GROUP D7 ALIGHTING GEAR CONTROL (CODE UC)

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ILLUSTRATION

Introduction

1. A brief description of the circuit controlling the alighting gear electro-hydraulic selector valve, including the method of operation and the necessary servicing information required to maintain the equipment in an efficient condition is contained in this group, together with a routing and theoretical diagram of the circuit. For a description of the electrical system of the aircraft as a whole, reference should be made to Group A1 of this chapter, which also includes system wiring details, referencing of components and general servicing. The location of all the equipment and the removal of the major components is covered in Group A2 and A3 also of this chapter, while detailed information of the standard components used will be found in the appropriate volumes of A.P.4343 series.

DESCRIPTION

ALIGHTING GEAR CONTROL

2. The alighting gear is retracted and extended electro-hydraulically, as described in Sect. 3, Chap. 6, and is also provided with an electrical position indicator, together with a warning lamp, as explained in Group D8 of this chapter. A Type C.2524Y twin interlock push-switch unit, situated on the port instrument panel, is used to energize the up and down solenoids of a Type C.5709Y, Mk. E, electro-hydraulic selector valve, mounted on the front spar in the starboard wheel bay. This selector valve controls the flow of fluid to the hydraulic jacks, which retract and extend the alighting gear. The upper push-switch of the interlock switch unit is used to retract the alighting gear, and this push-switch incorporates a solenoid safety lock, which is controlled by compression switches on the undercarriage legs, to prevent involuntary operation of the switch while the aircraft is on the ground. The upper push-switch also controls the supply to the air brake control circuit (*Group* D11) in such a manner that the supply to the air brake control switch is broken until the upper push-switch is depressed to retract the alighting gear, thus rendering it impossible to extend the air brake while the alighting gear is lowered. Should the alighting gear be lowered while the air brake is extended, this interconnection will immediately disconnect the supply to the air brake control switch and thus retract the air brake. This inter-connection is to prevent damage to the air brake due to the limited ground clearance and must not normally be used to retract the air brake. The lower push-switch, which is not provided with a lock or interconnected with any other circuit, is used to extend the alighting gear.

Operation

3. The theoretical diagram (*fig.* 1) of this group is shown with the aircraft at rest on its alighting gear. From the position of the UP and DOWN push-switches of the control switch unit it will be seen that the DOWN switch is made to energize the down solenoid of the electro-hydraulic selector valve, thus maintaining hydraulic pressure in the down side of the hydraulic jacks. Due to the weight of the aircraft on its alighting gear, the compression switch contacts are broken and the solenoid of the UP switch lock is de-energized, thus the lock is engaged, thereby preventing the UP switch from being depressed.

4. When the aircraft is airborne, the weight is taken from the alighting gear and the compression switch contacts are made to supply the solenoid of the UP switch lock. The solenoid is thus energized and releases the lock, which allows the UP switch to be depressed. Due to the interlock between the switches, depression of the UP switch will automatically release the DOWN switch, which will break circuit and de-energize the down solenoid of the electro-hydraulic selector valve. As the UP switch makes contact, the supply to the up solenoid of the selector valve is completed, thus energizing the solenoid which allows the hydraulic pressure to move the slide within the valve in such a direction as to supply hydraulic pressure to the up side of the hydraulic jacks, thereby retracting the alighting gear.

SERVICING

5. For general servicing of the electrical system as a whole, reference should be made to Group A1 of this chapter. Apart from keeping all the components clean and carrying out the normal routine tests of security and serviceability, the only other servicing necessary is the electrical test of the electro-hydraulic selector valve as described in A.P.1803D, Vol. 1.

REMOVAL AND ASSEMBLY

6. Once access has been obtained, the removal and assembly of the components forming the alighting gear control circuit should present no unusual difficulties. The location and access to all the components is indicated in Group A3 of this chapter.

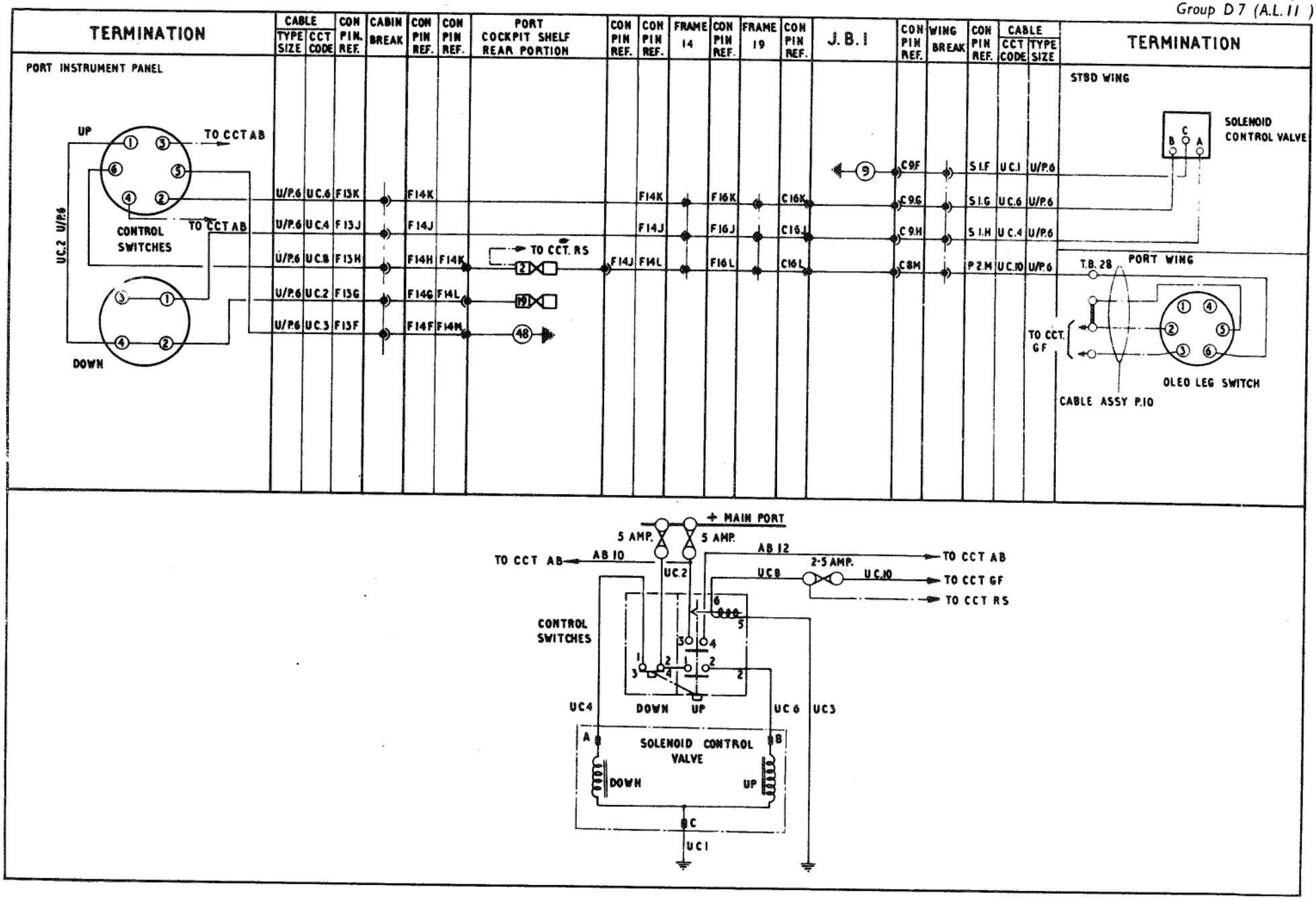

FIG. 1. ALIGHTING GEAR CONTROL