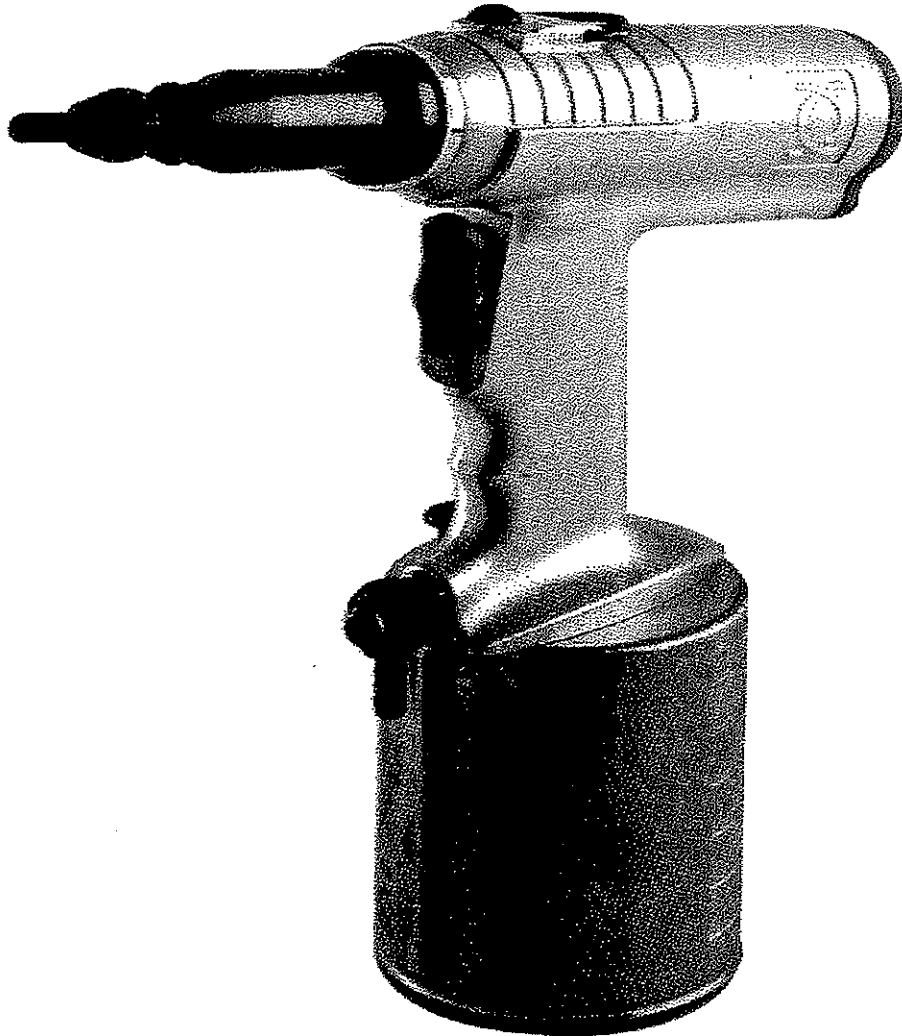




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4068 Pneumatic Tool



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INTRODUCTION

This brochure covers the use and maintenance of the model 4068 spin-pull-spin blind rivet nut and stud installation tool. This tool is capable of secure blind rivet nut placement in sizes from M3 metric - #4 unified, up to M12 metric & ½" unified. The specific capabilities of this tool, when used with other suppliers' inserts, should be discussed with the Cardinal technical sales department.

The 4068, with a minimal amount of care, if kept clean, lubricated and operated properly for the size inserts being installed, will provide many years of service.

The basic function of this tool can be best understood by realizing it is capable of two separate operations – spinning and pulling.

The spinning is performed by the 4068 in both a forward motion, to mount the unplaced rivet nut onto the threads of the drive mandrel, and a reverse spin to disengage the drive mandrel from the installed insert.

Once the tool has been properly set, installation of the blind rivet nut is accomplished by –forward spin to mount the insert onto the tool, pullback to cause the insert to upset –reverse spin to disengage the tool from the installed insert.

The forward spinning operation of the tool is automatically started when pressure is applied to the drive mandrel. By holding the insert with its head toward the nosepiece or anvil of the tool and applying pressure on the mandrel, the forward spin begins, mounting the insert on the tool. The forward spin will stop when the insert meets the face of the nosepiece or anvil.

By pulling down on the bottom half of the "rocker" trigger, the pull stroke is performed.

By depressing the top half of the rocker trigger, the reverse spin begins to disengage the tool from the installed insert.

The 4068 delivers a constant pulling force, or traction power, which at 85 psi. air pressure, is 5000 pounds of force. The proper installation of any size blind rivet nut is thereby accomplished by a strict control of the stroke distance of the tool – the distance the tool will pull back on the mandrel. It is extremely important that this stroke distance be properly set during the initial setup of the tool prior to beginning any installation of any size blind rivet nut. The pulling force or traction power of this tool is capable of damaging the threads of the insert, or even stripping the threads of inserts, if not properly set.

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SPECIFICATIONS – 4068 TOOL

Capacity

Rivet Nuts M3 to M12 or #4 to ½" in steel, aluminum or brass.
Rivet Nuts M3 to M10 or #4 to 3/8" in stainless steel.

Operating pressure

Normal range 70 to 100 psi. (5 to 7 bar)

Weight

6.2 pounds (2.8 kg)

Installation rate

Up to 15 inserts per minute.

Height

10 ¼" (260 mm)

Length

11 ¾" (300 mm) without mandrel

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CAUTION – DISCONNECT THE AIR SUPPLY FROM THE TOOL BEFORE MAKING ANY ADJUSTMENTS !

The 4068 should be operated with filtered, lubricated air from 70 to 100 psi (5 – 7 bar).

In setting the 4068 tool, there are three critical aspects to consider:

1. **Check the size.** Ensure the correct mandrel (#25) and anvil (#23) are installed on the tool for the insert being installed.
2. **Set the anvil position.** Make sure the anvil (#23) is properly set to ensure the correct length of mandrel extends from the anvil for the specific size rivet nut being used.
3. **Set the stroke distance.** The correct stroke distance must be set on the tool, taking into consideration the specific rivet nut being installed and total material thickness it is being installed into. It is very important to ensure that the Rivet is properly installed and to avoid damage to the insert from over stroking the tool.

For the setup of the 4068, a 19mm open end wrench or spanner as well as a 6mm pin punch are required. A combination tool is included with the 4068 for setup and for changing the mandrel and anvil.

Assuming the 4068 has the proper size anvil and mandrel installed, the tool must be properly set up for installation of the specific size rivet nut being used, by first adjusting the anvil position.

SETTING THE ANVIL POSITION

For open end rivet nut inserts, the anvil (#23) should be set so that when the RIVET NUT being used is threaded onto the mandrel, the face of the anvil is flush against the head of the insert and the end of the mandrel is flush with the shank end of the rivet nut.

Adjustment procedure

1. **Disconnect the air supply from the tool.**
2. **Screw the anvil lock nut fully onto the anvil.**
3. **Screw the anvil and lock nut onto the nose piece as far as it will go.**
4. **By hand, thread the open end of the rivet nut onto the mandrel until all threads are engaged and the end of the mandrel is flush with the shank end of the RIVET NUT.**
5. **Hold the RIVET NUT to prevent turning and begin unscrewing the anvil until the face of the anvil contacts the head of the RIVET NUT.**
6. **Hold the anvil in this position while tightening the lock nut against the nose piece. Torque lock nut to 7 foot/lbs. (10 NM).**

NOTE: For a closed end RIVET NUT, at step 4 above, thread the RIVET NUT fully onto the mandrel until the threads bottom out, then loosen one turn.

Adjusting the stroke distance

To determine the proper stroke distance required for a correct installation of RIVET NUT blind rivet nuts, refer to the specification data for the specific RIVET NUT being installed. Note the "S" dimension reference (if indicated as a range, use the minimum) for the size being installed, as well as the maximum grip capacity of that specific RIVET NUT.

Measure the total thickness of the material into which the RIVET NUT is being installed.

STROKE DISTANCE IS DETERMINED BY THE FORMULA:

STROKE DISTANCE = "S" (min.) + (maximum grip – material thickness) .

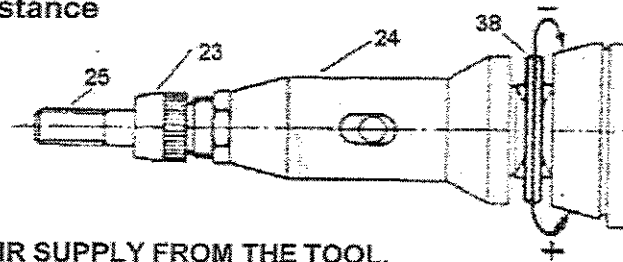
EXAMPLE: An M6 RIVET NUT is being installed into a steel sheet 1.5 mm thick. The "S" dimension for this size RIVET NUT is indicated as a range of 2.2 – 4.7mm; therefore we use the "S" minimum of 2.2 mm. The maximum grip of this RIVET NUT is 3.0 mm and the actual material thickness is 1.5 mm. Applying these figures to the formula, we can calculate the proper stroke distance:

Stroke = "S" (min) + (Max grip – material thickness)

Stroke = 2.2 + (3.0 - 1.5)

Using the above example, the result is 3.7 mm stroke distance.

Adjusting the stroke distance



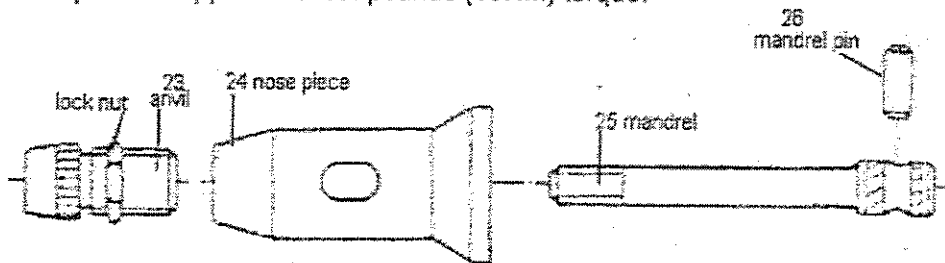
1. **DISCONNECT THE AIR SUPPLY FROM THE TOOL.**
 2. Set the anvil position first (see previous page).
 3. Hold the adjusting ring (#38) and unscrew the nose piece (#24) a few turns.
 4. Turn the adjusting ring (#38) counter clockwise, toward the (-) minus direction until it stops. The stroke distance of the tool is now set at zero.
 5. Increase the stroke distance setting by rotating the adjusting ring in the (+) plus direction.
- NOTE: ONE REVOLUTION OF THE ADJUSTING RING EQUALS 1.5MM (.060") OF STROKE DISTANCE ADJUSTMENT.

6. To test the stroke distance setting on the tool, measure an unplaced RIVET NUT from the flat of the head to the end of the shank. Mount the RIVET NUT on the tool and upset the insert. Remove the upset RIVET NUT from the tool and measure it again, from the head to the end of the shank. The difference in the overall length, before upset and after, is the present stroke setting of the tool.
7. To verify that this setting is correct for the application, install the RIVET NUT in a sample sheet of material. Measure the shank length on the back side of the material and compare this to the "L2" dimension noted in the specification data for this specific insert. Adjust the stroke length as needed to achieve the proper "L2" dimension.

To set up the tool for different RIVET NUT thread sizes, it is necessary to change the anvil and mandrel.

Changing the Mandrel

1. **MAKE SURE THE AIR SUPPLY IS DISCONNECTED FROM THE TOOL.**
2. Hold the nose piece (#24) of the tool stationary and loosen the anvil lock nut. Remove the anvil & lock nut from the tool.
3. Hold the adjusting ring (#38) stationary. Unscrew and remove the nose piece (#24).
4. Using a pin punch and small hammer, push out the mandrel pin (#26). Be careful not to damage the spring ring (#30). Remove the mandrel from the tool.
5. Slide the new mandrel into position, align the holes and reinstall mandrel pin (#26). The pin is held in place by the spring ring.
6. Reinstall the nose piece (#24).
7. Reset anvil position and stroke setting per previous instructions for the new RIVET NUT to be installed.
8. Tighten nose piece to approx. 11 foot pounds (15NM) torque.



Checking and filling Hydraulic Fluid

Recommended Oil : Mobil DTE (ISO VG68), Hydrolub 68 Codat or Equivalent



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1. DISCONNECT THE AIR SUPPLY FROM THE TOOL.
2. Remove oil fill screw (#31) and vent plug (#60).
3. Retract the air piston in the lower chamber by inserting a heavy wire (coat hanger or similar) into the vent hole and gently press the piston fully down. Or, inject compressed air into the vent hole to move the piston down.
4. Check the oil level in the oil fill hole (#31). Top up as necessary until the oil reaches the bottom of the threaded hole.
5. Reinstall the fill plug and vent cap.
6. Connect air supply and actuate the tool several times.
7. It may be necessary to repeat the above procedure 2 – 3 times to purge all air and allow the oil level to stabilize.

Suggested Daily Checklist for Production Use of the 4068 Tool

1. Check the *spin – pull – spin* operations by pressing on the mandrel, then actuating the bottom and top of the rocker trigger, without a RIVET NUT on the tool.
2. Check the security of the anvil and nose piece.
3. Thread the RIVET NUT onto the tool, check that the RIVET NUT threads fully up to the anvil and all threads are engaged.
4. Always hold the tool 90 degrees to the work piece.
5. Lubricate the mandrel after every 300 RIVET NUT operations.
6. NEVER upset the same RIVET NUT twice. This may damage the insert or the mandrel. After use, protect the mandrel by threading on a RIVET NUT.

Releasing the Mandrel When Locked Into an Installed Insert

A common problem in the installation of rivet nuts is that the mandrel may become locked into the internal threads of a blind rivet nut. This condition may be caused by the wrong insert being used in an application, the installation tool not being properly set, or if the operator is not installing the insert correctly (not having the insert head resting on the material surface).

With most competitive installation tools, this condition requires a long and difficult process to free the jammed mandrel. Because of the 4068's unique design, it is a simple and quick procedure.

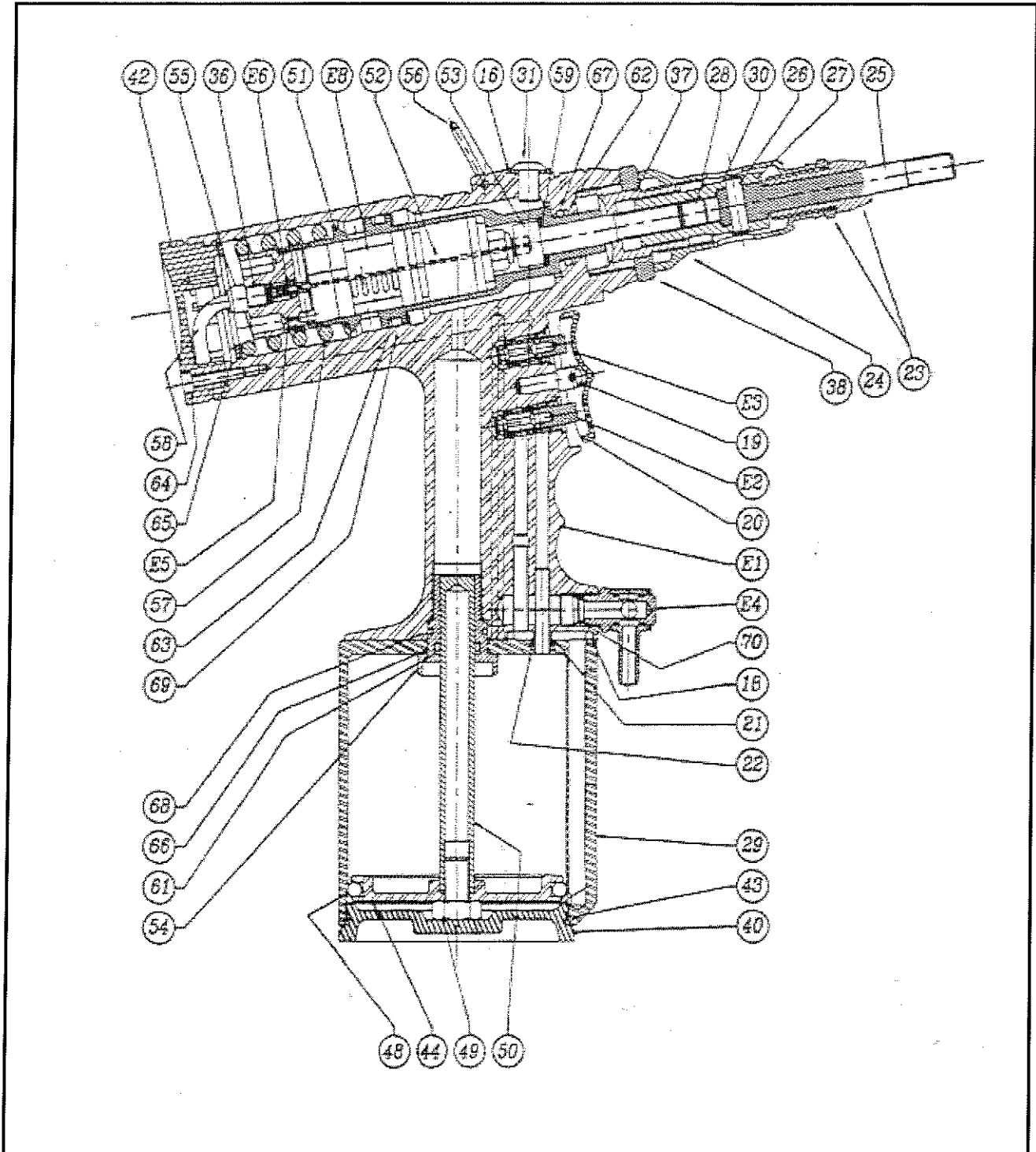
Procedure to clear a stuck mandrel:

1. DISCONNECT THE AIR SUPPLY FROM THE TOOL.
2. With the mandrel (#25) locked into the installed threads, turn the tool until the mandrel pin (#26) is visible through one of the cutouts in the nose piece (#24).
3. Use a pin punch and small hammer to push out the mandrel pin (#26).
4. Unscrew the nose piece from the tool. The tool body is now free from the stuck mandrel.
5. The mandrel can now be removed from the installed insert.

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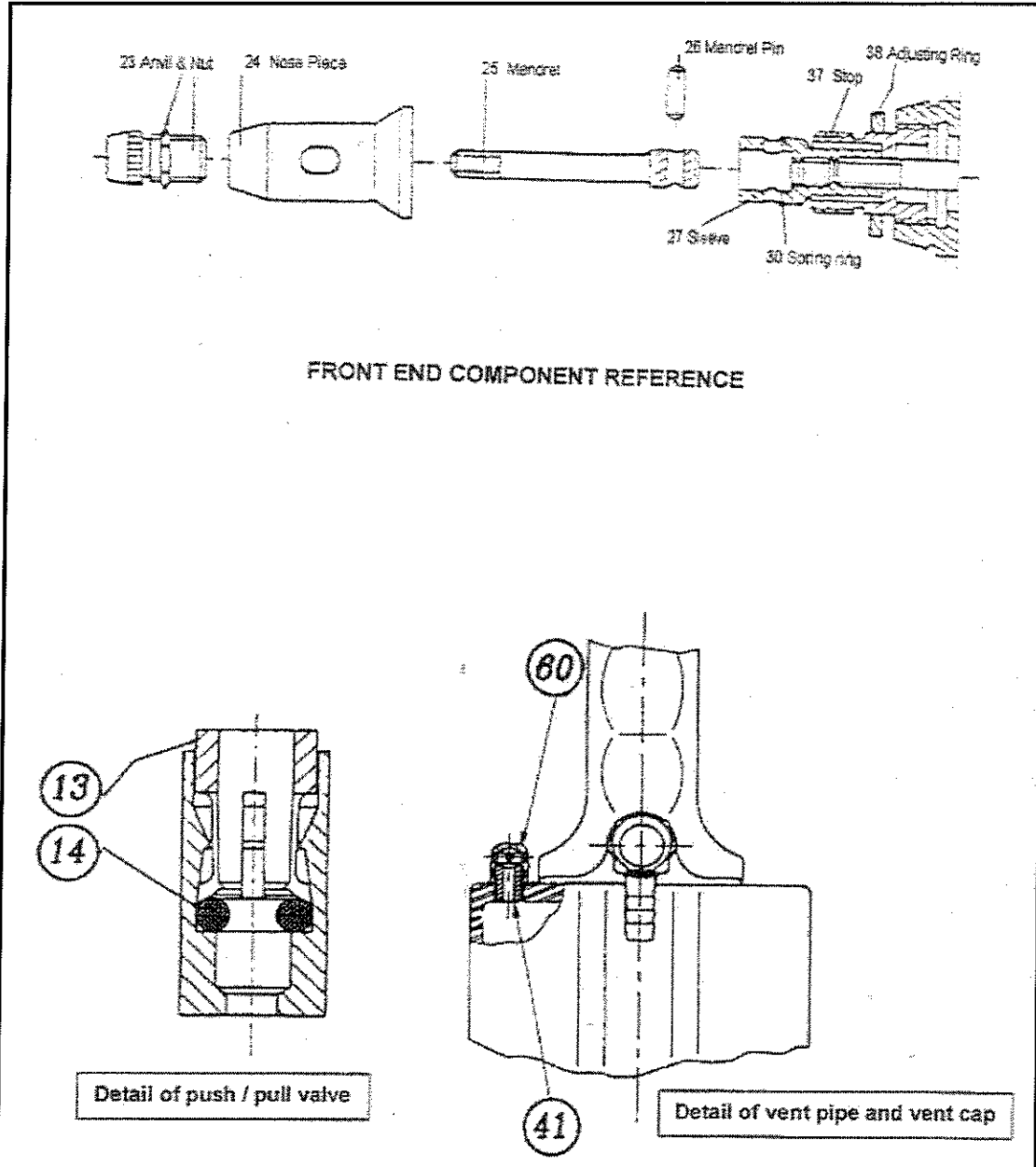
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Hydro-Pneumatic Installation Tool 4068

Spare Part List

No.	Part No.	Description	Qty
13	2361-536-5041	Fast inside connecting tongs	4
14*	2361-536-5121	Fast connecting joint	4
16*	2361-536-5113	BS ring, ID 8 mm	4
18*	2361-536-5106	Feed tank joint	1
19	2361-536-5042	Trigger axle	1
20	2361-536-5023	Trigger	1
21	2361-536-5006	Tank spacer	1
22*	2361-536-5102	Tank return joint	1
23	see table 2.1	Anvil and locknut (see 2.1)	1
24	2361-536-5014	Nose piece	1
25	see table 2.1	Mandrel	1
26*	C-251101-0100	Mandrel drive pin	1
27	2361-5365-015	Sleeve	1
28	C-951015-1010	Bolt M 10x10	1
29	2361-536-5001	Pneumatic	1
30*	C-251101-0410	Spring ring	1
31	2361-536-5116	Bolt M 8x10 ISO 7380	1
36	2361-536-5115	Bolt M 8x8	1
37	2361-536-5013	Travel/Stroke stop	1
38	2361-536-5009	Adjusting ring	1
40	2361-536-5022	Joint-less tank plug	1
41	2361-536-5007	Vent	1
42	2361-536-5010	Rear plug	1
43*	2361-536-5109	Tank Plug joint	1
44	2361-536-5004	Joint-less pneumatic piston	1
48*	2361-536-5108	Pneumatic piston joint	1
49	2361-536-5118	Bolt M 10 DIN 933, galvanized	1
50	2361-536-5003	Emitter piston	1
51	2361-536-5002	Receiver piston	1
52	2361-536-5011	Push-pull rod	1
53	2361-536-5012	Drive shaft	1
54	2361-536-5021	Steady bush	1
55	2361-536-5028	Spring washer	1
56	2361-536-5029	Hook	1
57	2361-536-5030	Spring	1
58*	2361-536-5031	Flexible pipe	2
59*	2361-536-5034	Thrust waster	1
60	2361-536-5035	Vent plug	1
61*	2361-536-5110	Back-up ring	1
62*	2361-536-5111	Back-up ring	1
63*	2361-536-5112	Back-up ring	1
64	2361-536-5114	Bolt M4 x 20	1
65	2361-536-5101	Rear inside circlip	1
66*	2361-536-5103	Dynamic bearing joint	1
67*	2361-536-5104	Front dynamic joint	1
68*	2361-536-5105	Static bearing joint	1
69*	2361-536-5107	Rear dynamic joint	1
70	2361-536-5119	Air inlet hose	1
E1	2361-536-5802	Body sub-assembly	1
E2*	2361-536-5803	Crimping valve (piston, sleeve, joint)	1
E3*	2361-536-5804	Unscrewing valve (piston, sleeve, joint)	1
E4	2361-536-5805	Complete banjo	1
E5	2361-536-5806	Distributor motor	1
E6*	2361-536-5807	Push-pull valve	1
E8	2361-536-5800	Compressed air motor	1
*	2361-536-5200	Repair case comprised of the parts with *	