

PAGE MACHINERY GROUP, INC.

ROLL GROOVING MACHINE

Models 1041-1042-1043-1044-1045-1046-1047 -1012
Operating Instructions • Pipe Alignment • Parts

Parts and Equipment Furnished:

Top Roller (1): 1-6"

Bottom Roller (2): 1-1½"; 2-6"

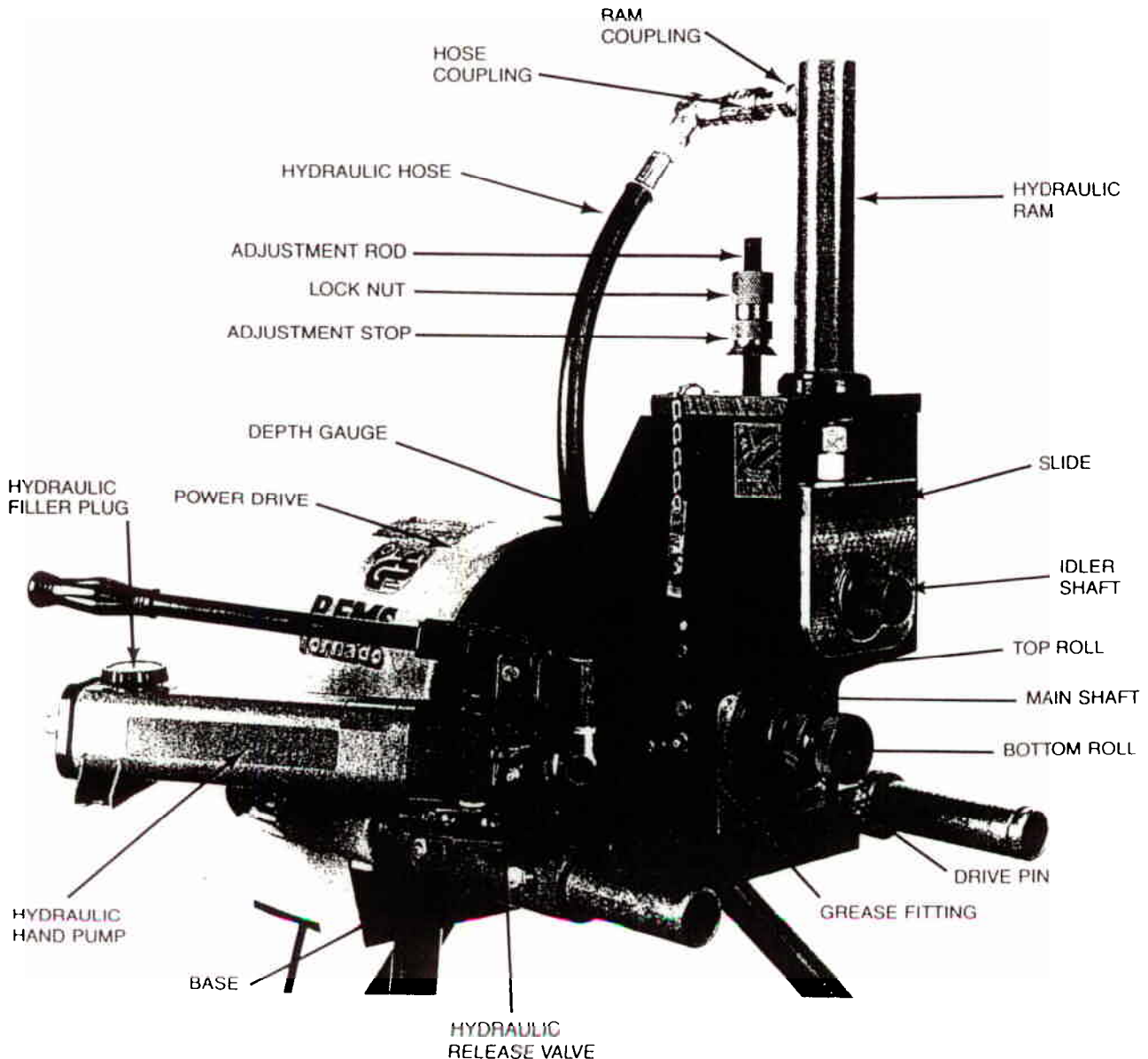
Pipe Preparation:

Pipe ends must be square, and seams or welds must be filed or ground even on last 2"; remove scale from groove area.

Pipe Set-Up:

Use pipe stands, pitch pipe slightly downward.
See page 8.

OPERATING PARTS AND FEATURES



GROOVING SPECIFICATIONS/TABLE II

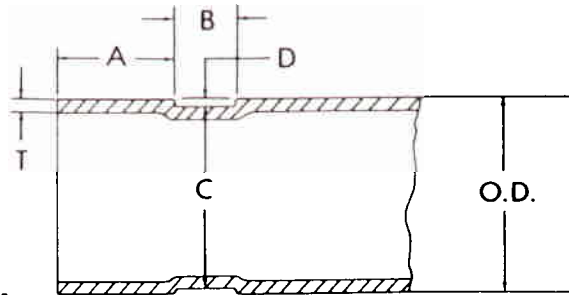


Table II/Standard Roll All Dimensions Are In Inches

Nominal Pipe Size	Mean Diameter Pipe O.D.	Gasket Seat	Groove Width	Groove Diameter C	Min. Groove Depth D	Nominal Groove Depth	Min. Pipe Wall T
		A +.015 -.030	B +.030 -.015				
1	1.315 \pm .016	.625	.281	1.190 \pm .000 -.015	.046	.063	.065
1 1/4	1.660 \pm .016	.625	.281	1.535 \pm .000 -.015	.046	.063	.065
1 1/2	1.900 \pm .016	.625	.281	1.775 \pm .000 -.015	.046	.063	.065
2	2.375 \pm .024 -.016	.625	.344	2.250 \pm .000 -.015	.046	.063	.083
2 1/2	2.875 \pm .029 -.016	.625	.344	2.720 \pm .000 -.015	.046	.078	.083
3	3.500 \pm .030 -.018	.625	.344	3.344 \pm .000 -.015	.054	.078	.083
3 1/2	4.000 \pm .030 -.018	.625	.344	3.834 \pm .000 -.015	.054	.083	.083
4	4.500 \pm .035 -.020	.625	.344	4.334 \pm .000 -.015	.054	.083	.083
5	5.563 \pm .050 -.022	.625	.344	5.395 \pm .000 -.015	.054	.084	.109
6	6.625 \pm .050 -.024	.625	.344	6.455 \pm .000 -.015	.054	.085	.109

- Vertical depth of groove "D" minimum dimensions listed are important to coupled pipe performance.
- Pipe end squareness — maximum allowable tolerance from square-cut ends is .030" for sizes 1/4" through 3 1/2"; .45" for sizes 4" through 6"; and .060" for sizes 8" and above, measured from true square line.
- Pipe out-of-roundness — difference between maximum O.D. and minimum O.D. measured at 90° must not exceed total O.D. tolerance listed.
- Gasket seat "A" must be smooth and free from scores and seams.
- Pipe with wall thickness less than minimum shown may be roll grooved. Consult Pace Machinery for information.

NOTES PER INDIVIDUAL MACHINE - Instruction number one

1041—Slide carriage assembly from guide rods. When sliding on grooving unit align three flats on drive shaft with three jaws of hammer chuck. Close hammer chuck.

1042—Remove oil pan and chip tray. Loop oil line from carriage to oil pick-up fitting. (Gear pump—If oil is not circulated in pump damage may occur.) Loosen handle clamp wing nut, slide carriage assembly from guide rods. When sliding grooving unit on, align three flats on drive shaft with three jaws in automatic chuck, turning switch to forward, step on foot switch, rotating bottom shaft as jaws close to align flats.

1043—Remove roll pin from front of both guide rods. Disconnect oil line from bottom of carriage assembly allowing to lay in tray. Loosen oil tray bolts so that front of oil tray may be dropped, allowing carriage assembly to be removed. Slide on grooving unit. Replace oil tray into guide rods. Align three flats on drive shaft with three jaws in hammer chuck.

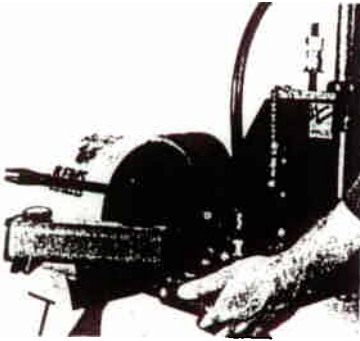
1044—Remove roll pin from guide rod. Disconnect oil line from carriage assembly allowing to lay in oil tray. Slide carriage assembly from guide rods. When sliding on grooving unit align three flats on drive shaft with three jaws in automatic chuck. Starting machine in forward running position rotate groover shaft as jaws close in order that drive shaft flats align with chuck jaws.

1045—Remove roll pin from guide rods. Disconnect oil line from carriage assembly allowing to lay in oil tray. Slide carriage assembly from guide rods. When sliding on grooving unit align three flats on drive shaft with three jaws in hammer chuck.

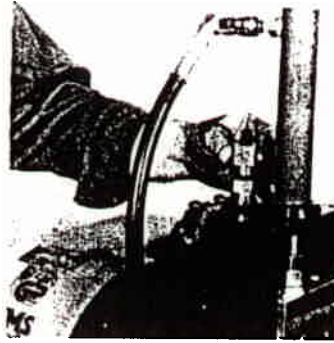
1046—Move carriage assembly as close to hammer chuck as possible. Place groover unit as close to rear of guide rods as possible. Place L clamp bracket at bottom side back of groover base, using two 5/16 x 2 1/8" bolts clamping to back guide rod. Align lovejoy coupler together on drive shaft extension making sure that rubber flex piece separates coupling halves. Align three flats on drive extension with three jaws in hammer chuck.

1047—Move carriage assembly as close to automatic chuck as possible. Remove carriage stop bolt from back guide bar. Place groover unit front edge flush with back end of guide bars. Place L clamp bracket at bottom side back of groover base, using two 5/16 -18 x 3" bolts clamping to back of guide bars. Align lovejoy coupler together on drive shaft extension, making sure that flex piece separates coupling halves. Inserting extension shaft into chuck assembly, turn machine to forward run, allowing four jaws to close and grip drive shaft extension.

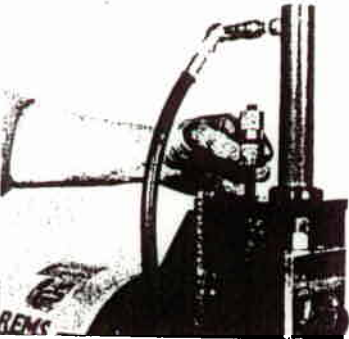
OPERATING INSTRUCTIONS



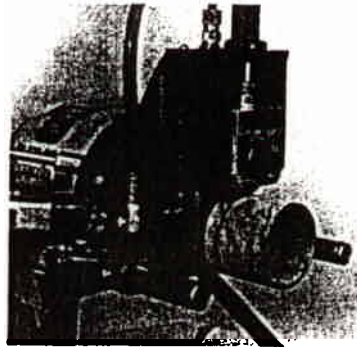
1. Connect the grooving tool to your power drive. *Notes for specific models.



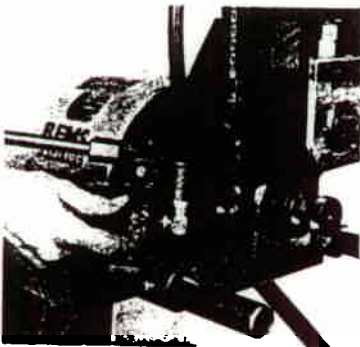
6. Lower adjustable stop on adjustment rod to meet top surface of depth gauge, for correct diameter pipe to be grooved. Secure position by tightening locking nut.*



2. Rotate and raise adjustable stop and locking nut to top position, (top of locking nut flush with top of adjustment rod.)



7. Turn machine on with foot switch. This will rotate pipe. Machine must be rotating before applying hand pump pressure to begin grooving. Be sure pipe end maintains solid contact with flange on bottom roller.



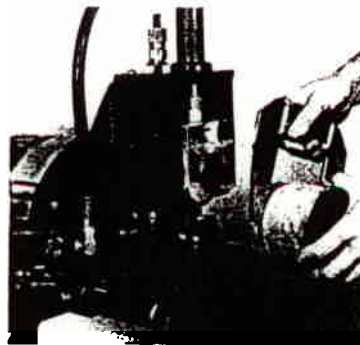
3. Close valve on hydraulic hand pump at left side of machine by turning clockwise.

WARNING: Never insert fingers or any portion of hand inside of pipe being rolled when machine is running. Hands should be kept away from rollers at all times.

8. Groove to full depth permitted by adjustable stop. Turn machine off and open valve on hydraulic hand pump by turning counter clockwise.



4. Insert pipe over bottom roller, snug against roller flange.



9. Remove pipe, and check groove depth by gauge or coupling. If groove is not deep enough, raise adjustable stop fractionally, close pump valve, activate machine groove and recheck depth.*

5. Pump hydraulic hand pump to lower top roller and make **light** pressure contact with pipe.

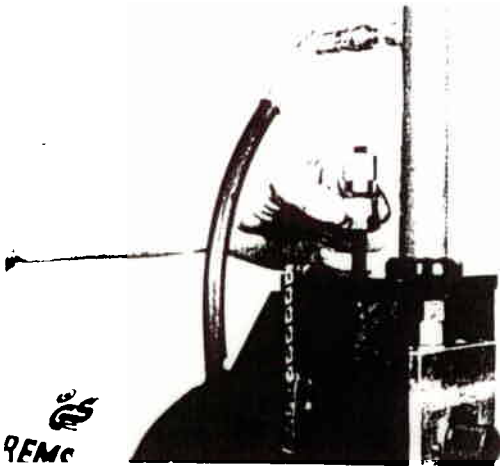
10. Once proper groove depth is established on first piece, no additional adjustments of stop are required for subsequent grooving at same size pipe.

*You may need to adjust upwards or downwards after checking the first groove, because of the allowable tolerances for pipe outside diameters and variations in wall thicknesses

HOW TO REMOVE ROLLERS

NOTE: ON ALL MODELS, REMOVE BOTTOM ROLLER FIRST AND INSTALL NEW TOP ROLLER FIRST!

Removing Bottom Roller and Top Roller

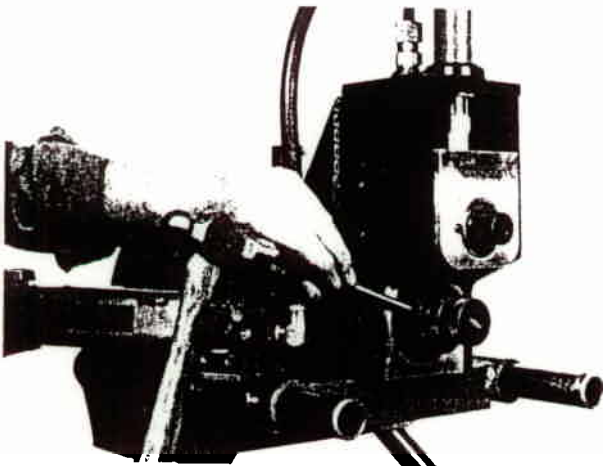


REMC

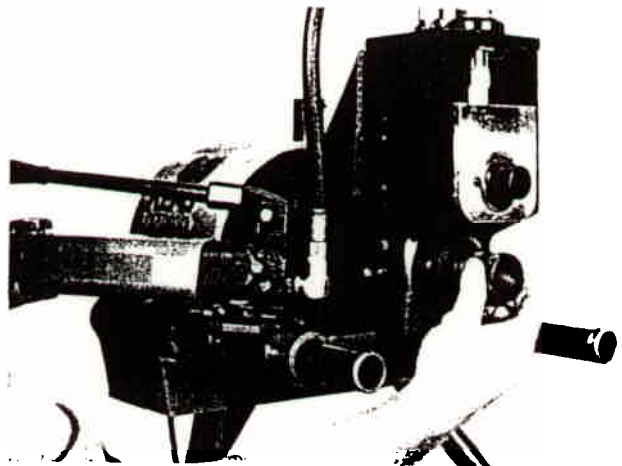
1. Rotate and raise adjustable stop and locking nut to top position, top of locking nut flush with top of adjusting screw.



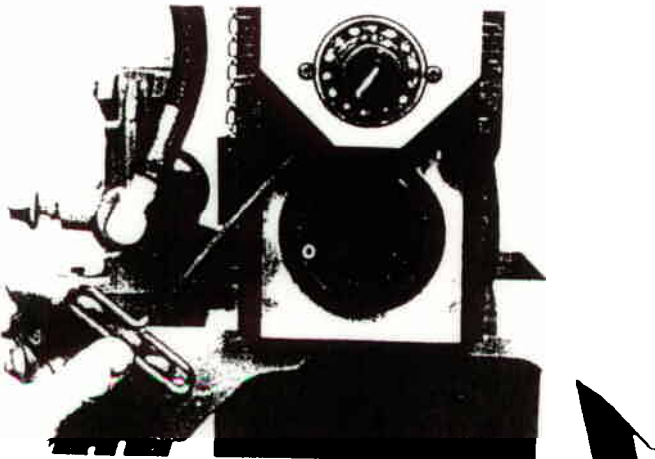
2. Open valve on hydraulic hand pump at left side of machine. (Turn counter clockwise).



3. Using a pin punch opposite the "O" mark, tap the tapered pin out of the main shaft.



4. Pull the bottom roll towards the front of the machine to remove.



5. With the bottom roll removed, loosen the set screw in the top roll.

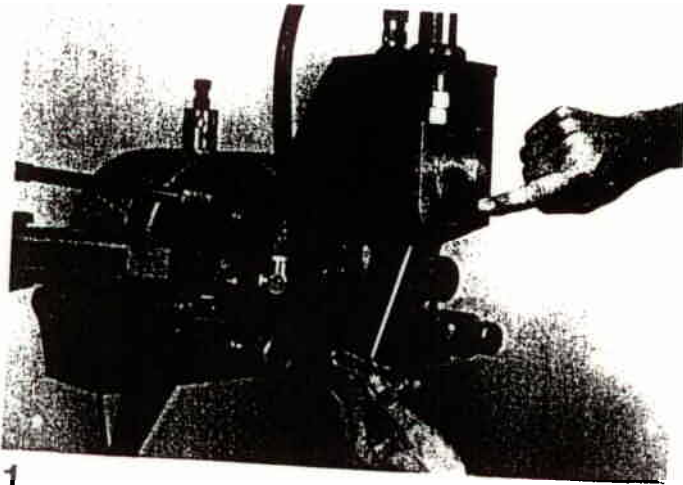


6. Pull the idler shaft out from the front of the machine, allowing the top roll to drop out the bottom of the slide.

HOW TO INSTALL ROLLERS

NOTE: ON ALL MODELS, REMOVE BOTTOM ROLLER FIRST AND INSTALL NEW TOP ROLLER FIRST!

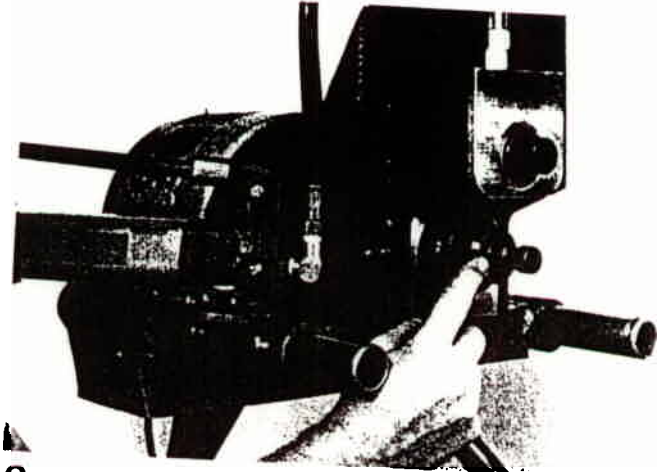
Installing Top Roller and Bottom Roller



1.

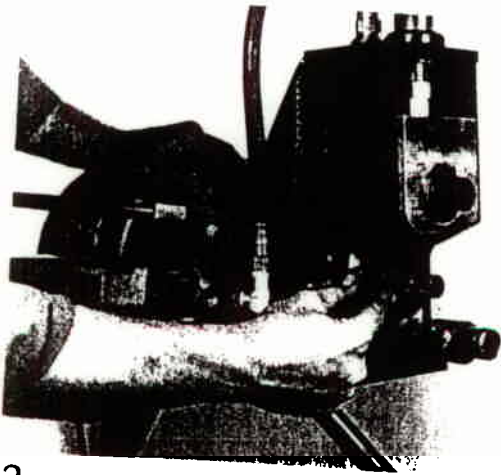
Installing New Top Roll

Holding the top roll into the slide, insert the idler shaft from the front of the machine through the slide into roll until the idler shaft bottoms against the top roll. Align corresponding marks on idler shaft with set screw in top roller. Tighten set screw making sure to be seated in pocket of idler shaft corresponding with front mark.



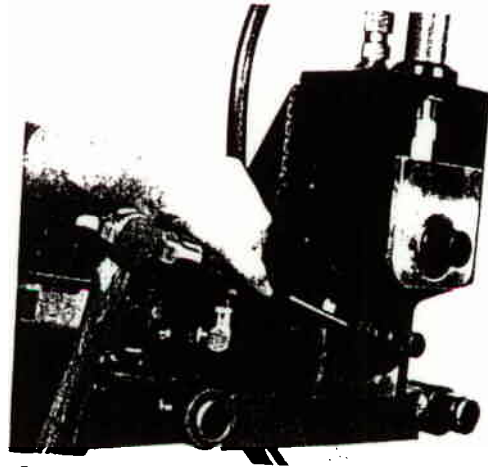
2.

Slide in new bottom roll.



3.

Line up corresponding "O" marks on main shaft, bottom roller and tapered pin



4.

Insert tapered pin into hole and tap into place using a brass hammer or equivalent with pin punch. Note: When inserting bottom roller make sure spindle bore and taper pin hole are free of foreign matter. Taper pin must be set **FIRMLY** to insure it will not loosen and fall out.

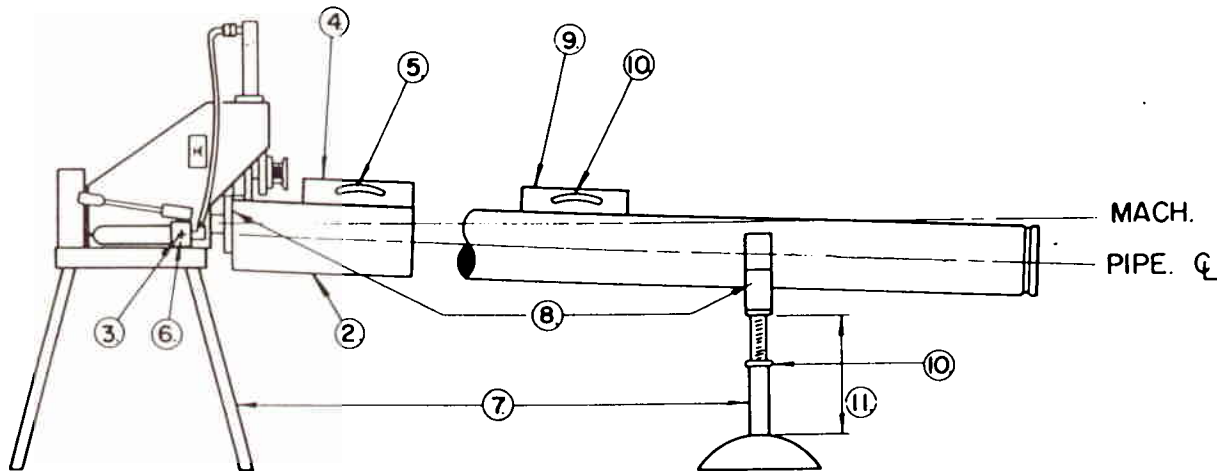
MAINTENANCE

At start up, check oil level in gear box by carefully removing sight glass cover nut. Place in under oil fill opening. Upon removal of nut, oil should drain. If not, fill to level with SAE 90 type oil.
Fill hydraulic ram with oil, collapse ram connected to pump, permitting oil to flow back into pump. Stand pump on end, removing filler plug, if not present. Fill hydraulic oil until level with notch of stem of filler plug, using stem as a guide. Do not fill pump beyond recommended oil level.
Check for air in the system. It is possible that air may enter into system, hindering its operation. To remove air, close release valve and pump until the slide reaches the end of its stroke. Now open release valve and allow slide to return, while pumping rapidly 8 to 12 strokes. Repeat if necessary. Grease spindle bearing in slide every 40 hours.

RECOMMENDATIONS FOR MAXIMUM ROLL-GROOVING EFFICIENCY

1. Select and install the correct top and bottom rolls for the pipe diameter to be grooved.
2. Place short length of pipe (nipple approximately one foot long) over bottom roll.
3. Close pump valve (by turning clockwise), and apply light pressure which will hold pipe in horizontal position over bottom roll.
4. Place level on pipe.
5. Observe position of bubble in sight glass.
6. Open pump valve (by turning counter-clockwise), which will raise top roll and release pipe nipple.

SIDE VIEW



7. Set pipe stand approximately thirteen feet from front of roll-grooving machine. (Recommended position for single random lengths of pipe.) If pipe stand is moved closer to the roll-grooving machine, steps eight thru ten are necessary to determine the correct height of pipe stand.

8. Set length of pipe on pipe stand with one end over bottom roll of roll-grooving machine.

9. Place level on pipe.

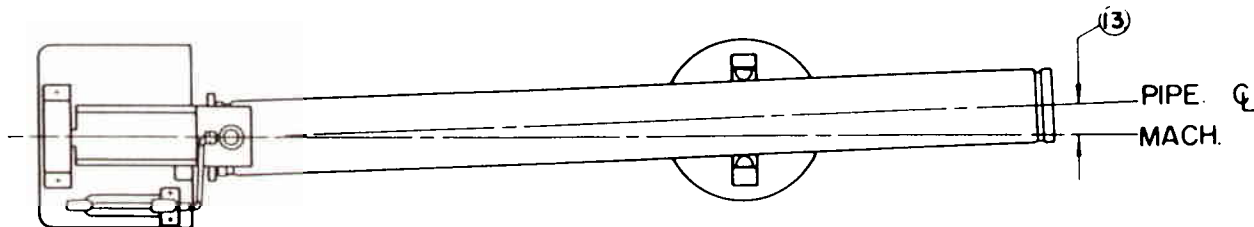
10. Raise or lower pipe stand until bubble of sight glass is in same position as Step Five.

11. Measure from top of the pipe stand base to a reference point on the vertical column of the pipe stand and record this dimension. MARKING PIPE STAND POSITION AND RECORDING THE PROPER VERTICAL DIMENSIONS WILL ENABLE THE MACHINE OPERATOR TO CHANGE PIPE DIAMETERS WITH MINIMUM SET-UP TIME.

12. Repeat Steps One thru Ten for each pipe diameter to be grooved.

13. Pipe and pipe stand should be placed so that pipe is on center or within two inches of the machine centerline.

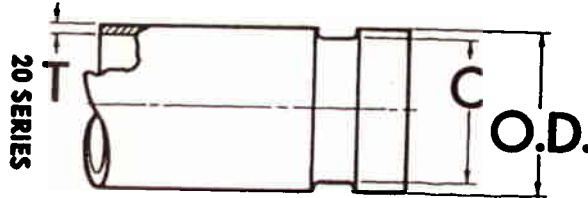
TOP VIEW



PACE 
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STANDARD ROLL GROOVE DIAMETER SPECIFICATIONS



ALL DIMENSIONS ARE IN INCHES

Pipe Size	Pipe O.D.	Diameter C	Wall Thickness T (Max.)
2	2.375 ^{+.024} _{-.016}	2.250 ^{+.000} _{-.015}	.375
2½	2.875 ^{+.029} _{-.016}	2.720 ^{+.000} _{-.015}	.375
3	3.500 ^{+.030} _{-.018}	3.344 ^{+.000} _{-.015}	.375
3½	4.000 ^{+.030} _{-.018}	3.834 ^{+.000} _{-.015}	.375
4	4.500 ^{+.035} _{-.020}	4.334 ^{+.000} _{-.015}	.375
5	5.563 ^{+.050} _{-.022}	5.395 ^{+.000} _{-.015}	.375
6	6.625 ^{+.050} _{-.024}	6.455 ^{+.000} _{-.015}	.375
8	8.625 ^{+.050} _{-.024}	8.441 ^{+.000} _{-.020}	.375
10	10.750 ^{+.060} _{-.025}	10.562 ^{+.000} _{-.025}	.375
12	12.750 ^{+.060} _{-.025}	12.531 ^{+.000} _{-.025}	.375
14	14.000 ^{+.060} _{-.025}	13.781 ^{+.000} _{-.025}	.375
16	16.000 ^{+.060} _{-.025}	15.781 ^{+.000} _{-.025}	.375
18	18.000 ^{+.060} _{-.030}	17.781 ^{+.000} _{-.025}	.375
20	20.000 ^{+.060} _{-.030}	19.781 ^{+.000} _{-.025}	.375
22	22.000 ^{+.060} _{-.030}	21.656 ^{+.000} _{-.025}	.375
24	24.000 ^{+.060} _{-.030}	23.656 ^{+.000} _{-.025}	.375

GROOVE DIMENSIONS

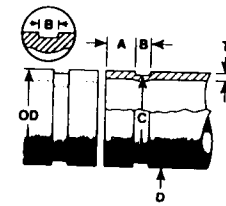
"ES" Roll/Cut Groove Specifications†

1 Nom. Size In. mm	2 Pipe Outside Diameter Inches/mm		3 Dimensions - Inches/mm										5 Groove Dia. C	6 Grv. Depth (ref.) D	7 Min. Allow. Wall Thick. T	
			Gasket Seat A		Groove Width B				Groove Dia. C							
	Basic	Tolerance	Roll Groove		Cut Groove		Roll Groove		Cut Groove		Basic	Tol.			Basic	Tol.
			Basic	Tol.	Basic	Tol.	Basic	Tol.	Basic	Tol.						
2 50	2.375 60.3	+0.024 -0.024	0.572 14.53	-0.020 0.51	0.562 14.27	±0.010 0.25	0.250 6.35	+0.015 0.38	0.255 6.48	-0.005 0.13	2.250 57.15	-0.015 0.38	0.063 1.60	0.065 1.65	0.154 3.91	
2½ 65	2.675 67.0	+0.029 -0.029	0.572 14.53	-0.020 0.51	0.562 14.27	±0.010 0.25	0.250 6.35	+0.015 0.38	0.255 6.48	-0.005 0.13	2.720 69.10	-0.018 0.46	0.078 1.98	0.083 2.11	0.188 4.78	
3	3.500 89.0	+0.035 -0.035	0.572 14.53	-0.020 0.51	0.562 14.27	±0.010 0.25	0.250 6.35	+0.015 0.38	0.255 6.48	-0.005 0.13	3.344 84.94	-0.018 0.46	0.078 1.98	0.083 2.11	0.188 4.78	
4	4.500 114.3	+0.045 -0.045	0.610 15.49	-0.020 0.51	0.605 15.37	±0.015 0.38	0.300 7.62	+0.020 0.51	0.305 7.75	-0.005 0.13	4.334 110.08	-0.020 0.51	0.083 2.11	0.083 2.11	0.203 5.15	
6	6.625 168.3	+0.063 -0.063	0.610 15.49	-0.020 0.51	0.605 15.37	±0.015 0.38	0.300 7.62	+0.020 0.51	0.305 7.75	-0.005 0.13	6.455 163.96	-0.022 0.56	0.085 2.16	0.109 2.77	0.219 5.57	
8	8.625 219.3	+0.063 -0.063	0.719 18.26	-0.020 0.51	0.714 18.14	±0.015 0.38	0.390 9.91	+0.020 0.51	0.400 10.16	-0.010 0.25	8.441 214.40	-0.025 0.64	0.092 2.34	0.109 2.77	0.238 6.05	
10	10.750 273.0	+0.063 -0.063	0.719 18.26	-0.020 0.51	0.714 18.14	±0.015 0.38	0.390 9.91	+0.020 0.51	0.400 10.16	-0.010 0.25	10.562 268.28	-0.027 0.69	0.094 2.39	0.134 3.40	0.250 6.35	
12	12.750 323.9	+0.063 -0.063	0.719 18.26	-0.020 0.51	0.714 18.14	±0.015 0.38	0.390 9.91	+0.020 0.51	0.400 10.16	-0.010 0.25	12.531 318.29	-0.030 0.76	0.109 2.77	0.156 3.96	0.279 7.09	

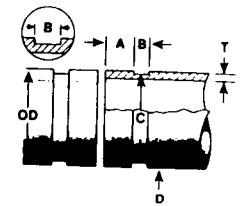
† Coatings applied to the interior surfaces, including bolt pad mating surfaces, of our bolted grooved and bolted plain end couplings should not exceed 0.010" (0.25 mm). Also, the coating thickness applied to the gasket seating surface and within the groove on the pipe exterior should not exceed 0.010" (0.25 mm).

"ES" ROLL/CUT GROOVE SPECIFICATIONS NOTES

ROLL GROOVE



CUT GROOVE



COLUMN 1 - Nominal IPS pipe size Nominal metric (ISO) pipe size

COLUMN 2 - IPS outside diameter. Metric (ISO) outside diameter. The outside diameter of roll grooved pipe shall not vary more than the tolerance listed. For IPS pipe, the maximum allowable tolerance from square cut ends is 0.030" for ¾ - 3½" (20 - 90 mm); 0.045" for 4 - 6" (100 - 150 mm); and 0.060" for sizes 8" O.D. (200 mm) and above measured from true square line. For (ISO) metric pipe, the maximum allowable tolerance from square cut ends is 0.76 mm for sizes 20 mm-80 mm; 1.14 mm for sizes 100 mm-150 mm; and 1.52 mm for sizes 200 mm and above, measured from the true square line.

COLUMN 3 - Gasket seat: the pipe surface shall be free from indentations, roll marks, and projections from the end of the pipe to the groove, to provide a leak-tight seal for the gasket. All loose paint, scale, dirt, chips, grease and rust must be removed. Square cut pipe **must** be used with FlushSeal® and EndSeal® gaskets. Gasket seat "A" is measured from the end of the pipe. **IMPORTANT:** Roll grooving may result in unacceptable pipe end flare. (See column 8.)

COLUMN 4 - Groove width: bottom of groove to be free of loose dirt, chips, rust and scale that may interfere with proper coupling assembly. Corners at bottom of roll groove must be radiused. For IPS pipe, 0.04R on 1½ - 12" (40 - 300 mm). For (ISO) metric pipe, 1.2R mm on 20 - 300 mm.

COLUMN 5 - Groove outside diameter: the groove must be uniform depth for the entire pipe circumference. Groove must be maintained within the "C" diameter tolerance listed.

COLUMN 6 - Groove depth: for reference only. Groove must conform to the groove diameter "C" listed.

COLUMN 7 - Minimum allowable wall thickness: this is the minimum wall thickness which may be grooved.

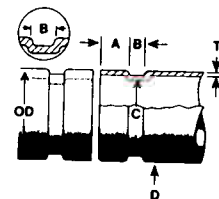
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Copper Tubing Roll Groove Specifications

1 Nom. Size Inches mm	2 Pipe Outside Diameter O.D. - Inches/mm		3 Dimensions - Inches/millimeters					8 Max. Allow. Flare Dia.
			Gasket Seat A	Groove Width B	Groove Dia. C	Groove Depth (ref.) D	Min. Allow. Wall Thick. T	
	Basic	Tolerance	±0.03 ±0.79	±0.03 ±0.79	+0.00 -0.02		T	
2	2.125	±0.002	0.610	0.300	2.029	0.048	0.064	2.220
2½	2.625	±0.002	0.610	0.300	2.525	0.050	0.065	2.720
3	3.125	±0.002	0.610	0.300	3.025	0.050	DWV	3.220
4	4.125	±0.002	0.610	0.300	4.019	0.053	DWV	4.220
5	5.125	±0.002	0.610	0.300	4.999	0.053	DWV	5.220
6	6.125	±0.002	0.610	0.300	5.999	0.063	DWV	6.220
8	8.125	±0.0004	0.610	0.300	7.959	0.083	DWV	8.220

Tolerances for 8" (200 mm) are +0.002 (0.5 mm), -0.004 (-0.10 mm).

COPPER TUBING ROLL GROOVE SPECIFICATIONS NOTES



COLUMN 1 - Nominal ASTM B-88 drawn copper tubing size.

COLUMN 2 - Outside diameter: The outside diameter of roll grooved tubing shall not vary more than the tolerance listed. The maximum allowable tolerance from square cut ends is 0.030" (0.8 mm) for 2 - 3" (50 - 80 mm), 0.045" (1.1 mm) for 4 - 6" (100 - 150 mm), measured from true square line.

COLUMN 3 - Gasket seat: The tubing surface shall be free from indentations, roll marks, and projections from the end of the tubing to the groove, to provide a leak-tight seat for the gasket. All loose scales, dirt, chips and grease must be removed.

COLUMN 4 - Groove width: Bottom of groove to be free of loose dirt, chips and scale that may interfere with proper coupling assembly.

COLUMN 5 - Groove outside diameter: The groove must be uniform depth for the entire tubing circumference. Groove must be maintained within the "C" diameter tolerance listed.

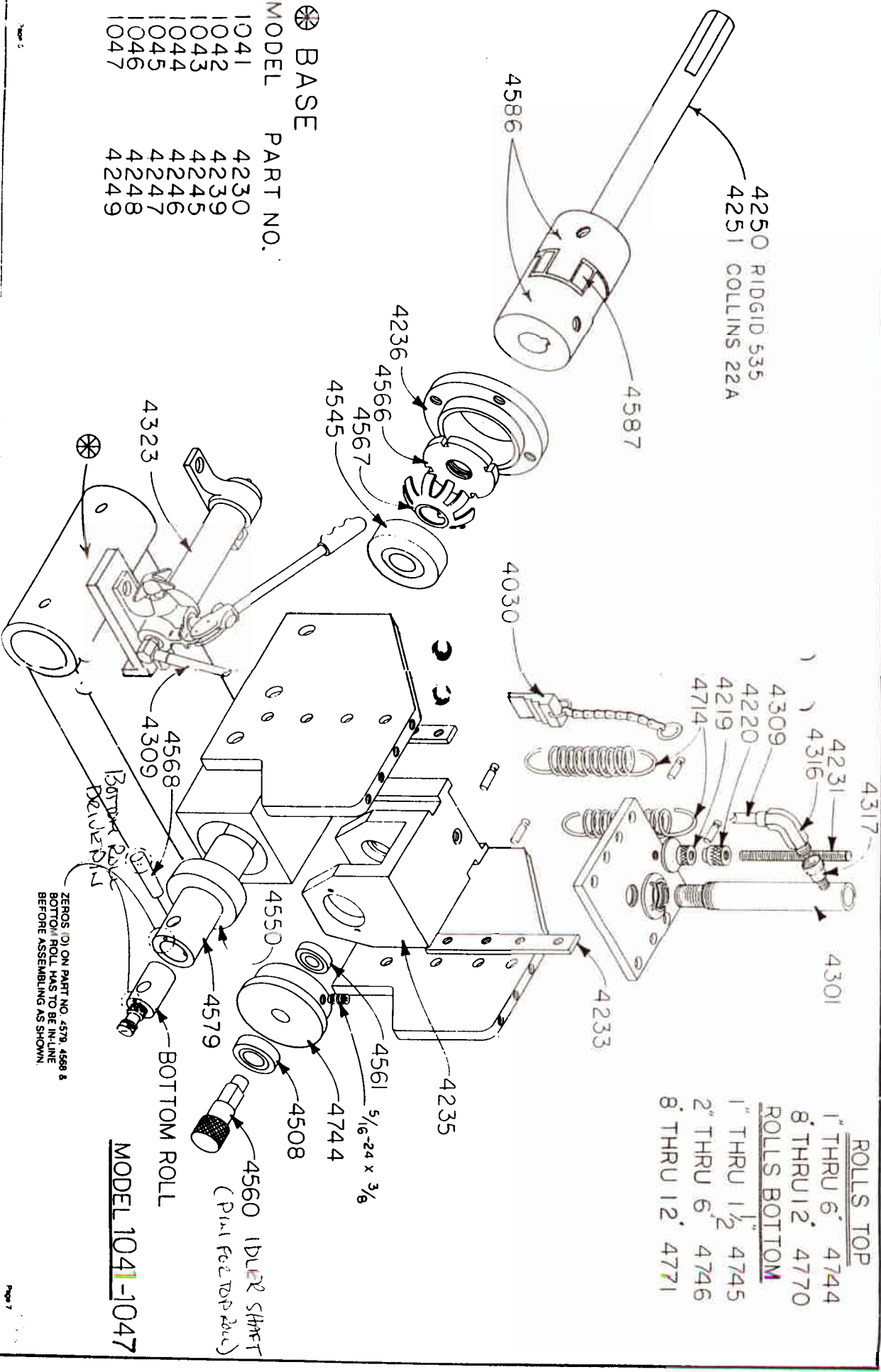
COLUMN 6 - Groove depth: For reference only. Groove must conform to the groove diameter "C" listed.

COLUMN 7 - ASTM B-306 drain waste and vent (DWV) is minimum wall thickness copper tubing which may be roll grooved.

COLUMN 8 - Maximum allowable end flare diameter measured at the most extreme tubing end diameter.

Request 25 08

MODEL	PART NO.
1041	4230
1042	4239
1043	4245
1044	4246
1045	4247
1046	4248
1047	4249



4250 RIDGID 535
4251 COLLINS 22A

ROLLS TOP	
1" THRU 6"	4744
8" THRU 12"	4770
ROLLS BOTTOM	
1" THRU 1 1/2"	4745
2" THRU 6"	4746
8" THRU 12"	4771

ZEROS (O) ON PART NO. 4579, 4588 & BOTTOM ROLL HAS TO BE IN LINE BEFORE ASSEMBLING AS SHOWN.

MODEL 1041-1047