



TASK FORCE TIPS MID-MATIC and MID-Force: 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 technicians, 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.

1.0 GENERAL INFORMATION

1.1 REQUIRED TOOLS

Tools for General Service
Hex Keys 3/32", 1/8", 3/16", and 7/32"
Ball End Hex Key 5/16"
9/16" box or open end wrench
Molykote #112 high temperature silicone grease
Loctite® #271 and #242 thread locker or equivalent
Oxyacetylene Torch
Razor Knife
Rubber Mallet

Tools for SHAPER Service
Strap Wrench
Vise with padded jaws
Mid-Matic shaper removal clamp Mid-Force shaper removal clamp (special tool TFT #THM500-ST)

Tools for PRESSURE CONTROL Service
Two small probes, approximately 1/16" dia (such as a drill bit)
Dental Pick

1.2 THREADED JOINTS

Threaded joints have been secured using at the factory Loctite brand thread locking adhesive #263 (red) or #242 (blue).

- Disassembly of joints where #263 Loctite is used requires a minimal application of heat with a oxyacetylene torch to break the bond.
- The threads should be heated to approximately 450°F. Excessive heat application will cause damage to adjacent seals and labels.
- Replacement parts must be reinstalled using either Loctite #271 or #242 where specified, or equivalent. Small vials of Loctite for field service are available. Order part # V5010 (#271 LOCTITE MINI DISPENSER) or VSA-125 (LOCTITE BLUE #24205 MINI DISPENSER).
- 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.

1.3 LUBRICANTS

If parts are disassembled in an area where O-rings are present, re-assemble using Molykote #112 High Performance Silicone Grease on all O-rings and surfaces that the O-rings contact. If nozzle is not disassembled refer to the field lubrication procedure in the nozzle manual.

1.4 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.

1.5 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 PART #, as printed on parts list. All requests for couplings must specify thread size. Pricing information will be given at time of order.

2.0 COUPLING SERVICE PROCEDURE

2.1 GENERAL

- Occasional replacement of HOSE GASKET (1) is recommended.
- Replace GASKET 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. Specify desired threads when ordering.

2.2 TIP ONLY COUPLING REMOVAL

Couplings are threaded on and retained with a set screw.

1. Heat the SOCKET SET SCREW (43) and remove from the coupling using an 1/8" hex key.
2. Unthread the coupling from the front end assembly.
3. Inspect and replace if necessary, O-RING -138 (28).

2.3 TIP ONLY COUPLING INSTALLATION

1. Screw the coupling onto the front end assembly until bottomed out.
2. Back off 0-1/3 turn until the set screw hole lines up with the nearest divot on the barrel.
3. Apply Loctite #271 to SOCKET SET SCREW (43) then install until bottomed out.
4. Back the set screw out one 1/2 turn.

2.4 V OR VPGI COUPLING REMOVAL

Couplings are retained with a ball race and set screw.

1. Heat the SOCKET SET SCREW (6) and remove from the coupling using an 1/8" hex key.
2. Turn coupling so that hole faces down over a container, and rotate coupling back and forth to allow the BALLS (5) to drop out.
3. When all balls are out of the groove, the coupling can be removed.

2.5 V OR VPGI COUPLING INSTALLATION

1. Inspect and if necessary replace the 134 O-RING (9). Grease the ball bearing race and O-ring groove and install the O-ring onto the VALVE BODY (10).
2. Insert the GASKET GRABBER (8) debris screen onto the valve body with the raised end pointing toward the front of the nozzle.
3. Put the coupling onto the valve body and load 34 BALLS (5) into the ball groove.
 - A. Insertion of the balls is easier if the coupling is rotated slightly back and forth as the balls are loaded. Apply Loctite #271 to SOCKET SET SCREW (6) then install.
 - B. 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.
 - C. If the feel is still not correct, recheck the number of balls in the coupling.

2.6 SEPARATING THE FRONT END FROM THE VALVE ASSEMBLY

On models with valves:

1. Heat the two SET SCREWS (19) and remove with a 3/32" hex key.
2. Unscrew the front end from the valve assembly.
3. To reassemble see section on VALVE SHUTOFF ADJUSTMENT.

3.0 BOLT ON PISTOL GRIP SERVICE

1. Remove SCREW (83) and WASHER (82) with a 5/16" ball end hex key to remove PISTOL GRIP (80) and SPACER (81).
2. To reinstall, clean thread and apply Loctite #271.
3. Tighten screw to 20 FT-LBS.

4.0 VALVE SERVICE PROCEDURE

4.1 VALVE PLUG REPLACEMENT

After removing front end ([see section 2.6](#)), VALVE PLUG (23, 39, or 41) is removed by gripping it in a vise or with pliers and rocking the plug back and forth while pulling straight back. New valve plug is installed by gently tapping the end with a rubber mallet until fully installed being careful not to strike the sealing surface.

4.2 V OR VPGI VALVE DISASSEMBLY SEQUENCE

4.2.1 VALVE HANDLE REMOVAL

1. Remove both BUTTON HEAD CAP SCREWS (14) from VALVE HANDLE (11) using a 7/32" hex key.
2. Slide CAM and SAFETY PINS (15 and 16) out of handle by gently tapping nozzle against work surface.
3. To remove handle, pull upward while containing the DETENT BALLS (13) and SPRINGS (12) with your thumbs to prevent their loss.

Service to interior valve parts should be done prior to reinstalling handle.

4.2.2 SLIDER AND SEAL REMOVAL

1. With handle and front end removed, pull the SLIDER (22) out from front of valve. It may be necessary to tap the open end of the VALVE BODY against a rubber or wood block to get the slide valve to come out.
2. Remove and inspect QUAD-RINGS (20 and 21) and O-RING (46).
3. Replace O-rings if they are damaged.

4.3 V OR VPGI ASSEMBLY SEQUENCE

4.3.1 SLIDER AND SEAL INSTALLATION

1. Inspect SLIDER (22) for any raised metal at groove area and replace if necessary.
2. Insert O-RINGS (20, 21 and 46) into the appropriate grooves in the valve body.
3. Lubricate Quad-Rings, O-Ring, and slider with silicone grease.
4. Push slider into the valve body narrow end first.

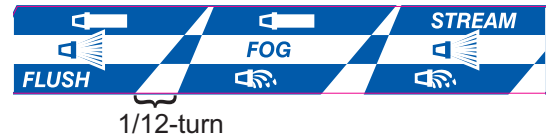
4.3.2 VALVE HANDLE INSTALLATION

1. Insert DETENT SPRINGS (12) and DETENT BALLS (13) into the handle lugs.
2. While holding balls in place, snap the HANDLE (11) onto valve body with offset holes FORWARD.
3. Carefully align the groove on SLIDER (22) with offset hole in valve discs and offset hole in handle.
4. 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). Be sure to use one CAM PIN and one SAFETY PIN in each handle assembly.
5. 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.
6. Cycle handle and check that it snaps firmly and smoothly into all detent positions and that slider moves back and forth. If performed correctly, the face of the slider will follow the internal contour of the valve body.

4.3.3 VALVE SHUTOFF ADJUSTMENT

Shutoff valve is adjusted by the threads between the valve body and the front portion of the nozzle.

1. While holding the VALVE HANDLE (11) against stops in the OFF position, screw front end into the valve body until firm contact is made with the valve plug.
2. Open handle up to remove contact.
3. Screw the front end in 1/12-turn further to give the valve shutoff compression.
4. Close the Valve Handle to help center the Front End and Valve Body.
5. Apply Loctite #242 to SET SCREWS (19) and thread in both set screws until they bottom out, without applying pressure.
6. In an alternating fashion, continue turning in set screws until tight.



4.3.4 VALVE ADJUSTMENT FOR SEVERE COLD

To help prevent hose line freezing in cold climates, the valve may be adjusted for intentional leakage by installing the front end as previously described ([see section 4.3.3](#)) and backing off 1/12-turn. The valve can be returned to normal adjustment for complete shut off during warm weather by following the procedure in the previous section.

5.0 TWIST TYPE VALVE SERVICE PROCEDURE

5.1 S.T.O. SLEEVE SERVICE

To remove the S.T.O. SLEEVE (36):

1. Heat and remove the CAM SCREWS (38) and DETENT SCREWS (37).
 - A. Be sure to retain the SPRINGS (34) and BALLS (35) contained in the detent screws.
2. Remove the S.T.O. SLEEVE (36) by sliding the sleeve forward.
3. Inspect QUAD-RINGS (30) and replace if damaged.
4. Installation is reverse of removal. Before reassembly, grease O-rings. Clean screw threads and apply Loctite #271.

5.2 S.T.O. VALVE SERVICE

1. Heat the back end of the S.T.O. BASE (33) and unscrew the S.T.O. TAIL PIECE (26).
2. Remove CAM SCREWS (38).
3. Remove the S.T.O. SLIDER (29).
4. Inspect and replace any damaged O-RINGS (27, 28 and 46).
5. Grease O-rings, clean threads and use Loctite #271 prior to reassembly.

6.0 SHAPER SERVICE PROCEDURE

6.1 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 (50) by a threaded joint that is retained by Loctite #271.

1. Grip rear portion of the nozzle in a vise with padded jaws or clamp SHAPER GUIDE (50) using TFT special tool THM500-ST held in a vise.
2. 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).
3. Use a strap wrench to unscrew the shaper from the shaper guide. Remove the shaper.
 - A. Inside the shaper are 64, 1/8" NYLON BALLS (61), retain the balls for installation.
4. If shaper is re-used, clean ball track and replace O-RING-230 (62) if damaged.

6.2 SHAPER INSTALLATION

1. Install O-RING-230 (62) in front groove of SHAPER (63).
2. Grease the seal and ball groove heavily. DO NOT get grease on the threads. This will contaminate the Loctite, making it ineffective.
3. Place 64, 1/8" NYLON BALLS (61) into greased ball groove.
4. With the SHAPER GUIDE fully forward in the straight stream position, apply Loctite #271 to male thread on SHAPER GUIDE (50). Start shaper onto SHAPER GUIDE threads.
5. Place three SHAPER GUIDE BALLS (52) through the holes in the SHAPER GUIDE, into the grooves on barrel and screw down shaper until threads bottom out.

7.0 PRESSURE CONTROL UNIT SERVICE PROCEDURE

7.1 PRESSURE CONTROL UNIT REMOVAL

To remove the CONTROL UNIT:

1. Separate the front end from the nozzle ([see section 2.6](#)), then remove the VALVE PLUG (23, 39 or 41) ([see section 4.1](#)).
2. Loosen the shaft locking SCREW (64) with a 3/16" hex key.
3. Insert a 7/32" hex key into the front of the shaft and screw the shaft out of the barrel assembly.
4. Remove the LOCKING SLEEVE (65) by pushing it forward and out of BARREL ASSEMBLY (53) with a punch. Note: LOCKING SLEEVE may require light tapping with a hammer to remove.

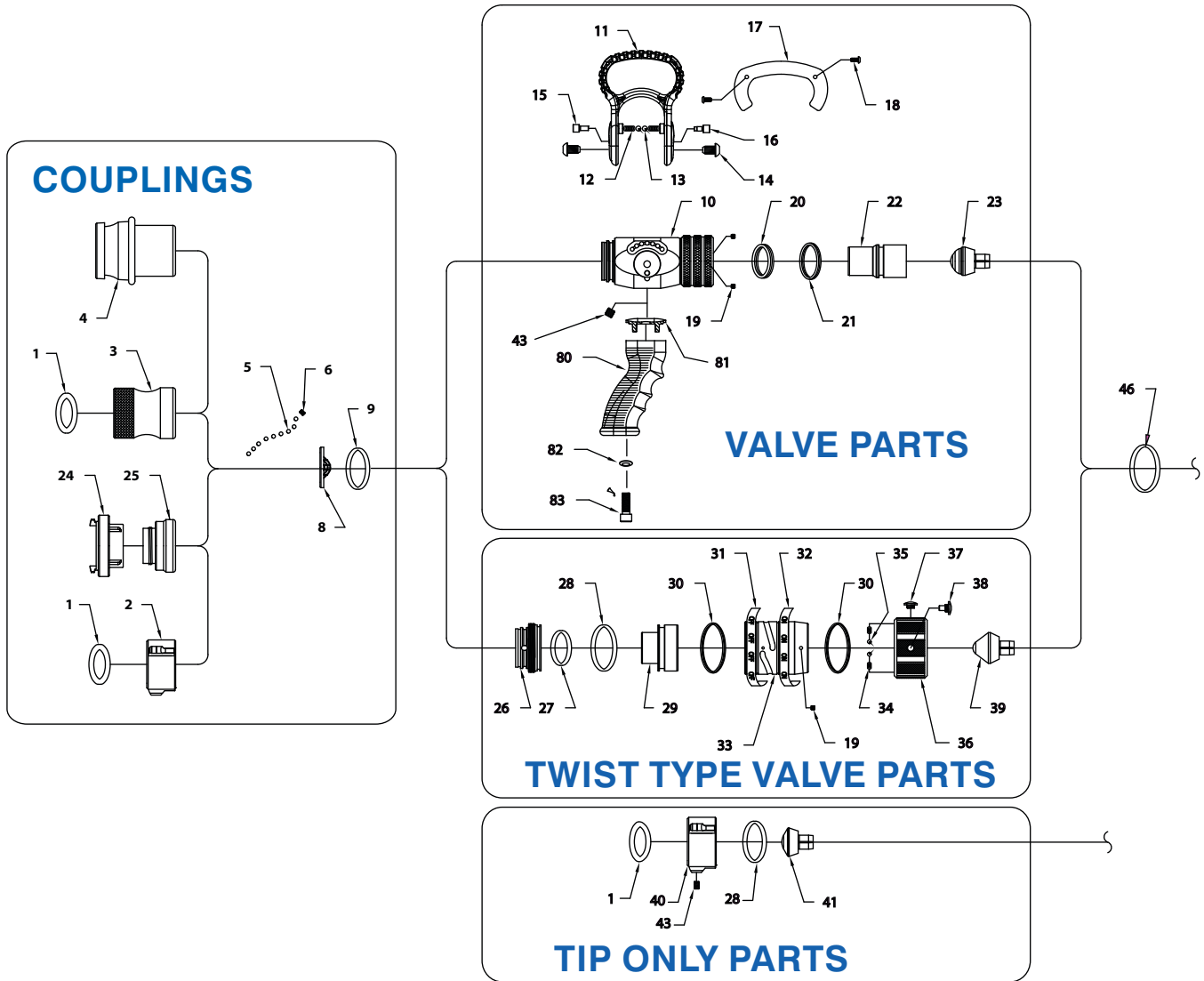
7.2 PRESSURE CONTROL UNIT INSTALLATION AND INITIAL OPENING ADJUSTMENT

To install the CONTROL UNIT:

1. Lightly grease I.D. and O.D. of locking sleeve and screw threads.
2. Place LOCKING SLEEVE (65) with hollow end forward, onto back of shaft and install the screw loosely
3. Screw CONTROL UNIT (with pressure control parts installed) into barrel assembly.
4. Insert a 7/32" hex key into front of shaft and turn in until baffle just touches BARREL CONE (60), then turn back 3/8 turn for 100 PSI nozzles or 3/4 turn for 75 PSI nozzles.
5. Keep the hex key the in shaft to assure that the shaft doesn't turn. Tighten screw against locking sleeve, to approximately 175 in-lbs.
6. Always flow test after adjusting.

	NOZZLE PRESSURE	NOZZLE PRESSURE	NOZZLE PRESSURE
	AT 70 GPM	AT 180 PSI	AT 200 GPM
100 PSI MODEL	85/115 PSI	---	85/115 PSI
75 PSI MODEL	60/90 PSI	---	60/90 PSI
55 PSI MODEL	40/70 PSI	40/70 PSI	---

BACK END PARTS

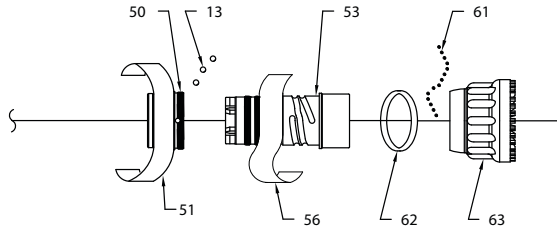


	DESCRIPTION	QTY	PART #
1	1.5" COUPLING GASKET	1	V3130
2	1.5" ROCKER LUG COUPLING	1	HM697*
3	1.5" BSP STRETCH COUPLING	1	HM685B
4	2.5" BIC COUPLING	1	HM687
5	3/16 SS BALLS	33/34	V2120
6	1/4-28 X 3/16 SOCKET SET SCREW	1	VT25-28SS187
8	GASKET GRABBER	1	HM730
9	O-RING 134	1	VO-134
10	VALVE BODY	1	HM600
	VALVE DISK	2	HM640
	DRAG NUB	4	HM650
	SMALLEY RING	2	V4270
11	VALVE HANDLE	1	HM620
12	DETENT SPRING	2	HM770
13	DETENT BALL	2	VB243TO
14	HANDLE SCREW	2	HM645
15	CAM PIN	1	HM630
16	SAFETY PIN	1	HM635
17	VALVE HANDLE COVER	2	HM625-BLK
18	8-32 X 3/8 BH CAP SCREW	4	HM626
19	10-32 X 3/16 SOCKET SET SCREW	2	VT10Y32SS187
20	QUADX-4221	1	VOQ-4221
21	QUADX-4130	1	VOQ-4130
22	SLIDER	1	HM660
23	VALVE PLUG	1	HM590
24	SWIVEL 1.5"BSP MALE ADAPTER	1	HM681.1
	SWIVEL 2.0"BSP MALE ADAPTER	1	HM696.1
	SWIVEL 2.5"BSP MALE ADAPTER	1	HM688.2

	DESCRIPTION	QTY	PART #
25	STORZ ADAPTER 1.5" X 38MM	1	B686
	STORZ ADAPTER 2.0" X 52MM	1	H686
	STORZ ADAPTER 2.5" X 65MM	1	H689
26	S.T.O. TAIL PIECE	1	HM662
27	O-RING 129	1	VO-129
28	O-RING 138	1	VO-138
29	S.T.O. SLIDER	1	HM661
30	QUADX-4037	2	VOQ-4037
31	"OFF" LABEL	1	HD755
32	"ON" LABEL	1	HD750
33	S.T.O. BASE	1	HM655
34	DETENT SPRING	2	VM4200
35	3/16" TORLON BALLS	2	V2120-TORLON
36	S.T.O. SLEEVE	1	HM668
37	DETENT SCREW	2	HD785
38	CAM SCREW	2	HD780
39	S.T.O. VALVE PLUG	1	HM592
40	COUPLING	1	HM699*
41	T.O. VALVE PLUG	1	HM591
42	10-32 X 1/4 SOCKET HEAD SET SCREW	1	VT10-31SS250
43	3/8-24 X 3/8 SOCKET SET SCREW	1	VT37-24SS375
46	O-RING 139	1	VO-139
80	PISTOL GRIP	1	HM692-BLK
81	SPACER	1	HM693-HM
82	WASHER	1	VM4901
83	3/8-16 X 1 SOCKET HEAD CAP SCREW	1	VT37-16SH1.0

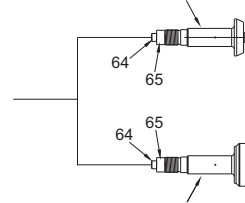
FRONT END PARTS

SPRAY ADJUSTMENT PARTS



PRESSURE CONTROL PARTS

100 PSI CONTROL UNIT - HM840-KIT
or
75 PSI CONTROL UNIT - HM840-75-KIT



100/55 DUAL PRESSURE CONTROL UNIT - HMD840-KIT
or
75/45 DUAL PRESSURE CONTROL UNIT - HMD840-75KIT

	DESCRIPTION	QTY	PART #
50	SHAPER GUIDE	1	HMD510
51	NAME LABEL - 100 PSI	1	HM745
	NAME LABEL - 75 PSI	1	HM745L
	MID-FORCE NAME LABEL	1	HMD745
13	DETENT BALL	3	VB243TO
53	BARREL ASSEMBLY	1	HM805-KIT
	TO BARREL ASSEMBLY	1	HM806-KIT
56	BARREL LABEL	1	HM740
	MID-FORCE BARREL LABEL	1	HMD740
61	1/8 NYLON BALL	64	V2135
62	O-RING-230	1	VO-230
63	SHAPER WITH BUMPER	1	HM500
	SPINNING TEETH BUMPER SUBASSEMBLY	1	HM901

	DESCRIPTION	QTY	PART #
64	LOCKING SCREW	1	VT25-25SH750
65	LOCKING SLEEVE	1	HM571

9.0 REPAIR KITS AND SPECIALTY TOOLS

REPAIR KITS			
STANDARD CONTROL UNIT	HM840-KIT	STANDARD SHUT-OFF	HM590-KIT
MID-FORCE CONTROL UNIT	HMD840-KIT	TIP-ONLY WITH SHUT-OFF	HM592-KIT
75 PSI CONTROL UNIT	HM840-75-KIT	COUPLING - NST REPAIR KIT	HM997N-KIT
75 PSI MID-FORCE CONTROL UNIT	HMD840-75KIT	COUPLING - IPT REPAIR KIT	HM997I-KIT
RED PISTOL GRIP KIT	HM692RED-KIT	RED HANDLE COVER KIT	HM925RED-KIT
GREEN PISTOL GRIP KIT	HM692GRN-KIT	GREEN HANDLE COVER KIT	HM925GRN-KIT
BLUE PISTOL GRIP KIT	HM692BLU-KIT	BLUE HANDLE COVER KIT	HM925BLU-KIT
BLACK PISTOL GRIP KIT	HM692BLK-KIT	BLACK HANDLE COVER KIT	HM925BLK-KIT
ORANGE PISTOL GRIP KIT	HM692ORG-KIT	ORANGE HANDLE COVER KIT	HM925ORG-KIT
WHITE PISTOL GRIP KIT	HM692WHT-KIT	WHITE HANDLE COVER KIT	HM925WHT-KIT
YELLOW PISTOL GRIP KIT	HM692YEL-KIT	YELLOW HANDLE COVER KIT	HM925YEL-KIT
GRAY PISTOL GRIP KIT	HM692GRAY-KIT	GRAY HANDLE COVER KIT	HM925GRY-KIT
PURPLE PISTOL GRIP KIT	HM692PPL-KIT	PURPLE HANDLE COVER KIT	HM925PPL-KIT
PINK PISTOL GRIP KIT	HM692PINK-KIT	PINK HANDLE COVER KIT	HM925PNK-KIT
TAN PISTOL GRIP KIT	HM692TAN-KIT	TAN HANDLE COVER KIT	HM925TAN-KIT

SPECIALTY TOOLS	
MID-MATIC/MID-FORCE SHAPER REMOVAL CLAMP	THM500-ST
SHAFT REMOVAL TOOL	THM-570
SMALLEY RING REMOVAL TOOL	THM-561

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