

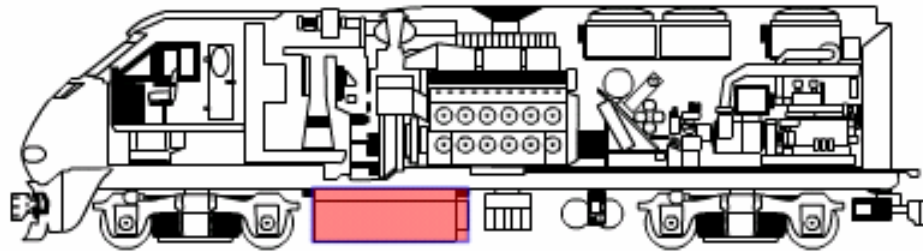
The background is a dark blue field filled with various shades of blue gears of different sizes, some overlapping. On the left side, there is a vertical strip with a colorful, textured pattern of gears in shades of orange, yellow, and brown.

How It Works

Diesel Locomotive
Air Breaking
Dynamic Breaking

Power Generation

How Diesel Locomotives Work



Engine Turbocharger

Main Engine

Main Generator

Cab

Head-end power unit

Fuel Tank

Batteries

Cooling Fans/Radiators

Trucks

Control Stand

Coupler

Filters

Cab Seat

Air Compressor

Dynamic Brake Grid

Dynamic Brake Fan

Compressed Air Tank



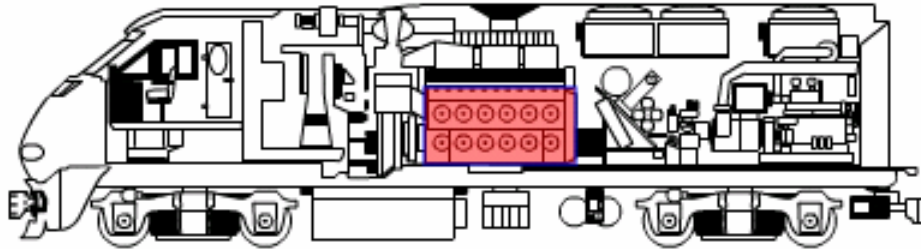
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- ★ Diesel gas is the energy source

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Power Generation

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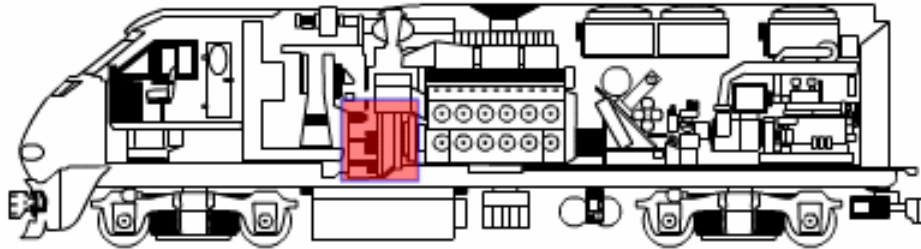
Compressed Air Tank



- ☀ Diesel gas is the energy source
- ☀ Gas fuels the engine

Power Generation

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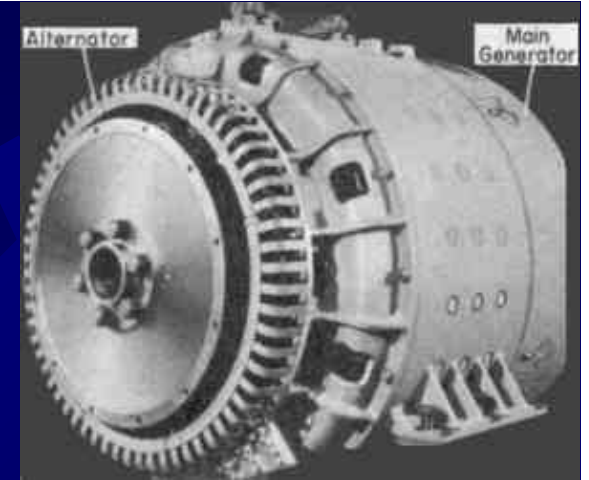
Cab Seat

Air Compressor

Dynamic Brake Grid

Dynamic Brake Fan

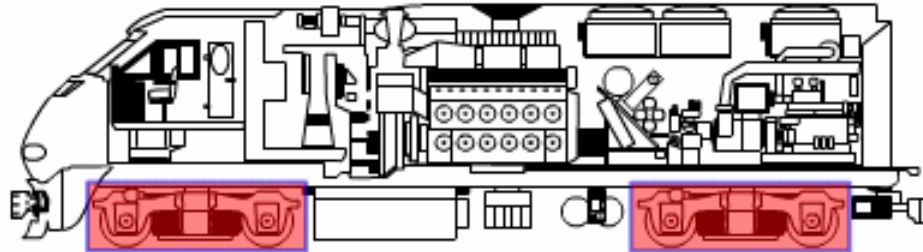
Compressed Air Tank



- ★ Diesel gas is the energy source
- ★ Gas fuels the engine
- ★ The engine turns the generator
- ★ The generator produces electricity

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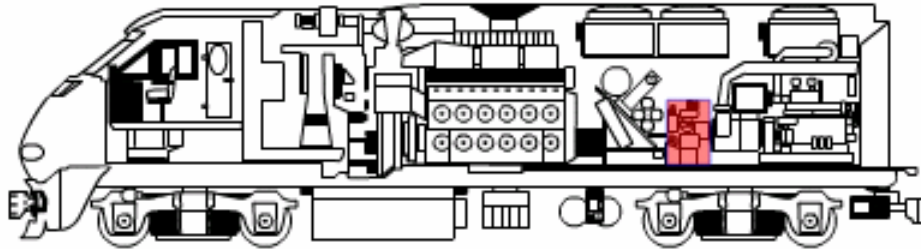


- ☀ Diesel gas is the energy source
- ☀ Gas fuels the engine
- ☀ The engine turns the generator
- ☀ The generator produces electricity
- ☀ The electricity turns the motors in the trucks

Air Breaking



How Diesel Locomotives Work



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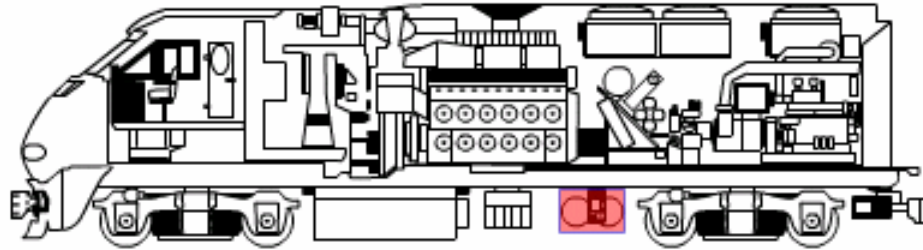
Dynamic Brake Fan

Compressed Air Tank

- Engine drives an air compressor

Air Breaking

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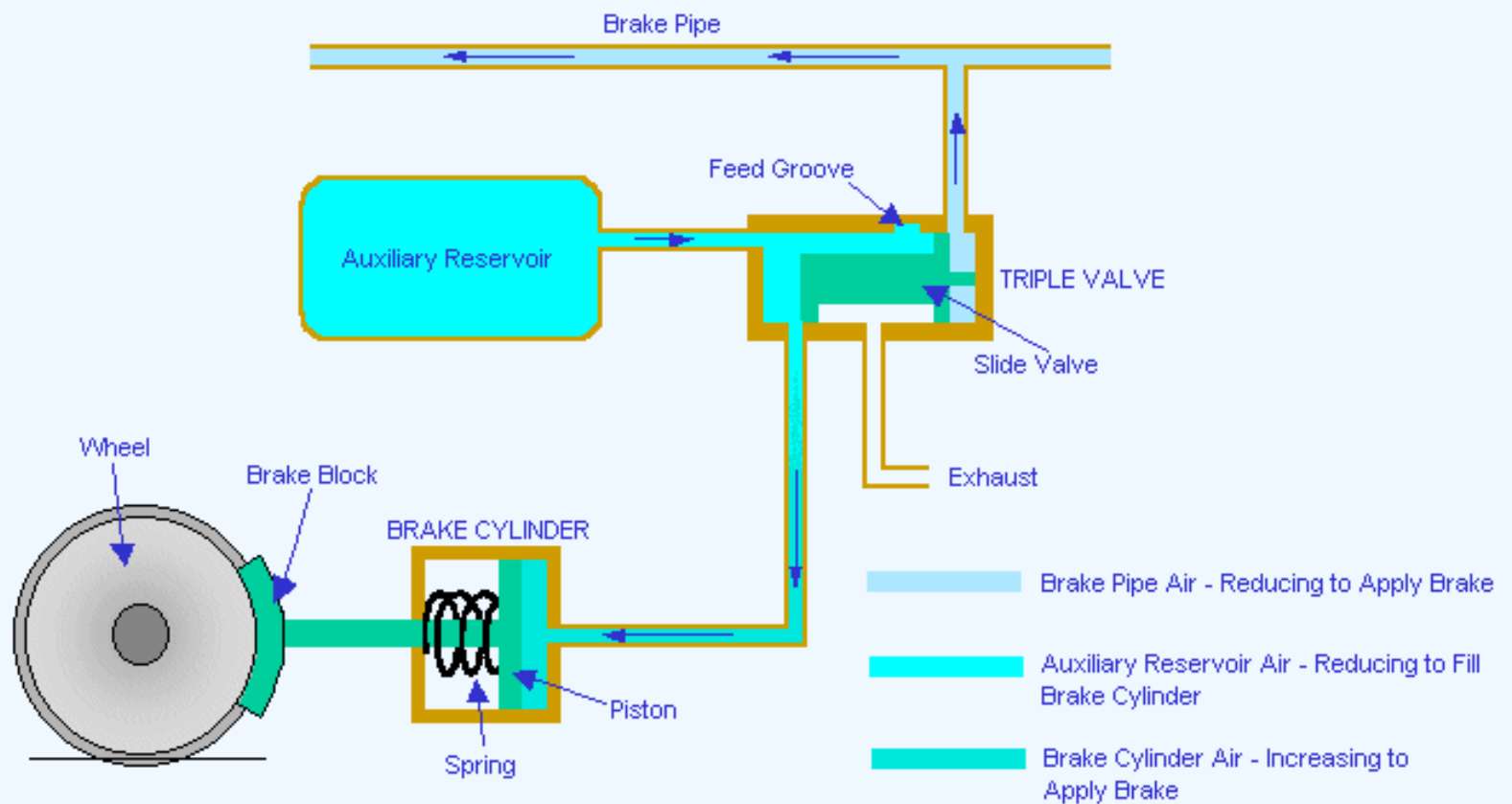
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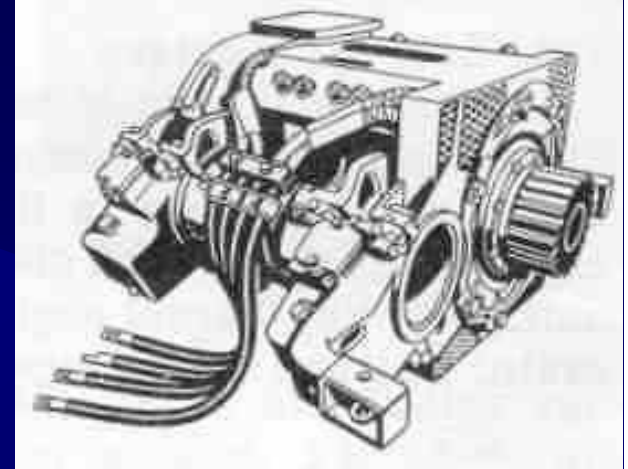
- ✦ Engine drives an air compressor
- ✦ Air compressor fills an air tank
- ✦ Air tank supplies pressure to every car in the train
- ✦ Air pressure keeps break shoes from touching wheels

Air Breaking

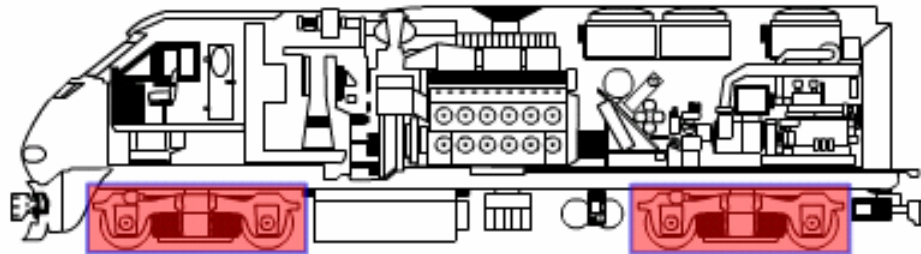


Schematic Diagram of Air Brake System on Vehicle in Application Position

Dynamic Breaking



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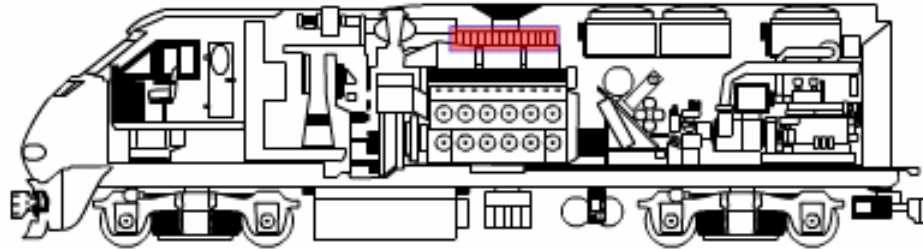
Dynamic Brake Fan

Compressed Air Tank

- ✦ Electric is no longer routed to motors
- ✦ Traction motors act like electrical generators

Dynamic Breaking

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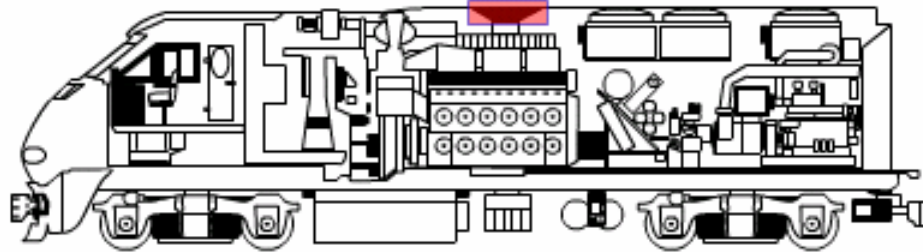
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- ✦ Electric is no longer routed to motors
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- ✦ Electricity turned to heat in the brake grid

Dynamic Breaking

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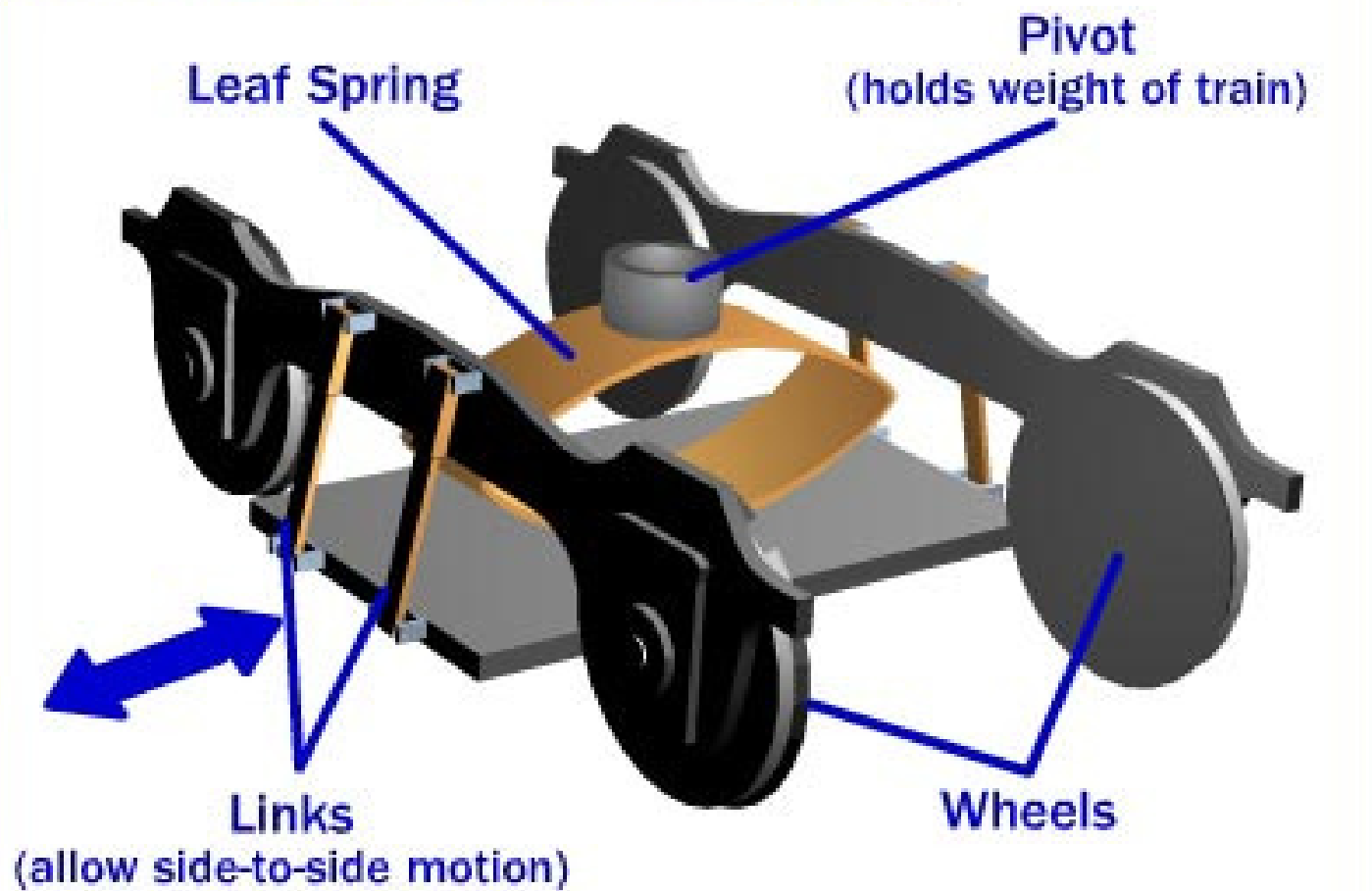
Coupler
Filters
Cab Seat
Air Compressor
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Dynamic Brake Fan
Compressed Air Tank

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- ✦ Electric is no longer routed to motors
- ✦ Traction motors act like electrical generators
- ✦ Electricity turned to heat in the brake grid
- ✦ Fan removes heat from locomotive

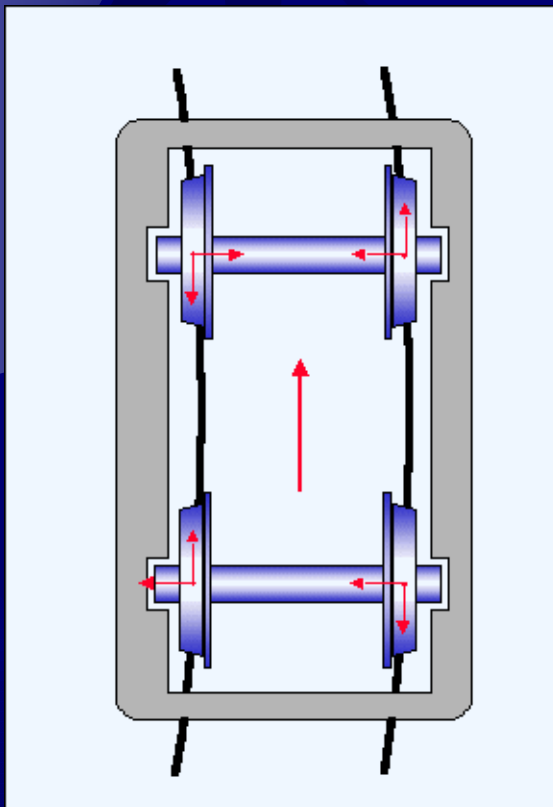
Suspension

How Diesel Locomotives Work

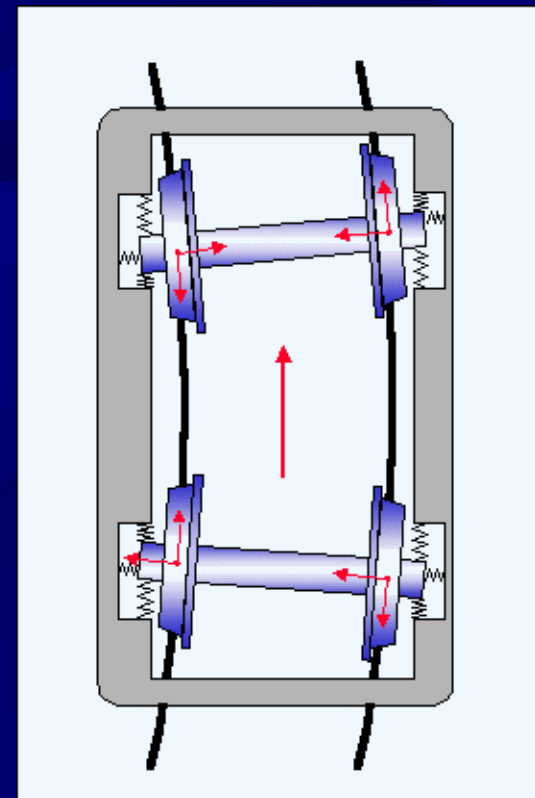


Steering

Radial Steering prevents track wear



Typical Trucks



Radial Steering Trucks