

PART V

TARGET TOWING

80. Introduction

When Modification 359 is embodied, Venom F.B. Mk. 4 aircraft are cleared for drag or snatch launching and towing of a 30 ft. banner target. The towing cable incorporates 800 ft. steel cable with 30 ft. nylon cable, or 50 ft. steel cable with 800 ft. nylon cable. The steel cable must always be attached to the aircraft towing hook.

81. Controls

A towing hook is fitted beneath the fuselage. The target is released by pulling a toggle, on the left-hand side of the instrument panel, marked TARGET RELEASE.

82. Performance

(a) Take-off

For a drag take-off in I.S.A. conditions and no wind, approximately 1,270 yds. are required for the target to reach a height of 50 ft.; for a snatch take-off, 700 yds. are required. For temperate summer conditions, it is estimated that these distances would be increased to 1,370 yds. and 760 yds. respectively and for tropical conditions to 1,520 yds. and 840 yds. respectively. In the drag take-off case the distance is from the banner target position and in the snatch take-off from the position of the aircraft, at the start of the ground run.

(b) Climb

At a take-off weight of 12,570 lb., with tip tanks in use, the rate of climb in I.S.A. conditions is 4,000 ft./min. at sea level reducing to 2,400 ft./min. at 20,000 ft. The time to reach 20,000 ft. is approximately 6 minutes.

(c) Cruising

At 20,000 ft. with tip tanks fitted, the max. level-flight speeds in I.S.A. conditions are approximately 290 kts. at

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maximum power and 250 kts. at 9,750 r.p.m. Speed should normally be kept below 240 kts. (see para. 83 (c)). Allowing 40 gallons fuel for taxiing and take-off and 100 gallons for descent and landing, the endurance varies from 90 minutes, cruising at 180 kts., to 54 minutes at 250 kts.

83. Normal handling

(a) Take-off and initial climb

NOTE.—Flap should not be lowered until the launching party are clear of the aircraft.

Trim neutral and select 15° flap. Take up slack and then open up, to full power if possible, before releasing the brakes. With wing-tip tanks full, ease the nosewheel off the ground at 90–95 kts., unstick at 100–110 kts. and climb away at 115 kts. With wing-tip tanks off, the above speeds can be reduced by 5 kts. *Because of the possibility of a wing drop, the aircraft should not be pulled off the ground below the recommended speeds.* If more than 15° flap is used for take-off, the wing-dropping tendency is increased and the acceleration to climb-away speed not so rapid. The handling characteristics are the same for drag and snatch take-offs.

(b) Climbing

The recommended climbing speed is 240 kts. up to 7,000 ft. and then decreasing by 3 kts. per 1,000 ft.

(c) Cruising

With the target in tow, handling characteristics are normal in straight and level flight and in turns but, to provide adequate clearance of the cable from the tail booms, turns must not exceed Rate 2. The behaviour of the target is unreliable above 240 kts. and the banner frays out rapidly; at the same time, slight surging may be experienced. Hence speed should normally be kept below 240 kts. for gunnery practice and, if any surging is felt, speed should be reduced by 20 kts. to ensure satisfactory target behaviour.

(d) Descent

Descents with the target on tow are best made at 240 kts., using 5,000 r.p.m. with airbrakes OUT.

(e) Approach and dropping

Reduce speed to 150 kts., lower flaps 30° and drop the target at 300 ft. at 120 kts.

84. **Emergency handling**

If the cable breaks, the portion attached to the aircraft should be jettisoned immediately if the area is suitable. If the cable cannot be jettisoned, speed must be kept below 180 kts. to prevent the cable damaging the tailplane. Loose cable should then be dropped from at least 500 ft. to make sure it does not foul ground obstacles.

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