



**74358 TO 74364
74700
74704**

GROOVING TOOL



OPERATING INSTRUCTIONS & SERVICE MANUAL

Rev: A, 5/11/2007

**TO REDUCE THE RISK OF INJURY AND EQUIPMENT DAMAGE
USER MUST READ AND UNDERSTAND OPERATOR'S MANUAL.**

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SAFETY INSTRUCTIONS



WARNING!

READ AND UNDERSTAND ALL INSTRUCTIONS

Failure to follow all instructions listed below, may result in accident, fire and/or personal injury.

SAVE THESE INSTRUCTIONS

1. **KNOW YOUR POWER TOOL.** Read this service manual carefully.
2. **GROUNDING INSTRUCTIONS.** This product is equipped with a cord having an equipment-grounding conductor and a grounding plug. The plug must be plugged into an appropriate outlet that is properly installed and grounded in accordance with all local codes and ordinances.
3. **KEEP GUARDS IN PLACE** and in working order.
4. **KEEP WORK AREA CLEAN.** Cluttered areas and benches invite accidents.
5. **AVOID DANGEROUS ENVIRONMENT.** Keep work areas well lit.
6. **STORE IDLE TOOLS.** When not in use, tools should be stored in dry, high or locked-up place – out of reach of children.
7. **DON'T FORCE TOOLS.** It will do the job better and safer at the rate for which it was designed.
8. **USE RIGHT TOOLS.** Don't force small tool or attachment to do the job of a heavy-duty tool.
9. **WEAR PROPEL APPAREL.** No loose clothing or jewelry to get caught in moving parts. Rubber gloves and footwear are recommended when working outdoors.
10. **USE SAFETY GLASSES** with most tools. Also face or dust mask if cutting operation is dusty.
11. **DON'T ABUSE CORD.** Never carry tool by cord or yank it to disconnect from receptacle. Keep cord from heat, oil and sharp edges.
12. **SECURE WORK.** Use clamps or a vise to hold work. It's safer than using your hands to operate tool.
13. **DON'T OVERREACH.** Keep proper footing and balance at all times.
14. **MAINTAIN TOOL WITH CARE.** Keep tools sharp and clean for best and safest performance. Follow instructions for lubricating and changing accessories.
15. **DISCONNECT TOOLS:** When not in use; before servicing; when changing accessories such as blades, bits, cutters, etc.
16. **REMOVE ADJUSTING KEYS AND WRENCHES.** Form habit of checking that keys and adjusting wrenches are removed from tool before turning it on.
17. **AVOID ACCIDENTAL STARTING.** Don't carry plugged-in tool with finger or switch.
18. Remove the plug from the socket before carrying out any adjustment, servicing or maintenance.
19. Do not use unit with combustible fluids or where combustible fluids or fumes may be present.

GUIDE RULES FOR SUCESSFUL OPERATION

Tube hole grooving is a sensitive operation but it can be done easily when the operator learns to feed the grooving tool quickly but gently, completing the grooves with three (3) to five (5) revolutions of the tool. The majority of problems encountered can be eliminated by following the instructions and suggestions offered here.

SPEED AND FEED

Tool sizes, 5/8" through 1", are designed to operate approximately 200-300 RPM when used for grooving mild carbon steels or brass. RPM must be reduced when grooving chrome alloys, nickel alloys or stainless steels as is normally done when machining, drilling or reaming these materials. Recommended Rpm's for 5/8"=300, 3/4"=275, 7/8"=250, 1"=200, 1-1/4" = 150. We recommend no more than 0.005" cut per revolution.

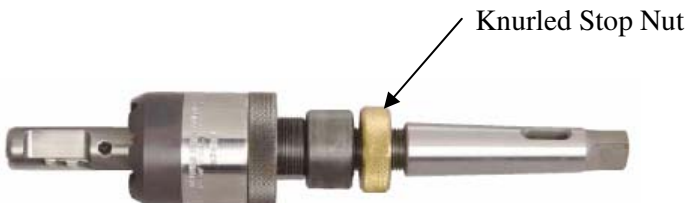
CAUTION

When installing the grooving tool in a machine for use, care must be taken that machine spindle is not rammed down on tool shank while tool pilot is resting on a solid object such as drill table or tube sheet as is often done with drills and reamers. Doing so can damage the internal parts of the grooving tool.

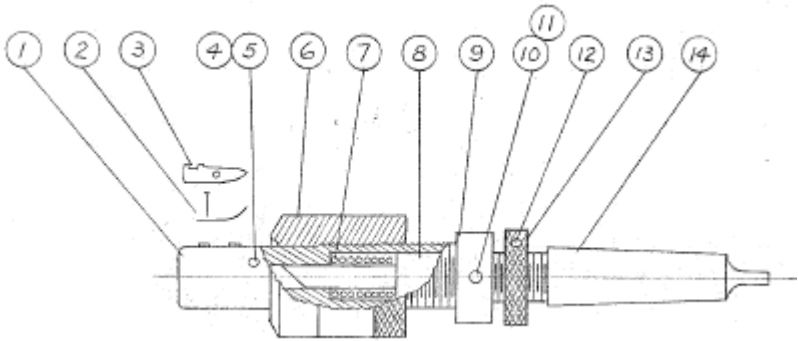
SETTING THE GROOVE DEPTH

The Knurled Stop Nut at top of tool is used for setting the radial depth of grooves being cut. As the tool is designed to cut two (2) of very nearly the same depth in tube holes that are .008" to .015" larger than specified tube size, this Nut must be adjusted to obtain proper radial depth, approximately .015" (TEMA). Stop nut is locked by 1/4" set screw in knurled face of Nut.

DO NOT extend the cutting edges of blade out more than necessary to obtain proper groove depth as doing so will weaken and sometimes break the Blade Return Spring.

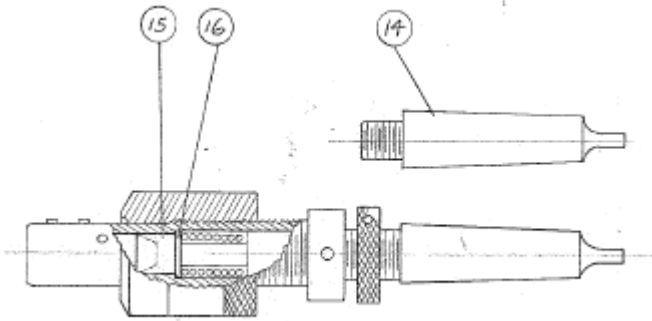


PARTS LIST



GROOVING TOOL 5/8" TO 1"

KEY	DESCRIPTION	5/8"	3/4"	7/8"	1"
	Grooving Tool	74358	74359	74360	74361
1	Pilot Assembly	74358-0106	74359-0106	74360-0106	74361-0106
2	Return Spring and Rivet				
3	Cutter Blade	74366			
4	Screw	74358-0104			
5	Pivot Pin	74358-0105	74359-0105		
6	Bearing Carriage	74358-0110			
7	Main Spring	74358-0111			
8	Shank Body	74358-0112	74359-0112	74360-0112	74361-0112
9	Retaining Collar	74358-0109			
10	Slide Pin	74358-0107			
11	Collar Screw	74358-0108			
12	Stop Nut Screw	74358-0113			
13	Knurled Stop Nut	74358-0114			
14	Morse Taper Top	74358-0115			
15	Blade Actuator	N/A			
16	Spring Washer	N/A			

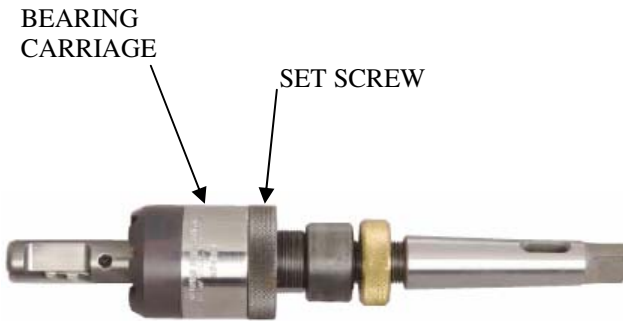


GROOVING TOOL 1-1/4" TO 3"

1-1/4"	1-1/2"	2"	2-1/2"	3"
74362	74363	74364	74700	74704
74362-0106	74363-0106	74364-0106	74700-0106	74704-0106
74358-0101				
74367				
74359-0104				
74360-0105				
74362-0110	74363-0110	74364-0110	74700-0110	74704-0110
74362-0111	74363-0111	74364-0111	74700-0111	74704-0111
74362-0112	74363-0112	74364-0112	74700-0112	74704-0112
74362-0109	74363-0109	74364-0109	74700-0109	74704-0109
74362-0107	74363-0107	74364-0107	74700-0107	74704-0107
74362-0108				
74362-0113				
74362-0114	74363-0114	74364-0114	74700-0114	74704-0114
74362-0115	74363-0115	74364-0115	74700-0115	74704-0115
74362-0116	74363-0116	74364-0116	74700-0116	74704-0116
74362-0117	74363-0117	74364-0117	74700-0117	74704-0117

SETTING THE LOCATION OF GROOVE

Dimension from face of tube sheet to top groove must be set by adjusting the complete bearing carriage up or down the pilot assembly. There are two (2) 1/4" set screws in the knurled face of top carriage ring – Loosen only the screw on the flat area of the pilot assembly to adjust carriage. When tightening the screw after adjusting carriage, be sure that it rests on the flat area of pilot assembly. Excessive tightening is not necessary if this screw is properly seated on flat area.

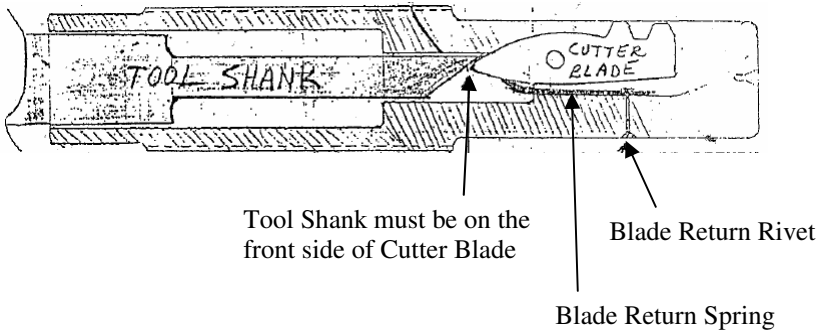


LUBRICATION & MAINTENANCE

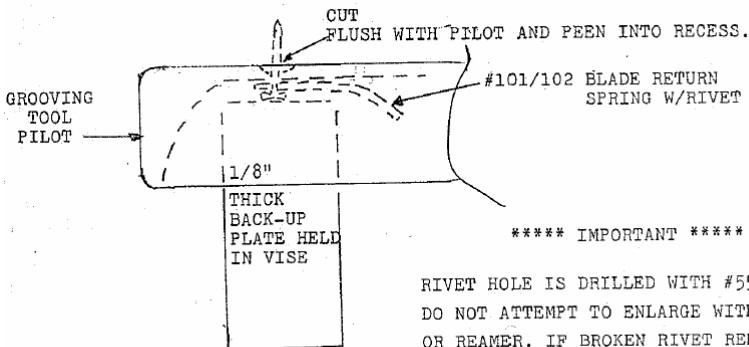
When in use, the tool base should be flooded with a stream of coolant having good lubricity or coolant can be piped through transducer section of the tool carriage. Usually, coolants used for drilling and reaming are satisfactory. Always use Sharp Blade.

REPLACEMENT OF CUTTER BLADE

1. Retract Bearing Carriage (key #6) if necessary to expose Screw and Pivot Pin (key #4&5).
2. Remove Screw (key #4).
3. Push Pivot Pin (key #5) out from opposite end.
4. Remove Cutter Blade (key #3).
5. Reverse above steps to install new blade. Be sure that upper point of blade is placed behind tapered activating tip of tool shank. Failing to do so will result in breaking blade through center hole and sometimes breaking tip of tool shank. When replacing BLADE PIVOT PIN RETAINING SCREW use EXTREME CARE and tighten only enough to secure Pivot pin. Excessive pressure at this point can break out back side of pivot pin hole in the tool pilot or cause pilot to split when cutting pressure of blade is applied.



REPLACEMENT OF BLADE RETURN SPRING



***** IMPORTANT *****

RIVET HOLE IS DRILLED WITH #55 DRILL. DO NOT ATTEMPT TO ENLARGE WITH DRILL OR REAMER. IF BROKEN RIVET REMAINS IN HOLE, REMOVE WITH SMALL PUNCH .052" OR SMALLER.

SPECIFICATIONS

Model	Tube Hole	Tool Bit Part No.	Morse Taper Drive	Weight lbs
74358	5/8"	74366	#3	3
74359	3/4"	74367	#3	3-1/4
74360	7/8"		#3	3-1/4
74361	1"		#3	3-1/2
74362	1-1/4"		#4	6-1/2
74363	1-1/2"		#4	7-1/2
74364	2"		#5	10-1/2
74700	2-1/2"		#5	19
74704	3"		#5	26

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