Turbocharging

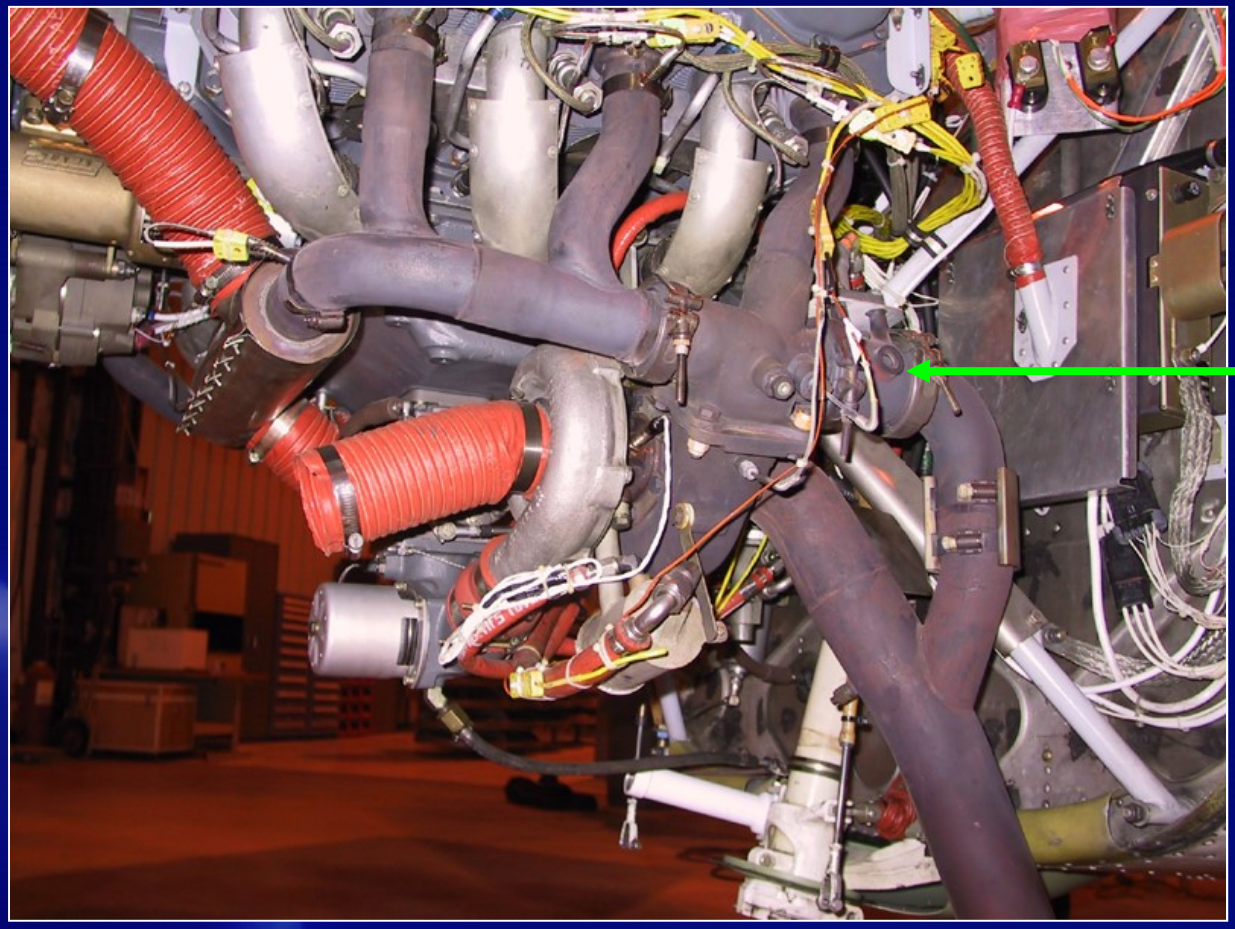
Turbocharging

Turbocharged Engines:

- **Maintain a higher manifold pressure at a given throttle setting, regardless of air temperature and pressure.**
- **Maintain sea level atmospheric manifold pressure with altitude gain.**
- **Will not lose horsepower with altitude gain.**
- **Provides pressurized air which permits more air, and therefore more fuel, to be introduced into the cylinder.**
  - **The result is more power and higher combustion efficiency.**

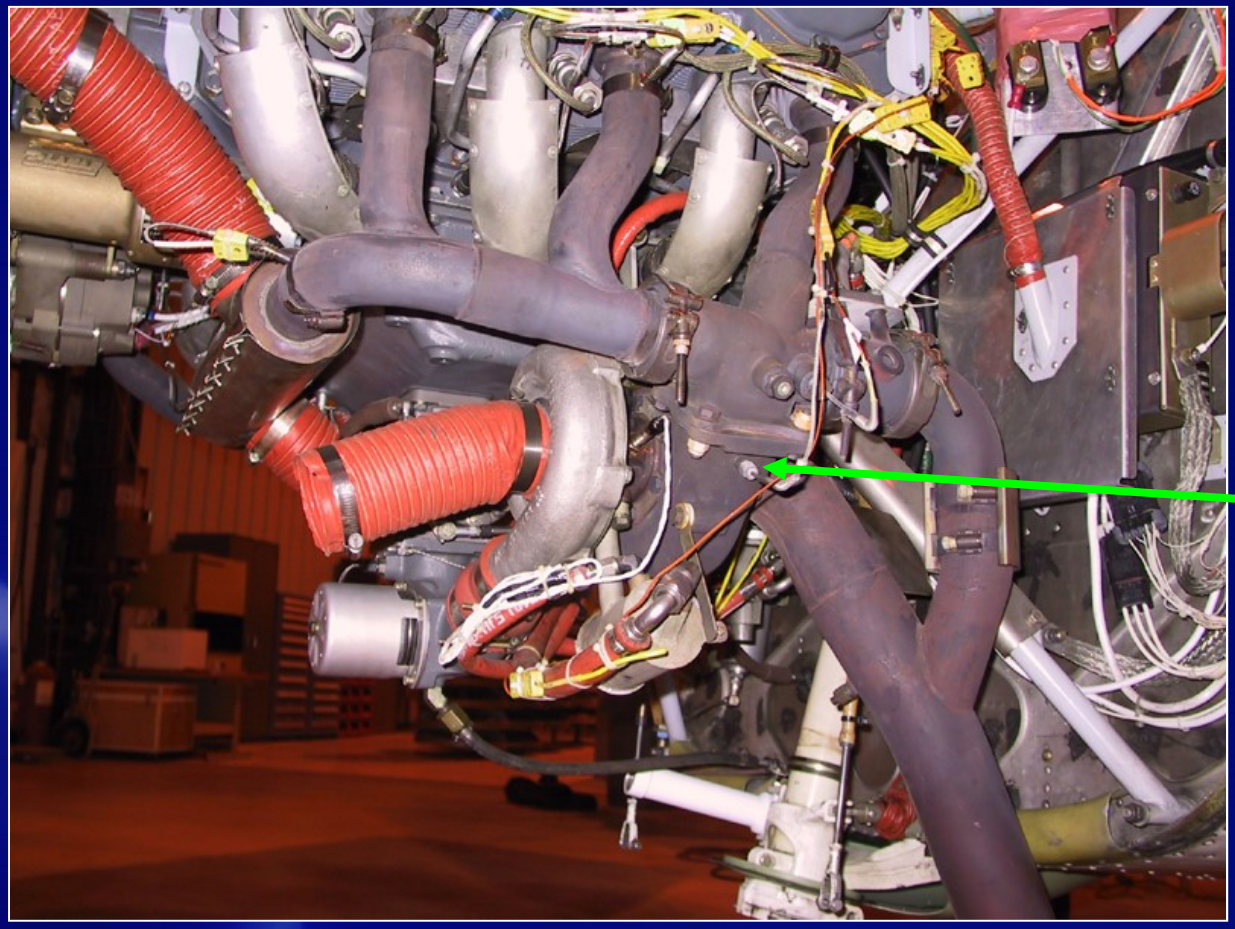
Normally aspirated engine will lose horsepower with altitude gain

Turbocharging



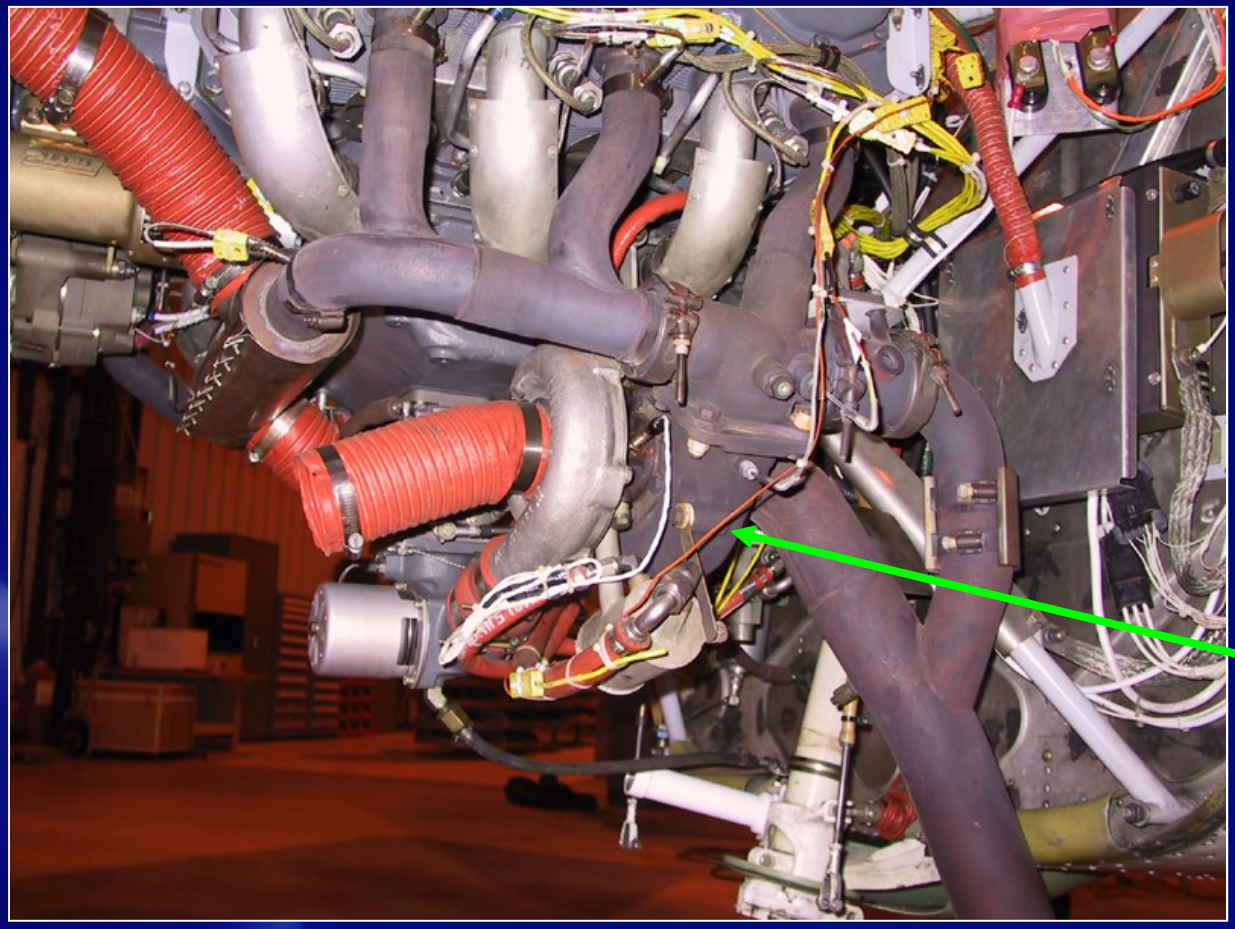
View of turbocharger installed on T182 engine

Turbocharging



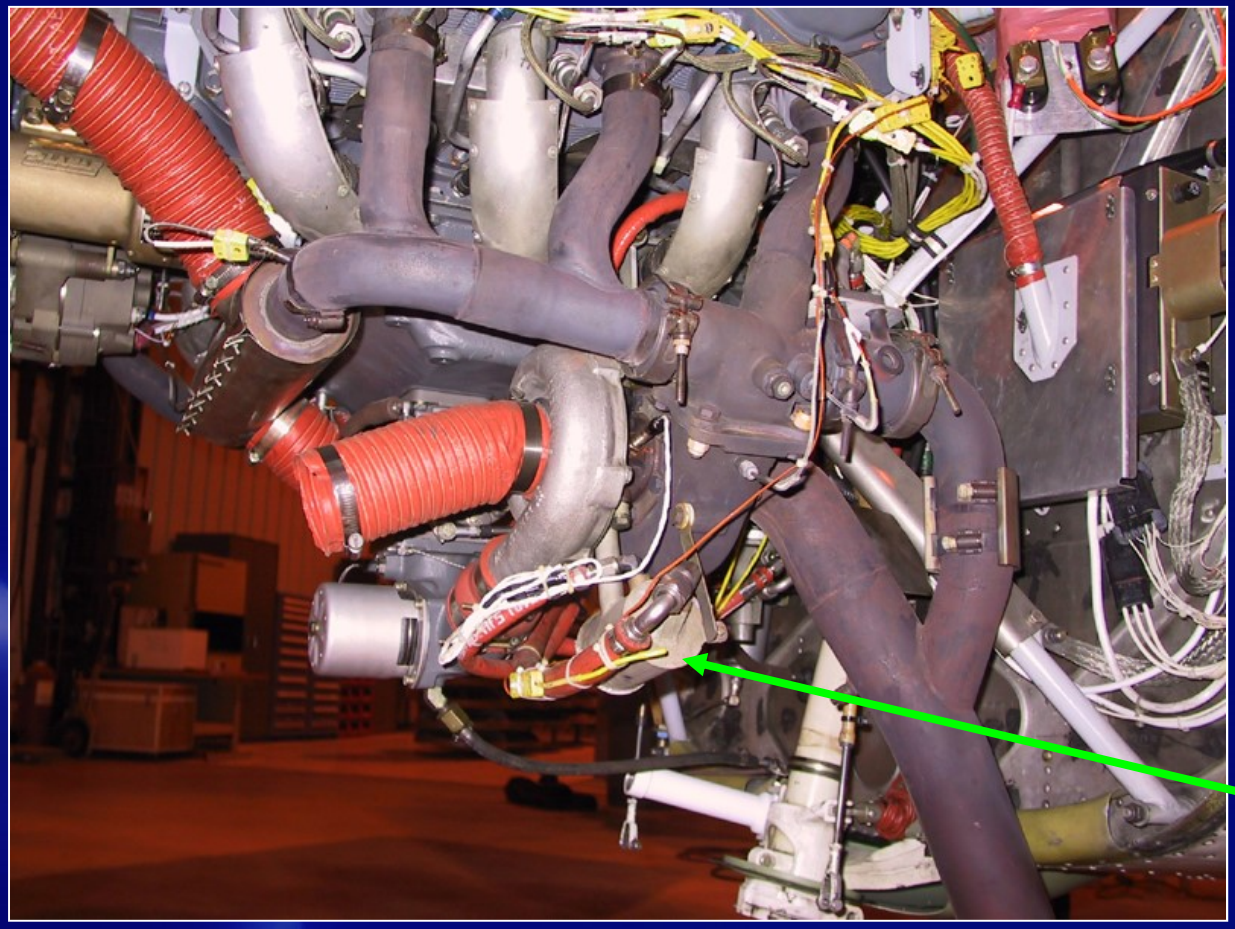
View of turbocharger installed on T182 engine

Turbocharging



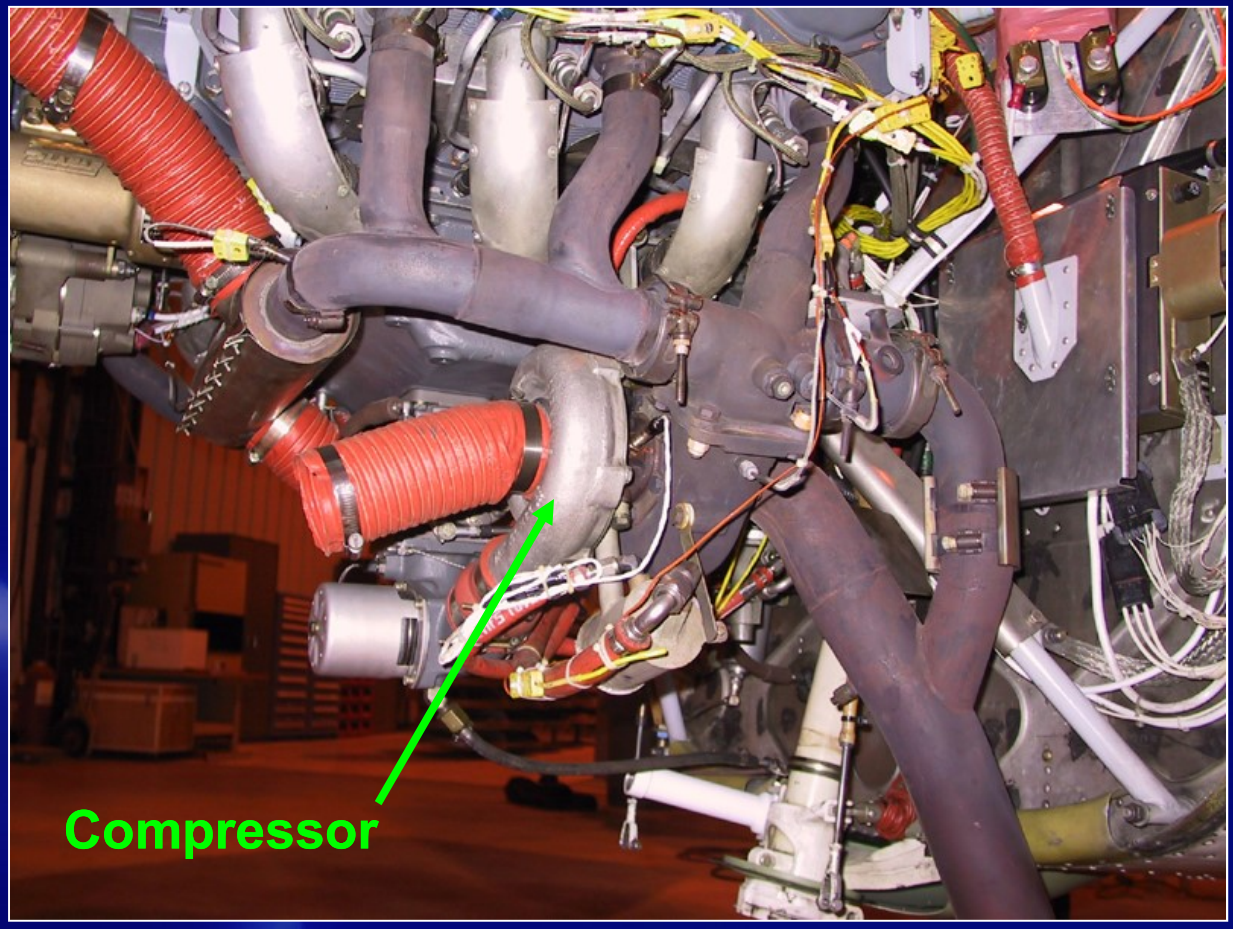
View of turbocharger installed on T182 engine

Turbocharging



View of turbocharger installed on T182 engine

Turbocharging



View of turbocharger installed on T182 engine

Turbocharging

View of turbocharger installed on T182 engine

Turbo Skylane

Normal Operating Range

Maximum Operating Range

Powerplant Instrument Markings

Instrument	Normal	Max Limit
Tachometer (RPM)	2000 - 2400	2400
Manifold Pressure (in. Hg.)	15 - 28	32
Cylinder Head Temperature (°F)	200 - 500	500
Oil Temperature (°F)	100 - 245	245
Oil Pressure (PSI)	50 - 90	115
Turbine Inlet Temperature (T.I.T.) (°F)	1350 - 1685	1685

Turbo StationAir

Cessna
A Textron Company

Normal Operating Range

Maximum Operating Range

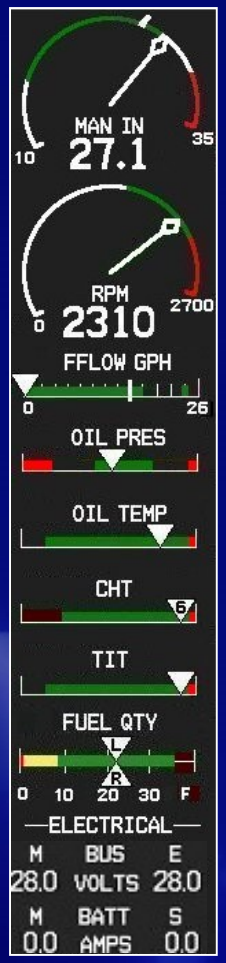
Powerplant Instrument Markings

Instrument	Normal	Max Limit
Tachometer (RPM)	2000 - 2400	2500
Manifold Pressure (in. Hg.)	15 - 30	39
Cylinder Head Temperature (°F)	200 - 480	480
Oil Temperature (°F)	100 - 245	245
Oil Pressure (PSI)	50 - 90	115
Turbine Inlet Temperature (T.I.T.) (°F)	1350 - 1675	1675

GARMIN G1000 EQUIPPED

MFD Details

Engine Indication System



Turbo Skylane

- **Manifold Pressure**
  - **White Tick Mark (25 in. Hg)**
    - Normal Enroute Climb
- **Fuel Flow**
  - **White Tick Mark (16 GPH)**
    - Normal Enroute Climb
  - **Green Tick Mark (24 GPH)**
    - Maximum Performance Climb

MFD Details

Engine Indication System

Turbo StationAir

- **Manifold Pressure**
  - **Top of the Green Arc (30 in. Hg)**
    - Normal Enroute Climb
- **Fuel Flow**
  - **Top of the Green Range (20 GPH)**
    - Normal Enroute Climb
  - **Green Tick Mark (34 GPH)**
    - Maximum Performance Climb

Turbocharging

MOMENTARY OVERSHOOT OF MANIFOLD PRESSURE

- Rapid throttle movement, especially with cold oil makes it possible that the engine can be overboosted slightly above the maximum manifold pressure.

- Most likely be experienced during the takeoff roll or during a change to full throttle operation in flight.

- A slight overboost of 2 to 3 inches of manifold pressure is not considered detrimental to the engine as long as it is momentary.

- IF overboosting persists when oil temperature is normal or if the amount of overboost tends to exceed 3 inches or more, the throttle should be retarded to eliminate the overboost and the controller system, including the waste gate and relief valve, should be checked for adjustment or replacement of components.

Turbocharging

Maximum Continuous Power – (MCP)

Manifold Pressure Limitations

Minimum Fuel Flows
Maximum Continuous Power
2500 RPM

ALT (FT)	M.P. (IN. Hg)	FUEL FLOW (GPH)
SL - 17,000	39	34.0
18,000	37	30.5
20,000	35	28.5
22,000	33	26.5
24,000	31	24.5
26,000	29	23.0
28,000	27	21.0
30,000	25	19.0

T206

Turbocharging

Section 2, Limitations:

Maximum Operating Altitude

(T182 ONLY)

20,000 Feet MSL