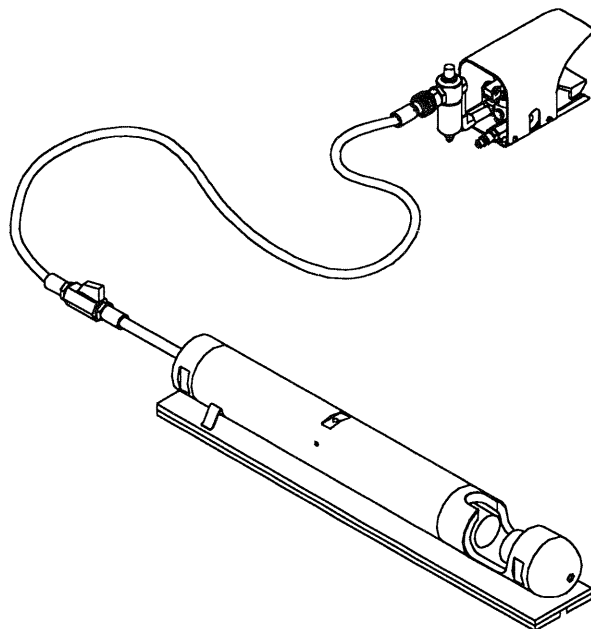


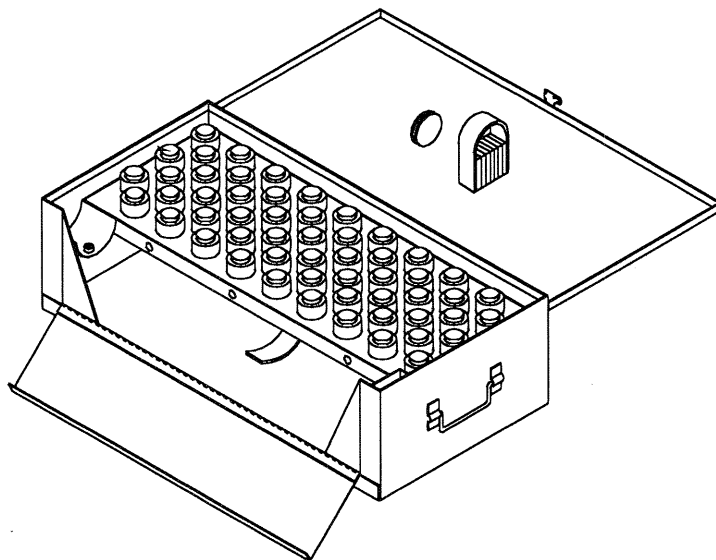
ST825 FLEXIBLE CABLE TERMINAL SWAGING TOOL

DMC DANIELS
MANUFACTURING
CORPORATION
DATASHEET

SEE PAGE 14 FOR IMPORTANT INFORMATION CONCERNING
LIMITED WARRANTY, AND LIMITATION OF LIABILITY.



ST825 FLEXIBLE CABLE TERMINAL SWAGING TOOL



SWAGING & CUTTING DIES CAN BE PURCHASED
INDIVIDUALLY OR AS A COMPLETE KIT (DMC99)

CAUTION

1. **DO NOT INSERT OR REMOVE DIES UNLESS AIR SUPPLY TO SWAGING TOOL IS DISCONNECTED.**
2. **DO NOT OPERATE SWAGING TOOL UNLESS BOTH DIES ARE IN SWAGING POSITION.**
3. **DO NOT OPERATE UNIT WITHOUT SAFETY GUARD IN POSITION.**

SET UP AND OPERATION

1. Refer to DIE SELECTION CHART for swaging dies, terminal sizes, and wire sizes.
2. Make sure dies are clean, apply a light film of light weight oil to dies (SAE10W).
3. Insert dies into swaging position.
4. Connect swaging tool air line to foot control valve.
5. Connect foot control valve to regulated pressure airline.
NOTE: Swaging tool must operate on 90 psi (6.2 BAR) of regulated air, use 3/8" I.D. hose.
6. **KEEP HANDS CLEAR OF DIE CHAMBER AT ALL TIMES WHEN AIR SUPPLY IS CONNECTED.**
7. Refer to swaging procedures Pages 4, 7, and 8 as applicable (BALL AND SLEEVE TYPE).

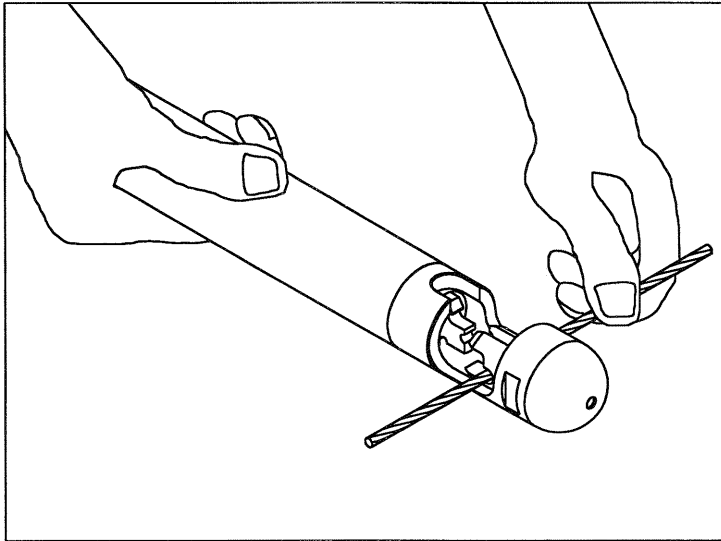


FIGURE 1

PORTABLE SWAGING

When flat surfaces are not available, omit base plate. The swaging tool may be held in the hand and balanced as shown.

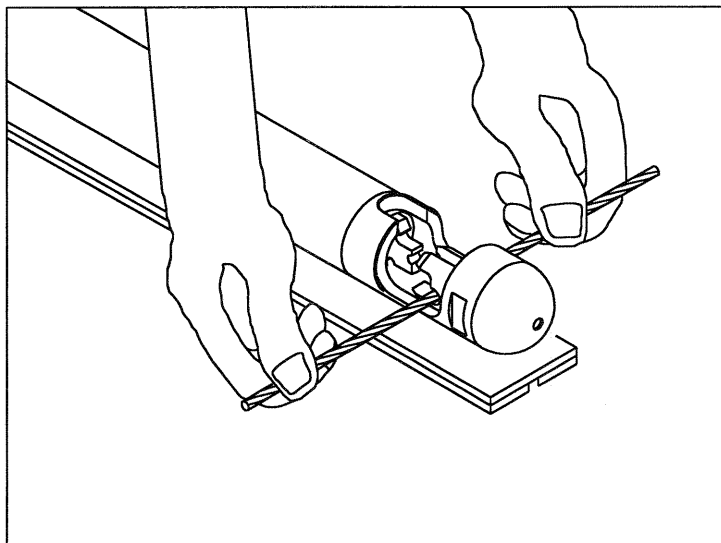


FIGURE 2

BENCH SWAGING

When flat surfaces are large enough to accommodate the base plate; place swaging tool on base plate as shown. Position swaging tool with Yoke facing operator.

SWAGING PROCEDURE FOR BALL TYPE TERMINALS

1. Position terminal on cable and allow approximately 1.5" of cable to extend beyond ball.
NOTE: TO MAINTAIN BALL IN PREDETERMINED LOCATION, THE CABLE MAY BE KINKED AND THE TERMINAL POSITIONED OVER THE KINK.
2. Clean terminal and apply a drop of light oil.
3. Grip the cable approximately one inch from either side of ball.
Position the terminal and cable in the cavity of the front die and slide the rear die to its forward position using the slot provided in the yoke for the index finger. Install guard in place. NOTE: TO PREVENT DAMAGE TO TERMINAL AND CABLE DURING THE SWAGING CYCLE, MAINTAIN A LIGHT PRESSURE ON THE CABLE TOWARD THE FRONT OF THE SWAGER, THEREBY HOLDING THE TERMINAL AND CABLE FIRMLY IN THE FORWARD DIE CAVITY.
4. Depress foot valve firmly and rotate cable back and forth in 180° arcs of complete revolutions for time noted in chart on Page 9.
NOTE: IF UNABLE TO ROTATE TERMINAL, STOP SWAGING IMMEDIATELY, ROTATE TERMINAL 90° AND START SWAGING AGAIN.
5. Release foot valve to stop swaging. Remove terminal and check ball and shank diameters against the chart on Page 9. NOTE: IF THE DIAMETERS ARE OVERSIZE OR THE SURFACE FINISH IS TOO ROUGH, REPEAT STEPS "1" THROUGH "5" FOR AN ADDITIONAL 10% OF THE ORIGINAL SWAGING TIME.

SWAGING PROCEDURE FOR SLEEVE TYPE TERMINALS

1. Position terminal on cable allowing approximately 1/4" to extend through on the MS20658 & MS20667 Terminals. Bottom cable in the MS21259, MS20668 and MS21260 Terminals. NOTE: TO PREVENT THE TERMINAL FROM SLIPPING, INSERT CABLE APPROXIMATELY 3/4" INTO TERMINAL AND USING TERMINAL FOR LEVERAGE, KINK CABLE AND THEN POSITION TERMINAL OVER KINK.
2. Clean terminal and apply a drop of light oil.
3. Grip forked or threaded end of terminal and position it so that the shank end is extending approximately 3/4" into the bell mouth side of the die. Slide the rear die to its forward position using the slot provided in the yoke for the index finger. Install guard in place. Guide and rotate the cable during the swaging cycle. Exert a light pressure on the terminal and cable toward the front of the swaging tool, thereby holding the terminal and cable firmly in the forward die cavity.
4. Depress foot valve and rotate terminal continuously (if the length of cable prevents complete revolutions, turn terminal back and forth in 180° arcs) at the same time feeding the terminal slowly through the die. When the full length of the shank has been swaged, continue swaging, reversing the direction of the feed until the starting position has been reached. Repeat this motion for the time noted in chart on Page 9.
5. Release foot valve to stop swaging. Remove terminal and check shank diameter against chart on Page 9.

CABLE CUTTING DIE INSTALLATION

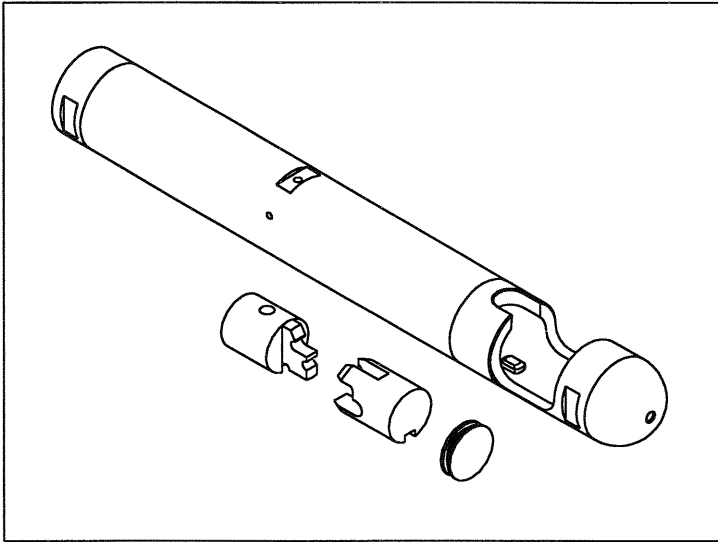


FIGURE 3

1. Remove front die guide by removing the O-ring from the guide shank on the bottom of the tool.
2. Position Spacer (ST825003) in forward end of yoke cavity. Spacer keeps cutter and die engaged to prevent damage to cutting edges.
3. Reinstall front die guide.
4. Hold cutter so that the blade is in the vertical position, then insert, blade first, into the Yoke opening. Slide it back to the face of the power unit.
5. Place die in yoke opening so that the slot engages the blade of the cutter. Push die back against the spacer.

NOTE: BE SURE TO REMOVE SPACER BEFORE INSTALLING SWAGING DIE.

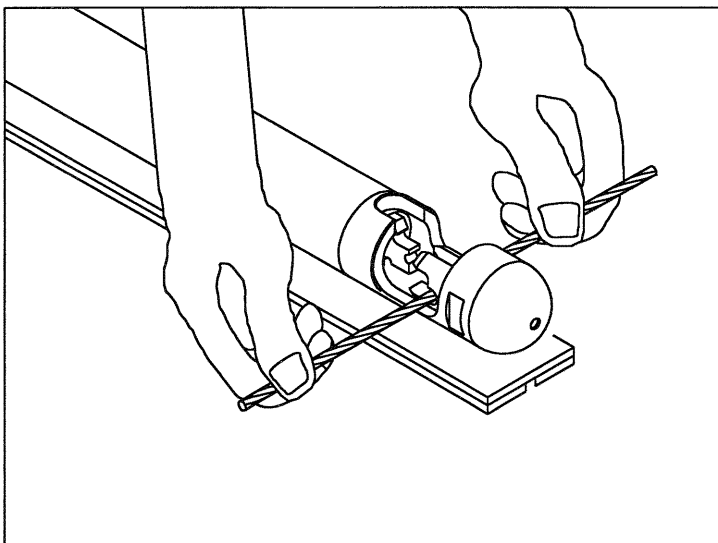


FIGURE 4

CABLE CUTTING OPERATION

Separate dies and position cable into front die for cutting. Manually slide rear die forward to touch cable, then install safety guard. Depress foot valve firmly for one second. When trimming ball end terminals, separate dies, firmly seat ball and excess cable into die cavity and depress foot valve for a maximum of one second.

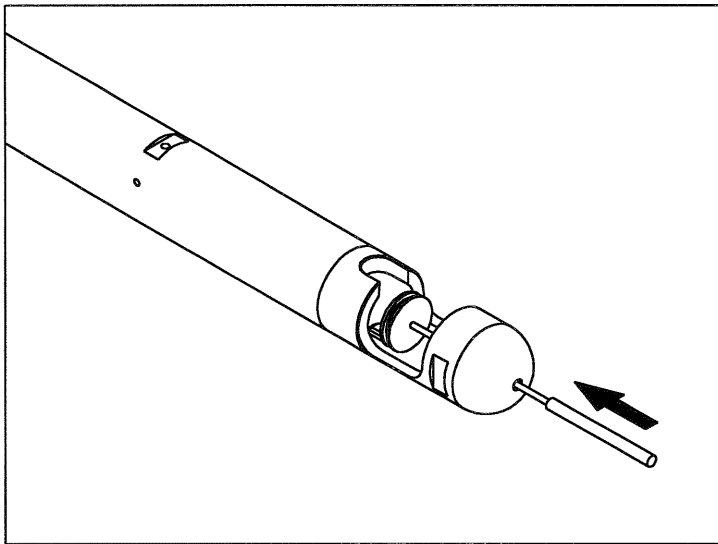


FIGURE 5

CABLE CUTTING DIE REMOVAL

1. Slide blade cutting die back, so female die may be removed.
2. Slide blade cutting die forward and remove by lifting rear of die first.
3. The spacer may require removal by inserting an extended 1/8" diameter pin through the yoke, and pushing as shown.

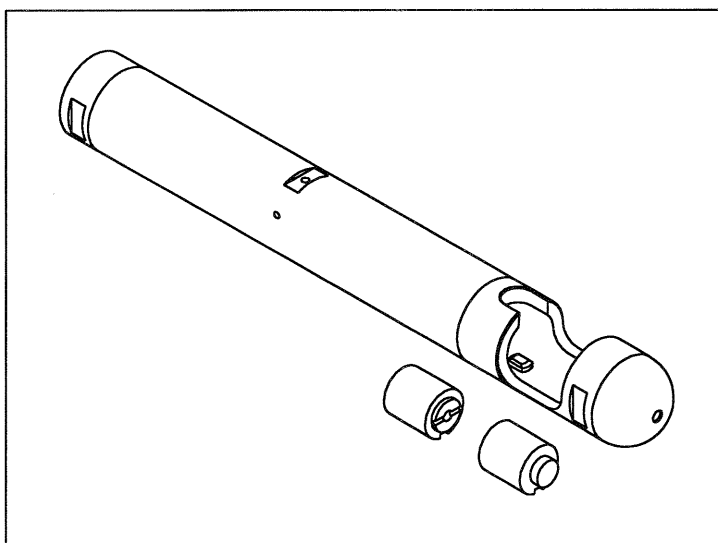
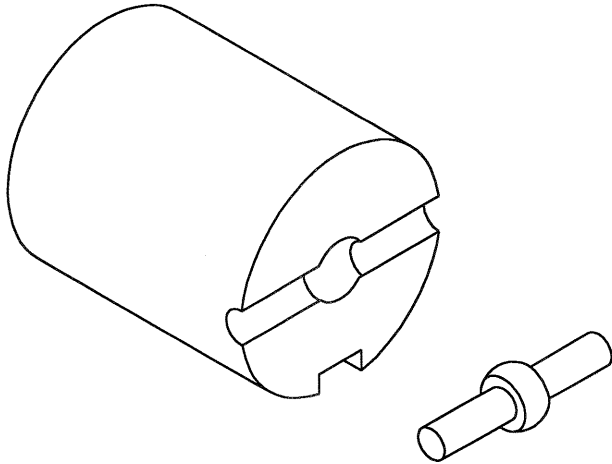


FIGURE 6

SWAGING DIE INSTALLATION

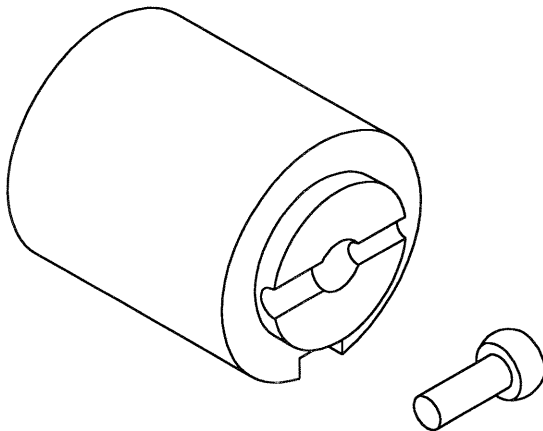
1. Insert either die through the yoke opening into the die cavity with keyway DOWN and shank facing toward rear of the Swaging Tool.
2. Slide die back, in order to clear opening for insertion of mating die.
3. Insert mating die with shank forward and slide to forward position.



SWAGING DIES (FOR DOUBLE SHANK BALL END TERMINAL)

DIE NUMBER	CABLE DIA.(IN.)	TERMINAL REF.
ST825SDB-2	1/16	MS20663-2
ST825SDB-3	3/32	MS20663-3
ST825SDB-4	1/8	MS20663-4
ST825SDB-5	5/32	MS20663-5
ST825SDB-6	3/16	MS20663-6

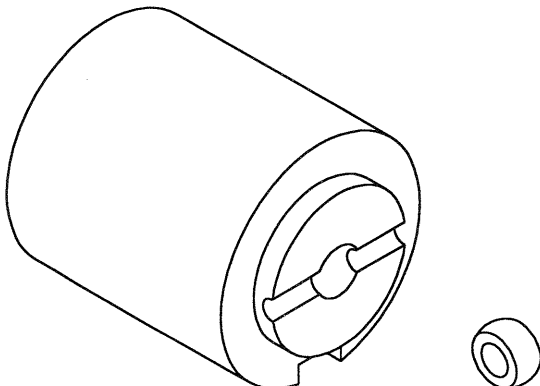
NOTE: USE IN PAIRS



SWAGING DIES (FOR SINGLE SHANK BALL END TERMINAL)

DIE NUMBER	CABLE DIA.(IN.)	TERMINAL REF.
ST825SSB-2	1/16	MS20664-2
ST825SSB-3	3/32	MS20664-3
ST825SSB-4	1/8	MS20664-4
ST825SSB-5	5/32	MS20664-5
ST825SSB-6	3/16	MS20664-6

NOTE: USE IN PAIRS



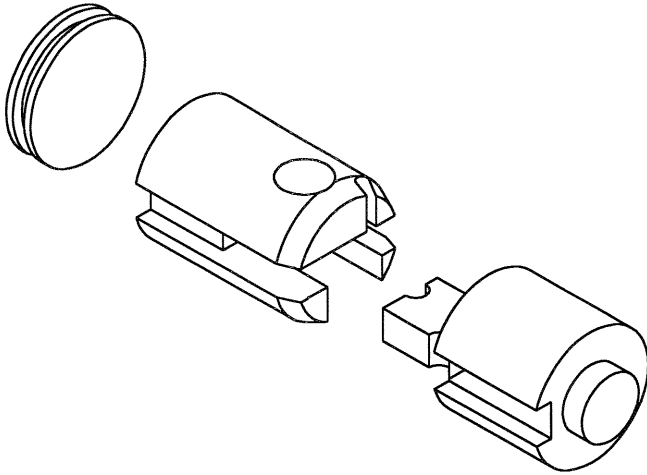
SWAGING DIES (FOR PLAIN BALL END TERMINAL)

DIE NUMBER	CABLE DIA.(IN.)	*TERMINAL REF.
ST825SB-2	1/16	BA3-2
ST825SB-3	3/32	BA3-3
ST825SB-4	1/8	BA3-4

NOTE: USE IN PAIRS

* MFG BY LOOS AND CO. INC.

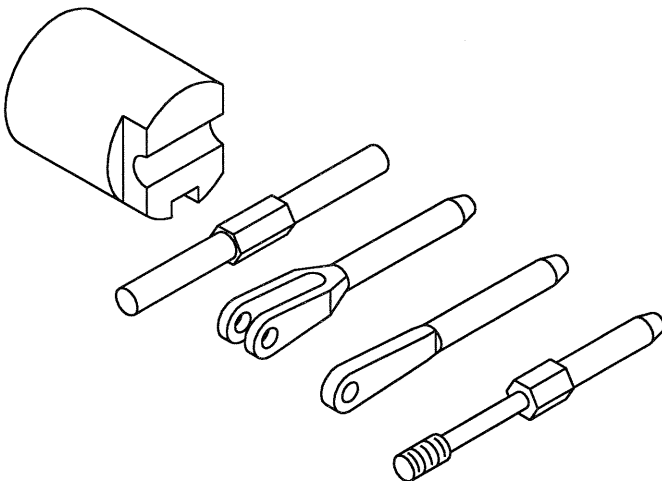
CABLE CUT-OFF AND TRIM DIES



DIE NUMBER	CABLE DIA.(IN.)	CUTTER NUMBER
ST825CD-2-1	1/16	ST825CD-2-2
ST825CD-3-1	3/32	ST825CD-3-2
ST825CD-4-1	1/8	ST825CD-4-2
ST825CD-5-1	5/32	ST825CD-5-2
ST825CD-6-1	3/16	ST825CD-6-2
ST825CD-7-1	7/32	ST825CD-7-2
ST825CD-8-1	1/4	ST825CD-8-2

NOTE: SPACER ST825003 MUST BE USED
WITH THESE DIES.

SWAGING DIES (FOR SLEEVE TYPE TERMINAL)



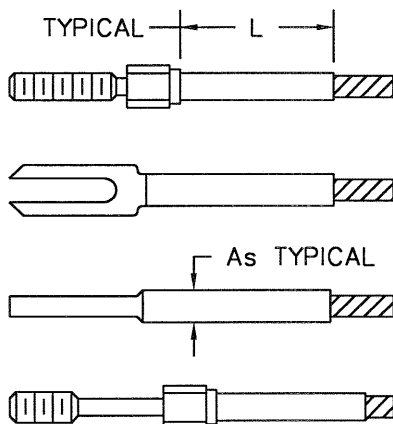
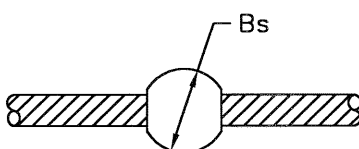
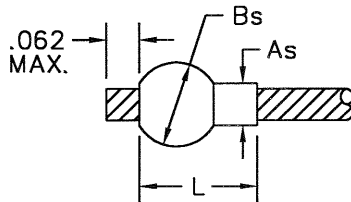
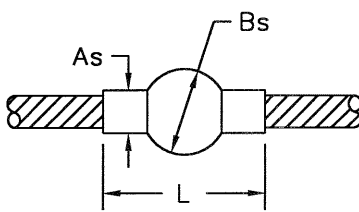
DIE NUMBER	CABLE DIA.(IN.)	**TERMINAL DASH NO.
ST825SL-2	1/16	-2
ST825SL-3	3/32	-3
ST825SL-4	1/8	-4
ST825SL-5	5/32	-5
ST825SL-6	3/16	-6
ST825SL-7	7/32	-7*
ST825SL-8	1/4	-8

****NOTE:** TERMINAL REF.

MS20658
MS20667
MS20668
MS21259
MS21260

***NOTE:** MS20658-7 USES THE
ST825SL-6 DIE SET

SWAGING TIME AND DIMENSIONS FOR SWAGED TERMINALS

TERMINAL	TERMINAL AN PART NO.	MS DASH NO.	CABLE DIA. (IN.)	"L" DIM. MIN. (IN.)	"Bs" DIA. MAX. MIN. (IN.)	"As" DIA. MAX. MIN. (IN.)	DIE PART NUMBER	SWAGE TIME (SEC.)
	MS21259	-2	1/16	.70	—	.138 .133	ST825SL-2	15
		-3	3/32	.80	—	.190 .185	ST825SL-3	15
	MS20658* MS20667	-4	1/8	1.05	—	.219 .214	ST825SL-4	20
		-5	5/32	1.29	—	.250 .245	ST825SL-5	35
	MS20668	-6	3/16	1.31	—	.313 .308	ST825SL-6	45
	MS21260	-7	7/32	1.55	—	.375 .368	ST825SL-7	60
		-8	1/4	1.70	—	.438 .431	ST825SL-8	100
		-2	1/16	—	.1905 .1875	—	ST825SB-2	5
		-3	3/32	—	.253 .250	—	ST825SB-3	6
		-4	1/8	—	.315 .312	—	ST825SB-4	8
	MS20664	-2	1/16	.2685	.190 .187	.112 .109	ST825SSB-2	6
		-3	3/32	.384	.253 .250	.143 .140	ST825SSB-3	8
		-4	1/8	.500	.315 .312	.190 .187	ST825SSB-4	10
		-5	5/32	.616	.379 .375	.222 .218	ST825SSB-5	30
		-6	3/16	.730	.442 .437	.255 .250	ST825SSB-6	100
	MS20663	-2	1/16	.390	.190 .187	.112 .109	ST825SDB-2	6
		-3	3/32	.578	.253 .250	.143 .140	ST825SDB-3	8
		-4	1/8	.765	.315 .312	.190 .187	ST825SDB-4	10
		-5	5/32	.953	.379 .375	.222 .218	ST825SDB-5	30
		-6	3/16	1.140	.442 .437	.255 .250	ST825SDB-6	100

*NOTE: MS20658-7 TERMINAL IS SWAGED WITH ST825SL-6 SWAGING DIE

SWAGING TOOL DISASSEMBLY PROCEDURE

1. Clamp entire tool assembly in a vise and remove yoke as shown in Figure 7.
2. Remove cap as shown in Figure 8.
3. Remove power unit.
4. Disassemble power unit.
5. Clean and check all detail parts of power unit for excessive wear.
6. Replace defective or worn parts as needed.
7. Lubricate all internal working parts.
8. Reassemble as outlined on Page 11.

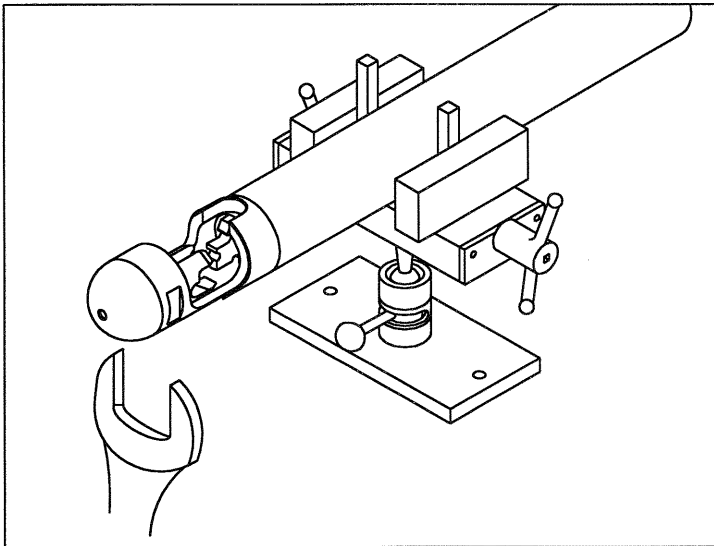


FIGURE 7

YOKE DISASSEMBLY

Remove yoke by clamping housing in a vise as shown in figure 7. Notice $3/8$ " square bars used to prevent damage and rotation. Use standard $2-1/4$ " open end wrench and turn yoke counterclockwise to loosen.

**CAUTION: DO NOT CRUSH HOUSING
IN VISE.**

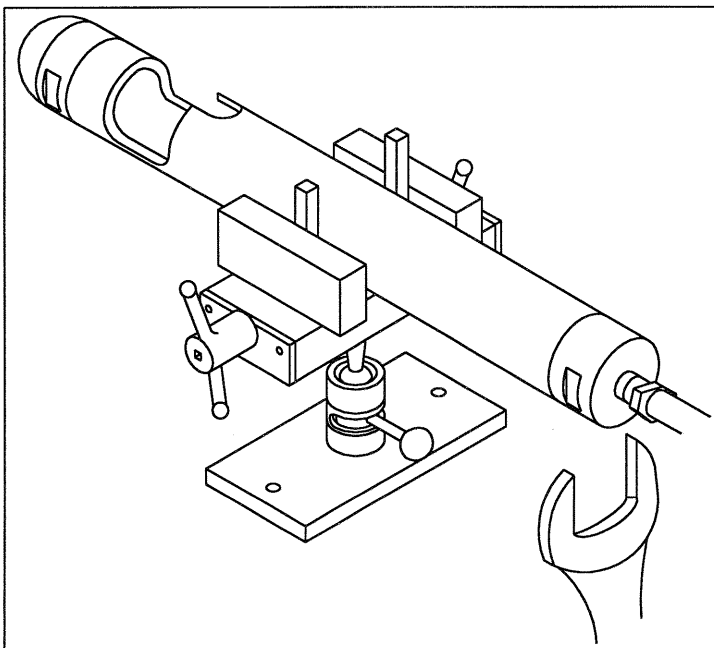


FIGURE 8

CAP DISASSEMBLY

Remove cap by clamping housing in a vise as shown in figure 8. Notice $3/8$ " square bars used to prevent damage and rotation. Use standard $2-1/4$ " open end wrench and turn cap counterclockwise to loosen.

**CAUTION: DO NOT CRUSH HOUSING
IN VISE.**

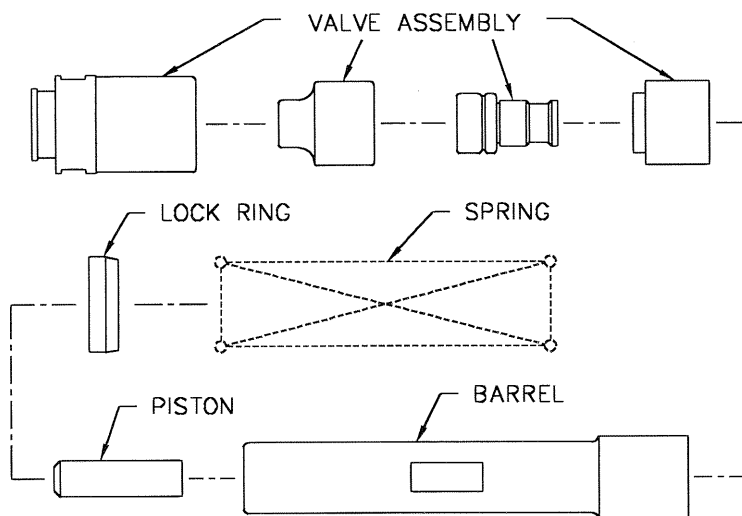


FIGURE 9

POWER UNIT DISASSEMBLY

1. Refer to figure and parts reference drawing on Page 13.
2. Remove spring, lock ring and piston from barrel.
3. Place barrel in a vise. Use flats for clamping.
4. Use 2" open end wrench to remove housing from barrel. Turn counter clockwise.
5. Slide valve assembly out of barrel.
6. Disassemble valve as shown in figure.
7. For replacements contact factory.

SWAGING TOOL ASSEMBLY PROCEDURE

1. Clean and check all detail parts of Swaging Tool. Replace defective parts where needed.
2. Place ST825-4 guides into yoke and install the 4-1382 O-rings.
- *3. Screw yoke and housing together and tighten with 2-1/4" open end wrench, use adhesive (LOCTITE Grade AV-MIL-S-22473B: Fed. Stock No. 8030-00-081-2336) on threads.
4. After reassembly of the Power Unit apply a light coat of grease to the "U" packing. Hold Power Unit assembly in the vertical position with "U" packing down and position the spring guide. Slide spring onto barrel of Power Unit. Slide the Power Unit and spring into the housing and yoke assembly.
5. Install O-rings on ST825-3 Cap after coating them with grease.
- *6. Holding power unit securely in housing, apply adhesive (LOCTITE Grade AV-MIL-S-22473B-Fed. Stock No. 8030-00-081-2336) on the threads of Cap and assemble.
7. Using open end wrench, attach 12-3020 air line securely to ST825-3 cap.
8. Allow Swaging Tool to impact against dies for five minutes.
9. Retighten entire threaded assembly.

*NOTE: THREADS MUST BE CLEAN AND DRY BEFORE APPLYING LOCTITE.

INSPECTION AND CHECK OUT PROCEDURE

1. Check gap between yoke, cap and housing. Joints must be tight.
2. O-rings 4-1382 must be securely locked in place.
3. Place tool on ST825-1 base plate.
4. To check Swaging Tool, select a pair of ST825SDB-5 dies. Clean and apply a coat of light oil.
5. Insert rear die into yoke with keyway down and shank facing toward rear of tool. Slide die back in order to clear opening for insertion of front die. Insert front die with shank facing forward and slide to forward position.
6. Connect Swaging Tool air line to Foot Control Valve.
7. Connect Foot Control Valve to regulated pressure airline. IMPORANT: Swaging Tool must operate on 90 psi (6.2 BAR) of regulated air, use 3/8" I.D. hose.
8. Check lubricator for oil.
9. Read and familiarize yourself with Swaging Tool operating instruction on Page 5.
10. Swage MS20663-5 double shank ball type terminal to 5/32" cable for 30 seconds, noting whether swaging tool operates smoothly or erratically. If malfunction is indicated or terminal is not swaged to the dimensions shown in chart on Page 9, check air pressure, check dies, then consult factory.

———— CAUTION ————
**DO NOT OPERATE THIS TOOL WITHOUT
SWAGING DIES IN PLACE!
DO NOT PLACE HANDS IN DIE CHAMBER
AT ANY TIME!
DO NOT OPERATE WITHOUT
SAFETY GUARD IN PLACE!**

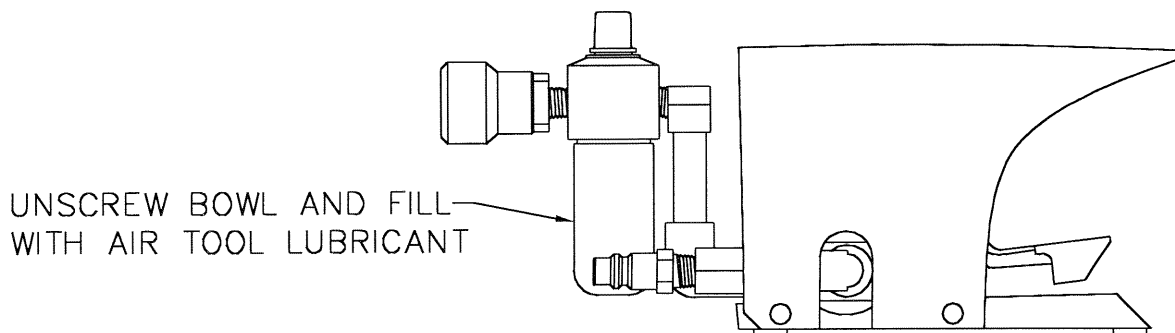
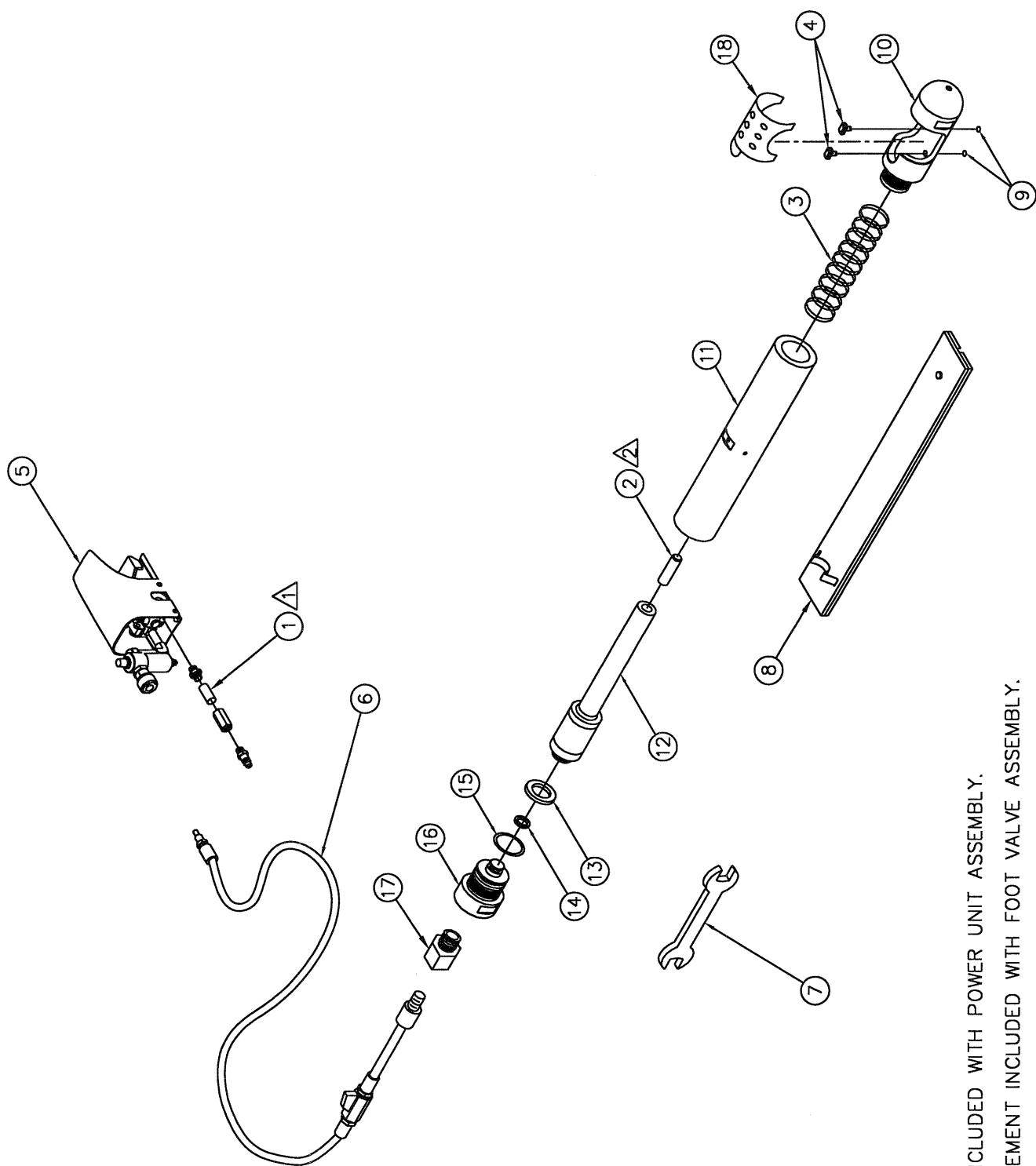


FIGURE 10



2 PISTON INCLUDED WITH POWER UNIT ASSEMBLY.

1 FILTER ELEMENT INCLUDED WITH FOOT VALVE ASSEMBLY.

NOTES:

18	ST825002	1	GUARD ASSEMBLY
17	12-1045	1	3/8M-1/4F BUSHING
16	ST825-3	1	CAP
15	4-1384	1	O-RING 1 5/8 I.D. 2" O.D. #3/16
14	4-1386	1	QUAD RING 3/4 I.D. 1" O.D. X 1/8
13	4-1385	1	U PACKING
12	ST825004	1	POWER UNIT
11	ST825-2	1	HOUSING
10	ST825-1	1	YOKE
9	4-1382	2	O-RING 1/4 I.D. 3/8 O.D. #.070
8	ST825001	1	BASEPLATE
7	4-1406	1	11/16" OPEN END WRENCH
6	12-3020	1	HOSE ASSEMBLY
5	12-3019	1	FOOT VALVE ASSEMBLY
4	ST825-4	2	GUIDE
3	8-1158	1	SPRING
2	ST825004-1	1	PISTON
1	12-1187	1	FILTER, ELEMENT (ARROW 9072)
ITEM	PART NO.	QTY.	DESCRIPTION/REMARKS

ST825 PARTS LIST

DMC offers complete refurbishing and recalibration services.

DMC specially engineers and manufactures complete tool kits to satisfy individual customer requirements, such as total aircraft support, general shop maintenance or production, on board ship and vehicle service, etc.

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