

# S2 – Tower Controller

Jinnah Int'l Airport – Karachi ( OPKC )

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Pakistan vACC



# Introduction:

The next stage in your controlling at Karachi as a tower controller is S2 rating.

To be an S2 Controller in Karachi, we have to learn the tower procedures.

This is same as ground controlling, but only there's addition of one more responsibility, you are responsible to control both live runways.

You are also responsible for VFR traffic, whether they are entering, leaving or transiting your airspace, or whether they are performing circuits.

Your airspace as Karachi Tower goes from 0 feet to 3000 feet. 1500ft is the height at which the VFR traffic will fly at.

Like how we talked about the runway selection in S1 training, when tower is online they will decide what runway is in use.

## **Runway 25L/R Operations:**

If the wind is between 150 - 360 degrees and wind is greater than 7 knots, then 25L and 25R will be in use.

## **Runway 07L/R Operations:**

If the wind is between 360 - 150 degrees and wind is greater than 7 knots, then 07L and R will be in use.

## **Single Runway Ops:**

OPKC has 2 Runways, but mostly only one is used, the preferred runway at Karachi is RWY 25L / 07R . However, if traffic exceeds the capability for single runway ops, both runways can be made active with coordination with upper controllers.

# 1. Takeoff:

A new thing that you will be doing on tower is to clear an aircraft for takeoff. This is simply as saying:

“PIA204, Surface Winds 210/05kts, RWY 25L, Cleared for takeoff”

That clears an aircraft to enter the runway and then takeoff.

Sometimes you may see some more traffic departing, so what you can do is, Make one aircraft depart, and ask the next one to lineup if the runway is only operational for departures. It will be discussed in the later section of the document.

## 2. Departure Separations:

As tower controller, we are responsible for separation between two aircrafts on departure. So if one departs, we inform the next one to hold at the holding point of the runway to avoid any conflicts. When the departing traffic is at a good height/distance, we give the takeoff clearance to the next aircraft.

We need to learn “**Wake Turbulence Separation Minima**”.

### **What is Wake Turbulence?**

Ans. Wake turbulence is a turbulence that forms behind an aircraft as it passes through the air, causing wingtip vortices.

### **Radar Wake Turbulence Minima:**

We need to see the following distance based wake turbulence minima and it shall be applied to aircraft being provided with takeoff or landing phases of the flight.

<b>Succeeding Aircraft</b>	<b>Behind</b>	<b>Preceding Aircraft</b>	<b>Separation Minima</b>
Heavy	Behind	Heavy	4 NM
Medium	Behind	Heavy	5 NM
Light	Behind	Heavy	6 NM
Light	Behind	Medium	5 NM

These separation minima shall be applied when an aircraft is operating directly behind another aircraft during departure phase, or when both aircraft are using the same runways for departure.

### 3. Conditionals for departures:

Like as a ground controller, when you give conditionals to cross aircraft across runways, you can do the same with aircraft waiting to depart.

Once one aircraft is departing, you can line up the other aircraft like this:

“PIA224, Behind departing traffic, Emirates B77W, line up Runway 25L and wait behind”

Make sure that you mention “BEHIND” twice so that pilot will know that they have to line up and wait once the aircraft has departed.

Similarly:

“PIA 224, Behind Landing traffic Oman Air B737, line up Runway 25L and wait behind.”

## 4. Landing Clearances:

As a tower controller, you have control of the live runways, you have to clear aircraft to land at runway and depart from the runway.

Phraseology is as follows:

“PIA224, Surface winds 240/12kts, Runway 25L, Cleared to land”

However, if there are a few arrivals on the ILS, you will have to say the following:

“PIA102, Surface winds 240/12kts, Continue approach Runway 25L, you’re number 3”

## 5. Landing Separations:

Separation arrival traffic is different to the separation of departing traffic.

Different aircraft have a different category, which is the referral to their size. The sizes of the aircraft will appear on the aircraft's tag as:

**H** = Heavy

**M** = Medium

**S** = Small

**L** = Light

**S** = Super

Just to take into account that, minimum radar separation below FL200 will be 5 NM.

## 6. VFR ( Visual Flight Rules ):

As mentioned in the introduction, as a Tower controller , you will be responsible for VFR traffic.  
The VFR Squawk Range at Karachi is 2310-2337.

- **Entering The Zone:**

So, for the aircraft to enter the zone, you will clear them as follows:

“AP-BJG, Cleared to enter Karachi controlled zone, not above 1500ft, VFR, Squawk 1200”

Once they read-back correct:

“AP-BJG, Read-back correct, Karachi QNH 1003, report when entering zone”

Once they have reported:

“AP-BJG, enter left hand downwind for runway 25L/R”

- **Leaving The Zone:**

So, now you need to know the phraseology to leave the control zone. It is as follows:

“AP-BJG, Cleared to leave Karachi controlled zone to the (north) or (south) not above 1500ft , Squawk 1200”



- **VFR Circuits:**

VFR Circuit is when the pilot in general aviation wants to perform circuits aerodrome, known as circuit or a pattern.

We use 25R/07L for VFR departures. The circuit pattern is right hand only (for RWY 25R), and left hand (for RWY 07L)

## 7. VFR – Circuit Clearance:

For circuit clearance, you would give the clearance to the pilot when the aircraft is at the holding point of the active runway. The clearance is as follows:

“AP-BJG, cleared right hand circuit Runway 25L, climb and maintain circuit altitude, Squawk [2310]”

Once read-back is correct:

“AP-BJG, read-back correct, Karachi QNH 1003, report ready for departure”

### **VFR Circuits Downwind & Finals:**

Once the aircraft is in the circuits, the two things you have to worry about is the aircraft reporting downwind with their intentions ( Touch and go, Full stop, etc. ) and when they are about to turn finals for sequencing.

Once they state their intentions, you would say:

“AP-BJG, report finals Runway 25R/07L, you’re number 1”

If there is some runway on finals already:

“AP-BJG, Roger, Report finals Runway 25R/07L, you’re number 2 to a Emirates B77W on 6 miles final”

When they turn onto finals, you clear them for touch and go:

“AP-BJG, Surface winds 250/7kts , Runway 25R/07R, Cleared for touch and go”

If they request for a final full stop landing, you clear them accordingly:

“AP-BJG, Surface winds 250/7kts , Runway 07L, Cleared to land”

## 8. VFR – Circuit Orbits:

Circuit orbits will be helpful if there are aircraft on the ILS and you can't fit the VFR traffic aircraft onto the sequence, then you would put them in a 360 degree orbit ( right or left ) depending upon the active runway in use until spacing becomes available.

Phraseology is as follows:

“AP-BJG, Enter left hand orbit until advised” - RWY 25R

“AP-BJG, Enter right hand orbit until advised” - RWY 07L

Once there is space, then you can say:

“AP-BJG, continue circuit, report finals for Runway 25R/07L, you're number 1”

Or

“AP-BJG, continue circuit, are you visual with Pakistani A320 on 6 miles final?”

If they are:

“AP-BJG, Roger, Report finals Runway 25R/07L, you’re number 2 to Pakistani Alpha 320 on a 6 miles final”

## 9. VFR Traffic Information:

Something that we use to notify VFR aircraft to be aware of the other aircraft is called Traffic Information.

We only use traffic information if they could become a conflict with other traffic.

We only use it in two scenarios. When there are aircraft in VFR pattern, or if there are VFR or IFR traffic departing simultaneously.

Phraseology is as follows:

VFR Pattern Traffic Information: “PIA102, Traffic information is a Cessna 172 at 1000ft, operating in the circuit, report insight”

Once they have the traffic insight:

“PIA102, Thank you, Maintain visual separation”

Simultaneous departures:

“AP-BJG, traffic information is a Pakistani A320 taking off Runway ( in use ), Maintain visual separation”

And that covers VFR.

## 10. Coordination with APP or CTR:

Tower: “Karachi Tower, Karachi Approach/Control”

Approach/Control: “Go Ahead”

Tower: “AP-BJG, has left my zone, Aircraft has been sent to you. He wants to land at Nawabshah”

Approach/Control: “Roger”

Tower: “Coordinated”

## 11. Handoff:

Once the aircraft has taken off or gone around or left your zone, you need to hand off the aircraft to the appropriate controller/stations.

Phraseology is as follows:

After Departure: "PIA224, Contact Karachi Approach 125.500"

After Aircraft vacated Runway ( after landing ): "PIA102, Vacate left when able" then: "PIA102, Contact Karachi Ground 121.600"

If aircraft is doing a go around due to some reason:

"PIA306, Climb 3000ft, maintain present heading, contact Karachi Approach 125.500"

or

"PIA 306 Climb 3000ft, follow missed approach procedure, contact Karachi Approach 125.500"

That's all which is included in S2.