Gen II Backgauge Programming Guide

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PN: -1
GEN II-X Manual

Safety

Safety must be a primary concern. When operating or performing maintenance procedures, follow all standard safety guidelines. Do not wear loose fitting clothing or any articles that may be pulled into any moving parts.

Be sure that when operating the equipment, all safety devices operate properly. Never under any circumstances disable, remove, or alter the original configuration of the safety system.

Should any component of the safety system become inoperable, immediately discontinue operation, and notify a supervisor.

! **NEVER** place fingers, hands, or any other body part in or under the ram area or other moving mechanisms.

! Proper eye protection must be worn at all times when operating the machine.

! Always insure that the machine is turned **OFF** before changing the tooling.

Read and understand this manual prior to operating the machine.

The area around the Piranha Press Brake should be well lighted, dry, and free of obstacles.

The Piranha Press Brake is designed for single person operation only.

Always insure that all tooling is properly secured in position before starting any operation.

When servicing the machine always practice standard lockout/tag-out procedures to avoid personal injury.

Qualified maintenance personnel only should perform service operations on the Piranha Press Brake.

NOTE: The Run/Program keyswitch provides security for choosing initiation means and operation modes that can be supervised by the user, in accordance with ANSI B11.3 standards.

WARNING:

- Ensure that no part of the Finger Assembly interferes with the press brake tooling
- All backgauge adjustments must be made from the rear of the machine.
- Do not reach across the press brake tooling or through the bed and ram.
- Severe injury or death may result if these procedures are not followed

Programming a Simple Job with Gen II Back Gauge

1. Start Press Brake motor by depressing the green **START** button.
2. Caution – Make sure that the back gauge area has been cleared of all obstructions.

```
X-axis Start Up
Press ENTER for X-
Axis to find CAL
Switch.
```

```
JOB#-XXXXXXX
BEND XX/XX  C:000000
Y=XX.XXXXin X=XX.XXX
HAND-RUN1
```

3. Press **ENTER** for calibration routine to find 24.000" Home Switch
   Reference screen for key switch in "RUN" position, this is the standard RUN Screen

4. Rotate keyed Programming switch to "**PROG**" (program) Mode.

```
HAND            RUN1
>1-TEACH/EDIT JOB
 2-SET BEND NUMBER
 3-MACHINE SETUP
```

5. Press #**1** on keypad.

```
>1. TEACH NEW JOB
 2. EDIT CURRENT JOB
 3. SAVE CURRENT JOB
 4. DEL CURRENT JOB
```

6. On new screen, ensure arrow is on #1 (>1), press **ENTER**. Or Press **1**

```
TEACH NEW JOB:
 ENTER NEW JOB#

 XXXXXXX
```

7. Key in the desired job number and press **ENTER**.

```
TEACH NEW JOB:
 ENTER JOB DESC

 XXXXXXX
```

8. Press **CLR** and key in a job description and press **ENTER** (To bypass description screen, press CLR (clear) then ENTER)

```
TEACH NEW JOB:
 PRESSING SPEED

   100_ %
```

9. Key in Pressing Speed or use **↑and ↓** to desired value and press **ENTER**.

```
TEACH NEW JOB:
 FINISHING SPEED

   100_ %
```

10. Key in Finishing Speed or use **↑and ↓** to desired value and press **ENTER**.
    NOTE: Finishing Speed is an option that must be turned on by Piranha, in order to be used. This field shows whether this option is turned on or not.

```
TEACH NEW JOB:
 PROCEED TO BENDS?
YES or NO
```

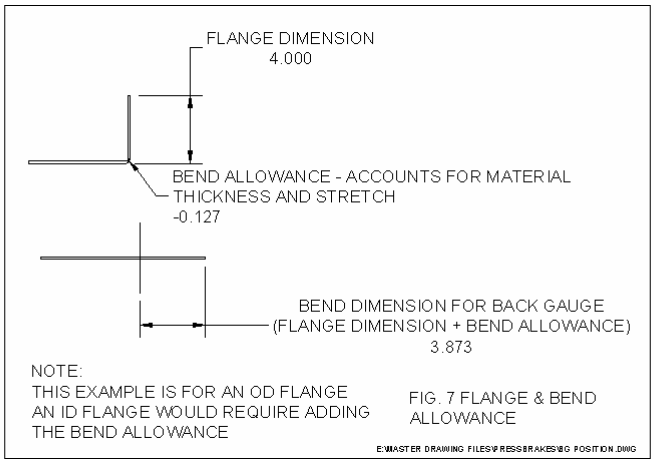
11. Press "**YES**" button to proceed to bends.

```
TEACH NEW JOB:
TEACH NEW BEND  1
 FLANGE DIMENSION
  XX.XXX_ In.
```

12. Key in desired FLANGE DIMENSION and press **ENTER**.
    FLANGE DIMENSION is the desired flange length, this can be inside or outside flange dimensioning.

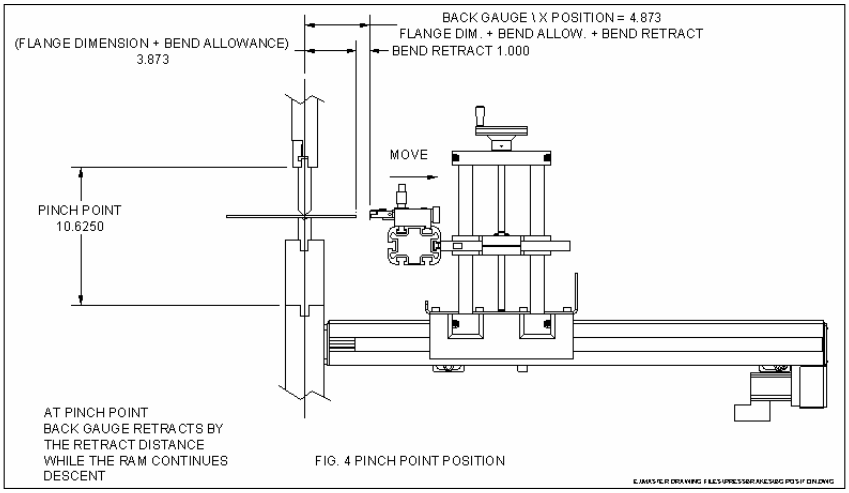
```
TEACH NEW JOB:
USE MODE KEY FOR +/-
 BEND ALLOWANCE
  XX.XXX_ In.
```

13. Key in desired BEND ALLOWANCE, use **MODE** key to toggle between plus and minus bend allowance, and press **ENTER**.
    BEND ALLOWANCE is the distance that takes into account material thickness and stretch or shrink. Typically, if an outside flange dimension is used, then this number should be negative. Typically, if an inside flange dimension is used, then this number should be positive. The control adds BEND ALLOWANCE to FLANGE DIMENSION yielding the correct back gauge position for the bend's centerline. See Fig. 7 on the next page:




```
TEACH NEW JOB:
TEACH NEW BEND  1
 RETRACT DISTANCE
  XX.XXX_ In.
```

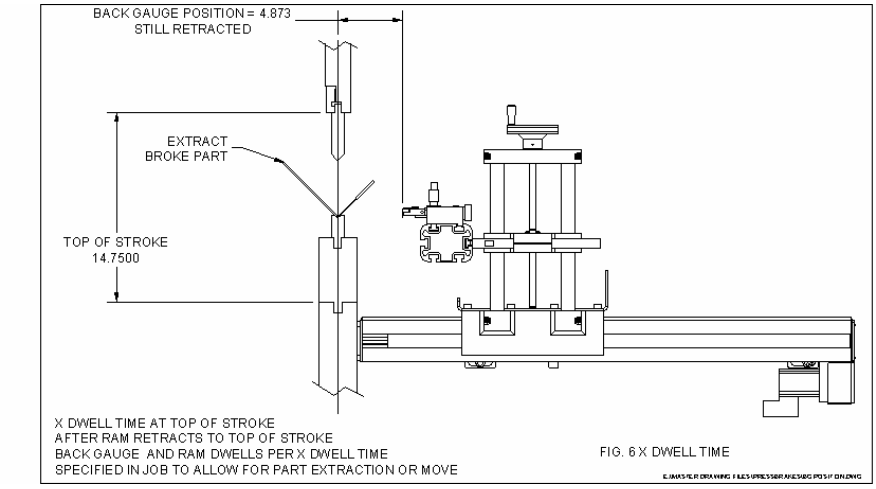
Key in desired RETRACT DISTANCE and press **ENTER**.
RETRACT DISTANCE is simply the distance that the back gauge retracts, when the ram is at the pinch point. See Fig. 4 Below:




```
TEACH NEW JOB:
TEACH NEW BEND  1
 X DWELL TIME
  X.X_ Sec.
```

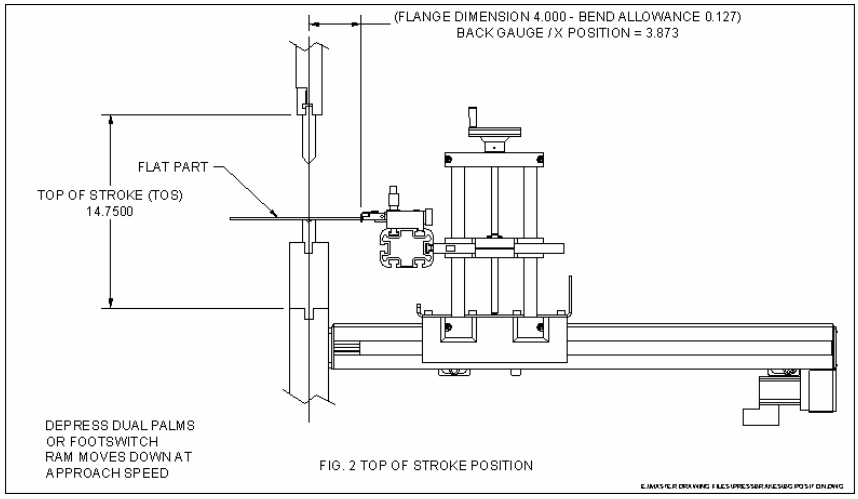
14. Key in desired X DWELL TIME and press **ENTER**

X DWELL TIME is the amount of time that the back gauge stays at the retracted distance after the ram reaches the top of stroke, before it moves into the next bend position. See Fig. 6 below:




```
TEACH NEW JOB:
TEACH NEW BEND  1
 TOS POSITION
 XX.XXXX  XX.XXXX
```

15. Key in desired Top of Stroke target position and press **ENTER** –or-
    Move press ram to desired position, then press **JOB LEARN** button to save position and press **ENTER**. See Fig. 2 below:




```
TEACH NEW JOB:
TEACH NEW BEND  1
 SPEED CHG. POS.
 XX.XXXX  XX.XXXX
```

16. Key in desired Speed Change target position and press **ENTER** –or-

Move press ram to desired position, then press **JOB LEARN** button to save position and press **ENTER**. See Fig. 3 below:

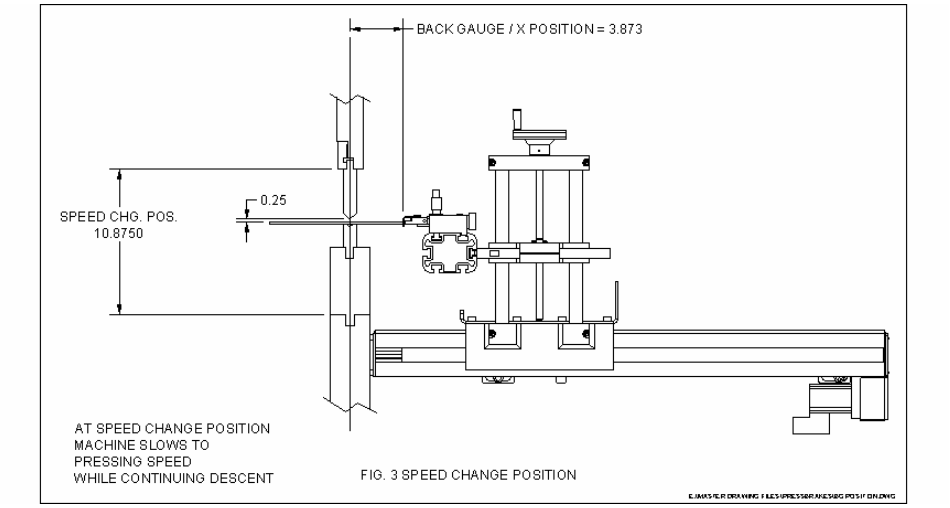


FIG. 3 SPEED CHANGE POSITION

```
TEACH NEW JOB:
TEACH NEW BEND  1
 PINCH POINT POS.
 XX.XXXX  XX.XXXX
```

17. Key in desired PINCH POINT target position and press **ENTER** –or- Move press ram to desired position, then press **JOB LEARN** button to save position and press **ENTER**. PINCH POINT POS. is the Ram Position at which the material is engaged/clamped and the back gauge is to move back by its retract distance.
NOTE: PINCH POINT is only used for GEN II+X Back Gauge Machine
See Fig. 4 below:

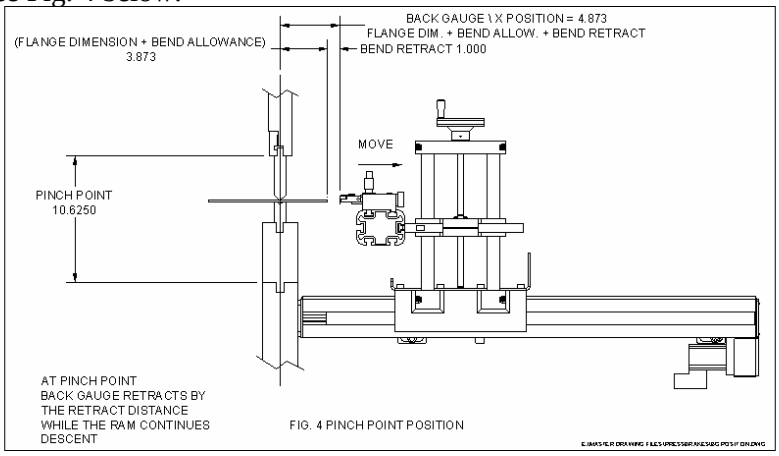
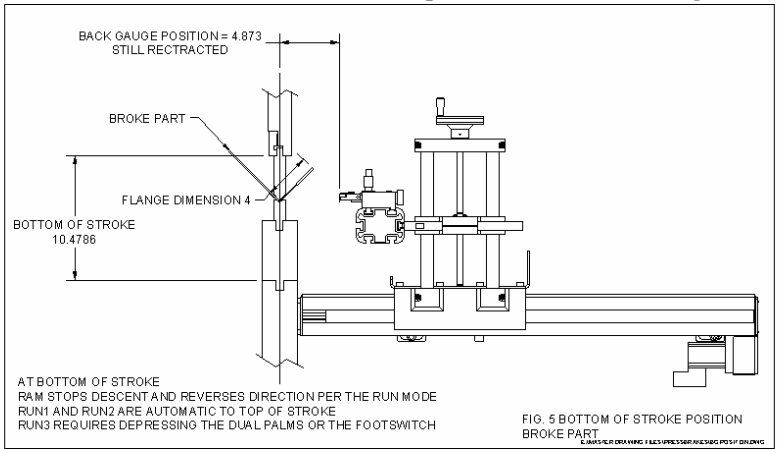


FIG. 4 PINCH POINT POSITION

```
TEACH NEW JOB:
TEACH NEW BEND  1
 BOS POSITION
 XX.XXXX  XX.XXXX
```

18. Key in desired Bottom of Stroke target position and press **ENTER** –or-
    Move press ram to desired position, then press **JOB LEARN** button to save position, use **RAM UP** to release material, and press **ENTER**. See Fig. 5 below:




```
TEACH NEW JOB:
TEACH NEW BEND  1
 RETURN SPEED MODE
 HIGH
```

19. Select Return Speed mode (HIGH, LOW/HIGH, or LOW) by toggling the UP or DOWN arrows and press **ENTER**.
    HIGH – Retracts the ram at full retract speed
    LOW/HIGH – Retracts the ram from bottom of stroke to speed change in pressing speed, then at full retract speed to the top of stroke
    LOW – Retracts the ram at pressing speed all the way to top of stroke

```
TEACH NEW JOB:
TEACH NEW BEND  1
 BEND TONNAGE
  100_ %
```

20. Set Bend Tonnage (if equipped), by typing and using arrows, and press **ENTER**.

```
TEACH NEW JOB:
TEACH NEW BEND  1
 CONTINUE WITH JOB?
 YES or NO
```

21. To program additional bends, press YES and repeat steps 7-15.
22. If additional bends are not required, press **NO**.

```
>1. TEACH NEW JOB
 2. EDIT CURRENT JOB
 3. SAVE CURRENT JOB
 4. DEL CURRENT JOB
```

23. Press #**3** to save job.
24. Rotate Keyed Programming switch to "**RUN**" Mode and cycle the press.
25. If the Back Gauge is presently not located in the correct bend position, the pedestal will show the following message:

    INSURE BACKGAUGE IS
    UNOBSTRUCTED!
    PRESS ENTER TO MOVE
    INTO POSITION.

27. Press **ENTER** and the back gauge will move to the required bend position, and you can continue

Gen II + X Go To Back Gauge Function

1. Make sure that Back Gauge area is cleared of all obstructions.
2. Flip key switch to PROG
3. Type "4" for GOTO BACKGAUGE or use ↓ to move ">" next to this one and press ENTER.
4. Type in desired back gauge position and press ENTER.
5. Back Gauge moves to specified position

Figures-

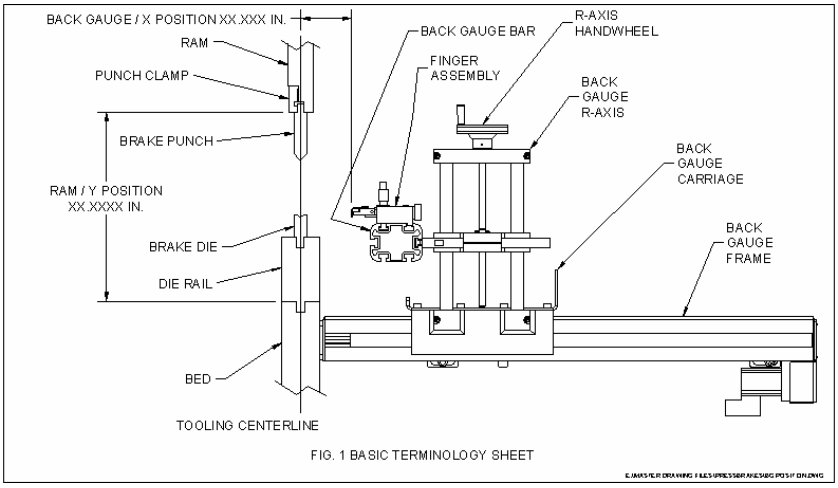


FIG. 1 BASIC TERMINOLOGY SHEET

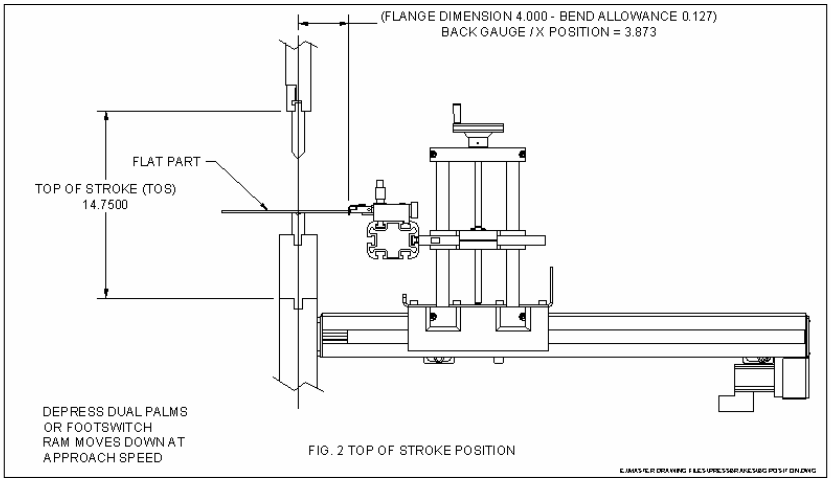


FIG. 2 TOP OF STROKE POSITION

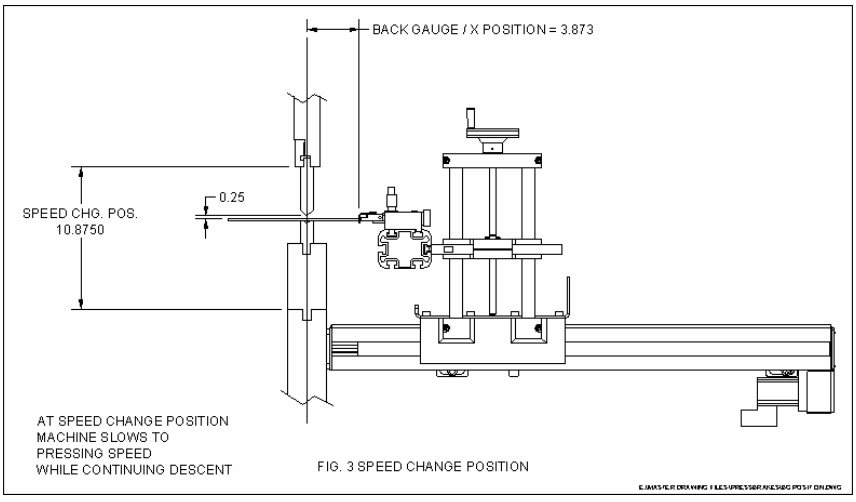
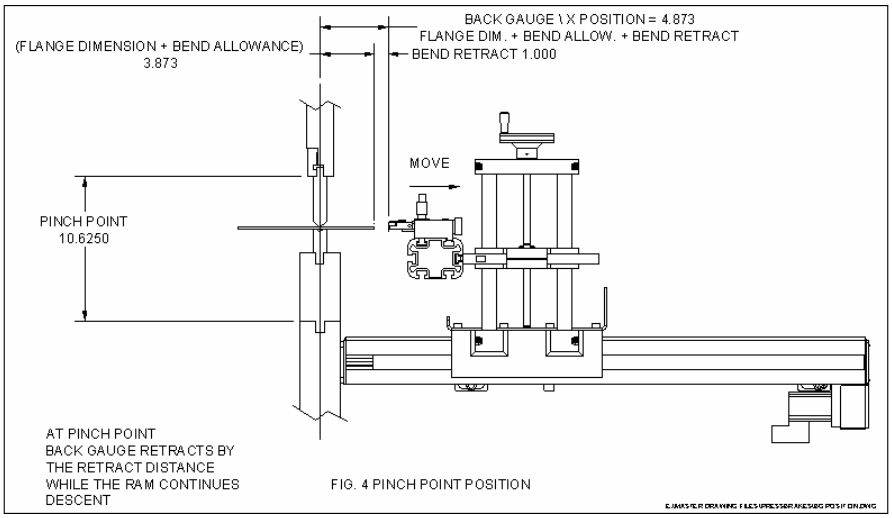
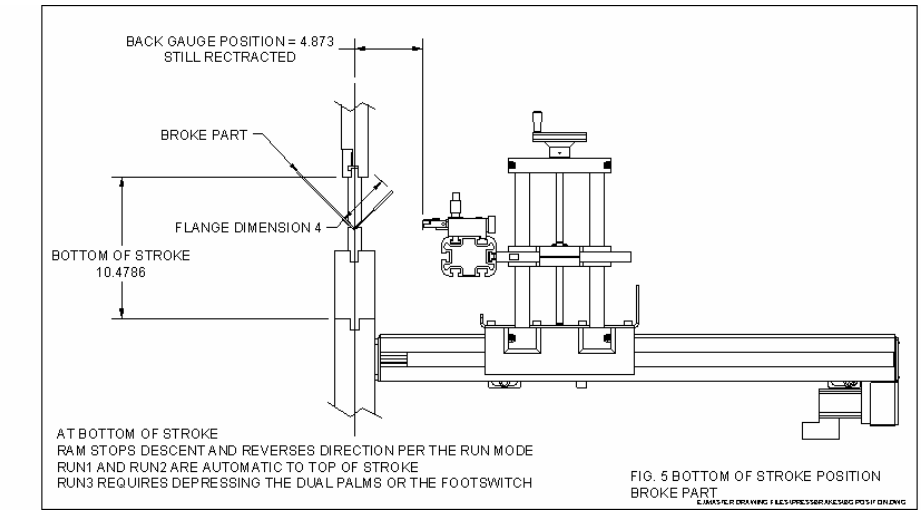
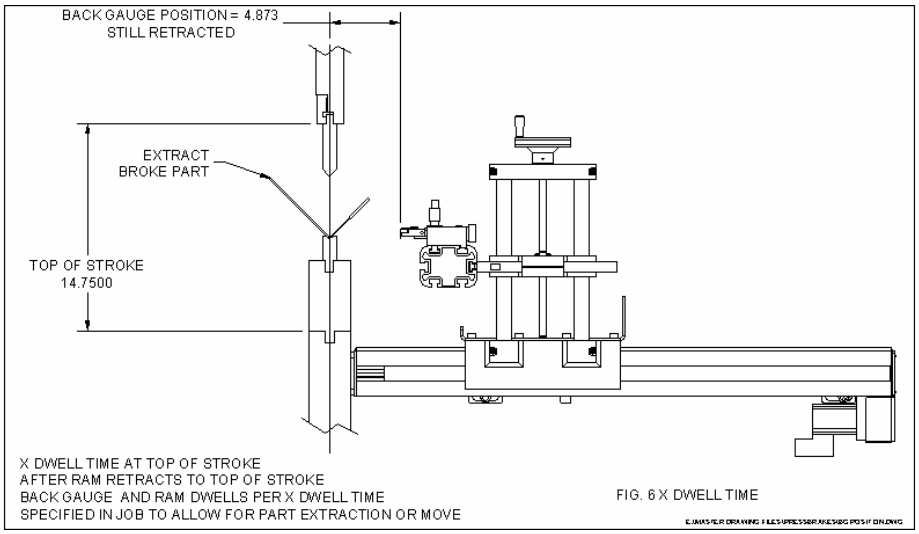


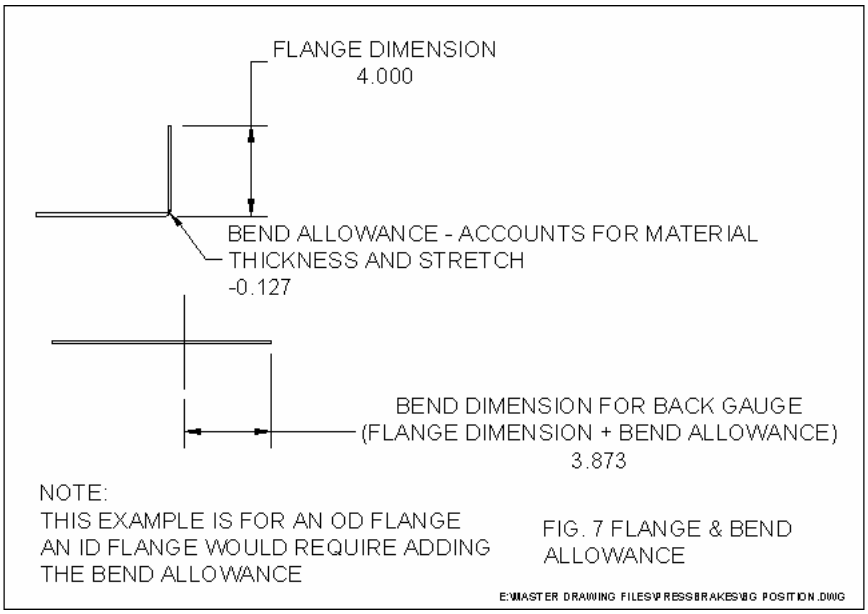
FIG. 3 SPEED CHANGE POSITION

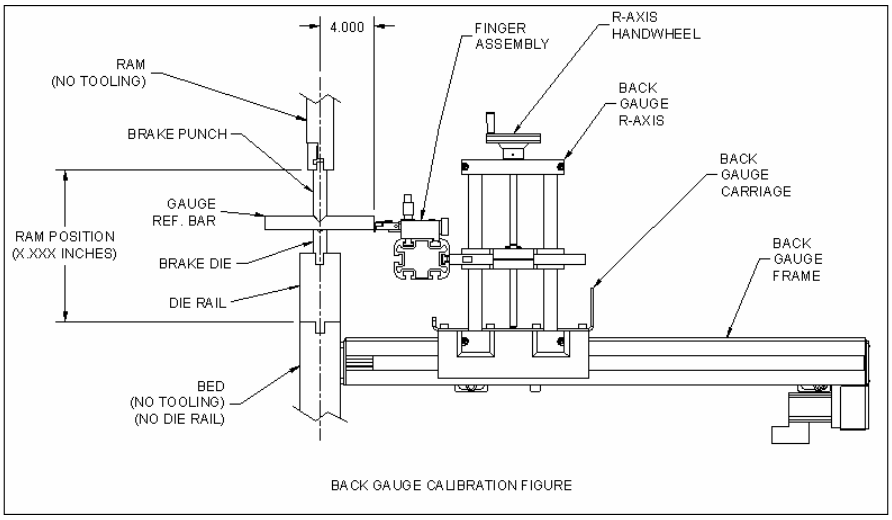


Pinch Point Position = Die Rail Height + Brake Die Height + Material Thickness + Brake Punch Height









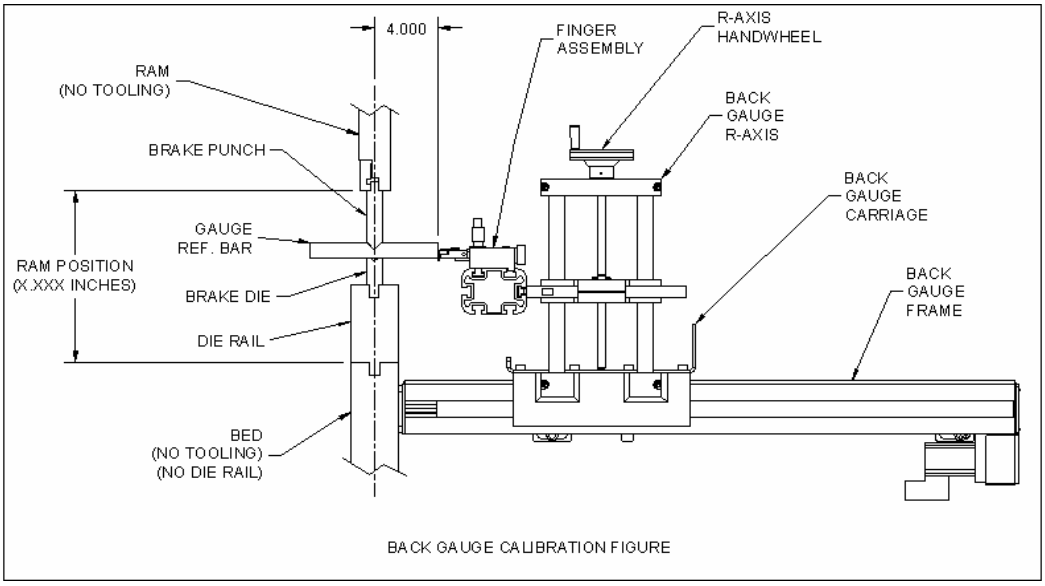
Reference for TEACH MODE for the Ram Position

```
TEACH NEW JOB:
TEACH NEW BEND  1
 TOS POSITION
 XX.XXXX  XX.XXXX
```

The number on the left is what the control will program.
The number on the right is where the ram is presently positioned in relation to the top of the bed.
When you press the **JOB LEARN** button, the present ram position number will be on the left, but you must press **ENTER** to accept it.
The **JOB LEARN** button takes the place of typing the number, but in either case, you must press ENTER to accept this number and continue on.

Gauge Finger Calibration Procedure:

1. Measure the distance from back surface of the finger body to the tip of the finger. Adjust the finger length until the two assemblies are the same dimension.
2. Ensure that the area between the back gauge carriage and the die are completely cleared of any obstructions
3. Loosen the two 5/16"-18 Socket Head Cap Screws on R-Axis Bar
4. Push/Pull Back Gauge Bar to full back position
5. Use R-Axis Hand wheels to adjust the gauge bar height so the gauging surface is aligned with the reference bars.
6. Rotate the PROG/RUN switch to the PROG position
7. Type "4" on keypad for GOTO BACK GAUGE
8. Type "4" on keypad for 4.000 inches
9. Press ENTER and the gauge bar will move to 4.000 inches
10. Change HAND/FOOT to HAND
11. Change MODE to INCH
12. Rotate the PROG/RUN switch to RUN position.
13. Place the gauge reference bars at the ends of the die with "G" facing gauge bar and carefully/slowly bring the ram down until the punch firmly clamps the "V" groove in reference bars. Do not exert too much force on the reference bars as damage may occur

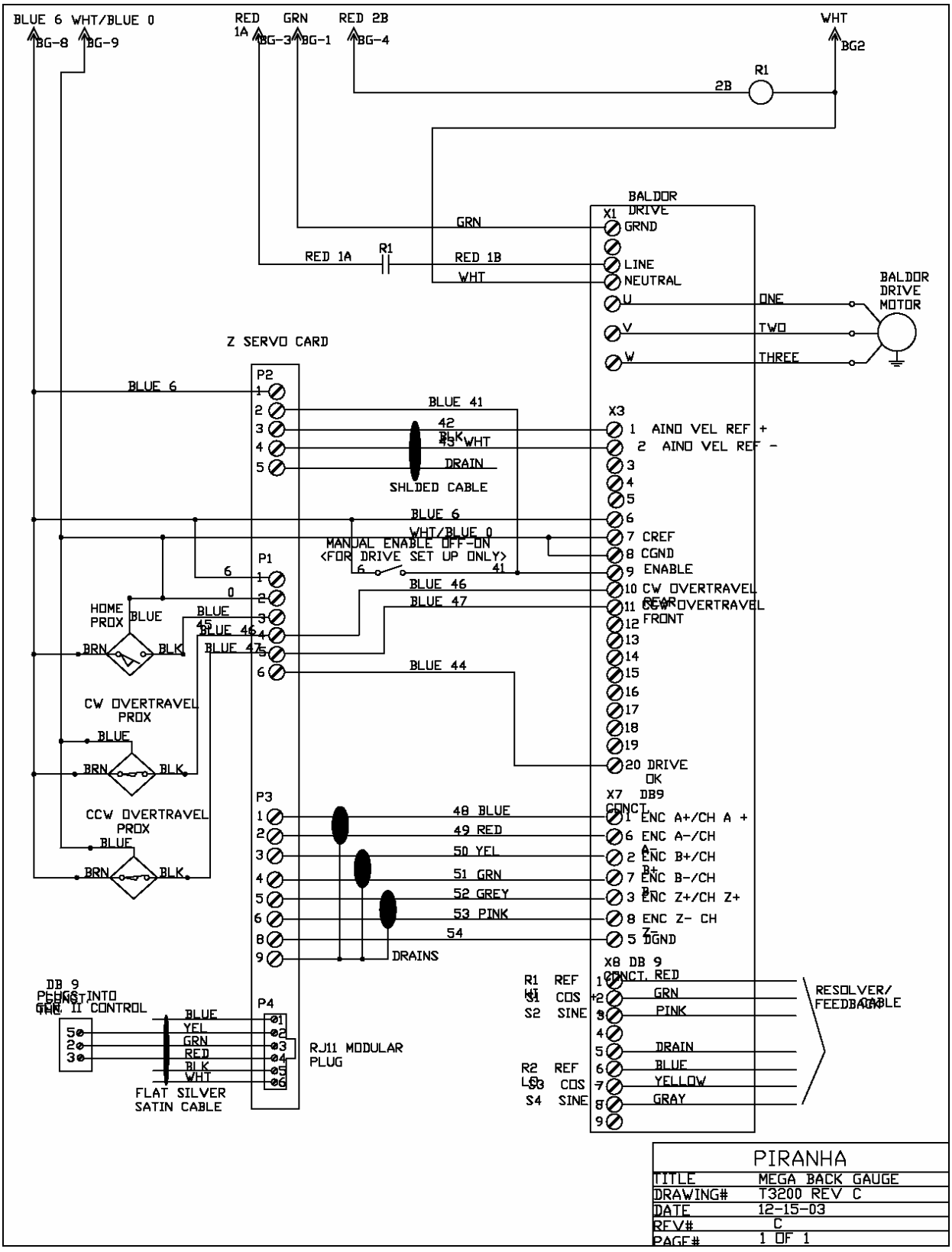


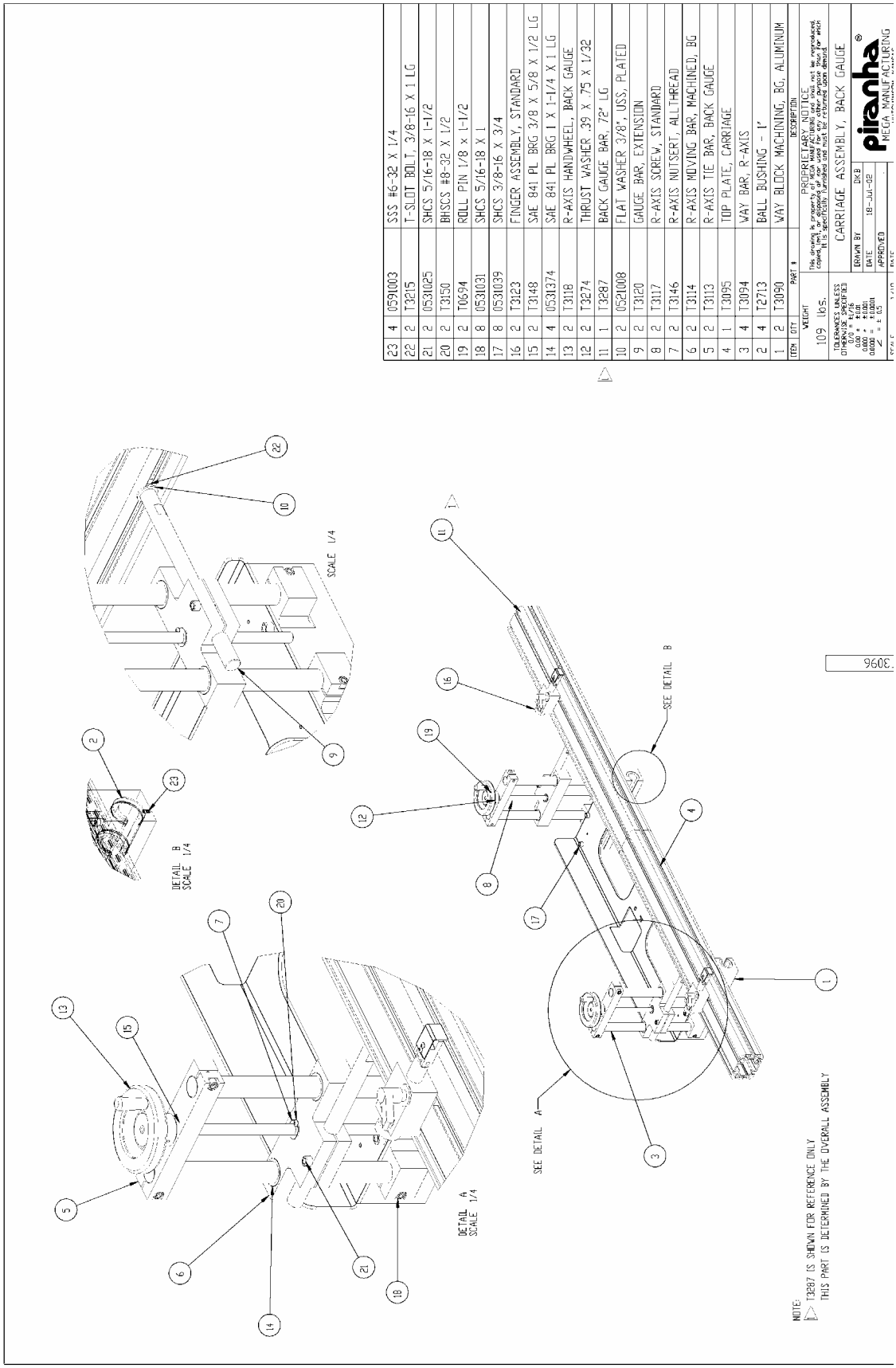
BACK GAUGE CALIBRATION FIGURE

14. Push Fingers forward until they touch the reference bars
15. Tighten the two 5/16"-18 Socket Head Cap Screws on R-Axis Bar
16. Type "4" on keypad for GOTO BACK GAUGE
17. Type "24" on keypad for 24.000 inches
18. Press ENTER and the gauge bar will move to 24.000 inches
19. Use RAM UP button and move ram up to remove reference bars
20. The back gauge is now calibrated

WARNING

Ensure that no part of the Finger Assembly interferes with the press brake tooling
All backgauge adjustments must be made from the rear of the machine.
Do not reach across the press brake tooling or through the bed and ram.
Severe injury or death may result if these procedures are not followed


BLUE 6 WHT/BLUE 0
BG-8
BG-9
RED 1A
GRN
BG-3
BG-1
RED 2B
BG-4
WHT
BG2
R1
2B
BALDOR DRIVE
X1
GRND
LINE
NEUTRAL
U
V
W
ONE
TWO
THREE
BALDOR DRIVE MOTOR
GRN
RED 1A
R1
RED 1B
WHT
Z SERVO CARD
P2
BLUE 6
BLUE 41
42 BLK
43 WHT
DRAIN
SHLDED CABLE
X3
1 AINO VEL REF +
2 AINO VEL REF -
BLUE 6
WHT/BLUE 0
MANUAL ENABLE OFF-ON
<FOR DRIVE SET UP ONLY>
7 CREF
8 CGND
9 ENABLE
10 CW OVERTRAVEL REAR
11 CCW OVERTRAVEL FRONT
P1
BLUE 46
BLUE 47
BLUE 44
HOME PROX
BLUE
BRN
BLK
CW OVERTRAVEL PROX
CCW OVERTRAVEL PROX
20 DRIVE OK
X7 DB9
CONCT.
1 ENC A+/CH A +
6 ENC A-/CH A-
2 ENC B+/CH B+
7 ENC B-/CH B-
3 ENC Z+/CH Z+
8 ENC Z- CH Z-
5 DGND
P3
48 BLUE
49 RED
50 YEL
51 GRN
52 GREY
53 PINK
54
DRAINS
X8 DB 9
CONCT. RED
R1 REF
S1 COS
S2 SINE
GRN
PINK
DRAIN
BLUE
YELLOW
GRAY
R2 REF
S3 COS
S4 SINE
RESOLVER/ FEEDBACK CABLE
DB 9 PLUGS INTO GEN II CONTROL
P4
BLUE
YEL
GRN
RED
BLK
WHT
RJ11 MODULAR PLUG
FLAT SILVER SATIN CABLE
PIRANHA
TITLE MEGA BACK GAUGE
DRAWING# T3200 REV C
DATE 12-15-03
REV# C
PAGE# 1 OF 1



ITEM	QTY	PART #	DESCRIPTION
23	4	0591003	SSS #6-32 X 1/4
22	2	T3215	T-SLOT BOLT, 3/8-16 X 1 LG
21	2	0531025	SHCS 5/16-18 X 1-1/2
20	2	T3150	BHSCS #8-32 X 1/2
19	2	T0694	ROLL PIN 1/8 x 1-1/2
18	8	0531031	SHCS 5/16-18 X 1
17	8	0531039	SHCS 3/8-16 X 3/4
16	2	T3123	FINGER ASSEMBLY, STANDARD
15	2	T3148	SAE 841 PL BRG 3/8 X 5/8 X 1/2 LG
14	4	0531374	SAE 841 PL BRG 1 X 1-1/4 X 1 LG
13	2	T3118	R-AXIS HANDWHEEL, BACK GAUGE
12	2	T3274	THRUST WASHER .39 X .75 X 1/32
11	1	T3287	BACK GAUGE BAR, 72" LG
10	2	0521008	FLAT WASHER 3/8", USS, PLATED
9	2	T3120	GAUGE BAR, EXTENSION
8	2	T3117	R-AXIS SCREW, STANDARD
7	2	T3146	R-AXIS NUTSERT, ALLTHREAD
6	2	T3114	R-AXIS MOVING BAR, MACHINED, BG
5	2	T3113	R-AXIS TIE BAR, BACK GAUGE
4	1	T3095	TOP PLATE, CARRIAGE
3	4	T3094	WAY BAR, R-AXIS
2	4	T2713	BALL BUSHING - 1"
1	2	T3090	WAY BLOCK MACHINING, BG, ALUMINUM

WEIGHT: 109 lbs.

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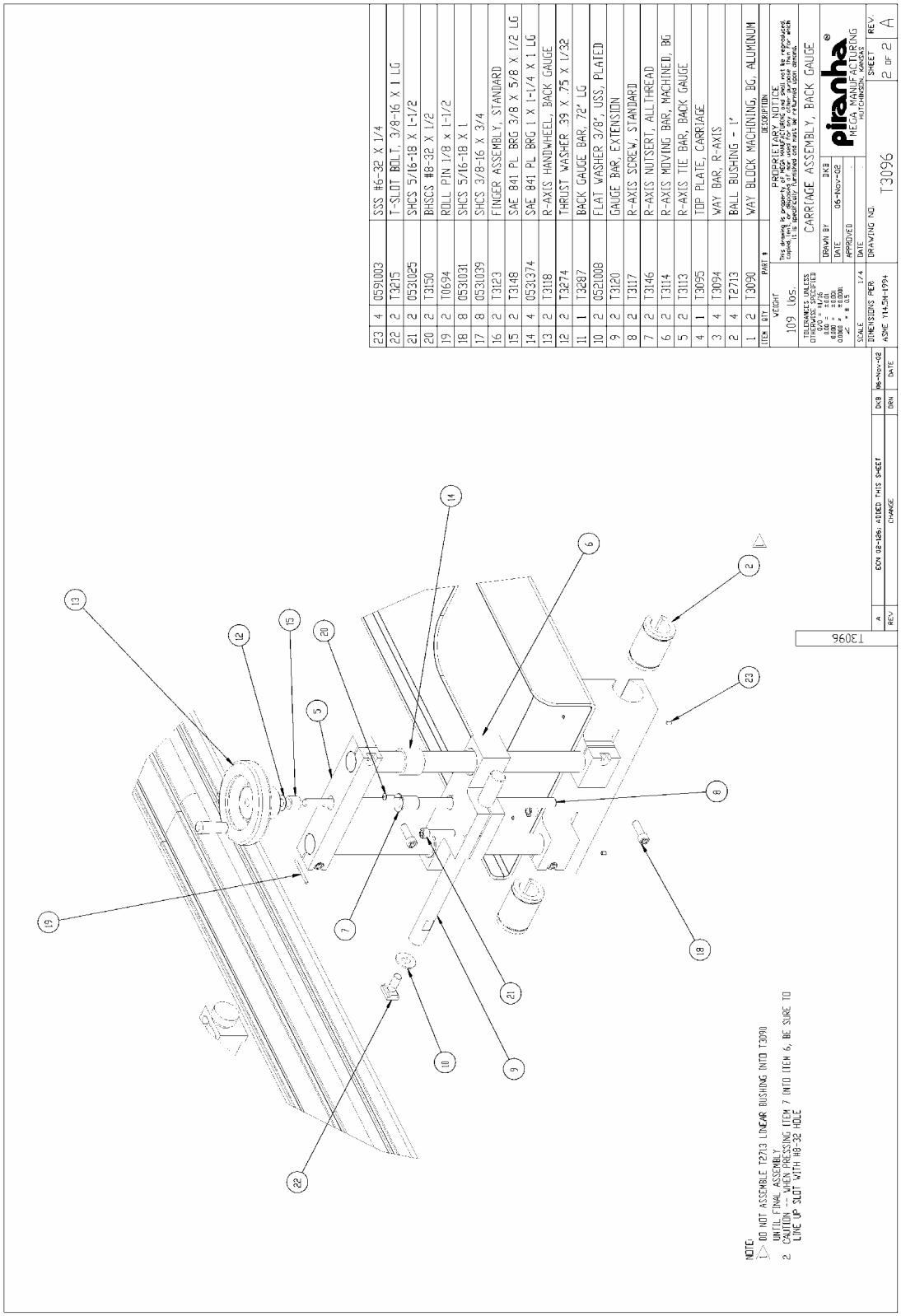
TOLERANCES UNLESS OTHERWISE SPECIFIED
0/0 = ±1/16
.00 = ±.01
.0000 = ±.0001
.00000 = ±.00001
∠ = ± 05

CARRIAGE ASSEMBLY, BACK GAUGE

DRAWN BY: DKB
DATE: 18-Jul-02
APPROVED:

piranha
MEGA MANUFACTURING



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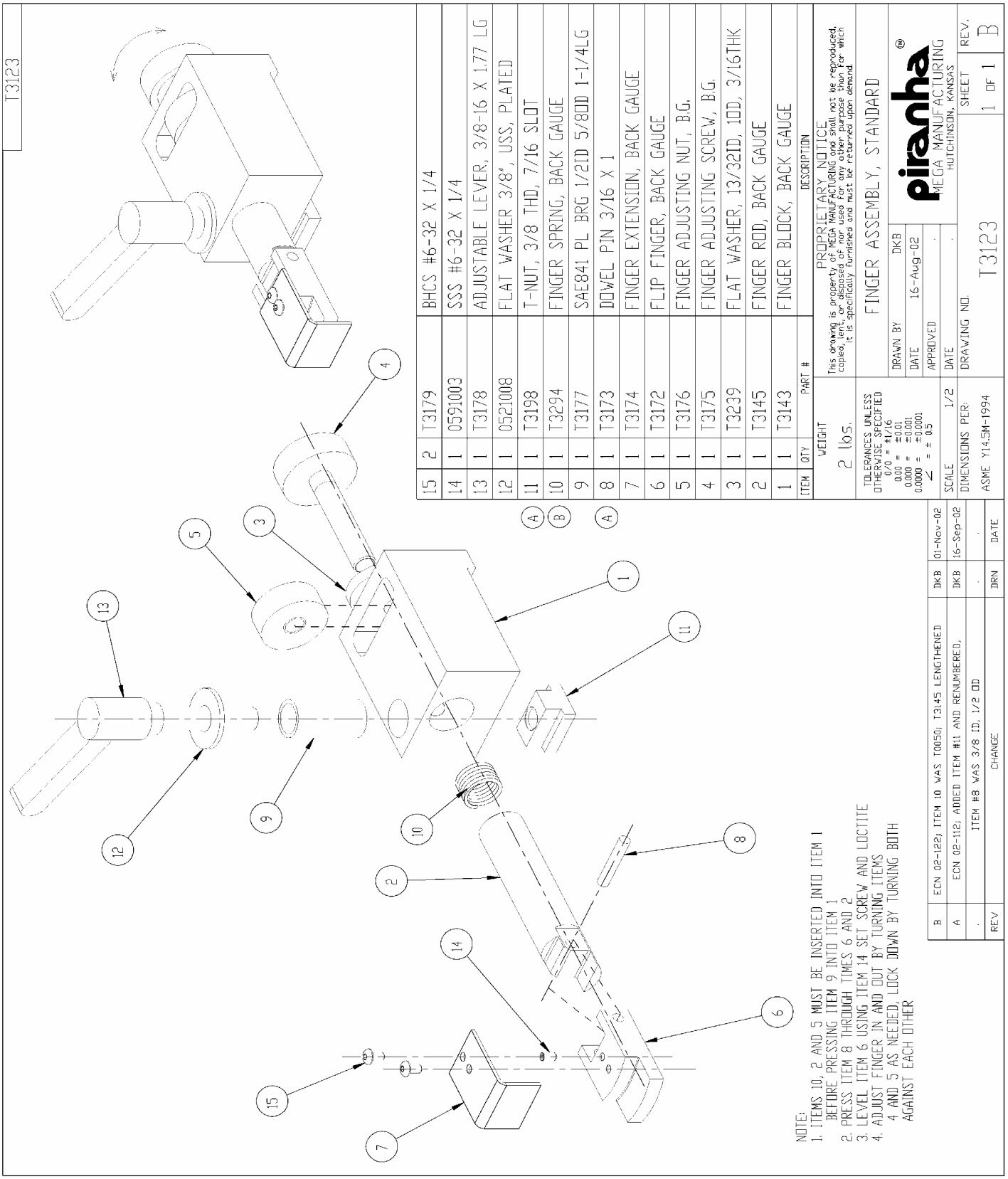
TOLERANCES UNLESS OTHERWISE SPECIFIED
.0/.0 = +/-1/16
.00 = +/-.010
.000 = +/-.005
ANGLE = +/-1°

DRAWN BY DKB 06-NOV-02
DATE
APPROVED
DATE
SCALE 1/4
DIMENSIONS PER: ASME Y14.5M-1994
DRAWING NO. T3096

REV	CHANGE	DRN	DATE
A	ECN 02-186, ADDED THIS SHEET	DKB	06-NOV-02


T3123
15 2 T3179 BHCS #6-32 X 1/4
14 1 0591003 SSS #6-32 X 1/4
13 1 T3178 ADJUSTABLE LEVER, 3/8-16 X 1.77 LG
12 1 0521008 FLAT WASHER 3/8", USS, PLATED
11 1 T3198 T-NUT, 3/8 THD, 7/16 SLOT
10 1 T3294 FINGER SPRING, BACK GAUGE
9 1 T3177 SAE841 PL BRG 1/2ID 5/8OD 1-1/4LG
8 1 T3173 DOWEL PIN 3/16 X 1
7 1 T3174 FINGER EXTENSION, BACK GAUGE
6 1 T3172 FLIP FINGER, BACK GAUGE
5 1 T3176 FINGER ADJUSTING NUT, B.G.
4 1 T3175 FINGER ADJUSTING SCREW, B.G.
3 1 T3239 FLAT WASHER, 13/32ID, 1OD, 3/16THK
2 1 T3145 FINGER ROD, BACK GAUGE
1 1 T3143 FINGER BLOCK, BACK GAUGE
ITEM QTY PART # DESCRIPTION
WEIGHT 2 lbs.
PROPRIETARY NOTICE
This drawing is property of MEGA MANUFACTURING and shall not be reproduced, copied, lent, or disposed of nor used for any other purpose than for which it is specifically furnished and must be returned upon demand
TOLERANCES UNLESS OTHERWISE SPECIFIED
0/0 = ±1/16
0.00 = ±0.01
0.000 = ±0.001
0.0000 = ±0.0001
∠ = ± 0.5
FINGER ASSEMBLY, STANDARD
DRAWN BY DKB
DATE 16-Aug-02
APPROVED
DATE
DRAWING NO. T3123
SCALE 1/2
DIMENSIONS PER: ASME Y14.5M-1994
piranha®
MEGA MANUFACTURING
HUTCHINSON, KANSAS
SHEET 1 OF 1
REV. B
B ECN 02-122; ITEM 10 WAS T0050, T3145 LENGTHENED DKB 01-Nov-02
A ECN 02-112; ADDED ITEM #11 AND RENUMBERED, DKB 16-Sep-02
ITEM #8 WAS 3/8 ID, 1/2 OD
REV CHANGE DRN DATE
NOTE:
1. ITEMS 10, 2 AND 5 MUST BE INSERTED INTO ITEM 1 BEFORE PRESSING ITEM 9 INTO ITEM 1
2. PRESS ITEM 8 THROUGH TIMES 6 AND 2
3. LEVEL ITEM 6 USING ITEM 14 SET SCREW AND LOCTITE
4. ADJUST FINGER IN AND OUT BY TURNING ITEMS 4 AND 5 AS NEEDED, LOCK DOWN BY TURNING BOTH AGAINST EACH OTHER