

Runway Status Lights (RWSL) - Training Scenario 2

Multiple Line-Ups Take-Off & Crossing Scenario (Under Nominal Conditions)



The **Scenario 2** show the behaviour of the **RWSL** system on the **RWY 27L** and its vicinity. This scenario illustrates how the **THL** and the **REL** systems work under runway multiple line-ups take-off and crossing. The most important thing to watch here is the **THL** behaviour:

- When **Airplane 1** is lining up, nothing happens because no one else is moving close to the **RWY** at this time.
- Then **Airplane 2** lines up ahead of **Airplane 1**, preventing **Airplane 1** from taking off; so the **THL** turns **ON** but only in front of **Airplane 1**.
- Then, two other airplanes start crossing the runway, so the **THL** is turned **ON** in front of **Airplane 2** as well, to prevent it from taking off.
- When those two airplanes have vacated the **RWY**, **THL** is turned **OFF** in front of **Airplane 2**.
- When **Airplane 2** begins its take-off roll, full **THL** in front of **Airplane 1** turns **ON**.

The scenario has been planned with two crossing cases, once two airplanes have already been lined up on the **RWY** (demonstrating the **THL** system) and then, with one take-off case when another airplane is lined-up (demonstrating the **THL** and the **REL** systems) and, finally, with another standard take-off (demonstrating the **REL** system).

Four airplanes are involved in the sequence of events (two airplanes crossing the **RWY 27L** and two airplanes taking-off).

The illustrated cases are the following:

- Multi lined- ups
- **RWY 27L** crossing with multi lined- ups, take-off
- Take-off under normal conditions

In this scenario, **Airplane 1** has been cleared to line- up on the **RWY 27L** via **Q5 TWY**. Once **Airplane 1** is lined up on the **RWY 27L**, **Airplane 2** is also cleared to line-up on the **RWY 27L** via **Q4 TWY**. When **Airplane 2** starts with the line-up procedure, the **Q5 THL** first segment turns **ON**. After **Airplane 2** has finished with the line-up, another two airplanes (**Airplane 3** and **Airplane 4**) located respectively at holding points **K2** and **K3**, are cleared to cross in parallel the **RWY 27L**. Once the **Airplane 3** starts with the crossing procedure, the **THL** in front of **Airplane 2** turns **ON**. When the last crossing airplane (**Airplane 4**) vacates the **RWY 27L**, the **THL** in front of the **Airplane 2** turns **OFF**. **Airplane 2** is cleared for take-off and it begins the take-off roll. During **Airplane 2's** take-off maneuvering, the full **THL** in front of **Airplane 1** is turned **ON** when **Airplane 2** passes abeam **K7/Q3**, until reach about 450 meters of **THL** length. As soon as **Airplane 2** is airborne, the **THL** turns **OFF**. **Airplane 1** is cleared for take-off and it begins its take-off roll.

During each take-off procedure, the **RELS** in front of each airplane are turned **ON**, and each **REL** is turned **OFF** anticipating the pass of the airplane for each intersection.



RELS that are **ON** (illuminated red) indicate that the runway ahead is not safe to enter or cross. **THLs** that are **ON** (illuminated red) indicate that the runway is not safe for takeoff. RED MEANS STOP! Pilots should remain clear of a runway when an **REL** along their taxi route is illuminated. Pilots should not takeoff when a **THL** on the runway ahead is illuminated.