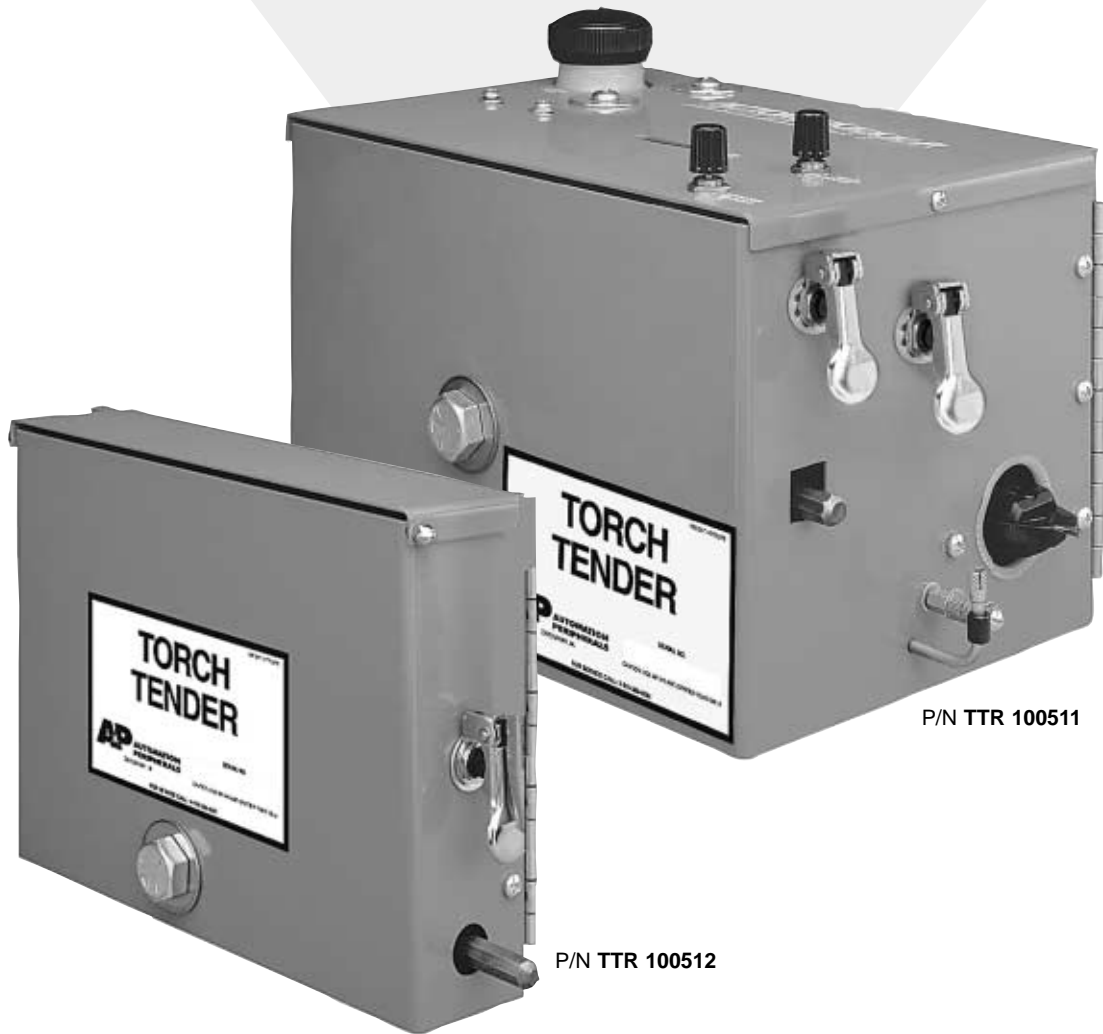


Torch Tender

INSTALLATION & OPERATION MANUAL



8900 Harrison Street, Davenport, Iowa 52806
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SAFETY

Automation Peripherals is concerned with the safety and welfare of its customers and their employees. Careful consideration has been given to the design and safety hardware supplied in this product. The product described in this document contains safety equipment that is intended as a supplement to the customer's complete safety program. These safety precautions are not meant to replace any related Federal, State or Municipal laws, regulations, or guidelines pertaining to safety. Automation Peripherals

believes that the appropriate levels of safety for an installation of this product can best be determined by safety professionals most familiar with the intended application, and we consider it the responsibility of the customer to ensure this level of safety be accomplished. We recommend that each customer consult with such professionals in order to provide a work place that allows for the safe application, use and operation of this proposed product.

SPECIFICATIONS

Height8.75"
Width 12.08"
Depth 10.75"
Weight (empty)
 Torch Tender Hammer only 12 lbs.
 Torch Tender with mister 15 lbs.
 Torch Tender with mister & snip.....24 lbs.

Operating Pressure80-100 PSI
 Anti-Spatter CompoundAP-356 only
 Filtration5 micron

INSTALLATION

– **Mounting** The Torch Tender must be installed in a position so the nozzle can approach the Torch Tender, misting equipment (optional), and wire snip (optional) with out interference. Personnel must be able to safely access the unit for routine maintenance. Possible mounting methods:

1. Use the pre-drilled holes in back of housing plate (see Mounting Template on page 4) to bolt to a flat surface.

OR

2. Weld the back-plate to a support structure.
(see Mounting Template on page 4)

– Air-Line Connection

1. Use only filtered, unlubricated air.
2. 80 - 100 PSI should be used for best results.
3. 1/4-NPT - connect flexible hose.

SET-UP AND ADJUSTMENTS

- Filling the Air-Line Lubricator

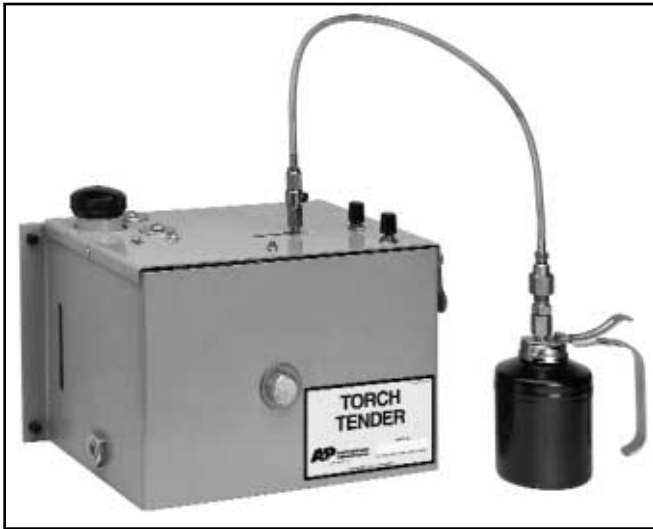


Figure 1

To fill the oil reservoir, disconnect from plant air to relieve air pressure. Insert a nozzle of a pump-type oil gun into fill opening, and apply pressure to inject the oil. (see Figure 1) Do not overfill. See Material Safety Data Sheet (MSDS) for composition of recommended oil.

NOTE: Air-line lubricator is filled at the factory.

- Setting the Hammer Frequency The hammer frequency needed for proper cleaning varies depending on the type of welding, the size of the nozzle and the rigidity of the nozzle being cleaned. The intention is to cause maximum vibration of the nozzle without harming the torch, or changing the tool center point (TCP). To determine the range of stride frequency, manually operate hammer paddle, (V1), and adjust the striker adjustment knob, (SC1), from totally closed to fully open. (see Figure 2.)

Turning the knob counterclockwise increases the striker frequency. Set the frequency close to mid-range. Move the robot into position and allow the nozzle to engage the hammer paddle actuator. Allow for a .125" deflection during the cleaning sequence. While the nozzle is activating the striker, put your finger on the outside of the nozzle.

CAUTION: Be sure the nozzle is **NOT** hot!

If the nozzle vibrates violently (meaning it would be hard to maintain your finger on the nozzle), decrease the strike frequency with the Striker Adjustment knob, (SC1), until the vibration becomes more subdued. If the nozzle vibrates softly, increase the strike frequency until you have to apply a small amount of pressure to maintain finger contact with the nozzle. This is the most effective frequency to dislodge matter from inside the nozzle tip.

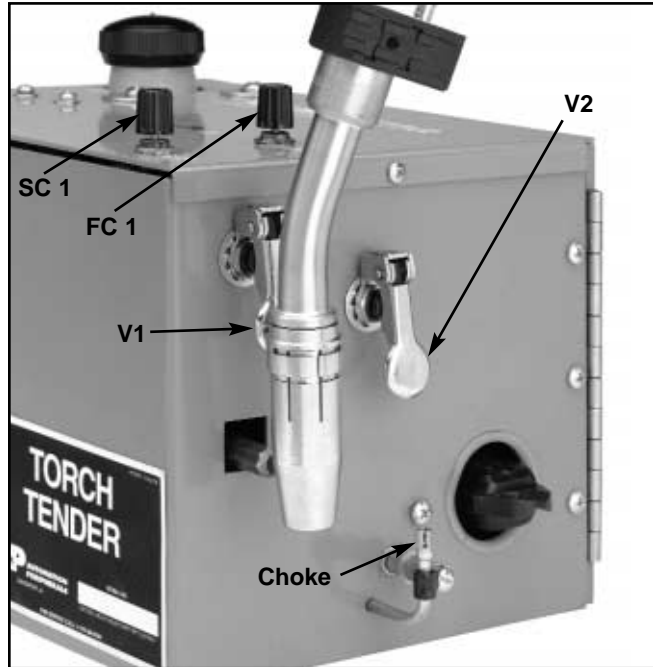


Figure 2 - Torch in position for cleaning by air hammer.

SET-UP AND ADJUSTMENTS

- Filling the Anti-Spatter Reservoir Remove the cap and fill the reservoir with AP-356 Anti-Spatter compound until full. Visually check the fluid level through the liquid-level sight slot in the side of the housing, as shown in *Figure 3*. Replace the cap.

CAUTION: Use of Anti-Spatter compound other than AP-356 may cause damage to the Torch Tender. Automation Peripherals will not warrant damage of this nature.

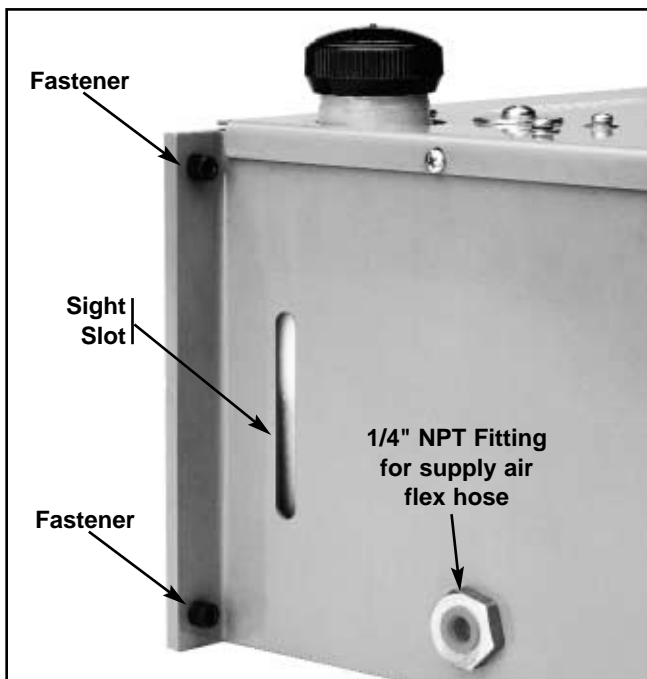


Figure 3 - Anti-spatter reservoir sight slot and air supply inlet fitting.

- Adjusting the Anti-Spatter Mist There is one adjustment for the misting application: The mist adjustment knob, (FC1), controls the force and the amount of Anti-Spatter compound contained in the mist. (See *Figure 4*.) Turning the mist adjustment knob, (PC1), clockwise causes the dispersal range to become wider and shorter.

These adjustments should be set to deliver a burst of mist upon actuation of the mist switch to produce a film on a dry nozzle within two to three seconds. The adjustment should be made to permit dispersal which envelopes the nozzle, creating a film of Anti-Spatter compound on both the outside and inside of the torch, but not releasing a large amount into open atmosphere. If the liquid line becomes clogged, unscrew the choke (see *Figure 4*), place thumb or forefinger over the end of the nozzle, and actuate the mist paddle, (V2), forcing air through the lube line and reservoir, clearing the system.

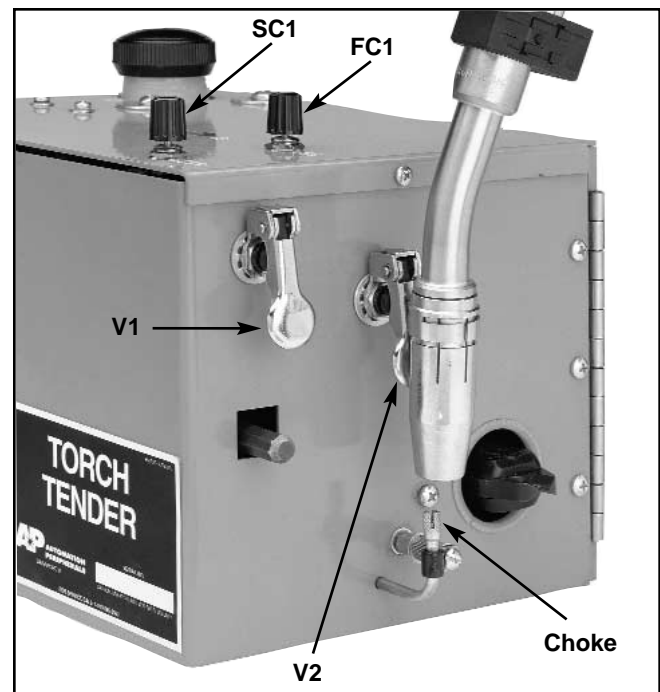
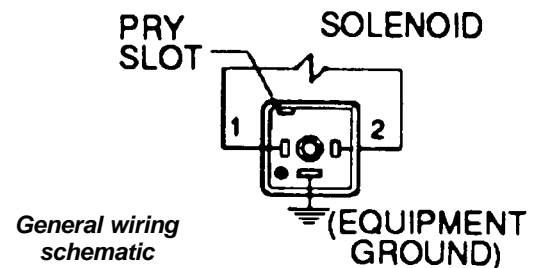


Figure 4

- Set-up for the Wire Snip The wire snip is controlled by a single solenoid valve. The valve is actuated by a separate external electrical signal. The solenoid valve comes with a prewired cable plug. The plug has three wires, one for ground and the other two to operate the solenoid. Each application is different. Refer to the devices manual on which this will be wired.



OPERATION

The Torch Tender is actuated entirely by robotic movements. It performs the following functions:

1. Cleans the spatter from the welding nozzle by “vibrating” the nozzle at an adjustable frequency.
2. Lubricates the nozzle with special Anti-Spatter compound. (Optional)
3. Cuts weld wire to a predetermined stick-out. (Optional) (see *Figure 5*)

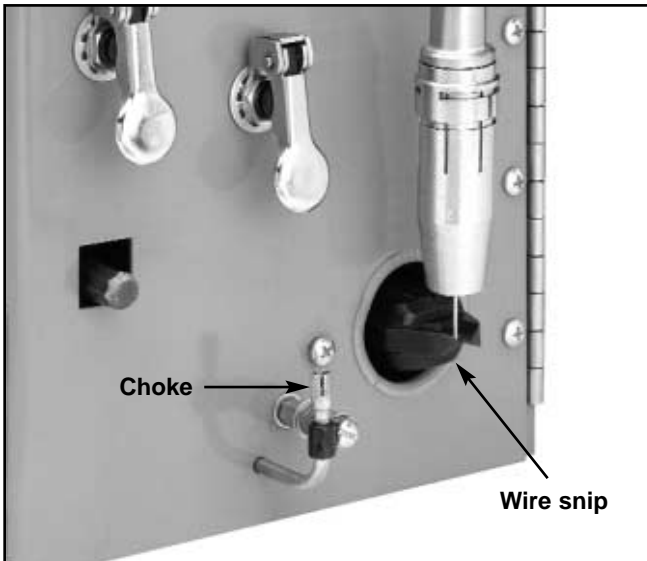
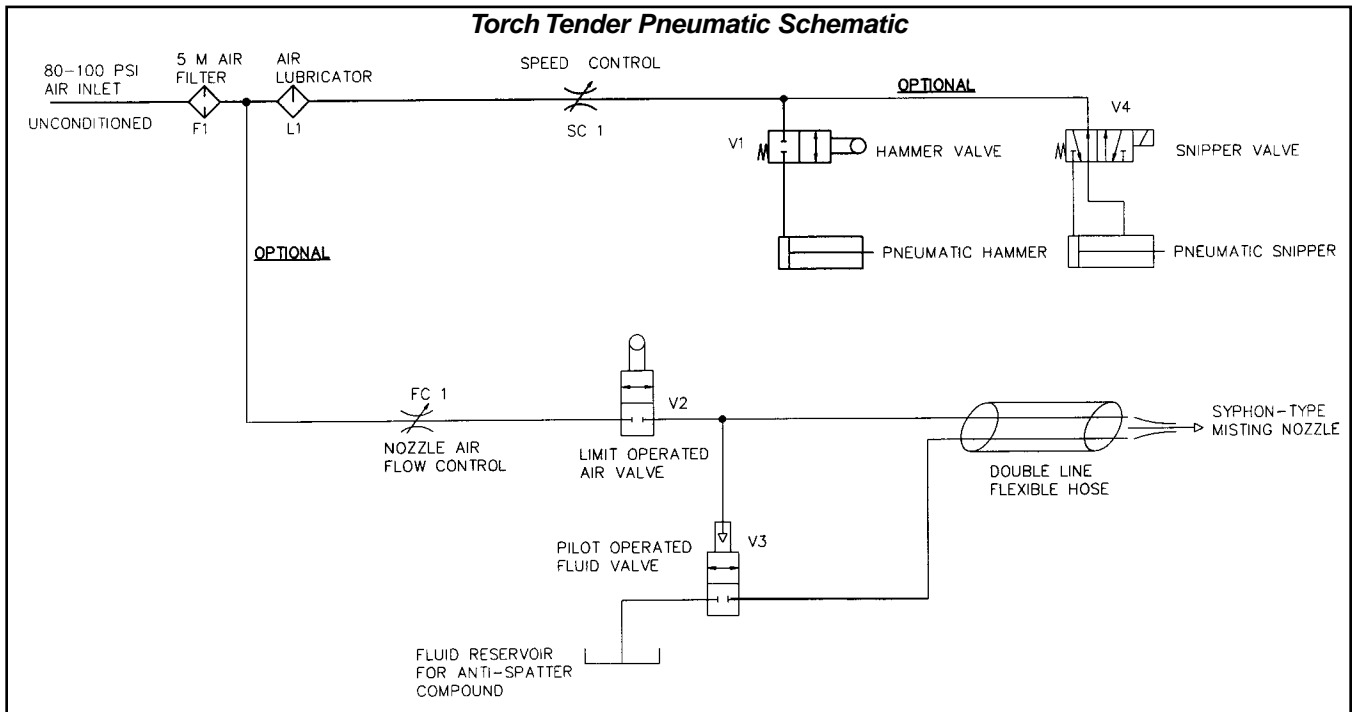


Figure 5

Air is supplied to the bulkhead fitting by the customer at standard plant air pressures (80-100 PSI). The air passes through a 5-micron filter to prevent air particles from plugging the air line. This conditioned air enters a lubricator which atomizes oil for lubrication for the air hammer and the wire snip. The air supplied to the mister is unlubricated air. This prevents contamination in the Anti-Spatter fluid. The unlubricated air is supplied to the line side of valve, (V2).

- Torch Tender

When the torch needs cleaning, the robot should move the torch to a position which actuates valve V1, while holding the nozzle against the striker (see *Figure 2*). When valve V1 is actuated, the air hammer vibrates the nozzle at a frequency adjustable by varying the striker adjust, (SC1), to a frequency which proves most effective for removing the welding spatter from the torch without harming the torch or changing the tool center point, (TCP). To adequately clean the nozzle, the torch should be held in the cleaning position for three to five seconds.



- Anti-Spatter Mister (optional)

The robot should move and aim the nozzle of the torch at the spray nozzle tube, which dispenses AP-356 Anti Spatter compound (see **Figure 6**).

When valve V2 is actuated, air is delivered to the syphon-type spray nozzle tube. The pilot-operated fluid valve is actuated, allowing flow of Anti-Spatter compound to the nozzle.

Mist-adjust control, (FC1) adjusts the force and the compound that is delivered into the torch as a mist. The mist pattern can be controlled with an adjustable choke on the end of the spray nozzle tube. To deliver an appropriate amount of compound, these controls must be adjusted interactively with the dwell time of the torch in the cleaning position.

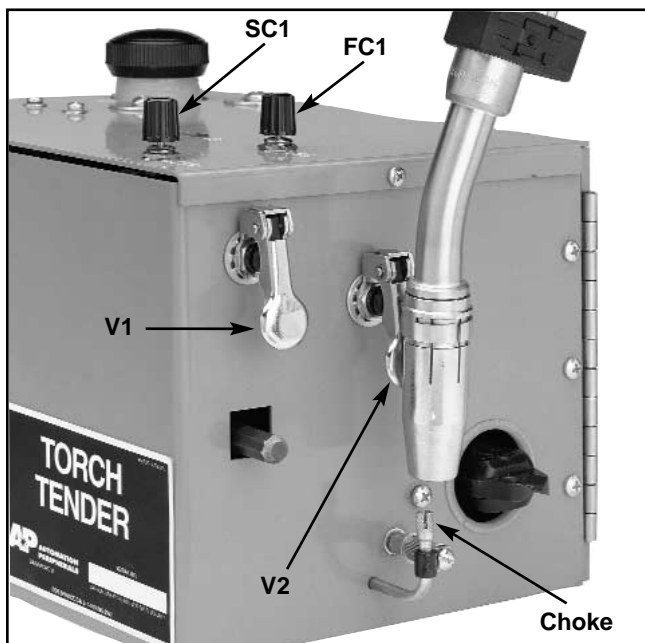


Figure 6 - Torch in misting position.

- Wire Snip (optional)

The robot should move and aim the wire stick-out of the torch between the jaws of the snip (see **Figure 7**).

NOTE: To ensure a proper stick-out, additional wire may need to be fed out before snipping.

When the solenoid is actuated, air is delivered to the valve and the snip jaws cut the wire. After the cut is complete, deactivate the solenoid to open the jaws of the snip.

There is no adjustment to the wire snip. This unit operates on the air inlet pressure.



Figure 7 - Torch positioned at wire snip.

MAINTENANCE

Automation Peripherals Torch Tender requires periodic maintenance to ensure a long service life. The following schedule is recommended:

– Daily

- Visually check the Anti-Spatter compound level in the reservoir.
- Check mister pressure and disbursement range. Adjust accordingly.
- Check valve actuators, (V1 and V2), for proper separation.
- Check striker pressure on nozzle.

– Monthly

- Check all air lines and cable connections for leaks and fraying.
- Check lubrication oil level. Refill as necessary.
- If unit comes with snip, check for proper function. Check cutter blades for dullness.

– Quarterly

- Check air hammer function.
- Check reservoir for leaks.
- If unit comes with snip, check power-plug bracket connections for tightness.

TORCH TENDER TROUBLESHOOTING

COMPONENTS	PROBLEM	SUGGESTED REMEDY
Hammer	Hammer striker does not move (vibrate)	<ul style="list-style-type: none">• Check inlet air pressure.• Check for kinks in air lines to hammer.• Check for leaks by striker adjustment knob.
Lubricator	Lubricator leaks oil	<ul style="list-style-type: none">• Replace lubricator.
Air-Lines	Air is leaking from system	<ul style="list-style-type: none">• With air applied, track down air leak sound. More than likely it will be a loose fitting or connection between tubing and adjusting valves or actuator valves. Tighten fitting or connection until sound stops.
Mister	No air coming out of nozzle	<ul style="list-style-type: none">• Check inlet air pressure.• Check for kinks in air lines.• Check for blockage in air nozzle. Take off choke and place thumb over end of nozzle, then press mist paddle switch.
Mister	No Anti-Spatter coming out of nozzle	<ul style="list-style-type: none">• Check reservoir for Anti-Spatter compound.• Check inlet air pressure.• Check for kinks in air lines.• Check for blockage in air nozzle. Take off choke and place thumb over end of nozzle, then press mist paddle switch.
Wire Snip	Wire snip does not actuate	<ul style="list-style-type: none">• Check inlet air pressure.• Check for kinks in air lines.• Check wiring on solenoid valves for damage.• Check device on which solenoid valve is wired (i.e., PLC, Robot Input, etc.)

Should you have any questions or concerns not listed in Torch Tender Troubleshooting section, please call Automation Peripherals (phone 1-888-693-5776, fax 1-888-693-5777).

TORCH TENDER PARTS LIST

ITEM NO.	PART NO.	DESCRIPTION
1	201	Leman Lubricator (4/97-present)
2	11200	Striker
3	30482	Spray Nozzle Tube 90 Deg.
4	90005	Air Hammer
5	200030	Black Reservoir Filler Cap
6	11862R	Nozzle Clamp
7	1260SS	6" Stainless Steel Hinge
8	1292-1	Bottom Reservoir Fitting
9	1294-1	Universal Tee
10	148-9	1/8" White Tubing (FT.)
11	14F1CB	Air Filter
12	169PL-2-10X32	10-32 to 1/8" Tube 90 Deg. Elbow
13	207ACBHS-4	1/4" Brass Bulkhead Fitting
14	209P-4-2	Bushing
15	211-1	Hose Barb 10-32 to 1/8" Tube
16	211-2	Hose Barb 10-32 to 1/4" Tube
17	215PN-4	Nipple
18	216P-2	Nipple
19	2225P-4	Brass Tee
20	33B	Brass Hex Nipple 10-32
21	8876T39	Black Plastic Clamp
22	91920A865	Nozzle Stand-off 10x24x1-1/2"L
23	9463A454	Nylon Spacer
24	AO-20-05	Button Air Valve
25	AO-30-1	Air Actuator
26	AP-1	Air Pilot Actuator
27	B310BC549C	Valve 24VDC
28	CD-4	Jaws
29	NB4040	1/4" Black Tubing (FT.)
30	NN-2-031	Tubing (FT.)
31	NN4040	1/4" White Tubing (FT.)
32	P4MC4	3/8" NPT to 1/4" Tube Connector
33	P4ME2	1/8" NPT to 1/4" Tube 90 Deg. Elbow
34	P4ME4	1/8" NPT Male to 1/4" Tube 90 Deg. Elbow
35	PNV11-44-2	Needle Valve
36	PS2932JP	Cable (Not Shown)
37	SP-01F	Power Pack for Snippers
38	TA-1	Paddle Actuator
39	W68PL-2-2	3/8" NPT to 1/8" Tube
40	TTR-0001B	Painted Back Plate
41	TTR-0002B	Painted Shell Housing
42	TTR-0003B	Painted Top Cover
43	TTR0012	Snipper Bracket
44	TTR-100	Reservoir Bottle (bottle only)
45	TTR-101	Oil Pump Assy (consisting of: 2W310,521-1, 1/4X1/8GG-S,U42,5481826,5-4F6X-S)
	TTR-107	Reservoir Bottle Assy (includes items 5, 8, 10, 44 assembled)
	TTR-108	Spray Mist Valve Assy (includes items 10, 11, 14, 16, 22, 23, 24, 30 assembled)
	TTR-109	Spray Mist Valve Assy (includes items 3, 7, 11, 45 assembled)
49	W68PL-2-2	Connector
	AP356-Q	Anti-Spatter Compound, 1 Quart
	AP356-1	Anti-Spatter Compound, 1 Gallon
	AP356-5	Anti-Spatter Compound, 5 Gallons
	AP-356-55	Anti-Spatter Compound, 55 Gallon

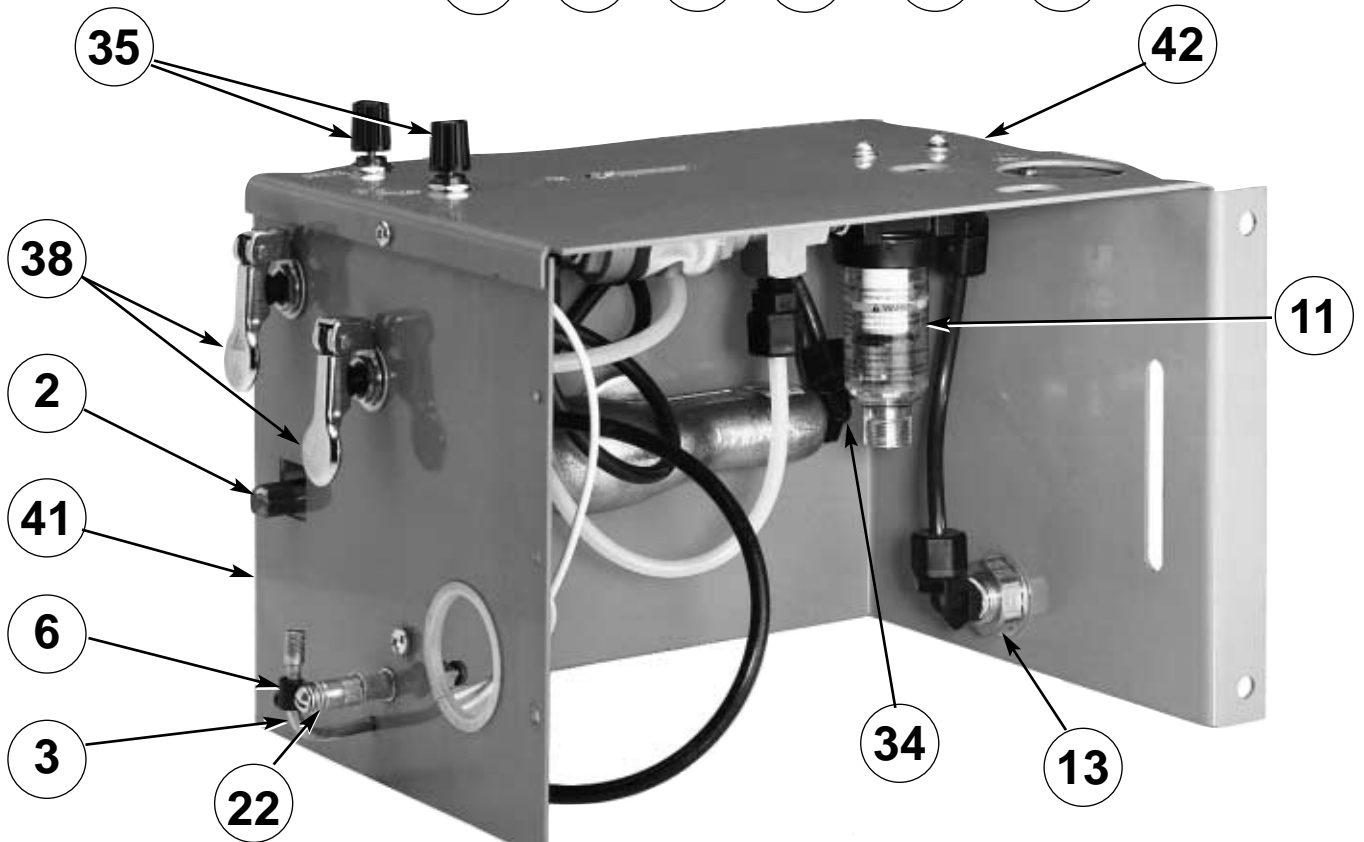
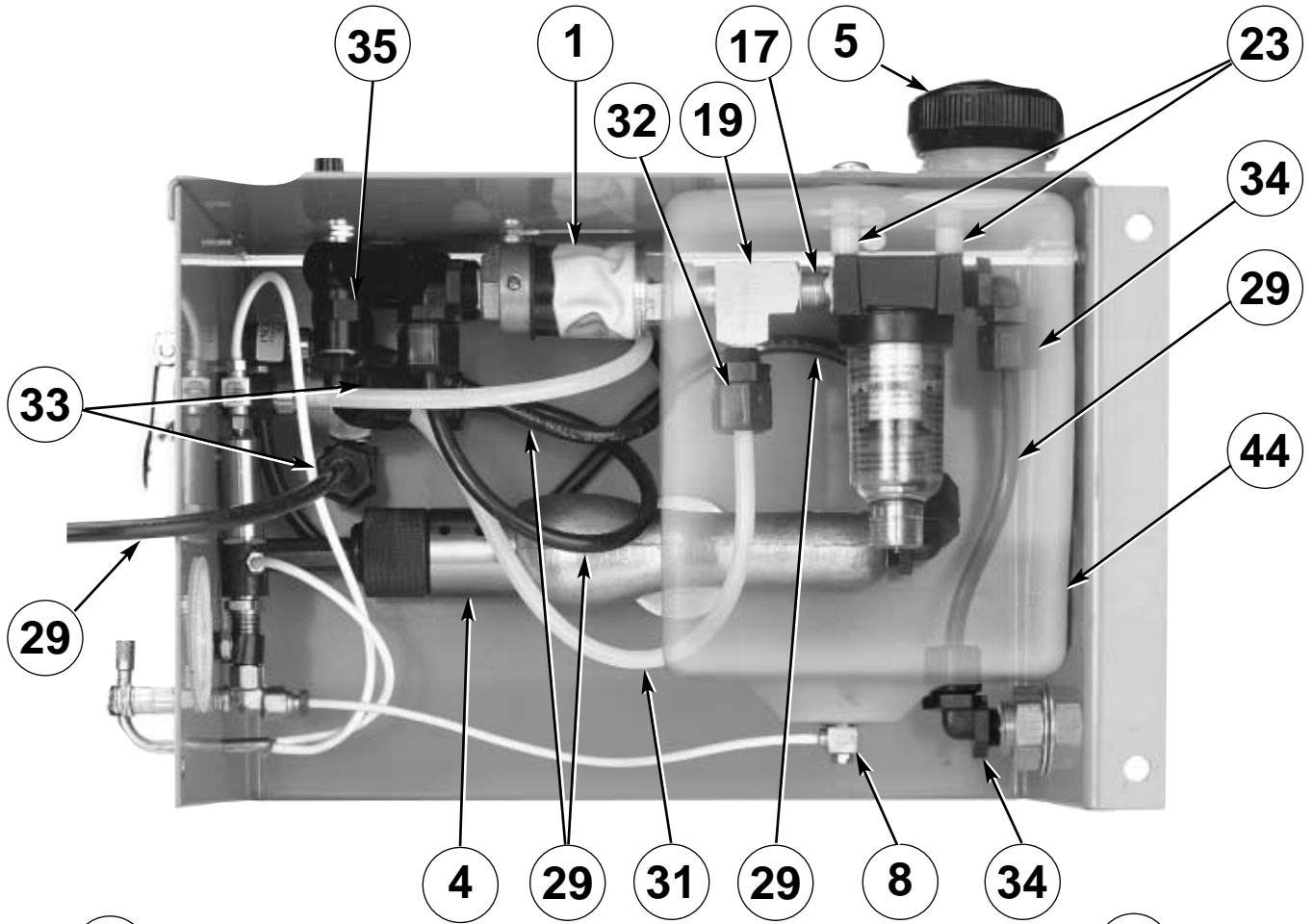
TORCH TENDER PARTS LIST

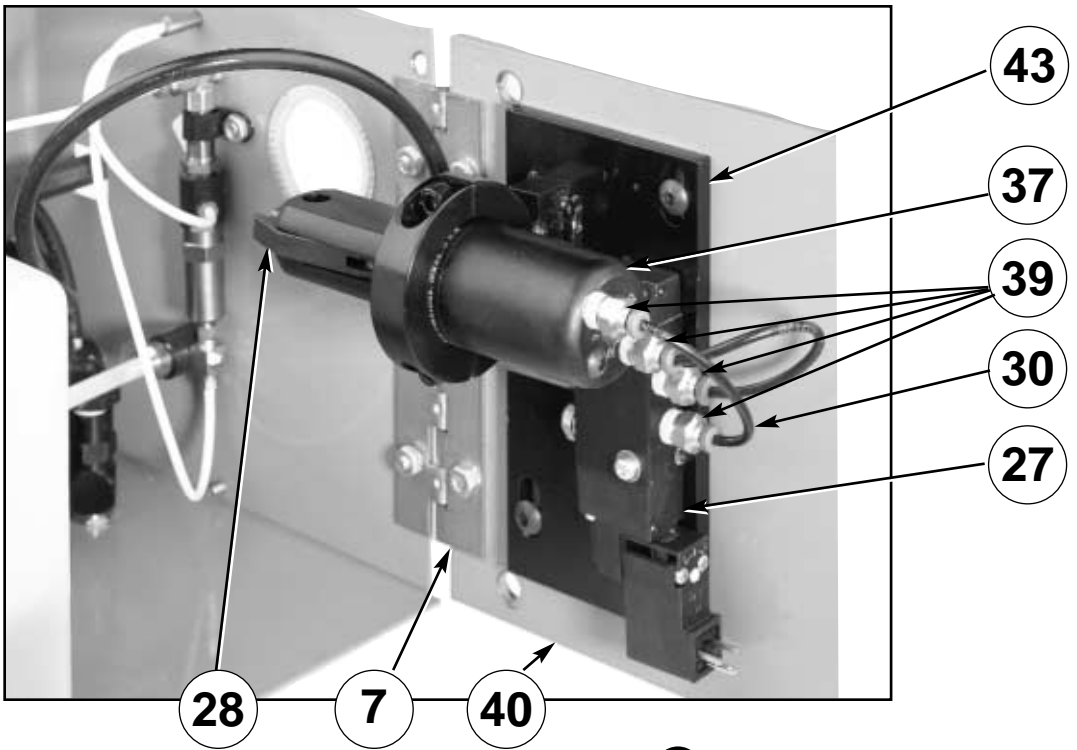
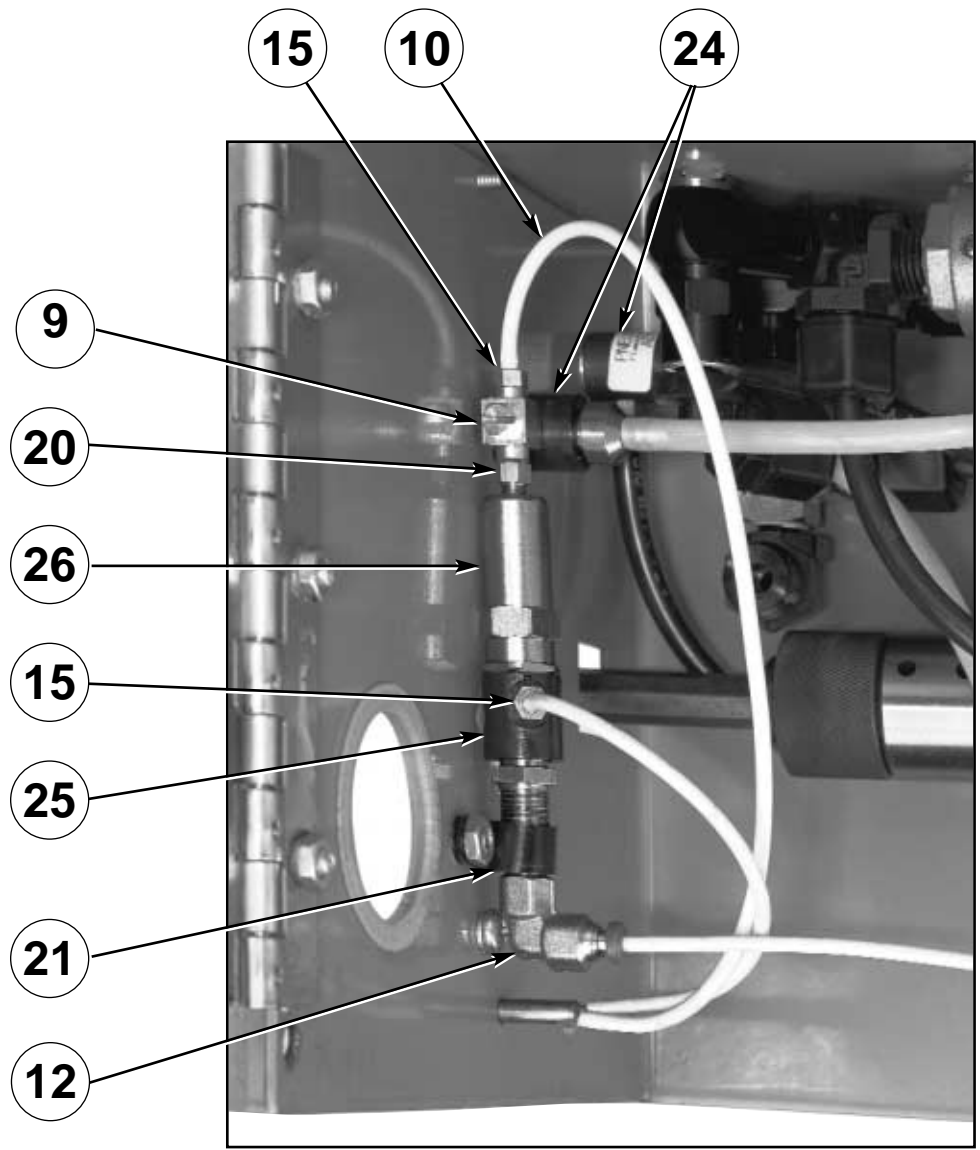
ITEM NO.	PART NO.	DESCRIPTION
	TTR100510	5/8" - 18 x 1 Hex Bolt 5/8" Flat USS Washer 5/8" ID x 1-1/2 OD Flat Washer SS 5/8" Split Lockwasher 10-24 x 3/8 PHPHMS #8 Lockwasher #10 flat Washer #10 Lock Washer 10-24 Hex Nut 10-24 x 3/8 PHFHMS 8-32 x 3/4" PHPHMS #8 flat Washer #8 Lockwasher #8 3/2 x 3/4" Phil Round HO Screw 1/4" Flat USS Washer 1/4" - 20 x 1/2 PHPHMS 1/4" x 20-1/4" SHCS Internal Tooth Lockwasher

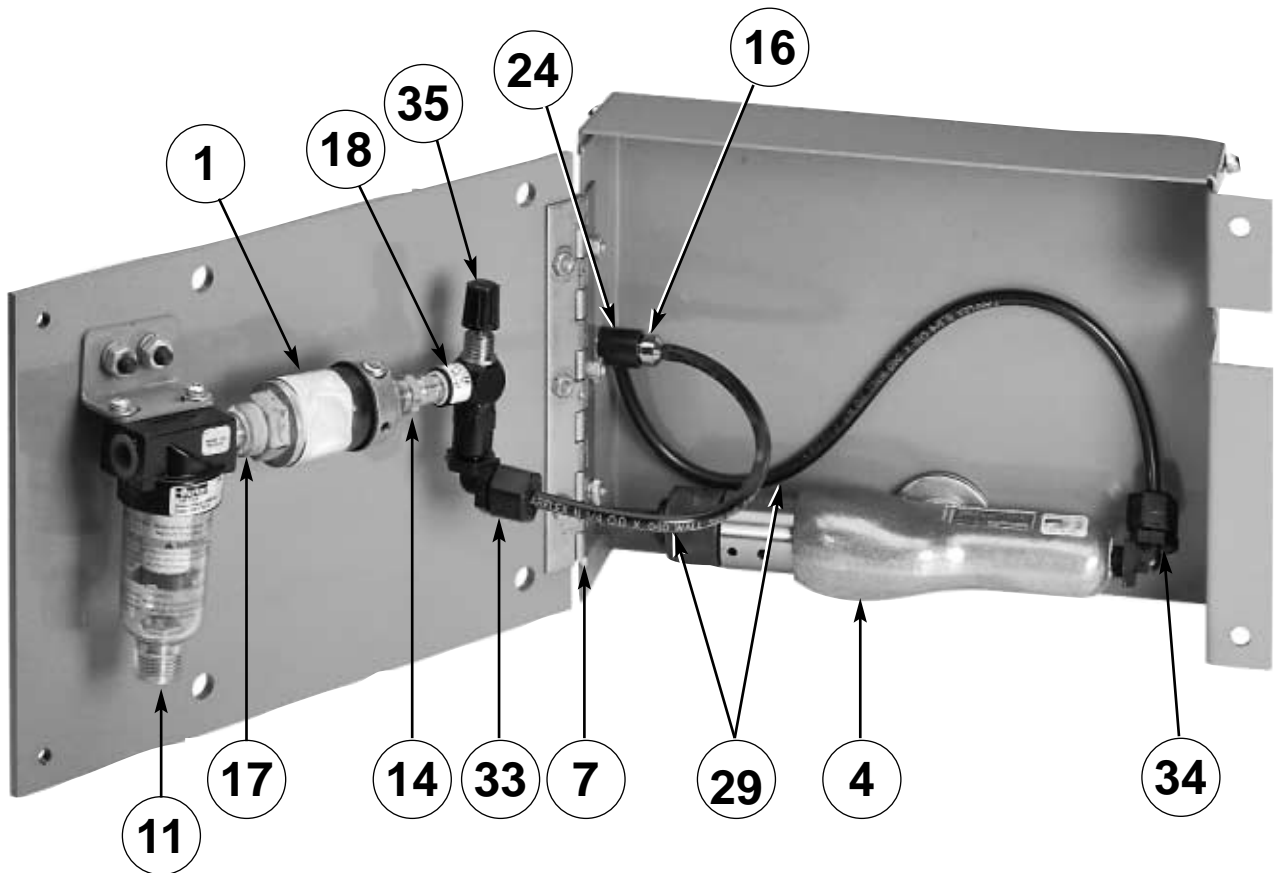
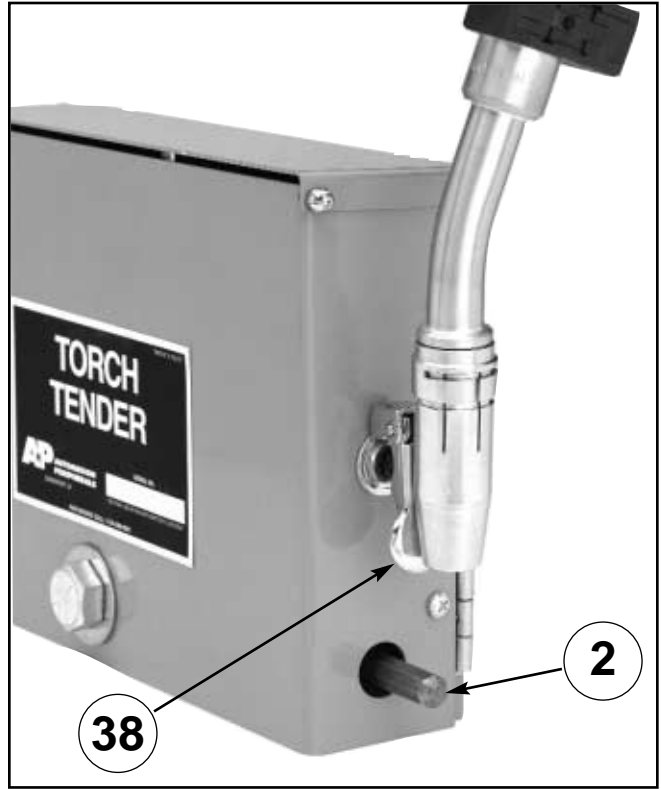
TORCH TENDER HAMMER ONLY PARTS LIST

ITEM NO.	PART NO.	DESCRIPTION
	TTR100512	5/8" - 18 x 1 Hex Bolt 5/8" Flat USS Washer 5/8" ID x 1-1/2 OD Flat Washer SS 5/8" Split Lockwasher 1/4" - 20 X 3/4" FL HD SOC SCR 1/4" - 20 Hex Head Nut #8 - 32 X 3/8" Phil Round HD Screw #8 Lockwasher 10 - 24 x 3/8" PHFHMS 10 - 24 x 3/8" PHPHMS 10 - 24 Hex Nut #10 Lockwasher 1/2" Internal Tooth Lockwasher 1/4" - 20 x 1/4 SHCS 1/8" Aeorn Push Nuts

TORCH TENDER - EXPLODED VIEW







MATERIAL SAFETY DATA SHEET FOR ANTI-SPATTER

Revised Date: 2/99 Product Code: 007090
Product Name: AP-356 Duns No: 00-653-3327
Hazardous Material Description: Non Hazardous Chemical Family: Not applicable

SECTION 1 - PRODUCT AND COMPONENT DATA

Chemical Name(s)	CAS Registry	%	ACGIH TLV-TWA
1) Dihydrogen Oxide (water)	007732-18-5	85%	None Known
2) Modified Fatty Aklanolamide	None	<15%	None Known
3) Tetra Ethylene Diamine Tetracetate	64-02-8	Trace	None Known
4) Eloacaid Brilliant Scarlet 3R	2611-82-7	Trace	None Known

Physical Data

Boiling Point:.....<212 deg. F Melting Point:Not Applicable
Specific Gravity:1 % Solid By Wt:Not Applicable
Vapor Pressure:17.5mm Hg @20 C (water) Vapor Density:17.3gm-3 (water)
Solubility:100% % Volatility by Volume:Not Applicable
Evaporation Rate:1mg/1 (water) Material Is:Liquid
Appearance and Odor:Red, no appreciable odor

SECTION 2 - FIRE AND EXPLOSION HAZARD DATA

Flash Point (Method Used):Not Applicable
Extinguishing Agents:Water, foam, dry chemical, carbon dioxide (CO2)
Unusual Fire and Explosion Hazards:None Known
Flammable Limits In Air:Not Applicable

SECTION 3 - REACTIVITY DATA

Stability:Stable
Incompatibility:Oxidizers, Alkalies, Acids
Hazardous Decomposition Products:None
Hazardous Polymerization:Will not occur
Conditions to Avoid:None

SECTION 4 - SPILL, LEAK AND DISPOSAL PRACTICES

Steps to be taken in case material is released or spilled: Absorb with an inert ingredient such as sand, earth or vermiculite, and dispose of it in accordance with Federal, State and Local regulations.

Waste Disposal Methods: Consult with Federal, State or Local authorities for approved procedures.

MATERIAL SAFETY DATA SHEET FOR LUBRICATOR OIL

HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW – NOT EXPECTED TO CAUSE A SEVERE EMERGENCY HAZARD
APPEARANCE – COLORLESS OIL

POTENTIAL HEALTH EFFECTS – PRIMARY ROUTES OF ENTRY – INHALATION () SKIN () EYES ()
INGESTION ()

INHALATION – NO EFFECTS EXPECTED

SKIN– PRACTICALLY NON-TOXIC IF ABSORBED (LD50 GREATER THAN 2000 MG/KG)
MINIMAL IRRITATION WITH PROLONGED OR REPEATED CONTACT

EYE – CONTACT WITH THE EYE MAY CAUSE MINIMAL IRRITATION

INGESTION – PRACTICALLY NON-TOXIC (LD50 > 15G/KG)

CARCINOGEN LISTED BY – IARC (NO) HTP (NO) OSHA (NO) ACGIH (NO) OTHER (NO)

PRE-EXISTING MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE – SKIN DISORDERS;
RESPIRATORY, PULMONARY AND LUNG DISORDERS
(I.E. ASTHMA-LIKE CONDITIONS)

FIRST-AID MEASURES

INHALATION – MOVE PERSON TO FRESH AIR

SKIN – WASH WITH SOAP AND WATER UNTIL NO ODOR REMAINS, WASH CLOTHING BEFORE REUSE

EYE – FLUSH WITH WATER

INGESTION – PRACTICALLY NON-TOXIC – INDUCTION OF VOMITING NOT REQUIRED, OBTAIN
EMERGENCY MEDICAL ATTENTION. SMALL AMOUNTS WHICH ACCIDENTALLY ENTER MOUTH
SHOULD BE RINSED OUT UNTIL TASTE OF IT IS GONE.

MATERIAL SAFETY DATA SHEET FOR LUBRICATOR OIL

FIRE-FIGHTING MEASURES

FLASH POINT: 390 MINIMUM COC (DEG. F) 196 MINIMUM COC (DEG. C)
AUTOIGNITION TEMP: 685 ESTIMATED (DEG. F) 363 ESTIMATED (DEG. C)

FLAMMABLE LIMITS IN AIR

LOWER EXPLOSIVE LIMIT (LEL): NOT DETERMINED % VOLUME
UPPER EXPLOSIVE LIMIT (UEL): NOT DETERMINED % VOLUME

FIRE AND EXPLOSION HAZARDS – CAN BE MADE TO BURN (FLASH POINT GREATER THAN 200 DEG. F)

EXTINGUISHING-MEDIA – WATER SPRAY, REGULAR FOAM, DRY CHEMICAL, CARBON DIOXIDE

SPECIAL FIRE-FIGHTING INSTRUCTIONS – WEAR SELF-CONTAINED BREATHING APPARATUS. WEAR STRUCTURAL FIREFIGHTERS PROTECTIVE CLOTHING

NFPA/HMIS CLASSIFICATION

HEALTH – 0/0

FIRE – 1/1

REACTIVITY – 0/0

PERSONAL PROTECTION INDEX – X

HAZARD RATING

0=LEAST 1=SLIGHT

2=MODERATE 3=HIGH

4=EXTREME

SPECIFIC HAZARD: NONE KNOWN

ACCIDENTAL RELEASE MEASURES

CONTAIN SPILL, USE PERSONAL PROTECTIVE EQUIPMENT STATED IN SECTION 6.
ADVISE EPA; STATE AGENCY IF REQUIRED. ABSORB ON INERT MATERIAL. SHOVEL,
SWEEP OR VACUUM SPILL.

HANDLING AND STORAGE

NFPA CLASS IIIB STORAGE. WASH THOROUGHLY AFTER HANDLING

EXPOSURE CONTROL / PERSONAL PROTECTION

CONSULT WITH A HEALTH/SAFETY PROFESSIONAL FOR SPECIFIC SELECTION

VENTILATION – VENTILATE AS NEEDED. COMPLY WITH EXPOSURE LIMIT, GENERAL
DILUTION VENTILATION ACCEPTABLE

PERSONAL PROTECTIVE EQUIPMENT – EYE SPLASH-PROOF CHEMICAL GOGGLES
RECOMMENDED TO PROTECT AGAINST SPLASH OF PRODUCT.

MATERIAL SAFETY DATA SHEET FOR LUBRICATOR OIL

EXPOSURE CONTROL / PERSONAL PROTECTION, cont.

GLOVES – PROTECTIVE GLOVES RECOMMENDED WHEN PROLONGED SKIN CONTACT CANNOT BE AVOIDED. THE FOLLOWING GLOVE MATERIALS ARE ACCEPTABLE: POLYETHYLENE, POLYVINYL CHLORIDE (PVC), NEOPRENE, NITRILE, POLYVINYL ALCOHOL AND VITON

RESPIRATOR - CONCENTRATION IN AIR DETERMINES PROTECTION NEEDED. USE ONLY N105H CERTIFIED RESPIRATORY PROTECTION. HALF-MASK AIR PURIFYING RESPIRATOR WITH DUST/MIST FILTERS OR HEPA FILTER CARTRIDGES IS ACCEPTABLE TO 10 TIMES THE EXPOSURE LIMIT. FULL-FACE AIR PURIFYING RESPIRATOR WITH DUST/MIST FILTERS OR HEPA FILTER CARTRIDGES IS ACCEPTABLE TO 50 TIMES THE EXPOSURE LIMIT. PROTECTION BY AIR PURIFYING RESPIRATORS IS LIMITED. USE A POSITIVE PRESSURE-DEMAND, FULL-FACE SUPPLIED-AIR RESPIRATOR OR SCBA FOR EXPOSURES ABOVE 50 TIMES THE EXPOSURE LIMIT. IF EXPOSURE IS ABOVE IDLH (IMMEDIATELY DANGEROUS TO LIFE: HEALTH) OR THERE IS THE POSSIBILITY OF AN UNCONTROLLED RELEASE OR EXPOSURE LEVELS ARE UNKNOWN THEN USE A POSITIVE PRESSURE-DEMAND, FULL-FACE SUPPLIED-AIR RESPIRATOR WITH ESCAPE BOTTLE OR SCBA. RESPIRATORY PROTECTION USUALLY NOT NEEDED UNLESS PRODUCT IS HEATED OR MISTED.

OTHER - IF CONTACT IS UNAVOIDABLE, WEAR CHEMICAL RESISTANT CLOTHING. THE FOLLOWING MATERIALS ARE ACCEPTABLE AS PROTECTIVE CLOTHING MATERIALS: POLYETHYLENE, POLYVINYL ALCOHOL (PVA), POLYVINYL CHLORIDE (PVC), NEOPRENE, NITRILE, VITON AND POLYURETHANE. LAUNDRY SOILED CLOTHES.

PHYSICAL AND CHEMICAL PROPERTIES

BOILING POINT	HIGH WITH (DEG.F)	WIDE RANGE (DEG C)
MELTING POINT	N/A (DEG F)	N/A (DEG C)
SPECIFIC GRAVITY	0.86 (WATER = 1)	
PACKING DENSITY	N/A (KG/M3)	
VAPOR PRESSURE	NIL (MM HG AT DEG C)	
VAPOR DENSITY	12+ (AIR = 1)	
SOLUBILITY IN WATER	NIL (% BY VOLUME)	
PH INFORMATION	N/A AT CONC N/A G/L H2O	
% VOLATILES BY VOLUME.	NIL	
EVAPORATION RATE	1000X SLOWER (ETHYL ETHER = 1)	
OCTANOL/WATER COEFF	N.D.	
APPEARANCE	COLORLESS OIL	
ODOR	NO ODOR	
ODOR THRESHOLD	N.D. (PPM)	
VISCOSITY	N/A SUS @ N/A DEG. F	N/A CST @ N/A DEG C
MOLECULAR WEIGHT	N/A (G/MOLE)	

STABILITY AND REACTIVITY

STABILITY – STABLE

INCOMPATIBLE MATERIALS – STRONG OXIDIZERS

HAZARDOUS DECOMPOSITION – COMBUSTION WILL PRODUCE CARBON MONOXIDE AND ASPHYXIANTS

POLYMERIZATION

A = NOT APPLICABLE

N.D. = NO DATA/NOT DETERMINED



**AUTOMATION
PERIPHERALS**

Fifteen Month Limited Warranty

Automation Peripherals will repair or replace, at its expense and at its option, any Automation Peripheral machine, machine part, or machine accessory (excluding consumable components) which in normal use has proven to be defective in workmanship or material, provided that the customer returns the product or defective component to the Automation Peripherals service center within fifteen months from the product's original date of shipment from Automation Peripherals and provides Automation Peripherals with reasonable opportunity to verify the alleged defect by inspection. Automation Peripherals will not be responsible for any asserted defect which has resulted from normal wear, misuse, abuse or repair or alteration made by anyone other than an authorized Automation Peripherals facility or representative. UNDER NO CIRCUMSTANCES WILL AUTOMATION PERIPHERALS BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES RESULTING FROM DEFECTIVE PRODUCTS. THIS WARRANTY IS AUTOMATION PERIPHERAL'S SOLE WARRANTY AND SETS FORTH THE CUSTOMER'S EXCLUSIVE REMEDY, WITH RESPECT TO DEFECTIVE PRODUCTS; ALL OTHER WARRANTIES, EXPRESS, OR IMPLIED, WHETHER OF MERCHANTABILITY, FITNESS FOR PURPOSE, OR OTHERWISE, ARE EXPRESSLY DISCLAIMED BY AUTOMATION PERIPHERALS.