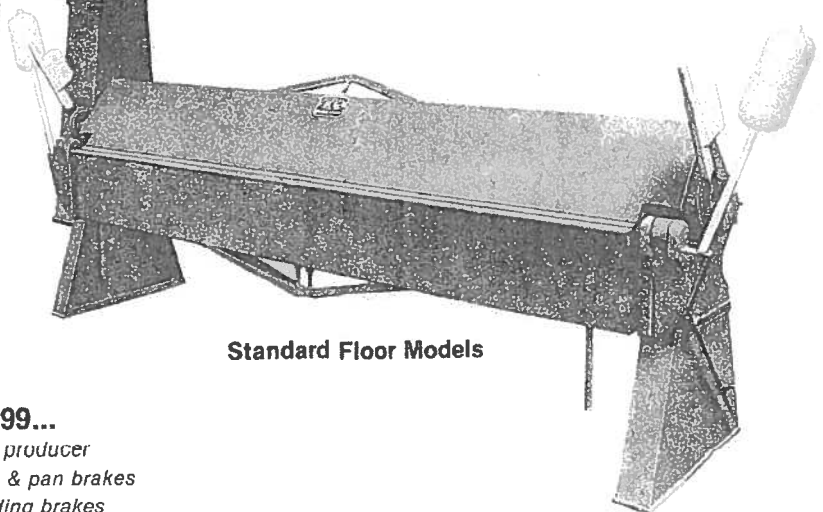


HAND BRAKES

INSTRUCTIONS FOR SET-UP & OPERATING ADJUSTMENTS, REPLACEMENT PARTS



Box & Pan Floor Models



Standard Floor Models



Since 1899...
world's largest producer
of hand brakes, box & pan brakes
and special bending brakes

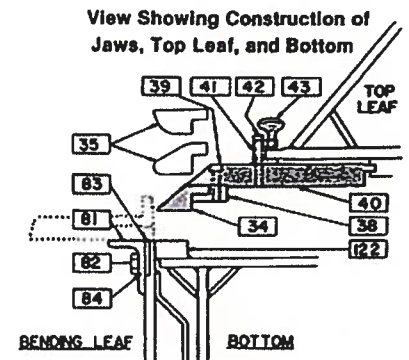
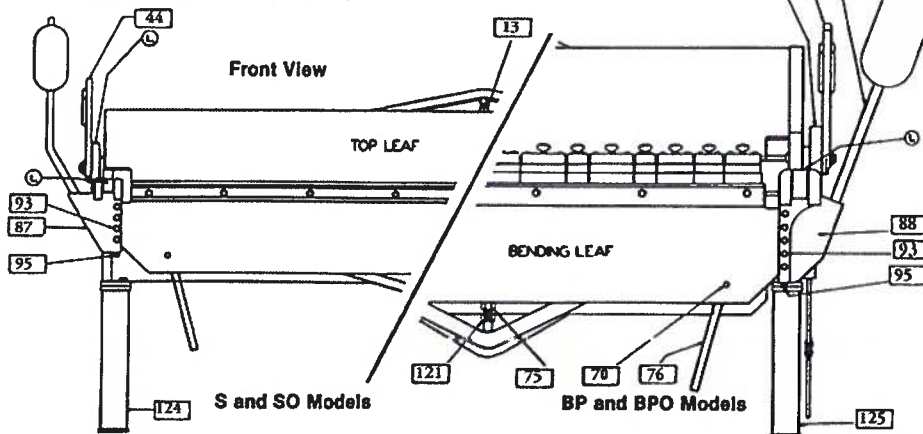
DREIS & KRUMP MANUFACTURING CO.

HAND BRAKES

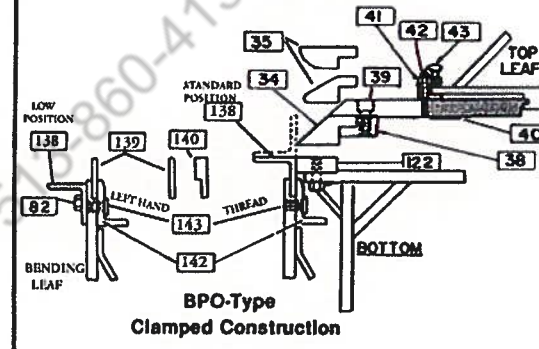
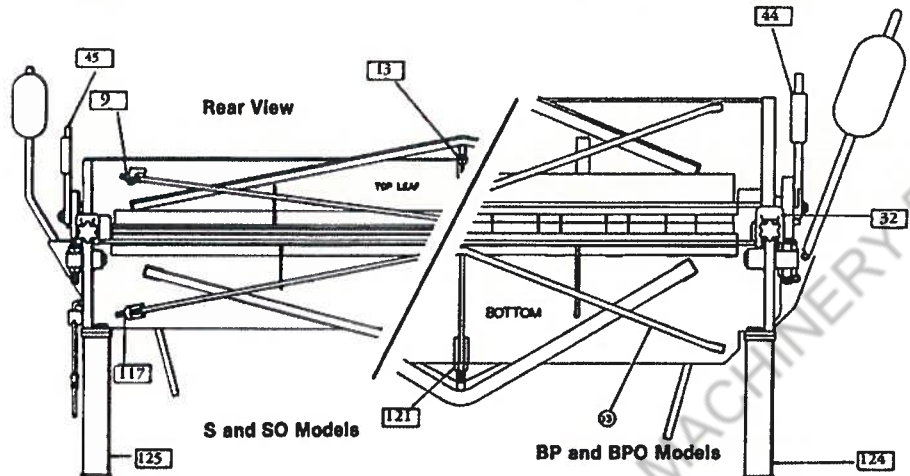
(Clamped or Bolted Bending Bars)

S SO BP BPO

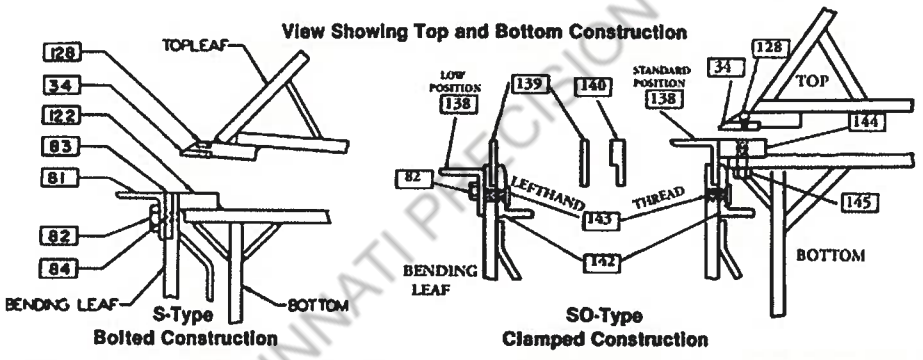
Sn. 300,000+



BP-Type Bolted Construction



BPO-Type Clamped Construction



TO ORDER

To order a complete Jaw (shaded section above), simply specify:

“ ___ inch wide (1” minimum) Jaw complete with Sharp (or ___ inch Radius) Nose Bar.”

To order interchangeable Radius Nose Bars (35-below) simply specify the radius (up to 1½” maximum) and the bending length desired (1” minimum).

REPLACEMENT PARTS NOTE

When ordering parts give model and serial number of machine. Also advise whether for right or left hand side facing the machine.

- S & SO MODELS**
- 22/23/24-SO Top Adj Screw/Handle/Pin
 - 25/26/27-SO Top Adj Collar/Lock Screw/Rod
 - 28/29/30-SO Top Adj Saddle L/R/Bolts
 - 31-SO Top Adj Nut
 - 32/33-SO Top Adj Slide/Bolts
 - 34-SO Nose Bar-Sharp (Specify Length)
 - 44/45-SO Clamp Handle L/R
 - 46-SO Clamp Handle Bearing
 - 49/52/53/54-SO Clamp Shaft/Spring/ Washer/Nut
 - 50-SO Clamp Shaft Bearing (For Connected Handles Only)
 - 56/57-SO Link L/R
 - 58-SO Link Bearing
 - 60-SO Link Adj Nuts
 - 63/64/65/66-SO Pivot Shaft/Bearing/ Washer/Lock
 - 82-SO Angle Bar Bolt
 - 85/86-SO Former/Clamp
 - 87/88/93/95-SO Hinge L/R/Bolt/Adj Screw
 - 89/91-SO Hinge Pin/Bearing
 - 96/98-SO Counterweight/Rod

- BP & BPO MODELS**
- 100/102-SO Stop Gauge/Lock Bolt
 - 104/105-SO Gauge Rod/Guide
 - 128-SO Nose Bar Screw
 - 138-SO Angle Bar
 - 139-SO ¼” Insert Bar
 - 140-SO ½” Insert Bar
 - 142/143-SO Insert Clamp Bar/Screw
 - 144/145-SO Removable Bottom Bar Screw
 - 22/23/24-BPO Top Adj Screw/Handle/Pin
 - 25/26/27-BPO Top Adj Collar/Lock Screw/Rod
 - 28/29/30-BPO Top Adj Saddle L/R/Bolts
 - 31-BPO Top Adj Nut
 - 32/33-BPO Top Adj Slide/Bolts
 - 34-BPO Nose Bar-Sharp (Specify Length)
 - 35-BPO Nose Bar-Radius (Specify Radius & Length)
 - 38/39-BPO Nose Clamp Bar/Bolts
 - 40-BPO Finger Extension

- 41/42/43-BPO Jaw Clamp Bar/Bolt/Thumb Screw
- 44/45-BPO Clamp Handle L/R
- 46-BPO Clamp Handle Bearing
- 49/52/53/54-BPO Clamp Shaft/Spring/ Washer/Nut
- 50-BPO Clamp Shaft Bearing (For Connected Handles Only)
- 56/57-BPO Link L/R
- 58-BPO Link Bearing
- 60-BPO Link Adj Nuts
- 63/64/65/66-BPO Pivot Shaft/Bearing/ Washer/Lock
- 82-BPO Angle Bar Bolt
- 87/88/93/95-BPO Hinge L/R/Bolt/Adj Screw
- 89/91-BPO Hinge Pin/Bearing
- 96/98-BPO Counterweight/Rod
- 100/102-BPO Stop Gauge/Lock Bolt
- 104/105-BPO Gauge Rod/Guide
- 138-BPO Angle Bar
- 139-BPO ¼” Insert Bar
- 140-BPO ½” Insert Bar
- 142/143-BPO Insert Clamp Bar/Screw
- 144/145-BPO Removable Bottom Bar/Screw

OPERATING ADJUSTMENTS

All Models

ADJUSTING FOR METAL THICKNESS

Clearance for bends is obtained by moving Top Leaf back at bending edge. If material to be bent is within four gauges of capacity, move Top Leaf back twice the thickness of the material. With lighter material, move Top Leaf proportionately forward if sharper bends are desired:

1. Unclamp Handles (44/45) slightly.
2. Adjust Top Leaf with Top Adjustment Handles (23).

Clamping pressure of the Links (56/57) is changed by adjusting the Nuts (60).

DUPLICATE BENDS

Adjustable Stop Gauge (100) may be positioned at any point on Rod (104) by means of Lock Bolt (102) to limit the degree of bend.

COUNTERBALANCE

Counterweight (96) can be raised or lowered on Rod (98) to properly counterbalance the Bending Leaf.

OVERBENDING ADJUSTMENT

If sheet bends over further on one side than on the other, set the Top Leaf back on the end where sheet is overbending.

1. Unclamp Handles (44/45) slightly on side that is overbending.
2. Adjust Top Leaf with Top Adjustment Handle (23).
3. Reclamp Handle (44/45).

CREEPING TOP LEAF ADJUSTMENTS

Should Top Leaf creep forward when clamping material:

1. Check that brake sets level on floor.
2. Ensure that Top Adjustment Screw Collars (25) are locked into position so that the Screws (22) cannot move back and forth in Saddles (28/29) — front shoulder of Screws and face of Collars must be snug against Saddles with minimum clearance.
3. If still creeping, wedge under rear of Leg (124/125) at end that creeps until stopped. Replace wedge with permanent block of correct height.

CAPACITY S and BP (only)

The bending capacity of the brake is determined by the bending edge thickness provided by the Bending Leaf Bars (81/83) when mounted on Leaf.

1. Insert Bar (83) with Angle Bar (81) allow the full rated 1" minimum flange on capacity material.
2. Inserting Bar alone without Angle Bar reduces capacity of brake four gauges.
3. Removing both Insert Bar and Angle Bar reduces capacity of brake seven gauges.

These bars are removed only to make narrow offset bends.

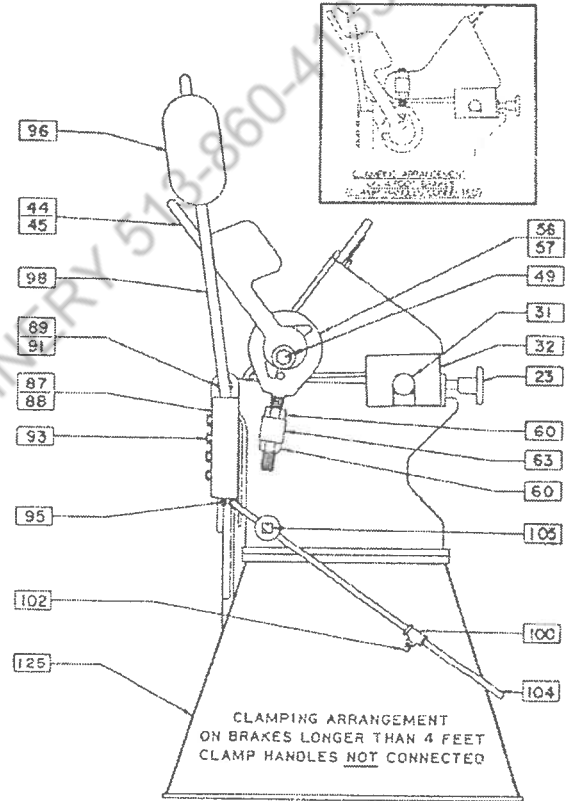
CAPACITY SO and BPO (only)

The bending capacity of the brake is determined by the bending edge thickness provided by the Bending Leaf Bars (138/139/140) when mounted on Leaf.

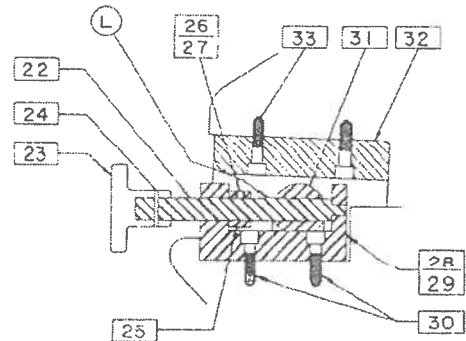
1. Angle Bar (138) allows the full rated 1" minimum flange on capacity material.
2. 1/2" Insert Bar with Angle Bar in LOW position reduces capacity of brake four gauges.
3. 1/4" Insert Bar and Angle Bar in LOW position reduces capacity of brake seven gauges.

NARROW OFFSET BENDS

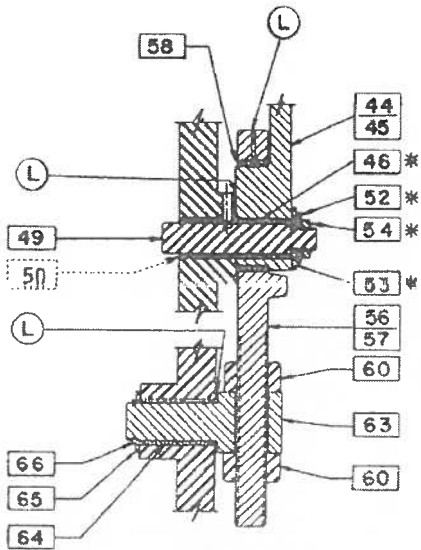
Remove Angle Bar (81) and Insert Bar (83)—use Bending Leaf only.



RIGHT HAND END VIEW



CROSS SECTION THRU ADJUSTING MECHANISM



CROSS SECTION THRU LINK AND LINK PIVOT BLOCK

(CLAMP HANDLES NOT CONNECTED)

* THESE PARTS ARE ELIMINATED ON 4 FOOT BRAKE SINCE HANDLES ARE CONNECTED BY SET SCREWS TO A FULL LENGTH CLAMP SHAFT (49) WHICH TURNS IN BRGS (50)

FORMERS (Not Standard Equipment)

These Moulds or Formers (85) can be obtained in half round sizes of 3/8", 1", 1 1/2", 2 1/4" and 3".

Attach to brake by means of Former Clamps (86):

1. Place 1/2" clearance side of Former against Banding Leaf as shown in sketch.
2. Position Former Clamps and tap lightly with mallet. This creates enough friction to hold Formers.
3. To remove Former Clamps tap upward or turn.

Square bends can be made on a number of sheets and the curves bent afterwards on Formers. The wide opening of the Top permits these semi-formed sheets to pass over the Formers.

CAUTIONS

Bend short pieces of material in center of brake to equalize the strain.

Never bend against seams unless Links (56/57) are adjusted to clamp the full multiple thickness of seam; and, Top Leaf is set back for clearance of the same full multiple thickness.

Always have both Angle Bar (81) and Insert Bar (83) mounted to Leaf when making capacity bends.

When forming sections of wide girth such as cornices, to equalize the buckles in the sheet:

1. Start bend near the center of sheet, or,
2. Make a kink in the opposite end of sheet from the bend first made.

Sheets are not always perfectly flat and a buckle left in one end while the other is straightened by clamping in the brake, will throw the first bend out of line when it, in turn, is straightened.

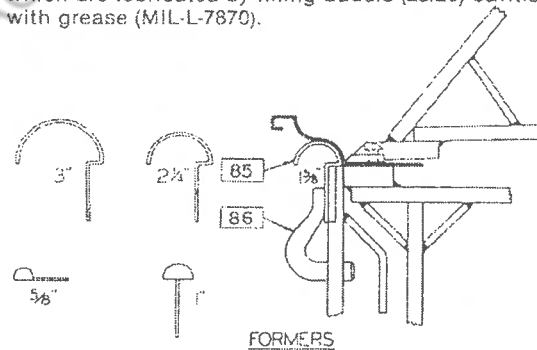
Always use material with square-sheared edges — rolled-edges will cause material to bow.

Never use brake to bend rods — these will nick Nose Bar.

Always adjust for differences in gauges — especially never force-clamp the Top on material heavier than that for which the Links and Top are set by using pipe extensions on Clamp Handles for leverage.

LUBRICATION — ALL MODELS

Lubricate occasionally with SAE-30 oil (Government Specification MIL-O-6081B) where indicated by symbol (L) except for Top Adjustment Screws (22) and Nuts (31) which are lubricated by filling Saddle (28/29) cavities with grease (MIL-L-7870).



BOX & PAN OPERATING ADJUSTMENTS

JAW ALIGNMENT

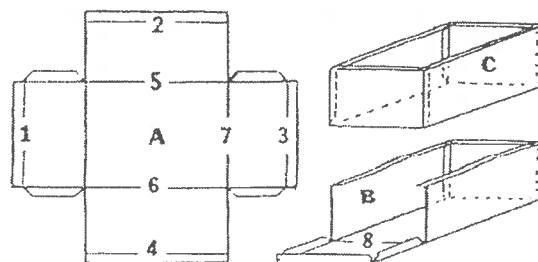
To ensure that Jaws form a straight bending edge at the Nose Bars (34 or 35):

1. Set Fingers (40) in partially opened Top Leaf with Thumb Screws (43) and Nose Clamp Bar Bolts (39) loose.
2. With Angle Bar (81) mounted to Leaf bring up Banding Leaf (90) using its pressure to straight-line of Nose Bars (see dotted lines in sketch opposite).
3. Tighten Thumb Screws and Clamp Bar Bolts.

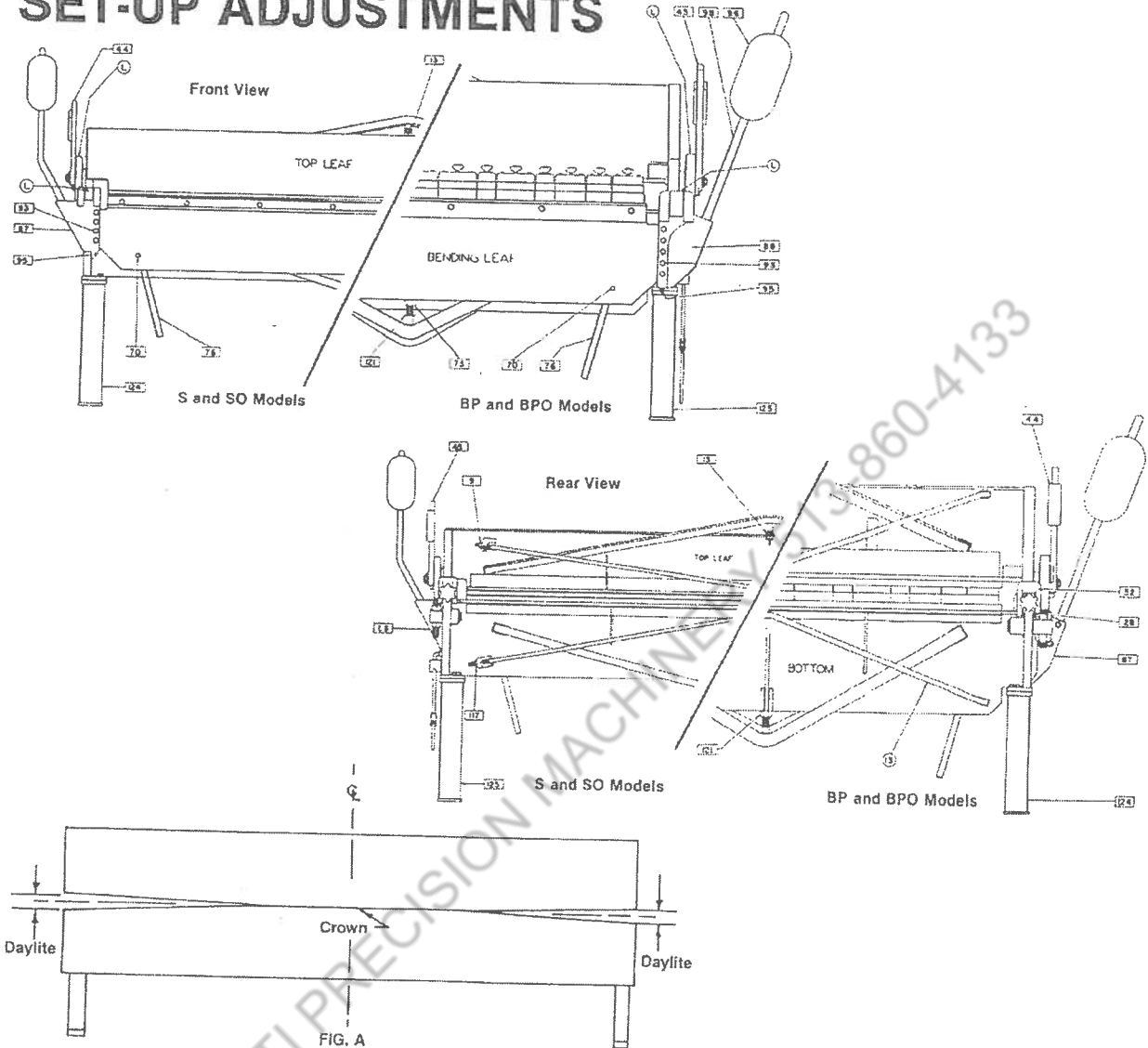
RADIUS BENDS

Angle Bar (81) and Insert Bar (83) must both be mounted to Leaf to wipe material around Radius Nose Bar (35).

SEQUENCE OF OPERATIONS IN FORMING BOX SHAPE WITH INSIDE FLANGES



SET-UP ADJUSTMENTS



LEVELING & TOP LEAF ADJUSTMENT

Machine must be *level* and bolted to the floor for proper adjusting.

To level machine:

1. With clamp handles (44/45) in their forward position, loosen nut (60) at each end of machine.
2. From the back of the machine, loosen completely nuts (9) and (13). Retighten nut (9) until some tension is realized on the rod, about one full turn on the nut on 4', 6' and 8' Brakes, about 1 1/2 turns on 10', 12' and 14' Brakes. Next, retighten (13) nut about 1/2 turn on 4' and 6' Brakes, about 3/4 turn on 8' and 10' Brakes, and about one full turn on 12' and 14' Brakes.
3. View thru the machine from the back; there should be an equal amount of daylight seen at each end of the gap with the center of the top leaf resting on the crown at the center of the bending leaf. See Fig A.
4. If one side or end has *less* daylight showing, shim under the rear of the leg at the same end until daylight is even at each end as shown in Fig. A.

BENDING EDGE ALIGNMENT

When Bending Leaf is in down position, edge of Bending Bar should be 1/64" below edge of Bottom Bar (122).

To maintain this alignment, ensure brake sets level on floor:

1. Adjust Bending Leaf center with Truss Nut (75).
2. Adjust Bottom Center with Truss Nut (121).
3. Adjust Bending Leaf Ends with Hinge Adjustment Screws (95). Loosen Hinge Bolts (93) before and tighten again after adjustment.

BOWED BENDING LEAF ADJUSTMENT

If Bending Leaf becomes bowed in center after use, tighten both Tension Bolts (70) until center is brought into a straight line.

BOTTOM & BENDING LEAF ADJUSTMENT

1. Loosen nuts (75, 121, and 117) all the way.
2. Tighten square nut (75) with fingers until it touches the bottom of the bending leaf. Now tighten with a wrench as shown in chart below:

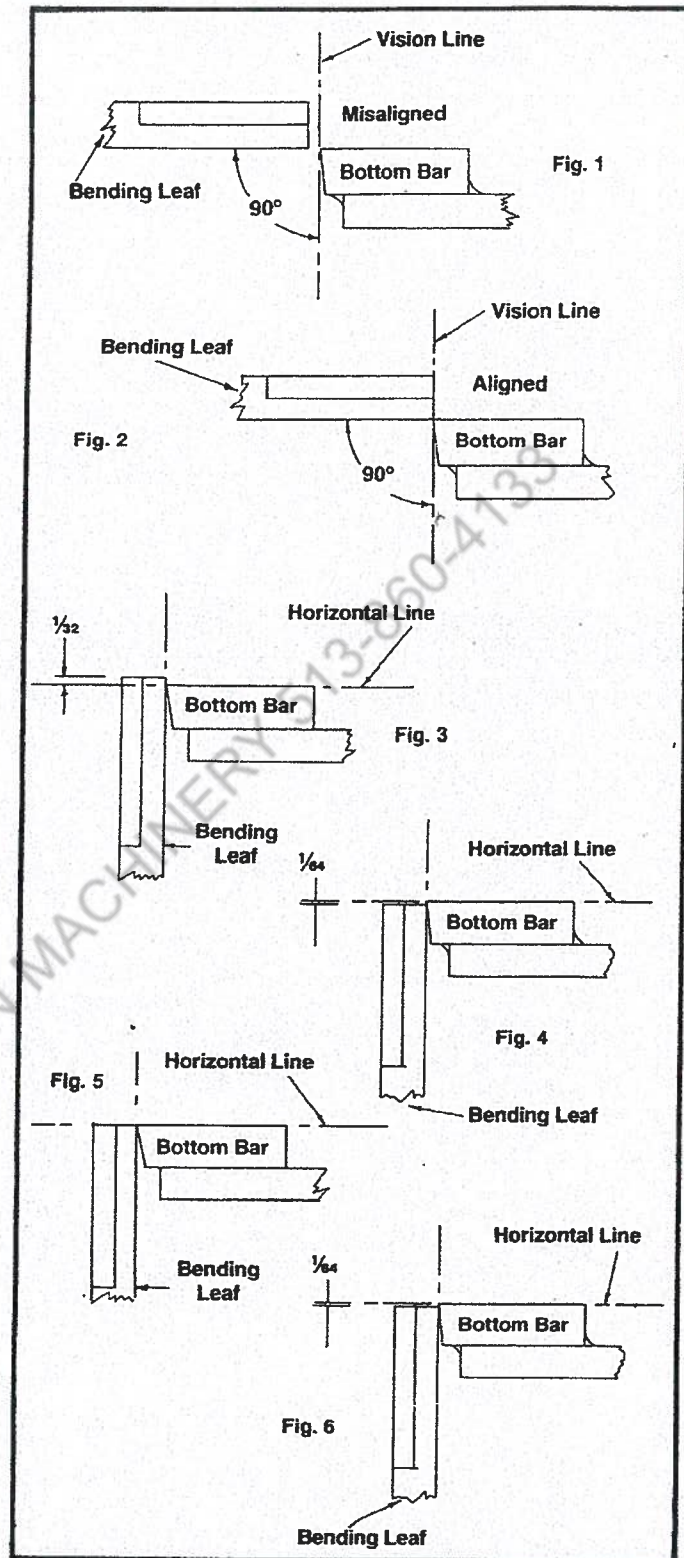
Length of Brake	4 ft.	6 ft.	8 ft.	10 ft.	12 ft.	14 ft.
No. of Turns	¾	¾	1	1¼	1¼	1½

3. Back off on screw (95) at both ends of machine.
4. Loosen all (93) bolts. Leaf should fall down against adjusting screws (95).
5. Snug down the four (4) corner bolts (93) (top and bottom both ends).
6. Raise leaf to 90° from floor and support in position. Brake should now appear misaligned as shown in Fig. 1.
7. Tighten adjusting screws (95) at each end until Brake is aligned as shown in Fig. 2. Lock down tight all (93) bolts.
8. Return leaf to free hanging position. Bending leaf should appear misaligned in the center as shown in Fig. 3. However, the ends near the hinge casting should be below the bottom bar as shown in Fig. 4.
9. Tighten nut (121) until center of bed is flush with top edge of bending leaf as shown in Fig. 5.
10. Tighten nut (117) until bed and bending leaf appear as shown in Fig. 6. throughout full length of machine.

NOTE:

If clicking and snapping noise is heard when making bend, tighten nut (75) one quarter turn and check to see if sound is gone. If not, continue making ¼ turns on nut (75) until the sound disappears. Recheck alignment as shown in Fig. 6. If bending leaf is higher than shown, again tighten nut (121) until leaf appears as shown in Fig. 6 throughout full length of machine.

Assuming there is proper adjustment on the top leaf for the particular thickness metal being formed, the Hand Brake should now be in proper alignment.



DREIS & KRUMP MANUFACTURING CO.

Bulletin HBM 8-95