

Table of Contents

B. Base Utility Coupler	B-3
GHx Series—Manual Utility Couplers	B-3
1. Product Overview	B-3
1.1 Manual Utility Coupler Master	B-4
1.2 Manual Utility Coupler Tool	B-5
2. Installation	B-6
2.1 Installing Utility Couplers with Formed Steel Housings.....	B-6
2.2 Installing Utility Couplers with Anodized Aluminum Housings.....	B-7
3. Operation	B-8
3.1 Coupling Sequence for GH1, GH2, and GH5	B-8
3.2 Uncoupling Sequence for GH1, GH2, and GH5	B-9
3.3 Coupling Sequence for GH8.....	B-10
3.4 Uncoupling Sequence for GH8	B-11
4. Maintenance	B-12
4.1 Pin Block Inspection and Cleaning	B-13
5. Troubleshooting and Service Procedures	B-14
5.1 Troubleshooting Procedures	B-14
5.2 Service Procedures.....	B-15
5.2.1 O-ring Replacement	B-15
5.2.2 GH1 and GH5 Alignment Pin Replacement	B-16
5.2.3 Latch Assembly Replacement.....	B-17
5.2.3.1 GH2, GH3 and GH5 Latch Assembly Replacement	B-17
5.2.3.2 GH1 Latch Assembly Replacement	B-18
5.2.3.3 GH8 Latch Assembly Replacement	B-19
5.2.4 Lock Pin Replacement	B-20
5.2.4.1 GH5 Lock Pin Replacement	B-20
5.2.4.2 GH2 and GH3 Lock Pin Replacement	B-21
5.2.4.3 GH1 and GH8 Lock Pin Replacement.....	B-22
5.2.5 Clean, Inspect, Lubricate, Replace Components for Check Port.....	B-23
5.2.5.1 GH1 Master Side Check Ports.....	B-23
5.2.5.2 GH1 Tool-side Check Ports.....	B-25
5.2.6 Adjust, Test and Replace Tool Present Sensor	B-26
5.2.7 Adjust, Test and Replace Lock Sensor.....	B-27
5.2.8 Seal Replacement.....	B-28
6. Serviceable Parts	B-29
6.1 Models 9123-GH1M-00-00-00-N, 9123-GH1M-00-00-00-SG-N.....	B-29

- 6.2 Models 9123-GH1T-00-00-00-N B-30
- 6.3 Models 9123-GH2M-0-0-M, 9123-GH3M-0-0-M..... B-31
- 6.4 Models 9123-GH2T-0-0-M, 9123-GH3T-0-0-M..... B-32
- 6.5 Models 9123-GH5M-0-0 B-33
- 6.6 Models 9123-GH5T-0-0 B-33
- 6.7 Models 9123-GH8M-0-0-0..... B-34
- 6.8 Models 9123-GH8T-0-0-0..... B-35
- 7. Specifications B-36
- 8. Drawings B-37
 - 8.1 GH1 Manual Utility Coupler Drawings..... B-37
 - 8.2 GH2 Manual Utility Coupler Drawings..... B-40
 - 8.3 GH3 Manual Utility Coupler Drawings..... B-43
 - 8.4 GH5 Manual Utility Coupler Drawings..... B-46
 - 8.5 GH8 Manual Utility Coupler Drawings..... B-49

B. Base Utility Coupler

GHx Series—Manual Utility Couplers

1. Product Overview

The GHx Series of Manual Utility Couplers provides a manually actuated locking mechanism for coupling utilities. The Utility Coupler passes air, fluids, electrical signals, etc from the Master side to the Tool side through fixed or ATI's standard add on modules. The Utility Coupler provides the manual actuated locking mechanism that draws the Master and the Tool Side together. The locking mechanism can be actuated from a distance of 8 mm to lock the Master and Tool sides together. Refer to [Table 1.1](#) for Utility Couplers, the Master and Tool assemblies are grouped into compatible modules.

Table 1.1—GHx Utility Couplers	
Part Number	Description
9123-GH1M-00-00-00-N	GH1 Manual Utility Coupler Master, (4) 3/8" NPT Checked Ports Axial
9123-GH1M-00-00-00-SG-N	GH1 Manual Utility Coupler Master, (4) 3/8" NPT Checked Ports Axial, PNP Sensors
9123-GH1T-00-00-00-N	GH1 Tool Base Assembly, NPT
9123-GH2M-0-0-M	GH2 Base Master Manual Utility Coupler, 16 Pass Through Ports, M6
9123-GH2T-0-0-M	GH2 Base Tool Manual Utility Coupler, 16 Pass Through Ports, M6
9123-GH3M-0-0-M	GH3 Base Master Manual Utility Coupler, 8 Port Pass Through, M6
9123-GH3T-0-0-M	GH3 Base Tool Manual Utility Coupler, 8 Port Pass Through, M6
9123-GH5M-0-0	GH5 Base Master Manual Utility Coupler
9123-GH5T-0-0	GH5 Base Tool Manual Utility Coupler
9123-GH8M-0-0-0	GH8 Base Master Manual Utility Coupler
9123-GH8T-0-0-0	GH8 Base Tool Manual Utility Coupler

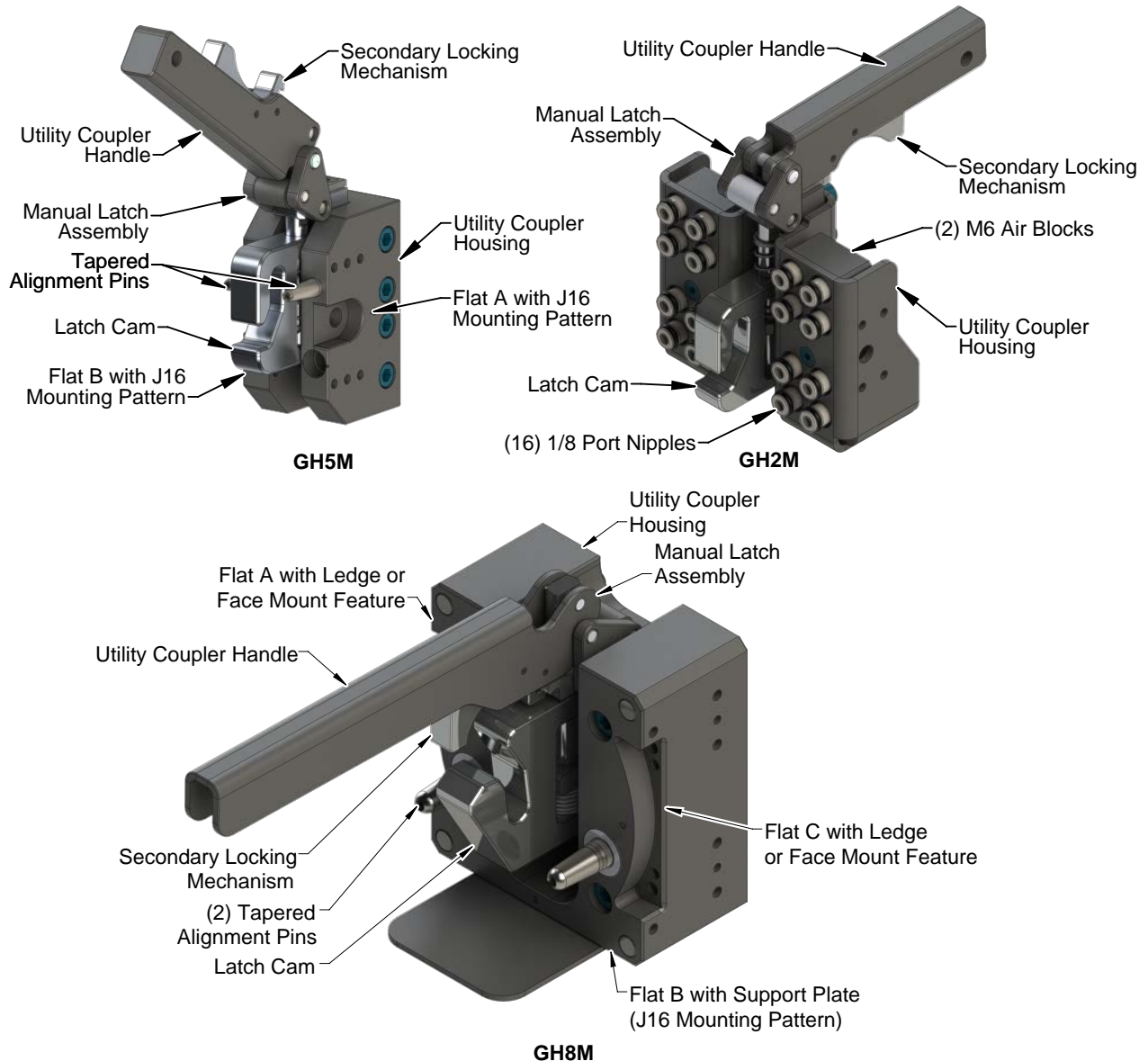
1.1 Manual Utility Coupler Master

The GHx series Utility Coupler Masters are comprised of a manual latch assembly and various housings to provide a wide range of utility pass through options. The manual latch assembly is equipped with a hardened steel latch cam and a coupler handle with secondary locking mechanism to prevent unintentional release. The latch mechanism utilizes a compression spring to assist in returning the latch cam to the open position. Certain models are equipped with (2) hardened tool steel tapered alignment pins to guide the Master and Tool couplers together. The alignment pins have hex sockets on both ends to aid in installation and removal.

There are a variety of housings available to provide a vast range of utility options. Some models have an anodized aluminum housing with J16 and ledge mounting patterns for mounting a variety of utility modules on the mounting flats. The J16 mounting is a M4X0.7 thread on a 18 mm high and 50 mm wide rectangular pattern. Other models have a 10 gauge steel formed and spot welded housings with dedicated patterns of (8) or (16) M6 pass through ports. The port nipples provide pass through connections and coupler alignment.

The GH1 model has (4) 3/8" NPT check ports 3 available mounting flats for J16 modules. Optional tool presence and lock sensing is available on the GH1 Master. The GH8 model has (2) ledge mounts or a face mount pattern (flats A and C), and one J16 mount pattern (flat B) for optional modules.

Figure 1.1—Manual Utility Coupler Master (GH5M, GH2M, and GH8M Shown)



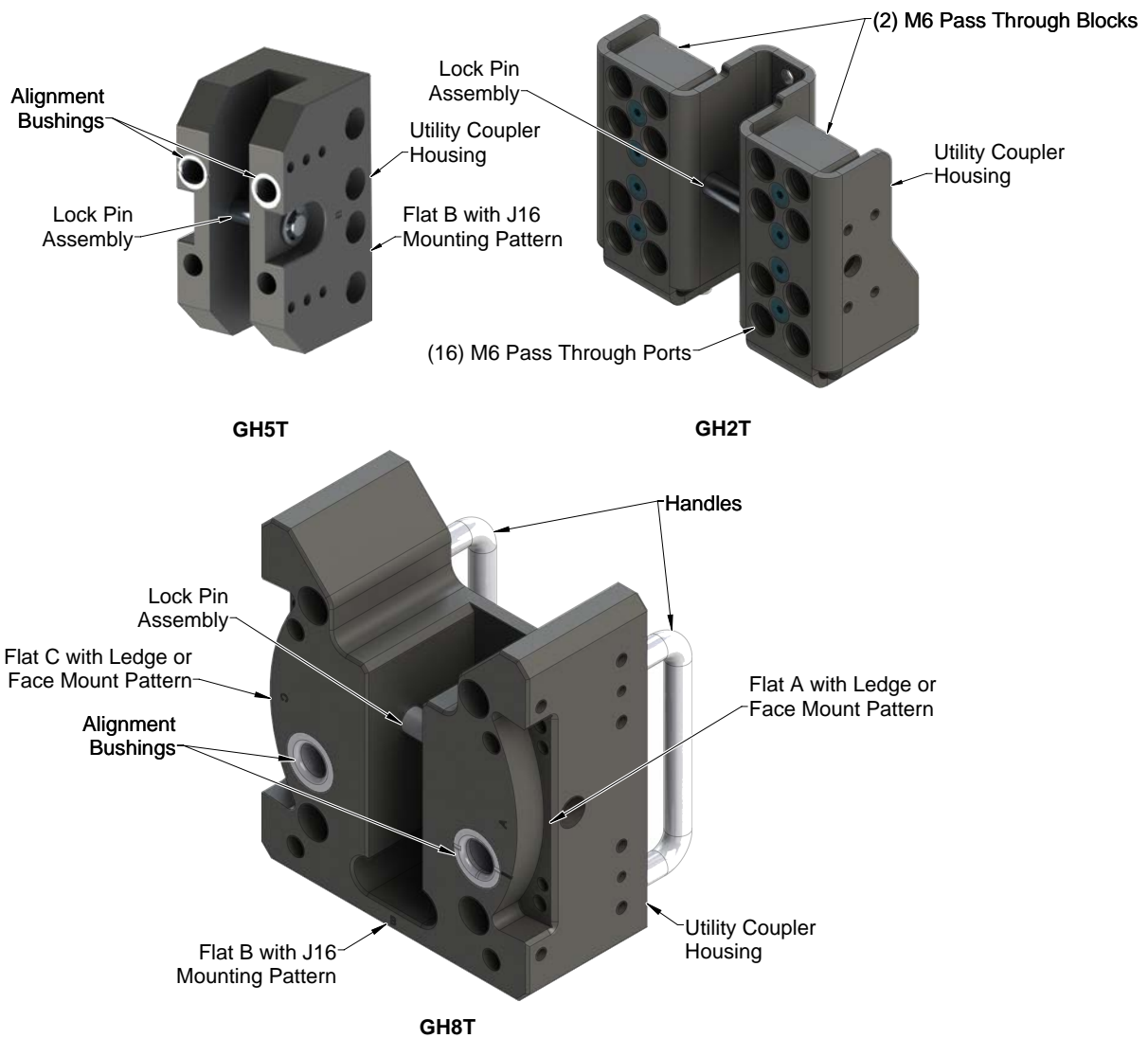
1.2 Manual Utility Coupler Tool

The GHx series Utility Coupler Tool is comprised of a lock pin assembly and various housings to provide a wide range of utility pass through options. The hardened steel lock pin assembly fits into the Latch Cam of the Master side as part of the latch mechanism. Certain models are equipped with two hardened steel alignment bushings that receive the tapered alignment pin from the Master side.

There are a variety of housings available to provide a large range of utility options. Some models provide anodized aluminum housings with J16 and ledge mounting patterns for mounting a variety of utility modules on the mounting flats. The J16 mounting is a M4X0.7 thread on a 18 mm high and 50 mm wide rectangular pattern. Other models utilize a 10 gauge steel formed and spot welded housing with dedicated patterns of (8) or (16) M6 pass through ports. The ports provide pass through connections and coupler alignment.

The GH8 model has (2) ledge mounts or a face mount pattern (flats A and C), and one J16 mount pattern (flat B) for optional modules.

Figure 1.2—Manual Utility Coupler Master (GH5T, GH2T, and GH8T Shown)



2. Installation

The GHx Utility Coupler and add-on modules are typically installed by ATI prior to shipment. The steps below outline the field installation or removal of the Master and drive cylinder.



WARNING: Do not perform maintenance or repair on Utility Coupler or modules unless all energized circuits (e.g. electrical, air, water, etc.) are turned off, pressurized connections purged and power discharged from circuits in accordance with the customer's safety practices and policies. Injury or equipment damage can occur with energized circuits on. Turn off and discharge all energized circuits, purge all pressurized connections, verify all energized circuits are de-energized before performing maintenance or repair on Utility Coupler or modules.



CAUTION: Do not use fasteners that exceed the thread depth in the Utility Coupler. Refer to [Section 8—Drawings](#) for details on mounting hole thread depth. Secure the Utility Coupler with the proper length fasteners. This is true for both robot and tool interfaces.

2.1 Installing Utility Couplers with Formed Steel Housings

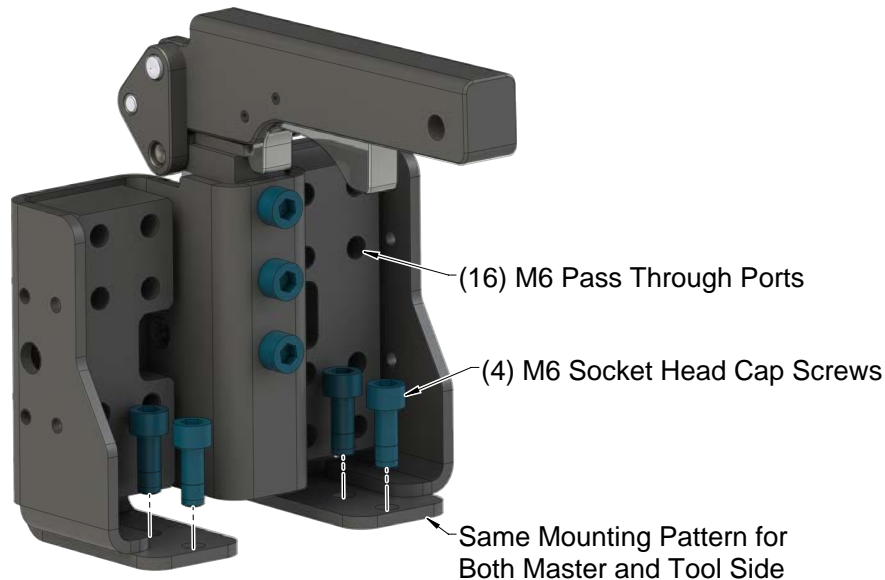
The mating surfaces must be machined to accommodate the mounting pattern to match the utility Coupler Housing. Refer to [Section 8—Drawings](#) for mounting pattern for a specific model.

Tools required: 5 mm Allen wrench, Torque wrench

Supplies required: Clean rag, Loctite® 242

1. Make sure mounting surface is clean and free of debris using a clean rag.
2. Apply Loctite 242 to the supplied M6 socket head cap screws.
3. Install the (4) M6 socket head screws securing the Utility Coupler and using a 5 mm Allen wrench, tighten to 89 in-lbs (10.0 Nm).
4. Air hosing can be connected to the module after securing the coupler. Ensure that the connections are cleaned prior to being secured as appropriate.

Figure 2.1—Formed Steel Housing Installation (GH2-M Shown)



2.2 Installing Utility Couplers with Anodized Aluminum Housings

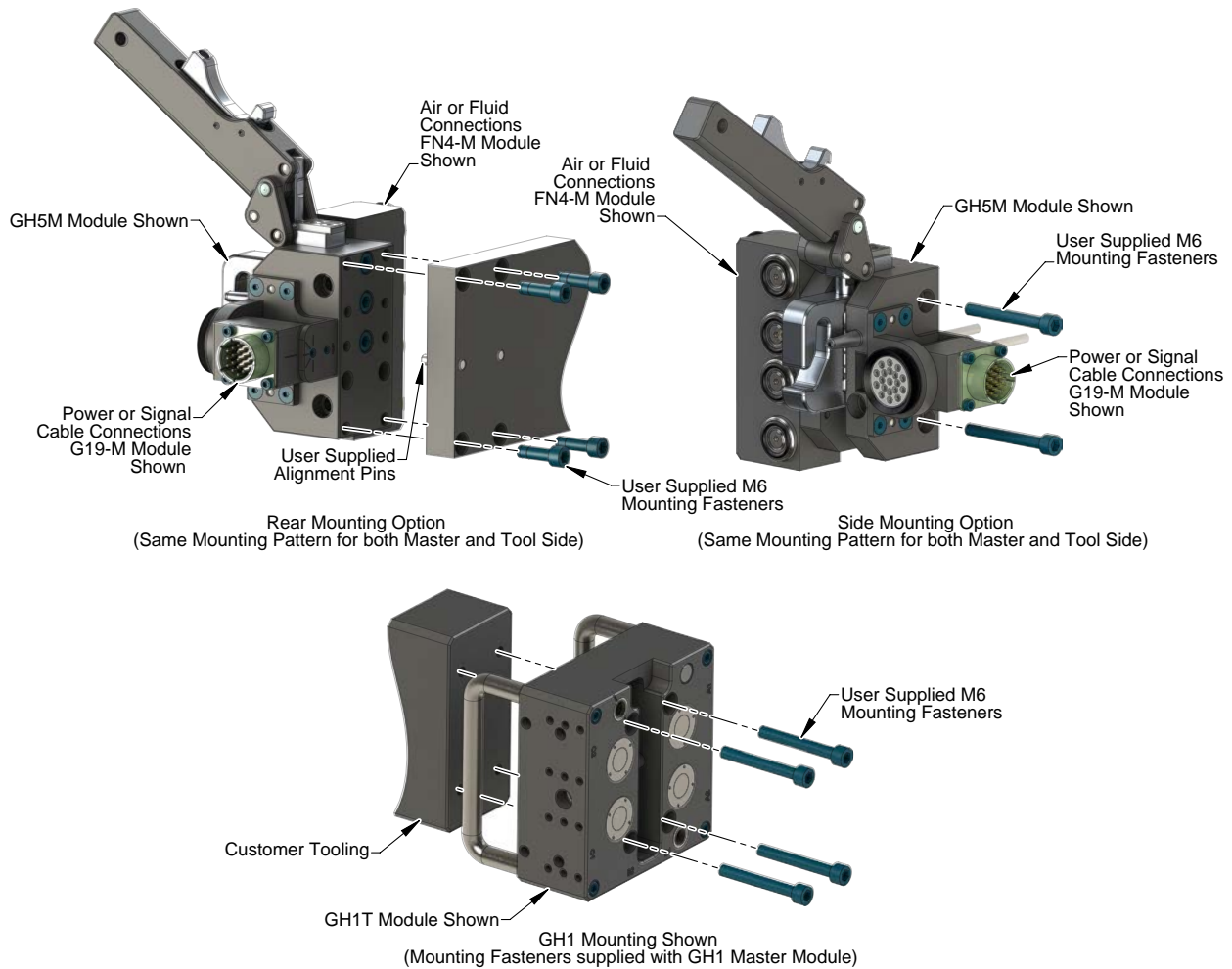
Determine the best mounting pattern based on the installed module configuration. The mating surfaces must be machined to accommodate the mounting pattern to match the utility Coupler Housing. Refer to [Section 8—Drawings](#) for mounting pattern for a specific model.

Tools Required: 5 mm Allen wrench, Torque wrench

Supplies Required: Clean rag, Loctite® 24

1. Make sure mounting surface is clean and free of debris using a clean rag.
2. Apply Loctite 242 to the supplied M6 socket head cap screws.
3. Attach the Utility Coupler using the M6 mounting fasteners and using a 5 mm Allen wrench, tighten to 89 in-lbs (10.0 Nm).
4. Power and signal cabling can be connected to the module after securing the coupler. Ensure that the connectors are cleaned prior to being secured as appropriate.
5. Air and fluid hosing can be connected to the module after securing the coupler. Ensure that the connections are cleaned prior to being secured as appropriate.

Figure 2.2—Anodized Aluminum Housing Installation



3. Operation

The Utility Coupler Master and Tool are manually coupled and uncoupled.



WARNING: Do not unlock the utility Coupler until all energized circuits (e.g. electrical, air, water, etc.) have been turned off. Injury or equipment damage can occur with energized circuits on. Turn off all energized circuits before unlocking or performing maintenance on the Utility Coupler or modules.

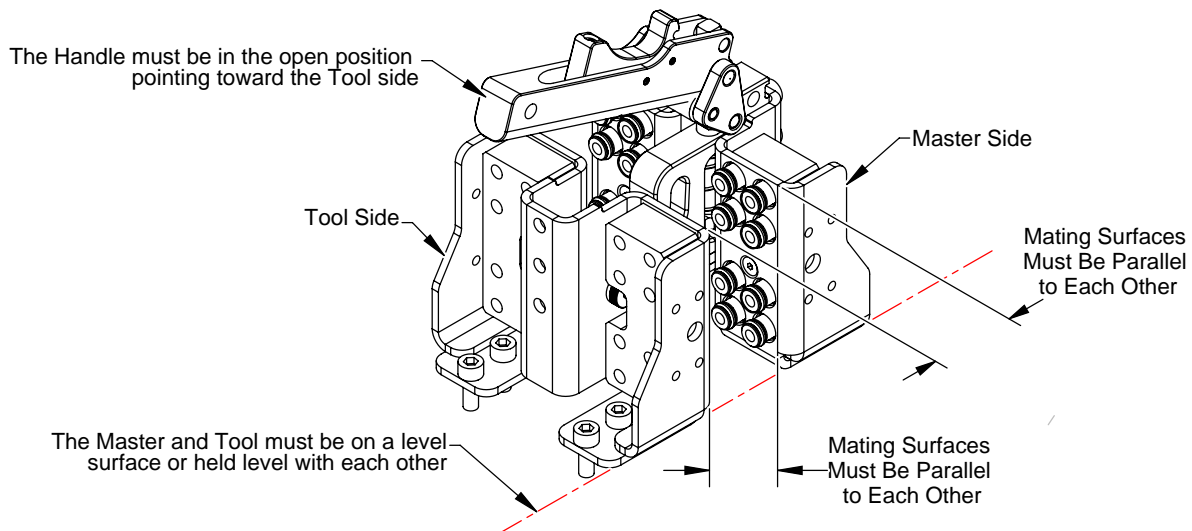


CAUTION: Be careful not to have body part, clothing, or other objects between the Master and Tool sides while coupling. Injury and damage to objects will occur. Keep body part and other objects from between the Master and Tool sides.

3.1 Coupling Sequence for GH1, GH2, and GH5

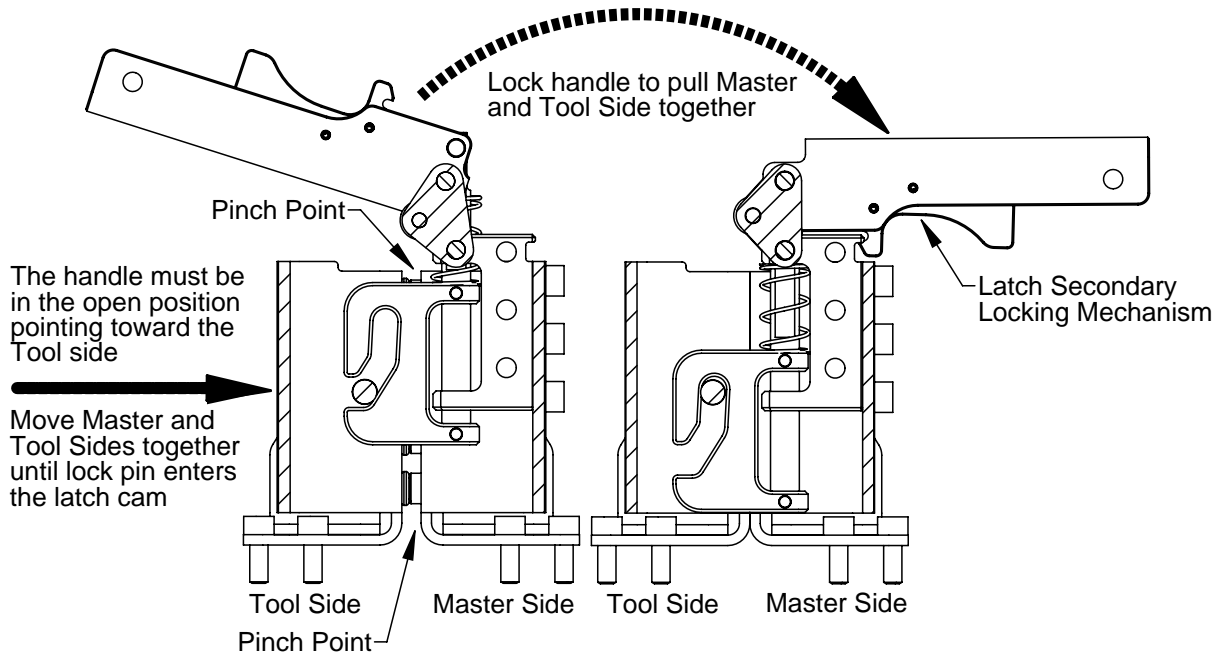
1. Make sure all energized circuits have been turned off
2. With the Master and Tool on a level surface or held level with each other, position the Tool and Master with the mating surfaces parallel to each other but not touching. Note: the Lock handle must be in the open position pointing toward the Tool side.

Figure 3.1—Bring the Tool and Master Sides Together



3. Push the Master and Tool until the Tool side lock pin enters the slot in the Master latch cam.
4. Grasp and close the lock handle until the secondary locking mechanism is set.

Figure 3.2—Manually Couple the Master and Tool Sides



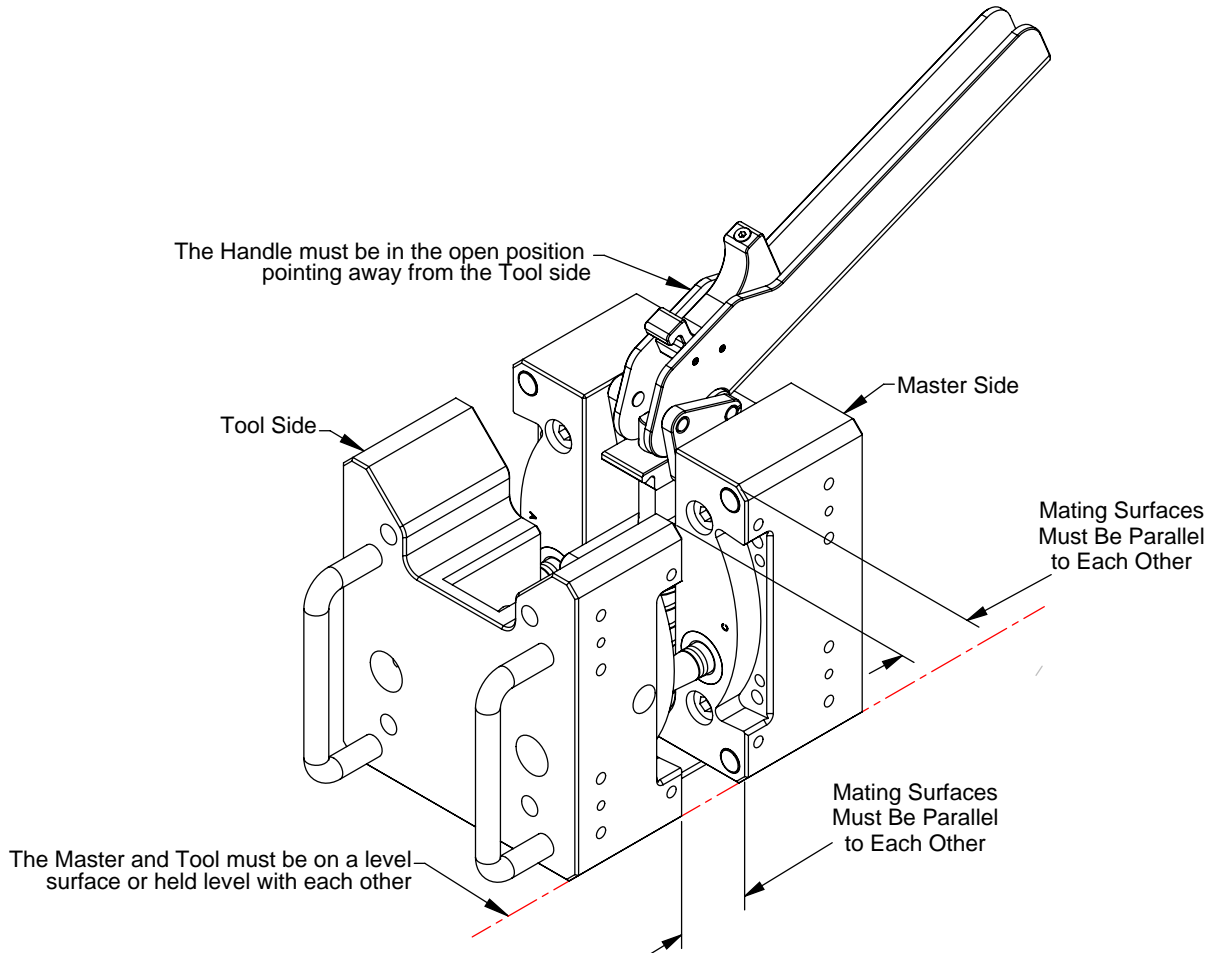
3.2 Uncoupling Sequence for GH1, GH2, and GH5

1. Make sure all energized circuits have been turned off.
2. Grasp the lock handle and pull up on the secondary locking mechanism.
3. Open the handle and pull the Master and Tool sides apart, keep the mating surfaces parallel until they separate.

3.3 Coupling Sequence for GH8

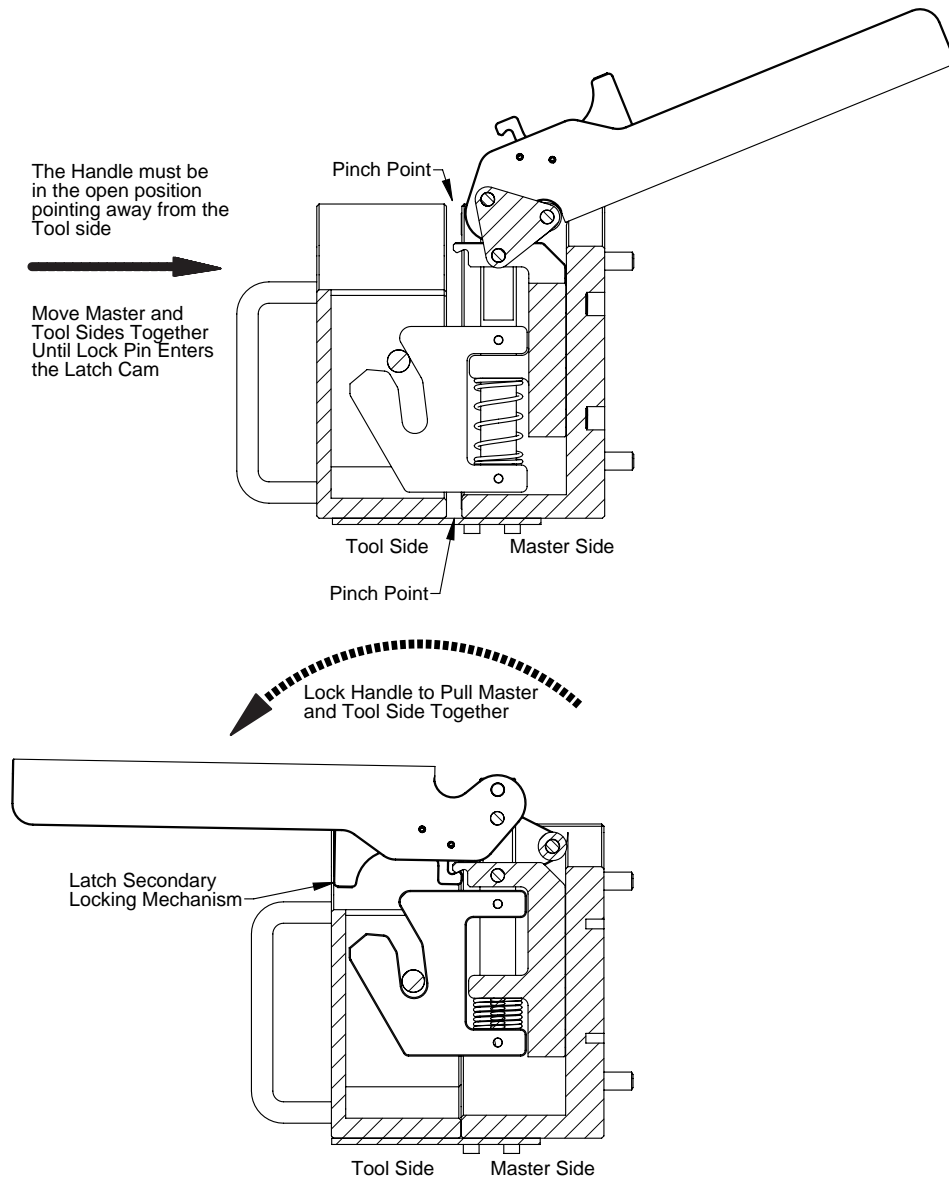
1. Make sure all energized circuits have been turned off
2. With the Master and Tool on a level surface or held level with each other, position the Tool and Master with the mating surfaces parallel to each other but not touching. Note: the Lock handle must be in the open position pointing away from the Tool side.

Figure 3.3—Bring the Tool and Master Sides Together



3. Push the Master and Tool until the Tool side lock pin enters the slot in the Master latch cam.
4. Grasp and close the lock handle until the secondary locking mechanism is set.

Figure 3.4—Manually Couple the Master and Tool Sides



3.4 Uncoupling Sequence for GH8

1. Make sure all energized circuits have been turned off.
2. Grasp the lock handle and pull up on the secondary locking mechanism.
3. Open the handle and pull the Master and Tool sides apart, keep the mating surfaces parallel until they separate.

4. Maintenance

Once installed the operation of the Utility Coupler is generally trouble free. The optional electrical modules are not designed to be field serviced as all point-to-point wiring connections are soldered.



WARNING: Do not perform maintenance or repair on Utility Coupler or modules unless all energized circuits (e.g. electrical, air, water, etc.) are turned off, pressurized connections purged and power discharged from circuits in accordance with the customer's safety practices and policies. Injury or equipment damage can occur with energized circuits on. Turn off and discharge all energized circuits, purge all pressurized connections, verify all energized circuits are de-energized before performing maintenance or repair on Utility Coupler or modules.

If the Utility Coupler is being used in dirty environments (e.g., welding or deburring applications), care should be taken to limit the exposure of the Utility Coupler. Idle Tool assemblies should be covered to prevent debris from settling on the mating surface. Also, the Master assembly should be exposed for only a short period of time during Tool change and down time.

Under normal conditions, no special maintenance is necessary however it is recommended that periodic inspections be performed to assure long-lasting performance and to assure that unexpected damage has not occurred. Perform the following visual inspection monthly:

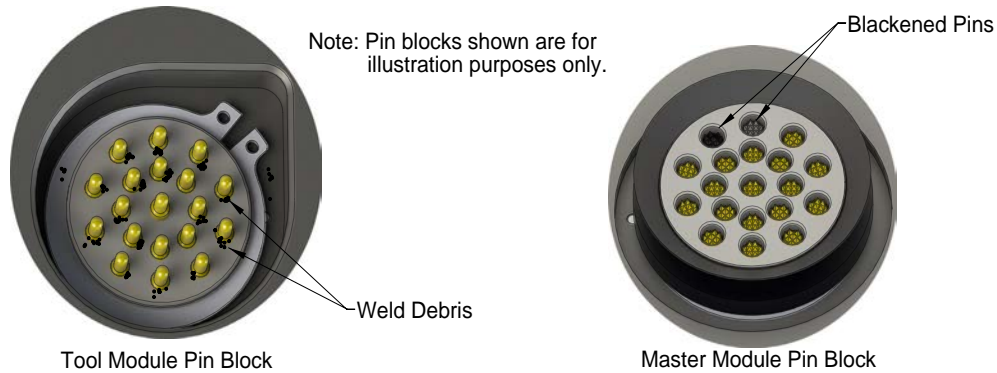
- Inspect mounting fasteners to verify they are tight and if loose, then tighten to the proper torque. Refer to [Section 2—Installation](#).
- Cable connections should be inspected during maintenance periods to ensure they are secure. Loose connections should be cleaned and re-tightened as appropriate. Inspect cable sheathing for damage, repair or replace damaged cabling. Loose connections or damaged cabling are not expected and may indicate improper routing and/or strain relieving.
- Inspect hosing and connections, damaged hoses should be replaced. Loose connections should be repaired and tightened.
- Inspect air port O-rings for wear or damage, replace if worn or damaged.
- Inspect the Master and Tool pin blocks for any pin damage, debris or darkened pins. Refer to [Section 4.1—Pin Block Inspection and Cleaning](#).
- Inspect V-ring seals for wear, abrasion, and cuts. If worn or damaged, replace. Refer to [Section 5.2.8—Seal Replacement](#).

4.1 Pin Block Inspection and Cleaning

Tools required: Nylon Brush (ATI Part Number 3690-0000064-60)

1. Turn off and de-energize all energized circuits (e.g. electrical, air, water, etc.).
2. Uncouple the Utility Coupler to allow clear access to the Master and Tool plates.
3. Inspect the Master and Tool pin blocks for any debris or darkened pins.

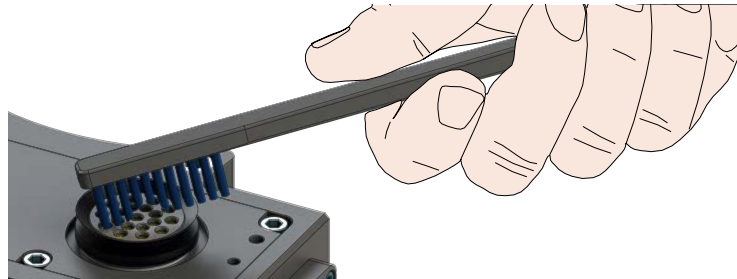
Figure 4.1—Inspect Master and Tool Pin Blocks



4. If debris or darkened pins exist, remove debris using a vacuum, and clean using a nylon brush (ATI Part Number 3690-0000064-60).

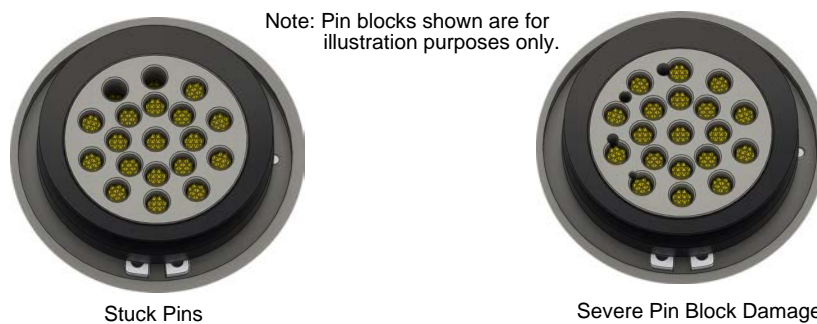
NOTICE: Do not use an abrasive media, cleaners, or solvents to clean the contact pins. Using abrasive media, cleaners, or solvents will cause erosion to the contact surface or pins to stick. Clean contact surfaces with a vacuum or non-abrasive media such as a nylon brush (ATI Part Number 3690-0000064-60)

Figure 4.2—Clean Pin Blocks with a Nylon Brush



5. Inspect the Master and Tool pin blocks for stuck pins or severe pin block damage.

Figure 4.3—Stuck Pin and Pin Block Damage



6. If stuck pins or severe pin block damage exists, contact ATI for possible pin replacement procedures or module replacement.
7. If repairs are complete, return circuits to normal operation.

5. Troubleshooting and Service Procedures

The following section provides troubleshooting and service information to help diagnose conditions and repair the Utility Coupler or control/signal module.



WARNING: Do not perform maintenance or repair on Utility Coupler or modules unless all energized circuits (e.g. electrical, air, water, etc.) are turned off, pressurized connections purged and power discharged from circuits in accordance with the customer's safety practices and policies. Injury or equipment damage can occur with energized circuits on. Turn off and discharge all energized circuits, purge all pressurized connections, verify all energized circuits are de-energized before performing maintenance or repair on Utility Coupler or modules.

5.1 Troubleshooting Procedures

The troubleshooting table is provided to assist in diagnosing issues that may cause the Utility Coupler not to function properly.

Table 5.1—Troubleshooting		
Symptom	Cause	Resolution
Unit will not Couple	Object trapped between Master and Tool or between modules.	Clear object from between Master and Tool or modules.
	Master Latch Assembly worn or malfunctioning.	Inspect Latch Assembly, if worn or damaged replace. Refer to Section 5.2.3—Latch Assembly Replacement
	Tool Lock Pin Worn or damaged.	Inspect Lock Pin, if worn or damaged replace. Refer to Section 5.2.4—Lock Pin Replacement .
Reduced air flow to Tool.	Object trapped between Master and Tool or between modules.	Clear object from between Master and Tool or modules. Clear trapped debris in the line(s).
	Master side O-ring worn or damaged.	Inspect O-rings, if worn or damaged replace. Refer to Section 5.2.1—O-ring Replacement
	Check Port not sealing.	Inspect, clean and lubricate Check port seals and components in the Master and Tool bodies. Refer to Section 5.2.5—Clean, Inspect, Lubricate, Replace Components for Check Port
	Hose or connector leaking or damage	Inspect hoses and connectors, if damaged or leaking, repair or replace.
	Optional module air ports leaking.	Refer to optional module manual for trouble shooting.
Optional sensor not indicating tool presence when tool is coupled.	Sensor cable damaged or connection loose.	Inspect sensor cable for damage, check cable continuity, replace if damaged. Check cable connection for tightness.
	Sensor not adjusted properly or malfunctioning.	Check sensor position, check sensor functionality, refer to Section 5.2.6—Adjust, Test and Replace Tool Present Sensor .
Communications to Optional sensor not indication utility coupler is in the locked position.	Sensor cable damaged or connection loose.	Inspect sensor cable for damage, check cable continuity, replace if damaged. Check cable connection for tightness.
	Sensor not adjusted properly or not functioning.	Check sensor position, check sensor functionality, refer to Section 5.2.7—Adjust, Test and Replace Lock Sensor .
Optional Electrical Modules		
Communications to Tool malfunctioning.	Object trapped between Master and Tool or between modules.	Clear object from between Master and Tool or modules.
	Debris between contacts, worn or damaged contact pins.	Inspect pin blocks, refer to Section 4.1—Pin Block Inspection and Cleaning
	Cables or connector loose or damage.	Inspect cables and connectors, if connectors are loose, tighten. If cables are damaged, repair or replace.

5.2 Service Procedures

The following service procedures provide instructions for component replacement.

Refer to [Section 6—Serviceable Parts](#) for seal kit Part Numbers for the specific Utility Coupler model being serviced.

Periodically, the condition of the self-sealing valves should be checked. Replace any damaged or degraded components as necessary. Any contamination in or around the mating surfaces of the modules should be removed using a stiff nylon brush.

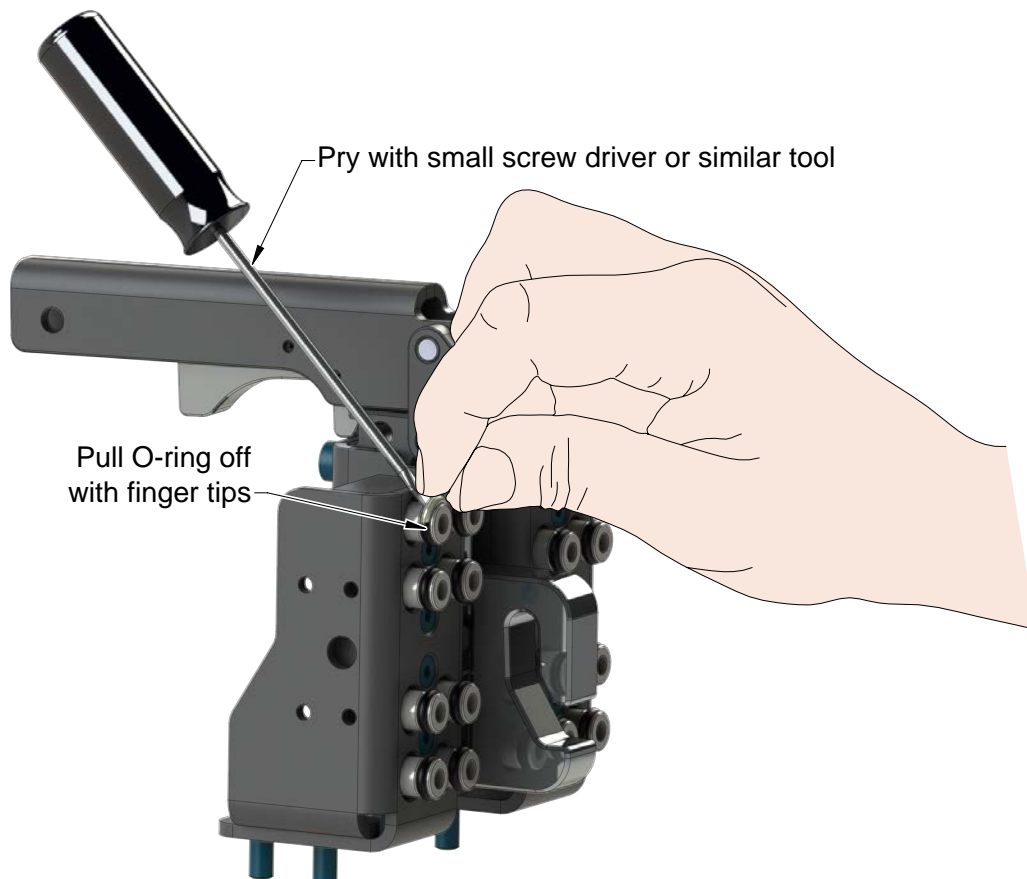
5.2.1 O-ring Replacement

Parts required: Refer to [Section 6—Serviceable Parts](#)

Tools required: small screw driver

1. Turn off and de-energize all energized circuits (e.g. electrical, air, water, etc.).
2. Uncouple the Utility Coupler to allow clear access to the Master and Tool plates.
3. To remove the existing O-ring, use a small screw driver or similar tool to pry the O-ring out of the groove.
4. Pinch edge of O-ring with fingers and gently pull off the air port nipple.
5. To install a new O-ring, stretch the new O-ring over the air port nipple.
6. Push the O-ring onto the nipple.
7. After repair is complete, return all circuits to normal operation.

Figure 5.1—O-Ring Replacement



5.2.2 GH1 and GH5 Alignment Pin Replacement

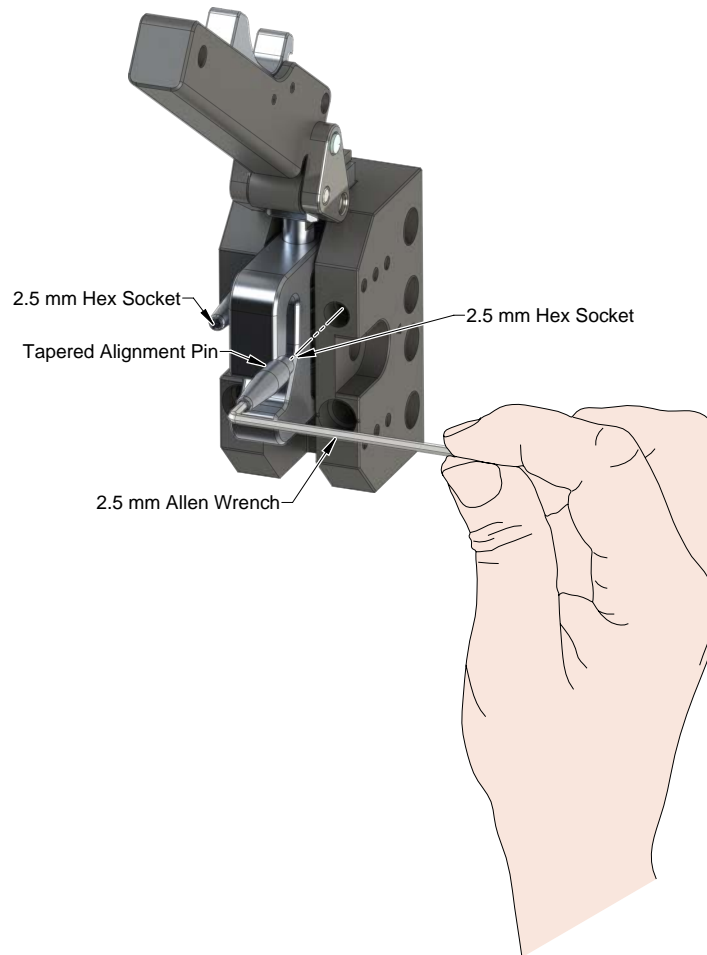
Parts required: Refer to [Section 6—Serviceable Parts](#)

Tools required: 2.5 mm Allen Wrench, torque wrench

Supplies required: Clean rag, MobilGrease XHP222 lubricant, Loctite 242

1. Turn off and de-energize all energized circuits (e.g. electrical, air, water, etc.).
2. Uncouple the Utility Coupler to allow clear access to the Master and Tool plates.
3. Unscrew the alignment pin from the housing using a 2.5 mm Allen wrench. The alignment pin has a 2.5 mm hex socket in both ends of the pin and can be removed from either side if necessary.
4. Apply Loctite 242 and install the new alignment pin assembly into the bushing on the Master housing. Tighten to 18 in-lbs (2.03 Nm).
5. Apply MobilGrease XHP222 Special grease to the alignment pin.
6. After repair is complete, return all circuits to normal operation.

Figure 5.2—Alignment Pin Replacement



5.2.3 Latch Assembly Replacement

For Latch Assembly replacement, refer to [Section 5.2.3.1—GH2, GH3 and GH5 Latch Assembly Replacement](#) or [Section 5.2.3.2—GH1 Latch Assembly Replacement](#)

5.2.3.1 GH2, GH3 and GH5 Latch Assembly Replacement

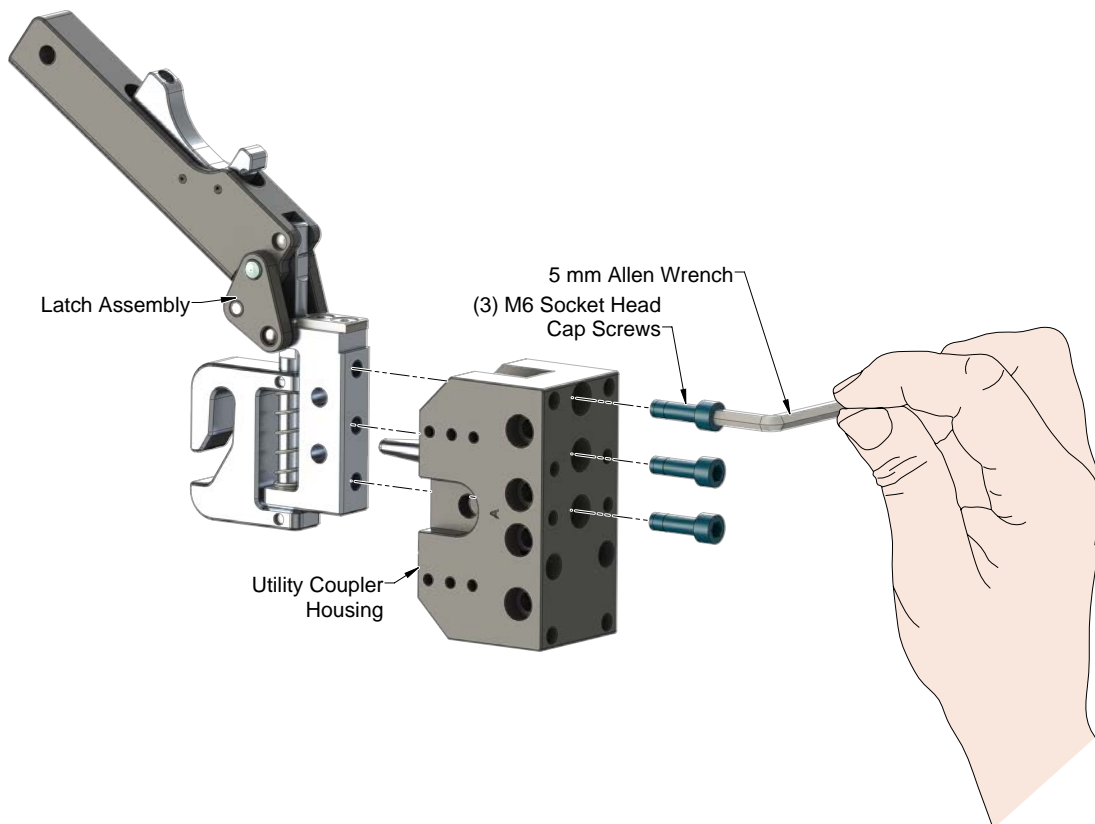
Parts required: Refer to [Section 6—Serviceable Parts](#)

Tools required: 5 mm Allen Wrench, torque wrench

Supplies required: Clean rag, Magnalube G lubricant, Loctite 222

1. Turn off and de-energize all energized circuits (e.g. electrical, air, water, etc.).
2. Uncouple the Utility Coupler to allow clear access to the Master and Tool plates.
3. Using a 5 mm Allen wrench, remove the (3) M6 socket head cap screws from the housing or base plate, securing the latch assembly.
4. Remove the latch assembly.
5. To install, insert the new latch assembly into the housing or base plate.
6. Using a 5 mm Allen wrench, secure the latch assembly with the (3) M6 socket head cap screws, and tighten to 89 in-lbs (10.0 Nm).
7. After repair is complete, return all circuits to normal operation.

Figure 5.3—Latch Assembly Replacement



5.2.3.2 GH1 Latch Assembly Replacement

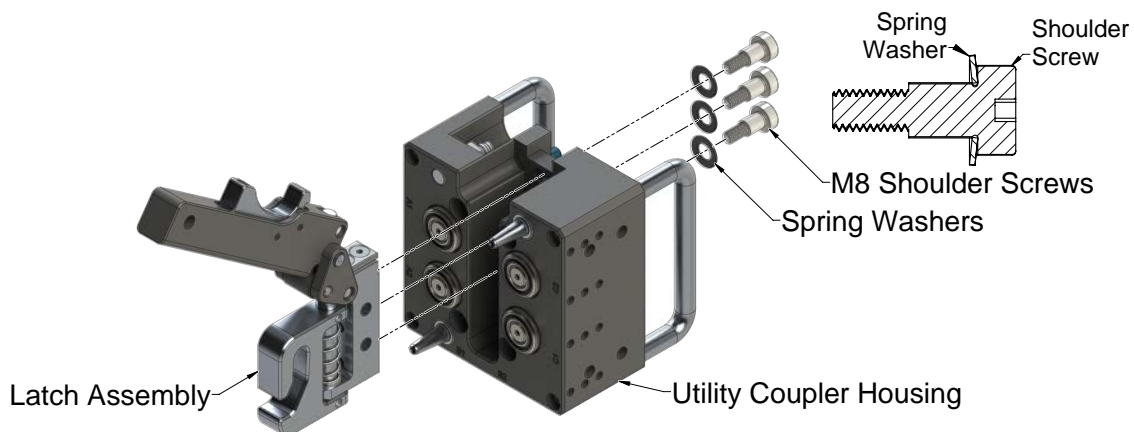
Parts required: Refer to [Section 6—Serviceable Parts](#)

Tools required: 5 mm Allen Wrench, torque wrench

Supplies required: Clean rag, Magnalube G lubricant, Loctite 7649 and 242

1. Turn off and de-energize all energized circuits (e.g. electrical, air, water, etc.).
2. Uncouple the Utility Coupler to allow clear access to the Master and Tool plates.
3. Using a 5 mm Allen wrench, remove the (3) M8 Shoulder screws and spring washers from the housing, securing the latch assembly.
4. Remove the latch assembly.
5. To reinstall, insert the new latch assembly into the housing or base plate.
6. Apply Loctite primer 7649 and Loctite 242 to the (3) M8 Shoulder screws.
7. Using a 5 mm Allen wrench, secure the latch assembly with the (3) M8 shoulder screws and spring washers. Tighten to 75 in-lbs (8.47 Nm).
8. After repair is complete, return all circuits to normal operation.

Figure 5.4—Latch Assembly Replacement



5.2.3.3 GH8 Latch Assembly Replacement

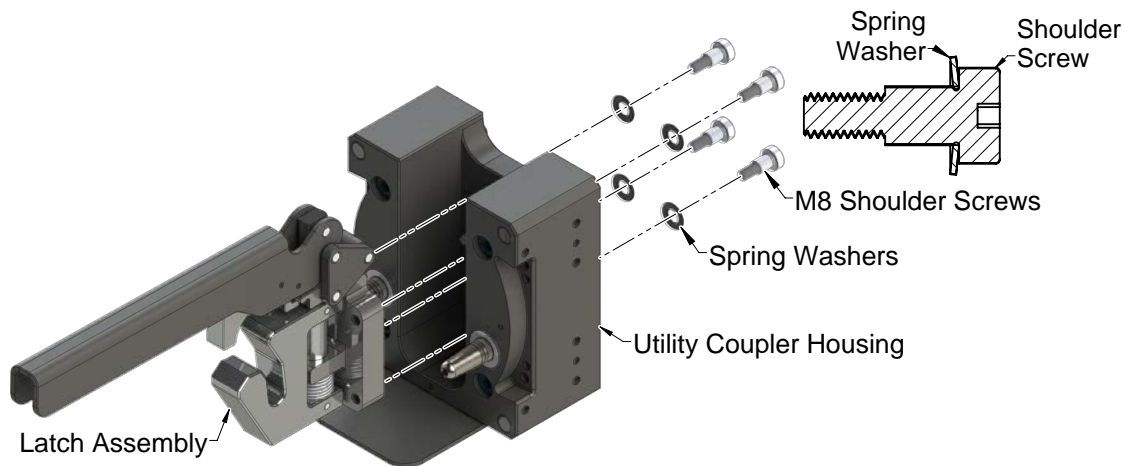
Parts required: Refer to [Section 6—Serviceable Parts](#)

Tools required: 5 mm Allen Wrench, torque wrench

Supplies required: Clean rag, Magnalube G lubricant, Loctite 7649 and 242

1. Turn off and de-energize all energized circuits (e.g. electrical, air, water, etc.).
2. Uncouple the Utility Coupler to allow clear access to the Master and Tool plates.
3. Using a 5 mm Allen wrench, remove the (4) M8 Shoulder screws and spring washers from the housing, securing the latch assembly.
4. Remove the latch assembly.
5. To reinstall, insert the new latch assembly into the housing or base plate.
6. Apply Loctite primer 7649 and Loctite 242 to the (4) M8 Shoulder screws.
7. Using a 5 mm Allen wrench, secure the latch assembly with the (4) M8 shoulder screws and spring washers. Tighten to 75 in-lbs (8.47 Nm).
8. After repair is complete, return all circuits to normal operation.

Figure 5.5—Latch Assembly Replacement



5.2.4 Lock Pin Replacement

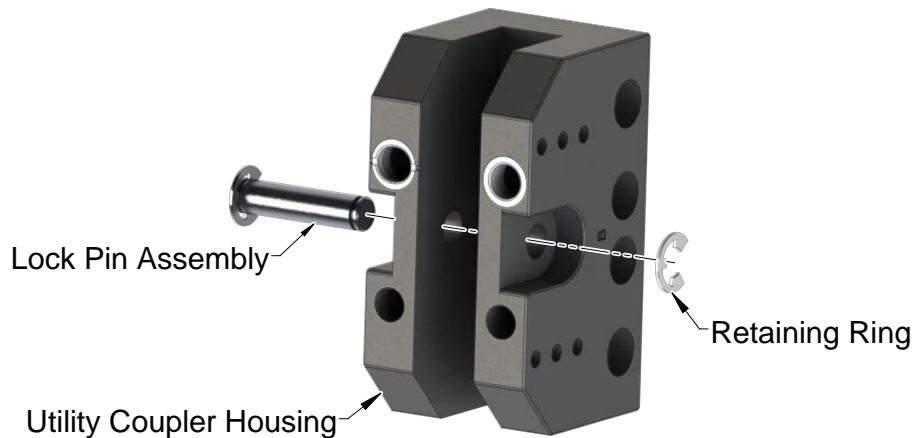
For lock pin replacement, refer to [Section 5.2.4.2—GH2 and GH3 Lock Pin Replacement](#) or [Section 5.2.4.3—GH1 and GH8 Lock Pin Replacement](#)

5.2.4.1 GH5 Lock Pin Replacement

Parts required: Refer to [Section 6—Serviceable Parts](#)

1. Turn off and de-energize all energized circuits (e.g. electrical, air, water, etc.).
2. Uncouple the Utility Coupler to allow clear access to the Master and Tool plates.
3. If add on utility modules are installed they may have to be removed to access the lock pin.
4. Remove the retaining ring from one end of the lock pin.
5. Remove the lock pin from the housing.
6. Remove the retaining ring from one end of the new lock pin and insert the pin into the housing.
7. Attach the retaining ring to the lock pin to secure.
8. Install add on utility modules.
9. After repair is complete, return all circuits to normal operation.

Figure 5.6—GH5 Lock Pin Replacement



5.2.4.2 GH2 and GH3 Lock Pin Replacement

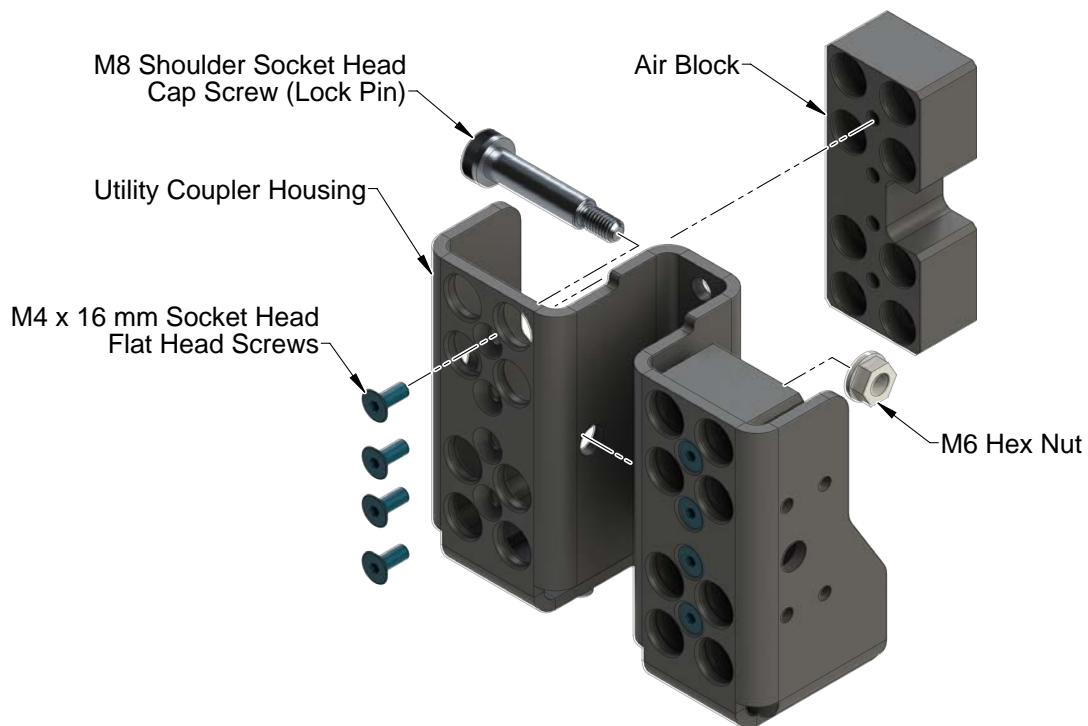
Parts required: Refer to [Section 6—Serviceable Parts](#)

Tools required: 3 mm and 4 mm Allen Wrench, 10 mm open end wrench, torque wrench

Supplies required: Loctite 242

1. Turn off and de-energize all energized circuits (e.g. electrical, air, water, etc.).
2. Uncouple the Utility Coupler to allow clear access to the Master and Tool plates.
3. Using a 3 mm Allen wrench, remove the M4 x 16 mm socket flat head cap screws securing the air block to the housing as shown in [Figure 5.7](#).
4. Remove the air block.
5. Hold the M6 hex nut using a 10 mm open end box wrench, loosen the M8 shoulder socket head cap screw (lock in) using a 4 mm Allen wrench.
6. Using a 4 mm Allen wrench, remove the M8 shoulder socket head cap screw (lock pin) and M6 hex nut.
7. Apply Loctite 242 and install new M8 shoulder socket head cap screw (lock pin), and M6 hex nut using a 4 mm Allen wrench and 10 mm open end wrench. Tighten to 89 in-lbs (10.0 Nm).
8. Using a 3 mm Allen wrench, reinstall the air block and secure the M4 x 16 mm socket flat head cap screws. Tighten to 14 in-lbs (1.6 Nm).
9. After repair is complete, return all circuits to normal operation.

Figure 5.7—GH2, and GH3 Lock Pin Replacement



5.2.4.3 GH1 and GH8 Lock Pin Replacement

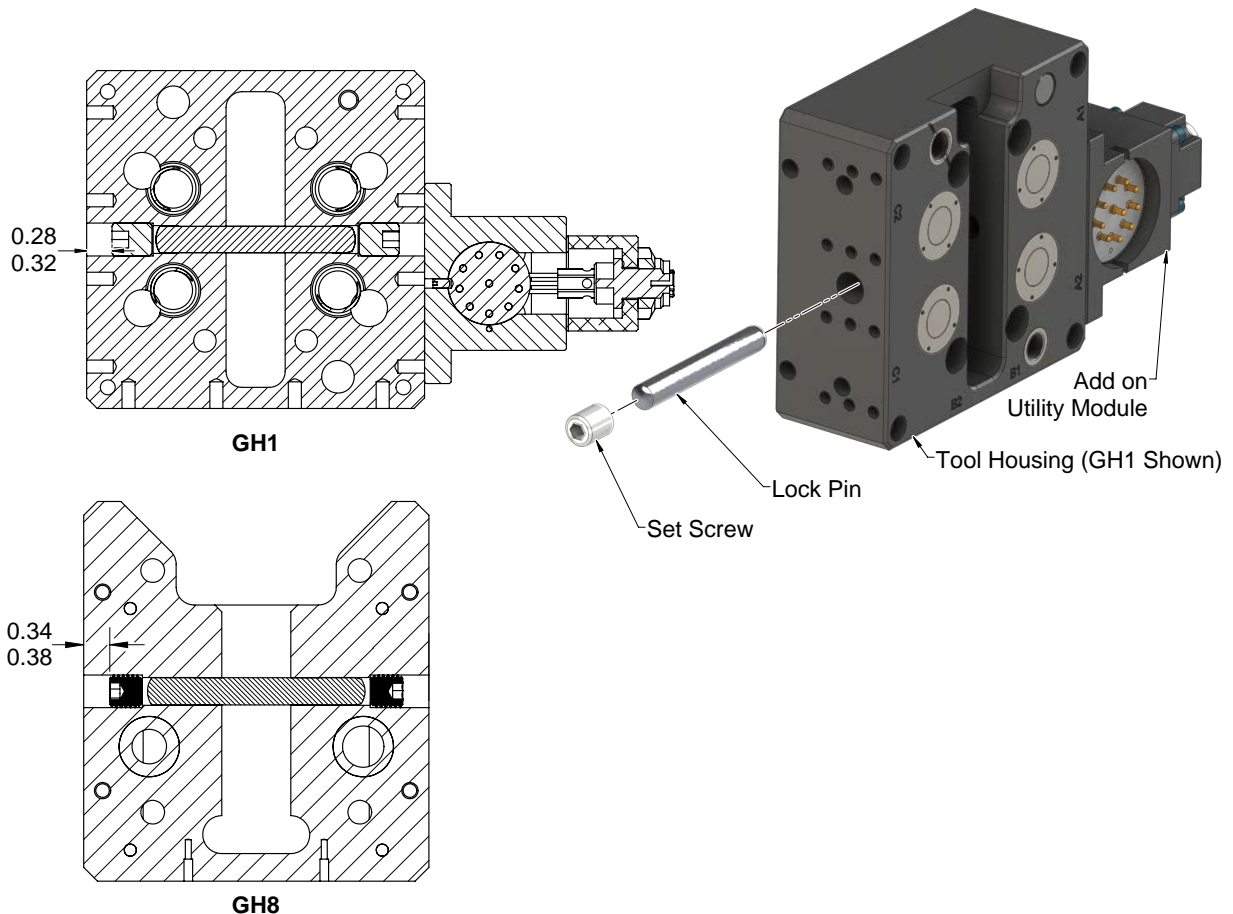
Parts required: Refer to [Section 6—Serviceable Parts](#)

Tools required: 6 mm Allen Wrench

Supplies required: Loctite 7649 and 242

1. Turn off and de-energize all energized circuits (e.g. electrical, air, water, etc.).
2. Uncouple the Utility Coupler to allow clear access to the Master and Tool plates.
3. If add on utility modules are installed on flats A or C they may have to be removed to access the locking pin.
4. Using a 6 mm Allen wrench, remove the set screw from one end of the Tool housing.
5. Remove the lock pin from the housing.
6. Insert the new lock pin into the Tool Housing.
7. Apply Loctite 7649 and 242 to the set screw.
8. Thread the set screw into the Tool housing until it is .28 to .32 inches for GH1 and .34 to .38 inches for GH8 below the Tool housing using a 6 mm Allen wrench, see [Figure 5.8](#).
9. After repair is complete, return all circuits to normal operation.

Figure 5.8—Lock Pin Replacement



5.2.5 Clean, Inspect, Lubricate, Replace Components for Check Port

For Check Port Cleaning, Inspection, Lubrication and replacement, refer to [Section 5.2.5.1—GH1 Master Side Check Ports](#) or [Section 5.2.5.2—GH1 Tool-side Check Ports](#)

5.2.5.1 GH1 Master Side Check Ports

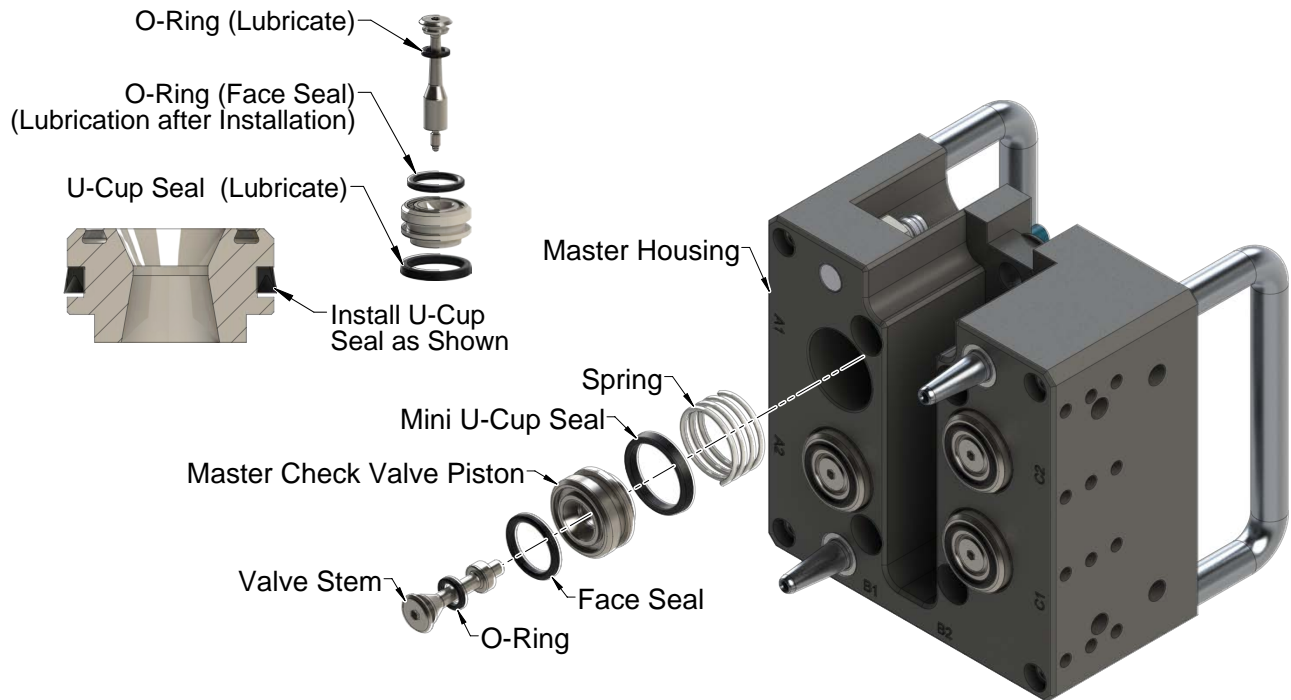
Parts required: Refer to [Section 6—Serviceable Parts](#)

Tools required: 3 mm Allen Wrench

Supplies required: Clean rag, Magalube G lubricant, Loctite 7649 and 222

1. Turn off and de-energize all energized circuits (e.g. electrical, air, water, etc.).
2. Uncouple the Utility Coupler to allow clear access to the Master and Tool plates.
3. Use a 3 mm Allen wrench to remove the valve stem from the module housing.
4. Remove the internal components and inspect for signs of wear or damage, replace all worn or damaged components.
5. Clean the check port with a clean dry rag.

Figure 5.9—GH1 Master Check Port Replacement



NOTICE: Do not lubricate the face seal until after installation. Lubricating the face seal before installation can cause the face seal to blow out during coupling and uncoupling.

6. Lubricate the bore in the module housing and the O-ring seals, except the face seal, with Magalube G (Teflon/Petroleum based grease).
7. Install the O-ring on the valve stem.
8. Install the U-cup seal on the check valve.
9. Install the non-lubricated face seal into the check valve.

10. Install the valve assembly. All components should be arranged in the order as removed.
11. If the threaded end of the valve stem does not have pre-applied adhesive, apply Loctite 222 or similar thread locker to the threaded end of the valve stem.
12. Install the valve stem. The check valve piston will have to be pushed down flush with the mating surface for the Master housing in order to start installing the threaded end of the valve stem. It is important that the U-cup seal around the check valve piston is not damaged during this step. A small, flat-head screwdriver can be used to ensure that the U-cup seal is fully located in the recess and not folded over itself prior to screwing in the valve stem. Tighten the stem to 10 in-lbs (1.1 Nm).
13. Lubricate the installed face seal with Magnalube G (Teflon/Petroleum based grease).
14. After repair is complete, return all circuits to normal operation.

5.2.5.2 GH1 Tool-side Check Ports

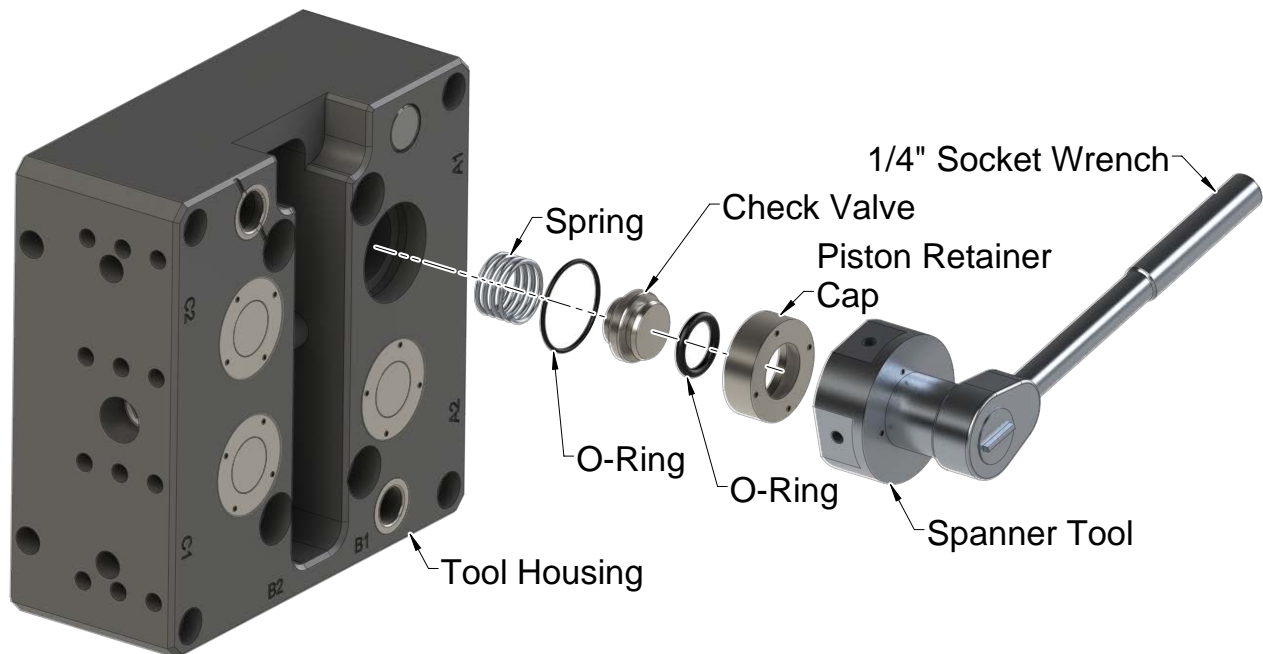
Parts required: Refer to [Section 6—Serviceable Parts](#)

Tools required: Spanner Tool

Supplies required: Clean rag, Magalube G lubricant, Loctite 7649 and 222

1. Turn off and de-energize all energized circuits (e.g. electrical, air, water, etc.).
2. Uncouple the Utility Coupler to allow clear access to the Master and Tool plates.
3. Use the spanner tool to remove the piston retainer cap from the tool housing.
4. Remove the internal components and inspect for signs of wear or damage, replace all worn or damaged components.
5. Lubricate the O-rings.
6. Clean the check port with a clean dry rag.
7. Lubricate the bore in the module housing and the O-ring seals, except the face seal, with Magalube G (Teflon/Petroleum based grease).
8. Install the O-ring on the check valve.
9. Install the spring, O-ring, and check valve into the bore.
10. Apply Loctite Primer 7649 and Loctite 222 on the threads of the piston retainer cap and tighten to 10 in-lbs (1.13 Nm), using the spanner tool.
11. After repair is complete, return all circuits to normal operation.

Figure 5.10—GH1 Tool Check Port Replacement



5.2.6 Adjust, Test and Replace Tool Present Sensor

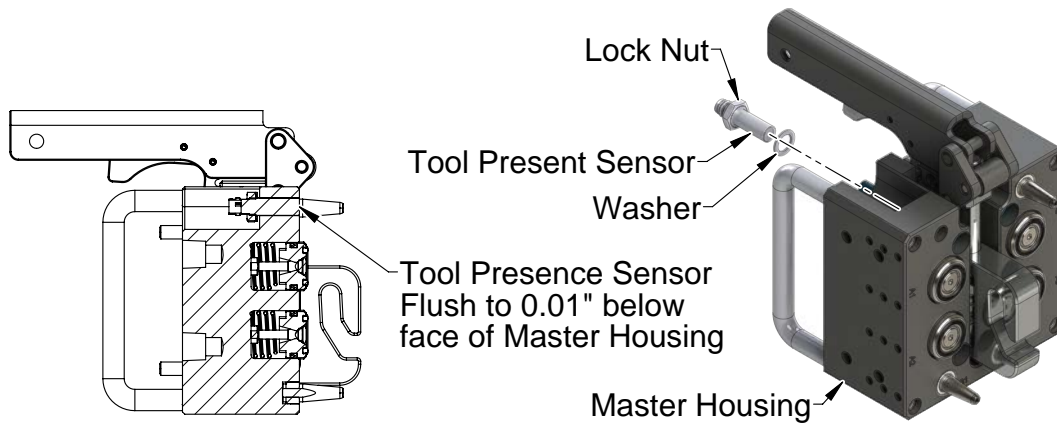
Parts required: Refer to [Section 6—Serviceable Parts](#)

Tools required: 1/2 wrench, torque wrench

Supplies required: Loctite 222

1. Uncouple the Utility Coupler to allow clear access to the Master and Tool plates.
2. Make sure sensor cable connections are secure, if loose secure connection and test functionality. (Bring a ferrous metal object to the face of the sensor).
3. If sensor is still not working, check sensor cables for damage, test continuity. If damaged replace sensor cable and test sensor functionality.
4. If sensor is still not working, replace sensor, disconnect the sensor cable.
5. Using a 1/2 wrench, loosen lock nut and unscrew the sensor from the Master housing. Discard the sensor.
6. Thread new sensor into Master housing until the face of the sensor is flush or 0.01" below the face of the Master housing.
7. Apply Loctite 222 to the sensor between the lock nut and the Master housing.
8. Using a 1/2 wrench, tighten the lock nut to 20 in-lbs (2.26 Nm) to secure the sensor.

Figure 5.11—GH1 Master Check Port Replacement



5.2.7 Adjust, Test and Replace Lock Sensor

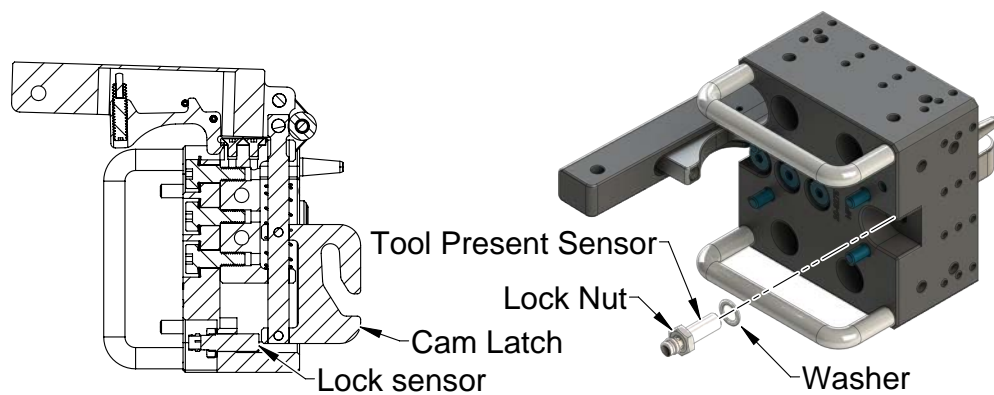
Parts required: Refer to [Section 6—Serviceable Parts](#)

Tools required: 1/2 wrench, torque wrench

Supplies required: Loctite 222

1. Uncouple the Utility Coupler to allow clear access to the Master and Tool plates.
2. Make sure sensor cable connections are secure, if loose secure connection and test functionality. (Bring a ferrous metal object to the face of the sensor).
3. If sensor is still not working, check sensor cables for damage, test continuity. If damaged replace sensor cable and test sensor functionality.
4. If sensor is still not working, replace sensor, disconnect the sensor cable.
5. Using a 1/2 wrench, loosen lock nut and unscrew the sensor from the Master housing. Discard the sensor.
6. With the Utility coupler in the locked position, thread new sensor into Master housing until it touches the cam lock. Back the sensor out 1 full turn.
7. Apply Loctite 222 to the sensor between the lock nut and the Master housing.
8. Using a 1/2 wrench, tighten the lock nut to 20 in-lbs (2.26 Nm) to secure the sensor.

Figure 5.12—GH1 Lock Sensor Pin Replacement



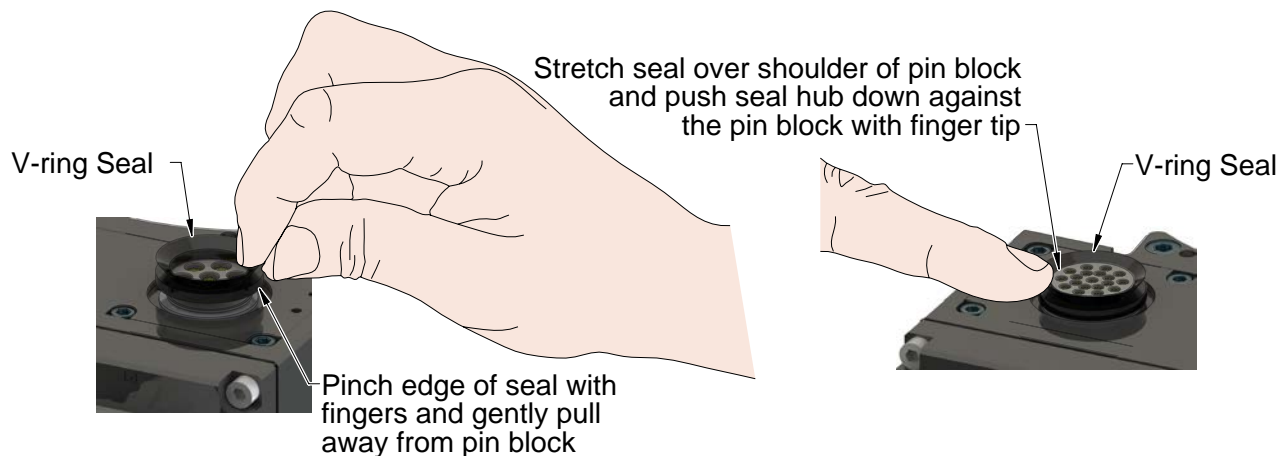
5.2.8 Seal Replacement

The seal protects the electrical connection between the Master and Tool module. If the seal becomes worn or damaged it needs to be replaced.

Parts required: Refer to [Section 6—Serviceable Parts](#)

1. Turn off and de-energize all energized circuits (e.g. electrical, air, water, etc.).
2. Uncouple the Utility Coupler to allow clear access to the Master and Tool plates.
3. To remove the existing seal, pinch edge of seal with fingers and gently pull the seal away from the pin block on the Master.
4. Pull the seal off the pin block.
5. To install a new seal, stretch the new seal over the shoulder of the pin block.
6. Push the seal's hub down against the pin block using finger tip.
7. If repairs are complete, return circuits to normal operation.

Figure 5.13—V-ring Seal Replacement



6. Serviceable Parts

6.1 Models 9123-GH1M-00-00-00-N, 9123-GH1M-00-00-00-SG-N

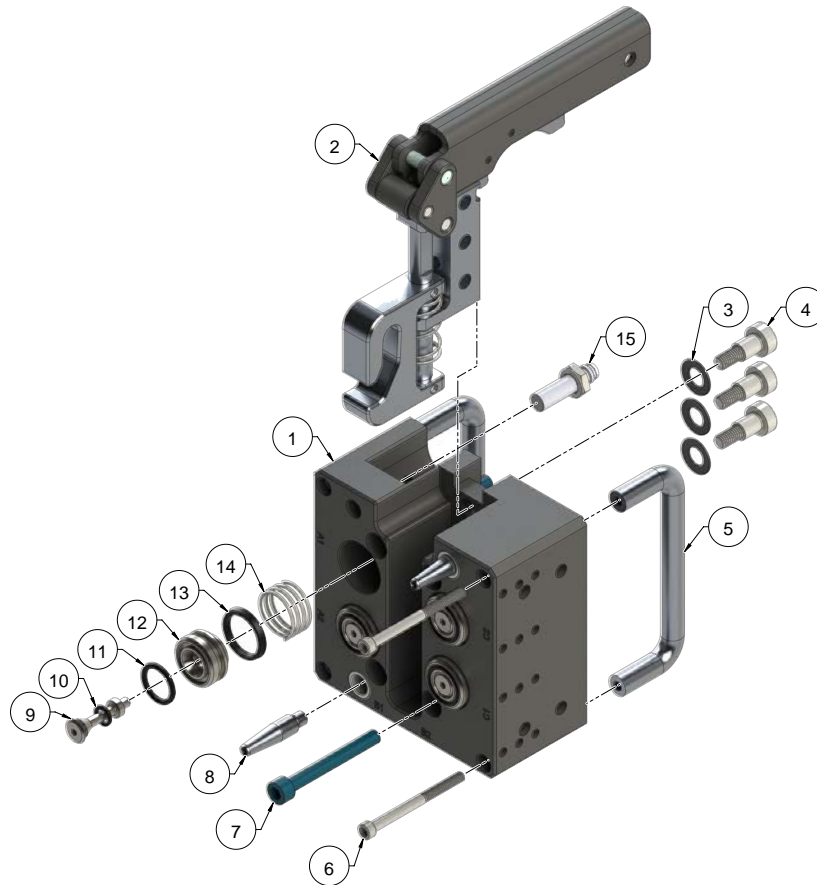


Figure 6.1—Master plate

Item No.	Qty	Part Number	Description
1	1	9123-GH1M-00-00-00-N	GH1 Manual UC Master Assembly, NPT
		9123-GH1M-00-00-00-SG-N	GH1 Manual Utility Coupler Master, (4) 3/8" NPT Checked Ports Axial, PNP Latch and Tool Presence Sensors
2	1	9005-20-8478	Manual UC Latch Assembly
3	3	3510-5908001-10	Metric Belleville Disc Spring Washer , Steel 8.2 mm ID x 16 mm OD
4	3	3500-2067010-11	M8 x 10 mm Shoulder Screw
5	2	3600-1235000-11	Pull Handle, 3.5" Long, 8-32 Tapped, Steel
6	4	3500-1017200-12	SHCS 8-32 x 2" Long, Zinc Plated Steel
7	4	3500-1066050-15	M6 x 50 mm socket head cap screws Blue Dyed Magni
8	2	3700-20-1373	Monolithic Alignment Pin, QC-100, A2
9	4	9120-FG2-M-KIT	Includes 2 O-rings, Mini U-cup Seal, 7/8 O.D Spring, Master Check valve Piston, Valve Stem
10	4	3410-0001183-01	O-Ring
11	4	3410-0001065-01	O-Ring
12	4	See Item # 9	Master Check valve Piston
13	4	3410-0001068-01	Mini U-Cup Seal 18 mm ID x 22 mm Buna
14	4	3610-1907501-21	SS SPRING 7/8 OD
15	2	8590-9909999-34	True 2 PNP Proximity Sensor (SG Model)

6.2 Models 9123-GH1T-00-00-00-N

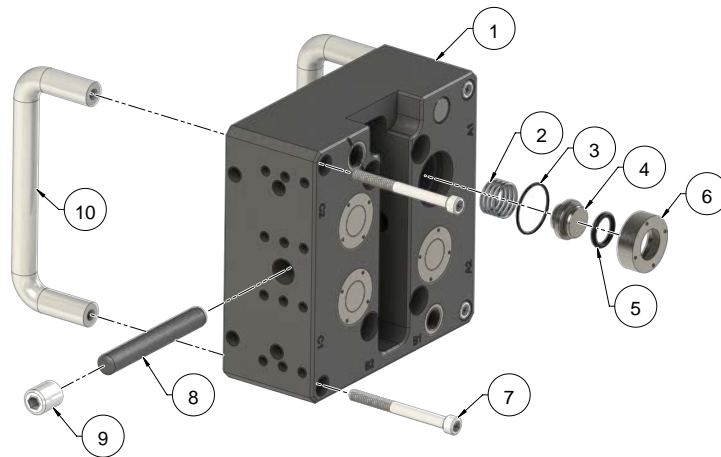


Figure 6.2—Master plate

Item No.	Qty	Part Number	Description
1	1	9123-GH1T-00-00-00-N	GH1 Tool Base Assembly, NPT
2	4	3610-6401501-21	SS Spring 14 mm O.D.
3	4	3410-0001071-01	O-ring ID 18 mm x 1 mm wall
4	4	3700-20-2303	Check Valve
5	4	3410-0001067-01	O-ring, 10 mm x 2 mm
6	4	3700-20-5443	Piston Retainer Cap
7	4	3500-1017200-12	SHCS 8-32 x 2" Long, Zinc Plated Steel
8	1	3540-0108060-11	Dowel Pin M8 x 60, Alloy Steel
9	2	3500-1970012-22	M10-1.5 x 12 mm Lg Set Screw Flat Point SST
10	2	3600-1235000-11	Pull Handle, 3.5" Long, 8-32 Tapped, Steel

6.3 Models 9123-GH2M-0-0-M, 9123-GH3M-0-0-M

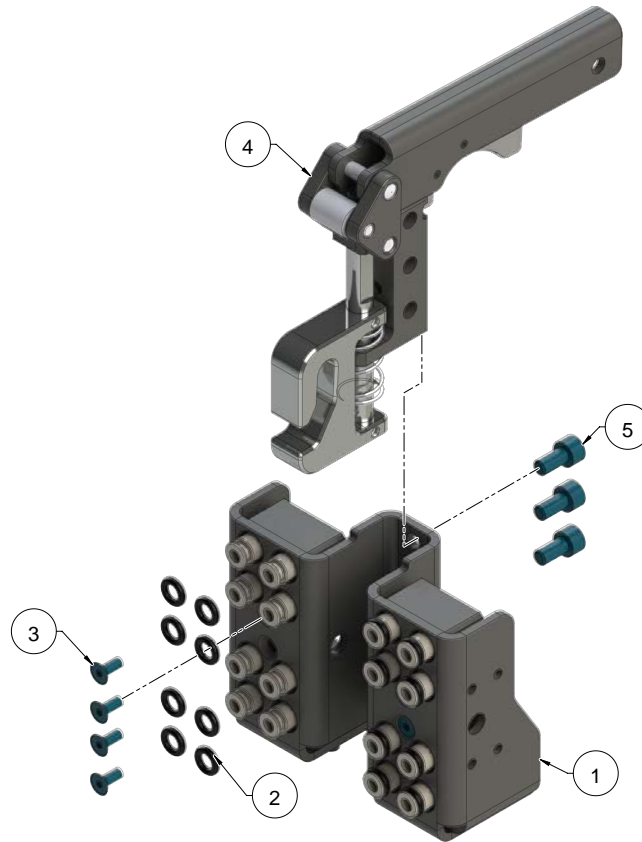


Figure 6.3—Master plate

Item No.	Qty	Part Number	Description
1	1	9123-GH2M-0-0-M	GH2 Base Master Manual Utility Coupler, 16 Pass Through Ports, M6
	1	9123-GH3M-0-0-M	GH3 Base Master Manual Utility Coupler, 8 Port Pass Through, M6
2	8, 16	3410-0001364-01	O-Ring AS568-108, A70 Durometer
3	4, 8	3500-1262010-15A	M4 x 10 mm SFHCS, Blue Dyed Magni-565 w/Microspheres
4	1	9005-20-8478	Manual UC Latch Assembly
5	3	3500-1262010-15A	M4 x 10 mm SFHCS, Blue Dyed Magni-565 w/Microspheres

6.4 Models 9123-GH2T-0-0-M, 9123-GH3T-0-0-M

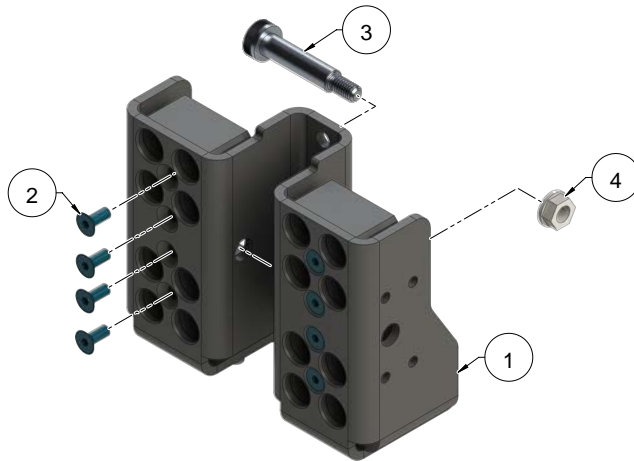


Figure 6.4—Tool plate

Item No.	Qty	Part Number	Description
1	1	9123-GH2T-0-0-M	GH2 Base Tool Manual Utility Coupler, 16 Pass Through Ports, M6
	1	9123-GH3T-0-0-M	GH3 Base Tool Manual Utility Coupler, 8 Port Pass Through, M6
2	4, 8	3500-1262010-15A	M4 x 10 mm SFHCS, Blue Dyed Magni-565 w/Microspheres
3	1	3500-2066030-11	Shoulder socket head cap screws, M6 Thread, M8 Shoulder, 30 mm Long Alloy Steel
4	1	3505-0865060-12	M6 Hex Nut, Flanged

6.5 Models 9123-GH5M-0-0

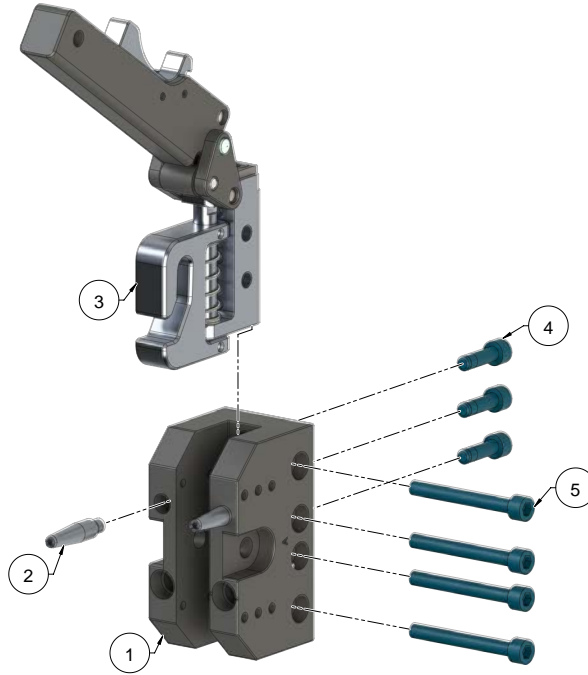


Figure 6.5—Master plate

Item No.	Qty	Part Number	Description
1	1	9123-GH5M-0-0	GH5 Base Master Manual Utility Coupler
2	2	3700-20-1373	Monolithic Alignment Pin, QC-100, A2
3	1	9005-20-8478	Manual UC Latch Assembly
4	3	3500-1262010-15A	M4 x 10 mm SFHCS, Blue Dyed Magni-565 w/Microspheres
5	4	3500-1066020-15A	M6 x 20 mm socket head cap screws Blue Dyed Magni ND Microspheres

6.6 Models 9123-GH5T-0-0

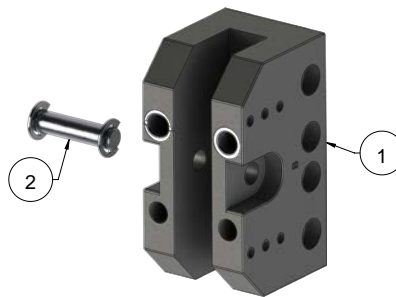


Figure 6.6—Tool plate

Item No.	Qty	Part Number	Description
1	1	9123-GH5T-0-0	GH5 Base Tool Manual Utility Coupler
2	1	3690-5803000-11	Pivot Pin Assembly, 8 mm Diameter, 30 mm Long, with Retaining Rings, Black Oxide Steel

6.7 Models 9123-GH8M-0-0-0

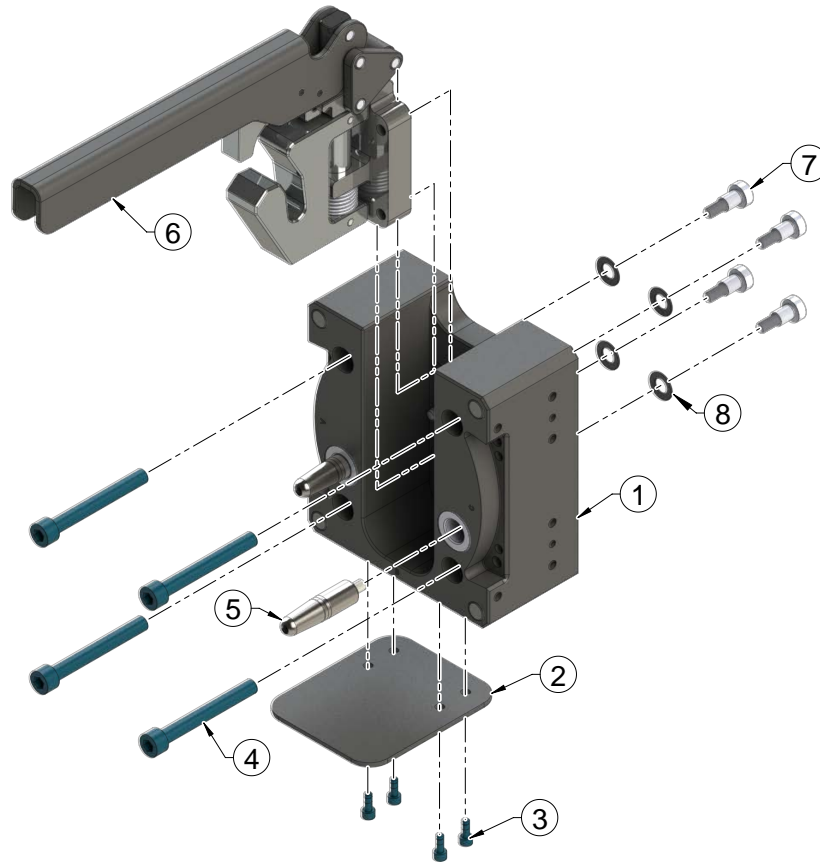


Figure 6.7—Master plate

Item No.	Qty	Part Number	Description
1	1	9123-GH8M-0-0-0	GH8 Base Master Manual Utility Coupler
2	1	3700-20-9912	GH8 Support Plate
3	4	3500-1062010-15A	M4x10 SHCS, Class 12.9, Blue dyed
4	4	3500-1068065-15	M8x65 SHCS, Class 12.9, Blue dyed
5	2	9005-20-2241	1/2" Two Piece Pin Sub-Assembly
6	1	9005-20-8484	GH8 Latch Subassembly
7	4	3500-2067010-11	Socket Cap Shoulder Screw, 8mm x 10mm, M6 Thread, Steel
8	4	3510-5908001-10	Metric Belleville Disc Spring Washer , Steel 8.2mm ID x 16mm OD

6.8 Models 9123-GH8T-0-0-0

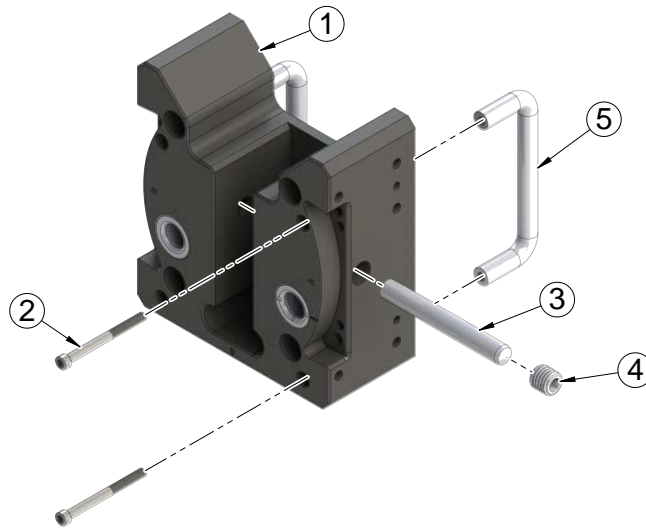


Figure 6.8—Tool Plate

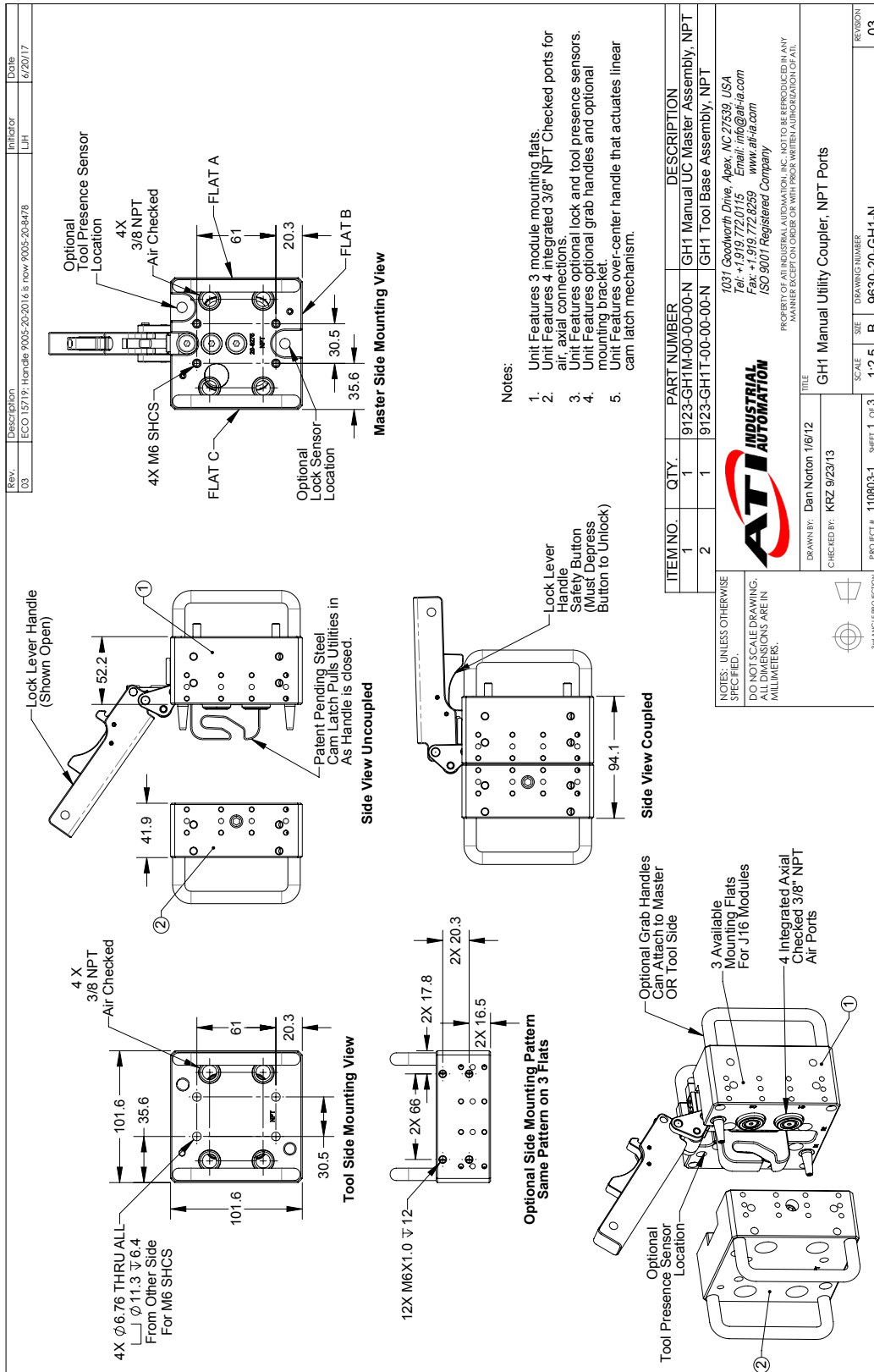
Item No.	Qty	Part Number	Description
1	1	9123-GH8T-0-0	GH8 Base Tool Manual Utility Coupler
2	4	3500-1017200-12	SHCS 8-32 x 2" Long, Zinc Plated Steel
3	1	3540-0110080-11	10mm x 80mm Dowel, Alloy Steel
4	2	3500-1972012-22	M12-1.75 X 12mm Long Set Screw, Flat Point, Stainless Steel
5	2	3600-1235000-11	Pull Handle, 3.5" Long, 8-32 Tapped, Steel

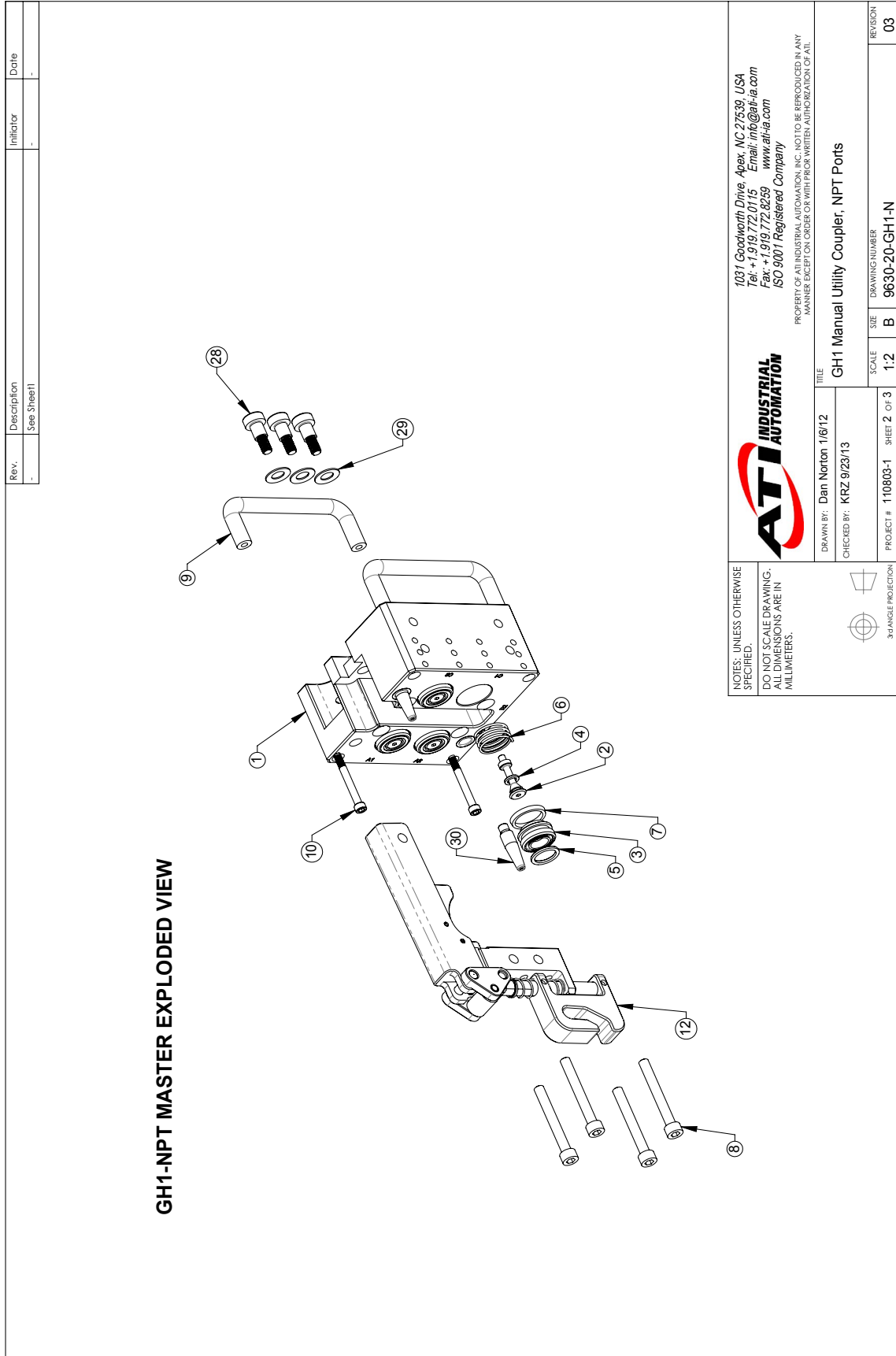
7. Specifications

Table 6.1—Master and Tool plates		
Recommended Max Payload	Not applicable	Total end-effector weight should be supported independently of the Utility Coupler
Weight¹	GH1 Coupler	Master 4.43 lbs,(2.01 kg) Tool 2.32 lbs,(1.05 kg) Coupled 6.75 lbs,(3.06 kg)
	GH2 Coupler	Master 3.25 lbs,(1.47 kg) Tool 1.75 lbs,(0.79 kg) Coupled 5.00 lbs,(2.26 kg)
	GH3 Coupler	Master 2.90 lbs,(1.32 kg) Tool 1.55 lbs,(0.70 kg) Coupled 4.45 lbs,(2.00 kg)
	GH5 Coupler	Master 1.99 lbs,(0.90 kg) Tool 0.72 lbs,(0.33 kg) Coupled 2.71 lbs,(1.562 kg)
	GH8 Coupler	Master TBD Tool TBD Coupled TBD
Pass through Port, (Qty) Size	GH1 Coupler	(4) Checked 3/8" NPT Air Ports and Variable depending on add on modules
	GH2 Coupler	(16) M6 Ports
	GH3 Coupler	(8) M6 Ports
	GH5 Coupler	Variable depending on add on modules
Mounting Patterns	See Section 8—Drawings	
Note: 1. Weights do not include add-on modules or Compliance assembly weight, refer to Compliance assemblies in this section or specific module manual for weights of add-on modules.		

8. Drawings

8.1 GH1 Manual Utility Coupler Drawings





Rev.	Description See Sheet 1	Initiator	Date
-	-	-	-

ATI INDUSTRIAL AUTOMATION

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 ISO 9001 Registered Company

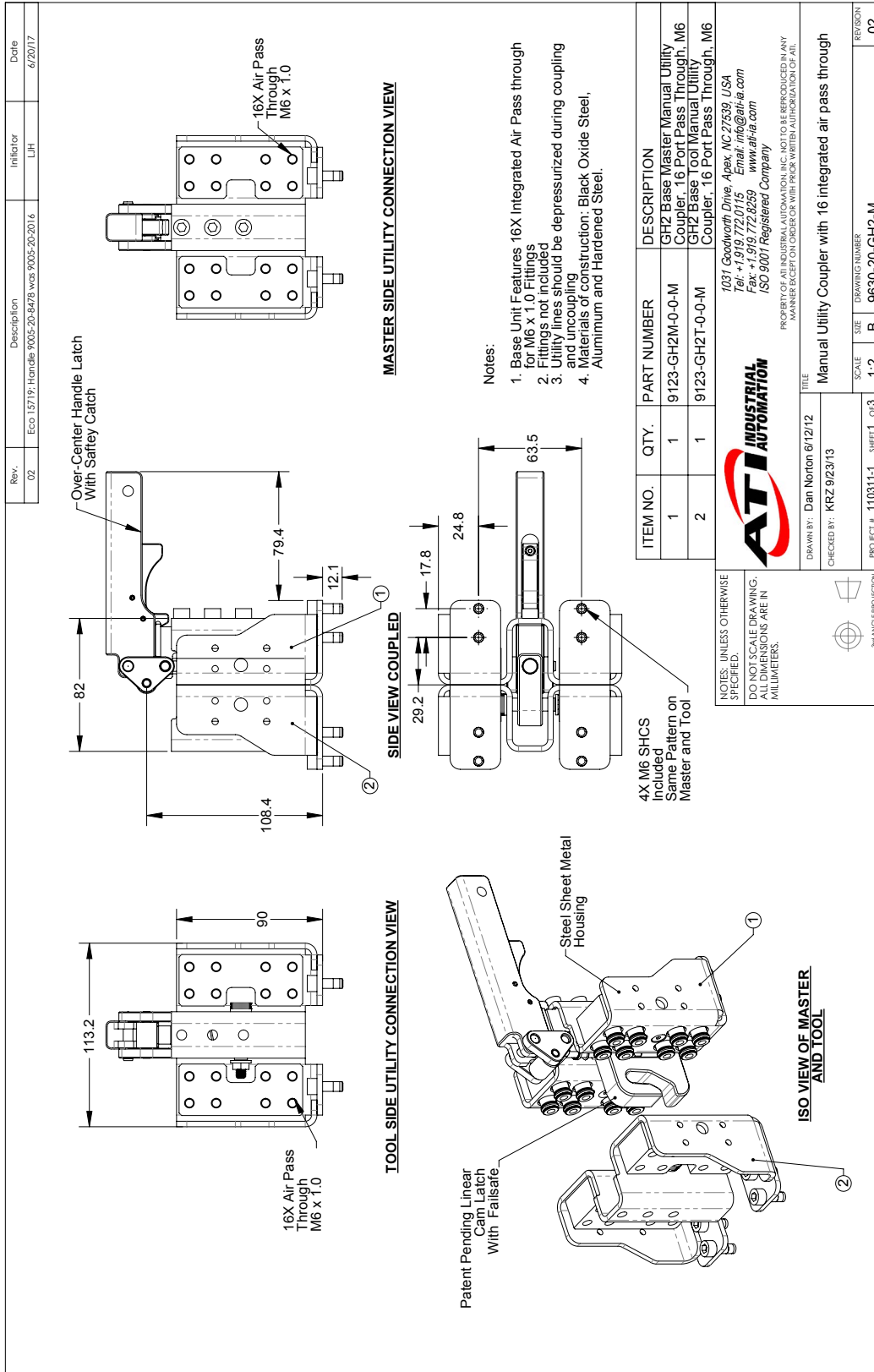
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NOTES: UNLESS OTHERWISE SPECIFIED, DO NOT SCALE DRAWING. ALL DIMENSIONS ARE IN MILLIMETERS.		TITLE GH1 Manual Utility Coupler, NPT Ports	
DRAWN BY: Dan Norton 1/6/12		SCALE	REVISION
CHECKED BY: KRZ 9/23/13		1:2	03
PROJECT #: 110803-1		SIZE	DRAWING NUMBER
SHEET 2 OF 3		B	9630-20-GH1-N

3/4 ANGLE PROJECTION

Rev. - Description See Sheet 1	Initiator - Date -	<h2 style="margin: 0;">GH1-NPT TOOL EXPLODED VIEW</h2>
NOTES: UNLESS OTHERWISE SPECIFIED, DO NOT SCALE DRAWING. DIMENSIONS ARE IN MILLIMETERS.		1031 Goodworth Drive, Apex, NC 27539, USA Tel: +1 919.772.0115 Email: info@ati-ia.com Fax: +1 919.772.8259 www.ati-ia.com ISO 9001 Registered Company
DRAWN BY: Dan Norton 1/6/12 CHECKED BY: KRZ 9/23/13		TITLE GH1 Manual Utility Coupler, NPT Ports
PROJECT # 110803-1 SHEET 3 OF 3		SCALE 1:2 SIZE B DRAWING NUMBER 9630-20-GH1-N REVISION 03

8.2 GH2 Manual Utility Coupler Drawings



Rev. - Description See Sheet 1 Initiator - Date -	<h2 style="margin: 0;">GH2 METRIC, MASTER EXPLODED VIEW</h2>
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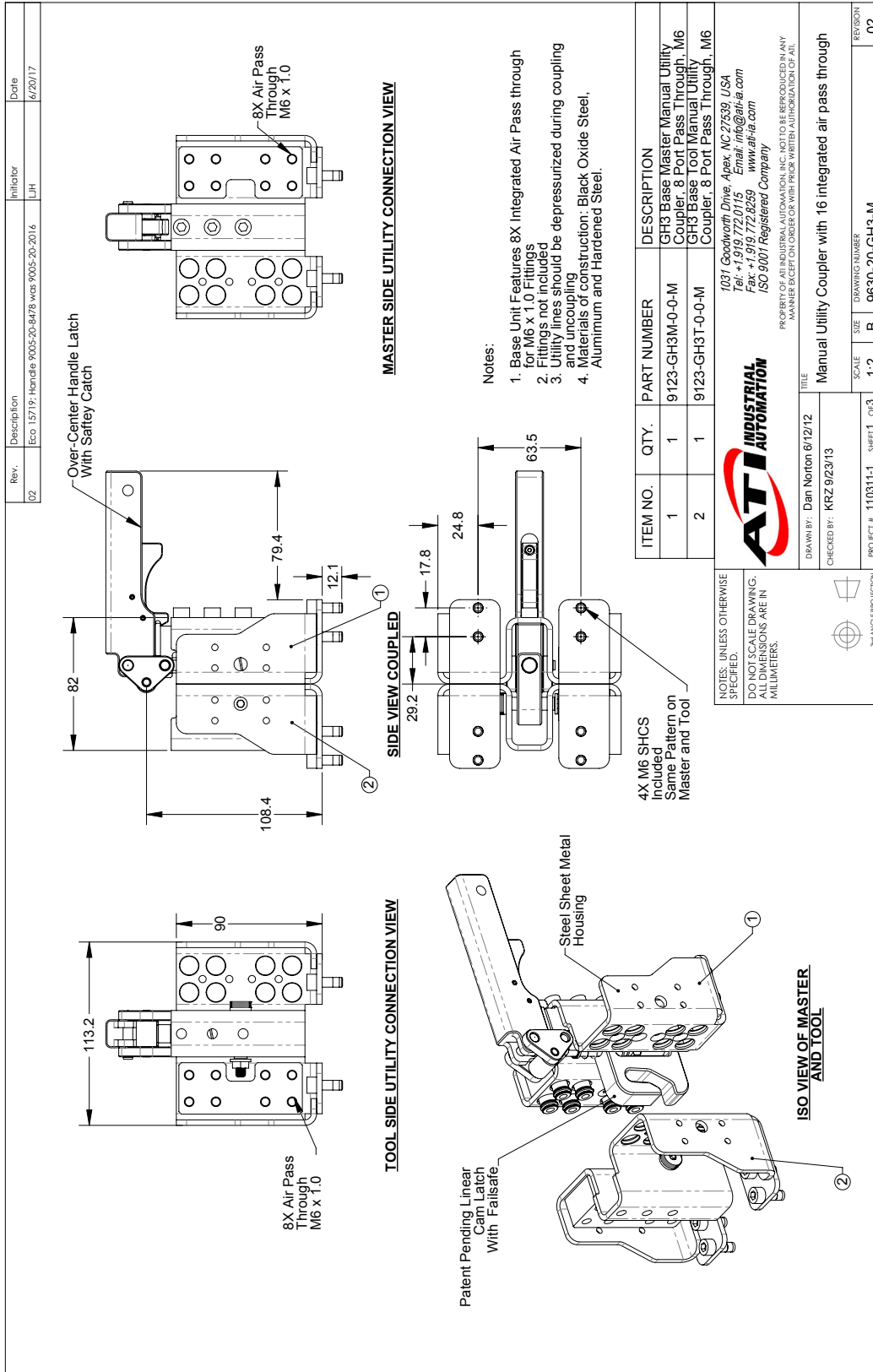
NOTES: UNLESS OTHERWISE SPECIFIED, DO NOT SCALE DRAWING. DIMENSIONS ARE IN MILLIMETERS.	<p>3rd ANGLE PROJECTION</p>	<div style="text-align: center;"> </div> <p style="font-size: small;">1031 Goodworth Drive, Apex, NC 27539, USA Tel: +1 919.772.0115 Email: info@ati-ia.com Fax: +1 919.772.8259 www.ati-ia.com ISO 9001 Registered Company</p> <p style="font-size: x-small;">PROPERTY OF ATI INDUSTRIAL AUTOMATION, INC. NOT TO BE REPRODUCED IN ANY MANNER EXCEPT ON ORDER OR WITH PRIOR WRITTEN AUTHORIZATION OF ATI.</p>
TITLE: Manual Utility Coupler with 16 integrated air pass through		DRAWING NUMBER: 9630-20-GH2-M
DRAWN BY: Dan Norton 6/12/12 CHECKED BY: KRZ 9/23/13	SCALE: 1:2 SIZE: B	REVISION: 02
PROJECT #: 110311-1 SHEET 2 OF 3		

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Rev.	Date													
-	-													
Description	Initiator													
See Sheet 1	-													
Initiator	Date													
-	-													

GH2 METRIC, TOOL EXPLODED VIEW

NOTES: UNLESS OTHERWISE SPECIFIED, DO NOT SCALE DRAWING. DIMENSIONS ARE IN MILLIMETERS.	<p>3D ANGLE PROJECTION</p>	<p>ATI INDUSTRIAL AUTOMATION</p>
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TITLE: Manual Utility Coupler with 16 integrated air pass through		
PROJECT # 110311-1	SHEET 3 OF 3	DRAWING NUMBER 9630-20-GH2-M
SCALE 1:1.5	SIZE B	REVISION 02

8.3 GH3 Manual Utility Coupler Drawings



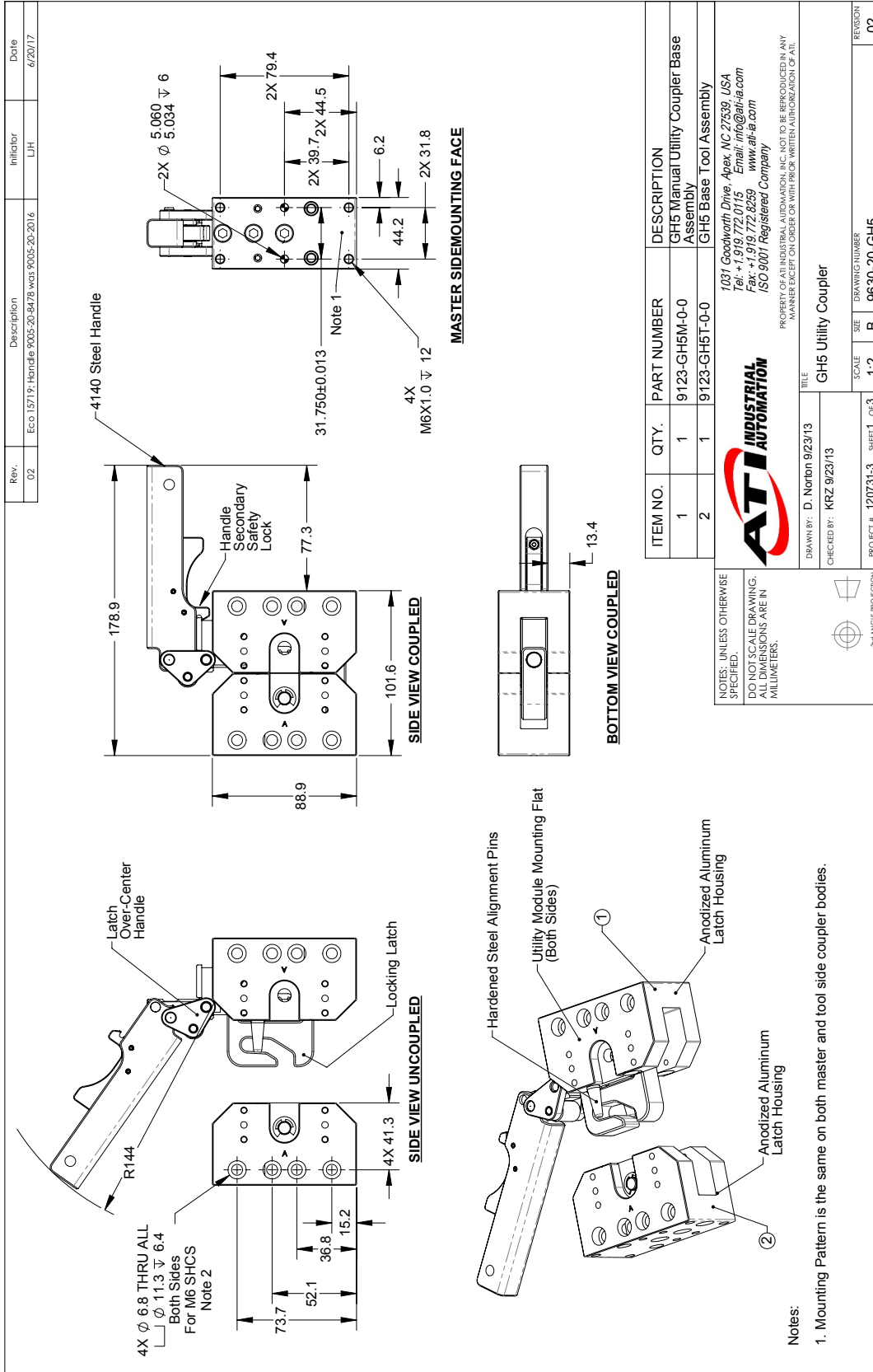
Rev. - Description See Sheet 1 Initiator - Date -	<h2 style="margin: 0;">GH3 METRIC, MASTER EXPLODED VIEW</h2>	<p style="font-size: small;"> 1031 Goodworth Drive, Apex, NC 27539, USA Tel: +1 919.772.0115 Email: info@ati-ia.com Fax: +1 919.772.8259 www.ati-ia.com ISO 9001 Registered Company </p> <p style="font-size: x-small;"> PROPERTY OF ATI INDUSTRIAL AUTOMATION, INC. NOT TO BE REPRODUCED IN ANY MANNER EXCEPT ON ORDER OR WITH PRIOR WRITTEN AUTHORIZATION OF ATI. </p>
<p style="font-size: small;"> NOTES: UNLESS OTHERWISE SPECIFIED, ALL DIMENSIONS ARE IN MILLIMETERS. </p>		<p style="font-size: small;"> TITLE Manual Utility Coupler with 16 integrated air pass through </p>
<p style="font-size: small;"> DRAWN BY: Dan Norton 6/12/12 CHECKED BY: KRZ 9/23/13 </p>		<p style="font-size: small;"> SCALE 1:2 DRAWING NUMBER 9630-20-GH3-M REVISION 02 </p>
<p style="font-size: small;"> DO NOT SCALE DRAWING. ALL DIMENSIONS ARE IN MILLIMETERS. </p>		<p style="font-size: x-small;"> 3rd ANGLE PROJECTION </p>

Rev. -	Description See Sheet 1	Initiator -	Date -
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GH3 METRIC, TOOL EXPLODED VIEW

NOTES: UNLESS OTHERWISE SPECIFIED, DO NOT SCALE DRAWING. ALL DIMENSIONS ARE IN MILLIMETERS.	3RD ANGLE PROJECTION
	1031 Goodworth Drive, Apex, NC 27539, USA Tel: +1 919 772 0115 Email: info@ati-ia.com Fax: +1 919 772 8259 www.ati-ia.com ISO 9001 Registered Company
DRAWN BY: Dan Norton 6/12/12 CHECKED BY: KRZ 9/23/13	TITLE Manual Utility Coupler with 16 integrated air pass through
PROJECT # 110311-1 SHEET 3 OF 3	SCALE 1:1.5 SIZE B DRAWING NUMBER 9630-20-GH3-M REVISION 02
PROPERTY OF ATI INDUSTRIAL AUTOMATION, INC. NOT TO BE REPRODUCED IN ANY MANNER EXCEPT ON ORDER OR WITH PRIOR WRITTEN AUTHORIZATION OF ATI.	

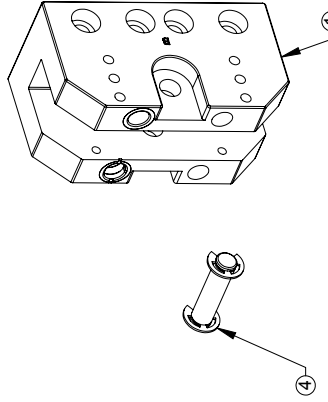


8.4 GH5 Manual Utility Coupler Drawings



Rev. - Description See Sheet1	Initiator - Date -
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GH5 MASTER EXPLODED VIEW

NOTES: UNLESS OTHERWISE SPECIFIED, DO NOT SCALE DRAWING. ALL DIMENSIONS ARE IN MILLIMETERS.	<p>3D ANGLE PROJECTION</p>	<div style="text-align: center;"> </div> <p>1031 Goodworth Drive, Apex, NC 27539, USA Tel: +1 919.772.0115 Email: info@ati-ia.com Fax: +1 919.772.8259 www.ati-ia.com ISO 9001 Registered Company</p> <p>PROPERTY OF ATI INDUSTRIAL AUTOMATION, INC. NOT TO BE REPRODUCED IN ANY MANNER EXCEPT ON ORDER OR WITH PRIOR WRITTEN AUTHORIZATION OF ATI.</p>
DRAWN BY: D. Norton 9/23/13 CHECKED BY: KRZ 9/23/13		TITLE GH5 Utility Coupler
PROJECT # 120731-3 SHEET 2 OF 3		SCALE 1:1.5 SIZE B DRAWING NUMBER 9630-20-GH5
		REVISION 02

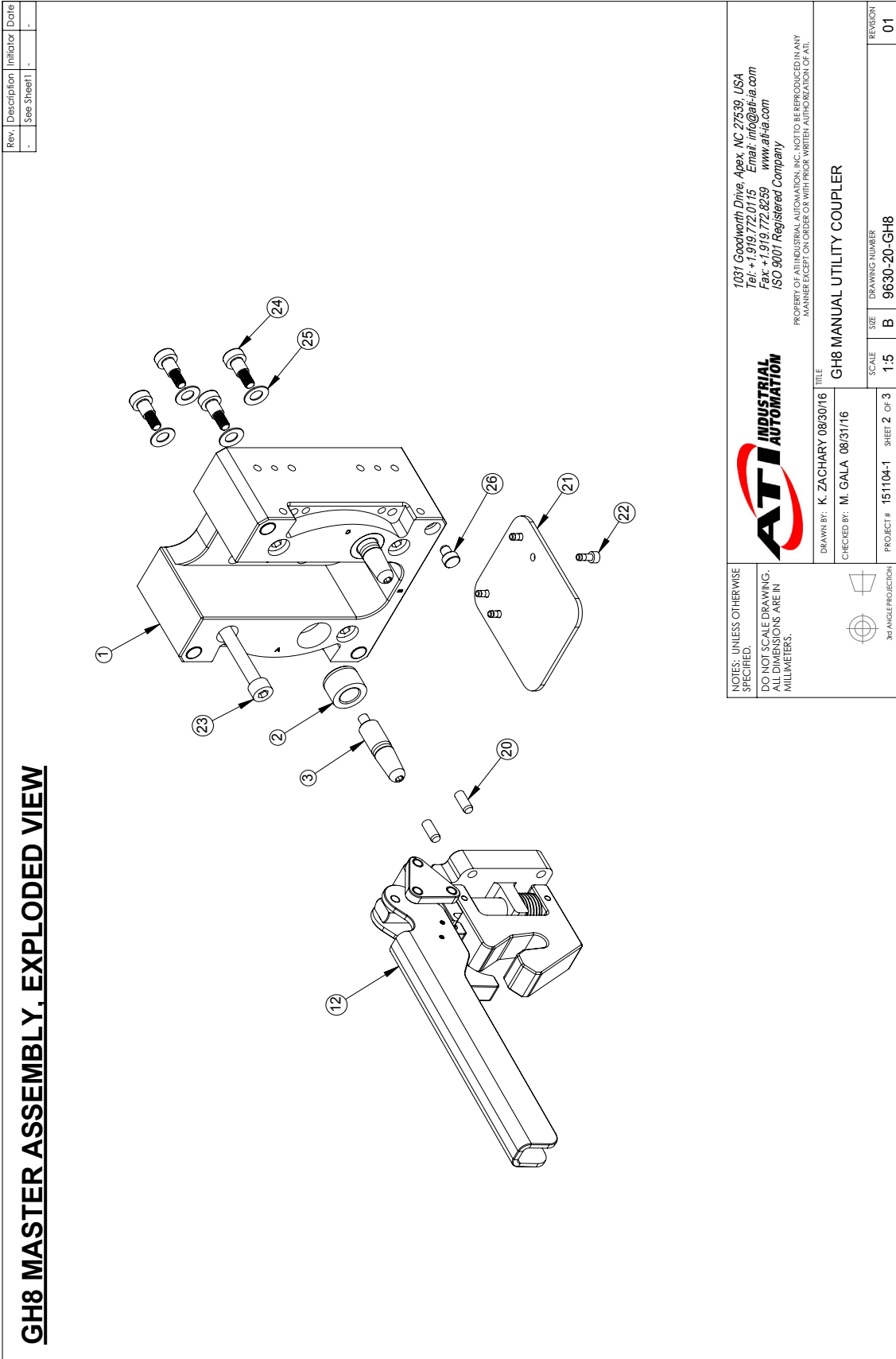
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; text-align: center;">Rev.</td> <td style="width: 50%; text-align: center;">Date</td> </tr> <tr> <td style="text-align: center;">-</td> <td style="text-align: center;">-</td> </tr> </table>	Rev.	Date	-	-	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; text-align: center;">Description</td> <td style="width: 50%; text-align: center;">Initiator</td> </tr> <tr> <td style="text-align: center;">See Sheet 1</td> <td style="text-align: center;">-</td> </tr> </table>	Description	Initiator	See Sheet 1	-			
Rev.	Date											
-	-											
Description	Initiator											
See Sheet 1	-											
<p>GH5 MASTER EXPLODED VIEW</p> 												
<p>NOTES: UNLESS OTHERWISE SPECIFIED, ALL DIMENSIONS ARE IN MILLIMETERS.</p> <p>DO NOT SCALE DRAWING.</p>												
 <p>3/4 ANGLE PROJECTION</p>		 <p>ATI INDUSTRIAL AUTOMATION</p>										
<p>1031 Goodworth Drive, Apex, NC 27539, USA Tel: +1 919.772.0115 Email: info@ati-ia.com Fax: +1 919.772.8259 www.ati-ia.com ISO 9001 Registered Company</p> <p>PROPERTY OF ATI INDUSTRIAL AUTOMATION, INC. NOT TO BE REPRODUCED IN ANY MANNER EXCEPT ON ORDER OR WITH PRIOR WRITTEN AUTHORIZATION OF ATI.</p>		<p>TITLE: GH5 Utility Coupler</p> <p>DRAWN BY: D. Norton 9/23/13</p> <p>CHECKED BY: KRZ 9/23/13</p> <p>PROJECT # 120731-3 SHEET 3 OF 3</p>										
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">SCALE</td> <td style="width: 50%;">SIZE</td> </tr> <tr> <td style="text-align: center;">1:1.5</td> <td style="text-align: center;">B</td> </tr> </table>		SCALE	SIZE	1:1.5	B	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">DRAWING NUMBER</td> <td style="width: 50%;">REVISION</td> </tr> <tr> <td style="text-align: center;">9630-20-GH5</td> <td style="text-align: center;">02</td> </tr> </table>			DRAWING NUMBER	REVISION	9630-20-GH5	02
SCALE	SIZE											
1:1.5	B											
DRAWING NUMBER	REVISION											
9630-20-GH5	02											

8.5 GH8 Manual Utility Coupler Drawings

Rev. 01 Description INITIAL DRAWING Initiator KRZ Date 08/30/16	<p>TOOL SIDE MOUNTING VIEW</p>	
<p>SIDE VIEW UNCOUPLED</p>		<p>MASTER SIDE MOUNTING VIEW</p>
<p>SIDE VIEW COUPLED</p>		<p>NOTES:</p> <ol style="list-style-type: none"> FLATS A AND C FEATURE MOUNTING FOR OPTIONAL UTILITY MODULES-LEDGEMOUNT OR FACE MOUNT. SUPPORT PLATE ON FLAT B CAN BE USED TO SUPPORT THE TOOL SIDE DURING COUPLING. IF REMOVED AN ADDITIONAL OPTIONAL UTILITY MODULE (FACE MOUNT) COULD BE MOUNTED ON THIS FLAT.
<p>LOCK LEVER HANDLE SAFETY BUTTON (MUST DEPRESS BUTTON TO UNLOCK) LOCKING LATCH SUPPORT PLATE NOTE 2 ANODIZED ALUMINUM MASTER AND TOOL BODIES TOOL SIDE GRAB HANDLES</p>		

ITEM NO.	QTY.	PART NUMBER	DESCRIPTION
1	1	9123-GH8M-0-0-0	GH8 MANUAL UTILITY COUPLER, MASTER
2	1	9123-GH8T-0-0-0	GH8 MANUAL UTILITY COUPLER, TOOL

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DRAWN BY: K. ZACHARY 08/30/16 CHECKED BY: M. GALA 08/31/16	TITLE GH8 MANUAL UTILITY COUPLER	SCALE 1:3
PROJECT # 151104-1 SHEET 1 OF 3	DRAWING NUMBER 9630-20-GH8	REVISION 01



Rev.	Description	Initiator	Date
-	See Sheet1	-	-

GH8 TOOL ASSEMBLY, EXPLODED VIEW

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DRAWN BY: K. ZACHARY 08/30/16 TITLE: GH8 MANUAL UTILITY COUPLER
 CHECKED BY: M. GALA 08/31/16

SCALE	SIZE	DRAWING NUMBER	REVISION
1:2	B	9630-20-GH8	01

PROJECT # 151104-1 SHEET 3 OF 3