

MINUTE SHEET

Reference

153/1/63/

M1

D.T.R.

1. Reference enclosures 15A to 15N.
2. For your information and action if necessary.

F. J. Gaerman, Sqn. Ldr.
Ops 1a

17.12.53

M2

R3

See ser min 10 15 A. Draft the reply to the telephone
line recommendations when this is done we may
have final information on the proposed penitence
for high power radar

2/18/53.

J. J. Gaerman, Sqn. Ldr.
21374 (R3)

1/3

D.Ops. (Ops. 1A) 126 2/8/54

1. Reference minute 1 enclosures 15A to 15N.
2. Action has been taken by Headquarters, Home Command (enclosure 12A on file 201/8/211 refers) to request the P.M.G. to provide the following permanent lines for the Sector Operation Centre at Richmond.
 - (a) Two private lines from Richmond to Georges Height Radar Station terminating on the M.D.F. at Richmond Sector Operation Centre.
 - (b) Two private lines from Richmond to Williamstown terminating on M.D.F. at Richmond Sector Operation Centre.
 - (c) Two lines from Richmond Sector Operation to No. 1 Radar Site Richmond.
 - (d) An extension to Richmond P.A.B.X. from No. 1 Radar Site Richmond.
3. The above action has been taken as a result of the communication requirements shown on Dwg. RS.1508, file 201/8/1832 enclosure 6A.

H. J. Gaerman

Sqn. Ldr.
T.R.3.

28 Jul 54

SECRET

COMMONWEALTH OF AUSTRALIA



IN REPLY PLEASE QUOTE

No. 83/941R(3A)



Secretary,
Air Board,
Victoria Barracks,
Melbourne, S.C.I.
Victoria.



Headquarters Home Command
Penrith, N.S.W.
New South Wales

22nd October, 1953.

AIR OPERATIONS - AIR DEFENCE EXERCISE
"FLYING SAUCER" - 20/21ST JUNE 1953

1. It is desired to submit for your information a report on the Air Defence Exercise "Flying Saucer" which was held on 20th and 21st June, 1953. The exercise was designed to exercise No. 22 (City of Sydney) (F) Squadron, No. 23 (City of Brisbane) (F) Squadron, No. 2(F) O.T.U. and the Sydney Air Defence Training Sector in their operational roles.

Sector Operations Centre.

2. This was the first occasion on which the Sector Operations Sector was used in its permanent position at Richmond. There was a great deal of work to be done in a relatively short time and the enthusiasm of the Sector personnel in their approach to the task is to be commended. This was the first time, too, in which the modern techniques of raid reporting and controlling, raid display, plaques and more suitable General Situation Map were employed. As was to be expected, the results achieved were much better than hitherto.

3. Because of the inexperience of most of the personnel, delays occurred in raid information appearing on the G.S.M. Generally speaking these delays were of the order of four minutes. In other instances delays were caused by P.P.I. readers tending to concentrate on one raid to the exclusion of all others. However, where the P.P.I. reader and the aircraft plotter were experienced, the results achieved were of a very high order.

4. On several occasions when a track passed into the coverage of an adjacent radar, difficulty was experienced in knowing which plotter was responsible for the track concerned. This difficulty could be obviated by numbering the arrows according to the plotting position.

5. Communications. Direct telephones back by High Frequency circuits were made available between the Sector and the various components of the raid reporting and controlling organisation. These proved successful, but it is obvious that permanent P.M.G. lines are essential, otherwise there is a great deal of administrative detail necessary before even temporary lines can be made available.

6. Radar Performance. The radar performed in a satisfactory manner, having regard to the limitation of the equipment. The LW/AWH equipment at Williamstown and Georges Heights gave very good results, both as raid reporting units and G.C.I.s

SECRET

.../2

7. This exercise once again proved the inadequacy of the AN/TPS3 when used as an individual unit. The continued lack of height finding equipment makes exercises unrealistic in many respects. Although two CMH radars have been allotted, their performance is still an unknown quantity; in spite of much work they are not yet in operation, as the manuals provided are inaccurate and in some aspects quite inadequate.

7. The noise level in the Sector Operations Centre was high. Every effort was taken to reduce this, but one of the main causes is the fact that the dias is not enclosed. Thus, all the noise from the G.S.M. and plotters plus that of the staff of the Sector Commander, on occasions reached a most unacceptable level. One of the main causes is the ringing of the normal handset telephone. With permanent lines and installations, it would be possible to substitute flashing lights in place of the bell system. This would do much to eliminate one of the main causes of noise.

Attacking Force

8. The attacking force consisted of 6 Lincolns and 2 Beaufighters. Although, for the purposes of this exercise, it was necessary that aircraft approach the target at a pre-determined height and from a pre-determined datum, additional tactical freedom was given the attacking force, in that they were permitted to take evasive action. This added more realism to the exercise, and provided the bomber crews with more realistic operational training. Some aircraft were intercepted up to 17 minutes before "time-on-target" and fighter attacks continued until after the bomb release point, causing time losses of up to five minutes. It is apparent that if evasive action had been limited to the cork-screw the accuracy of concentration times in most cases would have been within one minute.

9. In future exercises it is proposed to allow even more tactical freedom by designating a target, and a minimum run in distance. On reaching this point attacking aircraft would be committed to the attack, but until then may carry out spoof raids, split track flying and other methods to confuse the defences. In addition to providing opportunities for tactical raid planning, more complicated raid identification problems will arise.

10. Because of the shortage of trained gunners, the full benefits of this operation were not gained.

Defending Forces

11. The two C.A.F. Squadrons each provided 6 Mustangs, which were manned by P.A.F. and C.A.F. pilots. Both Squadrons were lead by C.A.F. Officers, who carried out their duties in a very capable manner. No. 2(F) O.T.U. provided six Vampires which were flown by staff pilots and instructors.

12. Because of the delay caused by the late presentation of radar information fighters were not ordered off as early as they should have been. This resulted in G.C.I. Controllers perforce having to make some interceptions up sun. In addition, the prevailing winds on the second day of the exercise were so high - an average of 45 knots with gusts up to 60 knots and higher - making it necessary for fighters to take off singly, and the time taken for the pair to form up further delayed the interception.

SECRET

-3-

13. The average time for fighter "scrambles" was three minutes. In the case of single take-offs, the time was not taken until the second aircraft became airborne. This factor considerably lengthened the take-off time and in suitable weather conditions this time would be considerably reduced. In the case of the Vampire, the average time for scramble was 2 1/2 minutes. This is considered to be excessive, and with improved dispersal facilities can be reduced to 1 1/2 minutes, a far more acceptable figure.

14. Very valuable training was derived by the fighter units. These exercises enable the pilots to see the value of all the training carried out in their primary role. Operating at high intensity for continuous periods enables them to develop the team work so necessary to efficient fighter operations. In addition the ground staff are required to operate under conditions which approximate those experienced in the field.

15. From the fighter point of view this exercise brought out the fact that in spite of low cockpit temperatures, jet pilots experience considerable fatigue if kept at readiness for longer than 20 minutes. Under conditions of high temperatures and/or Humidity, this period is likely to be reduced.

Disarmed
with
500ps
HANE
CHI

Anti-Aircraft Artillery

16. The anti-aircraft artillery were invited to take part in this exercise. They supplied their own communications network to their gun sites, and the gun defence areas were displayed on the G.S.M. Gun states were displayed on a temporary "guns state board" as decided by the Sector Commander. In discussions at the conclusion of the exercise the Brigadier, Anti-Aircraft Artillery indicated that their participation had been most valuable and that valuable operational training had been gained by the individual batteries. In future exercises it is proposed to have a more elaborate anti-aircraft artillery control, and the gun states will be passed to an anti-aircraft artillery operations room. In addition, targets will be selected within the gun defended areas.

Conclusions

17. Operation "Flying Saucer" was the most successful post-war Air Defence Exercise. The results achieved have shown that the basic organisation of the raid reporting and controlling organisation is sound, but that it is severely limited by the inadequacy of the radar units and the lack of height finding radar equipment. Now that 82 Wing is about to commence re-arming with Canberra aircraft and with the introduction of more jet aircraft into the fighter squadrons, it is considered that the present radar available is quite inadequate for the control of jet fighters intercepting jet bomber aircraft.

18. The lack of height finding radar makes the attacks most unrealistic.

19. The organisation of the Sector is sound, and with the improvements already mentioned above, the increased experience of the P.F.I. readers and aircraft plotters, a sound controlling unit has been established.

Future Exercises

20. As a result of the lessons learnt, in future exercises it is intended to increase the tempo of the attacks. In order to give more experience to section leaders, and, in order to

SECRET

.../d.

SECRET

-4-

increase the number of sorties per fighter pilot, aircraft in fours will be "scrambled". This will require the Sector to keep a more careful watch on the availability of fighters, and will require a faster turn round on the ground. To achieve a degree of realism, it is proposed to limit the number of attacks made by the fighters once contact has been made.

21. In order to increase the number of fighters available, and to increase the radar coverage, it is proposed to use shore-based naval fighters and the Naval radar training school, H.M.A.S. Watson in the defending forces. The area covered by the exercise will include Newcastle Sydney and Port Kembla.

Recommendations

22. As in reports of previous exercises, it is again strongly recommended that modern high performance radar be provided. The present radar with jet aircraft could only give a mediocre performance.

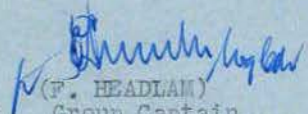
TR3/ 23. Permanent land-lines be provided. These are essential for the conduct of training exercises at short notice. H/F Communications as the primary method have been proved time and time again to be quite inadequate.

24. The Controller's dias be made more sound-proof. This is being done.

Appendices

25. The following appendices are attached -

- (a) Appendix "A" - Details of Interceptions
- (b) Appendix "B" - Unit Reports.


(F. HEADLAM)
Group Captain
for Air Officer Commanding

SECRET

65 851
SECRET

DETAILS OF INTERCEPTIONS PHASE 1

SATURDAY 20TH JUNE 1953

APPENDIX "A" TO CONSOLIDATED
REPORT 83/9/Air(2A) DATED
22ND OCTOBER 1953

Serial No.	Type of Aircraft	Number of Aircraft	Targets	INTERCEPTIONS			Remarks
				Before Target	After Target	Not intercepted	
1	Lincoln	1	Hornsby Railway Stn.	Yes			Attacks unobserved
2	Lincoln	1	Barrenjoey Light House	Yes			Evasive action taken by Lincoln
3	Lincoln	1	Ingleburn Camp	Yes			Violent evasive action
4	Beaufighter	1	Peats Ferry Bridge	Yes			Evasive action.
5	Lincoln	1	Hawkesbury Bridge	Yes			Lincoln probably destroyed on bombing run.
6	Beaufighter	1	Cataract Reservoir			Yes	Mission Successful
7	Lincoln	2	Schofields & Cataract Reservoir	Yes		Yes	Intercepted on Cataract target, nil on Schofields
8	Beaufighter	1	Prospect Reservoir			Yes	Mission successful
9	Lincoln	1	Hornsby Railway Stn.			Yes	Mission successful
10	Lincoln	1	Blacktown Railway Stn.	Yes			Evasive Action
11	Lincoln	1	Clyde Engineering Works	Yes			Claimed 1 Mustang. Lincoln destroyed.
12	Beaufighter	1	Schofields Airfield			Yes	Mission successful

SECRET

58
SECRET

=2-

Serial No.	Type of Aircraft	Number of Aircraft	Targets	INTERCEPTIONS			Remarks
				Before Target	After Target	Not intercepted	
13	Lincoln	1	Prospect Reservoirs	Yes			Lincoln destroyed
14	Beaufighter	1	Cataract Reservoir	Yes			
15	Lincoln	1	Hornsby Railway Stn.	Yes			Both attacking and defending aircraft claim aircraft destroyed.
16	Beaufighter	1	Hawkesbury Bridge	Yes			Beaufighter destroyed
17	Lincoln	1	Ingleburn Camp	Yes			Claims on both sides of aircraft destroyed.

SECRET

150
SECRET

DETAILS OF INTERCEPTIONS PHASE 2

SUNDAY 21ST JUNE 1953

Serial No.	Type of Aircraft	Number of Aircraft	Targets	INTERCEPTIONS			Remarks
				Before Target	After Target	Not intercepted	
1	Lincoln	1	Hornsby Railway Stn.	Yes			Attack intercepted by 4 Vampires then 4 Mustangs.
2	Lincoln	1	Barrenjoey Lighthouse	Yes			Attacks by 4 Vampires and 4 Mustangs. Lincoln destroyed
3	Lincoln	1	Ingleburn Camp			Yes	Mission successful
4	Beaufighter	1	Peats Ferry Bridge			Yes	Mission successful
5	Lincoln	1	Hawkesbury Railway Bridge	Yes			Surprise attack
6	Beaufighter	1	Cataract Reservoir			Yes	Mission successful
7	Lincoln	2	Schofields and Cataract Reservoir	Yes			Lincoln and 1 Vampire claimed destroyed.
8	Beaufighter	1	Prospect Reservoir			Yes	
9	Lincoln	1	Hornsby Railway Stn.	Yes			Fighter damaged.
10	Lincoln	1	Blacktown Railway Stn.	Yes			1 Fighter destroyed

SECRET

56
SECRET

-2-

Serial No.	Type of Aircraft	Number of Aircraft	Targets	INTERCEPTIONS			Remarks	
				Before Target	After Target	Not intercepted		
13	Lincoln	1	Frespect Reservoir	Yes				
14	Beaufighter	1	Cataract Reservoir			Yes	Mission successful	
15	Lincoln	1	Hornsby Railway Stn.	Yes			Lincoln destroyed	
16	Cancelled		Beaufighter U/S					
17	Lincoln	1	Ingleburn Camp	Yes			Lincoln destroyed	

SECRET

SECRET

55

SD

APPENDIX "B" TO
HEADQUARTERS HOME COMMAND
REPORT 83/9/AIR(2A)
DATED 22 OCT. 1993

UNIT REPORTS ON OPERATION

"FLYING SAUCER"

REPORTS SUBMITTED BY:-

SECTOR OPERATIONS CENTRE (S.O.C.)

NO. 82(B) WING

NO. 23(F) CITY OF BRISBANE SQUADRON

NO. "(F) O.T.U.

NO. 302 RADAR UNIT

TECHNICAL REPORT ON TELECOMMUNICATIONS
AND RADAR

SECRET

54

CONFIDENTIAL

OPERATION FLYING SAUCER
REPORT ON RICHMOND SECTOR OPERATIONS
CENTRE

INTRODUCTION

1. An operation bearing the code name "Flying Saucer" was held on 20th and 21st June, 1953, to exercise the Air Defence Organisation of Sydney.

2. During the exercise the Officer Commanding the Richmond Sector Operations Centre acted as an observer in the Operations Room and at the Richmond based radars.

CENTRAL AND REPORTING ORGANISATION

3. Overall tactical control of fighters and anti aircraft artillery elements was exercised from the Richmond Sector Operations Centre.

4. In order to obtain the maximum amount of early warning coverage for the defended area and to provide G.C.1 facilities, four radar units were employed, viz :

- (a) Williamstown - one LW/AWH - raid reporting / G.C.1
- (b) Georges Heights - one LW/AWH - raid reporting / G.C.1
- (c) Richmond - one LW/AW - raid reporting
- (d) Port Kembla - one ANT/PS3 - raid reporting

5. It had been planned to use the CMH radars at Richmond and Williamstown but inability to obtain wave guides in time negatived the use of this equipment. It was necessary, therefore, to give the heights on raids as they appeared on the General Situation Map.

6. As there was insufficient personnel to man both the LW/AW and the ANT/PS3 at Richmond, it was decided to use the former equipment because of its superior performance. However, during the course of the exercise it was possible to man the ANT/PS3 to a limited extent for the purpose of making a comparison between the performance of the two equipments.

7. A continuous flow of information was received from all radars with the exception of the Port Kembla equipment. This radar gave intermittent service on the Saturday and on the following day became completely unserviceable.

MANNING

8. The control and reporting organisation was manned by P.A.F. members and the Active Reserve Element of the Richmond Sector Operations Centre, assisted by Active Reservists of No. 114 MFCU and the Wagga Radar Unit.

9. The Staff Officer Operations and the Staff Officer Air Defence of Headquarters Eastern Area acted as Sector Commander and GCI Controller, Georges Heights, respectively. Flight Lieutenant Granville acted as GCI Controller at Williamstown.

10. The Active Reserve Element of the Sector Operations Centre commenced a fourteen day camp a week prior to the exercise and rendered valuable assistance towards completion of the Operations Room organisation.

11. The general standard of efficiency displayed by the Active Reserve Element throughout the exercise was extremely good, particularly when it is considered that, as yet, they have received *practically* no effective training.

CONFIDENTIAL

-2-

GENERAL SITUATION MAP DISPLAY

12. As the LW/AN has an A scope display raid information from this source was passed via a Conversion Table to the General Situation Map. In the case of the other radars it was passed direct from the PPI Tube.

13. Filtering was not necessary as all radars were of the beamed type. Duplication of tracks was eliminated by suppression of "unwanted information."

14. Due to the inexperience of most of the personnel delays in presentation of the information were apparent. The worst time lags amounted to approximately four minutes in the case of information received from the LW/AN. These particular delays were undoubtedly caused at the Conversion Table. In other instances they were due to the PPI Observer tending to concentrate on one raid to the exclusion of all others. Optimum results were obtained from the Georges Heights radar as both the PPI Observer and the Aircraft Plotter were fully experienced.

15. A reduction in time lags and a marked increase in the accuracy of plotting became evident on the second day.

16. On several occasions when a track passed into the coverage of an adjacent radar, the Floor Supervisor experienced some difficulty in knowing which plotter was responsible for the track concerned. It is considered that this difficulty would be obviated if the arrows were numbered in accordance to the plotting positions to which they are allotted.

PLOTTING EQUIPMENT

17. The plotting equipment was manufactured entirely by unit labour and on the whole gave satisfactory results. All displays were easily readable, except for certain identity colours.

18. Lack of suitable equipment rendered it impossible to display identity and serial on Raid Display Stands in the manner laid down in Control and Reporting Procedure No. 3/53.

19. The method adopted for displaying this information was based on the system at present in force in the Control and Reporting System in the United Kingdom where the serial and identity are displayed separately.

20. This procedure appears to have the following advantages over the combined identity serial method :

- (a) A smaller number of display counters are required for each plotting position.
- (b) The plotting rate is increased as less handling of the display counters is required to make the initial presentation or subsequently a change in identity.
- (c) Storage of display counters is greatly simplified.

NOTE DISPLAY

21. Lack of suitable display counters restricted the information that could be shown in the "Mission Column". Apart from this deficiency, the information provided was adequate for the purpose of the exercise.

22. Some confusion existed at times as to the colours allotted to the Sections. On several occasions in becoming airborne, the Section Leader used a colour which was different from that shown against his section on the Note. It has been determined that in most instances, the colour used in error was one which had been allotted to a Section he had manned earlier in the day.

CONFIDENTIAL

- 3 -

23. It is concluded that the basic cause of this confusion was the procedure of allotting colours to the sections as soon as they appeared on the Tate as being operational.

24. It is considered that in future colours should be passed to the sections by Squadron Operations Rooms when implementing scrambling orders, and not before. Thus the Tate will only display section colours in the Number Airborne Column.

A.A. STATES BOARD

25. A temporary AA Display Board was erected by the Army just prior to the commencement of the exercise. It is considered that when a permanent board is provided displaying the coastline and an outline of the Gun Defended Area, the task of identifying the gun state in a particular section will be greatly simplified.

MOVEMENT LIAISON SECTION

26. An Active Reserve officer was stationed at the Aircraft Control Centre, Mascot, for the duration of the exercise and passed aircraft movement information via a direct P.M.G. line to the Movement Liaison officer.

27. Although the flow of information was well maintained, there were several instances where the times received were definitely stale. This was undoubtedly due to the inexperience of the officer at Mascot.

28. As an accurate position report is one of the factors considered when establishing the identity of a track, it is unfortunate that the information came through in the form of E.T.A.'s. There was insufficient time available to organise and train the personnel concerned and consequently there was no alternative but to permit them to operate the procedures that were in force during previous exercises.

SCRAMBLE TIMES

29. Excellent scramble times were achieved - in most cases the sections becoming airborne within three minutes of the order being given.

COMMUNICATIONS

30. Direct telephone lines were made available between the Richmond Sector Operations Centre and :

- (a) Raid Reporting Units
- (b) G.C.I. Elements
- (c) Squadron Operation Rooms, and
- (d) Aircraft Control Centre, Mascot.

31. H/F radio telephone backing was provided but was not required as all telephone lines gave most satisfactory service throughout the exercise.

32. As the number of telephone lines that could be made available was limited, a direct line could not be established between the Tate and Squadron Operation Rooms. Consequently, confirmation of aircraft states and information covering number of aircraft airborne, airborne and landed times had to be passed back to the Tate via the Deputy Controller Ground. This procedure is most unsatisfactory as it greatly increased the work of the Deputy Controller Ground, and often resulted in the late presentation of essential information.

33. The standard handset type telephones that were used are not suitable for Operations Rooms of this nature as the call bells raise the noise factor to an unacceptable level.

...../4

A switch selection box incorporating call and warning lights would not only eliminate this factor but would reduce the number of instruments required for inter-unit communication to one per balcony position.

CONCLUSIONS

34. The general standard of efficiency of the Operations Room personnel was superior to that obtaining in earlier exercises. This was partly the result of experience and partly due to improved facilities.

35. The excellent service provided by the land lines was a major contribution towards the success of the exercise.

36. It is desired to specially mention the services rendered by the Active Reserve Signals officer, Flight Lieutenant A.A. Campbell. There is no question that the skill and untiring efforts of this officer were largely responsible for the excellent results obtained from the signals organisation.

37. The noise level in the Operations Room was far too high at all times. It was caused mainly by telephone bells and unavoidably by personnel manning the balcony. To a lesser extent the General Situation Map crew were also responsible.

38. The poor performance of the AN/PS3 radar at Richmond renders this equipment most unsuitable for GCI purposes.

RECOMMENDATIONS

39. It is recommended that :

- (a) In future exercises, a direct line be established between the Tote and each Squadron Operations Room.
- (b) The upper balcony in the Operations Room be glassed in and a door be located at the entrance at the top of the stairway.
- (c) A switch selection box incorporating call and warning lights be provided for each telephone position in the Operations Room and in Raid Reporting or GCI Cabins.
- (d) The LM/AMH radar at Georges Heights be used for both operational and training purposes in lieu of the Richmond based AN/PS3 equipment.
- (e) The CMH radar at Richmond be re-sited at Georges Heights as complementary equipment to the LM/AMH radar.


Flight Lieutenant
Officer Commanding
Richmond Sector Operations Centre

29 Jul 53



SECRET.

50

COMMONWEALTH OF AUSTRALIA.

In Reply, please quote

No. 28/14/ATR.

ROYAL AUSTRALIAN AIR FORCE.

No. 82 (B) Wing,
AMBLEBY.

24th July, 1953.

Headquarters,
Eastern Area,
R.A.A.F.
PENRITH, N.S.W.

REPORT ON OPERATION "FLYING SAUCER".

APPENDICES:

- "A" - Concentration Times on Target.
- "B" - Photographic Bombing Results. *(original only)*
- "C" - Gunnery Results.

Introduction.

1. In accordance with Headquarters, Eastern Area Operation Order No. 5/53, No. 82 (B) Wing provided a force of six Lincolns to carry out simulated bombing attacks against selected targets in the Sydney Area on the 20th and 21st June, 1953. A total of twenty-four attacks were carried out as detailed in Forms Green issued by Headquarters, Eastern Area, each aircraft completing two individual attacks against targets on both days of the exercise.

2. The purpose of this exercise was to exercise the Air Defence Organisation of Sydney.

Briefing and Debriefing.

3. All aircrew attended a general briefing prior to the start of the operation. In addition a detailed Briefing Form was given to crews for each individual sortie.

4. At the completion of each sortie the crew was debriefed by the Wing Category Leaders and Intelligence Officer, and the Forms Blue dispatched to Headquarters, Eastern Area.

Navigation.

5. Techniques and Aids Used. Navigators were briefed to carry out the exercise using all available aids. The maximum use was to be made of H2S, particularly from Pt. Macquarie - Datum - Target. In the event of H2S failure over this area, navigators were to revert to D.R. navigation using multi-drift winds. Aircraft were to arrive at Datum within ± 5 minutes of concentration times, and at the target on concentration time.

6. Concentration times. The route selected from Pt. Macquarie - Datum-Target, together with the high serviceability of H2S, enabled navigators to plan for a high accuracy of concentration times on target. On details where H2S was unserviceable accurate ground speed checks were obtained by visual bearings on the coast line. However, as shown at Appendix "A", the expected accuracy was not achieved. Examination of the navigation logs, together with the information obtained at de-briefing, revealed that in most cases, the inaccuracies in concentration times can be attributed to prolonged fighter affiliation. During the run in from Datum, Lincolns were intercepted up to 17 minutes prior to E.T.A. target, and fighter affiliation was

SECRET.

.../2.



SECRET

- 2 -

49

continued until after the bomb release point causing time losses of as much as five minutes. On subsequent attacks navigators attempted to overcome this error by allowing several minutes for fighter affiliation with the result that, when aircraft were not intercepted, the target was reached before the required time. It is evident that had evasive action been limited to corkscrews, the accuracy of concentration times would have, in most attacks, been within $\pm$ one minute.

7. Performance of Navigation Instruments. With the exception of one detail on which the A.P.I., W.P.A., and Navigator's D.R.C. Repeater were unserviceable, all navigation instruments performed satisfactorily. However, fighter affiliation exercises caused one D.R.C. Gyro-scope to topple and a desynchronisation of repeaters.

Bombing Technique and Assessment.

8. Simulated bombing was carried out using settings applicable to conditions. To establish a datum point for the assessment of bombing runs, bomb-aimers were briefed to start the camera at the bomb release point and to leave the camera running until the aircraft had passed the target.

9. The resulting photographs were laid in a line overlap with the centre of the first photograph being the air release point. From this point a line was drawn to the centre of the final photograph, thus establishing the track of the aircraft. At a distance along the track equal to forward throw, the bomb was plotted. Photographs showing targets and estimated points of impact are attached at Appendix "B".

10. This method of calculating bomb strike makes the following assumptions :-

- (a) Bomb falls on track.
- (b) Aircraft continues on same track after bomb release as before.
- (c) Aircraft flew at briefed height and photographic scale is correct.
- (d) The camera was started at the moment of bomb release.

11. The resulting errors indicate that many of the above assumptions were incorrect. And as the errors are very nearly all range errors, it would seem that the starting of the camera was the weakness in this method of assessment. An investigation will be made to determine whether a better method of assessing simulated bombing can be used for further exercises of this nature.

Bombing Equipment Unserviceabilities.

12. On the operation the following unserviceabilities occurred :-

- (a) Radar:
 - (i) Lucero 3 occasions.
 - (ii) H2S 2 occasions.
 - (iii) H2S inoperative over 14,000' 2 occasions.
- (b) Bombing & Photographic Equipment:
 - (i) Film brittle and tearing 2 occasions.
 - (ii) Bombight unserviceabilities 2 occasions.

.../3.

SECRET



SECRET

- 3 -

48

Gunnery.

13. Tactics. The normal fire and evasive control action by gunnery controllers in each Lincoln was employed. All sorties were by single aircraft.

14. Results. Debriefing of crews revealed the usual excessive claims of successes against fighters. Varying degrees of success were achieved by evasive action; however, the standard of evasive tactics was poor due to inexperience of crews through lack of training. Details of the gunnery operations are shown at Appendix "C".

15. Photographic Results. Although recorders were carried, films were not available for assessment because of unserviceability of recorders and evasive actions.

Communications.

16. All radio equipment was serviceable and communications were maintained throughout the operation.

Lessons of the Operation.

17. Control of fighters by the Sydney Air Defence Training Sector was of a high order and resulted in most attacks being directed from up sun, making it difficult for the bomber crews to sight the attackers. Lincoln aircraft should weave at all times when air attack is suspected in order to permit a close watch to be made for attacks from the sun.

18. Severe evasive action by Lincoln aircraft makes accurate turret training extremely difficult.

19. The maintenance of concentration time is affected if severe evasive action is taken. Corkscrew evasion only, appears to be essential for single aircraft if concentration time are to be kept.

20. The severe shortage of trained gunners on the strength of No. 82 (B) Wing (three only available), limited the value of fire control experience which would normally have been gained in this operation.

21. Photographic assessment of simulated bombing does not accurately indicate the point of contact (see para.10), though it does provide evidence that navigation and map reading is accurate.

22. Exercises of this nature, involving fighter affiliation and actual targets, provide a note of realism and competition which results in increased enthusiasm and better crew training.

23. Early advice to bomber units of approximately twenty-four hours notice is essential to permit proper briefing and organisation. In the operation briefing and departures went smoothly due to the early arrival of Foms Green and as a result maximum benefit was obtained.

Recommendations.

24. It is recommended that :-

- (a) More frequent exercises of this type should be conducted.
- (b) Lincoln aircraft should weave at all times when operating in areas where attacks may be expected and when conditions of bright sunlight are present.

SECRET

.../4



SECRET

- 4 -

47

- (e) In future exercises where two attacks are to be carried out by single aircraft, crews should be briefed to -
 - (i) On the final attack carry out severe evasive action to obtain maximum benefit in co-operation between the fire control officer and the pilot.
 - (ii) On the second attack, evasive action by corkscrew tactics should be executed to provide training for the fire control officer and gunners.
- (d) Action be taken to post gunners to No. 82 Wing to bring the strength nearer to establishment.
- (e) In future exercises, it is recommended that one sortie at least should be carried out as a formation attack and thereby provide further training in fire control.
- (f) The practice of supplying bomber units with instructions at least twenty-four hours prior to the time of attack should be maintained.



(D. H. COLQUHOUN)
Group Captain
Officer Commanding
R. A. A. F. AMBERLEY.



SECRET

APPENDIX "A" TO
28/14/AFR DATED
24th JULY, 1953.

COPY NO. 3

CONCENTRATION TIMES ON TARGET

Serial No.	A/G. A75- (a)	Captain (b)	Target (c)	Con. Time (d)	+ Late - Early (e)	Remarks (f)
<u>20th JUNE, 1953.</u>						
1	52	Wg. Cdr. COLQUHOUN	Hornsby Rly Stn	0915K	+ 5	
3	"	"	Ingleburn Camp	1000K		
2	49	Flt. Lt. TREWIN	Barrenjoey Lt.	0935K	- 4	
5	"	"	Hawkesbury Rly Bdge	1050K	- 2	
7	19	Flt. Lt. GRIGGS	Schofields	1120K	+ 2	
9	"	"	Hornsby Rly Stn	1200K		
7	25	Plt. Off. STAPLETON	Cataract Dam	1120K		
10	"	"	Blacktown Rly Stn	1215K		
11	53	Flt. Lt. BUCHAN	Clyde Eng. Works	1415K	+ 5	
15	"	"	Hornsby Rly Stn	1520K	- 4	
13	21	Flt. Lt. ONIONS	Prospect Res.	1450K	+ 1	
17	"	"	Ingleburn Camp	1600K		
<u>21st JUNE, 1953.</u>						
1	52	Flt. Lt. ROSS	Hornsby Rly Stn	0730K		
3	"	"	Ingleburn Camp	0815K		
2	49	Flt. Lt. SYMONS	Barrenjoey Lt.	0745K	+ 17	} Caused by unservice-ability prior to take-off.
5	"	"	Hawkesbury Rly Bdge	0900K	+ 11	
7	54	Flt. Lt. GRIGGS	Schofields	0935K		
9	"	"	Hornsby Rly Stn	1015K	+ 1	
7	25	Plt. Off. STAPLETON	Cataract Dam	0955K		
10	"	"	Blacktown Rly Stn	1030K	- 2	
11	47	Flt. Lt. ISAACS	Clyde Eng. Works	1245K	+ 10	
15	"	"	Hornsby Rly Stn	1350K		
13	15	Flt. Lt. WEATHE	Prospect Res.	1320K	- 5	} Timing waved to permit Press to obtain photographs.
17	"	"	Ingleburn Camp	1430K	- 5	

SECRET



SECRET

45

APPENDIX "B" TO
28/14/AIR DATED
24th JULY, 1953.

159

COPY NO 3

PHOTOGRAPHIC BOMBING RESULTS

Annexure 'A'	-	Serial No.1	20th June, 1953.
		Hornsby Railway Station.	
'B'	-	Serial No.3	20th June, 1953.
		Ingleburn Military Camp.	
'C'	-	Serial No.2	20th June, 1953.
		Barranco Light House.	
'D'	-	Serial No.5	20th June, 1953.
		Hawkesbury River Bridge.	
'E'	-	Serial No.7	20th June, 1953.
		Schofields Airfield.	
'F'	-	Serial No.9	20th June, 1953.
		Hornsby Railway Station.	
'G'	-	Serial No.7	20th June, 1953.
		Cataract Reservoir.	
'H'	-	Serial No.13	20th June, 1953.
		Prospect Reservoir.	
'I'	-	Serial No.17	20th June, 1953.
		Ingleburn Military Camp.	
'J'	-	Serial No.1	21st June, 1953.
		Hornsby Railway Station.	
'K'	-	Serial No.2	21st June, 1953.
		Barranco Light House.	
'L'	-	Serial No.5	21st June, 1953.
		Hawkesbury River Bridge.	
'M'	-	Serial No.7	21st June, 1953.
		Schofields Airfield.	
'N'	-	Serial No.9	21st June, 1953.
		Hornsby Railway Station.	
'O'	-	Serial No.7	21st June, 1953.
		Cataract Reservoir.	
'P'	-	Serial No.10	21st June, 1953.
		Blacktown Railway Station.	
'Q'	-	Serial No.11	21st June, 1953.
		Clyde Engineering Works.	
'R'	-	Serial No.15	21st June, 1953.
		Hornsby Railway Station.	
'S'	-	Serial No.13	21st June, 1953.
		Prospect Reservoir.	
'T'	-	Serial No.17	21st June, 1953.
		Ingleburn Military Camp.	

SECRET



SECRET

APPENDIX "C" TO
28/14/AIR DATED
24th JULY, 1953.

COPY NO. 3

GUNNERY RESULTS

Serial No.	A/C.	Captain	Sightings & Interceptions	Number & Type of Attacks	Evasion & Results	Turret Serv.	Remarks
(a)		(b)	(c)	(d)	(e)	(f)	(g)
<u>20th JUNE, 1953.</u>							
1 & 3	52	W/C. COLQUHOUN	2303Z, 2 Vampires breaking 300 yds.	1 stern out of sun 5 high quarters 1 rolling from above	Assume Lincoln destroyed first attack. Evasion successful remaining attacks.	Tail - S M/U. - U/S Nose - S	I/C within a/c was very bad due fault within the system.
			2315Z, 2 Mustangs 6 o'clock $\frac{1}{2}$ up, 1200 yds.	1 long drawn out stern attack by section of two.	Nil. Fire power of Lincoln sufficient to cope with attack.		
			0005Z, 2 Mustangs taking off from Richmond drone.	Nil.	Nil.		
2 & 5	49	F/L. TREWIN	2325Z, 2 Mustangs 4.30 o'clock $\frac{1}{2}$ up, 1200 yds.	7 high quarters	Successful	Tail - S M/U. - S Nose - S	I/C interference from mid-upper installation. M/U sight U/S.
			2353Z, 2 Vampires, 4.30 o'clock $\frac{1}{2}$ up, 1200 yds.	8 high quarter 3 rolling from above, co-ordinated.	Successful		
			0040Z, 2 Mustangs, 3.30 o'clock $\frac{3}{4}$ up, 1200 yds.	6 high quarters	Successful		
			0040Z, 2 Vampires 6 o'clock breaking	6 high quarters	Mild evasion only, Lincoln on bombing run.		
7 & 9	19	F/L. GRIGGS	0111Z, 2 Mustangs, 6.30 o'clock $\frac{1}{4}$ up, range 600 yds.	5 high quarters 2 rolling from above	Evasive action moderately successful due to inexperience of gunners.	Tail - S M/U. - S Nose - U/S	Nil interception over second target. I/C faulty due to faulty set of crew member.

.../2.

SECRET



SECRET

- 2 -

Serial No.	A/C	Captain	Sightings & Interceptions	Number & Type of Attacks	Evasion & Results	Turret Serv.	Remarks
	(a)	(b)	(c)	(d)	(e)	(f)	(g)
7 & 10	25	P/O. STAPLETON	0155Z, 2 Mustangs (attacked 0157½Z. 0226Z, 1 Mustang	1 flat quarter 5 rolling from above Nil. Mustang called for emergency landing, Mascot Field.	Evasive action successful. Extensive use of cloud cover foiled all attacks.	Tail - S M/U. - S Nose - S	Fighters standing within range before attacks, presenting good targets for gunners.
11 & 15	55	F/L. BUCHAN	0404Z, 2 Mustangs 3 o'clock 2000 yds. 0511Z, 2 Mustangs 8 o'clock 1800 yds.	3 quarter attacks in battle formation. 5 quarter attacks in battle formation.	Successful. Nil. Lincoln was on final bombing run.	Tail - S M/U. - S Nose - S	Two "probable kills" claimed by Lincoln gunners.
13 & 17	21	F/L. ONIONS	1455K, 2 Mustangs, attacking range 450 yds. 1549K, 2 Vampires	1 low quarter 4 high quarters 1 high quarter 2 rolling from above in battle formation.	Successful. Successful.	Tail - S M/U. - S Nose - S	Four "probable kills" claimed by gunners.
<u>21st JUNE, 1955.</u>							
1 & 3	52	F/L. ROSS	2059Z, 4 Vampires, 3 o'clock 3000 yds. 2118Z, 5 Mustangs, 9 o'clock ½ up, 1000 yds.	1 battle formation 4 co-ordinated quarters 3 quarters	All evasion ineffective, balled too early by inexperienced gunners.	Tail - S M/U. - U/S Nose - S	
2 & 5	49	F/L. SIMONS	2138Z, 2 Vampires, 6 o'clock level, 800 yds. 2155Z, 5 Mustangs, 7.30 o'clock ½ up, 1200 yds.	2 level quarters 6 high quarters 1 low quarters 6 quarters 6 stern chases	Steep turns with use of engines aborted all attacks in both interceptions.	Tail - S M/U. - S Nose - S	

.../3.

SECRET

47



SECRET

- 3 -

Serial No.	A/C.	Captain	Sightings & Interceptions	Number & Type of Attacks	Evasion & Results	Turret Serv.	Remarks
	A75- (a)	(b)	(c)	(d)	(e)	(f)	(g)
7 & 9	54	F/L. GRIGGS	2246Z, 2 Vampires attacking A75-35, 3 miles to south. 2249Z, 1 Vampire, range 5 miles, 5 o'clock 2354Z, 2 Mustangs 9 o'clock level, 2000 yds. 0052Z, 2 Mustangs, 10 o'clock 1/2 up, 3000 yds.	Nil. 2 port quarters 5 quarters 1 rolling from above. 11 quarters 1 abortive.	Successful. Successful.	Tail - S M/U. - U/S Nose - S	
7 & 10	25	P/O. STAPLETON	2256Z, 2 Vampires breaking attack. 2310Z, 5 Mustangs, 6.30 o'clock 1/2 up, 2000 yds. 0017Z, 1 Mustang, 5 o'clock level, 1000 yds.	First attack jumped from sun. 6 quarters 4 shallow quarters 2 battle formation quarters 1 stern chase 1 rolling from above	No evasive action due to dangerous attacks. Successful except one manoeuvre Successful.	Tail - S M/U. - S Nose - S	Front gunner claims 1 Mustang as fighter climbed away in front of the bomber within lethal range of the guns during the second evasion.
11 & 15	47	F/L. ISAACS	0237Z, 2 Mustangs 0330Z, 2 Mustangs	6 high quarters, first attack 0258Z 2 quarters 2 stern chases, first attack 0351Z	Successful. Successful.	Tail - S M/U. - S Nose - S	
13 & 17	15	F/L. WEARNE	Intercepted by 4 Mustangs at sea on both targets.	N/A	Nil evasion as press photographers on board.		Press photographers occupied the turrets and all vantage points in aircraft. No strike report submitted for gunnery.

SECRET



NO. 23 (CITY OF BRISBANE)(F) SQUADRON
REPORT ON OPERATION "FLYING SAUCER"

154

Introduction

1. In accordance with EAHQ's Operation Order No. 5/53 No. 23 Squadron took part in Exercise "Flying Saucer". No. 23 Squadron's force commitment consisted of six Mustang aircraft and crews, together with the necessary supporting maintenance party. Air transport for the ground supporting party was supplied by one (1) Dakota aircraft of No. 86 (T) Wing. The exercise was scheduled to take place over the week-end of 20th /21st June.

Air Movement

2. Air Movement was effected in the following manner:

- (a) The ground supporting party, consisting of maintenance and operations personnel, departed Archerfield at 1045 hours K, Friday 19th June. This party departed Richmond for Archerfield at 0915 hours, Monday 22nd June, after having seen the remaining Squadron Mustang Flight airborne for the return trip.
- (b) The Mustang force travelled in two flights. This was necessitated by some C.A.F. pilots not being available for departure before AM Saturday 20th June. The first section, consisting of the Squadron Commanding Officer and two C.A.F. pilots, arrived at Richmond at 1500 hours Friday 19th June. The second section, consisting of four C.A.F. pilots, under the Command of F/O Witham, departed Archerfield at first light Saturday 20th June, arriving at Richmond at 0745 hours. The return journey was completed in the same fashion, F/O Witham's section returning to Archerfield at 1700 hours Sunday 21st, and the remaining Section returning AM Monday 22nd June.

Control & Interception

3. The control effected throughout the operation was by far the most successful experienced by this Squadron in exercises to date. This is considered to be primarily due to:

- (a) A high standard of Air/Ground/Air V.H.F. communication, which was maintained throughout the exercise.
- (b) The apparent high standard of Radar coverage which pertained throughout the Operation.

The above considerations do not detract, in any way, from the high standard of work and organisation of the personnel concerned in the control and reporting system, but were the two factors which showed the greatest all round improvement in comparison with previous exercises.



NO. 23 (CITY OF BRISBANE)(F) SQUADRON
REPORT ON OPERATION "FLYING SAUCER"

Page 2

4. The number of interceptions achieved, although not statistically recorded at this Squadron, was also considerably in excess of that experienced in previous exercises. On all but one occasion interception was effected at distances ranging from five to 25 miles beyond the coast. In most cases control was positive and effective, but a few weaknesses, from the cockpit viewpoint, are offered in a spirit of constructive criticism:

- (a) On several occasions Controllers positioned sections so that the target aircraft from them was 12 o'clock and down. This is a bad tactical position, particularly in Mustang aircraft, due to the poor forward visibility in that area.
- (b) Controllers sometimes forgot to take advantage of the sun's position, with the result that fighter sections were called to "search" for enemy aircraft along the line of the "up-sun" reflection. This is particularly difficult over the sea, besides leaving the attacking aircraft without the chance of surprise.

Raid Density

5. Although at times the S.O.C. may have been close to the limits of defending forces available, for the sake of exercising all concerned this is considered a good thing. No. 23 Squadron, for example, which remained at full strength of six aircraft throughout, (until four aircraft were pulled out at 1500 hours Sunday, 21st for return to Archerfield), did not have a single pilot who was called upon for more than five details over the two days. The fast turn-around required of aircraft on the ground was also of considerable training value to the ground crews concerned.

Training Value

6. The exercise is considered to have been of considerable training value to 23 Squadron. The movement of small sections by air at short notice has produced an "esprit de corps" amongst Squadron personnel not easily achieved by other means, and has developed a mobile maintenance organisation which is capable of major sustained effort of a very high order.

7. The value to the pilots concerned cannot be overestimated, in that this was the first exercise of this magnitude in which the whole aircrew complement was made up of C.A.F. personnel. Consequently the pilots gained considerable experience in their primary role, and the overall benefit will be seen to best advantage in future exercises.

Weather

8. Weather throughout the exercise remained fine and clear. This is considered fortunate, as the Squadrons and organisation concerned are not yet ready for exercises of this nature under conditions of low cloud base.

.....3/



NO. 23 (CITY OF BRISBANE) (F) SQUADRON
REPORT ON "OPERATION FLYING SAUCER"

Page 3

Recommendations

9. From study of No. 23 Squadron's part in Exercise "Flying Saucer", it is recommended that:
- (a) Further exercises be planned at regular intervals, so as to bring all personnel to the stage where such exercises can be safely and gainfully conducted, irrespective of weather conditions.
 - (b) Raid density be maintained to at least that experienced on "Flying Saucer".
 - (c) W.C.I. Controllers be re-instructed, where applicable, in the principles of those techniques of controlled interception outlined at sub paras 4a, and 4b.

A. E. Mather
(A. E. MATHER)
Squadron Leader,
Commanding,
No. 23 (F) Squadron,
R.A.A.F. ARCHERFIELD.



Telephone
Stockton 174

CONFIDENTIAL

COMMONWEALTH OF AUSTRALIA

File Ref: 17/25/AIR(3A)

Royal Australian Air Force,
No. 2 (F) Operational Training Unit,
R.A.A.F. WILLIAMTOWN. N.S.W.

16th July, 1953

Headquarters,
Eastern Area,
R.A.A.F.,
PENRITH. 1.W. N.S.W.

REPORT ON OPERATION FLYING SAUCER

- Appendices:
- A - Summary of flights.
 - B - Positions of contact with attacking Forces.
 - C - Performance of Radio and Radar Equipments.

General

1. No. 2 (Fighter) Operational Training Unit participated in Operation "Flying Saucer" over the period of the 20th and 21st June, 1953 in the role of a defensive jet fighter unit.

2. The operations tent, crew tent, aircraft and facilities were set up adjacent to the "27" runway as follows:-

(a) The operations tent contained the following:-

- (i) Two Operations Officers.
- (ii) One Signals Officer.
- (iii) Two Signals maintenance personnel.
- (iv) Two Runners.
- (v) Hand line to S.O.C.
- (vi) Hand line to transmitters.
- (vii) VHF communications with control tower.
- (viii) Amplifiers to pilots and groundcrews.
- (ix) Spare VHF equipment.
- (x) HF equipment (AR7).

(b) Nine pilots were available.

(c) Six aircraft available, with two aircraft as spares.

(d) Ground crews, starter carts and refuelling tankers were adjacent to the aircraft on the U/S runway "31".

3. Eleven (11) tasks were initiated over the two days of the operation. These comprised twenty eight (28) sorties for thirteen hours and twenty five minutes (13.25).

Outstanding Features

4. Despite low cockpit temperatures, pilots were subject to fatigue after prolonged periods at "Standby". This fatigue would have been more pronounced under conditions of higher temperatures.



-2-

37

5. Communications for "Scrambles" were unsatisfactory. Pilots were unable to hear directions given over the amplifiers owing to a strong wind. Under other conditions, such as when the canopy is closed, this same problem arises.

6. Task number WIMS carried out by "Stuffy Red" made an interception at 12,000 feet six minutes after take-off; the whole task being completed from check to check in fifteen (15) minutes.

7. Owing to insufficient serviceable recorder cameras at the time of the operation, a complete record of all attacks made by this unit's aircraft were not assessable.

Interceptions

8. Eight of the eleven tasks were successful with interceptions (full report in Appendices A and B).

Performance of Equipment

9. Performance of all equipment was very satisfactory, except for one case of radio U/S in one aircraft (Report on Appendix C).

Lessons of the Operation

10. The average time of two and a half minutes per scramble was not indicative of the possible performance of jet fighters, owing to the limited dispersal facilities at this airfield. With proper dispersal facilities, this time could have been reduced to a time of a minute and a half, the recognised time to scramble jet fighters.

11. Pilots are subject to fatigue when left at "Standby" for prolonged periods.

12. The success of a scramble is largely dependent upon the communications between the operations and pilots.

13. The G.C.I. controller did not always position aircraft for advantageous tactical attacks on targets.

Recommendations

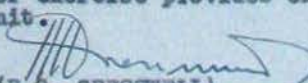
14. The maximum time that pilots should be kept at "Standby" (strapped in aircraft) be limited to twenty (20) minutes to overcome fatigue factor and wastage of oxygen.

15. For operations under all climatic conditions, some telephonic communications should be implemented to notify the pilots at "Standby" of scrambles.

16. To facilitate the most rapid scramble, aircraft should be parked on the apron of the active runway.

17. The G.C.I. controllers should be given further training in positioning fighter aircraft for tactical attacks on bomber aircraft, e.g. up-sun.

18. Greater use should be made of this unit's aircraft for such operations as this type of exercise provides excellent training for all aircrew at this unit.


(R.C. CRESSWELL)
Wing Commander
Commanding
No. 2 (F) Operational Training Unit



THIS PAGE IS REPRODUCED FROM A BADLY FADED OR ILLEGIBLE SOURCE.
SCANNING THIS ITEM AT A HIGHER RESOLUTION WILL NOT IMPROVE ITS LEGIBILITY.

SUMMARY OF FLIGHTS

DATE	TASK NO.	SECTION	AIRCRAFT NO.	AIRBORNE (K)	LANDED (K)	TIME OF FLIGHT	C.C.I. CONTACT		INTERCEPT		RESULTS OF INTERCEPT
							TIME (L)	POSITION	TIME (K)	HEIGHT	
20/6/53	WLM 1	STUFFY RED	(A79-217) (A79-18)	0850 0850	0920 0920	.30	0853	CN4902	0903	12000'	One Lincoln Destroyed.
20/6/53	WLM 2	STUFFY BLUE	(A79-375) (A79-520)	0940 0940	1020 1020	.40 .40	0846	DN1515	0957	12000'	One Lincoln Destroyed.
20/6/53	WLM 3	STUFFY YELLOW	(A79-804) (A79-36)	1025 1025	1100 1100	.35 .35	1028	CM4050	1041	15000'	One Lincoln Destroyed.
20/6/53	WLM 4	STUFFY RED	(A79-217) (A79-18)	1140 1140	1210 1210	.30 .30	-	-	-	-	-
20/6/53	WLM 5	STUFFY RED	(A79-18) (A79-36)	1410 1410	1430 1430	.20 .20	-	-	-	-	-
20/6/53	WLM 6	STUFFY YELLOW	(A79-876) (A79-915)	1435 1435	1510 1510	.35 .35	-	-	-	-	-
20/6/53	WLM 7	STUFFY RED STUFFY BLUE	(A79-18) (A79-36) (A79-704) (A79-520)	1530 1530 1535 1535	1605 1605 1615 1615	.35 .35 .40 .40	-	Approx. DN1535	1552 1553	19500' 19500'	(Two Lincoln Destroyed.)
21/6/53	WLM 8	STUFFY RED STUFFY BLUE	(A79-520) (A79-217) (A79-36) (A79-704)	0650 0650 0645 0645	0705 0705 0705 0705	.15 .15 .20 .20	0643	DN1039	0656 0655	12000'	(One Lincoln Destroyed.)
21/6/53	WLM 9	STUFFY YELLOW STUFFY RED	(A79-333) (A79-876) (A79-520) (A79-217)	0715 0715 0725 0725	0735 0735 0750 0750	.20 .20 .25 .25	0712	DN0940	0735	18000'	One Lincoln Damaged.
21/6/53	WLM 10	STUFFY BLUE	(A79-36) (A79-704)	0835 0835	0905 0905	.30 .30	0838	DN0945	0848	13000'	Two Lincoln Destroyed.
21/6/53	WLM 11	STUFFY YELLOW	(A79-18) (A79-333)	0845 0845	0915 0915	.30 .30	0838	DN0945	0900	13000'	One Lincoln Destroyed.

N.B. POSITIONS OF ATTACKS ARE INDICATED ON APPENDIX 'B'.

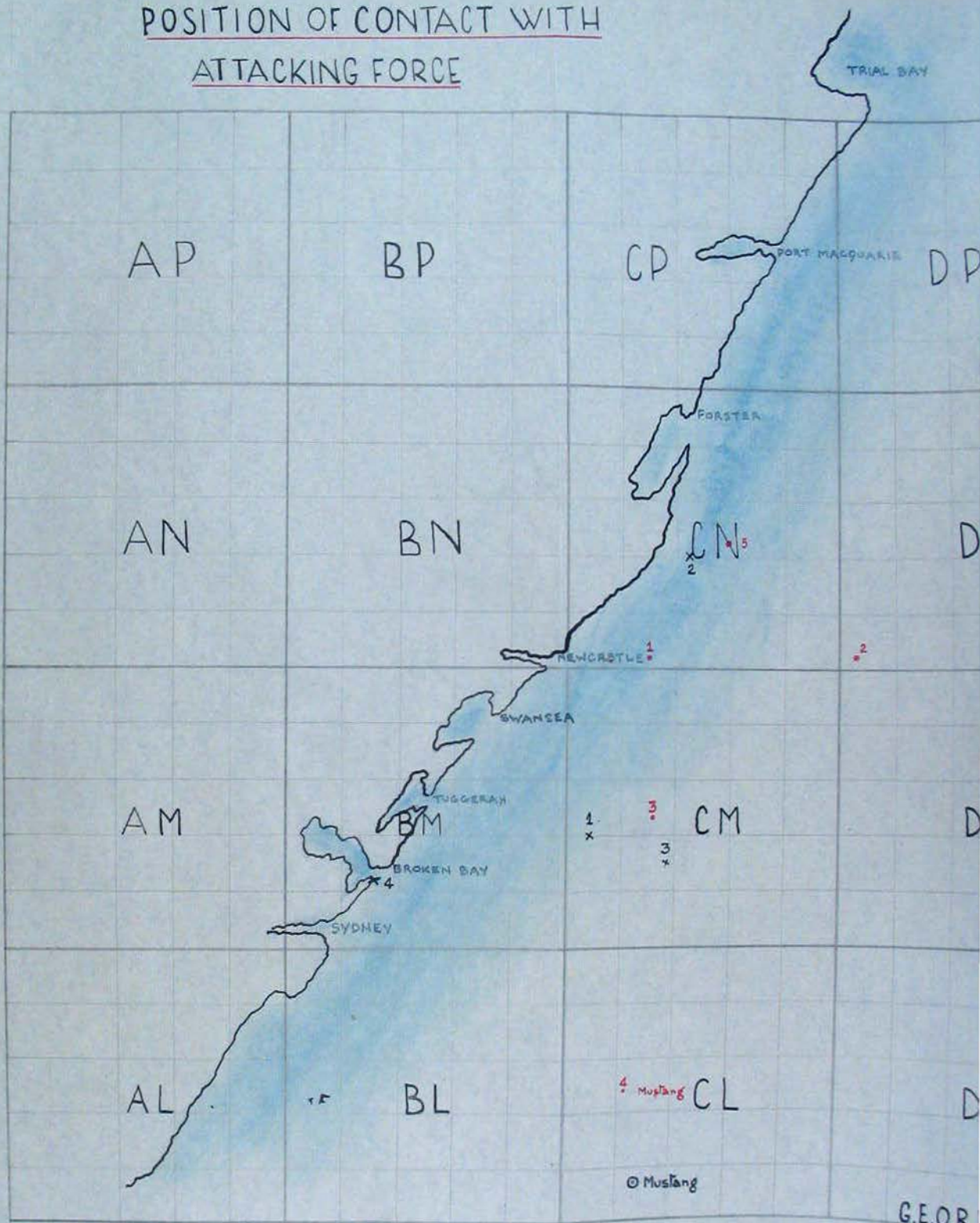


SUMMARY OF FLIGHTS

APPENDIX "A" TO
2 (C) C.T.U. REPORT
FILE 17/25/HR 36

G.C.I. CONTACT		INTERCEPT		RESULTS OF WEATHER		GENERAL
TIME (L)	POSITION	TIME (K)	HEIGHT	INTERCEPT	WEATHER	
055	CN4902	0903	12000'	One Lincoln Destroyed.	CAVU	First two attacks took Lincoln by surprise. Then Lincoln took evasive action in wrong direction. Total of eight attacks made.
046	DN1515	0957	12000'	One Lincoln Destroyed.	CAVU	Lincoln sighted Vampires on first attack and took violent evasive action making attacks difficult. Total of four attacks made.
028	CM4050	1041	15000'	One Lincoln Destroyed.	CAVU	Mustangs were attacking Lincoln when first intercept made, Lincoln damaged by Mustangs. Nil evasive action by Lincoln. Total of three attacks made.
	-	-	-	-	CAVU	Target too far to sea. Aircraft recalled by G.C.I. Controller.
	-	-	-	-	CAVU	As for task WLM4 above.
	-	-	-	-	CAVU	G.C.I. Controller reported "Blips" merging but nil sightings by Vampires at 20,000' over target area. Reasons for nil intercept unknown, possibly incorrect height.
	Approx. DN1835	(1552 (1553 (	19500' 19500'	(Two Lincolns Destroyed. ((	CAVU	First attack, upward line astern took Lincoln by surprise-nil evasive action by Lincoln. Two attacks made by Stuffy Red then Stuffy Blue made six attacks. Lincoln took violent evasive action against Stuffy Blue.
045	DN1039	(0656 ((0655 (	12000'	(One Lincoln Destroyed. ((	CAVU	First attack, high port quarter, took Lincoln by surprise - nil evasive action by Lincoln. Lincoln then took non effective evasive action. Total of five attacks made. Turbulent conditions.
012	DN0940	0735	18000'	One Lincoln Damaged.	CAVU	Stuffy Yellow returned with radio U/S. Stuffy Red made rear upward quarter attacks. Total of seven attacks made. Lincoln took evasive action.
038	DN0945	0848	13000'	Two Lincolns Destroyed.	CAVU	First attack on first of three Lincolns was surprise - nil evasive action. Lincolns then took evasive action. Total of two attacks on each aircraft. Third Lincoln not attacked.
038	DN0945	0900	13000'	One Lincoln Destroyed.	CAVU	First two attacks were surprise then Lincoln took evasive action. Total of four attacks made.

POSITION OF CONTACT WITH ATTACKING FORCE



FIGURES IN BLUE

FIGURES IN RED

INTERCEPTIONS

CARRIED OUT

20TH JUN 53

"

"

"

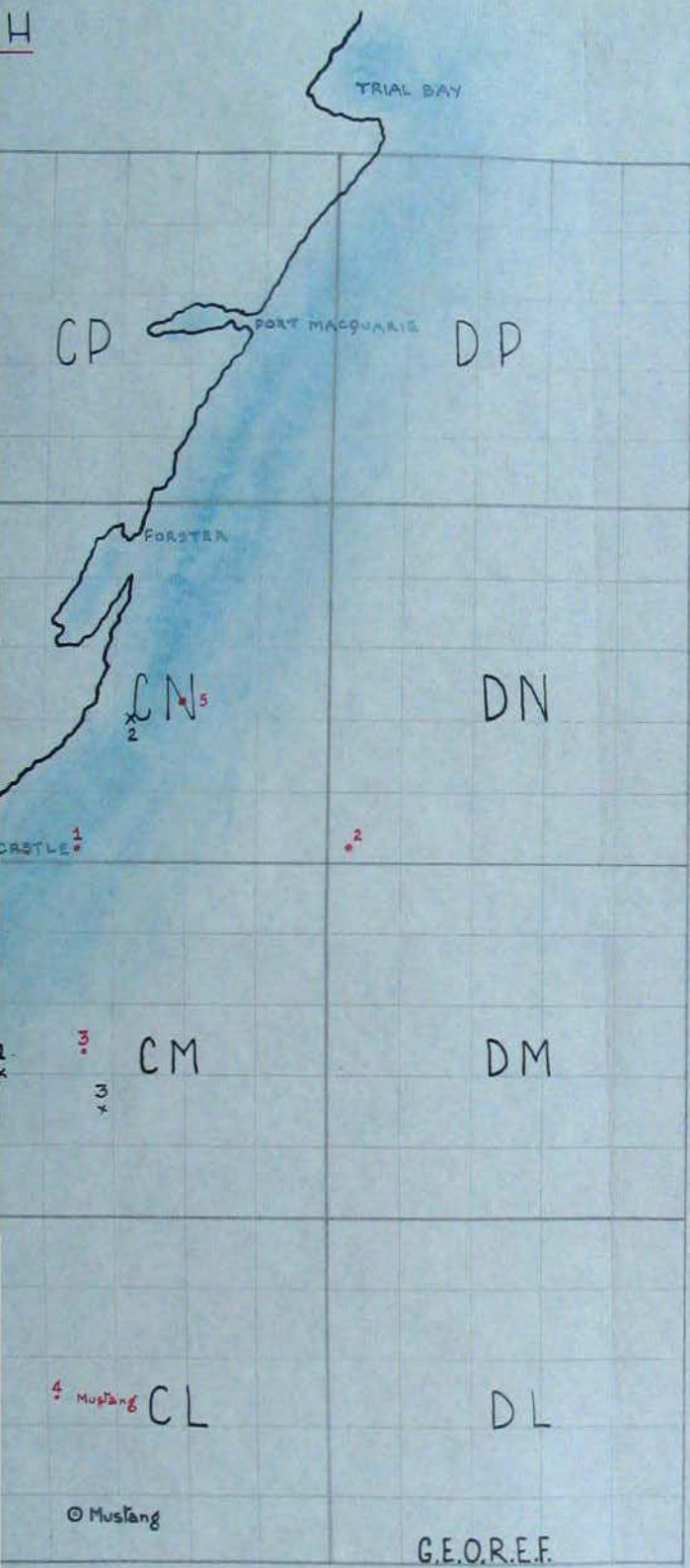
21ST JUN 53

H

APPENDIX "B"

15K
35

TO 2 (F) OTU FILE
17/25/AIR



S CARRIED OUT 20TH JUN 53
" " 21ST JUN 53

OPERATION "FLYING SAUCER"
PERFORMANCE OF RADIO AND RADAR EQUIPMENTS

LW-AWH - (G.C.I. - EARLY-WARNING)

This equipment performed faultlessly throughout the entire operation. Despite the extremely trying conditions of gale force winds driving clouds of sand into all radar buildings and radar set components, the LW-AWH gave exceptionally good results. During periods of 60 m.p.h. gusts of wind, the aerial array was slowed down considerably, but remained in constant operation.

The aerial array was set to an angle of $2\frac{1}{2}^{\circ}$ to give the optimum results for both early-warning and ground controlled interception.

Maximum ranges of 98 miles were obtained on Lincoln aircraft flying at heights varying between 10,000 and 18,000 feet. Interceptions were carried out to a range of 60 miles from Williamtown.

2. Itemised performances of Units are given as follows:-

- (a) Aerial Array Tilted to angle of $2\frac{1}{2}^{\circ}$. Motors or bearings showed no signs of overheating.
- (b) Transmitter - LW-AWH Operated completely satisfactorily. Overload relay released once during warm up period. A complete check of the transmitter was carried out after 8 hours of constant operation but no signs of overheating in any component was found.
- (c) P.P.I. Indicator Good presentation resulted throughout operation. The Controls, "Brilliance" and "Contrast" barely required any adjustment throughout the day.

The time-base was adjusted to 100 miles range and an appropriate G.E.O.R.E.F. cover was fitted to the face of the Cathode Ray Tube.

Parallax error was negligible.

Excellent coverage was obtained in an area between bearings 015° to 210° , but some form of screening showed up in a area located between 010° and 015° .

- (d) Power Supplies A mobile 25KVA was used to provide power for the two motors driving the array, and the transmitter. All radio equipment was also connected to this supply but had to be removed due to the excessive noise factor from the P.R.F. of the radar set and the brushes of the 25KVA generator.

Three Carson engines were installed and operated alternately every three hours.

After two hours running on the second day of the operation, one "Carson" dropped voltage on the 500 cycles supply. An immediate switch to another "Carson" retained continuity of operation of the equipment.

EARLY-WARNING. AN-TPS-3

Early Warning Radar set AN-TPS-3 was located at a position 3 miles from the aerodrome at Williamtown on elevated ground 50 feet high. On the first day of the operation intermittent

plots were "told" into the plotting table at the LW-AWH site. From the poor quantity and quality of the plots as compared to the LW-AWH it is quite obvious that the equipment's use is very limited, both in height and range coverage.

When only two plots were being told in from the AN-TPS-3 five plots were being recorded by the LW-AWH equipment.

Some of these missed plots were probably due to the lower angle of radiation of the AN-TPS-3 Antenna.

On the second day of the Operation, the strong winds prevented the aerial array from turning and the radar station was closed down and returned to base.

The following reasons are given for the AN-TPS-3's very limited use:

- (a) Aerial will not rotate with winds exceeding 25 m.p.h.
- (b) Auxilliary power units overheat after 2 hours running
- (c) Components in main Indicator and Receiver become excessively hot after about 2 hours running (cool day).
- (d) Receiver oscillator requires constant tuning after warm-up.
- (e) Transmitter valve fires intermittently after 1½ hours operation due to inability of valve electrodes to dissipate heat.
- (f) Indicator will not run for any period of time over ½ an hour if not removed from console to allow circulation of air around tubes and resistors.

V.H.F. COMMUNICATIONS

For aircraft control, transmitters AT17's located at the transmitting station were used. These units were "backed up" by two TR5043 transmitter-receivers located in the Radio receiving room at the LW-AWH radar site.

All transmitters were controlled by push-button control at the G.C.I. controller's position. A common electro-dynamic microphone and a pre-amplifier was used for all transmitters. However this system proved to be too sensitive, and pilots reported excessive background noise and slight distortion. This fault was overcome by using a carbon microphone and deleting the pre-amplifier.

Receivers AR17 were used for V.H.F. reception, again "backed up" by two TR5043s.

These receivers performed well but required constant attention by a technician due to lack of crystal control operation.

H.F. COMMUNICATION

H.F. Communications were most unsatisfactory. Transmitters AT20A were used for transmission and receivers AR7 used for reception.

All transmitters and receiver operated at Williamstown when carrying out local checks, but only limited success resulted when contacting Richmond.

Contact was made quite clearly on 5335 Kc/s and 4575 Kc/s but all other frequency tests were completely abortive.



-- 3 --

32

New AR7A receivers operated very satisfactorily and no frequency drift was encountered

CONTROL LINES

Land-lines were run from the LW-ANH radar site, via the PBX to the transmitting station for remote keying of V.H.F. and H.F. transmitters.

A slight line hum was apparent only on the H.F. transmitters.

AIRCRAFT RADIOS TR1936

Performance of V.H.F. aircraft radios were entirely satisfactory except for one air failure. This resulted in the aircraft returning to base immediately after take-off. The fault was due to an intermittent transmitter valve CV415.

CONCLUSIONS

Telling directly from the P.P.I. tube (using G.E.O.R.E.F.) to the Sector Operations Centre has:-

- (i) Reduced the number of personnel required to man the radar station
- (ii) Reduced the delay caused by converting plots on P.P.I. tube to G.E.O.R.E.F. on plotting table and then telling to Sector Operations Centre
- (iii) Enabled "scrambling" of aircraft in time to intercept attacking aircraft.

2. Only six reservist radar officers were available for the Operation, but this number proved quite adequate.

RECOMMENDATIONS

It is suggested that Reservist personnel be requested to report to the Unit a day prior to the commencement of an Operation such as "Flying Saucer". This will enable them to receive instruction and practical work in the use of correct R/T procedure and operation of controls of the various equipments in use.

During the first few hours of operation "Flying Saucer" operators and the G.C.I. controller reported and complained of faults, when in fact, the only failures were due to faulty operation of the control knobs and switches.

L. V. Bourke
.....
(L.V. BOURKE)
Flying Officer
Radio Officer
NO. 2 (FIGHTER) OPERATIONAL
TRAINING UNIT.

15M³¹

REPORT
of

ACTIVITIES DURING OPERATION "FLYING SAUCER".

To
Headquarters, Eastern Area, R.A.A.F.

By

Pilot Officer J.W. McPHEE
Officer Commanding
No. 302 Radar Station
R.A.A.F. Active Reserve.

At 0800 hours on Saturday 13th June 1953, No. 302 Radar Station commenced a sixteen (16) day continuous training period.

The strength of the unit at this stage consisted of 1 officer; 1 Warrant Officer; 1 Corporal Drill Instructor; 1 LAC. M.T.F; 3 Active Reserve Airmen, and 10 N.S.T.s.

At approximately 1030 hours the Radio Set AN/TPS3 from No. 1 Stores Depot arrived by road transport and was immediately unloaded and checked. On completion of the check it was found that although the consignment consisted of the correct number of crates, the crate containing the residual spare tubes was missing, and an extra crate of tools and accessories was found to be in its place. Both crates of tools and accessories were found to be discrepant:-
(a) the Volt-ohmmeter, and (b) approx. 50% of the tools.

On Sunday 14th the AN/TPS3 was erected at Wagga for a trial run, but the modulator was found to be unserviceable, and without spare modulator tubes very little could be done to make it serviceable.

As well as the modulator trouble, the pulse transformer mounting had come adrift and the time taken to repair same was doubled, due to the lack of special tools mentioned above.

Inspections were then carried out on the two AT14A Transmitters which were to be used for R/T contact with Richmond.

At approximately 1000 hours on Monday 15th the Radio Set AN/TPS3 from No. 23 Squadron, Brisbane, arrived by Service transport and by obtaining spares from this unit it was possible to make the first TPS3 serviceable and then a large percentage of the personnel, for the first time, saw a Radar Station operating.

The AN/TPS3 was then dismantled and packed ready for transportation.

The vehicles used to transport the Station were one (1) 3 ton "Blitz" and two-wheel trailer, one (1) 3 ton covered tender, and one (1) 30 cwt. tender. Loading of the vehicles commenced at 1900 hours and was completed at 2300 hours. The 3 ton "Blitz" and trailer driven by LAC Miller, with Warrant Officer Heggie in charge, and three (3) N.S.T.s, departed for Port Kembla at 2315 hours.

At approximately 1900 hours a phone call was received from Richmond advising that two Active Reserve M.T. Drivers, Corporal Culbert and LAC Anderson, were departing Sydney at 2230 hours by train and would arrive at Wagga at 0930 hours next morning. At 0500 hours on Tuesday 16th the writer received a phone call from Corporal Culbert stating that he and LAC Anderson had caught the 1930 hours train and were now at the Wagga Railway Station. Arrangements were made for a vehicle to proceed to the Railway Station and they were transported to Forest Hill.

Two Aircraft Apprentices who have shown considerable interest in No. 302 Radar Station since its transfer to Wagga, namely L/App's Mitchell and Dick, volunteered to serve with this unit during part of their leave. The Commanding Officer of the R.A.A.F. School of Technical Training gave his approval and they joined the unit shortly before the main party departed Wagga for Port Kembla at 1000 hours on Tuesday 26th.

Approximately 25 miles from Forest Hill the 3 ton tender became U/S and Cpl. Culbert reported the trouble as being a "main bearing". The R.A.A.F. School, Wagga, was contacted by telephone and arrangements were made for another vehicle to replace the U/S one. The equipment was transferred to the replacement vehicle and the party moved on after having been held up for three hours on the road.

The main party arrived at Port Kembla at 2300 hours shortly after the "Blitz" and trailer.

On Wednesday 17th the equipment was unloaded, the AN/TPS3 installed and the control and power lines run to the remote receiving site.

On Thursday 18th the three 50 ft. masts for the R/T and VHF aeriels were erected, the two AT14A transmitters, the 5KVA power unit, the R/T Receivers and the VHF equipments were installed. Considerable trouble was experienced with the AN/TPS3 power units, particularly the ones from 23 Sqn. which contained a large amount of sand.

On the morning of 19th a test run was made with the AN/TPS3 and contact was made with Richmond on the R/T channel. As the personnel of the unit had worked every night for six nights, after conferring with S.O.C. Richmond it was decided to stand the unit down from 1200 hours until 0700 hours on the Saturday 20th.

The Station went on the air at 0840 hours on Saturday 20th and the first plot was passed at 0926E. During the day the AN/TPS3 did not perform as well as expected, due to trouble with the power units. The guy ropes for the 50 ft. masts were made off to 3 ft. angle iron spikes and at night the parabolic reflector was lashed on each side above the dipole level.

During Saturday night a strong wind sprung up and the guards tightened the lashings and guys, but at 0300 hours on Sunday the writer was awakened by one of the guards who reported that one of the 50 ft. masts was on the ground. On investigation it was found that the "back" 3' angle iron spike had been loosened by the wind, which was estimated to be 45 to 50 M.P.H. with gusts to 60 M.P.H.

One of the other masts was saved by adding extra spikes for the guy ropes. The collapsed mast was found to be broken at about the 20 ft. level where it hit the front guy spike and about 2 ft. from the top. The mast was repaired with a loss of only 4 ft., re-rigged, and at first light, re-erected. This job was made all the more difficult because of the high wind. The AN/TPS3 console had moved and had to be reset. The Station went on the air at 0810 hours with three men holding the console down to prevent further movement. The wind was so strong that every few minutes the antenna assembly would swing round on the clutch into wind making operation most difficult.

At approximately 1218 hours the transmission line assembly came adrift from the upper hinge plate. The Sector Operations Center at Richmond was advised, and the Station withdrew from the Operation.

The AN/TPS3 was dismantled with considerable difficulty in the wind, and packed ready for transport.

On arrival at Port Kembla the M.T. Fitter, LAC Miller, reported that an oil seal was required for the Chev. "Blitz". Further examination revealed that a wheel bearing

was also required. No. 2 Stores Depot was asked to supply an oil seal and bearing, but when it arrived at Port Kembla it was found to be a "Ford" type and therefore would not fit the Chev. vehicle.

As Wing Commander Taylor of H.Q.E.A. was to visit the Station the following day (Sunday), a request was made to H.Q.E.A. for the parts required. When Wing Commander Taylor arrived with the parts the M/T Fitters found that they were unable to remove the U/S parts from the wheel assembly. On Sunday evening an M/T Driver and Fitter were instructed to proceed to H.Q.E.A. to obtain a complete wheel and wheel assembly. On their return to the Station the following day the wheel was fitted to the vehicle and loading commenced.

The party departed Port Kembla at 1000 hours on Tuesday 23rd and the first section arrived at Wagga at 2300 hours, whilst the "Blitz" and trailer arrived at 1600 hours on Wednesday 24th.

Most of the difficulties experienced were due to the fact that the unit was in the course of being reformed, at the same time as the "Operation" was to take place, and therefore it was not possible to carry out any training prior to the departure for Port Kembla.

The weakness of the AN/TPS3 Antenna assembly, found in the high wind, can be overcome by a modification which will be the subject of a separate report.

The R/T telling circuits worked quite well during the entire operation, whilst the land line was U/S during the Saturday night and part of the Sunday morning.

In future operations from Port Kembla it is suggested that an exchange line from the site to the Port Kembla exchange be provided because once the telling line is connected through to Richmond, there is no means of contacting the local exchange and the nearest telephone is approximately $\frac{1}{4}$ of a mile away, in a private building.

The site at Port Kembla is quite good, and buildings made available by the Army lend themselves to make an ideal setup.

Of the 10 N.S.T.s made available by the Commanding Officer of the R.A.A.F. School of Technical Training, approximately half of their number wish to transfer to the Active Reserve, instead of the General Reserve, upon completion of their National Service Training.

All members of the unit worked extremely well for long hours, but continued on cheerfully under considerable difficulties and it is felt that valuable experience was gained by all concerned, during the Operation.


(J.W. McPHEE)
Pilot Officer.

-27
15N

CONFIDENTIAL

OPERATION "FLYING SAUCER".

TECHNICAL REPORT.

on

TELECOMMUNICATIONS AND RADAR

1. The underground building used for the Sector Operations Centre in Operation Flying Saucer had been in disuse for six or seven years and contained very few facilities for control of an operation of this kind. It was impossible to obtain authority for the installation of the internal communication system by P.M.G personnel in the short time between the move from Schofields on 28 March, and the operation date of 20th and 21st June. An attempt to purchase necessary telephone cabling through R.A.A.F Stores channels was unsuccessful.

2. The entire internal wiring of the Operations Centre was therefore carried out by the few P.A.F radio technicians on strength to the Sector, and Active Reserve Personnel during week-ends and camps, in addition to erecting and servicing the radar stations and running external communication lines from the sector to the Dispersal point at the end of the airstrip and the radar stations on the station perimeter. This work involved the termination of 200 pairs of internal telephone cabling, the installation of microphone transformers, jack test points, two wire to four conversion equipment for conversion from telephone line plotting to H.F Radio telephone backing. The renewal of H/F aerials and rack mounting of A.R.7.A and A.R.17 Receivers for rapid switching in case of land line failure.

3. The equipment used for the exercise was as follows:

- (a) L.W/A.W.H used as a G.C.1 at Williamtown.
- (b) A.N/T.P.S.3 about 4 miles out of Williamtown used as a backing for the L.W./A.W.H on low flying aircraft.
- (c) L.W/A.W.H at Georges Heights used as a G.C.1
- (d) L.W/A.W MK1A at Richmond used as early warning
- (e) A.N/T.P.S -3 at Richmond used mainly as a low flying early warning backing the L.W/A.W
- (f) A.N/T.P.S -3 at Red Point Port Kembla to cover the sea approaches south of Sydney.
- (g) Land lines to Williamtown, Georges Heights, Mascot Tower and Port Kembla for plotting of aircraft movements.
- (h) A.T.20 Transmitters at Londonderry and Williamtown for landline communication backing. A.T.1.4 at Port Kembla and A.R.7.A receivers. A.T.21 and A.R.7 at Georges Heights.
- (i) A.T.17A Transmitters at Londonderry and Williamtown with A.R.17 Receivers for R/T communication to aircraft.
- (j) T.R.5043 Transmitter receiver at Georges Heights for G.C.1 control.

- (k) Don 8 land lines to the dispersal point at the end of the airstrip connected to field telephones for rapid scrambling of aircraft and T.R.5043 equipment for backing and for communication to the tower. A Don 8 cable extension to the station PABX for administrative liaison.
- (l) Lines to the Army Mobile H.F transmitter Unit for artillery liaison.
- (m) Army height finding radars at North Head and Georges Heights providing height information to the L.W/A.W.H.

4. From the Sector Operations Room viewpoint the L.W/A.W.H at Williamtown appeared to work very well and good ranges were obtained from the A.N.T.P.S -3 there. The A.N.T.P.S -3 was sited on a mound about 50 ft. above surrounding land. Actual details of performance should be obtained in the Williamtown report. The L.W/A.W.H at Georges Heights also performed very well as an early warning and as a G.C.1 except that there was a blind area in the sector 075 degrees to 083 degrees caused either by the higher ground at North Head or some tall scrub near the radar site, and a much larger blind area from 155 degrees to 225 degrees apparently caused by the built up area of Sydney blocking or scattering the beam.

5. The L.W/A.W at Richmond performed satisfactorily and reported tracks up to 30 miles north of Williamtown from 315 to 045 degrees and as far south as Nowra and Canberra in the sector 120 to 225 degrees but in the sector 040 to 120, over the sea, the receiver was desensitized by strong echoes returned by the hangar buildings on the aerodrome ranges in the sector 045 to 120 degrees appear limited to approximately 60 miles. The A.N.T.P.S -3 suffered similar trouble. This radar tracked a civil aircraft out to 107 miles in the vicinity of Canberra but generally it did not do better than 50 to 60 miles. The set itself worked all day without trouble. The tent exhaust fan was ducted to the outlet vent from the indicator and increased the airflow through the unit thus keeping the cabinet temperature down. The siting of both these radars is the best available on the aerodrome, but leaves much to be desired as a radar early warning site and reduces the effective coverage.

6. The T.P.S-3 at Port Kembla gave a lot of trouble until faults were rectified, but very few plots were obtained from it. The high winds on Sunday afternoon damaged the parabola and put the station out of action. This radar was sited on a rise about 200 to 300 feet above the sea shore.

7. All land lines worked well and the H.F backing links were not required at any stage. All H.F links were tested and gave good results and could have been used satisfactorily if required. The Duplex channels to Port Kembla were particularly good and made the maintenance of communication in the sector much easier than the simplex channels to Williamtown.

8. All V.H.F equipment worked well both to and from aircraft. Crystals for 138.6 megacycles are still unobtainable and limited the use of A.T.17A transmitters to the 139.32 channel. Georges Heights used the channel 138.6 with T.R.5043 equipment and obtained excellent ranges with aircraft thus enabling the two G.C.1 Units to work on different V.H.F channels.

9. Of all the plots received at the General Situation Map from radars in the Sydney area, 1440 plots were supplied by the L.W./A.W.H at Georges Heights, 625 plots from Richmond L.W/A.W and 125 plots from T.P.S-3 at Richmond. However, the T.P.S-3

was only used as backing to the L.W/A.W so that under normal conditions the proportion of T.P.S-3 plots to L.W/A.W would be about 400 to 600.

10. Preliminary tests of the T.P.S-3 at Richmond indicated that the Radar in its present design and location is unsuitable for G.C.1 training. When opportunity occurs an attempt will be made to increase the height coverage of the parabola by removing part of the chicken wire at the top and bottom of the parabola to widen the vertical width of the beam. This may permit its use as a G.C.1 trainer on aircraft within 50 miles range.

11. It may be noted that in previous air defence exercises a TPS-3 radar was sited at Port Macquarie and another at the present site at Port Kembla. In all cases the sites chosen were several hundred feet above the shore line and very few plots were obtained at any time. In fact none at all were returned from Port Macquarie. It would thus appear that the main lobe is broken up and dissipated in many short range lobes or else does not get any "lift" from reflected energy in the "fresnal" area close to the radar and so passes under aircraft flying above 4000 feet. The latter assumption seems to be more logical as the T.P.S-3 at Port Kembla reported some plots at 104 miles range but reported visual sighting of aircraft which did not appear on the screen.

12. The Army height finding radars were very slow in passing height information to the L.W/A.W.H at Georges Heights and many of the heights obtained were wide of the actual height. This may have been due to the ranges at which heights were requested being beyond the accurate range of the gunlaying radars.

Conclusions

13. It is concluded that the exercise was most successful in training the ground personnel in raid plotting and reporting and in the techniques of vectoring aircraft on interception of raids but that if the raiding aircraft had tactical freedom the existing radars on their present sites would be ineffectual for the following reasons:

- (a) The L.W/A.W.H at Georges Heights cannot detect aircraft above 16000 feet and is blind on the bearing of 080 degrees and from 155 to 225 degrees and from approximately 290 to 350 degrees.
- (b) The L.W/A.W at Richmond is blind on the western sector and suffers reduced ranges on the eastern sector sea approaches.
- (c) The TPS-3 is ineffective over 60 miles when sited inland as at Richmond, and is ineffective on the coast unless sited on low flat land or on the beach level.

14. It is also concluded that the present allocation of two TPS-3 radars and 2 G.M.H radars for training of Sector operations centre personnel is impracticable. The Sector needs the continuous running LW/AW at Richmond to provide long range plots so that the G.M.H can be used to find height information. The AN-TPS-3 without experimental modification of the aerial parabola, cannot plot aircraft above 6000 to 8000 feet between zero and 40 miles except in lobes too narrow to permit successful G.C.1 training. From the percentage of plots reported it is apparent from para 9 that for general raid plotting and reporting training, and exercises such as Flying Saucer, the Sector will lose 60% of its effectiveness if it cannot control and operate the LW/AW.H at Georges Heights.

15. The Sector internal communications worked successfully within the limits of the exercise but if it is intended to link up the Naval stations at Nowra, and at South Head on the next exercise, then the communications facilities to be installed in the Sector must be increased. The number of lines from the Sector to the Station H.D.F must be increased from the 28 now required to 40 or 50 pairs and also the P.M.G Department should be advised now that 12 or more trunklines will be required between the sector and central exchange for the duration of future exercises.

16. Recommendations.

It is recommended that,

(a) the L.W/A.W.H at Georges Heights should be re-sited, at North Head, to give more effective coverage over a wider traverse than at present.

(b) That the number of frequency channels allotted for H.F. telling purposes should be trebled to permit duplex working on all circuits. This arrangement permits the transmitters carriers to be left on all the time so facilitating monitoring at the Sector, and reducing the noise level in the receivers when no plots are being transmitted.

(c) That the internal communications of the Sector should be increased to provide for tying in with the Naval radars at H.M.A.S Watson and Nowra and the external lines be increased to handle the increased requirements.

(d) Consideration be given to the installation of two pairs of telephone cable to each end of the airstrips on fighter stations to provide communication with the Station and the sector operations room without the necessity of running several miles of Don 8 cable for this purpose. This work must always be left till the last minute at present because of uncertainty as to the wind direction over the period of the exercise.

(e) The Officer-in-charge of the Sector should be advised of the probable order of posting of technical personnel. With the limited number of technical personnel and frequent postings on short notice it is impossible to maintain continuity of even normal maintenance and installation work.

(f) The radio plan for the sector operations centre should be amended to include the L.W/A.W.H at Georges Heights, the L.W/A.W at Richmond, a total of eight A.R.7.A receivers for H.F. backing channels and 4 TR5043 transmitter/receivers and type V power supplies.

R.K. Phillips
.....Flt.Lt.
(R.K. Phillips)
Tech. Radio.



THIS PAGE IS REPRODUCED FROM A BADLY FADED OR ILLEGIBLE SOURCE.
SCANNING THIS ITEM AT A HIGHER RESOLUTION WILL NOT IMPROVE ITS LEGIBILITY.

E

RPYP A50

IAI

SK92

RPYJ A62

OPERATIONAL
IMMEDIATE



RPYJF A7

OPOP/RR RPYJ RPYPWH 222

DE RPYJF B5/21

R 210200Z

FM AMBERLEY
TO RPYJ/AOREA
INFO RPYPWH/AORANQ

GR142

RESTRICTED AMB/B1 21 JUNE FORM BLUE (A) SYD/GC1 20
JUNE SERIALS 1 3 LINCOLN A73-52 (3) (1) HORNSBY (3) INGLEBURN
H/CAMP (C) (1) 202130Z 12000 FT (3) 202215Z 11000 FT (D) BOTH
BOMBING RUNS CONSIDERED ~~SUCCESSFUL~~ SUCCESSFUL (F) (1) 202059Z
12000 FT ABEAM WING BY 4 VAMPIRES (.) 202118Z 12000 FT ABEAM
GOSFORD BY 4 MUSTANGS (3) NIL (G) (1) QUARTER ATTACKS BY 4
VAMPIRES OF WHICH FIRST WAS UNOBSERVED TILL BREADAWAY AND
CONSIDERED SUCCESSFUL FOR VAMPIRE (.) EVASION WAS INEFFECTIVE
AGAINST FIGHTER ATTACKS VAMPIRES AND MUSTANGS (M) LINCOLN
CONSIDERED DESTROYED (1) ~~DESTROYED~~ DESTROYED (1) BOMB RUNS OF
HORNSBY INGLEWOOD (J) 202109Z 2000 TON COASTAL VESSEL 3133S 15256E
COURSE SPEED 2107/10K (.) 202104Z 5000 TON FREIGHTER 3255S 15208E
COURSE SPEED 2257/10K (.) 202110Z LAUNCH AT 3312S 15143E 202110Z
LAUNCH AT 3312S 15143E 2907/5K (.) 202150Z 6 VESSELS MOORED
WOOLONGONG HARBOUR (K) AS FORECAST (L) BOTH CONCENTRATION TIMES
ADHERED TO AND GOOD RUNS EFFECTED (M) NIL

CFN...AMB/B1 21

210230Z JUN 1965

RESTRICTED





21

OPERATION
IMMEDIATE

1056

13A

22

SRBZRPYP A56

RPYJ A78



RPYJF A 29
OP OF RPYJ RPYWH 2 2 2
DE RPYJF B29/21
FM AMBERLEY
TO RPYJ /AOREA
INFO RPYWH / AORFANO

GR 122

RESTRICTED AMB/B5 21 JUNE FORM BULEEEE FORM BLUE
(A) SYD/GC6 20 JUNE SERIALS 11 15 LINCOLN A73-47 (B)
(11) CLYDE ENGINEERING WORKS (15) HORNSBY R/STATION (C) (11)
210255Z 15000 FT (15) 210350Z 13000 FT (D) BOMBSIGHT U/S
OVER TARGETS BUT RUNS MADE AND PHOTOGRAPHER (F) 210237Z AT
3350S 15140E

2 ATTACKS BY 2 MUSTANGS (.) 210330Z AT 3332S
15145E 8 ATTACKS BY 2 MUSTANGS (G) BOTH PAIRS MAKE QUATER
ATTACKS AGAINST WHICH EVASIVE ACTION WAS ONLY PARTLY SUCCESSFUL
(H) LINCOLN ~~CREESE~~ LINCOLN CONSIDERED SHOT DOWN ON SERIAL
15 (I) BOTH TARGETS LINE OVERLAPS (J) 210150Z AT 3221S 15234E
FREIGHTER 2000 TONS 180T/8K (.) 210328Z AT 3332S 15140E FREIGHTER
2000 TONS 190T/10K (K) AS FORECAST (L) BOMBSIGHT FAILURE PRIOR
~~TAREEE~~ PRIOR TAKE-OFF CAUSED LATE START AND FOR 10 MIN CONCENTRATION
DELAY (.)

CFW... AMB/B5 21 21/0700

DOM

220250 ✓

21/0700Z JUNE RPYJF



SRBZRPYP A55

RPYJ A72

RPYJF A10

OPOP RPYJ RPYPMH 222

DE RPYJF B12/21
OP 210320Z

FM AMBERLEY
TO RPYJ/AOREA
INFO RPYPMH/AORAFHQ
GR121

RESTRICTED AMB/B3 21 JUNE FORM BLUE (A) SYD/GC4 20
JUNE SERIALS 7 9 LINCOLN A73-54 (B) (7) SCHOFIELDS 9 HORNSBY
R/STATION (C) 2335Z 14000 FT 0016Z 13000 FT (D) GOOD (E) NIL
(F) SERIAL 7 2249Z 2 VAMPIRES 1 AIRCRAFT MADE 2 ATTACKS 2334Z
2 MUSTANGS 2 ATTACKS EACH SERIAL 9 2 MUSTANGS SIX ATTACKS EACH
(G) EVASIVE ACTION ALL ATTACKS CLAIM 1 VAMPIRE DAMAGED 2249Z
(.) 2334Z 2 MUSTANGS DAMAGED BY CANNON FIRE BEFORE
ATTACKS INITIATED (H) NIL (I) SCHOFIELDS HORNSBY
R/STATION (J) 2215Z FREIGHTER ANCHORED PORT MACQUARIE HARBOUR
2227Z FREIGHTER 5000 TONS 3322S 15300E COURSE 300 TRUE SPEED 8
KNOTS 0005Z FREIGHTER 6000 TONS 3323S 15128E COURSE 182 TRUE SPEED
10 KNOTS (K) AS FORECAST (L) NIL (M) NIL

CFN...AMB/VEEE AMB/B3

210345Z JUN RPYJF

RESTRICTED



SRBZRPYP A53

RPYJ A63

OPERATIONAL
IMMEDIATE

2083 11A

RPYJF A9

OPOP SPYJ RPYPWH 222

DE RPYJF B6/21
OP 210242Z

FM AMBERLEY
TO RPYEEEEEE

TO RPYJ/AOREA
INFO RPYPWH/AORAFHQ

GR148



R E S T R I C T E D AMB/B2 21 JUNE FORM BLUE (A) SYD/GC2
20 JUNE SERIALS 2 5 LINCOLN A73-49 (B) (2) BARRENJOEY
LIGHTHOUSE (5) HAWKESBURY RAILWAY BRIDGE (C) (2) 202202Z
18000 FT (5) 202311Z 15000 FT (D) (2) UNSUCCESSFUL DUE TOPPLED
BOMBSIGHT CYROS (5) SUCCESSFUL BOMB RUN (F) (2) 202138Z BY 2

VAMPIRES AT 31335 15245E(,) 202155Z BY 5 MUSTANGS AT 33335 15143E
(5) NIL INTERCEPTIONS (G) VAMPIRES ATTACKED FROM SIX OCLOCK
LOW WHICH ATTACKED CONSIDERED SUCCESSFUL(,) 2 VAMPIRES QUARTER
ATTACKS NOT EFFECTIVE(,) MUSTANGS MADE UNSUCCESSFUL HIGH QUARTER
ATTACKS EXCEPT ON BOMB RUN WHEN ATTACKS CONSIDERED SUCCESSFUL (H)

CONSIDER LINCOLN SHOT DOWN (I) PHOTOS BOTH BOMB RUNS (J) 202042Z
TRAWLER AT 3110S 15310E COURSE 015T(,) 202055Z 2 LAUNCHES 3140S
15305E CAURSE 180T(,) 202103Z COASTAL FREIGHTER 8000 TONS 3208S
15300E 005T/12M(,) LINCOLN 202235Z AT 3228S 15245E 13000 FT
CAURSE APPROX SOUTH (K) AS FORECAST (L) LATE ON TARGET DUE ENGINE
TROUBLE PRIOR TAKEOFF

CFN...AMB/B2

210500Z JUN RPYJF

220242Z

RESTRICTED



THIS PAGE IS REPRODUCED FROM A BADLY FADED OR ILLEGIBLE SOURCE.
SCANNING THIS ITEM AT A HIGHER RESOLUTION WILL NOT IMPROVE ITS LEGIBILITY.

RPYJ AGS

OPERATIONAL
IMMEDIATE

H69

19

V

VOPOP RPYSC(16E)*=9RPYJF A13

OPOP RPYJ RPYPMH 222 *****

DE RPYJF B13/21

OP 210350Z



FM AMBERLEY
TO RPYJ/AOREA

INFO RPYPMH /AOREA AORAFHQ
GR99

R E S T R I C T E D AMB/B4 21 JUNE FORM BLUE (A) SYD/GC4 20
JUNE SERIALS 7 10 LINCOLN A73-25 (B) (7) CATARACT DAM (10)

BLACKTOWN R/STATION (C) (7) 202335Z 14000 FT (10) 210028Z
12000 FT (D) BOTH STRIKES DIRECT HITS (E) NIL (F) (7)
ABEAM WLM 2 VAMPIRES(.) ABEAM SYDNEY HEADS 5 MUSTANGS (10)
SYDNEY HEADS BY 1 MUSTANG 2 VAMPIRES ATTACKS (G) 202256Z
ATTACKS BY VAMPIRES 3324S 15223E(.) CLAIM 1 MUSTANG DESTROYED
(H) LINCOLN CONSIDERED DESTROYED SERIAL 7 (I) CATARACT DAM
BLACKTOWN R/STATION (J) 202150Z FREIGHTER 8000 TONS 3027S 15317E
CA5T(.) 202202Z 10000 TONS FREIGHTER 3058S 15312E (K) AS
FORECAST (L) (M) NIL

CFN...AMB/B4 21

210400Z JUN RPYJF

don



220239

RESTRICTED



FLYING SAUCER

RPYP A82

URGT AIR 55 .. IPSWICH 235/216 3.13P

FIL RAFHQ MELBOURNE

OPS IMMEDIATE FROM AMB TO RPYJ/AOREA ZEN/AORAFHQ GR177 RESTRICTED

AMB/B1 20 JUNE FORM BLUE (A) SERIAL 1 SERIAL 3A7352

(B) HORNESBY INGLESBURN MILITARY CAMP (C) ~~192350Z~~

102350Z 12000 FEET 192359Z 11000 FEET (D) BOTH TARGETS BOMBED

SUCCESSFULLY (E) ~~1~~ (1) INTERCEPTED 17 MINUTES

PIROR TARGET BY 2 VAMPIRES UNOBSERVED UNTIL BREAKAWAY STOP 5

MINUTES PRIOR TARGET BY 2 MUSTANGS (2) ~~1~~ NIL INTERCEPTION (P111)

(F) (1) JUMPED BY 2 VAMPIRES FROM SUN WHICH ATTACK CONSIDERED

SUCCESSFULL STOP SECOND ATTACK EVADED BY LINCOLNS EVASIVE ACTION

STOP 2 MUSTANGS OBSERVED BY TAIL AT ALL STAGES OF ~~QU2F~~

QUARTER UP ATTACKS FROM SIX OCLOCK (2) NILKG) DEKOTA OVER

CRONULLA 192355A COASTAL STEAMER 2000 TONS AT 192128Z

COURSE ~~010T 5 KNOTS~~ POSITION 3110S 15310E

STOP COASTAL STEAMER 2000 TONS 192132 Z COURSE 010T FIVE KNOTS

POSITION 3120S 15309E STOP FISHING SMACK 80 TONS 192135Z

MOORED 3130S 15300E STOP 2M2F 10000 TONS 192150Z COURSE

020T 12 KNOTS 3151S 15258E STOP 2M1F 20000 TONS COURSE 180T

5 KNOTS 3408S 15143E STOP SMALL VESSEL 400 TONS 192235Z COURSE

010T 3 KNOTS 342S 15100E (H) AS BRIEFED VIS 50 NMS NIL CLOUD

EXCEPT (J) INTERCOM FAILURE IN AIRCRAFT STOP EVASIVE

ACTION CAUSED TOPPLED BOMB SIGHT GYRO FRIST RUN DTG

200420 Z THI 200440Z

(FIL OPS MAB RPYJ/AOREA ZEN/AORAFHQ GR177 AMB/B1 20 (AL
1 3 A 7352 (B) (C) 192350Z 12000 11000 1 17 2 5 2 2 F 1 2 2
2 G 2000 192128Z 5 3110S 2000 192132Z 80 192135Z 3130S
15300E 2M2F 1000 192150Z 010T 12 3151S 15358E 2M1F
2000 180T 5 3408S 15143E 400 192235Z 010T 3 342S 15100E
H 50 NMS J DTN+ DTG 200420Z THI 200440Z 200440Z)

20/0/00v



OPERATIONAL
IMMEDIATE

11/83

Op 1

BPYP A63
HEP URET AIR 56. IPSWICH 193/183 4.5P

FIL RAAFHQ MELBOURNE

OPS IMMEDIATE FROM AMB TO ~~BPYPYJ/AOREA~~ INFO/ZEN/AORFHQ GR142
RESTRICTED AMB ~~BUT~~ B2 20 JUNE FORM BLUE A SERIAL 2
SERIAL 5 A73-49 LINCOLN (B) (2) BARANJOEY LIGHTHOUSE (5) HAWKESBURY
RAILWAY BRIDGE (C) 2 (2) 19329Z 1800 FEET (C) (5) 200048Z
15000 FEET (D) (2) INTERCEPTION RENDERED FIRST RUN
ABORTIVE SECOND RUN MADE (D) (5) SUCCESSFUL (3)
(2) ON INITIAL RUN 2 MUSTANGS INTERCEPTED STOP EVASIVE
ACTION TAKEN STOP ATTACKS CONTINUED FOR PART OF SECOND RUN 2
(5) INTERCEPTED BY TWO MUSTANGS TWO VAMPIRES FOR TEN MINUTES BEFORE
BOMBING 12 ATTACKS MADE IN ALL (G) BEAUFIGHTERS LOW 120
NOBBYS HEAD 15 MILES COURSE 060T STOP VESSELS SIGHTED 030T
PT MCQUARRIE 15 NMS STOP 120 PT MCQUARRIE 15 NMS STOP
2 VESSELS 080 CROWLEY HEADS 20 NMS STOP 2 VESSELS
090 SUGARLOAF 10 NMS (HL FINE AS FORECAST (J)
AIRCRAFT EVADED INTERCEPTIONS AT FIRST TARGET AND OFFWLM STOP
ON SECOND TARGET ONLY INITIALS * INITIAL
EVASIVE ACTION TAKEN STOP AIRCRAFT PROBABLY SHOT DOWN ON RUN
DTG 200445 THI 200459Z

(GR 142 B2 20 A 2 5 A74-4+
5 A74-4+ A73-49 B 2 5 C 2 192329Z 1800 C 5 2000048Z
15000 D 2 D 5 E 2 2 E 5 12 G 160 15 15 030T NMS
120 15 2 20 2 090 10 H J OFFWLM DTG 200445 THI 200459Z)

(2) ON INITIAL RUN 2 MUSTANGS INTERCEPTED STOP EVASIVE
ACTION TAKEN STOP ATTACKS CONTINUED FOR PART OF SECOND RUN E
(5) INTERCEPTED BY TWO MUSTANGS TWO VAMPIRES FOR TEN MINUTES BEFORE
BOMBING 12 ATTACKS MADE IN ALL (G) BEAUFIGHTERS LOW 120
NOBBYS HEAD 15 MILES COURSE 060T STOP VESSELS SIGHTED 030T
PT MCQUARRIE 15 NMS STOP 120 PT MCQUARRIE 15 NMS STOP
2 VESSELS 080 CROWLEY HEADS 20 NMS STOP 2 VESSELS
090 SUGARLOAF 10 NMS (HL FINE AS FORECAST (J)
AIRCRAFT EVADED INTERCEPTIONS AT FIRST TARGET AND OFFWLM STOP
ON SECOND TARGET ONLY ~~INITIALS~~ INITIAL
EVASIVE ACTION TAKEN STOP AIRCRAFT PROBABLY SHOT DOWN ON RUN
DTG 200445 THI 200459Z

(GR 142 B2 20 A 2 5 A74-4+
5 A74++ A73-49 B 2 5 C 2 192329Z 1800 C 5 2000048Z
15000 D 2 D 5 E 2 2 E 5 12 G 180 15 15 030T NMS
120 15 2 20 2 090 10 H J OFFWLM DTG 200445 THI 200459Z)

26/0/052



OPERATIONAL
IMMEDIATE

16
74
2 22/1
H/5

BL

RPYP ASURGENT AB19 IPSWICH VIA BRISBANE SUB 232/210 10.45P PHONED
12/30A

RAAFHQ MELBOURNE

FROM AMBERLEY TO AOREA INFO AORAFHQ GR 163 RESTRICTED AMB/B7
20TH JUNE FORM BLUE (A) SERIALS 13 17 A73/21 LINCOLN (B)
(13) PROSPECT RESERVOIR (17) INGLEBURN MILITARY CAMP (C) (13)
200451Z 20000 (17) 200600Z 1800 (D) BOMBING RUNS CONSIDERED
SUCCESSFUL STP FIGHTER TACTICS SOUND AND PRESSED HOME EVEN IN
SUSTAINED EVASION STOP FIRE CONTROL AND SARCH PLAN VERY EFFECTIVE
(F) 200425Z TWO MUSTANGS ATTACKED STOP 200549Z 3 VAMPIRES OVER
SYDNEY ~~10/11~~ (G) FIGHTERS WERE UNDER OBSERVATION ALL TIMES
AND USED SOUND TACTICS AGAINST LINCOLN EVASIONS STOP GUNNERS CLAIM
4 PROBABLES 2 MUSTANGS 2 VAMPIRES (8) BOMB PHOTOS NOT OBTAINED
DUE FILM WIND FAILURE (J) FOLLOWING SHIPPING STOP AT 200314Z
5000TONS NORTHERLY COURSE 10 TO 15 KNOTS 3040S 1531SE STOP
200322Z CARGO 2000 TONS SOUTHERLY COURSE 10 KNOTS 3050S 15320E
STOP 200415Z 4000 TONS VESSEL SOUTHERLY 14 KNOTS STOP ~~200427~~
~~11~~ 200428Z 4000 TONS CARGO VESSEL SOUTHERLY 8 KNOTS 3320S
15235E STOP 200538Z SMALL STEAMER SOUTHERLY 4 KNOTS 3325S 15140E
STOP 200550Z SYDNEY HARBOUR 4 WARSHIPS CARRIER CRUISER DESTROYER
CORVETTE STOP 200633Z CONVAIR 12000 FEET SOUTH BOUND 3200S
15143E ~~10/11~~ (K) 2/8 TO 4/8 A/C 12/14000 (L) VALUABLE R++ CREW
EXPERIENCE IN SUSTAINED EVASION GAINED ~~10/11~~ DTG 2001135Z
THI 201138Z

21/00512
5

153/1/1637

PRIORITY

1 2 15
11/8 6A

SCR2RFYP ASURGT AB3 IPSWICH VIA BRISBANE 63/58 6.45P 20TH

FIL RAAFHQ MELBOURNE

FROM MBERLEY TO AOREA INFO AORAFHQ GR40 AMB/B5 20TH JUNE
RESTRICTED FORM BLUE STOP REF AMB FORMS BLUE THIS DATE STOP FOR
(E) READ (F) STOP FOR (F) READ (G) STOP FOR (H) READ (K)
STOP REF AMB/B 2 20TH JUNE LAST PARA AIRCRAFT PROBABLY DESTROYED
REFERS DTG 200800ZTHI 200817Z

(GR40 AMB/B5 20TH AMB E F F G H K AMB/B2 20TH
200800ZTHI 200817Z)



2A

SKBZRPYP A6

URG 62 . IPSWICH VIA BRISBANE 155/149 5P

FIL RAAFHQ MELBNE

FROM AMBERLEY TO AOREA INFO AGRAPHQ GR102 AMB/B4 20TH JUNE
RESTRICTED FORM BLUE (A) 73-25 SSIALS 7 10 (B) (7) CATARACT
RESEVOIR (B) (10) BLACKTOWN RAILWAY STATION (C) (7) 200120Z 13000
(C) (10) 200219Z 12000 SPEED (D) (7) (10) SUCCESSFUL STRIKES NO FLY
FIGHTER OPPOSITION OVER TARGETS (E) (7) NIL (E) (10) BY 3
MUSTANGS SYDNEY HEADS (F) (10) 3 ATTACKS STOP ONE MUSTANG FORCED
DOWN MARCOT AFTER DAMAGE INFLICTED BY LINCOLN (H) 6/8 BASES FROM
9000 FEET TO 15000 FEET (J) (7) BENEATH CLOUD BY 100 FEET IN BOMBING
RUN CLIMBING TO 13000 FEET OVER TARGET (J) (10) INTERCEPTED
BY TWO MUSTANGS 14 MINS AFTER TARGET EVASIVE ACTION TAKEN ALL
ATTACKS STOP TWO MUSTANGS IN ALL CLAIMED ONE DAMAGED ONE DSTROYED
DTG 200633Z THI 200647Z

(GR102 AMB/B4 20TH (A) A73-25 7 10(B) (7)
(B) (10) (C) (7) 200120Z 13000 (C) (10) 200219Z
12000 (D) (7) (10) (E) (7)
(E) (10) 3 (F) (10) 3
6/8 9000 15000 (J) (7) 100 13000 (J) (10)
14 DTG 200633Z THI 200647Z



AN

PRIORITY

HA

13

22/6

21/7

SCBZRPYP A7URGENT A71 IPSWICH VIA BRISBANE 152/139 6.20P 20TH

FIL RAAFHQ MELBOURNE

FROM AMBERLEY TO AOREA INFO AORAFHQ GR89 AMB/B3 20TH JUNE RESTRICTED
FORM BLUE (A) SERIALS (7) (9) A73-19 (B) (7) SCHOFIELDS. BC)++
B(9) HORNSBY (C) (7) 2001212Z 14000 FEET (C) (9) 2001592Z 13000
FEET (D) PHOTOS TAKEN BOTH SERIALS (E) (7) TWO MUSTANGS (E) (9) NIL
(F) (7) 8 ATTACKS CARRIED OUT (G) 14 SHIPS SIGHTED ALONG COAST (H)
FINE (J) 192323Z SMALL FREIGHTER TIED UP GRAFTON STOP 19233++
192343Z 2 SHIPS STEAMING NORTH AT 3056S 15309E AND 3100S 15310E
STOP 192353Z SMALL VESSEL NNE PORT MACQUARIE STOP 192355Z VESSEL
6000 TONS 15 NNE SE PORT MACQUARIE PLUS SEVEN VESSELS BETWEEN
MACQUARIE AND SYDNEY DTG 200620Z TH1200647Z



RR ... GR89 AMB/B3 20TH A 7 9 A73-19 B 7 9 7 2001212Z 14000
9 2001592Z 13000 7 9 7 8 14 192323Z 192343Z 2 3056S
15309E 3100S 15310E 192353Z 192355Z 6000 15 200620Z TH1200647Z



21/0058

PRIORITY

2A

12

ops 1 + 2 21/6
14/17

174060 -17URGENT ABLS IPSWICH VIA BRISBANE SUB 215/201 10.45P 607B
MX3160 12/30AM

RAAFHQ MELBOURNE



FROM AMBERLEY TO ALREA INFO AORAFHQ GR153 AMB/B6 20TH JUNE
RESTRICTED FORM BLUE (A) SERIALS 11 15 A73/53 (B) (11) CLYDE
ENGINE WORKS (15) HORSNBY RAILWAY STATION (C) (11) 200400Z
15000 FEET SPEED (15) 200516Z 13000 FEET (D) BOTH STRIKES
CONSIDERED VERY SUCCESSFUL (F) (11) (15) ON EACH STRIKE 2
~~WAS CARRIED OUT ON~~
MUSTANGS CARRIED OUT QUARTER ATTACK (G) (11) (15) APPROX 4 ATTACKS
EACH TARGET BY MUSTANGS OING QUARTER ATTACKS FROM BOTH SIDES STOP
COORDINATED EVASIVE ACTION AND FIRE CONTROL CAUSED 60 PERCENT OF
ATTACKS TO BE BROKEN OFF (J) AT 200312Z WHITE VESSEL 1
FUNNEL 8000 TON 16 TO 18 KNOTS COURSE 030T POSITION 3200S 15250E
STOP 200350Z CARGO VESSEL SPEED 16 KNOTS COURSE 040T POSITION
3330S 15140E STOP 200430Z CARGO VESSEL COURSE 200T SPEED 12 KNOTS
POSITION 3310S 15200E STOP 200450K TANKER COURSE 190T SPEED 16
KNOTS 3310S 15220E (I) PHOTOS FROM BOMB RUNS (J) FINE (H) (I)
~~SCATTERED CUMULUS OVER TARGETS~~ RUNS (K) FINE SCATTERED CUMULUS OVER TARGETS
(L) 2 FIGHTERS CLAIMED DESTROYED STOP FIRST AT 200404Z SECOND AT
200511Z REPRESENTING ONE OF EACH OF 2 ATTACKING PAIRS STOP STRIKES
CONSIDERED SUCCESSFULLY WELL CARRIED OUT BY CAPTAIN DTG 2004105Z
~~201105Z~~ 201105Z THI 201109)



21/8/23v

LA 17 201109)++++ 201109Z RR 201109Z)



R.A.A.F. Form A149 (March, 1954)

ROYAL AUSTRALIAN AIR FORCE

POSTAGRAM

PG No.

File No. 153/1/1637

Date: 3 Jun 53

FROM: R.A.A.F. HEADQUARTERS

TO: HEADQUARTERS EASTERN AREA

HEADQUARTERS EASTERN AREA - OPERATION ORDER NO. 5/53
OPERATION "FLYING SAUCER"

1. Receipt is acknowledged of copies 37 and 38 of the above Operation Order.

Wing Commander, D/Ops. 3/6/53

Signature of Originator, Rank and Appointment

This message is:-

XXXXXXXXXX

XXXXXX

XXXXXXXXXX

RESTRICTED

Strike out those classifications

not applicable.

Date, Time, Group

15/4/53
1A
10
RESTRICTED

Copy No. 37

1
2 28/5
3
6 1/6/53
TERN AREA - OPERATION ORDER NO. 5/53
ACTION "FLYING SAUCER"

ilitary Survey - Sheets, Sydney, Broken
Bay, Liverpool, Windsor, Wollongong.

scale 1 : 63,630

- A" Vulnerable Points (for Exercise purposes only)
B" Aircraft Control Arrangements
C" Signals Arrangements.

INFORMATION

1. In time of war, No. 22 (City of Sydney) (F) Squadron and No. 23 (City of Brisbane) (F) Squadron may be called upon to defend vulnerable points in our coastal cities against air attack.
2. In order to exercise these Squadrons in their Operational role, an exercise will be held on the 20 and 21 Jun. 53, with Sydney as the city involved.
3. During daylight hours, offensive sorties will be made without warning in the Sydney Area by aircraft of No. 82 (B) Wing and No. 30 (T/T) Squadron on the 20 and 21 Jun. 53.
4. No. 2 (F) O.T.U. will be available to assist the defending forces.
5. It will be the task of the Sydney Air Defence Training Sector and the Active Reserve element, to detect the raids and vector defending fighters to intercept the "hostile" aircraft. The Sector Operations Centre (S.O.C.) at Richmond will be the controlling authority of the Air Defence Organisation.
6. The Active Reserve element of the training Sector may be required to provide personnel to man radar installations.

INTENTION

7. To exercise the Air Defence organisation of Sydney

Title

8. The code name of this operation is "Flying Saucer".

Command and Control

9. The Staff Officer Operations, Headquarters Eastern Area, is to exercise overall command of the Defending Forces, and may delegate direct control to the Officer Commanding Sydney S.O.C. Forms Green will be issued by Headquarters Eastern Area, to cover tasks of the attacking force.

Copy 38
10/6/53
RESTRICTED

....2



RESTRICTED

89/37/AIR

Copy No. 37

HEADQUARTERS EASTERN AREA - OPERATION ORDER NO. 5/53
OPERATION "FLYING SAUCER"

MAP REFERENCE:-

Military Survey - Sheets, Sydney, Broken Bay, Liverpool, Windsor, Wollongong.

Scale 1 : 63,630

APPENDICES:-

- "A" Vulnerable Points (for Exercise purposes only)
"B" Aircraft Control Arrangements
"C" Signals Arrangements.

INFORMATION

1. In time of war, No. 22 (City of Sydney) (F) Squadron and No. 23 (City of Brisbane) (F) Squadron may be called upon to defend vulnerable points in our coastal cities against air attack.
2. In order to exercise these Squadrons in their Operational role, an exercise will be held on the 20 and 21 Jun. 53, with Sydney as the city involved.
3. During daylight hours, offensive sorties will be made without warning in the Sydney Area by aircraft of No. 82 (B) Wing and No. 30 (T/T) Squadron on the 20 and 21 Jun. 53.
4. No. 2 (F) O.T.U. will be available to assist the defending forces.
5. It will be the task of the Sydney Air Defence Training Sector and the Active Reserve element, to detect the raids and vector defending fighters to intercept the "hostile" aircraft. The Sector Operations Centre (S.O.C.) at Richmond will be the controlling authority of the Air Defence Organisation.
6. The Active Reserve element of the training Sector may be required to provide personnel to man radar installations.

INTENTION

7. To exercise the Air Defence organisation of Sydney

Title

8. The code name of this operation is "Flying Saucer".

Command and Control

9. The Staff Officer Operations, Headquarters Eastern Area, is to exercise overall command of the Defending Forces, and may delegate direct control to the Officer Commanding Sydney S.O.C. Forms Green will be issued by Headquarters Eastern Area, to cover tasks of the attacking force.

RESTRICTED

.... /2

9

RESTRICTED

Forces

-2-

10.

Defending Forces

- (a) No.22 (City of Sydney) (F) Squadron - 6 Mustangs
- (b) No.23 (City of Brisbane) (F) Squadron- 6 Mustangs
- (c) No. 2 (F) O.T.U. - 6 Vampires
- (d) Sydney Air Defence Training Sector

Attacking Forces

- (a) No. 82 (B) Wing - 6 Lincolns
- (b) No. 30 (T/T) Squadron - 1-2 Beau-
fighters

Bases

- 11. All attacking aircraft are to operate from home bases.
- 12. No. 22 (City of Sydney) and No. 23 (City of Brisbane) Squadron Mustangs are to operate from Richmond, No. 23 Squadron are to position there by 1600 K on the 19 Jun. 53.
- 13. No. 23 Squadron aircraft are to return to their home base by not later than 22 Jun. 53.
- 14. No. 2 (F) O.T.U. aircraft are to operate from Williamstown.

Task

- 15. Defending forces are to intercept and destroy attacking forces before they are in a position to make attacks upon or take photographs of vulnerable points in the Sydney area. Vulnerable points, for the purpose of this exercise, are listed in Appendix "A".

Phasing of Exercise

- 16. The exercise will be carried out in two (2) phases on the 20 and 21 Jun. 53. Timing will be as follows :-

<u>Phase</u>	<u>Date</u>	<u>Time</u>	<u>Remarks</u>
One	20 Jun.	0900 - 1600	Defending forces to expect attacks.
Two	21 Jun.	0700 - 1500	Defending forces to expect attacks.

Type of Attack

- 17. Defending Forces are to expect attacks to be made at any height above 7,000 feet and from the east of a line north and south through Sydney.

Debriefing

- 18. At the conclusion of the Operation the Air Defence Commander is to hold a debriefing of appropriate personnel including aircrew, G.C.I. controllers and S.O.C. personnel, at Richmond.

Reports

- 19. On completion of the Operation, all the units participating in this exercise are to submit reports in quadruplicate, covering the following aspects of the exercise:-

RESTRICTED

....3

8

RESTRICTED

-3-

- (a) General description
- (b) Outstanding features
- (c) Whether or not raids were intercepted and if yes, the point where interception was made.
- (d) Performance of equipment used.
- (e) Lessons of the operation
- (f) Recommendations.

20. Reports are to reach this Headquarters within 30 days of the completion of the exercise.

21. Forces are to originate Forms Blue as follows:-

- (a) Defending Forces - at suitable intervals during the operation
- (b) Attacking Forces - by the unit concerned on completion of an offensive operation.

Briefing

22. Briefing is to include the following instructions to the defending forces:-

- (a) The provisions of A.F.O. 10/B/16 are to be observed.
- (b) Fighter affiliation is not to take place below 7,000 feet and fighter aircraft are not to press attacks closer than 200 yards.
- (c) Defending force Section Leaders are to ensure that "enemy" aircraft are not attacked simultaneously by more than one section, and that attacks by more than one section are carefully co-ordinated.

Evasive Action

23. Attacking forces may take evasive action.

Search and Rescue

24. Normal S.A.R. facilities will be available during the period S.A.R. aircraft will be on continuous standby at both R.A.A.F. Amberley and R.A.A.F. Richmond. A S.A.R. Marine Craft will be on continuous standby at Neutral Bay.

Aircraft Control

25. Aircraft Control arrangements are as detailed at Appendix "B".

Airlift

26. No. 86 (T) Wing is to provide airlift as follows:-

- (a) No. 23 (City of Brisbane) (F) Squadron. No. 86 (T) Wing is to provide one (1) Dakota to uplift No.23 (City of Brisbane) (F) Squadron servicing party and equipment from Archerfield to Richmond. This aircraft is to arrive at Archerfield by 1200K on 19 Jun.53 and is to depart for Richmond at 1400K on the same day.

RESTRICTED

.../4

6

RESTRICTED

-4-

This aircraft is to uplift servicing party and equipment from Richmond to Archerfield P.M. on the 21 Jun. 53 or AM on 22 Jun. 53 as directed by the Officer Commanding the Defence Forces.

Loading

27. Loading availability of the Dakota aircraft will be a total of 5000 lbs, and 23 Squadron are to inform No. 86(T) Wing details of personnel and load not later than 17 Jun. 53.

ADMINISTRATIVE ARRANGEMENTS

Base Facilities

28. Base facilities are to be provided as follows:-

- (a) R.A.A.F. Richmond is to provide P.O.L., refuelling facilities, and accommodation for forces operating from Richmond.
- (b) No. 23 Squadron are to provide servicing personnel and equipment at Richmond for their Mustang aircraft.

29. No. 23 Squadron is to inform Richmond of their accommodation requirements not later than 15 Jun. 53.

Publicity

30. For press and publicity purposes this Operation is unclassified with exception of the results and lessons learnt from the Operation, and those R.A.A.F. subjects which are normally classified.

SIGNALS ARRANGEMENTS

31. Communications and signals arrangements are detailed in Appendix "C".

Radio Failure

32. In the event of an aircraft being unable to maintain radio contact with other aircraft in its formation and with the controlling authority, it is to return to base without delay.

ACKNOWLEDGE

F. Headlam
(F. HEADLAM)
Group Captain
Senior Air Staff Officer

Penrith
1445 Hrs.
23 May 53

RESTRICTED

5

RESTRICTED

-5-

<u>Distribution</u>	<u>Copy No.</u>	<u>Method</u>
R.A.A.F. Amberley	1 - 2	
R.A.A.F. Canberra	3	
R.A.A.F. Richmond	4 - 5	
S.O.C. Richmond	6 - 9	
No. 82 (B) Wing	10-11	
No. 86 (T) Wing	12	
No. 2 (F) O.T.U.	13-15	
S.C.L.A.W.	16	
No. 30 (T/T) Squadron	17	
No. 22 (C.A.F.) (F) Squadron	18-19	
No. 23 (C.A.F.) (F) Squadron	20-21	
No.302 Radar Unit, Wagga	22	
A.O.C.	23	
S.A.S.O.	24	
S.O.A.	25	
S.T.S.O.	26	
S.O.E.	27	
S.O.RAD	28	
S.O.OPS.	29	
A.AIR.DEF.O.	30	
A.O.R.	31	
Form A.50	32	
File No. 89/37/AIR	33	
Public Relations Officer	34	
A.C.C. Eagle Farm	35	
A.C.C. Mascot	36	
Air Force Headquarters	37-38	
Eastern Command Headquarters	39	
Eastern Command Signal Squadron (Major Brydy)	40	

RESTRICTED

4

RESTRICTED

APPENDIX "A" TO
HEADQUARTERS EASTERN AREA
OPERATION ORDER 5/53
DATED: 23 MAY 53

VULNERABLE POINTS
(FOR EXERCISE PURPOSES ONLY)

Exercise Vulnerable Point	May Reference	Sheet	Military Grid Reference
Hornsby Railway Station	Military Survey 1:63360	Broken Bay	101358
Barrenjoey Light House	"	" "	335507
Hawkesbury Railway Bridge	"	" "	234563
Peats Ferry Bridge	"	" "	203557
Prospect Reservoir	"	Liverpool	908210
Blacktown Railway Station	"	"	911277
Ingleburn Military Camp	"	"	849010
Schofields Airfield	"	Windsor	336874
Cataract Reservoir	"	Wollongong	804673
Clyde Engineering Works	"	Sydney	018196

RESTRICTED

RESTRICTED

APPENDIX "B" TO
HEADQUARTERS EASTERN AREA
OPERATIONS ORDER NO. 5/53
DATED: 23 MAY 53

AIRCRAFT CONTROL ARRANGEMENTS

1. Aircraft Control Officer, Operations Officers and aircraft concerned with this operation are to adhere to the provisions of R.A.A.F. Headquarters Operation Instruction (Aircraft Control) No 4/1950 in respect of flights by attacking force aircraft between their bases and the area within 50 n.m. radius of Mascot Aerodrome.
2. Within the area of 50 n.m. radius of Mascot, aircraft taking part in the exercise are not to enter Sydney Control Area below a height of 7,000 feet except in an emergency. If it is essential for aircraft to enter this area in an emergency, aircraft are to contact Mascot tower on a frequency of 118.3 mcs. and advise their movements.
3. Notification of flight details to Area Control is not required in respect of aircraft entering the control area above 7000 feet in the area described in para 2.
4. Any aircraft proceeding beneath the Sydney Control Area in the Free Air Space are to remain clear of the area within 10 n.m. of Mascot Aerodrome.

23 MAY 53

RESTRICTED

2

RESTRICTED

APPENDIX "C" TO
HEADQUARTERS EASTERN
AREA OPERATION ORDER
No. 5753
DATED: 23 MAY 53

OPERATION "FLYING SAUCER"
SIGNALS ARRANGEMENTS

1. The Units concerned are to provide the following arrangements and communication facilities outlined in this Appendix for Operation "Flying Saucer" which is to take place on the 20 and 21 Jun. 53.

ATTACKING FORCE

2. Lincoln. Aircraft are to use the Area Guard System for air-ground-air communication. Aircraft are NOT to use Area Guard frequencies for air-to-air inter-communication purposes such as fire control, etc.
3. Lincoln and Beaufighter. Aircraft are to fit crystals in accordance with Appendix "A" to Air Force Headquarters Radio Plan 5/2 as detailed for Operations.
4. No aircraft engaged in Operation "Flying Saucer" is to fit 118.1 mcs. for aerodrome control. All aircraft are to fit 118.3 mcs. for this purpose.

DEFENDING FORCES

Air-Ground-Air Communications

5. All Mustang and Vampire aircraft of the Defending Force are to fit crystals as follows:-

<u>Channel</u>	<u>Frequency</u>	<u>Purpose</u>
<u>ABLE</u>	140.58 mcs.	Emergency and VHF/DF
<u>BAKER</u>	139.32 mcs.	Interception
<u>CHARLIE</u>	118.3 mcs.	Aircraft Control
<u>DOG</u>	138.6 mcs.	Alternative Interception

6. R.A.A.F. Richmond and S.C.L.A.W. are to ensure that transmitting and receiving facilities on 139.32 mcs. and 138.6 mcs. are available for use by Sydney Air Defence Training Sector.

Call Signs

7. Air and Ground Stations. Air and Ground Stations participating in the Operation are to use call sign allotted in the appropriate section of A.C.D. O14/F Aircraft call signs are not to include the same phonetic alphabet letters which are used to designate V.H.F. frequencies.

Search and Rescue Boat

8. Search and Rescue facilities as set out in Eastern Area Headquarters orders for Search and Rescue will operate for the period of this exercise.

Ground Radio

9. Units will be guided by the instructions laid down in

RESTRICTED

-2-

this Headquarters Radio Instruction No. 1/53. A draft copy of this instruction has been forwarded to R.A.A.F. Richmond and S.C.L.A.W. Williamstown. Units are to ensure the serviceability of the Radar Stations and that the W/T backing as laid down in the above order is installed and in working order.

Codes:

10. The forces engaged are to use the following codes during the operation:-

- (a) Attacking Force - AP.3091A with CD0251 (series)
- (b) Defending Force - A.C.P.165 - "Operational Brevity Code".

Safety Watches

11. R.A.A.F. Amberley, Canberra, No. 23 Squadron, S.C.L.A.W. and R.A.A.F. Richmond, are to ensure that VHF/DF facilities are available during all flying operations associated with Operation "Flying Saucer". S.C.L.A.W. is to ensure G.C.A. is available during all flying operations.

12. 140.58 mcs. is to be reserved exclusively for D/F and emergency communications.

13. The Commanding Officers of flying units involved are to ensure that a high standard of radio discipline is maintained during the Operation.

23r May 53

RESTRICTED