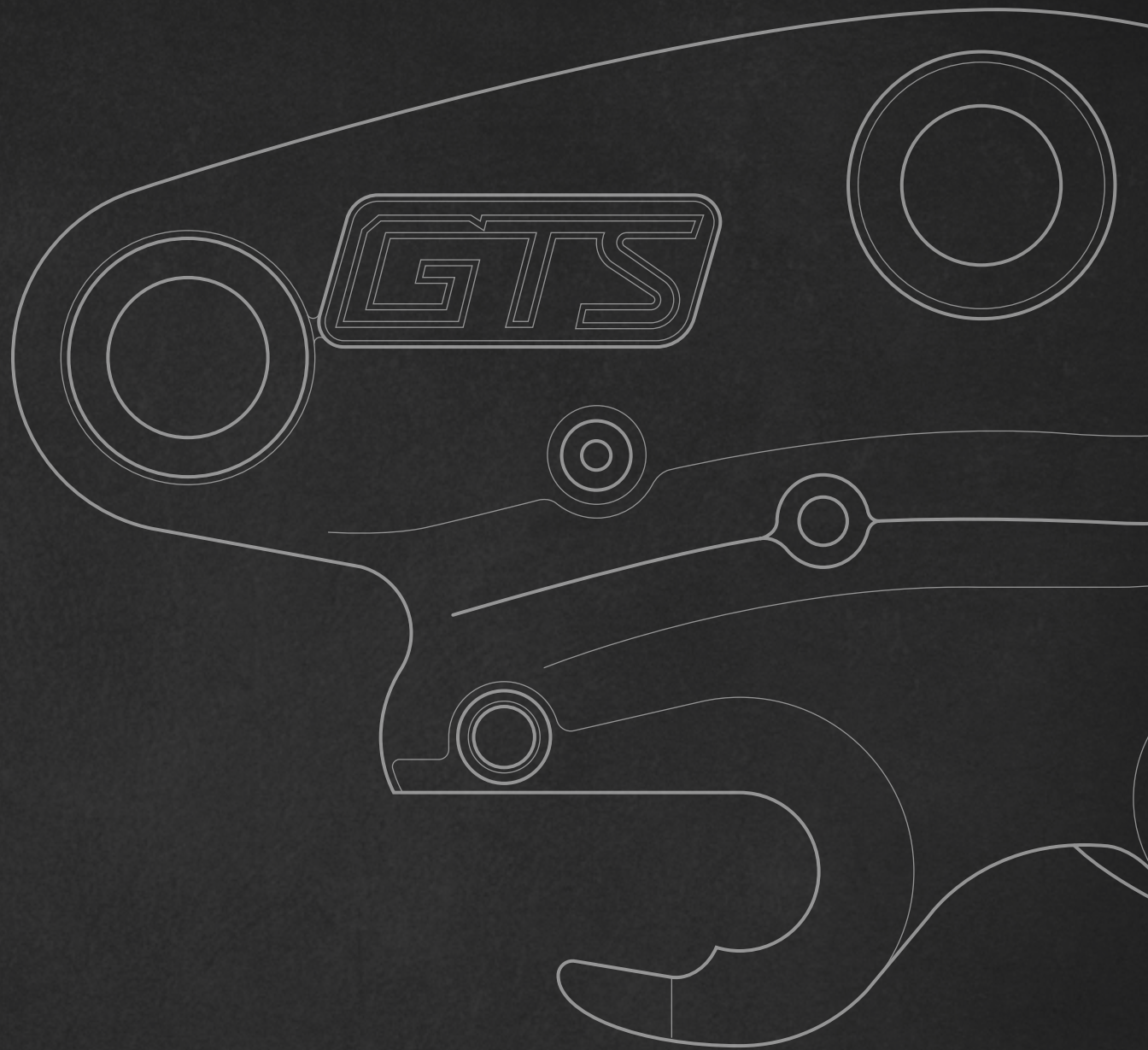


GTS

OPERATIONS AND
MAINTENANCE MANUAL
FOR MILLER SYSTEM



INTRODUCTION

This manual outlines Miller's recommended operating and maintenance procedures for your GTS quick coupler to ensure operations are performed safely and meet industry standards. All machine operators should be fully trained on the operational procedures of the coupler before use and should fully comply with the guidance provided by Miller.

The operations manual outlines periodic maintenance and safety critical checks which should be followed to ensure trouble free use and long operating life of your Miller coupler.

As an important component within the excavator system, due care and adherence to these checks should be taken at all times during operation, service and planned maintenance in order to respect the risk to personnel and costly damage to assets.

This guide should be made available for reference to all operators before working with our GTS quick coupler. It can also be viewed on our website at www.millergroundbreaking.com.

If you have any doubts, or enquiries relating to your Miller GTS quick coupler, please get in touch with our Customer Support Team on +44 (0)1670 707 272 or email aftersales@millergroundbreaking.com and we will get back to you as soon as possible.

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DECLARATION OF CONFORMITY

As a world leader in quick coupler design and manufacture, below is a list of all standards where our quick coupler is compliant.

For further information or questions related to standards, please contact the Miller Customer Support Team on +44 (0)1670 707 272.

DECLARATION OF CONFORMITY FOR MILLER QUICK COUPLERS

These standards include:

ISO 13031: 2016	Earth-Moving Machinery – Quick Couplers Safety
EN 474-5: 2022	Earth-Moving Machinery — Safety. Part 5: Requirements for Hydraulic Excavators
EN ISO 12100: 2010	Safety of Machinery – Risk Assessment
EN ISO 12100: 2010	Safety of Machinery – Basic Concepts, General Principles for Design
BS EN ISO 9001: 2015	Manufactured Under ISO9001: 2015 Registered Quality Management System
NSW SafeWork WC01783: Revised June 2015	Supplying, Installing and Using Quick Couplers on Excavators or Backhoes
AS4772-2008 Clause 2.1.4	Australian Standard for Earth-Moving Machinery— Quick Couplers for Excavators and Backhoe Loaders.

Miller declares the supply/manufacture of the GTS range is in conformity with the Machinery Directive 2006/42/EC, part A of Annex VII and the following standards:

Products which comply with these standards include:

- **Miller Powerlatch** Twinlocking Quick Coupler suitable for 3.5 tonne – 50 tonne excavators
- **Miller Powerlatch** Tilt Powerlatch Tilting Quick Coupler offers 180-degree tilt for 3.5 tonne - 20 tonne excavators
- **Miller GTS** Hydraulic Quick Coupler for 1 tonne - 6 tonne compact excavators
- **Miller GTX** Hydraulic Quick Coupler suitable for excavators from 8 tonne - 50 tonnes
- **Miller GT Tilt** Compact Quick Coupler suitable for 1 tonne - 6 tonne mini excavators.

1.2 WORKING SAFELY WITH COUPLERS

The following advice is provided to prevent injury to you or your personnel. It is important that only trained personnel operate and maintain the couplers following all safety regulations, procedures and precautions.

GENERAL SAFETY INFORMATION

Throughout the manual, safety warnings have been used. The below key identifies the nature of the warnings.

SYMBOLS

WARNING



This symbol is used to indicate where injury or death is very likely to occur unless proper precautions are taken.

IMPORTANT



This symbol is used to highlight important safety information.

PPE REQUIREMENTS



WARNING: Do not wear loose fitting clothing, dangling jewellery or anything that could potentially catch on controls or moving parts of the machine. Long hair should also be tied back.



IMPORTANT: Please refer to onsite regulations for specific PPE requirements.

Personal Protective Equipment (PPE) should always be worn as a minimum requirement when operating or servicing a coupler or machine, Miller recommends the following is worn when operating or carrying out maintenance of the coupler:

- Hard hat
- Hi vis jacket
- Safety glasses
- Safety boots - S3 rated or above
- ISO Level E Cut resistant work gloves.



WARNINGS

HYDRAULIC FLUID



Never use your hands to search for hydraulic fluid leaks, use a piece of paper or cardboard. Escaping fluid under pressure can be invisible and can penetrate the skin and cause serious injury. If affected, seek medical attention.

WARNINGS

COUPLER CONDITION



A defective coupler could injure you or others.

Never operate a coupler that is defective. Refer to section 4 for daily checks.

CONTROL SWITCH USAGE



The quick coupler control switch should only be in use when attaching or releasing attachments. When the control switch is engaged, the in-cab buzzer will sound. The sound and frequency may vary depending on OEM.

When not in operation, ensure the control switch is turned off. This ensures that the quick coupler control valve is not energised unnecessarily for extended periods of time. Incorrect usage will lead to a decrease in lifespan of the equipment.



2.1 GTS PRODUCT OVERVIEW

The following section provides a description of the internal mechanisms and functionality of the GTS coupler.

Miller quick couplers have been designed to facilitate the easy changeover of standard buckets and work tools. The couplers can operate with a variety of machine manufacturers within the same size range.

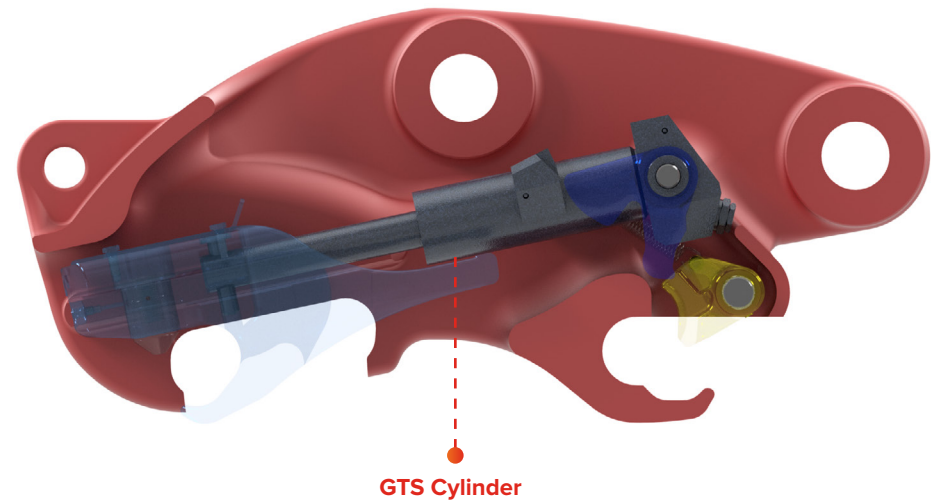
CYLINDER

GTS cylinders share a common design:

- Connect the GTS hook to the frame.
- Connected via 2 hydraulic ports.
- Fitted with a check valve.

PORTS

RANGE	PORT A (EXTENSION)	PORT B (RETRACTION)
0A	7/16-20 UNF	7/16-20 UNF
0B	7/16-20 UNF	7/16-20 UNF
1A	7/16-20 UNF	7/16-20 UNF
1B02	7/16-20 UNF	7/16-20 UNF
1B01	9/16-18 UNF	7/16-20 UNF
2A	9/16-18 UNF	7/16-20 UNF



HOOK

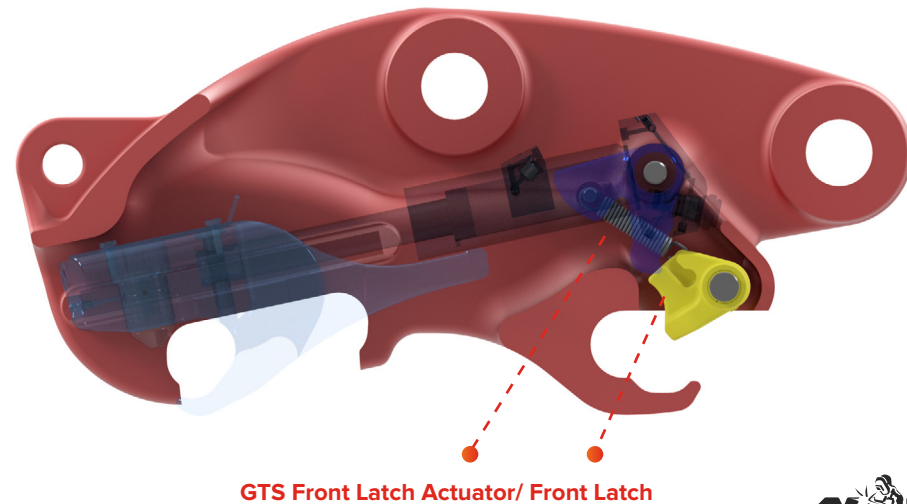
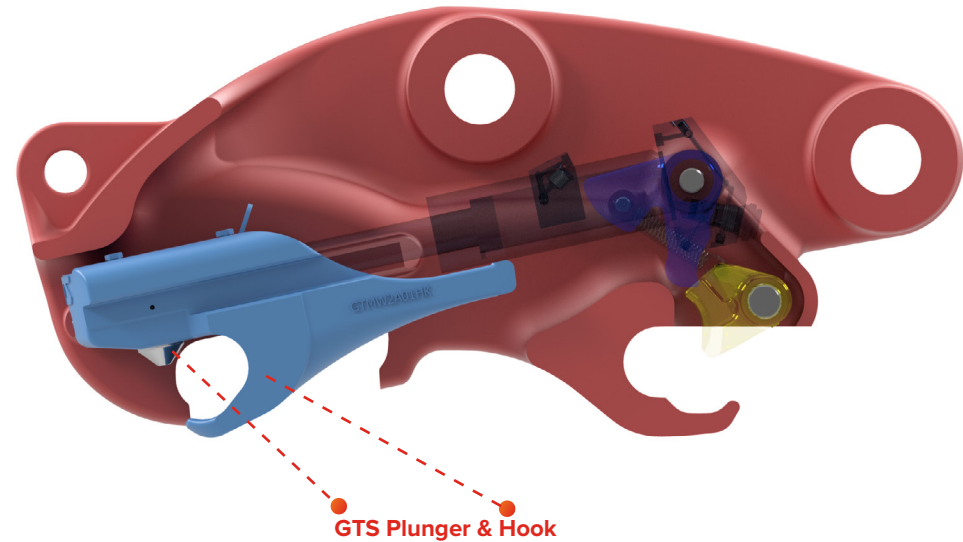
- GTS hooks move along rails of the frame.
- They are moved directly by the cylinder.
- They have a cavity, where the plunger subassembly is located.
- The hook “finger” directly actuates the front latch, or in some cases (Range 1B01 and 2A) actuates a latch actuator.

PLUNGER

- GTS Plunger subassembly is located inside of the hook.
- It is forced downwards by a compression spring.
- With sufficient force, it can be pushed inside of the hook.

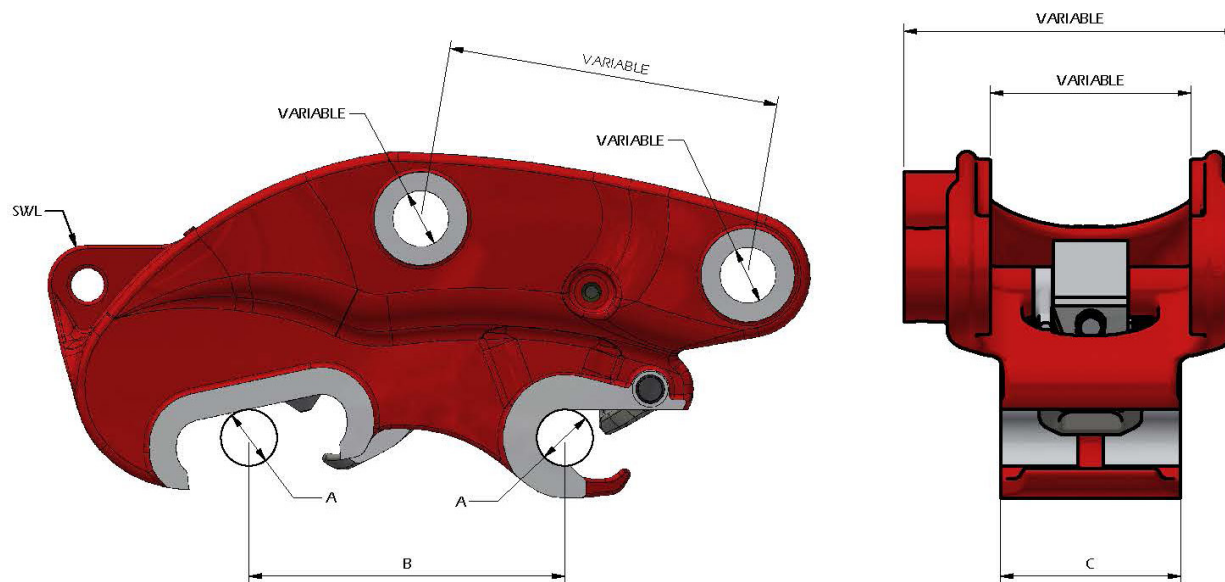
FRONT LATCH / LATCH ACTUATOR

- GTS front latches are mounted in the front of the coupler.
- A tension spring locates the latch in a neutral position.
- The latch can rotate ~30° in either direction, but will spring back to its neutral position



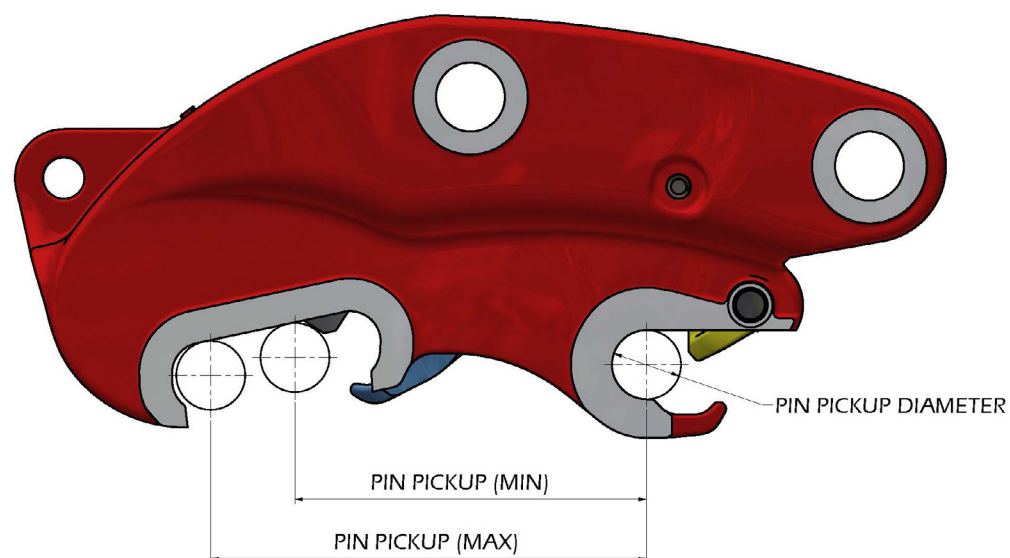
2.2 GTS WEIGHTS AND DIMENSIONS

GTS RANGE	"A" PICKUP DIAMETER (MM)"	"B" PICKUP RANGE (MM)"	"C" JAW WIDTH (MM)"	LIFTING EYE SWL (KG)	COUPLER MASS (KG)
0A	30	85-118	96	600	15.7
0B	30	121-161	103	1000	17.9
1A	35	125-150	122/109	1000	23.2
1B02	35	160-200	117	1000	28.6
1B01	40	172-215	117	2000	34.4
2A	45	220-285	144	2000	55.6



2.3 GTS PIN PICKUPS

RANGE	PIN PICKUP DIAMETER (MM)	PIN PICKUP RANGE (MM)
0A	30	85-118
0B	30	121-161
1A	35	125-150
1B02	35	160-200
1B01	40	172-215
2A	45	220-285



3.1 ATTACH PROCEDURE FOR MILLER SYSTEM



WARNING: Do not try to release or change the attachment near any persons or in any area that may result in an accident or injury occurring. The switch should be in the attach or closed position at all times, except during attachment changeovers.



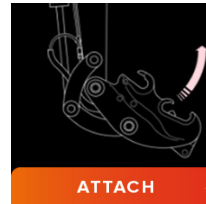
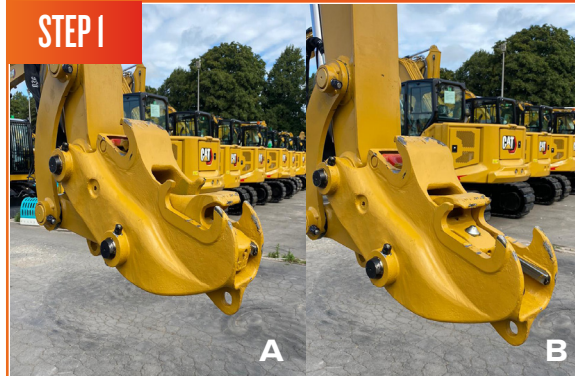
WARNING: Ensure both pins are in place and secured prior to engaging the hook. This could force the attachment to be unintentionally released from the coupler.



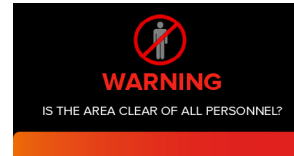
IMPORTANT: This guide is based on Miller's ISO switch instructions. For non-Miller systems, please refer to OEM specific manual for further support.

*** For minor daily service checks refer page 22.**

STEP 1

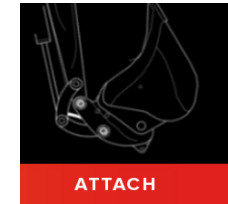


ATTACH



- Place coupler in the curled/crowded position. Activate switch to release/open position (buzzer will sound).
- Hold the bucket crowd lever for approx. 5 - 8 seconds to allow the hook to fully retract (A + B).
- Visually inspect to check the hook is fully retracted.

STEP 2

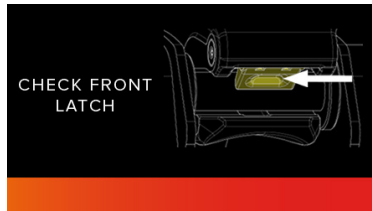
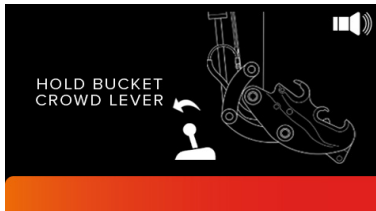


ATTACH

- Ensure the rear hook and the front latch are fully retracted before attempting to engage the attachment*.
- Move the coupler to engage with the front pin of the attachment.

*It may be necessary to raise the boom slightly to achieve clean rotation for larger attachments.

STEP 3



- Once the coupler is engaged with the front pin – ensuring it's off the ground first – FULLY curl/crowd the coupler.
- Operate the in-cab switch system and hold the lever down for 5 – 8 seconds giving max pressure to the cylinder, allowing the hook to fully close and the front latch to fully engage.
- Visually inspect that the front latch 'yellow' is in place in the closed position.

STEP 4



- To ensure that the attachment pins are securely held by the coupler, apply pressure to the attachment by rotating it against the ground and away from the machine before operating. This is often referred to as a 'Bump Test'.
- If bump test fails, revert to step 1 and start the process again. Once all steps have been completed and the bump test is successful, the machine is ready to begin operating.

3.2 RELEASE PROCEDURE FOR MILLER SYSTEM



WARNING: Do not try to release or change attachment near any persons or in any area that may result in an accident or injury occurring. The switch should always be in the attach or on position, except during attachment changeovers. The switch cannot be engaged so there is no chance of accidental release.



IMPORTANT: If the coupler has been attached to the front pin whilst in the locked position, the front latch will not allow the attachment to be released. This is a fail-safe safety feature. In the event of a failure, the attachment will be held by the front latch on the front jaw. In this eventuality, slowly rotate the coupler to fully crowded position, begin the unlocking procedure and gently engage crowd lever slowing the hydraulic release. The attachment can now be safely released.

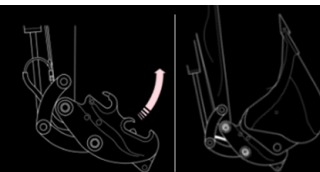
* For minor daily service checks refer page 22.

STEP 1



WARNING

IS THE AREA CLEAR OF ALL PERSONNEL?



ATTACH



RELEASE

- Place the coupler into the fully curled/crowded position. Switch the coupler operating switch to the release/open position (The in-cab buzzer will sound). Hold the bucket crowd lever for approx. 5 - 8 seconds to allow the hook to fully retract. If the hook is in sight, visually inspect to check the hook is fully retracted.

*The attachment should always be empty prior to releasing.

STEP 2



WARNING
COUPLER DISENGAGING

HOLD BUCKET
CROWD LEVER



- Carefully place the attachment on the floor rotating the coupler simultaneously until coupler can be fully, and safely, released from the attachment.

STEP 3



UNCURL
ATTACHMENT
AND PLACE
ON GROUND



CONTACT



+44(0) 1670 707 272
@millergroundbreaking
millergroundbreaking.com



- Release coupler away from the attachments.

3.3 LIFTING GUIDES

Where an excavator/backhoe is regarded as lifting equipment, it requires thorough examination by a competent person at least every twelve months*. (See LOLER (1998) PUWER (1998) Regulation 9).

Front end loaders, not modified or adapted for lifting operations, do not require thorough examination under LOLER (1998) PUWER (1998), but still require regular inspection under PUWER which will be to a similar standard. If the loader is used for object handling it will require thorough examination under LOLER (1998) PUWER (1998) at least every 12 months.

Where a quick coupler is permanently mounted on an excavator then the thorough examination for the excavator will also cover the quick coupler. If the quick coupler is moved from one machine to the other it is classed as an accessory and should be thoroughly examined every six months.

Slings, loose hooks, chain slings, polyester slings, shackles etc are classed as lifting accessories and must be thorough examined every six months. Buckets with integrated hooks/lifting eyes are also classed as lifting accessories and should be inspected every six months.

Lifting Capacity

GTS RANGE	LIFTING EYE SWE (KG)
0A	600
0B	1,000
1A	1,000
1B02	1,000
1B01	2,000
2A	2,000

! **IMPORTANT:** When lifting, always use the correctly rated shackle and lifting equipment.

The coupler has an integral and certified lifting eye, the Safe Working Load (SWL) of which can be found stamped into the coupler frame (on lifting eye). Do not lift over the SWL limit of the coupler. The lifting capability of the machine should also be checked prior to lifting. Lift with the coupler in a vertical position.

3.4 GUIDE TO USING DEMOLITION TOOLS

Miller couplers are compatible with hydraulic breakers, various attachments, and work tools, depending on pin spread and weight.



WARNING: Do not use any tool that is not in the correct tonnage class, i.e. that is larger than that specified by the machine manufacturers. When operating a breaker you must always use it in the vertical position whenever possible. Never use the breaker as a lever. If using other attachments, the same procedure applies.



WARNING: If the coupler is fitted with a hydraulic breaker, it should not be used for long periods without a periodic inspection of all working parts. If the hydraulic breaker must be used continuously for long periods of time Miller recommends the coupler should be removed and the breaker mounted directly to the machine, as this will help prolong the life of the coupler and reduce the chance of spike pressures damaging the coupler and parts of the system.



IMPORTANT: Take a breaker or compacter off once operations are performed, preferably every day and store in correct manner suggested by manufacturer. It is recommended the coupler holds a breaker or compacter for a maximum of two hours between inspections. The coupler cylinder should also be repressurised by fully crowding the attachment and holding the lever down for 5-8 seconds to ensure you gain full machine working pressure in the cylinder. This will increase performance and health of the coupler ensuring maximum coupler hold and force is achieved during operations.



3.5 INCORRECT COUPLER USE

The following information highlights some of the operating bad practices that occur in the field. This is not fully exhaustive and for illustration purposes only. Miller strongly advises against these practices and recommends that the coupler should only be used as outlined in the operating instructions

! IMPORTANT: If in doubt, or you have any questions at all, speak to Miller directly.

INCORRECT USE OF COUPLER TO PICK UP AND MOVE



- Moving attachments by front pin only.



- Using hook only to lift attachments.

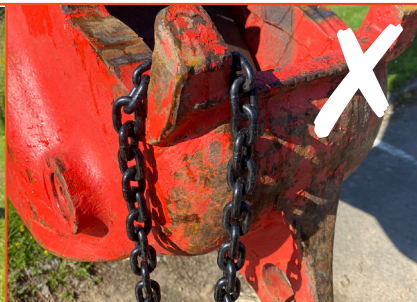


- Nipping or jamming the rear pin with the hook.

INCORRECT USE OF COUPLER TO PICK UP PRODUCTS USING CHAINS OR SLINGS



- Using the jaw to pick up items with chains.



- Using the corner of the jaw to pick up items with chains.



- Using the hook to pick up items with chains.

USING THE JAW AS A LIFTING TOOL OR HAMMER



- Moving items held in the jaw.



- Using jaw or hook to hammer products into the ground.



- Do not use coupler to move obstacles out of the surrounding area.

INCORRECT USE OF THE LIFTING EYE



- When the bucket is still attached it is not possible to see the shackle and what is happening to the chain.

4.1 MINOR DAILY SERVICE CHECKS

To ensure that your quick coupler works safely and to maximise the efficiency of your equipment, it is imperative that it is properly maintained in accordance with the following service guidelines.

Couplers are used in arduous conditions and accurate inspection checks should be regularly performed on a daily basis when all parts are clean and free of any dirt or debris. Miller recommends all checks are recorded in a log book.

Failure to follow maintenance will invalidate your warranty.



WARNING: Ensure that the correct maintenance checks are carried out on a regular basis to prevent endangering lives and causing significant financial cost implications.

ISO-COMPLIANCE CHECKS	
CYLINDER / PLUNGER MECHANISM OPERATIONAL CHECK	To ensure the plunger mechanism functions effectively in preventing the coupler from opening in the event of hydraulic failure, perform the following steps with no attachment in the coupler. • Depress the plunger by hand without any attachment fitted. You should encounter significant resistance, and feel the plunger return to its original protruded position. • Reattach an attachment, following the correct procedure. Confirm that the hook fully engages the attachment pin, and the plunger returns to its protruded position. • Release the attachment, following the correct procedure. Confirm that the hook fully disengages from the attachment pin, and the plunger returns to its protruded position. If the cylinder or plunger do not perform correctly, reset, and try again. If they still do not function as they should do, contact Miller.
SOUND FUNCTION CHECK	Check that the in-cab switch/buzzer is sounding.

VISUAL CHECKS

MECHANICAL ANOMOLIES CHECK	Check the coupler for mechanical anomalies such as fractured, deformed and faulty components. Replacement of any parts should be carried out by competent and trained personnel or alternatively contact Miller customer services to arrange field engineer support.
SECURE PARTS CHECK	Check the OEM machine pins, locking bolts and nuts are securely in place and all cover plate fasteners on top of the hook are in place. If required, re-tighten to the required torque, in accordance with OEM guidelines, using the correct size spanner. Replace any bolts or nuts that have been damaged.

HYDRAULIC CHECKS

OIL LEAK CHECK 	Never use your hands to search for hydraulic fluid leaks, use a piece of paper or cardboard. Escaping fluid under pressure can be invisible and can penetrate the skin and cause serious injury. If affected, seek medical attention. Check for oil leaks, and if there is evidence of this, do not operate the machine. - Identify the source, if leak is present, re-tighten suspect fitting and re-check if leak is still present. - If identified that it is the hose integrity causing the leak, or the source is unidentified, please call Miller directly.
HYDRAULIC SYSTEM CHECK	Check the general condition of the hydraulic hoses, fittings and hydraulic system. If any are damaged, these should be replaced by only competent and trained personnel.



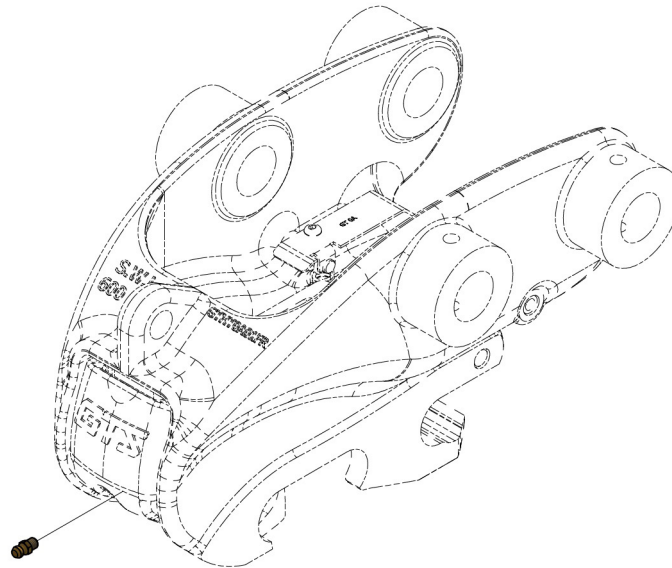
PHYSICAL CHECKS

GREASING CHECK

Ensure the coupler has been greased using EP2 High Load Lithium Grease.

- It is recommended an operator carries this out before or after every shift.

The diagram below highlights greasing points:



FRONT LATCH POSITIONAL CHECK

As part of ongoing operations ensure the front latch remains flush in the frame recess and in the release position. If it does not, check for unseen debris. If there is not anything evident, call Miller for support.

4.2 MAJOR COUPLER MAINTENANCE AND OVERHAUL

The GTS has been designed for longevity. In order to ensure your coupler is fully functional, achieving maximum productivity and product lifespan, it is recommended that the following checks are carried out on a weekly basis.



WARNING: Assembly and disassembly of a coupler should only be completed by fully competent and trained personnel.



IMPORTANT: Miller recommends using lifting aids as part of the assembly and disassembly process.



IMPORTANT: Nord-lock washers can only be used once for each assembly, once removed, they will need to be replaced.

PHYSICAL CHECKS

PIN FIXING CHECK

Check OEM machine pins are not loose in the coupler bores. These will naturally wear over time and operation, as such, it is important to check their integrity as part of ongoing maintenance checks.

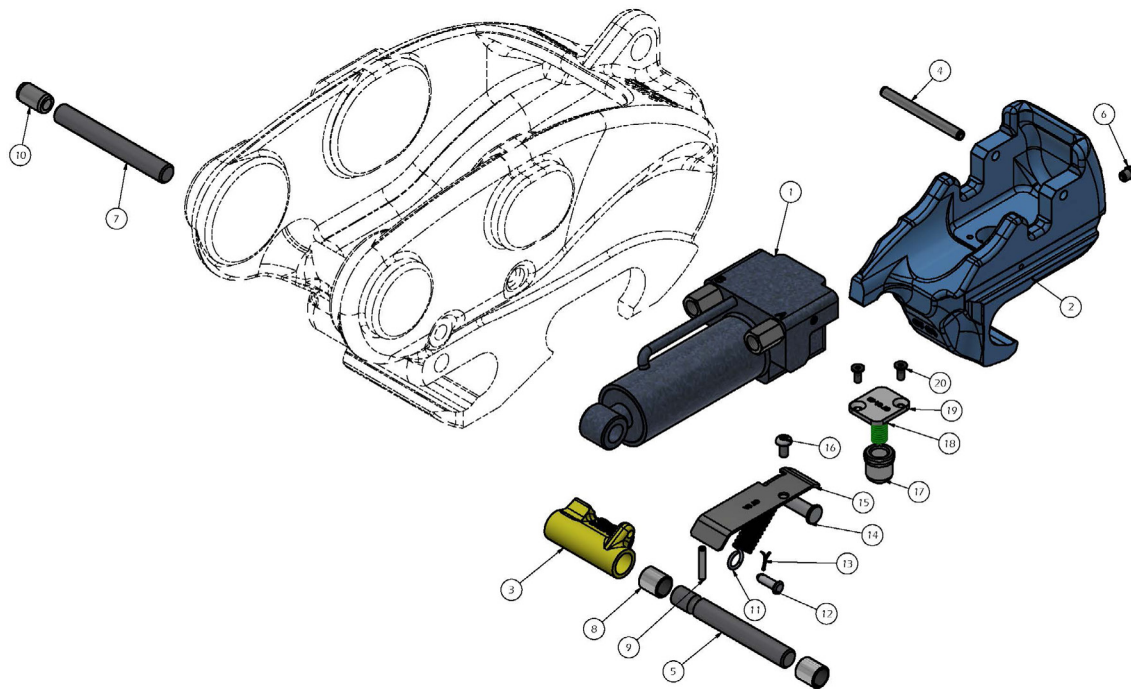
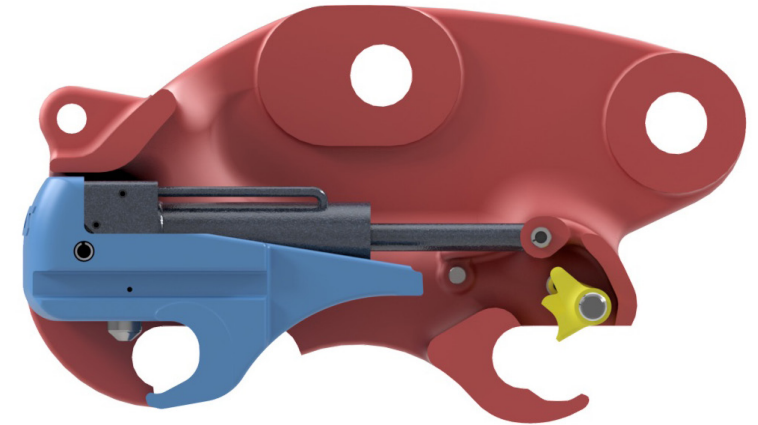
WORN PARTS CHECK

Naturally parts will wear over time. If components are no longer maintaining tolerance, an overhaul may be required which should be performed by competent and trained personnel. For further support, contact Miller.

Refer to the component lists from page 24 - 27 for spare part information.

4.3 COUPLER COMPONENT LIST

3.3. Parts for 0A, 0B, 1A and 1B02 GTS Models



For table of contents see page 25.

Component Breakdown

ITEM	DESCRIPTION	"CS REFERENCE (REPLACE XX WITH RANGE)"
1	 GTS CYLINDER	GTS-XXXX-CY
2	 HOOK	GTS-XXXX-HK
3	 FRONT LATCH	GTS-XXXX-FL
4	HOOK-CYLINDER PIN	GTS-XXXX-PHC
5	FRONT LATCH PIN	GTS-XXXX-PFL
6	GREASE NIPPLE	GTS-XXXX-GN
7	CYLINDER PIN	GTS-XXXX-PCY
8	FRONT LATCH BUSH	GTS-XXXX-FLB
9	FRONT LATCH PIN RETAINER	GTS-XXXX-PFLR
10	CYLINDER PIN RETAINER	GTS-XXXX-PCYR
11	TENSION SPRING	GTS-XXXX-TS
12	FRAME SPRING PIN	GTS-XXXX-PFS
13	FRAME SPRING PIN RETAINER	GTS-XXXX-PFSR
14	FRONT LATCH SPRING PIN	GTS-XXXX-PLSR
15	SPRING COVER	GTS-XXXX-SC
16	SPRING COVER FASTENER	GTS-XXXX-SCF
17	PLUNGER	GTS-XXXX-PLSR
18	 COMPRESSION SPRING	GTS-XXXX-CS
19	COVER PLATE	GTS-XXXX-CP
20	COVER PLATE FASTENER	GTS-XXXX-CPF

e.g. CS reference for HOOK for 1B02 GTS Coupler (GTXX1BC2A): GTS-1BC2-HK

Please provide the Customer Support (CS) Reference Part Number to our Customer Support Team in order to obtain the corresponding manufacturing part number.

Replacement Parts

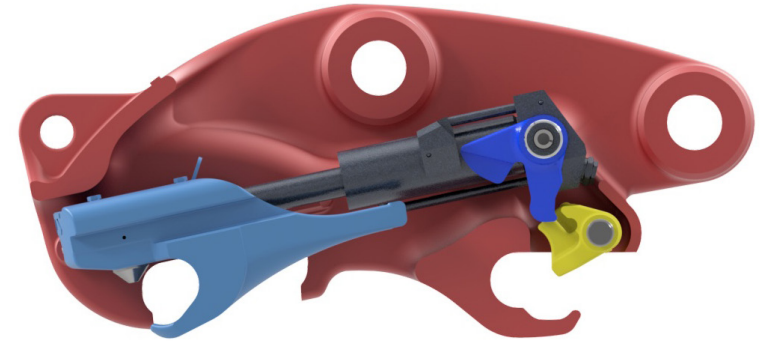
Miller recommends that you fit genuine replacement parts. For advice or to order parts contact Miller on +44 (0)1670 707 272 or email aftersales@millergroundbreaking.com, quoting the coupler serial number, or the coupler reference part number.

Failure to use genuine replacement parts will invalidate warranty and may render the coupler unsafe to use.

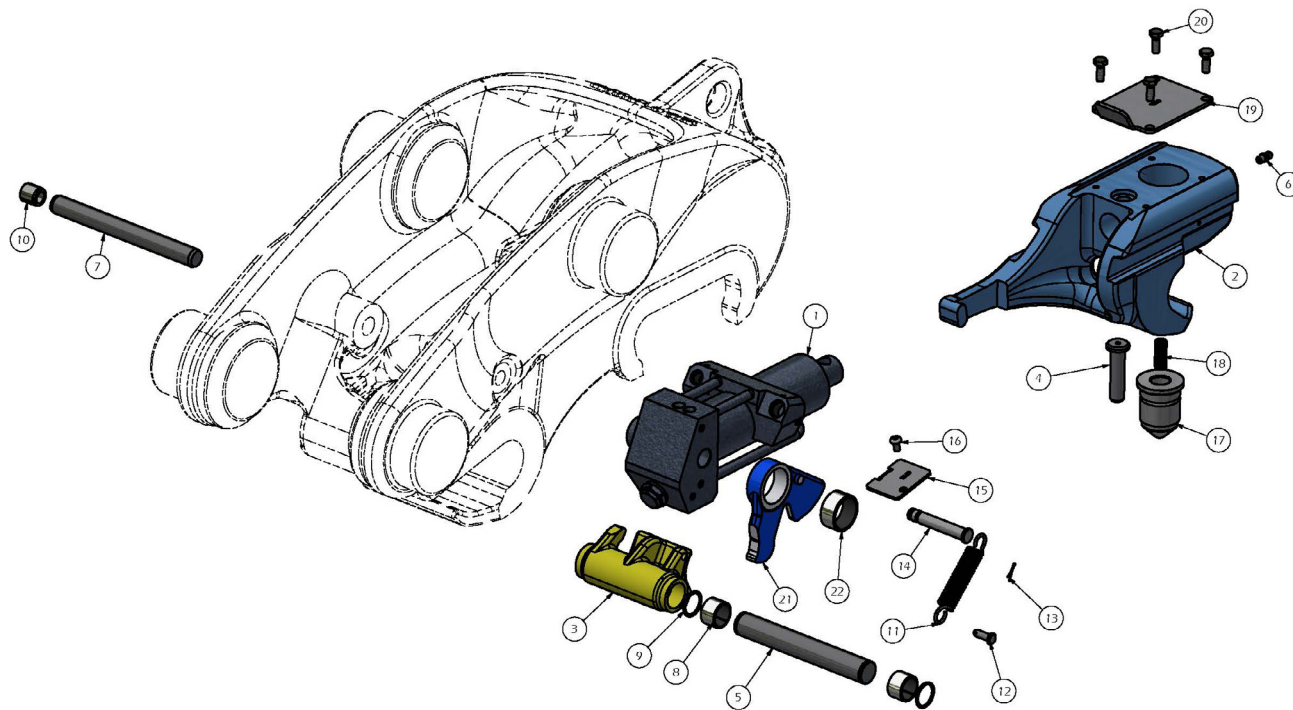
Refer to Appendix A for schematic on standard hydraulic/ electrical operation.



4.4 COUPLER COMPONENT LIST



Parts for 1B01 nd 2A GTS models



For table of contents see page 27.

Component Breakdown

ITEM	DESCRIPTION	"CS REFERENCE (REPLACE XX WITH RANGE)"
1	 GTS CYLINDER	GTS-XXXX-CY
2	 HOOK	GTS-XXXX-HK
3	 FRONT LATCH	GTS-XXXX-FL
4	HOOK-CYLINDER PIN	GTS-XXXX-PHC
5	FRONT LATCH PIN	GTS-XXXX-PFL
6	GREASE NIPPLE	GTS-XXXX-GN
7	CYLINDER PIN	GTS-XXXX-PCY
8	FRONT LATCH BUSH	GTS-XXXX-FLB
9	FRONT LATCH PIN RETAINER	GTS-XXXX-PFLR
10	CYLINDER PIN RETAINER	GTS-XXXX-PCYR
11	TENSION SPRING	GTS-XXXX-TS
12	FRAME SPRING PIN	GTS-XXXX-PFS
13	FRAME SPRING PIN RETAINER	GTS-XXXX-PFSR
14	FRONT LATCH SPRING PIN	GTS-XXXX-PLSR
15	SPRING COVER	GTS-XXXX-SC
16	SPRING COVER FASTENER	GTS-XXXX-SCF
17	PLUNGER	GTS-XXXX-PLSR
18	 COMPRESSION SPRING	GTS-XXXX-CS
19	COVER PLATE	GTS-XXXX-CP
20	COVER PLATE FASTENER	GTS-XXXX-CPF
21	LATCH ACTUATOR	GTS-XXXX-LA

e.g. CS reference for HOOK for 1B02 GTS Coupler (GTXX1BC2A): GTS-1BC2-HK

Please provide the Customer Support (CS) Reference Part Number to our Customer Support Team in order to obtain the corresponding manufacturing part number.

Replacement Parts

Miller recommends that you fit genuine replacement parts. For advice or to order parts contact Miller on +44 (0)1670 707 272 or email aftersales@millergroundbreaking.com, quoting the coupler serial number, or the coupler reference part number.

Failure to use genuine replacement parts will invalidate warranty and may render the coupler unsafe to use.

Refer to Appendix A for schematic on standard hydraulic/ electrical operation.



4.5 COUPLER DISASSEMBLY

In the event of coupler damage or a discreet component being damaged and replacement parts are required, the following steps outlines the assembly and disassembly procedure, which is classed as major servicing of the coupler.



WARNING: Assembly and disassembly of a coupler should only be completed by fully competent and trained personnel.



IMPORTANT: Miller recommends using lifting aids as part of the assembly and disassembly process.



IMPORTANT: Nord-lock washers can only be used once for each assembly, once removed, they will need to be replaced.

STEP 1

The following tools are recommended for disassembly and assembly of the couplers.

RECOMMENDED TOOL LIST:

Hammer
Drift punch set
Hexagonal socket set/keys
External spirolox retaining ring removal tool
Torque wrench

RECOMMENDED LUBRICANT LIST

Copper Anti-seize paste (Aerosol)*
EP2 High Load Lithium Grease*

***Refer to COSHH regulations of products before use.**

STEP 3



- Using a drift pin and hammer, knock out the front latch pin (5) and front latch bush (8) holding the front latch in place. Please note, the roll pin can be projected from the bore whilst doing this step.

STEP 2



- Remove the front latch pin retainer (9) (or equivalent pin retainer) from the front latch pin (5) using a retaining ring tool or screw driver, please take care not to over stretch the spiral lock.

STEP 4



- Remove the cover plate fastener (20) holding the cover plate using a ratchet and 10mm socket. Then remove the cover plate.

STEP 5



- Remove the hook cylinder pin (4) fastening the front latch stroke to the hook, this can be done by using a drift pin to knock out from underneath or alternatively screwing an M4 bolt into the top of the pin and pulling out.

STEP 6



- Remove cylinder (1) and latch actuator (21) from coupler frame.

STEP 7



- Remove the hook (2) from the rear of the coupler using the slides on either side of the coupler frame.

STEP 8



- Using a drift pin and hammer, knock out the front latch pin (5).

STEP 9



- Remove the front latch (3) by lowering it out of the front jaw.

STEP 10



- The image represents the disassembled parts breakdown, this includes the coupler cylinder (1), hook (2), actuator (21), front latch (3), three pins and fastenings.

4.6 COUPLER ASSEMBLY

! IMPORTANT: Miller recommends using lifting aids as part of the assembly and disassembly process.

! IMPORTANT: Nord-lock washers can only be used once for each assembly, once removed, they will need to be replaced.

STEP 1

The following tools are recommended for disassembly and assembly of the couplers.

RECOMMENDED TOOL LIST:

Hammer

Drift punch set

Hexagonal socket set/keys

External spirolox removal tool

Torque wrench

RECOMMENDED LUBRICANT LIST

Copper Anti-seize paste (Aerosol)*

EP2 High Load Lithium Grease*

***Refer to COSHH regulations of products before use.**

STEP 2



- The parts above showcases the parts required for assembly. This includes the coupler cylinder (1), hook (2), actuator (21), front latch (3), three pins and fastenings.

STEP 3



- Insert the front latch (3) into the front jaw of the coupler and raise up so the bore of the front latch lines up with the bores of the coupler frame to align front latch (3) and coupler bores.

STEP 4



- Lubricate front latch pin (5) and insert into the front latch bore.

STEP 5



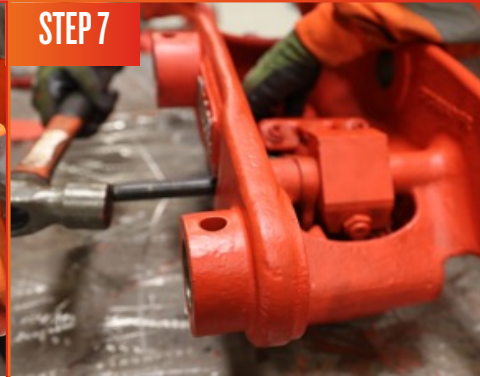
- Insert hook (2) into the rear of the coupler using the slides on either side of the coupler frame.

STEP 6



- Install the latch actuator (21) (if relevant) onto the cylinder then place the cylinder into the coupler and line up the bores of the cylinder with the bores of the coupler. Please ensure that the latch actuator is installed in the correct orientation.

STEP 7



- Lubricate cylinder pin (7) with copper paste and insert cylinder pin into coupler frame bore through the cylinder.

STEP 8



- Insert the cylinder rod into the rear of the hook and install the clevis pin to fasten the two together.

STEP 9



- Lightly grease the plunger (17) and spring (15) and install them into the hook. Please note that if too much grease is applied, the plunger will not work correctly. Secure the cover plate back over the plunger assembly. Use the correct torque settings when tightening the fasteners: 3 Nm for countersunk bolts and 10 Nm for hex head bolts.

STEP 10



- Install the roll pin into the cylinder pin (7) bore and knock in with a hammer (this is to be installed on the same side as the Miller logo).

STEP 11



- Fit the remaining front latch pin retainer (9) (or equivalent pin retainer) using the external retaining ring tool to the front latch pin.

5. WARRANTY

The warranty period is 36 months for the coupler frame and 12 months for internals or 2,000 hours from date of delivery, whichever is the sooner.

Limitation of Liability

Miller shall not be liable for or in respect of:

1. Repair or replacement of **(i)** any normal wearing parts, **(ii)** any ageing or deterioration caused by foreign substances or by exposure to the natural elements or **(iii)** any consumable items, such as oil, grease, filters etc.
 2. Any cost of repairs, alterations or replacements made without official Miller authorisation.
 3. Any warranted product which has been subjected to:-
 - (a)** Misuse, improper operation or misapplication, including but not limited to operation beyond the rated capacity expressly prohibited by the manufacturer of the prime moving machine, as shown in the operator's manual or rated capacity chart furnished with the prime moving machine.
 - (b)** Neglect, including but not limited to **(i)** improper maintenance and storage, **(ii)** use of the product while any parts are loose, broken or out of order.
 - (c)** Accident.
 - (d)** Improper or unauthorised installation, adjustment, repair or alteration, including but not limited to **(i)** adjustment or assembly procedures not recommended or authorised in the User Guide manual.
 - (ii)** use of unauthorised parts or attachments, **(iii)** unauthorised modification or alteration.
- Miller shall be liable only for repair or replacement of parts as described under

warranty, and Miller shall not be liable, whether under breach of warranty, negligence or strict liability, for any other injury, loss, damage or expenses, whether direct or consequential, including but not limited to loss of use, income, profit or production, increased cost of operation, or spoilage of or damage to material.

Alterations

Miller reserves the right to make alterations or modifications to their products and literature at any time, which in their opinion may improve the performance and efficiency of the product. Miller shall not be obliged to make such alterations or modifications to products already in service.

The foregoing warranty is exclusively and in lieu of all other warranties, including warranties concerning merchantability or fitness for a particular purpose, which are expressly disclaimed, whether written, oral, express or implied. Miller assumes no other obligations or responsibility with respect to the products whatsoever, and no employee or representative is authorized to change or extend this warranty in any way or grant any other warranty whatsoever. If in doubt please contact Miller for free advice and assistance, please find contact details on back cover.

Warranty Claims

In the event of any warranty claim, the following information must be provided to the Seller: **(i)** Serial No., **(ii)** hours worked, **(iii)** host machine model and hours worked, **(iv)** working environment/application, **(v)** failure details including photographic evidence and **(vi)** general overview of the concern and how the failure occurred.

6. PRODUCT END OF LIFE MANAGEMENT

Miller Attachment Products

Due to the metallic materials used in the manufacture of Millers attachments, Miller products are considered as 100% recyclable. However, there are some factors which need to be considered regarding safe disposal dependant on the product:

Miller Hydraulic Products

Although Miller ships all its hydraulic products in a dry condition, Miller would like to highlight the following to you as a responsible customer of our products on usage, maintenance and end of life disposal regarding Hydraulic oil:

- Waste oil storage and disposal for business
- Waste mineral oil fuels, lubricants and allied products are deemed to be hazardous waste and regulatory control of these rests with the devolved Governments'.

General advice on Hazardous Waste oil storage and its subsequent movement for recovery or disposal is given at www.gov.uk/dispose-hazardous-waste/overview.

More specific guidance on oil storage of waste for commercial and business streams is available at www.gov.uk/managing-your-waste-an-overview/storage.

For guidelines outside the UK; applicable country rules on the disposal of Hazardous Waste Oils should be reviewed for relevant information, rules and regulations.

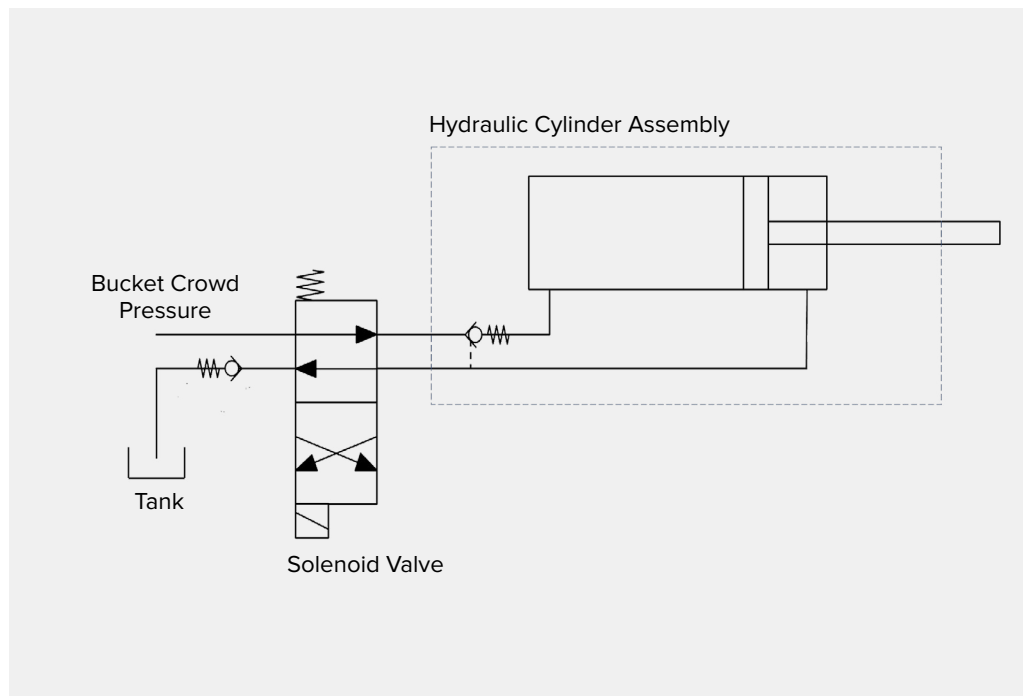


7. APPENDICES

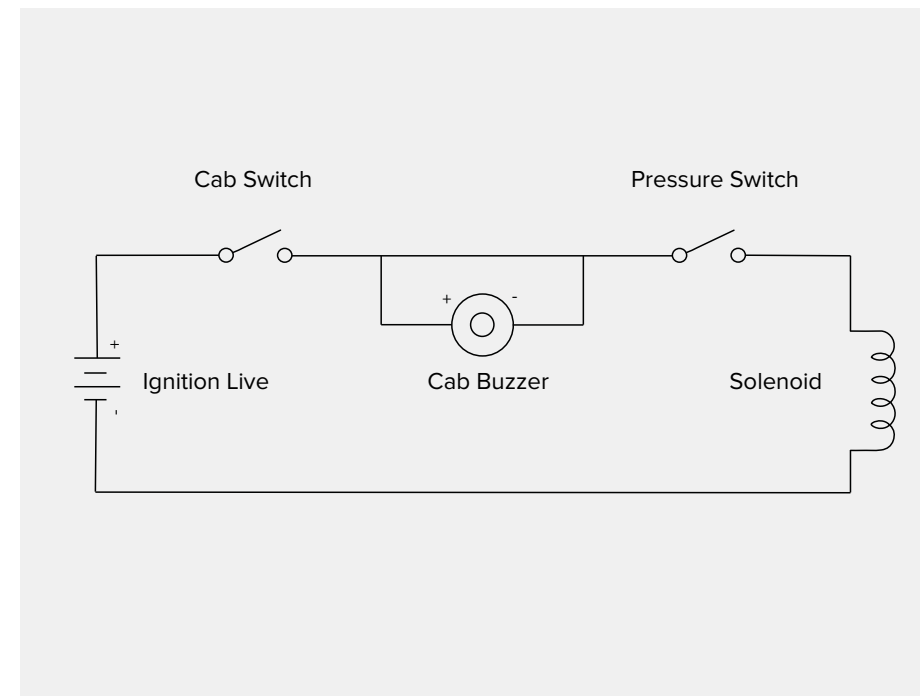
23.1 Appendix A - Standard Hydraulic/Electrical Operation

The following diagrams outline the standard hydraulic and electrical operation of the GTS coupler.

Hydraulic Schematic



Electrical Schematic



For further information on electrical and hose installation, please refer to the Miller GTS installation guide. A hard copy should be available in-cab, or please refer to www.millergroundbreaking.com and download the guide.

8. COPYRIGHT

The operations and maintenance manual for the GTS coupler is subject to change and can be done so without notice. It should not be reproduced – neither electronic nor printed – without consent from Miller.

Should you require any additional copies of the manual, please get in touch with Miller Customer Support Team on +44 (0)1670 707 272.

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9. REVISIONS

Revision Number	Revision Description	Approved	Date
01	Initial release	JR	16.07.23

Our operations and maintenance manuals may be subject to revision. For the latest version of the guide, please visit www.millergroundbreaking.com.



GTS

OPERATIONS AND MAINTENANCE MANUAL

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Miller Control Document

GTS Operations & Maintenance Guide – English

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