

T-34 Formation Manual 4th Addition Addendum

Type Specific: Beechcraft Bonanza

All procedures in T-34 manual are considered standard and need not be briefed unless there is change to standard.

Before starting engines on any flight the pilot of each aircraft is responsible to have all information necessary to make the flight and that he/she has completed the preflight of their aircraft. This is considered standard.

Element Take-Offs Lead give wingman 5" manifold pressure if both same horsepower engine. If wingman has lower horsepower engine make proper allowance to allow wingman throttle margin. On run up signal, lead and wing bring up briefed take off power, release breaks on lead head nod. T-34 Manual [page 15] Formation Takeoff considered standard procedure for Bonanzas.

Climb 100 Kts @ 500' per minute. If aircraft with 225 and less horsepower is in the formation adjust for slowest aircraft in briefing.

Lead Aircraft climb to at least 500' above ground before turning for join up for 2 ship element take off and 1000' for single ship 4 ship take off. On 4 ship formation number 2 always takes the inside of the turn to join regardless of position relative to lead on take off unless specifically briefed otherwise. Number 2 assumes this position when lead starts turn using bank angle of 20 degrees.

Lead uses bank angle of 20 degrees for initial join-up and rejoin-up.

Cruise speed 130 Kts. Adjust speed if slower aircraft is in formation.

Do not exceed 160Kts on descent from initial to pitch out altitude for 360 overhead breaks.

All break bank-angles 45 degrees unless specified in briefing.

When lead is level after pitch out on 360 overhead break lead will lower gear at runway numbers of landing runway. All others in formation maintain downwind leg speed until gear drop at runway numbers. Maintain descent and spacing position, use full flaps on base and final as set by lead with final approach speed of 90 Kts.

Element break and element landing use same speed as single ship break and landing. Follow T-34 manual [page 16] for Formation Landing using full flaps when leader gives flap signal. Lead lands with adequate power to allow wingman maneuvering margin.

Briefing, Starting Engines, Radio Procedure, Shut Down

Briefing: Lead is Boss. Declare the type of flight. Although not a check ride all flights should be conducted "as if". Lead briefs flight with standard items not being discussed unless there is change to standard.

Startup and Shut Down: Due to visibility limits in Bonanzas it is strongly urged a time start be used with all pilots setting watches to a "time hack". There are many advantages to this, however the main one is "it works". Use the same procedure for engine shut down. When lead observes all the flight members are parked leads gives radio call Bonanza Flight shut down on 30 or 60, . Acknowledgement by 2, 3, 4, acknowledgement indicates pilots understand and are able to comply with the shutdown time.

Radio calls: T- 34 manual page 23. The first radio call is made by lead an adequate time after engine start time to allow pilots to check gauges, controls, radios, winds etc, and be ready in all respects for taxi. On Channel 1, Lead announces "Bonanza Flight radio check ". An acknowledgement indicates the pilot is ready to taxi. Two sets the pace and the answers are "2, 3, 4." On all Channel changes lead calls Bonanza Flight go to Channel 2, [or what ever new channel lead directs]. While on the active channel all pilots acknowledge "2, 3, 4" before switching to new channel and then switch to channel 2 [the new channel directed]. Lead after reasonable time calls on channel 2 [new channel] "Bonanza Flight Radio Check" the response again is "2, 3, 4." This is standard procedure and after accepted will not need to be briefed; only the channels to be used on the flight need to be briefed. Emphasizing WINGMAN ACKNOWLEDGES channel change on channel in use. Lead then calls for radio check on new channel and WINGMAN ACKNOWLEDGES` on new channel.

Echelon Turns

Echelon turns are a flight maneuver with the flight maintained on a horizontal plane in lieu of the typical inclined plane [plane of lead's wing] in the other formations. Turns from an echelon are generally required for maneuvering to the initial approach/break or can also be used for general maneuvering when in echelon. **Note:** All echelon turns are required to be in the direction away from the element – the maneuver cannot be turned into the element. Echelon turns are normally either 20 or 30-degree bank turns. Shallower or steeper echelon turns are difficult to maintain.

The sight line in the turn is more akin to a turn in close trail than a typical finger turn in that the normal spacing clues are replaced with the view of the underside of the airplane in front. Position is maintained by orientating the airplane fuselage in front slightly above the horizon and maintaining good spinner/tail alignment. From #2 position #1 fuselage is slightly above the horizon from #4 position #3 fuselage is slightly above the horizon and it follows #2 and #1 are higher on the horizon. Remember the formation is stepped down and when coming out of an echelon turn the formation planes should be in the same relative position to each other as when entering the turn.

Turns are generally initiated by lead to a smooth 30 degree bank angle. The entire flight should roll into the same bank maintaining the flight on a horizontal plane. An indication of a good echelon turn is instant reestablishment of position on roll out.

Any discussion about what the flight is about or flying techniques should be done prior to the brief. Lead should know what the flight will be; all participating should know standards used in the flight. Lead will brief the flight as if it were a FFI check ride in accordance with FFI, T-34 4th addition manual with Bonanza type specific addendum. All questions will be held until lead is finished and should not be about any of the standards.