

TECHNICAL MANUAL

**OPERATOR, ORGANIZATIONAL, DIRECT SUPPORT
AND GENERAL SUPPORT MAINTENANCE MANUAL
INCLUDING REPAIR PARTS LIST**

FOR

**BRAKE MACHINE
DON G. JENNESS CO., INC.
MODEL S-1014-2000
(NSN 3441-00-237-8653)**

HEADQUARTERS, DEPARTMENT OF THE ARMY

SEPTEMBER 1980

Technical Manual

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HEADQUARTERS
DEPARTMENT OF THE ARMY
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REPORTING OF ERRORS

You can help improve this manual. If you find any mistakes or know of a way to improve the procedures, please let us know. Mail your letter, DA Form 2028 (Recommended Changes to Publications and Blank Forms), or DA Form 2028-2, located in the back of this manual direct to: Commander, US Army Armament Materiel Readiness Command, ATTN: DRSAR-MAS, Rock Island, IL 61299. A reply will be furnished direct to you.

NOTE

This manual is published for the purpose of identifying an authorized commercial manual for the use of the personnel to whom this brake machine is issued.

Manufactured by: DON G. JENNESS CO., INC.
3010 East Olympic Boulevard
Los Angeles, CA 90023

Procured under Contract No. DAAA09-76-C-6532

This technical manual is an authentication of the manufacturers' commercial literature and does not conform with the format and content specified in AR 310-3, Military Publications. This technical manual does, however, contain available information that is essential to the operation and maintenance of the equipment.

INSTRUCTIONS FOR REQUISITIONING PARTS
NOT IDENTIFIED BY NSN

When requisitioning parts not identified by National Stock Number, it is mandatory that the following information be furnished the supply officer.

- 1 - Manufacturer's Federal Supply Code Number - 6G374
- 2 - Manufacturer's Part Number exactly as listed herein.
- 3 - Nomenclature exactly as listed herein, including dimensions, if necessary.
- 4 - Manufacturer's Model Number - Model S-1014-2000
- 5 - Manufacturer's Serial Number (End Item)
- 6 - Any other information such as Type, Frame Number, and Electrical Characteristics, if applicable.
- 7 - If DD Form 1348 is used, fill in all blocks except 4, 5, 6, and Remarks field in accordance with AR 725-50.

Complete Form as Follows:

- (a) In blocks 4, 5, 6, list manufacturer's Federal Supply Code Number 6G374 followed by a colon and manufacturer's Part Number for the repair part.
- (b) Complete Remarks field as follows:

Noun: (nomenclature of repair part)
For: NSN 3441-00-237-8653
Manufacturer: Don G. Jenness Co., Inc.

Model: S-1014-2000
Serial: (of end item)

Any other pertinent information such as Frame Number, Type, Dimensions, etc.

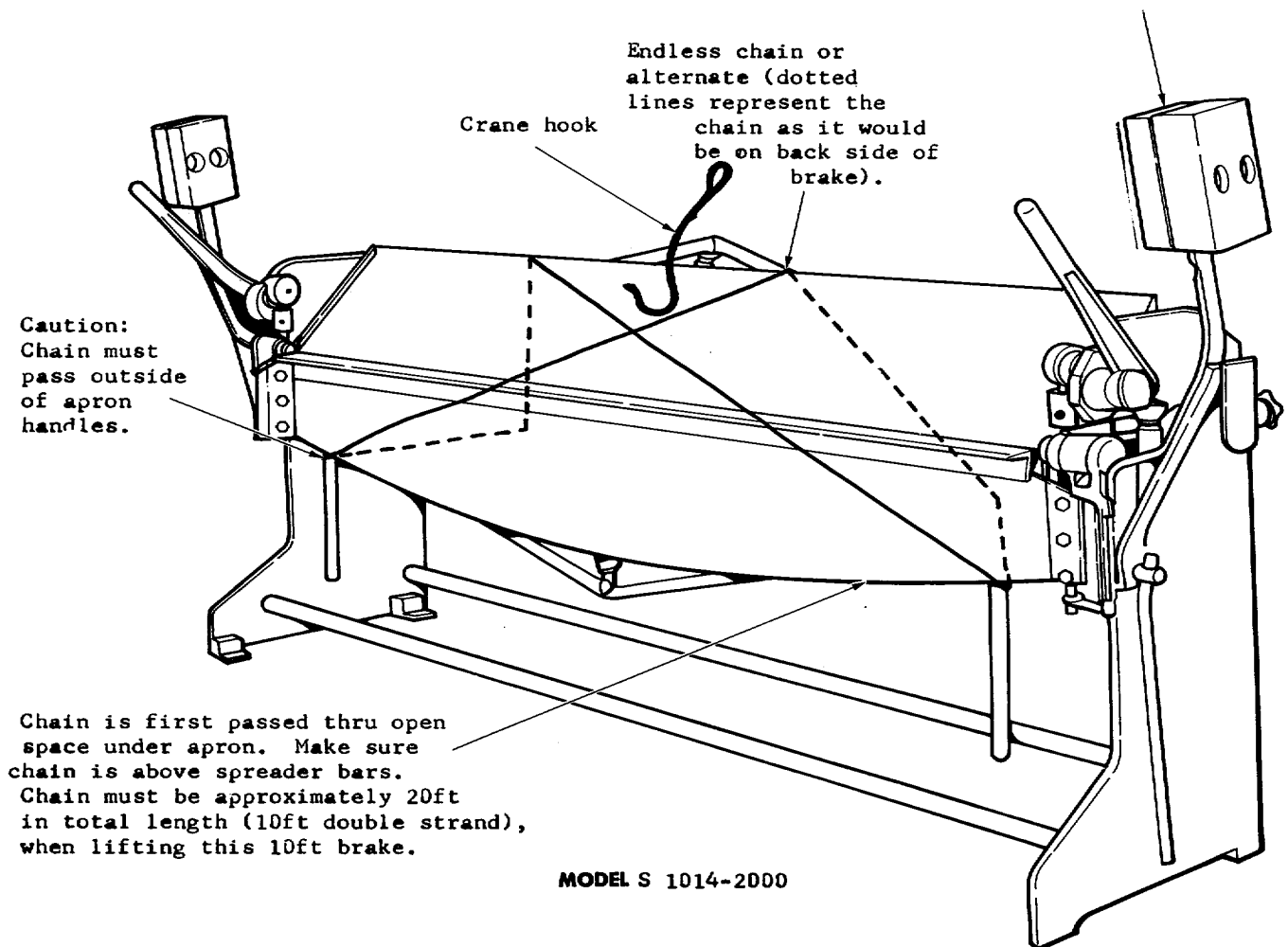
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LIFTING INSTRUCTIONS

When the two (2) ends of the chain are looped over the crane hook, with light tension on the chain, the hook should be located on the center line of the brake and slightly below the nameplate. Extreme caution must be used before lifting the brake completely off the floor; since the brake is top heavy and heavy in front tending to turn over towards the front when lifting.

Counter weights must be on skip when lifting.



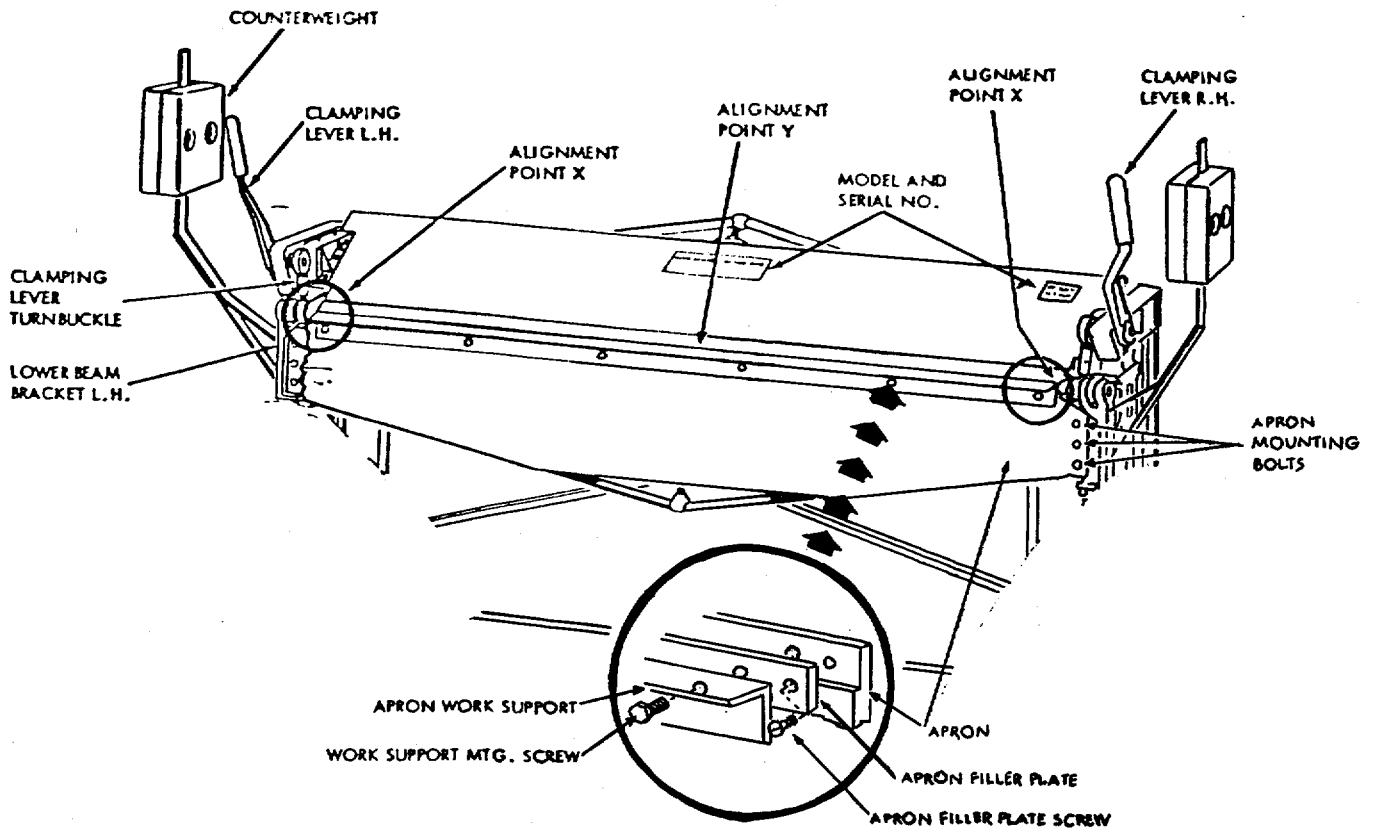


Figure 1. Front View of Brake

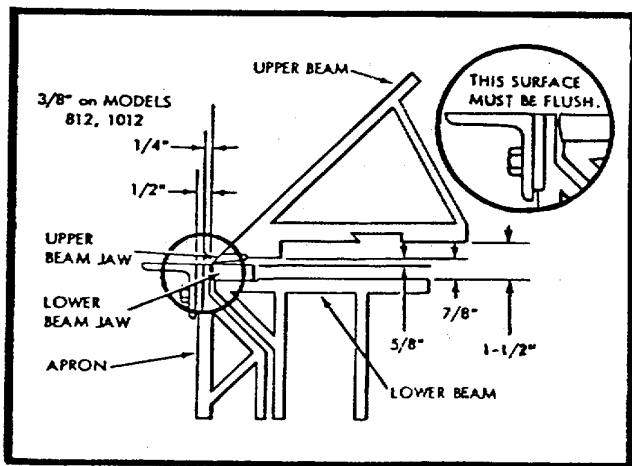


Figure 2. Reference Dimensions

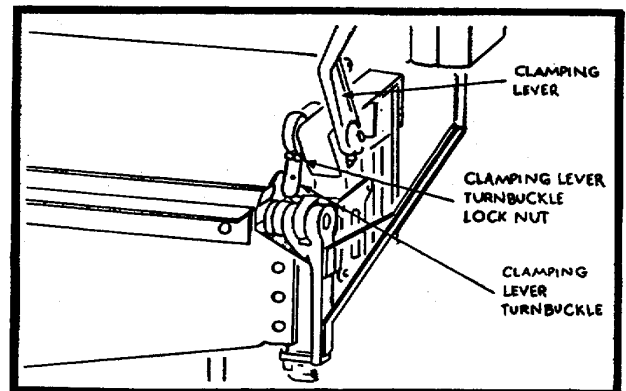


Figure 3. Regulating Clamping Pressure

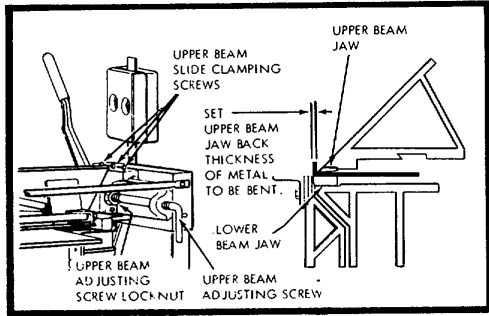


Figure 4. Adjustment of Brake Jaws for Material Thickness

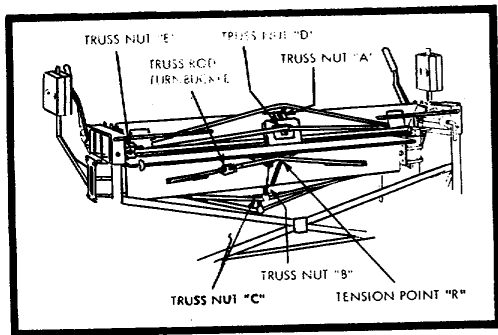


Figure 5. Rear View of Brake Showing Tension Adjustment Points

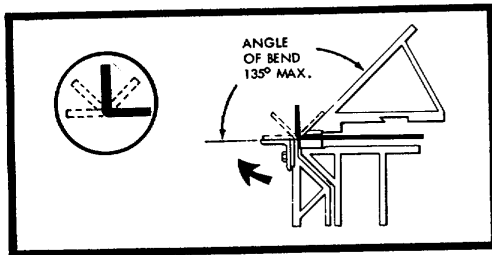


Figure 6. Straight Bending

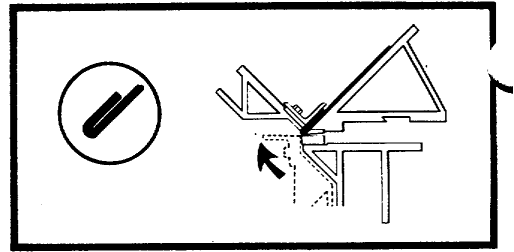


Figure 7. Flattened Seam Bending

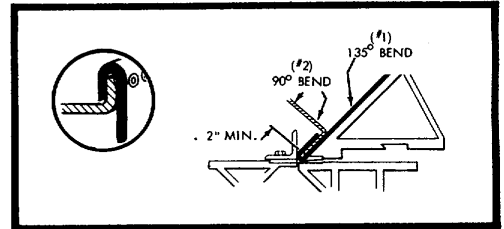


Figure 8. Jointing Two Metal Pieces

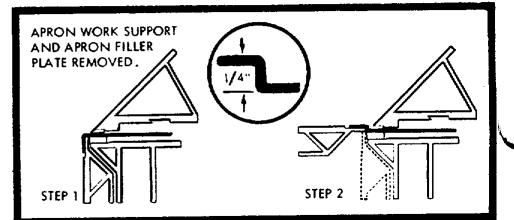


Figure 9. Minimum Reverse Bending

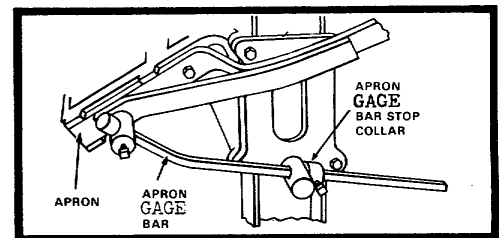


Figure 10. Apron GAGE

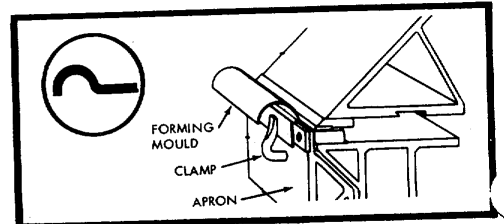


Figure 11. Standard Tinner's Forming Mould

CARE AND OPERATING INSTRUCTIONS

10 FT., BENDING BRAKES (STRAIGHT)

CARE

Occasional oiling of moving parts with machine oil will ease operation and extend the life of the brake. These points include the apron bearings and the upper beam clamping bearings and adjusting screws.

CAUTION

Do not form wire, nails, rods or pipe in these brakes. These brakes will form a 1" flange over the entire length in their rated capacity. Brakes are reduced in capacity by 2 gauges when: Apron angle iron work support (see fig. 1) is removed. Brakes are reduced in capacity by 4 gauges when:

1. Apron angle iron work support and apron filler plate are removed.
2. Brake is used on stainless steel.

ADJUSTMENTS-BEFORE OPERATION (see fig. 2)

1. Apron must be flush with lower beam jaw before beginning operation. To adjust loosen apron mounting bolts slightly and turn apron adjusting screws as necessary. After adjustment, retighten apron mounting bolts. If alignment cannot be achieved, follow major brake alignment procedure following.

CLAMPING PRESSURE ADJUSTMENT (see fig. 3)

2. Check gauge of material to be formed to be sure it is within rated capacity of your brake. Place small sample of work piece on lower beam jaw and clamp in position by moving the clamping lever forward. Sample should now be held firmly in position. To adjust for more or less clamping pressure, move clamping lever to unlocked (up) position, and adjust the clamping lever turnbuckles as necessary to achieve fire clamping pressure.

THICKNESS OF MATERIAL ADJUSTMENT (see fig. 4)

3. With the upper beam lowered to the normal operating position (but not clamped tight against the lower beam) set the upper beam jaw back from the lower beam jaw the thickness of the material to be bent by turning the (2) hand knobs (#9) as required. Sometimes, it may be necessary to tighten the collar stop nuts (#16) to prevent creeping of the upper beam.

ADJUSTMENTS--FINE ALIGNMENT (see fig. 4)

1. A sample work piece, the entire length of the brake, should be clamped in place. Make a test bend by lifting the Apron a full 90°. Release metal from brake jaws and check for straightness.

2. ADJUSTMENTS FOR BOWING (Refer to fig. 5 for location of Truss Nuts)



PROBLEM: Bows up.

SOLUTION: Release tension on Truss Nut (B).



PROBLEM: Bows down.

SOLUTION: Tighten Truss Nut (B). Level the Apron with the Lower Beam Jaw (see figure 2).



PROBLEM: Bows toward operator.

SOLUTION: Release some tension on Truss Nut (D) (depending on your brake).



PROBLEM: Bows away from operator.

SOLUTION: Tighten Truss nut (D) (depending on your brake).

3. ADJUSTMENT FOR UNEVEN ANGLE OF BEND

If 900 sample bend is true at both ends but less than 900 at center of piece, loosen apron mounting bolts (fig. 1) and lower the apron approximately 1/32' by unscrewing the apron adjusting screws. Retighten the apron mounting bolts and tighten truss nut (C, fig. 5) until both jaws of brake are flush at brake center (see fig. 2).

INCREASING JAW OPENING

4. The jaw opening has been set at the factory for approximately 21. If item #21 counterbalance springs take a slight set, this opening can be re-adjusted by turning item #87 adjusting screws as required.

MAJOR BRAKE ALIGNMENT

Follow the procedure listed below if brake is badly out of alignment. (If your brake does not have all the truss nuts referred to in these instructions, disregard those steps.)

1. Loosen all truss nuts (A, B, C, D, E, fig. 5) and truss rod turnbuckle until all tension is released.
2. Tighten the truss rod turnbuckle until the rods are snug at tension point (R). Tighten an additional 1/4 turn.
3. Tighten Truss Nut (B) until snug. Tighten an additional three complete turns.
4. Check Apron at the alignment points (X, fig. 1) to see if it is flush with top of lower beam jaw (see inset, fig. 1). Up and down movement of the apron is controlled by turning the apron adjusting screw (fig. 1) at each end of the apron.
5. Tighten truss nut (C, fig. 5) until apron is flush with lower beam jaw alignment point (Y, fig. 1).
6. Tighten truss nut (E, fig. 5) as tight as possible.
7. Tighten Truss Nut (A) until the upper beam jaw is straight and parallel in relation to the lower beam jaw.
8. Tighten truss nut (D) until the center of the upper beam jaw bows forward slightly.

STRAIGHT BENDING

Set upper beam jaw back to thickness of metal to be bent. Bends up to 135° may be achieved by raising the Apron until the desired angle of bend is obtained.

FLATTENED SEAM BENDING (see fig. 6)

Bend metal to full 1350 angle as explained above (fig. 6). Remove metal from between the jaws and reposition it against the upper beam as shown in (fig. 7). Lift apron to flatten seam.

JOINTING (see fig. 8)

Bend metal piece to full 1350 angle. Remove metal from between the jaws and reposition it against the Upper Beam in same manner as explained above. Lift apron to complete bend. Do not flatten seam, but allow for thickness metal piece to be jointed.

MINIMUM REVERSE BENDING (see fig. 9)

Remove apron angle iron work support and apron filler plate (inset, fig. 1). This permits 1/4' reverse bends to be made on all brakes.

NOTE

When the apron angle iron work support and apron filler plate is removed, the brake capacity is reduced by 4 gauges.

To accomplish a minimum reverse bend, a metal lip is first bent to a 900 angle. Metal piece is removed and repositioned between the jaws as shown in step 1 (fig. 9). Raise apron 900 to complete bend, step 2 (fig. 8).

REPEAT BENDS (see fig. 10)

Repeat bends can be made easily by using the apron gauge illustrated in figure 10. Make the first bend to the desired degree and clamp apron gauge bar stop collar using setscrew in position. Apron will contact stop and insure accurate repeatability of bend.

TINNER'S MOULDING FORMS (see fig. 11)

One set of five standard sizes of tinner's mould; 5/8, 1", 1 5/8", and 3" is available for all sizes of straight bending brakes. Remove the apron angle iron work support and position the forming mold on the lip of the apron (see fig. 11). Use a hammer to tap the moulding form clamps through the holes in the apron to the brake. Metal piece part is wiped over the moulding form manually to obtain desired radius.

PARTS LIST S-1014-2000

<u>ITEM</u>	<u>QT'Y</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>
1	1	S-814-200M	END FRAME R.H.
2	1	S-814-201M	END FRAME L.H.
3	1	S-814-202M	UPPER BEAM SUPPORT R.H.
4	1	S-814-203M	UPPER BEAM SUPPORT L.H.
5	1	S-814-204M	UPPER BEAM ADJ. BRKT. R.H.
6	1	S-814-205M	UPPER BEAM ADJ. BRKT. L.H.
7	2	S-814-206	ADJUSTING SCREW
8	2	S-814-207	HOLD DOWN STRAP
9	2	S-814-208	HAND KNOB
10	2	S-814-209	PIVOT PIN
11	1	S-814-210	APRON STOP BRKT.
12	2	S-1014-201	TIE ROD TUBE ASSEMBLY
13	2	S-814-212	TURNBUCKLE
14	2	S-814-213	UPPER EYEBOLT
15	2	S-814-214	LOWER EYEBOLT
16	2	S-814-215	COLLAR STOP NUT
17	21	WS-2528	JAW MTG. SCREWS-5/16-18 x 5/8
18	2	S-814-216	SPRING HOLDER
19	2	S-814-217	SPRING GUIDE
20	1	S-1014-200	UPPER BEAM ASSEMBLY
21	2	S-814-219	SPRING
22	1	1016-5	UPPER BEAM JAW
23	1	1014-2M	LOWER BEAM ASSEMBLY
24	1	1016-3M	APRON ASSEMBLY

PARTS LIST S-1014-2000

<u>ITEM</u>	<u>QT'Y</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>
25	1	1016-6	APRON JAW
26	21	WS-2526	APRON JAW SCREWS-5/16-18 x 3/8
27	7	814-8	1/4 DIA X 7/16 DOWEL PINS
28	1	1016-13	WORK SUPPORT
29	8	WS-145	WORK SUPPORT SCREWS-5/8-11 x 3/4
30	1	412-35	APRON HINGE R.H.
31	1	412-36	APRON HINGE L.H.
32	4	416-97	HINGE BRG (BH-2216)
33	2	416-31	APRON HINGE PIN
34	4	WS-1974	RETAINING RINGS
35	4	WS-657	APRON ADJ. SCREWS-1/2-13 x 1-3/4 SQ. HD.
36	2	416-88	SPECIAL HEX HD. CAPSCREW
37	6	WS-1733	5/8 STD. LOCKWASHER
38	8	412-31	LOCATING PINS (DOWELS)
39	4	WS-96	5/8-11 x 2-1/2 HEX HD.
40	6	WS-1358	5/8-11 FULL NUT
41	1	416-40	APRON STOP SWIVEL PIN
42	2	WS-1528	COTTER PIN-3/32 DIA. 1-1/4
43	1	416-43	APRON GAGE BAR ASSEMBLY
44	1	416-54	APRON GAGE BAR STOP COLLAR
45	1	WS-628	3/8-16 x 3/4 SQ. HD. SETSCREW
46	50	416-39	ROLLER BRGS (#C-4350)
47	2	416-77	BRAKE CRANK
48	2	416-80	2-3/4 DIA. WASHER

PARTS LIST S-1014-2000

<u>ITEM</u>	<u>QT'Y</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>
49	4	WS-31	HEX HD. CAPSCREW -3/8-16 x 3/4
50	4	WS-1729	3/8 STD LOCKWASHER
51	4	416-98	BEARING (#BH-2824)
52	2	416-96	CLAMP LEVER WASHER
53	1	416-16	CLAMP LEVER (R.H.)
54	1	416-17	CLAMP LEVER (L.H.)
55	2	WS-1951	WOODRUFF KEY #E
56	1	1016-7	LOWER BEAM JAW
57	21	WS-17	5/16-18 x 7/8 HEX HAD. CAPSCPTW
58	21	WS-1728	5/16 STD LOCKWASHER
59	8	WS-1593	LOWER BEAM DOWEL PIN-1/4 DIA. x 1-1/8
63	as req.	412-27	APRON HINGE SHIM
61	6	WS-94	APRON HINGE SCREWS-5/8-11 x z" HEX HD.
62			
63	2	WS-37	APRON BUMPER SCREW-3/8-16 x 2" HEX HD.
64	2	416-41	APRON BUMPER SPRING
65	4	WS-1333	3/8-16 JAM NUT
66	1	412-41	COUNTER WEIGHT ARM (L.H.)
67	2	816-6	COUNTER WEIGHT
68	4	WS-2109	COUNTER WEIGHT BOLT- 1/2-13 x 4-1/2 CARR. BOLT
69	4	WS-1706	1/2 STD FLAT WASHER
70	8	WS-1731	1/2 STD LOCKWASHER
71	4	WS-1386	1/2-13 NUT
72	4	WS-64	COUNTER WEIGHT ARM MTG. SCREW- 1/2-13 x 1-1/4

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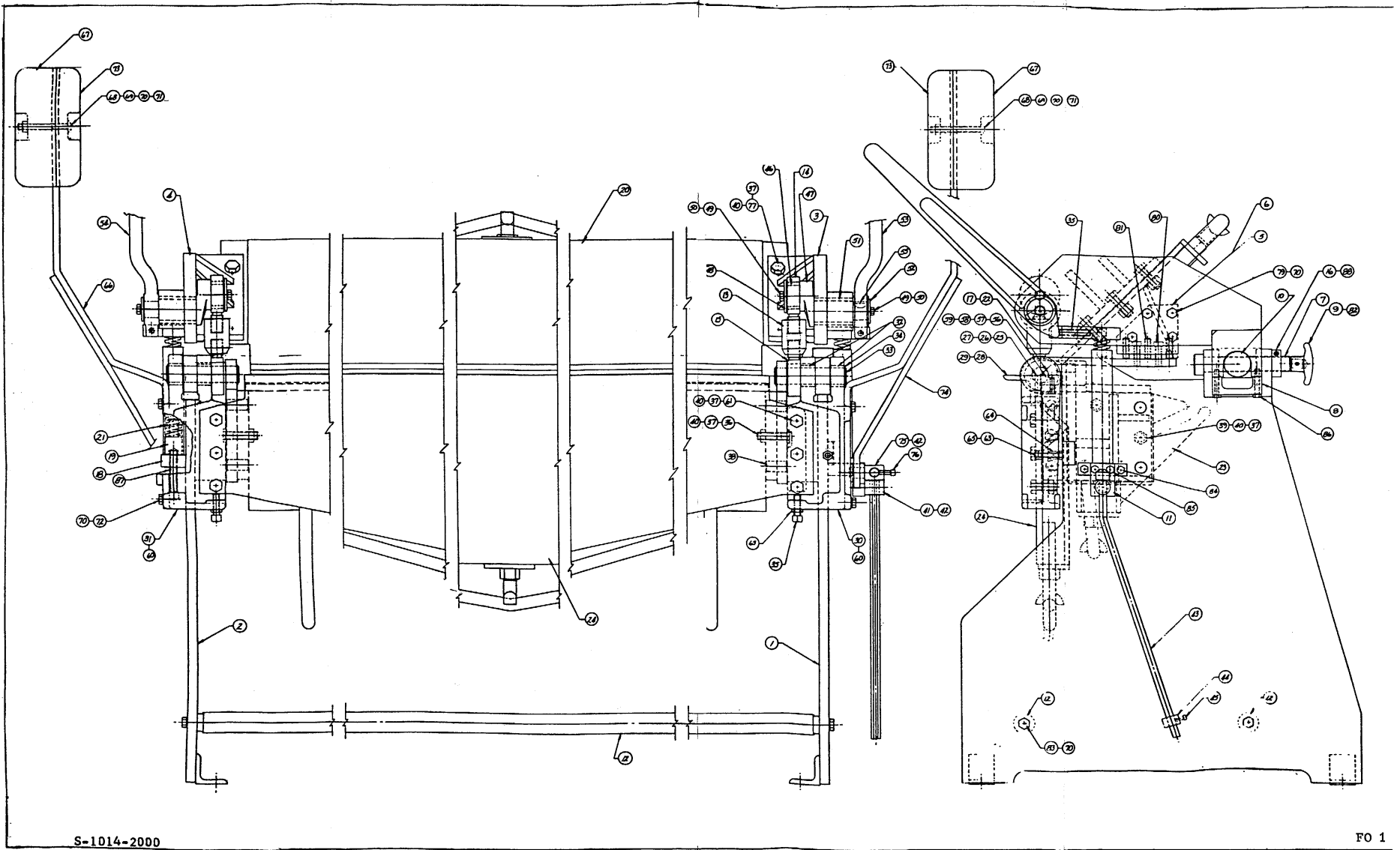
<u>ITEM</u>	<u>QT'Y</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>
73	2	616-22	COUNTER WEIGHT
74	1	412-24	COUNTER WEIGHT ARM
75	1	416-38	APRON STOP SWIVEL PIN
76	1	WS-627	SWIVEL PIN SETSCREW 3/8-16 x 5/8 SQ. HD.
77	6	WS-95	UPPER BEAM SUPPORT MTG. SCREW- 5/8-11 x 2-1/4 HEX HD.
78	2	WS-877	1/2-13 x 1-1/2 SOC. SETSCREW
79	8	WS-65	UPPER BEAM ADJ. BRKT. SCREW- 1/2-13 x 1-1/2 HEX HD.
80	4	WS-66	1/2-13 x 1-3/4 HEX HD.
81	6	WS-878	1/2-13 x 1-3/4 SOC. SETSCREW
82	2	WS-1594A	1/4 DIA. x 1-1/4 ROLL PIN
83	4	WS-65	TIE ROD TUBE SCREW- 1/2-13 x 1-1/2 HEX HD.
84	4	WS-39	SPRING GUIDE SCREW- 3/8-16 x 2-1/2 HEX HD.
85	2	WS-20	APRON STOP BRKT. SCREW- 3/8-16 x 1-1/2 HEX HD.
86	4	WS-37	3/8-16 x 2" HEX HD.
87	2	WS-686	5/8-11 x 3-1/2 SQ. HD. SETSCREW
88	2	WS-510	1/4-20 x 5/8 SOC. HD. CAPSCREW

By Order of the Secretary of the Army:

E. C. MEYER
General, United States Army
Chief of Staff

Official:

J. C. PENNINGTON
Major General, United States Army
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S-1014-2000

FO 1

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