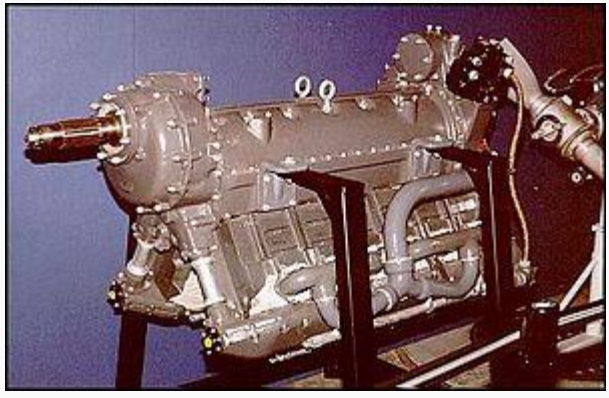
Ranger V-770

V-770



Preserved Ranger V-770

Type	Piston aero-engine
Manufacturer	Ranger Aircraft Engine Division
First run	1931
Major applications	Bell XP-77
Unit cost	$11,000 U.S. Dollars *circa 1944*

The **Ranger V-770** was an American air-cooled inverted Vee aero-engine developed by the Ranger Aircraft Engine Division of the Fairchild Engine & Aircraft Corporation in the early 1930s.

In 1931, the **V-770** design was put to paper, based on the Ranger 6-440 series of inline air-cooled engines, and test flown in the Vought XSO2U-1 Scout. In 1938 it was tested in the Curtiss SO3C Seamew and found to be unreliable with a tendency to overheat in low-speed flight. By 1941 a more developed **V-770** was installed in the Fairchild XAT-14 Gunner prototype and

found satisfactory for the production Fairchild AT-21 Gunner gunnery school aircraft.

Produced from 1941 to 1945, the **V-770** featured a two-piece aluminum alloy crankcase, steel barreled cylinders with integral aluminum alloy fins and aluminum alloy heads. The **V-770** was one of very few V-type, in-line, air-cooled engines to reach production. The engine was used in a relatively small number of Army Air Forces aircraft, among them the Fairchild AT-21 twin-engine trainer of which approximately 175 were built, and in the two Bell XP-77s.

Variants

V-770-4
: Installed in the Vought XSO2U-1 Scout

V-770-6
: Installed in the XAT-14 Gunner prototype, intended for the Ryan SOR-1 Scout

V-770-7
: Installed in the Bell XP-77 light-weight fighter prototype

V-770-8
: Installed in the Curtiss SO3C Seamew Scout.

V-770-9
: Installed in the XAT-6E Texan prototype.

V-770-11
: Installed in the Fairchild AT-21 Gunner.

V-770-15
: Installed in the Fairchild AT-21 Gunner.

SGV-770C-1
: Tested in the Curtiss XF6C-7 Hawk Fighter-Bomber at 350 hp.

SGV-770D-5
: Developed for post-war commercial use, 700 hp (kW) at 3,600 RPM), weight 870 lb (395 kg), height 31.11 in (790 mm), length 74.92 in (1,900 mm), width 33.28 in (846 mm)

Applications

- Bell XP-77
- Curtiss SO3C
- Fairchild AT-21
- Fairchild BQ-3
- Ikarus 214D
- Vought XSO2U

General characteristics

- **Type:** 12-cylinder inverted Vee piston engine
- **Bore:** 4 in (101.6 mm)
- **Stroke:** 5 ⅛ in (130.2 mm)
- **Displacement:** 773 in^3 (12.6 L)
- **Length:** 62 in (1,574.8 mm)
- **Width:** 28 in (711.2 mm)
- **Height:** 32.2 in (817.88 mm)
- **Dry weight:** 730 lb (331 kg)

Components

- **Valve train:** Two overhead camshafts, one per cylinder bank, gear driven
- **Supercharger:** Single-Speed, Single-Stage, produced 45 inches of mercury (1.5 bar, 7.5 psi) at take-off
- **Fuel system:** Holley non-icing carburetor
- **Fuel type:** 87 octane petrol
- **Oil system:** Full pressure type
- **Cooling system:** Air-cooled

Performance

- **Power output:** 520 hp at 3,150 rpm (387.7 kW)
- **Specific power:** 0.673 hp/in^3
- **Compression ratio:** 6.5:1
- **Power-to-weight ratio:** 0.71 hp/lb