vatsim uk Operations

LIVERPOOL VMATS PART 2

EGGP

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DISTRIBUTION AND SCOPE

This manual is for controllers of Liverpool Aerodrome and Approach positions, containing specific and local procedures relevant to these positions. Controllers must be familiar with controlling procedures in the UK; this manual should be read in conjunction with CAP 493 (MATS Part 1) and guidance on standard UK Radiotelephony phraseology, detailed in CAP 413.

EXCLUSION OF LIABILITY

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ACKNOWLEDGEMENTS

This document has been written and proofread by a huge wealth of people, without which the development of this document would not have been possible. On behalf of all VATSIM UK's members, this acts as an acknowledgement and thanks for their work.

DEFINITIONS

The key words "SHALL", "IS TO", "ARE TO", "MUST", "SHOULD", "MAY" are to be interpreted as described in MATS Part 1 (CAP 493).

MARKED CHANGES

Changes made since the last release are marked with a black bar, as indicated, in the left-hand margin. New text is marked in red. They are also described briefly in the table below.

AMENDMENT HISTORY

Revision	Effective Date	Notes
2024/01	25 January 2024	Updated all 25MHz spacing frequencies to 8.33MHz;
2023/08	10 August 2023	Major Revision, full re-write. Significant procedure changes to inbound procedures and releases. Significant procedure changes to Hawarden interactions. Significant procedure changes to taxiway instructions and LVP.
2018/04	29 March 2018	Major Revision, full re-write.
1.1	18 September 2014	Updated AIRAC 1410 BARTN SIDs replace DESIG and minor updates
1.0	7 June 2021	First Release

INTRODUCTION AND STRUCTURE

The Liverpool virtual Manual of Air Traffic Services (vMATS) Part 2 is complementary to the MATS Part 1 (CAP493). Together, these two documents provide comprehensive instructions and information for Liverpool controllers. However, Liverpool Radar (APC) controllers shall also familiarise themselves with the procedures contained in the Hawarden Airfield Controller Brief.

This vMATS has been divided into separate sections for ease of reference, each with its own three letter identification code.

This document is divided into sections as follows:

Page Abbreviation	Section
PRE	Preface
GEN	Unit General Operating Procedures
ADC	Aerodrome Control
APC	Approach Control
LOW	Low Level Procedures (VFR & SVFR Procedures)

TIME REFERENCES

All time references within this document are Coordinated Universal Time (UTC), or Zulu time, unless otherwise specified.

The UK observes daylight saving time in the summer months (British Summer Time, or BST), so the clocks shift forwards by one (1) hour. In summer therefore, UK local time is one hour ahead of UTC/Zulu time.

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GEN | UNIT GENERAL OPERATING PROCEDURES

Chapter 1 Altimeter Setting Procedures

1.1 Departing Aircraft

Departing aircraft are to operate on the Liverpool QNH and should state the QNH on first contact with GMC. The QFE is passed only upon pilot request. Aircraft should be informed of any subsequent change to the QNH/QFE at the earliest opportunity.

1.2 Arriving / Transiting Aircraft

Aircraft flying below the Transition Altitude are to fly with reference to the Liverpool QNH. The QFE may be requested for aircraft on final approach. The QNH should be issued with first descent to altitude, with a non-precision approach clearance and to any aircraft operating within or underneath Liverpool controlled airspace.

Aircraft cleared to enter the Liverpool CTR/CTA from outside controlled airspace should be issued the Liverpool QNH with their entry clearance to prevent aircraft being inadvertently operating in the Liverpool CTR with the Manchester QNH.

1.3 QFE Threshold

The QFE for all runway thresholds is 3 hPa less than the QNH.

1.4 Transition Altitude

The Transition Altitude (in the Manchester TMA) is 5000 feet AMSL.

> ***Note:*** *From here on, unless otherwise specified, vertical references measured in feet (ft) are to be assumed as altitudes AMSL.*

1.5 Transition Level and Minimum Stack Level

The Transition Level (TL) and Minimum Stack Level (MSL) for the Manchester TMA are determined by reference to the following table:

Manchester QNH (hPa)	Transition Level (TL)	Minimum Stack Level (MSL)
1050 - 1060	FL50	FL60
1032 - 1049	FL55	FL60
1031 - 1013	FL60	FL60
1012 - 995	FL65	FL70
994 - 977	FL70	FL70
976 - 959	FL75	FL80
958 - 940	FL80	FL80

> ***Note 1:*** *QNH 1013 hPa is considered '**high** pressure' within the Manchester TMA.*

> ***Note 2:*** *To protect against inadvertent descent to an altitude, the **MSL shall never be lower than FL60** even during periods of 'very high pressure' where FL50 would be separated against 5000 ft.*

1.6 Altimeter Setting Region (ASR)

Aircraft operating outside of controlled airspace under the Manchester TMA to the north, south and east of Liverpool should be issued the Manchester QNH. When further from Liverpool in these directions, the Barnsley RPS may be provided, including under the PEPZE CTA.

The Liverpool QNH may be utilized for aircraft operating low level to the west of Liverpool, or aircraft entering Liverpool airspace. Traffic operating further west under the Holyhead CTA should be issued the Holyhead RPS.

Chapter 2 Noise Abatement Procedures

2.1 Departures

Noise abatement procedures for aircraft departing Liverpool and joining the ATS route network are published as part of the appropriate Standard Instrument Departures (SID) and in EGGP AD 2.21 of the AIP.

All departures must achieve 500 ft AAL (757 ft AMSL) before any turn from runway track. When Runway 27 is in use, aircraft of MTOW of 5700 kg or greater shall climb straight ahead to a height of 1000 ft before turning on track.

The AIP publishes restrictions to Runway 09 usage after 2300 local time based on noise restrictions. These are not applicable to VATSIM.

Liverpool Radar and Manchester Prestwick Control (MPC) may deviate traffic from the SID routing only after they pass above 3000 ft.

2.2 Arrivals

Except light aircraft operating VFR/SVFR, traffic shall not be cleared to join the final approach track lower than 2000 ft.

Chapter 3 All Weather Operations

3.1 Aerodrome Equipment

Runway 27 is equipped for CAT III ILS operations and Runway 09 is equipped for CAT I.

Surface Movement Radar is not available at Liverpool.

3.2 Low Visibility Procedures

3.2.1 Enforcement

Low Visibility Procedures (LVP) are initiated when the IRVR falls below 600 m or if the cloud ceiling is 200 ft or less. When LVP are established no new aircraft shall be vectored for Runway 09 – aircraft already being vectored to final may complete the approach provided the RVR is greater than 550 m.

The AIR controller shall immediately notify RAD 1 when LVP are to be initiated, coordinate a runway change where needed and ensure that the ATIS is updated.

Where aircraft are on approach and the category I holding points are in use by other aircraft, AIR shall inform arriving aircraft of the IRVR and that LVP are not yet in force and ask whether they wish to continue approach. Where Runway 09 is in use, pilots on the approach shall be informed of the new IRVR and/or cloud base and asked if they wish to continue. Traffic not yet established on the approach but being vectored for Runway 09 shall either be switched to Runway 27 or be informed of the IRVR and/or cloud base and asked if they wish to continue.

Due to the inability to accurately forecast on VATSIM, LVP shall only be cancelled when the reported IRVR, meteorological visibility and cloud ceiling are above the required minimum.

3.2.2 Ground Procedures

When LVP are in force the airport can only operate on Runway 27. As there is no surface movement radar all taxi instructions during LVPs should be confirmed by pilot report.

A one-way taxi system is utilized during LVP with traffic entering the Main Apron via W and leaving via U unless this is not possible due to aircraft wingspan. This increases safety in the event aircraft incorrectly vacating at via E.

Only the following holding points are utilized during low visibility procedures:
A2, A3, A8, W, V, U, T and K.

3.2.3 Runway Procedures

During LVP only one aircraft may enter/use the runway at once. Conditional clearances are not to be used.

Departing aircraft will be required to hold at A2. All traffic should be instructed to report airborne.

Arriving aircraft must vacate via C and taxi to A8. Pilots shall make a report when vacating the runway and again on reaching A8. The runway is only considered clear for a departure/landing aircraft once the pilot reports A8.

Arriving aircraft must receive a landing clearance by 2 NM from touchdown or shall be instructed to go around.

3.2.4 Instrumented Runway Visual Range (IRVR)

Runway visual range readings will be provided when visibility is below 1500 m. IRVR should then be passed to all arriving aircraft in the intermediate approach stage and within the ATIS. For the purpose of VATSIM, IRVR reported via METAR should be considered the IRVR for touchdown, midpoint and endzone of the runway.

3.2.5 Arrival Spacing

During LVP absolute separation requirements are unchanged; however, aircraft should be sequenced to ensure a landing clearance by 2 NM from touchdown. Standard arrival spacing should therefore be increased to 10 NM from touchdown to allow a safe departure between each arrival. Where Liverpool Radar and AIR have coordinated, individual spacing may be reduced to 6 NM.

3.3 Windshear Warnings

Once turbulence or windshear has been reported to Liverpool ATC, AIR (or RAD 2 where appropriate) should inform all subsequent landing aircraft that windshear conditions have been reported until confirmation has been received that the conditions no longer exist. For the purpose of VATSIM, this may be considered accurate if reported by two separate pilots.

3.4 Meteorological Information

Provision of an ATIS is the responsibility of the AIR controller (who may delegate the responsibility to another controller) and must be broadcast on 124.325 MHz. Aircraft are expected to confirm the current ATIS information on first contact with a Liverpool station. When LVP are in force then this should be included in the ATIS broadcast.

Chapter 4 Description of Airfield

4.1 Airfield Geographical Data

ICAO Code	EGGP
Aerodrome Reference Point (ARP)	532001N 0025059W
Elevation	171 ft
Magnetic Variation / Annual Change	0.64°W (2022) / 0.21°E
Transition Altitude	5000 ft
Safety Altitude	3500 ft

4.2 ATC Communication Facilities

Aerodrome Control (ADC)

Callsign	Logon Callsign	Abbreviation	Frequency (MHz)
Liverpool Information	EGGP_ATIS	ATIS	124.330
Liverpool Ground	EGGP_GND	GMC	121.955
Liverpool Tower	EGGP_TWR	AIR	126.355

Approach Control (APC)

Callsign	Logon Callsign	Abbreviation	Frequency (MHz)
Liverpool Radar	EGGP_APP	RAD 1	119.855
Liverpool Radar	EGGP_F_APP	RAD 2	118.455

***Note:** The combined APC units may be referred to in coordination as 'Liverpool Radar'*

4.2.1 8.33 kHz Frequencies

Due to the limitations of simulators used on VATSIM, the 8.33 kHz frequencies are not simulated.

4.3 Radio Navigation and Landing Aids

Type	Identifier	Frequency	Remarks
09	I-LVR	111.75 MHz	LLZ/DME 3° GP
27	I-LQ	111.75 MHz	LLZ/DME 3° GP

Chapter 5 Use of Runways

5.1 Preferential Runway

To reduce coordination workload, the AIR controller shall endeavour to designate the same runway configuration as Manchester Airport whenever the tailwind component is less than 5 knots and the runway surface is dry. Where the Manchester runway is not declared and is unclear to Liverpool, Runway 27 is preferred.

Where the tailwind component is greater than 5 knots or when the runway surface is not dry, the runway shall be selected to ensure aircraft land with a headwind. Where possible, the wind at the surface and 2000 ft should be considered when selecting the duty runway.

5.2 Runway Change Procedures

In case of a change to runway direction, AIR shall initiate coordination with RAD 1 to suggest a last arrival and time for the runway change. RAD 1 will then notify Manchester APC and MPC and then coordinate a last arrival time with AIR. Based on this time, AIR should then coordinate with GMC as to the last departure. GMC will re-clear any previously cleared aircraft that will now depart on the new runway.

AIR must then inform RAD 1 of the intended departures before, and the first departure after, the runway change (callsign and routing). RAD 1 will inform AIR of the first arrival after the runway change at this time.

AIR must obtain a release from RAD 1 before the first aircraft departs off the new runway.

5.3 Opposite Direction Departures/Approaches

Should a pilot request to depart in the opposite direction of the runway in use, the GMC controller shall first communicate the request to AIR, who shall initiate coordination with RAD 1. This coordination should begin well before the aircraft is ready for departure.

RAD 1 and AIR shall agree a course of action to ensure vertical separation between departures and other conflicting aircraft. If the aircraft is joining the ATS route network RAD 1 will notify the relevant MPC sector stating the runway to be used, the aircraft's callsign and clarifying whether a release will be required. If a release is required, then it is assumed a release will also be required for the next departure following this traffic. Where a release is not required, RAD 1 is responsible for ensuring separation of this traffic with subsequent departures even if traffic is transferred to MPC.

Liverpool Radar shall coordinate with AIR when intending to land an aircraft on a runway other than the one in use. When Runway 27 is in use, Liverpool may land traffic on Runway 09 without notifying MPC or Manchester. When Runway 09 is in use, Liverpool must first notify MPC if an aircraft is intended to land on Runway 27 and must strictly adhere to all the descent profile limitations east of Liverpool.

5.4 Runway Vacation Guidelines

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 A. The pilot should then hold position until contact with GMC can be established.

AIR is responsible for traffic vacating via the rapid exit taxiways (E and F) and shall ensure separation against traffic on A prior to transfer to GMC. When Runway 27 is in use, GMC shall not use V to exit the Main Apron without coordinating with AIR to ensure there are no arrivals.

5.5 Land After Procedures

Normally only one aircraft is permitted to land or take-off on the runway in use at any one time. When the traffic sequence is two successive landing aircraft, the second may be permitted to land before the first one has cleared the runway in accordance with CAP 493 requirements. At the time of writing, all the following requirements must be fulfilled:

- The runway is long enough to allow safe separation between the two aircraft and there is no evidence to indicate that braking may be adversely affected
- It is during daylight hours
- The preceding landing aircraft is not required to backtrack in order to vacate the runway
- The controller is satisfied that the landing aircraft will be able to see the preceding aircraft which has landed, clearly and continuously, until it has vacated the runway
- The pilot of the following aircraft is warned - the AIR controller will provide said warning by issuing the second aircraft with the following instruction:
  "ABC123 Runway 27, land after the A319, surface wind 270 degrees 9 knots"

Responsibility for ensuring adequate separation between the two aircraft rests with the pilot of the second aircraft.

ADC | AERODROME CONTROL

Chapter 1 Ground Movement Control (GMC)

1.1 Area of Responsibility

Ground Movement Control (GMC) (*"Liverpool Ground"*) is responsible for the safe and expeditious movement of aircraft on the aprons and taxiways and the transfer of traffic to the AIR controller in a timely fashion. It additionally provides full departure clearance to aircraft departing Liverpool and is responsible for passing the QNH and verifying the aircraft type of departing aircraft. The flight strip will be amended to ensure the correct flight rules, temporary altitude, assigned squawk, and voice tag are shown. GMC coordinates with RAD 1 for specified routes.

1.2 Issuing Clearances

It is the responsibility of GMC to issue clearances. Pilots should report the following information when requesting clearance:

1. Their stand number
2. Their aircraft type
3. The ATIS information letter they are in receipt of
4. The current Liverpool QNH.

GMC should ensure that both the stand number and aircraft type are confirmed by the pilot before issuing a clearance.

An IFR clearance should follow the format:

1. Callsign
2. Destination
3. Standard Instrument Departure
4. Assigned Squawk Code

Example: *"ABC123, cleared to Gatwick, NANTI 2 Tango departure, squawk 3152"*

GMC must obtain a full read back of the given clearance. If the QNH and/or ATIS Letter were not correctly reported by the pilot, the GMC controller will pass this to the pilot.

Example: *"ABC123, correct. Information Alpha, Liverpool QNH 998 hectopascals"*

1.3 Standard Instrument Departures

Liverpool SIDs are conventional navigation departures and all climb to an initial altitude of 4000 ft with no step climbs.

Route	09	27	Remarks
BARTN	1V	1T	
NANTI	2V	2T	Not available when Manchester is using Runway(s) 05L/R SID-specific speed profile published up to FL260
POL	5V	4T	
REXAM	2T	2V	2V is not available when Manchester is using Runway(s) 05L/R
WAL	2V	2T	

1.3.1 NANTI and REXAM Departures during Manchester 05L/R

When Manchester is operating Runway(s) 05L/R, NANTI traffic and REXAM traffic from Runway 09 shall be issued an alternate clearance according to the table below.

The data-block shall be updated to reflect the 'alternate' procedure with the SID options "NANTIALT" and "REXAMALT". This document uses the term 'alternate' rather than 'non-standard' to avoid confusion with release procedures for other non-standard departures.

Fix	Runway	Clearance
NANTI	27	"After departure, turn left heading 180 degrees climb to altitude 3000ft"
NANTI	09	"After departure, turn right heading 210 degrees climb to altitude 3000ft"
REXAM	09	"After departure, turn right heading 210 degrees climb to altitude 3000ft"

1.4 Non-Standard Departures

Non-standard IFR departures are categorised into those joining the ATS route network not via SID and those leaving controlled airspace to the 'open FIR'. In both circumstances, coordination is required by GMC with RAD 1 prior to issuing clearance and the specifics of the after departure instructions should be communicated by GMC to the AIR controller.

1.4.1 Aircraft Unable to Accept a SID

Where a pilot wishes to join the ATS route system but is unable to accept an appropriate SID they may need to be given non-standard departure instructions. This traffic will be worked by Liverpool Radar after departure, who will issue after departure instructions either to GMC or to AIR at the holding point.

GMC shall coordinate the traffic, advising type and requested routing, with RAD 1 who may choose to pass after departure instructions to GMC at this point, or else wait until the holding point. The squawk allocation shall be generated by GMC using a UKCP general code.

GMC will clear these aircraft to their destination via their first filed airway and with an initial climb of 4000 ft, or as coordinated. GMC must then coordinate the traffic with the AIR controller, to clarify any assigned after departure instructions, or whether AIR will be expecting further instructions at the holding point.

1.4.2 Other Non-standard Departures

Aircraft requesting other non-standard departures (i.e. departing to leave Liverpool controlled airspace IFR) should be coordinated with RAD 1 prior to clearance being issued. Clearance shall not typically be permitted above 2500 ft to the east, and 3000 ft to the west.

GMC shall coordinate the traffic, advising type and requested routing, with RAD 1 who may choose to pass after departure instructions to GMC at this point, or else wait until the holding point. RAD 1 must issue a local squawk code to GMC at this point.

GMC will clear these aircraft as coordinated. GMC must then coordinate the traffic with the AIR controller, to clarify any assigned after departure instructions, or whether AIR will be expecting further instructions at the holding point.

1.5 Flight Level Capping

Flights to certain destinations are capped, generally due to operational reasons. Controllers shall ensure adherence with this table, informing the pilot of necessary changes whilst being careful to prevent the pilot from misinterpreting the change as an initial climb. Controllers may inform pilots that, in some cases, it will be possible to obtain a higher climb from area controllers – but this shall not be coordinated on the ground.

Destination Groups	Includes (most popular destinations bold)
Belfast Group	**EGAA**, EGAC, EGAD, EGAE, EGAL
Basel Group	LFGA, LFGB, **LFSB**, LFSM
Bordeaux Group	LFBC, **LFBD**, LFBE, LFBE, LFBG, LFBS, LFBX, LFCH, LFCY, LFDI
Dublin Group	**EIDW**, EIDG, EIME, EIWT
Dusseldorf Group	EDDG, EDDK, **EDDL**, EDGS, EDKB, EDKL, EDLA, EDLE, EDLM, EDLN, EDLP, EDLV, EDLW, ETNG, ETNN
Paris Group	LFPB, **LFPG**, LFPN, LFPO, LFPT, LFPV
Scottish Group	**EGPF**, EGPG, **EGPH**, EGPK, EGPN

Destination	Maximum FL
EGBB/BE/NX	95
London TMA (and airfields beneath)	195
Scottish Group	245

EGGD, EGFF, EGSY, EGTE	295
Belfast Group	245
EGJJ, EGJB, EGJA	295
EHAM/BK/GG/HO/LW/TE via KOLAG/RAVLO/LAMSO	335
Brussels FIR (EB)**	295
Dublin Group	285
Shannon FIR (EI)** via LIFFY except Dublin Group	165
Basel Group	335
Bordeaux Group	355
Dusseldorf Group (via EHAA)	335
LFSD	355
Paris Group	295

1.6 Pre-Departure Clearance (PDC)

When both the controller and pilot are suitably equipped, a PDC may be offered in order to clear pilots electronically. The operation of the controller PDC clients is explained in operations guides for the separate options for hosting this facility – the TopSky plugin, vStrips, vSMR and Hoppie's ATC ACARS client host instructions as to how to use their programs on their respective websites.

We do not prohibit alternate methods of PDC that are accepted within VATSIM UK.

1.6.1 Availability of PDC

PDC clearances will not be available (and should not be issued) in the following circumstances:

- Up to half an hour before a runway change, to prevent the incorrect issuing of a SID. The actual availability of PDC will be at the GMC controller's discretion.
- When the route of an aircraft's flight plan needs to be changed, or for expedition due to a flow restriction on a certain routing.

  Note: *Should the GMC controller elect to continue issuing PDC clearances within the 30-minute period before a runway change they shall only issue manual PDC clearances and deactivate auto-PDC. This is to prevent the inadvertent issue of an auto-PDC clearance with an incorrect SID without the GMC controller noticing*.

In all the above cases, the pilot should be advised by ACARS message to call the controller by voice in order to obtain ATC clearance.

1.7 Flights to Local Airfields

1.7.1 Delay Absorption

A request for delay should be sent to the receiving MPC departure sector when a clearance to any airport in the list below is issued via the ATS route network and the MPC sector

should respond with any delay (a response without specifying a delay may be interpreted as no delay). Additional prenotes may be required (see the relevant section below).

The following airports are subject to this procedure and would also require a release by AIR before departure:

- MTMA: EGCC, EGNM, EGCN *(Note 1)*
- Midlands: EGNX, EGBB, EGBE

Note 1: *At the time of writing Doncaster Airport (EGCN) is closed. Regardless of changes to airspace in future, traffic departing to EGCN shall remain subject to this procedure.*

Note 2: *It would be unusual for any traffic to EGNH/NO to route via the ATS route network. This traffic shall leave Liverpool controlled airspace and therefore be subject to non-standard departure coordination instead of delay absorption.*

GMC shall take the following actions depending upon the delay:

1. Less than 10 minutes: Inform the pilot of the delay. No further coordination required.
2. 10 to 20 minutes: Inform the pilot of the delay. Send a courtesy message to the receiving MPC sector when the delay is absorbed and the pilot is starting. *("GABCD starting for EGNS"*), no response is required from MPC.
3. Greater than 20 minutes: MPC to specify *"greater than 20 minutes"* or *"delay not determined"*. GMC to inform pilot of *"delay not determined, at least 20 minutes"* and ask whether they wish to proceed. GMC to re-coordinate at 20 minutes with MPC.

In the event the relevant MPC sector is offline, the receiving APC unit should receive this coordination.

In most situations, this coordination should ideally take place via text communication.

1.7.2 Flights to Manchester

Flight Plan (Runways 05L/R): DCT MCT DCT

Flight Plan (Runways 23L/R): DCT MCT DCT

Coordination with: PC West

Flights to Manchester file the same route and receive a non-standard clearance.

Coordination is with the PC West sector, who shall receive coordination according to the delay absorption procedure. If the pilot is unable to climb to 4000 ft, this must be coordinated as part of delay absorption. In the absence of PC West, coordination shall be with Manchester INT South.

Aircraft will be issued a non-standard after departure instruction and AIR shall obtain a release from PC West prior to departing the traffic unless otherwise specified, in addition to other releases required for non-standard departures.

When Manchester is operating Runway(s) 23L/R, this shall typically be the noise abatement and then a direct to MIRSI.

When Manchester is operating Runway(s) 05L/R this will typically be the noise abatement and then a heading or direct to WHI NDB. PC West will commonly request RAD 1 and Manchester INT South to coordinate this traffic between them, in which case RAD 1 may instruct that a departure release from PC West is not required.

1.7.3 Flights to Leeds Bradford

Flight Plan: POL DCT LBA

Coordination with: PC West

Aircraft are to be cleared on the relevant POL departure, with the initial climb of 4000 ft being specified within the clearance if the RFL is less than 4000 ft.

Coordination is with PC West sector, who shall receive coordination according to the delay absorption procedure. If for any reason the pilot cannot climb to 4000 ft, this must be communicated as part of the delay absorption procedure.

In the absence of PC West, coordination should be with PC North East, then Leeds Radar.

AIR shall obtain a release from PC West prior to departing the traffic.

1.7.4 Flights to Hawarden

Flight Plan: DCT HAW

The delay absorption procedure does not apply for flights to Hawarden. GMC will coordinate with RAD 1 prior to issuing clearance. All flights are restricted to 3000 ft.

1.8 Flow Restrictions

1.8.1 Calculated Take-off Times (CTOT)

A Calculated Take-Off Time (CTOT), sometimes referred to as a 'slot', is issued to a sequence of departures as a long-term flow management system when there is a significant excess of aircraft wishing to depart the aerodrome. CTOTs will usually only be employed as a method of flow control on VATSIM during particularly busy events.

On VATSIM, the adherence to slot times is clearly not as important as the real world, and a deviance of 5 minutes before or 10 minutes after is typically required during events. Since CTOTs are generally locally assigned, instead of being based on restrictions in Europe, adherence rules as strict as this do not tend to be employed, although it may be deemed acceptable to delay aircraft who have not met a reasonable CTOT.

GMC should retain aircraft on stand until a reasonable time to facilitate the meeting of a slot time in order to prevent both RTF congestion on ground frequencies and the blocking of taxiways. The time for pushback and taxi distance should therefore be considered when determining a suitable time for pushback.

1.9 VFR and SVFR Clearances

GMC may issue VFR and SVFR traffic with standard exit clearances without prior coordination with Liverpool Radar. Where an aircraft is unable to accept or comply with a clearance via one of these routes, coordination must occur with RAD 1 to ascertain the departure route and restrictions. Permitted departure routes for VFR/SVFR traffic are:

Direction	Runway	Route
North	09	East of M57 Motorway, leave CTR via **VRP Kirkby**
	27	Route via the River Mersey, to leave CTR via **VRP Seaforth Dock**
South	09	Cross River Mersey and leave CTR via **VRP Tarporley Roundabout**
	27	Cross River Mersey and follow M53 Motorway, to leave CTR via **VRP Vicars Cross Roundabout**

Clearances will be issued to 'not above' altitude 1500 ft, Liverpool QNH. Both VFR and SVFR departures issued clearances without coordination with RAD 1 will be issued the Liverpool conspicuity squawk 5050.

> ***Example***: *"G-ABCD, hold position, cleared to leave the Liverpool Control Zone via the Seaforth Dock VRP, not above 1500ft, VFR, squawk 5050."*

All clearances issued should be communicated to the AIR controller, along with any additional information passed by RAD 1.

1.9.1 Visual Circuits

Visual circuit traffic shall be approved by AIR prior to startup.

1.10 Stand Allocation

Stand allocation will normally be automated by UKCP.

In the event of a UKCP failure it is the responsibility of the GMC controller to assign stands to aircraft based off published allocation guidance.

GMC shall avoid allocating stands 32L/C/R.

1.11 Pushback Clearance

Clearance to push should include the stand number, to improve the situational awareness of other aircraft on frequency.

> ***Example:*** *"ABC123, stand 4, push and start approved, face east"*

Turboprop aircraft shall be passed the outside air temperature with clearance to start.

Direction of pushback shall be issued to all aircraft unless there is only one direction possible to push, e.g. taxiway T.

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.

1.12 Taxiway Restrictions

1.12.1 Code F Ground Movements

Liverpool is not capable of accommodating Code F traffic.

1.12.2 Taxiway Restrictions

The following taxiway restrictions apply:

Location	Restriction
Taxiway V and U	Not available to traffic of wingspan 36 m or greater (Code D). I.e. not suitable for B767 or A310.
Taxiway A (after A3)	Traffic in real-world is restricted to Code E. This restriction is not applicable to VATSIM.
GA Apron (K)	Unsuitable for aircraft over 5700 kg. GA traffic over 5700 kg shall be parked on stands 11/12/14 for the XLR Jet Centre.

1.13 Non-Direct Taxi Instructions to Stand

Where a clear route cannot be issued to take an aircraft directly to its stand, the phrase *"expect stand"* should be used to inform the aircraft of their parking position.

Example: *"ABC123 taxi via A, hold at V, expect stand 6"*

1.14 Taxi Routings

During Low Visibility Procedures, V shall not be used to enter or exit the apron. A one-way taxi system is utilized with traffic entering the main apron via W and leaving via U unless this is not possible due to aircraft wingspan. This increases safety in the event aircraft incorrectly vacating at via E.

All traffic of wingspan greater than 36 m must use W to enter and exit the apron. Such aircraft typically park on stands 11, 12 and 14. During Runway 27 operations, GMC shall inform AIR when an aircraft is issued pushback instructions that require taxi via W. This is so that AIR can prevent similar aircraft from vacating via E.

Aside from these procedures GMC is free to pick the most expeditious taxi route.

During Runway 27 operations, most traffic will enter the main apron via V as this maximises GMC's ability to allow departing aircraft to pushback, however this is not a requirement. Traffic shall preferentially leave the main apron via U to prevent delay due to arrivals via the rapid exit taxiways.

During Runway 09 operations, exit from the main apron is typically via W for all traffic.

Departing traffic shall be taxied to full length unless otherwise coordinated by AIR.

1.15 Departure Handoff

Aircraft shall be transferred to AIR within reasonable time to allow AIR to issue instructions prior to the holding point. GMC should only retain traffic if a potential confliction exists.

1.16 VFR and SVFR Traffic

For departing VFR and SVFR traffic, including circuit traffic, GMC should issue taxi instructions to D or G. There are no declared distances for departures from E or F and traffic shall only be taxied to these holding points at the pilots request.

Light aircraft (MTOM < 5700 kg) will typically park on the 'K Apron'. In real life parking allocation after K is provided by Ravenair on 131.750 MHz. This is not simulated on VATSIM and therefore GA traffic shall be instructed to taxi to parking via K.

GA traffic with an MTOM > 5700 kg shall be parked on stands 11/12/14 for the XLR Jet Centre.

1.17 Helicopter Traffic

Helicopter traffic parked within the GA areas will utilise the runway for departures and be taxied to the same holding points as fixed-wing GA traffic. Helicopters south of the runway utilising the aiming point shall remain the responsibility of AIR.

Arriving helicopters may park on the GA apron, or on the grass east of the apron.

Chapter 2 Air Control (AIR)

2.1 Area of Responsibility

2.1.1 AIR

Air Control (AIR) (*"Liverpool Tower"*) is responsible for the safe and expeditious use of the active runway and the rapid exit taxiways, for the provision of information to aircraft making an instrument approach, and the control of VFR aircraft operating within the visual circuit.

AIR shall obtain relevant releases and transfer departures to the appropriate radar controllers.

2.1.2 Delegated Responsibilities

AIR is delegated responsibility for traffic operating VFR in the vicinity of the ATZ below 2000 ft, in collaboration with Liverpool Radar.

All traffic operating within the ATZ must be known to Liverpool Radar. Aircraft remaining within the ATZ under the control of AIR shall be notified to RAD 2. All other traffic is to be coordinated with RAD 1.

2.2 Line Up Procedures

2.2.1 RTF Phraseology

All instructions to enter a runway shall include:

1. The relevant runway designator,
2. The holding point designator at which the aircraft is to enter the runway if ambiguous, and
3. For traffic entering the runway to facilitate taxiway positioning, the holding point designator at which the aircraft is to vacate the runway.

2.2.2 Multiple Aircraft on the Runway

The AIR controller needs to be aware of the potential effects of jet blast when lining up multiple aircraft on the runway. It is generally acceptable to line up two aircraft as long as there is a sufficient gap.

2.3 Conditional Clearances

2.3.1 Conditionals behind Arriving Traffic

To assist with situational awareness when lining up behind arriving traffic, the distance from touchdown should be included.

> ***Example:*** *"ABC123 behind the landing Boeing 737-800 at 3 miles, via A1, line up Runway 27 behind"*

A conditional line up clearance shall only be issued against the first aircraft on approach.

2.3.2 Runway Safeguarding Phraseology

The word *"follow"* must not be used in conditionals in the runway holding area. Aircraft should not be instructed to *"follow"* another one to prevent two aircraft lining up with only one of them having clearance to do so. Aircraft should not be told their number in the intended departure sequence. Instead, AIR may issue approximate airborne times as either a time past the hour, or an approximate wait in minutes.

2.3.3 Intersection Conditionals

Aircraft at an intersection may only be issued a conditional line up or crossing instruction behind the next departing aircraft. I.e. the aircraft should be able to perform the intended action behind the next aircraft that passes them.

2.3.4 Maximum Runway Conditionals

It is recommended that a maximum of **two** conditionals shall be active at any one time. I.e. an aircraft may be lining up behind a departure on the runway, and another aircraft may be lining up behind them.

2.4 Runway Clearances

It is accepted that a degree of anticipation is permissible in the issuance of take-off and landing clearances. In all cases, except where a land-after clearance (see GEN 5.5) is issued, take-off/landing clearances shall not be passed until the preceding aircraft:

- Has passed the runway edge markings, and
- Is in motion continuing in the required direction.

Vacating aircraft must not be instructed to stop until they have passed entirely beyond the runway holding point.

When a clearance is issued in anticipation of meeting the vacated requirement controllers shall continuously monitor the situation using the SMR and take positive action if the requirement may not be met.

2.5 Flights to Local Airfields

GMC will have coordinated initially with the relevant local controllers – see ADC 1.7. A release shall be obtained from the receiving MPC controller by AIR for flights to all the following local airfields:

- MTMA: EGGP, EGNM, EGCN (*Note 1*)
- Midlands: EGNX, EGBB, EGBE

Note 1: *At the time of writing Doncaster Airport (EGCN) is closed to real world traffic. Regardless of changes to airspace in future, traffic departing to EGCN shall remain subject to this procedure.*

Note 2: *Traffic to EGNH and EGNO should not be routing via the ATS route network and so should be issued instructions to leave Liverpool Controlled Airspace.*

Aircraft subject to a release must depart within + 5 minutes of the release time unless otherwise specified.

2.6 Wake Separation

2.6.1 Wake Turbulence Separation

Wake turbulence separation should be provided in accordance with MATS Part 1.

2.6.2 Holding Points

Wake turbulence exemptions exist for holding points G and D for Light aircraft only. Where a Light aircraft departs from G or D behind a Small or Lower Medium aircraft from the full length, G and D shall be considered a full length departure for the purpose of wake turbulence separation.

2.7 Speed Limitation on Departure

A speed limit of 250 KIAS applies to all departures from Liverpool whilst flying below FL100. Traffic via the NANTI SID is further restricted according to level and MTOW as follows:

- Jet traffic MTOW > 35000kg – 280-290 KIAS between FL100 and FL260
- All other traffic – 240-250 KIAS until FL260

If departing aircraft are unable to comply with these speeds, this may impact on the initial time separations applied by ATC. In all such cases, pilots will:

If before take-off -

- Inform GMC when requesting start-up clearance stating the minimum or maximum speed acceptable. GMC is to inform the appropriate MPC sector controller who may specify a new limitation and/or additional take-off separation as necessary, which shall be communicated to AIR. AIR is to advise the pilot, before take-off, of any higher speed limitation imposed.

If after take-off –

- Inform ATC the minimum/maximum speed acceptable.

The onus for removing the speed limitation rests with the appropriate MPC sector controller who will advise the aircraft as soon as the traffic situation permits. AIR controllers are not to remove a speed limitation without first obtaining the approval of the appropriate MPC sector controller.

2.8 Departure Separation

All departure separations must be considered as **minima** and should not be reduced by Liverpool ADC through the use of RSIVA, or by any other means.

Aircraft not included in these groups are to be the subject of a separation to be agreed between AIR and RAD 1.

2.8.1 Route Separation

The standard departure interval between any two successive flights shall be 2 minutes. Except for adjustments for speed separation (detailed below), this interval shall not be reduced by Liverpool.

Where traffic requires a release from MPC or Liverpool Radar, receipt of this release does **not** permit this departure interval to be reduced.

2.8.2 Speed Separation

When a faster aircraft follows a slower aircraft, the interval is to be increased by 1 minute for each successive speed group.

Subject to wake vortex separation, the interval may be reduced to 1 minute provided that the following aircraft is two groups slower than the preceding aircraft.

2.8.2.1 Table of Aircraft Speed Groups

Liverpool utilises VATSIM UK's harmonised speed table to categorise aircraft for departure separation. The table at time of writing is shown below. Updates published to the harmonised speed table apply to Liverpool.

Group 4	Group 3	Group 2	Group 1
All jet aircraft except:	BAE146/Avro RJ	ATR variants	BN2P/T
- Those in Group 3	CL35/CL60	DH8A/B/C	C208
- Concorde	CRJ1/2/7/9/X	F50	DA62
- Military Jets	D328/J328	JS31/32/41	DHC6
	DH8D	King Air variants	E110
	E135/145	PC12	
	E50P/55P	SF34	
	P180	SW3/4	
	SB20	TBM7/8/9	
	Citations except C56X/680/68A/700/750		

2.9 Departures Subject to Radar Approval

2.9.1 Standard Instrument Departures

All Standard Instrument Departures, including the alternate clearances via NANTI/REXAM when Manchester is operating Runway(s) 05L/R are subject to release from RAD 1. A release should be requested whenever the aircraft is taxiing. It is assumed that RAD 1 is aware of the expected airborne time for all departures therefore the release obtained is valid for up to 5 minutes after the expected airborne time.

A release from RAD 1 for this traffic does **not** permit AIR to depart traffic faster than allowed in departure separation rules.

IFR departures on Standard Instrument Departures are handed off to MPC, unless Liverpool Radar elects to work them. A departure release obtained from RAD 1 without a request to work the traffic is sufficient for AIR to transfer aircraft to MPC after departure.

A release is required from PC West prior to departure via POL or BARTN. All other routes are freeflow from PC West, including alternate clearances via NANTI/REXAM. In the absence of

PC West (or top-down), a release shall be obtained from Manchester INT North (or top-down). The top-down order for this release is therefore:

1. PC W – MPC West
2. PC – MPC Bandbox
3. LNW - Lakes
4. LN – AC North
5. L – AC Bandbox
6. CCN – Manchester INT North
7. CCS – Manchester INT South
8. PCSE – MPC Southeast
9. PCE – MPC East
10. LNE – North Sea

Route	09	27
BARTN	Release PC West Release RAD 1	Release PC West Release RAD 1
NANTI	Freeflow PC West Release RAD 1	Freeflow PC West Release RAD 1
POL	Release PC West Release RAD 1	Release PC West Release RAD 1
REXAM	Freeflow PC West Release RAD 1	Freeflow PC West Release RAD 1
WAL	Freeflow PC West Release RAD 1	Freeflow PC West Release RAD 1

2.9.2 Other Release Requirements

AIR is to obtain a **departure release** from **RAD 1** prior to issuing take-off clearance for:

- All non-standard IFR and SVFR departures
- Departures from the non-departure runway (prior coordination required) and any subsequent departure
- The first departure following a runway change
- The first departure following a missed approach
- VFR departures except those via published entry/exit lanes at standard levels
- Aircraft not on the speed table, plus the subsequent departure. This information shall be specifically coordinated in the release request.
- Where the following aircraft is 3 groups faster than the leading aircraft. This information shall be specifically coordinated in the release request.

Non-standard IFR departures will have been coordinated with RAD 1 by GMC. GMC should inform AIR of the coordinated instructions and whether to expect further after departure instructions at the holding point. RAD 1 **may** specify in the release to transfer the traffic to a different controller after departure (e.g. RAD 2 or MPC), however if not specified at the point of release, it shall be transferred to RAD 1.

AIR is to obtain a **departure release** from the relevant **MPC controller** for departures to:

- MTMA: EGCC, EGNM, EGCN *(Note 1)*
- Midlands: EGNX, EGBB, EGBE

Note 1: *At the time of writing Doncaster Airport (EGCN) is closed. Regardless of changes to airspace in future, traffic departing to EGCN shall remain subject to this procedure.*

Note 2: *It would be unusual for any traffic to EGNH/NO to route via the ATS route network. This traffic shall leave Liverpool controlled airspace and therefore be subject to non-standard departure coordination instead of releases by MPC.*

Note 3*: When Manchester is operating Runway(s) 05L/R, PC West may delegate responsibility for coordination to RAD 1 and Manchester INT South. RAD 1 may specify that a release from PC West is not required in this scenario.*

Aircraft subject to a release must depart within + 5 minutes of the release time.

2.10 Transfer of Control and Communication

2.10.1 Departures

Standard IFR Departures may only be transferred to the appropriate MPC or Liverpool Radar frequency once all aerodrome conflictions have been resolved. Ideally transfer shall occur no later than 2000 ft or 2.5 NM from the departure end of the runway, though if required to retain traffic to resolve a confliction, the AIR controller shall look out for pilots climbing to above their initial (cleared) level and take action in coordination with RAD 1.

Non-Standard IFR, VFR and SVFR departures are transferred to RAD 1 once clear of aerodrome traffic.

2.10.2 Departure Handoff Priority

Departure	1	2	3	4	5	6
Standard	PC W	PC	LNW	LN	L	RAD 1
Non-Standard	RAD 1	PC W	PC	LNW	LN	L

RAD 1 can request to work any Standard Departure as part of the response to a departure release.

- PCW – MPC West
- PC – MPC Bandbox
- LNW – Lakes
- LN – AC North
- L – AC Bandbox

2.10.3 Aircraft on Approach

Transfer of control between RAD 2 and AIR shall be no later than 4 NM from touchdown. Transfer of communication should occur as soon as possible once established on the final approach track.

Liverpool Radar remains responsible for radar separation and wake turbulence separation of aircraft until touchdown and therefore changes to instructions shall not be given by AIR without prior coordination.

2.11 Landing Clearance

2.11.1 Runway Designator

The runway designator should be included in all landing clearances.

2.11.2 Cancelling Approach Clearance

It is the responsibility of AIR to issue landing clearances to all aircraft. If they are not satisfied that an approach can continue safely they may issue instructions to re-position a particular aircraft or instruct the aircraft to go around.

2.12 Arrival Spacing

All arrival wake turbulence separation is as per MATS Part 1.

Traffic shall not typically be spaced closer than 5NM on final approach. AIR should coordinate the spacing required with FIN to allow outbound traffic. As a rough guide:

- 6 NM for one departure
- 10 NM for two departures

2.13 Minimum Radar Separation

Minimum radar separation for Liverpool Radar is 3 NM, however Liverpool Radar shall not issue spacing below 4 NM on final approach.

2.14 Missed Approaches

The standard missed approach procedures are as published on approach charts and are detailed below (with minor wording modification for clarity). The DME and LPL NDB are always serviceable on VATSIM.

Runway	Missed Approach Procedure
ILS 09 LOC 09 RNP 09 SRA 09	Climb straight ahead to LPL NDB and 2500 ft. If able to achieve 1700 ft by LPL NDB enter the hold. If unable to achieve 1700 ft by LPL NDB continue on QDR 086 from LPL then turn right to LPL passing 1700 ft.
ILS 27 LOC 27 RNP 27 SRA 27	Climb straight ahead to 2000 ft, passing 1500 ft turn right to LPL NDB.

2.15 Go Around Procedure

On becoming aware of, or after initiating a go-around, the AIR controller is to:

1. Activate the UKCP Go-Around Alarm (if in use)

2. Establish separation between the go-around and departing traffic:
    a. Go-around traffic shall not be cleared above the missed approach altitude
    b. Tactical headings may be issued only if necessary to avoid an immediate conflict and should be limited to turns of 30 degrees from the runway track
    c. Traffic should be monitored visually where able, or via the ATM
3. Coordinate with RAD 1 to agree tactical headings and action required for traffic
4. Pass traffic information where required or useful.

When Runway 27 is in use, the standard missed approach procedure will create conflict with aircraft establishing the final approach. If traffic has passed the departure end of the runway before coordination can occur, AIR will instruct traffic to climb straight ahead to altitude 2000 ft.

Coordination with Liverpool Radar for go-around traffic shall be with RAD 1. On occasion, the Liverpool Radar controllers may choose to delegate this to RAD 2, however this must be explicitly coordinated in advance and must never be coordinated during a go-around.

Where AIR has issued a heading to departing traffic, it must be transferred to Liverpool Radar (RAD 1 unless otherwise coordinated) who will work the traffic prior to transfer to MPC.

The next departing aircraft following a missed approach requires a release from RAD 1.

2.16 VFR/SVFR Procedures

2.16.1 Departures

Certain VFR and SVFR clearances will be issued via GMC via the published exit routes, without coordination with Liverpool Radar. GMC should have relayed all departure information issued to AIR and issued conspicuity squawk 5050.

Direction	Runway	Route
North	09	East of M57 Motorway, leave CTR via **VRP Kirkby**
	27	Route via the River Mersey, to leave CTR via **VRP Seaforth Dock**
South	09	Cross River Mersey and leave CTR via **VRP Tarporley Roundabout**
	27	Cross River Mersey and follow M53 Motorway, to leave CTR via **VRP Vicars Cross Roundabout**

VFR clearances via the following routes, issued not above 1500 ft may be issued take-off clearance without a release from Liverpool Radar. RAD 1 should be issued a departure notification but take-off clearance does not require AIR to await a response.

Example: *"G-ABCD VFR departure via Seaforth Dock"*

Upon receipt of this message RAD 1 will pass any traffic information to be passed prior to handover. Once clear of confliction, traffic shall be transferred to RAD 1 who may choose to issue a discrete squawk if providing a radar service.

All SVFR departures require a release from RAD 1. RAD 1 may choose to issue a unique code to the traffic on the ground, or once airborne.

2.16.2 Circuit Procedures

Visual circuits operate to the south side of the airfield not above altitude of 1500 ft. AIR may vary the circuit direction if required by the traffic situation.

GMC will require approval from AIR before allowing startup. Circuit instructions are passed at the holding point.

GMC will taxi aircraft to D or G (E or F only at pilot request) depending on the runway in use and instruct traffic to squawk 7010.

AIR shall be responsible for notifying RAD 1 that the circuit is active. RAD 1 shall communicate this to RAD 2.

2.16.3 Integrating circuit traffic with IFR approaches

VFR traffic may be instructed to orbit at the start or end of the downwind leg, to land or to leave the circuit and hold away from the instrument approach. Traffic information is to be passed as appropriate. Circuit traffic must report any relevant traffic in sight before turning base.

If the pilot cannot see the aircraft on final, they must either extend downwind or orbit left/right at the end of their downwind leg until the aircraft on final is sighted or has landed. Once the traffic is in sight or has landed, wake turbulence advisories should be passed (if applicable) with the instruction to report final.

Except when AIR can apply RSIVA, SVFR traffic must either land or be routed to maintain 3 NM separation from the final approach track whenever inbound IFR traffic is within 10 NM.

2.16.4 Re-join Procedures

Overhead joins are not permitted at Liverpool. Joining aircraft are coordinated between Liverpool Radar and AIR as soon as possible. VFR aircraft following the standard entry/exit lanes at or below 1500 ft can be transferred to AIR once there are no remaining conflictions with traffic unknown to AIR. Traffic rejoining via an alternate route should be transferred once visual or with instructions to orbit at a suitable VRP.

Liverpool Radar will typically retain SVFR traffic to maintain adequate radar separation, until an appropriate gap in the arrival sequence.

2.17 Helicopter Procedures

Arriving helicopters shall use the runway threshold as an aiming point. Typically, landings and departures shall also be made via the runway, the AIP publishes that ‘locally based’ helicopters are allowed to use the aiming point south of the runway and this is permitted on VATSIM at the discretion of AIR. These helicopters shall contact AIR only and will not contact GMC.

Hover training is conducted west of taxiway C on the grassed area. Helicopters utilising this area shall be in contact with AIR.

Helicopter runway crossings are considered an intermediate point departure for the purpose of wake turbulence separation.

2.18 Use of the Aerodrome Traffic Monitor

An Aerodrome Traffic Monitor (ATM) is available, and the information derived from the ATM may be used by all AIR controllers 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.

Separation can be established between departing aircraft by issuing an altitude restriction or an early turn onto track, provided that is this co-ordinated with the relevant MPC controller in advance.

Additionally, ***radar validated controllers (S3+)*** may utilise the ATM for advanced uses:

- 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.

Radar validated controllers may, where appropriate, utilise RSIVA to reduce departure separation between aircraft on diverging tracks provided that 3 NM horizontal radar separation is established before the aircraft are transferred to the next controller.

APC | APPROACH CONTROL

Chapter 1 Area of Responsibility and Sector Organisation

1.1 General

In this section, the following conventions for the naming of the Liverpool APC positions is adopted:

RAD 1	- Radar 1 (RTF callsign "Liverpool Radar")
RAD 2	- Radar 2 (RTF callsign "Liverpool Radar")
Liverpool Radar	- Collective term for both Liverpool APC roles

1.2 Area of Responsibility

Liverpool Radar is responsible for the Liverpool CTR/CTA and delegated portions of the Manchester CTR/CTA, Manchester TMA, PEPZE CTA and Holyhead CTA airspace. Liverpool Radar provides services to:

1. Arriving traffic transferred by Manchester Prestwick Control inbound to Liverpool and Hawarden until control is transferred to Aerodrome Control or Hawarden Radar,
2. Aircraft approaching from outside of controlled airspace, until control is transferred to Aerodrome Control,
3. Standard and non-standard departures transferred by Aerodrome Control until leaving controlled airspace, or transfer to Area Control,
4. Overflights of the Liverpool CTR/CTA and delegated airspace under the control of Liverpool Radar.

RAD 1 may also provide UK FIS services to low-level traffic within 40 NM of Liverpool.

1.3 Function

Liverpool Radar provides Approach and Approach Radar Control functions as defined in CAP 493 (MATS Part 1).

Specific functions are:

1.3.1 Radar 1 (RAD 1)

- Accepts releases and provides control and initial sequencing for traffic inbound to Liverpool and Hawarden via TIPOD and KEGUN until onward transfer
- Control of traffic in the TIPOD and KEGUN hold transferred by MPC, and radar monitoring of the KEGUN hold to ensure aircraft remain within controlled airspace
- Control of overflights within the Liverpool CTR/CTA or delegated Manchester CTA airspace at or below 3500 ft
- Control of overflights released to Liverpool Radar within delegated airspace (above 3500 ft)
- Control of VFR and SVFR traffic operating in the relevant portions of Class C/D airspace and coordination of this traffic with ADC

- Coordination with ADC for traffic requiring non-standard IFR departures
- Coordination with AIR for go-around traffic
- Executive coordination with other units, except where delegated on a case-by-case basis to RAD 2
- Provision of UK Flight Information Services (subject to workload) to aircraft within the vicinity of Liverpool airspace
- The responsibilities of RAD 2 in their absence
- Provides top-down control to Hawarden (EGNR) in the absence of local ATC.

1.3.2 Radar 2 (RAD 2)

- Provides control of traffic transferred by RAD 2 until transfer to Aerodrome Control
- Provides vectoring to final approach stages and surveillance radar approaches where appropriate
- Liaises with AIR for range checks, final approach spacing and landing clearances
- Radar monitoring of traffic on final approach to ensure separation is not eroded.

1.4 Liverpool Radar Bandbox/Splitting Procedures

RAD 1 may be opened at any time. AIR must be open before opening RAD 2.

When splitting/bandboxing Liverpool Radar, RAD 2 shall inform AIR.

Chapter 2 Radar Director/Controller General Operational Procedures

2.1 General Procedures

RAD 1 shall accept releases for traffic inbound to Liverpool and Hawarden via KEGUN and TIPOD and provide top-down services for Hawarden when no local ATC is online. RAD 1 is responsible for executive coordination and overall flow of traffic through Liverpool airspace. This does not preclude RAD 2 from coordinating with other agencies as required. Both directors will manage their own electronic flight progress strips.

2.2 Inbound Releases

RAD 1 will receive inbounds to KEGUN and TIPOD from PC West (MPC) as either a full release, or silent release. Traffic via the ATS route system are released at MSL or higher, based on the Manchester QNH.

Traffic is released according to the silent release procedure, else via a full release. There are no other release conditions available for traffic into Liverpool. In the unlikely situation that traffic is transferred not in accordance with the standard release and no release information is received, Liverpool shall attempt to clarify the release with MPC. Unless clarified, such traffic cannot receive turn or descent instructions until the standard release point (i.e. TIPOD or KEGUN).

Liverpool and Hawarden departures are known traffic to Liverpool Radar and MPC. Therefore, regardless of the release received, Liverpool Radar shall separate released traffic against departures. MPC is permitted to climb any departure transferred. These responsibilities are outlined in APC 5.2.

2.2.1 Silent Release Procedures

A silent release may be issued by electronic transfer of the track data-block to Liverpool Radar with traffic descending to MSL at KEGUN or TIPOD. A subsequent silent release may be issued when this traffic has either vacated MSL or proceeded beyond KEGUN/TIPOD under the control of Liverpool Radar.

Silent release conditions are detailed in APC 3.4 and APC 4.2.1.

Traffic that cannot be transferred to Liverpool under the silent release conditions should be coordinated as a full release.

2.2.2 Full Release Procedures

Where traffic cannot be transferred under a silent release, a full release shall be issued. This shall normally be coordinated verbally and read back in full. A full release shall specify:

- Hold Name “Full Release”
- Callsign
- Cleared Flight Level
- Release Point
- Contact Point
- Any additional instructions or restrictions.

Example: *“TIPOD Full Release, ABC123 FL100, released MALUD contact time 48”*

2.2.2.1 UKCP Plugin

A full release should be issued by verbal coordination. However, where this is not possible due to sector workload, MPC may choose to issue a release via the UKCP plugin. In this situation, the release given is considered valid at the time of electronic transfer of the track data-block.

Releases of this type shall only be by a full release or a release with both turn and descent instructions. Where this is not the case, Liverpool shall clarify the release with MPC. Unless clarified, such traffic cannot receive turn or descent instructions until TIPOD or KEGUN.

At the time of writing, these procedures apply only to the UKCP plugin. However, where future controlling tools permit electronic full releases, the same procedures shall apply.

2.3 Transfer of Data and Control between Radar Controllers

Transfer of control from RAD 1 to RAD 2 is not to be carried out until the aircraft is clear of confliction with any aircraft remaining under the control of RAD 1 or MPC unless this traffic is coordinated between the two controllers.

Transfer of data and control from RAD 1 to RAD 2 shall be by electronic transfer of the aircraft track data-block and is to be coincident with the transfer of communication. The track is to be accepted once the receiving controller has RTF contact with the pilot.

The track data-block shall be updated prior to transfer with the cleared level, assigned heading and any speed restriction.

2.4 Identification and SSR Validation and Verification Procedures

All IFR aircraft receiving radar services from Liverpool Radar must be identified, the assigned SSR code validated, and Mode C return verified. Except where described below this is to be by one of the methods described in MATS Part 1. Aircraft transferred from another radar unit either by standing agreement or individual coordination are deemed to have been validated and the Mode C return verified.

Aircraft departing Liverpool and Hawarden which are automatically code-callsign converted (correlated) with the correct callsign and are not displaying a squawk error (DUPE) indicator within the track data-block are deemed identified and validated. The first radar controller working these aircraft must however verify the Mode C return.

Any aircraft that does not automatically code-callsign convert, is displaying an incorrect callsign, or that is displaying a squawk error (DUPE) indicator shall be reassigned a unique code; however, for initial identification a controller may request an IDENT to avoid requiring the pilot to set a new squawk during the workload intensive departure phase.

Aircraft departing any other unit outside controlled airspace, which has been issued a unique SSR code allocated prior to departure, shall be instructed to IDENT or identified by another method regardless of whether automatic code-callsign conversion has taken place.

2.5 Separation Requirements for Liverpool Radar

2.5.1 3 NM Reduced Separation

Liverpool Radar controllers may apply reduced radar separation of 3 NM between aircraft provided that:

- Both aircraft are identified, and
- The appropriate wake turbulence separation is applied, and
- Neither aircraft is operating within the Manchester Low Level Route, and
- If applied against an aircraft under the control of another agency (see note), direct voice communication is available between the controllers, and the other agency must also be approved to apply reduced radar separation.

Note: *Manchester Radar and MPC are permitted to apply 3 NM separation*.

2.5.2 Deemed Separations

Traffic operating within the Manchester Low Level Route (LLR) indicating 1300 ft and below is deemed 'Outside Controlled Airspace' for the purpose of separation. Therefore, traffic operating at 500 ft above the LLR (i.e. 1800 ft or higher), or within the Liverpool CTA is deemed separated from traffic within the LLR. Where traffic is operating above the LLR at altitudes less than 2300 ft, Liverpool Radar must monitor the Mode C returns of traffic in the LLR as a high priority task and take immediate action if LLR traffic indicates above 1300 ft.

Traffic on approach to the runway in use is deemed separated from airborne traffic departing that same runway.

2.6 Terrain and Obstacle Clearance

Within the Surveillance Minimum Altitude Area (SMAA) the lowest level that can be assigned is 1800 ft, with a single higher area to the west of 2100 ft. Aircraft within the Final Approach Vectoring Areas (FAVAs) established on an instrument approach or are cleared to establish at an angle of 40° or less may descend to 1500 ft. The Minimum Sector Altitude (MSA) within 25 NM of the Liverpool LPL NDB is:

NW	NE	SW	SE
2100 ft	3500 ft	3100 ft	2900 ft

Liverpool ATC SMAA chart: **AD 2.EGGP-5-1.**

Additionally, traffic operating north of the runway centreline inside the Manchester CTR (i.e. above the Low Level Route, in Delegated Area F – see APC 4.1) may be cleared to not below 2400 ft, despite this being outside the Liverpool SMAA. Further descent to 2000 ft is permitted for traffic which is either established on the approach track or is on an intercept of 40° or less and cleared to establish the final approach track .

2.7 Change to MSL Procedure

When a change to the Manchester QNH results in a new MSL, the first controller within the Manchester TMA to note the change shall notify other units of the change. This controller shall coordinate an agreed effective change time that is at least 5 minutes from the time the

pressure change was noted. Aircraft operating at the old MSL are deemed separated from the Transition Altitude until the new MSL is in effect.

Chapter 3 Inbound Procedures

3.1 Information to Arriving Aircraft

After an arriving aircraft has made its initial call to RAD 1, the following information shall be passed as soon as practicable to Liverpool Inbounds:

- Runway in use and the type of approach
- Current ATIS code, if not volunteered by pilot
- LVP if in operation, if not already received from the ATIS
- Number in landing order (if known)
- Any delay to be expected.

Except for traffic transferred between RAD 1 and RAD 2, all Liverpool Radar 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, the first controller is to confirm aircraft type, including type variants.

Liverpool arrivals 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
- Relevant reports from other pilots
- Implementation or cancellation of LVP.

3.2 Standard Arrival Routes (STARs)

3.2.1 Liverpool STARs

Designator	Route
BOFUM 1L	BOFUM – BAKOX – BAVUD – DONAX – MALUD – TIPOD
ELVOS 1L	ELVOS – TNT – NANTI – KEGUN
GASKO 1L	GASKO – RIBEL – CROFT – WAL – BAROS – TIPOD
LAKEY 1L	LAKEY – VAMEB – OBUNI – CALDA – CROFT – WAL – BAROS – TIPOD
LESTA 1L	LESTA – TNT – NANTI – KEGUN
LIBSO 1L	LIBSO – FIZED – GOLES – UPTON – UNIGO – DESIG – WAL – BAROS – TIPOD
PENIL 1L	PENIL – RUGER – TIPOD
PEPZE 1L	PEPZE – MONTY – GODPA – KEGUN
POL 1L	POL – WAL – BAROS – TIPOD
VEGUS 1L	VEGUS – SIVBU – GIPLO – GOLES – UPTON – UNIGO – DESIG – WAL – BAROS – TIPOD

All Liverpool STARs are for RNAV1-capable aircraft. If a pilot is simulating a non-RNAV1 capable flight, they should file the alternate routes listed in the SRD, terminating at TIPOD and KEGUN.

3.2.2 Hawarden Arrivals

Hawarden arrivals route to KEGUN, via standard routes published in the AIP and UK Standard Route document. The following table reproduces the final portion of these routes.

Direction	Route
SE	NANTI – KEGUN
S	MONTY – GODPA – KEGUN
W	LYNAS – WAL – KEGUN MALUD – WAL – KEGUN
NW	IOM – WAL – KEGUN PENIL – WAL – KEGUN
N	CROFT – WAL – KEGUN
NE	POL – WAL – KEGUN
E	DESIG – WAL – KEGUN

3.2.3 Stack Switching

There are no stack swapping STARs at Liverpool, however due to holding restrictions at KEGUN, it may be necessary for KEGUN traffic to be swapped to TIPOD. Liverpool Radar shall notify PC West when TIPOD holding begins and coordinate in advance when any inbound will need to be swapped to TIPOD.

Where no PC West controller is online and Liverpool is swapping traffic to the TIPOD hold, it is expeditious to route the traffic BAROS-TIPOD to hold.

3.3 Holding Procedures

The table below indicates the holding areas available for Liverpool traffic:

Hold	Inbound Course	Direction	Holding Levels	Holding Speed	Leg Timing
TIPOD	117	Right	FL60 – FL140	210 KIAS	1 minute
KEGUN	003	Left	FL60 – FL100	210 KIAS	1 minute
LPL	086	Right	2000-2500 ft (*Note 2*)	185 KIAS	1 minute

Note 1: *Traffic holding at KEGUN must be radar monitored by RAD 1 outside the hours of operation of PEPZE CTA 2 (APC 4.1) therefore traffic is to be preferentially held at TIPOD outside the hours of operation of PEPZE CTA 2.*

Note 2: *Lowest holding available is 2000 ft, however in most circumstances LPL holding should occur at 2500 ft. Holding above 2500 ft is possible, although it requires extensive coordination with Manchester Radar and PC West.*

3.3.1 Holding Pattern Separation

TIPOD and KEGUN are separated from each other and MIRSI at all published levels.
LPL is separated from TIPOD and KEGUN up to FL100.

3.4 Inbound Releases

The release point for traffic transferred under the silent release varies by arrival route. This is documented in APC 4.2.

For all traffic not subject to the silent release, a full release is passed as detailed in APC 2.2. For traffic for which no release is received, and which is not transferred according to silent release conditions, Liverpool Radar should assume a release point of TIPOD or KEGUN and follow the full descent profile restrictions associated with the silent releases unless clarification is received.

3.5 Transfer of Communication Procedures

MPC sectors shall transfer traffic inbound to each stack in sufficient time for holding instructions to be passed. If not possible, MPC shall instruct the aircraft to hold prior to transfer.

3.6 Expected Approach Times (EATs)

Expected approach times are not issued. The arrival order is derived from the stack arrival time subject to tactical considerations.

Where traffic is holding, RAD 1 shall provide an expected **delay** in increments of 5 minutes up to 20 minutes, after which traffic may be informed *"delay not determined"*.

Chapter 4 Procedures for Intermediate and Final Approach

4.1 Liverpool Airspace

Liverpool is delegated airspace by Manchester Radar and Manchester Prestwick Control. These delegations are permanent and there is no procedure for this airspace to be reclaimed.

Controllers should note the naming difference of Liverpool airspace with similar airports within the London FIR. The "Radar Manoeuvring Areas" (RMAs) at Liverpool do not include all delegated airspace and refer to a specific sections of airspace as detailed below. The term "Liverpool Airspace" is used within this document to include the RMAs, all other airspace delegated to Liverpool, and the Liverpool CTR/CTAs.

Liverpool Airspace is depicted in Figure 1. Controllers must also be familiar with the Manchester Easterly RMA and depicted in Figure 2.

Figure 1 - Liverpool Airspace

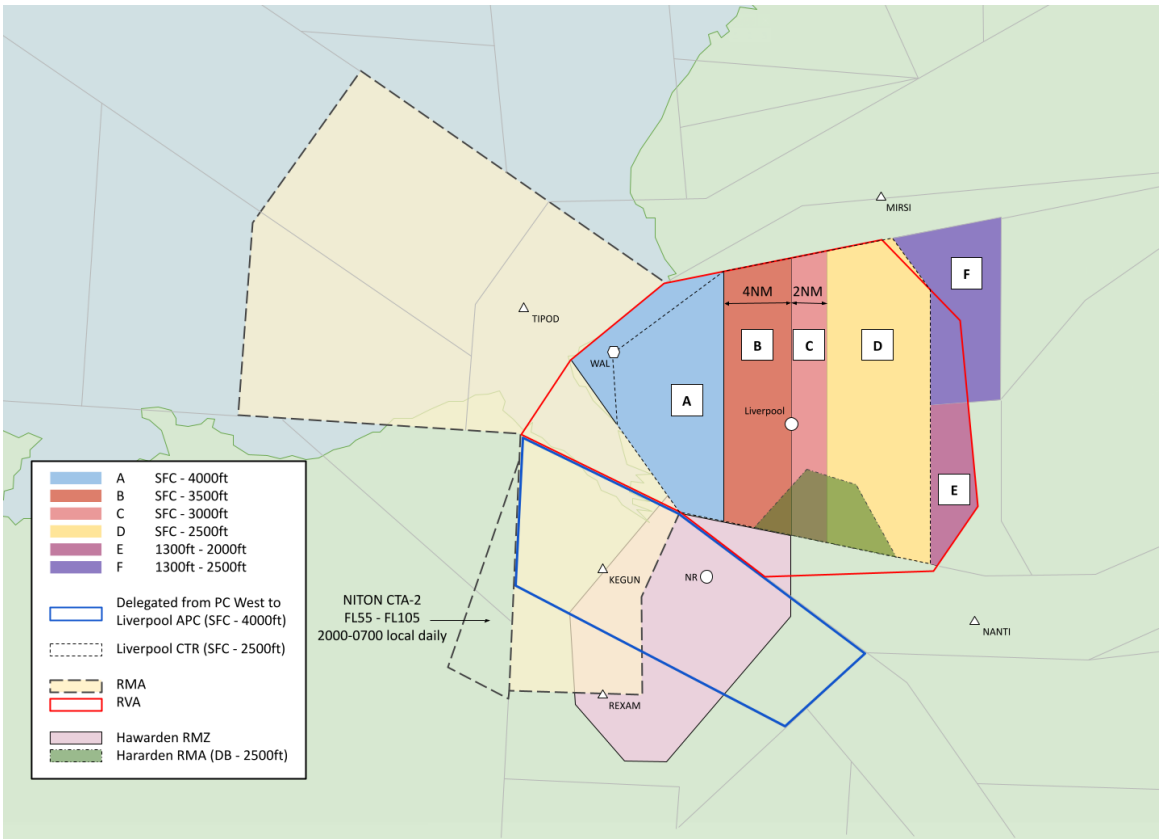
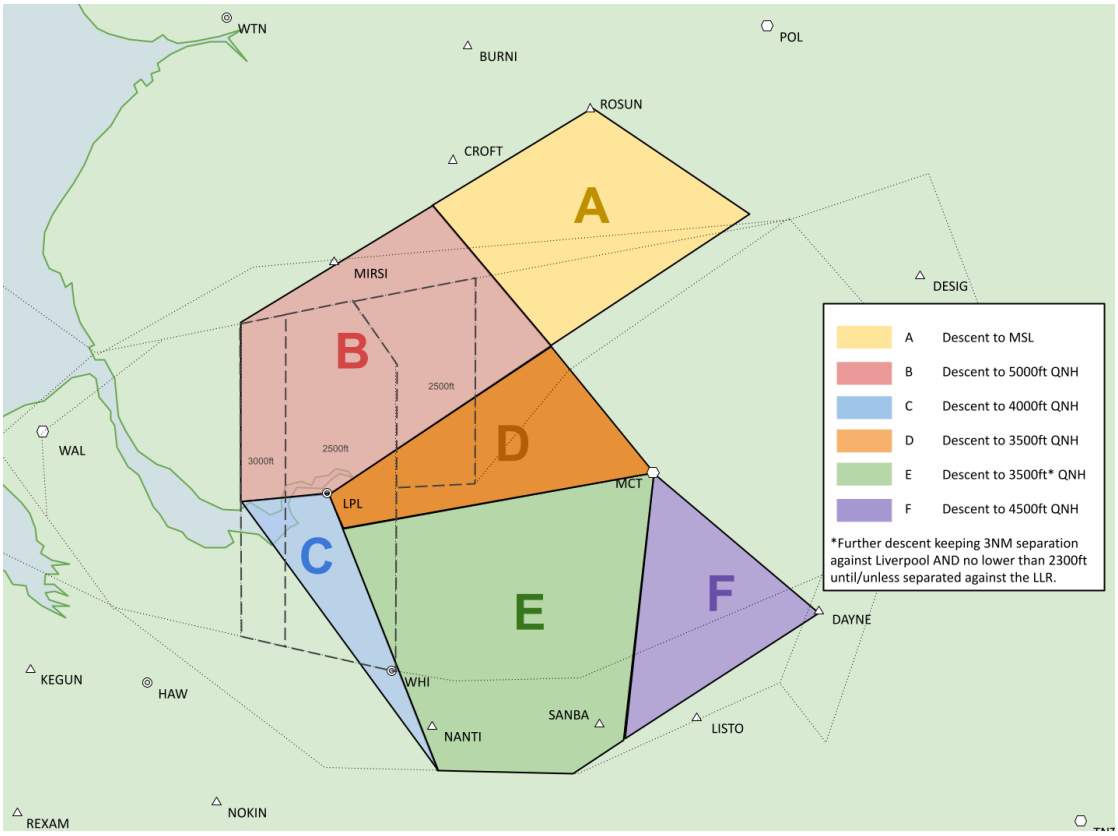


Figure 2 - Manchester Easterly RMA with Liverpool Airspace (Areas C, D and F) overlayed



Radar Manoeuvring Areas (RMAs)

The Liverpool RMAs are a delegation of airspace of the Holyhead CTA (Class C) and PEPZE CTA (Class A) to the west and south of Liverpool respectively. The RMAs do not include Areas A-F. Liverpool is delegated this airspace up to MSL for initial sequencing IFR traffic. The RMAs overly Liverpool CTA 2 and 4, for which Liverpool is the controlling authority.

The RMAs are delegated only for the vectoring of inbound IFR traffic released by MPC. Any other traffic wishing to enter this airspace shall make contact with PC West or be coordinated prior to entry. Liverpool Radar is not permitted to clear aircraft into this airspace that is unknown to MPC.

Area A

Area A comprises Liverpool CTA 1, a section of Liverpool CTR/CTA 3 (Class D to 3500 ft) and Manchester TMA (Class A) airspace above CTA 3 up to 4000 ft.

When Manchester is operating Runway(s) 05L/R, Liverpool shall not clear traffic to transit above 3000 ft within 5 NM of the line north/south through Liverpool airport, without coordination with Manchester Radar.

Area B

Area B comprises a portion of Liverpool CTR and CTA 3 (Class D) from surface to 3500 ft. It extends from the north/south line through Liverpool airport to 4 NM west. There is no delegated airspace in Area B.

When Manchester is operating Runway(s) 05L/R, Liverpool shall not clear traffic to transit above 3000 ft within Area B, without coordination with Manchester Radar. This restriction does not apply to Liverpool inbounds.

Area C

Area C comprises airspace of the Liverpool CTR (Class D) from the north/south line through Liverpool to 2 NM east; plus delegation of the Manchester CTA 4 (Class D) up to 3000 ft.

Area D

Area D comprises the remaining Liverpool CTR (Class D) east of Area C. This extends up to 2500 ft. There is no delegated airspace in Area D.

Area E

Area E is only delegated when Manchester is operating westerly Runway(s) (23L/R). It comprises a Class D portion of the Manchester CTR (above the Low Level Route) from 1300 ft to 2000 ft.

Controllers should be aware that traffic in the LLR does not require clearance for entry under certain conditions, and therefore may not be in contact with Manchester Radar.

Area F

Area F comprises a Class D portion of the Manchester CTR (above the Low Level Route) from 1300 ft to 2500 ft. Area F lies outside of the Liverpool SMAA, however 2400 ft and above is deemed terrain safe for traffic in this area (see APC 2.6).

Controllers should be aware that traffic in the LLR does not require clearance for entry under certain conditions, and therefore may not be in contact with Manchester Radar.

Delegated Area of PEPZE CTA 1

The PEPZE CTA 1 (south of Liverpool CTA 4) is delegated to Liverpool up to 4000 ft. This Class A airspace, base 3000 ft, can be utilised by Liverpool for any traffic under its control.

PEPZE CTA 2

PEPZE CTA 2 is Class A airspace (FL55-105), operational from 2000-0700 UTC. While not formally delegated to Liverpool, it permits KEGUN holding up to FL100 during this period without the need for radar monitoring. Liverpool may utilise this airspace only for traffic holding at KEGUN.

Hawarden Radio Mandatory Zone (RMZ)

A Radio Mandatory Zone (RMZ) is established around Hawarden airport from the surface up to the base of the overlying PEPZE CTA (3000 ft over the airport and 4500 ft to the southwest) and Manchester CTA (2500 ft to the northeast).

The RMZ is established as Class G airspace and is not controlled airspace. However, prior to entering the RMZ traffic must either:

- Contact Hawarden Radar and maintain two-way radio communication whilst operating in the RMZ, or

- Squawk the Hawarden frequency monitoring code 4607 and monitor Hawarden Radar – pilots must then establish two-way radio communication if requested whilst inside the RMZ.

Hawarden RMA (HRMA)

The Hawarden Radar Manoeuvring Area (HRMA) is an area of the Liverpool CTR from surface to 2500 ft. This area is under the control of Liverpool Radar, however, is delegated when required for Hawarden to be able to perform instrument approaches to Runway 22.

4.2 Intermediate Approach Procedures

Once inbound traffic enters the lateral limits of Liverpool Airspace, traffic shall not again be vectored outside those lateral limits without coordination. Liverpool Radar remains responsible for separation of inbound traffic against Liverpool SID traffic below MSL.

4.2.1 Silent Release Traffic

Traffic meeting the conditions of a silent release have specified release points. After the release point, Liverpool may proceed traffic towards the RMAs and issue descent. Once traffic is below MSL and judged to be on a suitable descent profile it may be vectored into/over Areas A and B. Descent restrictions east of Liverpool depend on the traffic and Manchester runway in use and are specified in APC 4.2.4.

4.2.1.1 Silent Release Procedure via TIPOD/WAL

Traffic to Hawarden routes via WAL to KEGUN as the equivalent to the Liverpool TIPOD STARs. The release conditions are the same for Liverpool and Hawarden traffic.

Via	Manchester Runway(s)	Release Point
MALUD/RUGER/WAL (West)	23 L/R 05L/R	Liverpool RMA boundary
WAL (East)	23 L/R	Western edge of Low Level Route
	05L/R	Liverpool RMA Boundary *(Note)*

Note: *It is invariably more expeditious to provide a full release to traffic from the east. The silent release procedure is particularly inefficient when Manchester is operating Runway(s) 05L/R and therefore MPC is encouraged to always provide an alternate release in this configuration.*

4.2.1.2 Silent Release Procedure via KEGUN

Via	Manchester Runway(s)	Release Point
NANTI (TNT)	23 L/R	NANTI
	05L/R	5 NM west of NANTI
GODPA (PEPZE)	23 L/R 05L/R	GODPA

Note: *These silent release conditions also apply to Hawarden (EGNR) arrivals routing via KEGUN STARs.*

4.2.2 Full Release Traffic

Traffic transferred with a full release, where the release point is other than TIPOD or KEGUN may enter Areas A and B above their vertical boundaries but must be cleared to descend below MSL. Descent restrictions east of Liverpool depend on the traffic and Manchester runway in use and are specified in APC 4.2.4.

4.2.3 TIPOD or KEGUN release

Traffic coordinated with a release point of TIPOD or KEGUN must enter the Liverpool RMAs are not to be vectored until TIPOD or KEGUN. Descent to MSL is permitted after TIPOD or KEGUN and then further descent is permitted within the constraints of Liverpool Airspace. This traffic must remain within the vertical profile of all areas of Liverpool Airspace and is therefore unsuitable for a Continuous Descent Approach.

Traffic transferred without a coordinated release, above MSL are assumed to have a release point of TIPOD or KEGUN.

4.2.4 Liverpool Sequencing and Descent Restrictions

4.2.4.1 Runway 09

Traffic for Runway 09 should receive a continuous descent approach unless this is not possible due to the release point being TIPOD/KEGUN. The aim of the CDA procedure is to provide pilots with the ATC assistance necessary for them to achieve a continuous descent during intermediate and final approach, at speeds which require minimum use of flap to reduce noise. Range from touchdown shall typically be provided on first descent below MSL and re-iterated on first contact with RAD 2. Should the range become inaccurate, a new range shall be issued.

When Runway 09 is in use, inbound traffic shall not be vectored into Areas C, D, E or F.

4.2.4.2 Runway 27 and Manchester Runway(s) 05L/R

When Manchester operates Runway(s) 05L/R in any configuration, the following conditions exist for all traffic, regardless of release.

All traffic must be vectored on a right-hand downwind for Runway 27 passing at least 3 NM north of Liverpool. Liverpool must ensure traffic is at or below the altitude requirements of Areas C, D and F. Area E cannot be used in this configuration.

Additionally, traffic via KEGUN is not permitted within 5 NM of Liverpool until it is at or below 3000 ft.

4.2.4.3 Runway 27 and Manchester Runway(s) 23L/R

When Manchester operates Runway(s) 23L/R in any configuration, and the release provided permits it (i.e. any release point other than TIPOD/KEGUN) less restrictive descent requirements are permitted.

Via	Circuit Direction	Altitude Restrictions
KEGUN/NANTI	Right (*Note 1*)	4000 ft abeam Liverpool 2500 ft by the western edge of the LLR
	Left	Full descent profile (*Note 2*)

TIPOD	Right (*Note 1*)	4000 ft abeam Liverpool 2500 ft by the western edge of the LLR
	Left	3000 ft abeam Liverpool 2000 ft by the western edge of the LLR

Note 1: *Traffic on right downwind must be vectored 3 NM north of Liverpool.*

Note 2: *Liverpool Radar may vector a left-hand circuit for traffic via KEGUN/NANTI, however in this circumstance Liverpool must ensure traffic remains within the altitude requirements of Areas A-F.*

Unless specified above, Liverpool Radar must ensure traffic is at or below the altitude requirements of Areas C, D and F.

Despite left hand circuits only being permitted from KEGUN by complying with the entire vertical profile, the reduction in track milage is significant. Traffic low enough at KEGUN to be able to enter Area A below 4000 ft will benefit from the expediency and fuel efficiency of a left hand vectoring pattern.

4.2.5 Speed Control

Speed control may be issued at the judgement of the radar controller for the intermediate and final approach phase. When established on final approach until 4 NM from touchdown, traffic should typically be instructed to fly 160 KIAS unless coordinated with AIR. For aircraft unable to maintain 160 +/- 5 kts, RAD 2 shall ascertain the final approach speed and inform AIR.

4.2.6 Avoidance of Noise Sensitive Areas

There are no areas defined as noise sensitive for the intermediate approach phase.

4.3 Final Approach Procedures

4.3.1 Responsibility

RAD 2 is responsible for the **separation** of inbound aircraft until touchdown as described in APC 4.3.6.

Controllers will typically apply increased spacing to facilitate departures as described in APC 4.3.7. It is the responsibility of AIR to monitor runway arrival spacing and to notify any required increases in arrival spacing to RAD 2.

RAD 2 shall typically retain inbound aircraft on frequency until they are either established on the final approach track or able to continue visually. SRA traffic shall be transferred to AIR if visual before 4 NM from touchdown, otherwise retained by RAD 2 until after landing.

4.3.2 Descent Restrictions

Traffic shall not be issued descent below 2000 ft unless established on, or establishing the final approach track, within the FAVA.

Descent restrictions relating to the Liverpool Airspace are documented in APC 4.2.4.

4.3.3 Vectoring Restrictions

Vectoring restrictions relating to the Liverpool Airspace are documented in APC 4.2.4.

4.3.4 Coordination with AIR

RAD 2 shall provide AIR with a 10 NM range check with regards to:

- Traffic conducting other than an ILS approach (type of approach must be specified)
- Traffic which is not code-callsign converted
- Traffic which is conducting a training approach or not intending to land.

4.3.5 Non-Precision Approaches

The RNP approach for Runway 27 is only available under radar vectoring. Traffic shall typically be vectored to intercept the final approach track between INVEB (the IF) and UVERI (the FAF) to facilitate a suitable vectoring pattern and terrain safety. Aircraft should be vectored into Area F level at 2500 ft and given a turn to establish the final approach track at 2 NM before UVERI (i.e. positioning for an 8 NM final). Exceptionally, Liverpool is permitted to establish traffic up to 1 NM before UVERI provided the traffic is able to achieve 2000 ft by this point to permit at least 1 NM of level flight before UVERI.

Traffic shall not be cleared below 2500 ft until within the Liverpool SMAA or on an establishing heading of no greater than 40 degrees, within RMA Area F (see APC 2.6).

4.3.6 Final Approach Separation

RAD 2 is responsible for applying both radar and wake turbulence **separation** on final approach until touchdown.

The radar separation minima are described in APC 2.5 and wake turbulence separation between aircraft on final approach shall be applied in accordance with MATS Part 1 (CAP 493).

The 'catch-up' (sometimes referred to as compression) that occurs after the leading aircraft passes 4 NM from touchdown must be factored into the spacing provided to ensure that radar and wake turbulence **separation** are provided until touchdown. In most cases, adding 1 NM to the required separation between aircraft and maintaining this until 4 NM from touchdown will act as a sufficient buffer.

> ***Note 1:*** *RAD 2 shall not assume Reduced Separation in the Vicinity of an Aerodrome is being applied without coordination.*
>
> ***Note 2:*** *Aircraft performing a visual approach are responsible for their own wake turbulence separation.*

If either radar or wake turbulence separation are eroded below the required minima, the approach must be discontinued and the aircraft taken off the approach.

4.3.7 Final Approach Spacing

RAD 2 is responsible for ensuring the agreed final approach **spacing** is maintained until the lead aircraft reaches 4 NM from touchdown.

The minimum spacing approved on final approach is 4 NM, however typically RAD 2 shall not reduce **spacing** to below 6 NM without coordination with AIR to permit departures.

4.4 Missed Approach Procedures

AIR shall notify RAD 1 of a missed approach through the UKCP Go-Around Alarm wherever possible. They shall then promptly coordinate with RAD 1. RAD 1 is responsible for issuing tactical headings to ensure separation and to then specify whether to transfer the traffic to RAD 1 or RAD 2. The next departure following a go-around is subject to release from RAD 1.

When Runway 27 is in use, AIR will instruct traffic to climb straight ahead to altitude 2000 ft if they pass the departure end of the runway before they can be coordinated with RAD 1.

In the unusual situation that RAD 1 and RAD 2 consider it necessary to delegate go-around coordination to RAD 2, it must be communicated to AIR in advance and never during a go-around. It is not recommended to delegate go-around coordination to RAD 2 without also delegating IFR departure handling including releases. In this scenario, low level traffic operating in the CTR must also always be known to RAD 2.

4.5 Hawarden Approach Procedures

4.5.1 Inbound Releases

Hawarden inbounds can be transferred on own navigation to WAL/KEGUN or on a suitable heading. Liverpool will coordinate a release to Hawarden and transfer Hawarden traffic to Hawarden Radar (120.075 MHz) within controlled airspace no higher than MSL and clear of conflict from all Liverpool inbound and outbound traffic. If traffic is transferred without a coordinated release, Hawarden will assume the release points in the following table. These release points are identical to the Liverpool silent releases **except** for traffic from the east via WAL.

Via	Manchester Runway(s)	Release Point
WAL (West)	23 L/R	Liverpool RMA boundary
	05L/R	
WAL (East)	23 L/R	WAL
	05L/R	WAL
NANTI	23 L/R	NANTI
	05L/R	5 NM west of NANTI
GODPA	23 L/R	GODPA
	05L/R	GODPA

Hawarden Radar is permitted to vector towards the RMA area and into the PEPZE delegated airspace, but not into the Liverpool Areas A-F (unless explicitly stated as part of the release). Hawarden traffic that leaves controlled airspace is not permitted to re-enter. Any inbounds vectored east of a line north-south through Liverpool must be at or below 3500 ft.

Traffic via WAL can be expedited significantly by allowing the use of Areas A/B to vector directly to final approach. Where traffic to Hawarden is suitably low, an expeditious route and release is advised.

4.5.2 Final Approach

Hawarden will preferentially conduct instrument approach procedures to Runway 04 when the surface wind is calm. When Runway 22 is in use, or when an aircraft requests to land on Runway 22, Hawarden will need to utilise the Hawarden RMA (HRMA) to facilitate instrument approaches. RAD 1 will coordinate with Hawarden FIN for the delegation of the HRMA and again to confirm when it is reclaimed. Hawarden FIN should proactively return the airspace once an instrument approach procedure is completed.

During delegation of the HRMA, RAD 1 may still allow visual traffic to operate in this area. All such traffic must be identified and Hawarden FIN must be informed of the traffic in advance so that both radar controllers can pass traffic information.

4.5.3 Holding at HAW/KEGUN

Hawarden is permitted to hold traffic at HAW outside controlled airspace without informing Liverpool. However, inbound aircraft that are required to hold for delay should preferably be held at KEGUN.

When holding at HAW is required, Hawarden RAD shall inform RAD 1 of the holding levels and RAD 1 should initiate holding at KEGUN for subsequent inbounds. Hawarden will typically hold inbound traffic at 3500 ft due to the missed approach procedure climbing to 2500 ft, and the terrain safe levels on the Runway 04 ILS approach exceeding 3000 ft.

Hawarden Radar must coordinate with both RAD 1 and MPC West prior to initiating holding above 4000 ft.

All Liverpool SIDs and alternate procedures via REXAM and NANTI (except NANTI 2V) are **not** separated against HAW holding at any level inside controlled airspace. Holding above 4000 ft conflicts with Manchester EKLAD/KUXEM departures.

Chapter 5 Outbound Procedures

5.1 General

For all Liverpool standard IFR departures, RAD 1 will choose whether the traffic shall be worked by Liverpool Radar or by MPC, to ensure separation against inbounds.

Hawarden departures are subject to release by RAD 1. RAD 1 is responsible for separation of Hawarden departures against Liverpool departures, Liverpool arrivals and Hawarden arrivals not yet released to Hawarden Radar.

Liverpool Radar will also work all non-standard IFR departing traffic and traffic unable to comply with a SID. Liverpool Radar will also work all IFR traffic when the relevant MPC sectors are offline.

5.1.1 Identification of Departing Traffic and SSR Validation/Verification

Liverpool Radar is responsible for identification, and SSR validation and verification of any outbound worked.

5.1.2 Departure Speed Limits

To improve departure flow and assist MPC controllers to maintain separation between aircraft a speed limit of 250 KIAS applies to all outbound aircraft below FL100. Liverpool Radar must not remove the 250 KIAS below FL100 speed restriction.

5.2 Responsibility for SID departures

RAD 1 is responsible for the separation of IFR traffic departing Liverpool and Hawarden against inbounds released by MPC. This is primarily achieved through the departure release required from RAD 1 for all IFR departures, whereby RAD 1 will not release traffic until safe to do so. Most traffic should therefore be suitable for transfer to MPC immediately after departure from Liverpool, or after entering controlled airspace from Hawarden. If RAD 1 allows traffic to be transferred to MPC, MPC may climb traffic and vector the traffic off the SID track so long as it proceeds in the same general direction.

5.2.1 Liverpool Departures

If a conflict cannot be resolved through vectoring inbound traffic and timing of releases and RAD 1 is anticipating the need to vary the departure track (e.g. by vectoring), RAD 1 shall coordinate with MPC in advance of issuing the release to agree the new routing and transfer conditions. RAD 1 shall instruct AIR to transfer this traffic to RAD 1 to ensure these conditions are correctly met.

Where a conflict exists with traffic at higher levels, RAD 1 may consider it expeditious to allow the departure and instruct AIR to transfer this traffic to RAD 1. RAD 1 can then retain this traffic until the conflict clears and/or request a higher level from MPC through verbal or electronic coordination. Any turns off the SID track, turns off the alternate NANTI/REXAM headings or climb above SID levels must be coordinated with MPC. RAD 1 shall coordinate climb or turn required to prevent traffic leaving controlled airspace.

Where RAD 1 choses to work departing traffic in order to ensure separation, the controller shall electronically ‘track’ the aircraft as soon as possible after departure and prior to the

aircraft calling. In the event of the pilot tuning the incorrect frequency, this ensures MPC is aware to transfer traffic back or initiate coordination.

If MPC is offline, Liverpool must not climb departures into the Manchester RMA. This is particularly important when Manchester is operating Runway(s) 05L/R.

5.2.2 Hawarden Departures

Hawarden departs traffic via WAL and REXAM according to the standard departure routes below.

Designator	Hawarden Runway	Routing
REXAM 5	22	Join controlled airspace on track REXAM climbing to 5000 ft.
	04	After departure, immediate right turn remaining outside the Manchester CTA, join controlled airspace on track REXAM climbing to 4000 ft, on crossing the WAL radial 167° climb to 5000 ft.
WAL 4	22	Turn immediately right on track WAL, climb to altitude 4000 ft.
	04	Turn immediately left on track WAL, climb to altitude 4000 ft.

Departures are subject to release from both Hawarden Radar and RAD 1. Hawarden ADC will transfer traffic to Hawarden Radar, who will transfer to MPC West after the traffic has joined controlled airspace.

While RAD 1 is responsible for separating against all Liverpool traffic, it is preferable to allow Hawarden Radar to provide radar services to their own departures. Therefore, if Liverpool requires deviations to the departure route, or actions to be taken for separation, RAD 1 will coordinate first with Hawarden RAD before coordinating requested actions to Hawarden ADC. If separation cannot be achieved through coordination and it is decided that RAD 1 should work the Hawarden traffic, RAD 1 must provide a Deconfliction Service outside controlled airspace.

5.3 Departures Subject to Radar Approval

5.3.1 Standard Instrument Departures

All Standard Instrument Departures (including the alternate clearances via NANTI/REXAM when Manchester is operating Runway(s) 05L/R) are subject to release from RAD 1. These releases are requested during the taxi phase and are valid up to 5 minutes after the expected airborne time (AIR will assume that Liverpool Radar controllers have configured their controller client to display the EAT).

A release from RAD 1 for this traffic does not permit AIR to depart traffic faster than allowed in departure separation rules.

IFR departures on Standard Instrument Departures are transferred to MPC, unless Liverpool Radar elects to work them as might be required for separation (APC 5.2).

A release is required from PC West prior to departure via POL or BARTN. All other routes are freeflow from PC West, including alternate clearances via NANTI/REXAM. In the absence of PC West (or top-down), a release shall be obtained from Manchester INT North (or top-down).

A release summary table and top-down control lists can be found in ADC 2.9.1.

5.3.2 Other Release Requirements

AIR shall obtain a **departure release** from **RAD 1** prior to issuing take-off clearance for:

- All non-standard IFR and SVFR departures
- Departures from the non-departure runway (prior coordination required) and any subsequent departure
- The first departure following a runway change
- The first departure following a missed approach
- VFR departures except those via published entry/exit lanes at standard levels
- Aircraft not on the speed table, plus the subsequent departure. This information shall be specifically coordinated in the release request.
- Where the following aircraft is 3 groups faster than the leading aircraft. This information shall be specifically coordinated in the release request.

Non-standard IFR departures will be coordinated with RAD 1 by GMC. RAD 1 **may** specify in the release to transfer the traffic to a different controller after departure (e.g. RAD 2 or MPC), however if not specified at the point of release, it shall be transferred to RAD 1.

AIR is to obtain a **departure release** from the relevant **MPC controller** for departures to:

- MTMA: EGCC (*Note 3*), EGNM, EGCN *(Note 1)*
- Midlands: EGNX, EGBB, EGBE

Note 1: *At the time of writing Doncaster Airport (EGCN) is closed. Regardless of changes to airspace in future, traffic departing to EGCN shall remain subject to this procedure.*

Note 2: *It would be unusual for any traffic to EGNH/NO to route via the ATS route network. This traffic shall leave Liverpool controlled airspace and therefore be subject to non-standard departure coordination instead of releases by MPC.*

Note 3*: When Manchester is operating Runway(s) 05L/R, PC West may delegate responsibility for coordination to RAD 1 and Manchester INT South. RAD 1 may specify that a release from PC West is not required in this scenario (see APC 6.2).*

Aircraft subject to a release must depart within + 5 minutes of the release time.

5.4 Non-Standard IFR Departures

Non-standard IFR departures include non-ATS route network departures and ATS route network departures unable to conform with a SID. Both types of traffic will be coordinated by GMC and AIR with RAD 1.

All jet aircraft and propeller driven aircraft with a maximum authorised weight of 5700 kg or greater departing on IFR routes not intending to join the ATS route network shall be issued

departure instructions that conform to the Noise Preferential Routings published in the UK AIP.

AIR will request a departure release for both types of traffic at the holding point. After departure this traffic will be transferred to the RAD 1 frequency unless specifically told otherwise in the release. Subsequent traffic will require a release. Separation of this non-standard traffic is the responsibility of RAD 1 from all subsequent departures. RAD 1 is therefore cautioned against allowing free-flow after a slow non-standard departure.

5.4.1 Non-ATS Route Network Departures

GMC will initially coordinate all non-ATS route network departures with RAD 1, who will be expected to issue a local squawk at this point. RAD 1 may choose to pass after departure instructions now or inform GMC that they will be provided at the holding point with the release.

RAD 1 shall not allow this traffic to climb above 2500 ft to the east of Liverpool, or above 3000 ft to the west of Liverpool until it leaves controlled airspace. Traffic must remain within the Liverpool CTR/CTA and Class D delegated Manchester CTA airspace and shall not be climbed into Class A and Class C delegated airspace.

Upon leaving controlled airspace RAD 1 may provide an appropriate UK FIS or transfer traffic to another unit.

5.4.2 Non-Standard ATS Route Network Departures

Where traffic is unable to comply with the restrictions of a SID, GMC will coordinate a non-standard instruction/routing with RAD 1 but will obtain a squawk code from UKCP.

RAD 1 may choose to pass after departure instructions now or inform GMC that they will be provided at the holding point. GMC will issue a 4000 ft initial climb if not given alternative instructions.

It is expected that Liverpool Radar stations (RAD 1 unless coordinated) will work this traffic after departure to identify and undertake SSR validation/verification and then provide vectoring onto an appropriate route equivalent to the SID track for the direction of flight. The receiving MPC sector should be informed of such traffic being worked by Liverpool Radar, but a release is not required.

Traffic should be transferred to the appropriate MPC departure sector control once on an appropriate radar heading and should be instructed to “report your heading to Scottish Control...”.

Chapter 6 Flights to and from Local Airfields

6.1 Flights to MTMA Airfields

Flights to airfields in the MTMA are not subject to conditions, except:

- Manchester
- Leeds
- Doncaster

IFR flights to these airfields above 2500 ft will file as per the UK SRD. RFL should be expected at MSL or higher. Coordination for these flights is performed between ADC and MPC. Flights below 2500 ft may be treated as a non-standard departure and either coordinated with the receiving unit (i.e. Warton/Manchester) or cleared to leave controlled airspace.

6.2 Flights to Manchester

Flights to Manchester are coordinated with PC West. In the absence of PC West, coordination will be directly with Manchester INT South.

When Manchester is operating Runway(s) 23L/R, PC West will coordinate with Manchester INT South to arrange the traffic to route to MIRSI. PC West will then issue a non-standard clearance to GMC, typically noise abatement then direct to MIRSI climbing to MSL. PC West will inform Liverpool APC of this traffic.

When Manchester is operating Runway(s) 05L/R, PC West will typically ask RAD 1 to coordinate a routing below 3500 ft with Manchester INT South. Typically, this routing would be a heading towards the approach or the WHI NDB. This routing must remain within Liverpool and Manchester delegated airspace.

6.3 Flights from Manchester

When Manchester is operating Runway(s) 23L/R and Liverpool is landing Runway 27, it is expeditious for positioning flights to be kept at 3000 ft and transferred between Manchester Radar and Liverpool Radar. In this situation, Manchester GMP shall coordinate with Manchester INT South in advance of delay absorption procedures to ascertain if RAD 1 is happy to work this traffic.

If agreed, Manchester INT South will initiate coordination with RAD 1. Traffic will be cleared to Liverpool by EKLAD with an initial climb of 3000 ft. Manchester INT South will obtain a release from RAD 1 prior to the aircraft's departure. Manchester GMP will still coordinate delay absorption with MPC, to prevent this traffic having significant impact on airborne arrivals into Liverpool.

In all other scenarios, or when RAD 1 is not able to work this traffic, coordination occurs as per other MTMA flights, detailed in APC 6.1.

6.4 Flights to/from Hawarden

IFR flights between Liverpool and Hawarden are to be coordinated between Radar units and are restricted to 3000 ft.

For flights to Hawarden, GMC will contact RAD 1 prior to issuing clearance to allow RAD 1 to approve the flight. RAD 1 will initiate coordination with Hawarden RAD to agree instructions

and transfer point. RAD 1 will also contact Hawarden RAD prior to issuing a departure release. When Liverpool is operating Runway 09 and Manchester Runway(s) 05L/R, Liverpool shall issue an instruction similar to an "Alternate NANTI" (heading 210 degrees) to prevent interaction with Manchester traffic.

For flights from Hawarden, Hawarden ADC will contact Hawarden RAD, who will agree with RAD 1 the departure instructions and transfer point. Hawarden RAD will contact RAD 1 prior to issuing a departure release.

6.5 Flights from other MTMA Airfields

Flights from airfields in the MTMA are not subject to special conditions, except Manchester (see above), Leeds and Doncaster.

Coordination for traffic from Leeds and Doncaster is between the local ADC and MPC and will be presented to Liverpool at TIPOD unless otherwise coordinated.

LOW | LOW LEVEL OPERATIONS

Chapter 1 General Principles

1.1 Provision of Air Traffic Services

RAD 1 is responsible for all VFR and SVFR aircraft operating within the Liverpool CTR/CTA.

RAD 1 may, subject to workload, offer UK FIS to aircraft operating outside controlled airspace within 40 NM of Liverpool.

RAD 1 may, subject to workload, offer UK FIS to VFR aircraft operating within the Low Level Route when Manchester INT South is offline, or by agreement with Manchester INT South - see LOW 2.3.

ADC is delegated responsibility for VFR aircraft operating within the ATZ/Local Flying Area below 1500 ft.

1.2 Coordination

1.2.1 Departure Coordination

GMC will issue VFR and SVFR traffic with standard exit clearances without coordination with Liverpool Radar. Clearances will be issued to 'not above' altitude 1500 ft, Liverpool QNH. Both VFR and SVFR departures issued clearances without coordination with RAD 1 will be issued the Liverpool conspicuity squawk 5050.

Permitted departure routes for GMC to issue to VFR/SVFR traffic are listed in LOW 2.2.1.

Where an alternative route is required/requested, this will be coordinated in advance of clearance with RAD 1. The Neston Lane is not considered a standard departure route and therefore requires coordination if requested.

AIR will issue a departure warning to RAD 1 prior to issuing take-off clearance for VFR traffic on standard routes but is not required to wait for a response. SVFR traffic and traffic on a non-standard departure route require a release before departure.

1.2.2 Arrival Coordination

Overhead joins are not permitted at Liverpool. RAD 1 will coordinate with AIR with regards to traffic wishing to operate within or in the vicinity of the ATZ, and with RAD 2 with regards to traffic likely to conflict with the final approach track.

VFR aircraft following the standard entry/exit lanes at or below 1500 ft can be transferred to AIR once there are no remaining conflictions with traffic unknown to AIR. Transfer shall occur in good time to allow AIR to issue joining instructions. Transfer requires traffic to be navigating on the route visually, however traffic is not required to be visual with the aerodrome before transfer to AIR.

Traffic rejoining via an alternate route should be transferred once visual with the airfield or with instructions to orbit at a suitable VRP.

Liverpool Radar will typically retain SVFR traffic to maintain adequate radar separation, until an appropriate gap in the arrival sequence.

1.2.3 Circuit Traffic

AIR shall inform RAD 1 when the circuit becomes active and again when it is no longer active. RAD 1 is responsible for informing RAD 2.

1.3 SSR Code Allocations

Liverpool is allocated the SSR code ranges 5051-5067 (excluding 5060 and 5067).
RAD 1 is responsible for all code allocations within this block.

The following special purpose codes are defined:

- 0453 – Liverpool Bay Helicopter conspicuity
- 5050 – Liverpool conspicuity
- 5060 – Traffic monitoring Liverpool Radar frequency
- 5067 – Student pilot monitoring Liverpool Radar frequency

Manchester APC is allocated the local SSR code ranges 7350-7363 and 7367-7373.
The following special purpose SSR codes are defined for Manchester.

- 7364 – Manchester Special VFR Low Level Route conspicuity
- 7366 – Traffic monitoring Manchester Radar frequency
- 7367 – Student pilot monitoring Manchester Radar frequency

Traffic squawking a special purpose code is to be considered unvalidated/unverified.

Chapter 2 Airspace

2.1 Classification

The Liverpool CTR/CTAs are classified as Class D. Aircraft are permitted to operate in the CTR and CTA in VMC and IMC conditions under either VFR or SVFR/IFR as appropriate.

The Manchester CTA 4 is classified as Class D and is delegated in portions to Liverpool for the vectoring of IFR traffic only. Manchester CTA 1 and 2 are Class D airspace to the north and south of the Liverpool CTR respectively and are not delegated to Liverpool. Liverpool shall not clear aircraft to operate VFR or SVFR in any Manchester CTA airspace and so must keep VFR/SVFR traffic underneath these CTAs (i.e. below 2500 ft).

2.2 Standard Visual Routes

The following visual routes are published to reduce coordination and RTF frequency loading.

2.2.1 Departure Routes

To	Runway	Route
North	09	East of M57 Motorway, leave CTR via **VRP Kirkby**
	27	Route via the River Mersey, to leave CTR via **VRP Seaforth Dock**

South	09	Cross River Mersey and leave CTR via **VRP Tarporley Roundabout**
	27	Cross River Mersey and follow M53 Motorway, to leave CTR via **VRP Vicars Cross Roundabout**

2.2.2 Arrival Routes

From	Runway	Route
North	09	Enter the CTR via **VRP Seaforth Dock**, route via the River Mersey. Then as directed.
	27	Enter via **VRP Kirkby**, route east of the M57 motorway. Then as directed.
South	09	Enter via **VRP Vicars Cross Roundabout**, follow M53 Motorway to the Outlet Village at Junction 10. Then as directed.
	27	Enter via **VRP Tarporley Roundabout**, route to the western edge of Helsby. Then as directed.

2.2.3 Neston Lane

The Neston Lane is a published VFR lane 1 NM wide that stretches from the ATZ/Local Flying Area to the Neston VRP. Traffic may be cleared via the Neston Lane to enter/exit the CTR so long as they can remain in sight of surface, below 1500 ft, in flight visibility of 3 km or greater.

The Neston Lane is **not** used for departures without coordination with RAD 1.

2.2.4 Mersey Lane

The Mersey Lane is defined along the river Mersey to the Seaforth Dock VRP. Traffic using this lane are permitted so long as they can remain in sight of surface, below 1500 ft, in flight visibility of 3 km or greater.

Traffic is typically **not** cleared via this lane, but instead using the departure/arrival routes specified above (which lie within the lane).

2.3 Manchester Low Level Route

Within the western-most portion of the Manchester CTR, immediately adjacent to the Liverpool CTR, is a designated Low Level Route. The Low Level Route is a 4 NM wide north-south corridor defined from the surface to altitude 1300 ft Manchester QNH; there are fillet extensions at the northern end along the Liverpool CTR boundary and the southern end towards the Winsford Flash VRP.

The Low Level Route remains designated as Class D airspace however, subject to the criteria below, aircraft may operate VFR within the Low Level Route without an individual ATC clearance.

Traffic operating without an individual ATC clearance must:

- Operate VFR with a flight visibility of at least 5 km,
- At or below an indicated airspeed of 140 knots,
- Remaining within the horizontal and vertical confines of the Low Level Route.

Manchester Radar (INT South) may provide UK FIS within the low level route. Where Manchester INT South is offline, or following delegation, Liverpool RAD 1 is permitted to provide services in the Low Level Route.

2.4 Aerodromes in the Vicinity

Ashcroft (EGCR) is a private unlicensed airfield located southeast of Liverpool. It has three grass runways, the longest of which is 518 m.

Hawarden (EGNR) is an airport in Wales, 10.4 NM southwest of Liverpool. Full radar services are provided at this airport, with top-down provided by Liverpool Radar on VATSIM.

Manchester Barton (EGCB), located 18.5 NM east-northeast of Liverpool and 8.2 NM north-northwest of Manchester (EGCC). It is a small aerodrome offering four grass runways to primarily fixed wing traffic although there is a heliport located at the southwestern boundary of the aerodrome. It lies under Manchester CTA 5 (Class D, base 2000 ft) with an ATZ in Class G airspace of 2 NM radius except where it borders the Manchester CTR. AFIS is provided at Barton and traffic in contact with Barton Information should squawk the conspicuity code 7365. Fixed wing and helicopter circuits occur at Barton with published helicopter entry/exit routes.

RAF Woodvale (EGOW) is a military aerodrome 16.6 NM north-northwest of Liverpool with two asphalt runways. It operates predominantly training flights with fixed wing circuits to the north.

2.5 Visual Reference Points (VRPs)

The following VRPs are for use by aircraft operating to and from Liverpool. The most up to date version of VRPs can be found via NATS Digital Datasets.

VRP	Coordinates
Aintree Racecourse	532836.00N 0025635.00W
Burtonwood Services	532500.00N 0023817.00W
Fiddlers Ferry Power Station	532218.39N 0024116.03W
Frodsham Hill	531713.75N 0024329.27W
Garston Docks	532109.96N 0025424.36W
Hale Head Lighthouse	531921.00N 0024740.00W
Helsby Hill	531624.31N 0024547.64W
Jaguar Car Factory	532112.66N 0025008.80W
Kirkby	532848.00N 0025254.00W
M53 Junction 11 (Stoak Interchange)	531503.00N 0025222.00W
M56 Junction 11	531938N 0023837W
Neston	531730.00N 0030336.00W
Runcorn Bridge	532046.82N 0024416.41W
Seaforth Dock	532741.00N 0030205.00W
Stretton (Disused Ad)	532046.00N 0023135.00W

Tarbock Island	532353.86N 0024830.41W
Tarporley Roundabout	530951.00N 0024034.00W
Tarvin Roundabout	531141.96N 0024637.80W
The Liver Building (Pier Head)	532420.73N 0025945.19W
Vicars Cross Roundabout	531142N 0025038W
Wigan Lakes	533116.81N 0023740.26W
Winter Hill Mast	533732.01N 0023053.74W

Chapter 3 Helicopter Operations

3.1.1 Helicopter Routes

There are no helicopter-specific routes within the Liverpool CTR. Airborne helicopter traffic is handled similarly to fixed wing VFR/SVFR traffic.

3.1.2 Helicopter Departures and Arrivals

All helicopter traffic shall utilise a suitable runway as the aiming point for arrivals. Traffic shall be coordinated and transferred in the same manner as fixed wing traffic. The AIR controller may permit landing in zones other than the runway as specified in ADC 2.17.

Chapter 4 UK Flight Information Services (FIS)

MATS Part 1 details the services which may be provided outside controlled airspace. The provision of UK FIS is to be limited so that it does not adversely affect the service provided to aircraft inside controlled airspace.

Outside the hours of operation and/or boundaries of responsibility of adjacent units tasked with providing the Lower Airspace Radar Service (LARS), RAD 1 may provide UK FIS to traffic flying outside controlled airspace, normally only to traffic flying under the MTMA.

The adjacent units tasked with providing LARS are Warton, Shawbury, East Midlands, Humberside and Waddington. Consideration should be given to transferring UK FIS traffic which is not seeking to transit Liverpool airspace to these units.

Controllers must not give a Deconfliction Service or radar vectors under a Traffic Service to aircraft below SMAA levels or minimum sector altitudes.

A radar service outside of 40 NM of Liverpool must not be given.

GLOSSARY

Abbreviation	Section
AC	Area Control
ADC	Aerodrome Control
AIR	Air Controller (i.e. Tower Controller)
APC	Approach Control
CTA	Control Area
CTR	Control Zone
DME	Distance Measuring Equipment
EAT	Estimated Approach Time
FIS	Flight Information Service
FL	Flight Level
Ft	Foot (feet)
GMC	Ground Movement Control
GS	Groundspeed
hPa	Hectopascal
IAS	Indicated Airspeed
ICAO	International Civil Aviation Organisation
ILS	Instrument Landing System
KIAS	Knots Indicated Airspeed
MDI	Minimum Departure Interval
MHz	Megahertz
MPC	Manchester Prestwick Control
MSL	Minimum Stack Level
MTMA	Manchester TMA
NM	Nautical Mile
RFC *	Released for Climb
RFD *	Released for Descent
RFT *	Released for Turn
SID	Standard Instrument Departure
SSR	Secondary Surveillance Radar
STAR	Standard Terminal Arrival Route
UKCP	UK Controller Plugin

* Although these acronyms are not used in this document, they may be useful for controllers to be aware of as common notation in text coordination.