

FIG. I. CONTROL SYSTEMS

DESCRIPTION

General information

1. Emergency equipment includes an ejection seat assembly into which are incorporated a parachute, a demand oxygen system and a survival pack; means for independent jettisoning of the canopy, the guided weapons and the ventral fuel tank; a fire detecting and extinguishing system and a lighting gear lowering system. A stand-by provision for manual release of the canopy is for ground use.

Control systems

2. With the exception of guided weapons, fire detection and fire extinguishing, all systems are cable operated.

Canopy jettisoning

3. The canopy jettisoning system is operated in conjunction with the seat ejecting system by pulling either of the two seat firing handles, or independently by pulling either the internal or external canopy jettisoning handles. Refer to Sect. 1, Chap. 3.

Canopy jack end-fitting release

4. The mechanism is operated by pulling either the internal handle (mounted below the top longeron forward of the windscreen arch) or the external handle (adjacent to the external canopy - locking handle). Releasing the jack-end-fitting enables the canopy to be opened manually in the case of electrical or hydraulic failure. It is essential that the canopy remains in the closed-and-

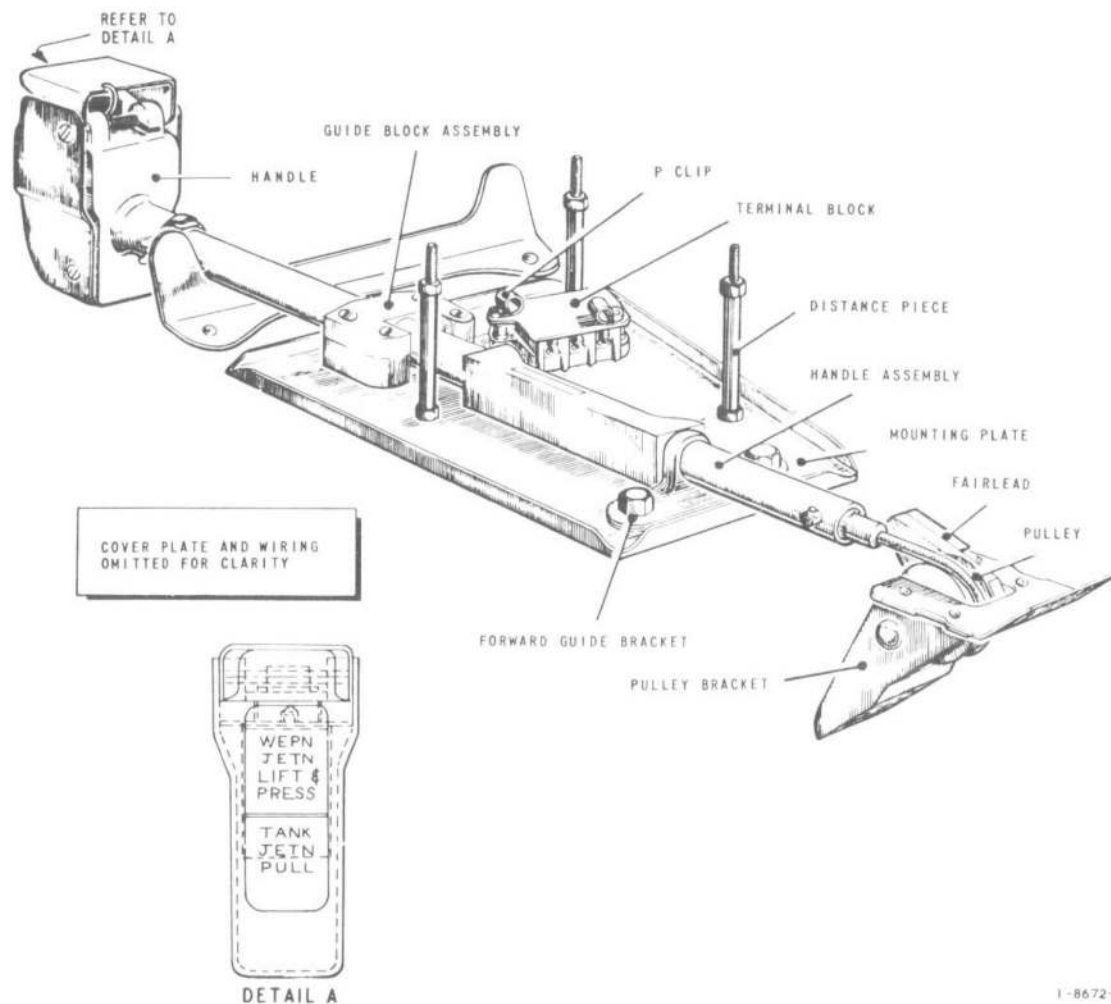


Fig. 2. Ventral fuel tank and guided weapons jettisoning handle

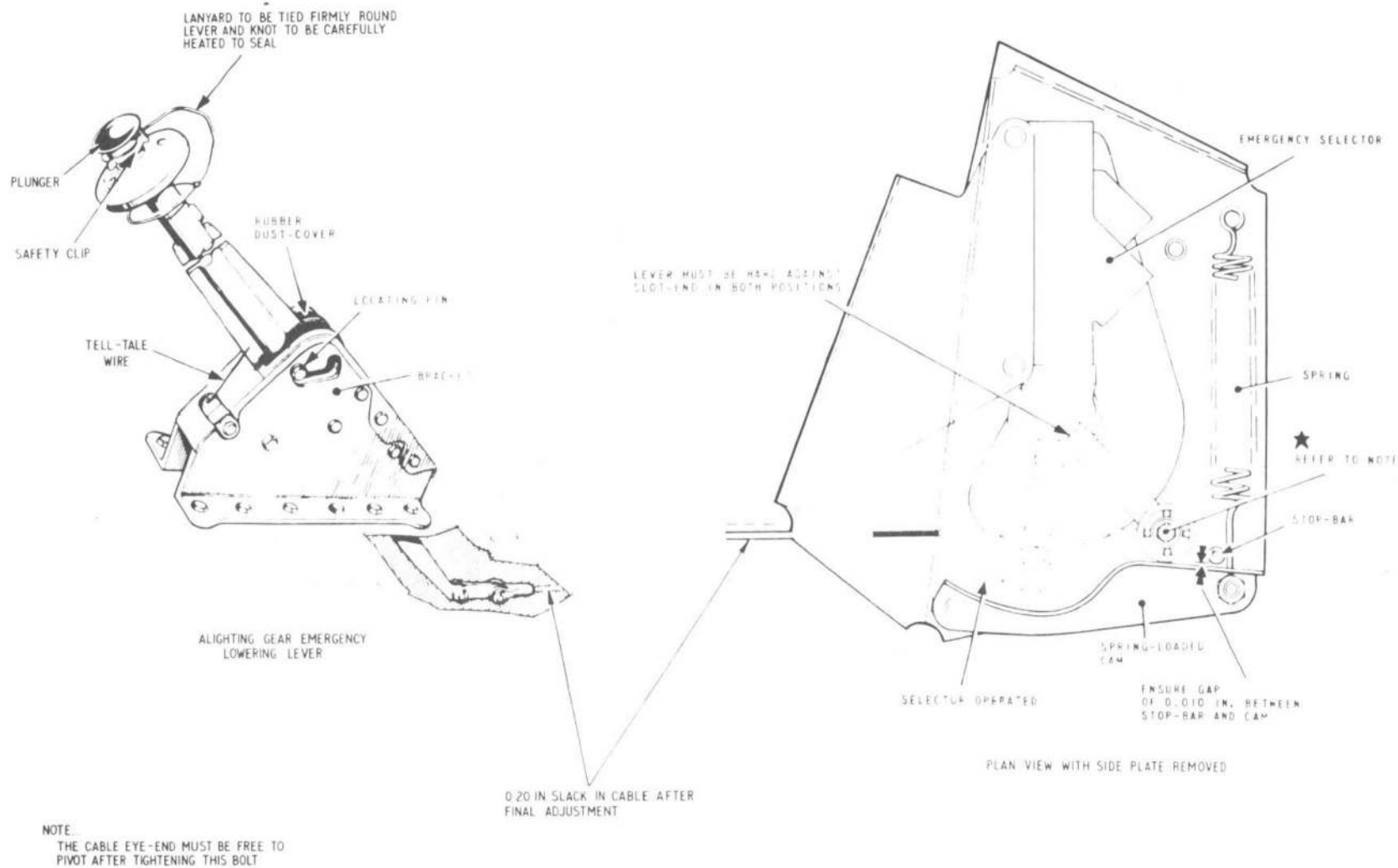


FIG.3. ADJUSTMENT OF ALIGHTING GEAR EMERGENCY LOWERING CONTROL (PRE MOD. 4498)

locked position until the jack end-fitting is released.

Ventral fuel tank jettisoning (fig.1)

5. The ventral fuel tank is suspended from a Mk.3A manual bomb-release unit mounted between frames 46 and 47 in the bottom of the rear fuselage (detail A). The cable from the cockpit handle terminates on a pulley segment which is keyed to a shaft supported by ball bearings in the fuselage structure. Two small levers, one keyed to the shaft and the other actuated by (and in the reverse direction, actuating) the pulley segment through a dog-type drive, are connected by links to the release-unit trigger and the mechanism return spring respectively. When the cockpit handle is pulled, the cable rotates the shaft to operate the release unit; after operation the return spring resets the mechanism. Cable adjustment is by means of a turnbuckle, between frames 20 and 21 in the armament pack bay, and an adjustable eye-end between frames 45 and 46 near the release unit.

Ventral fuel tank and guided weapons jettisoning handle

6. The handle is mounted in guide blocks immediately forward of the port instrument panel with the handgrip projecting beyond the panel. It allows separate or simultaneous operation of the two systems. The tank is jettisoned by pulling the handle to tension the cable and operate the tank release unit. The weapons are jettisoned by lifting the safety flap on the handle and pressing the push-switch.

Alighting gear emergency lowering

7. The alighting gear emergency lowering system is for use when hydraulic or other failure precludes the use of the normal lowering system which is operated by the services hydraulic system. Pulling the lever in the cockpit operates a cable-and-pulley installation (para.8) connected to a hydraulic selector unit mounted in brackets on the aft face of frame 23, port side (access panel 26P). The selector is connected to the No.1 controls hydraulic system (Chap.6).

Alighting gear emergency lowering lever (fig.1, 3 and 4)

8. The alighting gear emergency lowering lever is mounted in a bracket on the cockpit floor at the port side of the ejection seat. A spring-loaded locating pin engages slots in the bracket, which ensure positive locking of the lever in the unoperated (forward) and operated (aft) positions; the lock is withdrawn by depressing a plunger in the top of the lever, after first removing the spring-type safety clip from beneath the plunger head. A strand of 28 s.w.g. tinned copper wire is connected between the lever and the bracket in the unoperated position; a broken wire indicates that the lever has been disturbed and the system must be inspected and, if necessary, reset. In any case, the broken tell-tale wire must be renewed.

Control cable routing (fig.1, 3 and 4)

9. From the alighting gear emergency lowering lever (para.8) the operating cable runs aft to a seal at the pressure bulkhead. From the seal, shrouded pul-

leys, aft of frames 16, 17, 19, 20 and 22 respectively, guide the cable to the lever of the emergency selector. An adjustable eye-end, between frame 18 and frame 19 (access panel 21P), provides an adjustment/breakdown point.

Note...

It is important that the emergency lowering functioning tests in Chap.6 are carried out after emergency lowering of the alighting gear or partial movement of the emergency selector.

SERVICING

WARNING

The relevant safety precautions detailed on the LETHAL WARNING marker card must always be observed before entering the cockpit or performing any operations upon the aircraft.

Lubrication

10. All pulley bearings are pre-packed with grease XG-287 and the control handles and levers are similarly lubricated during assembly; The cables do not require lubricating.

Adjustment of ventral fuel tank jettisoning control

11. To adjust the ventral fuel tank jettisoning control:-

(1) Operate the cockpit jettison handle and measure its travel; this must be a minimum of 1.55 in. ± 0.030 in.

(2) At the jettison unit, measure and note the free play of the operating

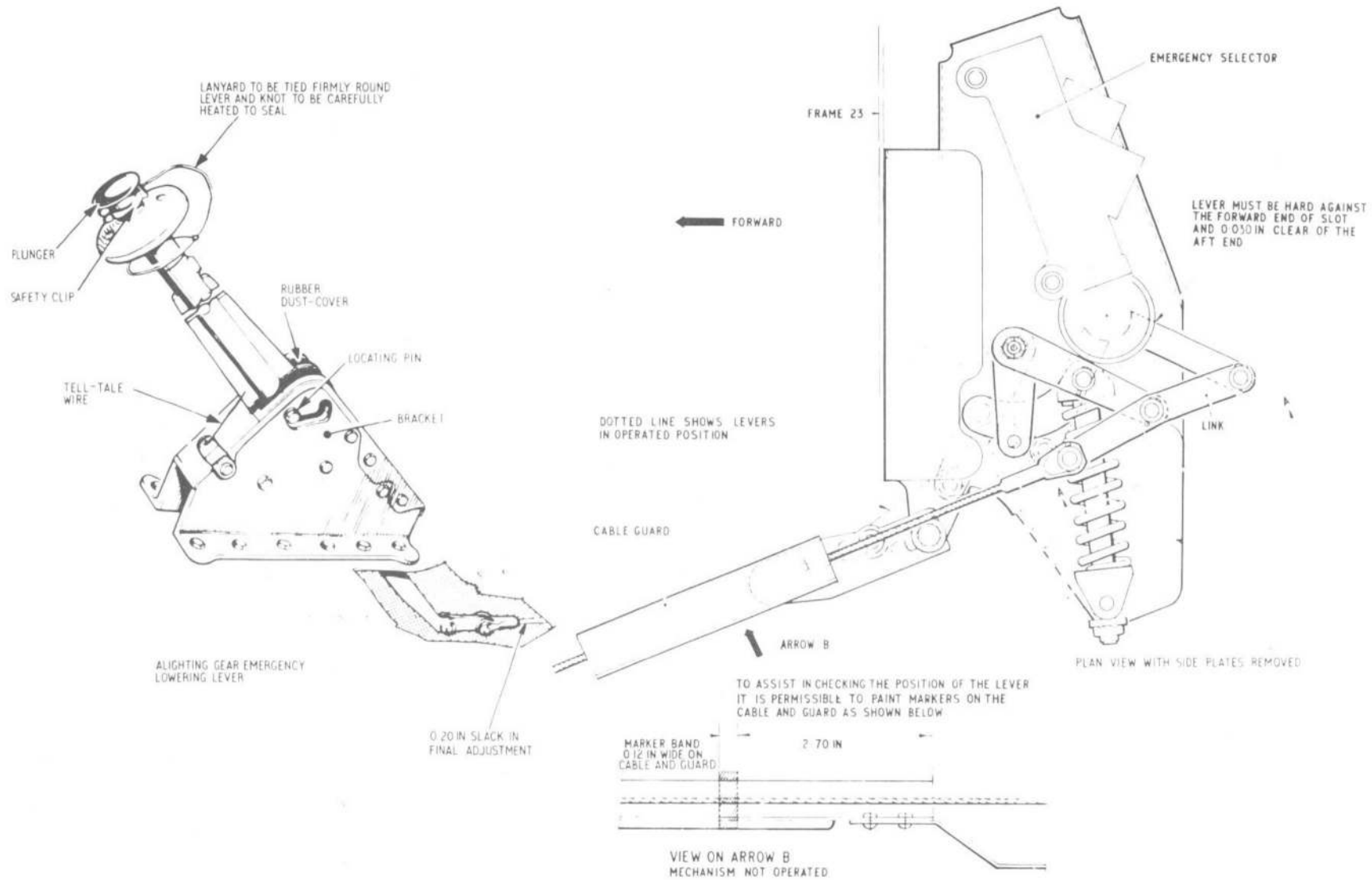


FIG.4. ADJUSTMENT OF ALIGHTING GEAR EMERGENCY LOWERING CONTROL (POST MOD. 4498)

rod; there must be a minimum of 0.002 in. measured between the shoulder of the eye-end and the screwed bush insert, to ensure that the plunger is not pre-loaded. The free play must not exceed 0.020 in. (Refer to A.P.1664A (2nd. Edn.) Vol.1, Book 2, Sect.4, Chap.15, for details of the jettison unit.)

Note...

The end of the screwed bush insert must be used as the datum for all subsequent measurements. If there is no free play at the eye-end, adjust the screwed bush insert. After adjustment, lock the bush by centre-punching.

(3) Cock the release unit and measure the amount of travel of the eye-end to effect release; this measurement must not exceed 0.38 in., inclusive of the free play noted at (2).

(4) With the release unit cocked and the jettison handle in the unoperated position, adjust the cable at the adjusters at frames 45 and 46 so that the operating rod of the release unit just commences to move beyond the previously measured free play.

(5) Insert the ventral fuel tank suspension bolt into the release unit and check that the release unit is cocked.

(6) Apply manual pull to the suspension bolt and slowly operate the jettison handle. Measure the distance the handle has travelled when release of the

suspension bolt takes place (accurate measurement is essential).

(7) Compare the measurement obtained in (6) with the handle full travel measured in (1). The difference between the two measurements (i.e. over-travel) must not be less than 0.20 in. If this over-travel is not obtained, re-adjust the cable so that the release unit operating rod is withdrawn to a maximum of 0.04 in. greater than the free play stated in (2).

Adjustment of alighting gear emergency lowering control (pre Mod.4498)

(fig.3)

12. To adjust the alighting gear emergency lowering control:-

(1) Ensure that the alighting gear is down and locked.

(2) Release all hydraulic pressure from the No.1 controls and the services systems.

(3) Remove the tell-tale wire from the operating lever in the cockpit; remove the safety clip, depress the knob and pull back the lever until the catch engages in the aft slot in the gate.

(4) Set the lever of the emergency selector-valve hard against the forward end of the slot in the valve body. (access panel 26P) and adjust the cable (access panel 21P) until all slack is taken up.

(5) Reset the operating lever, the

valve lever and spring-loaded cam to the unoperated position.

Note...

Move the operating lever and the valve-lever simultaneously to avoid kinking the control cable in the fuselage.

(6) Check that there is a clearance of 0.010 in. (minimum) between the stop-bar and the spring-loaded cam.

(7) Check that the valve-lever is hard against the aft end of the slot; if necessary, slacken the cable to obtain this condition.

(8) Move the operating lever to the operated position, ensuring that the lever-catch is engaged in the aft slot in the gate. Check that the selector-valve lever is hard against the forward end of the slot. If the lever does not contact the end of the slot at both ends of its travel, adjust the cable until it does.

(9) When (7) and (8) are satisfied, adjust the cable to allow 0.20 in. slack.

(10) Reset the system to the unoperated condition.

(11) Carry out the emergency lowering functioning tests described in Chap.6.

(12) On satisfactory completion of the tests, reset the system to the unoperated condition.

(13) Refit the safety clip and tell-tale wire to the operating lever in the cockpit.

RESTRICTED

Adjustment of alighting gear emergency lowering control (post Mod.4498)

(fig.4)

13. To adjust the alighting gear emergency lowering control:-

(1) Ensure that the alighting gear is down and locked.

(2) Release all hydraulic pressure from the No.1 controls and the services systems.

(3) Remove the tell-tale wire from the operating lever in the cockpit; remove the safety clip, depress the knob and pull back the lever until the catch engages in the aft slot in the gate.

(4) Set the lever of the emergency selector-valve hard against the forward end of the slot in the valve body, (access panel 26P) and adjust the cable

(access panel 21P) until all slack is taken up.

(5) Reset the operating lever and the valve lever to their unoperated position.

Note...

Move the operating lever and the valve-lever simultaneously to avoid kinking the control cable in the fuselage.

(6) Check that there is a clearance of 0.010 in. to 0.030 in. between the selector valve lever and the aft end of the slot; if necessary, slacken the cable to obtain this condition.

(7) Move the operating lever to the operated position, ensuring that the lever-catch is engaged in the aft slot in the gate. Check that the selector-valve lever moves the full extent of its travel; if necessary, adjust the cable

until it does ensuring that the clearance in (6) is maintained.

(8) When (6) and (7) are satisfied, reset the system to the unoperated condition.

(9) Carry out the emergency lowering functioning tests described in Chap.6.

(10) Reset the system to the unoperated condition after satisfactory completion of the tests.

(11) Move the operating lever to a position just over top dead centre and observe that the selector valve lever is forcibly moved, by the spring, to the forward limit of the slot.

(12) Reset the system to the unoperated condition and refit the safety clip and tell-tale wire to the operating lever in the cockpit.

TABLE 1

Associated Publications

System	A. P.	Vol.	Sect.	Chap.
Ejection seat (description)	109B-0127-1			
Ejection seat (servicing, removal and assembly)	109B-0127-4F (or-5F)			
Canopy-jettison mechanism	101B-1001-1A	1	3	1A
Emergency oxygen system		1	3	10
Alighting gear emergency lowering		1	3	5
Fire protection system		1	4	5
Emergency operating controls		1	1	3

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