

# M & M Services, LLC

Welding & Gas Cutting Equipment Repair

11803 Carmenita Rd.

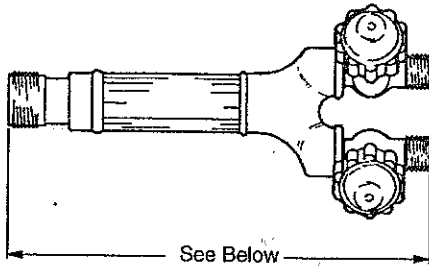
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[www.mandmservicesllc.com](http://www.mandmservicesllc.com)

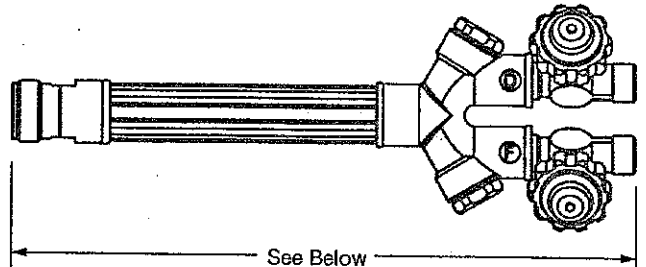
**FOR MORE BREAKDOWNS OR ASSISTANCE  
FINDING PARTS YOU NEED, PLEASE EMAIL:**

**[CS@MANDMSERVICESLLC.COM](mailto:CS@MANDMSERVICESLLC.COM)**



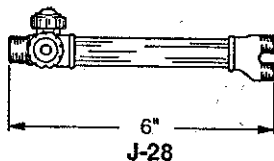
100C, J-100C and 300C SERIES

Torch Length	Model No.
8"	J-100C
8½"	100C
9"	315C
11"	310C
11"	HD310C

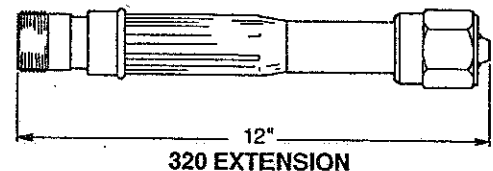


100FC, J-100FC and 300FC SERIES

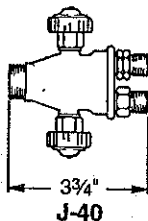
Torch Length	Model No.
8¼"	J-100FC
8⅝"	100FC
9½"	315FC
11½"	310FC
11½"	HD310FC



J-28



320 EXTENSION



J-40

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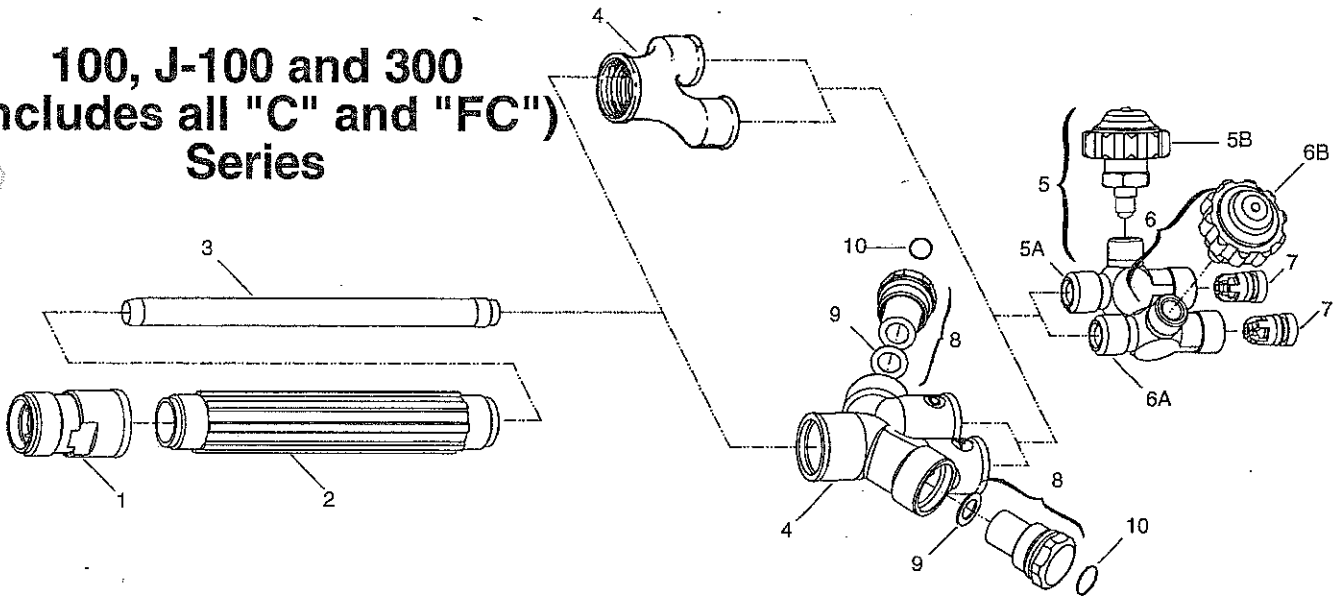
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## ⚠ WARNING ⚠

Welding 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.

# 100, J-100 and 300 (includes all "C" and "FC") Series



Ref. No.	Description	100C	100FC	J-100C	J-100FC	315C	315FC	310C	310FC	HD-310C	HD-310FC
1	Head	0302-0019	0302-0019	0302-0021	0302-0021	0302-0023	0302-0023	0302-0023	0302-0023	0302-0086	0302-0086
2	Barrel	0306-0068	0306-0068	0306-0068	0306-0068	0306-0055	0306-0055	0306-0066	0306-0066	0306-0066	0306-0066
3	Inner Oxygen Tube	0303-0003	0303-0003	0303-0003	0303-0003	0303-0006	0303-0006	0303-0005	0303-0005	0303-0005	0303-0005
4	Body Y	0301-0018	0301-0011	0301-0018	0301-0011	0301-0019	0301-0012	0301-0019	0301-0012	0301-0019	0301-0012
5	Control Valve Assy. (Oxygen)	0660-0236	0660-0236	0660-0236	0660-0236	0660-0229	0660-0229	0660-0229	0660-0229	0660-0229	0660-0229
5A	Valve Body w/Check Valve	0661-0202	0661-0202	0661-0202	0661-0202	0661-0207	0661-0207	0661-0207	0661-0207	0661-0207	0661-0207
5B	Valve Stem Assembly	0662-0016	0662-0016	0662-0016	0662-0016	0662-0014	0662-0014	0662-0014	0662-0014	0662-0014	0662-0014
6	Control Valve Assy. (Fuel)	0660-0237	0660-0237	0660-0237	0660-0237	0660-0233	0660-0233	0660-0233	0660-0233	0660-0243	0660-0243
6A	Valve Body w/Check Valve	0661-0203	0661-0203	0661-0203	0661-0203	0661-0206	0661-0206	0661-0206	0661-0206	0661-0210	0661-0210
	Valve Stem Assembly	0662-0016	0662-0016	0662-0016	0662-0016	0662-0014	0662-0014	0662-0014	0662-0014	0662-0017	0662-0017
	Internal Check Valve Kit*	0690-0027	0690-0027	0690-0027	0690-0027	0690-0027	0690-0027	0690-0027	0690-0027	0690-0027	0690-0027
	Flashback Arrestor Kit (2 req'd.)**	N/A	0657-0036	N/A	0657-0036	N/A	0657-0036	N/A	0657-0036	N/A	0657-0036
9	Gasket	N/A	<del>1408-0133</del>	N/A	1408-0133	N/A	1408-0133	N/A	1408-0133	N/A	1408-0133
10	O-Ring	N/A	1407-0287	N/A	1407-0287	N/A	1407-0287	N/A	1407-0287	N/A	1407-0287

\* Kit includes two check valves and instructions.  
\*\* Flashback Arrestor Kit includes flashback arrestor assembly, o-ring and gasket.

## 100, J-100 and 300 ("C" and "FC") Series SERVICE PROCEDURES

- Recommended Tools and Supplies:**  
 Bench Vise  
 Holding Fixture RT-129 (100 or J-100 Series)(1420-0198)  
 Holding Fixture RT-128 (300 Series) (1420-0197)  
 Head Reamer RT-58 (300 Series) (1420-0093)  
 Head Reamer RT-60 (100 Series) (1420-0099)  
 Head Reamer RT-59 (J-100 Series) (1420-0095)  
 Valve Seat Reamer RT-33 (1420-0059)  
 1/2", 5/8" and 3/4" Open-End Wrenches  
 Strap Wrench  
 1/4-20 Bolt  
 Heavy Copper or Brass Rod  
 LOCTITE® #79 (0028-0056)  
 Christo-Lube (0034-0021)

**NOTICE** For additional information, refer to Apparatus Service and Testing Procedures for Cutting Torches, Cutting Attachments and Welding Torches (Form No. 0056-0885) and Repair Tools Manual (Form No. 0056-0121).

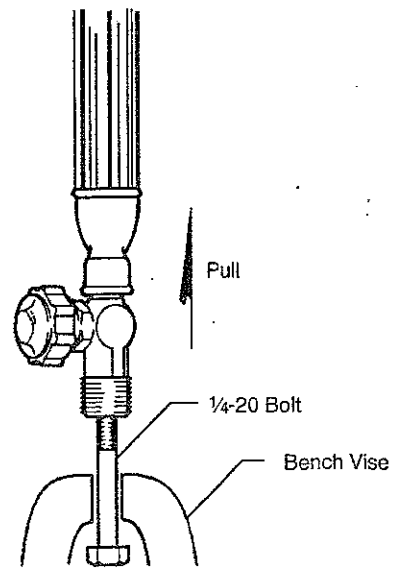
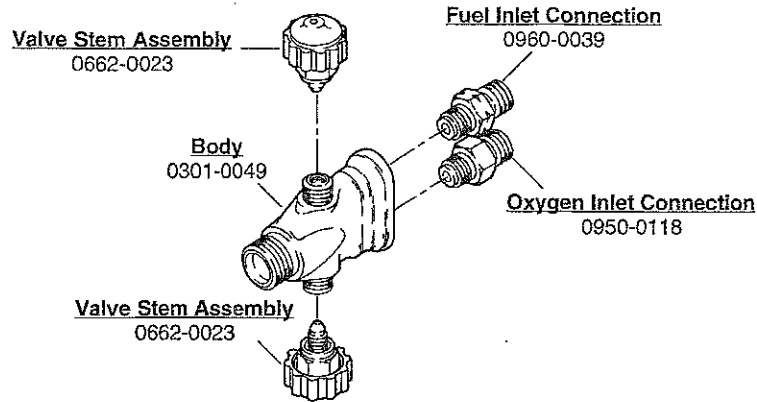


Fig. 1 - Removing the Internal Check Valves

# J-40



## J-40 SERVICE PROCEDURES

### Recommended Tools and Supplies

Bench Vise  
Head Reamer RT-59 (1420-0095)  
Valve Seat Reamer RT-35 (1420-0063)  
5/16" Box-end Wrench  
3/8" Open-end Wrench

**NOTICE** For additional information, refer to Apparatus Service and Testing Procedures for Cutting Torches, Cutting Attachments and Welding Torches (Form No. 0056-0885) and Repair Tools Manual (Form No. 0056-0121).

### Disassembly Procedure

Remove the Valve Stem Assemblies and Inlet Connections as shown in the illustration above.

### Cleaning Parts

Clean all metal parts with a cleaner that is safe for use with oxygen. Contact a chemical/cleaning supply distributor for recommended cleaners for use with oxygen. Always use cleaning solvents in accordance with the manufacturer's instructions.

**WARNING** DO NOT allow nonmetal parts to come in contact with any cleaning solvent! Cleaning solvents cause elastomeric and plastic parts to swell and stress crack. If these parts require cleaning, use a mild soap solution, followed by thorough rinsing in water. Dry these parts completely before installing in the torch. **REPLACE NONMETAL PARTS THAT HAVE COME IN CONTACT WITH OIL, GREASE OR ANY OTHER PETROLEUM BASED SUBSTANCE!**

### Assembly Procedure

1. Apply 2-3 drops of LOCTITE® #79 to the second and third male threads of the Inlet Connections immediately prior to installation.
2. Apply a thin film of Christo-Lube to the male threads of the Valve Stem Assemblies.
3. Install the Valve Stem Assemblies in the Body. Tighten the Packing Nut of each Valve Stem Assembly until 1 1/4 to 2 in-lbs of torque is required to adjust the Valve Stem Assembly.

## Test Procedure

### Recommended Tools and Supplies:

80 PSIG Source of Oil-Free air or Dry Nitrogen  
A plugged Welding Nozzle with both seats intact  
(See Fig. 5)  
Christo-Lube (0034-0021)

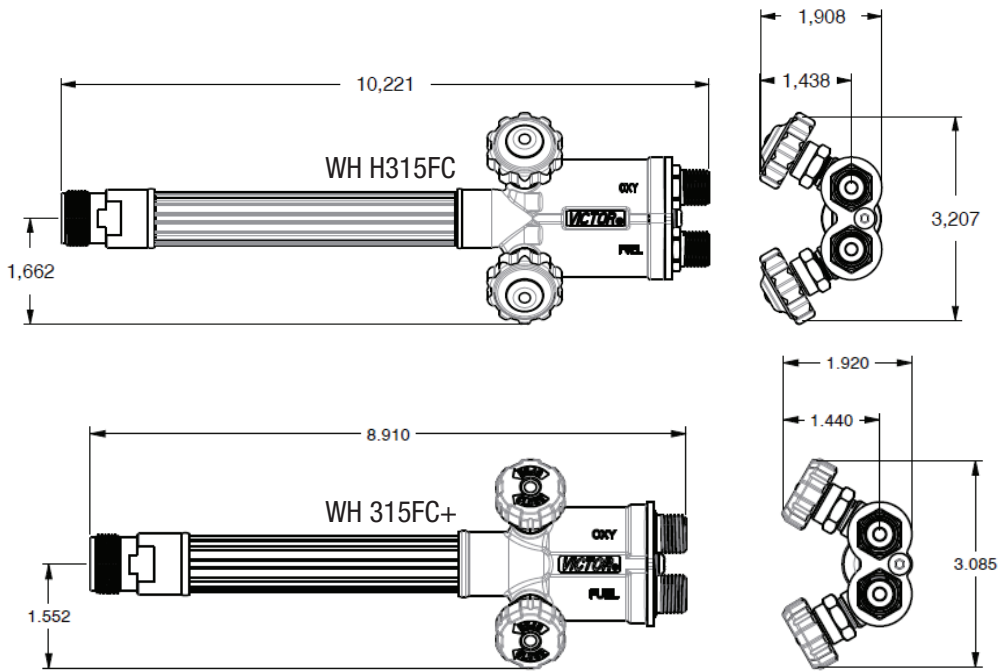
**WARNING** For your safety and the safety of the operator, always perform the following test procedure after assembling a Torch. Test with oil-free air or dry nitrogen ONLY! Always wear eye protection when testing a Torch Handle. Always test a Torch Handle in a well ventilated area. If the Torch Handle does not perform properly during testing, refer to Apparatus Service and Testing Procedures for Cutting Torches, Cutting Attachments and Welding Torches (Form No. 0056-0885).

1. Attach the Fuel and Oxygen Hoses to the Torch Handle.
2. Install the plugged Welding Nozzle in the Body Head.
3. Close the Oxygen Valve Stem Assembly. Pressurize the oxygen side of the Torch Handle to 80 PSIG with oil-free air or dry nitrogen.
4. Completely submerge the Torch Handle in water.
5. Open the Oxygen Control Valve.
  - a. Observe the Head fuel port. If there is an internal leak, bubbles will pass through the port.
  - b. Observe the Oxygen Valve Stem Assembly. There should be zero leakage past the Valve Stem Packing in five (5) seconds.
6. Close the Oxygen Control Valve.
7. Close the Fuel Valve Stem Assembly. Pressurize the fuel side of the Torch Handle to 80 PSIG with oil-free air or dry nitrogen.
8. Completely submerge the Torch Handle in water.
9. Open the Oxygen and Fuel Control Valves.
  - a. Observe the Fuel Valve Stem Assembly. There should be zero leakage (no bubbles) past the Valve Stem Packing in five (5) seconds.
  - b. Check for leaks (bubbles) around all external connections.
10. Close the Oxygen and Fuel Control Valves. Tighten to 7 to 8 in-lbs of torque.
11. Remove the plugged nozzle. Submerge the Torch Handle and observe the Head. If bubbles appear at the Head, one or both of the Valve Stem Assembly Seats is leaking. If leak is evident, Valve Seat may require reseating. Use the Valve Seat Reamer to repair the Valve Seat. Retest for leaks.

## SECTION 2: SPECIFICATIONS

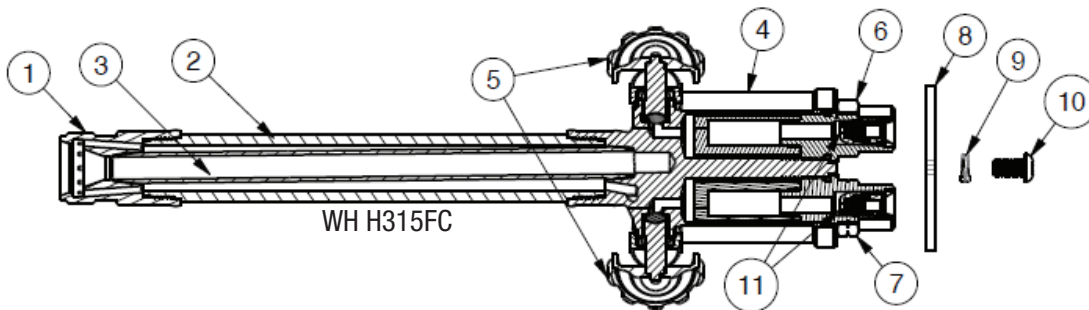
### 2.01 WH H315FC & 315FC+ VICTOR WELDING HANDLE

- Built-in flashback arrestors - no need for accessory flash arrestors
- Built-in reverse flow check valves - no need for accessory check valves
- Works with all fuel gases. There are pressure restrictions for different gases.



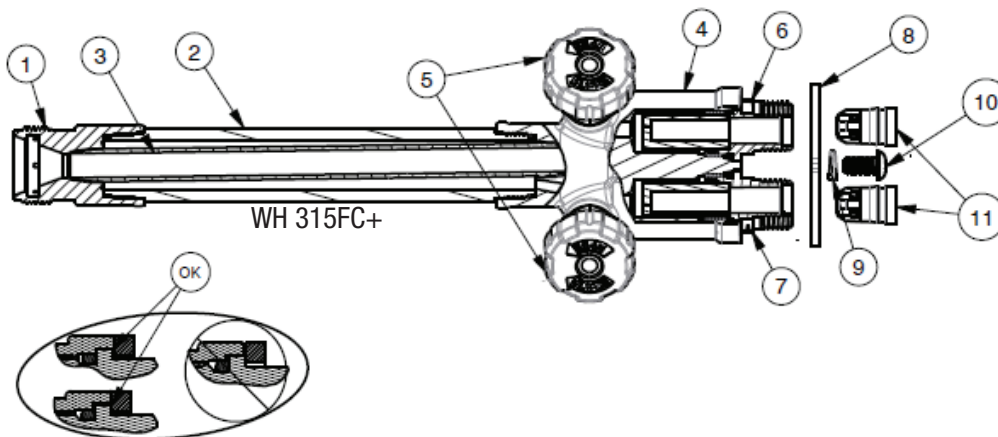
All dimensions are approximate.

### 2.02 REPAIR PARTS LIST



Ref No.	Description	H315FC
1	Head	0302-0023
2	Barrel	0306-0290
3	Inner Oxygen Tube	0303-0542
4	Body	0301-0247
5	Control Valve Assy.	0662-0091
6	Oxygen Flashback Arrestor*	0657-0068
7	Fuel Flashback Arrestor*	0657-0069
8	Retainer Plate	0950-0183
9	Lock Washer	1406-0215
10	Screw-Button Head	1400-0239
11	Internal Check Valve Kit**	0690-0027

\*Internal Checkvalve included. Pair pack p/n 0656-0046.  
 \*\*Included w/ replacement flashback arrestor (intsalled)



Ref No.	Description	315FC+
1	Head	0302-0023
2	Barrel	0306-0055
3	Inner Oxygen Tube	0303-0006
4	Body	0301-0168
5	Control Valve Assy.	0390-0103RP
6	Oxygen Flashback Arrestor*	0657-0116
7	Fuel Flashback Arrestor*	0657-0117
8	Retainer Plate*	0950-0002
9	Lock Washer*	1406-0215
10	Screw-Button Head*	1400-0239
11	Internal Check Valve Kit**	0690-0027

\*Internal Checkvalve included. Pair pack p/n 0656-0054.  
 \*\*Included w/ replacement flashback arrestor (intsalled)

## SECTION 3: SERVICE & REPAIR INSTRUCTIONS

### 3.01 RECOMMENDED TOOLS & SUPPLIES FOR REPAIR PROCEDURES

5/8", 9/16", and 11/16" Open-End Wrenches	Vise
1/4-20 Bolt	45% Silver Solder
Pliers	Silver Solder Flux
Hand Reamer RT-58	Loctite® #222 (Part Number 0028-0081)
Brazing Torch	Christo-Lube® 129 (Part Number 0034-0021)

#### NOTE

*Disconnect the torch from any gas lines or other hardware before beginning any service or repair.*

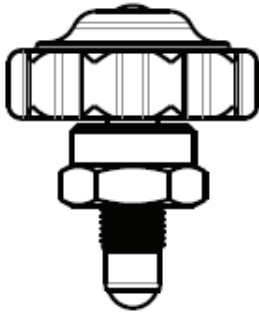
### 3.02 CLEANING PROCEDURES

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.

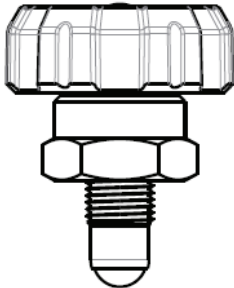


*DO NOT allow nonmetal components (seat, O-rings, dust seal, gaskets) to contact cleaning solvents! Cleaning solvents cause elastomeric and plastic parts to swell and stress crack. If these parts require cleaning, use a mild soap solution, followed by a thorough rinsing in water. Dry these parts completely 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.*

### 3.03 CONTROL VALVE REPAIR KIT



Ref No.	Description	H315FC
1	Control Valve	0662-0091



Ref No.	Description	315FC+
1	Control Valve	0662-0103RP

#### Service

- Wipe with dry cloth. Do not use any cleaning solvents.
- Check for leaks.

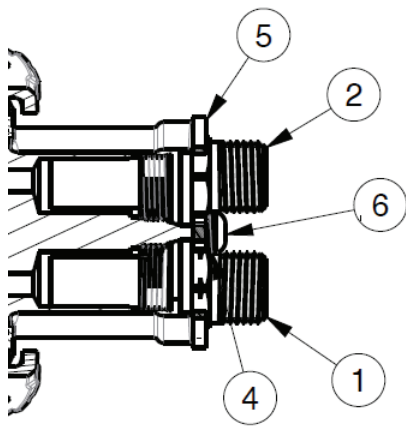
#### Disassembly

1. Place torch in a vise.
2. Use a wrench to unscrew the Control Valve Nut.

#### Disassembly

1. Apply Christo-Lube to threads.
2. Screw Control Valve Assembly into Cutting Torch Body
3. Use a wrench to tighten the Control Valve Nut.
5. Remove from vise.

### 3.04 FLASHBACK ARRESTOR



Ref No.	Description	H315FC	Qty
	Flashback Arrestor Repair Kit	0656-0046	1
1	Arrestor Assy- Fuel*	0657-0069	1
2	Arrestor Assy- Oxy*	0657-0068	1
3	Hex Key	1413-0024	1
4	Lock Washer	1406-0215	1
5	Retainer Plate	0950-0183	1
6	Screw	1400-0239	1

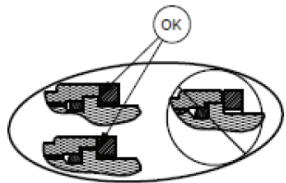
\*Sold as single assembly: 0657-0068 for Oxygen FBA  
0657-0069 for Fuel FBA

Ref No.	Description	315FC+	Qty
	Flashback Arrestor Repair Kit	0656-0054	1
1	Arrestor Assy- Fuel*	0657-0108	1
2	Arrestor Assy- Oxy*	0657-0107	1
3	Hex Key	1413-0024	1
4	Lock Washer	1406-0215	1
5	Retainer Plate	0950-0002	1
6	Screw	1400-0239	1

\*Sold as single assembly: 0657-0116 for Oxygen FBA  
0657-0117 for Fuel FBA

#### Disassembly

1. Remove button head cap screw, lock washer and retainer plate.
2. Turn Oxygen Flashback Arrestor counterclockwise to remove.
3. Turn Fuel Flashback Arrestor clockwise to remove



#### Assembly

1. Apply Christo-Lube to o-rings.
2. Turn Oxygen Flashback Arrestor clockwise to install until bottomed-out.
3. Turn Fuel Flashback Arrestor (grooved hex) counterclockwise to install until bottomed-out.
4. Back each arrestor out slightly, if necessary, to align flats of hex as illustrated above.
5. Install retainer plate, lock washer, and button head screw. Tighten screw securely with 1/8" hex wrench.

### 3.05 CHECK VALVE REPAIR KIT

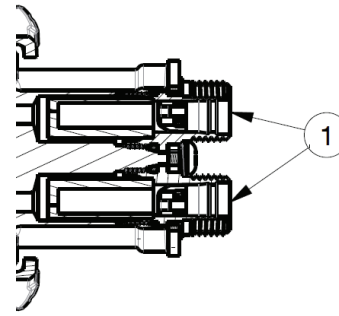


Figure 3-3

Item No.	Description	Part number	Qty
	Check Valve Repair Kit	0690-0027	1
1	Check Valve	0652-0029	2

#### NOTE

Follow these steps to disassemble and assemble either check valve.

#### Disassembly

1. Screw the 1/4-20 bolt into the 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, and the bolt must be able to move freely.
3. Grab the welding handle firmly and pull it up. The head of the bolt will catch on the vise jaws, and the check valve will pull out of the welding handle.
4. Repeat steps 1 through 3 for the other check valve.

#### Assembly

#### NOTE

This assembly requires a class "B" dual hose for oxygen and fuel. The red hose connects to the fuel inlet connection. The green hose connects to the oxygen inlet connection.

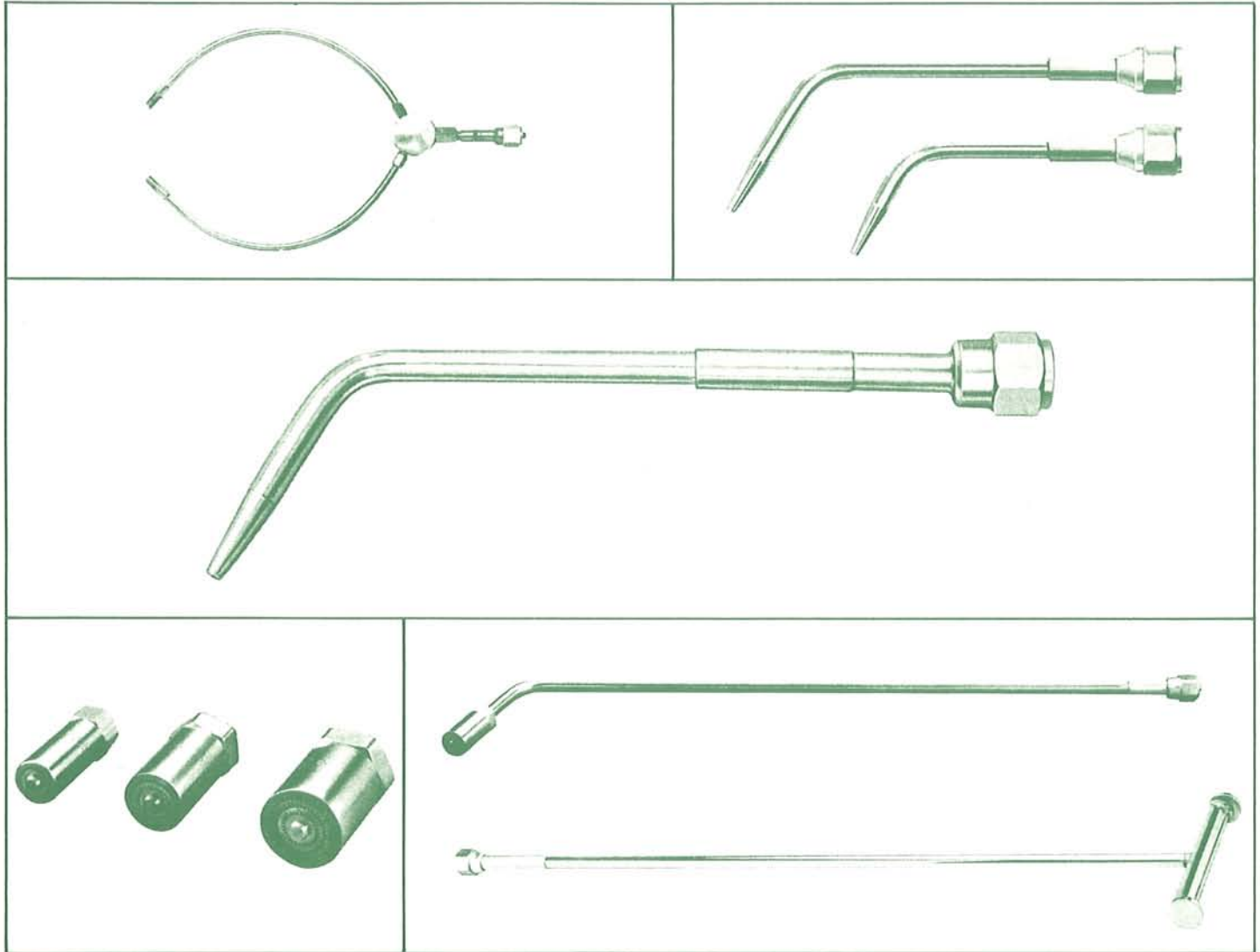
1. Press the check valve into the inlet connection.
2. Place the hose connection over the check valve and thread it onto the inlet connection. Use a wrench to tighten the hose onto the inlet connection until the check valve is properly seated.
3. Remove the hose.
4. Repeat steps 1 through 3 for the other check valve.



## WELDING & HEATING NOZZLES COMPONENTS PARTS BREAKDOWN

FORM NO. 56-502

EFFECTIVE 2-87

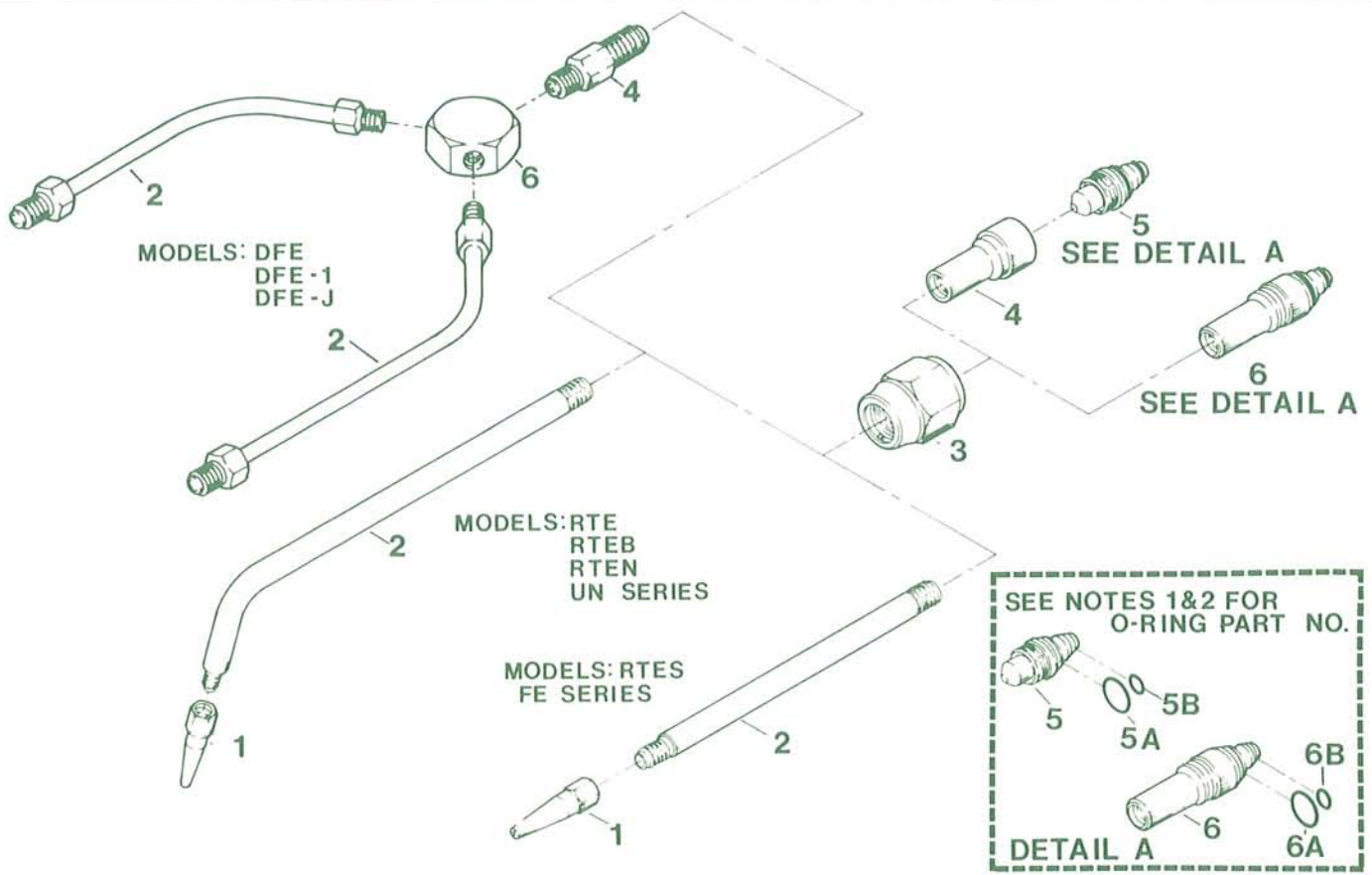


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- NOTES**
1. O-Rings for RTE, RTEB, RTES, RTEN, UN, FE/5A — Part No. 1407-0178, 5B — Part No. 1407-0177.
  2. O-Rings for UN-1, UN-J, UNN-J, FE-1, FE-J, DFE, DFE-1, DFE-J/6A — Part No. 1407-0176  
6B — Part No. 1407-0175.
  3. Apply Loctite #222 sparingly to the second and third male threads immediately prior to assembly.
  4. \*Nozzles supplied less tip. See Chart I for selection of tip ends available.

**NOZZLE COMPONENTS**

SIZE & MODEL	COMPLETE NOZZLE PART NO.	1 NOZZLE TIP	2 ELBOW	3 NUT	4 CENTER-PIECE	5 MIXER	6 MIXER
000-RTE	0323-0306	0311-0471	0304-0083	0309-0015	N/A	N/A	0305-0182
00-RTE	0323-0307	0311-0472	0304-0083	0309-0015	N/A	N/A	0305-0182
0-RTE	0323-0308	0311-0473	0304-0083	0309-0015	N/A	N/A	0305-0182
1-RTE	0323-0309	0311-0474	0304-0083	0309-0015	N/A	N/A	0305-0182
2-RTE	0323-0310	0311-0475	0304-0083	0309-0015	N/A	N/A	0305-0182
3-RTE	0323-0311	0311-0587	0304-0084	0309-0015	N/A	N/A	0305-0183
4-RTE	0323-0312	0311-0588	0304-0084	0309-0015	N/A	N/A	0305-0183
5-RTE	0323-0313	0311-0589	0304-0084	0309-0015	N/A	N/A	0305-0183
6-RTE	0323-0314	0311-0590	0304-0085	0309-0015	N/A	N/A	0305-0184
7-RTE	0323-0315	0311-0591	0304-0085	0309-0015	N/A	N/A	0305-0184
8-RTE	0323-0316	0311-0592	0304-0085	0309-0015	N/A	N/A	0305-0184
10-RTE	0323-0317	0311-0593	0304-0086	0309-0015	N/A	N/A	0305-0185
12-RTE	0323-0318	0311-0038	0304-0086	0309-0015	N/A	N/A	0305-0185
1-RTEB	0323-0030	0311-0565	0304-0083	0309-0015	N/A	N/A	0305-0182
2-RTEB	0323-0031	0311-0566	0304-0083	0309-0015	N/A	N/A	0305-0182
3-RTEB	0323-0032	0311-0567	0304-0084	0309-0015	N/A	N/A	0305-0183
4-RTEB	0323-0040	0311-0568	0304-0084	0309-0015	N/A	N/A	0305-0183
6-RTEB	0323-0041	0311-0069	0304-0085	0309-0015	N/A	N/A	0305-0184
8-RTEB	0323-0042	0311-0570	0304-0085	0309-0015	N/A	N/A	0305-0184
10-RTEB	0323-0050	0311-0571	0304-0086	0309-0015	N/A	N/A	0305-0185

		1	2	3	4	5	6
000-RTES	0323-0060	0311-0471	0304-0087	0309-0015	N/A	N/A	0305-0182
00-RTES	0323-0061	0311-0472	0304-0087	0309-0015	N/A	N/A	0305-0182
0-RTES	0323-0062	0311-0473	0304-0087	0309-0015	N/A	N/A	0305-0182
1-RTES	0323-0070	0311-0474	0304-0087	0309-0015	N/A	N/A	0305-0182
2-RTES	0323-0071	0311-0475	0304-0087	0309-0015	N/A	N/A	0305-0182
3-RTES	0323-0072	0311-0587	0304-0088	0309-0015	N/A	N/A	0305-0183
4-RTES	0323-0080	0311-0588	0304-0088	0309-0015	N/A	N/A	0305-0183
5-RTES	0323-0081	0311-0589	0304-0088	0309-0015	N/A	N/A	0305-0183
6-RTES	0323-0082	0311-0590	0304-0089	0309-0015	N/A	N/A	0305-0184
7-RTES	0323-0090	0311-0591	0304-0089	0309-0015	N/A	N/A	0305-0184
8-RTES	0323-0091	0311-0592	0304-0089	0309-0015	N/A	N/A	0305-0184
10-RTES	0323-0092	0311-0593	0304-0090	0309-0015	N/A	N/A	0305-0185
12-RTES	0323-0100	0311-0038	0304-0090	0309-0015	N/A	N/A	0305-0185

0-RTEN	0323-0280	0311-0483	0304-0083	0309-0015	0310-0071	0305-0107	N/A
2-RTEN	0323-0281	0311-0485	0304-0083	0309-0015	0310-0072	0305-0109	N/A
4-RTEN	0323-0282	0311-0487	0304-0084	0309-0015	0310-0073	0305-0114	N/A
6-RTEN	0323-0284	0311-0585	0304-0085	0309-0015	0310-0074	0305-0116	N/A
8-RTEN	0323-0285	0311-0586	0304-0085	0309-0015	0310-0075	0305-0118	N/A

**SEE CHART I TO SELECT TIPS FOR THE FOLLOWING MODELS**

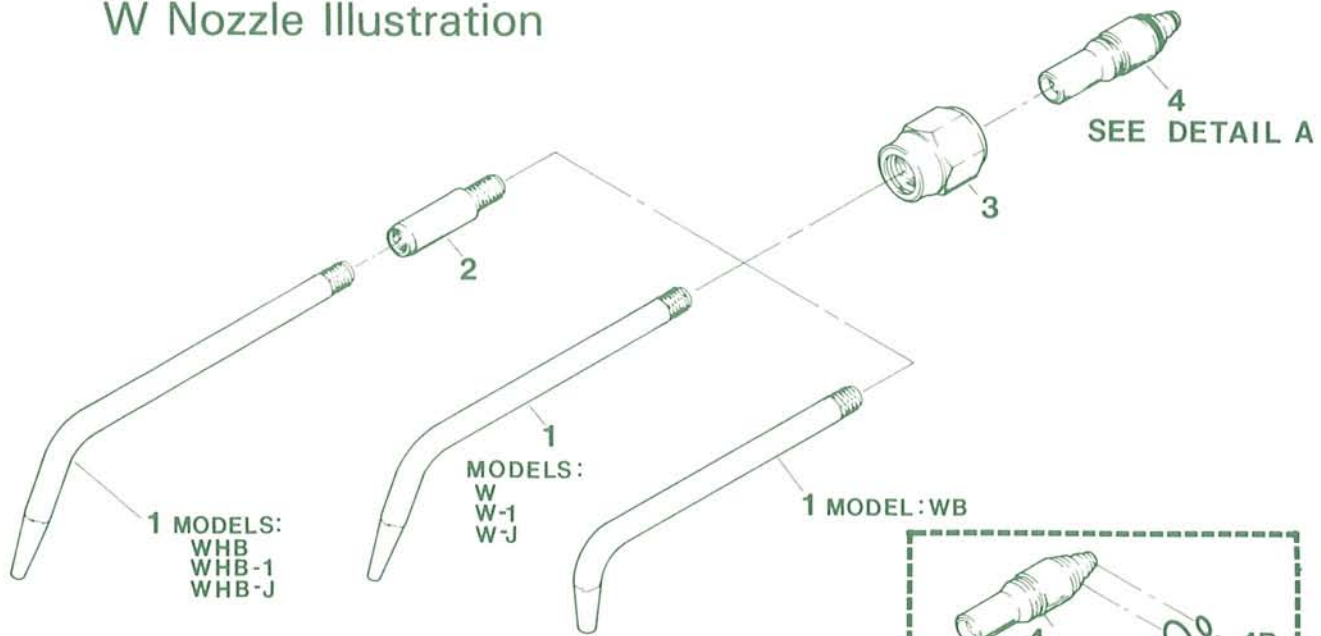
UN	★	0323-0242	GROUP 1&2	0304-0067	0309-0015	N/A	N/A	0305-0191
UN-1	★	0324-0094	GROUP 1&2	0304-0067	0309-0013	N/A	N/A	0305-0165
UN-J	★	0325-0101	GROUP 1&2	0304-0067	0309-0077	N/A	N/A	0305-0168
UNN-J	★	0325-0046	GROUP 2	0304-0067	0309-0008	0310-0039	0305-0124	N/A
FE	★	0323-0191	GROUP 1&2	0304-0077	0309-0015	N/A	N/A	0305-0191
FE-1	★	0324-0066	GROUP 1&2	0304-0077	0309-0013	N/A	N/A	0305-0165
FE-J	★	0325-0102	GROUP 1&2	0304-0077	0309-0077	N/A	N/A	0305-0168

MODELS	PART NO.	TIP ASS'Y	TUBE ASS'Y	NOZZLE NUT	ADAPTOR	MIXER	HEAD	
DFE	★	0323-0192	GROUP 1&2	0304-0077(2)	0309-0015	0312-0058	0305-0184	0312-0011
DFE-1	★	0324-0192	GROUP 1&2	0304-0077(2)	0309-0013	0312-0060	0305-0166	0312-0011
DFE-J	★	0325-0108	GROUP 1&2	0304-0077 2	0309-0077	0312-0045	0305-0168	0312-0011

**CHART I (REPLACEMENT TIPS)**

GROUP 1				GROUP 2	
SIZE & MODEL NO.	PART NUMBER	SIZE & MODEL NO.	PART NUMBER	SIZE & MODEL NO.	PART NUMBER
000 TE	0311-0471	3 TEMFA	0311-0217	000 TEN	0311-0481
00 TE	0311-0472	4 TEMFA	0311-0218	00 TEN	0311-0482
0 TE	0311-0473	5 TEMFA	0311-0219	0 TEN	0311-0483
1 TE	0311-0474			1 TEN	0311-0484
2 TE	0311-0475	1 TECA	0311-0491	2 TEN	0311-0485
3 TE	0311-0587	2 TECA	0311-0492	3 TEN	0311-0486
4 TE	0311-0588	3 TECA	0311-0493	4 TEN	0311-0487
5 TE	0311-0589			5 TEN	0311-0488
1 TEB	0311-0565			3 TEMPN	0311-0306
2 TEB	0311-0566			4 TEMPN	0311-0307
3 TEB	0311-0567			5 TEMFN	0311-0308
4 TEB	0311-0568				
1 TEMFA	0311-0215			1 TECN	0311-0494
2 TEMFA	0311-0216			2 TECN	0311-0495
				3 TECN	0311-0496

# W Nozzle Illustration

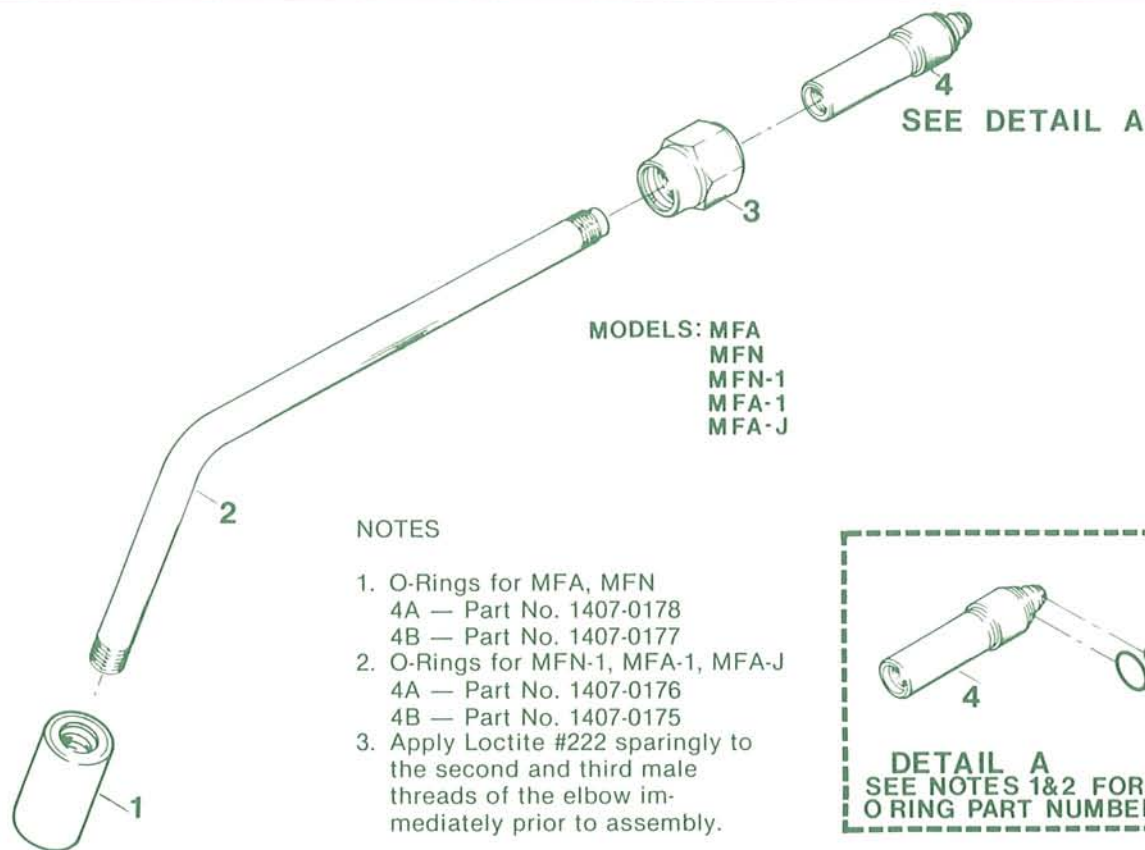


- NOTES
- O-Rings for W, WB, WHB  
4A — Part No. 1407-0178  
4B — Part No. 1407-0177
  - O-Rings for W-1, WHB-1, WHB-J, W-J, WSB-J, WSB-1  
4A — Part No. 1407-0176  
4B — Part No. 1407-0175
  - Apply Loctite #222 sparingly to the second and third male threads immediately prior to assembly.

## NOZZLE COMPONENTS

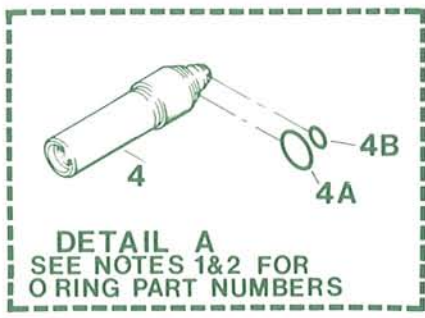
SIZE & MODEL	COMPLETE NOZZLE PART NO.	1 ELBOW	2 BARRIER	3 NOZZLE NUT	4 MIXER
000-W	0323-0110	0311-0055	N/A	0309-0015	0305-0191
00-W	0323-0111	0311-0056	N/A	0309-0015	0305-0191
0-W	0323-0112	0311-0057	N/A	0309-0015	0305-0191
1-W	0323-0120	0311-0058	N/A	0309-0015	0305-0191
2-W	0323-0121	0311-0059	N/A	0309-0015	0305-0191
3-W	0323-0122	0311-0572	N/A	0309-0015	0305-0183
4-W	0323-0130	0311-0573	N/A	0309-0015	0305-0183
5-W	0323-0131	0311-0574	N/A	0309-0015	0305-0184
6-W	0323-0132	0311-0575	N/A	0309-0015	0305-0184
7-W	0323-0140	0311-0576	N/A	0309-0015	0305-0171
8-W	0323-0141	0311-0577	N/A	0309-0015	0305-0171
10-W	0323-0142	0311-0073	N/A	0309-0015	0305-0185
00-WB	0323-0150	0311-0075	N/A	0309-0015	0305-0191
0-WB	0323-0151	0311-0076	N/A	0309-0015	0305-0191
1-WB	0323-0152	0311-0077	N/A	0309-0015	0305-0191
2-WB	0323-0160	0311-0078	N/A	0309-0015	0305-0191
3-WB	0323-0161	0311-0578	N/A	0309-0015	0305-0183
4-WB	0323-0162	0311-0579	N/A	0309-0015	0305-0183
5-WB	0323-0171	0311-0580	N/A	0309-0015	0305-0184
6-WB	0323-0172	0311-0581	N/A	0309-0015	0305-0184
7-WB	0323-0180	0311-0582	N/A	0309-0015	0305-0171
8-WB	0323-0181	0311-0583	N/A	0309-0015	0305-0171
10-WB	0323-0182	0311-0584	N/A	0309-0015	0305-0185

		1	2	3	4
000-WHB	0323-0200	0311-0055	0315-0004	0309-0015	0305-0191
00-WHB	0323-0201	0311-0056	0315-0004	0309-0015	0305-0191
0-WHB	0323-0202	0311-0057	0315-0004	0309-0015	0305-0191
1-WHB	0323-0210	0311-0058	0315-0004	0309-0015	0305-0191
2-WHB	0323-0211	0311-0059	0315-0004	0309-0015	0305-0191
3-WHB	0323-0212	0311-0572	0315-0021	0309-0015	0305-0183
4-WHB	0323-0220	0311-0573	0315-0021	0309-0015	0305-0183
5-WHB	0323-0221	0311-0574	0315-0023	0309-0015	0305-0184
6-WHB	0323-0222	0311-0575	0315-0023	0309-0015	0305-0184
7-WHB	0323-0230	0311-0576	0315-0022	0309-0015	0305-0171
8-WHB	0323-0231	0311-0577	0315-0022	0309-0015	0305-0171
10-WHB	0323-0232	0311-0073	0315-0022	0309-0015	0305-0185
000-W-1	0324-0068	0311-0055	N/A	0309-0013	0305-0165
00-W-1	0324-0069	0311-0056	N/A	0309-0013	0305-0165
0-W-1	0324-0070	0311-0057	N/A	0309-0013	0305-0165
1-W-1	0324-0071	0311-0058	N/A	0309-0013	0305-0165
2-W-1	0324-0072	0311-0059	N/A	0309-0013	0305-0165
3-W-1	0324-0073	0311-0345	N/A	0309-0013	0305-0165
4-W-1	0324-0074	0311-0346	N/A	0309-0013	0305-0165
5-W-1	0324-0075	0311-0602	N/A	0309-0013	0305-0166
6-W-1	0324-0076	0311-0603	N/A	0309-0013	0305-0166
7-W-1	0324-0077	0311-0604	N/A	0309-0013	0305-0166
0-WHB-1	0324-0081	0311-0057	0315-0004	0309-0013	0305-0165
1-WHB-1	0324-0082	0311-0058	0315-0004	0309-0013	0305-0165
2-WHB-1	0324-0083	0311-0059	0315-0004	0309-0013	0305-0165
3-WHB-1	0324-0084	0311-0345	0315-0004	0309-0013	0305-0165
4-WHB-1	0324-0085	0311-0346	0315-0004	0309-0013	0305-0165
5-WHB-1	0324-0086	0311-0602	0315-0021	0309-0013	0305-0166
6-WHB-1	0324-0087	0311-0603	0315-0021	0309-0013	0305-0166
7-WHB-1	0324-0088	0311-0604	0315-0021	0309-0013	0305-0166
000-W-J	0325-0081	0311-0123	N/A	0309-0077	0305-0167
00-W-J	0325-0082	0311-0124	N/A	0309-0077	0305-0167
0-W-J	0325-0083	0311-0125	N/A	0309-0077	0305-0167
1-W-J	0325-0084	0311-0126	N/A	0309-0077	0305-0167
2-W-J	0325-0085	0311-0127	N/A	0309-0077	0305-0167
3-W-J	0325-0086	0311-0128	N/A	0309-0077	0305-0167
4-W-J	0325-0087	0311-0129	N/A	0309-0077	0305-0167
5-W-J	0325-0088	0311-0133	N/A	0309-0077	0305-0168
6-W-J	0325-0089	0311-0134	N/A	0309-0077	0305-0168
7-W-J	0325-0090	0311-0135	N/A	0309-0077	0305-0168
0-WHB-J	0325-0093	0311-0125	0315-0024	0309-0077	0305-0167
1-WHB-J	0325-0094	0311-0126	0315-0024	0309-0077	0305-0167
2-WHB-J	0325-0095	0311-0127	0315-0024	0309-0077	0305-0167
3-WHB-J	0325-0096	0311-0128	0315-0024	0309-0077	0305-0167
4-WHB-J	0325-0097	0311-0199	0315-0024	0309-0077	0305-0167
5-WHB-J	0325-0098	0311-0133	0315-0024	0309-0077	0305-0168
1-WSB-1	0324-0105	0311-0417	N/A	0309-0013	0305-0165
3-WSB-1	0324-0106	0311-0418	N/A	0309-0013	0305-0165
5-WSB-1	0324-0107	0311-0419	N/A	0309-0013	0305-0165
1-WSB-J	0325-0111	0311-0417	N/A	0309-0077	0305-0168
3-WSB-J	0325-0112	0311-0418	N/A	0309-0077	0305-0168
5-WSB-J	0325-0113	0311-0419	N/A	0309-0077	0305-0168



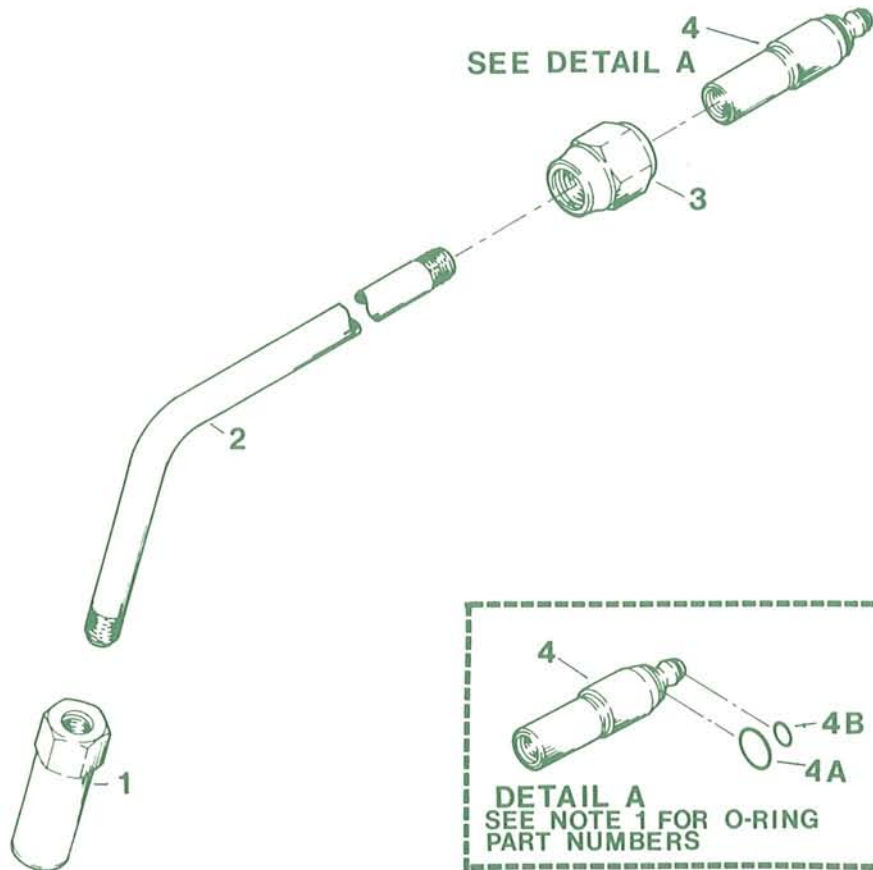
**NOTES**

1. O-Rings for MFA, MFN  
4A — Part No. 1407-0178  
4B — Part No. 1407-0177
2. O-Rings for MFN-1, MFA-1, MFA-J  
4A — Part No. 1407-0176  
4B — Part No. 1407-0175
3. Apply Loctite #222 sparingly to the second and third male threads of the elbow immediately prior to assembly.



**NOZZLE COMPONENTS**

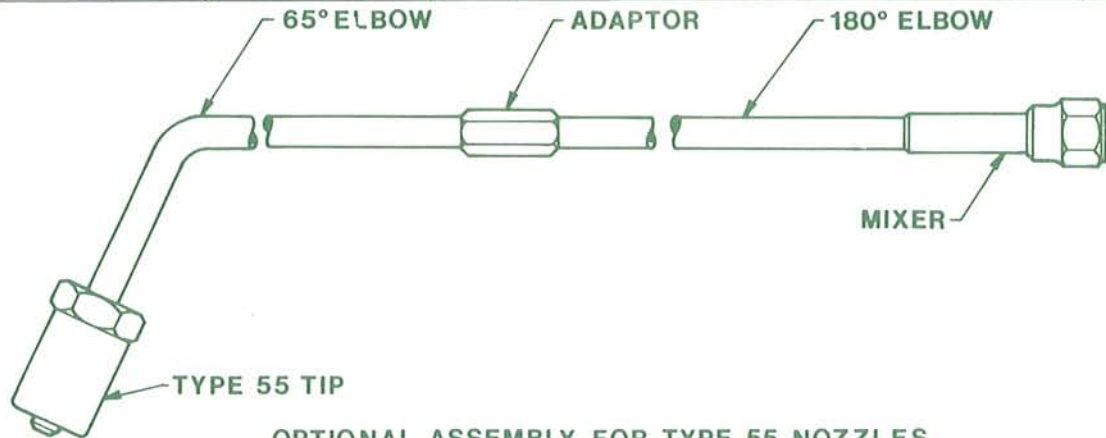
SIZE & MODEL	COMPLETE NOZZLE PART NO.	1 TIP	2 ELBOW	3 NOZZLE NUT	4 MIXER
4-MFA	0323-0250	0311-0536	0304-0081	0309-0015	0305-0171
6-MFA	0323-0251	0311-0537	0304-0081	0309-0015	0305-0171
8-MFA	0323-0252	0311-0538	0304-0081	0309-0015	0305-0171
10-MFA	0323-0260	0311-0648	0304-0082	0309-0015	0305-0403
12-MFA	0323-0261	0311-0649	0304-0082	0309-0015	0305-0403
15-MFA	0323-0262	0311-0650	0304-0082	0309-0015	0305-0403
4-MFN	0323-0290	0311-0558	0304-0081	0309-0015	0305-0171
6-MFN	0323-0291	0311-0559	0304-0081	0309-0015	0305-0171
8-MFN	0323-0292	0311-0560	0304-0081	0309-0015	0305-0171
10-MFN	0323-0302	0311-0661	0304-0082	0309-0015	0305-0404
12-MFN	0323-0303	0311-0662	0304-0082	0309-0015	0305-0404
15-MFN	0323-0304	0311-0663	0304-0082	0309-0015	0305-0404
20-MFN	0323-0305	0311-0664	0304-0082	0309-0015	0305-0404
2 MFN-1	0324-0115	0311-0609	0304-0096	0309-0013	0305-0166
4 MFN-1	0324-0116	0311-0610	0304-0096	0309-0013	0305-0166
6 MFN-1	0324-0117	0311-0611	0304-0096	0309-0013	0305-0166
8 MFN-1	0324-0118	0311-0612	0304-0096	0309-0013	0305-0166
2-MFA-1	0324-0108	0311-0598	0304-0096	0309-0013	0305-0166
4-MFA-1	0324-0109	0311-0599	0304-0096	0309-0013	0305-0166
6-MFA-1	0324-0110	0311-0600	0304-0096	0309-0013	0305-0166
8-MFA-1	0324-0111	0311-0601	0304-0096	0309-0013	0305-0166
2-MFA-J	0325-0104	0311-0497	0304-0068	0309-0077	0305-0168
4-MFA-J	0325-0105	0311-0498	0304-0068	0309-0077	0305-0168
6-MFA-J	0325-0106	0311-0499	0304-0068	0309-0077	0305-0168



- NOTES
- O-Rings for Type 55 Nozzle  
4A — Part No. 1407-0178, 4B — Part No. 1407-0177
  - Apply Loctite #222 sparingly to the second and third male threads immediately prior to assembly.
  - The tip and mixer of the Type 25 and 45 nozzles have been obsoleted and are interchangeable with the Type 55 nozzles.

**NOZZLE COMPONENTS**

SIZE AND MODEL	COMPLETE NOZZLE PART NO.	1 TIP	2 ELBOW	3 NOZZLE NUT	4 MIXER
10 T 55	0323-0324	0311-0230	0304-0011	0309-0015	0305-0404
15 T 55	0323-0325	0311-0231	0304-0011	0309-0015	0305-0404
20 T 55	0323-0326	0311-0232	0304-0011	0309-0015	0305-0404



**OPTIONAL ASSEMBLY FOR TYPE 55 NOZZLES**

**OPTIONAL PARTS**

180° ELBOW	
LENGTH	PART NO.
12"	0304-0093
16"	0304-0094
28"	0304-0095

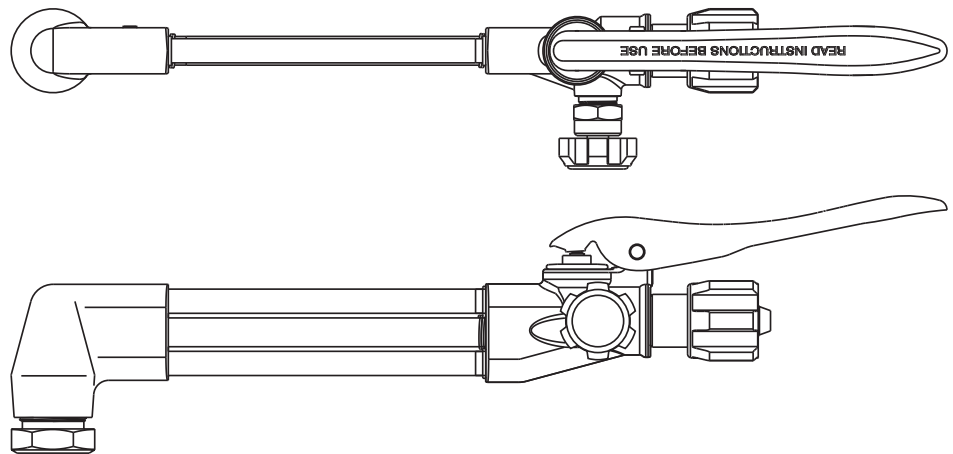
65° ELBOW	
LENGTH	PART NO.
14½"	0304-0002
26½"	0304-0011

ADAPTOR
PART NO.
0312-0064

**VICTOR** 

CA411-1

# PARTS, SERVICE & REPAIR BULLETIN



## 400 SERIES HEAVY DUTY ATTACHMENT & CUTTING ATTACHMENT, TIP SERIES 1

Manual No: 0056-3719  
Issue Date: March 15, 2013

Revision: A

*VictorTechnologies.com*

## SECTION 3: SERVICE & REPAIR INSTRUCTIONS

### 3.01 RECOMMENDED TOOLS & SUPPLIES FOR REPAIR PROCEDURES

3/8", 5/8" and 9/16" Open-end Wrenches	Vise
7/16" and 11/16" Box-end Wrenches	45% Silver Solder
3/16" Drift Punch	Silver Solder Flux
Small Hammer	Loctite #222 (Part Number 0028-0034)
Cone End Assembly Clamp RT-108	Christo-Lube 129 (Part Number 0034-0021)
Brazing Torch	

#### **NOTE**

*Disconnect cutting torch from any gas lines or other hardware before beginning any service or repair.*

### 3.02 CLEANING PROCEDURES

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.

#### **WARNING**

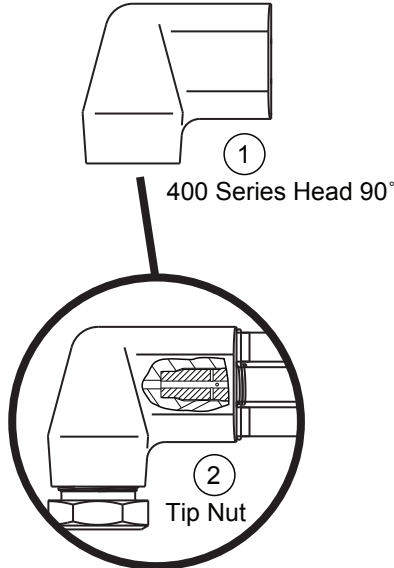
*DO NOT allow nonmetal components (Seat, O-Rings, Dust Seal, Gaskets) to contact cleaning solvents! Cleaning solvents cause elastomeric and plastic parts to swell and stress crack. If these parts require cleaning, use a mild soap solution, followed by a thorough rinsing in water. Dry these parts completely 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.*

### 3.03 400 SERIES HEAD REPAIR KIT



#### **CAUTION**

*Always wear gloves when handling heated parts.*



**400 Series Head**

#### **Service**

- Remove tip nut and use an air hose to clear any debris from opening. Replace tip nut and tip.

#### **Disassembly**

Remove the Tip, Tip Nut, Cutting Lever, Control Valve Assembly, H.P. Oxy Valve, and Cone End Assembly before beginning the task.

- Place torch in a vise positioned such that you will have full access to the 400 Head.
- Heat the gas feed tubes until solder liquefies and use pliers to remove 400 Series Head.

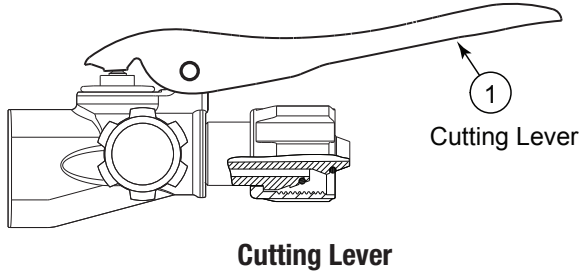
#### **Assembly**

- Clean gas feed tube ends of all solder and debris.
- Place new 400 Series Head on gas feed tubes. Confirm correct orientation to 400 Series body.
- Solder fittings and allow to cool before beginning the next step.
- Remount the Control Valve Assembly, H.P. Oxy Valve, and Cone End Assembly.
- Remount the Cutting Lever, Tip Nut, and Tip.
- Check for leaks.

Item No.	Description	Part number	Qty
1	90 Victor Series 1 Head Repair Kit	0390-0085	1
2	Tip Nut	0390-0088	1



### 3.04 CUTTING LEVER REPAIR KIT



Item No.	Description	Part number	Qty
1	Cutting Lever Repair Kit	0307-0104	1

#### Service

- Check roll pin for wear.
- Check yoke for alignment to Oxy Valve head.

#### Disassembly

1. Tap roll pin out of lever handle and cutting torch body. Inspect and discard roll pin if deformed.

#### NOTE

Roll Pin is not included in Cutting Level Repair Kit. Replacement Roll Pin part number is 1404-0002.

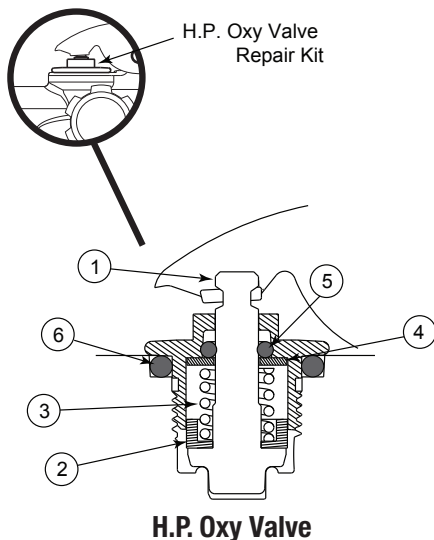
2. Slide lever handle forward.

#### Assembly

If roll pin was discarded acquire a replacement roll pin before beginning this step.

1. Align lever tabs with valve stem.
2. Confirm lever tabs align with valve stem and insert roll pin into lever and torch body.
3. Gently tap in roll pin.

### 3.05 H.P. OXY VALVE REPAIR KIT



Item No.	Description	Part number	Qty
	H.P. Oxy Valve Repair Kit	0390-0043	1
1	Seat Assembly	0320-0079	1
2	Seat Assembly Bushing	0320-0108	1
3	Valve Spring	0320-0024	1
4	Washer	1406-0006	1
5	O-Ring (Small)	1407-0005	1
6	O-Ring (Large)	1407-0016	1



#### CAUTION

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

#### Service

- Wipe with dry cloth. **Do not use any cleaning solvents.**
- Check for leaks. Replacing O-Rings requires disassembly.

#### Disassembly

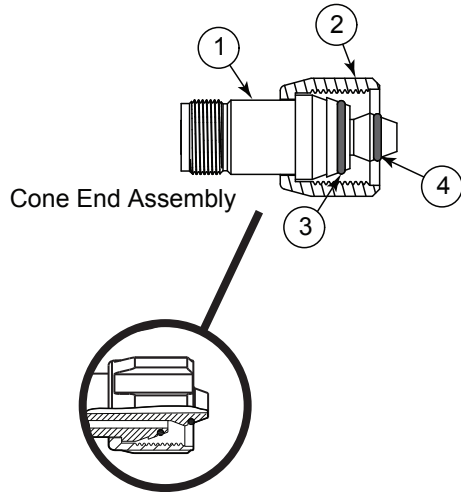
Remove the Cutting Lever before beginning the task.

1. Place torch in a vise.
2. Use a wrench to loosen and unscrew the Oxy Valve Assembly from the cutting torch body.
3. Remove the Oxy Valve Assembly from the cutting torch body making sure the large O-Ring is also removed.

#### Assembly

1. Place large O-Ring on Oxy Valve Assembly
2. Screw Oxy Valve Assembly into torch body and wrench tighten. Confirm O-rings are seated properly.
3. Reattach Cutting Torch Lever Handle. (See Cutting Lever Repair Kit)
4. Remove from vise.
5. Screw Oxy Valve Assembly into Cutting torch body and wrench tighten.
6. Follow the Cutting Lever Repair Kit Assembly steps.
7. Check for leaks.

### 3.06 CONE END ASSEMBLY REPAIR KIT



**Cone End Assembly**

Item No.	Description	Part number	Qty
	Cone End Assembly Repair Kit	0390-0087	1
1	Cone End	0317-0008	1
2	Coupling Nut	0305-0519	1
3	O-Ring	1407-0178	1
4	O-Ring	1407-0177	1



#### **WARNING**

*There MUST be two (2) sealing O-rings in good condition on the cone end. The absence of either O-ring creates a condition that allows pre-mixing of oxygen and fuel gases.*

#### **Service**

- Use an air hose to clear any debris from opening.
- Replace O-Rings on cone end.
- Check for leaks.

#### **Disassembly**

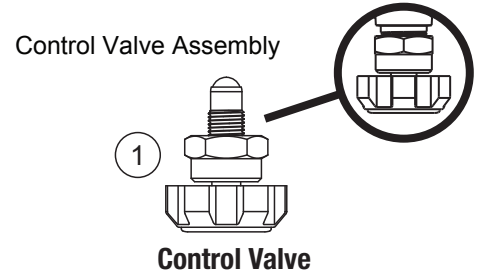
Remove the Cutting Lever before beginning the task.

1. Place torch in a vise.
2. Use a wrench to loosen and unscrew the Cone End Assembly.
3. Clean opening in torch body.

#### **Assembly**

1. At the beginning of the Cone Assembly thread place one to two drops of Loctite. Loctite *must completely cover* the beginning two threads of the Cone Assembly end.
2. Screw Cone End Assembly into cutting torch body.
3. Use a wrench to tighten the Cone End Assembly into the torch body. Consider using a small hammer to tap wrench tighter to seat threads and set Loctite.
4. Remove from vise.
5. Follow the Cutting Lever Repair Kit Assembly steps.
6. Check for leaks.

### 3.07 CONTROL VALVE REPAIR KIT



**Control Valve**

Item No.	Description	Part number	Qty
	Control Valve Repair Kit	0390-0086	1
1	Valve Stem Assembly	0662-0102	1

#### **Service**

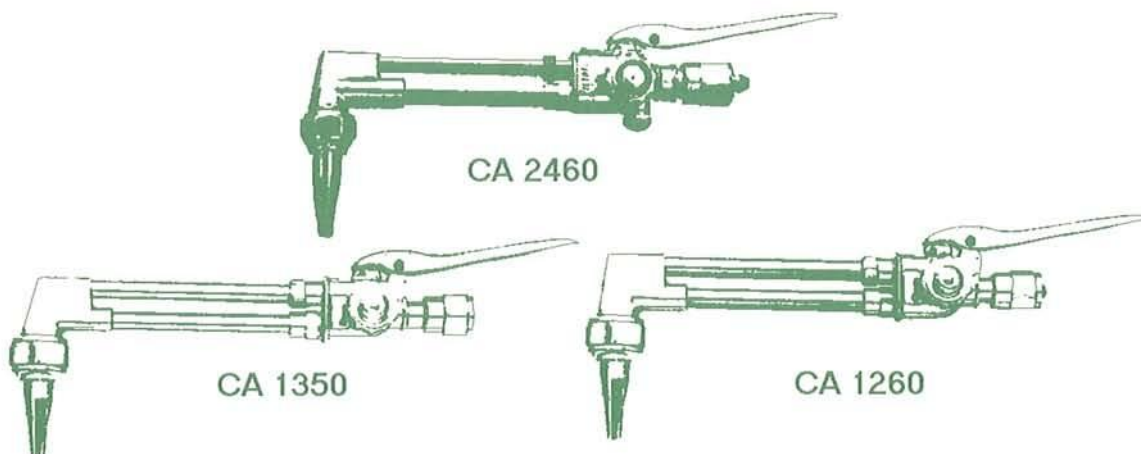
- Wipe with dry cloth. **Do not use any cleaning solvents.**
- Check for leaks.

#### **Disassembly**

1. Set Torch in a vise.
2. Use a wrench to unscrew the Control Valve nut.

#### **Assembly**

1. Screw Control Valve assembly into torch body
2. Use a wrench to tighten the Control Valve nut.
3. Clean Control Valve knob service.
4. Place decal on knob.
5. Remove from vise.
6. Check for leaks.



### MODEL INFORMATION

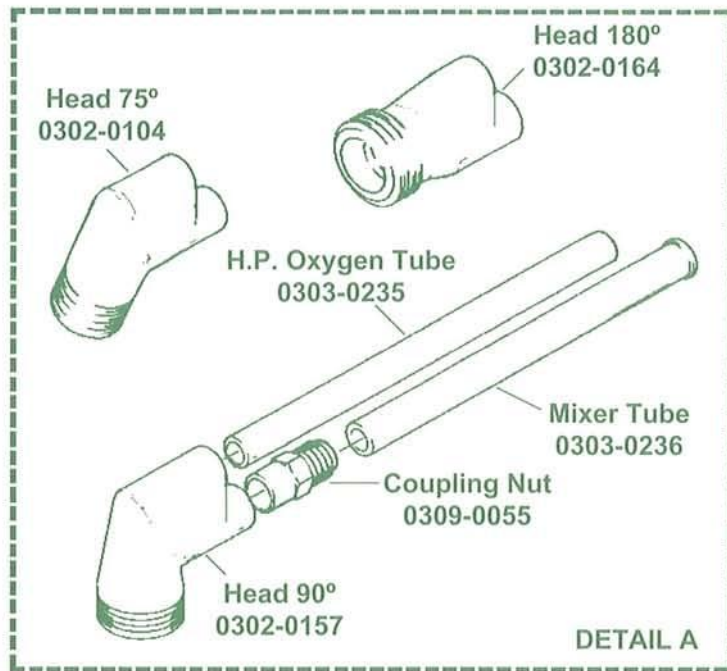
Cutting Attachment Model Number	Part Number	Head Angle
CA 1260	0381-0162	90°
CA 1350	0381-0418	90°
CA 1351	0381-0420	75°
CA 1352	0381-0421	180°
CA 2460	0381-0816	90°
CA 2461	0381-0817	75°
CA 2462	0381-0818	180°
CA 2470	0381-0823	90°

### ⚠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.

To assure peak performance, VICTOR recommends this unit be examined periodically by a qualified repair technician.



**Seat Repair Kit 0390-0016**

† Items most commonly used for Cutting Attachment repair and recommended for stock.

\* Items included in Repair Kit 0390-0009.

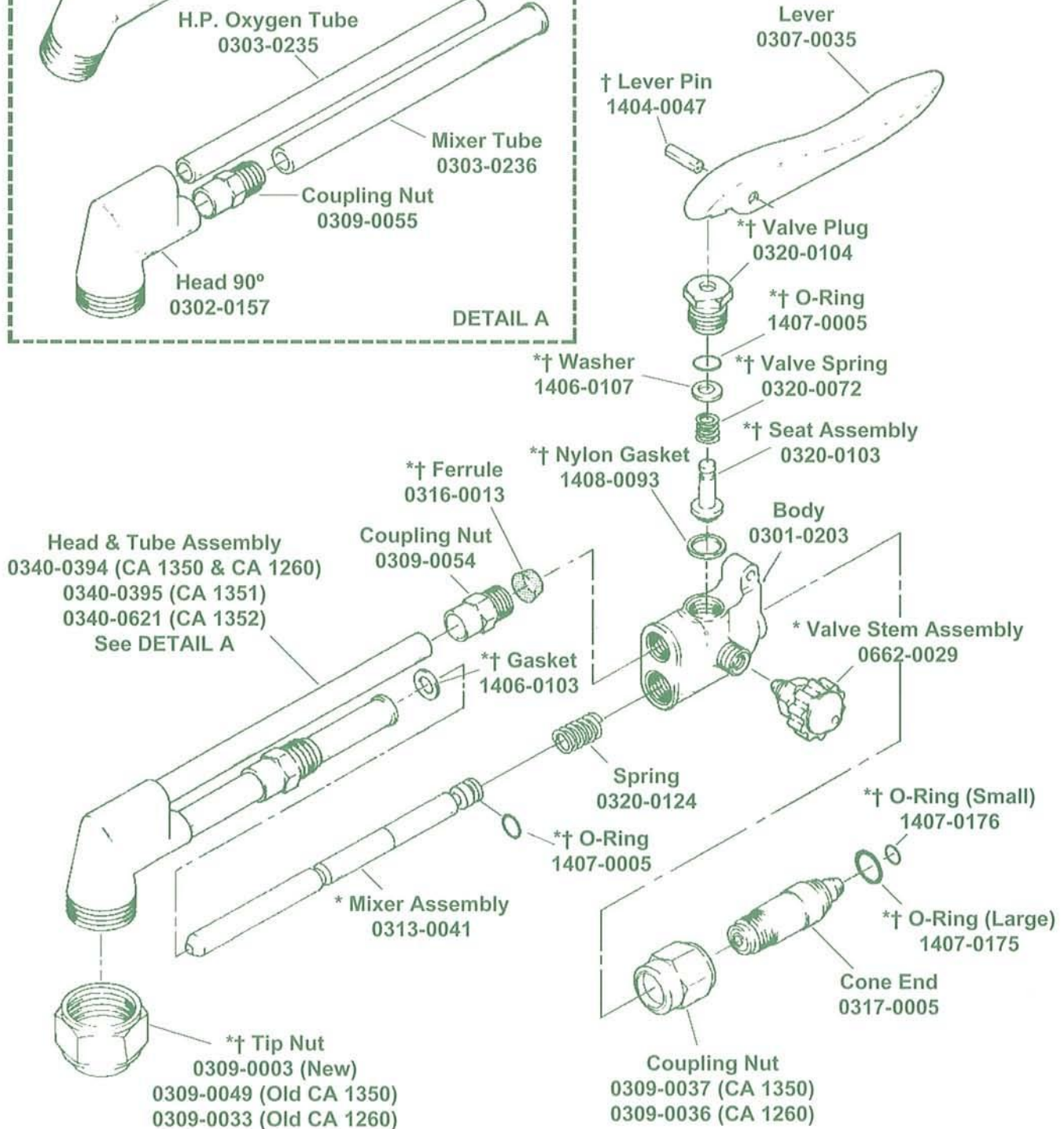


Figure 1: CA 1350 Series and CA 1260 Cutting Attachments

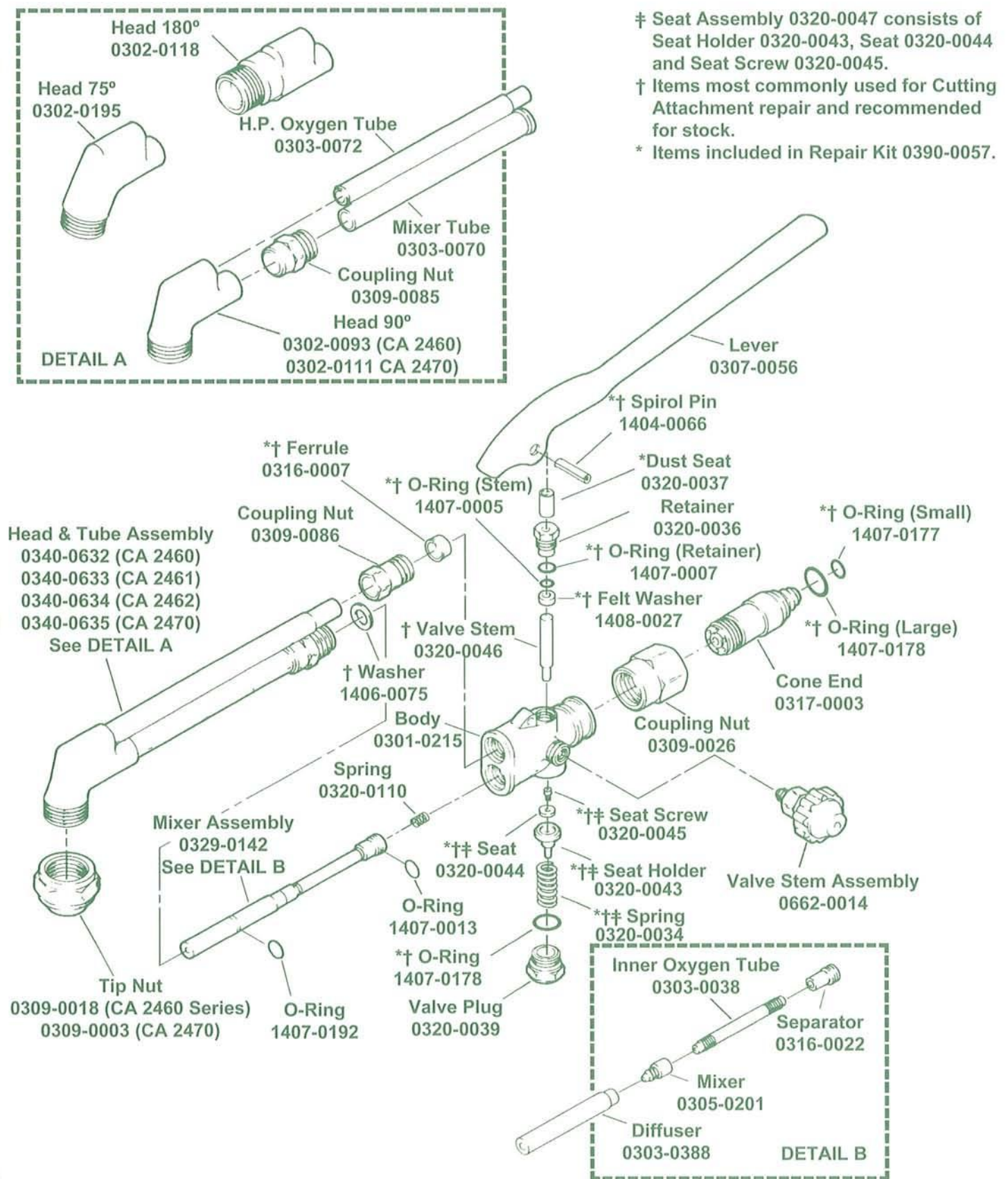
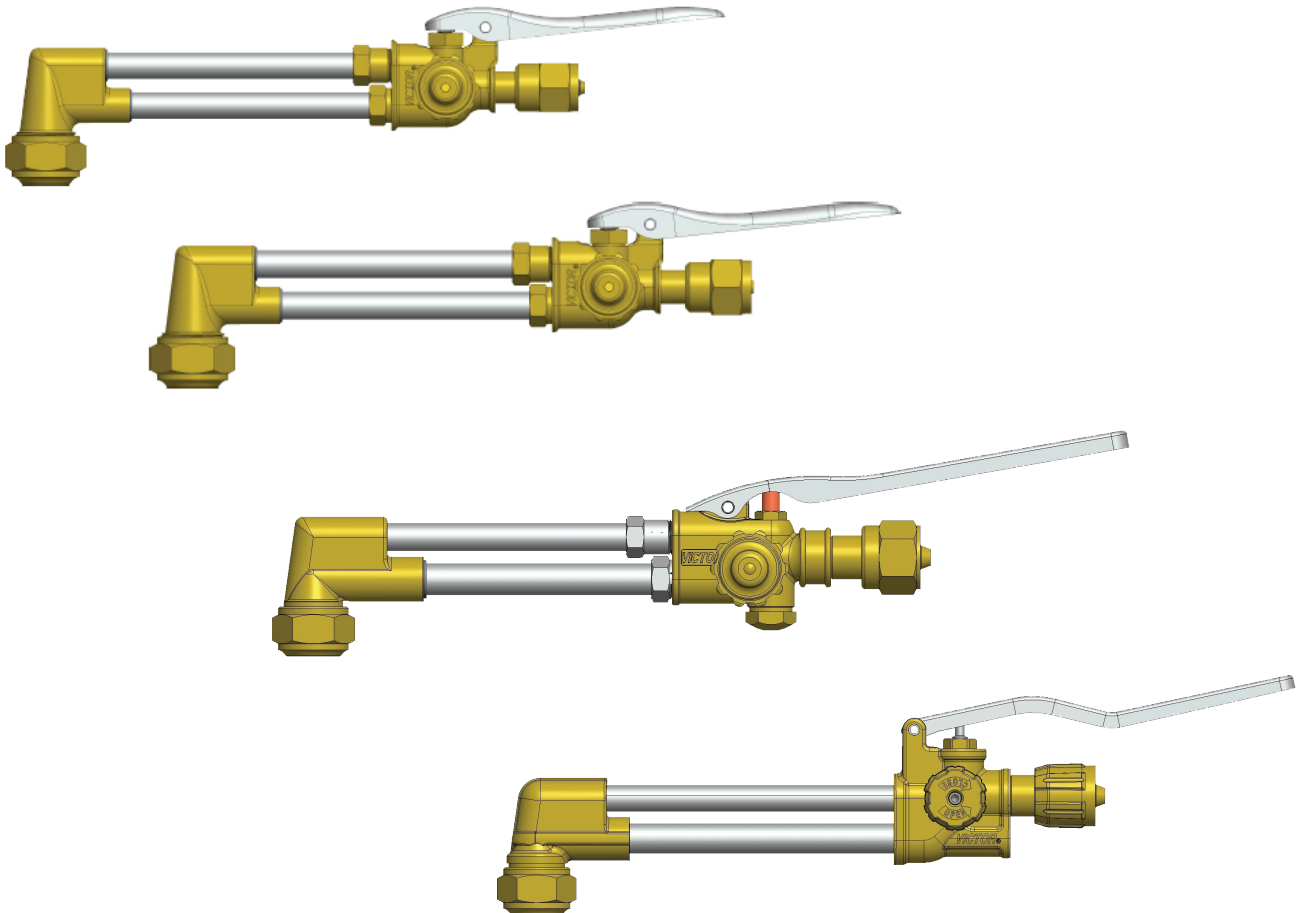


Figure 2: CA 2460 and CA 2470 Cutting Attachments

# PARTS, SERVICE & REPAIR BULLETIN



**CA 1260, CA1350, CA2460  
CA2470, CA2460+ and CA2470+**  
esab.com

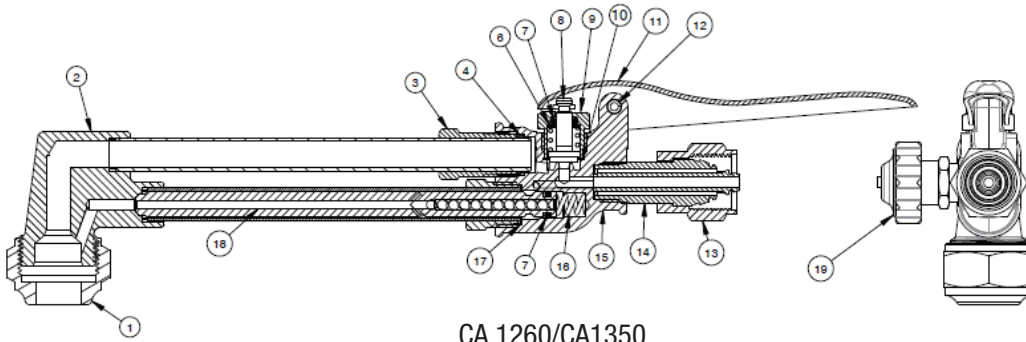
Manual No: 0056-3833

Revision: XX

Issue Date: XXX. XX, XXXX

## SECTION 2: SPECIFICATIONS

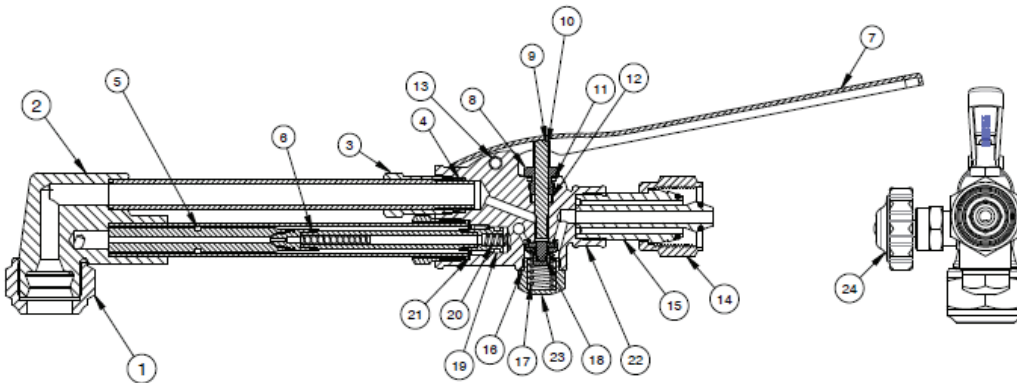
### 2.02 REPAIR PARTS LIST



CA 1260/CA1350

\*H.P. Valve Repair kit, p/n 0390-0016  
 \*\*Common wear parts, Cone End O-Rings and including  
 \*\*\*\* sold as kit, p/n 0390-0009  
 \*\*\*Mixer with O-Rings are sold as kit, p/n 0390-0067  
 \*\*\*\*Cone End Repair kit, p/n 0390-0100

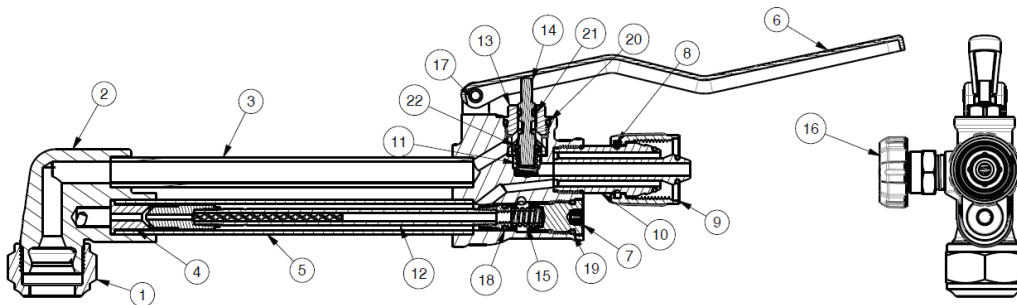
Ref No.	Description	CA 1260	CA 1350
1	Tip Nut**		0309-0003
2	Head and Tube Assy 90°		0340-0394
	Head and Tube Assy 75°		0340-0395
	Head and Tube Assy 180°		0340-0621
3	Tube Nut		0309-0054
4	Ferrule** , ****		0316-0013
5	HP Valve Spring*		0320-0072
6	Washer*		1406-0107
7	O-Ring* , ** , ****		1407-0005
8	Seat Assembly*		0320-0103
9	HP Valve Plug*		0320-0104
10	Gasket*		1408-0093
11	Lever		0307-0035
12	Spirol Pin		1404-0047
13	Coupling Nut***	0309-0036	0309-0037
14	Cone End****		0317-0005
15	Body		0301-0203
16	Mixer Spring****		0320-0124
17	Mixer Tube Gasket** , ****		1406-0103
18	Mixer Assy****		0303-0041
19	Valve Stem Assy		0662-0093



CA 2460/CA 2470

\*Common wear parts, Cone End O-Rings and including  
 H.P. Valve seat sold as kit, p/n 0390-0057  
 \*\*Cone End and Coupling Nut are sold as kit, p/n 0390-0056  
 \*\*\*Mixer with O-Rings are sold as kit, p/n 0390-0055  
 \*\*\*\*HP Valve with O-Rings are sold as kit, p/n 0390-0053

Ref No.	Description	CA 2460	CA 2470
1	Tip Nut	0309-0018	0309-0003
2	Head and Tube Assy 90°	0340-0632	0340-0635
	Head and Tube Assy 75°	0340-0633	
	Head and Tube Assy 180°	0340-0634	
3	Tube Nut		0309-0086
4	Ferrule*** , ****		0316-0007
5	O-Ring*** , ****		1407-0192
6	Mixer****		0329-0142
7	Lever		0307-0056
8	O-Ring Retainer*		0320-0036
9	Valve Stem*		0320-0046
10	Dust Seal* , ***		0320-0037
11	O-Ring* , ***		1407-0007
12	O-ring* , ***		1407-0005
13	Spirol Pin***		1404-0066
14	Coupling Nut**		0309-0143
15	Cone End Assembly**		0317-0009
16	O-Ring* , ***		1407-0178
17	Spring* , ****		0320-0034
18	Seat Holder* , ***		0320-0047
19	O-Ring*** , ****		1407-0013
20	Spring		0330-0110
21	Gasket**** , ****		1406-0075
22	Body		0301-0215
23	Valve Plug*		0320-0039
24	Valve Stem Assy		0662-0091



CA 2460+/CA 2470+

\*Mixer Tube and Tubes are sold only as kit, p/n 0390-0101  
 \*\*Cone End and Coupling Nut are sold as kit, p/n 0390-0098  
 \*\*\*Mixer with O-Rings are sold as kit, p/n 0390-0099  
 \*\*\*\*HP Valve with O-Rings are sold as kit, p/n 0390-0100

Ref No.	Description	CA 2460+	CA 2470+
1	Tip Nut	0309-0018	0309-0003
2	Head 90°	0302-0281RP	0302-0283RP
	Head 75°	0302-0095	
	Head 180°	0302-0118	
3	Oxygen Tube*		0303-0082
4	Fuel Tube*		0303-0081
5	Mixer Tube*		0303-0021
6	Lever		0307-0087RP
7	Nut, Mixer		0309-0160
8	Coupling Nut Snap Ring**		0309-0161
9	Coupling Nut**		0309-0162
10	Cone End Assembly**		0317-0009
11	Spring****		0320-0024
12	Mixer***		0329-0032
13	HP Valve Cap****		0320-0118
14	HP Valve Plunger****		0320-0186
15	Spring***		0610-0009
16	Valve Stem Assy		0662-0103
17	Spirol Pin		1404-0002
18	O-Ring***		1407-0013
19	O-Ring****		1407-0015
20	O-Ring****		1407-0214
21	O-Ring****		1407-0225
22	O-Ring****		1407-0227
23	Gasket****		1408-0086

## SECTION 3: SERVICE & REPAIR INSTRUCTIONS

### 3.01 RECOMMENDED TOOLS & SUPPLIES FOR REPAIR PROCEDURES

3/8", 5/8", 9/16", and 11/16" Open-End Wrenches	Vise
15/16" Box-End Wrench	45% Silver Solder
3/16" Drift Punch	Silver Solder Flux
Small Hammer	Loctite® #222 (Part Number 0028-0081)
Cone End Assembly Clamp RT-108	Christo-Lube 129 (Part Number 0034-0021)
Brazing Torch	Hand Reamer RT-181
Pliers	Air Hose

#### NOTE

*Disconnect cutting torch from any gas lines or other hardware before beginning any service or repair.*

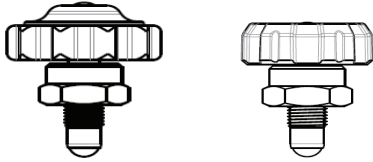
### 3.02 CLEANING PROCEDURES

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.



*DO NOT allow nonmetal components (Seat, O-Rings, Dust Seal, Gaskets) 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.*

### 3.03 CONTROL VALVE REPAIR KIT



Ref No.	Description	CA 1260 & CA 1350	CA 2460 & CA 2470	CA 2460+ & CA 2470+
1	Control Valve	0662-0093	0662-0091	0662-0103RP

*\*Sold as part of kit only.*

#### Service

- Wipe with dry cloth. **Do not use any cleaning solvents.**
- Check for leaks.

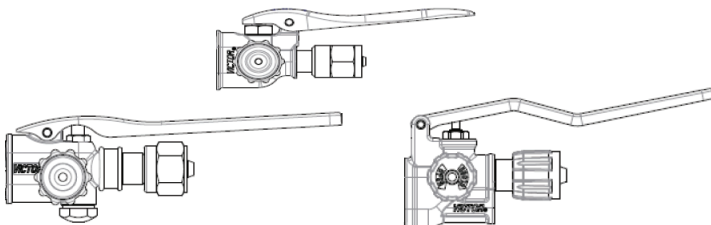
#### Disassembly

1. Place torch in a vise.
2. Use a wrench to unscrew the Control Valve Nut.

#### Assembly

1. Apply Christo-Lube to threads.
2. Screw Control Valve Assembly into Cutting Torch Body
3. Use a wrench to tighten the Control Valve Nut.
4. Remove from vise.

### 3.04 CUTTING LEVER



**Cutting Lever**

Ref No.	Description	CA 1260 & CA 1350	CA 2460 & CA 2470	CA 2460+ & CA 2470+
1	Lever	0307-0035	0307-0056	0307-0087

#### Service

- Check Roll Pin for wear.
- Check Lever Tabs for alignment to Oxy Valve Groove (Only for CA 1260 & CA 1350).

#### Disassembly

1. Using Punch, tap Roll Pin out of Lever Handle and Cutting Torch Body. Inspect and discard Roll Pin if deformed.

#### NOTE

*Replacement Roll Pin part number is 1404-0047 for CA 1260 & CA 1350, 1404-0066 for CA 2460 & CA2470 and 1404-0002 for CA 2460+ & CA 2470+*

2. For pull style Slide Lever Handle forward.

#### Assembly

If Roll Pin was discarded, acquire a replacement Roll Pin before beginning this step.

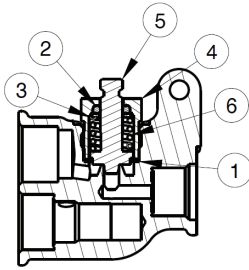
1. Align Lever Tabs with Valve Stem.
2. Confirm Lever Tabs align with Valve Stem Groove (only CA 1260 & CA 1350) and insert Roll Pin into Torch Body.
3. Gently tap in Roll Pin.

*\*For the Plus Torch, the lever and body has a friction fit design that prevents the lever from moving freely when not in use. However, it can prevent the high pressure valve from closing properly. Verify that the High Pressure Valve returns to its fully closed position by actuating it 3 times or more. To leak test, set the oxygen to pressure to 15 psi and then submerge the head under water. Actuate the valve 3 times and check that there are zero bubbles in 5-10 seconds of time. Roll pin may need to be removed and reinstalled if valve does not fully close after installation. Pin must be installed perpendicular to thru hole or it may cause excess interference.*



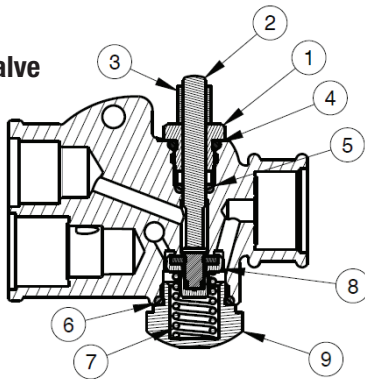
### 3.05 H.P. OXY VALVE REPAIR KIT

H.P. Oxy Valve



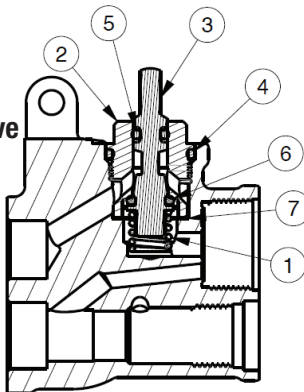
Ref No.	Description	CA 1260 & CA 1350	Qty
	H.P. Oxy Valve Repair Kit	0390-0016	1
1	Gasket	1408-0093	1
2	O-Ring	1407-0005	1
3	Washer	1406-0107	1
4	Cutting Valve Plug	0320-0104	1
5	Seat Assy	0320-0103	1
6	Spring	0320-0072	1

H.P. Oxy Valve



Ref No.	Description	CA 2460 & CA 2470	Qty
	H.P. Oxy Valve Repair Kit	0390-0053	1
1	O-Ring Retainer	0320-0036	1
2	Valve Stem	0320-0046	1
3	Dust Seal	0320-0037	1
4	O-Ring	1407-0007	1
5	O-Ring	1407-0005	1
6	O-Ring	1407-0178	1
7	Spring	0320-0034	1
8	Seat Holder	0320-0047	1
9	Valve Plug	0320-0039	1

H.P. Oxy Valve



Ref No.	Description	CA 2460+ & CA 2470+	Qty
	H.P. Oxy Valve Repair Kit	0390-0100	1
1	Spring	0320-0024	1
2	HP Cap	0320-0118	1
3	HP Plunger	0320-0186	1
4	O-Ring	1407-0214	1
5	O-Ring	1407-0225	1
6	O-Ring	1407-0227	1
7	Gasket	1408-0086	1

### Service

- Wipe with dry cloth. **Do not use any cleaning solvents.**
- Check for leaks. Replacing O-Rings requires disassembly.

### Disassembly

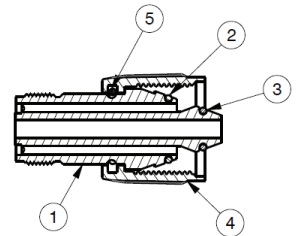
Remove the Cutting Lever before beginning the task.

1. Place torch in a vise.
2. Use a wrench to loosen and unscrew the Oxy Valve Assembly from the Cutting Torch Body.
3. Remove the Oxy Valve Assembly from the Cutting Torch Body making sure the large O-Ring is also removed.

### Assembly

1. Install the Seat Assembly Bushing on the Valve Stem, open end facing out.
2. Install the Spring on the Valve Stem until it is against the Bushing.
3. Install the Washer followed by the small O-Ring on the Valve Stem.
4. Apply Christo-Lube to the outside of the small O-Ring and along the Valve Stem.
5. Insert the Seat Assembly with Bushing, Spring, Washer, and O-Ring in through the Valve Cap.
6. Place the large O-Ring around the outside of the Valve Cap and apply Christo-Lube to the large O-Ring.
7. Screw the Oxy Valve Assembly into the Cutting Torch Body and wrench tighten. Confirm O-Rings are seated properly.
8. Reattach the Cutting Lever. (See Section 3.04, Cutting Lever)
9. Remove from vise.
10. Check for leaks.

### 3.06 CONE END REPAIR KIT



Ref No.	Description	CA 1260	CA 1350	CA 2460 & CA 2470	CA 2460+ & CA 2470+	Qty
	Cone End Repair Kit	0390-0066	0390-0068	0390-0056	0390-0098	1
1	Cone End	0317-0001	0317-0001	0317-0008	0317-0008	1
2	Lg O-Ring	1407-0175	1407-0175	1407-0178	1407-0178	1
3	Sm O-Ring	1407-0176	1407-0176	1407-0177	1407-0177	1
4	Coupling Nut	0309-0036	0309-0037	0317-0009	0309-0161	1
5	Snap Ring	N/A	N/A	N/A	0309-0162	1

\*Sold as part of kit only.



There **MUST** be two (2) sealing O-Rings in good condition on the Cone End. The absence of either O-Ring creates a condition that allows pre-mixing of oxygen and fuel gases.

### Service

- Use an air hose to clear any debris from opening.
- Replace O-Rings on Cone End.
- Check for leaks.

## Disassembly

Remove the Cutting Lever before beginning the task.

1. Place torch in RT-108 by mounting Cone End in fixture.
2. Use a wrench to loosen and unscrew the Cone End Assembly.
3. Clean opening in Cutting Torch Body.
4. Discard old Cone End from RT-108.

## Assembly

1. At the beginning of the Cone Assembly thread, apply a small amount of Loctite®. Loctite® *must completely cover* the beginning two threads of the Cone Assembly end.
2. Screw Cone End Assembly into Cutting Torch Body.
3. Place torch in RT-108 by mounting Cone End in fixture.
4. Immediately use a wrench to tighten the Cone End Assembly into the Cutting Torch Body. Consider using a small hammer to tap wrench tighter to seat threads and set Loctite®.
5. Remove from RT-108.
6. Reattach Cutting Lever. (See Section 3.04, Cutting Lever)
7. Check for leaks.

## 3.07 MIXER REPAIR KIT

For CA 1260, CA 1350, CA 2460 and CA 2470

### Disassembly

1. Place the Holding Fixture RT-147 in a vise. Place the Cutting Attachment in the Holding Fixture.
2. Loosen the Oxygen Tube Coupling Nut and the Mixer Tube Coupling Nut.
3. Remove the Head and Tube Assembly from the Body.
4. Remove the Ferrule and the Oxygen Tube Coupling Nut from the Oxygen Tube, Discard the Ferrule.
5. Remove the Mixer Assembly from the Mixer Tube. Remove and Discard O-Ring(s) from the Mixer Assembly.
6. CA 1260 and CA 1350 Series - Remove the Gasket, Washer and Spring from the Body. Discard the Gasket.
7. CA 2460 and CA 2470 Series - Remove the Spring and metal Gasket from Body. Discard the Gasket.

### Assembly

1. Lubricate the new Mixer O-Ring(s), Install the O-Ring(s) on Mixer Assembly as shown.
2. Install the Mixer Assembly in the Mixer Tube.
3. Install the Spring and new metal Gasket in the Body.
4. Install the Head and Tube Assembly in the Body. Apply a small amount of Loctite #79 to the male threads of the Mixer Tube Coupling Nut and Oxygen Tube Coupling Nut.
5. Tighten the Coupling Nuts to 12 ft.lbs for CA 1260 & CA1350, 20 ft.lbs for CA2460 & CA2470.

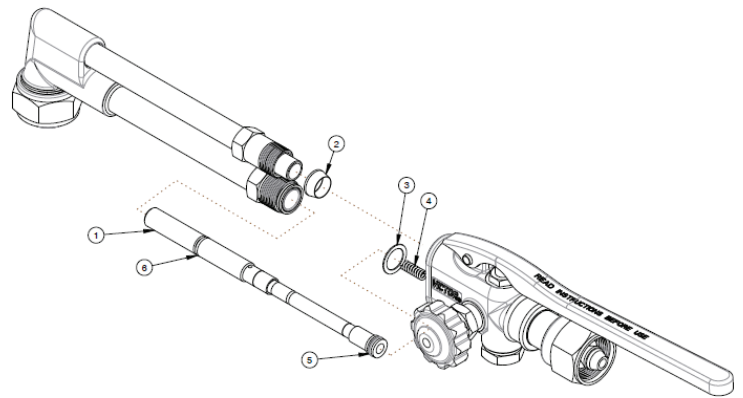
For CA 2460+ and CA 2470+

### Disassembly

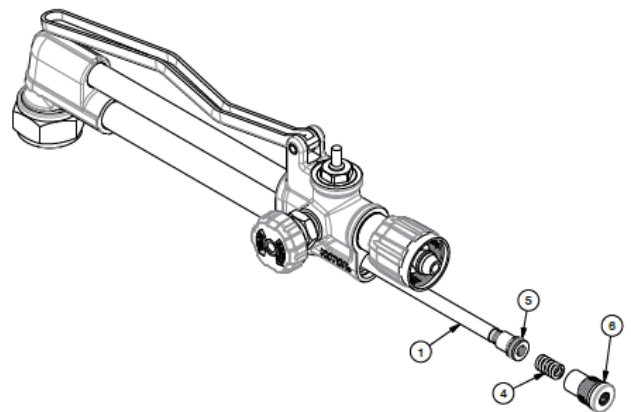
1. Place the Cutting Attachment in vise with the Cone End pointing up.
2. Loosen and remove the Mixer Nut with 3/16" Allen wrench.
3. Remove spring from inside Body.
4. Use 10-24 screw provided with repair kit and thread into the Mixer Assembly in Attachment.
5. Remove the Mixer Assembly from the Mixer Tube and Body.

### Assembly

1. Lubricate the new Mixer O-Ring(s), Install the O-Ring(s) on Mixer Assembly as shown.
2. Install the Mixer Assembly in the Mixer Tube.
3. Install the Spring in the Body.
4. Replace O-Ring on Mixer Nut and Lubricate O-Ring.
5. Install Mixer Nut into body and tighten the Mixer Nut to 40-50 in.lbs.



CA 1260, CA 1350, CA 2460 and CA 2470



CA 2460+ and CA 2470+

Ref No.	Description	CA 1260 & CA1350	CA 2460 & CA 2470	CA 2460+ & CA 2470+	Qty
Mixer Repair Kit					
1	Mixer	0313-0041	0329-0142	0390-0099	1
2	Ferrule	0316-0013	0316-0007	N/A	1
3	Gasket	1406-0103	1406-0075	N/A	1
4	Spring	0320-0124	0320-0034	0610-0009	1
5	O-Ring	1407-0005	1407-0013	1407-0013	1
6	O-Ring	N/A	1407-0192	1407-0015	1
7	Screw	N/A	N/A	1400-0256	1

### 3.08 Disassembling the Head and Tube Assembly Disassembly

Remove the Tip, Tip Nut, Cutting Lever, Control Valve Assembly, H.P. Oxy Valve, Cone End, and Mixer before beginning this task.

1. Place the torch body in a vise, positioned so that you have full access to the Head.
2. Heat the Head until solder liquefies. Use pliers to remove head from tubes. For CA 2460+, also remove brass Mixer Tube.
3. Allow the torch body to cool before beginning assembly.

### 3.09 Assembling the Head and Tube Assembly Assembly

1. Clean the torch body of all solder and debris.

2. For all models, except CA 2460+ & CA 2470+, install the Mixer Tube Coupling Nut on the Mixer Tube. For CA 2460+ & CA 2470+, install Mixer Tube in Head.
3. Place a new Head in a vise, positioned so that the tube bores face up and insert Mixer Tube and Oxygen Tube into Head. For Plus Torch variants, install brass Mixer into S.S. Mixer tube, on the end closest by the head.
4. Ensure that the Mixer Tube is pressed firmly against the counterbore of the head.
5. Solder the Head joints. Allow to cool before beginning the next step.
6. Complete steps 3 - 7 in Section 3, Assembly.

Ref No.	Description	CA 1260 & CA1350	CA2460	CA 2470	CA 2460+	CA 2470+	Qty
1	90 deg Replacement Head	0302-0157	0302-0093	0302-0111	0302-0281RP	0302-0283RP	1
2	75 deg Replacement Head	0302-0104	0302-0095	N/A	0302-0095	N/A	1
3	180 deg Replacement Head	0302-0164	0302-0118	N/A	0302-0118	N/A	1

## SECTION 4: TEST PROCEDURES

### 4.01 RECOMMENDED TOOLS & SUPPLIES FOR TEST PROCEDURES

Oil-free air or dry nitrogen supplies	2-1-101 Cutting tip
Oxygen and acetylene gas supplies	3/8", 5/8", 9/16", and 11/16" Open-end wrenches
Small water tank	15/16" Box-end wrench

### 4.02 LEAK TEST THE GAS REGULATOR

1. Close the Cylinder Valves.
2. Turn the Pressure Adjusting Screws one turn counterclockwise. If the High Pressure Gauge reading drops, there is a leak in the Cylinder Valve, Inlet Fitting, or High Pressure Gauge. If the Low Pressure Gauge drops, there is a leak in the Torch Handle Valve, Hose, Hose Fitting, Outlet Fitting, or Low Pressure Gauge. If the High Pressure Gauge drops, and at the same time the Low Pressure Gauge rises, there is a leak in the Regulator Seat. Have a qualified repair technician repair the Regulator.
3. Use an approved leak detector solution to check for leaks.

### 4.03 LEAK TESTING THE TORCH

1. Connect the Torch to oil-free air or dry nitrogen supply lines with matching type regulator.
2. Insert a plugged cutting tip into Torch. Tighten the Tip Nut to 15-20 ft-lbs of torque for Series 1 tips and 10-15 ft-lbs for Series 3 tips.
3. Pressurize the hoses to 50+/-5 PSIG.
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.

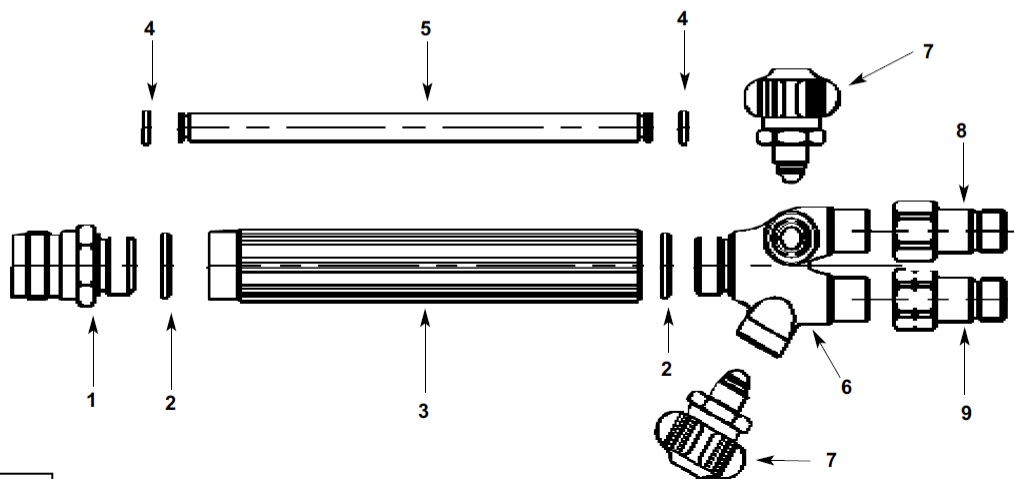
### 4.04 FLAME TESTING THE TORCH

1. 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.
2. Install a 2-1-101 (2-3-101 for Series-3 tip seats) cutting tip in the head. Tighten the Tip Nut to 15-20 ft-lbs of torque for Series-1 tips and 10-15 ft-lbs for Series-3 tips.
3. Adjust the oxygen to deliver 40+/-5 PSIG. Adjust the acetylene to deliver 8+/-3 PSIG.
4. 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.



# TORCH HANDLES

# 43-2



### Product Key

PART NO.	MODEL NO.	DESCRIPTION	CODE
1401150	43-2	Handle, Torch	A
1401154	43-2B	Handle, Torch	B

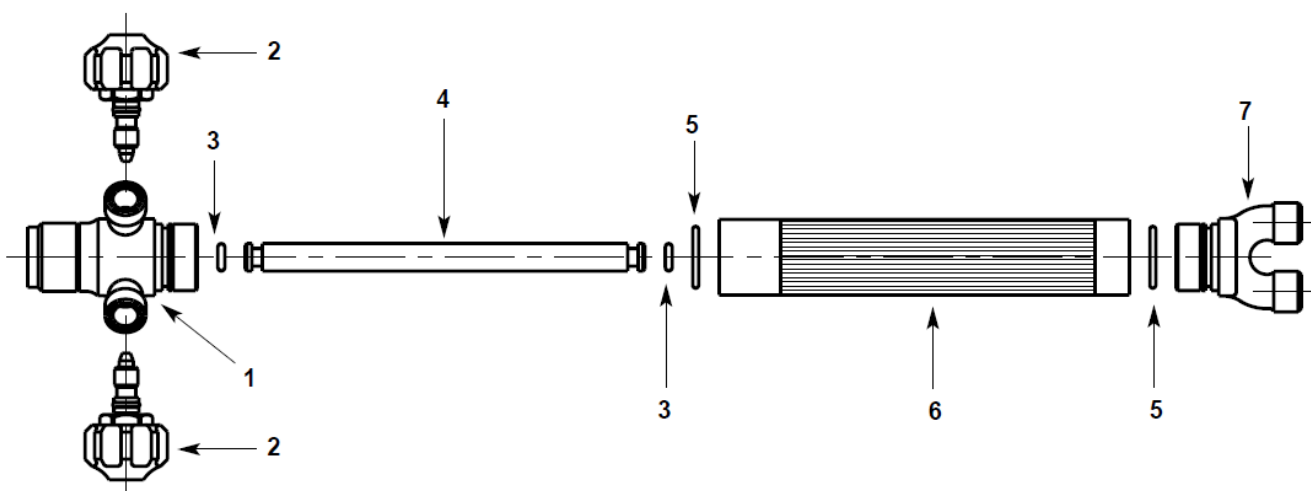
### Parts List

REF. NO.	PART NO.	MODEL NO.	DESCRIPTION	CODE	REF. NO.	PART NO.	MODEL NO.	DESCRIPTION	CODE
1	9001770	4309	Block, S.S	A	5	9001866	4392	Tubes	A, B
	9001771	1-4309	Block, Brass	B	6	9001854	4388	Tail	A, B
2	9004562		O-ring, Large (2)	A, B	7	9101142	VA-43-3	Valve, Assy.(2)	A, B
3	9001776	4343	Casing, Handle	A	8	4300162	88-6CVTR	Check valve	A, B
	9001772	4343-B	Casing, Handle	B	9	4300161	88-6CVTL	Check valve	A, B
4	9004594	10A	O-ring, Small (2)	A, B					



# TORCH HANDLES

# 15



### Parts List

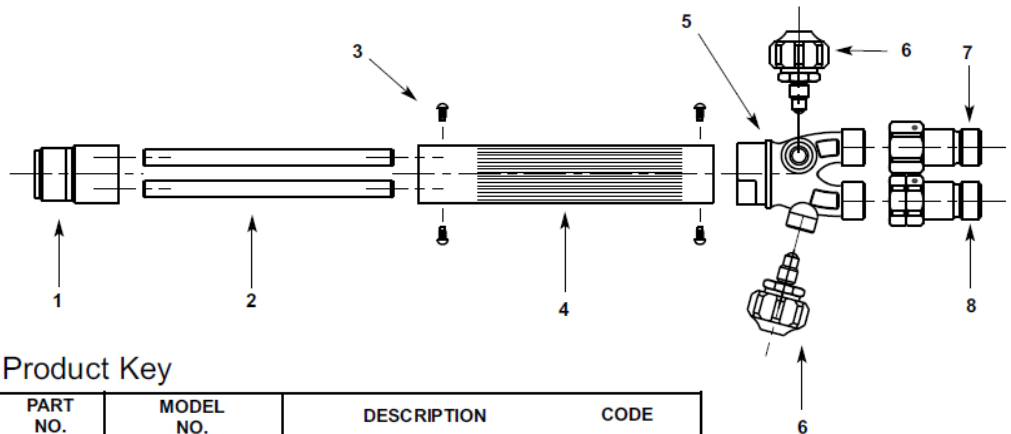
REF. NO.	PART NO.	MODEL NO.	DESCRIPTION	CODE	REF. NO.	PART NO.	MODEL NO.	DESCRIPTION	CODE
1	9000434	1510-B	Body	A	5	9004503	5223A	O-Ring, Large (2)	A
2	9100068	A-15-A	Valve, Assy (2)	A	6	9000446	1543-2	Casing, Handle	A
3	9004495	6A	O-Ring, Small (2)	A	7	9000486	1588-C	Tail	A
4	9000490	1592-C	Tube	A					



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## TORCH HANDLES

16,63,85



### Product Key

PART NO.	MODEL NO.	DESCRIPTION	CODE
1401016	16	Handle, Torch	A
1401300	63	Handle, Torch	B
1401340	85	Handle, Torch	C

### Parts List

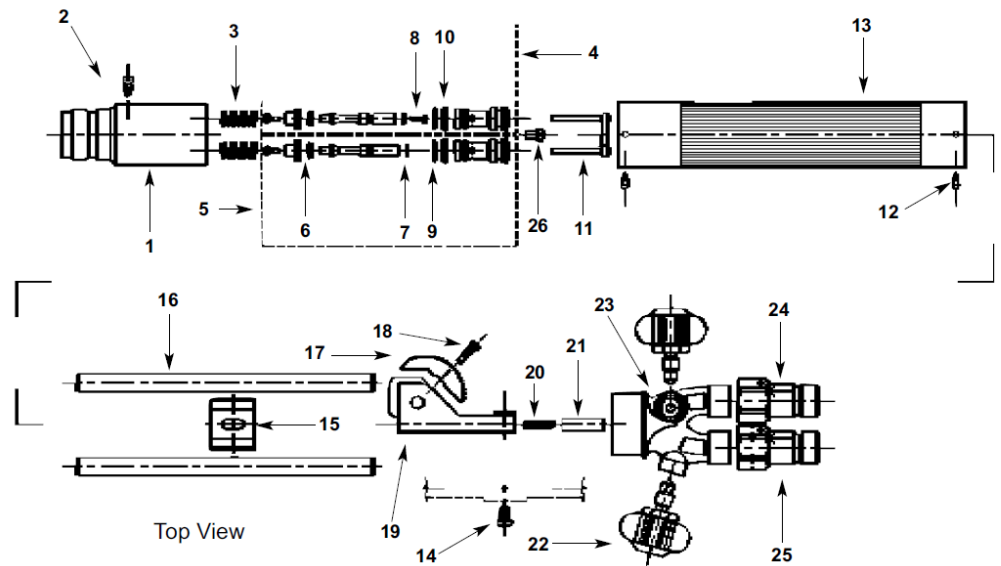
REF. NO.	PART NO.	MODEL NO.	DESCRIPTION	CODE	REF. NO.	PART NO.	MODEL NO.	DESCRIPTION	CODE
1	9006308	1609	Block	A	9000351	1243-B	Casing, Handle	B	
	9002870	6309	Block	B	9003671	8543-B	Casing, Handle	C	
	9003662	8509	Block	C	5	9000372	1288-C	Tail	B
2	8801400	1692	Tubes (2)	A	9000410	1388-C	Tail	A, C	
	8801404	1292-A	Tubes (2)	B	6	9101228	VA85	Valve, Assy.	A, C
	8801408	1392-A	Tubes (2)	C	9101230	VA63	Valve, Assy.	B	
3	9000392	1361	Screw (4)	A thru C	7	4301062	88-3FGR	Checkvalve	A thru C
4	9001643	1643	Casing, Handle	A	8	4301061	88-3FGL	Checkvalve	A thru C



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## TORCH HANDLES

18-5



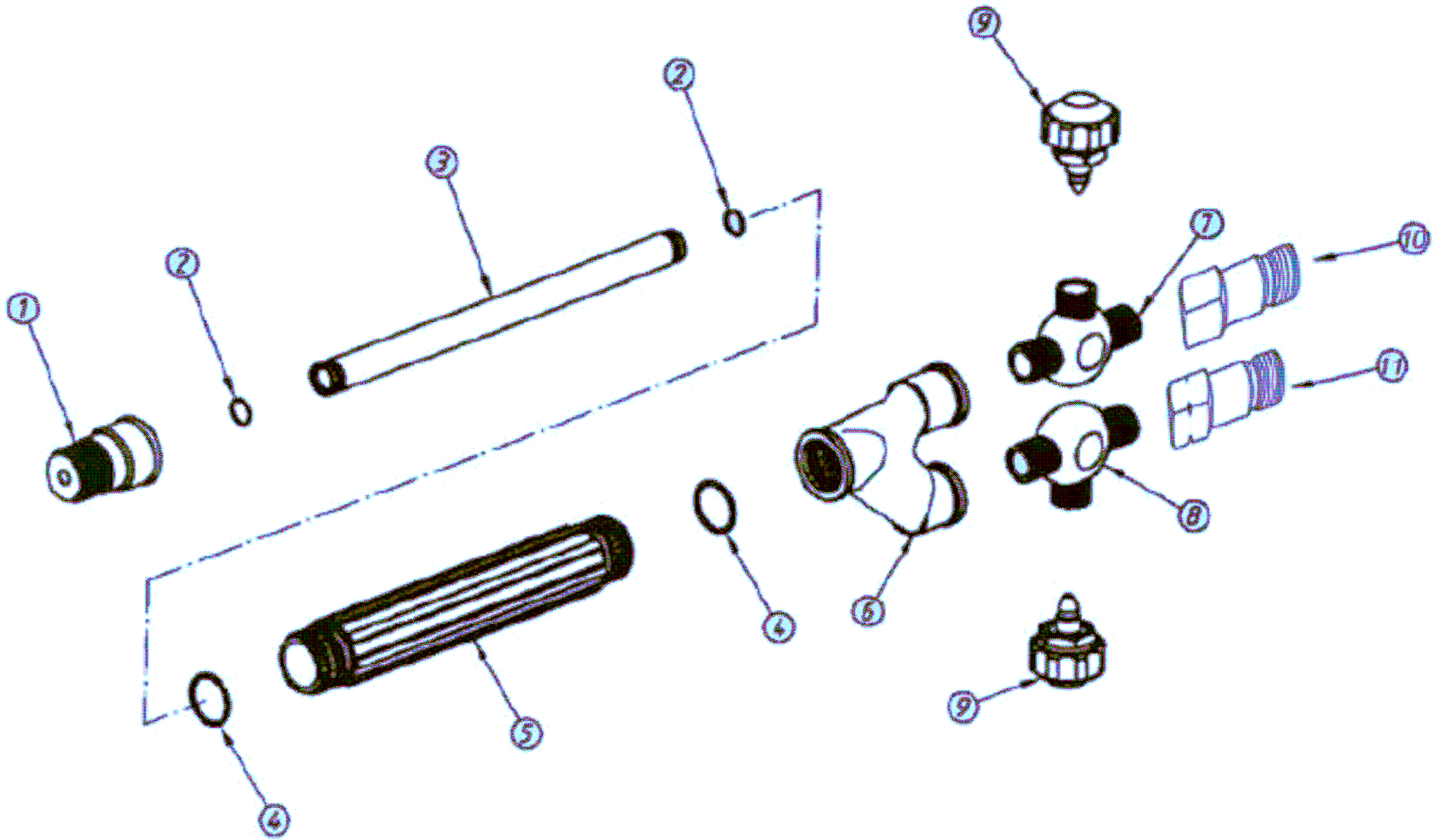
### Parts List

REF. NO.	PART NO.	MODEL NO.	DESCRIPTION	CODE	REF. NO.	PART NO.	MODEL NO.	DESCRIPTION	CODE
1	9001828	1810-2	Body	A	14	9001817	1877-2	Screw, Cam Retaining	A
2	9100396	P-50	Screw Assy., Pilot	A	15	9001803		Clip	A
3	9001805	1885-2	Spring, P.V. (2)	A	16	9001813	1892-2	Tube, (2)	A
4*	9101804	VA-18-5A	Valve Assy., Fuel Gas	A	17	9001819	1897-2	Wheel, Brass Thumb	A
5*	9101805	VA-18-5B	Valve Assy., Oxygen	A	18	9001816	1877	Screw, Thumb Wheel	A
6	9001824		O-Ring, Valve Seat (2)	A	19	9101800	18-5	Cam Assy.	A
7	9008365		O-Ring, Plunger Seal (2)	A	20	9001804	1885	Spring	A
8	9001818	18777-3	Screw, Valve Adj.	A	21	9001821	1845	Housing	A
9	9008517		O-ring, Bottom Seal (2)	A	22	9101230	VA63	Needle Valve Assy. (2)	A
10	9004627		O-Ring, Top Seal (2)	A	23	9001812	1888-2	Tail	A
11	9101801	1842	Guide Assy.	A	24	4300062	88-3FFR	Check-Valve	A
12	9000390		Screw, Type "F" Self Tap. (4)	A	25	4300061	88-3FGL	Check-Valve	A
13	8801825	1843-5	Casing, Handle	A	26	9001832	1877-6	Screw, Retaining	A

\*Items 4 and 5 sold as assemblies only and do not include O-Rings - Items 6,7,9 AND 10 above.



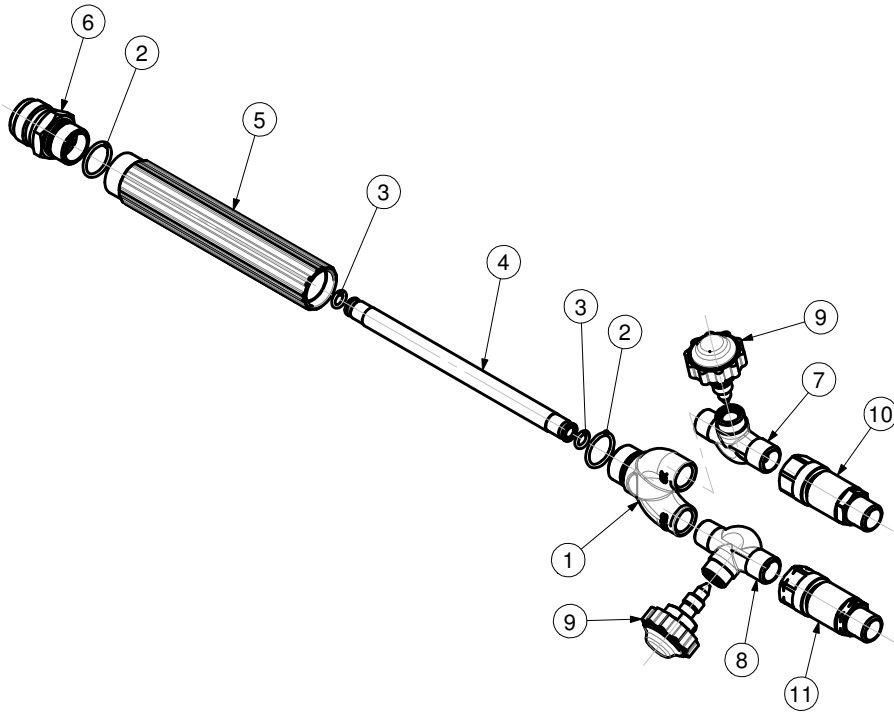
TORCH HANDLE  
-MODEL VH10



ITEM	PART No.	Qty	DESCRIPTION	ITEM	PART No.	Qty	DESCRIPTION
1	9010100	1	Block	7	9010107	1	Ox valve body
2	9010102	2	O-ring	8	9010108	1	Fuel valve body
3	9010103	1	Oxygen tube	9	9010109	2	Valve assy
4	9010104	2	O-ring	10	9010110	1	Ox check valve
5	9010105	1	Handle	11	9010111	1	Fuel check valve
6	9010106	1	Tail				



TORCH HANDLE  
-MODEL VH31



ITEM	PART No.	Qty	DESCRIPTION	ITEM	PART No.	Qty	DESCRIPTION
1	VH3188	1	Tail	7	5210CR	1	Valve body
2	215X7116B	2	O-ring	8	5210CL	1	Valve body
3	215X7110A	2	O-ring	9	VAVH31	2	Valve
4	4392	1	Tube	10	B188SHTR	1	Flashback arrestor
5	VH3143PS	1	Handle	11	B188SHTL	1	Flashback arrestor
6	9005202	1	Block				

SERVICE NOTES

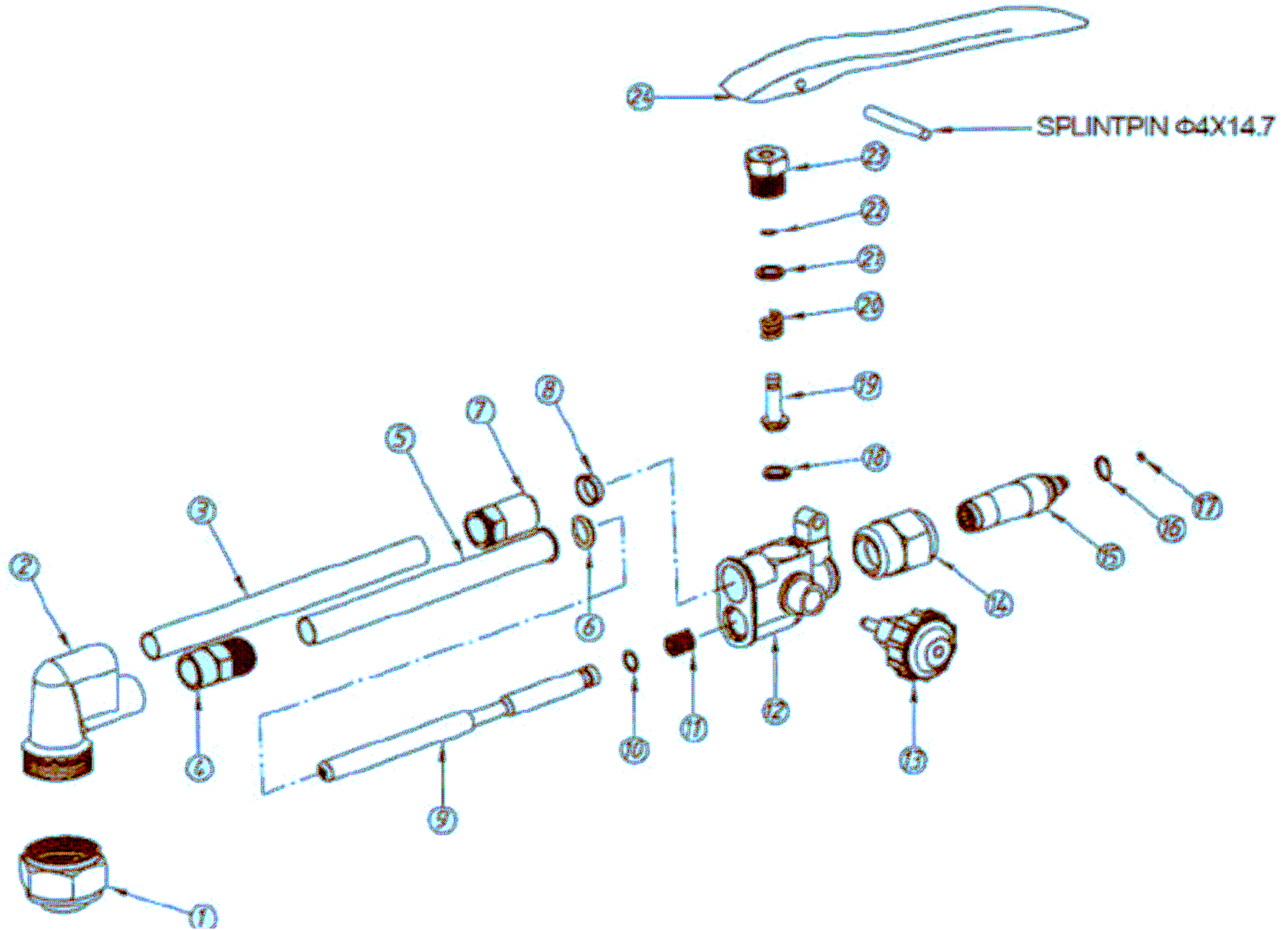
ITEM No.	TORQUE SPECIFICATION	SERVICE TOOL OR NOTES
1		<b>56T8</b> - 3/4"-27-UNS-3A-RH - Die for tail handle threads
2 - 3		Use Molykote M-55
5	56-63 Nm	<b>42T1</b> - Special handle wrench
6		<b>62T2A</b> - 7/8"-20-UNEF-2A-RH - Die for mixer threads <b>TI7244HV</b> - To reseal conical seat
7		13mm open end wrench - Use LOCTITE 270 <b>RT14288</b> - To reseal needle valve seat <b>13T2</b> - 3/8"-24-UNF-3B - Tap for needle valve threads <b>62T9</b> - 9/16"-27-UNS-3A - Die for needle valve threads <b>52T3R</b> - 9/16"-18-UNF-3A-RH - Die oxygen hose threads <b>52T2R</b> - To reseal oxygen hose connection
8		13mm open end wrench - Use LOCTITE 270 <b>RT14288</b> - To reseal needle valve seat <b>13T2</b> - 3/8"-24-UNF-3B - Tap for needle valve threads <b>62T9</b> - 9/16"-27-UNS-3A - Die for needle valve threads <b>52T3L</b> - 9/16"-18-UNF-3A-LH - Die fuel hose threads <b>52T2L</b> - To reseal fuel hose connection
9	12 Nm	17mm open end wrench - Use Molykote M-55
10 - 11	8-12 Nm	11/16" inch hex wrench

**IMPORTANT:**

All repairs or conversions should be carried out by a qualified repairer, with genuine HARRIS parts, to HARRIS repair specifications, and in accordance with local laws or regulations. No contaminant (grease, oil, others) to come in contact with oxygen.



CUTTING ATTACHMENT  
-MODEL VH13

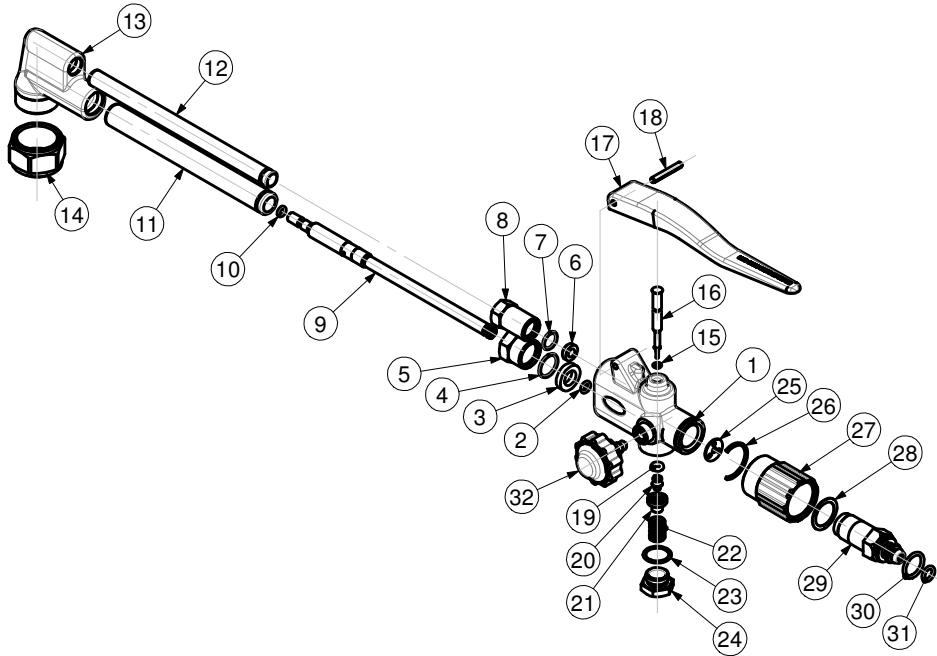


ITEM	PART No.	Qty	DESCRIPTION	ITEM	PART No.	Qty	DESCRIPTION
1	9010112	1	Tip nut	13	9010123	1	Valve assy
2	9010113	1	Head	14	9010124	1	Nut
3	9010115	1	Ox tube	15	9010125	1	Stem
4	9010114	1	Nut	16	9010126	1	O-Ring
5	9010116	1	Fuel tube	17	9010127	1	O-Ring
6	9010117	1	Washer	18	9010128	1	Washer
7	9010135	1	Nut	19	9010129	1	Holder
8	9010118	1	Ferrule	20	9010130	1	Spring
9	9010119	1	Mixer	21	9010131	1	Washer
10	9010120	1	O-Ring	22	9010132	1	O-Ring
11	9010121	1	Spring	23	9010133	1	Nut
12	9010122	1	Body	24	9010134	1	Lever





## CUTTING ATTACHMENT MODEL VH24



ITEM	PART No.	QTY	DESCRIPTION	ITEM	PART No.	QTY	DESCRIPTION
1	VH2410PS	1	Body	17	9002924	1	Lever
2	215X717A	1	O-ring	18	50613	1	Pin
3	VH24392	1	Gasket	19	9003144	1	O-ring
4	VH24712	1	Retaining ring	20	9003143	1	Valve, EASE-ON
5	VH24592	1	Nut	21	9003142	1	Guide
6	VH2439	1	Gasket	22	7385	1	Spring
7	VH2471	1	Retaining ring	23	7339	1	Gasket
8	VH2459	1	Nut	24	7319	1	Cap
9	VH2458PS	1	Mixer	25	7939	1	Gasket
10	9001824	1	O-ring	26	7371	1	Retaining ring
11	VH2492	1	Tube	27	9005211	1	Nut
12	VH24922	1	Tube	28	7296	1	Washer
13	VH2444PS	1	Head + tip nut	29	9005212	1	Stem
14	VH24593	1	Nut	30	215X7114A	1	O-ring
15	215X715178A	1	O-ring	31	215X7110A	1	O-ring
16	VH2466	1	Plunger	32	9105204	1	Valve

SERVICE NOTES		
ITEM No.	TORQUE SPECIFICATION	SERVICE TOOL OR NOTES
1		<b>RT725</b> - .560"-36-UNS-3B-RH - Tap for body inlet threads
		<b>53T3</b> - 1/4"-32-UNEF-3B-RH - Tap for needle valve threads
		<b>53T1</b> - To reseal needle valve seat
		<b>12T6</b> - 7/16"-27-UNS-3A-RH - Die for needle valve threads
		<b>T7310</b> - To reseal H.P. valve seat
		<b>56T6</b> - 1/2"-27-UNS-3B-RH - Tap for cap valve threads
2		Use Molykote M-55
5	8 Nm	17mm open end wrench
8	3 Nm	14mm open end wrench
10		Use Molykote M-55
13		<b>RTVH241</b> - 15/16"-18-UNS-2A-RH - Die for tip nut threads
		<b>RTVH242</b> - To reseal tip seat
14		28mm open end wrench
15 - 19		Use Molykote M-55
24	9-11 Nm	16mm open end wrench
29	27 Nm	<b>72T4</b> - To remove and fit connector stem
32	6 Nm	14mm open end wrench - Use Molykote M-55
<b>IMPORTANT:</b> All repairs or conversions should be carried out by a qualified repairer, with genuine HARRIS parts, to HARRIS repair specifications, and in accordance with local laws or regulations. No contaminant (grease, oil, others) to come in contact with oxygen.		