FORM 441

SQUADRON 100 A/C NUMBER ED 647 LETTER 'T' DATE 29-7-43

CAPTAIN S/LDR CANHAM NAVIGATOR SGT RUSH 2nd PILOT

CREW

SPECIAL ORDERS: OPERATIONS - HAMBURG

ZERO	0045
T.O.T.	0047

0056

	LONG	AMT	DEST
ASTRO	08°07E	0700	2400

S/UP 2055 2210 S/L 2245

SUN		MOON		TWILIGHT	
RISES	SETS	RISES	SETS	A.M.	P.M.

WATCH 12 Fast / Slow RATE ..... secs./hour Gaining / Losing

AT 2100 G.M.T.

FROM TO	W/V USED	HEIGHT FT.	T.A.S.	RQD. TRACK (T)	COURSE (T)	VAR.	COURSE (M)	D.R. G/S	DIST.	TIME
BASE	280/17	5000	150							
2251 MABLETHORPE			164	129	132	10W	142	180	48	6
MABLETHORPE	260/30	18000	150							
0008 54°30' 07°00E			202	074	073	9W	082	214	287	71
54°30' 07°00E	260/35	20000	150							
0037 54°02'N 09°43'E			209	107	112	6W	118	212	116	28½
54°02'N 09°43'E	280/20	21000	150							
0047 TARGET			213	162	167	5W	172	220	34	9
TARGET	270/20	20000	170							
0100 53°23'N 04°38E			221	232	235	5W	240	214	20	5½
	260/35	20000	150							
0136 54°20'N 07°00E			209	301	295	6W	301	183	126	41
	260/25	20000 / 21000 / AV 10000	220							
0306 BASE			248	258	258	9W	267	225	293	78

FORECAST WINDS

STAGE FROM / TO	2,000 FT. FROM T.	2,000 FT. SPEED	6,000 FT. FROM T.	6,000 FT. SPEED	10,000 FT. FROM T.	10,000 FT. SPEED	15,000 FT. FROM T.	15,000 FT. SPEED
GENERAL	290	10	280	15 20	260	25	260	30
			290	5 10	270	10	270	10
	20000 260	35	26000	260 30				
	270	20	260	25				

FORM 2330 CARRIED

WEATHER FORECAST

RED TI + FLARES 54°13'N 05°55E 53°40'N 08°45E

YELLOW TI + GREEN TI 54°24'N 07°36'E 54°16'N 07°19'E

D. YELLOW TI 53°32'N 07°33'E

A	090	S/L MAB	SMOG	2245 - 2345
B	055	280	0245	0400
C	075	ESN No 5	DAS	E.S. Ineff
D	055	ENEMY 30	EFC	R-9

32A

5 +9 10 +14 2 NIL 15 -7° 20 -18 25 -26

1945 1915

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TIME	RQD. TRACK (T)	W/V USED AND D.R. DRIFT	Course (T)	Course (M)	NAVIGATIONAL OBSERVATIONS (Pin-points, Fixes, Position Lines, Actual T.M.G., Actual Drift, G/S and W/V, Manoeuvres, etc.)	GENERAL OBSERVATIONS (Met. Conditions, Bombing, Intelligence, Enemy Action, etc.)	R.A.S.	HEIGHT & A. TEMP.	T.A.S.	D.R. G/S	DIST. TO RUN	D.R. TIME	E.T.A.
2200					WATCHES SYNCHRONISED								
2205					DRC CHECKED ? ?								
2218					A/B BASE CLIMBING	IFF ON							
2245	129	260/25	135	145	BASE S/C MABLETHORPE (145° C) ✓	HT 9000' +9° C	150	9000 +9°C	174	190	18	5½	2250½
2248					✕ Fix 53°25'N 00°04'E ✓	2.03 44.08							
					W/V 204/20 AP ✓								
2251	074	260/25	073	082	GP MABLETHORPE S/C POSN (108.1° C) ✓	HT 10000' +6 OXYGEN ON	150	10000 +6	174	205	287	84	0045 ✓
2255					W/V 258/20 AP ✓	BOMBS FUSED & SELECTED IFF OFF							
					?								
2302					Increase IAS 160 ✓		160	10000 +4	188	216	244	69	0051½ ✓
2307					✕ Fix 53°32'N 01°26'E ✓	2.57 42.72							
					DIST 44 TIME 16 9/S 185 ✓								
2311					✕ Fix 53°36'N 01°52'E ✓	3.06 42.43							
					DIST 18½ TIME 4 9/S 208 ✓								
2316					✕ Fix 53°40'N 02°14'E ✓	3.12 42.21 NEW A/P							
					DIST 34 TIME 9 9/S 225 ✓								
					W/V 295/4 MPH AP ✓		160	10000 +4	188	225	203	54½	0010½ ✓
2326			?		✕ Fix 53°45½'N 02°59'E ✓	3.23 41.78 NEW A/P							
					W/V 309/6MPH AP ✓								
2332			(077)		✕ Fix 53°51'N 03°37'E ✓	3.32 41.53							
					DIST 26 TIME 6 9/S 260 ✓								
2335			069	077	✕ Fix 53°52'N 04°02'E ✓	3.31 41.42 CLIMBING NEW A/P	160	AV 15000 −7	204		126		
						HT 10000							
2346					✕ Fix 53°51'N 04°22½'E ✓	3.41 41.28 HT 15000' TEMP −2°			198				
					W/V 058/12½ AP ✓	AV 13000							
2353					✕ Fix 54°01' 05°29'E ✓	HT 18000 −10°	160	AV 14000	198				
					W/V 316/16½ AP ✓								
					DIST 61 TIME 18 9/S 202 ✓	NEW A/P			200	202	65	19	0012
0006					✕ Fix 54°26½'N 06°46'E ✓		160			202	10	3½	0009½ ✓
0009													
0009½					DR POS A S/C POS N B	Can hardly be DR Posn 'A'							
0010	107	260/35	112	118	✕ Fix 54°28'N 07°00'E ✓	3.36 41.06 HT 21000 NEW A/P	150	20000 −14	210	242	116	28½	0039 ✓
0014													
0018					✕ Fix 53°18'N 07°28'E ✓	3.38 40.89							
0021					✕ Fix 53°17½'N 08°00'E ✓								
					DIST 42 TIME 11 9/S 230 ✓		250	21000	212	230	71	18½	0039½ ✓
					W/V 229/27 AP ✓								
0030					✕ Fix 54°06'N 08°53'E ✓	3.51 40.23 What about Red T.I.							
					N/V 261/33 AP. ✓								
0036					✕ Fix 54°08'N 09°04½'E	½. }							
0036	164	261/33	174	179	S/C TARGET Where from.		150	21000	212	207	10	11½	0047½ ✓
0046						HDG 150 IAS 190 HT 20000							
0047½					✕ Fix 53°38'N 10°00'E Not plotted. ✓	3.57 39.44 TAS 265							
0049	232	261/33	236	241	TARGET BOMBED. TARGET S/C POS C ✓		200	21000	275	241	20	5	0054 ✓
0054	301	261/33	296	302	DR POS C S/C POS N D ✓	290 170 Turned early owing G IAS 240		17000	250	260	126	29	0123
0055	310			314	✕ Fix 53°18'N 09°23'E ✓	awarding S/Cs				210	53	15	0110
			?	?	A/C COAST What was the Course?	HT 18000						ETA	Coast ?
0102				302	✕ Fix 53°34'N 09°11'E ✓	3.48 39.48							
0107					✕ Fix 53°43'N 08°38'E ✓	3.47 39.41 W/V latest ETA ?							
0111					✕ Fix 53°46'N 08°20'E ✓	4.07 39.86	190	16500 4	252	210	67	19	0130
					T.I. on way out.								
0118			296	302	✕ Fix 54°00'N 07°50'E ✓								
					DIST 25 TIME 7 9/S 211 ✓					211	41	11½	0129½ ✓
					W/V 256/26 AP ✓								
0124					✕ Fix 54°08'N 07°23'E	3.70 40.00 Not plotted why?							
0129½	258	256/26	258	267	DR POS D S/C BASE		200	10000	265	240	293	73	0242½ ✓
					with your Time You could not be at	DR Posn +40.							

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ME	RQD. TRACK (T)	W/V USED AND D.R. DRIFT	Course (T)	Course (M)	NAVIGATIONAL OBSERVATIONS (Pin-points, Fixes, Position Lines, Actual T.M.G., Actual Drift, G/S and W/V, Manoeuvres, etc.)	GENERAL OBSERVATIONS (Met. Conditions, Bombing, Intelligence, Enemy Action, etc.)	R.A.S.	HEIGHT & A. TEMP.	T.A.S.	D.R. G/S	DIST. TO RUN	D.R. TIME	E.T.A
35					X Fix 54°12'N 06°20'E W/V REC 135 MPH AP X Fix	3.49 40.47							
140													
140	260	284/35	263	273	DR 54°04'N 05°18'E MC BASE Navigator changing Fix ovcr.	Ht 7000	190	7000	212	179	224	75	0255
220210					BENETH Ao 31°40'								
220520					ALTAIR Ho 52°50'								
220520					Fix 53°46'N 02°43'E								
0207					X Fix 53°55'N 03°30'E								
0216					X Fix 53°52'N 02°52'E W/V 250 40 AP	3.02 3.03							
0221													
	252	250/40	255	265	DR 53°53'N 02°35' MC BASE	IFF ON	190	7000	242	172	115	40	0301
ETA 30					*Fix 53°45'N 01°43'E	2.47.5 42.57							
0235					X Fix 53°40'N 01°07'E DIST 25 TIME 5 G/S 300	2.53 43.03							
0													
0240					X Fix 53°37'N 00°03'E DIST 34 TIME 10 G/S 200	2.45 43.30				200	42	12½	0252½

SQUARE SEARCH

Signed..... Navigator

HEIGHT Track T	Course M	D.R. G/S	VAR. DIST.	D.R. TIME.	T.T.T.	W/V DIST.	D.R. TIME	T.T.T.	VIS. DIST.	D.R. TIME	T.T.T.	T.A.S. DIST.	D.R. TIME	T.T.T.
			2V						6V				10V					
			2V						6V				10V					
			4V						8V				12V					
			4V						8V				12V					

MEMORANDA

15260/0372. 250M. 5/43. . . . 51-6869.

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TIME	RQD. TRACK (T)	W/V USED AND D.R. DRIFT	Course (T)	Course (M)	NAVIGATIONAL OBSERVATIONS (Pinpoints, Fixes, Position Lines, Actual T.M.G., Actual Drift, G/S and W/V, Manoeuvres, etc.)	GENERAL OBSERVATIONS (Met. Conditions, Bombing, Intelligence, Enemy Action, etc.)	R.A.S.	HEIGHT & A. TEMP.	T.A.S.	D.R. G/S	DIST. TO RUN	D.R. TIME	E.T.A

SQUARE SEARCH

Signed.....Navigator

HEIGHT		VAR.	W/V			VIS.			T.A.S.			
Track T	Course M	D.R. G/S	DIST.	D.R. TIME.	T.T.T.	DIST.	D.R. TIME	T.T.T.	DIST.	D.R. TIME	T.T.T.	
			2V			6V			10V			
			2V			6V			10V			
			4V			8V			12V			
			4V			8V			12V			

MEMORANDA

15260/0372. 250M. 5/43. . . . 51-686

FORM 441

SQUADRON..... A/C NUMBER.....ED 647..... LETTER.....T..... DATE.....29-7-43.....

CAPTAIN..... NAVIGATOR.....Sgt Rust..... 2nd PILOT.....

CREW.....

SPECIAL ORDERS.....

SUN		MOON		TWILIGHT	
RISES	SETS	RISES	SETS	A.M.	P.M.

WATCH..... Fast / Slow RATE.....secs./hour Gaining / Losing

AT ..... G.M.T.

FROM TO	W/V USED	HEIGHT FT.	T.A.S.	RQD. TRACK (T)	COURSE (T)	VAR.	COURSE (M)	D.R. G/S	DIST.	TIME

FORECAST WINDS

STAGE FROM / TO	,000 FT.		,000 FT.		,000 FT.		,000 FT.	
	FROM T.	SPEED	FROM T.	SPEED	FROM T.	SPEED	FROM T.	SPEED

WEATHER FORECAST

TIME	RQD. TRACK (T)	W/V USED AND D.R. DRIFT	Course (T)	Course (M)	NAVIGATIONAL OBSERVATIONS (Pin-points, Fixes, Position Lines, Actual T.M.G., Actual Drift, G/S and W/V, Manoeuvres, etc.)	GENERAL OBSERVATIONS (Met. Conditions, Bombing, Intelligence, Enemy Action, etc.)	R.A.S.	HEIGHT & A. TEMP	T.A.S.	D.R. G/S	D. T. RUN	
					WATCHES SYNCHRONISED							
0245					X Fix 53°33'N 0030'E							
0252					BASE DIVERTED TO BLYTON							
0255				272	BASE S/C BLYTON		210		220	10	26	187 8
0258					X Fix 53°27'N 00°31'W	Good effort. works harder on return.						
					BLYTON Landed	IFF OFF						

Navigation shows carelessness & does not give sufficient details information. Complete all entries when you alter course etc.

F/L.

F/L.

IBCC Digital Archive

FORM 441

SQUADRON..... A/C NUMBER..... LETTER..... DATE.....

CAPTAIN..... NAVIGATOR..... 2nd PILOT..... 29/7/43

CREW .....

SPECIAL HAMBURG

ORDERS .....

SUN		MOON		TWILIGHT	
RISES	SETS	RISES	SETS	A.M.	P.M.

WATCH..... Fast / Slow RATE..... secs./hour Gaining / Losing

AT ..... G.M.T.

FROM TO	W/V USED	HEIGHT FT.	T.A.S.	RQD. TRACK (T)	COURSE (T)	VAR.	COURSE (M)	D.R. G/S	DIST.	TIME

FORECAST WINDS

STAGE FROM / TO	,000 FT.		,000 FT.		,000 FT.		,000 FT.	
	FROM T.	SPEED	FROM T.	SPEED	FROM T.	SPEED	FROM T.	SPEED

WEATHER FORECAST

32A

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BOCHUM 13.5.43

TIME	RQD. TRACK (T)	W/V USED AND D.R. DRIFT	Course (T)	Course (M)	NAVIGATIONAL OBSERVATIONS (Pin-points, Fixes, Position Lines, Actual T.M.G., Actual Drift, G/S and W/V, Manoeuvres, etc.)	GENERAL OBSERVATIONS (Met. Conditions, Bombing, Intelligence, Enemy Action, etc.)	R.A.S.	HEIGHT & A. TEMP.	T.A.S.	D.R. G/S	DIST. TO RUN	D.R. TIME	E.T.A.
					WATCHES SYNCHRONISED								
0351	276	248/50	270	280	DR 53°23'N 01°52'E A/C BASE □ DR △ AIR ⊙ FIX × P.P.		200	10000	241	195	83	25	0416
0354					*Fix 53°25'N 01°36'E	HT 10000							
0359					*Fix 53°26½'N 01°19'E	HT 8000'							
0402					*Fix 53°27'N 01°02'E TMG 275 DIST 25 TIME 8 G/S 187 W/V 257/53 T+G/S BASE	HT 3000'				187	46	14½	0416½
0416					LANDED	LFF OFF DETS OFF							
0430													

Quite a good effort. But be more careful with G.S. Use fixes with greater time interval, so as to cut down small errors. Wrong G.S. gave you false winds in several instances & upset C. TAS. A misunderstanding of effect of stale vent. has thrown out all your T.A.S. computations By 10 mph (See Nav Officer re this). Be more careful with D/R checks. Log well kept.

J.A.H. Cowan
P/O.

TIME	RQD. TRACK (T)	W/V USED AND D.R. DRIFT	Course (T)	Course (M)	NAVIGATIONAL OBSERVATIONS (Pin-points, Fixes, Position Lines, Actual T.M.G., Actual Drift, G/S and W/V, Manoeuvres, etc.)	GENERAL OBSERVATIONS (Met. Conditions, Bombing, Intelligence, Enemy Action, etc.)	R.A.S.	HEIGHT & A. TEMP.	T.A.S.	D.R. G/S	DIST. TO RUN	D.R. TIME	E.T.A.

SQUARE SEARCH

Signed.....Navigator

HEIGHT			VAR.		W/V		VIS.			T.A.S.		
Track T	Course M	D.R. G/S	DIST.		D.R. TIME.	T.T.T.	DIST.		D.R. TIME	T.T.T.	DIST.		D.R. TIME	T.T.T.
			2V				6V				10V			
			2V				6V				10V			
			4V				8V				12V			
			4V				8V				12V			

MEMORANDA

Wt. 36157/O.2342. 500,000. 12/42. D.P.W. 51-5886.

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