A.P. 2512A & B—P.N.

PILOT'S
AND
FLIGHT ENGINEER'S
NOTES

SLEIGH I & II

MARK I— EIGHT REINDEERS POWER PLANTS
MARK II— NINE REINDEERS POWER PLANTS

PREPARED BY DIRECTION OF THE MINISTER OF SUPPLY

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PROMULGATED BY ORDER OF THE AIR COUNCIL

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RESTRICTED

AMENDMENTS

Amendment lists will be issued as necessary and will be gummed for affixing to the inside back cover of these notes.

Each amendment list will, where applicable, be accompanied by gummed slips for sticking in the appropriate places in the text.

Incorporation of an amendment list must be certified by inserting date of incorporation and initials below.

A.L. NO.	INITIALS	DATE	A.L. NO.	INITIALS	DATE
1	[illegible]	10/10/50	7		
2			8		
3			9		
4			10		
5			11		
6			12		

NOTES TO USERS

THIS publication is divided into six parts : Descriptive, Handling, Operating Data, Emergencies, Supplementary Notes for Flight Engineer, and Illustrations. Part I gives only a brief description of the controls with which the pilot should be acquainted.

These Notes are complementary to A.P. 2095 Pilot's Notes General and assume a thorough knowledge of its contents. All pilots and flight engineers should be in possession of a copy of A.P. 2095 (*see* A.M.O. A93/43).

Words in capital letters indicate the actual markings on the controls concerned.

Additional copies may be obtained by the Station Publications Officer by application on Form 294A, in duplicate, to Command headquarters for onward transmission to A.P.F.S., 81 Fulham Road, S.W.3 (*see* A.M.O. A1114/44). The number of this publication must be quoted in full—A.P. 2847A & B—P.N.

Comments and suggestions should be forwarded through the usual channels to the Air Ministry (D.T.F.).

SLEIGH I & II

LIST OF CONTENTS

PART I – DESCRIPTIVE

PART II – HANDLING

PART III EMERGENCIES

PART I
DESCRIPTIVE

INTRODUCTION

Santa Sleigh Mk.I and II are eight or nine engines transport aircraft, powered by magic reindeer engines. The Mk.II version allows extended all weather operations.

FUEL SYSTEM

Mk.I version is equipped with 8 fuel independent fuel tanks, connected each one to one engine. Particular care must be taken during refueling in order to guarantee equal tank filling for each engine. Not following this procedure can have catastrophic consequences including loss of engine during take-off or cruise and weight and balance problems.

AIRCRAFT CONTROL

The flying controls are conventional. Each rudder pedal may be adjusted for reach during flight by depressing the lever on the outboard side of it.

An automatic pilot is available. Heading entry is based on detection of ground beacons signal "I have been nice". For operation see A.P. 2095 Part III, Note C. The engaging lever is on the bottom left-hand face of the control pedestal, but before the gyropilot can be engaged the milk shut-off valve on the hydraulic control panel must be ON. The automatic pilot oil-pressure gauge is mounted on the lower right centre of the instrument panel; normal operating pressure is 120 lb./sq. in.

ENGINE CONTROLS

Engines are voice controlled. No automatic boost control is fitted and care must be taken to avoid over-boosting on take-off and at all times in flight.

PART II
HANDLING

Pre-flight checklist

1 – Reindeer Full
2 – Check weather report
3 – (Mk. II only) Rudolph's nose pre heating
4 – Inspect reindeer hooves
5 – Check loading done by Elves
6- Sleigh logbook and license on board and valid
7 – Kiss Mrs Claus good-bye

Starting the engines and warming up

1 – Pat on the back for each reindeer
2 – Check alignment of engines
3 – Call each reindeer by his name
4 – Give additional cookie and milk to reindeer during warming up.

Testing the engines and services

Particular attention should be paid to engines exhaust. Any suspect leaks must trigger the engine shutdown and replacement.

Take-off

Warning –If backfiring is experienced during the take-off run the take-off should, if possible, be abandoned and the air intake shutter examined for damage. To avoid backfiring, do not feed reindeer with beans.

(i) Align the Sleigh on the runway
(ii) There is little or no tendency to swing on take-off except in cross wind conditions. This tendency can

easily be corrected by slow differential power opening.

(iii) When comfortably airborne brake the legs and raise the arms

(iv) Safety speed at full load at full take-off power, flaps up is 105 M.P.H. I.A.S.

Climbing

The recommended climbing speed is 120 m.p.h. I.A.S. from ground level to operating height.

General Flying

Stability: The Sleigh is stable about all axes under all conditions of flight

Flying at reduced airspeeds in conditions of poor visibility: Reduce speed to 120 M.P.H. (104kt) I.A.S. in order to delegate navigation to Rudolph. Normal cruise speed can be restored one time control has been delegated.

Stalling

There is little warning of the approach of the stall except for a slight sleigh buffeting which may be felt some 5 m.p.h. before the stall itself. At the stall, the nose drops gently. In all cases recovery is straight-forward and easy.

Diving

Engaging the sleigh in a dive is forbidden under all circumstances. Exceeding the manoeuvering speed with the cargo load can have direct consequences on cargo wrapping and conditions. Children expect to hear reindeer's bells, not a Stuka diving horn.

Approach and landing

A particular attention should be paid to the last landing of the Christmas night. Weight and Balance are considerably modified and Sleigh handling can be tricky. Last turn before landing should not exceed 30 degrees and no sideslip must be done.

After Landing

Immediate cares must be given to the Reindeer. A particular attention should be paid to hooves. No Elves or ground support should touch them before:

(i) Grounding the Sleigh in order to avoid electrical sparks

(ii) Reindeer's hooves temperature is below 140 Fahrenheit.

PART III EMERGENCIES

Engine failure during take-off

Eight or nine engines configuration allows a minimum impact of one engine loss during take-off. Power boost can be applied by supplying additional cookies to remaining reindeers.

Engine failure in flight

In case of engine failure during flight, a particular attention must be given on the distance remaining and fuel consumption. During extreme weather condition and limited visibility, no automatic landing must be attempted without Rudolph (M.K. II only)

Cargo jettisoning

Cargo jettisoning can be attempted only above desert area or oceans. A particular attention must be paid to weight & balance during the procedure. Equivalent mass of Milk and Cookies must ingested by the pilot during the procedure in order to respect the CG envelop.

Ditching

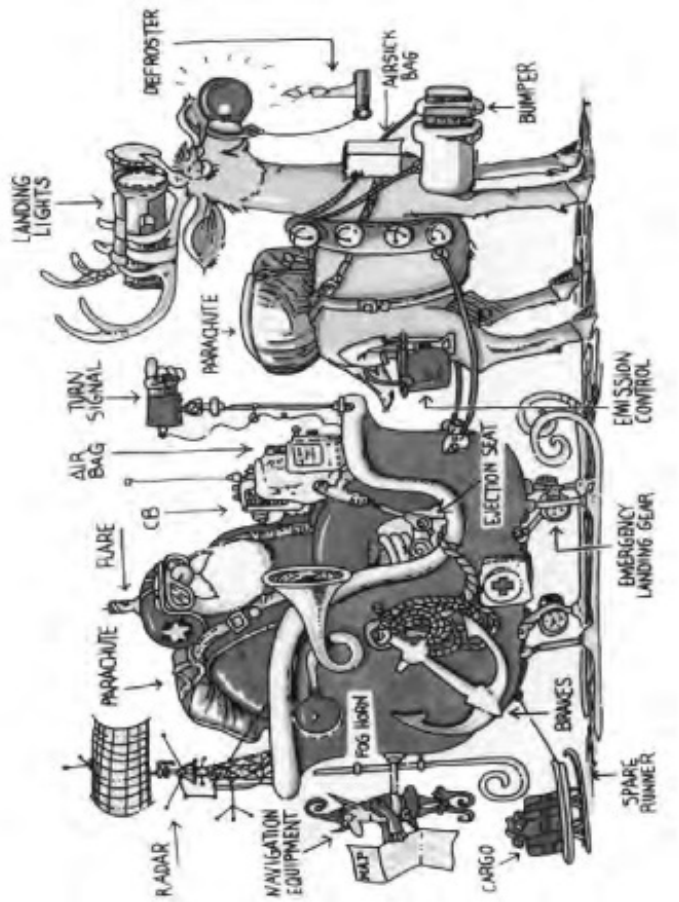
Ditching speed must not exceed 105 M.P.H.
Reindeers power must be reduced to the minimum and all cargo must have been previously jettisoned. One time in the water, the Sleigh is designed to float and reindeers should provide necessary power to reach the closest land available

Parachute exits

Parachute exit can be done under 120kt I.A.S
The free fall position must take in consideration all interferences between the pilot's barb and the opening mechanism (See figure 1)

Figure 1: Parachute exit

ANNEXE I: DRAWINGS



ANNEXE II: ENGINES DATA

SLEIGH M.K. I

Eight reindeers:

- DASHER
- DANCER
- PRANCER
- VIXEN
- COMET
- CUPID
- DONNER
- BLITZEN

SLEIGH M.K.II

Nine reindeers: Identical to M.K.I. with additional RUDOLPH engine.

Figure 2: Engine Cutaway

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