Table of Contents

B. Base Utility Coupler

GA2 Series—Non-Compliant Utility Coupler

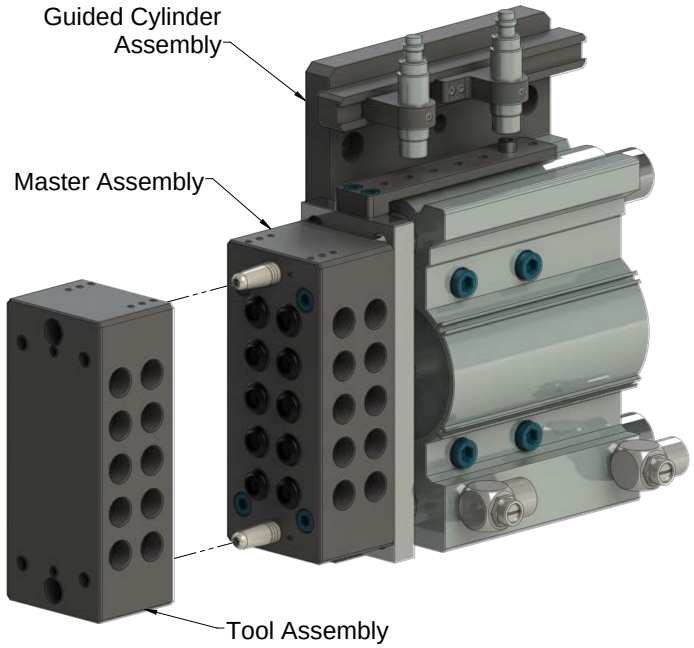
1. Product Overview

The Utility Coupler provides pass through utilities such as air, fluids, and electrical signals from both integrated ports within the body and standard ATI add-on ledge mounted modules. The Utility Coupler consists of a Master plate and a Tool plate. Consult ATI for more information on optional modules.

GA2 Utility Couplers are non-compliant, which means that the intended application has a low tolerance for misalignments during coupling. Consult ATI for information about compliant Utility Couplers, which can function in applications that require more tolerance for misalignment during coupling.

The GA2 Utility Coupler has no locking mechanism. To maintain coupling pressure, the device uses force from an ATI Guided Cylinder assembly or from the customer's fixture (Refer to *Figure 1.1*). Consult ATI for more information on Guided Cylinder assemblies.

Figure 1.1—Optional ATI Guided Cylinder Assembly (Uncoupled)



The following table describes the different GA2 utility coupler Master and Tool models and their Part Numbers:

Table 1.1—GA2 Master and Tool Models

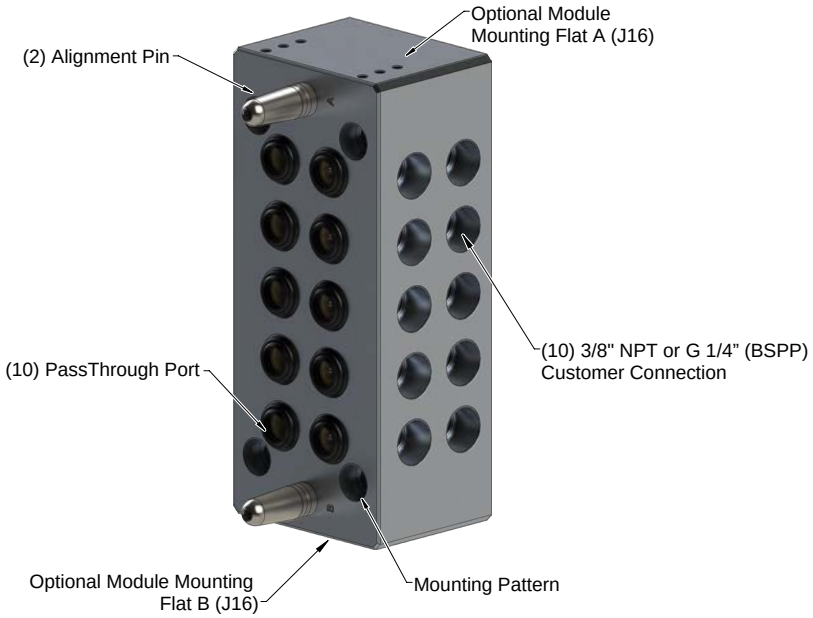
Part Number	Description
9123-GA2M-0-0-N 9120-GA2-UCM-000-000[1]	Non Compliant Utility Coupler Master with (10) 3/8" NPT Pass Through ports and (2) J16 Flats
9123-GA2M-0-0-E	Non Compliant Utility Coupler Master with (10) G 1/4" (BSPP) Pass Through ports and (2) J16 Flats
9123-GA2T-0-0-N 9120-GA2-UCT-000-000[1]	Non Compliant Utility Coupler Tool with (10) 3/8" NPT Pass Through ports and (2) J16 Flats
9123-GA2T-0-0-E	Non Compliant Utility Coupler Tool with (10) G 1/4" (BSPP) Pass Through ports and (2) J16 Flats

Notes:
1. The 9120-GA2-UCx-000-000 Part Number is replaced by: 9123-GA2x-0-0-N.

1.1 Master Plate

The Master plate consists of an anodized aluminum body, (2) hardened stainless-steel alignment pins, and a rectangular mounting pattern. Utilities pass through (10) port connections and (2) mounting flats for optional modules. Consult ATI for information about compatible modules.

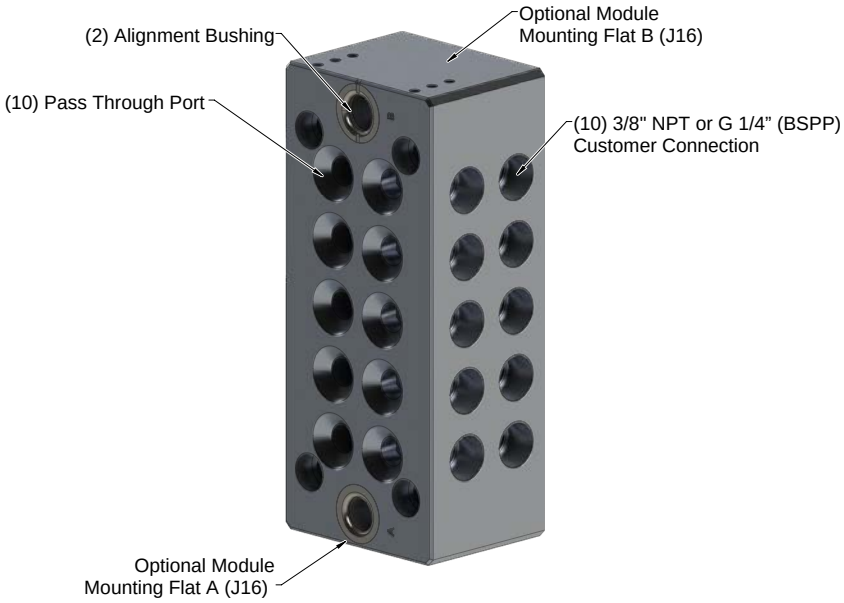
Figure 1.2—Master Plate



1.2 Tool Plate

The Tool plate consists of an anodized aluminum body, (2) hardened steel alignment bushings that mate with the Master plate alignment pins, and a rectangular mounting pattern. Utilities pass through the plate via (10) port connections and (2) mounting flats for optional modules.

Figure 1.3—Tool Plate



2. Installation

The following steps outline the installation or removal of the GA2 Utility Coupler and optional modules.

WARNING: Do not perform maintenance or repairs on Utility Coupler or modules unless all energized circuits (for example: 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, and 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. Always secure the Utility Coupler with the proper length fasteners.

CAUTION: Thread locker applied to fasteners must not be used more than once. Fasteners might become loose and cause equipment damage. Always apply new thread locker when reusing fasteners.

NOTICE: ATI does not guarantee the use of utility couplers that are not mounted aligned with the drive cylinder's axis of travel, or if the couplers are mated by retracting, versus extending, the drive cylinder.

2.1 Master Plate Installation

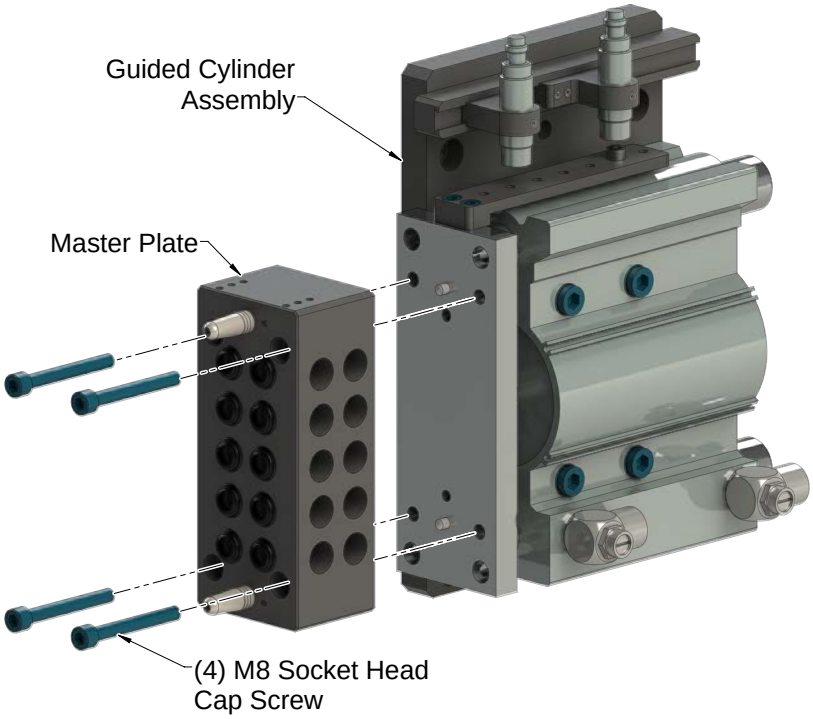
Refer to *Figure 2.1*.

Tools required: *6 mm hex key, Torque wrench*

Supplies required: *Clean rag, Loctite 242*

1. Clean the mounting surfaces.
2. Attach the Master plate to the guided cylinder.
   a. Use the dowels in the guided cylinder mounting plate to align the Master plate.
   b. If the fasteners do not have pre-applied thread locker, apply Loctite 242 to (4) M8 x 35 mm socket head cap screws.
   c. Secure the Master plate to the guided cylinder with the (4) M8 socket head cap screws using a 6 mm hex key.
   d. Tighten the screws using a torque wrench to 280 in-lbs (31.64 Nm).
3. Attach the required connections to the Master plate and guided cylinder.
4. If the installation is complete, the Master plate is ready for normal operation.

Figure 2.1 —Master Plate Installation with Optional Guided Cylinder Assembly



2.2 Master Plate Removal

Tools required: *6 mm hex key*

1. Place the Tool in a secure location.
2. Uncouple the Master and Tool plates.
3. Turn off and de-energize all energized circuits (for example: electrical, pneumatic, hydraulic).
4. Remove customer connections.
5. Remove the (4) M8 x 35 mm socket head cap screws that secure the Master plate to the drive cylinder using a 6 mm hex key.
6. Remove the Master plate.

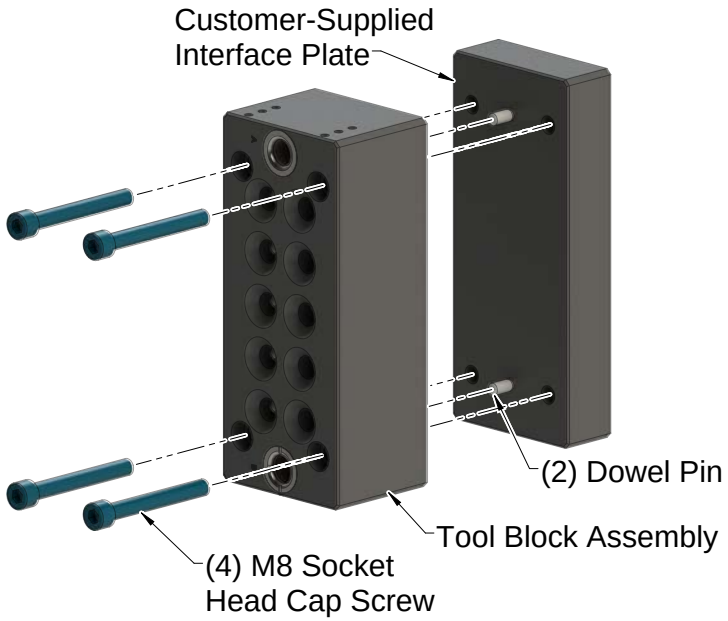
2.3 Tool Plate Installation

Tools required: *6 mm hex key, Torque wrench*

Supplies required: *Clean rag, Loctite 242*

1. Clean the mounting surfaces.
2. Attach the Tool plate to the customer-supplied interface plate.
   a. Use the dowels on the interface plate to align the Tool plate.
   b. If the fasteners do not have pre-applied thread locker, apply Loctite 242 to (4) M8 x 35 mm socket head cap screws.
   c. Secure the Master plate to the guided cylinder with the (4) M8 socket head cap screws using a 6 mm hex key.
   d. Tighten the screws using a torque wrench to 280 in-lbs (31.64 Nm).
3. Attach the required connections to the Tool plate.
4. If the installation is complete, the Tool plate is ready for normal operation.

Figure 2.2 —Tool Plate Installation with Customer-Supplied Interface Plate



2.4 Tool Plate Removal

Tools required: *6 mm hex key*

1. Place the Tool in a secure location.
2. Uncouple the Master and Tool plates.
3. Turn off and de-energize all energized circuits (for example: electrical, pneumatic, hydraulic).
4. Remove customer connections.
5. Remove the (4) M8 x 35 mm socket head cap screws that secure the Tool plate to the interface plate using a 6 mm hex key.
6. Remove the Tool plate.

2.5 Optional Module Installation

Optional modules are typically installed on Utility Couplers by ATI prior to shipment. For information about set-up steps and required parts, refer to the manual for your particular optional module. The following table lists fastener size, class, and torque specifications:

Table 2.1—Fastener Size, Class, and Torque Specifications

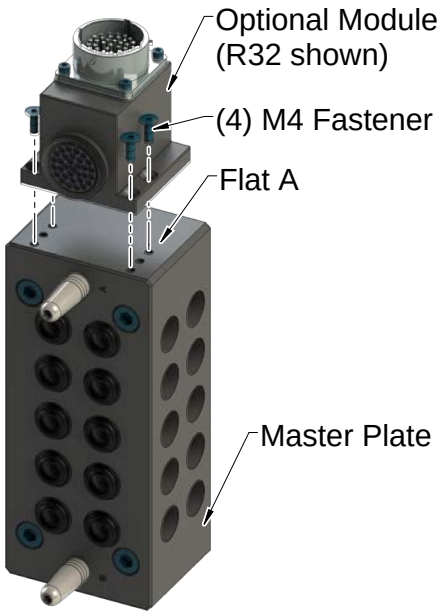
Mounting Conditions	Fastener Size and Property Class	Recommended Torque	Thread Locker
Optional Module to Master or Tool plate	M4 x 0.7 Class 12.9		Pre-applied adhesive or Loctite 222
	Socket head cap	15 in-lbs (1.69 Nm)	
	Socket flat head cap	10 in-lbs (1.13 Nm)	

Tools required: *2.5 mm or 3 mm hex key, Torque wrench*

Supplies required: *Clean rag, Loctite 222*

1. Place the Tool in a secure location.
2. Uncouple the Master and Tool plates.
3. Turn off and de-energize all energized circuits (for example: electrical, pneumatic, hydraulic).
4. Remove customer connections.
5. Ensure that the mounting surfaces of the Tool plate, Master plate, and modules are clean.
6. Align the optional module on the flat of the Master or Tool plate using the dowel pins as guides.
7. If using fasteners without pre-applied adhesive, or if reusing fasteners, apply Loctite 222.
8. Secure the module with M4 socket flat head cap screws or M4 socket head cap screws using a 2.5 mm or 3 mm hex key. For torque requirements, refer to *Table 2.1*
9. Remove all protective caps, plugs, tape, etc from the module.
10. Connect additional connections.
11. Safely resume normal operation.

Figure 2.3 —Optional Module Installation



2.6 Optional Module Removal

Refer to *Figure 2.3*.

Tools required: *2.5 mm or 3 mm hex key*

1. Place the Tool in a secure location.
2. Uncouple the Master and Tool plates.
3. Turn off and de-energize all energized circuits (for example: electrical, pneumatic, hydraulic).
4. Remove customer connections.
5. Using a 2.5 mm hex key, remove the M4 socket flat head cap screws or M4 socket head cap screws using a 2.5 mm or 3 mm hex key.
6. Remove the optional module.

2.7 Guided Cylinder Sensor Adjustment

The sensors on the Guided Cylinder assembly detect fully retracted and extended states. You can adjust the sensor position to optimize accuracy. For wiring information, refer to *Section 9—Guided Cylinder Proximity Sensor Information.* Use the following steps to adjust the sensor position:

2.7.1 Adjusting Sensor Distance from Target

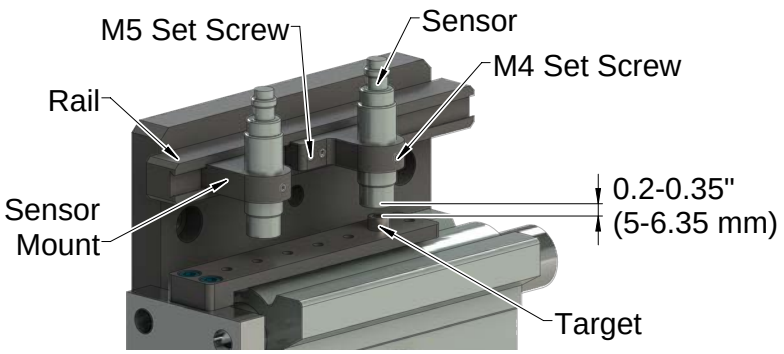
Tools required: *2 mm hex key, torque wrench*

Supplies required: *Loctite 222*

To adjust the sensor distance from the target on the guided cylinder assembly, complete the following steps:

1. Loosen the M4 set screw using a 2 mm hex key.
2. Adjust the sensor distance by rotating it. The optimal distance from the sensor to the target is 0.2” to 0.25” (5 mm to 6.35 mm).
3. Apply Loctite 222 to the M4 set screws and tighten to 10 in-lbs (1.13 Nm) using a 2 mm hex key.

Figure 2.4—Guided Cylinder Sensor Adjustment



2.7.2 Adjusting Sensor Coupling and Uncoupling Position

Refer to *Figure 2.4*.

Tools required: *2.5 mm hex key, torque wrench*

Supplies required: *Loctite 222*

Adjust the sensors using a rail on the Guided Cylinder assembly. To adjust the sensor position, complete the following procedure:

1. Loosen the (2) M5 set screws on the sensor mounts using a 2.5 mm hex key.
2. Adjust the sensor position by sliding the sensor holder along the rail.
3. Apply Loctite 222 to the M5 set screws and tighten to 20 in-lbs (2.26 Nm) using a 2.5 mm hex key.

2.8 Pneumatic Requirements

The air supply used for coupling and uncoupling the device requires the following specifications:

- The air supply must be clean, dry, and non-lubricated.
- The air pressure range is 60-100 psi. 80 psi is suggested.
- The air must be filtered at minimum 40 micron or better.

3. Operation

The Master and Tool assemblies are pneumatically driven to couple and uncouple. The Master plate can be driven using a guided cylinder assembly or a customer supplied fixture.

WARNING: During operation, the area between the Master and Tool must be kept clear. Failure to keep the area clear will result in damage to the Utility Coupler, add-on modules, or end-of-arm tooling and can cause injury to personnel.

WARNING: During operation, the area between the guided cylinder mounting plate and body must be kept clear. Failure to keep this area clear will result in damage to the guided cylinder or could cause injury to personnel.

3.1 Coupling and Uncoupling Conditions

CAUTION: The guided cylinder must be in the retracted position when attempting to couple the device. Failure to adhere to this condition can result in damage to the unit and/or the machine.

CAUTION: Never couple or uncouple the unit without first disconnecting and discharging the power that passes through the contacts. This is especially true if high voltage circuits are involved. Arcing and contact damage will occur if this is not observed. Always disconnect and discharge electrical power from both upstream and downstream modules.

CAUTION: Since the system might not have a secondary locking mechanism, it is critical to the operation of the coupler that cylinder pressure is maintained at all times during operation.

Positioning the Master plate.

- The Master must be less than 96 mm from the Tool.
- The Master and Tool must be parallel and not touching.

Coupling the Tool and the Master plate.

- The alignment pins from the Tool block enter the alignment holes on the Master.
- The alignment pins must be concentric with the alignment bushings so that they do not rub.
- Supply air to the lock side of the drive cylinder to couple the Master and Tool plates.

Uncoupling the Tool and the Master plate.

- Supply air to the unlock side of the drive cylinder to uncouple the Master and Tool plates.

Using proximity sensing.

- Some applications include Cylinder Stroke Proximity sensing, which can detect cylinder retracted and extended states.
- The target must be less than 5 mm from the sensor. Refer to *Section 2.7—Guided Cylinder Sensor Adjustment.*
- Proximity sensing is recommended to confirm coupling.

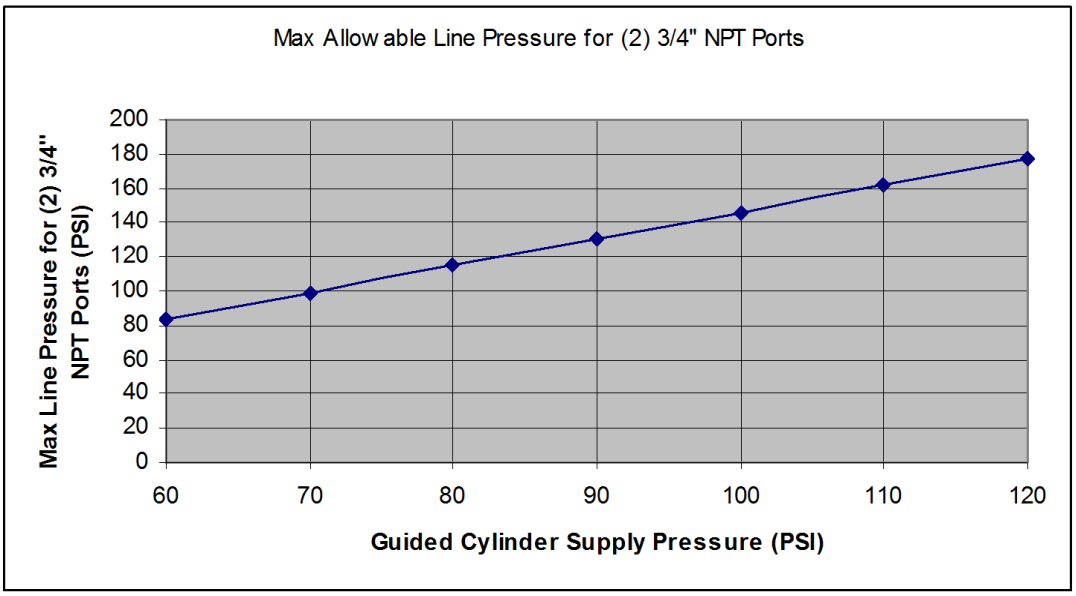
3.2 Guided Cylinder Dependency

The Guided Cylinder depends on a constant supply of compressed air to maintain coupling. If the air supply is lost to the Guided Cylinder, the Utility Coupler uncouples. The Master and Tool plates separate after air loss and the utilities disconnect because the integrated ¾" NPT air ports have check valve features that react against the force of the guided cylinder in a manner that pries the Master and Tool apart.

The following graph contains the maximum recommended line pressure plotted against the Guided Cylinder line pressure. For example, if the cylinder is pressurized to 80 psi, the maximum line pressure is approximately 115 psi.

CAUTION: Guided Cylinders can exert thousands of pounds of coupling force. When creating the mating fixture, you must account for these coupling forces.

Figure 3.1—Guided Cylinder Supply Pressure



The following table contains the minimum force required to drive the master and tool together at the corresponding line pressure in the (2) ¾" NPT integrated checked ports:

Table 3.1—Master and Tool Resistance Force

Line Pressure (psi)	Utility Coupler Resistance Force (lb)
0	100
10	150
20	200
30	250
40	300
50	350
60	400
70	450
80	500
90	550
100	600

4. Maintenance

Use the following visual inspection and maintenance schedule to maximize the longevity of the Utility Coupler.

WARNING: Do not perform maintenance or repairs on Utility Coupler or modules unless all energized circuits (for example: 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, and verify all energized circuits are de-energized before performing maintenance or repair on Utility Coupler or modules.

4.1 Preventive Maintenance

The following schedule is based on a typical application where tool changes occur at maximum once per minute. If your application involves more frequent tool changes or dirty environments, consider more frequent inspections.

Table 4.1—Maintenance

Schedule	Checklist
Weekly	**Alignment Pins and Bushings** ☐ Tool changes > 1 per minute: for alignment pin lubrication, use a lithium-based grease, such as Mobil XHP-222 with molybdenum disulfide additive.
	Optional Modules: Pin Blocks and V-ring Seals ☐ Clean and inspect pin blocks and electrical contacts for wear or damage. Refer to *Section 4.2—Optional Module Pin Block Inspection and Cleaning.* ☐ Inspect V-ring seals on the Master add-on modules. Replace worn or damaged seals. Refer to *Section 5.3—Optional Module Seal Inspection and Replacement.*
Monthly	**Mounting Fasteners and Interface Connections in the Master and Tool Modules** ☐ Inspect mounting fasteners for tightness. Tighten loose fasteners to the proper torque. Refer to *Section 2—Installation.* ☐ Inspect cable connections. Clean and tighten loose connections. ☐ Inspect cable sheathing for damage. Repair or replace damaged cables. ☐ Inspect cable routing. Loose connections or damaged cables might indicate improper routing or strain relieving. **Rubber Bushings** ☐ Inspect rubber bushings for abrasions or cuts. Exposed rubber bushings can be damaged during normal operation. Replace damaged rubber bushings. Refer to *Section 5.2.1—3/8" Rubber Bushing Replacement.* ☐ Wear on the tool side bushings might be an indication of excessive loading.
General	☐ Excessive alignment pin/bushing wear may be an indication of misaligned tool side position during coupling / uncoupling. Adjust position as needed. Replace alignment pins if worn or damaged, refer to *Section 5.2.2—Alignment Pin Replacement.*

4.2 Optional Module Pin Block Inspection and Cleaning

Tools required: *Nylon Brush (ATI part number 3690-0000064-60)*

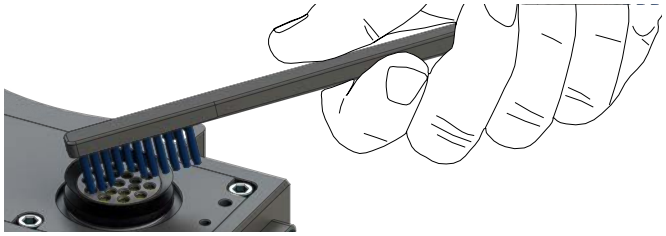
1. Place the Tool in a secure location.
2. Uncouple the Master and Tool plates.
3. Turn off and de-energize all energized circuits (for example: electrical, pneumatic, and hydraulic circuits).
4. Inspect the Master and Tool pin blocks for debris or darkened pins.

Figure 4.1—Inspect Master and Tool Pin Blocks

5. If debris or darkened pins are present, use a vacuum to remove the debris, and clean using a nylon brush (ATI part number 3690-0000064-60).

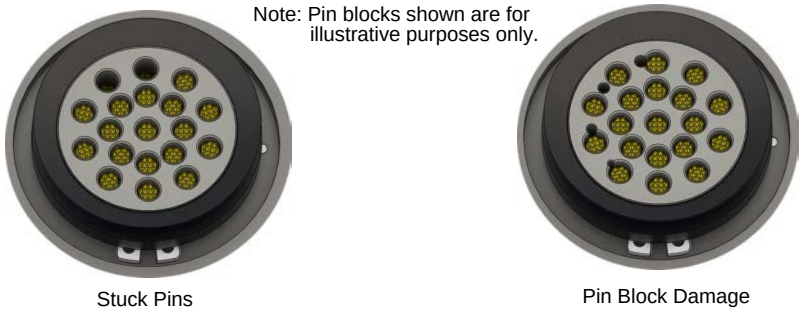
NOTICE: Do not use an abrasive media and/or cleaners or solvents to clean the contact pins. Using abrasive media and/or cleaners or solvents will cause damage to the contact surface or cause pins to stick. Clean contact surfaces with a vacuum or non-abrasive media such as a nylon brush (ATI part number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

Figure 4.2—Clean Pin Blocks With a Nylon Brush



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

Figure 4.3—Stuck Pin and Pin Block Damage



7. If pins become stuck or if there is damage to the pin block, contact ATI for either a possible pin replacement procedure or module replacement.
8. Safely resume 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 repairs on Utility Coupler or modules unless all energized circuits (for example: 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, and 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 to malfunction.

Table 5.1—Troubleshooting

Symptom	Cause	Resolution
Unit unable to couple or uncouple	Object trapped between Master, Tool, add-on modules, or drive cylinder body and mounting plate	Clear object from between Master, Tool, add-on modules, or drive cylinder body and mounting plate.
	Drive cylinder has improper air supply	Verify the air is supplied at a minimum of 60 psi (4.1 Bar). Refer to *Section 2.8—Pneumatic Requirements*.
	Drive cylinder malfunctioning	Ensure that the drive cylinder pneumatic connections are properly secured and not leaking. If leaking, repair connection. Verify that the cylinder guide rods are moving freely. Clean and lubricate as needed to restore smooth operation. Verify that the drive cylinder is not leaking air from rod seals. If leaking, repair or replace the drive cylinder.
	Utility Coupler is misaligned beyond the intended specification	Check the fixture alignment and make adjustments as necessary.
Reduced air flow to Tool function	Object trapped between Master and Tool or between modules	Clear object from between Master and Tool or modules.
	Hose or connector leaking or damaged	Inspect hoses and connectors, if damaged or leaking, repair or replace.
	Master side bushings worn or damaged	Replace rubber bushings. Refer to *Section 5.2.1—3/8" Rubber Bushing Replacement.*
Guided cylinder sensors unable to indicate locked or unlocked state	Sensor/cable is damaged	Inspect sensors, cables, and connectors. If damaged, repair or replace.
	Sensor is misaligned	Ensure that the sensor is aligned with the sensor target. Refer to *Section 2.7—Guided Cylinder Sensor Adjustment.*
Communications to Tool intermittent or lost	Object trapped between Master and Tool or between modules	Clear object from between Master and Tool or modules. Inspect V-ring seal for damage, replace damaged seal. Refer to *Section 5.3—Optional Module Seal Inspection and Replacement*.
	Debris between contacts, worn or damaged contact pins	Inspect pin blocks, refer to *Section 4.2—Optional Module 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

Component replacement procedures are provided in the following section.

5.2.1 3/8” Rubber Bushing Replacement

Parts required: *Refer to Section 6—Serviceable Parts*

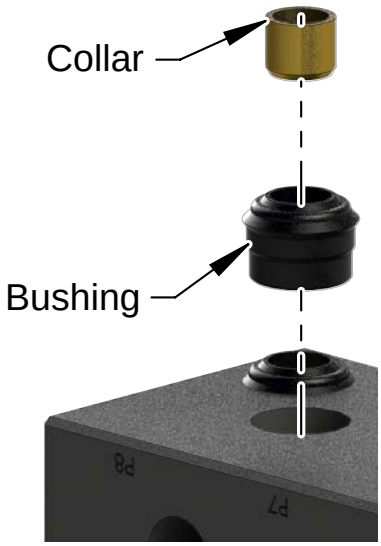
Tools required: *Needle-nose pliers*

Supplies required: *P80 lubricant*

Rubber bushings seal the ports in the Master and Tool plates. If the bushings are damaged, replace them.

1. Place the Tool in a secure location.
2. Uncouple the Master and Tool plates.
3. Turn off and de-energize all energized circuits (for example: electrical, pneumatic, hydraulic).
4. Remove the bushing and collar.
   a. Use needle-nose pliers to remove the bushing from the module housing.
   b. If the collar remains in the module housing or inside the bushing, remove the collar.
5. Install the replacement bushing.
   a. Apply a thin coat of P80 lubricant to the outer surface of the replacement bushing.
   b. Insert the beveled (chamfered) end of the bushing into the port.
   c. Insert the collar into the bushing.
   d. Seat the bushing completely in the bore.
6. Safely resume normal operation.

Figure 5.1 —Replacing the Bushing and Collar



5.2.2 Alignment Pin Replacement

Parts required: *Refer to Section 6—Serviceable Parts*

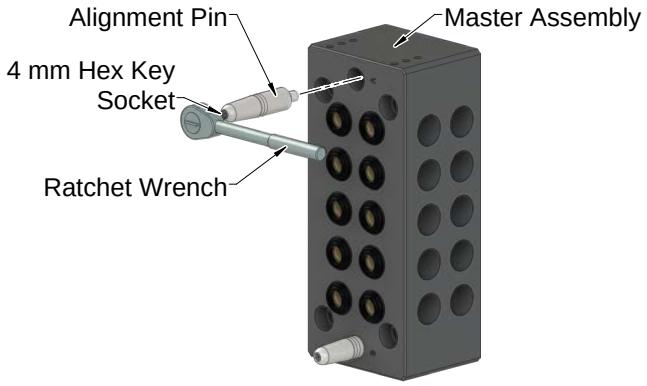
Tools required: *3 mm or 4 mm hex key, Torque wrench, locking pliers*

Supplies required: *Loctite, MobileGrease XHP 222*

1. Place the Tool in a secure location.
2. Uncouple the Master and Tool plates.
3. Turn off and de-energize all energized circuits (for example: electrical, pneumatic, hydraulic).
4. Remove customer connections.
5. Unscrew the alignment pin assembly from the Master plate using a 4 mm hex key. Refer to *Figure 5.2*. If the alignment pin cannot be removed using the hex key, go to step 6. If the alignment pin removal is successful, go to step 7.

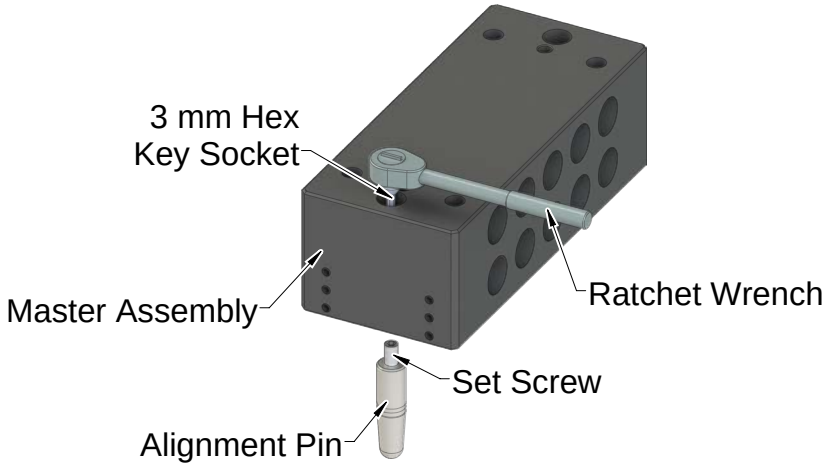
NOTICE: If the pin cannot be removed using the hex key in the tip, it may be necessary to remove it by other means, such as locking pliers.

Figure 5.2—Alignment Pin Replacement (Front)



6. Alternately, use the access hole in the back side of the Master plate to remove the alignment pin.
   a. If not already removed, remove the Master plate. Refer to *Section 2.2—Master Plate Removal*.
   b. Using a 3 mm hex key, turn the alignment pin clockwise via the access hole on the back side of the Master plate.
   c. Remove the alignment pin from the locking side (front) of the Master plate.

Figure 5.3—Alignment Pin Replacement (Back)



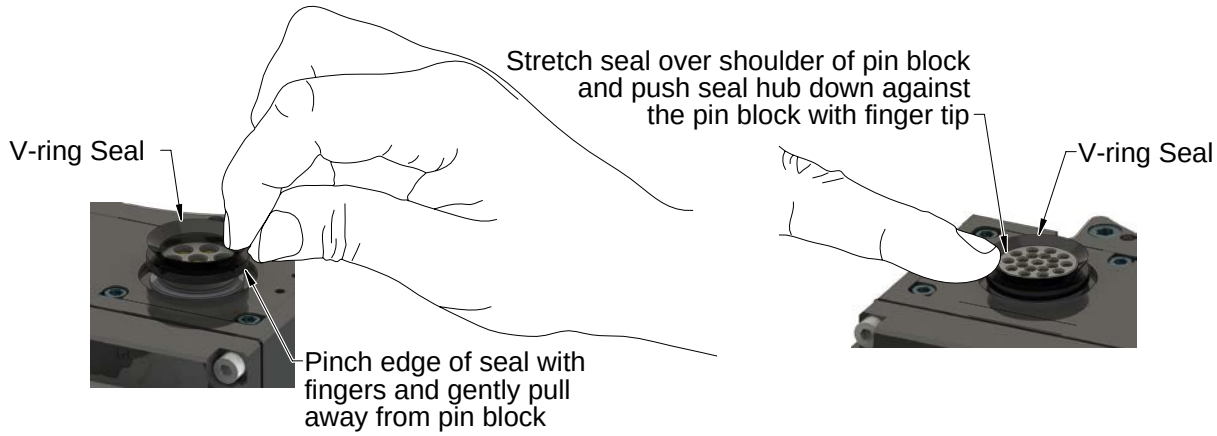
7. With the alignment pin removed, verify that the assembly (pin and set screw) are intact. If the set screw portion of the assembly does not come out, remove it separately using the access hole in the back plate of the Master plate.(Refer to step 6.)
8. Apply Loctite 242 and install the new alignment pin assembly using a 4 mm hex key. Tighten to 60 in-lbs (6.8 Nm).
9. Apply MobilGrease XHP222 special grease to the alignment pin.
10. Safely resume normal operation.

5.2.3 Optional Module Seal Inspection and Replacement

The seal protects the electrical connection between the Master and Tool module. Replace the seal if it becomes worn or damaged.

1. Place the Tool in a secure location.
2. Uncouple the Master and Tool plates.
3. Turn off and de-energize all energized circuits (for example: electrical, pneumatic, and hydraulic circuits).
4. To remove the existing seal, pinch the edge of the seal and pull the seal away from the pin block on the Master module.
5. To install a new seal, stretch the new seal over the shoulder of the pin block.
6. Push the seal hub down against the pin block.
7. Safely resume normal operation.

Figure 5.4—V-Ring Seal Replacement



6. Serviceable Parts

6.1 GA2 Master Plate

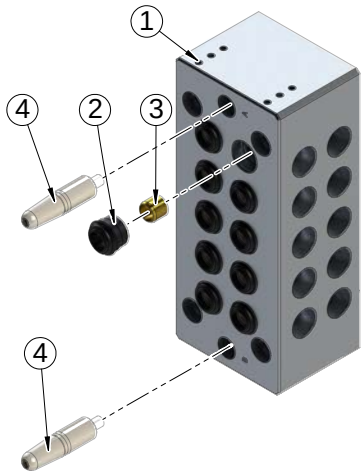


Table 6.1—GA2 Master Serviceable Parts			
Item No.	**Qty**	**Part Number**	**Description**
1	1	9123-GA2M-0-0-N	GA2 Non Compliant Utility Coupler Master with (10) 3/8” NPT Pass Through ports and (2) J16 Flats
		9120-GA2-UCM-000-000	Non Compliant Utility Coupler Master with (10) 3/8” NPT Pass Through ports and (2) J16 Flats
		9123-GA2M-0-0-E	Non Compliant Utility Coupler Master with (10) G 1/4” (BSPP) NPT Pass Through ports and (2) J16 Flats
2	10	4010-0000010-01	3/8” Rubber Bushing. Nitrile
3	10	3700-20-2000	Collar for 3/8” Rubber Bushing Installation
4	2	9005-20-2241	Alignment Pin Assembly

6.2 GA2 Tool Plate

Table 6.2—GA2 Tool Serviceable Parts			
Item No.	**Qty**	**Part Number**	**Description**
1	1	9123-GA2T-0-0-N	Non Compliant Utility Coupler Tool with (10) 3/8” NPT Pass Through ports and (2) J16 Flats
		9120-GA2-UCT-000-000	
		9123-GA2T-0-0-E	Non Compliant Utility Coupler Tool with (10) G 1/4” (BSPP) NPT Pass Through ports and (2) J16 Flats

6.3 Models 9123-GL-GC-B80S100 Guided Cylinder

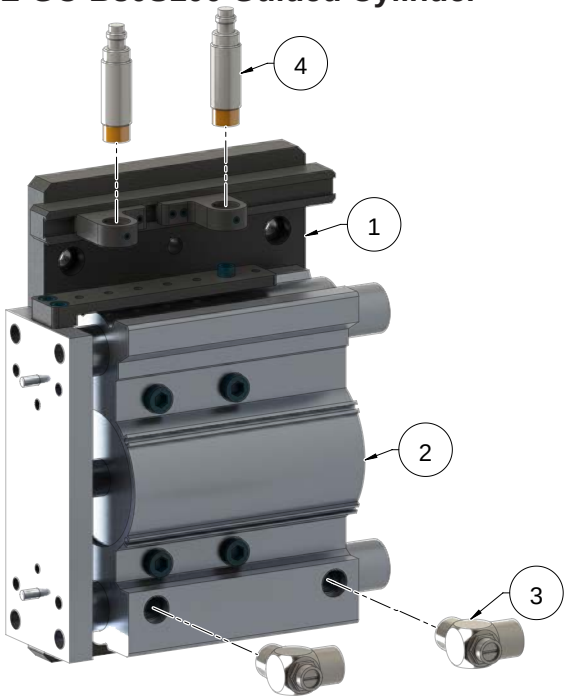


Table 6.3—Guided Cylinder

Item No.	Qty	Part Number	Description
1	1	9123-GL-GC-B80S100-S0-N	Guided Cylinder Assembly, 80 mm Bore, 100 mm Stroke, Sensor Holder for 18 mm Barrel Proximity Sensor
	1	9123-GL-GC-B80S100-S0-E	Guided Cylinder Assembly, 80 mm Bore, 100 mm Stroke, Sensor Holder for 18 mm Barrel Proximity Sensor
	1	9123-GL-GC-B80S100-SG-N	GL Guided Cylinder Assembly with 80 mm Bore, 100 mm Stroke, and PNP Prox Sensors
	1	9123-GL-GC-B80S100-SG-E	GL Guided Cylinder Assembly with 80 mm Bore, 100 mm Stroke, and PNP Prox Sensors
	1	9123-GL-GC-B80S100-SR-N	GL Guided Cylinder Assembly, 80 mm Bore, 100 mm Stroke, PNP Turck Prox Sensors
	1	9123-GL-GC-B80S100-SR-E	GL Guided Cylinder Assembly, 80 mm Bore, 100 mm Stroke, PNP Turck Prox Sensors
2	1	3710-20-3460	Modified Guided Cylinder 80 mm Bore (Cylinder Only)
3	2	3405-2010004-01	3/8” NPT Flow Control
4	2	8590-9909999-45	Prox Sensor 12 mm Sensing Range, 18 mm Barrel 3-wire DC PNP; 2-wire DC PNP/NPN (SG Models)
	2	8590-9909999-103	18 mm Barrel, PNP 3 wire DC Prox (SR Models)
5	2	9120-C-4EM-4EF-020	Prox Cable, 2 Meter Long, 4 pin Euro (Not Shown)

7. Specifications

Table 7.1—Master and Tool Assemblies		
Recommended Max Payload	Not applicable	Total end-effector weight should be supported independently of the Utility Coupler.
Operating Pressure	60–100 psi (4.5–6.9 bar)	Supply must be clean, dry, and filtered to minimum 50 micron.
Weight[1]	8.4 lbs.	Master 4.2 lbs, Tool 4.2 lbs
Pass through Port, (Qty) Size	(10) 3/8" NPT Ports or (10) 3/8” NPT Ports	Not applicable
Mounting Pattern	Refer to *Section 8—Drawings.*	

Notes:

1. Weights do not include optional modules, refer to the optional module manual for additional weights.

8. Drawings

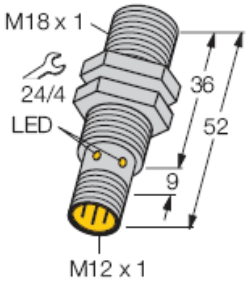
Drawings are available on the *ATI website* or by contacting an ATI representative.

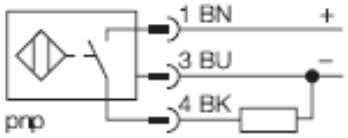
9. Guided Cylinder Proximity Sensor Information

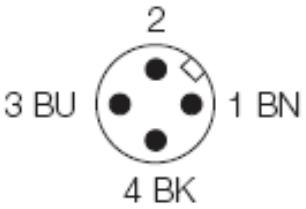
9.1 9123-GL-GC-B80S100-SG Guided Cylinder Proximity Sensor

9123-GL-GC-B80S100-SR Guided Cylinder Proximity Sensor

9123-GL-GC-B80S100-SR Guided Cylinder Proximity Sensor







Type	Bi5U-EM18-AP6X-H1141
Ident-No.	1635340
Rated operating distance Sn	5 mm
Mounting condition	flush
Assured sensing range	≤ (0,81 x Sn) mm
Repeatability	≤ 2 %
Temperature drift	≤ ± 10 % ≤ ± 15 %, ≤ -25 °C v ≥ +70 °C
Hysteresis	3... 15 %
Ambient temperature	-30...+ 85 °C
Operating voltage	10... 30VDC
Residual ripple	≤ 10 % U_{ss}
DC rated operational current	≤ 200 mA
No-load current I_0	≤ 15 mA
Residual current	≤ 0.1 mA
Rated insulation voltage	≤ 0.5 kV
Short-circuit protection	yes / cyclic
Voltage drop at I_e	≤ 1.8V
Wire breakage / Reverse polarity protection	yes / complete
Output function	3-wire, normally open, pnp
Insulation class	⧈
Switching frequency	≤ 2.5 kHz
Housing	threaded barrel, M18 x 1
Dimensions	52 mm
Housing material	metal, AISI 304
Material active face	plastic, PBT
Tightening torque of housing nut	25 Nm
Connection	connectors, M12 x 1
Vibration resistance	55 Hz (1 mm)
Shock resistance	30g (11 ms)
Degree of protection	IP68
Display switch state	LED yellow