Introduction

The Beechcraft T-34 Mentor is a propeller-driven, single-engine, military trainer aircraft derived from the Beechcraft Model 35 Bonanza. The earlier versions of the T-34, dating from around the late 1940s to the 1950s, were piston-engine. These were eventually succeeded by the upgraded T-34C Turbo Mentor, powered by a turboprop engine. The T-34 remains in service almost six decades after it was first designed. The T-34C Turbine Mentor is powered by a Pratt & Whitney Canada PT6A-25 turboprop engine and was developed in 1973, with the final example rolling off the production line in 1990.

The aircraft operation is fictional and for simulation purposes only.
Support

Should you experience difficulties or require extra information about the Virtavia T-34C Turbo Mentor, please e-mail our technical support on tech.support@virtavia.com

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Sound Controller

The Virtavia sound controller allows numerous realistic noises to be heard at specific points during operation. When the T-34C is first loaded into the simulator, noises may be heard. This is normal and cannot be avoided.

When FSX is first run with the T-34C installed, a window will appear. Please click 'Run' to allow the sound controller to be added to the FSX trusted gauges list.

Clicking 'Yes' at the next pop up window will allow the sound controller to run automatically every time the simulator is loaded.

Following the above steps will mean that the process will only have to be performed once and not every time the simulator is launched.

Exterior Model

The exterior model has all the usual animations such as ailerons, elevators and flaps. There are some additional animations on the model:

Crew Access

The pilot’s canopy can be open or closed using shift-E. The rear canopy can also be opened using the FSX 2nd Exit command, Shift-E+2.
Exterior Lighting

Pressing the L key will turn on all lights. You may however wish to turn them on using the appropriate switches in the cockpit, as the L key also turns the on navigation, landing lights and flood lighting in the cockpit, which should ideally be switched separately. Please refer to the cockpit section of this manual for information regarding light switch location.

Shift-L will toggle the nav lights and the cockpit lights.

Crtl-L will toggle the landing lights.

Visual Load Editor (VLE)

By pressing Shift + 3 in any view, you can bring up the VLE. The VLE allows you to easily control features of the model without having to reload or reconfigure the simulator. Clicking the text in the top right of the utility allows the associated feature to be toggled.
## Main Panel

<table>
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## Left Side Console

### Key

<table>
<thead>
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<th>Description</th>
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<tbody>
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<td>1</td>
<td>COM radio console</td>
</tr>
<tr>
<td>2</td>
<td>Flap control lever</td>
</tr>
<tr>
<td>3</td>
<td>Fuel pump toggle lever</td>
</tr>
<tr>
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<td>Aileron trim control</td>
</tr>
<tr>
<td>5</td>
<td>Rudder trim control</td>
</tr>
<tr>
<td>6</td>
<td>Elevator trim control</td>
</tr>
<tr>
<td>7</td>
<td>Control lock (Click to engage or disengage)</td>
</tr>
<tr>
<td>8</td>
<td>Propeller pitch control</td>
</tr>
<tr>
<td>9</td>
<td>Throttle lever</td>
</tr>
<tr>
<td>10</td>
<td>Landing light switches</td>
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<td>KA41</td>
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<td>16</td>
<td>Turn &amp; Slip indicator</td>
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<tr>
<td>17</td>
<td>Altimeter</td>
</tr>
<tr>
<td>18</td>
<td>Fuel cut-off lever</td>
</tr>
</tbody>
</table>
Right Side Console

Key

1. Warning lights main console
2. Left fuel tank contents indicator
3. Right fuel tank contents indicator
4. Engine tachometer
5. Oil system indicator
6. Prop tachometer
7. Fuel flow indicator
8. Ignition & Starter panel
9. Parking brake lever
10. Engine Air Inlet Bypass handle
11. Electrical control panel
12. Emergency landing gear extension handle
13. Oxygen system panel
14. ADF system panel
15. VOR system panel
16. KT67 Transponder
17. Audio control panel
18. Avionics control panel
19. Lighting control panels
20. Hobbs meter
21. Circuit breaker panel
## Warning Lights and Annunciator Panels

<table>
<thead>
<tr>
<th>Light</th>
<th>Reason for illumination</th>
<th>Light</th>
<th>Reason for illumination</th>
</tr>
</thead>
<tbody>
<tr>
<td>INVERTER</td>
<td>Loss or failure of 115-vac or 26-vac power.</td>
<td>GENERATOR</td>
<td>Starter ON, low voltage output or generator failed.</td>
</tr>
<tr>
<td>L FUEL LOW</td>
<td>Left wing fuel quantity below approx 90 lbs useable.</td>
<td>R FUEL LOW</td>
<td>Right wing fuel quantity below approx 90 lbs useable.</td>
</tr>
<tr>
<td>FUEL PRESS</td>
<td>Low pressure output from engine-driven boost pump.</td>
<td>CHIP</td>
<td>Metal particles present in oil system.</td>
</tr>
<tr>
<td>LDG LIGHT</td>
<td>Landing lights ON.</td>
<td>BLEED AIR</td>
<td>Cockpit heating (bleed) air over-temperature.</td>
</tr>
<tr>
<td>IGNITION</td>
<td>Ignition energized by starter switch or auto ignition.</td>
<td>AUTO IGNITION</td>
<td>Auto ignition switch ON, system armed.</td>
</tr>
<tr>
<td>N/A TO T-34C</td>
<td>N/A TO T-34C</td>
<td>N/A TO T-34C</td>
<td>N/A TO T-34C</td>
</tr>
</tbody>
</table>

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Annunciator Test Console

This panel is situated directly below the warning light console illustrated above.

The **PROP OVSP GOV** push-button will limit propeller RPM to 2000, +/- 50. It is used to test the functionality of the Prop Over-speed Governor.

The **ANN** push-button will illuminate all annunciator panels when pressed. To extinguish the lamps, click a second time.

The **AOA** spring-loaded switch has two test functions:

- **APPCH** will set AOA to 20 units and illuminate the amber doughnut on the AOA indexer.

- **STALL** will set AOA to 29 units and illuminate the green chevron on the AOA indexer.
Annunciator Console Upper

- **WHEELS**
  1. Flaps extended prior to gear.
  2. Throttle & pitch below 5% power with gear up.
  3. Gear handle up while aircraft on ground.
  4. Gear not locked in down position.

- **LH OPEN**
  Left inboard gear door open.

- **RH OPEN**
  Right inboard gear door open.

- **MASTER CAUTION**
  1. Fault warning.
  2. Stall.

- **FIRE**
  Fire detector system activated - land immediately.
Individual Gauges

Accelerometer

There are three needles on the Accelerometer. In the image, the top needle shows highest attained G. The lower needle shows lowest attained G. The middle needle shows current G. To reset, press the button on the bottom left of the gauge.

Altimeter

Displays altitude, in feet. Kollsman display, inHg, is on the right of the gauge. To set the Kollsman, use the knob on the bottom left of the gauge. Either click and drag, or use left click to increment and right click to decrement.

AOA indicator

Displays current Angle Of Attack, in units, not degrees. Optimum landing AOA if performing an AOA approach is 20 units. Above 25 units is dangerous. 29 units is stall. Detailed elsewhere in this manual.
AOA indexer
Detailed elsewhere in this manual.

Airspeed Indicator
Displays current air speed, in knots.
VNE is 280 knots, 0-20000ft.
VNE above 20000ft is 245 knots.

BuNo Plate
Displays current aircraft BuNo or registration.

Clock
Displays local time in minutes and hours.
Press button to activate timer function.
Press again to reset.
Turbine Tachometer
Turbine N speed.
101.5% maximum.
102.6% max engine acceleration for 2 seconds.

Flap indicator
Displays flap position, in a percentage value.

Fuel flow indicator
Displays current fuel flow, in Pounds Per Hour x 100.

Landing gear position indicator
See elsewhere in this manual.
Artificial Horizon
Displays current pitch and bank information.

CDI
Adjust OBS using the knob on the bottom left of the fascia. Right click to decrement, left click to increment.

The line in the middle of the gauge is a CDI.

Glide slope is not represented.

Interstage Turbine Temperature
400-695 °C normal operating range.
695 °C maximum continuous.
1090 °C maximum (925 °C for 2-seconds) starting.

IVSI
Displays current vertical speed, in 1000ft-per-minute.
KA41 unit
Detailed elsewhere in this manual.

KLN900 GPS
Detailed elsewhere in this manual.

Power Indicator
Displays current available Voltage on the left of the gauge.
Ammeter displays load to or from the battery.

NACWS
Detailed elsewhere in this manual.
**Oil Temperature & Pressure**

Oil Temperature- upper.
- 10-99 °C Normal operating range.
- 100 °C Maximum.

Oil pressure- lower.
- 40 PSI minimum.
- 65-80 PSI normal operating range with N1 > 75 %.
- 100 PSI maximum.

**Outside Air Temperature**

Displays outside air temperature in degrees C.

**Propeller Tachometer**

1800-2200 RPM normal operating range.
2200 +/- 25 RPM maximum.
RMI
Solid needle represents VOR direction.
Open needle represents ADF direction.

Torque Indicator
400-1015 Ft. Lb. normal operating range.
1015 Ft. Lb. maximum.

Turn & Slip Indicator
Aircraft Systems and Operation

This section of the manual details individual systems and how to operate them correctly.

Please read this section carefully to ensure that your next T-34C flight is problem-free.

Visual Load Editor (VLE)

By pressing **Shift + 3** in any view, you can bring up the VLE. The VLE allows you to easily control features of the model without having to reload or reconfigure the simulator. Clicking the text in the top right of the utility allows the associated feature to be toggled.

**Instructor** will display or hide the pilot in the rear cockpit.

**Student** will display or hide the pilot in the front cockpit.

**Tags & Blanks** will toggle remove-before-flight tags and exhaust blanks.

**Cover** toggles the canopy cover.

**Chocks** toggles a set of wheel chocks.

**Hood** toggles the rear cockpit blind-flying hood, visible from both the VC and exterior.
Blind-Flying

The T-34C rear cockpit is equipped for blind-flying training.

To install the hood, first use the VLE. Then switch to the Instructors viewpoint using the FSX camera system.

This feature is only available with the FSX version, and is only available in the rear cockpit.
AOA Indicator

The approach can be flown by coordinating throttle and stick movements to establish the desired glidepath at optimum Angle Of Attack.

The stick is used to bring AOA to the optimum value, whilst the throttle is manipulated to control the rate of descent so as to establish the desired glidepath.

The AOA indicator does not display absolute angles of attack. It instead displays arbitrary units grouped around the optimum with specific areas of interest.

Whilst on the ground, the AOA system will not represent any particular angle of attack. Erratic readings are normal until airborne.

**Stall** is at 29 Units.

**Optimum AOA** for approaches is at 20 Units.
AOA Indexer

The AOA indexer is comprised of three lights. The light indications are a green chevron (v) showing 'too high AOA' at the top, a yellow doughnut (O) showing proper AOA in the centre, and a red chevron (^) showing 'too low AOA' at the bottom.

As AOA goes high or low, with resulting decrease or increase in airspeed, the indexer upper or lower chevron will be illuminated to point the direction in which the nose should be moved to return to the optimum AOA.

A **green chevron** indicates that the nose must be lowered and the throttle manipulated to suit.

An **amber doughnut** indicates that AOA is optimum for the approach.

A **red chevron** indicates that the nose must be raised and the throttle manipulated to suit.

At intermediate stages the AOA indexer may also display two symbols at a time. For example, a doughnut and a green chevron would indicate that the aircraft is nearing optimum AOA, providing the nose is lowered further. A doughnut and a red chevron would indicate the opposite. Optimum AOA is usually achieved around 100 knots (no flaps) or 90 knots (full flaps) and 20 Units AOA.
Emergency Gear Operation

In event of emergency, the landing gear can be extended and locked DOWN.

To perform this function, click the emergency lever. The lever can be located on the right hand wall of the forward cockpit.

The gear will lock extend and lock in the DOWN position.

The gear cannot be retracted unless the system is reset. To do this, the lever must be returned to the armed (handle pointing down) position.

In event of gear malfunction or failure, the system should be locked down. This will prevent the gear from retracting during the landing phase.
Trim system

All surfaces of the T-34C can be manipulated using the trims.

Rudder Trim

Rudder trim is at neutral when the green marking on the inner side is level with the white line on top of the elevator trim unit.

To trim the rudder to the right, click and drag the knob in a clockwise motion. Dragging the knob anti-clockwise will trim the rudder to the left.

Elevator Trim

The elevator trim tabs are located on the trailing inboard ends of the elevators. The elevator trim tab wheel and position indicator are located on the left console in each cockpit. Forward rotation of the wheel raises the trim tab and lowers the nose of the aircraft. Rearward rotation lowers the tab and raises the aircraft nose.

As the wheel is turned, the tab position indicator that functions as an integral part of the tab control wheel shows the amount of tab deflection in degrees. 3 degrees of nose-up trim should be applied for takeoff.
Aileron Trim

The aileron trim tabs are located on the inboard trailing edge of each aileron. The aileron trim tab wheel and trim tab position indicator are located on the left console in each cockpit.

Rotation of the wheel clockwise raises the tab on the left aileron and raises the left wing. Anti-clockwise rotation lowers the tab and lowers the left wing.

The trim tab position indicator operates as an integral part of the trim tab wheel. As the wheel is turned, the degrees of tab deflection are shown on an indexed scale visible through the window adjacent to the tab control.
Ignition - Starter Panel

The ignition and starter panel is located in the lower-right corner of the forward area in the cockpit.

**Engine Starter Switch**
A two-position starter switch is located at the top left of the panel. When placed in the ON position, the switch completes the starter circuit for engine rotation, energises the igniter plugs for fuel combustion, and activates the green IGNITION and yellow GENERATOR annunciator lights. The starter switch will motor the starter only if the ignition is not set to ON.

**Engine Ignition Switch**
The ignition switch is located on the top right of the panel. For starting, the switch should be set to the ON position. This will also illuminate the IGNITION annunciator light. When the engine has started, set the switch to the OFF position.

**Auto-Ignition system**
The T-34C Ignition & Starter panel also features an Auto-Ignition switch. The ON position initiates a readiness mode for the auto-ignition system of the engine and illuminates the green AUTO IGN annunciator light. The OFF position disarms the system. The auto-ignition system is triggered from a "read condition" to an "operating condition" when engine torque drops into the 300 to 180ft-lb torque range. Therefore, with the auto-ignition system armed, once the system is triggered to an operating condition, the igniters will remain energised continuously until torque is increased above the trigger range.
Oxygen system

Operation of the oxygen system is critical when flying the T-34C at altitude. If the system is not functioning correctly, flying should not take place above 10,000ft. Doing so will risk incapacitation of the crew.

The oxygen panel is made up of five main parts. These are detailed below.

**Oxygen Cylinder Pressure Indicator**

The OCPI gauge indicates the current pressure of the oxygen system. By default the system is powered down, and as a result the needle should sit at the 0 mark.

When the system is energised, the needle will slowly rise to the maximum attainable pressure.

**Oxygen Flow Indicator**

When the oxygen system is energised and functioning correctly, the flow indicator will display a horizontal pattern. When not functioning, the display appears blank.

**Supply Control**

The two-position supply switch is located on the right-most side of the panel. Setting the switch to the OFF position will disarm the oxygen system. Setting the switch to the ON position arms the system and allows the oxygen system to pressurise.
Supply Selection Control

The two-position selection switch is located to the left of the supply control switch. For normal operation below 10,000ft, the switch may be set to NORMAL. For flights above 10,000ft the switch should be set to 100% OXYGEN.

Oxygen Test Controls

The oxygen test control is a three-position switch located on the left of the panel. Its operation is not required for the system to function correctly and it can be left in the NORMAL position. Setting the switch to TEST will allow the crew to test the flow of oxygen through the oxygen masks.

System Operation

To operate the system, first set the supply control switch to ON. The system will then energise and cause needle will show the current pressure. For flights below 10,000ft, set the supply selection control to NORMAL. For flights above 10,000ft, set the control to 100% OXYGEN.

When the system is functioning correctly, the pilots will apply their oxygen masks in the external views.

To disengage the system, first set the supply to NORMAL and then set control to OFF.
Electrical Panel

The electrical panel is located at the top of the right-hand console.

The system is comprised of four switches, each explained below.

**Master Battery**

The master battery switch is located at the top of the electrical panel. To energise the aircraft battery, set the switch to the up -ON- position. To cut battery power to the aircraft, set the switch to the down -OFF- position.

A visual cue is provided by the warning annunciator panels when the system is set to ON.

**Generator Control**

The engine generator control switch is located at the right on the panel. When set to the down OFF position, the engine generator will not provide power. When the engine is running and the switch is set to the ON position, the unit will provide system power. The unit is rated at 200 amperes DC. The generator should be set to ON for engine starting.

**Inverter Selector Control**

The generator circuit can be switched using the control underneath the master battery switch. Unless a fault develops, the generator should be set to the NO.1 position. If the switch is in the neutral (middle) position,
the Inverters will be set to OFF. Pushing the switch down will set the generator to NO.2.

**Electrical System Control Switch**

The electrical system control switch is located on the left of the panel. By default this switch is set to the down CONT TRANS position. When the battery switch is set to the ON position, the control switch should be set to the TAKE COMMAND position. The lamp above the switch will illuminate and will remain lit so long as the system is functioning correctly.
Avionics Panel

The avionics control panel is comprised of four switches, detailed below. The panel is located on the right console, below the navigation radios.

RMI control switch

The RMI control switch is a two-position switch located on the right of the panel. By default the switch is set to the OFF position. When set to ON, the cockpit RMI navigation system will function correctly. Without the switch set to the ON position, RMI indications cannot be relied upon for accurate navigation.

Gyro control switch

The gyro control switch is a two-position switch, set to OFF by default. Setting the switch to the ON position will energise the avionic gyro system.

Avionics Master Control

The avionics master control switch should be set to the OFF position whilst the engine is offline. Once the engine has been started and power indications have settled, setting the switch to the ON position will allow the aircraft avionics systems to power up.

Operation of systems such as the NAV, COM and ADF radio are impossible without the switch being set to the ON position.

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Avionics Control switch

By default, the control switch is set to the CONTROL TRANS. position. Having energised the avionics circuit, the control switch should be set to the TAKE COMMAND position to allow the forward cockpit to be in control of the various avionic systems.

When the switch is set to the ON position and functioning correctly, the lamp to the right of the switch will illuminate. If the system for any reason goes offline, the lamp will cease to be lit.
Lighting Control Panel

The lighting control panel is located at the end of the right console. It is divided into two main parts, those being internal and external controls, detailed below.

Internal Lighting

Instrument Lighting

Instrument back-lighting can be controlled using the knobs located at the top-left of the lighting panel. Clicking them will toggle the back-lights.

Console Lighting

Console and cockpit flood-lighting can be controlled using the knobs located at the top-right of the lighting panel. Clicking them will toggle the lights.
External Lighting

Navigation Lights

The navigation light switch is located at the left of the external light control panel. When set to the OFF position, power to the lamps is cut. When set to the BRIGHT position, the lamps will illuminate.

Strobe Lights

The strobe light switch is located to the right of the navigation light switch. Setting the switch to OFF will cut power to the circuit. Setting the switch to ON will energise the strobe light circuit and provide power to the lamps.
Miscellaneous Controls

Located on the lighting console are two miscellaneous control switches, detailed below.

![Miscellaneous Controls Switches](image)

**Pitot Heater**

By default, the two-position pitot heat switch is set to the OFF position. When set to the ON position, the circuit will provide power to the pitot heater. This system is critical for flying in low-ambient temperature conditions.

**Fuel Boost Pump**

By default, the switch is set to the OFF position. When set to the ON position, the fuel pump circuit will energise and provide a boost to the fuel system pumps. The switch should be set to the ON position when starting the engine or when fuel pressure or engine power begins to drop.
Cockpit Blower System

Operation

The blower control system is located on the left shoulder of the front cockpit.

The blower system can be activated by pushing the control lever forward. When the system is active it will produce a 'blowing' noise audible amongst the cockpit ambient noises. After a short time, the sound of the blower may quieten, however, the system will still be in an operational state. Air conditioning temperature can be controlled using the lever on the top of the console. By default the switch is set to OFF.

Bleed Air

Should the cockpit blower system malfunction or be allowed to run for too long, the main warning annunciator panel will display a BLEED AIR light. In order to rectify the situation the pilot may take one of two actions:

1- The cockpit blower system can be turned off and the cockpit environment be allowed to cool for approximately one minute.

2- The pilot may descend to an altitude where use of the cockpit blower system is not required, if available.

Once the annunciator light is extinguished, the system may be restarted.
Whilst the system can function whilst a BLEED AIR situation exists, it may become uncomfortable for the crew.

**Failure of the blower system**

Under certain circumstances, the blower system is critical to maintain safe flying conditions. Should the blower system fail or not be activated, the canopy may fail.

If the canopy fails in flight and the blower system is not activated, immediately rectify the situation by setting the control to the ON position. After a few moments of operation the canopy should clear and normal flight operation may resume.

Should the canopy not clear or the system fail completely, descend to an altitude that does not require the system to be operation. Careful observation of the outside air temperature gauge will allow the pilot to anticipate conditions that require use of the blower system.

If operating in a below-zero environment where no safe altitude exists, immediately open the canopy and land as soon as possible.

Failure can be associated with a number of factors, including:

- Inability to turn the blower system on
- Canopy failure
- Exterior canopy icing
Typical Failure Situation
The below image is a typical example of a canopy failure in-flight.
Note the extreme lack of visibility from the cockpit.

![Canopy Failure Image]

Braking System

Outline
Though the T-34C is a primary trainer, it is still possible to cause brake failure should the brakes be improperly operated.

![Braking System Image]
The T-34C has only differential brakes. Nose-wheel power steering is not available. To taxi the aircraft, the pilot must rely on precise toe brake control, along with prop wash manipulation.

Using the rudder with small amounts of power will help in taxiing the aircraft.

**Failures**

Full use of the toe-brakes at speeds above 70 knots is prohibited, instead rudder being the preferred method of steering the aeroplane.

When landing the aircraft, brakes should not be applied to their full capacity until speed is below 70 knots. Applying full brake at speeds over 70 knots can and will cause brake failure. Tyre failure is also possible and almost certain if the brakes are over-used.

Tyre and brake pressure will build up over time unless the brake system is bled. When landing brakes should only be used for short periods. Releasing the brakes completely will allow them to bleed, ensuring that pressure does not build up.

Excessive use of brakes upon landing will also cause failure in both tyre and braking systems.

When the brakes are nearing fail-point, an audible warning will be heard. If the brakes or tyres fail, the result will be an audible bang followed by loss of braking power. In this situation, the emergency gear lever should be activated and the canopies opened.

Should one of the brake or tyre system fail, immediately use the remaining brake to slow the aircraft without putting excessive pressure on the system. Flaps should be retracted at the earliest opportunity, and the stick held fully forward to counter any aerodynamic effects. The fuel cut-off lever should also be operated to stop the engine as soon as possible.

Immediately alert the control tower of any failures as soon as they happen. When the aircraft has come to a complete stop, first ensure that the AC and DC systems are OFF and then alight as quickly as possible.
Control Lock

The aircraft control locks can be activated to ensure that the surfaces do not move when the aircraft is not manned.

The control lock is located in front of the centre console, and is painted red.

To engage, ensure that the aircraft is first shut-down. Click the lock to raise it into position. To disengage the lock, click it once more to return it to default.
Circuit Breakers

At any time during flight, the circuit breakers can trip. When a breaker trips an audible noise will be heard. Failure of a circuit breaker is however a very rare occurrence.

To reset a breaker, simply click it.

To experiment and see the result of a certain breaker popping, click once on it to cause it to break. Clicking it again will reset the breaker.

The breaker panel is located to the right of the pilots seat.
COM Radio System

Initialisation

In order for the COM radio system to function correctly, the system must first be set to ON by means of the VHF control switch on the forward panel. Setting VHF REC to OFF will disable the COM system.

Operation

To change frequencies, click and drag any of the knobs on the radio console. Alternatively to increment a knob, left click it. To decrement, right click.
Audio Control Panel

The audio control panel is located at the bottom of the ADF and VOR stack. Its function is described below.

This T-34C simulation has replaced the TACAN system with an operational ADF system. Where TACAN is seen in the cockpit, it may be replaced with ADF.

CALL switch
Selects CALL, HM, or CM mode.

HM
Enables interphone communication only between cockpits without need to use microphone select switch on throttle lever.

CM
Enables interphone communication between cockpits or UHF voice transmission from either junction with the microphone switch selection

CALL
Enables interphone communication between cockpits by overriding but not deleting UHF communications.
**AUDIO switches**

Enable normal or emergency audio reception to respective headsets from UHF, ADF (TACAN) and VOR.

**VOL switch**

Adjusts volume of amplified interphone, ADF (TACAN), VOR, NACWS and UHF audio.

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**ADF Radio System**

This T-34C simulation has replaced the TACAN system with an operational ADF system. Where TACAN is seen in the cockpit, it may be replaced with ADF.

**Initialisation**

The ADF unit must first be powered-up in order for it to function correctly. The power switch is located on the bottom left corner of the console. Setting the switch to OFF will turn the unit off. Setting the switch to T/R will power the unit up.

**Operation**

To tune the ADF radio, click and drag any of the knobs on the radio console. Alternatively to increment a knob, left click it. To decrement, right click. Volume can be toggled using the VOL knob. The selected frequency is displayed on the screen.
Radio Magnetic Indicator

Outline

Each cockpit has an RMI that shows the relationship between actual aircraft heading and the Earth's magnetic field. The compass function is stabilised by directional gyros.

The RMI is comprised of two needles, described below.

ADF Pointer

A double needle points toward the magnetic course to an ADF station if the ADF is in use.
VOR Pointer

A single needle points toward the magnetic course to a VOR station if the VOR system is in use.

VOR Radio System

Initialisation

The VOR unit must first be powered-up in order for it to function correctly. The power switch is located on the bottom left corner of the console. Setting the switch to OFF will turn the unit off. Setting the switch to ON will power the unit up.
Operation

To tune the VOR radio, click and drag any of the knobs on the radio console. Alternatively to increment a knob, left click it. To decrement, right click.

Volume can be toggled using the VOL knob. The selected frequency is displayed on the screen.

Course Deviation Indicator

Outline

Each cockpit is equipped with a CDI to indicate the aircraft's actual course of flight relative to a course selected with the OBS knob.
Operation

The CDI in each cockpit is set to a desired course heading with the respective OBS knob. The CDI needle will deflect left or right of centre if the flight course drifts. The amount of drift will be indicated in degrees of course deviation to the right or left of centred alignment per mark.

To correct for a course deviation drift, proper sensing is determined and the aircraft is turned toward the direction of needle deflection. When course alignment is re-established, the CDI needle will be at the centre vertical position.

The TO/FROM indicators in the CDI will indicate whether the course selected by the OBS knob will take the aircraft to or from the selected NAVAID.

NACWS

Initialization:

The NACWS display is located on the upper section of the forward panel. By default it is set to the OFF state.
To power the unit up, first ensure that the ADF system is set to T/R mode. If the ADF system has failed or is not turned on, the NACWS will display a FAIL screen.

**Default mode:**

When operational, the NACWS will default to the following mode.
The features of this mode are linked to the ADF and VOR systems, and are described below.

**HDG**

At the top of the display is the aircraft's current heading, in degrees.

**DISTANCE TO TUNED STATION**

The distance shown in NM is the distance to the station tuned on the VOR radio system.

**DATE AND TIME**

Date shown is the current local date, in DD/MM/YYYY format.

Time shown is UTC (Zulu).

**DISTANCE TO WAYPOINT**

The next distance shown is the distance to the next waypoint, if available. This data is acquired from the GPS unit.

**MODE**

If the VOR system is tuned and functioning, the NACWS will display ENROUTE. If the system is not tuned to a frequency, it will display IDLE.

**LONGITUDE & LATITUDE**

At the bottom of the display is the aircraft's current position, in Long/Lat format.
Proximity Mode:

Proximity mode can be toggled by clicking the PROX button on the fascia of the NACWS. To return to the default mode, click the PROX button a second time.

Features are as described below.

**HDG**

Aircraft current heading is displayed, in degrees, at the top of the display.

**DISTANCE TO TUNED STATION**

The distance to the tuned station is shown in the top right of the display.

**FLIGHT MODE**

If the VOR system is tuned and functioning, the NACWS will display ENROUTE. If the system is not tuned to a frequency, it will display IDLE. This information is shown at the bottom of the display.

**PROXIMITY ALERT**

This feature is currently not simulated. NACWS offers a Naval version of the Civilian TCAS.
**RANGE Mode:**

Clicking the RNG button when in PROX mode will change the range at which the unit displays waypoints and traffic information.

Range is shown at the bottom of each circle, in NM.
KLN GPS

Outline
Both cockpits of the T-34C have a simulated KLN900 GPS unit located on the lower left area of the forward panel.
Currently the KLN900 in this simulation is only a customised default GPS500 unit. A future upgrade may be released to simulate the KLN900 system completely.

Controls
The KLN900 controls include buttons for the DIRECT TO, CLEAR, ENTER, OBS/LEG mode, ALT (TERRAIN), NEAREST and MESSAGE functions. Data entry and some control functions are enabled by left and right concentric knobs and the CURSOR button.
To power the display, click the PUSH ON button on the top right of the fascia. To cut power to the display, click the PUSH ON knob a second time.
The outer right knob is used to select the required function. The inner knob is used to select the required page. To scroll right through options, left click the knob. To scroll left through options, right click the knob.

To zoom the display, use the inner left knob. Zoom in by left clicking and zoom out by right clicking the control knob.

<table>
<thead>
<tr>
<th>Control</th>
<th>Type</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power</td>
<td>Knob/ switch</td>
<td>Push to turn on. Pull to turn off.</td>
</tr>
<tr>
<td>CRSR</td>
<td>Push-button</td>
<td>Press to activate/deactivate cursor.</td>
</tr>
<tr>
<td>Left Outer Knob</td>
<td>Knob</td>
<td>Left click to increase zoom. Right click to decrease zoom.</td>
</tr>
<tr>
<td>Right Outer Knob</td>
<td>Knob</td>
<td>Left click to increase function selection. Right click to decrease function selection.</td>
</tr>
<tr>
<td>Right Inner Knob</td>
<td>Knob</td>
<td>Left click to scroll forwards through pages. Right click to scroll backwards through pages.</td>
</tr>
<tr>
<td>Direct To</td>
<td>Push-button</td>
<td>Press to activate direct-to navigation function.</td>
</tr>
<tr>
<td>CLR</td>
<td>Push-button</td>
<td>Press to clear current entry.</td>
</tr>
<tr>
<td>ENT</td>
<td>Push-button</td>
<td>Press to approve current display or entry.</td>
</tr>
</tbody>
</table>
### OBS
Push-button  
Press to toggle between OBS and LEG mode.

### ALT
Push-button  
Press to select terrain display mode.

### NRST
Push-button  
Press to display nearest airport waypoint page.

### MSG
Push-button  
Press to display message page.

---

**Direct-To Navigation**

Pressing the Direct-to button will enable the direct-to navigation function.

The direct-to page can be manipulated by using the right knob to enter an ICAO or waypoint name. To accept the entry, press the ENT key. To clear the entry, press the CLR key.
Nearest Function

Pressing the NRST key will display a list of near-by airports and facilities. The list can be scrolled using the right outer knob.

Pressing the CRSR key will allow an entry to be selected. When the desired entry is selected, pressing the ENT key will display information regarding it.
Pressing the Direct-to key when the desired entry is highlighted will display the direct-to page. Direct-to information will be pre-completed. Pressing the ENT key will create a route to the selected entry.

Message Function
Pressing the MSG key will display any important messages or information.
ALT/ Terrain Display Function

Pressing the ALT key will toggle the moving-map display mode.
KA Control Unit

Outline

In the real-world, the true KA41 is a GPS control unit. This T-34C simulation does not have a true KLN-900, therefore the unit is inoperable.

Instead we have decided to equip the T-34C with a very basic autopilot for those that want to enjoy autopilot functions.

Each cockpit is equipped with a KA41 control unit, located on the forward panel. Though basic, the KA41 is a useful tool, detailed below.

Controls

The KA41 is comprised of four main buttons. **Button**

1. NAV/ GPS button
   - Click to toggle NAV and GPS modes.

2. GPS/ APR button
   - Click to arm and engage the autopilot.

3. OBS/ LEG button
   - Click to engage NAV hold mode.

4. LAMP TEST button
   - Click to test the functionality of all lamps.
Operation

The KA41 unit will power up automatically when the aircraft battery system is online. When power is available the lamp on the left of the unit will illuminate. The unit will be set to NAV mode by default and should always be checked to ensure the master lamp is OFF.

NAV/ GPS Function

By default the KA41 is set to NAV mode. GPS mode can be toggled by clicking the NAV GPS button a single time. The display will change to GPS to show that GPS mode is active. The unit will now direct the aircraft to the desired GPS waypoint or destination. Use of these modes is coupled with the OBS LEG function.
GPS APR Function
To engage the KA41 autopilot unit, click the GPS APR button. The display will illuminate to show that the GPS is armed and active. To disengage the autopilot, click the GPS APR button a second time. An audible warning tone will be heard and the autopilot will cease to direct the aircraft.

OBS LEG Function
Engaging the OBS LEG function will allow the aircraft to be directed by the autopilot. The NAV GPS function controls how the function is directed. Pressing OBS LEG once will arm the function. Pressing a second time will disarm the function. When armed, the display will illuminate.
LAMP TEST Function

Operation of the KA41 annunciator lamps can be tested by pressing the LAMP TEST button. To end the test function, click the button a second time. If the KA41 is functioning correctly, all lamps will illuminate.
Transponder

Outline

The transponder is an identification, position tracking, altitude reporting and emergency tracking device. An operating transponder responds to interrogations by search radar. Dual transponders are installed: one located in each cockpit.

The transponder is located on the outer edge of the right console. By default it is turned OFF.

Operation

Setting the unit to ON will allow the transponder to function.

The code selector switches can be used to select the desired code. To increase digits, left click a knob. To decrease selected digits, right click a knob.

When power is available to the unit, the green LED will illuminate.
Landing Gear Indicator System

Outline
The cockpit offers two methods of determining the current landing gear situation.

Dolls-Eye Position Indicators
The gear position indicators are located on the left of the forward panel. When the gear is in the DOWN and locked position, the indicators will show a tyre image.

When the gear is in TRANSIT and unsafe, the indicators will spin. If a fault develops, a black and white diagonal pattern will be shown.

When the gear is in the UP and locked position, the text UP will be displayed.


**Landing Gear Lever**

The landing gear lever is located on the forward left pedestal.

When the gear is in the DOWN and locked position, the lever will be down and white.

When the gear is in the UP and locked position, the lever will be up and white.

When the gear is in TRANSIT and unsafe, the lever will be in either position and red.

Pressing the WARN TEST button will also illuminate the landing gear lever warning lamp.
CHECKLIST

Pre-start Checklist:

1. Parking brakes — SET.
2. Parachute — FASTENED/ADJUSTED.
3. Emergency fuel shutoff handle — DOWN, CLIP IN PLACE.
4. Wing flap lever — UP.
5. PCL — IDLE.
6. Condition lever — FUEL OFF.
7. EPL — DISCONNECT.
8. Friction lock knob — FULL DECREASE.
9. Cockpit environmental control — OFF.
10. Cockpit defog control — OFF.
11. Gear handle — DOWN.
12. Landing lights — OFF.
13. GPS — OFF.
14. Compass slave switch — SLAVE (both cockpits).
15. Air-conditioner switch — OFF (both cockpits).
16. Fire warning test switch — OFF.
17. NACWS — OFF (both cockpits).
18. Auto ignition — OFF (both cockpits).
19. Starter — OFF (both cockpits).
20. Engine air bypass — CLOSED.
21. Emergency landing gear handle crank — DISENGAGED.
22. Inverters — OFF.
23. AVIONICS MASTER — OFF.
24. Aft cockpit attitude gyro and RMI — ON.
25. Navigation and strobe lights — OFF.
26. Pitot heat — OFF.
27. Standby fuel pump — OFF.
28. VHF Radio — OFF.
29. Circuit breakers — IN; UTILITY BUS SWITCHES ON.
30. Helmet — ON.
31. Battery — ON and Check for a minimum of 22 volts.
32. ICS — CHECK.
33. Instrument and console lights — AS DESIRED.
34. Navigation and strobe lights — REQUIRED.
35. Pitot heat — TEST.
   o Turn switch ON.
   o Note drop in ammeter.
   o Turn switch OFF.
36. Canopy — CLOSED and LOCKED (both cockpits).

**Engine Start Checklist:**

1. Fire guard — POSTED.
2. Propeller — CLEAR.
3. Engine — START.
4. Oil pressure — CHECKED.
   - Check oil pressure for a minimum of 40 psi.

5. N1 — CHECKED.

6. GPU — DISCONNECTED.

7. Condition lever — FULL INCREASE.

8. Generator light — OUT (voltage).
   - Check voltage between 27.0 to 29.5 volts.

9. Inverters — CHECKED/ON.
   - Check INVERTER annunciator light out for each inverter.
   - Turn on desired inverter.

10. Air-conditioner — AS REQUIRED.

11. AVIONICS MASTER — ON.

12. AVIONICS COMMAND — TEST.

13. RMI — ALIGNED AND SLAVED.

14. Angle-of-attack — TEST.

15. NACWS — ON (both cockpits).

16. GPS — ON.
Pre Taxi Checklist:

1. Beta/Beta stop — CHECKED.
2. Friction lock knob — ADJUSTED.
3. Brakes — HOLD.
4. Parking brake — RELEASED.
5. Chocks — REMOVED.
6. Brakes — CHECKED (both cockpits).
7. Radios and NAVAIDs — CHECKED and SET.
   - Set VHF/UHF Transmit and VHF receive switches to ON or as required.
   - Set UHF radio as required.
   - Set transponder to standby.
   - Set ADF as required.
   - Set VOR as required.
   - Set GPS as required.
   - Select NAV or GPS mode as required.
8. Altimeter and NACWS — CHECKED and SET.
   - Set altimeter to 29.92.
   - Set altimeter to local barometric setting.
9. Landing lights — AS REQUIRED.

Ground Run-up Checklist:

1. Brakes — HOLD.
2. Propeller over speed governor — TEST.
   - OVSP GOV switch — DEPRESS.
3. Oil pressure — CHECKED.
   - Check oil pressure 65 to 80 psi.

4. Auto ignition — TEST.
   - Auto ignition switch — ON (check AUTO IGN annunciator light ON).
   - PCL — IDLE (check that IGNITION annunciator light comes on between 180 and 300 ft-lb torque and that AUTO IGN annunciator light goes out).
   - Auto ignition switch — OFF.

5. Propeller feather — TEST.
   - Check by moving the condition lever aft through the spring detent to FTHR.
   - After feathering action has stabilized (increased torque, decreased propeller rpm, N1 stabilized between 60 to 65 percent), advance condition lever to FULL INCR RPM.

**Takeoff Checklist:**

1. Trim — SET.
2. Set 0° rudder, 3° up elevator, 0° aileron.
3. Flaps — CHECKED.
4. Check for proper extension and retraction of flaps.
5. Controls — FREE and CORRECT (both cockpits).
6. Radios, NAVAIDS, NACWS, GPS — SET.
7. Instruments, fuel quantity — CHECKED.

Items to be completed just prior to takeoff:

1. Transponder — AS REQUIRED.
2. Pitot Heat — AS REQUIRED.

**Landing Checklist**

1. Landing gear — DOWN and LOCKED (both cockpits).
2. Brakes — PARKING BRAKE OFF, BRAKES FIRM.
3. Instruments — CHECKED.
4. Landing lights — AS REQUIRED.
5. Flaps — AS REQUIRED.

**After Landing Checklist**

1. Flaps — UP.
2. Landing lights — AS REQUIRED.
3. Transponder — OFF.
4. Pitot heat — OFF.
5. Navigation and strobe lights — AS REQUIRED.

**Engine Shutdown Checklist**

1. Brakes — HOLD.
2. Parking brake — SET.
3. NACWS — OFF (both cockpits).
4. GPS — OFF.
5. PCL — IDLE.
6. Inverter — OFF.
7. VHF Radio — OFF.
8. Avionics master — OFF.
9. Landing lights — OFF.
10. Condition lever — FUEL OFF.
11. ITT — MONITOR.
   - Ensure ITT is below 610° C.
12. Navigation lights and strobe lights — OFF.
13. Diluter control lever — 100 percent (both cockpits).
14. Battery switch — OFF.

**Post Flight Checklist**

1. Control lock — INSTALLED.
2. Accelerometer — CHECK (both cockpits).
3. Trim tabs — NEUTRAL.
4. Wheels — CHOCK.
5. Parking brake — RELEASE
6. Canopy — AS REQUIRED.
7. Covers and tie downs — AS REQUIRED.
REFERENCE NOTES

The Beechcraft T-34 Mentor is a propeller-driven, single-engined, military trainer aircraft derived from the Beechcraft Model 35 Bonanza. The earlier versions of the T-34, dating from around the late 1940s to the 1950s, were piston-engined. These were eventually succeeded by the upgraded T-34C Turbo Mentor, powered by a turboprop engine. The T-34 remains in service almost six decades after it was first designed. The T-34C Turbine Mentor is powered by a Pratt & Whitney Canada PT6A-25 turboprop engine and was developed in 1973, with the final example rolling off the production line in 1990.

Specifications:

<table>
<thead>
<tr>
<th>Two-seat Trainer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Empty weight:</td>
</tr>
<tr>
<td>Typical TO weight:</td>
</tr>
<tr>
<td>Max TO weight:</td>
</tr>
<tr>
<td>Fuel capacity:</td>
</tr>
<tr>
<td>Initial climb rate:</td>
</tr>
<tr>
<td>Service ceiling:</td>
</tr>
</tbody>
</table>
Aircraft Limitations

<table>
<thead>
<tr>
<th>Limitation</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stall speed, clean:</td>
<td>70 KIAS</td>
</tr>
<tr>
<td>Max gear extension:</td>
<td>150 KIAS</td>
</tr>
<tr>
<td>Max gear retraction:</td>
<td>120 KIAS</td>
</tr>
<tr>
<td>Max indicated airspeed is</td>
<td>280 KIAS</td>
</tr>
<tr>
<td>Maximum speed:</td>
<td>230 KIAS</td>
</tr>
<tr>
<td>Maximum G:</td>
<td>+4.5/-2.3</td>
</tr>
</tbody>
</table>

Notes on configuration and load-out:
All applicable load stations are included in the configuration file. In the event the user wishes to use a model with particular weapon settings, they will need to add weight to the particular weapon station. The recommended weights for each load station are as follows:

<table>
<thead>
<tr>
<th>Station</th>
<th>Type</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Station 0</td>
<td>Student Pilot</td>
<td>185.00 lbs</td>
</tr>
<tr>
<td>Station 1</td>
<td>Instructor Pilot</td>
<td>185.00 lbs</td>
</tr>
<tr>
<td>Station 2</td>
<td>Baggage</td>
<td>Pilot’s discretion</td>
</tr>
</tbody>
</table>

Trim Characteristics
The aircraft will require only small trim adjustments throughout its flight envelope, with the exception of landing, where the slower speeds will require more elevator trim to compensate for reduced elevator effectiveness. The aircraft is capable of trimming +/- 15° in either direction. Use trim at your discretion to relieve control heaviness.
General Notes on Handling & Maneuvers
The T-34C is a very forgiving aircraft to fly and is reasonably resistant to spins. Stalls are mild and consist of a clean break and a quick recovery. The aircraft is certified for a wide assortment of aerial combat maneuvers so long as the G-limits are respected (4.5G in clean configuration).

The following is a list of recommended maneuver speeds:

<table>
<thead>
<tr>
<th>Maneuver</th>
<th>Speed/KIAS</th>
<th>Power/LBS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wingover:</td>
<td>180 KIAS</td>
<td>1015 ft-lbs</td>
</tr>
<tr>
<td>Steep Turns (45°+ bank):</td>
<td>180 KIAS</td>
<td>1015 ft-lbs</td>
</tr>
<tr>
<td>Barrel Roll:</td>
<td>180 KIAS</td>
<td>1015 ft-lbs</td>
</tr>
<tr>
<td>Aileron Roll:</td>
<td>180 KIAS</td>
<td>1015 ft-lbs</td>
</tr>
<tr>
<td>Loop:</td>
<td>200 KIAS</td>
<td>1015 ft-lbs</td>
</tr>
<tr>
<td>Immelmann:</td>
<td>200 KIAS</td>
<td>1015 ft-lbs</td>
</tr>
<tr>
<td>Split-S:</td>
<td>120 KIAS</td>
<td>IDLE</td>
</tr>
</tbody>
</table>

Note: Performing aerial combat maneuvers at speeds below the ones listed may result in excessively high sink rates, particularly in high-bank maneuvers. The aircraft may demonstrate a tendency to “slice” in high-bank turns below 180 KIAS.

At or around 220 KIAS the aircraft begins to require excessive control forces. Therefore, it is advised to restrict airspeed to no greater than 220 KIAS whenever possible to avoid having to exert heavy control forces to maintain control. Be especially mindful of this in a dive.

Prohibited Maneuvers:
- Inverted Stalls
- Inverted flight above 220 KIAS
- Inverted flight lasting longer than 15 seconds
- Night formation flights (except in emergencies)
- Intentional spins with flaps and/or gear extended
- Intentional spins with the propeller feathered
- Inverted spins

**Taxi Notes:**

1. The engine produces enough torque at idle to allow the aircraft to taxi without an increase in power. Use the minimum amount of power required to taxi the aircraft. Please note that the engine is slow to spool on the low end. Therefore, care must be taken not to “overshoot the mark” when adding in taxi power.

2. The T-34C does not have nosewheel steering. The T-34C is steered on the ground with a combination of differential braking and rudder input.

3. At low ground speeds or low prop RPMs the rudder will be ineffective in steering the aircraft, and differential braking must be used. At higher ground speeds or conditions where a moderate amount of prop wash is passing around the vertical stabilizer the rudder should be sufficient to maintain directional control on the ground.

**Normal Takeoff Notes:**

1. Set pitch trim to 3.0° aircraft nose-up.

2. Ensure flap position is UP (Flap position 0).

3. Smoothly apply maximum takeoff power (100% throttle) with the prop lever at FULL/INCR (100%).

4. Use the rudder to maintain directional control down the runway.

5. Begin to rotate the aircraft at 80 KIAS, the aircraft should unstick shortly after.

6. Hold the takeoff pitch attitude and accelerate to 120 KIAS.

**Minimum Run Takeoff Notes:**

For a minimum run takeoff, apply brakes and slowly advance the PCL to takeoff power. Maintain 1,015 ft-lb, release the brakes. Do no assume
a nose-high attitude until reaching approximately 60 KIAS. At this time, smoothly apply aft stick pressure to assume a nose-high (takeoff) attitude so lift-off will occur as soon as minimum flying speed is reached. Continue with normal climb procedure. Limit directional control braking as much as possible to reduce takeoff roll.

**Obstacle Clearance Takeoff Notes:**

Use minimum run takeoff procedure to the point of assuming a nose-high attitude. Do not assume the nose-high takeoff attitude until reaching approximately 70 KIAS. When positive lift-off has occurred, retract the landing gear and accelerate and maintain Vx (best angle of climb airspeed, 75 KIAS) until the obstacle is cleared.

**Short Field Takeoff Notes:**

1. Set pitch trim to 3.0° aircraft nose-up.
2. Set flaps to 20% (Flap position 1).
3. While holding maximum brake pressure, smoothly apply maximum takeoff power (100% throttle) with the prop lever at FULL/INCR (100%).
4. Release brakes, use the rudder to maintain directional control down the runway.
5. Begin to rotate the aircraft at 65 KIAS, the aircraft should unstick shortly after.
6. Immediately retract landing gear, depress the brake to stop the rotation of the main wheels.
7. Climb at 75 KIAS until approximately 200ft AGL.
8. At 200ft AGL, lower the nose and accelerate to 120 KIAS, raising flaps at or above 90 KIAS.

**Climb Notes:**

1. After takeoff accelerate at takeoff power to 120 KIAS.
2. Reduce power per pilot discretion to maintain a desired vertical speed, and use pitch to maintain 120 KIAS up to final cruising
altitude.

**NOTE:** Climb at takeoff power authorized.

**Cruise Notes:**

1. The optimum cruise altitude is at or around 16,000ft MSL.

2. For cruise, reduce power as necessary to maintain the desired cruise speed (Optimum cruise speed is at or around 135-140 KIAS).

3. Typically the T-34C will use approximately 70% of the total power level travel to maintain the optimum cruise speed.

**Fuel burn estimate at cruise condition:**

<table>
<thead>
<tr>
<th>Altitude</th>
<th>Airspeed</th>
<th>Fuel Burn</th>
</tr>
</thead>
<tbody>
<tr>
<td>16,000 ft</td>
<td>138 KIAS</td>
<td>56.1 nm / 100lbs fuel used</td>
</tr>
</tbody>
</table>

**Descent Notes:**

1. The T-34C can perform tactical descents. Reduce power to idle and pitch down, mindful of G-load limitations and maximum speed.

**Approach and Landing Notes (Flaps/No Flaps):**

1. If in a tactical descent to landing, the gear can be lowered at up to 150 KIAS to aid in aerodynamic braking.

2. Set flaps 20% (flap position 1) at 105 KIAS.

3. Set flaps 60% (flap position 3) at 95 KIAS.

4. Set flaps 100% (flap position 5) at 85 KIAS.

5. Final approach speed with flaps fully extended is 85 KIAS. Final approach speed with flaps retracted is 95 KIAS.

**NOTE:** Due to slow engine response and lag on the low end avoid reducing power to idle unless in the flare. This may create a situation in which the aircraft gets behind the drag curve and excessive sink rates occur.
6. At 5ft AGL, slowly retard the throttles.

7. Flare the aircraft several degrees and fly the aircraft onto the runway. Slowly lower the nose onto the runway.

8. If sufficient runway length exists (at least 3000ft) aerodynamic braking or a long rollout is authorized, though it is more effective to get all the wheels on the ground and use wheel brakes to slow the aircraft.

**NOTE:** The T-34C prop has a small beta range (-5°) that can be used to provide additional braking. Use the F2 key to set the prop into this range. To return the prop to the normal operating range, simply move the power lever slightly forward. This will disengage the reversing pitch.