

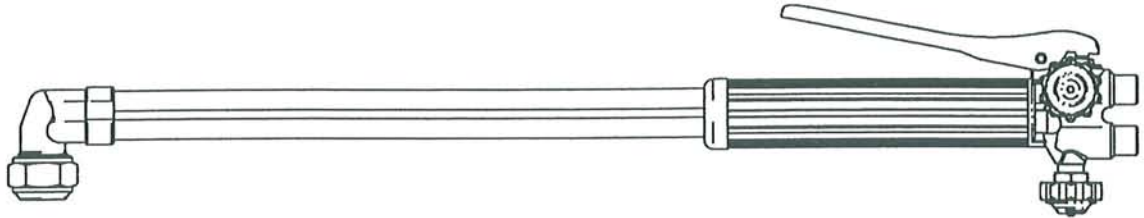
# VICTOR®

PARTS & SERVICE BULLETIN

## ST 900C and ST 900FC Series Hand Cutting Torches

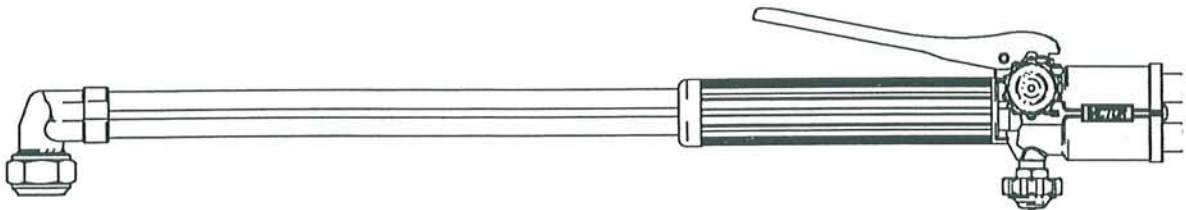
FORM NO. 0056-0684

EFFECTIVE: November 1995



ST 900C

This torch uses an internal check valve for each inlet connection.



ST 900FC

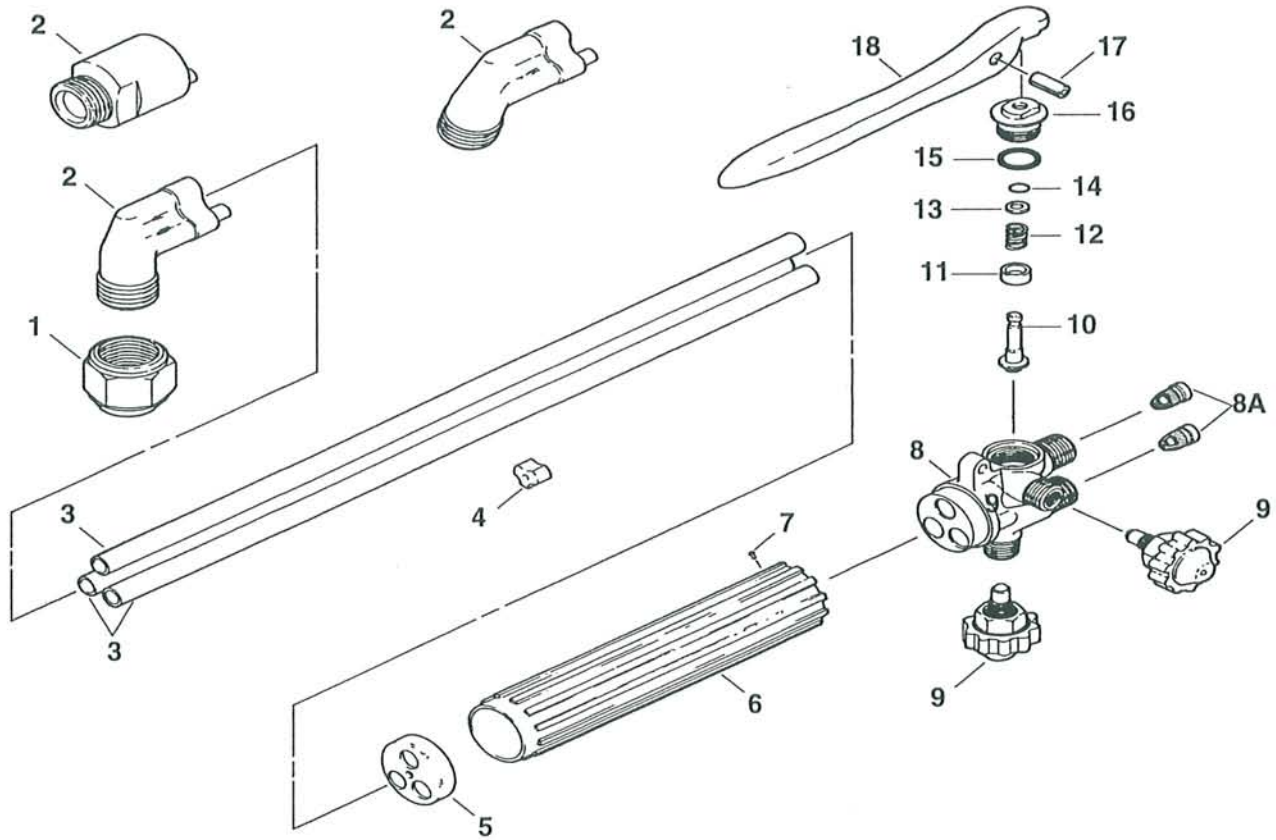
This torch uses a flashback arrestor and an internal check valve for each inlet connection.

**⚠CAUTION** Check valves are mechanical devices that can leak when dirty or if abused. Check valves should be checked at least every six months. Careless usage, dirt or abuse can shorten the service life of check valves, thus requiring more frequent checking. Be sure to test check valves in a well ventilated area! The escaping gases create conditions for fires and explosions!

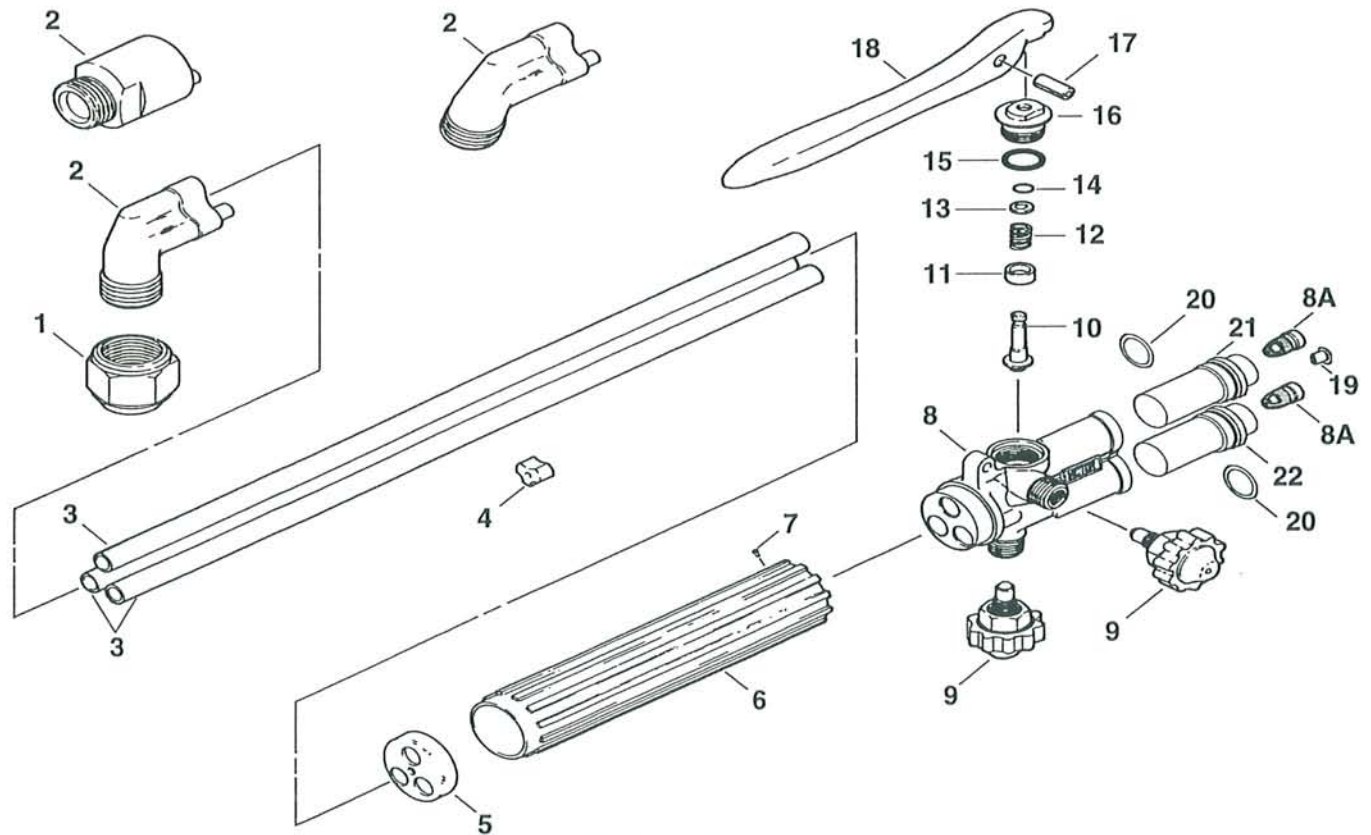
### ⚠WARNING⚠

Apparatus improperly operated, maintained or repaired can be dangerous. Some parts and accessories manufactured by others may fit VICTOR apparatus but not conform to VICTOR's exacting standards. For your own protection, specify and use ONLY VICTOR-made parts and accessories with your VICTOR apparatus.

Service or repair of VICTOR apparatus should be performed only by a qualified technician. Improper service, repair or modification of the product could result in damage to the product or injury to the operator.



ST 900C



ST 900FC

## Parts List

Ref. No.	Description	SST 900 C ST 900 C ST 910 C ST 930 C ST 950 C ST 960 C	SST 900 FC ST 900 FC ST 910 FC ST 930 FC ST 950 FC ST 900 FC
† 1	Tip Nut	0309-0018	0309-0018
	Heavy Duty Tip Nut	0309-0069	0309-0069
2	90° Head w/Mixer	0390-0039	0390-0039
	75° Head w/Mixer	0390-0040	0390-0040
	180° Head w/Mixer	0390-0038	0390-0038
3	Tubes (3 req'd)	See CHART 1	See CHART 1
4	Tube Support	See CHART 1	See CHART 1
5	Collar	0306-0129	0306-0129
6	Barrel	0306-0128	0306-0128
7	Drive Screw	1404-0006	1404-0006
8	Body	0390-0042	0301-0241
†8A	Check Valve Replacement Kit (includes 2 Check Valves and Instructions)	0690-0027	0690-0027
† 9	Valve Stem Assembly	0662-0049	0662-0049
*†10	Seat Assembly	0320-0079	0320-0079
*†11	Seat Assembly Bushing	0320-0108	0320-0108
*†12	Valve Spring	0320-0024	0320-0024
*†13	Washer	1406-0006	1406-0006
*†14	O-Ring (small)	1407-0005	1407-0005
*†15	O-Ring (large)	1407-0016	1407-0016
16	Valve Cap	0320-0017	0320-0017
17	Spiral Pin	1404-0002	1404-0002
18	Lever	0307-0004	0307-0004
19	Screw	N/A	1400-0179
†20	O-Ring (inc. w/arrestor assy.)	N/A	1407-0287
†21	Arrestor Assembly (oxygen)	N/A	0657-0016
†22	Arrestor Assembly (fuel)	N/A	0657-0017

\* Items included in Repair Kit (0390-0043).

† Items most commonly used for torch repair and recommended for stock.

## CHART 1

Torch Series	Torch Length	Tubes (3 Required)	Tube Support
SST-900C SST-900FC	17"	0303-0421	NONE
ST-900C ST-900FC	21"	0303-0422	NONE
ST910C ST-910FC	27"	0303-0423	0307-0054 (1 req'd)
ST930C ST-930FC	36"	0303-0424	0307-0054 (2 req'd)
ST950C ST-950FC	48"	0303-0425	0307-0054 (3 req'd)
ST960C ST-960FC	60"	0303-0427	0307-0054 (4 req'd)

## Service Instructions

### Recommended tools and supplies for Disassembly and Assembly Procedures:

1/8" and 7/32" Hex Key Wrenches  
5/8" and 3/8" Open-end Wrenches  
5/32" Drift Punch  
Hammer  
Bench Vise  
1/4"-20 x 2" Long Bolt  
Brazing Torch  
MAPP® or Acetylene Air/Fuel Torch  
LOCTITE® #7931 (0028-0056)  
LOCTITE® #271 High Strength (0028-0057)  
Christo-Lube MCG 129 (0034-0021)  
45% Silver Solder  
Silver Solder Flux

## Disassembly Procedures

1. Screw the 1/4"-20 bolt into the internal check valve until it is finger tight.
2. Place the shank of the bolt in the vise. The head of the bolt must catch on the vise jaws. The bolt must move freely (see Figure 1).

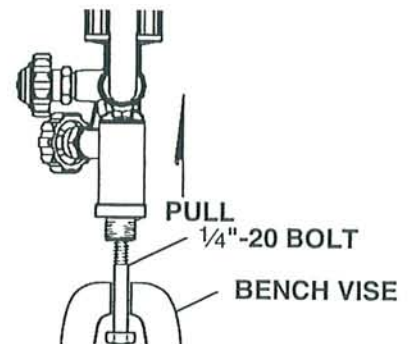


Figure 1: Removing the Internal Check Valves

3. Grasp the torch firmly and pull the torch up. The head of the bolt will catch on the bench vise jaws and the internal check valve will be removed.
4. Repeat steps 1 through 3 to remove the other internal check valve.
5. Secure the torch in a bench vise with the lever up.
6. Remove the oxygen and fuel valve stem assemblies with a 5/8" open-end wrench.
7. Remove the lever by driving the roll pin from the lever lug with a drift punch and hammer.

**CAUTION** Always wear safety goggles when using a drift punch.

8. Remove the valve cap assembly from the torch body.
9. Remove the cap bushing and the o-ring from the valve cap. Discard the cap bushing and the o-ring.
10. Remove the o-ring, washer, valve spring, seat assembly bushing and seat assembly from the torch body. Discard the seat assembly, seat assembly bushing and washer.
11. With a 1/8" hex key wrench, remove the socket button head screw at the rear of the torch.
12. With a 7/32" hex key wrench, remove the oxygen flashback arrestor by turning counterclockwise. Remove the fuel flashback arrestor by turning clockwise. Heat

is required to loosen the high strength LOCTITE® secured joints. Apply heat at the arrestor to torch body joint while loosening the arrestor. (The LOCTITE® joint will release at approximately 300°F.)

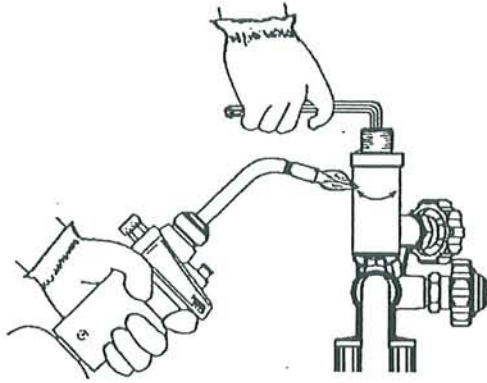


Figure 2: Removing the Flashback Arrestors

**CAUTION** Always wear gloves when handling heated parts (see Figure 2).

- Remove the o-rings from the flashback arrestors. Discard the o-rings. Inspect the condition of the flashback arrestors. See warning note in Step 8 of the Assembly Procedure.

**CAUTION** Discard all used o-rings, seat assembly, seat assembly bushing and washer. Replace them each time you reassemble a cutting torch.

## Cleaning Parts

Contact your local chemical supplier for recommended cleaning solvents applicable to the metals used in this product. Always use cleaning solvents in accordance with the manufacturer's instructions.

**CAUTION** DO NOT allow nonmetal components to contact cleaning solvents! Cleaning solvents cause elastomeric and plastic parts to swell and stress crack. If these parts require cleaning, use a mild soap solution, followed by a thorough rinsing in water. Dry these parts completely before installing. **REPLACE NONMETAL PARTS THAT HAVE COME IN CONTACT WITH OIL, GREASE OR ANY OTHER PETROLEUM-BASED SUBSTANCE!** Petroleum-based substances become dangerously flammable in the presence of oxygen.

## Assembly Procedures

- Install any part of the torch sub-assembly that was removed. Make sure that the tubes bottom out in the head. If necessary, silverbrazed the head and tube assembly to the body or the tubes to the head, as applicable.
- If, after examination, a flashback arrestor is found re-useable, remove the loose LOCTITE® and install a new "moly filled" o-ring. (DO NOT allow lubricant on the threads.)

**WARNING** Flashback arrestors must be replaced after a maximum of five years service or whenever there are signs of discoloration caused by heat, poor torch performance caused by restricted flow, signs of carbon soot in the inlet, or flame damaged or melted check valves.

- Apply High Strength LOCTITE® #271 all around the second and third threads on all new and/or re-useable fuel and oxygen flashback arrestors.
- Install the fuel flashback arrestor assembly (left hand thread). Tighten securely with 10-15 ft-lbs of torque.

**CAUTION** DO NOT allow LOCTITE® or lubricants to contact the sintered stainless steel flashback arrestor element. Flow restriction and poor torch performance will result.

- Install the oxygen flashback arrestor assembly (right hand thread). Tighten securely with 10-15 ft-lbs of torque.
- Apply LOCTITE® #7931 to the threads on the socket button-head screw.
- Install the button-head screw to the end of the torch. Tighten securely.
- Place the new seat assembly, new seat assembly bushing, valve spring, new washer and new o-ring in the torch body.
- Apply Christo-Lube MCG 129 to the cap bushing and the new o-ring. Place the new o-ring and cap bushing on the valve cap.
- Install the valve cap assembly in the body and tighten.
- Secure the lever to the body with the spiro pin. Make sure that the lever tabs fit into the groove on the seat assembly.
- Apply a small amount of Christo-Lube MCG 129 to the end of the first few threads of the valve stem assemblies. Install the valve stem assemblies in the torch body and valve body. Tighten the packing nut until it takes 1 1/4-2 in-lbs of torque to turn the knobs.
- Press the internal check valves into the valve body and oxygen connection. Screw a hose onto the connections. Tighten until the internal check valve is properly seated.

**WARNING** For your safety and the safety of the operator, always perform the following test procedures after assembling a torch.

## Test Procedures

### Recommended tools and supplies for Test Procedures:

Plugged Cutting Tip (see Figure 3)  
 Plugged Cutting Tip with the Small Seating Surface Removed (see Figure 4)  
 2-1-101 Cutting Tip  
 50 PSIG Source of Oil-free Air or Dry Nitrogen  
 50 PSIG Source of Oxygen  
 8 PSIG Source of Acetylene  
 Reseating Tool, RT-33  
 Large Container of Water  
 Spark Lighter  
 Fire Brick

- Attach the hoses to the torch.
- Install the plugged cutting tip (see Figure 3, page 5) in the torch head. Tighten the tip nut to 15-20 ft-lbs of torque.

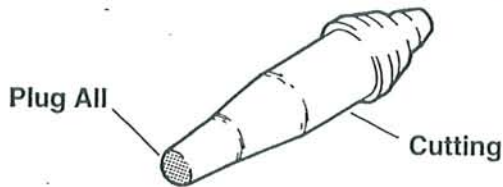


Figure 3: Plugged Cutting Tip for Leak Testing

3. Close the valve stem assemblies. Pressurize the hoses to 50+/-5 PSIG of oil-free air or dry nitrogen.

### Leak Testing the Torch

4. Completely submerge the torch in water.
5. Open the valve stem assemblies. Check for leaks around all external connections. Observe the valve stem assemblies. If bubbles are escaping from around the valve stem assembly packing, tighten the packing nut until it takes 1 1/4 to 2 in-lbs of torque to adjust the valve stem assembly knobs.
6. Close the valve stem assembly knobs to a torque of 7-8 in-lbs.
7. Remove the plugged cutting tip from the torch. Observe the torch head. If bubbles appear at the torch head, one or both of the valve stem assemblies is leaking. Ream the valve seating surface using RT-33 reseating tool. Repeat steps 2 through 7.

### Testing the Internal Check Valves

8. Install the cutting tip that has been plugged and altered as shown in Figure 4. The small seating surface must be removed to allow the gases to reach the internal check valves.

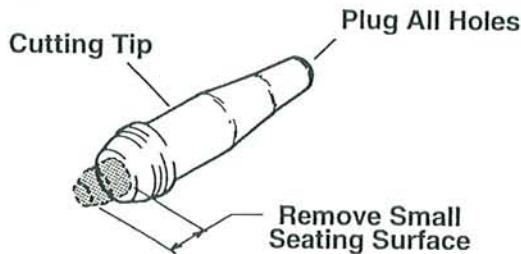


Figure 4: Plugged Tip with Small Seating Surface Removed

9. Disconnect either the fuel or oxygen hose from the regulator.
10. Open both valve stem assemblies. Adjust the regulator that is still connected to deliver 2-5 PSIG.
11. Place the loose end of the disconnected hose under water.
12. Examine the hose end for bubbles. If there is more than one bubble in five seconds, replace the check valve. Repeat steps 8 through 12 for the other internal check valve.

### Flame Testing the Torch

13. Remove the torch from the water. Open the valve stem assemblies for 10 seconds. Once all the water has been removed from the torch, disconnect the hoses from the oil-free air or dry nitrogen supply. Attach them to oxygen and acetylene gas supplies.
14. Install a 2-1-101 cutting tip in the head. Tighten the tip nut to 15-20 ft-lbs of torque.
15. Adjust the oxygen to deliver 50+/-5 PSIG. Adjust the acetylene to deliver 7+/-2 PSIG.
16. Open the oxygen valve and purge the oxygen line for five seconds. Then, close the oxygen valve. Open the fuel valve and purge the fuel line for five seconds.
17. Open the fuel valve stem assembly about 1/8 of a turn. Ignite the gas with a spark lighter. Continue opening the fuel valve until the flame stops smoking.
18. Open the oxygen valve until a bright neutral flame appears.

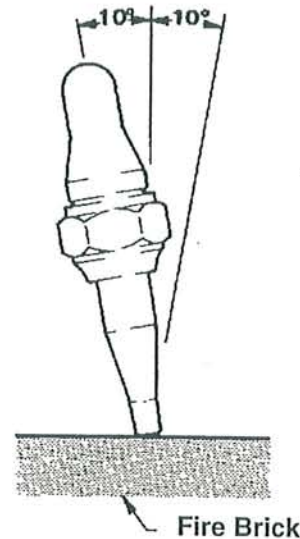


Figure 5: Flame Testing the Torch

19. Place the tip on a fire brick at approximately 10° from the vertical (see Figure 5). Depress the cutting oxygen lever. Rock the torch from side to side for 5-8 seconds. The torch will "pop" during this operation.

**⚠WARNING:** If you experience a backfire or backflash (flame disappears suddenly and/or a hissing sound is heard when the flame is burning inside the torch), IMMEDIATELY turn off first the oxygen valve and then the fuel valve. Allow the torch to cool before reusing it. If the trouble reoccurs, disassemble the torch. Replace any damaged parts.

20. After testing is completed, release the cutting oxygen lever. Close the oxygen valve and the fuel valve.
21. Close the cylinder valve or gas supply.
22. Open the oxygen valve. Release the oxygen from the system. Once all the oxygen is released from the system, close the oxygen valve.
23. Open the fuel valve. Release the fuel gas from the system. Once all the fuel gas is released from the system, close the fuel valve.
24. Remove the hoses from the torch.

## REPAIR TOOLS

Valve Body Die	Valve Body Tap	Valve Seat Reamer	Head Die	Head Reamer	Oxygen Inlet Conn. Die	Fuel Inlet Conn. Die
1/2" - 27 1422-0075	5/16" - 32 1422-0043	RT-33 1420-0059	15/16"-18 1422-0114	RT-57 1420-0086	9/16"-18RH 1422-0091	9/16"-18LH 1422-0092

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