

## FOREWORD

This manual has been prepared for the owner and operators of RAMS Sheet Metal Equipment floor model hand brakes. Its purpose, aside from operations instructions, is to promote safety through the use of accepted operating procedures. **Read all instructions thoroughly before operating the brake line.**

**Models: RAMS-1016-SB / RAMS-0816-SB**



## LIFETIME LIMITED WARRANTY

The mechanical components manufactured by RAMS Sheet Metal Equipment, Inc. are warranted to the original user only to be free of defects in material and workmanship, for the Lifetime Limited Warranty. RAMS liability under this warranty shall be limited to repairing or replacing at RAM's option, without charge, **F.O.B. RAMS Sheet Metal Equipment, Inc in Antioch, IL**, any component manufactured by RAMS. RAMS will not be liable for any costs of removal, installation, transportation or any other charges which may arise in connection with a warranty claim. Products which are sold but not manufactured by RAMS are subject to the warranty provided by the manufacturer of said products and not by RAMS warranty. RAMS will not be liable for damage or wear to products caused by abnormal operating conditions, accident, abuse, misuse, unauthorized alteration or repair, or if the product was not installed in accordance with RAMS printed operating and service instructions. **FAILURE TO COMPLY WITH THESE INSTRUCTIONS WILL VOID ANY WARRANTY!**

## Safety Instructions

- ✓ Know the safety and operating instructions contained in this brochure. Become familiar with and understand the limitations for this machine. Always practice safety.
- ✓ Wear approved eye safety protection such as glasses, goggles, etc., when operating the brake to protect your eyes from possible debris.
- ✓ Wear protective foot wear or safety shoes.
- ✓ Keep your hands clear of the Upper Leaf and clamping area of the brake. Keep hands clear of the apron area of the brake when making bends.
- ✓ When bending capacity materials use your legs and arms for making the bend, similar to lifting heavy object, to avoid back strain. Maximum length and capacity material is a two person job. Adjust the counterweights to provide maximum assistance on heavy bends.
- ✓ NEVER use a pipe or bar on the clamp handles or apron handles for additional leverage.
- ✓ DO NOT push or pull on the counterweights during the bending process. The counterweights intended purpose is to reduce the force required to lift the apron.
- ✓ Keep clear of the counterweight and apron swing area while operating the brake.
- ✓ Keep the work area around the brake clear and clean to avoid slipping or tripping.

## **Receiving the Brake**

Upon receipt, closely examine the brake for damages during shipment. Be certain that you have two each clamp handles, counterweights and counterweight rods. Any loss or damage should be reported to the delivering carrier and to your distributor. Concealed damage should be reported to the delivering carrier immediately to protect your rights to make a claim.

**USE CAUTION IN HANDLING AND MOVING THIS BRAKE.** It is best to push or pull the brake only from the ends as it is top heavy. Approximate weights for the respective models are as follows:

RAMS-1016-SB 2,200 lbs    RAMS-0816-SB 1500lbs

## **Installing the Brake**

Locate the brake in a well lighted area on a solid level floor. Be certain that you have adequate clearance to swing the apron.

**NOTE: E-Z base is part of the brake design and does not need to be removed**

## **Setting up the Brake**

When the brakes are assembled at the factory it was leveled, adjusted and tested for proper operation. Due to handling and repositioning the brake may require adjustments and alignment.

The brake was adjusted and tested at the factory for bending material at its rated capacity; Adjusted in this manner, the base of the brake is slightly crowned in the center. With the handles pulled forward, viewing through the center of the brake from the rear of the machine will allow you to observe the crown. An equal amount of light should be seen on either end of the brake with the center of the hold down assembly touching the crowned clamp base. If one end has less light, the brake is not level and you should shim under the rear of the left at the leg end until the amount of light is equal. In bending lighter gauge material, the crown in the clamp vase may cause over bending in the center of the work piece. If this is the case, back off the enter truss nut on the base and apron assemblies proportionately to reduce the crown.

The apron assembly has four different areas of adjustment:

- ✓ Truss nut: The large nut at the bottom center of the apron raises and lowers the center apron.
- ✓ Apron adjusting screw and lock nut: These screws and butts, located at the bottom of apron. The hinge mounting screws must be loosened prior to making this adjustment and retightened afterwards.
- ✓ Apron hinge shim: These shims, located between the apron hinges and apron assembly, adjust the gap between the apron and the clamp block on the base at the ends if the apron. Adding shim material closes the gap. Reducing shim material opens the gap. The hinge mounting screws hold the shim in place.
- ✓ Straightening bolt and nut: These bolts and nuts, located near the lifting handles on the apron assembly, adjust the gap between the apron and the clamp block on the base at the center of the apron. Tightening the bolts stiffens the apron thus closing the gap. Loosening the bolts opens the gap.

The apron assembly is adjusted at the factory to form material to the brake's rated capacity. No further adjustments to the apron should be required upon initial installation. However, due to potential shifting during transit; you should visually confirm that the upper edge of the apron is flush to 1/64 low in the center and 1/64 to 1/32 low on the ends with the clamp block on the base. Additionally, the gap between the apron and the clamp block should not exceed .012 inches. Follow the steps in the preceding paragraph to make any necessary adjustments. The forward edge of the Upper Leaf or hold down insert should be adjusted parallel to the pivot edge of the clamp block along the entire length of the brake. Release any clamping pressure on the hold down assembly by pushing the clamp handles slightly to the rear. Turn the hold down adjusting knobs at each end of the hold down assembly to move the forward edge of the clamp block. The central portion of the hold down assembly can be adjusted forward or backward by tightening or loosening the truss nut on the top "center" of the hold down assembly.

## Operating the Brake

**Adjusting for Metal Thickness:** The hold down assembly must be adjusted to allow for clearance of the bend material according to the thickness of the material being worked. The adjustment is made by slightly releasing the clamp block on the base. **To adjust for clearance, turn the hold down adjusting knobs at each end of the hold down assembly to move the forward edge of the clamp block.** For material within four gauges of capacity, the clearance should equal twice the thickness of the material being worked. For lighter gauges, allow a clearance equal to one and one half times the thickness of the material. A larger bend radius can be accomplished by increasing the clearance.

**Adjusting the Clamping Pressure:** The clamping pressure should be adjusted according to the thickness of the material being worked. A common cause of forming problems is the result of either inadequate or excessive clamping pressure. Too much clamping pressure on one or both handles typically will result in over bending the material on that particular end or relative to the center portion of the brake. Not enough clamping pressure force will allow the material to slip during the bending process and result in an under bent section. This under bending is often encountered in the center of the brake.

Clamping pressure should be enough to hold the material securely in place but not so great as to require undue effort in locking the clamp handles. Clamping pressure on the ends of the brake is adjusted by turning the nuts on the threaded rod portion of the yoke assembly which is below the clamp swivel. To set the clamping pressure in the center of the brake, use a 3-inch width scrap piece of material of the same thickness to be worked. Place and clamp the blank in the center of the brake. The clamping pressure should be equivalent to the pressure and locate the tensioning bracket found the upper left hand side of the hold down assembly. Tightening the nut on the end of the tension rod will pull the center of the hold down towards the clamp block of the base and thus tighten the clamping pressure in the center of the brake. When clamping pressure is properly adjusted, lock the nuts on the yoke assembly together to prevent any changes in adjustment.

**NOTE:** The lock nuts on the top of the clamp swivel should be backed off the clamp swivel approximately ¼ turn and locked in place. Tightening the top jam nuts directly on the clamp swivel will make the handles more difficult to move and encourage binding. Binding of the yoke assembly could cause the threaded rod assembly to break.

**Capacity: RAMS-1016-SB /RAMS-0816-SB,** capacity of the brake with the apron support angle attached is 16 gauge mild steel. The stainless steel equivalent is 20 gauge respectively. The minimum recommended flange in capacity material with the apron support angle in place is one inch. The capacity of the brake is reduced by four gauges when the apron support angle is removed. Example; 16 gauge capacity becomes 20 gauge capacity. The capacity of the brake is reduced by seven gauges when the apron insert is removed.

**Bending Repeat Bends:** Bending is accomplished by clamping the work piece under the hold down assembly so that the line of the bend is held at the forward edge of the nose bar and by elevating the apron assembly until the desired degree of bend is obtained. The maximum degree of bend is approximately 135 degrees. Due to the spring back in various materials, some over bending maybe required to get the desired bend angle. For repeat bends, adjust the stop on the stop rod to limit the swing of the apron assembly.

#### **Counterweight Adjustments:**

**CAUTION:** The counterweights on your brake weigh from 30 to 110 pounds each, depending on the model. Adjustment is a two person job and can be best made with the apron blocked in a horizontal position. The counterweights can be moved up and down the counterweight bars to provide more or less leverage depending on the gauge of the material being worked. Secure the counterweights at the desired location by means of the counterweight lock screws. Keep the counterweights evenly adjusted to equally distribute the leverage on both ends of the apron assembly. Normally, the weights are positioned in line with the pivot point of the clamp block. Properly counter balanced, the apron will move easily to the horizontal position and also will fall and remain in the vertical use



**DO NOT USE AS OPERATING HANDLES**



#### **HEMMING:**

**NOTE: Forming hems is a secondary operation for a hand brake.** If you adjust the brake to close a hem in the center of the work piece, the brake most likely will not bend straight. A hem is formed by making an acute (reverse) bend in the work piece and then clamping the bent flange in the down to press the flange closed (to 180 degrees). Often the hem will not fully close in the center of a long work piece due to the fact that the outer ends of the brake are more rigid than the center. Here it is especially important that the brake is sufficiently crowned and that there is proper clamping pressure at the center of the brake. Also the situation can be improved by inserting a strip of material (of the same thickness as the work piece) between the work piece and the clamp block slightly longer than the open portion of the hem. Re-clamp the hold down to close the hem. A tinner's mallet or hammer is also useful for closing hems. Be cautious not to use excessive force on the clamp handles to close the hem.

**NOTE: The lock nuts on the top of the clamp swivel should be backed off the clamp swivel approximately ¼ turn and locked in place. Tightening the top jam nuts directly on the clamp swivel will make the handles more difficult to move and encourage binding; Binding of the yoke assembly could cause the threaded rod assembly to brake.**

**Creeping Hold Down Adjustment:** The term creeping hold down refers to the problem of the hold down assembly shifting forward when the clamp handles are locked into place. A common misconception is that tightening the pivot lock screws is the required adjustment; however, the function of the pivot lock screw is to lock a setting in place prior to numerous bends of a particular gauge. Tightening the pivot lock screw has no effect on the down back lash.

A creeping hold down is usually caused by backlash in the hold down adjusting screw assembly. The loose motion is the result of the hold down adjusting screw collar having backed off allowing play between the thrust bearing and the base endplate. To adjust, insert an Allen wrench in the set screw of the collar and hold the collar stationary while tightening the adjustment screw. This will take out the backlash and sea the bearings against the milled slot in the base endplate. Tighten the set screw to lock the collar in its proper position.

Another possible source of movement is loose pivot bracket screws. Check to be sure that the pivot bracket screws are securing the hold down pivot brackets tightly against the side frames of the hold down assembly. If the creeping continues, the unit is probably not level. Elevate the rear of the left by using the leveling screw and nut at the end that creeps until the creeping stops. Use shims if necessary and retighten the bolt or lag screws that hold the brake to the floor.

## PRECAUTIONS

**DO NOT** USE THE BRAKE TO BEND RODS, NAILS OR WIRE; THIS WILL CAUSE DAMAGE TO THE EDGE OF THE UPPER LEAF APRON.

**ALWAYS** ADJUST THE CLEARANCE AND CLAMPING PRESSURE FOR DIFFERENT THICKNESSES OF MATERIAL.

**DO NOT** EXCEED THE CAPACITY OF THE BRAKE. MAKE CERTAIN THE APRON SUPPORT ANGLE AND APRON INSERT IS ATTACHED TO THE APRON ASSEMBLY WHEN MAKING CAPACITY BENDS. OTHERWISE PERMANENT DAMAGE TO THE APRON MAY RESULT.

**DO NOT** USE PIPE EXTENSIONS TO GAIN ADDITIONAL LEVERAGE ON THE CLAMP HANDLES.

**ALWAYS** USE MATERIAL WITH SQUARE SHEARED EDGES FOR BEST RESULTS. ROLLED EDGES, BENT OR WARPED MATERIAL WILL CAUSE THE MATERIAL TO BOW WHEN BENT. KEEP SHEAR BLADES AND SLITTER KNIVES SHARP.

**ALWAYS** BEND SHORT PIECES OF MATERIAL IN THE CENTER OF THE BRAKE IN ORDER TO EQUALIZE THE STRESS.

## MAINTENANCE

Set up a weekly maintenance program for your brake. Check all nuts, bolts and set screws for tightness. Examine all moving parts for adequate lubrication.

The moving parts of the brake should be lubricated periodically and as necessary to maintain ease of operation and prolong the life of your brake. The clamp handles, yokes and hinges should be greased with MOBIL GREASE HP or an equivalent grade of lubricating grease at the designated fittings. The hold down pivot pins, hold down adjusting screws and clamp swivel should be kept lightly greased as well.

## **TROUBLE SHOOTING**

### **OVERBENDING ON ONE END**

1. Excessive clamping pressure.
2. Upper Leaf adjusted too close to pivot point on that end.

### **UNDERBENDING IN THE CENTER**

1. Insufficient crown in base/apron
2. Insufficient clamping pressure at the center of the brake
3. Apron straightening bolt is loose
4. Exceeding capacity of the brake

### **APRON HARD TO LIFT**

1. The brake is not level
2. The counterweights are not properly adjusted
3. The apron stop rod is binding. Insure rod is not bent and apply lubrication

### **APRON MAKING CLICKING SOUND**

1. Too much crown in base/apron. Adjust truss nuts to reduce

### **UPPER LEAF INDENTATIONS**

1. Locks and seams are being bent without providing proper hold down clearance
2. Locks and seams are being clamped with excessive hold down pressure
3. Material formed has rough plasma cut edges

### **HOLD DOWN SHIFTS TO ONE SIDE**

1. Improper spacing of the clamp swivel washer

### **HANDLES ARE HARD TO MOVE**

1. The brake is not level.
2. The lock nuts are too tight
3. Insufficient lubrication
4. The top jam nuts of the yoke assembly are locked against the clamp swivel. Back off ¼ turn and retighten
5. Hold down gas shifted to one side. Check clamp swivel washer spacing

### **WILL NOT CLOSE HEM**

1. See HEMMING section of manual
2. Insufficient crown in base/apron
3. Insufficient clamping pressure in center of the brake

### **BOWED WORKPIECE**

1. Excessive crown in base/apron
2. Material cut on slitter
3. The brake is not level

