

EQUIPMENT MANUAL

9 and 10 Inch ROLL BENDERS

Manual Form J-10-A

PRICE \$ 5.00 EACH

This manual has been written to instruct personnel in the operation and maintenance of the NIAGARA 9" and 10" ROLL BENDER. When written, it was completely up to date. Because of changing improvements in design, descriptions and instructions may vary from the roll bender delivered to you.

NIAGARA ROLL BENDERS are precision-built. Careful attention to the adjustments and maintenance of the roll bender should result in many years of trouble-free service. Although this equipment has been carefully inspected and tested in our plant, some of the adjustments may have been disturbed in transit. Therefore, carefully read and understand these instructions before the roll bender is installed, operated, or maintained. Additional copies of this manual are available for purchase. We can assume no liability for unauthorized alterations or attachments to the roll bender.

No method of point-of-operation guarding for general purpose roll benders is known at this time. Point-of-operating guarding can be accomplished for specific applications and operations. In these instances, it is recommended that employers provide specific operator instructions.

WARNING

**TO PREVENT SERIOUS BODILY INJURY
NEVER PLACE ANY PART OF YOUR BODY
NEAR MOVING PARTS OF THIS
MACHINE.**

**NEVER WEAR LOOSE CLOTHING THAT
COULD BECOME TANGLED OR
CAUGHT IN MOVING PARTS.**

**NEVER OPERATE OR MAINTAIN THIS
MACHINE WITHOUT PROPER
INSTRUCTIONS.**

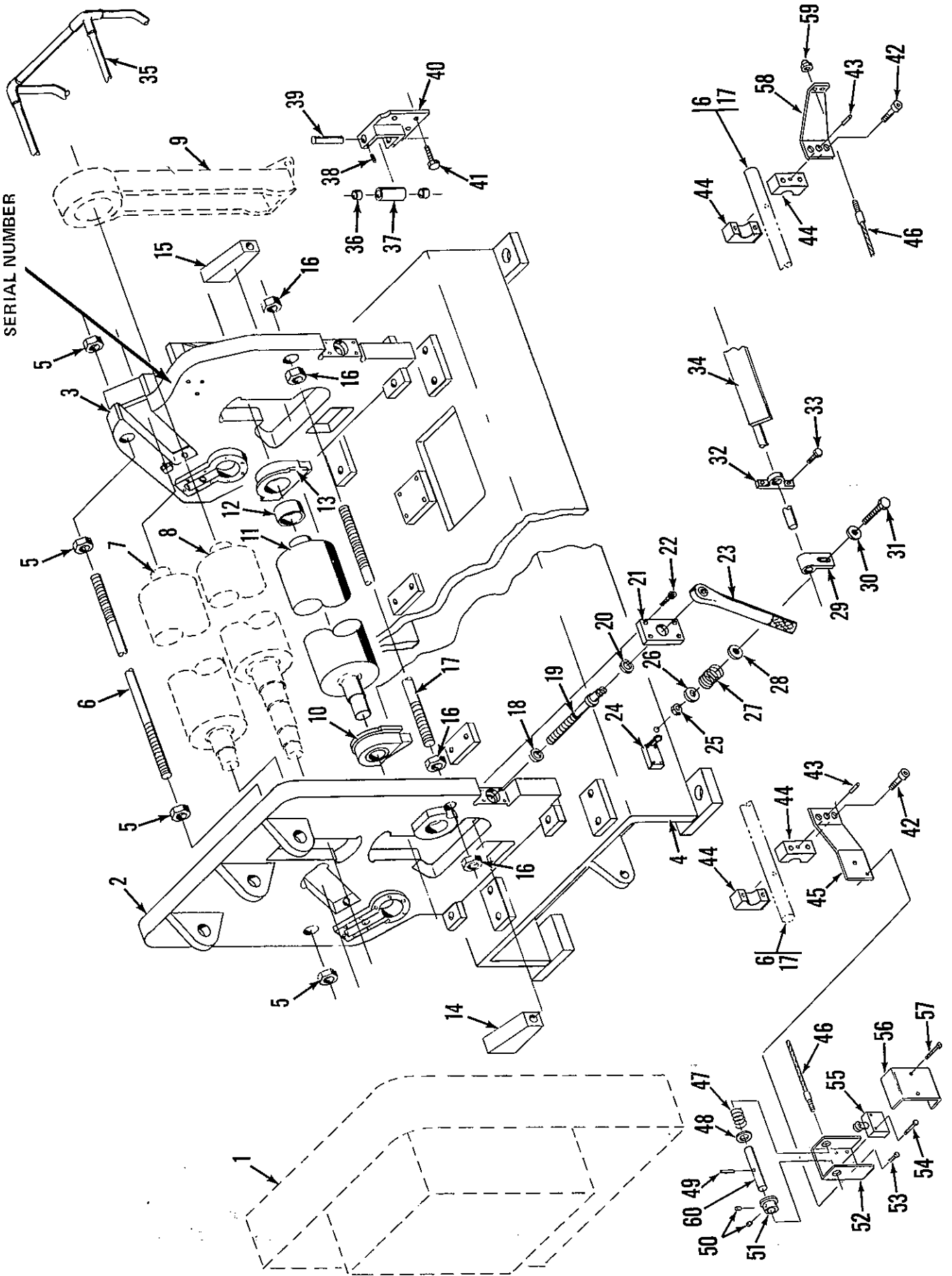
**IT IS THE EMPLOYERS RESPONSIBILITY TO IMPLEMENT
THE ABOVE AND ALSO TO PROVIDE PROPER GUARDS,
DEVICES OR MEANS THAT MAY BE NECESSARY OR
REQUIRED FOR ANY PARTICULAR USE, OPERATION,
SET-UP OR SERVICE.**

DO NOT REMOVE THIS SIGN FROM MACHINE

Niagara Machine & Tool Works

General Offices, P.O. Box 475, Buffalo, New York 14240, U.S.A.

SERIAL NUMBER

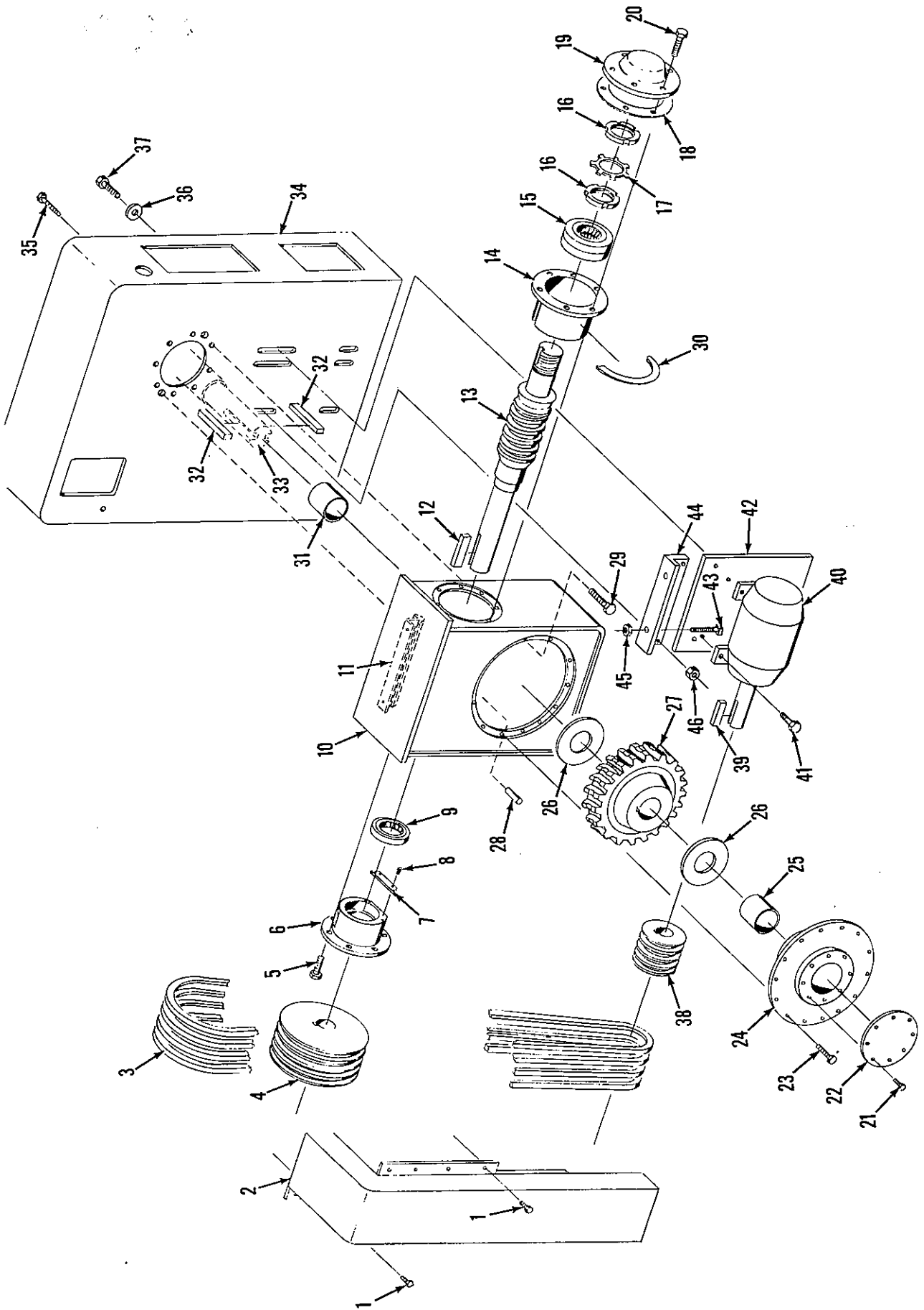


SEC. 4: PARTS LIST

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.

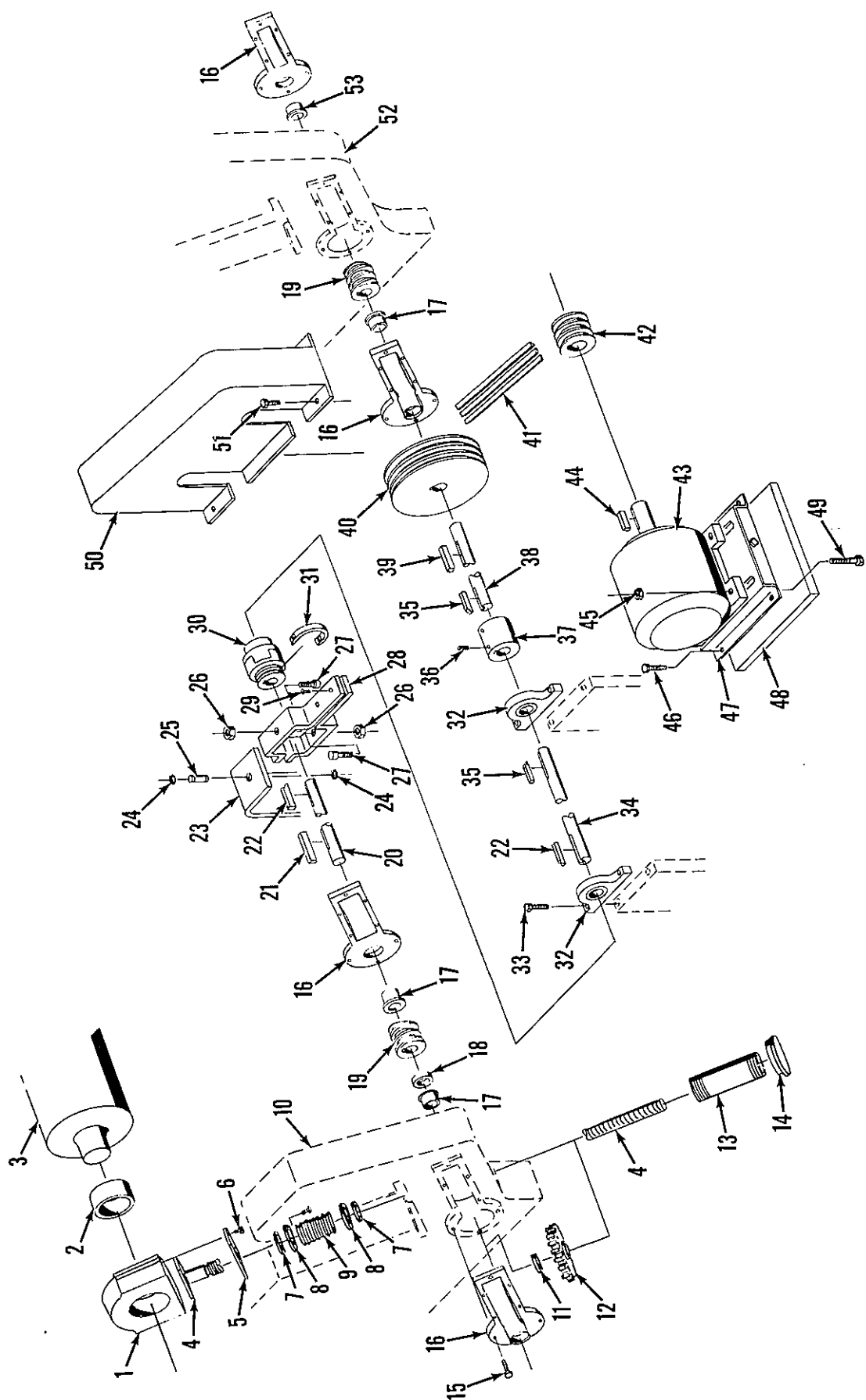
FRAME

- | | | | |
|-----|---------------------------------|-----|------------------------|
| 1. | Gear Housing | 31. | Bolt |
| 2. | Hinge Plate | 32. | Pillow Block |
| 3. | End Plate | 33. | Bolt |
| 4. | Base | 34. | Safety Treadle Shaft |
| 5. | Nut | 35. | Drop End Guard |
| 6. | Rear Tie Rod | 36. | Bushing |
| 7. | Rear Roll | 37. | Roller |
| 8. | Upper Roll | 38. | Set Screw |
| 9. | Tailstock | 39. | Roller Pin |
| 10. | L.H. Lower Roll Bearing | 40. | Support Bracket |
| 11. | Lower Roll | 41. | Bolt |
| 12. | Roll Bearing Bushing | 42. | Cap Screws |
| 13. | R.H. Lower Roll Bearing | 43. | Roll Pins |
| 14. | L.H. Adjusting Wedge | 44. | Clamps (2 pieces each) |
| 15. | R.H. Adjusting Wedge | 45. | Limit Switch Bracket |
| 16. | Nut | 46. | Safety Cable |
| 17. | Front Tie Rod | 47. | Spring |
| 18. | Bronze Thrust Washer | 48. | Washer |
| 19. | Adjusting Screw | 49. | Roll Pin |
| 20. | Bushing | 50. | Set Screws |
| 21. | Adjusting Screw Retaining Cover | 51. | Limit Switch Actuator |
| 22. | Cap Screw | 52. | Limit Switch Housing |
| 23. | Ratchet Wrench | 53. | Screw |
| 24. | Limit Switch | 54. | Screw |
| 25. | Nut | 55. | Limit Switch |
| 26. | Washer | 56. | Limit Switch Cover |
| 27. | Spring | 57. | Screw |
| 28. | Washer | 58. | Bracket |
| 29. | Limit Switch Lever | 59. | Acorn Nut |
| 30. | Washer | 60. | Shaft |



DRIVE ASSEMBLY

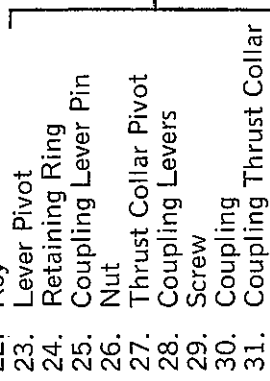
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|-----|-----------------------------------|-----|-------------------------|
| 1. | Bolt | 24. | Gear Box Cover |
| 2. | Belt Guard | 25. | Gear Box Cover Bushing |
| 3. | Drive Belts | 26. | Spacer |
| 4. | Sheave | 27. | Worm Gear |
| 5. | Bolt | 28. | Dowel |
| 6. | Radial Bearing Cartridge | 29. | Bolt |
| 7. | Oil Retainer | 30. | Shim |
| 8. | Bolt | 31. | Gear Box Bushing |
| 9. | Bearing | 32. | Keys |
| 10. | Gear Box | 33. | Upper Roll |
| 11. | Oil Deflector | 34. | Gear Housing |
| 12. | Key | 36. | Washer |
| 13. | Worm Shaft | 37. | Bolt |
| 14. | Thrust Bearing Cartridge | 38. | Sheave |
| 15. | Bearing | 39. | Key |
| 16. | Locknut | 40. | Main Motor |
| 17. | Lock Washer | 41. | Bolt |
| 18. | Gasket | 42. | Main Motor Plate |
| 19. | Thrust Bearing Cartridge Retainer | 43. | Set Screw |
| 20. | Bolt | 44. | Motor Adjusting Bracket |
| 21. | Bolt | 45. | Nut |
| 22. | Cover Plate & Bearing Shield | 46. | Nut |
| 23. | Bolt | | |

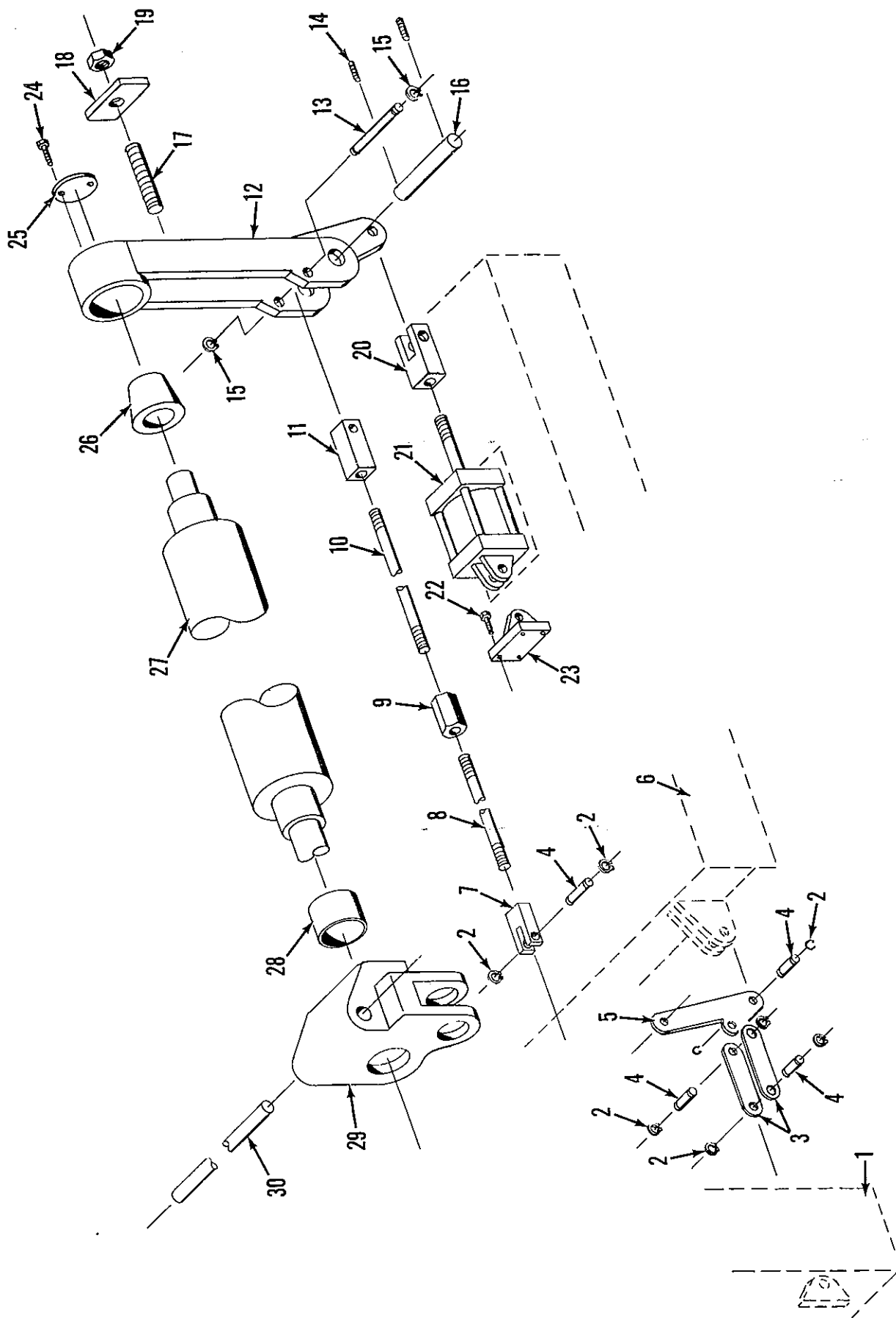


REAR ROLL ADJUSTMENT

- | | | |
|--|--|---|
| <ol style="list-style-type: none"> 1. R.H. Rear Roll Bearing 2. Roll Bearing Bushing 3. Rear Roll 4. Adjusting Screw 5. Elevating Screw Cover Plate 6. Bolt 7. Washer 8. Dust Boot Adaptor Plate 9. Dust Boot 10. End Plate 11. Worm Wheel Spacer 12. Worm Wheel 13. Pipe Nipple 14. Pipe Cap 15. Bolt 16. Worm Wheel Cover 17. Worm Wheel Shaft Bushing 18. Right Housing Worm Spacer | <ol style="list-style-type: none"> 19. Worm 20. R.H. Worm Shaft 21. Key 22. Key 23. Lever Pivot 24. Retaining Ring 25. Coupling Lever Pin 26. Nut 27. Thrust Collar Pivot 28. Coupling Levers 29. Screw 30. Coupling 31. Coupling Thrust Collar 32. Pillow Block 33. Bolt 34. Adjusting Drive Connection Shaft 35. Key 36. Set Screw | <ol style="list-style-type: none"> 37. Coupling 38. L.H. Worm Shaft 39. Key 40. Sheave 41. Belts 42. Sheave 43. Adjusting Motor 44. Key 45. Nut 46. Bolt 47. Sliding Base 48. Motor Mounting Plate 49. Bolt 50. Belt Guard 51. Bolt 52. End Plate 53. Worm Wheel Shaft Bushing |
|--|--|---|

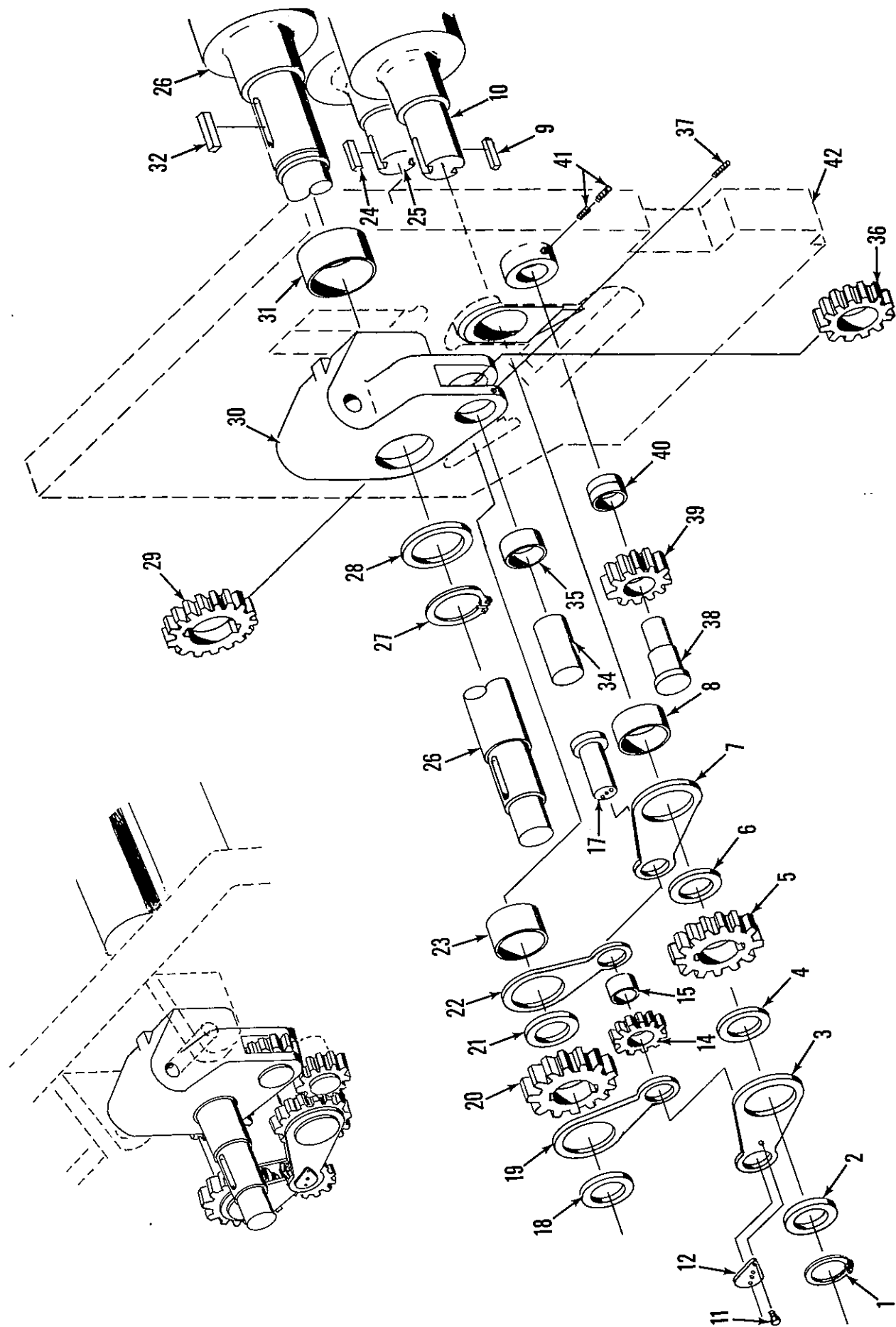
With
Cone Rolling
Attachment
Only





DROP END ASSEMBLY

1. Gear Housing
2. Retaining Ring
3. Connecting Link
4. Pin
5. Link Lever
6. Base
7. Link Lever Clevis
8. Tilt Linkage Rod
9. Coupling Nut
10. Tilt Linkage Rod
11. Tailstock Rod End
12. Tailstock
13. Pin
14. Setscrew
15. Retaining Ring
16. Tilt Linkage Rod
17. Tailstock Locking Stud
18. Tailstock Lock Plate
19. Nut
20. Air Cylinder Clevis
21. Air Cylinder
22. Bolt
23. Air Cylinder Mounting Bracket
24. Bolt
25. Tapered Bushing Retainer
26. Tailstock Tapered Bushing
27. Upper Roll
28. Upper Roll Bushing
29. Rocking Box
30. Upper Roll Pivot Shaft



COMPENSATING GEARING

1. Retaining Ring
2. Roll Gear Retainer
3. Lower Roll Connection Link
4. Connection Link Bushing
5. Lower Roll Gear
6. Connection Link Bushing
7. Connection Link
8. Roll Bushing
9. Key
10. Lower Roll
11. Bolt
12. Pin Retainer
14. Rear Roll Idler Gear
15. Rear Roll Idler Gear Bushing
17. Rear Roll Idler Gear Pin
18. Bushing
19. Link
20. Rear Roll Gear
21. Bushing
22. Link
23. Rear Roll Bushing
24. Key
25. Rear Roll
26. Upper Roll
27. Retaining Ring
28. Retainer
29. Upper Roll Gear
30. Rocking Box
31. Upper Roll Bushing
32. Key
34. Idler Gear Pin
35. Pivoted Idler Gear Bushing
36. Pivoted Idler Gear
37. Set Screw
38. Fixed Idler Gear Pin
39. Idler Gear
40. Fixed Idler Gear Bushings
41. Set Screws
42. Hinge Plate