

Model “JR” *LubriMist™* Oil Mist Generator INSTALLATION AND OPERATION MANUAL

Introduction

A LubriMist™ Oil Mist System is a centralized lubrication system that generates, conveys, and automatically delivers lubricant to bearings, gear boxes, chains, and sliding surfaces in various industrial machinery and equipment. This publication provides instruction and information for the LubriMist™ Oil Mist Generator Unit Model “JR”. Design, application and distribution of LubriMist™ Oil Mist is covered in other publications. Call the Lubrication Systems Company office nearest you for additional information.

Description

The "JR" *LubriMist™* Oil Mist Generator is designed for use in small to intermediate size oil mist systems located in Class 1 Division 2 Group C/D hazardous areas. The “JR” is equipped with many important monitoring features. As with all *LubriMist™* Oil Mist Generators, the “JR” utilizes the proprietary Vortex mist generation technology which delivers superior reliability and performance. Model “JR” is available in 40, 100, 300 and 500 bearing inch oil mist generating capacities which provide an oil mist supply range of 0.36 to 15.0 SCFM.

The unit is fully enclosed in a corrosion resistant aluminum cabinet. The heavy gauge stainless steel oil mist reservoir has a five gallon operating capacity and includes an oil level sight glass, pressure relief valve and mist pressure gauge. The automatic oil level control, which includes an oil flow solenoid valve, level control switch and pressure gauge automatically maintains a constant oil level in the reservoir. An immersion oil heater with thermostat and oil temperature gauge are standard equipment.

Standard air controls include an integral air filter/air pressure regulator with gauge and a supply air pressure gauge. Instrumentation for high and low mist pressure, high and low oil level and low oil temperature are also standard. Highly visible red/green operating status lights give local indication of unit status.

All electrical devices are wired to a common electrical control box which houses terminal strips and a common dry contact, remote alarm relay.

The cabinet enclosure makes the unit drip proof and suitable for a wide range of industrial applications. See next page for Model Code Table.

Please refer to the Model Code Table below to define the unit you have obtained.

Model No. (Example indicates Standard Options)			
JR-100-AAAXX			
OPTION DESCRIPTION	OPTION CODES		
Generator Head Size	40 100 300 500	40 BI 100 BI 300 BI 500 BI	
Oil Reservoir Fill	A B	Auto Bulk Fill w/ High & Low Level Switch Manual Fill w/ Low Level Switch	
System Power	A B	120VAC 240VAC	
Construction Materials (Main Unit)	<u>Code</u> A S O B T P	<u>Cabinet</u> Aluminum Carbon Steel Stainless Steel Aluminum Carbon Steel Stainless Steel	<u>Reservoir</u> Carbon Steel (discontinued) Carbon Steel (discontinued) Carbon Steel (discontinued) Stainless Steel Stainless Steel Stainless Steel
Back-up Unit	X	No Back-up Unit	
Construction Materials (Back-up Unit) <small>Includes mounting and piping to main unit</small>	<u>Code</u> A S O B T P	<u>Reservoir</u> Carbon Steel (discontinued) Carbon Steel (discontinued) Carbon Steel (discontinued) Stainless Steel Stainless Steel Stainless Steel	
Yellow Metals Option	X N N	Includes Brass Components No Brass (Main Console) No Brass (Main & Back-up Console)	

Installation

Location / Mounting

Choose a central convenient location, allowing enough room for air, electrical, oil and drain connections. Ensure easy access to the front of the unit when the cabinet door is open. For units with back-up generators, ensure that adequate rear access is maintained for servicing the back-up unit. Install the “JR” cabinet in an upright position and secure with four anchor bolts that are suitable for the type of foundation used (i.e. wood, concrete, steel etc.) Anchor bolts are not provided with the unit.

Mist Distribution System Connection

Connect the oil mist distribution system to the oil mist outlet (2” NPT) located on the top right side of the cabinet. Do not use Teflon tape or conventional pipe dope. A non-hardening thread lubricant such as *LubriMist™* Part No. 77-600-947 should be used on the pipe thread.

Compressed Air Supply

Connect a clean, dry compressed air supply to the inlet air supply (1/2” NPT) located on the right side of the unit. The inlet air supply should be capable of delivering the maximum SCFM rating for the particular mist head is being used. See the ordering code table above for your specific model. Mist Generating flow rates for the available mist heads are indicated below. Recommended air services are at 55 PSIG. This is the minimum required air pressure necessary to ensure that the unit is operable at the upper operating output capacity of the mist generating head.

Mist Head Size	Mist Flow Range (SCFM)	Minimum Recommended Air Supply
40 BI	0.36 - 1.4	1.5 SCFM @ 55 PSIG
100 BI	1.2 - 3.2	3.5 SCFM @ 55 PSIG
300 BI	3.0 - 9.0	10 SCFM @ 55 PSIG
500 BI	6.0-15.0	17 SCFM @ 55 PSIG

Note: Maximum air supply pressure is 125 PSI

Pressurized Oil Supply Connection

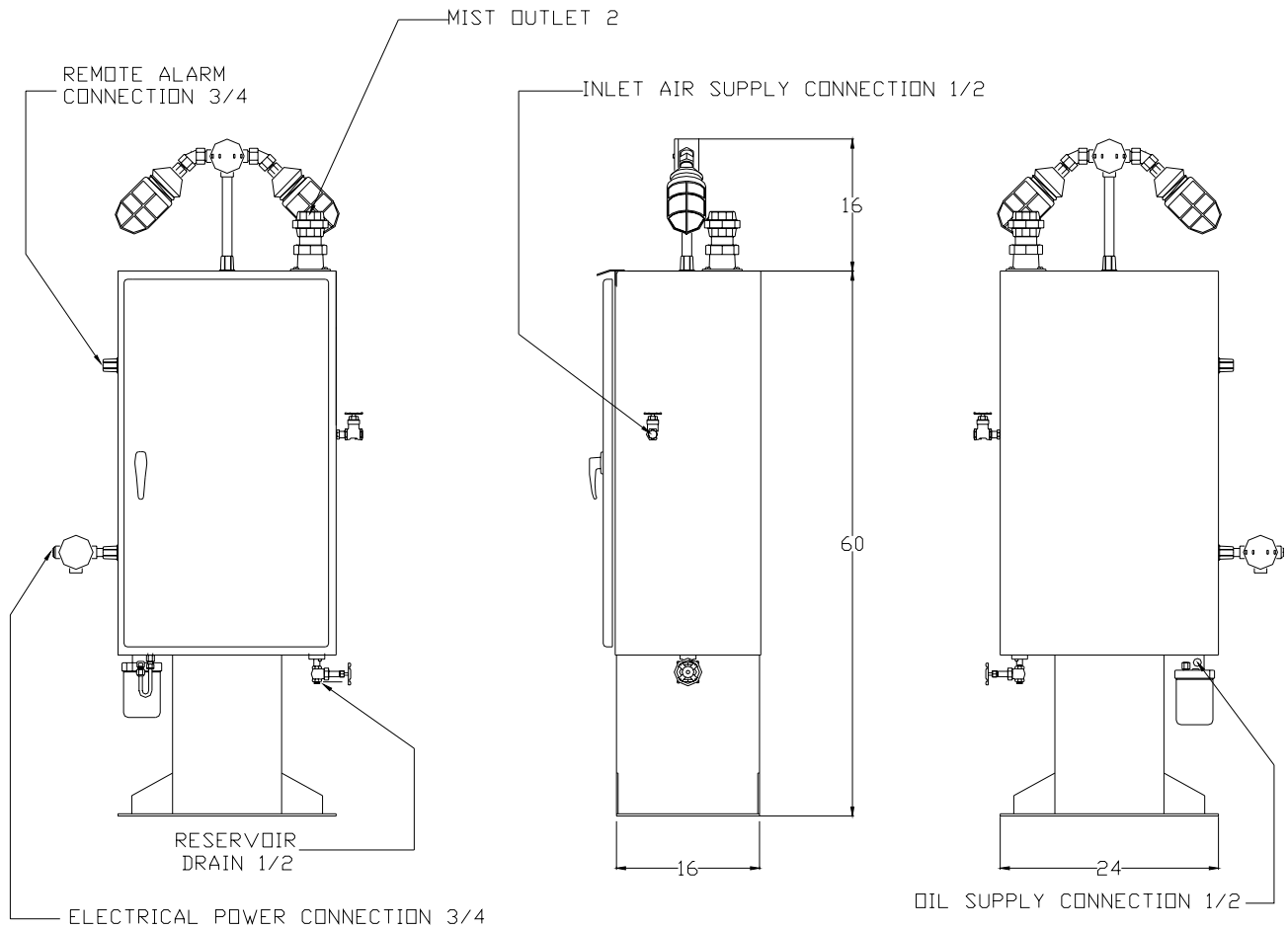
The model “JR” is standard equipped with instrumentation that automatically maintains a constant oil level in the oil reservoir. As oil is consumed during oil mist generation, oil make up is made through a solenoid operated valve which turns on and off the pressurized oil supply to the reservoir. If your model is not equipped with the auto fill feature, it can still be serviced from a central pressurized oil supply. The pressurized oil fill connection (1/2” NPT) is located on the lower left rear corner of the cabinet.

Electrical

All "JR" electrical components are wired to a terminal strip located in the electrical enclosure, For diagrams of the electrical component configuration refer to "Electrical Wiring Diagram, Model JR" shown on Page 6. The electrical power requirement is 4 amps 120 VAC.

IMPORTANT:

All electrical connections should be made by a qualified electrician.



Model "JR" Oil Mist Generator

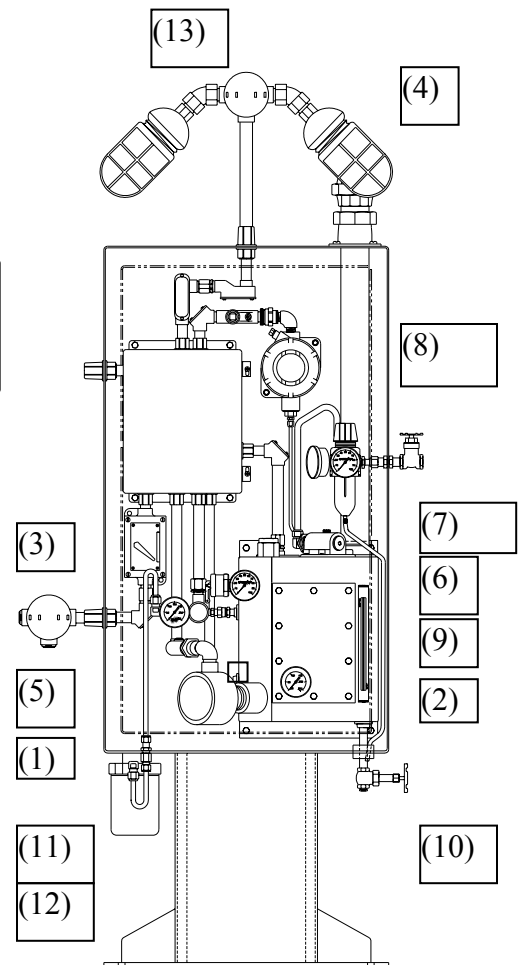
Start-Up

Prior to start-up recheck all connections and insure that all fittings are tight and electrical connections are properly made. Insure that the oil mist distribution system, reclassifies and application point connections, vents and drains are properly installed.

IF YOUR UNIT IS EQUIPPED WITH A BACK-UP UNIT, ENSURE THAT THE OIL MIST OUT LET VALVE IS IN THE OPEN POSITION. SEE SECTION ON BACK-UP UNITS FOR MORE INFORMATION.

To Start the *LubriMist™* Model “JR”

1. Turn on the pressurized oil supply feeding the model “JR” by opening the inlet ball valve (1). If you are using a *LubriMist™* Model “BST” bulk oil supply tank see the operating instructions for correct start-up procedures. When the electrical power is turned on the oil reservoir will automatically fill with oil.
2. Turn on the electrical power (3). The red unit status light (4) will be illuminated, the oil fill solenoid (5) will open and the oil reservoir (6) will start to fill from the pressurized oil supply. The oil reservoir will fill approximately half full and then automatically shut off the oil supply.
3. Turn on the air supply (7) and adjust the regulated air pressure (8) by turning the air filter/regulator knob until the correct mist pressure is achieved on the mist pressure gauge (9).



THE REGULATED AIR PRESSURE MUST NOT BE BELOW 10 PSI. IF UNDER 10 PSI, THE VORTEX MIST HEAD MAY NOT PRODUCE MIST. IF THIS CONDITION EXISTS, A LOWER CAPACITY MIST HEAD SHOULD BE INSTALLED OR ADDITIONAL LUBE POINTS SHOULD BE ADDED TO THE SYSTEM.)

4. Monitor the oil temperature using the oil temperature gauge (10). The oil heater should maintain the oil temperature at 110° F. Changes to the oil temperature can be made by adjusting the oil heater thermostat located inside the cover of the oil heater (11).
5. Once the oil reservoir has been properly filled, the mist pressure has been properly set, and the oil temperature exceeds the low oil temperature switch setting (12), the unit status lights will automatically switch from “RED” to “GREEN” (13).

CAUTION:

Adjustments to the oil heater thermostat requires that component enclosures be removed, To avoid electrical shock turn off the electrical power before removing and making adjustments. Covers should be reinstalled and securely fastened before power is re-initiated to the unit.

Operation

The daily operation of the “JR” oil mist system has been reduced to checks of the generator and lubricated equipment. Except for emergencies, routine adjustment of the generator is not required. The “JR” oil mist system, once installed and balanced, supplies a constant amount of oil mist to a number of lubrication points.

The “JR” is equipped with operational status lights which indicate normal operation when the green light is illuminated and red when a malfunction has occurred. The monitored operating variables are high and low oil level in the reservoir, high and low oil mist pressure in the mist distribution system, and low reservoir oil temperature.

Any change in oil mist pressure or regulated air pressure (supply pressure) from initial set points is an indication that some mist system component or compressed air supply system may have malfunctioned. Adjustments of the controls to offset the failure symptom may lead to more serious problems before correction of the root cause can be made. Please refer to the trouble shooting section of this manual for suggested corrective actions.

The following checks should be made on a daily basis.

6. Check reservoir oil level, Auto fill from a pressurized oil supply is standard. For manually filled systems see start-up procedures on how to fill the oil reservoir.
7. Check the regulated air pressure and mist header pressure. Changes or fluctuations in mist pressure readings indicate broken or plugged lines or reclassifier fittings in the distribution system. These problems must be corrected before adjusting the regulated air supply.
8. Check reservoir oil temperature to insure that the oil heater is operating properly.

Maintenance

The following maintenance procedures should be performed at least on a semi-annual basis to help insure proper system operation. If your “JR” is installed in an extremely dusty or humid environment or if you are concerned about the quality of your compressed air supply, the maintenance schedule should be accelerated. Consult with the nearest LSC office/service center for further discussion and recommendations.

9. Replace air filter element (P/N 77-500-472) and oil filter element (P/N 77-500-487).
10. Inspect and clean interior of the “JR” reservoir.
Use lint-free rags to wipe the reservoir.
11. Inspect and clean the oil suction screen.
Use cleaner that is compatible with the oil and use lint-free rags.

IMPORTANT: DO NOT DISASSEMBLE THE VORTEX MIST HEAD.

12. Check and verify operation of the high and low set points of all alarm switches.
13. Check the operation of the remote alarm circuit if one has been installed.
14. Make an overall assessment of the “JR” and mist distribution system and correct obvious deficiencies and problems.

Trouble Shooting Guide

Normal operation is indicated by an illuminated green status light. A red light illuminates when a fault condition occurs. The “JR” monitors high and low oil level, high and low mist pressure and low oil temperature. If the red light is illuminated the following system checks should be made:

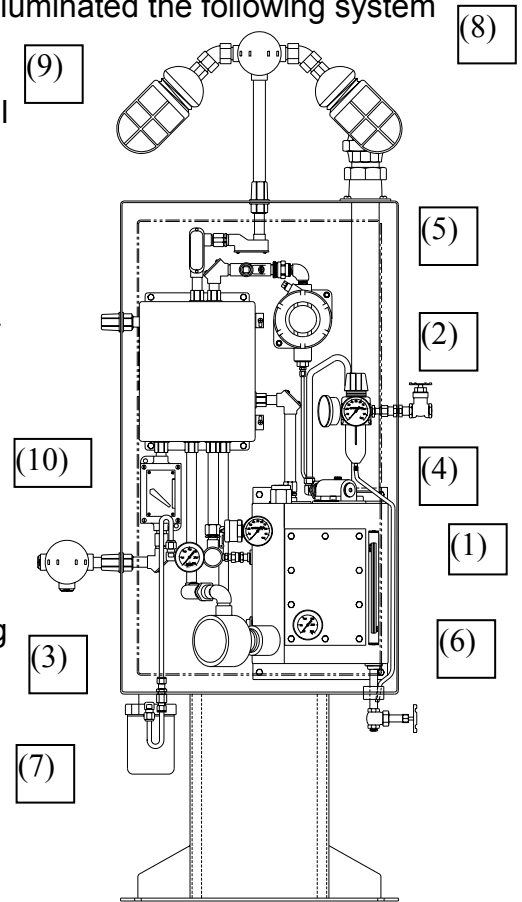
15. *Check the oil level* by making a visual check of the oil level gauge (1). If below the mid level set point, check the oil supply system to insure that oil pressure is being maintained to the oil solenoid. Verify mid level fill switch (2) and oil solenoid (3) operation.

16. *Check the mist pressure* by making a visual check of the mist pressure gauge (4). The high and low mist pressure switch (5) alarm limits are factory set at 30” and 10” H₂O pressure respectively. Normal operating pressure for “mist” reclassifier systems is 20” H₂O. Although a mist pressure alarm may be cleared by adjusting the regulated air supply, it must be recognized that mist pressure alarms are most likely caused by situations external to the oil mist generator. The following should be investigated:

- A) Low pressure may indicate a leak in the distribution system, a missing reclassifier or a broken line.
- B) High mist pressure may indicate plugged mist fittings, restricted bearing housing vents or an open air by-pass valve in the mist generating head.
- C) No mist pressure could indicate loss of air supply to the mist generator. Check the inlet air supply.
- D) Surging mist pressure usually is caused by an oil pocket or trap in the distribution header or fluctuating air supply,

17. *Check the oil temperature* by making a visual check of the oil temperature gauge (6). Factory oil temperature setting is 110° F. If oil temperature has fallen below 80° F the low oil temperature switch will cause an alarm condition. Check oil heater element and thermostat for proper operation (7).

If neither the red (8) or green (9) status lights are illuminated insure that the electrical power has not been turned off (10). If the circuit breaker is tripped, have a qualified electrician check for shorts in the circuit. If power is on to the “JR” and there are no other apparent problems check for burned out light bulbs or faulty warning relay.



IMPORTANT:

Electrical checks should be conducted by a qualified and knowledgeable person familiar with basic electrical systems who is able to read, understand and trouble shoot using electrical wiring diagrams .

Back-Up unit

The back-up oil mist generator, if your unit is so equipped, is intended for short-term use while servicing or maintaining the main “JR” oil mist generator unit. The back up unit is *LubriMist™* model “VO” equipped with an immersion oil heater and the same capacity Vortex mist generating head as used on the “JR”. You may refer to the “VO” operation manual for details on its design and operation.

Start-up Procedures for the JR Back-Up

To service, maintain or repair the “JR”, the back-up unit should be started per the following procedures:

18. Check the oil level in the back-up unit. The oil level should be at least half way up the oil level gauge. Add oil to the reservoir through the fill port as required. Do not fill above the HIGH level mark on the level gauge.

19. Close the air supply valve at the inlet air connection on the “JR” unit and allow the mist pressure to fall to zero.

20. Turn on the electrical power to the back-up unit using the power switch located in the JR cabinet. The switch is a three position switch. Position “1” turns on the power to the “JR”. Position “2” is the OFF position where neither the “JR” or the back-up receive electrical power. By turning the selector arm to position “3” the back-up oil heater is energized. The “JR” unit is then without power.

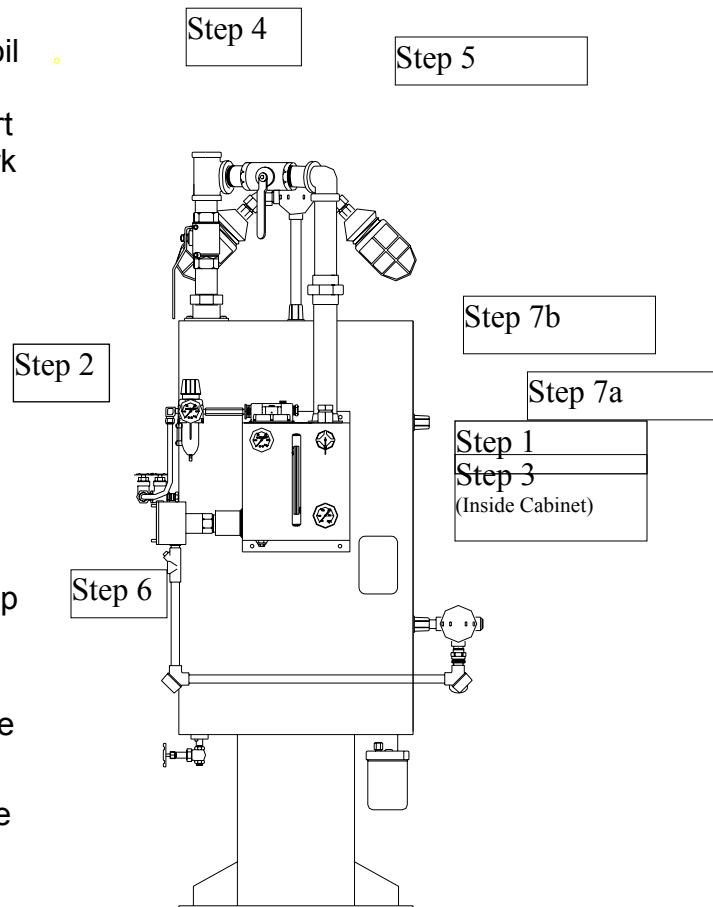
21. Close the 2” ball valve at the mist outlet of the “JR”.

22. Open the 2” ball valve at the mist outlet of the back-up.

23. Open the air supply valve at the inlet air connection to the back-up.

24. Check the mist pressure gauge of the back-up and adjust the air regulator to attain the proper mist pressure setting.

To change from operating the back-up to the main “JR”, reverse the order of steps 2 through 6 above.



NOTE:

THE BACK-UP GENERATOR IS NOT WIRED TO THE OPERATING STATUS LIGHT CIRCUIT. WHILE THE BACKUP UNIT IS IN OPERATION, IT MUST BE INSPECTED ON A DAILY BASIS FOR PROPER OPERATION.

Controlling the Oil Mist

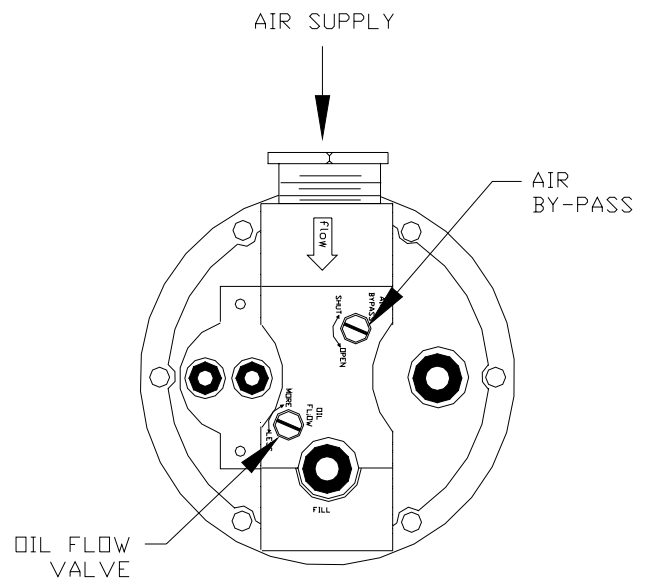
LubriMist™ Vortex oil mist generation technology allows for maximum control and adjustment of oil mist properties. There are three basic controls.

1. The INTEGRAL AIR FILTER/REGULATOR is used to adjust the volume of air flow to the Vortex chamber which in turn controls oil mist volume. The volume of oil mist is proportioned to each bearing or application point by the reclassifier. With the air bypass valve (described below) closed, the air pressure regulator setting must be high enough for oil mist production. Regulated air pressure should be adjusted to maintain proper mist pressure. Since changes in regulated air pressure affect the volume of oil mist produced, it also affects oil consumption.
2. The OIL FLOW VALVE controls oil mist density (oil/air ratio). Its normal position is fully closed. By turning it counter clockwise toward “Less” (opening the bypass) the mist density can be reduced when leaner density oil mist is desired. It should not be opened more than three turns. Adjustments to the oil flow valve do not affect oil mist pressure. (See Fig. No. 8 for location)

Note: The oil/air ratio or mist density is also dependent on the characteristics of the oil, oil temperature and supply air temperature. Density decreases with lower temperatures and higher oil viscosity.

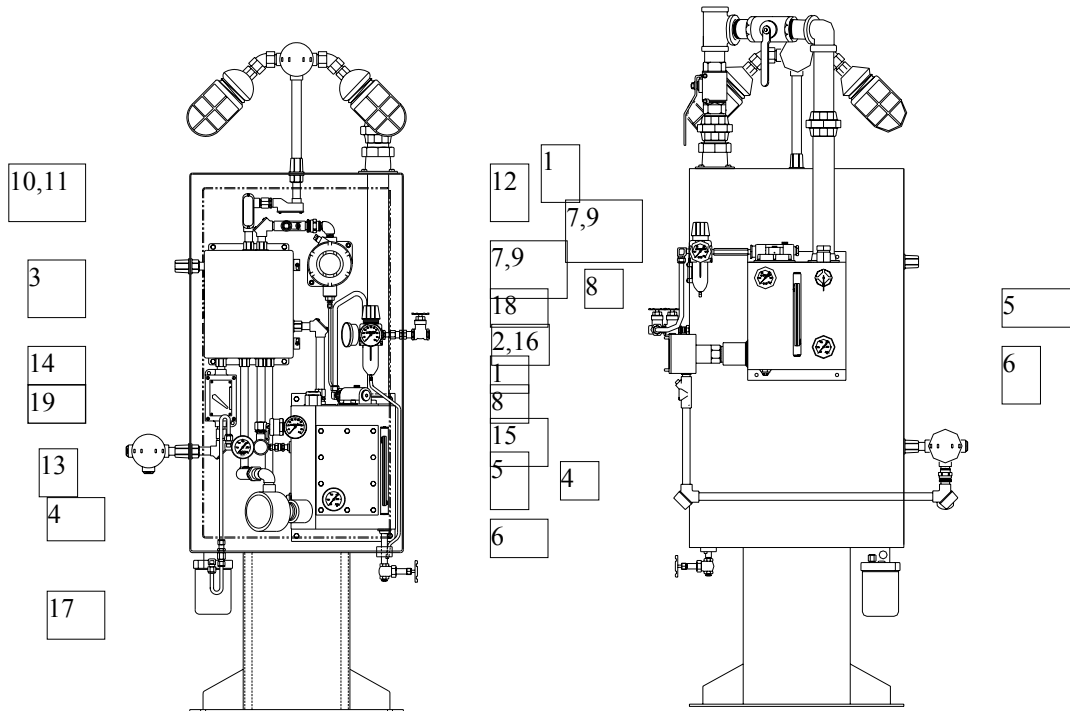
3. The AIR BY-PASS VALVE controls mist pressure without effecting oil output. Its normal position is fully closed, but by turning it counter clockwise toward “Open” more air will be added to the oil mist leaving the generator thus increasing mist pressure and reducing the oil/air ratio. Velocity of mist through the distribution lines and reclassifiers will also increase when this valve is opened.

Note: The oil/air ratio or mist density is reduced by opening the air by-pass valve. However, oil output is not affected.



Model "JR"

"JR" Back-Up Unit



ITEM	PART NO.	DESCRIPTION
1	77-500-046	40 BI Mist Head
	77-000-006	100 BI Mist Head
	77-000-036	300 BI Mist Head
	77-500-058	500 BI Mist Head
	77-500-055	Tri-Level Switch (Auto Fill)
2	77-500-051	Low Oil Level Switch (Manual Fill)
	77-780-269	Relief Valve
3	77-600-685	Oil Heater w/ Thermostat 120VAC
4	U-10923-A8	Oil Level Gauge
5	U-10924-A	Temperature Gauge
6	U-902-R	Air Press Gauge, 0-100 PSI
7	U-902-S	Mist Pressure Gauge, 0-100 In H ₂ O
8	77-500-473	Air Filter Regulator
9	77-500-721	Alarm Relay
10	77-600-881	Solid State Relay
11	U699-3X	Hi-Lo Mist Pressure Gauge
12	77-500-446	Low Oil Temp Switch
13	77-500-341	Oil Solenoid Valve 120VAC
14	77-800-092	Reservoir Cleanout Gasket
15	77-800-050	Oil Level Switch Gasket
16	77-500-487	Oil Filter Element
17	77-500-343	Pressure Gauge, 0-160 PSIG
18	77-500-342	Pressure Gauge, 0-300 PSIG
19		

PARTS LIST