

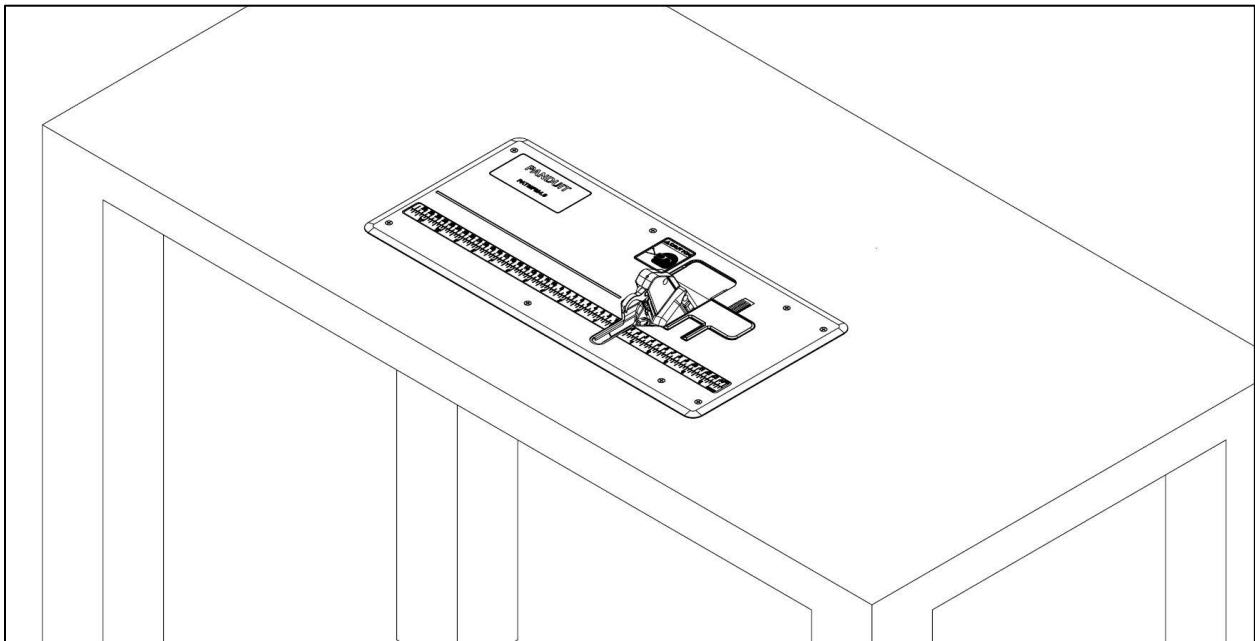
PAT4.0 FLUSH MOUNT FIXTURE OPERATION MANUAL

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Translation of the
Original Instructions

This manual contains instructions for the following:

PATMFM4.0



WARNING

- TO REDUCE THE RISK OF INJURY, USER MUST READ INSTRUCTION MANUAL

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1: INTRODUCTION

The PATMFM4.0 Table-Top Bench Mount Tool Fixture allows an operator to apply cable ties onto a wiring harness with minimal strain. The fixture requires an existing PAT4.0 Fully Automatic Cable Tie Installation System and can utilize both the PAT1M4.0 and PAT1.5M4.0 Handheld Tie Installation Tools. The PAT4.0 Hand Tool is mounted in the PATMFM4.0 fixture such that the work can be brought to the tool and actuated simultaneously. Follow the step-by-step instructions below to install and operate the PATMFM4.0 Fixture.



NOTE: *In the interest of higher quality and value, Panduit products are continually being improved and updated. Consequently, pictures may vary from the enclosed product.*

2: SYSTEM SPECIFICATIONS

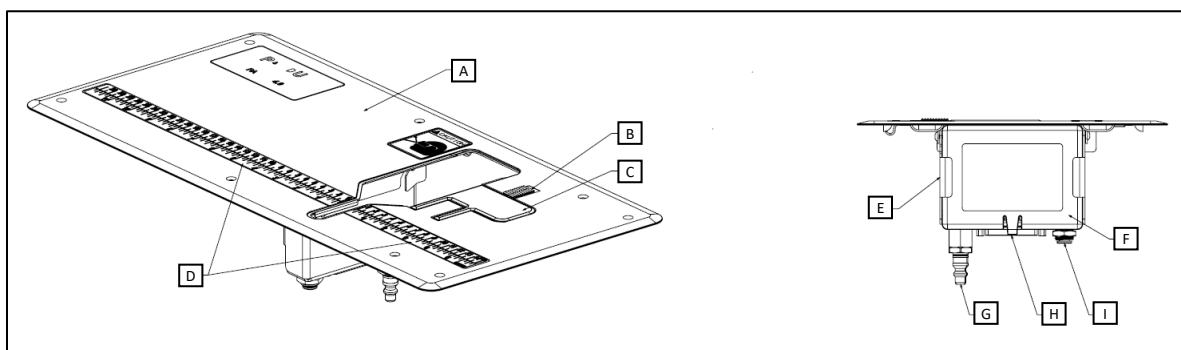
The Panduit Corporation PATMFM4.0 Table-Top Bench Mount Fixture consists of seven individual units: The Table-Top Fixture, Fixture Tool Cage, EI Communication Cable, Tip Deflector, Tool Cavity Cover, Table-Top Template and the PATMFM4.0 Air Regulator.

NOTE: Any substitution may cause serious damage to the system and/or injury to the operator.

2A: PATMFM4.0 Table-Top Fixture

The PATMFM 4.0 Table-Top Fixture is electrically and pneumatically controlled via an existing PAT4.0 System. A concealed electrical enclosure (Item E) manages these connections via Item(s) G,H and I. Reference scales (Item(s) D) allow an operator to reference the distance relative to the PAT1M4.0 and PAT1.5M4.0 jaw centers from either direction. An Actuation Paddle (Item C) lays flat in its storage position until released via the spring-loaded latch (Item B). This paddle once released and in its operational position, is actuated by the operator to preform work.

PATMFM4.0 Fixture General Overview:



- A. Work Surface
- B. Paddle Latch
- C. Actuation Paddle
- D. Reference Scale(s)
- E. Electronics Enclosure

- F. Electronics Enclosure Cover
- G. Air-Regulator Input Fitting
- H. EI Communication Port
- I. Tool Cage air-line Output Quick-Connector

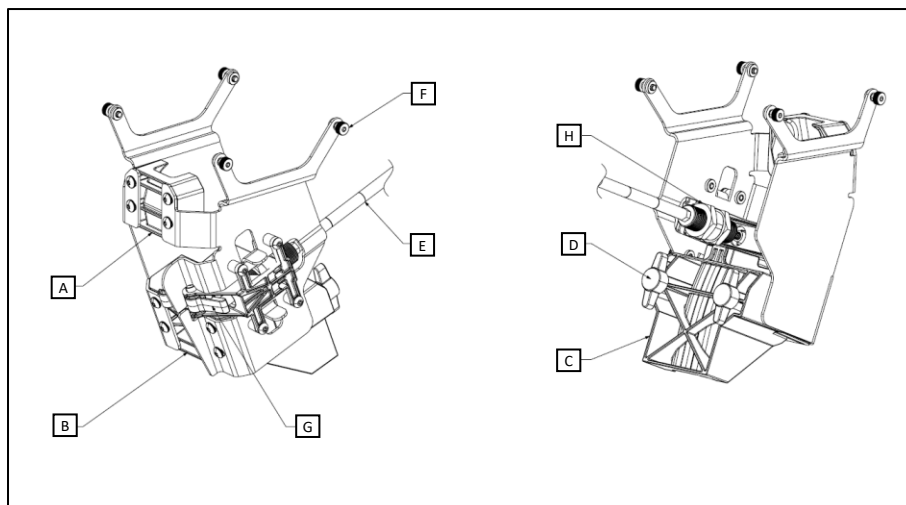
Table 2A: PATMFM4.0 Fixture Overall Specification

Dimension	Value
Length	19.32" (491mm)
Width	9.27" (235mm)
Height	6.53" (166mm)
Max Height Relative to Work Surface	1.79" (45mm)

2B: Fixture Tool Cage

The Fixture Tool Cage allows PAT1M4.0 and PAT1.5M4.0 Handheld Cable-Tie Installation Tools to be mounted and installed into the PATMFM4.0 Table-Top Fixture. Installation of a Hand Tool is preceded by removing the Rear Lower Tool Support (Item C) via the two thumbscrews (Item D). With the Rear Support removed, a Hand Tool can be inserted and aligned relative to the Top and Bottom Front Tool Supports (Item(s) A, B). Once a selected Tool is mounted into the Tool Cage and the Rear Support re-installed, the Cage can be mounted onto the PATMFM4.0 Fixture, thus suspending the Tool such that only the top portion of the Tool protrudes from the work surface. An airline (Item E) that exits the tool Cage is connected to the PATMFM4.0 Fixture and delivers a controlled burst of air to the Actuation Trigger (Item G), engaging the Tool Trigger (Item G) itself and beginning a cycle. Once complete, air is exhausted, the Actuation Trigger retracts and the Tool is reset for a new cycle.

Fixture Tool Cage General Overview:



- A. Front Upper Tool Support
- B. Front Lower Tool Support
- C. Rear Lower Tool Support
- D. Retaining Thumbscrews
- E. Tool Cage Airline
- F. Tool Cage Retention Shoulder Screws
- G. Actuation Trigger
- H. Actuation Air Cylinder

Table 2B: Fixture Tool Cage Overall Specification

Dimension	Value
Length (Max-excluding airline)	4.63" (118mm)
Width (Max)	4.16" (106mm)
Height (Max)	6.28" (160mm)

2C: EI Communication Cable

The EI Communication Cable routes power and data between the PAT4.0 System and the PATMFM4.0 Fixture. This is a standard 25 Position D-Sub Male to Male connector cable that utilizes Philips head screws on both connector ends for retention. The Cable delivers power to the PATMFM4.0 Fixture from the PAT4.0 System and relays cycle status and Actuation Paddle state back to the PAT4.0 System.

EI Communication Cable General Overview:

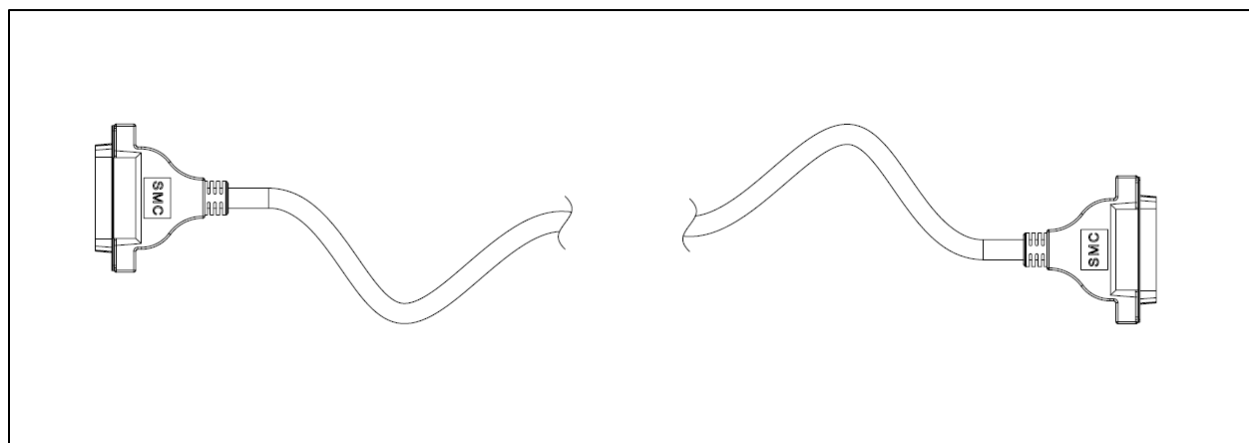


Table 2C: EI Communication Cable Overall Specification

Length	Width	Height
2m (6.56 ft)	2.17" (55mm)	0.65" (17mm)

2D: Tip Deflector

The Tip Deflector is similar to the Tip Collector originally provided with the PAT1M4.0 and PAT1.5M4.0 Handheld Tie Installation Tools. Instead of collecting the scrap produced, the Tip Deflector acts to divert the waste under the work surface such that an appropriately located waste receptacle can be used under said surface to collect scrap from multiple jobs/cycles without constant removal and clean up.

Tip Deflector General Overview:

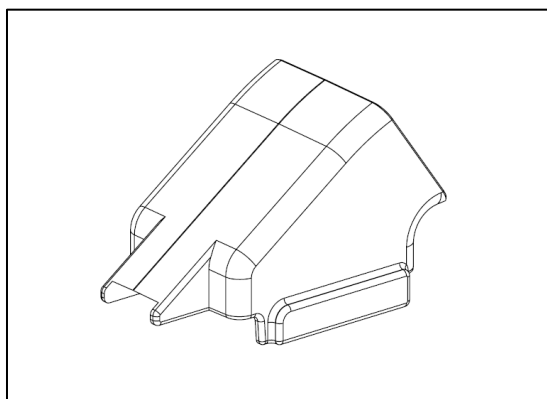


Table 2D: Tip Deflector Overall Specification

Dimension	Value
Length	3.58" (91mm)
Width	2.09" (53mm)
Height	2.25" (57mm)

2E: Tool Cavity Cover

The Tool Cavity Cover is utilized when work is NOT preformed and a PAT1M4.0 or PAT1.5M4.0 Tool is NOT installed within the Fixture Tool Cage (*The Tool Cage can remain mounted onto the PATMFM4.0 Fixture*). The Cavity Cover installs into the cavity, located on the top side of the PATMFM4.0 Fixture, in order to restore the work surface area lost. This Cover aids in reducing the chance of materials falling through this tool "cavity" and can be easily removed to resume work.

Tool Cavity Cover General Overview:

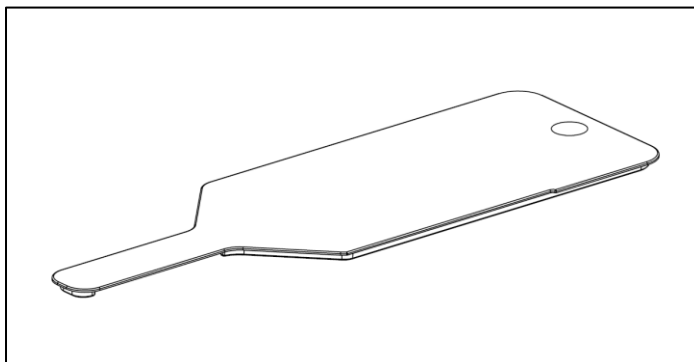


Table 2E: Tool Cavity Cover Overall Specification

Dimension	Value
Length	7.18" (182mm)
Width	2.46" (62mm)
Height	0.13" (3.3mm)

2F: Table-Top Template

The Table-Top Template is used prior to PATMFM4.0 Fixture installation in order to prepare a selected work surface for the Fixture. A perimeter pattern of eight (8) total through holes and an aligned rectangular pocket must be drilled and routed respectively in order to install the PATMFM4.0 Fixture successfully. A proper work surface can be made from a variety of materials, either homogenous or engineered and the PATMFM4.0 Fixture includes the necessary hardware for installation onto hardwood-based surfaces. Reference the Minimum Work Surface Requirements table below for the minimum work surface dimensions required to successfully install the PATMFM4.0 Fixture.

Table-Top Template General Overview:

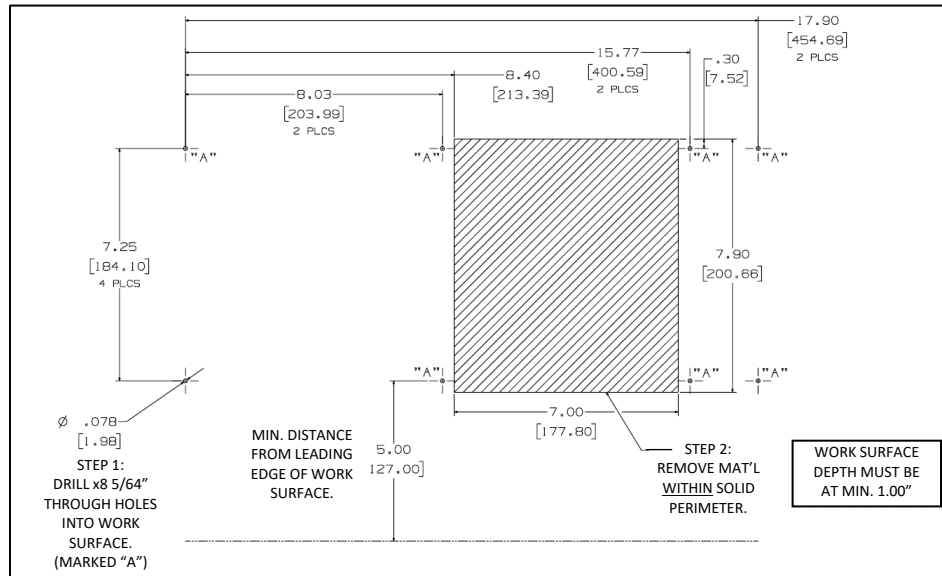


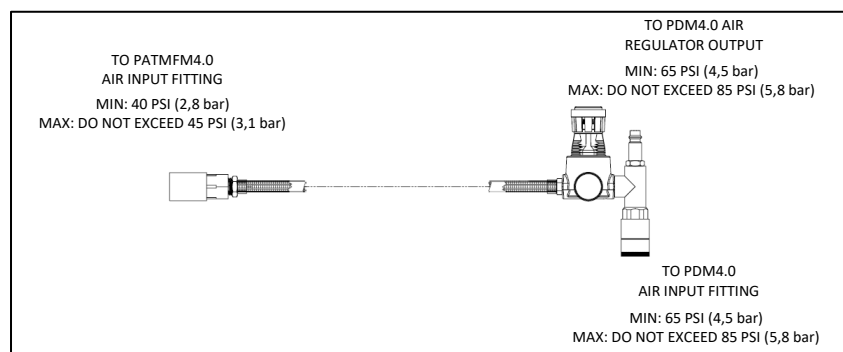
Table 2F: Minimum Work Surface Specification

Dimension	Value
Length	22.0" (559mm)
Width	18.0" (457mm)
Depth	1.00" (25.4mm)

2G: Air Regulator



The PATMFM4.0 Air Regulator is designed to split and effectively "branch" the air regulator connection already utilized by the PAT4.0 Fully Automatic Cable Tie Installation System. This branching air regulator connects between the PAT4.0 System's Air Regulator output and PAT4.0's air input fitting to provide a reduced operating pressure utilized by the PATMFM4.0 Fixture. The PATMFM4.0 Air Regulator is adjustable and should be set to the recommended output specification (Table 4A) before connecting to and operating the Fixture. Confirm this output pressure via the Air Regulator's pressure gauge.


Air Regulator General Overview:





3: GENERAL POWER TOOL SAFETY WARNINGS




The PAT4.0 Flush Table-Top Bench Mount System is pneumatically and electrically operated and electronically controlled via an **existing PAT Fully Automatic Cable Tie Installation System**. Therefore, certain safety practices must be followed.





	 WARNING
	<ul style="list-style-type: none"> ● Read all safety warning and all instructions. Failure to follow the warnings and instructions may result in electric shock, fire and/or serious injury. ● Save all warnings and instructions for future reference. ● The term “power tool” in the warnings refers to your main-operated (corded) power tool or battery-operated (cordless) power tool.



	<p>Panduit Corp. recommends the fixture be used with all installed safety features. Customer assumes all liability for injury that could result from improper use of this fixture and responsibility for all necessary training to ensure safe operation of this fixture.</p>
	<ul style="list-style-type: none"> • FOR INSTALLATION AND USE BY TRAINED PERSONNEL ONLY.
	<ul style="list-style-type: none"> • IF ANY DAMAGE TO THE PRODUCT IS APPARENT OR SUSPECTED, DO NOT USE THE PRODUCT. REFER PRODUCT TO QUALIFIED SERVICE PERSONNEL.
	<ul style="list-style-type: none"> • FCC WARNING: CHANGES OR MODIFICATIONS TO THE PRODUCT COULD VOID THE USER’S AUTHORITY TO OPERATE THE PRODUCT.

3A: Work Area Safety

	 WARNING
	<p>DO NOT OPERATE POWER TOOLS IN EXPLOSIVE ATMOSPHERES, SUCH AS IN THE PRESENCE OF FLAMMABLE LIQUIDS, GASES OR DUST.</p> <p><i>Power tools create sparks which may ignite the dust or fumes.</i></p> <p><i>Provide adequate ventilation around the product.</i></p>

		 WARNING
		<p>KEEP WORK AREA CLEAN AND WELL LIT. <i>Cluttered or dark areas invite accidents. Do not use in dusty environments.</i></p> <p>KEEP CHILDREN AND BYSTANDERS AWAY WHILE OPERATING A POWER TOOL. <i>Distractions can cause you to lose control.</i></p>

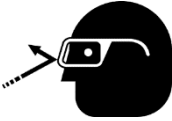



	 WARNING
	<p>Power tool plugs must match the outlet. Never modify the plug in any way. Do not use any adapter plugs with earthed (grounded) power tools. <i>Unmodified plugs and matching outlets will reduce risk of electric shock.</i></p>
	 WARNING
	<p>ONLY OPERATE THE PATMFM4.0 SYSTEM IN A CLEAN, DRY, INDOOR ENVIRONMENT.</p> <p>DO NOT EXPOSE POWER TOOLS TO RAIN OR WET CONDITIONS. <i>Water entering a power tool will increase the risk of electric shock.</i></p> <p>When operating a power tool outdoors, use an extension cord suitable for outdoor use. <i>Use of a cord suitable for outdoor use reduces the risk of electric shock.</i></p> <p>If operating a power tool in a damp location is unavoidable, use a residual current device (RCD) protected supply. <i>Use of an RCD reduces the risk of electric shock.</i></p> <p>NOTE: The term “residual current device (RCD)” may be replaced by the term “ground fault circuit interrupter (GFCI)” or “earth leakage circuit breaker (ELCB)”.</p>

	 KEEP AWAY FROM LIVE CIRCUITS:
	<ul style="list-style-type: none"> • Operating personnel must use caution when opening covers. • Replacement of components and internal adjustments must be made by qualified maintenance personnel. • Disconnect power cable when replacing components. • Dangerous voltages may exist even with the power cable removed. • To avoid injuries, always disconnect power and discharge circuits by grounding before touching circuitry. • Input connection to the product must remain accessible as a disconnect device. • DO NOT work on the product; connect or disconnect cables during periods of lightning. • Provide wiring per national and local electrical codes.

3B: Operational Safety Practices

1. DO NOT insert fingers in between the jaws of the tool.
2. DO NOT operate the tool with the rear jaw held open. Cable ties may be ejected from the tool at high velocities.
3. DO NOT operate the tool near anyone's face.
4. DO NOT operate the tool without a wire bundle in the jaws.
5. DO NOT operate the tool with any object blocking the path of the cable tie around the jaws.

3C: Personal Safety

	 WARNING Use personal protective equipment. Always wear eye protection. <i>Protective equipment such as dust mask, non-skid safety shoes, hard hat, or hearing protection used for appropriate conditions will reduce personal injuries.</i>
	 WARNING Hearing protection is recommended to be worn during operation of tool.

1. **STAY ALERT, watch what you are doing and use common sense when operating a power tool. Do not use a power tool while you are tired or under the influence of drugs, alcohol or medication.**
A moment of inattention while operating power tools may result in serious personal injury.

2. **Prevent unintentional starting. Ensure the actuation paddle is in the actuation-position before connecting to a power source or turning on the PAT4.0 System.**
Unlatching the paddle whilst the PAT4.0 system is powered can cause an unintended tie cycle to occur.
3. **Remove any adjusting key or wrench before turning the power tool on.**
A wrench or a key left attached to a rotating part of the power tool may result in personal injury.
4. **Dress properly. Do not wear loose clothing or jewelry. Keep your hair, clothing and gloves away from moving parts.**
Loose clothes, jewelry or long hair can be caught in moving parts.
5. **If devices are provided for the connection of dust extraction and collection facilities, ensure these are connected and properly used.**
Use of dust collection can reduce dust-related hazards.
6. **To prevent unintentional injury, DO NOT place the PATMFM4.0 where a ladder is required for access.**



3D: Power Tool Use and Care

1. **Do not force the power tool. Use the correct power tool for your application.**
The correct power tool will do the job better and safer at the rate for which it was designed.
2. **Do not use the power tool if the switch does not turn it on and off.**
Any power tool that cannot be controlled with the switch is dangerous and must be repaired.
3. **Disconnect the plug from the power source and/or the battery pack from the power tool before making any adjustments, changing accessories, or storing power tools.**
Such preventive safety measures reduce the risk of starting the power tool accidentally.
4. **Store idle power tools out of the reach of children and do not allow persons unfamiliar with the power tool or these instructions to operate the power tool.**
Power tools are dangerous in the hands of untrained users.
5. **Maintain power tools. Check for misalignment or binding of moving parts, breakage of parts and any other condition that may affect the power tool's operation. If damaged, have the power tool repaired before use.**
Many accidents are caused by poorly maintained power tools.
6. **Keep cutting tools sharp and clean.**
Properly maintained cutting tools with sharp cutting edges are less likely to bind and are easier to control.
7. **Use the power tool, accessories and tool bits, etc. in accordance with these instructions, considering the working conditions and the work to be performed.**
Use of the power tool for operations different from those intended could result in a hazardous situation.



3E: Service

- Have your Fixture serviced by a qualified repair person using only identical replacement parts.

Contact Panduit Electrical Products Division Service at the following locations:

Panduit Electrical Products Division (USA) 16530 W. 163 rd Street Lockport, IL 60441 888-506-5400, ext. 83255	Panduit EMEA Service Center (EUR) EMEA Tool Service Center Bedrijvenpark Twente 360 7602 KL Almelo tel + 31 546 580 451
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This will ensure that the safety of the fixture is maintained.

The information contained in this manual is based on our experience to date and is believed to be reliable. It is intended as a guide for use by persons having technical skill at their own discretion and risk. We do not guarantee favorable results or assume any liability in connection with its use. Dimensions contained herein are for reference purposes only. For specific dimensional requirements consult the factory. This publication is not to be taken as a license to operate under, or a recommendation to infringe any existing patents.

4: TECHNICAL SPECIFICATIONS

4A: Air Supply

ITEM	DESCRIPTION
PATMFM4.0 Recommended regulated air pressure to fixture. (pressures other than recommended may result in unsatisfactory operation):	MIN.: 40 PSI (2,8 bar) MAX: DO NOT EXCEED 45 PSI (3,1 bar). Max. recommended pressure drop: 5PSI (0.34bar)
PATMFM4.0 Filter/regulator requirements:	<ul style="list-style-type: none">• 40-micron maximum element rating• 5 PSI (0,3 bar) maximum pressure drop @ 45 PSIG (3,1 bar) inlet pressure• 12 cfm (5,7 l/sec) flow minimum.
Lubrication for air supply:	Air-line lubricators are NOT to be used. Lubricators will damage internal system components and seals.
PAT4.0 Recommended filter/regulator unit (supplied by user) 3/8" NPT ports:	Recommended source: Panduit Part Number PL283N1.

4B: Environmental

When storing and transporting an unused unit, please take care to use the original packaging.

Operational Temperature and Humidity	+10C(+50F) to +38C(+100F) Max 90% RH Non-Condensing
Storage/ Transportation Temperature and Humidity	-40C(-40F) to +70C (+158F) Max 90% RH Non-Condensing

5: INSTALLATION / SETUP

5A: Take Inventory

1. Remove components from the shipping box and refer to section 5B for an itemized component list.

5B. What's Included

1. WA29569D01 - Tool Cage Assembly
2. WA29568E01 and WA29567D01 - PATMFM4.0 Fixture Assembly
3. WA29602C01 - Tip Deflector
4. WA29606D01 - Table-Top Template
5. CA29558B01 - EI Communication Cable
6. WA29653C01 - Air Regulator
7. WA29516B01 - Tool Cavity Cover
8. CA29740B01 - (x8) #6-1.0" Mounting Screws (For Wood)

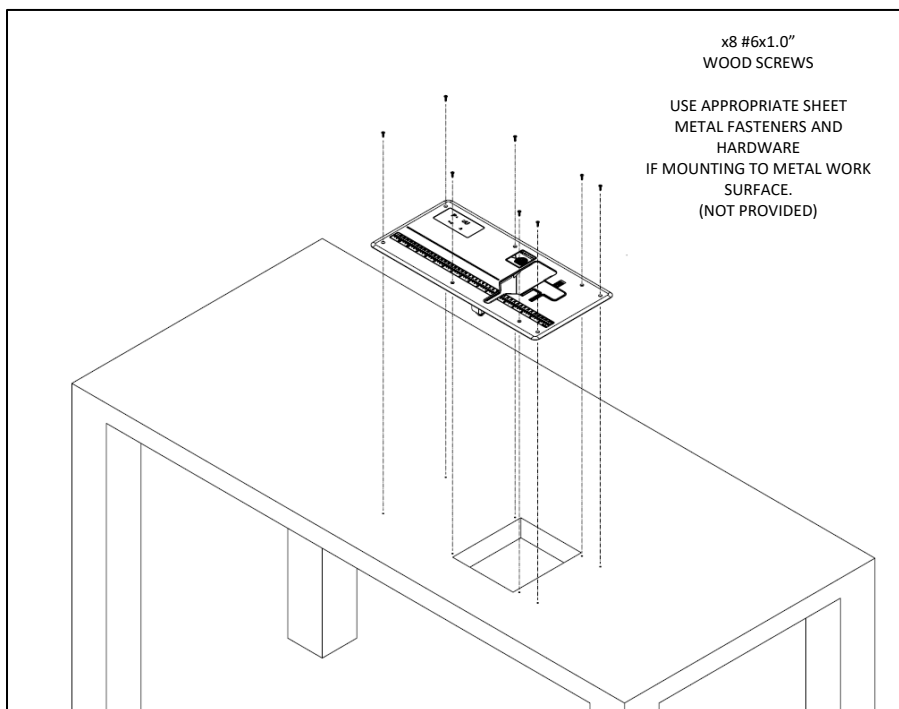
5C. Modify Work Surface with Template

1. Lay the cut-out template down onto the desired work surface. A dashed line on the template denotes the minimum distance relative to the leading edge, as required by the fixture. Once the template is aligned appropriately, secure the sheet at each corner and ensure the template is flat against the work surface.
2. Using the template as a guide, drill a total of eight (8) 5/64" diameter through holes.
3. Using the template as a guide, cut **inside** the **solid rectangular** outline.
4. Once the above has been completed, remove the template and recycle.
5. This completes the process of preparing a work surface for the fixture to be installed.
(If the required work surface is to be metal, use the appropriate countersunk sheet metal fasteners and hardware in the next step – not included).

5D. PATMFM4.0 Fixture Assembly Installation(*Ensure that the PAT4.0 system is off before installation*).

1. Secure the Fixture Assembly to the work surface using the provided #6 Philips head screws around the perimeter of the Overlay Plate. Pay attention to the sensor wiring located on the underside of the Fixture Assembly. **Be careful not to pinch the sensor harness between the Assembly and the work surface.**

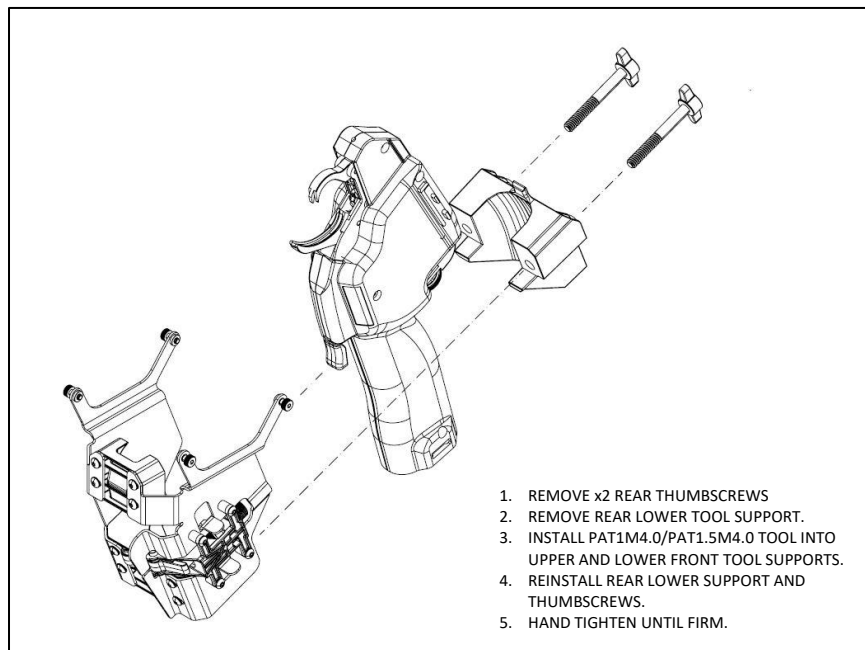
Installing PATMFM4.0 Fixture Assembly onto the work surface:



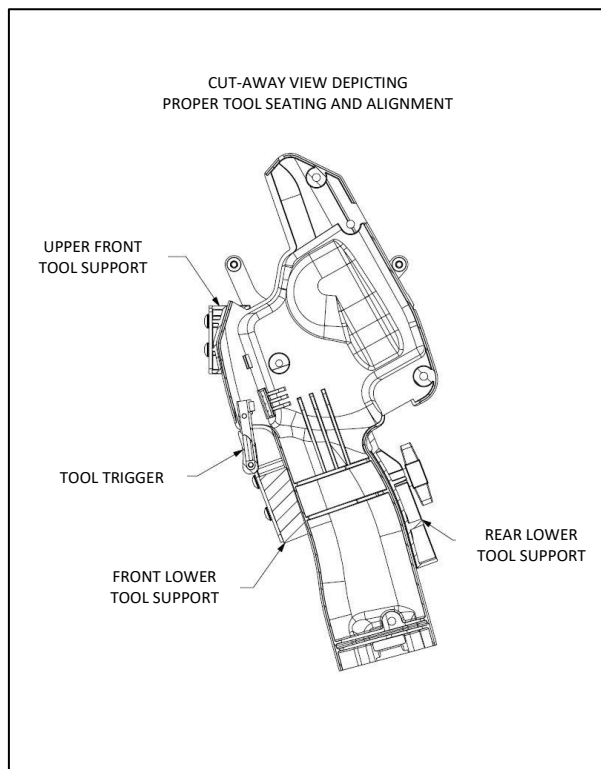
5E. Install PAT1M4.0/PAT1.5M4.0 Tool into Tool Cage

1. Back off the two thumbscrews located towards the back of the tool cage.
2. Once the thumbscrews are loosened, the Rear Lower Tool Support Block will disengage from the Tool Cage Assembly.
3. Insert the PAT1M4.0 or PAT1.5M4.0 into the Tool Cage, ensuring that the Tool properly aligns within the Front Upper and Lower Tool Supports. Proper installation can be verified by ensuring the Tool Cage Actuator Trigger aligns well with the PAT1M4.0 or PAT1.5M4.0 finger trigger.
4. Reinstall the Rear Lower Tool Support Block and thumbscrews. Hand-tighten until the Tool is supported within the Tool Cage and does not shift.

PAT1M4.0/PAT1.5M4.0 Tool Installed into Tool Cage:



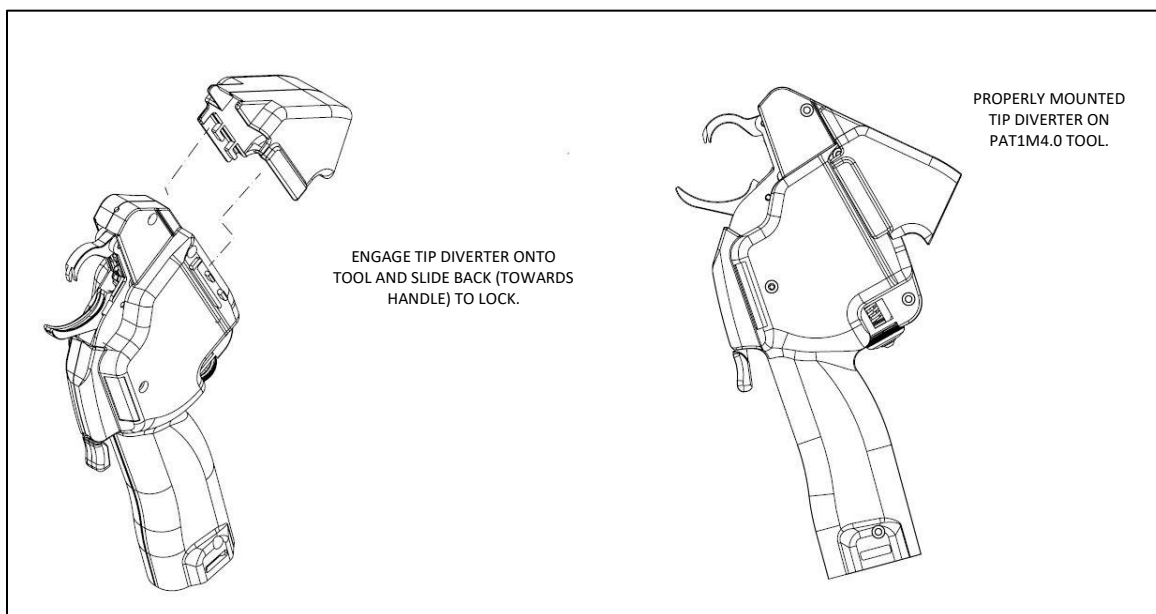
Tool Cage Cut-Away View Depicting Proper Tool Mounting:



5F. Install Tip Deflector onto The PAT1M4.0/PAT1.5M4.0 Tool

1. Install the Tip Deflector onto the PAT1M4.0/PAT1.5M4.0 Tool. The installation process mirrors the Tool's originally provided Tip Collector.

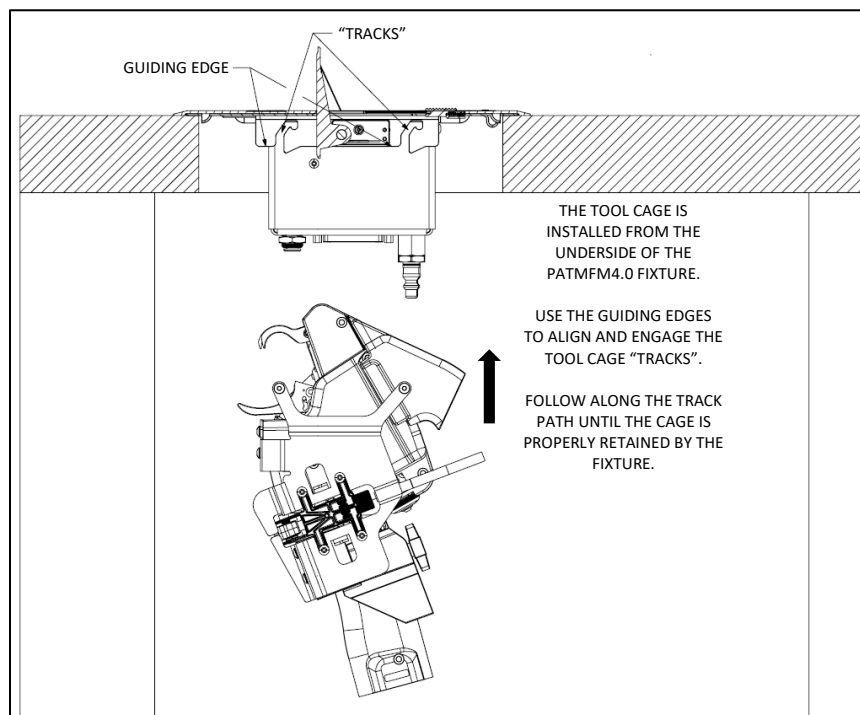
Tip Deflector Installation:



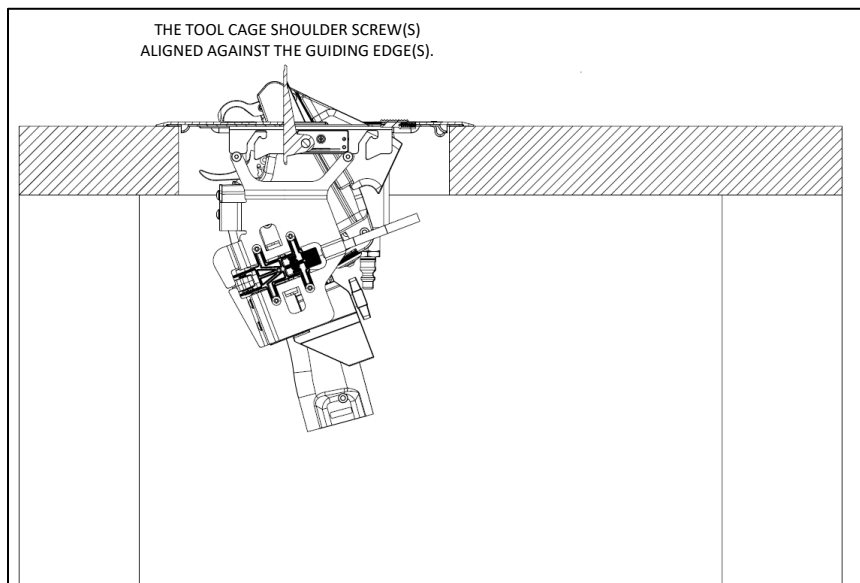
5G. Mount Tool Cage Assembly onto Fixture Assembly

1. The Tool Cage features 4 shoulder bolts that align and are retained by 4 corresponding “tracks” located on the underside of the Fixture. Once aligned with the track openings, simply guide the Tool Cage along the tracks until seated. A properly engaged Tool Cage will not shift or release from the Fixture Assembly unless guided back and out of the tracks.
2. For aiding installation, releasing the Actuation Paddle (with the PAT4.0 switched off) will reveal a single track located underneath the Paddle. This can assist in visually aligning and ensuring proper engagement.
3. Route the Tool Cage airline to the Fixture Assembly's air output quick connector. This is a brass quick connector featuring an orange quick-release ring. To insert, simply press the airline into the brass feature until the airline bottoms out.
(To disengage the airline, simply press the orange ring into the connector whilst pulling the airline out and away).

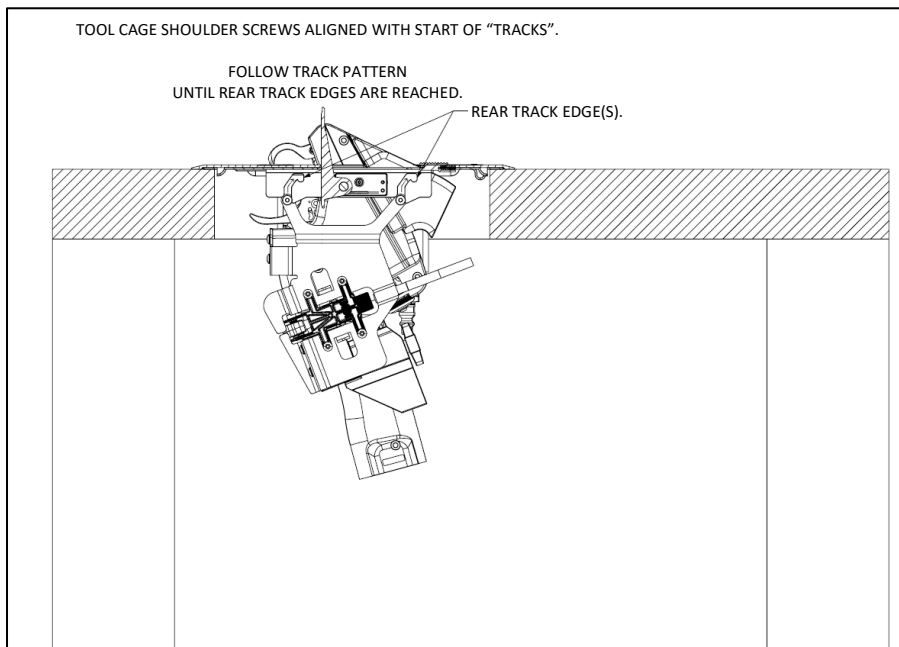
Mounting the Tool Cage (and Tool) from the underside of the Fixture:



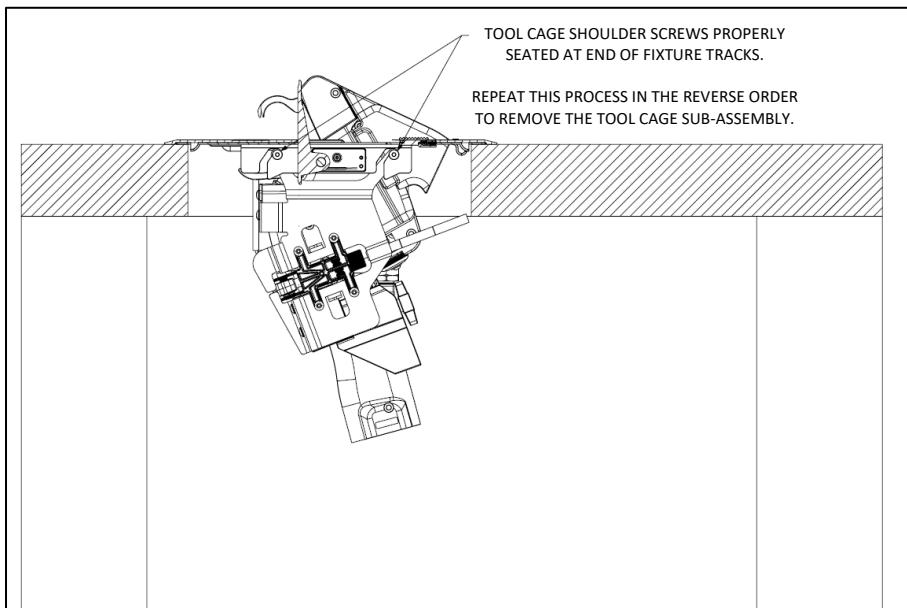
Tool Cage against Guiding Edge(s):



Tool Cage aligned with Start of Fixture Track(s):

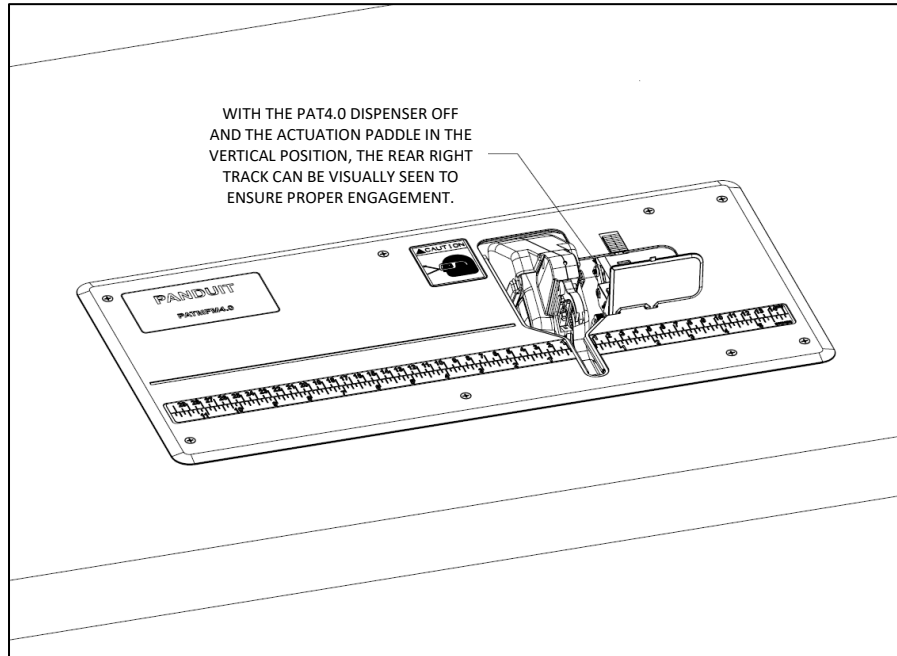


Tool Cage Properly Guided and Retained Within Fixture Tracks:

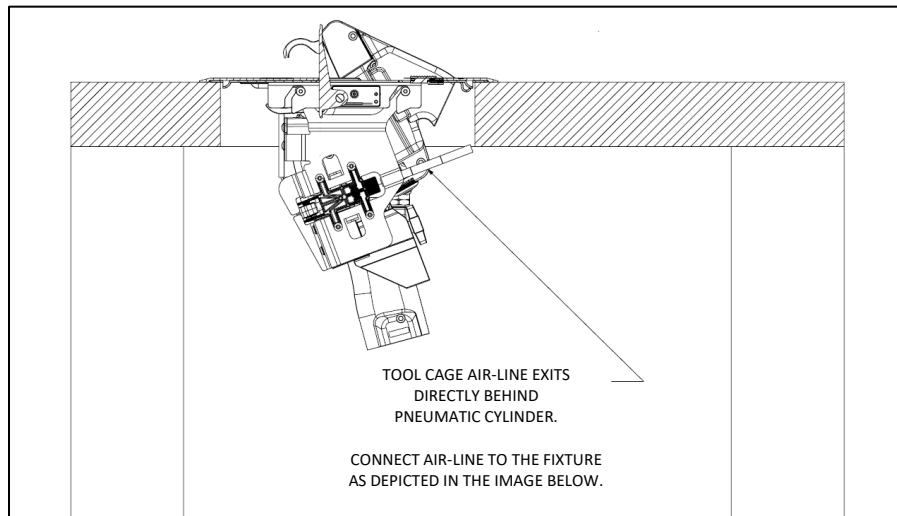


Alternative Tool Cage Install Visual Confirmation Method:

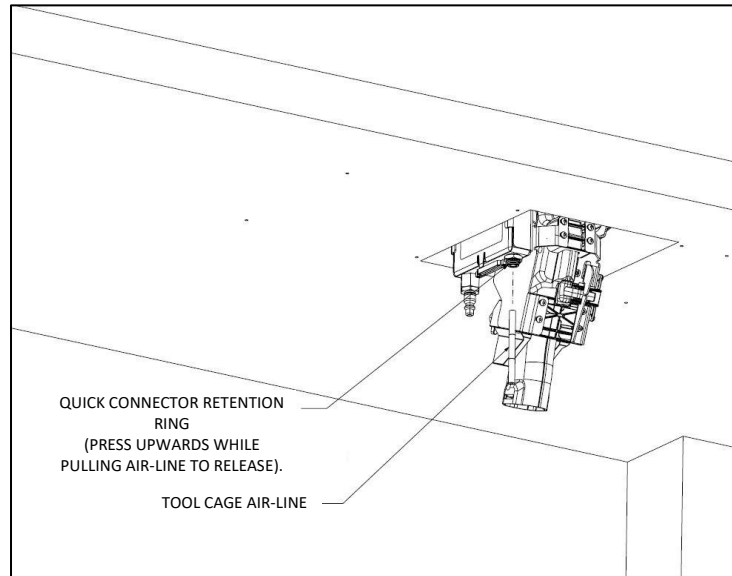
(Refer to section 7B, sub-section 3 for details on how to unlatch the Actuation Paddle into the “operational” orientation).



Tool Cage Airline to Fixture Insertion:



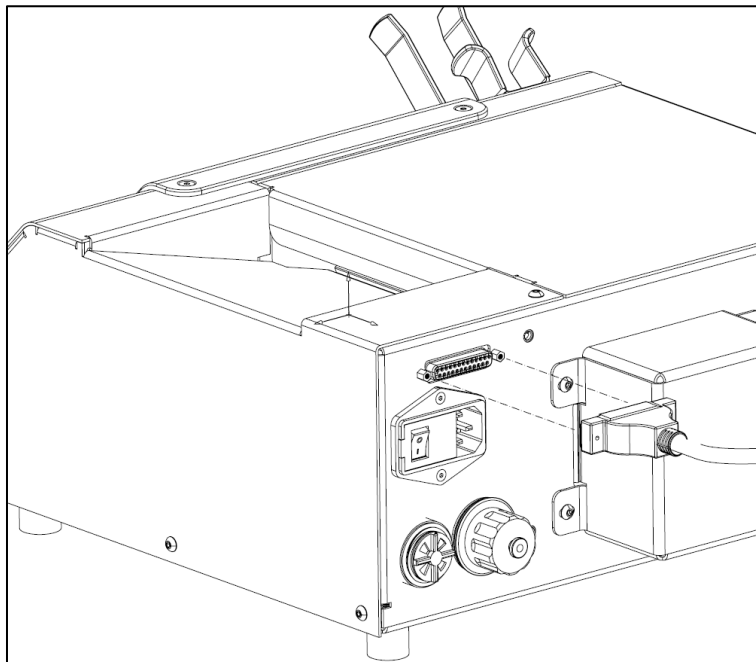
Tool Cage Airline Hook-Up View:



5H. Electrical and Air Supply

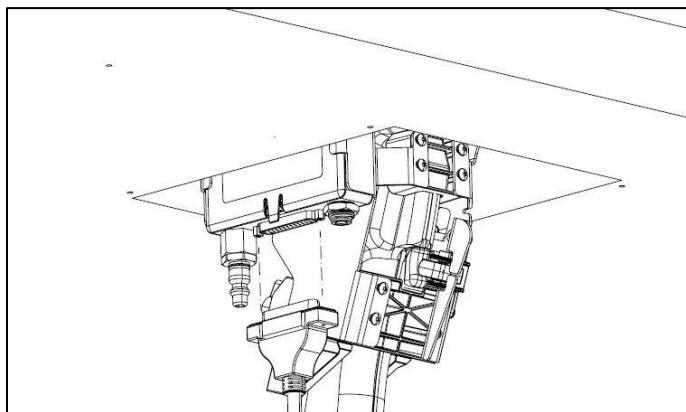
1. With the PAT4.0 system off, begin by connecting one end of the EI Communication Cable into the PAT4.0's corresponding connector, located on the rear of the Dispenser. Use a Philips head screwdriver to retain this connection.

Connecting EI Communication Cable to PAT4.0 System:



2. Connect the opposite end of the EI Communication Cable to the underside of the Fixture Assembly. The corresponding connector is between the Tool Cage air output supply quick-connector and the PATMFM4.0 Fixture's air input fitting. Use a Philips head screwdriver to retain this connection.

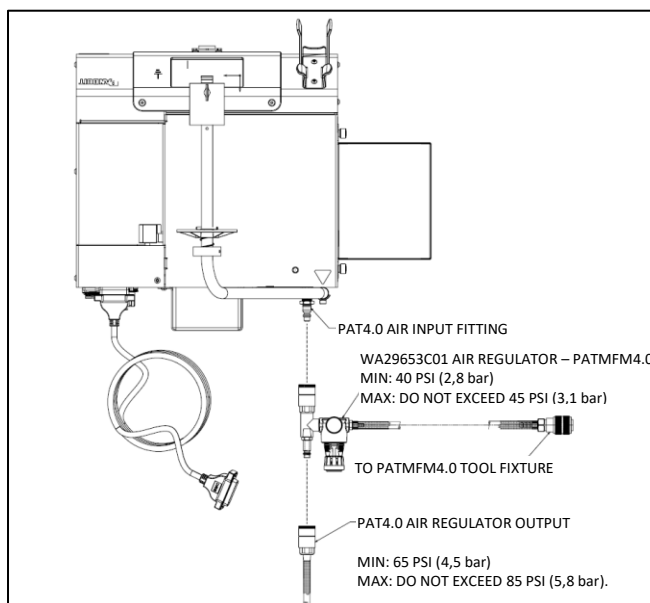
Connecting EI Communication Cable to PATMFM4.0 Fixture:



3. Disconnect the air supply to the PAT4.0. To this PAT4.0 air supply's quick connect fitting, insert the PATMFM4.0 Air Regulator's corresponding fitting. Install the PATMFM4.0 Air Regulator onto the PAT4.0 system.

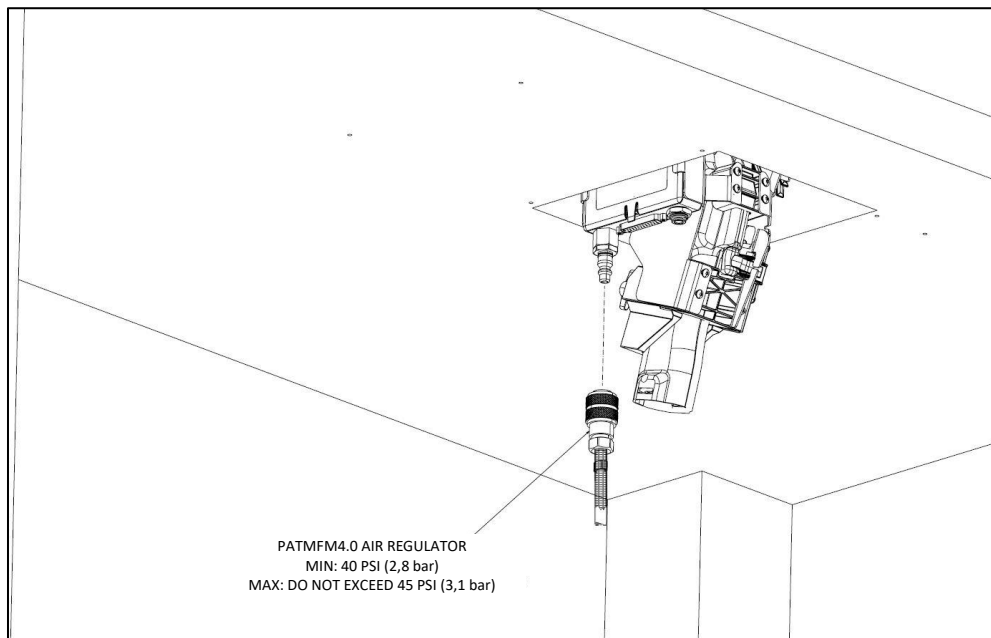
(The PATMFM4.0 Air Regulator "branches" the airline input between the infrastructure air supply and the PAT4.0. The over-braided hose extending from the PATMFM4.0 Air Regulator will connect to the Fixture in the next step).

Branching PATMFM4.0 Air Regulator Installation Detail:



4. Connect the PATMFM4.0 Air Regulator's output into the Fixture Assembly as shown below.

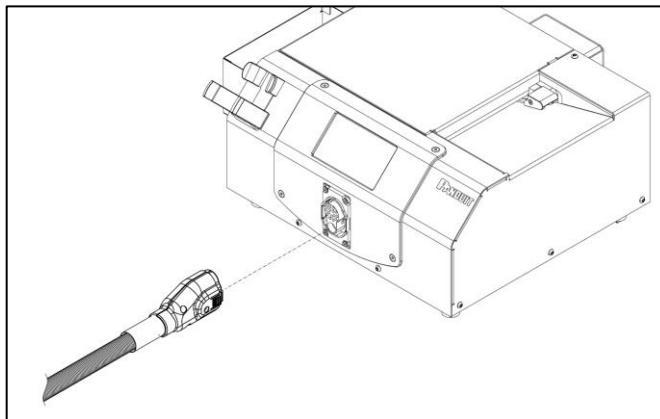
PATMFM4.0 Air Regulator Output Installation Detail:



5I. PHM Hose Installation

1. The PATMFM4.0 Fixture utilizes the PAT1M4.0 and PAT1.5M4.0 compatible PHM Hose's in the same manner as the standalone Hand Tools. Refer to the PAT4.0 manual and follow the hose routing guidelines to ensure proper installation. **Confirm that the placement of the PAT4.0 Dispenser relative to the PATMFM4.0 Fixture allows for proper hose routing as per the Operations Manual.** Begin by connecting one end of the PHM Hose to the PAT4.0 Dispenser as shown.

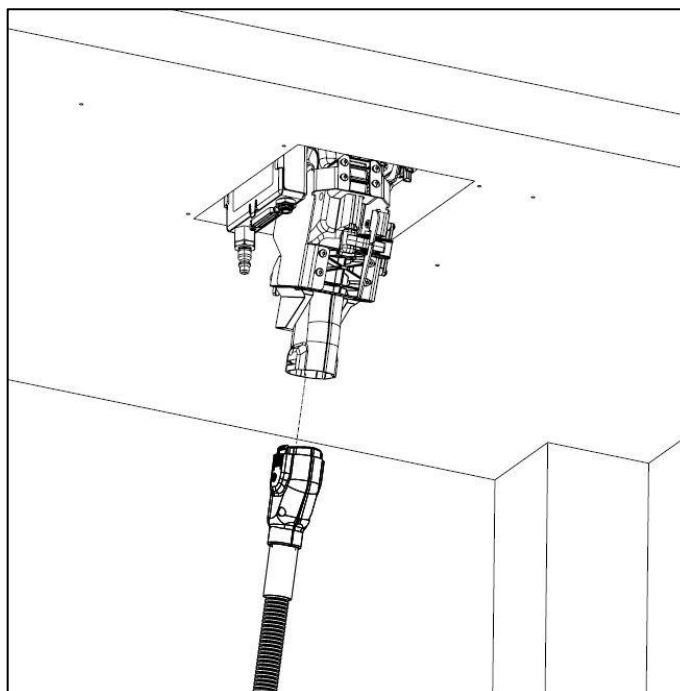
PAT4.0 Dispenser PHM Hose Installation Detail:



2. Confirm that the proposed PHM Hose route conforms to the guidelines called out in step 1 above. Once confirmed, route the PHM Hose under the Fixture Assembly and connect the remaining hose end to the PAT1M4.0 or PAT1.5M4.0 Hand Tool mounted within the Tool Cage. Hold the Tool Cage and or mounted Hand Tool secure whilst connecting the PHM Hose to ensure a proper connection.

Note: The PHM Hose may contact the customer supplied waste receptacle. Ensure that the two components do not interfere in such a way as to cause an improper hose route and/or a misaligned waste receptacle.

Hand Tool PHM Hose Installation Detail:



Installation is Completed.

6: OPERATION

Follow this operation procedure to correctly apply cable ties with the PATMFM4.0 Fixture. To begin, follow the Start Up Checklist below to assure safety and optimum system operation.

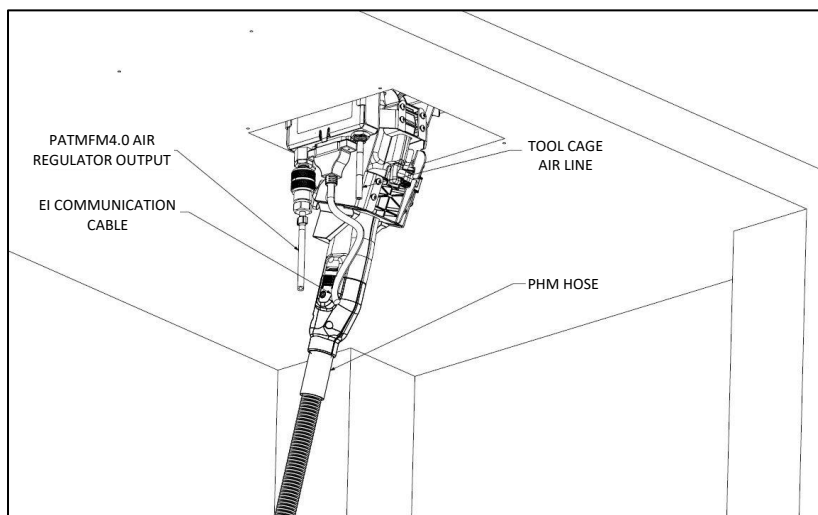
6A: Start Up Checklist

1. Is the PAT4.0 Dispenser connected to the air supply?
2. Is the PATMFM4.0 Fixture air regulator connected and branching off of the PAT4.0 Dispenser air line?
3. Is the PAT4.0 Dispenser air pressure set properly?
4. Is the PATMFM4.0 Fixture air pressure set properly?
5. Is the PAT4.0 Dispenser loaded properly?
6. Is the PAT1M4.0 or PAT1.5M4.0 Tool properly mounted into the Tool Cage?
7. Is the Tool Cage and Tool properly mounted onto the Fixture?
8. Is the Tip Deflector installed onto the Tool?
9. Is the Tool Cage airline connected to the Fixture's orange air supply quick connect fitting?
10. Is the PHM Feeder Hose securely connected to the PAT1M4.0 or PAT1.5M4.0 Tool, and PAT4.0 Dispenser?
11. Is there a "waste receptacle" placed underneath and behind the Tip Deflector to catch cable tie waste?
12. Is the fixture's actuation paddle unlatched and in the vertical "operational" orientation?
13. Is the PAT4.0 Dispenser powered on?
14. Is the Operator Menu on the PAT4.0 Dispenser displaying "ready" in the green bar on top of the screen?
The Operator Menu must be displaying the ready state for the tool to dispense cable ties.

6B: Cable Tie Installation

1. Review and follow all *Safety Practices* on Pages 8-12. Wear adequate eye protection.
2. Ensure that the Tool Cage Airline is properly connected to the quick connector located on the underside of the fixture. Check that the EI Communication Cable and air regulator line are connected between the PAT4.0 System and the Bench Top Fixture. Confirm the PHM Hose is properly connected between the PAT4.0 Dispenser and the Tool within the PATMFM4.0 Tool Cage.

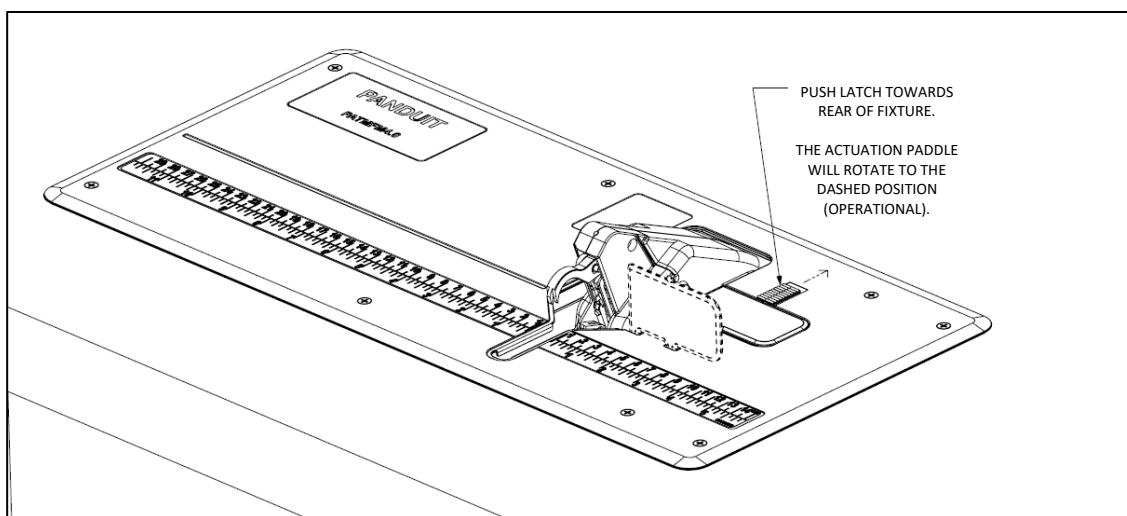
PATMFM4.0 Fixture with all Connections Installed:



3. Unlatch the actuation paddle from its “storage” orientation as shown below. Operation of the Fixture system is based on triggering the paddle from this upright “operational” orientation. The paddle actuates a Tool cycle once it has traveled, at minimum, 15 degrees past this upright orientation. Actuation can be performed with a knuckle of the right hand, the index finger of the right hand, the right hand altogether or with the workpiece itself.

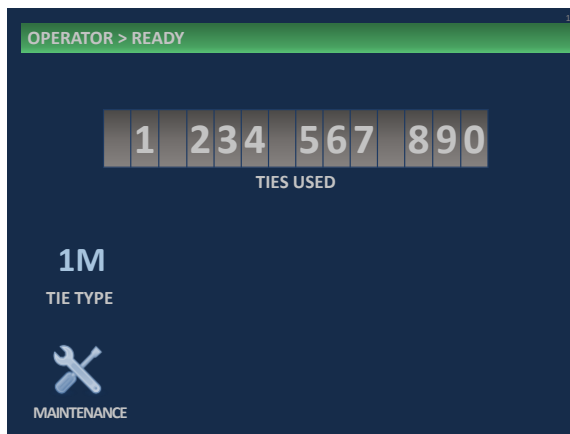
*(The paddle does **not** need to be held in the “actuation” position during a cycle. A simple yet deliberate “tap” is all that is required to initiate and complete a cycle).*

Actuation Paddle Unlatch Detail:



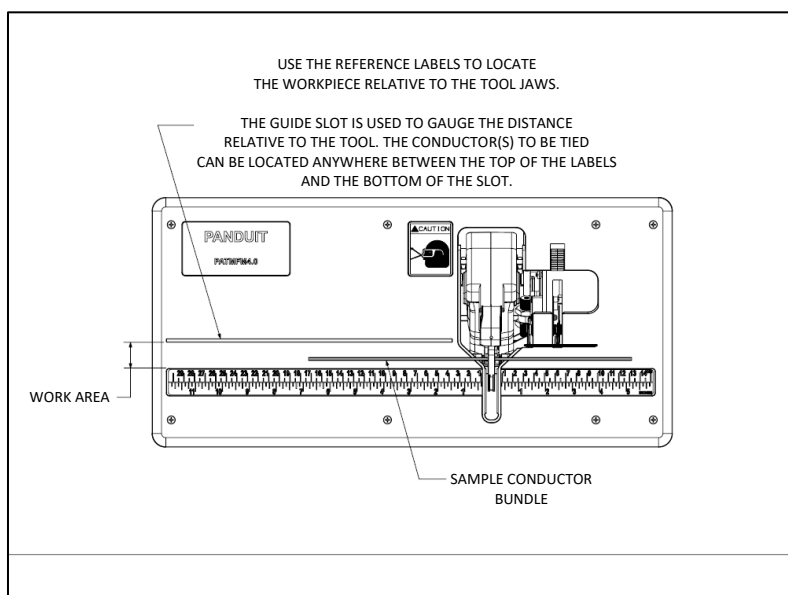
4. Power on the PAT4.0 System and verify that the Operator Menu is displaying “Ready” in green bar on the screen as shown below. The PAT1M4.0 and PAT1.5M4.0 Tools can only dispense cable ties if the Operator Menu is in the ready state.

The Operator Menu in the “Ready” state:



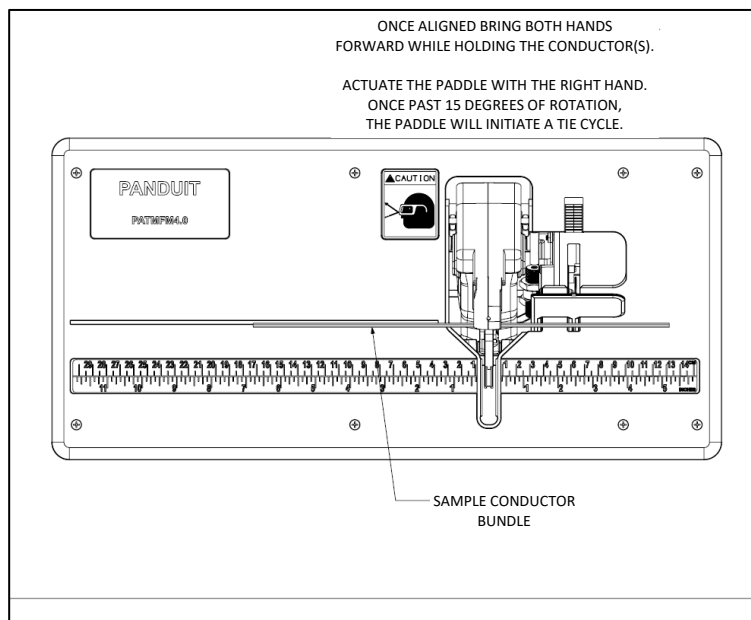
- Using both hands to hold onto the workpiece, reference the scales on the Fixture at the left and right of the exposed Tool to adjust orientation until the desired alignment is achieved. A slot is located on the left-hand side of the Fixture and is used to designate the optimal location that the workpiece should occupy for a cable tie cycle. Use the leading edge of this slot as shown below to align the workpiece properly.

Work Bundle Aligned for Tie Installation:



- Once the workpiece is properly aligned relative to the measurement scale(s), move both hands simultaneously in the direction of the tool jaws. Once the right hand actuates the paddle, a tie will be dispensed by the PAT4.0. Once completed, the Tool jaws will retract, and the workpiece can be removed.

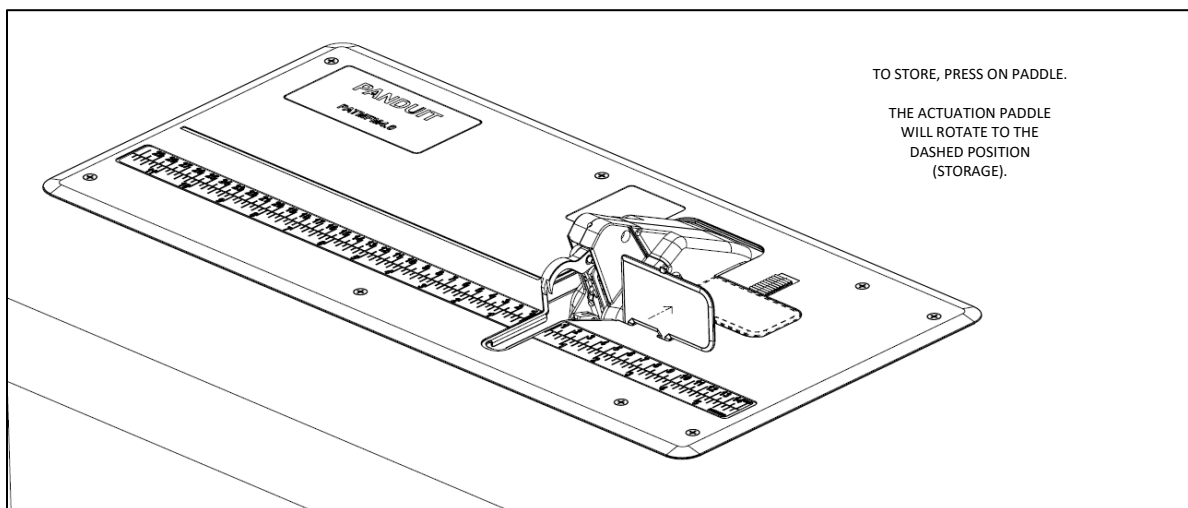
Work Bundle Brought into Paddle, Initiating Cycle:



7. The actuation paddle is spring loaded and will continue to “self-reset” upon actuation for continued cycles. Repeat work as required.

8. Once work has been completed, the paddle can be latched into the “storage” orientation by pressing on the paddle until it is lying flat relative to the fixture. The spring-loaded latch will briefly retract and then engage with the paddle, holding it in this position.

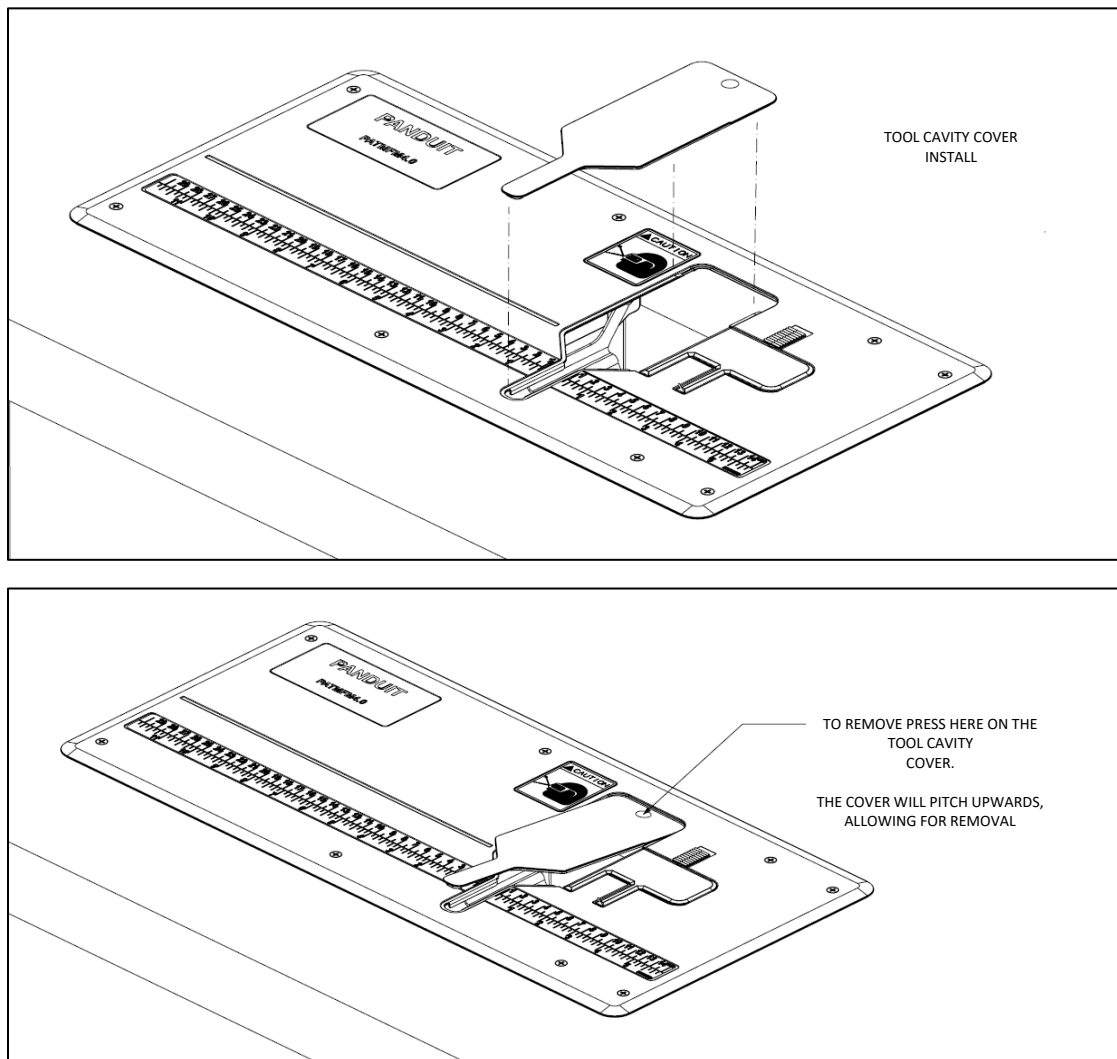
Setting Actuation Paddle into the Storage Position:



9. When no Tool is present within the Tool Cage, the Tool Cavity Cover can be inserted into the space the Tool would protrude through, covering the cavity and ensuring items do not fall through.

(Pressing down onto the divot located towards the back of the cover will pitch the front end upwards for ease of removal.)

Tool Cavity Cover Installation and Removal:

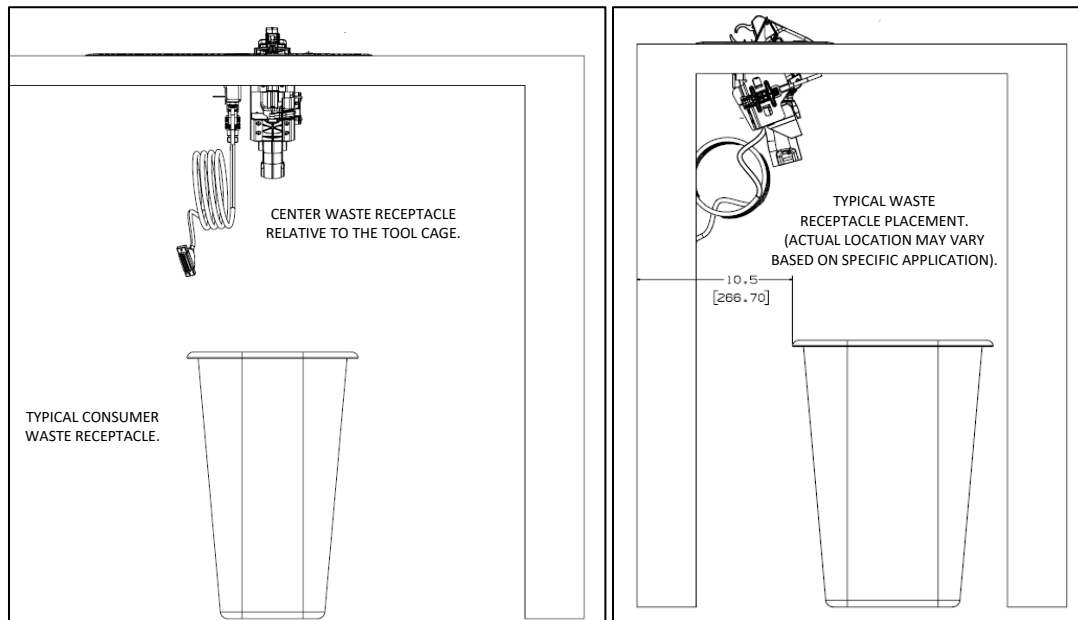


6C: Tip Deflector/Waste Receptacle

The PATMFM4.0 Fixture includes a Tip Deflector. This Deflector diverts waste to an operator provided receptacle placed underneath the Tool. The waste receptacle should be placed according to the diagram below.

NOTE: Failure to align a waste receptacle correctly underneath the Tip Deflector can result in a safety hazard with waste buildup on work floors. Assure the EI Communication Cable, the supply airline and the PHM Feeder Hose do not obstruct the path between the Deflector and the receptacle.

Typical Waste Receptacle Orientation:



7: MAINTENANCE

7A: Preventative Maintenance

Interval	Maintenance Procedure
Every 100,000 cycles	<ul style="list-style-type: none"> A. Remove the PAT1M4.0 or PAT1.5M4.0 Hand Tool and clean debris (if any) from both the Tool and the Tool Cage. B. Check all threaded fasteners. Apply Loctite 242 as necessary and hand tighten. C. Check the left and right reference scale labels, replace if necessary.

8: TROUBLESHOOTING

8A: Error Message Troubleshooting

ERROR	POSSIBLE CAUSE	CORRECTIVE ACTION
Ties are not delivered reliably to the Tool.	A. Improperly routed PHM Feeder Hose. B. Insufficient air pressure supplied to PAT4.0.	A. 1. Confirm that the PHM Hose is routed correctly per the PAT4.0 Operation Manual. B.1. Refer to the PAT4.0 Operation Manual for air pressure specifications and troubleshooting.
Cycle does not initiate upon Paddle Actuation.	A. Improperly seated EI Communication Cable. B. Improperly connected supply-side airline.	A.1. Confirm that both ends of the Communication Cable are properly seated in their respective ports. Check that no debris is present between these two connections. B.1. Check to ensure that the PATMFM4.0 Air Regulator is properly connected to both the PAT4.0 Air Regulator and the PATMFM4.0 (Pg. 22).
Cycle does not begin. Air is heard leaving the fixture when actuated.	A. Improperly connected Tool Cage airline.	A. 1. Confirm that the Tool Cage airline is properly connected to the Electronics Enclosure, located on the underside of the PATMFM4.0 Fixture (Pg. 21).
Cycle begins and Tool jaws close, but tie is not fed.	A. Insufficient actuation pressure applied to Tool trigger. B. PAT1M4.0 or PAT1.5M4.0 worn trigger pressure switch.	A. 1. Confirm the Air Regulator is outputting the correct operating pressure (Pg. 13). B. 1. Refer to the applicable PAT1M4.0 or PAT1.5M4.0 Operation Manual for servicing information.

(Additional errors may be PAT4.0, PAT1M4.0 and PAT1.5M4.0 specific. Please refer to the PAT4.0 Operation Manual for troubleshooting support).

9: BILL OF MATERIALS

(In logical assembly order)

- WA29599D01 – PATMFM4.0
 - WA29568E01 – Overlay Plate Assembly (x1)
 - WA29567D01 – Electronics Enclosure Assembly (x1)
 - WA29569D01 – Tool Cage Assembly (x1)
 - WA29566C01 – Actuator Assembly (x1)
 - WA29602C01 – Tip Deflector Assembly (x1)
 - WA29653C01 – PATMFM4.0 Air Regulator Assembly (x1)
 - CA29558B01 – DSUB 25Pos. 2M Cable; Male to Male (x1)
 - CA29740B01 – Phillips Flat Head Screw for Wood #6, 1.0" Length (x8)
 - WA29516B01 – Tool Cover (x1)
 - CAT-09419A-PC – Button Head Screw 6-32, 1/4" Length (x2)

9A: WA29568E01 – Overlay Plate Assembly

PART ID	PART NAME	DESCRIPTION	QTY
1	WA29515E01	OVERLAY PLATE	1
2	WA29527D01	INSERT PLATE	1
3	CA29554B01	COMP SPRING 0.5" L, 0.12" OD, .096" ID	1
4	WA29517C01	PADDLE RETENTION LATCH	1
5	CA12985B01	LABEL, SAFETY GLASSES	1
6	WA29533C01	REFERENCE LABEL 12"	1
7	WA29532C01	REFERENCE LABEL 6"	1
8	WA29582C01	PATMFM4.0 PRODUCT LABEL	1
9	WA29518C01	ACTUATION PADDLE	1
10	WA29523C01	INNER ACTUATION MOUNT	1
11	WA29524C01	OUTER ACTUATION MOUNT	1
12	CA29542B01	STEEL SHOULDER SCREW, 1/4" SH. DIA., 1/4" SH. L, 10-24 TH	2
13	CA20594A01	STEEL LOCKNUT 2-56 TH	2
14	CA29560C01	OPTICAL SENSOR HARNESS	1
15	CA29541B01	TORSION SPRING 120 DEG., LH	1
16	CA29540B01	BUTTON HEAD 2-56 TH, 1" L	2
17	WA29590B01	VHB ADHESIVE TAB 3.25" LENGTH	1

18	WA29591B01	VHB ADHESIVE TAB 2.5" LENGTH	1
19	WA29592B01	VHB ADHESIVE TAB 1.5" LENGTH	1
20	WA29593B01	VHB ADHESIVE TAB 1.00" LENGTH	2

9B: WA29569D01 – Tool Cage Assembly

PART ID	PART NAME	DESCRIPTION	QTY
1	WA29530D01	RIGHT CAGE FRAME	1
2	WA29529C01	LEFT CAGE FRAME	1
3	WA29519B01	FRONT UPPER TOOL SUPPORT	1
4	WA29520C01	FRONT LOWER TOOL SUPPORT	1
5	WA29521C01	REAR LOWER TOOL SUPPORT	1
6	WA29566C01	ACTUATOR ASSEMBLY	1
7	CA29546B01	PLASTIC-HEAD THUMB SCREW 1/4"-2- TH, 2" LENGTH	2
8	CA29550B01	STEEL SHOULDER SCREW 5/32" SH. DIA., 1/8" SH. LENGTH, 6-32 TH.	4
9	CA29547B01	TORX ROUNDED HEAD THREAD-FORMING SCREW #6, 1/2" LENGTH	8
10	CA29552B01	BUTTON HEAD SCREW; 6-32, 1/2" LONG	4

9C: WA29566C01 – Actuator Assembly

PART ID	PART NAME	DESCRIPTION	QTY
1	WA29525C01	ACTUATOR TRIGGER	1
2	CA29543B01	STEEL SHOULDER SCREW, 1/8" SH. DIA., 1/2" SH. LENGTH, 4-40	1
3	CAT-08737A-PC	STEEL HEX NUT 4-40 TH	1
4	CA29535B01	THREADED-BODY AIR CYLINDER	1
5	CAT-05353A-PC	GASKET	1
6	CAT-05063A-PC	FITTING BARBED - 10-32 TH TO 1/4" HOSE	1
7	WA29522C01	ACTUATOR FRAME	1

8	WA29570B01	ACTUATOR CAP	1
9	CAT-05003A-PC	1/4" OD; 1/8" ID VINYL HOSE 16" LENGTH	1

9D: WA29567D01 – Electronics Enclosure Assembly

PART ID	PART NAME	DESCRIPTION	QTY
1	CA21740B01	VALVE, BACK PRESSURE	1
2	WA29528C01	ELECTRONICS ENCLOSURE	1
3	CA27489A01	1/4" MALE NPT QUICK CONNECT FITTING	1
4	CA29537B01	TUBE FITTING 1/4" TUBE OD X 1/4" NPT FEMALE	1
5	CA29555B01	STEEL NYLON-INSERT LOCKNUT, 5-40 TH	2
6	CAT-05063A-PC	FITTING, BARBED - 10-32 TH TO 1/4 HOSE	2
7	CAT-05353A-PC	GASKET	3
8	CAT-05065A-PC	FITTING, ADJUSTABLE "L"	1
9	CA29549B01	BUTTON HEAD HEX SCREW, 5-40 TH, 5/8" L	2
10	DA001A	SCREW JACK	2
11	CA29538B01	PUSH TO CONN. TUBE FITTING 1/4" TUBE	1
12	WA29526C01	ELEC. ENCLOSURE COVER	1
13	CA29559B01	10-32 VALVE PLUG	1
14	WA29534B01	COMPLIANCE LABEL PATMFM4.0	1
15	CAT-05003A-PC	1/4" OD; 1/8" ID VINYL HOSE 5" LENGTH	1
16	CAT-05003A-PC	1/4" OD; 1/8" ID VINYL HOSE 9" LENGTH	1
17	WA29600B01	ACTUATOR PCB WITH GROUNDING CABLE	1
18	WA29607B01	VALVE HARNESS	1

9E: WA29653C01 – Air Regulator

PART ID	PART NAME	DESCRIPTION	QTY
1	CA21632B01	REGULATOR, PRESSURE 1/8-27 NPT	1
2	CAT-04775A-PC	FITTING, 1/8 NPT	1
3	CAT-05089A-PC	DISCONNECT, QUICK	1
4	CAT-08213A-PC	TEE, PIPE 1/8-27 NPT	1
5	CAT-07954A-PC	1/4" COUPLER; 1/8 NPTF MALE	1
6	CA20795A01	NIPPLE, 1/8-27 NPT-CLOSE/BLACK	1
7	CAT-12179A-PC	CLAMP, HOSE	2
8	CAT-07504A-PC	1/4" COUPLER; 1/4 NPTF FEMALE	1
9	CAT-10388A-PC	PLUG, PIPE HEX 1/8" NPT	1
10	PTS-07574B-MX	HOSE, OVERBRAIDED URETHANE (PER FOOT)	6
11	CA29718A01	GAGE WITH 1/8" - 27 NPT FITTING	1
12	CA29739B01	THREADED BARBED ADAPTER; 1/8" ID HOSE, 1/4 NPTF MALE	1

9F: Miscellaneous

PART ID	PART NAME	DESCRIPTION	QTY
1	WA29516B01	TOOL CAVITY COVER	1
2	CA29558B01	EI COMMUNICATION CABLE	1
3	WA29602C01	TIP DEFLECTOR	1
4	CA29740B01	#6-1.0" PHILIPS WOOD SCREW	8
5	WA29606D01	TABLE-TOP TEMPLATE	1
6	CAT-09419A-PC	BUTTON HEAD SCREW 6-32, 1/4" LENGTH	2