

Leadplane Training Lesson Plan

Aircraft Sequencing

12-10-N9065-HO

Objective:

To develop the student's proficiency with aircraft sequencing (Phase 2).

To develop the students mastery of aircraft sequencing in a fire environment (Phase 3).

Content:

Safe aircraft sequencing is an essential skill. To be successful, the student needs to understand three principals of sequencing.

1. The leadplanes role in the FTA.

Understanding the leadplanes roll as a facilitator.

Understanding the roll of the other aircraft pilots.

2. Communications used in sequencing.

Becoming an effective communicator to instill trust.

Being predictable.

Using clearances.

Using comfort calls.

3. The mechanics of sequencing.

Using the leadplane pattern as a timer.

Creating a clearance transition point.

Understanding factors that influence the "grey" zone.

Using helicopter checkpoints and routing.

Knowing the qualities of a good checkpoint.

The Leadplanes Roll in the FTA

The leadplane is a facilitator and provides situational awareness to aid in efficiency. The leadplane is not an air traffic controller and holds no such authority outside the FTA. It is important to note that a leadplane can hold all the authority over a fire but not get

people to do what is needed if the resources don't trust the leadplane. A climate of trust must be created to get buy in from the other aircraft. Position authority is important but a trust climate is needed to be fully successful.

It is expected that the leadplane will maintain a high level of situational awareness of other aircraft and missions within the FTA, and will coordinate aircraft by sharing information.

Air tanker pilots are exposed to the FTA for short periods of time. Most of their time is spent in between the FTA and the tanker base. The helicopter pilots become very familiar with their dip and target areas, but may not see the entire operation within the FTA. The leadplane must be predictable, maintain a high level of situational awareness, use good communications, and be trustworthy. By doing this, tanker pilots and helicopter pilots will look to the leadplane for guidance.

Communications Used in Sequencing

It is important to understand that how things are spoken is as important as what is said.

The Clearance

A standard clearance should be utilized. During exceptionally busy missions it is important that helicopter and tanker pilots have clear concise instructions. Leadplanes are usually joined up with tankers, or are in direct supervision of them. Helicopters will be sequenced in reference to the leadplane or tanker. This does not mean that tanker drops should be prioritized over helicopter operations.

All helicopter operations can be broken down into two missions. The first is the tactical mission. This includes everything having to do with suppressing the fire i.e. dropping water or retardant. The second is the logistical mission. This includes personnel transport, sling loads of supplies and recon missions. The standard clearance addresses each mission.

"Cleared to Target" will be utilized for tactical missions. This is used after the target area and route has been identified.

"Cleared to Transition/Destination" will be utilized for logistical missions. This is used after the transition area or destination has been identified.

Predictable verbiage used at the dip and at the checkpoint enables efficient sequencing. The standard is for the leadplane to ask the helicopter to "Call your dips, call your drops, and call for clearance at the checkpoint".

Checkpoints will be discussed later.

The importance of “call your dips, call your drops” is that it enables the leadplane to passively flight follow and track the helicopter. It also creates timing that the leadplane can utilize during sequencing. An example might be where the helicopter and the tanker are dropping in the same area. The leadplane is downwind past abeam with a tanker in tow. The helicopter calls “off the drop.” The leadplane knows that when it is on base to final, the helicopter should be clear and also aids the leadplane in where to look to gain visual contact with the helicopter.

Comfort Calls and Position Calls

Any pilot within the FTA, focused on the mission can lose situational awareness. To aid in being predictable and developing trust, the leadplane should periodically reestablish or fine tune situational awareness for all pilots. This can be accomplished with comfort calls. The comfort call is a transmission in the blind, based on the leadplane location, which defines where all sequencing aircraft are. There are three methods for using comfort calls.

Transmitting where in the pattern the leadplane is.

“Bravo 9, downwind abeam with a tanker”. The helicopter will know where to look for the ASM and will have a sense of how much time it has before the ASM and tanker are low level over the drop.

Calling visual contact.

“Bravo 33 turning base with a tanker, has 1KA off the drop”. Helicopter knows the ASM has it in sight and is maintaining separation.

Call your timing strategy.

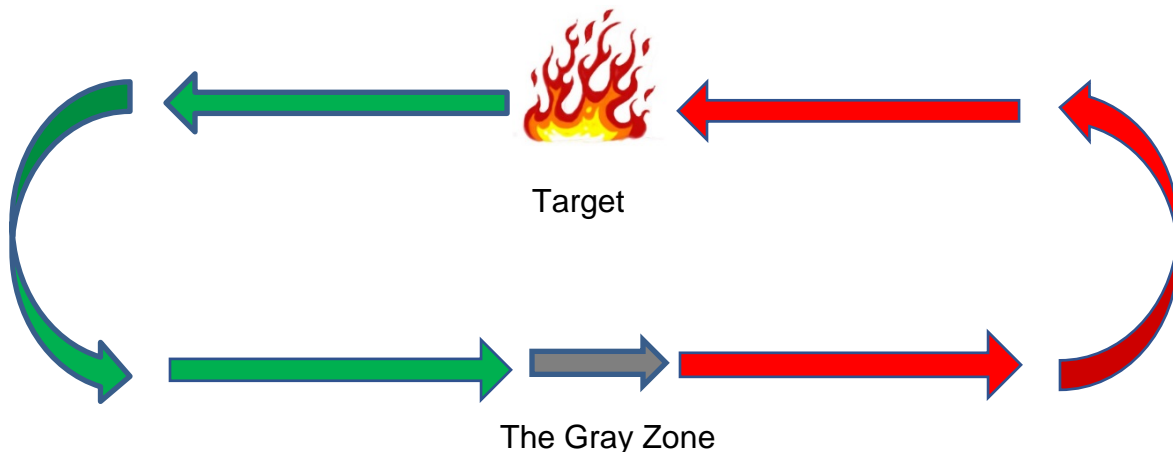
“Lead 4 with a tanker, number 2 behind 30B, extending the downwind”. Helicopter knows the leadplane has it in sight and giving it time to make its drop.

Use Comfort Calls in conjunction with the Clearance.

“30B cleared to target, Lead 2 downwind abeam with a tanker”. Helicopter is cleared to target and knows where to look in the pattern for the leadplane and tanker.

Mechanics of Sequencing

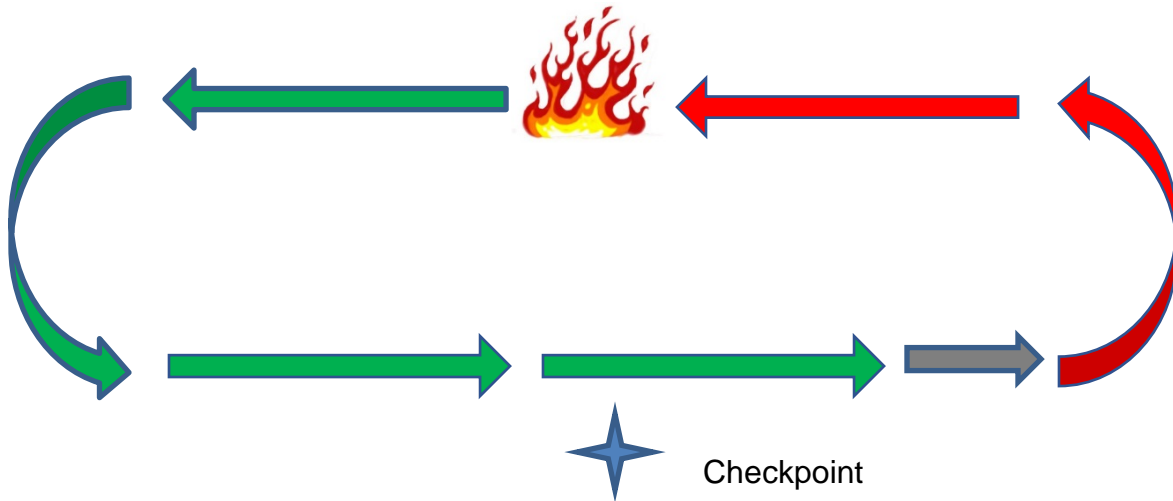
The leadplane pattern is the foundation of sequencing. If flown consistently, it will create timing that all other pilots involved in the sequencing can rely on.



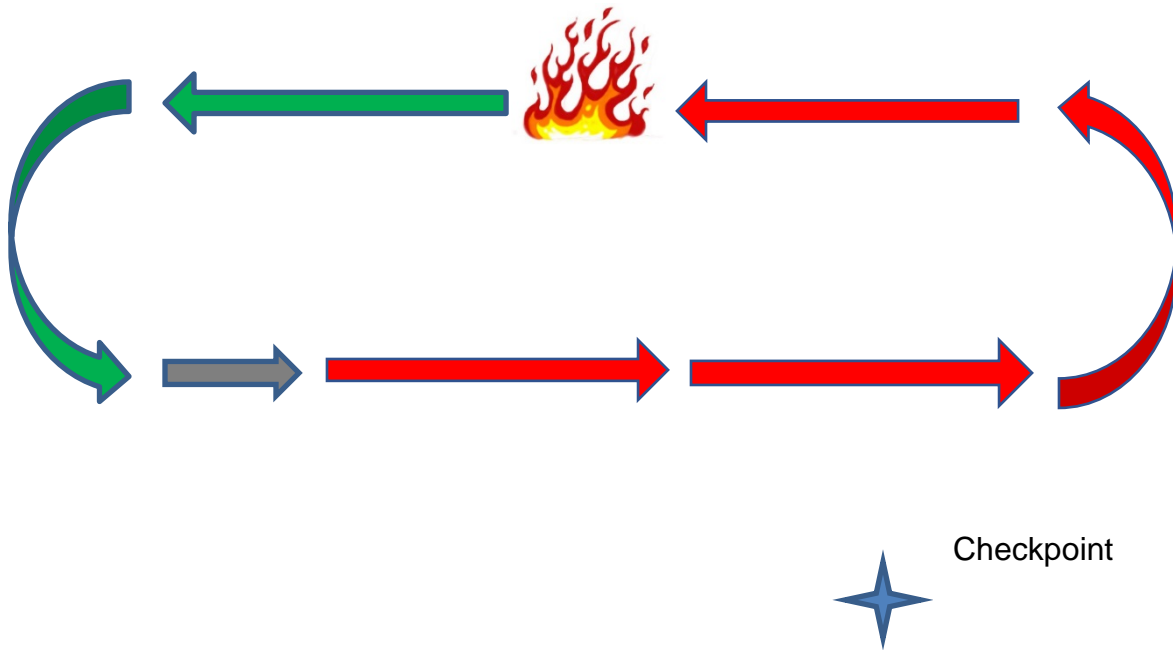
The diagram illustrates how the clearance is integrated with the lead plane pattern. In the example, the green pattern signifies it is safe to clear a helicopter from the checkpoint to target or to transition. The red pattern signifies that the leadplane and the tanker will be first and the helicopter will be “cleared to target number 2 behind the SEAT”.

The grey zone signifies the place in the leadplane pattern where the transition from the helicopter being cleared or the helicopter being cleared behind the tanker occurs. The grey zone is dynamic and moves around the leadplane pattern based on the established checkpoint. The checkpoint location must allow ample time for the helicopter to accomplish its mission before the leadplane and tanker are over the target. The closer the checkpoint is to the target the later in the leadplane pattern the grey zone can be. The further away the checkpoint is from the target the earlier the gray zone is in the pattern. The placement of the checkpoint will affect the efficiency of the aircraft operating in the FTA.

In this example, the checkpoint is closer to the target allowing the helicopter to be cleared to target later in the leadplane pattern.



In this example, the checkpoint is further from the target causing the helicopter to be held earlier in the leadplane pattern.

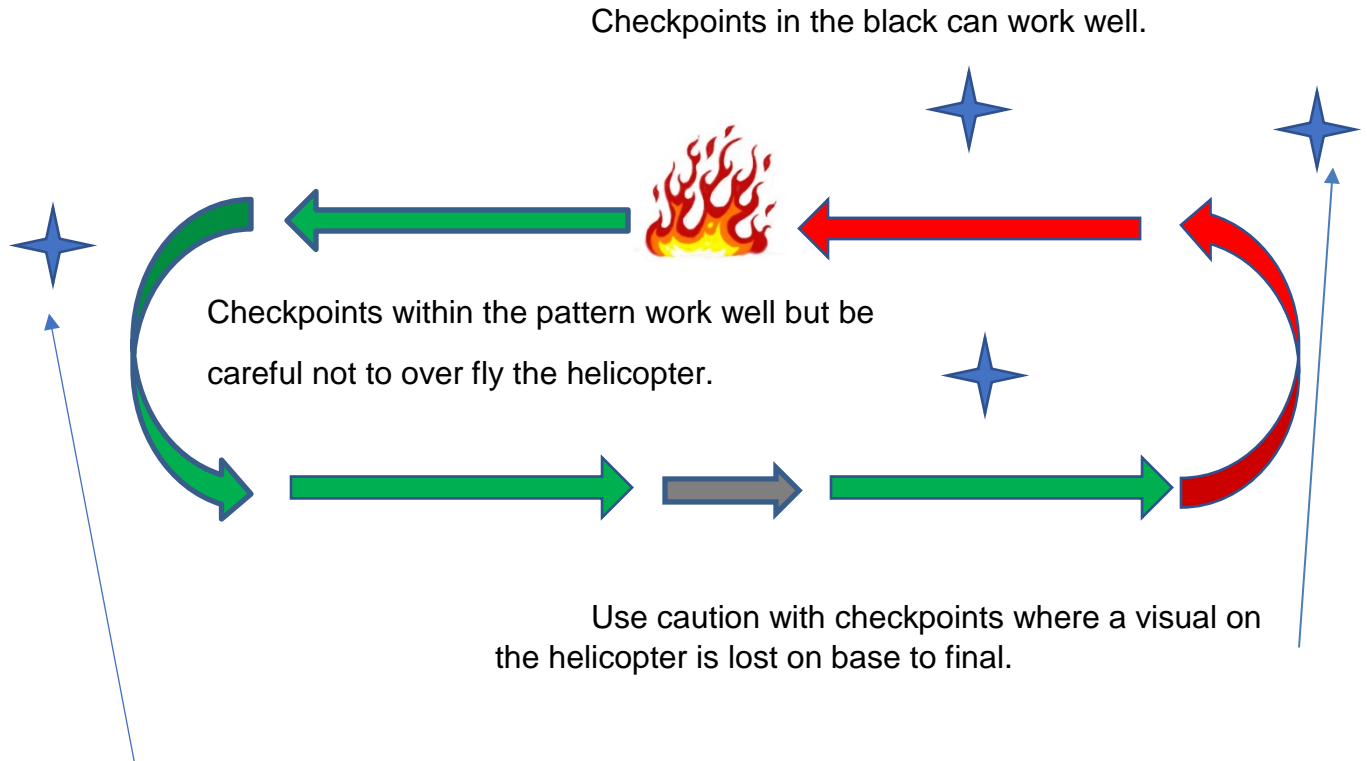


Qualities of a good checkpoint

Checkpoints should be an obvious feature easily identifiable. Obvious buildings, road bends, road intersections or other geographic features all work well. The dip, if close enough, can also be the checkpoint.

Checkpoints should be as close to the target as possible without causing airspace conflict or pilot discomfort. This will allow the shortest amount of time between the helicopter being cleared to target and the helicopter calling off the drop. A close checkpoint is safer and facilitates efficient sequencing.

To give the helicopter the best situational awareness, a checkpoint location should allow the helicopter to be able to see the retardant drop. This allows the leadplane to transfer the responsibility for separation to the helicopter by using the clearance “30B cleared to target, number 2 behind the SEAT”.



Use caution with checkpoints that align with the leadplane or tanker exit path. It is best to avoid this position for a checkpoint.

Routing

Helicopter routing from the dip to the checkpoint should be simple so as not to require supervision. Routes to the checkpoint under the downwind leg of the leadplane pattern provide for maximum vertical separation.

Helicopter routing should take into consideration terrain, roads (over flying people/vehicles), personnel, and helicopter pilot preference.

Completion Standards:

The lesson is complete when the student can demonstrate safe and efficient sequencing of multiple helicopters and fixed wing aircraft within the same target area in a fire environment for Phase 2. Safety will never be in question while sequencing aircraft.

The lesson is complete when the student can demonstrate mastery of sequencing in a fire environment for Phase 3. Safety will never be in question while sequencing aircraft without the reliance on the evaluator.