CHAPTER 1

SSP PANFORMER SPECIFICATIONS

DIMENSIONS - Length - 12 ft.
width - 4'- 5" plus engine projection
Height - 1' -3" - Approx. 2000 Ibs

WEIGHT - 16hp; electric start; 4 cycle; gas engine (220v 7 1/2hp ELECTRIC MOTOR OPTION AVAILABLE)

POWER
DRIVE - Hydraulically driven polyurethane drive roller

SHEAR - Hydraulic, full cycle

SPEED - Approximately 60 ft. per minute

DECOILER - 3,000 LBS. capacity - 16" or 20" Arbor

MATERIALS FORMED

Painted steel Max 22 Gauge
Galvanized steel Max 22 Gauge
Aluminized steel Max 22 Gauge
Aluminum Max .032" thick
Copper

CONTROLS - Electrically activated PANEL SIZES - Machine

is infinitely adjustable between:

SS150 12" and 24" wide
SS550 12" and 22 3/4" wide
SS675 12" and 21 7/8" wide
SS200 12" and 22 1/4" wide
SS210A 12" and 21 7/8" wide
3P 11 1/8" and 24 3/4"
**OPTIONAL EQUIPMENT**

**CLIP RELIEF ROLLERS**— Optional Roller system available for all profiles presently made. This attachment provides clearance for screw heads used to fasten the panel clip assembly to the under-decking.

**TANDEM AXLE TRAILER**— 12000# capacity tandem trailer. Trailer has a dual overhead, decoiler with (2) two reels. Trailer bed dimensions are 60" wide * 168" long. Over all dimensions of the trailer are 81 1/4" wide * 176" long. The trailer comes equipped with electric brakes on all four wheel hubs. Electric breakaway system also standard on all trailers.

**50' RUN OUT STANDS**— Run out stands which support the panel as it exits the machine.

**HAND SEAMER**— Hand seamers which are used to mechanically seam the panels.

**ELECTRIC SEAMER**— Electric seamer which is used to mechanically seam the panels.

**SEALANT PUMP SYSTEM**— Sealant pump which is used to apply factory approved sealant to the female side of the panel profile.

**ADDITIONAL BEAD ROLLERS**— The additional rollers are generally used to aesthetically balance a wide panel profile.

**ADDITIONAL STRIATION ROLLERS SETS**— These rollers are used for aesthetic purpose. They give a repetitive linear marking to any panel profile.

**DUAL REGISTER ELECTRONIC CONTROL**— This control system automatically measures panel length, shears to length and keeps track of the batch count for total quantity of panels made.
CHAPTER 2 GENERAL

MAINTENANCE

1. Always keep lids on during operation and storage. The covers are for operator safety, and protect the internal components from the elements.

2. Avoid storage of the machine outdoors for long periods of time. Cover the machine for storage, but provide good ventilation to prevent condensation and rust.

3. Keep the machine clean. This will increase the life of the machine and make maintenance easier. A clean machine will help to provide a clean product.

4. Do not store the machine with material in the drive/forming rollers. The material will only collect water and dirt.
CHAPTER 3

GENERAL SAFETY PRECAUTIONS

1. Read and understand this manual before attempting to operate the machine.

2. Observe all safety signs and do not operate the machine with any safety covers removed.

3. Stop the machine, and shut off engine before making any adjustment on any part of the machine. All maintenance should be performed with the power source shut off.

4. While the machine is in operation, a trained operator should always be manning the controls.

5. DO NOT form or handle panels in high wind conditions.

6. Always follow and adhere to all local and national safety codes concerning operation and lifting of all equipment used in conjunction with the panformer. Always use a properly rated lifting device to lift coil onto a rack.

7. CAUTION: Do not wear any loose clothing, jewelry, etc. when operating the machine. Wear appropriate clothing for best protection on the job.

8. CAUTION: Always wear ear protection while operating the machine.

9. CAUTION: NEVER LEAVE THE MAIN POWER SWITCH "ON" WHEN THE MACHINE IS NOT BEING USED. TO DO SO WILL DRAIN THE BATTERY. REFER TO CHAPTER 4 ON ELECTRICAL FOR THE POWER SWITCH LOCATION.
CHAPTER 4

ELECTRICAL

OPERATION AND SAFETY PRECAUTIONS

CONTROL PANEL OPERATION:

REFER TO FIG 4-1 FOR SWITCH LOCATIONS

The entire electrical circuit for the gas powered panel machine is 12volt dc., 10 amp system.

1. START/STOP SWITCH

There is a "START/STOP" switch at each end of the machine for your safety. One is on the main control panel and the other is at the entry end of the machine (see FIG 4-2). Either switch controls the hydraulic motor that drives the panel through the machine.

2. JOG/RUN SWITCH; PANEL LIMIT SWITCH (see FIG 4-1)

With the "START/STOP" switch in the start mode, the "JOG/RUN" Switch and the Panel Limit switch interact to provide several operating features. WITH THE PANEL LIMIT SWITCH PLUGGED IN, and the "JOG/RUN" Switch in the jog Mode, you can jog the material in either direction, as determined by the "FORWARD/REVERSE" Switch; while in the Run Mode the material will move continuously only in the forward direction and will jog in the reverse direction. WITH THE PANEL LIMIT SWITCH UNPLUGGED, the material will jog in both the run mode and the jog mode in either the forward or reverse direction.

3. FORWARD/REVERSE SWITCH

This switch controls direction of the panel material movement through the machine.

4. SHEAR DOWN/SHEAR UP

This switch controls the shear cycle on the machine. The "SHEAR DOWN" button activates the automatic cycle of the shear. The shear will cycle down and back up to the home position in approximately 3 seconds. The "SHEAR UP" button will interrupt the automatic cycle and return the Shear to the home position; this is strictly a safety feature.

5. POWER ON SWITCH

This switch is the main power switch. The head of the switch is mushroom-shaped for ease of striking in an emergency. This switch must be "ON" to supply power to the machine.
CAUTION:
DO NOT LEAVE THIS SWITCH IN THE "ON" POSITION WHEN THE MACHINE IS NOT BEING USED. LEAVING THE SWITCH ON WILL DRAIN THE BATTERY.

6. **STARTER BUTTON**

   This button is used to initiate cranking of the starter motor on the gas engine. The power on switch must be in the "ON" position to activate the starter button. The choke and throttle located on the gas engine is used in conjunction with starter button to start the gas engine.

**OTHER ELECTRICAL FEATURES:**

1. **Electrical circuit fuse;** The entire electrical logic circuit is protected with a 10 AMP fuse. The fuse is located on the front of the main control panel at the exit end of the machine. Refer to FIG.4-1 for component location.

2. **Shear and Drive Safety Switch**

   The logic circuit is designed to electrically lock out the drive system whenever the shear is being operated and has not returned to the home position. This is for operator safety.

3. **Wiring Diagram**

   See FIG.4-3 for the wiring diagram of the entire electrical circuit.
FIG 4-1

1) START/STOP SWITCH
2) JOG / RUN SWITCH
3) FOR / REV SWITCH
4) SHEAR DOWN / UP SWITCH
5) POWER ON SWITCH

FIG 4-2

MAIN CONTROL PANEL

CHOCKE AND THROTTLE CONTROL ON ENGINE

MATERIAL FLOW

START/STOP SWITCH

PANEL UNIT SWITCH
FIG. 4-3
2-0" ELECTRIC MOTOR WIRING

NOTE:
DIAGRAM AS OF 10/15/93

CHECK ROTATION ON
PUMP BEFORE OPERATING
MACHINE.

PLUG
30AMP/250V/30/

220V
POWER
SUPPLY

12V
DC

POWER
SW
N.O.

START
SW
N.O.

M3
220V

ELEC.
MOTOR
3 0

GRD

M4

F1

M1

3 POSITION
SWITCH

VALVE
FOR
REV

START
N.O.

STOP
N.C.

JOG/RUN
N.C.

STOP
N.C.

REV
DROP OUT

LENGTH
SWITCH

M2

TOP OF STROKE
LIMIT SWITCH

START
N.O.

BOTTOM OF STROKE
LIMIT SWITCH

STOP
N.O.

DOWN

VALVE
UP

SHEAR CIRCUIT

MOTOR CIRCUIT
CHAPTER 5

HYDRAULIC

OPERATION AND MAINTENANCE

OPERATION:

Refer to fig 5-1 for component locations

1. Operation of the hydraulic system is electrically activated (see Electrical for operation). A manual override is located on each solenoid for each valve. These will activate the standard wet core valve in the event the control circuit should fail. Refer to Fig. 5-1 for the location of the manual actuator.

2. Always warm up the hydraulic oil before beginning forming or shearing operations. The best way to achieve this is by setting the machine to "RUN" and "FORWARD" and plugging the panel length limit switch into the circuit and running the drive system for several minutes to warm up the oil. The shear should not be used to warm the oil.

MAINTENANCE:

1. The hydraulic system is generally regarded as a durable and reliable system. However, it must be properly maintained in order to give trouble-free operation.

2. The factory-installed fluid is Texaco 32. A clean, high quality hydraulic fluid is one of the best preventative maintenance procedures for the hydraulic system. Because this equipment is used outdoors, it is recommended that the oil be changed annually. Hydraulic oil will degrade if it remains stagnated in a dead end circuit such as the shear circuit for more than a year. Check the fluid level frequently. The level of the oil in the reservoir should be maintained approximately 1" to 1 1/2" below the top of the reservoir tank. When checking the level also note the color and condition of the fluid. The fluid should be clear.

3. To purge the fluid from the dead-end shear circuit disconnect the top hydraulic hoses from both cylinders and place the end of the hoses in a container. See Fig. 5-1. Turn on the machine and press the shear down button. The fluid will come out of the hoses and into the container. Let oil run out of hoses for five (5) seconds. Turn off the machine. Reconnect these hoses.

Turn the machine back on and activate the shear down button. When the shear reaches the bottom of the stroke turn off the machine. Disconnect the bottom hydraulic hoses from both cylinders and place the end of the hoses in a container. Turn on the machine and let the oil run out of the hoses for five (5) seconds.
fluid will come out as soon as you turn on the machine'. Turn off the machine and reconnect these hoses.

4. Check all hoses connections periodically to insure that they are not leaking. Tighten all loose connections. If removal of the hose becomes necessary, follow the procedure for assembly of a straight thread O-Ring fitting. Shown on Fig. 5-2.

5. Trouble Shooting Hydraulic Fluid:

A. White or milky color indicates water contamination. Change the fluid.

B. Fluid that is foamy will cause a noisy pump and slow or erratic operation of the hydraulic components. The cause is usually low oil level or air in the lines.

C. Dark fluid usually indicates a dirty filter.

D. If the machine starts to slow down after continuous operation, check temperature of hydraulic oil; the oil should not exceed 140F. Turn the machine off and allow the oil to cool down.

E. The shear should take approximately 3 seconds to cycle. If the shear appears sluggish or does not operate properly, first check the shear for proper lubrication.

6. To change oil disconnect the suction line at the pump inlet and hang hose over the side of the machine and drain oil into a container. Change the filter. See Fig. 5-1 for location of filter. Reconnect the suction line, fill the reservoir with fresh hydraulic oil. Reservoir capacity is approximately 20 gallons. Start pump and run machine in forward and reverse for several minutes. Run shear cycle several times. Shut power off and check fluid level. A pressure gauge for the hydraulic system is located behind the gas engine under the machine cover toward the entry end of the machine. A relief valve is built into the hydraulic system. Maximum pressure before relief valve engages is 2000 PSI. Normal operation for 24 Gauge steel is approximately 900 to 1300 PSI. Normal temperature range of the hydraulic fluid is 110F to 120F. The hydraulic oil should never exceed 140F.

SEE FIG 5-3 FOR HYDRAULIC FLOW DIAGRAM.
STRAIGHT THREAD O-RING FITTINGS

Fig. 1

Fig. 2

Fig. 3

ASSEMBLY

1. Lubricate "O" ring with a light application of light oil or petrolatum, and install back-up washer and "O" ring to the extreme rear end of the groove as shown in figure 1 above. Turn locknut down until it just contacts the backup ring.

2. Holding fitting and locknut in position, install the fitting into the straight thread boss until the metal backup washer contacts the face of the boss as shown in figure 2 above.

3. Position the fitting by turning out (counterclockwise) up to one turn. Hold the pad of the fitting securely and tighten the locknut until the washer is driven against the face of the boss as shown in figure 3 above.

HYDRAULIC FLOW DIAGRAM

Fig 5-3
CHAPTER 6
ENTRY GUIDE
OPERATION. ADJUSTMENTS AND MAINTENANCE

OPERATION AND ADJUSTMENTS:

1. The entry guide on the right side is preset for a specific profile. Adjustments can be made to both left and right side guides by loosening the two top screws and sliding the assembly along the track. Then re-tighten the screws.

2. To make feeding your material through the machine easier, cut the corners of the leading edge. The amount of side play with the material engaged in the entry guide should be approximately 1/32".

3. It is important that the entry guide side rollers be square with the forming rollers (also commonly referred to as the forming tools). Failure to keep them so aligned will result in dimension variations of the male and female lips.

4. If your material is not running parallel to the forming rollers, an adjustment can be made by loosening the mounting bolts "A" on the left side of the entry guide, as shown in Fig. 6-1 and turn the adjustment screws "C" to move the left side of the entry guide assembly. The entry guide assembly will pivot on a bolt "B" located on the right side of the assembly. Measurements should be made from the end of the frame to the first cross bar on the entry guide assembly. Re-tighten all bolts and lock nuts after adjustment is made.

5. To set up the entry guide to run your panel align the indicator hole with the slot on the indicator bracket. See fig. 6-1.

MAINTENANCE;

1. To help keep entry guide sliding smoothly, grease the slide-ways with a waterproof grease. For recommended grease, see page 7-1.

2. Inspect the cam-followers periodically to insure that they are turning freely.
FIG 6-1

MATERIAL NOT PARALLEL WITH FORMING TOOLS

FORMING TOOLS

"C"

"A"

"C"

ENTRY GUIDE

MATERIAL FLOW

INDICATOR BRACKET

CAM FOLLOWERS

INDICATOR HOLE ON ENTRY GUIDE
CHAPTER 7

DRIVE SYSTEM

OPERATION, ADJUSTMENTS AND MAINTENANCE:

1. The drive system is hydraulically-powered and electrically-activated. The clearance between the top and the bottom roller has been factory set. If adjustment becomes necessary, loosen bolts "B" and lock nut on jackscrew "A", as shown in FIG.7-1 and adjust top roller down until panel slippage has stopped. In any event, do not exceed two (2) full turns from the original factory setting. Factory setting is approximately one quarter (1/4) turn past point of contact between top and bottom roller. Be sure to adjust all rollers down evenly. Re-tighten bolts and lock nut on the jackscrew.

2. Avoid cleaning roller surfaces with any solvents such as paint thinner, acetone, etc. Use of a mild soap and water is recommended. Denatured alcohol can be used with a dampened rag.

3. Covers must remain on during operation and storage of the machine. Limiting exposure of the rollers to ultra violet light will prolong the life of the rollers.

4. Lubricate chain weekly or every 20 hours of use. It is preferable to use a dry lubricant such as is used on motorcycle chains.

5. Check chain tension on all locations. An over-tightened chain is just as bad as a loose chain. Loosen the idler sprocket and snug up chain. There should be 1/16" minimum play in the chain.

6. Lubricate gears weekly or every 20 hours of use. Use axle grease sparingly. Recommended grease:

   Synco Chemical Corp. 24
   Davinci Drive Bohemia,
   New York 11716 Super
   luber PTFE Grease

The characteristics of this grease are:

- A heavy-duty grease 100% synthetic, totally compatible with other lubricants.

- Non-toxic, clean and clear. Will not stain.

- Guaranteed to work from -45F to +450F. Will not melt, freeze, or separate. Prevents ice build up.

- Impervious to salt water and road salt.
CHAPTER 8

FORMING STATIONS

OPERATION, ADJUSTMENTS AND MAINTENANCE

1. The forming rollers used in this panel machine are manufactured from stainless steel. They are corrosion-resistant to natural food acids, basic salts, water and most atmospheres.

2. The main forming rollers are mounted on a hardened and ground stainless steel shaft, and ride on oilite bushings. The bushings are impregnated with a lubricant, but an annual repacking of the bushings will prolong the life of the bushing. Use a high quality axle grease to repack bushings. For our recommendations on grease, see chapter 7.

3. Roller clearances at all forming stations are factory set, and are not adjustable with the exception of the rollers at the squaring stations. The squaring stations do have an adjustment to accommodate different materials and requirements of the user.

4. The knife roller at each squaring station is adjustable, and the adjustments are the same for each station. The knife roller is mounted on an eccentric shaft and is rotated to produce the clearance desired. SEE FIG 8-1. To adjust, use a small L-shaped hex key (3/16) and slide into the small hole on the shaft. Use this to turn and hold shaft in place while adjusting shaft. Use a 9/16 open end wrench to loosen the retainer bolt and re-tighten when adjustment is complete. When loosening the retainer bolt, we recommend you loosen it just enough to allow the hex key wrench to turn, but not freely.

5. Camber adjustments are located as the last stations of either the right or the left side. The adjustment screw is located on top of assembly. SEE FIG 8-2. Turning clockwise raises the assembly up causing a up hill effect. Turning counter clockwise lowers the assembly down causing an down hill effect. There is a scribed line on the SQUARING and CAMBER STATION to reference the neutral position of these station.

6. Some dimensional changes can be made to the panel profile. SEE FIG 8-5 for recommended dimensions for panel. Two methods are used.

   a. Moving the entry guide to the left or right will increase or decrease the lips. SEE FIG 8-3. However, This method will cause both lips to move.

   b. Some panel dimensions can be altered by placement of one support tube relative to another. This depends on the profile being formed.
7. It is important that all support tubes be parallel with one another at all times. Failure to keep them parallel can cause deformation of the formed panel and/or double tracking of the formed bends. All of the support bars must also be parallel to the drive rollers. Failure to keep them parallel can also cause tracking problems with the material being formed.

8. PRELIMINARY SETUP DIMENSIONS FOR SUPPORT TUBES. SEE FIG 13-4

9. The guide rods carry the panel being formed from one forming station to the next. The guide rod also supports the panel to prevent the bottom forming roller at each station from marking the panel. The guide rod should be located approximately 1/32 inch above the pass line of the forming stations. SEE FIG 8-1.
Fig 8-2

- Adjustment Screw
- Natural Position

Up Hill Effect

Down Hill Effect
FIG 8-3

**SS150**
* ENTRY GUIDE WILL AFFECT THIS DIMENSION

**SS675**
* ENTRY GUIDE WILL AFFECT THIS DIMENSION

**SS550**
* ENTRY GUIDE WILL AFFECT THIS DIMENSION

**SS200/210A**
* ENTRY GUIDE WILL AFFECT THIS DIMENSION
FIG 8-3
CONT.

BERMUDA PANEL

* ENTRY GUIDE
WILL AFFECT
THIS DIMENSION
CHAPTER 9

BEAD ROLLER
or STRIATION ROLLER
ASSEMBLY

OPERATION, ADJUSTMENTS AND MAINTENANCE

1. Bead or striation rollers can be engaged or disengaged, and can be moved to fit the need of the user.

2. The bottom bead or striation forming roller should be set 1/32" above the drive rollers to ensure proper entry into the shear from the bead or striation rollers. If adjustment is necessary, loosen the roller mount bolts "B" and lock nuts on the vertical adjustment screws "A", and raise or lower the roller assembly by using the adjustment jackscrew to obtain the proper level. See FIG 9-1. Then re-tighten the mount bolts and adjustment screws.

3. Next loosen the eccentric lock down screw "C", and place an 3/16 Alien wrench in the small hole at one end of the eccentric shaft, and rotate the top roller up until it clears the bottom roller. See FIG 9-1. Loosen both the top and bottom slide lock down screws "D". Bring the panel material up to the rollers but not past them. SHUT OFF THE MACHINE BEFORE CONTINUING. Locate the top roller to the desired position by sliding the assembly on the top slide bars. Lock down top slide lock-down screws "D". Restart the machine and back up the panel until you can gain access to the bottom slide lock-down screws. AGAIN SHUT OFF THE MACHINE. Loosen the bottom slide lock-down screws, and slide them into position so the bottom roller is directly below the top roller. Tighten the bottom slide lock-down screw "D". Next rotate the eccentric shaft down to the desired bead depth. DO NOT go below the .045" minimum clearance allowed; excessive bead depth will distort your panel. Re-tighten screws "C".

4. Keep slide bars lightly greased to allow bead or striation assemblies to slide smoothly.
CHAPTER 10

SHEAR ASSEMBLY

OPERATION, ADJUSTMENTS, AND MAINTENANCE

1. The Shear is hydraulically-driven and electrically-activated. The top and bottom pressure switch controls the cycle of the shear. The drive system is electrically locked out when the shear is in motion.

2. There are two (2) main adjustments that can be made on the shear.

   A. The first adjustment is to adjust the height of bottom dies to the relative height of the panel. The dies should be approximately 1/32" to 1/16" below the panel, but should not scrap anywhere on the panel. To adjust, loosen vertical adjustment screws "C", and using the shear adjustment jackscrew "D" as shown in FIG. 10-1 which shows the exit bottom die being lower than the entry bottom die by approximately 1/32". This is to aid the material through the shear.

   B. The second adjustment is to adjust the left-hand and right-hand entry and exit dies. There are two screws for each die in slotted holes. Loosen these screws for the entry dies. SEE FIG 10-1. First, move these dies in or out until they are approximately 1/32" from the panel. Be sure they do not touch any part of the panel. Re-tighten these screws. Next loosen the screws for the exit dies. Note the location of these dies relative to the entry dies on FIG 10-1, SECTION B-B. Re-tighten these screws. Start the machine and make a few cuts. Inspect your sample piece for a clean cut. Check also for any scrapping marks anywhere on the panel.

3. To keep shear in good condition always lubricate both faces of the blades with grease after each day of use. This will serve two purposes: (1) lubrication of the cutting edges; (2) rust prevention for the blades and dies. See chapter 7 for our recommendations on grease.
CHAPTER 11

REEL & REEL RACK ASSEMBLY OPERATION, ADJUSTMENTS, AND MAINTENANCE

1. The maximum load capacity for each reel is 3000 pounds of coil.

2. The reel axles rest in the reel rack cradles. Apply grease to these cradles after 20,000 pounds of coil has been run. This reduces wear on the cradle.

3. The tie down brackets, located at each cradle, are used to secure the coil onto the reel rack during both transit and operation of the machine. The tie down brackets can be used to apply a braking effect to the reel to maintain tension on the coil. CAUTION; DO NOT OVER TIGHTEN THE TIE DOWN BRACKETS during machine operation. This can cause excessive load on the drive system. Apply just enough drag to maintain tension on the coil.

4. For best results, the reel should be placed approximately 10 to 15 feet behind the machine for a remote decoiler. If the reel rack is closer, proper alignment of the reel rack to the machine becomes much more critical.
1. Lift coils with properly rated commercial coil lifting devices. See the maximum coil rating on chapter 11.

2. Always keep your lifting device in good order. Consult the manufacturer for proper care.

3. Use only experienced operators to operate your lifting equipment, follow all local codes regarding use of this equipment.
CHAPTER 13

PROFILE CHANGE AND ALIGNMENT

REMOVAL AND REPLACEMENT OF THE LEFT FORMING TOOLS:

1. To remove any forming tools from the left side, start with the removal of part of the shear to allow the removal of the forming station rail through the shear. Remove the left and right entry and exit dies by loosening and removing (8) "B" bolts as shown on FIG. 13-1. Next remove the top shear blades by removing (6) "A" bolts. Lift the shear blade assembly up and out of the machine. The bead roller assembly must now be removed from the machine. Loosen and remove (4) "c" bolts as shown on FIG. 13-2 and lift the bead roller assembly up and through the top of the machine. Next remove the (10) "D" bolts as shown on FIG. 13-3 that tie the rail to the acme rods. Take special care not to turn the acme nuts while removing the rails. The short #1 rail will be unloaded out through the entry end of the machine. The long #2 rail will be unloaded out through the shear. The rail must be unloaded with stations intact. Removal of the long rail requires two people to safely remove the rail.

See FIG 13-7 for detail dimensions of panel profile.

Load the new rails back in the same way the old rails were removed. Mount the rails in place and snug the bolts but do not tighten them. Look on the table in FIG. 13-4 for set up dimensions for profile being used. Measure the left rail #2 from the face of the rail to the face of the rail #2 on the right side of the machine as shown on FIG.13-4. We will call this measurement dimension "M". Add the dimension "G", from the chart for the appropriate profile, to the "M" dimension taken from rail #2 to acquire the dimension for left rail #1. To adjust left rail #1 rotate the acme nut with a 5/32" alien wrench to adjust rail #1 to its proper adjustment. Be sure to rotate both acme nuts the same amount of rotation as the other to insure that rail #1 remains parallel with the other rails. Tighten all the bolts on the left side forming assembly. Recheck dimensions after bolts are tightened to be sure of proper alignment. Remember these are only setup dimensions, you will need to fine tune for your particular machine.

REMOVAL AND REPLACEMENT OF THE RIGHT FORMING TOOLS

Before removing the right forming tools the return drum, if used, and the entry guide assembly must be removed. Remove bolts "R" and remove the return drum from the machine. Next remove bolts "P" and remove the entry guide assembly through the entry end of the machine. Loosen the bolts "H" as shown in FIG. 13-5 on the right side of the machine and remove the rails through the entry end of the machine. Remove the aluminum mount bars with belts "I", be sure they are marked in the order in which they are mounted so as to keep them in proper order. Replace these mount bars with mount bars.
adjusted for the profile you are installing. Mount the new rails in place and snug the bolts, but do not tighten them. Attach a 30lb. fishing line to the machine as shown in FIG. 13-4. Using dimension "E" and "F" as shown in FIG.13-4 measure from the face of the angle to the fishing line as shown. Tighten bolts and recheck dimensions after bolts are tighten to be sure of proper alignment.

**FINAL ADJUSTMENT AND BEAD ROLLER AND SHEAR REASSEMBLY**

To fine tune the alignment of the forming stations use the 30lb. test fishing line and measure for dimension "E" & "F". Loosen bolts "I" and use the adjustment screws "L" if needed on the mount bars to fine tune. Be sure rail #1 & 2 are parallel to the string. Retighten screws "I" and "L". Recheck alignment of rails to the string. Measure the distance between the left and right rails to be sure they are parallel to each other. Tighten all bolts related to the forming stations before proceeding.

The entry guide must now be readjusted to align the material with the new profile. Start with the right entry guide, and loosen bolts "K" as shown in FIG.13-6 to allow the right entry guide to slide in its track. Align the small locating hole with the slot on the indicator bracket mounted on the right rail. Choose the slot for the profile you are making. Re-tighten bolts "K". Using a test piece of material about 12ft. long, set the left entry guide to the material width plus 1/32" and set left forming stations indicator bracket with the hole in the entry guide. Tighten the bolts on the left entry guide.

Start engine and let idle for a few minutes. Set control panel to "jog" and "forward" before advancing material through the machine. Press drive start button and advance material into the machine about two stations on both the left and right side of the machine. Check the edge dimension against the profile drawing in the manual. See FIG.13-8 If adjustments need to be made, reverse the machine and back the material out of the machine. Make your adjustments to the entry guide. Trim the used piece off the end and reinsert into the entry guide. Advance the material through the first two stations and recheck your dimensions. Proceed by advancing the material through all the forming stations and stop. Reverse the machine and jog the material back approximately 2". Shut the machine off and observe all bending marks. All the stations should be bending on the same bend through out the entire forming operation. Adjust rails accordingly.

The shear is the last change over to be made. Remount the dies with the inserts for the new profile. Remount the bead roller assembly back into place. Realign all the entry die inserts with the material just fed through to the bead roller and align the exit dies with the material fed through to the entry dies. Refer to the chapter on the shear for further detail on alignment of the shear.
Recheck entire machine or loose bolts and jam nuts. Inspect the rest of the machine for worn components. Re-grease the shear blades before replacing the shear cover. Replace all other covers before running any product through the machine.

**ADDITIONAL INSTRUCTIONS FOR THE BERMUDA PANEL CHANGE-OUT**

There are two additional requirements to change-out to a bermuda profile. The right hand guide rod must be removed for this profile. To remove the guide rod loosen and remove nut "A" on all support studs to the right guide rod. See FIG 13-8 for nut location.

With the entry and exit dies removed, loosen and remove bolts "B" on the entry and exit bottom dies, remove and replace with the special bermuda bottom dies. See FIG 13-9 for bolt location. Refer to CHAPTER 10 for details on proper alignment of bottom dies.
### FIG# 13-3

**Hole for 5/32 Allen Wrench**

**ACME Rod**

### FIG# 13-4

<table>
<thead>
<tr>
<th>PANEL</th>
<th>&quot;E&quot;</th>
<th>&quot;F&quot;</th>
<th>&quot;G&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>FF100</td>
<td>3</td>
<td>15/16</td>
<td>3</td>
</tr>
<tr>
<td>SS100</td>
<td>3</td>
<td>3/4</td>
<td>1/2</td>
</tr>
<tr>
<td>SS150</td>
<td>3</td>
<td>3/4</td>
<td>1/2</td>
</tr>
<tr>
<td>SS200/SS210A</td>
<td>3</td>
<td>4</td>
<td>7/8</td>
</tr>
<tr>
<td>SS450</td>
<td>2.5</td>
<td>7/8</td>
<td>4</td>
</tr>
<tr>
<td>SS550</td>
<td>3</td>
<td>4.5</td>
<td>7/8</td>
</tr>
<tr>
<td>SS675</td>
<td>2.5</td>
<td>4.9</td>
<td>1.5</td>
</tr>
</tbody>
</table>

*Note: "E", "F", and "G" represent specific measurements or values for each panel type.*
FIG# 13-4A

<table>
<thead>
<tr>
<th>PANEL</th>
<th>&quot;E&quot;</th>
<th>&quot;F&quot;</th>
<th>&quot;G&quot;</th>
<th>&quot;H&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>BURMUDA 1&quot;</td>
<td>4 9/16</td>
<td>5 1/16</td>
<td>-1/4</td>
<td>4 7/8</td>
</tr>
<tr>
<td>BURMUDA 1 1/2&quot;</td>
<td>4 9/16</td>
<td>5 1/16</td>
<td>1/4</td>
<td>4 7/8</td>
</tr>
</tbody>
</table>

NOTE: "H" DIMENSION FOR OLDER MACHINES WITH A 1" SPACER BEHIND STATION #7 & #8 IS 5 3/8"
FIG 13-5

RIGHT SIDE OF MACHINE

"H"

RAIL #1 (RIGHT)

ALUM. MOUNT BARS

"L"

RAIL #2 (RIGHT)

"I"

FIG 13-6

RETURN DRUM

"R"

"P"

HOLE IN ENTRY GUIDE Aligns WITH SLOT IN INDICATOR BRACKET

INDICATOR BRACKET ATTACHED TO RAILS
FIG 13-7

SS150 STANDING SEAM
EDGE DIM FOR SS150

SS 550

EDGE DIM. FOR SS 550

SS200/SS 210A
EDGE DIM FOR SS200/SS 210A
FIG 13-7
CONT.

EDGE DIM. FOR SS675

BP BERMUDA PANEL
EDGE DIM FOR BP.

13" 
16

1/16 TO 1/4

1/16 TO 1/4

13/16

1/32
CHAPTER 15

COMPUTER SYSTEM INSTALLATION
FOR PREWIRE SET-UP
ON NEW TECH PANEL MACHINE

ORIENTATION OF MACHINE AND COMPUTER:

Before the computer is installed, location of three (3) areas is required.

1. ) The computer is mounted on the top exit panel of the panel machine. This panel is located just behind the engine and above the manual controls.

2.) The encoder is be located between the second (2) and third (3) drive assembly. The removal of the second (2), third (3), and fourth (4) top machine covers will be necessary.

3.) The electric eye will be installed on the shear.

INSTALLATION OF COMPUTER

1.) Disconnect the battery from the system before doing any installation.

2.) Start with the installation of the computer mount panel. This panel will be located directly behind the gas engine. Place the computer mount panel on top of the machine cover as shown on drawing. Set the mount cover flush with the back edges of the machine cover closes to the engine. Fasten the panel with four self starting screws. Be sure that the key holed slots are facing toward the exit end of the machine. These key holed slots are used to secure the computer to the machine.

3.) Next, remove the second, third, and fourth top panel machine covers. Proceed to install the encoder assembly as shown in the drawing. The bottom idler wheel is mounted with two (2) bolts. The mount holes are located on the bottom spreader bar. The encoder mount is secured with one (1) bolt mounted through the top spreader bar. With the encoder mount assembly hand tighten, and the encoder wheel resting on the bottom idler wheel, rotate the spring tension arm approximately 1/16 of a turn to preload the encoder wheel. DO NOT OVER ROTATE. Tighten pivot bolt.

Run the encoder wire through the machine so the end plug comes out between the shear and the manual control panel at the exit end of the machine. Wire tie the encoder wire in place. Be sure that the wire does NOT interfere with the path of the material being formed. Pay particular close attention around the encoder body, because the encoder wire is very close to the panel in this area.
4.) The electric eye assembly is the last assembly to be added. The eye is mounted to the shear die holder with two (2) screws. Feed the wire so that it runs down and under the shear. There are plug ends located just behind the shear and are numbered. Plug the electric eye into this wire harness. Be sure the wire is secured and away from the panel coming through the shear.

**WIRE DESIGNATION**

- BLACK is #75
- GREEN is #76
- RED is #77

5.) Connect the computer to the machine per instructions for the computer. Check all your wiring and installation before proceeding to the next instructions.

Reconnect the battery, start engine and turn on the computer. Follow the instructions for the computer operation. YOU MUST CALIBRATE THE COMPUTER BEFORE YOU CAN OPERATE THE COMPUTER CORRECTLY.

6.) Replaces all covers before operating your machine.
CHAPTER 16

DUAL REGISTER
ELECTRONIC
CONTROL

CONTROL PANEL OPERATION; PUSH-
BUTTON AND SELECTOR SWITCHES

SHEAR- Press the shear push-button to manually activate the shear. The MP450K will only allow this switch to operate when the machine is stopped.

HAND/AUTO- Select the HAND position to load a coil and to stop the machine. Select the AUTO position to start the machine after a job has been programmed.

JOG-FWD/REV- When the HAND/AUTO switch is in the HAND position, turn and hold the selector switch in the FWD position to jog material forward and turn and hold the switch in the REV position to jog material in reverse. This switch is inactive when the HAND/AUTO is in the AUTO position.

TO RESET COMPUTER- Place 'MANUAL/AUTO selector to manual and turn off the computer. Press & hold #5 key while turning the computer to on position. Begin calibration & programming.

KEYPAD

CAL- Press the CAL key to calibrate the MP450K to your machine. The calibration procedure will ensure accurate length parts. Also press the CAL key to display the footage totalizer. To reset the totalizer to zero, press the CE key when the footage is displayed, and then enter 1984 in response to the prompt "ENTER CODE TO CLEAR TOTAL".

*- Press the asterisk key when you have completed programming the desired quantities and lengths and want to exit the program mode.

PRG- Press the PRG key to program jobs in response to flashing prompts for the Job Number, Quantity, and Length.

ENT- Press the ENT key to store the values programmed for the Job Number, Quantity, and Length.
HOW TO CALIBRATE THE MP450K

The MP450K should be calibrated using the following procedure to ensure accurate length parts.

1.) Press the CAL key. Enter a part length (the longer the better) in response to the prompt "ENTER LENGTH FOR CAL:"

2.) After a calibration length has been entered, the MP450P will display "LOAD COIL, PRESS SHEAR BUTTON". With the HAND/AUTO switch in the HAND position, load a coil using the JOG switch and with material slightly past the shear, press the SHEAR button.

3.) The MP450K will display "SWITCH TO AUTO; LINE WILL START". Turn the HAND/AUTO switch to AUTO. The machine will start, produce one part to the calibration length, and stop automatically.

4.) Carefully measure the part produced and enter the measured part length in response to the prompt "ACTUAL MEASURED LENGTH:". The MP450K is now calibrated. Calibration should typically be required only once at the beginning of the day.

HOW TO LOAD A COIL

After the MP450K has been calibrated, additional coils can be loaded using the following procedure.

1.) Turn the HAND/AUTO switch to the HAND position.

2.) Use the JOG switch to load the coil into the machine and slightly past the shear.

3.) Push the SHEAR button to trim cut the leading edge of the coil and set the MP450K length counter to zero. The machine is now ready to produce parts.

HOW TO PROGRAM A JOB

Up to 50 different quantities and lengths can be programmed into the MP450K using the following procedure.

1.) Press the PRG key. The MP450K will display flashing prompts for "#" (Job Number), "QTY" (Quantity), and "Length" (Length).

2.) Enter a Job Number from 1 to 50.

3.) Enter a Quantity up to 999.

4.) Enter a length up to 999' 11.999".

5.) The MP450K will then flash the message "PAUSE AFTER JOB #XX" (where xx is the job number just programmed) followed by YES or NO. Pressing any numbered key will change the response between YES and NO. Enter NO if you want the machine to change lengths on-the-fly and run the following job without stopping. Enter Yes if you want the machine to halt automatically after this job. To restart the machine after an automatic halt, turn the HAND/AUTO switch to HAND position and then back to the AUTO position.
NOTE:

To increase productivity, additional jobs can be programmed on-the-fly while the machine is running previously programmed jobs.

**HOW TO START THE MACHINE**

To start the machine after a job has been programmed turn the HAND/AUTO switch to the Auto position. The machine can be halted at any time by turning the HAND/AUTO switch to the HAND position. The machine will halt automatically when all programmed jobs are completed.
CHAPTER 17

TRAILER

TRAILER SPECIFICATION;

Trailer is designed for a MAXIMUM towing weight of 12,000 Ibs. Use a 13,000 Ibs. capacity 2-5/16" hitch ball for towing the New Tech trailer.

SAFETY INSPECTION CHECK LIST

Before towing the trailer the operator should do a systematic inspection of the entire trailer.

1.) Before hooking the trailer to the towing vehicle inspect the ball hitch for excessive wear or damage. Be sure the ball hitch is tightly secured to the frame of the towing vehicle.

2.) Secure the trailer to the towing vehicle. Be sure to lock the hitch in place with an appropriate safety pin to keep the latch from releasing the ball hitch.

3.) Attach the safety chain securely to the frame of the towing vehicle. Inspect the safety chain and related components for wear or cracks that would allow the safety chain to fail when used.

4.) Attach the light and brake electric connector to the towing vehicle. With an aide of an assistant always check your complete light and braking system. Check your braking controller according to the controller specifications used on the towing vehicle.

5.) Check all tires before transporting the trailer. An improperly inflated tire can fail if not properly inflated.

6.) Check the entire trailer for loose components. Be sure everything is secure before traveling with the trailer.

7.) Check all four (4) swivel jacks to be sure they are in the retracted position and the safety pin is properly secured.

8.) Check the break away system to ensure that it is properly working. Pull the pin on the breakaway switch which will lock the wheels. Then attempt to pull out with the trailer. If you cannot move the trailer without causing the trailer wheels to skid from its present position, the breakaway system is working.
ADDITIONAL SAFETY INSPECTION:

1.) Periodically remove wheel hubs and inspect the brakes and bearing races for wear or damage. Replace and re-grease all bearing races and set bearing play in accordance to the trailer axle manufactures specification. Replace brake linings as needed in accordance to the break manufactures specification.

2.) Inspect and replace the tires in accordance to the tire manufacture. Replace with the properly rated tires.
OPERATION AND ADJUSTMENTS

1.) The clip relief rollers can be engaged or disengaged to fit the need of the user.

2.) To adjust the clip relief loosen the eccentric lock down screw "A" and place an 3/16 Alien wrench in the small hole at the one end of the eccentric shaft and rotate the top roller up or down to obtain the proper clip relief desired. See FIG 18-1. Retighten the set screw "A".

3.) The clip relief station can be transferred from one profile to the next. When changing rails be sure to use the correct spacer for each profile. See FIG 18-1 for correct spacer size.
FIG 18-1

CLIP RELIEF STATION

<table>
<thead>
<tr>
<th>PANEL</th>
<th>&quot;A&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>SS150</td>
<td>1/2&quot;</td>
</tr>
<tr>
<td>SS200/SS210R</td>
<td>1&quot;</td>
</tr>
<tr>
<td>SS550</td>
<td>1/2&quot;</td>
</tr>
<tr>
<td>SS675</td>
<td>1/2&quot;</td>
</tr>
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</table>

SPACER THICKNESS
EXPANDABLE ARBOR SET-UP SSP

SET-UP CHART

<table>
<thead>
<tr>
<th>PROFILE</th>
<th>&quot;B&quot;</th>
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<tbody>
<tr>
<td>FF100</td>
<td>7/8&quot;</td>
</tr>
<tr>
<td>SS100</td>
<td>1-3/16&quot;</td>
</tr>
<tr>
<td>SS150</td>
<td>11/16&quot;</td>
</tr>
<tr>
<td>SS200/210A</td>
<td>-3/16&quot;</td>
</tr>
<tr>
<td>SS450</td>
<td>-3/16&quot;</td>
</tr>
<tr>
<td>SS550</td>
<td>-1/16&quot;</td>
</tr>
<tr>
<td>SS675</td>
<td>-11/16&quot;</td>
</tr>
</tbody>
</table>

LEFT SIDE

STRAP FOR TRANSPORTING (NOT SUPPLIED)

RIGHT SIDE

POSITION "A" (16")

POSITION "B" (20")

CAP SCREWS "C"

THREADED NUT