

TITLE: WET MACHINE PRESS SECTION WEIGHTS AND FORMING PRESSURE CURVESAssignment

To determine the Tare Weight of the press section of each A/C pipe machine.

Summary

The actual Tare Weight of each A/C pipe machine was determined by individually weighing each press section against ring force gauges. The actual weights are as follows.

<u>A/C Pipe Plant</u>	<u>Press Weight, Tons</u>
Santa Clara 56	3.8
Hillsboro 57	4.1
Ambler 58	#1 Machine - 3.7 #2 Machine - 4.3
St. Louis 59	#1 Machine - 3.5 #2 Machine - 3.6
Riverside 60	12.3
Pilot Plant R&D	2.0

A series of graphs were prepared to show the total forming pressure at each plant. The Gauge Pressure vs. Nip Load in pounds per lineal inch of pipe length is recorded. These graphs can be used as guide lines to compare forming pressure within and between plants.

General

To establish guide lines for the forming pressures that should be used during pipe roll-up, it is necessary to know the Tare Weight of each machine. Using these guide lines, we can then compare the forming pressures within and between plants to assist the factories in optimizing manufacturing operations.

Before the Riverside plant was in operation, the plants had used a standard press weight of 3.8 tons for each machine (except 4.0 tons for St. Louis #1 Machine). This standard in actual practice gave incorrect results when the roll-up pressures between the plants were compared. Start-up of the Riverside plant, which has a radically

different press section, emphasized the importance of having correct forming pressure guide lines. The condition was also true with start-up of the #2 Machine at Ambler. It was not known just how closely the plant should follow other machine practices. Comparisons could be made in felt speeds, roll-up times, pipe thickness, etc., but the force applied during roll-up was only an estimation.

Using a common weight, there has been no way for the plants to compare starting and ending pressures during roll-up. Because of changes in formulations, machine speeds, making other pipe sizes, and special problems such as opening-up, the plants need a base to establish and adjust forming pressures. The new tare weights will establish guide lines so that valuable information may be exchanged between plants.

Machine Design

The anvil and press roll diameters and pressure cylinder area for each A/C pipe machine are as follows.

1. Plant 56, 57, 58 (both machines), and 59 (both machines), and the Pilot Plant machine with exceptions as noted.*

a. Anvil Roll Diameter	25-5/8"	
b. Press Roll Diameter	7 1/2"	
c. Press Roll Δ to Δ distance	7-5/8"	
d. No. of Dolly Roll Sections	5	2*
e. Dolly Roll Cylinder Diameter	8"	
f. Total Pressure Area	251 in. ²	100.4 in. ² *

2. Plant 60

a. Anvil Roll Diameter	30"
b. Press Roll Diameter	10 1/2"
c. Press Roll Δ to Δ distance	9 1/2"
d. No. of Pressure Cylinders	2
e. Pressure Cylinder Diameter	12"
f. Total Pressure Area	226 in. ²

Date October 17, 1967Forming Pressures

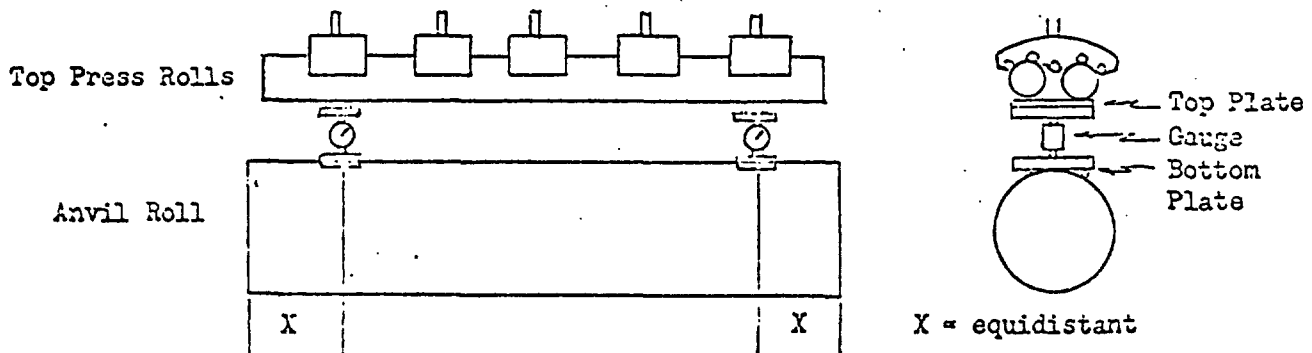
A series of curves were drawn for each plant, Graphs 1 through 6, that show the Gauge Pressure vs. the Nip Loading. The latter is expressed as pounds per lineal inch of the pipe length. Each curve was adjusted to include the base tare weight of the press section.

For any gauge pressure the pipe machines may be compared to the actual force that is being transferred to the pipe during roll-up. Conversely for a particular Nip force the Gauge pressure for each plant can be determined. The Tare Weights in Tons and the weight converted to Nip Loading for each machine are:

A/C Pipe Plant	Press Section Tare Weight Tons		Tare Nip Pressure Lbs./in. pipe length	
	#1 Mach.	#2 Mach.	#1 Mach.	#2 Mach.
Santa Clara 56	3.8		47.8	
Hillsboro 57	4.1		51.6	
Ambler 58	3.7	4.3	46.5	54.1
St. Louis 59	3.5	3.6	44.0	45.3
Riverside 60	12.3		154.7	
Pilot Plant R&D	2.0		148.1	

Weighing Procedure

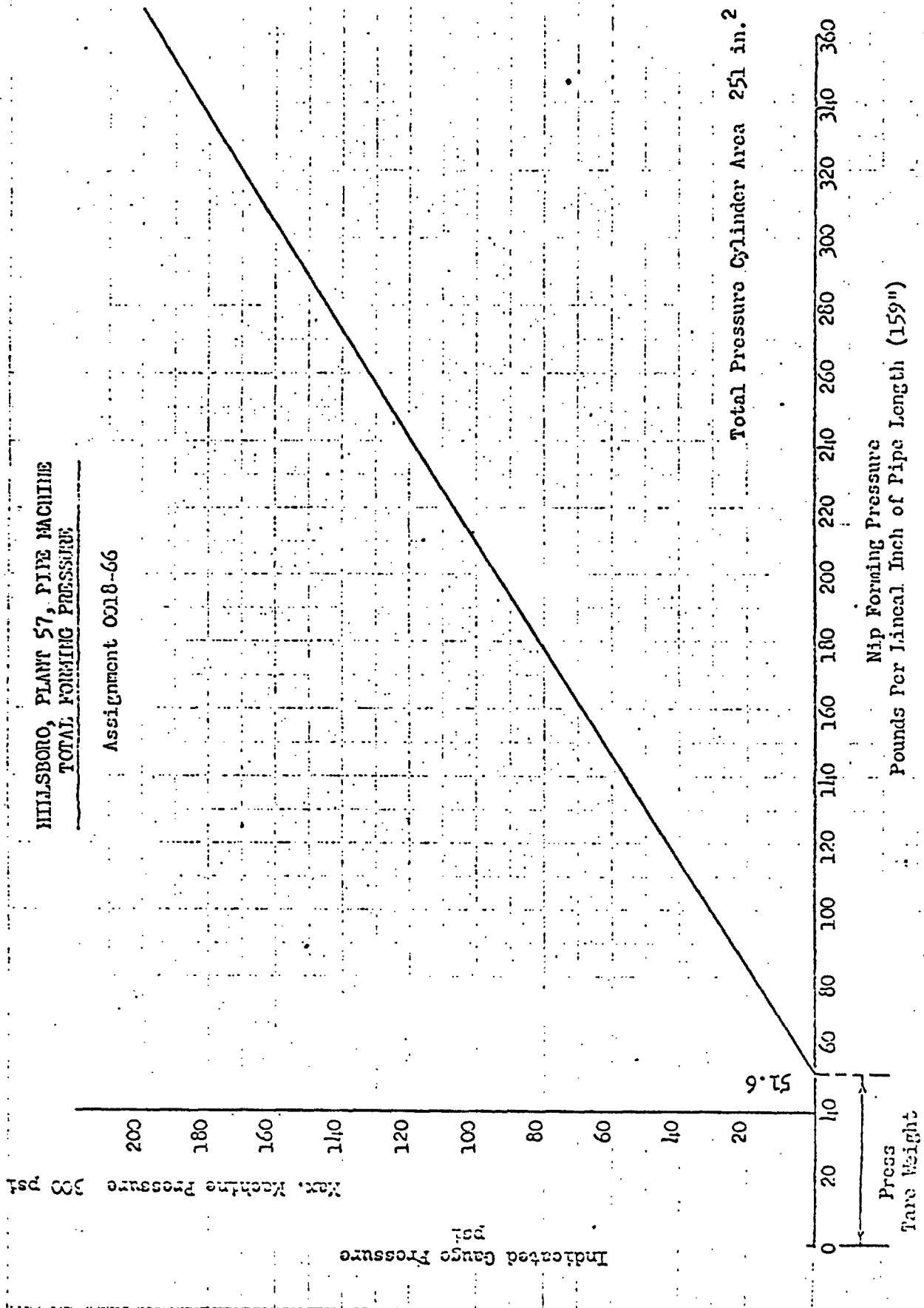
The "dead" weight of each pipe machine was measured by supporting the press section on two force ring gauges and recording the total weight. Two 20,000 pound gauges were used for this purpose and shipped to each plant. The sketch shows the arrangement of the gauges at the nip.



Note: Riverside Press configuration is different.

HILLSBORO, PLANT 57, PIPE MACHINE TOTAL FORMING PRESSURE

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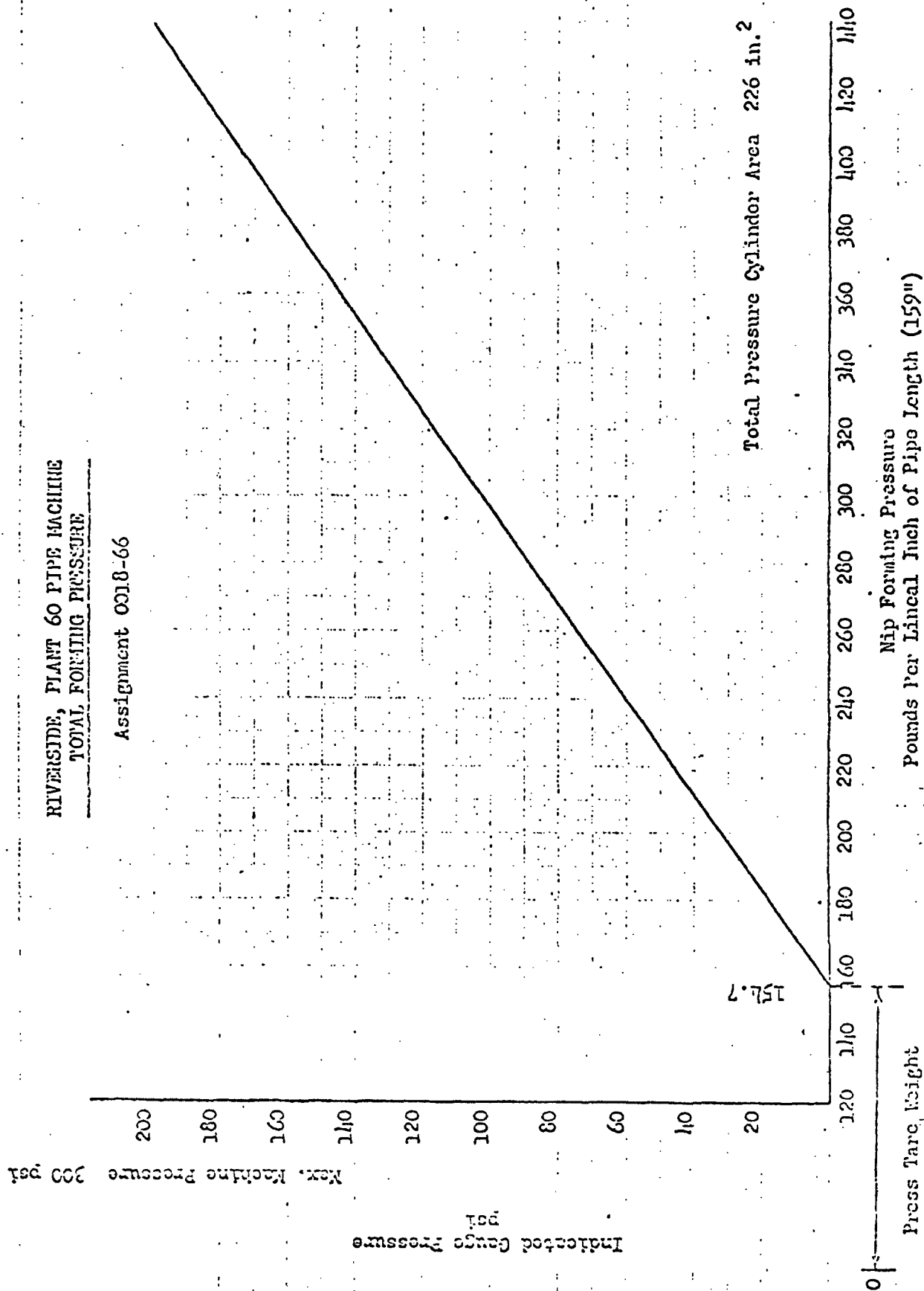


Graph 2

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**RIVERSIDE, PLANT 60 PIPE MACHINE
TOTAL FORMING PRESSURE**

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Graph 5

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