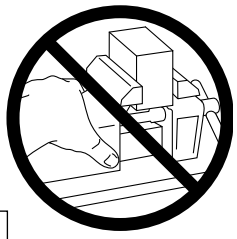
Safety And Operation Instructions
RDT & RDTIC 85 & 100 Self-Reversing Tapping Units

WARNING **To Avoid Serious Injury And Ensure Best Results For Your Tapping Operation, Please Read Carefully *All*** operator and safety instructions provided for this tapping attachment as well as all other safety intstructions that are applicable, especially those for your machine tool.

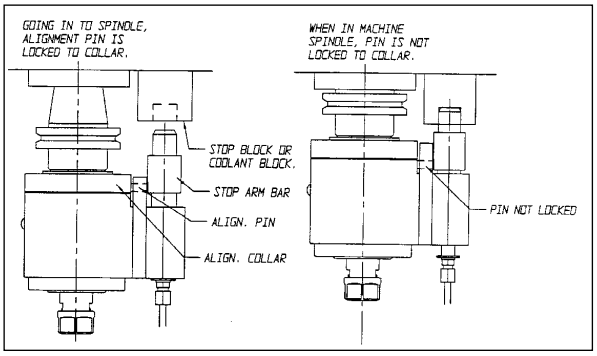
1. Proper Clothing: The rotating spindle of a machine tool can snag loose fitting clothing, jewelry or long hair. **Never** wear jewelry, long sleeves, neckties, gloves or anything else that could become caught when operating a machine tool. Long hair **must** be restrained or netted to prevent it from becoming entangled in rotating spindle. Steel toed boots should also be worn in any machine environment.

2. Proper Eye Protection: Always wear safety glasses with side shields to protect your eyes from flying particles.



3. Proper Work Piece Fixturing: Never hold the work piece or the vise it is held in, by hand. The work piece **must** be clamped firmly to the table of the machine so that it cannot move, rotate or lift.

4. On Machining Centers:
The same rule for stop arm and stop block installation applies "**Always** be sure that the installation is stronger than the largest tap." **Automatic tool changes should only be made on enclosed machines.**



5. The tapping attachment housing, drive spindle and tap itself can become hot to the touch after operation. Use caution when removing the attachment from the machine or handling.

6. Always Be Aware Of The Potential Hazards Of A Machining Operation: Sometimes working with your machine can seem routine. You may find that you are no longer concentrating on the operation. A feeling of false security can lead to serious injury. **Always** be alert to the dangers of the machines with which you work. **Always** keep hands, body parts, clothing, jewelry and hair out of the areas of operation, when the machine spindle is rotating. Areas of operation include the immediate point of machining and all transmission components including the tapping attachment. **Never** bring your hand, other body parts or anything attached to your body into any of these areas until the machine spindle is completely stopped.

7. Be aware of any other applicable safety instructions / requirements.

Check List For Good Tapping

- ❑ 1. **Never** use this unit before reading all safety instructions for this attachment as well as the machine it is to be used on.
- ❑ 2. Is tap sharp and of correct design for current job?
- ❑ 3. Is tap in proper alignment with drilled hole?
- ❑ 4. Is machine speed correct?
- ❑ 5. Is machine feed correct?
- ❑ 6. Is machine stop set properly so tap releases in neutral rather than bottoming in work piece or fixture?
- ❑ 7. Is drilled hole the correct size?
- ❑ 8. Is clearance between the drilled hole and tap sufficient at start position to allow the tap to clear the hole upon retraction?
- ❑ 9. Is the stop arm of the tapping attachment held rigidly against rotation. Stop Arm installation must be stronger than largest tap.
- ❑ 10. Is the proper cutting fluid or coolant being used for lubricating the tap?
- ❑ 11. If a bottom hole is being tapped is there sufficient chip clearance?
- ❑ 12. Is the correct Tapmatic model for the specific job requirement being used? (Capacity should be reduced 25% for roll form taps.)

References for this Safety Information include but are not limited to:

American National Standards Instutitute
ANSI B11.8-1983 (Adopted May 31, 1983 by Department of Defense)

Coastal Video Communications Corporation
Machine Guarding Copy Right 1994

Society Of Manufacturing Engineers
Tool and Manufacturing Engineers Handbook Volume 1 Machining
(Library of Congress Catalog No. 82-060312

Programming
RDT & RDTIC 85 & 100 Self-Reversing Tapping Units

Thank you for purchasing a Tapmatic RDT model. Please read this instruction sheet carefully before using the attachment.

This tool may be used on enclosed machining centers with orienting spindles. Prior to a tool change, it is necessary that the machine spindle rotation stops in the same position each time. Installation procedures are shown on page 7.

PROGRAMMING PROCEDURES

There are three possible methods for RDT& RDTIC tools.

Reduced Cycle Time Programming allows you to achieve faster cycle times and requires writing a subroutine for the tapping operation. It also improves the life of the tapping attachment's renewable drive parts.

Increased Reverse Speed Programming: Saves cycle time in applications requiring slower tapping speeds.

Bore Cycle Programming It is also possible to use a standard Bore cycle such as G85 to tap. This does lengthen cycle time.

Reduced Cycle Time Programming

1.) Select the proper RPM for your specific tap and work piece material but be sure not to exceed the maximum RPM for your tapping attachments.

Maximum Speeds

RDT 85 HS	1500 RPM
RDT 85 HD	1000 RPM
RDT 100	800 RPM

Enclosed with this tool are charts showing recommended speeds for common materials. Use these charts and the rules to select the proper speed for your application.

2.) Calculate The Correct Feed Rate based on the tap pitch and RPM selected. For RDT85, RDT100 we recommend 95% Feed Rate.

Inch Taps: Tap Feed Rate = RPM divided by Pitch

Example: 1/2"-20 at 450 RPM

Tap Feed Rate = 450 RPM divided by 20 = 22.5 in/min1

Machine Feed Rate 95% = .95 x 22.5 = 21.375 in/min.

Metric Taps: Tap Feed Rate = RPM x Pitch

Example: M12 x 1.75mm at 450 RPM

Tap Feed Rate = 450 RPM x 1.75 = 787.5 mm/min

Machine Feed Rate 95% = .95 x 787.5 = 748.125 mm/min

3.) Cancel The Operators Ability To Adjust Feed Rate And Spindle Speed using the machines potentiometer controls. This is normally done by using an M code like M49 for example.

4.) IMPORTANT: Be Sure "Ramp" or "Exact Stop" Is Elimi nated From Program. These modes cause the cycle time to be significantly slower and also cause the tapping head to run less smoothly. For Example: Machines with Fanuc Controls and Haas Machines use G64 while tapping to eliminate "Exact Stop." G61 will make exact stop modal again for other operations if desired. Fadal Machines use G8 to cancel the Ramp for tapping. G9 will turn the "Ramp" on again if desired for other operations. Your machine may use different G codes. Please check machine manual.

5.) For Blind Holes: Allow For The Tap To Go Slightly Deeper Than Program Depth.

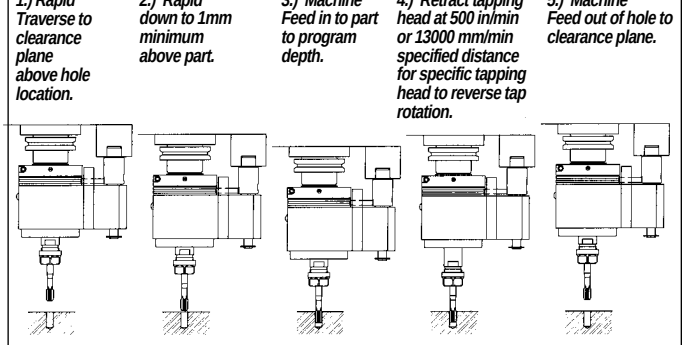
For RDT85 or 100 allow an extra .175 or 4.5mm.

The actual extra depth will be less than these values, please check depth on your first hole and then make any necessary adjustment to your program.

6.) RDT Reduced Cycle Time Programming Illustration

Write a subroutine using G01 Feedrate and G00 Rapid movements as shown in Fig #1. and Fig. #2 below.

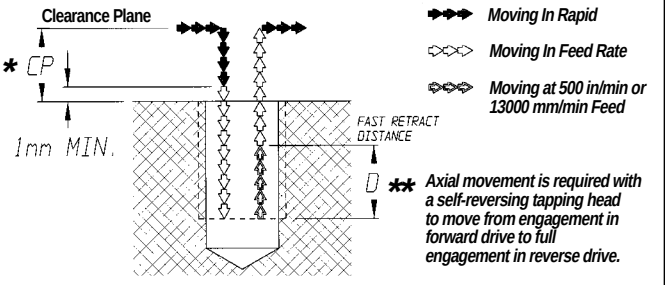
FIG. 1



NOTE: The only time during the cycle spent in the feed rate is the 1mm approach height plus thread depth in and out. All other moves are at maximum speed.

FIG. 2

RDT Reduced Cycle Time Programming Illustration



NOTE: The only time during the cycle spent in the feed rate is the 1mm approach height plus thread depth in and out. All other moves are at maximum rates.

CLEARANCE PLANE AND RETRACT FOR REVERSE DISTANCE

*RDT85... CP = .600 or 15mm, D = .400 or 10mm
*RDT100... CP = .600 or 15mm, D = .400 or 10mm

Please note that the distances shown are the minimum clearance plane and maximum fast retract distance allowed.

Reduced Cycle Time Programming Example
Self-Reversing Tapping Unit Using G01 Movements

EXAMPLE

Tapping Unit: RDT85
Tap Size 1/2-20
450 RPM
Feed Rate In @ 95% = 21.375 in/min
Sub Routine:
Rapid approach to 1mm or .040 above part.
Feed in to depth .500 (note actual depth slightly deeper than program depth)
Retract .400 inch at 500 in/min to reverse tap. (*Use maximum Feed Rate up to 500 in/min)
Feed out to .600 clearance plane at 95% Feed Rate.

MAIN PROGRAM

M06 T6	Tool Change - Tool #6
M00	Program Stop
M03 S450	Spindle Forward ROTATION 450 RPM.
G8	Ramp Off (or G64 eliminates exact stop)
G00 G43 Z1.0 H06 M08	Rapid to Z1.0 Height Offset #6 coolant on.
M49	Spindle Speed and Feed Rate override cancel.
G00 G90 X1.0 Y-1.0 Z.600	Rapid in absolute to hole position X1.0, Y-1.0 and Z.600 clearance plane.
M98 P4 L1	Repeat sub program 04 one time.
G00 Y-2.0	Rapid to next hole.
M98 P4 L1	Repeat sub program 04 one time.

Sub Program

0004	
G90	Absolute movement.
G00 Z.04	Rapid to .04 above hole
G01 Z-.50 F21.375	Feed in to hole at 95% Feed Rate.
G01 Z- .100 F 500.0	Retract .400 at 500 in/min to reverse tap.
G01 Z.600 F21.375	Feed out of hole to .600 clearance plane.
M99	Return to main program

VERY IMPORTANT NOTICE

Regarding Ramp or Exact Stop: Please note that the G code for "Exact Stop" or "Ramp" should not be used with a Tapmatic self-reversing tapping attachment. Please be sure that these are not in effect when tapping because they will cause the tapping cycle time to be significantly slower and thread depth repeatability to be less accurate.

Fadal Machines: Use G8 to cancel the Ramp for tapping. G9 will turn the Ramp on again if desired for other operations.

Machines With Fanuc Controls and Haas Machines: Use G64 while tapping to eliminate the Exact Stop. G61 will make Exact Stop modal again for other operations if desired.

Increased Reverse Speed Programming

More cycle time can be saved in applications requiring slower tapping speeds by increaseing the speed coming out of the hole. Using G01 movements as in previous example use the recommended tapping speed and feed rate going in to the hole and then increase the spindle speed and feed rate coming out of the hole. For best results with larger taps, we recommend limiting retraction spindle speeds to the following.

RDT85 HS	1200 RPM
RDT85 HD	800 RPM
RDT100	600 RPM

Example Tapping 1/2-20 in Free Machining Steel with RDT85HD

Spindle Speed In	=	450 RPM
95% Feed Rate In	=	21.375 in/min.
Spindle Speed Out	=	800 RPM
95% Feed Rate Out	=	38 in/min.

Example Sub Program

G90	Absolute Positioning
M3 S 450	Spindle right hand rotation 450 RPM
G00 Z.04	Rapid to .040 above workpiece
G01 Z-.F21.375	Feed .500 into part at 21.375 in/min.
M3 S 800	Increase speed to 800 RPM
G01 Z-.100 F 500	Retract .400 at 500 in/min to reverse tap.
G01 Z.600 F38	Feed Out to .600 clearance plane at 38 in/min.

⚠ **Caution:** Please note that on certain machines increasing spindle speed may cause the machine to change from the low spindle speed range to the high range. This may cause a pause which would prevent "Increase Reverse Speed Programming" from working. Please be sure that the speed going in and speed you plan to use going out of the hole are both in the same range.

Bore Cycle Programming

For Bore Cycle Programming steps 1-5 are the same as in Reduced Cycle Time Programming.

6.) In the main program, use the bore cycle (G85 for example) at each hole location. Be sure to use the proper clearance plane "CP" shown in FIG. 2 for your tapping attachment.

Determining Correct Speed Within Specified Range

Compilation of Guidelines From Tap Manufacturers And Other Sources For Cutting or Cold-Forming of Threads In Relation To Work Piece Material

Cutting Speed For Tapping: Several factors, singly or in combination can cause very great differences in the permissible tapping speed. The principal factors affecting the tapping speed are the pitch of the thread, the chamfer length on the tap, the percentage of full thread to be cut, the length of the hole to be tapped, the cutting fluid used, whether the threads are straight or tapered, the machine tool used to perform the operation, and the material to be tapped. *From Machinery's Handbook 23rd edition.*

If your coolant does not contain EP additives or its lubrication quality is low, start from the lower speeds in the range. Roll form taps in particular require good lubrication because of the high friction forces involved. As the lubrication quality of a coolant is often unknown, we recommend you start from the lower speeds in the range.

These Factors Apply to Everyone's Tapping Speed Charts

–%	Ten Factors Requiring Lower Speeds		Ten Factors Permitting Higher Speeds	+ %
-20	Poor Lubrication	1	Good Lubrication	+20
-15	High Tensile Strength Of Material	2	Low Tensile Strength Of Material	+15
-15	Large Thread Diameter	4	Small Thread Diameter	+15
-10	High Alloy Materials	3	Low Alloy Materials	+10
-10	Thread Depth More Than 1.5 x Dia.	5	Thread Depth 1.5 x Dia. Or Less	+10
-10	Thread Pitch Coarse	6	Thread Pitch Fine	+10
-5	Drill Size More than 65% of Thread	7	Drill Size 65% or Less Thread	+5
-5	Tap Lead Less Than 3.5 Thread	8	Tap Lead More Than 3.5 Threads	+5
-5	Blind Holes	9	Through Holes	+5
-5	Free Running Spindle Inaccurate Pitch Control Hydraulic/Air Feed	10	Synchronous Spindle Lead Screw CNC Control	+5

Example: From Chart
Tap Size: 1/4"-28 Coated, **Material:** Aluminum Die Cast, 688-1375 RPM **RPM Spread =** 687

Minus Factors:		Plus Factors:	
High Tensile Strength	-15	Coolant With Good EP	+20
Thread Depth 3 x Dia.	-10	Small Thread Diameter	+15
Drill Size = 75% Thd.	-5	Pitch Fine	+10
Blind Hole	-5	Lead 3.5 Threads	+5
TOTAL	-35	CNC Machine	+5
		TOTAL	+55

Apply The Factors Against The RPM Spread of 687
+.55 X 687 = 378 Added to minimum RPM 688 = **1066 New Mininimum RPM**
-.35 X 687 = 240 Subtracted from maximum RPM 1375 = **1135 New Maximum RPM**
Common Sense Rule: Begin with min RPM and work up to optimum efficiency and tap life.

Eight Essential Steps For Trouble Free Performance With Self-Reversing Tapping Heads

1. **Never perform any installation or programming, before reading the operator instructions accompanying the tapping attachment and the machine as well as the tap manufacturers' recommendations.**
2. **Choose the proper tap:** Follow your tap manufacturers recommendations for your specific application.
3. **Calculate the correct tapping speed** from the adjacent charts and the rules on this page.
4. **Common sense rule:** Begin conservatively and increase speed until optimum results are obtained.
5. **Select the best tool** for your application or applications. High production with one tap size *(Don't compromise)*, low production with a variety of taps, *(Choose the tool that best covers range.)*
6. **Follow our programming instructions exactly,** *and absolutely* ***make sure ramp or exact stop has been eliminated from tapping cycle.*** Leaving it in will increase tapping time 30% increase thread depth variations substan tially, and wear out the tapping head prematurely.
7. **Follow our installation instructions exactly** and lock orien tation collar in place once stop arm is in proper position. Then fix it positively with the locking screw provided.
8. **Schedule preventative maintenance.** Disassembly, cleaning, re-lubricating, and reassembly takes no more than half an hour. Just consider what the head does for the machine by eliminating its reversal related wear and tear. Simple maintenance will keep the head working efficiently, and pay big dividends in trouble free production.

Speed Recommendations & Tool Selection

Standard Taps

Tap Size	Low Carbon Steel, Medium Carbon Steel	High Carbon Steel, High Strength Steel Tool Steel	High Strength Steel, Tool Steel Hardened	Stainless 303, 304, 316	Stainless 410, 430, 17-4 Hardened	Stainless 17-4 Annealed	Titanium Alloys	Nickel Base Alloys	Aluminum Alloys	Aluminum Die Cast	Magnesium	Brass, Bronze	Copper	Cast Iron
	Surface Feet Per Minute								Uncoated Tap Coated Tap					
	25-50 50-80	6-30 10-35	6-12	12-35 20-50	12-15	12-15 12-25	3-15	10-15	50-65	40-65 45-90	45-100	30-65	50-60 65-100	35-50 50-65
	RPM Range Uncoated RPM Range Coated Recommended Tapmatic Attachment													
0	1592-3183 3183-5093 RDT15HS	382-1910 637-2228 RDT15HD	382-764 RDT15HD	764-2228 1273-3183 RDT15HD	764-955 RDT15HD	764-955 764-1592 RDT15HD	191-955 RDT15HD	637-955 RDT15HD	3183-4138 RDT15HS	2546-4138 2865-5730 RDT15HS	2865-6000 RDT15HS	1910-4138 RDT15HS	3183-3820 4138-6000 RDT15HS	2228-3183 3183-4138 RDT15HS
1	1308-2617 2617-4186 RDT15HS	314-1570 523-1831 RDT15HD	314-628 382-764 RDT15HD	628-1831 1047-2617 RDT15HD	628-785 RDT15HD	628-785 628-1308 RDT15HD	157-785 RDT15HD	523-785 RDT15HD	2617-3401 RDT15HD	2093-3401 2355-4710 RDT15HS	2355-5233 RDT15HS	1570-3401 RDT15HD	2617-3140 3401-5233 RDT15HS	1831-2617 2617-3401 RDT15HD
M2 2	1110-2221 2221-3554 RDT15HD	267-1333 444-1555 RDT15HD	314-628 RDT15HD	533-1555 888-2221 RDT15HD	533-666 RDT15HD	533-666 533-1110 RDT15HD	133-666 RDT15HD	444-666 RDT15HD	2221-2887 RDT15HD	1777-2887 1999-3999 RDT15HD	1999-4442 RDT15HD	1333-2887 RDT15HD	2221-2665 2887-4442 RDT15HD	1555-2221 2221-2887 RDT15HD
3	964-1929 1929-3086 RDT15HD	231-1157 386-1351 RDT15HD	231-463 RDT15HD	463-1351 772-1929 RDT15HD	463-579 RDT15HD	463-579 463-964 RDT15HD	116-579 RDT15HD	386-579 RDT15HD	1929-2508 RDT15HD	1543-2508 1736-3472 RDT15HD	1736-3858 RDT15HD	1157-2508 RDT15HD	1929-2315 2508-3858 RDT15HD	1351-1929 1929-2508 RDT15HD
M3 4	853-1705 1705-2728 RDT25HD	205-1023 341-1194 RDT25HD	205-409 RDT25HD	409-1194 682-1705 RDT25HD	409-512 RDT25HD	409-512 409-853 RDT25HD	102-512 RDT25HD	341-512 RDT25HD	1705-2217 RDT25HD	1364-2217 1535-3069 RDT25HD	1535-3411 RDT25HD	1023-2217 RDT25HD	1705-2046 2217-3411 RDT25HD	1194-1705 1705-2217 RDT25HD
5	764-1528 1528-2445 RDT25HD	183-917 306-1070 RDT25HD	183-367 RDT25HD	367-1070 611-1528 RDT25HD	367-458 RDT25HD	367-458 367-764 RDT25HD	92-458 RDT25HD	306-458 RDT25HD	1528-1986 RDT25HD	1222-1986 1375-2750 RDT25HD	1375-3056 RDT25HD	917-1986 RDT25HD	1528-1833 1986-3056 RDT25HD	1070-1528 1528-1986 RDT25HD
M4 6	691-1382 1382-2211 RDT25HD	166-829 277-969 RDT25HD	166-332 RDT25HD	332-969 553-1382 RDT25HD	332-415 RDT25HD	332-415 332-691 RDT25HD	83-415 RDT25HD	277-415 RDT25HD	1382-1799 RDT25HD	1106-1799 1246-2487 RDT25HD	1246-2764 RDT25HD	829-1799 RDT25HD	1382-1658 1799-2764 RDT25HD	969-1382 1382-1799 RDT25HD
8	583-1165 1165-1864 RDT25HD	140-699 233-815 RDT25HD	140-280 RDT25HD	280-815 466-1165 RDT25HD	280-349 RDT25HD	280-349 280-583 RDT25HD	70-349 RDT25HD	233-349 RDT25HD	1165-1514 RDT25HD	932-1514 1048-2097 RDT25HD	1048-2330 RDT25HD	699-1514 RDT25HD	1165-1398 1514-2330 RDT25HD	815-1165 1165-1514 RDT25HD
M5 10	502-1005 1005-1607 RDT25HD	121-603 201-704 RDT25HD	121-241 RDT25HD	241-704 402-1005 RDT25HD	241-302 RDT25HD	241-302 241-502 RDT25HD	60-302 RDT25HD	201-302 RDT25HD	1005-1307 RDT25HD	804-1307 905-1808 RDT25HD	905-2009 RDT25HD	603-1307 RDT25HD	1005-1205 1307-2009 RDT25HD	704-1005 1005-1307 RDT25HD
12	442-884 884-1415 RDT25HD	106-531 177-619 RDT25HD	106-212 RDT25HD	212-619 354-884 RDT25HD	212-265 RDT25HD	212-265 212-442 RDT25HD	53-265 RDT25HD	177-265 RDT25HD	884-1150 RDT25HD	707-1150 796-1592 RDT25HD	796-1769 RDT25HD	531-1150 RDT25HD	884-1061 1150-1769 RDT25HD	619-884 884-1150 RDT25HD
M6 1/4 M7	382-764 764-1222 RDT50HD	92-458 153-535 RDT50HD	92-183 RDT50HD	183-535 306-764 RDT50HD	183-229 RDT50HD	183-229 183-382 RDT50HD	46-229 RDT50HD	153-229 RDT50HD	764-993 RDT25HD	611-993 688-1375 RDT25HD	688-1528 RDT25HD	458-993 RDT50HD	764-917 993-1528 RDT25HD	535-764 764-993 RDT50HD
M8 5/16	306-611 611-978 RDT50HD	73-367 122-429 RDT50HD	73-147 RDT50HD	147-429 245-611 RDT50HD	147-184 RDT50HD	147-184 147-306 RDT50HD	37-184 RDT50HD	122-184 RDT50HD	611-796 RDT50HD	489-796 551-1100 RDT50HD	551-1222 RDT50HD	367-796 RDT50HD	611-733 796-1222 RDT50HD	429-611 611-796 RDT50HD
M9 3/8	255-509 509-815 RDT50HD	61-306 102-357 RDT50HD	61-122 RDT50HD	122-357 204-509 RDT50HD	122-153 RDT50HD	122-153 122-255 RDT50HD	31-153 RDT50HD	102-153 RDT50HD	509-662 RDT50HD	407-662 458-917 RDT50HD	458-1019 RDT50HD	306-662 RDT50HD	509-611 662-1019 RDT50HD	357-509 509-662 RDT50HD
M10 7/16	219-437 437-698 RDT50	52-262 87-306 RDT85HS	52-105 RDT85HS	105-306 175-437 RDT85HS	105-131 RDT85HS	105-131 105-219 RDT85HS	26-131 RDT85HS	87-131 RDT85HS	437-568 RDT85HS	349-568 393-786 RDT50HD	393-873 RDT50HD	262-568 RDT85HS	437-524 568-873 RDT50HD	306-437 437-568 RDT85HS
M12 1/2	191-382 382-611 RDT85HS	46-229 76-267 RDT85HS	46-92 RDT85HS	92-267 153-382 RDT85HS	92-115 RDT85HS	92-115 92-191 RDT85HS	23-115 RDT85HS	76-115 RDT85HS	382-497 RDT85HS	306-497 344-688 RDT85HS	344-764 RDT85HS	229-497 RDT85HS	382-458 497-764 RDT85HS	267-382 382-497 RDT85HS
M14 9/16	172-344 344-550 RDT85HS	41-206 68-238 RDT85HS	41-82 RDT85HS	82-238 137-344 RDT85HS	82-102 RDT85HS	82-102 82-172 RDT85HS	20-102 RDT85HS	68-102 RDT85HS	344-442 RDT85HS	275-442 306-619 RDT85HS	306-687 RDT85HS	206-442 RDT85HS	344-412 442-687 RDT85HS	238-344 344-442 RDT85HS
M16 5/8	153-306 306-489 RDT85	37-183 61-214 RDT85	37-73 RDT85	73-214 122-306 RDT85	73-92 RDT85	73-92 73-153 RDT85	18-92 RDT85	61-92 RDT85	306-397 RDT85	244-397 275-550 RDT85	275-611 RDT85	183-397 RDT85	306-367 397-611 RDT85	214-306 306-397 RDT85
M18 M20 3/4	128-255 255-407 RDT85	31-153 51-178 RDT85	31-61 RDT85	61-178 102-255 RDT85	61-76 RDT85	61-76 61-128 RDT85	15-76 RDT85	51-76 RDT85	255-331 RDT85	203-331 229-458 RDT85	229-509 RDT85	153-331 RDT85	255-306 331-509 RDT85	178-255 255-331 RDT85
M22 M24 7/8	109-218 218-350 RDT85	26-131 44-153 RDT85	26-52 RDT85	52-153 87-218 RDT85	52-65 RDT85	52-65 52-109 RDT85	13-65 RDT85	44-65 RDT85	218-284 RDT85	175-284 196-392 RDT85	196-437 RDT85	131-284 RDT85	218-262 284-437 RDT85	153-218 218-284 RDT85
M25 1	96-191 191-306 RDT85	23-115 38-134 RDT85	23-46 RDT85	46-134 76-191 RDT85	46-57 RDT85	46-57 46-96 RDT85	11-57 RDT85	38-57 RDT85	191-248 RDT85	153-248 172-344 RDT85	172-382 RDT85	115-248 RDT85	191-230 248-382 RDT85	134-191 191-248 RDT85

Speed Recommendations & Tool Selection

Roll Form Taps

Tap Size	Low Carbon Steel, Medium Carbon Steel	High Carbon Steel, High Strength Steel Tool Steel	Stainless 303, 304, 316	Titanium Alloys	Aluminum Alloys	Aluminum Die Cast
	Surface Feet Per Minute				Uncoated Tap Coated Tap	
	30-50 65-100	25-65	20-25 25-35	25-40	35-50 50-65	35-65
	RPM Range Uncoated RPM Range Coated Recommended Tapmatic Attachment					
0	1910-3183 4138-6000 RDT15HS	1592-4138 RDT15HD	1273-1592 1592-2228 RDT15HD	1592-2546 RDT15HD	2228-3183 3183-4138 RDT15HD	2228-4138 RDT15HD
1 (M2)	1570-2617 3401-5233 RDT15HS	1308-3401 RDT15HD	1047-1308 1308-1831 RDT15HD	1308-2093 RDT15HD	1831-2617 2617-3401 RDT15HD	1831-3401 RDT15HD
2 (M2)	1333-2221 2887-4442 RDT15HD	1110-2887 RDT15HD	888-1110 1110-1555 RDT15HD	1110-1777 RDT15HD	1555-2221 2221-2887 RDT15HD	1555-2887 RDT15HD
3	1157-1929 2508-3858 RDT15HD	964-2508 RDT15HD	772-964 964-1351 RDT15HD	964-1543 RDT15HD	1351-1929 1929-2508 RDT15HD	1351-2508 RDT15HD
4 (M3)	1023-1705 2217-3411 RDT25HD	853-2217 RDT25HD	682-853 853-1194 RDT25HD	853-1364 RDT25HD	1194-1705 1705-2217 RDT25HD	1194-2217 RDT25HD
5	917-1528 1986-3056 RDT25HD	764-1986 RDT25HD	611-764 764-1070 RDT25HD	764-1222 RDT25HD	1070-1528 1528-1986 RDT25HD	1070-1986 RDT25HD
6	829-1382 1799-2764 RDT25HD	691-1799 RDT25HD	553-691 691-969 RDT25HD	691-1106 RDT25HD	969-1382 1382-1799 RDT25HD	969-1799 RDT25HD
8 (M4)	699-1165 1514-2330 RDT25HD	583-1514 RDT25HD	466-583 583-815 RDT25HD	583-932 RDT25HD	815-1165 1165-1514 RDT25HD	815-1514 RDT25HD
10 (M5)	603-1005 1307-2009 RDT25HD	502-1307 RDT25HD	402-502 502-704 RDT25HD	502-804 RDT25HD	704-1005 1005-1307 RDT25HD	704-1307 RDT25HD
12	531-884 1150-1769 RDT50HD	442-1150 RDT50HD	354-442 442-619 RDT50HD	442-707 RDT50HD	619-884 884-1150 RDT50HD	619-1150 RDT50HD
1/4 (M6 M7)	458-764 993-1528 RDT50HD	382-993 RDT50HD	306-382 382-535 RDT50HD	382-611 RDT50HD	535-764 764-993 RDT50HD	535-993 RDT50HD
5/16 (M8)	367-611 796-1222 RDT50HD	306-796 RDT50HD	245-306 306-429 RDT50HD	306-489 RDT50HD	429-611 611-796 RDT50HD	429-796 RDT50HD
3/8 (M9)	306-509 662-1019 RDT50HD	255-662 RDT50HD	204-255 255-357 RDT50HD	255-407 RDT50HD	357-509 509-662 RDT50HD	357-662 RDT50HD
7/16 (M10)	262-437 568-873 RDT85HS	219-568 RDT85HS	175-219 219-306 RDT85HS	219-349 RDT85HS	306-437 437-568 RDT85HS	306-568 RDT85HS
1/2 (M12)	229-382 497-764 RDT85	191-497 RDT85	153-191 191-267 RDT85	191-306 RDT85	267-382 382-497 RDT85	267-497 RDT85
9/16 (M14)	206-344 442-687 RDT85	172-442 RDT85	137-172 172-238 RDT85	172-275 RDT85	238-344 344-442 RDT85	238-442 RDT85
5/8 (M16)	183-306 397-611 RDT85	153-397 RDT85	122-153 153-214 RDT85	153-244 RDT85	214-306 306-397 RDT85	214-397 RDT85
3/4 (M18 M20)	153-255 331-509 RDT85	128-331 RDT85	102-128 128-178 RDT85	128-203 RDT85	178-255 255-331 RDT85	178-331 RDT85

High Speed/Top Speed Taps

Tap Size	Low Carbon Steel, Medium Carbon Steel	High Carbon Steel, High Strength Steel, Tool Steel	Stainless 303, 304, 316	Stainless 17-4 Annealed	Aluminum Alloys	Aluminum Die Cast	Magnesium	Copper	Cast Iron
	Surface Feet Per Minute								
	165-200	25-100	30-80	20-40	65-200	65-100	100-130	100-130	130-165
	RPM Range Based on SFM RPM Range For Tapping Head if Different Recommended Tapmatic Attachment								
0	10505-12733 6000 RDT15HS	1592-6366 1592-6000 RDT15HS	1910-5093 RDT15HS	1273-2546 RDT15HD	4138-12733 4138-6000 RDT15HS	4138-6366 4138-6000 RDT15HS	6366-8276 6000 RDT15HS	6366-8276 6000 RDT15HS	8276-10505 6000 RDT15HS
1 (M2)	8634-10465 6000 RDT15HS	1308-5233 RDT15HS	1570-4186 RDT15HS	1047-2093 RDT15HD	3401-10465 3401-6000 RDT15HS	3401-5233 RDT15HS	5233-6808 5233-6000 RDT15HS	5233-6808 5233-6000 RDT15HS	6808-8634 6000 RDT15HS
2 (M2)	7329-8884 5000 RDT15HD	1110-4442 RDT15HD	1333-3554 RDT15HD	888-1777 RDT15HD	2887-8884 2887-5000 RDT15HD	2887-4442 RDT15HD	4442-5774 4442-5000 RDT15HD	4442-5774 4442-5000 RDT15HD	5774-7329 5000 RDT15HD
3	6367-7717 5000 RDT15HD	964-3858 RDT25HS	1157-3086 RDT25HD	772-1543 RDT25HD	2508-7717 2508-5000 RDT15HD	2508-3858 RDT25HS	3858-5015 3858-5000 RDT15HD	3858-5015 3858-5000 RDT15HD	5015-6367 5000 RDT15HD
4 (M3)	5628-6821 5000 RDT15HD	853-3411 RDT25HD	1023-2728 RDT25HD	682-1364 RDT25HD	2217-6821 2217-5000 RDT15HD	2217-3411 RDT25HD	3411-4434 RDT15HD	3411-4434 RDT15HD	4434-5628 4434-5000 RDT15HD
5	5042-6122 4000 RDT25HS	764-3056 RDT25HD	917-2445 RDT25HD	611-1222 RDT25HD	1986-6122 1986-4000 RDT25HS	1986-3056 RDT25HD	3056-3973 RDT25HS	3056-3973 RDT25HS	3973-5042 3973-4000 RDT25HS
6	4567-5536 4000 RDT25HS	691-2764 RDT25HD	829-2211 RDT25HD	553-1106 RDT25HD	1799-5536 1799-4000 RDT25HS	1799-2764 RDT25HD	2764-3592 RDT25HS	2764-3592 RDT25HS	3592-4567 3592-4000 RDT25HS
8 (M4)	3843-4659 3843-4000 RDT25HS	583-2330 RDT25HD	699-1864 RDT25HD	466-932 RDT25HD	1514-4659 1514-4000 RDT25HS	1514-2330 RDT25HD	2330-3029 RDT25HD	2330-3029 RDT25HD	3029-3843 RDT25HS
10 (M5)	3317-4021 3317-4000 RDT25HS	502-2009 RDT25HD	603-1607 RDT25HD	402-804 RDT25HD	1307-4021 1307-4000 RDT25HS	1307-2009 RDT25HD	2009-2612 RDT25HD	2009-2612 RDT25HD	2612-3317 RDT25HD
12	2918-3537 RDT25HS	442-1769 RDT25HD	531-1415 RDT25HD	354-707 RDT25HD	1150-3537 RDT25HS	1150-1769 RDT25HD	1769-2300 RDT25HD	1769-2300 RDT25HD	2300-2918 RDT25HD
1/4 (M6 M7)	2521-3056 RDT25HD	382-1528 RDT50HD	458-1222 RDT50HD	306-611 RDT50HD	993-3056 RDT25HD	993-1528 RDT25HD	1528-1986 RDT25HD	1528-1986 RDT25HD	1986-2521 RDT25HD
5/16 (M8)	2017-2449 RDT50HS	306-1222 RDT50HD	367-978 RDT50HD	245-489 RDT50HD	796-2449 RDT50HS	796-1222 RDT50HD	1222-1589 RDT50HD	1222-1589 RDT50HD	1589-2017 RDT50HS
3/8 (M9)	1681-2037 RDT50HS	255-1019 RDT50HD	306-815 RDT50HD	204-407 RDT50HD	662-2037 RDT50HS	662-1019 RDT50HD	1019-1324 RDT50HD	1019-1324 RDT50HD	1324-1681 RDT50HD
7/16 (M10)	1441-1748 RDT50HD	219-873 RDT50HD	262-698 RDT50HD	175-349 RDT50HD	568-1748 RDT50HD	568-873 RDT50HD	873-1135 RDT50HD	873-1135 RDT50HD	1135-1441 RDT50HD
1/2 (M12)	1261-1528 RDT50HD	191-764 RDT85HS	229-611 RDT85HS	153-306 RDT85HS	497-1528 RDT50HD	497-764 RDT85HS	764-993 RDT85HS	764-993 RDT85HS	993-1261 RDT50HD
9/16 (M14)	1121-1359 RDT85HS	172-687 RDT85HS	206-550 RDT85HS	137-275 RDT85HS	442-1359 RDT85HS	442-687 RDT85HS	687-893 RDT85HS	687-893 RDT85HS	893-1121 RDT85HS
5/8 (M16)	1008-1222 RDT85HS	153-611 RDT85	183-489 RDT85	122-244 RDT85	397-1222 RDT85HS	397-611 RDT85	611-794 RDT85	611-794 RDT85	794-1008 RDT85HS
3/4 (M18 M20)	840-1019 RDT85	128-509 RDT85	153-407 RDT85	102-203 RDT85	331-1019 RDT85	331-509 RDT85	509-662 RDT85	509-662 RDT85	662-840 RDT85
7/8 (M22 M24)	720-873 RDT85	109-437 RDT85	131-350 RDT85	87-175 RDT85	284-873 RDT85	284-437 RDT85	437-568 RDT85	437-568 RDT85	568-720 RDT85
1 (M25)	630-764 RDT85	96-382 RDT85	115-306 RDT85	76-153 RDT85	248-764 RDT85	248-382 RDT85	382-497 RDT85	382-497 RDT85	497-630 RDT85

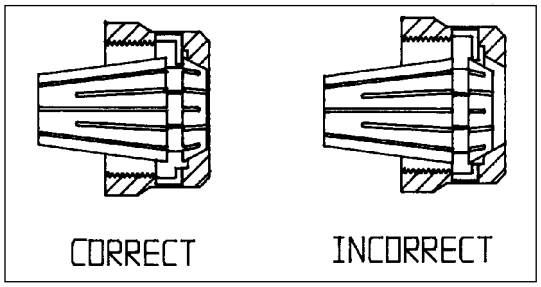
Inserting The Tap RDT & RDTIC85 & 100 Self-Reversing Tapping Units

INSERTING THE TAP

Steel Collet Spindle: Select the proper steel collet for the tap. (Steel collets must be ordered separately.) Please select square drive collets. Insert the collet into the nut being sure to fix pawl of collet nut with the seat of the collet for assembly and then mount into spindle.

Next, insert the tap and tighten collet nut firmly with wrenches provided.

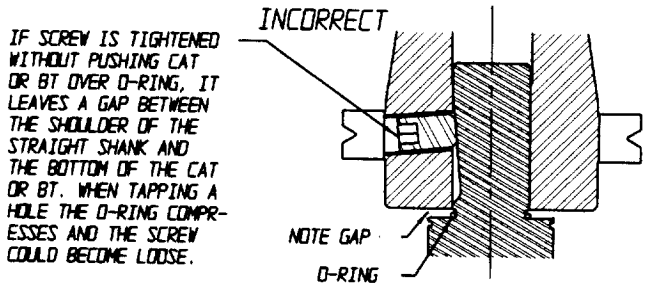
IMPORTANT: Tap may slip or pull out of collet if clamping nut is not tightened firmly which can result in tap breakage or damage to tool. Be sure to use square drive, "GB," type steel collets.

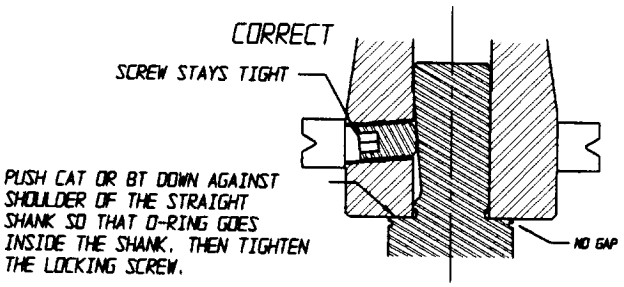


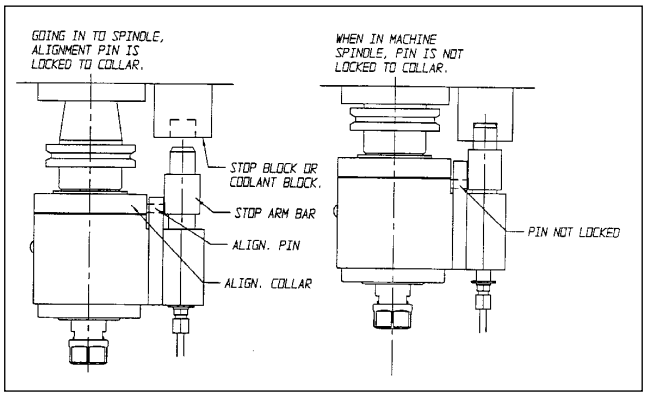
Notes: Reduce capacity 25% for roll form taps. To avoid damage to the attachment's spindle, use wrenches provided.

Installation Instructions RDT & RDTIC85 & 100 Self-Reversing Tapping Units

Installing The CNC Arbor On Coolant Through Tools







In order for the RDT model to self-reverse, a stop arm is used to prevent the housing from rotating. To allow the tool to travel through an automatic tool change and the stop arm to find the stop location next to your machine spindle, an alignment collar locks the stop arm in a specific orientation. This Alignment Collar can be adjusted so that its slot is in any position in relationship to the NC shank. When the tool is out of the machine spindle, the Alignment Pin is engaged in the slot in the alignment collar. This pin then keeps the stop arm locked in its orientation position. When the tapping attachment is placed in the machine spindle by the tool changer, the stop location next to the spindle engages the stop arm bar preventing it from turning and at the same time pushes it down against a spring so that the pin is unlocked from the alignment collar. This is the position for operation. When the tapping operation is completed the machine spindle orients to the tool change position bringing the slot in the alignment collar back into position to accept the alignment pin as the tool is removed from the machine spindle by the tool changer. The RDT comes standard with either a 65 or 80mm center distance from machine spindle center to stop arm bar center. If you require a special center distance please consult a Tapmatic sales engineer.

⚠ **The Following Steps Involve Loading And Unloading By Hand. <u>Do Not</u> Attempt An Automatic Tool Change Until All Steps Are Completed And Clearance Has Been Confirmed.**

⚠ **<u>Never</u> attempt an installation without first reading all safety instructions for this tool and your machine.**

⚠ **The stop block and modified stop arm bar must be stronger than the largest tap.**

⚠ **Automatic Tool Changes should only be made on enclosed machines.**

Installation Instructions
RDT & RDTIC85 & 100 Self-Reversing Tapping Units

Step 1. Machining the Stop Arm Bar: If you wish to make use of an existing stop block on your machine, measure the dimensions shown in FIG. 2 and 3 (B,E and G). The Stop Arm Bar should be removed from the tapping attachment when measuring. The stop arm bar length is calculated from the formula: L = G + E minus .04 where .04 or 1mm is the clearance needed to be sure that the stop arm bar does not bottom out against the housing when the stop arm bar is pressed down to release alignment pin from collar. Please see Figure 4. The diameter of the stop arm bar should be a close fit with the inside diameter of the hole in the stop block. To calculate stop arm bar diameter use the formula D = B minus .015 where .015 or .38mm is the clearance desired. Please be sure to turn a generous 30 degree chamfer to help guide the stop arm bar into the hole.

If your machine does not already have a stop block, Tapmatic offers several standard stop blocks as well as specific blocks for certain machines. Please consult a Tapmatic sales engineer. See check list below for information about mounting a stop block.

FIG. 2

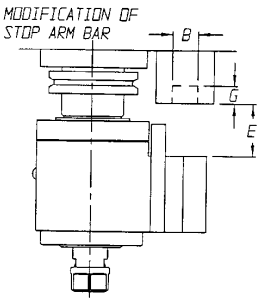


FIG. 3

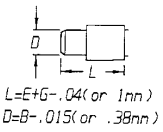


FIG. 4

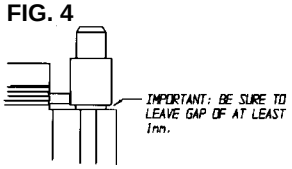
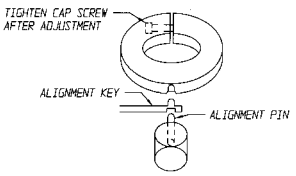


FIG. 5

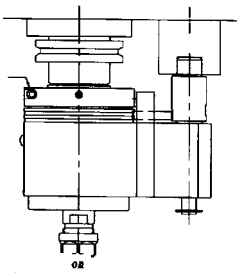


Step 3. Adjustment of Alignment Collar: With tapping attachment in machine spindle and stop arm bar engaged in stop block, orient machine spindle to the tool change position. Bring slot in alignment collar in line with alignment pin and tighten alignment collar's clamping screw **very securely**. There is a Key packaged with wrench kit to help you line up pin and alignment collar slot. See Fig. 5. With attachment adjusted and **after checking for any possible clearance problems with tool changer or in storage area** make several automatic tool changes.

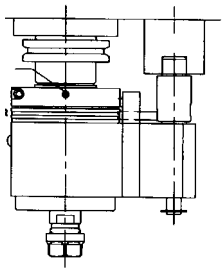
Note: If you would like Tapmatic to supply tools already modified to fit onto your machine, please contact our factory. Call (800) 854-6019. We will require some information about your machine to prepare the tool.

Step 4. Final Locking of Collar: Follow these instructions to lock collar with pin screw.

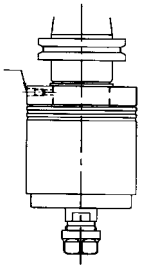
1.) Adjust position of Alignment Collar following procedure shown in Installation Instructions. Clamp Alignment Collar position with Clamping Screw.



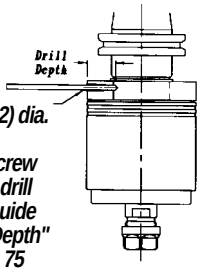
2.) Choose one of two locations for final Lock Screw (72359). There are two locations available in case one happens to be covering a set screw on the outside diameter of the mount.



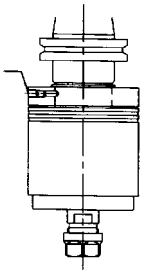
3.) Be sure Lock Screw is removed from hole you have selected.

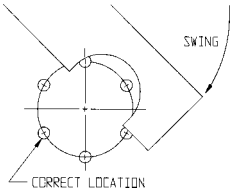


4.) Use #24 Drill (.152) dia. and drill into mount through the Lock Screw hole location. Start drill after sliding it into guide hole. Drill to "Drill Depth" shown. For RDT50, 75 and 85 Drill Depth = .82. for RDT15 and 25 Drill Depth = .60.



5.) Install Lock Screw. Tighten securely with hex key.





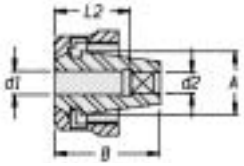
Installation Steps Check List

- ❑ 1. Pick proper location on spindle face for mountng stop block, that is not in flight of tool changer.
- ❑ 2. Make sure that with the stop block location chosen, the stop arm bar will not interfere with anything in tool magazine, guarding, doors or adjacent tools.
- ❑ 3. Cut stop arm bar to correct length. When the attachment is placed in the spindle of the machine and the stop arm engages the stop block the stop arm must be pressed down so that the alignment pin is below the alignment collar. The stop arm must not bottom against the housing.
- ❑ 4. Set alignment collar so that its slot is directly over alignment pin. Note: Make sure machine tool spindle is in the tool orient position before setting alignment collar! You shouldn't be able to rotate spindle when spindle is in the tool orient position.
- ❑ 5. Make a couple of tool changes to insure tool is aligned properly and stop arm bar is to correct length and with ample clearance between bar and coolant port block.
- ❑ 6. Install/Edit program for Tapmatic unit. See programming instructions.

Installation Accessories
RDT & RDTIC 85 & 100 Self-Reversing Tapping Units

ER Collets With Square Drive With Inch Tap Shanks

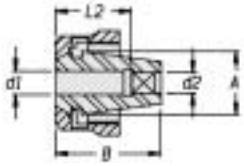
For Use With RDT, NCRT, ASR, RSR, NCGFLK Attachments With Steel Collet Spindles. **For Tapping, please select square drive steel collets whenever possible.**



Series	Catalog No.	Collet Range Tap Size	Collet Range Shank Size	Square Size d2	A	B	L2
#25 Series	21030	7/16"	.323	.242	.984	1.338	.866
	21032	1/2"	.367	.275	.984	1.338	.866
	21034	3/8"	.381	.286	.984	1.338	.866
	21036	9/16"	.429	.322	.984	1.338	.984
	21038	5/8"	.480	.360	.984	1.338	.984
	21040	11/16"	.542	.406	.984	1.338	.984
#32 Series	21050	1/2"	.367	.275	1.260	1.575	.709
	21054	9/16"	.429	.322	1.260	1.575	.866
	21058	5/8"	.480	.360	1.260	1.575	.866
	21060	11/16"	.542	.406	1.260	1.575	.984
	21064	3/4"	.590	.442	1.260	1.575	.984
	21068	7/8"	.697	.523	1.260	1.575	.984
	21070	1"	.800	.600	1.260	1.575	.984
#40 Series	21106	9/16"	.429	.322	1.575	1.811	.984
	21107	5/8"	.480	.360	1.575	1.811	.984
	21108	11/16"	.542	.406	1.575	1.811	.984
	21109	3/4"	.590	.442	1.575	1.811	.984
	21111	7/8"	.697	.523	1.575	1.811	.984
	21112	15/16"	.760	.570	1.575	1.811	.984
	21113	1"	.800	.600	1.575	1.811	1.102

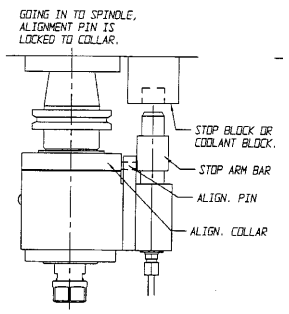
ER Collets With Square Drive With Metric Tap Shanks

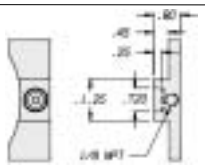
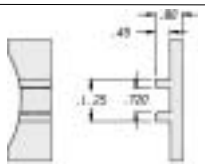
For Use With RDT, NCRT, ASR, RSR, NCGFLK Attachments With Steel Collet Spindles. **For Tapping, please select square drive steel collets whenever possible.**



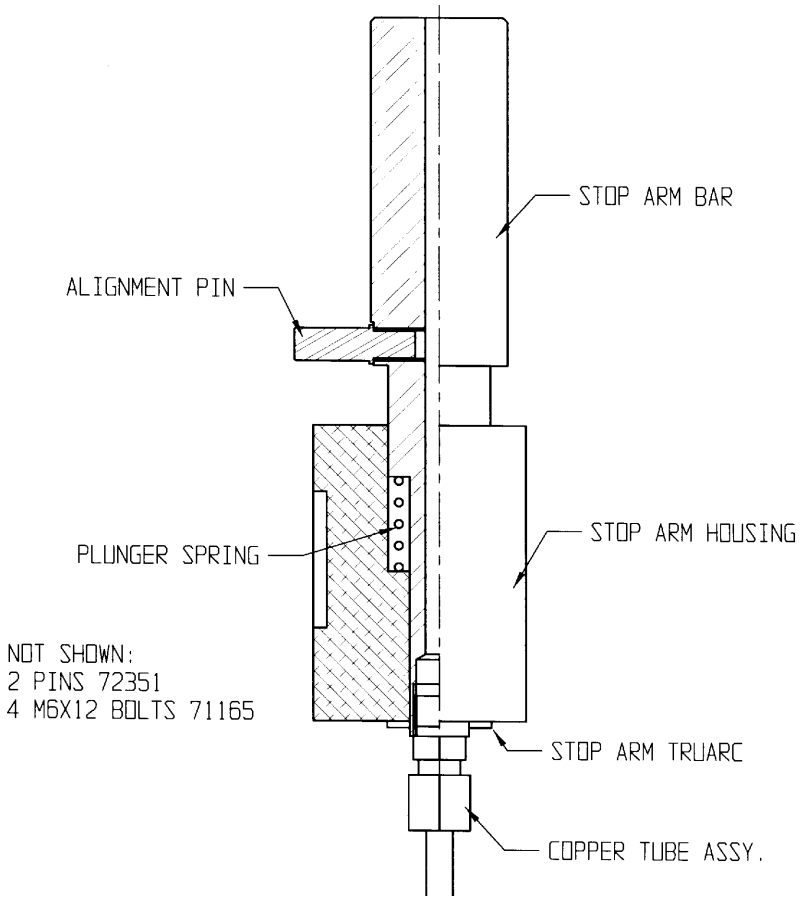
Series	Catalog No.	Collet Range Shank Size	Collet Range Square
#25 Series	21153	7	5.5
	21154	8	6.2
	21155	9	7
	21156	10	8
	21157	11	9
	21158	12	9
#32 Series	21163	9	7
	21164	10	8
	21165	11	9
	21166	12	9
	21167	14	11
	21168	16	12
#40 Series	21124	16	12

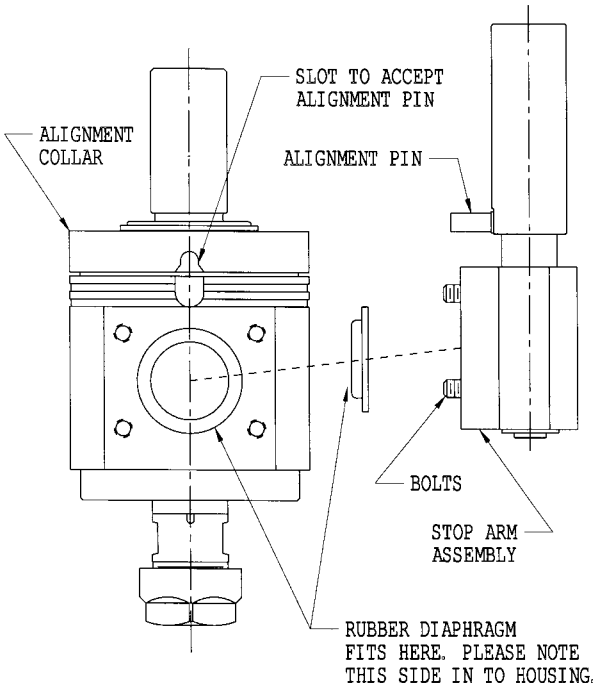
INSTALLATION ACCESSORIES



Standard Block With Coolant Inlet	**Catalog No.**	
	36000	
Standard Block Without Coolant Inlet	**Catalog No.**	
	36007	

Parts Listing Stop Arm Assembly
RDT & RDTIC 85 & 100 Self-Reversing Tapping Units





When installing Stop Arm Assembly to Main Housing...

1.- Be sure to remove tape, if present, over Rubber Diaphragm.

2.-Be sure to align Slot in Alignment Collar as shown so that Alignment pin will fit into Slot when Stop Arm Assembly is put in place on Housing.

3.- Tighten four M6 Bolts very securely.

For Instructions to modify Stop Arm and fit to your Machine. Please see Installation Instructions package with Tapping Attachement.

TAPMATIC CORPORATION
802 Clearwater Loop
Post Falls, Idaho 83854
208/773-8048, 800/854-6019

Part Listing
RDT 85 & 100 Self-Reversing Tapping Units

Part Name	RDT85	Order No.	RDT100	Order No.
Round Wire Clips / Square Wire Clip		700561/705561		700561/705561
Return Spring Retainer		71341		71341
Return Spring		711303E		711303E
Collar Truarc		507091		507091
Alignment Collar		71360A		71360A
Upper Bushing Retainer Screws	3x	711581	3x	711581
Upper Bushing Holder Assemmbly		71333A		71333A
Upper Gear		71322		71322
Bias Spring Retainer O-Ring		71028E		71028E
Drive Balls	3x	60728	3x	60728
Driver		71390		71390
Drive Pins	3x	71332	3x	71332
Bias Springs	2x	72524	2x	72524
Housing O-Ring		71350		71350
Upper Thrust Washer		71357		71357
Thrust Bearing		71358		71358
Lower Thrust Washer		71357A		71357A
Lock Nut O-Ring		71351		71351
Lock Nut		71345		71345
Drive Spindle		71317R		71315
Steel Collet Nut HS ER25		69918		
Steel Collet Nut		71118		71318
Drive Spindle HS ER25		71386		
Adjustable Stop		71183		71183
Thrust Bearing Holder Assembly		71313A		71313A
Key		71343		71343
Dampener		71311		71311
Lower Gear		71323		71323
Drive Splines	2x	713101	2x	713101
Pinion Gears	4x	71337	4x	71337
Gear Washers	4x	71307	4x	71307
Gear Pins	4x	71306	4x	71306
Bias Spring Retainer		71327		71327
Threaded Driver		71305		71305
Housing Bearing		71309		71309
Housing		713031		713031
Mount Lock Nut		71346		71346
Rotary Seal		71342		71342
Return Spring Washer		70029		70029
Upper Bushing Pin		71363		71363
Mount 1" Shank		71319		71319
Mount 25mm Straight Shank		713193		713193
Alignment Pin (65)		72588L		72588L
Alignment Pin (80)		72588L1		72588L1
Stop Arm Housing (65)		7235265		7235265
Stop Arm Housing (80)		7235280		7235280
Plunger Spring		69555E		69555E
Copper Tube Assembly		69889		69889
Stop Arm Truarc		695533		695533
Stop Arm Bar		698823		698823
Diaphragm		71754		71754
M6 x 12 Cap Screw	4x	71165	4x	71165
Housing Pins	2x	72351	2x	72351
Wrench Kit		**Part No.**		**Part No.**
4mm Hex Key		27224		27224
2.5mm Hex Key		27221		27221
1 5/16" Wrench		28131		-
1 9/16" Wrench		-		28156
ER32 Nut Wrench		71117		-
ER40 Nut Wrench		-		71317
Grease Tubes	3x	29001	3x	29001
Alignment Key		69341		69341

Part Name	RDTIC85	Order No.	RDTIC100	Order No.
Inlet Truarc		70566		70566
Inlet Plug		70572		70572
Rubber Sleeve		70574		70574
Round Wire Clips / Square Wire Clip		700561/705561		700561/705561
Return Spring Retainer		71341		71341
Return Spring		711303E		711303E
Collar Truarc		507091		507091
Alignment Collar		71360A		71360A
Upper Bushing Retainer Screws	3x	711581	3x	711581
Upper Bushing Holder Assemmbly		71333A		71333A
Upper Gear		71322		71322
Bias Spring Retainer O-Ring		71028E		71028E
Drive Balls	3x	60728	3x	60728
Driver		71390		71390
Drive Pins	3x	71332	3x	71332
Bias Springs	2x	72524	2x	72524
Housing O-Ring		71350		71350
Upper Thrust Washer		71357		71357
Thrust Bearing		71358		71358
Lower Thrust Washer		71357A		71357A
Lock Nut O-Ring		71351		71351
Lock Nut		71345		71345
Drive Spindle		72516		72514
Drive Spindle HS ER25		72586		
Steel Collet Nut		71118		71318
Steel Collet Nut HS ER25		69918		
Adjustable Stop		71183		71183
Thrust Bearing Holder Assembly		71313A		71313A
Key		71343		71343
Dampener		71311		71311
Lower Gear		71323		71323
Drive Splines	2x	713101	2x	713101
Pinion Gears	4x	71337	4x	71337
Gear Washers	4 x	71307	4x	71307
Gear Pins	4x	71306	4x	71306
Bias Spring Retainer		71327		71327
Threaded Driver		71305		71305
Housing Bearing		71309		71309
Housing		713031		713031
Mount Lock Nut		71346		71346
Rotary Seal		71342		71342
Return Spring Washer		70029		70029
Upper Bushing Pin		71363		71363
Mount 1" Shank		71320		71320
Mount 25mm Straight Shank		713203		713203
Coolant Tube		72573		72573
Alignment Pin (65)		72588L		72588L
Alignment Pin (80)		72588L1		72588L1
Stop Arm Housing (65)		7235265		7235265
Stop Arm Housing (80)		7235280		7235280
Plunger Spring		69555E		69555E
Copper Tube Assembly		69889		69889
Stop Arm Truarc		695533		695533
Stop Arm Bar		698823		698823
Diaphragm		71754		71754
M6 x 12	4x	71165	4x	71165
Housing Pins	2x	72351	2x	721351
Wrench Kit		**Part No.**		**Part No.**
4mm Hex Key		27224		27224
2.5mm Hex Key		27221		27221
1 5/16" Wrench		28131		-
1 9/16" Wrench		-		28156
ER32 Nut Wrench		71117		-
ER40 Nut Wrench		-		71317
Grease Tubes	3x	29001	3x	29001
Alignment Key		69341		69341

INSPECTION / DISASSEMBLY PROCEDURE

1.) Use wrench to loosen lock nut.

2.) Use hey key to loosen three screws under alignment collar. Note that alignment collar must be removed.

3.) Unthread the lock nut from the bottom of the housing. Then before removing the thrust bearing holder from the housing pull the drive spindle out in tension. (This step will keep the drive balls captivated when thrust bearing holder and spindle are removed from housing.) Now pull entire drive spindle and thrust bearing holder assembly out of the housing.

4.) Inspecting the lower drive spline. First carefully remove the 3 drive balls from the driver. Then slide the lower gear off of the drive spindle. Examine and replace if required. Note that some rounding of the spline edge is normal.

5.) Inspection of the upper drive spline: If you need to replace the upper renewable drive spline, you will have to unthread the mount lock nut. Lift the entire mount assembly from the housing and replace the renewable drive spline if required. Please be careful not to loose pinion gears and gear washers during this last step.

Reassembly After Inspection

1.) Reinstall the upper gear, renewable drive spline and dampener to the threaded driver. Then slide entire mount assembly back into housing. Be sure upper gear and pinion gears mesh properly by turning straight shank. Then reinstall mount lock nut securely.

2.) Hold the drive spindle and thrust bearing holder in one hand and with your other hand turn the upper thrust washer to be sure it is seated properly and turns freely. Then place the lower gear assembly on the top of the upper thrust washer in the thrust bearing holder. Install the three drive balls into the driver and pull the drive spindle down in order to captivate the drive balls in the reverse position.

3.) First turn mount so that bushing pin is lined up with keyway in housing. Then turn upper bushing holder so that its rounded slot is lined up with keyway in thrust bearing holder. Holding the housing in horizontal position in one hand and the drive spindle/thrust bearing holder horizontally i the other, slide the thrust bearing holder back into the housing so that key way in thrust bearing holder lines up with key way i housing. Then tighten the lock nut until its reference line comes even with the housing reference line. Now push the drive spindle up into the housing as far as it will go. When you push up on the drive spindle, you may feel it stop against the upper bushing pine. Pull out on the drive spindle, rotate slightly and push up again until pin slips into the slot in part upper bushing holder. You can tell that the pin has engaged when the drive spindle goes further back into the tool. Now, holding the drive spindle in position tighten the three screws.

4.) Now pull out on the drive spindle and let go to be sure that the return spring is working properly and rotate the CNC shank to double heck that the gears are properly meshed.

⚠ Please note that alignment collar must be oriented again for automatic tool change.

Parts Listing
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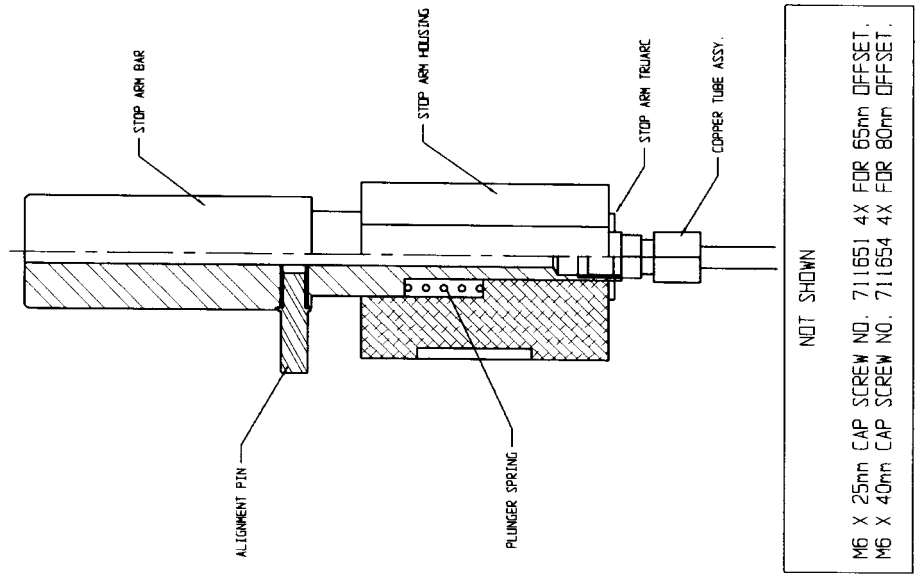
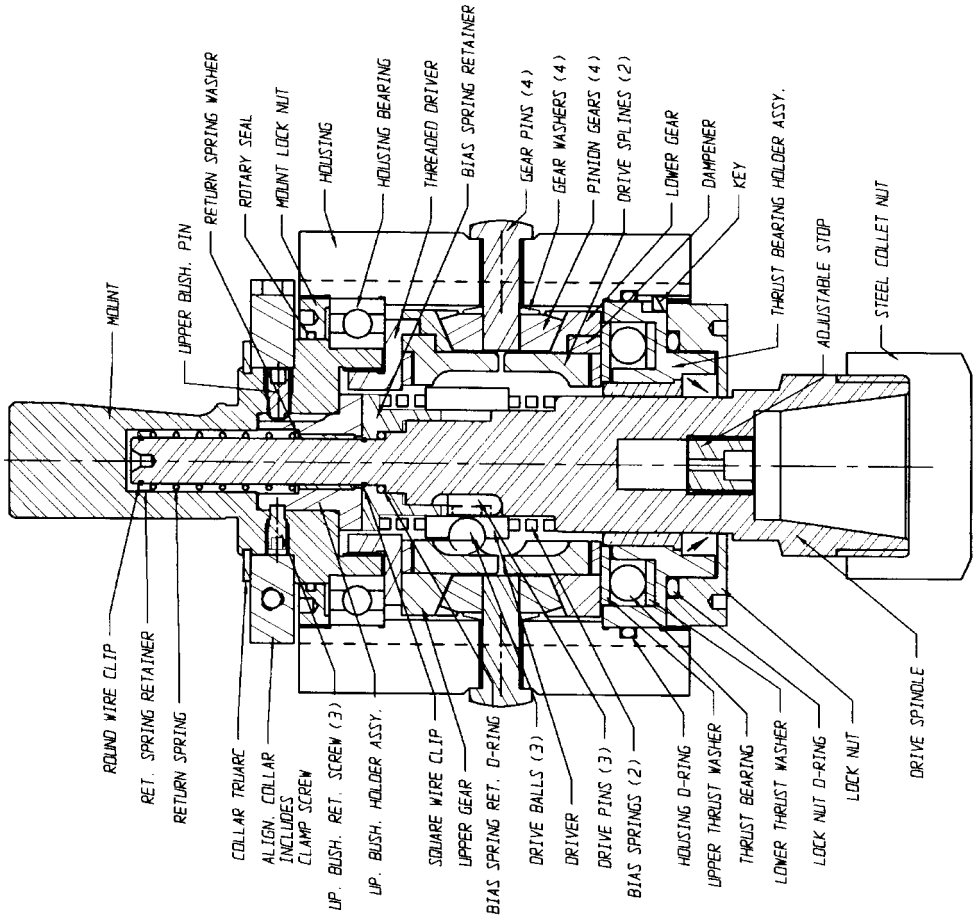
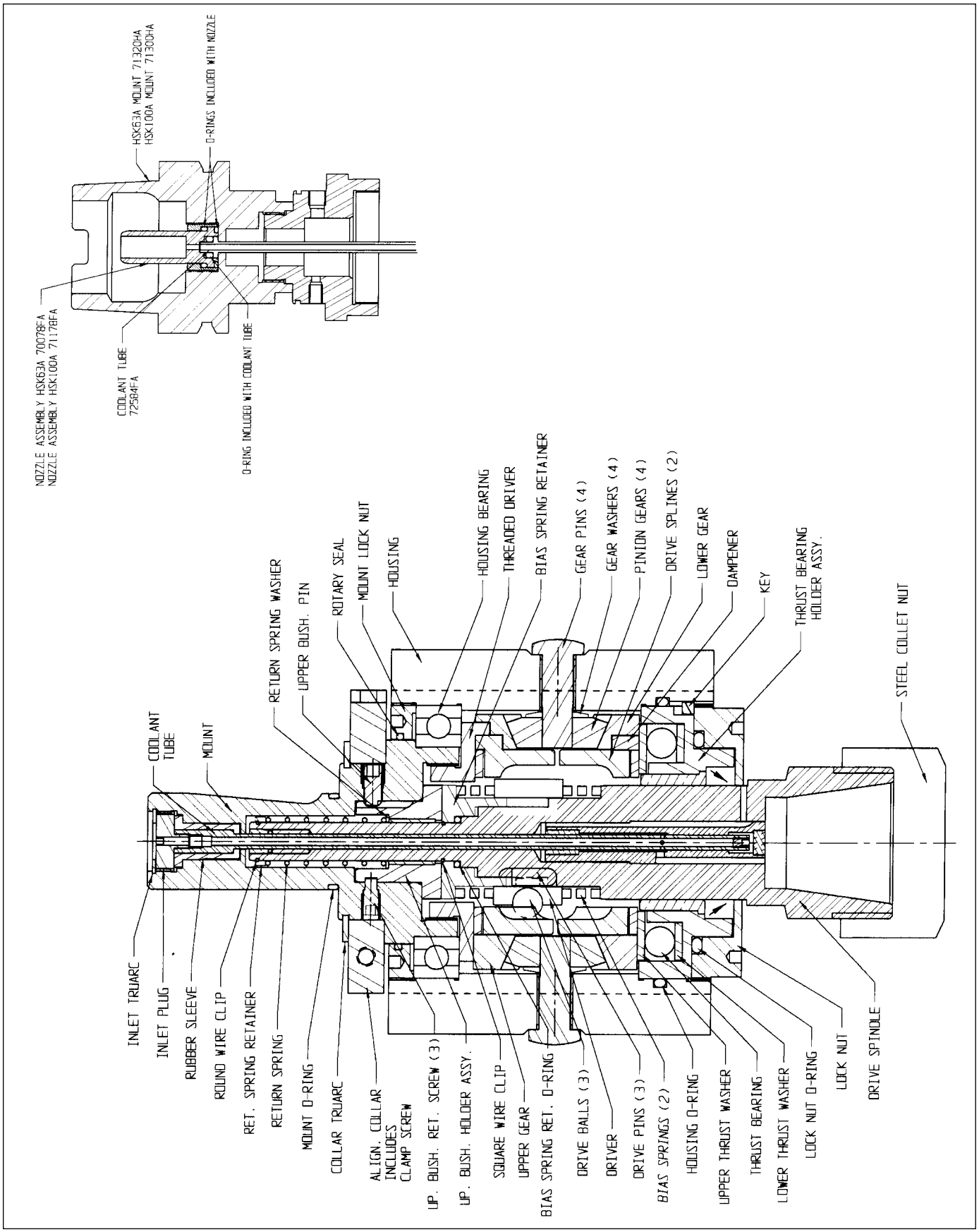




Parts Listing
RDTIC 85 & 100 Self-Reversing Tapping Units



Maintenance
For RDT & RDTIC 85 & 100

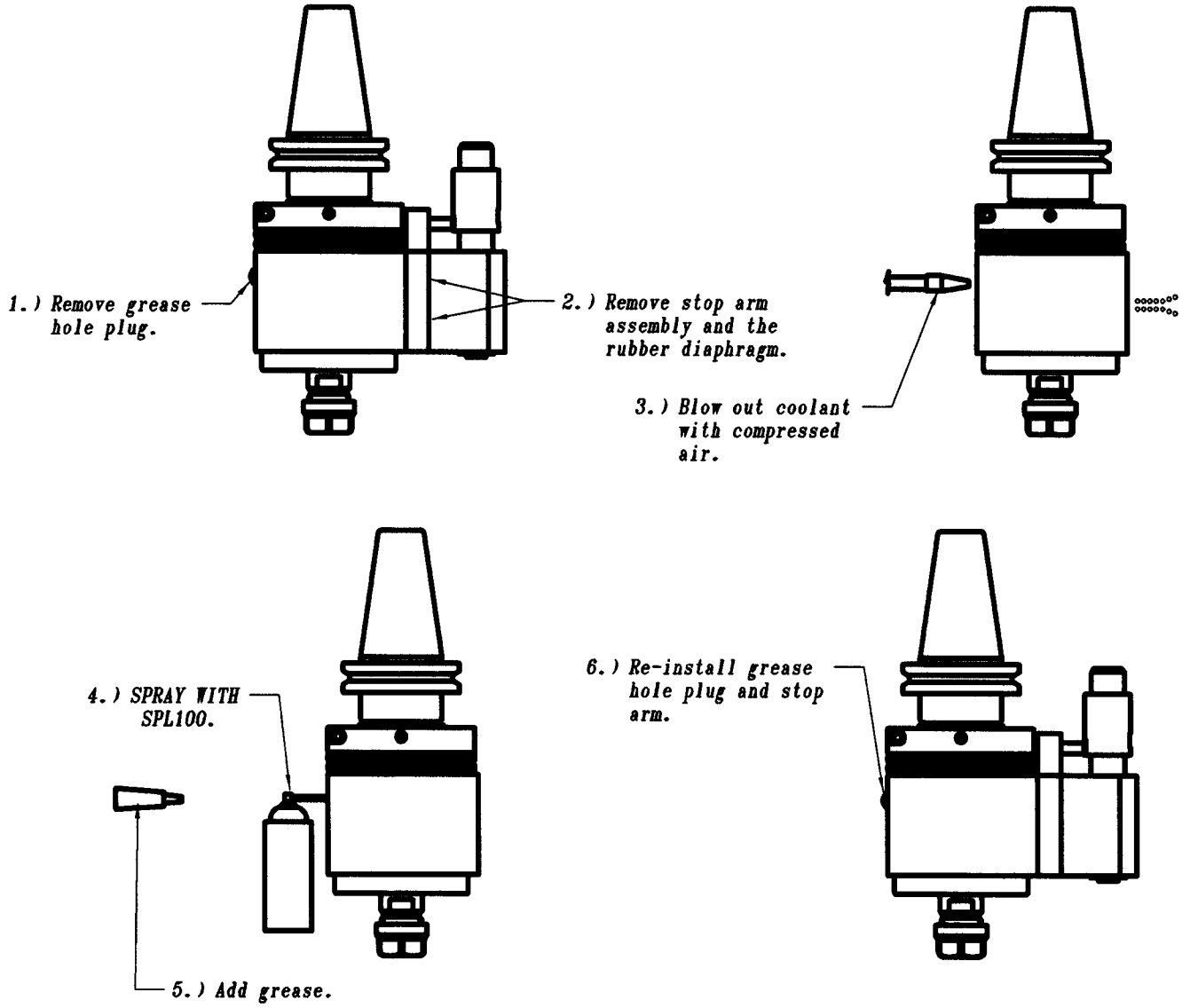
Lubrication:

We recommend lubrication every 100,000 cycles. To lubricate remove grease hole plug and add grease from the tubes provided. Use two tubes. For additional tubes, order part number 29000 for a box of 12. **We recommend Prolong EP2 grease. The units come from the factory already lubricated for operation.** You may also lubricate the gears during the renewable drive inspection procedure. Please use caution not to over grease the tapping attachment. Too much grease causes heat and may clog air vent system or prevent drive spindle from returning properly.

If Coolant Enters Unit:

If coolant somehow goes past the housing seals and enters the unit, you can follow the disassembly procedure, clean the parts and re-grease. We recommend following a procedure like this also if you plan to store the unit for a long period of time.

You can also remove coolant and add grease without disassembling the tool by following the procedure shown below.



Maintenance & Repair
RDT & RDTIC 85 & 100 Self-Reversing Tapping Units

Repair Service is available at...

Attention: **Repair Department**
Tapmatic Corporation
802 Clearwater Loop
Post Falls, ID 83854

To Expedite Repair: Return tool direct to Tapmatic Corporation, by United Parcel Service and enclose the following statement with your purchase order: **"Authorization given to repair and return tool without notification if total repair cost does not exceed 40% of the cost of a new tool."** Tapmatic will repair the tool and call to request your credit card # for invoicing.

Important: Be sure to return the tool complete with the tap chuck nut, back jaw and if the tool is a reversing unit, include stop arm. Otherwise, we will add these missing parts to every non-warranty repair.

Cost Notification: Tapmatic will FAX a cost notification to you, soliciting your approval before repairs are completed.

If it is determined that a tapping attachment cannot be repaired, at the customer's request, Tapmatic will return the disassembled parts. We are not able to reassemble tapping attachments using damaged or worn out parts.

Optional Return Procedure: Tools may also be returned for repair through your local Tapmatic Distributor. They will ship the tool to us and include instructions for the repair and return. You may already have an open account with them which facilitates the handling of invoicing.

Priority Service: Tapmatic services tapping attachments returned for repair in the order in which they are received. All tools will be evaluated and repaired within three weeks from the date they arrive subject to receiving the customer's approval to proceed with the repair.

Priority is given to the tools shipped to us by overnight or second day.

If a repair is sent to us by UPS ground or similar service it can also be given priority. Just call and let us know you need priority service and advise if you would like the tool returned to you by overnight or second day. In the interest of fairness, to all our customers, we ask that you approve return shipment by overnight or second day before we agree to upgrade your repair order to priority service. Typical turnaround, not including shipping time, for priority repairs is 3 days subject to receiving the customer's approval to proceed with the repair.

If we can answer any questions, please call our toll free number: 800 395-8231.

TAPMATIC®
The Tapping Specialists
TAPMATIC CORPORATION: ISO 9001 CERTIFIED
802 Clearwater Loop, Post Falls, Idaho 83854
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I·D·A Industrial Distribution Association

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