

BRAKING PARACHUTE1. General Description

A tail parachute is fitted to provide additional braking power on landing. By streaming the parachute behind the aircraft, the load is reduced on the main wheel brake and tyres, thus minimising wear.

The assembly consists of a main and auxiliary parachute. The assembly is fitted into a compartment at the rear of the fuselage above the E.C.M. equipment. A single large door covers the assembly. The parachute is allowed to stream, by opening the compartment door, by operating a switch on 1P. The 'switch' is actually two switches mounted side by side. There are two operative positions i.e. "STREAM" and "OFF AND JETTISON". When "STREAM" is selected a supply is passed to two actuators which, in retracting, release the door catch. Two actuators are used, but either one, by itself, is capable of releasing the door catch.

Two spring loaded shafts now open the door, and as the parachute static line is connected to the door, the parachute release pin is removed and the auxiliary chute opens. It moves out into the slipstream dragging the main chute out behind it.

The main chute develops in the airstream, producing a drag on the aircraft. It is attached by the rigging lines to a steel shackle via a shear pin. The shackle is held by a closed jettison hook at the forward end of the parachute compartment.

When the switches are placed in the "OFF AND JETTISON" position, a supply is passed to retract two actuators, mounted beneath the jettison hook. The actuators in retracting, open the jaws of the hook and the parachute is released. Again, two actuators are used, but either one, by itself, is capable of opening the jettison hook.

Should the parachute be streamed at an excessive speed, which would cause damage to the chute or aircraft structure, the shear pin would break and release the parachute. Should the compartment door open inadvertently during flight the chute is automatically jettisoned.

A magnetic indicator is fitted by the side of the "Tug-master" intercom, plug under a small flap on the starboard side of the E.C.M. equipment bay. When the chute has been stowed in its' compartment and the door closed, the indicator is energised to give a black display.

2. Circuit Operations

The diagram is shown with the parachute stowed and correctly locked and the door closed and correctly locked.

(a) "STREAM"

Selecting the double pole switch on 1P to "STREAM" results in the following circuit action. Relays 651, 652, 700 and 701 energising thus breaking the retract circuits of both jettison actuators. Relays 651 and 652 however, transfer 28V from fuses A and B to the retract fields of both stream actuators. The actuators in retracting operate the door locking hook to allow the door to open under the force of springs. The door in opening and the action of the hook causes door micro's 1 and 2 to change over to prepare the circuit for operating the jettison actuator retract fields. At the same time the door hook micro changes over to prepare the system for reloading.

NOTE:- At this time the parachute has fully streamed.

//(b) "JETTISON"

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When the aircraft has no more need for the parachute the control switch on 1P is selected to the "JETTISON" position. This action de-energises Relays 651, 652, 700 and 701 allowing 28V from Fuse A being applied to the retract field of jettison actuator No. 1 via Relay 649, 651, 700 door micro No. 1 (1 - 2). The earth return for the actuator being taken via the de-energised contacts of Relay 651.

No. 2 jettison actuator is retracted by 28V from fuse B conveyed via relays 650, 652, 701, door micro No. 2 (4 - 5). The actuator earth being taken via the de-energised contacts of relay 652. The actuators in retracting move the parachute retaining hook to release the parachute. As the parachute leaves the hook, its shackle releases a cam lever, thus changing over the contacts of the jettison shackle micro switch. This last action serves no purpose in the jettison sequence, but prepares the circuit for reloading. A similar function is performed by the Jettison hook micro switch which is operated by retraction of the jettison actuators to prepare the circuit for reloading.

(c) Reloading the parachute

To prepare the system for further use, the following sequence takes place. It should be noted that at the commencement of reloading all the micro switches on diagram are in the opposite position to that shown.

The selector switch on 1P is left at the JETTISON/OFF position. The cocking switch on the door assembly is selected to the HOOK position which results in 28V D.C. from fuse A being conveyed via the door hook micro (1 - 2) and the jettison hook micro (3 - 2) and the HOOK position of the cocking switch, to energise relays 649 and 650. Relay 649 is "locked on" by its own contacts - and also places a supply on to contacts 2 of the jettison shackle micro switch.

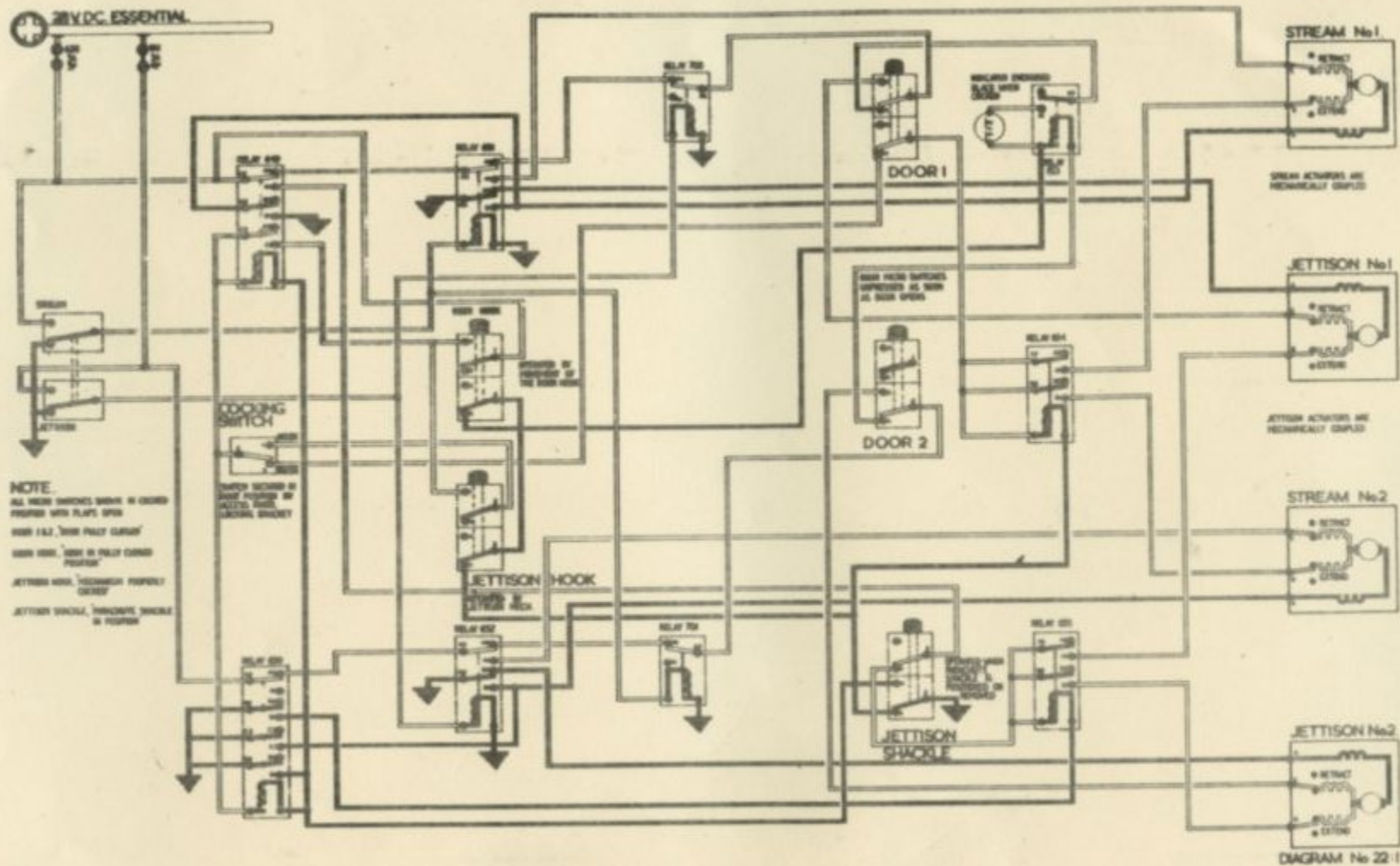
(NOTE:- In its present position the jettison shackle micro (4 - 5) provides the earth return for relays 649 and 650, but because relay 650 contacts are energised, an alternative earth is provided by these contacts i.e. 1 - D2).

The rigger now inserts the parachute shackle into its housing and in doing so operates the jettison shackle micro switch allowing the 28V on contact 2 to energise relay 655 causing both jettison actuators to extend and close the hook over the parachute shackle and change over the jettison hook micro switch.

The rigger selects DOOR on the cocking switch and closes the door over the parachute and in doing so allows strikers on the door to operate No. 1 and 2 door micro switches which results in relay 654 energizing to extend both stream actuators.

When the door actuators have extended to close the door hook the door hook micro switch is operated and breaks the 28V supply to the system, causing relays 649, 650, 654 and 655 to de-energise. A 28V supply is now passed via the de-energised contacts of relays 650, 652 and 701, No. 2 door micro (4 - 6) to energise relay 653 which causes the locking magnetic indicator to line up its presentation with the check marks. The earth return for the relay 653 coil is taken via the door hook micro (6 - 4), jettison hook micro (5 - 6) and the jettison shackle micro (6 - 5).

The braking parachute system is now prepared for further operations.



BRAKE PARACHUTE STREAM & JETTISON CIRCUIT

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