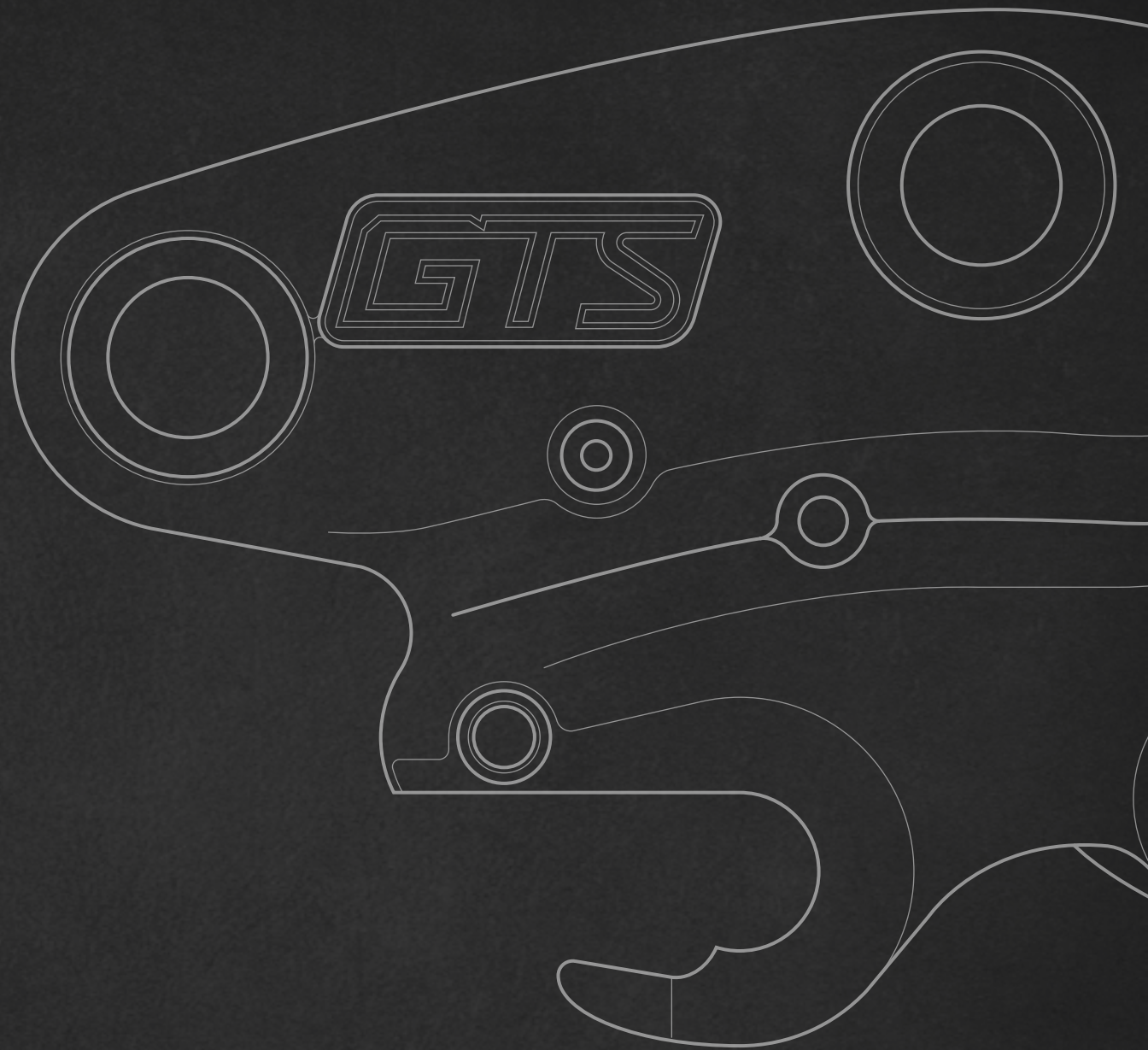


GTT

OPERATIONS AND
MAINTENANCE MANUAL
FOR MILLER SYSTEM



INTRODUCTION

This manual outlines Miller's recommended operating and maintenance procedures for your GTT quick hitch to ensure operations are performed safely and meet industry standards. All machine operators should be fully trained on the operational procedures of the hitch 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 hitch.

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 GTT quick hitch. It can also be viewed on our website at www.millergroundbreaking.com.

If you have any doubts, or enquiries relating to your Miller GTT quick hitch, 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 hitch design and manufacture, below is a list of all standards where our quick hitch 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 HITCHES

These standards include:

ISO 13031: 2016 / AS 13031: 2023	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 Hitches on Excavators or Backhoes

Miller declares the supply/manufacture of the GTT 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 Hitch suitable for 3.5 tonne – 50 tonne excavators
- **Miller Powerlatch** Tilt Powerlatch Tilting Quick Hitch offers 180-degree tilt for 3.5 tonne - 20 tonne excavators
- **Miller GTT** Hydraulic Quick Hitch for 1 tonne - 6 tonne compact excavators
- **Miller GTX** Hydraulic Quick Hitch suitable for excavators from 8 tonne - 50 tonnes
- **Miller GT Tilt** Compact Quick Hitch suitable for 1 tonne - 6 tonne mini excavators.

1.2 WORKING SAFELY WITH HITCHES

The following advice is provided to prevent injury to you or your personnel. It is important that only trained personnel operate and maintain the hitches 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.

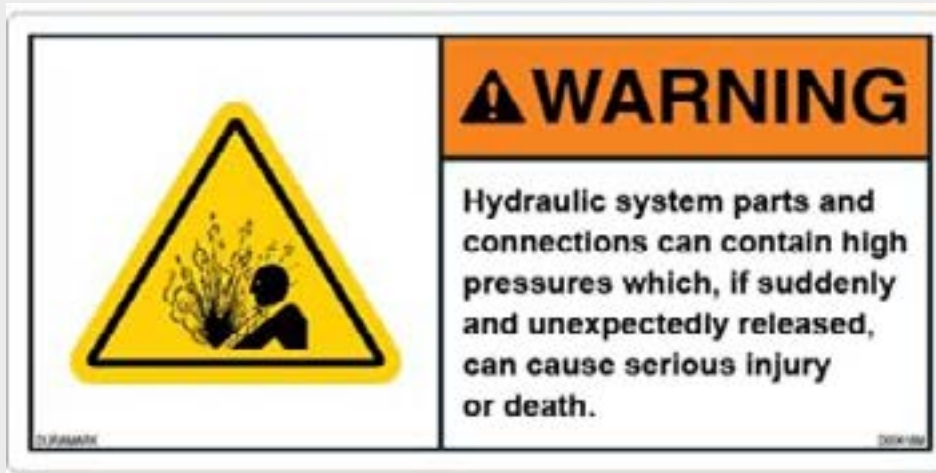
Personal Protective Equipment (PPE) should always be worn as a minimum requirement when operating or servicing a hitch or machine, Miller recommends the following is worn when operating or carrying out maintenance of the hitch.:

- 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**HITCH CONDITION**

A defective hitch could injure you or others.

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

CONTROL SWITCH USAGE

The quick hitch 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 hitch control valve is not energised unnecessarily for extended periods of time. Incorrect usage will lead to a decrease in lifespan of the equipment.

ROTARY ACTUATOR COMMISSIONING

The actuator - housed by our GTT hydraulic quick hitch - has been built according to recognised safety standards.

Nethertheless, dangers to life and limb of the third parties or impairments to the machine and other material assets may arise during the use. The rotary actuators always form part of another machine. Commissioning this machine is forbidden until it has been proven, that the machine complies with the safety and health requirements of the Machinery Directive 2006/42/EC.

2.1 GTT PRODUCT OVERVIEW

The following section provides a description of the internal mechanisms and functionality of the GTT hitch.

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

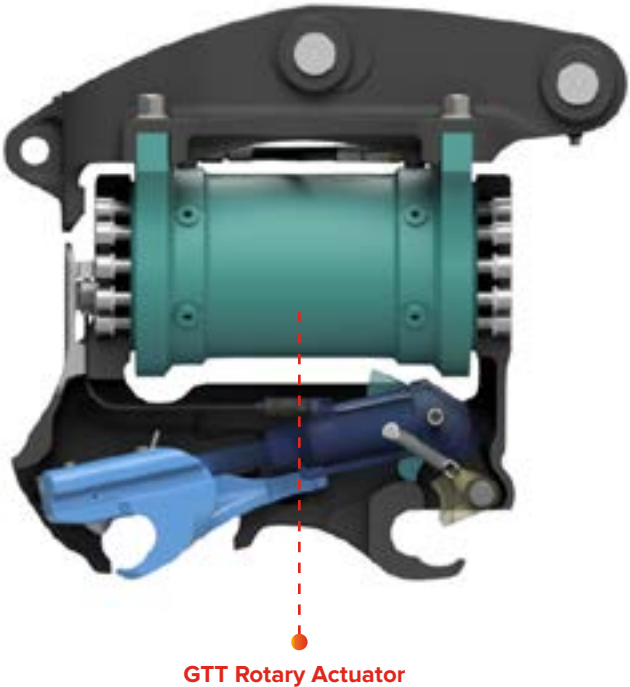
ROTARY ACTUATOR

GTT rotary actuators share a common design:

- Connect the GTT arms to the hitch lower assembly.
- Rotate through 180°.
- Connected via 2 hydraulic ports.
- GTT rotary actuators are fastened at an interface to the hitch arms, and at an interface to the lower hitch frame.
- The two interfaces can be rotated through 180° by the helical hydraulic mechanism.
- The actuator is mechanically stopped at the end of its rotation range.

PORTS

RANGE	PORT 1 (CLOCKWISE)	PORT 2 (ANTICLOCKWISE)
0A	M12 x 1.5	M12 x 1.5
0B	G 3/8	G 3/8
1A	G 3/8	G 3/8
1B02	G 3/8	G 3/8
1B01	G 3/8	G 3/8
2A	G 3/8	G 3/8



HOOK

- GTT 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

- GTT 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

- GTT front latches are mounted in the front of the hitch.
- 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



GTT Plunger & Hook



GTT Front Latch Actuator/ Front Latch

2.2 GTT WEIGHTS AND DIMENSIONS

GTT RANGE	"A" PICKUP DIAMETER (MM)"	"B" PICKUP RANGE (MM)"	"C" JAW WIDTH (MM)"	LIFTING EYE SWL (KG)	HITCH MASS (KG)
0A	30	85-118	94/96	600	32.9 - 34.2
0B	30	121-161	103	1000	34.9 - 35.5
1A	35	125-150	105	1000	87.7 - 89.0
1B02	35	160-200	117	1000	90.8 - 92.7
1B01	38/40	172-215	117	2000	94.4 - 95.5
2A	45	220-285	144	2000	125.9 - 128.4





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 hitch.



IMPORTANT: For digging work, the attached equipment must be wider than the actuator's attachment periphery to avoid damage to hoses and connections.



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

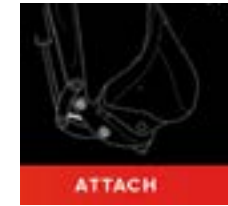
* For minor daily service checks refer page 22.

STEP 1



- Place hitch 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



- Ensure the rear hook and the front latch are fully retracted before attempting to engage the attachment*.
- Move the hitch 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 hitch is engaged with the front pin – ensuring it's off the ground first – FULLY curl/crowd the hitch.
- 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 hitch, 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 hitch 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 hitch 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.

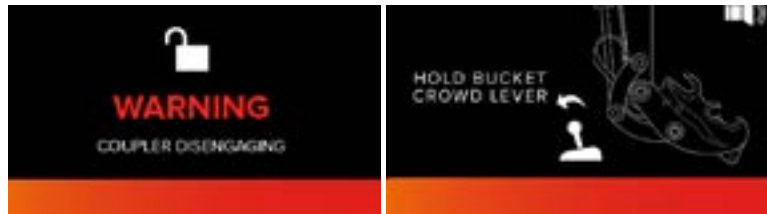
STEP 1



- Place the hitch into the fully curled/crowded position. Switch the hitch 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.

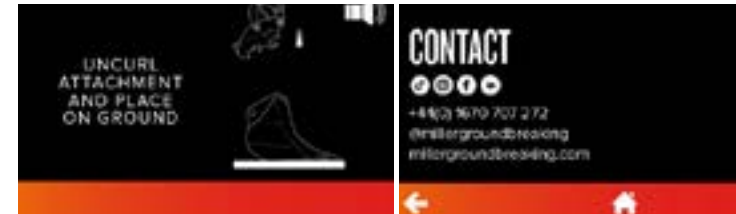
*The attachment should always be empty prior to releasing.

STEP 2



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

STEP 3



- Release hitch 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 hitch is permanently mounted on an excavator then the thorough examination for the excavator will also cover the quick hitch. If the quick hitch 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

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

3.4 GUIDE TO USING DEMOLITION TOOLS

Miller hitches 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 hitch 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 hitch should be removed and the breaker mounted directly to the machine, as this will help prolong the life of the hitch and reduce the chance of spike pressures damaging the hitch 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 hitch holds a breaker or compacter for a maximum of two hours between inspections. The hitch 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 hitch ensuring maximum hitch hold and force is achieved during operations.



3.5 INCORRECT HITCH 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 hitch 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 HITCH 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 HITCH 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 chain to lift when rotated.

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.

Note: Do not rotate the coupler when a chain/sling is fitted to the lifting eye.

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 hitch to move obstacles out of the surrounding area.

ACTUATOR MISUSE



- Using the actuator for transporting persons in attached equipment.



- Using the actuator in explosive or contaminated areas is forbidden.



- Using the actuator to tear down walls with the attached equipment.



- Using the actuator under extreme temperatures (extreme heat or cold) is forbidden.



- Spraying with high-pressure cleaners or fire extinguishing equipment.

4.1 MINOR DAILY SERVICE CHECKS

To ensure that your quick hitch 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.

Hitches 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.

ISO13031 & ASI3031 COMPLIANCE CHECKS	
CYLINDER / PLUNGER MECHANISM OPERATIONAL CHECK	To ensure the plunger mechanism functions effectively in preventing the hitch from opening in the event of hydraulic failure, perform the following steps with no attachment in the hitch. • 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 hitch 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.
ACTUATOR CHECK	

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.
ACTUATOR CHECK	

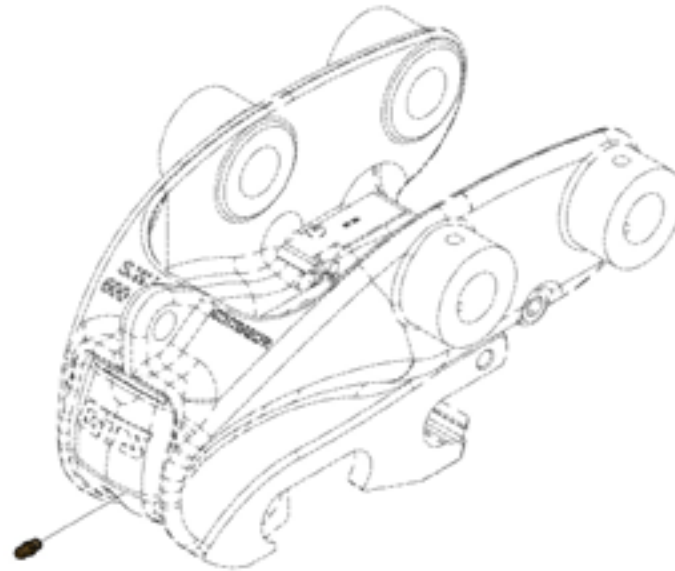
PHYSICAL CHECKS

GREASING CHECK

Ensure the hitch 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.

BOLT TORQUE CHECK

Check all interface bolts are securely in place with accompanying locking washers. All bolts should regularly be retorqued – refer to the torque chart on page 30 for torque requirements for each GTT model. Replace any bolts or washers that may have been damaged.

4.2 MAJOR HITCH MAINTENANCE AND OVERHAUL

The GTT has been designed for longevity. In order to ensure your hitch 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 hitch should only be completed by fully competent and trained personnel.



WARNING: Maintenance or disassembly of the GTT rotary actuator should only be completed by a 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 machine pins are not loose in the hitch 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

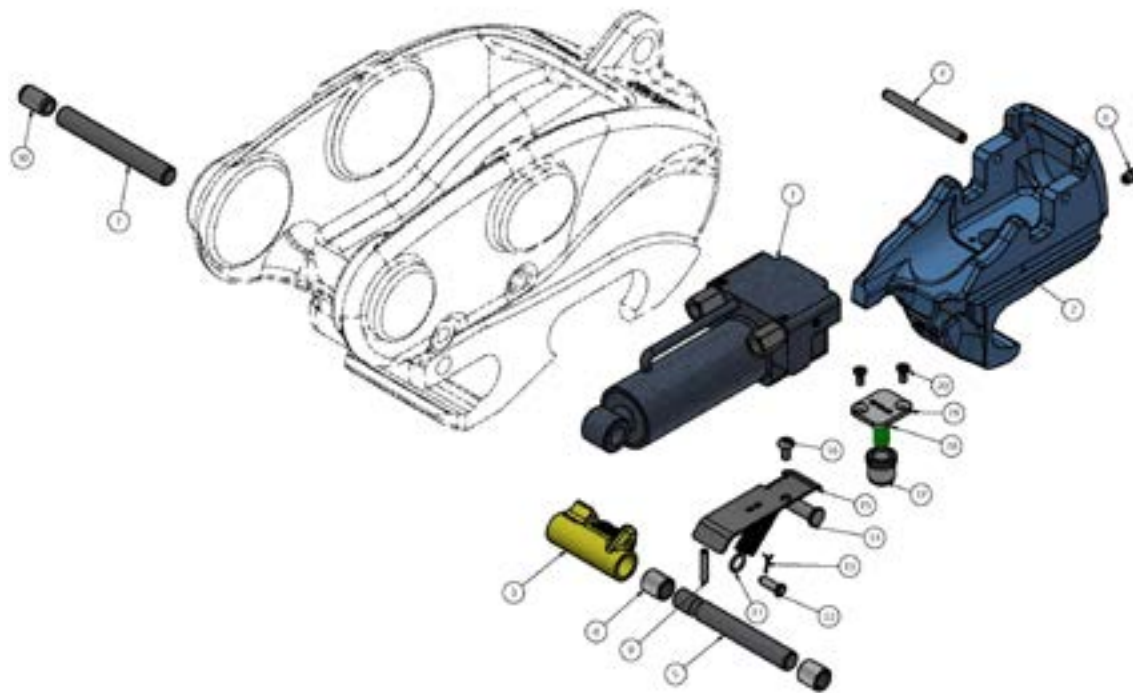
Naturally parts will wear over time. If components are no longer maintaining tolerance, an overhaul may be required which should be performed by competent and trained personnel. For further support, contact Miller.

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



4.3 HITCH COMPONENT LIST

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



For table of contents see page 25.

Component Breakdown

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

e.g. CS reference for HOOK for 1B02 GTT Hitch (GTXX1BC2A): GTT-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 hitch serial number, or the hitch reference part number.

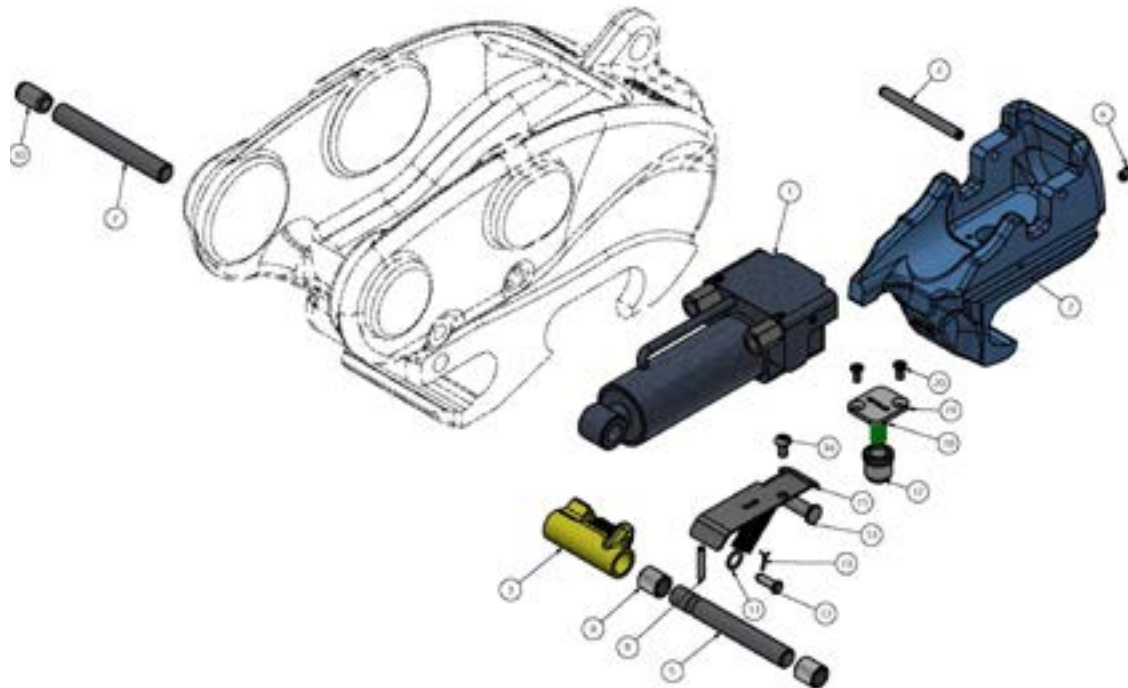
Failure to use genuine replacement parts will invalidate warranty and may render the hitch unsafe to use.

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



4.4 HITCH COMPONENT LIST

Parts for 1B01 nd 2A GTT models



For table of contents see page 27.

Component Breakdown

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

e.g. CS reference for HOOK for 1B02 GTT Hitch (GTXX1BC2A): GTT-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 hitch serial number, or the hitch reference part number.

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

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



4.5 HITCH DISASSEMBLY

In the event of hitch 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 hitch.



WARNING: Assembly and disassembly of a hitch 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 hitches.

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 2



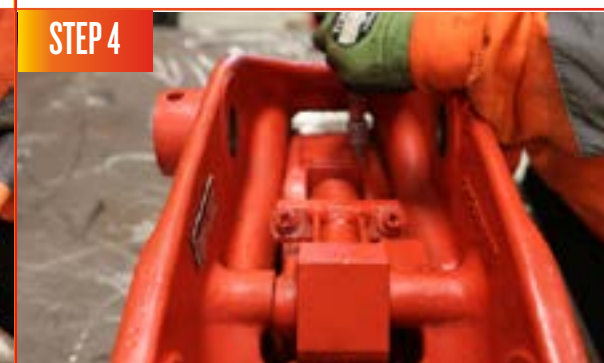
- Disconnect and isolate all hydraulic fittings and lines that may obstruct the removal of the actuator arm.

STEP 3



- Remove all hexagonal bolts securing the actuator arm to the actuator body.

STEP 4



- Using an appropriate mechanical lifting aid, carefully elevate the actuator arm clear of the actuator assembly and remove.

STEP 5



- Remove the cover plate by removing the associated hex bolts.
- Reposition hydraulic lines A and B to provide unobstructed access to the actuator mounting bolts.

STEP 6



- Using a mechanical lifting aid secure the weight of the actuator so it is be supported when the hex bolts are removed. Either by using a sling or lifting eyes screwed into the threaded holes in which the arm was attached.

STEP 7



- Begin to remove hex bolts from the outer clockface to release the actuator from the tilt frame. Ensuring the weight of the actuator has been taken by the lifting aid.

STEP 8



- Lift the actuator clear of the tilt frame and place out of immediate area.

- Lift the actuator clear of the tilt frame and place out of immediate area.

STEP 9



- Disconnect hydraulic lines A and B from the actuator cylinder.
- Slide the disconnected lines through the rear of the tilt frame to fully extract them.

STEP 10



- Remove the cylinder pin retainer.
- Using a drift punch set and hammer, drive out the cylinder pin to complete the disassembly.

STEP 11



- Remove hook by sliding it to the rear of the frame.

STEP 12



- PARTS REQUIRED IMAGE

4.6 HITCH 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.

BOLT TORQUE CHART:

All rotary actuator interface bolts must use Nord-Lock washers. Inspect bolts and washers for wear before assembly; replace if loss of functionality. Ensure washers are installed correctly (in pairs, cam face to cam face)



Full thread length must be greased with Cu/C paste. You must ensure bolts are grade 12.9.

GRADE 12.9 BOLT THREAD	BOLT TORQUE (Nm)
M10	85
M12	146
M16	355
M18	498
M20	696
M24	1199

STEP 1

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

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 3



- Insert hook the into the rear of the hitch using the slides on either side of the hitch frame.

STEP 2



- PARTS REQUIRED IMAGE

STEP 4



- Install the cylinder pin using a drift punch set and hammer.
- Secure the cylinder with the appropriate retainer.

STEP 5



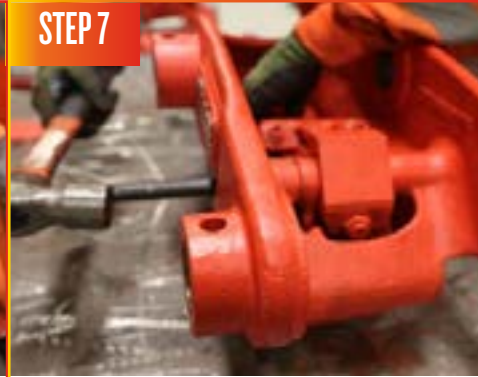
- Feed hydraulic lines A and B forward through the tilt frame.
- Secure the lines temporarily to prevent interference during the actuator installation.

STEP 6



- Using a mechanical lifting aid, align the actuator with the tilt frame.

STEP 7



- Ensuring the actuator is properly supported by the lifting aid, insert and tighten the hex bolts around the actuator's outer clockface to secure it to the tilt frame.

STEP 8



- Reconnect hydraulic lines A and B to the actuator cylinder ports.
- Ensure all fittings are torqued to specification.

STEP 9



- Reposition hydraulic lines A and B to allow access to the cover plate mounting area.
- Install the cover plate using the appropriate hex bolts and torque to specification.

STEP 10



- Using a mechanical lifting aid, position the arm above the actuator body.
- Lower the arm into place, aligning it with the actuator mounting holes.
- Install and torque all hex bolts securing the arm to the actuator.

STEP 11



- Reconnect any previously removed hydraulic fittings that were removed.

5. WARRANTY

The warranty period is 36 months for the hitch 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.

Rotary Actuator End of Life

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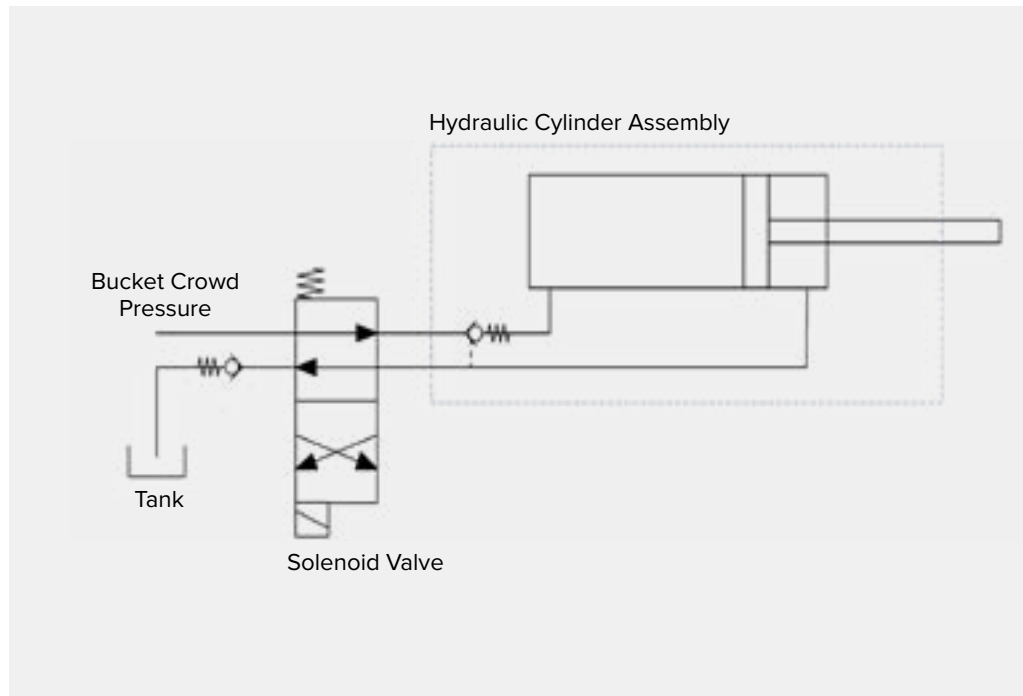


7. APPENDICES

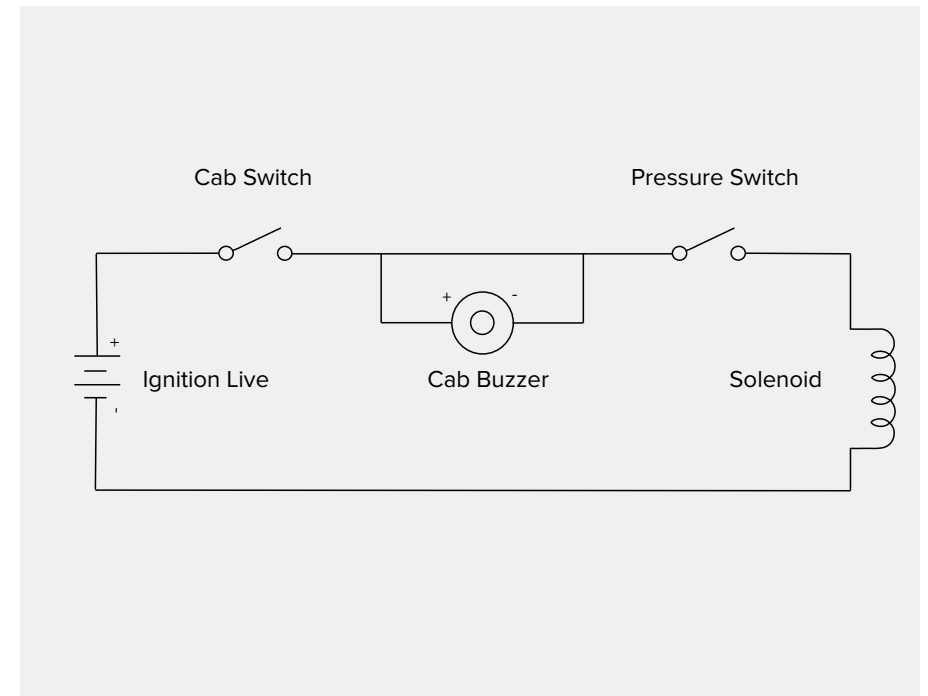
23.1 Appendix A - Standard Hydraulic/Electrical Operation

The following diagrams outline the standard hydraulic and electrical operation of the GTT hitch.

Hydraulic Schematic



Electrical Schematic



For further information on electrical and hose installation, please refer to the Miller GTT 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 GTT hitch 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

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



GTT

OPERATIONS AND MAINTENANCE MANUAL

Date /

Revision / First issue

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