



Maintenance Guide

MA-FOR-01

Title: Preventative Maintenance Checklist With Guide

Date:		Store Number:		<i>Technical Support or Warranty Parts 1-888-598-1198</i>
Store Name:				
Serial Number:				

1. With the unit disconnect in the **'OFF'** position, visually inspect the unit for damage.
If the unit is damaged, note a deficiency in the notes section.
2. Verify the Outdoor Air Hood (OAH) and screen clean and free of debris.
If the OAH screen is not clean, clean all debris from the screen and opening.
3. Verify the barometric relief damper(s) move freely within their opening(s).
If the damper(s) do not move freely within their opening(s), note a deficiency in the notes section.
4. Verify all cabinet door seals in good condition.
If the door seals are dry, cracked damaged or missing, note a deficiency in the notes section.
5. Verify the unit filters and pre-filters (if applicable) are clean and properly seated in the filter rack.
If the filters are not clean and properly seated, replace and/or correctly install them in the filter rack.
6. Verify the Evaporator, Condenser and Reheat/ Reclaim coils are clean and free from debris.
Clean the coils and remove debris as necessary.
7. Verify the Reheat/ Reclaim components operating correctly.
If the components or coils are not operating correctly, note a deficiency in the notes section.
8. Verify there is adequate oil visible in each compressor sight glass.
If oil is not visible, note a deficiency in the notes section.
9. Verify the compressor crankcase heaters operating correctly.
If the crankcase heaters are not working or missing, note a deficiency in the notes section.
10. Verify the p-trap or p-traps are permanently attached to the unit.
If the p-trap or traps are not attached to the unit, connect them using the proper adhesive.
11. Verify the unit is level, drain pan clean and condensate water draining towards the P-Trap or P-Traps.
If not, note a deficiency in the notes section.
12. Verify damper actuators are securely mounted and tightly connected to the damper blades.
If the dampers or actuators are not working properly, attempt a repair and document it in the notes section.
13. Remove blower cover: Verify the supply fan wheel is aligned and moving freely.
If the fan wheel is not aligned or does not move freely, attempt to align the wheel and document it in the notes section.
14. Verify the supply fan or fans are properly lubricated.
Lubricate as necessary.
15. Verify the heat exchangers and/or heat strips are clean and no debris remains in the compartment.
Clean as necessary.
16. Verify the control wires, relays and connections are secure throughout the unit.
If loose connections exist, attempt to repair the connections and document it in the notes section.
17. Re-install the blower access cover. When the unit is in a safe state, turn the unit disconnect switch **'ON'**.
18. Verify the FLO unit controller's date and time are set correctly for your time zone.
If the time and date are not set correctly for your time zone, set them now.



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NOTES

SITE DEPARTURE

Technician's Company:

Technician's Phone #:

Technician's Name (print):

Technician's Signature:

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Note: Powered down the unit while performing preventative maintenance.

Overview

Periodic maintenance ensures that you receive the maximum performance from your FLō Multi Path Unit (MPU). FLō MPUs are designed with ease of accessibility built into the unit. Generous openings provide access to the Control, Compressor, Filter, DX Coil and Dampers. The need for periodic cleaning will be a function of operating schedule, climate, and contaminants in the air. A quarterly maintenance schedule is recommended.

Filter Maintenance: Perform every three months

FLō MPUs are equipped with pleated filters or metal frame filter housings and replaceable media. These metal filter frames are specially designed to work with your FLō MPU. It is highly recommended that the customer purchase and maintain a roll of MERV 7 30% efficiency synthetic filter media to have on-site. Purchasing a roll of this media is more cost effective and will be readily accessible when filter service is required.

All FLō MPUs include door hold open arms that also serve as a tool to slide the metal filter frames out for servicing. Use the door hold open arm bracket to facilitate the removal and replacement of the metal frame filters. See Fig. 1 – 3.



Figure 1. Door Arm Bracket



Figure 2. Door Bracket to pull Filter



Figure 3. Permanent Filter Frame and Media

Condensers

Condenser maintenance should be performed every 3 months. Properly maintaining condenser coils allows your FLō MPU to run more efficiently and prolongs its serviceable life. Condenser coils should be clean and free of debris.

- Condenser coils should be cleaned with water only
- Water should be aimed perpendicular to the coils
- Rinse water should be of potable type and low pressure
- Precautions if using a pressure washer:
 - Purge any soap or industrial cleaners from the washer before cleaning
 - Do not exceed 140 psig, nozzle angle 80 to 90 degrees from core face
 - Nozzle must be at least 3" (30 cm) from the core face.
 - Clean face by spraying coil steady and uniformly from top to bottom
 - Blow out excess water from coil

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Damper Assembly

In areas close to salt water, the damper assembly may experience some corrosion over time. If left untreated, this may cause the damper assembly to seize up and stop working. A seized damper, permanently opened or closed, could cause abnormal space conditions and higher than normal energy usage. Check the outdoor, return and bypass air dampers for rust, paying close attention to the area where the axle ends meet the bushing.

An example of a corroded damper is shown in Figure 1. If rust or corrosion is present, lubricate the shaft penetration inside (Figure 2) and out (Figure 3) using a dry graphite lubricant. Re-apply the lubricant as necessary.



Figure 4. Corrosion



Figure 5. Graphite Lubricant



Figure 6. Lubrication of Damper Gear



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Supply Fan Motors

Flo MPUs use premium efficiency motors from the following four brands: Baldor, Nidec, WEG and AO Smith (Century). The following sections outline how to lubricate these different motors.

Baldor Motors

Some FLō MPUs use premium efficiency Baldor motors, which are ball bearing motors that require lubrication on a yearly basis. The bearings have been lubricated at the factory, normally with Polyrex EM (Exxon Mobil). Motors that do not have regrease capability are factory lubricated for the normal life of the bearings. To lubricate the motor, clean the grease fitting (or area around grease hole, if equipped with slotted grease screws).

If the motor has a purge plug, remove it. Motors can be regreased while stopped and at less than 176°F. Apply grease gun to fitting (or grease hole). Too much grease or injecting grease too quickly can cause premature bearing failure. Slowly apply the recommended amount of grease, taking 1 minute or so to apply.

For recommended amount of grease to add, see the table below. Note that using dissimilar grease is not recommended. Operate motor for 20 minutes, then reinstall purge plug if previously removed.

Frame Size NEMA (IEC)	Weight of grease to add ounce (gram)	Volume of grease to add	
		Inches ³	Teaspoon
Up to 210 incl. (132)	0.30 (8.4)	0.6	2.0
Over 210 to 280 incl. (180)	0.61 (17.4)	1.2	3.9
Over 280 to 360 incl. (225)	0.81 (23.1)	1.5	5.2
Over 360 to 5000 incl. (300)	2.12 (60.0)	4.1	13.4

Table 1. Baldor Motor Grease Table

Nidec Motors

FLō MPU's with Nidec motors are prelubricated at the factory and do not require initial lubrication. Relubricating interval depends upon speed, type of bearing and service. Refer to Table 1 for suggested regreasing inter-vals. Operating conditions may dictate more frequent lubrication. Motor must be at rest and electrical controls should be locked open to prevent energizing while motor is being serviced (refer to section on Safety). If motor is being taken out of storage, refer to storage procedures.

To relubricate bearings, remove the drain plug. Inspect grease drain and remove any blockage with a mechanical probe taking care not to damage bearing.

Under no circumstances should a mechanical probe be used while the motor is in operation. Add new grease at the grease inlet, refer table 2 for replenishment quantities. New grease must be compatible with grease in the motor. Run the motor for 15 to 30 minutes with the drain plug removed to allow purging of any excess grease. Shut off unit and replace the drain plug. Return motor to service. Some motors have sealed bearings and are not regreasable.

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Over greasing can cause excessive bearing temperatures, premature lubricant breakdown and bearing failure. Care should be exercised against over greasing.

The following greases are interchangeable with the grease as provided in units supplied from the factory (unless stated otherwise on a lubrication nameplate provided on the motor):

- Mobile Corp. – Polyrex EM
- Chevron U.S.A Inc. – Sri No. 2

Bearing Number				Bearing Type	Grease FL Oz.	Lubrication Interval		
Common		AFBMA				1801-3600 RPM	1201-1800 RPM	0-1200 RPM
62XX	63XX	XXBC02	XXBC03	Ball				
6203-6207	6303-6306	17-35	17-30		0.2	2 Years	3 Years	3 Years
6208-6212	6307-6309	40-60	35-45		0.4	1 Year	2 Years	2 Years
6213-6215	6310-6311	65-75	50-55		0.6	1 Year	2 Years	2 Years
6216-6219	6312-6315	80-95	60-75		1.0	6 Mos.	1 Year	2 Years
6220-6228	6316-6320	100-140	80-100		1.8	3 Mos.	1 Year	1 Year
Roller					Roller			
NU307		35RU03		0.3		N/A	6 Mos.	1 Year
NU309		45RU03		0.4				
NU311		55RU03		0.6				
NU215		75RU02		0.6				
NU315		75RU03		1.0		N/A	3 Mos.	6 Mos.
NU220		100RU02		1.1				
NU222		110RU02		1.4				
NU226		130RU02		1.6				
NU228		140RU02		1.9		N/A	6 Mos.	1 Year
C2211 CARB		N/A		0.4				
C2213 CARB		N/A		0.6				
C2316 CARB		N/A		1.8				
C2220 CARB		N/A		1.4		N/A	3 Mos.	6 Mos.
C2222 CARB		N/A		1.8				
C2226 CARB		N/A		2.5				

Table 2. Nidec Motor Grease Table

WEG Motors

Proper lubrication plays a vital role in the WEG motor performance. Only use the grease or oil types, amounts and lubrication intervals recommended for the bearings. This information is available on the motor nameplate and the lubrication procedures must be carried out according to the type of lubricant (oil or grease). The grease and oil disposal should be made in compliance with applicable laws in each country.

The lubrication intervals specified in table 3 consider an absolute temperature on the bearing of 70 °C (up to frame size IEC 200 / NEMA 324/6) and 85 °C (for frame size IEC 225 / NEMA 364/5 and above), the motor running at rated speed, a motor mounted in horizontal position and greased with Mobil Polyrex EM grease. Any variation of the parameters listed above must be evaluated.

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Frame		Poles	Bearing designation	Amount of grease (g)	Lubrication intervals (hours)								
					ODP (Open Drip Proof)		W21 TEFC (Totally Enclosed Fan Cooled)		W22 TEFC (Totally Enclosed Fan Cooled)				
IEC	NEMA			50 Hz	60 Hz	50 Hz	60 Hz	50 Hz	60 Hz				
90	143/5	2	6205	4									
		4											
		6											
		8											
100	-	2	6206	5			20000						
		4											
		6											
		8											
112	182/4	2	6207/ 6307	9			20000						
		4											
		6											
		8											
132	213/5	2	6308	11				25000	25000				
		4											
		6											
		8											
160	254/6	2	6309	13			18100	15700					
		4					20000	20000					
		6					13700	11500					
		8					20000	20000					
180	284/6	2	6311	18	20000	20000	20000	20000					
		4					20000	20000					
		6					11900	9800					
		8					20000	20000					
200	324/6	2	6312	21			11900	9800					
		4					20000	20000					
		6											
		8											
225 250 280 315 355	364/5 404/5 444/5	2	6314	27			18000	14400	4500	3600	5000	4000	
		4					11600	9700	14000	12000			
		6					20000	20000	16400	14200	20000	17000	
		8					19700	17300	24000	20000			
	445/7 447/9 L447/9	2	6316	34				14000	*Upon request	3500	*Upon request	4000	*Upon request
		4						10400	8500	13000	10000		
		6						20000	20000	14900	12800	18000	16000
		8						18700	15900	20000	20000		
	5008 5010/11 586/7 588/9	2	6319	45				*Upon request					
		4						9000	7000	11000	8000		
		6						13000	11000	16000	13000		
		8						17400	14000	20000	17000		
	4	6322	60			20000	20000	7200	5100	9000	6000		
	6							10800	9200	13000	11000		
	8							15100	11800	19000	14000		

Table 3. WEG Motor Grease Table

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AO Smith (Century) Motors

Flō MPU's with AO Smith (Century) motors may require periodic cleaning to prevent the possibility of overheating due to an accumulation of dust and dirt on the windings or on the motor exterior.

Sleeve-Bearing Motors lubricated for life require no re-oiling and are constructed without re-oiling tubing. For motors with reoiling tubes or ports, use the following guidelines:

1. Re-oil annually after the second year of service to extend bearing life for normal duty.
2. Re-oil every two years for light intermittent duty and at least every five years for light occasional duty.
3. Add 15 to 20 drops of electric motor oil or an SE grade of SAE 20 nondetergent, motor oil to each bearing when re-oiling.

Ball bearing motors are factory lubricated and require no additional lubrication.

Roof Drains

Clogged roof drains allow excess material to build up on the roof and restrict proper drainage. Ensure that the condensate line is not clogged, and clean roof drains as needed. Be sure to remove all trash and debris from roof area and dispose of it properly. A "before-and-after" picture of a clogged roof drain is shown (Figure 8 and 9).



Figure 7. Clogged Roof Drain



Figure 8. Clean Roof Drain

P-Traps and Condensate Lines

At the beginning of the winter months, drain the P-Trap so that water does not freeze in the pipe during the non-dehumidification season. At the beginning of the summer months, prime the P-Trap with enough water to fill the trap during dehumidification months.

Condensate drain pans will have moisture present and require periodic cleaning to prevent microbial growth. Cleaning of the drain pans inside of the unit should be done only by a qualified service technician. The condensate line should be free of obstructions and allow water to drain away from the unit freely. See Figure 10. Replace broken or damaged P-Traps immediately.

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Figure 9. P-Trap

Recommended Cleaning Procedure for ERV

Access the energy recovery wheel and remove the wheel and/or segments. Wash the segments or small wheels with a non-acid based (evaporator) coil cleaner or alkaline detergent solution. Soak in the cleaning solution until grease and tar deposits are loosened. An overnight soak may be required to adequately loosen heavy deposits of tar and oil-based contaminants. After soaking, rinse the dirty solution from the wheel until the water runs clear. Allow excess water to drain prior to replacing segments in the wheel or reinstalling the wheel in the cassette. A small amount of water remaining in the wheel will be dried out by the airflow.

Do not use acid-based cleaners, aromatic solvents, temperatures more than 170°F or steam; damage to the wheel may result.

To maintain the energy recovery ventilation systems, transfer surfaces must be accessible for washing. When ERVs are exposed to unusually high levels of air contaminants, washing of energy transfer surfaces may be required every six months to maintain latent transfer efficiency.