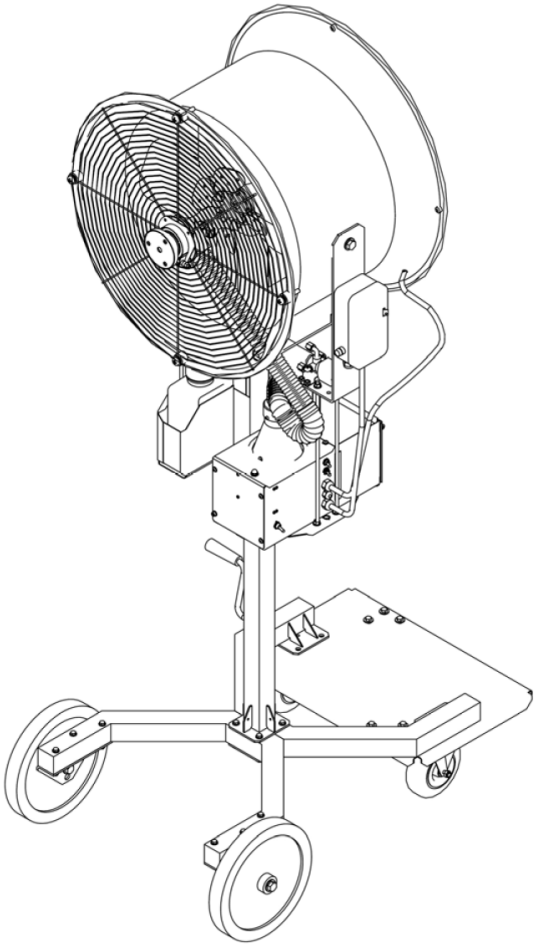
DYNA-FOG®

NIGHSTAR™

MANUAL

MODEL 2985 SERIES 1
ULV/LVM AEROSOL APPLICATOR



MANUFACTURED BY:

CURTIS DYNA-FOG, Ltd.
17335 U.S. Highway 31 North
WESTFIELD, INDIANA, U.S.A.
www.dynafog.com

INNOVATORS OF SPRAYING AND FOGGING DEVICES

INSTRUCTION MANUAL
FOR
OPERATION, SERVICE, AND MAINTENANCE

OF THE DYNA-FOG® NIGHTSTAR™ MODELS :

NIGHTSTAR™ M, MODEL 1901 (115 V/60)
MODEL 1902 (230 V/50-60/1)

NIGHTSTAR™ S, MODEL 19 03 (115 V/60)
MODEL 1904 (230 V/50-60/1)

NIGHTSTAR™ T, MODEL 19 05 (115 V/60)
MODEL 1906 (230 V/50-60/1)

(United States Patent No. 5,299,737.
Other U.S. and Foreign Patents Pending)

Manufactured by: Curtis Dyna-Fog, Ltd.
17335 U.S. Highway 31 North
P.O. Box 297
Westfield, Indiana 46074-0297
U.S.A.

TABLE OF CONTENT

Dear Grower,

Congratulations on selecting one of the finest combination Ultra-Low-Volume (ULV)/Low-Volume-Mister (LVM) machines in the world. The NIGHTSTAR™ is the newest in the Dyna-Fog family of Professional Spraying Equipment and represents the latest in portable spray technology. The NIGHTSTAR™ ULV/LVM was developed to enable one machine to perform many greenhouse and other indoor spraying applications efficiently and effectively while minimizing the amount of worker exposure to chemicals. This results in a significant savings in labor costs, chemical usage, and invaluable health benefits.

Field trials have proven that droplets created with the NIGHTSTAR™ circulate entirely throughout areas as large as 60,000 square feet (6000 sq.m.) without additional fan assistance. The droplets impinge on both the top and bottom leaf surfaces deep within the plants foliage, resulting in excellent control results. With flow rates ranging from .5 gal/hr (1.9 ltrs/hr) to 4.1 gal/hr (15.5 ltrs/hr), nearly double the output of most other ULV machines, no other machine in the world can match its performance. Backed by its Quality and Workmanship, we are confident that the NIGHTSTAR™ will be a valuable addition to any spraying program.

Thank You For Choosing Dyna-Fog

1.0

IMPORTANT: READ BEFORE ATTEMPTING OPERATION

Read and thoroughly understand this operation manual before attempting to operate or handle any chemicals to be used with this machine. Follow all "Cautions" and "Warnings" listed in this manual and on the formulation manufacturers product label.

Do not attempt to alter the configuration of this machine in any way. Doing so can cause the machine to perform improperly, void the warranty, and may result in damage to target areas, or pose a hazard to the operator.

Always connect the machine to a properly rated power supply. See Section 6.0 in this manual for extension cord ratings that must be used with this machine. Insufficient voltage to the machine will cause poor performance and overheating of electrical components! Extension cords that are underrated (too small of wire), or that are too long will cause a voltage drop. NOTE: Nightstar 115 Volt models require a minimum 20 ampere dedicated circuit.

THIS MACHINE IS INTENDED FOR USE IN CLOSED BUILDINGS. NEVER ENTER OR ALLOW WORKER ENTRY INTO A BUILDING DURING TREATMENT UNLESS FULL PROTECTIVE CLOTHING IS WORN. AFTER THE TRETAMENT IS COMPLETED, ALLOW SUFFICIENT TIME FOR THE DROPLETS TO SETTLE OUT OF THE AIR BEFORE UNPROTECTED PERSONS RE-ENTER THE BUILDING. AT HIGH TEMPERATURES (90 DEGREES F, 32 DEGREES C) THIS CAN TAKE AS LONG AS 4 HOURS FOR THE SMALLEST 8 MICRON DROPLETS.

DO NOT VENT THE BUILDING UNTIL THE DROPLETS HAVE SETTLED.

NOTIFY WORKERS OF THE APPLICATION BY WARNING THEM ORALLY AND BY POSTING WARNING SIGNS AT ENTRANCES TO TREATED AREAS.

ALWAYS OBSERVE ANY RE-ENTRY RESTRICTIONS SPECIFIED ON THE FORMULATION LABEL.

SPECIFICATIONS FOR DYNA-FOG NIGHSTAR ULV/LVM (MODELS M, S, AND T)

NOZZLE AIR SUPPLY	
TYPE:	**2-STAGE BLOWER**
OPERATING SPEED:	**2 0,0 00 RPM**
AIR FLOW:	**104 CFM (NO LOAD)'**
VOLTAGE/HERTZ/PHASE:	**115/50-60/1** **230/50-60/1**
AXIAL FAN	
TYPE:	**AXIAL, WATER RESISTANT** **22 IN. (55.9 CM) DIAMETER**
MOTOR:	**TOTALLY ENCLOSED**
VOLTAGE/HERTZ/PHASE:	**115/50-60/1** **208-230/50-60/1**
OPERATING SPEED:	**1725 (115V)** **1425 (208-230V)**
HORSEPOWER:	**1.0**
AIR FLOW:	**8000 CFM (226 CU.M./MIN)**
FORMULATION TANK	
MATERIAL:	**HIGH DENSITY POLYETHYLENE 2.5 US. GAL. (9.5 L)**
CAPACITY:	
FLUSH TANK	
MATERIAL:	**HIGH DENSITY POLYETHYLENE .5 US. GAL. (1.9 L)**
CAPACITY:	
AGITATION SYSTEM	**RECIRCULATORY AIR/LIQUID**
LIQUID FLOW RATES	**DROPLET SIZE (VMD)**
.8 GAL/H **(3.0 L/H)**	**8**
2.0 GAL/H **(7.5 L/H)**	**20**
2.5 GAL/H **(9.6** L/H)	30
4.1 GAL/H **(15.5 L/H)**	50
NOZZLE TYPE	**HIGH AIR VOLUME, AIR ATOMIZING**
DROPLET REACH	**300 FT. (90 M)**
WITH **FAN:**	**50 FT. (15 M)**

MODEL:	M (MOBILE)	S (SUSPENDED)	T (TABLE TOP)
DIMENSIONS	INCHES (CM)	INCHES (CM)	INCHES (CM)
LENGTH:	**37.5 (95.3)**	**22.0 (55.9)**	**22.0 (55.9)**
WIDTH:	**31.5 (78.7)**	**29.0 (73.7)**	**22.0 (55.9)**
HEIGHT:	**70.4 (179) DOWN** **80.6 (205) UP**	**52.0 (132.1)**	**53.0 (134.6)**

	M (MOBILE)	S (SUSPENDED)	T (TABLE TOP)
WEIGHT	**LBS. (KG)**	**LBS. (KG)**	**LBS. (KG)**
EMPTY:	**220 (100)**	**150 (68)**	**172 (78)**
FULL:	**252 (114)**	**182 (83)**	**204 (93)**

SPECIFICATIONS FOR DYNA-FOG NIGHTSTAR (MODELS M, S, and T) (CONT'D)

ELECTRICAL CONTROLS	8 EVENT, 24 HOUR, DIGITAL DISPLAY OF
PROGRAMMABLE TIMER:	EVENT, DAY, TIME, AUTO MEMORY, WATER RESISTANT, LOCKABLE ENCLOSURE
MANUAL SWITCHES:	FAN ON/OFF NOZZLE BLOWER (SPRAY) ON/OFF
OVERLOAD PROTECTION:	115 Volt: 25 AMP FUSE 230 Volt: 15 AMP FUSE
CURRENT DRAW (AMPS):	
NOZZLE BLOWER:	7.1 A (115V) 3.6 A (230V)
AXIAL FAN:	9.6 A (115V) 7.0 A (230V)
SOLENOID VALVE:	.8 A (115V) .4 A (230V)
ENTIRE MACHINE:	18.0 A (115V)
(with aux. agit.	11.5 A (230V)
AUXILIARY AGITATION:	1.8 A (115V) .9 A (230V)
FAN ADJESTMENT	
ROTARY TRAVEL:	22 DEGREES UP 22 DEGREES DOWN 35 DEGREES CLOCKWISE 3 5 DEGREES COUNTERCLOCKWISE
VERTICAL TRAVEL:	10.2 IN. (25.9 CM)
NOISE LEVEL	80 dbA

SHIPPING INFORMATION

MODEL:	**ALL MODELS**		
DIMENSIONS:	**INCHES (CM)**		
LENGTH:	61.0 (154.9)		
WIDTH:	29.9 (75.9)		
HEIGHT:	22.8 (57.9)		
VOLUME:	CU. FT. (CU. M.)		
	24.1 (.68)		
WEIGHT:	LBS. (KG.)	LBS. (KG)	LBS. (KG)
	290 (132)	220 (100)	(110)

EQUIPMENT OPTIONS

- FORMULATION AGITATION SYSTEM (FOR WETTABLE POWDERS)
- 50 FT (15 M) REMOTE CONTROL TIMER MOUNT
- 75 FT (23 M) FRESH-AIR INTAKE HOSE
- SWIVEL CEILING MOUNT **(NIGHTSTAR S)**
- PLATFORM OR TABLE MOUNT **(NIGHTSTAR T)**
- HEAVY DUTY EXTENSION CORD (WITHOUT PLUG) (50 FT (15M), 12 GA. WIRE), (100 FT (30 M), 10 GA. WIRE)
- CHEMICAL RESISTANT MIXING TANK
- 15 U.S. Gallon (56.8 L) Tank Kit P/N: 64951

2.0
WORKING PRINCIPLES

The Nightstar ULV/LVM is a combination Ultra-Low-Volume/Low-Volume-Mister aerosol applicator. It is electrically powered by either 115 volts or 230 volts AC. The machine is available in (3) different models:

1) **NIGHTSTAR M**... Mounted on a heavy duty, welded steel frame with large wheels for transporting. The fan housing and nozzle has a vertical, horizontal, upward/downward adjustment capability.

2) **NIGHTSTAR S**... Mounted on a universal swivel bracket, the entire unit can be mounted from the ceiling and swiveled 3 60 degrees for optimum positioning. The fan housing and nozzle can be adjusted upward and downward.

3) **NIGHTSTAR T**... Mounted on a compact, heavy duty welded-steel frame with low profile, rubber mounting feet. Designed to be mounted stationary on a table top or platform type surface. The fan housing and nozzle have horizontal and upward and downward adjustment capability.

All models operate on the same principles:

Air for the liquid spray is created by a 2-stage, high RPM electric motor/blower. Air from the blower pressurizes the formulation and flush tanks, and supplies air thru a flexible hose to the nozzle for atomizing the liquid. The air that is supplied to the formulation tank is accurately regulated by means of an air bleed orifice. This orifice can be changed to produce the desired flow rate. This flow rate is what determines the droplet size being produced by the nozzle. Therefore, the smaller the air bleed orifice being used, the higher the tank pressure, the higher the flow rate, and the larger the droplet that will be produced.

The spray circulation air is provided by a High Air Flow (8000 CFM, 226 Cu.m/min) axial fan. The fan has been tested and proven to provide even droplet distribution in areas of up to 60,000 square feet (6000 square meters) without any additional fan assistance.

To adequately dispense two-part formulations that tend to separate over time (ie. wetable powders), the NIGHTSTAR™ can be equipped with an optional auxiliary formulation agitation system. The agitation system consists of two parts:
1) An air circulation tube that provides high velocity air to the formulation tank for pressurization and agitation.
2) An electric motor driven pump that circulates and mixes the formulation. This pump is activated by pushing the auxiliary agitation switch to the "ON" position.

After a spray treatment is completed, the entire spray system is automatically flushed. The agitation pump is then turned off and the fan and blower are turned off when their pre-programmed time expires.

WORKING PRINCIPLES (cont'd)

All models are equipped with a 24 hour programmable timer. The timer is mounted in a NEMA approved, water-resistant, lockable, steel enclosure for pre-programmed, unattended operation. The programmable timer enables the fan and spray to be turned on and off automatically. Once this sequence is programmed into the timer, it remains in memory even when power is disconnected.

The formulation and flush tanks are manufactured from chemical resistant, high-density-polyethylene. The formulation tank capacity is 2.5 US gallons (9.5 ltrs) , and the flush tank capacity is .5 US gallons (1.9 ltrs). The formulation and flush tank are plumbed in parallel so that the entire system is cleaned when the automatic flushing system is activated.

3.0

PREPARING TO SPRAY

WARNING; ***This device is designed to dispense chemical solutions in an aerosol form. Most of the chemical solutions that may be dispensed with this machine require registration or approval by various government agencies. Use of some chemicals may be restricted, regulated, or prohibited in some areas. Always thoroughly read and follow the information provided by the formulation manufacturers label and on the Material Safety Data Sheet (MSDS) before applying the chemical. Know any dangers of the solution used and what to do in case of an accident involving the solution.***

The NIGHTSTAR™ is designed to create an equal number of uniform droplets at each flow rate selected. To assure that the machine is producing the most effective droplet size for your application, you must determine the flow rate of the liquid you intend to spray. Table 1 lists the orifice sizes and their corresponding flow rates using water as the liquid being sprayed. . For your machine to perform efficiently as possible, you need to determine the viscosity (flowability) of the liquid you are intending to spray. See the description below for FORMULATION VISCOSITY.

FORMULATION VISCOSITY As the viscosity of any formulation increases (gets thicker) , the flow rate thru the machine decreases. The viscosity of the formulation that you are using can be determined by using the CURTIS VISCO-METER supplied with your machine. To use the Visco-Meter, fill the meter with a sample of the pre-mixed formulation you intend to spray. Time in seconds how long it takes for the liquid level to fall from the top line marked on the side of the meter to the bottom line of the meter. (Ordinary tap water at 68 degrees F. will flow the distance between these two lines in approximately 32 seconds) .
NOTE: ALWAYS HANDLE AND DISPOSE OF ALL CHEMICALS IN ACCORDANCE WITH THE MANUFACTURERS INSTRUCTIONS AND THE MATERIAL SAFETY DATA SHEET FOR THE CHEMICAL BEING USED.

4.0
CHOOSING THE CORRECT LIQUID-FLOW-RATE

To enable the machine to be used for various applications (i.e. space treatment, insecticides, fungicides), it is desirable to check the machines flow rate. Table 1 lists the orifice sizes and their corresponding flow rates USING ORDINARY TAP WATER AT 68 F (20 C).

TABLE 1

ORIFICE NUMBER	**LIQUID FLOW RATE**	**DROPLET SIZE (MKD) (APPLICATION)**
1	.8 GAL/H (3.0 L/H)	8 **(SPACE)**
2	2.0 GAL/H (7.5 L/H)	20 **(INSECTICIDE)**
3	2.5 GAL/H (9-6 L/H)	30 **(FUNGICIDE)**
4	4.1 GAL/H (15.5 L/H	50 **(DISINFECT.)**

*** WHEN THE #4 ORIFICE IS INSTALLED, A WETTING RESIDUAL SPRAY WILL BE PRODUCED. THIS IS DESIRED WHEN DISPENSING MOST DISENFECTANTS, BUT SOME PLANTS MAY BE DAMAGED BY SOME FORMULATIONS. ALWAYS ENSURE THAT THE CIRCULATION FAN IS OPERATING WHEN DOING A SPRAY TREATMENT.**

To measure the flow rate:

1. Fill the formulation tank with water
2. Weigh the tank
3. Replace tank cap and HAND TIGHTEN TO SEAL
4. Allow unit to spray for 15 minutes.
5. Weigh the tank again and note the difference in weight (in grams or pounds as shown in example below).
6. Calculate the flow rate as follows:

Using Metric System Units: (BASED ON A 15 MINUTE FLOW TEST)

(Difference in weight in grams) x (4) = output in grams/h

$$\frac{\text{(output in grams/hr}}{1000} = \text{output in kg/h} = \text{output in L/h}$$

To convert to U.S. gallons per hour: (L/h) x (.2642) = gph

Example:

Difference in weight using the #2 orifice * **1875** grams.

1875 GRAMS **x 4 = 7500** GRAMS/h

$$\frac{\textbf{7500}\ \text{GRAMS/h}}{1000} = \textbf{7.5}\ \text{kg/h} = \textbf{7.5 L/h}$$

7.5 L/h x .2642 = 2.0 U.S. **GPH**

NOTE: Higher flow rates and larger droplets can be achieved for NightStar models purchased with the optional 15 Gallon Tank Kit. See section in the back of the manual for details on this option.

CHOOSING THE CORRECT LIQUID FLOW RATE (CONT'D)

USING ENGLISH SYSTEM UNITS: (BASED ON A 15 MINUTE FLOW TEST)
Output in pounds/h _____ = output in U.S. gallons/h
8.32 (pounds/gal. of water)
To convert to Liters per Hour: U.S. gallons/h X 3.785
Example:
Difference in weight using the #2 orifice **=4.16 pounds**
4.16 pounds X 4 = 16.64 pounds/h
15 minutes
16.64 pounds/hr = 2 gallons/h
8.32 pounds/gal
2 gallons/h X 3.785 =7.5 liters/h

5.0

VOLUMES AND CHEMICAL RATES TO USE IN YOUR NIGHTSTAR™

5.1
GREENHOUSE APPLICATIONS:
Volume:
Use 1 quart per 10,000 square feet per 3 feet of crop height, or 1 liter per 1000 square meters per 1 meter of crop height.

Chemical:
The aim is to use as much chemical as would have been applied by conventional High-Volume-Spraying. Example: To apply a product labeled for use at 8 fl.oz. in 100 US gallons/40,000 square feet (1 acre) (50 ml per 100 1 to a greenhouse of 4000 square meters) containing potted plants: Conventional high volume spraying would have used 12 **fl.** oz. in 150 US gallons. Therefore, put 12 fl. oz. of chemical in 4 quarts (33 0 ml in 4 liters) in the Nightstar. For a mature tomato crop that would have used 24 fl. oz. in 300 US gallons, put 24 fl. oz. in 8 quarts (660 ml in 8 liters) in the Nightstar.

5.2
Food Warehouse Applications:
The chemical should be used at the rate specified on the product label, such as 2 oz. per 1000 cubic feet (50 ml per 100 cubic meters).

Important: Only use the Nightstar™ for the application of chemicals whose conditions of registration do not prohibit Low-Volume applications.

6.0

PRE-SPRAY CHECKLIST

1) After the machine has been calibrated using the liquid to be sprayed, position the machine in the area to be treated, **WARNING:** It is recommended that the machine be placed so that the nozzles are spraying down a main aisle of the target area and that no foliage is located within 50 feet (15 meters) directly in front of the nozzles. This must be done to allow any unwanted large droplets to "fall out" before impinging on and damaging the foliage. See figure 1 in this manual for an example of how to properly position the machine. **Important:** When using an extension cord to operate the **Nightstar 115 Volt AC models,** use a 12 gauge cord up to 50 feet long (15 meters) , and a 10 gauge extension cord from 50-100 feet (15-3 0 meters) . **For the 23 0 Volt AC models**, use a 14 gauge cord up to 50 feet long (15 meters), and a 12 gauge cord from 50-100 feet (15-30 meters) .

2) Fill the formulation tank with the proper amount of liquid to treat the target area (2.5 US gallons, 9 liters maximum) . **ONLY PUT AS MUCH FORMULATION IN THE TANK THAT IS NECESSARY TO DO ONE APPLICATION,** Tighten the plastic cap to seal the tank. If you have the optional auxiliary agitation system, tighten the knurled brass couplings on the circulation hoses (it is only necessary to hand tighten couplings. Over tightening will damage the rubber gasket seal inside the nut).

3) Fill the flush tank with water and tighten the cap.

4) Position the toggle switch in either the Manual or Automatic mode (see section 6.1 and 6.2 of this manual). In Manual Mode, all functions (i.e. spray on/off, fan on/off, agitation mixer on/off) are controlled by actuating the toggle switches on the control panel at the side of the machine. If your machine is equipped with the optional auxiliary agitation system, you must push the button on top of the blower cover to turn the mixing pump "on" regardless of whether you are in the Manual or Automatic mode.

6.1

MANUAL SPRAYING

1) **Ensure that the "SPRAY SWITCH"** is **"OFF",** and turn the machine "on" using the main timer ON/OFF switch inside the timer enclosure.

2) Push the switch on the blower top cover to activate the optional Auxiliary Agitation System.

3) Place the FAN SWITCH to the "on" position and allow the "FAN" to operate for 15 minutes before turning the SPRAY on.

6.2

AUTOMATIC SPRAYING

To program the timer, you must first determine the total spray "on" time. The total "on" time is composed of the sum of (4) different functions as follows:

A) Pre-Air-Circulation Time: Pre-Air-Circulation time will always be 15 minutes. When you program the timer to turn "on", there will be a 15 minute delay before the spray begins. This 15 minute delay is the pre-air-circulation time period.

B) Time To Dispense Formulation: This is the time it will take to actually dispense the formulation in the formulation tank- This time can be determined by taking the amount of formulation that is in the tank and dividing that number by the flow rate being produced. When determining this number it is a good idea to add an additional 5-10 minutes to assure that all of the formulation has been dispensed.

C) Flush Time: Flush Time is the time required to empty the contents of the flush tank. When the tank is full, this time should be approximately 5 minutes.

D) Post-Air-Circulation Time: Post-Air-Circulation Time is the time per::: for circulating the spray droplets after the spray cycle is complete, and should be entered as 15 minutes.

Therefore, TOTAL Spray "ON" TIME = (Pre-Air-Circulation Time) + (Time to dispense formulation) + (Flush Time) + (Post-Air-Circulation Time)

EXAMPLE:

1) PRE-AIR-CIRCULATION TIME = ……15 MINUTES

+

2)* TIME TO DISPENSE FORMULATION = ……20 MINUTES*

+

3) FLUSH TIKE = ……..…..5 MINUTES

+

4) POST-AIR-CIRCULATION TIME =……..……15 MINUTES

TOTAL "ON" **TIME = 55 MINUTES**

*** The "Time To Dispense Formulation" is the only figure in the above equation that has to be determined. To ensure that all of the liquid in the tank gets dispensed, you can add an additional 5-10 minutes to this time. Doing this will increase the "Total On Time" which improves the droplet circulation and distribution within the target area. All other times (#1,#3, and #4) are already determined values as shown above and do not require any calculation.**

INSTALLATION & OPERATING INSTRUCTIONS

GRÄSSLIN™
by Intermatic

GM40AV Series General Purpose Electromechanical Commercial Time Switches

⚠ WARNING

- **To avoid fire, shock, or death, turn off power at circuit breaker and test that power is off before wiring.**
- **Read instructions completely before installation and retain for future reference.**
- **Observe all national and local electrical and safety codes.**
- **Disconnect power when servicing or changing loads.**
- **Alterations or modifications to the device will void the warranty.**
- **For outdoor locations, rain-tight or wet location conduit hubs that comply with the requirements of UL 514B Conduit, Tubing, and Cable Fittings, must be used.**

ELECTRICAL RATINGS

N.O. Contacts:
40A Resistive @ 120~277VAC
1HP, 16FLA, 90LRA @ 120VAC
2HP, 12FLA, 52LRA @ 208~277VAC
30A Ballast @ 120VAC
20A Ballast @ 277VAC
15A Tungsten @ 120VAC
300VA Pilot Duty 120~240VAC

N.C. Contacts:
30A Resistive @ 120~277VAC
1HP, 12FLA, 30LRA @ 120VAC
2HP, 10FLA, 30LRA @ 240VAC
2A Tungsten @ 120VAC
10A Ballast @ 277VAC

WIRING CONNECTIONS:
Screw box lug terminals

ENVIRONMENTAL RATINGS:
Operating Temperature Range:
–40°F to 131°F (–40°C to 55°C)
Operating Humidity:
10 - 95% RH, non-condensing

ENCLOSURE DIMENSIONS:
8.795" x 6.631" x 2.935"
(H x W x D)

SHIPPING WEIGHT:
2 lbs.

AGENCY APPROVALS:
UL Listed
c UL us

INSTALLATION INSTRUCTIONS

1. To avoid fire, shock, or death, turn off power at the circuit breaker and test that power is off before wiring.
2. Open door and remove the interior protective cover by releasing the spring latch (see figure 1 below).
3. Remove the printed circuit board by releasing the spring latch holding the bottom of the board (see figure 2 below).
4. Select knockouts to be used. Remove the inner 1/2" knockout by inserting a flathead screwdriver in the slot and carefully punch the knockout loose. Remove slug. If 3/4" knockout is required, remove the outer ring with pliers after removing the 1/2" knockout. Smooth edge with knife, if necessary.
5. Place the enclosure in the desired mounting location, and mark the three mounting holes (refer to Figure 3 below for dimensions). Install the top screw first with one of the supplied spacers, and then hang the enclosure by the keyhole. Drive the remaining two screws at the bottom of the enclosure through the mounting holes while passing each screw through one of the supplied spacers and in to the wall.
6. Connect conduit hubs to conduit before connecting the hubs to the enclosure. After inserting hubs into enclosure, carefully tighten hub lock nut. Do not overtorque.
7. Replace printed circuit board making sure to engage spring latch at the bottom of PCB.
8. Wire in accordance with national and local electrical and safety codes (see wiring diagrams on page 16).
9. Grounding: Terminate all ground wires to the ground lug inside the case at the bottom of the enclosure.
10. Replace interior protective cover.

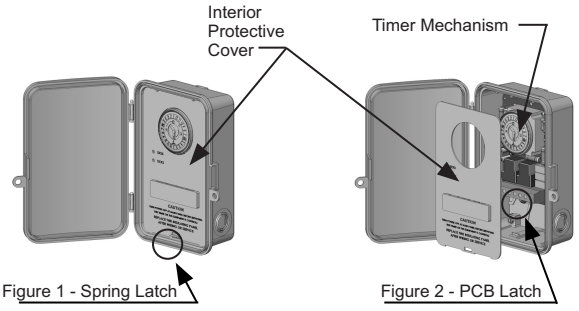


Figure 1 - Spring Latch

Figure 2 - PCB Latch

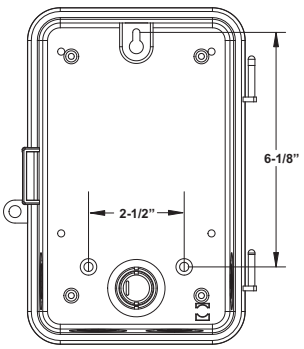


Figure 3 - Rear View of Enclosure with mounting hole dimensions

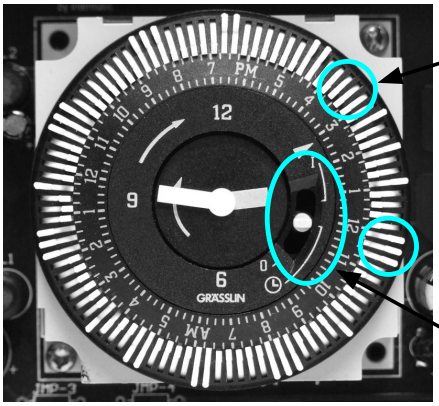
PROGRAMMING INSTRUCTIONS

SETTING THE CLOCK TIME

Rotate the program dial gradually clockwise until the time of day on the outer dial is nearly aligned with the triangle marker at the 2 o'clock position. Then set time to the minute by rotating minute hand clockwise until the time of day (and AM or PM) on the outer dial is aligned with the triangle marker on the inner dial. ***NOTICE! Do not rotate the dial or minute hand counter-clockwise. Doing so will damage the timer.***

SETTING ON/OFF TIMES

Move the white tab (tripper) on the outer dial outward at the start of the desired ON period. Move each adjacent tab outward until the desired OFF time is reached.
(See illustrations on page 15)



TRIPPERS IN

Relays: OFF - Green Status LED: OFF
(Normally-open contacts open)

TRIPPERS OUT

Relays: ON - Green Status LED: ON
(Normally-open contacts closed)

MANUAL OVERRIDE OPERATION

With the manual switch in the **middle position**, the GM40AV is in automatic mode and will switch at the programmed times.
In the **upper position** "I", the load is continuously ON.
In the **lower position**, "O", the load is continuously OFF.

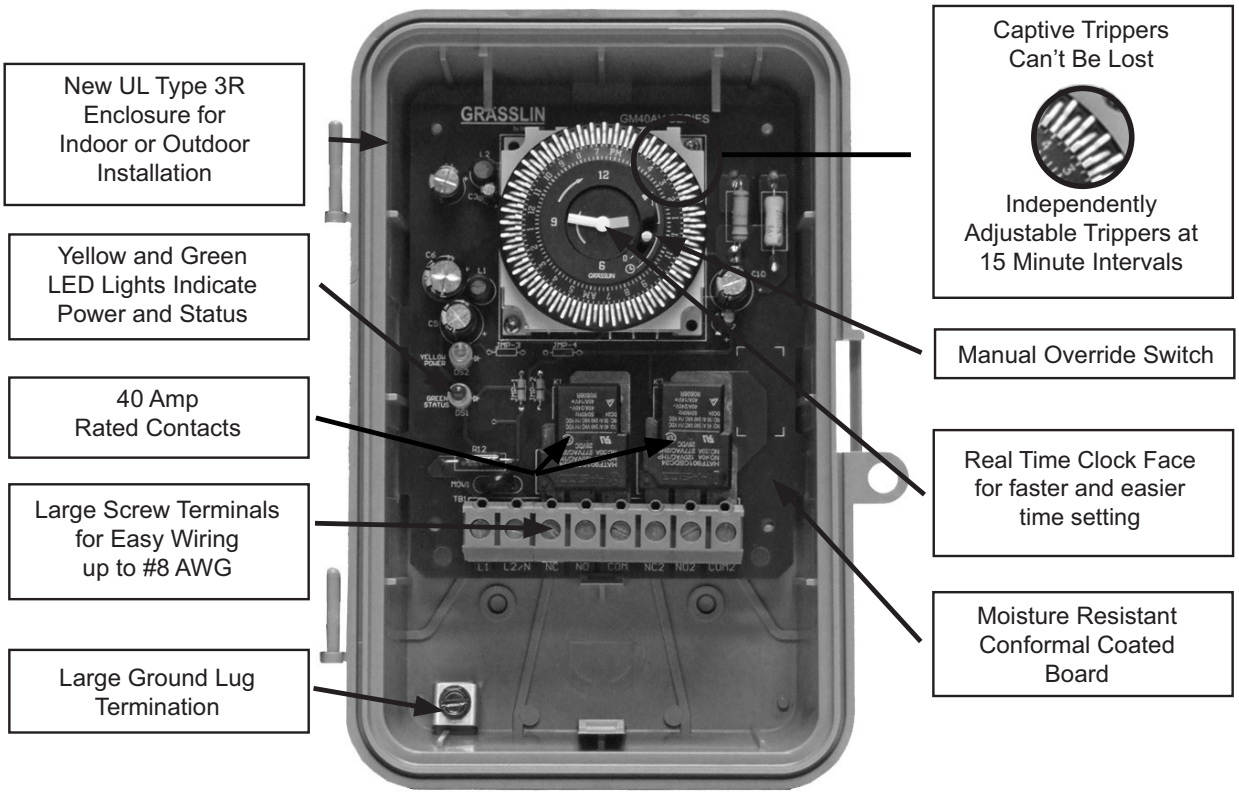
APPLICATION

The GM40AV Series Time Controls are universal, electronic time switches designed for general purpose commercial applications. The control operates on any AC voltage from 120VAC to 277VAC. The mechanism is mounted in an enclosure and has been designed for the control of lighting, heating, air conditioning, pumps, motors, or general electrical circuits in residential, commercial, industrial and agricultural facilities.

SPECIFIERS GUIDE

Furnish and install an Intermatic GM40AV Auto-Volt Series with 24 hour mechanical timer. The Auto-Volt input voltage range shall be 120VAC to 277VAC. All units shall incorporate two isolated sets of SPDT contacts that are each rated at 40A, 2 HP @ 277V. LED indicators shall provide Power and Status feedback. Enclosure shall be UL Type 3R, suitable for indoor or outdoor installation.

Automatic Voltage Selection From 120 VAC to 277 VAC

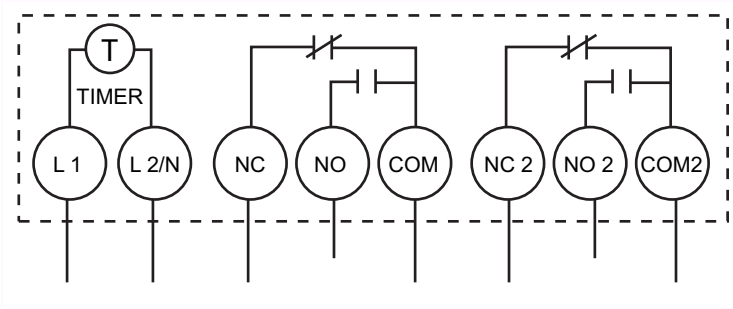


Interior protective cover and door not shown

⚠ WARNING

This Time Switch is designed to control one or two single phase loads. Do Not use to directly control three phase loads. Consult a qualified electrician if you are required to control three phase equipment.

GM40AV SERIES TERMINAL DESIGNATIONS

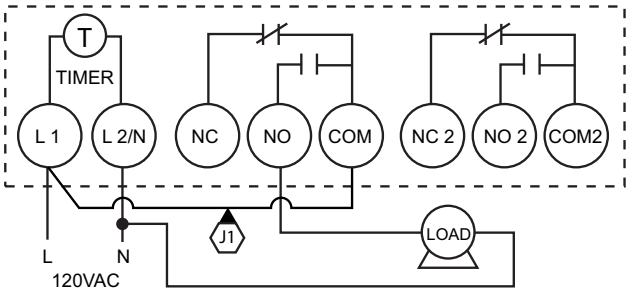


NOTICE

- The circuit conductors shall have an ampacity not less than the maximum total load to be controlled.
- For all connections, use min. 8 AWG wire for 40 A loads or 10 AWG for 30 A loads, min. 90 ºC (194 ºF) rating.
- Over current protection shall have an interrupting rating sufficient for the application control circuit voltage and the total load current of the equipment being controlled.
- A fuse or circuit breaker shall be connected in series with each ungrounded conductor (and shall be able to simultaneously open each conductor).
- Jumper wires are not included.

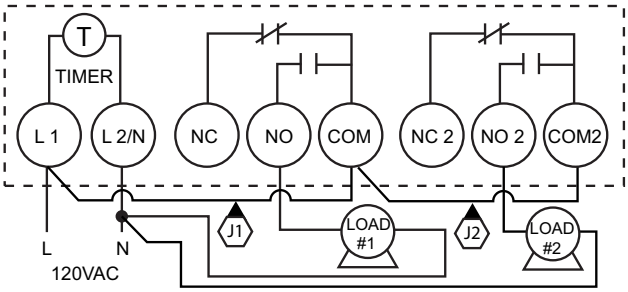
GM40AV SERIES TYPICAL WIRING DIAGRAMS

120 VAC One Load



When the GM40AV is used to control a single phase 120 VAC load, connect a jumper wire (J1) between L1 and COM.

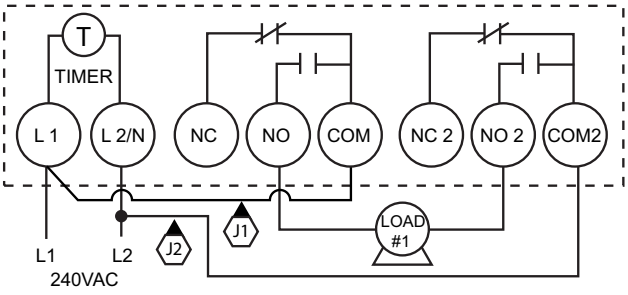
120 VAC Two Loads



When the GM40AV is used to control two single phase 120 VAC loads, connect a jumper wire (J1) between L1 and COM and connect a second jumper wire (J2) between COM and COM2.

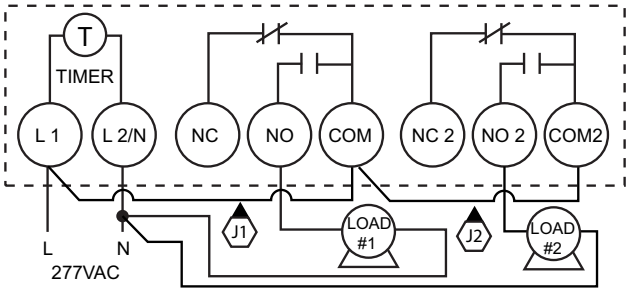
NOTICE! *Make sure that the combined amperage of Load 1 and Load 2 do not exceed the limits of the feed circuit.*

240 VAC One Load



When the GM40AV is used to control a single phase 240 VAC load, connect a jumper wire (J1) between L1 and COM and connect a second jumper wire (J2) between L2 and COM2.

277 VAC Two Loads



When the GM40AV is used to control two single phase 277 VAC loads, connect a jumper wire (J1) between L1 and COM and connect a second jumper wire (J2) between COM and COM2.

NOTICE! *Make sure that the combined amperage of Load 1 and Load 2 does not exceed the limits of the feed circuit.*

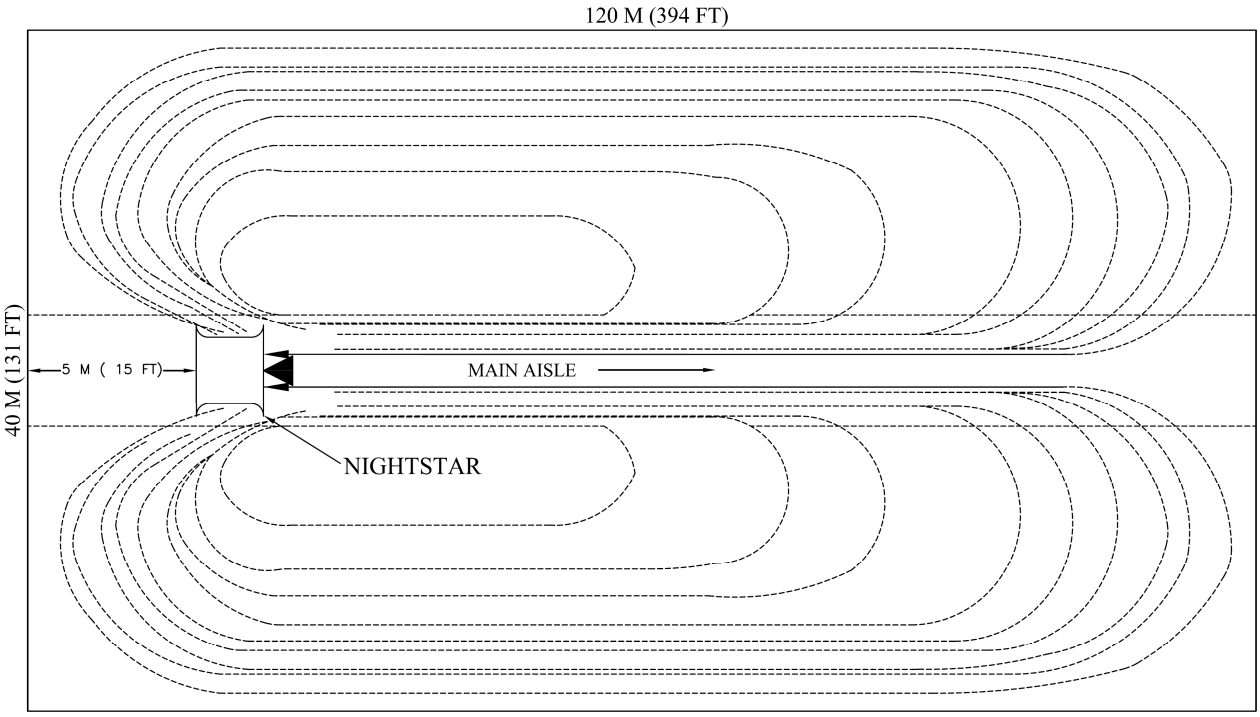
GM40AV SERIES TROUBLESHOOTING GUIDE

⚠ WARNING

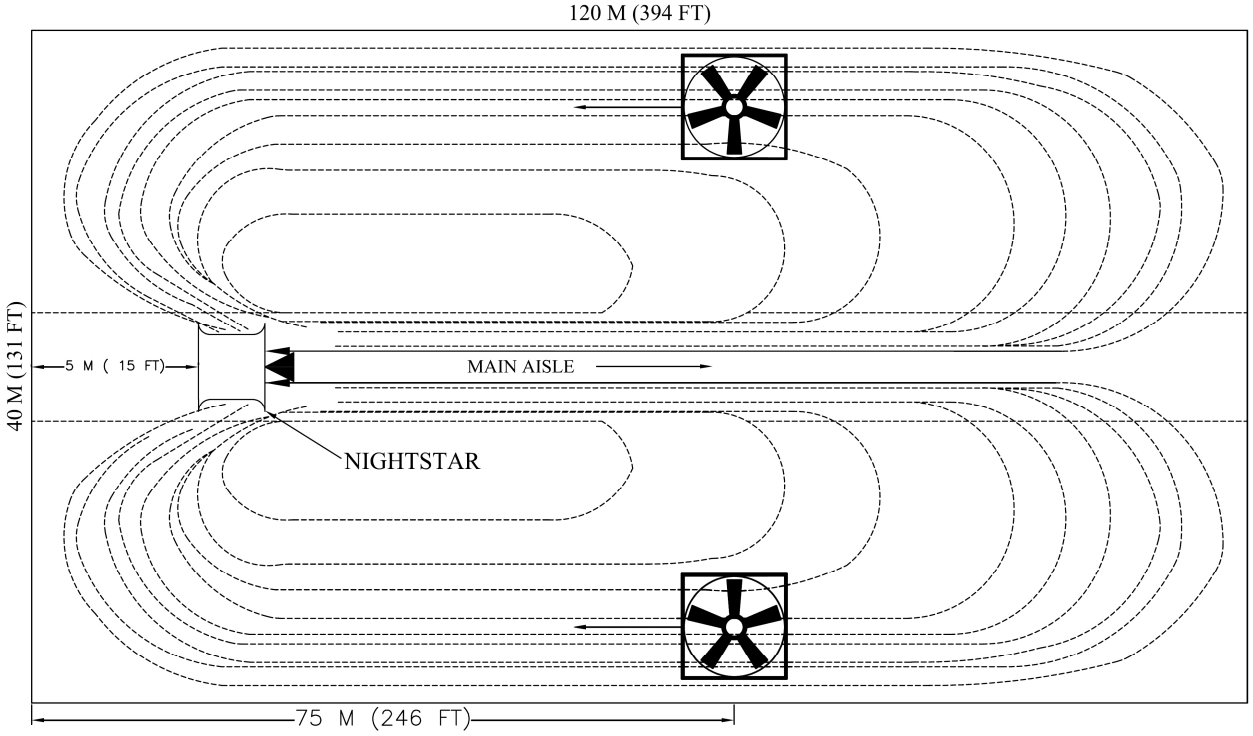
- **Some terminals in the Time Switch may be energized even if the yellow and green LED indicators are OFF.**
- **Check all terminals and wires with an appropriate voltage checker before touching.**

PROBLEM: LOAD (Lights/Pumps/Motors, etc) will NOT turn ON or OFF

1. Verify that all wiring connections are correct. (Refer to wiring diagrams on page 3)
2. Check the YELLOW Power LED. If ON, it indicates that power is applied to the GM40AV.
3. Slide the Manual Override Switch to the upper [ON] position. If wired for use, the loads connected to terminals (NO) or (NO2) should turn ON.
   NOTE: Check for correct voltage at terminals (NO) and/or (NO2).
4. Slide the Manual Override Switch to the lower [OFF] position. If wired for use, the loads connected to terminals (NO) or (NO2) should turn OFF.
   NOTE: Check that there is no voltage detected at terminals (NO) and/or (NO2).
5. Verify that the trippers are correctly positioned for the desired ON and OFF times. Slide the Manual Override Switch to the middle position for automatic time switching.



RECOMMENDED MACHINE POSITION WITHOUT AUXILIARY FAN(S)



RECOMMENDED AUXILIARY FAN POSITION

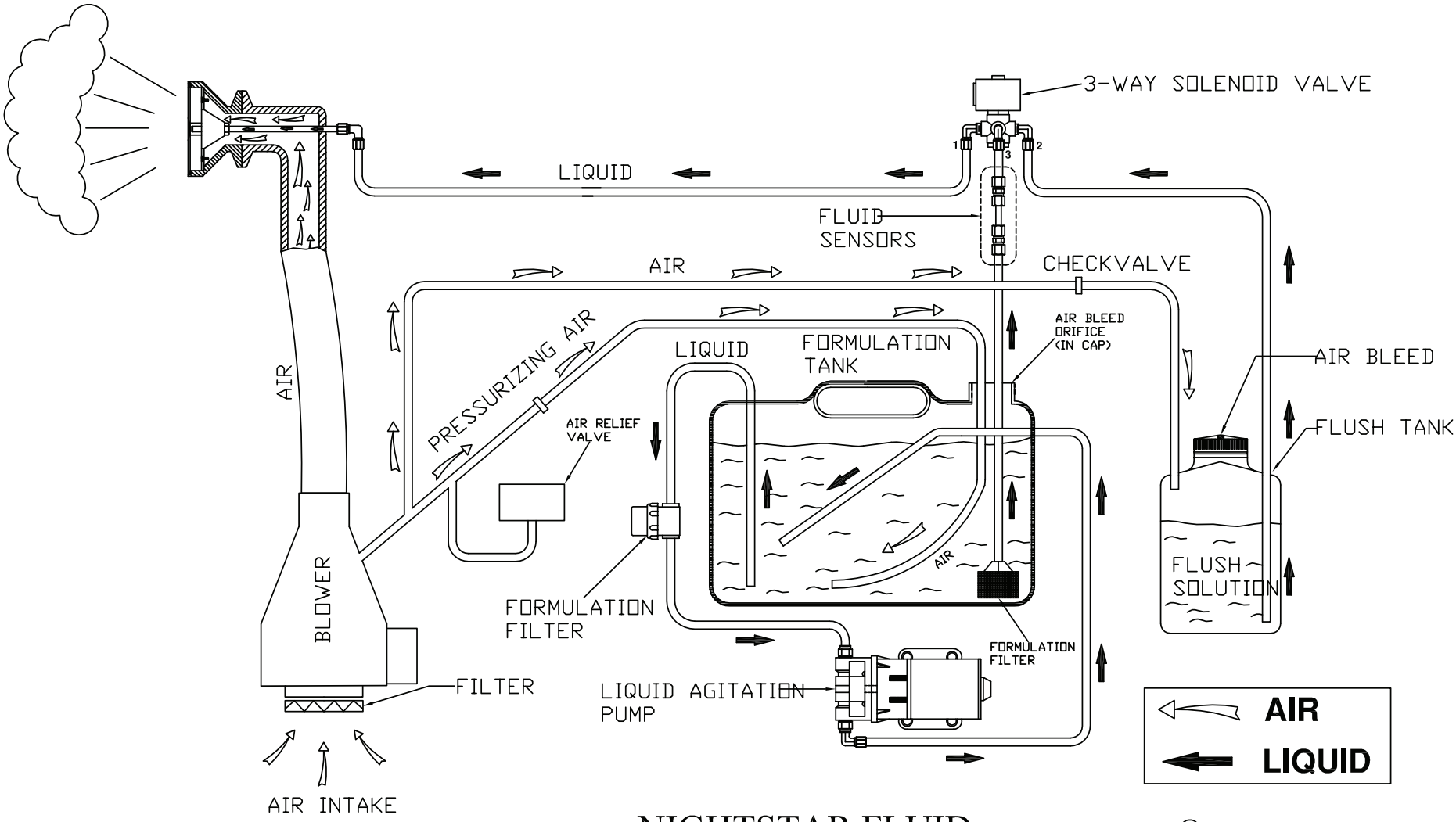


FIGURE 2 NIGHTSTAR FLUID SYSTEM DIAGRAM

CURTIS DYNA-FOG Ltd.
"Innovators of Spraying and Fogging Technology Since 1947"
www.dynafog.com

PREVENTATIVE MAINTENANCE SCHEDULE

MAINTENANCE OPERATION	AFTER EACH APPLICATION	EVERY 8 HRS. OF OPERATION	EVERY 25 HRS. OF OPERATION	EVERY 100 HRS.
CLEAN NOZZLE			▲	
FLUSH FLUID SYSTEM	▲			
CLEAN FAN INTAKE GUARD			▲	
CLEAN BLOWER AIR INTAKE FILTER			▲	
CLEAN 3-WAY SOLENOID VALVE				▲
CLEAN FORMULATION TANK FILTER			▲	
CLEAN PUMP INTAKE FILTER (OPTIONAL)			▲	
INSPECT AIR BLEED HOLE IN FORM. CAP		▲		

NOTE:
THESE INTERVALS REPRESENT AN APPROXIMATE TIME PERIOD FOR PERFORMING THE PREVENTATIVE MAINTENANCE SHOWN. DEPENDING ON OPERATING ENVIRONMENT CONDITIONS, IT MAY BE NECESSARY TO PERFORM EACH OPERATION MORE OR LESS FREQUENTLY THAN WHAT IS SHOWN.

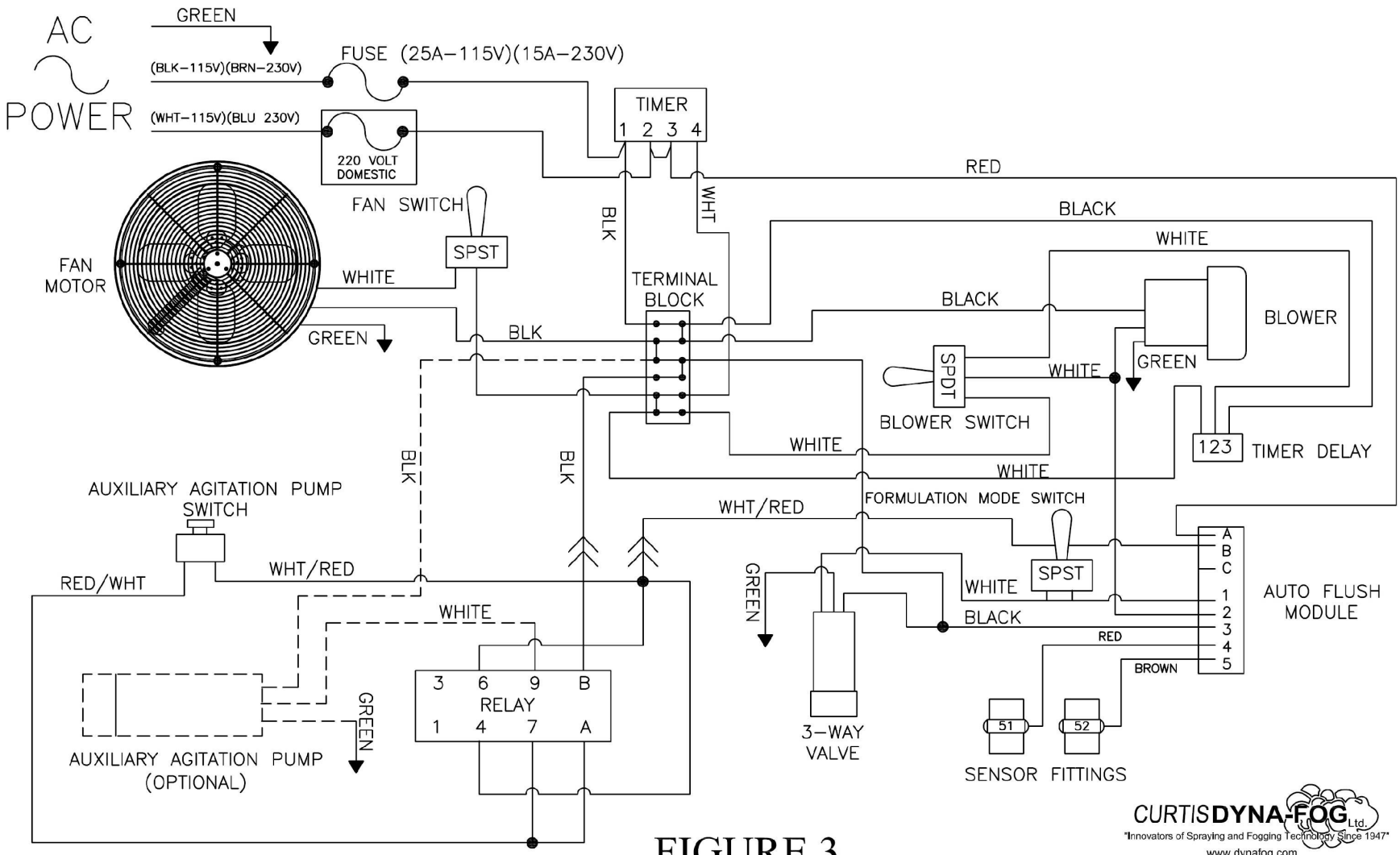


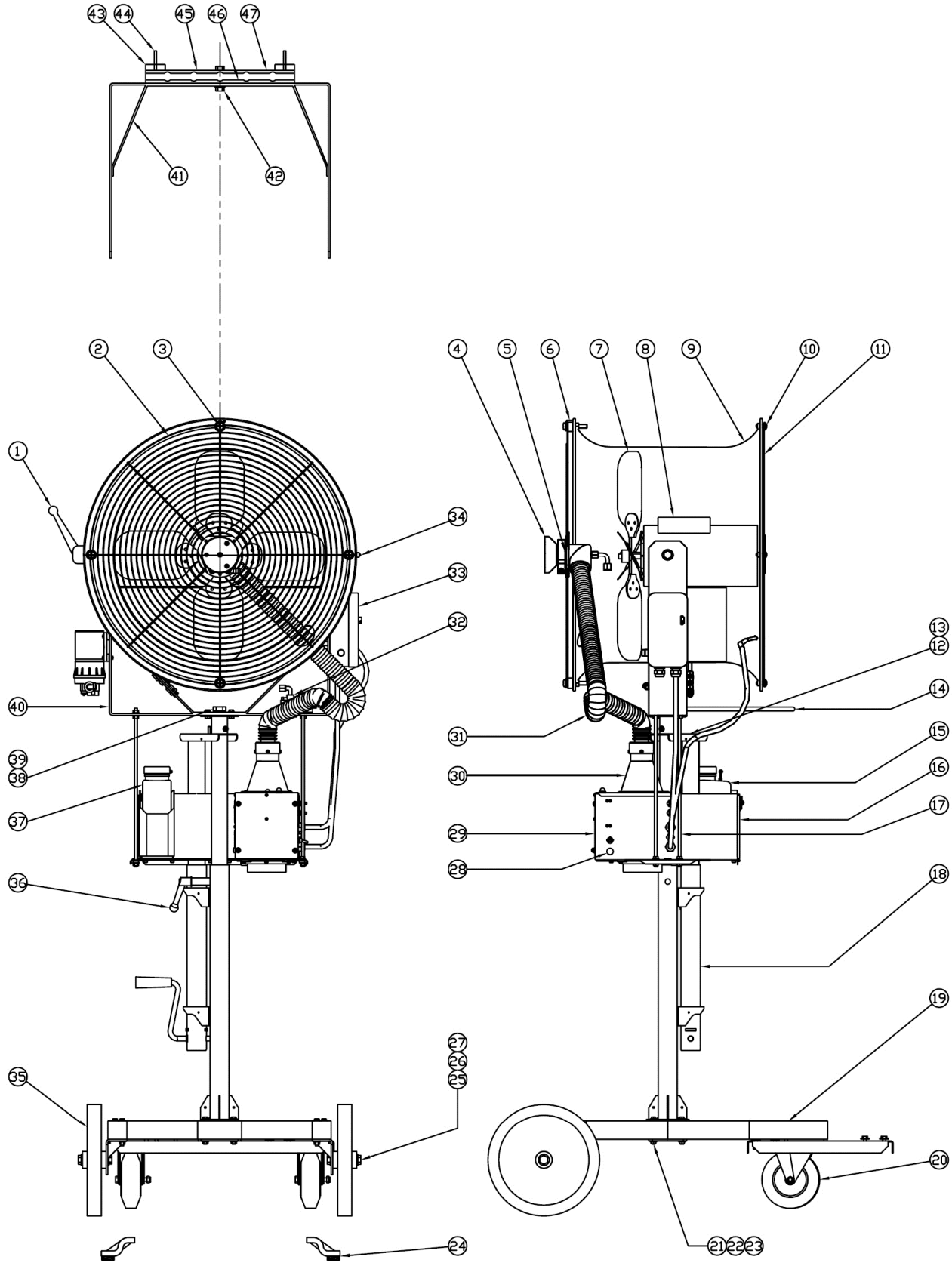
FIGURE 3

NIGHTSTAR ELECTRICAL WIRING DIAGRAM

11.0

TROUBLESHOOTING TIPS

SYMPTOM	PROBABLE CAUSE	CORRECTIVE ACTION
1. LOW OUTPUT	LOOSE TANK CAP	TIGHTEN CAP
	NO ORIFICE IN CAP	INSTALL PROPER ORIFICE
2. NO SPRAY OUTPUT	CAP NOT ON TANK	INSTALL CAP
	FORMULATION TANK EMPTY	ADD FORMULATION
	MACHINE IN AUTO FLUSH MODE	TURN MACHINE “OFF” THEN BACK “ON” TO RESET
	FLUID FLOW PATH PLUGGED	REMOVE TUBING AND CHECK FOR BLOCKAGE
		CHECK 3-WAY VALVE PORTS…BUTTON ON TOP OF VALVE MANUALLY OPENS AND CLOSES FLUSH PORT.
3. ERRATIC SPRAY	AIR IN FLUID LINE	TIGHTEN ALL FLUID TUBE FITTINGS, CHECK TUBING FOR CUTS
4. BLOWER OR FAN DOES NOT RUN AT STEADY SPEED, 3-WAY VALVE CHATTERS	MACHINE IS WIRED TO AN INADEQUATE POWER SUPPLY	CHECK VOLTAGE AT PLUG SHOULD BE 110-120V FOR 115V AC MODLES, OR 208-245V FOR 240V AC.
		CHECK FOR PROPER EXTENSION CORD RATING
5. FAN MOTOR DOES NOT OPERATE	DEFECTIVE FAN ON/OFF SWITCH	REPLACE SWITCH
	DEFECTIVE MOTOR	REPLACE MOTOR
6. BLOWER DOES NOT OPERATE	WORN BRUSHES	REPLACE BRUSHES BY REMOVING ITEM 2 FIGURE 6, PAGE 23
		CLEAN BLOWER AIR INTAKE FILTER
7. AUTO FLUSH DOES NOT ENGAGE WHEN FORMULATION TANK EMPTIES	DIRTY FLOW SENSOR	REMOVE FLOW SENSOR SCREWS AND CLEAN
	AUTO FLUSH MODULE	REPLACE MODULE

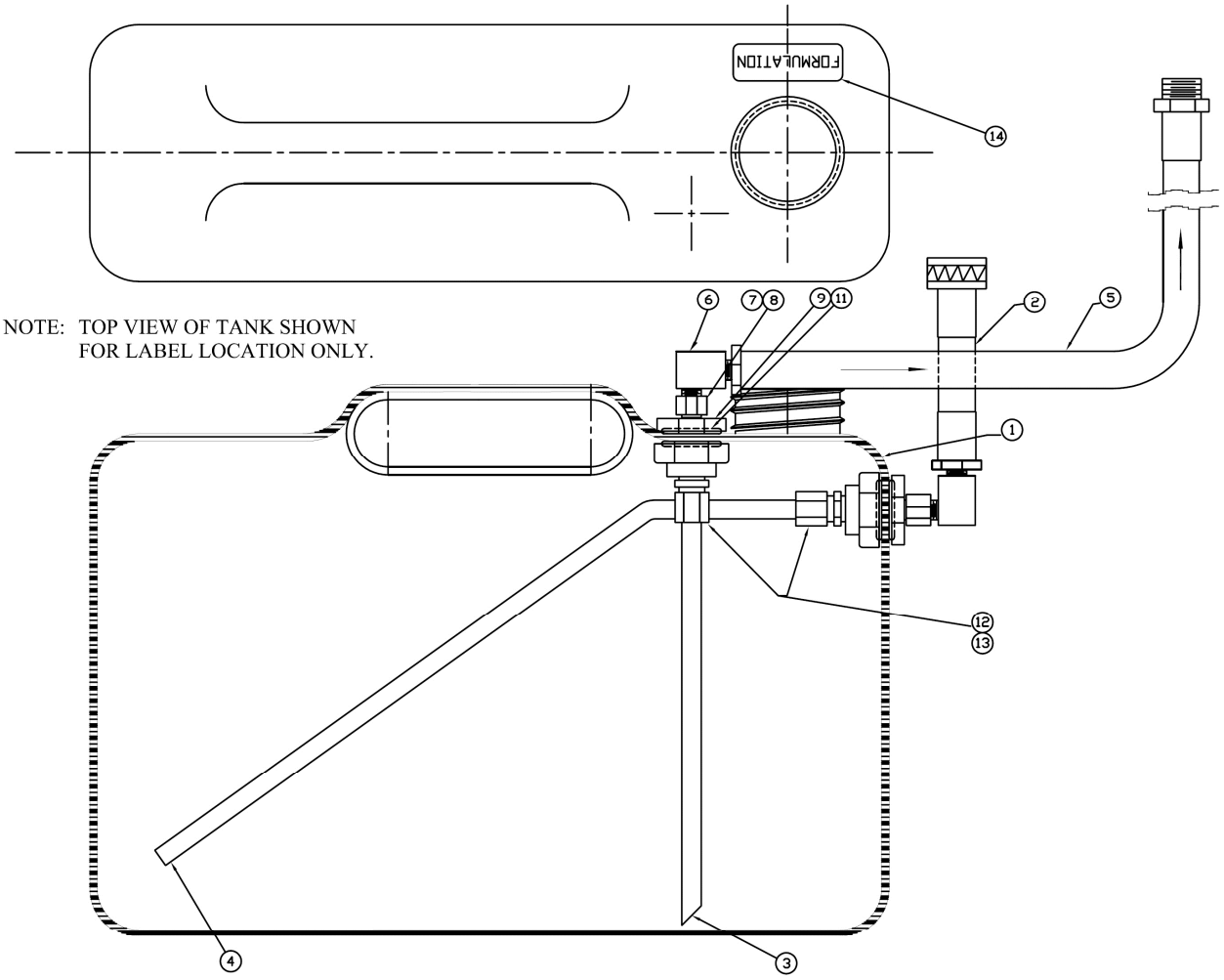


CURTIS DYNA-FOG Ltd.
"Innovators of Spraying and Fogging Technology Since 1947"
www.dynafog.com

MACHINE ASSEMBLY DIAGRAM

MACINE ASSEMBLY DIAGRAM (FIGURE 4)

ITEM	PART NO.	DESCRIPTION
1.	64217-2	LOCKING HANDLE (FEMALE)
2.	64126-5	GUARD, NOZZLE MOUNTING
3.	160564	SCREW
4.	64159	NOZZLE AY., NIGHTSTAR
5.	64129	ELBOW AY., OUTPUT
6.	64119	SPACER, GUARD
7.	64126-6	FAN BLADE AY.
8.	64126-3	MOTOR 115V
	64126-4	MOTOR 230V
9.	64126-8	HOUSING FAN
10.	157728	SCREW
11.	64126-7	GUARD, INLET
12.	64164	BEARING, PIVOT
13.	435610	SCREW, #4-40x3/8
14.	64123	TUBE, HANDLE
15.	64152	TANK AY., FORM.
16.	64131	HOUSING AY., COMP (WELD)
17.	64109	ROD, THREADED
18.	64162	POST/JACK AY.
	64192	POST AY., CENTER (WELDED) (T)
19.	64137	FRAME AY., WELDED
20.	64225	CASTOR, LOCKING, SWIVEL
21.	122207	BOLT 3/8-16 X 3.0
22.	120382	WASHER, LOCK ¾
23.	120388	WASHER, FLAT, 3/8 REG.
24.	64538	FOOT AY. (FRONT)
25.	9424264	WASHER, LOCK ¾
26.	220086	NUT, HEX 3/10-10
27.	433499	BOLT, ¾-10 X 5.0
28.	64186	FOOT AY. (REAR)
29.	64189-1	TOP COVER AY. (115V)
	64189-2	TOP COVER AY. (230V)
30.	64143-1	BLOWER HOUSING AY. (115V.)
	64143-2	BLOWER HOUSING AY. (230V)
31.	62431-3	FLEX HOSE
32.	64571-1	VALVE AY., 3/WAY (115V)
	64571-2	VALVE AY., 3/WAY (230V)
33.	64146-1	TIMER AY., (115V)
	64146-2	TIMER AY., (230V)
34.	9419455	NUT/NYLOCK
35.	64220	WHEEL, 12.00”
36.	64217-1	HANDLE, LOCKING (MALE)
37.	64151	TANK AY., FLUSH
38.	428193	BOLT
39.	121574	WASHER, SPLIT
40.	64128-1	CLEVIS, LOWER (WELDED)
41.	64179	HANGER AY.
42.	428781	BOLT
43.	64539	PAD
44.	64180	U-BOLT
45.	62864-1	WASHER
46.	62557	RUBBER PAD
47.	64516	SWIVEL BASE

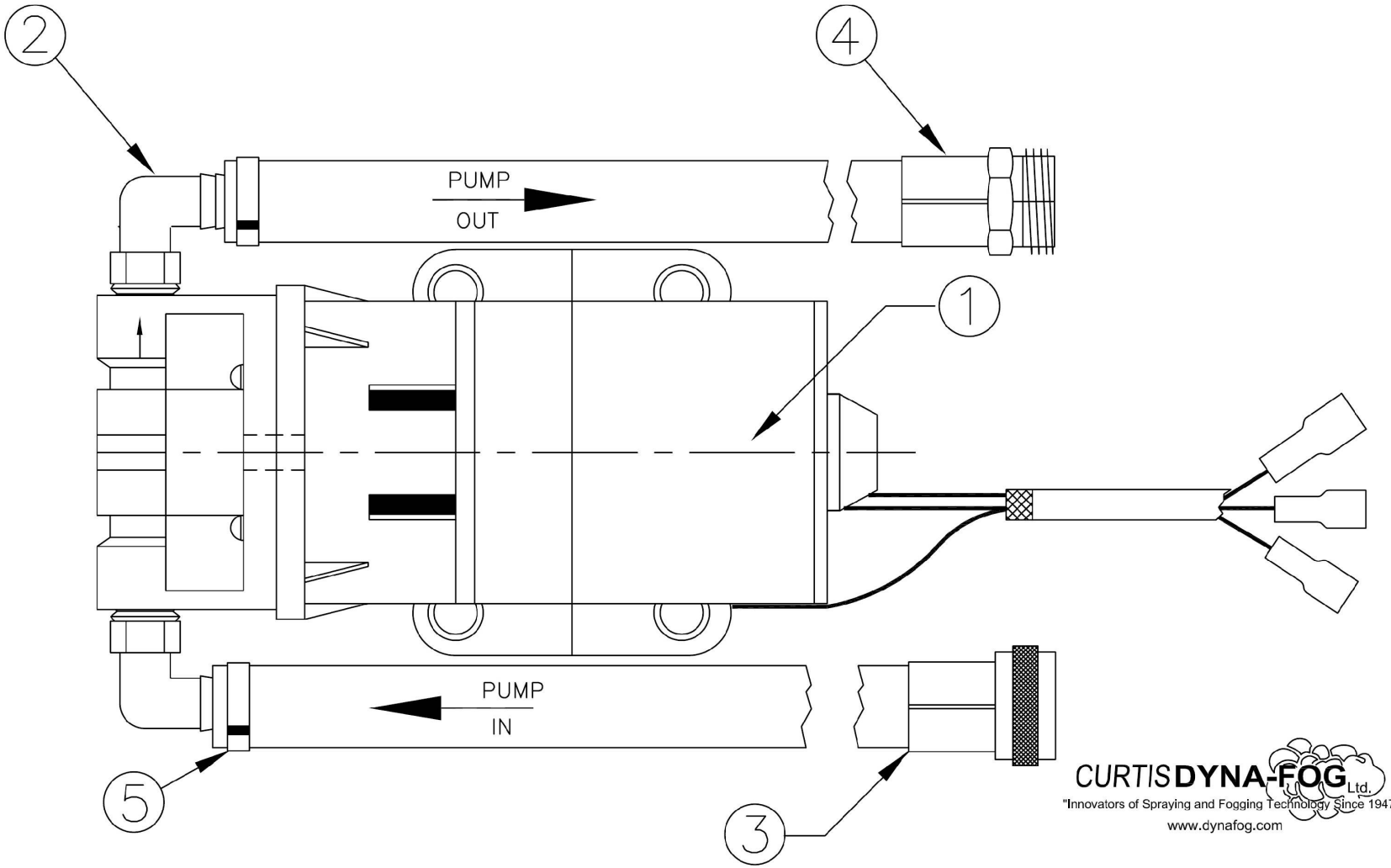


NOTE: TOP VIEW OF TANK SHOWN
FOR LABEL LOCATION ONLY.

VIEW SHOWN WITH WALL OF TANK REMOVED FOR CLARITY

ITEM	QTY.	PART NUMBER	ITEM DESCRIPTION
14	1	A63094	LABEL, FORMULATION
13	2	B62550-3	NUT,.375,STEEL GRIP
12	2	A64197	CONN.(MOD)1/4MP-3/8
11	4	10200-120	O'RING, AFLAS
10			
9	2	B64588-1	BULKHEAD FITTING,PP, (MACH.)
8	2	A45745	SLEEVE, 3/8 BRASS
7	2	A45744	NUT,COMPR,3/8TUBE
6	2	A64474	ELBOW,1/4 FPT-3/8 T
5	1	B64533	HOSE AY., TANK OUT
4	1	D64182	TUBE,AGITATION
3	1	D64181	TUBE,PICK-UP AGIT.
2	1	B64536	HOSE AY., TANK IN
1	1	C64537	TANK, 3 GAL.(MOD)

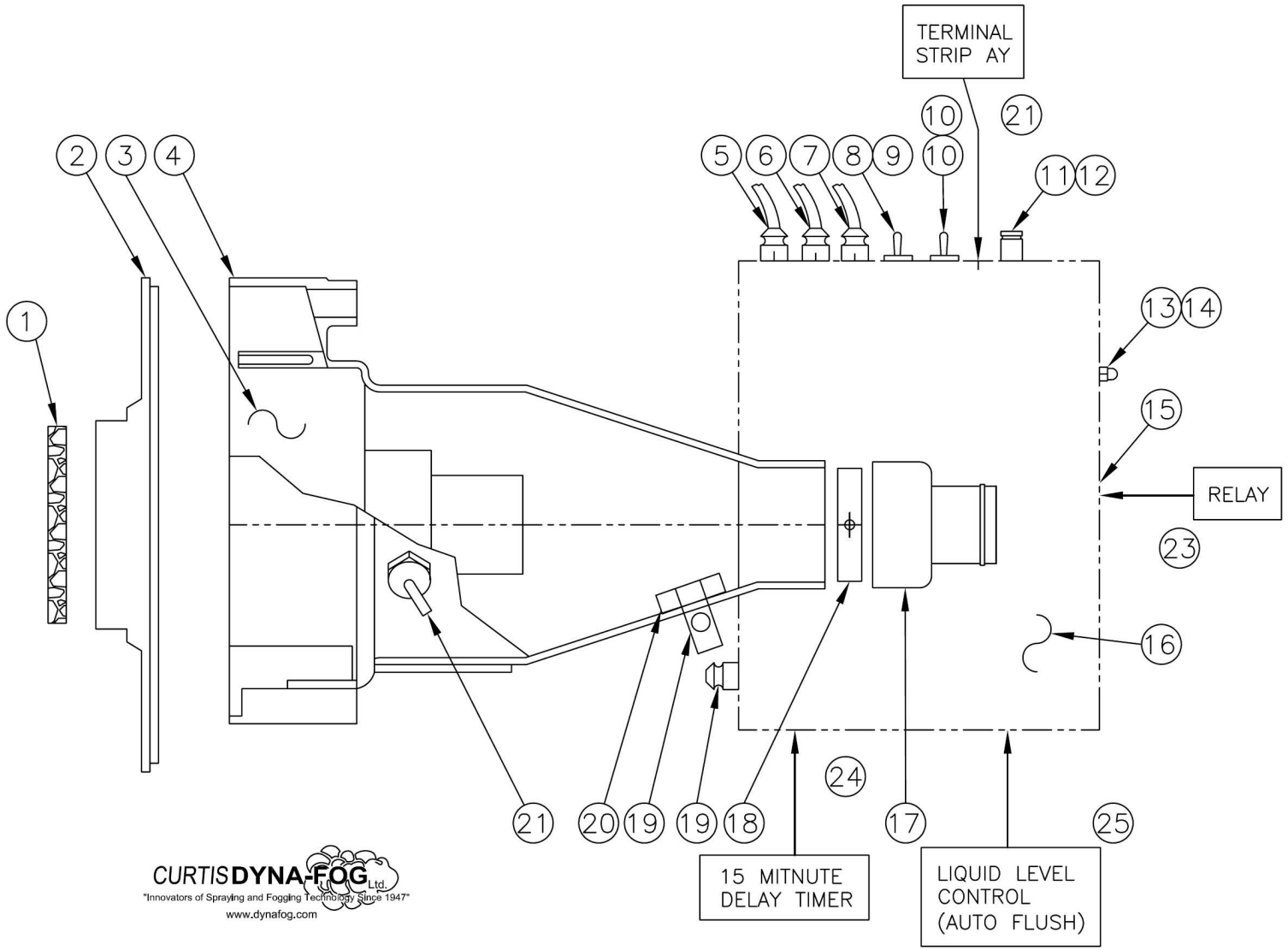
TANK AY., FORM/AGITATION
P/N D-64152



PUMP ASSEMBLY

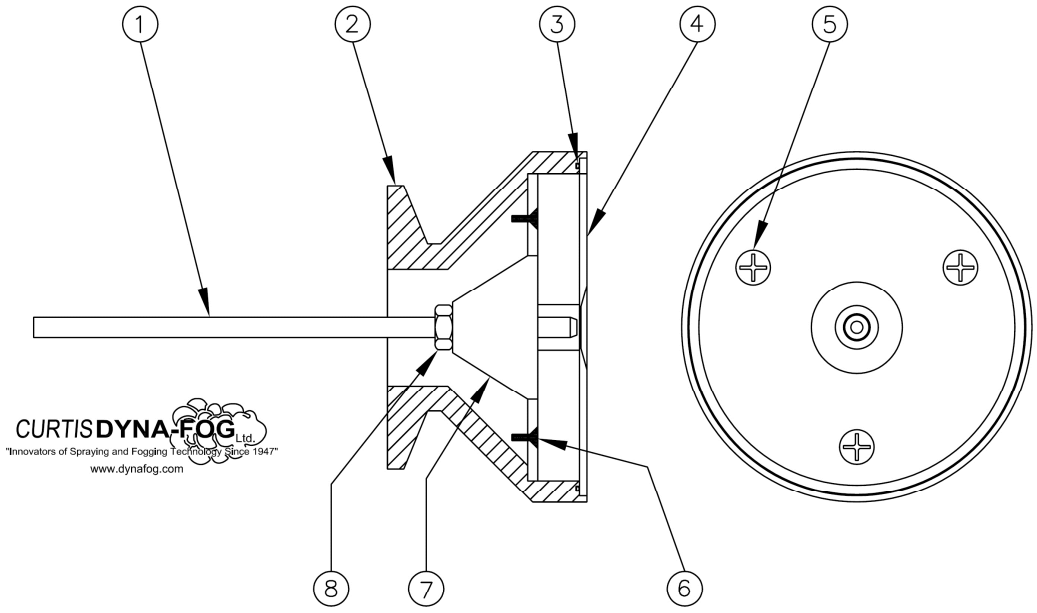
P/N C64592-1 (115 V.)
P/N C64592-2 (230 V.)

5	2	A21158-2	CLAMP, SNAP .800
4	1	B64535	HOSE AY. PUMP OUT
3	1	B64534-1	HOSE AY. PUMP IN
2	2	B64183	ELBOW,90 3/8 MP THREAD
1	1	SEE TAB	PUMP AY., ELECTRIC



BLOWER COMPARTMENT ASSEMBLY
FIGURE 6

ITEM NO.	PART NO.	DESCRIPTION
1.	62124	FILTER, AIR 3.875 DIA.
2.	62002-1	CLOSURE, HOUSING
3.	62309	BLOWER MOTOR, MODIFIED (115V)
	62340	BLOWER MOTOR (230 V)
4.	64144	BLOWER HOUSING (MACHINED)
		GASKET, MOTOR
5.	64191-1	CABLE AY., POWER CORD, 115V
	64191-2	CABLE AY., POWER CORD, 230V
6.	64147	CABLE AY., LIQUID CONTROL
7.	45933-1	STRAIN CONNECTOR
8.	64198-1	SWITCH, 3 POSITION
9.	64254	BOOT, TOGGLE SWITCH
10.	64198	SWITCH, 2 POSITION
11.	64167	FLUSH HOLDER
12.	64544	FUSE, 115V, 25 AMP.
	64545	FUSE, 230V, 15 AMP.
13.	64199	SWITCH, NORM. OFF, MOMEN
14.	64199-1	BOOT, SWITCH, PUSHBUTTON
15.	64117	TOP COVER (HOUSING)
16.	64131	HOUSING AY. COMPLETE (WELDED)
17.	63503-19	ADAPTOR, HOUSING/HOSE
18.	63507	SLEEVE, HOUSING
19.	22184	MALE RUN TEE
20.	74288	NOT, LOCKING, 1/8 NPSL
21.	20180-4	STRAIN RELIEF
22.	64552	TERMINAL STRIP AY.
23.	64519-1	RELAY, 115V. (OPT)
	64519-2	RELAY, 230V. (OPT)
24.	64518-1	TIMER, 15 MINUTE DELAY, 115V
	64518-2	TIMER, 15 MINUTE DELAY, 230V
25.	64305-1	LIQUID LEVEL CONTROL, 115V.
	64305-2	LIQUID LEVEL CONTROL, 230V.
NS	64575	RELIEF VALVE AY.

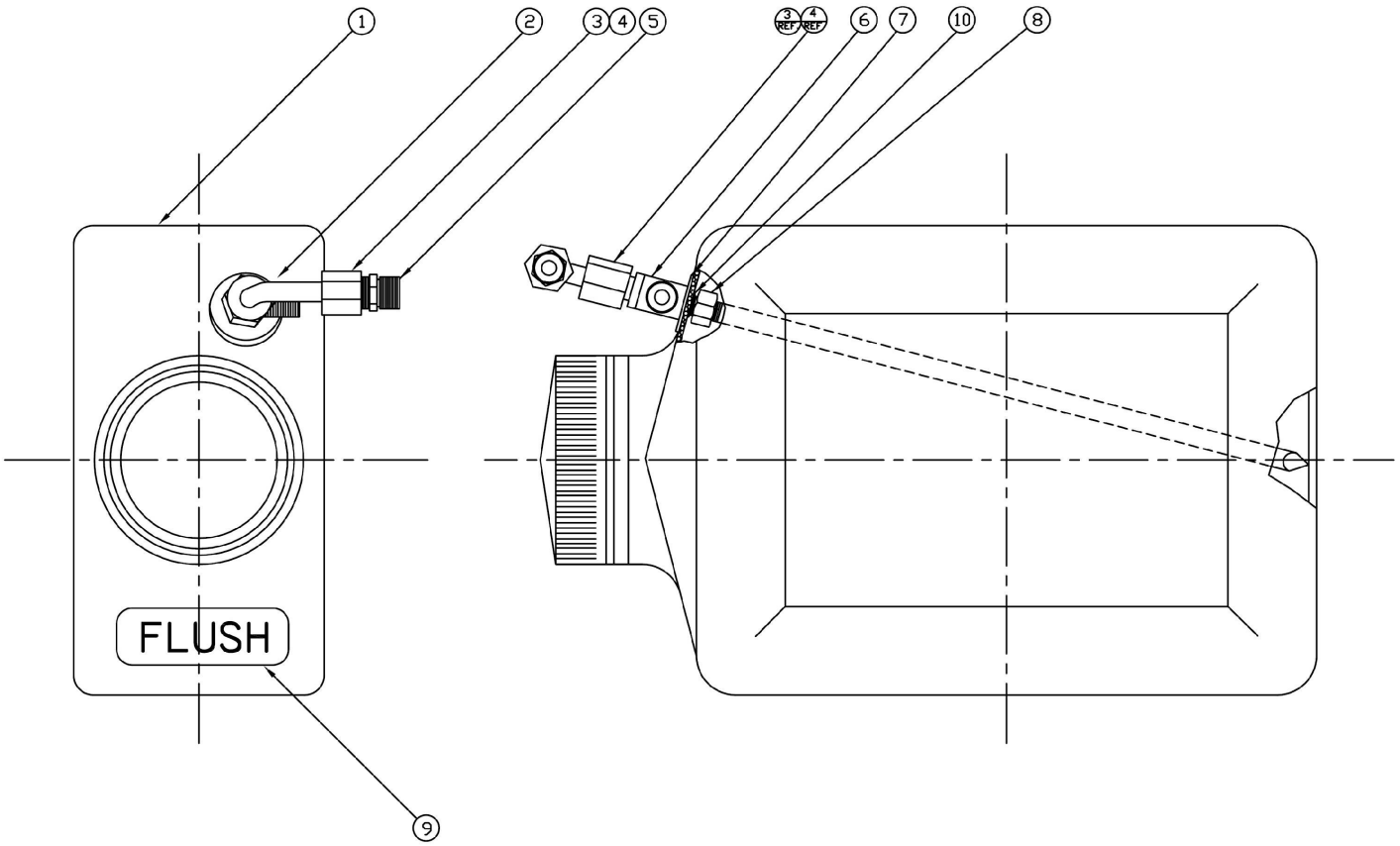


ULV NOZZLE ASSEMBLY DIAGRAM
PART NUMBER 64159
FIGURE 7

ITEM	PART NUMBER	ITEM DESCRIPTION
8	4229871	NOT, JAM 5/16–24
7	64601	CONE, NOZZLE, ANODIZED
6	64642	SCREW, #6–32 X 3/8 SSTL
5	64643	SCREW, #10–24 X 3/8, SST
4	64160	FACEPLATE, NOZZLE
3	10100–153	O'RING, 3.693 OD
2	64647	CLOSURE, HOUSING
1	64650–1	TUBE, NOZZLE SPRAY

14.0 TABLE 2
CONVERSION TABLES

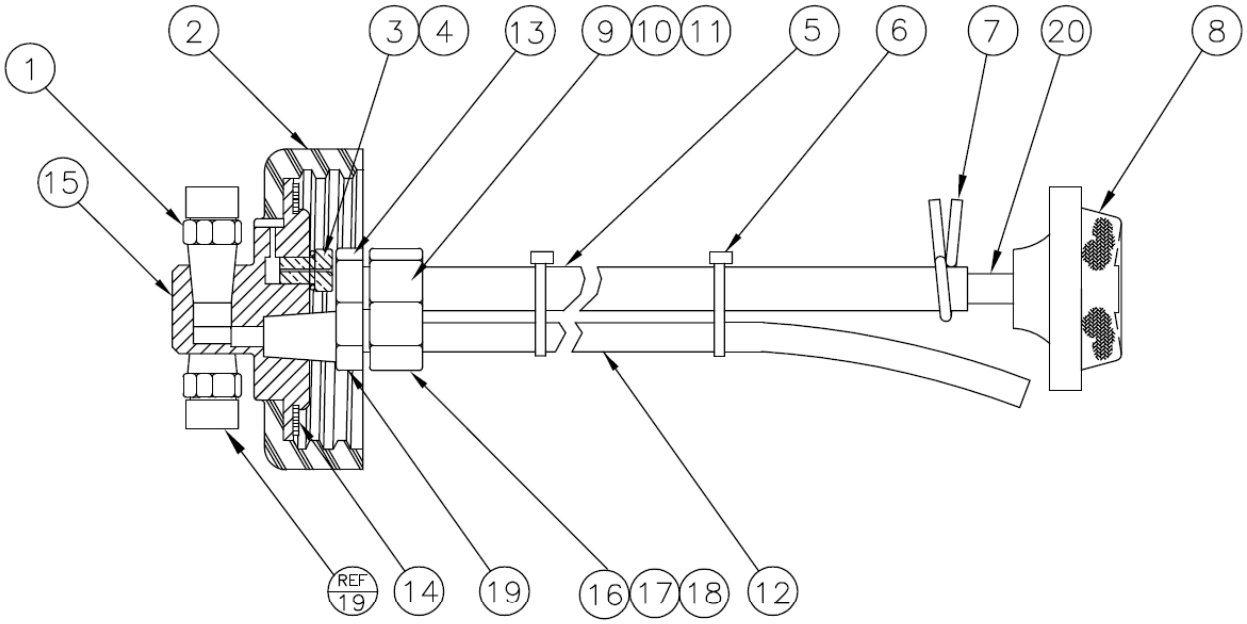
TO CONVERT	**TO**	**MULTIPLY BY**
MILLIMETERS	INCHES	.03937
CENTIMETERS	INCHES	.3937
METERS	FEET	3.281
SQUARE METERS	SQUARE FEET	10.764
SQUARE METERS	ACRES	.000247
CUBIC METERS	CUBIC FEET	35.31
GRAMS	OUNCES (FLUID)	.035
MILLILITERS	OUNCES	.0338
LITERS	US GALLONS	.264
KILOGRAMS	POUNDS	2.204



ITEM	QTY.	PART NUMBER	ITEM DESCRIPTION
10	1	B10100-12	O'RING
9	1	A62592	LABEL, FLUSH
8	1	A74288	NUT, LOCK, 1/8NPSL
7	1	A53131	WASHER, FLAT
6	1	A63092	MALE, RUN, TEE, MODIFIED
5	1	G441703	UNION, 1/4-1/4T
4	2	G114628	SLEEVE, 1/4 TUBE
3	2	G145463	NUT, 1/4 TUBE
2	1	B86648	STANDPIPE, FUEL
1	1	C86646-1	TANK, FUEL (MOD)

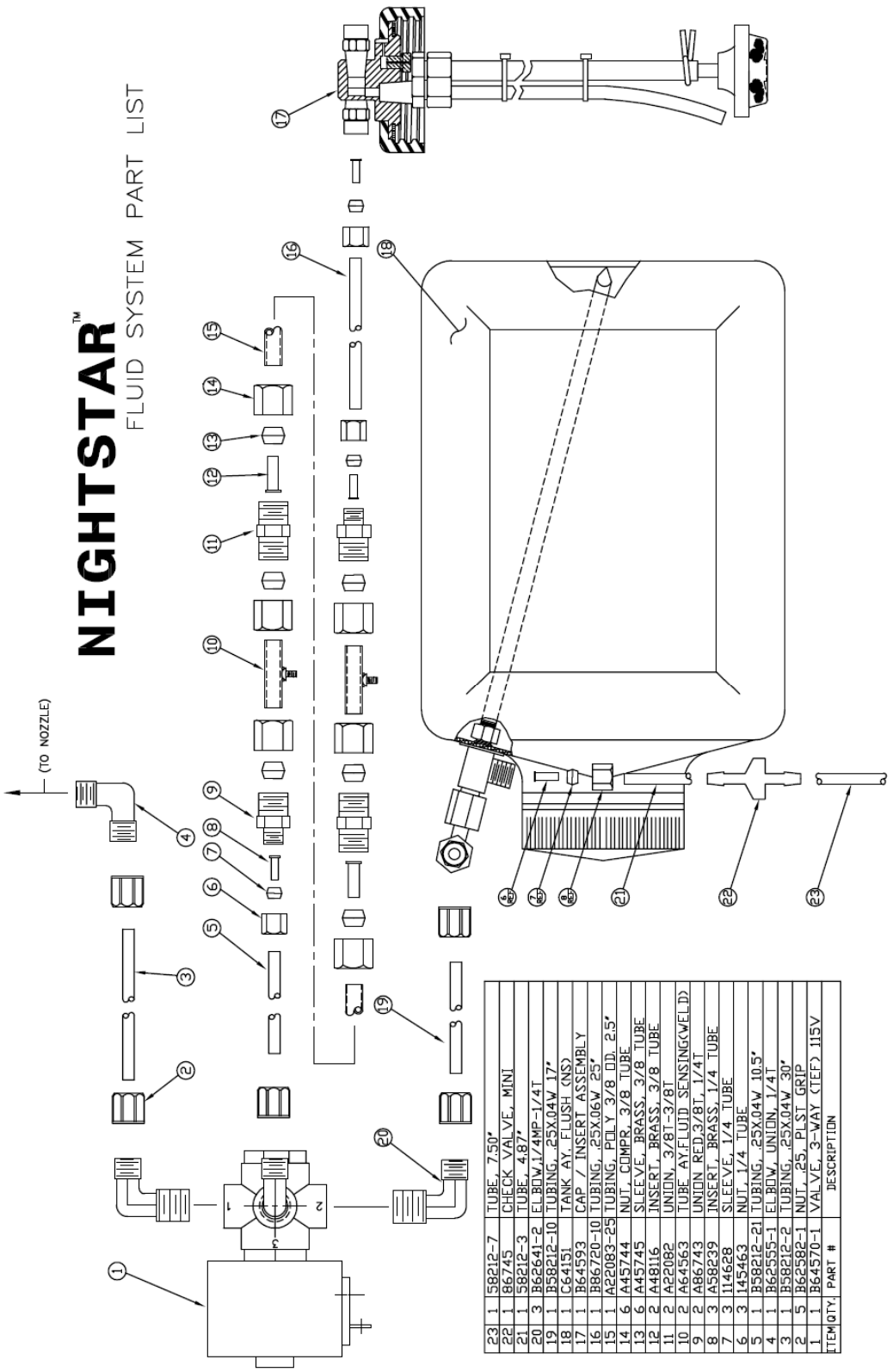
TANK AY., FLUSH P/N C-64151

CURTIS DYNA-FOG Ltd.
"Innovators of Spraying and Fogging Technology Since 1947"
www.dynafog.com



ITEM	QTY	PART NO.	ITEM DESCRIPTION
20	1	22116−1	PRESSURIZING TUBE, .25 O.D.
19	2	G441685	CONNECTOR, 1/8P−1/4T
18	1	G114628	SLEEVE, 1/4T
17	1	G145463	NUT, 1/4T
16	1	A58239	INSERT, BRASS 1/4
15	1	B43290	CAP INSERT
14	1	A22232	GASKET, VITON
13	1	A21170	CONNECTOR, 1/8−3/8T
12	1	B58212−5	TUBE, .25 X .042 W
11	1	A48116	INSERT, BRASS 3/8T
10	1	A45745	SLEEVE 3/8 BRASS
9	1	A45744	NUT COMP. 3/8T
8	1	A86643−1	FILTER, FORMULATION
7	1	A62030−1	CLAMP, HOSE .375
6	2	A20247	CABLE TIE
5	1	A22083−11	TUBING, POLY 3/8 OD
4	1	10200−8	"O"−RING
3	1	A64195−2	SCREW, BLEED, .035 (2)
2	1	B21010	CAP, FORMULATION
1	1	A64553−1	ORIFICE AY (.055)

CAP INSERT AY.
P/N: 64593



ITEM	QTY.	PART #	DESCRIPTION
23	1	58212-7	TUBE, 7.50"
22	1	86745	CHECK VALVE, MINI
21	1	58212-3	TUBE 4.87"
20	3	B62641-2	ELBOW,1/4MP-1/4T
19	1	B58212-10	TUBING, 25X.04W 17"
18	1	C64151	TANK AY. FLUSH (NS)
17	1	B64593	CAP / INSERT ASSEMBLY
16	1	B86720-10	TUBING, 25X.06W 25"
15	1	A22083-25	TUBING, POLY 3/8 OD, 2.5"
14	6	A45744	NUT, COMPR, 3/8 TUBE
13	6	A45745	SLEEVE, BRASS, 3/8 TUBE
12	2	A48116	INSERT, BRASS, 3/8 TUBE
11	2	A22082	UNION, 3/8T-3/8T
10	2	A64563	TUBE AY.FLUID SENSING(wELD)
9	2	A86743	UNION RED,3/8T, 1/4T
8	3	A58239	INSERT, BRASS, 1/4 TUBE
7	3	114628	SLEEVE, 1/4 TUBE
6	3	145463	NUT, 1/4 TUBE
5	1	B58212-21	TUBING, .25X.04W 10.5"
4	1	B62555-1	ELBOW, UNION, 1/4T
3	1	B58212-2	TUBING, 25X.04W 30"
2	5	B62582-1	NUT, .25, PLST GRIP
1	1	B64570-1	VALVE, 3-WAY (TEF) 115V

FLOJET

Model 2100
Industrial Series
Bypass Pump

PUMP INSTALLATION
MOUNTING

Flojet 2100 is a self-priming pump. It may be located several feet from the thank, above or below the liquid level (It is not a submersible pump.) For vertical pump mounting be sure that the motor is located on top. This will prevent water from entering the motor chamber in event of a leak. Pump head may be rotated in 90° increments to simplify plumbing.

PLUMBING

For best performance, flexible 3/8-inch minimum hose is recommended instead of rigid piping at the pump. *Use plastic fittings at the pump port. Brass fittings will break pump housing if over tightened.* Do not install pump such that plumbing causes excessive stress on either port.
It is essential that a 20 mesh strainer or filter be installed in the tank or in the pump inlet line to keep large foreign particles out of the system. The use of check valves in the plumbing system may interfere with the priming ability of the pump. Check valves, if used, must have a cracking (opening) pressure of no more than 2 psi.

ELECTRICAL

On 115 Volt AC pumps, the black wire lead is common, the white is neutral and green/yellow is ground. On 230 Volt AC pumps, the brown wire lead is common, the blue is neutral and the green/yellow is ground. Never connect the green (or green/yellow) wire to a live terminal On 12 and 24 Volt DV pumps, match red (+) and black (-) power leads with red and black leads on motor or switch.

OPERATION

Allow pump to prime with discharge line (or spray valve) open, to avoid airlock. Built-in bypass will allow the pump to bypass internally when discharge is restricted or closed and will stop bypassing when the discharge valve is open.
When liquid supply to pump is depleted pump will continue to operate. Running dry will not damage the pump. Turn off manually.
When the bypass type pump is allowed to run against a closed valve the internal bypass will automatically recirculate the flow within the pump at the preset bypass pressure.
Caution: The standard series pump is not equipped with a bypass or pressure switch. Allowed to run against a closed valve the excessive pressure developed by the pump will cause system or pump damage.

TROUBLESHOOTING
Failure to Prime-
Motor operates, but no pump discharge

- Restricted intake or discharge line. Open all line valves, check for "jammed" check valve poppets and clean clogged lines.
- Air leak in intake line.
- Punctured pump diaphragm.
- Defective pump check valve.
- Crack in pump housing.
- Debris in check valves.

Motor Fails to Turn On

- Pump or equipment not plugged in electrically. Loose wiring connection
- Defective motor or rectifier.
- Frozen cam/bearing.

Low Flow and Pressure

- Air leak at pump intake.
- Accumulation of debris inside pump and plumbing.
- Worn pump bearing (excessive noise).
- Punctured pump diaphragm.
- Defective rectifier or motor.
- Insufficient voltage to pump.

WARRANTY

FLOJET warrants this product to be free of defects in material and/or workmanship for a period of one year after purchase by the customer from FLOJET. During this one year warranty period, FLOJET will at its option, at no charge to the customer, repair or replace this product if found defective, with a new or reconditioned product, but not to include costs of removal or installation. No product will be accepted for return without a return material authorization number. All return goods must be shipped with transportation charges prepaid. This is only a summary of our Limited Warranty. For a copy of our complete warranty, please request Form No. 100-101.

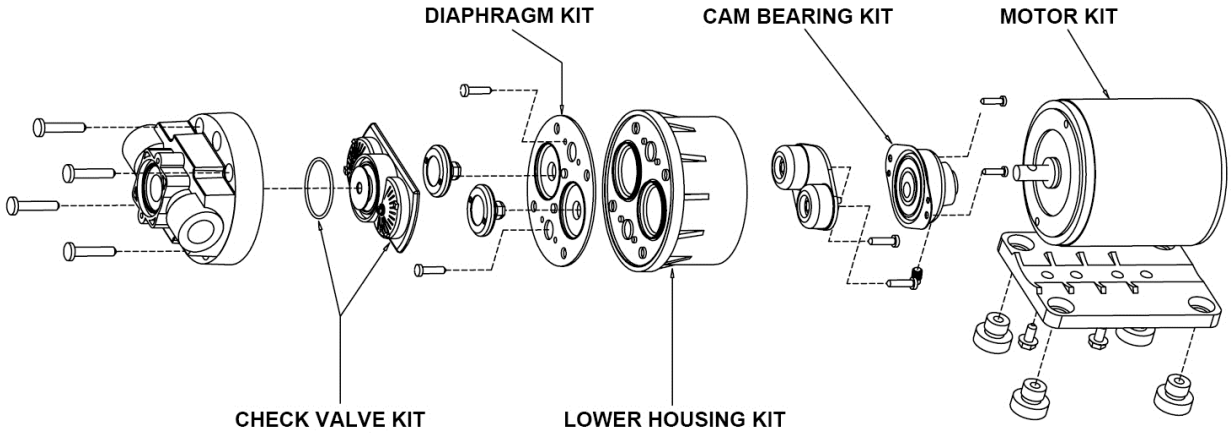
RETURN PROCEDURE

Prior to returning any product to FLOJET, call customer service for an authorization number. This number must be written on the outside of the shipping package. Place a note inside the package with an explanation regarding the reason for return as well as the authorization number. Include your name, address and phone number.

FLOJET

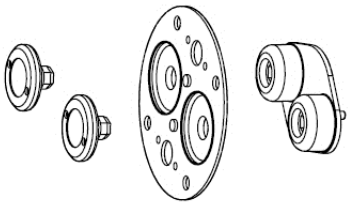
2100 SERIES SERVICE PARTS KIT LIST

Typical 2100 Series Assembly

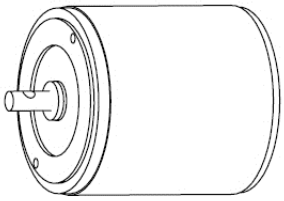


PARTS KIT DESCRIPTION

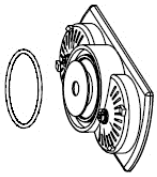
DIAPHRAGM KIT: DIAPHRAGM WITH INNDER AND OUTER PISTONS AND SCREWS



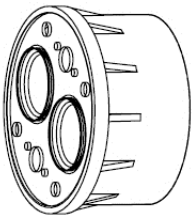
CHECK VALVE KIT: COMPLETE MOTOR ASSEMBLY

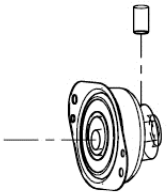


DIAPHRAGM KIT: WITH CAM, DIAPHRAGM AND PISTON ASSEMBLY



LOWER HOUSING KIT: WITH CAM, DIAPHRAGM AND PISTON ASSEMBLY



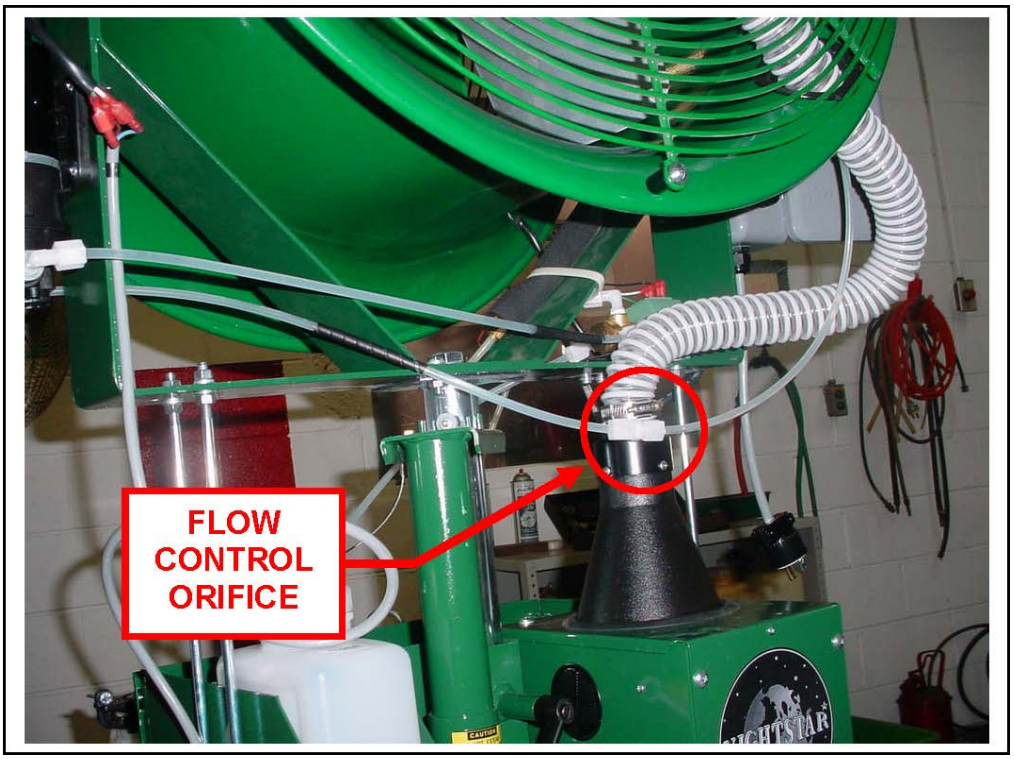


CAM BEARING KIT: CHECK VALVE ASSEMBLY AND "O" RING

IT IS RECOMMENDED THAT THE PUMP BE THOROUGHLY FLUSHED WITH WATER OR OTHER NEUTRALIZING AGENT AFTER EACH USE WHENEVER POSSIBLE

FOR NIGHTSTAR WITH OPTIONAL 15 GALON TANK

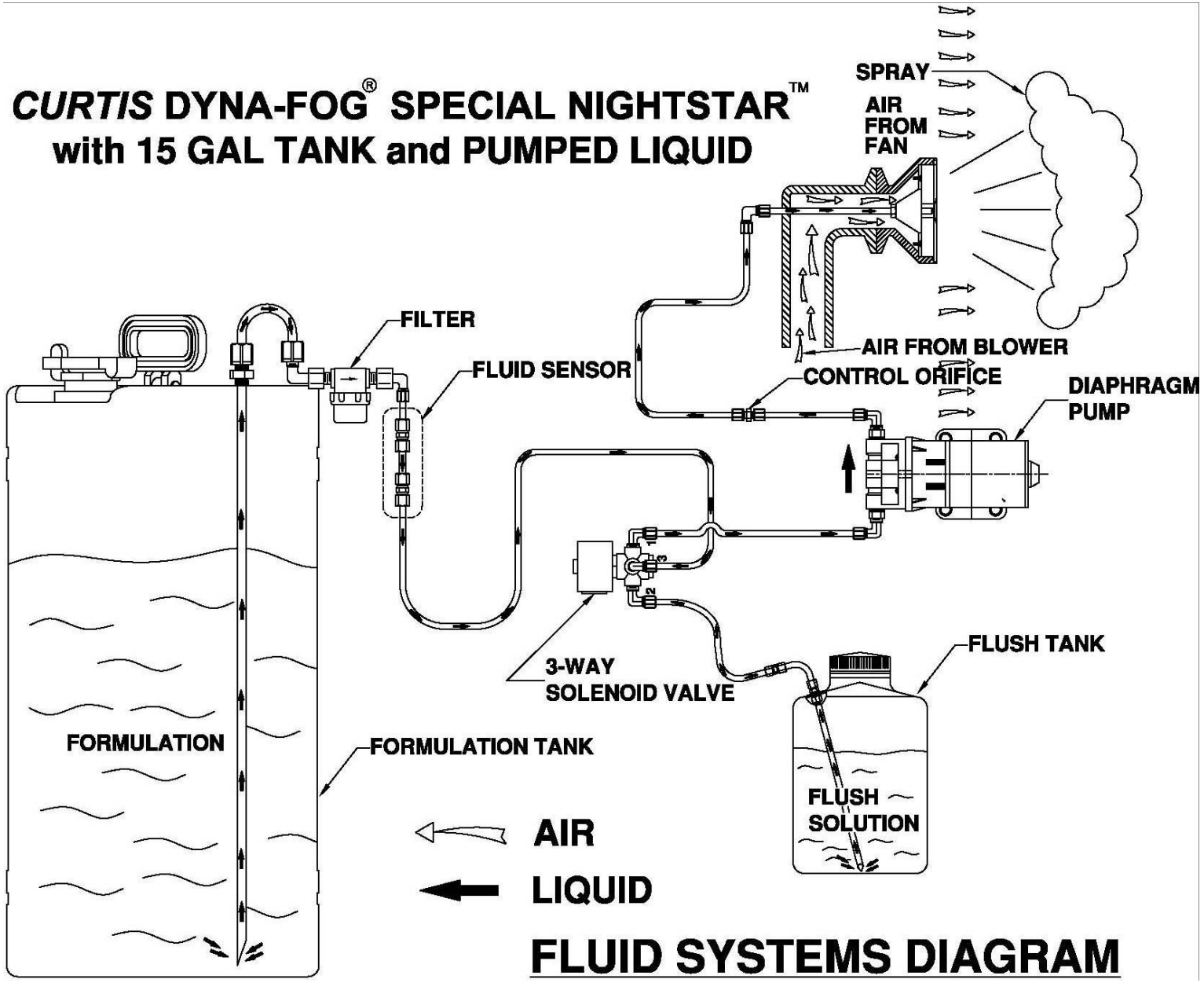
Your machine is a special modified version of the standard Night Star. It includes a vented 15 Gal formulation tank (with filter) with posts and SS plate mounted on the rear casters of the machine. The Diaphragm pump is the device to move the liquid from the formulation tank or from the flush tank to the nozzle. Please refer to the Fluid systems diagram included in this addendum. The flow rate is regulated with a Flow Control (restriction) orifice.

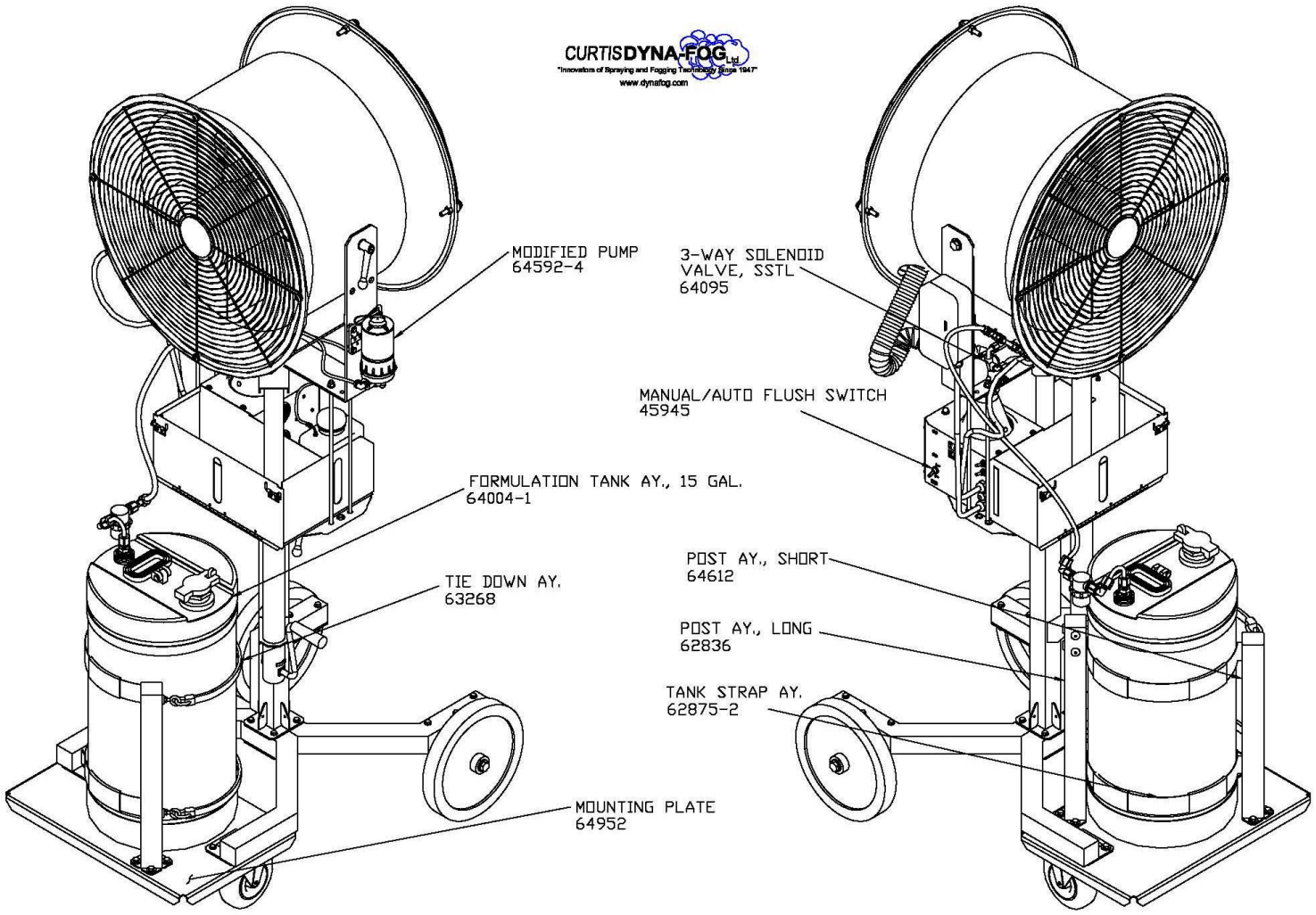


Location of the Flow Control Orifice

The machine is including two different sizes of Flow control orifices as following: Orifice **# 19** produces a Flow Rate of 140 ml/min (4.6 oz/min) for **Insecticide** Orifice # **24** produces a Flow Rate of 260 ml/min (8.7 oz/min) for **disinfectant** The orifice should be installed in the direction of the arrow stamped on it.

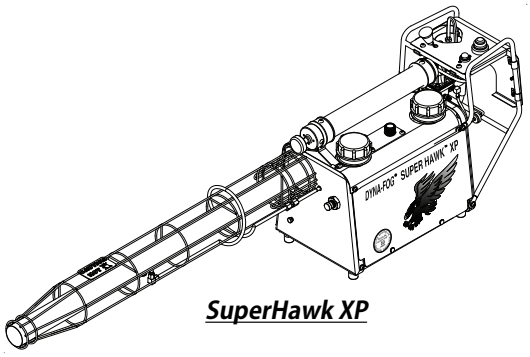
Reverse position will give different flow rate to the specified. The flow rate was obtained with a liquid with viscosity like water. Thicker formulations are going to be reduced in a small percentage the flow rate. The pump is activated/deactivated at the same time with the blower.


CURTIS DYNA-FOG® SPECIAL NIGHTSTAR™
with 15 GAL TANK and PUMPED LIQUID
SPRAY
AIR FROM FAN
FILTER
FLUID SENSOR
AIR FROM BLOWER
CONTROL ORIFICE
DIAPHRAGM PUMP
3-WAY SOLENOID VALVE
FLUSH TANK
FORMULATION
FORMULATION TANK
FLUSH SOLUTION
AIR
LIQUID
FLUID SYSTEMS DIAGRAM



KIT, 15 GAL. TANK, NIGHT STAR
P/N 64951

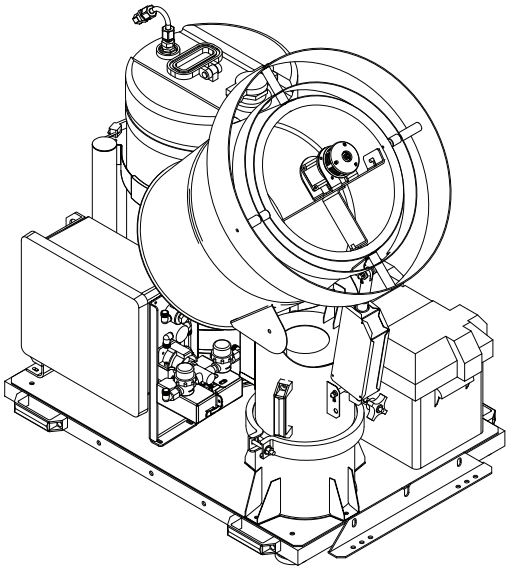
Dyna-Fog Offers a Complete Assortment of Sprayers and Foggers



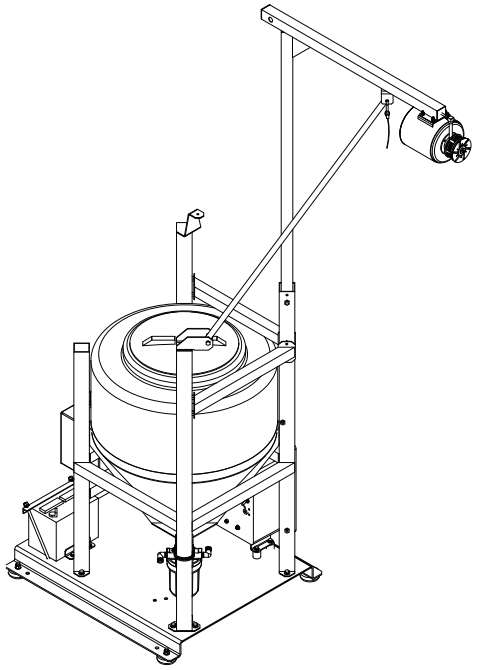
SuperHawk XP

PULSE-JET POWERED THERMAL FOGGERS:
From 0-120 GPH (0-453 LPH) output. Our complete line include different models like the Superhawk, Golden Eagle, Trailblazer, Falcon, Patriot, Blackhawk, Mister III, SilverCloud and Model 1200. Portable or Truck mounted machines. Different models are available for Oil base or Water base formulations.

ELECTRIC ROTARY ATOMIZERS:
DYNA-JET L30: State-of-the-Art, Electric Rotary Atomizer ULV Aerosol Generator. 12 VDC, Light Weight, Truck mounted Machine with FMI pump. Optional Syncroflow Available.
DYNA-JET L15: Drift Sprayer for migratory pest control like Locust. Flow Rate from 0 to 2 L/min. Optional Radar Syncroflow.

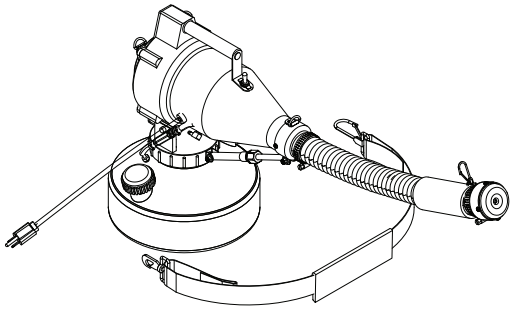


Dyna-Jet L-30

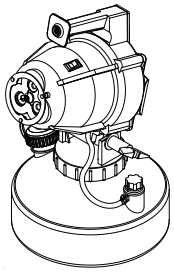


Dyna-Jet L-15

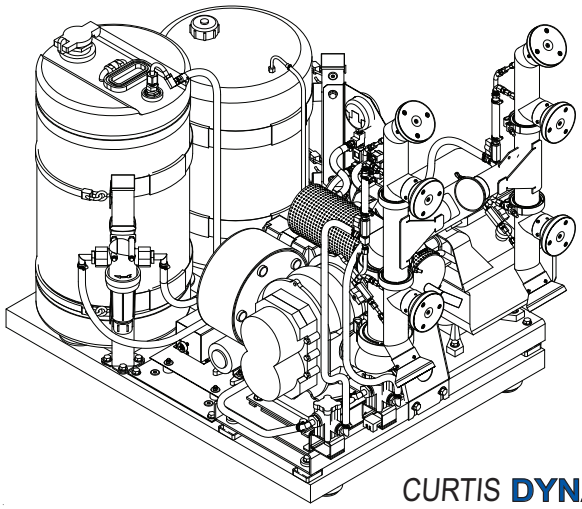
ELECTRIC HAND-HELD ULV/MIST GENERATORS:
A Full line of electric cold fog applicators with 1-3 gallon tanks, available in 115 and 230 VAC.



Cyclone Ultra-Flex



Hurricane ES



LV-8

COMBUSTION ENGINE DRIVEN ULV AEROSOL GENERATORS:
Truck mounted Units powered by 8, 9, 11, 18 and 20 HP four cycle, OHV Gasoline Engines. Diesel versions also available. One, two, four and eight nozzle configurations. Patented full remote control of boom functions (rotation of turntable and angle of nozzles) available on certain models. Your choice of Gear, Piston or Diaphragm pumping system. Pressurized system versions available for specific international markets. Optional Automatic flow control "Syncroflow" also available with Radar or GPS speed sensing. 25 cc and 40 cc two cycle portable models are also available.

CURTIS DYNA-FOG® Ltd.
"Innovators of Spraying and Fogging Technology Since 1947"

Contact Us For Your Nearest Distributor:
Ph: +1.317.896.2561
email: info@dynafog.com
web: www.dynafog.com

17335 US. Highway 31 North
Westfield, IN 46074, USA

Rev. 6-2-2014