MULTIPLEX®

Royal Pro/Sx – Tutorial – No3 Flight Phases

Revision 1

23rd Jan 2016

Royal Pro/Sx – Flight Phases

This tutorial runs through the use of the Flight Phases on the Royal Pro/SX, it will be in 5 sections

1 – Flight Phases, features and uses

2 – Setting up and naming flight phases

3 – Trim, Control throws and expo

4 – Use in mixers

5 – Other

Royal Pro/Sx - Mixers

1 – Features and uses

Flight phases enable the user to have variable settings on one model which are selectable in flight

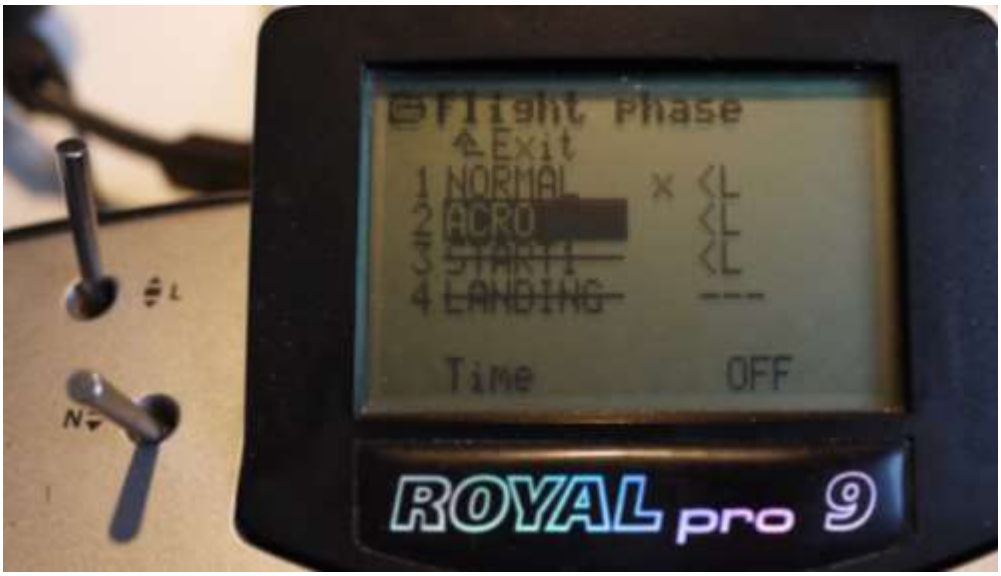
- The Royal Pro/Sx can have upto 4 flight phases
- The following parameters can be adjusted for each flight phase.
    - Aileron , Elevator, Aileron control throw and exponential
    - Spoiler and Flap positions can be fixed per flight phase
    - Aileron differential and aileron/rudder mix percentage
    - Gyro control
    - Control mix percentage

Note: Flight phases cannot be used to activate a mix in the control mixers, but this can be accomplished by assigning the same switch to flight phase and mix.

Royal Pro/Sx – Flight Phases
2 –Setting up and Naming

In the folder (PQR6) memory menu, scroll down and select Flight phase

In this menu the various flight phases can be activated, by scrolling down to the relevant flight phase and then enter and select the flight phase you wish to name and then scroll to the name you wish to assign to that flight phase, once the name isn't crossed out then the flight phase is active. Note here switch L has been assigned to flight phase 1 to 3. Flight phase 4 isn't used, but if a switch was assigned to this it would be the main flight phase and when selected be the active phase regardless of the position of switch L



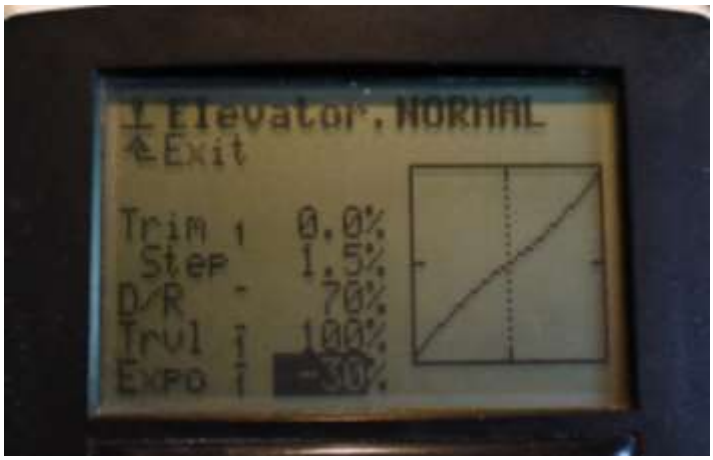
Royal Pro/Sx – Flight Phases
2 –Setting up and Naming

Note the transition time between flight phases can also be set in 1 second intervals upto 4 seconds. This is useful to transition smoothly between the different flight phase settings, especially if fixed values have been assigned to flaps or spoilers.

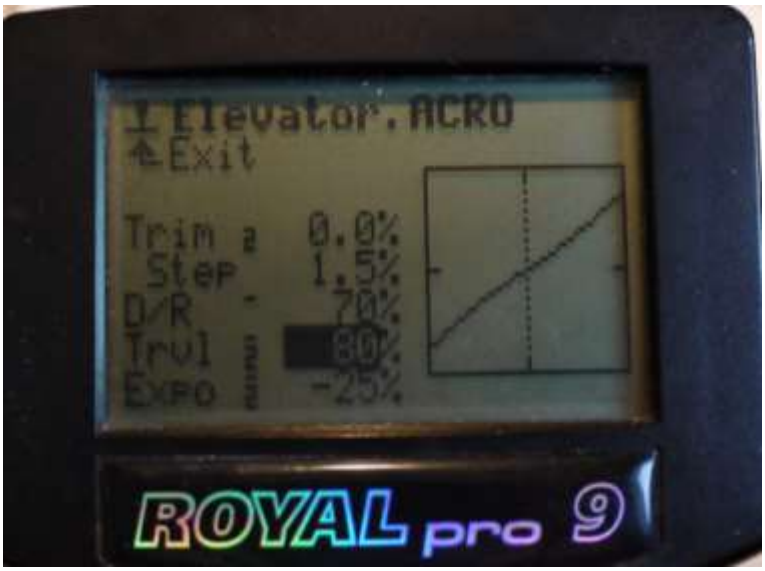
In the switch assignment menu, under setup (ABC1) the switch for phases 1-3 and main phase (flight phase 4) can be assigned

Royal Pro/Sx – Flight Phases
3 –Setting Control Travel and Expo

In the control menu (DEF2), the travel and exponential can be set for each flight phase, by selecting the required flight phase and then adjusting the required parameter, note the flight phase name is shown at the top beside the control name and the flight phase number by the parameter which can be adjusted. Note that trim is flight phase specific, so adjusting the trim in a flight phase adjusts it for that flight phase only, so during initial trimming of a model it will need to be trimmed for each flight phase. Note also that the Dual Rate and trim step are common to all flight phases, here on flight phase 1, NORMAL, travel is at 100%, exponential -30% .



In flight phase 2 ACRO, travel is reduced to 80% and exponential to -25%. Note that the dual rate, common to all phases, is set at 70%, this means in flight phase 2 if the dual rate is activated the total travel will be 70% of 80% (i.e. approx 56% the total travel).



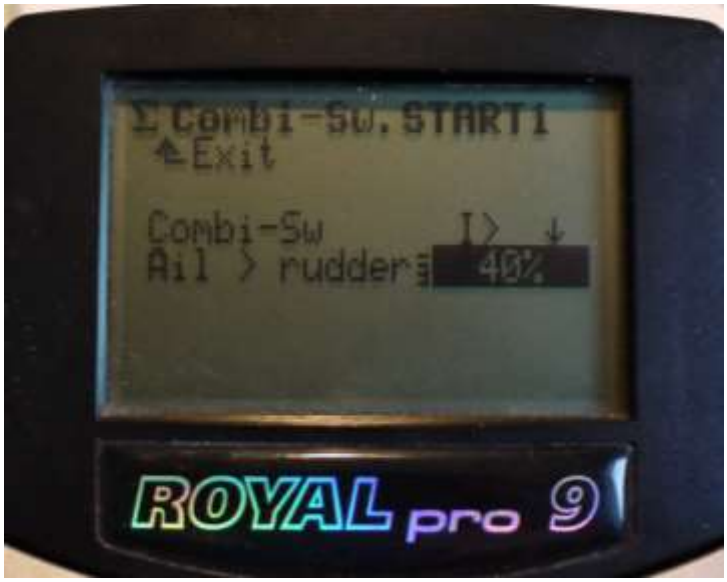
Royal Pro/Sx – Flight Phases
4 –Use in Mixers

In the Mixer menu (GHI3), the mixer input can be set for each flight phase for aileron differential, aileron-rudder mix and the 2 control mixes, by selecting the required flight phase and then adjusting the percentage, note the flight phase name is shown at the top beside the control name and the flight phase number by the parameter which can be adjusted. Here in flight phase 2, ACRO, the aileron differential is set to off.

In flight phase 3 ACRO, 30% differential has been introduced, note the mode is +Spoiler, which differential is suppressed when the spoilers are deployed, note that this setting is not flight phase specific and if set in one phase it will be common to all phases.

Royal Pro/Sx – Flight Phases
4 –Use in Mixers

Similarly the Aileron-Rudder mixer input can be set for each flight phase as for aileron differential, by selecting the required flight phase and then adjusting the percentage, note the flight phase name is shown at the top beside the control name and the flight phase number by the parameter which can be adjusted. Here in flight phase 3, START1, the aileron-rudder mix is set to 40%, note the aileron-rudder mix can be switched on or off by switch I as selected in the switch assignment menu, if no combi switch has been specified the mix is always active as specified by the flight phase percentage



In the control mix, the percentage mix can also be specified for each flight phase, here the mix is to mix elevator to flap, and in flight phase 2 , ACRO, 25% has been specified, note that Mx1, switch N has been selected as the on/off for this mix, if no switch has been selected the mix is always active

Royal Pro/Sx – Flight Phases
5 – Other

A useful feature in the control menu (DEF2) is the ability to fix the input for spoilers, flaps and gyro, this means that the control input in that flight phase is fixed and that control has no effect. This can be used to lock the setting of flaps, spoiler or gyro in certain flight phases, and stop the control input from having any effect. Here the spoiler input is set to off in flight phase 3, START1, this means that the spoiler control is active and a control surface that uses input either directly if via a mix will respond to the control

In flight phase 2, ACRO, the spoiler input has been fixed at 70%, this means the spoiler input to any control surface , either directly of via a mixer, is fixed at 70% and hence won't respond. This is useful to prevent inadvertent activation of a surface until you are in the required flight phase. Note a time of 2 seconds has been specified, this means that the transition between the fixed position in flight phase 2 and the control position in flight phase 3 will take place over 2 seconds, useful to prevent abrupt changes in flight if the control input is in the wrong position when you change flight phases, a time upto 6 seconds can be selected in 0.1 second intervals

Royal Pro/Sx Mixers

That concludes the mixers, further presentations are being prepared on

- Timers
- Setting up and using Digi adjusters
- Buddy box set up
- Telemetry