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VATSIM UK Northern RTS

Manchester vMATS Part 2 - Revision 3

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Distribution and Scope

This manual outlines the operational procedures for controllers operating Manchester Airport positions.

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Amendment History

Revision	Date	Affected Pages	Changes
Rev 3	19 February 2016	10, 20, 22, 33, 35-37, 44, 46-48, 51-53, 58	Continuity with usage of 'coordination' and references to INT / MAN TMA sectors; circuit clearance is qualified with a 'not above'; change to 'cleared low approach' phraseology; clarification of the Radar Release and Common Release Level concepts; 'vortex wake' corrected to 'wake vortex' in two instances; simplification of single runway operations departure spacing guidelines; various other minor changes to ensure clarity, and to some formatting.
Rev 2	15 February 2016	All pages	New release version – there is no significant relation to any previous version.

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Section 1 | Unit General Operating Instructions

1.1 Altimeter Setting Procedures

1.1.1. Departing Aircraft

GMP shall ensure that all departing aircraft have been issued with the relevant pressure setting. Unless requested by a pilot the QFE will only be passed to traffic remaining within the visual circuit. All other traffic will use QNH.

1.1.2. Arriving/Transit Aircraft

When below the Transition Altitude, pilots are to fly on the aerodrome QNH until established on final approach, at which point QFE or any other desired setting may be used.

Aircraft will be passed the QNH by Approach Control when instructed to descend to an altitude or with the clearance to enter the CTA/CTR. The QFE will be passed only on request.

Controllers should be aware that the circuit is operated on a QFE datum. Caution should be exercised between aircraft operating on different datum within the CTR. Levels should be coordinated as appropriate.

1.1.3. QFE Threshold

The QFE at the Threshold to all runways is 9hPa less than the QNH.

1.1.4. Transition Altitude

The transition altitude is 5000ft amsl in the Manchester TMA.

1.1.5. Transition Level

The Transition Level for Manchester is to be determined from the following table:

QNH (hPa)	Transition Level
942 – 959	FL70
960 – 977	FL65
978 – 995	FL60
996 – 1012	FL55
1013 – 1031	FL50
1032 – 1050	FL45

1.1.6. Minimum Stack Level

Minimum Stack Level (MSL) is the lowest whole flight level available for use, which provides a minimum of 1000ft separation above the applicable transition altitude.

Within the Manchester TMA, MSL is based on the Manchester QNH in accordance with the table below:

Manchester MSL Calculation Table			
QNH	1013hPa +	1012 – 978hPa	977 – 943hPa
Manchester MSL	FL60	FL70	FL80
Pressure	High	Low	Double low

Note: QNH 1013hPa is considered high pressure within the MAN TMA.

1.1.7. Altimeter Setting Regions

For aircraft flying within the Manchester CTR and beneath the MAN TMA the EGCC QNH is used. Outside these areas the appropriate Regional Pressure Setting (RPS) is to be used:

- East of the MAN TMA is the Barnsley ASR; and
- West of the MAN TMA is the Holyhead ASR.

1.2 Light Aircraft and Helicopter Procedures

1.2.1. Visual Reference Points

For the benefit of pilots on VFR flights who prefer to determine their position by radio navigation aids, rather than by visual pin-points, suitably defined VRPs for Manchester are given below:

VRP	VOR/DME FIX	VRP	VOR/DME FIX
Alderley Edge Hill **531743N 0021244W**	MCT 156°/4NM	Macclesfield South 531410N 0020805W	MCT 150°/8.6NM
Burtonwood **532500N 0023817W**	WAL 087°/18NM MCT 287°/14NM	M56 Junction 10 532004N 0023417W	MCT 265°/11NM
Buxton **531521N 0015446W**	MCT 118°/14NM	M56 Junction 11 531938N 0023837W	MCT 265°/11NM
Congleton **530954N 0021051W**	MCT 168°/12NM TNT 292°/20NM	M60/M62/M66 Heaton Interchange 533300N 0021540W	MCT 002°/11.6NM WAL 105°/18NM
Dovestones Reservoirs **533215N 0015812W**	MCT 046°/15.1NM	Reebok Stadium 533450N 0023208W	MCT 326°/17NM
Glossop **532626N 0015504W**	MCT 070°/13.4NM	Rostherne 532114N 0022307W	MCT 270°/4NM
Haydock Park Racecourse **532842N 0023720W**	MCT 302°/15NM WAL 076°/23NM	Sale Water Park 532600N 0021810W	MCT 345°/5NM
Hilltop **532030N 0021027W**	MCT 108°/3NM TNT 315°/25NM	Stretton Aerodrome 532046N 0023135W	MCT 268°/10NM WAL 099°/22NM
Holmes Chapel **531055N 0022207W**	MCT 202°/11.2NM	Swinton Interchange 533124N 0022136W	MCT 343°/11NM
Irlam **532620N 0022447W**	MCT 314°/7.4NM	Thelwall Viaduct 532326N 0023021W	MCT 285°/9NM
Jodrell Bank **531411N 0021833W**	MCT 195°/7NM	Whaley Bridge 531935N 0015930W	MCT 103°/9.7NM
Lamaload Reservoir **531620N 0020233W**	MCT 125°/9.4NM	Winsford Flash 531106N 0023044W	MCT 223°/14NM
Leigh Flash **532923N 0023335W**	MCT 309°/13NM		

Note 1: Burtonwood/M56 Junction 11. Remain to the east of these VRPs to remain clear of Liverpool CTR.

Note 2: Stretton AD/Thelwall Viaduct. Remain to the west of these VRPs to remain clear of Manchester CTR.

Note 3: Winsford Flash. Remain to the west of VRP to avoid over flying Winsford.

Aircraft shall normally enter and exit the Manchester CTR at an appropriate altitude via either general "compass-point" directions, a published VRP or a published VFR route.

"Cleared to leave the Manchester Control Zone to the West, not above altitude 1500ft, VFR, QNH … squawk …"

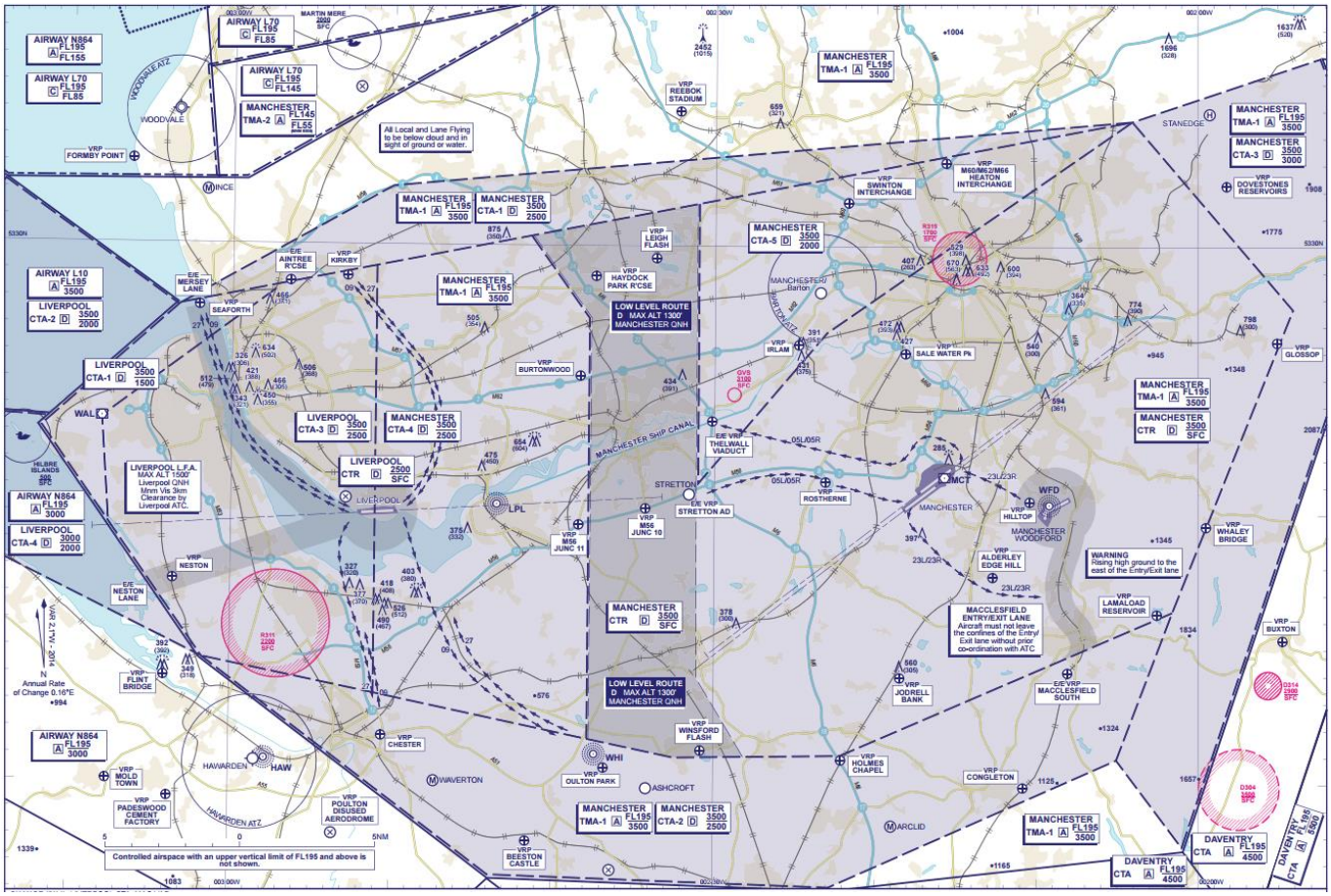


Chart Reference **AD 2-EGCC-4-1**

1.2.2. VFR and SVFR Routes to/from Manchester Airport

In order to integrate VFR and SVFR flights to/from Manchester Airport with the normal flow of IFR traffic, a number of Standard Routes are established along which ATC VFR and SVFR clearances will be issued subject to the conditions specified above. These routes are defined by prominent ground features (e.g. Motorways) and are detailed below.

In order to reduce RTF congestion of Clearance Delivery frequencies, the standard outbound Visual Routes are allocated Route Designators. Pilots are to ensure that they are familiar with the route alignment and altitude restrictions prior to departure.

Details of inbound VFR traffic must be passed to AIR and transfer of control and communication shall take place when the pilot reports visual with the airfield. INT and AIR must coordinate a clearance limit for the aircraft. At transfer INT shall remind the aircraft to hold and contact Manchester tower on the agreed frequency. Tower will be responsible for issuing clearance closer to the field as appropriate

SVFR inbounds will be retained by INT until such time as INT can safely integrate the aircraft into the inbound stream maintaining standard separation.

Separation and the aircraft has become number one to land in order to ensure that it cannot execute any manoeuvre which will erode the separation against the aircraft ahead. Unless AIR is able to provide reduced separation in the vicinity of the aerodrome.

Unless ADC is able to provide reduced separation in the vicinity of the airfield:

- has co-ordinated with Radar;
- has agreed to provide reduced separation; and
- altitude restrictions prior to departure.

The responsibility for separating the aircraft from IFR and/or other SVFR flights will remain with INT.

1.2.2.1. Standard Outbound Visual Routings

- During easterly operations, the Thelwall 1 visual route may be used.
- During westerly operations, the Macclesfield 1 visual route may be used.

Exit Point	Runway	Route designator	Maximum Altitude (QNH)
Thelwall Viaduct VRP	05L/05R	Thelwall 2 Visual	1300ft
Macclesfield South VRP	23R/23L	Macclesfield 1 Visual	2500ft

Thelwall 2 Visual

Aircraft flying the Thelwall 2 visual route shall follow the published route as follows:

Route:	Cross M56 Motorway. Route north of M56 to Thelwall Viaduct VRP, then via the Low Level Route[1]

[1] *Low Level Routes are described in section 1.2.7.*

Aircraft are to avoid overflying Lymm area. Inbound traffic operates south of M56 for runway 05L/05R.

Macclesfield 1 Visual

Aircraft flying the Macclesfield 1 visual route shall follow the published route as follows:

Route:	Left turn towards Alderley Edge Hill VRP. Route west then south of Alderley Edge VRP Hill and join the Macclesfield Entry/Exit Lane at Prestbury Station. Keep the northern edge of railway line on the left and leave the CTR via Macclesfield South VRP

The maximum altitude is 1500ft between Manchester Airport and the northern edge of Macclesfield, and 2500ft south of the northern edge of Macclesfield to the CTR boundary. Aircraft may be routed direct from Manchester to Prestbury Station, or via disused Woodford aerodrome.

Note: Aircraft must not leave the confines of the Entry/Exit Lane without prior coordination with ATC.

1.2.2.2. Standard Inbound Visual Routings

- During easterly operations, the Stretton 1 visual route may be used.
- During westerly operations, the Macclesfield 1 visual route may be used.

Entry Point	Runway	Route designator	Maximum Altitude (QNH)
Stretton Aerodrome VRP	05L/05R	Stretton 1 Visual	1300ft
Macclesfield South VRP	23R/23L	Macclesfield 1 Visual	2500ft

Stretton 1 Visual

Aircraft flying the Stretton 1 Visual route inbound shall follow the published route as follows:

Route:	From Stretton Aerodrome VRP, route via M56 Motorway, keeping the Motorway on the left. Join left base M56. Runway 05L.

Outbound traffic operates north of M56. Aircraft may be held at Stretton VRP or Rostherne VRP.

Macclesfield 1 Visual

Aircraft flying the Macclesfield 1 visual route inbound shall follow the published route as follows:

Route:	From CTR Boundary east of Macclesfield VRP, route via the Macclesfield Entry/Exit Lane (keeping railway line on left) to disused Woodford Aerodrome. Join left base for Runway 23L/R.

The maximum altitude is 2500ft between CTR boundary and the northern edge of Macclesfield, and 1500ft north of Macclesfield.

Aircraft may be held at Hilltop VRP, which is defined as the open area 1NM North West of the disused Woodford aerodrome factory. Pilots must hold by visual reference to ensure that the holding pattern does not deviate to the north, which would come into conflict with Runway 23R final instrument approach, particularly in a southerly wind.

When Runway 23L is in use as the landing runway, Hilltop VRP shall not be used. Inbound VFR aircraft can expect to hold overhead the disused Woodford aerodrome.

Aircraft must not leave the confines of the Entry/Exit Lane without prior coordination with ATC.

1.2.3. Manchester Control Zone Transit/VFR Helicopter Landing/Departing Traffic

1.2.3.1. Helicopter Operations

Helicopter traffic inbound and outbound from Manchester shall depart and land on a runway. Controllers are reminded that an air-taxiing helicopter crossing a runway is to be considered a departure from that point for wake turbulence separation purposes.

Helicopter traffic should be taxied to either TATON or the Ocean Sky apron.

1.2.3.2. VFR Fixed Wing Operations

VFR fixed-wing aircraft may only penetrate the Manchester ATZ with the prior approval of Manchester AIR. INT South shall coordinate a course of action with Manchester AIR that will facilitate the safe passage of the aircraft through the ATZ. INT South or AIR (as relevant) shall pass traffic information as necessary.

In the case of inbound aircraft, INT South shall provide a gap in the arrival sequence taking into account the applicable wake turbulence separation as well as the current spacing requirement. INT South shall advise AIR of where in the arrival sequence that the gap will be provided.

1.2.3.3. SVFR Operations

The use of SVFR clearances is intended to be confined to light aircraft below MTOW 5700 kg, which cannot comply with full IFR requirements and wish to proceed to or from an aerodrome within the zone or wish to transit the zone at the lower levels.

SVFR clearances to operate within the Manchester CTR will not be granted to fixed-wing aircraft when:

1. Proceeding inbound to Manchester Airport, if the reported meteorological conditions at the airport are 2800m or less visibility and/or cloud ceiling less than 1000ft; or outbound from Manchester Airport, if the reported meteorological conditions at the airport are 1800m or less visibility and/or cloud ceiling less than 600ft, VFR clearance in the CTR will be given for flights operating in VMC.
2. Routing instructions and/or altitude restrictions may be specified in order to integrate VFR flights with other traffic. Pilots are reminded of the requirement to remain in VMC at all times and to comply with the relevant parts of the Low Flying Rules, and must advise ATC if at any time they are unable to comply with the clearance instructions issued.

1.2.4. Fanstop and Asymmetric Procedures

Simulated engine failure training is not to be carried out by aircraft departing from Runway 05L/05R.

1.2.5. Radio Failure Procedures

In the event of complete communication failure in an aircraft, the pilot will adopt the appropriate procedures notified at ENR 1.1, section 3.4.

1.2.6. Re-join Procedures

Overhead joins are not permitted. Controllers should assess each situation and apply appropriate joining instructions as necessary. The use of VRPs to hold and sequence arriving VFR and SVFR traffic is recommended.

1.2.7. Low Level Route

The Special Low Level Route is 4NM in width bounded by the following co-ordinates: 533124N 0023102W - 531411N 0023105W - 531050N 0022814W - 531050N 0023224W - 531130N 0023744W - 532708N 0023744W - 533011N 0024123W - 533124N 0023102W.

Within the Low Level Route (LLR), helicopters or aeroplanes may fly without individual ATC clearance subject to the following:

1. They remain clear of cloud and in sight of the ground;
2. maximum altitude: 1300ft, Manchester QNH;
3. Manchester QNH available from ATIS broadcast frequency 121.975;
4. minimum flight visibility: 4 km.

Note: Flights using the LLR are responsible for their own separation from all other flights when operating within the Low Level Route airspace at all times.

Pilots are advised that the LLR is not aligned with the M6 Motorway, or on any railway lines and these should not therefore be used as a navigational feature for transit throughout the route. However, to the northwest and southeast of the route, stubs are aligned with the M6 and the Crewe-Winsford railway line to enable pilots to access the route accurately.

Aircraft operating in the LLR are exempt from the 1000ft rule.

1. It is flying on a SVFR flight;
2. it is operating in accordance with the procedures notified for the route; or
3. it is flown no closer than 500ft to any person, vessel, vehicle or structure.

Flights operating within the LLR may request UK FIS from Manchester INT.

1.2.8. Manchester Listening Squawk

Pilots flying within 5NM of Manchester CTR and maintaining a listening watch only on the Manchester Approach frequency may select code 7366. Note that selection of 7366 does not imply the receipt of an ATC service.

Aircraft displaying the code are not expected to contact ATC under normal circumstances, remain responsible for their own navigation, separation, terrain clearance and are expected to remain clear of the Manchester CTR at all times. When an aircraft ceases to maintain a listening watch or is no longer flying within 5NM of the Manchester CTR, the pilot will deselect transponder code 7366.

1.3 Noise Abatement Procedures

1.3.1. Noise Preferential Routes

All aircraft inbound or outbound from this airport are required to conform to the following procedures, notwithstanding that these may at any time be departed from to the extent necessary for avoiding immediate danger:

1. Unless otherwise authorised by ATC, aircraft using the ILS in IMC and VMC shall not descend below 2000ft before intercepting the glide path, not thereafter fly below it. An aircraft approaching without assistance from ILS or radar shall follow a descent path which will not result in its being at any time lower than the approach path which would be followed by an aircraft using the ILS glide path.
2. Every jet aircraft using the airport shall, after take-off or 'go-around' maintain, after passing the relevant monitoring point, a rate of climb of at least 500ft per minute at power settings which will ensure progressively decreasing noise levels at points on the ground under the flight path beyond the monitoring point. For visual approaches, or following a visual circuit, to Runway 23R/23L the following additional limitations apply:
    a. Jet aircraft shall not join the final approach at a height of less than 1500ft aal.
    b. Propeller driven aircraft whose MTOW exceeds 5700 kg shall not join the final approach at a distance of less than 3NM from the landing threshold and at a height of less than 1000ft aal.
3. The Noise Preferential Routes specified in the following table are compatible with ATC requirements and the tracks are to be flown by all departing aircraft until the level defined in the table below is reached:
    a. aircraft whose MTOW does not exceed 5700 kg;
    b. unless otherwise instructed by ATC or deviations are required in the interests of safety. The use of these routes is supplementary to noise abatement take-off techniques. After take-off, pilots should ensure that they are at a minimum height of 500ft aal before commencing any turn.

1.3.1.1. Runway 05L

Take-off runway	ATC Clearance	Procedure	NPR Termination
05L	Via LISTO	At MCT DME 1.2, turn right onto track 150°MAG. At MCT DME 2.7 turn right onto POL VOR R188	5000ft
05L	Via ASMIM or MONTY	At MCT DME 2, turn left onto track 300°MAG towards XOBRO to intercept WAL VOR R083	4000ft
05L	Via POL	Straight ahead on MCT VOR R055. At MCT DME 7 turn left onto POL VOR R182	4000ft
05L	Via DESIG	Straight ahead on MCT VOR R055. At MCT DME 14 turn right onto OTR VOR R265	4000ft

1.3.1.2. Runway 05R

Take-off runway	ATC Clearance	Procedure	NPR Termination
05R	Via LISTO	At MCT DME 1.2, turn right onto POL VOR R188 to LISTO	5000ft
05R	Via ASMIM or MONTY	At MCT DME 2, turn left onto track 300°MAG towards XOBRO to intercept WAL VOR R083	3000ft
05R	Via POL	Straight ahead on MCT VOR R055. At MCT DME 7 turn left onto POL VOR R182	4000ft
05R	Via DESIG	Straight ahead on MCT VOR R055. At MCT DME 14 turn right onto OTR VOR R265	4000ft

1.3.1.3. Runway 23L

Take-off runway	ATC Clearance	Procedure	NPR Termination
23R	Via LISTO1	At MCT DME 2 turn left onto track 163°MAG to establish on HON VOR R340.	5000ft
23R	Via KUXEM, MONTY or EKLAD	At MCT DME 3 turn right onto track 275° MAG to intercept MCT VOR R256.	3000ft
23R	Via POL	At MCT DME 3 turn right onto track 345°MAG towards XUMAT. At MCT DME 8 turn right onto POL VOR R221	4000ft
23R	Via SONEX	Straight ahead on MCT VOR R055. At MCT DME 14 turn right onto OTR VOR R265	4000ft
23R	Via SANBA	At MCT DME 3 turn right onto track 275° MAG. At MCT DME 5 turn left to TABLY to intercept HON VOR R335 to SANBA.	5000ft

1.3.1.4. Runway 23R

Take-off runway	ATC Clearance	Procedure	NPR Termination
23L	Via LISTO1	At MCT DME 3.2 turn left onto track 156°MAG to establish on HON VOR R340	5000ft
23L	Via KUXEM, MONTY or EKLAD	At MCT DME 3.2 turn right onto track 285 MAG to intercept MCT VOR R256	3000ft
23L	Via POL	At MCT DME 3.2 turn right onto track 345°MAG towards XUMAT. At MCT DME 8 turn right onto POL VOR R221	4000ft
23L	Via SONEX	At MCT DME 3.2 turn right onto track 345°MAG towards XUMAT. At MCT DME OTR onto VOR R265.	4000ft
23L	Via SANBA	At MCT DME 3.2 turn right onto track 285° MAG. At MCT DME 5 turn left to TABLY to intercept HON VOR R335 to SANBA.	5000ft

1.4 Traffic Data Display

1.4.1. Flight Progress Strips

Electronic Flight Progress strips (FPS) are used at Manchester Airport. Controllers are responsible for keeping FPS up to date. Controllers should ensure that:

- Flight plans within the UK or up to the FIR boundary should be consistent with the standard route document.
- Cruising levels should be correct following standard RVSM rules.
- Ensure that temporary altitudes are set before departure.
- Assign a correct SSR code.
- Ensure the correct voice tag is set for the aircraft.

1.5 All Weather Operations

1.5.1. Runway Visual Range

IRVR is available for all runways. It is measured at 3 points located in a line at specific points down the runway – touchdown zone, mid-point and stop-end. The minimum RVR that can be measured is 50m and the maximum is 1500m.

1.5.2. CAT II/III Operations

Runway 23R and 05L are equipped with CAT III equipment and 05R is equipped with CAT I equipment. During CAT II and III operations Low Visibility Procedures (LVPs) will be applied and these will be broadcast via the ATIS or via radiotelephony.

Runway 05L is available for CAT II/III operations, however due to the terrain profile CAT II approaches may only be made by aircraft in ICAO Category A and B (V_{at} no greater than 120kt), and when the ILS status is CAT III. Runway 23R is available for CAT II/III operations; however, CAT II approaches may only be made when the ILS status is CAT III.

Manchester Airport operates two stages of LVPs in CAT II/III operations:

- ATC Low Visibility Procedures; and
- ATC Low Visibility Procedures due cloud ceiling.

1.5.2.1. ATC Low Visibility Procedures

- IRVR less than 600m.
- Reversion to single runway operations (23R or 05L).
- Departures in IRVR of less than 400m are not permitted (23L)
- Traffic that has crossed 23R in dual westerly operations may be allowed to depart if the weather conditions permit.

Departing Aircraft

ATC will require departing aircraft to use the following CAT III holding points.

- Runway 23R – Juliet 1.
- Runway 05L – Alpha 1.

Arriving Aircraft

The following exits should be used when vacating:

- Runway 23R: Rapid Exit Taxiways BD, AE or Link Alpha
- Runway 05L: Link Juliet.

1.5.2.2. ATC Low Visibility Procedures due cloud ceiling

- IRVR 600m or greater and Cloud Ceiling of 200ft or less.
- Runway 23L/23R dual runway operation OR Runway 05L single runway operation.
- All available runway exits associated with either Runway 23R or Runway 05L will be illuminated.
- Aircraft may vacate at any of these exits.

Runway 23L/23R dual runway operation will require departing aircraft to hold short of Runway 23R at the following CAT lll holding points:

- Hotel 1;
- Foxtrot 1; or
- Delta 1

Note: Pilots are required to read back all ATC 'hold short' instructions.

Surface Movement Radar (SMR) is normally available to monitor pilot 'Runway vacated' reports. When SMR is not available, runway vacation will be assessed by receipt of a pilot report that the aircraft has passed the last alternate yellow and green centre-line lights. These lights denote the extent of the ILS Localiser Sensitive Area (LSA).

Pilots will be informed of the relevant procedure that is in operation by ATIS or by radiotelephony.

When LVPs are in force, a reduced landing rate can be expected due to the requirement for increased spacing between arriving aircraft. In addition to the prevailing weather conditions, such factors as equipment serviceability may also have an effect on actual landing rates.

For information and planning purposes, the approximate landing rates that can be expected are:

IRVR (m)	Expected Landing Rate (per hour)
Between 1000m and 600m	20
Between 600m and 400m	12
Less than 400m	10

1.5.3. CAT III Holding Points

When LVPs are in operation, aircraft will be expected to hold at the following CAT III holding points. Other departure points may be used at ATC discretion, in which case an allowance for the necessary ILS protection must be made. Conditional clearances must not be used whilst LVPs are in force.

- Runway 05L: Alpha 1
- Runway 05R: Not applicable
- Runway 23L: Not applicable
- Runway 23R: Juliet 1

1.5.4. Air Traffic Control Procedures

See MATS Part 1 Section 2: Chapter 1, paragraph 6.

1.5.5. Air Traffic Control Separation

During LVPs, the minimum spacing used must be sufficient for the situation at hand. It is recommended that a gap of 10NM is used when a departure is required (6NM can be used if not). This is to ensure that aircraft will receive a landing clearance by 3NM (and in exceptional circumstances 2NM at the absolute latest) from touchdown. Aircraft not in receipt of a landing clearance within 2NM **must** be instructed to go around. During LVPs, aircraft require to establish on the localiser at an early stage, therefore aircraft must be vectored to intercept the localiser at a range of not less than 10NM from touchdown.

1.5.6. Meteorological Information

ATIS will be available on frequency 121.975 MHz. An AIR controller shall maintain the ATIS, though in busy periods this can be delegated to another controller. When LVPs are in force, this shall be included in the ATIS broadcast.

1.5.7. Weather - Summary of Effects on Operations

Cloud ceiling less than 1500ft	Request fixed-wing pilots intending to operate VFR in the CTR/CTA what type of clearance they require
Visibility less than 5000m	No further VFR clearances to be issued to aircraft other than helicopters
Visibility 2800m or less, or cloud ceiling less than 1000ft	No fixed-wing SVFR arrivals or departures
Visibility less than 1500m	No further VFR operations for Helicopters
IRVR: 600m or Cloud Ceiling: 200ft	ATC Low Visibility Procedures in Force

1.6 Use of Runways

1.6.1. Preferential Runway System

Runways 23L and 23R are preferred when the tailwind component is no greater than 5kt, provided the runway surface is dry.

If the tailwind component is greater than 5kt, and the wind direction is between:

- 135° and 335°, runway 23R/23L shall be used; and
- 335° and 125°, runway 05L/05R shall be used.

The upper wind on final approach should also be considered when appropriate.

1.6.2. Runway Alternation

Depending on the time of day, Manchester Airport operates using one or both of their runways. The dual operating philosophy at Manchester Airport will be:

Westerly Operations	
Runway 23R	Arrival Runway (AIR 1)
Runway 23L	Departure Runway (AIR 2)

Easterly Operations	
Runway 05R	Arrival Runway (AIR 2)
Runway 05L	Departure Runway (AIR 1)

Outside the agreed hours for dual runway operations, runway 23R/05L shall be the primary runway in use (see. 3.1.4).

Runway 23L/05R will only be used for single runway operations in exceptional circumstances when runway 23R/05L is not available.

During single runway operations, the AIR Controller (AIR 1) is responsible for both the active and non-active runway.

1.6.3. Runway Vacation

In the event an aircraft vacates, but cannot contact GMC due to RTF congestion, the pilot shall vacate the landing runway completely and taxi onto the first taxiway available. The pilot should then hold position until contact with GMC can be established.

Section 2 | Local Separation Standards

2.1 Special Separation Standards - IFR

2.1.1. General

Standard Separation is to be provided between all IFR and SVFR flights as specified in MATS Part 1, Section 1: Chapter 3.

2.1.2. Departure Separation

Departing aircraft are to be separated by time according to specified speed groups and departure routings. IFR departures following SIDs are deemed to be either initially following the same departure route or diverging by 45° or more after departure.

2.1.2.1. Time Separation Criteria

Where PSR is serviceable, standard departure separation detailed in MATS Part 1 may be replaced by standard departure interval applied according to the departure table below.

Aircraft types have been grouped according to speed as shown in the following table:

Group 4	Group 3	Group 2	Group 1	Group 0
CONC	All Jet aircraft except those in groups 2 and 4	BAE 146/Avro RJ Family All citation jets (e.g. C501/C551) C130 D328/J328/L328 DH8D SB20	ATP AT43/44/72 BE20/30 DH8A/B/C F27/50 JS31/32/41 SF34	BE9L DHC6 E110 SH36

The standard departure interval is 2 minutes (a full 120 seconds), except from Group 0 which is 3 minutes (a full 180 seconds), which will be applied between successive departures from the same group or when the following aircraft is from a lower group in the table.

The interval of 2 minutes may be reduced to 1 minute when the following aircraft is two or more groups slower than the preceding aircraft.

When the following aircraft is from a higher group, one or more minutes are added to the standard interval according to the difference in group, for example:

- Group 1 followed by Group 2: 2 minutes + 1 minute = 3 minutes
- Group 1 followed by Group 4: 2 minutes + 3 minutes = 5 minutes
- Group 2 followed by Group 4: 2 minutes + 2 minutes = 4 minutes
- Group 0 followed by Group 3: 3 minutes + 3 minutes = 6 minutes

2.1.2.2. Route Separation Criteria

The following tables show the required route separation to be applied between successive departures:

Runway 23L/R

SID	Diverges from
SANBA	SONEX / POL
LISTO	MONTY / KUXEM / EKLAN / SONEX / POL
KUXEM / EKLAN / MONTY	LISTO / SONEX / POL
SONEX / POL	MONTY / LISTO / SANBA / KUXEM / EKLAN

Note: For LISTO and SANBA separation see 2.1.2.3.

Runway 05L/R

SID	Diverges from
LISTO	DESIG / POL / ASMIM / MONTY
DESIG / POL	ASMIM / MONTY / LISTO
ASMIM / MONTY	LISTO / POL / DESIG

The tables show below indicate the minimum time separation required for departures in the same speed group:

Runway 05L/R

1st	2nd	Time
ASMIM	MONTY	2 mins
DESIG	POL	2 mins
MONTY	DESIG	2 mins
POL	DESIG	2 mins

Runway 23L/R

1st	2nd	Time
EKLAD	KUXEM / MONTY / SANBA	2 mins
KUXEM	EKLAD / MONTY / SANBA	2 mins
LISTO	SANBA	See 2.1.2.3
MONTY	EKLAD / KUXEM / SANBA	2 mins
POL	SONEX	2 mins
SANBA	EKLAD / KUXEM	2 mins
SONEX	POL	2 mins

Note 1: When time based separation is being used as the sole means of applying departure separation, 1 minute shall be not less than 60 seconds and 2 minutes shall be not less than 120 seconds. Separation between departing aircraft shall be applied so that after one aircraft takes off the next succeeding aircraft does not take-off within less than the number of minutes specified in the table. Such separation criteria are minima and will not be allowed to be eroded.

Note 2: Provided that the visibility is adequate to observe the departing aircraft, 1 minute may be substituted for RSIVA. When applying RSIVA, AIR Departures must keep both aircraft on frequency in order to visually separate. Neither aircraft will be handed to MAN TMA until their tracks are diverging, will remain diverging and maintaining a minimum 3NM horizontal separation as depicted on the ATM.

Note 3: Where applicable, Wake Turbulence separation is to be applied. For aircraft travelling in different directions in the same speed group, minimum separation would be 1 minute. In the event that the preceding aircraft is in a heavier wake category, separation is to be increased according to the instructions laid out in 2.1.3.

2.1.2.3. Separation of LISTO and SANBA SIDs - Runway 23R/23L

A LISTO 2R/2Y SID may be used by all turboprops and all jet aircraft up to 35000 kg MTOW, plus Bae 146 (Avro RJ series), Embraer E135, E145, Bombardier CRJ1, CRJ2, CRJ7, CRJ9, BD700 Global Express and Gulfstream 5 jets are also permitted to use the route.

Even though a LISTO 2R SID followed by a SANBA 1R SID diverges by more than 45° after departure, the southbound turn of the LISTO SID means that the tracks are not separated.

The AIR Controller needs to wait until the first aircraft has vacated altitude 5000ft (5400ft and above). It is possible to request an early release from MAN TMA.

2.1.3. Wake Turbulence Separation

The Standard Wake Turbulence Separation Requirements are used at Manchester Airport. These are as specified in MATS Part 1, Section 1: Chapter 3, paragraph 9.

Aircraft departing from a runway intersection are to be separated by an additional minute if the preceding aircraft departed from the full length or from an intersection behind the succeeding aircraft.

The following table shows the Links that are considered by ATC to be the same departure points for the purposes of wake vortex separation:

Runway	Links / Taxiways	Runway	Links / Taxiways
23R	Links J and M	05L	Links A and AG
23L	Link T, VA, and VB, or Links VA, VB and U,	05R	Links W and Y

When in receipt of a line-up clearance, the pilot must inform ATC before entering the runway if greater wake vortex separation will be required behind the preceding aircraft. Failure to do so may result in additional delay.

2.1.3.1. Arrivals

For the purposes of spacing in the approach phase, certain aircraft types are classified as 'Upper Medium' and following aircraft will be provided with additional separation. All other 'Medium' aircraft types are classified as 'Lower Medium'. The following restrictions are established:

Runway 05L arrivals

Link F is available as a runway exit during daylight hours only. Link D is not available as a runway exit.

Runway 23R arrivals

Links D and F are not available as runway exits.

Runway 23R/05L only

The hard shoulders outboard of the runway side stripes have only 25 % of the runway bearing strengths and should not be used by aircraft turning on the runway or when backtracking. The grass verges are un-strengthened and when wet unlikely to sustain loads.

Unless the AIR Controller ensures that no aircraft will be using the ILS before the critical area is vacated. "Using the ILS" is determined as having started when aircraft are given a closing heading.

2.1.3.2. Visual Switches

During dual runway operations, in the event of a blockage/unserviceability on the arrival runway, ATC may offer pilots a visual switch of approach from Runway 23R to 23L, or from Runway 05R to 05L. This will only happen when the landing aircraft is more than 4NM from touchdown and when visibility is greater than 5 km.

Visual switches are available from 05R to 05L and 23R to 23L only subject to the following conditions:

- Daytime only;
- VMC conditions;
- AIR arrivals must coordinate with air departures **before** offering a visual switch; and
- The aircraft is more than 4NM from touchdown at the time of switching.

Only aircraft on final approach or on a closing heading may be offered a visual switch.

2.2 Special Separation Standards - SVFR

2.2.1. General

Standard Separation is to be provided between all IFR and SVFR flights as specified in MATS Part 1, Section 1: Chapter 3.

2.2.2. SVFR Separation standards

Standard separation is to be applied between:

1. IFR flights and SVFR flights;
2. Aircraft cleared for SVFR flights.

2.2.3. Weather Limitations

A SVFR clearance is issued when requested by a pilot or when it is notified in the UK AIP for a particular type of operation. Before issuing such a clearance a controller must consider the prevailing traffic conditions, the extent of the proposed flight and the availability of air-ground communications. SVFR flights are not to hinder normal IFR flights.

SVFR clearances to operate within the Manchester Control Zone will not be granted to fixed-wing aircraft when:

1. Proceeding inbound to Manchester Airport, if the reported meteorological conditions at the airport are 2800m or less visibility and/or cloud ceiling less than 1000ft; or
2. outbound from Manchester Airport, if the reported meteorological conditions at the airport are 1800m or less visibility and/or cloud ceiling less than 600ft.

When the reported ground visibility consists of two values, the lower of the two values shall be used when determining if a SVFR clearance can be issued.

Aircraft flying along promulgated routes may encounter deteriorating weather conditions. Controllers should be prepared to provide an alternative route to enable the pilot to comply with the conditions of a SVFR clearance.

Section 3 | Aerodrome Control

3.1 General

3.1.1. General Responsibilities

Aerodrome control is responsible for providing the safe, orderly and expeditious movement of aircraft by issuing information and instructions to:

- Aircraft flying in and around the ATZ;
- Aircraft departing and arriving on the runway;
- Aircraft moving on the apron and other manoeuvring areas.

Aerodrome control is divided into Ground Movement Planner, Ground Movement Control and Air Control (1 and 2).

Ground Movement Planner ("Manchester Delivery") provides full departure clearance to aircraft departing Manchester and is responsible for passing the QNH and verifying the aircraft type and stand of departing aircraft. The flight strip will be amended to ensure the correct flight rules, temporary altitude, squawk and voice tag are shown. GMP transfer aircraft to GMC once ready for pushback/start up and, on specified departure routes, pre-note Manchester INT or MAN TMA as appropriate. Transfer of aircraft to GMC will take place to allow sensible movement and departure sequencing. GMP shall not transfer aircraft to GMC where a delay to their movement is expected. Aircraft will remain with the GMP until GMC is able to facilitate their movement.

GMP is responsible for coordinating with air departures as necessary when excessive delay exists at the holding point.

Ground Movement Controller ("Manchester Ground") responsible for the movement of aircraft on the apron and taxiways north of 23R/05L. Aircraft will be given pushback instructions when required. Departures will be taxied to the runway holding point and handed to AIR 1 once clean. Arrivals will be taxied to stand. In the absence of GMP then GMC will take on these functions.

AIR 1 ("Manchester Tower") controls movement of aircraft on runway 23R and 05L and all runway holding points on the North Side as well as providing information to aircraft making an instrument approach and VFR traffic both in the visual circuit and within the vicinity of the ATZ to those runways. Departing aircraft will be handed to the relevant MAN departure controller and arrivals to GMC. Air 1 takes on all responsibilities of Air 2 in its absence.

AIR 2 ("Manchester Tower") controls movement of aircraft on runway 23L and 05R and all runway holding points on the South Side as well as providing information to aircraft making an instrument approach and VFR traffic both in the visual circuit and within the vicinity of the ATZ to those runways. Departing aircraft will be handed to the relevant MAN departure controller and arrivals to AIR 1.

In dual easterly operations AIR 2 will taxi aircraft to an appropriate Z-holding point for runway 05L based on where the aircraft is parking. BZ is not to be used unless prior coordination is effected with GMC (AIR 1 does not have to approve crossers at BZ).

During westerly dual runway operations AIR 1 will be responsible for taxiway V between the north runway and holding points T1 and V5. During easterly dual runway operations AIR 1 and GMC shall coordinate crossing aircraft as appropriate.

3.1.2. Delegated Responsibilities

AIR is responsible for traffic operating within and in the vicinity of the ATZ below altitude 1500ft. Traffic operating within the vicinity of the ATZ unknown to FIN will be coordinated with him. Traffic operating SVFR will be coordinated with INT.

3.1.3. Selection of Runway in Use

The runway in use is that selected by AIR 1 or AIR 2 (as appropriate) as to the one most suitable for prevailing weather conditions with reference to the current and forecast winds. In calm wind, changing and crosswind circumstances then in addition to the current VATSIM METAR, the TAF.

AIR 1 is responsible for coordinating with INT South and MAN TMA when a need to change runway is anticipated. Any controller may initiate such coordination but AIR 1 is the final arbiter on runway selection. A runway change shall (whenever possible) be timed to occur in a low traffic situation. When a runway change is agreed, a change point must be agreed between AIR 1, INT South and GMC. This coordination will include the last inbound and outbound on the current runway, and the first inbound and outbound on the new runway.

Aerodrome controllers are reminded that southbound traffic will route via SANBA and/or LISTO SIDs depending on type and runway in use. Therefore, caution must be used following a runway change to ensure that all traffic is flying the correct SID.

3.1.4. Dual Runway Operations

Depending on the time of day, Manchester Airport operates using one or both of their runways. The dual operating philosophy at Manchester Airport will be:

Westerly Operations	
Runway 23R	Arrival Runway (AIR 1)
Runway 23L	Departure Runway (AIR 2)

Easterly Operations	
Runway 05R	Arrival Runway (AIR 2)
Runway 05L	Departure Runway (AIR 1)

On occasion both runways can be operated by one AIR controller when runway 23L/05R is required for use by an aircraft outside normal operation times. This is intended for one off movements only and the appropriate sector will be informed on each occasion.

General operating principles for two runway segregated operations. The two runways at Manchester are 390m apart and staggered by 1850m in order to comply with ICAO rules for Simultaneous Operations on parallel or near-parallel Instrument Runways (SOIR). Therefore in normal operations arrivals can operate independently on one runway whilst departures use the other.

Dual runway segregated operations are normally in force:

- **Monday - Friday:** 06:30 - 10:30 and 13:00 - 20:00 local;
- **Saturday:** 06:30 - 10:30 and 13:00 - 16:00 local;
- **Sunday:** 12:00 - 15:00.
- At other times, single runway, mixed-mode operations are in force using Runway 05L/23R.

Pilots requiring use of Runway 05R/23L for aircraft performance reasons outside dual runway segregated hours should advise ATC at the earliest opportunity. Efforts will be made to make Runway 05R/23L available, however, some delay may be experienced. Returning this runway to service may take in excess of 30 minutes and it should not be assumed to be available as a diversion alternate to Runway 05L/23R.

Due to local planning constraints, Runway 05R/23L is not normally available between the hours of 2200-0600 (local) daily.

3.1.5. Preferential Runway

Unless otherwise required by ATC, Runway 23R/23L shall be used for all movements when there is a head wind component and when a tail wind component is not greater than 5kt on either runway.

Runway 23L should not be used as an arrival runway except for emergency purposes or runway 23R is closed for maintenance. Runway 05R should not be used as a departure runway unless 05L is closed for maintenance.

In a situation with a strong crosswind then the tail wind component should be calculated and the general trend assessed. The tailwind component can be calculated as $X\cos\theta$ where X is the strength of the wind and θ is the angle between the runway heading and the wind direction.

3.1.6. Coordination between GMP/GMC/AIR

GMP will confirm the aircraft type, stand number, correct ATIS information and local QNH on first contact. The stand number will be inserted into the scratchpad. Once the clearance has been issued and readback correctly then the clearance received flag will be set. GMP will monitor the overall departure traffic flow and instruct aircraft to contact GMC at a time to allow minimal delay at the runway hold.

GMC will update the status when issued push and taxi instructions. The actual time off block will be filled once the PUSH status has been set. GMC will update the scratchpad with information relevant to pushback and taxi instructions.

If it is necessary for AIR to modify the departure order from the taxi order, then this must be done in adequate time to allow GMC to alter the taxi instructions. When it is busy, GMC will instruct aircraft to contact Manchester tower at an appropriate point when all ground conflictions are resolved. AIR may request that this is done by using the phraseology “monitor tower”.

“Monitor Manchester Tower, 118.625”

3.1.7. Description of Airfield

3.1.7.1. Aerodrome Geographical Data

Aerodrome Reference Point	Lat: 532114N Long: 0021630W Midpoint of Runway 05L/23R
Location	7.5NM SW of Manchester
Elevation	257ft
Transition Altitude	5000ft
Type of Traffic permitted	IFR/VFR

3.1.7.2. ATC Communication Facilities

Position	Service Designator	Callsign	Frequency
FIN	EGCC_F_APP	Manchester Director	121.350 MHz
INT S	EGCC_S_APP	Manchester Radar	118.570 MHz
INT N	EGCC_N_APP	Manchester Radar	135.000 MHz
AIR 2	EGCC_S_TWR	Manchester Tower	119.400 MHz
AIR 1	EGCC_N_TWR	Manchester Tower	118.620 MHz
GMC	EGCC_GND	Manchester Ground	121.850 MHz
GMP	EGCC_DEL	Manchester Delivery	121.700 MHz
ATIS	EGCC_ATIS	Manchester Information	121.970 MHz

If the primary service designator is already in use, a controller who is taking over that position, is to log on with one of the following relief callsigns:

- EGCC_DEL → EGCC__DEL
- EGCC_GND → EGCC__GND
- EGCC_N_TWR → EGCC_1_TWR
- EGCC_S_TWR → EGCC_2_TWR
- EGCC_S_APP → EGCC_1_APP
- EGCC_F_APP → EGCC_2_APP
- EGCC_N_APP → EGCC_3_APP

3.1.7.3. Radio Navigation and Landing Aids

Type	IDENT	Frequency	Remarks
ILS 23R CAT III DME	I-NN	109.500 MHz	LLZ/GP/DME 3° glideslope
ILS 05L CAT III DME	I-MM	109.500 MHz	LLZ/GP/DME 3° glideslope
ILS 05R CAT I DME	I-MC	111.150 MHz	LLZ/GP/DME 3° glideslope

3.1.7.4. Runways

Runway	True Bearing	Dimensions (m)	TORA (m)	TODA (m)	ASDA (m)	LDA (m)
05L	051	3048x45	3014	3229	3014	2587
23R	231	3048x45	2897	3197	2897	2714
05R	051	3050x50	3047	3347	3047	2864
23L	231	3050x50	3200	3500	3200	2864
05L (B1)		N/A	2036	2251	2036	N/A
05L (AG1)		N/A	2771	2986	2771	N/A
05L (AF1)		N/A	2432	2647	2432	N/A
23R (M1)		N/A	2567	2867	2567	N/A
23R (H1)		N/A	2121	2421	2121	N/A
23R (G1)		N/A	2048	2348	2048	N/A
23L (VA1)		N/A	3121	2421	3121	N/A
23L (VB1)		N/A	2955	3255	2955	N/A
23L (U1)		N/A	2849	3149	2849	N/A
23L (VC1)		N/A	2504	2804	2504	N/A

3.1.8. Aerodrome Layout

As depicted in chart **AD 2-EGCC-2-1**

3.1.9. Use of ATM

An Aerodrome Traffic Monitor (ATM) is available for Advanced Use and the information derived from the ATM may be used to:

- Determine the landing order, spacing and distance from touchdown of arriving aircraft;
- Assist in applying longitudinal separation for departing aircraft;
- Enable controllers to confirm that the initial track of departing aircraft conforms with the clearance issued;
- Provide information to aircraft on the position of other aircraft in the circuit or carrying out an instrument approach;
- Following identification, validate SSR codes of departing aircraft and verify associated mode C read-outs;
- Monitor the progress of overflying aircraft identified by Approach Radar Control to ensure that they do not conflict with the tracks of arriving or departing aircraft;
- Establish separation between departing aircraft;
- Pass traffic information;
- Establish separation in the event of a missed approach;
- Assist in taking initial corrective action when the separation between arriving aircraft becomes less than the prescribed minima.

3.1.10. Stand Allocation

As per the Manchester Airport stand allocation document.

3.1.11. Taxiways Restrictions

AIR 1 will instruct aircraft to the most appropriate holding point on the southern taxiway network.

Note: During westerly dual runway operations AIR 1 will be responsible for taxiway V between the north runway and holding points T1 and V5.

BZ shall only be used following coordination between GMC and AIR 2. If AIR 2 has not been requested by GMC to use BZ traffic for the jet centre shall be routed to DZ.

When it is busy, GMC may transfer aircraft to AIR when clean. That is when clear of conflicting traffic and taxiing towards the runway holding point using the 'monitor' instruction. This will reduce radiotelephony time on the relevant AIR Controller's frequency. Having been given this instruction, aircraft should switch to the Tower frequency.

The following taxiways restrictions are implemented at Manchester for the purpose of safety:

- Taxiway Lima may not be used by B777, B748, A340-600, A380, AN24 or AN25.
- Taxiway Alpha is not code F compliant between the ETB and Alpha 4 (Route A5-C1-B2-A3 is available in both directions).
- Taxiway Golf is not separated from class F aircraft on taxiway Juliet.
- Class F aircraft may not use taxiway Delta north of Delta 6.
- Taxiway Quebec provides code E clearance from taxiway Delta, but may not be used during night-time or LVP.

- Taxiway Papa is maximum B744 and may not be used during night or LVP
- Taxiway Sierra is not available to code F aircraft

3.1.12. SSR Operating Procedures

The Manchester SSR code allocation is 7350 - 7373. Conspicuity code is 7375 (unverified).

Note: Pilots flying within 5NM of Manchester CTR and maintaining a listening watch only on the Manchester Approach frequency may select code 7366. Selection of 7366 does not imply the receipt of an ATC service.

Aircraft displaying the code are not expected to contact ATC under normal circumstances, remain responsible for their own navigation, separation, terrain clearance and are expected to remain clear of the Manchester CTR at all times. When an aircraft ceases to maintain a listening watch or is no longer flying within 5NM of the Manchester CTR, the pilot will select transponder code 7000 (or another applicable code).

3.2 Aerodrome Operations

3.2.1. Coordination between ADC/APC and/or parent ACC

3.2.1.1. Between ADC and APC

IFR and SVFR Departures

The AIR controller is to 'free-flow' departing aircraft on SIDs with reference to the departure route separation and speed group separation tables, without obtaining a release from radar except in the following circumstances.

1. A release from INT South is required for traffic departing immediately prior to and following a change of runway direction.
2. Following a missed approach, low approach or touch-and-go to either runway;
3. Aircraft departing to Liverpool Airport via EKLAD or ASMIM SID.
    a. GMP is to pre-note relevant TMA Sector prior to start-up.
    b. AIR Departures is to request a release from the receiving TMA Sector before departure.
4. Any non-SID IFR or SVFR movement occurs and prior to any successive SID movement will require release from FIN.
    a. GMP will pre-note all aircraft not departing on a SID to INT South.
    b. AIR will request a release from INT South when the aircraft is approaching the holding point and also request release for any subsequent SID departure.
5. Aircraft departing from the non-departure runway. AIR will inform INT South who will coordinate with the receiving TMA Sector. A release from FIN will be required for any subsequent departure.
6. GMP will pre-note all IFR aircraft not departing on a Manchester SID to INT South and AIR will request a release from INT South when the aircraft is approaching the holding point and also request release for next departure.

IFR Arrivals

AIR will make clear with FIN the specific spacing required to allow for departures but also taking into account the amount of inbound traffic.

- 4NM is required to cross one aircraft over the landing runway.
- 6NM spacing will allow for 1 departure.
- 8NM spacing will allow for 2 departures (subject to suitable routings).

The minimum final approach spacing for all aircraft is 4 NM for all runways at Manchester.

Single Runway operations

Typical spacing will be 6 NM for normal traffic levels, or 6NM - 8NM if there are many departures but few inbounds.

Dual Runway Operations

If an aircraft executes a missed approach, AIR must ensure separation is maintained and monitor aircraft either visually or with the ATM. Aircraft should be instructed to carry out the standard missed approach procedure or given a heading and/or an altitude. AIR departures shall request a release from INT South for the first departure following a go around.

Circuit Traffic

1. AIR must inform INT South when the VFR circuit is active and when it ceases to be active.
2. AIR must inform INT South when the downwind leg will extend beyond 4 miles.
3. AIR must request approval for SVFR circuits from INT South.

SVFR and VFR Departures

1. GMP shall be pre-note to INT South who will issue departure clearance and SSR code.
2. AIR must request approval for VFR departures from INT South prior to departure

Missed approach Procedures

In the event of a missed approach, relevant AIR Controller must ensure separation is maintained (3NM radar separation) before transfer of communication and control is taken place. Coordination with the AIR Controller handling departures is required. In order to maintain separation the AIR controllers are authorised to turn departing and missed approach aircraft so that the tracks of the aircraft diverge and 3NM separation is constant or increasing. Coordination must then take place between AIR, FIN and the receiving TMA Sector.

3.2.1.2. Between APC and ADC

IFR Arrivals

- INT will inform AIR Arrivals of the type of approach for anything other than an ILS.
- INT will transfer IFR arrivals to AIR Arrivals once established on the final approach and in the landing sequence.
- Aircraft undertaking a visual approach will be transferred to AIR Arrivals once visual with both the airfield and any traffic that may conflict.

VFR Arrivals and overflights

- INT will issue zone entry clearance to aircraft inbound or transiting the CTR/CTA and assign a discrete SSR code for identification.
- INT South will pass the details to AIR.
- Over-flights will be transferred back to INT once clear of aerodrome traffic unless otherwise coordinated.

SVFR Arrivals

- INT South will pass the details to AIR
- INT will transfer the aircraft to AIR once the pilot reports visual with the airfield and any preceding traffic.

3.2.2. Circuit Procedures

Visual Circuits operate to the south side of the airfield not above a height of 1500ft QFE (or 1800ft QNH).

Pilots may request visual training circuits. GMP will request approval from AIR before instructing the pilot to contact GMC for start and taxi clearance. AIR will pass departure clearance to the aircraft at the holding point.

Due to the length of the runway most circuit traffic will depart M1 or H1 on westerly Single Runway Operations, U1 on Westerly Dual Runway Operations or B1 on easterly operations prior to a visual switch to runway 05R. Aircraft remaining within the Aerodrome Circuit should be instructed to squawk 7010 to facilitate collision avoidance for ACAS equipped aircraft.

Until advised otherwise, it should be assumed circuit aircraft will be making a touch and go.

SVFR clearances to operate within the Manchester visual circuit are not to be granted to fixed wing aircraft if the reported visibility at the airport is less than 3km or the reported cloud ceiling is less than 1000ft.

3.2.3. Start-up Clearance

GMP is not to issue start up clearance to aircraft. GMP is to instruct aircraft to hold position and contact GMC respectively as follows:

"Hold position, contact Manchester Ground 121.850"

Start clearance will be provided once the aircraft is ready for pushback by GMC. All aircraft are to be given the Manchester QNH on pushback, and Turbine aircraft will be passed the outside air temperature if not available on the ATIS.

Aircraft will not be permitted to power-back off pier-served stands though they may power-back off remote stands.

Aircraft will request pushback once ready to do so from GMP. GMP must instruct aircraft to hold position and contact GMC. Start-up cannot be approved by GMP. Direction of pushback should be given to all aircraft (unless there is only one applicable direction). Single engine piston aircraft and smaller GA/business aircraft may not need pushback as can taxi straight off stand (e.g. TATON, ROMPA or the Ocean Sky).

"Push and start approved, face west"

A policy is in force at Manchester where flights subject to en-route ATC delays may request, or may be required, to push off stand and re-position at a remote location awaiting CTOT so as not to obstruct the taxiway.

In order to allow for another aircraft to taxi out or into an adjacent stand, aircraft may be instructed to carry out a 'long push' to abeam a specific stand.

3.2.4. Departure Clearance

3.2.4.1. General

All departure clearances will be issued by GMP prior to start.

3.2.4.2. Non-airways departures

Clearance for non-standard departures will be requested by GMP from:

- INT South when operating at or below altitude 3500ft altitude; or
- Relevant TMA Sector when operating above altitude 3500ft.

If applicable to the aircraft type, aircraft not departing via a SID will be issued with the appropriate noise abatement routing by AIR at the holding point, for example:

"After departure, left/right turn at x miles"

3.2.5. Standard Instrument Departures

3.2.5.1. Runway 23R

SID Designator	Initial Altitude	Expected Climb	Notes
POL5R "Pole Hill 5 Romeo"	5000ft	FL160	
SONEX1R "Sonex 1 Romeo"	5000ft	FL160	
LISTO2R "Listo 2 Romeo"	5000ft	FL190	Only approved aircraft types[1]
SANBA1R "Sanba 1 Romeo"	5000ft	FL190	Jet aircraft only.
KUXEM1R "Kuxem 1 Romeo"	5000ft	FL190	
MONTY1R "Monty 1 Romeo"	5000ft	N/A	For routing outside of CAS only.
EKLAD1R "Eklad 1 Romeo"	5000ft	FL110	

3.2.5.2. Runway 23L

SID Designator	Initial Altitude	Expected Climb	Notes
POL1Y "Pole Hill 1 Yankee"	5000ft	FL160	
DESIG1Y "Desig 1 Yankee"	5000ft	FL160	
LISTO2Y "Listo 2 Yankee"	5000ft	FL190	Only approved aircraft types[1]
SANBA1Y "Sanba 1 Yankee"	5000ft	FL190	Jet aircraft only.
KUXEM1Y "Kuxem 1 Yankee"	5000ft	FL190	
MONTY1Y "Monty 1 Yankee"	5000ft	N/A	For routing outside of CAS only.
EKLAD1Y "Eklad 1 Yankee"	5000ft	FL110	

3.2.5.3. Runway 05L

SID Designator	Initial Altitude	Expected Climb	Notes
ASMIM1S ”Asmim 1 Sierra”	5000ft	FL160	
POL4S “Pole Hill 4 Sierra”	5000ft	FL160	
DESIG1S “Desig 1 Sierra”	5000ft	FL160	
LISTO2S “Listo 2 Sierra”	5000ft	FL190	
MONTY1S “Monty 1 Sierra”	5000ft	N/A	For routing outside of CAS only.

3.2.5.4. Runway 05R

SID Designator	Initial Altitude	Expected Climb	Notes
ASMIM1Z ”Asmim 1 Zulu”	5000ft	FL160	
POL1Z “Pole Hill Zulu”	5000ft	FL160	
DESIG1Z “Desig 1 Zulu”	5000ft	FL160	
LISTO2Z “Listo 2 Zulu”	5000ft	FL190	
MONTY1Z “Monty 1 Zulu”	5000ft	N/A	For routing outside of CAS only.

[1]*The following jet aircraft may depart LISTO 1Y/R: All aircraft up to 35000 kg MTOW, plus all variants of BA 146 (Avro RJ series), Embraer E135, E145, Bombardier CRJ1, CRJ2, CRJ7, CRJ9, BD700 Global Express and Gulfstream 5.*

3.2.5.5. Direction of SID

SID	Direction
ASMIM	Northwest
DESIG	Northeast
EKLAD	West
KUXEM	West
LISTO	South
MONTY	Southwest
POL	North
SANBA	South
SONEX	North

3.2.6. Transfer of Departures

Departures may only be transferred to the appropriate MAN TMA sector once all aerodrome conflictions have been resolved, the aircraft has been identified, the mode A has been validated and the aircraft has passed 2500ft climbing, unless there are no arriving aircraft within 4NM from touchdown. AIR Departures shall ensure that appropriate separation is applied before transfer of communication and control to MAN TMA.

If the departure time separation applied does not achieve the expected airborne separation, then AIR departures shall establish an alternate form of separation. Reduced Separation in the Vicinity of the Aerodrome (RSIVA), radar based separation using the ATM, or coordination with MAN TMA may be employed.

Non-Standard IFR, VFR and SVFR departures are transferred to the respective INT Controller once clear of aerodrome traffic.

Unless otherwise co-ordinated, aircraft departing via SIDs should be transferred to:

SID	Priority 1	Priority 2	Priority 3	Priority 4	Priority 5	Priority 6
ASMIM	MAN_W	MAN	LON_N	LON	INT North	INT South
DESIG	MAN_E	MAN	LON_N	LON	INT North	INT South
EKLAD	MAN_W	MAN	LON_N	LON	INT North	INT South
KUXEM	MAN_W	MAN	LON_N	LON	INT North	INT South
LISTO	MAN_E	MAN	LON_N	LON	INT South	
MONTY	MAN_W	MAN	LON_N	LON	INT South	
POL	MAN_E	MAN	LON_N	LON	INT North	INT South
SANBA	MAN_E	MAN	LON_N	LON	INT South	
SONEX	MAN_E	MAN	LON_N	LON	INT North	INT South

3.2.7. Separation of Circuit Traffic from IFR Approaches

Controllers should make use of appropriate VRPs to assist in the separation and sequencing of traffic.

3.2.8. Training Aircraft

GMP will pre-note INT South when the aircraft is starting. INT South is to pass the departure instructions and release to the AIR controller. These will be in the format:

"After departure, turn left/right heading … degrees, climb to altitude … feet, squawk…"

Note: All non-standard flights will be Release Subject Radar.

IFR aircraft carrying out a low approach and go around may remain with FIN who will obtain a go around clearance from AIR when the aircraft is at 4NM. Until such clearance is obtained, the aircraft must not overfly the runway below 1000ft on the Manchester QNH. AIR will be responsible for separating traffic under their control from the aircraft carrying out the go around.

AIR departures shall request a release from INT South for the first departure following a go around

Unless the aircraft is carrying out a standard missed approach, AIR will request a release for the next departure. If the runway is occupied, the following instruction must be issued:

"Cleared low approach runway 23 right, not below altitude 700ft, QNH …"

Or…

"Cleared low approach runway 23 right, not below height 400ft, QFE …"

It is important to provide the correct wake turbulence separation and request release for subsequent departures after any non-SID departure or missed approach.

3.2.9. Missed Approaches

On becoming aware of or being alerted to a missed approach, the AIR Departure controller is to inform all affected MAN TMA sectors and INT Controllers of any heading instructions given to departing aircraft against conflicting traffic.

Occasions may arise whereby a missed approach is carried out on one runway at the same time as a departure is getting airborne on an adjacent runway. Should this event occur the departure may well be turned in the

opposite direction to the expected departure direction, for example, a SONEX1Y from runway 23L will be turned left should a missed approach be carried out from runway 23R. Should this situation arise, it is the responsibility of the AIR 2 controller to ensure that coordination is effected with all the sectors who will be involved.

3.2.9.1. Standard Missed Approach Procedures

The following procedures apply to all aircraft carrying out missed approach at Manchester Airport whether pilot or controller initiated.

Runway	Missed Approach Procedure
23R	Climb to 3500 - straight ahead until passing 750 or I-NN DME ZERO (MCT DME 0.3) inbound, whichever is later, then turn right onto track 358° then as directed.
23L	Climb straight ahead to 3500 continue as directed.
05R	Climb to 3500 - straight ahead to 700 or ZERO DME I-MC inbound, whichever is the later, then turn right onto track 188° then as directed
05L	Climb straight ahead to 3500 then as directed.

A standard missed approach shall be carried out if an aircraft is 4NM or less from touchdown. If an aircraft outside 4NM from touchdown carries out a missed approach, the AIR Arrivals Controller may, following coordination, turn the aircraft left or right and arrange for the aircraft to be vectored to an appropriate holding facility, if required, or repositioned into the approach sequence.

Dual Runway Operations

On becoming aware of, or being alerted to a missed approach, the Departures Controller will suspend further departures until any confliction has been resolved. The Departures Controller is also responsible for separating any traffic already airborne from the missed approach traffic. They will also inform all affected TMA and Intermediate Approach positions of any heading instructions given to departing aircraft against conflicting traffic.

All departing traffic will be retained on the Departure Controller's frequency until through 2500ft. This will assist in initial conflict resolution and reduce coordination.

Single Runway Operations

On becoming aware of or 'initiating' a missed approach, the AIR Controller will coordinate with relevant Intermediate Approach. They will also inform the appropriate TMA sector of any heading instructions given to departing traffic against conflicting traffic (e.g., missed approach aircraft, previous departing traffic or SVFR). All departing traffic will be retained on the AIR Departures frequency until through 2500ft.

This will assist in initial conflict resolution and reduce coordination. It will be the responsibility of the AIR Departure Controller to ensure that any early turn departures do not conflict with a go-around.

3.2.9.2. Transfer of Communication after Departure

Due to the interaction of the Missed Approach procedures and departures from the adjacent runway, departing aircraft will be retained on the relevant AIR controller's frequency until passing 2,500ft, or until the possibility of interaction with a landing aircraft making a Missed Approach on the adjacent runway is removed.

3.2.10. Turbulence/wind shear warnings

Once turbulence or wind shear has been reported by a pilot to ATC then this shall be passed to all subsequent pilots inbound and outbound until confirmation has been received that the condition no longer exists. Communication with pilots may take place either via transmission on frequency or via an updated ATIS broadcast and in the latter case pilots need to report received the updated ATIS letter.

Section 4 | Approach Control and Approach Radar

3.3. General

4.1.1. Responsibilities

The area of responsibility for Manchester Approach Control is the Manchester CTA and CTR, the Manchester RMA and Scottish Area Control airspace as delegated to Manchester within 40NM of the Manchester ATZ, subject to radar coverage and equipment.

Manchester Airport is manned by 3 Approach Radar Controllers, designated Intermediate Approach North (INT North), Intermediate Approach South (INT South) and a Final Director (FIN).

INT North and INT South act as the interface with Area Control and manage traffic in the stacks at MIRSI and ROSUN, and DAYNE respectively:

- INT North takes control of IFR traffic from ROSUN and MIRSI, and is responsible for setting up the sequence in the area north of the extended runway centreline.
- INT South takes control of IFR traffic from DAYNE, and is responsible for setting up the sequence in the area south of the extended runway centreline.
- FIN is responsible for vectoring the final approach at Manchester, and into unmanned Woodford Airport when necessary.

Manchester INT shall provide approach control services to aircraft from the time and place at which:

- Arriving aircraft are released by Scottish Area Control (MAN_CTR) until control is transferred to ADC;
- Aircraft approaching from outside controlled airspace cross the airspace boundary until control is transferred to ADC;
- Departing aircraft on specified routes are transferred from ADC until:
    - They are transferred to the relevant AC sector; or
    - They are clear of controlled airspace.
- Overflying aircraft are within the relevant controlled airspace.

Positions provide services appropriate for the Approach and Approach Radar control functions, as specified in MATS Part 1, Section 3, Chapters 1 and 2 for IFR traffic within controlled airspace.

4.1.1.1. Approach Manning and Bandboxing

When Approach is single-manned the ATCO shall operate from INT South. Should the Approach be double-manned the ATCOs shall operate from INT South and FIN.

When Approach is double-manned the traffic shall be handled by INT South taking all releases from Area Control and initiating the sequence and then transferring aircraft to FIN for final sequencing.

4.1.1.2. Intermediate Approach South (INT South) Responsibilities

- The acceptance of releases and control of aircraft inbound to Manchester from the release point DAYNE until control is transferred to either FIN or Manchester ADC;
- Initial sequencing of inbound traffic from DAYNE in accordance with release procedures to the point of agreed transfer with FIN.
- The control of overflying aircraft within the Manchester RMA including transit flights within Manchester CAS;
- Radar vectoring and sequencing for ILS, VOR/DME and/or visual approaches;
- Liaison with the AIR controller on pertinent issues excepting range checks, final approach spacing and landing and go-around clearances;
- Executive coordination with other ATSUs, unless delegated to FIN.
- Handle overflying traffic as appropriate.
- Coordinating CAS transit traffic with FIN and INT North as necessary.
- Provision of a Radar Service to non-airways departures.
- Control of VFR and SVFR traffic within the Manchester CTA/CTR or flying in the vicinity of the Manchester CAS and receiving a service from Manchester APC
- INT South will take on the responsibilities of INT North when closed.
- INT South will take on the responsibilities of FIN when closed.

4.1.1.3. Intermediate Approach North (INT North) Responsibilities

- Notify relevant Area Control sectors when the position opens and closes.
- Receive inbound release levels from Area Control in relation to the ROSUN and MIRSI stacks.
- Descent of traffic in the ROSUN and MIRSI holds.
- Initial sequencing of inbound traffic from ROSUN and MIRSI to the point of agreed transfer with FIN.
- Radar vectoring and sequencing for ILS, VOR/DME and/or visual approaches;
- Liaison with the AIR controller on pertinent issues excepting range checks, final approach spacing and landing and go-around clearances;
- Coordinating CAS transit traffic with FIN and INT South as necessary.
- Handle overflying traffic as appropriate.

4.1.1.4. Final Director (FIN) Responsibilities

- The control of aircraft landing at Manchester from the time they are transferred by INT North/South until they are transferred to Manchester ADC.
- Provide radar vectoring and sequencing for ILS, VOR/DME and/or visual approaches.
- Coordinating planned and unplanned missed approaches and retaining control of such traffic when delegated by INT.
- Liaison with the AIR controller as required for range checks, final approach spacing and landing or go around clearances.
- Monitoring traffic established on the final approach to ensure spacing is not eroded and the aircraft is not positioned incorrectly.

4.1.2. Liaison with Aerodrome Control

INT shall supply the following information to ADC:

- Information on VFR or SVFR aircraft intending to land or transit the Manchester ATZ.
- Missed approach instructions when required.
- Departure Release, together with departure instructions, when required.

FIN shall supply the following information to ADC:

- The type of approach for IFR aircraft, if anything other than ILS approach, with a range check at 10NM.

4.1.3. Transfer of Arriving Aircraft

- IFR aircraft shall be transferred to AIR in the intended landing order.
- VFR aircraft shall be transferred to AIR when visual with the airfield and only once co-ordinated with AIR.
- SVFR aircraft shall be transferred when visual with the airfield and any preceding aircraft and only once co-ordinated with AIR.

4.1.4. Tower Checks

Aerodrome Control is equipped with an ATM displaying both primary and secondary radar and therefore it is only necessary for FIN to give a 10NM check to the AIR controller in respect of an inbound aircraft for the following:

- Non-transponding aircraft.
- Aircraft whose Squawk is not Code/Callsign converted.
- Training traffic which does not intend to land.
- Aircraft carrying out anything other than an ILS approach (type of approach must be given).

4.2 Procedure for Radar Directors

4.2.1. Intermediate Approach Control Procedures

4.2.1.1. Procedures

INT will pass instructions to inbound traffic until handover to FIN. INT North will integrate traffic from the MIRSI and ROSUN holding stacks and pass descent instructions before transfer of communications to FIN is affected. INT South is the primary radar controller and determines the landing order.

The arrival order is derived from the stack ATA or EAT subject to tactical considerations. Subject to local procedures, Approach Controllers are to provide minimum vortex separation between successive arrivals. Any tactical variation from this will be dictated by the AIR controller.

4.2.1.2. Overflights

On occasions overflying aircraft will be routed through the holding stacks. Inbound aircraft may be released at levels above the overflying traffic by means of a Radar Release in accordance with the procedures detailed in the MATS Part 1. INT South is to obtain sufficient information in respect of the overflying traffic to ensure radar identification. Having identified the overflying traffic, INT South may issue descent instructions to inbound aircraft at higher levels, provided that radar separation is maintained from the overflight.

4.2.1.3. Transfer to Final Director

Under normal circumstances, transfer of communications from INT to FIN is to be carried out when the aircraft is clear of conflict with any aircraft remaining under the control of the transferring intermediate director.

Aircraft are to be transferred in sequence order unless coordinated. Aircraft should be cleared to descend to an altitude at an appropriate speed.

On transfer of control from Intermediate Director to Final Director, controllers use the phrase:

"Contact Manchester Director 121.350, callsign only"

Intermediate Directors are to ensure that the information on flight progress strips and data tags is accurate and up to date before transfer of control.

4.2.1.4. Radar Separation Minima

The minimum radar separation of 3NM is to be used between identified/coordinated aircraft.

4.2.2. Terrain Clearance

Please refer to AIP Textual Data (AD 2-EGCC-1.1) for information on terrain clearance.

4.2.3. UK Flight Information Services

INT is able to provide UK Flight Information Services within 40NM of Manchester Airport in accordance with the details specified in CAP774.

Provision of a UK Flight Information Service is optional, and the controller may decline, for example in a period of high workload.

4.3 Procedures for Outbound IFR Traffic

4.3.1. General

INT will normally not work departing traffic. Departures are traffic directly from AIR departures to the appropriate MAN TMA sector. If INT wishes to work departing traffic, they have to inform AIR Departures and coordinate each aircraft as necessary with MAN TMA.

4.3.2. Departures Subject to Radar Approval

SIDs are normally subject to free-flow. However, INT may impose a departure check on a specific route or a specific aircraft as necessary. Departures not following a SID are subject to a release from approach radar. If the departure will enter MAN TMA, INT has to coordinate with MAN TMA as necessary.

Departures to EGGP, EGNM and EGNR are subject to a release from MAN TMA.

4.3.3. Non-Airways Departures

INT South will normally be responsible for formulating non-standard departures as necessary and then coordinate with MAN TMA as necessary.

4.3.4. 'Turn and Burn' - Vectoring Outbound Aircraft Subject Inbounds

The standard traffic flow at Manchester is that outbound aircraft are turned inside the inbound traffic and climbed. This is commonly known as 'turn and burn'. The techniques to be used by sector controllers for turning aircraft departing from Manchester off the SID track and vectoring such traffic inside the inbound tracks being used by Manchester Intermediate Approach are detailed below. In order to allow area control to climb outbound traffic Manchester Approach control is required to adhere to certain vectoring rules. If the preferential pattern cannot be used, INT is responsible for coordinating with Area Control and AIR as necessary.

These techniques apply particularly when Intermediate Approach are vectoring inbounds from MIRSI for an approach on runway 23L/R or inbounds from ROSUN for runway 05L/R and when area controllers are vectoring outbound aircraft which departed POL and SONEX SIDs from runway 23R/L or outbound aircraft, which departed on ASMIM SIDs from runway 05L/R.

Before vectoring traffic departing on one of the above SIDs from the SID in order to turn inside an inbound, controllers must take the following in to consideration:

- If the departure is making an early turn, then it can be vectored immediately on contact with the sector. There is no requirement to wait for this traffic to pass through the noise abatement altitude before vectoring. However, if the departure is following the SID, it must not be turned off the SID until it is passing the noise abatement altitude.
- If it is planned to turn a departure early, then it is advisable not to remove the speed restriction until the aircraft is seen on radar to have made the turn. This will ensure that the radius of turn is kept to a minimum.
- When vectoring outbound aircraft against inbound aircraft, controllers should make due allowance for the effect of wind in order to select a suitable heading to ensure separation.
- If planning to climb the departure above the SID altitude, then the traffic must be given climb on the turn.

4.3.5. Standard Instrument Departures

Manchester Radar will handle Manchester departures in the absence of TMA and/or AC.

4.3.6. SID Routing information

- Departures on a POL departure, at FL80, leave CAS north of SETEL.
- Departures on a POL departure, with a filed cruising level of FL100 and above, are to route via N601.
- The MONTY SIDs will be issued for aircraft leaving controlled airspace at MONTY only.

4.3.7. Inter TMA Positioning Flights

4.3.7.1. Manchester to Liverpool

IFR flights between Manchester and Liverpool Airports will normally be cleared via the appropriate EKLAD or ASMIM (dependent on runway in use) SID.

If EATs are being issued for Liverpool, MAN TMA West will liaise with Liverpool APC to obtain an EAT and calculate an Approval Departure Time based on that time. The ADT is an allocated take-off time calculated from the elapsed flight time between Manchester and the appropriate EKLAD or ASMIM fix, with the aircraft taking any appropriate holding delay on the ground.

MAN TMA West will inform Liverpool APC of the ADT and is to ensure that Minimum Stack Level at EKLAD or ASMIM, as appropriate, is available for the positioning flight based on the ADT provided.

The aircraft is to depart at the Approved Departure Time +/- 5 minutes.

The Manchester AIR Controller is to request a departure release from MAN TMA West. AIR will transfer departures following EKLAD or ASMIM SID to MAN TMA West or Liverpool APC in the absence of MAN TMA or AC North.

4.4 Procedures for Inbound IFR Traffic

4.4.1. Information to Arriving Aircraft

After an arriving aircraft has made its initial call to INT, the following information shall be passed as soon as practicable:

- Runway in use and the type of approach
- Current ATIS weather code, if not given by the pilot;
- Any changes in the operational status of visual or non-visual aids essential for approach and landing;
- LVP in operation, if not already received from the ATIS;
- Any delay to be expected.

All Approach Controllers are to confirm the cleared level of an aircraft coming under their control on first RTF contact. If it is not volunteered by the pilot it is to be requested and verified by the receiving controller before giving any executive instruction. In addition, Manchester INT is to confirm aircraft type, including type variants.

Aircraft must be kept informed of any subsequent changes to the information listed above until they have landed.

- Significant changes in the meteorological and runway conditions
- Further reports from other pilots
- Further changes in the operational status of approach and landing aids
- Implementation or cancellation of LVPs.

4.4.2. Non-public transport minima

Aircraft that have received the information above must be kept informed of the following until they have landed:

- Significant changes in the meteorological and runway conditions;
- Further reports from other pilots;
- Further changes in the operational status of approach and landing aids;
- Implementation or cancellation of LVPs.

4.4.3. Inbound routes

Aircraft leaving the airways system will be instructed to follow the appropriate STAR by London Control/Scottish Control. All STARs terminate at MIRSI, ROSUN or DAYNE stacks and aircraft must not proceed further than the stacks without ATC clearance.

4.4.4. Holding Procedures

4.4.4.1. DAYNE Hold

DAYNE	TNT VOR R314 D17 or MCT VOR R134 D11
Direction	RIGHT hand
Holding Levels	FL70 (or MSL if higher) - FL140
Speed	Maximum 230kt IAS

Note 1: Traffic holding at DAYNE at FL140 is not separated from traffic holding at TNT VOR at FL140.

Note 2: Sector controllers must adhere to the TMA inbound speed restrictions in order to satisfy holding requirements.

4.4.4.2. ROSUN Hold

ROSUN	MCT VOR R355 D19
Direction	RIGHT hand
Holding Levels	FL70 (or MSL if higher) - FL245
Speed	Maximum 230kt IAS

Note 1: ROSUN is separated from MIRSI up to and including FL140.

Note 2: Aircraft entering the ROSUN hold from POL route POL - BURNI - ROSUN. (BURNI is the initial entry fix for aircraft entering the ROSUN hold from the POL direction.)

Note 3: Holding at ROSUN at FL160 and above, will require radar monitoring since the protected area of the hold extends outside CAS.

4.4.4.3. MIRSI Hold

MIRSI	WAL R063 D17.5
	POL R243.5 D25
Direction	RIGHT hand
Holding Levels	FL60 (or MSL if higher) - FL140
Speed	Maximum 230kt IAS

Note 1: The MIRSI hold can be flown using either POL or WAL VORs.

Note 2: MIRSI hold is separated from ROSUN hold up to and including FL140.

4.4.5. Allocation of Lowest Holding Level

4.4.5.1. DAYNE

MAN TMA East will allocate FL80 in accordance with silent release for inbound aircraft via DAYNE. INT South will then ladder down to FL70 as appropriate.

Note: due to the base of CAS within the Daventry CTA, aircraft cannot hold at DAYNE at FL60.

The DAYNE vertical stack list cannot display this over-riding minima. Consequently, when the MSL is FL60 and the controllers are using the vertical stack list, they are required to level block FL60.

4.4.5.2. ROSUN

When the designated runway at Manchester Airport is 23L/R, MAN TMA will allocate:

- MSL+1, with an over-riding minima of FL80, released at ROSUN.

When the designated runway at Manchester Airport is 05L/R, MAN TMA will allocate:

- MSL, released at POL.

4.4.5.3. MIRSI

When the designated runway at Manchester Airport is 23L/R, MAN TMA will allocate:

- MSL, released at MIRSI.

When the designated runway at Manchester Airport is 05L/R, MAN TMA will allocate:

- MSL+1, with an over-riding minima of FL80, released at MIRSI.

Runway in use	DAYNE	ROSUN	MIRSI
05L/R	**MSL** Over-riding minima **FL70**	**MSL + 1** Over-riding minima **FL70**	**MSL + 1** Over-riding minima **FL80**
23L/R	**MSL** Over-riding minima **FL70**	**MSL + 1** Over-riding minima **FL80**	**MSL**

4.4.6. High Level Holding

In the event of an aircraft requiring to hold at FL120 or above at DAYNE, ROSUN or MIRSI, AC will retain control of the aircraft until a lower level is otherwise coordinated with the respective INT controller. It is the responsibility of the INT controller to notify the appropriate MAN TMA controller when FL110 becomes available.

4.4.7. Transfer of traffic from Area Control to Manchester Approach

The appropriate TMA sector is responsible for allocation of levels at the stacks.

Traffic shall not be transferred from Area Control to INT until either:

1. There is no conflicting traffic remaining under the control of the transferring sector that would prevent the safe and timely descent of the aircraft; or
2. Any conflicting traffic is notified to INT by means of a radar release.

Tactical controllers are to ensure that all aircraft are on their own navigation to the holding facility (unless coordination has been affected) before transferring them to Manchester INT.

Area Control shall require aircraft to comply with published speed restrictions applicable to STARs unless the contrary is specifically agreed with the relevant INT position.

Traffic to MIRSI, ROSUN or DAYNE stacks will be transferred from MAN TMA to Manchester INT in accordance with the table below

Runway in use	DAYNE	ROSUN	MIRSI
05L/R	**FL80** Silent handover	**MSL** Minimum FL70	**MSL+1** Minimum FL80
23L/R	**FL80** Silent handover	**MSL + 1** Minimum FL80[1]	**MSL** Lowest Holding Level

[1]*Traffic may be descended to FL70 subject to prior coordination if there is no traffic to affect in the vicinity of the MIRSI hold.*

IFR aircraft inbound to Manchester Airport from Liverpool will be required to route via MIRSI and may be required to hold at MIRSI.

4.4.8. Inbound Release Procedures

4.4.8.1. Standard inbound releases

A Standard Inbound Release is in the following format:

- Release point;
- Callsign;
- Cleared Flight Level.

Each release must be read back in full:

MAN_W	*"Manchester West, ROSUN Release"*
INT North	*"Pass your message"*
MAN_W	*"BAW123 at FL80, released for turn and descent"*
INT North	*"BAW123 at FL80, released for turn and descent"*
MAN_W	*"Correct"*

4.4.8.2. Full Release

A full release may be given to expedite the landing of a particular flight; for example, an aircraft positioned for a straight in approach.

A full release is to contain the following information in the standard sequence of:

- Stack
- Full Release
- Callsign
- Flight Level
- Release Point (place/time/level)
- Contact Point (place/time/level)
- Any qualifying instructions

4.4.8.3. Radar Release

Radar releases are to be in accordance with the procedures in MATS Part 1 (CAP493). Should Approach Control wish to communicate with the conflicting traffic, the frequency to which that traffic should return to must be agreed before initial transfer. Manchester INT is not permitted to change the track, flight level or SSR code of any overflight transferred to them under a radar release, without prior approval of the relevant Area Controller.

4.4.8.4. Common Release Level

When aircraft are holding, the Area Controller may specify a common release level for a sequence of aircraft. In these circumstances, the Area Controller is to ensure that aircraft in the sequence passed to Approach Control are cleared to the common release level only when that level is available.

4.4.9. Expected Approach Times

Expected Approach Times are to be issued for radar vectored approaches if the delay is more than 20 minutes. EATs are not normally passed if the expected delay is less than 20 minutes; instead, the usual phrases used are:

"delay less than 5 minutes";
"delay 5 to 10 minutes";
"delay 10 to 15 minutes"; and
"delay 15 to 20 minutes".

4.4.10. Descent before Release Point

Manchester INT may descend inbound traffic to the MSL on transfer of communications. However, INT should not initiate hold below the lowest holding level, as detailed in 4.3.5.

Inbound traffic routeing via DAYNE are, upon transfer to INT South:

- Released for descent to MSL when north of TNT. Descent below MSL is permissible within the RMA and subject to the conditions of the RMA as described in section 4.4.1.2 and 4.4.1.3, including when clear of TMA outbound routes.

4.4.11. Vectoring before Release Point

Manchester INT may vector aircraft prior to release point according to certain conditions.

DAYNE

Aircraft inbound for runway 23R/L will be released for *right* turn after passing TNT.

ROSUN

The standard release point for inbound traffic to Manchester Airport via ROSUN is detailed in the below table:

Hold	Release Point
ROSUN (ROSUN 2E, 1F & 1G)	POL[1]
ROSUN (ROSUN 2A, 2B & 4D)	ROSUN[1]

[1]*Aircraft are released for turn towards base leg for the runway in use and released for descent to MSL.*

MIRSI

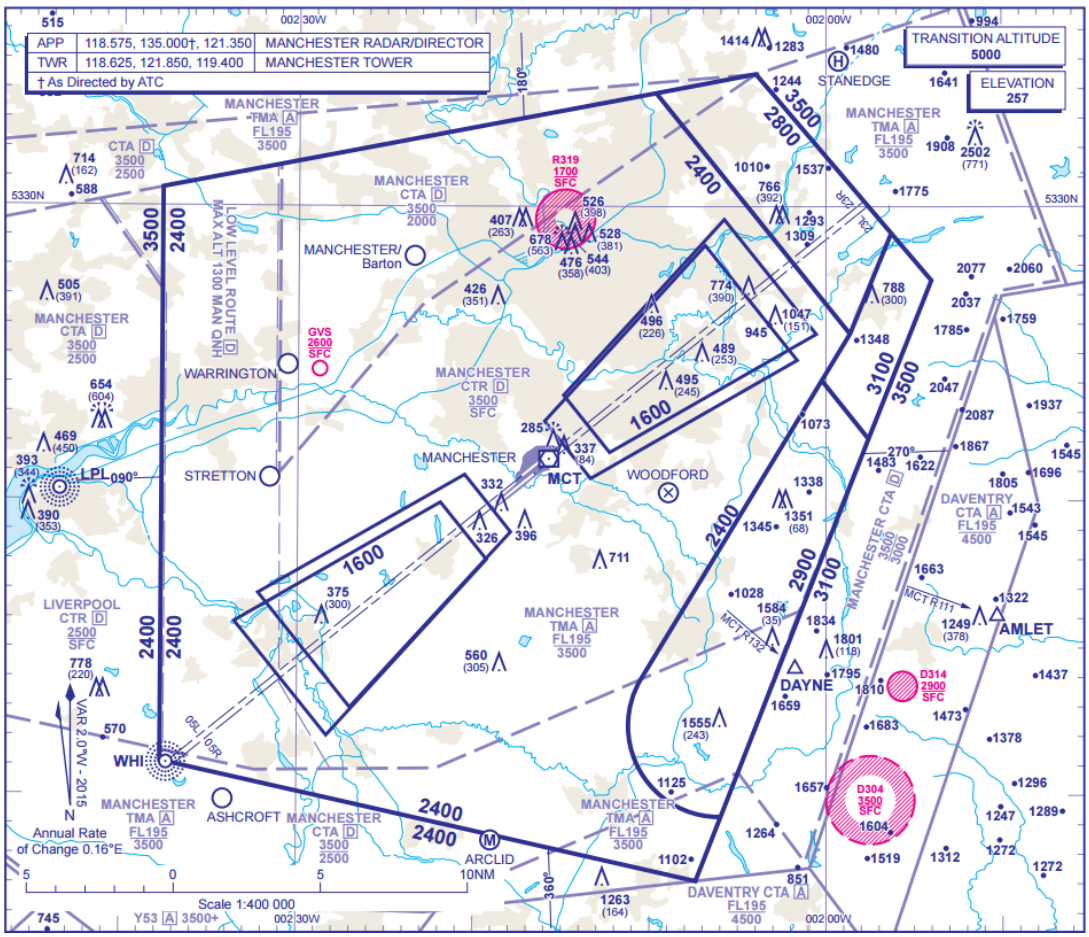
In addition to standard release procedures, inbound aircraft on a STAR via WAL or MONTY may be released at a position, time or level specified by MAN TMA to Manchester INT.

4.4.12. Obstacle Clearance Limits

The lowest level within the SMAC that can be assigned to aircraft which is terrain safe is 2400ft except for within the Final Approach Vectoring Area where an altitude of 1600ft is permitted. The Minimum Sector Altitudes within 25NM of the airfield are:

Cardinal Direction	MSA	Cardinal Direction	MSA
North West	3500ft	North East	3500ft
South West	2400ft	South East	3100ft

Controllers are to use caution when vectoring for Runway 23L/R due to high ground south of the approach. When vectoring from the north be aware of the risk of aircraft passing through final approach entering areas below the MVA. From the south ensure descent is given in a manner so that aircraft are not descended below 3100ft before entering the correct area.



4.4.13. Clearance to enter CAS

When an aircraft requests permission to enter controlled airspace for the purposes of landing at the associated aerodrome or transiting the airspace, it may not be possible, for traffic reasons, to issue that clearance immediately. In such situations controllers shall advise the pilot to remain outside controlled airspace, when to expect clearance and give a time check.

ATC clearances shall include:

1. Aircraft identification as shown in the flight plan;
2. Clearance limit;
3. Route;
4. Levels of flight for the entire route or part thereof and changes of levels if required;

Those flights that have not received an ATC clearance should not enter controlled airspace unless an overriding safety reason compels entry.

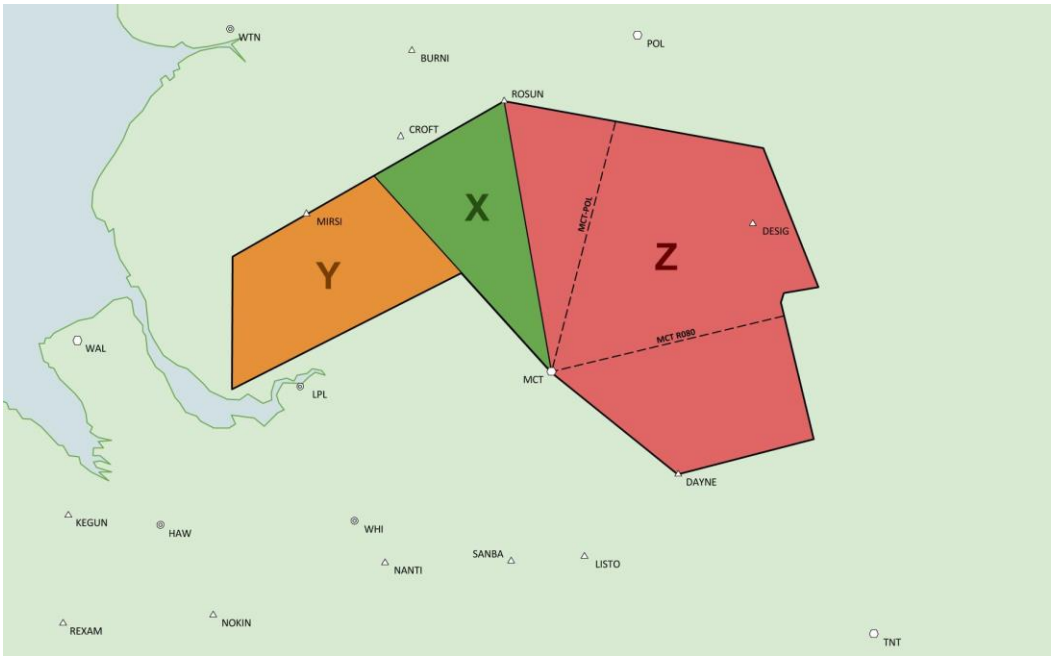
4.5 Intermediate and Final Approach Procedures

4.5.1. Radar Manoeuvring Area

4.5.1.1. General

Aircraft may be either routed to DAYNE, ROSUN or MIRSI or may be vectored in accordance with procedures applicable to the runway in use at Manchester Airport.

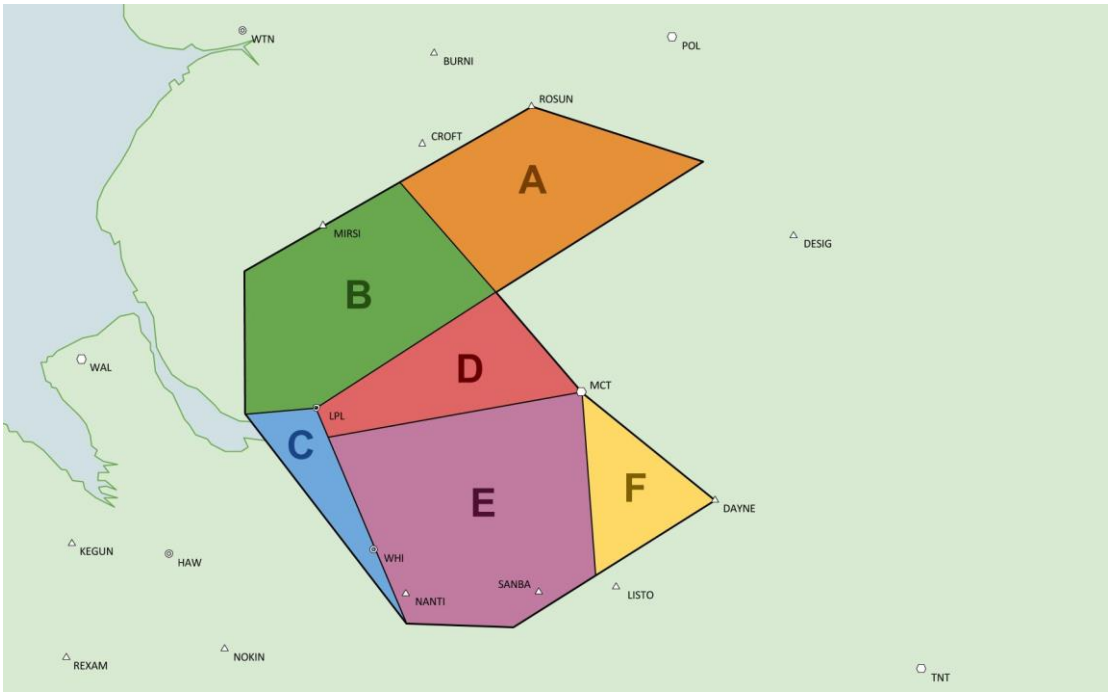
4.5.1.2. Westerly RMA



1. The Westerly RMA is divided into 3 Sub-Areas: X, Y and Z.
2. Within Sub-Area Y aircraft may be descended to MSL. Traffic being vectored from the west or southwest (MIRSI traffic) shall not be permitted to proceed east of the MCT R325 above FL80.
3. Within Sub-Area X aircraft may be descended to altitude 4500ft Manchester QNH when clear of outbound tracks. This is to protect the missed approach path for runway 23R/L at 3500ft.
4. If INT determines that the inbound aircraft will not be in conflict with an aircraft on the standard missed approach procedure, then descent may be given below MSL subject to outbound traffic. However, all descents must continue to remain clear of the outbound tracks.
5. Within Sub-Area Z, subject to outbound traffic, aircraft may be given descent from MSL to base of CAS (plus 500ft).
6. Aircraft inbound from the west or southwest shall not be vectored downwind right hand until they enter the RMA unless there is prior coordination with MAN TMA East. This is to allow airspace for use by Area Control.
7. Aircraft which have been held at ROSUN and those from the west downwind right hand must be at MSL or below by the time they cross the MCT - POL line.
8. Aircraft inbound to DAYNE shall not be given a left hand turn from DAYNE without prior coordination with MAN TMA East.
9. Traffic vectored for runway 23R/L from DAYNE must cross the MCT R080 at MSL or below.

If aircraft require vectoring beyond the tracks stated, then INT must coordinate with the appropriate MAN TMA sector.

4.5.1.3. Easterly RMA



1. The Easterly RMA is divided into 6 Sub-Areas: A, B, C, D, E and F.
2. In Sub-Area A, aircraft may be descended to MSL.

Traffic being vectored from the north or east (ROSUN traffic) shall not be permitted to pass west of the MCT R325 above FL80.

3. In Sub-Area B, aircraft may be given descent to altitude 5000ft QNH subject to outbound traffic.
4. In Sub-Area C, aircraft may be given descent to altitude 4000ft QNH.
5. In Sub-Are D, aircraft may be given descent to altitude 3500ft QNH.

Note: Do not cross the dividing line between Sub-Area B and Sub-Area C and D above MSL.

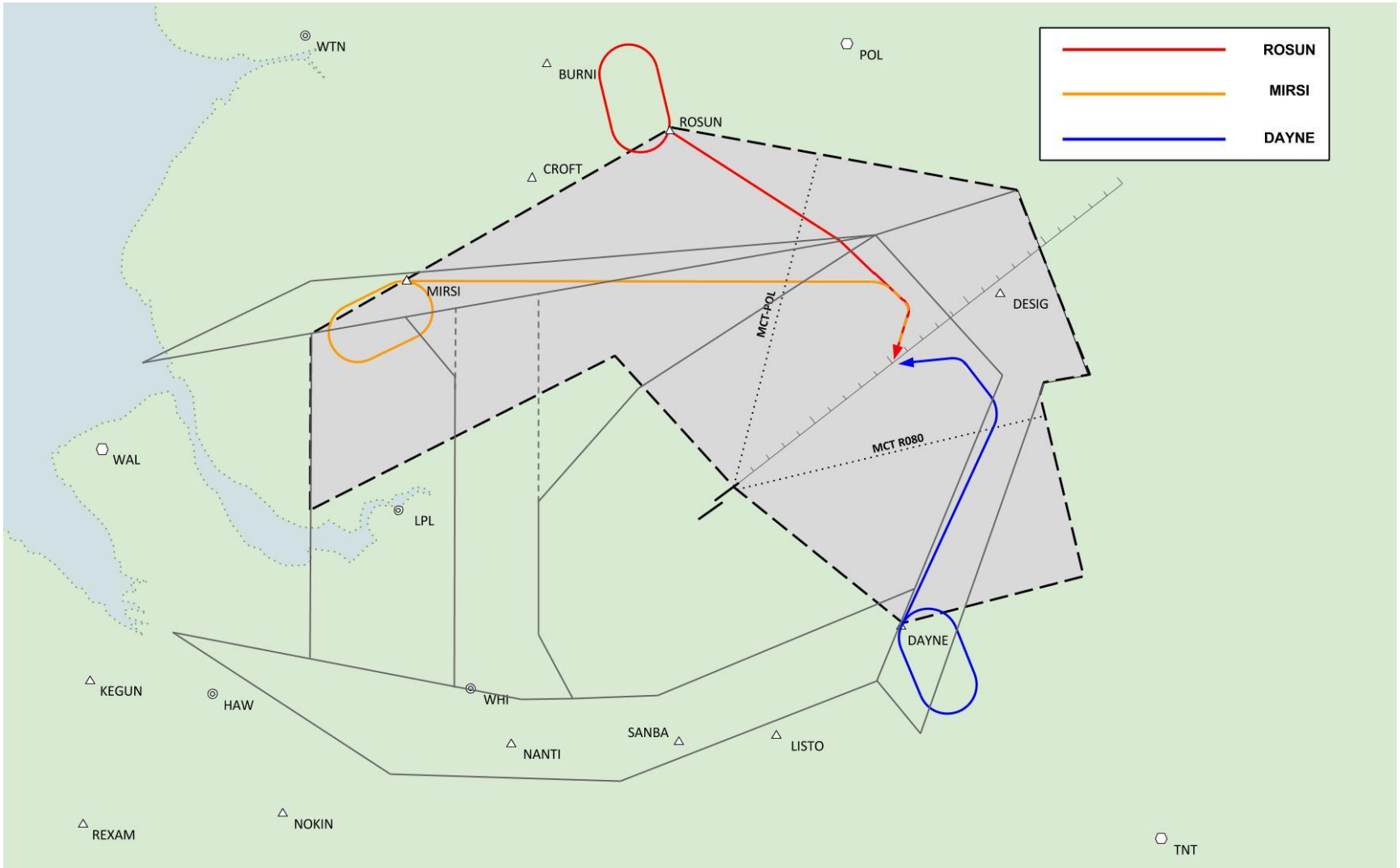
6. In Sub-Area E, aircraft may be given descent to altitude 3500ft QNH subject to airspace allocated to Liverpool APC and also to be given descent not below altitude 2300ft QNH until east of the Manchester Low Level Route.
7. In Sub-Area F, aircraft may be given descent to altitude 4500ft QNH when clear of the outbound tracks.
8. Unless prior coordinated with MAN TMA, aircraft inbound to DAYNE shall not be turned downwind until they have reached DAYNE and are at FL80 or below.

INT Controllers may, when possible, descend inbound aircraft to MSL when aircraft are within 40NM of the airfield and via radiotelephony in accordance with current RMA procedures.

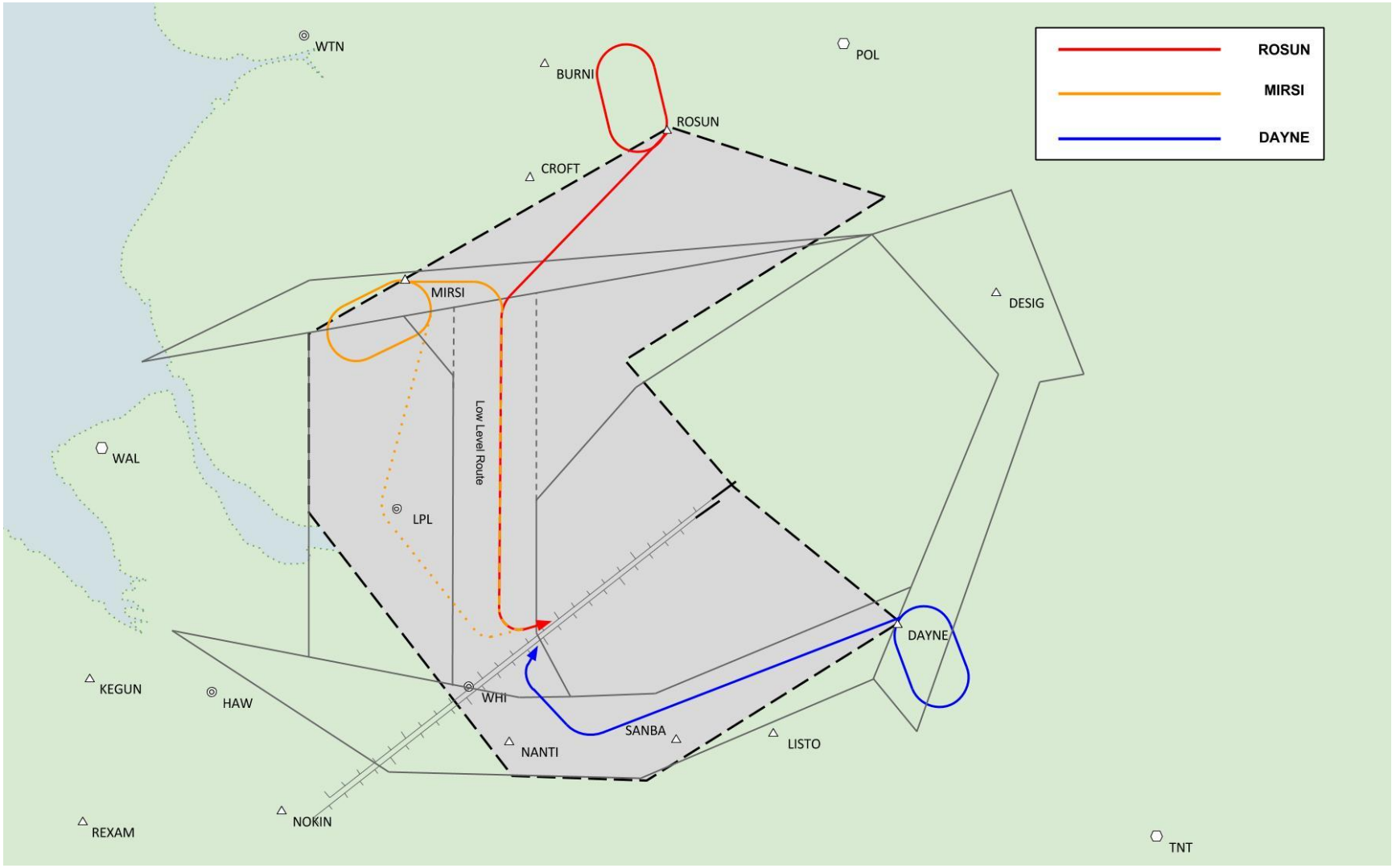
If aircraft require vectoring beyond the tracks stated, then INT must coordinate with the appropriate MAN TMA sector.

4.5.2. Preferential Vectoring Diagrams

4.5.2.1. Westerly Operations - Runway 23R/23L



4.5.2.2. Easterly Operations - Runway 05L/05R



4.5.3. Procedures for Aircraft on Intermediate Approach

Manchester INT may issue vectoring and/or descent instructions to aircraft prior to the procedural release point subject to the following conditions:

- Radar identification is established and maintained.
- Aircraft must remain within CAS.

The procedures in the following sub-paragraphs must be adhered to unless prior coordination has been effected.

4.5.3.1. Inbounds via DAYNE

Runway 23R/23L

From DAYNE, aircraft shall not be given left turns at DAYNE without prior coordination with appropriate TMA sector. Aircraft must cross the MCT R080 at MSL or below.

Runway 05L/05R

From DAYNE, INT are not to vector traffic via DAYNE on downwind until passing DAYNE and are at FL80 or below unless coordination has been effected with MAN TMA. This procedure permits FL90 to be used by MAN TMA controllers on the on the MCT-STAFA route, and also allows LISTO departures to be climbed when south of the RMA.

4.5.3.2. Traffic via ROSUN

Runway 23R/23L

From ROSUN, tracks shall be within the sector 110° to 180°. Aircraft leaving ROSUN on tracks within the sector between 140° to 180° shall not proceed any further south than the 090° track from MIRSI before being turned downwind.

Releases into ROSUN shall be at MSL+1 with an overriding minimum of FL80, as detailed in 4.4.5.2. This gives the opportunity to transit the ROSUN area at MSL with MIRSI traffic, if required.

Runway 05L/05R

From ROSUN, Manchester INT is to use a track of not less than 215° until aircraft have intercepted the eastern edge of the Low Level Route. Traffic which is turned towards the RMA at the POL release point shall be given a heading towards ROSUN initially to intercept the 215° track from ROSUN.

Area Controllers are requested to ensure that aircraft inbound to ROSUN are given standard releases. Manchester INT is to request with the relevant MAN TMA sector if aircraft are required on headings.

4.5.3.3. Traffic via MIRSI

Runway 23R/23L

From MIRSI, a track of not greater than 090° is to be used until east of the MCT - ROSUN line, at which point aircraft may be turned right if no conflict exists. Aircraft within the RMA south of MIRSI (Sub-Area Y) must be given a heading to intercept the 090° track from MIRSI prior to the eastern edge of the Low Level Route.

Runway 05L/05R

From MIRSI, a track of not less than 175° should to be used until south of RMA Sub-Area B. Releases into MIRSI shall be at MSL+1 with an overriding minimum of FL80, as detailed in section 4.4.5.3. This gives the opportunity to transit the MIRSI area at MSL with ROSUN traffic, if required. Heading 090° may be used to merge into the ROSUN stream.

4.5.4. Continuous Descent Approach

The aim of a Continuous Descent Approach (CDA) is to provide pilots with ATC assistance necessary for them to achieve a continuous descent during intermediate and final approach at speeds which require minimum use of lift devices. This has significant benefits in terms of noise produced and reduces the amount of fuel that needs to be used. The CDA procedure requires ATC to apply specific, or minimum, speeds to inbound aircraft and pass adequate range from touchdown information.

The Radar Controller is to calculate the optimum point at which to issue descent clearance from stack levels to enable the pilot to achieve an approximate 3° glide path.

On receipt of descent clearance, the pilot will descend at the rate he judges will be best suited to the achievement of continuous descent without recourse to level flight.

Except in exceptional circumstances, the CDA procedure is to be employed for all approaches.

The intention is for descent clearance from Minimum Stack Level to be issued at a distance from touchdown which enables inbounds to be no lower than altitude 6000ft when 20 track miles from touchdown.

This applies equally to straight-in approaches that are coordinated with Scottish Control.

4.5.5. Speed Control

Speed control may be applied on a tactical basis to the extent determined by the Radar Controller. Aircraft unable to conform to the speeds specified by the Radar Controller should inform him immediately and state what speeds will be used. For aircraft which are unable to maintain 160kt, Manchester FIN will ascertain the final approach speed and inform Manchester AIR.

There are standard speeds which should be employed during approach:

- During Intermediate approach, leaving the stack to the point at which a base leg is flown, 220kt should be used.
- On a base leg and closing heading, 180kt should be used. (If spacing is becoming tight, aircraft can be slowed to 160kt when on a closing heading for the ILS).
- On final, 160kt until 4 DME
    - Speed adjustments must not be requested or applied after the aircraft has passed 4 DME from touchdown
    - The pilot is to be advised if/when speed control is no longer required
- The use of minimum safe approach speed is not permitted until the aircraft is established on the localiser and should be avoided whenever possible.

Normally traffic is to be transferred to AIR at not less than 5NM from touchdown.

4.5.6. Range from Touchdown

Distance from touchdown information should be passed at the following times:

- When first issuing descent clearance from a Flight Level to an altitude;
- During intermediate approach, or on first contact with Final Director;
- If DME is unserviceable, ranges should be passed on the intercept heading to the ILS;
- If a previous estimate has become invalid, a new distance should be passed

"… miles from touchdown runway 23 Right, descend to altitude … feet, QNH …'"

4.5.7. Final Approach Spacing

Subject to wake vortex requirements, the minimum radar separation for aircraft on final approach is 4NM to all runways. This may be reduced to 3NM under special circumstances.

During single runway operations, FIN may increase separation to make a departure gap. The following are guidelines for the separation to be sought:

- 6NM – 1 departure
- 9NM – 2 departures

During LVPs, a decreased landing rate will be used as detailed in 1.5.2.1.

4.5.8. ILS Approaches

Aircraft are to expect the ILS approach to runway 23R/05L and 05R. Runway 23L does not have an ILS, and aircraft shall therefore, when runway 23L is used for landing, expect another type of approach into Manchester Airport.

When it is judged that this will aid situational awareness, controllers may request aircraft to report established on the localiser. Notwithstanding its use for situational awareness, it should be used where the clearance to establish on the localiser is not implicit within the phraseology used.

"Report established on the localiser runway 23 right"

When a controller has issued a descent instruction to the level that coincides with the published level that intercepts the ILS glide path at the Final Approach Fix, or to a lower level when allocated in accordance with the Surveillance Minimum Altitude Chart, the controller may clear the pilot for the ILS approach as follows:

"Cleared ILS approach runway 23 right"

4.5.9. Localiser Approaches

Aircraft will be vectored for the localiser. When it is judged that this will aid situational awareness, controllers may request aircraft to report established on the localiser. Notwithstanding its use for situational awareness, it should be used where the clearance to establish on the localiser is not implicit within the phraseology used.

"Report established on the localiser runway 23 right"

When a controller has issued a descent instruction to the level that coincides with the published level that intercepts the localiser at the Final Approach Fix, or to a lower level, the controller may clear the pilot for the LOC approach as follows:

"Cleared Localiser DME approach runway 23 right"

4.5.10. RNAV Approaches

Runway 23L has a published RNAV approach. If the temperature drops below -15˚C the RNAV approach is not available.

Pilots should be advised at the latest during intermediate approach (i.e. downwind) which transition they can expect (i.e. DOMIG, TINVA or OSNAP). The transition is only to be changed in exceptional circumstances. Pilots must be descended to the platform altitude of 3500ft before being cleared for the approach. The phraseology to be used is:

"Resume own navigation direct (waypoint), cleared RNAV approach runway 23 left"

If the controller is unable to clear the aircraft for the approach, the following phraseology should be used:

"Resume own navigation direct (waypoint), maintain altitude 3500 feet"

4.5.11. Visual Approaches

Visual approaches may not be carried out between 2200 and 0600 local time.

For visual approaches on Runway 23R/L the following restrictions apply:

- Jet aircraft must join final approach at not less than 1500ft aal;
- Propeller aircraft with an MTOW of more than 5700 kg must join final approach at not less than 1000ft aal and 3NM from touchdown.

Where coordination with AIR has taken place, provided the aircraft has reported visual with the airfield, the position of traffic permitting, aircraft may be cleared for a visual approach at any point.

When clearing an aircraft for a visual approach, with all necessary criteria met, the pilot should, if necessary, be given a level restriction to keep the aircraft within CAS.

4.5.12. Surveillance Radar Approach

Surveillance Radar Approaches are not available at Manchester Airport.

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Annex A - Abbreviations

Abbreviation	Meaning
AAL	Above Aerodrome Level
AD	Aerodrome
ADC	Aerodrome Control
AIR	Air Control
AMSL	Above Mean Sea Level
ASR	Altimeter Setting Region
ATC	Air Traffic Control
ATIS	Automatic Terminal Information Service
ATM	Aerodrome Traffic Monitor
ATZ	Aerodrome Traffic Zone
CAA	Civil Aviation Authority
CAS	Controlled Airspace
CAT A	Category A
CAT B	Category B
CAT I	Category 1
CAT II	Category 2
CAT III	Category 3
CDA	Continuous Descent Approach
CTA	Control Area
CTR	Control Zone
EAT	Expected Approach Time
ENR	En-route
ETA	Estimated Time of Arrival
FIN	Final Director
FIR	Flight Information Region
FL	Flight Level
FPS	Flight Progress Strip
Ft	Feet
GMC	Ground Movement Control
GMP	Ground Movement Planner
IAS	Indicated Airspeed
ICAO	International Civil Aviation Organisation
IFR	Instrument Flight Rules
ILS	Instrument Landing System
IMC	Instrument Meteorological Conditions
INT	Intermediate Director
IRVR	Instrumented Runway Visual Range
Kt	Knots
LDA	Landing Distance Available
LLR	Low Level Route
LLZ	Localiser
LOC	Localiser
LVP	Low Visibility Procedure
MAN	Manchester (as in 'MAN TMA')
MATS	Manual of Air Traffic Services
MSA	Minimum Safe Altitude
MSL	Minimum Stack Level
MTOW	Maximum Take-off Weight

MVA	Minimum Vectoring Altitude
NDB	Non-Directional Beacon
NM	Nautical Mile
NPR	Noise Preferential Routing
PSR	Primary Surveillance Radar
QFE	Atmospheric Pressure at Aerodrome Elevation
QNH	Atmospheric Pressure at Mean Sea Level
RMA	Radar Manoeuvring Area
RNAV	Area Navigation
RTS	Regional Training Scheme
RVR	Runway Visual Range
RVSM	Reduced Vertical Separation Minimum
SID	Standard Instrument Departure
SMAC	Surveillance Minimum Altitude Chart
SMR	Surface Movement Radar
SRA	Surveillance Radar Approach
SSR	Secondary Surveillance Radar
STAR	Standard Instrument Arrival
SVFR	Special Visual Flight Rules
TAF	Terminal Area Forecast
TMA	Terminal Control Area
TODA	Takeoff Distance Available
TORA	Takeoff Run Available
VFR	Visual Flight Rules
VMC	Visual Meteorological Conditions
VOR	Very High Frequency Omni-directional Radio Range
VRP	Visual Reference Point