

# NXT<sup>®</sup> Air Motor

312796S

EN

*For use with high performance finishing and coating pumps in hazardous or non-hazardous locations. For professional use only.*

**Models M02xxx, M04xxx, M07xxx, M12xxx, M18xxx, and M34xxx**

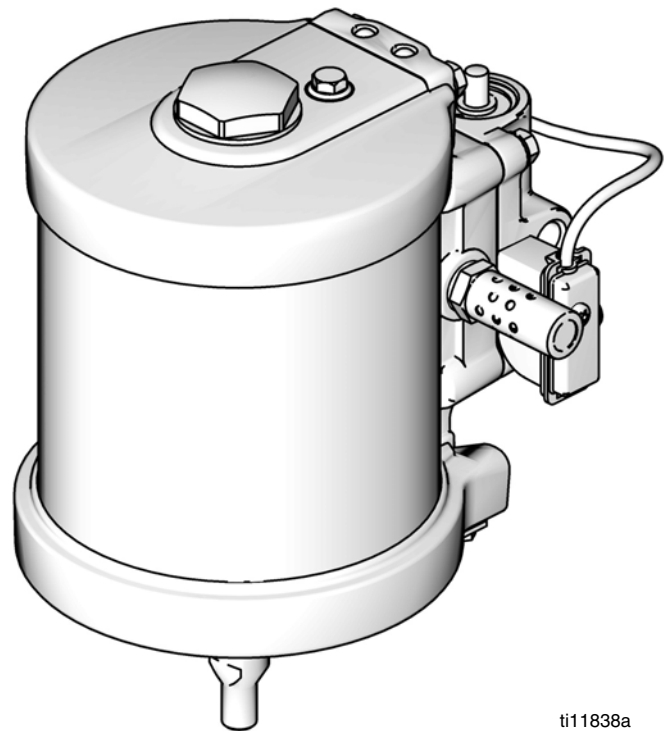
100 psi (0.7 MPA, 7.0 bar) Maximum Working Pressure



## Important Safety Instructions

Read all warnings and instructions in this manual. For complete warnings and instructions see your pump or package manual. Hazard symbols refer to specific procedure risks. Save all instructions.

See page 3 for model information.



ti11838a

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# Related Manuals

Manual	Description
312792	Merkur Displacement Pump
312793	Merkur Bellows Displacement Pump
312794	Merkur Pump Assembly
312795	Merkur Bellows Pump Assembly
312797	Merkur Spray Packages, AA and Airless, Ambient
312798	Merkur Electrostatic Spray Packages
312799	Merkur Bellows Spray Packages, AA and Airless
313255	Merkur Heated Spray Packages

# Warnings

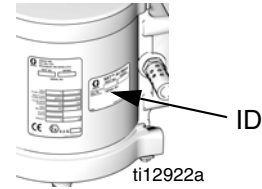
The following warnings are for the setup, use, grounding, maintenance, and repair of this equipment. The exclamation point symbol alerts you to a general warning and the hazard symbol refers to procedure-specific risk. Refer back to these warnings. Additional, product-specific warnings may be found throughout the body of this manual where applicable.

 <b>WARNING</b>	
	<b>FIRE AND EXPLOSION HAZARD</b> Flammable fumes, such as solvent and paint fumes, in <b>work area</b> can ignite or explode. To help prevent fire and explosion: <ul style="list-style-type: none"> <li>• Use equipment only in well ventilated area.</li> <li>• Eliminate all ignition sources; such as pilot lights, cigarettes, portable electric lamps, and plastic drop cloths (potential static arc).</li> <li>• Keep work area free of debris, including solvent, rags and gasoline.</li> <li>• Do not plug or unplug power cords, or turn power or light switches on or off when flammable fumes are present.</li> <li>• Ground all equipment in the work area. See <b>Grounding</b> instructions.</li> <li>• Use only grounded hoses.</li> <li>• Hold gun firmly to side of grounded pail when triggering into pail.</li> <li>• If there is static sparking or you feel a shock, <b>stop operation immediately</b>. Do not use equipment until you identify and correct the problem.</li> <li>• Keep a working fire extinguisher in the work area.</li> </ul>
	<b>EQUIPMENT MISUSE HAZARD</b> Misuse can cause death or serious injury. <ul style="list-style-type: none"> <li>• Do not operate the unit when fatigued or under the influence of drugs or alcohol.</li> <li>• Do not exceed the maximum working pressure or temperature rating of the lowest rated system component. See <b>Technical Data</b> in all equipment manuals.</li> <li>• Use fluids and solvents that are compatible with equipment wetted parts. See <b>Technical Data</b> in all equipment manuals. Read fluid and solvent manufacturer's warnings. For complete information about your material, request MSDS forms from distributor or retailer.</li> <li>• Check equipment daily. Repair or replace worn or damaged parts immediately with genuine manufacturer's replacement parts only.</li> <li>• Do not alter or modify equipment.</li> <li>• Use equipment only for its intended purpose. Call your distributor for information.</li> <li>• Route hoses and cables away from traffic areas, sharp edges, moving parts, and hot surfaces.</li> <li>• Do not kink or over bend hoses or use hoses to pull equipment.</li> <li>• Keep children and animals away from work area.</li> <li>• Comply with all applicable safety regulations.</li> </ul>
	<b>SKIN INJECTION HAZARD</b> High-pressure fluid from gun, hose leaks, or ruptured components will pierce skin. This may look like just a cut, but it is a serious injury that can result in amputation. <b>Get immediate surgical treatment.</b> <ul style="list-style-type: none"> <li>• Do not point gun at anyone or at any part of the body.</li> <li>• Do not put your hand over the spray tip.</li> <li>• Do not stop or deflect leaks with your hand, body, glove, or rag.</li> <li>• Do not spray without tip guard and trigger guard installed.</li> <li>• Engage trigger lock when not spraying.</li> <li>• Follow <b>Pressure Relief Procedure</b> in this manual, when you stop spraying and before cleaning, checking, or servicing equipment.</li> </ul>

 <b>WARNING</b>	
	<p><b>PRESSURIZED EQUIPMENT HAZARD</b></p> <p>Fluid from the gun/dispense valve, leaks, or ruptured components can splash in the eyes or on skin and cause serious injury.</p> <ul style="list-style-type: none"> <li>• Follow <b>Pressure Relief Procedure</b> in this manual, when you stop spraying and before cleaning, checking, or servicing equipment.</li> <li>• Tighten all fluid connections before operating the equipment.</li> <li>• Check hoses, tubes, and couplings daily. Replace worn or damaged parts immediately.</li> </ul>
	<p><b>MOVING PARTS HAZARD</b></p> <p>Moving parts can pinch or amputate fingers and other body parts.</p> <ul style="list-style-type: none"> <li>• Keep clear of moving parts.</li> <li>• Do not operate equipment with protective guards or covers removed.</li> <li>• Pressurized equipment can start without warning. Before checking, moving, or servicing equipment, follow the <b>Pressure Relief Procedure</b> in this manual. Disconnect power or air supply.</li> </ul>
	<p><b>PERSONAL PROTECTIVE EQUIPMENT</b></p> <p>You must wear appropriate protective equipment when operating, servicing, or when in the operating area of the equipment to help protect you from serious injury, including eye injury, inhalation of toxic fumes, burns, and hearing loss. This equipment includes but is not limited to:</p> <ul style="list-style-type: none"> <li>• Protective eyewear</li> <li>• Clothing and respirator as recommended by the fluid and solvent manufacturer</li> <li>• Gloves</li> <li>• Hearing protection</li> </ul>

# Models

Check your motor's identification plate (ID) for the 6-digit part number of your motor. Use the following matrix to define the construction of your motor. For example, motor part number **M04LT0** represents an air motor (**M**), with 400 cc displacement, a 3.5 in. piston diameter and a 2.5 in. stroke (**04**), low noise exhaust (**L**), and DataTrak™ monitoring with runaway protection (**T**). The last digit (0) is unassigned.



M	04		L		T		0
First Digit	Second and Third Digits (displacement, piston diameter x stroke)		Fourth Digit (Exhaust Type)		Fifth Digit (Data Monitoring)		Sixth Digit
M (Air Motor)	02	200 cc, 2.5 in x 2.5 in.	F*	Flush pump (limited use)	N	None (Compatible with DataTrak with Cycle Count)	0 (not assigned)
	04	400 cc, 3.5 in. x 2.5 in.	L	Low noise	T	Compatible with DataTrak with Runaway Protection	
	07	700 cc, 4.5 in. x 2.5 in.			P	Park - Vent valve to be parked in down position (compatible with DataTrak with Cycle Count)	
	12	1200 cc, 6.0 in. x 2.5 in.			H	200 cc Motor Compatible with Linear Sensor	
	18	1800 cc, 7.5 in. x 2.5 in.					
	34	3400 cc, 7.5 in. x 4.75 in.					

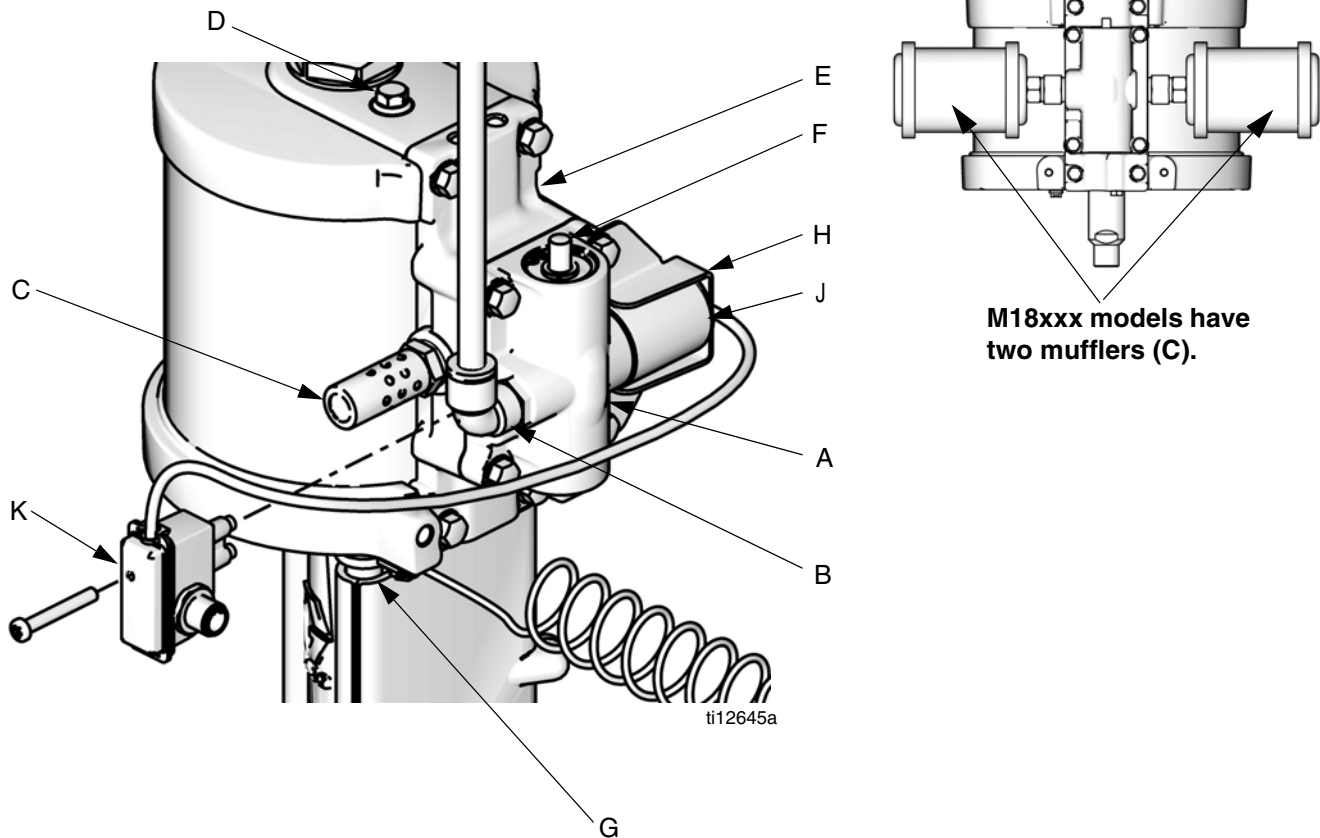
\* Uses a smaller muffler. Limited use.

Do not operate the air motor without a plumbed exhaust line or muffler installed.						

Air Motor Part No.	Series	Displacement (cc)	Stroke (in.)	Piston Diameter, in. (mm)	Low Noise	Linear Sensor Compatible	DataTrak Cycle Count Compatible	DataTrak with Runaway Protection Compatible	Park (Lowers to down position)
M02LN0	C	200	2.5	2.5 (63)	✓		✓		
M02LH0	A	200	2.5	2.5 (63)	✓	✓	✓		
M02LT0	A	200	2.5	2.5 (63)	✓		✓	✓	
M04LN0	D	400	2.5	3.5 (89)	✓	✓	✓		
M04LT0	D	400	2.5	3.5 (89)	✓	✓	✓	✓	
M07LN0	D	700	2.5	4.5 (114)	✓	✓	✓		
M07LT0	D	700	2.5	4.5 (114)	✓	✓	✓	✓	
M12FN0	D	1200	2.5	6.0 (152)		✓	✓		
M12LN0	D	1200	2.5	6.0 (152)	✓	✓	✓		
M12LT0	D	1200	2.5	6.0 (152)	✓	✓	✓	✓	
M12LP0	D	1200	2.5	6.0 (152)	✓	✓	✓		✓
M18LN0	D	1800	2.5	7.5 (191)	✓	✓	✓		
M18LT0	D	1800	2.5	7.5 (191)	✓	✓	✓	✓	
M34LN0	A	3400	4.75	7.5 (191)	✓		✓		

# Component Identification

## Model M04LT0 shown

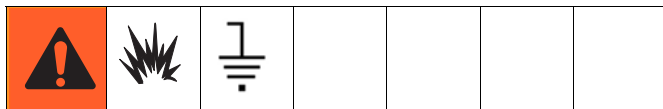


**FIG. 1: NXT Air Motor components**

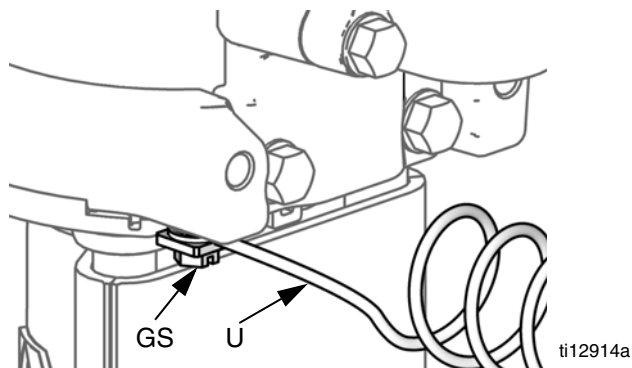
### Key:

- A Air valve
- B Air inlet, 1/4 in. npt(f) for M02xxx and M04xxx models, 1/2 in. npt(f) for M07xxx, M12xxx, and M18xxx models
- C Muffler (M18xxx models have a second muffler, see inset. Model M12Fxx has smaller mufflers; not shown.)
- D Pilot valve
- E Manifold
- F Solenoid release button (for DataTrak models with runaway protection)
- G Ground screw
- H Solenoid bracket (for DataTrak models with runaway protection)
- J Solenoid (for DataTrak models with runaway protection)
- K Reed switch (DataTrak models)

## Grounding



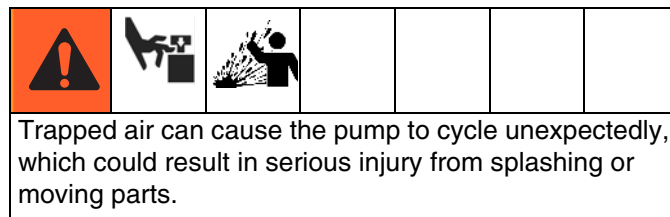
See FIG. 2. Verify that the ground screw (GS) is attached and tightened securely to the air motor. Connect the other end of the ground wire (U) to a true earth ground.



**FIG. 2: Ground wire**

## Accessories

### Bleed-type master air valve



- Required in your system to relieve air trapped between it and the air motor when the valve is closed.
- Be sure the valve is easily accessible from the pump and located downstream from the air regulator.





### Air regulator

Adjusts air pressure to the motor and fluid outlet pressure of pump. Locate it close to the pump. Install a gauge to read air pressure.

### Air filter

Removes harmful dirt and moisture from compressed air supply.

# Troubleshooting

**Relieve the pressure** before checking or servicing the equipment.

**NOTICE**

Check all possible problems and causes before disassembling the pump.

Problem	Cause	Solution
Air motor will not run.	DataTrak solenoid engaged (DataTrak models with runaway protection).	Push solenoid release button (118). Remove solenoid and manually move pin.
	Damaged air valve (17).	Replace or service air valve (17). See page 9.
	Damaged pilot valve (19).	Replace pilot valves (19). See page 13.
Air continuously exhausting around air motor piston rod.	Damaged u-cups (3, 43).	Replace piston rod u-cups (3, 43). See page 13.
Air continuously exhausting from muffler.	Damaged air valve plate (105) or cup (112).	Replace or service air valve (17). See page 9.
Air motor “bounces” at top of stroke.	Damaged bottom pilot valve.	Replace bottom pilot valve (19). See page 13.
Air motor “bounces” at bottom of stroke.	Damaged top pilot valve.	Replace top pilot valve (19). See page 13.
Icing inside motor.	Air motor operating at high pressure or high cycle rate.	Reduce pressure, cycle rate, or duty cycle of motor.  Reduce dew point of compressed air in moisture coalescing filter.







# Repair

## Preventive Maintenance Schedule

The operating conditions of your system determine how often maintenance is required. Establish a preventive maintenance schedule by recording when and what kind of maintenance is needed, and then determine a regular schedule for checking your system.

## Pressure Relief Procedure

						
<ul style="list-style-type: none"> <li>Trapped air can cause the pump to cycle unexpectedly, which could result in serious injury from skin injection or moving parts.</li> <li>Do not lift or move motor while pressurized.</li> </ul>						

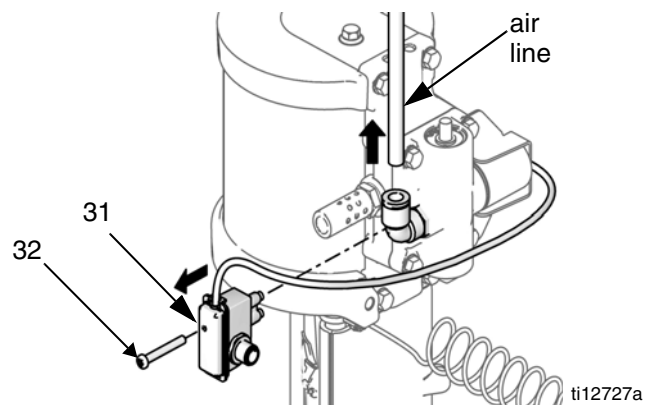
- Engage the trigger lock.
- Close the bleed-type master valve.
- Disengage the trigger lock.
- Hold a metal part of the gun firmly to a grounded metal pail. Trigger the gun to relieve pressure.
- Engage the trigger lock.
- Open all fluid drain valves in the system, having a waste container ready to catch drainage. Leave drain valve(s) open until you are ready to spray again.
- If you suspect the spray tip or hose is clogged or that pressure has not been fully relieved after following the steps above, **VERY SLOWLY** loosen tip guard retaining nut or hose end coupling to relieve pressure gradually, then loosen completely. Clear hose or tip obstruction.
- For motors with DataTrak:** If equipped with a run-away protection solenoid, remove two screws (18) and the solenoid bracket (26). Pull the solenoid (25) out of the air valve.

## Repair Air Valve



### Replace Complete Air Valve

- Stop the pump at the middle of its stroke. Relieve the pressure. See procedure at left.
- Disconnect the air line to the motor.
- For motors with DataTrak:** Remove screw (32) to disconnect the reed switch (31) from the air valve (17).



**FIG. 3: Reed switch assembly & air line removal**

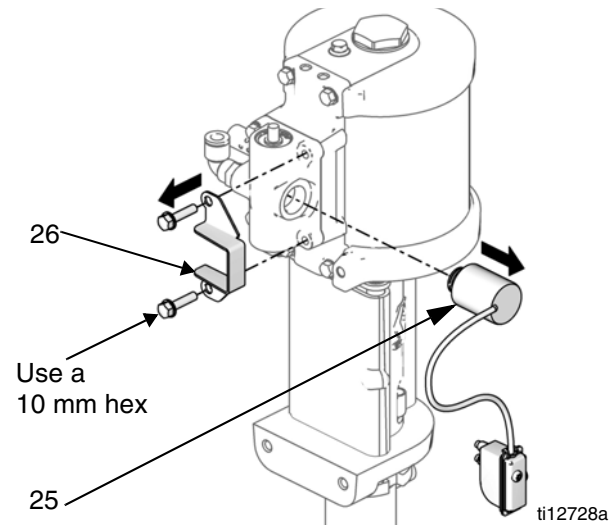


FIG. 4: Solenoid removal

5. Remove screws (18). Remove the air valve (17) and gasket (16\*♦).
6. To repair the air valve, go to **Disassemble the Air Valve**, step 1 at right. To install a replacement air valve, continue with step 7.
7. Align the new air valve gasket (16\*♦) on the manifold, then attach the air valve (17).
8. **For motors with DataTrak:** If equipped with a run-away protection solenoid, remember to reattach the solenoid bracket and the solenoid.
9. **For motors with DataTrak:** Use screw to attach the reed switch assembly to the new air valve. Be sure the sensor cables are connected properly (see pump or package manual).
10. Reconnect the air line to the motor.

## Replace Seals or Rebuild Air Valve

Air Valve Seal Kits are available. See page 21 to order the correct kit for your pump. Parts are marked †.

Air Valve Repair Kits are available. See page 21 to order the correct kit for your pump. Parts are marked ♦.

Air Valve End Cap Kits are available. See page 21 to order the correct kit for your pump. Parts are marked ✕.

## Disassemble the Air Valve

1. Perform steps 1-5 under **Replace Complete Air Valve**, page 9.
2. See FIG. 5. Use a 2 mm or 5/64 hex key to remove two screws (109†♦). Remove the valve plate (105♦).
3. **M02xxx and M04xxx Motors:** Remove the cup (112♦) and spring (111♦).  
**M07xxx, M12xxx, and M18xxx Motors:** Remove the two-piece cup assembly (♦112a, b, and c), and spring (111♦).

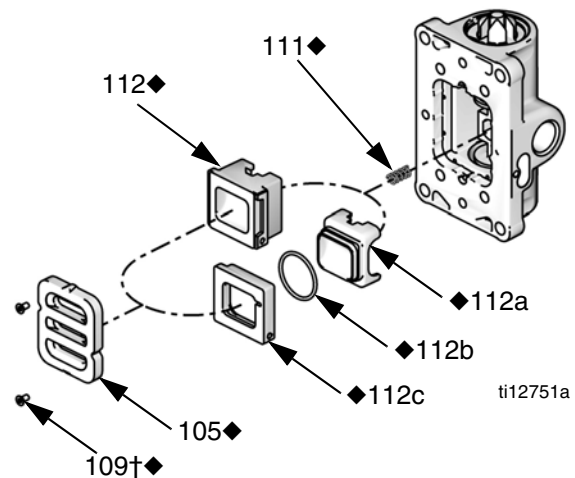


FIG. 5: Air plate removal

4. Remove the snap ring (110♦✕) from each end. Use the piston to push the end caps (107✕, 117✕) out of the ends. Remove end cap o-rings (106†✕♦, 119†✕♦).
5. Remove the piston (102♦). Remove the u-cup seals (108†♦) from each end and the detent assembly (103♦) and detent cam (104♦) from the center.

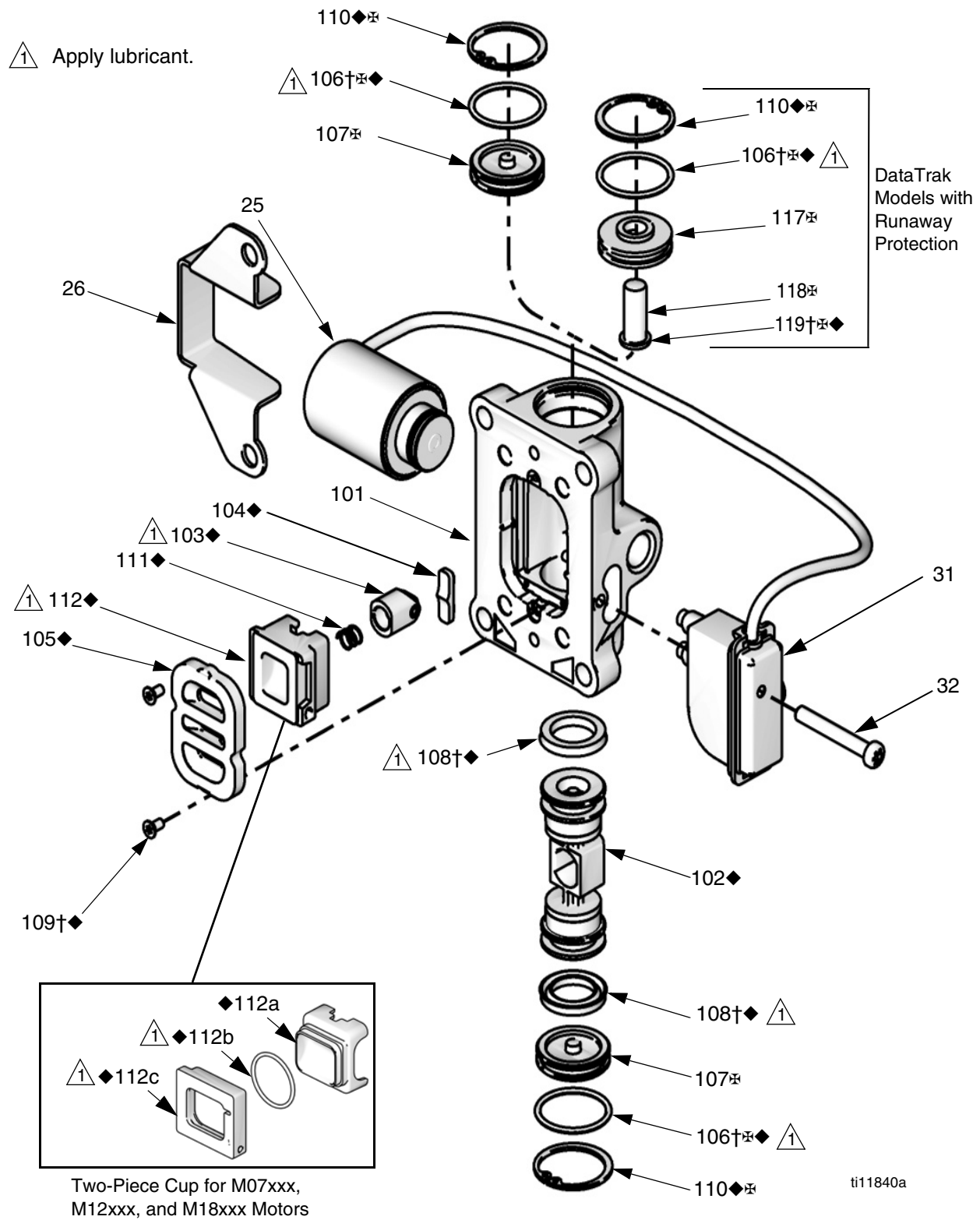
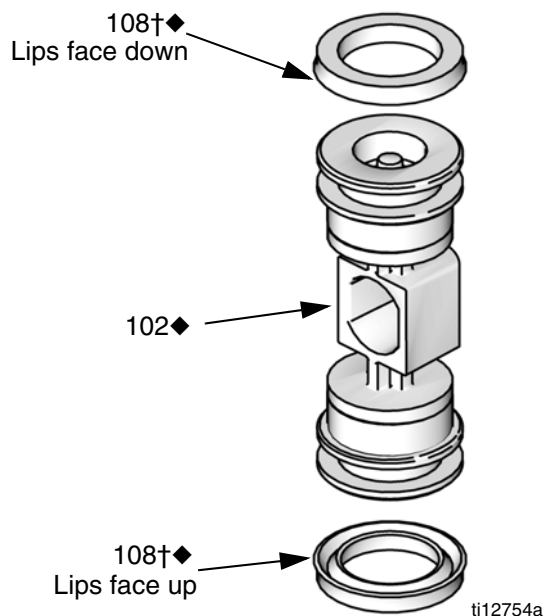


FIG. 6: Air valve assembly

### Reassemble the Air Valve

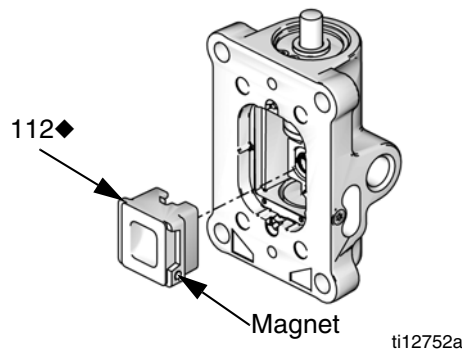
1. Lubricate detent cam (104♦) and install into housing.
2. Lubricate the u-cups (108†♦) and install on the piston (102♦) with lips facing toward the center of the piston.



**FIG. 7: Air valve u-cup installation**

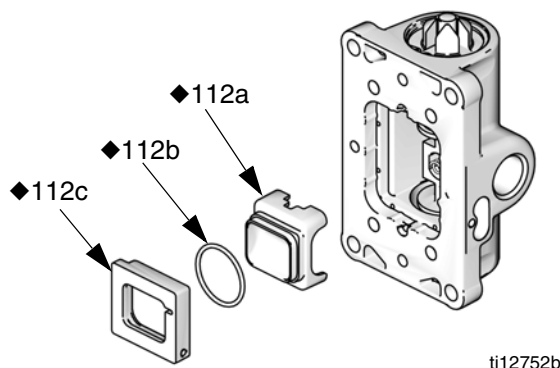
3. Lubricate both ends of the piston (102♦) and install it in the housing.
4. Lubricate and install the detent assembly (103♦) into the piston.
5. **Standard models (No DataTrak or DataTrak with cycle count only):** Lubricate new o-rings (106†⊗♦) and install on the end caps (107⊗). Install the end caps into the housing.  
**DataTrak models with runaway protection solenoid:** Lubricate and install new o-ring (106†⊗♦) on bottom end cap (107⊗). Lubricate and install new o-ring (119†⊗♦) and runaway reset button (118) on top end cap (117⊗). Install the end caps (107⊗, 117⊗) into the housing.
6. Install a snap ring (110♦⊗) on each end to hold end caps in place.

7. Install the spring (111♦).
8. **M02xxx and M04xxx Motors:** Lubricate and install the air valve cup (112♦). Align the small round magnet with the air inlet.



**FIG. 8: Cup installation**

**M07xxx, M12xxx, and M18xxx Motors:** Lubricate and install the cup o-ring (♦112b) on the cup body (♦112a), then assemble the cup body to the cup base (♦112c). Lubricate and install the cup assembly. Align the small round magnet with the air inlet.

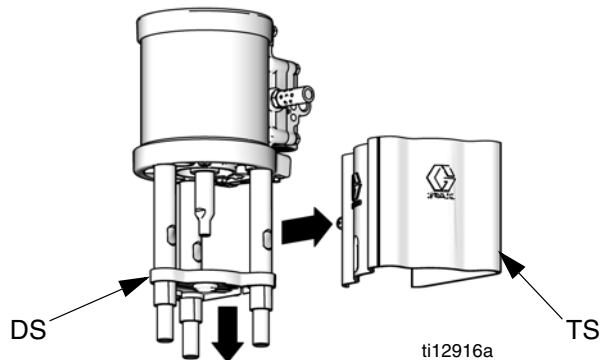


**FIG. 9: Two-piece cup installation**

9. Install the valve plate (105♦). Tighten the screws (109†♦) to hold it in place.

## Replace Pilot Valves

1. Stop the pump at the middle of its stroke. Relieve the pressure. See page 9.
2. Disconnect the air line to the motor.
3. Remove the tie rod shield (TS). Slide the drip shield (DS) down on the tie rods.



4. Use a 10 mm socket wrench to remove the old pilot valves (19) from the top and bottom covers.
5. Lubricate and install the new pilot valves (19). Torque to 95-105 in-lb (11-12 N•m).

## Repair Air Motor



NOTE: Air Motor Seal Kits are available. See page 21 for the correct kit for your motor. Parts included in the kit are marked with an asterisk (\*). For best results, use all the parts in the kit.

### Disconnect the Air Motor

1. Flush the pump, if possible. (See package manual) Relieve the pressure. (See page 9.)
2. Disconnect the air and fluid hoses, the ground wire, and the tie rod shield.
3. Hold the flats of the air motor piston rod with a wrench. Use another wrench to loosen the coupling nut (CN).

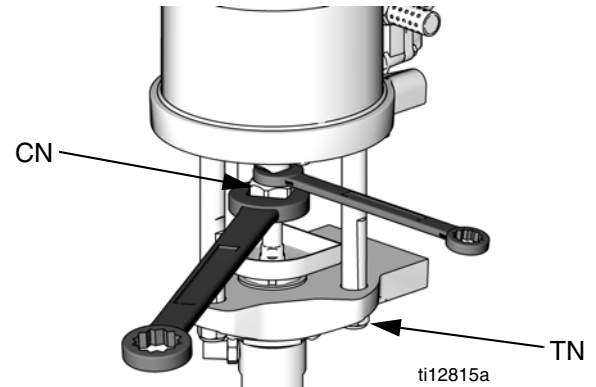


FIG. 10: Coupling nut removal

4. Remove the tie rod nuts (TN).
5. Use a socket to remove the mounting screws (MS).

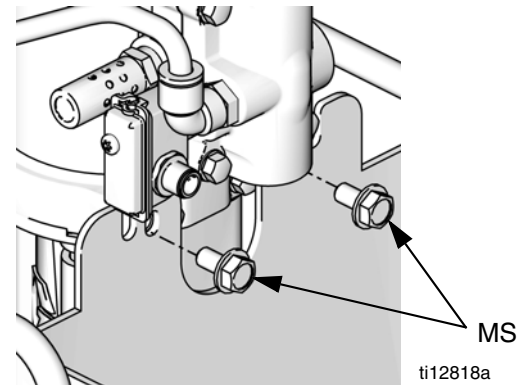



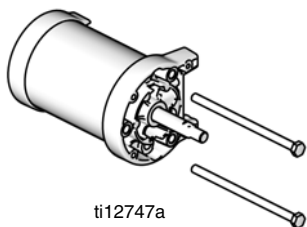
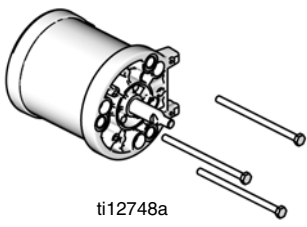
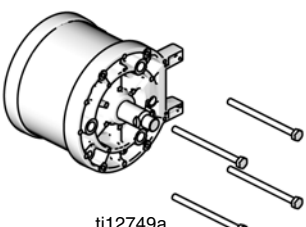
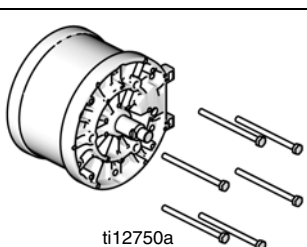
FIG. 11: Air motor removal

6. Lift up on the air motor to remove it. The tie rods and drip shield will remain attached.

 **Cart Mount:** Remove the two screws on the arms and tip back or remove the air control panel for easier removal of the air motor.

## Disassemble the Air Motor

1. **For motors with DataTrak:** Remove screw to disconnect the reed switch from the air valve. See FIG. 3, page 9.
2. Use a 10 mm socket wrench to remove four screws (18). Remove the air valve (17) and gasket (16\*♦).
3. Remove the muffler(s).
4. Remove four screws (18) and remove the manifold (15\*) and two gaskets (14\*).
5. Use a 10 mm socket wrench to remove the pilot valves (19) from the top and bottom cover.
6. Remove the tie bolts.

Model	Tie Bolt Hex Size	
M02xxx	13 mm	 ti12747a
M04xxx	13 mm	 ti12748a
M07xxx and M12xxx	17 mm	 ti12749a
M18xxx and M34xxx	17 mm	 ti12750a

7. Remove the top cover. Remove the o-ring (9\*).
8. Remove the shield (12) from around the cylinder. Remove the cylinder (11).
9. Depending on your displacement pump model, you may need to remove an adapter from the bottom of the piston assembly.
10. Slide the piston assembly (5) straight up off the bottom cover.

### NOTICE

Do not attempt to take apart the piston assembly (5).

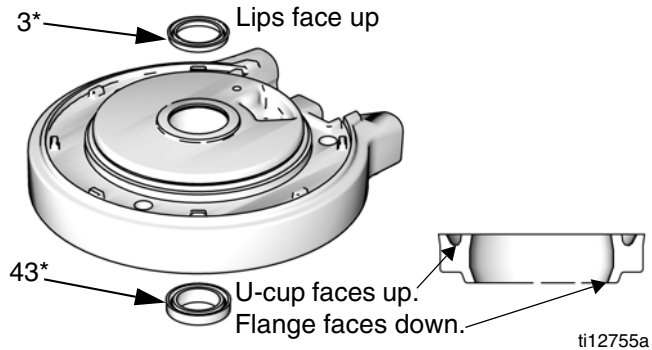
11. Remove o-ring (8\*) from around the piston.
12. Remove u-cup seals (3\*, 43\*), and o-ring (9\*) from the bottom cover.

## Reassemble the Air Motor

**NOTE:** For easier reassembly, start with the top cover (13) turned over on the workbench and assemble the air motor upside-down.

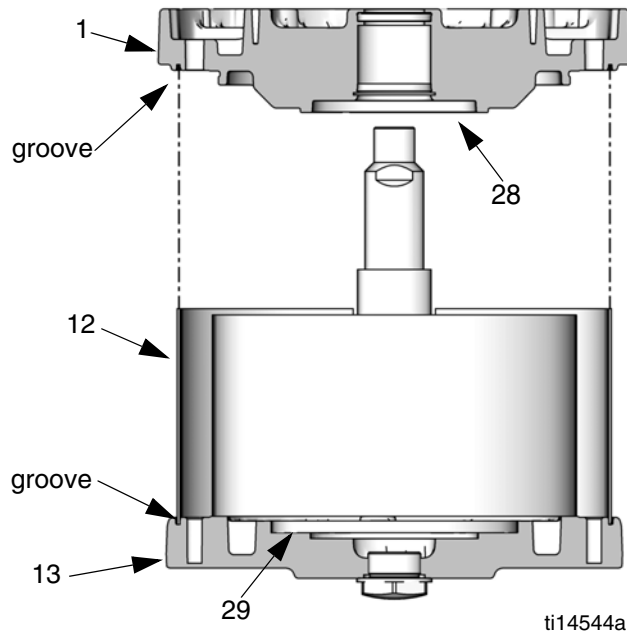
1. Lubricate and install the o-ring (9\*) on the top cover (13).
2. **M07xxx, M12xxx, and M18xxx only:** Install the upper bumper (29) on the top cover (13).
3. Lubricate the inside of the cylinder (11). Lower the cylinder (11) onto the top cover (13).
4. Lubricate and install the o-ring (8\*) around the piston (5).
5. Slide the piston assembly (5) down into the cylinder (11). Be sure the o-ring (9\*) stays in place.
6. Install the shield (12) around the cylinder (11) and in the groove on the top cover (13).

7. See FIG. 12. Lubricate and install new u-cup seal with flange (43\*) in the bottom of the bearing in the bottom cover (1). The u-cup must face up and the flange must face down. Lubricate and install new u-cup seal (3\*) in the top of the bearing. Lips must face up.



**FIG. 12: Air motor u-cup installation**


8. Lubricate and install the o-ring (9\*) on the bottom cover (1).
9. **M07xxx, M12xxx, and M18xxx only:** Install the piston bumper (28) on the bottom cover (1).
10. See FIG. 13. Carefully place the bottom cover (1) on the cylinder (11), sliding the rod through the bearing. The manifold surfaces of the top and bottom covers must align. Be sure the shield (12) is in the groove on both the top and bottom covers.



**FIG. 13: Align shield in grooves on covers**

11. Install the tie bolts (10) hand tight.

12. Install two gaskets (14\*) on the manifold (15). Install the manifold (15). Torque bolts to 95-105 in-lb (10.7-11.9 N•m).

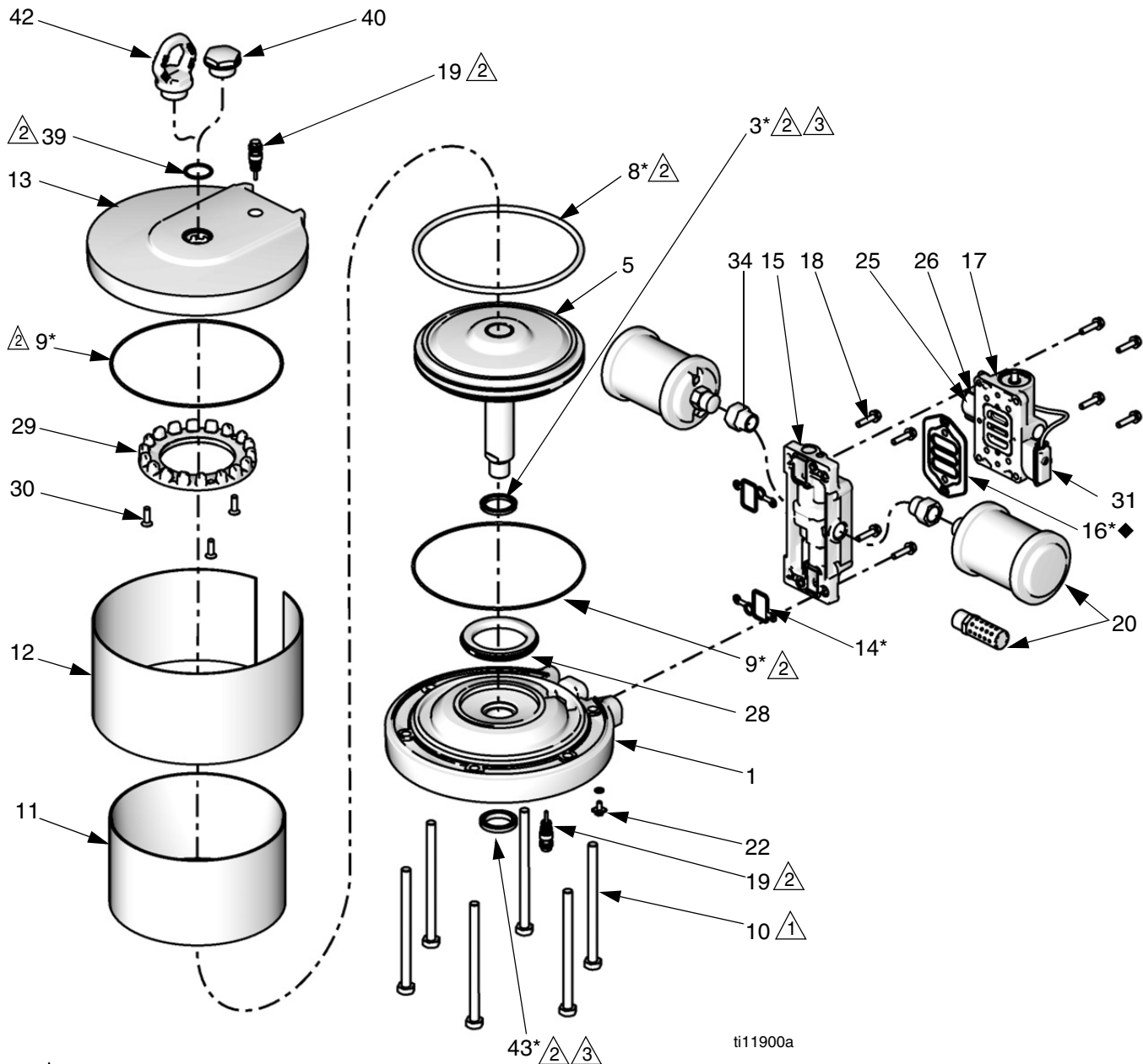
 The manifold is reversible for ease of placement of muffler or remote exhaust.

13. Align the air valve gasket (16\*♦) on the manifold, then attach the air valve.
14. Tighten the tie bolts (10) halfway. Work in a criss-cross pattern. Check that the shield remains in the grooves on both covers. Continue tightening the bolts in pattern to the torque specified in the following table.

Air Motor	Torque
<b>M02xxx–M04xxx</b>	11-13 ft-lb (15-18 N•m)
<b>M07xxx–M34xxx</b>	25-30 ft-lb (34-40 N•m)

15. Lubricate and install pilot valves (19) in top and bottom cover. Torque to 95-105 in-lb (11-12 N•m).
16. Reinstall muffler(s).

# Parts



- 1 Torque varies by motor size.  
 M02xxx-M04xxx: 11-13 ft-lb (15-18 N•m)  
 M07xxx-M34xxx: 25-30 ft-lb (34-40 N•m)

2 Apply lubricant.

3 U-cup faces up. Flange (bottom seal only) faces down. See FIG. 12, page 15.

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# Air Motor Parts — All Models

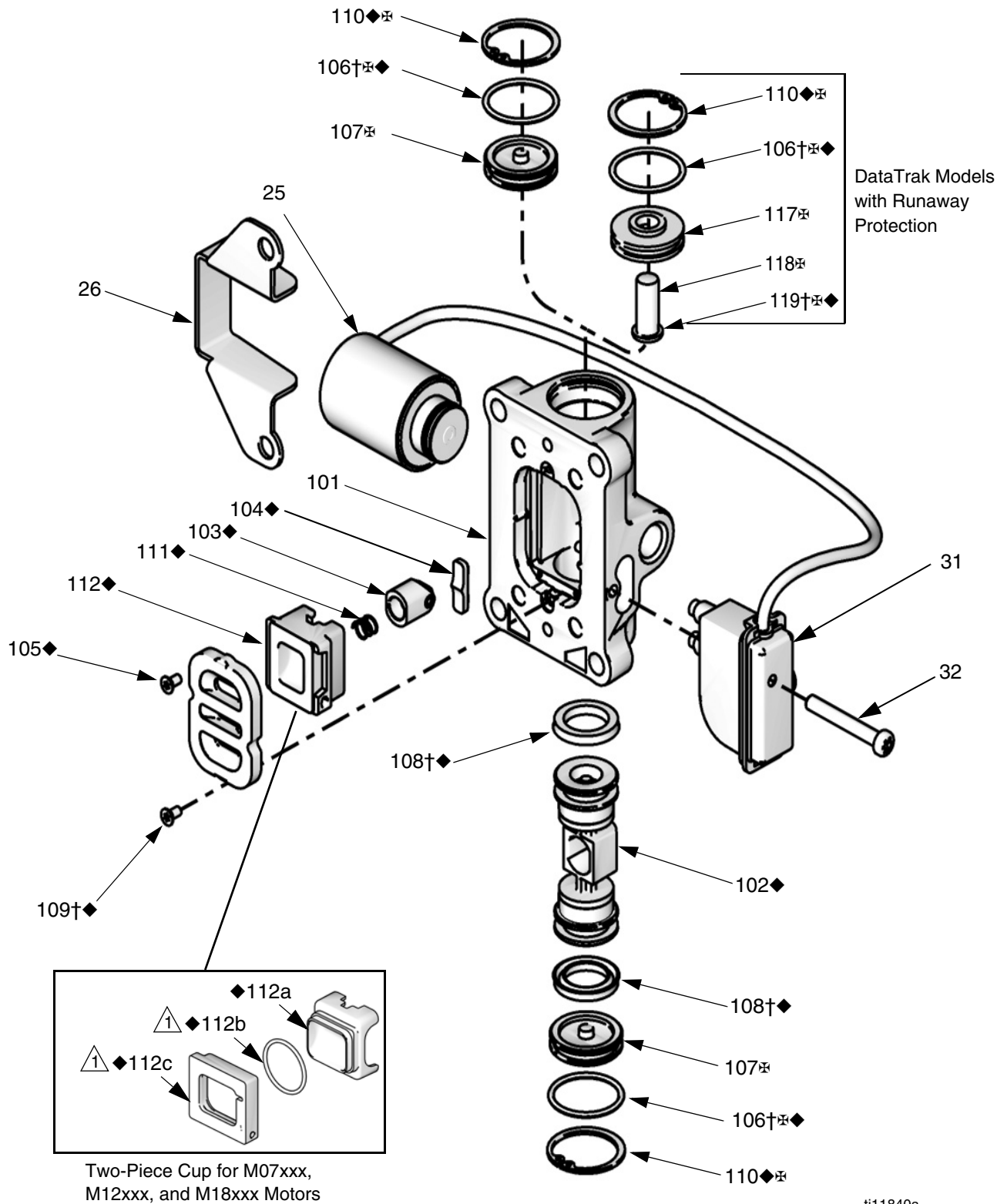
Ref.	Description	Qty	M02xxx	M04xxx	M07xxx	M12xxx	M18xxx	M34xxx
1	COVER, lower, assembly (includes 3, 9, 19, 22, 28, and 43)	1	24A541	24A545	24C398	24A549	24A553	24A553
3*	U-CUP	2	Not sold separately. See Air Motor Seal Kit (page 21) or Lower Cover Assembly (1, this table)					
5	PISTON, motor, assembly	1	24A542	24A546	24C399	24A550	24A554	16G515
8*	O-RING, piston	1	Not sold separately. See Air Motor Seal Kit (page 21) or Piston Assembly (5, this table)					
9*	O-RING, cover	2	Not sold separately. See Air Motor Seal Kit (page 21) or Lower Cover Assembly (1, this table) or Upper Cover Assembly (13, this table)					
10	BOLT, tie, hex head							
	M02xxx	2	15M314	----	----	----	----	----
	M04xxx	3	----	15M314	----	----	----	----
	M07xxx	4	----	----	15M316	----	----	----
	M12xxx	4	----	----	----	15M316	----	----
	M18xxx	6	----	----	----	----	15M316	----
	M34xxx	6	----	----	----	----	----	15M315
11	CYLINDER, motor	1	15M289	15M211	15M781	15M672	15M390	16A516
12	SHIELD, cylinder	1	15M302	15M212	15M782	15M676	15M539	16V472
13	COVER, upper, assembly, includes 9, 19, 39, 40, and 41	1	15M291	15X353	15X130	15X354	15X320	15X320
14*	GASKET, manifold	2	Not sold separately. See Air Motor Seal Kit (page 21) or Manifold Assembly (15, this table)					
15	MANIFOLD, assembly, includes 14, 16, and 18 (qty. 4)	1	24A579	24A579	24A580	24A580	24A580	16G521
16*◆	GASKET, air valve	1	Not sold separately. See Air Motor Seal Kit (page 21) or Manifold Assembly (15, this table)					
17	VALVE, air, see page 21							
	Standard (for models with no Data-Trak or DataTrak with cycle count only)	1	24A351	24A351	24A352	24A352	24A352	24A352
	Compatible with DataTrak with Run-away Protection	1	24A353	24A353	24A354	24A354	24A354	----
	Park - lowers to down position (cycle count only)	1	----	----	----	262608	----	----
18	SCREW, M6 x 25	varies	Not sold separately. See Manifold Assembly (15, this table) or Solenoid Assembly (25, this table)					
19	VALVE, pilot	2	24A366	24A366	24A366	24A366	24A366	24A366
20	MUFFLER							
	M02xxx	1	15M213	----	----	----	----	----
	M04xxx	1	----	15M213	----	----	----	----
	M07xxx	1	----	----	117237	----	----	----
	M12xxx	1	----	----	----	117237	----	----
	M12Fxx	2	----	----	----	15M940	----	----
	M18xxx	2	----	----	----	----	117237	----
	M34xxx	1	----	----	----	----	----	102656
22	SCREW, ground	1	116343	116343	116343	116343	116343	116343

Ref.	Description	Qty	M02xxx	M04xxx	M07xxx	M12xxx	M18xxx	M34xxx
25	SOLENOID/REED SWITCH, assembly, for DataTrak models with runaway protection, includes 18 (qty. 2 or 4 depending on model), 26, 31, 32, and 33.	1	See Reed Switch (31, this table)	24B565	24B566	24B566	24B566	
26	BRACKET, solenoid (for DataTrak models with runaway protection)	1		Not sold separately. See Solenoid/Reed Switch Assembly (25, this table)				
28	BUMPER KIT, includes lower bumper, upper bumper, and screws (M18xxx only)	1			24A914	24A914	24A915	24A915
29	BUMPER, upper (M18xxx only)	1					Not sold separately. See Bumper Kit (28, this table)	
30	SCREW, M5, flat head (M18xxx only)	3						
31	SWITCH, reed, includes 32 (DataTrak models)	1	24B564	See Solenoid/Reed Switch Assembly (25, this table)				
32	SCREW, reed switch, 8-32 x 1.50, (DataTrak models)	1	Not sold separately. See Solenoid/Reed Switch Assembly (25 this table) or Reed Switch (31, this table)					
33	CLAMP, hose, not shown (DataTrak models)	1	Not sold separately. Order Kit 24A544 for package of 10.		Not sold separately. Order Kit 24A548 for package of 10.			
34	ADAPTER, muffler M12xxx M18xxx	1 2				15T560	15T560	
35▲	LABEL, warning (not shown)		15W719	15W719	15W719	15W719	15W719	15F674
39	O-RING, upper cover plug	1		Not sold separately. See Upper Cover Assembly (13, this table), Plug (40), or Bushing (41)				110782
40	PLUG, upper cover (MxxLN0 or MxxLT0 models)	1		24E990	24E990	24E990	24E990	24E990
42	HOOK, lift. Not included. Order kit separately if needed, includes o-ring 39).	0		24E991	24E991	24E991	24E991	24E991
43	SEAL, u-cup with flange	1	Not sold separately. See Air Motor Seal Kit (page 21) or Lower Cover Assembly (1, this table)					

\* Included in Air Motor Seal Kit. See page 21.

▲ Replacement Warning labels, signs, tags, and cards are available at no cost.

# Air Valve Parts



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Air valve parts are not sold individually. The table below shows possible kit options for each part. See page 21 to order the correct kit(s), or full replacement air valves, for your motor.

Ref.	Description	Qty.	Air Valve Repair Kit	Air Valve Seal Kit	Air Valve End Cap Kit	Other
101	HOUSING	1				
102◆	AIR VALVE PISTON	1	✓			
103◆	DETENT PISTON ASSEMBLY	1	✓			
104◆	DETENT CAM	1	✓			
105◆	PLATE, air valve	1	✓			
106†◆	O-RING	2	✓	✓	✓	
107✕	CAP				✓	
	Standard	2				
	Compatible with DataTrak with runaway protection	1				
108†◆	U-CUP	2	✓	✓		
109†◆	SCREW	2	✓	✓		Screws Kit 24A359 (pack of 10)
110◆✕	SNAP RING	2	✓		✓	
111◆	DETENT SPRING	1	✓			
112◆	CUP (for M02xxx and M04xxx models)	1	✓			
112a◆	TWO-PIECE CUP ASSEMBLY, with o-ring (for M07xxx, M12xxx, and M18xxx models)	1	✓			
112b◆						
112c◆						
117✕	CAP (for DataTrak models with runaway protection)	1			✓	
118✕	BUTTON, solenoid release (for DataTrak models with runaway protection)	1			✓	
119†◆	O-RING (for DataTrak models with runaway protection)	1	✓	✓	✓	
18	SCREW, M6 x 25	4				See Manifold Assembly (15, Air Motor Parts table) or Solenoid Assembly (25, Air Motor Parts table)
16*†◆	AIR VALVE GASKET	1	✓	✓		See Air Motor Seal Kit (page 21) or Manifold Assembly (15, Air Motor Parts table)

† Included in Air Valve Seal Kit. See page 21.

◆ Included in Air Valve Repair Kit. See page 21.

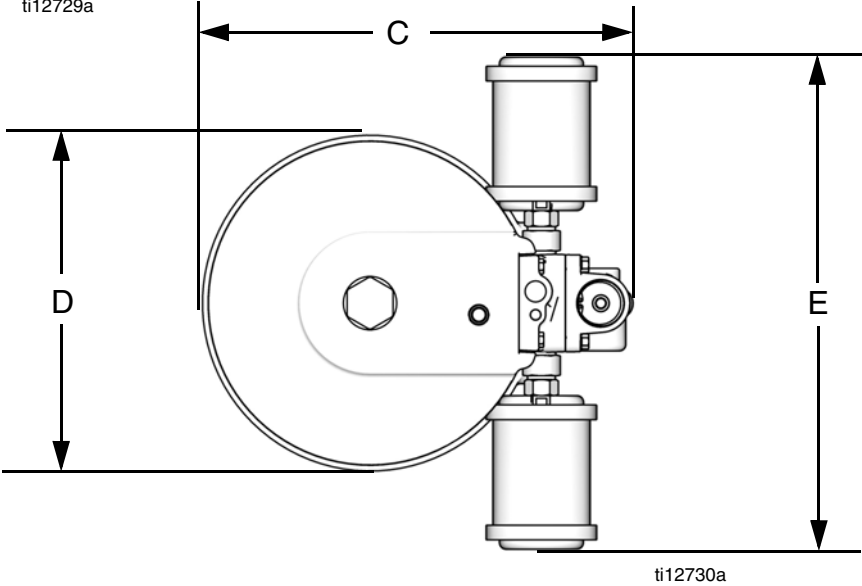
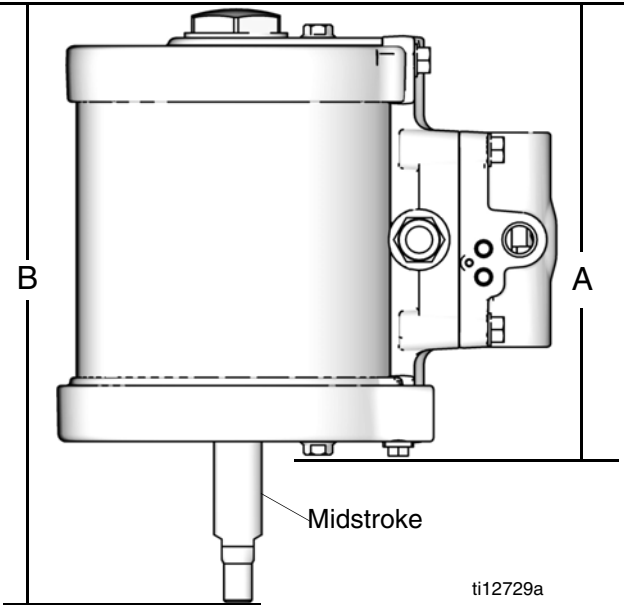
✕ Included in Air Valve End Cap Kit. See page 21.

# Kits and Accessories

Kit Description	M02xxx	M04xxx	M07xxx	M12xxx	M18xxx	M34xxx
<b>Complete Air Valve Replacement Kit – Standard (No DataTrak or DataTrak with cycle count only)</b>	24A351	24A351	24A352	24A352	24A352	24A352
<b>Complete Air Valve Replacement Kit – Compatible with DataTrak with Runaway Protection</b>	24A353	24A353	24A354	24A354	24A354	-----
<b>* Air Motor Seal Kit</b>	24A539	24A543	24E986	24A547	24A551	24A551
<b>◆ Air Valve Repair Kit</b>	24A537	24A537	24A538	24A538	24A538	24A538
<b>† Air Valve Seal Kit</b>	24A535	24A535	24A536	24A536	24A536	24A536
<b>⌘ Air Valve End Cap Kit – Standard (No DataTrak or DataTrak with cycle count only, Air Valves 24A351 and 24A352)</b>	24A360	24A360	24A361	24A361	24A361	24A361
<b>⌘ Air Valve End Cap Kit – Compatible with Data-Trak with Runaway Protection (Air Valves 24A353 and 24A354)</b>	24A362	24A362	24A363	24A363	24A363	-----
<b>⌘ Air Valve End Cap Kit - Park lowers to down position (cycle count only)</b>				262610		-----
<b>Screws Kit</b> — Includes ten screws (109)	24A359	24A359	24A359	24A359	24A359	24A359
<b>Linear Sensor Kits</b>						
Intrinsically Safe (IS)	24G849	24G848	24G848	24G848	24G848	-----
Not Intrinsically Safe (NON IS)	24G851	24G850	24G850	24G850	24G850	-----

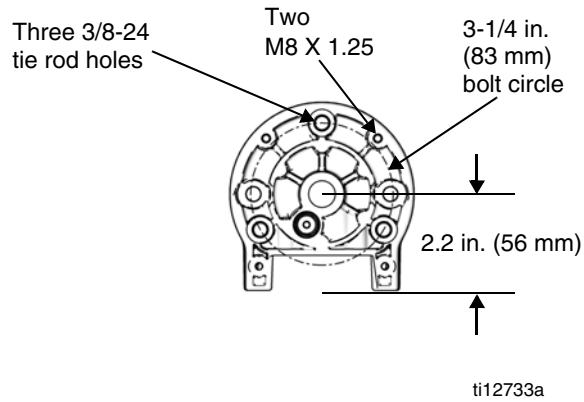
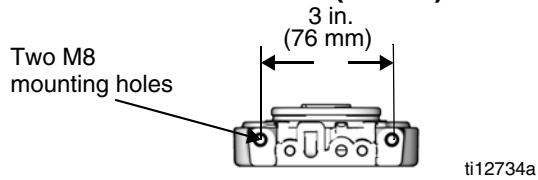
Dimensions

Air Motor Model	A inch (mm)	B inch (mm)	C inch (mm)	D inch (mm)	E inch (mm)	Weight lb (kg)
M02xxx	6.8 (173)	9.2 (234)	6.2 (157)	4.2 (107)	5.5 (140)	4.5 (2.0)
M04xxx	7.0 (178)	9.4 (239)	8.4 (213)	6.8 (173)	5.8 (147)	6.7 (3.0)
M07xxx	7.7 (196)	10.1 (257)	9.4 (239)	6.8 (173)	10.8 (274)	13.3 (6.0)
M12xxx	7.7 (196)	10.1 (257)	11.4 (290)	8.6 (218)	11.7 (297)	24 (10.9)
M18xxx	7.7 (196)	10.1 (257)	12.9 (328)	10.1 (257)	14.8 (376)	26.5 (12.0)
M34xxx	10.0 (254)	12.4 (315)	12.9 (328)	10.1 (257)	15.1 (384)	27.5 (12.5)

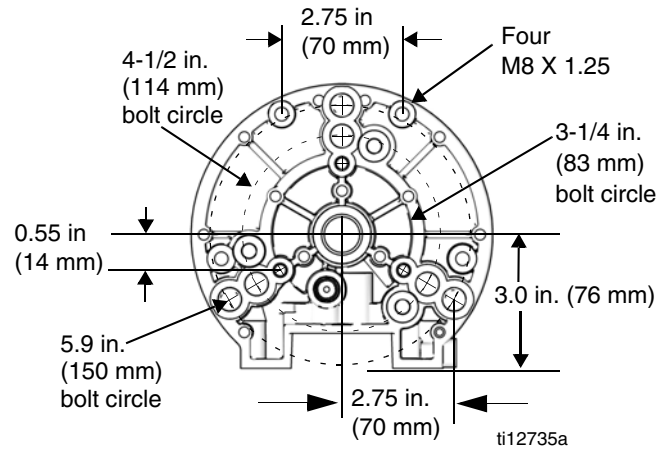
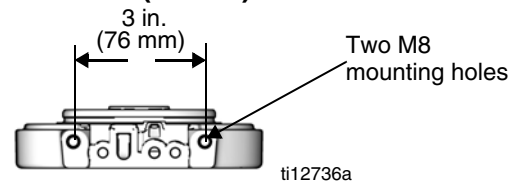


# Mounting Hole Diagrams

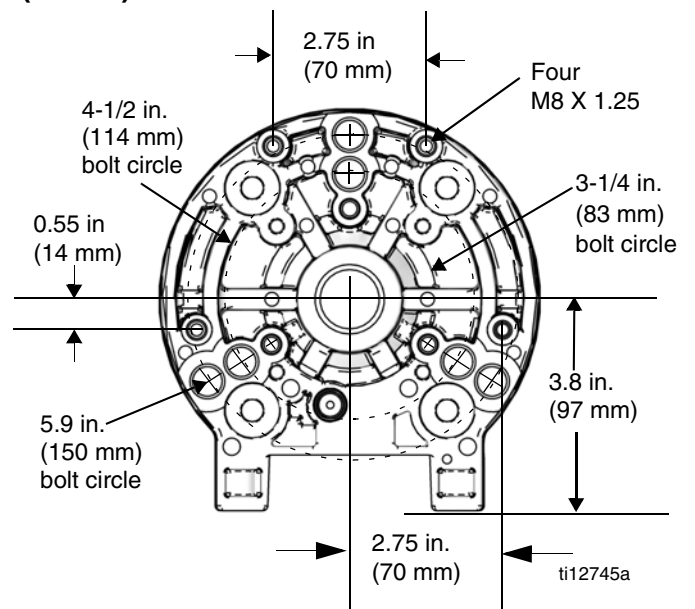
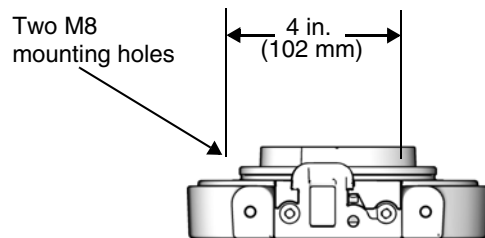
## M02xxx (2.5 in.)



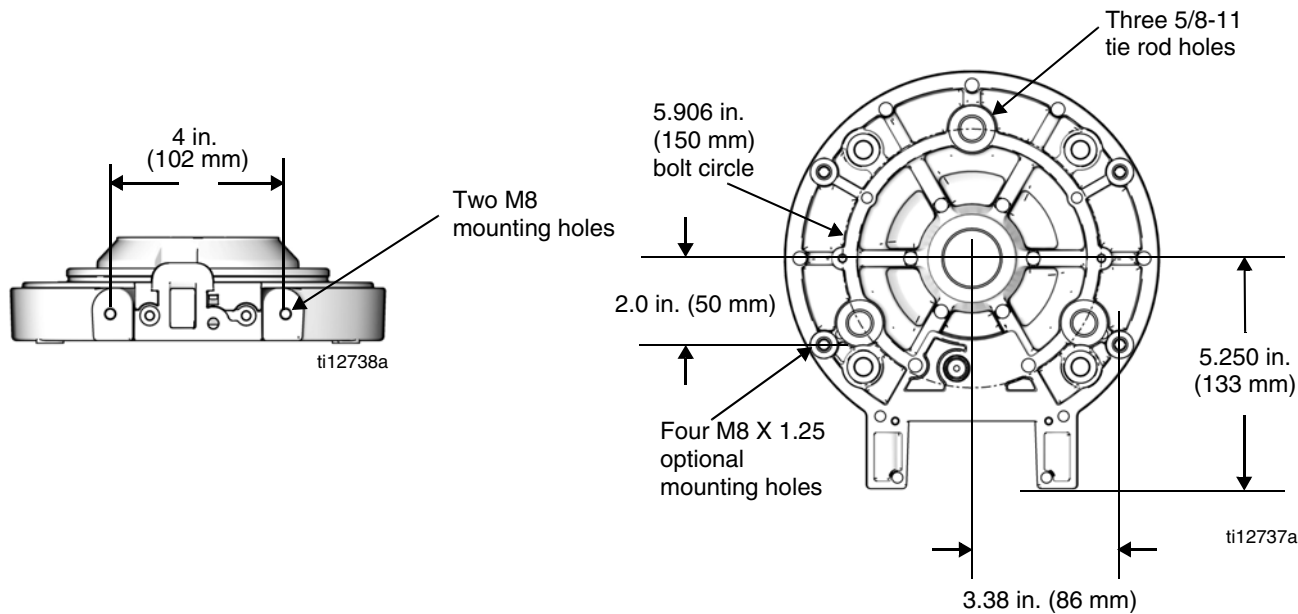
## M04xxx (3.5 in.)



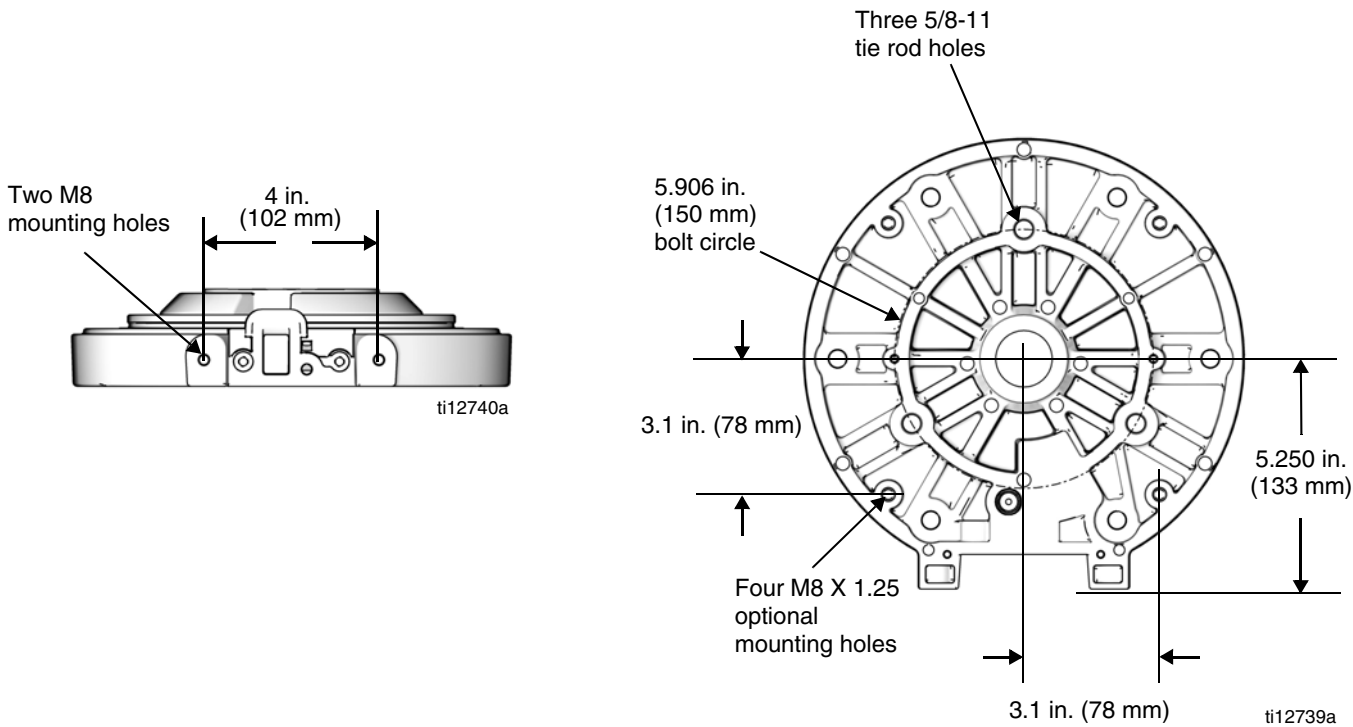
## M07xxx (4.5 in.)



M12xxx (6 in.)



M18xxx (7.5 in.) and M34xxx (7.5 in.)





## Technical Data

Maximum air inlet pressure . . . . .	100 psi (0.7 MPa, 7.0 bar)
Stroke length (all except M34xxx) . . . . .	2.5 in.
Stroke length (M34xxx only) . . . . .	4.75 in.

### Air inlet size

M02xxx – M04xxx . . . . .	1/4 in.
M07xxx – M34xxx . . . . .	1/2 in.

Maximum motor speed . . . . .	60 cycles per minute
-------------------------------	----------------------

(Do not exceed maximum recommended speed of fluid pump, to prevent premature pump wear.)

### Sound data

#### M02xxx Air Motor

Sound power* . . . . .	82.8 dBA
Sound pressure** . . . . .	72.9 dBA

#### M04xxx Air Motor

Sound power* . . . . .	83.4 dBA
Sound pressure** . . . . .	73.5 dBA

#### M07xxx and M12xxx Air Motor

Sound power* . . . . .	80.1 dBA
Sound pressure** . . . . .	70.2 dBA

#### M18xxx and M34xxx Air Motor

Sound power* . . . . .	78.8 dBA
Sound pressure** . . . . .	68.9 dBA

\* Sound power at 70 psi (0.48 MPa, 4.8 bar), 20 cpm. Sound power measured per ISO-9614-2.

\*\* Sound pressure was tested 3.28 feet (1 m) from equipment.

# Graco Standard Warranty

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Original instructions. *This manual contains English. MM 312796*

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