



# NO. 1012, 1014, 1016 OPERATIONS MANUAL

**CARE:** Occasional oiling of moving parts with machine oil will ease operation and extend the life of the brake. Occasionally check and tighten the lower beam bracket gib screws (see figure 1) at each end of the brake. These screws are accessible when the apron is raised. These should be kept snug to reduce excess front to back play in the lower beam.

**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:

1. Apron angle iron work support (see figure 2) is removed.
2. Box fingers are used.

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.

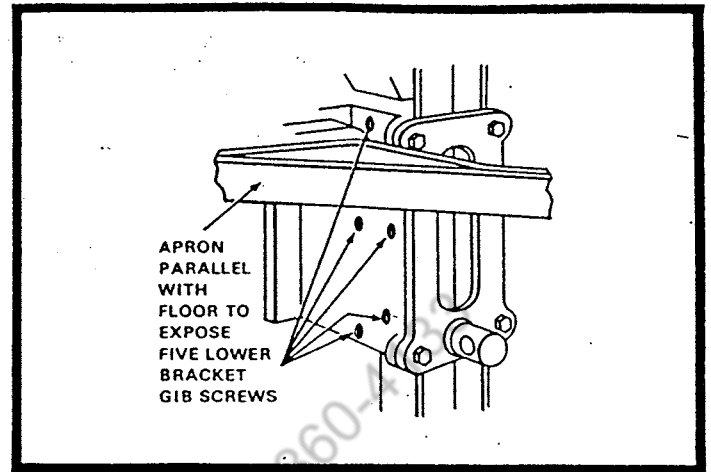


Figure 1. Lower Beam Bracket Gib Screws

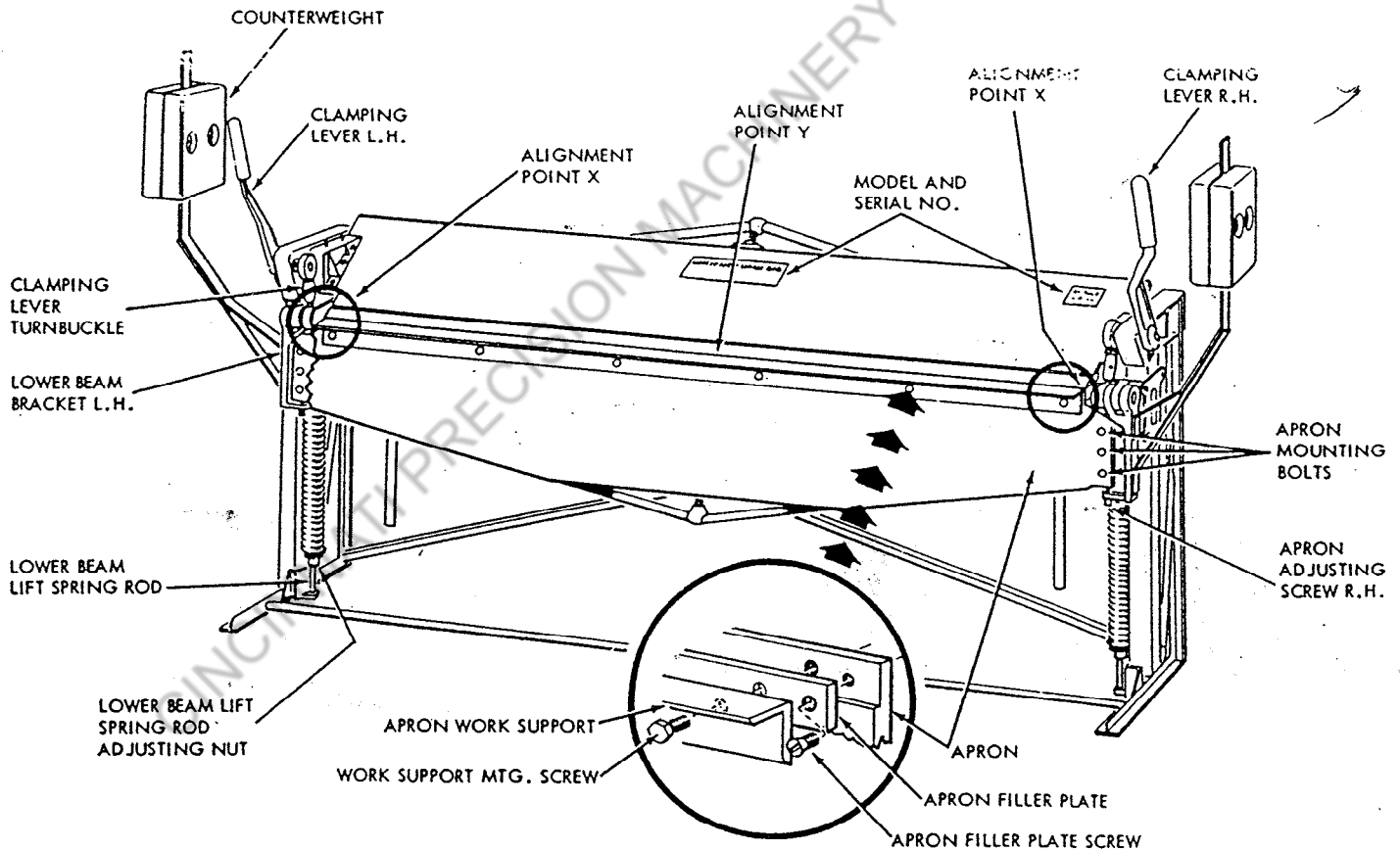


Figure 2. Front View of Brake

## ADJUSTMENTS — BEFORE OPERATION

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 ad-

justment, retighten apron mounting bolts. If alignment cannot be achieved, follow major brake alignment procedure following.

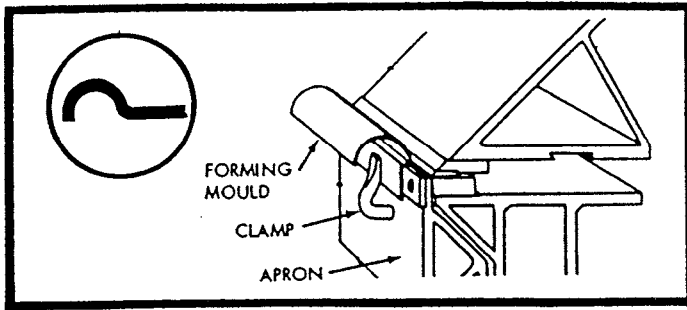


Figure 13. Standard Tinner's Forming Mould

### RADIUS FORMING:

Radius Former Bars are available for all sizes of Combination Bending Brakes. These bars are available in sizes from 3/32" to 1" in increments of 1/32". Sizes 1", 1-1/2", 2", and 2-1/2" are available. The number of Radius Holder Fingers required depends upon the length of the brake; 3 Holder Fingers are required for a 4 foot brake, 4 are required for a 6 foot brake, 5 are required for an 8 foot brake, and 6 for a 10 foot brake. Holder Fingers are all alike for all brake lengths. Shorter Radius Former Bars may be installed on longer brakes if desired.

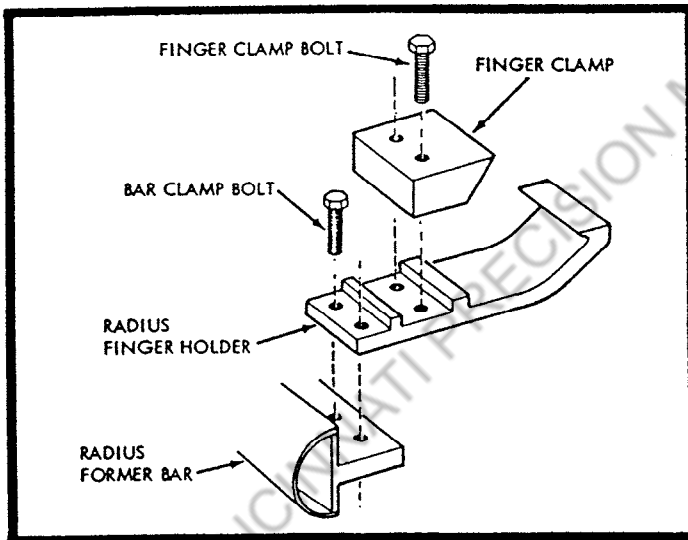


Figure 14. Assembling Radius Formers

### INSTALLING RADIUS FORMER BARS:

1. Assemble the necessary number of Radius Finger Holders to the Radius Forming Bar as shown in figure 14.

2. Increase the distance between the brake jaws by turning the Lower Beam Lift Spring Rod Adjusting Nut (figure 2) at each end of brake downward as far as it will go.

**CAUTION:** The lower beam lift springs support the weight of the entire lower beam assembly when the brake is unclamped. Always adjust the lower beam spring adjusting nuts with the brake in the unclamped position. If adjusted with the brake in the clamped position the beam, when un-

clamped, will drop rapidly downward causing the clamping handles to snap backwards.

3. When using a 1-1/2" or larger Radius Forming Bar, an Auxiliary Lower Beam Jaw is required and should be inserted in position behind the lower Beam Jaw (figure 15).

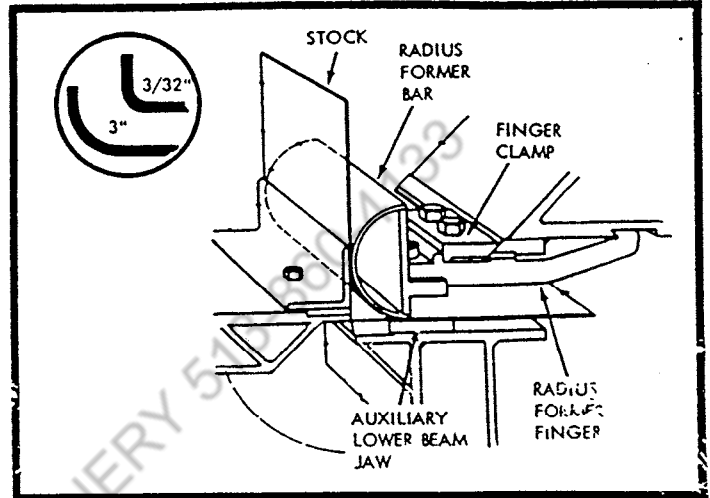


Figure 15. Radius Bending

4. Loosen the Upper Beam Slide Clamping Screws (figure 5) and Upper Beam Adjusting Screw Lock Nuts at both ends of brake. Move the entire Upper Beam back far enough to accommodate the assembled Radius Former Finger and Bar (figure 15).

5. Loosen Finger Clamp Bolts and hook Holder Finger into dove tail in Upper Beam. Position lip of Clamp over Upper Beam Jaw and tighten Finger Clamp Bolts securely.

6. Move Upper Beam back or forward as necessary until front edge of Radius Former Bar is back from the Lower Beam Jaw the thickness of the metal to be bent. (see figure 15). Tighten all Upper Beam Slide Clamping Screws and Adjusting Screw Lock Nuts.

7. With Clamping Lever in unlocked (up) position, adjust Clamping Lever Turnbuckles (figure 4) and Lower Beam Lift Spring Rod Adjusting Nuts as necessary to obtain desired clamping pressure. Pressure should be firm enough so metal will not slip when clamped.

**CAUTION:** The lower beam lift springs support the weight of the entire lower beam assembly when the brake is unclamped. Always adjust the lower beam spring adjusting nuts with the brake in the unclamped position. If adjusted with the brake in the clamped position the beam, when unclamped, will drop rapidly downward causing the clamping handles to snap backwards.

### BOX AND PAN BENDING:

Box Fingers are available for all Combination Bending Brakes in widths from 1" through 6" in increments of 1/2", and an 8" width. They are made in 6" and 8" depths.

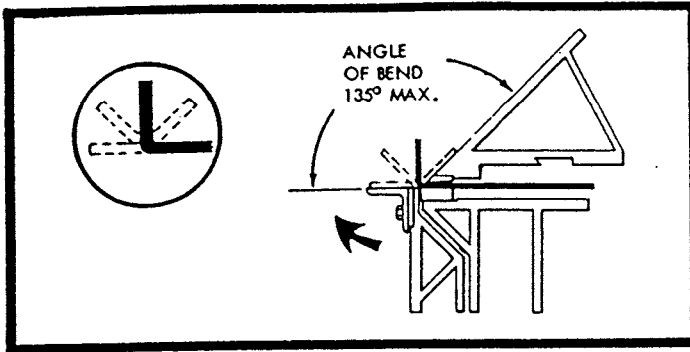


Figure 8. Straight Bending

### FLATTENED SEAM BENDING:

Bend metal to full 135° angle as explained above (figure 8). Remove metal from between the jaws and reposition it against the Upper Beam as shown in figure 9. Lift Apron to flatten seam.

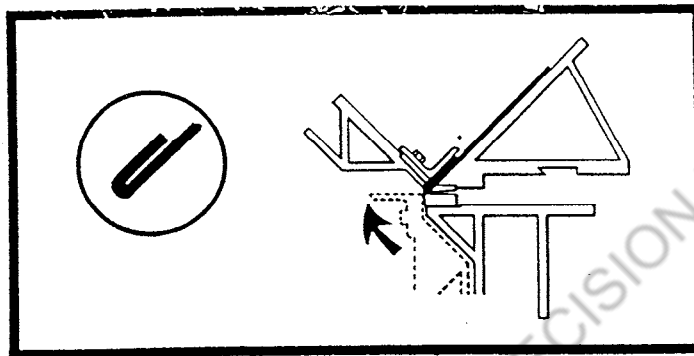


Figure 9. Flattened Seam Bending

### JOINTING:

Bend metal piece to full 135° 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 of metal piece to be jointed.

The Roper Whitney No. 9 Button Punch Tool may be used to lock the two pieces together securely.

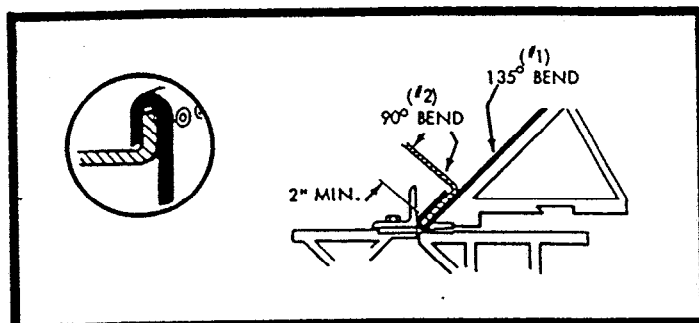


Figure 10. Jointing Two Metal Pieces

### MINIMUM REVERSE BENDING:

Remove Apron Angle Iron Work Support and Apron Filler Plate (inset, figure 2). This permits 1/4" reverse bends to be made on all brakes except Model Nos. 812, 1012, and 1214 will make a reverse bend of 3/8".

**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 90° angle. Metal piece is removed and repositioned between the jaws as shown in Step 1 (figure 11). Raise Apron 90° to complete bend, Step 2 (figure 10).

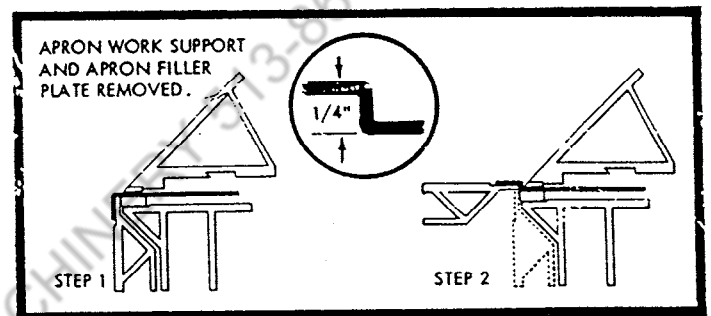


Figure 11. Minimum Reverse Bending

### REPEAT BENDS:

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

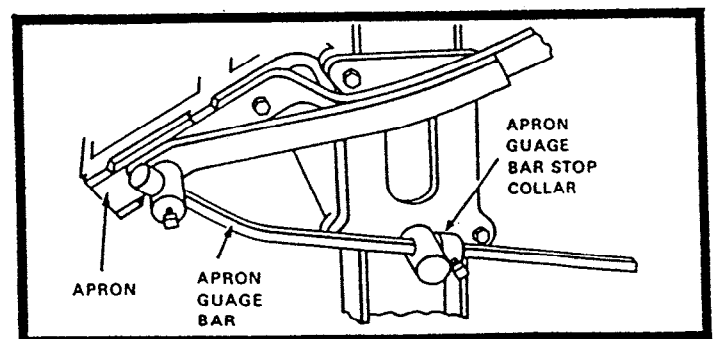


Figure 12. Apron Gauge

### TINNER'S MOULDING FORMS:

One set of five standard sizes of Tinner's Mould; 5/8", 1", 1-5/8", 2-1/2", and 3" is available for all sizes of Combination Bending Brakes. Remove the Apron Angle Iron Work Support and position the forming mold on the lip of the Apron (see figure 13). Use a hammer to tap the moulding form clamps through the holes in the Apron of the brake. Metal piece part is wiped over the moulding form manually to obtain desired radius.

**CAUTION:** The lower beam lift springs support the weight of the entire lower beam assembly when the brake is unclamped. Always adjust the lower beam spring adjusting nuts with the brake in the unclamped position. If adjusted with the brake in the clamped position the beam, when unclamped, will drop rapidly downward causing the clamping handles to snap backwards.

### ENDWISE ADJUSTMENT OF LOWER BEAM:

If the ends of the Upper Beam Jaw and Lower Beam Jaw do not line up at the alignment points (X, figure 2), adjust as follows:

1. Loosen Upper Beam Adjusting Screw Lock Nut (figure 5) at both ends of brake. Turn Upper Beam Adjusting Screws until entire Upper Beam is drawn back about 5" so the Lower Beam Bracket Stud alignment holes (figure 6) are easily accessible.

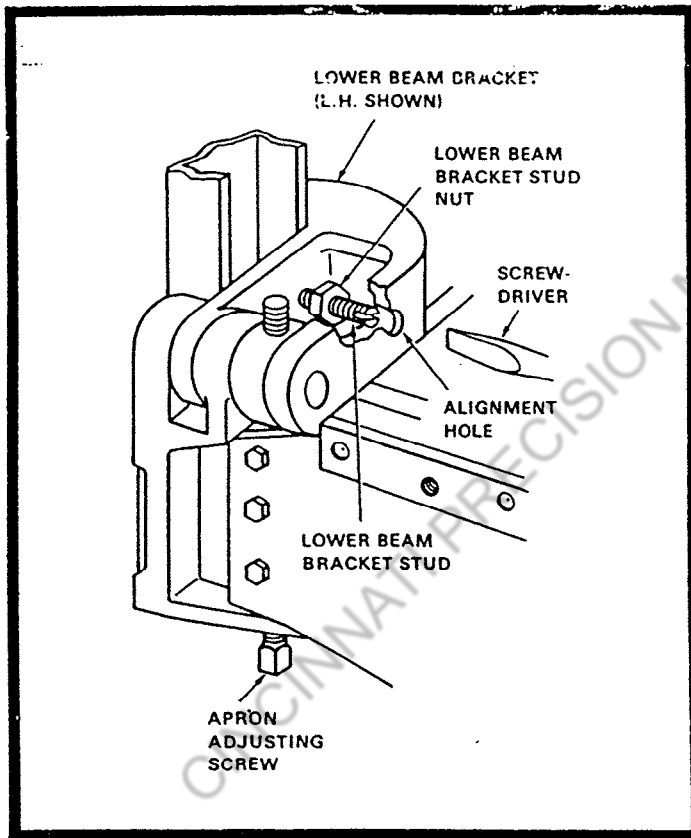


Figure 6. Lower Beam Jaw Endwise Adjustment

2. Use a wrench to loosen the Lower Beam Bracket Stud Nut at each end of the brake.
3. Insert a large screwdriver through the alignment hole in the Lower Beam Brackets and adjust the Lower Beam Bracket Stud as necessary. Tightening stud on one end of the brake and loosening it on the other end will shift the Lower Beam to the right or left permitting alignment of the Upper and Lower Beam ends.

**CAUTION:** Make sure the Lower Beam Bracket Stud does not bear too tightly against the inside leg. This will cause the lower beam to bind and make the brake inoperative. Leave approximately 1/32" clearance between the lower beam bracket stud and the inside leg on each side of the brake.

### 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.) A 30" length of one inch pipe will help attain necessary leverage when applied to the end of the wrench supplied with the brake.

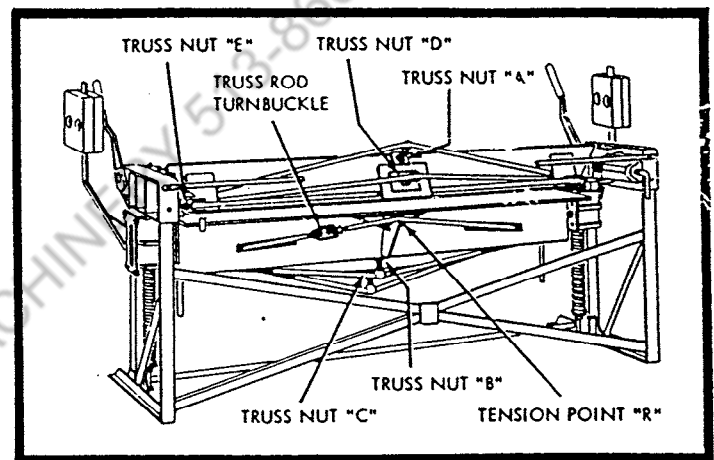


Figure 7. Rear View of Brake Showing Tension Adjustment Points

1. Loosen all Truss Nuts (A, B, C, D, E, figure 7) 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, figure 2) to see if it is flush with top of Lower Beam Jaw (see inset, figure 2). Up and down movement of the Apron is controlled by turning the Apron Adjusting Screw (figure 2) at each end of the Apron.
5. Tighten Truss Nut (C, figure 7) until Apron is flush with Lower Beam Jaw at alignment point (Y, figure 2).
6. Tighten Truss Nut (E, figure 7) 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. (See figure 5). Bends up to 135° may be achieved by raising the Apron until the desired angle of bend is obtained. (See figure 8).

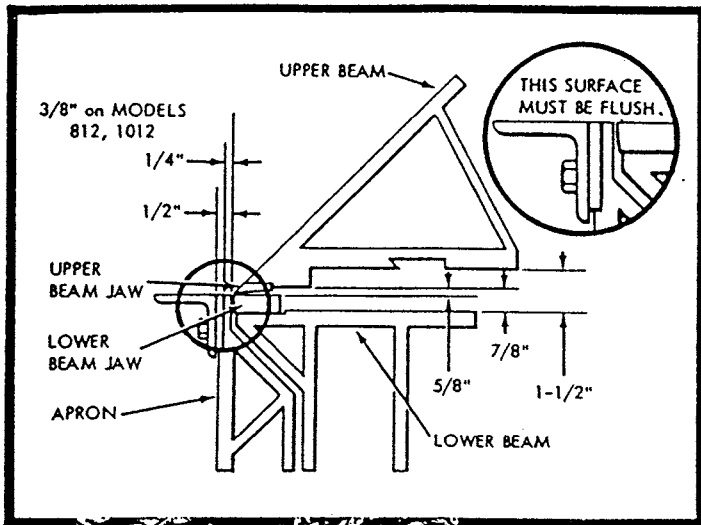


Figure 3. Reference Dimensions

### CLAMPING PRESSURE ADJUSTMENT

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, loosen the Clamping Lever Turnbuckle Lock Nut (figure 4) on both ends of brake and adjust the Clamping Lever Turnbuckles as necessary to achieve firm clamping pressure. Retighten the lock-nuts.

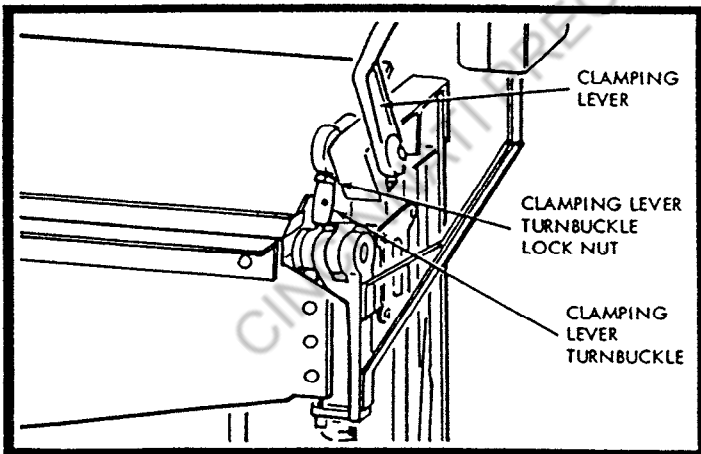


Figure 4. Regulating Clamping Pressure

### THICKNESS OF MATERIAL ADJUSTMENT:

3. Loosen the Upper Beam Slide Clamping Screws (figure 5) and Upper Beam Adjusting Screw Lock Nuts at both ends of brake. Set entire front edge of Upper Beam Jaw back from the Lower Beam Jaw the thickness of the metal to be bent by turning the Upper Beam Adjusting Screws back as necessary. Retighten all screws and nuts.

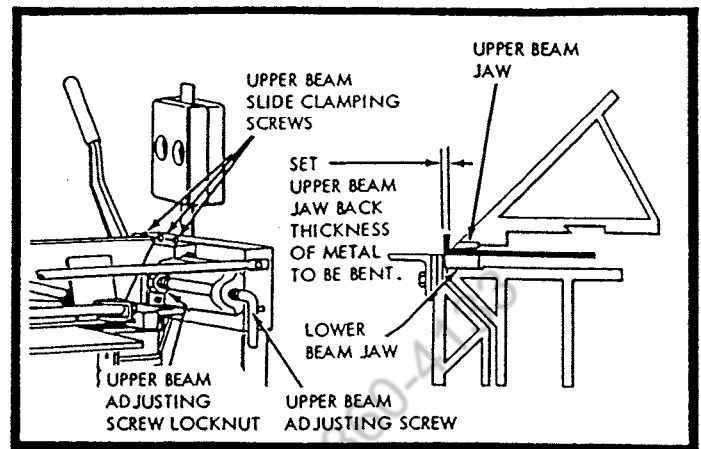


Figure 5. Adjustment of Brake Jaws for Material Thickness

### ADJUSTMENTS — FINE ALIGNMENT:

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 figure 7 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 3).



**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).

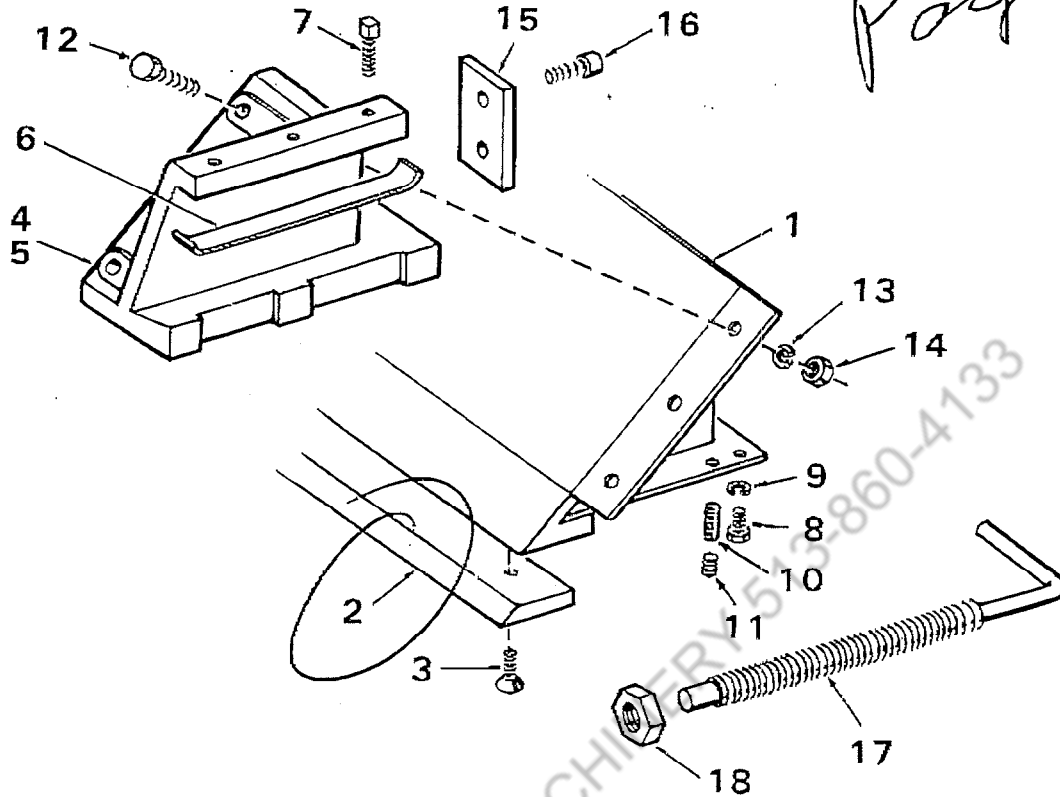
3. **ADJUSTMENT FOR UNEVEN ANGLE OF BEND:** If 90° sample bend is true at both ends but less than 90° at center of piece, loosen Apron Mounting Bolts (figure 2) and lower the Apron approximately 1/32" by unscrewing the Apron Adjusting Screws. Retighten the Apron Mounting Bolts and tighten Truss Nut (C, figure 7) until both jaws of brake are flush at brake center (see figure 3).

### INCREASING JAW OPENING:

The opening between the brake jaws may be increased to a maximum of 1-5/8". With the Clamping Levers in the unlocked position, turn the Lower Beam Lift Spring Rod Adjusting Nut (figure 2) at each end of brake downward until the desired opening is obtained.

# UPPER BEAM ASSEMBLY

*Page 2 of 3*



## BOX FINGERS

### Net Prices (F.O.B. Factory)

	6" DEPTH BOX FINGERS	8" DEPTH BOX FINGERS
1", 1 1/2"		
2", 2 1/2", 3"		
3 1/2", 4", 4 1/2"		
5", 5 1/2", 6"		
8"		

## RADIUS FORMER BARS

### Net Prices (F.O.B. Factory)

BRAKE LENGTHS . . . . .	4 ft.	6 ft.	8 ft.	10 ft.	12 ft.
Radius Bars —					
3/32" to and including 1/2", each size . . . . .					
Radius Bars —					
17/32" to and including 1", each size . . . . .					
Radius Bars —					
1 1/2", 2", 2 1/2", each size . . . . .					
Holder Fingers —					

NOTE — \* Number of holder fingers required. Holder fingers are all alike for all brake lengths. Be sure enough fingers are used for the length of radius bar being attached. Shorter radius bars may be installed on longer brakes if desired. Weight each finger 9-1/4 lbs.

## TINNER'S MOULDS

### Net Prices (F.O.B. Factory)

BRAKE LENGTHS . . . . .	4 ft.	6 ft.	8 ft.	10 ft.	12 ft.
Price per set* — 5/8", 1", 1-5/8", 2-1/4", 3" . . . . .					
Weight per set . . . . .	25 lbs.	38 lbs.	52 lbs.	65 lbs.	78 lbs.

\*Sold only in sets.

ROPER WHITNEY, INC.

2833 Huffman Blvd., Rockford, Illinois 61101

Area Code 815/962-3011

# UPPER BEAM ASSEMBLY

Item No.	Part Name	MODEL NO. 1012			MODEL NO. 1014			MODEL NO. 1016		
		No. Req.	Part No.		No. Req.	Part No.		No. Req.	Part No.	
1A	Upper Beam Complete (Shipped Complete Only) 1A Consists of:	1	1012-1M		1	1014-1M		1	1016-1M	
	1- Upper beam	1	Available only as assembly 1012-1M above		1	Available only as assembly 1014-1M above		1	Available assem 1016-1M	
	2- Upper Beam Jaw	1	1016-5		1	1016-5		1	1016-5	
	3- Upper Beam Jaw Mounting Screws 5/16-18x 5/8 Flat Head Socket Cap Screws	21	WS 2528		21	WS 2528		21	WS 2528	
	4- Upper Beam Slide Casting — RH	1	812-6		1	412-6		1	412-6	
	5- Upper Beam Slide Casting — LH	1	812-7		1	412-7		1	412-7	
	6- Upper Beam Slide Gibs	2	812-23		2	412-15		2	412-15	
	7- Upper Beam Slide Set Screws 1/2-13x1-3/4 Square Head	8	WS 657		6	WS 657		6	WS 657	
	8- Upper Beam Bottom Plate Screw 1/2-13x 1-3/4 Hex Head	10	WS 66		8	WS 66		8	WS 66	
	9- Upper Beam Bottom Plate Screw Washer 1/2 Lock	10	WS :731		8	WS 1731		8	WS 1731	
	10- Bottom Adjusting Screw	12	WS 875 1/2-13x1 Socket Set		10	WS 848 3/8-16x 3/4 Socket Set		10	WS 848 3/8-16x 3/4 Socket Set	
	11- Bottom Adjusting Screw Lock Screw	12	WS 1925 1/2-13x 1/4 Socket Set		10	WS 1926 3/8-16x 3/16 Socket Set		10	WS 1926 3/8-16x 3/16 Socket Set	
	12- Upper Beam to Slide Mounting Screw 5/8-11 x2-1/4 Hex Head	8	WS 95		6	WS 95		6	WS 95	
	13- Upper Beam to Slide Mounting Screw Lock Washers 5/8 Lock	8	WS 1733		6	WS 1733		6	WS 1733	
	14- Upper Beam to Slide Mounting Screw Nuts 5/8-11 Full	8	WS 1358		6	WS 1358		6	WS 1358	
15-	Upper Beam Adjusting Screw Plates	6	416-29		6	416-29		6	416-29	
16-	Upper Beam Adjusting Screw Plate Mounting Screws 3/8-16x3/4 Hex Head	4	WS 31		4	WS 31		4	WS 31	
17-	Upper Beam Adjusting Screw	2	416-35		2	416-35		2	416-35	
18-	Upper Beam Adjusting Screw Nut	2	416-67		2	416-67		2	416-67	

All Part Numbers prefixed by WS are standard purchased items. These can be found locally at your distributor. We have given a complete description of the item to aid you in making a local purchase.

All prices are F.O.B. Factory at Rockford, Illinois.

# LOWER BEAM ASSEMBLY

Item No.	Part Name	MODEL NO. 1012			MODEL NO. 1014			MODEL NO. 1016		
		No. Req.	Part No.		No. Req.	Part No.		No. Req.	Part No.	
50-	Lower Beam	1	1012-2M		1	1014-2M		1	1016-2M	
51-	Lower Beam Jaw	1	1016-7		1	1016-7		1	1016-7	
52-	Lower Beam Jaw Mounting Screw	21	WS 153 5/16-18 x1-1/8 Hex Head		21	WS 17 5/16-18 x7/8 Hex Head		21	WS 17 5/16-18 x7/8 Hex Head	
53-	Lower Beam Jaw Mounting Screw Lock Washer 5/16 Lock	21	WS 1728		21	WS 1728		21	WS 1728	
54-	Lower Beam Jaw Mounting Screw Flat Washer 5/16 Flat	21	WS 1703		21	WS 1703		21	WS 1703	
55-	Lower Beam Jaw Dowel Pin 1/4x1-1/8	10	WS 1593		10	WS 1593		10	WS 1593	
56-	Lower Beam Bracket RH Complete Includes: (Shipped Complete Only)	1	812-4		1	412-29		1	412-29	
58-	Lower Beam Bracket Stud	1	416-30		1	416-30		1	416-30	
59-	Lower Beam Bracket Stud Nut 5/8-11 Hex Jam Nut	1	WS 1337		1	WS 1337		1	WS 1337	
70-	Lower Beam Bracket: Gib Screws 3/8-16x 3/4 Headless Set Screw	5	WS 728		5	WS 728		5	WS 728	
57-	Lower Beam Bracket LH Complete Includes: (Shipped Complete Only)	1	812-5		1	412-30		1	412-30	
58-	Lower Beam Bracket Stud	1	416-30		1	416-30		1	416-30	
59-	Lower Beam Bracket Stud Nut 5/8-11 Hex Jam Nut	1	WS 1337		1	WS 1337		1	WS 1337	
70-	Lower Beam Bracket Gib Screws 3/8-16x 3/4 Headless Set Screw	5	WS 728		5	WS 728		5	WS 728	
60-	Lower Beam Bracket Mounting Screw	2	416-88		2	416-88		2	416-88	
61-	Lower Beam Bracket Mounting Screw	2	WS 97 5/8-11x 2-3/4 Hex Head		2	WS 96 5/8-11x 2-1/2 Hex Head		2	WS 96 5/8-11x 2-1/2 Hex Head	
62-	Lower Beam Bracket Mounting Screw Lock Washer 5/8 Lock	2	WS 1733		2	WS 1733		2	WS 1733	
63-	Lower Beam Bracket Mounting Screw Nut 5/8-11 Hex Full Nut	2	WS 1358		2	WS 1358		2	WS 1358	
64-	Lower Beam Bracket Mounting Screw 5/8-11x4-1/2 Hex Head	2	WS 103		2	WS 103		2	WS 103	
65-	Lower Beam Bracket Lock Washer 5/8 Lock	2	WS 1733		2	WS 1733		2	WS 1733	
66-	Lower Beam Locating Pins	8	412-31		8	412-31		8	412-31	
67-	Lower Beam Bracket Gibs	2	812-16		2	412-32		2	412-32	
68-	Lower Beam Bracket Plate RH	1	812-19		1	412-28		1	412-28	
69-	Lower Beam Bracket Plate LH	1	812-22		1	412-25		1	412-25	
71-	Lower Beam Bracket Plate Mounting Screws	8	WS 64 1/2-13x 1-1/4 Hex Head		8	WS 63 1/2-13x1 Hex Head		8	WS 63 1/2-13x1 Hex Head	

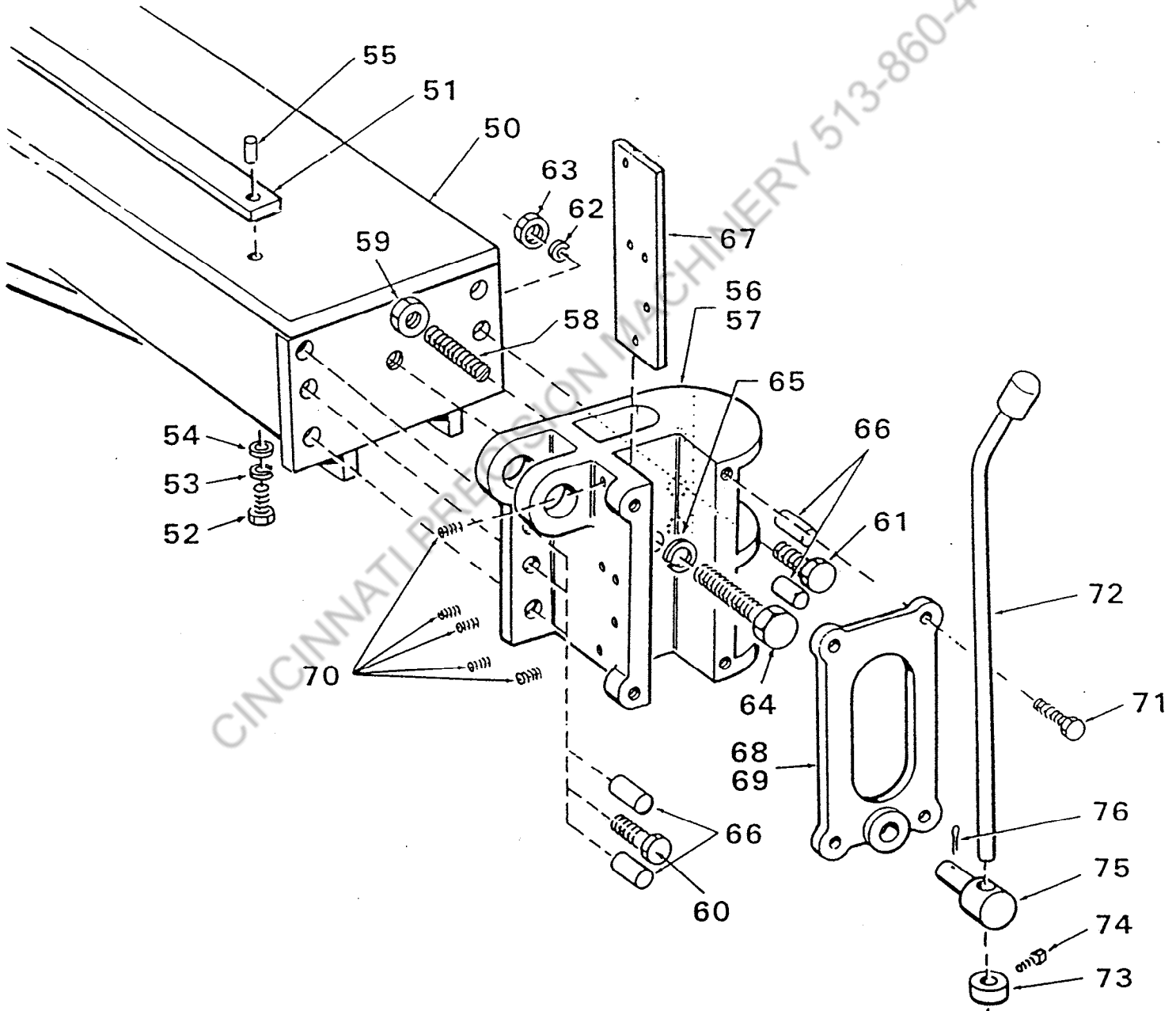


# LOWER BEAM ASSEMBLY

Item No.	Part Name	MODEL NO. 1012		MODEL NO. 1014		MODEL NO. 1016	
		No. Req.	Part No.	No. Req.	Part No.	No. Req.	Part No.
72-	Apron Gauge Bar	1	416-43	1	416-43	1	416-43
73-	Apron Gauge Bar Stop Collar	1	416-54	1	416-54	1	416-54
74-	Apron Gauge Bar Stop Collar Set Screw 3/8-16x 3/4 Square Head	1	WS 628	1	WS 628	1	WS 628
75-	Apron Stop Swivel Pin	1	812-24	1	416-40	1	416-40
76-	Apron Stop Swivel Pin Cotter Key 3/32x1-1/4	1	WS 1528	1	WS 1528	1	WS 1528

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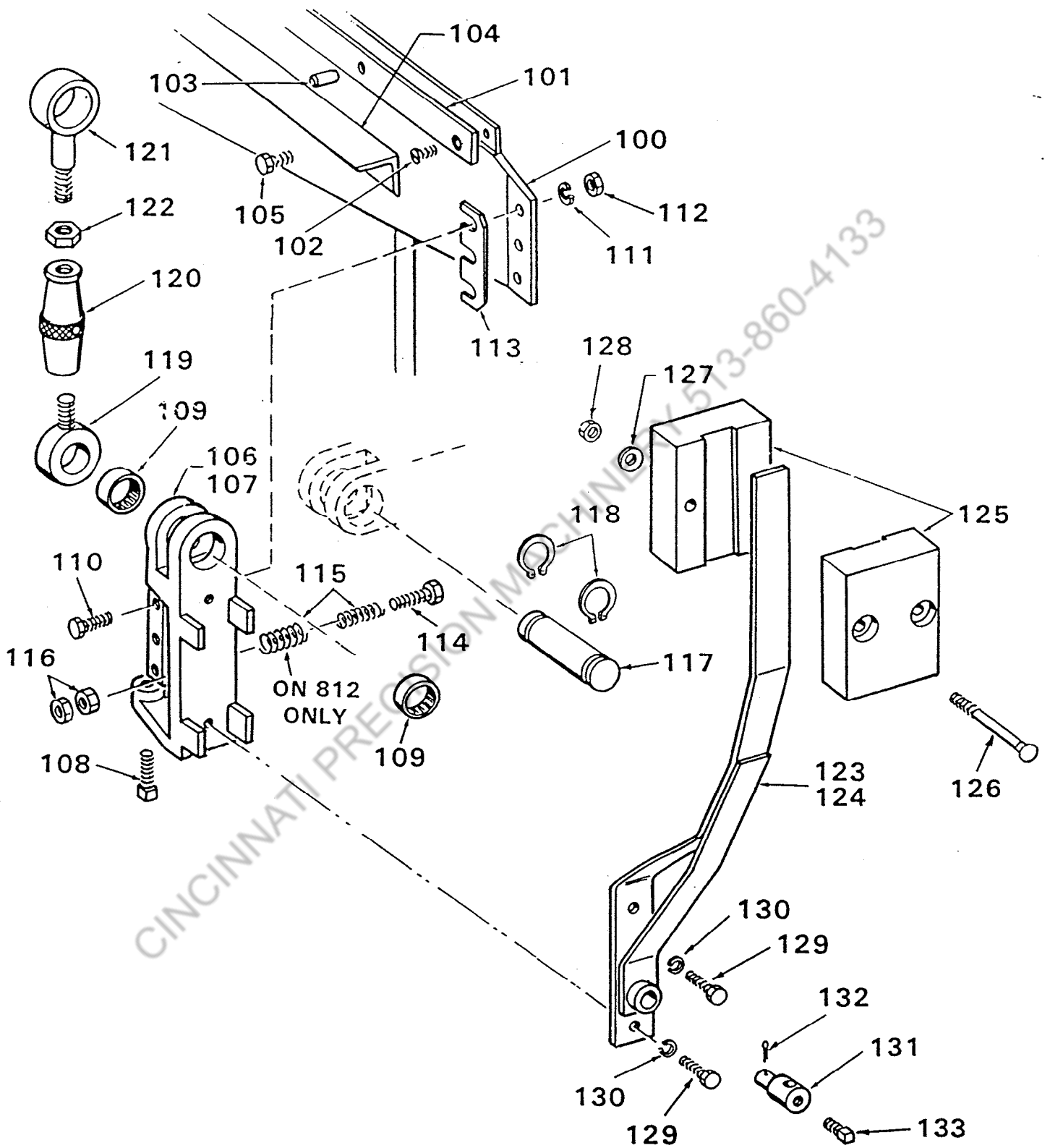


ROPER WHITNEY, INC.

2833 Huffman Blvd., Rockford, Illinois 61101

Area Code 815/962-3011

# APRON ASSEMBLY



# APRON ASSEMBLY

Item No.	Part Name	MODEL NO. 1012			MODEL NO. 1014			MODEL NO. 1016		
		No. Req.	Part No.		No. Req.	Part No.		No. Req.	Part No.	
100A-	Apron Complete (Shipped Complete Only) Consists of: 100-Apron	1	1012-3M		1	1016-3M		1	1016-3M	
	101-Apron Filler Plate	1	Available only as assembly 1012-3M above		1	Available only as assembly 1016-3M above		1	Available only as assembly 1016-3M above	
	102-Apron Filler Plate Screws 5/16-18x 3/8 Socket Flat Head Screw	21	1016-6 WS 2526		21	1016-6 WS 2526		21	1016-6 WS 2526	
	103-Apron Filler Plate Dowel Pins 1/4 Dia. x 7/16	7	WS 1682		7	WS 1682		7	WS 1682	
	104-Apron Work Support	1	1016-13		1	1016-13		1	1016-13	
	105-Apron Work Support Screw 5/8-11x3/4 Hex Head	8	WS 145		8	WS 145		8	WS 145	
106A-	Apron Hinge RH Complete (Shipped Complete Only) Consists of: 106-Apron Hinge RH	1	812-35		1	412-35		1	412-35	
	108-Apron Adjusting	1	Available only as assembly 812-35 above		1	Available only as assembly 412-35 above		1	Available only as assembly 412-35 above	
	109-Apron Hinge Bearings Torrington	2	WS 679 5/8-11x 1-3/4 Sq. Head 416-98 BH 2824		2	WS 657 1/2-13x 1-3/4 Sq. Head 416-97 BH 2216		2	WS 657 1/2-13x 1-3/4 Sq. Head 416-97 BH 2216	
107A-	Apron Hinge LH Complete (Shipped Complete Only) Consists of: 107-Apron Hinge LH	1	812-36		1	412-36		1	412-36	
	108-Apron Adjusting Screws	1	Available only as assembly 812-36 above		1	Available only as assembly 412-36 above		1	Available only as assembly 412-36 above	
	109-Apron Hinge Bearings Torrington	2	WS 679 5/8-11x 1-3/4 Sq. Head 416-98 BH 2824		2	WS 657 1/2-13x 1-3/4 Sq. Head 416-97 BH 2216		2	WS 657 1/2-13x 1-3/4 Sq. Head 416-97 BH 2216	
110-	Apron Hinge Mounting Bolts	8	WS 94 5/8-11x 2 Hex Hd.		6	WS 94 5/8-11x 2 Hex Hd.		6	WS 94 5/8-11x 2 Hex Hd.	
111-	Apron Hinge Mounting Bolt Washers 5/8 Lock	8	WS 1733		6	WS 1733		6	WS 1733	
112-	Apron Hinge Mounting Bolt Nuts 5/8-11 Hex Full	8	WS 1358		6	WS 1358		6	WS 1358	
113-	Apron Hinge Shims	As Req.	812-27		As Req.	412-27		As Req.	412-27	
114-	Apron Bumper Spring Screw 3/8-16x2 Hex Hd.	2	WS 37		2	WS 37		2	WS 37	
115-	Apron Bumper Spring	2	416-41		2	416-41		2	416-41	
116-	Apron Bumper Spring Screw Nuts 3/8-16 Hex Jam	4	127-75 WS 1333		4	WS 1333		4	WS 1333	
117-	Apron Hinge Pin	2	812-34		2	416-31		2	416-31	
118-	Apron Hinge Pin Retaining Rings	4	WS 1973 1-3/4 Tru Arc Rings		4	WS 1974 1-3/8 Tru Arc Rings		4	WS 1974 1-3/8 Tru Arc Rings	
119-	Lower Eyebolt	2	812-17		2	416-25		2	416-25	
120-	Turnbuckle	2	812-18		2	416-26		2	416-26	
121-	Upper Eyebolt	2	812-33		2	416-78		2	416-78	
122-	Turnbuckle Lock Nut	2	812-45		2	WS 1340 1/8 Hex Jam		2	WS 1340 1/8 Hex Jam	

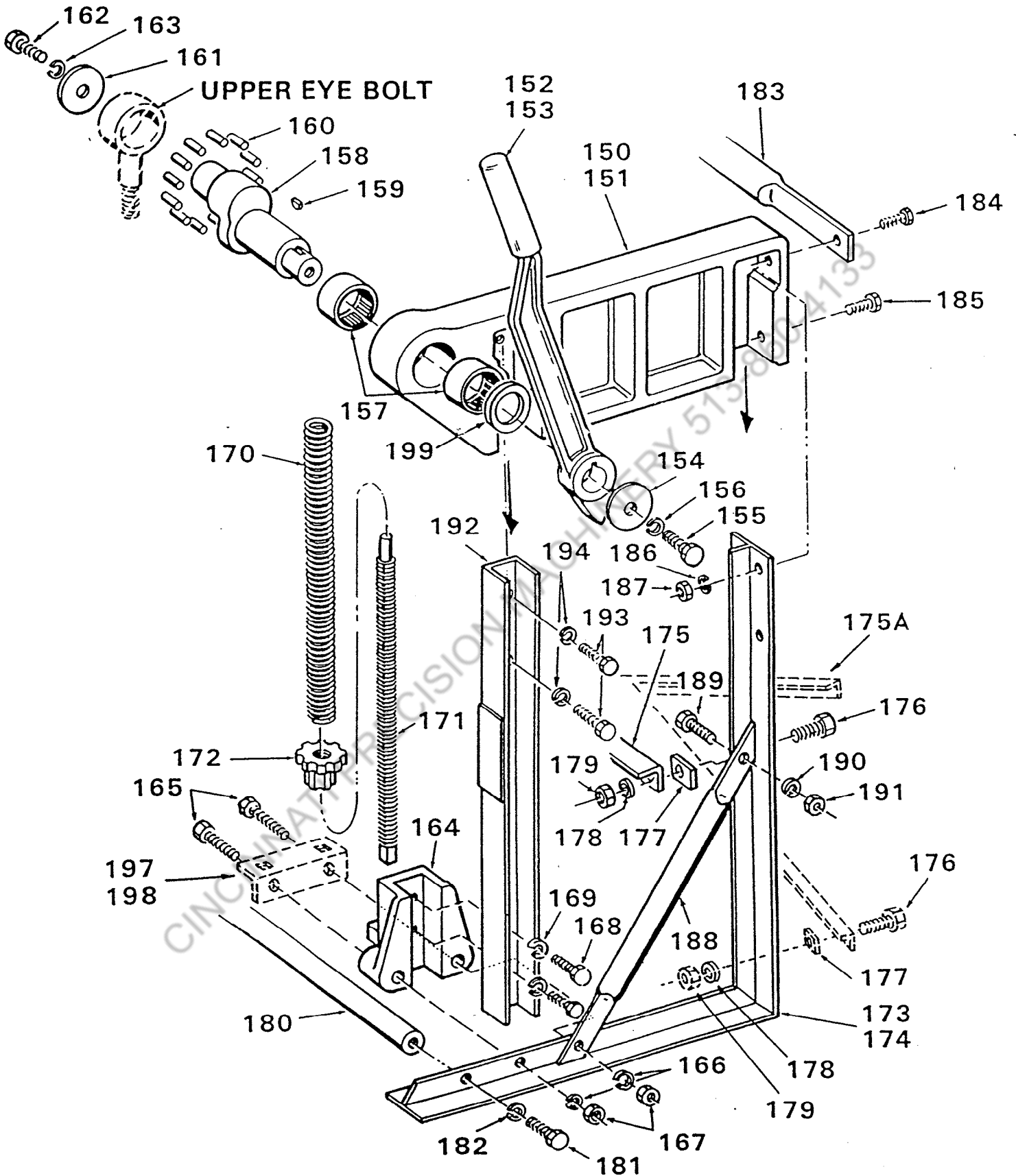
# APRON ASSEMBLY

Item No.	Part Name	MODEL NO. 1012			MODEL NO. 1014			MODEL NO. 1016		
		No. Req.	Part No.		No. Req.	Part No.		No. Req.	Part No.	
123-	Counterweight Arm RH	1	812-14		1	1016-9		1	1016-9	
124-	Counterweight Arm LH	1	812-13		1	1016-8		1	1016-8	
125-	Counterweights	4	1012-4		4	816-6		4	816-6	
126-	Counterweight Bolts	4	WS 2130 5/8-11x 8 Carriage Bolts		4	WS 2128B 5/8-13x 5-1/2 Carriage Bolts		4	WS 2128B 5/8-13x 5-1/2 Carriage Bolts	
127-	Counterweight Washers	4	WS 1708 5/8 Flat		4	WS 1708 5/8 Flat		4	WS 1708 5/8 Flat	
128-	Counterweight Nuts	4	WS 1388 5/8-11 Sq. Nut		4	WS 1388 5/8-11 Sq. Nut		4	WS 1388 5/8-11 Sq. Nut	
129-	Counterweight Arm Mounting Screw 1/2-13x1-1/4 Hex Head	4	WS 64		4	WS 64		4	WS 64	
130-	Counterweight Arm Mounting Screw Washer 1/2 Lock	4	WS 1731		4	WS 1731		4	WS 1731	
131-	Apron Stop Swivel Pin	1	416-38		1	416-38		1	416-38	
132-	Apron Stop Swivel Pin Cotter Key 3/32x1-1/4	1	WS 1528		1	WS 1528		1	WS 1528	
133-	Apron Stop Swivel Set Screw 3/8-16x5/8 Square Head	1	WS 627		1	WS 627		1	WS.627	

All Part Numbers prefixed by WS are standard purchased items. These can be found locally at your distributor. We have given a complete description of the item to aid you in making a local purchase.

All prices are F.O.B. Factory at Rockford, Illinois.

# HEAD AND LEG ASSEMBLY



# HEAD AND LEG ASSEMBLY

Item No.	Part Name	MODEL NO. 1012			MODEL NO. 1014			MODEL NO. 1016		
		No. Req.	Part No.		No. Req.	Part No.		No. Req.	Part No.	
150A	Head Casting RH Complete (Shipped Complete Only) Consists of	1	812-8		1	412-33		1	412-33	
	150 Head Casting RH	1	Available only as assembly 812-8 above		1	Available only as assembly 412-33 above		1	Available only as assembly 412-33 above	
	157 Brake Crank Bearings Torrington	2	812-75 BH 3324		2	416-98 BH 2824		2	416-98 BH 2824	
151A	Head Casting LH Complete (Shipped Complete Only) Consists of	1	812-9		1	412-34		1	412-34	
	151 Head Casting LH	1	Available only as assembly 812-9 above		1	Available only as assembly 412-34 above		1	Available only as assembly 412-34 above	
	157 Brake Crank Bearing Torrington	2	812-75 BH 3324		2	416-98 BH 2824		2	416-98 BH 2824	
152-	Clamping Lever RH	1	416-16		1	416-16		1	416-16	
153-	Clamping Lever LH	1	416-17		1	416-17		1	416-17	
154-	Clamp Lever Washer	2	416-96		2	416-96		2	416-96	
155-	Clamp Lever Washer Mounting Screw 3/8-16x 3/4 Hex Head	2	WS 31		2	WS 31		2	WS 31	
156-	Clamp Lever Washer Mounting Screw Lock Washer 3/8 Lock	2	WS 1729		2	WS 1729		2	WS 1729	
158-	Brake Crank	2	812-32		2	416-77		2	416-77	
159-	Crank and Clamping Lever Key #E Woodruff	2	WS 1951		2	WS 1951		2	WS 1951	
160-	Roller Bearings Torrington	50	812-31 QAR 32914		50	416-39 CH 350		50	416-39 CH 350	
161-	Upper Eyebolt Washer	2	416-80		2	416-80		2	416-80	
162-	Washer Mounting Screw 3/8-16x3/4 Hex Head	2	WS 31		2	WS 31		2	WS 31	
163-	Washer Mounting Washer 3/8 Lock	2	WS 1729		2	WS 1729		2	WS 1729	
164-	Leg Bracket Castings	2	812-12		2	412-12		2	412-12	
165-	Leg Bracket Screw	4	WS 102 5/8-11x 4 Hex Head		4	WS 100 5/8-11x 3-1/2 Hex Head		4	WS 100 5/8-11x 3-1/2 Hex Head	
166-	Leg Bracket Screw Lock Washer 5/8 Lock	4	WS 1733		4	WS 1733		4	WS 1733	
167-	Leg Bracket Screw Nut 5/8-11 Hex Full	4	WS 1358		4	WS 1358		4	WS 1358	
168-	Leg Bracket Screw 5/8-11x1-3/4 Hex Head	4	WS 93		4	WS 93		4	WS 93	
169-	Leg Bracket Screw Lock Washer 5/8 Lock	4	WS 1733		4	WS 1733		4	WS 1733	
170-	Lower Beam Lift Springs	4	1012-7		2	816-15		2	816-15	
171-	Lower Beam Lift Spring Rods	4	416-28		2	416-28		2	416-28	
172-	Lower Beam Lift Spring Rod Adjusting Nuts	4	416-36		2	416-36		2	416-36	
173-	Tee Iron Leg RH	1	412-21		1	412-21		1	412-21	
174-	Tee Iron Leg LH	1	412-22		1	412-22		1	412-22	
175-	Angle Iron Spreader Bar	—	—		—	—		—	—	
175A-	Rear Cross Brace	1	1016-4		1	1016-4		1	1016-4	
176-	Angle Iron Spreader Bar or Rear Cross Brace Mounting Screw 1/2-13x1-1/2 Hex Head	4	WS 65		4	WS 65		4	WS 65	
177-	Angle Iron Spreader Bar or Rear Cross Brace Bevel Washer 1/2 Malleable	4	WS 1749		4	WS 1749		4	WS 1749	

# HEAD AND LEG ASSEMBLY

Item No.	Part Name	MODEL NO. 1012		MODEL NO. 1014		MODEL NO. 1016	
		No. Req.	Part No.	No. Req.	Part No.	No. Req.	Part No.
178-	Angle Iron Spreader Bar or Rear Cross Brace Lock Washer 1/2 Lock	4	WS 1731	4	WS 1731	4	WS 1731
179-	Angle Iron Spreader Bar or Rear Cross Brace Mounting Nut 1/2-13 Hex Jam	4	WS 1335	4	WS 1335	4	WS 1335
180-	Tie Rod	1	1016-12	1	1016-12	1	1016-12
181-	Tie Rod Mounting Screw 1/2-13x3/4 Hex Head	2	WS 61	2	WS 61	2	WS 61
182-	Tie Rod Mounting Screw Lock Washer 1/2 Lock	2	WS 1731	2	WS 1731	2	WS 1731
183-	Back Spreader Bar	1	1016-18	1	1016-18	1	1016-18
184-	Head Screw to T Iron	2	WS 96 5/8-11x 1-1/2 Hex Head	2	WS 94 5/8-11x 2 Hex Head	2	WS-94 5/8-11x 2 Hex Head
185-	Head Screw to T Iron 5/8-11x2-1/4 Hex Head	2	WS 95	2	WS 95	2	WS 95
186-	Head Screw to T Iron Lock Washer 5/8 Lock	4	WS 1733	4	WS 1733	4	WS 1733
187-	Head Screw to T Iron Nuts 5/8-11 Hex Full	4	WS 1358	4	WS 1358	4	WS 1358
188-	Leg Brace	2	416-55-1	2	416-55-1	2	416-55-1
189-	Leg Brace Screw 1/2-13x 1-1/2 Hex Head Screw	2	WS 65	2	WS 65	2	WS 65
190-	Leg Brace Screw Washer 1/2 Lock	2	WS 1731	2	WS 1731	2	WS 1731
191-	Leg Brace Screw Nut 1/2-13 Hex Jam	2	WS 1335	2	WS 1335	2	WS 1335
192-	I Beam Leg	2	412-26	2	412-26	2	412-26
193-	Head Screw to I Beam 5/8-11x1-3/4 Hex Head	4	WS 93	4	WS 93	4	WS 93
194-	Head Screw to I Beam Washer 5/8 Lock	4	WS 1733	4	WS 1733	4	WS 1733
195-	Wrench (Not Shown)	1	416-70	1	416-70	1	416-70
196-	Wrench (Not Shown)	1	812-70				
197-	Lift Spring Rod Bracket R.H.	1	812-26				
198-	Lift Spring Rod Bracket L.H.	1	812-28				
199-	Brake Head Washer	2	812-46				

**NOT USED ON  
1014 AND 1016 BRAKES**

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