General Info
St Maarten I, ANT
N 18° 02.5’ W 63° 06.6’ Mag Var: 13.9°W
Elevation: 13’
Public, Control Tower, IFR, Landing Fee, Rotating Beacon,
Customs available on a restricted basis
Fuel: 100-130, Jet A-1
Time Zone Info: Atlantic Time GMT-4:00 no DST

Runway Info
Runway 09-27 7152’ x 148’ asphalt
Runway 09  (94.7°M) TDZE 11’
  Lights: Edge, REIL
  Right Traffic
  Stopway Distance 394’
Runway 27  (274.7°M) TDZE 13’
  Lights: Edge
  Stopway Distance 262’

Communications Info
Juliana Tower 118.7
Juliana Approach Control 128.95

Notebook Info
1. INTRODUCTION
The Safedock Docking Guidance System (DGS) is an automated "parking aid" system designed to safely guide the aircraft into gate to its assigned stop-position. It accomplishes this by actively tracking the aircraft while providing the pilot real-time visual feedback of distance-to-go and azimuth guidance in relation to the centerline and stop-position.

2. SAFETY PROCEDURES

2.1 START OF DOCKING (SELF-TEST)
Upon activating the DGS for aircraft docking, a self-test and calibration check is performed to confirm docking accuracy. During this time, the display will show "WAIT".

2.2 CAPTURE (INCOMING AIRCRAFT)
The rolling arrows indicate that the SAFEDOCK is searching the gate area looking to "capture" the arriving aircraft. Check that the correct aircraft and sub-type are displayed. If not the docking may result in an ID-fail. Following this, the pilot should proceed into the gate area following the correct lead-in line or centerline.

DO NOT PROCEED PAST THE BOARDING BRIDGE CAB IF THE ROLLING ARROWS ARE NOT REPLACED BY THE "CLOSING RATE BAR". ALSO, KEEP AWARE OF ANY VISIBLE ITEMS POSING A DANGER TO THE SAFETY OF THE AIRCRAFT OR PERSONNEL ON THE GROUND.

2.3 THE SBU MESSAGE
The message STOP SBU means that docking has been interrupted due to an unexpected error or hardware malfunction and has to be resumed by manual guidance. DO NOT RESUME DOCKING UNDER DGS-GUIDANCE UNDER THIS CONDITION.

2.4 ALIGNED TO CENTER
When aligned to center, the RED direction arrows disappear indicating the aircraft is on center. The example shows the B747 aircraft 8m from the stop-position and on-center yet needing to slow down.

2.5 SLOW DOWN
If the aircraft is approaching faster than the accepted speed, the system will show SLOW DOWN as a warning to the pilot. The example now shows the B747 aircraft about 8m from the stop-position and still on-center yet needing to slow down.

3. AIRCRAFT DOCKING PROCEDURE
The following section is a detailed step-by-step approach to the stages of the docking routine indicating the typical events from start to completion.

3.1 START OF DOCKING (SELF-TEST)
Upon activating the DGS for aircraft docking, a self-test and calibration check is performed to confirm docking accuracy. During this time, the display will show "WAIT".

3.2 CAPTURE (INCOMING AIRCRAFT)
The rolling arrows indicate that the SAFEDOCK is searching the gate area looking to "capture" the arriving aircraft. Check that the correct aircraft and sub-type are displayed. If not the docking may result in an ID-fail. Following this, the pilot should proceed into the gate area following the correct lead-in line or centerline.

DO NOT PROCEED PAST THE BOARDING BRIDGE CAB IF THE ROLLING ARROWS ARE NOT REPLACED BY THE "CLOSING RATE BAR". ALSO, KEEP AWARE OF ANY VISIBLE ITEMS POSING A DANGER TO THE SAFETY OF THE AIRCRAFT OR PERSONNEL ON THE GROUND.

3.3 TRACKING
When the DGS "captures" the approaching aircraft, the rolling arrows are replaced by a "yellow" closing rate bar. At this point, the DGS has captured the aircraft and is actively tracking it. The DGS is also in the process of verifying the approaching aircraft against that selected (as shown in the display). A flashing RED arrow provides azimuth guidance and indicates the direction the pilot should steer the aircraft to the centerline.

The "closing rate bar" consists of a centerline indicator showing the aircraft in relation to the target stop-position.

3.4 CLOSING RATE
Digital countdown begins when the aircraft is 12 meters (or 40 feet) from its stop-position. When the aircraft is within this distance, the "distance-to-go" closing rate indicator decreases by about one LED-row per 1.6 foot or half-meter of movement.

Digital countdown resolution:

- 20 to 2 meters: 1 meter
- 10 to 0 meters: 0.2 meters
- 8 feet to STOP: 1 foot

The example shows the B747 aircraft 10m from the stop-position slightly off-center to the left.

3.5 ALIGNED TO CENTER
When aligned to center, the RED direction arrows disappear indicating the aircraft is on center.

The example shows the B747 aircraft 8m from the stop-position and on-center.

3.6 SLOW DOWN
If the aircraft is approaching faster than the accepted speed, the system will show SLOW DOWN as a warning to the pilot.

The example now shows the B747 aircraft about 8m from the stop-position and still on-center yet needing to slow down.

3.7 AZIMUTH GUIDANCE
Centerline guidance continues to the stop-position.

The example shows the B747 aircraft 4m from the stop-position, slightly off-center to the right.

3.8 STOP-POSITION REACHED
When the aircraft reaches its assigned stop-position, the display will show STOP with RED lights to each side.

3.9 DOCKING COMPLETED
After the aircraft is completely stopped, the OK message will be displayed.

3.10 OVERSHOOT (TOO FAR)
If the aircraft overshoots the stop-position, a TOO FAR will be displayed.

Note: The overshoot condition is usually triggered by the aircraft going more than 0.5m past the target stop-position. This may or may not create a concern for the boarding bridge to accommodate the overshoot position. The ground crew will be alerted to the situation by this message and then determine if the aircraft needs to be pushed back.
3.11 CHECKS ON MESSAGE
The “Checks On” message is displayed to indicate that the checks have been set in place to the aircraft wheels. This feature is available via button press on the Operator’s Panel to provide or supplement the ground operator’s responsibility to provide the status message to the pilot.

3.12 STOP SHORT
If the aircraft is stopped short and at a standstill but has not reached the intended stop position, the message STOP OK will be shown after a while.

4. ABNORMAL CONDITIONS
If an object is blocking the view from the SAFEDOCK DGS laser-scanning unit toward the stop position of the selected aircraft type, the system will be unable to perform the docking procedure.

When an object is detected by the laser scanning unit and the stop position for at least ten seconds, the DGS will halt the docking procedure and display a GATE BLOCK warning message. When the blocking object is removed, the docking procedure will be resumed. The same applies with an object detected in the “apron scan” area whereas the DGS will display an “APRON BLOCK” warning message. Note that the “apron scan” feature only covers the pilot’s blind spot area when the aircraft requires a right turn into the gate. See further details later in this section for more info on this.

If an unrecognizable error occurs during a docking procedure, a SBU (Safety Back up) condition exists. In this case an alternate method to guide aircraft to the stop position must be used, as the docking procedure cannot be completed. SBU stop conditions are:

(a) Hardware failure.
(b) Aircraft more than 3.5 degrees off centerline and less than 2m (6.5ft) to the stop-position.
(c) View from laser scanning unit to aircraft blocked with less than 2m (6.5ft) to the stop-position.

WARNING: An object must never be placed in front of the DGS unit and closer than 1.5 meters (or 5 feet) to the laser window. Such an object would violate proper docking performance in abnormal or non-typical conditions that may occur as follows:

4.1 WAIT
The WAIT message is displayed for various reasons and may be followed with further info. In general, it is an indication to the pilot that the DGS is not yet ready to guide or continue guiding the aircraft into the gate. The reasons may vary from startup self-testing, lost track of the aircraft, or large obstacles or personnel in the critical docking area or obstacle free zone. Basically, something that may compromise the docking or a safety concern.

When the problem is resolved or the blocking object has moved from the critical docking area, docking may continue. The DGS display must also show the “closing rate” bar and that it is back in docking mode AND tracking the aircraft.

THE PILOT MUST NOT PROCEED BEYOND THE BOARDING BRIDGE CAB UNLESS THE “WAIT” MESSAGE HAS BEEN REMOVED AND THE DGS INDICATES IT IS TRACKING THE AIRCRAFT INTO THE GATE AREA.

4.2 BRIDGE NOT IN POSITION
The “BR IN” message occurs when the Passenger Boarding Bridge (PBB) is interlocked to the DGS and is NOT safely stowed or parked in the proper parking position (or a defect in the wiring).

This message with the red-LEDs is indication to the pilot that aircraft docking MUST wait until ground personnel move the PBB into safe position away from the critical docking area.

THE PILOT MUST NOT PROCEED BEYOND THE BOARDING BRIDGE CAB UNLESS THE “BR IN” MESSAGE HAS BEEN REMOVED AND THE DGS INDICATES IT IS TRACKING THE AIRCRAFT INTO THE GATE AREA.

4.3 BAD WEATHER CONDITION (DOWN-GRADE)
During heavy fog, rain or snow, or any low visibility condition, the docking system goes into downgrade mode.

When operating at this mode, the display will deactivate the floating arrows and alternate between "DOWN GRADE" and aircraft type. The DGS will continue operation but with reduced aircraft slow-down speed.

This message will be replaced by the closing rate bar, as soon as the system detects and captures the approaching aircraft.

THE PILOT MUST NOT PROCEED BEYOND THE BRIDGE CAB UNLESS THE "DOWN GRADE" TEXT HAS BEEN REMOVED AND THE DGS INDICATES IT IS TRACKING THE AIRCRAFT INTO THE GATE AREA.

4.4 AIRCRAFT VERIFICATION FAILURE
After capture of the aircraft, the DGS checks its geometry against a stored profile. If, for any reason, aircraft verification is not confirmed at 12 meters (or 40 feet) before the target stop-position, the display will show STOP followed by ID FAIL (alternating on the upper row of the display).

If the DGS is re-activated for the same aircraft type, docking can resume without aircraft verification. Note that such re-activation should be done only after the ground crew has verified the correct aircraft type.

THE PILOT MUST NOT PROCEED BEYOND THE BOARDING BRIDGE CAB WITHOUT MANUAL GUIDANCE, UNLESS THE DOCKING HAS BEEN RE-ACTIVATED AND THE DGS INDICATES IT IS TRACKING THE AIRCRAFT INTO THE GATE AREA.

4.5 GATE BLOCKED
If an object is found blocking the view from the DGS to the planned stop position for the aircraft, the docking procedure will be halted with a GATE BLOCK message. The docking procedure will resume as soon as the blocking object has been removed.

The “Gate Block” area covers the general scanning area of the approaching aircraft and where the aircraft body will be when parked as well as the area between the DGS and those points. In general, the message is provided by large obstacles interfering this scanning area. This feature does not look for smaller interfering items on the apron.

THE PILOT MUST NOT PROCEED INTO THE GATE AREA WITHOUT MANUAL GUIDANCE, UNLESS THE “WAIT/GATE/BLOCK” MESSAGE HAS BEEN REMOVED AND THE DGS INDICATES IT IS TRACKING THE AIRCRAFT INTO THE GATE AREA.

4.6 VIEW BLOCKED
If the view towards the approaching aircraft is hindered, for instance by dirt on the window, the DGS will report a View Blocked condition. If the system is able to see the aircraft through the dirty window, the message will be replaced with a closing rate display.

The difference between the “View Block” and the “Gate Block” feature is that the “View Block” feature looks for interference within 2m of distance from the laser and the “Gate Block” feature looks for interference past this distance.

THE PILOT MUST NOT PROCEED INTO THE GATE AREA WITHOUT MANUAL GUIDANCE, UNLESS THE WAIT MESSAGE HAS BEEN REMOVED AND THE DGS INDICATES IT IS AGAIN TRACKING THE AIRCRAFT INTO THE GATE AREA.

4.7 TOO FAST
If the aircraft approaches with a speed higher than the docking system can handle, the message STOP (with red squares) and TOO FAST will be displayed.

The aircraft docking must be re-started or the docking procedure completed by manual guidance.

THE PILOT MUST NOT PROCEED BEYOND THE BOARDING BRIDGE CAB WITHOUT MANUAL GUIDANCE, UNLESS THE DOCKING HAS BEEN RE-ACTIVATED AND THE DGS INDICATES IT IS TRACKING THE AIRCRAFT INTO THE GATE AREA.
4.8 ANOMALOUS ERROR, SBU-STOP
Any anomalous or unrecoverable error during the docking procedure will generate a SBU condition. A manual backup procedure must be used for docking guidance.

Note: An SBU-Stop may be followed by another error related to a hardware failure or other anomalous event.

The pilot must follow manual guidance into the gate when the DGS display is in this condition.

4.9 ERROR CONDITION
Any error that occurs during the DGS operation will generate an error message with an error code in the main display. Errors that occur during aircraft docking may be proceeded with an “SBU” message.

The pilot must follow manual guidance into the gate when the DGS display is in this condition.

4.10 EMERGENCY STOP
If the Emergency Stop button is pressed (by the ground operator), the display will show STOP with red lights to each side.

The ground crew may activate this button to indicate a dangerous condition that requires aircraft motion to stop and not continue its approach into the gate.

The pilot should stop the aircraft at any time the stop message is displayed during DGS docking guidance then follow manual guidance.

4.11 NON-OPERATIONAL CONDITION
Should there be a hardware failure that interferes with the DGS ability to operate, the display will go blank with red lights to each side. In such cases, the DGS cannot be used until the hardware failure has been resolved.

The pilot must follow manual guidance into the gate when the DGS display is in this condition.

4.12 NO POWER (OR POWER FAILURE)
When the DGS is powered off, or in the case of a power failure, the display will be shown as completely black. Until power is restored, any aircraft shall be marshalled-in or towed-in to the gate.

The pilot must follow manual guidance into the gate when the DGS display is in this condition.
Traffic entering, transiting or operating within TMA contact Juliana Approach on 128.95.

All propeller driven general aviation aircraft shall make use of the general aviation ramp via taxiway DELTA unless otherwise instructed by ATC.

All jet aircraft landing Rwy 09 when using mid-field turning bay for 180° turn and landing Rwy 09 shall roll out to the end of the runway, make use of the turning bay and make all turns to the right.

All jet aircraft B767 category and heavier shall make use of the general aviation ramp via taxiway DELTA unless otherwise instructed by ATC.

Landing Rwy 27 at night prohibited, VMC by day.

1. Landing Rwy 27 at night prohibited, VMC by day.  2. Final approach track is offset 3° from runway centerline.
**ST MAARTEN I, NETH ANTILLES**

**CAT C & D**

**VOR Rwy 09**

**PRINCESS JULIANA INTL**

<table>
<thead>
<tr>
<th>VOR</th>
<th>Final Apch Crs</th>
<th>MDA(H)</th>
<th>Apt Elev</th>
</tr>
</thead>
<tbody>
<tr>
<td>PJM</td>
<td>091°</td>
<td>620'</td>
<td>1500'</td>
</tr>
</tbody>
</table>

**MISSING ACPH:** Upon reaching MDA(H) immediately turn RIGHT climbing on 180° heading to 1500' within 10 NM, return to reach PJM Lctr at 2500'.

**PRINCESS JULIANA INTL**

1. Landing Rwy 27 at night prohibited, VMC by day.

**LCTR**

Upon reaching MDA(H) immediately turn RIGHT climbing on 180° heading to 1500' within 10 NM, return to reach PJM Lctr at 2500'.

**MAP at VOR**

**STRAIGHT-IN LANDING RWY 09**

**SHORT-PERIOD**

**CIRCLE-TO-LAND**

**MDA(H)**

**CAT C:** 950' (937')

**CAT D:** 970' (957')

**NOT APPLICABLE**

**CIRCLE-TO-LAND**

**STRAIGHT-IN LANDING RWY 09**

**CAT C:** 4500m

**CIRCUIT**

**ST MAARTEN I, NETH ANTILLES**

**LOCATOR Rwy 09**

**PRINCESS JULIANA INTL**

1. Landing Rwy 27 at night prohibited, VMC by day.

**LCTR**

Upon reaching MDA(H) immediately turn RIGHT climbing on 180° heading to 1500' within 10 NM, return to reach PJM Lctr at 2500'.

**MAP at VOR**

**STRAIGHT-IN LANDING RWY 09**

**SHORT-PERIOD**

**CIRCLE-TO-LAND**

**MDA(H)**

**CIRCUIT**

**ST MAARTEN I, NETH ANTILLES**

1. Landing Rwy 27 at night prohibited, VMC by day.

**LCTR**

Upon reaching MDA(H) immediately turn RIGHT climbing on 180° heading to 1500' within 10 NM, return to reach PJM Lctr at 2500'.

**MAP at VOR**

**STRAIGHT-IN LANDING RWY 09**

**SHORT-PERIOD**

**CIRCLE-TO-LAND**

**MDA(H)**

**CIRCUIT**

**ST MAARTEN I, NETH ANTILLES**

1. Landing Rwy 27 at night prohibited, VMC by day.

**LCTR**

Upon reaching MDA(H) immediately turn RIGHT climbing on 180° heading to 1500' within 10 NM, return to reach PJM Lctr at 2500'.

**MAP at VOR**

**STRAIGHT-IN LANDING RWY 09**

**SHORT-PERIOD**

**CIRCLE-TO-LAND**

**MDA(H)**

**CIRCUIT**