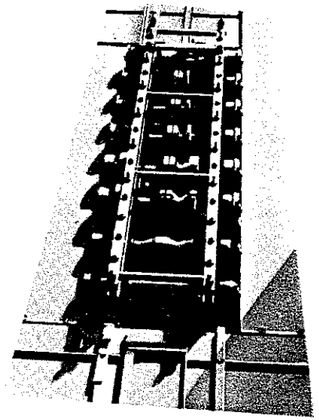


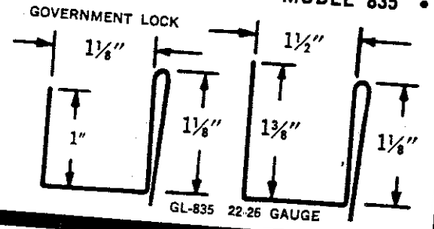
Model 835 ROLL FORMING MACHINE

Pitch Line Speed:	
With 5 H P Motor	Approx. 90 fpm
(45 fpm when 16 Guage Pittsburgh is ordered)	
Dimensions:	
Length	80"
Width	27"
Overall Height	39"
Apron Height	33"
Forming Stations	8
Approx. Shipping Weight	1,200 lbs
Motor	
60 Hertz A C. Circuit*	5 H. P 230/460 Volt, three phase,

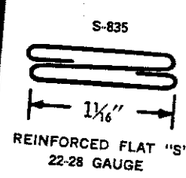
Note: Other motor characteristics available at additional cost

MODEL 835 • AVAILABLE FOR INBOARD ROLLS

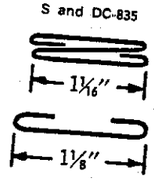
GOVERNMENT LOCK

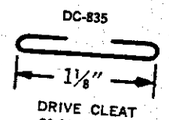


GL-835 22-26 GAUGE



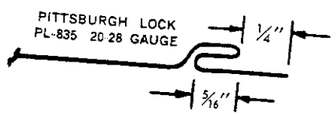
REINFORCED FLAT "S" 22-28 GAUGE

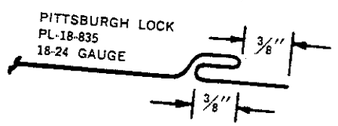


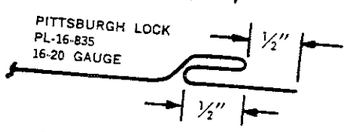


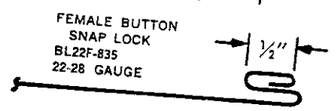
DRIVE CLEAT 20-28 GAUGE

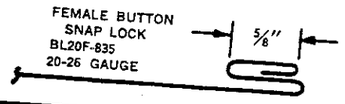
AVAILABLE FOR LEFT OUTBOARD ROLLS





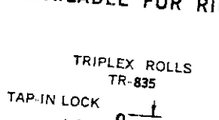






AVAILABLE FOR RIGHT OUTBOARD ROLLS

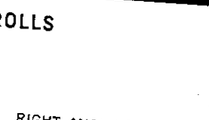
TRIPLEX ROLLS
TR-835



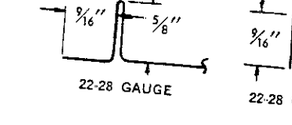
22-28 GAUGE

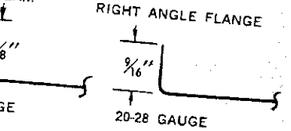


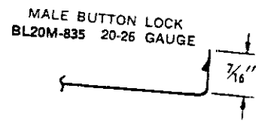
22-28 GAUGE

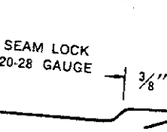


20-28 GAUGE









Gauges referred to are in mild steel.

Count on Engel Quality

ENGEL METAL METHODS

ENGEL INDUSTRIES, INC.

ROLL MACHINE INSTRUCTIONS

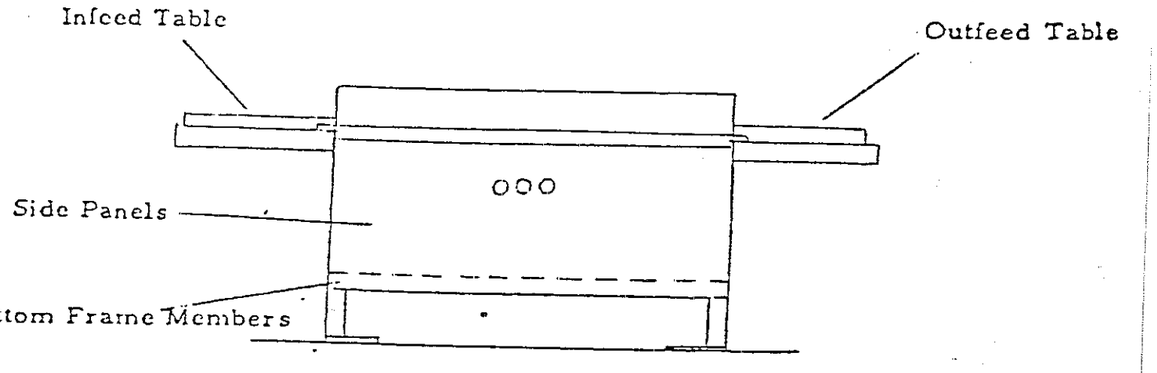
Receiving Machine

Visibly check machine for possible shipping damage.

When damage is evident, insist on a notation on the freight bill.

If repairs are necessary, contact Engel Industries, Inc.

Unloading Procedure



When it is necessary to lift the machine off the transport vehicle and lower it to the ground, lift or support the machine by using the skids or by removing the side panels and lifting the machine by the bottom frame members. (NOTE: Lifting the machine by the infeed or outfeed table would result in extensive damage to the machine.) If the machine is unloaded onto a loading dock, then rollers can be put under the skids, or the machine can be slid or dragged on the skids.

Positioning Machine

Move the machine to its desired location.

Remove the skids.

Level the machine.

Fasten machine securely to floor.

Electrical Connections:

Supply electrical service to the starter box (located under the infeed table) in accordance with local electrical codes. Refer to the connecting instructions on the inside of the starter box. NOTE: If the machine is powered by a three (3) phase motor, it is possible to initially wire the motor in reverse. If this happens, switch two (2) of the three (3) supply wires. This will correct the rotation of the motor.

Lubrication:

After approximately every 80-100 hours or every two (2) weeks, lubricate the machine in the following manner:

1. As a safety precaution, disconnect electrical supply.
2. Remove top roll cover (guard).
3. Apply open-type gear grease to the exposed surfaces of all the gears. Recommend: Chem-A-Lube (made by National Chemsearch Corp. in Dallas, St. Louis, New York, Los Angeles, Montreal) or equivalent.
4. Apply light oil to the forming rolls to prevent galvanize build-up as required.
5. Connect power, turn machine on, and with a pressure type grease gun, apply grease to lube fittings. NOTE: Remove right apron for access to fittings on side plate for idler gears. Recommend: Lubriko Grease (Made by Master Lubricants Co., in Philadelphia, Boston, Chicago, San Francisco, Los Angeles, Montreal) or equivalent.
6. For units with oil bath reducers, change oil at least once a year. Recommend: Lubriplate #8 (made by Fiske Bros. Refining Co. in Toledo, Newark) or equivalent.

IMPORTANT: Do not use hypoid grease, as it will cause extensive damage to reducer gears.

Models 300-825

Roll capacities and Material Requirements

Shape	Material Required	Capacity
Pittsburg Lock	15/16"	20-28 Gauge
Female Button Lock (20 Ga.)	1 3/8"	20-24 Gauge
Female Button Lock (22Ga.)	1 1/8"	22-26 Gauge

MODEL 800-825

Roll Capacities and Material Requirements

Shape	Material Req'd.	Capacity
Pittsburgh Lock	15/16"	20-28 Gauge
Female Button Lock (20 Ga.)	1 3/8"	20-24 Gauge
Female Button Lock (24 Ga.)	1 1/8"	24-26 Gauge
Male Button Lock (20 Ga.)	7/16"	20-26 Gauge
Male Button Lock (24 Ga.)	7/16"	24-26 Gauge
Acme (Double Seam)	7/16"(ea. side)	20-28 Gauge
Drive Cleat	2 1/8"	20-28 Gauge
Reinforced Flat "S"	3 3/4"	22-28 Gauge
Tap-In-Lock	1 3/4"	22-28 Gauge
Standing Seam	1 1/8"	22-28 Gauge
Right Angle Flange	9/16"	20-28 Gauge

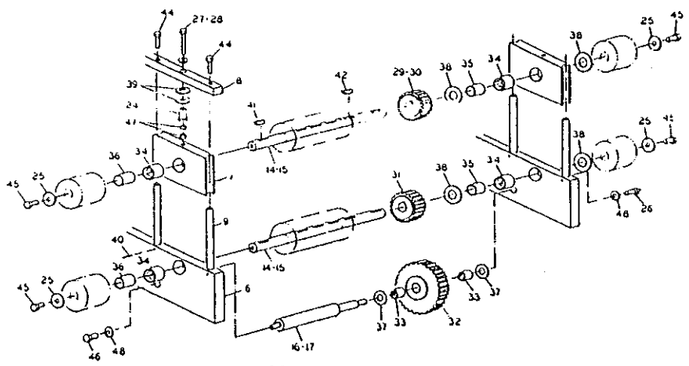
MODELS 835, 1000, S-5-10, 1240, 1535, 1640

Outboard Roll Sets:

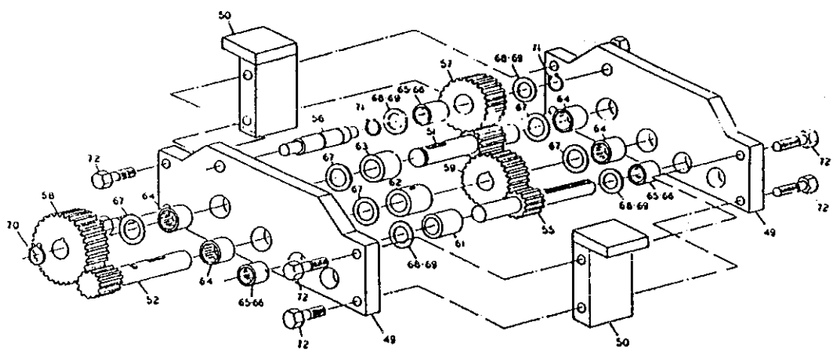
Pittsburgh (18 ga.) 3/8" Pocket-	1 1/4"	Notch-1 1/8	18-24 Gauge
Pittsburgh (16 ga.) 1/2" Pocket-	1 1/2"	Notch-1 3/8	16-20 Gauge
Female Button Lock (20 ga.)	1 3/8"		20-24 Gauge
Male Button Lock (20 ga.)	7/16"		20-24 Gauge
Standing Seam--Duplex	2 1/8"		16-20 Gauge
Right Angle Flange (16 ga.)	1"		16-20 Gauge
Tap-In-Lock	3 1/2"		18-24 Gauge
Standing Seam--Triplex	2 1/8"		18-24 Gauge
Right Angle Flange (18 ga.)	1"		18-24 Gauge
Duplex	1 5/8"		16-20 Gauge
Right Angle	1 1/2"		16-20 Gauge

Adjustments:

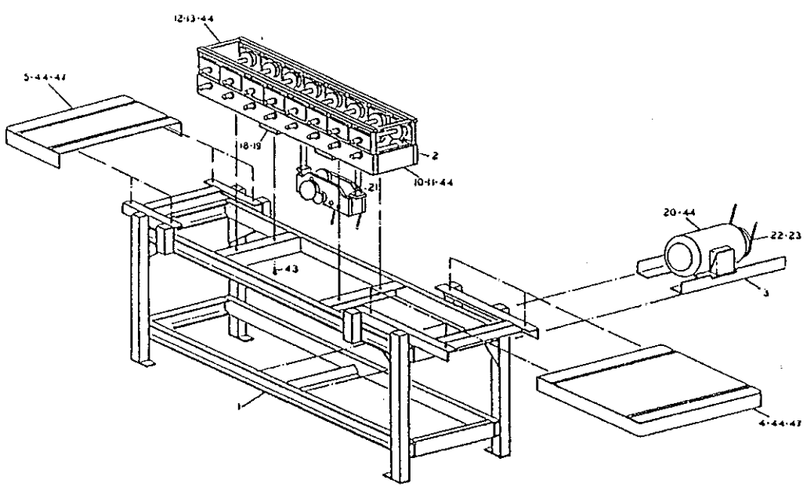
This machine is factory adjusted, however, after much usage, adjustments may be necessary.

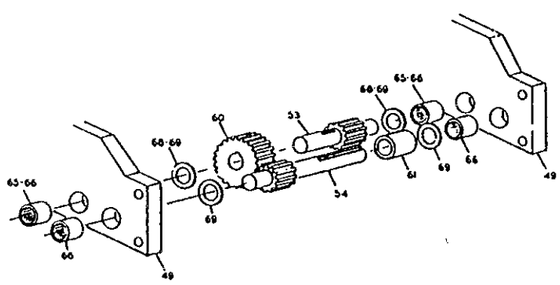


SPINDLE HOUSING ASSEMBLY



3 PINION REDUCER





FIRST 2 PINIONS OF 4 PINION REDUCER

PARTS LIST 800 825 835 ROLLFORMERS

ITEM NO.	ENGEL PART NO.	NO. REQ'D.	DESCRIPTION
1	4443	1	Frame Weldment
2	4269	1	Spindle Housing Assembly
3	4167	2	Motor Mount Angle Assembly
4	4111	1	Infeed Table
5	4112	1	Outfeed Table
6	4142	2	Bottom Spindle Housing
7	4255	16	Top Bearing Cage
8	4271	2	Head Rail
9	4167-1	18	Post-Spindle Housing
10	4173	2	Spreader-Bottom Spindle Housing (825-835)
11	4173-3	2	Spreader-Bottom Spindle Housing (800)
12	4166-1	4	Spreader-Head Rail (825-835)
13	4166	4	Spreader-Head Rail (800)
14	4110	16	Spindle (825-835)
15	4401	16	Spindle (800)
16	4158-1	7	Idler Shaft (825-835)
17	4158-6	7	Idler Shaft (800)
18	4151	2	Mounting Plate-Speed Reducer (825-835)
19	4151-2	2	Mounting Plate-Speed Reducer (800)
20		1	Motor - 5 H.P.
21		1	Sheave - BK-70
22		1	Sheave - BK-62
23		1	Belt - BK-42
24	4234	16	Spool Adjusting
25	4219	32	End Cap Washers
26	4165	7	Grease Bolts
27		16	Adjusting Bolts 3/8-24 x 3" long (800-825)
28		16	Adjusting Bolts 3/8-24 x 2-1/2" long (835)
29	4211	8	Gear - Upper Spindle (800-825)
30	4159	8	Gear - Upper Spindle (835)
31	4211	16	Gear - Bottom Spindle
32	4210	7	Gear - Idler
33		14	Bearings Needle - B-148
34		32	Bearings Needle - B-2016
35		16	Inner Race - IR-1616
36		16	Inner Race - IR-162020
37		14	Thrust Bearing - TRA-1423
38		32	Thrust Bearing Bronze Amplex
39		32	Disc Springs - Z12
40		18	Spring Pins - 3/16 x 1
41		82	Woodruff Key - 1/4 x 1
42		17	Woodruff Key - 3/8 x 1
43		4	Hex Head Bolt - 1/2 - 20 x 1" long
44		46	Hex Head Bolt - 3/8 - 24 x 1-1/4" long
45		32	Hex Head Bolt - 3/8 - 24 x 1" long
46		7	Hex Head Bolt - 3/8 - 24 x 3/4" long
47		40	3/8 - 24 Hex Nuts
48		14	Washers CL-1-FW Carr Lane
REDUCER ASSEMBLY			
49	4241	2	Pinion Chassis Speed Reducer
50	4174	2	Mount Brackets
51	4182	1	No. 4 Pinion
52	4181	1	No. 3 Pinion
53	4180	1	No. 2 Pinion (835)
54	4179	1	Primary Drive (835)
55	4178	1	Primary Drive (800-825)
56	4220	1	Transfer Shaft Idler
57	4210	1	Idler Gear - G-28
58	4159	1	Spur Gear - G-27
59	4213	1	Spur Gear - G-26
60	4212	1	Spur Gear - G-25 (835)
61	4147	1	Spacer - Pinion - Primary Drive
62	4148	1	Spacer - No. 3 Pinion
63	4149	1	Spacer - No. 4 Pinion
64		4	Bearings Needle - JH-1612-OH
65		3	Bearings Needle - JH-1412-OH (800-825)
66		5	Bearings Needle - JH-1412-OH (835)
67		5	Thrust Race TRA-1623
68		4	Thrust Race TRA-1423 (800-825)
69		6	Thrust Race TRA-1423 (835)
70		1	Snap Ring 1"
71		2	Snap Ring 7/8"
72		8	Hex Head Bolts - 1/2 - 20 x 1-1/2" long

FEMALE SNAPLOCK #8 TOP

20 Gauge Capacity:
Use deep groove for 20 & 22 gauge
Use shallow groove for 24 & lighter

24 Gauge Capacity:
Use deep groove for 24 gauge
Use shallow groove for 26 & lighter

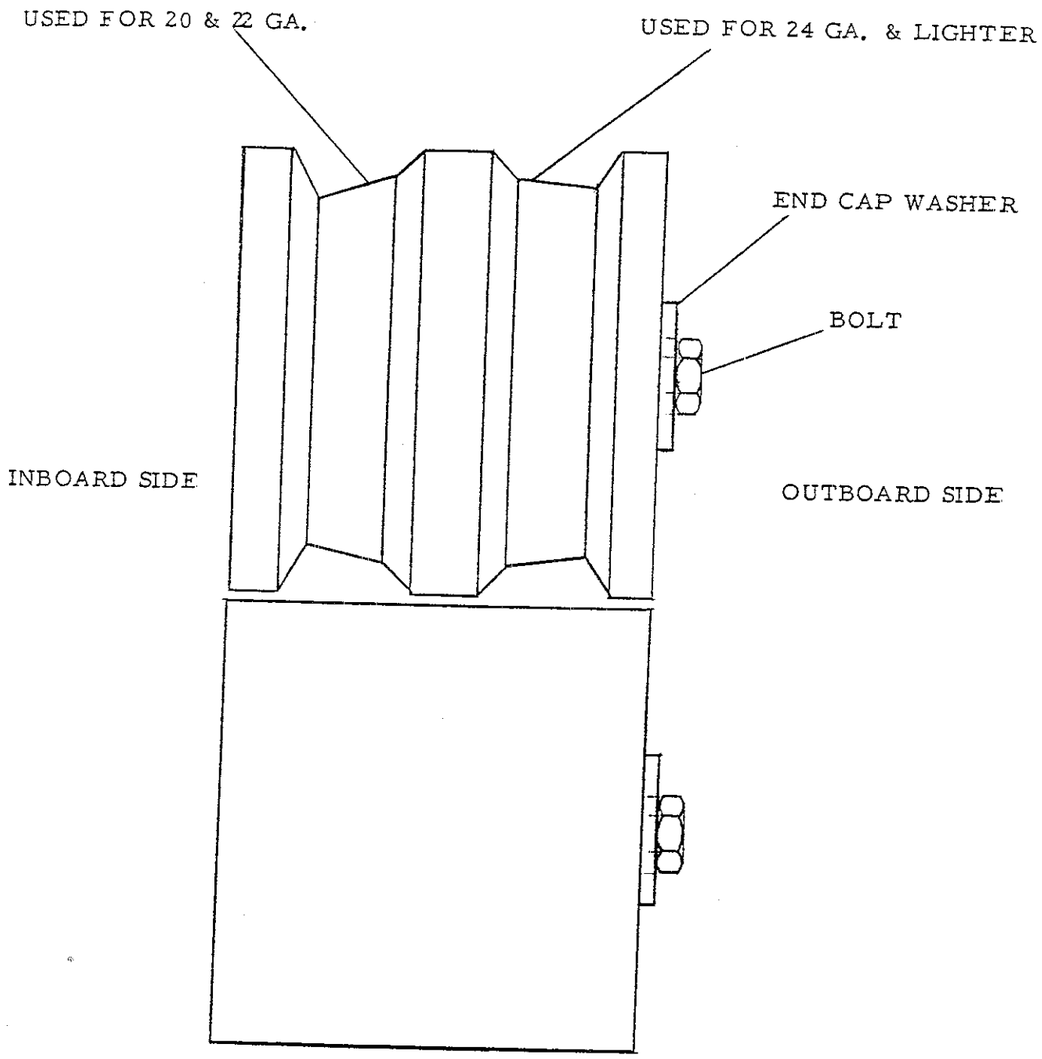
FEMALE PITTSBURGH #7 TOP

16 Gauge Capacity:
Free Standing unit 16 to 20 gauge capacity only
16 gauge rolls on transfer system (18 ga. cap.)
Use deep groove for 18, 20, & 22 gauge
Use shallow groove for 24 & lighter

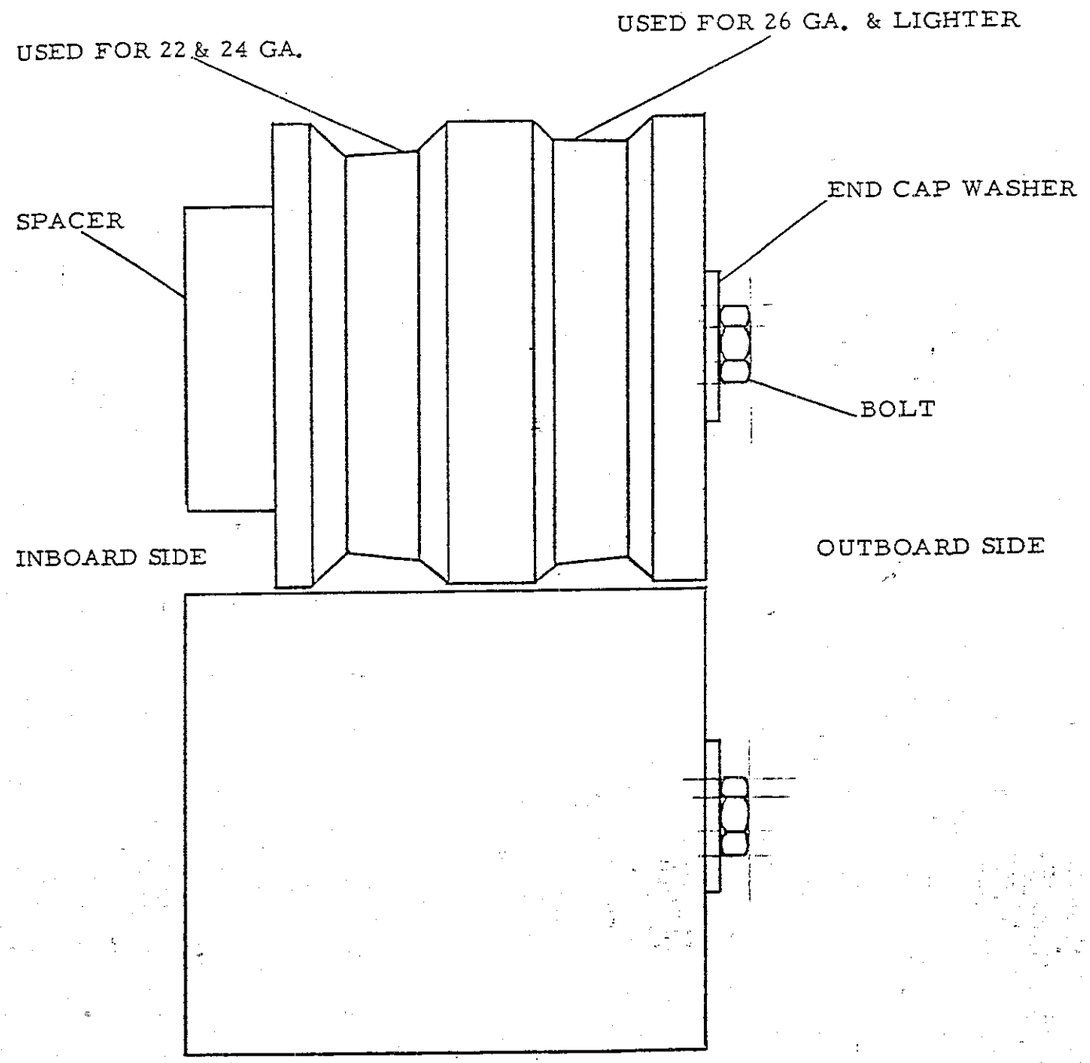
18 Gauge Capacity:
Use deep groove for 18 & 20 gauge
Use shallow groove for 22 & lighter

Note: By use of the word use, this means roll groove would be next to the end cap & bolt.

FEMALE BUTTON LOCK



FEMALE BUTTON LOCK



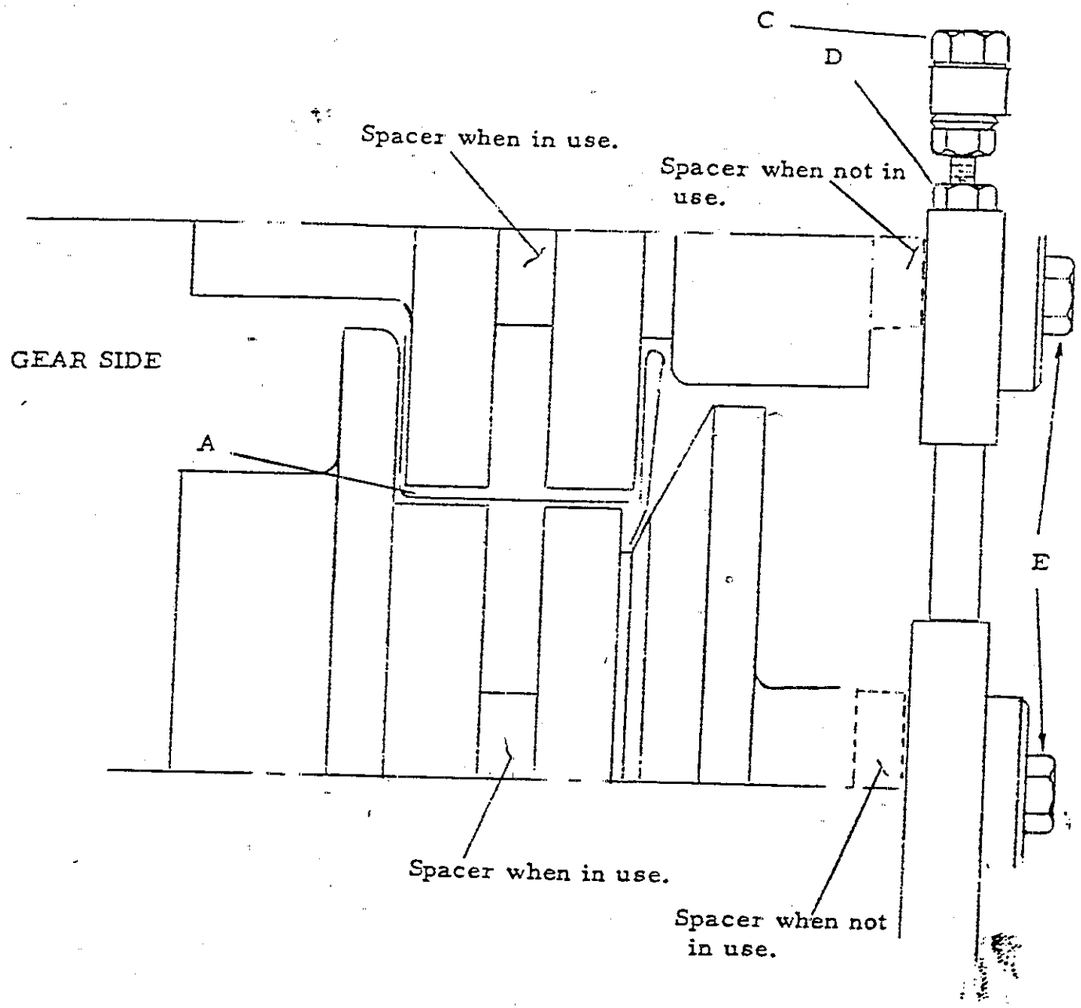
PROCEDURE FOR SPACER POSITIONING

GOVERNMENT LOCK FOR 835, 1000, 1240 ROLL MACHINES

THE 3/8" SPACERS PROVIDED WITH THESE ROLLS ARE USED TO CHANGE THE WIDTH OF THE PART. WHEN A 1 1/8" PART IS DESIRED, SPACER IS PLACED AGAINST SIDE PLATE (OPPOSITE GEAR SIDE AS SHOWN WHEN NOT IN USE), WHEN A 1 1/2" PART IS DESIRED, SPACER IS PLACED ON SPINDLE, (AS SHOWN WHEN IN USE).

TO POSITION SPACERS, LOOSEN BOLT "E" AND PLACE SPACER IN DESIRED LOCATION. THEN, TIGHTEN BOLT "E".

TO ADJUST "A" DIMENSION, LOOSEN JAM NUT "D", TIGHTEN OR LOOSEN BOLT "C" UNTIL PROPERLY SET, THEN TIGHTEN JAM NUT "D".


C
D
Spacer when in use.
Spacer when not in use.
GEAR SIDE
A
E
Spacer when in use.
Spacer when not in use.

Instructions for changing Button Punches on Engel Snaplock Machine.

*No. 1. Remove four (4) socket head screws holding head assembly to frame, and slide head back three (3) inches, or so.

No. 2. Remove No. 2 bottom roll by removing Hex Head bolt and end cap washer. Slide roll off of spindle.

No. 3. On the back side of roll there will be four (4) large socket head bolts, and four (4) small socket head cap screws.

A. Remove four (4) large bolts, and separate the two parts of the roll.

B. Loosen four small socket head cap screws.

C. Remove the four (4) punches, and replace with new ones.

D. It may be necessary to lightly sand the sides of the new punches before they will fit in the slots.

E. Be sure buttons are all the way to the back side of slot. If necessary, after putting roll back together, tap on the punches lightly with a rubber or brass hammer.

F. Tighten four (4) large bolts as tight as possible.

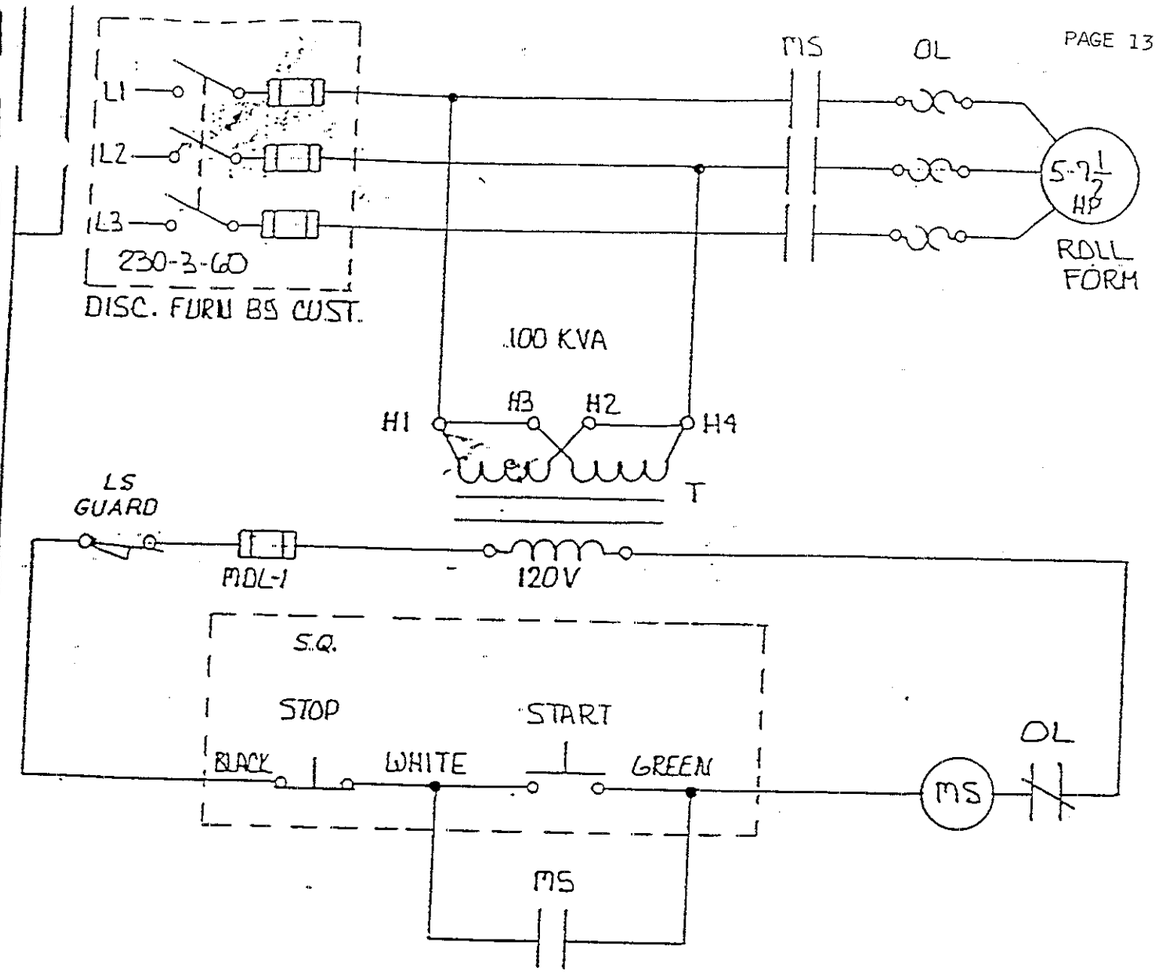
G. Now tighten four (4) small socket head cap screws and replace roll on spindle, replace end cap and bolt.

*H. Slide head back into position and replace the four (4) bolts holding it into the frame.

No. 4 Upper Slitting Wheel simply by removing end cap and bolt and removing the slitting half of upper roll.

* This applies to transfer system only. On free standing unit remove tie plate only.

NOTE: WARNING <u>DO NOT</u> LOOSEN BOLTS FROM HEAD OF FREE STANDING UNIT.



MS-SQUARE D NO. SCG-3
T-TRANSFORMER MODEL 33-100-PM
SQ D 9001 P.B. BW 75Y
WIRE COLOR MAY VARY

230-3-60 VOLTAGE REQUIREMENT
AND 5 OR 7 1/2 H.P. DRIVE MOTOR

NO.	REV'D.	SYMBOL	PURCHASE	DESCRIPTION

ENGEL INDUSTRIES, INC.
ST. LOUIS, MISSOURI

DATE 9-6-79
SCALE —
DRAWN G.M.

ROLL MACH. MODELS 800-800B-825
835-1000-1000W-1240-1240V-1240HW-1240W-S-S1-1200B

LUBRICATION AND MAINTENANCE
OF
ENGEL ROLL FORMERS

1. FORMING HEADS:

THE FORMING HEADS OF ALL STANDARD ENGEL ROLLFORMING MACHINES ARE OF THE SAME BASIC CONSTRUCTION, AND THE LUBRICATION PROCEDURE IS COMMON TO ALL MODELS. ROLL SHAFTS HAVE TORRINGTON INNER RACES FITTED ON EACH END AND ROTATE IN TORRINGTON NEEDLE BEARINGS PRESSED INTO THE SIDE FRAMES. THESE BEARINGS ARE PACKED WITH THE PROPER LUBRICANT AT ASSEMBLY AND NEED NO FURTHER ATTENTION FOR APPROIMATELY TWO THOUSAND (2000) HOURS OF NORMAL SERVICE. HOWEVER, IT IS RECOMMENDED THAT THE BEARINGS BE REPACKED EVERY TWELVE (12) MONTHS EVEN THOUGH THE MACHINE HAS HAD RELATIVELY FEW HOURS OF USE.

THE ROLL SHAFT BEARINGS CAN BE REPACKED BY REMOVING THE OUTBOARD ROLLS, SLIDING THE INNER RACES TOWARD THE ENDS OF THE SHAFTS AND FILLING THE VOID BETWEEN THE SHAFTS AND THE BEARINGS WITH A PROPER BEARING GREASE*, BY MEANS OF A GREASE GUN EQUIPPED WITH NOZZLE THAT CAN BE INSERTED IN THIS VOID. THE INNER RACES ARE THEN SLID BACK INTO PLACE AND THE ROLLER DIES REINSTALLED IN THEIR PROPER RELATION.

WARNING: IT WILL BE NOTED THAT THE EXTENDED SPINDLES ON ONE SIDE OF THE MACHINE WILL BE FLUSH WITH THE OUTER FACE OF THE ROLLS AND THE END CAP WASHERS "BOTTOMED OUT". IT IS NECESSARY THAT THEY BE PLACED IN THE SAME CONDITION BEFORE THE OPPOSITE THE "BOTTOMED" SIDE. BE SURE THAT THERE IS THE PROPER RELATIONSHIP BETWEEN TOP AND BOTTOM ROLL SETS AND ALL FASTENERS ARE SECURE BEFORE ATTEMPTING TO OPERATE THE MACHINE.

THE IDLER, OR TRANSFER GEARS, THAT COMPLETE THE GEAR TRAIN OF THE LOWER SHAFTS ROTATE ON TORRINGTON BEARINGS AND ARE LUBRICATED THROUGH GREASE FITTINGS LOCATED IN THE SIDE-PLATE UNDERNEATH THE OUTBOARD ROLLS ON THE RIGHT (GEAR SIDE) SIDE OF THE MACHINE. THESE SHOULD BE LUBRICATED WITH THE SAME GRADE OF BEARING GREASE* USED ON THE ROLL SHAFTS EVERY FORTY (40) HOURS.

2. SPEED REDUCTION:

ALL MODELS EQUIPPED WITH THE OPEN GEAR TYPE SPEED REDUCER BOLTED TO THE FORMING HEAD, ARE LUBRICATED THROUGH GREASE FITTINGS LOCATED IN THE SHEET METAL PANEL ON THE LEFT SIDE OF THE MACHINE. THESE SHOULD BE LUBRICATED EVERY EIGHT (8) HOURS OF OPERATION WITH THE SAME GREASE* USED ON ROLL SHAFTS.

ALL MODELS EQUIPPED WITH RIGHT ANGLE OIL BATH GEAR REDUCERS HAVE AN OIL LEVEL PLUG. THIS LEVEL SHOULD BE MAINTAINED BY ADDING WHEN NECESSARY A 140-W** OIL THAT CONTAINS NO HARMFUL ADDITIVES. E.P. OR HYOID GREASE IS NOT TO BE USED.

POWER IS TRANSMITTED FROM THIS REDUCER TO A JACKSHAFT MOUNTED TO THE UNDERSIDE OF THE FORMING HEAD BY A ROLLER CHAIN. THIS CHAIN SHOULD BE LUBRICATED SPARINGLY WITH 10-20W ENGINE OIL WHEN SIGNS OF DRYNESS APPEAR.

THE JACKSHAFT (S) ROTATE (S) IN HEAVY DUTY TORRINGTON BEARING ASSEMBLIES AND REQUIRE THE SAME LUBRICATION SCHEDULE AS THE ROLL SHAFTS.

3. DUAL HEAD APPLICATIONS:

IN ADDITION TO THE ABOVE, THE DH MACHINE HAS A SPLINED LINE SHAFT OVER WHICH THE MOVABLE HEAD MUST TRAVEL, TWO MACHINE SLIDES (OR WAYS) AND TWO RECIRCULATING BALL SCREWS--ALL OF WHICH MUST BE KEPT FREE OF ANY FOREIGN MATTER. THE BALL SCREWS AND SPLINE SHOULD BE OILED LIGHTLY WITH A 10-20W OIL WHEN NECESSARY AND, PREFERRABLY, A DRY LUBRICANT, SUCH AS GRAPHITE USED ON THE SLIDES.

4. GENERAL:

A. KEEP ALL FASTENERS TIGHT, WITH PARTICULAR ATTENTION TO CAPSCREWS THAT RETAIN ROLLS ON SHAFTS AND VERTICAL ROLL ADJUSTMENTS. CHECK CLEARANCES BETWEEN TOP AND BOTTOM ROLLS AND SEE THAT THEY ARE MAINTAINED.

B. KEEP ALL ROLLER DIES CLEAN, WITH SPECIAL ATTENTION TO ZINC AND CHIP BUILD-UP.

C. OIL ROLLS DAILY WITH LIGHT MACHINEOIL. KEEP ALL ROLLER CHAINS AND BELTS TENSIONED PROPERLY. REPLACE WHEN EXCESSIVELY WORN.

D. AVOID IMPACT OR HEAVY LOADING ON ENTRANCE AND EXIT TABLES.

5. SUGGEST LUBIRCANTS:

× LUBRIKO--DENSITY M-6--FOR ALL TORRINGTONS
×× LUBRIPLATE #8--FOR ALL OIL BATH REDUCERS
MELCOLUBE FOR ALL OPEN GEARS

IN THE EVENT THE ABOVE ARE NOT READILY AVAILABLE, CONSULT YOUR LOCAL SUPPLIER FOR EQUIVALENTS.

FEMALE SNAPLOCK #8 TOP

20 Gauge Capacity:
Use deep groove for 20 & 22 gauge
Use shallow groove for 24 & lighter

24 Gauge Capacity:
Use deep groove for 24 gauge
Use shallow groove for 26 & lighter

FEMALE PITTSBURGH #7 TOP

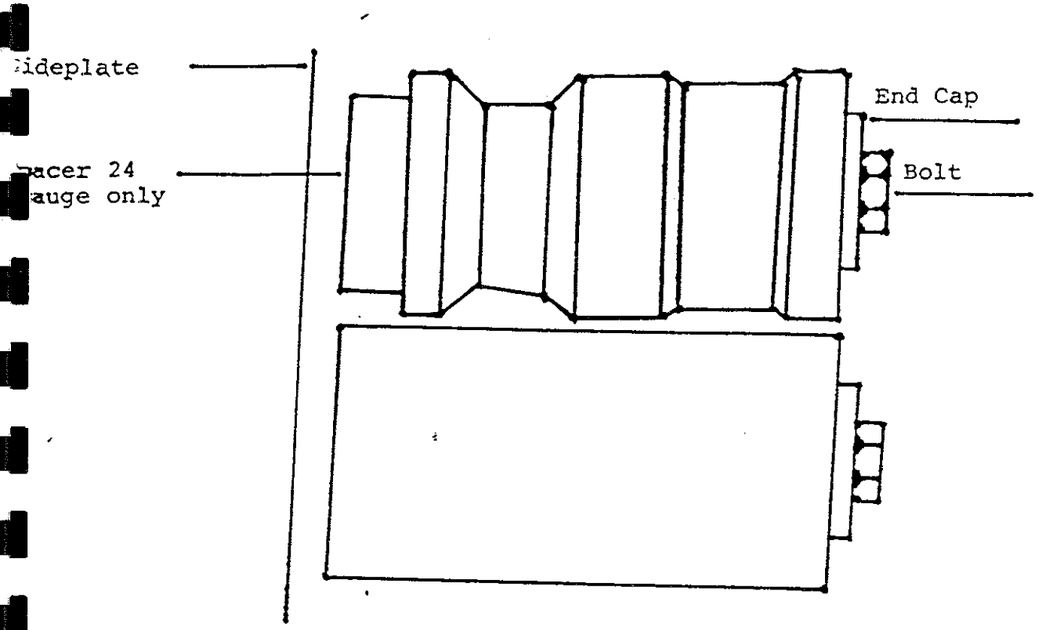
16 Gauge Capacity:
Free Standing unit 16 to 20 gauge capacity only
16 gauge rolls on transfer system (18 ga. cap.)
Use deep groove for 18, 20, & 22 gauge
Use shallow groove for 24 & lighter

18 Gauge Capacity:
Use deep groove for 18 & 20 gauge
Use shallow groove for 22 & lighter

Note: By use of the word use, this means roll groove would be next to the end cap & bolt.

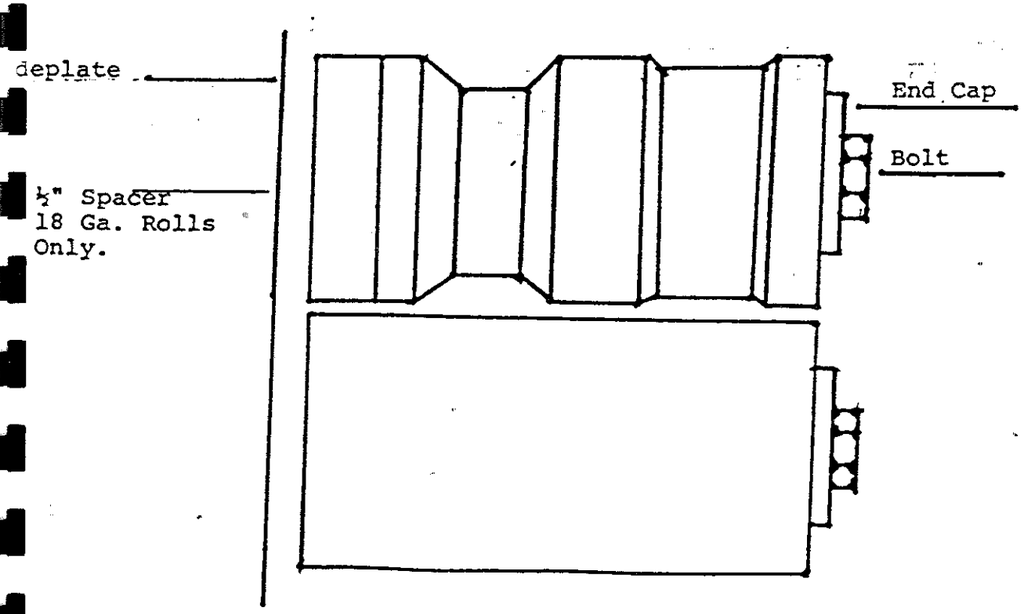
FEMALE SNAPLOCK 20 & 24 GAUGE

#8 TOP



PITTSBURGH 16 & 18 GAUGE

#7 TOP



WARNING

NEVER PUT YOUR HANDS IN THE POINT OF OPERATION OF ANY MECHANICAL OR ELECTRICAL DEVICE.

IF A MACHINE IS JAMMED, NEEDS ADJUSTMENTS, NEEDS DIE CHANGES, ETC. ALWAYS DO A LOCK-OUT/TAG-OUT PROCEDURE WHICH MEANS THE POWER MUST BE OFF AND LOCKED-OUT AND ANY RAMS OR BEAMS WILL BE BLOCKED TO ENSURE SAFETY. THIS IS A FEDERAL OSHA REQUIREMENT AND MUST BE A WRITTEN AND TRAINING TYPE OF PROGRAM.