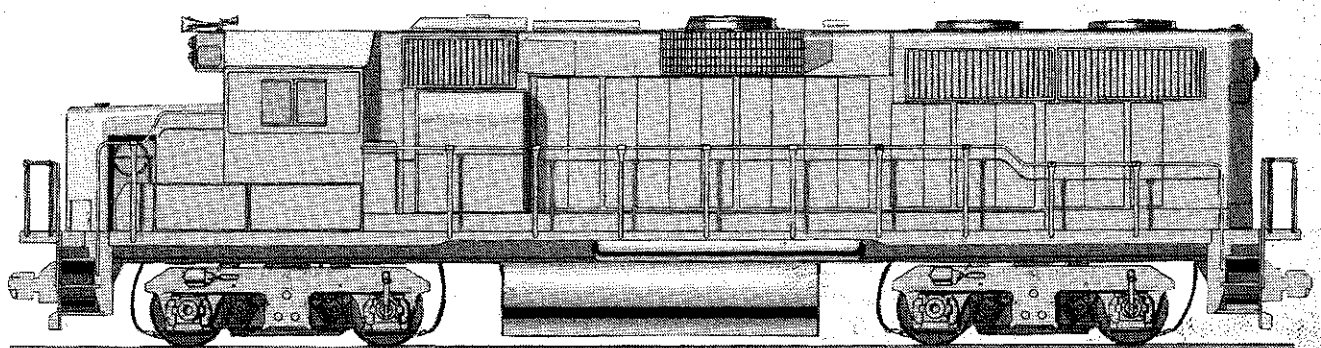


ODENS

GP49

LOCOMOTIVE SERVICE MANUAL



25332

1st Edition

June 1983



• • • • **A Service Department Publication** • • • •

Electro-Motive Division Of General Motors La Grange, Illinois 60525

FOREWORD

The purpose of this manual is to provide, from a servicing standpoint, a general familiarity with EMD locomotive systems and equipment and provide instructions for electrical and mechanical maintenance that can be performed on the locomotive. The information was compiled for a specific locomotive model with basic equipment and requested extras. Although minor variations are possible, equipment selected for coverage was chosen as representative of this particular model.

Information about equipment that must be removed from the locomotive to service is available in the standard EMD Maintenance Instruction format or in vendor publications. Maintenance information involving the diesel engine and its auxiliary equipment is provided in the EMD Engine Maintenance Manual.

SERVICE DATA PAGES

A Service Data page is included at the back of some sections of the Locomotive Service Manual. This page provides the following:

1. Reference to applicable Maintenance Instructions and technical manuals.
2. Reference to applicable tool and testing apparatus numbers.
3. Specific system values for operation or testing.

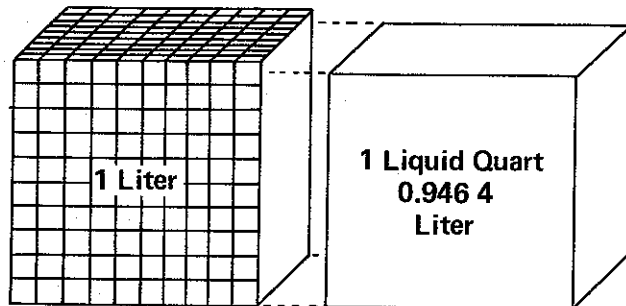
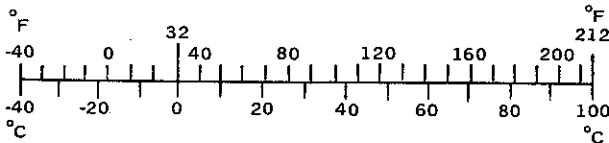
METRIC MEASUREMENT

Units of measurement appearing in this manual are shown in metric units and U.S. standard units. A conversion table is provided to convert U.S. standard units to metric units.

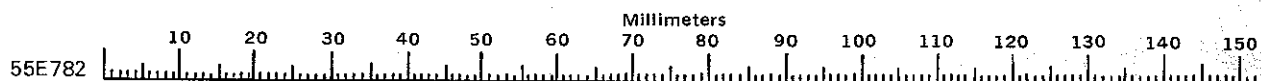
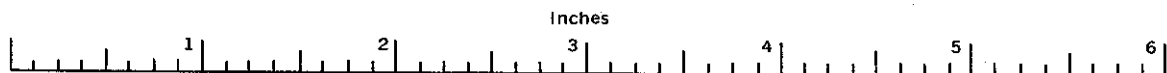
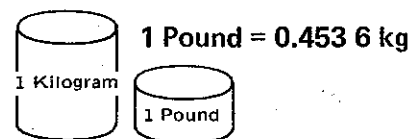
TABLE OF FREQUENTLY USED UNITS

Multiply	by	to get equivalent number of:	Multiply	by	to get equivalent number of:
LENGTH					
Microinch	.025 4	micron (μ)			
Inch	25.4	millimeters (mm)			
Foot	0.304 8	meters (m)			
Yard	0.914 4	meters			
Mile	1.609	kilometers (km)			
AREA					
Inch ²	645.2	millimeters ² (mm ²)			
	6.45	centimeters ² (cm ²)			
Foot ²	0.092 9	meters ² (m ²)			
Yard ²	0.836 1	meters ²			
VOLUME					
Ounce	29.574	centimeter ³ (cm ³)			
Inch ³	16 387.	mm ³			
	16.387	cm ³			
	0.016 4	liters			
Ft ³	0.028 3	meter ³ (m ³)			
Quart	0.946 4	liters			
Gallon	3.785 4	liters			
Yard ³	0.764 6	meters ³ (m ³)			
MASS					
Ounce	28.350	grams (g)			
Pound	0.453 6	kilograms (kg)			
Ton	907.18	kilogram			
Ton	0.907	tonne (t)			
FORCE					
Kilogram	9.807	newtons (N)			
Ounce	0.278	newtons			
Pound	4.448	newtons			
TEMPERATURE					
Degree Fahrenheit ($t^{\circ} F - 32) \div 1.8 = \text{degree Celsius (C)}$)					

Multiply	by	to get equivalent number of:
ACCELERATION		
Foot/sec ²	0.304 8	meter/sec ² (m/s ²)
Inch/sec ²	0.025 4	meter/sec ²
TORQUE		
Ounce-force-inch	0.007 06	newton-meter
	0.069 2	kilogram-meter
Pound-inch	0.112 98	newton-meters (N·m)
	0.011 52	kilogram-meters
Pound-foot	1.355 8	newton-meters
	0.138 25	kilogram-meters
POWER		
Horsepower	0.746	kilowatts (kW)
PRESSURE OR STRESS		
Inches of water	0.249 1	kilopascals (kPa)
Pounds/sq. in.	6.895	kilopascals
ENERGY OR WORK		
BTU	1 055.	joules (J)
Foot-pound	1.355 8	joules
Kilowatt-hour	3 600 000 or 3.6x10 ⁶	joules (J = one W's)
LIGHT		
Footcandle	10.764	lumens/meter ² (lm/m ²)
FUEL PERFORMANCE		
Miles/gal	0.425 1	kilometers/liter (km/l)
Gal/mile	2.352 7	liters/kilometer (l/km)
VELOCITY		
Miles/hour	1.609 3	kilometers/hr. (km/h)



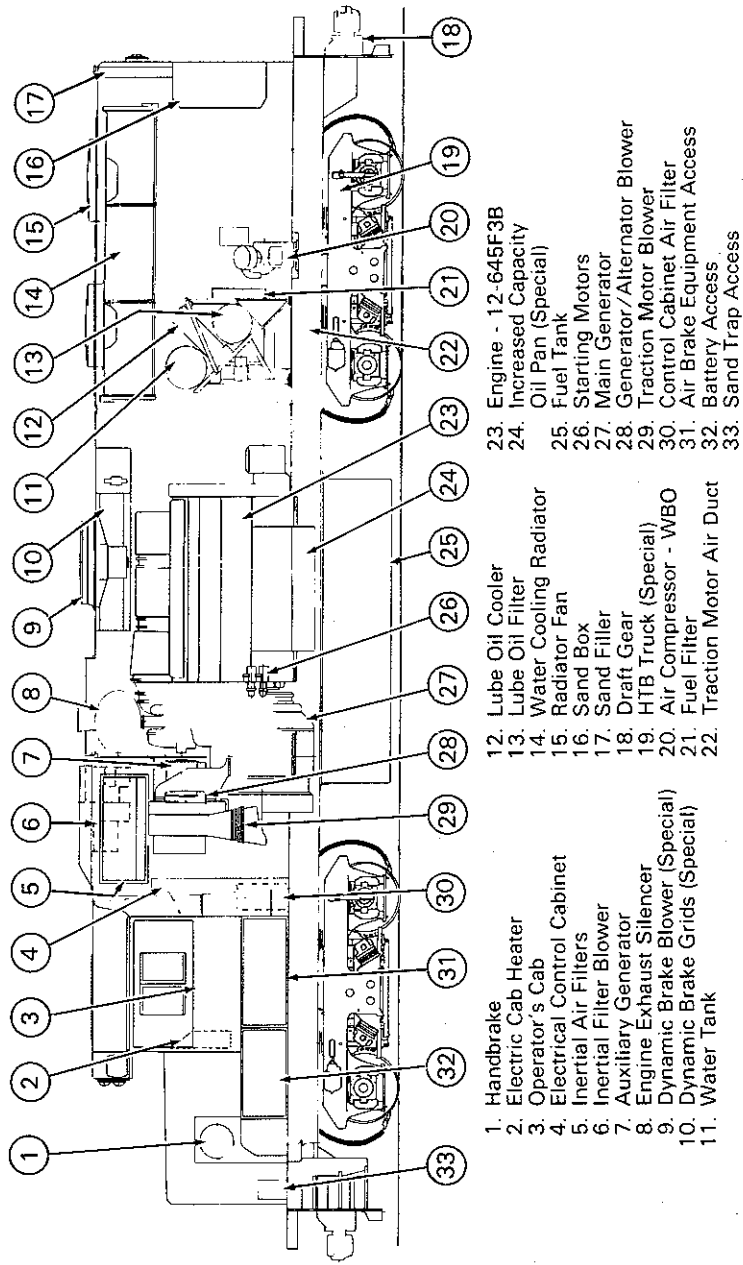
The comparative dimensions of an inch and a millimeter, a liter and a quart, and a kilogram and a pound are shown.



LOCOMOTIVE SERVICE MANUAL

CONTENTS

<u>SECTION NO.</u>	<u>SECTION TITLE</u>
0	General Information
1	Engine Starting
2	Fuel System
3	Lubricating Oil System
4	Cooling System
5	Central Air System
6	Compressed Air System
7	Electrical Equipment
8	Electrical Control System
9	Load Test And Horsepower Standardization
10	High Potential Testing



27015

Fig.O-1 - General Arrangement GP49 Locomotive

- | | | |
|-----------------------------------|-----------------------------|---------------------------------|
| 1. Handbrake | 12. Lube Oil Cooler | 23. Engine - 12-645F3B |
| 2. Electric Cab Heater | 13. Lube Oil Filter | 24. Oil Pan (Special) |
| 3. Operator's Cab | 14. Water Cooling Radiator | 25. Fuel Tank |
| 4. Electrical Control Cabinet | 15. Radiator Fan | 26. Starting Motors |
| 5. Inertial Air Filters | 16. Sand Box | 27. Main Generator |
| 6. Inertial Filter Blower | 17. Sand Filler | 28. Generator/Alternator Blower |
| 7. Auxiliary Generator | 18. Draft Gear | 29. Traction Motor Blower |
| 8. Engine Exhaust Silencer | 19. HTB Truck (Special) | 30. Control Cabinet Air Filter |
| 9. Dynamic Brake Blower (Special) | 20. Air Compressor - WBO | 31. Air Brake Equipment Access |
| 10. Dynamic Brake Grids (Special) | 21. Fuel Filter | 32. Battery Access |
| 11. Water Tank | 22. Traction Motor Air Duct | 33. Sand Trap Access |