EQUIPMENT MANUAL

7 and 8 Inch ROLL BENDERS

Manual Form J-11-B

#7+8
Common parts
A901

NIAGARA

Niagara Machine & Tool Works
General Offices, P.O. Box 475, Buffalo, New York 14240, U.S.A.

7 + 8

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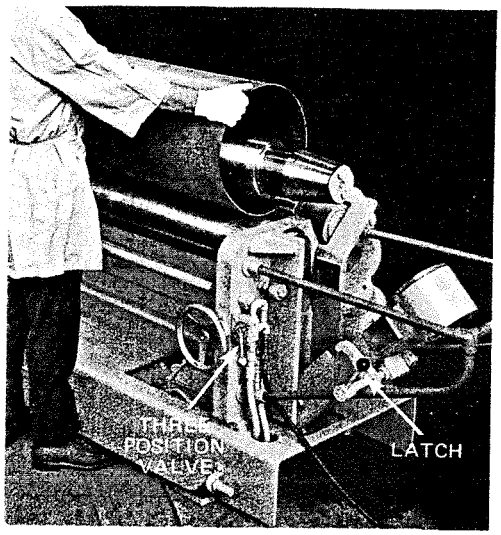


FIG. 7 REMOVING FINISHED PIECE

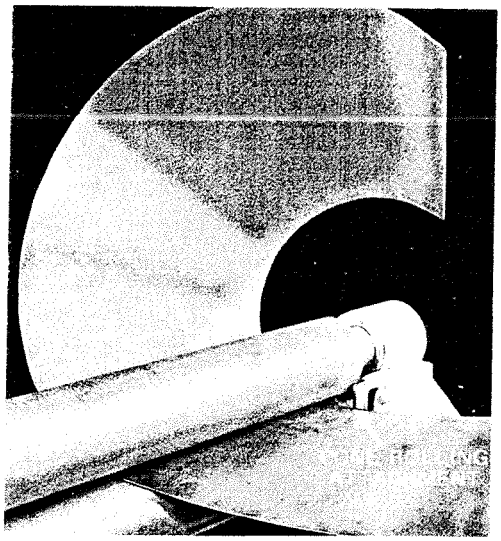


FIG. 8 CONE ROLLING

It should be remembered that to obtain proper curvatures in rolling cones, experience will be a large factor, as different conditions will govern for different sizes and shapes of cones.

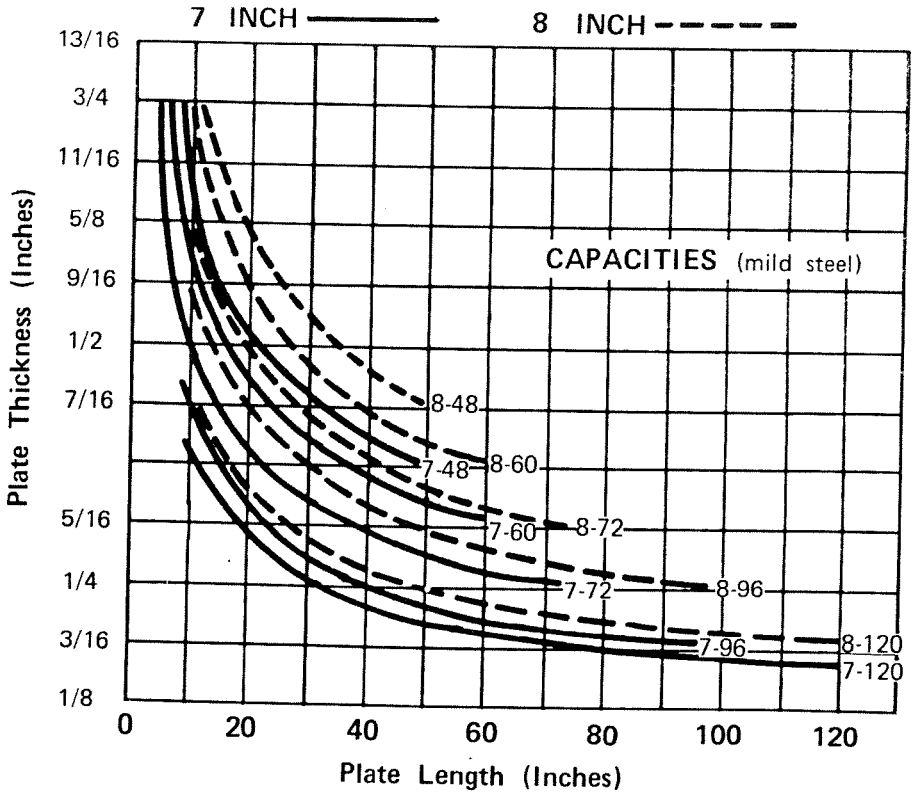
CAPACITY RATINGS

The maximum thickness of material which a roll bender will bend depends upon the diameter and length of the cylinders, the stiffness of the sheet, and the uniformity of the diameter required. Roll benders, therefore, cannot be given an absolute rating. Their capacity is considered as the commercial rating accepted by the Sheet Metal Working Industry when operating the full length of the rolls on mild steel (see Chart on Page 9).

Some indications of overload are stalling of the motor or a barrel shaped cylinder produced by over-deflection of the rolls. Hence, the accuracy required in the finished work must be considered when selecting the proper size roll bender.

Metal of thickness heavier than rated capacity can be rolled when the material is shorter than rated length as less pressure is exerted on the rolls. For best results, it is recommended that the diameter of the cylinder be limited to twice the roll diameter when rolling full capacity and full length. Small diameter cylinders can be rolled easily and more accurately when material lighter than the capacity of the roll bender is used. This results from less pressure and less distortion of the rolls.

CAPACITY CHART



SEC. 3: MAINTENANCE

Proper maintenance of a roll bender will give longer life, greater accuracy, easier and safer operation, produce a better product, and give many years of trouble-free service.

Cleanliness and general good housekeeping are important. When cleaning a roll bender, use an acceptable solvent and rags. Never use waste or an air hose. Inspect your roll bender periodically. Know how it is supposed to operate so that abnormal conditions may be detected immediately. Replace worn parts promptly. Check fasteners for tightness. Keep all guards and covers in their place.

Overloading is probably the primary cause of premature breakage and failure. NEVER exceed the rated capacity as indicated on Page 9 and the data plate attached to the roll bender (see Fig. 2).

Periodically inspect lubrication fittings, tubes and flexible lube lines to see that they are not damaged or broken. Make sure that bearings are receiving oil. Refer to lubrication plate (Fig. 2) attached to roll bender and lubrication chart below. Lubrication plate on roll bender will supersede data in manual.

ELECTRICAL COMPONENTS

Electrical components can fail without advance warning. There are many factors that affect the life of electrical components. Because of this, it cannot be stated that after a given time a unit should be replaced. The best protective measure is a responsible and systematic maintenance program. Due to the unlimited variety of components available, the maintenance program should follow the component manufacturer's recommendations.

Check all controls daily for operation, including the foot switch, before the roll bender is put into production. Protect the foot switch cable from damage by heavy falling objects. A foot switch — when not in use — should be moved away from the work area.

WARRANTY

Refer to "Terms and Conditions" in effect at time of sale.

LUBRICATION CHART

Mobil Oil Company Engineers cooperating with our own staff recommended the following or equivalent lubricants:

PTS.	PARTS	METHOD OF APPLYING	REMARKS	LUBRICANT
A	Link Bushings Roll Bearings Adjustment Wedges	Lubricator	Maintain pump level, operate handle four times each day.	Oil With MOBILGEAR 630
B	Worm Gear Box	Pour	Maintain level in sight gage. Drain after first three months, thereafter every six months or submit sample to local oil supplier for evaluation.	
C	Drive Gears Drop-End Cone Bearing Rear Roll Elevating Drive	Pressure Fittings		MOBILUX EP-1
D	Motors		Follow "Manufactures Recommendations"	

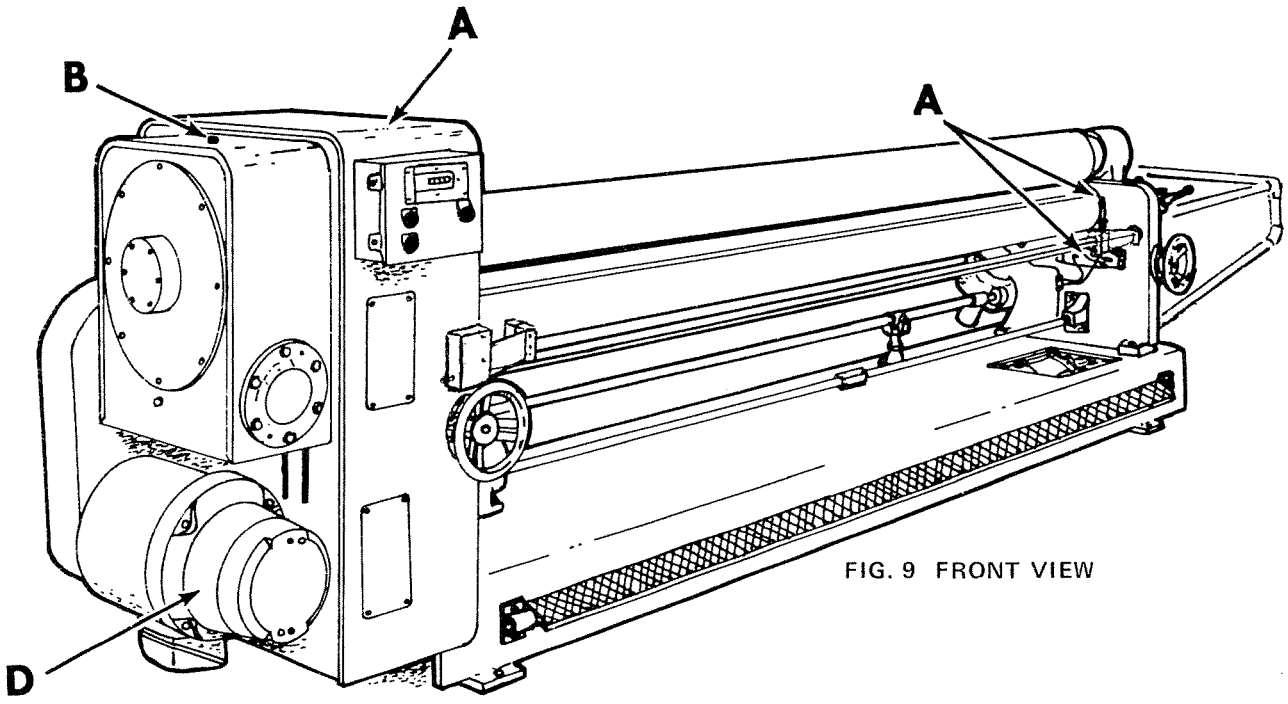


FIG. 9 FRONT VIEW

Thoroughly oil bearings after each shutdown, before starting roll bender and frequently thereafter. Keep bearings and oil clean and free from dirt or grit. The oil recommended has a special compounding for its application; ordinary automotive and machine oils are not satisfactory.

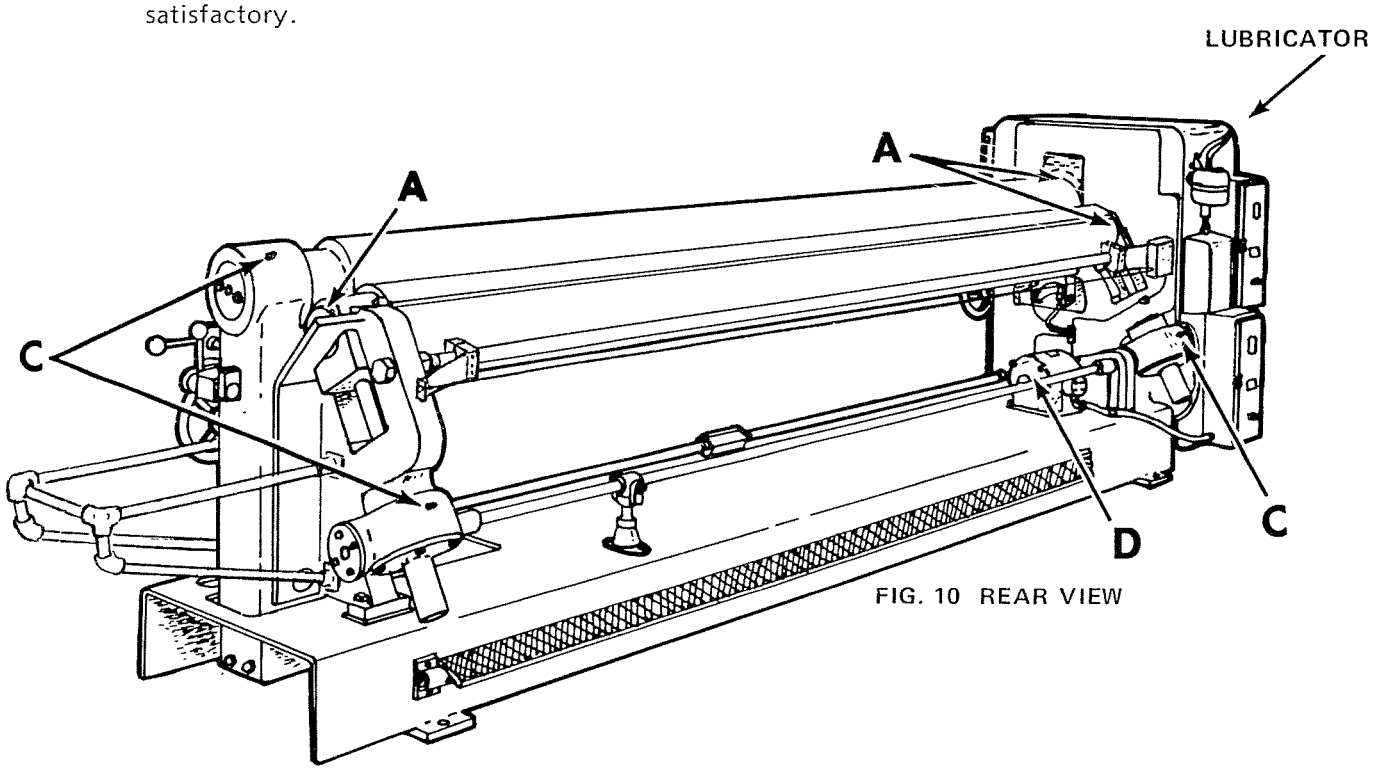
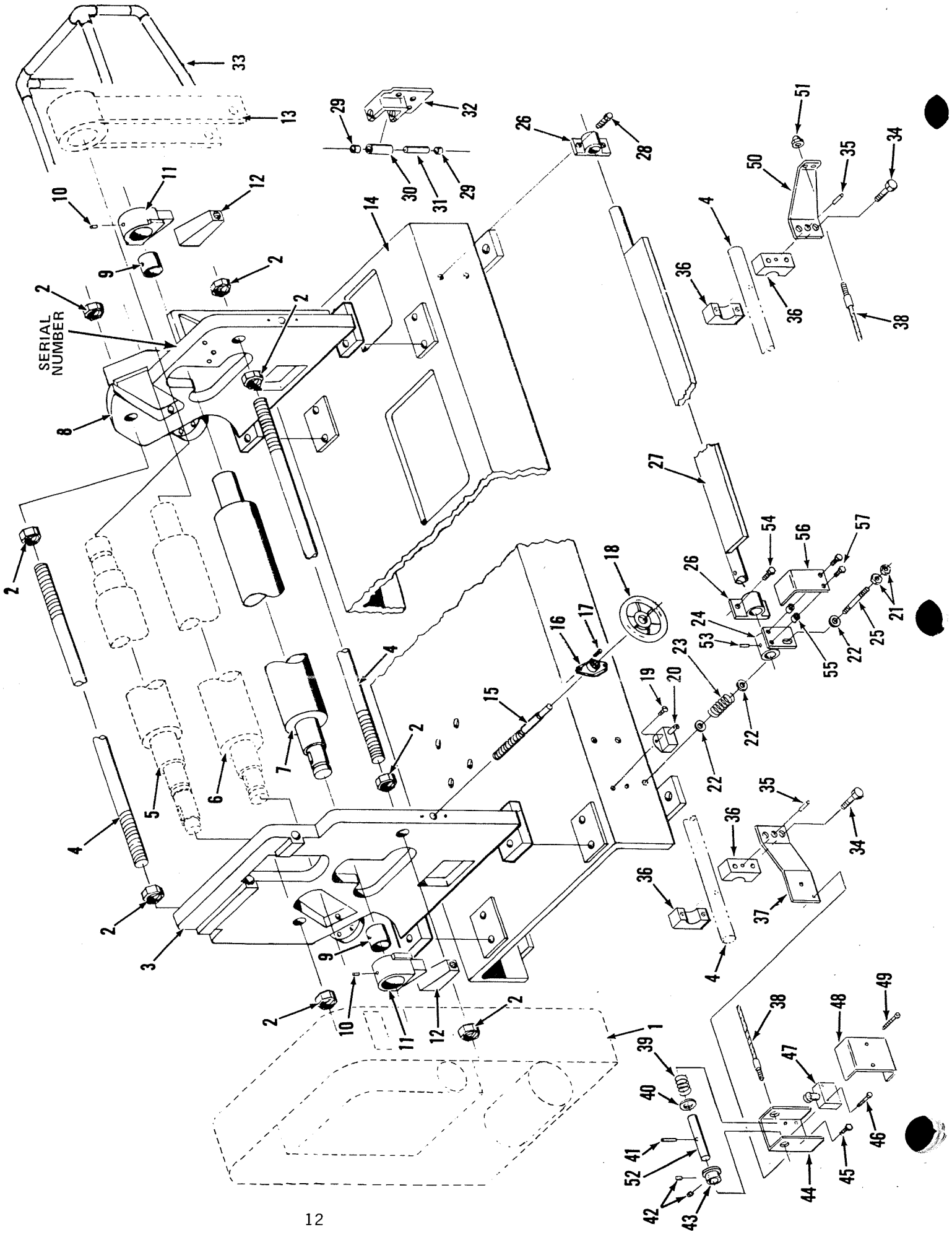


FIG. 10 REAR VIEW

NOTE: Warranty is void if Roll Bender is not lubricated in accordance with Lubrication Data Plate on Roll Bender.


SERIAL NUMBER

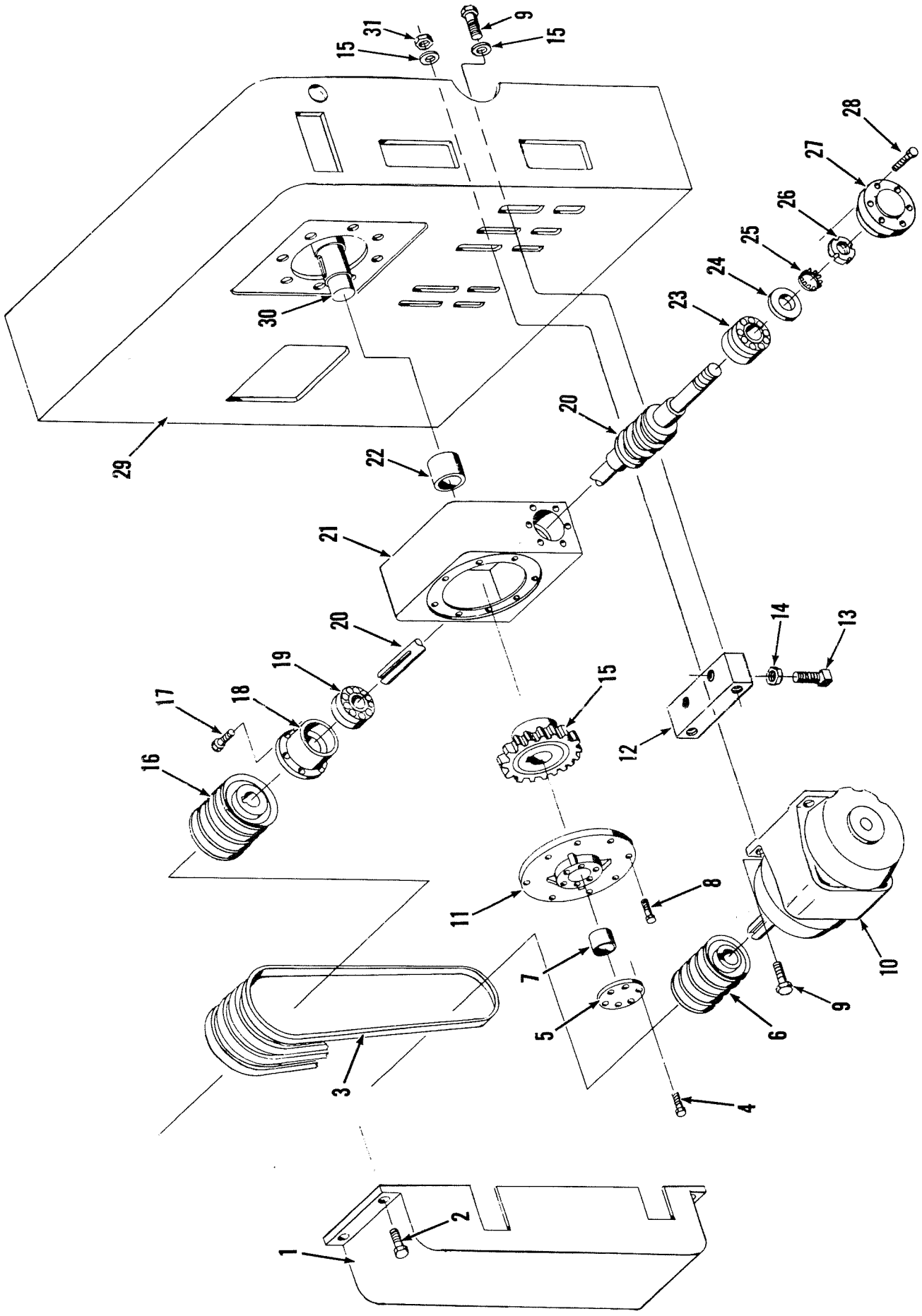
SINCE THE REFERENCE OR CALL OUT NUMBERS ON THE FOLLOWING PARTS LIST ARE DUPLICATED ON OTHER PARTS LISTS, SPECIFY PART REQUIRED BY GIVING REFERENCE NUMBER AND FULL NAME FOLLOWED BY FORM AND PAGE NUMBER.

FRAME

1. Gear Housing (See Page 14)
2. Tie Rod Nut
3. Hinge Plate
4. Tie Rods
5. Upper Roll (See Page 18)
6. Rear Roll (See Page 16)
7. Lower Roll
8. End Plate
9. Roll Bushings
10. Dowel
11. Lower Roll Bearings
12. Adjustment Wedge
13. Tail Stock (See Page 18)
14. Base
15. Lower Adjusting Screw
16. Pillow Block
17. Mounting Bolt
18. Hand Wheel
19. Screw
20. Micro Switch
21. Jam Nuts
22. Washers
23. Spring
24. Micro Switch Lever
25. Stud
26. Pillow Block
27. Motor Stop Treadle (Front & Back)
28. Mounting Bolt
33. Drop End Guard
34. Bolt
35. Roll Pins
36. Clamps (2 pieces each)
37. Limit Switch Bracket
38. Safety Cable
39. Spring
40. Washer
41. Roll Pin
42. Set Screws
43. Limit Switch Actuator
44. Limit Switch Housing
45. Bolt
46. Screw
47. Limit Switch
48. Limit Switch Cover
49. Screw
50. Bracket
51. Acorn Nut
52. Shaft
53. Roll Pin
54. Bolt
55. Spacers
56. Limit Switch Actuator
57. Bolts

Cone Rolling Attachment (Optional)

29. Bushing
30. Roller
31. Roller Pin
32. Support Bracket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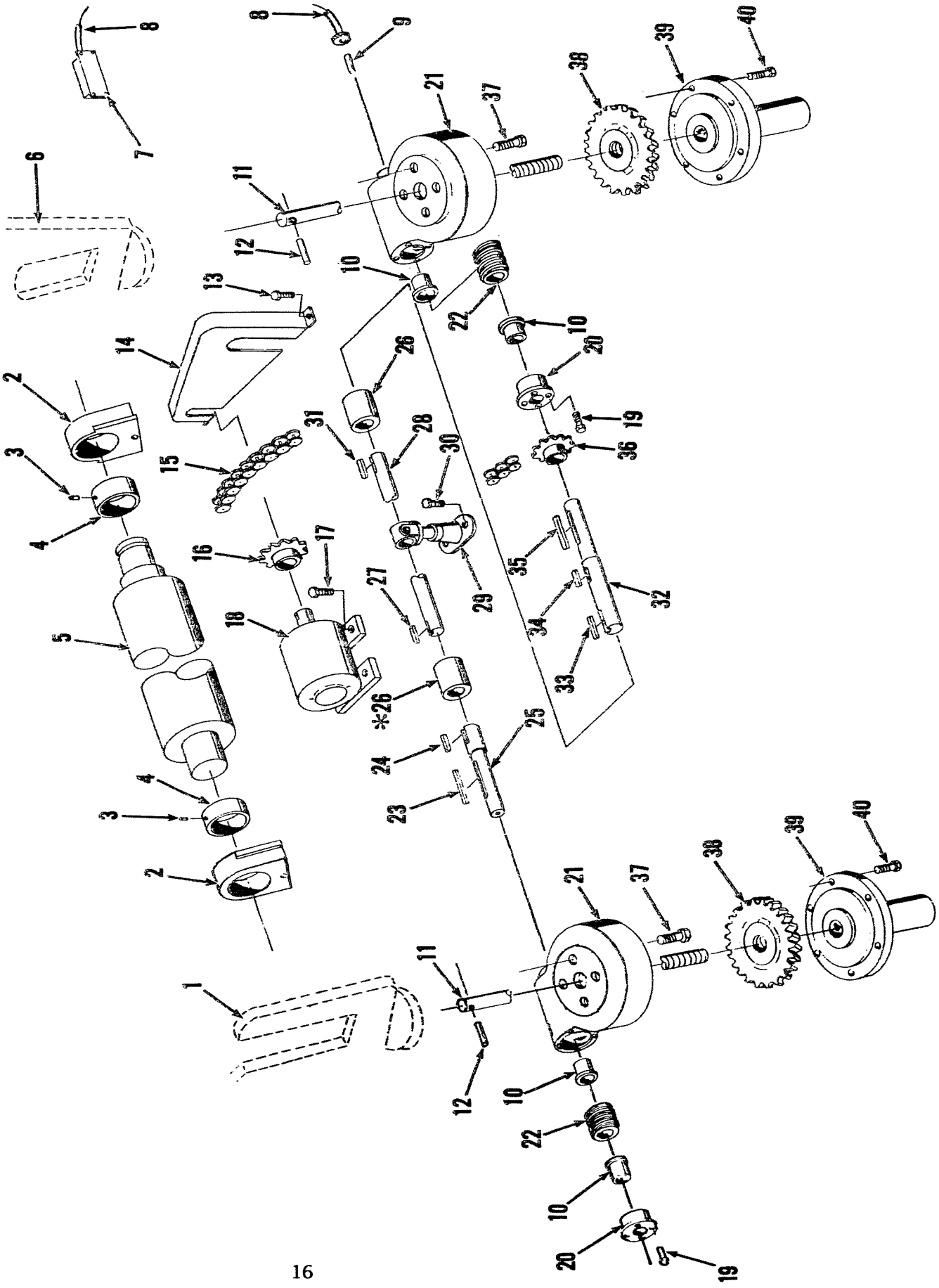
DRIVE ASSEMBLY

1. Belt Guard
2. Bolt
3. Belts
4. Bolt
5. End Cover
6. Sheave
7. Gear Box Cover Bushing
8. Bolt
9. Bolt
10. Motor
11. Gear Box Cover
12. Motor Adjusting Bracket
13. Adjusting Bolt
14. Jam Nut
15. Worm Gear
16. Sheave
17. Bolt
18. Worm Bearing Cartridge
19. Double Spherical Bearing
20. Worm Shaft
21. Gear Box
22. Gear Box Bushing
23. Double Bearing With Cup Spacer (Assembled)
24. Spacer
25. Lock Washer
26. Lock Nut
27. Worm Bearing Retainer
28. Mounting Bolt
29. Gear Housing
30. Upper Roll
31. Nut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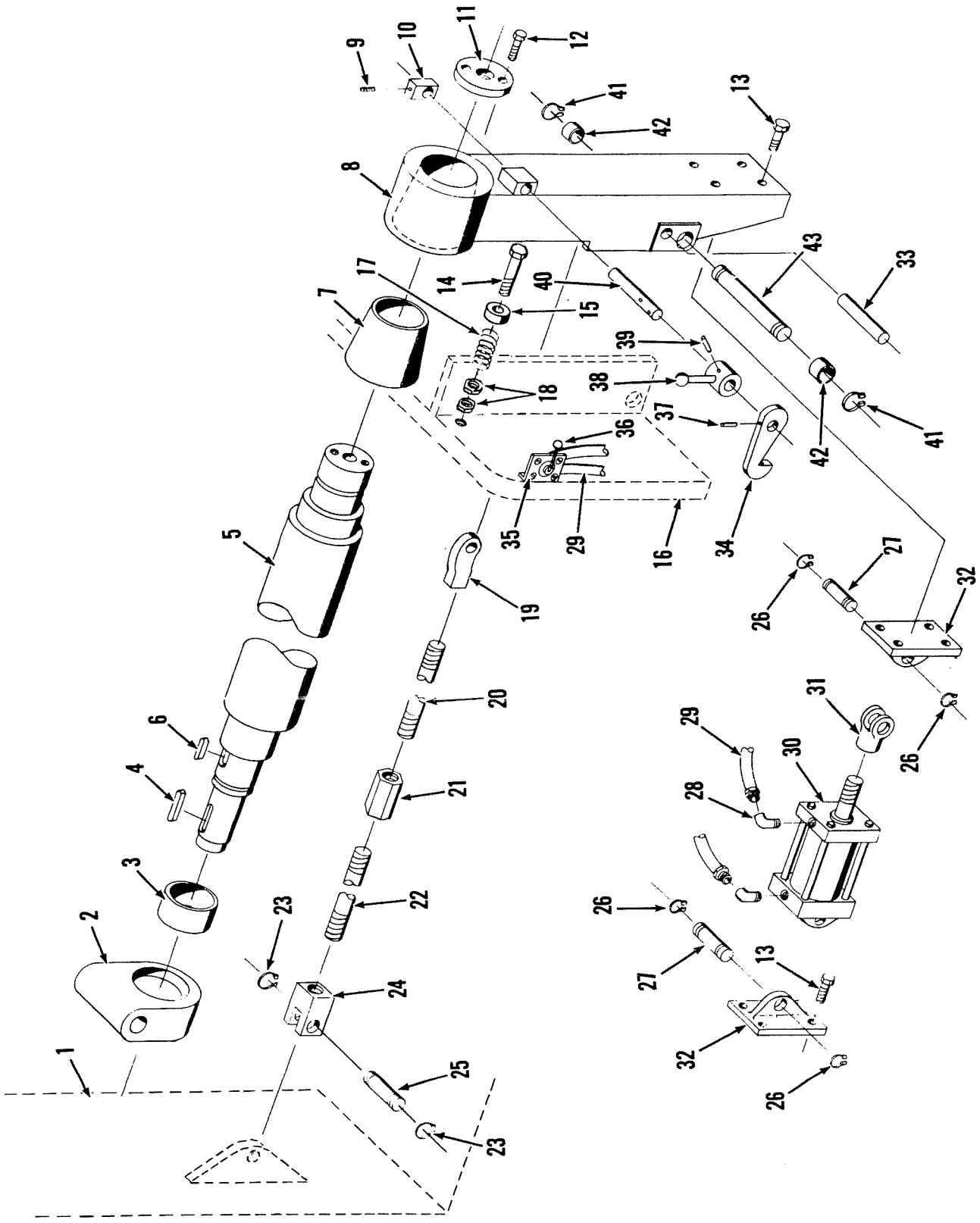
1. End Plate (See Page 12)
2. Rear Roll Bearing — W 4789
3. Dowel — R12186 — 3/8" DIA BRONZE
4. Roll Bushing — R12188
5. Rear Roll
6. Hinge Plate (See Page 12) — W-4788
7. Counter — DURANT - 5 SM-1B-5 10 TO 1 CCW
8. Flexible Shaft — ELLIOTT SB 270 5' LONG
9. Roll Pin — 5/16" x 1 1/2"
10. Worm Bushing — OILITE BUSHING FF1102 3/4" x 1 3/4
11. Roll Adjusting Screw — P54652
12. Roll Pin — 3/8" x 3 1/2" — 25544100
13. Bolt — 4 3/8" x 3/4" HEX HEAD — Q16423
14. Chain Guard
15. Chain — #35 3/8" PITCH 64 PITCHES W/LINK
16. Sprocket (Driver) — 7" 35B16F 7/8" BORE 3/16" x 3/32 KW — 8" 35B16F 1 1/8" BORE 1/4" x 1/8"
17. Bolt
18. Motor
19. Bolt — (4) 5/16" x 3/4" HEX HEAD — R12201
20. Worm Bushing Carrier
21. Gear Box — S-3080 A
22. Worm — BOSTON WORM G1086-K RH. 7/8" BORE 3/16" x 3/32 KW
23. Worm Key — 3/16" SQ x 2 1/2" LONG
24. Coupling Key — 1/4" SQ KEY 3 1/4" LONG — SAME
25. Right Hand Worm Shaft — P54654
26. Coupling * — P54655
27. Coupling Key
28. Connection Shaft
29. Shaft Support — BOSTON PILLOW BLOCK SAP-163 1"
30. Shaft Support Bolt
31. Coupling Key — 1/4" SQ KEY 3 1/4" LONG — SAME
32. Left Hand Worm Shaft — P54653
33. Coupling Key
34. Sprocket Key — 1/4" SQ KEY 1" LONG
35. Worm Key — 3/16" SQ KEY 2 1/2" LONG
36. Sprocket (Driven) — DIAMOND 30B20F 1" BORE 1/4" x 1/8" KW
37. Gear Box Mounting Bolt — (4) 3/4" x 2" HEX HEAD BOLT
38. Worm Wheel — R12199
39. Adjustment Screw Sleeve — R12200
40. Bolt — 1/2" x 1" HEX HEAD BOLTS (6)

REAR ROLL ADJUSTMENT

* Coupling is adjustable when cone rolling attachment is furnished.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R 12189

1. Gear Housing (See Page 14)
2. Rocking Box
3. Rocking Box Bushing
4. Key
5. Upper Roll
6. Key
7. Tapered Bushing
8. Tailstock
9. Set Screw
10. Latch Stop
11. Tapered Bushing Retainer
12. Bolt
13. Bolt
14. Bolt
15. Latch Collar
16. End Plate (See Page 12)
17. Spring
18. Locknuts
19. Tilt Rod Gooseneck
20. Tilt Linkage Rod
21. Tilt Rod Coupling
22. Tilt Rod
23. Retaining Rings
24. Tilt Rod Yoke
25 Tilt Rod Yoke Pin
26. Retaining Rings
27. Cylinder Mounting Pins
28. Elbow
29. Coupling
30. Air Cylinder
31. Clevis
32. Cylinder Mounting Bracket
33. Gooseneck Pin
34. Tailstock Hook
35. Air Valve Bracket
36. Air Valve Handle
37. Roll Pin
38. Latch Handle
39. Roll Pin
40. Latch Shaft
41. Retainer Rings
42. Pivot Pin Bushings
43. Tailstock Pivot Pin

COMPENSATING GEARING