



LIFTING WITH A AMERICAN GUY DERRICK

LIFTING A HEATER SECTION

USING

FOUR REAR WORKING GUYS

HEATER SECTION

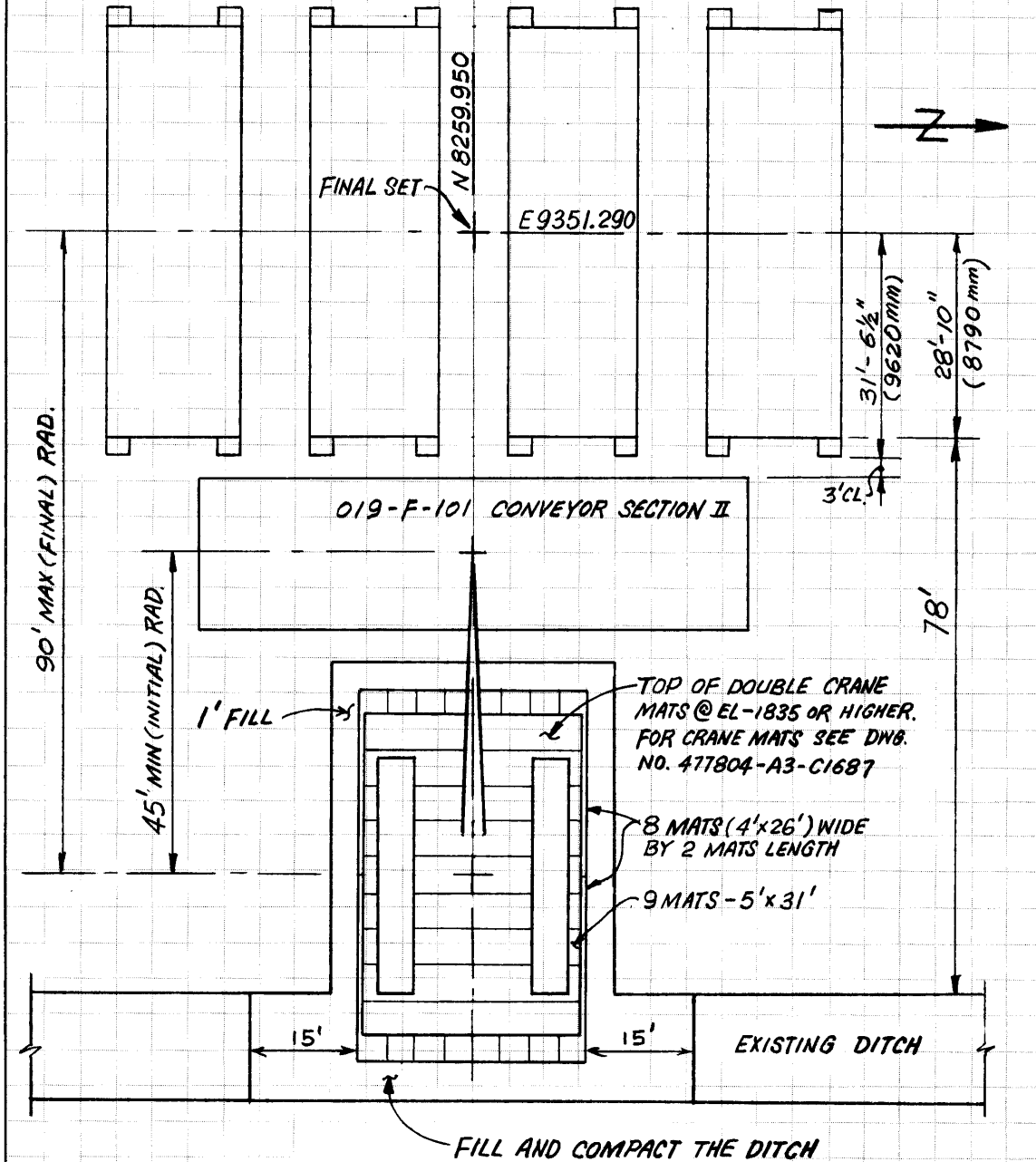
LIFT DATA

21' wide x 40' high x 80' long x 275 tons)

THE DESIGN

(SEE FOLLOWING 9 SLIDES)

PLOT PLAN



1- AM11320 GUY DERRICK CRANE

94 H BOOM w/ 400 TON LOAD BLOCK ALL HEAVY SECTIONS

USE 180 FT. BOOM & 200 FT. MAST

MIN. (INITIAL) RAD. = 45 FT.

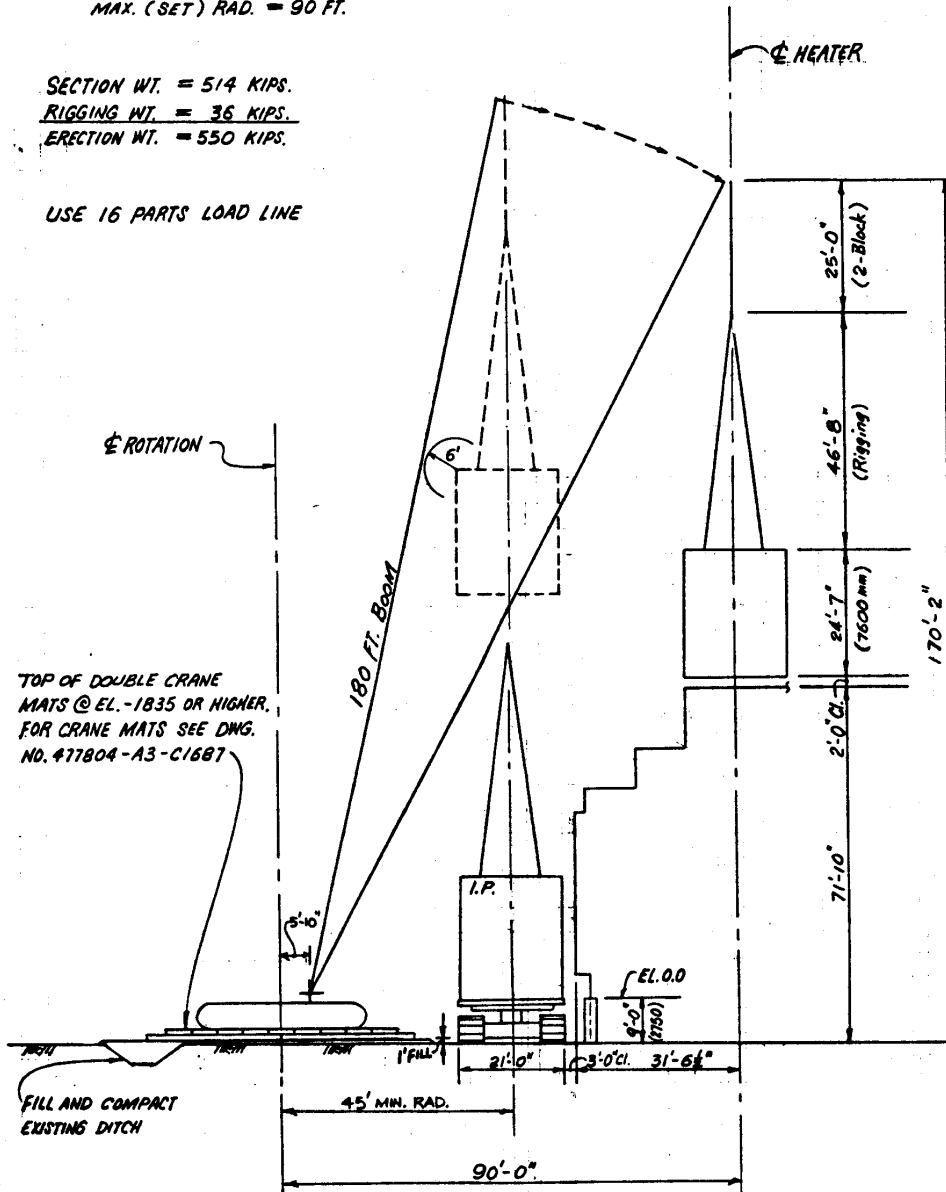
MAX. (SET) RAD. = 90 FT.

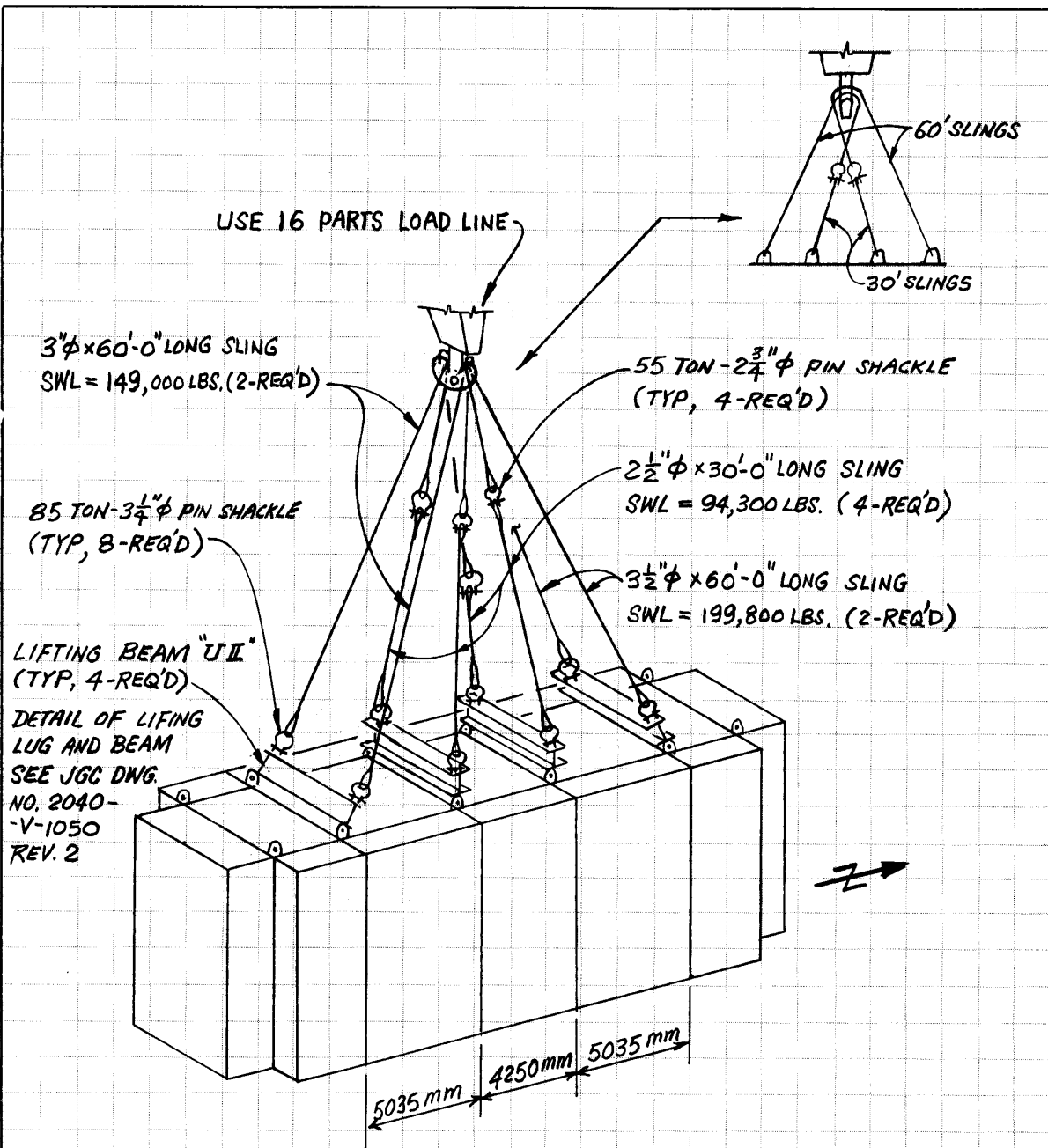
SECTION WT. = 514 KIPS.

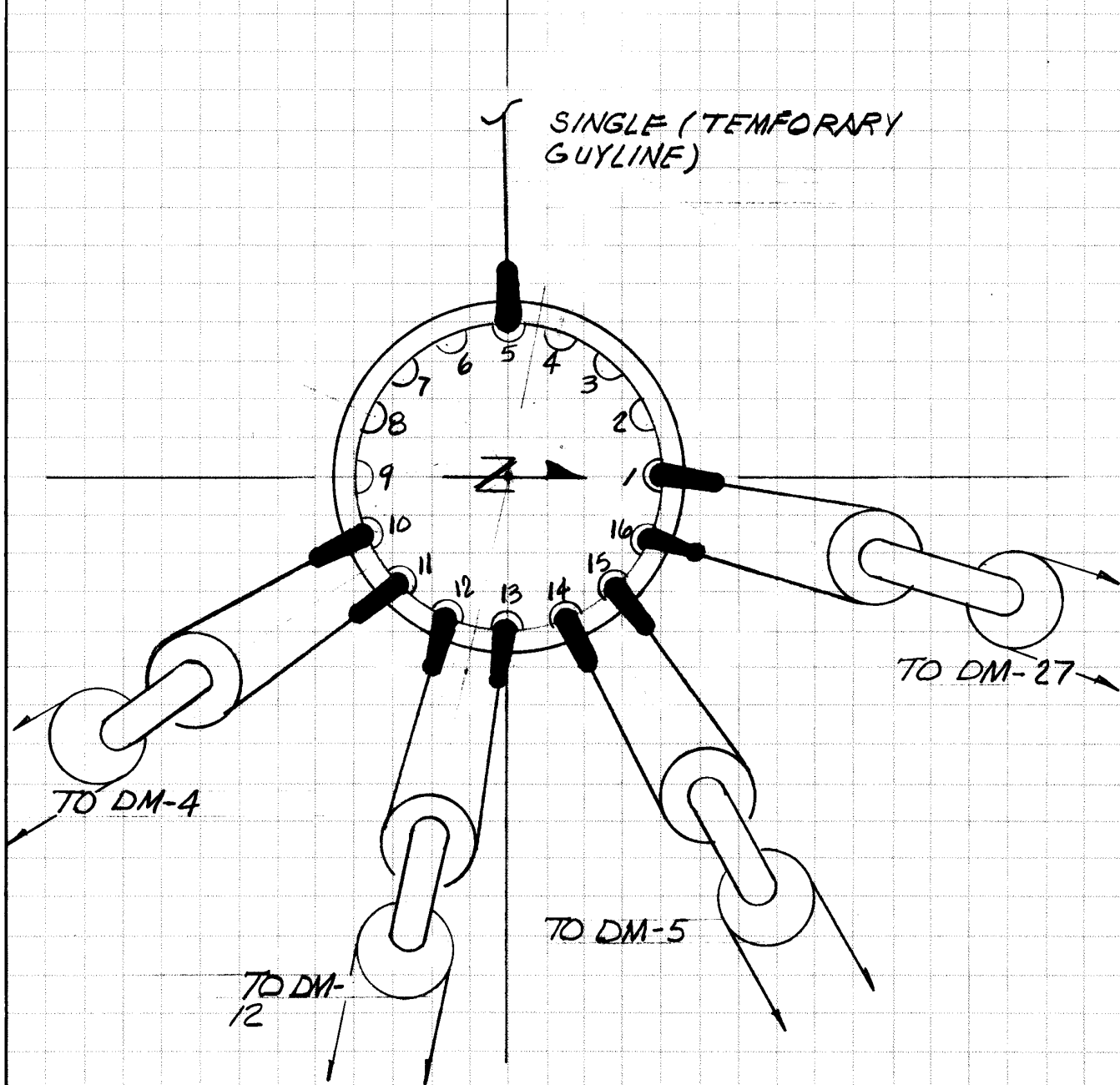
RIGGING WT. = 36 KIPS.

ERECTION WT. = 550 KIPS.

USE 16 PARTS LOAD LINE





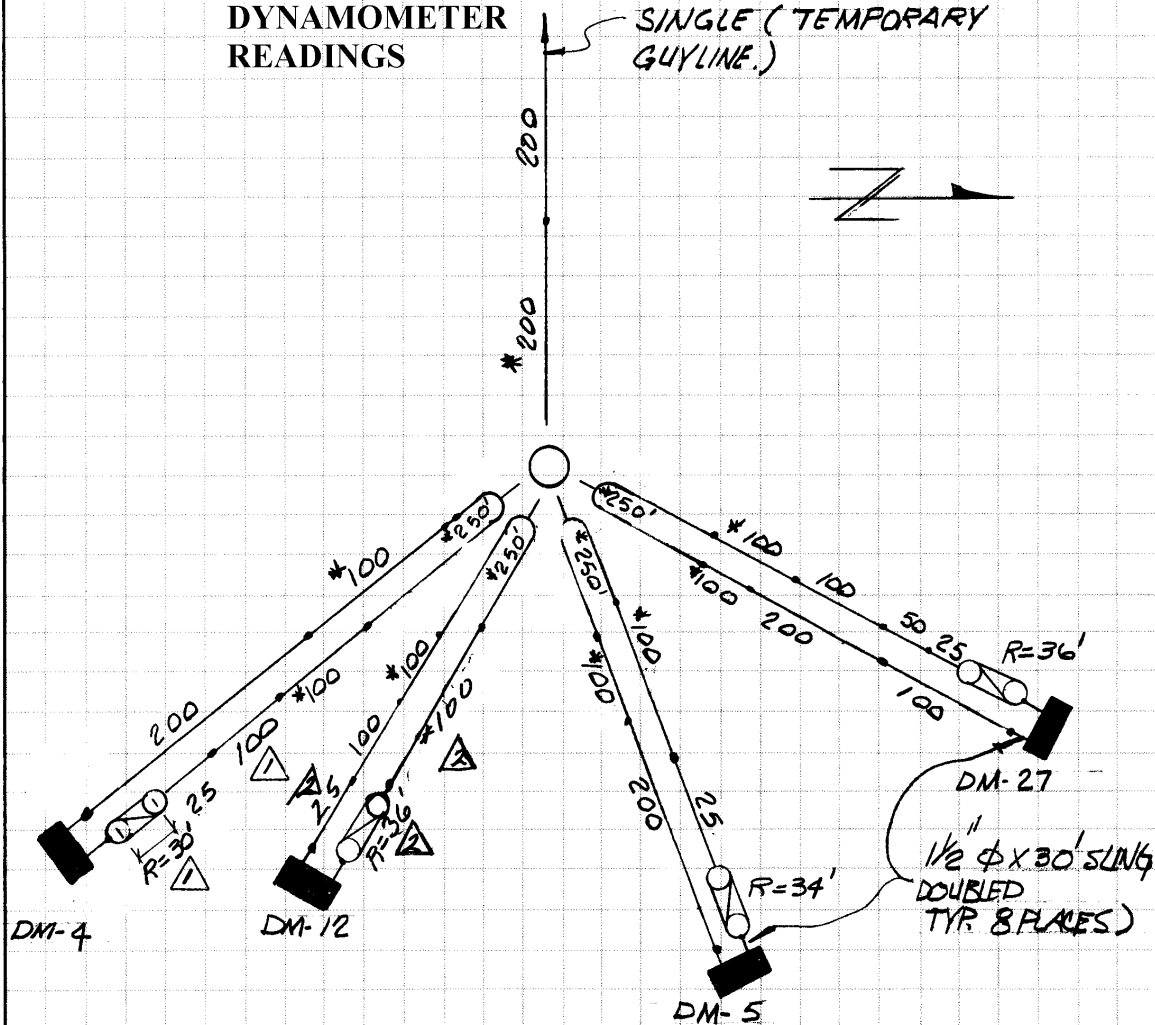


MAST CAP HOOK-UP

	DEADMAN			
	4	12	5	27
LOAD FLOATING AT I.P.	3400 lbs	4400 LBS	4050 LBS	2750 LBS
MAXIMUM AT SET	5800 lb	8150 LBS	7750 LBS	4650 LBS

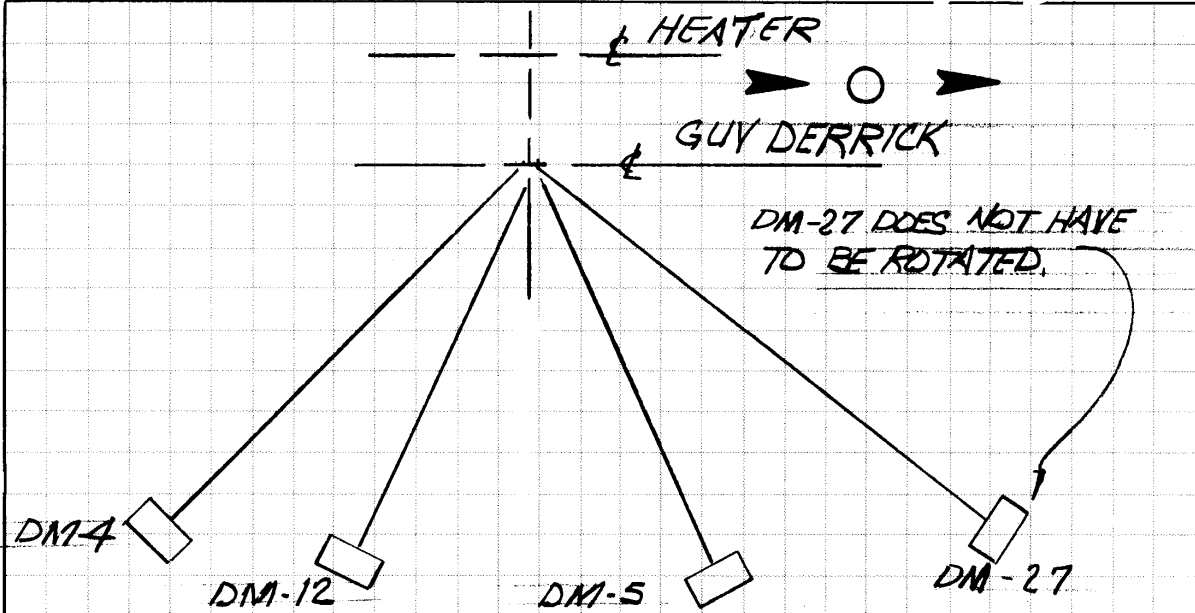
DYNAMOMETER READINGS

SINGLE (TEMPORARY GUYLINE.)



GUYLINE CONFIGURATION

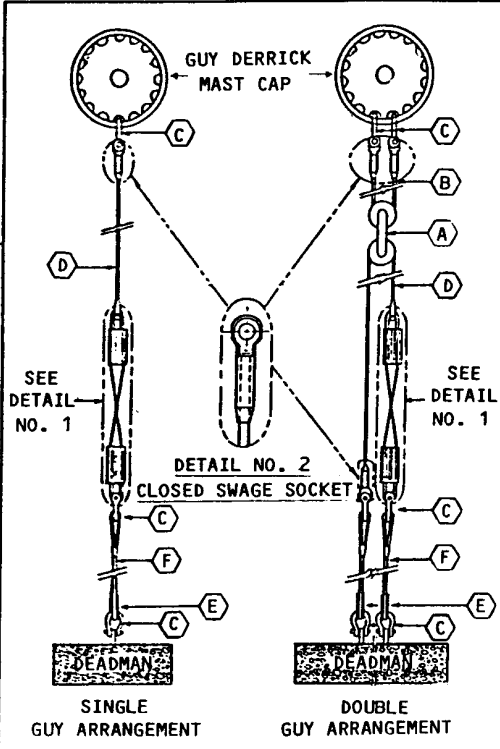
&
DYNAMOMETER READINGS.



DEADMEN LOCATIONS

	NORTH COORD	EAST COORD	TYPE	DEPARTURE ANGLE
GUY DERRICK DEADMAN	8259.95	9378.72		
# 4	8181.26	9459.44	DBL	27°
12	8227.931 AZMITH = 294.7°	9448.245	"	38°
5	8300.20	9465.04	"	31°
27	8370.75	9463.40	"	21°

AM GUY DERRICK LIFTS



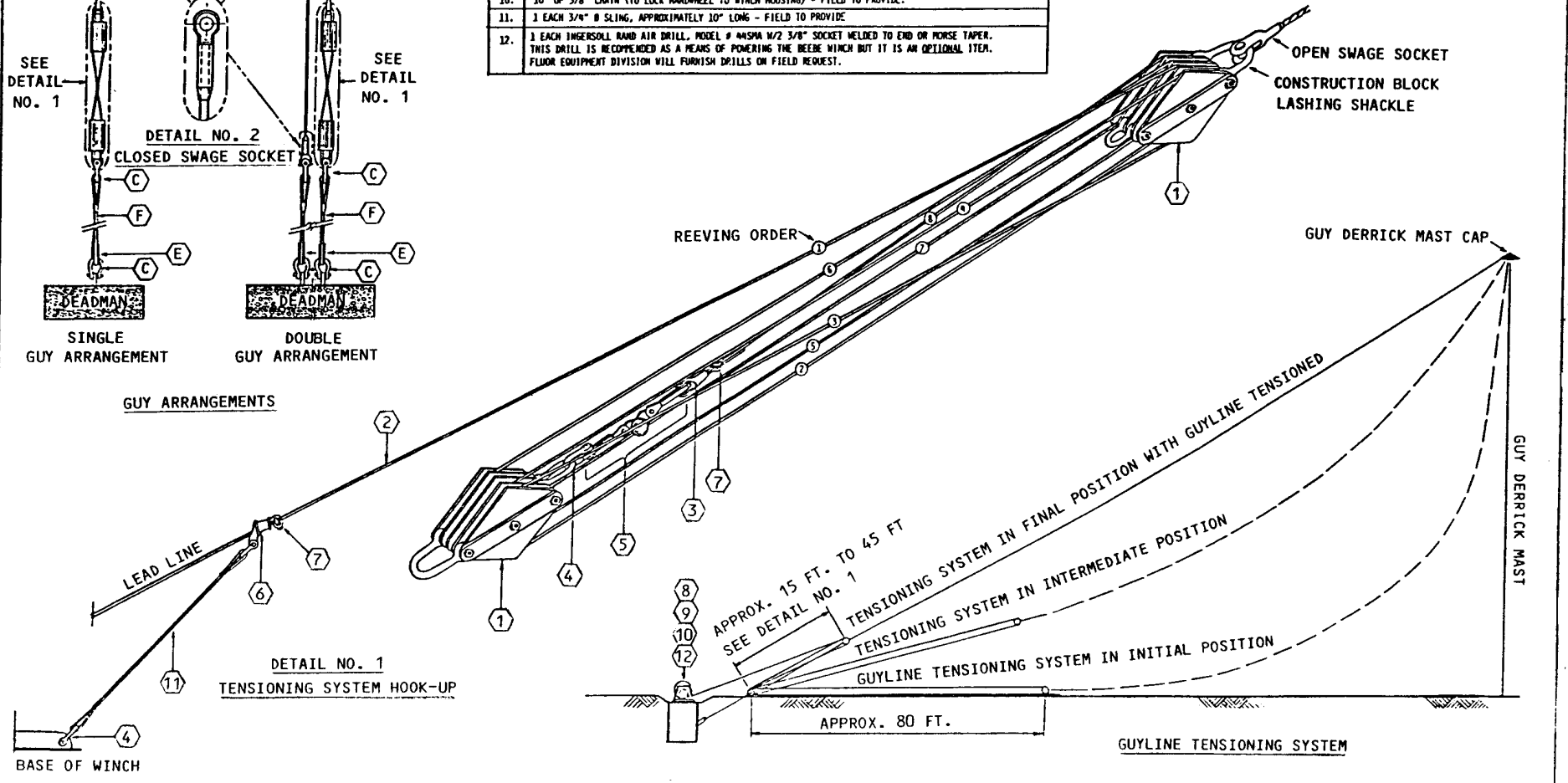
ITEM	TENSIONING SYSTEM HARDWARE (ONE SET)
1.	2 EACH CONSTRUCTION BLOCK, 40 TON CAPACITY, 1 1/2" Ø FOUR SHEAVE, 3/4" WIRE SIZE, LASHING SHACKLE AND BECKET SHACKLE, MCRISSICK #724 OR EQUIVALENT
2.	1 EACH WIRE ROPE, 3/4" Ø 1 P.S., I.W.R.C., 6 X 19, 700' FOR 20 1/2" DRUM WIDTH, 1200' FOR 41" DRUM WIDTH
3.	1 EACH OPEN WEDGE SOCKET, 3/4" WIRE SIZE
4.	2 EACH 1" Ø PIN SHACKLE
5.	1 EACH BILLOW DYNAMOMETER 2 EACH BILLOW OVERSIZED
6.	1 EACH CONTINUOUS CABLE (USED AS BACKUP FOR HANG)
7.	2 EACH CROSBY CLIP, 3/4" WIRE ROPE SIZE - FIELD TO PROVIDE
8.	1 EACH WINCH, WITH HANDWHEEL, TIGHTENING CAPACITY 20 TON, HOLDING CAPACITY 50 TON, GEAR RATIOS 5:1 AND 66:1, 3/4" WIRE ROPE SIZE. BEBE #50 L
9.	1 EACH PADLOCK, WITH 1/4" Ø SHANK - FIELD TO PROVIDE
10.	10' OF 3/8" CHAIN (TO LOCK HANDWHEEL TO WINCH HOUSING) - FIELD TO PROVIDE.
11.	1 EACH 3/4" Ø SLING, APPROXIMATELY 10" LONG - FIELD TO PROVIDE
12.	1 EACH TIMBERSOLL RAND AIR DRILL, MODEL # 4454A W/2 3/8" SOCKET WELDED TO END OR FORSE TAPER. THIS DRILL IS RECOMMENDED AS A MEANS OF POWERING THE BEBE WINCH BUT IT IS AN OPTIONAL ITEM. FLUOR EQUIPMENT DIVISION WILL FURNISH DRILLS ON FIELD REQUEST.

ITEM	GUY ARRANGEMENT HARDWARE
A.	2" DOUBLE EQUALIZING SHEAVE
B.	1-1/2" Ø X 10" SLING WITH CLOSED SWAGE SOCKET EACH END
C.	2-1/4" Ø PIN SHACKLE, 35 TON CAPACITY 3-FOR EACH SINGLE GUY ARRANGEMENT

NOTE: SEE THE FOLLOWING PAGE FOR TENSIONING SYSTEM HARDWARE AND GUY ARRANGEMENT HARDWARE.

ROPE: (CROSBY 6A19)

1 FOR EACH SINGLE GUY
2 FOR EACH DOUBLE GUY
NOTE: 50' LENGTH IS STANDARD. ANY DEVIATION WILL BE SHOWN ON THE GUY DERRICK SET-UP DRAWING.



REV	DATE	DESCRIPTION	BY	CHKD	APP'D	DATE
2	2/23	GENERAL REVISION				

W. GOODMAN
K. NILSSON
E. GOODMAN

GUYLINE TENSIONING SYSTEM

EXHIBIT 1

GUYLINE TENSIONING SYSTEM HARDWARE LIST
FROM DRAWING EXHIBIT 1

ITEM	TENSIONING SYSTEM HARDWARE (ONE SET)
1	2 EACH CONSTRUCTION BLOCK, 40 TON CAPACITY, 14"Ø FOUR SHEAVE, 3/4" WIRE SIZE, LASHING SHACKLE AND BECKET SHACKLE, MCKISSICK OR EQUIVALENT.
2	1 EACH WIRE ROPE, 3/4"Ø I.P.S., I.W.R.C. 6 X 19, 700' FOR 20 1/2" DRUM WIDTH, 1200' FOR 41" DRUM WIDTH
3	1 EACH OPEN WEDGE SOCKET, 3/4" WIRE SIZE.
4	2 EACH 1" Ø PIN SHACKLE, 6/12 TON CAPACITY-FIELD TO PROVIDE.
5	1 EACH DILLON DYNAMOMETER, 5 TON CAPACITY, 5" DIAL #802007-8 2 EACH DILLON OVERSIZED SHACKLES W/PIN #201107.
6	1 EACH CONTINUOUS CABLE CLAMP, 3/4" WIRE ROPE SIZE, SAUERMAN #CC-4191, PIN #P-3404, SHACKLE #C-4229 (USED AS BACKUP FOR HAND WINCH).
7	2 EACH CROSBY CLIP, 3/4" WIRE ROPE SIZE-FIELD TO PROVIDE.
8	1 EACH WINCH, WITH HANDWHEEL, TIGHTENING CAPACITY 20 TON, HOLDING CAPACITY 50 TON, GEAR RATIOS 5:1 AND 66:1, 3/4" WIRE ROPE SIZE. BEEBE #50 L.
9	1 EACH PADLOCK, WITH 1/4" Ø SHANK-FIELD TO PROVIDE
10	10' OF 3/8" CHAIN (TO LOCK HANDWHEEL TO WINCH HOUSING) -FIELD TO PROVIDE.
11	1 EACH 3/4"Ø SLING, APPROXIMATELY 10' LONG-FIELD TO PROVIDE.
12	1 EACH INGERSOLL RAND AIR DRILL, MODEL #44SMA W/2 3/8" SOCKET WELDED TO END OF MORSE TAPER. THIS DRILL IS RECOMMENDED AS A MEANS OF POWERING THE BEEBE WINCH BUT IT IS OPTIONAL ITEM. FLUOR EQUIPMENT WILL FURNISH DRILLS ON FIELD REQUEST.
ITEM	GUY ARRANGEMENT HARDWARE
A	24" DOUBLE EQUALIZING SHEAVE
B	1 1/2"Ø X 10' SLING WITH CLOSED SWAGE SOCKET EA. END
C	2-1/4"Ø PIN SHACKLE, 35 TON CAPACITY 3 FOR EACH SINGLE GUY ARRANGEMENT 6 FOR EACH DOUBLE GUY ARRANGEMENT
D	1 1/2"Ø GUYLINE SECTION (TYPICAL)
E	EXTRA HEAVY WIRE ROPE THIMBLES FOR 1-1/2"Ø WIRE ROPE (CROSBY 6414) 1 FOR EACH SINGLE GUY 2 FOR EACH DOUBLE GUY
F	1-1/2"Ø X 50' SLING (DOUBLED) W/BIGHT AT DEADMAN 1 FOR EACH SINGLE GUY 2 FOR EACH DOUBLE GUY
	NOTE: 50' LENGTH IS STANDARD. ANY DEVIATION WILL BE SHOWN ON THE GUY DERRICK SET-UP DRAWING.

GUY DERRICK PROCEDURE

1. Walk Guy Derrick into place on the mats and level as required. Level in the transvers direction is very critical.
2. With the mast tip one ft. forward of the center of rotation, the boom at approximately a 60° angle and pointed west, pull the temporary guy out with a CAT (977 minimum size) until the mast tip starts to move forward.
3. Boom up to minimum radius of 45 ft.
4. Hook up to load and take a slight strain but do not pull the mast tip further than 18" forward of center.
5. Slack off on temporary guy.
6. String out rear guys, keeping the mast tip within 8" of the center of rotation, side to side.
7. Take up on the load as required to keep the mast tip within 18" of the center of rotation front to back.
8. When all tensioning blocks are clearing the ground, slack off on mast suspension.
9. Take up on the load and the guylines until the convection section floats. At this point the mast tip should be centered over the center of rotation $\pm 1/2$ " and the dynamometers should read per table on sheet 5 .

CAUTION: During the tensioning operation the boom must be adjusted as necessary to keep the tip centered over the load and the load must be secured to keep it from drifting in or out when it floats.

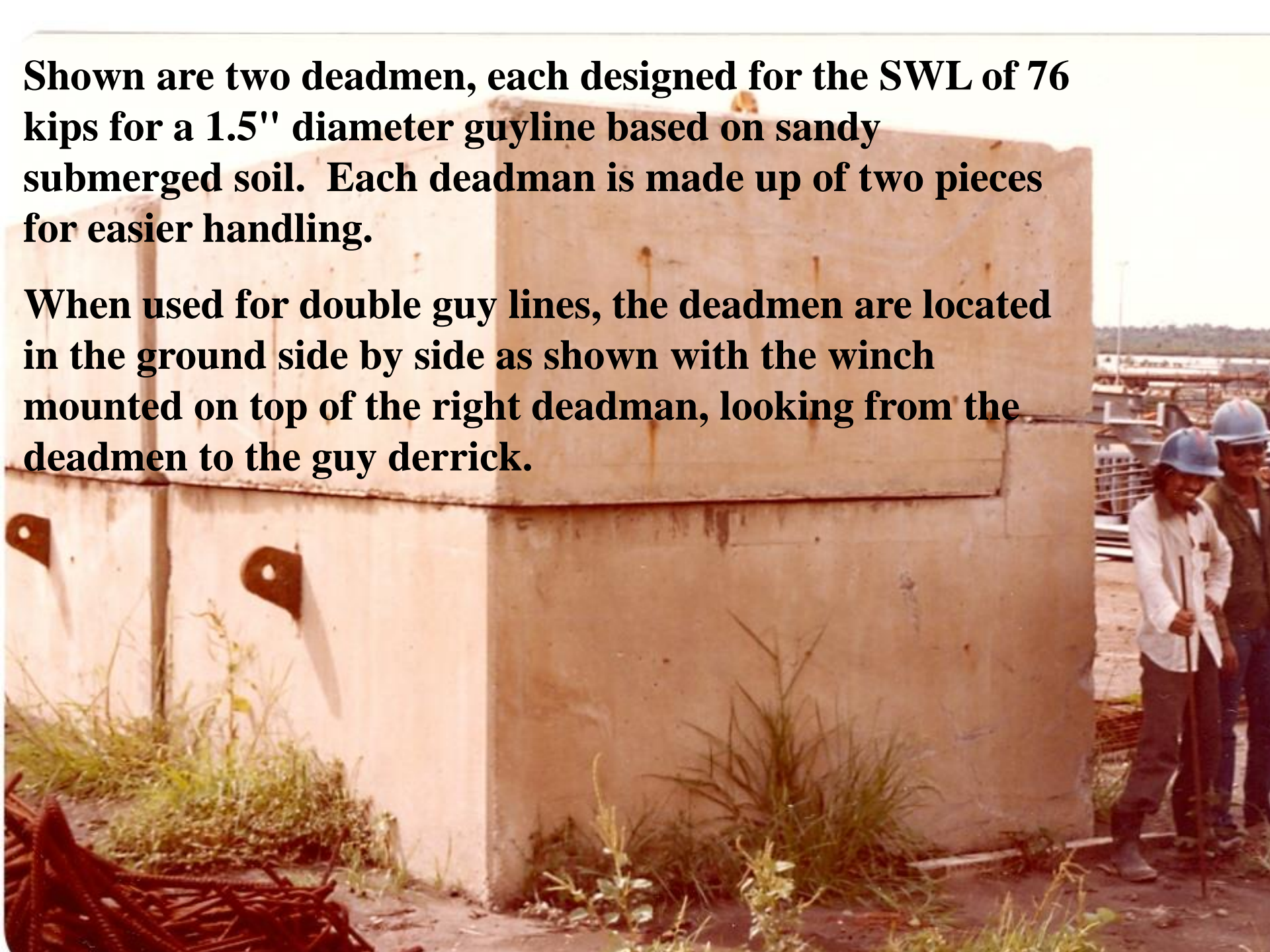
ERECTION PROCEDURE

1. Hook up tag lines.
2. Hoist load and boom out as required to set position.
3. Maximum side deflection is 4". Adjust if necessary.
4. Touch load down.
5. Slowly release the load and boom down to keep the boom tip centered over the load until the mast tip is over the center of rotation.
6. Slack off on the guylines and the load (keeping the mast tip over the center of rotation) until the tensioning blocks are just clearing the ground.
7. Tighten the mast suspension (just snug).
8. Unhook guylines.
9. Unhook from the load.

**PHOTOS
OF THE
ACTUAL LIFT**

Shown are two deadmen, each designed for the SWL of 76 kips for a 1.5" diameter guyline based on sandy submerged soil. Each deadman is made up of two pieces for easier handling.

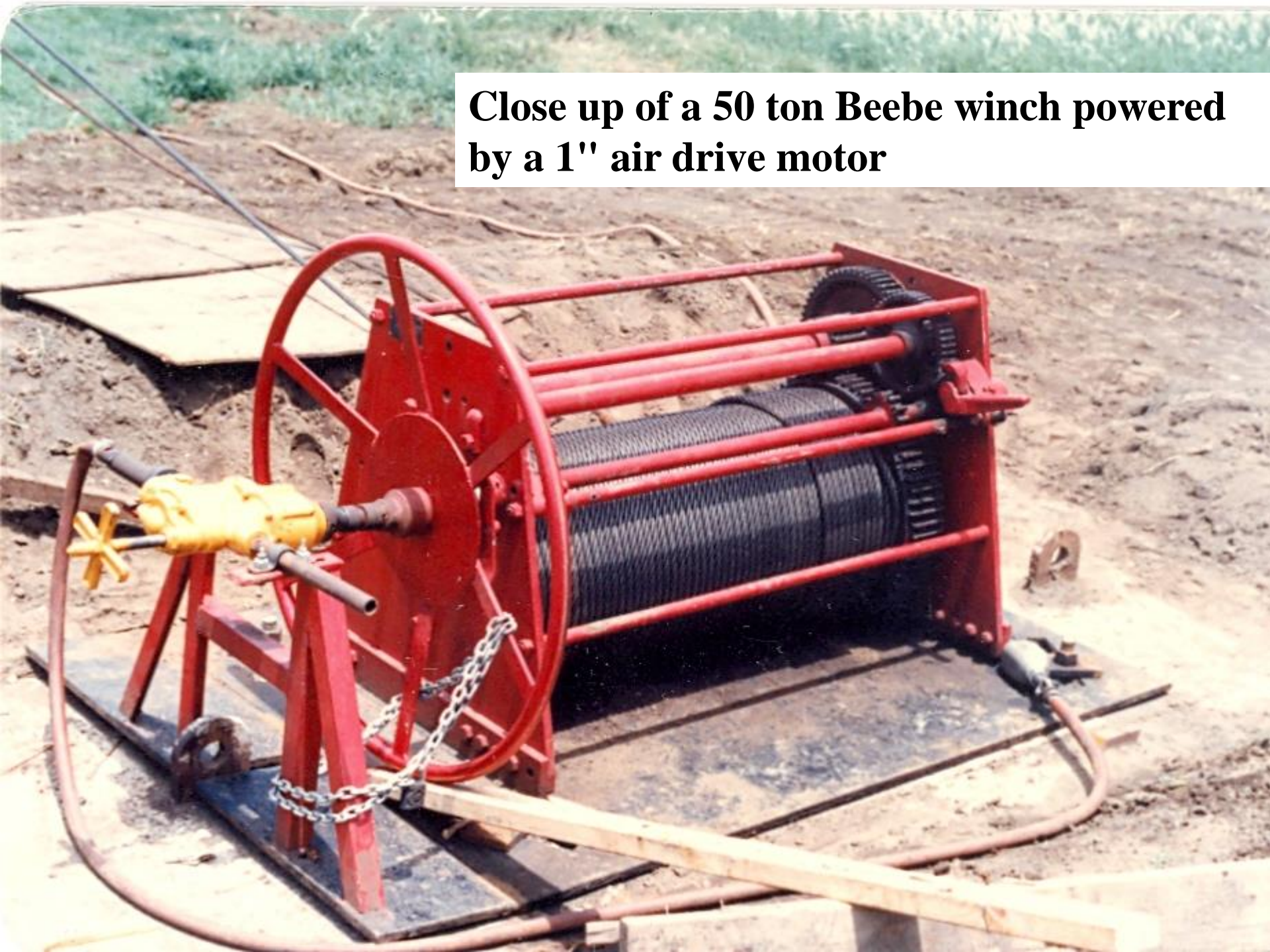
When used for double guy lines, the deadmen are located in the ground side by side as shown with the winch mounted on top of the right deadman, looking from the deadmen to the guy derrick.



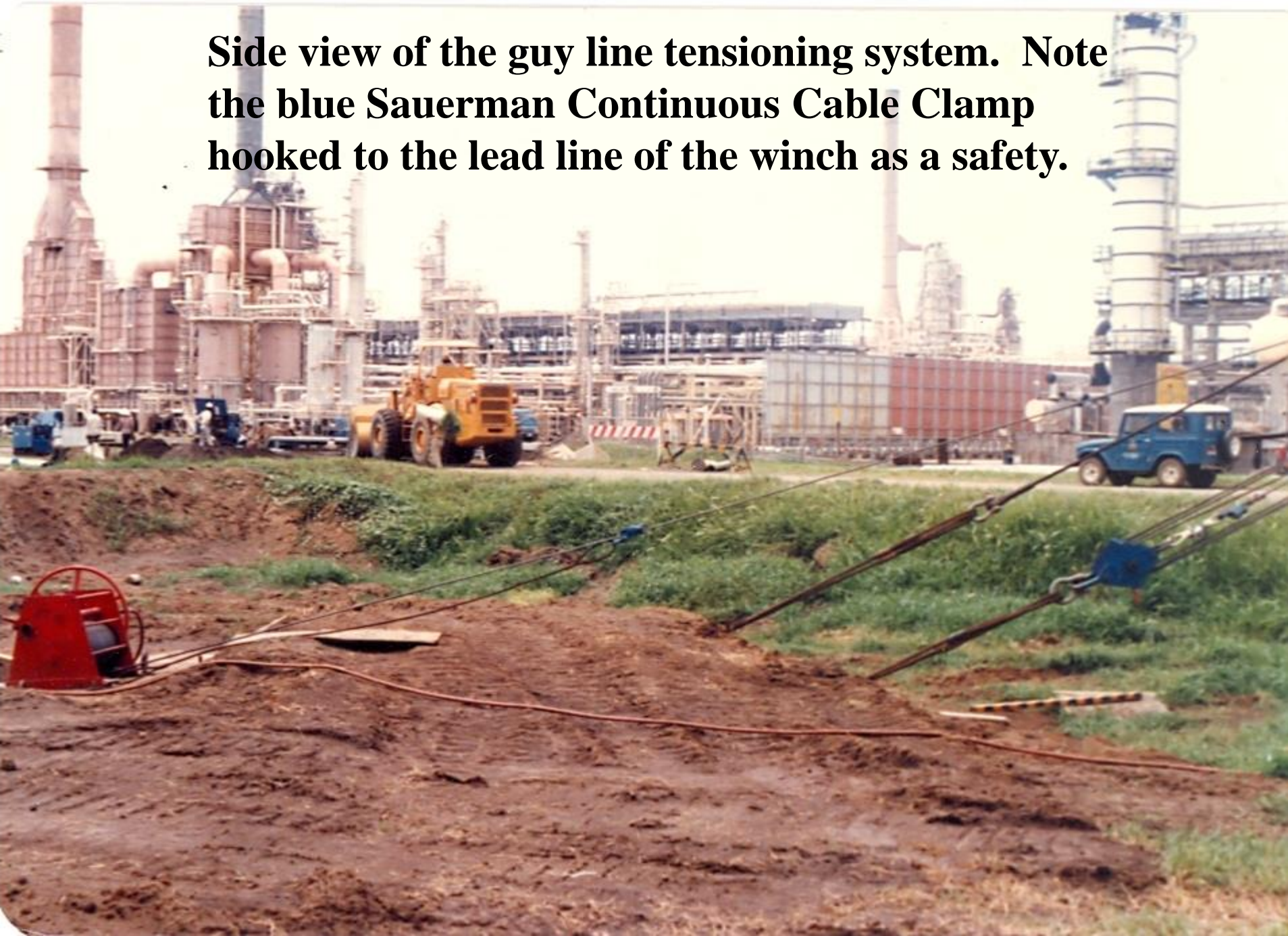


Two deadmen for a double guy line with the winch mounted on the right deadman

Close up of a 50 ton Beebe winch powered by a 1" air drive motor



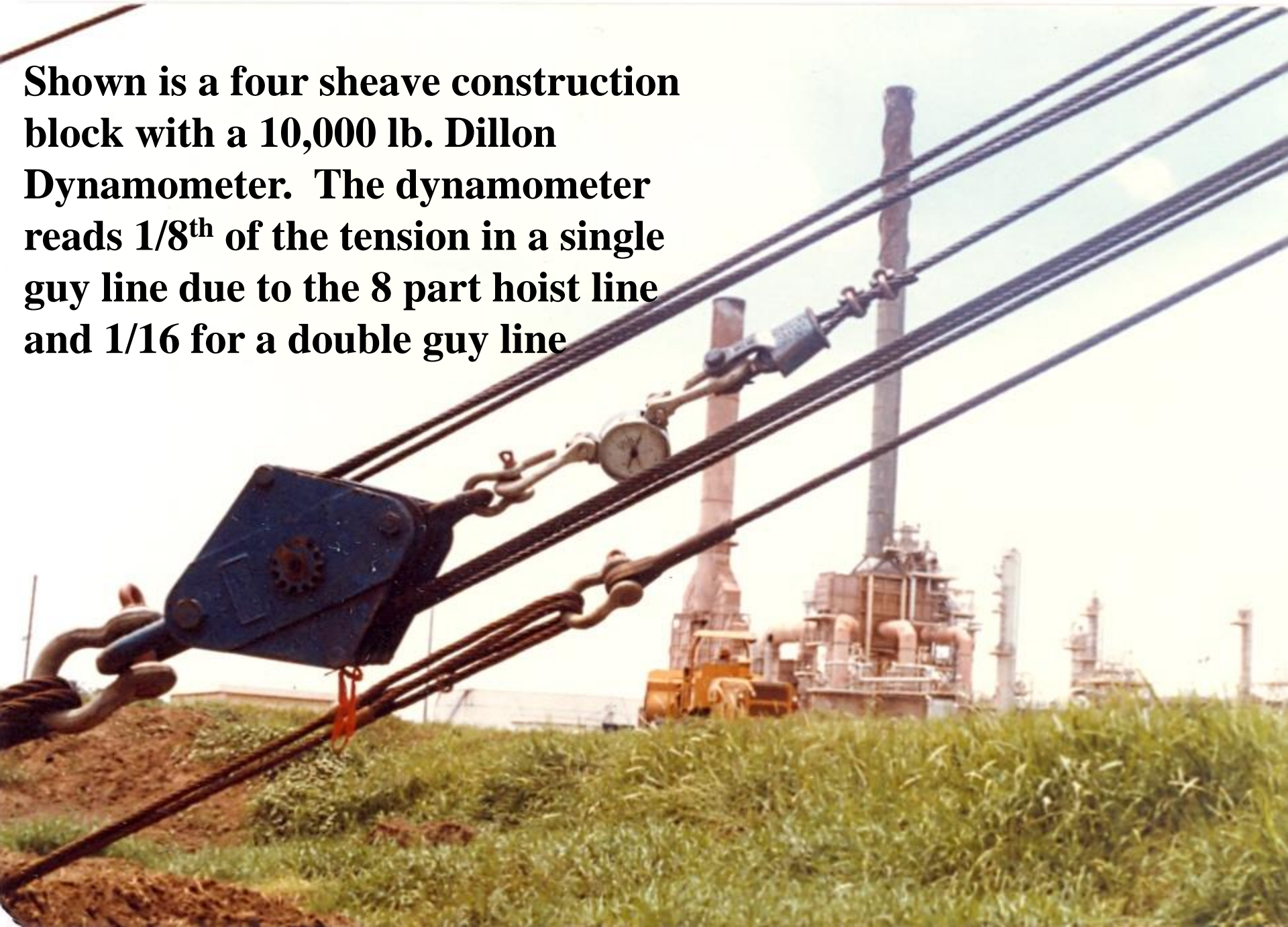
Side view of the guy line tensioning system. Note the blue Sauerman Continuous Cable Clamp hooked to the lead line of the winch as a safety.



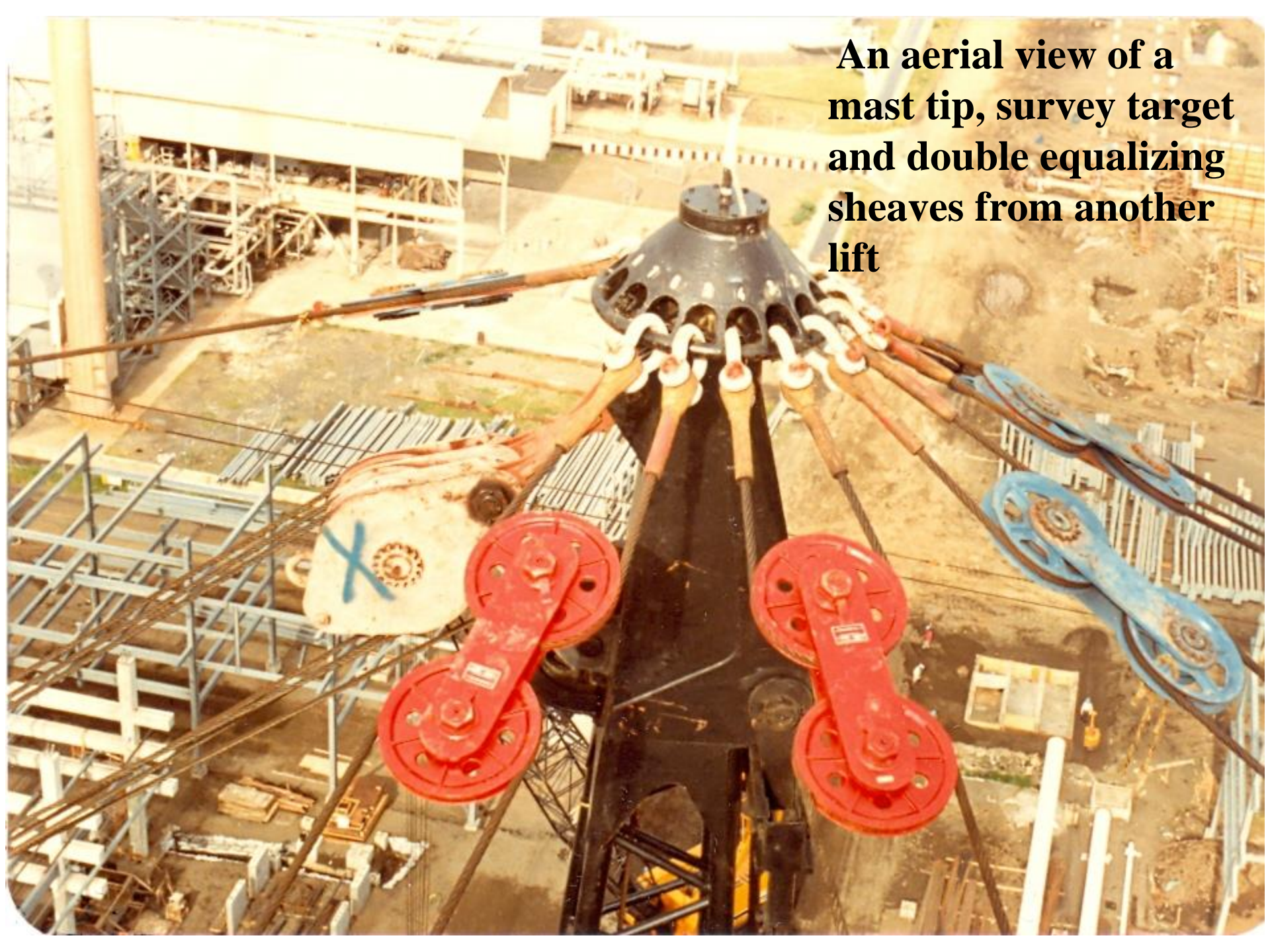
A sling runs from the Sauerman clamp to a lug on the winch.



Shown is a four sheave construction block with a 10,000 lb. Dillon Dynamometer. The dynamometer reads 1/8th of the tension in a single guy line due to the 8 part hoist line and 1/16 for a double guy line



An aerial view of a mast tip, survey target and double equalizing sheaves from another lift





**Cranes stringing out the
four doubled working
guy lines**

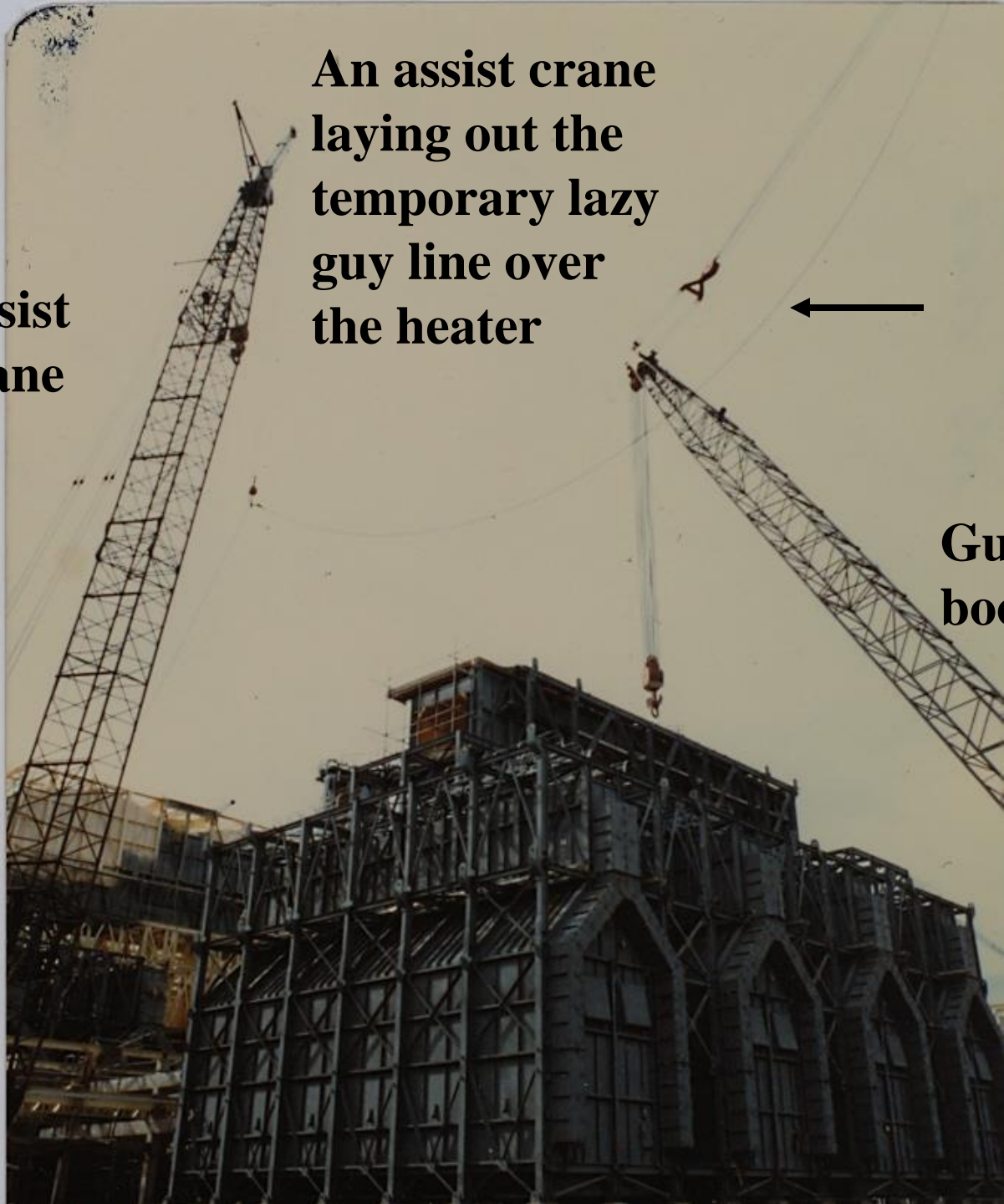
**The American 11320 Guy
Derrick is shown at the
right**

**American 11320 Guy
Derrick set up on
double layer of crane
mats**



**Note the chocks
behind the tracks and
the $\frac{1}{2}$ " x 6" x 6"
angles lagged to each
side of the tracks**



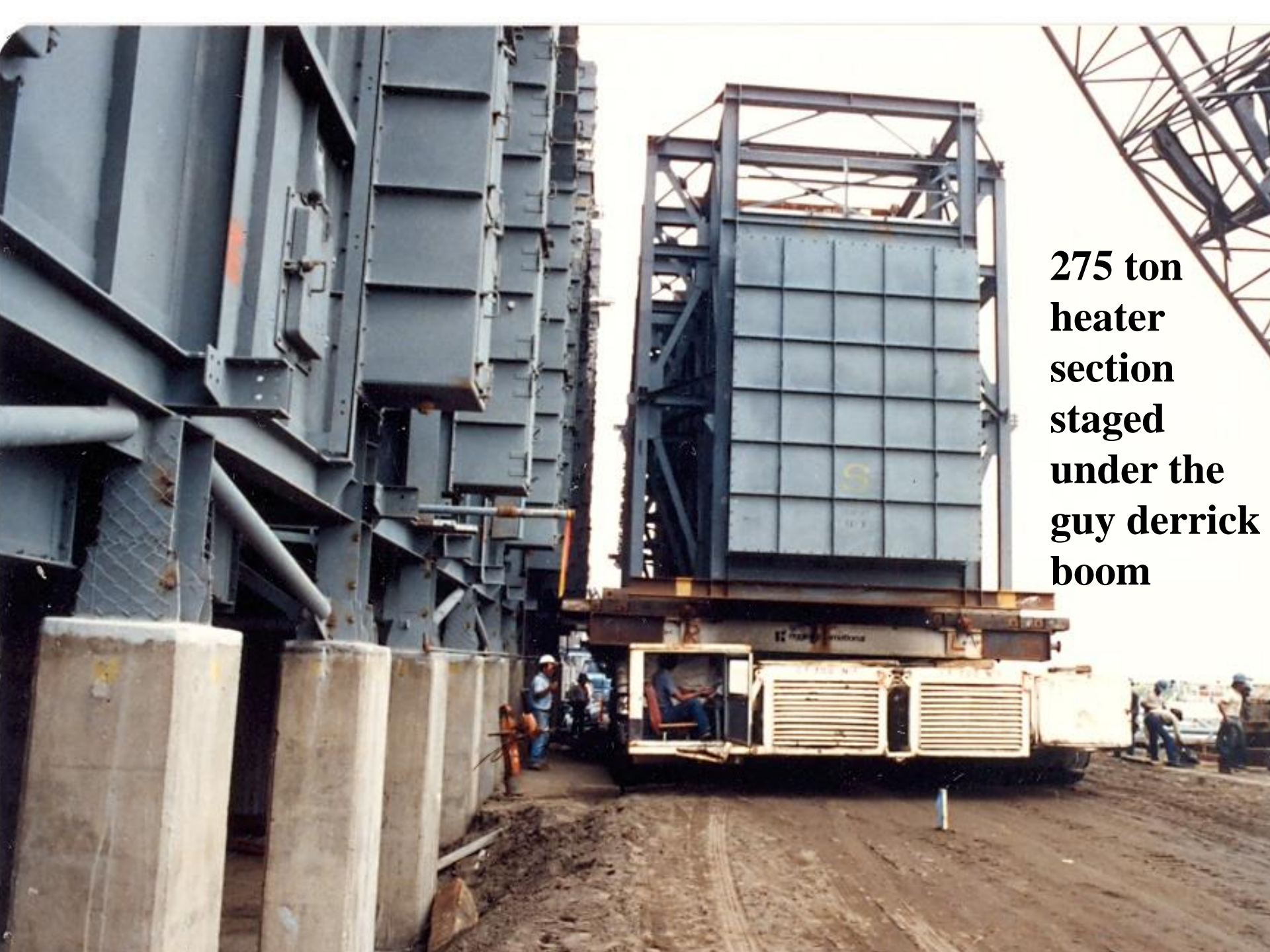


**Assist
crane**

**An assist crane
laying out the
temporary lazy
guy line over
the heater**

**Temporary
lazy guy
line (hard
to see)**

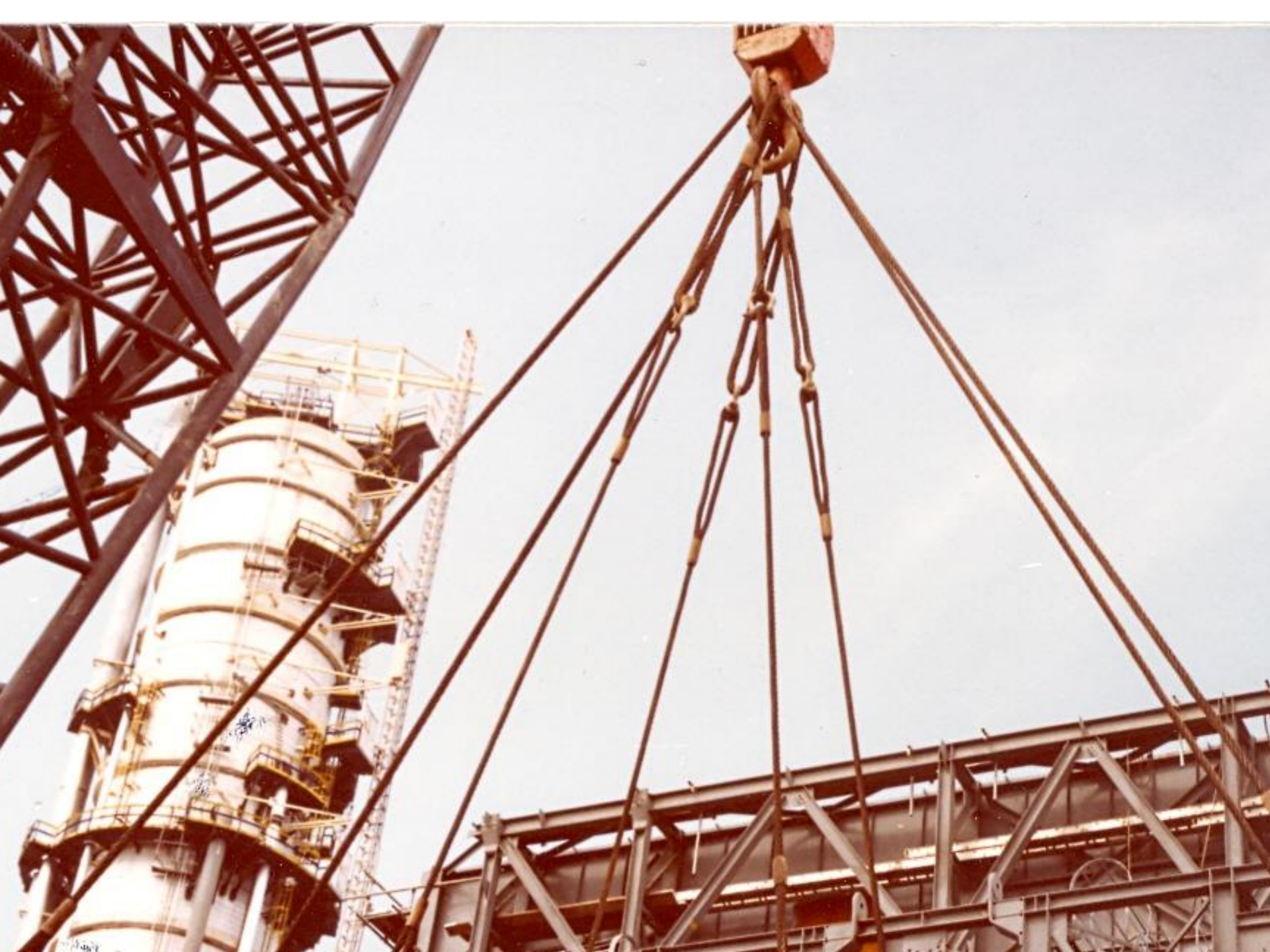
**Guy Derrick
boom**



**275 ton
heater
section
staged
under the
guy derrick
boom**



Heater section rigged to the hook





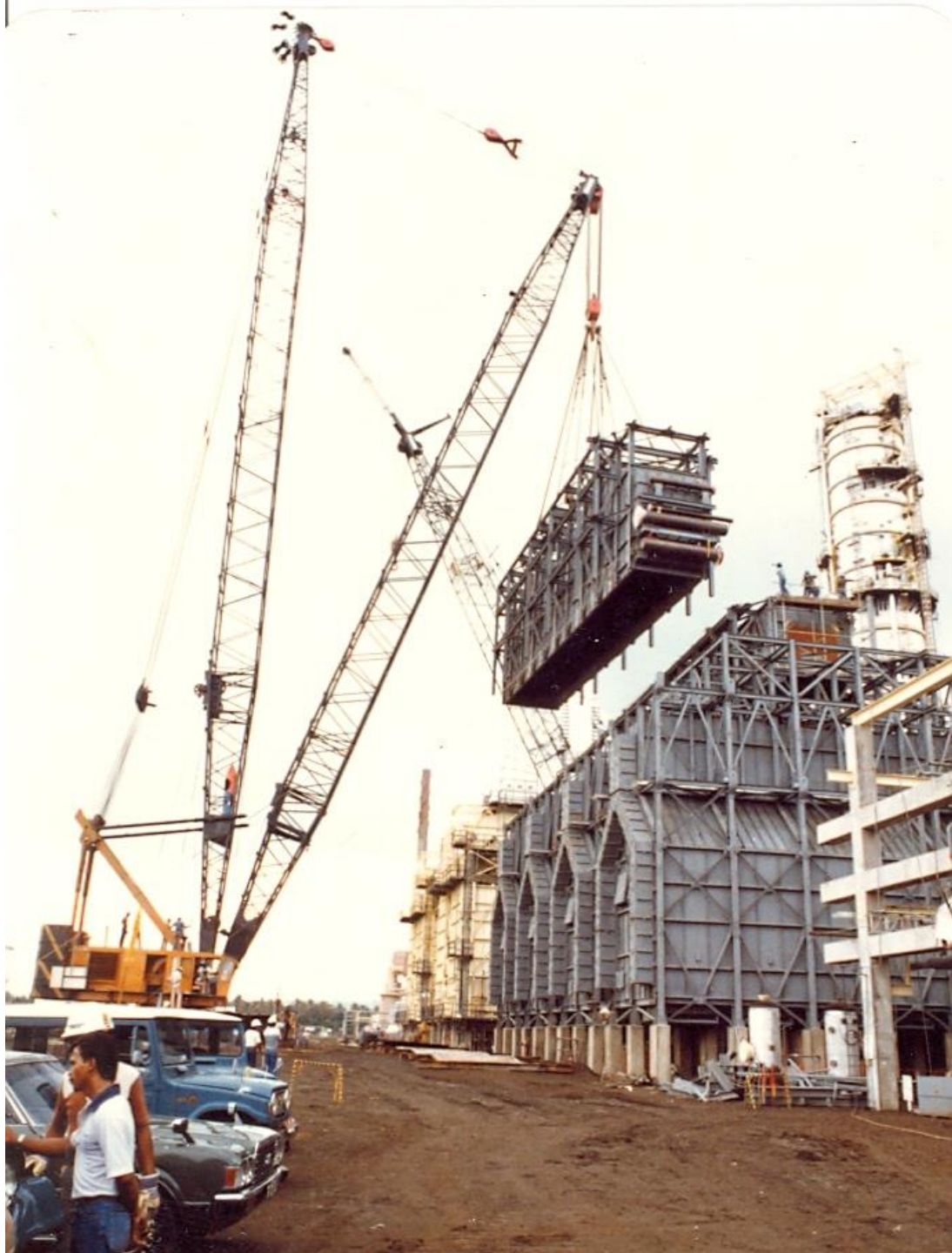
**Four rear
working
guys
tensioned up**

**Doubled working guy lines 5 &
27 shown tensioned up**



Floating the heater section

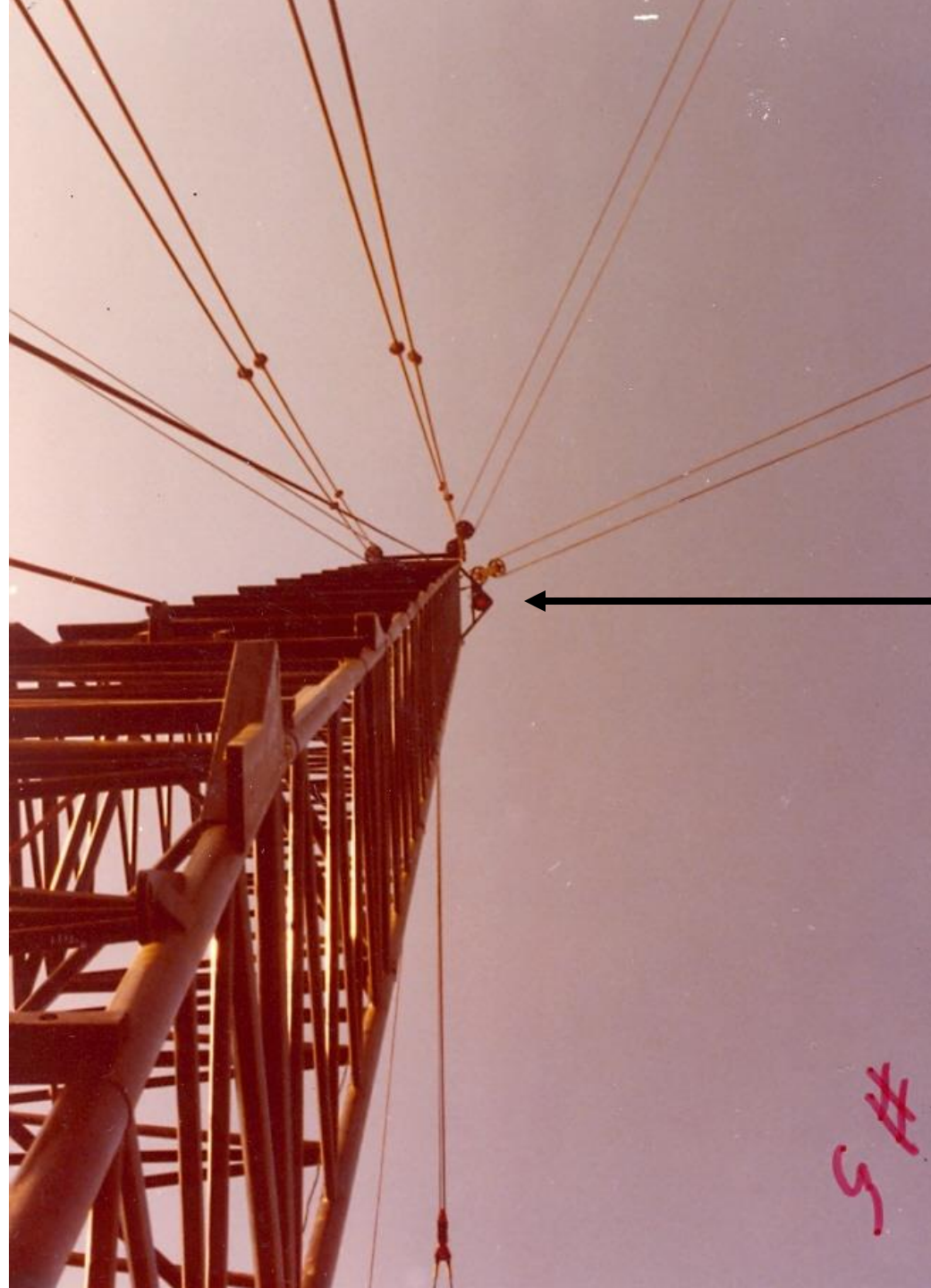






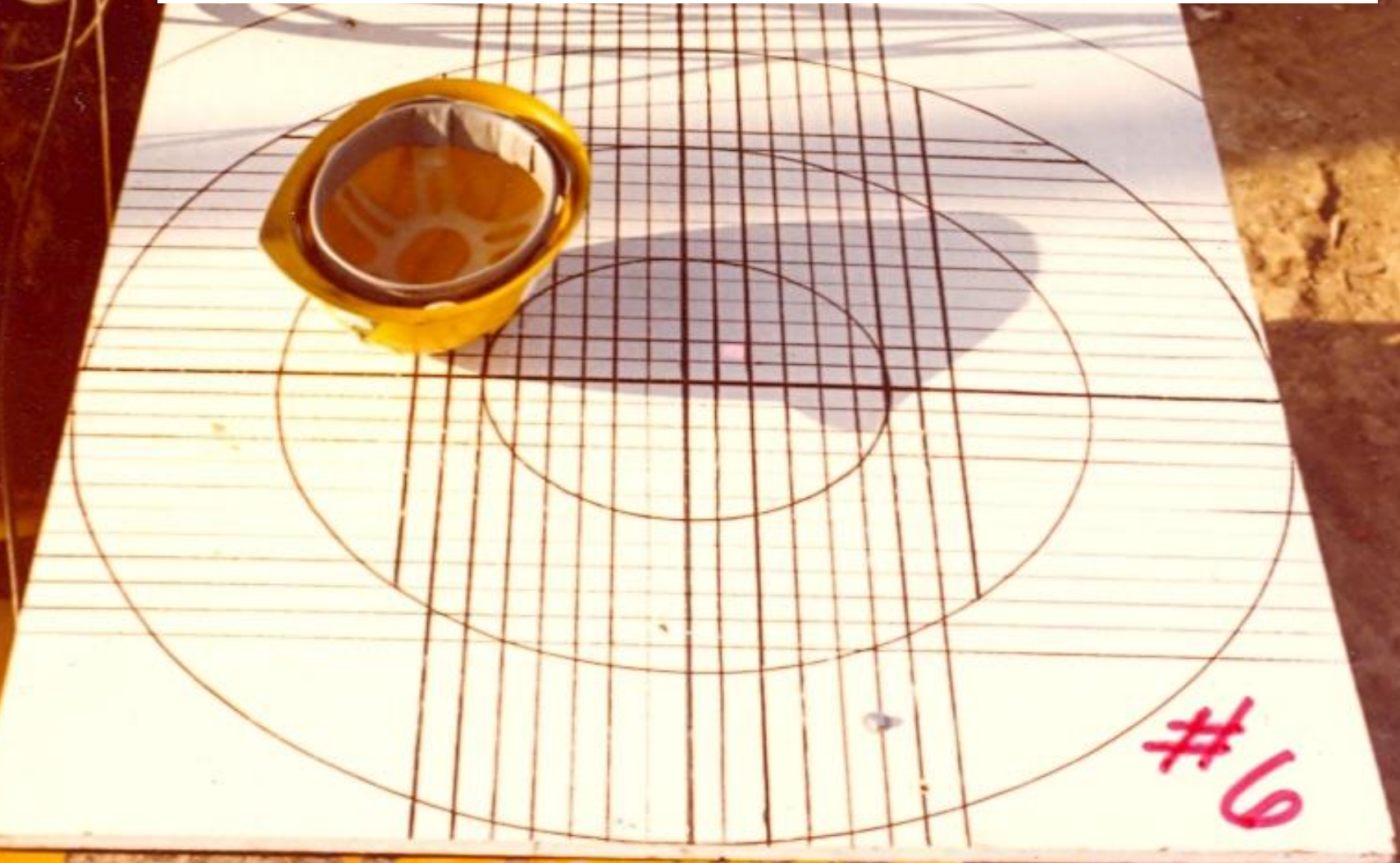
Hoisting and booming the load out

The Rigging Engineer standing on the track is monitoring the mast tip movement per the laser target



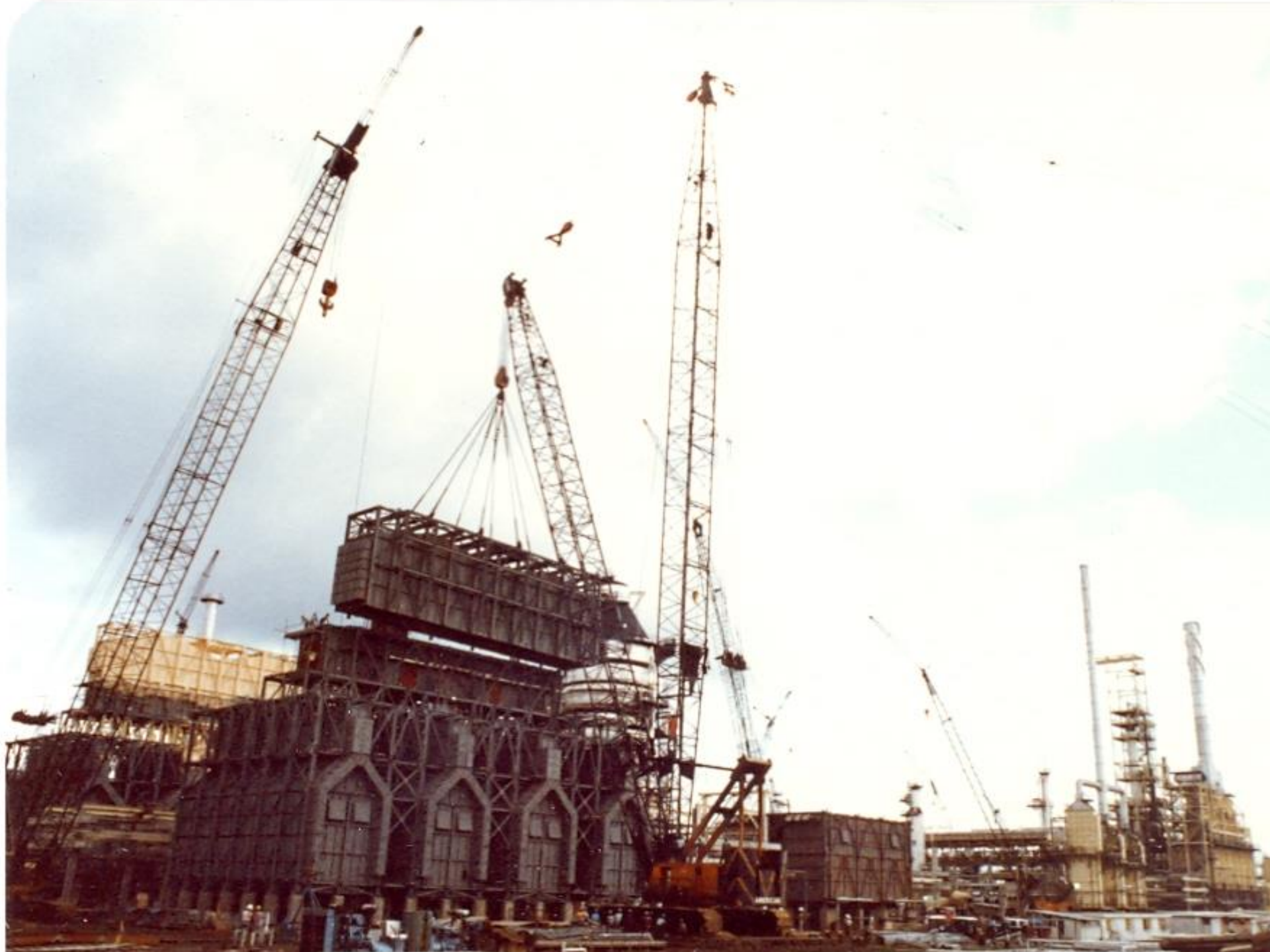
This photo is of a AM 9310 lift, but is being used to show how the laser and bracket bolts to the mast tip. It is being used as one was not taken for this heater lift. The laser shoots a vertical beam down on a target mounted on the catwalk of the crane

A laser target for the AM 9310 guy derrick but similar to the one for the AM 11320. The target is laid out so that each square equals 1"

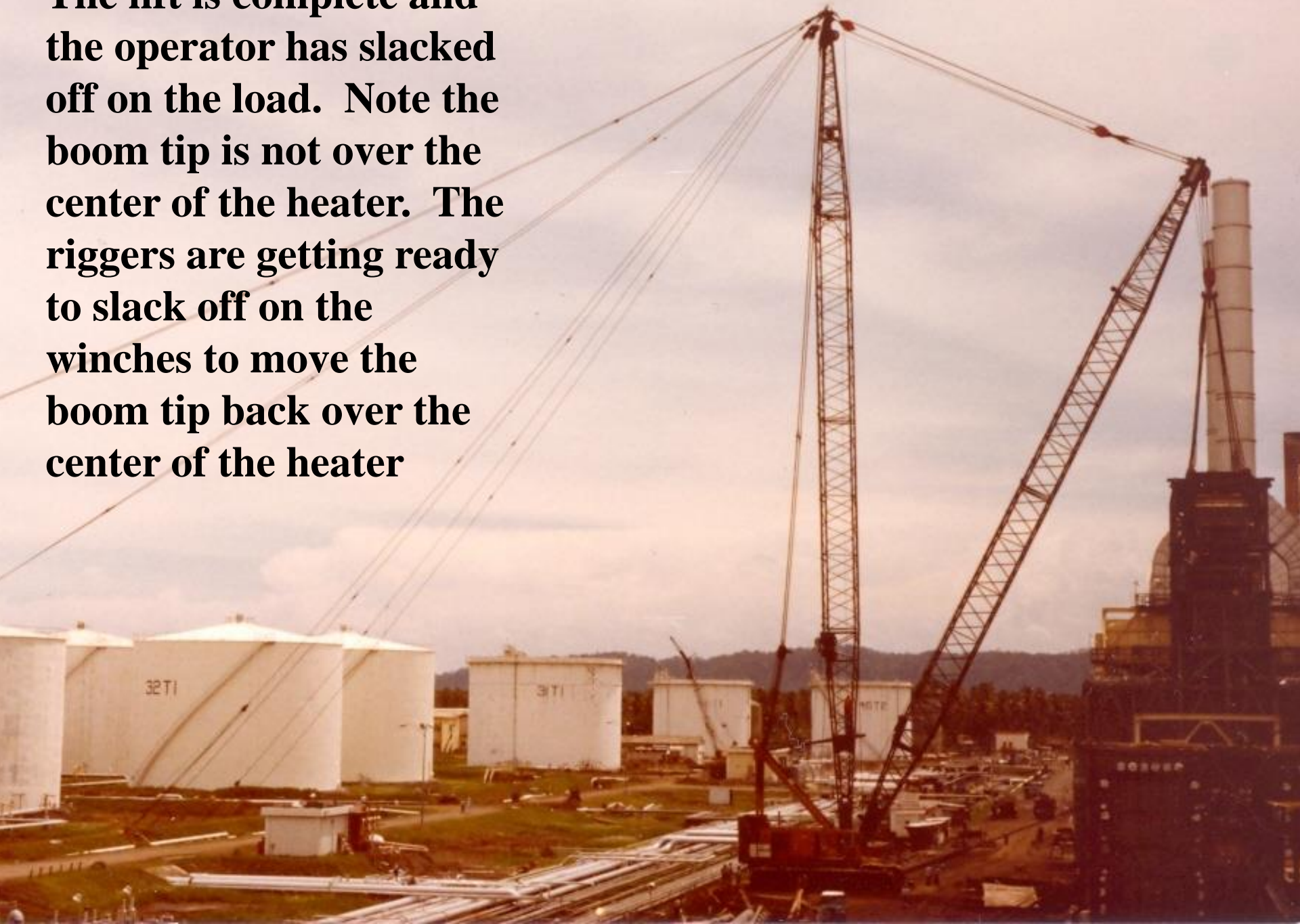








The lift is complete and the operator has slacked off on the load. Note the boom tip is not over the center of the heater. The riggers are getting ready to slack off on the winches to move the boom tip back over the center of the heater





**Everybody is
happy**

FINÉ

