VATSIM's Kingston FIR

Standard Operating Procedures Vol. I

Operations Manual *(OPMAN)*

Jamaica TMA

1. Introduction

1.1 Training Director's Greeting

Dear Kingston FIR Controller,

Welcome to our Jamaica Operations Manual (SOP #1). Together with the Area Radar OPMAN (#3) and Cayman Islands OPMAN (#2), this manual is one-third of the official SOPs for the Kingston FIR. As such, this document, along with the other Operational Manuals, is an authoritative source on procedures and phraseologies for all Kingston FIR controllers.

This particular OPMAN covers all students/controllers from the S1 through S3 ratings. It covers all GND, TWR, and APP positions in Jamaica. This volume will serve as the reference material for any instructor or mentor training a student in Jamaica. Mastery of this material is the goal for a trainee.

No single OPMAN nor the entire SOP suite can cover every scenario one will encounter on VATSIM. However, once one masters the standards of his positions, it becomes easier to compromise and improvise the way an excellent controller does.

Until the Kingston FIR hires its next Instructor, all inquiries and questions related to the content of this document should be directed to the Training Director (training@kingston.vatcar.org) or in their absence, VATCAR3.

Your humble servant,

Gray Taylor
Kingston FIR (Virtual)

1.2 Change Log

Figure 1A: Document Change Log

AUG 2 2018:	✓ Converted OPMAN source final to MS Word for compatibility. .
APR 5 2018:	✓ Updated IFR logo is added. Various small edits.
MAR 9 2018:	✓ Amended the Kingston ACC frequency. ILS/DME approach runway 07 is re-activated.
JAN 1 2018:	✓ Change log added. Jamaica MVA diagram added.
NOV 1 2018:	✓ Master file converted successfully to Microsoft Word format.
FEB 15 2019:	✓ Document is updated to reflect changes from the 1902 AIRAC cycle.
FEB 25 2019:	✓ Added Section 1.6 “Table of Phraseology”
MAR 7 2019:	✓ Added Standard Minimums, other small changes
MAY 3 2020:	Document is updated to reflect changes from the 2005 AIRAC cycle.

1.3 Table of Contents

1.4 Significance

This OPMAN is an operational document approved by VATCAR3 (or higher) per divisional policy. As such, this document (along with SOP Volumes 2 and 3) have supremacy over all other network policy documents covering the same content. VATCAR training documents (used to study for Rating advancement exams) might contain operational and phraseological guidelines which somewhat contradict those of the OPMAN(s). If there is a phraseological or operational scenario NOT covered by one of our OPMs, controllers should defer first to the VATCAR training documents and then to the real-world ICAO documents (if not first clarified by a Kingston FIR Staff member).

1.5 Structure

The chapters of this volume consist in 4 elements:

a) Description of procedures and policies
b) Tables, Charts, Graphs, and other visual organization aids
c) Phraseology, complete
d) Example scenarios to illustrate the application of both procedure and phraseology

Some examples include a flight plan for the aircraft in the scenario. Some examples, however, are isolated phraseologies which don't require the context of a full flight plan.

1.5.1 Flight Plan (Example) Legend

Figure 1B: Flight Plan (Example) Legend

CALLSIGN - FLIGHT RULES			A/C TYPE/EQUIP
JBU1627 - IFR			**A320/L**
CITYPAIR	**CFL**	**Filed Route**	
MKJP - KFLL	**380**	**AMEKO1 BEMOL UNV UB760 BORDO B760 MENDL B760 LEEVI B760 ZBV**	
DEP APT - ARR APT	**CRUISE**	**ROUTING**	

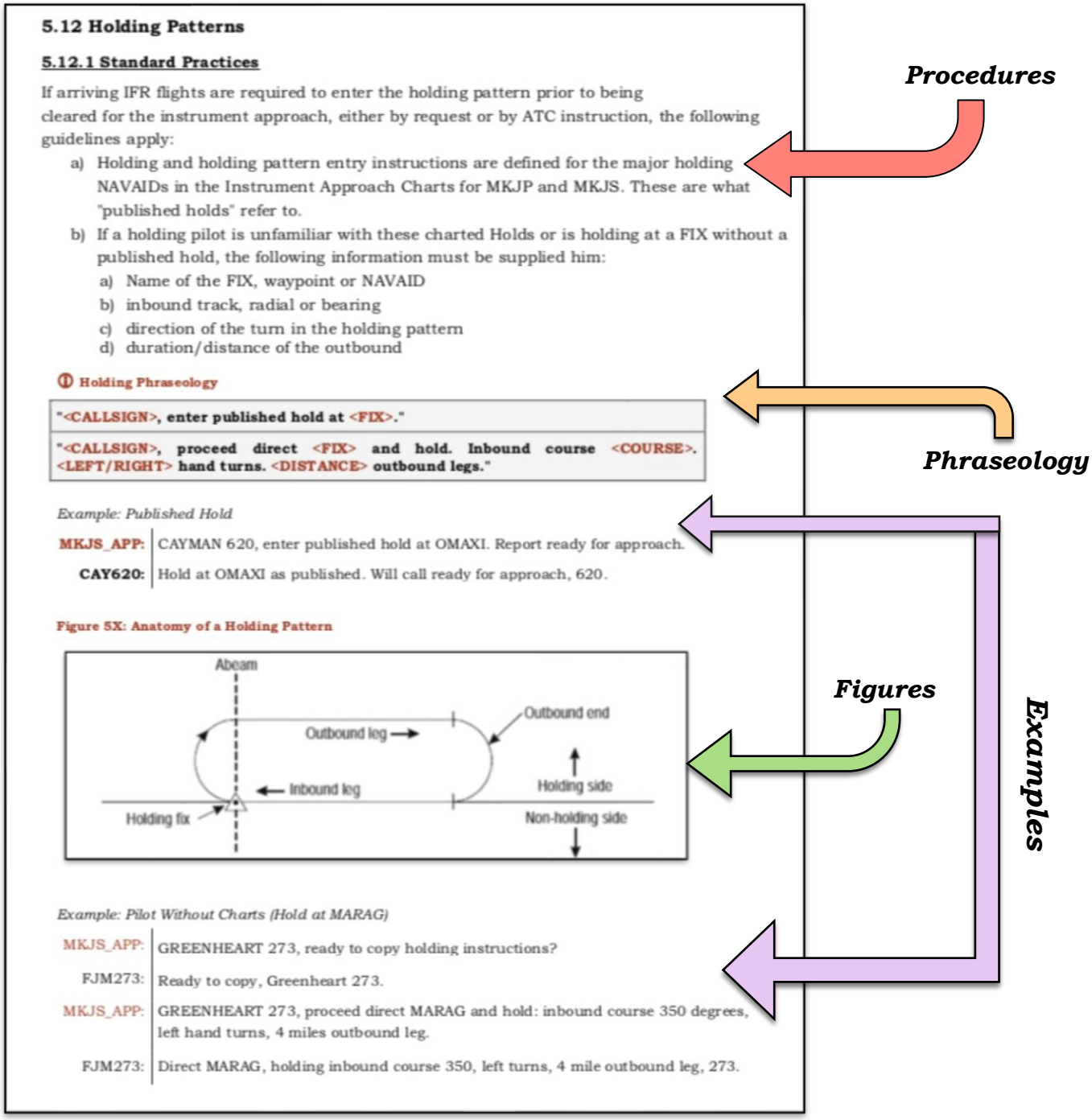
1.5.2 Example Notes

Please keep the following minutiae in mind regarding these example flight plans and accompanying dialogue:

- An "A" in the CFL (cruise flight level) represents an altitude ("A075" = 7,500 ft)
- Some dialogue sections in these examples may end or begin abruptly out of context. This is to shorten the document and make sure examples and phraseological content only apply to their particular section. These abrupt beginning**s** and ends will not muddy your understanding but only save you reading time.
- Some examples consist ONLY of a flight plan or ONLY of a dialogue, when the other is inconsequential to the concept being explained.

1.5.3 Document Legend

Figure 1C: OPMAN Legend



Note: The above symbol (a semi-translucent red stick) is used in the dialogue sections of many of our examples. The symbol simply indicates a break in the dialogue between pilot and controller until the next time they need to speak to eachother.

1.6 Table of Phraseology

2. Universal Standards & Services

2.1 Phonetic Alphabet

Table 2A: Phonetic Alphabet

Letter	Phonetic Equivalent	Pronounced As
A	*ALFA*	*AL fuh*
B	*BRAVO*	*BRAH voh*
C	*CHARLIE*	*CHAR lee*
D	*DELTA*	*DELL tah*
E	*ECHO*	*ECK oh*
F	*FOXTROT*	*FOKS trot*
G	*GOLF*	*GOLF*
H	*HOTEL*	*hoh TELL*
I	*INDIA*	*IN dee ah*
J	*JULIET*	*JEW lee ett*
K	*KILO*	*KEY loh*
L	*LIMA*	*LEE mah*
M	*MIKE*	*MIKE*
N	*NOVEMBER*	*No VEM ber*
O	*OSCAR*	*OSS cah*
P	*PAPA*	*pah PAH*
Q	*QUEBEC*	*kuh BECK*
R	*ROMEO*	*ROW me oh*
S	*SIERRA*	*see AIR ah*
T	*TANGO*	*TANG oh*
U	*UNIFORM*	*YOU nee form*
V	*VICTOR*	*VIK tah*
W	*WHISKEY*	*WISS key*
X	*X-RAY*	*ECKS RAY*
Y	*YANKEE*	*YANG key*
Z	*ZULU*	*ZOO loo*

2.2 Speech Technique

Correct enunciation of words, spoken at a uniform rate in a voice pitched somewhat higher than normal but preserving the rhythm or ordinary conversation will do much to assist satisfactory reception of mechanically reproduced speech. Microphones and handsets are directionally functioning and controllers should therefore speak directly into them. To avoid clipped transmission, particularly where the transmitter is remotely located, it is important to depress the transmit switch fully before speech is commenced and to avoid returning it before the transmission is completed. Controllers should endeavor to use clear concise sentences devoid of such obvious faults as hesitation.

2.3 Basic Terminology

The phraseology in this document is based on the standards and recommended practices contained in ICAO Annex 10, Volume 2, and ICAO PANS-ATM, Doc. 4444.

Table 2B: Aircraft Callsign Transmission

Callsign	Transmitted As
AVA238	AVIANCA TWO THREE EIGHT
CAY792	CAYMAN SEVEN NINER TWO

Table 2C: Flight Level & Altitude Transmission

Flight Level/Altitude	Transmitted As
FL180	FLIGHT LEVEL ONE EIGHT ZERO
FL400	FLIGHT LEVEL FOUR ZERO ZERO
900 ft	NINER HUNDRED FEET
2,500 ft	TWO THOUSAND FIVE HUNDRED FEET
11,000 ft	ONE ONE THOUSAND FEET

Table 2D: Heading Transmission

Heading	Transmitted As
100 Degrees	HEADING ONE ZERO ZERO
080 Degrees	HEADING ZERO EIGHT ZERO

Table 2E: Wind Direction and Speed Transmission

Wind Condition	Transmitted As
200 Degrees, 25 Knots	WIND TWO ZERO ZERO DEGREES TWO FIVE KNOTS
160 @ 18 Gusting 30	WIND ONE SIX ZERO DEGREES ONE EIGHT KNOTS GUSTING THREE ZERO

Table 2F: Transponder Code Transmission

Squawk Code	Transmitted As
5100	SQUAWK FIVE ONE ZERO ZERO
6703	SQUAWK SIX SEVEN ZERO TREE

Table 2G: Runway Transmission

Runway	Transmitted As
30	RUNWAY THREE ZERO
07	RUNWAY ZERO SEVEN

Table 2H: Altimeter Setting Transmission

QNH	Transmitted As
1010	Q-N-H ONE ZERO ONE ZERO

2.4 Radiotelephony ATC Callsigns

Table 2E: Wind Direction and Speed Transmission

Category	ATC Services	Radio Callsign(s)
Local Control	Aerodrome Tower **(TWR)**	*"MANLEY TOWER"* *"SANGSTER TOWER"*
	Aerodrome Ground **(GND)**	*"MANLEY GROUND"* *"SANGSTER GROUND"*
Terminal Control	Radar Approach **(APP)**	*"MANLEY RADAR"* *"SANGSTER RADAR"*
Enroute Control	Area Radar **(CTR)**	*"KINGSTON RADAR"*

2.5 Aircraft Callsigns

Aircraft Callsigns shall be one of the following types:

a) The registration of the aircraft or the aircraft type followed by its registration, examples: *6Y-JGT, CGNCB, Cessna 6Y-JJC.*

b) The approved telephony designator of the operating company followed by the registration of the aircraft, e.g. *Speedbird GBGDC, Jamaica 6Y-JME.*

c) The approved telephony designator of the operating company followed by trip number, e.g. *Jamaica 020.*

2.5.1 Abbreviated Callsigns

Once satisfactory two-way communication with an aircraft has been established, and provided that no confusion is likely, controllers may abbreviate the callsign, but only to the extent shown

a) The first and the last two characters of the aircraft registration, e.g. *6-GT, C-CB,* or the aircraft type followed by the last two characters of the aircraft registration, (example: *Cessna JC.)*

b) The approved telephony designator of the operating company follow by the last two characters of the aircraft registration*, e.g. Speedbird DC, Jamaica ME.*

2.5.2 Wake Turbulence Phraseology

Aircraft in the heavy wake turbulence category will include the word *HEAVY* or *SUPER* as appropriate immediately following their Callsigns, on initial contact with an ATC Unit. The purpose is to enhance the situational awareness of ATC as well as other aircraft.

2.6 Pilot Readback

Pilots are required to read back in full messages containing any of the following items:

a) Taxi instructions
b) Altitude/Level instructions
c) Heading instructions
d) Speed instructions
e) Airways or route clearances
f) Approach clearances
g) Clearance to enter, land on, take-off, backtrack, or hold short of any active runway
h) Transponder operating instructions
i) Altimeter settings
j) Frequency changes

Controllers are to prompt a pilot if a readback is not immediately forthcoming. Errors in a readback must be corrected by the controller until the pilot gives an accurate readback.

2.7 Text Messages

While voice communications are always preferred, using EuroScope's text feature is perfectly acceptable. Text messages must be composed in accordance with the phraseological standards laid out in this document

2.8 Time

UTC and the 24-hour clock is to be used at all times. Example, *0130Z,* or 1:30 GMT.
When speaking a time value, normally only the minutes of the hour are required; each figure being pronounced separately. However, if there is any possibility of confusion the full four-figure group is to be spoken.

2.9 Transition Level

In the Kingston FIR, altitude up to 17,000 ft AMSL are referred to in thousands of feet of altitude. Altitude 18,000 feet AMSL or higher are referred to in flight levels. See Section 2.3 for specific terminology.

2.10 Altimeter Settings

Hectopascals (hPa or QNH) are the notified units for the provision of pressure altimeter settings to pilots.

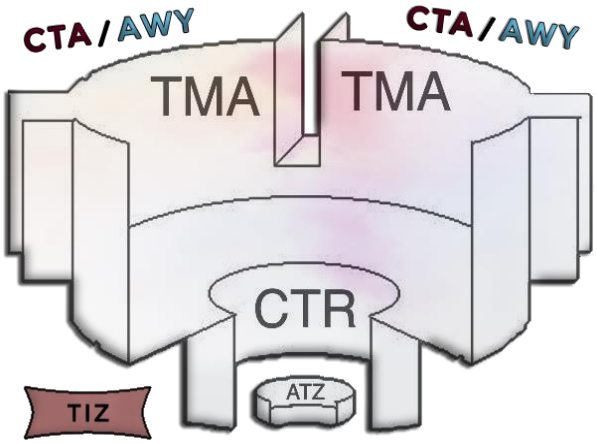
2.11 Meteorological Reference

The official source of weather information to be used in determination of Flight Rules, Approach usability, and other critical decisions shall be the most relevant and most recent METAR provided by the VATSIM servers. This holds true regardless of whether the VATSIM-downloaded METAR differs from the real-world METAR for the same area/aerodrome.

2.12 Airspaces Concerned

The following divisions of airspace are employed in the provision of air traffic services:

Table 2J: Relevant ATC Airspaces, Jamaica



Control Area (CTA)

Terminal Control Area (TMA)
- **(Radar Approach)**

Control Zone (CTR)
- **(Radar Approach)**

Aerodrome Traffic Zone (ATZ)
- **(Aerodrome Tower)**

TFC Information Zone (TIZ)

2.13 Airspace Classification

The ATS classifications utilized within the Kingston FIR along with the type of flights permitted and the air traffic services provided within them are summarized in *Table 2K:*

Table 2K: ATS Airspace Classification

Class	Rules	Requirements	Services Provided
A	**IFR**	a) Obtain ATC clearance before entry b) Comply with ATC instructions	a) Separate all aircraft from each other b) Provide Flight Information to all aircraft
D	**IFR & VFR**	a) Obtain ATC clearance before entry b) Comply with ATC instructions	a) Separate IFR flights from other IFR flights b) Pass traffic information to IFR flights on VFR flights and give traffic avoidance advice based on Radar. c) Pass traffic information to VFR flights on IFR flights and other VFR flights
E	**IFR & VFR**	a) IFR flights to obtain ATC clearance before entry b) Comply with ATC instructions c) VFR flights do not require clearance	a) Separate IFR flights from other IFR flights b) Pass traffic information, as far as practicable, to IFR on VFR flights c) Pass traffic information on all flights, as far as practicable, to VFR flights that are in radio contact
~~G~~	~~X~~	a) No Clearance Required	a) Provide flight information service to VFR flights upon request

2.14 Airspace Division

For a breakdown of airspace divisions in Jamaica, see *Table 2L* and *Table 2M:*

2.14.1 Manley Sector, Jamaica TMA

Table 2L: Jamaica TMA, Manley Sector

Airspace	Class	Limits
Manley ATZ	D	SFC - 1,500 ft
Manley CTR (20 NM)	D	SFC - 14,500 ft
Manley CTR (25 NM)		3,500 - 14,500 ft
Manley CTR (Blue Mountain Sector)	D	8,500 - 14,500 ft
	G	SFC - 8,500 ft
Jamaica TMA (Manley Sector)	D	4,501 - 14,500 ft
	G	SFC - 4,500 ft

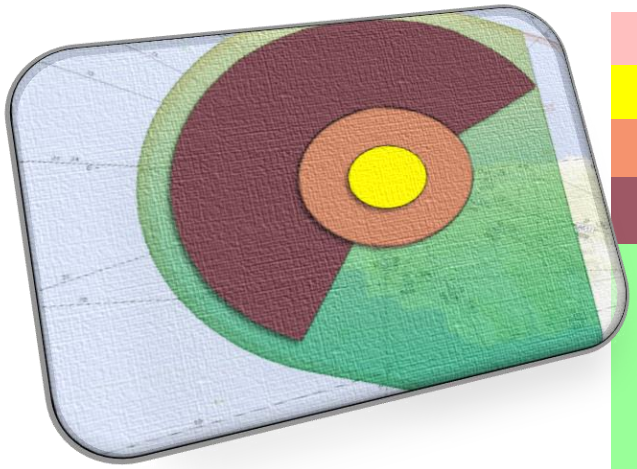


Table 2M: Jamaica TMA, Sangster Sector

Airspace	Class	Limits
Sangster ATZ	D	SFC - 1,500 ft
Sangster CTR (15 NM)	D	SFC - 14,500 ft
Sangster CTR (35 NM)	D	1,500 - 14,500 ft
Jamaica TMA (Sangster Sector)	D	4,501 - 14,500 ft
	G	SFC - 4,500 ft

2.14.3 Uncontrolled Airspaces

Airspace laterally within the TMA but below the lower limits of the Class D airspaces is uncontrolled *Class G* airspace. IFR aircraft may not enter this airspace, and VFR may only transition to this airspace with ATC permission. Though uncontrolled, Flight information service (FIS) may be provided on request.

2.15 Flight Rules

The operation of an aircraft either in flight or on the movement area of an aerodrome shall be in compliance with flight rules for all operations (general flight rules), and in addition, when in flight with either visual flight rules or instrument flight rules.

2.15.1 Instrument Flight Rules (IFR)

A pilot must comply with Instrument Flight Rules (IFR) if:

a) the airspace has been notified as Class A; and

b) the meteorological conditions preclude VFR flight.

The Instrument Flight Rules (IFR) requires a pilot to observe the minimum height rule as well as the requirements below:

Within Controlled Airspace (Classes A, D and E)

a) File a flight plan and obtain a clearance before proceeding with the flight;

b) Conduct the flight in accordance with clearances and instructions from an air traffic control unit;

c) Maintain a listening watch on the appropriate frequencies;

2.15.2 Visual Flight Rules (VFR)

A VFR flight is one conducted in accordance with the visual flight rules. VFR flights shall be conducted so that the aircraft is flown in conditions of visibility and distance from clouds equal to or greater than the minima specified in *Table 2M* for Visual Meteorological Conditions (VMC). The pilot of an aircraft is responsible for determining whether or not the visual meteorological conditions (VMC) permit flight in accordance with the visual flight rules.

In Classes D and E airspace: Except when a clearance is obtained from an air traffic control unit VFR flights shall not take off or land at an aerodrome within a control zone, or enter the aerodrome traffic zone or traffic pattern when:

a) the ceiling is less than 1,500 ft; or

b) the ground visibility is less than 5 km

Table 2N: Visual Meteorological (VMC) Minima

Altitude Band	Airspace Class	Visibility	Distance from Clouds/Line of Sight
At or above 10,000 ft	**A • D • E**	**8 km**	1,500 m (5,000 ft) horizontally 300 m (1,000 ft) vertically
Below 10,000 ft Above 3,000 ft	**D • E • G**	**5 km**	
At, below 3,000 ft	**D • E**		
	G	**1.5 km**	• Clear of clouds • In sight of surface

2.16 Speed Limits

Generally, published speed limitations are based on flight altitude or procedure. Speed control (used for separation and sequencing) should not be confused with speed limitations.

2.16.1 Altitude Speed Limit

The Civil Aviation Regulations require aircraft flying below 10,000 ft to observe a speed limit of 250 KT IAS except in circumstances set out below. This limit is an essential component of the 'see and avoid' principle when separation is not established by ATC. This is in addition to other speed limits, mentioned below.

2.16.2 Procedure Speed Limit

In certain cases, speed limits are published for specific ATC procedures for a number of reasons. For example:

a) A speed limit of 250 Knots is applied to Standard Instrument Departure (SID) procedures to assist in the initial provision of separation between successive departing aircraft.
b) A speed limit of 250 Knots is applied to some Standard Arrival Route (STAR) procedures to assist ATC in the integration of traffic flows.
c) Some holding patterns have non-standard maximum holding speeds for containment within controlled airspace or separation from adjacent routes or procedures.
d) Some instrument approach procedures have non-standard maximum speeds for obstacle avoidance or controlled airspace containment.

Radar controllers may relax speed limits for procedures other than instrument approach procedures. However, extreme caution should be exercised since the separation, airspace containment, and obstacle clearance requirements that the speed limits were intended to achieve, now become the responsibility of the controller.

2.17 Separation

The objective of separation methods and minima is to provide each aircraft with a volume of protective airspace, which moves along with the aircraft in flight and into which other aircraft are not permitted to penetrate.

2.17.1 Types of Separation

a) Vertical
b) Horizontal… (Longitudinal and lateral including Radar Surveillance)

2.17.2 Provisions for Separation

Vertical or horizontal separation minima shall be provided between:

a) all flights in Class A airspace
b) IFR flights in Class D and E airspace
c) IFR flights and special VFR flights

2.17.3 Reduced Separation

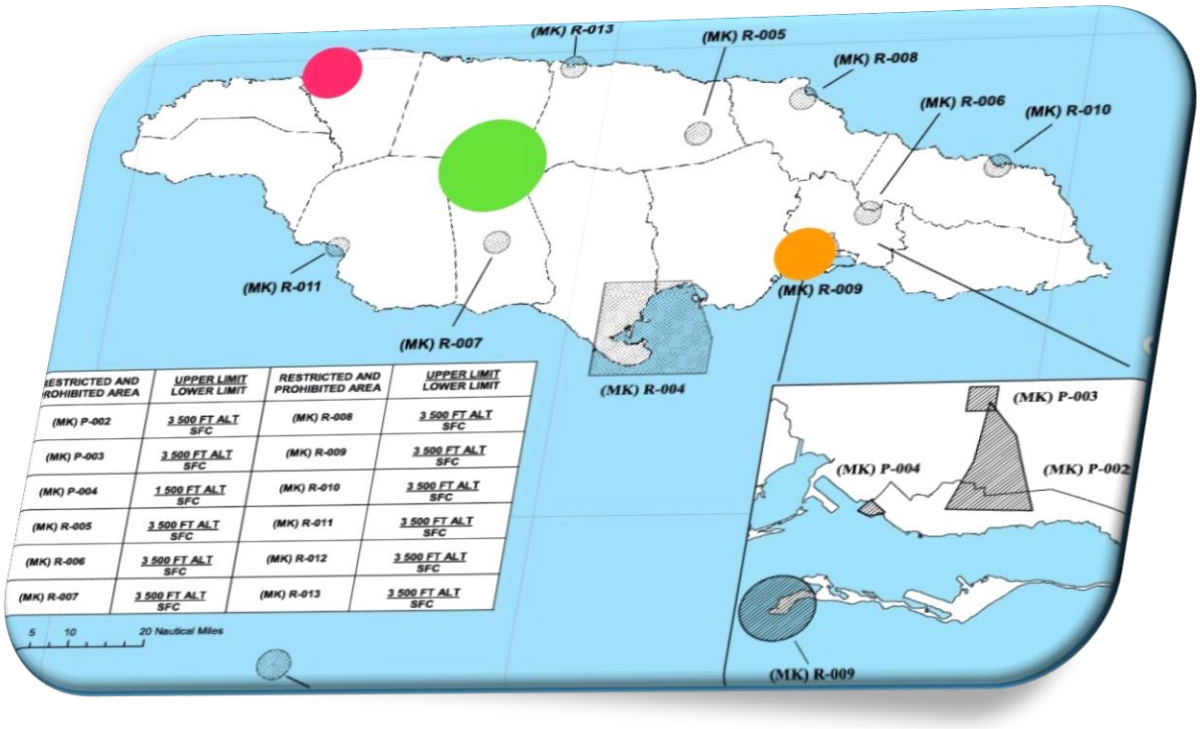
Separation minima may be reduced within the ATZ/CTR/TMA as follows:

a) within an ATZ: adequate separation can be provided by the aerodrome controller when each aircraft is continuously visible to the controller; or
b) within a ATZ/CTR/TMA:
    i) each aircraft is continuously visible to the other, and the pilots report that they can maintain their own separation; or
    ii) one aircraft is following another, and the pilot of the succeeding aircraft reports that he has the other in sight and can maintain Separation.

2.18 Restricted Airspace & Radar Sites

2.18.1 Restricted & Prohibited Areas

Figure 2N: Restricted Areas & Radar Sites, Jamaica



RESTRICTED AND PROHIBITED AREA	UPPER LIMIT LOWER LIMIT	RESTRICTED AND PROHIBITED AREA	UPPER LIMIT LOWER LIMIT
(MK) P-002	3 500 FT ALT SFC	(MK) R-008	3 500 FT ALT SFC
(MK) P-003	3 500 FT ALT SFC	(MK) R-009	3 500 FT ALT SFC
(MK) P-004	1 500 FT ALT SFC	(MK) R-010	3 500 FT ALT SFC
(MK) R-005	3 500 FT ALT SFC	(MK) R-011	3 500 FT ALT SFC
(MK) R-006	3 500 FT ALT SFC	(MK) R-012	3 500 FT ALT SFC
(MK) R-007	3 500 FT ALT SFC	(MK) R-013	3 500 FT ALT SFC

Prohibited Area (P-XXX): an airspace of defined dimensions, above the land areas of territorial waters of a State, within which the flight of aircraft is prohibited.

Restricted Area (R-XXX): an airspace of defined dimensions, above the land areas or territorial waters of a State, within which the flight of aircraft is restricted in accordance with certain specified conditions (see Old Harbor Bay Training Area, MKR-004).

2.18.2 Radar Sites

Table 2O: Radar Site Locations

Site	User	Coordinates
Kingston	MKJP_APP	N17°56'13.0 - W76°47'25.0
Montego Bay	MKJS_APP	N18°30'22.0 - W77°54'80.0
Mt. Denham	MKJK_CTR	N18°13'32.8 - W77°32'04.64

Table 2O, above, lists the three main radar sources in Jamaica and their locations. These radar sites are simulated in EuroScope. The color of the site name in *Table 2O* is consistent with the color of the radar sites in the map of *Figure 2N.*

2.19 Equipment Suffixes

All flight plans should include a one-letter suffix after the aircraft type. This suffix indicates the navigational and transponder capabilities of the aircraft. See *Table 2P* for their meanings.

Tables 2P: Flight Plan Equipment Suffixes

Navigation	Transponder	Suffix
DME	Transponder with Mode C	**/A**
	Transponder, NO Mode C	**/B**
	NO Transponder	**/D**
	Transponder, Mode C + RVSM	**/W**

Navigation	Transponder	Suffix
RNAV (NO GNSS)	Transponder with Mode C	**/I**
	Transponder, NO Mode C	**/C**
	NO Transponder	**/Y**
	Transponder, Mode C + RVSM	**/Z**

Navigation	Transponder	Suffix
NO DME	Transponder with Mode C	**/U**
	Transponder, NO Mode C	**/T**
	NO Transponder	**/X**

Navigation	Transponder	Suffix
TACAN	Transponder with Mode C	**/P**
	Transponder, NO Mode C	**/N**
	NO Transponder	**/M**

Navigation	Transponder	Suffix
RNAV & GNSS (RNP)	Transponder with Mode C	**/G**
	Transponder, NO Mode C	**/S**
	NO Transponder	**/V**
	Transponder, Mode C + RVSM	**/L**

2.20 Obstacles & Terrain Avoidance

Avoidance of terrain and other vertical obstructions is accomplished in Jamaica using 3 sources: Published Approach Charts, MVAs (Minimum Vectoring Altitudes) and MEAs (Minimum Enroute Altitudes, which are encoded into ATS routes).

Table 2Q: Terrain Avoidance Minima

Area/Airspace	Minimum Altitude(s)
Final Approach Area	Aircraft must maintain published altitudes and profiles for instrument procedure
Jamaica TMA	Levels allocated must be consistent with MVA chart (also overlaid on EuroScope Jamaica TMA .asr file)
Kingston CTA	1,000 feet above any fixed obstacle and/or above ATS Route MEAs

2.21 Emergencies

Emergencies may only be simulated on VATSIM with the coalescence of the controller. Workload, mood, and pilot behavior may factor into a controller's decision to allow a simulated emergency. If a pilot declares an emergency, the following steps should be taken:

a) Request that the pilot squawk 7700
b) Request fuel and passenger information
c) Advise emergency aircraft of options available for landing
d) Proceed normally with instructions

Example: Handling of Accepted Emergency

JBU1722 - IFR		**A320/Q**
CITYPAIR	**CFL**	**Filed Route**
MKJS - KMCO	**360**	**SEKAM G430 UCA UA301 URSUS A509 DHP FLL BAIRN BAIRN3**

JBU1722: declaring	SANGSTER RADAR, JetBlue 1722, mayday, mayday mayday, Engine failure on #1.
MKJS_TWR:	JETBLUE 1722, Sangster Radar, understand declaring emergency. Squawk 7700. State number of souls onboard and remaining fuel onboard.
JBU1722:	JetBlue 1722 has 97 souls and about 250 minutes fuel onboard.
MKJS_TWR:	JETBLUE 1722, roger, turn left heading 180 and descend 3,000, vectors visual approach runway 07. Both runways available at Sangster.
JBU1722:	180 and down to 3,000, vectors visual runway 07, 1722.

Example: Emergency Scenario Refusal

JBU1722: declaring	SANGSTER RADAR, JetBlue 1722, mayday, mayday mayday, an emergency. Engine failure on #1.
MKJS_TWR:	JETBLUE 1722, Sangster Radar not presently accepting emergency scenarios. Please discontinue emergency simulation or disconnect.

2.22 Radar Warnings & Alerts

There are a few alerts/warnings that can appear in the data TAG of a Radar target. EuroScope calls its place the "Compound Warning Item", and its manifestations are listed in *Table 2R*:

Table 2R: Radar Warnings & Alerts

Alert	Meaning	Significance
RAM	**Route Adherence Monitoring**	The aircraft is deviating significantly from the assigned route or flight plan.
MSAW	**Minimum Safe Altitude Warning**	The aircraft has descended below the MVA (Minimum Vectoring Altitude) in its area.
CLAM	**Cleared Level Adherence Alert**	The aircraft is deviating from its assigned level by at least 1,000 ft.
A67XX	**Wrong Squawk Code Alert**	The aircraft is not squawking its assigned transponder code.
DUPE	**Duplicate Squawk Code Alert**	The aircraft is squawking a code that is already assigned to a nearby flight plan

2.23 Limited Conversion Tables

Table 2S: Speed Conversion

Knot(s)	Kilometers/Hour	Meters/Second
1	1.85	**0.51**
10	18.5	**5.14**
50	92.6	**25.72**
100	185	**51.44**
160	296	**82.31**
180	333	**92.60**
200	370	**102.89**
250	463	**128.61**

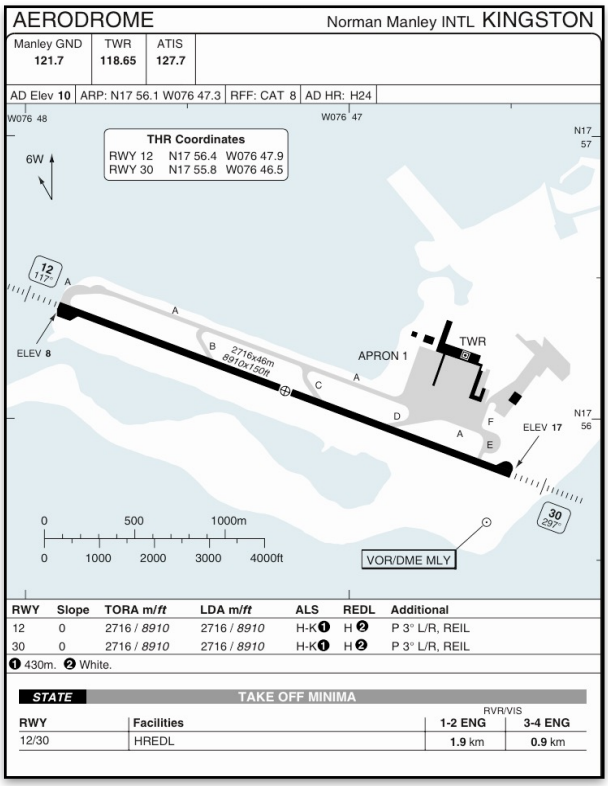
Table 2T: Basic Distance Conversion

NM	Meters	Feet
1	1,852	**6,076**
5	9,260	**30,380**
10	18,520	**60,761**
50	92;600	**303,805**
100	185,200	**607,611**

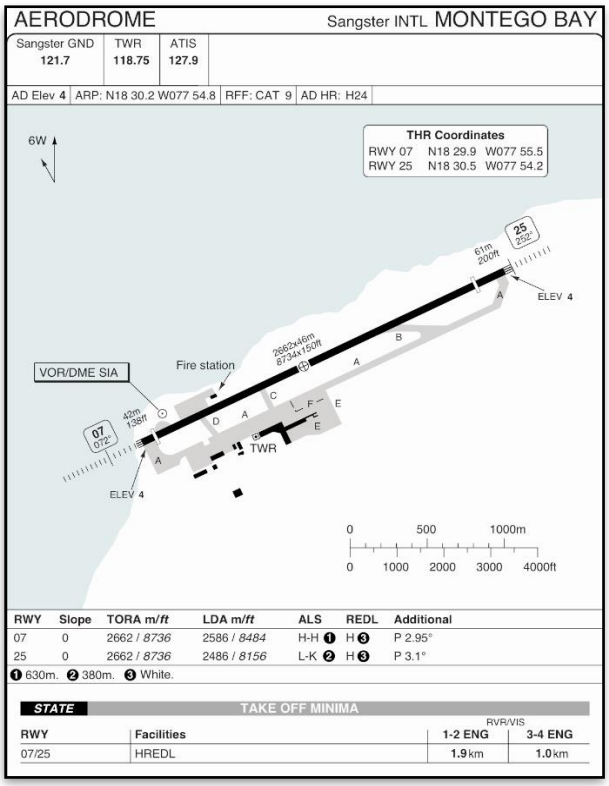
2.24 Aerodrome Charts

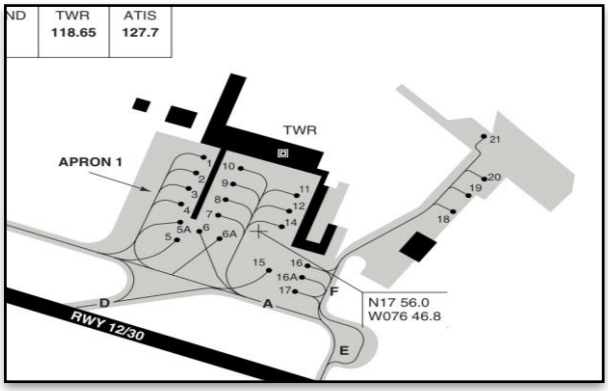
Figure 2U: Aerodrome Charts

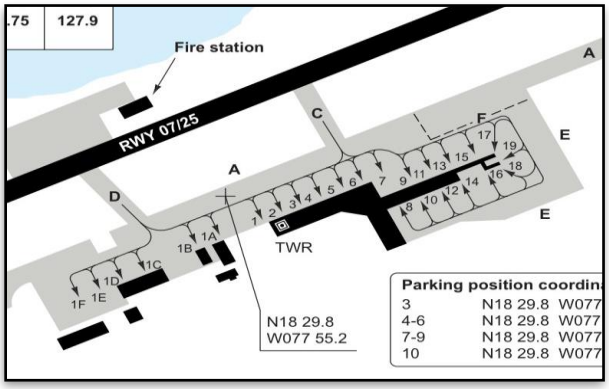
MKJP (Manley Int'l)



MKJS (Sangster Int'l)







1. **TRAFFIC NOTE**
   RWY 12: Right hand circuit.
   Flight over Port Royal, W of RWY, not below 1500ft.
2. **WARNING**
   Birds in vicinity of AD.

NOISE ABATEMENT PROCEDURE

NOISE: Whenever possible use noise reduction techniques within 6-4.5nm on final especially between 02-11.

TKOF procedures

DME operating:

RWY 07: Climb on RWY HDG - at D1.5 SIA make a climbing left turn, then . . .

RWY 25: Within D3 SIA, make climbing right turn, then . . .

2.25 Conduct Guidelines & Controller Disposition

Always remember that, whether you're an S1 or an I3, VATSIM controllers aren't moderators or penal officers. If a pilot is exhibiting disrespectful or dismissive behavior that possibly violates the network's code of conduct, the controller should do their best to collect evidence of the incident and report it to any network supervisor on duty using the ".wallop" chat command.

We must also remember that being a novice, not carrying charts, or flying poorly are not violations of the code of conduct. Controllers are here to enjoy themselves and help pilots enjoy themselves. Nobody is logging onto the network to be lectured. Controllers should treat all pilots with respect, dignity, and an inclination to teaching rather than chastisement.

The Kingston FIR does its part in improving the VATSIM quality of life by holding itself to a near-real world level standard of professionalism, knowledge, and discipline. This includes not treating new pilots like inmates. Controllers should assume that, regardless of skill level, every pilot is on the path to improvement. They can't improve if they get yelled at and are scared off from VATSIM.

EVERYONE is a newcomer at one point. Remember that and VATSIM will be a much nicer place.

Note: The most frequent violation of the network code of conduct is pilot inactivity. Pilots often leave their simulator unattended and forget to return or forget to disconnect. If there is an aircraft in your airspace who is not responding to contact-me messages, the controller should call for a supervisor 30 minutes after the first contact-me. If an aircraft is an immediate traffic conflict (someone appearing suddenly on the active runway, for example) you may contact a supervisor before the prescribed 30 window.

Controllers should call for supervisors using the <.wallop> chat command. This command sends a message to all network supervisors and allows them to coordinate the handling of your call. When you "wallop" an aircraft, your message should include the callsign, location relative to a major aerodrome, and the nature of the issue:

".wallop JBU761 15 miles north of SIA VOR, unresponsive since 2152Z, no traffic conflict"

".wallop AAL19 on the ground at MKJP, appeared without permission on my active runway, immediate traffic conflict"

Formatting your messages this way will make it fast and easy for Supervisors to validate your claim and

3. Aerodrome Ground (GND) Control

3.1 Services Provided

An Aerodrome Ground (GND) control unit provides services principally to surface aircraft operating on the parking apron areas and taxiways:

a) Flight information service
b) Delivery of IFR clearances
c) Apron movement coordination

3.2 Area of Jurisdiction and Authority

The area of jurisdiction of GND control is the inactive maneuvering areas (taxiways) and apron areas and the services provided therein will be consistent with these limitations.

3.3 General Responsibilities

Aerodrome GND control is responsible for issuing information and instructions to aircraft under its control to achieve a safe, orderly and expeditious flow of air traffic and to assist pilots in preventing collisions between:

a) aircraft parked on the apron requesting IFR clearance or FIS services
b) aircraft moving on the apron
c) aircraft, vehicles, and obstructions and other aircraft on the taxiway areas

3.4 Relevant Positions

Table 3A: Aerodrome GND Positions, Jamaica

Position	Login Callsign	Frequency
Manley Ground	MKJP_GND	121.700
Sangster Ground	MKJS_GND	121.700

3.5 Transponder Codes

Table 3B: Transponder Code Assignment

Squawk Range	Route Type
6701 - 6777	International IFR
0701 - 0777	Domestic IFR
5001 - 5077	VFR

Transponder (Squawk) Codes will be assigned by the GND controller as depicted in *Table 3B.*

3.6 IFR Departure Routing

3.6.1 International Routing Requirements

Valid International IFR flight plans departing MKJP or MKJS must contain the following prescribed parameters:

1. An ATS Route (airway) segment which begins at the field's VOR and terminates at the FIR boundary or beyond, OR...
2. DIRECT to a FIR boundary FIX via...
    i) GPS/FMS DIRECT, or
    ii) Radar Vectors

All IFR flight plans must include either an ATS route or DIRECT to an FIR boundary FIX. If the airplane is without a GPS system and has not filed an ATS route for departure, it can be vectored to an FIR boundary point.

Example: Generic Flight Plan via ATS Route

JBU1627 - IFR		**A320/Q**
CITYPAIR	**CFL**	**Filed Route**
MKJP - KFLL	**380**	**LEXUV3 RADOK BEMOL UL417 BORDO B760 MENDL B760 LEEVI B760 ZBV**

3.6.2 Inter-FIR Routing Requirements

All IFR flight plans traveling between MKJS and MKJP (in either direction) must contain the minimum following parameters:

a) An ATS Route running between SIA and MLY, OR...
b) Direct to a transfer-of-control FIX on the border between the Sangster TMA sector and the Manley TMA sector:
    a) KEMBO / KESPA / LIBEX
c) A minimum cruising altitude of 5,000 feet
d) A maximum cruising altitude of 11,000 feet

All IFR flights bound for the Cayman TMA (MWCR, MWCB) must contain the following elements/parameters:

a) An ATS Route segment terminating at GCM or CBC, OR...
b) Direct to a transfer-of-control FIX on the boundary of the Cayman TMA:
    a) BETAR / NALRO / MATIS

Example: Generic IFR Inter-FIR Flight Plan

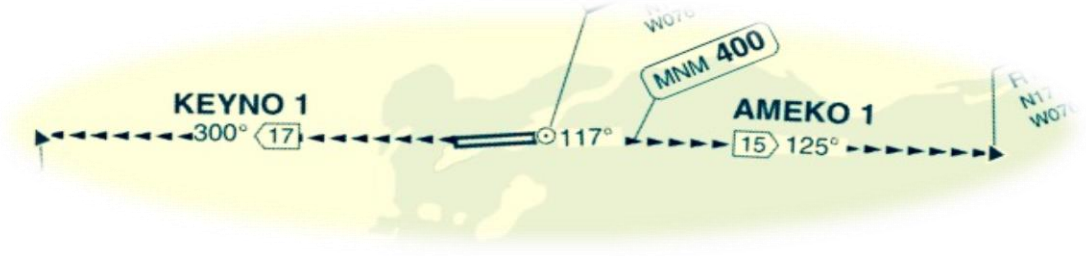
CAY606 - IFR		**B733/W**
CITYPAIR	**CFL**	**Filed Route**
MKJP - MWCR	**240**	**KESPA W8 TALOS UW8 GORAN3**

3.6.3 SIDs & Noise Abatement

IFR Flights are not required to file a SID. If the corresponding Radar Approach (APP) controller is online, only the "Radar Departures" shall be used, regardless of previously filed SIDs. In the absence of a SID, the appropriate noise-abatement and vectoring maneuver should be used as listed in *Table 3C*.

Table 3C: Radar SIDs & Noise Abatement, Jamaica

Runway	Radar SID	Instruction without SID
MKJP 12	~~AMEKO1~~	Turn right heading 125
MKJP 30	~~KEYNO1~~	Fly heading 300
MKJS 07	ROSTO1	Turn left heading 030
MKJS 25	TEXUS2	Turn right heading 270



3.7 Flight Plan Processing

All IFR and VFR departures who intend to fly more than 25 miles from their departure airport must file a valid flight plan.

3.7.1 Contents of an IFR Flight Plan

All valid IFR flight plans should include the following components:

a) Aircraft identification
b) Flight rules (IFR)
c) Type of aircraft and wake turbulence category
d) Equipment suffix
e) Departure aerodrome
f) Cruising speed(s)
g) Cruising level(s)
h) Route of flight
i) Destination aerodrome and alternate (if required)

Example: Generic IFR Flight Plan (Direct FIR boundary FIX MATOS)

N210PW - IFR		**C210/A**
CITYPAIR	**CFL**	**Filed Route**
MKJS - MUHG	**080**	**ROSTO1 MATOS UMZ J5 UHG**

3.7.2 Contents of a VFR Flight Plan

All valid VFR flight plans should include the following components:

a) Aircraft identification
b) Flight rules (VFR)
c) Type of aircraft, wake turbulence category, navigation suffix
d) Departure aerodrome
e) Cruising level(s)
f) Destination aerodrome and alternate (if required)

Example: Generic VFR Flight Plan

N4282R - VFR		**BE36/G**
CITYPAIR	**CFL**	**Filed Route**
MKJS - MKTP	**A075**	**GPS DIRECT**

3.7.3 Controller Actions

When a departure files an IFR Flight Plan it is GND's responsibility to ensure that it meets the formatting requirements listed in 3.7.1-3.7.2 and the routing requirements listed in 3.6. If the Flight Plan is complete and the routing is satisfactory, a controller must still assign an appropriate Squawk code and an appropriate temporary (initial altitude).

3.7.4 Cruising Altitudes/Levels

The controller must always look at a flight plan's filed cruise altitude or level. This should be an even or an odd level/altitude depending on the magnetic track of the route. Essentially, eastbound Flights should cruise at odd thousands, westbound Flights at even thousands.

Table 3D: IFR & VFR Cruising Flight Levels

FP Track	IFR Cruising Levels	VFR Cruising Levels
000° - 179° (EASTBOUND)	Any ODD thousand level up to FL410. E.g. A050, A130, FL190, FL410.	Any ODD thousand altitudes plus 500 ft. E.g. A035, A055, A075.... A115, A135.
180° - 360° (WESTBOUND)	Any EVEN thousand level up to FL400. E.g. A140, FL360, FL400.	Any EVEN thousand altitudes plus 500 ft. E.g. A045, A085.... A120, A145.

These rules do not apply to traffic transiting between Havana, Kingston and Panama

3.7.5 Flight Plan Amendments

When an amendment is made to a clearance the new clearance shall be read in full to the pilot and shall automatically cancel any previous clearance. A plan may be amended for one of the following reasons:

- ❖Improper cruising altitude/level for direction of flight
- ❖Unacceptable or incomplete departure routing
- ❖Absence of one of the required components of a flight plan.
- ❖Incompatibility with terminal separation plan

Example: Cancelling an unnecessary SID

TOM43 - IFR		**H/B789/Q**
CITYPAIR	**CFL**	**Filed Route**
MKJS - EGKK	**340**	**IMADI1 G629 RABAG ERRCA M595 MILLE M330 SHEIL UN514 DIDEL UN514 GIBSO**
MKJS_GND:	THOMSON 43, Sangster Ground. Clearance is to the London Gatwick airport via G629, flight planned route. Climb and maintain 5,000, expect higher with Manley Radar. Disregard the IMADI1 departure, expect vectors on course. Squawk 6722.	

Example: Cruise Level Amendment

INC852 - IFR		**F70/L**
CITYPAIR	**CFL**	**Filed Route**
MKJP - TNCC	**220**	**MLY UA511 ABA**
MKJP_GND:	INSEL AIR 852, Manley Ground, your planned cruise level is incorrect for your direction of flight. FL210 and FL230 available. Which one would you prefer?	

Example: Invalid Departure Routing

AAL101 - IFR		**B752/L**
CITYPAIR	**CFL**	**Filed Route**
MKJS - KMIA	**340**	**ALTIB UM347 ZEUSS WAVUN2**
MKJS_GND:	AMERICAN 101, I have an amendment for your flight plan. Your departure Routing is invalid because it begins outside the Kingston FIR. Expect radar vectors to EPSIM, and then as filed. The amended flight plan has been transmitted via text for your review.	

Note: When making impactful routing amendments like the one in the example of *AAL101 (*amendments which do more than replace a SID or change a cruising level), always send the pilot the revised flight plan in its entirety via TEXT MESSAGE to ensure both parties are on the same page about the change being made. This example is one of the most common you'll encounter: a flight plan destined for Miami or New York that begins at UCA or URSUS, the southernmost waypoints that are parsed and recorded by flightaware.com, where many VATSIM pilots procure their flight plans.

3.8 IFR Clearance Delivery

3.8.1 Contents of an IFR Clearance

All IFR Departures shall receive an ATC route clearance in the following form and order:

a) Aircraft Identification
b) Clearance Limit (destination)
c) Routing up until FIR boundary
d) Initial Climb
e) Next controller
f) SID/Departure Vectors
g) Squawk Code

IFR Clearance Phraseology

"<CALLSIGN>, <ATC unit>, good day. Clearance is to <DESTINATION> airport via <Departure Routing up to FIR boundary>, flight planned route. Climb and maintain <INITIAL ALT.>, expect higher with <AERODROME> Radar. <SID/VECTORS AFTER DEP.>. Squawk <CODE>."

Example - via ATS Route

N210PW - IFR		**C210/A**
CITYPAIR	**CFL**	**Filed Route**
MKJS - MUHG	**080**	**SIA R625 ULDAR UHG**

MKJS_GND:	CESSNA 210PW, Sangster Ground, good night. Clearance is to MUHG airport via the R625, flight planned route. Climb and maintain 5,000, expect higher with Sangster Radar. After departure expect vectors to join the R625. Squawk 6704.

Example: Via ATS Route (2)

WJA2601 - IFR		**B737/L**
CITYPAIR	**CFL**	**Filed Route**
MKJP - CYYZ	**340**	**MLY L417 UMZ UCJ URSUS A509 DHP OMN J103 MILIE J103 SAV PSK EKN OXMAN LINNG5**

MKJP_GND:	WESTJET 2601, Manley Ground, good morning. Clearance is to the Toronto Pearson airport via L417, flight planned route. Climb and maintain 6,000, expect higher with Manley Radar. After departure expect vectors on course. Squawk 6710.

Example: Via FIR Boundary TCP

UAL1305 - IFR		**B738/L**
CITYPAIR	**CFL**	**Filed Route**
MKJS - KORD	**340**	**ROSTO1 ROSTO EPSIM UM347 ZEUSS Y217 OCTAL Q77 WASUL Q77 SHRKS Q77 TEUFL Q77 WIGVO IRQ BENBY DOOGE Q63 HEVAN MZZ VEECK4**

MKJS_TWR:	UNITED 1305, Sangster Tower, good morning. Clearance is to the Chicago O'Hare airport via radar vectors, EPSIM, flight planned route. Climb and maintain 5,000, expect higher with Sangster Radar. ROSTO1 departure. Squawk 6725.

Example: Via FIR Boundary TCP (2)

N297QL - IFR		**BE40/L**
CITYPAIR	**CFL**	**Filed Route**
MKJP - KFLL	**380**	**BEMOL UL417 BORDO B760 ZBV WAVUN4**

MKJP_TWR:	BEECHJET 7QL, Manley Tower, good morning. Clearance is to the Fort Lauderdale airport via vectors BEMOL, flight planned route. Climb and maintain 6,000, expect higher with Manley Radar. Squawk 6731.

Example: Via FIR Boundary TCP (3)

N49KW - IFR		**C550/L**
CITYPAIR	**CFL**	**Filed Route**
MKJP - MDSD	**350**	**PISUL G633 MELLA G633 MAZ SNOOZ**

MKJP_TWR:	CITATION 9KW, Manley Tower, good afternoon Clearance is to the Las Americas airport via G633, flight planned route. Climb and maintain 6,000, expect higher with Manley Radar. After departure expect vectors to join the G633. Squawk 6720.

3.8.2 Absent Radar Departure Controller(s)

If there is no APP or CTR controller online above your airport, then there is no departure service for that airport. This condition changes a couple of things in your IFR clearances:

a) Radar SIDs (ROSTO1/~~AMEKO1~~/~~KEYNO1~~/TEXUS2) cannot be assigned
b) All other SIDs (non-Radar) can be used if filed or requested
c) The pilot should be instructed to climb to their final cruise level immediately.

IFR Clearance (Radar Offline) Phraseology

"<CALLSIGN>, <ATC unit>, good day. Clearance is to <DESTINATION> airport via <Departure Routing up to FIR boundary>, flight planned route. Climb and maintain <CRUISE ALT.> After departure resume own navigation. Squawk <CODE>."

Example: No Radar Departure Service

TOM43 - IFR		**H/B789/Q**
CITYPAIR	**CFL**	**Filed Route**
MKJS - EGKK	**340**	**IMADI1 G629 RABAG ERRCA M595 ATSUR LESLU UN514 DIDEL GIBSO UM17 BILNI**

MKJS_GND:	THOMSON 43, Sangster Ground, good morning. Clearance is to the London Gatwick airport via G629, flight planned route. Climb and maintain FL340. After departure resume own navigation. Squawk 6743.

3.8.3 IFR Route Clearances to VFR Aerodromes

Any aircraft can fly IFR to one of our VFR aerodromes. However, an aircraft cannot be cleared to a VFR aerodrome as the terminus of an IFR flight plan. Instead, the clearance limit for such aircraft is the IFR intersection closest to the aerodrome (MKTP: SALOC, MKBS: SAVEM).

Example: IFR to MKTP

6Y-JJH - IFR		**BN2A/G**
CITYPAIR	**CFL**	**Filed Route**
MKJS - MKTP	**070**	**R640 SALOC**

6Y-JJH:	SANGSTER GROUND, Islander 6JH is parked at the ramp, request IFR clearance, information delta onboard.
MKJS_GND:	6Y-JJH, Sangster Ground, good day. Clearance is to SALOC via the R640. Climb and maintain 5,000. Expect higher with Radar. After departure, radar vectors on course. Squawk 0704.

3.9 Departing Aircraft Taxi

3.9.1 IFR Departure Taxi

IFR Departures should be advised to push-back and start engines at the pilot's discretion after reading back their IFR clearance, e.g. *"JAMAICA 52, readback correct, push and start at your discretion, call me for taxi."* After a departure has received its IFR clearance, it is eligible to taxi. The controller occupying the Aerodrome Tower (TWR) position has full authority in the determination of the airport's active runway. Only if TWR, APP, and CTR are offline can GND establish an active runway, and this can only serve as a recommendation since GND does not control the runway surface and thus cannot decide how it is used.

IFR Departure Taxi Phraseology

"<CALLSIGN>, taxi via <TAXIWAY(s)>, holding point runway <XX>."

Example: IFR Departure Taxi

JAF302:	SANGSTER GROUND, Beauty 302, information bravo, request taxi.
MKJS_GND:	BEAUTY 302 HEAVY, taxi via alpha, holding point runway 07.

MKJS_GND:	BEAUTY 302 HEAVY, monitor tower on 118.75, good day.

Example: IFR Departure Taxi (2)

WJA2601:	MANLEY GROUND, WestJet 2601, request taxi.
MKJP_GND:	WESTJET 2601, Manley Ground, taxi via alpha, echo, holding point runway 30.

3.9.1 VFR Departure Taxi

VFR Departures need not receive a full clearance from the GND Controller. Once the VFR pilot has submitted a valid flight plan, GND can issue departure taxi instructions to the aircraft. If the aircraft is departing your aerodrome, however, you must assign them a valid VFR Squawk.

VFR Departure Taxi Phraseology

"<CALLSIGN>, squawk <CODE>, taxi via <TAXIWAY(s)>, holding point runway <XX>."

Example - VFR Departure Taxi

N828MS:	MANLEY GROUND, Piper 8MS at the ramp with information ALPHA, request taxi runway 12.
MKJP_GND:	Piper 828MS, Manley Ground, good afternoon. Squawk 5003. Taxi via alpha, holding point runway 12.
N828MS:	5003 in the box, alpha to holding point 12, Piper 8MS.

MKJS_GND:	N828MS, monitor tower on 118.65, good day.

3.9.3 Local VFR

VFR Departures that intend to remain in the local ATZ (traffic patterns, maneuvers) do not need to file a full flight plan. Additionally, they do not need to be issued a Squawk code.

Example - VFR Local

N239CA - VFR		**PA31/G**
CITYPAIR	**CFL**	**Filed Route**
MKJS - MKJS	**A010**	**CIRCUITS**

N239CA:	SANGSTER GROUND, N239CA is type Piper Navajo, request taxi runway 07, remaining in pattern.
MKJS_GND:	N239CA, Sangster Ground, good morning. Taxi via alpha, holding point runway 07. QNH 1014.
N239CA:	1014, alpha to holding point 07, Piper 9CA.
MKJS_GND:	N239CA, monitor tower on 118.75, good day.

3.9.4 Intersection Departures

An intersection departure is a takeoff performed from a taxiway/runway intersection other than the standard holding point. Aerodrome GND control may approve an intersection departure request from a pilot or suggest it themselves.

Intersection Departure Taxi Phraseology

"**<CALLSIGN>, <ATC UNIT>, good day. Taxi via <TAXI ROUTE> for Intersection departure runway <XX>.**"

Example: Taxi for Intersection Departure

N239CA:	SANGSTER GROUND, N239CA is type Piper Navajo, request taxi runway 07 intersection charlie, remaining in pattern.
MKJS_GND:	N239CA, Sangster Ground, good morning. Taxi via alpha, charlie holding point runway 07 for intersection departure. QNH 1014

3.9.5 Coordinating Multiple Departures on the Ground

It's easy to handle aircraft's taxi instructions while another aircraft has already begun theirs**.** Simply give the same taxi instructions as you normally would, while simply giving the tail (second) aircraft the instruction to follow the lead (first) one.

Coordinated Departure Taxi Phraseology

"<CALLSIGN>, follow the <TRAFFIC TYPE> on <TAXIWAY> to holding point runway <XX>."

Example: Departure Taxi (Multiple Aircraft)

N100PU - IFR			**E50P/L**
CITYPAIR	**CFL**	**Filed Route**	
MKJP - MWCB	**230**	**KEMBO A511 CBC**	
N828MS - VFR			**P28A/A**
CITYPAIR	**CFL**	**Filed Route**	
MKJP - MKNG	**A055**	**SOUTH COAST**	

N100PU:	MANLEY GROUND, Phenom 100P ready to taxi runway 30.
MKJP_GND:	Phenom 0PU, Manley Ground, good morning. Taxi via alpha, echo, holding point runway 30. QNH 1013.
N828MS:	MANLEY GROUND, Piper 828MS request taxi runway 30, departure to Negril.
MKJP_GND:	Piper 8MS, QNH 1013, Squawk 5002. Follow the Embraer Phenom on alpha, to echo, holding point runway 30.
N828MS:	Squawking 5002, behind the Phenom on alpha to echo holding point runway 30, 8MS.

3.10 Arriving Aircraft Taxi

Arrivals are instructed to contact ground when they receive the instruction to vacate the runway. From here, a GND controller has the simple task of directing and monitoring an aircraft's trip to the terminal or apron.

Arrival Taxi Phraseology

"<CALLSIGN>, <ATC UNIT>, good day. Turn <LEFT/RIGHT> on <TRANSIT TAXIWAY>, taxi to the gate. Remain this frequency."

Example: IFR Arrival Taxi

MKJS_GND:	THOMSON 880 HEAVY, Sangster Ground, good evening, turn right on alpha, taxi to the gate, remain this frequency.

Example: VFR Arrival Taxi

N828MS:	SANGSTER GROUND, Piper 828MS vacated on bravo, taxi to FBO ramp.
MKJS_GND:	PIPER 8MS, Sangster Ground, good day. Taxi to the ramp via alpha, alpha-one. Remain on my frequency.

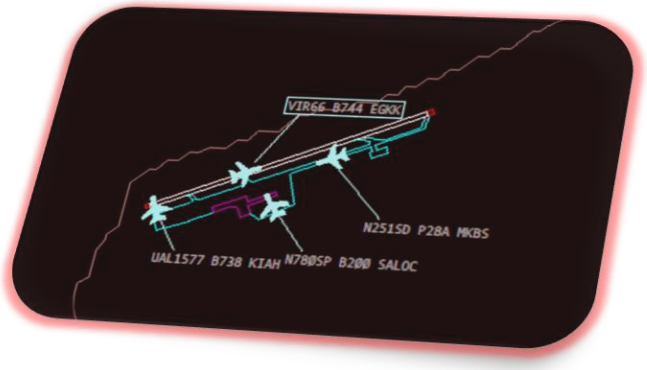
3.11 Wake Turbulence Taxi

Example: Taxi Wake Turbulence Warning

MKJS_GND:	CARIBBEAN AIRLINES 11, Sangster Ground, follow the Heavy 777 on alpha to holding point runway 07. Caution wake turbulence.

4. Aerodrome Tower (TWR) Control

4.1 Services Provided



An aerodrome control unit provides services principally to aircraft flying with visual reference to the surface, in the aerodrome traffic zone and operating on the maneuvering area:

a) aerodrome tower control service
b) flight information service
c) aerodrome ground service (if no GND online)

4.2 Area of Jurisdiction and Authority

The area of jurisdiction of aerodrome control is the aerodrome traffic zone (ATZ) and the services provided therein will be consistent with its airspace classification. It's important to note the distinction between the CTR (Control Zone), controlled by APP, and the ATZ, controlled by TWR. They are both Class D airspaces surrounding the airport. What makes the (much smaller) ATZ different is its special purpose: protecting aerodrome traffic. No aircraft may enter a controlled ATZ unless taking off or landing.

4.3 General Responsibilities

Aerodrome controllers shall maintain a continuous watch on all flight operations within the aerodrome traffic zone as well as vehicles and personnel on the maneuvering area. Watch shall be maintained by visual observation augmented where available by the radar surveillance system.

Aerodrome control is responsible for issuing information and instructions to aircraft under its control to achieve a safe, orderly and expeditious flow of air traffic and to assist pilots in preventing collisions between:

a) aircraft flying within the aerodrome traffic zone
b) aircraft taking off and landing
c) aircraft or obstructions and other aircraft on the movement area

4.4 Relevant Positions

Table 4A: Aerodrome TWR Positions, Jamaica

Position	Callsign	Airspace	Limits	ID	FREQ.
Manley Tower	MKJP_TWR	Manley ATZ (Class D)	**1,500 ft SFC/GND**	**TM**	118.650
Sangster Tower	MKJS_TWR	Sangster ATZ (Class D)	**1,500 ft SFC/GND**	**TS**	118.750

4.5 Selection of Runway-In-Use

The term “runway-in-use” should refer to the runway that, at a particular time, is considered by the aerodrome TWR controller to be the most suitable for takeoff and landing.

Normally, an aircraft will land and take off into wind unless safety, runway configuration or traffic conditions determine that a different direction is preferable. When the surface wind speed is 5 knots or greater, the runway-in-use is normally the one most closely aligned with the surface wind direction. The criteria for the selection of runway-in-use based solely on wind direction are self-explanatory. The runway with the magnetic heading most similar to the direction of the present winds shall be chosen.

When selecting the runway-in-use, the aerodrome controller shall consider the following:

a) traffic conditions
b) length of runways or landing runs
c) approach and landing aids available
d) type of aircraft
e) taxiing distance to or from runway
f) weather factors

4.6 Runway Changes

Should a change of runway be necessary aerodrome control, after consultation with approach control, shall inform the following parties:

a) aircraft under his control
b) personnel working on the aerodrome who will be affected by the change
c) adjacent aerodromes where traffic will be affected

An aerodrome TWR controller may suggest, or approve a request for another runway other than the one determined provided:

a) he will gain an operational advantage
b) he clearly indicates the wind direction and speed to the pilot
c) the final decision is made by the pilot

When authorizing the use of a runway based on is criteria, aerodrome controller shall consider the following factors:

a) runway condition – wet or dry
b) effective cross-wind component
c) effective tail-wind component

An aerodrome controller electing to use both ends of the runway must ensure that safety is not jeopardized and the above cross-wind and tail-wind thresholds are not breached.

4.7 Flight Information & ATIS

4.7.1 Automated Terminal Information Service (ATIS)

Table 4B: ATIS Stations, Jamaica

Position	Callsign	Frequency
Manley Information	MKJP_ATIS	127.700
Sangster Information	MKJS_ATIS	127.900

Pilots departing the Aerodrome Traffic Zone (ATZ) should report ATIS Onboard as soon as they have received the content of the current ATIS. If a pilot fails to report the ATIS onboard during IFR and taxi clearances, the controller should continue to remind him of the current ATIS until the pilot reports having it, e.g. "INFORMATION ALPHA IS CURRENT, 127.9" or "ADVISE WHEN YOU'VE RECEIVED ATIS INFORMATION BRAVO".

4.7.2 Flight Information Service (FIS or AFIS)

Flight Information Service is a component of ATC services which boils down to the provision of the following information:

a. Weather conditions reported or forecast at departure, destination and alternate aerodromes
b. Collision hazards to aircraft operating in airspace classes C, D, E, F and G
c. Exercises in progress and airspace reservation (Restricted zone)

4.8 Radar Surveillance

Both TWR positions in Jamaica are strictly non-radar. Much like in real life, TWR receives limited radar information for situational awareness but is not permitted to effect any radar surveillance procedures such as vectoring and radar traffic point-outs.

TWR controllers should refrain from "tracking" (assuming) departing aircraft, as the APP control above is trained to track them as soon as they take off. TWR controllers should, however, track arriving aircraft, including handoffs from APP.

4.9 Coordination

4.9.1 Aerodrome GND Control

If GND and TWR are both manned by two different controllers, no coordination between the two is compulsory unless it's for a runway change. A TWR controller should remain vigilant over the movement area.

4.9.2 Approach (APP) & Area (CTR) Control

When the APP sector above you is controlled by Radar APP or Area CTR, two instances of coordination should take place for departing aircraft:

a) If a radar approach controller is online above you (or CTR, if APP offline), you must solicit a "clearance valid" message from them. This request should be made by TWR as an IFR departure approaches the end of its taxi route.

Example: Clearance Valid Request

MKJS_TWR:	RADAR, Sangster Tower request clearance valid, JBU1722.
MKJS_APP:	TOWER, Radar, JBU1722 clearance valid.
MKJS_TWR:	Roger, clearance valid.

b) As an IFR aircraft departs, the TWR controller should inform the highest presiding Radar controller of the airplane's departure time:

Example: Airborne Notification

MKJS_TWR:	RADAR, Sangster Tower, departure, JBU1722.
MKJS_APP:	Go ahead.
MKJS_TWR:	JBU1722 airborne 18 runway 07.
MKJS_APP:	Roger.

4.10 Effect of Weather on Flight Operations

4.10.1 Suspension of VFR

When the official meteorological reports show either a visibility of less than 5 km or a cloud ceiling[1] of less than 450 m (1,500 ft) the aerodrome controller shall suspend VFR operations within the aerodrome traffic zone and take the following action:

a) Hold all VFR departures
b) Recall all local fights operating under VFR or obtain approval for SVFR operations
c) Notify all Kingston ATC units of the action taken
d) Notify pilots of the reason for taking such action, if necessary or requested

4.10.2 Marginal or Fluctuating Conditions

When the weather conditions are marginal or fluctuating about the relevant minima, the controller should advise each aircraft of the prevailing conditions and Permit VFR operations to continue if in his judgement it appears feasible.

4.10.3 Takeoff Minimums

Table 4C (below) contains the visibility requirements for executing takeoffs at MKJP, MKJS.

Table 4C: Minimum Takeoff Visibility, Jamaican Airports

Runway	Aircraft	Min. Visibility
MKJP 12/30	1 & 2 Engines	1.9 km
	3 & 4 Engines	930 m
MKJS 07/25	1 & 2 Engines	1.9 km
	3 & 4 Engines	926 m

The information presented on this page is purely for reference. It is not enforceable on VATSIM as it would be redundant and not everyone has the same weather.

[1] The ceiling is the lowest reported BKN (broken) or OVC (overcast) layer on the local METAR.

4.11 Handling of Departing Aircraft

4.11.1 IFR Departures

IFR Departures will receive the following clearance from Aerodrome TWR control:

a) Traffic information, if any
b) Departure Heading/SID (see Table 3C)
c) Surface Wind Condition
d) The phrase "*CLEARED FOR TAKEOFF*"

IFR Takeoff Clearance Phraseology

"**<CALLSIGN>, <ATC UNIT>, <SID OR DEP VECTOR>. Winds <DEGREES> at <KNOTS>, runway <XX>, cleared for takeoff.**"

Example: IFR Departure (noise abatement heading)

JBU1722 - IFR		**A320/Q**
CITYPAIR	**CFL**	**Filed Route**
MKJS - KMCO	**360**	**HAWLS M347 EPSIM UM347 ZEUSS DHP BAIRN BAIRN3**

JBU1722:	SANGSTER TOWER, JetBlue 1722 reaching holding point on alpha, runway 07. Ready to go.
MKJS_TWR:	JETBLUE 1722, Sangster Tower, good day. After departure turn left heading 030. Wind 070 degrees 12 knots. Runway 07, cleared for takeoff.
JBU1722:	Left 030 after departure, cleared takeoff runway 07, 1722.
MKJS_TWR:	JETBLUE 1722, airborne 15. Contact Radar on 120.8.

Example: IFR Departure (SID)

AAL1545 - IFR		**B738/L**
CITYPAIR	**CFL**	**Filed Route**
MKJP – KMIA	**340**	**MLY UL417 BORDO FLIPR**

AAL1545:	MANLEY TOWER, American 1545 reaching holding point on echo, runway 30. Ready to go.
MKJP_TWR:	AMERICAN 1545, Manley Tower, good day. Fly the heading 300. Wind 280 degrees 8 knots. Runway 30, cleared for takeoff.
AAL1545:	Heading 300, cleared takeoff runway 30, 1545.
MKJP_TWR:	AMERICAN 1545, airborne 23, contact Radar, 120.6. Good day.

4.11.2 VFR Departures

VFR Departures will receive the following clearance from Aerodrome TWR control:

a) Traffic information, if any
b) Departure Instructions
c) Surface Wind Condition
d) Takeoff Clearance

VFR Takeoff Clearance Phraseology

"<CALLSIGN>, make <CIRCUIT LEG> departure. Winds <DEGREES> at <KNOTS>, cleared for takeoff runway <XX>."

Example: VFR Takeoff Clearance

6Y-JJC - VFR		**C206/G**
CITYPAIR	**CFL**	**Filed Route**
MKJS - MKTP	**A075**	**DCT**

6Y-JJC:	SANGSTER TOWER, Cessna 6Y-JJC is holding short of 07 on alpha, ready to go, VFR.
MKJS_TWR:	CESSNA 6JC, Sangster Tower. Traffic on the downwind, no factor. Make straight-out departure. Wind 080 degrees 5 knots, cleared for takeoff runway 07.
6Y-JJC:	Straight out, cleared for takeoff 07, Cessna 6JC.

MKJS_TWR:	CESSNA 6JC, airborne 12, contact Radar, 120.8. See ya!

If a VFR aircraft is departing to remain in the traffic pattern for multiple circuits:

Example: VFR Departure for traffic circuits

6Y-JAT:	MANLEY TOWER, Cessna 6AT is holding short of 12 on alpha, ready to go, remaining in pattern for the option.
MKJP_TWR:	CESSNA 6AT, Manley Tower, make left-closed traffic. Cleared for takeoff runway 12, winds 130 degrees 9 knots.
6Y-JJC:	Left traffic, cleared for takeoff runway 12, 6AT.

4.11.3 “Line-Up and Wait”

A departing aircraft may be authorized to taxi into the line-up position and wait when take-off clearance cannot be issued because of traffic, wake turbulence or other reasons.

Line-up-and-Wait Phraseology

"**<CALLSIGN>, line up and wait runway <XX>.**"

Example: VFR Departure for traffic circuits

MKJP_TWR:	CESSNA 6JC, Sangster Tower, line up and wait runway 07, caution wake turbulence.

4.11.4 Intersection Departures

An intersection departure is a takeoff performed from a taxiway/runway intersection other than the standard holding point. An intersection departure can speed up an aircraft’s departure considerably, but can also deprive larger jets of preciously needed runway roll.

Intersection Departure Phraseology

"**<CALLSIGN>, make <CIRCUIT LEG> departure. From intersection <INTERSECTION>, cleared for takeoff runway <XX>.**"

Example: Intersection Departure Takeoff

MKJS_TWR:	CESSNA 6JC, Sangster Tower, left downwind departure. From intersection Delta, cleared for take off runway 07. Winds 050 degrees at 13 knots.

4.12 Handling of Arriving Aircraft

4.12.1 Joining Traffic Circuit

Clearance to enter a traffic circuit should be issued when an aircraft is still some distance from the airfield to enable the pilot to conform with the traffic circuit, pending clearance to land. This clearance should normally be given by Radar (APP) control, but if no such controller is online, but otherwise can fall to the Aerodrome TWR controller. Instructions to join the circuit are usually given by the Radar (APP) controller, but in his absence or forgetfulness the Aerodrome TWR may do so. Information concerning landing direction or runway in use and any other necessary instructions shall be given at the same time so that the pilot may intelligently position himself in the traffic pattern. This instruction/advice must contain the following:

a) aircraft identification (callsign)
b) position at which to join the circuit and reporting point (if necessary)
d) other information such as traffic or essential aerodrome information

Depending on the circumstances and traffic conditions, an aircraft may be cleared to join at any position in the traffic circuit; except that, an aircraft executing an instrument approach shall normally be cleared straight-in unless visual maneuvering to the landing runway is required.

Circuit Entry Phraseology

"**<CALLSIGN>, join <LEFT/RIGHT> <CIRCUIT LEG> runway <XX>.**"

Examples: Instructions to join Traffic Circuit

MKJS_TWR:	CESSNA 6JC, join left downwind runway 07. Report base.
MKJP_TWR:	JETBLUE 876, join right base runway 12.
MKJS_TWR:	CIRRUS 0PU, make straight-in runway 25.

Aircraft may be cleared to proceed overhead the aerodrome and thereafter to enter the traffic circuit at a specified point.

Example: Overflying the field to join Traffic Circuit

MKJS_TWR:	JAMAICA AIR SHUTTLE 329, overfly the field, join left downwind runway 07.

4.12.2 Clearance to Land

An aircraft may be cleared to land when there is reasonable assurance that the prescribed separation between any departing or arriving aircraft will exist when that aircraft crosses the threshold of the landing runway. If a landing clearance cannot be issued after an arrival's initial report to TWR is made, but it is assessed that the landing area will become available, the aircraft shall be instructed to "*CONTINUE APPROACH*" and the reason given, when appropriate.

Example: Landing Clearance Unavailable

MKJP_TWR:	PHENOM 0PU, Manley Tower, continue approach, traffic departing runway 12. Expect late landing clearance.

Clearance to land shall be issued to an aircraft no later than short final and should be issued without waiting for a request from the Aircraft, in the form of:

a) aircraft identification
b) ATC unit identification
b) other information or instruction as required
d) Wind direction and speed
e) The phrase "*CLEARED TO LAND*"

Landing Clearance Phraseology

"<CALLSIGN>, Winds <DEGREES> at <KNOTS>, runway <XX>, cleared to land.

"<CALLSIGN>, Winds <DEGREES> at <KNOTS>, runway <XX>, cleared for <THE OPTION/TOUCH AND GO/STOP AND GO>."

Examples: Clearance to Land

MKJP_TWR:	INSEL AIR 71, Manley Tower, winds calm. Runway 30, cleared to land.
MKJS_TWR:	DELTA 861, Sangster Tower, traffic on the upwind, winds 070 degrees 9 knots. Runway 07, cleared to land.

4.12.3 Post-Landing Instructions

After an arriving aircraft has completed its landing roll, the air controller shall:

a) welcome and advise the aircraft of its actual time of arrival
b) issue instructions for vacating the runway and frequency change

Post-Landing Phraseology

"<CALLSIGN>, landed <TIME>, welcome to <AERODROME>, vacate <LEFT/RIGHT> on <EXIT>, contact ground on <121.700>."

Examples: Post-Landing Instructions

MKJP_TWR:	INSEL AIR 71, landed 32, welcome to Manley, vacate right on bravo, contact Ground 121.70.
MKJS_TWR:	DELTA 861, landed on the hour, welcome to Sangster, vacate right on bravo, contact Ground 121.70.

4.12.4 Touch-And-Go, Stop-And-Go, or Low Approach

The phrase "CLEARED FOR THE OPTION" used in place of "CLEARED TO LAND" authorizes an aircraft to perform the pilot's choice of touch-and-go, stop-and-go, or low approach. The TWR controller may also specify which of the maneuvers the aircraft is cleared for, e.g. "CLEARED TOUCH-AND-GO". Aircraft cleared for the "option" MAY NOT perform a full-stop landing.

An aircraft performing several traffic circuits successively should inform the TWR controller when ready to perform their full-stop landing. If clearance for a different type of maneuver has already been issued the controller can overwrite any disparity by affirming "CLEARED TO LAND".

4.12.5 Short Approach

A "short approach" is a varied maneuver in which the aircraft abbreviated their downwind and base legs dramatically. This leads to a very short final and a much quicker vacating of the runway. In many real-world areas this maneuver is limited to (or only performed regularly by) holders of commercial pilot certificates. Thus, a TWR controller must first verify the pilot's willingness to make a short approach ("N780SP, able short approach?") before instructing them to do so ("N780SP, make short approach, cleared for the option...").

4,12.6 Go-Around and Missed Approach

If there is not a reasonable assurance of prescribed separation as an arriving aircraft approaches the runway threshold, the TWR controller should initiate a go-around. If the aircraft is performing an instrument approach, TWR should instruct the pilot to perform the published missed-approach procedure and switch back to APP control. If the aircraft is VFR or on a visual approach in clear VMC, the aircraft should remain with TWR as it figures not to leave the ATZ.

Go-Around Phraseology

"<CALLSIGN>, go around. I repeat, go around. <REASON>."

Example: Go-Around on Instrument Approach

MKJP_TWR:	INSEL AIR 71, go around. I repeat, go around. Traffic on the runway.
INC71:	Going around, Insel Air 71.
MKJP_TWR:	INSEL AIR 71, execute the published missed approach procedure. Contact Radar on 120.6.

Example: Go-Around while VFR or on Visual Approach

MKJS_TWR:	SUNWING 732, go around. I repeat, go around.
SWG732:	Going around, 732.
MKJS_TWR:	SUNWING 732, make left closed traffic runway 07.
SWG732:	Turning crosswind to downwind, Sunwing 732.
MKJS_TWR:	SUNWING 732, cleared to land runway 07.

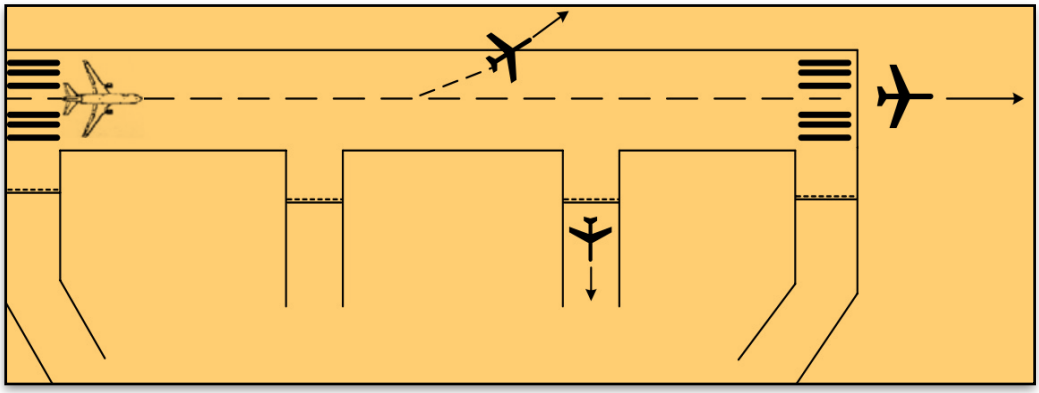
4.13 Traffic Circuit & Local Sequencing

The only tool available to a TWR controller for the separation and sequencing of ATZ Traffic is visual separation. This means that the controller must use their best judgement in ensuring that landing, departing, and traffic-circuit aircraft are not in conflict with each other.

4.13.1 Departures

No departing aircraft shall not be permitted to commence take-off until the preceding departing aircraft has crossed the end of the runway-in-use, or has started to turn, or until all preceding landing aircraft are clear of the runway-in-use.

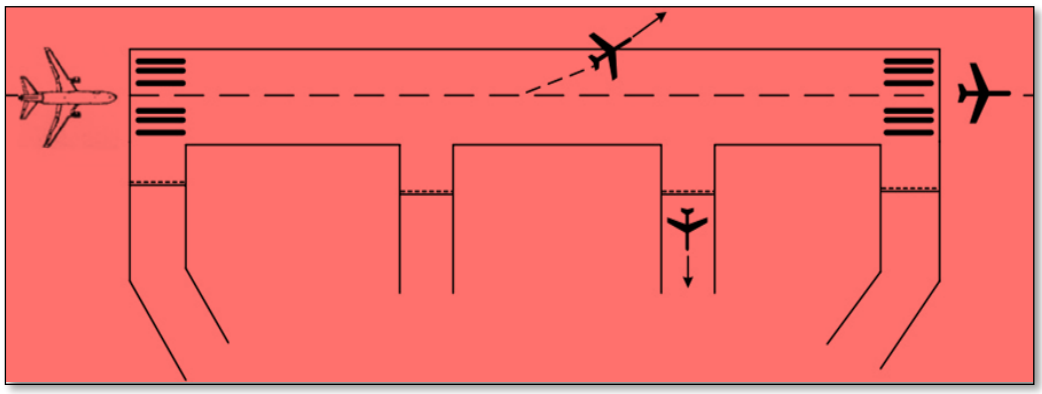
Figure 4D: Departure Separation



4.13.2 Arrivals

An arriving aircraft shall not be permitted to cross the threshold on its final approach until the preceding departing aircraft has crossed the end of the runway-in-use, or has started to turn, or until all preceding landing aircraft are clear of the runway in use.

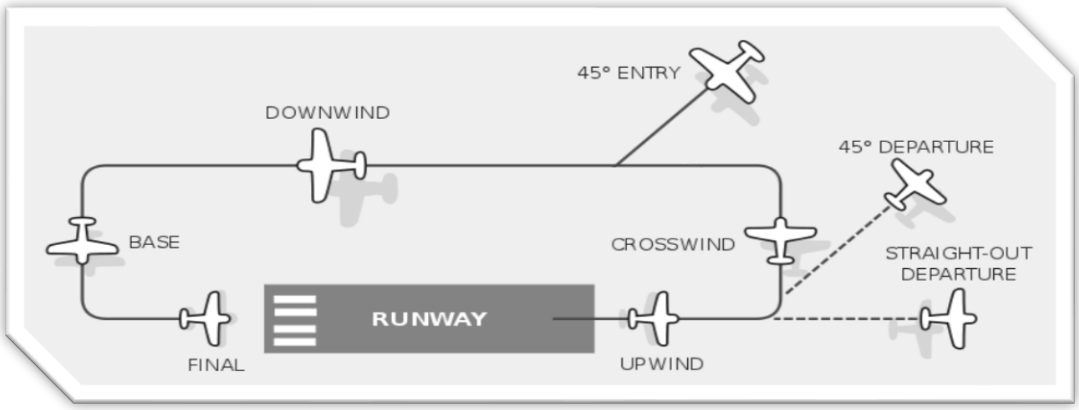
Figure 4E: Arrival Separation



Simply put: if the aerodrome controller can see both aircraft, or both aircraft report that they can see each other, or a following aircraft reports that it can see the preceding one, controllers may reduce the standard separation to whatever is adequate to prevent a collision.

4.13.3 The Traffic Circuit

Figure 4F: Detailed Traffic Circuit Diagram



4.13.4 Purpose of the Circuit

The Aerodrome Traffic Circuit is one of the defining elements of an Aerodrome control unit. It establishes the methodologies of departing or arriving at the Aerodrome while VFR or operating IFR in VMC conditions. In this way, the Aerodrome controller can control how an aircraft enters the circuit and how an aircraft exits it. The controller can also modify the legs of the circuit as the aircraft flies it to affect sequencing and separation.

4.13.5 Critical Positions in the Traffic Circuit

Aerodrome controllers should be on the alert for conflicts between traffic in the following scenarios:

- aircraft on left base and aircraft on right base
- aircraft on base leg and aircraft on final
- aircraft on downwind and aircraft joining base leg
- aircraft on downwind and aircraft joining long downwind

4.13.6 Circuit Altitude

Standard altitude for flying in the traffic circuit is 1,000 AGL in relation to the airport elevation.

4.13.7 Traffic Circuit Sequencing

The aerodrome controller shall establish, maintain or adjust the spacing between aircraft in the aerodrome traffic circuit. This may be achieved by employing the following techniques:

a) Extending Downwind: This may be used to fit traffic on final. Can be indefinite or attached to a duration. E.g. "EXTEND DOWNWIND FOR TWO MINUTES"

b) Widening Downwind: This may be used to space aircraft on final and one on downwind. E.g. "WIDEN DOWNWIND"

c) Widening Base: This may be used to space aircraft on final and one on base E.g. "WIDEN BASE; MAKE WIDE APPROACH"

d) Shortening Approach: This may be used to expedite traffic. E.g. "MAKE SHORT APPROACH"

Note: If the instruction is given to extend a traffic-circuit leg ("CIRRUS 0SP, EXTEND DOWNWIND") but does not include a time or distance by which to extend it, the extension is indefinite. The controller releases the aircraft from this extension by instructing the pilot to turn the next leg, e.g. "Cirrus OSP, turn base."

Traffic Alert Sequencing Phraseology

"**<CALLSIGN>, extend <CIRCUIT LEG>...**" "**...<XX> minutes.**"

"**<CALLSIGN>, make short approach runway <XX>.**"

4.13.8 Visual Traffic Alerts

In order to establish pilot-maintained visual separation between two airplane, the TWR controller must alert one aircraft to the other. The point-out is comprised thusly:

a) aircraft identification
b) traffic direction of flight and nature of conflict
c) traffic runway position/intentions
d) request for visual report
e) avoidance recommendations (if necessary)

Visual Traffic Alert Phraseology

"**<CALLSIGN>, traffic, <DIRECTION OF FLIGHT>, a <TRAFFIC TYPE> <POSITION INFORMATION>. Report them in sight.**"

Example: Non-Sequenced Visual Separation

MKJP_TWR:	JETBLUE 224, traffic, westbound, a Learjet on the upwind runway 30. Report them in sight.
JBU224:	Traffic in sight, JetBlue 234.
MKJP_TWR:	JETBLUE 224, roger, maintain visual separation.

ATZ Traffic Sequencing Phraseology

"**<CALLSIGN>, traffic to follow is on the <TRAFFIC CIRCUIT LEG> for runway <XX>, a <TRAFFIC TYPE>. Report them in sight.**"

"**<CALLSIGN>, roger. Follow that traffic, number <XX> for landing.**"

Example: Following (Sequenced) Traffic

MKJS_TWR:	N780SP, extend downwind. Traffic is on the left base, runway 07, a Cessna 172. Report them in sight.
N780SP:	Piper 0SP has the 172 in sight.
MKJS_TWR:	Piper 0SP, roger, follow that traffic, #2 for landing.

Note: Even if the pilot of an aircraft fails to report the alerted traffic in sight after being prompted by a TWR alert, separation may still exist as left to the visual discretion of the controller. Likewise, you may issue a traffic alert in a scenario in which pilot-maintained visual separation is unnecessary. In this case there's no need to ask the pilot to report the traffic in sight. You may also append the phrase "NO FACTOR" or a variation to such an alert.

Examples: Non-Conflicting Traffic Alert

MKJP_TWR:	INSEL AIR 71, Manley Tower, continue approach, traffic is on the left base, runway 12. Should be no factor.

In most cases of pilot-maintained visual separation, one aircraft is following another and the preceding aircraft can't see the aircraft following his. In this case TWR needn't say anything to that preceding aircraft. In some instances, however, only one of two conflicting aircrafts is maintaining visual separation but it makes sense to alert the other. Imagine, for example, separating a plane on upwind from a plane joining the downwind. Here's how you inform an aircraft that another aircraft has reported them in sight and is maintaining visual separation:

Example: Notification of Visual Separation

MKJS_TWR:	CIRRUS 0PU, traffic 10 o'clock low, MD82 lifting off from runway 07.
N590PU:	Departing traffic in sight, Cirrus 0PU.
MKJS_TWR:	N590PU, maintain visual separation.
N590PU:	Maintain visual, 0PU.
MKJS_TWR:	WORLD ATLANTIC 227, airborne time 15, traffic is 11 o'clock opposite direction, a Cirrus on long downwind, has you in sight and maintaining visual separation.
WAL227:	Roger, keeping an eye out, 227.

4.13.9 Failure of Separation

Aerodrome TWR separation fails in one or more of the following instances:

a) two or more aircraft appear in danger of colliding
b) two arriving or two departing aircraft are in contradiction to the guidelines set forth in 4.13.2 or 4.13.3, respectively
c) a runway incursion (see 4.13.10).

4.13.10 Corrective Actions

If separation fails or threatens to fail in any way described in 4.13.9, the controller should undertake a corrective series of actions. These are limited by the scope and methods of Aerodrome TWR control, but consist of the following:

a) Issuance of a traffic alert as explained in 4.13.8, and
b) One of the following actions:
    I. Cam or withholding takeoff or landing clearance (e.g. "N780SP, CANCEL TAKEOFF I SAY AGAIN CANCEL TAKEOFF") or.
    II. Suggestion of appropriate avoiding action

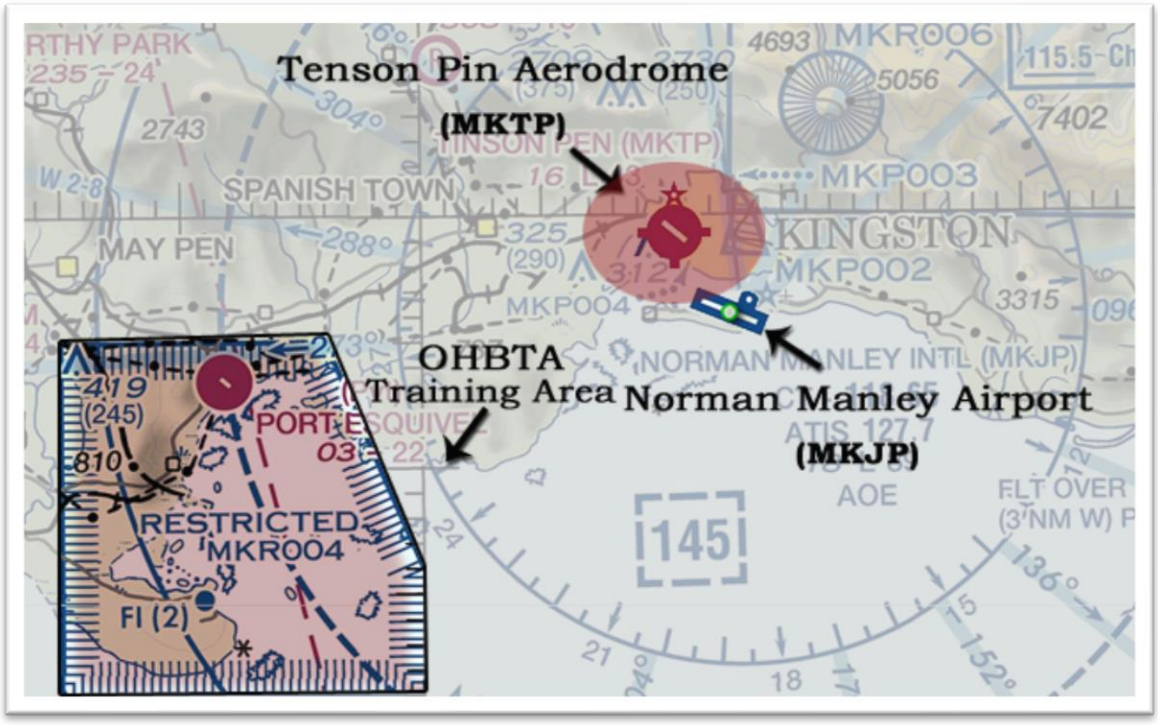
4.14 Tinson Pen & OHBTA

NOTE: This section (4.14) applies only to the Manley Aerodrome TWR (MKJP_TWR) position.

4.14.1 Tinson Pen Departures

The Tinson Pen Aerodrome (MKTP) is a domestic VFR aerodrome in the city of Kingston, just across the harbor from its gigantic brother, MKJP. A tiny TIZ (Class E) airspace surrounds MKTP, cutting into the northern half of the Manley ATZ. TIZs are associated with AFIS (field information services), not controlling traffic but providing FIS services (traffic alerting and weather). AFIS facilities are not simulated on VATSIM, so the control of this Class E airspace goes to Manley Aerodrome TWR (MKJP_TWR). Like any other VFR or IFR flight which intends to enter controlled airspace in Jamaica, MKTP operations must file valid flight plans. No IFR clearances may be given to or from MKTP, since it is a VFR aerodrome. IFR Flights must depart the aerodrome VFR and request an IFR clearance from APP once airborne. IFR arrivals must terminate their IFR flight plans and proceed visually to the airport. Since Tinson Pen lacks customs, no international flight plans will be approved.

Figure 4G: Kingston and Old Harbor Bay



Since the TIZ is Class E, VFR flights are not separated by ATC. But since any aircraft departing MKTP's runway 14/32 is largely blocked by terrain to the north, permission must be given by MKJP TWR to cross the runway 12/30 centerline. This prevents a departure from flying into the path of an arrival or departure at MKJP or flying into a clogged ATZ. Permission is given or refused in reference to crossing the runway 12/30 centerline, which laterally marks the southern border between Tinson Pen TIZ and Manley ATZ. Ideally, MKTP Departures should make this request from MKTP_TWR just before taking off. When authorizing a MKTP departure to cross the 12/30 centerline, MKJP_TWR should assign a VFR squawk code. Once past the centerline, TWR should hand the aircraft off to MKJP_APP for radar services.

4.14.2 Old Harbor Bay Training Area

The Old Harbor Bay Training Area (OHBTA) is the common name for MK-R(004), a restricted airspace in the southwest corner of the Manley CTR. Vertically it extends from the surface of the Caribbean Sea to 3,500 ft MSL. This is a special area reserved for Pilot-Cadets and Civilian students based in Kingston to practice private and commercial pilot maneuvers without interfering with IFR traffic. Any aircraft departing VFR from MKJP or MKTP bound for the OHBTA must file an appropriate flight plan. OHBTA Departures from MKJP should be given a VFR squawk code. Since the restricted area is controlled by Manley Radar APP, MKJP_TWR should make a "clearance valid" request to MKJP_APP before takeoff clearance to ensure the OHBTA is open for business and unoccupied. MKTP Departures must contact MKJP_TWR before or immediately after takeoff. MKJP_TWR should assign a VFR squawk code and clear the aircraft to cross the runway 12/30 centerline if traffic permits. Once near the ATZ boundary they should be handed to Manley Radar APP.

Example: Tinson Pen OHBTA Departure (centerline conflict)

6Y-JGZ - VFR		**P28A/A**
CITYPAIR	**CFL**	**Filed Route**
MKTP - MKTP	**A035**	**DCT OHBTA**

6Y-JGZ:	MANLEY TOWER, Piper 6GZ westbound out of Tinson Pen, VFR to training area, Manley information bravo.
MKJP_TWR:	PIPER 6GZ, Manley Tower, remain north of the Manley runway 12 centerline for now, traffic is a Cessna Citation climbing upwind out of runway 30.
6Y-JGZ:	Remaining north of 12 centerline, Piper 6GZ.

MKJP_TWR:	PIPER 6GZ, cleared to cross the runway 12 centerline, squawk 5006.
6Y-JGZ:	Cleared across your centerline and 5006 in the box, 6Y-JGZ.
MKJP_TWR:	PIPER 6GZ, contact Radar on 120.6, good day.
6Y-JGZ:	120.6 for 6GZ, have a good one.

4.14.3 Tinson Pen Arrivals

IFR arrivals to MKTP (rare though they are) will generally be cleared by Manley Radar APP for an instrument approach to MKJP's runway 12 and told to report the Tinson Pen aerodrome in sight. Once visual contact is reported, APP closes the IFR flight plan, terminates ATC services, and issues a frequency change to UNICOM. Since such a flight transits directly from the Manley CTR airspace to the Class E Tinson Pen TIZ, Aerodrome TWR is not concerned. VFR arrivals from the north, since they do not threaten to cross the runway 12/30 centerline, also may proceed from the CTR to the TIZ (APP to UNICOM). VFR arrivals from the west (Sangster, Negril) or the south (Returning from OHBTA) will be handed off from APP just before entering the ATZ, as they must receive clearance from MKJP_TWR to cross the runway 12/30 centerline to get to Tinson Pen. Once a VFR arrival has crossed the 12/30 centerline, MKJP_TWR should issue a frequency change to UNICOM.

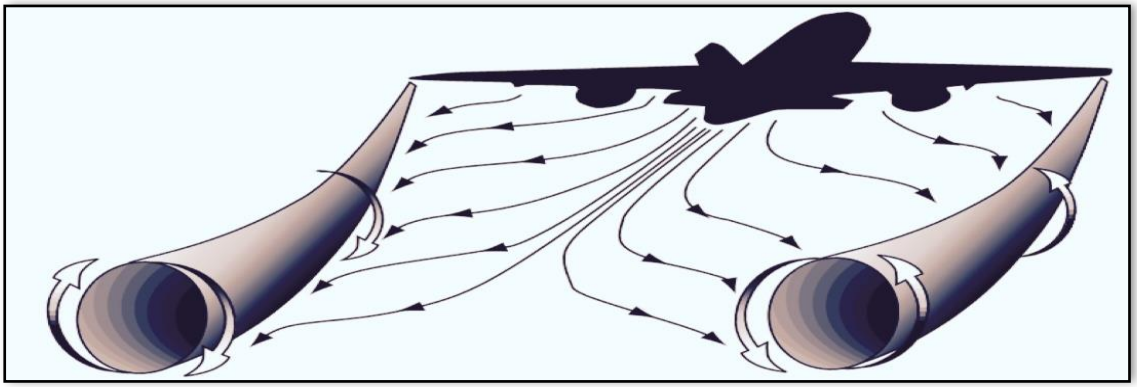
Example: Tinson Pen Arrival

6Y-JHV- VFR			**AC50/G**
CITYPAIR	**CFL**	**Filed Route**	
MKTP - MKTP	**A035**	**OHBTA**	

6Y-JHV:	MANLEY TOWER, Aero-Commander 6HV is 6 miles south of Tinson Pen, inbound for landing, requesting flight information.
MKJP_TWR:	AERO-COMMANDER 6HV, Manley Tower. Cleared to cross the Manley runway 12 centerline. Winds at Manley are from 130 degrees at 12 knots. Few clouds at 1,900, ceiling broken at 2,700. QNH 1014. No reported traffic to affect you.
6Y-JHV:	Cleared across the 12 centerline, copy information, thanks, 6HV.
MKJP_TWR:	AERO-COMMANDER 6HV, change to UNICOM, 122.8. Safe landing.
6Y-JHV:	122.8, 6HV.

4.15 Wake Turbulence Separation

Figure 4H: Wake Turbulence



Wake turbulence separation minima are based on a grouping of aircraft into four wake Turbulence categories (light, medium, heavy, super) and are applicable to both IFR and VFR flights except as specified in Tables 4I and 4J.

Table 4I: Departure Wake Turbulence Separation

Sequence	Light	Medium	Heavy
Departing behind SUPER	3 min	3 min	2 min
Departing behind HEAVY	3 min	2 min	--
Departing behind MEDIUM	3 min	--	--

Table 4J: Arrival Wake Turbulence Separation

Sequence	Light	Medium	Heavy
Arriving behind SUPER	4 min	3 min	--
Arriving behind HEAVY	3 min	2 min	--
Arriving behind MEDIUM	3 min	--	--

Pilots operating in the following circumstances are responsible for ensuring that the spacing from a preceding aircraft of a heavier weight category:

a) VFR Arrivals

b) IFR Arrivals who have reported preceding traffic in sight and have been instructed to maintain visual separation or follow that traffic.

Examples: Wake Turbulence Advisory Message

MKJP_TWR:	INSEL AIR 71, caution wake turbulence from arriving 747, winds 130 degrees 14 knots, runway 12 cleared to land.
MKJS_TWR:	DELTA 861, caution wake turbulence from departing A330, winds 080 degrees 6 knots, runway 07, cleared for takeoff.

4.16 Helicopter Operations

4.16.1 Runway Operations

When circumstances dictate, helicopters shall be cleared to use the active runway for arrival or departure as follows:

a) arriving helicopters shall be cleared to land on the active runway and then to air-taxi to the relevant parking area as necessary.
b) departing helicopters shall be cleared to air-taxi via specified routes to the holding position of the active runway

Helicopter Air-Taxi Phraseology

"**Helicopter <CALLSIGN>, air taxi <RUNWAY/HOLDING POINT> via <TAXI ROUTE>.**"

Examples: Air-Taxi to/from Runway

MKJP_TWR:	HELICOPTER 7XM, Manley Tower, air taxi via alpha to holding point runway 12. Avoid the Boeing 737 pushing back on apron.
MKJS_TWR:	HELICOPTER 8GT, landed 32, welcome to Sangster. Vacate right when able. Air taxi to parking via alpha.

4.16.2 Non-Runway Operations

Helicopters wishing to take off or land at non-runway areas should be cleared as follows:

Helicopter (Non-Runway) Departure and Arrival Phraseology

"**Helicopter <CALLSIGN>, proceed as requested, caution <ANY EXISTING TRAFFIC/HAZARDS>.**"

Example: Non-Runway Helicopter Arrival

N808GT:	SANGSTER TOWER, Helicopter 808GT is 3 to the south, request landing at FBO ramp.
MKJS_TWR:	HELICOPTER 8GT, Sangster Tower, proceed as requested, use caution.

Example: Non-Runway Helicopter Departure

N227XM:	MANLEY TOWER, Helicopter 227XM, at the airline ramp, request departure to the east.
MKJP_TWR:	HELICOPTER 7XM, Manley Tower, proceed as requested, use caution.

5. Radar Approach (APP) Control

5.1 Services Provided

A Radar approach control unit provides services to IFR and VFR aircraft arriving and departing within, or transiting its airspace of jurisdiction:

a) approach control service
b) flight information service
c) aerodrome tower service (if no TWR online)
d) aerodrome ground service (if no GND)
e) aerodrome Flight Information (MKTP TIZ)

5.2 Area of Jurisdiction and Authority

The area of jurisdiction of approach control is the relevant TMA Sector along with all CTRs (Control Zones) within. This jurisdiction extends to all underlying ATZs, TIZs, and airport maneuvering surfaces when those Aerodrome TWR and Aerodrome GND positions are offline or indisposed.

5.3 General Responsibilities

Radar Approach controllers shall maintain a continuous watch over all flights operating within their terminal airspace and shall issue instructions, information and advice to such flights in order to achieve the required separation and results.

A Radar Approach (APP) controller in Jamaica shall use his radar control capabilities to perform the following additional functions in the provision of approach control service:

a) Vectoring of arriving traffic:
    i) Onto a final approach
    ii) To a point from which a visual approach can be completed
    iii) To a point from which a RNAV/GNSS approach can be completed
b) Flight-path monitoring of other pilot-interpreted arrival procedures
c) Providing separation between:
    i) Successive departing aircraft
    ii) Successive arriving aircraft
    iii) Arriving, departing, and transiting aircraft

5.4 Relevant Positions

Table 5A: Radar APP Positions, Manley Sector

Position & Frequency	Airspaces	Limits	ID & Callsign
Manley Radar **120.600**	**Jamaica TMA** (Manley SCTR)	14,500 ft 4,500 ft	**MR** **MKJP_APP**
	Manley CTR (25 NM RING)	14,500 ft 3,500 ft	
	Manley CTR (20 NM RING)	14,500 ft GND/SFC	
	Manley CTR (BLUE MOUNTAIN)	14,500 ft 8,500 ft	

Table 5B: Radar APP Positions, Sangster Sector

Position & Frequency	Airspaces	Limits	ID & Callsign
Sangster Radar **120.800**	**Jamaica TMA** (Sangster SCTR)	14,500 ft 4,500 ft	**SR** **MKJS_APP**
	Sangster CTR (35 NM RING)	14,500 ft 1,500 ft	
	Sangster CTR (15 NM RING)	14,500 ft GND/SFC	

5.5 Coordination

5.5.1 Aerodrome Tower (TWR) Control

If an Aerodrome TWR controller is online, then Radar APP takes precedence in approving clearances from TWR as explained in 4.9.2. Aerodrome TWR should submit all clearances to APP for validation and notify APP when an aircraft is departing.

5.5.2 Area Radar (CTR) Control

If Area Radar (CTR) control is online above your APP sector, you may coordinate two things via EuroScope's ongoing coordination feature:

a) TCP (Transfer-of-Control Point): the FIX or NAVAID at which an aircraft is to be handed over between APP and CTR.
b) TCA (Transfer-of-Control Altitude): the flight level/altitude to which an aircraft is to be cleared to climb/descend at the time of transfer between APP and CTR.

5.5.3 Contact-Me Requests

Radar APP control should only send a Contact-Me request to an aircraft if it is penetrating the TMA or CTR airspace or without prior permission. This is accomplished by pressing the HOME button on the keyboard or typing ".contactme" in the chat field and clicking on the aircraft's ASEL.

5.6 Radar Identification

When an aircraft enters Radar airspace, we are met with two pieces of loosely connected evidence: We have a raw Radar target, and we have a flight plan. Radar identification is the process of verifying the relationship between that target and that flight plan, and then identifying them (ideally via a transponder code) to receive ATC services.

5.6.1 Requirements for Radar Correlation and Identification

Before radar services may be established and maintained with an aircraft, the Radar APP controller must radar identify it using methods listed in 5.6.2 and 5.6.3. A controller must only fulfill primary identification of an aircraft to provide it with radar services, but since VATSIM's (fake) radars are reliable and nearly all VATSIM traffic flies with a fully-equpped Mode C transponder, the goal should always be to accomplish "primary" AND "beacon" identification criteria.

Note: Some aircraft which enter your control automatically have their flight plans "correlated" with their corrrsponding radar target, which permits the following steps to take place. Others must be manually correlated on your redar screen. All radar targets must be correlated to the appropriate flight plan before identification. This means that the controller must manually make a basic flight plan for aircraft without one filed in order to correlate it to the target.

5.6.2 Primary Identification

The following are methods of identifying a radar target. These methods rely solely on the radar waves which bounce off an airplane's metal skin and then return to the radar site as a fuzzy blip.

a) Observing the target aircraft within one mile of the departure end of the runway at the airport which you are controlling, or receiving a verbal confirmation from the observing tower controller, or a nonverbal point-out. Be they verbal or nonverbal, these messages are called "airborne" or "departing" messages.
b) Observing a radar target whose position corresponds accurately with respect to a verbal position report from the aircraft in question. Such a report must be made in relation to a Kingston FIR navigational aid or waypoint.
c) Observing a target make at least one "identifying turn" of 30 degrees or more, given by the Radar approach controller. The controller must confirm that no other aircraft in his sector is turning at that time. Note that the aircraft should be immediately vectored back onto his IFR or VFR flight course afterward.

Now, after fulfilling one of those three methods a controller would be totally correct in saying "Radar Contact". This is good enough if all the controller wants to see is a raw radar feed of the aircraft's lateral location and maybe a secondary altitude reading. But controllers have radars for a reason, they want to see all the information that a Mode C transponder allows.

Note: The type of verbal message that would constitute a "airborne call" for the purposes of the first primary identification method is mentioned already in this guide in Section 4.9.2. If the TWR controller is offline and the Radar Approach controller is performing the duties of Aerodrome Tower, the controller's witnessing of the aircraft's departure on his ATZ EuroScope display would also constitute the "observance" required.

5.6.3 Beacon (Transponder) Identification

Not only do modern transponders with Mode-C send real-time altitude readings to air traffic control, they also provide an alternative to the primary identification methods just listed by using the “IDENT” feature. Transponder beacons send out what we call a “secondary” wave of information to ATC. Now they are getting not only the raw primary radar response from the aircraft’s but also some critical information (like altitude) directly from the aircraft’s systems.

a) Requesting the aircraft to activate the “IDENT” feature on the transponder and then
b) Observing the IDENT mode on the radar target.
c) Request the aircraft to change to a specific four-digit squawk code and then observing an appropriate response on the radar target display.
d) Requesting the aircraft to turn off their transponder, then requesting them to turn it back on, and observing the appropriate changes in beacon display by the radar target.

All in all, radar identification is not just squawking a code and some red letters disappearing from a radar target. It’s the very real and practical act of associating a radar target with the proper identify and flight plan. Thankfully, we have much more information than just location, which we get from Mode-C transponders. But even those can be used to identify an aircraft in more ways than just entering a four-digit code. It might seem complicated at first, but the most important thing to take away is that some pilots will have a stuck or broken transponder, be flying an antique or experimental aircraft without a transponder, or will in some other way be a candidate for one of the other, more rustic forms of radar identification.

Seeking Radar Identification Phraseology

"**<CALLSIGN>, reset transponder, squawk <CODE>.**"

"**<CALLSIGN>, squawk IDENT.”**

"**<CALLSIGN>, turn <LEFT/RIGHT> heading <HEADING>, vectors for Identification.**"

"**<CALLSIGN>, copy your position report of <DISTANCE> from <POINT>, standby.**"

It’s important to remember that even if an aircraft is sending out Mode-C altitude readings or reporting a certain altitude, it has no basis in the position that the controller is using to cross check for a primary identification as explained in 5.6.2. Transponder-reported altitude, although almost universal on VATSIM, is a secondary source and not a very convincing basis for identification anyways. It’s great to get altitude information from transponder beacons, making the actual services provided far better, but it won’t help us radar identify the aircraft

5.6.4 Mode-S Transponders

While nearly all VATSIM Traffic carries a functioning Mode-C Transponder, aircraft flying with certain qualifying navigation suffixes will trigger the Mode-S EuroScope add-on and provide additional TAG data like aircraft-reported speed and track heading. If an aircraft which should have Mode-S capability but has omitted or used an incorrect navigation suffix, simply change their suffix to one compatible with Mode-S (like “/L”).

5.6.5 Establishing and Maintaining "Radar Contact"

Once a method of establishing radar identification has occurred successfully, the controller shall inform the pilot. The controller should also provide, in all cases except for the "rolling message" departure identification, the position of the aircraft as observed on their scope at that moment ((in relation to a significant point or NAVAID).

Radar Contact Phraseology

"**<CALLSIGN>, airborne time <MINUTES>. Radar Contact.**"

"**<CALLSIGN>, radar contact <ALTITUDE/LEVEL>, <DISTANCE> miles from <NAVAID>.**"

Example: Radar Identification (from uncontrolled airspace)

N281H - IFR		**PC12/Z**
CITYPAIR	**CFL**	**Filed Route**
MKJS - MKJP	**A090**	**R640**

N281H:	MANLEY RADAR, Pilatus 281H is level 9,000, inbound KEMBO.
MKJP_APP:	N281H, Manley Radar, good evening. Squawk 0704. Information bravo is current.
N281H:	0704 in the box, we'll get Bravo, Pilatus 81H.
MKJP_APP:	PILATUS 81H, radar contact, 9,000, 10 miles west of KEMBO. QNH 1013.

There are a couple good reasons why we give an aircraft their indicated position upon identification. First of all, it might be helpful information if a pilot is not instrument rated or has become disorientated. Secondly, it gives the air traffic controller last chance to tell the aircraft exactly where it's supposed to be, in case the pilot had misheard or been unsure and had led the controller on a hunt for someone else's target.

Example: Radar Identification (from uncontrolled airspace)

N73HK.	Sangster Radar, N73HK is airborne out of Negril headed back for Sangster, still squawking the code you gave us earlier.
MKJS_APP:	N73HK, Sangster Radar, squawk IDENT.
N73HK:	IDENT, 3HK.
MKJS_APP:	N73HK, radar Contact 5 miles east of the Negril Aerodrome. .

Note: A Radar controller must only radar identify an aircraft if radar contact was lost or if the aircraft is entering the airspace from an uncontrolled one or a non-radar one. If the controller receives the aircraft on a normal radar handoff from another radar controller, no identification is necessary

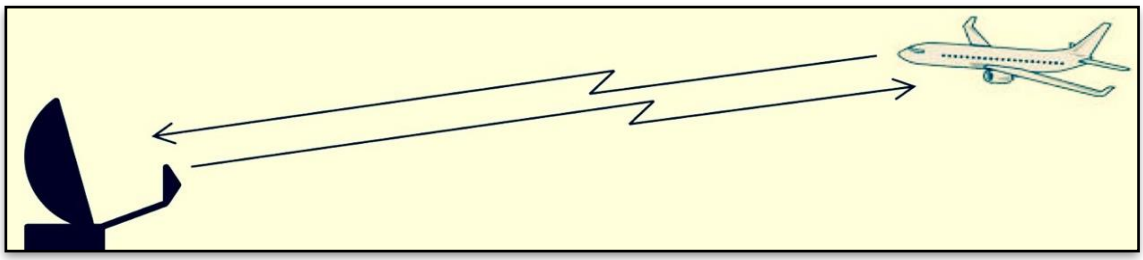
5.7 Radar Separation

5.7.1 Horizontal Separation

Radar APP control can provide horizontal separation between two aircraft that have been properly identified. The minima for such separation are set forth in Table 5C. Given the proportions of the Jamaica TMA, a Radar APP controller needn't worry about controlling any aircraft that are more than 60 miles from one of our 3 radar stations, but their locations are documented in Section 2.19 for reference.

Table 5C: Horizontal Radar Separation Minima

Minima	Condition
5 Miles	Both airplanes are 60 miles or less from a Radar Site.
10 Miles	At least one of the airplanes are 60 NM or more from Radar Site.



5.7.2 Wake Turbulence Separation

Distance-based wake turbulence separation minima shall be applied to aircraft being provided with radar control service in the approach and departure phase under APP control.

Table 5D: Terminal Wake Turbulence Separation

Sequence	Light	Medium	Heavy
Flying behind SUPER	**8 nm**	**7 nm**	**6 nm**
Flying behind HEAVY	**6 nm**	**5 nm**	**4 nm**
Flying behind MEDIUM	**5 nm**	--	--

5.7.3 Vertical Separation

Aircraft not horizontally separated shall be vertically separated by assigning different altitudes at least 1,000 feet apart. The level occupied at any given moment by an aircraft under Radar APP's control is their present radar-indicated altitude.

5.7.4 Separation Methods

The Radar APP controller may use the following techniques to enforce separation minima in the terminal environment:

a) Vectors (turns and headings)
b) Altitude assignments
c) Speed control

5.7.5 Failure of Separation

Radar APP separation has failed in one or more of the following scenarios:

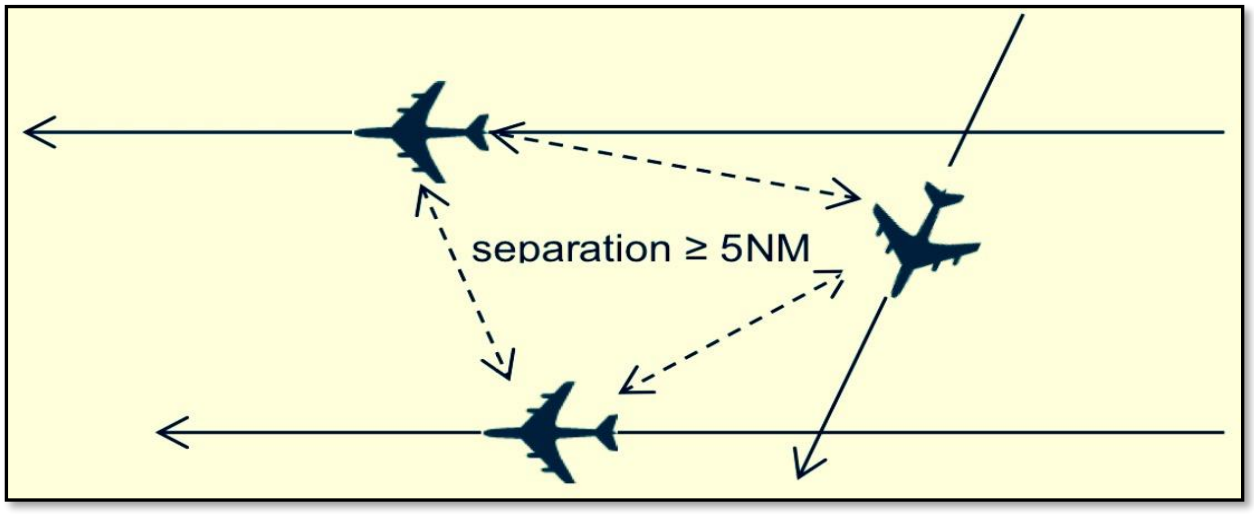
a) Two or more aircraft are horizontally in violation of the separation minima in 5.7.1.
b) Two or more aircraft are less than 1,000 ft from each other vertically

5.7.6 Corrective Action

If Radar APP separation has failed as described in 5.7.5 or appears in danger of failing, one or more of the following actions is recommended:

a) Issuance of a Radar Traffic Alert
b) Issuance of an avoiding vector
c) Suggestion of an avoiding maneuver

Figure 5E: Horizontal Separation (Radar)



5.7.7 Radar Traffic Alert

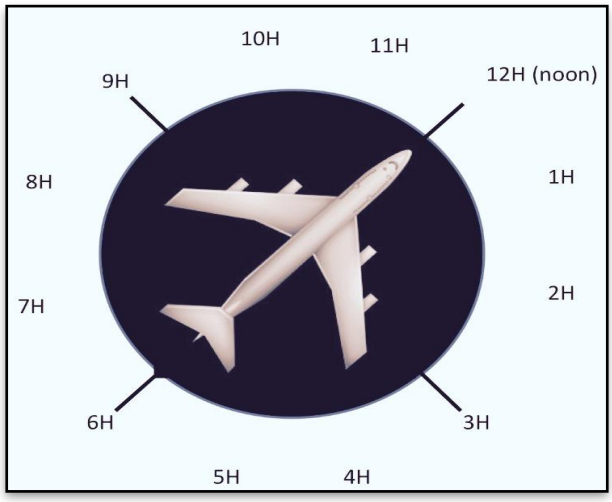
If the separation between two aircraft threatens to fail, the Radar APP controller can issue a traffic alert to one or more of the aircraft. A Radar traffic alert should contain the following:

a) The phrase "...TRAFFIC..."
b) Clock direction of traffic
c) Distance (in NM) of traffic
d) Direction of flight of traffic
e) Aircraft type of traffic
f) Altitude of traffic

Radar Traffic Alert Phraseology

"<CALLSIGN>, traffic: <CLOCK DIRECTION>, <DISTANCE>, <DIRECTION OF FLIGHT>, a <TRAFFIC TYPE> at <ALTITUDE>. Report them in sight."

Figure 5F: Radar Traffic Alerts



If the alerted aircraft reports their traffic in sight, the APP controller may do one of the following:

a) Instruct them to maintain visual separation from the sighted traffic
b) Instruct them to follow the preceding traffic (if in an approach sequence)

Examples: Radar Traffic Alert

MKJS_APP:	DELTA 727, traffic: 11 o'clock 4 miles, westbound, a Boeing 737 at 4,000. Report them in sight.
DAL727:	Traffic in sight, Delta 727.
MKJS_APP:	DELTA 727, roger, maintain visual separation.
DAL727:	Will maintain visual, 727.

MKJP_APP:	COPA 391, traffic to follow is 11 o'clock 5 miles, westbound on the downwind, a Dash 8 descending through 2,000. Report them in sight.
COPA391:	Copa 391 has the traffic in sight.
MKJS_APP:	COPA 391, follow that traffic, number 2. Cleared visual approach runway 30. Make right downwind. Final Descent at your own discretion.

5.8 Radar Vectoring

5.8.1 Purpose

Vectoring of aircraft is done for the following purposes:

a) Separation
b) Sequencing and expedition
c) Avoiding action
d) Noise abatement
e) Operational advantage to ATC or pilot-in-command

5.8.2 Turns and Headings

Vectors may be expressed by specifying:

a) a heading to be flown if current heading is not known. E.g. “FLY HEADING 050”
b) a heading to be flown and direction of turn if current heading in known E.g. “TURN RIGHT HEADING 050”
c) a direction of turn and number of degrees to be turned E.g. " TURN RIGHT 10 DEGREES"

Heading Adjustment Phraseology

"**<CALLSIGN>, <FLY/TURN RIGHT/TURN LEFT> heading <HEADING>.”**

5.8.3 Vectoring IFR Flights

When vectoring an aircraft, a controller shall comply with the following:

a) whenever practicable, vector the aircraft along routes where the pilot can do his own navigation, or where he can crosscheck it from time to time with reference to pilot-interpreted NAVAID’s.
b) if vectoring will take the aircraft away from its previously assigned route, the pilot shall be advised of the purpose of the vector as well as the limit of the vector. For example, if an aircraft is vector away from a holding pattern, the controller shall either:
    i. provide magnetic track and distance information when instructing the aircraft to resume own navigation or
    ii. issue vectoring instructions to intercept the appropriate radial to the holding or routing fix.
c) except where transfer-of-control is to be affected, an aircraft shall not be vectored closer than a distance equivalent to half of the prescribed separation minima (2.5NM/5 NM) from the boundary of the airspace
d) a controlled flight shall not be vectored into uncontrolled airspace except at the request of the pilot to circumnavigate severe weather.

5.8.4 Termination of Vectoring

In terminating vectors, the pilot shall be instructed to resume own navigation, and, if vectors had taken the aircraft away from previously assigned route, given appropriate instructions so that he may continue his own navigation.

5.8.5 Vectoring VFR Flights

Controllers shall provide vectors to VFR flights under the following conditions:

a) if there is an operational need such as avoidance action, arrival sequencing, etc.
b) if the pilot requests vectors
c) provided that in classes E and G vectors are suggested only
d) provided terrain and obstacles are considered before issuing vectors
e) and workload permits

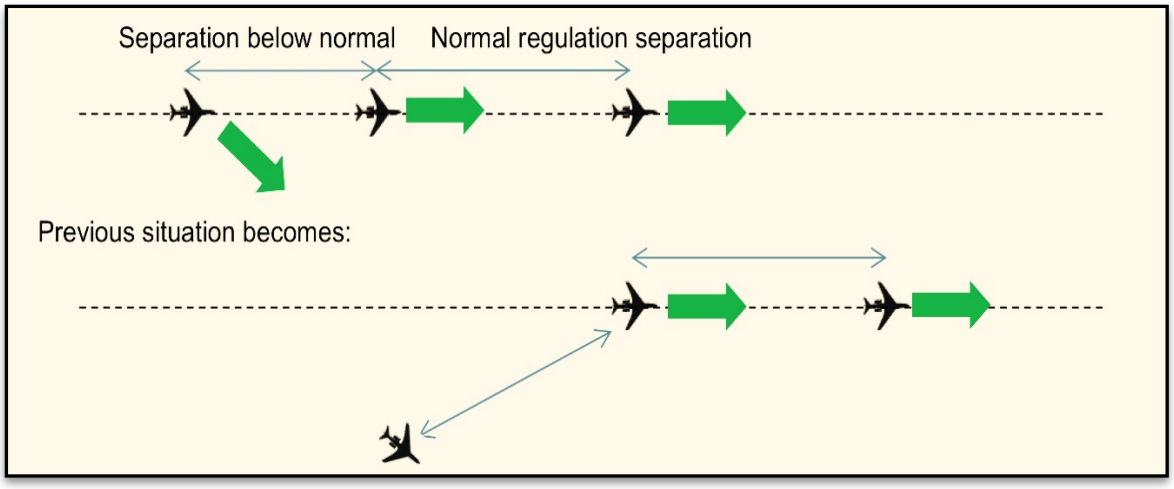
Accepting vectors does not relieve the pilot of a VFR flight from his responsibility to abide by the visual flight rules, including:

a) avoiding other aircraft
b) avoiding IMC
c) maintaining obstacle and terrain clearance (see 2.20

5.8.6 Vectoring for Separation

Sometimes the situation in the approach area devolves while managing several aircraft, the horizontal separation between two aircraft being reduced to less than minimum separation distance. To fix this, a controller diverts a conflicting aircraft off the established track by between 45 and 90 degrees. Once separation again meets or exceeds requirements, the controller vectors the aircraft back to join the previous track/flow. This technique is visualized in Figure 5G.

Figure 5G: Vectoring to Create Separation



Note: This is essentially the only way to create separation using vectors (turns and headings) alone. It is a good strategy for minor corrections, but not so helpful in setting up an approach sequence. The deviation that a APP controller might make in order to create separation could go awry at any point, leaving this aircraft hopelessly out of sequence if there are several arrivals at once. Don't count on being able to sneak an aircraft in-and-out of the approach sequence in order to create separation - this technique is better for less critical situations.

5.9 Speed Control

The use of speed adjustments to achieve spacing requires proper planning and timely implementation. Thus, the controller should issue speed adjustments based on the speeds and positions of the aircraft involved and the spacing required and overall time and distance required to achieve the desires spacing based on the aircraft configurations. There are limitations to speed adjustments based on altitude and distance, as detailed in Table 5H.

Table 5H: Speed Control Guidelines

Aircraft Type	Distance from Destination	Lowest SPD Assignable
Turbojet	Less than 20 Miles	170 Knots
	20 Miles or More	210 Knots (-10,000 ft)
		250 Knots (10,000+ ft)
Turboprop	Less than 20 Miles	150 Knots
	20 Miles or More	200 Knots
Propeller	ALL	150 Knots

Speed Adjustment Phraseology

"**<CALLSIGN>, report airspeed.**"

"**<CALLSIGN>, <REDUCE/INCREASE SPEED> <XX> knots...<OR LESS/GREATER>.**"

Note: Since speed adjustments are given in KIAS (Knots Indicated Airspace) and our radar returns only provide us with the unconverted Ground Speed of the aircraft, any adjustment must begin by asking the aircraft for their indicated speed:

Example: General Speed Adjustment

MKJS_APP:	SOUTHWEST 1042, report speed.
SWA1042:	1042 indicating 260 knots.
MKJS_APP:	SOUTHWEST 1042, roger, reduce speed 240 knots.

Other, less explicit speed adjustment instructions include:

- "Maintain (SPD) knots or (greater/less) until (NAVAID)"
- "(Increase/Reduce Speed) (#) knots"
- "Reduce to minimum approach speed"

In order to establish a desired spacing between two or more successive aircraft, the controller should either reduce the speed of the last aircraft or increase the speed of the lead aircraft first, then adjust the speed(s) of the other aircraft in order. Clearing an aircraft for an instrument approach procedure cancels all previous speed adjustments and restrictions.

Note: To cancel a speed instruction at any time before the approach clearance, say "Resume normal speed".

5.10 Altitude Adjustments

5.10.1 Standards

A Radar APP controller must use altitude changes to fulfill his responsibilities for descending arrivals to approach altitude and departure to a higher level. It is also the way vertical separation is employed in Radar Control (see 5.7.3).

Altitude Adjustment Phraseology

"**<CALLSIGN>, <CLIMB/DESCEND> <ALTITUDE>.**"

"**<CALLSIGN>, when ready, <CLIMB/DESCEND> at pilot's discretion to <ALTITUDE>. Report leaving <CURRENT ALTITUDE>.**"

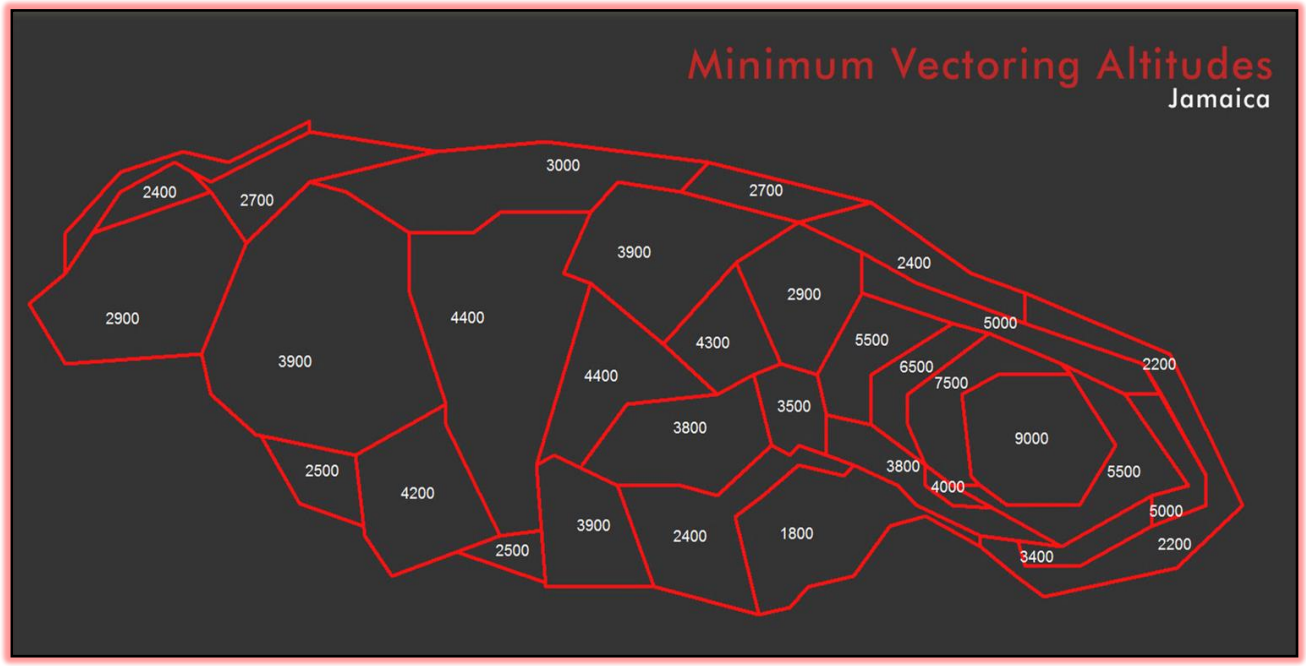
Note: Below the transition level of FL180, every aircraft must be issued the latest QNH altimeter setting along with altitude assignments. Normally an aircraft has the QNH from the automated ATIS but if the METAR updates or the ATIS is unavailable the QNH must be dished out individually.

Example: Altitude Adjustment

MKJS_APP:	DELTA 860, descend 5,000. QNH 1013.
MKJP_APP:	DELTA 1722, climb 14,000.

5.10.2 Minimum Radar Vectoring Altitudes

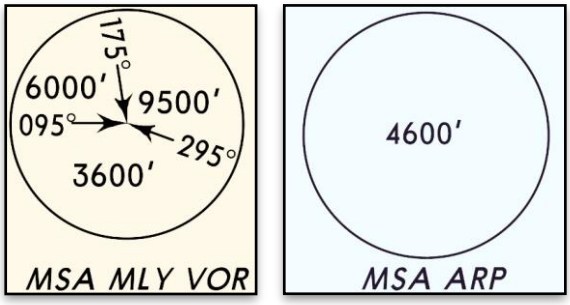
Figure 5I: Minimum Radar Vectoring Altitude (MVA)



The Minimum (Radar) Vectoring Altitude or MVA (MRVA) is the lowest altitude, expressed in feet AMSL, which a radar controller may assign an aircraft under radar control except if otherwise authorized for an approach, departure, or missed approach procedure. The minimum vectoring altitude in each sector rests 1,000 feet above the highest obstruction in non-mountainous areas and 2,000 feet above the highest obstacle in mountainous areas. Aircraft in violation of a MVA, regardless of who is to blame, will trigger a "MSAW" (Minimum Safe Altitude Warning) and the situation must be corrected in due time (Example: "N780SP, minimum radar altitude in your sector is 4,200. Please climb and maintain 4,500 feet to avoid terrain.")

5.10.3 Minimum Sector Altitudes (MSA)

Figure 5J: Minimum Sector Altitude (MSA)

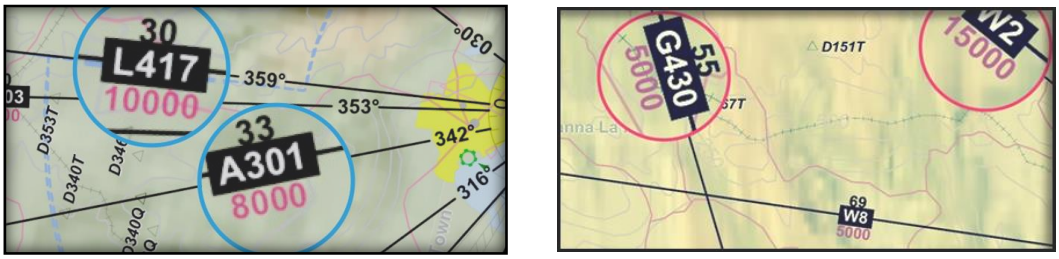


The Minimum Sector Altitude is the lowest altitude which may be used which will provide a minimum clearance of 1,000 ft above all objects located in the area contained within a sector of a 25 NM radius centered on a NAVAID or ARP.

5.10.4 Minimum Enroute Altitudes (MEA)

The Minimum Enroute Altitude (MEA) is the minimum altitude for an en-route segment (ATS route). This altitude provides for compliance with the airspace structure as well as required obstacle/terrain clearance.

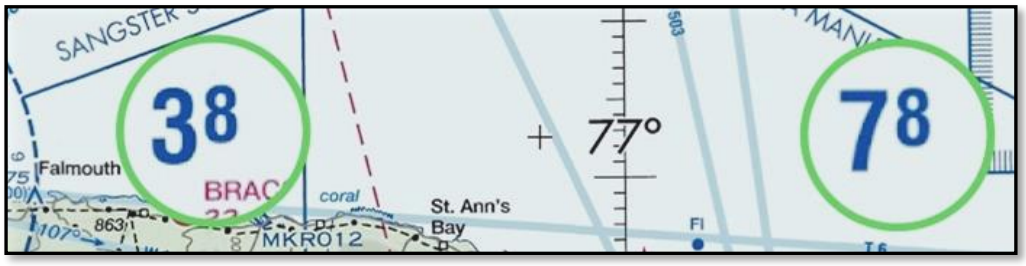
Figure 5K: Minimum Enroute Altitude (MEA)



5.10.5 Minimum Off-Route Altitude (MORA)

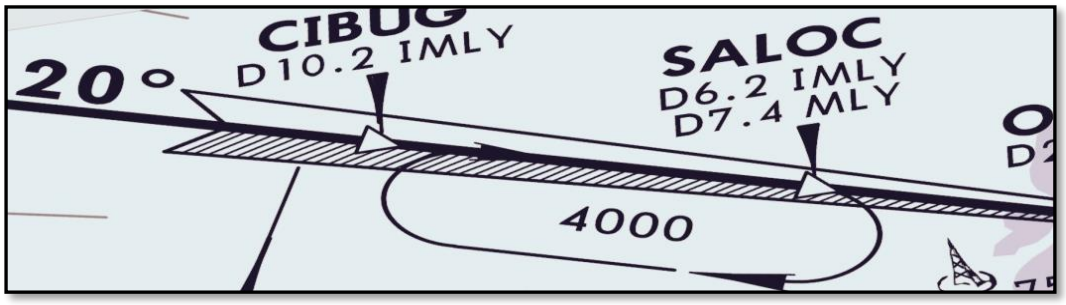
If an aircraft is off an ATS route or published procedure and not within a MVA sector, the GRID MORA provides terrain and man-made structure clearance within the section outlined by latitude and longitude line. The Grid MORA value clears all terrain and man-made structures by 1000 ft in areas where the highest elevations are 5,000 ft MSL or lower and by 2,000 ft in areas where the highest elevations are 5,001 ft MSL or higher.

Figure 5L: Minimum Off-Route Altitude (MORA)



5.10.6 Minimum Holding Altitude (MHA)

Figure 5M: Minimum Holding Altitude (MHA)



The Minimum Holding Altitude (MHA) is the lowest altitude prescribed for a holding pattern that assures navigational signal coverage, communications, and meets obstacle clearance requirements.

5.11 Service to Arriving IFR Aircraft

5.11.1 Standard Services

An arriving aircraft that has entered your APP airspace from area (CTR) control, another approach control unit, shall be provided with information and services as follows:

a) type of approach and runway-in-use
b) meteorological information (if not already received) and updates
c) vectors to final approach or clearance to holding/approach fix
d) descent clearance
e) separation and sequencing as required
f) instrument or visual approach clearance
g) any other information pertinent to safety
h) transfer of communication and control to aerodrome TWR

5.11.2 Active Approach

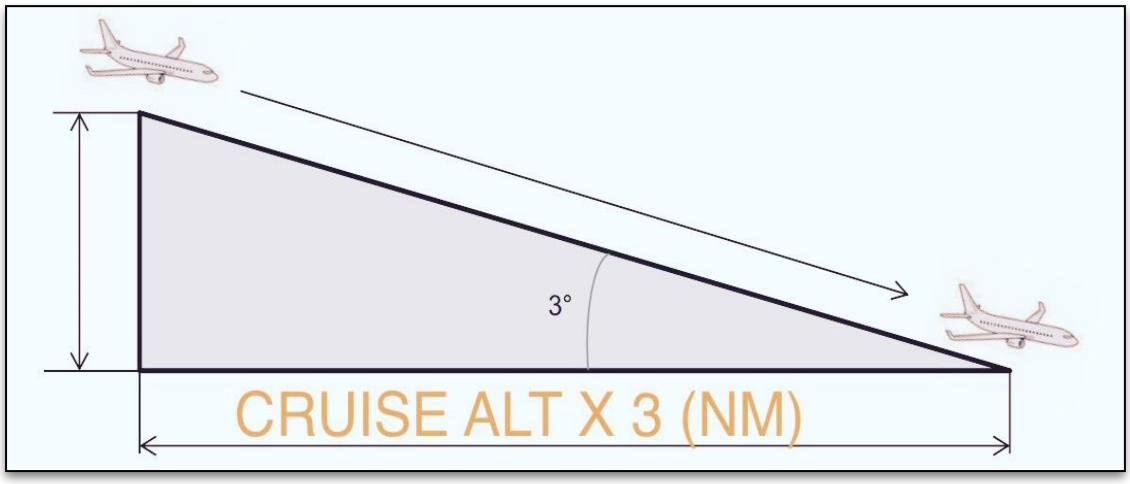
Table 5N provides a list of all of the IAPs published for the 4 runways in Jamaica. The ones in bold represent the default IAPs for the respective runway. Nonetheless, the Radar APP controller is at liberty to assign any published approach or a visual approach in accordance with the navigational capabilities and preferences of the pilot.

Table 5N: Instrument Approach Procedures, Jamaica

Approach	IAF(s)	IF(s)	FAF/ALT	MDA
ILS/DME 12	HAVBO ACEDA	**KEYNO**	SALOC 2,000 ft	278 ft
~~VOR/DME 12~~	D17/R340 D17/R172	**ELSER**	GUDIL 2,000 ft	400 ft
RNAV 12	CAVUR ZOROS	**FOLED**	ZUGLA 2,000 ft	300 ft
RNAV 30	BADOW BOTUL	**WASOT**	AVREL 2,000 ft	300 ft
ILS/DME 07	- - - -	**OMAXI**	ANAPA 1,800 ft	304 ft
VOR/DME 07	- - - -	**LENAR**	GADON 2,000 ft	590 ft
RNAV 07	PIDIE TUKDE	**AVRAT**	FERLU 2,100 ft	610 ft
RNAV 25	HIGNO	**ITNOS**	SATOD 1,800 ft	790 ft

5.11.3 Terminal Descent Planning

Figure 5O: Terminal Descent Planning (Rule of 3)



To determine how far away from the arrival aerodrome an aircraft should be when beginning descent, simply apply the "Rule of 3" Standard depicted in Figure 5O. Just take the aircraft's cruising (current) altitude and multiply it by 3. Your result is a distance (in NM) from the arrival aerodrome that marks a rough suggestion for initializing descent. Add 5 NM to this result to account for configuration and communication, and you have the distance at which you should issue their initial descent instruction. For example, if 6Y-JJC is cruising at 8,000 feet and inbound to your underlying aerodrome, then you should issue their initial descent instruction at roughly 29 NM out (8x3=24, 24+5=29).

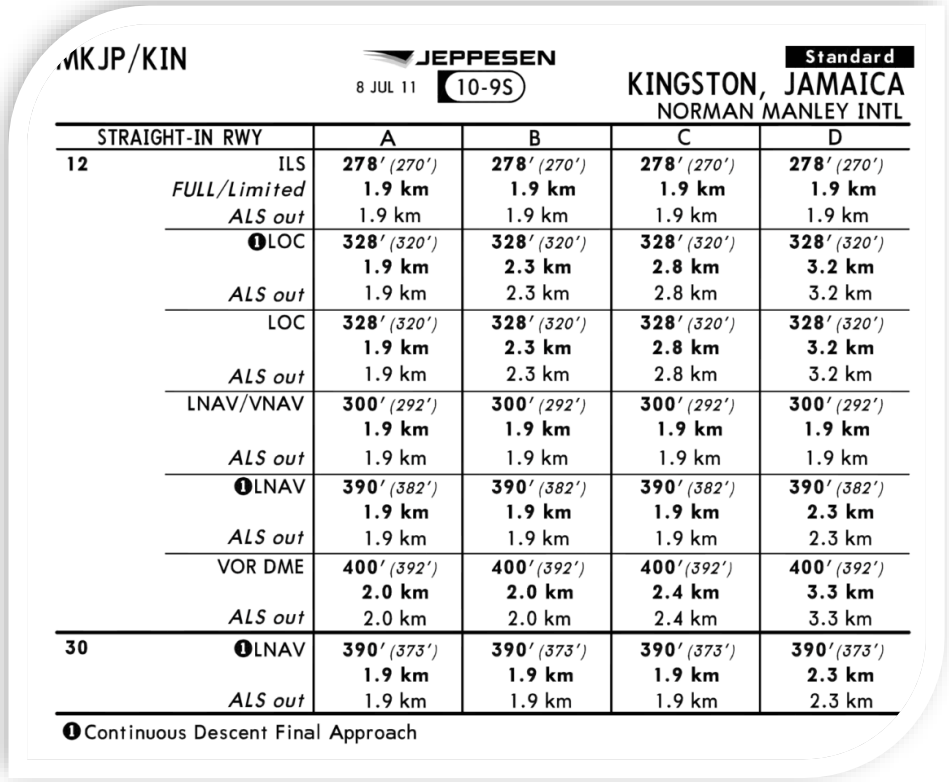
5.11.4 Approach Minimums

Approach “minimums” refer to the minimum visibilities, decision heights/altitudes (DAs) and/or minimum descent altitudes (MDAs). Collectively, these tell pilots how low they can descend before they see the runway and how good the visibility must be to attempt the approach.

Standard Approach Minimums are published for each airport in the Kingston FIR. However, pilots and controllers should always consult the individual approach chart for circling minimums and other information potentially left out of the Standard Minimums charts.

ACFT		LNAV/VNAV	LNAV	Circling ⓐ
ATE	A	**610** (603) 1.9km	**860** (853) 1.9km	**900** (893) 2.3km
	B	**610** (603) 1.9km	**860** (853) 2.3km	

Figure 5P: MKJP Standard Approach Minimums



MKJP/KIN

JEPPESEN

8 JUL 11 | 10-9S

Standard

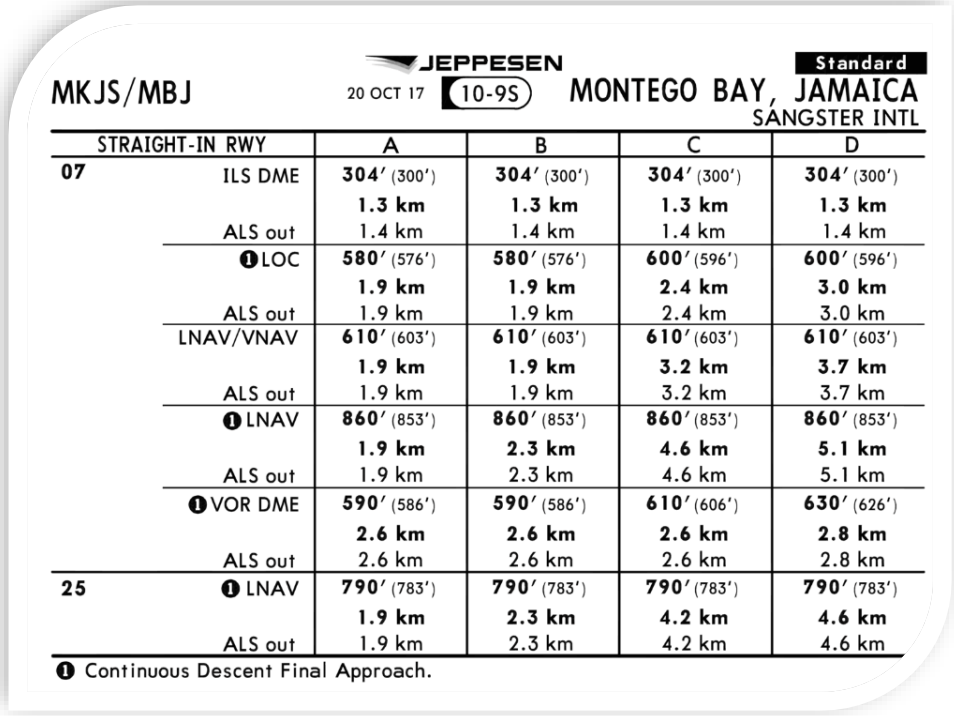
KINGSTON, JAMAICA

NORMAN MANLEY INTL

STRAIGHT-IN RWY		A	B	C	D
12	ILS	**278′** *(270′)*	**278′** *(270′)*	**278′** *(270′)*	**278′** *(270′)*
	FULL/Limited	**1.9 km**	**1.9 km**	**1.9 km**	**1.9 km**
	ALS out	1.9 km	1.9 km	1.9 km	1.9 km
	❶LOC	**328′** *(320′)*	**328′** *(320′)*	**328′** *(320′)*	**328′** *(320′)*
		1.9 km	**2.3 km**	**2.8 km**	**3.2 km**
	ALS out	1.9 km	2.3 km	2.8 km	3.2 km
	LOC	**328′** *(320′)*	**328′** *(320′)*	**328′** *(320′)*	**328′** *(320′)*
		1.9 km	**2.3 km**	**2.8 km**	**3.2 km**
	ALS out	1.9 km	2.3 km	2.8 km	3.2 km
	LNAV/VNAV	**300′** *(292′)*	**300′** *(292′)*	**300′** *(292′)*	**300′** *(292′)*
		1.9 km	**1.9 km**	**1.9 km**	**1.9 km**
	ALS out	1.9 km	1.9 km	1.9 km	1.9 km
	❶LNAV	**390′** *(382′)*	**390′** *(382′)*	**390′** *(382′)*	**390′** *(382′)*
		1.9 km	**1.9 km**	**1.9 km**	**2.3 km**
	ALS out	1.9 km	1.9 km	1.9 km	2.3 km
	VOR DME	**400′** *(392′)*	**400′** *(392′)*	**400′** *(392′)*	**400′** *(392′)*
		2.0 km	**2.0 km**	**2.4 km**	**3.3 km**
	ALS out	2.0 km	2.0 km	2.4 km	3.3 km
30	❶LNAV	**390′** *(373′)*	**390′** *(373′)*	**390′** *(373′)*	**390′** *(373′)*
		1.9 km	**1.9 km**	**1.9 km**	**2.3 km**
	ALS out	1.9 km	1.9 km	1.9 km	2.3 km

❶Continuous Descent Final Approach

Figure 5Q: MKJS Standard Approach Minimums



MKJS/MBJ

JEPPESEN

20 OCT 17 | 10-9S

Standard

MONTEGO BAY, JAMAICA

SANGSTER INTL

STRAIGHT-IN RWY		A	B	C	D
07	ILS DME	**304′** (300′)	**304′** (300′)	**304′** (300′)	**304′** (300′)
		1.3 km	**1.3 km**	**1.3 km**	**1.3 km**
	ALS out	1.4 km	1.4 km	1.4 km	1.4 km
	❶LOC	**580′** (576′)	**580′** (576′)	**600′** (596′)	**600′** (596′)
		1.9 km	**1.9 km**	**2.4 km**	**3.0 km**
	ALS out	1.9 km	1.9 km	2.4 km	3.0 km
	LNAV/VNAV	**610′** (603′)	**610′** (603′)	**610′** (603′)	**610′** (603′)
		1.9 km	**1.9 km**	**3.2 km**	**3.7 km**
	ALS out	1.9 km	1.9 km	3.2 km	3.7 km
	❶LNAV	**860′** (853′)	**860′** (853′)	**860′** (853′)	**860′** (853′)
		1.9 km	**2.3 km**	**4.6 km**	**5.1 km**
	ALS out	1.9 km	2.3 km	4.6 km	5.1 km
	❶VOR DME	**590′** (586′)	**590′** (586′)	**610′** (606′)	**630′** (626′)
		2.6 km	**2.6 km**	**2.6 km**	**2.8 km**
	ALS out	2.6 km	2.6 km	2.6 km	2.8 km
25	❶LNAV	**790′** (783′)	**790′** (783′)	**790′** (783′)	**790′** (783′)
		1.9 km	**2.3 km**	**4.2 km**	**4.6 km**
	ALS out	1.9 km	2.3 km	4.2 km	4.6 km

❶ Continuous Descent Final Approach.

5.11.5 Approach FIXes & Segmentss

A competent Approach controller should be familiar with all of the types of Instrument Approaches in their TMA, along with the components thereof:

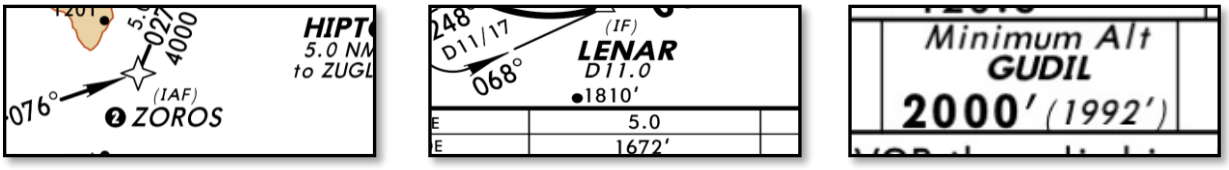
A. IAF (Initial Approach Fix): the IAF marks the initial segment (start) of an instrument approach. The initial segment brings the pilot to the Intermediate Segment of the approach. The IAF is usually a VOR/NDB from which a procedure turn or DME ARC springs, or a conveniently located off-field waypoint. Often times an approach will have more than one IAF, offering initial approach segments from several different angles. Other times, the IAF and IF are collocated, meaning the approach has no initial segment and thus no IAF (see: MKJS VOR/DME 07). Joining the approach from an IAF is a good option when thick IMC Conditions prevail or when a pilot is practicing their IFR skills.

B. IF (Intermediate FIX): the IF marks the intermediate segment of an instrument approach, in which a pilot positions the aircraft for final descent to the airport. The intermediate segment is the best segment on which to vector an aircraft for the ILS or VOR/DME "straight-in" approach. Alternatively, an aircraft can begin the approach from the IF without vectors.

C. FAF/FAP (Final Approach FIX/Point): the final approach segment of an instrument approach is marked by the FAF (for VOR/DME and RNAV approaches) or FAP (for ILS approaches). Marked on charts by a Maltese cross, this is the point at which an aircraft should be lined up for the runway and begin its final descent for landing. An aircraft can technically be vectored (or directed) to begin an approach at the FAF/FAP but intercepting an approach between the IF and FAF/FAP makes for a much more stable approach and landing.

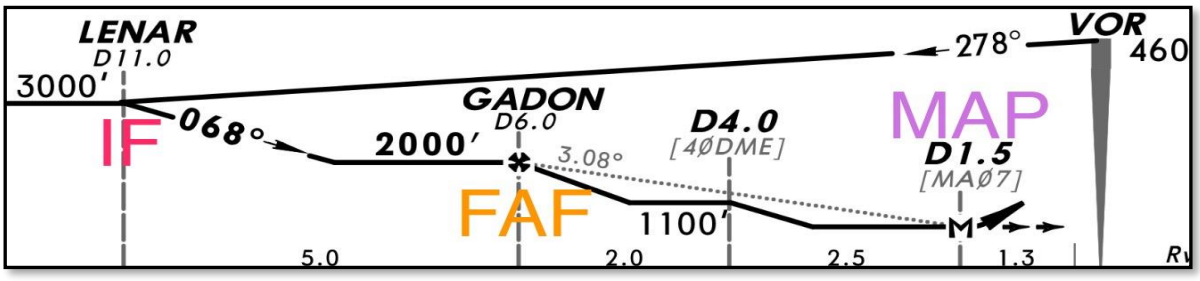
D. MAP/DA (Missed Approach Point/Decision Altitude): instrument approaches include two conditions for a missed approach point. There is both a Decision Altitude/Height, the lowest a pilot can descend without visual reference, and a Missed Approach Point, at which one must go missed if no visual reference.

Figure 5R: ILS/RNAV/VOR-DME Approach FIXes



IAF ***IF*** ***FAF/FAP***

(ZOROS, MKJP RNAV 12) ***(LENAR, MKJS VOR/DME 07)*** ***(GUDIL, MKJP ILS 12)***



5.11.6 Approach Entry & Structure

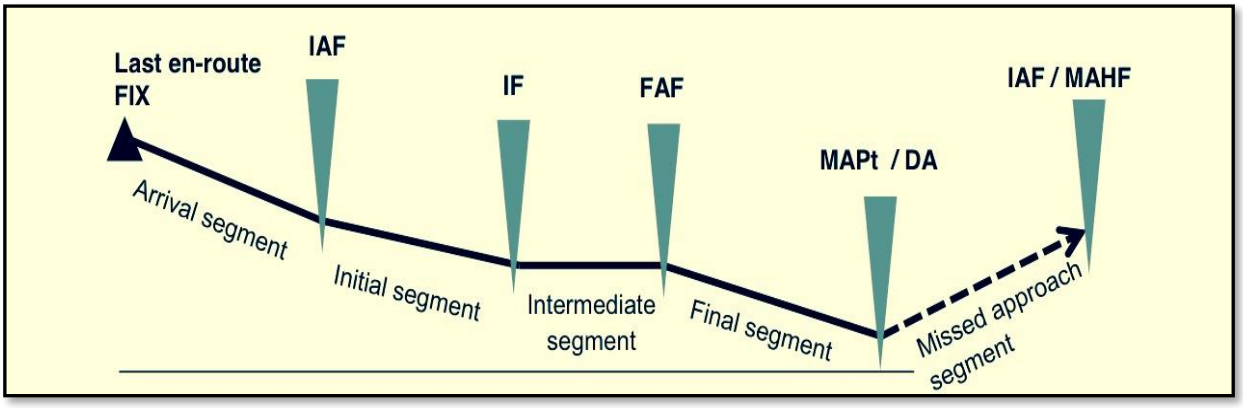
To boil down the information presented in 5.11.5: there are three unique ways by which an aircraft can start an instrument approach (RNAV, ILS, VOR/DME) in Jamaica:

1. Via the IAF: This means clearing an aircraft directly to an IAF to begin the approach on the initial segment. For the RNAV approach, this is an excellent method. The IAFs are conveniently located and do not involve ARCs, procedure turns or any other such turn- around maneuver. This is USUALLY also a perfectly sensible method for starting a VOR/DME or ILS approach, but our airports present a special situation. VOR/DME 07 at MKJS has no initial segment and thus no IAF. ILS 12 at MKJP has two IAFs but they all involve a rather tedious and lengthy DME arc transition to the intermediate segment. Since we have Approach Radar in Jamaica, forcing pilots to begin a full- procedure VOR/DME or ILS approach at an IAF is pointless. Our constant radar surveillance makes it much easier to route the aircraft directly to the Intermediate FIX or vector them onto the approach path.

2. Via the IF: while our RNAV approaches transition from the initial to the intermediate segments smoothly, ILS/DME 07 and ILS 12 are our true "workhorses", and these approaches are easy to start from the intermediate FIX. Simply clear the aircraft direct to OMAXI or KEYNO once practicable, monitor its separation and terrain avoidance while issuing descents as permitted, and as it approaches the IF, clear it for the straight-in approach.

3. Via Vectors: if Approach vectors are called for, fret not. So long as your vectors are deliberate, thoughtful, and (unless traffic is beyond imagination) scarce, this method works just as well as transitioning onto the approach from the IF. Keep in mind that the RNAV approaches should not be vectored for since they mandate point-to-point route adherence. ILS and VOR/DME approaches, however, are a perfect match for this method. Simply provide the ideal 30-degree intercept (see Figure 5T) vector onto the final approach course (localizer, radial) at some point between the IF and the FAF/FAP, relay the aircraft's distance from that FAF/FAP, and clear them for the straight-in ILS or VOR/DME approach.

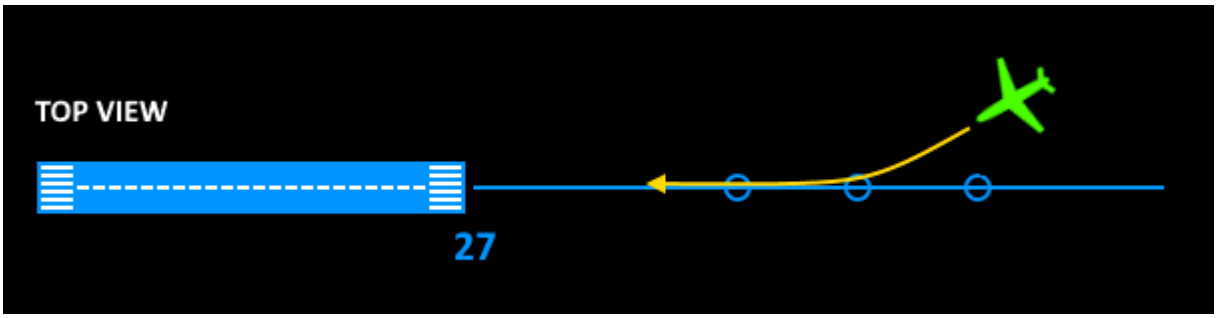
Figure 5S: Anatomy of an Instrument Approach



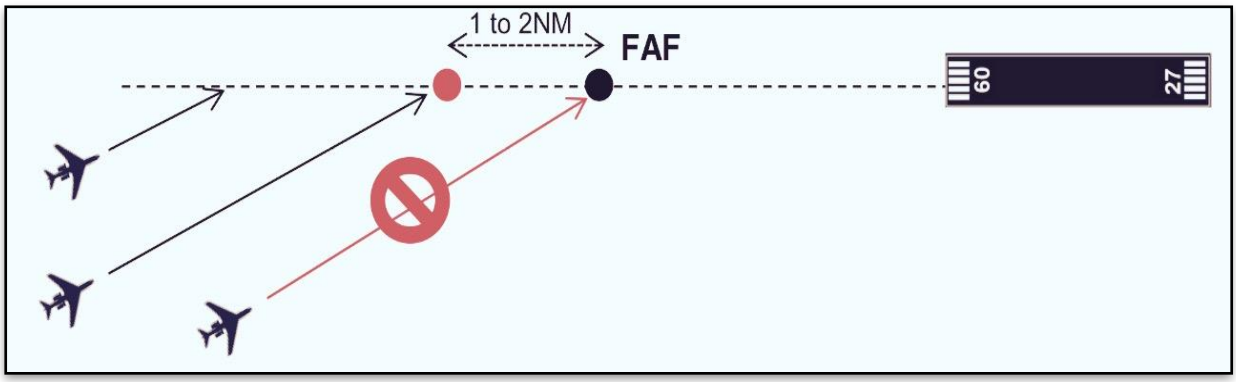
5.11.7 Vectoring for ILS/DME and VOR/DME Approaches

ILS/DME and VOR/DME approaches are the ones most commonly transitioned onto via radar vectors. There is little difference in the procedures of vectoring for the two. The goal is to be vector the aircraft onto the final approach course to intercept it at the approach's Initial Approach FIX (IF). The final vector-heading on which an aircraft meets the final approach should ideally be a 30-degree angle to the final approach course (as illustrated in Figure 5T) The maximum allowable intercept angle is 45 degrees. Radar APP controller in normal traffic conditions should not have to issue more than 2 or 3 headings to an arrival after entering the TMA to achieve this. One heading might bring the aircraft to a perfect point at which to pivot onto the 30-degree intercept angle. Experience will ease this guessing game.

Figure 5T: Vectoring to Final Approach Course



Note: If necessary, Radar APP can vector an aircraft to intercept a straight-in approach closer to the FAF than the IF. This is fine. However, the guideline reads that you must vector them for their 30-degree intercept at least 1-2 NM from the FAF of the approach.



Note: Detailed graphics which offer Vectoring guidelines for nearly every possible article scenario can be found in Sections 6.1 and 6.2.

5.11.8 ILS or VOR/DME Approach Clearance (From Vectors)

When vectoring an aircraft for a VOR/DME or ILS/DME approach, the final vector should be coupled with an approach clearance. The entire message should be composed thusly:

a) Distance from FAF (not IAF/IF)
b) Vector to intercept the final approach track
c) Altitude to maintain until established on approach course
d) The phrase "CLEARED ILS/VOR/DME APPROACH..."

Vectors to Straight-In Approach Phraseology

"<CALLSIGN>, <DISTANCE FROM FAF/FAP>, turn <LEFT/RIGHT> heading <INTERCEPT COURSE>, maintain <INTERCEPT ALT> until established. Cleared <VOR/DME OR ILS> approach runway <XX>."

Example: Final Vector and Approach Clearance

MKJS_APP:	TRANSAT 486 HEAVY, 8 miles from GADON. Turn left heading 100, maintain 2,000 until established. Cleared VOR/DME approach runway 07.

Example: Vectoring to Final Approach (ILS)

BWA16 - IFR		**B738/L**
CITYPAIR	**CFL**	**Filed Route**
KJFK - MKJP	**360**	**DIW PANAL AR3 ANGLL AR3 ZQA B503 ENAMO UB503 BEMOL RADOK**

BWA16:	MANLEY RADAR, Caribbean Airlines 16, 15 miles north of RADOK, with information Charlie.
MKJP_APP:	CARIBBEAN AIRLINES 16, Manley Radar, good day. Descend 6,000. Fly heading 190. Expect Vectors ILS/DME approach runway 12.
BWA16:	Down to 6,000, heading 190, Vectors ILS/DME 12, Caribbean Airlines 16.

MKJP_APP:	CARIBBEAN AIRLINES 16, descend 4,000. QNH now 1016.
BWA16:	Down to 4,000, 1016, 16.

MKJP_APP:	CARIBBEAN AIRLINES 16, 10 miles from KEYNO, turn left heading 150, maintain 4,000 until established. Cleared ILS/DME approach runway 12.

Note: Like in real life, clearing an aircraft for an ILS approach and a Visual approach both result in the same “005” placement in the temporary altitude of the Data TAG. For this reason it’s helpful to update an aircraft’s scratchpad with the approach that they’ve been cleared for (i.e. “VA7” or “ILS7”) to replace that lost function in our TAGs.

Example: Vectoring to Final Approach (ILS/DME)

SWG354 - IFR		**B738/L**
CITYPAIR	**CFL**	**Filed Route**
CYXE - MKJS	**350**	**IRQ DUNKN CRG J45 OMN J79 TRV ZBV A301 FOWEE URSUS UA301 UCA UG430 SIA**

SWG354:	SANGSTER RADAR, Sunwing 354 is through 16,000 for 15, 15 miles north of SEKAM, Information alpha onboard.
MKJS_APP:	SUNWING 354, Sangster Radar, good morning. Descend and maintain 3,000. After SEKAM fly heading 190, vectors ILS/DME approach runway 07.
SWG354:	Down to 3,000 and 190 after SEKAM for vectors ILS/DME 07 approach, 354.

MKJS_APP:	SUNWING 354, 6 miles from OMAXI, turn left heading 100, maintain 3,000 until established. Cleared ILS/DME approach runway 07.
SWG354:	Left heading 100, 3,000 until established. Cleared ILS/DME 07, 354.
MKJS_APP:	SUNWING 354, contact Tower on 118.75, good day.

Example: Vectoring to Final Approach (VOR/DME - via SIA)

ARW330 - IFR		**BE99/G**
CITYPAIR	**CFL**	**Filed Route**
MKTP - MKJS	**A080**	**R640**

ARW330:	SANGSTER RADAR, Jamaica Air Shuttle 330 is 5 miles east of KEMBO, level at 8,000. Information Oscar.
MKJS_APP:	JAMAICA AIR SHUTTLE 330, Sangster Radar, good day. Descend to cross the SIA VOR at 6,000.

MKJS_APP:	JAMAICA AIR SHUTTLE 330, depart SIA heading 280, vectors VOR/DME runway 07 approach.
ARW330:	Depart the VOR heading 280 for vectors VOR/DME 07, 330.
MKJS_APP:	JAMAICA AIR SHUTTLE 329, descend 3,000, fly heading 190.
ARW330:	Left 190 and down to 3, 330.
MKJS_APP:	JAMAICA AIR SHUTTLE 330, 6 miles from GADON. Turn left heading 100, maintain 2,000 until established, cleared VOR/DME approach runway 07.

Note: If the situation calls for it, you can vector an aircraft to join the approach near the FAF (see 5.11.7).

Example: Vectoring to Join Final Approach near FAF (MKJP)

N94FY - IFR		**GALX/L**
CITYPAIR	**CFL**	**Filed Route**
MPTO - MKJP	**360**	**TBG UG434 BEREX G434 MLY**

N94FY:	MANLEY RADAR, Gulfstream 4FY, 10 south of DATOM, with information november.
MKJP_APP:	N94FY, Manley Radar. Descend 5,000. After DATOM fly heading 360, vectors ILS approach runway 12.
BWA16:	Down to 5,000, heading 360 after DATOM, Vectors ILS/DME 12, Gulfstream 4FY.

MKJP_APP:	GULFSTREAM 4FY, descend 2,000.
BWA16:	Down to 2,000, 4FY

MKJP_APP:	N94FY, 10 miles from SALOC, turn right heading 090, maintain 2,000 until established. Cleared ILS/DME approach runway 12.

Example: Vectoring to Join Final Approach near FAF (MKJS)

TOM154 - IFR		**H/B788/L**
CITYPAIR	**CFL**	**Filed Route**
EGCC - MKJS	**380**	**ZQA B503 ENAMO UB503 UMZ UR625 ULDAR R625 SIA**

MKJS_APP:	THOMPSON 154 HEAVY, descend 1,800. Turn right heading 250, vectors ILS/DME approach runway 07.
TOM154:	Right 250, down to 1,800, vectors ILS/DME 07, 154.

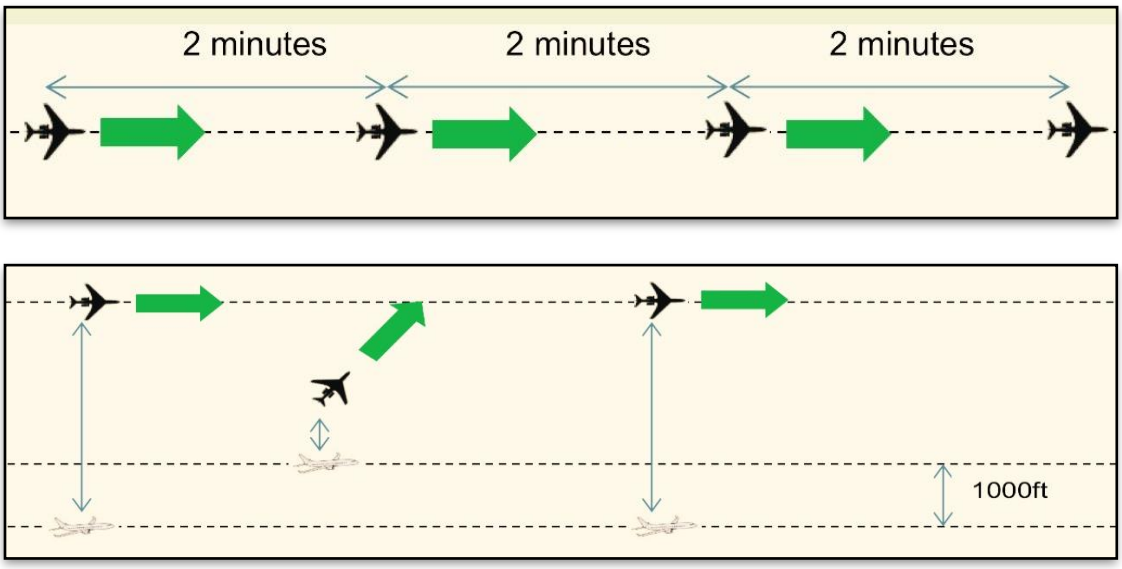
MKJS_APP:	THOMPSON 154 HEAVY, turn left heading 190.
TOM154:	Left 190, Thompson 154 heavy.

MKJS_APP:	THOMPSON 154 HEAVY, 3 miles from ANAPA. Maintain 1,800 until established, cleared ILS/DME approach runway 07.

5.11.9 Creating & Sustaining an Approach Sequence

The seminal goal of approach management is to organize a sequence of aircraft providing a continuous flow towards the final approach path. Radar vectoring is one of the best methods to achieve efficient sequencing. Keeping in mind our 5 NM radar separation minima, the goal should be to organize a sequence of aircraft 2 minutes apart. 2 minutes is approximately equivalent to 5 NM at the standard Approach speed of 150 KIAS.

Figure 5U: Vectoring for 2-Minute Approach Sequence



Note: As depicted in *Figure 5U*, a Radar APP controller should always keep 1,000 ft vertical separation between aircraft which present a risk of becoming closer than the minimum separation permits. The integration of an aircraft into the approach sequence shall be realized by maintaining aircraft 1,000 feet higher than the highest aircraft between its preceding and its following traffic. The altitude shall be adjusted once the flight is correctly integrated and horizontally separated. In other words, if you are vectoring three aircraft onto an approach sequence for runway 07 at MKJS, we would like the first and third aircraft at 3,000 and the Middle aircraft at 4,000 (until the sequence is properly resolved). In this way, we can establish a traffic sequence without any traffic violating the minima in the meantime.

Example: Intercepting the FAP without Approach Clearance

MKJP_APP:	INSEL AIR 71, turn right heading 090, intercept the Runway 12 localizer, track inbound.
MKJS_APP:	SUNWINGS 354, turn left heading 100 to intercept the runway 07 final approach course, track inbound. Descend 3,000.

Note: If an approach sequence is becoming long or congested, a Radar APP controller might need to have an aircraft track the straight-in final approach path (localizer or radial) before that aircraft can actually be cleared for the approach. See the examples above.

5.11.10 Direct-to-IF for ILS or VOR/DME

In reality, thanks to manageable traffic levels, Radar APP control can mostly forego vectors for straight-in approaches like the ILS and VOR/DME by sending the aircraft direct to the IF to intercept manually. Such a clearance should be composed thusly:

a) Altitude to maintain until established on approach
b) FIX at which approach clearance begins
c) The phrase "*CLEARED ILS/VOR/DME APPROACH...*"

Direct-to-IF Straight-In Approach Phraseology

"<CALLSIGN>, maintain <INTERCEPT ALTITUDE>. At <IF>, cleared straight-in <VOR/DME OR ILS> approach runway <XX>."

Example: Direct to Pilot-Interpreted Final Approach Aid

CSQ503 - IFR		**SF34/L**
CITYPAIR	**CFL**	**Filed Route**
KMIA - MKJS	**190**	**URSUS G430 BIBAT L795 LENAX L417 NEFTU A301 MLY**

CSQ503:	MANLEY RADAR, CHASQUI 503 is through 16,000 for 15, 10 miles north of IMADI, Information bravo onboard.
MKJP_APP:	CHASQUI 503, Manley Radar, good morning. Descend 6,000. Proceed direct KEYNO. Expect ILS/DME Approach runway 12.
CSQ503:	Down to 6,000, direct KEYNO for ILS/DME 12, 503.

MKJP_APP:	CHASQUI 503, descend 4,000.
CSQ503:	4,000, 503.
MKJP_APP:	CHASQUI 503, maintain 4,000. At KEYNO, cleared straight-in ILS/DME approach runway 12.
CSQ503:	4,000 until established, cleared ILS/DME approach runway 12, CHASQUI 503.
MKJP_APP:	CHASQUI 503, Contact Tower on 118.65, good day.

Example: Direct to pilot-intercepted Final Approach Aid (2)

MKJS_APP:	SPIRIT WINGS 833, Sangster Radar. Descend 3,000. Proceed direct LENAR. Expect VOR/DME Approach runway 07.
NKS833:	Descend 3,000, expecting VOR/DME 07, 833.

MKJP_APP:	SPIRIT WINGS 833, maintain 3,000. At LENAR, cleared straight-in VOR/DME approach runway 07.
NKS833:	3,000 for now, cleared VOR/DME 07 approach, 833.
MKJS_APP:	SPIRIT WINGS 503, Contact Tower on 118.65.

5.11.11 STAR to ILS/DME or VOR/DME Approach

A handful of typical procedural STARs exist in Jamaica. MKJS features the OMAXI5, a 11 DME ARC that transitions onto the ILS/DME approach runway 07, as well as the LENAR5, a mirrored procedure for transition into the VOR/DME 07 approach. MKJP features the KEYNO2 and the ELSER4 for the ILS/DME and VOR/DME approaches runway 12, respectively. These procedures work just fine but are rendered pointless by the existence of Radar Approach control. Nonetheless, if a pilot insists, they may be approved as follows:

a) The phrase "*CLEARED <STAR> ARRIVAL AS PUBLISHED...*"
b) Further descent clearance if available
c) Approach clearance if available
d) Request for inbound FIX report, if cleared for approach

STAR-to-Approach Phraseology

"<CALLSIGN>, cleared for the <STAR> arrival as published, <ACCOMPANYING APPROACH> runway <XX>. Descend to minimum published altitudes and report <IF> inbound."

Example: Arrival via STAR (MKJS LENAR4)

DAL861 - IFR		**A320/L**
CITYPAIR	**CFL**	**Filed Route**
KATL - MKJS	**330**	**VRSTY2 MCN YANTI Q89 PRMUS Q97 MALET Q97 TOVAR Y297 URSUS UL780 TASNO UM221 NIBEO ADSEL LENAR5**

DAL861: SANGSTER RADAR, Delta 861 is direct ADSEL through 18,000 for 15,000, Information Charlie onboard. Request LENAR5 arrival as published.

MKJS_APP: DELTA 861, Sangster Radar, good evening. Cleared LENAR5 Arrival as published, VOR/DME approach runway 07. Descend to minimum published altitudes and report LENAR inbound.

DAL861: Cleared LENAR5 and VOR/DME 07 approach. Will descend to minimum published and report LENAR, Delta 861.

DAL861: SANGSTER RADAR, Delta 861 is LENAR inbound.

MKJS_APP: DELTA 861, contact Tower on 118.75, good day.

~~*Example: Arrival via STAR (MKJP KEYNO2)*~~

MKJP_APP: ~~GREENHEART 251, Manley Radar, good evening. Cleared KEYNO2 Arrival as published, ILS approach runway 12. Descend to minimum published altitudes and report KEYNO inbound.~~

5.11.12 RNAV/GNSS Approaches

RNAV/GNSS/GPS approaches are generally the preferred alternative to a ILS/DME or VOR/DME approach. In the case of little-used runways 25 and 30, they are the best option. RNAV approaches generally have 3 places to join from: the IF, at the start of the final approach path, and one or two IAFs which transition to the IF from different directions. The process of approving a RNAV approach consists of the following elements:

a) Clearance to IAF or IF to join the approach
b) The phrase "*CLEARED RNAV APPROACH RUNWAY...*"
c) Further descent if necessary
d) Request for inbound FIX report

RNAV Approach Phraseology

"<CALLSIGN>, proceed direct <IAF/IF>. Cleared RNAV approach runway <XX>. Descend minimum published altitudes. Report <IF> inbound."

Example: RNAV/GNSS Approach

SWA1042 - IFR		**C550/L**
CITYPAIR	**CFL**	**Filed Route**
KMDW - MKJS	**410**	**OMN TRV URSUS UG430 PUTUL G430 SEKAM**

SWA1042:	SANGSTER RADAR, Southwest 1042 is level at 15,000, 10 north of SEKAM, information alpha onboard, with a request.
MKJS_APP:	SOUTHWEST 1042, Sangster Radar, good afternoon. Go ahead request.
SWA1042:	Roger, 1042 is requesting RNAV approach runway 25.
MKJS_APP:	SOUTHWEST 1042, roger, proceed direct HIGNO. Cleared RNAV approach runway 25. Descend to minimum published altitudes. Report ITNOS inbound.
SWA1042:	Roger, 1042 is heading to HIGNO, cleared minimum descent and RNAV approach runway 25. Will call ITNOS inbound.

SWA1042:	Southwest 1042, ITNOS inbound.
MKJS_APP:	Southwest 1042, contact Tower on 118.75, good day.
SWA1042:	118.75 for Southwest 1042, good day.

5.11.13 Vectoring for the Visual Approach

The following are the guidelines for the use of the Visual Approach by Radar APP control:

a) the controller may initiate vectoring for a visual approach provided mutual WX:
   i. the reported ceiling is at least 500ft above the MVA;
   ii. reported visibility is at least 3 NM; and
   iii. there is reasonable assurance that a visual approach and landing can be completed.

b) clearance for visual approach shall be issued only after the pilot has reported the aerodrome or the preceding aircraft in sight, at which time vectoring is normally terminated.

Vectors-to-Visual Approach Phraseology

"<CALLSIGN>, field is at your <CLOCK DIRECTION>, <DISTANCE>. Report it in sight for the visual."

"<CALLSIGN>, cleared visual approach runway <XX>. Join and report <CIRCUIT LEG ENTRY>. Final descent at your discretion."

Example: Vectoring for Visual Approach

INC71 - IFR		**F50/Z**
CITYPAIR	**CFL**	**Filed Route**
TNCC - MKJP	**280**	**ABA G442 BIBIP UG442 MLY**

INC71:	MANLEY RADAR, Insel Air 71 is through 17,000 for 15,000, information x-ray onboard.
MKJP_APP:	INSEL AIR 71, Manley Radar. Descend 6,000. Fly heading 330, vectors visual approach runway 30.
INC71:	Down to 6,000, heading 330, visual 30, 71.

MKJP_APP:	INSEL AIR 71, descend 3,000.
INC71:	3,000, 71.
MKJP_APP:	INSEL AIR 71, field is at your 11 o'clock, 12 miles. Report it in sight for the visual.
INC71:	Field in sight, Insel Air 71.
MKJP_APP:	INSEL AIR 71, cleared visual approach runway 30. Join left base. Final descent at your discretion.
INC71:	Cleared visual runway 30, left base, Insel Air 71.
MKJP_APP:	INSEL AIR 71, contact Tower on 118.65, good day.

Note: Another way one can setup an aircraft for the visual approach is by sending them DIRECT to an approach FIX that will set the aircraft up for a shorter final when VMC weather exists:

Example: Direct Approach FIX for Visual Approach

N345KM - IFR		**F900/L**
CITYPAIR	**CFL**	**Filed Route**
MWCB - MKJS	**230**	**A511**

N345KM:	SANGSTER RADAR, Falcon 5KM is Level at 15,000, 15 miles from NUBOX, information yankee.
MKJS_APP:	N345KM, Sangster Radar, good evening. Descend 3,000. Proceed direct ANAPA. Expect visual approach runway 07.
N345KM:	Down to 3, direct ANAPA. Expecting visual 07, 5KM.

MKJS_APP:	FALCON 5KM, field is at your 10 o'clock, 10 miles. Report it in sight for the visual.
N345KM:	Field in sight, 345KM.
MKJS_APP:	N345KM, cleared visual approach runway 07. Make straight-in. Final descent your discretion.
N345KM:	Cleared visual 07, final descent our discretion, 5KM.
MKJS_APP:	N345KM, contact Tower on 118.75, good day.

Example: Inadvertent Pilot-Requested Visual Approach

TOM154 - IFR		**H/B788/L**
CITYPAIR	**CFL**	**Filed Route**
EGCC - MKJS	**370**	**ZQA B503 ENAMO UR625 ULDAR R625 TILUP LENAR5**

TOM154:	SANGSTER RADAR, Thompson 154 heavy is 17,000 for 15,000, information papa onboard.
MKJS_APP:	THOMPSON 154 HEAVY, Sangster Radar, good day. Proceed direct SIA VOR. Descend 6,000.
TOM154:	Direct Sangster, down to 6,000, 154 Heavy.

MKJS_APP:	THOMPSON 154 HEAVY, descend 4,000. Turn right heading 250, vectors VOR/DME approach runway 07.
TOM154:	Right 250, down to 4,000...Thompson 154 has field in sight at our 11 o'clock, requesting the visual.
MKJS_APP:	THOMPSON 154 HEAVY, cleared visual approach runway 07. Make left downwind. Final descent at your discretion.

5.11.14 Instrument Approach with Circling

When an arriving IFR aircraft wishes to execute an instrument approach to one runway but land on the other, Radar APP control may approve a "circle-to-land". Put simply, this means that the aircraft will fly their assigned instrument approach until making visual contact with the airfield. At that point the aircraft will maneuver visually to land on the other runway.

Circle-to-Land Phraseology

"**<CALLSIGN>, cleared <APPROACH> runway <XX>, circle to runway <XX>. Report the field in sight.**"

Figure 5V: MKJP & MKJS Standard Circling Approach Minimums

❷ CIRCLE-TO-LAND	100 KT	135 KT	180 KT	205 KT
After VOR DME 12 approaches	**1040′** *(1030′)* 2.0 km	**1040′** *(1030′)* 2.8 km	**1040′** *(1030′)* 3.7 km	**1040′** *(1030′)* 4.6 km
After ILS 12 approaches	**1050′** *(1040′)* 1.9 km	**1050′** *(1040′)* 2.8 km	**1150′** *(1140′)* 3.7 km	**1150′** *(1140′)* 4.6 km
After all other approaches	**1050′** *(1040′)* 2.3 km	**1050′** *(1040′)* 2.8 km	**1150′** *(1140′)* 5.6 km	**1150′** *(1140′)* 5.6 km

❷Not Authorized North of Extended Rwy Centerline.

CIRCLE-TO-LAND	100 Kt	135 Kt	180 Kt	205 Kt
❷ After ILS DME 07, LOC 07	**900′** (896′) 1.9 km	**900′** (896′) 2.8 km	**1000′** (996′) 3.7 km	**1220′** (1216′) 4.6 km
❷After VOR DME 07	**900′** (896′) 2.6 km	**900′** (896′) 2.8 km	**1000′** (996′) 3.7 km	**1220′** (1216′) 4.6 km
After all other approaches	**900′** (896′) 2.3 km	**900′** (896′) 2.3 km	**1000′** (996′) 5.6 km	**1000′** (996′) 5.6 km

❷ Not authorized southeast of extended rwy centerline.

Example: Instrument Approach and Circle-to-Land

N7CP - IFR		**C550/L**
CITYPAIR	**CFL**	**Filed Route**
KMFE - MKJP	**410**	**KEHLI UL674 BIKOG SIA KEMBO**

N7CP:	MANLEY RADAR, Citation 7CP is through 16,000 for 15,000, 10 west of KEMBO, information Lima onboard.
MKJP_APP:	CITATION 7CP, Manley Radar, good morning. Descend to 6,000. Proceed direct KEYNO. Expect ILS approach runway 12, circle-to-land runway 30.
N7CP:	Down to 6,000, direct KEYNO, ILS 12 circling 30, N7CP.

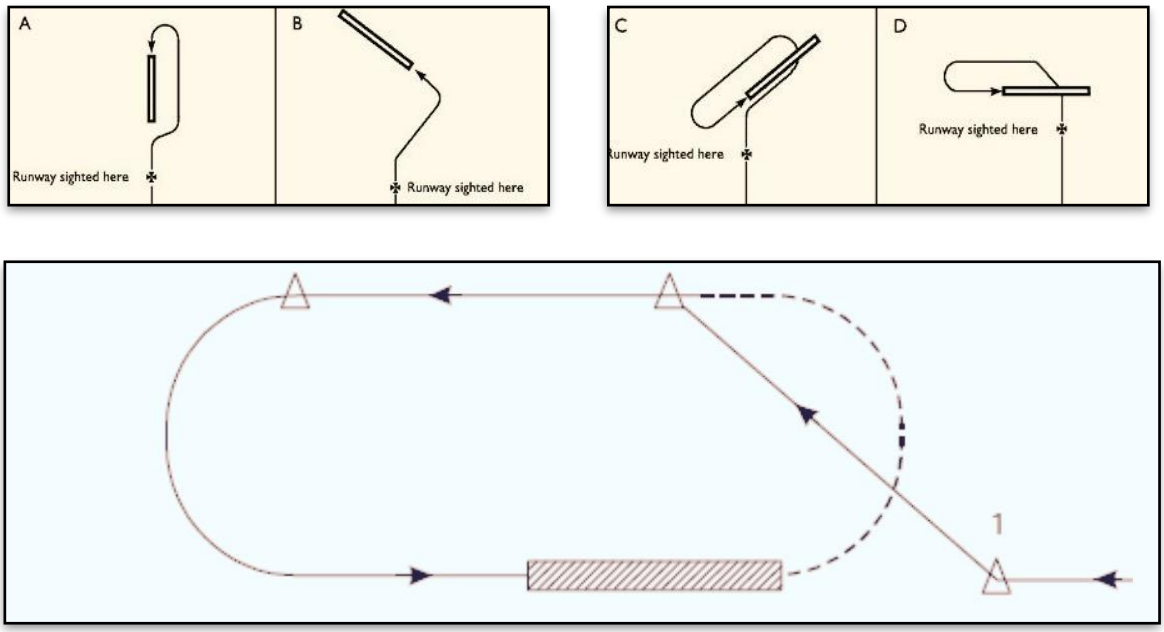
MKJP_APP:	CITATION 7CP, descend and maintain 4,000. At KEYNO, cleared straight-in ILS approach runway 12, circle to runway 30.
N7CP:	Down to 4,000 until established, cleared ILS 12 circling runway 30, 7CP.
MKJP_APP:	CITATION 7CP, report the runway in sight.
N7CP:	Call you field in sight, 7CP.

N7CP:	N7CP is has field in sight, joining left downwind runway 30.
MKJP_APP:	N7CP, cleared visual approach runway 30. Contact Tower on 118.65
N7CP:	118.65 for N7CP, good day.

5.11.15 Configuring Visual Approaches & Circling Maneuvers

As touched upon previously, aircraft performing a visual approach of a circling approach should be prescribed a particular entry to their arrival runway's traffic circuit based on their relative position when they sight the runway. The guidelines for circling to land are detailed visually in *Figure 5W*. While Aerodrome Tower and Procedural Approach are both empowered to give an aircraft their circuit-entry instructions, the APP controller should always issue the entry before transferring the aircraft to Tower control, if the situation permits. While either controller can issue the circuit entry instruction, only Tower is empowered to sequence traffic within the ATZ. If an arriving aircraft is using the visual or circling approach, Approach should issue the approach clearance and circuit entry instructions, as well as a transfer to Tower, immediately after the pilot reports the runway in sight. Doing so gives Tower as much time as possible to reconcile and arrange the aerodrome landing sequence.

Figure 5W: Visual & Circling Approach Maneuvers



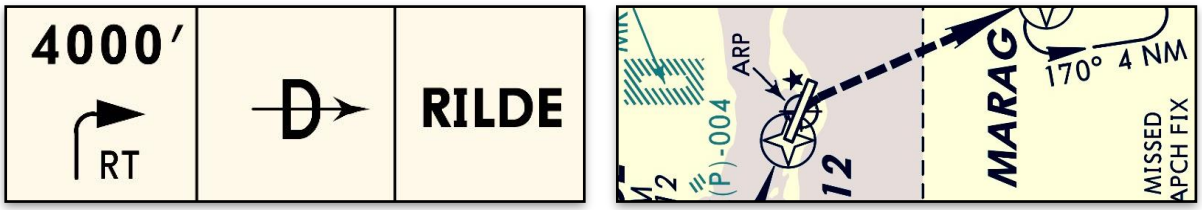
Example: Visual Approach Maneuvering

MKJP_APP:	GREENHEART 251, cleared visual approach runway 30. Make left downwind. Final Descent at your discretion.
MKJS_APP:	JAMAICA AIR SHUTTLE 330, cleared visual approach runway 07. Overfly the field and join a midfield left downwind. Final Descent at your discretion.
MKJS_APP:	SOUTHWEST 1042, cleared visual approach runway 25. Make right base. Final Descent at your discretion.

5.11.16 Aircraft on the Missed Approach

An aircraft who is handed back from Aerodrome TWR to Radar APP control should be given the option of being re-cleared for a full procedure approach or receiving vectors to rejoin a straight-in ILS/DME or VOR/DME approach. Since you are armed with radar control, there's little reason to make a pilot fly a DME ARC or a procedure turn just to get back to the runway. Thus, it's recommended that a Radar APP controller break an aircraft off the published mossed approach procedure as it travels between the Missed Approach Point and the Missed Approach Holding Point (MAHP).

Figure 5X: Anatomy of a Missed Approach



MISSED APCH: Climb on SIA VOR R-068. At 800′, LEFT turn to 334° heading, then LEFT turn to intercept and proceed via SIA VOR 11 DME Arc to LENAR R-248/D11.0 climbing to 3000′.

Example: Published Missed Approach to Published Approach

N752JC:	SANGSTER RADAR, Falcon 2JC back with you on the missed.
MKJS_APP:	N752JC, Sangster Radar, cleared VOR/DME approach Runway 07 as published. Report LENAR inbound.

Example: Published Missed Approach to Vectors

CAY600:	MANLEY RADAR, Cayman 600 is airborne on the missed approach ILS runway 12.
MKJP_APP:	CAYMAN 600, Manley Radar, climb 2,000, fly heading 270, vectors ILS approach runway 12.
CAY600:	Up to 2,000, right 270, vectors ILS 12, Cayman 600.

MKJP_APP:	CAYMAN 600, 6 miles from SALOC, turn right heading 090, maintain 2,000 until established, cleared ILS/DME approach runway 12. Contact tower on 118.65.

5.11.17 MKTP Arrivals

Tinson Pen is a domestic VFR aerodrome that sometimes receives corporate and private jet traffic. Only domestic flights are allowed into MKTP, but often times these flights are IFR. IFR flights to VFR aerodrome are not cleared to the aerodrome itself, but rather to the closest IFR waypoint. In MKTP's case, the limit would be SALOC. Generally, IFR flights to MKTP are vectored/routed onto the ILS Runway 12 approach at MKJP until they locate MKTP visually.

Example: IFR MKTP Arrival

6Y-JJH - IFR		**BN2A/G**
CITYPAIR	**CFL**	**Filed Route**
MKJS - MKTP	**A070**	**R640 SALOC**

6Y-JJH:	MANLEY RADAR, Islander 6JH is 10 to the west of KEMBO, level at 7,000, information charlie.
MKJP_APP:	6Y-JJH, Manley Radar, good day. After KEMBO proceed direct KEYNO. Expect the ILS approach Runway 12 at Manley.
6Y-JJH:	Direct KEYNO after KEMBO, expecting ILS 12, 6JH.
MKJP_APP:	6Y-JJH, descend and maintain 4,000. At KEYNO, cleared ILS approach runway 12. Report Tinson Pen in sight.
6Y-JJH:	Down to 4,000, cleared ILS 12 at KEYNO, call you Tinson Pen in sight, 6JH.
6Y-JJH:	Tinson Pen in sight for Islander 6JH.
MKJP_APP:	6Y-JJH, roger, Radar services are terminated. Negative reported traffic. Change to UNICOM, 122.8.

5.12 Holding Patterns

5.12.1 Standard Practices

If arriving IFR flights are required to enter the holding pattern prior to being cleared for the instrument approach, either by request or by ATC instruction, the following guidelines apply:

a) Holding and holding pattern entry instructions are defined for the major holding NAVAIDs in the Instrument Approach Charts for MKJP and MKJS. These are what "published holds" refer to.

b) If a holding pilot is unfamiliar with these charted Holds or is holding at a FIX without a published hold, the following information must be supplied him:
   a) Name of the FIX, waypoint or NAVAID
   b) inbound track, radial or bearing
   c) direction of the turn in the holding pattern
   d) duration/distance of the outbound

Holding Pattern Phraseology

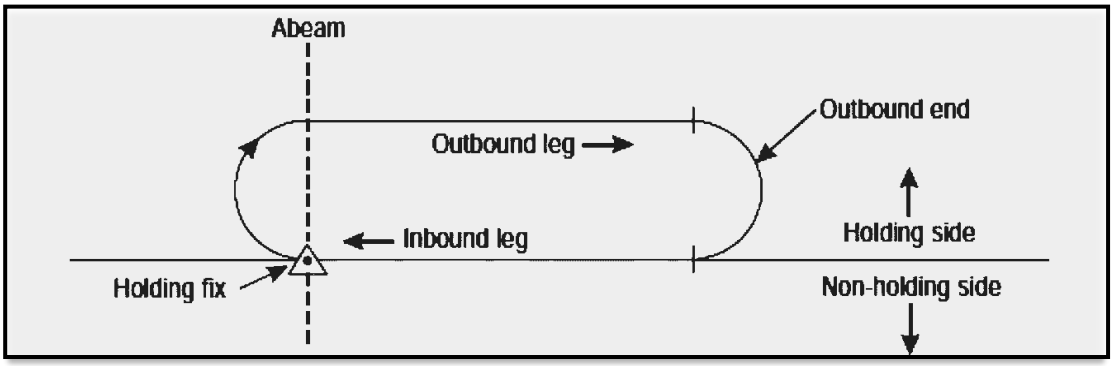
"<CALLSIGN>, enter published hold at <FIX>."

"<CALLSIGN>, proceed direct <FIX> and hold. Inbound course <COURSE>. <LEFT/RIGHT> hand turns. <DISTANCE> outbound legs."

Example: Published Hold

MKJS_APP:	CAYMAN 620, enter published hold at OMAXI. Report ready for approach.
CAY620:	Hold at OMAXI as published. Will call ready for approach, 620.

Figure 5Y: Anatomy of a Holding Pattern



Example: Pilot Without Charts (Hold at MARAG)

MKJP_APP:	GREENHEART 273, ready to copy holding instructions?
FJM273:	Ready to copy, Greenheart 273.
MKJP_APP:	GREENHEART 273, proceed direct MARAG and hold: inbound course 350 degrees, left hand turns, 4 miles outbound leg.
FJM273:	Direct MARAG, holding inbound course 350, left turns, 4 mile outbound leg, 273.

5.13 Service to Departing IFR Aircraft

Approach control shall provide post-departure services to departing IFR flights as follows:

i) Radar identification
ii) Clearance/vectors to TCP
iii) Further climb (as appropriate)
iv) Radar separation from other controlled flights
v) Transfer of communication and control to next ATC position or UNICOM.

Radar Departure Phraseology

"<CALLSIGN>, <ATC UNIT>, radar contact climbing through <ALTITUDE>, climb and maintain 14,000. Fly <HEADING>, proceed direct <FIX> when able. Resume own navigation."

Example: IFR Departure (SID Procedure)

AAL1545 - IFR		**B738/L**
CITYPAIR	**CFL**	**Filed Route**
MKJS - KMIA	**340**	**TEXUS2 ULDAR NEFTU UL417 BORDO FOWEE**

AAL1545:	SANGSTER RADAR, American 1545 is airborne climbing through 1,000.
MKJS_APP:	AMERICAN 1545, Sangster Radar, radar contact. Climb 14,000, fly present heading, Vectors to ULDAR.
AAL1545:	This heading, up to 14,000, 1545.
MKJS_APP:	AMERICAN 1545, turn right heading 040, proceed direct ULDAR when able. Resume own navigation.
AAL1545:	Heading 040, direct ULDAR, own navigation, 1545.
MKJS_APP:	AMERICAN 1545, contact Kingston Radar on 125.4

Example: Domestic IFR Departure

N1932S:	MANLEY RADAR, Baron 32S is airborne off 30 climbing through 800 feet.
MKJP_APP:	N1932S, Manley Radar, radar contact climbing through 1,100. Climb 8,000. Proceed direct KEMBO, resume own navigation.
N1932S:	Up to 8,000 and Direct KEMBO, own nav, N1932S.
MKJP_APP:	N1932S, contact Sangster Radar, 120.8, goodnight.
N1932S:	120.8, N1932S.

Example: IFR Departure (Non-SID)

TOM43 - IFR		**H/B789/Q**
CITYPAIR	**CFL**	**Filed Route**
MKJS - EGKK	**400**	**SIA G629 RABAG ERRCA M595 MILLE M330 DIDEL UN514 GIBSO UM17 BILNI**

TOM43:	SANGSTER RADAR, THOMSON 43 Heavy is airborne out of 07, heading 025 through 1,000.
MKJS_APP:	THOMSON 43 HEAVY, Sangster Radar, radar contact. Climb 14,000, turn right heading 040, Vectors RABAG.
TOM43:	Right 010, up to 14,000, 43 heavy.

MKJS_APP:	THOMSON 43 HEAVY, turn right heading 070, proceed direct RABAG when able, resume own navigation.
TOM43:	Heading 070, direct RABAG, own navigation, THOMSON 43 Heavy.

MKJS_APP:	THOMSON 43 HEAVY, contact Kingston Radar, 125.4.

Example: IFR Departure without GPS (Intercept ATS Route)

N210PW - IFR		**C210/A**
CITYPAIR	**CFL**	**Filed Route**
MKJS - MUHG	**A080**	**SIA R625 ULDAR UHG**

N210PW:	SANGSTER RADAR, Cessna 210PW is airborne through 500.
MKJS_APP:	N210PW, Sangster Radar, radar contact. Climb 8,000, turn right heading 040, Vectors to join the route.
N210PW:	Up to 8,000, right 040, 0PW.
MKJS_APP:	CESSNA 0PW, continue right heading 060, intercept the R625, resume own navigation.
N210PW:	Heading 060 to intercept R625, own navigation, 0PW.

MKJS_APP:	N210PW, change to UNICOM, 122.8.

5.14 Handling of VFR Aircraft

5.14.1 VFR Departures from Controlled Aerodromes

A VFR aircraft that has departed a controlled Aerodrome is entitled to the following services:

a) Radar identification
b) Meteorological information (if not already received)
c) Radar traffic alerts
e) Transfer of communication and control to next ATC unit/sector

Terminal VFR Departure Phraseology

"**<CALLSIGN>, <ATC UNIT>, radar contact. Proceed on course. <TRAFFIC INFO/NO TRAFFIC> to affect you.**"

Example: Controlled Aerodrome VFR Departure (MKJP)

N1134X - VFR		**BE36/G**
CITYPAIR	**CFL**	**Filed Route**
MKJP - MKJS	**A075**	**DCT**

N1134X:	MANLEY RADAR, Bonanza 34X is airborne on the right downwind departure from runway 12.
MKJP_APP:	BONANZA 1134X, Manley Radar. Radar contact. Proceed on course. No reported traffic to affect you.
N1134X:	On course, Bonanza 34X.

MKJP_APP:	N1134X, contact Sangster Radar, 120.8. Good day.

Example: Controlled Aerodrome VFR Departure (MKJS)

N755AC - VFR		**C402/G**
CITYPAIR	**CFL**	**Filed Route**
MKJS - MKNG	**A025**	**DCT**

N755AC:	Sangster Radar, Twin Cessna 755AC is airborne on the left downwind departure from runway 07.
MKJS_APP:	N755AC, Sangster Radar. Radar contact. Proceed on course and report Negril in sight. No reported traffic to affect you.
N755AC:	On course, we'll call Negril, N755AC

N755AC:	Negril aerodrome in sight, Twin Cessna 755AC.
MKJP_APP:	N755AC, cleared to descend below controlled airspace. Radar services are terminated, change to UNICOM 122.8.

5.14.2 VFR Departures from Underlying (Uncontrolled) Aerodromes

An aircraft departing from one of the Uncontrolled VFR Aerodromes lying in the Class G airspace below your sector must contact the APP controller before climbing into the Class D CTR/TMA airspace. Once radar identified it receives the same services as any other.

Example: Negril Departure

N963FE - VFR		**C208/A**
CITYPAIR	**CFL**	**Filed Route**
MKNG - MKTP	**A065**	**SOUTH COAST**

N963FE:	SANGSTER RADAR, Cessna Caravan 963FE is through 500 feet out of Negril, VFR flight plan to Tinson Pen.
MKJS_APP:	CARAVAN 3FE, Sangster Radar, QNH 1013, squawk 5005, ident.
N963FE:	1013, 5005 and ident, 3FE.
MKJS_APP:	CARAVAN 3FE, radar contact climbing through 4,000, 10 miles south of the Negril Aerodrome. Proceed on course. No reported traffic to affect you.
N963FE:	On course, 3FE.
MKJS_APP:	CARAVAN 6FE, contact Manley Radar, 120.6, good day.
N963FE:	120.6 for 3FE, see ya.

5.14.3 VFR Arrivals to Controlled Aerodromes

A VFR aircraft bound for the controlled Aerodrome below your TMA sector is entitled to the following services:

a) Radar identification (if entering from uncontrolled airspace)
c) Radar traffic alerts
d) Instructions for joining the aerodrome traffic circuit
e) Transfer of communications to Aerodrome TWR

Terminal VFR Arrival Phraseology

"**<CALLSIGN>, report the <DESTINATION> aerodrome in sight.**"

"**<CALLSIGN>, make <CIRCUIT ENTRY INSTRUCTIONS> runway <XX>.**"

Example: Controlled Aerodrome VFR Arrival

6Y-JHO - VFR		**C182/A**
CITYPAIR	**CFL**	**Filed Route**
MKTP - MKJS	**A065**	**DCT**

6Y-JHO:	SANGSTER RADAR, Cessna 6HO is level 6,500.
MKJS_APP:	CESSNA 6HO, Sangster Radar, good day. Proceed on course. No reported traffic to affect you. QNH 1014. Report the Sangster Airport in sight.
6Y-JHO:	On course, will call Sangster, 1014, 6HO.
6Y-JHO:	Sangster in sight, Cessna 6HO.
MKJS_APP:	6Y-JHO, roger, overfly the field and join a midfield left downwind runway 07.
6Y-JHO:	Overfly and make midfield left downwind, Cessna 6HO.
MKJS_APP:	6Y-JHO, contact Sangster Tower, 118.75, good day.

5.14.4 VFR Arrivals to Underlying (Uncontrolled) Aerodromes

An aircraft arriving at an uncontrolled VFR aerodrome below your APP airspace is treated the same as a VFR arrival to a controlled aerodrome, EXCEPT instead of receiving traffic circuit entry instructions they receive permission to descend into the Class G airspace for arrival and transferred to UNICOM.

Example: Uncontrolled Aerodrome Arrival

6Y-JGZ - VFR		**P28A/A**
CITYPAIR	**CFL**	**Filed Route**
MKJS - MKKJ	**A055**	**NORTH COAST**

6Y-JGZ:	MANLEY RADAR, Piper 6GZ, checking in, level at 5,500.
MKJP_APP:	6Y-JGZ, Manley Radar, good morning. QNH 1013, no reported traffic to affect you. Report the Ken Jones Aerodrome in sight.
6Y-JGZ:	1013, we'll call Ken Jones in sight, 6GZ.

6Y-JGZ:	Ken Jones Aerodrome in sight, Piper 6GZ.
MKJP_APP:	PIPER 6GZ, roger, cleared to descend below controlled airspace. Radar services are terminated, change to UNICOM 122.8. Report on the ground.

Example: Tinson Pen Arrival (APP)

6Y-JHV- VFR		**AC50/G**
CITYPAIR	**CFL**	**Filed Route**
MKNG - MKTP	**A075**	**DCT**

6Y-JHV:	MANLEY RADAR, Aero-Commander 6HV with you, 7,500.
MKJP_APP:	AERO-COMMANDER 6HV, Manley Radar. No reported traffic to affect you. Remain north of the Manley Runway 12 centerline and report Tinson Pen in sight with Manley information Bravo.
6Y-JHV:	We'll remain north of the 12 centerline and report Tinson Pen in sight, 6Y-JHV.

6Y-JHV:	Tinson Pen in sight with information Bravo, 6HV.
MKJP_APP:	AERO-COMMANDER 6HV, roger, cleared to descend below controlled airspace. Radar services are terminated, change to UNICOM 122.8. Report on the ground.

5.15 Coexistence of IFR & VFR Aircraft

Radar APP Control's CTR and TMA sectors consist of Class D airspace. As per the ICAO airspace classifications, in Class D Airspace:

a) IFR aircraft are separated from other IFR aircraft
b) IFR aircraft are given traffic information on VFR aircraft
c) VFR aircraft are given traffic information on all other aircraft

Example: IFR Aircraft (No Factor)

MKJS_APP:	CARIBBEAN AIRLINES 11, VFR traffic is 3 o'clock, 7 miles, northbound Pilatus at 4,500. No factor.
BWA11:	Will keep an eye out, Caribbean Airlines 11.

Controllers shall pass traffic to known IFR/VFR and VFR/VFR flight traffic whose targets are likely to merge; and such aircraft are separated by less than 1,000 ft vertically:

Example: Notification of crossing IFR & VFR Aircraft

MKJS_APP:	CIRRUS 590PU, IFR traffic is 12 o'clock, 10 miles, opposite-direction, a 737 at 8,000.
N590PU:	Copy traffic information, N590PU.
MKJS_APP:	CAYMAN 606, VFR traffic is 12 o'clock, 9 miles, opposite-direction, a Cirrus at 5,500. No factor.
CAY606:	Copy traffic, Cayman 606.

5.16 Airborne Flight Plan Processing & Route Clearance

5.16.1 VFR-to-IFR

For various reasons, an aircraft may want to open, cancel, or switch flight plans while airborne rather than on the ground. The Radar Controller can open, close, and authorize IFR and VFR route clearances the same as they would if the aircraft were on the ground.

Example: Airborne IFR Clearance

MKJS_APP:	6Y-JHV, radar contact climbing through 3,000, 10 miles East of Negril aerodrome. Proceed on course, no reported traffic to affect you.
6Y-JHV:	On course, 6HV.

6Y-JHV:	SANGSTER RADAR, 6Y-JHV request IFR Clearance to Manley as filed.
MKJS_APP:	6Y-JHV, cleared to the Manley Airport via direct KEMBO. Maintain 8,000. Reset transponder, 0704.
6Y-JHV:	Cleared to Manley via direct KEMBO, maintaining 8, 0704 6HV.
MKJS_APP:	AERO-COMMANDER 6HV, readback correct. Proceed direct KEMBO when able, resume own navigation.

Example: Airborne IFR Cancellation

N6881L:	MANLEY RADAR, Beechcraft 81L level at 9,000, 5 miles from IMADI, destination MKBS.
MKJP_APP:	N6881L, Manley Radar, QNH 1015. Descend 5,000, your discretion.
N6881L:	5,000 my discretion. 1015, 81L.

N6881L:	MANLEY RADAR, N6881L request closure of IFR flight plan and proceed VFR.
MKJP_APP:	N6881L, roger, your IFR flight plan is closed. Reset transponder, squawk 5010. Report the Ian Fleming aerodrome in sight.
N6881L:	5010, call the field in sight, Beechcraft 81L.

N6881L:	N6881L has the aerodrome in sight.
MKJP_APP:	Beechcraft 81L, roger, cleared to descend below controlled airspace. Radar services are terminated, change to UNICOM 122.8.

5.17 OHBTA (Training Area)

The Old Harbor Bay Training Area (OHBTA), as described in 4.15, is a restricted airspace administered by MKJP_APP (Manley Radar APP). As such, aircraft planning to enter the OHBTA must receive explicit clearance from MKJP_APP to do so.

OHBTA Entrance Phraseology

"<CALLSIGN>, cleared to enter the Old Harbor Bay Training Area. Maintain altitude <ALTITUDE> or lower. Monitor this frequency and report leaving the Training Area."

Example: OHBTA Clearance

N590PU:	MANLEY RADAR, Cirrus 0PU airborne through 800 feet.
MKJP_APP:	CIRRUS 590PU, Manley Radar. Radar contact. Proceed to the Training Area, no reported traffic to affect you.
N590PU:	On course to the Training Area, 0PU.

MKJP_APP:	CIRRUS 0PU, cleared to enter the Old Harbor Bay Training Area. Maintain altitude 3,500 feet or lower. Monitor this frequency and report leaving the Training Area.
N590PU:	Cleared to enter the Training Area at or below 3,500, will monitor and advise leaving, 0PU.

N590PU:	N590PU is leaving the Training Area to the north for landing at Tinson Pen.
MKJP_APP:	CIRRUS 0PU, roger, QNH now 1014. No traffic to affect you. Report Tinson Pen in sight.
N590PU:	1014, will call Tinson Pen in sight, 0PU.

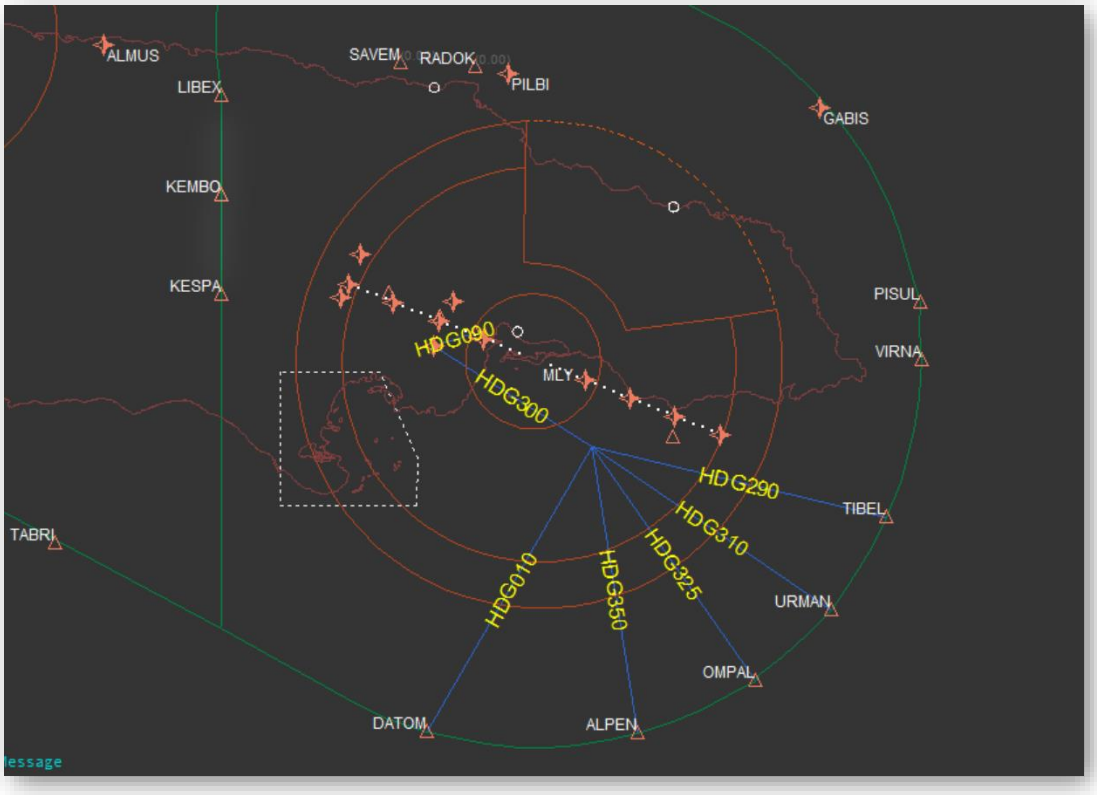
N590PU:	Field in sight, 0PU.
MKJP_APP:	N590PU, remain south of the Manley Runway 12 centerline for now, contact Manley Tower on 118.65, good day.

6. Supplementary Vectoring Charts

6.1 Vectoring Guidelines (MKJP ILS 12)

The following are visual and documentary guidelines (not absolutely mandatory) for vectoring aircraft to intercept the ILS/DME 12 approach at MKJP:

Figure 6A: Vectoring to Final Approach ILS/DME 12 (SOUTH/EAST)



From TIBEL: HDG 290, vectors to cross SALOC heading 090 for ILS/DME 12

From URMAN: HDG 310, vectors to cross SALOC heading 090 for ILS/DME 12

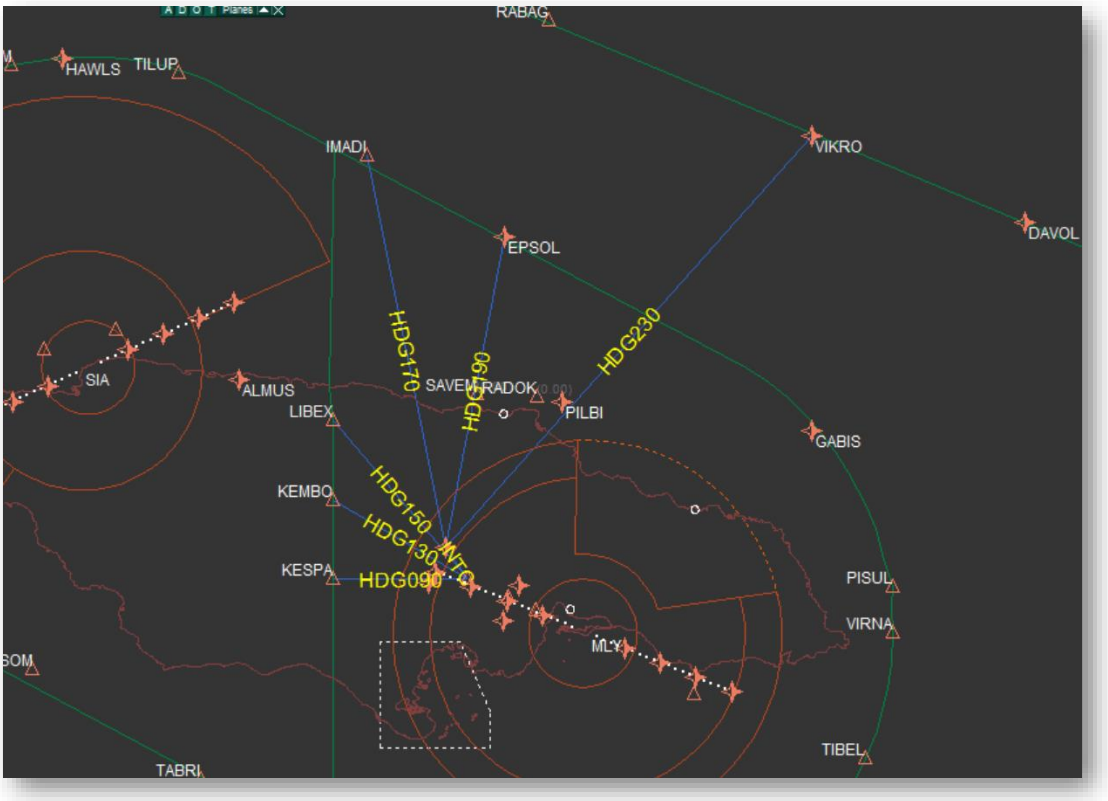
From OMPAL: HDG 325, vectors to cross SALOC heading 090 for ILS/DME 12

From ALPEN: HDG 350, vectors to cross SALOC heading 090 for ILS/DME 12

From DATOM: HDG 025, vectors to cross SALOC heading 090 for ILS/DME 12

Details:
1. Descend initially to 5,000.
2. At approximately 10 DME MLY, fly heading 300.
3. Descend to 2,000.

Figure 6B: Vectoring to Final Approach ILS/DME 12 (NORTH/WEST)



From KESPA: HDG 090 to cross KEYNO for ILS/DME 12

From KEMBO: HDG 130 to cross KEYNO for ILS/DME 12

From LIBEX: HDG 150 to cross KEYNO for ILS/DME 12

From IMADI: HDG 170, vectors to cross KEYNO heading 150 for ILS/DME 12

From EPSOL: HDG 190, vectors to cross KEYNO heading 150 for ILS/DME 12

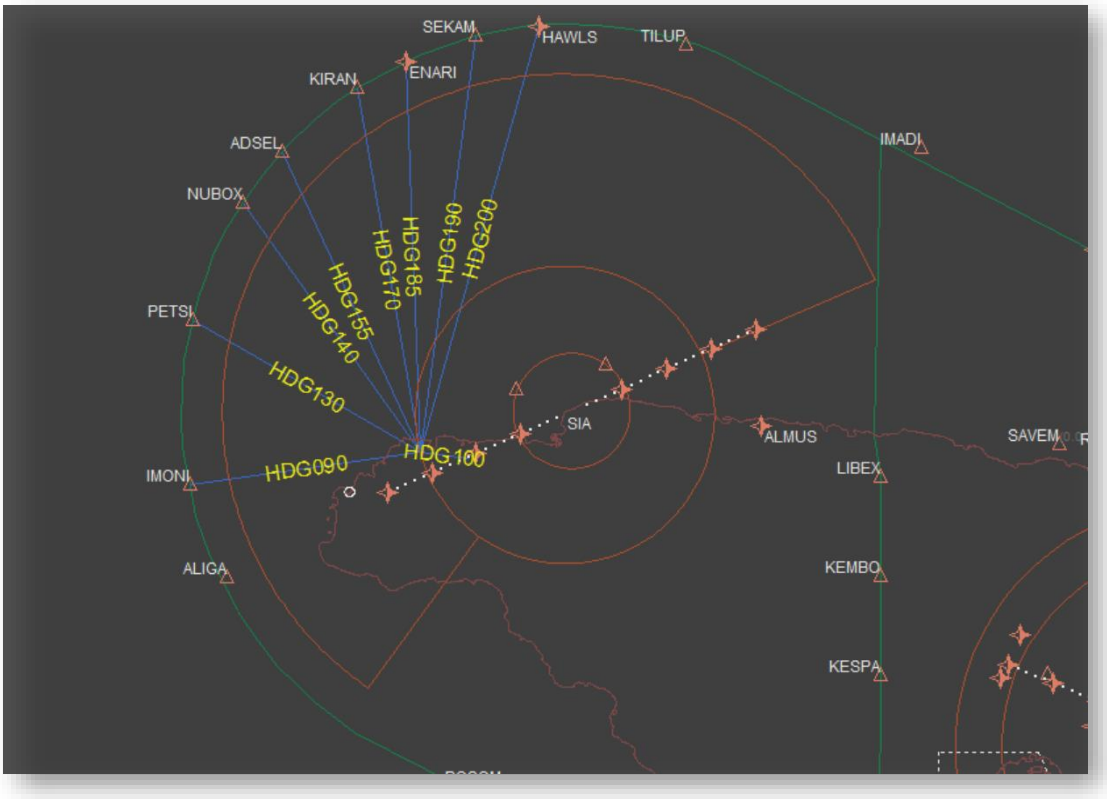
From VIKRO: HDG 230, vectors to cross KEYNO heading 150 for ILS/DME 12

Details:
1. Descend initially to 6,000.
2. Descend to 5,000 and then 4,000 as MVAs permit.

6.2 Vectoring Guidelines (MKJS ILS/DME 07)

The following are visual and documentary guidelines (not absolute mandates) for vectoring aircraft to intercept the ILS/DME 07 approach at MKJS:

Figure 6D: Vectoring to Final Approach ILS/DME 07 (NORTH/WEST)



From HAWLS: HDG 200, vectors to cross OMAXI heading 100 for ILS/DME 07

From SEKAM: HDG 190, vectors to cross OMAXI heading 100 for ILS/DME 07

From ENARI: HDG 200, vectors to cross OMAXI heading 100 for ILS/DME 07

From KIRAN: HDG 170, vectors to cross OMAXI heading 100 for ILS/DME 07

From ADSEL: HDG 155, vectors to cross OMAXI heading 100 for ILS/DME 07

From NUBOX: HDG 140, vectors to cross OMAXI heading 100 for ILS/DME 07

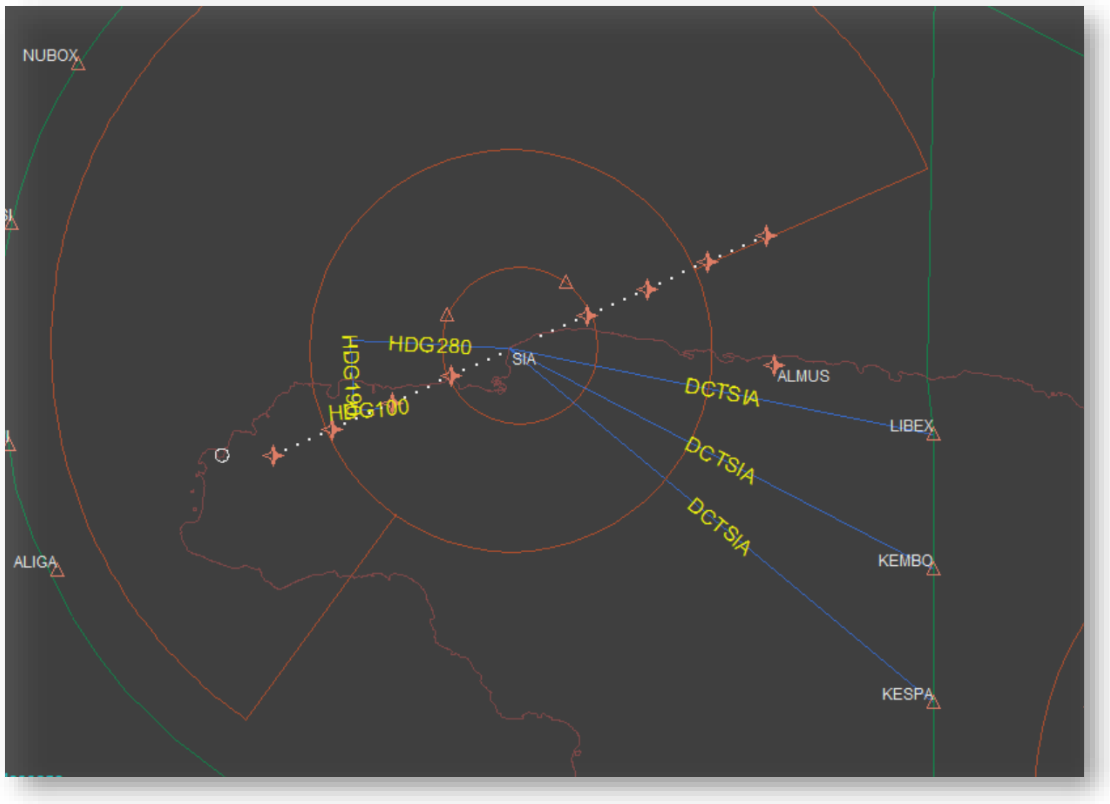
From PETSI: HDG 130, vectors to cross OMAXI heading 100 for ILS/DME 07

From IMONI: HDG 090 to cross OMAXI for ILS/DME 07

Details:

1. Descend initially to 3,000, no terrain obstacles to the north.
2. At about 5 NM from OMAXI, turn HDG 100 to intercept the final approach course.

Figure 6E: Vectoring to Final Approach ILS/DME 07 (SOUTH/WEST)

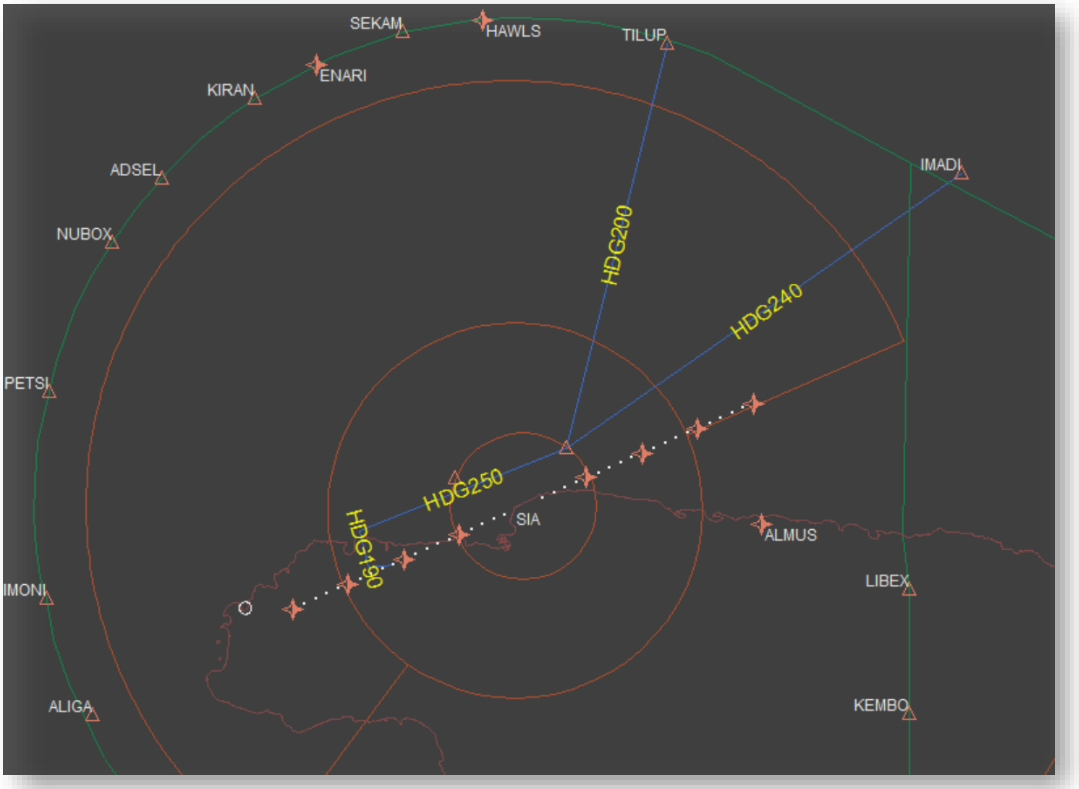


From KESPA/KEMBO/LIBEX: DIRECT SIA VOR, then vectors to cross OMAXI heading 100 for ILS/DME 07

Details:

1. Descend to cross SIA at 6,000.
2. Depart SIA heading 280. Descend to 4,000.
3. Fly heading 190 when prepared to turn base. Descend to 3,000.
4. Turn left heading 100 to intercept the final approach course.

Figure 6F: Vectoring to Final Approach ILS/DME 07 (NORTH/EAST)



From IMADI: HDG 240 or DIRECT SIA VOR, vectors to cross OMAXI heading 100 for ILS/DME 07

From TILUP: HDG 200 or DIRECT SIA VOR, vectors to cross OMAXI heading 100 for ILS/DME 07

Details:

1. Descend initially to 6,000.
2. At approximately 10 DME SIA, fly heading 250.
3. Fly heading 190 when prepared to turn base. Descend to 3,000.
4. Turn left heading 100 to intercept the final approach course.