of buckets and a wide range of attachments within the same pin size range, some of which are illustrated blow in figure 1.

Please note that if the attachment you wish to use is not on the following list, please contact Dromone for further information.



**Fig 1 .** Some of the attachments suitable for the 'MULTI-LOCK Quick Coupler'

Buckets (all types)
Pallet forks
Ripper
Telescopic jib
Screener
Lifting (using lifting eye)
Rock breaker
Sorting grabs
Compactors
Hydraulic sheers

## Important Safety Notes



### *Please Read Carefully.*

1. As a new owner / operator of a Dromone 'MULTI-LOCK Quick Coupler' it is very important that you take time to acquaint yourself with the main features of the hitch and the requirements for its safe operation and maintenance.

Therefore, we recommend that you study the contents of this booklet very carefully and be fully familiar with its contents before commencing work.

Always treat couplers with the respect they deserve.

2. Great care must be taken when working on or with the 'MULTI-LOCK Quick Coupler'. Never attempt to work on, or carry out maintenance to this product without first ensuring that it has been made safe, and that the machine to which it is attached is switched off.

3. In the case of a hydraulically operated hitch. Even with the machine switched off the hydraulic circuits may remain pressurised so care must be taken when connecting / disconnecting hydraulic hoses.

4. While the 'MULTI-LOCK Quick Coupler' is designed and proven to work with most available buckets and other attachments. Dromone do not approve the use of mechanical pulverisers, mechanical shears, mechanical stump grinders and such tools with this coupler. Limited use of breakers with the coupler is permitted. Warranty will be void if such attachments are used with this coupler.

5. Regardless of the bucket or attachment being used with the 'MULTI-LOCK Quick Coupler' they must be used in strict accordance with their individual manufacturers guide lines and instructions.

6. In order to ensure that you get the most from your 'MULTI-LOCK Quick Coupler' product we have set out in this booklet some recommended service and maintenance checks. These should be carried out on a regular basis and any damaged parts should be replaced immediately.

7. Never attempt to modify either the Dromone Multi Lock Quick Coupler or the machinery onto which it is intended to be attached without first receiving approval from Dromone Engineering personnel. Unauthorised modification of the Quick Coupler or the host machine can seriously impair the performance of the equipment and could cause serious injury to personnel.

8. It is the responsibility of all persons involved in the installation, maintenance and operation of the Dromone Quick Coupler to ensure their own personal safety by wearing suitable protective clothing, safety footwear, Hi-visibility vests and ear & eye protection where appropriate.

9. If you should have any difficulty with your Dromone Multi Lock Quick Coupler which is not addressed in this manual, then you should contact Dromone Engineering Ltd. Immediately at the numbers provided on the back of this manual.

10. Although every effort has been made to optimise the strength and durability of the Dromone Multi Lock Quick Coupler, it should be noted that the typical environ-

## Dromone Multi– Lock Quick Coupler

ment in which the coupler is likely to be working can be extremely harsh and detrimental to all types of machinery. For this reason, Dromone Engineering highly recommends that; as well as the regular maintenance checks, certain components be replaced as a matter of course after reaching a pre-specified no. of working hours.

Intermittent problems can be symptoms of imminent failure and if these are experienced with key control components such as the control box or solenoid valve, these components should be replaced immediately.

Details of specific components and their expected normal working life can be found in the Maintenance section of this manual. Please take the time to become acquainted with these components and to monitor their working age.

***Only genuine Dromone parts must be used to service this Quick Coupler.***

***Dromone Engineering Ltd. reserves the right to waive liability if non genuine parts are fitted to this Coupler.***

11. It is important to note that if you or your representative is responsible for the initial installation of the Dromone Quick coupler, especially in regard to the hydraulic / electrical system; you must take the full responsibility to make sure the installation is carried out in strict accordance with Dromone Engineering's instructions. Any failure to do so may allow the unsafe operation of the coupler and result in serious injury or death, with the installer being found to be liable.

12. Other than the structural integrity of the Dromone Multi Lock Quick Coupler,

the most important component(s) in this coupler are the two hydraulic cylinders and the front and rear pin locking mechanisms.

It is imperative that to ensure the continued safe and effective use of this coupler, a daily check be carried out to monitor wear, blockages and other damage that can possibly occur to the detriment of the system's safe operation.

While every effort has been made by Dromone Engineering Ltd. To provide a safe, durable and effective product to work in a typically harsh environment, it must be stressed that it is the responsibility of the owner / user to keep the system serviced and in good working order. The machine operator and / or owner could be held to be negligent if they either fail to keep the system in good order.

13. It is essential to ensure continued safe operation of the Dromone Multi Lock Quick Coupler, that along with regular maintenance checks and services carried out on the coupler; close attention be paid to the presence and condition (legibility) of all the decals in the machine's cab.

If one or more of these decals become damaged or lost, it is essential that they be replaced immediately. Dromone Engineering has supplied an extra set of decals with this manual for this eventuality. If you have not received these decals you should contact your dealer immediately. If you have further need for decals, you can contact Dromone directly at the address / Tel no. printed in this manual.

***PLEASE MAKE SURE THAT THE IN-CAB OPERATION INSTRUCTION DECALS ARE MOUNTED IN THE MACHINE CAB IN AN EASILY VISIBLE***

## Dromone Multi– Lock Quick Coupler

### ***LOCATION CONVENIENT TO THE OPERATOR & THAT THIS MANUAL IS AVAILABLE IN THE MACHINE CAB.***



14. Lifting eye can only be used with the machine if there is a hose burst check valve on the boom. It is the responsibility of the fitter to disable the lifting eye, if the safety check valves are not incorporated

If the coupler is fitted with a lift eye, please inspect daily before use for wear, cracks and fatigue. If damaged do not use.

Always use approved lifting shackle and chains in conjunction with the lift eye.

Check the SWL (Safe Working Load) that is stamped on the coupler and ensure the lifting equipment is compatible.

Always check the excavator manual for the machine SWL as this determines the lifting capacity of the machine. This SWL should never be exceeded under any circumstance.

Always remove the attachment on the coupler prior to using the lift eye.

No other part of the coupler may be used for lifting other than the lift eye.

The lift eye on the coupler has been tested and stamped by Dromone, this test is valid for 12 months from first date of purchase, there after it is the responsibility of the machine owner to insure the lift eye remains compliant to each countries national standard.

15. The quick hitch should only be fitted to the machine referred to on the Serial number plate or the declaration of incor-

poration. Should the model on the badge be different on the badge, permission should be sought from Dromone engineering before commencing fit-up.

### **16. Sequence of Operation of the Dromone 'Multi Lock' Automatic Coupler:**

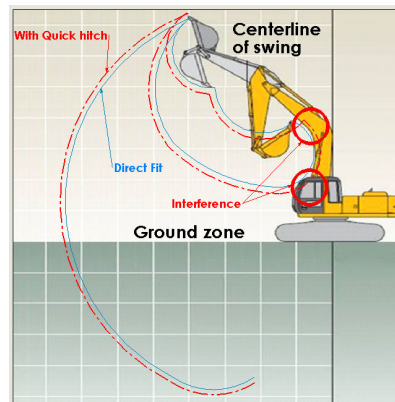
#### **Opening:**

- Rear Lock Hydraulically Opens
- Latching Hook Retract Hydraulically.
- Front Locking Mechanism Mechanically Opens.

17. The operating instructions contained in this manual are a guideline for use with the Dromone Control Box. Please contact you plant department or training department if another system has been implemented at installation. A copy of this may be found in the appendix at the end of the manual. Please contact your plant or training department for a copy of this in-

18. The working range of the machine can change with the incorporation of a quick hitch. This includes the following:

- The bucket is more liable to interfere with the dipper arm and possibly the cab in which can lead to injury or death (*Figure 2*).



**Fig 2.** Possible interference

## **Dromone Multi– Lock Quick Coupler**

- Break out force is reduced at the tip of the bucket due to the longer distance from the pivoting area.
- As can be seeing from *figure 2* above this is ideally the danger zone and it follows a 360 degree axis to the machine from the centreline of swing. As well as this, the working radius of the machine increases due to the extra distance between the bucket and the dipper arm.
- Maximum operating capacity is limited with the use of quick coupler. Refer to excavator owners manual for further information on max operating loads.

20. Please note that under no circumstance, does Dromone engineering authorize the transport of people with a quick hitch, even if the quick hitch is designed to do so.

## Operating Instructions



The operating instructions contained in this manual are a guideline for use with the Dromone Control Box. Please contact your plant department or training department if another system has been implemented at installation. A copy of this may be found in the appendix at the end of the manual. Please contact your plant or training department for a copy of this instruction.



To guarantee satisfactory and safe operation of the equipment, it is strongly recommended that the 'MULTI-LOCK Quick Hitch' be installed and fitted by trained personnel only.

Installation of the 'MULTI-LOCK Quick Hitch' must be in accordance with the instructions provided in this manual, any deviation from the instructions given here needs to be authorised by Dromone Engineering personnel.

Any difficulty with interpretation of the installation instructions in this manual should be resolved between the fitter and Dromone Engineering, before proceeding any further - **IF IN DOUBT ASK.**

### Bucket/Attachment Pickup

Before attaching to a bucket or any other attachment it is important to check for the following. Familiarise yourself with the coupler and machine controls prior to use with attachments.

- A. The attachment is fitted with the correct pins at the correct centre distances and that they are

secured properly in place.

- B. Ensure that the 'MULTI-LOCK Quick Coupler' has been left safe after previous use / operation.
- C. Ensure that the area within the maximum machine swing radius is clear of all personnel and obstacles.
- D. If the In-Cab control system is not supplied by Dromone, this may affect the performance and safety of the coupler. Always check the sequence and function matches the sequence outlined in this manual.

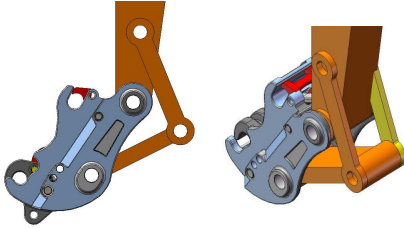
#### Procedure:

1. From the operators seat in the machine cab the 'MULTI-LOCK Quick Hitch' must be fully crowned inwards to the transport position in order to disengage the automatic latching system. Fully extend the bucket cylinder and hold over relief.



Fig 2. Excavator in transport position

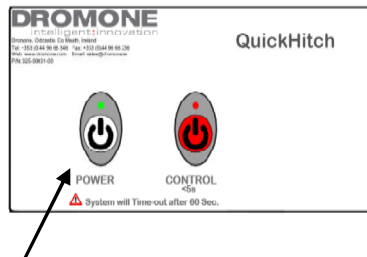
## Dromone Multi– Lock Quick Coupler



**Fig 4.** Hitch in transport position

2. Press the 'POWER' button on the in-cab control panel to the, The visual Led will pulsate GREEN and activate an audible buzzer (continuous tone) in the machine cab (*Figure 5*).

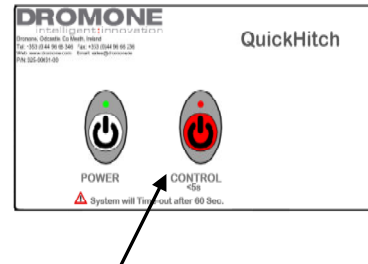
NOTE: If no further action is taken within 5 seconds the unit will automatically 'LOCK OUT', the indicators will go out and the green LED light will return to a constant green light.



**Fig 5.** Switching control box on

3. Activation of cylinders:

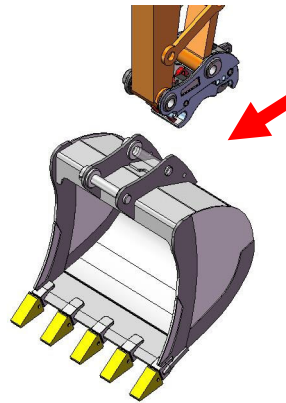
Press the 'CONTROL' button within 5 seconds from switch on. The status indicator light will illuminate to a flashing red signal and the buzzer will also change from a continuous tone to a pulsating tone. This indicates that a positive supply is being sent to the solenoid valve, which in turn operates the both lock cylinder.



**Fig 6.** Press 'CONTROL' Button

NOTE: After 'CONTROL' button is pressed, the system will activate a warning signal at 55 seconds, and after 60 seconds the hitch will reset to a closed position.

4. Manoeuvre the 'MULTI-LOCK Quick Coupler' to line it up with the bucket or implement to be picked up (*Figure 7*)



**Fig 7.** Manoeuvring into bucket

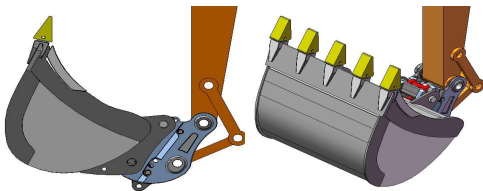
5. Lower the 'MULTI-LOCK Quick Coupler downwards and slide forward to engage the front jaw of the 'MULTI-LOCK Quick Hitch' over the nearest bucket pin. Rotate the 'MULTI-LOCK Quick Hitch' clockwise to line up the second bucket pin (furthest from mach.)

## Dromone Multi– Lock Quick Coupler

6. When both attachment pins are seated in the 'MULTI-LOCK Quick Coupler' jaws, rotate the attachment fully inwards using the excavator bucket cylinder (*Figure 7*). This manoeuvre will ensure that the attachment is fully seated in the 'MULTI-LOCK Quick Hitch' jaws.



7. Press 'POWER' button the indicator light will go out and audible buzzer will stop sounding in excavator cab. The main cylinder will extend and lock the latching hooks over the attachment pin.

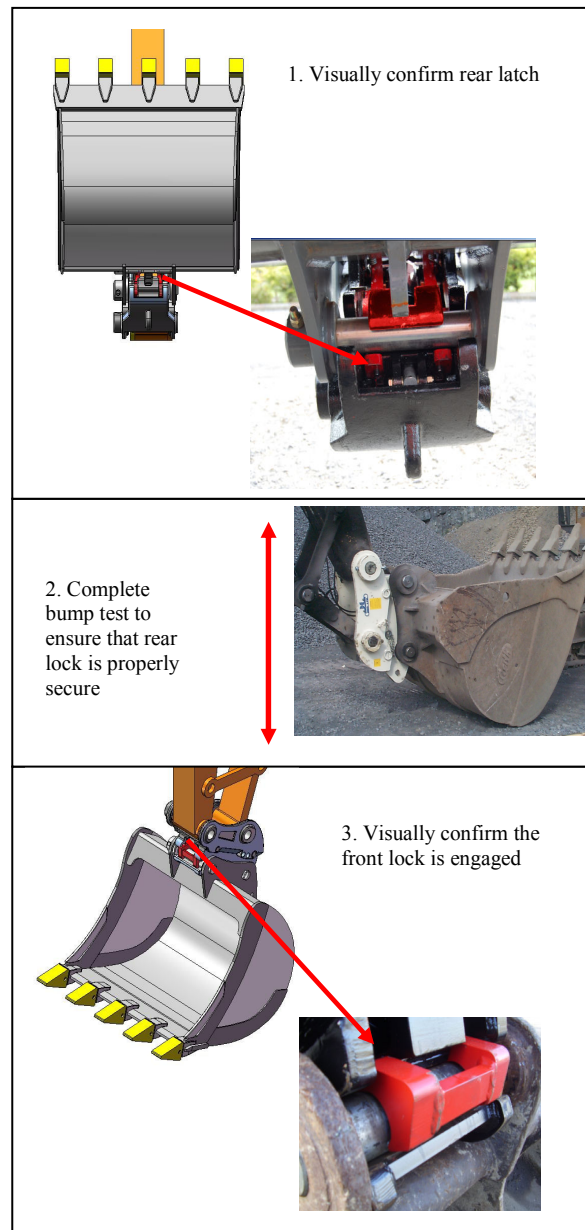


**Fig 9.** Curling fully inwards and apply overpressure for 3-5 seconds

8. As a final check that this procedure has been carried out correctly, the following checks should be verified in the following order.

1. Visually confirm rear latch is engaged
2. Complete bump test to ensure that rear lock is properly secure
3. Visually confirm the front lock is engaged

With the confirmation of these checks the coupler is now ready for use. (*Figure 10*)



**Fig 10.** Final checks

## Bucket/Attachment Release

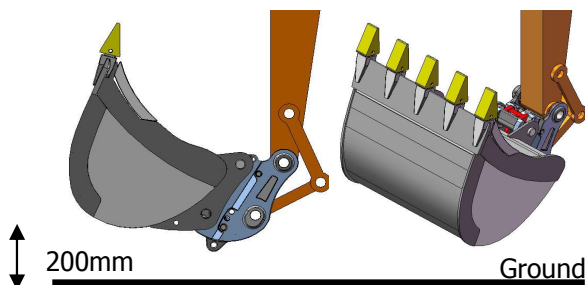
Before attempting the release of a bucket or any other attachment it is important to check for the following.



- A. Ensure that the area within the maximum machine swing radius is clear of all personnel and obstacles.
- B. Put attachment on level ground to ensure that it does not roll over.

### Procedure:

1. Lower the 'Quick Coupler and attachment to the ground with the 'Quick Coupler' rotated fully inwards towards the machine in order to disengage the automatic latching system.

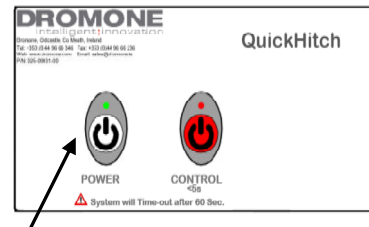


**Fig 11.** Lowering the bucket

2. Press the 'POWER' button on the in-cab control panel to the, The visual Led will pulsate GREEN and activate an audible buzzer (continuous tone) in the machine cab (*Figure 12*).

NOTE: If no further action is taken within 5 seconds the unit will automatically 'LOCK OUT', the indicators will go out and the green

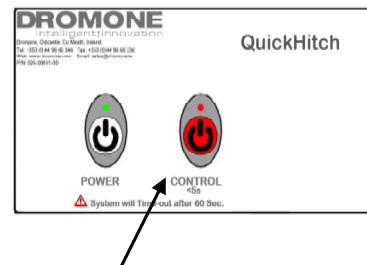
LED light will return to a constant green light.



**Fig 12.** Switching control box on

3. Activation of cylinders:

Press the 'CONTROL' button within 5 seconds from switch on. The status indicator light will illuminate to a flashing red signal and the buzzer will also change from a continuous tone to a pulsating tone. This indicates that a positive supply is being sent to the solenoid valve, which in turn operates the both lock cylinder.

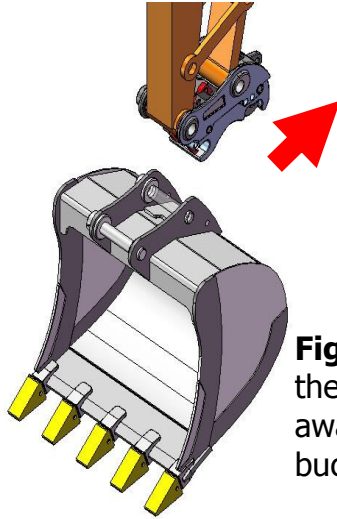


**Fig 13.** Press 'CONTROL' Button

NOTE: After 'CONTROL' button is pressed, the system will activate a warning signal at 55 seconds, and after 60 seconds the hitch will reset to a closed position.

## Dromone Multi– Lock Quick Coupler

4. Manoeuvre the 'Quick Hitch' rearwards, away from the machine and this will disengage the 'Quick Hitch' from the bucket or other attachment (figure 14).



**Fig 14.** Moving the 'Quick hitch' away from the bucket



5. The next stage is to set the switch to the 'OFF' position, the indicator light will go out and the audible buzzer will stop sounding in the machine cab. The 'Quick Coupler' cylinder will extend and lock the hitch latching hooks. This manoeuvre will also activate the automatic locking system.

## DAILY INSPECTION & CHECKS.



The following checks should be carried out on a daily basis.

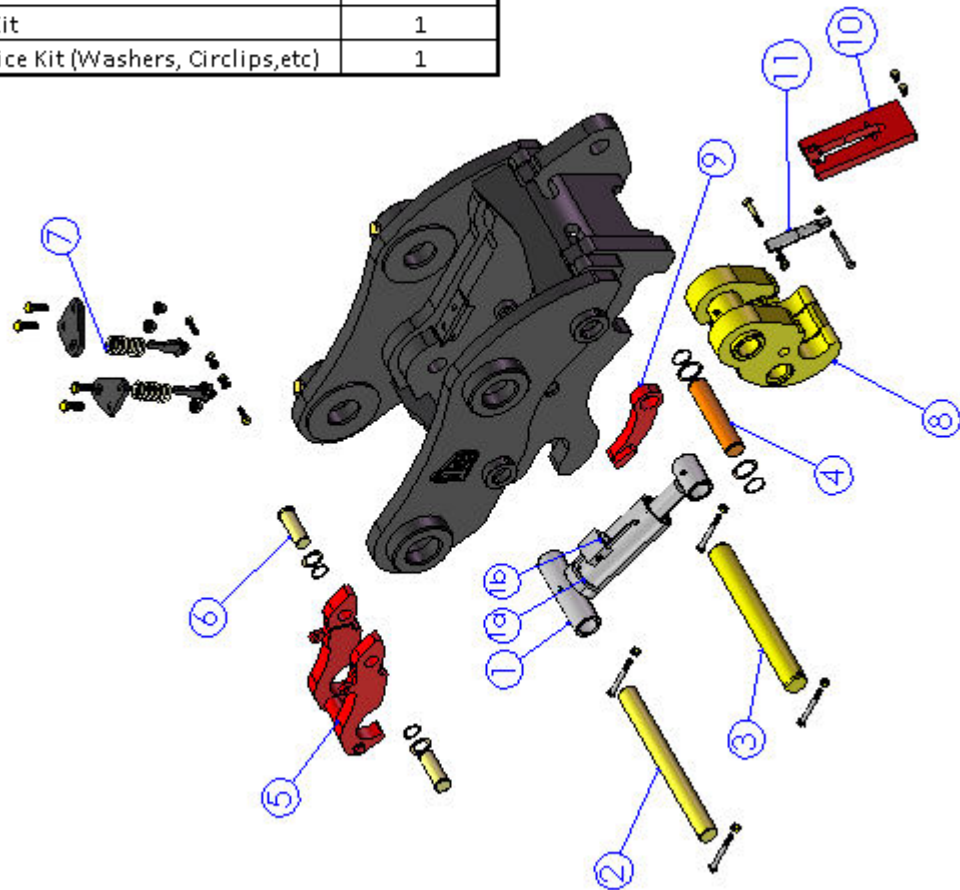
1. Check the main frame for cracks or weld failure.
2. Check that the Quick Coupler components are not damaged or showing signs of wear.
3. Check the attachment pins for damage or undue wear.
4. Check for any sign of damage or clogging of both automatic locking mechanisms.
5. Check for oil leaks from the hydraulic cylinders and hose connections.
6. Check that all nuts & bolts used to secure pins are locked tight.
7. Grease hitch daily, all pins and bushings should be greased. Grease nipples are provided at cylinder bushings and at the latching hooks to facilitate access for this purpose.
8. Clean coupler of all dirt and debris, ensure all labels are clean and legible at the end of each shift.
9. Inspect lift eye for wear, damage or cracks.

## PARTS LIST—ORDERING SPARE PARTS

All Dromone MULTI-LOCK Quick Couplers are labelled with a unique serial number. The serial number is located on the main body of the frame.

At the time of ordering spare or replacement parts, you will be required to provide the serial number and a description of the part(s) you require. Please see below reference illustration drawing of spare parts for the coupler.

Item #	Description	Qty per hitch
1	Main Hydraulic Cylinder	1
1a	Main Hydraulic Cylinder - Seal Kit	1
1b	Main Hydraulic Cylinder - Check Valve	1
2	Cylinder Pin Kit	1
3	Hook Pin Kit	1
4	Hook+Cylinder Pin Kit	1
5	Lock Arm Kit	1
6	Lock Arm Pin Kit	2
7	Lock Arm Spring Kit	2
8	Latching Hook Kit	1
9	Push Bar Kit	1
10	Lock Plate Kit	1
11	Rear Lock Cylinder Kit	1
12	Main Pin - Cross Bolt Kit	2
13	Spacer Shim Kit	1
14	Fittings - Service Kit (Washers, Circlips,etc)	1



## Dromone Multi– Lock Quick Coupler

### Maintenance Schedule

The table below is to be used as a guideline in the maintenance program of the coupler. The maintenance log should be update and signed off at the recommended hourly interval. If parts are damaged or worn outside of the schedule below these

Description	Hourly Interval					
	1000	2000	3000	4000	5000	6000
Latching Hook Assy (Ref 1)	INSPECT	INSPECT	INSPECT	INSPECT	INSPECT	REPLACE
<i>Signed</i>						
<i>Date</i>						
Bucket Pins (Ref 4 and 5)	INSPECT	INSPECT	INSPECT	REPLACE	INSPECT	INSPECT
<i>Signed</i>						
<i>Date</i>						
Hydraulic Cylinder ~Lg (Ref 12)	INSPECT	INSPECT	INSPECT	INSPECT	INSPECT	INSPECT
<i>Signed</i>						
<i>Date</i>						
Hydraulic Cylinder ~S (Ref 11)	INSPECT	INSPECT	INSPECT	INSPECT	INSPECT	INSPECT
<i>Signed</i>						
<i>Date</i>						
Front lock (Ref 7)	INSPECT	INSPECT	INSPECT	INSPECT	INSPECT	INSPECT
<i>Signed</i>						
<i>Date</i>						
Cylinder Pin (Ref 6)	INSPECT	INSPECT	INSPECT	INSPECT	REPLACE	INSPECT
<i>Signed</i>						
<i>Date</i>						
Hook Assy Pin (Ref 3)	INSPECT	INSPECT	INSPECT	INSPECT	REPLACE	INSPECT
<i>Signed</i>						
<i>Date</i>						
Cylinder & Hook Pin (Ref 2)	INSPECT	INSPECT	INSPECT	INSPECT	INSPECT	INSPECT
<i>Signed</i>						
<i>Date</i>						
Rear lock (Ref 10)	INSPECT	INSPECT	INSPECT	INSPECT	INSPECT	INSPECT
<i>Signed</i>						
<i>Date</i>						
Check Valves (Ref 16)	INSPECT	INSPECT	INSPECT	REPLACE	INSPECT	INSPECT
<i>Signed</i>						
<i>Date</i>						
Seal Kits (Ref 15)	INSPECT	INSPECT	INSPECT	REPLACE	INSPECT	INSPECT
<i>Signed</i>						
<i>Date</i>						
Push Bar (Ref 8)	INSPECT	INSPECT	INSPECT	INSPECT	REPLACE	INSPECT
<i>Signed</i>						
<i>Date</i>						
Front lock pin kit (Ref 9)	INSPECT	INSPECT	INSPECT	INSPECT	REPLACE	INSPECT
<i>Signed</i>						
<i>Date</i>						

## Dromone Multi– Lock Quick Coupler

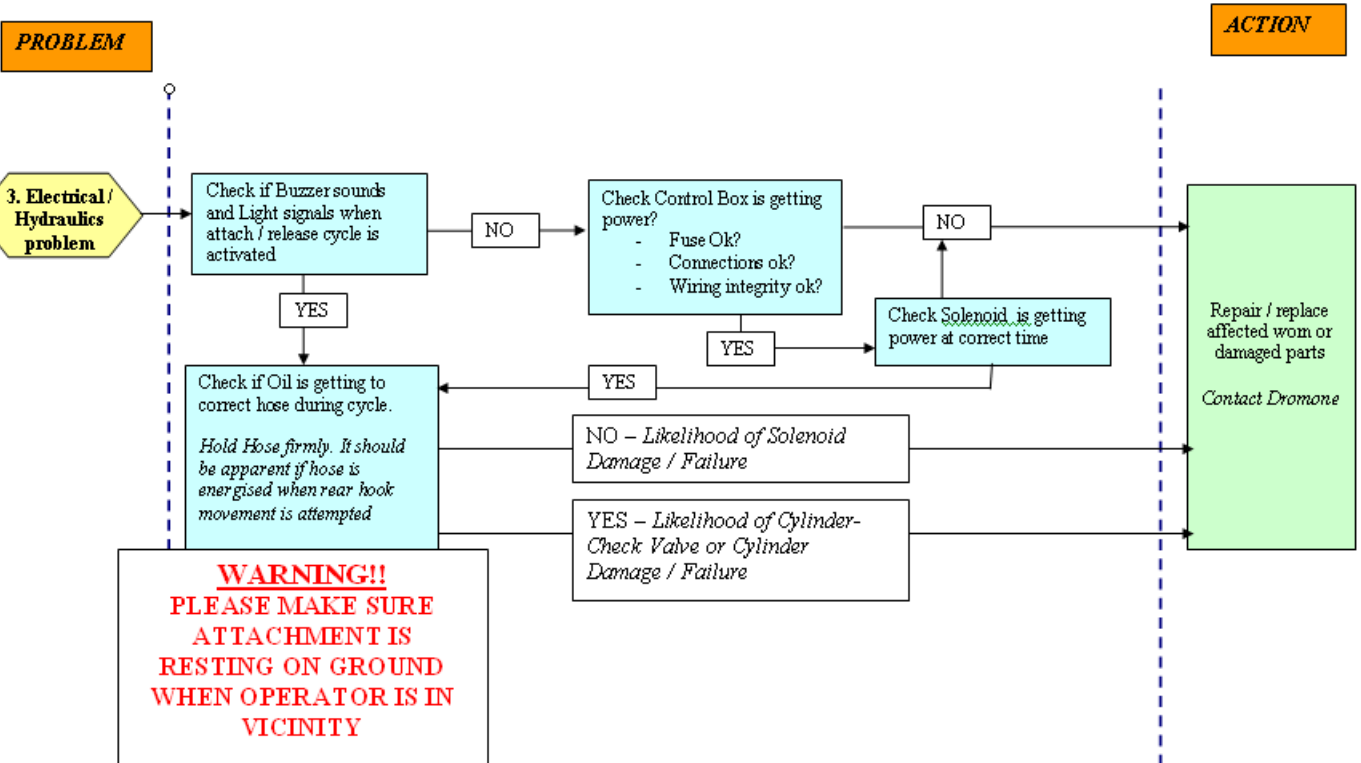
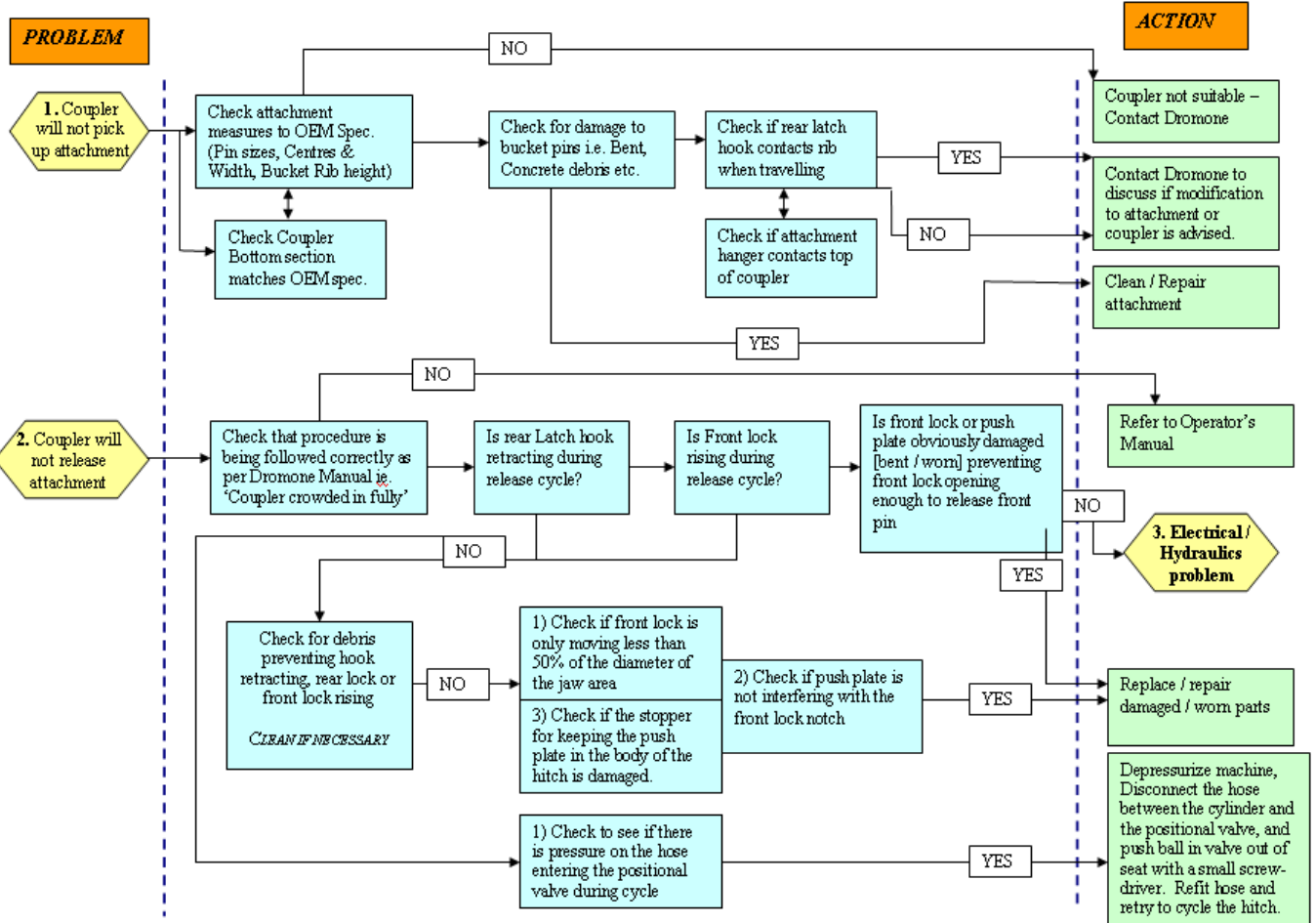
### Maintenance log

Description      Hourly Interval

<i>Signed</i>						
<i>Date</i>						
<i>Signed</i>						
<i>Date</i>						
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<i>Date</i>						
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# Trouble Shooting

## Lock Quick Coupler



Form No. B185 Rev A

Dromone  
Oldcastle  
Co. Meath  
Ireland

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Fax: +353 (0)44 9666236

email: [sales@dromone.ie](mailto:sales@dromone.ie)  
web: [www.dromone.com](http://www.dromone.com)

# EC DECLARATION OF INCORPORATION

We, Dromone Engineering Limited,  
Dromone,  
Oldcastle,  
Co. Meath,  
Ireland.

Declare that the following product:

Dromone \_\_\_\_\_ (Product Name)      Serial Number: \_\_\_\_\_  
 \_\_\_\_\_ (Type Model)

Is destined to be combined with other machines, and is in conformity with the provisions of the following European Directives:  
Council directive **2006/42/EC**

And the following standards:  
**ISO 14121-1:2007** (replaces EN 1050)  
**EN ISO 12100-1:2003 +A1:2009** (replaces EN 292)  
**AS 4772-2008**  
**EN474-1: 2006**

Completed at Dromone Engineering Limited, Dromone, Oldcastle, Co. Meath, Ireland.

**Signed:** Martin Segarty.....

**Position:** Product Manager.....

**Date:**      /      / 20

## ATTENTION!

**The attention of the specifier, purchaser, installer, or user is drawn to special measures and limitations to use which must be observed when the product is taken into service to maintain compliance with the above directives. Details of these special measures and limitations to use are available on request, and are also contained in the product manuals**