

CHAPTER TEN

Engines in Production

The following list of aircraft engines includes only those in production during the year. Unless otherwise noted the specifications are the manufacturers'.

AEROJET-GENERAL CORP.

Azusa, Calif.

MODEL: 14AS-1000 Jet-Assisted Takeoff (JATO) Unit.

DATA

TYPE: Solid-propellant rocket.

SPECS

DIAMETER: 10.25 in. LENGTH: 35.4 in.
EMPTY WEIGHT: 120 lb. LOADED WEIGHT: 200 lb.

PERFORMANCE

RATING: 1,000 lb. thrust, or 330 hp, for a duration of 14 sec.

EQUIPMENT

JATO motor consists of a steel cylinder closed on fore end with exhaust nozzle, igniter and safety diaphragm located on aft end. Thrust is transmitted through three mounting lugs welded on the cylinder to the aircraft attachment fittings.

REMARKS

A reliable low-cost rocket engine for the jet-assisted takeoff of piloted aircraft.

MODEL: 15KS-1000 Aircraft Rocket Engine.

DATA

TYPE: Solid-propellant rocket.

SPECS

DIAMETER: 10.30 in. LENGTH: 33.45 in.
EMPTY WEIGHT: 72 lb. LOADED WEIGHT: 144 lb.

PERFORMANCE

RATING: 1,000 lb. thrust, or 400 horsepower, for 15 seconds.

EQUIPMENT

The engine consists of a steel cylinder closed on the fore end. The igniter is on the fore end, and the exhaust nozzle and pressure release diaphragm are on the aft end. Thrust is transmitted to the aircraft attachment fittings through two mounting lugs welded on the cylinder.

REMARKS

The 15KS-1000 aircraft rocket engine was originally developed as a smokeless JATO (jet-assisted takeoff unit) for the United States Navy, Bureau of Aeronautics. It is currently the only

rocket engine certificated by the CAA for use as standby power on business and commercial aircraft.

MODEL: 5KS-4500 Jet-Assisted Takeoff (JATO) Unit Motor.

DATA

TYPE: Solid-propellant rocket.

SPECS

DIAMETER: 9.38 in. LENGTH: 54.31 in.
EMPTY WEIGHT: 111 lb. LOADED WEIGHT: 225 lb.

PERFORMANCE

RATING: 4,500 lb. thrust for 5 seconds.

EQUIPMENT

The engine consists of a steel cylinder closed on the fore end. The igniter is on the fore end, and the cauted exhaust nozzle and the pressure release diaphragm are on the aft end. Thrust is transmitted to the aircraft attachment fittings by two mounting lugs welded on the cylinder.

REMARKS

5KS-4500 units are used for the assisted takeoff of carrier-based aircraft, or whenever high thrust is required for short duration. These engines are also employed to propel high-velocity deceleration sleds.

MODEL: AJ10-24 Booster rocket engine.

DATA

TYPE: Liquid bi-propellant rocket, gas or chemically pressurized.

SPECS

DIAMETER: 15 in. LENGTH: 130 in.

EQUIPMENT

Assembly consists of a cylindrical section which contains the oxidizer, fuel and pressurizing tanks. The pressure regulator and rocket motor are attached to the tank section.

REMARKS

This powerplant is used to propel the Aerobee high-altitude sounding rocket in investigations of the upper atmosphere.

ENGINES IN PRODUCTION

AIRCOOLED MOTORS, INC.

Syracuse, N. Y.

MODEL: Franklin 6AG4-185B12.

DATA

TYPE: 6 cylinder, air-cooled, horizontally opposed. CAA TYPE CERTIFICATE: 238.

SPECS

LENGTH: 40 19/32 in. FUEL GRADE: 80 octane. BORE: 4.5 in. STROKE: 3.5 in. DISPLACEMENT: 335 cu. in. COMPRESSION RATIO: 7:5:1. DRY WEIGHT: 360 lbs. with hub and accessories. WEIGHT PER HP: 1.86 lbs.

PERFORMANCE

TAKE-OFF POWER: 185 hp at 3,100 rpm
CRUISE: 135 hp. FUEL CONSUMPTION: .51 lbs. per hp hr. OIL CONSUMPTION: .002 lbs.

EQUIPMENT

CARBURETOR: Marvel-Schebler MA4-5 or Bendix PS5-C. IGNITION: Dual Scintilla. STARTER: Delco-Remy. GENERATOR: Delco-Remy. FUEL PUMP: A. C.

MODEL: Franklin 6A4-165-B3.

DATA

TYPE: 6 cylinder, air-cooled, horizontally opposed. CAA TYPE CERTIFICATE: 238.

SPECS

LENGTH: 27 13/32 in. FUEL GRADE: 80 octane. BORE: 4.5 in. Stroke: 3.5 in. DISPLACEMENT: 335 cu. in. COMPRESSION RATIO: 7:1. DRY WEIGHT: 324 lb. with hub and accessories. WEIGHT PER HP: 1.97 lb.

PERFORMANCE

TAKE-OFF POWER: 165 hp at 2,800 rpm.
CRUISE: 124 hp at 2,200 rpm. FUEL CONSUMPTION: .5 lb. per hp hr. OIL CONSUMPTION: .002 lb. per hp hr.

EQUIPMENT

CARBURETOR: Marvel-Schebler MA4-5 or Bendix PS5-C. IGNITION: Dual Scintilla S6N21. STARTER: Delco-Remy. GENERATOR: Delco-Remy. FUEL PUMP: AC.

MODEL: Franklin 6V4-200-C32, C33.

DATA

TYPE: 6 cylinder, air-cooled, horizontally opposed. CAA TYPE CERTIFICATE: 244.

SPECS

LENGTH: 29 1/32 in. FUEL GRADE: 91 octane. BORE: 4.5 in. STROKE: 3.5 in. DISPLACEMENT: 335 cu. in. COMPRESSION RATIO: 8.5:1. DRY WEIGHT: 333 lb. with hub and accessories. WEIGHT PER HP: 1.66 lb.

PERFORMANCE

TAKE-OFF POWER: 200 hp. FUEL CONSUMPTION: .52 lb. per hp hr. OIL CONSUMPTION: .002 lb. per hp hr.

EQUIPMENT

CARBURETOR: Marvel-Schebler MA4-5 or Bendix PS5-C. IGNITION: Dual Scintilla S6RN21. STARTER: Delco-Remy. GENERATOR: Delco-Remy. FUEL PUMP: Weldon.

REMARKS

This model was designed for helicopter installations.

MODEL: Franklin 6V4-178-B32 and B-33.

DATA

TYPE: 6 cylinder, air-cooled, horizontally opposed; 178 hp; CAA TYPE CERTIFICATE: 244.

SPECS

LENGTH: 34 3/4 in. FUEL GRADE: 80 octane. BORE: 4.5 in. STROKE: 3.5 in. DISPLACEMENT: 335 cu. in. COMPRESSION RATIO: 7:1. DRY WEIGHT: 308 lb. with hub and accessories. WEIGHT PER HP: 1.73 lb.

PERFORMANCE

TAKE-OFF POWER: 178 hp. FUEL CONSUMPTION: .52 lb. per hp hr. OIL CONSUMPTION: .002 lb. per hp hr.

EQUIPMENT

CARBURETOR: Marvel-Schebler MA4-5 or Bendix PS5-C. IGNITION: Dual Scintilla S6RN21. STARTER: Delco-Remy. GENERATOR: Delco-Remy. FUEL PUMP: Weldon. Designed for helicopter installation.

MODEL: Franklin 6V6-245-B16F.

DATA

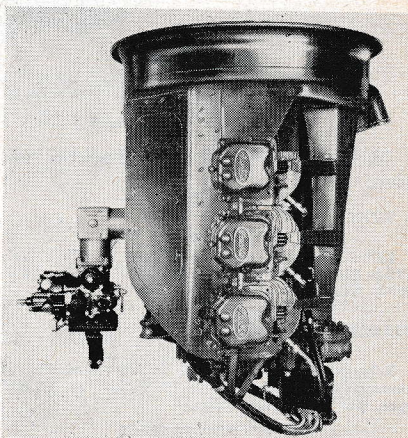
TYPE: 6 cylinder, air-cooled, horizontally opposed. CAA TYPE CERTIFICATE: 258.

SPECS

LENGTH: 39 7/32 in. FUEL GRADE: 80 octane. BORE: 4.75 in. STROKE: 4 in. DISPLACEMENT: 425 cu. in. COMPRESSION RATIO: 7.5:1. DRY WEIGHT: 353 lb. with hub and accessories. WEIGHT PER HP: 2.26 lb.

PERFORMANCE

TAKE-OFF POWER: 245 hp at 3,275 rpm.



Franklin O-425-1 (Military)
6V6-245-B16F (Commercial)

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FUEL CONSUMPTION: .52 lb. per hp hr. **OIL CONSUMPTION:** .002 lb. per hp hr.

EQUIPMENT

CARBURETOR: Bendix PS-7BD, **IGNITION:** Dual Eisemann LA-6. Designed for helicopter installation.

MODEL: Franklin 6A4-150-B3.

DATA

TYPE: 6 cylinder, air-cooled, horizontally opposed. **CAA TYPE CERTIFICATE:** 238.

SPECS

LENGTH: 37 $\frac{3}{4}$ in. **FUEL GRADE:** 80 cc-

tane. **BORE:** 4.5 in. **STROKE:** 3.5 in. **DISPLACEMENT:** 335 cu. in. **COMPRESSION RATIO:** 7:1. **DRY WEIGHT:** 321 lb. with hub and accessories. **WEIGHT PER HP:** 2.14 lb.

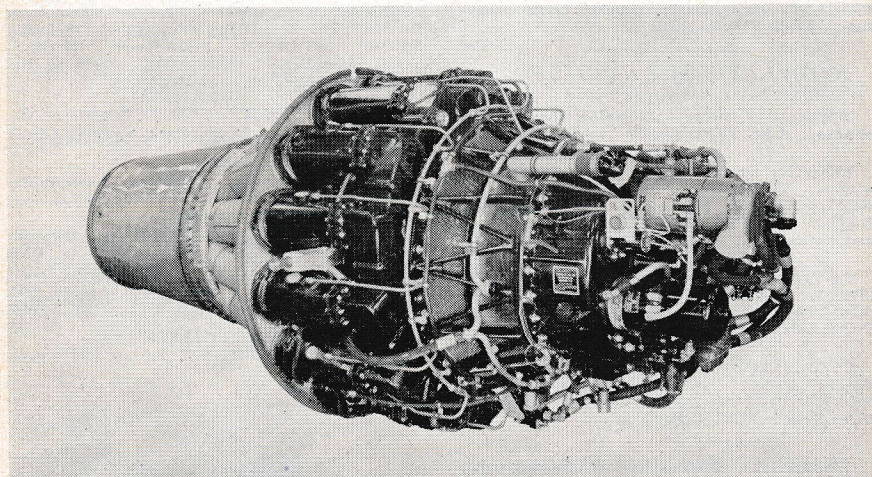
PERFORMANCE

TAKE-OFF POWER: 150 hp at 2,600 rpm. **CRUISE:** 113 hp at 2,350 rpm. **FUEL CONSUMPTION:** .5 lb. per hp hr. **OIL CONSUMPTION:** .002 lb. per hp hr.

EQUIPMENT

CARBURETOR: Marvel-Schebler MA-3SPA. **IGNITION:** Dual Eisemann LA-6 or Scintilla S6RN21. **STARTER:** Delco-Remy. **GENERATOR:** Delco-Remy. **FUEL PUMP:** A. C.

ALLISON DIVISION GENERAL MOTORS CORP. Indianapolis, Ind.



Allison J33-A-35 turbojet engine

MODEL: 501-D13 Turboprop engine.

DATA

TYPE: Axial flow turboprop.

SPECS

LENGTH: 145 in. **WIDTH:** 27 in. **WEIGHT:** 1750 lbs. **COMPRESSOR STAGES:** 14. **TURBINE STAGES:** 4.

EQUIPMENT

STARTER: Air turbine.

REMARKS

Scheduled for installation in Lockheed Electra commercial transport; ESHP 3,750 at 13,820 rpm, sea level conditions.

MODEL: T56-A-1.

DATA

TYPE: Axial flow turbo-prop.

SPECS

LENGTH: 145 in. **WIDTH:** 27 in. **TOTAL WEIGHT:** 1,645 lb. **COMPRESSOR STAGES:** 41. **TURBINE STAGES:** 4. **STARTER:** Gov. furn. equip.

REMARKS

Current production installation is in Lockheed C-130 Hercules; E.S.H.P. 3,750 at 13,820 rpm, sea level conditions.

MODEL: J33-A-35.

DATA

TYPE: Centrifugal flow turbo-jet.

SPECS

LENGTH: 106 in. **WIDTH:** 48 in. **TOTAL WEIGHT:** 1,820 lb. **COMPRESSOR STAGES:** dual inlet single. **TURBINE STAGES:** 1. **STARTER:** Gov. furn. equip.

ENGINES IN PRODUCTION

REMARKS

Current production installation is in Lockheed T-33A trainer; Thrust 4,600 lbs. max. at sea level.

MODEL: J33-A-20.

DATA

TYPE: Centrifugal flow turbo-jet.

SPECS

LENGTH: 105 in. WIDTH: 48 in. TOTAL WEIGHT: 1,800 lb. COMPRESSOR STAGES: dual inlet single. TURBINE STAGES: 1. STARTER: Gov. furn. equip.

REMARKS

Current production installation is in Lockheed TV2 trainer; Thrust 4,600 max. at sea level conditions.

MODEL: J33-A-37.

DATA

TYPE: Centrifugal flow turbo-jet.

SPECS

LENGTH: 156 in. WIDTH: 48 in. TOTAL WEIGHT: 1,800 lb. COMPRESSOR STAGES: dual inlet single. TURBINE STAGES: 1. STARTER: Gov. furn. equip.

REMARKS

Current production installation is in Martin TM-61A & C Matador. Thrust 4,600 lbs. max. at sea level conditions.

MODEL: J33-A-18A.

DATA

TYPE: Centrifugal flow turbo-jet.

SPECS

LENGTH: 94 in. WIDTH: 49 in. TOTAL WEIGHT: 1,790 lb. COMPRESSOR STAGES: dual inlet single. TURBINE STAGES: 1. STARTER: Gov. furn. equip.

REMARKS

Current production installation is in Chance Vought Regulus; Thrust 4,600 lbs. max. at sea level conditions.

MODEL: J71-A-11.

DATA

TYPE: Axial flow turbo-jet.

SPECS

LENGTH: 192 in. WIDTH: 40 in.

REMARKS

Current production installation is in Douglas B-66 bomber and RB-66 reconnaissance bomber.

MODEL: J71-A-2.

DATA

TYPE: Axial flow turbo-jet.

SPECS

LENGTH: 285 in. WIDTH: 42 in.

REMARKS

Current production installation is in McDonnell F3H-2N Demon.

CONTINENTAL MOTORS CORP.

Muskegon, Mich.

MODEL: XT 51-T-5.

DATA

TYPE: Shaft Turbine.

SPECS

LENGTH: 47.0 in. WIDTH: 16.5 in. TOTAL WEIGHT: 460 lb. COMPRESSOR STAGES: 1. TURBINE STAGES: 2.

PERFORMANCE

TAKEOFF: Shaft hp, 400, rpm 35,000; SFC 1.00; NORMAL: Shaft hp 328, rpm 33,800, SFC 1.11.

REMARKS

Possible installation: Helicopters, turboprops, pump and generator drives.

MODEL: J 69-T-19.

DATA

TYPE: Turbojet.

SPECS

LENGTH: 43.3 in. WIDTH: 22.3 in. TOTAL WEIGHT: 349 lb. COMPRESSOR STAGES: 1. TURBINE STAGES: 2.

PERFORMANCE

TAKEOFF: Thrust (lb.) 1,000, rpm 21,250, SFC 1.27; NORMAL: Thrust (lb.) 795, rpm 20,000, SFC 1.25.

REMARKS

Current production installation: Ryan Q-2 Target Drone.

MODEL: J 69-T-9.

DATA

TYPE: Turbojet.

SPECS

LENGTH: 50.5 in. WIDTH: 27.0 in. TOTAL WEIGHT: 364 lb. COMPRESSOR STAGES: 1. TURBINE STAGES: 1. STARTER: Breeze.

PERFORMANCE

TAKEOFF: Thrust (lb.) 920, rpm 22,700, SFC 1.13; NORMAL: Thrust (lb.) 725, rpm 21,000, SFC 1.06.

REMARKS

Current production installation: Cessna T-37 USAF Intermediate Trainer Aircraft.

MODEL: XT 51-T-1

DATA

TYPE: Shaft Turbine.

SPECS

LENGTH: 23.0 in. WIDTH: 20.5 in. TOTAL WEIGHT: 215 lb. COMPRESSOR STAGES: 1. TURBINE STAGES: 2.

PERFORMANCE

TAKEOFF: Shaft hp 280, rpm 35,000, SFC .97; NORMAL: Shaft hp 260; rpm 35,000; SFC 1.07.

REMARKS

Current experimental installation: Cessna XL-19C Liaison Aircraft and Bell XH-13F Helicopter.

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MODEL: XT 51-T-3.

DATA

TYPE: Shaft Turbine.

SPECS

LENGTH: 44.3 in. WIDTH: 23.2 in. TOTAL WEIGHT: 250 lb. COMPRESSOR STAGES: 1. TURBINE STAGES: 2.

PERFORMANCE

TAKE-OFF: Shaft hp 425, rpm 34,800, SFC .98.

REMARKS

Current experimental installation: Sikorsky XH-39 Helicopter.

MODEL: 320.

DATA

TYPE: Turbo-jet.

SPECS

LENGTH: 41.6 in. WIDTH: 16 in. TOTAL WEIGHT: 137 lb. COMPRESSOR STAGES: 1. TURBINE STAGES: 1.

PERFORMANCE

TAKE-OFF: Thrust (lb.) 350, rpm 34,000, SFC 1.18; NORMAL: Thrust (lb.) 290, RPM 31,500, SFC 1.10.

REMARKS

Possible installation: Missile or aircraft.

MODEL: 420.

DATA

TYPE: Ducted Fan.

SPECS

LENGTH: 47.7 in. WIDTH 25.9 in. TOTAL WEIGHT: 315 lb. COMPRESSOR STAGES: 1. TURBINE STAGES: 2.

PERFORMANCE

TAKE-OFF: Thrust (lb.) 790, rpm 34,500, SFC .55; NORMAL: Thrust (lb.) 660, RPM 34,500, SFC .53.

REMARKS

Possible application: Propulsion of aircraft or missiles. (A version of this engine is being used as an air pump in experimental boundary layer control application.)

MODEL: FSO-470-A.

DATA

TYPE: 6 Cylinders, Supercharged, Fan Cooled, Horizontally opposed. CAA TYPE CERTIFICATE: 281.

SPECS

LENGTH: 39.64 in. WIDTH: 33.62 in. DIS-PLACEMENT: 471 in. BORE: 5.00 in. STROKE: 4.00 in. COMPRESSION RATIO: 6.0:1. FUEL GRADE: 91/96. DRY WEIGHT: 583.39 lb. CARBURETOR: Bendix #PSH7BD. MAGNETO: Scintilla #S6RN-26. STARTER: Delco Remy #X11046. 24. PERFORMANCE RATING: 260 hp at 3,000 rpm at sea level.

REMARKS

Current installation: Cessna Aircraft (Helicopter).

MODEL: O-470-B.

DATA

TYPE: 6 Cylinder, Air-Cooled, Horizontally opposed, CAA TYPE CERTIFICATE: 273.

SPECS

LENGTH: 43.31 in. WIDTH: 33.62 in. DIS-PLACEMENT: 471 in. BORE: 5.00 in. STROKE: 4.00 in. COMPRESSION RATIO: 8.0:1. FUEL GRADE: 91/96. DRY WEIGHT: 450 lb. CARBURETOR: Bendix #PSD-5C. MAGNETO: Scintilla #S6RN-25. PERFORMANCE RATING: 225 hp at 2,600 rpm at sea level.

REMARKS

Current installation: Cammair Model 480, J. Ray McDiarmid and Company (conversion Grumman Wigon).

MODEL: O-470-J.

DATA

TYPE: 6 Cylinders, Air Cooled, Horizontally opposed, CAA TYPE CERTIFICATE: 273.

SPECS

LENGTH: 36.03 in. WIDTH: 33.32 in. DIS-PLACEMENT: 471 in. BORE: 5.00 in. STROKE: 4.00 in. COMPRESSION RATIO 7.0:1. FUEL GRADE: 80 Octane. DRY WEIGHT: 415 lb. CARBURETOR: Marvel MA-4-5. MAGNETO: Scintilla S6RN-25. STARTER: Delco Remy. GENERATOR: Delco Remy. PERFORMANCE RATING: 225 hp at 2,550 rpm at sea level.

REMARKS

Current installation: Taylor Craft.

MODEL: O-470-M.

DATA

TYPE: 6 Cylinders, Air-Cooled, Horizontally opposed, CAA TYPE CERTIFICATE: 273.

SPECS

LENGTH: 43.31 in. WIDTH: 33.56 in. DIS-PLACEMENT: 471 in. BORE: 5.00 in. STROKE: 4.00 in. COMPRESSION RATIO: 8.0:1. FUEL GRADE: 91/96. DRY WEIGHT: 450 lb. CARBURETOR: Bendix #PSD-50. MAGNETO: Scintilla #S6RN-25. STARTER: Delco Remy #11046. GENERATOR: Delco Remy #1118949 24V-15A. PERFORMANCE RATING: 240 hp at 2,600 rpm at sea level.

REMARKS

Current installation: Cessna Aircraft Model 310.

MODEL: O-300-A & B.

DATA

TYPE: 6 Cylinder, Air-Cooled, Horizontally opposed, CAA TYPE CERTIFICATE: 253.

SPECS

LENGTH: 36.38 in. WIDTH: 31.50 in. DIS-PLACEMENT: 301.37 in. BORE: 4.0625 in. STROKE: 3.875 in. COMPRESSION RATIO: 7.0:1. FUEL GRADE: 80. DRY WEIGHT: 310.88 lb. CARBURETOR: Marvel #MA-3SPA. MAGNETO: Scintilla #S6LN-21. PERFORMANCE RATING: 145 hp at 2,700 rpm at sea level.

REMARKS

Current installation: Cessna Aircraft Model 170 for "A" Series, Model 172 for "B" Series. Both engine series are identical except provisions for controllable prop.

ENGINES IN PRODUCTION

MODEL: O-470-Series K and L.

DATA

TYPE: 6 Cylinder, Air-Cooled, Horizontally opposed, CAA TYPE CERTIFICATE: 273.

SPECS

LENGTH: 36.03 in. WIDTH: 33.56 in. DISPLACEMENT: 471 in. BORE: 5.00 in. STROKE: 4.00 in. COMPRESSION RATIO: 7.0:1. FUEL GRADE: 80/87. DRY WEIGHT: 438 lb. CARBURETOR: Marvel #MA-4-5. MAGNETO: Scintilla #S6RN-25. STARTER: Delco Remy #10816. GENERATOR: Delco Remy #X1423. PERFORMANCE RATING: 230 hp at 2,600 rpm at sea level.

REMARKS

Current installation: Cessna Aircraft Model 180 for "K" Series and Model 182 for "L" Series. Both engines are identical except for carburetor location.

MODEL: A65-8F.

DATA

TYPE: 4 cylinder, air-cooled, horizontally opposed. CAA TYPE CERTIFICATE: 205.

SPECS

LENGTH: 30.41 in. FUEL GRADE: 73 octane. BORE: 3.875 in. STROKE: 3.625 in. DISPLACEMENT: 171 cu. in. COMPRESSION RATIO: 6.3:1 DRY WEIGHT: 176 lb. with hub and accessories. WEIGHT PER HP: 2.7 lb.

PERFORMANCE

TAKE-OFF POWER: 65 hp at 2,300 rpm. CRUISE: 53 hp at 2,150 rpm. FUEL CONSUMPTION: .49 lb. per hp hr.

EQUIPMENT

CARBURETOR: Stromberg NA-S3B. IGNITION: Eisemann AMA or J. I. Case 4-CAM. FUEL PUMP: A. C. Spark Plug Co.

MODEL: C85-12F.

DATA

TYPE: 4 cylinder, air-cooled, horizontally opposed. CAA TYPE CERTIFICATE: 233.

SPECS

LENGTH: 32 in. FUEL GRADE: 73 octane. BORE: 4.062 in. STROKE: 3.625 in. DISPLACEMENT: 188 cu. in. COMPRESSION RATIO: 6.3:1. DRY WEIGHT: 186 lb. with hub and accessories. WEIGHT PER HP: 2.14 lb.

PERFORMANCE

TAKE-OFF POWER: 85 hp at 2,575 rpm. CRUISE: 63 hp at 2,400 rpm. FUEL CONSUMPTION: 5.4 gal. per hr.

EQUIPMENT

CARBURETOR: Bendix-Stromberg NA-S3A1. IGNITION: Scintilla S4LN-21. STARTER: Delco-Remy. GENERATOR: Delco-Remy. FUEL PUMP: A. C. Spark Plug Co.

MODEL: C90-12F.

DATA

TYPE: 4 cylinder, air-cooled, horizontally opposed. CAA TYPE CERTIFICATE: 252.

SPECS

LENGTH: 31 1/4 in. FUEL GRADE: 80 octane. BORE: 4.062 in. STROKE: 3.875 in. DISPLACEMENT: 200.91 cu. in. COMPRESSION RATIO: 7:1. DRY WEIGHT: 186 lb. with hub and accessories. WEIGHT PER HP: 2.07 lb.

PERFORMANCE

TAKE-OFF POWER: 90 hp at 2,475 rpm. CRUISE: 68 hp at 2,350 rpm. FUEL CONSUMPTION: .52 lb. per hp hr.

EQUIPMENT

CARBURETOR: Bendix-Stromberg NA-S3A1. IGNITION: Scintilla S4LN-21. STARTER: Delco-Remy. GENERATOR: Delco-Remy. FUEL PUMP: A. C. Spark Plug Co.

MODEL: C145-2.

DATA

TYPE: 6 cylinder, air-cooled, horizontally opposed. CAA TYPE CERTIFICATE: 253.

SPECS

LENGTH: 41 in. FUEL GRADE: 80 octane. BORE: 4.062 in. STROKE: 3.875 in. DISPLACEMENT: 301.37 cu. in. COMPRESSION RATIO: 7:1. DRY WEIGHT: 265 lb. WEIGHT PER HP: 1.77 lb.

PERFORMANCE

TAKE-OFF POWER: 145 hp at 2,700 rpm; CRUISE: 108 hp at 2,450 rpm; FUEL CONSUMPTION: .5 lb. per hp hr.

EQUIPMENT

CARBURETOR: Marvel MA-3SPA. IGNITION: Scintilla S6LN-21. STARTER: Delco-Remy. GENERATOR: Delco-Remy. FUEL PUMP: A. C. Spark Plug Co.

MODEL: E185.

DATA

TYPE: 6 cylinder, air-cooled, horizontally opposed. CAA TYPE CERTIFICATE: 246.

SPECS

LENGTH: 46.66 in. FUEL GRADE: 80 octane. BORE: 5 in. STROKE: 4 in. DISPLACEMENT: 471 cu. in. COMPRESSION RATIO: 7:1. DRY WEIGHT: 350 lb. WEIGHT PER HP: 1.89 lb.

PERFORMANCE

TAKE-OFF POWER: 205 hp at 2,600 rpm. CRUISE: 130 hp at 2,050 rpm. FUEL CONSUMPTION: .5 lb. per hp hr.

EQUIPMENT

CARBURETOR: Bendix-Stromberg PS-5C. IGNITION: Scintilla S6LN-21. STARTER: Provisions for direct cranking starter. GENERATOR: Delco-Remy. FUEL PUMP: Thompson or Ramee. This engine also available with full AN accessory section.

MODEL: E-225.

DATA

TYPE: 6 cylinder, air-cooled, horizontally opposed. CAA TYPE CERTIFICATE: 267.

SPECS

LENGTH: 48.4 in. FUEL GRADE: 80/86 octane. BORE: 5 in. STROKE: 4 in.

PERFORMANCE

TAKE-OFF POWER: 225 hp at 2,650 rpm. CRUISE: 170 hp at 2,400 rpm. FUEL CONSUMPTION: .5 lb. per hp hr.

EQUIPMENT

CARBURETOR: Bendix-Stromberg PS-5-C. IGNITION: Scintilla S6LN-21. STARTER: Eclipse Type 397-13. GENERATOR: Delco-Remy. FUEL PUMP: Ramee. This engine also available with full AN accessory section.

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MODEL: O-470-A.

DATA

TYPE: 6 cylinder, air cooled, horizontally opposed. CAA TYPE CERTIFICATE: 273.

SPECS

FUEL GRADE: 80/86 Octane. BORE: 5 in. STROKE: 4 in. DISPLACEMENT: 471 cu. in. COMPRESSION RATIO: 7.01 to 1. DRY WEIGHT: 357 lbs. WEIGHT PER HP: 1.59 lb.

PERFORMANCE

TAKE-OFF POWER: 225 hp at 2,600 rpm. CRUISE: 175 hp at 2,400 rpm. FUEL CONSUMPTION: .5 lb. per hp hour.

EQUIPMENT

CARBURETOR: Marvel MA-4-5. IGNITION: Bendix-Scintilla S6RN-25. STARTER: Delco-Remy. GENERATOR: Delco-Remy. OIL COOLER: Harrison. FUEL PUMP: Ramec. Provisions included for prop. governor.

REMARKS

This model which powers both the new Cessna 180 and 310 is the first of Continental's new O-470 series to reach production. Among the design improvements are a new oil cooler integrally attached to the crankcase which uses the down flow of air, as do the cylinder fins and a full flow type oil filter mounted within the crankcase at the former location of the screen which it supplants. Supercharging can be provided at minimum cost by the addition of a belt-driven external supercharger. Other models in the series are:

MODEL O-470-B. Similar to O-470-A, but

with Bendix-Stromberg PS5C carburetor mounted at back of engine. Designed for wing-type installation. PERFORMANCE: 235 hp at 2,600 rpm with compression ratio of 8:7 and 91 Octane fuel. MODEL SO-470. Similar to O-470-B, but with supercharger. Rating: 265 hp at 2,600 rpm at 10,000 ft. for take-off and normal rating. MODEL GSO-470. Similar to SO-470, but with geared prop. drive. Rating: 300 hp at 3,000 rpm at 10,000 ft. take-off and normal rating.

MODEL: Continental Model 140.

DATA

TYPE: Gas Turbine Air Compressor.

SPECS

DIAMETER: 19.7 in. LENGTH: 41.8 in. COMPRESSOR: single-sided, centrifugal. TURBINE: two-stage, solid disc, axial flow. COMBUSTOR: Annular, straight-through flow. AIR DELIVERY: 2.3 lb sec. at 50 psi, std. day. WEIGHT: 210 lb.

PERFORMANCE

AIR HP: 205 at 34,000 rpm, std. day. TOTAL AIR FLOW: 6.8 lb. sec., std. day. FUEL FLOW: 280 lb. hr. at max. rpm, std. day. TURBINE EXIT TEMP.: 1025° F at 34,000 rpm, 205 air hp.

REMARKS

The air generator is presently being used as a starting unit for F-100, F-101, and F-102 aircraft.

FAIRCHILD ENGINE DIVISION FAIRCHILD ENGINE & AIRPLANE CORP.

Deer Park, Long Island, New York

MODEL: J44

DATA

TYPE: Turbojet.

SPECS

LENGTH: 32 in. WIDTH: 22 in. TOTAL WEIGHT: 335 lb. COMPRESSOR STAGES: 1.

TURBINE STAGES: 1.

PERFORMANCE

STATIC THRUST: 1,000 lb. at 15,780 rpm. NORMAL RATED THRUST: 1,000 lb. at 15,780 rpm. AFTERBURNER THRUST: None.

EQUIPMENT

STARTER: Comp. Air or Electric.

GENERAL ELECTRIC CO.

Cincinnati, Ohio

MODEL: J47-GE-25.

DATA

TYPE: Axial flow turbojet.

SPECS

WEIGHT: 2,500 lbs. (approx.); LENGTH: 145 in.; DIAMETER: 36.75 in.; COMPRESSION RATIO: 5.35 : 1; COMPRESSOR STAGES: 12; TURBINE: Single Stage; INLET AIR FLOW: 103.5 lbs. per sec.

PERFORMANCE

Dry Thrust: Over 5,970 lbs. Water Alcohol

Injection For Take-Off: Over 6,970 lbs. Specific Fuel Consumption: 1,060 lb./hr./lb. thrust.

MODEL: J73.

DATA

TYPE: Axial flow turbojet.

SPECS

DIAMETER: 36.75 in. length: 146 in.

PERFORMANCE

STATIC THRUST: 9,000 lb. thrust class. Detailed performance information is classified.

ENGINES IN PRODUCTION

LYCOMING DIVISION

AVCO MFG. CORP.

Stratford, Conn.

MODEL: SO-580-A1B (O-580-3).

DATA

TYPE: 8 cylinder, air cooled, opposed, supercharged, for horizontal or vertical helicopter installation, 400 hp CAA TYPE CERTIFICATE: 285.

SPECS

LENGTH: 46.67. WIDTH: 33.12. HEIGHT: 24.58. BORE: 4.875. STROKE: 3.875. COMPRESSION RATIO: 7.3:1. DISPLACEMENT: 578 cu. in. WEIGHT: 578 lbs. FUEL GRADE: 100/130.

PERFORMANCE

TAKE-OFF POWER: 400 hp. at 3,300 rpm. RATED POWER: 350 at 3,000 rpm. FUEL CONSUMPTION: 16.5 gal per hr. at rated speed and 80 percent rated power.

EQUIPMENT

CARBURETOR: Bendix PS-9BDE. MAGNETOS: Scintilla (2) S4LN-20 and (2) S4RN-21.

MODEL: O-290-D2B.

DATA

TYPE: 4 cylinder, air cooled, horizontally opposed, direct drive, 140 hp CAA TYPE CERTIFICATE: 229.

SPECS

LENGTH: 29.56. WIDTH: 32.24. HEIGHT: 22.81. BORE: 4.875. STROKE: 3.875. COMPRESSION RATIO: 7.0:1. DISPLACEMENT: 289.0 cu. in. WEIGHT: 264 lbs. FUEL GRADE: 80/87.

PERFORMANCE

TAKE-OFF POWER: 140 hp. at 2,300. RATED POWER: 135 hp. at 2,600 rpm. FUEL CONSUMPTION: 6.5 gal. per hr. at 2250 rpm., economy cruise.

EQUIPMENT

CARBURETOR: Marvel-Schebler MA-3FPA. MAGNETOS: Scintilla S4LN-20 and S4LN-21. GENERATOR: Delco-Remy 12 volt. STARTER: Delco-Remy.

MODEL: O-340-A1A.

DATA

TYPE: 4 cylinder, air cooled, horizontally opposed, direct drive, 170 hp CAA TYPE CERTIFICATE: 277.

SPECS

LENGTH: 30.09. WIDTH: 32.55. HEIGHT: 24.68. BORE: 5.125. STROKE: 4.125. COMPRESSION RATIO: 8.5:1. DISPLACEMENT: 340.4 cu. in. WEIGHT: (with starter and generator) 278 lbs. FUEL GRADE: 91/96.

PERFORMANCE

TAKE-OFF and RATED POWER: 170 hp. @ 2700 rpm. FUEL CONSUMPTION: 8.5 gal. per hr. at 2,350 rpm and 65 percent rated power.

EQUIPMENT

CARBURETOR: Marvel-Schebler MA4-5. MAGNETOS: Scintilla S4LN-20 and S4LN-21. GENERATOR: Delco-Remy 12 volt. STARTER: Delco-Remy.

MODEL: GO-480-B1B.

DATA

TYPE: 6 cylinder, horizontally-opposed, air cooled, gear drive, 270 hp CAA TYPE CERTIFICATE: 275.

SPECS

LENGTH: 38.64 in. WIDTH: 33.12 in. HEIGHT: 23.02 in. BORE: 5.125 in. STROKE: 3.875 in. DISPLACEMENT: 479.7. COMPRESSION RATIO: 7.3:1. WEIGHT: 436 lbs. FUEL GRADE: 80/87.

PERFORMANCE

TAKE-OFF POWER: 270 hp at 3,400 rpm. (2,180 prop rpm.). RATED POWER: 260 at 3,000 rpm. FUEL CONSUMPTION: 14.1 gal. per hr. at 2,600 rpm., economy cruise.

EQUIPMENT

CARBURETOR: Bendix-Stromberg PS-5BD. MAGNETOS: Scintilla S6LN-50 and S6LN-51.

MODEL: GO-480-C2C6.

DATA

TYPE: 6 cylinder, gear drive, horizontally opposed, air cooled, 275 hp., CAA TYPE CERTIFICATE: 275.

SPECS

LENGTH: 42.18. WIDTH: 33.12. BORE: 5.125 in. STROKE: 3.875 in. COMPRESSION RATIO: 8.85:1. DISPLACEMENT: 479.7 cu. in. WEIGHT: 447 lbs. FUEL GRADE: 100/130.

PERFORMANCE

TAKE-OFF POWER: 295 hp at 3,400 rpm. RATED POWER: 285 hp. at 3,100 rpm. FUEL CONSUMPTION: 13.5 gal. per hr. at rated speed and 60 percent rated power.

EQUIPMENT

CARBURETOR: Bendix-Stromberg PS-58D. MAGNETOS: Scintilla S6LN-50 and S6LN-51.

MODEL: GO-480-C1B.

DATA

TYPE: 6 cylinder, reduction gear drive, horizontally opposed, air cooled, 295 hp CAA TYPE CERTIFICATE: 275.

SPECS

LENGTH: 40.29. WIDTH: 33.12. HEIGHT: 27.46 in. BORE: 5.125 in. STROKE: 3.875 in. COMPRESSION RATIO: 8.85:1. DISPLACEMENT: 479.7 cu. in. WEIGHT: 458 lbs. FUEL GRADE: 100/130.

PERFORMANCE

TAKE-OFF POWER: 295 hp at 3,400 rpm. RATED POWER: 280 hp at 3,000 rpm. FUEL CONSUMPTION: 13.0 gal. per hr. at rated speed and 60 percent rated power.

EQUIPMENT

CARBURETOR: Bendix-Stromberg PS-58D. MAGNETOS: Scintilla, S6LN-20 and S6RN-21.

MODEL: O-320.

DATA

TYPE: 4 cylinder, air cooled, horizontally opposed, direct drive, 150 hp CAA TYPE CERTIFICATE: 274.

SPECS

LENGTH: 29.56. HEIGHT: 23.12. WIDTH: 32.24. BORE 5.125. STROKE: 3.875. DISPLACEMENT: 319 cu. in. COMPRESSION RATIO: 70:1. WEIGHT: 272 lbs. FUEL GRADE: 80/87.

PERFORMANCE

TAKE-OFF and RATED POWER: 150 hp at 2,700 rpm. FUEL CONSUMPTION: 3.2 gal. per hr. at 2,350 rpm., economy cruise.

EQUIPMENT

CARBURETOR: Marvel-Schebler MA4SPA. MAGNETOS: Scintilla S4LN-20 and S4LN-21. GENERATOR: Delco-Remy, 12 volt. STARTER: Delco-Remy.

MODEL: C50-480-A1A6.

DATA

TYPE: 6 cylinder, horizontally opposed, geared, supercharged, 340 hp. CAA TYPE CERTIFICATE: 284.

SPECS

LENGTH: 49.37. HEIGHT: 34.34. WIDTH: 33.12. BORE: 5.125. STROKE: 3.875. DISPLACEMENT: 479.7. COMPRESSION RATIO: 7.3:1. WEIGHT: 495 lbs. FUEL GRADE: 100/130.

PERFORMANCE

TAKE-OFF POWER: 340 hp at 3,400 rpm. (2,180 prop. rpm). RATED POWER: 320 hp. at 3,200 rpm. FUEL CONSUMPTION: 16.0 gal. per hr. at 60 percent rated power at 2,600 rpm.

EQUIPMENT

CARBURETOR: Bendix PSH-7BDE. MAGNETOS: Scintilla S6LN-20 and S6RN-21.

MODEL: G60-480-F6.

DATA

TYPE: 6 cylinder, gear drive, horizontally opposed, air cooled, 275 hp CAA TYPE CERTIFICATE: 275.

SPECS

LENGTH: 42.18 in. FUEL GRADE: 80/87. BORE: 5.125 in. STROKE: 3.875. DISPLACEMENT: 479.7. COMPRESSION RATIO: 7.38:1. WEIGHT 442 lbs.

PERFORMANCE

TAKE-OFF POWER 275 hp at 3,400 rpm (218 prop. rpm). RATED POWER 265 at 3100 rpm. FUEL CONSUMPTION 14.0 gal per hr. at 2,600 rpm and 60 percent rated power.

EQUIPMENT

CARBURETOR: Bendix-Stromberg PS-5BD. MAGNETOS: Scintilla S6LN-50 and S6LN-51.

MODEL: VO-435-A1B (O-435-23).

DATA

TYPE: 6 cylinder, air cooled, horizontally opposed, for vertical helicopter installation, 260 hp. CAA TYPE CERTIFICATE: 279.

SPECS

HEIGHT: 35.17 in. WIDTH: 33.32. DEPTH: 25.19. FUEL GRADE: 80/87. BORE: 4.875. STROKE: 3.875. DISPLACEMENT: 434 cu. in. COMPRESSION RATIO: 7.3:1. WEIGHT: 400 lbs.

PERFORMANCE

TAKE-OFF: 260 hp. at 3,400 rpm. RATED POWER: 250 hp at 3,200 rpm. FUEL CONSUMPTION: 20.0 gal. per hr. at 80 percent rated power.

EQUIPMENT

CARBURETOR: Marvel-Schebler MA4-5. MAGNETOS: Scintilla S6LN-20 and S6RN-21. Hand cranking provisions optional.

MODEL: O-360-A1A.

DATA

TYPE: 4 cylinder, horizontally opposed, air cooled, 180 hp CAA TYPE CERTIFICATE: 286.

SPECS

LENGTH: 29.56 in. WIDTH: 33.37 in. DISPLACEMENT: 361 cu. in. BORE: 5.125 in. STROKE: 4.375. COMPRESSION RATIO 8.50:1. FUEL GRADE: 91/96. DRY WEIGHT: 282 lb.

EQUIPMENT

CARBURETOR: Marvel-Schebler MA4-5. MAGNETOS: Scintilla S4LN-20, S4LN-21. STARTER: Delco-Remy. GENERATOR: Delco-Remy.

MODEL: G60-435-C2B (O-435-17).

DATA

TYPE: 6 cylinder, horizontally opposed, geared, air cooled. APPROVED TYPE CERTIFICATE 228, 240 hp.

SPECS

LENGTH: 40.04 in. WIDTH: 33.12 in. DISPLACEMENT: 430.0 in. BORE: 4.875 in. STROKE: 3.875. COMPRESSION RATIO: 7.3:1. FUEL GRADE: 80/87. DRY WEIGHT: 430 lb.

EQUIPMENT

CARBURETOR: Marvel-Schebler MA4-5. MAGNETOS: Scintilla S6LN-50.

MODEL: G60-480-D1A.

DATA

TYPE: 6-cylinder, horizontally opposed, air cooled. 275 hp TYPE CERTIFICATE: 275.

SPECS

LENGTH: 40.29 in. WIDTH: 33.12 in. DISPLACEMENT: 479.7 cubic in. BORE: 5.125 in. STROKE: 3.875. COMPRESSION RATIO: 7.3:1. FUEL GRADE: 80/87. DRY WEIGHT: 453 lb.

EQUIPMENT

CARBURETOR: Bendix-Stromberg PS-5BD. MAGNETOS: Scintilla S6LN-20. STARTER: accessories cross-wise mounted.

MODEL: O-235-C1.

DATA

TYPE: 4 cylinder, air-cooled, horizontally opposed; 115 hp CAA TYPE CERTIFICATE: 223.

SPECS

LENGTH: 29.56 in. FUEL GRADE: 80 octane. BORE: 4.375 in. STROKE: 3.875 in. DISPLACEMENT: 233.3 cu. in. COMPRESSION RATIO: 6.75:1. DRY WEIGHT: 236 lb. with hub and accessories. WEIGHT PER HP: 2.05 lb.

PERFORMANCE

TAKE-OFF POWER: 115 hp 2,800 rpm. CRUISE: 86 hp at 2,350 rpm. FUEL CONSUMPTION: .52 lb. per hp hr. OIL CONSUMPTION: .012 lb. per hp hr.

EQUIPMENT

CARBURETOR: Marvel-Schebler MA-3A. IGNITION: Dual Scintilla S4LN-21. STARTER: Delco-Remy. GENERATOR: Delco-Remy.

ENGINES IN PRODUCTION

MODEL: O-435-A.

DATA

TYPE: 6 cylinder, air-cooled, horizontally opposed. CAA TYPE CERTIFICATE: 228.

SPECS

LENGTH: 38.10 in. FUEL GRADE: 80 octane. BORE: 4.875 in. STROKE: 3.875 in. DISPLACEMENT: 434 cu. in. COMPRESSION RATIO: 6.5:1. DRY WEIGHT: 392 lb. with hub and accessories. WEIGHT PER HP: 2.06 lb.

PERFORMANCE

TAKE-OFF POWER: 190 hp at 2,550 rpm. CRUISE: 145 hp at 2,300 rpm. FUEL CONSUMPTION: .52 lb. per hp hr. OIL CONSUMPTION: .0012 lb. per hp hr.

EQUIPMENT

CARBURETOR: Marvel Schebler MA-4-5 IGNITION: Dual Scintilla SFGLN-8. STARTER: Delco-Remy. GENERATOR: Delco-Remy.

MODEL: GSO-580-D.

DATA

TYPE: 8 cylinder, air-cooled, horizontally opposed, geared, super charged. CAA TYPE CERTIFICATE: 256.

SPECS

LENGTH: 57.08 in. FUEL GRADE: 100/130 octane. BORE: 4.875 in. STROKE: 3.875 in. DISPLACEMENT: 578 cu. in. COMPRESSION RATIO: 7.30:1. WEIGHT: 610 lb.

PERFORMANCE

TAKE-OFF POWER: 400 hp. FUEL CONSUMPTION: .57 lb. per hr.

EQUIPMENT

CARBURETOR: Bendix. IGNITION: Scintilla. FUEL PUMP: Pesco.

MODEL: O-320.

DATA

TYPE: 4 cylinder, air-cooled, horizontally opposed. CAA TYPE CERTIFICATE: 274.

SPECS

LENGTH: 29.40 in. FUEL GRADE: 80/87 octane. BORE: 5.125 in. STROKE: 3.875 in. DISPLACEMENT: 319.8 cu. in. COMPRESSION RATIO: 7.00:1. DRY WEIGHT: 272 lb.

PERFORMANCE

TAKE-OFF POWER: 150 hp. FUEL CONSUMPTION: .53 lb. per hr.

EQUIPMENT

CARBURETOR: Marvel-Schebler. IGNITION: Delco-Remy. FUEL PUMP: AC.

MODEL: SO-480.

DATA

TYPE: 6 cylinder, air-cooled, supercharged, helicopter engine for horizontal or vertical installation.

SPECS

DISPLACEMENT: 479.7 cu. in. BORE: 5.125 in. STROKE: 3.875 in. COMPRESSION RATIO: 7.3:1. FUEL GRADE: 100/130. DRY WEIGHT: 444 lb. WIDTH: 33.12 in. LENGTH: 38.53 in.

PERFORMANCE

CONTINUOUS HP: 325 at 3,200 rpm. FUEL

CONSUMPTION: 25 gals./hr. at 80 percent normal, 3,200 rpm.

EQUIPMENT

CARBURETOR: Bendix PS7BD. MAGNETOS: Scintilla S6RN20, 21.

MODEL: -76A & -76B.

DATA

TYPE: R-1820, 9 (radial) cylinder aircooled; 1,275 rated hp.

SPECS

LENGTH: 48.50 in. HEIGHT: 54.95 in. dia. BORE: 6.125 in. STROKE: 6.875 in. DISPLACEMENT: 1,820. COMPRESSION RATIO: 6.80:1. FUEL GRADE: 100/130. WEIGHT: 1,380.0 lb.

PERFORMANCE

TAKE-OFF POWER and SPEED: 1,425 at 2,700 rpm. RATED POWER and SPEED: 1275 at 2500 rpm. FUEL CONSUMPTION: .700 lb. per bhp. per hr.

EQUIPMENT

CARBURETOR: PD12K18. MAGNETO: Bosch 59LU-3.

MODEL: -80.

DATA

TYPE: R-1820, 9 (radial) cylinder aircooled, 1,275 rated hp. CAA TYPE CERTIFICATE: 259.

SPECS

LENGTH: 48.50 in. HEIGHT: 54.95 in. dia. BORE: 6.125 in. STROKE: 6.875 in. DISPLACEMENT: 1,820. COMPRESSION RATIO: 6.80:1. FUEL GRADE: 100/130. WEIGHT: 1,404 lb.

PERFORMANCE

TAKE-OFF POWER and SPEED: 1,475 bhp. at 2,800 rpm. RATED POWER and SPEED: 1,275 bhp. at 2,500. FUEL CONSUMPTION: .700 lb/bhp. hr.

EQUIPMENT

CARBURETOR: PD12K18. MAGNETO: Bosch 59LU-3.

MODEL: -82.

DATA

TYPE: R-1820, 9 (radial) cylinder aircooled, 1,275 rated hp. CAA TYPE CERTIFICATE: 259.

SPECS

LENGTH: 50.10 in. HEIGHT: 55.74 in. dia. BORE: 6.125 in. STROKE: 6.875 in. DISPLACEMENT: 1,820. COMPRESSION RATIO: 6.80:1. FUEL GRADE: 115/145. WEIGHT: 1,469 lb.

PERFORMANCE

TAKE-OFF POWER and SPEED: 1,525 at 2,800 rpm. RATED POWER and SPEED: 1275 at 2,500 rpm. FUEL CONSUMPTION: .677 lb/bhp/hr.

EQUIPMENT

CARBURETOR: PD12K18. MAGNETO: Scintilla Model D9LN-2.

MODEL: -84.

DATA

TYPE: R-1820, 9 (radial) cylinder aircooled, 1,275 rated hp. CAA TYPE CERTIFICATE: 259.

SPECS

LENGTH: 52.00 in. HEIGHT: 55.74 in. dia. BORE: 6.125 in. STROKE: 6.875 in. DISPLACEMENT: 1,820. COMPRESSION RATIO:

The AIRCRAFT YEAR BOOK

6.80:1. FUEL GRADE: 115/145. WEIGHT: 1,405 lb.

PERFORMANCE

TAKE-OFF POWER and SPEED: 1,525 at 2,800 rpm. RATED POWER and SPEED: 1,275 at 2,500. FUEL CONSUMPTION: .677 lb/bhp./hr.

EQUIPMENT

CARBURETOR: PD12R1. MAGNETO: Scintilla D9LN-2. 39° from horizontal nose up.

MODEL: -86.

DATA

TYPE: R-1820, 9 (radial) cylinder aircooled, 1,275 rated hp. CAA TYPE CERTIFICATE: 243.

SPECS

LENGTH: 48.50 in. HEIGHT: 54.95 in. dia. BORE: 6.125 in. STROKE: 6.875 in. DISPLACEMENT: 1,820. COMPRESSION RATIO: 6.80:1. FUEL GRADE: 100/130. WEIGHT: 1,385 lb.

PERFORMANCE

TAKE-OFF POWER and SPEED: 1,425 at 2,700 rpm. RATED POWER and SPEED: 1,275 at 2,500. FUEL CONSUMPTION: .695 lb/bhp./hr.

EQUIPMENT

CARBURETOR: PD12K18. MAGNETO: Bosch S9LU-3.

MODEL: -103.

DATA

TYPE: R-1820, 9 (radial) cylinder aircooled, 1,275 rated hp. CAA TYPE CERTIFICATE: 243.

SPECS

LENGTH: 48.50 in. HEIGHT: 54.95 in. dia. BORE: 6.125 in. STROKE: 6.875 in. DISPLACEMENT: 1,820. COMPRESSION RATIO: 6.80:1. FUEL GRADE: 100/130. WEIGHT: 1,350 lb.

PERFORMANCE

TAKE-OFF POWER and SPEED: 1,425 at 2,700 rpm. RATED POWER and SPEED: 1,275

at 2,500. FUEL CONSUMPTION: .700 lb/bhp./hr.

EQUIPMENT

CARBURETOR: PD12K19. MAGNETO: Bosch S9LU-3.

MODEL: -3.

DATA

TYPE: R-1300, 7 (radial) cylinder aircooled, 700 bhp. rated hp.

SPECS

LENGTH: 49.68 in. HEIGHT: 50.45 in. dia. BORE: 6.125 in. STROKE: 6.312 in. DISPLACEMENT: 1,300. COMPRESSION RATIO: 6.20:1. FUEL GRADE: 91/96. WEIGHT: 1,080 lb.

PERFORMANCE

TAKE-OFF POWER and SPEED: 800 bhp. at 2,600 rpm. RATED POWER and SPEED: 700 bhp. at 2,400 rpm. FUEL CONSUMPTION: .700 lb/bhp./hr.

EQUIPMENT

CARBURETOR: Bendix PD9G1. MAGNETO: Bosch S7LU-3.

MODEL: -4.

DATA

TYPE: R-1300, 7 (radial) cylinder aircooled, 700 bhp. rated hp.

SPECS

LENGTH: 48.12 in. HEIGHT: 50.45 in. dia. BORE: 6.125 in. STROKE: 6.312 in. DISPLACEMENT: 1,300. COMPRESSION RATIO: 6.20:1. FUEL GRADE: 91/96. WEIGHT: 1,092 lb.

PERFORMANCE

TAKE-OFF POWER and SPEED: 800 bhp. at 2,600 rpm. RATED POWER and SPEED: 700 bhp. at 2,400 rpm. FUEL CONSUMPTION: .720 lb/bhp./hr.

EQUIPMENT

CARBURETOR: Bendix PD9F1. MAGNETO: Bosch S7LU-3.

PRATT & WHITNEY AIRCRAFT DIVISION OF UNITED AIRCRAFT CORP.

East Hartford, Conn.

MODEL: Twin Wasp D Series, (R-2000).

DATA

TYPE: 14 cylinder, air-cooled, radial. CAA TYPE CERTIFICATE: 230.

SPECS

DIAMETER: 49.1 in. LENGTH: 59.66 in. FUEL GRADE: 100/130. BORE: 5.75 in. STROKE: 5.5 in. DISPLACEMENT: 2,004 cu. in. COMPRESSION RATIO: 6.5:1. DRY WEIGHT: Single speed, 1,585 lb.; two speed, 1,605 lb.

PERFORMANCE

TAKE-OFF: 1,450 at 2,700 rpm and 2,800 ft. NORMAL RATED POWER: 1,200 hp at 2,550 rpm and 6,400 ft.

EQUIPMENT

CARBURETOR: Stromberg PD-12F13. IGNITION: two Scintilla SF-14LN-8.

REMARKS

Powers Douglas C-54 military transport, workhorse of World War II, the Berlin Airlift and the Trans-Pacific Airlift in support of the Korean campaign.

MODEL: Double Wasp CA and CB series, (R-2800)

DATA

TYPE: 18 cylinder, air-cooled, radial. CAA TYPE CERTIFICATES: 231 and 264.

ENGINES IN PRODUCTION

SPECS

DIAMETER: 52.8 in. LENGTH: 81.40 in. FUEL GRADE: 100/130 or 108/135. BORE: 5.75 in. STROKE: 6 in. DISPLACEMENT: 2,804 cu. in. COMPRESSION RATIO: 6.75 to 1. DRY WEIGHT: Two speed, 2,390 lb.; single speed, 2,357 lb.

PERFORMANCE (CB3)

TAKE-OFF POWER: 2,400 hp at 2,800 rpm at 4,000 ft. with water injection; 2,050 hp at 2,700 rpm at 6,000 ft. dry. NORMAL RATED POWER: 1,800 hp at 2,600 rpm at 8,500 ft.

EQUIPMENT

CARBURETOR: Stromberg PR-58E5. IGNITION: Scintilla DLN-10 low tension. CB16, same in low, but has maximum continuous rating in high of 1,700 hp.

REMARKS

The CA series includes the -3, -15, and -18 models. The CB series includes the -3, -4, -16 and -17 models. Essential differences are in supercharger gear ratios and weights. Most other parts are interchangeable. Military versions of the Double Wasp power the following production aircraft: Beech T-36, Bell XHSL-1 helicopter, Chase C-123 transport, Convair T-29 trainer, Douglas C-118A cargo, Grumman AF-28 and -2W hunter-killer teams, North American AJ-1 carrier bomber and Vought F4U-5N and AU-1 fighter-bombers. Commercial versions power the Convair 240 and 340 transports, Douglas DC-6, -6A, and -6B transports and Martin 2-0-2A and 4-0-4 transports.

MODEL: Turbo-Wasp J48 (JT-7)

DATA

TYPE: Centrifugal-flow turbojet.

SPECS

DIAMETER: 50.50 in. LENGTH: 109.75 in. COMPRESSOR: double-entry, single-stage, centrifugal-flow. WEIGHT: 2,080 lb. FUEL: Kerosene, gasoline or special jet fuel.

PERFORMANCE

TAKE-OFF POWER: 7,250 lb. thrust. MIL-

TARY RATING: 7,250 lb. thrust. NORMAL RATING: 5,600 lb. thrust. CRUISE RATING: 3,750 lb. or 3,100 lb. thrust.

REMARKS

The J48 powers the Navy's Grumman F9F-5 Panther and the swept-wing F9F-6 and F9F-8 and the Lockheed F-94C all-weather interceptor for the Air Force.

MODEL: Turbo-Wasp PT-2 (T34).

DATA

TYPE: Axial-flow turboprop.

SPECS

DIAMETER: 34.06 in. LENGTH: 157.4 in. COMPRESSOR: 13-stage axial-flow. TURBINE: three-stage, axial-flow. PROPELLER REDUCTION GEAR: two-stage, 11:1 ratio. WEIGHT: 2,564 lb. FUEL: Kerosene, gasoline or special jet fuel.

PERFORMANCE

TAKE-OFF POWER: 5,700 hp. FUEL CONSUMPTION: 0.62 lb. hp hr.

REMARKS

Engine thrust is divided 90 percent to propeller turbine and 10 percent to jet nozzle. Stainless steel is used almost exclusively throughout the engine structure. This model is no longer offered commercially.

MODEL: Turbo-Wasp J57 (JT-3)

DATA

TYPE: Twin-spool axial-flow turbojet.

REMARKS

Specifications and performance are still classified other than mention that engine is in the 10,000 lb. thrust class. It powers the Air Force's Boeing B-52 long-range bomber, the North American F-100, McDonnell F-101, Convair F-102, and the Navy's Douglas F4D fighter, A3D bomber and Chance Vought XF8U fighter. The J-57 also powers the Boeing 707. The fighter aircraft are powered by afterburner versions of the J-57 engine.

WESTINGHOUSE ELECTRIC CORP.

AVIATION GAS TURBINE DIVISION

Philadelphia, Pa.

MODEL: J34-WE-36.

DATA

TYPE: Axial-flow turbojet.

SPECS

DIAMETER: 27 in. LENGTH: 111.4 in. HEIGHT: 34.7 in. WEIGHT: 1,207 lb. COMPRESSION RATIO: 4.35.

PERFORMANCE

TAKE-OFF THRUST: 3,400 lb. at 12,500 rpm. OPERATING ALTITUDE: 45,000 ft.

MODEL: XJ81-WE-3.

DATA

TYPE: Axial-flow turbojet.

SPECS

Small, light-weight turbojet initially designed for drones and missiles.

PERFORMANCE

All other information classified.

MODEL: PD-33.

DATA

TYPE: Axial-flow turbojet.

SPECS

Medium size, light-weight turbojet designed for high altitude piloted aircraft.

PERFORMANCE

All other information classified.

WRIGHT AERONAUTICAL DIVISION CURTISS WRIGHT CORP.

Wood-Ridge, N. J.

MODEL: R-1300-1.

DATA

TYPE: 7-Cylinder, Air-Cooled, Radial.

SPECS

LENGTH: 48.12 in. WIDTH: 50.45 in.
WEIGHT: 1,045 lb. DISPLACEMENT: 1,300 cu.
in. BORE: 6.125 in. STROKE: 6.312 in. COM-
PRESSION RATIO: 6.2:1. FUEL GRADE:
91/98. CARBURETOR: Stromberg SD9F1. MAG-
NETO: Dual Bosch SF-7LU-2.

PERFORMANCE

TAKEOFF HP: 800 at 2,600 rpm. NORMAL
RATED HP: 700 at 2,400 rpm. CRUISE RATED
HP 420. FUEL CONSUMPTION: .48 lb. per hp
hr. OIL CONSUMPTION: .015 lb. per hp. hr.

MODEL: R-1300-2.

DATA

TYPE: 7-Cylinder, Air-cooled, Radial.

SPECS

LENGTH: 48.10 in. WIDTH: 50.45 in.
WEIGHT: 1,056 lb. DISPLACEMENT: 1,300 cu.
in. BORE: 6.125 in. STROKE: 6.312 in. COM-
PRESSION RATIO: 6.2 to 1. FUEL GRADE:
91/96. CARBURETOR: Stromberg SD9F1. MAG-
NETO: Dual Bosch SF-7LU-2.

PERFORMANCE

TAKEOFF HP: 800 at 2,600 rpm. NORMAL
RATED HP: 700 at 2,400 rpm. CRUISE RATED
HP: 420. FUEL CONSUMPTION: 0.451 lb.
per hp hr. OIL CONSUMPTION: .020 lb. per
hp hr.

REMARKS

This engine designed for blimp and helicopter
installations; also the R-1300-3.

MODEL: R-1300-4.

DATA

TYPE: 7 Cylinder, Air Cooled, Radial.

SPECS

LENGTH: 48.12 in. WIDTH: 50.45 in.
WEIGHT: 1,092 lb. DISPLACEMENT 1,300 cu.
in. BORE 6.125 in. STROKE: 6.312 in. COM-
PRESSION RATIO: 6.2 to 1. FUEL GRADE:
91/96. CARBURETOR: Bendix PD9F1. MAG-
NETO: Amer. Bosch S7LU-3.

PERFORMANCE

TAKEOFF HP: 800 at 2,600 rpm. NORMAL
RATED HP: 700 at 2,400 rpm. CRUISE RATED
HP: 490 at 2130 rpm. FUEL CONSUMPTION:
.438 lb. per hp hr. OIL CONSUMPTION: .020
lb. per hp hr.

REMARKS

Current production installation is Goodyear
ZF5K Blimp.

MODEL: R-1820-76A & B.

DATA

TYPE: 9 Cylinder, Air Cooled, Radial.

SPECS

LENGTH: 47.69 in. WIDTH: 54.95 in.

WEIGHT: 1,365 lb. DISPLACEMENT: 1,820 cu.
in. BORE: 6.125 in. STROKE: 6.875 in. COM-
PRESSION RATIO: 6.8 to 1. FUEL GRADE:
100/130. CARBURETOR: Stromberg PD12K14.
MAGNETO: Dual Scintilla S9LU-5.

PERFORMANCE

TAKEOFF HP: 1,425 at 2,700 rpm. NORMAL
RATED HP: 1,275 at 2,500 rpm. CRUISE
RATED HP: 890 at 2,300 rpm. FUEL CON-
SUMPTION: .46 lb. per hp hr. OIL CONSUMP-
TION: .020 lb. per hp hr.

REMARKS

Installations include blimps, helicopters, mili-
tary trainers. This R-1820 engine is one in a
long line of R-1820 power plants introduced
more than ten years ago. This model is also
built with a 2-speed supercharger and optional
reduction gear ratios. Other military designa-
tions include: R-1820-86; -103 (9HD series);
-80; 82; -84 (9HE series). Commercial designa-
tions include: 977C9HD1; 987C9HD1 (9HD
series); 982C9HE1; 989C9HE1 (9HE series).

MODEL: R-3350-24W.

DATA

TYPE: 18 Cylinder, Air Cooled, Radial.

SPECS

LENGTH: 78.52 in. WIDTH: 56.59 in.
WEIGHT: 2,884 lb. DISPLACEMENT: 3,350 in.
BORE: 6.125 in. STROKE: 6.3125 in. COM-
PRESSION RATIO: 6.5 to 1. FUEL GRADE:
100/130. CARBURETOR: Bendix No. 135091
direct fuel injection. MAGNETO: Scintilla
DLN-9.

PERFORMANCE

TAKEOFF HP: 2,500 at 2,800 rpm. NORMAL
RATED HP: 2200 at 2600 rpm. CRUISE
RATED HP: 1,470 at 2,300 rpm. FUEL CON-
SUMPTION: .45 lb. per hp hr. OIL CONSUMP-
TION: .015 lb. per hp hr.

MODEL: R-3350-26W.

DATA

TYPE: 18 Cylinder, Air Cooled, Radial.

SPECS

LENGTH: 81.93 in. WIDTH: 55.62 in.
WEIGHT: 2,848 lb. DISPLACEMENT: 3,350 cu.
in. BORE: 6.125 in. STROKE: 6.312 in. COM-
PRESSION RATIO: 6.5 to 1. FUEL GRADE:
115/145. CARBURETOR: PR58U1. MAGNETO:
Scintilla DLN-9.

PERFORMANCE

TAKEOFF HP: 2,700 at 2,900 rpm. NORMAL
RATED HP: 2,300 at 2,600 rpm. FUEL CON-
SUMPTION: .560 lb. per hp hr. OIL CON-
SUMPTION: .020 lb. per hp hr.

MODEL: R-3350-30W-30WA-85 (Turbo Compound).

DATA

TYPE: 18 Cylinder, Air Cooled, Radial.

ENGINES IN PRODUCTION

SPECS

LENGTH: 89.53 in. WIDTH: 56.59 in.
WEIGHT: 3,514 lb. DISPLACEMENT: 3,350 cu.
in. BORE: 6.125 in. STROKE: 6.312 in. COM-
PRESSION RATIO: 6.7 to 1. FUEL GRADE:
115/145. CARBURETOR: Stromberg UR58T1.
MAGNETO: Scintilla DLN-9.

PERFORMANCE

TAKEOFF HP: 3,250 at 2,900 rpm. NORMAL
RATED HP: 2,600 at 2,600 rpm. FUEL CON-
SUMPTION: .395 lb. per hp hr. OIL CON-
SUMPTION: .018 lb. per hp hr.

REMARKS

Military version of the turbo compound;
ratings for the military turbo compound are
up to 3,700 hp. Installations include: R7U1,
F5M, C-119, F2U series, C & RC-121, WV 1,
2 & 3.

MODEL: 972TC18DA1 & 3 (Com- mercial Turbo Compound).

DATA

TYPE: 18 Cylinder, Air Cooled, Radial.

SPECS

LENGTH: 89.52 in. WIDTH: 56.59 in.
WEIGHT: 3,557 lb. DISPLACEMENT: 3,350 cu.
in. BORE: 6.125 in. STROKE: 6.312 in. COM-
PRESSION RATIO: 6.7 to 1. FUEL GRADE:
115/145. CARBURETOR: Bendix PR5852.
MAGNETO: Bendix-Scintilla DLN-9.

PERFORMANCE

TAKEOFF HP: 3,250 at 2,900 rpm. NORMAL
RATED HP: 2,700 at 2,600 rpm. CRUISE
RATED HP: 1,910 at 2,400 rpm. FUEL CON-
SUMPTION: .395 lb. per hp hr. OIL CON-
SUMPTION: .018 lb. per hp hr.

REMARKS

Model DA-1 installations include Lockheed
1049C Series of Super Constellations; DA2
turbo compound installations in Douglas DC7;
DA-3 in production for Super Constellations
1049 E, F and G.

MODEL: 972TC18DA4.

DATA

TYPE: 18 Cylinder, Air Cooled, Radial.

SPECS

LENGTH: 89.53 in. WIDTH: 56.59 in.
WEIGHT: 3,549 lb. DISPLACEMENT: 3,350 cu.
in. BORE: 6.125 in. STROKE: 6.312 in. COM-
PRESSION RATIO: 6.7 to 1. FUEL GRADE:
115/145. CARBURETOR: Bendix DR5852.
MAGNETO: Bendix-Scintilla DLN-9.

PERFORMANCE

TAKEOFF HP: 3,250 at 2,900 rpm. NORMAL
RATED HP: 2,700 at 2,600 rpm. CRUISE
RATED HP: 1,910 at 2,400 rpm. FUEL CON-
SUMPTION: .395 lb. per hp hr. OIL CON-
SUMPTION: .018 lb. per hp hr.

REMARKS

Installations include Douglas DC-7B.

MODEL: 981TC18EA1 and 2.

DATA

TYPE: 18 Cylinder, Air Cooled, Radial.

SPECS

LENGTH: 89.53 in. WIDTH: 56.59 in.
WEIGHT: 3,615 lb. DISPLACEMENT: 3,350 cu.
in. BORE: 6.125 in. STROKE: 6.312 in. COM-
PRESSION RATIO: 6.7 to 1. FUEL GRADE:
115/145. CARBURETOR: Bendix PR58S2.
MAGNETO: Bendix-Scintilla DLN-9.

PERFORMANCE

TAKEOFF HP: 3,400 at 2,900 rpm. NORMAL
RATED HP: 2,850 at 2,600 rpm. CRUISE
RATED HP: 1,910 at 2,400 rpm. FUEL CON-
SUMPTION: .645 lb. per hp hr. at 2,800 rpm.
OIL CONSUMPTION: .022 lb. per hp hr.

REMARKS

Reduction gear ratio of EA-1 is 0.4375 to 1;
EA-2 reduction gear ratio is 0.355 to 1.

MODEL: J65-W-1.

DATA

TYPE: Axial-Flow Turbojet.

SPECS

LENGTH: 114.83 in. DIA.: 37.5 in.
WEIGHT: 2,595 lb. COMPRESSOR STAGES:
13 of 29.375 in. TURBINE STAGES: 2 of 30.5
in. STARTER: Electrical starter-generator, lo-
cated at front.

PERFORMANCE

STATIC THRUST: 7,220-7,800 lb at 3,300
rpm. TAKEOFF THRUST: 7,220 lb. at 3,300
rpm. NORMAL RATED THRUST: 6,400 lb. at
3,000 rpm. CRUISE RATED THRUST: 4,800 lb.
at 7,40 rpm.

REMARKS

Current production installation of various
J65 models include Grumman F11F-1, Douglas
A4D, Martin B-57, North American FJ-3 & 4,
Republic RF84-F and F84-F. The J65W4 is
rated at 7,800 lb. thrust; afterburner versions
of the J65 are classified.

MODEL: J65-W-1, -1A.

DATA

TYPE: Axial Flow Turbojet.

SPECS

LENGTH: 130.66 in. WIDTH: 37.75 in.
TOTAL WEIGHT: 2,595 lb. COMPRESSOR
STAGES: 13 of 29.375 in. TURBINE STAGES:
2 of 30.5.

REMARKS

Current production installation: F84F; pro-
duction installations of various J65 models in-
clude Grumman F11F-1, Douglas A4D, Martin
B-57, North American FJ-3 and 4, Republic
RF84-F and F84F. Versions of the J65 are
rated up to 7,800 pounds thrust.

MODEL: YJ67-W1.

All data classified.

1955 DAY BY DAY CHRONOLOGY

(NOTE: The following chronology is condensed principally from *American Aviation Daily*, only daily in the aviation field, published by American Aviation Publications, Inc., Wayne W. Parrish, Editor.)

JANUARY

Jan. 3

Military Air Transport Service carried 500,000 patients and other passengers and airlifted more than 90,000 tons of cargo and mail on three divisions in 1954.

John G. Lee, assistant, appointed director of research for United Aircraft Corp., succeeding Frank W. Caldwell, retired.

Jan. 4

Navy Bureau of Aeronautics awards Lockheed Aircraft Corp. \$38,688,072 contract for undisclosed number of WV-2 radar picket planes, versions of Super Constellations.

Air Transport Association announces a perfect safety record for U. S. international lines and a new low fatality rate for domestic carriers in 1954, setting all-time safety record for U. S. certificated carriers.

J. S. Parker appointed general manager of General Electric's aircraft gas turbine division, replacing C. W. LaPierre, vice president named head of newly created atomic energy and defense products group.

Beech Aircraft makes delivery of first of Navy's T-34B trainers six months after receiving \$9-million contract.

Jan. 5

Glenn L. Martin Company reveals Navy XP6M-1 jet attack seaplane (four Allison J71's) in 600 mph-plus speed range, has 15-ton payload.

Convair identifies F-102A as fighter which flew supersonically in level flight in shakedown tests at Edwards Air Force Base.

Diana Bixby, noted woman pilot, killed in crash of converted A-20 in Gulf of California.

Jan. 6

General Electric announces completion of full-scale engine testing of J47 thrust spoiler for in-flight braking of B-47 Stratojets.

Navy Bureau of Aeronautics awards \$18-million contract to Westinghouse Electric Corp. for turret systems.

Air Force announces long-range plans call for 24 combat flying wings in the AF reserve and 27 in Air National Guard, with all reserve fighter squadrons scheduled to be jet-equipped by end of year.

Jan. 7

President Eisenhower designates Chan Gurney as acting chairman of CAB.

President Eisenhower, in State of Union message, declares forthcoming military budget to emphasize new weapons, especially those of rapid and destructive striking power, and assure maintenance of effective military force as principal deterrent to overt aggression.

1955 CHRONOLOGY

Jan. 10

Robert E. Gross, president and chairman of Lockheed Aircraft, elected president of the Institute of the Aeronautical Sciences for 1955.

Jan. 11

Air Force Secretary Talbott announces Douglas XC-132 turboprop transport will have 80-ton capacity, more than three times the payload of the C-124B Globemaster.

Jan. 12

Ryan Aeronautical Co. reports receipt of Air Force contract for development of first jet-powered vertical take-off aircraft, designated as Model 69.

Elwood R. Quesada, Lockheed vice president, predicts guided missiles will fly at speeds approaching escape velocity (about 25,000 mph) within a decade.

Jan. 13

Carl G. A. Rosen, consultant to the president of Caterpillar Tractor Co., elected president of the Society of Automotive Engineers.

Jan. 14

Hans E. Quenzler, one-time chief preliminary design engineer for Focke-Wulf in Germany, joins Lockheed Aircraft's military operations research division.

General John K. Cannon, board chairman of Fletcher Aviation and former head of AF Tactical Air Command, dies in Arcadia, Calif.

Jan. 17

Major Arthur Murray, holder of world's altitude record (in Bell X1a), appointed chief of programs division at USAF Flight Test Center, Edwards AFB.

Hughes Aircraft makes first deliveries of new E-9 fire control system to enable Northrop F-89D's to use guided missiles.

Robert B. Hotz appointed editor of Aviation Week to succeed Robert H. Wood.

Gleim L. Martin Company receives \$5-million Navy contract for research and development on XP6M-1 jet seaplane.

Jan. 18

President Eisenhower submits fiscal 1956 budget message to Congress, asking \$6,853,000,000 in new money for Navy and Air Force for aircraft and related procurement items. Amount sought for air power and related programs largest in peacetime history.

Jan. 20

Chance Vought Aircraft receives \$16-million Navy contract for Regulus guided missiles.

First production model of Allison T56 turboprop engine (for Lockheed C-130A) delivered to USAF ahead of schedule.

Charles M. Green, executive vice president and general manager, elected president of Sperry Gyroscope Co., succeeding Preston R. Bassett.

Kaman Aircraft Corp. develops device known as "Rotochute" for dropping supplies accurately from high-speed aircraft at low altitudes. First postwar training of Japanese pilots in jet planes starts at Tsuiki AFB.

Captain Jane Herveux, first woman to solo (as student of Bleriot in 1909), dies in London hospital.

Jan. 25

Canadian Pacific Air Lines' application for a trans-polar route between Vancouver and Amsterdam approved by Canadian government.

Link Aviation unveils DC-2 navigation simulator to train Air Force navigators in high-speed, high-altitude celestial navigation.

Jan. 27

Aircraft Industries Association reports industry producing 65 different types of military planes and 26 civil types.

Dr. Theodore von Karman resigns as chairman of U. S. Air Force Scientific Advisory Board, becoming chairman emeritus.

Jan. 28

Air Research & Development Command establishes flight control laboratory at Dayton, Ohio, headed by Colonel John L. Martin, Jr.

Dr. H. Guyford Stever, associate professor of aeronautical engineering at M.I.T., named Air Force chief scientist.

FEBRUARY

Feb. 1

Milton W. Arnold, Air Transport Association vice president engineering and operations, predicts a \$5-million beacon procurement and installation program as result of decision by 31 scheduled airlines to equip aircraft with identification radar beacons. Colonel J. Francis Taylor, Air Navigation Development Board director, says military ground radars will be equipped to identify airline aircraft carrying airborne transponders.

Feb. 3

Earl D. Johnson, president of Air Transport Association, becomes senior vice president for development and operations of General Dynamics Corp.

The RCAF announces four of its 12 F-86 Sabre squadrons will be re-equipped with Mark IV all-weather interceptors.

Feb. 4

New altitude climb record, 10,000 feet in 83 seconds, established by a North American FJ-3 Fury, piloted by Lieutenant Commander R. H. Moore at Miramar Naval Air Station near San Diego, who cuts 17 seconds from best previous attempt.

Feb. 7

President Eisenhower nominates Ross Rizley, former Oklahoma Congressman and official of Post Office and Agriculture Departments, to fill vacancy on Civil Aeronautics Board, succeeding Oswald Ryan.

Feb. 8

USAF re-orders North American Aviation's F-86F fighter-bomber, out of production since May, 1954.

General Nathan F. Twining, AF Chief of Staff, reports that "barring unexpected Soviet increases, 137 wings are enough to do the job, if—and this is a big if—if we have planes of superior quality, men of high skill, and enough up-to-date air bases from which to operate."

Feb. 9

Five-point course of action to clear path for adoption of TACAN as Common System short-range navigation aid announced by Air Navigation Development Board, ending civil-military dispute which lasted two years.

President Eisenhower modifies decision in West Coast-Hawaii case to provide for three-year renewal of Northwest Airlines' certificate between Seattle/Portland and Hawaii. He also changes original terms of Pan American World Airways' certificate for same route from five to three years.

The AIRCRAFT YEAR BOOK

Feb. 10

USAF Air Training Command reveals serious consideration being given to replacing all reciprocating engine aircraft currently used in basic training with Lockheed T-33 jet trainers, looking toward all-jet course within three to four years.

Australian director-general of civil aviation, Sir Richard Williams, announces that all new commercial aircraft coming into service in Australia after Dec. 31, 1956, will be required to have rearward-facing seats.

U. S. mayors on American Municipal Association's Airport Sponsors Committee vote to ask Congress for \$100-million in federal aid for airport construction in fiscal 1956.

Feb. 11

Navy awards \$44,473,000 contract to Pratt & Whitney for J-57 turbojet engines, and a \$1,271,000 contract to Bell Aircraft for 24 HTL (H-13) helicopters.

McDonnell F3H-1N Demon establishes new unofficial world climb record of 71 seconds from standing start to 10,000 feet.

Feb. 14

Lockheed Aircraft receives a \$10-million order from the Navy for P2V-7 patrol planes powered by two Wright R-3350 engines and two Westinghouse jets.

Feb. 15

Douglas Aircraft makes largest tax payment in its 34-year history, paying more than \$19-million to the Internal Revenue Bureau and more than \$1-million to the state of California.

Army Ordnance successfully fires 1,000 pound-thrust JATO motor with plastics body designed and built by Fairchild's Guided Missiles Division.

Feb. 16

Bell Aircraft declared winner of Army competition for development of a light-weight, closed cabin, single rotor, utility helicopter for front-line evacuation, utility missions and instrument training.

Longest non-stop flight by a jet fighter-bomber—2,390 miles—made by Republic F-84F from George AFB, Calif., to Langley AFB, Va. Speed averaged 605 mph.

Feb. 17

General Electric Company announces plan to speed \$40-million in next five years to expand Aircraft Gas Turbine Division facilities at Evendale, Ohio, and Lynn, Mass., which already represent \$60-million investment.

RTCA establishes a special committee to determine frequency channel requirements for a Common System short-range navigation aid.

Feb. 18

The Air Research & Development Command reveals first flight tests of an F-84 fitted with a reverse-thrust device.

James M. Riddle, Narco president, files strong protest against ANDB decision in favor of TACAN.

Feb. 23

51 nations bought more than \$7-million worth of civil lightplanes from U. S. manufacturers in 1954, AIA reports. Leading customer was Chile.

Western Electric Co. named prime contractor for construction of Distant Early Warning Line.

Rolls-Royce delivers Avon RA28 engine for installation in Ryan's Type 69 experimental vertical takeoff jet, designated XF-109 by USAF and XF-3R1 by Navy.

Feb. 24

Aircraft obligations by the Air Force, Navy and Army in the first half of fiscal 1955 totaled \$3,437,000,000, Defense Department reports. AF obligation was largest, amounting to \$2,632,000,000.

Bendix Aviation Corp. plans \$10-million expansion of its engineering facilities including \$6-million at South Bend, Ind.

Douglas Aircraft makes first formal announcement that the C-133 turboprop transport is in production and announces establishment of a plant at Charlotte, N. C., as second source for the Nike missile.

Feb. 25

Air Force Secretary Talbott discloses AF to supply Navy's future jet needs with such powerplants as J75, J67 and J79.

Lester P. Fanenf, general manager and treasurer, elected vice president and director of Bell Aircraft Corp.

Robert H. Wood, former editor of Aviation Week, appointed assistant to the president of McDonnell Aircraft for public relations.

First YC-121F turboprop Super Constellation for Air Force rolled out by Lockheed Aircraft Corp.

Feb. 28

Ross Rizley confirmed by Senate to fill vacancy on CAB, and Louis S. Rothschild named Under Secretary of Commerce for Transportation.

Test Pilot Robert O. Rahn climbs Navy's Douglas F4D-1 to 1,000 feet in 56 seconds at Edwards AFB, bettering time of McDonnell F3H.

MARCH

Mar. 1

CAB certifies North Central Airlines to operate between Chicago and Detroit via five intermediate cities.

Grumman Aircraft Engineering Corp. establishes an industrial TV "network" linking two plants 50 miles apart on Long Island.

Mar. 2

Trevor Gardner sworn in as Assistant Air Force Secretary (Research and Development).

Rear Admiral James S. Russel confirmed by Senate to be chief of Bureau of Aeronautics for term of four years.

Stockholders informed by Hiller Helicopters that company developing a VTO-type aircraft for the Navy, a one-man helicopter (XROE-1) for Navy and Marine Corps, and a convertiplane.

Mar. 3

Boeing Airplane Company declared winner of AF jet tanker competition with the KC-135, and Lockheed Aircraft awarded a Phase I contract for design of an advanced jet tanker.

CAB chairman Ross Rizley names Robert L. Kunzig, former counsel to the House Committee on Un-American Activities, as his administrative assistant.

Mar. 4

First Boeing B-52 arrives at Edwards AFB to begin Phase VI tests.

Fairchild Aircraft Division proposes a carrier version of its C-123B Avitruc to augment air resupply of vital cargo and personnel.

Mar. 7

Boeing Airplane Co. announces plan to build a \$2-million wind tunnel to test aircraft in the Mach 1.2 to Mach 4 range.

1955 CHRONOLOGY

Dassault completing flight tests of a Mystere IV-A incorporating an all-flying tail with separate elevators.

Mar. 9

Boeing had its first billion-dollar sales year in 1954, and net income also reached an all-time high, President William M. Allen reports.

Mar. 10

The Air Force activates its first squadron of "parasite" fighters, using Republic RF-84F's equipped to be carried, launched and recovered in flight by RB-36's.

North American Aviation to build first nuclear reactor for private industrial research for the Armour Research Foundation on the campus of Illinois Institute of Technology.

AVRO Aircraft planning \$5-million expansion for production of its supersonic CF-105 delta-wing jet.

Mar. 11

Convair reveals its proposed short-medium distance turboprop transport, using four Rolls-Royce RDA7 Dart engines, will cruise at 330 mph.

Navy Bureau of Aeronautics awards \$12-million contract to Pratt & Whitney for additional development of J57 engines.

Mar. 14

Douglas Aircraft Co. receives an additional \$8-million for work on existing F4D-2 contract.

Defense Department announces military services to spend \$518-million for guided missiles in fiscal 1955 and \$674-million next year.

Air Force awards AVCO's Lycoming Division new contracts totaling more than \$5.2-million for Wright-licensed R-1820 piston engines.

Louis S. Rothschild, new Under Secretary of Commerce, named chairman of the Air Coordinating Committee.

Mar. 15

Air Traffic Conference members vote, 21 to 10, to repeal reservations reconfirmation rule.

Backlog of the aircraft industry for complete aircraft, engines and propellers was \$14-billion as of Dec. 31. Military orders represented 93% of the aircraft backlog, 96 percent of engine orders, and 87 percent of propeller orders.

Walter H. Barling, designer and builder of the first U. S. heavy bomber, retires.

Mar. 16

Air Force announces that it has under accelerated development three missiles with intercontinental range—North American Navaho, Northrop Snark and Convair Atlas.

Chance Vought reports design of a simplified pilot ejection seat for Navy jet aircraft.

Defense Department sets up a titanium metallurgical laboratory under contract with the Battelle Memorial Institute.

Mar. 17

Slick Airways reveals plan for start of door-to-door air cargo service on a regularly scheduled basis within 30 days.

Hannibal Choate Ford, founder of Ford Instrument Co. and former chief engineer of Sperry Gyroscope Co., dies.

Trevor Gardner, Assistant Secretary of the Air Force, reports the USAF emerging into an era of a balanced aircraft-missile integrated force.

A new German jet propulsion research organization is formed in Stuttgart.

Mar. 18

Pentagon announces that Curtiss-Wright Corp. is participating under a USAF contract in de-

sign studies for the application of atomic power to aircraft propulsion.

BOAC announces its 20 new Comets will be Mark 4's, which are Comet 3's with Avon RA29 engines and with structural design changes resulting from findings in Comet 1 accidents.

North American Aviation reveals USAF contract for the long-range SM-64 missile, formerly designated B-64.

Mar. 21

Major General James Gavin appointed as Army's Deputy Chief of Staff for Plans and Research.

The Port of New York Authority reports that its four airports handled more than 9-million passengers, 122,000 tons of cargo and 40,000 tons of air mail in 1954, setting all-time records in each category.

Mar. 22

Air Coordinating Committee refers the TACAN VOR-DME dispute to its NAV panel and requests recommendations by April 15.

Mar. 23

Robert E. Gross, president of Lockheed Aircraft Corp., warns that the aircraft manufacturing industry may be in danger of being splintered off by new companies entering the business under the weapons system concept.

Speakers at IRE convention disclose that work is progressing on instrumentation for devices to be launched by the Rockaire technique, which calls for the launching of missiles from high altitude aircraft as a possible first step to establishing a space radio transmitter.

National Airlines applies to CAB for authority to conduct passenger helicopter operations in the Hampton Roads, Va., area for one year starting May 1.

Mar. 24

Convair announces work soon to begin on a \$3.5-million "trisonic" wind tunnel to test models of aircraft and missiles up to Mach 4.5.

Navy reports a completely automatic escape sequence for the Lockheed and Convair VTO fighters, enabling pilots to eject safely at altitudes as low as 25 feet and airspeeds as low as 200 knots.

Mar. 25

President Eisenhower designates Joseph P. Adams as Vice Chairman of CAB.

TWA takes delivery of four new Model 1049C Super Constellations from Lockheed Aircraft Corp.

Mar. 28

General Electric Co. announces it is supplying for the USAF F-101 Voodoo an automatic electrical system that requires no attention from the pilot.

Bell Aircraft Corp. discloses it is supplying rocket engines which power the Army's Nike surface-to-air missile.

Mar. 29

Bell Aircraft Corp. and the Navy develop and successfully test an electronic landing system for aircraft carrier use which has brought in several hundred aircraft in fully-automatic "hands-off" landings.

Army takes delivery of its first Sikorsky H-34 helicopter, military version of the S-58.

Air Research and Development Command, USAF and Sperry Gyroscope Co. announce an improved remote control of jet fighter aircraft on special "drone," pilotless interceptor or nuclear test missions.

The AIRCRAFT YEAR BOOK

Mar. 30

B. F. Goodrich claims development of first high pressure tubeless airplane tire capable of absorbing shock of landings and takeoffs at 300 mph.

Mar. 31

Air Force and Defense Department spokesmen tell Congressional Committee that its aircraft nuclear propulsion program is moving at high speed.

Dr. Theodore von Karman receives the Exceptional Service Award, highest award by the Air Force to a civilian, for his work as chairman of the Scientific Advisory Board.

APRIL

Apr. 1

National Aeronautic Association, U. S. representative of Federation Aeronautique Internationale, recognizes adjusted speed of 3 hours 44 minutes 53 seconds as official Los Angeles-New York speed record, set by Lieutenant Colonel Robert R. Scott, USAF, in Republic F-84F Thunderstreak on March 9.

Ford Instrument Co., division of Sperry Corp., awarded \$9,313,485 Navy contract for computers.

Apr. 4

Northrop Aircraft gets \$2,224,275 order from Air Force for new version of F-89H, the Scorpion.

Air Force awards \$15-million contract to Convair Division, General Dynamics Corp., for unspecified number of F-102A aircraft, spare parts, related items. North American Aviation given order for 215 unspecified aircraft and related equipment, totaling \$12,607,989. A \$3-million order given Sikorsky Aircraft for 55 H-19D helicopters, spares, GHE and data.

Hoover Commission urges maximum use of commercial air carriers by Defense Department and sharp reduction in operation of MATS.

Apr. 5

Ten Douglas DC-7C's ordered by KLM Royal Dutch Airlines for delivery between April and July, 1957. Order worth \$31.5-million.

Piasecki Helicopter Corp. announces board of directors authorizes work required for CAA certification of H-21 helicopter, entering commercial transport helicopter field.

First production Navy FJ-4 Fury Jet makes initial flight at North American Aviation's Columbus division.

Development of small training drones, costing \$500 to \$600 apiece, to train operators in use of larger drones for gunnery practice, revealed in Pasadena, Calif.

Apr. 6

Expenditure of \$120.4-million of aid from U. S. included in Britain's \$4.3-million defense budget for 1955-56. This aid allocated to defense support aid, agriculture commodity aid, special aircraft purchase and additional RAF program.

"UNIVAC SCIENTIFIC," Remington Rand electronic computer added to missile test equipment at White Sands Proving Ground, N. M., expected to reduce data-processing time from weeks or months to hours.

Apr. 7

Air Force completes public phase of testimony before Senate Appropriations Defense Subcommittee with plea for more housing as most critical situation facing it.

Air Force Secretary Harold E. Talbott reports air defense systems in U. S. are nearing completion and can give minimum of two hours' warning when finished.

First Air Force unit equipped with Chase Fairchild C-123B's will be 16th Troop Carrier Squadron (Assault) of 463rd Troop Carrier Wing (Medium), stationed at Ardmore Air Force Base, Okla.

Atomic Energy Commission detonated prototype of air-to-air nuclear warhead missile more than 30,000 feet above Nevada proving ground.

Vice Admiral Thomas S. Combs, Deputy Chief of Naval Operations for Air, appointed member of National Advisory Committee for Aeronautics by President Eisenhower.

Apr. 8

Fairchild Aircraft Division asks CAA to start studies of Fokker-designed, F-27 Dart-powered turboprop transport to determine if it can be certificated for use in U. S.

Lockheed starts delivery in quantity to Navy of jet-pod-equipped P2V-7 Neptune. First unit to get anti-submarine patrol bombers is Patrol Squadron 18, Fleet Air Wing 11, Jacksonville, Fla.

Apr. 11

Navy reports that Hiller Helicopters has designed and built small wingless "flying platform" combining principle of weight shifting with ducted fan.

General Benjamin W. Childlaw, 54, commanding general of USAF Air Defense Command and new Continental Air Defense Command, to retire May 31 after 33 years in military service.

Glenn L. Martin Co. to start manufacture of pre-fabricated nuclear reactors, designed for simple assembly in field.

First production model of Lockheed Aircraft Corp's C-130-A turboprop transport for Air Force makes initial flight at Marietta, Ga.

Military Air Transport Service awarded Dacadian Trophy for 1954. USAF awarded National Safety Council's Award of Honor for fifth consecutive year.

Apr. 12

North American Aviation ends X-10(SM-62 Navaho) missile test work at Edwards Air Force Base. Entire test flight program on long-range, ramjet Navaho to be conducted at Patrick Air Force Base, Fla.

Apr. 13

United Air Lines announces details of \$42.5-million equipment program involving purchase of 26 four-engine Douglas transports, supplementing 17 Douglas transports ordered last year.

USAF headquarters in Europe announces award of three major contracts to Italy's Fiat company, involving assembly of North American F-86K all-weather fighters, repair and overhaul of General Electric J47 engines, and work on F-91 lightweight fighter.

H. Leslie Hoffman, president of Hoffman Electronics Corp., expresses major concern over invasion of electronics industry by air-frame companies.

Production of T-33 trainers extended into late 1956 at Lockheed Aircraft Corp's California division by additional \$10-million order from Air Force.

Apr. 14

International Telephone and Telegraph Corp. announces availability of TACAN, saying large scale production started by Federal Telephone

1955 CHRONOLOGY

and Radio Co., Stromberg-Carlson and Hoffman Radio Corp.

Business and Defense Services Administration's industry advisory committee on titanium urges Pentagon to push newest expansion program for metals.

Frye-Robertson Aircraft Co. formed in Newark, Texas, with Jack Frye, former TWA head and recently president of General Airline & Film Corp., as president.

Air Navigation Development Board begins testing of new system for distributing aviation weather information by teletypewriter, using automatic switching center and magnetic storage drum in Indianapolis.

Apr. 15

CAA type certificate awarded to Pratt & Whitney's J57 10,000 pound-thrust jet engine.

Victor Emanuel, president and chairman of Avco Manufacturing Corp., announces setting up of two scientific teams to work on electronics, guided missiles and atomic energy.

Modified C-46 of Aircraft Engineering Foundation crosses nation at average speed of 232 mph.

TWA authorized by CAB to close gap between Frankfurt, Germany, and Zurich, Switzerland, permitting transatlantic operations through London and Frankfurt to Zurich and points beyond. CAB denies Pan American's bid for Rome-Frankfurt authorization but approves PAA's application to serve Istanbul and Ankara, Turkey, as intermediates between Rome and Beirut.

Dr. Jerome C. Hunsaker, chairman of National Advisory Committee for Aeronautics, awarded Langley Gold Medal of Smithsonian Institution.

First flight photos of Convair F-102A released, showing coke-bottle configuration of supersonic Delta-wing fighter.

Defense Department revealed as largest holder of federal real property in the United States, accounting for \$18.3-billion of total acquisition cost of \$30.2-billion.

One of three Douglas D-558-1 Skystreak experimental planes being used as children's sliding pond at Walt Disney Elementary School in Tullytown, Pa.

Absolute range of Lockheed's new Model 1049G Super Constellation equipped with tip tanks announced as 5,580 miles. Tanks hold 600 gallons each, add up to 850 extra miles.

Apr. 18

Three pilotless jet fighters, Lockheed QF-80 drones, sent into blast area during atomic test in Nevada desert. All three survive.

Aircraft Engineering Foundation estimates kit cost for C-46 operators to incorporate Super 46 engine and nacelle modifications to be about \$20,000.

General Benjamin W. Childaw, retiring head of Continental Air Defense Command, predicts U. S. will have evolved cruising and intercontinental ballistics missiles within next ten years.

Deutsche Lufthansa's first Super Constellation leaves Burbank for German airline's Hamburg base.

Australia's Avon-powered license-built North American F-86 Sabre to be equipped with guided missiles.

Apr. 19

Lockheed Aircraft Corp. gets \$70-million or-

der for 24 L-1649 Super Constellations for Trans World Airlines.

John S. Attinello, head of supersonics division of Navy's Bureau of Aeronautics, says low speed landing, coupled with thrust reversers, may soon eliminate need for special landing fields with long runways.

AiResearch Aviation Service division of The Garrett Corp. reports it has accomplished 12-mph increase in cruising speed of Beechcraft Bonanza at 8,000 feet in experimental application of geometric boundary layer control to wing leading edges.

Apr. 20

President Eisenhower approves CAB recommendations in New York-Balboa Through Service case, paying way for new interchange operations between New York and Latin America.

United Air Lines to become first airline to operate nonstop flights in both directions between New York and San Francisco, cutting full hour from present one-stop service.

Boeing Airplane Co. brings new complete flight test communications system into full-scale operation at flight test center at Boeing Field, Seattle.

L. B. Smith Aircraft Corp., aircraft conversion firm, and Air Carrier Engine Service, engine modification company, both of Miami, to begin final flight tests on C-46 aircraft leading to CAA certification under T-category for gross take-off weight of 50,000 pounds.

Apr. 21

First disclosure made of two USAF boundary layer control projects.

W. R. Rhoads, Lockheed-Marietta's chief military operations research engineer, says nation's air logistics transport fleet would be obsolete in event of military emergency.

First design and performance details of the Bristol Aeroplane Co.'s B. E. 25 "supercharged" turboprop engine revealed.

Details of new, improved high-altitude research rocket, the Aerobee-Hi, revealed.

Dr. Leslie A. Bryan elected new president of American Association of Airport Executives.

Apr. 22

Douglas Aircraft Co. to produce both turbojet and turboprop commercial transports.

Navy and Marine Corps expect to take delivery of 2,616 aircraft during fiscal 1956 and to place orders for 1,613 more during same period.

Powerplant difficulties blamed for abortive flights of rocket-powered aircraft in more than 200 flights during past ten years.

Apr. 25

Air Force Assistant Secretary Roger Lewis tells Senate Small Business Subcommittee that small business interests are being protected by Air Force under program, defending new "weapons system concept".

CAB grants one-year exemption to National Airlines to conduct helicopter operations within 100-mile radius of Patrick Henry Airport, Newport News, Va., conditioned on NAL serving at least two intermediates between Richmond and Norfolk or Newport News. Mail rights are excluded.

Boeing Airplane Co. begins extensive service tests of new Pratt & Whitney T34 turboprop engine.

Potential tactical applications of Ryan Aeronautical Co.'s Firebee 600-plus mph jet target drone disclosed.

USAF gives letter contract to Stroukoff Aircraft Corp., West Trenton, N. J., for work incorporating boundary layer control features and making other modifications to Fairchild-built C-123B assault transports.

Apr. 26

France's first jet large transport, the SNCA du Sud-Est Caravelle, undergoing pre-flight tests. USAF announces it plans to order 2,333 new aircraft costing \$3,552,000,000 during fiscal year beginning July 1.

R. Karl Honaman, on leave as director of publications for Bell Telephone Laboratories, appointed Deputy Assistant Secretary of Defense for Public Affairs, succeeding D. Walter Swan.

Greatly increased emphasis on air mobility within the service revealed by Army. It involves possibility of formation of Army air wing to provide transport and tactical support aircraft.

Eaton Manufacturing Co., Cleveland, purchases Fredric Flader, Inc., North Tonawanda, N. Y., research and engineering company, and will operate it as subsidiary.

Apr. 27

Current Air Force budget request includes funds for initial financing of new long-range high performance interceptor.

Atomic Energy Commission asks for proposals by private industry to finance, build and operate improved "engineering test reactor".

General Motors Corp.'s Buick-Oldsmobile-Pontiac plant at Kansas City, Kans., to cease production of Republic-licensed F-84F Thunderstreak latter part of year.

Apr. 28

More than 300 of Douglas B/RB-66 series ordered by Air Force.

Three-hour initial flight made by DC-7B at Santa Monica.

Deliveries of Douglas C-133 turboprop transport, powered by four Pratt & Whitney T57 engines, to begin late this year.

Army plans to train 900 helicopter pilots during fiscal 1956.

General Lemuel C. Shepherd, Corps Commandant, says Marine Corps is tailoring combat organization to have capability of landing entire assault force of men and weapons by helicopter eventually.

Navy thinks Martin XP6M-1 has strategic, tactical and possibly logistical potentialities worth developing.

Cessna Aircraft Co. reveals performance figures for new CH-1 helicopter.

Apr. 29

Air Secretary Harold E. Talbott says new aircraft and guided missile production facilities should be constructed away from concentrated areas on east and west coasts.

Bell Aircraft Corp., Texas Division, discloses tests on flying wing helicopter model with side-by-side rotors.

Port of New York Authority to bar aircraft not equipped with brakes and functioning two-way radio from landing or taking off from its air terminals, except Teterboro, where aircraft equipped with radios capable only of receiving transmissions from control tower may be operated in daylight when weather permits "contact" operations. Ban will be waived in event of emergency.

MAY

May 2

Navy officials confirm "Navy-Air Force Ten-Year Powerplant Development Program."

William P. Gwinn, general manager of Pratt & Whitney Aircraft, reveals that division's nuclear propulsion research facility will be called Connecticut Aircraft Nuclear Engine Laboratory (CANEL) and will be located near Middletown, Conn.

De Havilland Aircraft Company offers delivery of Comet 4, jet transport, tank tested and with guaranteed fatigue life equivalent to ten years' service, at end of 1958.

Colonel William B. Bunker, Commandant of Transportation School, U. S. Army, Fort Eustis, Va., elected president of American Helicopter Society.

Air Material Command awards \$10-million Air Force contract for B-57E airplanes, spare parts, special tools and GHE and data to Glenn L. Martin Company.

May 3

Don Berlin elected chairman of the board and president of Piasecki Helicopter Corp., also remaining a director and member of the executive committee.

Republic Aviation Corp. announces contract with the Air Force for development of RF-105, photo-reconnaissance version of F-105 advanced fighter-bomber.

Slick, Flying Tigers and Riddle, certificated all-cargo carriers, given exemptions, authorizing participation in 3¢-mail-by-air experiments, by CAB.

Silkorsky Aircraft Division of United Aircraft Corp. begins small-scale production of components for S-56 twin-engine helicopter at new plant in Stratford, Conn.

Funeral services held for John Henry Towers, retired admiral and president of Flight Safety Foundation, at Ft. Myer, Va., chapel.

May 5

Thomas Bayne Wilson, chairman of the board of TWA from 1938-1947, sworn in as Deputy to Under Secretary of Commerce for Transportation, Louis S. Rothschild.

Air Material Command awards \$5-million Air Force contract for 28 TF-102A aircraft, spare parts and related data to Convair Division, General Dynamics Corp.

Charles A. Lowen, former Denver director of aviation, named organization and administration consultant to CAA Administrator Fred B. Lee.

CAB refused to underwrite Hawaiian Airlines' Convair 340 operations and effects sharp cuts in past and future mail pay of airline.

Bureau of the Census and CAA report that nation's aircraft industry in 1954 shipped 3,389 civilian planes worth \$295.7-million.

Pan American World Airways and Trans World Airlines report success of fly-now-pay-later plans.

May 6

McDonnell Aircraft Corp.'s XV-1 convertiplane makes first successful conversion from helicopter to conventional airplane flight.

C. N. Sayen, president of Air Line Pilots Association, attacks CAB's waiver of eight-hour flight rule for non-scheduled airlines.

Louis Breguet, French aviation pioneer, dies at age of 75.

1955 CHRONOLOGY

British Society of British Aircraft Constructors reports that production rate of Curtiss-Wright Corp.'s J65 jet engine, U. S. version of the British Armstrong Siddeley Sapphire built under license, is now more than 250 a month.

CAA certifies TEMCO Aircraft Corp.'s Riley '55 twin-engine Navion conversion, improved version of Riley Twin produced during 1953-54.

May 10

Sabena Belgian World Airlines receives contract from U. S. Forces in Europe for overhaul of U. S. military helicopters operated in Europe.

Convair starts production line for Model 340B, incorporating speed and sound improvements over present Convair Liner.

Cost of TACAN program at present time is estimated at \$483,125,000 by Aircraft Owners & Pilots Association.

Douglas Aircraft Co.'s Long Beach division delivers last C-124 Globemaster to Air Force.

More than 300 plane owners and pilots sign up as charter members of National Pilots Association.

May 11

USAF to place first orders for standby machine tools for use in case of emergency.

Curtiss-Wright Corp. acquires sites for emergency assembly plant in Pennsylvania mountains and for bombproof headquarters and research facilities in Ramapo Hills.

Ivan Driggs, 61, winner last December of Navy League Annual Award of Merit for work in helping develop and demonstrate practicability of vertical take-off fighter aircraft, dies at Johnsville, Pa.

CAB reports that inadequate in-flight planning probably caused crash landing of Air France's Lockheed 1049 Constellation at Preston City, Conn., on August 3, 1954.

Bell Aircraft Corp.'s Model 47G helicopter officially designated as Model 47G-2 in accordance with CAA requirements.

Douglas Aircraft Co. and Lewis Flight Propulsion Laboratory, NACA, win first places in National Safety Council's aeronautical industries safety contest for 1954.

May 12

Bill passed by both houses of California legislature to prevent county governments from levying personal property taxes on airplanes in California for repair, modification, overhauling or servicing.

Sen. Joseph C. O'Mahoney (D-Wyo.), former counsel of North American Airlines, accuses CAB of maintaining "closed door" policy regarding entry into the airline industry.

Legal precedent may be established by jury verdict in Los Angeles superior court lawsuit in which eight couples were awarded \$18,000 in damages from Lockheed because of noise from jet production flying.

Deutsche Lufthansa to move from temporary U. S. offices at 666 Fifth Avenue, New York, to permanent quarters at 555 Fifth Avenue.

A Fairchild C-123B assault transport is first plane to be equipped with Speed Control System, developed by Safe Flight Instrument Corp., White Plains, N. Y., a lift-measuring device that tells pilot best speed to fly on landing, take-off and other low-speed flight conditions.

Aircraft Owners and Pilots Association challenges one-the-record testimony on TACAN-VOR/DME controversy given by Major General Gor-

don Blake before House subcommittee on Air Force appropriations.

Major General Victor E. Bertrandias, recently retired as Deputy Inspector General of USAF, named vice president of Hammond Manufacturing Corp., Pasadena, and its newly formed subsidiary, Air Logistics Corp.

Straight lines of English Electric P-1 level supersonic fighter accentuated in first air-to-air photo released. Prototype powered by two Armstrong Siddeley Sapphire single-spool turbojets.

May 13

Trans-Canada Air Lines to start Viscount service to Chicago and Cleveland on June 20.

Under Secretary of Commerce Louis S. Rothschild calls airlines' support of TACAN a "self-interest maneuver" in testimony before House subcommittee on appropriations.

Lawrence D. Bell, Bell Aircraft Corp. president, and Air Force Lieutenant Colonel John P. Stapp, honored by Jet Pioneer Association of U.S.A.

Thirteen airlines, including eight local service carriers, to retain reconfirmation on all or parts of their systems. They are Colonial, Northeast, Bonanza, Lake Central, Mohawk, North Central, Piedmont, Southern and West Coast; also Eastern and Allegheny, EAL, National and Delta-C&S.

May 16

General Maxwell D. Taylor nominated to succeed General Matthew B. Ridgeway as Army Chief of Staff.

New Air Force regulation indicates that joint Armed Forces Special Weapons Project "is considered to be on the same command level as the major air commands."

Cessna Aircraft Co. received \$5-million sub-contract from Republic Aviation Corp. to build maneuverable horizontal stabilizers for F-84F Thunderjet fighter.

British European Airways announces first profit in its history—net of over \$140,000 for fiscal year ending March 31, 1955.

May 17

Sen. Wayne Morse (D-Ore.) calls CAB "greatest drag on civil aviation since gravity".

Pan American World Airways applies to CAB for "polar" route from U. S. west coast to Europe.

Hoover Commission repeats recommendation to Congress that government competition with air transport industry should be minimized.

Dr. E. R. Piore, formerly chief scientist and deputy chief of Office of Naval Research, to head Avco Manufacturing Corp.'s team of top research scientists in fields of electronics, atomic energy and guided missiles.

Taylorcraft, Inc., of Conway, Pa., announces completion of CAA certification tests on its fiberglass airplane.

Donald F. Lowe, vice chairman of Port of New York Authority, named chairman to succeed Howard S. Cullman, who becomes honorary chairman.

May 18

Sen. Stuart Symington (D-Mo.) introduces resolution calling for Senate investigation of Defense Department's announcement on new Russian planes.

Cornell Aeronautical Laboratory, Buffalo, N. Y., reports development of new guided missile for ground troops.

The AIRCRAFT YEAR BOOK

USAF estimates that Lockheed's C-130 turboprop cargo plane will have ton mile cost of 5.3c for ranges of 1,000 nautical miles, 5.9c at 2,000 nautical miles and 21.4c at 3,000 nautical miles.

Louis S. Rothschild, Under Secretary of Commerce for Transportation, appointed by President Eisenhower to succeed Oswald Ryan as member of the National Advisory Committee for Aeronautics.

May 19

President Eisenhower enters dispute over relative strength of U. S. and Soviet air power, rejecting charges that this country has lost control of the air.

Boeing B-52 heavy bomber revealed as heaviest consumer of fuel and oil in Air Force's arsenal of aircraft, costing an estimated \$328 per flying hour.

Air Transport Association urges use of compatible color television techniques in a radar beacon system for air traffic control in high density areas.

Roadable Corporation of America formed in Buffalo to develop a roadable aircraft design, and construction on full-size flight test model is under way. Chester R. Haig, Jr., is president and Harry A. Hamilton, Jr., secretary-treasurer.

Air Force awards \$1,995,139 contract to Sikorsky Aircraft Division, United Aircraft Corp. for depot overhaul spare parts.

Deutsche Lufthansa starts international operations with two daily flights to London, three weekly schedules to Paris and three to Madrid.

May 20

Top Air Force officials and Senate leaders express concern over condition of U. S. air power relative to Soviet air strength.

House Appropriations Committee slashes proposed CAB airline subsidy program from \$63-million to \$40-million for fiscal 1956.

CAB issues foreign air carrier permit to Aerovias Venezolanas, S. A. (Avense), permitting service between Venezuela and Miami via Netherlands West Indies and Jamaica and between Venezuela and New Orleans via Jamaica.

May 23

CAB announces "liberalization" of its trans-Atlantic charter policy for 1955 and also institutes investigation to determine if foreign-permit holders should be permitted to perform off-line charters.

General Nathan F. Twining hints new developments in Russian air power may cause USAF to expand beyond its present goal.

Forthcoming Tactical Air Command combat planes including fighter-bombers, day superiority fighters and light bombers, will be refuelable, reports General O. P. Weyland.

Canadair Ltd., Montreal, reported to have gone ahead with its design proposal for a side-by-side primary jet trainer for RCAF.

A Grumman S2F Sentinel revealed as first plane to make arrested landing on a canted deck of an aircraft carrier in the Pacific. Lieutenant Commander P. T. Gannon was pilot and Captain R. L. Newman, co-pilot.

Aviolanda Company, participating in Dutch license production of Hawker Hunter fighters, reveals development of a pilotless, radio-controlled target and liaison aircraft incorporating several new features.

May 24

Sen. Stuart Symington (D-Mo.) declares that Russia is moving up on USAF in offensive and ahead on defensive airpower and urges Administration for an accounting.

A North American F-86 sets two transcontinental records: (1) as first aircraft to cross the U. S. round trip in daylight and (2) by flying east-west leg in 5 hrs., 27 mins., 37 secs., breaking previous record.

May 25

Pentagon reports 11 major aircraft companies received total of 41.1 percent of all military contracts awarded by U. S. government in 18 months ending Dec. 31, 1954.

Air Secretary Harold E. Talbott says atomic-powered airplane is definitely on its way.

Walter H. Johnson, Jr., vice president and sales manager of American Airlines, calls for new forward policy in airfreight to replace "fence-straddling policy of the recent past".

May 26

North American Aviation reports successful first flight of first F-86K assembled in Italy.

President Eisenhower accepts CAB recommendations in States-Alaska case for maintenance of a four-carrier network.

General Nathan F. Twining nominated by President Eisenhower for another two-year term as USAF Chief of Staff.

Rep. Chet Holifield (D-Calif.) requests Presidential and Congressional action to forestall large-scale buying of TACAN navigation equipment.

May 27

USAF Secretary Harold Talbott reveals to Senate Armed Services Committee in secret session plans for production speedup for B-52 and F-100 series.

Allison's J71 turbojet officially qualifies as 10,000-lb. thrust engine in USAF 150-hour tests.

A small group of British Army personnel to start six-month training course on Corporal 2 guided missile in the U. S. on July 1. They will be trained as instructors in connection with establishment in 1956 of British Army units equipped with the American missile.

Nearly 6,000 engineering employees of Boeing Airplane Co.'s Seattle and Wichita divisions vote to accept company's offer of salary increases of 2.75 percent retroactive to Oct. 1, 1954. Nearly 1,000 Wichita engineers will receive a 2¼ percent salary increase and a 2¾ percent increase retroactive to Oct. 1, 1954. Other Wichita benefits provide increase in overtime pay and inclusion in company's pension plan. Technical payroll employees receive more liberal overtime provisions and 2¼ percent salary increase. Terms are subject to Air Force approval.

North American Aviation offers new invention award plan to reward employees who suggest patentable ideas. Plan pays \$100 to inventor (or inventors) of any idea for which company applies for a patent. If patent is issued, award is \$500. If patent idea is licensed, additional sum may be paid in amount deemed fair by an Invention Award Plan Board, consisting of company executives. Highest amount approved at first meeting of board was \$1,750 to William T. Barker of the wing group for invention of the Barker rivet.

1955 CHRONOLOGY

New low-cost ground-control-approach radar SPAR (Super Precision Approach Radar) being demonstrated in all major European countries to military and civil aviation representatives under auspices of Bendix International Division and Laboratory for Electronics, Inc.

May 31

USAF Secretary Talbott's order to Boeing Airplane Co. to accelerate production of B-52 at Seattle and Wichita by 35 percent expected to be followed by similar order to Pratt & Whitney and Ford Aircraft Engine Division for J57 turbojets.

Construction starts on new rocket test stand capable of withstanding 1-million pounds of thrust at Air Force Flight Test Center, Edwards AFB. It is 150 feet in length, has vertical clearance of 150 feet and will be completed in about two years. It will be self-contained facility, with its own assembly shop, instrumentation shop, propellant distribution and high pressure gas systems and completely independent of present rocket test installations at Edwards. New, bigger test stand expected to be able to test any rocket engine to be developed in foreseeable future.

Scandinavian Airlines System president Henning Throne-Holst reports the airline has carried approximately 1,600 revenue passengers since starting direct service between Los Angeles and Europe last fall. Load factors have jumped from average of 40 percent in first couple of months to practically 100 percent eastbound and 60 percent westbound.

Captain Francis J. Black, Jr., airline pilot, urges campaign by traveling public against serving of liquor aboard airplanes.

Britain's Decca Navigator Co., Ltd., takes issue with VOR/DME and TACAN as effective part of an air traffic control system.

Australian authorities estimate next year's Olympic games at Melbourne will attract 10,000 visitors arriving by air in a matter of days. Plans are made to enlarge customs and quarantine facilities at airports at Melbourne, Darwin, Perth, Brisbane and Sydney for duration of the games.

A French guided missile, the SNCA du Nord (ECMAS SS10), said to be attracting interest of NATO. Can be used for air-to-air or air-to-ground missions.

JUNE

June 1

The SNCA du Sud-Est Caravelle, French jet transport, makes first flight May 27.

Hoover Commission warns Congress that "the Armed Services are not sufficiently daring and imaginative in approach to radically new weapons and weapon systems," adding that even stepped-up research and development programs may be too late to maintain U. S. supremacy in weaponry.

CAB gives Deutsche Lufthansa, German airline, a one-year foreign air carrier permit for operations between Germany and New York via Shannon and Gander.

Airwork Atlantic Limited revises thrice-weekly all-cargo scheduled service from New York to Europe to provide no-change-of-plane freight service to Dusseldorf, Germany.

Robert Thach, a founder of Pan American World Airways, dies in Charleston, S. C.

Charles Healy Day dies in Los Angeles after long career in aviation.

Edward L. (Swanee) Taylor, veteran barnstorming flier and pioneer aviation, dies at Bethesda Naval Hospital.

June 2

CAA spokesmen criticized for what Senate Appropriations Committee members called "pressure" exerted in effort to obtain restoration of funds cut by House.

Agreement revealed that role of air taxi operators shall be to fly irregular, demand-type service rather than scheduled operations and that they shall be permitted to use helicopters of certain size and weight.

William A. Cooke, vice president of Audio Products Corp., elected president of Aircraft Parts Manufacturers Association.

A. W. (Tony) LeVier named director of flying operations for California division of Lockheed Aircraft Corp.

June 3

Air Marshal C. R. Siemon, Canada's Chief of Air Staff, says U. S. and Canadian Air Defense Commands are integrated at most practical level and are heading toward unification under supreme commander.

United Air Lines economic analyst urges CAB to encourage interchange arrangements between airlines as substitute for new routes.

Avro Aircraft Ltd., Malton, Canada, tests free-flight models of CF-105 supersonic interceptor, firing scaled-down replicas from Nike rocket rings.

June 6

Sen. Warren Magnuson (D-Wash.) charges the Administration has failed to recognize role of research and development in maintaining U. S. airpower.

Air Force officials begin investigation into appearance of detailed cut-away drawings of highly classified F-100A Super Sabre in May edition of Japanese publication Aircview.

Afterburner version of Curtiss-Wright J65 jet engine to be shown publicly for first time at Paris Air Show.

Lear, Inc., LearCal Div., develops new automatic direction finder, Model ADF-16, designed to meet CAA, military and airline specifications.

Vern Haugland of the Associated Press elected president of Aviation Writers Association.

Request by Federal Republic of Germany for admission to membership in ICAO tabled at ICAO General Assembly.

Australian Department of Supply places \$22.5-million order for more Avon Sabre jet fighters and spares for RAAF with Commonwealth Aircraft Corp.

Russia indicates it will participate in 1956 Canadian International Air Show.

June 7

Air Vice Marshal John L. Plant of Royal Canadian Air Force fired from post as Air Member for Technical Services as result of speech before Aviation Writers Association.

USAF gives Italian government order for three Fiat G-91 lightweight fighters for use in NATO program.

CAA announces that pilots using Distance Measuring Equipment (DME) will be permitted to make straight-in approaches at airports having no low-approach facilities in near future.

The AIRCRAFT YEAR BOOK

CAB Chairman Ross Rizley reveals to Senate Commerce Committee that inadequate airport conditions have forced air carriers to suspend service at 88 points during past four years.

Eastern Air Lines adds "golden" theme to its "Great Silver Fleet" with new Douglas DC-7Bs.

June 8

Pentagon still undecided whether 35 percent increase in B-52 program will require comparable increase in J57 engine program.

Administration opens appeal for two-year extension of Renegotiation Act. Senate Finance Committee members charge that Defense Department reliance on negotiated contracts destroys competition.

Sen. Stuart Symington (D-Mo.) says U. S. is far ahead of Soviet Union only in medium bomber field and that "unless our entire program is accelerated and adjusted, they will surpass us in a relatively short time" in total air power.

Republic Aviation Corp. delivers 1,000th F-84F atom-capable Thunderstreak to U. S. Air Force.

Canadian Pacific Airlines, Ltd., willing to pay \$2.8-million each for four Comet 4 jet airliners if they can be delivered by mid-1959.

Army orders first fixed-wing tactical transport company to be activated at Ft. Riley, Kans., at earliest practicable date.

Major General Robert W. Burns, Asst. Vice Chief of Staff of USAF, awarded Distinguished Service Medal for "substantial contributions to national security".

American Airlines protests to CAB against "device" employed by some carriers to "achieve unfair hearing priority for new route applications".

June 9

American Airlines becomes first U. S. carrier to buy U. S.-built turboprop transport with order for 35 four-engine Lockheed Electras at total value of about \$65-million.

USAF starts retiring B-36 intercontinental bomber.

House Government Operations Committee report questions value of TACAN, urges Government to limit procurement and calls for joint Congressional investigation of dispute over a common system of air navigation.

Sen. Henry M. Jackson (D-Wash.) says Administration's 35 percent speed-up in production of B-52 is totally inadequate.

Fred Landgraf, helicopter designer and organizer and president of former Landgraf Helicopter Co., named project engineer on special projects for Ryan Aeronautical Co.

Governor Goodwin Knight signs bill passed by California legislature permitting airlines to serve liquor aloft, with meals, at no charge, on flights within California.

Pan American World Airways and New York Airways file agreement to allow connecting passengers to be flown by helicopter without additional cost between Idlewild and airports in New York-New Jersey area for connections to or from U. S. interior points.

California Association of Airport Executives passes resolution urging aircraft manufacturers, CAA and CAB to accelerate research and experimentation on JATO, arresting gear, barriers, reverse thrust, boundary layer control and other devices to assist in solving problem of increased runway lengths.

Report from Germany says revised Luftwaffe will have 1,326 planes, including fighters, fighter-bombers, all-weather fighters, reconnaissance and transports.

June 10

Atomic Energy Commission chairman Lewis L. Strauss says "major breakthrough" has been achieved in development of reactors for propulsion of military aircraft.

James H. Doolittle elected president of Wings Club in New York.

Asst. USAF Secretary Trevor Gardner says U. S. aircraft industry is spending too much time studying and too little time doing.

June 13

Agreement between U. S. and German negotiators in connection with bilateral air transport rights to be subject of Senate inquiry.

U. S. Air Force Air Materiel Command adopts Hytrol anti-skid braking system on Republic RF-84F, Douglas B-66 and North American F-100 aircraft. Plans confirmed for Hytrol adoption by Military Air Transport Service and first orders placed for Boeing C-97 installations.

Lufthansa German Airlines' first scheduled transatlantic flight since World War II completed.

June 14

Vickers Viscount formally certificated by CAA at ceremonies in England.

Production stopped at Westinghouse Electric Corp.'s aviation gas turbine division, Kansas City, Mo., following walkout of estimated 3,000 production CIO-Antoworkers.

House Armed Services Committee approves AF proposal to move ARDC headquarters from Baltimore to Wright-Patterson AFB in Dayton.

First U. S. flight demonstration of Morane Saulnier, twin-jet four passenger business plane, scheduled at Westchester County Airport, White Plains, N. Y.

June 16

Severance pay and pensions to have top priority in contract negotiations between United Auto Workers-CIO and aircraft manufacturers.

Navy Secretary Charles S. Thomas calls for start on vigorous program for development of atomic-powered aircraft.

State Department criticized for failing to have on staff top-level personnel with knowledge of air transport industry who could represent U. S. in air negotiations with other nations.

Western observers in Moscow report more new Russian aircraft over city, notably a heretofore-unseen twin-rotor helicopter with more than 50 passengers capacity and bombers of B-52 class and B-47 class.

Mandatory reconfirmation rule in effect on all domestic airlines expires.

Convair-Fort Worth begins development work on new multi-million dollar Air Force contract calling for conversion of fleet of 36 C-54 transport planes into air rescue craft for Air Rescue Service of MATS.

Charles F. Willis, Jr., resigns as assistant to the President to become assistant to the chairman of the board of W. R. Grace & Co.

In inaugural test, Republic Aviation Corp.'s new remotely-controlled runway crash barrier stops RF-84F Thunderflash photo-reconnaissance plane in 600 feet.