

Model 9323-020
Bead Breaker

S/N 0101 and On

OPERATION and MAINTENANCE MANUAL
with ILLUSTRATED PARTS LIST

11905 REGENTVIEW AVENUE
DOWNEY, CA 90241-5587 U.S.A.
TEL (562) 862-1174 FAX (562) 861-5825
www.regent4gse.com

**MODEL 9323-020
BEAD BREAKER
PAGE -1-**

1.0 Introduction

This manual is issued as a basic service and maintenance manual covering the Model 9323-020, Bead Breaker manufactured by Regent Mfg., Inc., 11905 Regentview Avenue, Downey, CA 90241, U.S.A., Phone number (562) 862-1174, FAX No. (562) 861-9624.

To derive maximum service, it is recommended that personnel have an understanding of the equipment before attempting to operate the bead breaker. It is mandatory that the operating procedures herein be followed.

2.0 Specifications

Maximum Tire Dimensions:

Diameter:	62 Inches
Width:	23 Inches

Distance Between Ring Segments:

Maximum, Cylinders Retracted	27 Inches
Minimum, Cylinders Extended	4 Inches

Breaking Cylinder Force - Maximum:	60,000 Lbs.
------------------------------------	-------------

Breaking Cylinder Stroke:	10.5 Inches
---------------------------	-------------

Hydraulic Operating Pressure:	2000 Psi
-------------------------------	----------

Relief Valve Setting:	2200 Psi
-----------------------	----------

Hydraulic Reservoir Capacity:	4.0 Gallons
-------------------------------	-------------

Electrical Requirement Options:

230 VAC, 1 Ph, 60 Hz
440 VAC, 3 Ph, 60 Hz
380 VAC, 3 Ph, 50 Hz

Over-All Dimensions:

Length	120 Inches
Depth	62 Inches
Height - Maximum	51 Inches

Weight	2900 Lbs.
--------	-----------

3.0 Features

The bead breaker is used to "break", (separate) the bead of an aircraft pneumatic tire from the rim of the wheel in order to facilitate tire demounting.

The bead breaker consists of a welded steel "U" shaped frame which carries the functional components. The frame is hinged at its center and mounted on a tubular base. The tire which is to be demounted, is placed vertically between the open ends of the "U" frame. Two hydraulic cylinder assemblies on each side provide the means for clamping the tire and wheel in place and applying the bead breaking force to the tire. Adapter plates and ring segments are mounted to the ends of the rams to hold the wheel and tire.

When breaking small diameter tires, the removable tire ramp can be mounted to the base which to provide a raised platform for positioning the tire between the adapter plates. In addition, spacers can be mounted to each ring segment to decrease the depth of the ring segment.

Hydraulic power for the operation of the elevation and bead breaker cylinders is provided by a separate floor mounted hydraulic power unit. The power unit consists of a hydraulic pump, solenoid valve assemblies and a hydraulic fluid reservoir. The pump is driven by an electric motor.

A control box is mounted on the frame, with push-button controls for the elevating cylinders and for each breaking cylinder. Each of the push buttons is of the dead-man type (spring loaded) for operator safety.

The Regent bead breaker is engineered to provide optimum operational and maintenance qualities and is designed to withstand hard usage.

The hydraulic power unit is equipped with an automatic safety valve to bypass hydraulic fluid from the pump back to the reservoir at 110% of rated capacity.

The cylinders and rams are hard chrome plated for smooth sealing surfaces and optimum wear characteristics.

WARNING: DUE TO THE WEIGHT OF VARIOUS COMPONENTS OF THE BEAD BREAKER, CARE SHOULD BE TAKEN WHEN PERFORMING DISASSEMBLY OPERATIONS. NO ATTEMPT SHOULD BE MADE TO ASSEMBLE OR DISASSEMBLE ANY OF THE BEAD BREAKER COMPONENTS WITHOUT HAVING CHAIN HOIST, OVERHEAD CRANE, WOODEN BLOCKS (4 x 4'S), AND ADEQUATE MANPOWER AVAILABLE. THIS IS TO INSURE THAT THE COMPONENT PARTS WILL REMAIN IN A MECHANICALLY STABLE POSITION DURING THE OPERATION.

4.0 Preparation For Use

Proceed as follows to prepare the Bead Breaker for service:

- 4.1 Inspect hydraulic reservoir fluid level at fill port. The fluid level should be within one half inch to the top of the reservoir with all cylinders in the retracted (collapsed) positions. If necessary, add sufficient hydraulic operating fluid (refer to Section 8.0 for proper hydraulic fluid specifications) to fill reservoir to required level.
- 4.2 Ensure that the hydraulic power supply has been permanently connected to the correct electrical input power.
- 4.3 Ensure that both the hydraulic hoses and the electrical conduit are protected between the bead breaker and the hydraulic power unit.
- 4.3 Inspect for any visual signs of hydraulic leakage or physical damage to the bead breaker.
- 4.4 Clean the floor area of any substance, which could cause the operator to slip or fall when positioning a tire.
- 4.5 Fully extend and retract each cylinder to verify proper operation.
- 4.6 Every month, apply a thin film of lubricating oil to pivot pins and to the outer surface of each hydraulic cylinder ram.

5.0 Operation

- 5.1 Prepare the bead breaker as outlined in 4.0.
- 5.2 Use 9324-T Spacing Tool (Item 49) on the center socket head capscrew to locate each ring segment. Unscrew knob on back of ring segment, slide ring segment to a radius marked on spacing tool, and lock ring segment in place by screwing down the knob on backside of the segment. Repeat this procedure for each of the remaining ring segments to maintain a constant radius.
- 5.3 Deflate the tire and remove the valve core. Position the tire inside the frame between the ring segments.
- 5.4 Raise or lower the spyder/ring segments as required until the ring segments clear the wheel rim around the rim circumference by operating the hydraulic lift cylinders.
- 5.5 Extend both bead breaker cylinders until the ring segments contact the tire on both sides.

5.0 Operation (Continued)

WARNING: PERSONNEL MUST KEEP CLEAR OF TIRE AND WHEEL WHEN BREAKING BEADS.

5.6 Continue to extend the cylinders until the tire bead is free of wheel rim. Retract bead breaker cylinder rams.

5.7 Roll tire and wheel out from bead breaker frame.

6.0 Small Wheel Operation

6.1 Remove small wheel ramp from top of bead breaker frame and position on floor between adapters as shown in. Lock in place with quick release pin provided.

6.2 Assemble a small wheel spacer to each ring segment as shown in Figure 6.

6.3 Adjust and operate the bead breaker as described in 5.0.

7.0 Trouble Shooting

7.1 If operational troubles are encountered, refer to Table I which lists the most commonly encountered troubles and give information which will facilitate location of trouble source and determination of remedial action.

WARNING: ELECTRICAL POWER MUST BE OFF TO THE HYDRAULIC POWER SUPPLY WHENEVER DISASSEMBLY OF ANY PART OF THE BEAD BREAKER IS NECESSARY.

7.2 When removal of hydraulic system interior components is necessary, drain all hydraulic fluid from the bead breaker and proceed with the required disassembly.

7.3 All removed metallic parts shall be cleaned with solvent and thoroughly dried.

CAUTION: Use solvent only in a well-ventilated area, removed from vicinity of open flame or elevated temperature. Avoid prolonged or repeated contact with the skin and inhalation of toxic solvent vapors, and do not smoke in presence of vapors. Toxic solvents present a danger to health.

7.4 All damaged or defective parts shall be replaced; detail rework of bead breaker parts is not considered reliable or safe.

7.0 Trouble Shooting (Continued)

7.5 After trouble shooting and corrective action, and prior to use of the bead breaker, prepare the bead breaker for operation as outlined in paragraph 4.0.

8.0 RECOMMENDED HYDRAULIC FLUID

8.1 The following hydraulic oils compatible with Buna-N O-Rings, are recommended for use in the bead breaker:

Tellus 15 (Shell Oil Co.)
MIL-H-5606 (Shell Oil Co., Aero Shell No. 4)
MIL-H-6083a (Mobil Oil, MILVAC-6083)
Calol Engine Oil (Union Oil Co.)
Texaco Regal Oil AA (R&O) (Texas Co.)
Opaline 10W Motor Oil (Sinclair Co.)
MIL-H-83282 (Shell Oil Co.)

**TABLE I
TROUBLE SHOOTING**

TROUBLE	PROBABLE CAUSE	REMEDY
External fluid leakage at extend/retract rams.	Damaged backup rings, packings or ram sealing surface.	Remove spyder/ring. Remove ram assembly thru rear. Inspect and replace defective parts. Replace "O" Ring.
Rams fail to travel.	Obstructed fluid section passage.	Remove suction lines and inspect for obstruction.
	Obstructed suction strainer.	Remove and replace strainer.
	Low fluid level.	Fill to correct fluid level.
	Relief valve failing to hold pressure.	Inspect for failing valve and replace.
Rams will not travel full distance.	Low fluid level.	Fill to correct fluid level.
Rams will not break bead after complete pump up.	Internal leakage past rams and outer cylinders.	Remove adapter assembly and end cap. Remove ram assy thru rear. Inspect and replace defective parts.
	Relief valve malfunction or low setting.	Correct valve setting or replace.
All rams inoperative.	Improper electrical supply.	Insure proper input electrical power is available at the power supply.
	Relief valve malfunction.	Correct valve setting or replace.
Elevation cylinders will not remain in position.	Leaking check valve.	Remove valve and remove possible contamination under valve seat or replace valve.
Pump-up satisfactory, but pump pressure fails to by-pass at maximum ram extension or with over load applied.	Relief valve set too high.	Adjust relief valve.
	Inoperative relief valve.	Remove and replace.

REGENT MFG., INC.

Model 9323-020
 Bead Breaker
 Page 1 of 5
 Figure 1

FIG. & ITEM NO.	PART NUMBER	DESCRIPTION	UNITS PER ASS'Y
1-	9323-020	Bead Breaker	Ref.
-1	9323-1	Base	1
-2	9323-2	Frame	1
-3	9323-AC	Cylinder Assembly.....	2
-4	9324-AF	Spyder Assembly	2
	10250T23B	Pushbutton (Cutler Hammer)	6
-5	Not Used		
-6	9323-F	Control Box Assembly	1
-7	7003-J	Hydraulic Schematic.....	Ref.
-8	9323-30	Operation Placard	1
-9	2BB-2H-LU18A7	Cylinder (Parker Hannifin).....	2
-10	68369	Pivot Pin (Parker Hannifin).....	2
-11	9323-6	Capscrew, Hex Head	1
-12	3/4 ID	Washer.....	1
-13	3/4-10	Nut, Self-Locking	1
-14	.750 DIA x 1.844 Grip	Pin, Clevis	2
-15	.120 DIA x 1.25 Lg.	Pin, Cotter	2
-16	.50-20 x 3.0 Lg.	Capscrew, Hex Head	8
-17	.50 ID	Lock Washer	8
-18	CKCA XAN YEB	Pilot Op. Check Valve (Sun Hydraulic).....	2
-19	916-543	Nameplate.....	1
-20	#10	Washer.....	4
-21	10-32 x .50 Lg.	Screw, Pan Head	4
-22	9324-AN	Segment Assembly	8
-23	6S6BTX-S	Swivel Branch Tee (Parker Hannifin).....	1
-24	6-CCCBTX-S	Elbow, Long (Parker Hannifin)	2
-25	3/8 X 1/4 PTR-S	Reducer, Pipe Thread (Parker Hannifin)....	2
-26	6FBTX-S	Connector, Male (Parker Hannifin).....	3
-27	2610606-6-6-5-15.0	Hose (Parker Hannifin).....	4
-28	6WBTX-S	Bulkhead Union (Parker Hannifin).....	9
-29	6C6BX-S	Elbow, Swivel Nut (Parker Hannifin)	2
-30	6WEBTX-S	Elbow, Union Bulkhead (Parker Hannifin) ..	3
-31	6JBTX-S	Union Tee (Parker Hannifin)	1
-32	6FNTX-S	Cap (Parker Hannifin)	6
-33	.38 DIA X .049 Wall	Tube (CRES).....	A/R
-34	Not Used		
-35	6-8FBTX-S	Male Connector (Parker Hannifin).....	2

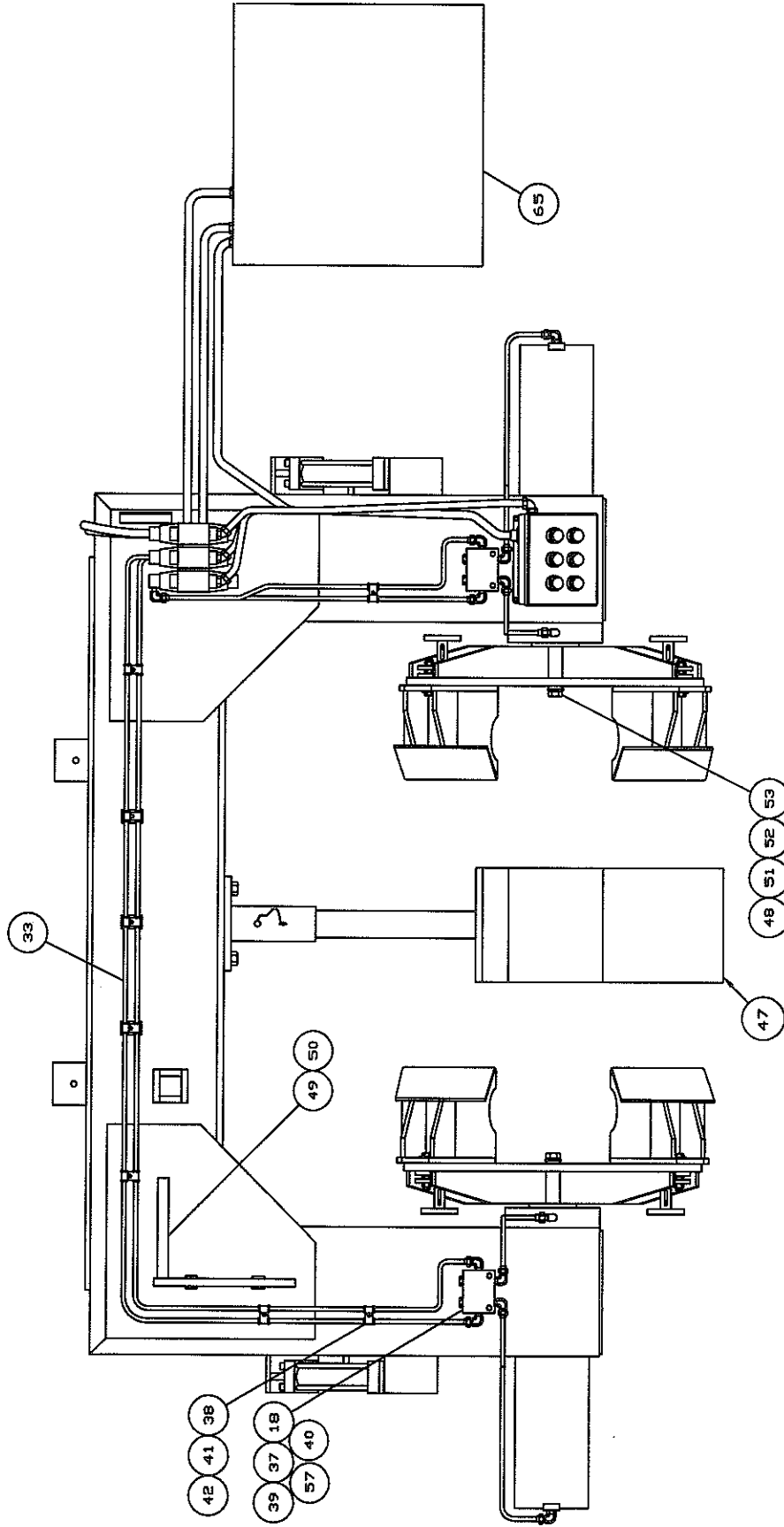
REGENT MFG., INC.

Model 9323-020
 Bead Breaker
 Page 2 of 5
 Figure 1

FIG. & ITEM NO.	PART NUMBER	DESCRIPTION	UNITS PER ASS'Y
1-	9323-020	Bead Breaker	Ref.
-36	Not Used		
-37	6-6CBTX-S	Elbow, Male (Parker Hannifin).....	8
-38	S325G6	Clamp (Umpco).....	23
-39	.25-28 x 1.50 Lg.	Capscrew, Hex Head	4
-40	.25 ID	Lock Washer	4
-41	#10-32 x .50 Lg.	Capscrew, Hex Head	14
-42	#10	Locknut.....	2
-43	#2 (.098) X .125 Lg.	Drivescrew.....	4
-44	9323-21	Upper Spacer	4
-45	9323-22	Lower Spacer	4
-46	68370	Pin (Parker Hannifin).....	2
-47	50943	Clevis (Parker Hannifin)	2
-48	9324-22	Bushing	2
-49	9324-T	Spacing Tool	1
-50	1723A2	Spring Clip (McMaster Carr)	2
-51	.75-16 x 2.00 Lg.	Capscrew, Socket Head.....	2
-52	.75 ID	Washer.....	2
-53	.75 ID	Lock Washer	2
-54	Not Used		
-55	6SBTX-S	Branch Tee (Parker Hannifin).....	1
-56	6F6TX-S	Swivel Connector (Parker Hannifin).....	3
-57	6-6FBTX-S	Connector (Parker Hannifin).....	4
-58	CKCA-XAN-ECA	Pilot Op. Check Valve (Sun Hydraulic).....	1
-59	F4005	Flow Control Valve (Parker Hannifin)....	2
-60	3/8 X 1/2 PTR-S	Pipe Thread Reducer (Parker Hannifin).....	2
-61	1/2 DD-S	Female Pipe Elbow (Parker Hannifin).....	2
-62	1/2 CD-S	Street Elbow (Parker Hannifin).....	2
-63	1/2 FF-S	Pipe Nipple (Parker Hannifin).....	2
-64	9323-S	Small Wheel Adapter.....	1
-65		Hydraulic Power Supply (See Appendix) ...	1

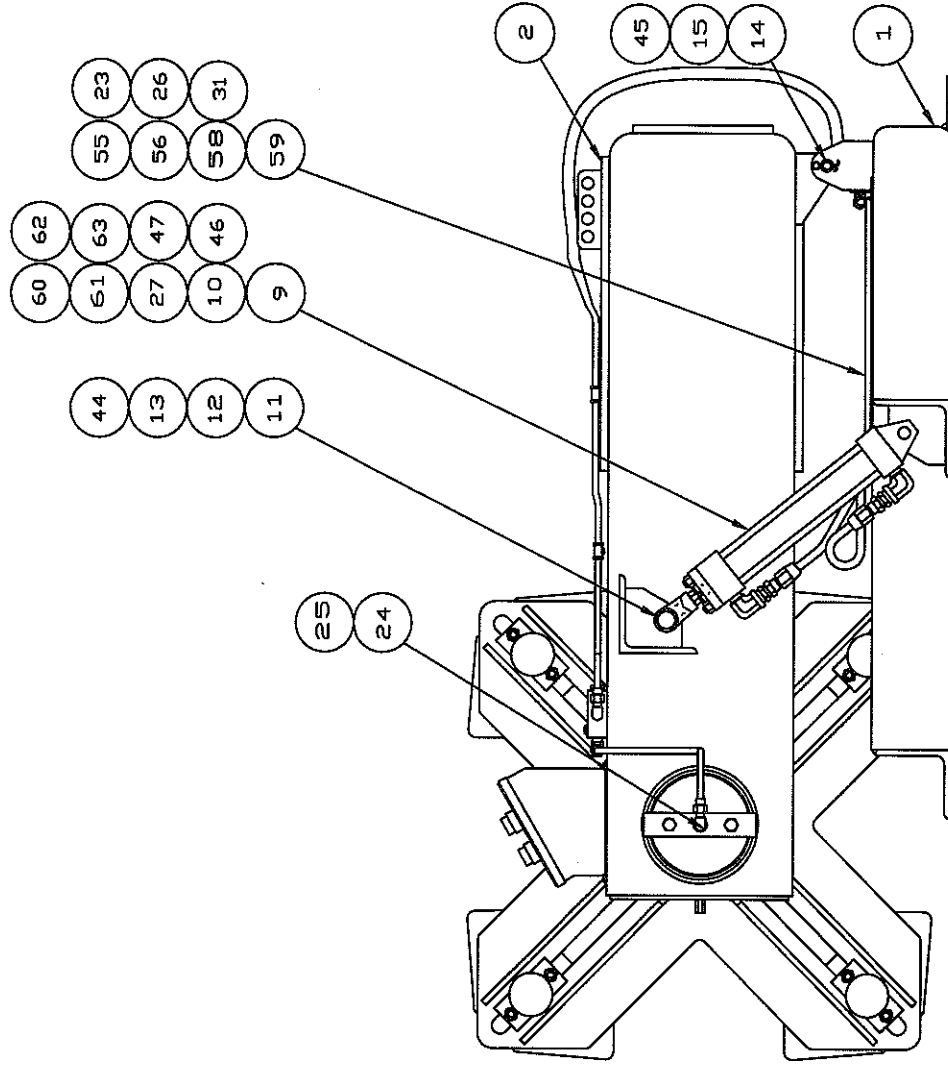
REGENT MFG., INC.

Model 9323-020
Bead Breaker
Page 3 of 5
Figure 1



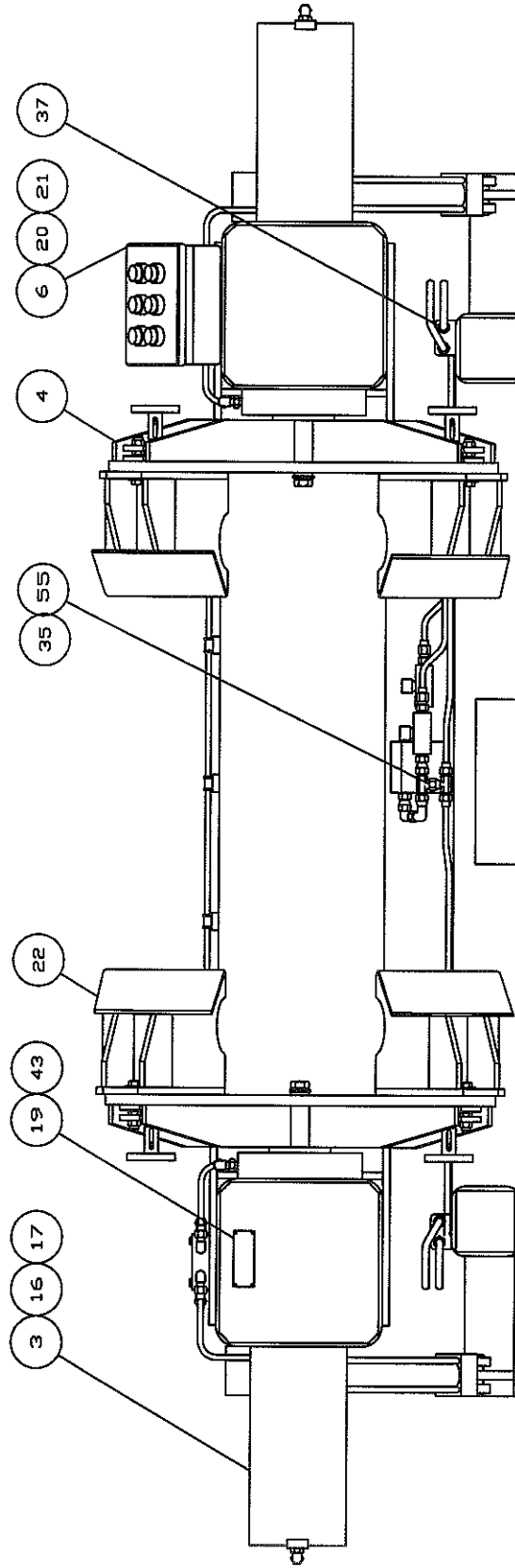
REGENT MFG., INC.

Model 9323-020
Bead Breaker
Page 4 of 5
Figure 1



REGENT MFG., INC.

Model 9323-020
Bead Breaker
Page 5 of 5
Figure 1



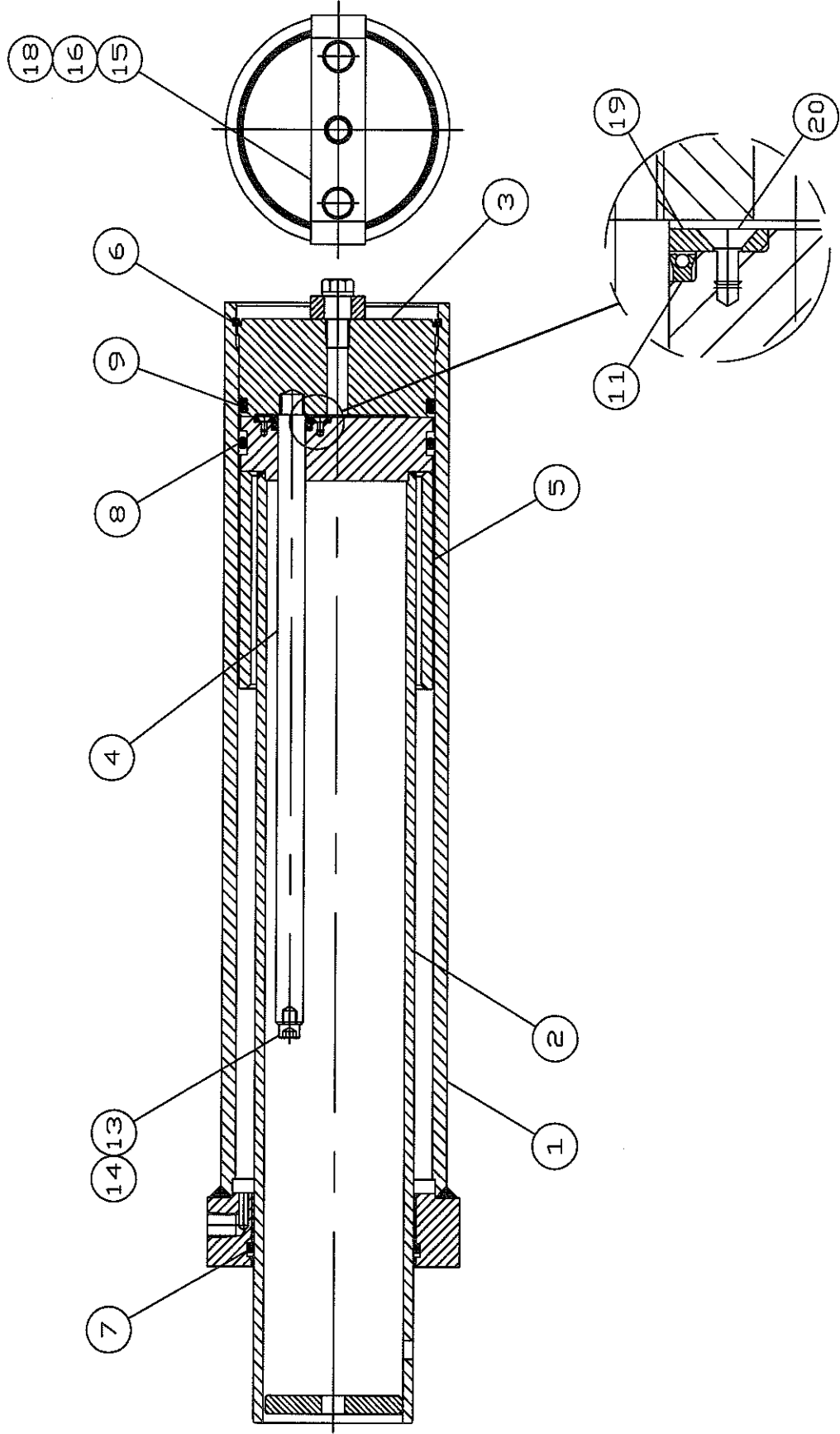
REGENT MFG., INC.

Model 9323-020
 Bead Breaker
 Page 1 of 2
 Figure 2

FIG. & ITEM NO.	PART NUMBER	DESCRIPTION	UNITS PER ASS'Y
2-	9323-AC	Cylinder Assembly	Ref.
-1	9323-3	Cylinder Weldment	1
-2	9323-14	Ram/Piston Weldment.....	1
-3	9323-7	End Cap	1
-4	9323-8	Guide Rod	1
-5	9323-5	Stop Tube.....	1
-6	915-150.19-6.62	Snap Ring.....	1
-7	461525004500-250	Poly Pack Seal (Parker Hannifin).....	1
-8	461531205625-625B	Poly Pack Seal (Parker Hannifin).....	1
-9	MS28775-435	O-Ring (Parker Hannifin).....	1
-10	Not Used		
-11	461518700750	Poly Pack Seal (Parker Hannifin)	1
-12	Not Used		
-13	.38-16 x .38 Lg	Capscrew, Socket Head.....	1
-14	242	Thread Locker (Loctite)	A/R
-15	9323-20	Key	1
-16	.5-13 x .50 Lg	Capscrew, Hex Head	2
-17	Not Used		
-18	.5 ID	Lock Washer	2
-19	7003-47	Retainer.....	1
-20	10-24 x .38 Lg	Capscrew, Flat Head.....	4

REGENT MFG., INC.

Model 9323-020
Bead Breaker
Page 2 of 2
Figure 2



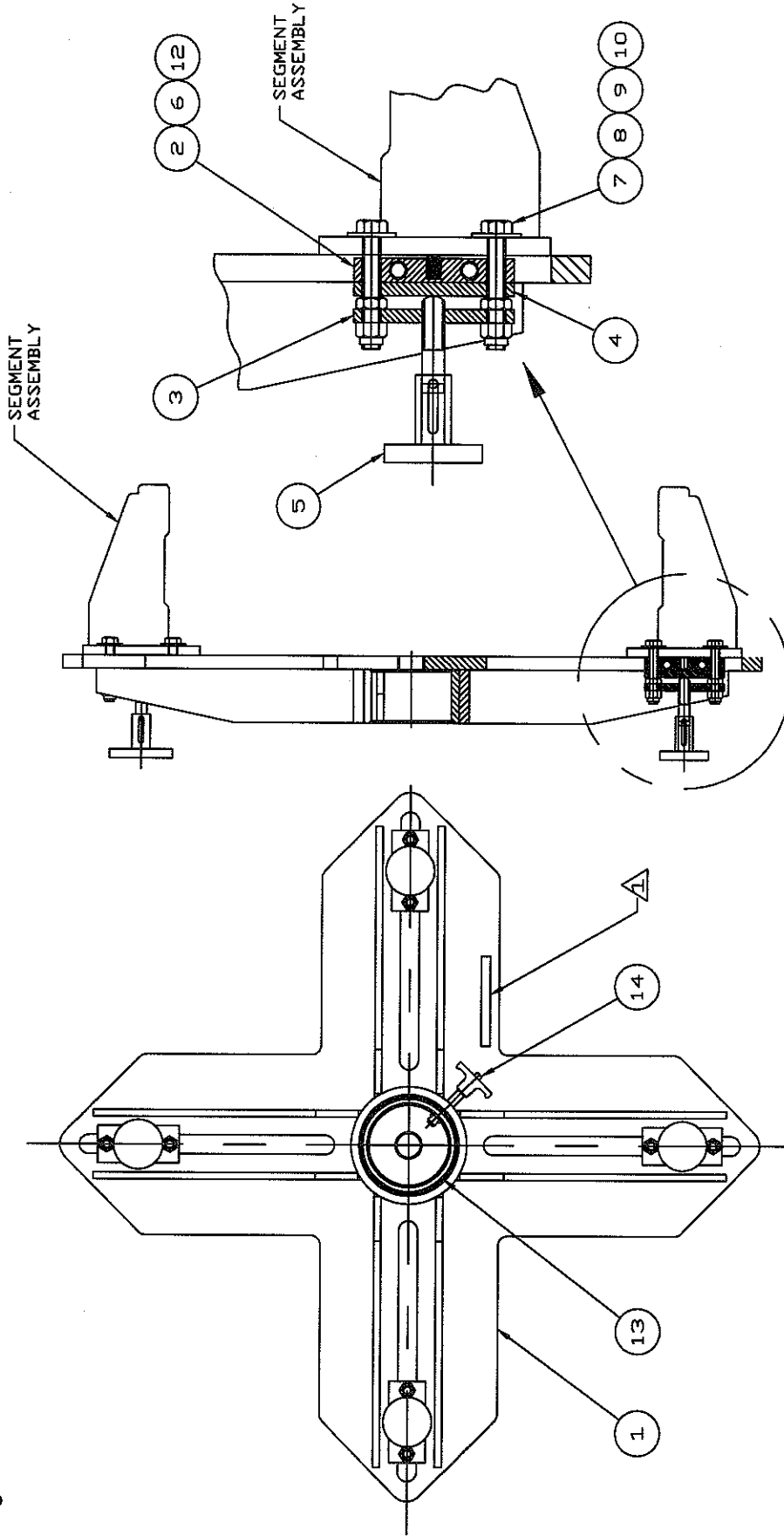
REGENT MFG., INC.

Model 9323-020
Bead Breaker
Page 1 of 2
Figure 3

FIG. & ITEM NO.	PART NUMBER	DESCRIPTION	UNITS PER ASS'Y
3-	9324-AF	Spyder Assembly	Ref.
-1	9324-11	Spyder Weldment.....	1
-2	9324-14	Boat.....	4
-3	9324-15	Plate	4
-4	9324-16	Plate	4
-5	9324-17	Handle Assembly	4
-6	Not Used		
-7	.50-13 x 3.25 Lg	Capscrew, Hex Head	8
-8	.50 ID, WIDE	Washer, Flat.....	8
-9	.50-13	Nut, Jam.....	8
-10	.50-13	Nut, Hex Head Self Locking	8
-11	Not Used		
-12	9434K76	Spring (McMaster-Carr)	4
-13	9324-20	Bushing	1
-14	CL-8-BLP-T-2.0	Ball Lock Pin (Carr Lane)	1

REGENT MFG., INC.

Model 9323-020
Bead Breaker
Page 2 of 2
Figure 3



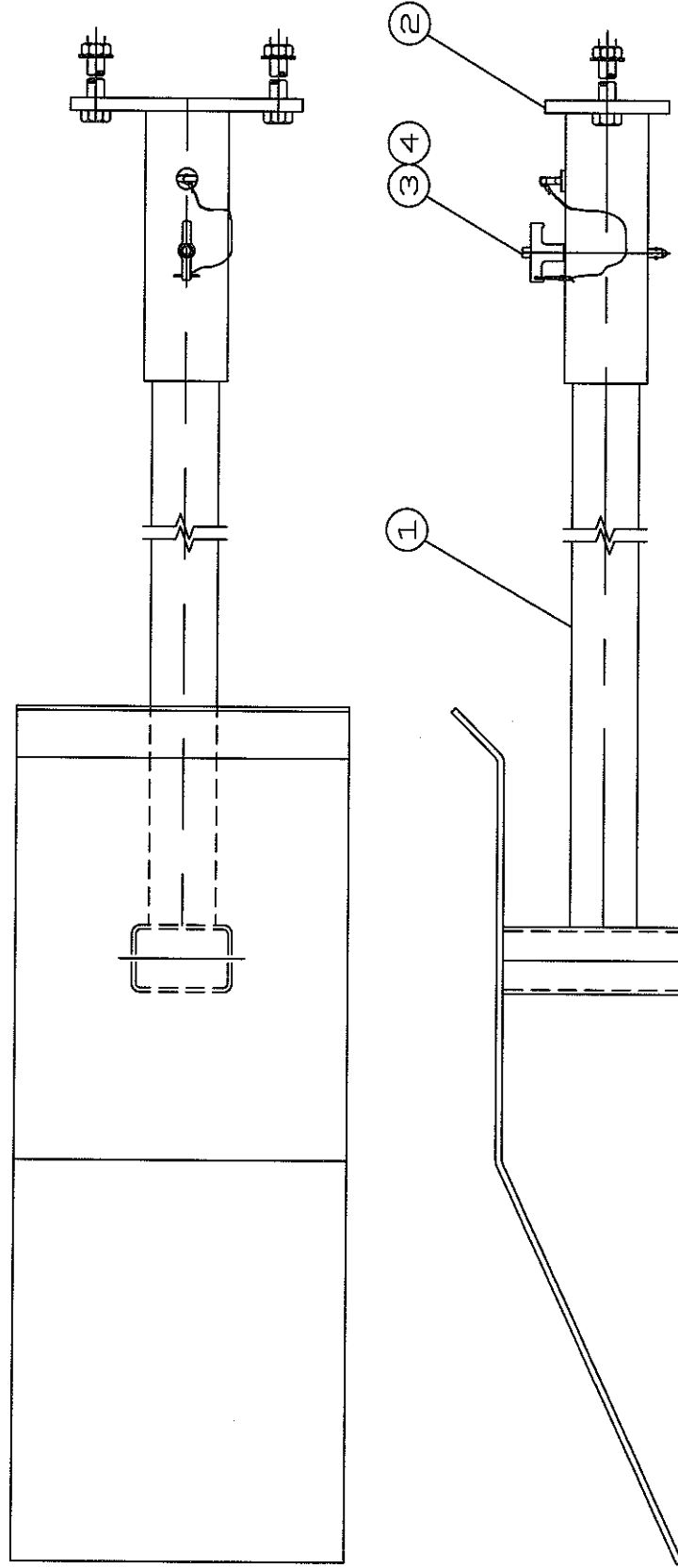
REGENT MFG., INC.

Model 9323-020
Bead Breaker
Page 1 of 2
Figure 4

FIG. & ITEM NO.	PART NUMBER	DESCRIPTION	UNITS PER ASS'Y
4-	7003-J	Small Wheel Ramp.....	Ref.
-1	7003-62	Ramp.....	1
-2	7003-63	Ramp Mount.....	1
-3	CL-5-BLP-T-2.75	Ball lock Pin (Carr Lane)	1
-4	CL-73-KA-8	Cable Assy. (Carr Lane).....	1
-5	.5-20 x 6.50 Lg	Hex Head Capscrew	2
-6	.5-20	Nut.....	2
-7	.5 ID	Lock Washer	2

REGENT MFG., INC.

Model 9323-020
Bead Breaker
Page 2 of 2
Figure 4

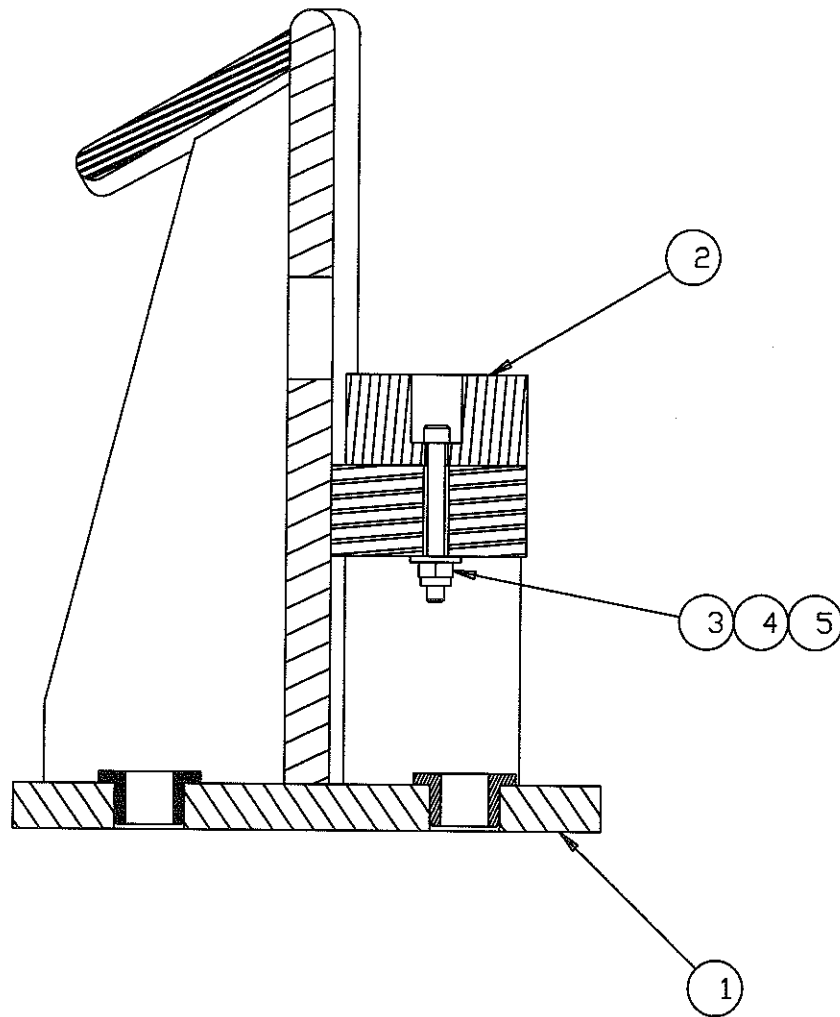


REGENT MFG., INC.

Model 9323-020
Bead Breaker
Page 1 of 2
Figure 5

FIG. & ITEM NO.	PART NUMBER	DESCRIPTION	UNITS PER ASS'Y
5-	9324-AN	Ring Segment Set	Ref.
-1	9324-108	Weldment, Segment.....	1
-2	9323-109	Spacer	1
-3	#10 x .44 O.D.	Washer, Flat.....	1
-4	10-32 x 1.75 Lg	Capscrew, Socket Head.....	1
-5	10 32	Hex Nut, Self Locking.....	1

Model 9323-020
Bead Breaker
Page 2 of 2
Figure 5



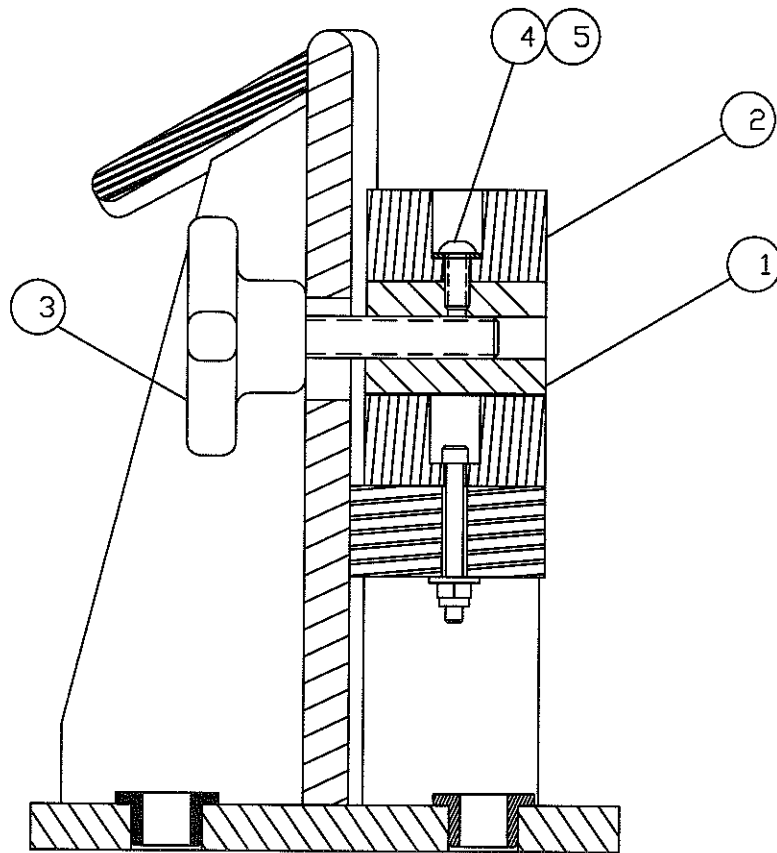
REGENT MFG., INC.

Model 9323-020
Bead Breaker
Page 1 of 2
Figure 6

FIG. & ITEM NO.	PART NUMBER	DESCRIPTION	UNITS PER ASS'Y
6-	9324-S	Small Wheel Adapter.....	Ref.
-1	9323-70	Adapter.....	8
-2	9324-109	Spacer.....	8
-3	CL-5B4K4T	Handknob (Carr Lane)	8
-4	10-32 x .5 Lg	Button Head Capscrew	8
-5	#10	Washer.....	8

REGENT MFG., INC.

Model 9323-020
Bead Breaker
Page 2 of 2
Figure 6



REGENT MFG., INC.

APPENDIX