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Preventive Maintenance

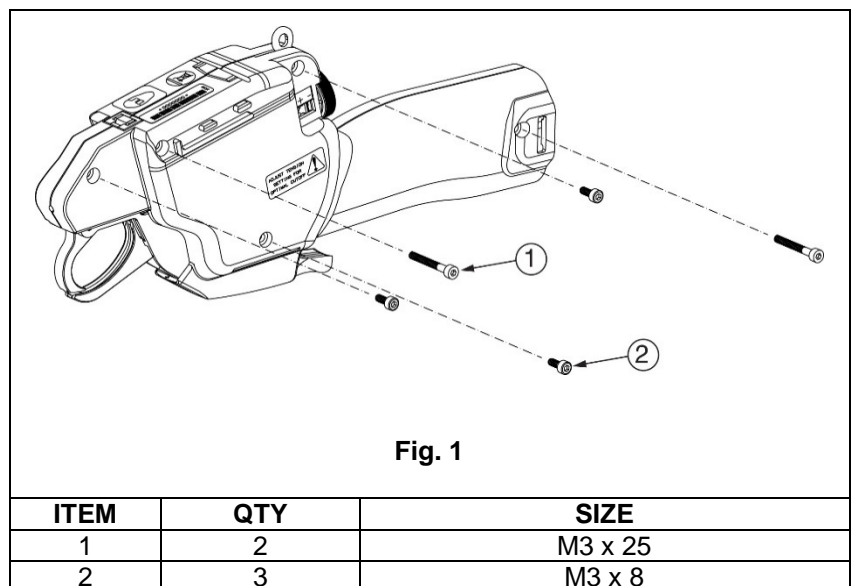
The following maintenance of the PAT4.0 Family Tool Systems (PAT1M4.0, PAT1M4.0-BT, PAT1.5M4.0 and PAT1.5M4.0-BT) must be performed daily (as needed) to ensure optimum performance and trouble-free operation of the system.

INTERVAL	MAINTENANCE PROCEDURE
No more than 300 cycles	Empty tool tip collector <u>before</u> full.
No more than 2500 cycles (= ½ cable tie reel)	Empty dispenser carrier strip scrap bin.

	CAUTION: SAFETY GLASSES WITH SIDE SHIELDS MUST BE WORN AT ALL TIMES DURING THE MAINTENANCE OR ADJUSTMENT OF THE PAT4.0 FAMILY OF TOOLS.
	CAUTION: ALWAYS DISCONNECT AIR SUPPLY FROM TOOL <u>BEFORE</u> DISASSEMBLY.
	CAUTION: ELECTROSTATIC SENSITIVE DEVICE. DO NOT OPEN OR HANDLE EXCEPT AT A STATIC FREE WORK STATION.

The following maintenance of the PAT4.0 Family Tool Systems must be completed within the recommended intervals to ensure trouble-free operation and longevity of the system. Certain extended maintenance procedures must be performed by your maintenance department. Please notify your maintenance department when these specific maintenance intervals are reached.

1. Disconnect the PHM Transfer Hose from the PAT4.0 tool system. Remove the tip collector from the tool.
2. Place the tool on a table top with the jaws to the left. Using a 2.5 mm hex wrench, remove the five (5) socket head cap screws from the left-hand housing. Make note of the correct locations for each of the screws using Fig. 1.
3. Perform the following maintenance procedures shown below at the prescribed interval:



INTERVAL	MAINTENANCE PROCEDURE (See Figure 2 below)	LUBRICANT
Every 100 000 cycles	Clean tool housings and gears of debris (Maintenance department must perform this procedure.)	N/A
	1. Lubricate detent cam follower and pivot shaft. (Maintenance department must perform this procedure.)	General Purpose Light Machine Oil
	2. Clean and lubricate all pivots and shafts. (Maintenance department must perform this procedure.)	
	3. Oil shaft (1 drop) on each side of Gripper Drive Gear. (Maintenance department must perform this procedure.)	
4. Clean and re-grease the Cam on the Front Jaw Gear. (Maintenance department must perform this procedure.)	Schaeffer's Moly Ultra 800 EP	

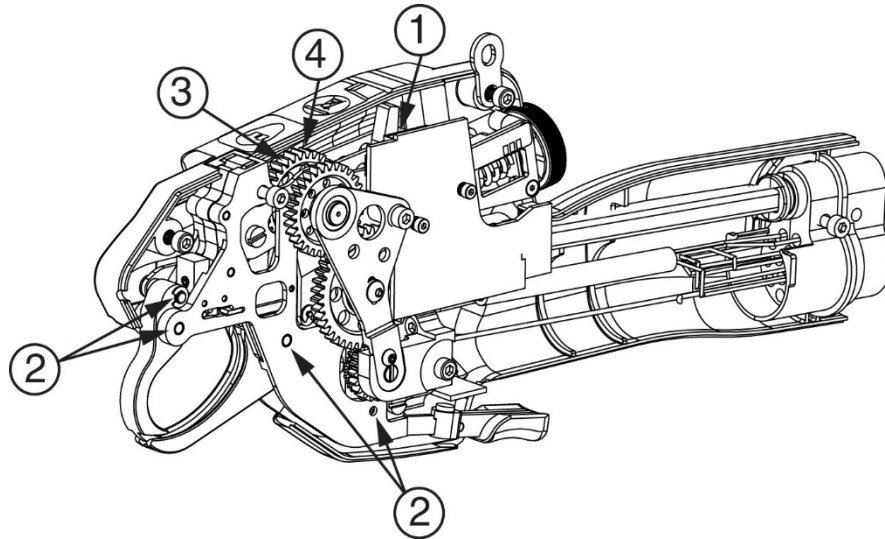


Fig. 2

4. Replace the left-hand housing in position and fasten the left-hand housing to the tool using the 5 socket head cap screws removed in Step 2 (see Fig. 1). Use a 2.5 mm hex wrench to torque the cap screws to 60 oz. - in (0,42 Nm).
5. Replace tip collector and attach PHM Transfer Hose as required to resume operation.

The following maintenance procedures may be required every 500,000 cycles or more. Contact your maintenance department as required to perform the following procedures at the prescribed intervals.

INTERVAL	UNIT	MAINTENANCE PROCEDURE
Every 500 000 cycles (=100 cable tie reels)	PAT4.0 Family Tool Systems	Clean tool sensor lens. (Maintenance department must perform this procedure.)
	PDM4.0	Clean dispenser exit sensor lens. (Refer to <i>Cleaning the Dispenser Exit Sensor Lens</i> section below.)
Every 750,000 cycles (=150 cable tie reels)	PAT4.0 Family Tool Systems	Replace tool transfer tube, if worn. (Maintenance department must perform this procedure.)
Every 1,000,000 cycles (=200 cable tie reels)	PDM4.0	Clean and re-grease piston in connection block. (Maintenance department must perform this procedure.)

Cleaning the Dispenser Exit Sensor Lens

Disconnect the PHM Transfer Hose from the PDM4.0 Dispenser. Dampen one end of a cotton swab with isopropyl alcohol and insert the dampened end of the cotton swab into the dispenser transfer tube about 1.5" (38 mm) and gently move the cotton swab in and out, against the top and bottom walls of the transfer tube until clean. Reconnect the transfer hose to the dispenser and resume operation.

Touch Screen Calibration

Touch screen calibration may be required due to changes in environment conditions and variations in resistance coating over time thru wear. Environmental conditions such as temperature and humidity can alter the resistance characteristics therefore, affecting the position measurements of the touch screen.

Tap the touchscreen display 20 times within 4 seconds in a non- button area to activate calibration mode. Calibration mode is signaled by a long beep from the display buzzer preceding a solid blue screen. Click "X" positions on the touch screen to calibrate. When the calibration is complete, the system will return to the "Ready" screen.

Recommended Spares, Kits, and Service Tools for PAT4.0 Tool Systems

The following Spares, Kits, and Service Tools shown in the first column are orderable parts for the PAT4.0 Family Tool Systems. It is recommended to have 1 of each of these items on-hand for every 1 – 3 PAT4.0 systems as they comprise of replacements for common wear items and associated hardware needed to maintain long-term operation of the system.

SPARES, KITS, SERVICE TOOL PART NUMBER	DESCRIPTION	ASSOCIATED TOOL OR ACCESSORY	REFERENCE COMPONENTS FOUND IN KITS	EST LIFE CYCLES AND COMMENTS
PHM1, 2, 3, or 4)	FEEDER HOSE	PAT4.0 System	----	200,000
WT23231D01	LH Coupling	PHM3 (or other 1, 2, or 4)	----	Damaged if dropped or pried on
WT23369B01	RH Coupling	PHM3 (or other 1, 2, or 4)	----	Damaged if dropped or pried on
WT28075A01	LOGIC HARNESS KIT	PDM4.0	WT27506D01	AS NEEDED
WT28069A01	ROTARY RECEIVER KIT	PDM4.0	WT27449D01 WT27473B01 CA32075A01 CA27696A01 WT27498B01 CA20787A01 CA21590A01	AS NEEDED
WT28066A01	AIR HOSE KIT	PDM4.0	CA27704A01 CA27705B01	AS NEEDED
WT28067A01	CARRIER BLADE KIT	PDM4.0	CA20953A01 WT22988B02	AS NEEDED
WT28068A01	CUTTER BLADE KIT	PDM4.0	WS18385B02 CA21182B01	AS NEEDED
KNBPDM	PDM4.0 HARDWARE KIT	PDM4.0	----	AS NEEDED (Misc. Parts – Screws, Springs, Nuts, Etc.)
KNBPAT	PAT4.0 HARDWARE KIT	PAT1M4.0, PAT1.5M4.0, PAT1M4.0-BT, PAT1.5M4.0-BT	----	AS NEEDED (Misc. Parts – Screws, Springs, Nuts, Etc.)

SPARES, KITS, SERVICE TOOL PART NUMBER	DESCRIPTION	ASSOCIATED TOOL OR ACCESSORY	REFERENCE COMPONENTS FOUND IN KITS	EST LIFE CYCLES AND COMMENTS
WT28049A01	MEMBRANE SWITCH KIT	PAT1M4.0, PAT1.5M4.0, PAT1M4.0-BT, PAT1.5M4.0-BT	WT27544B01 WT22714B01	AS NEEDED
WT22706C01	TIP COLLECTOR	PAT1M4.0, PAT1.5M4.0, PAT1M4.0-BT, PAT1.5M4.0-BT	----	Damaged if tool is dropped
WT28057A01	HEAD RETAINER KIT	PAT1M4.0, PAT1.5M4.0, PAT1M4.0-BT, PAT1.5M4.0-BT	WT23249B01 WT22801B03 CA21637A01 CA21589B01	250,000
WT28050A01	TOOL HOUSING KIT	PAT1M4.0, PAT1.5M4.0, PAT1M4.0-BT, PAT1.5M4.0-BT	WT27635C01 WT27625D01 CA20877A01 CA21514B01 WT23572B01 CA32200A01 WT27640A01 WT23571B01	Damaged if tool is dropped
WT28047A01	TOOL HOSE HARNES KIT	PAT1M4.0, PAT1.5M4.0, PAT1M4.0-BT, PAT1.5M4.0-BT	WT28454C01	1,000,000
WT28060A01	DETENT HARNES ASSEMBLY KIT	PAT1M4.0, PAT1.5M4.0, PAT1M4.0-BT, PAT1.5M4.0-BT	WT27762D01	AS NEEDED
WT28063A01	BEVEL GEAR KIT	PAT1M4.0, PAT1.5M4.0, PAT1M4.0-BT, PAT1.5M4.0-BT	WT22813C01 WT22744B01 CA27851A01 WT27612B01 CA20869A01 CA21775A01	500,000
CA21627B01	CONTACT EXTRACTION "SERVICE TOOL"	(Special tool for removal of 2mm contact socket)	----	----
WT24053B01	SPRING INSERTION "SERVICE TOOL"	Special tool used for reassembling PAT1M4.0/PAT1.5M4. 0 (and BT) tools	----	----

Reference Documentation

Repair Manual PA28088A01
Operation Manual PA27647A01

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