



Air Flow Laboratory



GSPEL Laboratory

GVSC's Ground Systems Power and Energy Laboratory (GSPEL) Team operates the Air Flow Laboratory (AFL) which supports the execution of component level testing on several critical mobility systems on a variety of military vehicles by use of Calorimeter and Air Filtration Testing.

Calorimeter Testing

Benefits

- Evaluate new heat exchangers and ballistic grilles
- Repeatable simulate field environmental conditions
- Test up to three heat exchangers as a pack
- Unique Army testing capability
- Unbiased first-article test and production quality surveillance

Components Tested

- Radiators
- Oil Coolers
- Charge Air Coolers
- Ballistic Grilles



AFL Calorimeter Test

Filtration Testing

Benefits

- Evaluate new air cleaner systems
- Replicate field failures
- Assess impact of add-on parts to air cleaner system
- Assess maintenance efficiency
- Unique Army testing capability
- Unbiased first-article test and production quality surveillance

Components Tested

- Air cleaner systems
- Add-on components to air cleaner systems



AFL Filtration Test

Capabilities

Calorimeter Capabilities

Cooling Air

- Air Flow Rate: 800 to 60000 CFM
- Air Flow Velocity: 3000 to 7000 ft/min
- Inlet Air Temperatures: up to 250 °F

Radiator Loop

- Coolant Flow Rate: 10 to 300 gal/min
- Coolant Inlet Temperature: 125 to 350 °F
- Coolant Inlet Pressure: 0 to 125 psig

Oil Cooler Loop

- Oil Flow Rate: 10 to 150 gal/min
- Oil Inlet Temperature: 175 to 350 °F
- Oil Inlet Pressure: 0 to 300 psig

Charge Air Cooler Loop

- Charge Air Flow Rate: 30 to 150 lb/min
- Charge Air Temperature: 150 to 650 °F
- Charge Air Inlet Pressure: 15 to 90 psig



Radiator Test Setup



Ballistic Grille Test Setup

Air Filtration Capabilities

Ambient air conditions are controlled in the Air Filtration laboratory. In addition to controlling temperature, the relative humidity can be set to the desired level.

250 CFM Bench

- Air Flow Rate: 8 to 250 SCFM

2000 CFM Bench

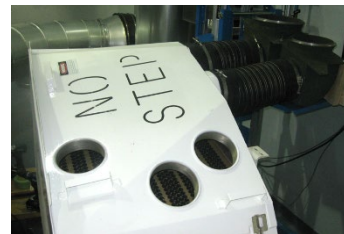
- Air Flow Rate: 80 to 2000 SCFM

5000 CFM Bench

- Air Flow Rate: 320 to 5000 SCFM

2000 CFM Bench

- Air Flow Rate: 800 to 12000 SCFM



12,000 CFM Test



2,000 CFM Test Setup



2,000 CFM Test Setup