



## Tooling/ End Effector Mounting System

# Σ Tool Stand

### Users Guide & Preventative Maintenance and Replacement Procedures

GUIDE : 95274\_english Rev 00

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**APPLIED ROBOTICS INCORPORATED  
GLENVILLE, NEW YORK  
XChange Sigma 3.1 & Sigma 5.1**

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## 1 Precautions



### **READ MANUAL**

Do not start, operate or service machine until you read and understand operator's manual. Failure to do so could result in serious injury.



### **HAND CRUSH NOTICE**

Indicates the possibility for a crush force between components during placement of hanger on Tooling Mount.



### **IMPACT HAZARD NOTICE**

Indicates the possibility for an impact by dynamic components during open and close motion of Shield & Actuator.



### **DANGER NOTICE**

Indicates an imminently hazardous situation which, if not avoided, will result in serious injury or death.



### **CAUTION NOTICE**

Indicates a potentially hazardous situation which, if not avoided, could result in serious injury or death.



### **WARNING NOTICE**

Indicates a potentially hazardous situation which, if not avoided, will or could result in minor or moderate injury; also used where the risk applies to only property damages.

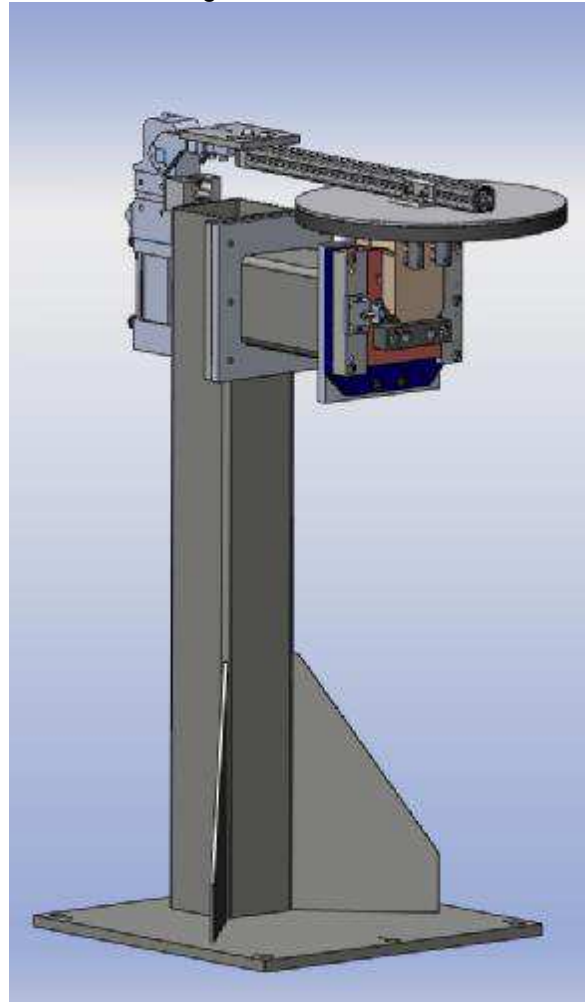
**IGNORING INFORMATION ABOUT POTENTIAL HAZARDS CAN LEAD TO SERIOUS HARM TO PERSONNEL AND/OR DAMAGE TO THE EQUIPMENT, AND MAY RESULT IN THE NULLIFICATION OF THE MANUFACTURERS' EQUIPMENT WARRANTY.**

**HEED ALL PRECAUTION NOTICES**

## 2 SYSTEM DESCRIPTION

The Applied Robotics, Inc. Tool Stand provides versatile and reliable method for mounting and accommodating various end effectors or tools for tool changing and tool storage operations. A wide base and rigid steel structure prevents deflection and buckling under static loads. Compliancy in the Tooling Mount accounts for variance in programming and robot repeatability. A heavy duty Aluminum shield with flame retardant foam cover protects the end effector/ tool during storage. The industrial pneumatic power clamp provides steadfast actuation.

Figure 1: Tool Stand



There are four (4) main components in the basic system:

### 2.1 The Fixture Base (FBxxx)

The Fixture Base provides either single or double positions for tool mounting.

## **2.2 The Extension (EXxxx)**

The Extension allows the user to mount 150-300 mm from the vertical tube of the Fixture Base.

## **2.3 The Tooling Mount (TMxxx)**

The Tooling Mount provides Compliancy and Tool Present signal for mounting the tool to the Fixture Base or Extension (when applicable).

## **2.4 The Shield & Actuator (SAxxx)**

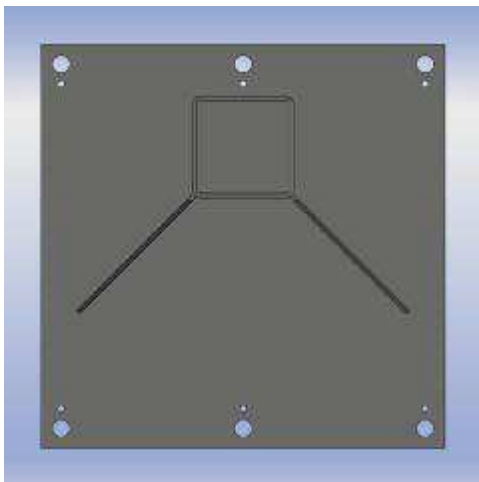
The flame retardant cover can be adjusted in the X, Y, and Z axis and is actuated by a pneumatic power clamp.

# **3 INSTALLATION**

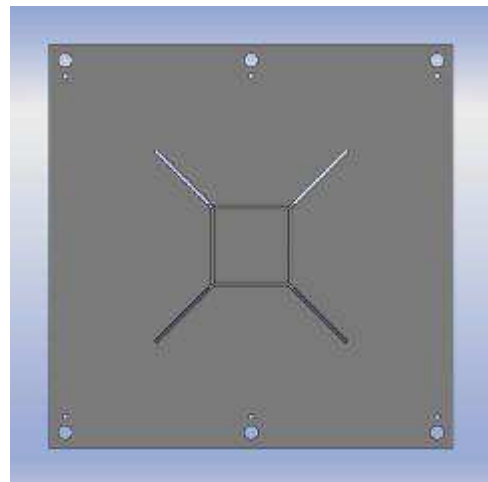
## **3.1 Mounting the Fixture Base.**

3.1.1 Mount the Fixture Base to the facility floor or secure mounting paddock.

Figure 2: (a) Single Fixture Base floor mounting, (b) Double Fixture base floor mounting.



(a)



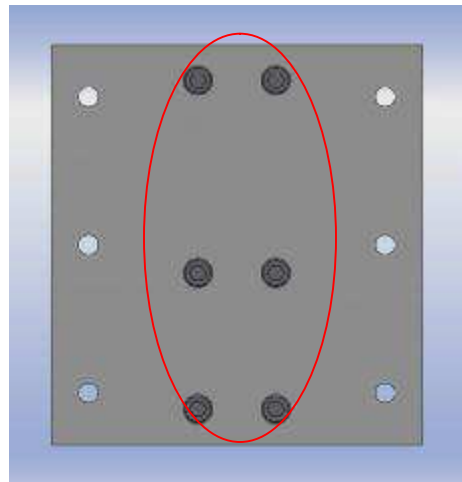
(b)

- 3.1.2 The single Tool Stand has a Fixture Base pedestal of 610 mm x 610 mm and is 19 mm thick.
- 3.1.3 The double Tool Stand has a Fixture Base pedestal of 700 mm x 700 mm and is 19 mm thick.
- 3.1.4 Two patterns are available on both Fixture Base pedestals: use six (6) M26 bolts to fasten into the facility floor or mounting paddock, /OR/ six (6) M12 bolts to mount into the Fixture Base.

### 3.2 Mounting the Extension.

- 3.2.1 Fasten six (6) M12 X 25 mm length bolts through C'bore holes of the rear plate (inner pattern of six (6) C'bore holes) into equivalent Fixture Base pattern, torque to 115 N-m (85 ft-lbs).

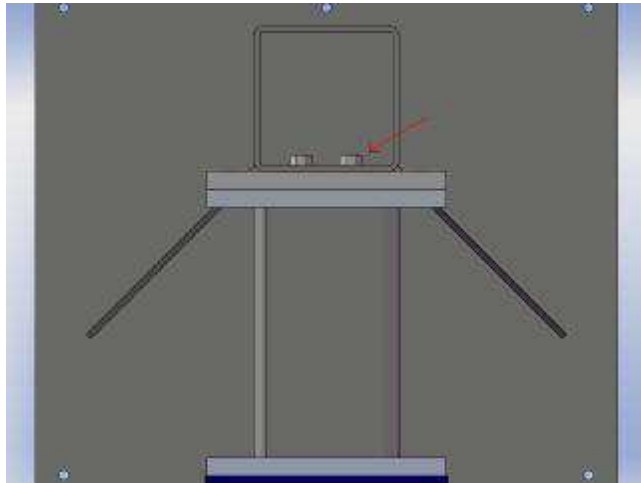
Figure 3: Six (6) M12 pattern for fastening rear plate of Extension to Fixture Base.



- 3.2.2 Fasten six (6) M12 Hex nuts to the exposed threads of the M12 bolts from inside the Fixture Base, torque to 115 N-m (85 ft-lbs).

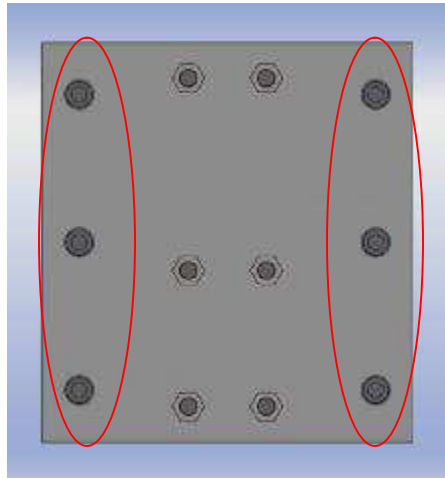


Fixture 4: Fasten six (6) hex nuts over excess threads.



3.2.3 Fasten six (6) M12 X 25 mm length bolts through C'bore holes of the rear plate (outer pattern of six (6) C'bore holes) into Extension weldment, torque to 115 N-m (85 ft-lbs).

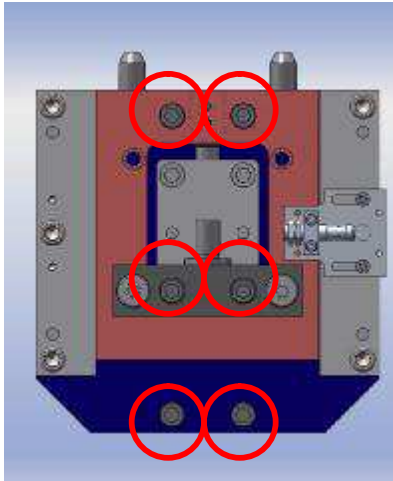
Figure 5: Six (6) M12 pattern for fastening the Extension to the rear plate.



### 3.3 Mounting the Tooling Mount.

3.3.1 Fasten six (6) M12 X 25 mm length bolts through C'bore holes of the rear plate (inner pattern of six (6) C'bore holes) into equivalent Fixture Base pattern, torque to 115 N-m (85 ft-lbs).

Figure 6: Six (6) M12 bolt pattern for mounting the Tooling Mount.

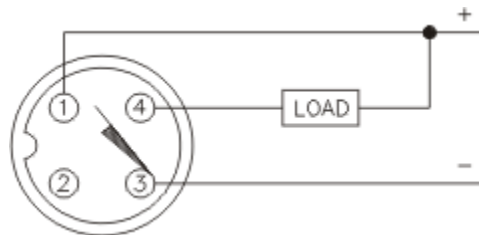


3.3.2 *When mounting directly to Fixture Base*, Fasten six (6) M12 Hex nuts to the exposed threads of the M12 bolts from inside the Fixture Base, torque to 115 N-m (85 ft-lbs).

3.3.3 Setting the Tool Present sensor.

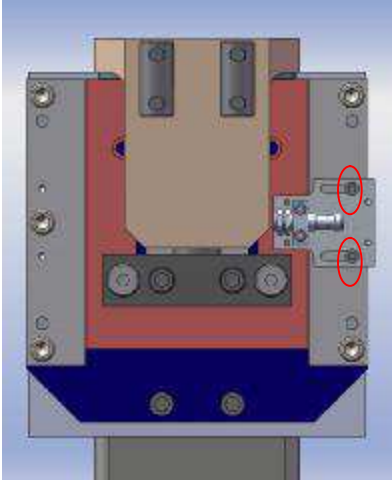
3.3.3.1 Apply power to the 12mm Weld Immune Sensor.

Figure 7: Turck Weldguard Sensor schematic.



3.3.3.2 Loosen the M6 bolt on the Sensor Bracket and slide and slide the 12mm Weld Immune Sensor toward the Tooling Mount hanger until the LED is on. Secure by tightening the M6 bolts, torque bolts to 13 N-m (10 ft-lbs).

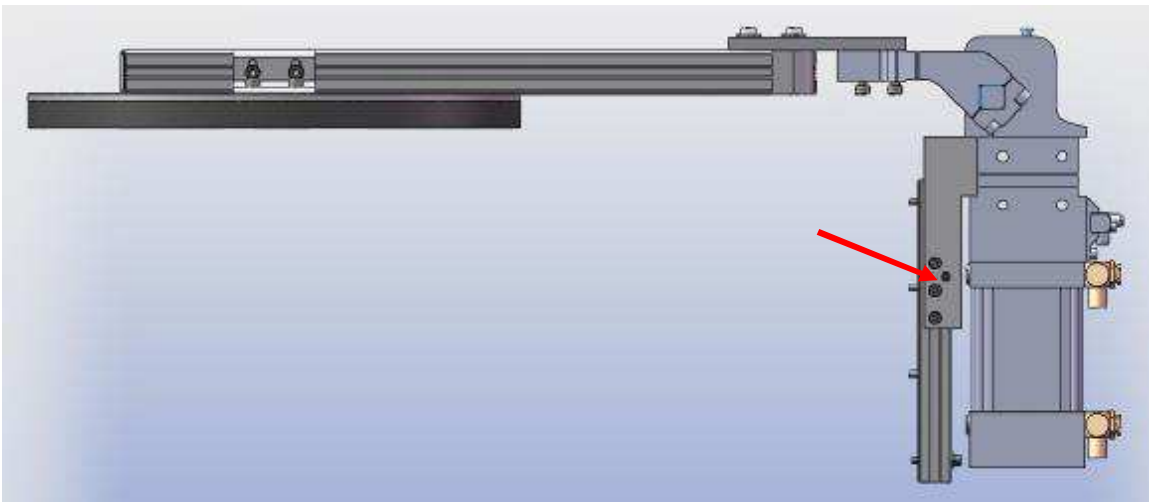
Fixture 8: Sensor Adjustment



### 3.4 Mounting the Shield & Actuator.

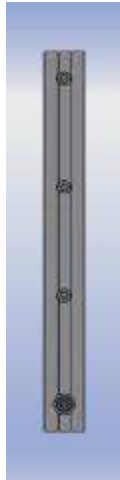
- 3.4.1 Loosen the six (6) M6 bolts and the two (2) M8 set screws on both sides of the Actuator Sliding Plate and remove the Vertical Support from the Shield & Actuator assembly.

Figure 9: Actuator Sliding Plate loosening bolts and set screw.



- 3.4.2 Fasten the Vertical Support to the Fixture Base using the M6 pattern, torque bolts to 13 N-m (10 ft-lbs).

Figure 10: Vertical Support.



- 3.4.3 Slide the Actuator Sliding Plate down on the Vertical Support and snugly fasten the six (6) M6 bolts and two (2) M8 set screws.
- 3.4.4 Adjusting the Cover to the proper location above the Tool Changer and the end effector/ tool effectively shielding the modules during storage:
  - 3.4.4.1 Fasten the six (6) M6 bolts and two (2) M8 set screws on both sides of the Actuator Sliding Plate and adjust to the proper vertical location. Tighten the six (6) M6 bolts and two (2) M8 set screws to secure the position, torque the M6 bolts to 13 N-m (10 ft-lbs).

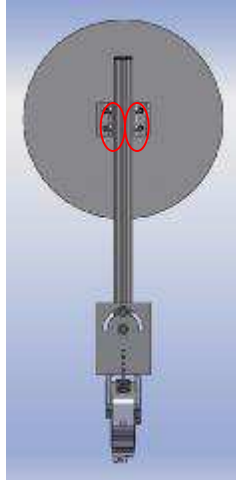
Figure 11: Refasten Actuator Sliding Plate loosening bolts and set screw.



- 3.4.4.2 Loosen the four (4) M8 bolts attaching the 90 degree bracket to the Actuator Arm and adjust to the proper horizontal location. Tighten the

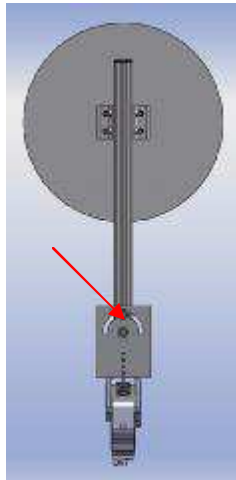
four (4) M8 bolts to secure the position, torque the M8 bolts to 33 N-m (25 ft-lbs).

Figure 12: Four (4) M8 bolts adjust to the proper horizontal location.



3.4.4.3 Loosen the M8 shoulder bolt on above the Rotating Plate and adjust to the radial location, torque the M8 bolts to 33 N-m (25 ft-lbs).

Figure 13: Four (4) M8 bolts adjust to the proper horizontal location.



3.4.5 Adjusting the opening angle of the pneumatic power clamp (Clamp is normally shipped with the opening angle set at the maximum position 130 degrees):



**DO NOT SUPPLY AIR TO THE PORTS DURING THIS OPERATION.**

- 3.4.5.1 Manually move clamp arm to 130 degree maximum open position.
- 3.4.5.2 Loosen four (4) screws on locking plate found on the cylinder base plate.
- 3.4.5.3 Turn the inner Socket Head Adjustment Screw, central in the cylinder base plate, counterclockwise until desired opening angle is reached.
- 3.4.5.4 Tighten four (4) screws on locking plate on cylinder base plate to lock the adjustment screw. Recommended torque: 10 N-m (7.5 ft-lbs).
- 3.4.6 Adjusting the position sensing cartridge of the pneumatic power clamp:
  - 3.4.6.1 Remove the switch cover plate (located directly above the sensor connector).
  - 3.4.6.2 Connect proper power supply.
  - 3.4.6.3 With clamp arm in open position, loosen "open" position set screw.
  - 3.4.6.4 Slide the sensor from the bottom to the top until the "open" LED (yellow) lights. Tighten the screw to keep the sensor in position. Always move sensor slide from maximum opening to adjusted position.
  - 3.4.6.5 Replace cover plate.
- 3.4.7 Adjusting the flow control of the pneumatic power clamp:
  - 3.4.7.1 Place both flow control fittings in the fully closed position by fully seating the set screw, then back the set screw out one full rotation.
  - 3.4.7.2 Supply air to the flow control fittings of the pneumatic power clamp
  - 3.4.7.3 Cycle the clamp arm and adjust the flow control to desired rate.

## **4 INITIAL TESTS**

### **4.1 Tooling Mount Sensor**

- 4.1.1 Supply air to the flow control fittings of the pneumatic power clamp and supply power to the Tooling Mount sensor and Shield & Actuator clamp sensor.

- 4.1.2 Place the pneumatic power clamp in the open position (out of the way).
- 4.1.3 Remove the hanger from the Tooling Mount. Verify the LED of the 12mm Weld Immune Sensor deactivates (off).
- 4.1.4 Replace the hanger on the Tooling Mount. Verify the LED of the 12mm Weld Immune Sensor activates (on).
- 4.1.5 Repeat this cycle several times to ensure repeatability.
- 4.1.5.1 Adjust the location of the 12mm Weld Immune Sensor based on section 3.3.3

## **4.2 Shield & Actuator Sensor**

- 4.2.1 Supply air to the flow control fittings of the pneumatic power clamp and supply power to the Shield & Actuator clamp sensor.
- 4.2.2 Place the clamp arm in the open position.
  - 4.2.2.1 Verify the clamp arm opens to the desired angle. Adjust the location of the clamp arm based on section 3.4.5
  - 4.2.2.2 Verify the Yellow LED activates when the clamp arm is in the open position. Adjust the position of the pneumatic power clamp sensor based on section 3.4.6
- 4.2.3 Place the clamp arm in the closed position.
  - 4.2.3.1 Verify the Red LED activates when the clamp arm is in the closed position. Adjust the position of the pneumatic power clamp sensor based on section 3.4.6

## **5 GUIDE TO OPERATIONS**

### **5.1 Usage Considerations**

- 5.1.1 To account for the compression of the compliant fixture under the tool payload, programs should be written with the end effector/ tool resting in the Tooling Mount during start-up and manipulator calibration.

## **6 Troubleshooting**

### **6.1 If you require assistance, contact our Technical Support Department at:**

USA Main Office: + 1 518 384 1000

## **7 Maintenance**

### **7.1 Maintenance Schedule**

- 7.1.1 Every Two Weeks – Visual Checks
- 7.1.2 250,000 Cycles – Lubrication
  - 7.1.2.1 Apply to all locating pin and bushings.

### **7.2 Preventative Maintenance**

- 7.2.1 Visual Checks
  - 7.2.1.1 Fixture Base
    - 7.2.1.1.1 Inspect the weld lines for any cracks.
    - 7.2.1.1.2 Check the floor surrounding the Fixture Base for cracks, raised material, or any signs the Fixture Base may be pulling away from the mounting.
  - 7.2.1.2 Extension
    - 7.2.1.2.1 Inspect the weld lines for any cracks.



### 7.2.1.3 Tooling Mount

7.2.1.3.1 Inspect the locating pins for rust, breakage, or wear.

7.2.1.3.2 Inspect the location bushings for rust, breakage, or wear.

### 7.2.1.4 Shield & Actuator

7.2.1.4.1 Inspect the Flame Retardant Foam Rubber for excess wear and damage.

7.2.1.4.2 Verify hardware is secure at all adjustable locations.

## **8 Replacement Procedures**

### **8.1 Fixture Base**

8.1.1 See section 3.1

### **8.2 Extension**

8.2.1 See section 3.2

### **8.3 Tooling Mount**

8.3.1 Tool Present Sensor

8.3.1.1 Loosen the two screws holding the Tool Present Sensor mounting bracket in place and slide the mounting bracket away from the hanger.

8.3.1.2 Remove the screws on the top of the sensor bracket.

8.3.1.3 Remove the old sensor and replace with the new sensor.

8.3.1.4 Follow the instructions from section 3.3.3

## 8.4 Shield & Actuator

### 8.4.1 Flame Retardant Foam Rubber shield

- 8.4.1.1 Loosen the four (4) bolts from the angled brackets holding the aluminum shield plate in place.
- 8.4.1.2 Remove the damaged foam rubber shield from the aluminum shield plate (scrape off existing adhesive if necessary).
- 8.4.1.3 Remove protective sheet from new foam rubber shield and place on aluminum shield plate with the adhesive side against the aluminum face.
- 8.4.1.4 Replace the four (4) bolts from the angled brackets holding the aluminum shield plate in place.

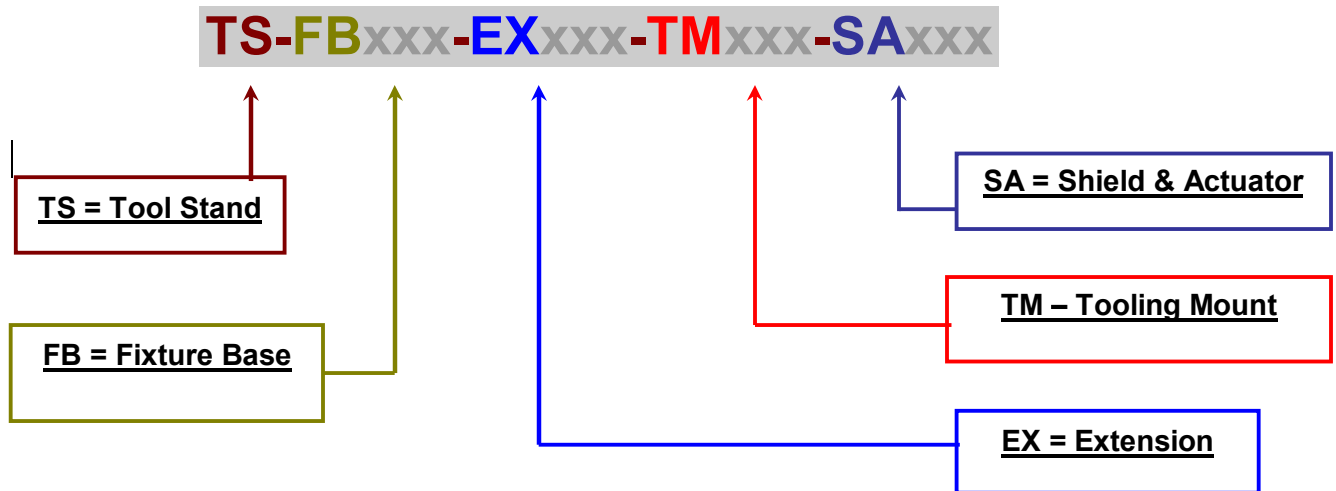
### 8.4.2 Pneumatic Power Clamp

- 8.4.2.1 Remove the Shield Assembly by detaching the two (2) M8 bolts holding the shield assembly on the power clamp arm.
- 8.4.2.2 While supporting the weight of the power clamp, loosen the six (6) M6 bolts and two (2) M8 set screws on the sides of the power clamp mounting plate.
- 8.4.2.3 Remove the four (4) M8 bolts that fasten the power clamp plate to the power clamp.
- 8.4.2.4 Fasten the four (4) M8 bolts to hold the power clamp plate to the new power clamp.
- 8.4.2.5 Replace the shield assembly on the new power clamp arm.
- 8.4.2.6 Follow the instructions in section 3.4.4 and 3.4.5 to adjust the shield location.

## 9 Spare Parts

DESCRIPTION	APPLIED ROBOTICS PART NUMBER
Tool Present Sensor	0711-P59N
Flame Retardant Foam Rubber Shield	0709-D85N
Pneumatic Power Clamp	0803-P70N

## 10 Ordering Information



### 10.1 Required Specifications

- 10.1.1 Use with single or double tool mounting.
- 10.1.2 Maximum total payload.
- 10.1.3 Required height.
- 10.1.4 Required Extension length.
- 10.1.5 Desired color or coating requirement.
- 10.1.6 Desired tool mounting option.
  - 10.1.6.1 Blank plate hanger for custom pattern.
  - 10.1.6.2 Sigma direct mounting.
- 10.1.7 Desired tool present sensor type.
- 10.1.8 Desired Actuator.
- 10.1.9 Specify cover material if not using Flame Retardant Foam shield.

## **11 Appendix**

A-1 0709-E12A

A-2 0709-E15A

A-3 0711-D11A

A-4 0803-D36A

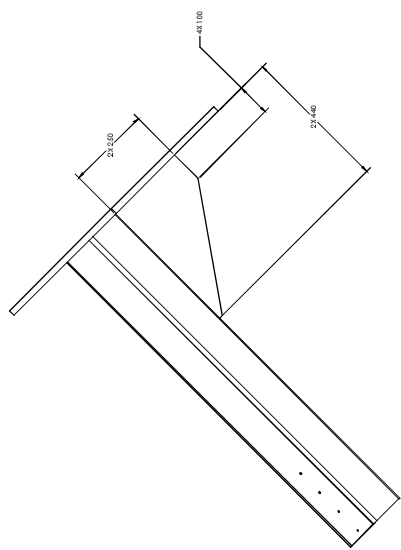
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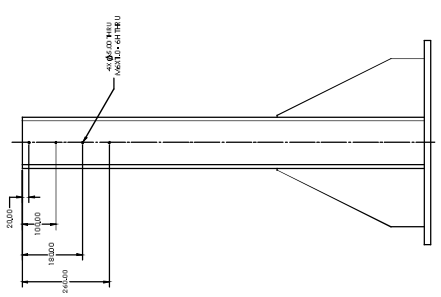
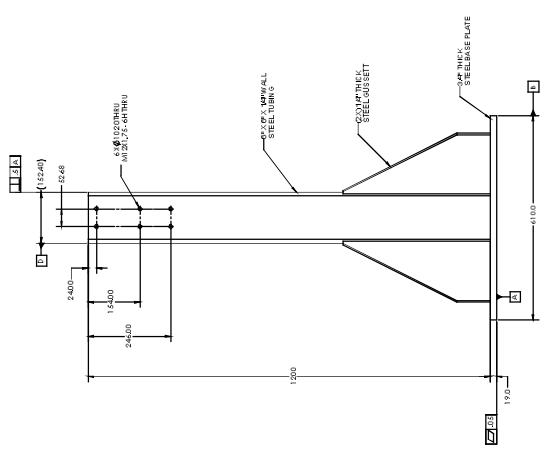
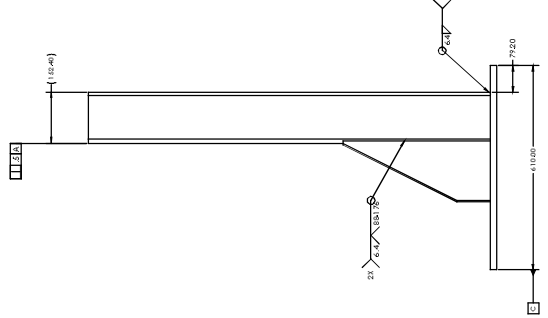
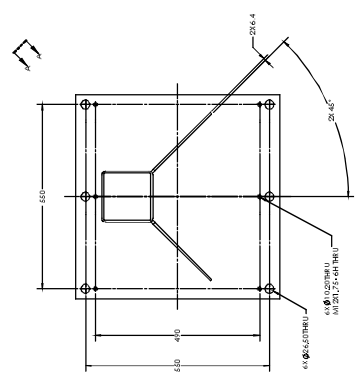
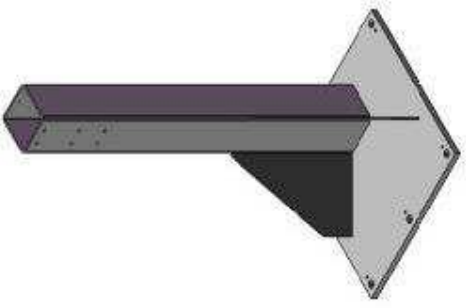
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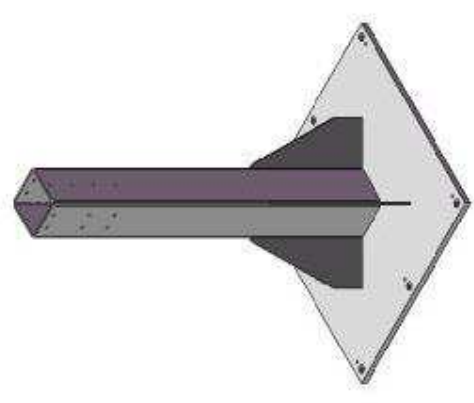
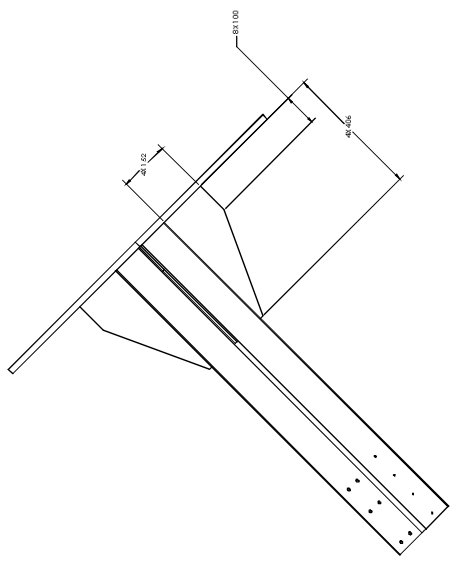
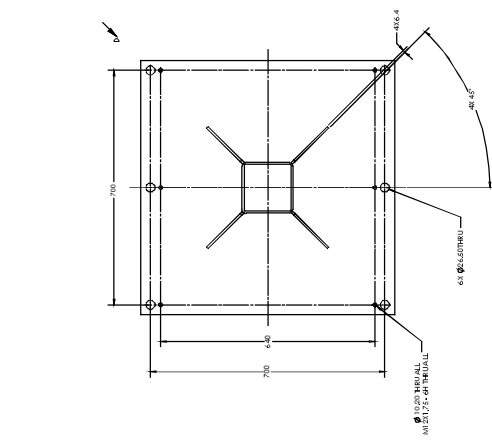


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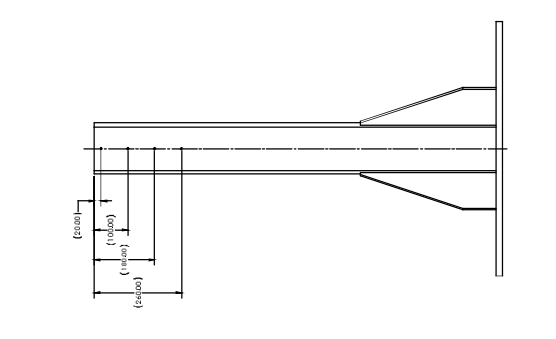
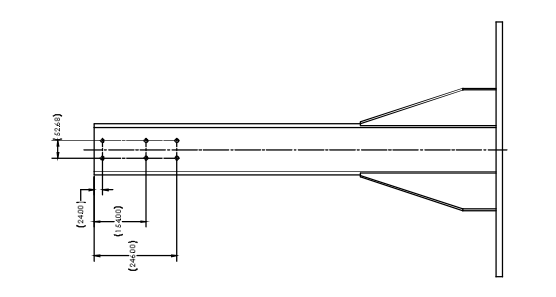
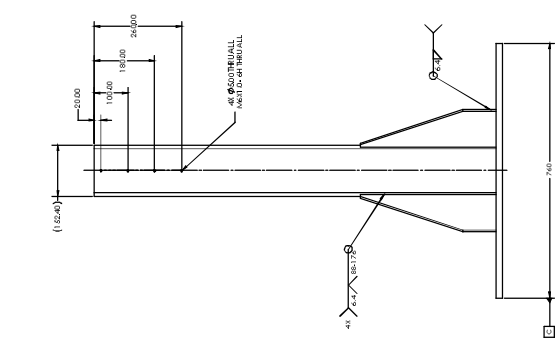
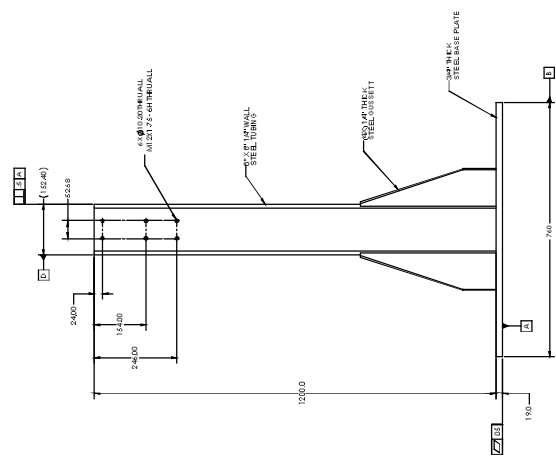


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APPROVED BY: T.Z.		APPROVED BY: T.Z.		APPROVED BY: T.Z.	
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SHEET: 1 OF 1		SHEET: 1 OF 1		SHEET: 1 OF 1	

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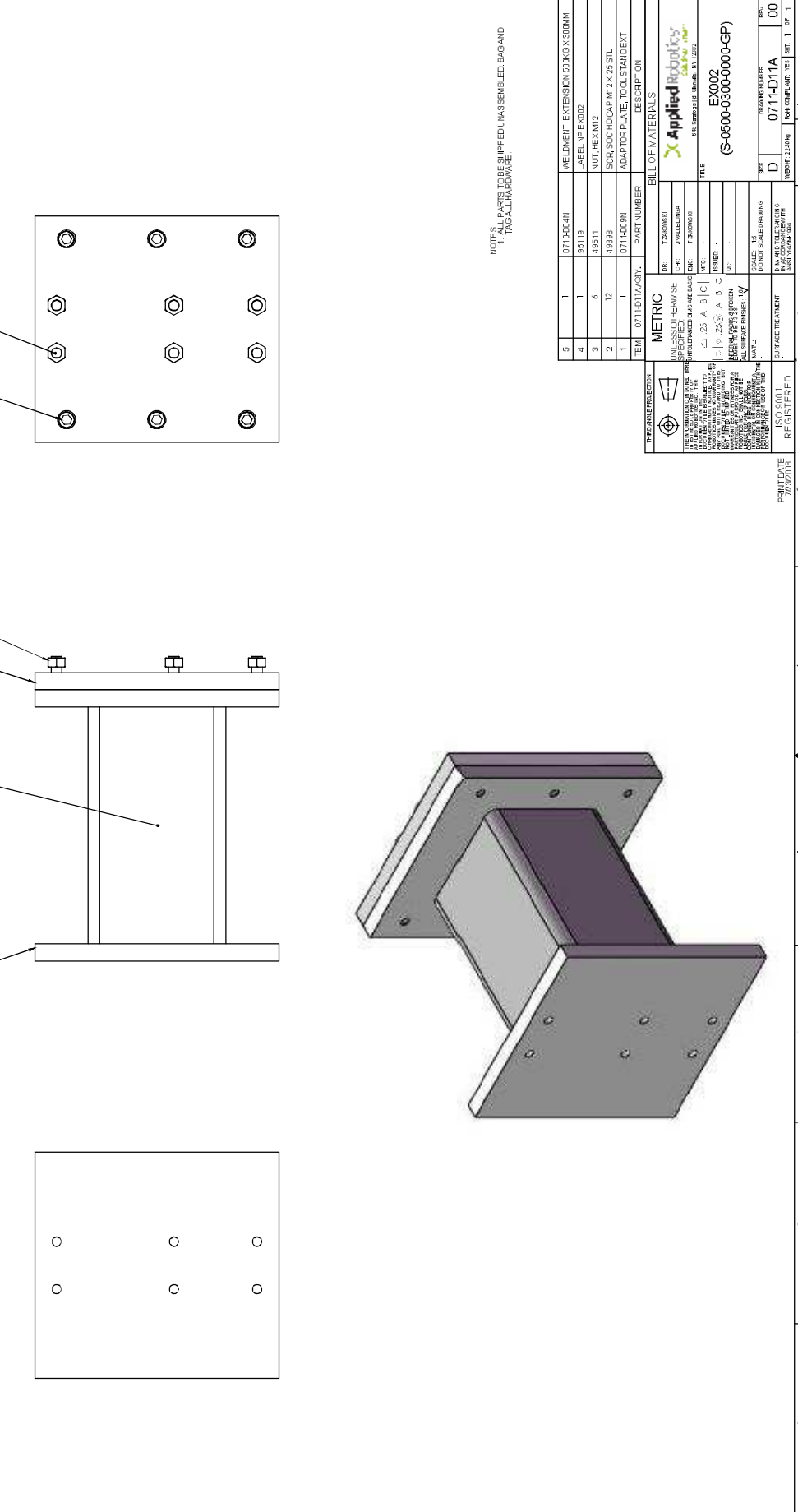
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CHK: SM	CHK: SM
DATE: 10/07/07	DATE: 10/07/07
ESG: 0705E 15A	ESG: 0705E 15A
REV: 00	REV: 00

REV: 00  
 0711-D11A

REV: 00  
 0711-D11A

DATE: 11/01/07  
 CHK: TZ  
 ECHESRNO:

ZONE	REV	DESCRIPTION	DIR	CHK	DATE	ECHESRNO.
	00	RELEASED FOR MANUFACTURING	TZ	JV	11/01/07	



NOTES:  
 1. ALL PARTS TO BE SHIPPED UNASSEMBLED, BAG AND TAG ALL HARDWARE

ITEM	QTY	DESCRIPTION
5	1	WELDMENT, EXTENSION 500KG X 300MM
4	1	LABEL NP EX002
3	6	NUT, HEX, M12
2	12	SCR, SOC-HD CAP M12 X 25 STL
1	1	ADAPTER PLATE, TOOL STAND EXT.

BILL OF MATERIALS	
QTY	DESCRIPTION
1	WELDMENT, EXTENSION 500KG X 300MM
1	LABEL NP EX002
6	NUT, HEX, M12
12	SCR, SOC-HD CAP M12 X 25 STL
1	ADAPTER PLATE, TOOL STAND EXT.

APPLIED ROBOTICS  
 656 SHERBOURNE BLVD, SUITE 102  
 MISSISSAUGA, ONTARIO L4W 1M5  
 CANADA  
 TEL: (905) 270-8888  
 FAX: (905) 270-8889  
 WWW.APPLIEDROBOTICS.COM

SCALE: 1:5  
 DO NOT SCALE DRAWING  
 DIM AND TOLERANCES IN MILLIMETERS  
 UNLESS OTHERWISE SPECIFIED  
 DIMENSIONS ARE TO CENTER UNLESS NOTED OTHERWISE  
 SURFACE FINISH: RA 3.2  
 MATERIAL: 304 STAINLESS STEEL

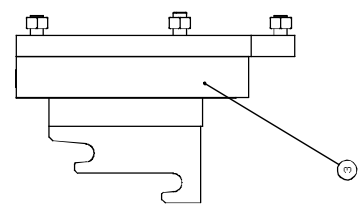
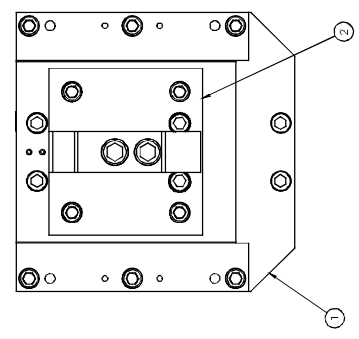
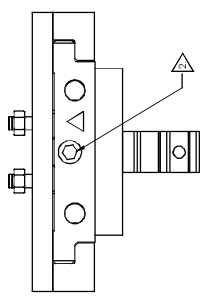
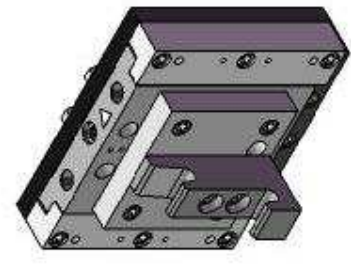
ISO 9001 REGISTERED  
 PRINT DATE: 7/29/2008

REV: 00  
 0711-D11A

REV: 00  
 0803-D36A

ZONE	REV	DESCRIPTION	DR	CHK	DATE	ECR/RSRNO.
	01	RELEASED FOR MANUFACTURING	JY	TJ	3/4/2018	

REV: 00  
 0803-D36A



NOTES: ALL ITEMS TO RECEIVE LOCOTITE ARE TO BE  
 1. THOROUGHLY CLEANED FROM OIL, GREASE AND  
 2. SURFACE PREPARED BEFORE APPLYING ANY LOCOTITE  
 TO THE ADJACENT SURFACES.  
 3. SPRING PRELOAD ADJUSTMENT SCREW ADJUST  
 AS NEEDED TO PROPERLY SUPPORT TOOL WEIGHT.  
 4. APPLY LOCOTITE 222 API #6005-F1020 10M6 AND  
 5. APPLY LOCOTITE 222 API #60106 TO M6 - M18 SCREWS.

ITEM NO.	QTY.	DESCRIPTION
1	1	0803-D36A/GTY.
2	1	0803-D36A
3	1	95184 LABEL NP TM006

MATERIALS	
ITEM NO.	DESCRIPTION
1	0803-D36A
2	0803-D36A
3	95184 LABEL NP TM006

MATERIALS	
ITEM NO.	DESCRIPTION
1	0803-D36A
2	0803-D36A
3	95184 LABEL NP TM006

MATERIALS	
ITEM NO.	DESCRIPTION
1	0803-D36A
2	0803-D36A
3	95184 LABEL NP TM006

MATERIALS	
ITEM NO.	DESCRIPTION
1	0803-D36A
2	0803-D36A
3	95184 LABEL NP TM006

MATERIALS	
ITEM NO.	DESCRIPTION
1	0803-D36A
2	0803-D36A
3	95184 LABEL NP TM006

MATERIALS	
ITEM NO.	DESCRIPTION
1	0803-D36A
2	0803-D36A
3	95184 LABEL NP TM006

MATERIALS	
ITEM NO.	DESCRIPTION
1	0803-D36A
2	0803-D36A
3	95184 LABEL NP TM006

MATERIALS	
ITEM NO.	DESCRIPTION
1	0803-D36A
2	0803-D36A
3	95184 LABEL NP TM006

MATERIALS	
ITEM NO.	DESCRIPTION
1	0803-D36A
2	0803-D36A
3	95184 LABEL NP TM006

MATERIALS	
ITEM NO.	DESCRIPTION
1	0803-D36A
2	0803-D36A
3	95184 LABEL NP TM006

MATERIALS	
ITEM NO.	DESCRIPTION
1	0803-D36A
2	0803-D36A
3	95184 LABEL NP TM006

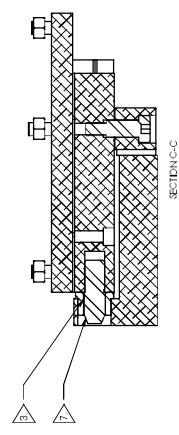
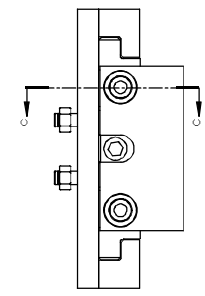




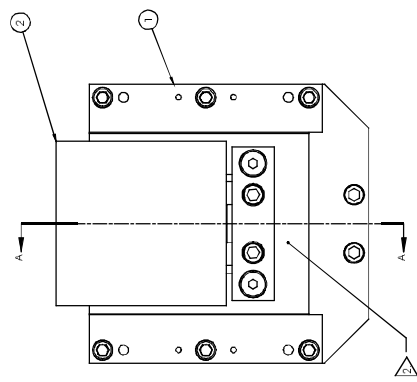
REV: 00  
 0804-D07A

ZONE	REV	DESCRIPTION	DR	CHK	DATE	ECRHSRNO
	00	RELEASED FOR MANUFACTURING	TZ	JV	07/17/08	

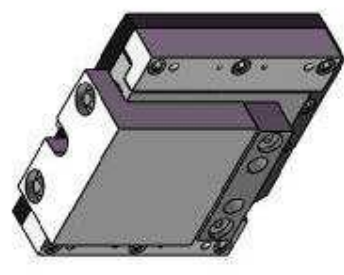
REVISIONS



SECTION C-C



SECTION A-A



- NOTES: 1. ITEMS TO RECEIVE LOCOTITE ARE TO BE THOROUGHLY CLEANED FROM GREASE AND OIL BEFORE APPLYING ANY LOCOTITE THREAD LOCKERS.
- APPLY LABEL NP ARI #95261.
  - APPLY WHITE LITHIUM GREASE ARI #91504P 1037.
  - APPLY LOCOTITE 2222 ARI #6005P1020 TO M6 AND M8.
  - APPLY LOCOTITE 2222 ARI #60106 TO M8 - M18 SCREWS.
  - SPRINGS PRELOAD ADJUSTMENT SCREW ADJUST AS NEEDED TO PROPERLY SUPPORT TOOL WEIGHT.
  - ASSEMBLE PINS AND BUSHINGS PRIOR TO SHIPMENT.
  - USE FIXTURE (ARI #800709A) TO ASSEMBLE PINS.

ITEM NO.	QTY.	DESCRIPTION
1	1	0804-D07A
2	1	0804-D07A
3	1	0804-D07A
4	1	0804-D07A
5	1	0804-D07A
6	1	0804-D07A
7	1	0804-D07A
8	1	0804-D07A

ITEM NO.	QTY.	DESCRIPTION
1	1	0804-D07A
2	1	0804-D07A
3	1	0804-D07A
4	1	0804-D07A
5	1	0804-D07A
6	1	0804-D07A
7	1	0804-D07A
8	1	0804-D07A

ITEM NO.	QTY.	DESCRIPTION
1	1	0804-D07A
2	1	0804-D07A
3	1	0804-D07A
4	1	0804-D07A
5	1	0804-D07A
6	1	0804-D07A
7	1	0804-D07A
8	1	0804-D07A

ITEM NO.	QTY.	DESCRIPTION
1	1	0804-D07A
2	1	0804-D07A
3	1	0804-D07A
4	1	0804-D07A
5	1	0804-D07A
6	1	0804-D07A
7	1	0804-D07A
8	1	0804-D07A

ITEM NO.	QTY.	DESCRIPTION
1	1	0804-D07A
2	1	0804-D07A
3	1	0804-D07A
4	1	0804-D07A
5	1	0804-D07A
6	1	0804-D07A
7	1	0804-D07A
8	1	0804-D07A

ITEM NO.	QTY.	DESCRIPTION
1	1	0804-D07A
2	1	0804-D07A
3	1	0804-D07A
4	1	0804-D07A
5	1	0804-D07A
6	1	0804-D07A
7	1	0804-D07A
8	1	0804-D07A

ITEM NO.	QTY.	DESCRIPTION
1	1	0804-D07A
2	1	0804-D07A
3	1	0804-D07A
4	1	0804-D07A
5	1	0804-D07A
6	1	0804-D07A
7	1	0804-D07A
8	1	0804-D07A

ITEM NO.	QTY.	DESCRIPTION
1	1	0804-D07A
2	1	0804-D07A
3	1	0804-D07A
4	1	0804-D07A
5	1	0804-D07A
6	1	0804-D07A
7	1	0804-D07A
8	1	0804-D07A

ITEM NO.	QTY.	DESCRIPTION
1	1	0804-D07A
2	1	0804-D07A
3	1	0804-D07A
4	1	0804-D07A
5	1	0804-D07A
6	1	0804-D07A
7	1	0804-D07A
8	1	0804-D07A

ITEM NO.	QTY.	DESCRIPTION
1	1	0804-D07A
2	1	0804-D07A
3	1	0804-D07A
4	1	0804-D07A
5	1	0804-D07A
6	1	0804-D07A
7	1	0804-D07A
8	1	0804-D07A

ITEM NO.	QTY.	DESCRIPTION
1	1	0804-D07A
2	1	0804-D07A
3	1	0804-D07A
4	1	0804-D07A
5	1	0804-D07A
6	1	0804-D07A
7	1	0804-D07A
8	1	0804-D07A

ITEM NO.	QTY.	DESCRIPTION
1	1	0804-D07A
2	1	0804-D07A
3	1	0804-D07A
4	1	0804-D07A
5	1	0804-D07A
6	1	0804-D07A
7	1	0804-D07A
8	1	0804-D07A

ITEM NO.	QTY.	DESCRIPTION
1	1	0804-D07A
2	1	0804-D07A
3	1	0804-D07A
4	1	0804-D07A
5	1	0804-D07A
6	1	0804-D07A
7	1	0804-D07A
8	1	0804-D07A

ITEM NO.	QTY.	DESCRIPTION
1	1	0804-D07A
2	1	0804-D07A
3	1	0804-D07A
4	1	0804-D07A
5	1	0804-D07A
6	1	0804-D07A
7	1	0804-D07A
8	1	0804-D07A

ITEM NO.	QTY.	DESCRIPTION
1	1	0804-D07A
2	1	0804-D07A
3	1	0804-D07A
4	1	0804-D07A
5	1	0804-D07A
6	1	0804-D07A
7	1	0804-D07A
8	1	0804-D07A

ITEM NO.	QTY.	DESCRIPTION
1	1	0804-D07A
2	1	0804-D07A
3	1	0804-D07A
4	1	0804-D07A
5	1	0804-D07A
6	1	0804-D07A
7	1	0804-D07A
8	1	0804-D07A

ITEM NO.	QTY.	DESCRIPTION
1	1	0804-D07A
2	1	0804-D07A
3	1	0804-D07A
4	1	0804-D07A
5	1	0804-D07A
6	1	0804-D07A
7	1	0804-D07A
8	1	0804-D07A

ITEM NO.	QTY.	DESCRIPTION
1	1	0804-D07A
2	1	0804-D07A
3	1	0804-D07A
4	1	0804-D07A
5	1	0804-D07A
6	1	0804-D07A
7	1	0804-D07A
8	1	0804-D07A

ITEM NO.	QTY.	DESCRIPTION
1	1	0804-D07A
2	1	0804-D07A
3	1	0804-D07A
4	1	0804-D07A
5	1	0804-D07A
6	1	0804-D07A
7	1	0804-D07A
8	1	0804-D07A

ITEM NO.	QTY.	DESCRIPTION
1	1	0804-D07A
2	1	0804-D07A
3	1	0804-D07A
4	1	0804-D07A
5	1	0804-D07A
6	1	0804-D07A
7	1	0804-D07A
8	1	0804-D07A

ITEM NO.	QTY.	DESCRIPTION
1	1	0804-D07A
2	1	0804-D07A
3	1	0804-D07A
4	1	0804-D07A
5	1	0804-D07A
6	1	0804-D07A
7	1	0804-D07A
8	1	0804-D07A

ITEM NO.	QTY.	DESCRIPTION
1	1	0804-D07A
2	1	0804-D07A
3	1	0804-D07A
4	1	0804-D07A
5	1	0804-D07A
6	1	0804-D07A
7	1	0804-D07A
8	1	0804-D07A

ITEM NO.	QTY.	DESCRIPTION
1	1	0804-D07A
2	1	0804-D07A
3	1	0804-D07A
4	1	0804-D07A
5	1	0804-D07A
6	1	0804-D07A
7	1	0804-D07A
8	1	0804-D07A

ITEM NO.	QTY.	DESCRIPTION
1	1	0804-D07A
2	1	0804-D07A
3	1	0804-D07A
4	1	0804-D07A
5	1	0804-D07A
6	1	0804-D07A
7	1	0804-D07A
8	1	0804-D07A

ITEM NO.	QTY.	DESCRIPTION
1	1	0804-D07A
2	1	0804-D07A
3	1	0804-D07A
4	1	0804-D07A
5	1	0804-D07A
6	1	0804-D07A
7	1	0804-D07A
8	1	0804-D07A

ITEM NO.	QTY.	DESCRIPTION
1	1	0804-D07A
2	1	0804-D07A
3	1	0804-D07A
4	1	0804-D07A
5	1	0804-D07A
6	1	0804-D07A
7	1	0804-D07A
8	1	0804-D07A

ITEM NO.	QTY.	DESCRIPTION
1	1	0804-D07A
2	1	0804-D07A
3	1	0804-D07A
4	1	0804-D07A
5	1	0804-D07A
6	1	0804-D07A
7	1	0804-D07A
8	1	0804-D07A

ITEM NO.	QTY.	DESCRIPTION
1	1	0804-D07A
2	1	0804-D07A
3	1	0804-D07A
4	1	0804-D07A
5	1	0804-D07A
6	1	0804-D07A
7	1	0804-D07A
8	1	0804-D07A

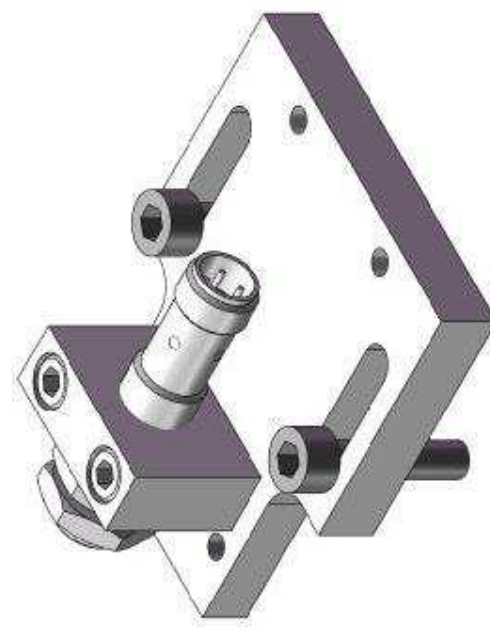
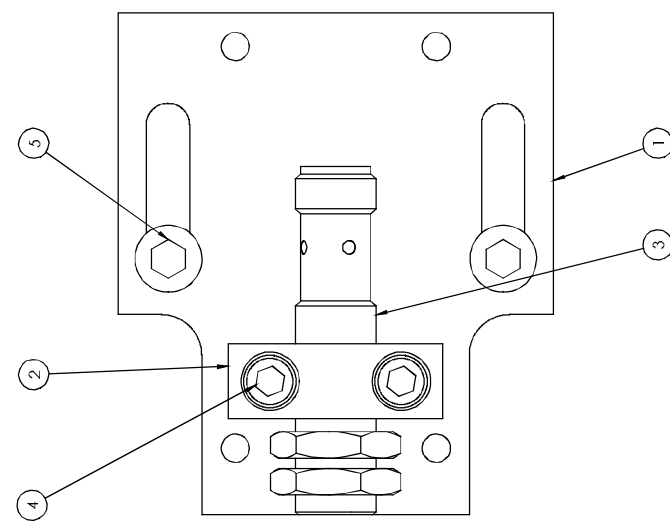
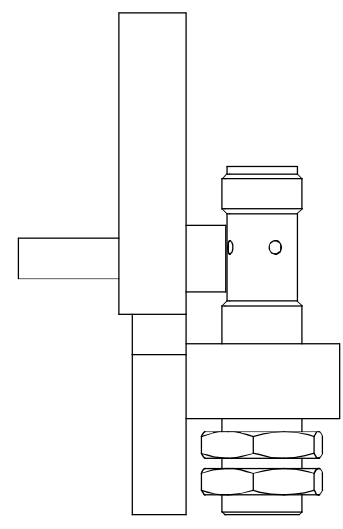
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1	1	0804-D07A
2	1	0804-D07A
3	1	0804-D07A
4	1	0804-D07A
5	1	0804-D07A
6	1	0804-D07A
7	1	0804-D07A
8	1	0804-D07A

ITEM NO.	QTY.	DESCRIPTION
1	1	0804-D07A
2	1	0804-D07A
3	1	0804-D07A
4	1	0804-D07A
5	1	0804-D07A
6	1	0804-D07A
7	1	0804-D07A
8	1	0804-D07A

ITEM NO.	QTY.	DESCRIPTION
1	1	0804-D07A
2	1	0804-D07A
3	1	0804-D07A
4	1	0804-D07A
5	1	0804-D07A
6	1	0804-D07A
7	1	0804-D07A
8	1	0804-D07A

ITEM NO.	QTY.	DESCRIPTION
1	1	0804-D07A
2	1	0804-D07A
3	1	0804-D07A
4	1	0804-D07A

8	SIZE	C	7	REV	00	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
8	DRAWING NUMBER		0710-C24N	REV	00	DESCRIPTION		RELEASED FOR MANUFACTURING		TZ	JV	11/12/07	CHK	DATE	ECR/ESR NO.																																																																																					



- NOTES
1. ALL ITEMS TO RECEIVE LOCTITE ARE TO BE USED THROUGHLY CLEANED FROM GREASE AND OIL. USE PROX LOCKERS BEFORE APPLYING ANY LOCTITE.
  2. APPLY LOCTITE 222 ARI #86005-P1020 TO M5 AND SMALLER SCREWS.
  3. APPLY LOCTITE 242 ARI #50106 TO M6 - M18 SCREWS.

ITEM	QTY	ARI PART NO.	DESCRIPTION
5	2	48039	SCR. SOC HD CAP M6 X 25 (SS)
4	2	40456	SCR. SOC HD CAP 10-32 X 1
3	1	0711-P59N	PROX SWITCH, TURCK MS1634397
2	1	0711-P66N	BRACKET, TURCK MB-S12
1	1	0711-C80N	PLATE, PROX MOUNT TS-500-CFA

METRIC		BILL OF MATERIALS	
UNLESS OTHERWISE SPECIFIED:	DR: T.ZAKORSKI	TITLE	
INTOLERANCED DIMS ARE BASIC	CHK: J.VALLEJUNGA	TOOLSTAND SWITCH ASM.	
UNLESS OTHERWISE SPECIFIED:	ENG: T.ZAKORSKI	SCALE: 2:1	
UNLESS OTHERWISE SPECIFIED:	MFG: -	DONOT SCALE DRAWING	
UNLESS OTHERWISE SPECIFIED:	ISSUED: -	DIM AND TOLERANCING IN ACCORDANCE WITH ANS14.5M-1994	
UNLESS OTHERWISE SPECIFIED:	OC: -	WEIGHT: 0.13 kg	
INTERNAL DIMS & BROKEN EDGES TO BE 1/32"	MATL: -	REV: 00	
ALL SURFACE FINISHES: 1/8"	DRAWING NUMBER: 0710-C24N		
ISO 9001 REGISTERED	REV: 00		
PRINT DATE: 7/23/2008	REV: 00		

APPLIED ROBOTICS

Applied Robotics  
5465 STATE ROAD 100, LEBANON, NY 12242

ISO 9001 REGISTERED

PRINT DATE: 7/23/2008

