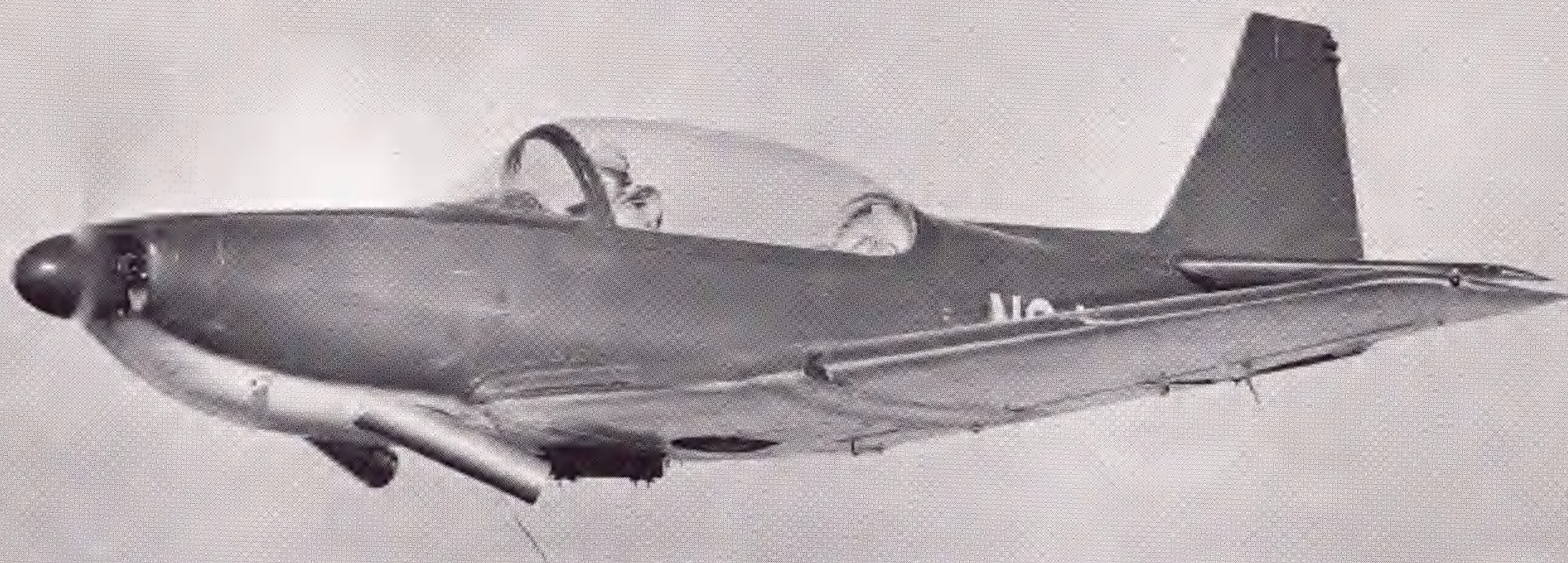
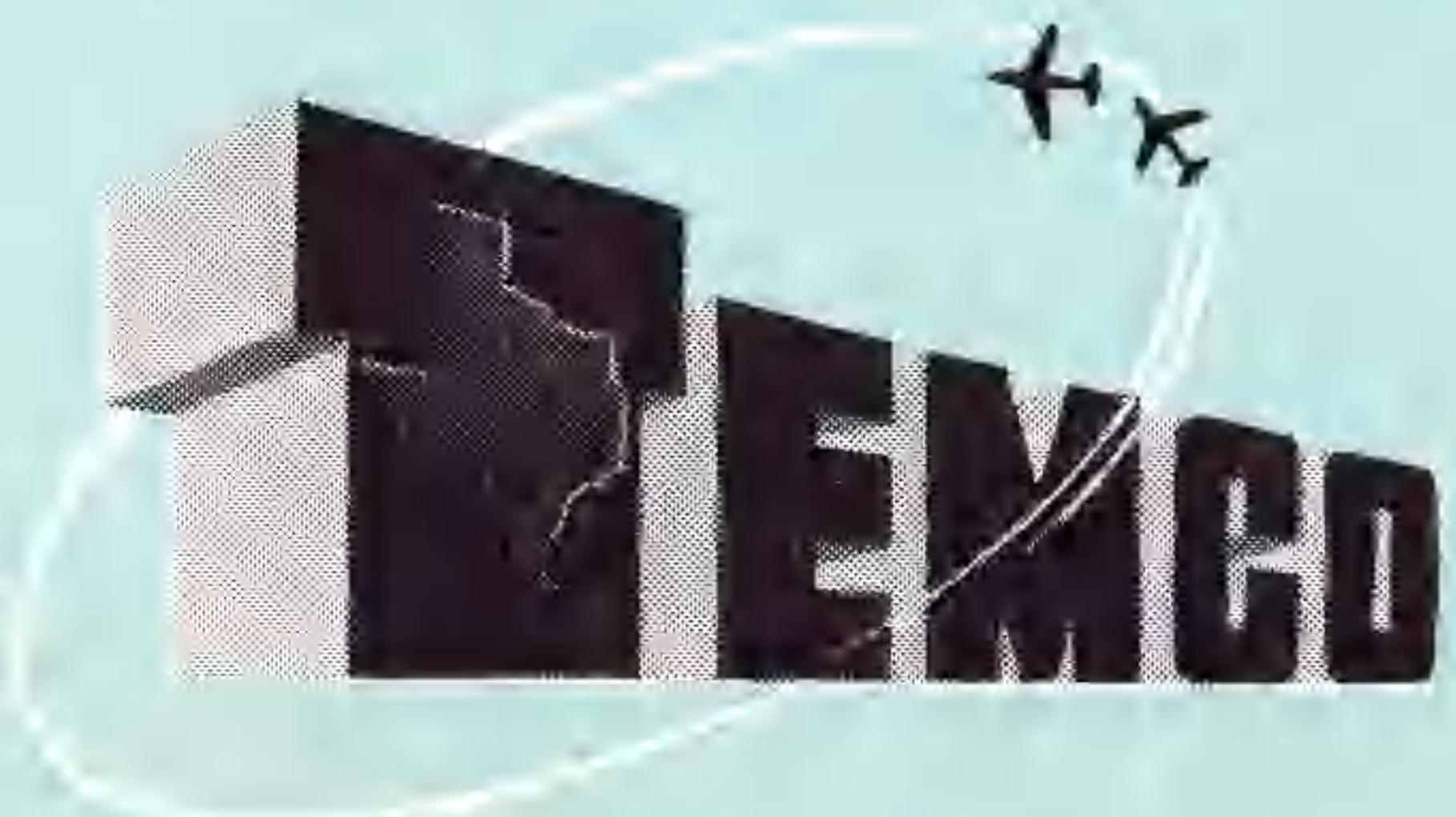


TEMCO AIRCRAFT CORPORATION, DALLAS, TEXAS



THE  MODEL 58

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Physical Characteristics

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Aerobatics

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INTRODUCTION

TEMCO Aircraft Corporation's Model 58 is a high-performance primary training aircraft developed to meet the varied operating requirements and punishing structural demands of military pilot training.

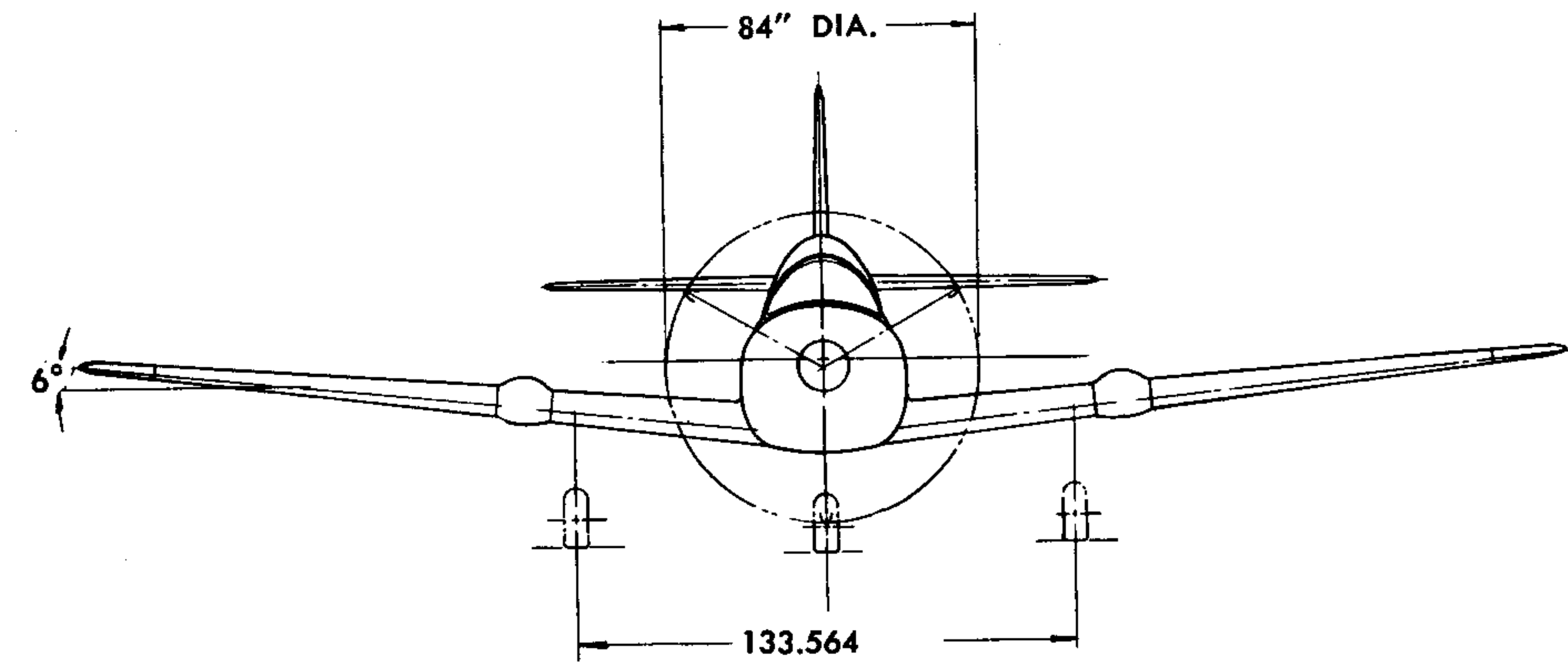
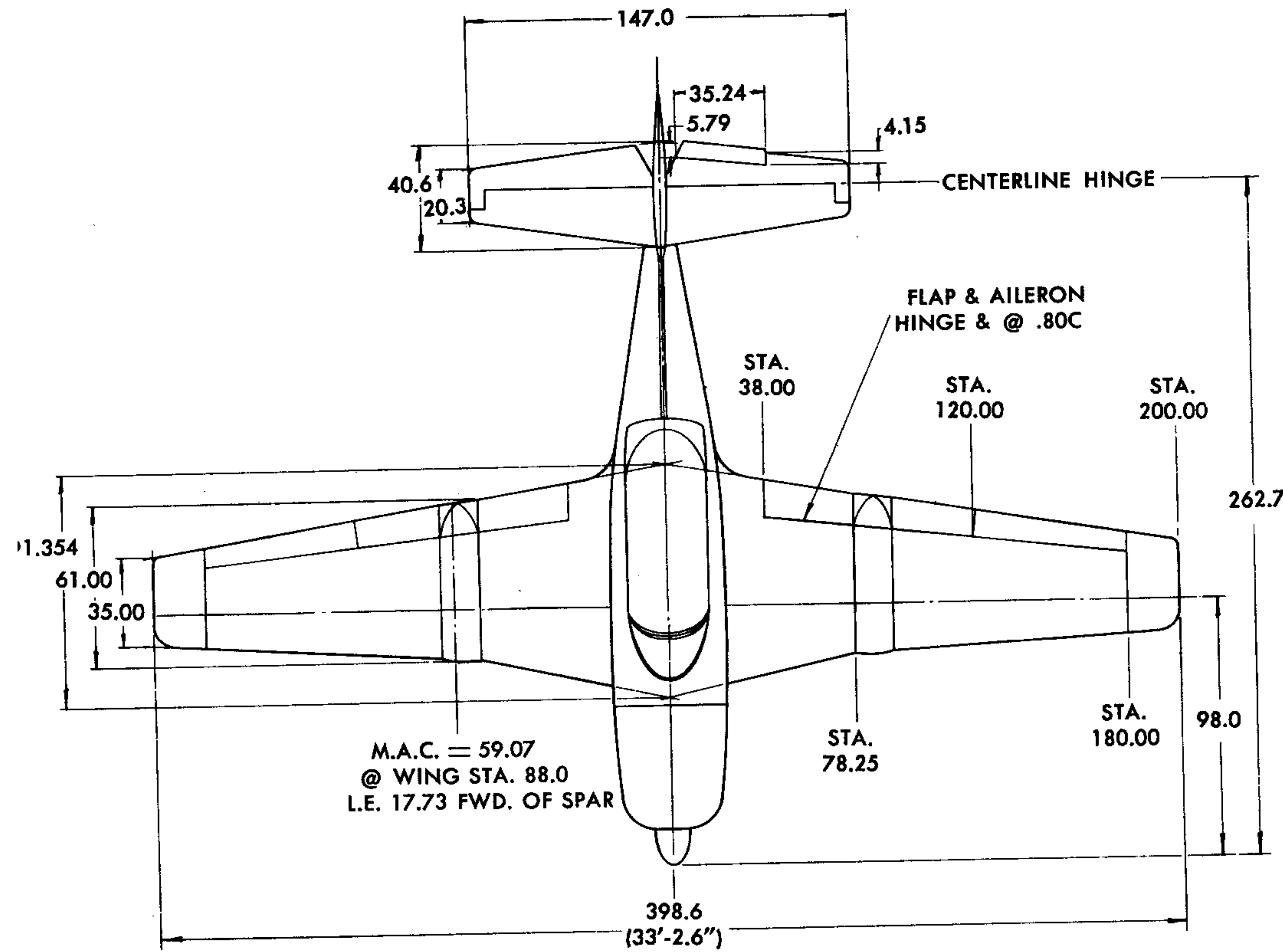
The Model 58 conditions the student for advanced and tactical aircraft which have similar characteristics. It also has necessary power and other integral provisions of its own for serving operationally as a reconnaissance craft, should this additional duty be required.

In any role, the Model 58 is safe, dependable and a superb performer. It offers unlimited, 'round-the-clock visibility, high structural integrity and provisions for complete and rapid maintenance.

In addition, TEMCO production specialists assisted company engineers in developing a producible aircraft, easy and inexpensive to manufacture. Thus the Model 58 offers economy — both in original price and in operating cost — never before found in its class.

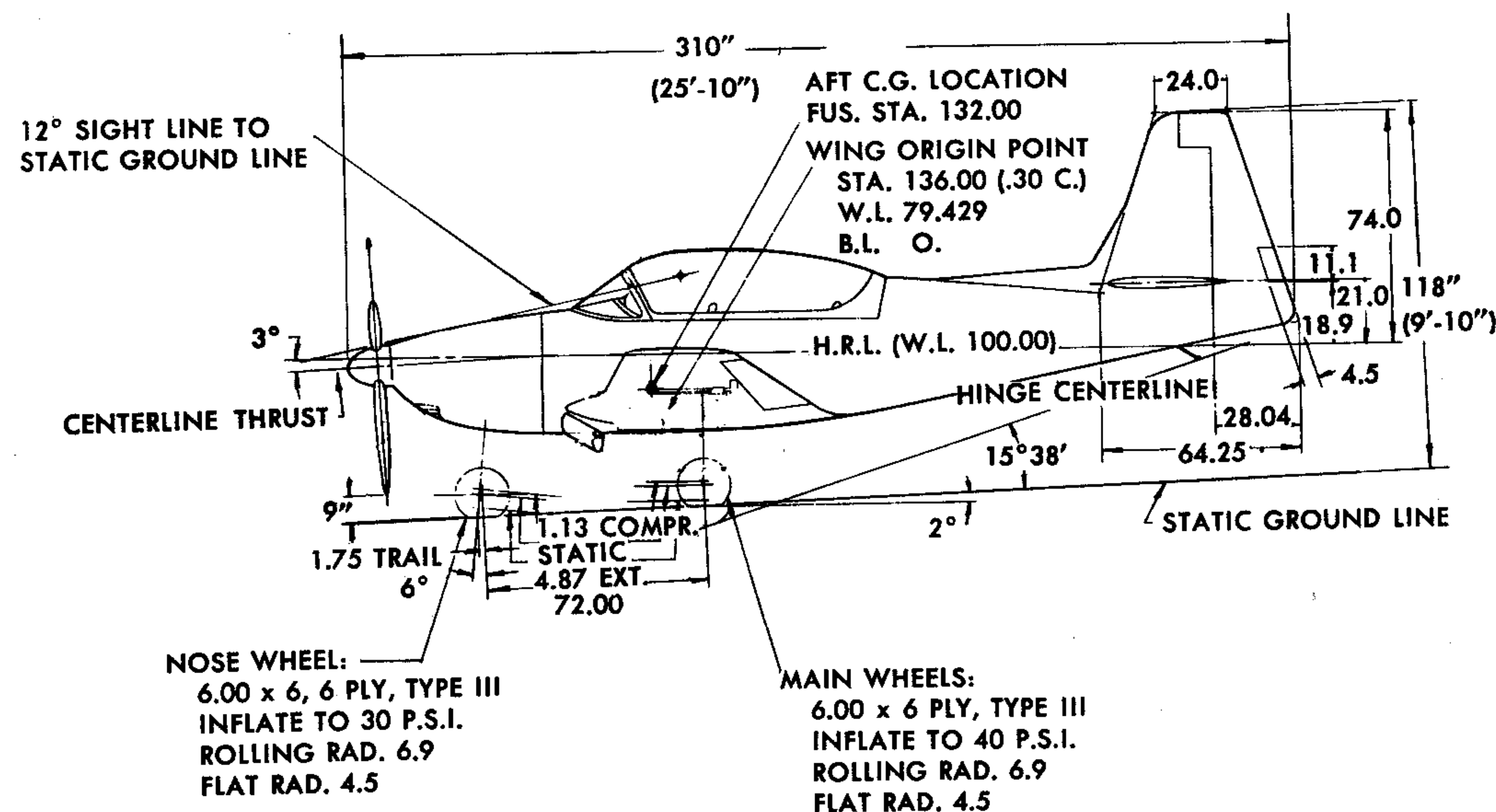
This product of advanced thinking and exhaustive military analyses is introduced in detail on the following pages. TEMCO Aircraft Corporation believes you will find its qualifications most impressive.

MODEL 58 THREE-VIEW



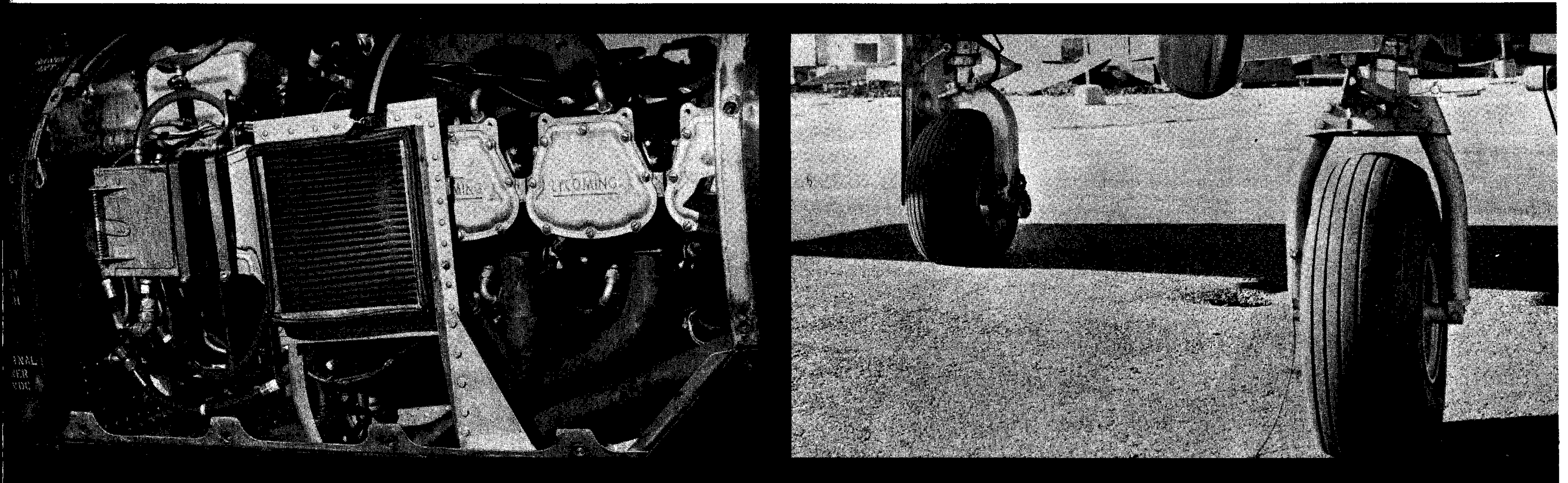
GENERAL DATA:

MODEL NO.	58
ENGINE	LYCOMING GSO-480-A1A
GROSS WEIGHT	2993#
USEFUL LOAD	723#
EMPTY WEIGHT	2270#
C.G.-GROSS WT., GEAR UP	20.52% M.A.C.
C.G.-GROSS WT., GEAR DN.	18.90% M.A.C.
C.G.-MAX. AFT	22.0% M.A.C.
C.G.-MAX. FWD.	17.0% M.A.C.
ROOT AIRFOIL	N.A.C.A. 23015.4 MOD.
TIP AIRFOIL	N.A.C.A. 23009
ROOT INCIDENCE	3°
INCIDENCE @ STA. 73.25	2°
TIP INCIDENCE	-1°
DIHEDRAL ANGLE	6°
STABILIZER INCIDENCE	-1°
FIN OFFSET	ON CENTER LINE
WING AREA (TOTAL AERODYNAMIC)	156.83 SQ. FT.
AILERON AREA (TOTAL)	9.6 SQ. FT.
HORIZONTAL TAIL AREA (TOTAL)	29.20 SQ. FT.
HORIZONTAL STABILIZER AREA	13.0 SQ. FT.
ELEVATOR AREA (TOTAL)	9.90 SQ. FT.
ELEVATOR TAB AREA	1.18 SQ. FT.
VERTICAL TAIL AREA (TOTAL)	19.75 SQ. FT.
FIN AREA	10.35 SQ. FT.
RUDDER AREA (WITH TAB)	9.40 SQ. FT.
RUDDER TAB AREA	.34 SQ. FT.
FLAP AREA (TOTAL)	19.18 SQ. FT.
FLAP TRAVEL	30° DOWN
AILERON TRAVEL	22.5° UP, 17° DOWN
ELEVATOR TRAVEL	25° UP, 17.5° DOWN
RUDDER TRAVEL	23.5° LEFT, 24.5° RIGHT
RUDDER TAB TRAVEL	10° RIGHT, 20° LEFT
ELEVATOR TAB TRAVEL	9° UP, 17° DOWN



PHYSICAL CHARACTERISTICS

The Model 58 is a two-place, low wing monoplane of all-metal, semi-monocoque construction with tandem seating arrangement. It is equipped with wide-tread tricycle landing gear and a power-driven, free blown bubble canopy which allows unrestricted visibility in all directions. The canopy may be opened or closed from inside or outside the aircraft.



Model 58 is powered by a 340-horsepower Lycoming engine which turns a three-bladed Hartzell constant speed propeller.

Wheels and tires on the aircraft's nose and main gear are interchangeable.

PHYSICAL CHARACTERISTICS

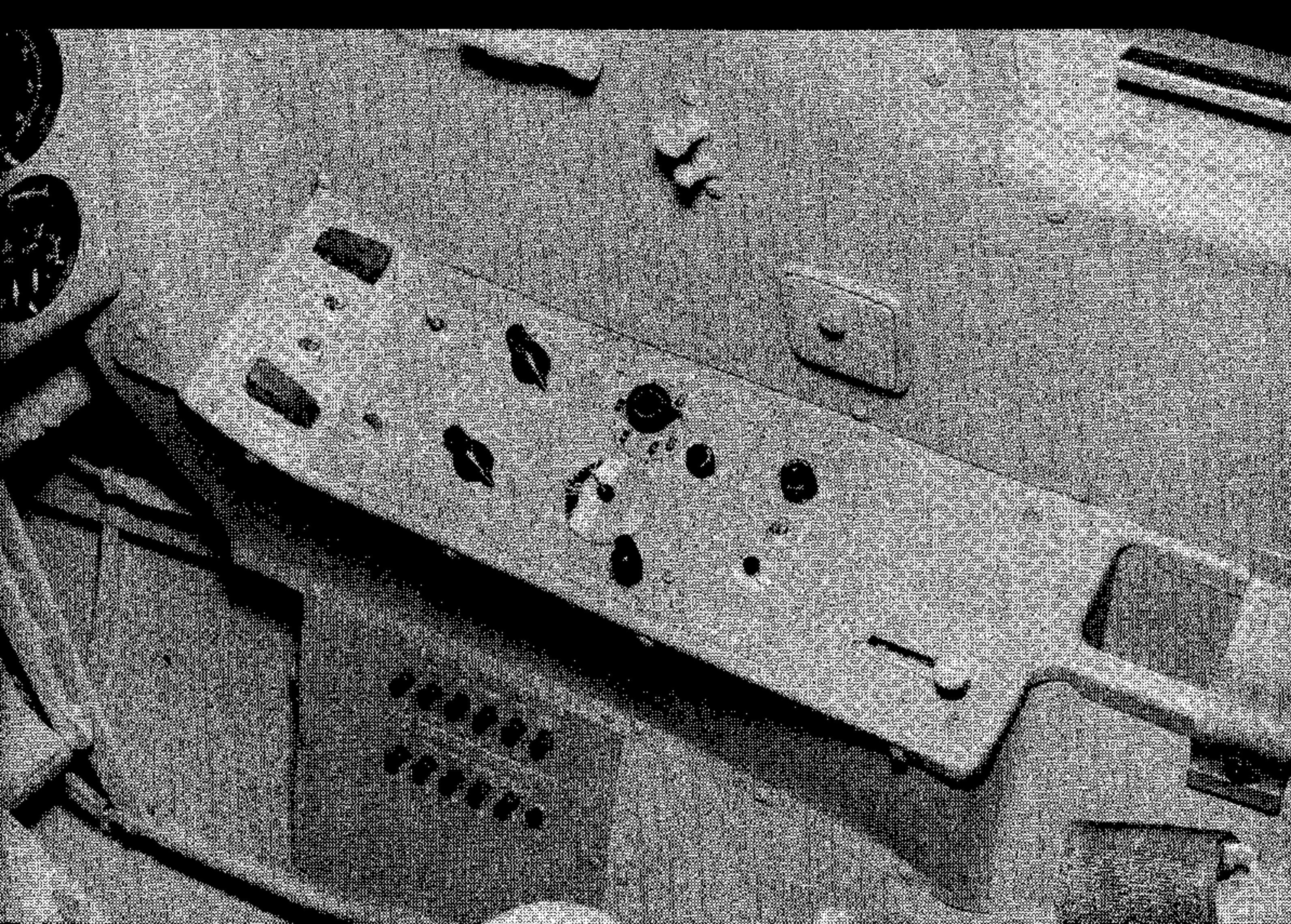
The Model 58 is powered by a 340-horsepower Lycoming Model GSO-480-A1A engine which is supercharged to provide sea level performance up to 8,000 feet. It turns a three-bladed, all-metal Hartzell constant speed propeller. Augmentors give the cooling system superior efficiency, and a 28-volt, direct current, single wire, negative ground return electrical system provides the aircraft's electrical power. Cockpit arrangement is orderly and comfortable. Flight instruments, mounted on glare-proofed, readily serviceable instrument panels, include airspeed indicator, magnetic compass, sensitive altimeter, rate of climb, electric turn-and-bank and air-driven directional gyro. The directional gyro is furnished on the front panel, and provisions are made for its addition to the rear panel. Electrical switches and radio controls are efficiently arrayed in consoles on the right side of the cockpit. In consoles on the left side are a throttle, mixture and propeller control group, and flap, landing gear, fuel, rudder and elevator trim tab handles and selectors.

Conventional stick and rudder controls and toe brakes are provided for instructor and student. Rudder pedals may be adjusted to correspond to leg length, and military seats adjust for height. Individually adjustable outlets control a ram air type temperature-conditioning system. Both cockpits may be quickly heated, or refreshingly ventilated.

The two-way Aircraft Radio Corporation Type 12 VHF communication system permits air-to-air and air-to-ground transmitting and receiving. Each cockpit contains microphone and head-set outlets and connections for interphone communication between student and instructor. The aircraft also has complete, integral, electrical provisions for a portable range receiver installation. A whip type antenna for the portable range receiver is provided as flyaway equipment, but is not installed.



Flight and engine instruments are mounted on glare-proofed, easy-to-service instrument panels. Front cockpit panel is at left.



Electrical switches and radio controls are positioned in consoles on the right side of both cockpits. At left is radio and electrical console for front cockpit.



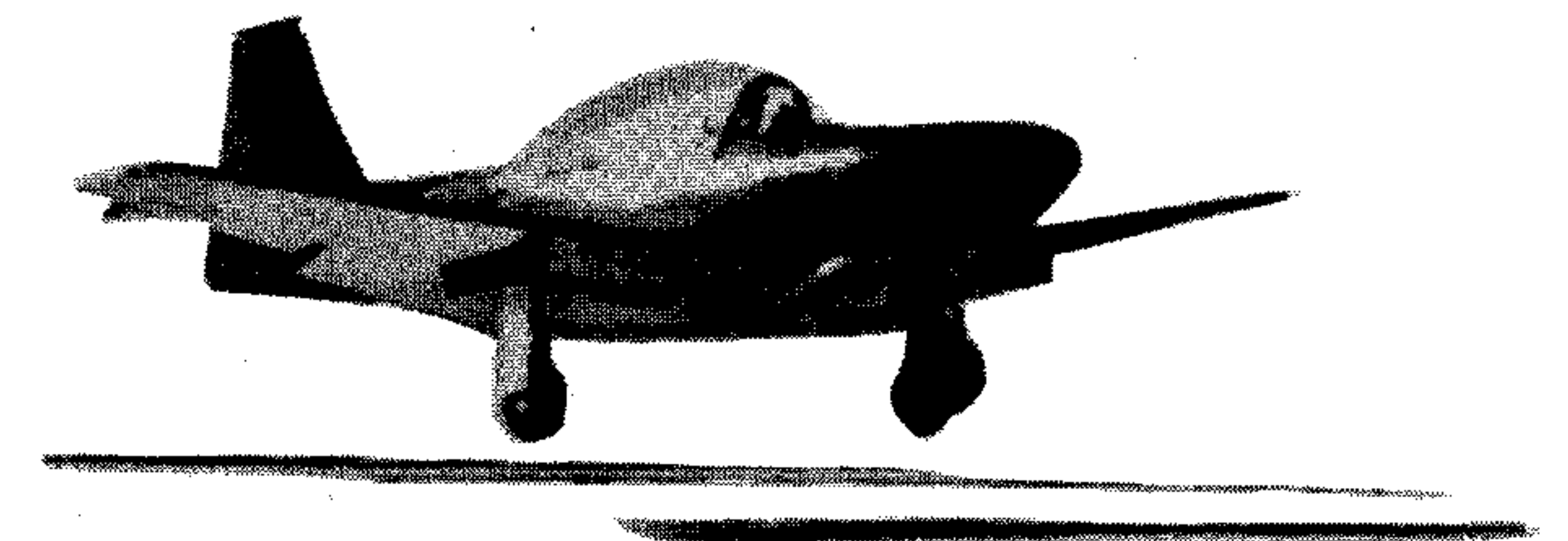
This photo, taken from the rear cockpit with canopy closed, emphasizes the excellent visibility afforded the pilot on the ground and in the air.

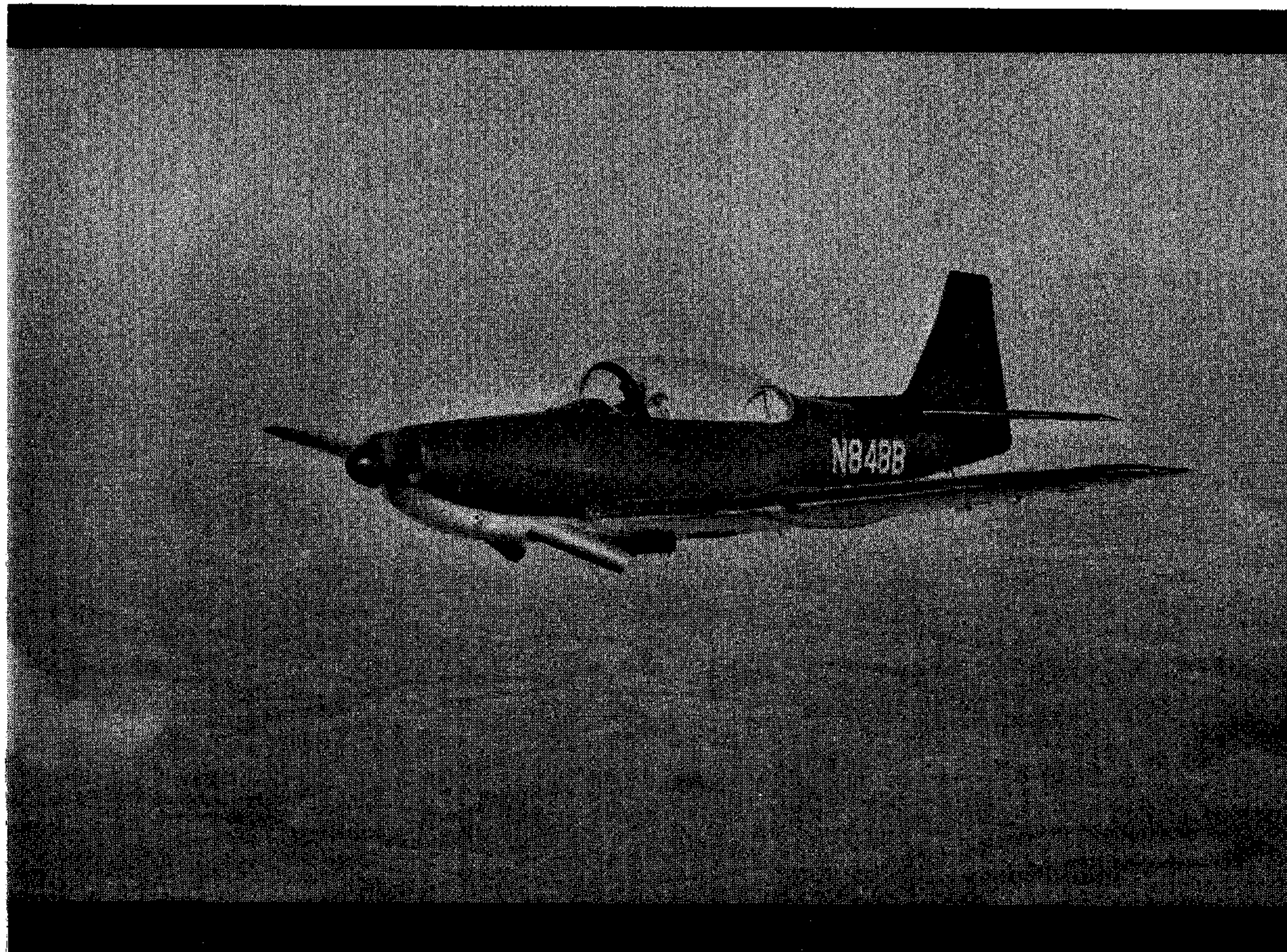
PERFORMANCE

The Model 58 was engineered to permit the novice student to begin flight training with elementary controls — stick, rudder and throttle. As the student progresses, the trainer's control refinements — common on advanced aircraft to which he will graduate — can be introduced to him. In its role as accompanist during the student's first hours of flight, the Model 58 inspires confidence with its excellent handling characteristics and its response to basic controls. The Model 58 out-performs much heavier, more complex and expensive military trainers. Its high speed, for example, is 185 knots; cruising speed, 174 knots; rate of climb at sea level, more than 1,820 feet per minute; service ceiling, more than 25,000 feet; maximum range, 485 nautical miles; maximum endurance, 4.3 hours.

At full gross load with 30-degree flap under standard conditions, the Model 58's normal take-off run is only 500 feet. With weight, flap and other conditions the same, the aircraft performs a normal take-off over a 50-foot obstacle in 1,080 feet. It lands over the same obstacle, under the same conditions, in 1,440 feet.

The Model 58 out-performs much heavier, more complex and expensive military trainers.





This trainer permits the novice student to begin flight training with elementary controls.



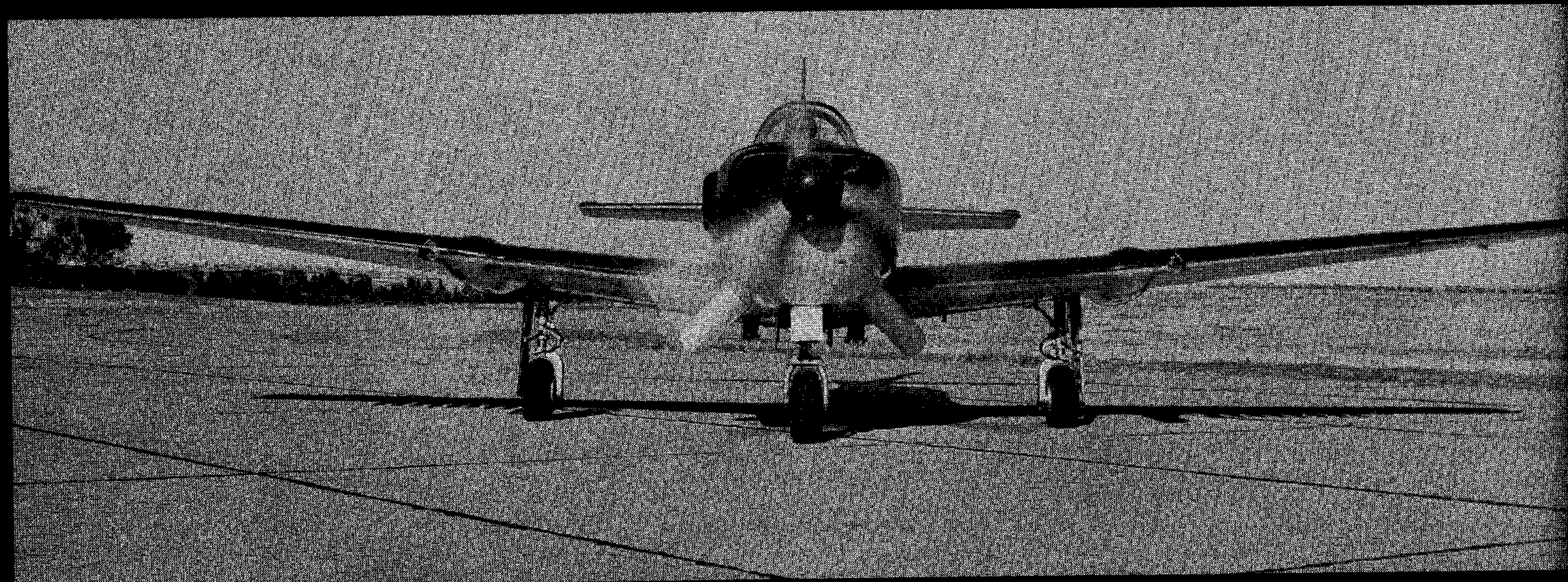
As the student progresses, the Model 58's control refinements may be introduced to him.

GROUND-HANDLING AND TAKE-OFF

The Model 58's widespread tricycle landing gear with 11-foot, 1½-inch tread virtually rules out the threats of ground-loop and nose-over. Goodyear multi-disk brakes may be applied from either cockpit for quick stops, and the aircraft's large clear-vision canopy — open or closed — allows easy sighting of ramp or runway obstructions.



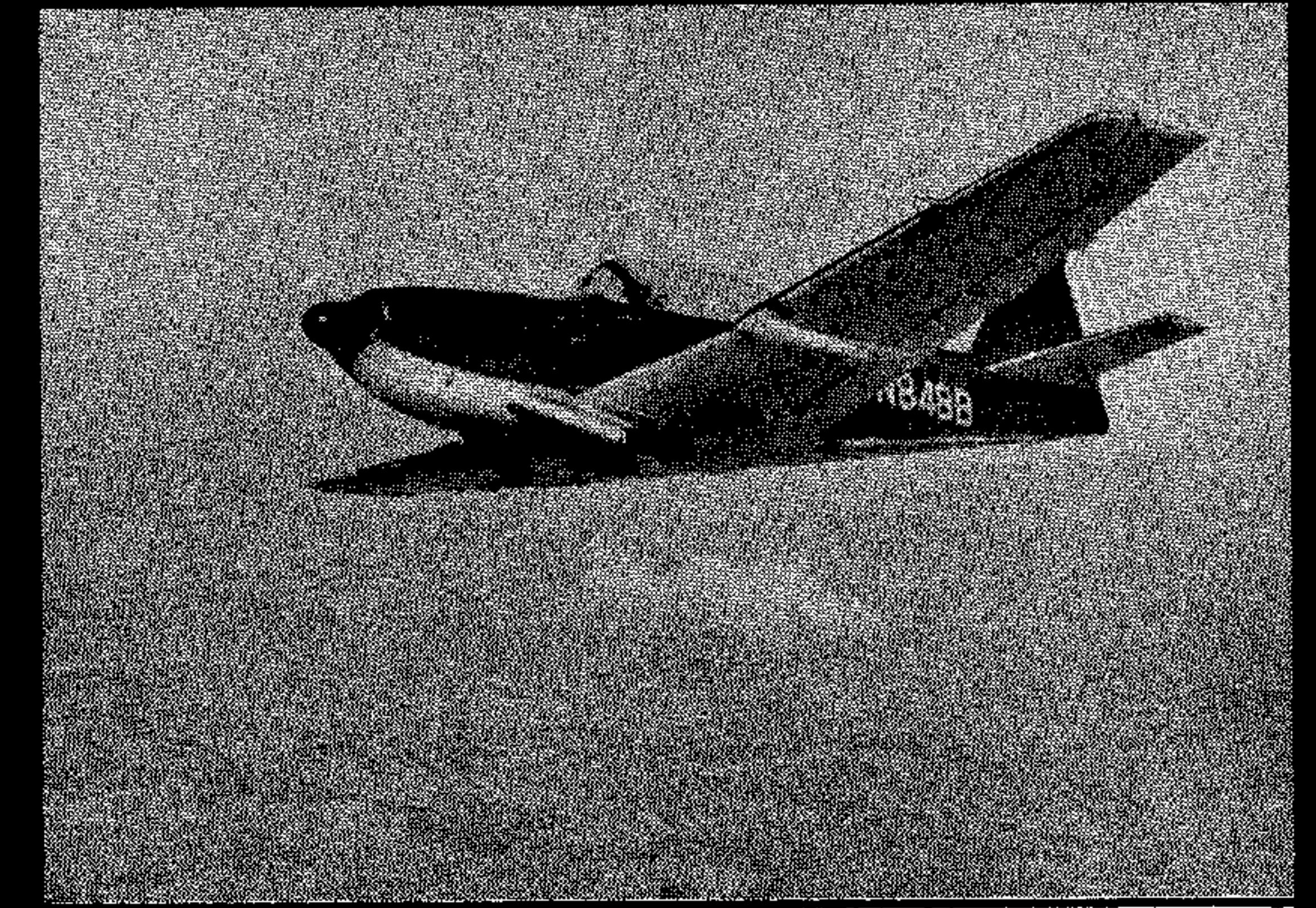
Model 58 handles as easily on the ground as in the air.



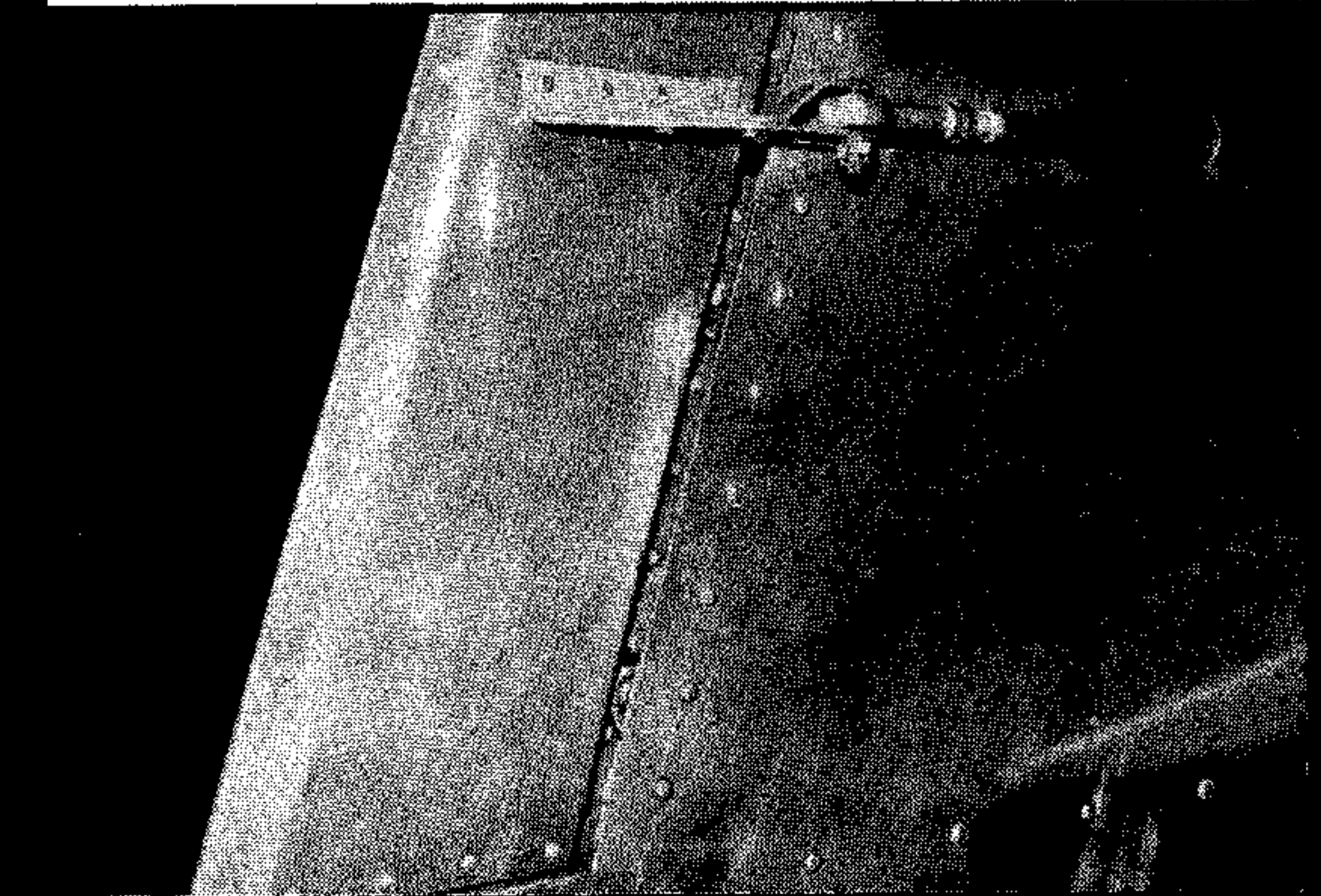
The widespread tricycle landing gear virtually rules out threats of ground-loop and nose-over.

CLIMB: The Model 58's particularly high rate and angle of climb permit it to operate from small fields and reduce the time normally required to gain altitude for air work and aerobatics. At sea-level the aircraft has an initial rate of climb of more than 1,820 feet per minute. Climb rate at 6,000 feet is 1,780 and, at 10,000 feet, 1,600 feet per minute. Time to climb to 10,000 feet is 6.0 minutes.

AEROBATICS: Responsive control surfaces and an absence of vicious tendencies make the Model 58 an obedient aerial gymnast. The student pilot can avoid the possibility of over-revving by proper use of the aircraft's constant speed propeller. He is warned of approaching stalls by easily detected buffeting, and he is aided in stall recovery by the Model 58's clean, stable break and positive aileron control throughout the stall. Precision spins may be accomplished throughout the center of gravity range, and the aircraft spins with its nose well down and demonstrates no tendency to flatten. Normal recovery is precise and sure, resulting in a spiral dive in which the elevator, ailerons and rudder become completely effective. Sustained aerobatics are given a wide allowable speed range by the Model 58's high maximum dive speed of 250 knots.



Initial climb rate: 1820 feet per minute.



Rudder trim tab counteracts torque.



Take-off in 500 feet at full gross weight.

FORMATION AND NIGHT FLYING: In formation, the Model 58 affords instructor and student unexcelled visibility through its free-blown, one-piece, full vision canopy and its one-piece, single curvature windshield. In this obstruction-free cockpit enclosure, the student can accurately judge his position relative to other aircraft in the formation. He is helped in maintaining this position by the Model 58's ready response to power, manual control and trim. Night formation lighting requirements are met with white upper and lower fuselage lights, red and green wing-tip lights, and clear and yellow rudder lights. A C-2 navigation light flasher adds an extra safety margin to the Model 58's night identification lighting. Landing and taxiing lights are positioned on the wing leading edge, and gear position indicator lights — for gear position checks by tower or runway signalman — are provided on the bottom side of the wing. Red flood instrument lights illuminate the aircraft's cockpits.

APPROACH AND LANDING: Model 58 pilots may enter busy traffic patterns confident that other aircraft are not approaching behind blind spots in canopy or windshield. The aircraft's uncluttered canopy also permits unrestricted reference to the landing runway while pattern legs are flown. This simplifies the establishment of a precise pattern and, in turn, an accurate approach. The Model 58 offers quick, positive control until touchdown, and its air-oil shock absorbing landing gear struts are designed to withstand landing punishment that results from student miscalculation.



Quick, positive control until touchdown.



Model 58 alighting gear withstands heavy punishment.

PHYSICAL AND PERFORMANCE STATISTICS

POWER PLANT

Manufacturer	Lycoming
Model	GSO-480-A1A
BHP/RPM/Alt.	340/3400/S.L.
Fuel Recommended (Octane)	100/130
Fuel Capacity (Gal.)	50

DIMENSIONS

Length Overall	25 ft., 10 in.
Height Overall	9 ft., 10 in.
Maximum Span	33 ft., 2.6 in.

AREAS (SQUARE FEET)

Wing (Total Effective Aerodynamic)	156.83
Wing Flap (Total)	19.18
Aileron Area (Total)	9.6
Horizontal Tail (Total)	29.2
Stabilizer	13.0
Elevator (Total)	9.9
Vertical Tail (Total)	19.75
Fin	10.35
Rudder (With Tab)	9.4

WEIGHTS (POUNDS)

Gross Weight	2,993
Empty Weight	2,270
Useful Load	723
Wing Loading (Lb./Sq. Ft.)	19.1
Power Loading (Lb./BHP)	11.35

PHYSICAL AND PERFORMANCE STATISTICS, CONTINUED

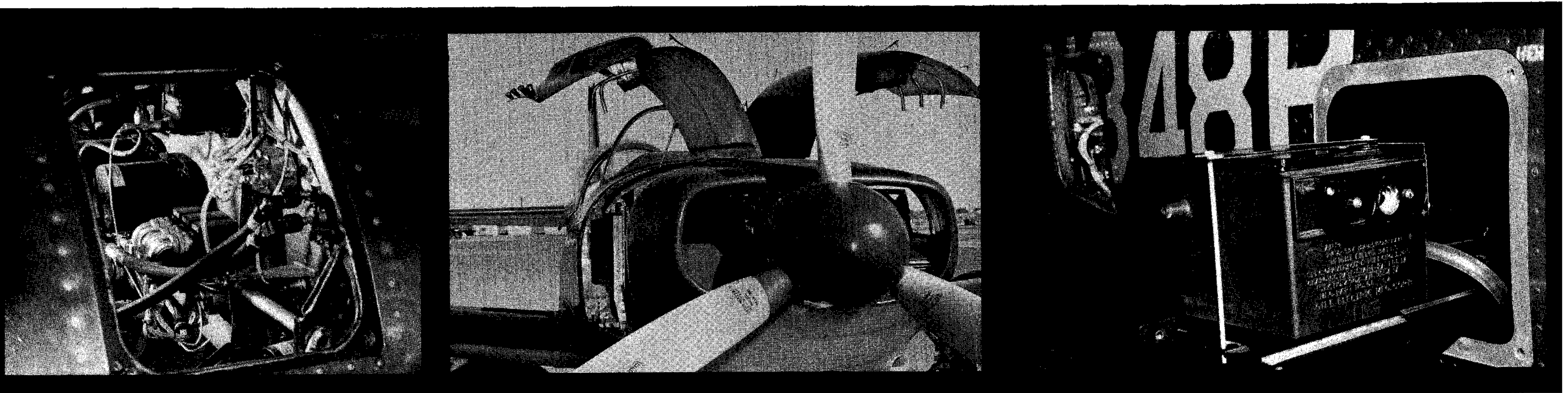
PERFORMANCE	High Speed T.A.S., knots	185 @ 10,000 ft.
	High Speed, S.L., knots	177
	Cruise Speed 75% Power, knots	174 @ 10,000 ft.
	Maximum Dive Speed I.A.S., knots	250
	Maximum Rate of Climb @ Sea Level	1820 ft./min.
	Service Ceiling @ Normal Rated RPM	More than 25,000 ft.
	Time to Climb to 10,000 ft.	6.0 min.
	Stalling Speed @ Sea Level with Power Off in Landing Configuration, 3,000#, knots	61.2
	Range @ Operating Speed of 137 knots, @ 20,000 ft. with 50 Gal. Fuel	485 nautical mi.
	Endurance @ Operating Speed of 137 knots, @ 20,000 ft. with 50 Gal. Fuel	3.6 hrs.
	Maximum Endurance	4.3 hrs.
	Take-off over 50-ft. Obstacle Using 30° Flap and 340 BHP @ 3,000# Weight Within	1080 ft.
	Land Over 50-ft. Obstacle Using 30° Flap, Power Off @ 3,000# Weight	1440 ft.
	Limit Load Factor	5.0
	Ultimate Load Factor	7.0

TEMCO'S Model 58 is designed to withstand an abnormal amount of exposure, usage and operationally-incurred punishment. The aircraft draws its reserve strength from several sources including the heavy gauge aluminum alloy used in all its skin sections; forged steel fittings used to attach wing panels and stabilizers, which minimize hole wear, and an aircraft design that transfers all fitting loads directly into the primary structure.

MAINTENANCE

Developers of the Model 58 also had the maintenance man in mind when they designed the military trainer. They made certain the aircraft would have a high in-commission capability to match its high performance.

To shorten the down-time necessary for routine inspections and overhaul, the Model 58 was designed for easy access. Inspection doors and other entrances to critical parts are placed sensibly, where they afford the most assistance.



Sixteen external inspection doors allow easy access to Model 58 interior.

Two-piece hinged cowl is split longitudinally at top engine center line. Power plant may be removed in two manhours.

Eleven ampere-hour battery slides outside for easy inspection on a telescoping track.

Maintenance

To cut the time necessary for parts repair and replacement, Model 58 parts and components were designed to be interchangeable and easy to remove. Two men with conventional hand tools can handle most changes.

Actually, smooth maintenance is the goal that prompted many Model 58 design features. Some of these features are described as follows:

POWER SECTION

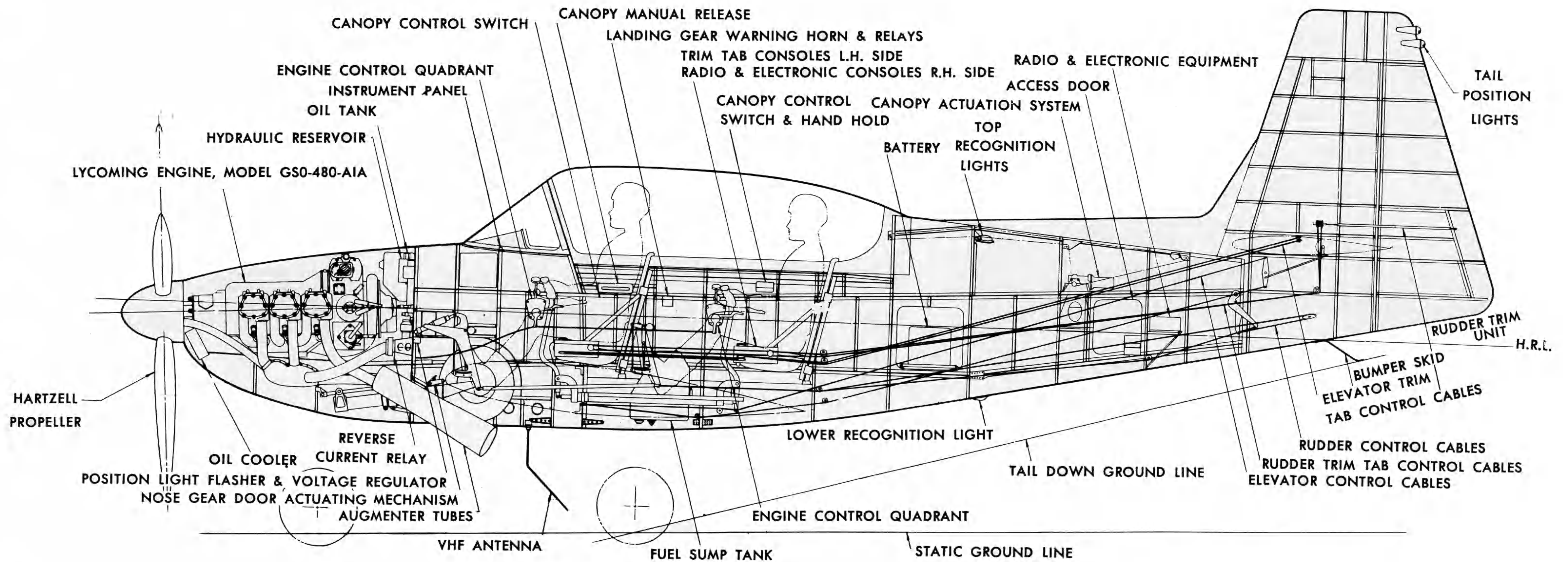
The two-piece hinged cowl is split longitudinally at the top engine center line. It is released from closed position by quick-release fasteners on either side, and it locks in open position to allow unhindered access to the engine. Cowling, including nose section, may be removed quickly with a screwdriver for engine change or heavy maintenance. The power plant may be removed in two manhours without specialized equipment. No special tools are required for removal or installation of the propeller.

WING STRUCTURE

The main alighting gear assembly is located entirely within the center section of the wing. This allows the aircraft to be supported by its own alighting gear when outer wing panels are removed. Three simple attachments secure the outer panel to the center wing. An outer panel may be removed and a new one installed by two men in three manhours. Wing tips are designed to give way under impact loads without causing damage to the wing. The tip attaches to the outer panel with flush-head screws and can be replaced in one-half manhour. Five bolts on each side attach the center wing section to the fuselage. This section may be replaced in 10 manhours.

FUEL SECTION

The Model 58's two wing tanks are of bladder type construction, inter-connected with a common sump tank. Fuel cells are located in the center wing section.



MODEL 58

INBOARD PROFILE

Maintenance

They are reached for maintenance and inspection through an access door which is exposed when the outer wing panel is removed. Collapsed and disconnected, the cell slides easily through the opening. Cells are fueled through a single filler neck with a standard military opening. Corrosion inhibitor, drain, low-level warning switch, electrically operated fuel boost pump and fuel gauge are located in the sump tank. The tank is serviced through a large access door in the bottom of the fuselage. The tank is equipped with a spring-loaded drain valve to facilitate draining of water and sediment.

HYDRAULIC SYSTEM

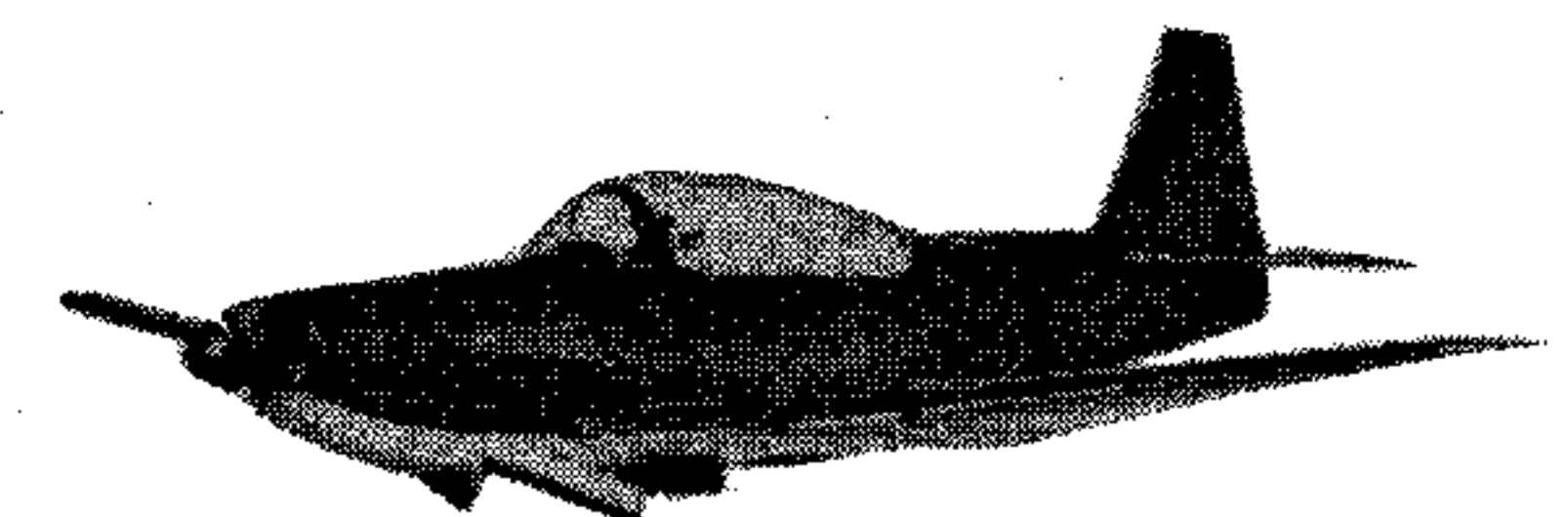
An engine-driven hydraulic pump provides 1500 psi nominal pressure to actuate wing flaps and landing gear. In event of hydraulic pump failure, pressure is supplied by an emergency pump, hand-operated in the front cockpit. For easy access, all major hydraulic components are located on the forward side of the firewall in the engine compartment.

ELECTRICAL SYSTEM

The Model 58's 28-volt electrical system, designed to military standards, permits interchange of lamps and electrical accessories with other military aircraft and reduces parts stock requirements. Most major items of electrical equipment are installed forward of the firewall, allowing convenient access.

INSTRUMENTS

Model 58 instruments and instrument plumbing connections are easy to reach for removal or repair. Instruments in the front panel may be repaired from the exterior of the aircraft, through access doors on each side of the fuselage. Or, by unbuttoning seven quick-release fasteners, a repairman in the cockpit may detach the panel and lay it back on his knees for inspection. Extra long lengths of instrument wiring and plumbing give the panel freedom of movement for repair. To repair instruments in the rear panel without disconnecting the panel, the repairman removes the front seat by loosening two bolts, then reaches under the rear shroud to the back of the rear panel.





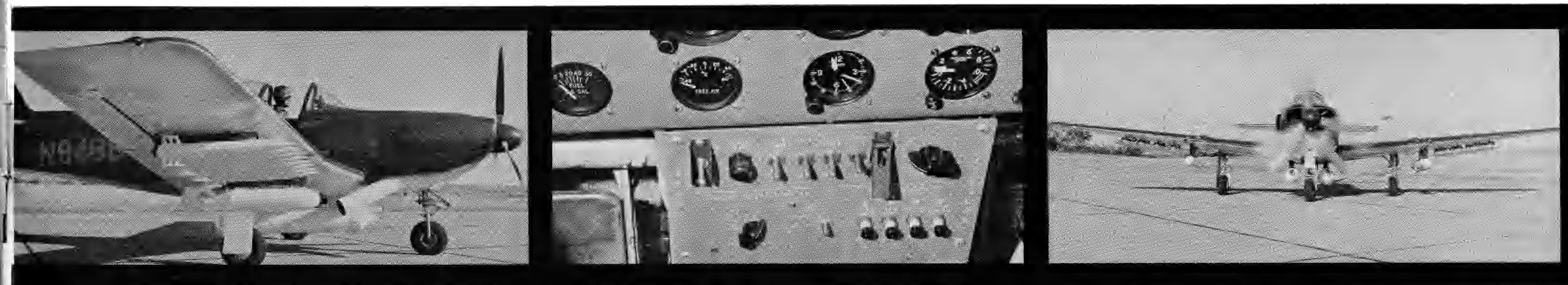
ARMAMENT PROVISIONS

Provisions for mounting a number of combinations of external stores are an integral part of the Model 58. Shackles and launchers may be installed on the aircraft in a matter of hours.

Two AN-M2 .50-calibre Browning machine guns may be mounted in receptacles in the Model 58's outer wing panels. Ammunition boxes — each with 200 round capacity — also are integral parts of the outer wing panel structure. If desired, .30-calibre machine guns with 500-rounds-per-gun capacity may be substituted for the .50-calibre guns. A gun camera installation is provided on the centerline of the forward lower fuselage section, and a Mark 8 gun sight may be installed on the forward cockpit instrument panel shroud.

Outer wing panels also have installations for launchers for a total of 16 8CM Oerlikon rockets. Inboard of these installations are provisions for two Aero 14E launchers which may carry any one of the following combinations of stores: two Napalm bombs, two 100-pound GP bombs, or rocket clusters. Two S2 shackles may be installed on the underside of the fuselage to carry two Napalm bombs, or two 100-pound bombs.

All launchers and bomb racks are optional equipment. Provisions for their installation, however, are built into the aircraft.



Provisions for mounting rockets, bombs, Napalm are integral in Model 58.

Armament switches are grouped on armament control panel.

Machine guns — .50- or .30-calibre — may be mounted in Model 58 wing.

SAFETY

Model 58 designers recognize that flying safety is a watchword in military aviation. They designed their trainer not merely to meet safety standards, but to contribute to them. Among the aircraft's safety features are its wide tread landing gear, its simple on-off inter-connected fuel system with common sump and fuel gauge, its external gear indicator lights and its friendly flight characteristics. These items are intended to prevent occurrence of common mishaps. Should an accident occur, other safety features are present to lessen its severity. For example, shoulder harnesses are attached to withstand a stress of 20 Gs. The canopy can be opened — electrically or manually — from inside or outside the cockpit.

