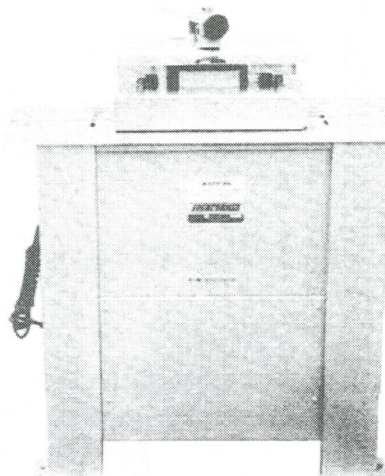
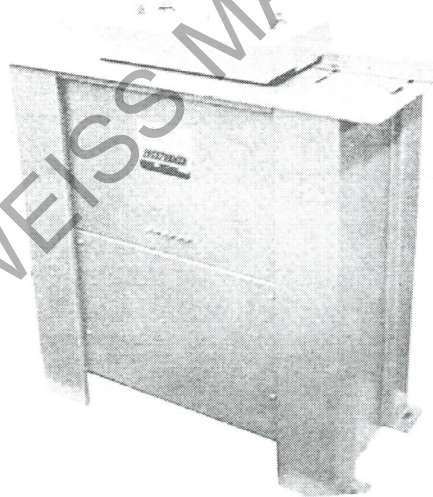


NHAE
LOCKFORMER

20 or 22
Instructions and Parts Diagrams
with Auto Guide Flanger Mounted



Installation

Provide a clean, flat, well lighted installation site. Level the machine and anchor it to the floor. Inspect the gears and drive assembly, and remove any debris that may have accumulated during shipping.

Standard electrical installation requires a 115 volt grounded power supply. Provide a 115 volt receptacle at the point of operation. If a 230 volt motor is ordered, install the power supply in compliance with local and national electrical codes. For further information, contact a certified electrician or the Lockformer Service Department at (630) 964-8000.

Operating Instructions

BASIC OPERATION

Hold the stock against the entrance gauge and slide it into the forming head. Be sure that the stock remains against the gauge until the trail edge of stock is engaged in the rolls.

Note: Minimum part length is 7 inches. If a shorter piece is needed, run a long piece, then notch and cut it to size.

Make hold down adjustments, as outlined below, to accommodate slight variations in metal thickness and hardness.

HOLD DOWN ADJUSTMENT PROCEDURE

1. DISCONNECT POWER !
2. Install lock outs to prevent accidental start up.
3. Remove top cover.
4. Tighten the hold down bolts until snug, then loosen them 3/4 turn.
This setting should give good results for all stock thicknesses.
5. INSTALL THE COVER, remove lock outs, restore power.
6. Run a test piece.

If the stock slips in the rolls, tighten the hold down bolts equally in small increments until the desired results are obtained.

If the stock curls up after forming or shows extremely heavy pressure marks, loosen the hold down bolts slightly.

7. Machine is now ready for production.

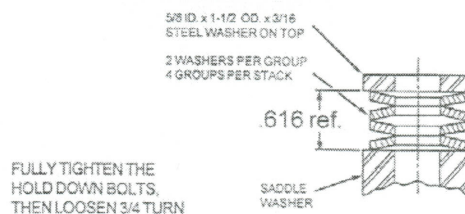
Do not adjust hold downs unless the stock slips in the rolls, pulls away from the entrance gauge, or curls when exiting the rolls.

BELLEVILLE SPRING WASHERS

3/8" HOLD-DOWN STUDS



5/8" HOLD-DOWN BOLTS



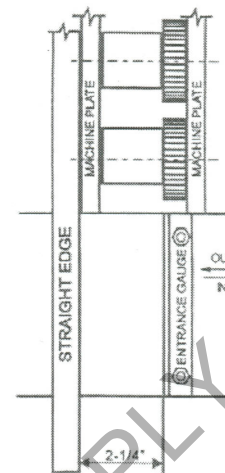
HAMMER-OVER LEG ADJUSTMENT

The width of the Pittsburgh lock hammer over leg is adjustable. Move *only* the right hand entrance gauge in to produce a wider leg and out for a narrower leg. ALWAYS move both ends of the entrance gauge equally, keeping it parallel to the top machine plates.

Never move the exit gauge bar for this roll set. This gauge is not intended to contact the material under normal circumstances.

OPENING ROLL**CAUTION**

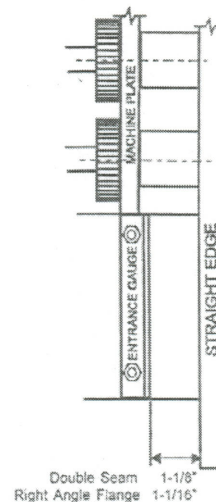
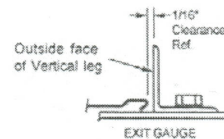
The flat roll mounted horizontally after the last roll station maintains the opening of the gap in the Pittsburgh lock. If burrs or twists caused by snips are present on the stock, they should be flattened. Failure to do this can result in breakage of the opening roll.

INSTALLATION and OPERATION OF AUXILIARY ROLLS

NOTE: Standard auxiliary rolls are interchangeable between the standard Lockformer 20 and the Super-Speed models. Since different entrance gauges are required, the model for which the rolls are intended should be specified.

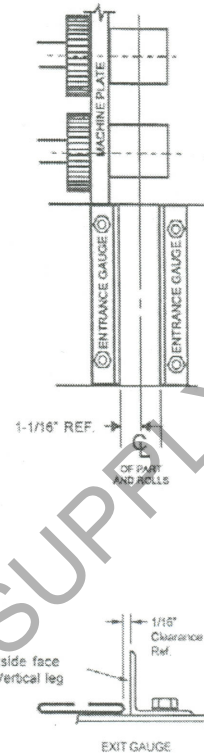
DOUBLE SEAM or STRAIGHT RIGHT ANGLE FLANGE ROLLS

1. DISCONNECT POWER.
2. Install lock outs to prevent accidental start up.
3. Remove the cover.
4. Unscrew and remove the right hand side table top section. This will expose the auxiliary shafts on which the rolls will be mounted.
5. Select the first pair of rolls which are marked T1 (Top roll first station) and B1 (Bottom roll first station). Slide them as a mated pair onto the shafts. All information stamped on the rolls must face outward. Slide a key into each keyseat. Follow this procedure in sequence with each remaining pair of rolls.
6. Fasten the rolls onto the shafts with the screws and washers provided.
7. Mount the entrance gauge and set it to the dimensions shown in the illustration.
8. Mount the exit gauge so the outside face of the vertical leg is parallel to the part as it passes over the exit table. Set to allow approximately 1/16" clearance between the part and the exit gauge.
9. Replace the table top.
10. INSTALL THE COVER.
11. Remove the lock outs.
12. Restore power to the machine.



DRIVE CLEAT ROLLS

1. DISCONNECT POWER.
2. Install lock outs to prevent accidental start up.
3. Remove the cover.
4. Unscrew and remove the right hand side table top section. This will expose the auxiliary shafts on which the rolls will be mounted.
5. Select the first pair of rolls which are marked T1 (Top roll first station) and B1 (Bottom roll first station). Slide them as a mated pair onto the shafts. All information stamped on the rolls must face outward. Slide a key into each key seat. Follow this procedure in sequence with each remaining pair of rolls.
6. Fasten all rolls except the top number 2 onto the shafts with the screws and washers provided. Do not insert a mounting screw into the top 2 rollshaft; this allows the roll to "float" laterally, and center itself to the bottom roll as the stock passes through.
7. Mount the entrance gauges so that the centerline of the stock aligns with the centerline of the rolls.
8. Tighten the stud nuts so that the T5 and B5 rolls do not separate as the drive cleat passes through.
9. Mount the exit gauge so the outside face of the vertical leg is parallel to the part as it passes over the exit table. Set to allow approximately 1/16" clearance between the part and the exit gauge.
10. Replace the table top.
11. INSTALL THE COVER.
12. Remove the lock outs.
13. Restore power to the machine.



IMPORTANT: BE SURE TO CUT STOCK EXACTLY 2-1/8 INCHES WIDE TO INSURE AN ACCURATELY FORMED CLEAT.

MAINTENANCELUBRICATION

Six grease fittings are located on the side panel of the stand. Lubricate these fittings after every eight hours of operation. The recommended lubricant is Molub-Alloy 777-1 or equivalent. Apply grease to all drive gears after every 40 hours of operation. If the machine is to be used in a damp environment, apply a film of oil or grease to all unpainted metal surfaces to prevent rust.

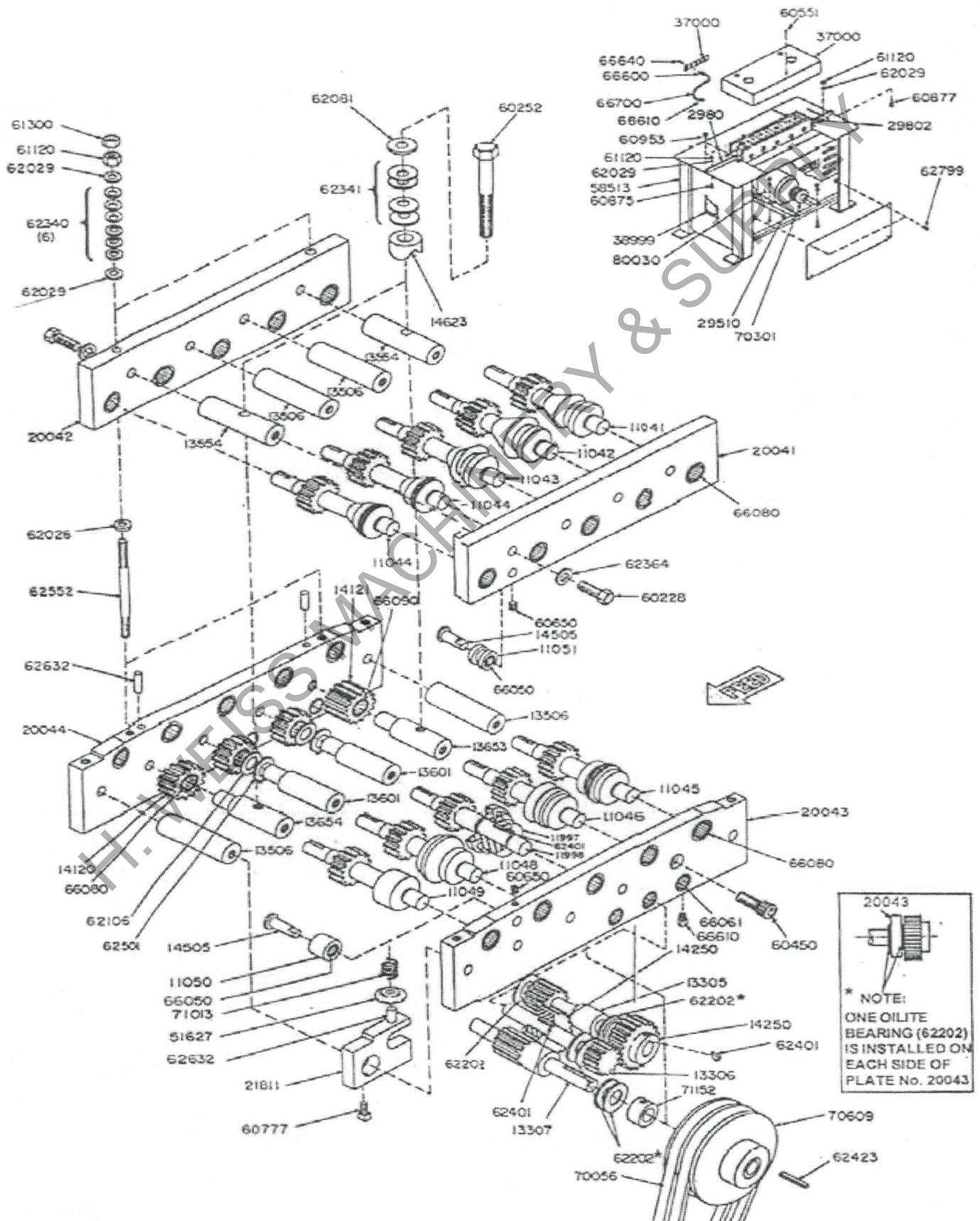


GREASE FITTINGS

CLEANING THE ROLLS

Keeping the roller dies clean is an important step toward efficient operation of your machine. Lockformer's GALV-OFF aerosol spray cleaner, will soften galvanized build up so that it flakes off by itself. Daily use is recommended to prevent harmful deposits from building up. GALV-OFF cleans and lubricates, as well as protects the forming rolls.

20 Pittsburgh Illustrated Parts Breakdown



20 Pittsburgh Parts List

NEW PART NUMBER	OLD PART NUMBER	DESCRIPTION	QUANTITY
20043	2001-A	Lower Plate (Left)	1
20044	2001-B	Lower Plate (Right)	1
20041	2002-A	Upper Plate (Left)	1
20042	2002-B	Upper Plate (Right)	1
11045	2003	Bottom 1 Forming Roll	1
11046	2004	Bottom 2 Forming Roll	1
11997, 11998	2005	Bottom 3 Forming Roll	1
11048	2006	Bottom 4 Forming Roll	1
11049	2007	Bottom 5 Forming Roll	1
11041	2008	Top 1 Forming Roll	1
11042	2009	Top 2 Forming Roll	1
11043	2010	Top 3 Forming Roll	1
11044	2011	Top 4 Forming Roll	1
11044	2012	Top 5 Forming Roll	1
11050	2013	Lower Idler Roll	1
11051	2014	Upper Idler Roll	1
13554	2015	Plain Spacer Drilled	2
13654	2016	Step Spacer Topped	1
13601	2017	Step Spacer	1
62501	2017	Retaining Ring	2
13506	2018	Plain Spacer	4
14210	2019	3 inch Gear With Hub 28 teeth	2
51627	2020	Opening Roll	1
14505	2021	Idler Roll Pins	2
9952500	2022	Opening Roll Holder	1
66080	2023	Bearing 7/8" ID x 3/4" Long	23
66061	2024	Bearing 3/4" ID x 1-3/4" Long	6
13305	2025	Third Drive Shaft	1
13306	2026	Second Drive Shaft	1
13307	2027	First Drive Shaft	1
66050	2028	Bearing 5/8" ID x 3/4" Long	2
70056	2030	V-Belt (B size Browing No. 5L540)	2
29802	2031	Exit Angle Gauge + Ent. Ga.	2
70609	2032	Machine Pulley (Double Groove)	1
62401	2035	Woodruff Key No. 9	3
60650	2036	Hex Head Set Screw 5/16 x 5/16	2
14623	2037	Locking Collar	2
62081	2039	Steel Washer for Part No. 2144	4
62364	2040	Washer	19
60875	2041	Carriage Bolt 3/8 x 1 for Ent. Gauge	2
37000		Lube Bracket	2

NEW PART NUMBER	OLD PART NUMBER	DESCRIPTION	QUANTITY
71152	2042	3/4" Collar	2
60450	2043	1/2 - 13 x 1" S.H.C. Screw	1
60252	2044	Hold Down Stud 5/8 x 6	2
66600	2045	Connector (Lubrication)	6
66610	2046	Half Union (Lubrication)	6
62552	2047	Hold Down Stud 3/8 x 4-3/4	2
14120	2049	Idler Gear (66080 Bearing)	3
62341	2050	Spring Washer 1-1/2" O.D.	8
62340	2051	Spring Washer 3/4" O.D.	12
58513	2052	Stand Assembly	1
37000	2053	Forming Head Cover	1
60777	2054	Set Screw 3/8 x 3/4"	1
62026	2055	Spacer Washer 3/8"	2
66700	2057	Plastic Tubing 11" Lg.	3
66700	2058	Plastic Tubing 16" Lg.	3
80036	2061	Motor 3/4 H.P.	1
62633	2062	Dowel Pin	2
62029	2063	Steel Washer 3/8"	14
61120	2064	Hex Nut 3/8"	4
60750	2066	Square Head Set Screw 1/4 x 1/2	6
66640	2067	Grease Fitting (Alemite)	2
60877	2068	Carriage Bolt 3/8 x 1-3/4	2
80201		Starter 600TAX5	1
21811	2022-A	Opening Roll Holder	1
62632	2022-B	Dowel Pin	1
71013	2022-C	Spring	1
13653		Spacer Main Idler	1
14121		Main Idler Gear (66090 Bearing)	1
60228	2040-A	Hex Head Screw 1/2 - 13 x 1-3/4	19
62421		Straight Key 3/16, 3/16, 7/8	1
66090		Main Idler Bearing	1
66610		Half Union	6
29469		Motor Base	2
70301		Sheave 2BC30, BK 28 5/8"	1
80392		Heater P-36	1
60551		Round Head Screw 1/4-20 x 1/2	1
62202		Oilite Thrust Bearing	7