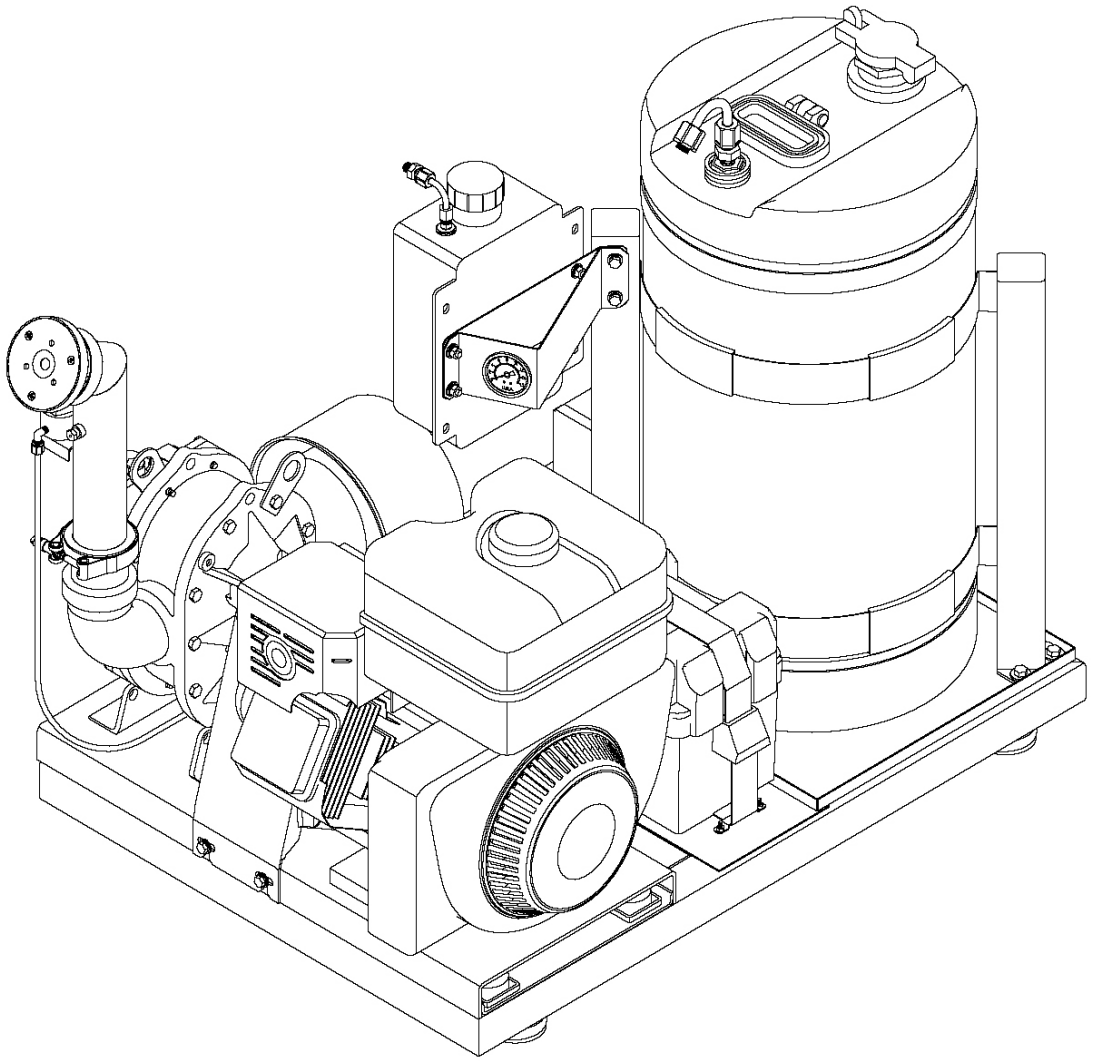
DYNA-FOG®

TYPHOON™ 1

MANUAL

MODEL 2984 SERIES 2
ULV APPLICATOR



MANUFACTURED BY:

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WESTFIELD, INDIANA, U.S.A.
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INNOVATORS OF SPRAYING AND FOGGING DEVICES

OPERATION AND MAINTENANCE MANUAL

FOR

DYNA-FOG *TYPHOON 1*

ULV AEROSOL APPLICATOR

(UNITED STATES AND FOREIGN PATENTS PENDING)

MANUFACTURED BY: CURTIS DYNA-FOG Ltd.
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Dear Valued Customer,

Congratulations on your purchase of one of the most advanced Ultra-Low-Volume applicators available.

The **TYPHOON 1 ULV** aerosol applicator was developed to provide a more efficient, low cost method of insect control without sacrificing quality. Technology the **Typhoon 1** employs enables you to dispense concentrated formulations at accurately low flowrates. This results in a significant chemical savings and an invaluable benefit to the environment. This machines ability to reliably produce consistent droplets are unsurpassed in the industry making it a favorite choice among professional users.

Properly maintained, the **TYPHOON 1** will provide years of trouble free service. We trust you will agree, the **Typhoon 1** will be a great asset to any spraying program.

Thank you for choosing *DYNA-FOG.*

MACHINE SPECIFICATIONS
FOR
TYPHOON 1, MODEL 2984

TYPE: ULV, NON-THERMAL AEROSOL APPLICATOR

ENGINE: 9.5 HP KOHLER, 4-CYCLE, OVERHEAD VALVE, GASOLINE POWERED, ELECTRIC START.
OIL CAPACITY: 1.16 QTS. (1.1 LTRS.)

BLOWER: HIGH VOLUME, POSITIVE DISPLACEMENT, ROTARY TYPE,
OPERATING DATA: 8.5 PSI @ 2750 RPM
MAXIMUM OUTPUT: 12 PSI (.82 BAR)
205 CFM (5.8 CU.M/MIN)

FORMULATION PUMP: 3-TYPES AVAILABLE:
1) HIGH VOLUME, CORROSION RESISTANT DIAPHRAM PUMP
2) STAINLESS STEEL GEAR PUMP WITH OPTIONAL RADAR SYNCROFLOW CONTROL.
3) FMI CERAMIC PISTON PUMP WITH CARBON CYLINDER.

SPRAY NOZZLE: HIGH EFFICIENCY SINGLE NOZZLE; ADJUSTABLE AND REMOVABLE FOR CLEANING.

LIQUID TANKS: BOTH FORMULATION AND FLUSH TANKS ARE CORROSION RESISTANT, HIGH DENSITY POLYETHYLENE.
CAPACITIES: FORMULATION- 15 U.S. GAL. (57 LITERS)
FLUSH- 1.0 U.S. GAL. (3.8 LITERS)

BATTERY: 250 COLD CRANKING AMPS

PARTICLE SIZE: MEETS ALL CURRENTLY AVAILABLE CHEMICAL MANUFACTURERS LABEL REQUIREMENTS WITH AT LEAST 95% OF DROPLETS PRODUCED UNDER 20 MICRONS VOLUME-MEDIAN-DIAMETER.

WEIGHT: EMPTY: 297 LBS. (135 KG.)
FILLED: 412 LBS. (187 KG.)

DIMENSIONS:
LENGTH: 41.5 in. (105 cm)
WIDTH: 29.0 in. (74 cm)
HEIGHT: 32.0 in. (81 cm)
BASE FRAME: 26 x 36 in. (66 x 91 cm)
SHIPPING WEIGHT: 411 LBS. (186 KG)
SHIPPING VOLUME: 42.0 cu.ft. (1.18 cu.m.)

SHIPPING DIMENSIONS (CRATED):

46.0 in.	(116 cm)
36.0 in.	(91.4 cm)
39.0 in.	(99 cm)

2.0

FOREWORD

The application of insecticides is the predominate method by which man attempts to control the size of insect populations. Due to environmental and economical reasons, it is desirable to treat a given area with the least amount of insecticide that can be made to be effective. The most efficient method is to break up the liquids into aerosols and distribute these fine droplets over the target area. The small droplets stay suspended for longer periods of time due to their size and are distributed more evenly, remaining effective longer.

The term ULV is an abbreviation for Ultra-Low-Volume, the technology used to treat areas with small amounts of chemical in an aerosol form. These chemicals are usually in a more concentrated state than chemicals used in other methods of application.

For best results, the Dyna-Fog ULV aerosol generator model 2984 should be operated and maintained in compliance with this manual.

WARNING

Read and thoroughly understand all information, cautions and warnings on the formulation label which may affect personal safety. Know any dangers of the solution used and know what to do in case of an accident involving the solution. Always use the appropriate safety equipment and dress accordingly to the chemical formulation which is being used.

2.1

DESCRIPTION

The Dyna-Fog model 2984 ULV Aerosol Generator is designed to disperse concentrated formulations at flow rates in the range of .5-20 oz./min. (15-590 ml/min) with droplet sizes less than 20 microns VMD (volume-median-diameter). When equipped with the Diaphragm Pumping System, flow rates of up to 120 oz./min. (3560 ml/min.) are possible.

This machine is to be vehicle or trailer mounted and is designed to be operated by the driver of the vehicle using the remote control box.

2.2

WORKING PRINCIPLES

A 9 horsepower, four-cycle gasoline engine is used to drive a positive displacement rotary-blower to generate 125 cfm (3.5 cu.m./min) of air at 8.5 psi. The air entering the blower is first filtered through a large stainless steel filtering element. The speed of the engine (approximately 2750 rpm maximum) moves this large air mass through the boom assembly at a pressure of up to 8.5 psi. Attached to the boom assembly is a nozzle. The nozzle has six stationary fins that create a swirling effect of the air mass as it leaves the nozzle. In the center of this swirling air mass is a liquid supply spray tube. The spray tube directs the formulation into the air mass where it is sheared into billions of tiny droplets and dispersed into the atmosphere. The formulation is delivered into the spray tube by means of a 12 volt DC pump that draws the formulation from the tank, through a filter and 3-way valve, and then pumps it into the nozzle spray tube.

This unit is also equipped with a flushing system. The flushing system is activated manually. The flushing liquid is conveyed to the nozzles in the same manner as the formulation. **The system must be flushed after each use.**

2.3

FLUID PUMPING SYSTEMS

There are three types of pumping systems available for the TYPHOON 1 ULV:

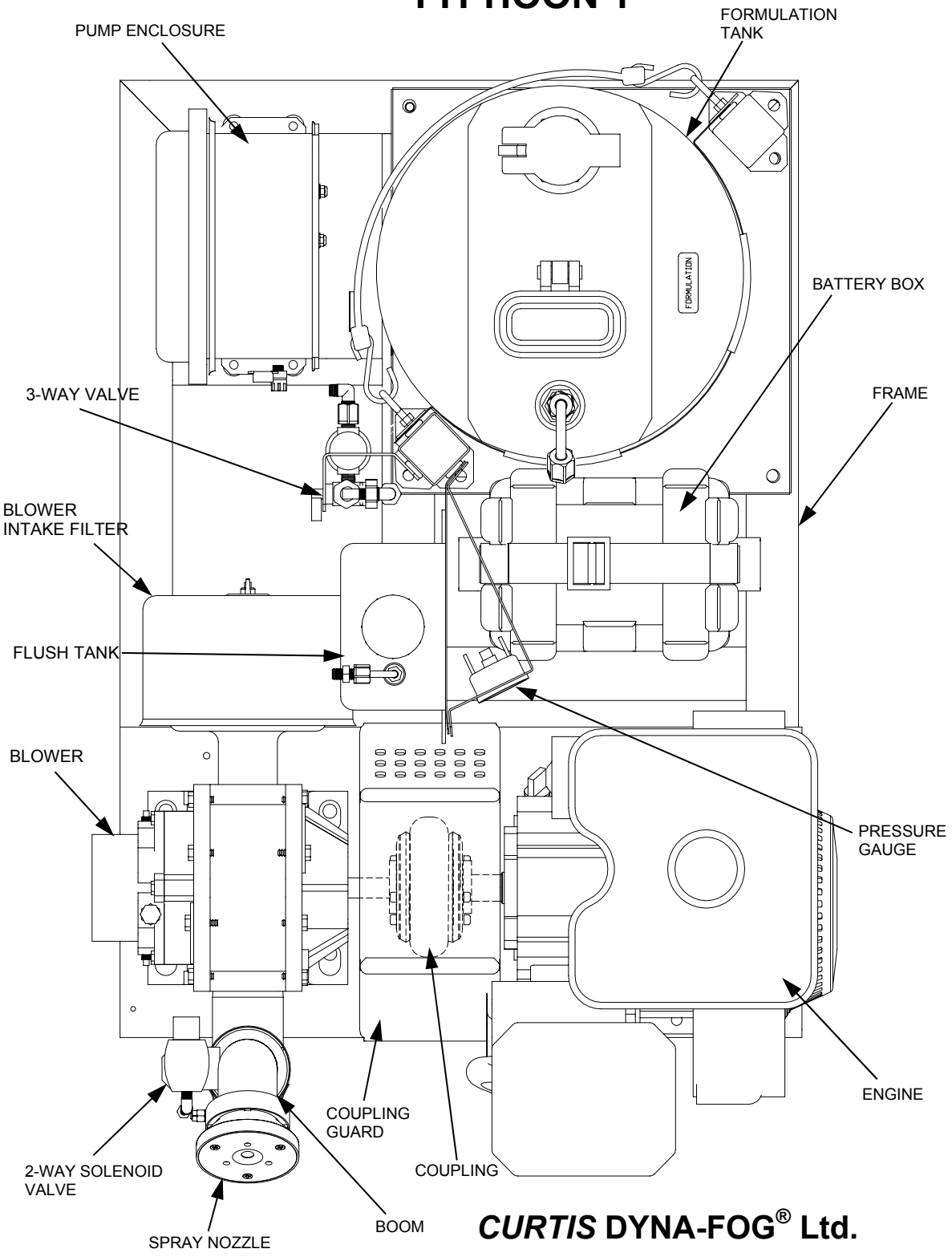
1) (MODEL 2984-1) FMI (SET-FLOW) Ceramic Piston-Pump: This highly accurate pumping system utilizes a 12 volt DC motor to drive a ceramic, rotary piston-pump. Once the liquid flow rate has been set, this is the flow rate that will be obtained when the operator activates the SPRAY ON/OFF switch.

2) (MODEL 2984-2) Diaphragm Pump: This high volume pumping system utilizes a diaphragm type pump with a needle valve on its outlet port to regulate liquid flow. Once the liquid flow rate has been set, this is the flow rate that will be obtained when the operator activates the SPRAY ON/OFF switch.

3) (MODEL 2984-3) Rotary Gear-Pump: This pump is driven by a variable speed electric motor. All functions are controlled from the remote control box. Once the pump has been set to the desired flow rate, that flow rate will be obtained when the operator activates the SPRAY ON/OFF switch. When adapted with the Dyna-Fog Radar Syncroflow feature, the flow rate of the pump will automatically vary with vehicle speed.

MAJOR COMPONENTS

TYPHOON 1



***CURTIS* DYNA-FOG® Ltd.**

3.0

ASSEMBLY INSTRUCTIONS

1) Uncrate the unit and remove all packing materials.

NOTE:
It is a good idea to retain the original machine-shipping carton for storage.

2) Place the remote control unit where it will not be damaged while the machine is being installed.

3) Remove the machine from the shipping skid by removing the three lag screws that retain the shipping brackets. Keep the brackets for mounting the machine to your vehicle or trailer bed.

4) Check the lubricating oil level in both the engine and blower. Refer the engine and blower sections of this manual and to the engine and blower manuals for the correct filling procedure and add oil if necessary.

5) The battery, if supplied complies to SAEJ537 (SAE #24LO). Activate the dry charge storage battery according to the following instructions:

3.1

CHARGING THE BATTERY

DANGER POISON
Batteries produce explosive gases. Keep sparks, flame and cigarettes away!
Ventilate when charging or using in an enclosed space.

The battery contains Sulfuric Acid, which causes severe burns. If acid contacts eyes, skin or clothing, flush well with water. For contact with eyes, get immediate medical attention.

Keep battery and acid away from children and other persons who may not be aware of dangers involved.

A. Remove battery from its mounting and place on a stable workbench.

B. Remove vent caps from battery. Remove or destroy any sealing device, which may have been used to close or restrict the vent openings in the vent caps.

C. Fill each cell of the battery to the top of the separators with approved battery electrolyte of 1.265 specific gravity.

NOTE:
The temperature of the battery and electrolyte at time of filling should not exceed 60 ^{o}F (15 ^{o}C).

CAUTION:
Never fill battery in machine as spills will damage finish and cause premature corrosion and/or damage to components.

3.1

CHARGING THE BATTERY (CONT'D)

D. Charge 12 volt battery at 30-40 amps until the acid temperature is above 80 ^{o}F (26 ^{o}C), and the hydrometer reading is 1.250 or higher. Acid temperature must never exceed 125 ^{o}F while charging.

NOTE:
Both temperature and hydrometer readings must be met.

E. After charging the battery, check acid levels in all cells and fill each cell with acid to the proper level.

F. Re-install vented caps.

G. Re-install the battery onto the machine. Position battery in the battery box so that the terminal side of the battery is facing the engine.

H. Connect the RED positive (+) cable to the positive terminal of the battery and fasten it securely with the hardware provided.

I. Connect the BLACK negative (-) cable to the negative terminal of the battery and fasten it securely with the hardware provided.

CAUTION
When installing the battery, connect the negative (-) cable last to prevent sparking and shorting. When disconnecting is required, remove the negative (-) cable first. Reverse polarity can cause damage to the starting and charging system.

3.2

MACHINE INSTALLATION

1. Remove the machine from the skid and lift the machine onto the vehicle with the discharge end of the machine toward the rear of the vehicle.

2. Pass the remote control unit through an open window and locate it within reach of the person operating the machine. If permanent vehicle installation is desired, the remote control cable can be fed through a clearance hole in the vehicle chassis and then reconnected. When drilling clearance holes, ensure that all sharp edges are removed and covered to prevent premature wearing of the remote cable. When routing the cable to the vehicle cab, do not allow the cable to be exposed to any sharp edges. Avoid sharp bends when routing the cable.

3.2

MACHINE INSTALLATION (CONT'D)

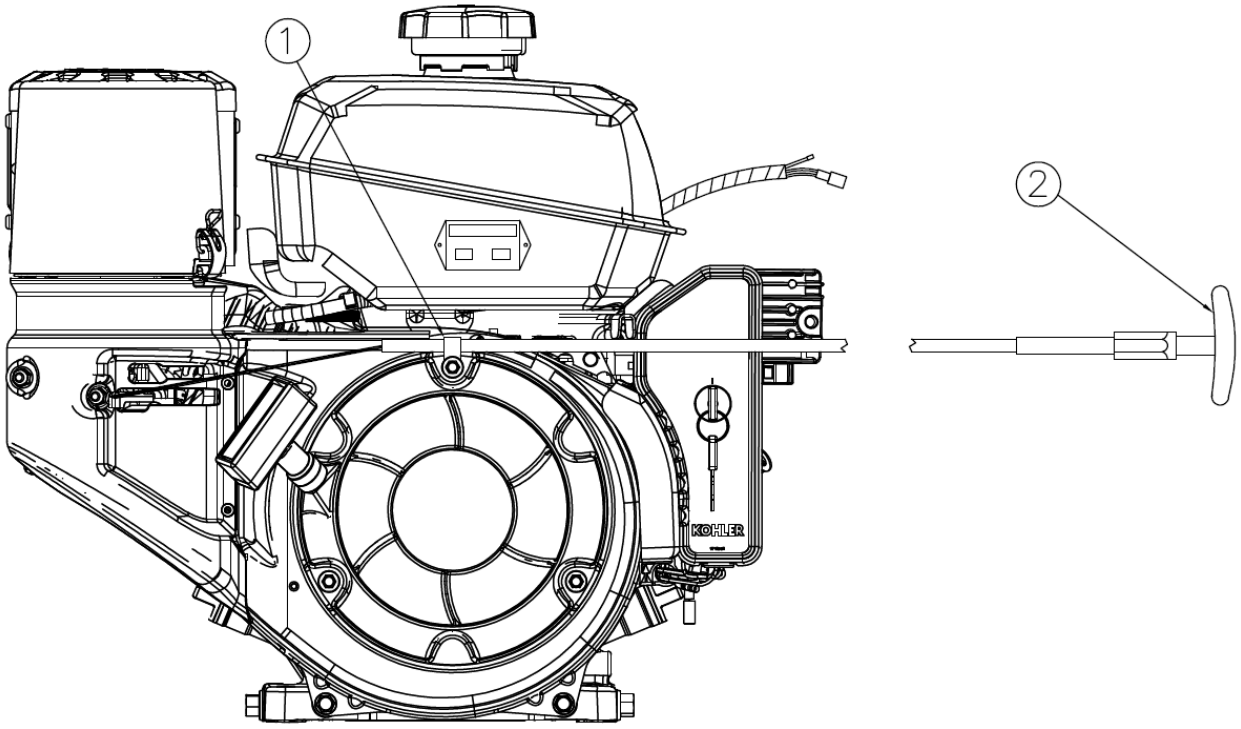
3. Once the cable has been routed to the cab, reseal all drilled openings to prevent moisture and/or exhaust gases from entering the cab.

MANUAL REMOTE CHOKE:

4. Remove the cover from around the fuel shut-off, and choke levers. Doing this will allow you access the choke cable mounting hole, on the choke lever. While facing the "pull start" side of the engine, you will need to remove the bolt located at the top left side of the engine shroud. You will also need to remove the top center bolt on the pull rope (recoil) shroud. Insert the choke cable end into the small hole on choke lever. Secure the choke cable assembly to the engine using the two clamps provided at the locations where the two bolts were previously removed. Install the fuel shut-off, and choke lever cover back onto the engine.

Note:

*The **MANUAL REMOTE CHOKE CABLE** is provided for cold starting of the engine from the vehicle cab. Once the engine has been allowed to warm-up, choking the engine should not be needed for restarting. Be careful not to have too many bends When routing the choke cable assembly. Doing so will cause the cable to bind inside of the cable casing and restrict its movement.*



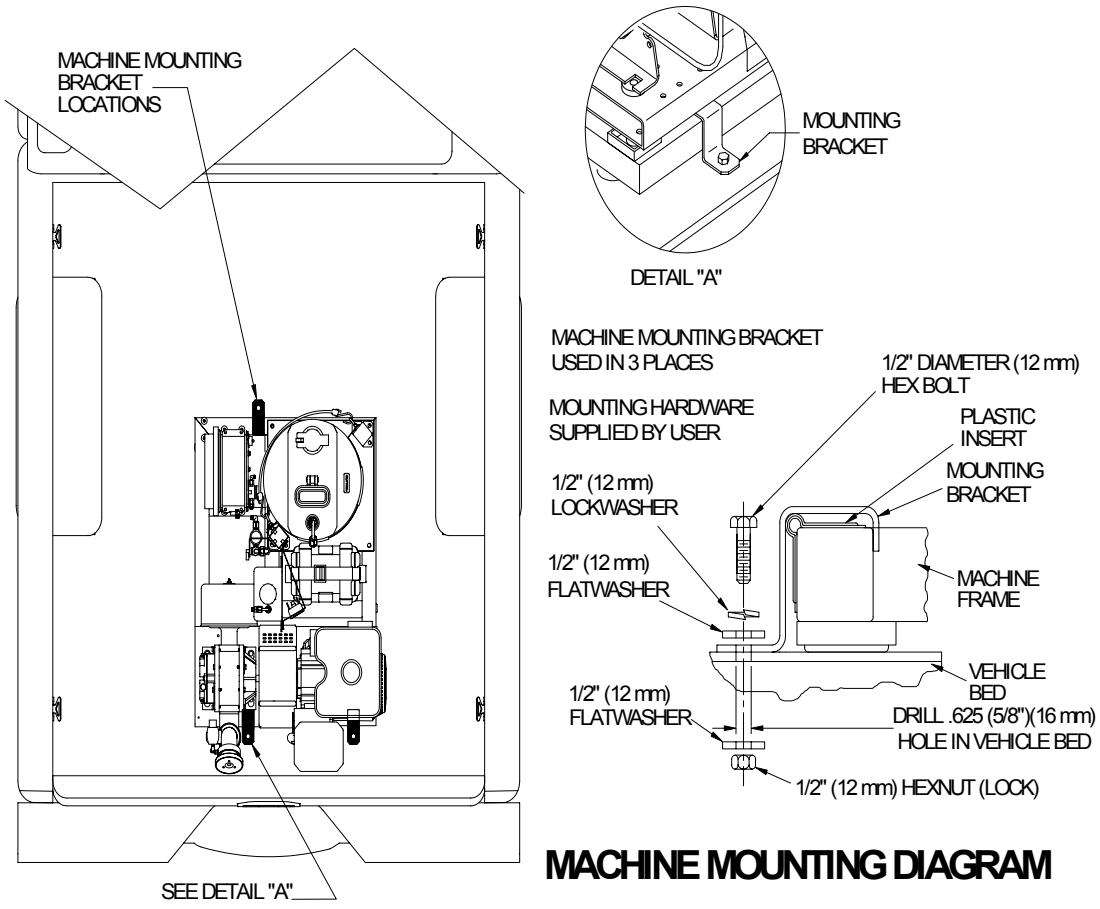
MANUAL REMOTE CHOKE KIT P/N 64659-1

ITEM	QTY	P/N	DESCRIPTION
1	2	86690	CLAMP, TUBE, .25
2	1	64658-1	CABLE,CHOKE (FORMED)

3.2

MACHINE INSTALLATION (CONT'D)

5. Using the (3) hold-down brackets used for mounting the machine to the shipping skid, securely mount the machine to the bed of the vehicle (see diagram below). Depending on the type of surface the machine is being mounted onto, it may be necessary to use additional mounting hardware to secure the machine.



MACHINE MOUNTING DIAGRAM

WARNING

NEVER ATTEMPT TO OPERATE THE MACHINE WITHOUT FIRST VERIFYING THAT IT IS SECURELY MOUNTED. FAILURE TO DO SO COULD RESULT IN SEVERE INJURY.

4.0

SAFETY PRECAUTIONS

WARNING
READ AND UNDERSTAND THESE SAFETY PRECAUTIONS
BEFORE OPERATING MACHINE

1. **ENGINE AND FUEL**: This machine uses gasoline as the fuel for the internal combustion engine and all precautions commonly applying to this volatile fuel should be observed. Exercise extreme caution to avoid spilling of gasoline. If spillage occurs, wipe it off and allow evaporation time before starting the engine. **DO NOT** attempt to put fuel in tank while the machine is still running. Avoid smoking or open flame in area when handling gasoline. Never run the unit indoors unless exhaust is vented to outside. These fumes contain carbon monoxide which is colorless and odorless and can be fatal.

CAUTION
Do not operate engine without muffler

NOTE:
The engine is equipped with a muffler that has a U.S. Forestry Service approved spark arrestor which is required by law in some states.

DO NOT TOUCH HOT MUFFLER, CYLINDERS OR FINS AS CONTACT MAY CAUSE BURNS.

EXCEPT FOR ADJUSTMENT, DO NOT OPERATE THE ENGINE IF AIR CLEANER OR COVER DIRECTLY OVER THE CARBURETOR AIR INTAKE IS REMOVED.

DO NOT RUN THE UNIT IF THE COUPLING GUARD IS REMOVED.

DO NOT TAMPER WITH GOVERNOR SPRINGS, GOVERNOR LINKS OR OTHER PARTS WHICH MAY INCREASE OR DECREASE THE GOVERNED ENGINE SPEED.

2. **THE ENGINE SPEED** (RPM) should be checked periodically to insure that it is operating correctly as engine speed affects the rate of the air flow through the nozzle system which controls droplet particle size. Should be approximately 2700 RPM @ 8.0 PSI boom pressure.

3. **MACHINE DAMAGE**: Never operate a machine after it has been damaged. A damaged machine can be very hazardous.

SAFETY PRECAUTIONS (CON'T)

4. **WIND**: Spraying during windy conditions is not usually practical because the formulation will drift out of the intended area. However, under NO circumstances should spraying into the wind be attempted. This may cause hazardous accumulations on the machine or carrying vehicle.

5. **SAFETY EQUIPMENT**: In addition to any safety equipment that may be required by the type of formulation which is being used, the following items should be mandatory for each vehicle which carries this machine during fogging operations.

a. Fire Extinguisher, chemical-type rated for fuel fires.
b. First Aid Kit.
c. Eye Wash Solution.
d. Safety Glasses.
e. Container of Oil Dry Compound.
f. Gloves Rated for High Temperature.
g. Respirator Adequate for Formulation being used.

6. **CHILDREN**: Many spraying operations are performed in residential areas, commonly at dusk. This presents the operator with the problem of children who are attracted to the noise and/or mist being created. Children have been observed running into and riding bicycles through the mist. The possible hazard lies in the toxic effect of some formulations, the severity of which depends upon the chemical used, mist density and the length of time of direct exposure.

IT IS THE OPERATOR'S RESPONSIBILITY TO DISCOURAGE ANYONE FROM PLAYING IN THE MIST OR BEING NEAR THE MOVING VEHICLE.

7. **FORMULATIONS**: Ensure that formulations are applied only in strict compliance with the formulation label as well as local, state and federal regulations and that these formulations are dispersed only by trained personnel of public health organizations, mosquito abatement districts, pest control operators or other qualified personnel.

a. Always comply with any requirements for protective clothing, goggles, gloves, Facial masks or respirators required on the formulation label.
b. Do not exceed the dosage set forth on the registration label of the insecticide to be used.
c. Always store formulation in its original labeled container.

5.0

MACHINE OPERATION

CAUTION
Read this complete operation section and the section on safety precautions before starting the machine for the first time.

For first time operation, the sections on MACHINE INSTALLATION and MACHNE OPERATION must be performed before proceeding with this section.

When operating this machine for the first time, move to an uncongested and well-vented work area away from flammable materials.

WARNING

READ THE SECTION ON SAFETY PRECAUTIONS BEFORE PREPARING TO DISPENSE FORMULATION.

READ AND THOROUGHLY UNDERSTAND ALL INFORMATION, CAUTIONS AND WARNINGS ON THE FORMULATION LABEL WHICH MAY AFFECT PERSONAL SAFETY. KNOW ANY DANGERS OF THE SOLUTION USED AND KNOW WHAT TO DO IN CASE OF AN ACCIDENT INVOLVING THE SOLUTION.

ALWAYS USE THE APPROPRIATE SAFETY EQUIPMENT AND DRESS ACCORDING TO THE CHEMICAL FORMULATION WHICH IS BEING USED.

WARNING

DO NOT USE ANY SUBSTANCES FROM UNMARKED CONTAINERS OR FROM CONTAINERS WITH OBVIOUSLY ALTERED LABELS.

READ AND FOLLOW THE INSTRUCTIONS ON THE CHEMICAL SOLUTION LABEL FOR ULV SPRAYING OF THE SOLUTION.

DO NOT SPRAY NEAR AN OPEN FLAME OR HOT MATERIALS.

DO NOT LEAVE THE MACHINE UNATTENDED.

5.1

PRE-SPRAY CHECK LIST

1. Verity that the formulation pump has been calibrated and is dispensing formulation in accordance with the manufacturers label requirements.

2. Verify that the adjustable nozzle boom is in the correct position as required for the spraying operation to be accomplished, and that the ring clamp which allows this positioning is tight.

3. Verify that the engine has sufficient fuel and is properly lubricated.

4. Verify that the blower has been serviced.

5. Inspect all hoses for abnormal conditions.

6. Verify that no foreign objects or tools have been left in or about the machine.

7. Verify that the sufficient amount of formulation is in the tank and that the tank filling cap is tight and its air vent hole is not clogged.

8. Verify that the battery is mounted securely and cable connections are proper.

9. Verify that all safety equipment is in place and is in proper working order.

10. Verify that the remote control box is within easy reach of the operator.

CAUTION

Before proceeding with any spraying operation, the operator should be thoroughly familiar with starting and stopping the machine and with all the operating controls. If you are operating the machine for the first time, exercise the machine through its full operational sequences from a position of full visibility of the machine before operating the machine fully remote. This is also a good idea for experienced operators who may be operating a new machine or who may be reactivating a machine after repairs or a period of inactivity. Refer to the engine manual for starting and stopping the engine.

5.2

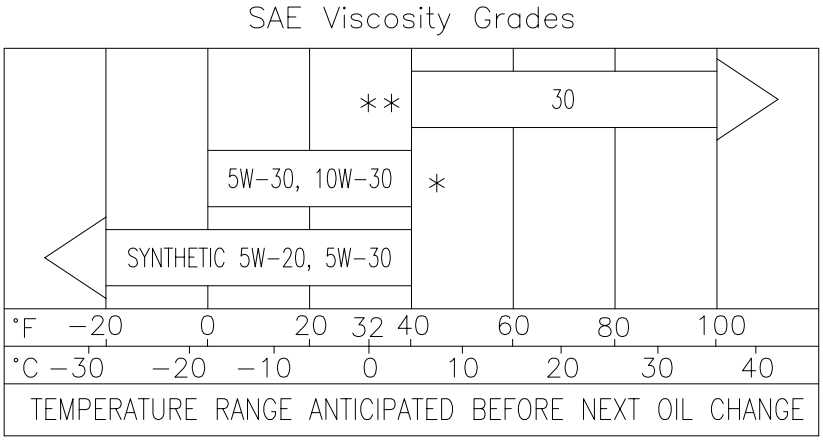
BLOWER PREPARATION

The blower on your machine has already been filled with a **non-detergent**, SAE 40 grade oil. It should not be necessary for you to use a different grade of oil unless the machine will be operated in climates with a temperature above 90 F (32 C). In applications where the machine will be operated for extended periods above 90 F (32 C), use SAE-50 grade oil. (See pages 7 and 8 of the "Blower Instructions" manual for lubrication schedules and oil capacities, etc...).

5.3

ENGINE PREPARATION

Change and add oil according to chart below. Do not overfill. Use high quality detergent oil API classified "For service SE, SF, SG" . If oil remains in the engine, oil viscosity must be suitable for the lowest temperature at which the engine will be operated in service. Use no special additives with recommended oils.



(*) Air cooled engines run hotter than automotive engines. Use of multi-viscosity oils (10W-30, etc.) Above 40 °F (4°C) will result in high oil consumption and possible engine damage. Check oil level more frequently if using these types of oil.

(**) SAE 30 oil, if used below 40 °F (4 °C), will result in hard starting and possible engine bore damage due to inadequate lubrication. Check oil level before starting engine. Add oil (If required).

Start and run the engine at idle for 30 seconds. Shut engine off. Wait 30 seconds and check oil level. Add oil to bring level to Full mark on dipstick, if required.

Note :Engine is shipped from factory without oil. Before starting it, check oil level.

Fuel Recommendations

The engine will operate satisfactorily using any automobile gasoline. Use clean, fresh, lead-free gasoline with a minimum of 85 octane for overhead valve engines. Leaded gasoline may be used if it is commercially available, and if lead-free is not available. Use of lead-free gasoline results in fewer combustion deposits and longer valve life. Purchase fuel in quantity that can be used within 30 days. This will assure fuel freshness and volatility tailored to the season. DO NOT MIX OIL WITH GASOLINE.

B&S do not recommend using gasoline which contains alcohol, such a gasohol. If gasoline with alcohol is used, it must contain less than 10% Ethanol and must be removed from engine during storage. Do not use gasoline which contains Methanol.

Fuel Level : Do not overfill. Allow space in fuel tank for fuel expansion.

5.4

STARTING THE ENGINE

1. **OPEN THE FUEL VALVE:** Turn fuel valve lever right 1/4 turn.

2. **CHOKE ENGINE:** Move engine or remote choke control to position lever in "choke" position.

NOTE:

This should fully close choke on carburetor. If it does not, remote control must be readjusted to enable full travel of the choke lever.

3. **TURN ENGINE "ON":** Position kill switch on engine to "ON" and place the machine on/off switch on the remote control box to "ON". When the remote box switch is "ON", the green L.E.D. on the remote box should glow indicating power to the remote box.

4. **TURN SPRAY OUTPUT "OFF":** Verify that the spray on/off switch on the remote control box is in the "OFF" position.

5. **START ENGINE:** Activate the spring-loaded start switch on the remote box to start the engine.

NOTE:

To prevent overheating the engine starter motor, do not activate the motor longer than 15 seconds at a time.

6. **SET ENGINE SPEED:** Allow the engine to warm-up and gradually move the choke lever to the "unchoked" position. Adjust the engine throttle control to achieve the desired BOOM PRESSURE. (See Tables 1 and 2, Section 7.0)

DO NOT EXCEED 8.5 PSI BOOM PRESSURE

6.0

MEASURING LIQUID VISCOSITY

In order to achieve consistent results in generating aerosols with a volume median diameter (VMD) in the sub 20 micron range, several variables must be kept under control at the same time. The ability of an aerosol generator to consistently break up a liquid into appropriate sized droplets depends on (3) key elements:

1. The available energy flow (air flow) through the nozzle is governed by the blower speed. As the air mass and its velocity through the nozzle decreases, the droplet size (VMD) will increase assuming that the liquids viscosity and flow rate remains constant.

2. The flow rate of the liquid governed by the speed of the liquid pump.

6.0

MEASURING LIQUID VISCOSITY (CONT'D)

3. The viscosity of the liquid. Various liquids have different viscosities. Viscosity is defined as a fluids resistance to flow commonly measured in units of a centipoise (CP). Generally, the thicker the liquid, the greater the viscosity and the higher the CP number. Examples of some liquid viscosities are:

LIQUID	VISCOSITY (CP)
WATER	1
DIBROM	3-4
DOW MFC	3-4
PYRETHRIN, RESMETHRIN	6-7
DURSBAN 1.5 ULV	12-14
TECHNICAL MALATHION	28

To measure the flow ability (viscosity) of your formulation:

1. Place a sample of the formulation liquid to be dispensed in the relative flow ability meter provided with the machine such that the liquid level is above the top line.

2. Hold the meter vertical and allow the liquid to flow through the brass orifice at the outlet end of the meter into an appropriate container.

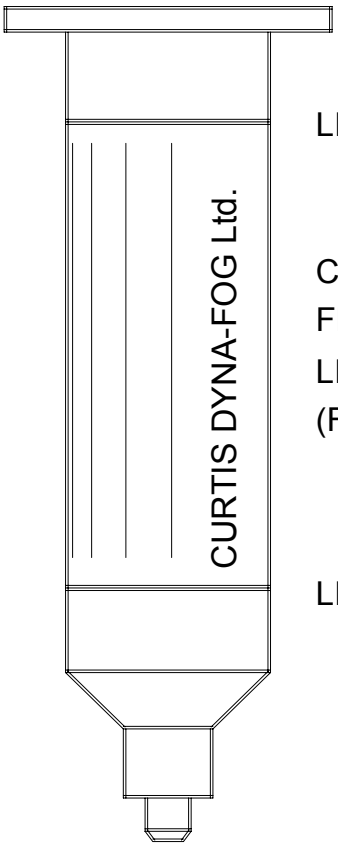
3. Using a stopwatch or a watch with a sweep second hand, determine the flow ability time in seconds that it takes for the liquid level to fall from the top line to the bottom line.

6.0

MEASURING LIQUID VISCOSITY (CONT'D)

Once the flowability of the liquid has been measured, tables 1 and 2 can be used as an approximate guide for setting the pump flow rate and nozzle boom pressure for your spray application.

NOTE:
Periodically calibrate the flowability meter using plain water. Water should flow through the orifice such that the time between the top line and the bottom line is 32 ± 2 seconds.



LINE N0. 1

COUNT SECONDS IT TAKES FLUID TO DRAIN FROM LINE NO. 1 TO LINE NO. 2 (FLOWABILITY TIME)

LINE NO. 2

FLOWABILITY TEST METER

7.0 DROPLET SIZE (VOLUME-MEDIAN-DIAMETER) VS FLOW RATE AND BOOM PRESSURE

Once the flowability of the formulation to be sprayed has been determined and the formulation pump has been calibrated to produce the flow rate specified on the formulation label, select one of the two tables below that is closest to the flowability of the formulation to be sprayed (35 seconds or 85 seconds). Then match the closest flow rate in the left hand column with the flow rate specified on the formulation label. A boom pressure can then be selected that will produce a particle size in accordance with the formulation label. (Remember: with a constant flow rate supplied to the nozzle system, increasing nozzle boom pressure will decrease particle size).

RESMETHRIN (SCOURGE 1-6.5)- TABLE 1 (TIME THROUGH FLOW METER APPROXIMATELY 30 SEC.)

LIQUID FLOW RATE	BOOM PRESS. 8 PSI	7 PSI	6 PSI	5 PSI	4 PSI	3 PSI
4 OZ/MIN or 118 ML/MIN	**6**	**8**	**10**	**12**	**15**	**18**
6 OZ/MIN or 177 ML/MIN	**7**	**10**	**12**	**14**	**18**	**22**
8 OZ/MIN or 237 ML/MIN	**10**	**13**	**16**	**18**	**21**	**24**

MALATHION (CYTHION 91%)- TABLE 2 (TIME THROUGH FLOW METER APPROXIMATELY 85 SEC.)

LIQUID FLOW RATE	BOOM PRESS. 8 PSI	7 PSI	6 PSI	5 PSI	4 PSI	3 PSI
4.3 OZ/MIN or 127 ML/MIN	**12**	**13**	**15**	**17**	**20**	**22**
6.5 OZ/MIN or 192 ML/MIN	**13**	**15**	**17**	**19**	**23**	**25**
8.6 OZ/MIN or 254 ML/MIN	**15**	**17**	**19**	**21**	**25**	**28**

LARVACIDE (TECKNAR)- TABLE 2A (TIME THROUGH FLOW METER APPROXIMATELY 42 SEC.)

LIQUID FLOW RATE	BOOM PRESS. 8 PSI	7 PSI	6 PSI	5 PSI	4 PSI	3 PSI
24.6 OZ/MIN or 727 ML/MIN	*	*	*	*	**40**	*
35 OZ/MIN or 1035 ML/MIN	*	*	**60**	*	*	*
49.2 OZ/MIN or 1455 ML/MIN	**80**	*	*	*	*	*

8.0

PREVENTATIVE MAINTENANCE

NOTE:
A successful maintenance program begins after the first use of the machine and not after the machine has ceased to function.

PREVENTATIVE MAINTENANCE:

1. Occasionally inspect mounting hardware to ensure that fasteners are tight. Loose hardware can cause excessive vibration leading to major failure of components.

2. Acquaint yourself with the operating sounds of your machine. Strange sounds suddenly appearing can be a forewarning of difficulties which may be preventable with immediate action.

3. Keep the machine clean externally as well as internally. Some insecticides contain chemicals which are corrosive.

BATTERY

WARNING

(REFER TO SECTION 3.1)

BATTERIES PRODUCE EXPLOSIVE GASES. KEEP SPARKS AND FLAMES AWAY. VENTILATE WHEN CHARGING OR USING IN ENCLOSED SPACE. ALWAYS SHIELD EYES WHEN WORKING NEAR BATTERIES. THE BATTERY CONTAINS SULFURIC ACID AND CAN CAUSE SEVERE BURNS. AVOID CONTACT WITH SKIN, EYES AND CLOTHING.

1. Check battery fluid level each week. If the level is low, add distilled water. After initial activation of battery, never add additional electrolytic fluid. Distilled water is preferred. (See section 3.1 "CHARGING THE BATTERY")

2. Check vent holes in battery and remove any obstructions.

3. Inspect posts and remove any corrosion build-up using water and baking soda.

4. Apply an anti-corrosion compound or a light coating of petroleum jelly to battery terminals to minimize corrosion.

FILTER - SILENCER
(Rotary Blower)

A) General : The air blower filter - silencer is mounted on the air blower. Dirt and other foreign particles are filtered from the incoming air by means of the reusable stainless element. The design is such that it partially silences the air also.

Note :

Do Not run the machine without this filter silencer assembly; as this would cause serious damage to the blower unit.

BLOWER FILTER ASSEMBLY

B) Removal and disassembly :

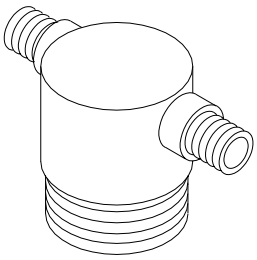
1. Remove the filter-silencer from the air blower by turning it counter-clockwise.
2. Remove wing nut and washer.
3. Remove outer shell cover.
4. Remove stainless element.

C) Inspection and Cleaning :

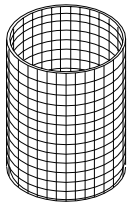
1. Clean the stainless screen in an approved solvent, dry with compressed air, or shake to remove excess solvent and allow to dry naturally. Inspect the screen for defects that may permit dirt or other foreign particles to enter the air blower.
2. Inspect the outer shell cover for cracks, breaks or dents and replace if required.
3. Remove any foreign matter of obstruction from any of the tubes of the main base assembly. Be careful not to loose the clips from the base which isolate the shell from the base to prevent excessive vibration.

FORMULATION FILTER

The system is equipped with an in line low profile filter located at the formulation tank standpipe. This filter is to prevent any foreign matter from entering the Pump, solenoid valve and the nozzle system. Located inside the filter housing is a fine mesh stainless steel screen and a Aflas gasket seal.

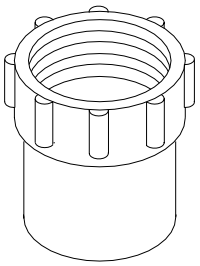


62558-4



62558-1

10200-124



62558-3

IN-LINE FILTER (P/N 62558-5)

TO REMOVE AND CLEAN THE SCREEN

1. Loosen and remove the bottom portion (bowl) from the housing body, being careful not to loose the Aflas gasket seal ring.

2. Remove and clean the fine wire mesh stainless steel screen.

3. Check the Aflas gasket seal ring and replace if necessary.

CAUTION

Do Not overtighten as damage the Aflas gasket seal ring may occur. Overtighten will not improve the seal .

Note :

If leakage occurs, open the unit and clean and inspect the Aflas gasket seal ring. A suitable lubricant applied to the ring will help the seal.

PREVENTATIVE MAINTENANCE SCHEDULE

TABLE 3

FREQUENCY / MAINTENANCE OPERATION	8 HRS OR DAILY	25 HRS OR NEW SEASON	50 HRS OR NEW SEASON	100 HRS OR NEW SEASON	100-300 HRS
ENGINE					
CHECK OIL LEVEL	■				
CHANGE OIL		■			
SERVICE PRE-AIR FILTER		■			
SERVICE AIR FILTER				■	
DEBRIS GUARD (OPTIONAL)	■				
CLEAN COOLING SYSTEM (FINS)				■	
INSPECT SPARK ARRESTER			■		
REPLACE OR CLEAN SPARK PLUG				■	
REPLACE IN-LINE FUEL FILTER				■	
CLEAN COMBUSTION CHAMBER					■
ROTARY BLOWER					
CHECK OIL LEVEL	■				
CLEAN AIR FILTER				■	
GREASE BLOWER				■	
SOLENOID VALVES					
INSPECT INTERNAL PARTS/CLEAN					■
(USE REBUILDING KIT IF REQUIRED)					■
OTHERS					
FLUSH FORMULATION SYSTEM	■				
INSPECT BATTERY FLUID LEVEL			■		
CLEAN FORMULATION FILTER			■		
INSPECT FLEXIBLE DRIVE COUPLING		■			

NOTE: Change oil more often when operating in high ambient temperatures.
Clean air filters more often under dusty conditions or when airbourne debris is present.
See engine and blower manuals.

8.1

FLUSHING THE SYSTEM

The system must be flushed after each use to protect the equipment from the corrosive material in the formulations.

CAUTION

Never handle any parts on the machine that come in contact with formulation until the unit has been thoroughly flushed with isopropyl alcohol or other recommended flushing agent.

TO FLUSH SYSTEM:

NOTE:

If your machine is equipped with the FMI pumping system or the Diaphragm Pumping System, it is not necessary to adjust the pump output setting when flushing.

1. If the unit is equipped with the CURTIS SYNCROFLOW system, verify that the "MANUAL-SYNCROFLOW" switch is located on the pump control box is in the MANUAL position.

2. With the engine and blower operating, place the manual 3-way valve mounted on the machine into the FLUSH position.

3. If your machine is equipped with the "GEAR PUMPING SYSTEM", place "FUNCTION SELECT" dial on the remote control box to the number (1) or (2) position.

4. If your machine is equipped with the "GEAR PUMPING SYSTEM", set the "RATE" knob on remote control box to where you are dispensing 15 oz/min (530 ML/min.) This will help accomplish the flushing operation quicker.

5. Place spray output switch on remote control box into the "ON" position.

6. Flush for 3 to 5 minutes.

NOTE:

Follow the flushing instructions indicated in the pumping system section.

8.2

ULV NOZZLE ASSEMBLY

The design of the ULV Nozzle is such that it should require little maintenance if the machine is properly flushed after each use. However, if it becomes necessary to clean the entire Nozzle Assembly, refer to steps 1-7. To inspect the inside of the Nozzle it is not necessary to remove the entire Nozzle Assembly from the machine. Refer to steps 4-7.

TO REMOVE THE ENTIRE NOZZLE:

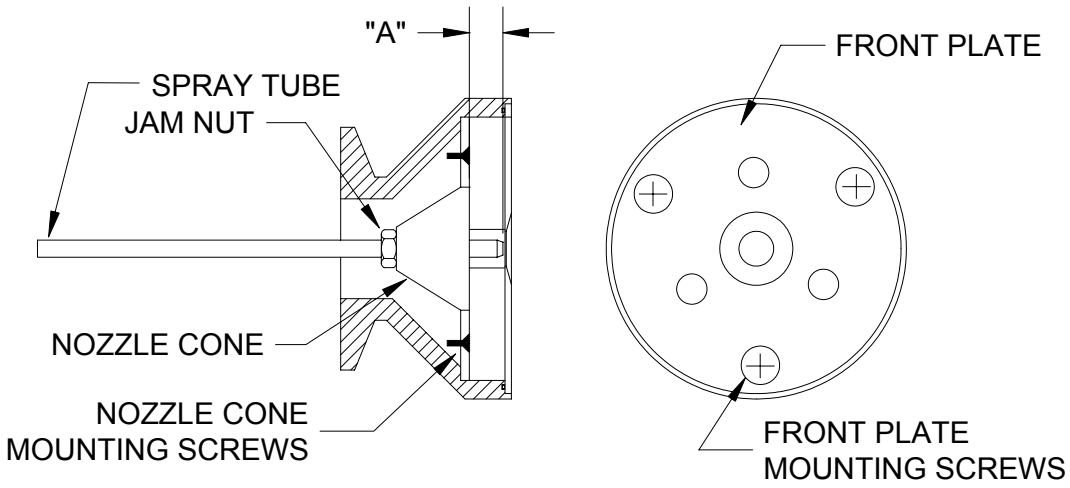
1.) Loosen the plastic nut on the rear of the nozzle to enable removing the plastic elbow from the spray tube.
2.) Loosen the steel nut on the rear of the nozzle that secures the nozzle to the nozzle boom. There are two o'rings within the nut used for sealing against the spray tube.
3.) Remove the black plastic clamping knob that is used to tighten the stainless clamp for retaining the nozzle to the boom ay. Remove the stainless steel clamp. The nozzle should now be free from the boom ay.
4.) Remove the (3) front plate mounting screws and remove the front plate.
5.) If necessary, the large o'ring installed beneath the front plate can be removed.

NOTE:
Do Not *loosen the jam nut that locks the spray tube to the nozzle cone. SEE IMPORTANT" BELOW.*

6.) Soak the nozzle parts in a degreasing solution to remove all residue.
7.) Thoroughly rinse the parts and reassemble.

IMPORTANT

If for any reason it becomes necessary to have to remove the spray tube from the nozzle cone, care must be taken to hold dimension "A" when reassembling. Dimension "A" is the distance from the end of the spray tube to the front face of the nozzle cone. Be careful not to damage the output end of the spray tube when disassembling.



8.3

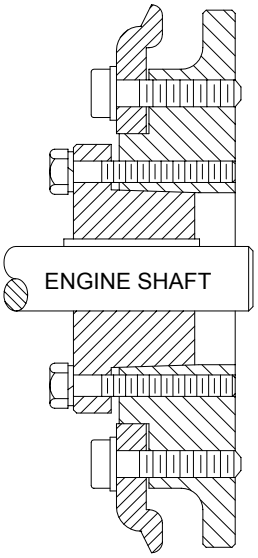
HI-FLEX COUPLING
INSTALLATION INSTRUCTIONS

FLANGE AND BUSHING INSTALLATION

Make sure the bore and tapered cone surface of the bushing and flanges are free of all foreign substances such a paint or dirt.

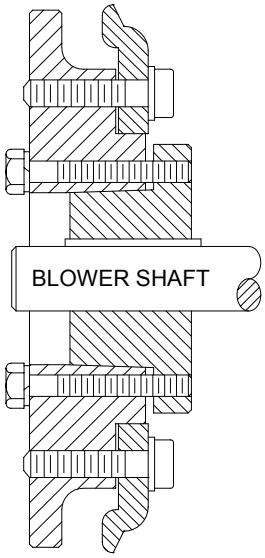
1. Place *QD bushing on the shaft over the key with flange end first. The end of the bushing should be flush with the end of the shaft for best results.
   NOTE : If shaft end project beyond the bushing, be sure to allow for end float and misalignment.

2. Either loosen flange assembly screws as much as possible or disassemble. Slip flange over *QD bushing and assemble in the following manner :



OUTSIDE MOUNT

A. OUTSIDE MOUNT. Align the clearance holes in the *QD bushing with the tapped holes of the flange assembly. Assemble pull-up bolts and lock washers as shown in above figure. Tighten pull-up bolts progressively and evenly to the *QD bushing bolt torque (108 in-lb).



INSIDE MOUNT

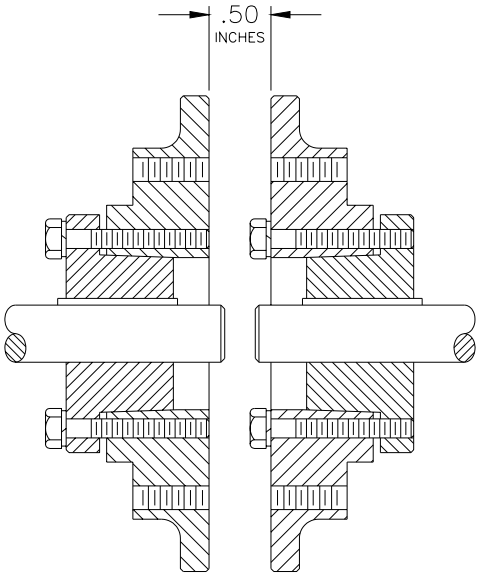
B. INSIDE MOUNT. Align clearance holes in the flange assembly with the tapped holes in the *QD bushing. Assemble pull-up bolts and lock washers as shown in above figure. Tighten pull-up bolts progressively and evenly to the *QD bushing bolt torque (108 in-lb).

CAUTION :

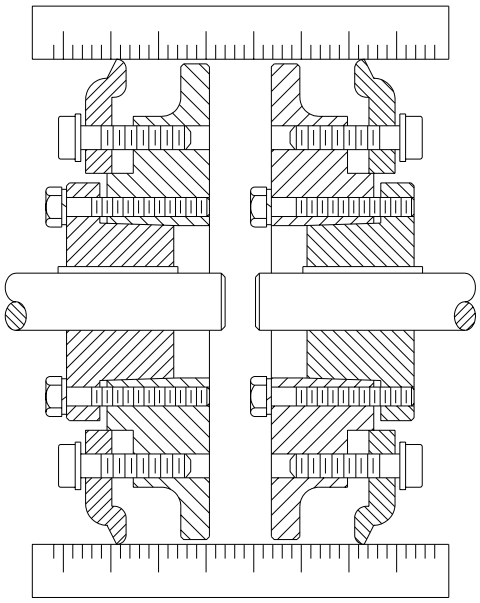
Never allow the flange assembly to be drawn in contact with the flange of the *QD Bushing. There should be a gap from "1/8" TO 1/4" between them. If the gap is closed, the shaft is seriously undersize.

Bolts of *QD Bushing: 1/4-20 x 1-1/4 , grade 5.
Bolts of Flange Assembly: 5/16-18 Socket Head Cap, equivalent to grade 8.

3. The second *QD bushing is placed on the other shaft as described on step 1 and the second flange assembly is slipped over the bushing and assembled to the distance of 1-1/8" (as indicated in below/left drawing) apart following the instructions in step 2.



FLANGE ASSEMBLY MOUNTED DISTANCE PRIOR TO INSTALLING FLEXIBLE ELEMENT



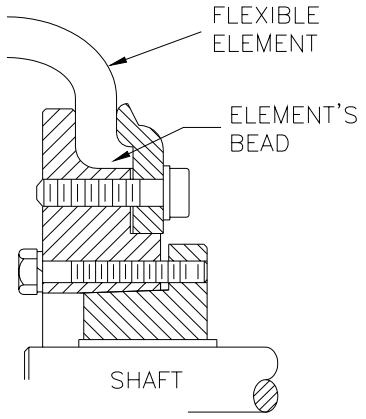
CHECKING THE FLANGE SPACING

4. FOR PARALLEL SHAFTS : Using a scale or straight edge, check the flange spacing and angular misalignment at four places 90° apart around the coupling without rotating the flanges. The flanges should be aligned so that the dimensions at all four places do not vary more than 1/32" for best results. Check parallel misalignment by laying the straight edge across the flange O.D. several places around the circumference of the coupling. Parallel misalignment not to exceed 1/32" for best results.

   FOR PARALLEL AND NON PARALLEL SHAFTS : For the longest coupling life is always best to align couplings as accurately as possible upon the initial installation.

INSTALLATION OF FLEXIBLE ELEMENT

5. You may loosen the flange assembly screws as much as possible without disassembly of cover or you may remove the screws completely thus disassembling the cover. In either case wrap the flexible element around the flange assembling. Make sure the beads of the element are fully worked down upon the seats of covers as shown in the detail on the right drawing. To insure proper seating, rap on the tire O.D. with a small mallet until the split is closed.
IMPORTANT : Split must be closed after assembly is completed.



FLEXIBLE ELEMENT INSTALLATION

6. Hold with your hand the split of the flexible element. Tighten (finger tight) one or two screws directly opposite the split. Using both hands knead the tire pulling it toward the split. Repeat the procedure on all remaining screws. Retighten each screw, in succession, with a torque wrench to 300 in-lb.

NOTE :
The metal pieces of the coupling that clamp the rubber element will operate properly only if tightly clamped by the screws. Over tightening cannot damage the rubber element, but being too loose may damage the coupling.

TO REPLACE TIRE

Loosen all flange assembly screws completely to disengage the covers of the flange assemblies. Grasp one end of the flexible element at the split and peel it off the flange assemblies. Remove any foreign substances, such dirt, off both sides of the flange assemblies and install the new flexible element according to step 5 and 6. If necessary to replace flange assembly screws, use only grade 8 or equivalent.

IMPORTANT NOTICE : Because of the possible danger to person(s) or property from accidents which may result in the use of this products, it is important that the Hi-Flex coupling be used in accordance with the engineering information specified in the catalog and in these instructions. Proper installation, maintenance and operating procedures must be observed. Proper guards and other safety devices that may be needed or specified in safety codes should be provided and used, but are neither provided by, nor the responsibility of the manufacturer.

8.4

STORAGE & SHIPMENT

PREPARING THE BLOWER FOR STORAGE

In preparing the blower for storage, the inner workings of the blower must be coated with a rust inhibiting oil. This is done by removing the air filter/silencer by turning it counterclockwise (CCW). After the filter/silencer is removed, access to the inner workings is possible. A rust inhibitor can then be sprayed into the blower while rotating the blower shaft to insure all parts are oiled. A compatible rust inhibitor should also be added to existing oil, and all bearings should be greased. Re-install filter onto blower and cover the filter assembly with a plastic bag to prevent debris from accumulating in the inlet tubes.

PREPARING THE ENGINE FOR STORAGE

An engine to be stored over 30 days should be completely drained of fuel to prevent gum deposits forming on essential parts, fuel filter, and tank.

NOTE

The use of a fuel additive, such as Dyna-Fog STA-BIL will minimize the formation of fuel gum deposits during storage. Such an additive may be added to the gasoline in the fuel tank of the engine, or to the gasoline in a storage container.

A. All fuel should be removed from the tank. Run the engine until it stops from lack of fuel. The small amount of fuel that remains in the sump of tank should be removed by absorbing it with a clean, dry cloth.

B. While the engine is still warm, drain the oil from the crankcase. Refill with fresh oil.

C. Remove the spark plug and pour approximately one ounce(30 cc.) of engine oil into the cylinder and crank slowly to distribute the oil. Replace the spark plug.

D. Clean dirt and chaff from cylinders, cylinder head fins, blower housing, rotating screen and muffler areas.

E. Store in a clean dry area.

STORAGE AND SHIPMENT (CONT'D)

PREPARING THE BATTERY FOR STORAGE

Disconnect positive (+) and negative (-) battery cables and wrap cable ends with electrical tape. Remove battery and store in a cool dry area.

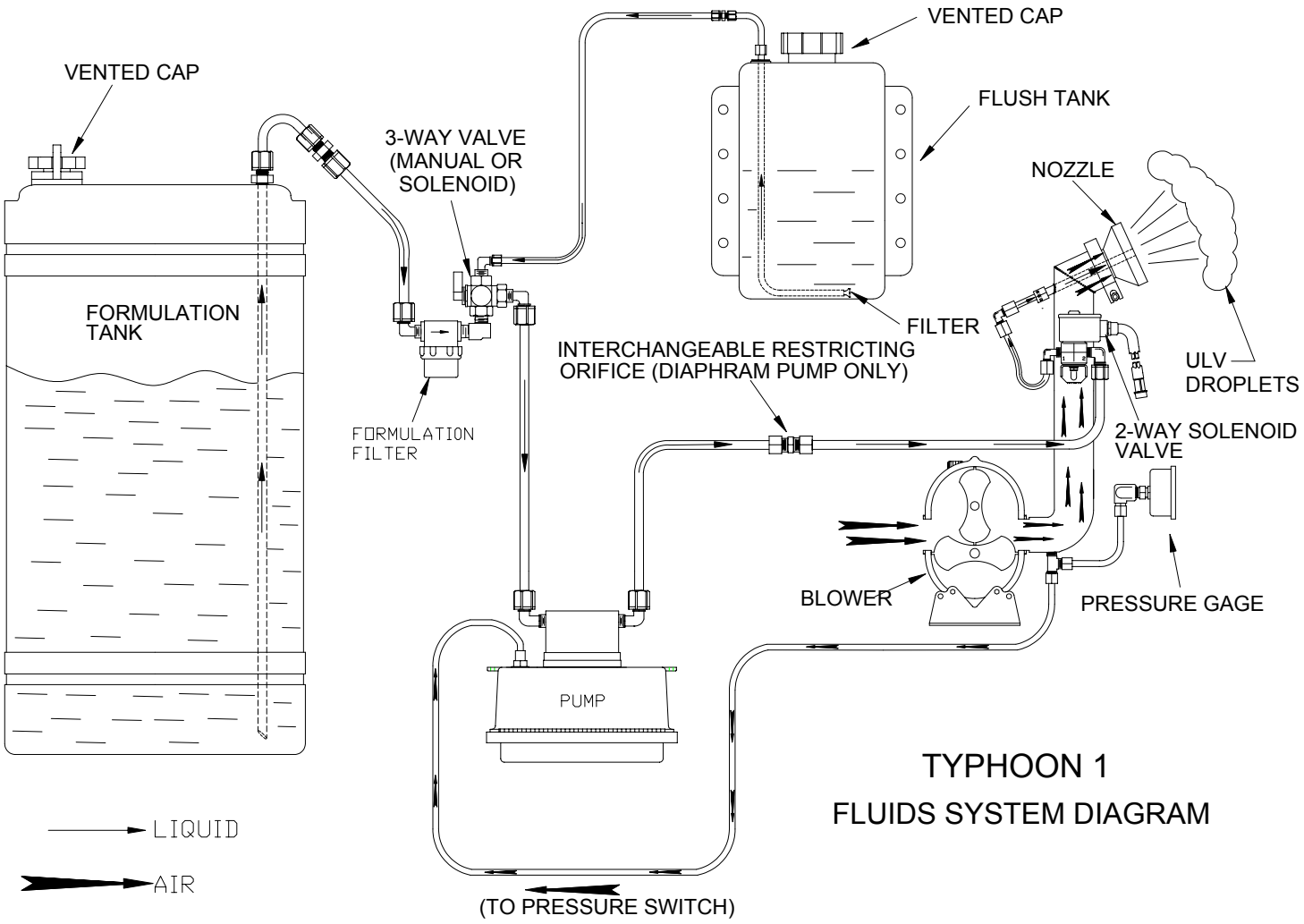
PREPARING THE FRAME ASSEMBLY FOR STORAGE

The frame should be wiped down with Isopropyl Alcohol and dried. If original shipping carton is not available the unit should be covered with a tarpaulin or plastic sheet.

WARNING
IT IS AGAINST FEDERAL LAW TO SHIP INSECTICIDES AND FLAMMABLE LIQUIDS IN AN UNMARKED, NON-D.O.T. APPROVED CONTAINER WITHOUT PROPER LABELING AND U.N. NUMBER.

If for any reason it becomes necessary to return your machine to our Factory, make certain that the Formulation and Fuel Tanks have been and flushed as described above. If a machine is received that has not been drained and flushed, a service fee will be charged for doing so.

9.0

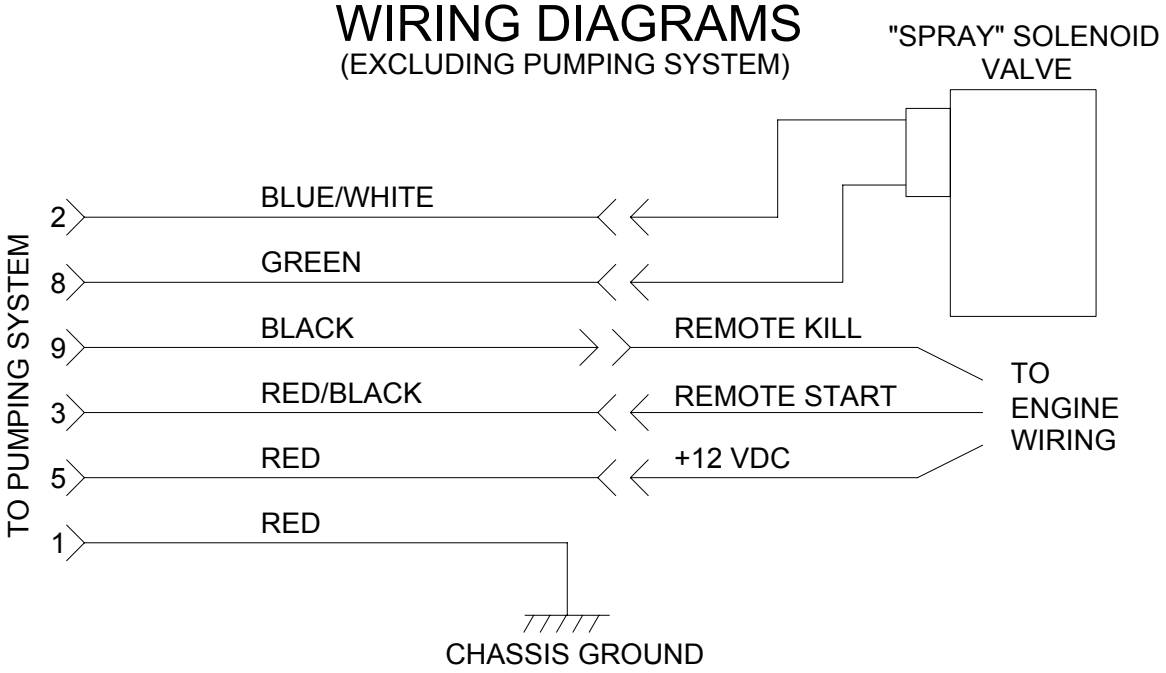


TYPHOON 1

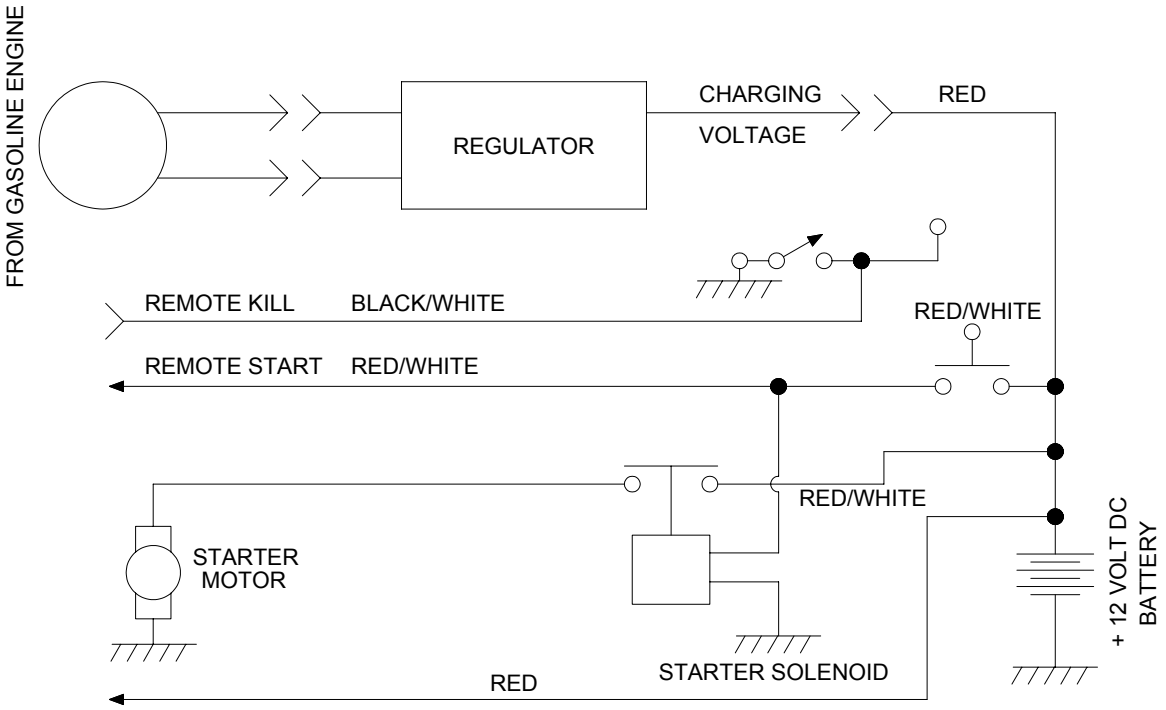
FLUIDS SYSTEM DIAGRAM

WIRING DIAGRAMS

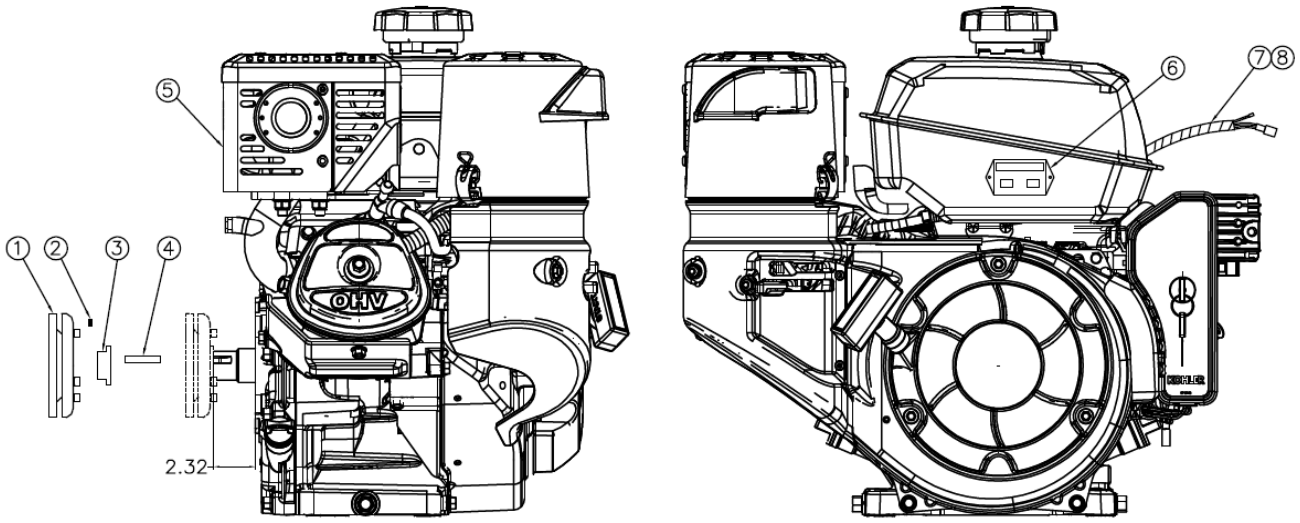
(EXCLUDING PUMPING SYSTEM)



MACHINE WIRING DIAGRAM



ENGINE WIRING DIAGRAM

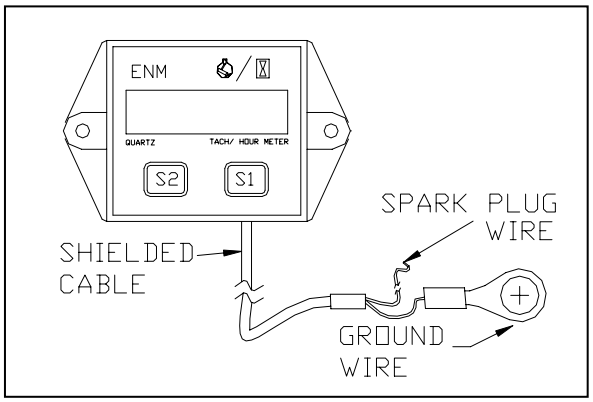


ENGINE ASSEMBLY P/N 64730-2

ITEM	QTY	P/N	DESCRIPTION
1	1	63458-1	FLANGE AY, OUTSIDE MNT.
2	1	139009	SCREW, SET, ¼-28 x ¼
3	1	63460-7	1″ SH BUSHING
4	1	62549	KEY ¼ x 1-3/4
5	1	49150	ENGINE, KOHLER 9.5 HP
6	1	64016	HOURMETER/TACHOMETER
7	1	49078	HARNESS, ADAPTER (B&S)
8	1	85685	CONNECTOR 3M

TACHOMETER / HOURMETER

THE NEW MODEL OF THE TACHOMETER/HOURMETER ALLOW THE POSSIBILITY TO USE THE MAINTENANCE METER TO ALERT MAINTENANCE PERSONNEL THAT A TIME INTERVAL HAS EXPIRED AND SERVICE SHOULD BE PERFORMED ON THE ENGINE.



INTRODUCTION

The ENGINE MONITOR is a self powered LCD Hourmeter/Tachometer and Maintenance Meter. An internal lithium battery furnishes the power for the monitor. A wire around the spark plug wire of the engine provides both a tachometer signal and an indicator that the engine is running. The maintenance meter is used to alert maintenance personnel that a time interval has expired and maintenance should be performed on the engine. Before changing any setting to the ENGINE MONITOR, ensure that the engine is Off.

INSTALLATION

Unpack and attach the unit to a location where it can be easily read. Uncoil the shielded wire and wrap 3 or 4 turns of the red wire around the engine's spark plug wire. The with wire must be attached to the engine's frame. The LCD will be blank because the ENGINE MONITOR is in its storage or sleep mode. With the engine off, press and hold the S1 button for 1 second to activate the monitor. This one time action will remove the ENGINE MONITOR from the sleep mode and turn it on. The LCD will display the accumulated hours on the hourmeter and a HOURS icon.

TO SET THE MAINTENANCE INTERVAL TIMER

Press and hold down the S2 button for 4 seconds. The right most digit on the LCD Will flash and the service icon will be displayed. Pressing and holding the S1 button will cause the flashing digit to automatically increment. When the desired number has been reached release the S1 button and press the S2 button for 1 second to increment to the next digit. Repeat above steps until the service time interval has been entered. After 14 to 16 seconds with no buttons pressed, the LCD display will return to total hours mode.

ACTIVATING THE MAINTENANCE INTERVAL TIMER

Press and hold the S1 and S2 button simultaneously for 20 seconds. The two digits will increment to 20 seconds and then return to total hours mode. When the engine is running and the maintenance time has reached zero, the service icon will come on.

VIEWING MAINTENANCE INTERVAL

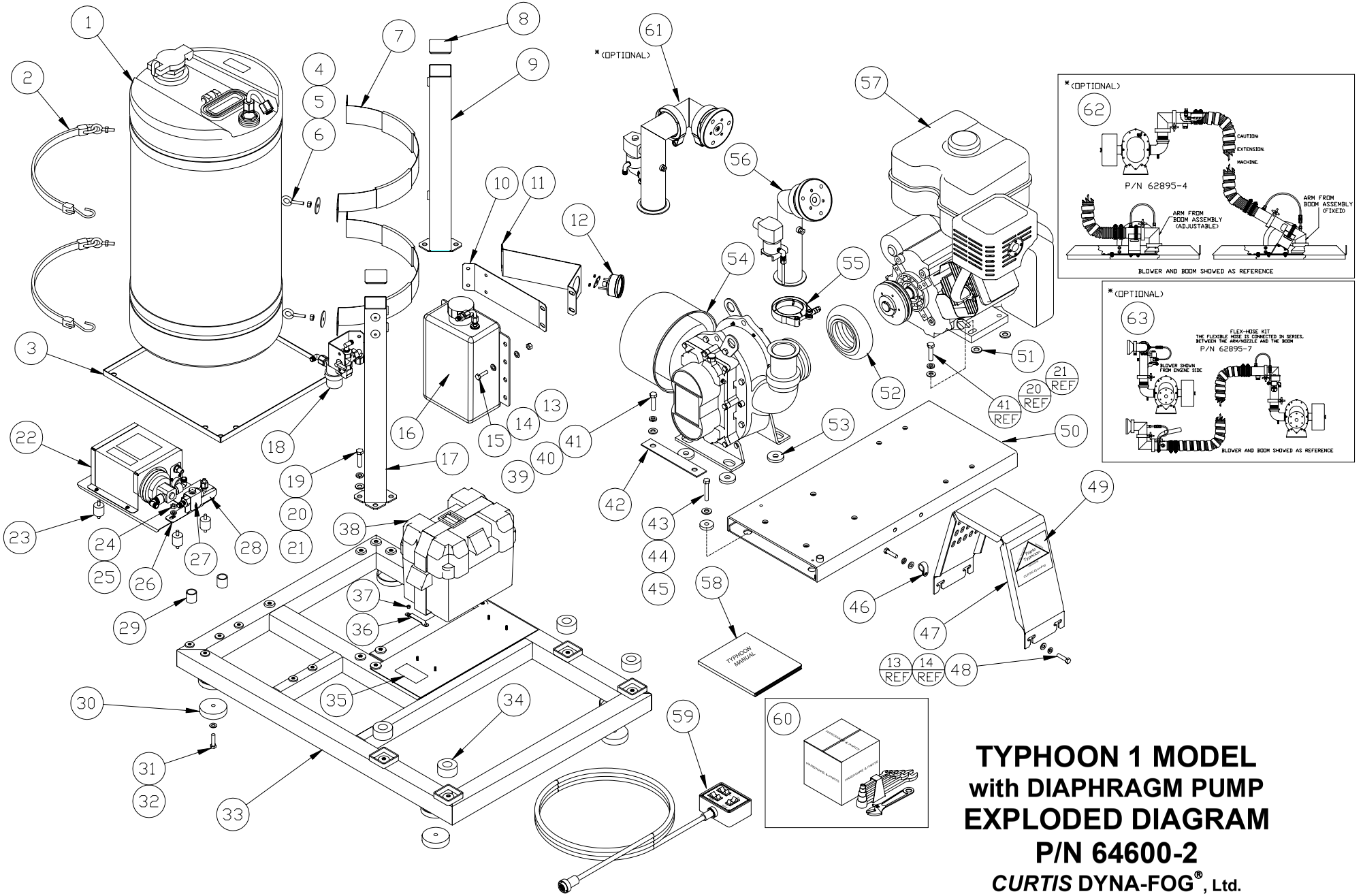
Press and hold the S2 button for 4 seconds to view remaining time of your maintenance interval . To continue current maintenance do nothing. If you would like to start a new maintenance interval, repeat steps 4 & 5 again. Each time you want to view the remaining time of your maintenance, press and hold S2.

RESETTING THE SERVICE ICON

Press and hold the S1 and S2 buttons for 20 seconds. The service icon will shut off. The maintenance time will automatically default to the number previously programmed.

TO DISPLAY HOURS ONLY

Press and hold the S1 button until 04 is displayed. Release the S1 button and the display returns to total hours after 8 to 10 seconds. When the engine is running the display will show hours only, no RPM and the Hour Icon will blink.

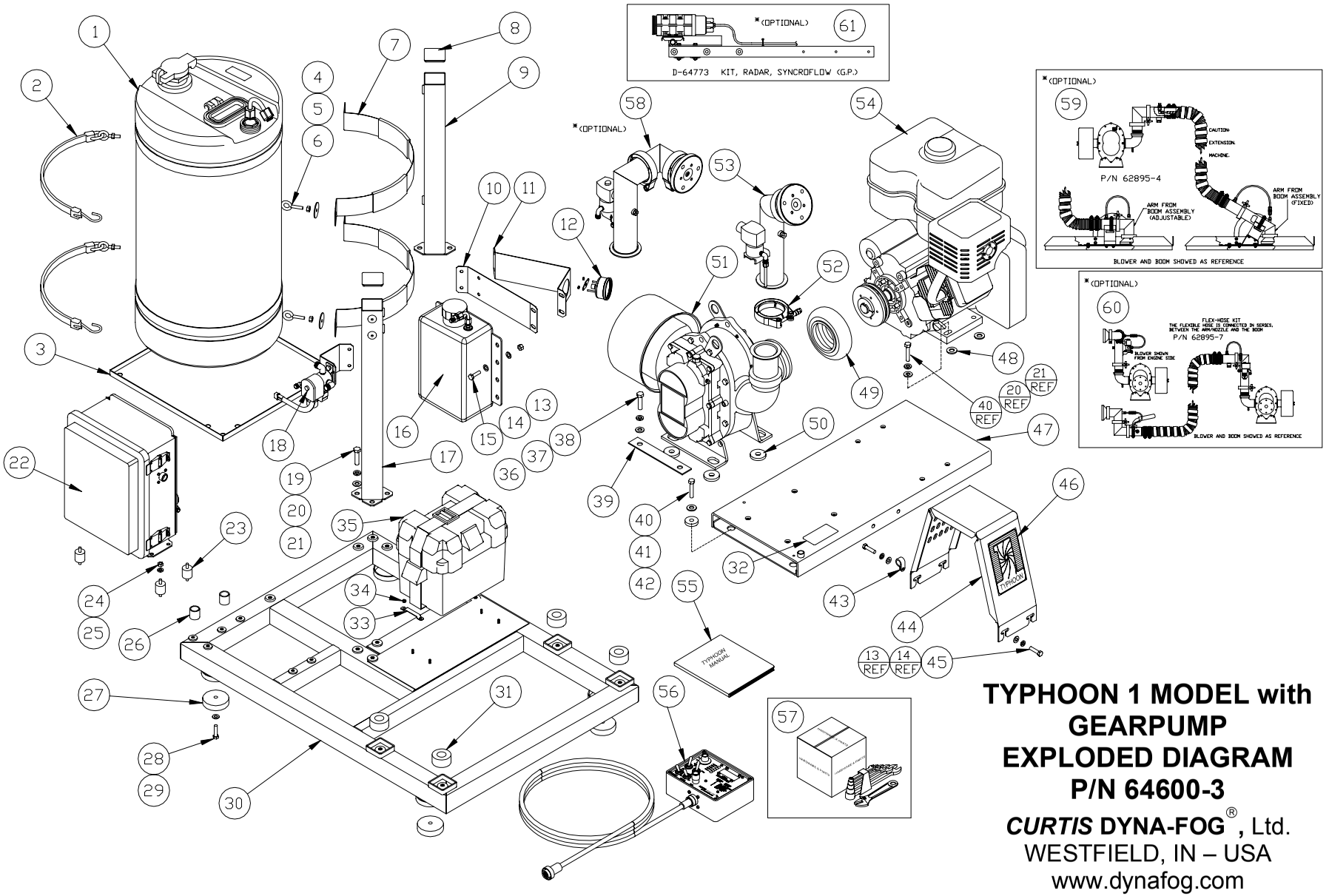


TYPHOON 1 MODEL
with DIAPHRAGM PUMP
EXPLODED DIAGRAM
P/N 64600-2

***CURTIS* DYNA-FOG®, Ltd.**
WESTFIELD, IN – USA
www.dynafog.com

PARTS LIST FOR TYPHOON 1 DIAPHRAGME PUMP, EXP. DIAGRAM

ITEM	QTY	P/N	ITEM DESCRIPTION
1	1	64004	TANK AY, 15G POLY
2	2	63268	TIE DOWN AY
3	1	64620-1	TRAY SPILL
4	4	63151	BOLT, EYE, ¼-20 x 2”
5	4	63621	WASHER, FENDER
6	4	134551	NUT, ¼-20, HEX
7	2	62875-2	STRAP, TANK AY
8	2	63150	PLUG, 2” SQUARE CAP
9	1	64610	POST AY, TALL FORMULATION
10	1	62884	BRACKET, FLUSH TANK
11	1	64618	BRACKET, PRESSURE GAUGE
12	1	64381	GAUGE AY, PRES 0-15 (PSI) PM
13	10	121887	BOLT, ¼-20 x ¾ HEX
14	12	120392	WASHER, FLAT ¼ REG
15	4	9419454	NUT, NYLOCK ¼-20
16	1	63337-1	TANK AY, 1 GAL. FLUSH
17	1	64612	POST AY
18	1	64639-1	VALVE AY, 3-WAY, 2984
19	8	122007	BOLT, HEX 5/16-18 x 3/4
20	12	120214	5/16 SPLIT WASHER, ZINC
21	12	120393	WASHER, FLAT, 5/16 SAE
22	1	64714	ENCL AY, DIAPH PUMP
23	4	63148	MOUNT, SHOCK (1/4-20)
24	4	120423	WASHER, LOCK, ¼ INTO
25	4	120375	NUT, HEX, ¼-20 ZN PL
26	1	64717	BRACKET AY VALVE SUPPORT
27	1	64746	STRAP VALVE METERING
28	1	64740	BRACKET AY, TOP
29	4	64680	SLEEVE, SHOCK MOUNT
30	4	49053	BUMPER, RUBBER 2.5″
31	4	121900	BOLT, ¼-20 x 1, HEX
32	4	9616904	WASHER, ¼ FLAT
33	1	64602	FRAME AY
34	4	63327	FOOT, EPDM RUBBER
35	1	64632-2	ID LABEL, MOD 2984-2
36	2	64631	STRAP, BATTERY RETAINER
37	4	114653	NUT, HEX 8-32
38	1	64637-1	BOX BATTERY, MACHINED
39	4	120382	BOLT, 3/8-16 x 1.75
40	4	122168	WASHER, LOCK, 3/8 SPLIT
41	4	120394	WASHER, FLAT, 3/8 REG
42	2	62873	HOLD DOWN, BLOWER
43	8	63432	BOLT, 5/16-18 x 1.5
44	8	63477	WASHER, FENDER 1.25 O.D.
45	4	62899	ISOLATOR
46	2	63285	CLAMP, CABLE 5/8
47	1	63469	GUARD, COUPLING 2985
48	10	120380	WASHER, LOCK, ¼ SPLIT
49	1	64735	LABEL, TRI-TYPHOON
50	1	64615	PLATE AY, BLOWER/ENGINE
51	4	63430	WASHER, ENGINE SPACER
52	1	63458-2	INSERT, DAYCO COUPLING
53	4	63063	SPACER (BLK ANOD.), BLOWER
54	1	63345	BLOWER AY, 33 URAI
55	1	63019	CLAMP, V-INSERT
56	1	64635	BOOM AY, TYPHOON 1
57	1	64730-2	ENGINE AY
58	1	64653	MANUAL, TYPHOON 1
59	1	64657	BOW AY, REMOTE
60	1	64701	KIT, TYPHOON 1 SERVICE (EXPORT)
*61	1	64629	ADJUSTABLE BOOM AY
*62	1	62895-4	SEWER KIT (TYPHOON 1)
*63	1	62895-7	KIT, REMOTE NOZZLE ATTACHMENT
		***OPTIONAL**	



TYPHOON 1 MODEL with GEARPUMP EXPLODED DIAGRAM P/N 64600-3

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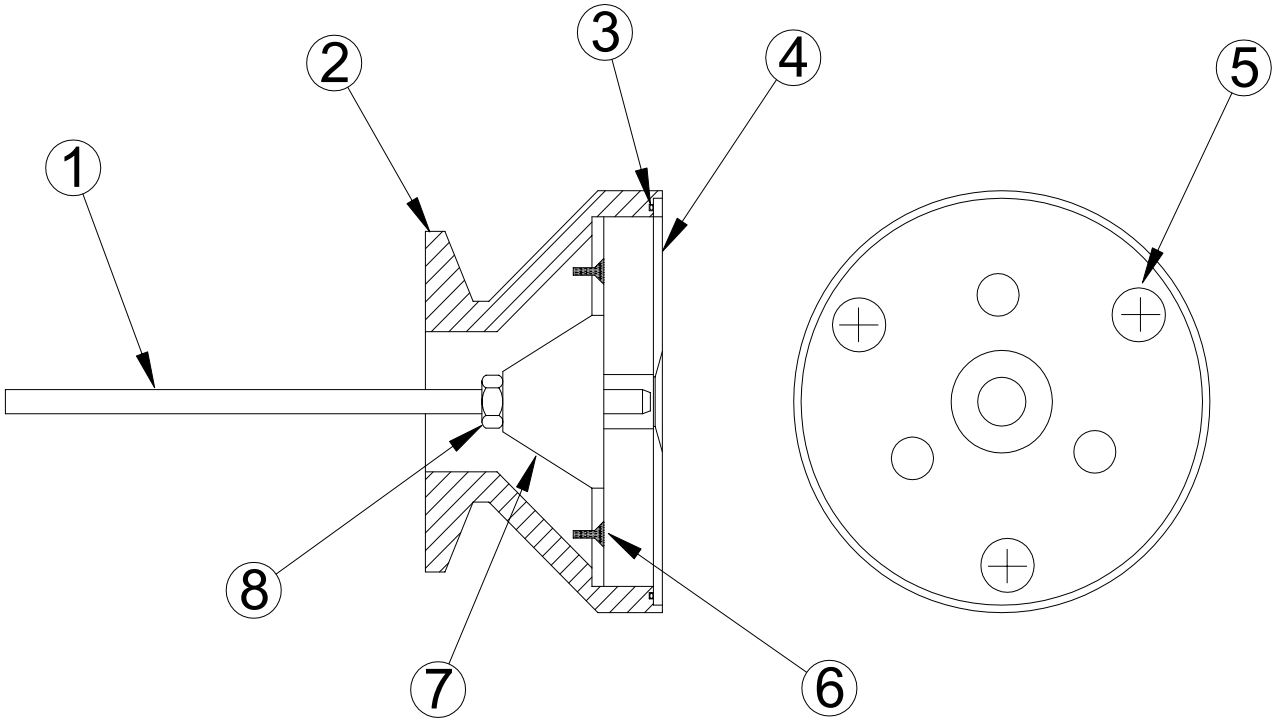
PARTS LIST FOR TYPHOON 1 GEAR PUMP EXPL. DIAGRAM

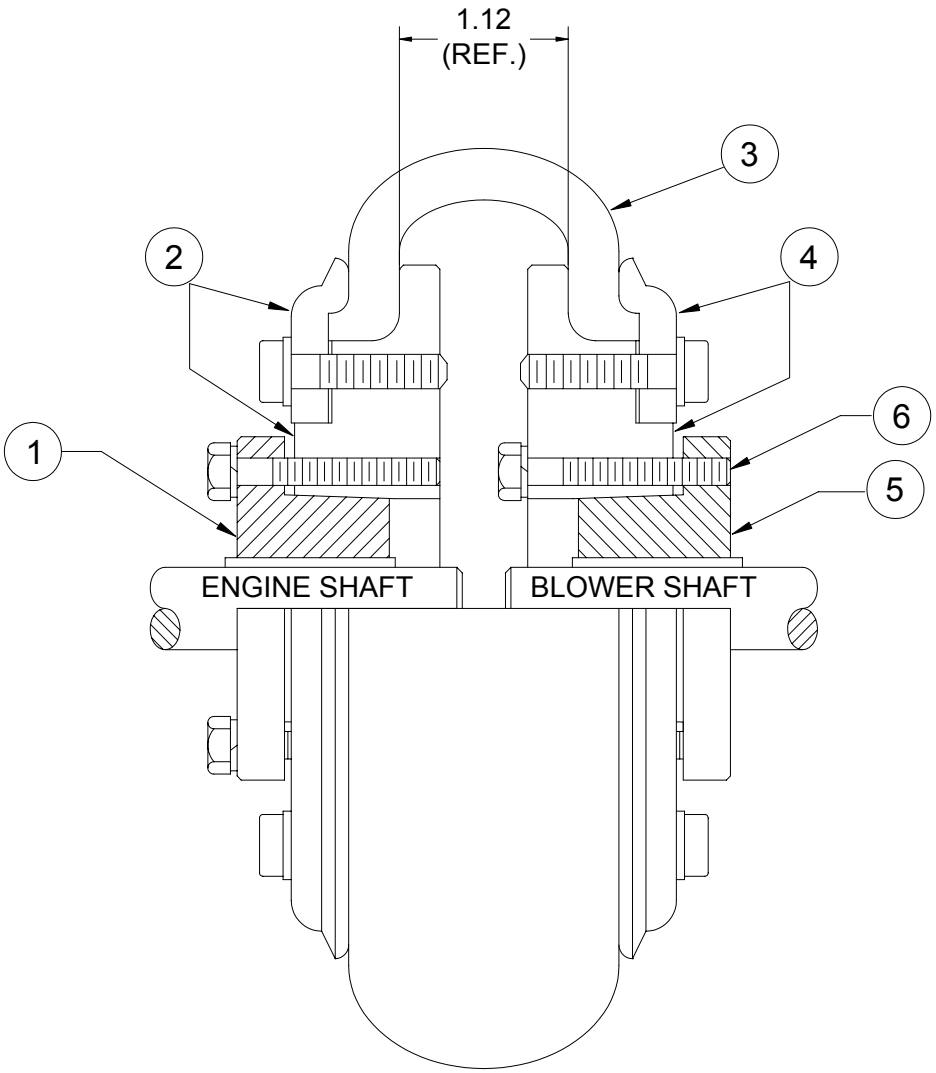
ITEM	QTY	P/N	DESCRIPTION
1	1	64004	TANK AY, 15G POLY
2	2	63268	TIE DOWN AY
3	1	64620-1	TRAY, SPILL
4	4	63151	BOLT, EYE ¼-20 x 2″
5	4	63621	WASHER, FENDER
6	4	134551	NUT, ¼-20, HEX
7	2	62875-2	STRAP, TANK AY
8	2	63150	PLUG, 2″ SQUARE CAP
9	1	64610	POST AY, TALL FORMULATION
10	1	62884	BRACKET, FLUSH TANK
11	1	64618	BRACKET, PRESSURE GAGE
12	1	64381	GAGE AY, PRES. S0-15 PSI (PM)
13	10	121887	BOLT, ¼-20 x ¾ HEX
14	12	120392	WASHER, FLAT ¼ REG
15	4	9419454	NUT, NYLOCK ¼-20
16	1	63337-1	TANK AY, 1 GAL. FLUSH
17	1	63173	POST AY
18	1	64679	SOL. VLV AY (3-WAY)
19	8	122007	BOLT, HEX 5/16-18 x ¾
20	12	120214	5/16 SPLIT LOCKWASHER, ZINC
21	12	120393	WASHER, FLAT 5/16 SAE
22	1	64656-R	ENCLOSURE AY, FMI RADAR
23	4	63418	MOUNT, SHOCK (1/4-20)
24	4	120423	WASHER, LOCK INTO
25	4	120375	NUT, HEX, ¼-20 ZN PL
26	4	64680	SLEEVE, SHOCK MOUNT
27	4	49053	BUMPER, RUBBER 2.5″
28	4	121900	BOLT, ¼-20 x 1″, HEX
29	4	9616904	WASHER, ¼ FLAT
30	1	64602	FRAME AY
31	4	63327	FOOT, EPDM RUBBER
32	1	64632-2	ID LABEL, MOD 2984-2
33	2	64631	STRAP, BATTERY RETAINER
34	4	114653	NUT, HEX 8-32
35	1	64637-1	BOX, BATTERY, MACHINED
36	4	120382	BOLT, 3/8-16 x 1.75″
37	4	122168	WASHER, LOCK, 3/8 SPLIT
38	4	120394	WASHER, FLAT, 3/8 REG
39	2	62873	HOLD DOWN, BLOWER
40	8	63432	BOLT, 5/16-18 x 1.5″
41	8	63477	WASHER, FENDER 1.25 OD
42	4	62899	ISOLATOR
43	2	63285	CLAMP, CABLE 5/8
44	1	63469	GUARD, COUPLING 2985
45	10	120380	WASHER, LOCK, ¼ SPLIT
46	1	64638	LABEL, TYPHOON 1 LOGO
47	1	64615	PLATE AY, BLOWER/ENGINE
48	4	63430	WASHER, ENGINE SPACER
49	1	63458-2	INSERT, DAYCO COUPLING
50	4	63063	SPACER (BLACK AND.), BLOWER
51	1	63345	BLOWER AY, 33 URAI
52	1	63019	CLAMP, V-INSERT
53	1	64635	BOOM AY, TYPHOON 1
54	1	64730-2	ENGINE AY
55	1	64653	MANUAL, TYPHOON 1
56	1	64657	BOX AY, REMOTE
*57	1	64701	KIT, TYPHOON 1 SERVICE ***(EXPORT ONLY)***
*58	1	64629	ADJUSTABLE BOOM AY ***(OPTIONAL)***
*59	1	62895-4	SEWER KIT, TYPHOON 1 ***(OPTIONAL)***
*60	1	62895-7	KIT, REMOTE NOZZLE ATT ***(OPTIONAL)***
*61	1	64733	KIT, RADAR, SYNCFLOW, G.P. ***(OPTIONAL)***

* OPTIONAL



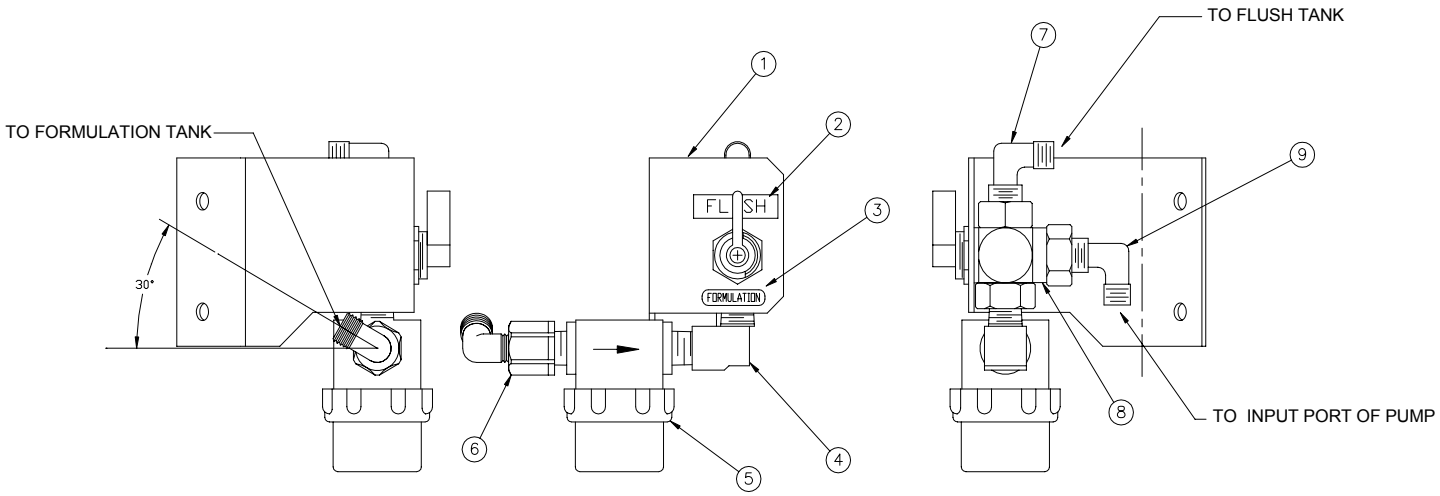
ULV NOZZLE ASSEMBLY P/N 64630

ITEM #	QTY	P/N	DESCRIPTION
1	1	64650	TUBE, NOZZLE SPRAY
2	1	64647	BODY, NOZZLE
3	1	10100-153	O'RING, 3.693 OD
4	1	64649	DISC, NOZZLE, MACHINED
5	3	64643	SCREW, #10-24 x 3/8, SST
6	3	64642	SCREW, #6-32 x 3/8, SST
7	1	64651	FIN/NOZZLE CONE AY
8	1	422987	NUT, JAM 5/46-24

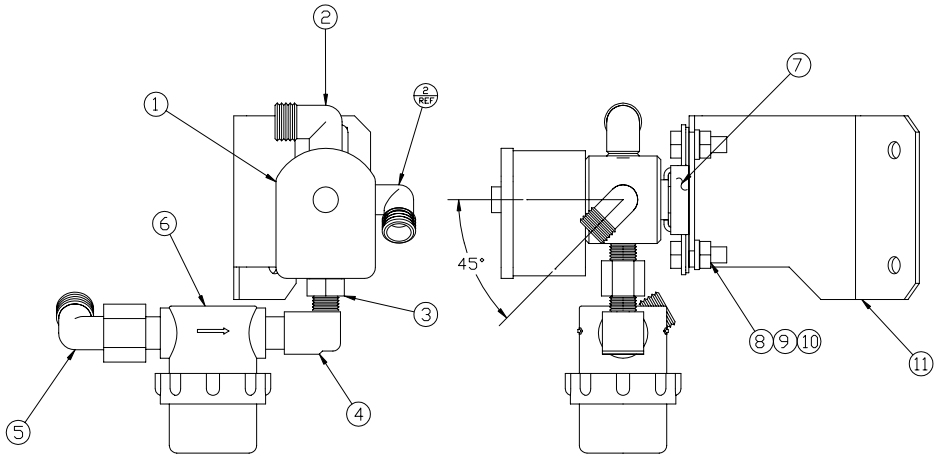


FLEXIBLE COUPLING ASSEMBLY

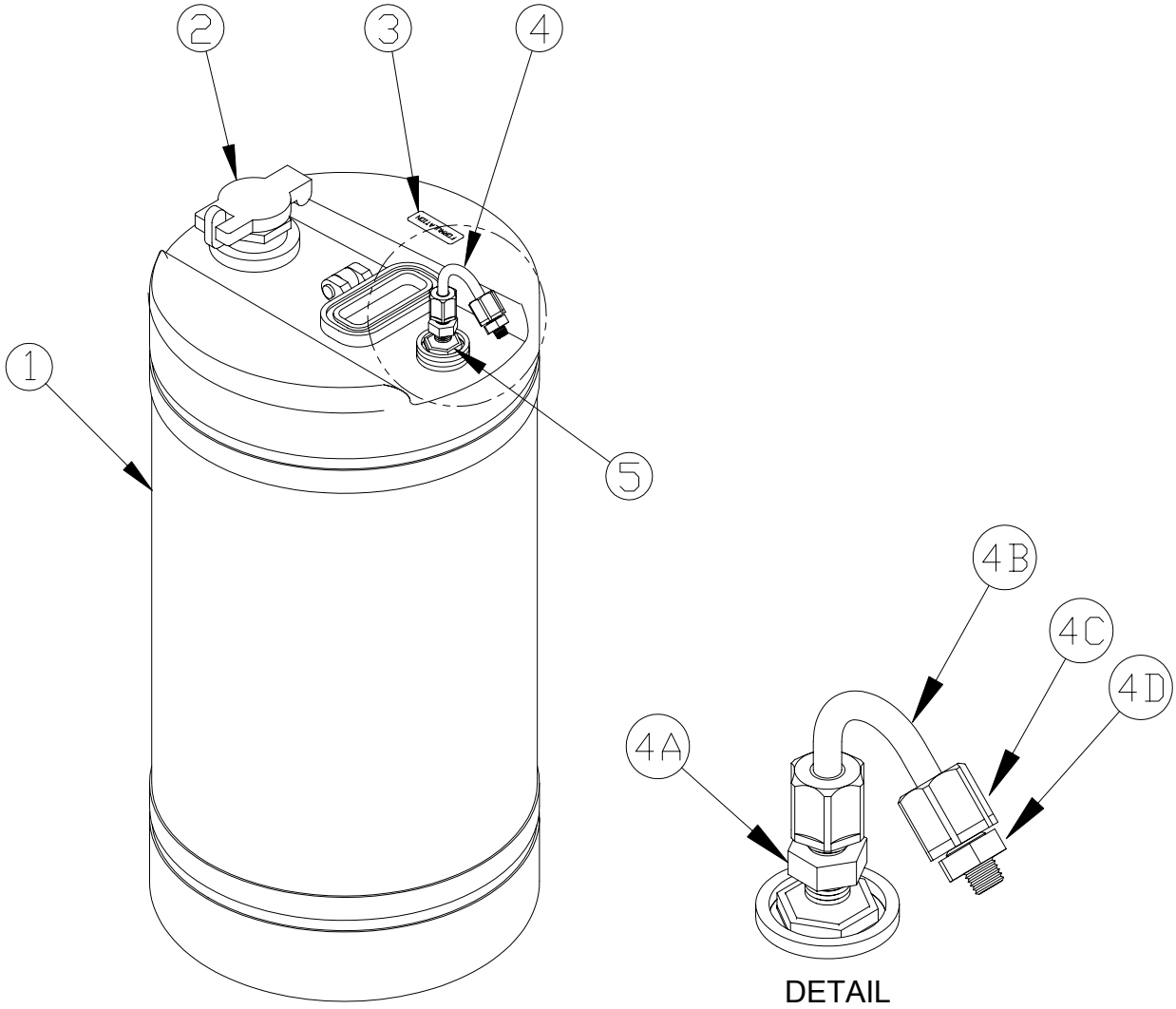
ITEM	QTY	P/N	DESCRIPTION
1	1	63460-3	BUSHING, 1″ BORE
2	1	63458-1	FLANGE AY, OUTSIDE MOUNT
3	1	63458-2	INSERT, COUPLING
4	1	63458-4	FLANGE AY, INSIDE MOUNT
5	1	63460-2	BUSHING, 7/8″ BORE
6	3	63438	BOLT, HEX ¼-20 x 1 ½



3-Way Valve/Bracket AY. P/N 64639-1 (Diaphragm & FMI Pumps)			
ITEM	**QTY**	**P/N**	**DESCRIPTION**
1	1	64619	BRACKET, VALVE MNTG
2	1	63686	LABEL, FLUSH
3	1	63685	LABEL, FORMULATION
4	1	ASC-35	ELBOW, 1/4FP-1/4MP
5	1	62558-5	FILTER, LOW PROFILE
6	1	62554-4	ELBOW, 1/4FP-3/8T
7	1	62641-2	ELBOW, 1/4MP-1/4T
8	1	86196	VALVE, 3-WAY
9	1	62641-3	ELBOW, 1/4MP-3/8T



3-Way Valve/Bracket AY. P/N 64679 (Gear Pumping System)			
ITEM	**QTY**	**P/N**	**DESCRIPTION**
1	1	62650	VALVE, 3-WAY SOLENOID
2	2	62641-2	ELBOW, 1/4MP-1/4T
3	1	63163	ADAPTOR, 1/4FP-1/4MP
4	1	ASC-35	ELBOW, 1/4FP-1/4MP
5	1	62554-4	ELBOW, 1/4FP-3/8T
6	1	62558-5	FILTER, LOW PROFILE
7	1	64619	BRACKET, VALVE
8	2	121887	BOLT, ¼-20 x ¾ HEX
9	2	120380	WASKER, LOCK, ¼ SPLIT
10	2	120375	NUT, 1/7-20 HEX
11	1	62732	BRACKET, RETAINER

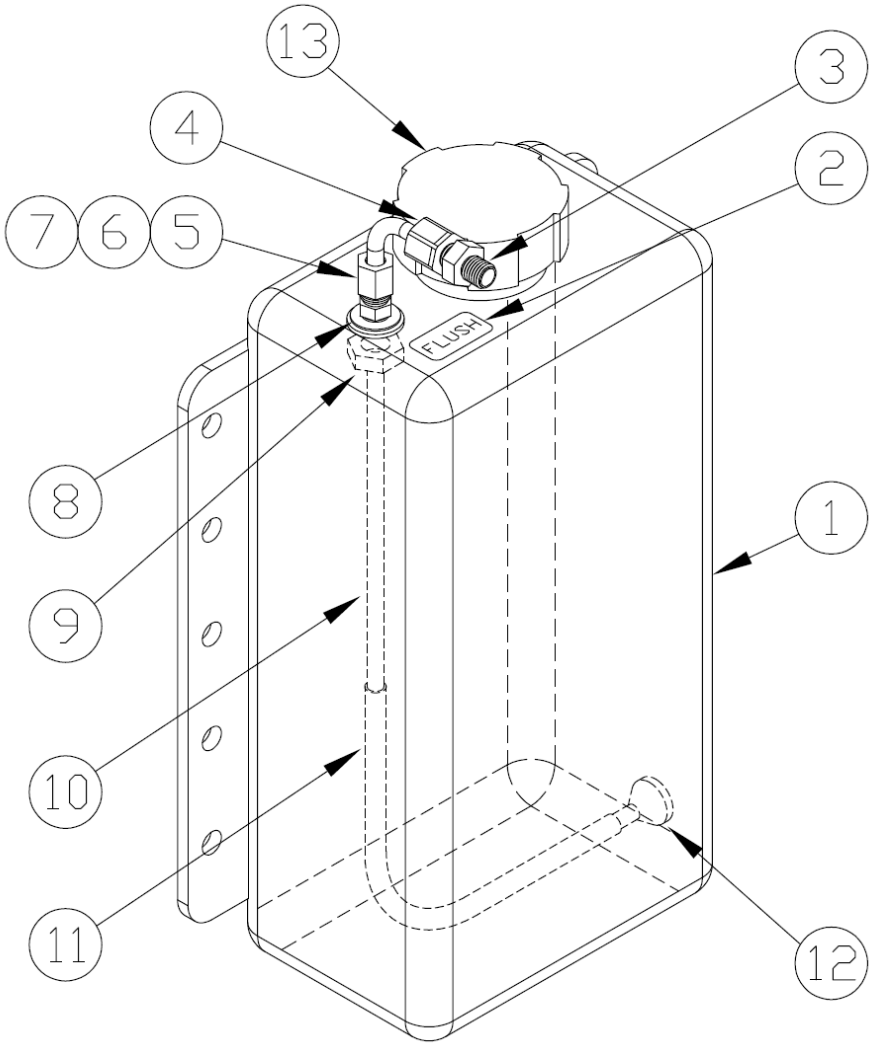


DETAIL

P/N 64004 FORMULATION TANK ASSEMBLY

ITEM	QTY	P/N	DESCRIPTION
1	1	64002-1	TANK, 15 GAL
2	1	64077	CAP, LOCKABLE
3	1	63094	LABEL, FORMULATION
4	1	62574	FORMULATION STANDPIPE ASS'Y
4A	1	62573-2	CONNECTOR, MALE, MOD.
4B	1	62545	FORMULATION STANDPIPE
4C	2	62550-3	CONNECTOR, MALE, MOD.
4D	1	62553-3	CONNECTOR, UNION 3/8 T
5	1	64772	BUSHING, NL, 3/4 P – 3/8 P

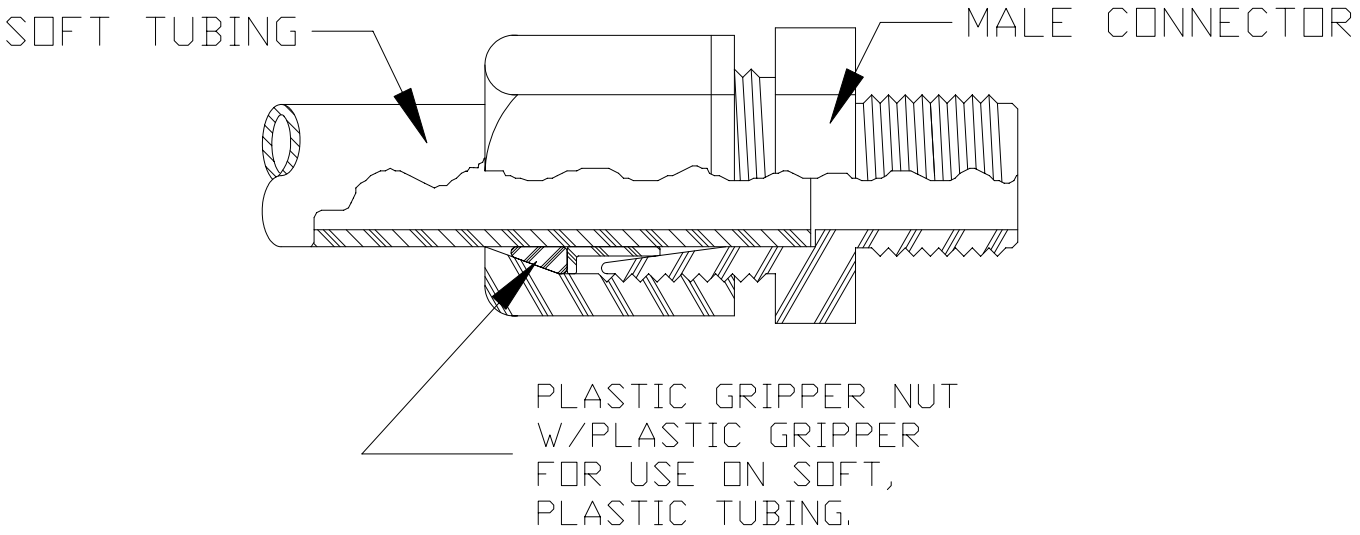
FLUSH TANK ASSEMBLY (1 GALLON), P/N: 63337-1



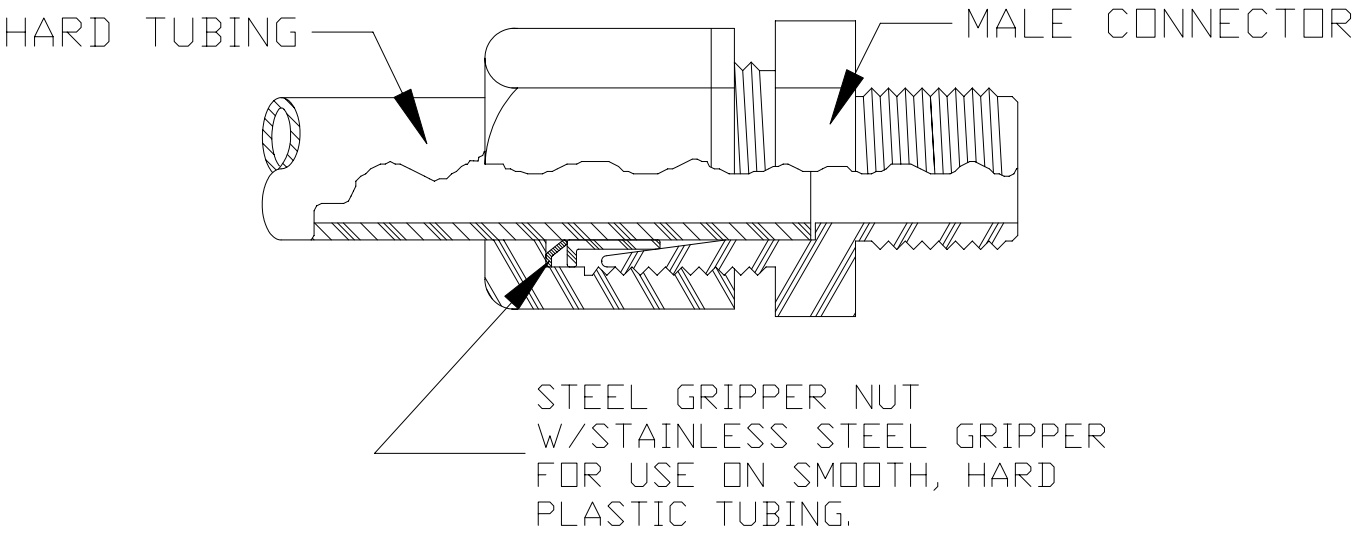
ITEM	QUANTITY	PART NUMBER	ITEM DESCRIPTION
1	1	63302-6	TANK, 1 GAL. (MACHINED)
2	1	62592	LABEL, FLUSH
3	1	62553-1	CONNECTOR, UNION, 1/4 T
4	1	62550-1	NUT, .25, STEEL GRIP
5	1	114628	SLEEVE, 1/4 T
6	1	145463	NUT, 1/4 T
7	1	10105	CONNECTOR, STANDPIPE
8	1	53131	WASHER, FLAT
9	1	74288	NUT, LOCK, 1/8 NPSL
10	1	63336	STANDPIPE, FLUSH TANK
11	1	62054-14	TUBING, .25
12	1	62346	FILTER, PLASTIC, PICK-UP
13	1	63302-2	CAP AY., 2 QT. VENTED

SAMPLE CONNECTIONS USING STEEL & PLASTIC GRIPPER NUT

P/N 62582-1 FOR 1/4" TUBING
P/N 62582-3 FOR 3/8" TUBING



P/N 62550-1 FOR 1/4" TUBING
P/N 62550-3 FOR 3/8" TUBING



12.0

TROUBLE SHOOTING

SYMPTOMS	POSSIBLE CAUSE	CORRECTIVE ACTION
1. Starter fails to crank engine.	a. Battery cable connections loose, dirty, or damaged.	a. Clean & tighten cable connections. Replace a damaged cable
	b. Dead battery	b. Replace or charge battery
	c. Defective starter switch	c. Check starter button on engine
	d. Starter defective	d. Replace starter
	e. Blower locked up	e. Inspect blower for rotation
2. Engine hard to start or stops running	a. START-STOP switch on engine in stop position or faulty	a. Place switch in start position
	b. machine ON-OFF switch located on remote box in OFF position or faulty.	b. Place switch in ON position or replace faulty switch
	c. No fuel or contaminated fuel	c. Add fuel or clean tank and refuel
	d. Clogged fuel filter	d. Clean or replace fuel filter
	e. Spark plugs faulty	e. Clean or replace plugs
	f. Fuel pump on carburetor defective	f. Consult nearest Kohler service Center
	g. Terminals loose or wiring defective	g. Tighten loose terminals, replace defective wiring
	h. Spark plug wire disconnected	h. Connect spark plug wire
3. Engine misses or runs erratically	a. Spark plug faulty	a. Clean or replace plugs
	b. Spark plug wire disconnected	b. Connect spark plug wire
	c. Contaminated fuel	c. Replace fuel
	d. Clogged fuel filter	d. Clean or replace
	e. Carburetor mounting gasket leaks	e. Tighten bolts, replace gasket if necessary
	f. Cylinder head gasket leaks	f. Tighten cylinder head bolts.
	g. Carbon build-up beneath cylinder head	g. See engine manual

TROUBLE SHOOTING
(continued)

SYMPTOMS	POSSIBLE CAUSE	CORRECTIVE ACTION
4. Engine knocks or develops noise	a. Crankcase oil low	a. Fill oil to proper level, after oil fill, if noise continues, consult nearest Briggs service center.
	b. Spark arrestors clogged	b. Clean or replace
	c. Flywheel loose	c. Consult nearest Kohler service center
5. Engine will not idle smoothly	a. Carburetor dirty or out of adjustment	a. Clean or adjust carburetor
	b. Springs on speed control lever fell off	b. Replace springs
6. Engine overheats	a. Crankcase oil low	a. Add oil to proper levels
	b. Air shroud clogged	b. Clean or replace air shroud
	c. Exhaust restricted	c. Replace muffler
	d. Spark arrester clogged	d. Clean or replace
7. Engine backfires	a. Gasoline mixture too lean	a. Adjust carburetor
	b. Defective spark plugs	b. Clean, adjust, or replace
	c. Intake valve	c. Free, clean and adjust valve
8. Engine Compression low	a. Valve clearance improper	a. Adjust valve
	b. Defective cylinder head	b. Consult nearest Kohler service center
	c. Defective valves or piston	c. Consult nearest Kohler service center
	d. Cylinder head gasket leaks	d. Tighten head bolts or replace bolts

TROUBLE SHOOTING
(continued)

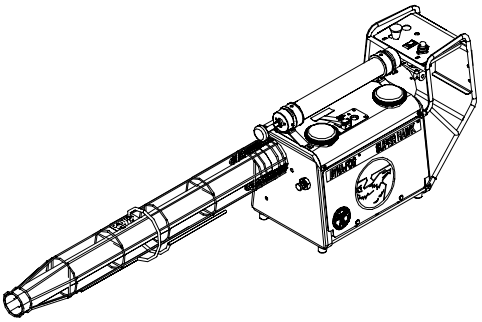
SYMPTOMS	POSSIBLE CAUSE	CORRECTIVE ACTION
9. Engine does not deliver full power	a. Carburetor choke valve partly closed	a. Adjust choke
	b. Air cleaner dirty	b. Service air cleaner
	c. Carburetor defective	c. Clean, adjust or replace
	d. Exhaust restricted	d. Replace muffler
	e. Spark arrester clogged	e. Clean or replace
	f. Rotary blower air inlet filter restricting air inlet	f. Inspect filter
10. Engine stops suddenly	a. Ignition switch faulty	a. Replace ignition switch
	b. Fuel system has dirt, water or gum	b. Clean fuel tank, link & check fuel filter
	c. Defective choke on linkage	c. Inspect choke linkage wire
	d. Carburetor defective	d. Clean or replace
	e. Rotary blower locked up	e. Inspect rotary blower for rotation
	f. Fuel pump defective	f. Clean or replace
	g. Faulty wiring	g. Tighten loose terminal, replace defective wiring
11. Blower will not operate while engine is running	a. Defective coupling	a. Check coupling, tighten flange screws as specified.
	b. Gears in blower damaged	b. Consult factory
12. Blower makes excessive noise	a. Rotors, gears, or bearings defective	a. Consult factory

13.0

CONVERSION TABLES

TO CONVERT	TO	MULTPLY 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.....	GALLONS.....	**.264**
KILOGRAMS.....	POUNDS.....	**2.204**

DYNA-FOG® Offers a complete and wide assortment of aerosol generator systems.



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

ELECTRIC ROTARY ATOMIZERS:
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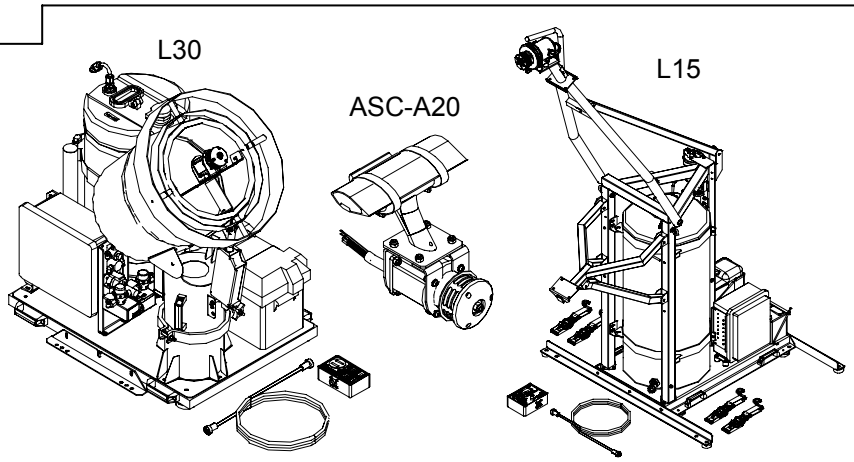

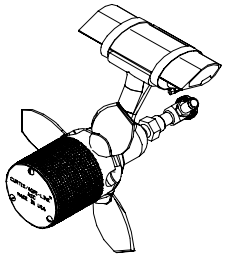

WIND DRIVEN ROTARY ATOMIZERS:
The ASC-A10 is a wind driven atomizer designed for Fixed Wing aircraft. The rotational speed of the atomizer controls the droplet size and can be adjusted by changing the angle of the blades. Also available is the ASC-A10H for Rotary Wing application.
No other Rotary atomizer for aircraft can handle the amount of Flow rate as the ASC Atomizer.
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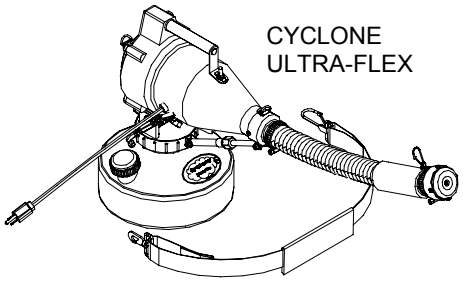

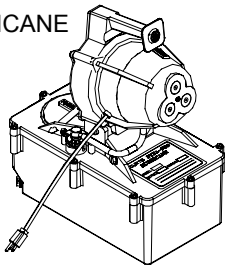

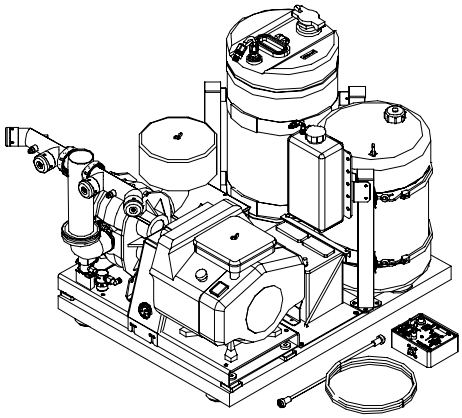

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