AWAL WINGMAN

TEST GUIDE

AWAL FAST Flight Leader Test Guide

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INTRODUCTION

AWAL FAST (Formation And Safety Team) has developed this test guide to assist check pilots when conducting Wingman pilot practical tests and for Trainers when preparing students for the practical test. It serves as a standardisation training and testing guide. The Check includes an oral knowledge check prior to the check flight briefing.

2-Ship Wingman Qualifications

AWAL has elected to to use a 2-ship, stepping stone approach, posted below are the qualifications for 2-ship lead. (Note experienced pilots can go straight to a 4 ship check if deemed capable)

Required Qualifications for Wingman Applicant (2 Ship)

- Private Pilot licence* (with CASA "FF A" Flight activity)
- 350 hours total time (250 hours for current or former QFI,military, or airline check airman)*
- 10 hours logged formation time as a credentialed wing pilot
- Demonstrated proficiency in each position of a 2-ship
- Complete formal lead upgrade training program
- Current Flying member of AWAL
- Practical test recommendation by a current lead pilot
- Successfully complete practical test

**or non-Australian , country equiv*

Required Qualifications for Wingman Applicant (4 Ship)

- Private pilot licence* (with CASA "FF A" Flight activity)
- 500 hours total time (350 hours for current or former QFI,military, or airline check airman)*
- 30 hours logged formation time as a credentialed wing pilot
- Demonstrated proficiency in each position of a 4-ship formation
- Complete formal lead upgrade training program
- Current Flying member of AWAL
- Practical test recommendation by a current lead pilot
- Successfully complete practical test

**or non-Australian , country equiv*

Trainer Pilot's Responsibility

A qualified and current formation trainer pilot is responsible for training the Wingman pilot applicant to acceptable standards in all applicable subject matter areas, procedures and manoeuvres included in the TASKS within each subject in this practical test guide.

Because of the impact of their teaching activities in developing safe, proficient formation pilots, trainer pilots should exhibit a high level of knowledge, skill and the ability to impart that knowledge and skill to students.

Check Pilot's Responsibility

The check pilot who conducts the wingman pilot practical test is responsible for determining that the applicant meets acceptable standards for knowledge and skill in the selected TASKS.

Use of the Test Guide

All the subject matter, procedures and manoeuvres for wingman pilot qualification have been included in the *Wingman Test Guide*. The check pilot will select the SUBJECTS that are appropriate to the organisation's standard operating procedures and aircraft. The check pilot should then select

enough TASKS within the applicable SUBJECTS to determine that the applicant is proficient. The check pilot can select as few or as many as he/she feels is appropriate to qualify the applicant. In the case of hand signals those marked with an * are mandatory and expected knowledge.

In preparation for the practical test, the check pilot will develop a "mission profile" that will include the required tasks in each subject or flight event. If the applicant is unable to perform a TASK in the mission profile due to circumstances beyond his/her control, the check pilot may substitute another TASK from the applicable subject.

Aircraft and Equipment Required for the Practical Test

The Wingman pilot applicant will provide an airworthy aircraft for use during the practical test. The aircraft will also have:

1. A functional intercom system
2. The capability for the check pilot to transmit and receive on the radio

The check pilot will have final authority as to whether the aircraft meets the provisions of this paragraph.

Formation Aircraft and Pilots Required for the Practical Test

The lead pilot practical test will be conducted in a 2 or 4-ship formation.

All members of the flight will be formation qualified and current. With the consent of the check pilot, a formation qualified and current back-seat trainer pilot paired with a student fulfils this requirement.

The check pilot can ride with the applicant or conduct the practical test from another aircraft in the flight. Conducting the practical test from another aircraft is strictly at the option of the check pilot. If this option is chosen, no other training or simultaneous check rides will be conducted during the flight unless there is another trainer or check pilot paired with the other student or applicant.

Materials Required for the Practical Test

To be an effective flight leader and instructor, and to ensure standardisation, all applicants for lead pilot should have in their possession the following materials:

1. AWAL FAST Foundation and Principles

2. AWAL FAST Radio Communication and Visual Signals

3. AWAL FAST wingman and flight leader test guides

- Formation manual for applicant's formation organisation (1 above)
- All other applicable SOPs and policy guides for the applicant's formation organisation
- Formation proficiency report forms (Digital)
- Formation checkride forms (Digital)

Provision for 2-Ship Qualification

Some formation organisations (AWAL) may choose to qualify pilots in 2-ship formation prior to moving to 4-ship. Those organisations, whose formal training programs are so structured, may perform the practical test in 2-ship formation. In this instance, the organisation will issue formation

credentials that indicate that the pilot is restricted to 2-ship formation.

Provision for Bomber/Transport Aircraft (TBA)

The lead pilot practical test may be conducted for a pilot of a bomber or transport aircraft following the procedures in the bomber/transport supplement of the *Wingman Leader Test Guide*. For checkrides conducted under the provisions of the bomber/transport supplement, the FAST credential will be issued with a notation on the pilots FAST record restricting the pilot to bomber/transport aircraft.

Satisfactory Performance

Satisfactory performance to meet the requirements for formation qualification is based on the applicant's ability to safely:

1. Demonstrate proficiency in the applicable TASKS specified in the SUBJECT
2. Demonstrate mastery of the aircraft with the successful outcome of each TASK performed never seriously in doubt
3. Demonstrate clear leadership of the flight from the planning phase all the way through to the debriefing.
4. Demonstrate sound judgement and situational awareness

Unsatisfactory Performance

If, in the judgement of the check pilot, the applicant does not meet the standards of performance in any of the TASKS performed, the associated SUBJECT is incomplete and the practical test is unsatisfactory. If there is some question in the check pilot's mind about the satisfactory completion of a TASK, the check pilot may have the applicant repeat the TASK. The check pilot or the applicant may discontinue the practical test at any time when the performance of a TASK is unsatisfactory. If the practical test is discontinued, the applicant is entitled to credit for those TASKS satisfactorily performed. However, during the retest, at the discretion of the check pilot, any TASK may be re-evaluated, including those previously completed satisfactorily.

ORAL PHASE (Knowledge check)

SUBJECT: FORMATION FUNDAMENTALS

TASK: HAND SIGNALS

Objective: To determine that the applicant exhibits knowledge of formation hand signals by Interpreting or demonstrating a selection of the following (* Essential) :

a. Run-up*
b. Visual signal acknowledgement
c. Gear up/down
d. Flaps up/down
e. Power addition/reduction

f. Climb/descend
g. Stack up/down
h. Level off
i. Speed brake
j. Number signals
k. Fuel state inquiry
l. Frequency change* (pre-briefed)
m. Cross- under …. Chang sides*
n. Go Line astern*
o. Number 4 to slot (Box)
p. Pitch out*
q. Lead change*
r. Loosen Formation*
s. Can't hear*
t. Can't transmit*
u. Landing lights on/off
v. Pitot heat on/off
w. Rotating beacon on/off
x. Transponder off
y. Go around
z. HEFOE*

TASK: AIRCRAFT SIGNALS

Objective: To determine that the applicant exhibits knowledge of formation aircraft signals by: Interpreting or describing—

a. Wing rock
b. Yaw the aircraft
c. Porpoise
d. Attention in the air

TASK: RADIO COMMUNICATION

Objective: To determine that the applicant exhibits knowledge of radio communication by: Explaining—

a. Frequency change procedures
b. Circumstances under which the "terminate" call would be used
c. Procedure to follow when "terminate" is called

SUBJECT: TAKEOFF, DEPARTURE

TASK: ELEMENT TAKEOFF

Objective: To determine that the applicant exhibits knowledge of an element takeoff by:

Explaining—

a. The procedure and options for lining up aircraft on the runway prior to takeoff—2-ship, 3-ship, and 4-ship

b. The sequence of signals used for engine run-up and brake release

c. The technique to maintain position during the take off roll

d. The procedure to follow if the wing pilot passes Lead during the takeoff roll

e. The procedure to follow if the wing pilot falls behind Lead during the takeoff roll

f. The correct station keeping position after lift off and after gear retraction.

TASK: SINGLE-SHIP, STREAM (INTERVAL) TAKEOFF

Objective: To determine that the applicant exhibits knowledge of single- ship, stream (interval) takeoffs by:

Explaining—

a. Possible reasons for performing a single-ship, interval takeoff

b. The procedure for "feeding" formation aircraft onto the runway for takeoff

c. The reference used for initiating takeoff behind preceding aircraft

TASK: DEPARTURE

Objective: To determine that the applicant exhibits knowledge of departure procedures by:

Explaining—

a. individual rejoin in the #2 position

b. Element rejoin in the #4 position.

SUBJECT: BASIC manoeuvres

TASK: WING WORK/STATION KEEPING

Objective: To determine that the applicant exhibits knowledge of wing work/station keeping by:

Explaining -

a. Power,pitch and roll management during turns away from the wing pilot.

b. Power,pitch and roll management during turns towards the wing pilot.

c. Power,pitch and roll management during Belly turns.

TASK: CROSS-UNDER

Objective: To determine that the applicant exhibits knowledge of cross-unders by:

Explaining—

a. The procedures used for executing a cross-under

b. The consequences of crossing under with insufficient vertical separation

c. The consequences of crossing under with excessive bank.

TASK: ROUTE/BATTLE

Objective: To determine that the applicant exhibits knowledge of the route position by:

Explaining—

a. The parameters of route position

b. The circumstances under which route position would be employed

c. The procedure for bringing wing pilots back into finger/echelon.

TASK: ECHELON

Objective: To determine that the applicant exhibits knowledge of the echelon position by:

Explaining—

a. The parameters of the echelon position

b. The circumstances under which wing pilots would execute a Belly turn verses a normal in plane turn

TASK: BOX (4 Ship)

Objective: To determine that the applicant exhibits knowledge of the Box position by:

Explaining—

a. The parameters of the Box position

b. The procedure for sending a wing pilot to the Box position

c. The procedure for rejoining a wing pilot from Box to finger

TASK: LINE ASTERN

Objective: To determine that the applicant exhibits knowledge of Line Astern by:

Explaining—

a. The parameters of Line astern

b. The procedure for sending wing pilots to Line Astern

c. The procedure of moving into and out of Line Astern

d. The procedure for rejoining wing pilots from Line Astern to finger

SUBJECT: REJOINS

TASK: PERCH AND REJOIN

Objective: To determine that the applicant exhibits knowledge of the Perch and rejoin by:

Explaining—

a. The differences between a turning rejoin and a straight-ahead rejoin

b. The techniques used to control the rejoin (turn circle and energy management).

c. The Perch procedure including communications.

TASK: OVERSHOOT ….. (BUG OUT UNDER RUN)

Objective: To determine that the applicant exhibits knowledge of the rejoin Bug out manoeuvre by:

Explaining—

a. The circumstances under which the Bug out manoeuvre would be executed

b. The procedure to execute a bug out.

c. The potential dangers associated with the Bug out manoeuvre

d. The procedure for #3 and #4 if #2 executes a Bug out

e. The Rule of 4 avoids 3 who avoids 2 who avoids 1

SUBJECT: 3-SHIP FORMATION

TASK: 3-SHIP VIC

Objective: To determine that the applicant exhibits knowledge of 3-ship vic by:

Explaining—

d. The configuration of a 3-ship vic

e. The protocols used to fly 3-ship vic

SUBJECT: TRAFFIC PATTERNS

TASK: INITIAL AND PITCH

Objective: To determine that the applicant exhibits knowledge of the Initial and Pitch by:

Explaining—

f. How and when Lead will configure the flight for the Initial and Pitch

g. How Lead will determine where to begin the break to downwind

h. How Lead will determine where to establish the base position

i. Where in the traffic pattern flaps and gear will be extended

j. How Lead will determine the appropriate landing interval in the traffic pattern

k. Where in the traffic pattern base turn should be initiated

l. Where Lead will plan to touch down

m. The hot side/cold side of the runway concept

n. When and what radio call is used to “clear” preceding aircraft during landing roll

o. Procedure for go-around after the pitch-out

p. High crosswind landing procedures

TASK: ELEMENT LANDING (TBA)

Objective: To determine that the applicant exhibits knowledge of an element landing by:

Describing—

a. the correct position to fly at various points on the approach.

b. The references used to ensure the correct vertical position .

c. The desired wingtip clearance during approach and landing

d. The method for cross checking position relative to Lead and the runway.

e. The deceleration after landing.

TASK: ELEMENT GO-AROUND (TBA)

Objective: To determine that the applicant exhibits knowledge of the element go-around by:

Describing—

a. The sequence of events following Lead’s go-around call or hand signal

b. The correct position relative to the lead during the Go-around

c. The procedure to follow if unable to maintain position during the go- around

SUBJECT: EMERGENCY/ABNORMALS

TASK: EMERGENCY ACTIONS

Objective: To determine that the applicant exhibits knowledge of emergency procedures during different phases of flight by:

Describing—

a. The actions a wingman will take when experiencing an emergency during an element takeoff roll.

b. The actions a wingman will take if the lead executes a high speed abort.

c. The actions Lead will take when a wing pilot executes a high-speed abort during an element takeoff.

d. The actions the wingman will take if the lead experiences a catastrophic emergency immediately after an element takeoff

e. The actions a wingman will take when the lead experiences an emergency at altitude

Explaining—

f. HEFOE

g. NORDO recovery procedures

h. Chase aircraft procedures

i. Assistance/coordination procedures following bailout or forced landing

TASK: ABNORMALS

Objective: To determine that the applicant exhibits knowledge of abnormal procedures by:

Describing—

a. Bingo and joker fuel

b. Hard deck (if used)

c. The reasons for calling “knock-it-off” or “Terminate”

d. Knock-it-off/Terminate procedures

e. The reasons for breaking out of the formation

f. Break out procedures

g. Lost sight procedures

FLIGHT PHASE

SUBJECT: PREFLIGHT PROCEDURES

TASK: BRIEFING

Objective: To determine that the applicant:

1. Understands all the salient elements of the briefing.
2. Understands their responsibilities in the formation flight.
3. Raises questions as required to clarify any portion of the mission.

TASK: START, TAXI

Objective: To determine that the applicant:

1. Properly performs the preflight, is strapped in and ready at the briefed start time
2. Concentrates on the lead and complies with all start up formation procedures.
3. Performs a precise radio check-in.
4. Handles any delays or problems in a deliberate manner using radio or hand signals
5. Configures aircraft as briefed when taxiing
6. Maintains taxi position that does not not require excessive use of power or brakes.

TASK: RUN-UP

Objective: To determine that the applicant:

1. Correctly positions the aircraft in the briefed run up position.
2. Performs the run up as briefed.
3. On completion of the run up configures the a aircraft for take off
4. Gives the thumbs up signal (in sequence)

SUBJECT: TAKEOFF, DEPARTURE

TASK: ELEMENT TAKEOFF

Objective: To determine that the applicant:

1. Uses correct spacing and taxis into the correct position.
2. Complies with the Leads run up signal.
3. Correctly indicates to the lead he/she is ready for take off.
4. At leads head nod smoothly adds power and maintains position through the take off.
5. Does not use excessive power corrections to maintain position. And calls for *"Power up"* and or *"Revs"* appropriately.
6. After lift off ensures correct vertical position (doesn't drop low)
7. Complies in a smooth and timely fashion the gear/flap retraction.
8. Smooth positive control and power inputs used throughout the take off.

TASK: SINGLE-SHIP, STREAM/INTERVAL TAKEOFF

Objective: To determine that the applicant:

Takes proper position on the runway based on wind direction and other prevailing factors

1. Initiates the takeoff roll as briefed
2. Performs smoothly compensating for any Prop/jet wash .

C. TASK: REJOIN AFTER TAKEOFF

Objective: To determine that the applicant:

1. Obtains both speed and geometric closure on the lead.
2. Smoothly rejoins to the briefed position.
3. Allows preceding wingmen to join before he/she rejoins.

SUBJECT: BASIC manoeuvres

TASK: WING WORK/STATION KEEPING 90º AND 180º CLIMBING TURNS, LEVEL OFF AND POWER REDUCTION

Objective: To determine that the applicant:

1. Exhibits precise aircraft control, resulting in little or no relative motion

2. Manages power such that control is timely, without erratic throttle control
3. Exhibits stable vertical and horizontal positions
4. Is able to smoothly and precisely manoeuvre his aircraft, assuring proper station keeping.
5. Provides a stable platform to enhance the ability of #3 or #4 to maintain relative position
6. Applicant monitors engine performance and systems periodically.
7. Maintains positional and situation awareness.

TASK: BELLY TURN

Objective: To determine that the applicant:

1. Exhibits precise aircraft control
2. Maintains an accurate constant separation throughout the turn
3. Rolls out of belly in concert with the lead
4. Is in the echelon position at the completion of the roll out.

TASK: LAZY EIGHTS, LEFT AND RIGHT USING UP TO 60° BANK TURNS, WITH UP TO PLUS OR MINUS 20º OF PITCH

Objective: To determine that the applicant:

1. Maintains precise station Understands and appreciates the acceleration and deceleration effects with respect to the lazy-eight manoeuvreing
2. Uses smooth and consistent changes in pitch and roll throughout the manoeuvre
3. Anticipates power requirements during roll in and roll out of the turn.

TASK: CROSS-UNDER

Objective: To determine that the applicant:

1. Understands and responds to hand signals to direct the cross-under
2. Exhibits smooth coordinated and predictable power and control inputs.
3. Uses the correct technique throughout the cross under

TASK: ROUTE/BATTLE POSITION

Objective: To determine that the applicant:

1. Recognises the leads signal to deploy to Route/Battle position.
2. Accurately flies the route/Battle position … Bearing and distance.

TASK: BOX (4 ship)

Objective: To determine that the applicant:

1. Recognises the signal for #4 to go the Box position
2. Demonstrates the correct technique moving into box.

3. Once stable in the Box line astern position calls “In”
4. Recognises the signal to return to Finger from Box.
5. Demonstrates the correct technique moving into Finger.

TASK: LINE ASTERN

Objective: To determine that the applicant:

1. Recognises signal to send the wingmen into Line astern
2. Demonstrates the correct technique moving into box.
3. Maintains the correct position throughout manoeuvres
1. Recognises signal to send the wingmen into Finger.

TASK: LEAD CHANGE (Applicant remains on element leads wing)

Objective: To determine that the applicant:

1. Exhibits situational awareness during the lead change.
2. Maintains correct position throughout lead change.

SUBJECT: REJOINS

TASK: PERCH AND REJOIN (2Ship)

Objective: To determine that the applicant:

1. Responds correctly to the Leads pitch out signal.
2. Smoothly breaks away in a climbing turn away from the lead.
3. Smoothly reverses and establishes Visual on the lead and calls for lead to turn or just calls “rejoining echelon L/R” for a straight rejoin.
4. Demonstrates good Turn circle appreciation and energy management in the rejoin
5. Demonstrates good safe rejoin technique.
6. Executes a safe Bug out if required.
7. Smoothly and promptly achieves the echelon position.

TASK: PITCH AND REJOIN (4 Ship)

Objective: To determine that the applicant:

8. Responds correctly to the Leads pitch out signal.
9. Breaks at the required interval and turns into trail with lead on the horizon and calls *“In”*
10. Commences the rejoin in sequence on receipt of the leads signal.
11. Demonstrates good safe rejoin technique.
12. Rejoins in sequence demonstrating the rule 4 avoids 3 who avoids 2.

13. Executes a safe Bug out if required.

TASK: OVERSHOOT/BUG OUT (sometimes termed "underrun")

Objective: To determine that the applicant:

1. Recognises the potential overshoot situation and takes appropriate action
2. Users the correct technique to safely pass below and behind the lead.
3. Stabilises outside the Leads turn circle then smoothly re initiates the rejoin.

SUBJECT: SIMULATED EMERGENCY/ABNORMALS

TASK: SIMULATED EMERGENCY

Objective: To determine that the applicant:

1. Maintains situational awareness during a simulated emergency situation
2. Is able to perform the correct supportive roll when another flight member experiences a simulated emergency.

TASK: KNOCK-IT-OFF (KIO)/TERMINATE

Objective: To determine that the applicant:

1. Takes the appropriate action when a KIO/TERMINATE call is initiated
2. Acknowledges he KIO/Terminate radio call.

TASK: BREAK OUT

Objective: To determine that the applicant:

1. Takes the appropriate action when a break out is necessary or directed.
2. Makes the proper radio call when a break out is initiated

TASK: INITIAL AND PITCH

Objective: To determine that the applicant:

1. maintains precise station during the run in.
2. Pitches at the correct interval using the same cadence as all others ahead.
3. Makes the appropriate ATC or traffic advisory radio calls
4. Rolls out precisely behind the lead with the lead on the horizon.
5. Turns at the correct base turn point.
6. Monitors all formation members "3 greens" call.
7. Touches down at the correct point on the runway.
8. Calls "stable" if required.

TASK: ELEMENT LANDING TBA (n/a for tailwheel aircraft)

Objective: To determine that the applicant:

1. Flies the precise position during gear and Flap changes
2. Ensures correct vertical position throughout the approach (doesn't get low)
3. When appropriate verifies flight path will result in landing on the correct half of the rwy.
4. After touch down ensures deceleration so as not to pass the lead.
5. Calls “stable” if required allowing lead to move into wingman's runway half.

TASK: ELEMENT GO-AROUND TBA (n/a for tailwheel aircraft)

Objective: To determine that the applicant:

1. Executes the Go around in a smooth coordinated and predictable manner.
2. Maintains correct position throughout Go Around and re configuration.

SUBJECT: COMMUNICATION

TASK: EXECUTION

Objective: To determine that the applicant:

1. Responds correctly to all radio calls.
2. Recognises and responds correctly to Hand signals (not mandatory AWAL signals).
3. Recognises and responds correctly to Aircraft signals.

TASK: FREQUENCY CHANGE

Objective: To determine that the applicant:

1. Uses proper check-in/check-out procedures during frequency changes
2. Eases formation position if required as necessary to accomplish the frequency change safely

SUBJECT: POST FLIGHT OPERATIONS

TAXI, ENGINE SHUTDOWN

Objective: To determine that the applicant:

1. Configures the aircraft correctly and maintains correct distance from preceding aircraft.
2. Performs the engine shut down and run up as briefed or signalled by the lead.
3. Secures the aircraft as required

DEBRIEF

Objective: To determine that the applicant:

1. Is attentive and when the case arises contributes meaningful information.
2. Accepts creative criticism with appreciation and understanding.
3. Demonstrates maturity and objectivity and appreciates his/her responsibilty to maintain the integrity of the flight.

CERTIFICATION

Following the check ride if the candidate is is successful the Check pilot will complete the on line Form and certify the candidate as a 2 Ship Wingman (W2) or a 4 ship Wingman (W4).