

## **TEST PROFILE: Approach behaviour and network validation (Gen. Av.)**

### Preliminary brief for participants:

To be read out to each participant before entering the flight simulator and included in print with the informed consent form.

*“You are the pilot in command of this light aircraft and all decisions are yours to be made as if in command of your own aircraft on a ‘typical’ flight. Following an introductory circuit during which you can become familiar with the controls, you will fly a series of 6 approaches to the same runway. This first circuit is not being recorded for the purposes of this research. Each subsequent sequence is simulating the first approach to an airfield at the end of a flight. Each sequence will begin from a point on the final approach with the simulation frozen. When you are ready to continue, the simulation will begin and continue until you are told that the sequence is at an end. If you do decide to land from any sequence please land as short as possible and stop as near to the threshold as possible. After each sequence there is a short questionnaire to be completed; be completely honest in your responses. You will not be judged on your performance, no person outside of this laboratory will see details of your performance and we are unable to provide feedback on your flight.*

*Do you have any questions?”*

It will not be possible to answer questions relating to the end of a sequence as it may lead the pilot to use a go-around or continue with what will be an unsuccessful landing.

### Non-experimental task:

#### Task A

1. Initial Point: threshold of Taxiway at LGW, 0ft AMSL, hdg 080°, 0 KIAS.
2. Free-exercise to complete circuit and familiarise pilot with the aircraft. Following this allow 3 practice approaches to the taxiway to become familiar with task.
3. Identify with the participant approach and landing speeds as follows:  
 $V_{ref} = 65$       $V_t = 55$       $V_{fe} = 80$

### Experimental tasks:

#### Task 1

1. Initial Point: 1nm finals for Taxiway at LGW, 600ft AMSL, hdg 080°, 80 KIAS.
2. Continue approach and aim for any landing within specified preferred landing zone (PLZ).

3. Measure normal axis impact force and distance from 08R threshold that landing occurred.

#### Task 2

1. Initial Point: 1nm finals for Taxiway at LGW, 800ft AMSL, hdg 080°, 90 KIAS.
2. Continue approach and aim for any landing within specified preferred landing zone (PLZ).
3. Measure normal axis impact force and distance from taxiway threshold that landing occurred.

#### Task 3

1. Initial Point: 1nm finals for taxiway at LGW, 1000ft AMSL, hdg 080°, 100 KIAS.
2. Continue approach and aim for any landing within specified preferred landing zone (PLZ).
3. Measure normal axis impact force and distance from taxiway threshold that landing occurred.

#### Brief for participants before Tasks 4-6 (in any order):

*“For the remaining 3 landing tasks you are required, as pilot in command of this aircraft, to avoid at all costs from making a heavy landing. A heavy landing is one described as being uncomfortable for your passengers, causing excessive bounce on touchdown, or, in danger of damaging your aircraft in any way.”*

#### Task 4

1. Initial Point: 1nm finals for taxiway at LGW, 600ft AMSL, hdg 080°, 80 KIAS.
2. Continue approach and aim for any landing within specified preferred landing zone (PLZ) but NO hard landings may be carried out (specify exact definition).
3. Measure normal axis impact force and distance from taxiway threshold that landing occurred.

#### Task 5

1. Initial Point: 1nm finals for taxiway at LGW, 800ft AMSL, hdg 080°, 90 KIAS.
2. Continue approach and aim for any landing within specified preferred landing zone (PLZ) but NO hard landings may be carried out (specify exact definition).
3. Measure normal axis impact force and distance from taxiway threshold that landing occurred.

Task 6

1. Initial Point: 1nm finals for taxiway at LGW, 1000ft AMSL, hdg 080°, 100 KIAS.
2. Continue approach and aim for any landing within specified preferred landing zone (PLZ) but NO hard landings may be carried out (specify exact definition).
3. Measure normal axis impact force and distance from taxiway threshold that landing occurred.

Order of Tasks for participants:

Participant	Order of Tasks (Pseudo-random)
1	123456
2	132456
3	213456
4	132654
5	132645
6	123645
7	321546
8	321465
9	321564
10	321654
11	321645
12	312546
13	312465
14	312564
15	312654
16	312645
17	231546
18	231465
19	231564
20	231654
21	231645
22	213546
23	213465
24	213564
25	213654
26	213645
27	132546
28	132465
29	132465
30	132564

Data collection required:

1. Touchdown point
2. Distance from threshold where aircraft fully stopped
3. Normal-axis force of impact upon touchdown
4. Results from workload questionnaire

All quantitative data to be stored in the datalogs for graphical and statistical analysis at a later date.

Post-experimental brief for participants:

*“That concludes the simulations for this research. Thank you for your participation and if you have any questions please let us know. We would appreciate it if you did not discuss the experiments with peers at this time so as not to influence their behaviour in the simulation studies.”*

Ensure participant has completed 6 questionnaires. Save all data twice.