INTRODUCTION

TASK FORCE TIP MID-MATIC and MID-FORCE: The nozzle you have purchased is one of your primary tools in saving life and property. It has been manufactured with great care to give you the finest performance possible. All components are of top quality and extremely rugged. With regular inspection and maintenance it will serve you for many years. This publication is intended for those who prefer to perform service on their own equipment. Factory service is available, and repair time seldom exceeds one day in our facility. Factory serviced nozzles are repaired by experienced workmen, fully tested and promptly returned functioning to original specifications. Task Force Tips assumes no liability for damage to equipment or injury to personnel that is a result of user service.

GENERAL INFORMATION

TOOLS REQUIRED

The following tools are required for general service to the nozzle:
- 3/32, 1/8, 3/16, 7/32 and 5/16 Allen Wrenches
- 9/16 box or open end wrench
- Dow #112 high temperature silicone grease
- Loctite #271 thread locker or equivalent oxyacetylene torch
- razor knife

Additional tools needed to service the shaper are:
- strap wrench
- vise with padded jaws
- Mid-Matic shaper removal clamp
- Mid-Force shaper removal clamp
- (special tool TFT #THM-500)

Additional tools needed to service the pressure control are:
- dental pick
- two small probes, approximately 1/16 dia
  (such as a drill bit)

THREADED JOINTS: Threaded joints have been secured using Loctite brand thread locking adhesive #271. Disassembly of joints where #271 Loctite was used requires a minimal application of heat with an oxyacetylene torch to break the bond. The threads should be heated to approximately 450 degrees F. Excessive heat application will cause damage to adjacent seals and labels. Replacement parts must be reinstalled using Loctite #271. Threads must be clean, dry, and free of grease or oil when applying Loctite. Allow Loctite to set up for at least one hour before using or subjecting to water. Small vials of Loctite for field service are available; order part # V5010 (#271 LOCTITE MINI DISPENSER).

LUBRICANTS: If parts are disassembled in an area where o-rings are present, re-assemble using DOW #112 High Performance Silicone Grease on all o-rings and surfaces that the o-rings contact. If nozzle is not disassembled refer to field lubrication procedure. (on back)

LABEL REPLACEMENT: If labels become damaged, remove old labels with razor knife. Remove adhesive with acetone or methyl ethyl ketone. Surface must be clean, dry, and free from grease. Remove protective backing and carefully apply new label.

ORDERING PARTS: Always specify the serial number of the nozzle when ordering parts. The serial number is found on the back of the nozzle next to the coupling. Be sure to use complete DESCRIPTION and ORDER #, as printed on parts list. All requests for couplings must specify thread size. Pricing information will be given at time of order. Parts and Repair Kits may be purchased on-line at www.tft.com

COUPLING SERVICE PROCEDURE

GENERAL: Occasional replacement of hose gaskets is recommended. Replace GAS-KET GRABBER (8) if severe impact from debris has caused damage. Coupling service kits which include all hardware and Loctite are available. Couplings with special or standard threads are available and may be exchanged on new nozzles. Please specify desired threads when ordering.

COUPLING REMOVAL: All couplings are retained with a ball race and set screw. Heat and remove the SOCKET SET SCREW (6 or 7) from coupling using an 1/8" Allen wrench. Turn coupling so that hole faces down, and rotate coupling back and forth to allow the 3/16 STAINLESS STEEL BALLS (5) to drop out. When all balls are out of the groove, the coupling can be removed.

V OR VP GI COUPLING INSTALLATION: Inspect and if necessary replace the 134 O-RING (9). Grease and install the o-ring onto the VALVE BODY (10). Insert the GASKET GRABBER (8) (debris screen onto the valve body with the raised end pointing toward the front of the nozzle. Put the coupling onto the valve body and load 34 BALLS (5) into the ball groove. Insertion of the balls is easier if the coupling is rotated slightly back and forth as the balls are loaded. Use Loctite #271 and install the SOCKET SET SCREW (6). The set screw should be flush with the surface of the coupling. If the coupling is difficult to turn, or feels rough when turned, the set screw is in too far. Back set screw off and try again. If the feel is still not correct, recheck the number of balls in the coupling.

TIP ONLY COUPLING INSTALLATION: The coupling installation procedure for Tip Only models is the same as the above procedure except that only 33 balls and a longer SET SCREW (7) are used. Run the set screw into the small slot on the male ball groove of the TAIL PIECE or BASE (26 or 40) until it bottoms out without applying pressure. This locks the coupling on Tip Only models from rotation.

SEPARATING FRONT END FROM BACK: On models with valves, heat the two SET SCREWS (19) and remove with a 3/32 Allen wrench. Then unscrew the front end from the valve assembly. To reassemble see section on VALVE SHUTOFF ADJUSTMENT. On Tip Only models (no valve) the TIP ONLY BASE (40) is retained on the nozzle front end by threads which are retained by Loctite #271. Apply heat at the knurled rib nearest the front of the nozzle. Damage to seals and labels can be reduced by protecting these with a wet rag. The TIP ONLY BASE (40) can now be unscrewed. Remove and replace 139 O-RING (46). To reassemble, clean all threads, apply Loctite and screw together. BOLT ON PISTOL GRIP SERVICE: PISTOL GRIP (83) is held on by a SCREW (83). Remove screw and WASHER (82) with a 9/16 Allen wrench. To reinstall, clean thread and apply Loctite #271. Tighten screw to 20 FT-LBS.

VALVE SERVICE PROCEDURE

VALVE PLUG REPLACEMENT: After removing back end (see section on Separating Front End From Back), VALVE PLUG (23, 39, or 41) is removed by pulling straight back. New valve plug is installed by pushing in with slight finger pressure.

V OR VP GI VALVE DISASSEMBLY SEQUENCE

HANDLE REMOVAL: Heat and then remove both BUTTON HEAD CAP SCREWS (14) from VALVE HANDLE (11) using a 7/32 Allen wrench. Slide CAM and SAFETY PINS (15 and 16) out of handle by gently hitting nozzle against work surface. To remove handle, pull upwards while containing the DETENT BALLS (13) and SPRINGS (12) to prevent their loss. Service to interior valve parts should be done prior to reinstalling handle.
SLIDER AND SEAL REMOVAL: Referring to appropriate sections remove the handle and front end from valve assembly. With handle and front end removed the SLIDER (22) can be pulled out from front of valve. Remove and inspect O-RINGS (20, 21 and 46). Replace o-rings if they are damaged.

V OR VPGL VALVE ASSEMBLY SEQUENCE

SLIDER AND SEAL INSTALLATION: Insert O-RINGS (20, 21 and 46) into the proper grooves in the valve body. Check SLIDER (22) for any raised metal at groove area. Replace if necessary. Lubricate o-rings and slider with silicone grease. Push slider into the valve body.

HANDLE INSTALLATION: Insert DETENT SPRINGS (12) and DETENT BALLS (13) into the handle lugs. While holding balls in place snap the HANDLE (11) onto valve body with offset holes FORWARD. Carefully align the groove on SLIDER (22) with offset hole in valve discs and offset hole in handle. Start SAFETY PIN (16) into offset hole in handle. Push down into engagement with groove in slider, until head of pin is flush with handle. Repeat procedure for CAM PIN (15). Apply Loctite #271 to both BUTTON HEAD SCREWS (14) and insert through lower handle holes. Thread each into corresponding center disk hole. Tighten button head screw securely. Cycle handle and check that it snaps firmly and smoothly into all detent positions and that slider moves back and forth.

VALVE SHUTOFF ADJUSTMENT: Shut off valve is adjusted by the threads between the valve body and the front portion of the nozzle. While holding the VALVE HANDLE (11) against stops in the OFF position, screw front end into the valve body until contact is made with the valve plug. Open handle up to remove contact. Screw the front end in 1/12 turn further to give the valve shut off compression. Apply Loctite to SET SCREWS (19). Thread in both set screws until they bottom out, without applying pressure. In an alternating fashion continue turning in set screws until tight.

VALVE ADJUSTMENT FOR SEVERE COLD: To help prevent hose line freezing in cold climates, the valve may be adjusted for intentional leakage by unscrewing front end slightly. The valve can be returned to normal adjustment for complete shut off during warm weather by following the procedure in the last section.

TWIST TYPE VALVE SERVICE PROCEDURE

STO SLEEVE SERVICE: To remove the STO SLEEVE (36), first heat and remove the CAM SCREWS (38) and DETENT SCREWS (37). The detent screws contain SPRINGS (34) and BALLS (35). STO SLEEVE (36) is then removed by sliding forward. Inspect O-RINGS (30) and replace if damaged. Installation is reverse of removal. Before reassembly grease o-rings. Clean screw threads and apply Loctite #271.

STO VALVE SERVICE: Heat the back end of the STO BASE (33) with a torch and unscrew the STO TAIL PIECE (28). The STO SLIDER (29) may now be removed. Inspect and replace any damaged O-RINGS (27, 28 and 46). Grease o-rings, clean threads and use Loctite #271 upon reassembly.

SHAPER SERVICE PROCEDURE

SHAPER REMOVAL: The rubber bumper is permanently bonded onto the stream shaper as a single unit the SHAPER (63). The shaper is attached to the SHAPER GUIDE (47 OR 50) by a threaded joint that is retained by Loctite #271. Grip rear portion of the nozzle in a vise with padded jaws. Or clamp SHAPER GUIDE (47 or 50) using TFT special tool THM-500 (for MID-MATIC) or THMD-500 (for MID-FORCE) held in a vise. Direct a hot narrow flame around the rear portion of the shaper. Heat for approximately 20 seconds, being careful not to damage the bumper or labels (a wet rag wrapped around these areas will help). Use a strap wrench to unscrew the shaper from the shaper guide. Remove the shaper. Inside the shaper are 64, 1/8 NYLON BALLS (61), some of which may fall free as it is removed. If shaper is to be re-used, clean ball track and replace O-RING-230 (62) if damaged.

SHAPER INSTALLATION: Install O-RING-230 (62) in front groove of SHAPER (63). Grease the seal and ball groove heavily. Place 64, 1/8 NYLON BALLS (61) into greased ball groove. Apply Loctite #271 to male thread on SHAPER GUIDE (47 or 50). Start shaper onto SHAPER GUIDE threads. Place three SHAPER GUIDE BALLS (52) into the grooves on barrel and screw down shaper until threads bottom out.

PRESSURE CONTROL REMOVAL: To remove the CONTROL UNIT first separate the front end from the nozzle, then remove the VALVE PLUG (23, 39 or 41). Loosen and re-move the shaf locking SCREW (64) with a 3/16 allen wrench. Insert a 7/32 Allen wrench into the front of the shaft and screw the shaft out of the barrel assembly. LOCKING SLEEVE (65) is removed by pushing it forward and out of BARREL ASSEMBLY (53 or 54) with a punch. Note: LOCKING SLEEVE may require light tapping with a hammer to remove.

PRESSURE CONTROL INSTALLATION AND INITIAL OPENING ADJUSTMENT: To install the CONTROL UNIT, lightly grease I.D. and O.D. of locking sleeve and also threads of the screw. Place LOCKING SLEEVE (65) with hollow end forward into the barrel assembly. Insert a 7/32 Allen wrench into the front of the shaft and screw the shaft out of the barrel assembly. LOCKING SLEEVE (65) is removed by pushing it forward and out of BARREL ASSEMBLY (53 or 54) with a punch. Note: LOCKING SLEEVE may require light tapping with a hammer to remove.

Nozzle pressure and flow requirements are shown on the following table:

<table>
<thead>
<tr>
<th>NOZZLE PRESSURE</th>
<th>NOZZLE PRESSURE</th>
</tr>
</thead>
<tbody>
<tr>
<td>100 PSI MODEL</td>
<td>AT 70 GPM</td>
</tr>
<tr>
<td>75 PSI MODEL</td>
<td>90/115 psi</td>
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</table>

PROBLEMS:
If you have any questions or problems, please call for assistance.

(800) 348-2686 • (219) 462-6161 • FAX (219) 464-7155

TASK FORCE TIPS INC. - www.tft.com
3701 Innovation Way • Valparaiso, IN 46383-9327
### BACK END PARTS

#### COUPLINGS

1. 1.5" COUPLING GASKET
2. 1.5" ROCKER LUG COUPLING
3. 1.5" BSP STRETCH COUPLING
4. 2.5" BIC COUPLING
5. 3/16 SS BALLS
6. 1/4-28 X 3/16 SOCKET SET SCREW
7. O-RING 134
8. VALVE BODY
9. VALVE DISK
10. DRAG NUB
11. SMALLEY RING
12. DETENT SPRING
13. DETENT BALL
14. HANDLE SCREW
15. CAM PIN
16. SAFETY PIN
17. VALVE HANDLE COVER
18. 8-32 X 3/8 BH CAP SCREW
19. 10-32 X 3/16 SOCKET SET SCREW
20. QUADX-4221
21. QUADX-4130
22. SLIDER
23. VALVE PLUG

#### VALVE PARTS

1. VALVE BODY
2. VALVE DISK
3. DRAG NUB
4. SMALLEY RING
5. DETENT SPRING
6. DETENT BALL
7. HANDLE SCREW
8. CAM PIN
9. SAFETY PIN
10. VALVE HANDLE COVER
11. 8-32 X 3/8 BH CAP SCREW
12. 10-32 X 3/16 SOCKET SET SCREW
13. QUADX-4221
14. QUADX-4130
15. SLIDER
16. VALVE PLUG

#### TWIST TYPE VALVE PARTS

1. S.T.O. TAIL PIECE
2. O-RING 129
3. O-RING 138
4. S.T.O. SLIDER
5. 3/16" TORLON BALLS
6. S.T.O. SLEEVE
7. DETENT SCREW
8. CAM SCREW
9. S.T.O. VALVE PLUG
10. T.O. BASE
11. T.O. VALVE PLUG
12. 3/8-24 X 3/8 SOCKET SET SCREW
13. O-RING 139
14. MID-FORCE SHAPER GUIDE
15. NAME LABEL - 100 PSI
16. NAME LABEL - 75 PSI
17. MID-FORCE NAME LABEL
18. TORLON GUIDE BALLS

#### TIP ONLY BASE PARTS

1. 1.5" COUPLING GASKET
2. 1.5" ROCKER LUG COUPLING
3. 1.5" BSP STRETCH COUPLING
4. 2.5" BIC COUPLING
5. 3/16 SS BALLS
6. 1/4-28 X 3/16 SOCKET SET SCREW
7. O-RING 134
8. VALVE BODY
9. VALVE DISK
10. DRAG NUB
11. SMALLEY RING
12. DETENT SPRING
13. DETENT BALL
14. HANDLE SCREW
15. CAM PIN
16. SAFETY PIN
17. VALVE HANDLE COVER
18. 8-32 X 3/8 BH CAP SCREW
19. 10-32 X 3/16 SOCKET SET SCREW
20. QUADX-4221
21. QUADX-4130
22. SLIDER
23. VALVE PLUG

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## FRONT END PARTS

### SPRAY ADJUSTMENT PARTS

<table>
<thead>
<tr>
<th>DESCRIPTION</th>
<th>QTY</th>
<th>PART#</th>
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<tbody>
<tr>
<td>BARREL ASSEMBLY</td>
<td>53</td>
<td>HM805-KIT</td>
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<tr>
<td>BARREL LABEL</td>
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<td>HM740</td>
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<tr>
<td>MID-FORCE BARREL LABEL</td>
<td>61</td>
<td>HMD740</td>
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<tr>
<td>1/8 NYLON BALL</td>
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<td>V2135</td>
</tr>
<tr>
<td>O-RING-230</td>
<td>63</td>
<td>VO-230</td>
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<tr>
<td>SHAPER WITH BUMPER</td>
<td>64</td>
<td>HM500</td>
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<tr>
<td>SPINNING TEETH BUMPER SUBASSEMBLY</td>
<td>65</td>
<td>HM901</td>
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### PRESSURE CONTROL PARTS

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<tr>
<th>DESCRIPTION</th>
<th>QTY</th>
<th>PART#</th>
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<tr>
<td>100 PSI CONTROL UNIT - HM840-KIT</td>
<td>64</td>
<td>VT25-28SH750</td>
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<tr>
<td>75 PSI CONTROL UNIT - HM840-75-KIT</td>
<td>65</td>
<td>HM571</td>
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<tr>
<td>MID-FORCE CONTROL UNIT - HMD840-KIT</td>
<td>80</td>
<td>HM692-BLK</td>
</tr>
<tr>
<td>SPACER</td>
<td>81</td>
<td>HM693-HM</td>
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<tr>
<td>WASHER</td>
<td>82</td>
<td>VM4901</td>
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<tr>
<td>3/8-16 X 1 SOCKET HEAD CAP SCREW</td>
<td>83</td>
<td>VT37-16SH1.0</td>
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### REPAIR KITS

- STANDARD CONTROL UNIT: HM840-KIT
- MID-FORCE CONTROL UNIT: HMD840-KIT
- 75 PSI CONTROL UNIT: HM840-75-KIT
- STANDARD SHUT-OFF: HM590-KIT
- TIP-ONLY WITH SHUT-OFF: HM592-KIT
- COUPLING - NST REPAIR KIT: HM997N-KIT
- COUPLING - IPT REPAIR KIT: HM997I-KIT
- RED PISTOL GRIP KIT: HM92RED-KIT
- GREEN PISTOL GRIP KIT: HM92GRN-KIT
- BLUE PISTOL GRIP KIT: HM92BLU-KIT
- BLACK PISTOL GRIP KIT: HM92BLK-KIT
- ORANGE PISTOL GRIP KIT: HM92ORG-KIT
- WHITE PISTOL GRIP KIT: HM92WHT-KIT
- YELLOW PISTOL GRIP KIT: HM92YEL-KIT
- RED HANDLE COVER KIT: HM925RED-KIT
- GREEN HANDLE COVER KIT: HM925GRN-KIT
- BLUE HANDLE COVER KIT: HM925BLU-KIT
- BLACK HANDLE COVER KIT: HM925BLK-KIT
- ORANGE HANDLE COVER KIT: HM925ORG-KIT
- WHITE HANDLE COVER KIT: HM925WHT-KIT
- YELLOW HANDLE COVER KIT: HM925YEL-KIT

### SPECIAL TOOLS

- MID-MATIC SHAPER REMOVAL CLAMP: THM-500
- SHAFT REMOVAL TOOL: THM-570
- SMALLEY RING REMOVAL TOOL: THM-561