

NXT[®] Air Motor

312796G

ENG

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

Models M02xxx, M04xxx, M07xxx, M12xxx, and M18xxx

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



Important Safety Instructions

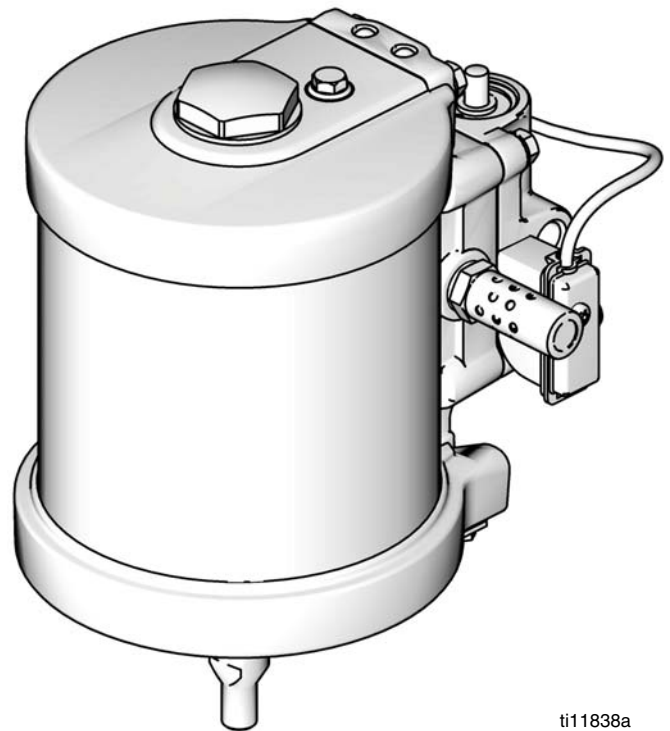
Read all warnings and instructions in this manual. For complete warnings and instructions see your pump or package manual. Hazard symbols refer to specific procedure risks. Save all instructions.

See page 3 for model information.

Chinese Patent No. ZL200680027760.5

US Patent Pending

Foreign Patents Pending



ti11838a

Contents





Related Manuals	2
Warnings	3
Models	5
Component Identification	7
Grounding	8
Accessories	8
Troubleshooting	9
Repair	10
Preventive Maintenance Schedule	10
Pressure Relief Procedure	10
Repair Air Valve	10
Replace Pilot Valves	13
Repair Air Motor	14
Parts	18
Air Motor Parts — All Models	19
Air Valve Parts	21
Kits and Accessories	23
Dimensions	24
Mounting Hole Diagrams	25
Technical Data	27
Graco Standard Warranty	28
Graco Information	28





Related Manuals

Manual	Description
312792	Merkur Displacement Pump
312794	Merkur Pump Assembly
312797	Merkur Spray Packages, AA and airless, ambient
312798	Merkur Electrostatic Spray Packages
313255	Merkur Heated Spray Packages

Warnings

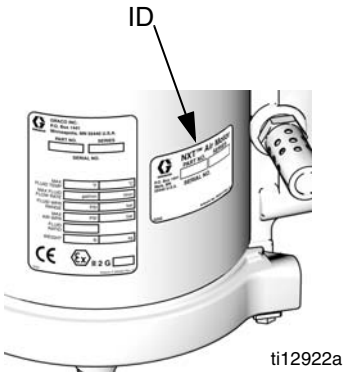
The following warnings are for the setup, use, grounding, maintenance, and repair of this equipment. The exclamation point symbol alerts you to a general warning and the hazard symbol refers to procedure-specific risk. Refer back to these warnings. Additional, product-specific warnings may be found throughout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

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

 WARNING	
	<p>PRESSURIZED EQUIPMENT HAZARD</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"> • Follow Pressure Relief Procedure in this manual, when you stop spraying and before cleaning, checking, or servicing equipment. • Tighten all fluid connections before operating the equipment. • Check hoses, tubes, and couplings daily. Replace worn or damaged parts immediately.
	<p>MOVING PARTS HAZARD</p> <p>Moving parts can pinch or amputate fingers and other body parts.</p> <ul style="list-style-type: none"> • Keep clear of moving parts. • Do not operate equipment with protective guards or covers removed. • Pressurized equipment can start without warning. Before checking, moving, or servicing equipment, follow the Pressure Relief Procedure in this manual. Disconnect power or air supply.
	<p>PERSONAL PROTECTIVE EQUIPMENT</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"> • Protective eyewear • Clothing and respirator as recommended by the fluid and solvent manufacturer • Gloves • Hearing protection

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.



ti12922a

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)	H	Linear Sensor	0 (not assigned)
	04	400 cc, 3.5 in. x 2.5 in.	L	Low noise	N	None (Compatible with DataTrak with Cycle Count)	
	07	700 cc, 4.5 in. x 2.5 in.			T	Compatible with DataTrak with Runaway Protection	
	12	1200 cc, 6.0 in. x 2.5 in.					
	18	1800 cc, 7.5 in. x 2.5 in.					

* Uses a smaller muffler. Limited use.

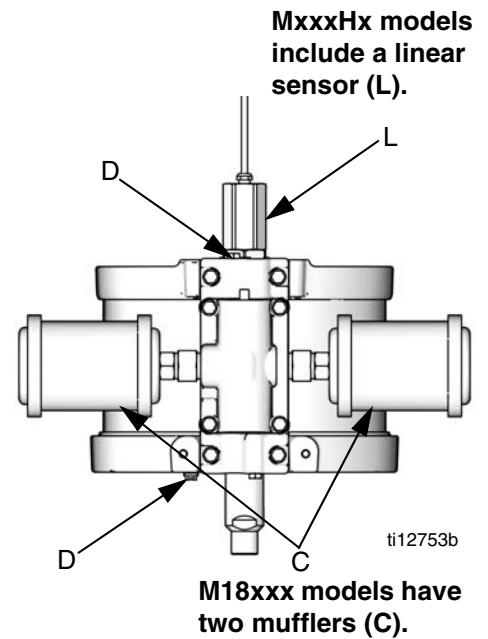
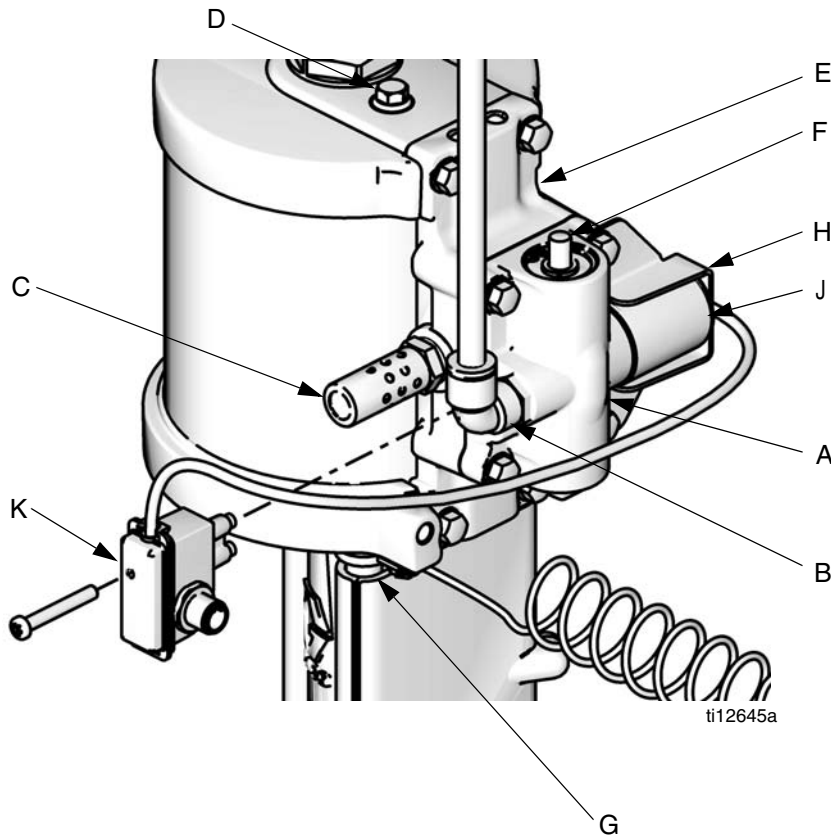


Do not operate the air motor without a plumbed exhaust line or muffler installed.

Air Motor Part No.	Series	Displacement (cc)	Stroke (in.)	Piston Diameter, in. (mm)	Low Noise	Linear Sensor	DataTrak Cycle Count Compatible	DataTrak with Runaway Protection Compatible
M02LN0	B	200	2.5	2.5 (63)	✓		✓	
M04LH0	C	400	2.5	3.5 (89)	✓	✓		
M04LN0	C	400	2.5	3.5 (89)	✓		✓	
M04LT0	C	400	2.5	3.5 (89)	✓		✓	✓
M07LH0	C	700	2.5	4.5 (114)	✓	✓		
M07LN0	C	700	2.5	4.5 (114)	✓		✓	
M07LT0	C	700	2.5	4.5 (114)	✓		✓	✓
M12FN0	C	1200	2.5	6.0 (152)			✓	
M12LH0	C	1200	2.5	6.0 (152)	✓	✓		
M12LN0	C	1200	2.5	6.0 (152)	✓		✓	
M12LT0	C	1200	2.5	6.0 (152)	✓		✓	✓
M18LH0	C	1800	2.5	7.5 (191)	✓	✓		
M18LN0	C	1800	2.5	7.5 (191)	✓		✓	
M18LT0	C	1800	2.5	7.5 (191)	✓		✓	✓

Component Identification

Model M04LT0 shown



MxxxHx models include a linear sensor (L).

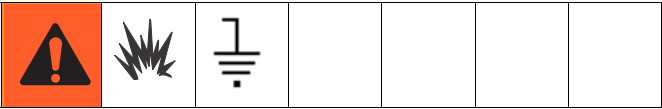
M18xxx models have two mufflers (C).

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)
- L Linear sensor assembly (MxxxHx models, see inset)

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.

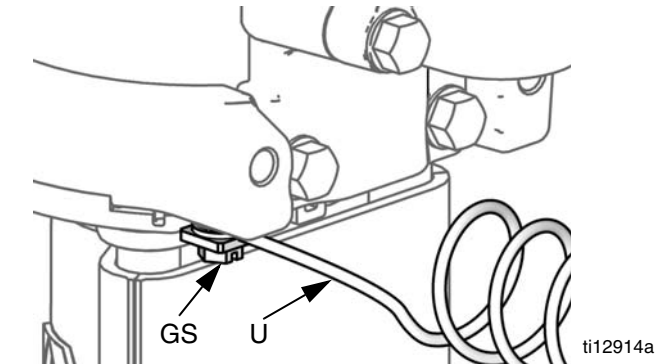


FIG. 2: Ground wire

Accessories

Bleed-type master air valve

Trapped air can cause the pump to cycle unexpectedly, which could result in serious injury from splashing or moving parts.						

- 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 10.
	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 14.
Air continuously exhausting from muffler.	Damaged air valve plate (105) or cup (112).	Replace or service air valve (17). See page 10.
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

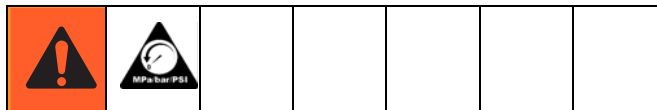
The operating conditions of your system determine how often maintenance is required. Establish a preventive maintenance schedule by recording when and what kind of maintenance is needed, and then determine a regular schedule for checking your system.

Pressure Relief Procedure

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

- 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.

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).

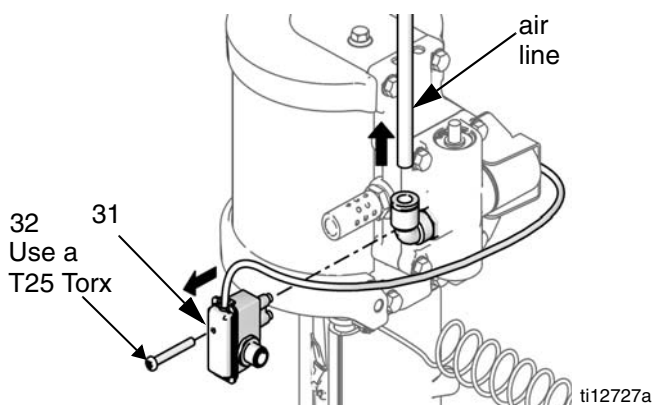


FIG. 3: Reed switch assembly & air line removal

4. **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.

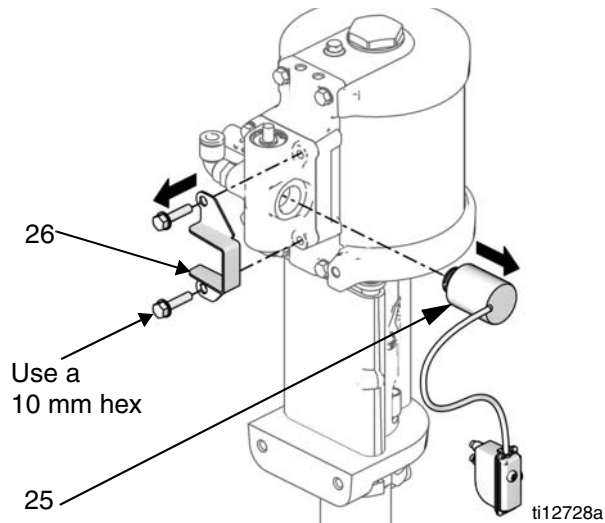



FIG. 4: Solenoid removal

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 23 to order the correct kit for your pump. Parts are marked with an †.

Air Valve Repair Kits are available. See page 23 to order the correct kit for your pump. Parts are marked with an ♦.

Air Valve End Cap Kits are available. See page 23 to order the correct kit for your pump. Parts are marked with an ✕.

Disassemble the Air Valve

1. Perform steps 1-5 under **Replace Complete Air Valve**, page 10.
2. See FIG. 5. Use a 2 mm or 5/64 hex key to remove two screws (109†♦). Remove the valve plate (105♦), cup (112♦), and spring (111♦).

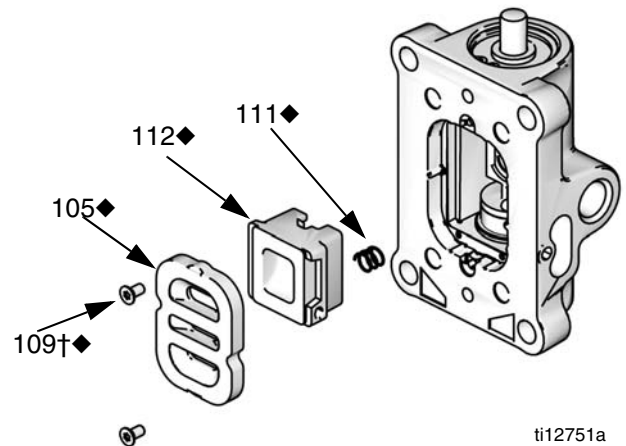
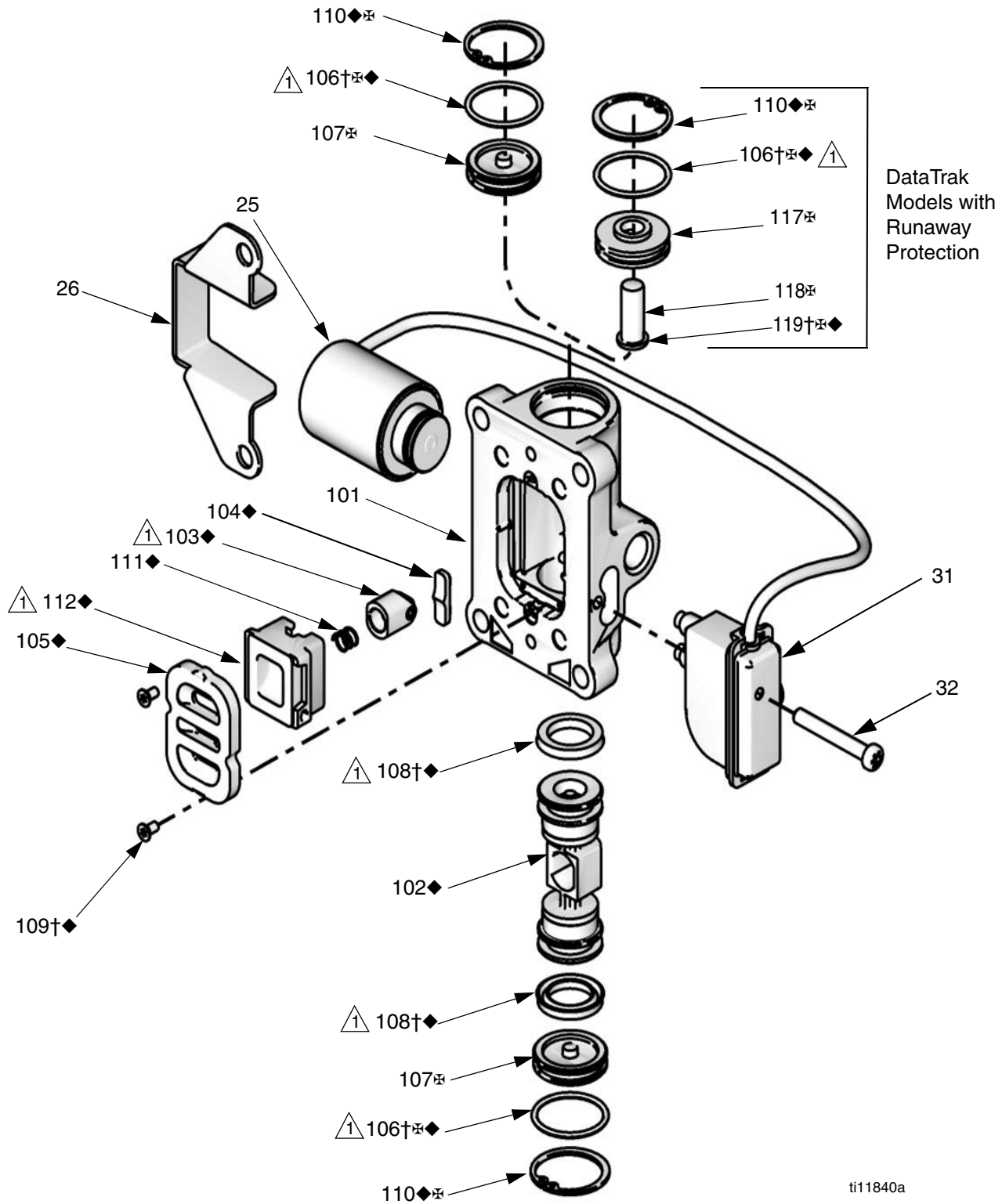


FIG. 5: Air plate removal

3. 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†✕♦).
4. 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.



Apply lubricant.

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.

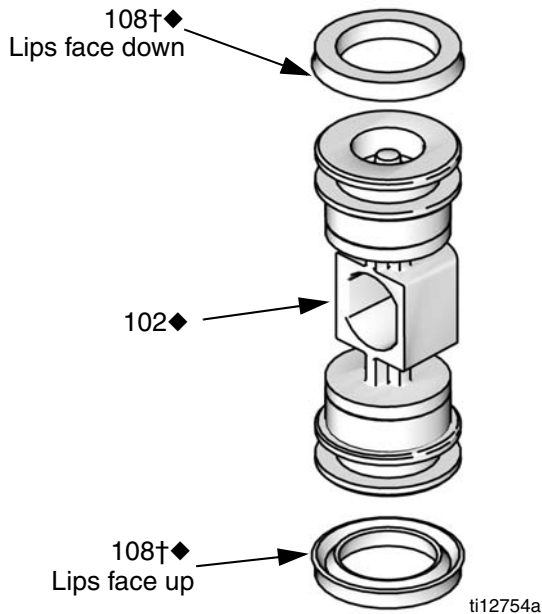


FIG. 7: Air valve u-cup installation

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♦). Lubricate and install the air valve cup (112♦). Align the small round magnet with the air inlet.

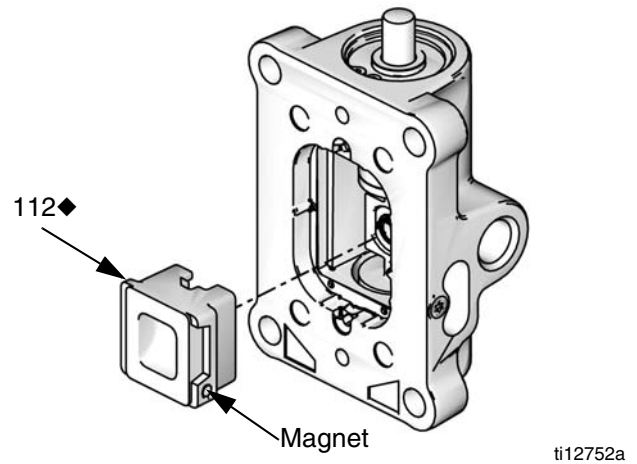
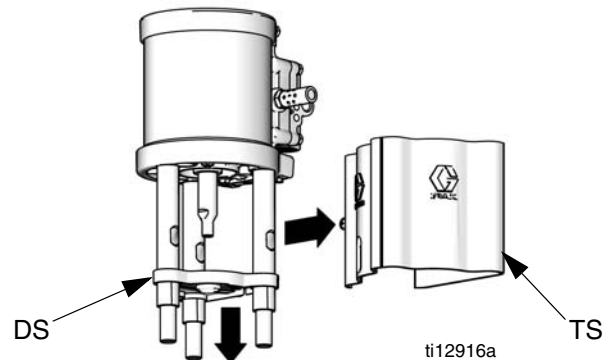


FIG. 8: Air valve cup installation

8. 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 10.
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 23 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 10.)
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).

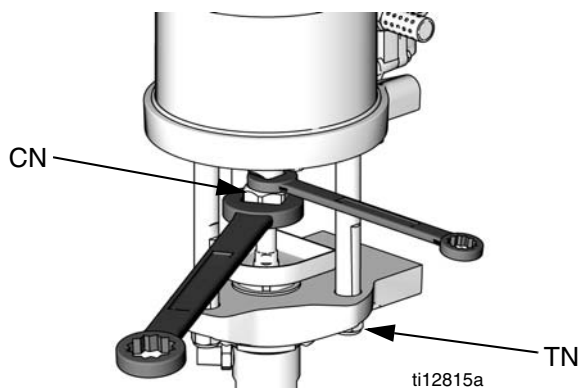


FIG. 9: Coupling nut removal

4. Remove the tie rod nuts (TN).

5. Use a socket to remove the mounting screws (MS).

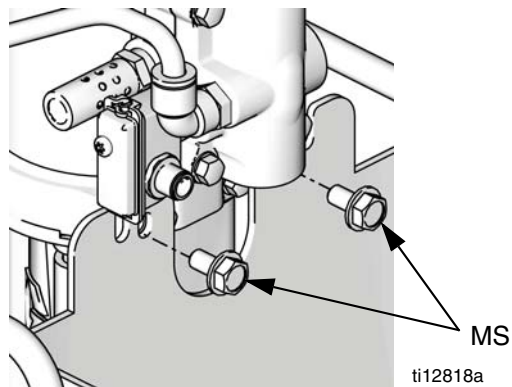



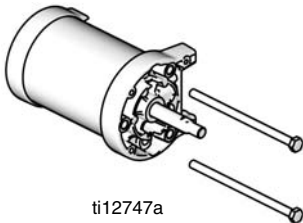
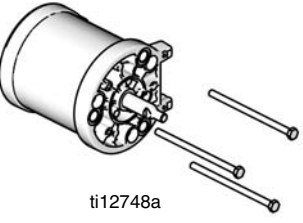
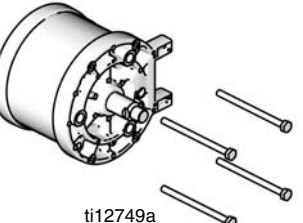
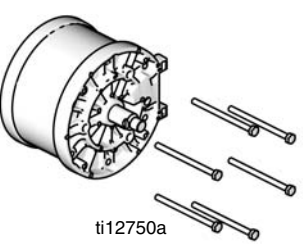
FIG. 10: Air motor removal

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 10.
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. **For motors with linear sensor:** Remove the linear sensor assembly (36) from the top cover. Do not remove the cover with the sensor still in place.
7. Remove the tie bolts.

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

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

NOTICE

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

12. Remove o-ring (8*) from around the piston.
13. 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. 11. 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.

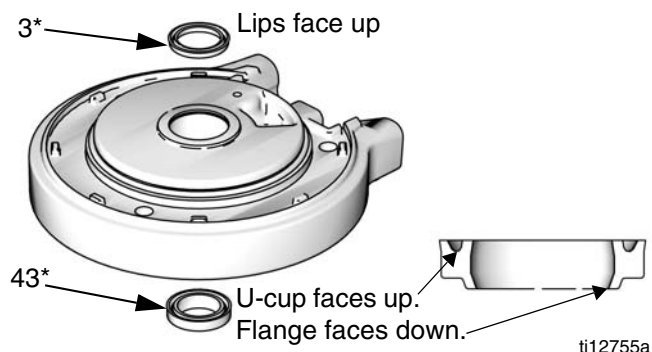


FIG. 11: Air motor u-cup installation

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. 12. 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.

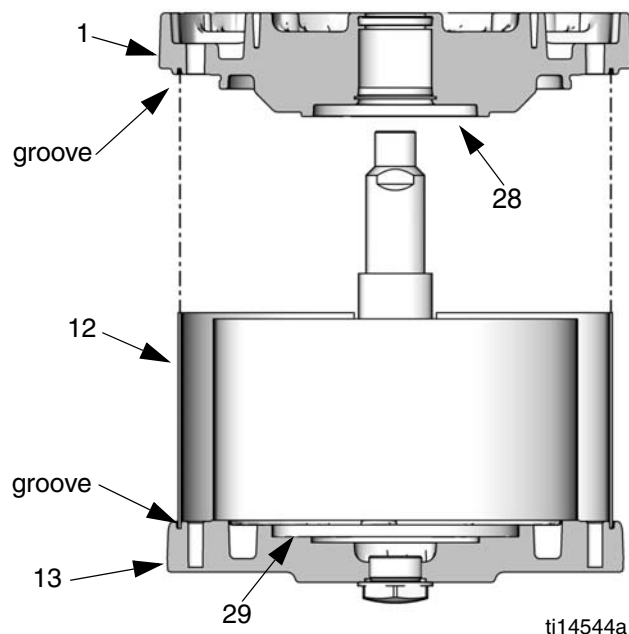



FIG. 12: Align shield in grooves on covers

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.

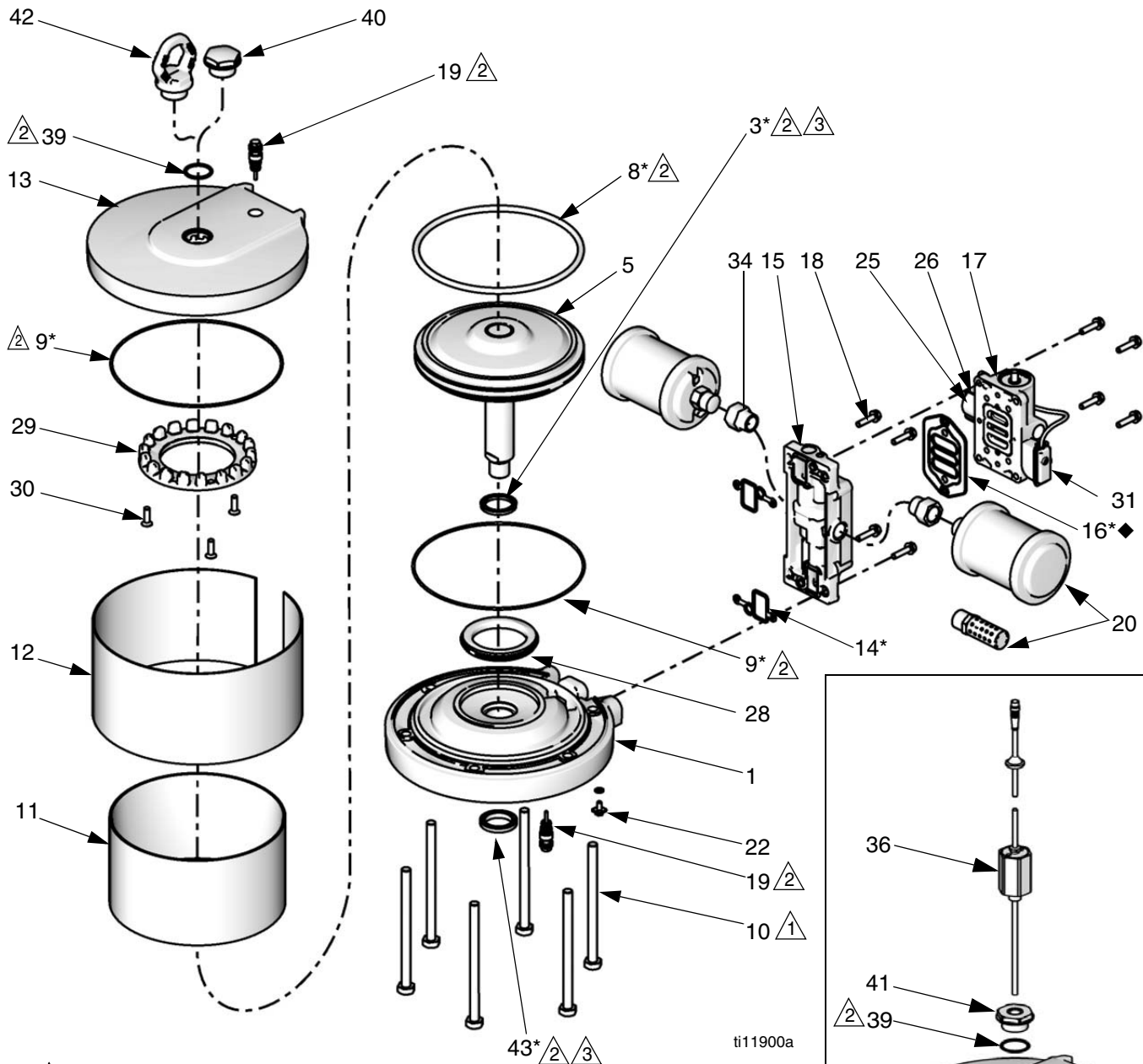
13. Align the air valve gasket (16*♦) on the manifold, then attach the air valve.
14. Tighten the tie bolts (10) halfway. Work in a criss-cross pattern. Check that the shield remains in the grooves on both covers. Continue tightening the bolts in pattern to the torque specified in the following table.

Air Motor	Torque
M02xxx–M04xxx	11-13 ft-lb (15-18 N•m)
M07xxx–M18xxx	25-30 ft-lb (34-40 N•m)

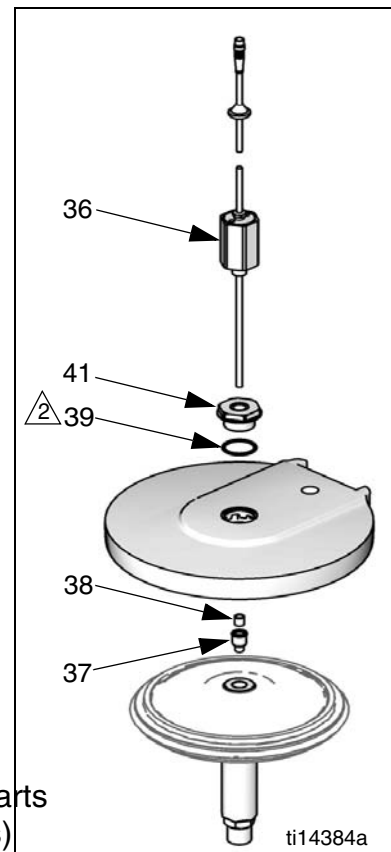
15. Lubricate and install pilot valves (19) in top and bottom cover. Torque to 95-105 in-lb (11-12 N•m).
16. **Motors with linear sensor:** Install the linear sensor assembly (36) in the top cover. Torque to 25-35 ft-lb (34-47 N•m).
17. Reinstall muffler(s).

This image shows a single sheet of white paper with horizontal blue or grey ruling lines. The lines are evenly spaced and run across the width of the page, typical of notebook paper. There are no margins, text, or other markings on the page.

Parts



Linear Sensor Parts
(MxxxHx models)



Air Motor Parts — All Models

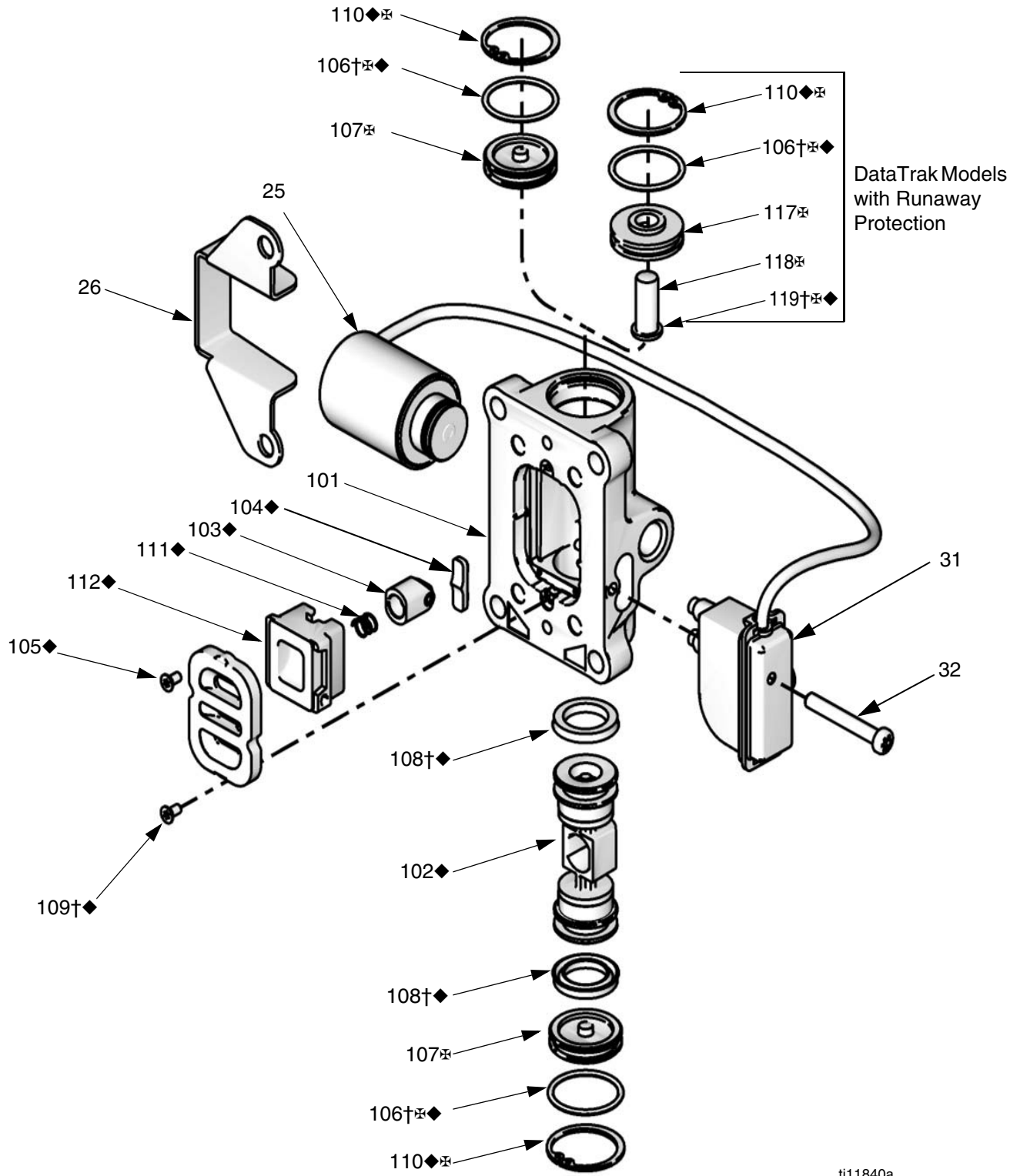
Ref.	Description	Qty	M02xxx	M04xxx	M07xxx	M12xxx	M18xxx
1	COVER, lower, assembly (includes 3, 9, 19, 22, 28, and 43)	1	25A541	24A545	24C398	24A549	24A553
3*	U-CUP	2	Not sold separately. See Air Motor Seal Kit (page 23) or Lower Cover Assembly (1, this table)				
5	PISTON, motor, assembly Models without linear sensor (includes 8)	1	24A542	24A546	24C399	24A550	24A554
	Models with linear sensor (includes 8, 37, and 38)		-----	24C400	24C401	24C402	24C403
8*	O-RING, piston	1	Not sold separately. See Air Motor Seal Kit (page 23) or Piston Assembly (5, this table)				
9*	O-RING, cover	2	Not sold separately. See Air Motor Seal Kit (page 23) 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
11	CYLINDER, motor	1	15M289	15M211	15M781	15M672	15M390
12	SHIELD, cylinder	1	15M302	15M212	15M782	15M676	15M539
13	COVER, upper, assembly, includes 9, 19, 39, 40, and 41	1	15M291	15X353	15X130	15X354	15X320
14*	GASKET, manifold	2	Not sold separately. See Air Motor Seal Kit (page 23) or Manifold Assembly (15, this table)				
15	MANIFOLD, assembly, includes 14, 16, and 18 (qty. 4)	1	24A579	24A579	24A580	24A580	24A580
16*◆	GASKET, air valve	1	Not sold separately. See Air Motor Seal Kit (page 23) or Manifold Assembly (15, this table)				
17	VALVE, air, see page 23 Standard (for models with linear sensor, no DataTrak or Data-Trak with cycle count only)	1	24A351	24A351	24A352	24A352	24A352
	Compatible with DataTrak with Runaway Protection		-----	24A353	24A354	24A354	24A354
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
20	MUFFLER						
	M02xxx	1	15M213	-----	-----	-----	-----
	M04xxx	1	-----	15M213	-----	-----	-----
	M07xxx	1	-----	-----	117237	-----	-----
	M12xxx	1	-----	-----	-----	117237	-----
	M12Fxx	2	-----	-----	-----	15M940	-----
	M18xxx	2	-----	-----	-----	-----	117237
22	SCREW, ground	1	116343	116343	116343	116343	116343

Ref.	Description	Qty	M02xxx	M04xxx	M07xxx	M12xxx	M18xxx
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
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, M4 x 25, (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
36	LINEAR SENSOR, assembly (includes 37 and 38)	1		24C404	24C404	24C404	24C404
37	HOLDER, magnet	1		Not sold separately. See Piston Assembly (5, this table) or Linear Sensor Assembly (36, this table)			
38	MAGNET, linear sensor	1					
39	O-RING, upper cover plug	1		Not sold separately. See Upper Cover Assembly (13, this table), Plug (40), or Bushing (41)			
40	PLUG, upper cover (MxxLN0 or MxxLT0 models)	1		24E990	24E990	24E990	24E990
41	BUSHING, upper cover (MxxLH0 models)	1		24E992	24E992	24E992	24E992
42	HOOK, lift. Not included. Order kit separately if needed, includes o-ring 39).	0		24E991	24E991	24E991	24E991
43	SEAL, u-cup with flange	1	Not sold separately. See Air Motor Seal Kit (page 23) or Lower Cover Assembly (1, this table)				

* Included in Air Motor Seal Kit. See page 23.

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

Air Valve Parts



ti11840a

Air valve parts are not sold individually. The table below shows possible kit options for each part. See page 23 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	1	✓			
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 23) or Manifold Assembly (15, Air Motor Parts table)

† Included in Air Valve Seal Kit. See page 23.

◆ Included in Air Valve Repair Kit. See page 23.

✕ Included in Air Valve End Cap Kit. See page 23.

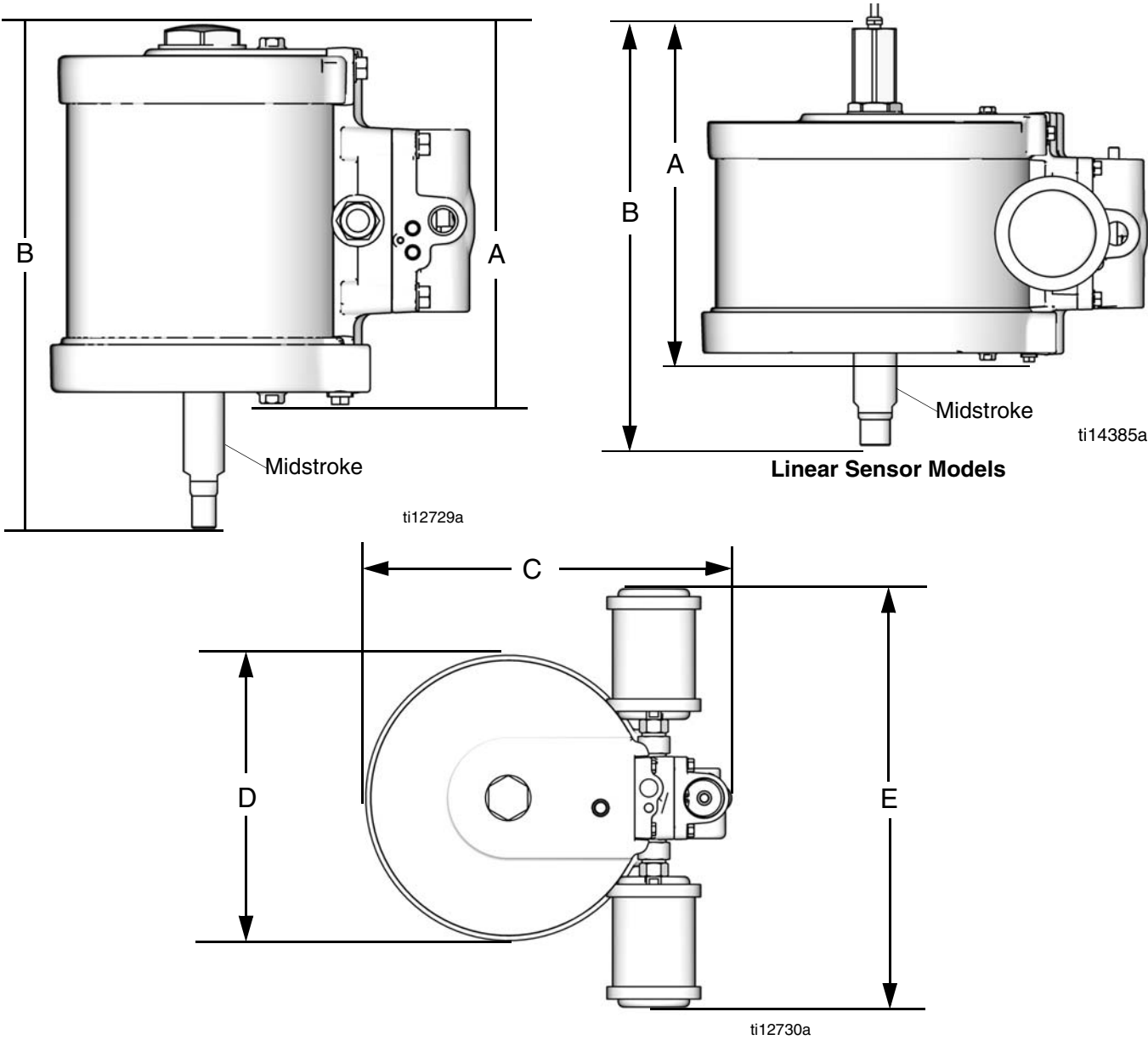
Kits and Accessories

Kit Description	M02xxx	M04xxx	M07xxx	M12xxx	M18xxx
Complete Air Valve Replacement Kit – Standard (No DataTrak or DataTrak with cycle count only)	24A351	24A351	24A352	24A352	24A352
Complete Air Valve Replacement Kit – Compatible with DataTrak with Runaway Protection	-----	24A353	24A354	24A354	24A354
* Air Motor Seal Kit	24A539	24A543	24E986	24A547	24A551
◆ Air Valve Repair Kit	24A537	24A537	24A538	24A538	24A538
† Air Valve Seal Kit	24A535	24A535	24A536	24A536	24A536
⌘ Air Valve End Cap Kit – Standard (No DataTrak or DataTrak with cycle count only, Air Valves 24A351 and 24A352)	24A360	24A360	24A361	24A361	24A361
⌘ Air Valve End Cap Kit – Compatible with Data-Trak with Runaway Protection (Air Valves 24A353 and 24A354)	24A362	24A362	24A363	24A363	24A363
Screws Kit — Includes ten screws (109)	24A359	24A359	24A359	24A359	24A359

Dimensions

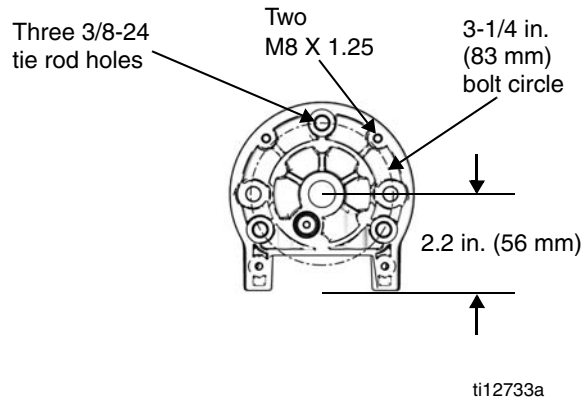
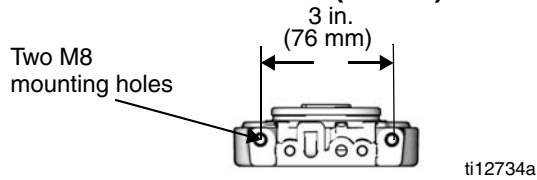
Air Motor Model	A, inch (mm)		B, inch (mm)		C inch (mm)	D inch (mm)	E inch (mm)	Weight lb (kg)
	MxxxNx or MxxxTx	MxxxHx*	MxxxNx or MxxxTx	MxxxHx*				
M02xxx	6.8 (173)		9.2 (234)		6.2 (157)	4.2 (107)	5.1 (130)	4.5 (2.0)
M04xxx	7.0 (178)	9.0 (229)	9.4 (239)	11.4 (290)	8.4 (213)	6.8 (173)	5.8 (147)	6.7 (3.0)
M07xxx	7.7 (196)	9.6 (244)	10.1 (257)	12.1 (307)	9.4 (239)	6.8 (173)	10.8 (274)	13.3 (6.0)
M12xxx	7.7 (196)	9.6 (244)	10.1 (257)	12.1 (307)	11.4 (290)	8.6 (218)	11.7 (297)	24 (10.9)
M18xxx	7.7 (196)	9.6 (244)	10.1 (257)	12.1 (307)	12.9 (328)	10.1 (257)	14.8 (376)	26.5 (12.0)

*Models with linear sensor

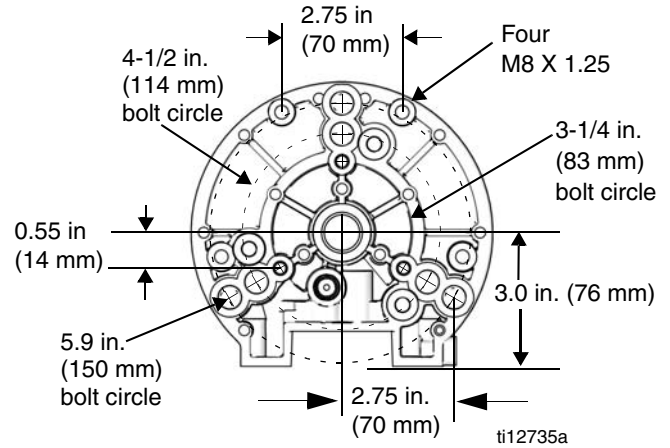
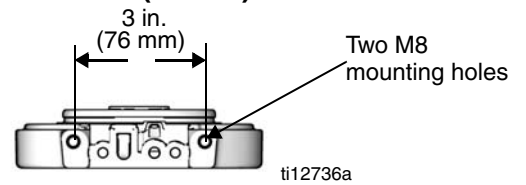


Mounting Hole Diagrams

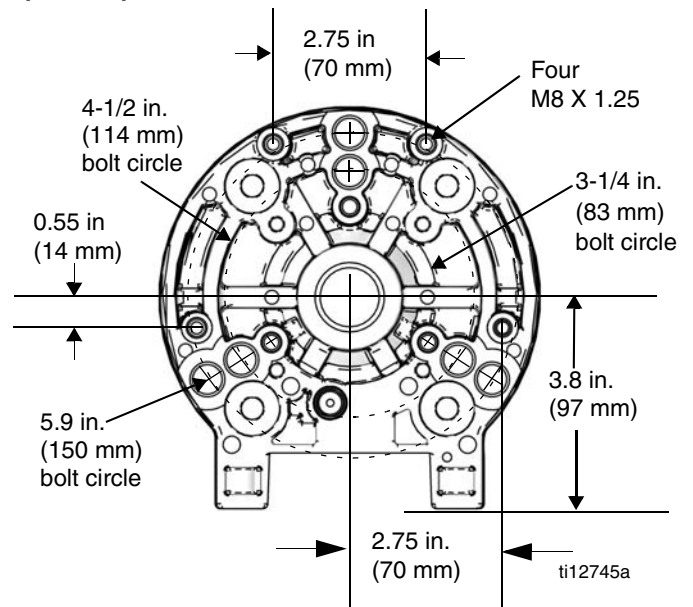
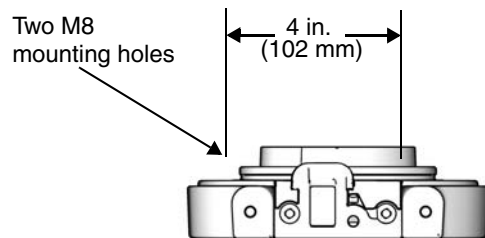
M02xxx (2.5 in.)



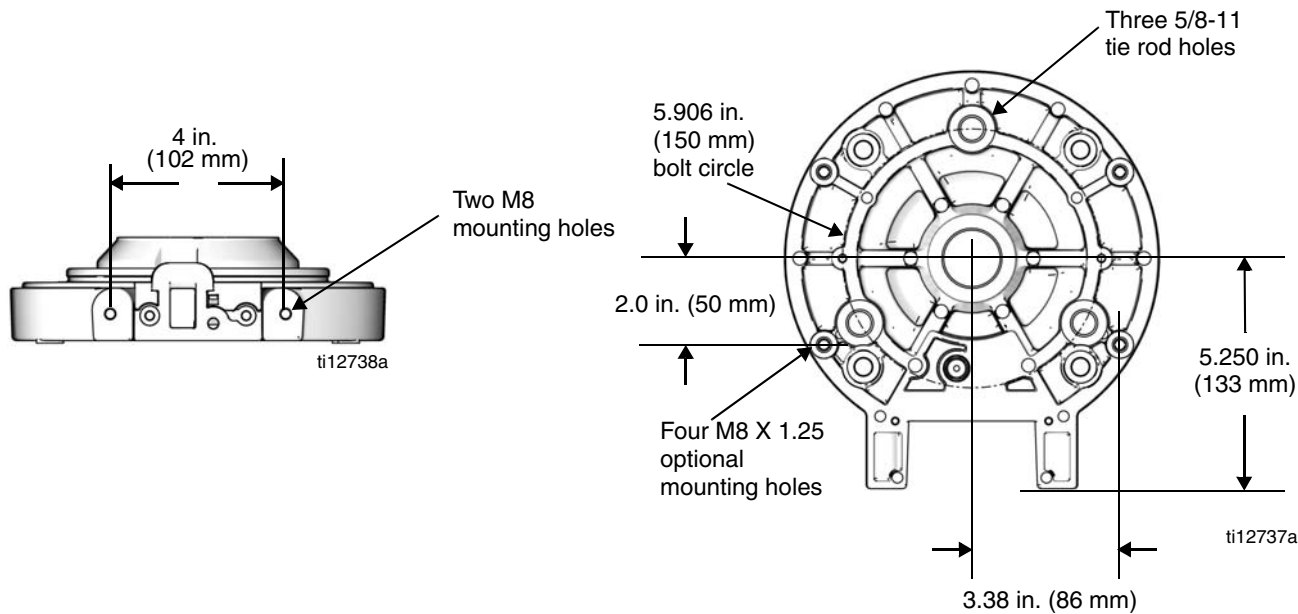
M04xxx (3.5 in.)



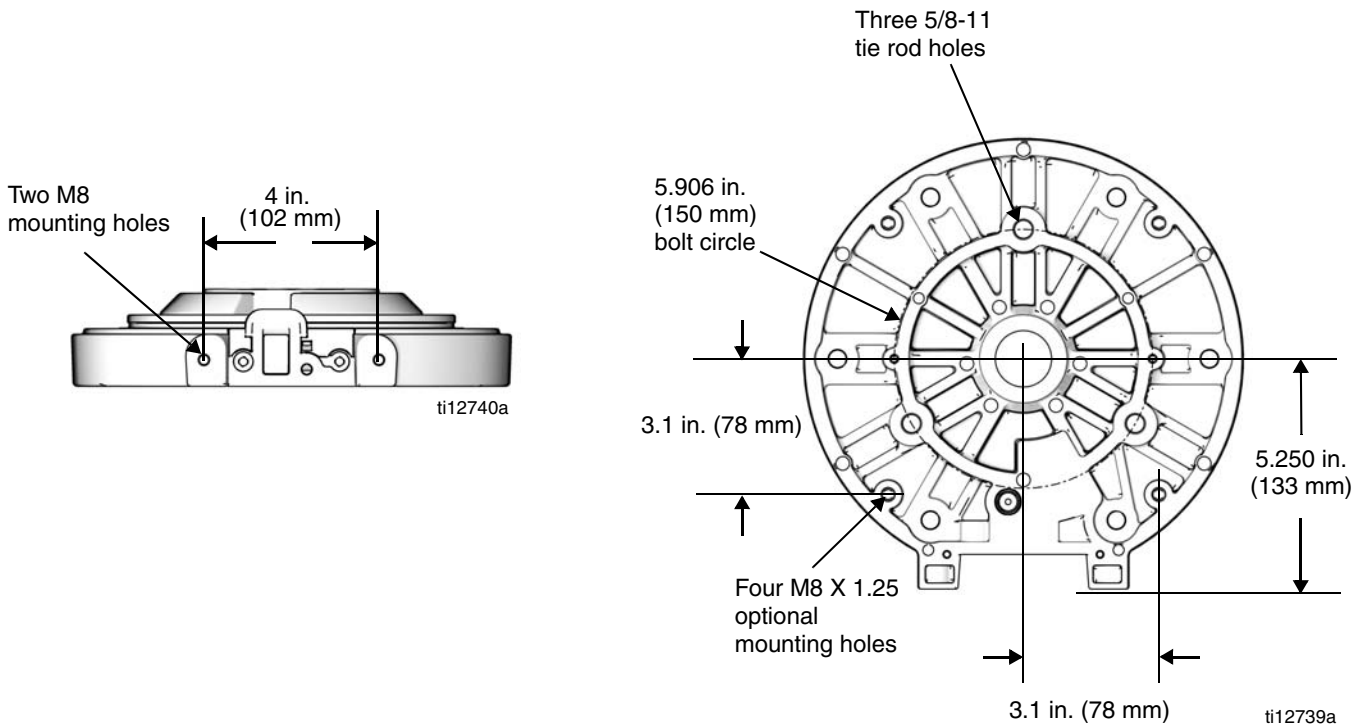
M07xxx (4.5 in.)



M12xxx (6 in.)



M18xxx (7.5 in.)



Technical Data

Maximum air inlet pressure 100 psi (0.7 MPa, 7.0 bar)

Stroke length 2.5 in.

Air inlet size

M02xxx – M04xxx 1/4 in.

M07xxx – M18xxx 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

M12xxx Air Motor

Sound power* 80.1 dBA

Sound pressure** 70.2 dBA

M18xxx 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

Graco warrants all equipment referenced in this document which is manufactured by Graco and bearing its name to be free from defects in material and workmanship on the date of sale to the original purchaser for use. With the exception of any special, extended, or limited warranty published by Graco, Graco will, for a period of twelve months from the date of sale, repair or replace any part of the equipment determined by Graco to be defective. This warranty applies only when the equipment is installed, operated and maintained in accordance with Graco's written recommendations.

This warranty does not cover, and Graco shall not be liable for general wear and tear, or any malfunction, damage or wear caused by faulty installation, misapplication, abrasion, corrosion, inadequate or improper maintenance, negligence, accident, tampering, or substitution of non-Graco component parts. Nor shall Graco be liable for malfunction, damage or wear caused by the incompatibility of Graco equipment with structures, accessories, equipment or materials not supplied by Graco, or the improper design, manufacture, installation, operation or maintenance of structures, accessories, equipment or materials not supplied by Graco.

This warranty is conditioned upon the prepaid return of the equipment claimed to be defective to an authorized Graco distributor for verification of the claimed defect. If the claimed defect is verified, Graco will repair or replace free of charge any defective parts. The equipment will be returned to the original purchaser transportation prepaid. If inspection of the equipment does not disclose any defect in material or workmanship, repairs will be made at a reasonable charge, which charges may include the costs of parts, labor, and transportation.

THIS WARRANTY IS EXCLUSIVE, AND IS IN LIEU OF ANY OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO WARRANTY OF MERCHANTABILITY OR WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE.

Graco's sole obligation and buyer's sole remedy for any breach of warranty shall be as set forth above. The buyer agrees that no other remedy (including, but not limited to, incidental or consequential damages for lost profits, lost sales, injury to person or property, or any other incidental or consequential loss) shall be available. Any action for breach of warranty must be brought within two (2) years of the date of sale.

GRACO MAKES NO WARRANTY, AND DISCLAIMS ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, IN CONNECTION WITH ACCESSORIES, EQUIPMENT, MATERIALS OR COMPONENTS SOLD BUT NOT MANUFACTURED BY GRACO. These items sold, but not manufactured by Graco (such as electric motors, switches, hose, etc.), are subject to the warranty, if any, of their manufacturer. Graco will provide purchaser with reasonable assistance in making any claim for breach of these warranties.

In no event will Graco be liable for indirect, incidental, special or consequential damages resulting from Graco supplying equipment hereunder, or the furnishing, performance, or use of any products or other goods sold hereto, whether due to a breach of contract, breach of warranty, the negligence of Graco, or otherwise.

FOR GRACO CANADA CUSTOMERS

The Parties acknowledge that they have required that the present document, as well as all documents, notices and legal proceedings entered into, given or instituted pursuant hereto or relating directly or indirectly hereto, be drawn up in English. Les parties reconnaissent avoir convenu que la rédaction du présent document sera en Anglais, ainsi que tous documents, avis et procédures judiciaires exécutés, donnés ou intentés, à la suite de ou en rapport, directement ou indirectement, avec les procédures concernées.

Graco Information

For the latest information about Graco products, visit www.graco.com.

TO PLACE AN ORDER, contact your Graco distributor or call to identify the nearest distributor.

Phone: 612-623-6921 **or Toll Free:** 1-800-328-0211 **Fax:** 612-378-3505

*All written and visual data contained in this document reflects the latest product information available at the time of publication.
Graco reserves the right to make changes at any time without notice.*

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

Graco Headquarters: Minneapolis

International Offices: Belgium, China, Japan, Korea

GRACO INC. P.O. BOX 1441 MINNEAPOLIS, MN 55440-1441

Copyright 2008, Graco Inc. is registered to ISO 9001

www.graco.com

Revised 11/2010