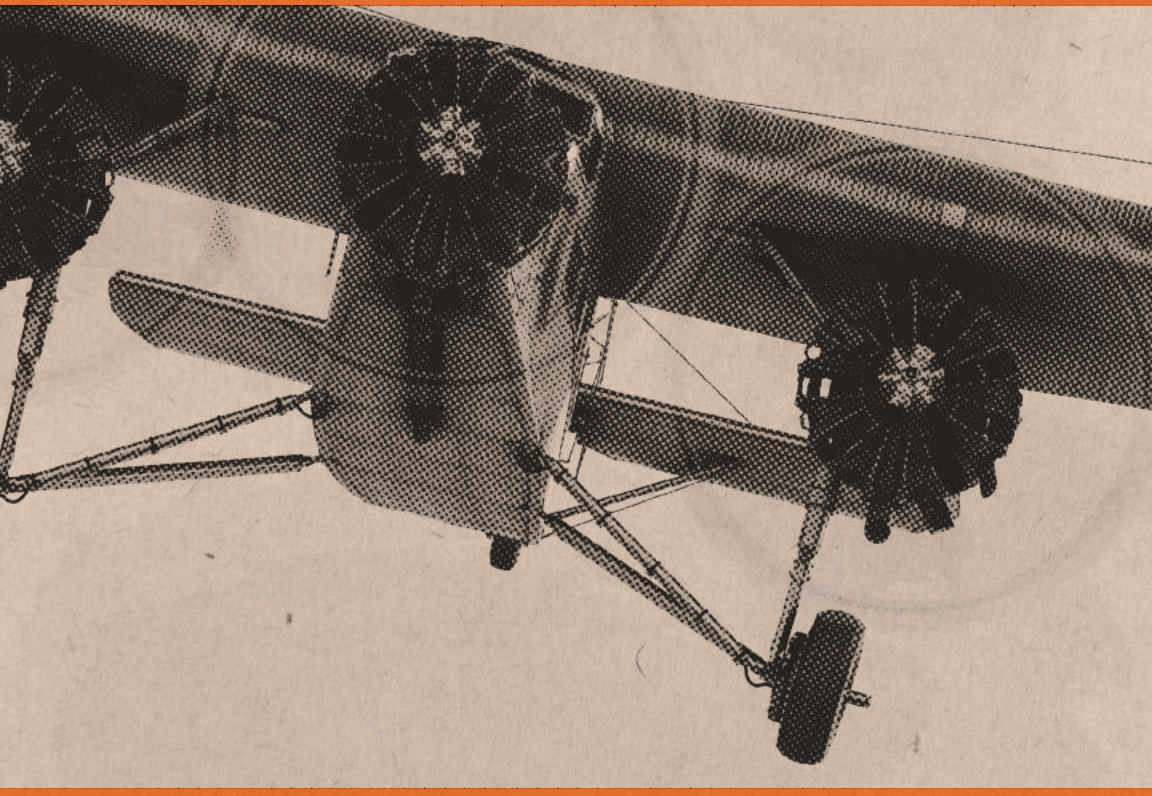
TUKANFLIGHTSIM

BY METAL AIRPLANE CO.

FORD TRIMOTOR 5-AT



TUKAN

INSTRUCTION MANUAL - FIRST EDITION

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Book of Instruction

ALL-METAL MONOPLANE

TUKAN

METAL AIRPLANE COMPANY

MICHIGAN

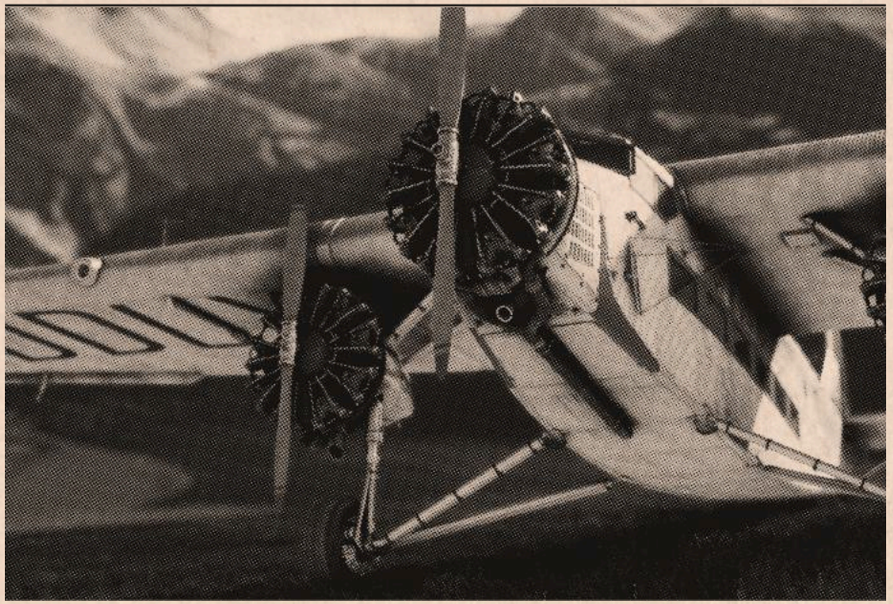

Figure 1 - Maddux Aircraft

INTRODUCTION

The Ford Trimotor is an American aircraft produced by Ford from 1925 until 1933. Although it was created for civil aviation, it also saw service in military roles.

The design was similar to the Fokker F.VII trimotor with the difference of being all metal. The Ford Trimotor was not the first all-metal aircraft but had more advance construction techniques than the standard of the era. The corrugated aluminium alloy body was based on designs by Junkers.

The original aircraft was developed by Ford and the Stout Metal Airplane company. After Ford acquired Stout they created and tested the Stout 3-AT. After this failed prototype, Ford created the "4-AT" and "5-AT" models.

The Ford Trimotor 5-AT had three Pratt & Whitney engines. Its control surfaces were actuated using metal cables that run along the external surface.

The aircraft was reliable and had a reputation for ruggedness. The strong metal structure and simplicity in its systems meant that it was easy to service in the field. Ford's reputation and the Ford Trimotor were very important to the development of aviation and airlines as an industry in its infancy.

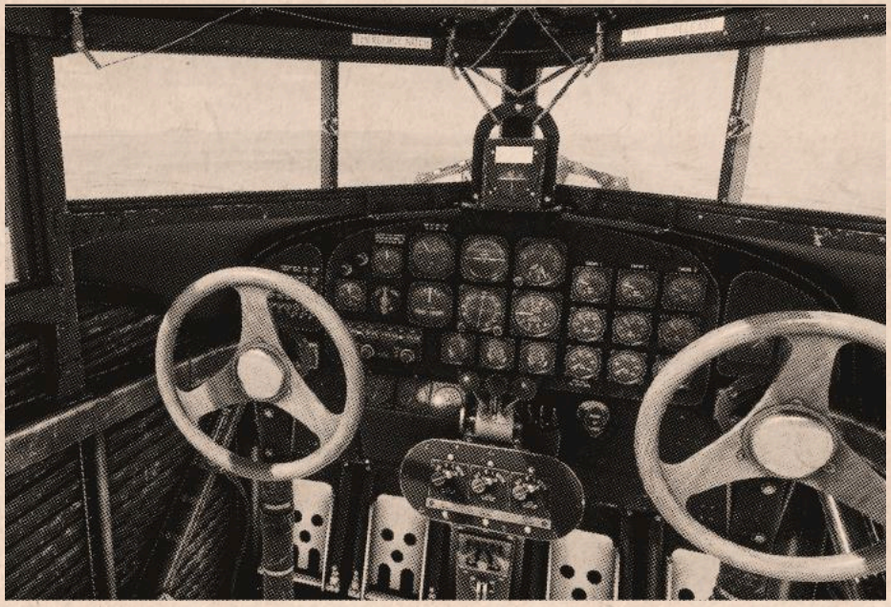

Figure 2 - Cockpit Interior

PILOT CONTROL COMPARTMENT

The pilot's control compartment is equipped with dual wheel controls together with a complete set of instruments.

All navigation and engine instruments are of standard makes. The installation and servicing is as simple as general design will permit.

The instrument panel is electrically lighted with the amount of light being controlled by a rheostat.

The instrument panel includes the following

Air Speed Indicator:Is a sensitive differential pressure gauge. It indicates in terms of air speed at sea level, the pressure resulting from the flow of air past the pitot-static tube to which it is connected.

Turn Indicator: It is used for controlling the flight of aircraft under conditions of poor visibility, or when for any reason it is desirable to eliminate yawning or turning.

Tachometer: It indicates the speed of the airplane engine, by means of standard flexible drive shaft.

Altimeter: It is used to determine the height of the aircraft. The dial is a barometer graduated in

units of height above the ground instead of units of pressure.

Climb Indicator: It shows the rate at which the airplane is climbing or descending. It does not indicate the angle of the airplane in respect of the horizontal. It is operated by the rate of change of atmospheric pressure.

Magnetic compass: Used to indicate the direction in which the plane is headed. It can be disturbed during steep turns. It may be depended upon 30 seconds after straight flight is resumed.

Radio: Solid state NAV/COMM transceiver. Uses a mechanical frequency display.

Artificial Horizon: Informs the pilot of the aircraft orientation relative to Earth's horizon and gives indication of any orientation change.

Horizontal Situation Indicator: It combines a heading indicator with a VHF omnidirectional range (VOR) display.

Figure 3 - LeMaster Glenn N8407

INSTRUMENTS

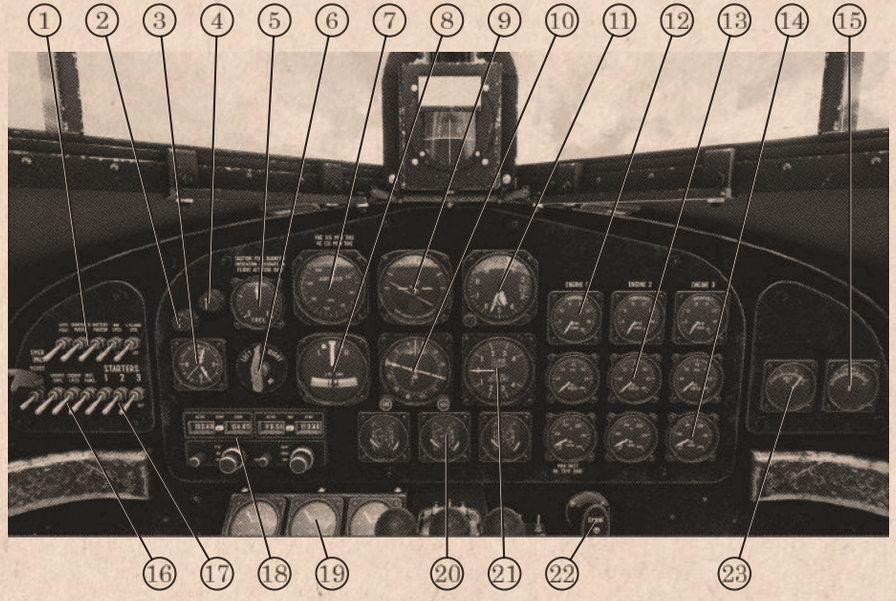

Figure 4 - Pilot's Instrument Panel

1. Main Battery
2. White Light Rheostat
3. Clock
4. Red Light Rheostat
5. Fuel Indicator
6. Fuel Indicator Tank Selector
7. Air Speed Indicator
8. Turn Indicator
9. Artificial Horizon
10. Horizontal Situation Indicator
11. Altimeter
12. Engine RPM Indicators
13. Oil Pressure Indicators
14. Oil Temperature Indicators
15. Amp Meter
16. Light Switches
17. Engine Starters
18. NAV/COMM Radio
19. Manifold Pressure Indicators
20. CHT/EGT Indicators
21. Vertical Speed Indicator
22. Engine 2 Primer
23. Voltmeter

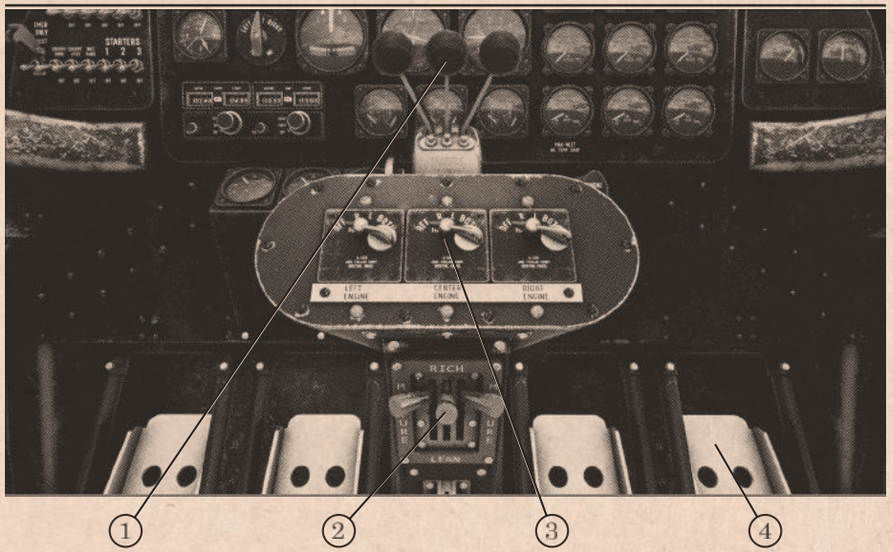

Figure 5 - Centre Column

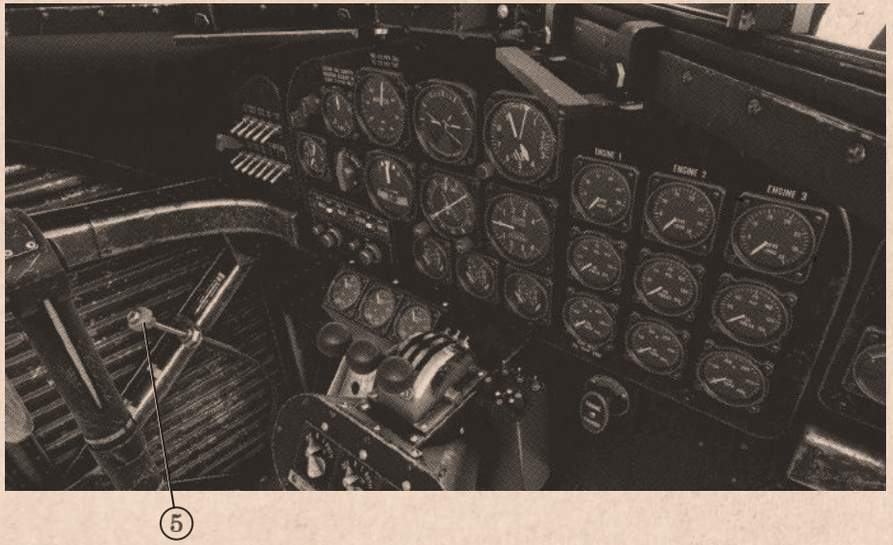

Figure 6 - Instrument Panel

1. Throttle
2. Fuel Mixture
3. Magnetos
4. Pedals and Brakes
5. Parking Brake

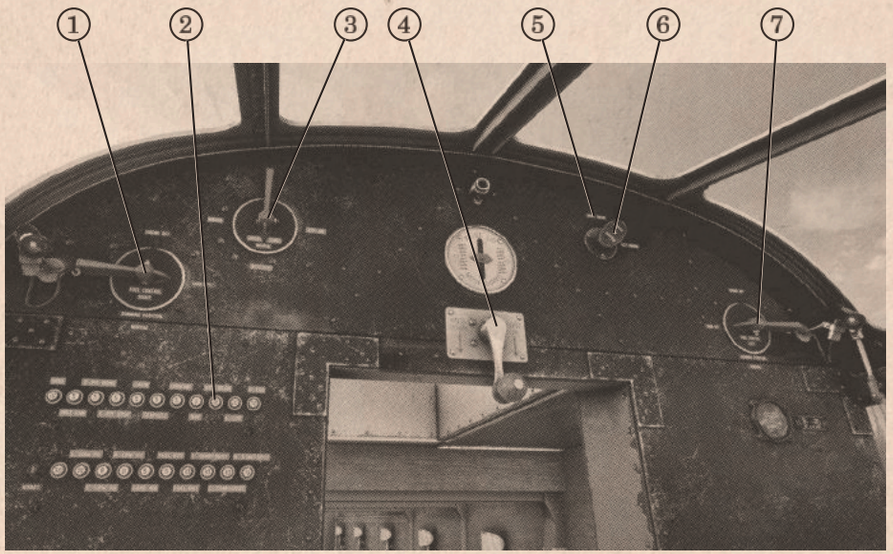

Figure 7 - Back Panel

1. Fuel Control Right Tank
2. Circuit Breakers
3. Fuel Control Reserve Tank
4. Pitch Trim
5. Engine Primer Selector
6. Selected Engine Primer
7. Fuel Control Left Tank

Figure 8 - N414H

CHECKLISTS

PREFLIGHT INSPECTION

1. Parking Brake.....On
2. Alternator Master.....On
3. Battery Master.....On
4. Check Voltage.....Above 12V
5. Check Fuel Tanks.....Full or as Expected

BEFORE STARTING ENGINE

1. Navigation Lights.....On
2. Fuel Control Left Valve.....Running Position Normal
3. Fuel Control Right Valve.....Running Position Normal
4. Reserve Fuel Tank Valve.....Reserve Off
5. Mixture.....Rich
6. Throttle.....25%

STARTING LEFT ENGINE

1. Primer Selector.....Left Engine
2. Pump Primer.....x3 Times
3. Primer Selector.....Off
4. Left Magneto.....Both
5. Starter 1.....On
6. Combustion Achieved.....Check

STARTING CENTRE ENGINE

1. Pump Primer.....x3 Times
2. Centre Engine Magneto.....Both
3. Starter 2.....On
4. Combustion Achieved.....Check

STARTING RIGHT ENGINE

1. Primer Selector.....Right Engine
2. Pump Primer.....x3 Times
3. Primer Selector.....Off
4. Right Magneto.....Both
5. Starter 3.....On
6. Combustion Achieved.....Check

AFTER STARTING ENGINES

1. Throttle.....Between 1500-1600 RPM
2. Oil Pressure.....x3 Times
3. Oil Temperature.....Over 140F

TAXI

1. Radio Frequencies.....Set
2. Navigation Lights.....On
3. Throttle.....700 RPM
4. Parking Brake.....Off

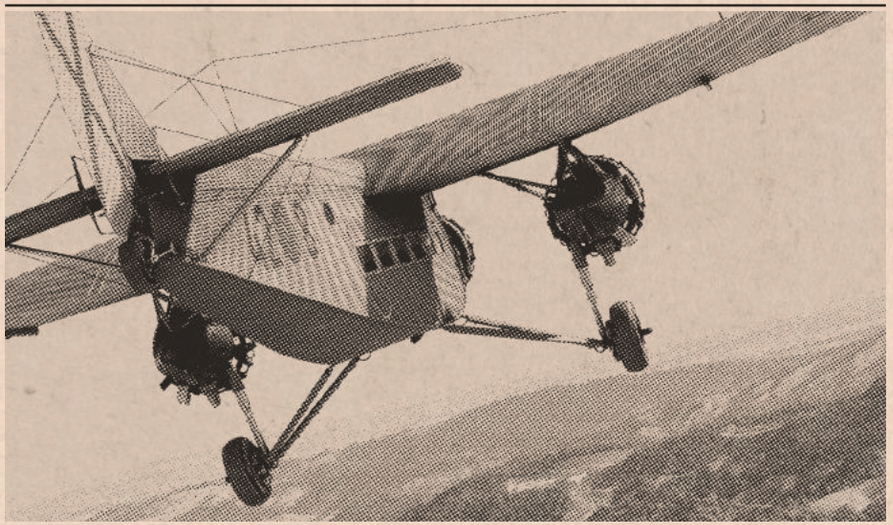

Figure 9 - Spain Civil War

NORMAL TAKE OFF

1. Elevator Trim.....As Required
2. Mixture.....35%
3. Landing Lights.....On
4. Throttle.....Full
5. Maintain Speed.....Above 65 MPH

CRUISE

1. Landing Lights.....Off
2. Throttle.....Above 1600 RPM
3. Maintain Speed.....Around 110 MPH
4. Oil Pressure.....Above 50
5. Oil Temperature.....Below 185
6. Check Fuel Tanks.....As Expected

DESCENT

1. Keep Speed.....Above 80 MPH
2. Radio Frequencies.....Set

NORMAL LANDING

1. Landing Lights.....On
2. Mixture.....Rich
3. Maintain Speed.....Between 70-80 MPH

AFTER LANDING

1. Throttle.....700 RPM
2. Mixture.....Around 35%

Figure 10 - Shanghai Air Freight

PARKING

1. Landing Lights.....Off
2. Throttle.....Closed
3. Parking Brake.....On
4. Mixture.....Cut
5. All Magnetos.....Off
6. Generator Master.....Off
7. Navigation Lights.....Off
8. Fuel Control Left Valve.....Tank Off
9. Fuel Control Right Valve.....Tank Off
10. Reserve Fuel Tank Valve.....Reserve Off
11. Battery Master.....Off
12. Elevator Trim.....Reset
13. Passenger Door.....Open

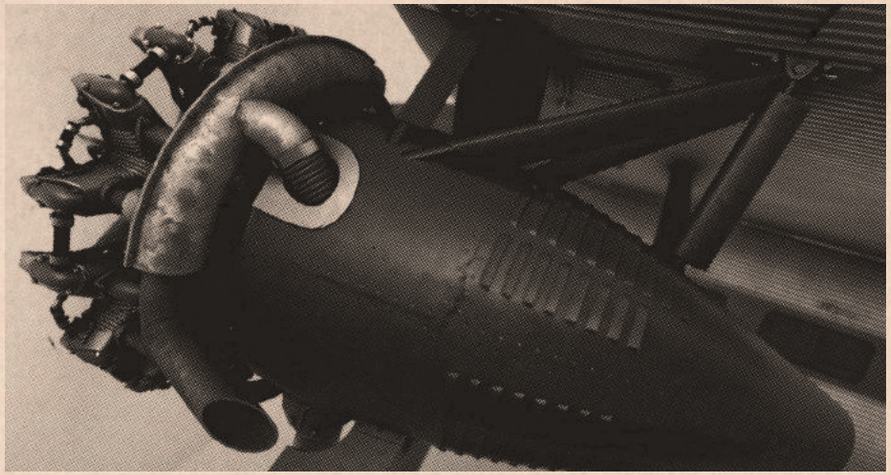

Figure 11 - Pratt & Whitney R-985 Wasp Junior Engine