NIAGARA

2" ROLL BENDERS

INSTRUCTIONS

FORM J-5-C

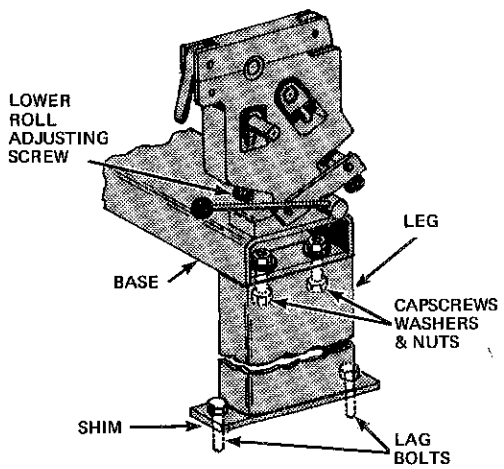

FIG. 1 MOUNTING OPTIONAL LEGS

RECEIVING

Immediately upon receiving the NIAGARA Roll Bender, check it very carefully for damage or losses in transit. Since all equipment is sold F.O.B., the Niagara plant, our responsibility ceases when the transportation company signs the bill of lading indicating that they have received the items listed on the bill of lading in good condition. Report any loss or damage to the delivering carrier promptly to insure proper handling of your claim.

Shortages not appearing on the bill of lading or discrepancies between equipment received and the order should be reported to Niagara immediately.

INSTALLATION

The roll bender should be firmly bolted to a bench or, to a floor if mounting legs are furnished. Check all nuts and fasteners to insure they are tight. Periodically, all fasteners should be checked for tightness.

Mount legs (see Fig. 1 if furnished) to base of unit with cap screws, washers and nuts, making sure legs are at right angle and centered with base. Level unit using shims if necessary, and lag legs to the floor.

CLEANING

In spite of precautions taken in preparing the roll bender for shipment, dirt and foreign material may find their way into the bearings and other parts during transit, and can cause considerable damage unless thoroughly cleaned. It is extremely important to thoroughly inspect bearings, etc., and thoroughly clean off any dirt and foreign material that may have accumulated. Do not attempt to blow dirt out with an air hose as this may force some foreign material into the bearing area. Remove rust-proofing compound with an acceptable solvent.

LUBRICATION

Lubricate all points per information in Fig. 4.

ADJUSTMENTS

The lower roll must be adjusted for the thickness of material to be formed. This adjustment is made by the use of the adjusting screws on lower front of each housing. Check the setting at the center of the roll with a small piece of material the same thickness of the material to be formed. Adjust the lower roll until the test piece fits freely. The ends should also be checked to assure parallelism of the lower roll with the upper roll. Be sure the material is not being pinched at the center of the rolls.

Rear roll adjustment is accomplished by use of the adjusting screws on lower rear of each housing to vary the radius of curvature or diameter of the cylinder. One method for checking the curvature of a part is with a template. This method in forming circular parts is very successful. Another method for forming a cylinder is simply by trial and error. It is important not to allow the trailing edge of the material to overlap the leading edge. It is preferred to first form a diameter larger than desired,

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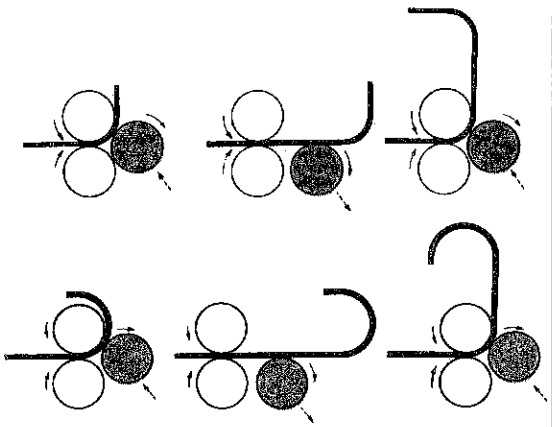


FIG. 2 QUICK-FORM FEATURE OF REAR ROLL

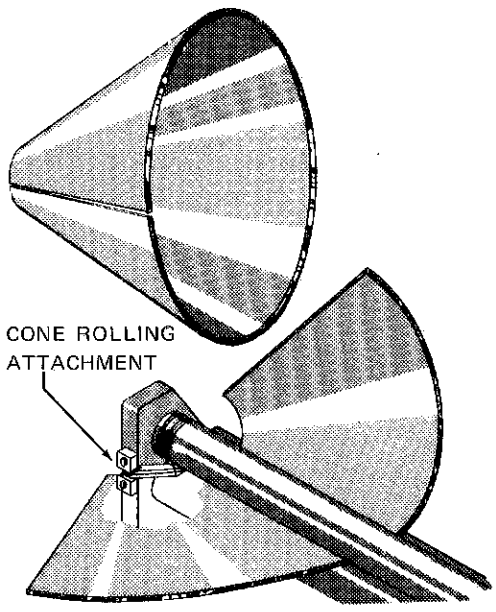


FIG. 3 CONE ROLLING

because the larger diameter may be formed smaller, but too small a diameter results in scrap. CAUTION: Do not try to bend material with the rear roll adjustment; this adjustment is only for positioning the rear roll. The position of the upper roll is fixed and cannot be adjusted.

The quick-form feature at the right hand end of the roll bender, quickly raises and lowers the rear roll. (Fig. 2) Using the cam lever, the rear roll must be in the raised (up) poisiton before adjusting the rear roll for desired radius of curvature. CAUTION: DO NOT BEND MATERIAL WITH THIS LEVER.

To remove the finished cylinder, release the trigger-type latch on top of the right hand housing. The lift lever, located on left hand housing, will raise the upper roll for easy removal of the finished cylinder.

Circular grooves are provided in the rolls for forming wire and sheets with wired edges. Adjustments are made the same as those for sheet forming.

CONE ROLLING ATTACHMENT (optional)

The cone rolling attachment is fastened to the left hand housing (See Fig. 3). This friction device retards the small end of the cone, allowing the large end to travel at a faster speed. This device is designed for, non-production, general purpose use and requires a degree of operator skill.

The lower roll should be cocked so the material can slide freely between the rolls at the small end of the cone, and is pinched (for drive) at the large end. It may prove desirable, depending on the taper of the cone, for the rear roll also to be cocked.

DRIVEN REAR ROLL (optional)

A driven rear roll enables forming smaller diameters and feeding lighter gage material more readily than with the standard idler roll.

LONGITUDINAL GROOVES (optional)

When the rear roll is driven, the addition of longitudinal grooves further enhances feeding and forming small diameters in production application by quickly and positively picking up the leading edge of the material as it leaves the feed rolls. Longitudinal grooves in the lower roll are added when the leading edge is to be prerolled from the rear of the former as explained under "Reducing the Flat Spot."

OPERATING THE ROLL BENDER

Each job performed on a roll bender is unique because of the many variables and factors involved, i.e., dimensions, thickness, weight, hardness and surface of material, radius of curvature, methods of gaging and handling, preforming of edges, etc. Therefore, it is not possible to prescribe or recommend a universal method of bending that will apply to all job situations.

Training programs tailored to the specific bending operation must be developed by the employer and utilized.

REDUCING THE FLAT SPOT

Preforming of the material to reduce a flat spot on the leading edge can be accomplished by inserting the edge of the material into the rolls from the rear of the roll bender, and operating the rolls in reverse for 1 to 8 inches. Back the material out and enter the preformed edge into the rolls from the front. With some material, it may be necessary to preform with a press brake using bending dies.

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.

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.

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.

Overloading is probably the primary cause of premature breakage and failure. NEVER exceed the rated capacity as indicated on the data plate attached to the roll bender. See chart on page 3.

WARRANTY

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

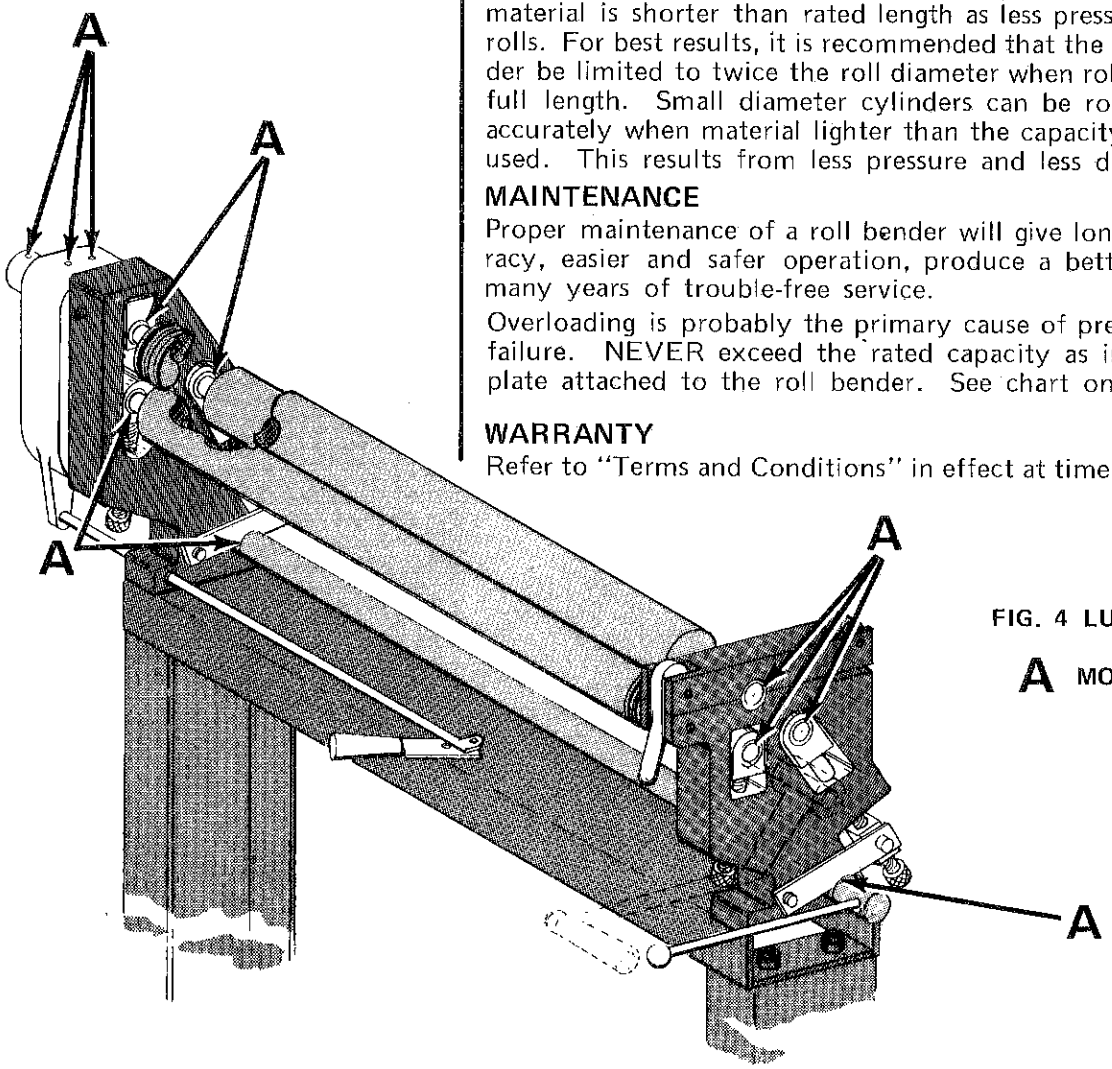
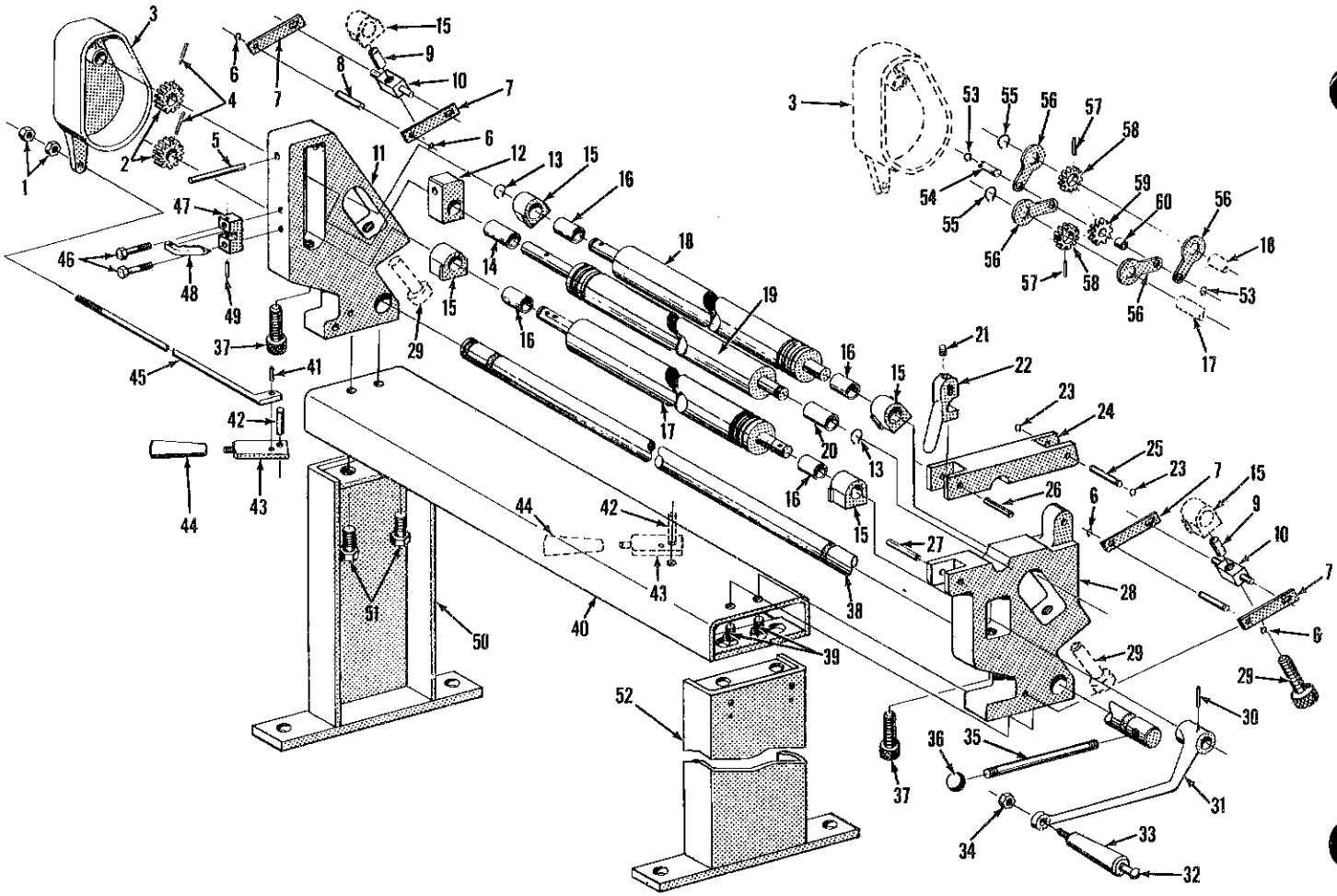


FIG. 4 LUBRICATION POINTS

A MOBIL 630 GEAR OIL

2" ROLL DIAMETER MODEL NUMBER	2-12	2-18	2-24	2-30	2-36	2-42
Capacity — Mild Steel** ..... Gage No.	16	18	20	22	22	24
Diameter of Rolls ..... Inches	2	2	2	2	2	2
Working Length of Rolls ..... Inches	12	18	24	30	36	42
Widths of Circular Grooves ..... Inches	3/16, 1/4, 5/16	3/16, 1/4, 5/16	3/16, 1/4, 5/16	3/16, 1/4, 5/16	3/16, 1/4, 5/16	3/16, 1/4, 5/16
Overall Dimensions (F to B x L to R x H) Bench Model* ..... Inches	21 x 30 x 16	21 x 36 x 16	21 x 42 x 16	21 x 48 x 16	21 x 54 x 16	21 x 60 x 16
Shipping Weight (approx.) ..... Lbs.	130	145	170	200	225	250

* Legs add 31" in height.



PARTS LIST

1. Lift Rod Nuts
2. Roll Connecting Gears
3. Gear Cover
4. Pins
5. Pivot Pin
6. Retaining Ring
7. Quick Lift Levers
8. Pins, Retaining Ring
9. Sleeves
10. Blocks, Screw Lift
11. Left-Hand Housing
12. Block, Pivoted Bearing
13. Retaining Ring
14. Bushing
15. Blocks, Roll Bearing
16. Bushings
17. Lower Roll
18. Rear Roll
19. Upper Roll
20. Bushing
21. Set Screw
22. Clamp, Upper Roll
23. Retaining Ring
24. Clamp Arm
25. Pin, Retaining Ring
26. Pin
27. Pin
28. Right-Hand Leg
29. Adjusting Screws, Rear Roll
30. Pin
31. Offset Crank
32. Crank Handle Pin
33. Crank Handle
34. Nuts
35. Cam Handle (Quick Form Lever)
36. Ball, Cam Handle
37. Adjusting Screws, Lower Roll
38. Cam Shaft
39. Bolts
40. Base
41. Pin, Lift Lever
42. Pivot Pin
43. Roll Lift Lever
44. Roll Lift Handle
45. Roll Lift Rod
46. Bolts

CONE ROLLING ATTACHMENT
(optional)

47. Bracket
48. Finger
49. Pin

LEGS
(optional)

50. Left Hand Leg
51. Bolts
52. Right Hand Leg

THIRD ROLL DRIVE
(optional)

53. Retaining Ring
54. Idler Pin
55. Retaining Ring
56. Connecting Links
57. Pin
58. Roll Drive Gears
59. Idler Gear
60. Bushing