

Chapter 5

ALIGHTING GEAR

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GENERAL

1. The alighting gear comprises two main undercarriage units, and a fully-castoring nose wheel unit incorporating a self-centring mechanism. The nose wheel unit is retracted backwards and the main wheel units outwards by hydraulic power. All wheel doors are mechanically operated. Detailed illustrations of the alighting gear will be found in Sect. 4, Chap. 3, and Sect. 5.

MAIN WHEEL UNIT

2. The compression leg comprises a plunger tube which is free to slide in a cylinder. At the lower end of the plunger tube is fitted a hollow axle which is pinned to the tube. The axle is drilled and tapped to receive an inflation valve, and a drilling from the bore of the axle communicates with the air chamber in the plunger tube. A detail description of the leg will be found in A.P.1803C.

3. The cylinder tube is a casting, incorporating at its upper end four lugs to which another casting is bolted to receive the eye-bolt of the radius rod lock link. Lugs are cast in the lower end of the tube to accommodate the torque links, the lower ends of which are attached to the axle fitting.

NOSE WHEEL UNIT

4. The construction and operation of the nose wheel shock-absorber unit is similar to that of the main strut, with the exception of a spring-loaded self-centring cam located internally at the top of the unit. The

self-centring device, while allowing a castoring action during taxiing, ensures that the wheel is in the correct position for retraction.

RADIUS ROD ASSEMBLY

5. A similar type of radius rod unit is used on both the main undercarriage legs and the nose wheel leg. The unit consists of three main components, an upper link, a lock link and a lock plate, the latter incorporating a roller. Details of construction of the radius rod units are illustrated in Sect. 4, Chap. 3 and Sect. 5.

RADIUS ROD LOCKING MECHANISM

6. The "down" and "up" positions are held by the lock plate. The initial movement of the jack moves the lock plate against the action of the spring until the lock plate is in line with the upper and lower links. With the unit in the unlocked position, movement of the jack ram now causes the radius rod to hinge and retract the unit, until the spring again snaps the lock plate into the locked position (Sect. 4, Chap. 3).

UNDERCARRIAGE DOWN INDICATOR SWITCH

7. The movement of the lock-plate assembly is imparted to the micro switch through a spigot which is in contact with a leaf spring. It will be noted that the micro switch is in circuit at the locked "down" and locked "up" positions, and only breaks the circuit when the leg is unlocked; this condition is indicated by a red light on the undercarriage position indicator.

UNDERCARRIAGE UP INDICATOR SWITCH

8. A micro switch located above the retracting gear is brought into circuit by full retraction of the unit. This action depresses an adjustable striker on the micro-switch leaf spring and extinguishes the red lights in the cockpit, indicating that the alighting gear is in the locked up position. A throttle lever micro switch is in circuit with the "up" switch; it is brought into operation when the undercarriage is retracted and the throttle almost closed. A red lamp lights on the instrument panel, warning the pilot when the undercarriage is in an unsafe position for landing.

UNDERCARRIAGE LEVER LOCK

9. Inadvertent retraction of the undercarriage is impossible while the weight of the aircraft is on the compression legs. The undercarriage selector lever is locked by a solenoid-operated plunger, which is in circuit with a micro switch operated by the port leg torque links. Due to the weight of the aircraft, the torque links assume an acute angle, depressing the micro-switch leaf spring, so breaking the circuit and forcing the plunger to lock the selector lever. As soon as weight is removed from the struts, the torque links open, so relieving

pressure on the micro switch, and at the same time energising the solenoid which withdraws the plunger, thereby allowing the selector lever to be operated. The action of this lock plunger may be overridden by the emergency retraction switch (Sect. 1).

MAIN LANDING WHEEL ASSEMBLY

10. The wheels are Dunlop type A.H.8218, mounted on ball and roller bearings on a tubular steel axle.

NOSE WHEEL ASSEMBLY

11. The nose wheel, Dunlop type A.H.O. 17219/IX, is mounted in a similar manner to the main wheels, but the axle tube is supported at each end in a fork-shaped forging, which is mounted on the lower end of the shock-absorber unit. The axle is located by end caps which are connected by a tie-rod.

BRAKES

12. The pneumatic brakes are fitted to the main wheel units only. Further details of the system will be found in Sect. 4, Chap. 3 and the brake units are described in detail and illustrated in A.P.2337.

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