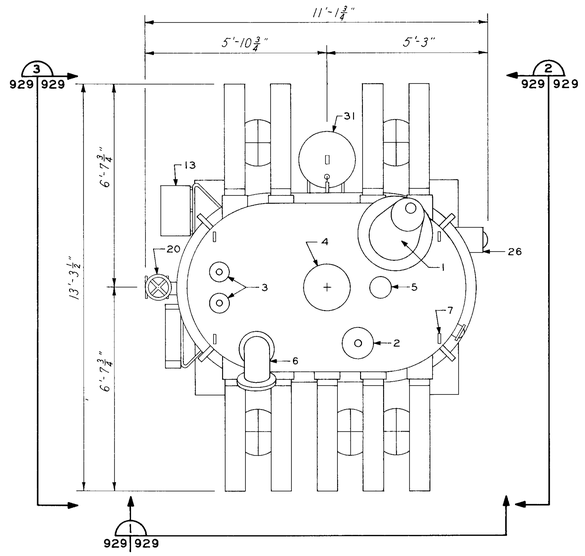
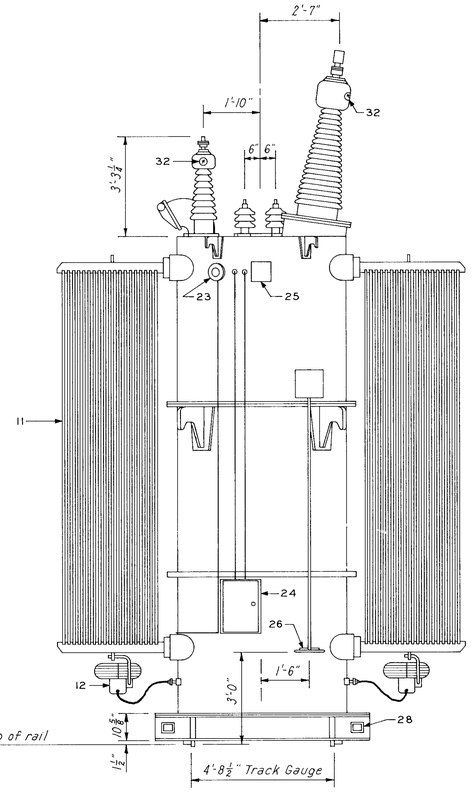
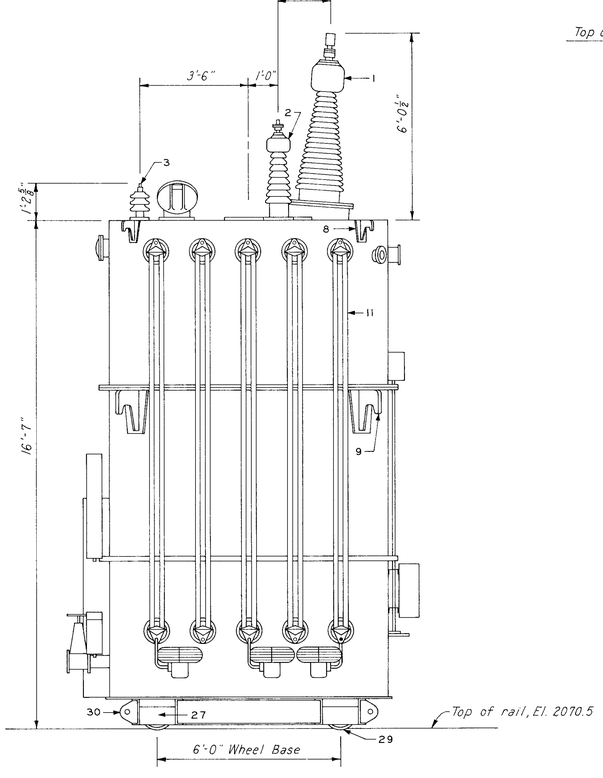


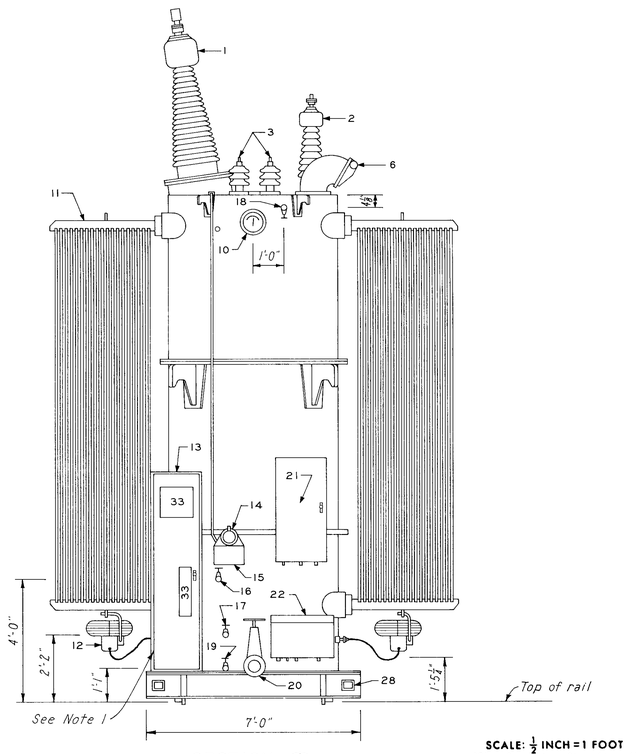
PLAN



SECTION 2 929|929



SECTION 1 929|929



SECTION 3 929|929

SCALE: ½ INCH = 1 FOOT
12" 0 1' 2' 3' 4'

TRANSFORMERS NO. 4 RATING AND CHARACTERISTICS

Moloney Transformer Co.	
Type C-R	
Serial Nos. 894596-7, 8 & 9	
Normal continuous rating on all taps,	
oil-immersed, self-cooled, kVA	12,500
oil-immersed, forced-air-cooled, kVA	16,667
Frequency, Hertz	60
Number of phases	Single
High voltage, rated kV	115 grd Y/66.4
Low voltage, rated kV	13.8
High voltage winding connection	Star
Low Voltage winding connection	Delta
Average impedance (at 75°C and 12,500 kVA)	8.15%
Average excitation current at rated voltage, percent of rated current (at 12,500 kVA)	1.57
Taps, low-voltage winding	None
Taps, high-voltage winding at rated kVA:	
	1 @ 5% above normal
	1 @ 2½% above normal
	1 @ 2½% below normal
	1 @ 5% below normal
Average efficiency at 75% rated load, self cooled, normal voltage 100% P.F. at 75°C	99.42

COOLING FANS. Forced air cooling is accomplished by 5 blower fans which are attached below the nine radiators. The motors are ½ hp., 220 volt, 3Ø phase, 60 cycle. Control equipment consists of a temperature element for operating the control switch from oil temperature, a temperature control switch, main motor starting switch and an overload circuit breaker for each motor, all housed in a weatherproof cabinet. The temperature control switch is set to start the fans when the oil temperature exceeds 65°C and to stop the fans when the oil temperature drops below 60°C, for automatic operation. In addition to automatic control the main motor starting switch is equipped for manual control.

BUSHINGS. The bushings on each transformer consist of one high voltage bushing, one high voltage neutral bushing and two low voltage bushings. The high voltage bushings are Ohio Brass Co., Style N-20, Class G-40X, 115kV, 400-ampere, oil-filled, with capacitance taps, protective gaps and a magnetic oil level indicator. 600/5 multi-ratio current transformers are provided on the high voltage bushings. These capacitance taps and current transformers are not in use at the present time. The high voltage neutral bushings are Ohio Brass Co., Class G-30, Style N-20, 69 kV, 400-ampere, oil filled, with a magnetic oil level indicator. The low voltage bushings are Moloney stud type, 15 kV, 1200-ampere, with protective gaps.

LEGEND:

1. High Voltage Bushing with gaps and 250 MCM clamp type terminal lugs.
2. High Voltage Neutral Bushing with gaps and 250 MCM clamp type terminal lug.
3. Low Voltage Bushing, 15 kV with 1-1/2" - 12 thread stud type terminal, 2-1/2" long.
4. Manhole 18" dia.
5. High Voltage Current Transformer, secondary leads outlet box.
6. Reclosing Type Pressure Relief Vent with alarm contacts for 125V DC and a visual indicator which will indicate a ruptured diaphragm.
7. Lifting Eyes, cover plate only.
8. Lifting Hooks, for lifting top section only.
9. Lifting Hooks, for lifting complete assembly.
10. Oil Gauge with alarm contacts for 125 V DC, 8" dial, magnetic.
11. Radiator with 1/2 plugs for drain and vent, top and bottom, shut off valves and lifting lugs.
12. Blowers, 1/4 HP, 220 V, 3 phase, 60 Hz.
13. Inert Air Control Cabinet with inspection windows.
14. Oil Temperature Thermo-Maximum Indicator with alarm contacts for 125 V DC.
15. Diagram Name Plate
16. 3/4" Air Vent for exhausting air when filling with oil and nitrogen gas.
17. Intermediate Filter Valve, 1-1/2".
18. Top Filter Valve, 1-1/2".
19. Bottom Filter Valve, 1-1/2" with 1/2" Sampling Valve.
20. Oil Drain Valve, 5".
21. Blower Control Cabinet with 2-1" and 1 3/4" conduit hubs in bottom.
22. Split Type Terminal Box with 4 conduit hubs 1-1/2", 3/4" and 2-1" in bottom.
23. Outlet Box for temperature indicating equipment in low voltage winding.
24. Thermal Relay Equipment in low voltage winding, one unit for operating an alarm circuit and others for tripping a circuit breaker.
25. Test links for testing relay.
26. Ratio Adjust Operating Mechanism Dial.
27. Jack Lugs.
28. Grounding Pad opposite sides and ends for 250 MCM cable.
29. Trucks, narrow flange, roller bearing with zerk fitting.
30. Pulling Eyes.
31. Gas Expansion Tank.
32. Oil Level Gauge.
33. Inspection Window.

NOTE:

1. Nitrogen cabinets have been moved down approximately 2' - 8-1/2" from shown location to facilitate gas cylinder handling. Cabinets are replaced to their original location when transformers are moved to the transformer service room.

DATE	DESCRIPTION	MADE	APPR'D
	REVISIONS		

U. S. ARMY ENGINEER DISTRICT, OMAHA
CORPS OF ENGINEERS
OMAHA, NEBRASKA

DESIGNED BY:	MISSOURI RIVER
DRAWN BY: R. L. J.	FORT PECK LAKE, MONTANA
CHECKED BY:	SWITCHYARD I
SUBMITTED BY: CHIEF SECTION	TRANSFORMER NO. 4
RECOMMENDED: CHIEF BRANCH	PLAN AND SECTIONS
APPROVED: CHIEF ENGINEERING DIVISION	DATE: DEC. 1971
APPROVED: COL. C. E., DISTRICT ENGINEER	SCALE: AS SHOWN; SPEC. NO.
	DRAWING NUMBER MFP-OPN93E929; SHEET

CORPS OF ENGINEERS-STANDARD BLUE PRINT, OMAHA