

## **SPECIFICATIONS**

**DL-212**

**1600 H P DIESEL-ELECTRIC ROAD  
FREIGHT-PASSENGER LOCOMOTIVE  
A UNIT**

*These specifications cover the principal features of the American Locomotive General Electric 1600 hp diesel-electric road freight-passenger locomotive leading or A unit.*



*Such A units may be combined with other A units or with B units to constitute diesel-electric locomotives of greater power.*

**278 A & 279 A**

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**AMERICAN LOCOMOTIVE COMPANY**  
**30 CHURCH STREET • NEW YORK 8, N. Y.**

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## Section 1-General Characteristics

### 1600 HP FREIGHT-PASSENGER LOCOMOTIVE A UNIT

|  |               |
|--|---------------|
| MODEL NUMBER . . . . .   | FA-2          |
| CLASS—AAR Designation . . . . .  | B-B           |
| TRACK GAUGE . . . . .  | 4'-8½"        |
| DIESEL ENGINE—One, Vee-Type, 12 Cylinders, Turbosupercharged . . . . .   | 1600 HP       |
| GENERAL DESIGN—Shown by Drawing Number . . . . .   | 985-N-94510   |
| <b>MAXIMUM OVERALL LOCOMOTIVE DIMENSIONS (Drawings):</b>   |               |
| Height (Roof) . . . . .  | 14'-0"        |
| Height (Maximum) . . . . .   | 14'-10"       |
| Width (Inside Cab Sheets) . . . . .  | 9'-91/8"      |
| Width (Maximum) . . . . .  | 10'-61/2"     |
| Length (Overall) . . . . .   | 54'-0"        |
| Length (Inside Knuckles) . . . . .   | 53'-6"        |
| WHEEL BASE . . . . . Each Track (Rigid) . . . . .  | 9'-4"         |
| Total Locomotive . . . . .   | 38'-6"        |
| DRIVING MOTORS . . . . .   | Four          |
| WHEELS . . . . . Drivers—4 Pairs . . . . .   | 40" Diameter  |
| MAXIMUM TRACK CURVATURE . . . . .  | 21 Degrees    |
| WEIGHT . . . . . On Driving Wheels . . . . .   | 240,000 lbs.  |
| Total Locomotive . . . . .   | 240,000 lbs.  |
| <b>SUPPLIES</b>  |               |
| Total Capacity . . . . . Lubricating Oil . . . . .   | 200 Gallons   |
| Fuel Oil . . . . .   | 1,200 Gallons |
| Engine Cooling Water . . . . .   | 250 Gallons   |
| Sand . . . . .   | 2½ Cu. Ft.    |
| CLEARANCES—Maximum Outline, Drawing Dimensions . . . . .   | 981-N-94520   |
| SAFETY APPLIANCES—Steps, handrails, safety appliances, etc., applied in accordance with regulations of the Interstate Commerce Commission. |               |



## Section 2 - Cab

- FRAME**—Underframe of steel, electrically welded.  
Cab side frames of steel, welded truss construction.  
Built to meet requirements of AAR Specifications for New Passenger Car Equipment and U. S. Railway Post Office regulations for stress limits.
- HATCHES**—Large hatch opening, with cover, in engine compartment roof; additional small hatches provided for removal of large auxiliary equipment. A hatch is also provided over the steam generator when used.
- SIDES**—Side walls of engine compartment are of metal sheathed plywood panels having rubber seals and mounted on frame by use of metal battens.
- CAB**—Nose compartment, operating cab and roof of shaped steel plates on welded steel framing. Bulkheads of welded steel construction.
- OPERATING CAB**—Operating cab at front end of locomotive unit; floor elevated above floor of engine compartment, insulated and covered with linoleum; walls and roof insulated and lined.
- CENTER PLATES**—Cast steel, welded to frame and equipped with steel liners.
- CAB SEATS**—Two (2) fixed type adjustable seats with upholstered cushions and back rests applied, one on right side of cab for engineman, one on left side for helper. Upholstered arm rest applied on window sill each side.
- CONTACTOR COMPARTMENT**—Compartment for electrical equipment provided in front end of engine compartment. Doors in operating cab.
- WINDOWS**—Two windows of fixed type across front of operating cab.  
Operating cab side windows are of combination type, having controlled drop sections and pivoted front sections.  
All windows are of safety glass. Fixed windows are rubber mounted in separate metal frames.  
Both front windows of operating cab equipped with windshield wipers, defrosters and two sun visors each.
- COUPLERS**—AAR Type E.
- DRAFT GEAR**—National Malleable Type M-380 rubber draft gear applied at each end.
- COUPLER HOUSINGS**—Cast steel pocket or housing at each end of locomotive unit.
- UNCOUPLING DEVICES**—Uncoupling device at each end, operated from each side; uncoupling device concealed at front end.
- PILOT**—Pilot of welded steel construction applied.
- DOORS**—Exterior doors are provided in each side of operating cab, at each side and rear end of engine compartment and at front end of nose compartment and are provided with weather strips.  
Two (2) interior doors are provided between operating cab and engine compartment and one (1) door between operating cab and nose compartment.  
Drop sash provided in operating cab side doors.  
Small windows provided in exterior doors of engine compartment.  
Side doors of engine compartment are fitted with locks for coach type keys.  
All exterior doors may be locked from inside.  
Safety drop bars provided at engine compartment side doors and at rear end door.
- VENTILATION**—Openings equipped with air filters for engine room ventilation provided in side walls.



**VESTIBULE**—Passageway provided at rear end, fitted with a standard vestibule diaphragm. A light is provided, operated on the engine room light circuit.

**STEPS AND HANDRAILS**—Steps and handrails or grabirons provided at all side doors and both rear corners of the locomotive.

Grab iron located on each side of passageway at rear end.

Interior vertical handrails are located inside of two (2) side doors of operating cab.

**ACCESSORIES**—Flag brackets, inspection card holders and spare lamp holder.

## Section 3-Trucks

**TYPE**—Two four-wheel, swivel, swing motion, pedestal type motor trucks applied.

**CONSTRUCTION**—Cast steel construction.

Frame is spring supported on two equalizers on each side, with triple coil springs between the equalizers and the frame. Triple elliptic springs are applied between bolster and spring plank.

Center plate safety locks applied.

**AXLES**—Two (2) axles, of forged open hearth steel, per truck.

**WHEELS**—Four (4) rolled steel wheels, 40" diameter, per truck, to A.A.R. specification M-107-48, Class "B".

**JOURNALS**—Journals roller bearing, 6 $\frac{1}{2}$ " diameter.

**JOURNAL BOX ALARM**—One bomb, of odor type, applied in each box.

**MOTOR MOUNTING**—Motors applied to all axles; supported by axles, to which they are geared and by spring nose suspensions on truck transoms. Wheel and axle assemblies removable with motors.

Forced ventilation is through flexible connections between ducts in cab underframe and the motor frame.

**LINERS**—Steel liners on sides and bottoms of center plates; bottom liners removable for shimming.

Spring steel liners on truck pedestal jaws and journal boxes.

**CENTER PLATES**—Center plates oil lubricated and protected by dust guards.

**SIDE BEARINGS**—Plain steel side bearings applied, with swivel limiting devices.

**SPRINGS**—Elliptic and coil springs of open hearth steel tempered in oil.

**BRAKES**—Clasp brakes on all wheels with two (2) Type G-4630 flangeless brake shoes per wheel.

Eight (8) brake cylinders, 10" x 8", single acting; four (4) per truck.

Brake rigging equipped with slack adjusters.

**BRAKE PINS**—Brake pins and bushings hardened and ground.

**HAND BRAKE**—Hand brake located in engine compartment and connected to one truck.

## Section 4-Diesel Engine

**ENGINE**—American Locomotive Company, Series 244, Vee (V) type, twelve (12) cylinder, four (4) cycle, 9" bore, 10 $\frac{1}{2}$ " stroke, single acting, turbosupercharged Diesel engine, having two (2) intake and two (2) exhaust valves per cylinder, water cooled cylinder liners and heads, oil cooled pistons, forged steel connecting rods, seven (7) bearing crankshaft and welded base and cylinder block.





- REGULATOR**—General Electric Company power plant regulator of variable speed type is applied. Intermediate engine speeds selected with engineman's throttle lever, which controls setting of regulator.
- OVERSPEED SAFETY TRIP**—Overspeed safety trip is provided.
- ENGINE STARTING**—The Diesel engine is started by the main generator acting as a motor, using a special starting field and current from the storage battery.
- COOLING SYSTEM**—Water is circulated through engine, radiators and lubricating oil cooler by a gear driven centrifugal pump integral with the Diesel engine.  
Radiator of panel type mounted in roof compartment at rear of engine compartment.  
One (1) mechanically driven fan, revolving in a horizontal plane, draws air through the radiator and exhausts it through a screened opening in the roof.  
A mechanical type indicating thermometer is located in each of the two engine water outlet headers.  
Radiator fan control panel located in side wall near engine governor.
- ENGINE TEMPERATURE CONTROL**—Air flow through radiators is controlled by shutters located in air intake openings and by variable speed of radiator fan, which is driven through an electric clutch of the eddy current type. Shutters and clutch controlled automatically.
- LUBRICATION**—Full pressure system supplied by gear type pump integral with the Diesel engine.  
Lubricating oil reservoir in engine base.  
Filters of bypass type and strainer of full flow type.  
Lubricating oil cooler of single pass type.  
Automatic means provided to idle and stop engine in case of low lubricating oil pressure.
- FUEL SYSTEM**—Electrically driven transfer pump located in the engine compartment for supplying fuel from supply tank to injection pumps.  
Supply pipe to transfer pump fitted with duplex waste packed filter on suction side, with single filter provided on the discharge side. Pressure relief valve and pressure gauge provided in discharge pipe from transfer pump.

## Section 5 - Mechanical Equipment

- ENGINEMAN'S CONTROL STATION**—Control stand, conveniently located at engineman's position on right hand side of operating cab, contains: throttle handle, reverser handle and selector handle; switch for generator field; circuit breaker type switches for fuel booster pump, control circuit and train control (if used); switches for class, number, hood and dome lights; gauge light switch and dimming control; headlight dimming control switch and control for windshield wipers; control for engineman's defroster and cab heater; push buttons for engine stop and attendant's call; signal lights for high engine water temperature and low engine lubricating oil pressure; also, when used, signal light for train control and boiler flame out.  
Other controls conveniently located for the engineman are those for air brake, horn, bell ringer and sanders; and switch for engineman's order light.  
Gauge panel located under windshield cowl contains speed meter, load meter and brake air pressure gauges; also, signal lights for wheel slip and dynamic brake warning (if used).  
Separate controls for heater, defroster, dash light and windshield wiper at helper's position are provided on left side of cab.



**ENGINE ROOM CONTROL STATION**—Control panel on engine room side of contactor compartment wall contains switches for engine starting and control; signal lights for high engine water temperature, low lubricating oil pressure, ground relay, traction motor blowers and crankcase exhauster. Battery disconnecting switch is provided and fuel oil pressure and lubricating oil pressure gauges are located on side wall of engine compartment near control station.

**MECHANICAL DRIVES**—Flexible couplings installed between engine and air compressor and between compressor and auxiliary drive shaft.

**FUEL TANK**—One (1) fuel oil tank, of welded steel construction.

Capacity . . . . . 1200 gallons  
 Two (2) filling connections applied; two (2) vents applied; fire protection screens provided. Glass level indicator and handle for emergency cut-out valve on each side, near filling connection. One handle for emergency cut-out located in operating cab and two (2) in engine compartment. Remote reading level indicator applied with one (1) indicating gauge in engine compartment. Provision made for draining and cleaning tank.

**I.C.C. REQUIREMENTS**—Fuel filling stations designed to meet requirements of the Interstate Commerce Commission.

**WATER TANK**—One (1) expansion tank of welded steel construction, built integral with hatch cover; sight glass provided.

Capacity . . . . . 90 gallons  
 Filling connection on right hand side of locomotive.  
 Emergency filling connection on top of roof.  
 Provision made for draining cooling system.

## Section 6 - Electrical Equipment

**EQUIPMENT LIST**—General Electric Company

|  | <i>Type</i> |
|--|-------------|
| 1—Main Generator . . . . .                                     | GT-581      |
| 1—Exciter . . . . .  | AM-808      |
| 2—Auxiliary Generators . . . . .                               | GY-27       |
| 4—Traction Motors . . . . .                                    | GE-752      |
| 2—Traction Motor Blowers . . . . .                             | GY-29       |
| 1—Radiator Fan, Aphonic Type                                   |             |
| 1—Eddy Current Clutch and Right Angle Drive Gear Box . . . . . | GDY-32      |
| 1—Power Plant Regulator . . . . .                              | MG-6        |
| 1—Control Equipment . . . . .                                  | P           |

**MAIN GENERATOR**—The Main Generator is directly connected to the Diesel engine. The exciter is an amplidyne machine designed for use with the power plant regulator. The exciter and auxiliary generators are mounted on the end of the main generator and are gear driven from it.

**AUXILIARY GENERATORS**—The Auxiliary Generator supplying power for battery charging, lighting and control circuits operates at constant voltage under control of a regulator. The other Auxiliary Generator supplies power for traction motor blower motors.





**TRACTION MOTORS**—The Traction Motors are four-pole direct current machines designed for operation with full or shunted fields. Armatures equipped with roller bearings.

**TRACTION MOTOR BLOWERS**—The Traction Motor Blowers are of the axial-flow type and are motor driven. Each is arranged to supply ventilating air to the motors of one truck through fixed ducts in the cab structure and flexible connections leading to the tops of the motors.

**RADIATOR FAN**—The Radiator Fan is of the aphonetic type, 72" in diameter, of welded construction, designed to operate efficiently with varying speeds.

**EDDY CURRENT CLUTCH AND RIGHT ANGLE DRIVE**—The Eddy Current Clutch used to control engine water temperature is applied on the engine side of the right angle drive gear box. Slip of the clutch is electrically controlled and is coordinated with radiator shutter control.

**POWER PLANT REGULATOR**—The power plant regulating system modulates the diesel engine loading by controlling fuel to the diesel engine and adjusting generator demand. It holds constant any preset engine speed by limiting engine torque and adjusting generator demand to the ability of the engine to deliver power at any moment and for any set speed.

**CONTROL-HIGH VOLTAGE**—Type P Single-End Multiple-Unit Control is used. Reversers and line contactors are electro-pneumatically operated; all other contactors are operated magnetically. There are four traction motor connections: Series parallel full field, series parallel shunt field, parallel full field and parallel shunt field. Transition is manually controlled, both forward and backward, by a selector handle. All high voltage control apparatus is contained in the lower part of the contactor compartment.

**CONTROL-LOW VOLTAGE**—The contactor compartment also contains contactors for engine starting, generator field control and battery charging; auxiliary generator control; relays and resistors. Manual low voltage switches of the circuit breaker type with reset feature, are used on auxiliary circuits wherever overload protection is required.

**CONTACTOR COMPARTMENT**—Instruments and controls on contactor compartment panel in operating cab are: auxiliary generator ammeter and battery voltmeter; circuit breaker switches for headlight, engine room lights, cab lights and auxiliaries, control feeders, auxiliary generators, auxiliary generator fields, traction motor blowers, alternator for control circuits, fuel transfer pump and crankcase exhaust; and switch for compartment lights. Ground relay reset and control switch and the traction motor cutout switch (when used) conveniently and safely accessible in the top of the control compartment.

**STORAGE BATTERY**—A 32 cell, 426 ampere hour lead acid type storage battery is installed in two battery boxes under the operating cab, one on either side, with sixteen cells in each.

**LIGHTING**—All lights are connected to the storage battery through circuit breakers and light switches. Lights are provided in ceiling of operating cab, at gauge panels and as engineman's order light; in engine room, including control panel lighting; in contactor compartment; and in nose compartment and rear vestibule. Three receptacles provided for extension light connection, one on the wall on each side of the engine and one in the nose compartment.





**HEADLIGHT, NUMBER AND CLASSIFICATION LIGHTS**—Headlight with 250 watt, 32 volt lamp and 14 inch glass reflector applied in front end hood. Dimming control provided. Lamp removable from inside hood.

Classification and number plate lights applied diagonally at front end, one on each side of hood, 45 degrees from center line.

**ELECTRICAL CONNECTIONS**—Receptacles installed at rear end for connections to another locomotive unit:

One 21-point and one 12-point receptacle are applied at rear end for multiple-unit operation.

**ALARM SYSTEM**—Alarm bell in engine compartment and buzzer in operating cab, arranged to sound simultaneously with those in other connected locomotive units when any alarm signal light or attendant's call circuit is energized.

**CHARGING RECEPTACLE**—Receptacle of 150 amp. capacity for connection to outside source of battery charging current. Applied on right side of locomotive only.

## Section 7 - Air Brakes

**BRAKE EQUIPMENT**—Brake Schedule 24RL, pneumatic type, with automatic and independent air brakes on all wheels. Includes the following devices: Automatic brake valve with rigid handle and feed valve; independent brake valve; Rotari valve; foot operated valve for safety control; and Relayair valve. Front and rear hose connections also applied.

**SAFETY CONTROL**—Safety control, foot operated, giving service application, applied.

**AIR COMPRESSOR**—One (1) two-stage, three-cylinder, air cooled air compressor with aftercooler applied, directly driven from the Diesel engine.

Compressor equipped with unloader and synchronizing control.

Displacement at full engine speed (1000 RPM) *.....* 225 CFM

Displacement at idling speed (350 RPM) *.....* 78.75 CFM

**RESERVOIRS**—Two (2) main reservoirs applied in engine compartment

Total capacity *.....* 35,800 cu. ins.

## Section 8 - Locomotive Equipment

**CAB HEATERS**—Two (2) cab heaters, using heat from engine cooling water, installed in nose compartment, one on each side, with outlets into operating cab.

**DEFROSTERS**—Two (2) defrosters applied.

**SUN VISORS**—Four (4) adjustable sun visors applied.

**WARNING DEVICES**—Two (2) horns, one forward and one backward, with separate operating valves, actuated by notes convenient to engineer. One locomotive bell with internal ringer provided.

**FIRE EXTINGUISHERS**—Two (2) fire extinguishers provided, located as follows:

Operating Cab

1—1½ quart vaporizing liquid type

Engine Compartment

1—1 gallon vaporizing liquid type



**SANDERS**—Sanders provided for sanding in front of each truck; arranged for electric multiple unit operation in forward movement only.

**SAND BOXES**—Four (4) sand boxes of welded steel construction provided, all filled from outside cab. Total capacity . . . . . 22 cu. ft.

**SANITARY FIXTURE**—Sanitary fixture located in rear end together with necessary piping, control valves and water storage tank, having capacity of 20 gallons.

**EXTENSION LIGHT**—Extension light, with cord and plug, provided.

## Section 9 - Optional Equipment

**GEARING**—Traction Motor Gearing

|   |        |        |        |        |
|---|--------|--------|--------|--------|
| Gear—Number of Teeth . . . . .          | 74     | 65     | 64     | 62     |
| Pinion—Number of Teeth . . . . .        | 18     | 18     | 19     | 21     |
| Ratio . . . . .                         | 4.111  | 3.611  | 3.368  | 2.952  |
| Continuous Tractive Effort—Lbs. . . . . | 52,500 | 46,000 | 43,000 | 38,000 |
| Maximum Speed—MPH . . . . .             | 65     | 75     | 83     | 92     |

## Section 10 - Modifications

WHICH CAN BE ADDED AT INCREASED PRICE, INCREASED WEIGHT AND CHANGE  
IN LOCOMOTIVE DIMENSIONS

**STEAM GENERATOR**—Steam generator installed at rear end of engine compartment.

Capacity . . . . . 2750 lbs. steam per hour

Pressure . . . . . 65-295 lbs. per square inch

Water tank of welded steel construction provided below cab underframe, capacity . . . 1200 gallons

Steam line 2½" extra heavy steel pipe, with 2" metallic end connector at each end.

Cab heaters will be connected to steam train line.

Remote reading water tank level indicator.

**TRAINLINE END CONNECTORS**—2½" metallic end connectors can be applied.

**STEAM GENERATOR REMOTE CONTROL**—Equipment for remote control of steam generator from operating cab.

**STEAM GENERATOR PROTECTION**—Standby protection with circulating pump.

**BRAKING**—Dynamic braking equipment with dynamic brake interlock.

**COUPLERS**—Centering device at rear end of unit.

AAR Tightlock couplers.

Swing back arrangement of front coupler, with hinged doors in pilot.

Hinged cover door with standard type U or AAR coupler.

**TRANSITION CONTROL**—Automatic control of traction motor connection transitions.



**LOCOMOTIVE OVERSPEED CONTROL**—Overspeed control, with pilot light but without time delay feature.

**SPEED RECORDER**—Combination speedometer and recorder.

**HEADLIGHT—OSCILLATING**—Headlight, oscillating type, applied in front end, with or without automatic emergency feature.  
Regular headlight applied below.

**BACK-UP LIGHT**—Portable back-up light with 32 volt, 100 watt lamp; bracket and electrical receptacle in rear bulkhead and storage bracket in engine room.

**ELECTRIC CAB HEATER**—Blown type, 2.5 KW electric heater for operating cab.

**TERMINAL A.C. LIGHTING**—Provision for 110 V. or 220 V. AC source for locomotive lighting.

**TRACTION MOTOR CUT-OUT SWITCH**—Mounted inside contactor compartment at convenient location.

**EMERGENCY SANDING**—Control equipment to give automatic sanding on emergency air brake operation.

**RESERVOIR CAPACITY**—Additional air reserve capacity to provide total of 50,000 cu. ins.

**TRAIN AIR SIGNAL**—Equipment necessary for addition of train air signal.

**LOCKER**—Locker arranged for tools or for clothing.

**DRINKING WATER COOLER**—Electric cooler with two-gallon water bottle.

**CAB SEAT**—Additional seat in operating cab.

**BALLAST**—To obtain weight of 100,000 lbs. (including engine, boiler, etc.) 150,000 lbs.

## Section 11-Painting and Miscellaneous

**PAINTING**—Outside finish applied as follows:

- Primer surfacer
- Glazing
- Wet sanding
- Lacquer primer surfacer, intermediate
- Surfacer, final
- Lacquer finish

Lettering, numbering and color scheme as specified by the Railroad Company.

Interior of operating cab and engine compartment painted suede grey.

Interior of battery compartment painted with special acid-resisting paint.

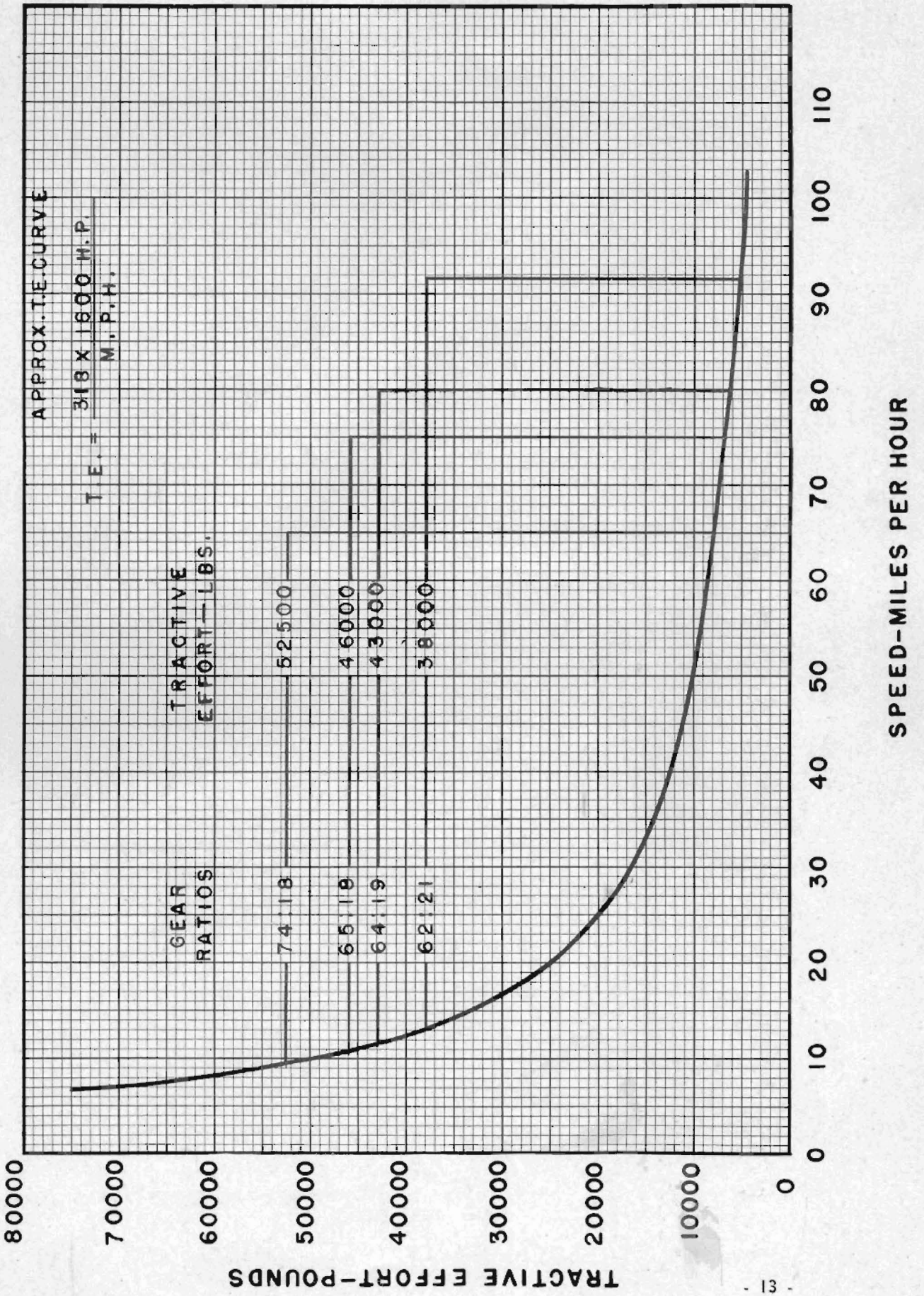
Interior of radiator compartment painted with suede grey.

Cab underframe and trucks painted black.

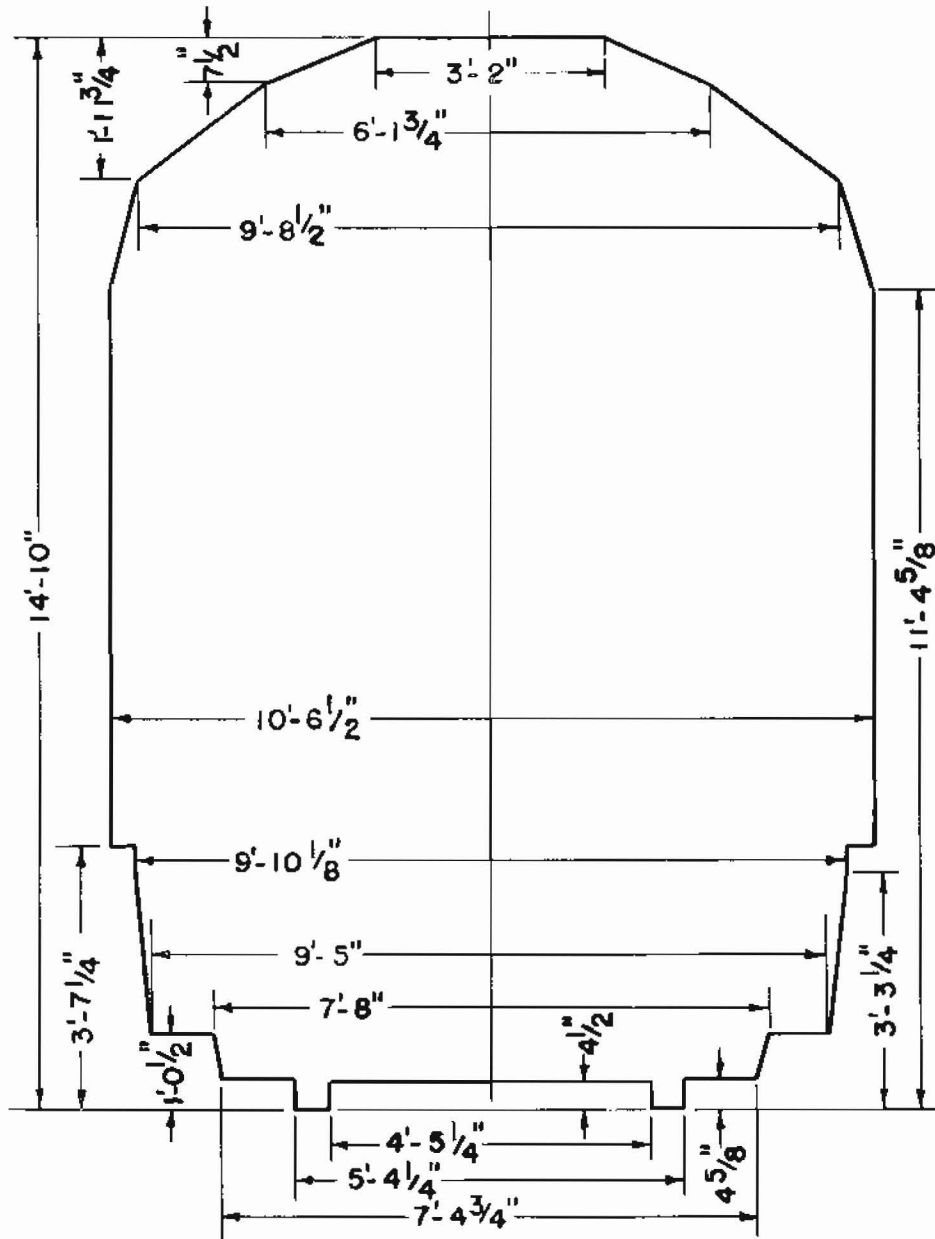
**MATERIALS**—All materials are in accordance with standard material specifications of the American Locomotive Company and of the apparatus manufacturers.

**PATENTS**—All patent fees not covered by this specification excepted.

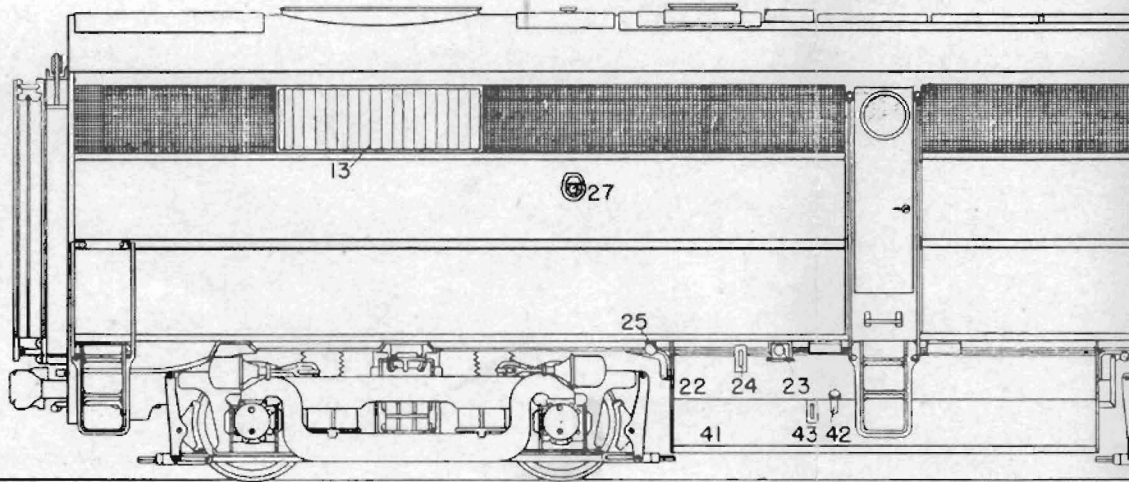
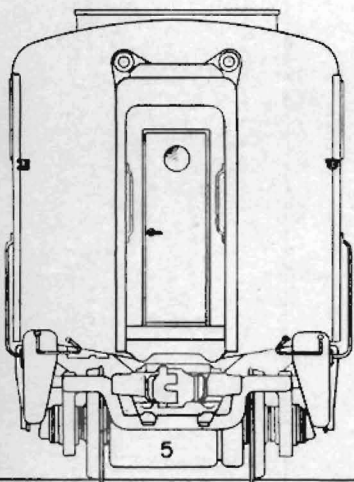
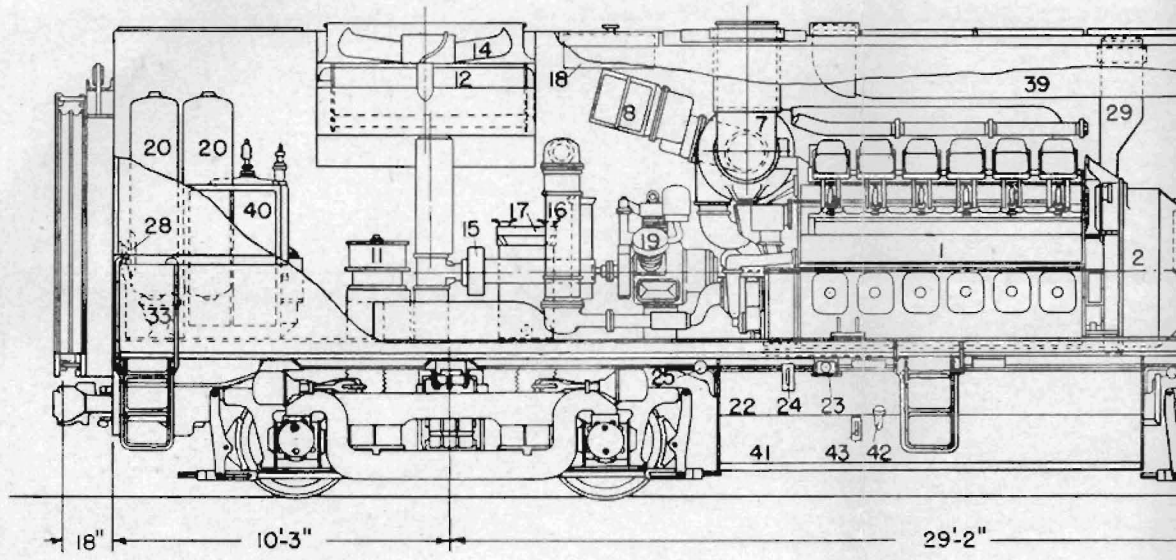
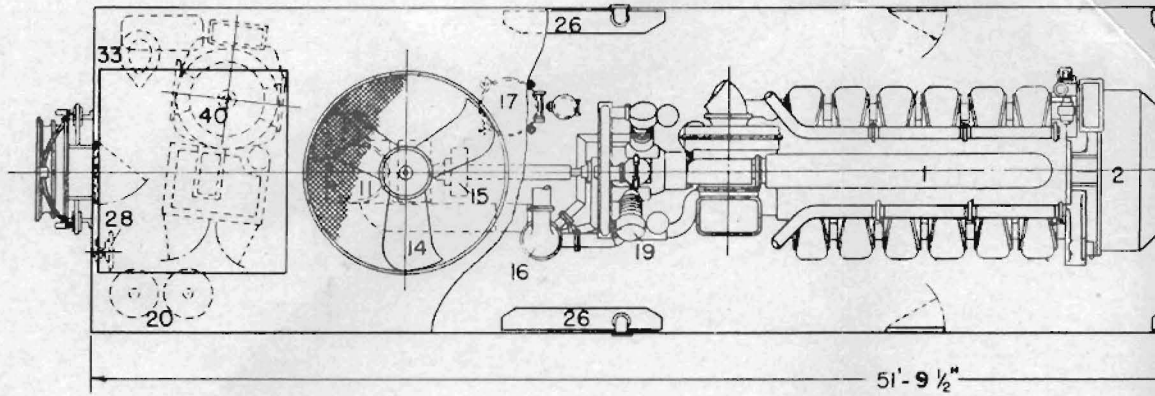
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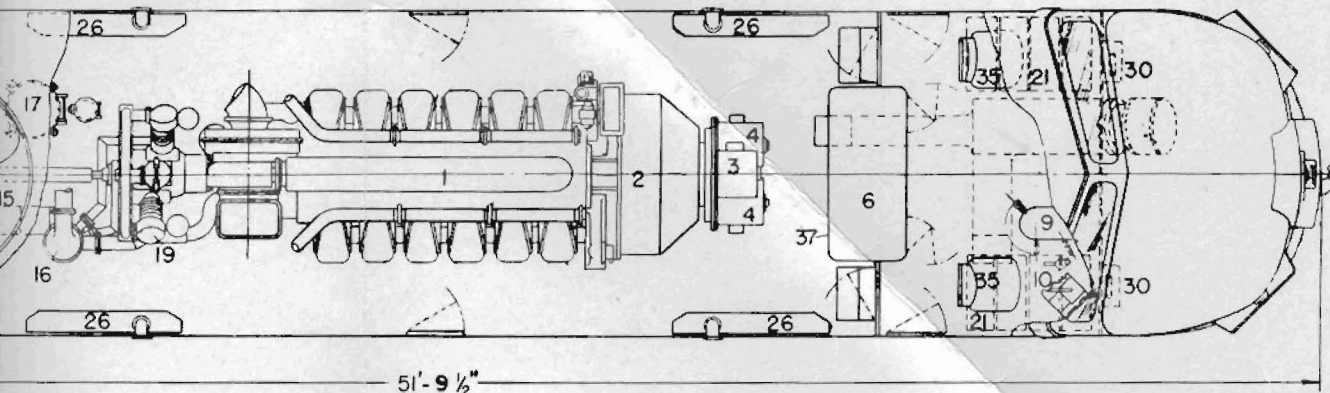




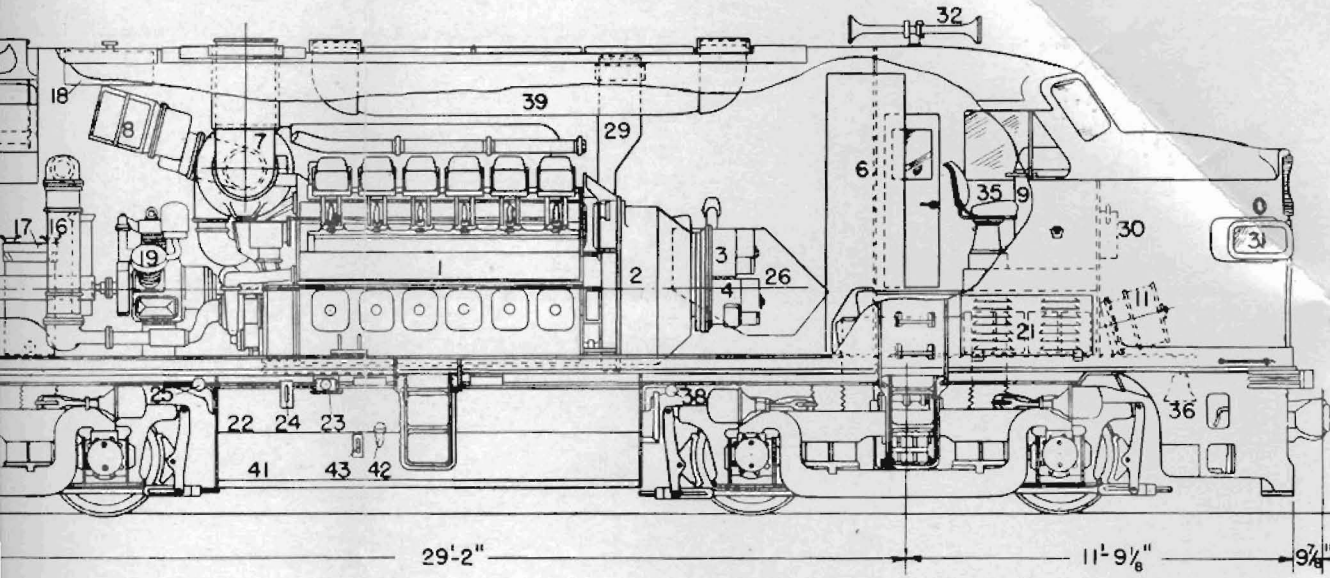


**MAXIMUM OUTLINE  
DRAWING DIMENSIONS  
1600 H.P. ROAD LOCOMOTIVE A UNIT  
981 N 94520**

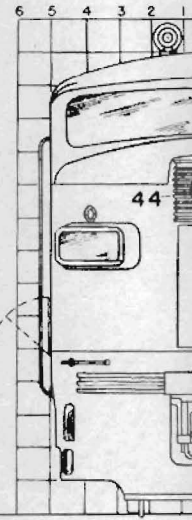
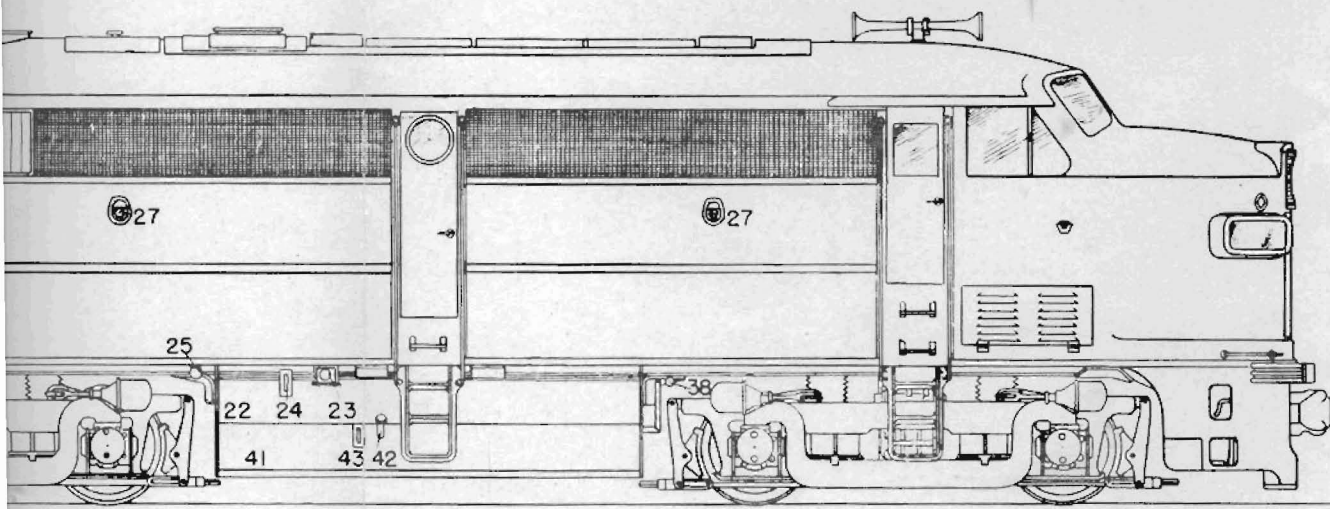




- 1- ENGINE
- 2- MAIN GENERATOR
- 3- EXCITER
- 4- AUXILIARY GENERATOR
- 5- TRACTION MOTORS
- 6- CONTACTOR COMPARTMENT
- 7- TURBOSUPERCHARGER
- 8- TURBOSUPERCHARGER & SILENCERS
- 9- CONTROL STAND
- 10- BRAKE VALVES
- 11- TRACTION MOTOR
- 12- RADIATORS
- 13- RADIATOR SHUTTER
- 14- RADIATOR FAN
- 15- RADIATOR FAN CLUTCH
- 16- LUBRICATING OIL COMPARTMENT
- 17- LUBRICATING OIL FILTER
- 18- ENGINE WATER TANK
- 19- AIR COMPRESSOR



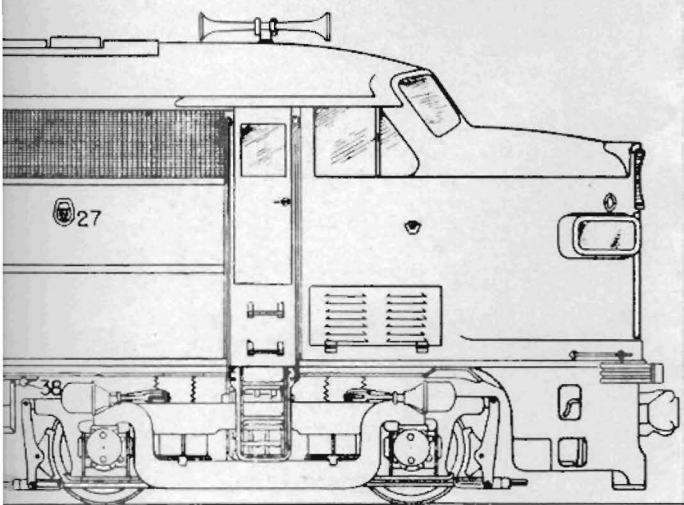
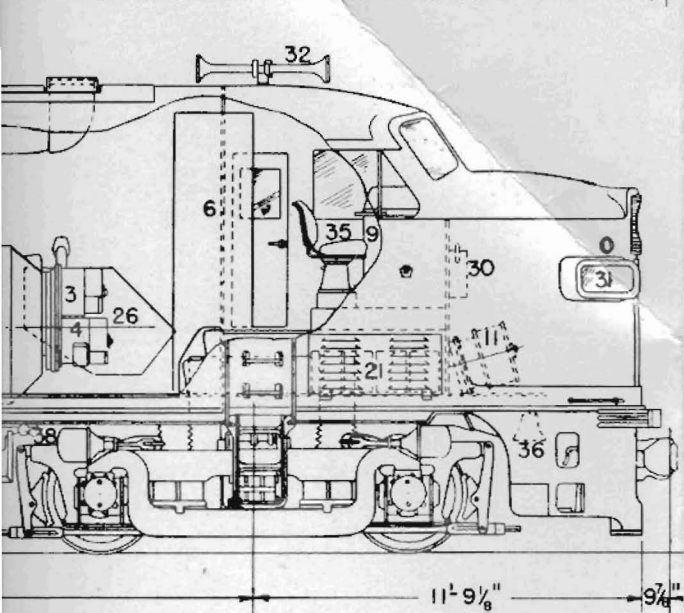
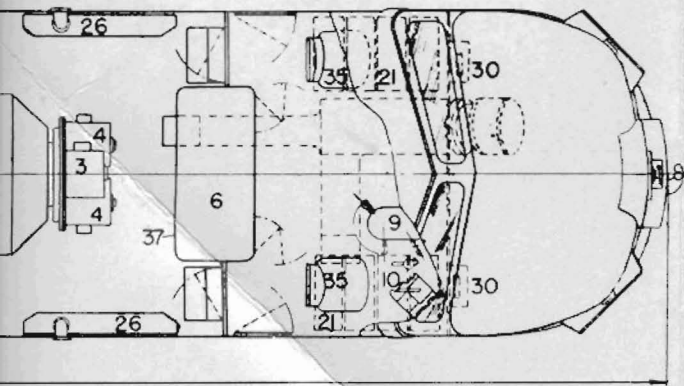
- MODIFICATIONS
- 39- DYNAMOMETER
- 40- STEAM
- 41- WATER
- 42- WATER
- 43- WATER
- 44- HEAD





AMERICAN LOCOMOTIVE COMPANY

985 N 94510



- |   |                                  |
|---|----------------------------------|
| 1- ENGINE                                   | 20- MAIN AIR RESERVOIRS          |
| 2- MAIN GENERATOR                           | 21- BATTERIES                    |
| 3- EXCITER                                  | 22- FUEL TANK                    |
| 4- AUXILIARY GENERATOR                      | 23- FUEL TANK FILLING CONNECTION |
| 5- TRACTION MOTORS                          | 24- FUEL TANK GAUGE              |
| 6- CONTACTOR COMPARTMENT                    | 25- EMERGENCY FUEL CUT OFF       |
| 7- TURBOSUPERCHARGER                        | 26- SANDBOXES                    |
| 8- TURBOSUPERCHARGER FILTERS<br>& SILENCERS | 27- SANDBOX FILLING HOLES        |
| 9- CONTROL STAND                            | 28- HAND BRAKE                   |
| 10- BRAKE VALVES                            | 29- GENERATOR AIR DUCT           |
| 11- TRACTION MOTOR BLOWERS                  | 30- CAB HEATER                   |
| 12- RADIATORS                               | 31- NUMBER BOXES                 |
| 13- RADIATOR SHUTTERS                       | 32- HORNS                        |
| 14- RADIATOR FAN                            | 33- TOILET                       |
| 15- RADIATOR FAN CLUTCH                     | 34- HEADLIGHT - FIXED            |
| 16- LUBRICATING OIL COOLER                  | 35- SEATS                        |
| 17- LUBRICATING OIL FILTER                  | 36- BELL                         |
| 18- ENGINE WATER TANK                       | 37- ENGINE CONTROL PANEL         |
| 19- AIR COMPRESSOR                          | 38- BATTERY CHARGING RECEPTACLE  |

MODIFICATIONS:-

- 39- DYNAMIC BRAKE GRIDS & BLOWERS
- 40- STEAM GENERATOR
- 41- WATER TANK
- 42- WATER TANK FILLING CONNECTION
- 43- WATER TANK GAUGE
- 44- HEADLIGHT - OSCILLATING

