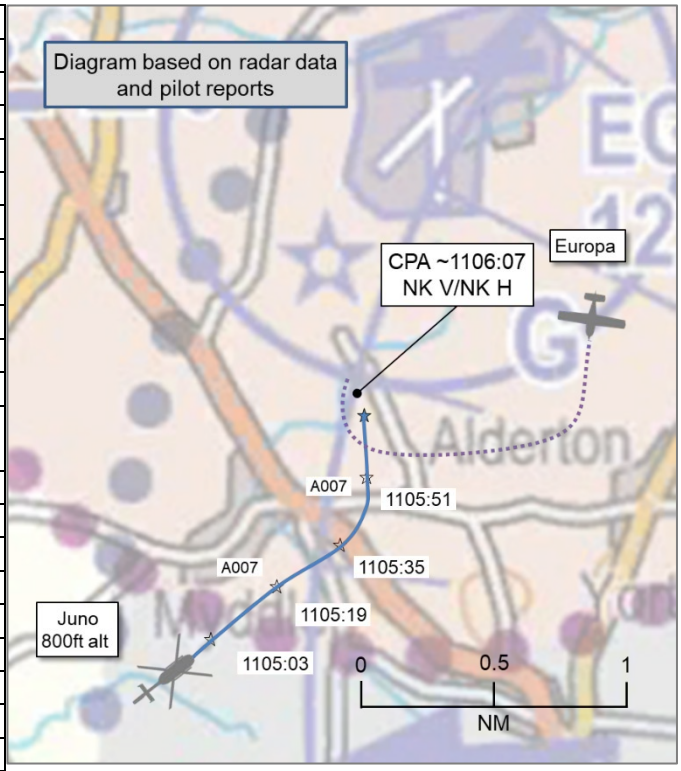
AIRPROX REPORT No 2022139

Date: 13 Jul 2022 Time: ~1106Z Position: 5249N 00247W Location: Sleap ATZ

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	Juno	Europa
Operator	HQ Air (Trg)	Civ FW
Airspace	Sleap ATZ	Sleap ATZ
Class	G	G
Rules	VFR	VFR
Service	AGCS	AGCS
Provider	Sleap Radio	Sleap Radio
Altitude/FL	800ft	NK
Transponder	A, C, S	None[1]
Reported		
Colours	Black, Yellow	White
Lighting	Nav, Strobe, Anti-col, Landing	None
Conditions	VMC	VMC
Visibility	>10km	>10km
Altitude/FL	800ft	NK
Altimeter	QFE (1014hPa)	QFE (NK hPa)
Heading	360°	'On Final'
Speed	60kt	80kt
ACAS/TAS	ACAS	Not fitted
Alert	None	N/A
Separation at CPA		
Reported	20-30ft V/80-100ft H	Not seen
Recorded	NK V/NK H	



THE JUNO PILOT reports that during the join for their second consecutive 'quickstops' sortie of the day, contact was made with Sleap Radio, and the runway in use was confirmed as RW36. A light-aircraft was in the circuit and reported downwind. As their aircraft positioned on final approach at 500ft, parallel to RW36 but approximately 300 yards to the west (dead-side), the student took control to debrief them on a couple of points relating to the join. The light-aircraft pilot reported "*Finals RW36*", but as the student finished briefing them for the approach and handed them control, the light-aircraft unexpectedly crossed, [they recall], left-to-right 80-100ft ahead of them and approximately 20-30ft below, in a descending right-hand turn; [the light-aircraft] then rolled-out lined-up on RW05 and landed. Avoiding action was not needed because the relative flightpaths were not in direct confliction. Although avoiding action was not needed, the two aircraft came much closer than they had expected or would have chosen. After touchdown, the Sleap controller [sic] asked the light-aircraft pilot if everything was okay (the answer was '*yes*') and then reminded the light-aircraft pilot that RW36 was in use. Once the light-aircraft had stopped at the end of its landing run, they [the Juno pilot] contacted Sleap Radio to file [sic] an Airprox. After discussion with the student, they decided to continue the sortie, and took a few minutes to reset; approximately 30min later, with lots of GA traffic, some of which were flying non-standard patterns, and increasingly busy radios, they felt that it was becoming hard for either of them to concentrate properly and curtailed the sortie. There were no indications of the light-aircraft on the Juno ACAS.

The Juno pilot added that the student had perhaps chosen a poor moment to debrief them on the join; with the benefit of hindsight, instead of paying attention to the debrief, they [the instructor] should have monitored the light-aircraft visually rather than rely on their RT calls for situational awareness.

[1] The pilot reported having an A, C, S transponder however none was recorded by the NATS radar.

The pilot assessed the risk of collision as 'Low'.

THE EUROPA PILOT reports that their aircraft had suffered an Airmaster propeller motor failure on a previous flight and they had spent the previous two days fitting a new motor and wiring and also rebalancing the propeller. The work was signed-off by an aircraft examiner. A test flight was required. The active runway at Sleap was RW36. They took-off at 1059 and completed one circuit checking some of the indications and settings on the propeller. They completed a touch-and-go on RW36 and continued into the circuit intending to monitor the propeller indications downwind on the 'Manual' and 'Hold' settings, and the increase in RPM through two settings on the base-leg. They may have drifted in on the downwind leg and, on turning on to base-leg, they were distracted checking the indications on the controller and flew though the RW36 centreline. On turning on to final, expecting RW36, that has a similar dead ground before the runway as RW05, they were immediately distracted and their attention was focussed on a flock of crows on the runway (RW05), they landed as the crows dispersed. They were made aware of their mistake by the Sleap Radio operator. Due to the distractions, they did not see the helicopter. [They feel that] this error could have been avoided if they had taken someone else to lookout or monitor the propeller checks. [They add that] as they were only planning to do one or two circuits they were not carrying their GPS devices.

THE SLEAP AIR/GROUND OPERATOR reports that the runway in use was 36RH, helicopters were using the dead-side of the aerodrome as per the LOA. [The Europa pilot] was conducting a flight test and was distracted with the propeller controls and they overflew the centreline of RW36 and mistook RW05 for the runway in use, landing on that runway. They did not have sufficient time to alert [the Europa pilot] to their error. [The Juno pilot] was in hover practice on the edge of RW05 while the aircraft landed.

Factual Background

The weather at RAF Shawbury was recorded as follows:

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EGOS 131050Z 31007KT 9999 FEW045 19/08 Q1024 NOSIG RMK BLU BLU
EGOS 131120Z AUTO 32008KT 9999 NCD 19/07 Q1024
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Analysis and Investigation

Juno Operating Organisation Investigation

The Juno operating organisation carried out an investigation, which involved speaking with the reporting pilot, reading their narrative, speaking with the GA pilot involved and viewing the radar replay in ATC. The investigation output is summarised below:

- The Europa pilot had carried out maintenance work on their aircraft and this flight was a solo air-test. The Europa pilot had already completed one circuit and, on the second circuit, was heads-in for a protracted period as their concentration was on checking the newly repaired kit was working correctly rather than flying the aircraft. Through their own deduction, they believe they converged on the in-use RW36 on the downwind leg as they were not looking out. After they made their 'Finals to 36' call, they went eyes-out for the first time and saw what they expected to see - scrubby ground leading up to the runway, and believed they were on approach to the runway in-use.

- The Europa pilot made an approach to the wrong runway (RW05) after crossing through the centreline of the in-use RW36. The Europa pilot has already admitted they should have taken a second person to monitor the equipment so the pilot could have concentrated on flying the aircraft.

- As the Europa pilot was turning finals onto RW05, they were distracted by a flock of blackbirds on the airfield, so their attention was on the birds rather than noticing the runway numbers which would have indicated that they were making an incorrect approach. However, by this point, they had already flown within 80 feet of the helicopter on final.

- At no point had the Europa pilot seen the helicopter.

- The Europa was not showing up on the Juno helicopter ACAS. It is suspected that the Europa pilot was not using a transponder as the Ricochet Replay in RAF Shawbury's ATC showed an unidentifiable return at the moment of the Airprox. It is not within RAF Shawbury's gift to mandate the use of transponders within the GA community but the Sleap liaison officer will make the suggestion to the Shropshire Aero Club.

Sleap Airfield

Post event, Sleap airfield operating authority has completed a number of threads of safety work, the output of which has been summarised below:

[The Europa pilot] made an approach and landed to RW05 when RW36 was in use. [The Juno pilot] was operating near RW05 at the time and filed an Airprox. 30min later, [the pilot of a PA38] made an approach to RW05 also, with [the Juno pilot] pointing out the mistake. There was no [Airprox] factor that time, but the Juno [pilot then] departed the circuit.

[The Europa pilot] declared that disorientation was a key factor. They were on test flight with prop modifications and had their head inside the cockpit and admits they required a safety pilot.

[The Juno pilot] maintained excellent situational awareness and moved out of the way [and post event] filed a [safety] report.

The A/G radio was being manned from the office and, according to A/G operator, no final call for RW05 was made by [the Europa pilot], so the operator missed that the aircraft was lining up for that runway.

Current mitigations [to prevent this type of event include] published procedures and established letter of agreement with [Juno operators].

[Future considerations or actions include] better viewing from A/G operator to spot pilot errors, and to share the Airprox report with the Sleap community when published.

UKAB Secretariat

An analysis of the NATS radar replay was undertaken and, although the Juno was visible and identifiable using Mode S, the Europa was not detected. However, for a brief time, the radar employed at RAF Shawbury had detected a primary-only return in the vicinity of the Juno at the approximate time of the Airprox, see Figures 1 and 2. Although it cannot be confirmed, this return is likely to have been the Europa. Please note that the radar data kindly supplied by RAF Shawbury is orientated ‘east-up’. The time of CPA has been determined by combining this data with the NATS area radar replay and cross-referenced with the reports submitted by the pilots, however a measurement of separation has not been possible.

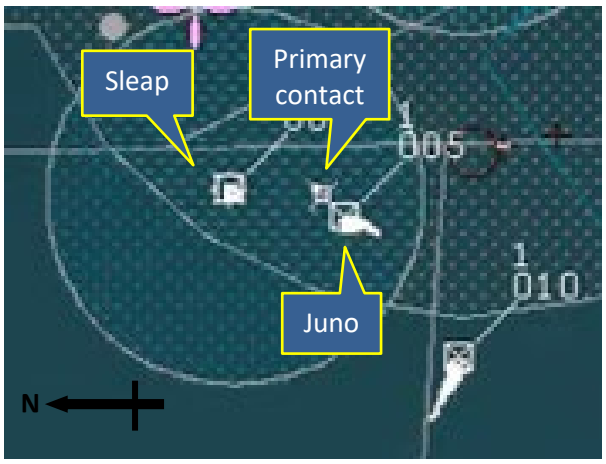


Figure 1 – 1105:51

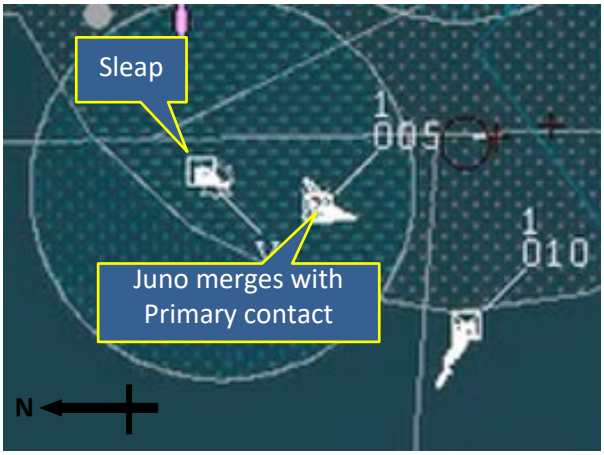


Figure 2 – 1106:04

Shortly after the time at which the Airprox is believed to have occurred, at 1106:15, the NATS radar detected an unrelated aircraft departing from Sleap, the track of which suggests that it had departed from RW05, Figure 3.

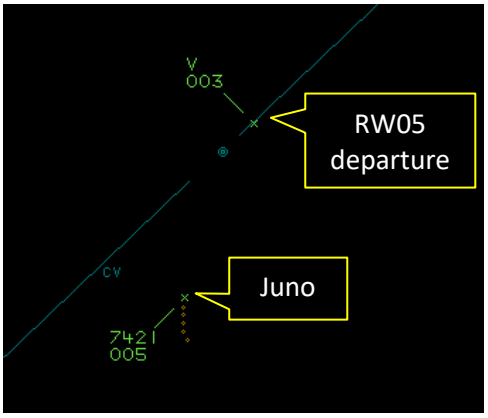


Figure 3 – 1106:15, unrelated RW05 departure

The Juno and Europa pilots shared an equal responsibility for collision avoidance and not to operate in such proximity to other aircraft as to create a collision hazard.[2] An aircraft operated on or in the vicinity of an aerodrome shall conform with or avoid the pattern of traffic formed by other aircraft in operation.[3] When an aircraft carries a serviceable SSR transponder, the pilot shall operate the

[2] (UK) SERA.3205 Proximity. MAA RA 2307 paragraphs 1 and 2.
[3] (UK) SERA.3225 Operation on and in the Vicinity of an Aerodrome. MAA RA 2307 paragraph 17.

transponder at all times during flight, regardless of whether the aircraft is within or outside airspace where SSR is used for ATS purposes.[4]

Comments

HQ Air Command

As the Juno was making an approach to the dead-side of the airfield, it would be easy to assume that other circuit traffic would remain east and clear of their approach path; as this incident demonstrates, it is important to have awareness of other circuit traffic and expect the unexpected. The Juno pilot acknowledged that, with hindsight, visually monitoring the Europa would have provided better situational awareness than reliance on RT calls. Had the Europa's transponder been transmitting, it may have indicated on the Juno ACAS giving additional warning of the encroaching flight paths and allowing avoiding action to increase separation. Although avoiding action was deemed unnecessary, the Europa crossing the Juno's intended path was unexpected and startled the crew. It is good to see that the Europa pilot has already debriefed themselves that an additional crewmember to monitor equipment would have helped whilst they concentrated on flying the aircraft safely and without distraction.

AOPA

A post maintenance flight has to be planned and not rushed, which ensures all aspects of safe flight are covered. CAP1038, CAA Check Flight Handbook, covers these and recommends to take an observer, to assist the pilot with observation and recording of information, allowing the pilot to safely fly the aircraft and make appropriate decisions. It is unfortunate the transponder appears not to have been on during the flight, had it been on, the Juno pilot might have been warned earlier of the approach of the Europa.

Summary

An Airprox was reported when a Juno and a Europa flew into proximity in the Sleap ATZ at approximately 1106Z on Wednesday 13th July 2022. Both pilots were operating under VFR in VMC, both pilots in receipt of an AGCS from Sleap Radio.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available consisted of reports from both pilots, radar photographs/video recordings, reports from the air/ground radio operator involved and reports from the appropriate operating authorities. Relevant contributory factors mentioned during the Board's discussions are highlighted within the text in bold, with the numbers referring to the Contributory Factors table displayed in Part C.

The Board first considered the actions of the Juno pilot and a military pilot explained that the Juno pilot had been an instructor training a new instructor. A discussion followed regarding the management of tasks when delivering instruction in these situations and the Board agreed that the debriefing that had been carried out at that time had led to there being an element of distraction (**CF7**). Members then discussed that, as the transponder fitted to the Europa had not been detected by radar, this would have also resulted in the Juno ACAS being unable to detect it, rendering the systems incompatible (**CF6**). Members noted that the Juno pilot had been using the RT transmissions from other pilots to help build a mental model regarding the location of other traffic in the locality, and the Board agreed that they had only had generic awareness of the presence of the Europa (**CF5**). The Board went on to discuss the geometry of the event and, noting that the Juno pilot had stated that the Europa had been crossing left-to-right and that the relative flight paths had not been in direct confliction, members agreed that the point at which the Juno pilot had visually acquired the Europa had been at, or shortly after, CPA (**CF8**).

Next, members considered the actions of the Europa pilot and the Board was encouraged that the pilot had reflected on the incident, and agreed that the propeller system test which they had been conducting

[4] (UK) SERA.13001. Operation of an SSR transponder.

had led to there being some distraction (**CF7**). A GA pilot member went on to state that there is CAA published guidance for pilots conducting check flights, contained in CAP 1038: Check Flight Handbook. Members were directed toward chapter 6 and read an extract which stated that, 'it will be found useful to increase the minimum [crew] by at least one extra person to record the results, help with maintenance of a good visual lookout, etc.' however, it was acknowledged that there is no requirement for this to be done. The Board discussed that the runway to which the Europa pilot had made their approach had not been their intended runway (**CF2**) however they had announced on the radio that they had been on final to their intended runway (**CF1**), and members agreed that this had meant that they had not conformed to the established pattern of traffic (**CF3**). The Board then discussed that neither the NATS radars not the RAF Shawbury radar had detected the Europa's transponder (**CF4**), and members wished to encourage pilots to take time to ensure that they are familiar with the operation of their transponder equipment, so that when an aircraft carries a serviceable SSR transponder, the pilot operates the transponder at all times during flight.[5] Members went on to agree that the Europa pilot had not had any awareness of the presence of the Juno (**CF5**) and that they had not become visual with it at any point (**CF8**).

The Board then considered the actions of the Air/Ground operator and acknowledged that they are only able to pass information on to pilots, and that they had not had any information regarding the Europa pilot's approach to a different runway from the one which they had previously used. Whilst the Air/Ground function can be carried out from an office, the Board was encouraged to hear that Sleap will endeavour to ensure that their Air/Ground operators will, in the future, position themselves in areas with better visibility.

Finally, in assessing the risk of collision, the Board agreed that although the Juno pilot had been carrying EC equipment which could have detected the Europa's transponder, this had been rendered incompatible as the transponder appeared to have not been transmitting. Members commented that the pilots had had either limited, or no, awareness of the presence of the other aircraft and that, whilst the Juno pilot had become visual with the Europa, this had been at or after CPA. Members agreed that, in this case, safety had not been assured and that there had been a risk of collision (**CF9**). Accordingly, the Board assigned a Risk Category B to this Airprox.

PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK

Contributory Factors:

	2022139			
CF	**Factor**	**Description**	**ECCAIRS Amplification**	**UKAB Amplification**
	Flight Elements			
	• Regulations, Processes, Procedures and Compliance			
1	Human Factors	• Use of policy/Procedures	Events involving the use of the relevant policy or procedures by flight crew	Regulations and/or procedures not complied with
	• Tactical Planning and Execution			
2	Human Factors	• Action Performed Incorrectly	Events involving flight crew performing the selected action incorrectly	Incorrect or ineffective execution
3	Human Factors	• Monitoring of Environment	Events involving flight crew not to appropriately monitoring the environment	Did not avoid/conform with the pattern of traffic already formed
4	Human Factors	• Transponder Selection and Usage	An event involving the selection and usage of transponders	
	• Situational Awareness of the Conflicting Aircraft and Action			
5	Contextual	• Situational Awareness and Sensory Events	Events involving a flight crew's awareness and perception of situations	Pilot had no, late, inaccurate or only generic, Situational Awareness
	• Electronic Warning System Operation and Compliance			

[5] (UK) SERA.13001. Operation of an SSR transponder.

6	Technical	• ACAS/TCAS System Failure	An event involving the system which provides information to determine aircraft position and is primarily independent of ground installations	Incompatible CWS equipment
	• See and Avoid			
7	Human Factors	• Distraction - Job Related	Events where flight crew are distracted for job related reasons	
8	Human Factors	• Monitoring of Other Aircraft	Events involving flight crew not fully monitoring another aircraft	Non-sighting or effectively a non-sighting by one or both pilots
	• Outcome Events			
9	Contextual	• Near Airborne Collision with Aircraft	An event involving a near collision by an aircraft with an aircraft, balloon, dirigible or other piloted air vehicles	

Degree of Risk: B

Safety Barrier Assessment[6]

In assessing the effectiveness of the safety barriers associated with this incident, the Board concluded that the key factors had been that:

Flight Elements:

Regulations, Processes, Procedures and Compliance were assessed as **ineffective** because the Europa pilot had made their approach to the non-duty runway without announcing it.

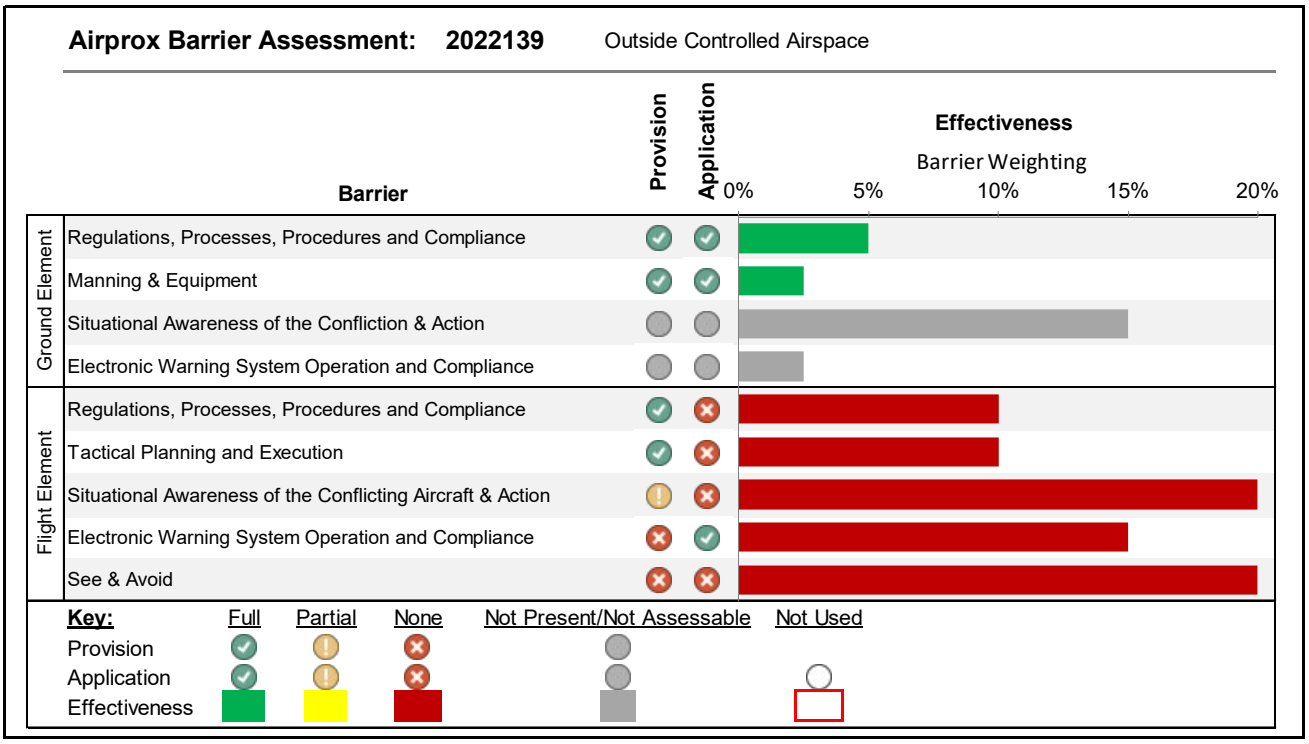
Tactical Planning and Execution was assessed as **ineffective** because, by making their approach to the non-duty runway, the Europa pilot had not conformed with the established pattern of circuit traffic.

Situational Awareness of the Conflicting Aircraft and Action were assessed as **ineffective** because the Juno pilot had only had generic awareness of the presence of the Europa having heard their radio calls, whilst the Europa pilot had not had any awareness of the presence of the Juno.

Electronic Warning System Operation and Compliance were assessed as **ineffective** because, as the transponder on the Europa had not been functioning, the ACAS carried by the Juno pilot had been unable to detect it and therefore the systems had been incompatible.

See and Avoid were assessed as **ineffective** because the Europa pilot had been distracted by the test of their propeller system and had not become visual with the Juno at any point. The Juno pilot had been debriefing at the time and, although the pilot had become visual with the Europa, this had been when the aircraft had been diverging, after CPA.

[6] The UK Airprox Board scheme for assessing the Availability, Functionality and Effectiveness of safety barriers can be found on the UKAB Website.


Airprox Barrier Assessment: 2022139
Outside Controlled Airspace
Barrier
Provision
Application
Effectiveness
Barrier Weighting
0%
5%
10%
15%
20%
Ground Element
Regulations, Processes, Procedures and Compliance
Manning & Equipment
Situational Awareness of the Confliction & Action
Electronic Warning System Operation and Compliance
Flight Element
Regulations, Processes, Procedures and Compliance
Tactical Planning and Execution
Situational Awareness of the Conflicting Aircraft & Action
Electronic Warning System Operation and Compliance
See & Avoid
Key:
Full
Partial
None
Not Present/Not Assessable
Not Used
Provision
Application
Effectiveness