

# INSTRUCTION MANUAL

## LS-20 Lockseamer (240V) 0.4 - 1mm



S730

## **WARNING**

# For Your Own Safety, Read Instruction Manual Before Operating this Machine

The purpose of safety symbols is to attract your attention to possible hazardous conditions. This manual uses a series of symbols and signal words which are intended to convey the level of importance of the safety messages. The progression of symbols is described below. Remember that safety messages by themselves do not eliminate danger and are not a substitute for proper accident prevention measures.

### **DANGER**

Indicates an imminently hazardous situation which, if not avoided, **WILL** result in death or serious injury.

### **WARNING**

Indicates a potentially hazardous situation which, if not avoided, **COULD** result in death or serious injury.

### **CAUTION**

Indicates a potentially hazardous situation which, if not avoided, **MAY** result in minor or moderate injury. It may also be used to alert against unsafe practices.

### **NOTICE**

This symbol is used to alert the user to useful information about proper operation of the machine.

## **WARNING**

# Safety Instructions for Machinery

- 1. READ THROUGH THE ENTIRE MANUAL BEFORE STARTING MACHINERY.** Machinery presents serious injury hazards to untrained users.
- 2. ALWAYS USE ANSI APPROVED SAFETY GLASSES WHEN OPERATING MACHINERY.** Everyday eyeglasses only have impact resistant lenses, they are NOT safety glasses.
- 3. ALWAYS WEAR AN ANSI APPROVED RESPIRATOR WHEN OPERATING MACHINERY THAT PRODUCES DUST.** Wood dust is a carcinogen and can cause cancer and severe respiratory illnesses.
- 4. ALWAYS USE HEARING PROTECTION WHEN OPERATING MACHINERY.** Machinery noise can cause permanent hearing damage.
- 5. WEAR PROPER APPAREL. DO NOT** wear loose clothing, gloves, neckties, rings, or jewelry which may get caught in moving parts. Wear protective hair covering to contain long hair and wear non-slip footwear.
- 6. NEVER OPERATE MACHINERY WHEN TIRED, OR UNDER THE INFLUENCE OF DRUGS OR ALCOHOL.** Be mentally alert at all times when running machinery.

# WARNING

## Safety Instructions for Machinery

7. **ONLY ALLOW TRAINED AND PROPERLY SUPERVISED PERSONNEL TO OPERATE MACHINERY.** Make sure operation instructions are safe and clearly understood.
8. **KEEP CHILDREN AND VISITORS AWAY.** Keep all children and visitors a safe distance from the work area.
9. **MAKE WORKSHOP CHILD PROOF.** Use padlocks, master switches, and remove start switch keys.
10. **NEVER LEAVE WHEN MACHINE IS RUNNING.** Turn power **OFF** and allow all moving parts to come to a complete stop before leaving machine unattended.
11. **DO NOT USE IN DANGEROUS ENVIRONMENTS.** DO NOT use machinery in damp, wet locations, or where any flammable or noxious fumes may exist.
12. **KEEP WORK AREA CLEAN AND WELL LIT.** Clutter and dark shadows may cause accidents.
13. **USE A GROUNDED EXTENSION CORD RATED FOR THE MACHINE AMPERAGE.** Undersized cords overheat and lose power. Replace extension cords if they become damaged. DO NOT use extension cords for 220V machinery.
14. **ALWAYS DISCONNECT FROM POWER SOURCE BEFORE SERVICING MACHINERY.** Make sure switch is in OFF position before reconnecting.
15. **MAINTAIN MACHINERY WITH CARE.** Keep blades sharp and clean for best and safest performance. Follow instructions for lubricating and changing accessories.
16. **MAKE SURE GUARDS ARE IN PLACE AND WORK CORRECTLY BEFORE USING MACHINERY.**
17. **REMOVE ADJUSTING KEYS AND WRENCHES.** Make a habit of checking for keys and adjusting wrenches before turning machinery **ON**.
18. **CHECK FOR DAMAGED PARTS BEFORE USING MACHINERY.** Check for binding and alignment of parts, broken parts, part mounting, loose bolts, and any other conditions that may affect machine operation. Repair or replace damaged parts.
19. **USE RECOMMENDED ACCESSORIES.** Refer to the instruction manual for recommended accessories. The use of improper accessories may cause risk of injury.
20. **DO NOT FORCE MACHINERY.** Work at the speed for which the machine or accessory was designed.
21. **SECURE WORKPIECE.** Use clamps or a vise to hold the workpiece when practical. A secured workpiece protects your hands and frees both hands to operate the machine.
22. **DO NOT OVERREACH.** Keep proper footing and balance at all times.
23. **MANY MACHINES WILL EJECT THE WORKPIECE TOWARD THE OPERATOR.** Know and avoid conditions that cause the workpiece to "kickback."
24. **ALWAYS LOCK MOBILE BASES (IF USED) BEFORE OPERATING MACHINERY.**
25. **BE AWARE THAT CERTAIN WOODS MAY CAUSE AN ALLERGIC REACTION** in people and animals, especially when exposed to fine dust. Make sure you know what type of wood dust you will be exposed to and always wear an approved respirator.

# OPERATING INSTRUCTIONS

## BASIC OPERATION

Hold the material against the entrance gauge and slide it into the forming rolls. Be sure that the material remains against the gauge until the trail edge of material is engaged in the rolls.

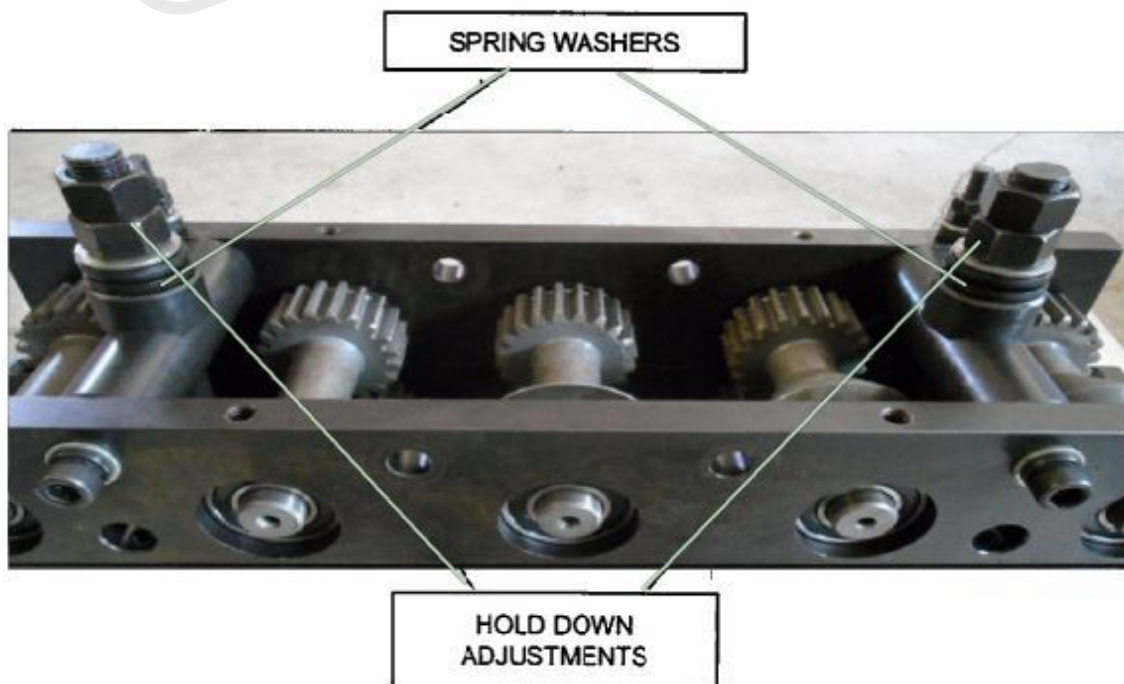
**Note:** Minimum part length is 175mm(7").

Make hold down adjustments as outlined below, to accommodate slight variations in metal thickness and hardness.

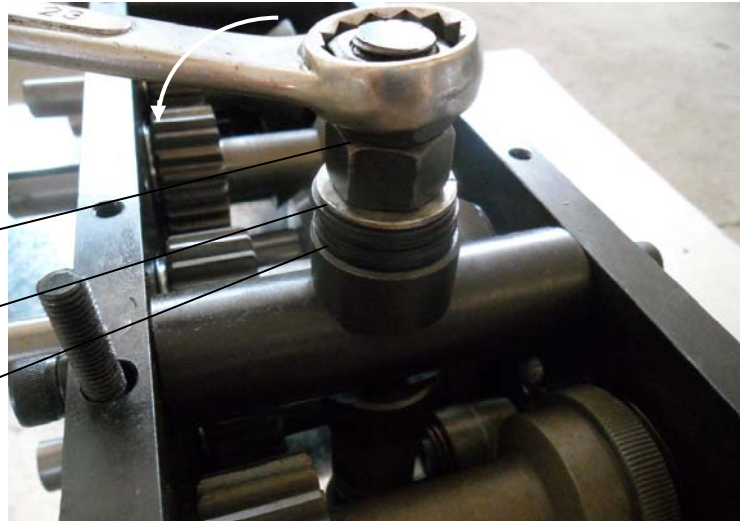
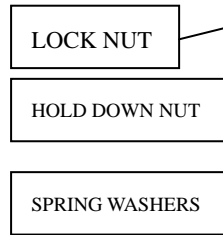
## PITTSBURGH FEMALE HOLD DOWN ADJUSTMENT PROCEDURE

The HOLD DOWN ADJUSTMENTS NUTS are used to set the tension on the SPRING WASHERS. These SPRING WASHERS are used to allow the top rollers to float upwards.

- ▲ 1. DISCONNECT POWER!
- 2. Install electrical lock outs to prevent accidental start up.
- 3. Remove top cover.



4. Loosen and remove the HOLDDOWN lock nuts.



5. Tighten the hold down NUTS Fully tight; or set to a torque value of 60MN(50ft.lbs.)
6. After tightening, loosen the NUT 1/4 turn (90 degrees).
7. Retighten the lock NUT.
- ▲ 8. INSTALL THE COVER, remove electrical power lock outs, restore power.
9. Run a test piece.



– If the stock slips in the rolls, tighten the hold down nuts. It may be necessary to tighten the 1<sup>st</sup> and 2<sup>nd</sup> HOLD DOWN nut unequally in order to obtain the desired result.

– If the stock curls up after forming or shows extremely pressure marks, loosen the hold down NUTS slightly.

\*Do not adjust hold downs NUTS unless the stock slips in the rolls, pulls away from the entrance gauge, or curls when exiting the rolls.

#### AUXILIARY ROLL HOLD DOWN NUTS

The Standard settings for the Auxiliary HOLD DOWN nuts are follows:

1. Tighten the Auxiliary HOLD DOWN NUTS fully tight.
2. Loosen Auxiliary HOLD DOWN NUTS  $\frac{3}{4}$  of a turn (270 degrees)

for Auxiliary Rolls. Specific HOLD DOWN NUT adjustments depend on which optional rolls are installed. The  $\frac{3}{4}$  turn specification may change depending on the Auxiliary Rolls installed.

## FEMALE PITTSBURGH LOCK

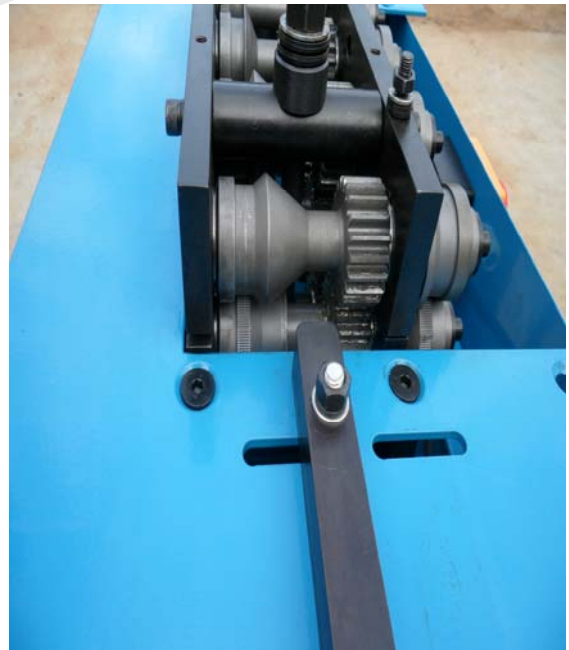
HAMMER-OVER EDGE



## HAMMER-OVER EDGE ADJUSTMENT (ENTRANCE GAUGE)

The width of the FEMALE Pittsburgh lock hammer over edge is adjustable. Move the FEMALE PITTSBURGH entrance gauge to produce a larger or smaller hammer over edge.

**NOTE:** There should be a deep scribe or scratch mark in the paint along the side of the entrance gauge and exit gauge. This is the original line location of the gauge from the factory. Slight adjustment from this line may be required to increase or decrease the hammer over edge width.



## EXIT GAUGE

Never move the exit gauge bar for this roll set. This gauge is not intended to contact the material under normal circumstances.

**NOTE:** There should be a deep scribe or scratch mark along the side of the exit gauge, this is the original line location of the exit gauge from the factory. Slight adjustment from this line may be required.



## OPENING ROLL

**CAUTION:** The flat roll (called the opening roll) mounted horizontally after the last roll station maintains the opening of the gap in the PITTSBURGH lock. Twisted or bent notches should be flattened prior to feeding stock material into the machine. Failure to do this can result in breakage of the opening roll.

## DOUBLE SEAM OR STRAIGHT RIGHT ANGLE FLANGE ROLLS

- ▲ 1. DISCONNECT POWER
2. Install lock outs to prevent accidental start up.
3. Remove the cover.
4. Unscrew and remove the right hand side table top section. This will expose the auxiliary shafts on which the rolls will be mounted.
5. Select the first pair of rolls which are marked T1 (Top roll first station) and B1 (Bottom roll first station). Slide them as a mated pair onto the shafts. All information stamped on the rolls must face outward. Slide a key into each keyseat. Follow this procedure in sequence with each remaining pair of rolls.
6. Fasten the rolls onto the shafts with the screws and washers provided.
7. Mount the entrance gauge and set it to the dimensions shown in the Illustration.
8. Mount the exit gauge so the outside face of the vertical leg is parallel to the part as it passes over the exit table. Set to allow approximately 1.5mm clearance between the part and the exit gauge.

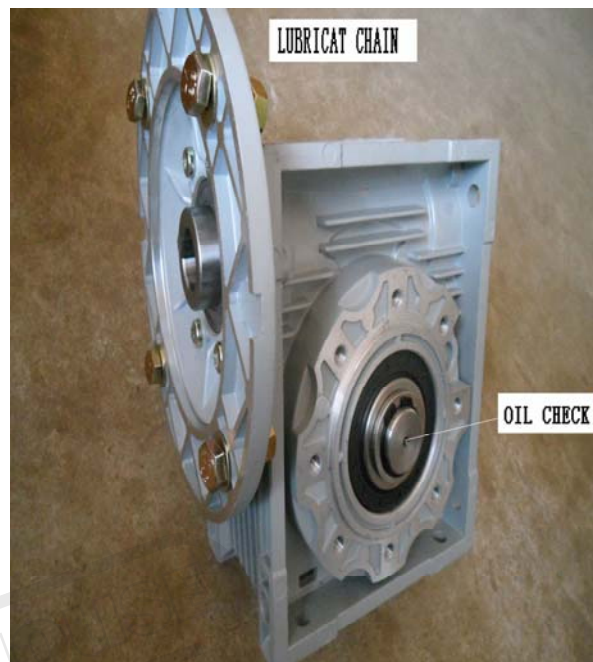
## MAINTENANCE

### LUBRICATION

#### GEAR REDUCTION UNIT

**NOTE:** Change oil after the initial 40 hours of machine operation. After the first oil change the regular oil change interval is 4000 hours of operation.

The recommended oil for the gear reduction unit is G-N320W, WA460 (or 90 weight gear oil if none other is available). There is a fill hole on the top and a level check hole near the middle of the unit. Check oil level every 3 months of operation. When leakage is detected service unit immediately.



#### LUBRICATION IN CHAIN

Periodically the drive chain needs to be lubricated. A light oil should be applied when ever the chain appears dry or every 40–80 hours of operation.

#### GREASE DRIVE GEARS

The recommended lubricant is Castrol Molub-Alloy 777-1 or equivalent. Apply grease to all drive gears after every 40 hours of operation. If the machine is to be used in a damp environment, apply a film of oil or grease to all unpainted metal surfaces to prevent rust.

#### CLEANING THE ROLLS

Keeping the forming rolls clean is an important step toward efficient operation of your machine.



AUTO GUIDE FLANGING ATTACHMENT



## OPERATING INSTRUCTIONS

### ADJUST UNIT FOR GAUGE MATERIAL TO BE USED

To adjust clearance between flanging rolls, tighten the adjusting screw on the front of the block of the machine all the way, then loosen the screw approximately one eighth of a turn. (This setting is usually correct for 26 gauge material). Do not set front gauge adjusting screw too tight. It should be set just tight enough to draw the metal through the rolls. Too tight a setting will stretch and wrinkle the material.

To adjust the spring tension on the compensator arm, tighten the adjusting dial on the back side of the flanger to the stop and then turn back to the proper gauge setting shown on the adjusting dial.

FRONT  
ADJUSTING  
SCREW

COMPENSATING  
ARM



BACK  
ADJUSTING DIAL

### TURN UP A STARTING FLANGE

Before inserting material into the rolls, turn up a starting flange. This is done by inserting the leading edge of the work to be flanged in the slot cut into the table and bending the piece away from the operator approximately 45°. Start the leading edge of the material into the rolls. As the material passes through the rolls, the compensator arm will make contact with the material and guide it through the rolls. If the material pulls out of the rolls, it is an indication that either the front adjusting screw is loose or the back adjusting dial is not tight enough.

#### IMPORTANT:

When starting a partially formed part that has a radius:

1. Push the compensator arm back
2. Feed the part into the rolls
3. As the unformed part enters the rolls, move the compensator arm forward against the part
4. Push firmly on the part while watching the flange height, guide the part through the rolls and as the flange is forming the compensator arm should hold the part.
5. The operator should only need to hold the piece gently as the compensator arm controls the part as it flows through the machine.

## INSTALLATION AND OPERATION

### ▲ 1. DISCONNECT POWER—INSALL ELECTRICAL LOCKOUTS

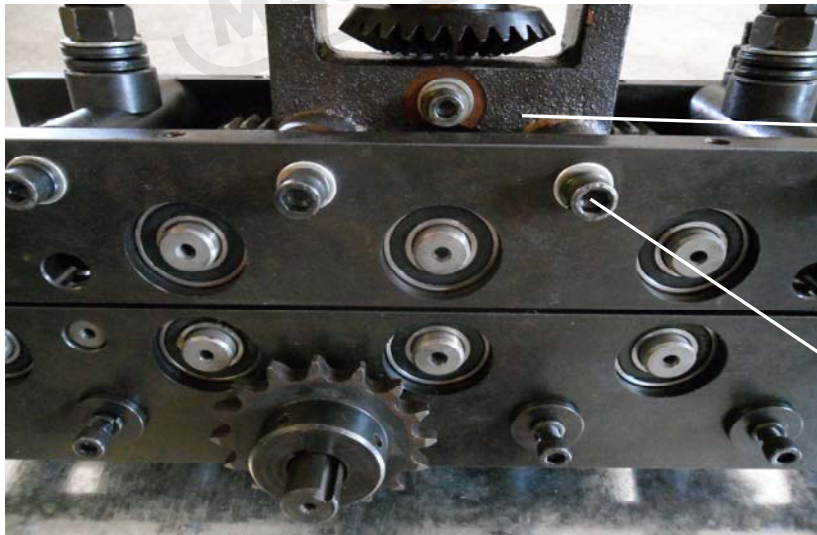
2. Remove the top cover from the 2. Loosen the front mounting screws on spacers #1 and #4.

Remove Spacer #2



Loosen #1, #2  
Spacer screw

3. Remove spacers #2 and #3 by removing their mounting screws. Install Auto Guide power Flanger (AGF)



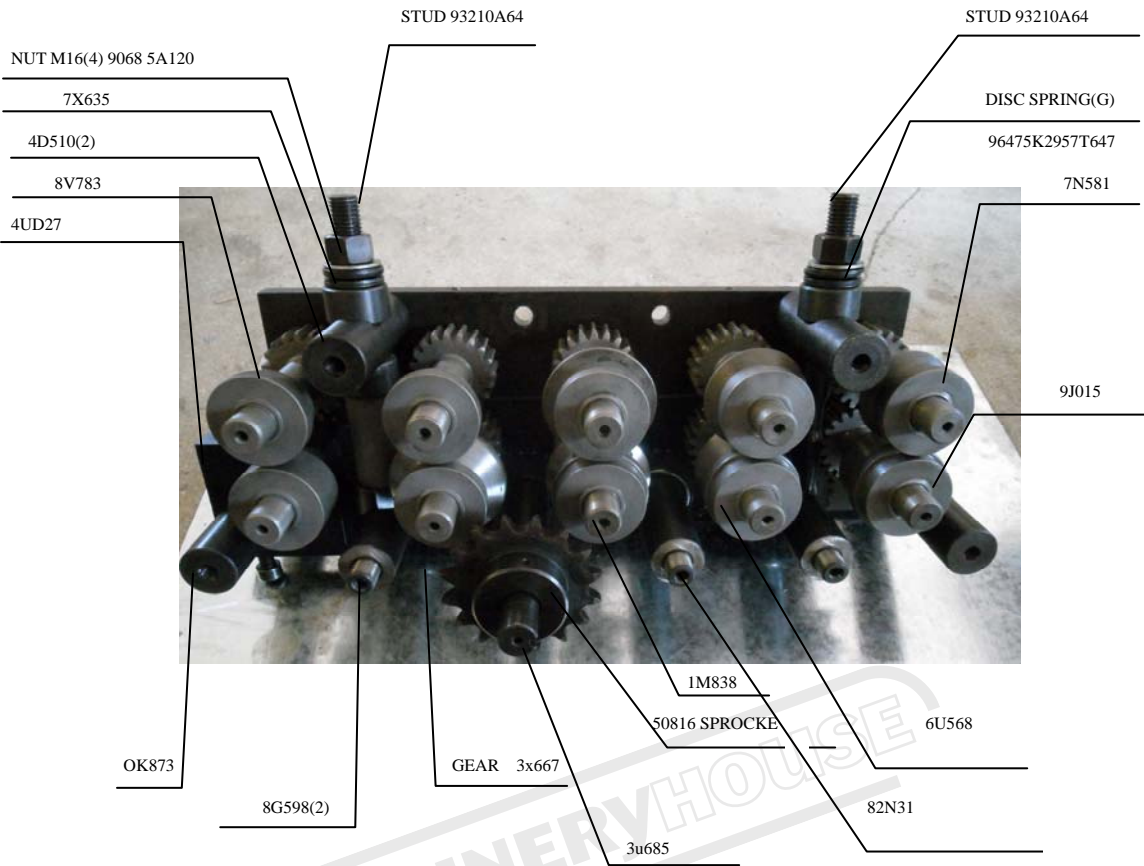
Installed Auto Guide  
power Flanger (AGF)

Tigjten screw completely

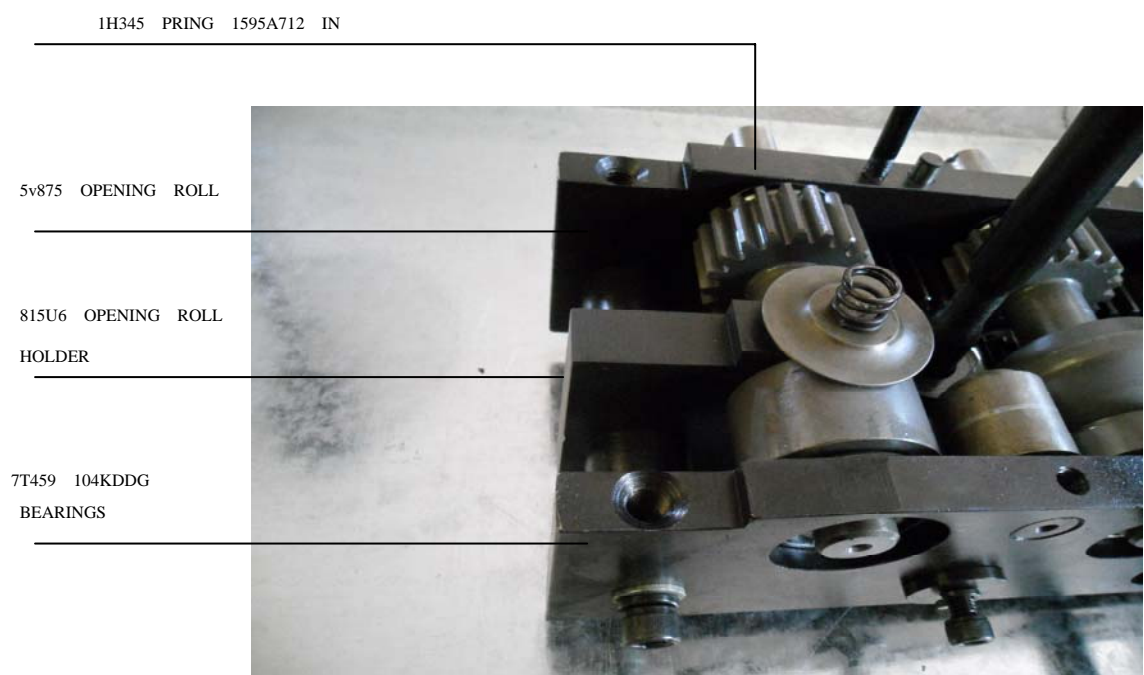
\*Be sure to allighn and mesh the gears!

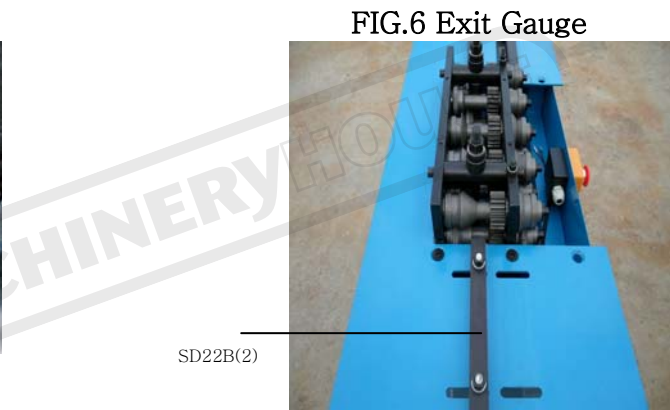
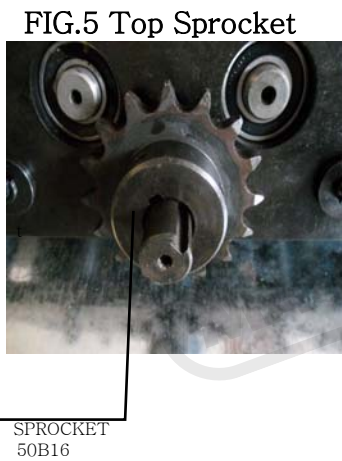
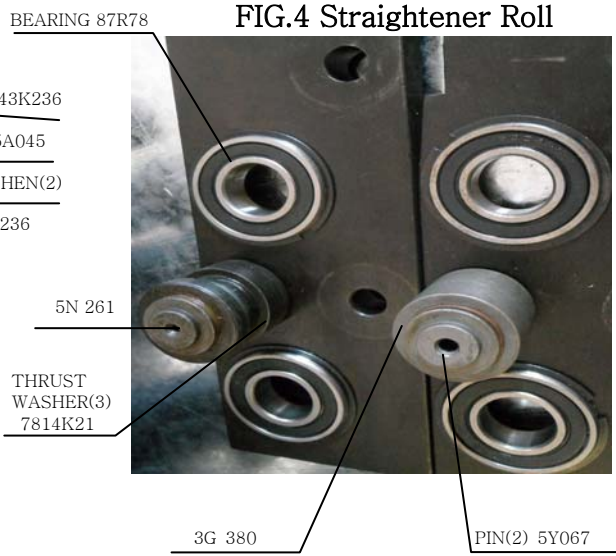
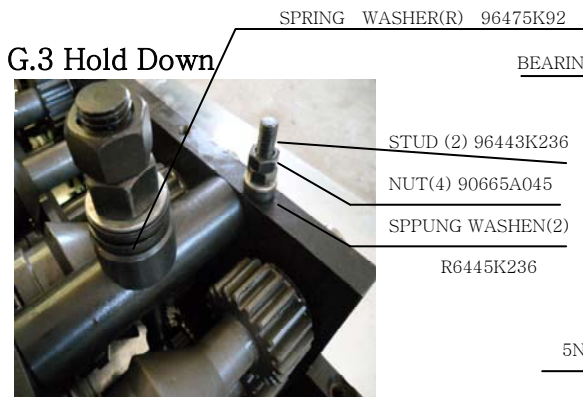
- ▲ 4. Replace the top cover.  
5. Remove electrical lockouts  
6. Restore Power

**FIG.1 Chassie**



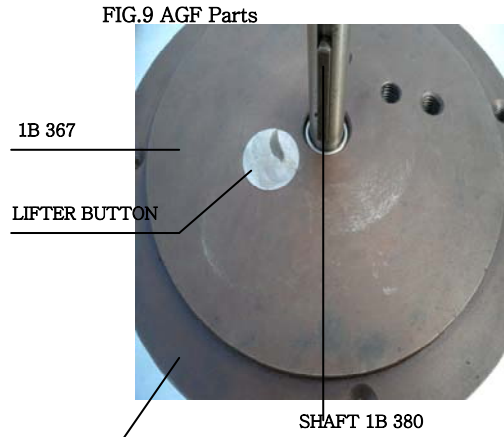
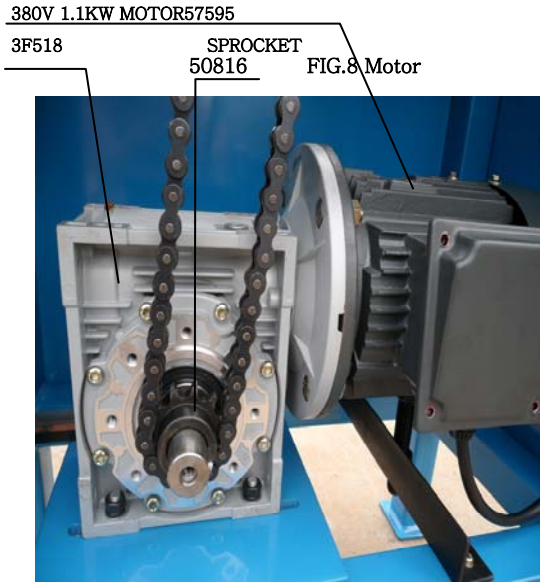
**FIG.2 Opening Roll**





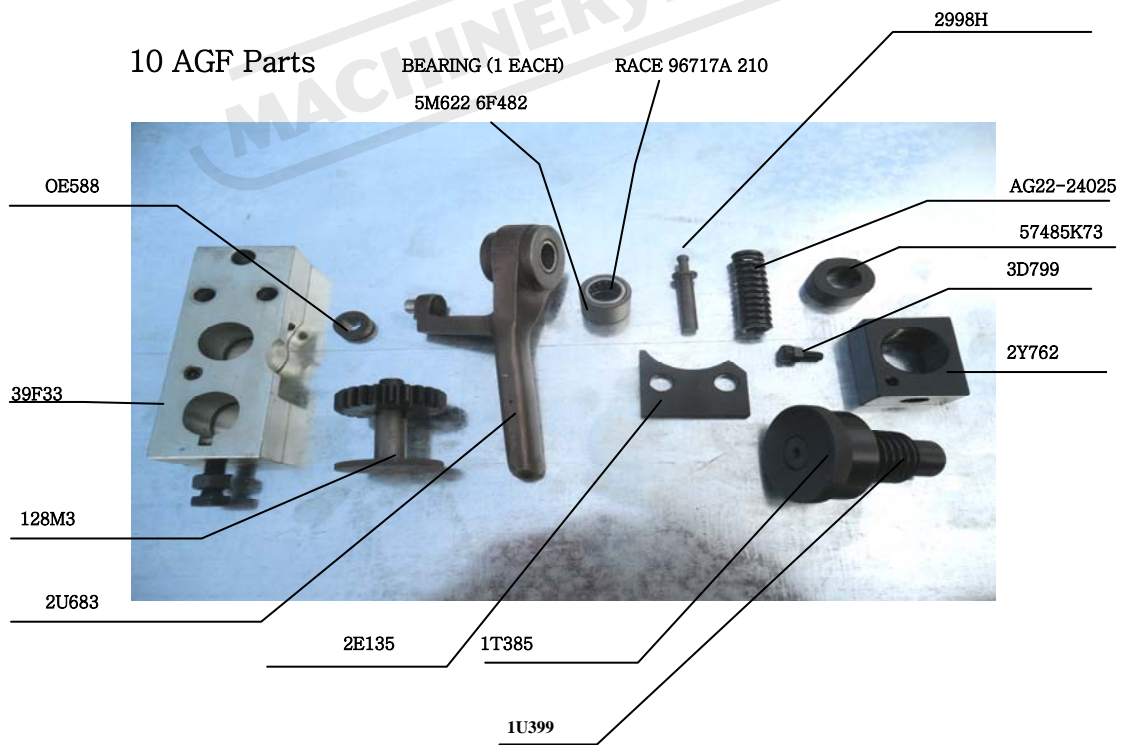
**FIG.7 Motor Control**

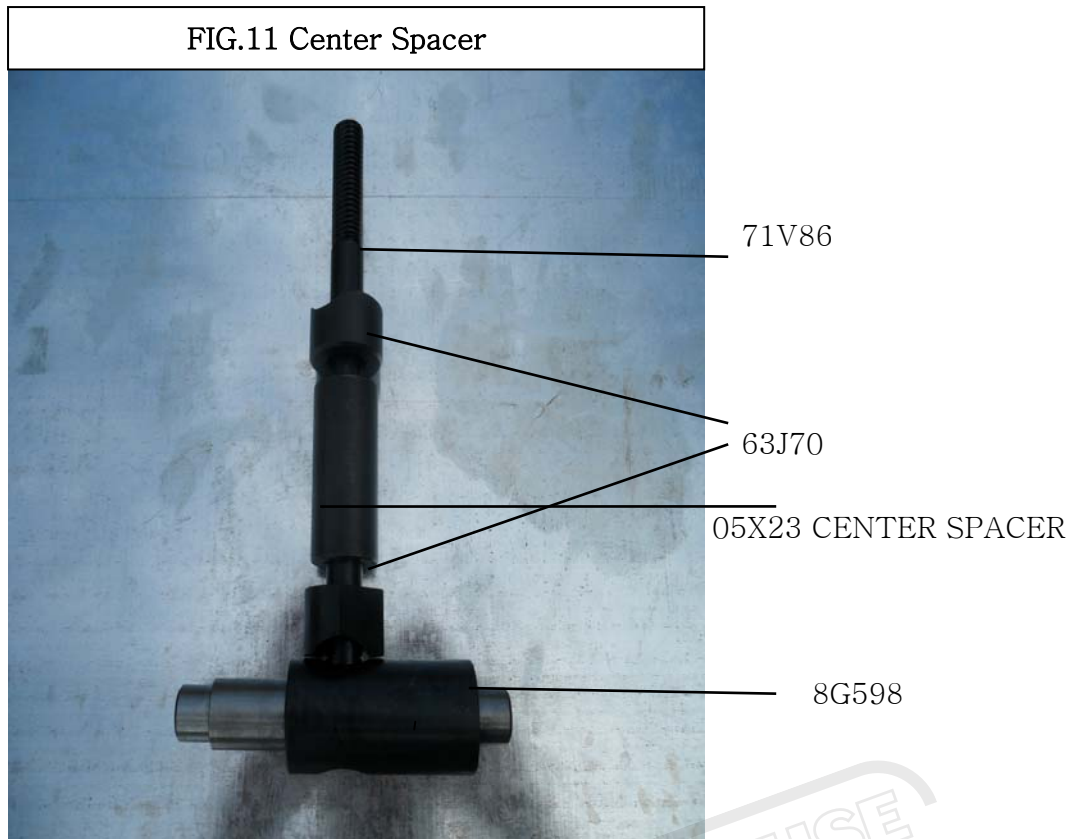




CASTING 31013

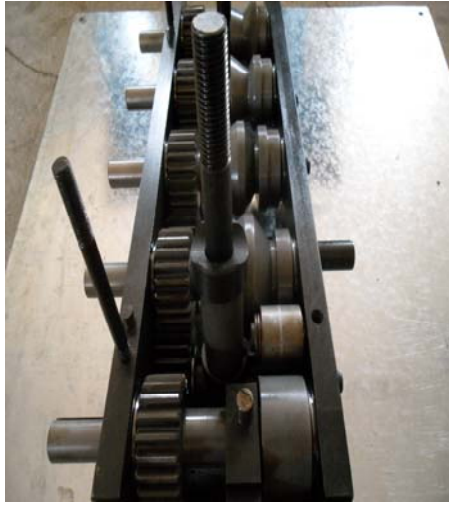
10 AGF Parts





MACHINERYHOUSE

## LK-20 CENTER SPACER



LK20  
CENTER SPACER

The CENTER SOACER is positioned between the top and the bottom forming heads on the 2<sup>nd</sup> large hold down stud (at the exit end of the machine near the opening roll). The function of this spacer is to control the vertical clearances between top and bottom rolls is set in the factory with a feeler gauge to a clearance of 0.2–0.4mm (0.008"–0.010") at the outside edge of the rolls.

NOTE: It may be necessary to insert shim washers above the spacer to obtain the proper clearance.

## TROUBLE CHECKS

### IMPROPERLY FORMED/DEFORMED EDGES

- It may be necessary to add slight lubricant to the surface of the sheet being formed to aid the flow of material through the forming rolls.
- The operator may have to experiment with hold down setting for desired results. Run test pieces to check different settings on the hold down nuts or bolts.

### RUNNOUT

Some materials may have a tendency to drift away or runnout from the entrance gauge. The edge dimensions will be uneven from beginning to end. Check the following points when runnout is a problem.

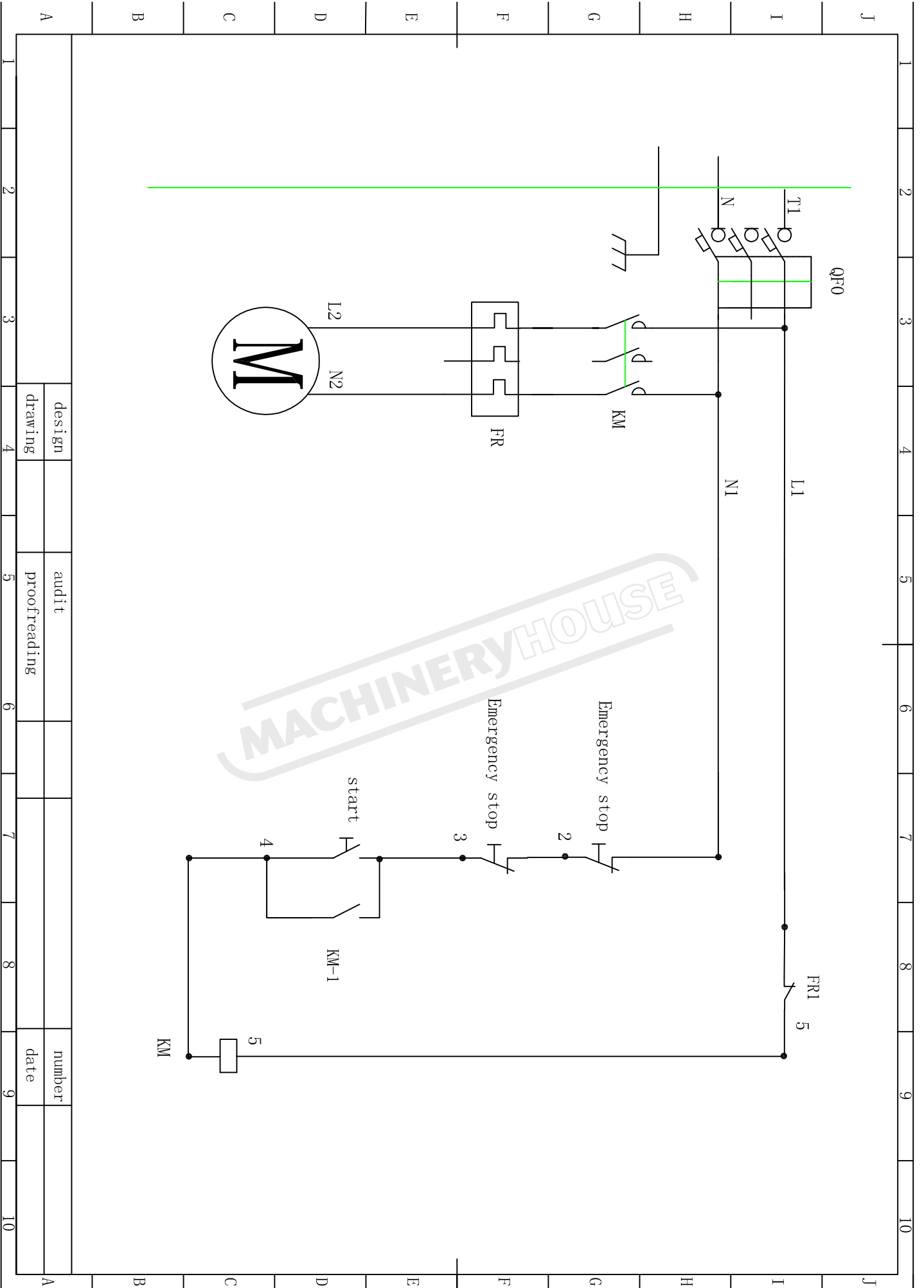
- Be sure to hold the material firmly against the entrance gauge. Some materials will require significantly more pressure then others.
- Hold down settings should be checked and reset. Some materials may require settings that are tighter then this manual specifys. Use caution when setting the holdowns tighter then normal. Prolonged use of the machine with tighter settings will reduce the life span on some of the machines parts.
- Due to variations of the physical characteristics of material, it may be necessary to reset the entrance gauge bar if the material pushes away from the gauge bar or the lock is not formed properly. There should be a scratched line along the side of the entrance gauge to locate the original factory setting. Also it may be necessary to Taper the entrance gauge (set the gauge at a slight angle) to eliminate runnout.
- The exit gauge bar can be used to push on the exiting material when the material is not flowing straight or evenly throughout it' s length such as when the edge is running out. Difficult parts may require exit gauge pressure along the materials edge such as long heavy pieces where an awkward weight and size



make it difficult for the operator to hold the piece straight during the forming process. This technique must be used carefully. Other conditions may be causing the runout, such as loose settings on the hold downs or improperly adjusted entrance gauges (those settings should always be checked first). Having the exit gauge bar push too hard against the material might make the situation worse. The operator must run test pieces and inspect the formed product to determine the best adjustment position of the exit gauge bar.

**▲ FOLLOW ALL SAFETY PRECAUTIONS IN THE MANUAL WHEN MAKING ADJUSTMENTS**

MACHINERYHOUSE



MACHINERYHOUSE

			design	audit				number	
			drawing	proofreading				date	