Group 1 NORMAL BOMB CONTROL

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LIST OF ILLUSTRATIONS

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For routeing diagrams of bomb release controls on B/PR Mk. 1 (pre-Mod. 2645) and B/K/PR Mk. 1 aircraft (pre-Mod. 2725), refer to Book 3, Sect. 5, Chap. 8, Group. 4.

◀LIST OF APPENDICES

A list of Appendices appears at the end of the Group▶

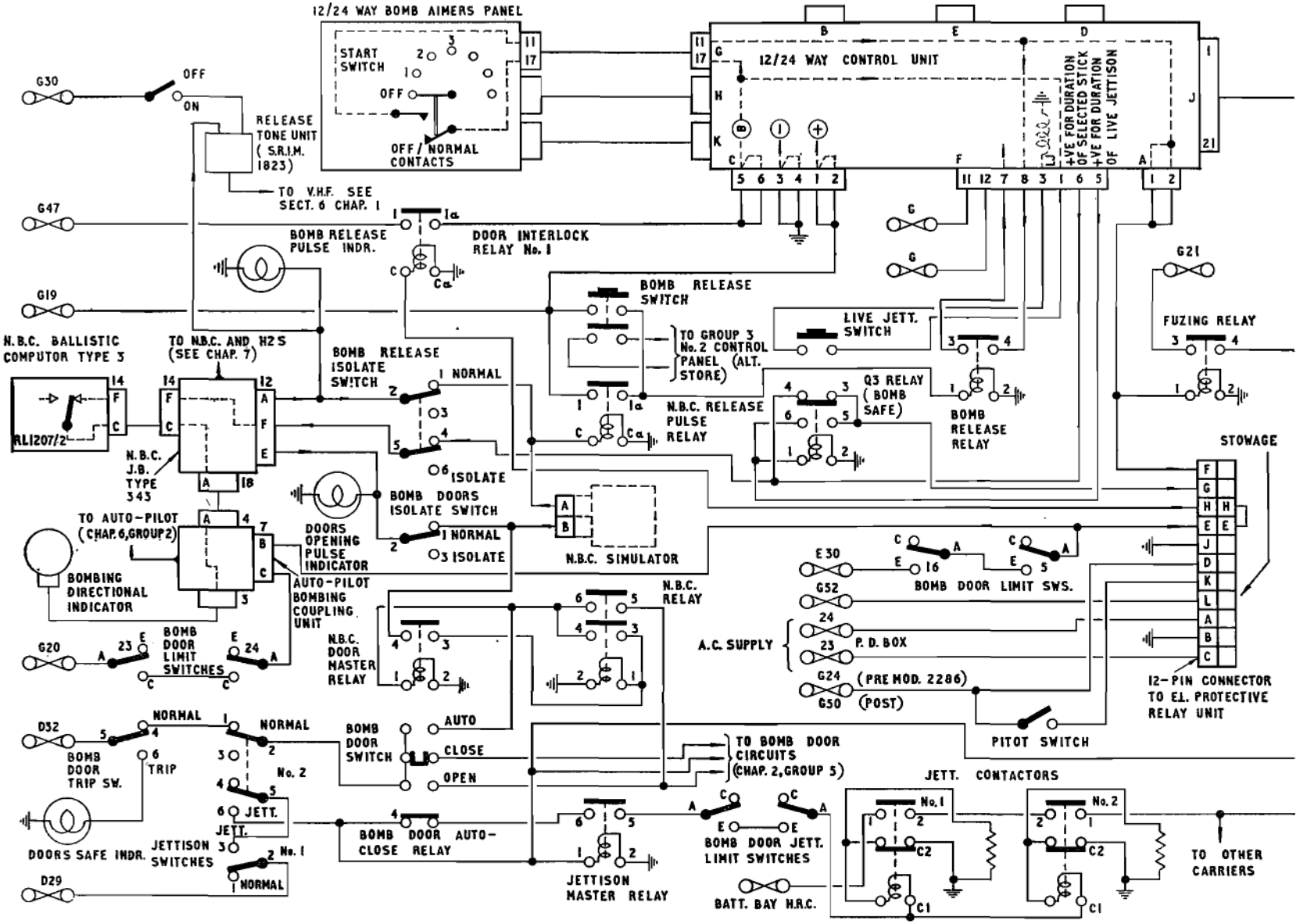

Fig. 1 (1). Bombing system (conventional roles)

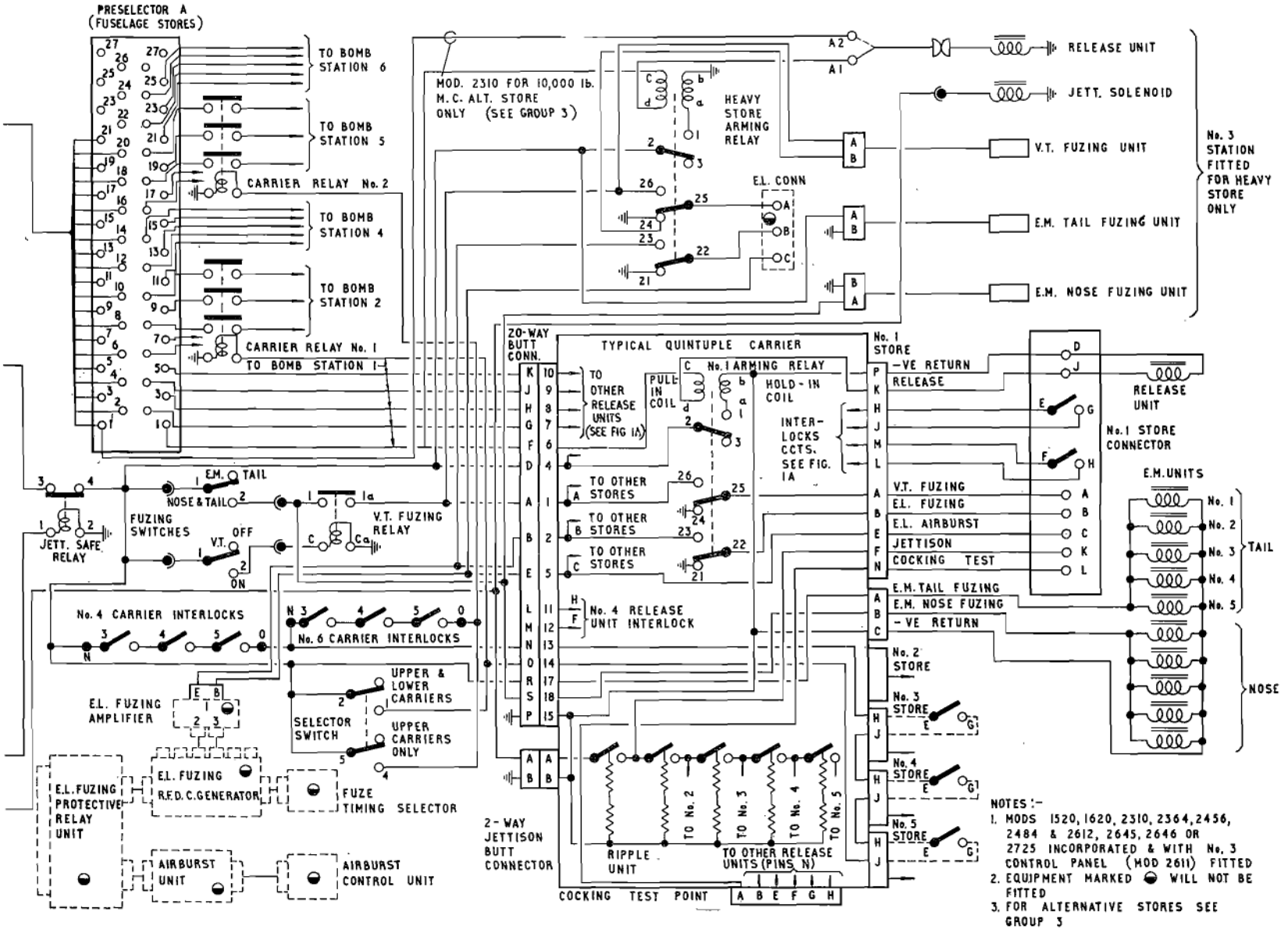

Fig. 1 (2). Bombing system (conventional roles)

WARNING

(1) *Voltages in excess of* 100 *volts, either a.c. or d.c. can be dangerous under certain circumstances. Personnel should therefore ensure that the electrical system is electrically safe before any servicing is attempted. Where it is essential that tests or adjustments be made with the electrical power switched on, the greatest care must be exercised.*

(2) *There is no ground bomb release safety circuit on this aircraft.*

Introduction

1. This group contains a description of the bomb release equipment and notes on the circuit operation for aircraft installation only, reference to the relevant Air Publications should be made for details of the various items of equipment. Refer to A.P.1664D, Vol. 1, Part 1, Sect. 2 for details of the loading gantry. Details of the photoflash release circuits for the P.R. aircraft are given in Chapter 8. The requirements for underwing nacelles has been cancelled, but the wiring is fitted to the aircraft, consequently, routing diagrams are supplied and are labelled "Reference only"; some of the underwing nacelle circuits are being used for other systems and these will be shown accordingly.

2. Provision is made by Mods. 2612 (B/K Mk. 1), 2645 (B/PR Mk. 1), 2646 (B. Mk. 1) or 2725 (B/K/PR Mk. 1) to carry further alternative stores (*See Group* 3). This makes the normal bomb control removable. The bomb aimer's position at the radio crate is modified to take the necessary controls for the various stores, these controls being mounted on separate removable panels. The panel for the normal stores is labelled No. 3 CONTROL PANEL and is called for under Mod. 2611. In order to provide for these roles, a few circuit alterations have been made and will be detailed in the text on circuit operation.

DESCRIPTION AND OPERATION

Controls

3. Certain controls on the equipment installed are not to be operated, these are as follows:—

Bomb aimer's panel

(1) JETTISON SAFE ALL—All stores may not be released.

(2) JETTISON SAFE SELECTED—Stores may not be released because the interlocks may not be closed.

(3) CONTROL TEST
(4) BOMB CIRCUIT TEST

The system is fully tested before loading by ground test equipment.

12/24 *way control unit*

(1) ON/OFF switch.

(2) TIME DELAY FOR BOMB No.

Battery bay

HEAVY BOMBS/TANKS OR CONTAINERS switch—To be set at HEAVY BOMBS.

Wing stalks

CARRIERS/HEAVY BOMB switch—To be set at HEAVY BOMBS.

Pilots port fuel panel

Wing clearance switches

Not to be moved from NORMAL (post Mod. 2612, 2645, 2646 or 2725) Removed by Mod. 2296.

4. Bomb release controls consist of a bomb aimer's panel, a 12/24-way control unit, a Type 9, Mk. 2 distributor and a pulse delay unit at the bomb aimer's station on the radio crate. Bomb release push-switches are to be found on the 1st pilot's handwheel (pre-Mod. 1197 only), on a trailing lead at the bomb aimer's visual bombing position (post Mod. 2140 this switch is panel mounted) and on a trailing lead at the bomb aimer's blind position (pre-Mod. 1297 this switch is panel mounted). Emergency release switches are a JETTISON bomb door control switch (there are two switches post Mod. 2484) on the control pedestal and a JETTISON LIVE push-switch at the bomb aimer's visual position; in addition there are two wing clearing switches labelled EMERGENCY and EXTREME EMERGENCY on the pilot's fuel panel, Post Mod. 1185 these two switches are replaced by a single double-pole switch. Pre-set controls are the two pre-selectors A and B, Type B, the UPPER CARRIERS ONLY/UPPER and LOWER CARRIERS selector switch and the HEAVY BOMB/TANKS OR CONTAINERS selector switch, all mounted on the pre-selector panel at the forward end of bomb bay and a CARRIERS/HEAVY BOMB jettison selector switch in each wing stalk.

5. The bomb aimer's control panel is used with the 12/24 way controller for the fuselage bombs and with the Type 9 distributor (pre-Mods. 2612, 2645 or 2646) for the wing bombs, to control the release sequence of the bombs. When wing and fuselage bombs are carried, the time interval between a fuselage and a wing bomb being released is controlled by the non-variable pulse delay unit.

Note . . .

Post Mods. 2612, 2645, 2646 *or* 2725, *the controls on the radio crate for wing stores have been removed, these are Type* 9 *distributor. Pulse delay unit fuselage/fuselage and wings switch and all the nacelle indicators on radio crate.*

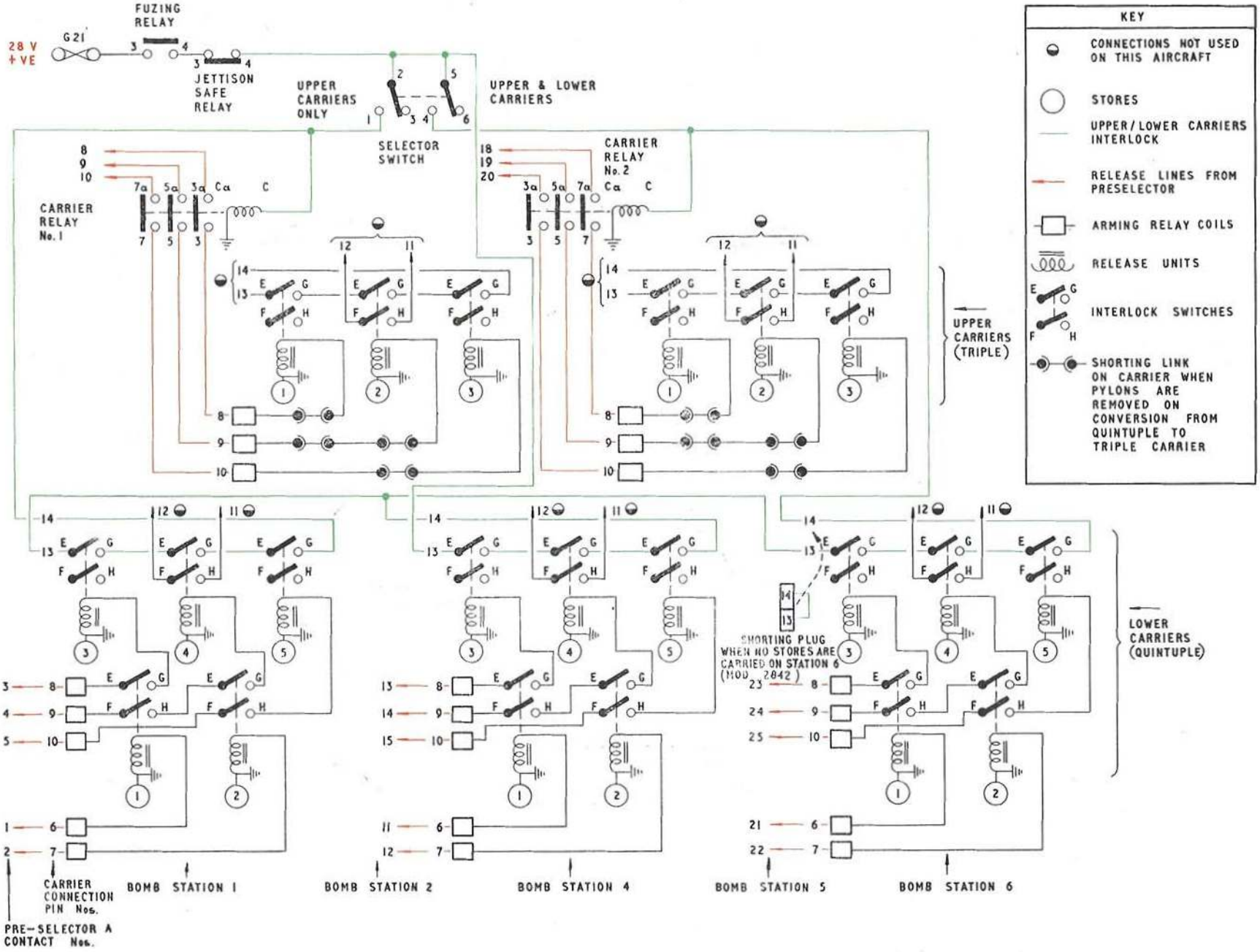

Fig. 1A. Interlocking system

6. If wing stores were carried, the total number of slips to be controlled would exceed the capacity of the 12/24-way control unit. In order, therefore, to provide release pulses for the wing stores, a pulse delay unit feeding through a Type 9 distributor is connected in circuit between the 12/24-way control unit and the wing store pre-selector B. Every fuselage release pulse from the 12/24-way control unit is fed into the pulse delay unit as well as to the fuselage release system. The pulse delay unit delays this pulse for 30 milli-seconds before passing it on to the wing bomb release system so that a wing store is released 30 milli-seconds after a fuselage store whatever the time setting on the bomb aimer's panel. A switch at the bomb aimer's station on the radio crate labelled FUSELAGE/FUSELAGE AND WINGS (SINGLE/PAIRS—pre. Mod. 2039) is provided so that the delay unit can be brought into circuit when wing stores are carried. The wing store pre-selector B is set up so that wing stores are released alternately from port to starboard.

7. Pre-selector A is for fuselage stores and pre-selector B is for wing stores, their function is to select which bomb slips correspond to the numbers on the 12/24-way controller and the Type 9 distributor according to the load being carried, so as to maintain an even loading on the aircraft as the stores are released.

8. To accommodate the 21-1,000 lb. bombs load five carriers (carrier 5—store 1,000 lb. Mk. 1) are used, in quintuple form they are mounted on adaptors at bomb stations 1, 4 and 6, in triple form (pylons removed) they are mounted directly to the bomb bay roof at bomb stations 2 and 5. Interlocks are fitted to the carrier circuits so that the bomb slips of the upper carriers cannot be energized until the bombs have been released from the lower carriers. When loads are carried which require upper carriers only, it is no longer necessary to have this interlock circuit in operation. To provide for these two conditions, a switch on the pre-selector panel can be set to UPPER CARRIERS ONLY or UPPER AND LOWER CARRIERS as required. Under certain conditions, when it is required to use upper and lower carrier, no stores will be carried at bomb station No. 6; in order to override the interlock circuit for bomb station 6 (the UPPER CARRIERS ONLY/UPPER AND LOWER CARRIERS switch will be at UPPER AND LOWER CARRIERS) a specially wired socket, introduced by Mod. 2842, must be fitted to the 18-pin stalk connector at this bomb station. When not in use, this socket is stowed in a dummy plug mounted on a bracket to starboard of bomb station No. 6.

9. When wing loads are to be carried, a wing stalk is fitted to each wing to which can be attached a heavy bomb or an under-wing fuel tank. When an under wing fuel tank is carried the release slip in the wing stalk can be energized by the emergency wing clearing switch only. When a heavy bomb is carried it is necessary to control the slip by the bomb aimer's controls. A switch, labelled HEAVY BOMBS/TANKS OR CONTAINERS mounted on the pre-selector panel has to be pre-set according to the load to be carried so as to connect the slip either to the bomb release control circuit or to the emergency wing clearing circuit respectively. This switch should now always be set to HEAVY BOMBS.

10. In each wing stalk there is a JETTISON SELECTOR switch. This is used to connect the jettison circuits to the heavy slip jettison solenoid, or to the wing bomb jettison relay in the wing stalk for wing nacelle bombs, according to which type of load is to be carried. This switch should always be HEAVY BOMB now that under-wing nacelles are not to be fitted.

11. Bombing may be achieved 'blind' from N.B.S. instruments at the radio crate; visually from the T.4 bomb sight (Post Mod. 1648) and instruments at the visual position (when fitted) or fully automatically by means of the N.B.S. equipment. Firing pulses can also be supplied from the Gee H Mk. 2 equipment (pre-Mod. 2537).

Blind bombing

12. This is achieved either by the Gee H Mk. 2 (pre-Mod. 2537) or N.B.S. instruments. When blind bombing is employed, the bomb doors are opened by the pilot (Chapter 2—normal bomb door operation). The bomb selections are made on the bomb aimer's panel and release is achieved by depressing the normal bomb release push-switch at the radio crate or by operating the Gee H Mk. 2 bomb release switch. The firing circuits cannot be energized until the fuselage bomb doors are fully open, when the appropriate limit switches operate the fuselage door interlock relay, thus connecting a supply to the 12/24-way control unit. The 12/24-way distributor is connected to the fuselage bomb releases via pre-selector A and pre-selector and fuselage bomb release junction boxes and to the fuzing equipment. The Type 9 distributor is connected to the 12/24-way control unit and pulse delay unit, to feed the wing bombs via the pre-selector and wing bomb release junction boxes and the wing stalk junction box.

Visual bombing

13. For visual bombing, the operation of the equipment is as for blind bombing except that, after setting the 12/24-way control unit and the control units, the sighting and release are carried out from the visual bombing position under the crew floor.

Automatic bombing

14. When using automatic bombing, the pilot places the bomb door control switch to AUTO when approaching the target. This raises the deflector only, the bomb doors being raised automatically on receipt of a pulse from the N.B.S. calculator, Type 3, via the N.B.S. Junction box, Type 343, to the N.B.S. and door master relays (*see Chapter* 7). The bomb release pulse supplied from the N.B.S. calculator, Type 3, via the Junction box, Type 343, is fed to the bomb release relay, so that the 12/24-way release and fuzing equipment operate as for manual bombing. A positive supply is connected to the N.B.S. via the Junction box, Type 343, and auto-pilot bombing coupling unit by two micro-switches (23 and 24) in series (one on each fuselage bomb door) as soon as the doors leave the closed position.

Note . . .

(1) *Post Mod.* 2612, 2645, 2646 *or* 2725, *the N.B.S. release pulse is fed to an additional relay* (*N.B.C. release pulse relay*) *this relay then connects the normal supply to the bomb release relay since its contact is in parallel with the bomb release switches.*

(2) *Mod.* 2456 *introduces isolating switches in the bomb doors open and bomb release signal lines from the N.B.C. equipment and also provides* '*doors opening*' *and* '*bomb release*' *indicator lamps which operate from these signals. The two isolating switches* (*BOMB DOORS and BOMB RELEASE*) *enable the N.B.C. equipment to be fully operated, but without the bomb doors and bomb release circuits being energized* (*see Book* 3, *Chap.* 7, *Group* 2).

Emergency jettison

Note . . .

There is no requirement for safe jettison from any position other than the pilot's.

F.S./4

15. In an emergency, the pilot can jettison the bomb load in a safe condition by switching the bomb door jettison control switch to JETTISON. This energizes the bomb door jettison circuits (*see Chapter* 2) to open the bomb doors. It also energizes the jettison safe fusing relay, to de-fuze the bombs, and the jettison release circuits so that, as soon as all the doors reach the open position, their jettison limit switches energize the fuselage and wing jettison relays and hence the jettison releases. All the bombs will then be released in sequence from each carrier. The release sequence is controlled by ripple units on each carrier 20 seconds after the time of selection of JETTISON, the door control jettison close circuits will close the doors.

Jettison live

16. The JETTISON LIVE push-switch, at the bomb aimer's visual position is an emergency control directly connected to the 12/24-way control unit to energize the fuzing of all bombs, as selected by the fuzing switches, and releases them in sequence at 0·1 second intervals, after the bomb doors have been opened.

Wing clearance (*pre-Mod.* 2296 *only*)

Note . . .

These circuits are inoperative post Mod. 2296. *The fuses will be removed and the wiring to the switches will be taped back. The switches will then be used for other purposes.*

Pre-Mod. 1185

17. Under emergency conditions, any load carried on the wing stalks, except a heavy bomb may be jettisoned by closing the WING CLEARANCE EMERGENCY switch on the pilot's fuel panel. This circuit is independent of the normal bomb control circuits. If the circuit fails to operate, then the WING CLEARANCE EXTREME EMERGENCY switch, also on the fuel panel, should be closed to detonate the explosive release unit to which is attached the stalk slip. This latter circuit will release any load carried from the stalk slip.

Post Mod. 1185

18. The above two switches are replaced by one double-pole switch which, when operated, energizes both circuits simultaneously.

Note . . .

Due to the cancellation of the underwing nacelles and the fact that underwing tanks are now carried on fixed suspension links, these circuits are now non-operative.

Connections to carriers

19. Along the fore-and-aft centre line of the bomb bay roof are arranged the connectors for the bomb carriers, those to starboard are 20-way connectors for normal release and fuzing and those to port are 2-way for jettison release. The connectors are of two types, 'stalk' connectors at bomb stations 1, 4 and 6 and 'butt' connectors at bomb stations 2, 3 and 5. The 'stalk' connectors consist of Mk. 4 Plugs and Sockets.

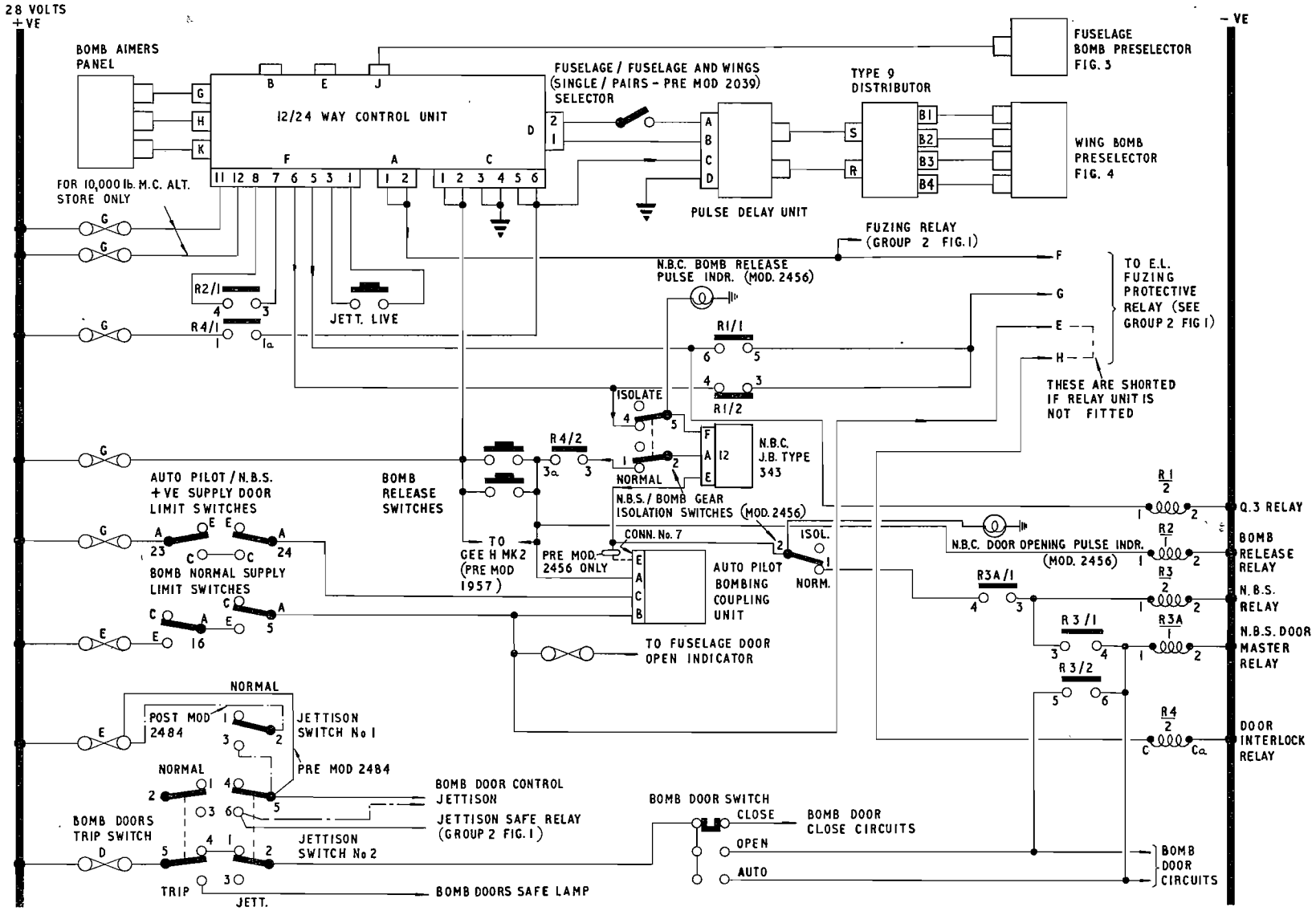

Fig. 2. Bomb release control—normal (pre-Mod 2612, 2645, 2646 or 2725)

20. With the exception of that at bomb station 3, all the 20-way butt and stalk connectors are connected to the fuselage bomb release junction box. All the 2-way connectors, with the exception of that at station 3, are permanently connected to the jettison relay, Type D, at the forward end of the bomb bay. The 20-way and 2-way butt connectors at station 3 each have a short wander lead with a plug attached, so that they may be connected to the bomb release junction box by fitting their plugs to the stalk connectors at station 4. Two dummy stalk connectors are provided between stations 3 and 4 as stowage for the wander lead plugs when they are not in use. A dummy stalk connector to starboard of station 6 (introduced by Mod. 2842) is provided as a stowage for the specially wired 18-pin socket used at bomb station 6 when no stores are being carried at this station (*see para.* 8).

21. To the starboard side of station 3 are a 6-way and a 3-way plug and socket, mounted on a common bracket, for the 10,000 lb. H.C. store. The 6-way plug is connected to the heavy store release unit spring contact, via a 2-way terminal block on the starboard side of station 3, the E.L. fuzing connector (Ref. Arm. 35378), the E.M. fuzing unit 2-way socket, just forward of station 2, and the tail fuzing unit 2-way socket (not yet positioned). The 3-way plug is connected to the V.T. fuzing unit 2-way socket (not yet positioned). Until the V.T. and tail fuzing unit 2-way sockets are positioned, lengths of cable will be supplied connected to the 6-way and 3-way plugs, coiled and stowed at this position. Both the 6-way and 3-way sockets are wired to the bomb release junction box.

22. The heavy slip for an underwing store is in the wing stalk where the heavy bomb or underwing tank is carried. The heavy bomb connector is connected to the wing stalk junction box.

21-1,000 lb. bombs in fuselage

23. When twenty-one 1,000 lb. bombs are carried, five carriers are used, those at stations 1, 4 and 6 being attached to the carrier adapters and those at stations 2 and 5 being attached directly to the bomb bay roof, in which case their butt connector plugs mate with the connectors on the bomb bay roof. The butt connectors on the carriers at stations 1, 4 and 6 are connected to their respective stalk connectors in the bomb bay roof via butt connectors on the carrier adaptors wired to plugs which are mated with the stalk connectors when the carrier adaptors are fitted.

2-5,000 lb. bombs in fuselage

24. When two 5,000 lb. bombs are carried, the heavy stores release unit has to be fitted to the heavy store crutch at station 3. The twin carrier is then slung from this release, the control supplies to the carrier are obtained from the butt connectors at station 3, which are connected by their wander leads to the stalk connectors at station 4 (*para.* 19).

1-10,000 lb. bomb in fuselage

25. When a single 10,000 lb. H.C. bomb is carried, it is slung from a No. 3, Mk. 3 heavy store release unit which has to be fitted to the heavy store housing at station 3. The heavy store release unit housing has spring loaded contacts fore and aft which mate with the contacts on the release unit and jettison solenoid respectively, when these are fitted. The E.L. fuzing connector is fitted to the store, the E.M. fuzing unit is fitted to the 2-way E.M. fuzing unit socket at station 2 and the tail fuzing unit is fitted to the 2-way tail fuzing unit socket (when positioned). If the E.L. fuzing is not required, the V.T. fuzing unit is fitted to the 2-way V.T. fuzing unit socket (when positioned). The jettison unit No. 1, Mk. 1 (No. 5, Mk. 1 post Mod. 2908), is mounted on the H link and is connected to the jettison relay via a 2-way (3-way, post Mod. 2908) terminal block (A1) mounted on the port side of station 3. For illustration of these connections see Group 6, Fig. 29.

10-2,000 lb. bombs in fuselage

26. When ten 2,000 lb. bombs or ten 2,000 lb. mines are to be carried, they are mounted on quintuple carriers at bomb stations 2 and 5. The supplies are obtained from the butt connectors in the roof at these stations.

1-10,000 lb. bomb on each wing (*pre-Mod.* 2612, 2645, 2646 *or* 2725 *only*)

27. When a bomb is fitted to the wing, the wing stalk has to be fitted first; to this is attached the load by means of a heavy slip and explosive release slip fitted to the crutch at heavy store bomb station in the stalk. Both these slips have contacts which make on spring loaded contacts built into the crutch, the normal release slip is fed from the wing stalk junction box, the explosive release being fed from the stalk attachment connections.

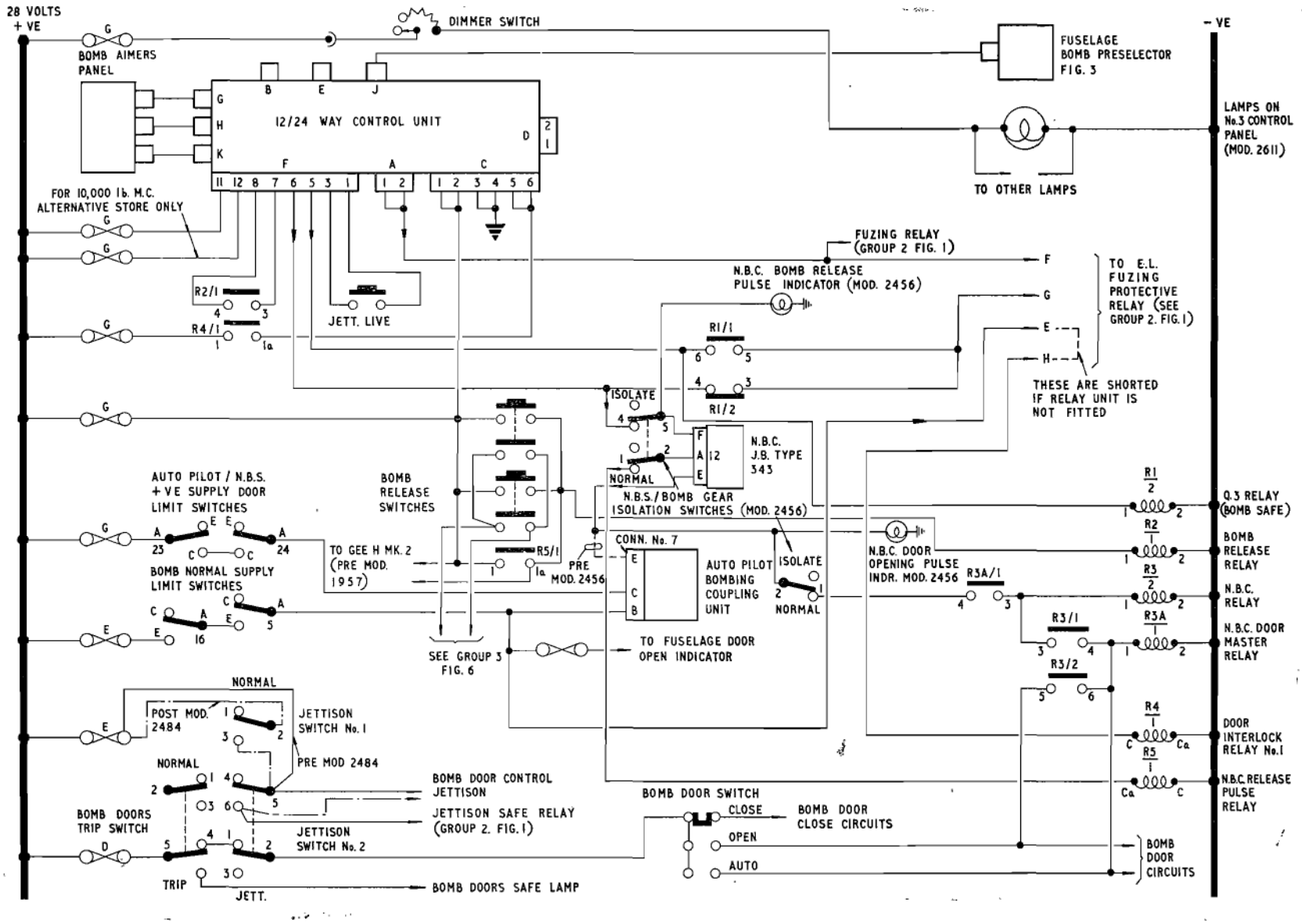

Fig. 2A. Bomb release control - normal (post Mod. 2612, 2645, 2646 or 2725)

CIRCUIT OPERATION

Normal release control (*fig.* 2 and 2*A*)

28. As soon as the bomb doors start to open, the fuselage door limit switches 23 and 24 connect a 28-volt signal supply, from panel G, to the auto-pilot coupling unit and (pre-Mod. 2612, 2645, 2646 or 2725) the N.B.S. control unit. When the doors are fully open, the fuselage door limit switches 5 and 16 will connect a supply from panel D to the operating coil R4 of the fuselage door interlock relay (Type S2), mounted at the back of the radio crate, via the fuzing protective relay unit (if this unit is not fitted the circuit is completed by the stowage connector for the 12-way socket). This relay operates (R4/1) to connect the supply from panel G to the 12/24 way control unit (connector C pins 5 and 6) and to the pulse delay unit and also to close (R4/2) the release line from the N.B.S. calculator, Type 3, via the N.B.S. junction box Type 343 to the Bomb release relay R2.

Note . . .

Post Mod. 2612, 2645, 2646 *or* 2725 *the door interlock relay R4 becomes door interlock relay No.* 1. *An additional relay* (*No.* 2) *is added for the alternative stores* (*Group* 3) *fig.* 2.

29. Thus the circuits are set for firing. When any of the release push-switches is depressed, or a signal from the N.B.S. calculator, Type 3 via the N.B.S. is supplied (*see Chapter* 7), the Bomb release relay R2 (Type Q1) mounted behind the radio crate, is energized, its contacts R2/1 close to connect the supply to the release circuits of the 12/24 way control unit (plug F, terminals 7-8). From the 12/24 way control unit the release signals are fed to the fuselage bomb pre-selector A, and pre-Mod. 2612, 2645, 2646 or 2725, via the FUSELAGE/FUSELAGE AND WINGS (single/pairs) switch at FUSELAGE AND WINGS to the pulse delay unit. From the pulse delay unit, the release signal is passed 30 milli-seconds later through the Type 9 distributor to the wing bomb pre-selector B.

29a. When the release signal is made, a signal is supplied from the 12/24 way control unit (6-pin, pin 6) to the E.L. fuzing protective relay unit (if fitted see Group 2) and via the N.B.C. junction box, calculator, Type 3 and auto-pilot bombing coupling unit to the pilot's Directional Indicator on the instrument panel. A 'flag' is thereby raised in the indicator and remains 'raised' until the selected 'stick' of bombs have been released.

29b. During practice bombing using the N.B.S. when no stores are carried, the release signal from the N.B.C. Calculator Type 3 is also fed to the release tone unit introduced by S.R.I.M. 1823 (or later by Mod. 2746). The release tone oscillator (*see Sect.* 6, *Chap.* 1) is switched on at the start of the bombing run and monitors the V.H.F. system to send out a single note tone. At the moment of release the tone is cut-off by a relay (in the release tone unit) which is energized by the release pulse. Pre-Mod. 2612, 2645, 2646 or 2725, this system can be used in connection with manual release controls as well as with the N.B.C.

Note . . .

Post Mod. 2612, 2645, 2646 *or* 2725, *the signal from the N.B.S. junction box, Type* 343 *is not connected via the contact R4/2 of the door interlock relay to the release relay R2, but is connected to an additional relay R5* (*N.B.C. release pulse relay*) *mounted behind the radio crate. The contact R5/1 of this relay is in parallel with the bomb release switches and connects the normal supply to the bomb release relay R2* (*fig.* 2). *The reason why the N.B.S. supply is not now taken through the door inter-lock relay is that the supply is already inter-locked by the bomb door inter-lock relay contact R4/1.*

Normal release—fuselage (*fig.* 3)

30. From the fuselage bomb pre-selector A, the release lines are connected to the fuselage carrier butt and stalk connectors, via the pre-selector and fuselage bomb release junction boxes at the forward end of the bomb bay and behind the rear spar respectively. The release lines to the butt connectors at bomb stations 2 and 5 are taken through contacts on two relays R7 and R8 in the fuselage bomb release junction box. These relays are controlled by the bomb slip interlocks on carriers at bomb stations 1, 4 and 6 when upper and lower carriers are used, or by the UPPER CARRIERS ONLY/UPPER AND LOWER CARRIERS switch in the UPPER CARRIERS ONLY position when upper carriers only are used. This ensures that when upper and lower carriers are being used, the upper carrier bombs cannot be released until the lower carrier bombs have gone. When the lower carrier bombs have gone, their slip interlocks on carriers 4 and 1 in series energize relay 1, (R7) and those on carriers 4 and 6 in series energize relay 2 (R8), from the tail fuzing supply from panel G. The relays then operate to complete the release lines to the upper carriers at bomb stations 2 and 5. When upper carriers only are used, there is no need for this interlocking circuit, hence the switch should be placed to the UPPER CARRIERS ONLY position. Relays R7 and R8 will then be operated from the same supply, thus making an unbroken release line from the pre-selector A to all carrier connectors.

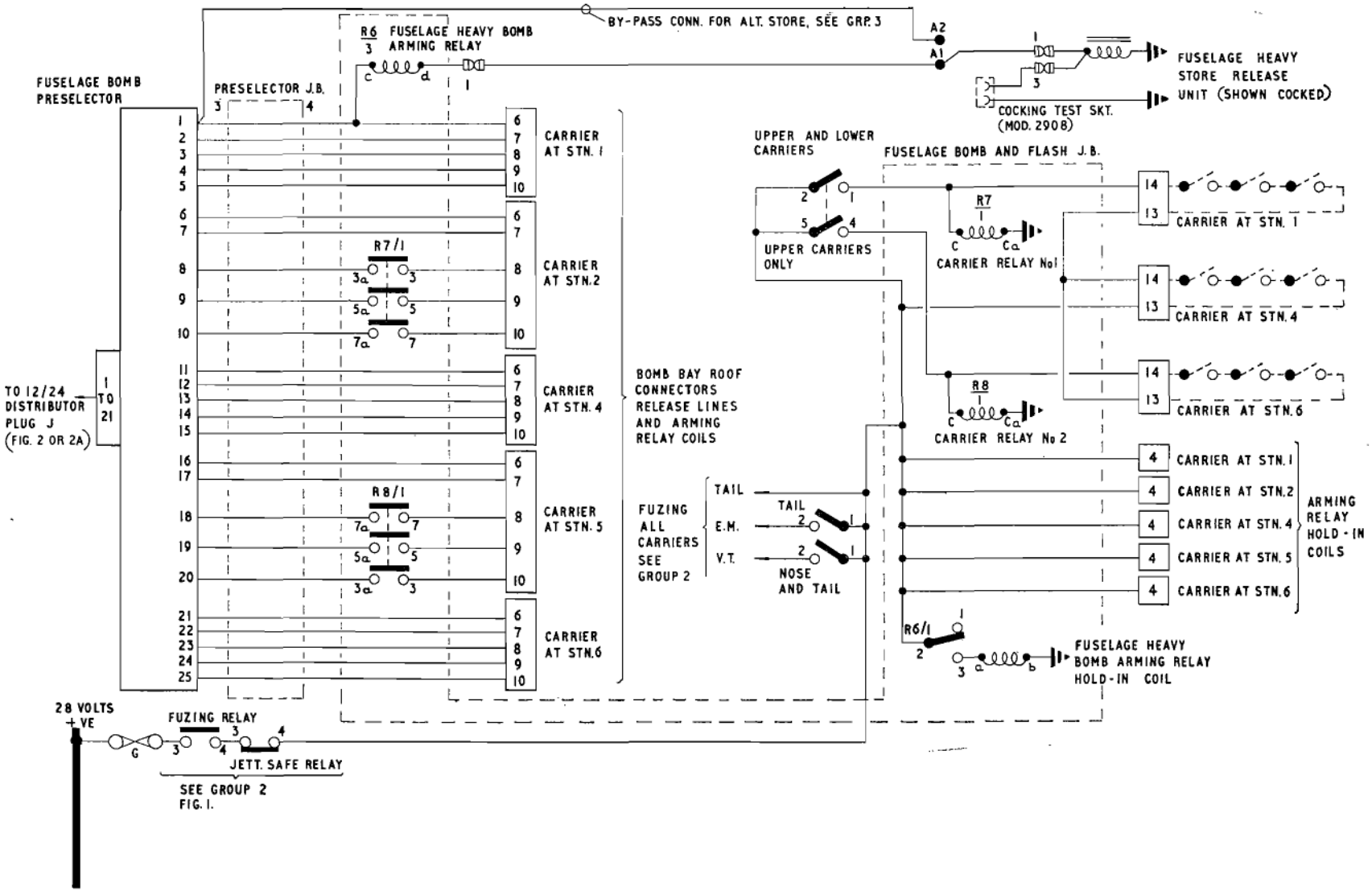

Fig. 3. Bomb release fuselage - normal

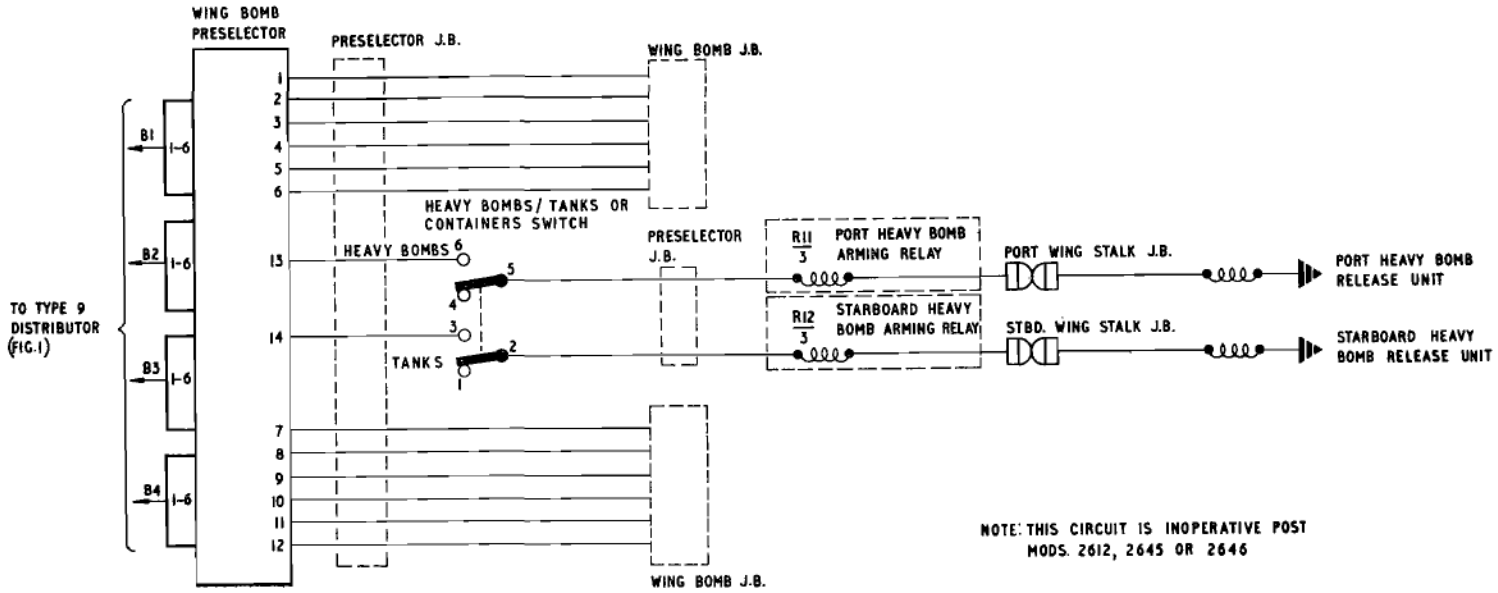

Fig. 4. Bomb release wings - normal

31. From the carrier connectors, the bomb release supply is taken to the operating coils of the individual arming relays on the carriers, and thence to the individual slip release rotors, those for the upper bombs being supplied via the interlocks on the lower bomb slips on each carrier, so that the upper bombs cannot be released until the lower bombs have gone. The tail fuzing supply, from panel G, is taken to each carrier arming relay hold-in coil, via normally open contacts on the relative relay, so that the hold-in coil is not energized until the relay has been energized by the release pulse.

Note . . .

The triple carriers at bomb stations 2 and 5 are quintuple carriers with the pylons for the lower two bombs removed. The interlocking circuits for these lower bombs are shorted by the harness stowage points provided.

32. An arming relay is provided, in the fuselage bomb release junction box, for the heavy slip carried at bomb station 3. The release supply is taken from terminal 1 on the fuselage pre-selector A, via the pre-selector junction box and the arming relay operating coil. The arming relay hold-in coil is energized from the tail fuzing supply, from panel G, via normally open contacts on the arming relay.

Normal release—wings (*fig.* 4)

Note . . .

Although the wiring for this system is installed in the aircraft, the control equipment is deleted by Mod. 2612, 2645, 2646 *or* 2725 *and post these Mods. the system becomes inoperative.*

33. From the wing bomb pre-selector B, the release lines are connected via the pre-selector and wing bomb release junction boxes, the latter in the compartment above the nosewheel bay to the arming relay provided in each wing stalk junction box for the wing heavy bombs. The release supplies are taken from terminals 13 and 14 on the wing bomb pre-selector B, via the pre-selector junction box and the HEAVY BOMBS/ TANKS OR CONTAINERS switch in the HEAVY BOMB position, back through the pre-selector junction box and through the arming relay operating coils in the respective wing stalk junction boxes. The arming relay hold-in coils are energized from the tail fuzing supply from panel G via normally open contacts on the arming relays. With HEAVY BOMBS/TANKS OR CONTAINERS switch at TANKS OR CONTAINERS, the slips will be connected to the emergency wing clearing circuit.

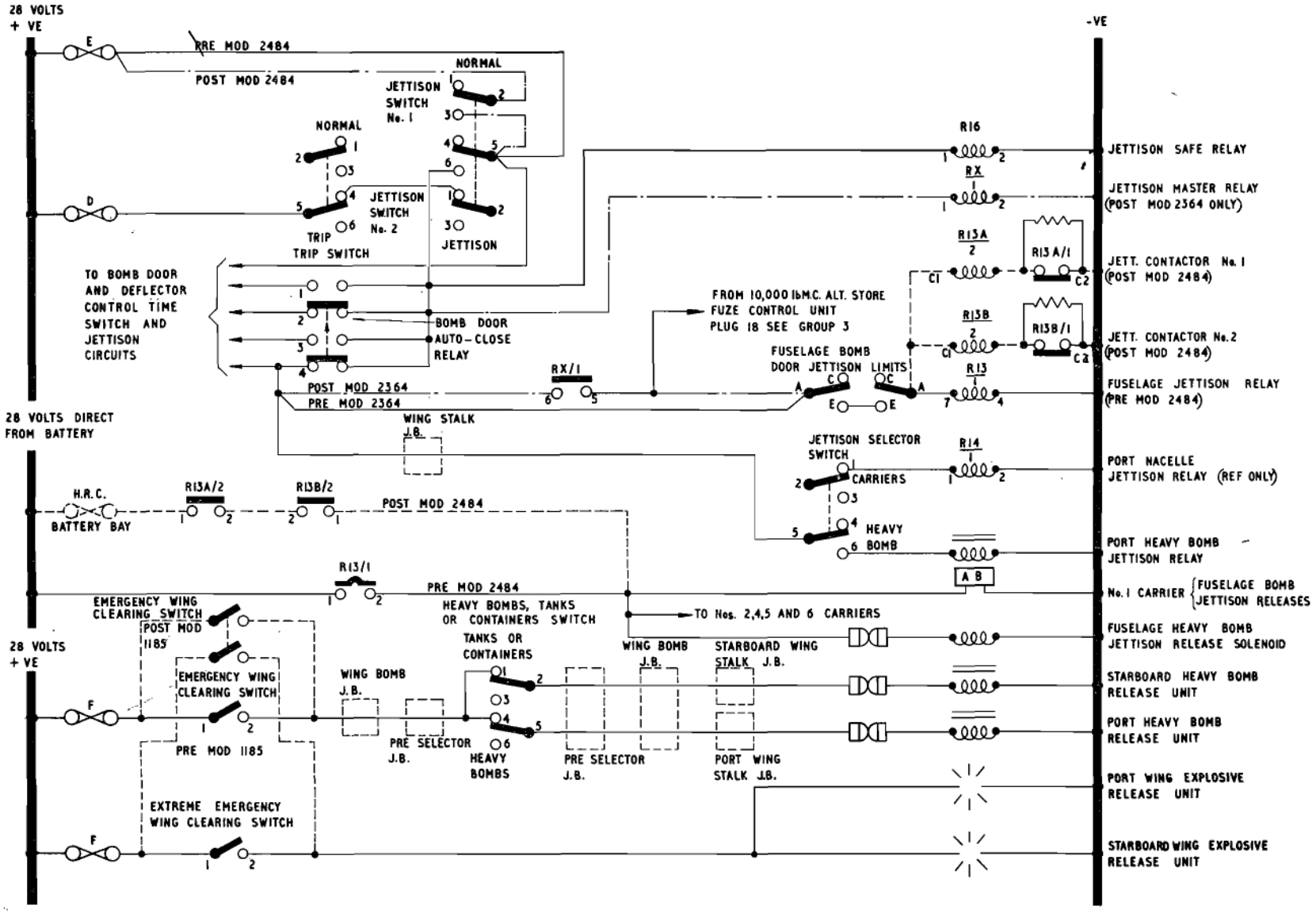

Fig. 5. Bomb release - emergency circuits

Emergency release (*fig.* 1 *or* 5)

34. With the bomb doors open, the load may be jettisoned 'live' by depressing either the LIVE JETTISON push-switch (*fig.* 1) on the bomb aimer's panel at his visual position, or the LIVE JETTISON push-switch on the 12/24 way bomb aimer's panel on the radio crate. Operation of either switch connects the 28-volt supply via the bomb door limit switch 16 and 5 in series and the 12/24 bomb control unit to the live jettison circuits in the 12/24 way control unit. These circuits operate the normal release arming relays and releases in sequence at 0·1 second intervals; a supply is also connected to the Type Q3 relay (Bomb Safe) R1 which operates to connect R1/1 this same supply to the E.L. fuzing protective relay unit (if fitted, see Group 2) and to prevent R1/2 this supply from feeding back into the normal release controls in the 12/24 way control unit (6-pin plain, pin 6) and also prevents the flag operating in the directional indicator on the instrument panel.

35. Emergency jettison 'safe' is fully automatic after selecting JETTISON on the bomb door jettison control switch on the control pedestal. When this is selected, the doors are controlled by a time switch (*Chapter* 2). When jettison is selected a supply from panel E is connected to the fuselage bomb jettison supply limit switches via the fuselage bomb release junction box, and to the heavy bomb pole of the double pole jettison selector switch in the wing stalk.

Pre-Mod. 2484

36. When the fuselage doors reach the open position, their bomb jettison supply limit switches connect the supply to the fuselage bomb jettison relay (Type D) mounted on the 24-volt battery control panel at the forward end of the bomb bay. If a heavy bomb is carried on the wing (pre-Mod. 2612, 2645, 2646 or 2725) the jettison selector switch in the wing stalk will be at HEAVY BOMB to connect the supply from the auto-relay directly to the heavy bomb release solenoid so that the wing heavy bombs will be released instantaneously on selecting JETTISON, the fuselage bomb following after the time required for the bomb doors to open.

Note . . .

Post Mod. 1520 *the fuselage bomb jettison limit switches are Ref. No.* 5*CW*/4639 *in lieu of Ref. No.* 5*CW*/4638.

37. The fuselage jettison relay connects a supply from the 24-volt battery via the heavy duty connectors at the forward end of the bomb bay, through the fuselage bomb release junction box, to all the fuselage carriers and thence to the jettison releases, direct in the case of double carriers and via ripple units on the quintuple carriers. The supply is also connected to the triple and jettison unit connector at station 3, for the heavy store. The jettison unit No. 1, Mk. 1 for the heavy store is mounted on the 'H' link, and is in the aircraft only when the heavy store is hoisted.

38. The ripple units release the bombs in sequence at 10 milli-seconds intervals from each carrier to which they are fitted, thus preventing a high surge current which would occur if all the jettison releases were energized simultaneously.

Post Mod. 2484

39. Mod. 2484 introduces an extra (single-pole) jettison switch on the control pedestal mechanically linked externally to the original double-pole switch. In addition the jettison relay Type D has been replaced by two contactors (5CW/4387) with their main contacts connected in series. These contactors are mounted on the bomb bay so that the direction of operation of the contacts on No. 1 is opposite to that for No. 2 contactor in order to prevent inadvertent operation due to 'g' forces. A 60 amp. H.R.C. fuse is now fitted in the circuit to the jettison connectors.

Note . . .

Mod. 2781 *introduces jettison contactors* 5*CW*/6180 *in lieu of* 5*CW*/4387, *these contactors have no interlocks. Until Mod.* 2781 *is incorporated, the jettison contactors* 5*CW*/4387 *must be checked before each flight for interlocking.*

40. The operation of the system is the same as for pre-Mod. 2484 except that the supply from panel E to the bomb door jettison limit switches is now switched by the two jettison selector switches in series. The two jettison contactor coils R13A and R13B are energized in parallel their contacts R13A/2 and R13B/2 closing in series to connect a supply from the 24-volt battery via a 60 amp. H.R.C. fuse mounted in the battery bay to the jettison connectors. Contacts R13A/1 and R13B/1 closing in series to connect a supply from the 24-volt battery via a 60-amp. H.R.C. fuse mounted in the battery bay to the jettison connectors. Contacts R13A/1 and R13B/1 of the jettison contactors operate to connect economy resistances into their respective coil circuits.

Post Mod. 2364

41. In order to prevent the time switch from being energized with the possible consequence of the bomb doors closing without warning when the release circuits for the alternative store Type 1, are being tested (both normal and jettison release systems are energized simultaneously for this installation, *Group* 3) a jettison master relay, Type Q, has been connected in the circuit between the auto-relay and the connection where the alternative store release system joins the normal jettison system. Contact RX/1 of this relay is normally open so that when testing the release circuit for the alternative store, Type 1, the feedback

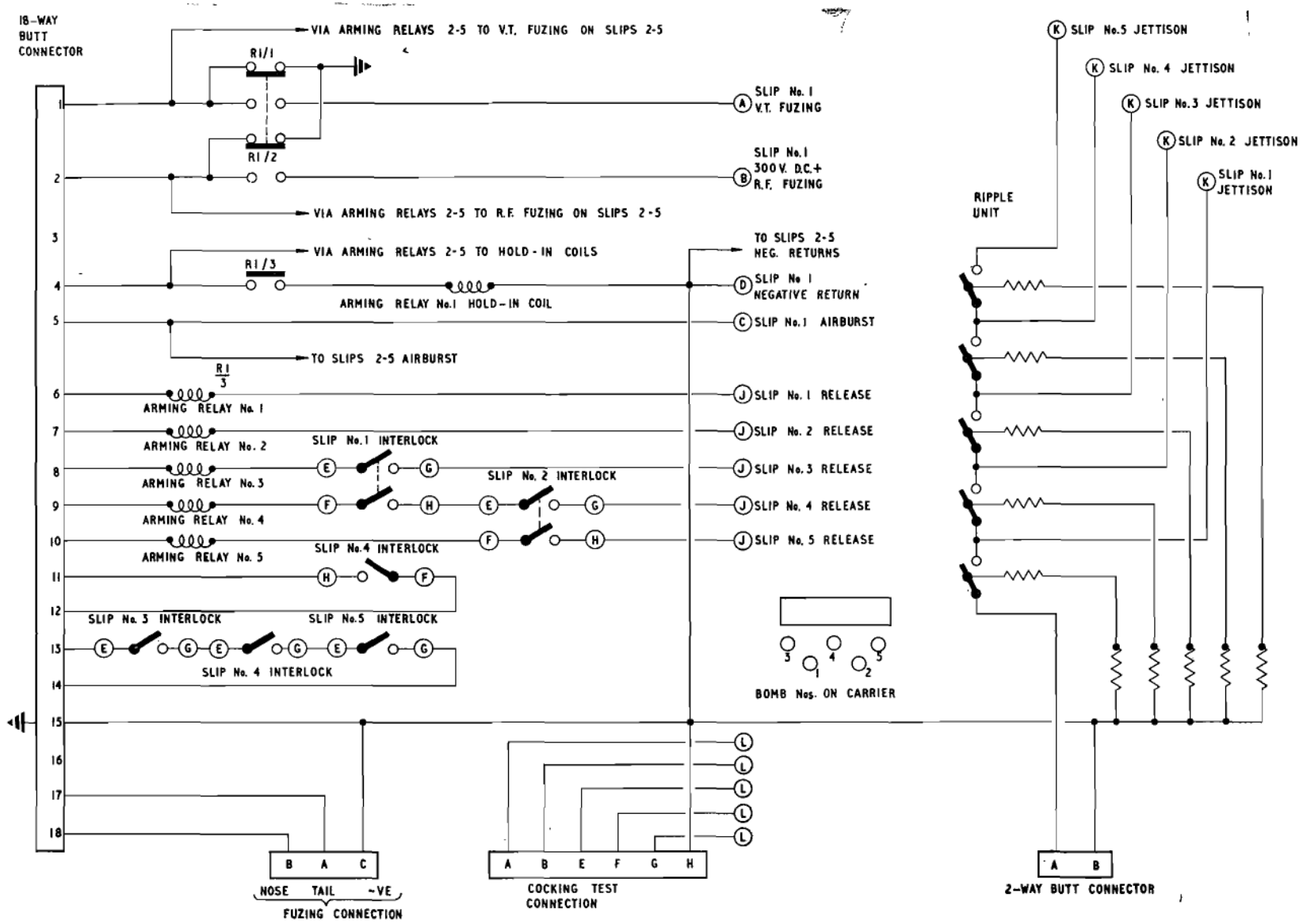

Fig. 6. Quintuple carrier 5-1,000 lb. bombs

signal from the release system to the bomb door time switch is broken. When jettison is selected, the jettison system operates as described in the preceding paragraphs except that the jettison switch supply is also connected to energize the jettison master relay RX. Contact RX/1 closes to connect the supply from the jettison switches via the contacts 4-4a of the auto-relay to the bomb door jettison limit switches.

Wing clearance (*pre-Mod.* 2296 *only*) (*fig.* 5)
Pre-Mod. 1185

Note . . .
These circuits are inoperative post Mod. 2296. *The fuses will be removed and the wiring to the switches will be taped back. The switches will then be used for other purposes.*

42. The EMERGENCY WING CLEARING switch connects a 28-volt supply, from panel F, through the pre-selector and wing bomb release junction boxes, to the HEAVY BOMBS/TANKS OR CONTAINERS switch in the TANKS OR CONTAINERS position and thence back through the same two junction boxes and the wing stalk junction box to the port and starboard heavy bomb slip release units in the wing stalks. If heavy bombs are carried, this circuit is inoperative since the release units are connected by the BOMBS/TANKS OR CONTAINERS switch, in the HEAVY BOMB position, to the bomb aimer's controls.

43. The EXTREME EMERGENCY WING CLEARING switch connects a 28-volt supply from panel F to the explosive release units at the port and starboard wing heavy bomb position. Each explosive release unit carries the normal heavy slip release unit to which is attached the heavy bomb.

Post Mod. 1185

44. The above two circuits are now operated simultaneously, the two separate switches being replaced by a single double-pole switch.

SERVICING

Introduction

45. Reference should be made to the General Information Group immediately following the Section 5 marker card, for the general principles of servicing and fault finding, for information in the care of equipment and precautionary measures. These notes are intended to assist in the servicing of equipment and are not intended to provide a complete fault finding analysis. If a fault develops, the routine fault finding procedures should be adopted to locate it. The instructions in the following paragraphs are a check on the continuity of the aircraft wiring only and are not intended for pre-bombing up checks. A test vehicle which provides for checking pre-selected patterns, pulse lengths, interlocks, fuzing, etc., is used for the latter checks.

Important . . .

The bomb release switches have soldered connections. Frequent inspections should be made to ensure that the connections are sound, otherwise leads or strands may break off and short together thereby providing an unintentional bomb release signal when the bomb doors are opened.

Preliminary

46. (1) Open the bomb doors and select the trip switch to TRIP. Green SAFE lamp on.

(2) Disconnect the deflector and the door jettison control time switch.

(3) If the fuzing protective relay unit is fitted, link terminals on panel K as follows:—

B. Mk. 1 and B/K Mk. 1—B8 and W8.
B/PR Mk. 1 and B/K/PR Mk. 1—BH1 and BG8.

This short-circuits the protective relay unit, except the E.L. fuzing, and obviates the need to close the pitot switch which is checked separately, (*Chap.* 6). If the protective relay unit is not fitted, and Mod. 1980 is not incorporated, check that the terminals indicated above on panel K are linked. Post Mod. 1980, these terminals are effectively shorted by the stowages for the protective relay unit connector.

(4) Check fuses as follows:—

E panel	*F panel*	*G panel*	*Battery bay H.R.C.*
29, 30	9, 15	19, 21, 44, 20, 43	Bomb jettison (post Mod. 2489)

(5) Connect 28-volt external supply. Check aircraft voltage is 26-volts MINIMUM.

Checks without the use of a test rig

Fuselage release function

47. (1) Set pre-selector A drums as follows: 1-5, 8-15, 18-25.

(2) Set carriers switch to UPPER CARRIERS ONLY.

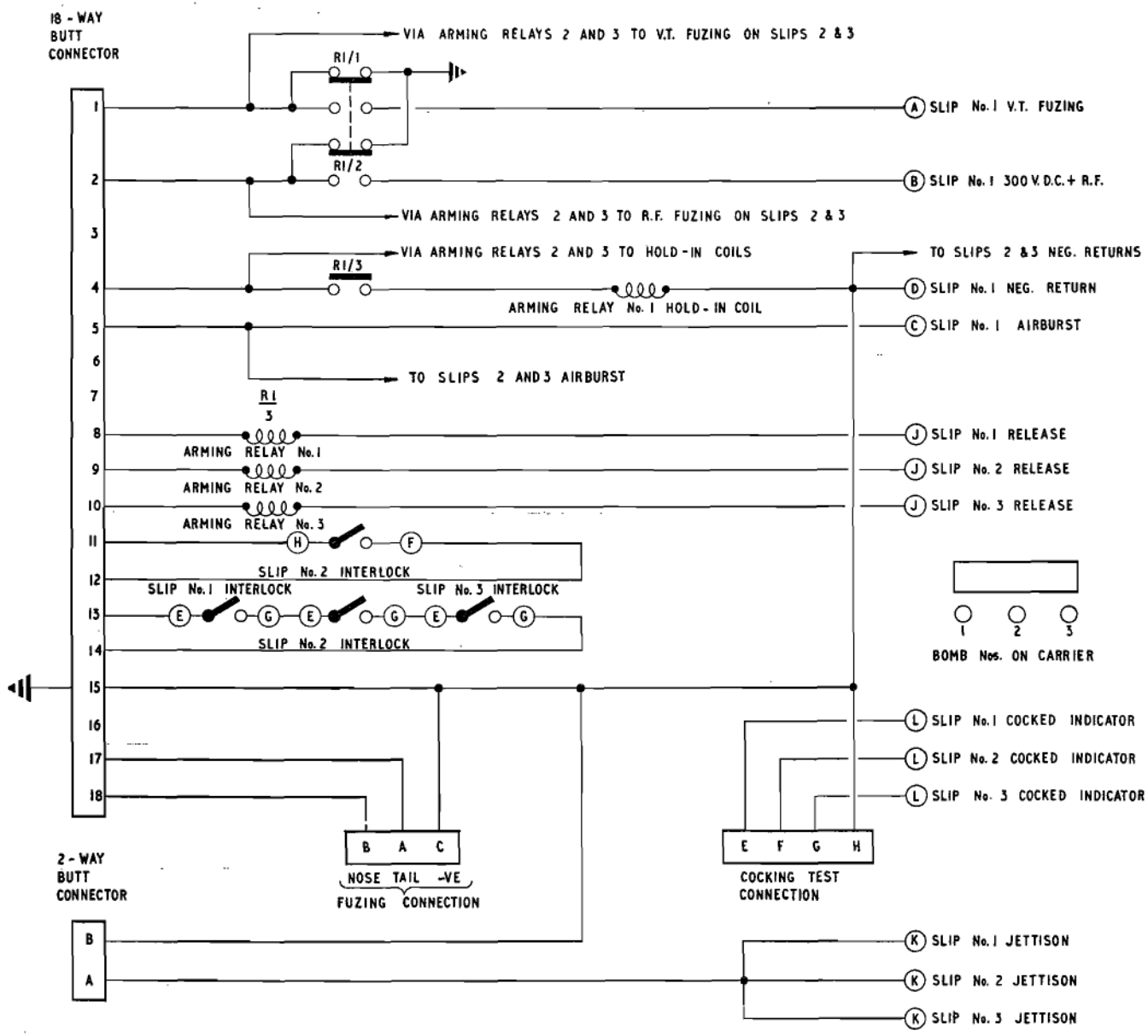

Fig. 7 Triple carrier 3-1,000 lb. bombs

(3) Switch bomb aimer's panel and 12/24 bomb control unit START switch to position 1 and STOP switch to position 24.

(4) Depress control unit test switch and firing button, check flag indicators.

(5) During the following tests the pilot's (pre-Mod. 1197) and bomb aimer's release switches should be checked and also the LIVE JETTISON on the 12/24 control unit. If the N.B.S. equipment is used to provide firing signals, check that the N.B.C./BOMB GEAR ISOLATING switches are as follows:—BOMB RELEASE—NORMAL, BOMB DOORS—ISOLATE: if the N.B.C. simmulator is to be used, connect this to the test point in the radio crate and set the isolating switches to ISOLATE. Pins P on 18-pin stalk connectors and No. 15 on butt connectors are the negative return points to be used for the test lamp.

(6) With the test lamp, check from pins F, G, H, J and K on the 18-pin stalk connector at bomb station 1. These will indicate on No. 1, 2, 3, 4 and 5 bomb aimer's panel indicators respectively. For each pin in turn, check that the test lamp pulses once when the release switch is depressed; return the START switch to OFF and back to position 1 before checking the next pin.

(7) With the test lamp check from pins 8, 9, 10 on the 20-pin butt connector at bomb station 2. These will indicate on No. 6, 7 and 8 bomb aimer's panel indicators respectively. Check for each pin in turn as in item 6.

(8) At bomb station 3, remove the 18-pin wander lead connector from its stowage and connect it to the 18-pin stalk connector at bomb station 4. With the test lamp check from pins 6 and 7 on the 20-pin butt connector at station 3. These will indicate on No. 9 and 10 indicators. Check for each pin in turn as in item 6. Return the wander lead to its storage.

(9) With test lamp check from pins F, G, H, J and K on 18-pin stalk connector at station 4. These will indicate on No. 9, 10, 11, 12 and 13 indicators respectively. Check for each pin in turn as in item 6.

(10) With test lamp check from pins 8, 9 and 10 on the 20-pin butt connector at station 5. These will indicate on No. 14, 15 and 16 indicators respectively. Check for each pin in turn as in item 6.

(11) With test lamp check from pins F, G, H, J and K on the 18-pin stalk connector at station 6. These will indicate on No. 17, 18, 19, 20 and 21 indicators respectively. Check each pin in turn as in item 6.

(12) With an 80-watt test lamp connected to the No. 3 station normal release 2-way (3-way post Mod. 2908) terminal block (terminal A1, structure earth), operate a bomb release switch and check that the lamp pulses once and that the flag indicator operates, position 1 on the Bomb Control Unit.

(13) Set carrier switch to UPPER AND LOWER CARRIERS.

(14) Repeat items 6, 9 and 11.

(15) Check that the 20-pin butt connectors at station 2 and 5 DO NOT pass current until pins N and O on the 18-pin stalk connectors are bridged. 18-pin stalk connectors at stations 1 and 4 control the release of position 2 and 18-pin stalk connectors at stations 6 and 4 control the release of position 5.

Fuselage jettison function

Note . . .
Before every flight, the jettison contactors introduced by Mod. 2472 *or* 2484 *MUST be checked to ensure that they are not interlocked. This will not be necessary post Mod.* 2781 *as the contactors then fitted will not have interlocks.*

48. (1) Select the bomb door switch to OPEN.

(2) Disconnect the door control time switch.

(3) Select the bomb door switch to CLOSE.

(4) Switch the bomb door jettison control switch to JETTISON.

(5) Check with the test lamp on 2-pin connectors at stations 1, 2, 4, 5 and 6; pin A-positive, pin B-negative. Check the butt connector at station 3 by connecting its wander lead to station 4 stalk connector; return to stowage connector after test.

(6) Check with lamp on heavy store jettison 2-way (3-way post Mod. 2908) connector block at station 3 (port side); terminal A1-positive, structure-negative.

(7) Select the bomb door trip switch to TRIP.

(8) Reconnect the bomb door time switch.

(9) Select the bomb doors switch to OPEN, return the bomb door jettison switch to NORMAL and refit the safety pin.

Wing release function
(*pre-Mod.* 2612, 2645, 2646 *or* 2725)

49. These tests check the aircraft wiring as far as the wing/stalk junction box. The wing stalks are to be tested on a special test rig which will be available later.

(1) Set pre-selector B to 1-14.

(2) Depress test button on Type 9 distributor. This MUST be done before each cycle of wing bomb release.

(3) Select SINGLE/PAIRS switch to PAIRS. Observe 'flag' on No. 1.

(4) Set switch on pre-selector box to HEAVY BOMBS.

(5) Set 12/24 control unit to fire 1-24. When release switch is depressed check that test lamp pulse on pin C of socket No. 1 on port wing/stalk junction box.

(6) Repeat item 5 for starboard wing.

Wing jettison function (*pre-Mod.* 2612, 2645, 2646 *or* 2752 *only*

50. (1) Switch bomb door jettison control switch to JETTISON.

(2) Check with lamp from pin B on socket No. 2 of the port wing/stalk junction box.

(3) Repeat item 2 for the starboard wing.

Wing clearance—emergency (*pre-Mod.* 1185) *Pre-Mod* 2296 *only*.

51. (1) Set switch on pre-selector box to TANKS OR CONTAINERS.

(2) Place the emergency wing clearing switch to RELEASE.

(3) Check with the test lamp from pin G on socket No. 1 of the port wing/stalk junction box.

(4) Repeat item 3 for starboard wing.

Wing clearance—extreme emergency (*pre-Mod.* 1185)—*Pre-Mod* 2296 *only*.

52. (1) Set switch on pre-selector box to TANKS OR CONTAINERS.

(2) Place the extreme emergency wing clearing switch to RELEASE.

(3) Check with the test lamp from pin A on socket No. 6 of the port wing/stalk junction box.

(4) Repeat item 3 for starboard wing.

Wing clearance (*post Mod.* 1185)—*Pre-Mod.* 2296 *only*.

53. Post Mod. 1185 the two wing clearing switches are combined. Tests as under para. 51 and 52 items (3) and (4) should be carried out when the wing clearing switch is placed to RELEASE.

Final check

54. When all tests have been completed, ensure that all switches are in the NORMAL position and remove the external ground supply.

375/6 Wt No. 33240 D. No. 6769 625 26/9/60 C. S. Co.

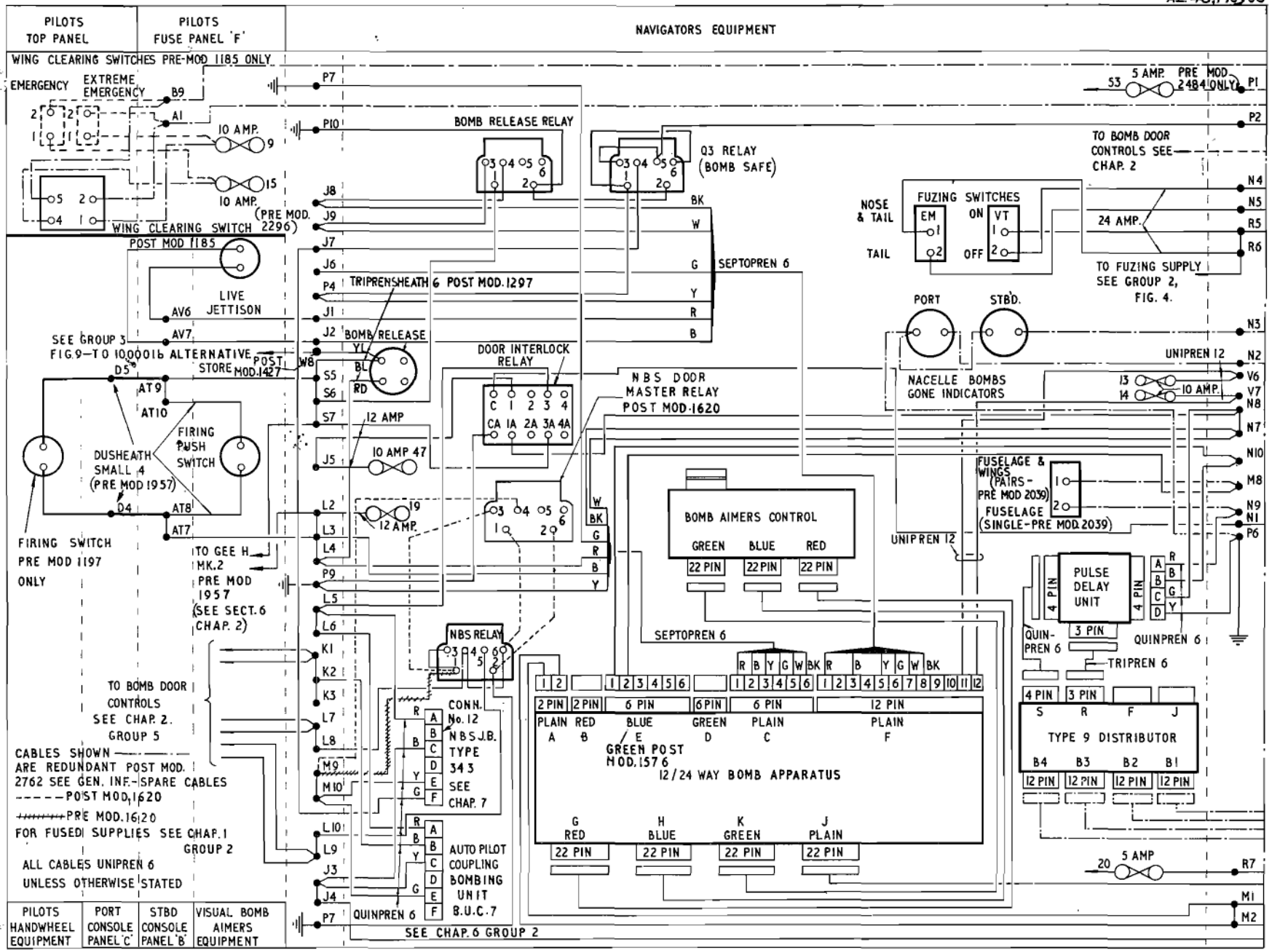

Fig. 8 (1) Bomb release controls (post Mod. 2249 & pre 2612, 2645, 2646 or 2725)

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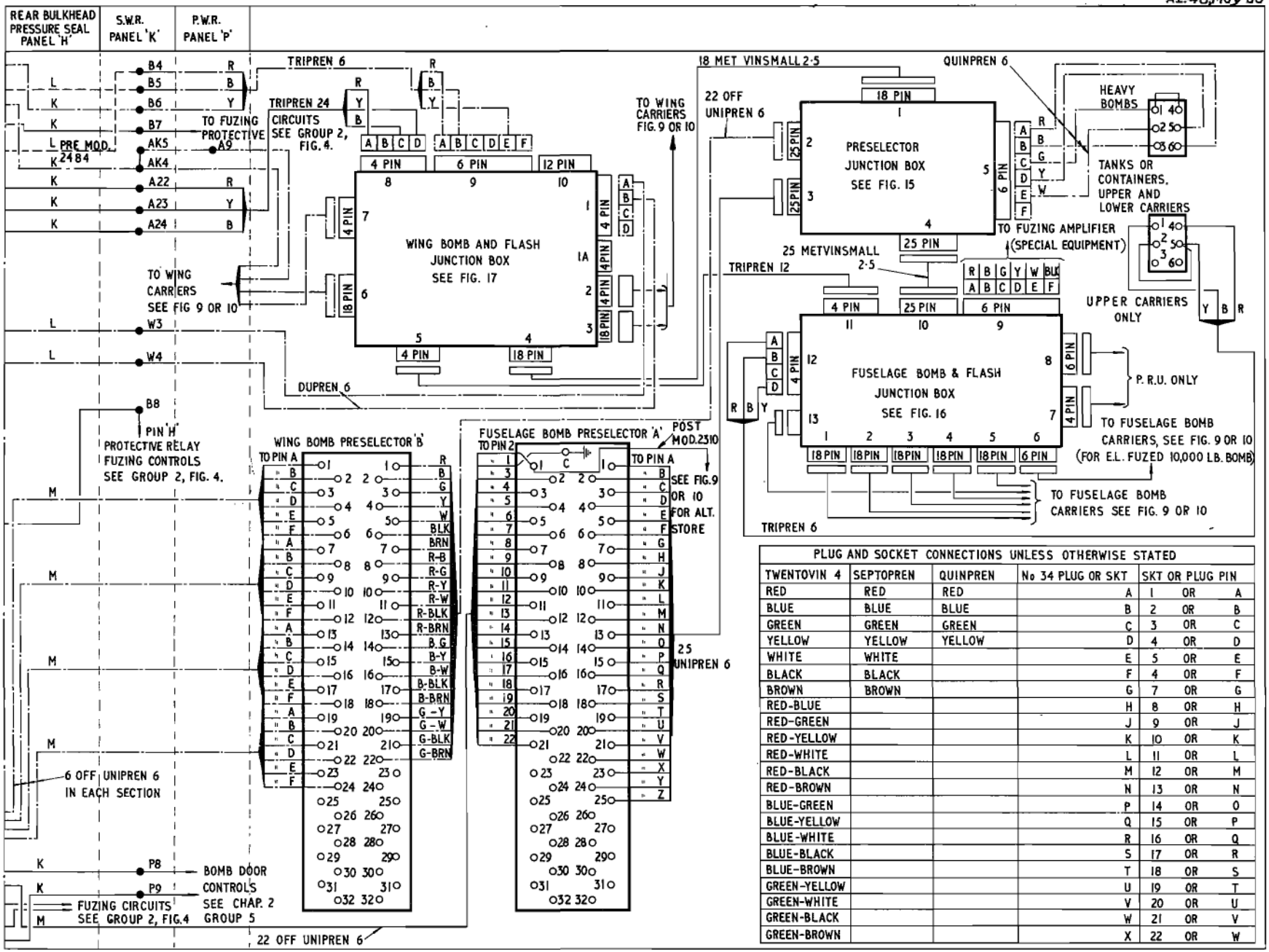

PLUG AND SOCKET CONNECTIONS UNLESS OTHERWISE STATED						
TWENTOVIN 4	SEPTOPREN	QUINPREN	No 34 PLUG OR SKT	SKT OR PLUG PIN		
RED	RED	RED	A	1	OR	A
BLUE	BLUE	BLUE	B	2	OR	B
GREEN	GREEN	GREEN	C	3	OR	C
YELLOW	YELLOW	YELLOW	D	4	OR	D
WHITE	WHITE		E	5	OR	E
BLACK	BLACK		F	4	OR	F
BROWN	BROWN		G	7	OR	G
RED-BLUE			H	8	OR	H
RED-GREEN			J	9	OR	J
RED-YELLOW			K	10	OR	K
RED-WHITE			L	11	OR	L
RED-BLACK			M	12	OR	M
RED-BROWN			N	13	OR	N
BLUE-GREEN			P	14	OR	O
BLUE-YELLOW			Q	15	OR	P
BLUE-WHITE			R	16	OR	Q
BLUE-BLACK			S	17	OR	R
BLUE-BROWN			T	18	OR	S
GREEN-YELLOW			U	19	OR	T
GREEN-WHITE			V	20	OR	U
GREEN-BLACK			W	21	OR	V
GREEN-BROWN			X	22	OR	W

Fig. 8 (2) Bomb release controls (post Mod. 2249 & pre 2612, 2645, 2646 or 2725)

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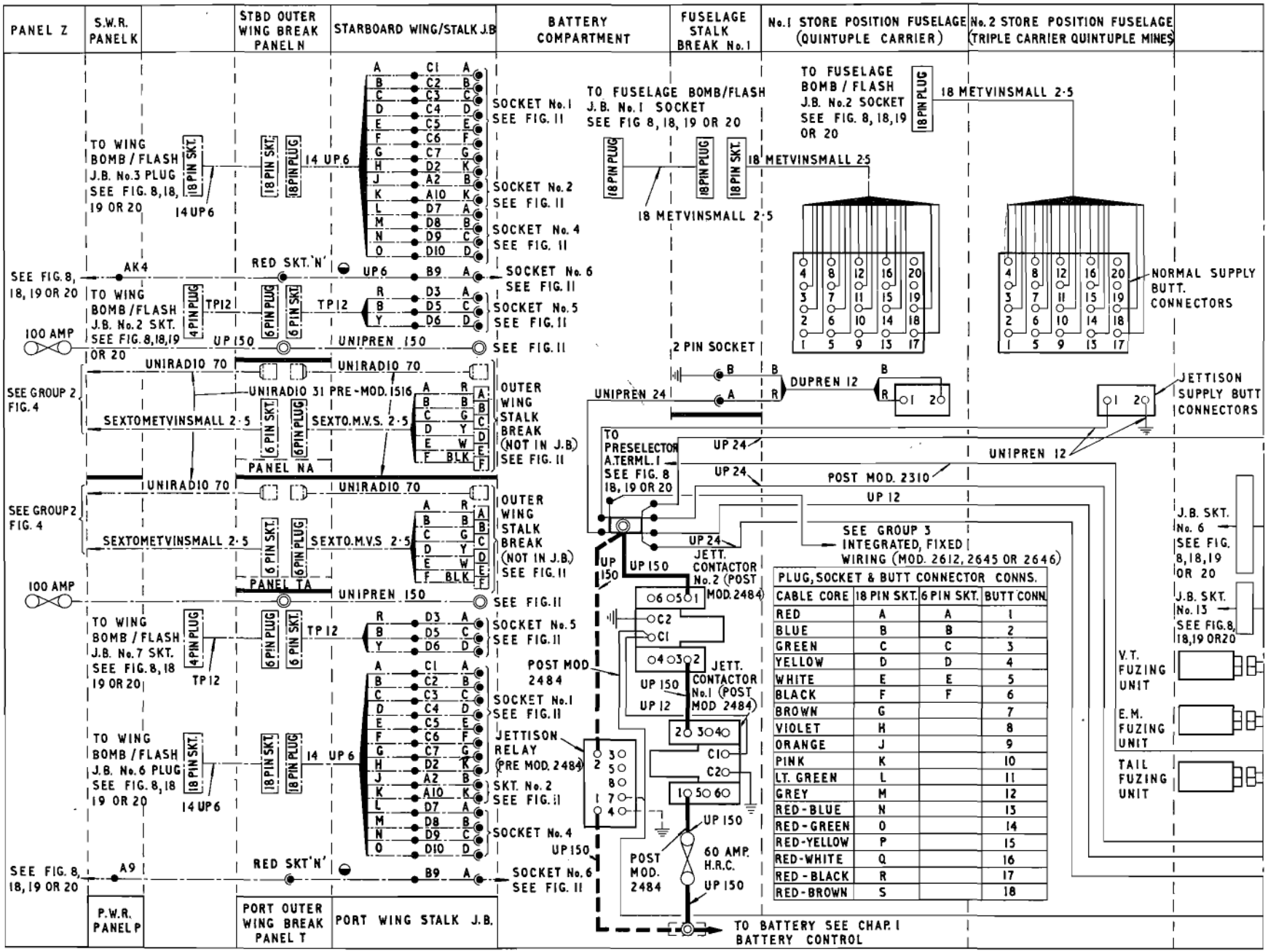

PLUG, SOCKET & BUTT CONNECTOR CONNS.			
CABLE CORE	18 PIN SKT.	6 PIN SKT.	BUTT CONN.
RED	A	A	1
BLUE	B	B	2
GREEN	C	C	3
YELLOW	D	D	4
WHITE	E	E	5
BLACK	F	F	6
BROWN	G		7
VIOLET	H		8
ORANGE	J		9
PINK	K		10
LT. GREEN	L		11
GREY	M		12
RED-BLUE	N		13
RED-GREEN	O		14
RED-YELLOW	P		15
RED-WHITE	Q		16
RED-BLACK	R		17
RED-BROWN	S		18

Fig. 9 (I) Fuselage and wing bomb release (pre Mod. 1785 and 1835)

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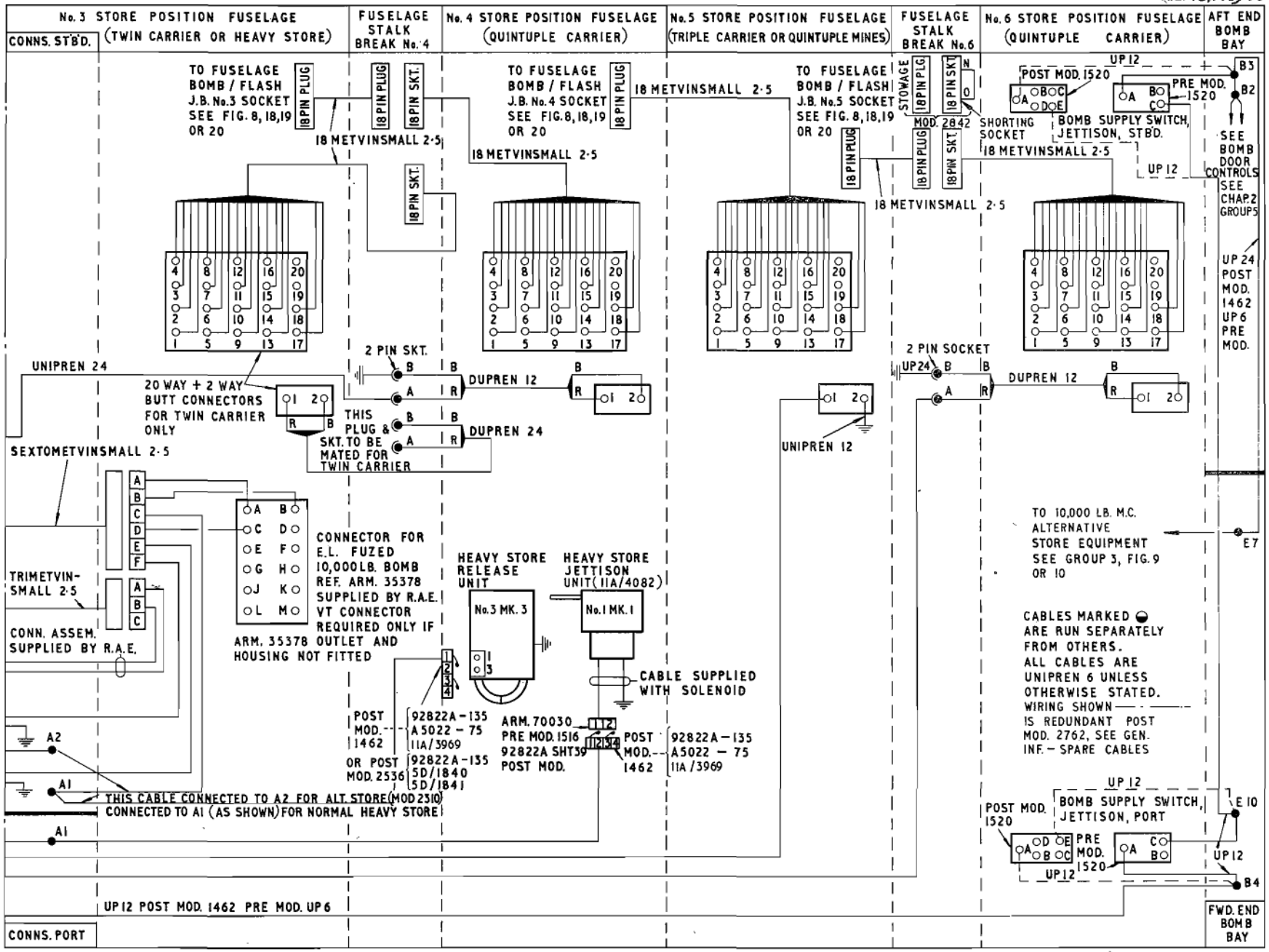

Fig. 9(2) Fuselage and wing bomb release (pre Mod. 1785 and 1835)

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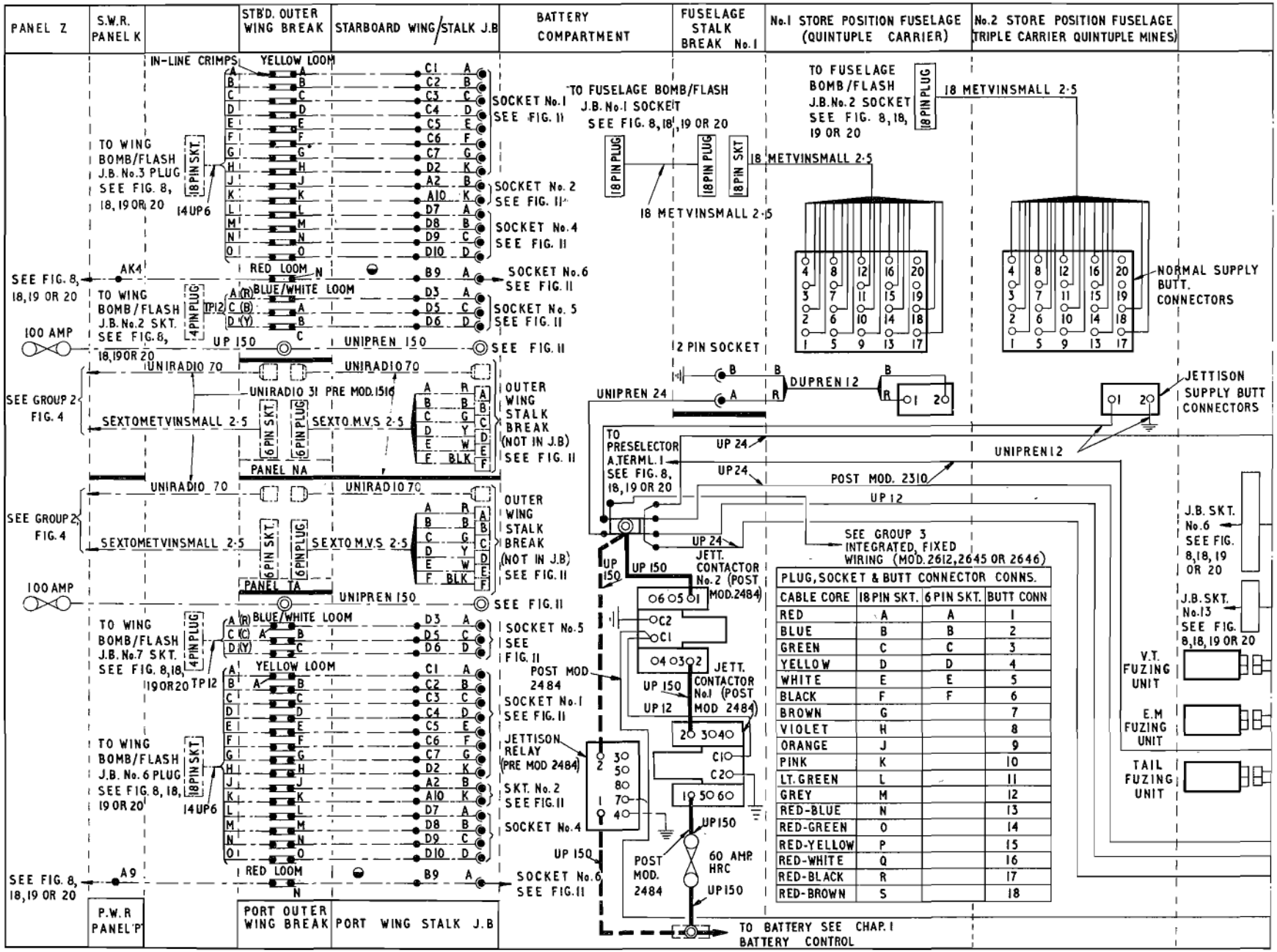

PLUG, SOCKET & BUTT CONNECTOR CONNS.			
CABLE CORE	18 PIN SKT.	6 PIN SKT.	BUTT CONN
RED	A	A	1
BLUE	B	B	2
GREEN	C	C	3
YELLOW	D	D	4
WHITE	E	E	5
BLACK	F	F	6
BROWN	G		7
VIOLET	H		8
ORANGE	J		9
PINK	K		10
LT. GREEN	L		11
GREY	M		12
RED-BLUE	N		13
RED-GREEN	O		14
RED-YELLOW	P		15
RED-WHITE	Q		16
RED-BLACK	R		17
RED-BROWN	S		18

Fig 9A (1) Fuselage and wing bomb release (post Mod. 1835)

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70636 Sht. 184 A-K

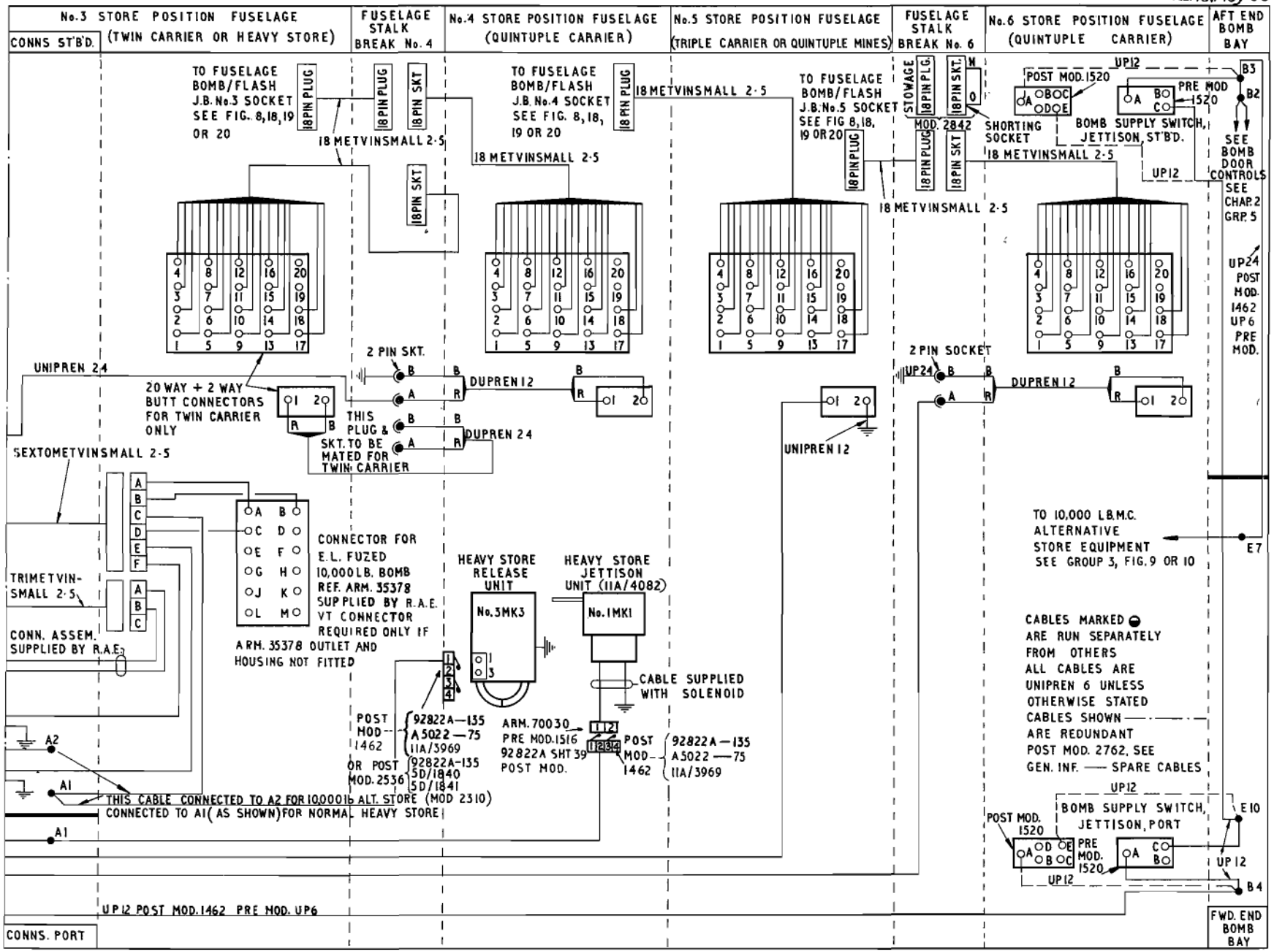

Fig 9A (2) Fuselage and wing bomb release (post Mod. 1835)

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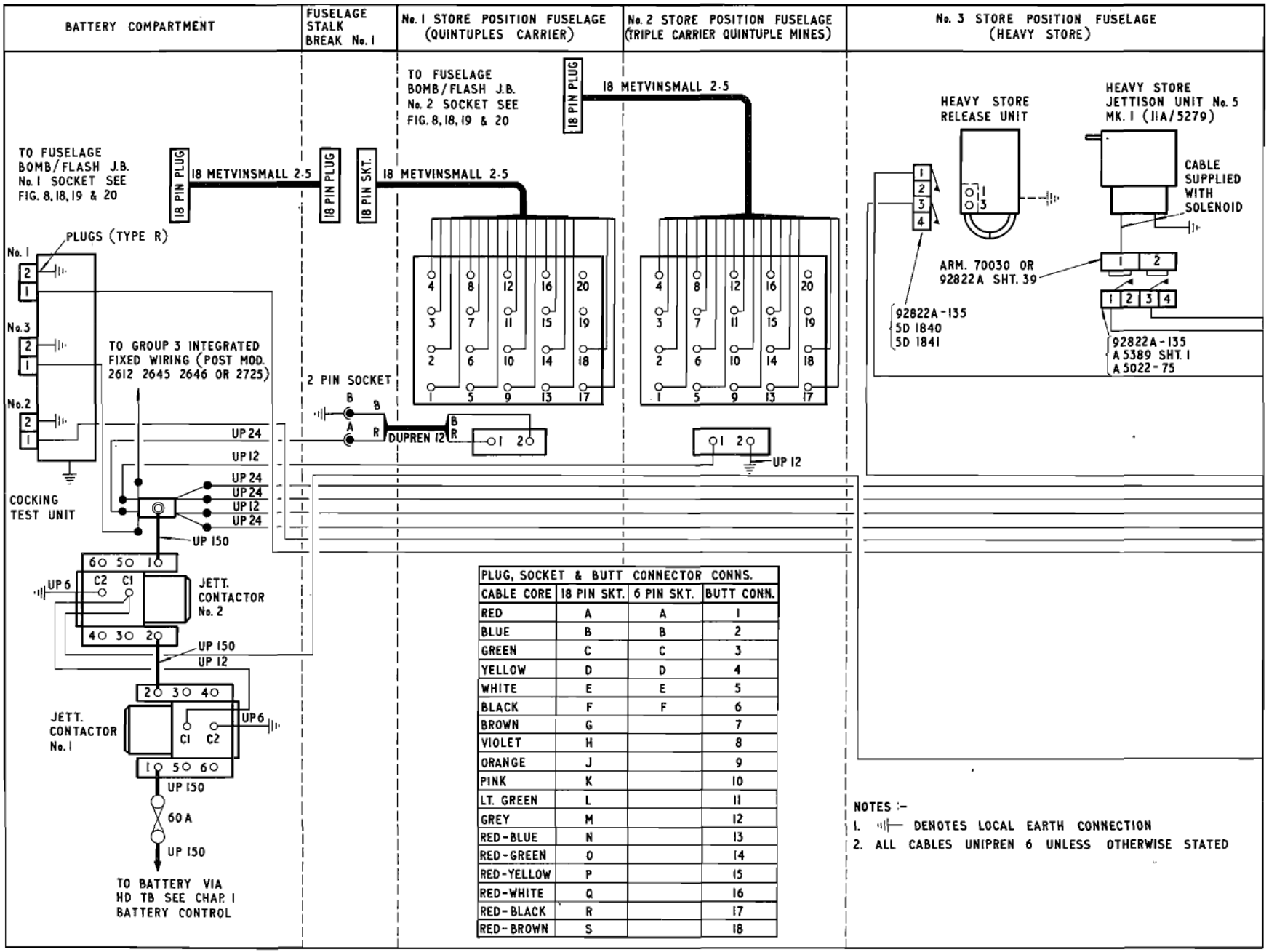

PLUG, SOCKET & BUTT CONNECTOR CONNS.			
CABLE CORE	18 PIN SKT.	6 PIN SKT.	BUTT CONN.
RED	A	A	1
BLUE	B	B	2
GREEN	C	C	3
YELLOW	D	D	4
WHITE	E	E	5
BLACK	F	F	6
BROWN	G		7
VIOLET	H		8
ORANGE	J		9
PINK	K		10
LT. GREEN	L		11
GREY	M		12
RED-BLUE	N		13
RED-GREEN	O		14
RED-YELLOW	P		15
RED-WHITE	Q		16
RED-BLACK	R		17
RED-BROWN	S		18

NOTES :-
1. ⏚ DENOTES LOCAL EARTH CONNECTION
2. ALL CABLES UNIPREN 6 UNLESS OTHERWISE STATED

Fig. 10A(1) Fuselage and wing bomb release (post Mod. 2762 and 2908)

RESTRICTED

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75836 SHT. 184-R

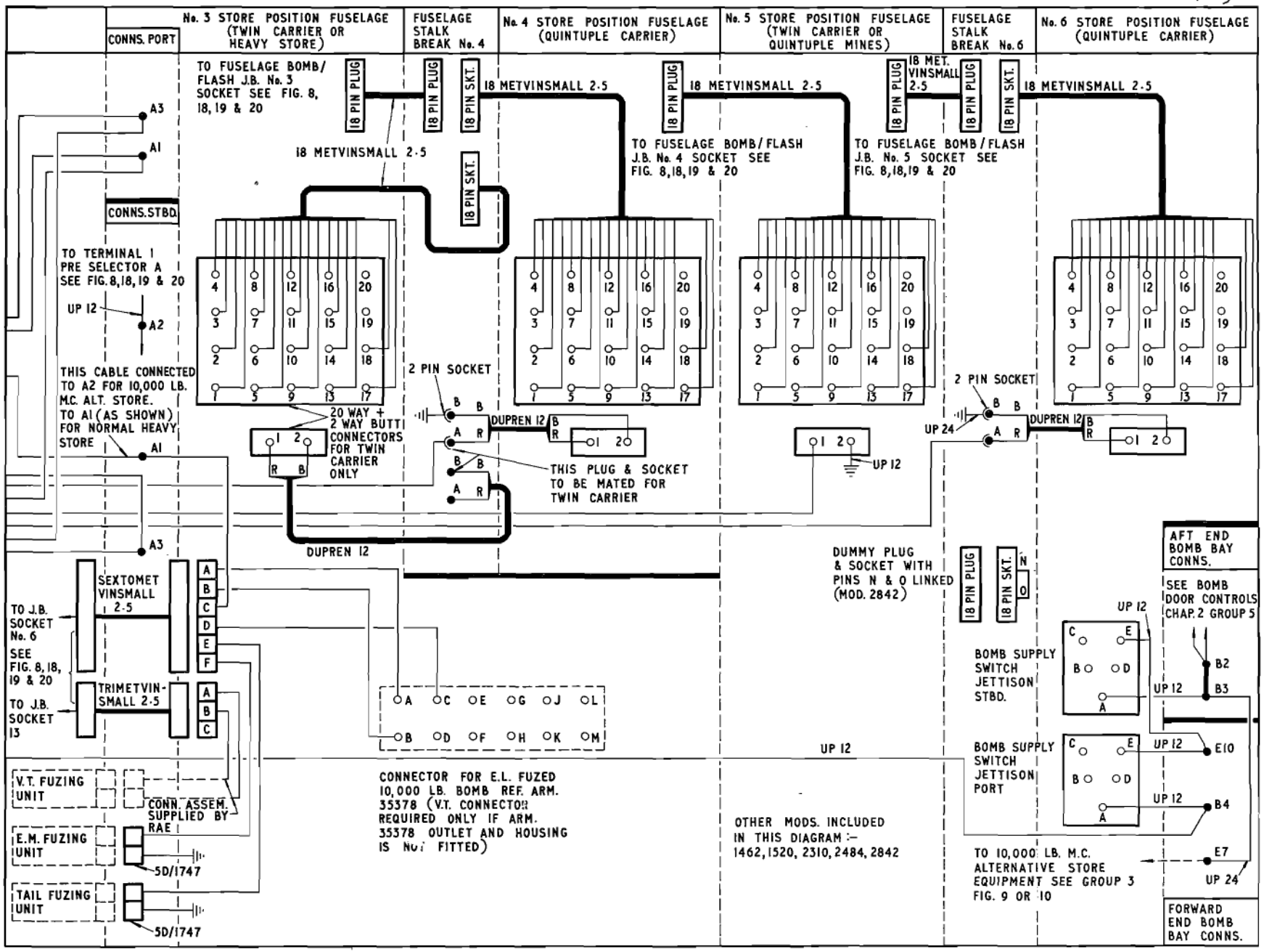

Fig. 10A (2) Fuselage and wing bomb release (post Mod. 2762 and 2908)

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75836 SHT. 184 - R

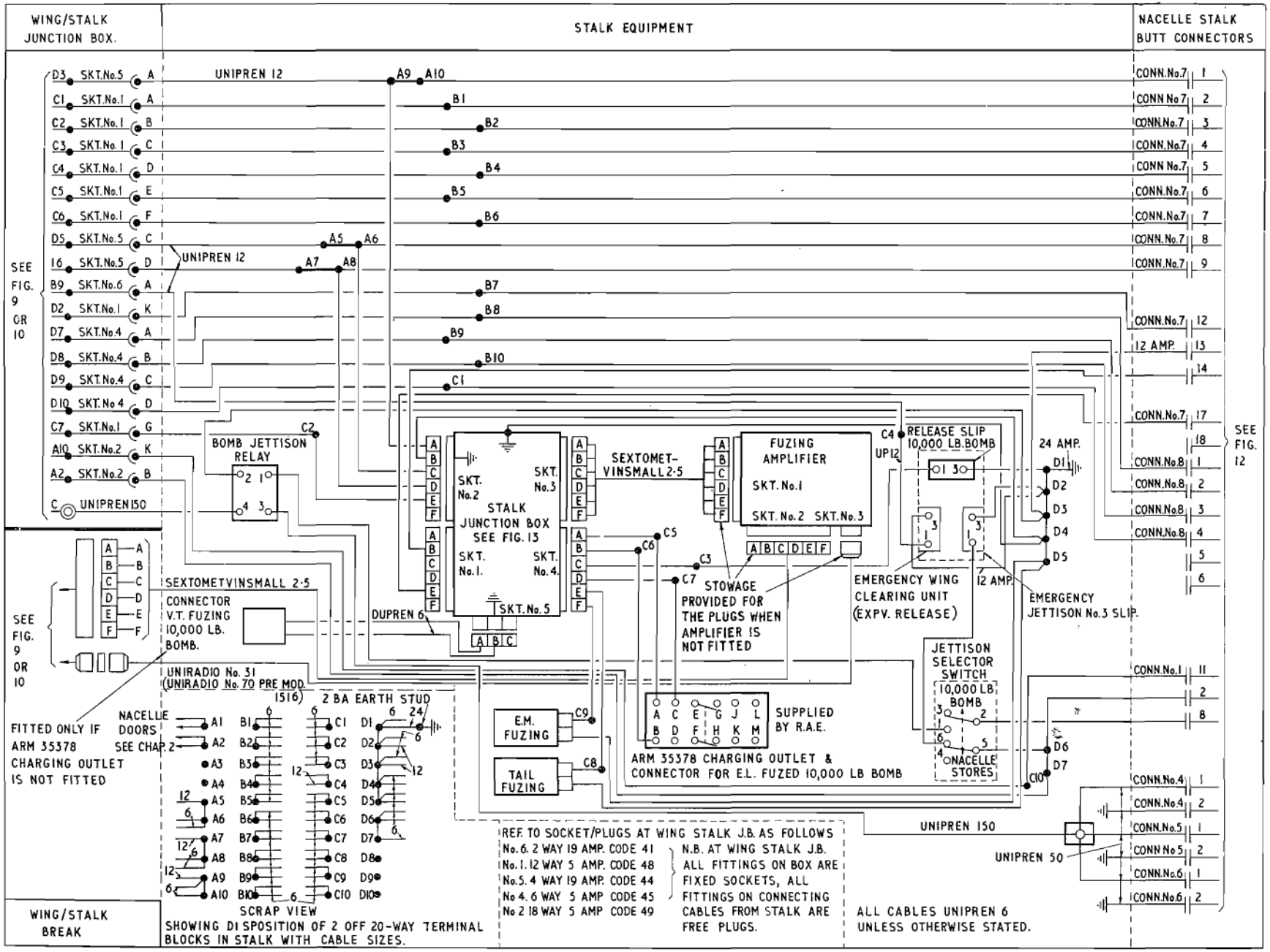

Fig. 11. Bomb and flash controls in wing stalk.

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67479 SHT 163- J

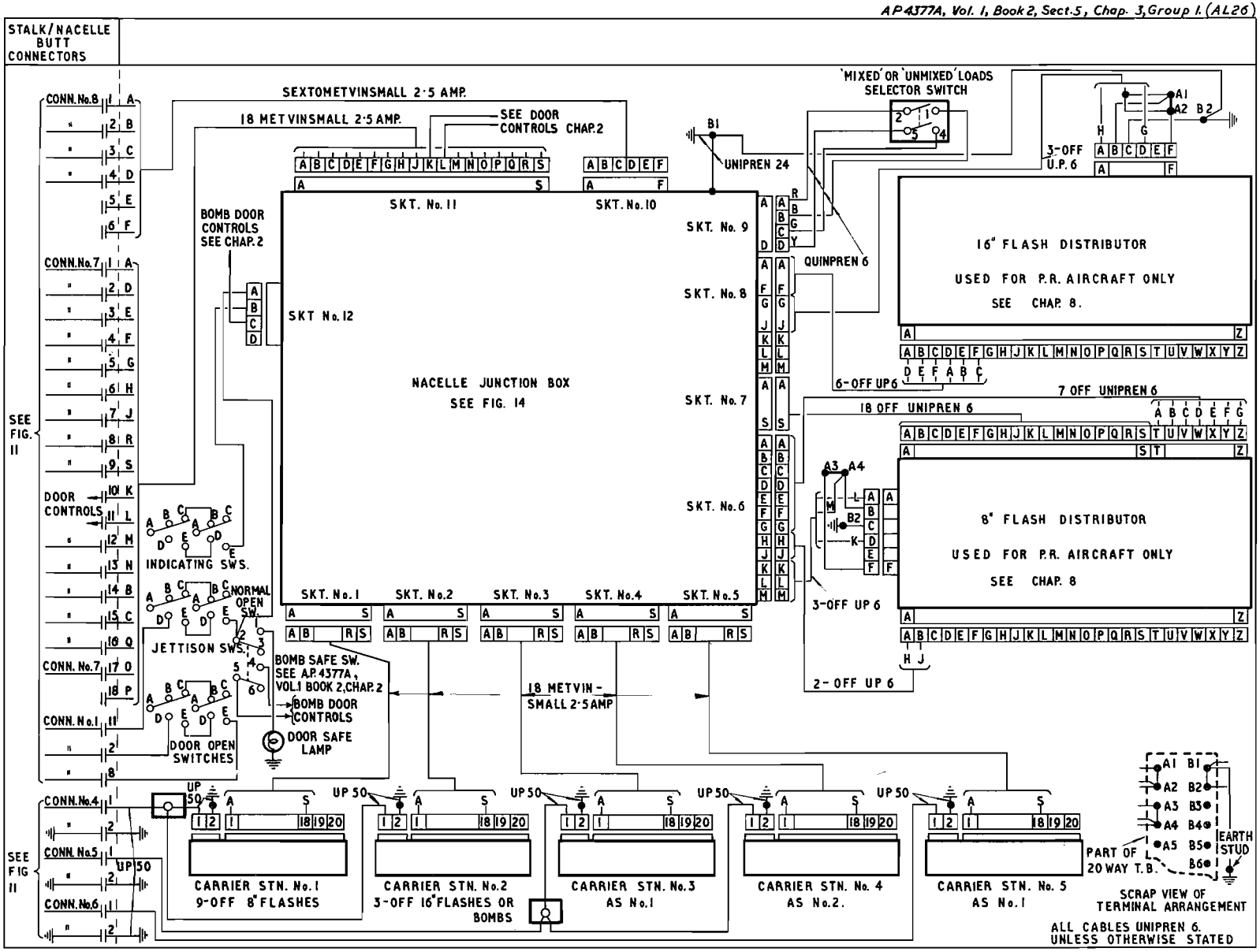

Fig. 12. Bomb and flash controls in wing nacelle (ref. only)

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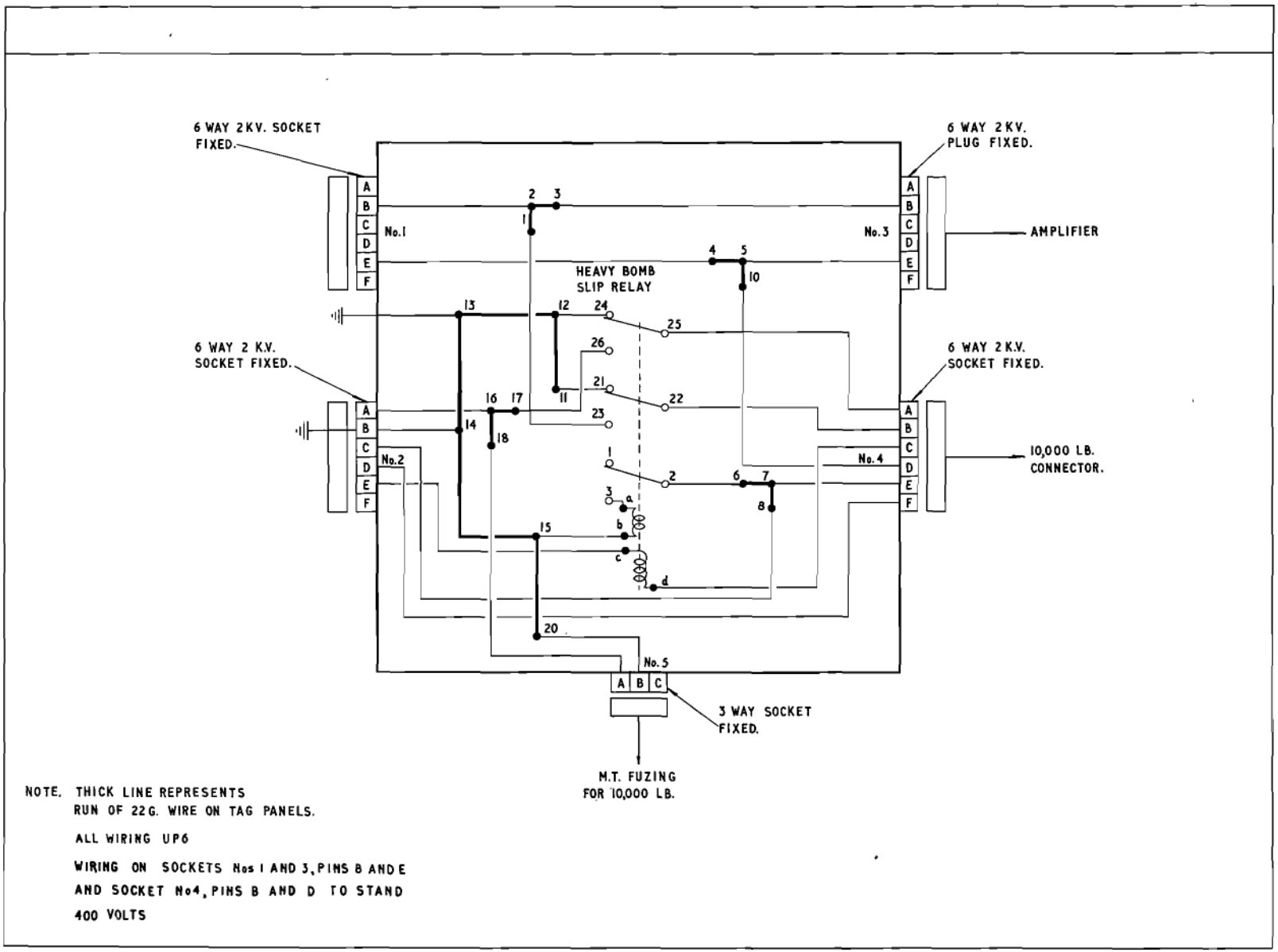
8640 263148 4/58 625 C.B. & S. LTD. GP55.



NOTE. THICK LINE REPRESENTS RUN OF 22G. WIRE ON TAG PANELS.

ALL WIRING UP6

WIRING ON SOCKETS Nos 1 AND 3, PINS B AND E AND SOCKET No4, PINS B AND D TO STAND 400 VOLTS

Fig. 13. Wing stalk junction box

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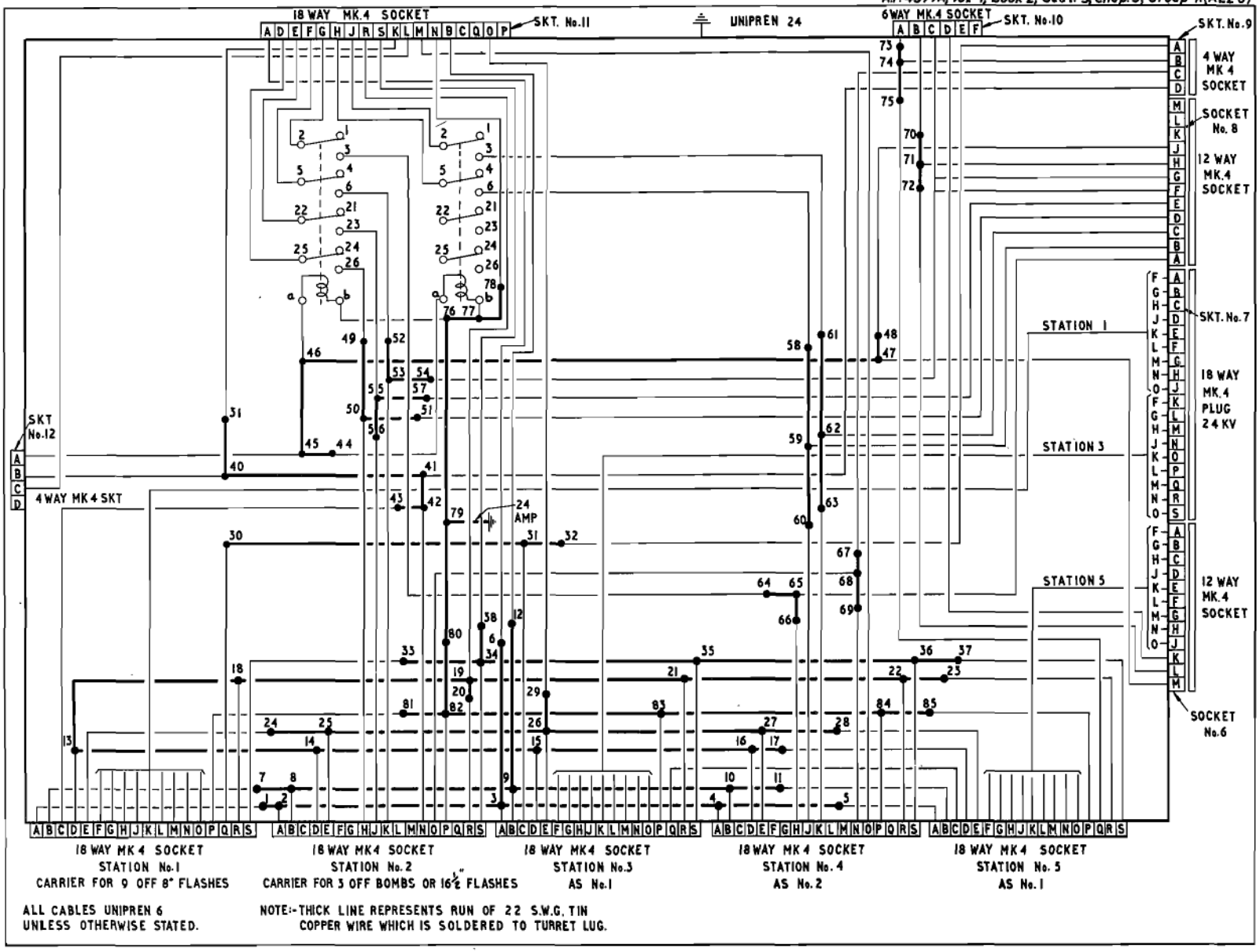

Fig. 14. Wing nacelle junction box. (ref. only)

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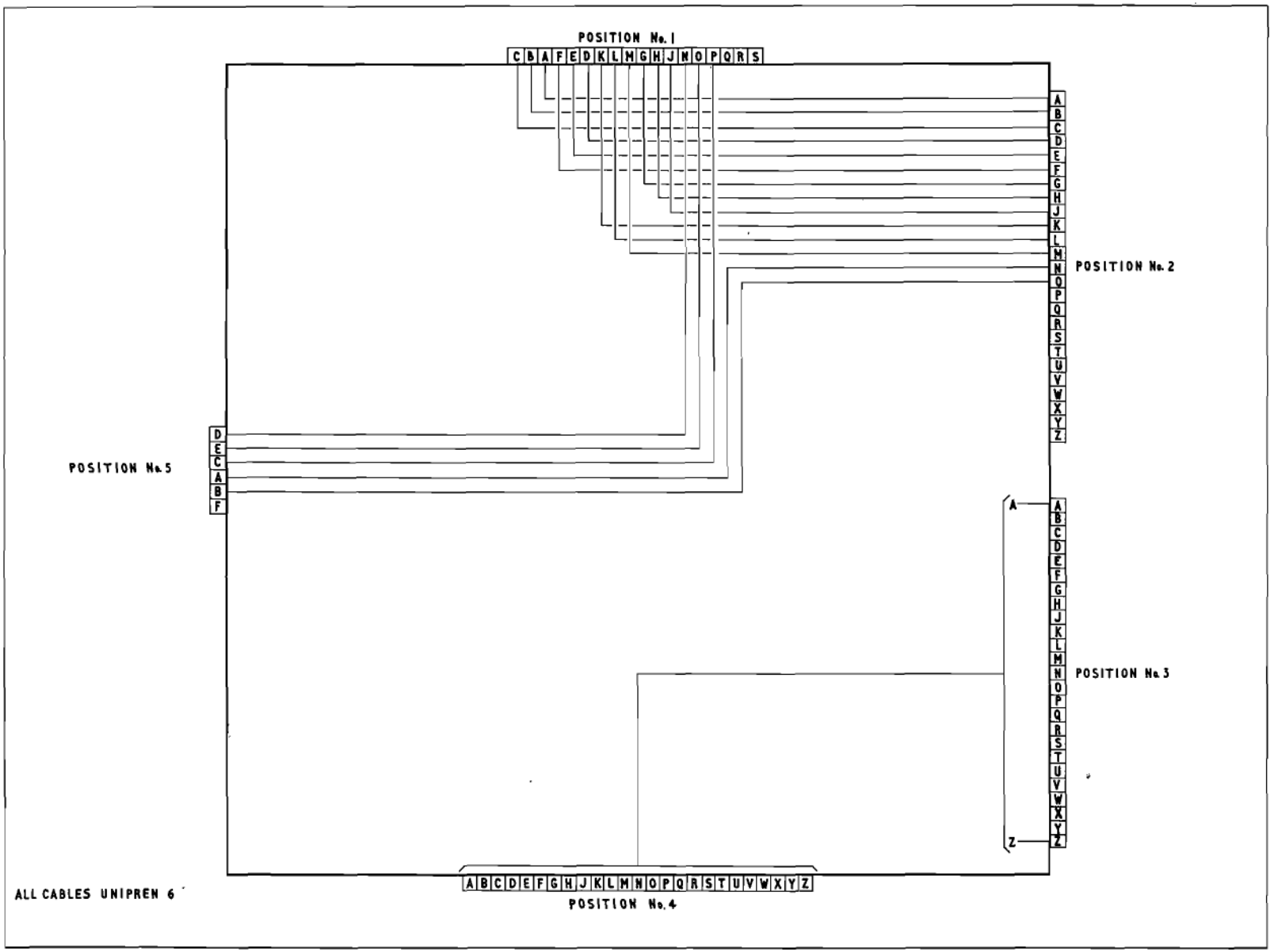

Fig. 15. Preselector junction box

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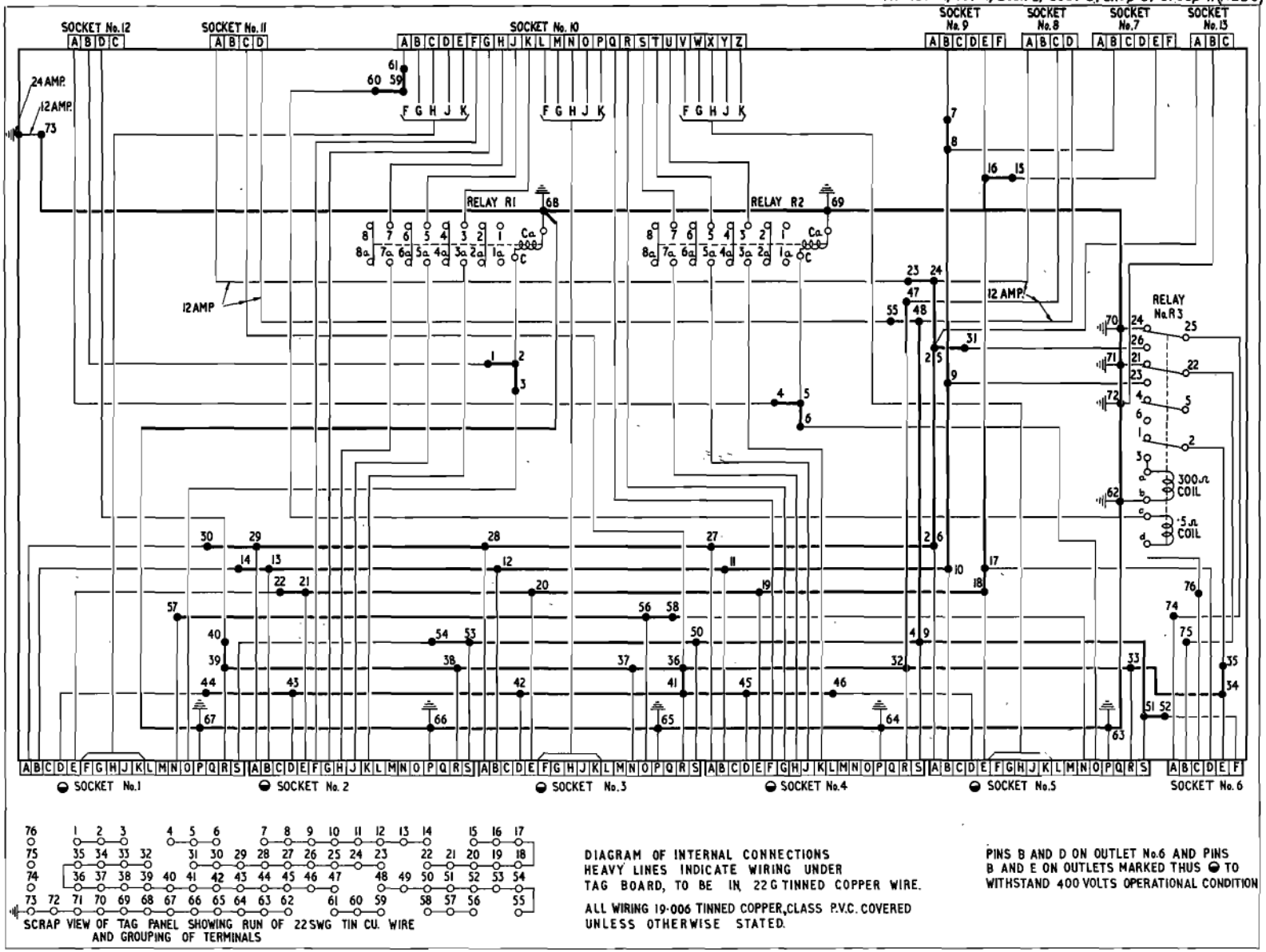

Fig. 16. Fuselage bomb and flash junction box.

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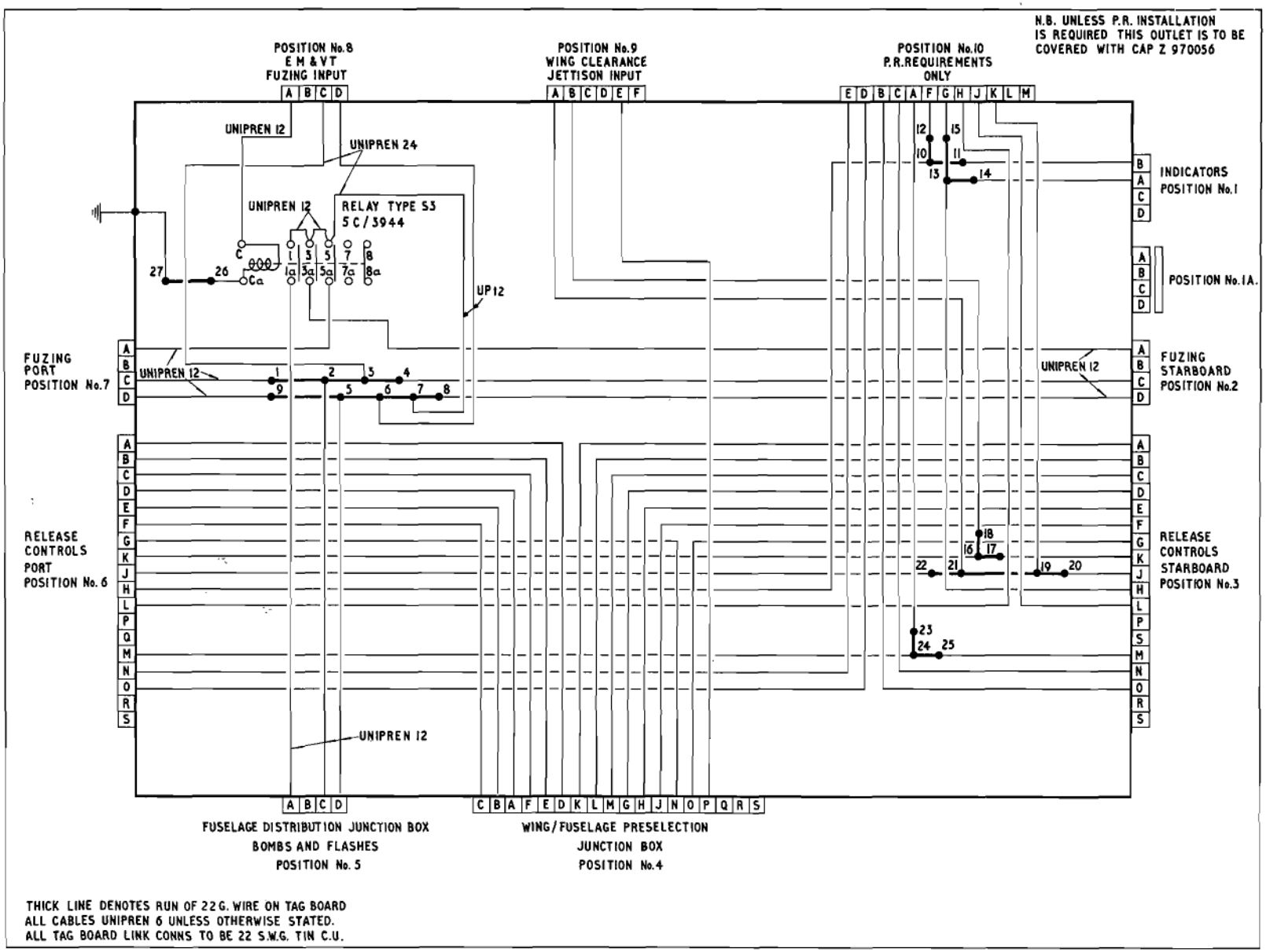


Fig. 17 Wing bomb and flash junction box

RESTRICTED

67436 SHT 613-E

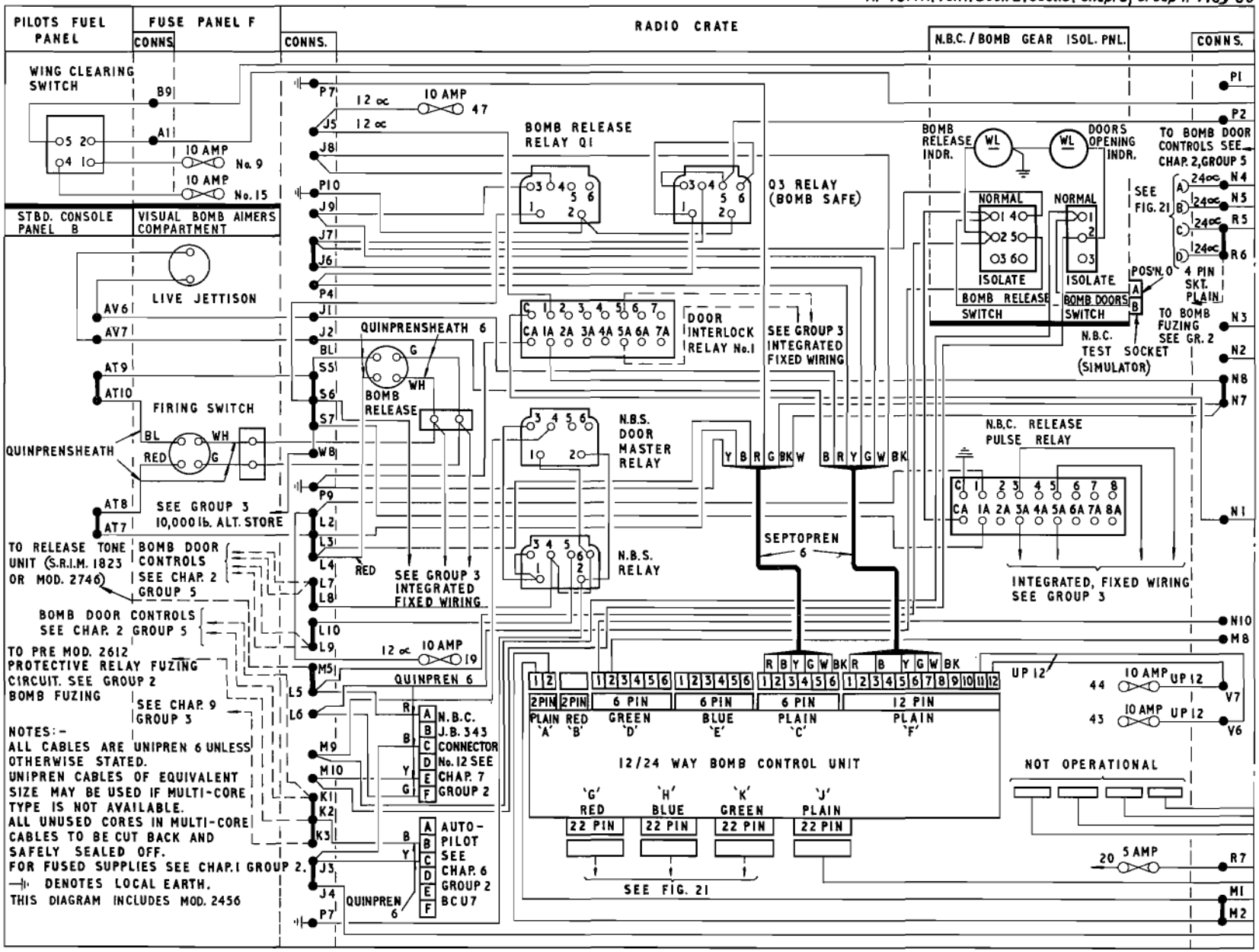
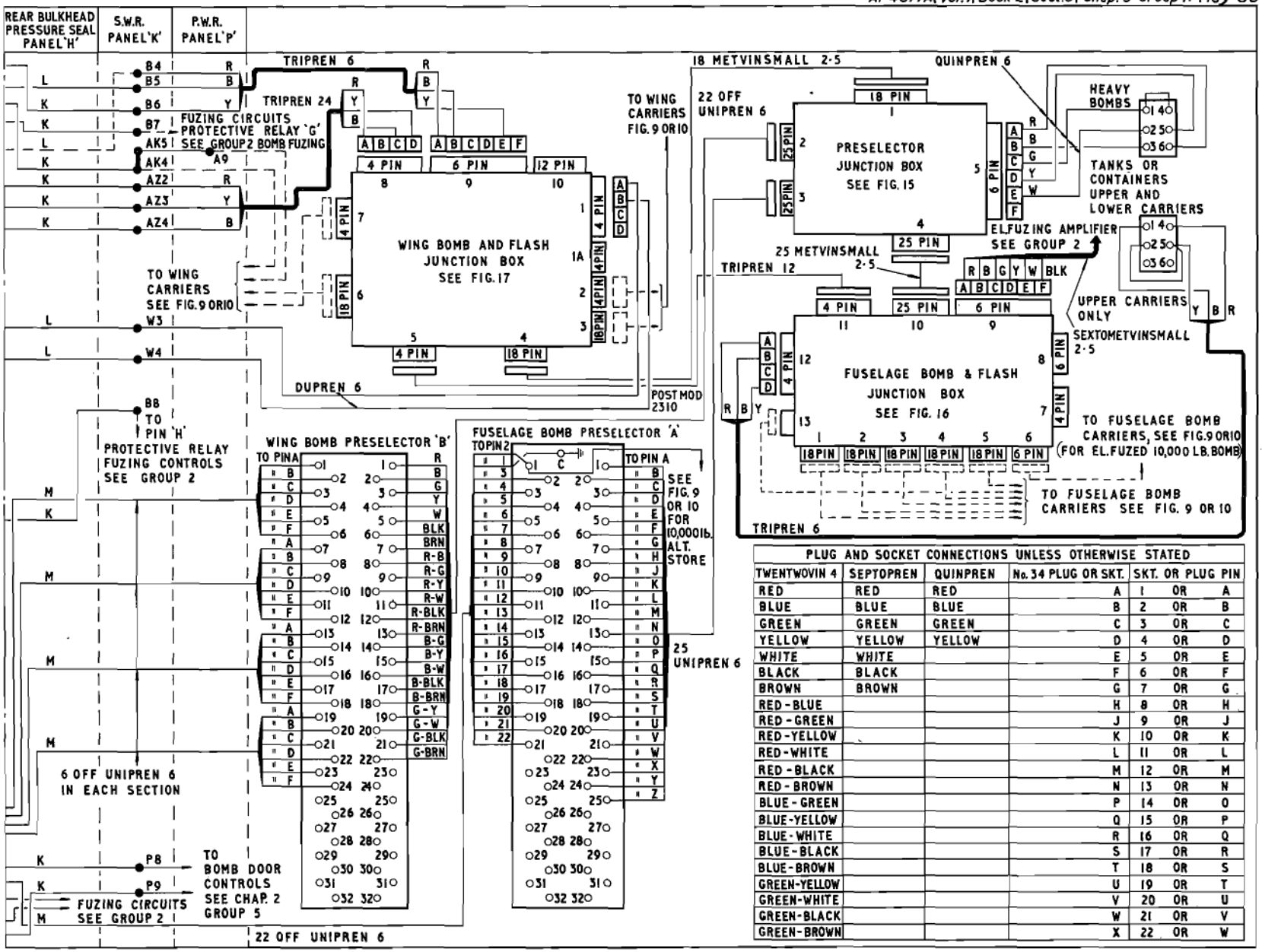


Fig. 18 (1) Bomb release controls, B/K Mk. 1 (Mod. 2612)

RESTRICTED



PLUG AND SOCKET CONNECTIONS UNLESS OTHERWISE STATED						
TWENTWOVIN 4	SEPTOPREN	QUINPREN	No. 34 PLUG OR SKT.	SKT.	OR	PLUG PIN
RED	RED	RED	A	1	OR	A
BLUE	BLUE	BLUE	B	2	OR	B
GREEN	GREEN	GREEN	C	3	OR	C
YELLOW	YELLOW	YELLOW	D	4	OR	D
WHITE	WHITE		E	5	OR	E
BLACK	BLACK		F	6	OR	F
BROWN	BROWN		G	7	OR	G
RED - BLUE			H	8	OR	H
RED - GREEN			J	9	OR	J
RED - YELLOW			K	10	OR	K
RED - WHITE			L	11	OR	L
RED - BLACK			M	12	OR	M
RED - BROWN			N	13	OR	N
BLUE - GREEN			P	14	OR	O
BLUE - YELLOW			Q	15	OR	P
BLUE - WHITE			R	16	OR	Q
BLUE - BLACK			S	17	OR	R
BLUE - BROWN			T	18	OR	S
GREEN - YELLOW			U	19	OR	T
GREEN - WHITE			V	20	OR	U
GREEN - BLACK			W	21	OR	V
GREEN - BROWN			X	22	OR	W

Fig. 18 (2) Bomb release controls, B/K Mk. 1 (Mod. 2612)

RESTRICTED

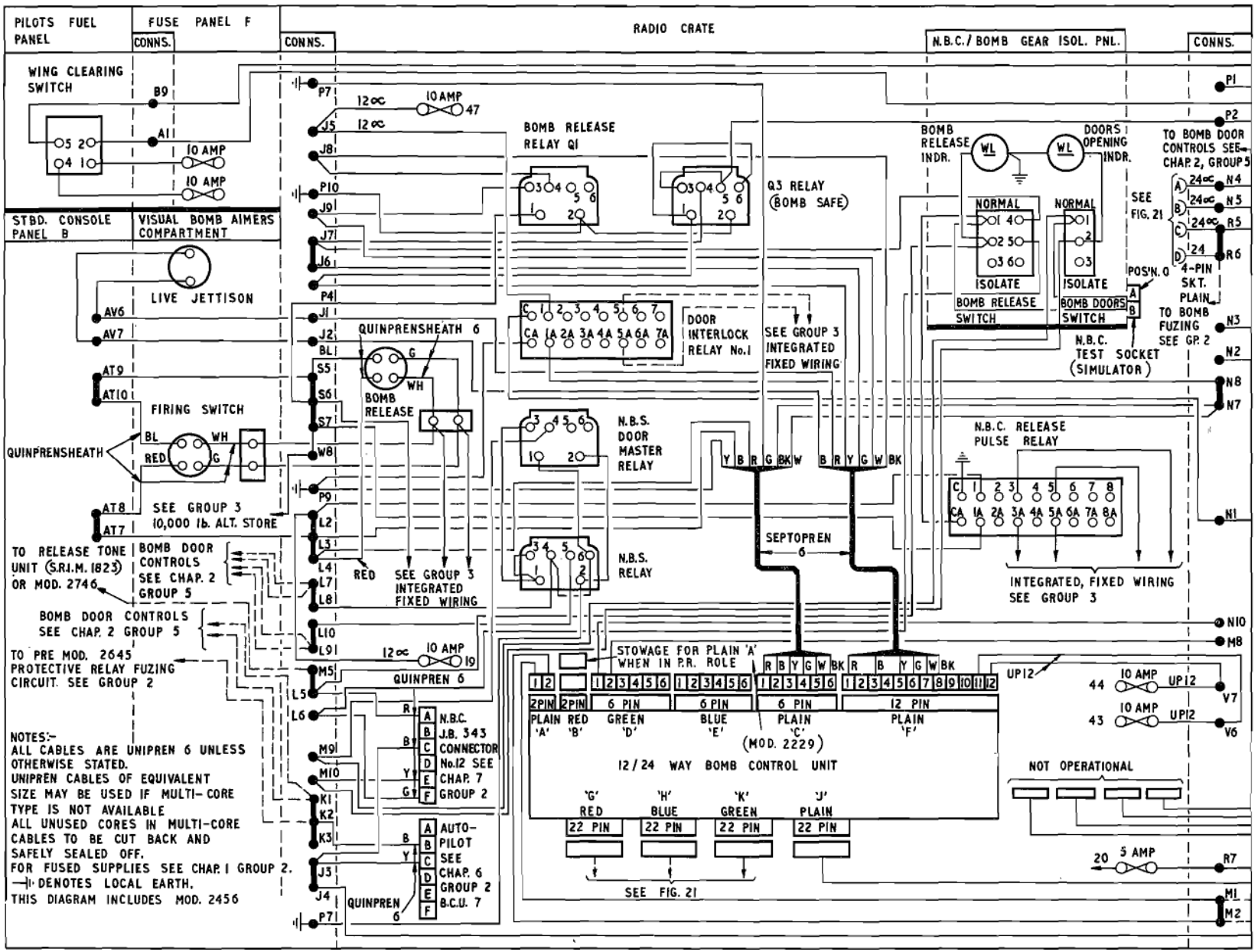
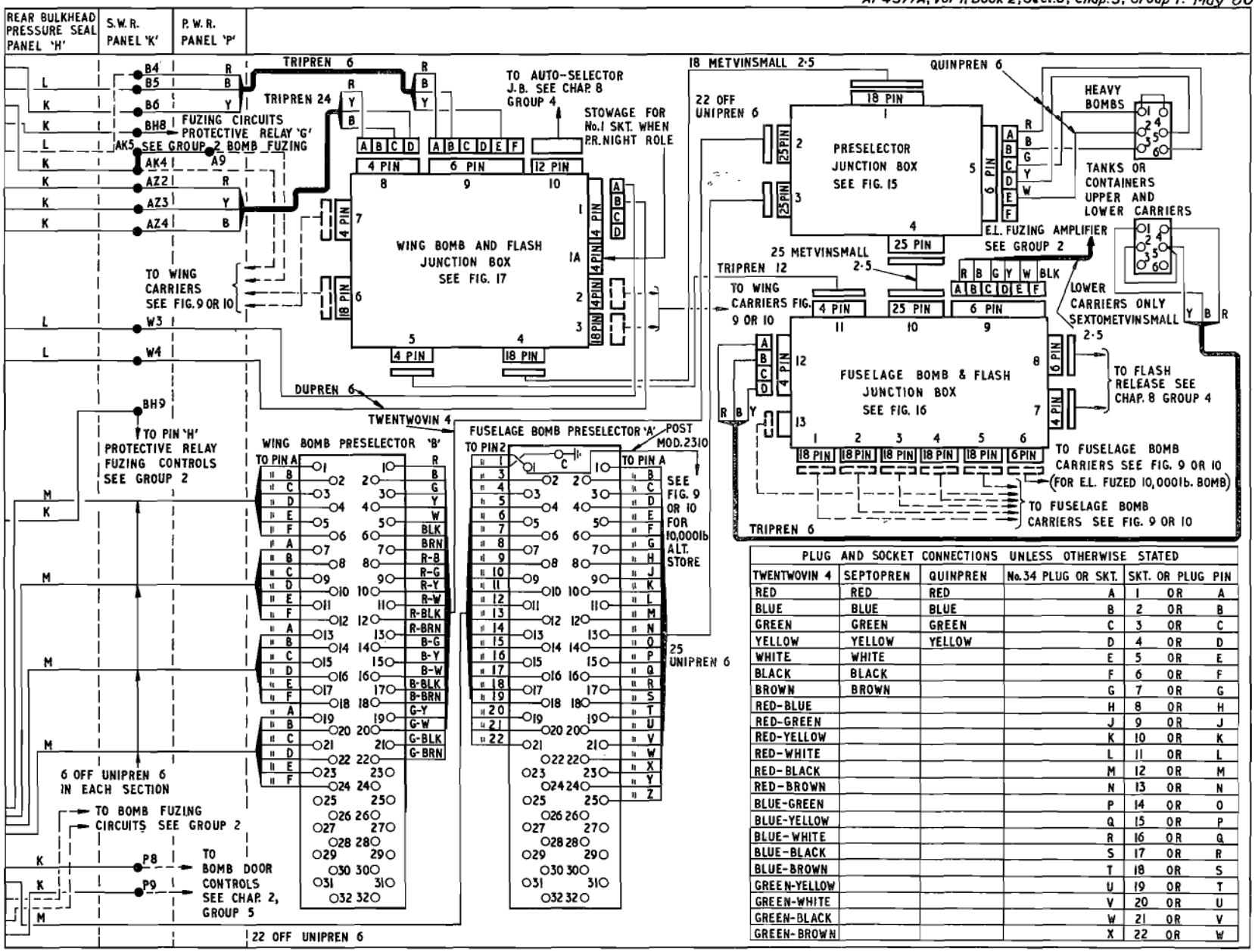


Fig. 19 (1) Bomb release controls, B/P.R. Mk.1 and B/K/P.R. Mk.1 (Mod. 2645 or 2725)

RESTRICTED

71036 SHT. 192-C



PLUG AND SOCKET CONNECTIONS UNLESS OTHERWISE STATED						
TWENTWOVIN 4	SEPTOPREN	QUINPREN	No.34 PLUG OR SKT.	SKT.	OR	PLUG PIN
RED	RED	RED	A	1	OR	A
BLUE	BLUE	BLUE	B	2	OR	B
GREEN	GREEN	GREEN	C	3	OR	C
YELLOW	YELLOW	YELLOW	D	4	OR	D
WHITE	WHITE		E	5	OR	E
BLACK	BLACK		F	6	OR	F
BROWN	BROWN		G	7	OR	G
RED-BLUE			H	8	OR	H
RED-GREEN			J	9	OR	J
RED-YELLOW			K	10	OR	K
RED-WHITE			L	11	OR	L
RED-BLACK			M	12	OR	M
RED-BROWN			N	13	OR	N
BLUE-GREEN			P	14	OR	O
BLUE-YELLOW			Q	15	OR	P
BLUE-WHITE			R	16	OR	Q
BLUE-BLACK			S	17	OR	R
BLUE-BROWN			T	18	OR	S
GREEN-YELLOW			U	19	OR	T
GREEN-WHITE			V	20	OR	U
GREEN-BLACK			W	21	OR	V
GREEN-BROWN			X	22	OR	W

Fig. 19 (2) Bomb release controls, B/P.R. Mk.1 and B/K/P.R. Mk.1 (Mod. 2645 or 2725)
RESTRICTED

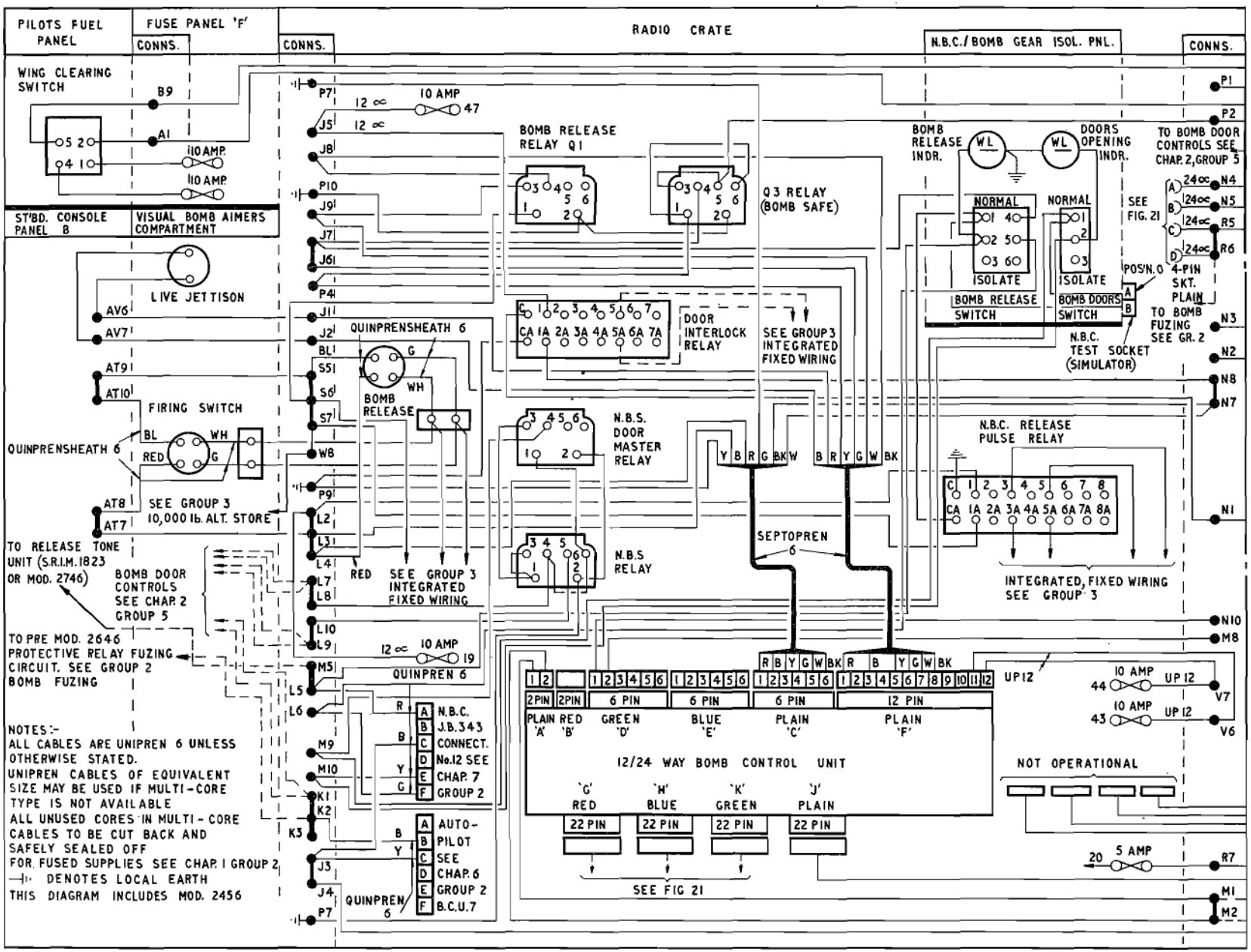
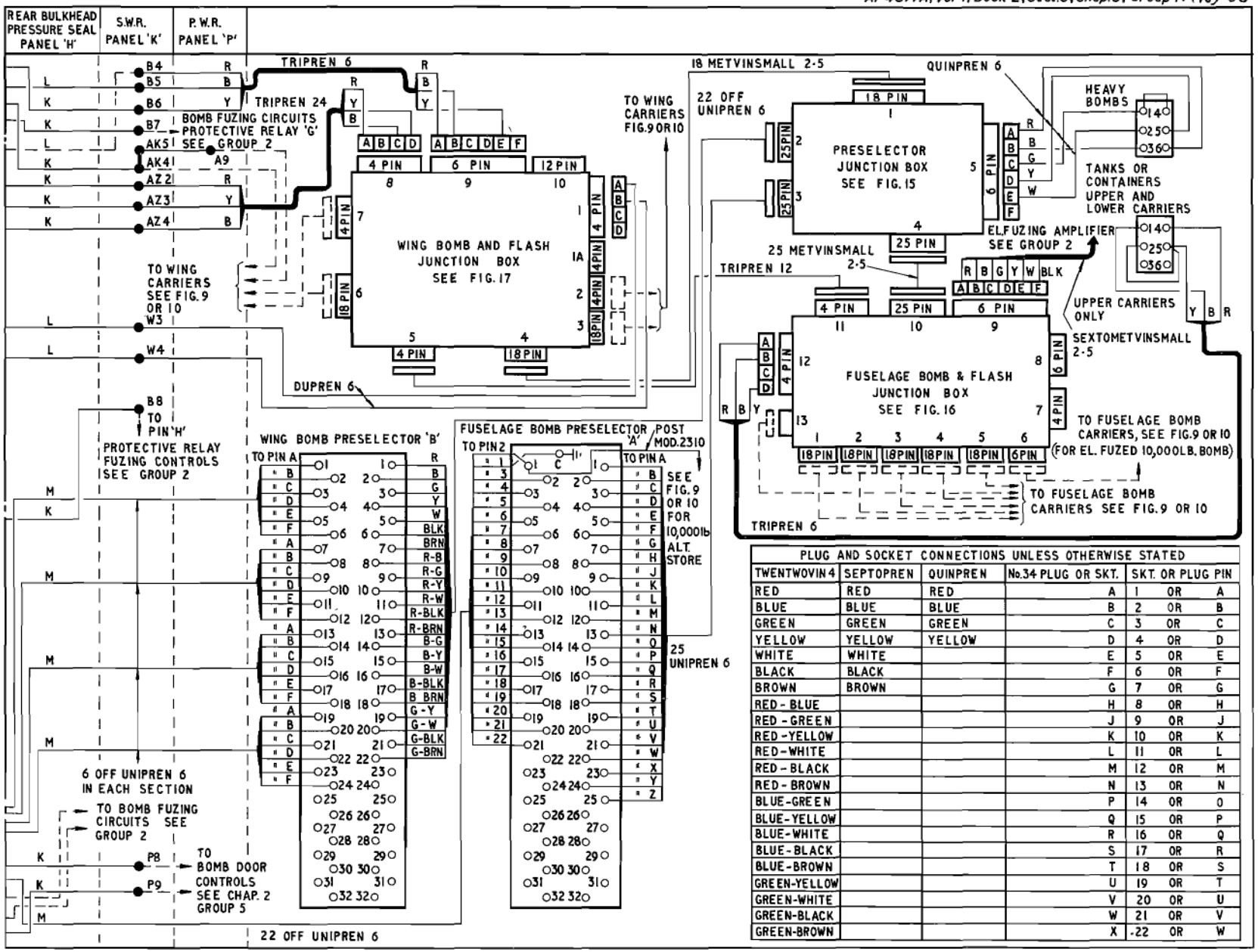


Fig. 20(1) Bomb release controls, B. Mk. 1 (Mod. 2646)

RESTRICTED

70636 SHT. 617-C



PLUG AND SOCKET CONNECTIONS UNLESS OTHERWISE STATED						
TWENTWOVIN 4	SEPTOPREN	QUINPREN	No.34 PLUG OR SKT.	SKT. OR PLUG PIN		
RED	RED	RED	A	1	OR	A
BLUE	BLUE	BLUE	B	2	OR	B
GREEN	GREEN	GREEN	C	3	OR	C
YELLOW	YELLOW	YELLOW	D	4	OR	D
WHITE	WHITE		E	5	OR	E
BLACK	BLACK		F	6	OR	F
BROWN	BROWN		G	7	OR	G
RED - BLUE			H	8	OR	H
RED - GREEN			J	9	OR	J
RED - YELLOW			K	10	OR	K
RED - WHITE			L	11	OR	L
RED - BLACK			M	12	OR	M
RED - BROWN			N	13	OR	N
BLUE - GREEN			P	14	OR	O
BLUE - YELLOW			Q	15	OR	P
BLUE - WHITE			R	16	OR	Q
BLUE - BLACK			S	17	OR	R
BLUE - BROWN			T	18	OR	S
GREEN - YELLOW			U	19	OR	T
GREEN - WHITE			V	20	OR	U
GREEN - BLACK			W	21	OR	V
GREEN - BROWN			X	22	OR	W

Fig. 20 (2) Bomb release controls, B. Mk. 1 (Mod. 2646)

RESTRICTED

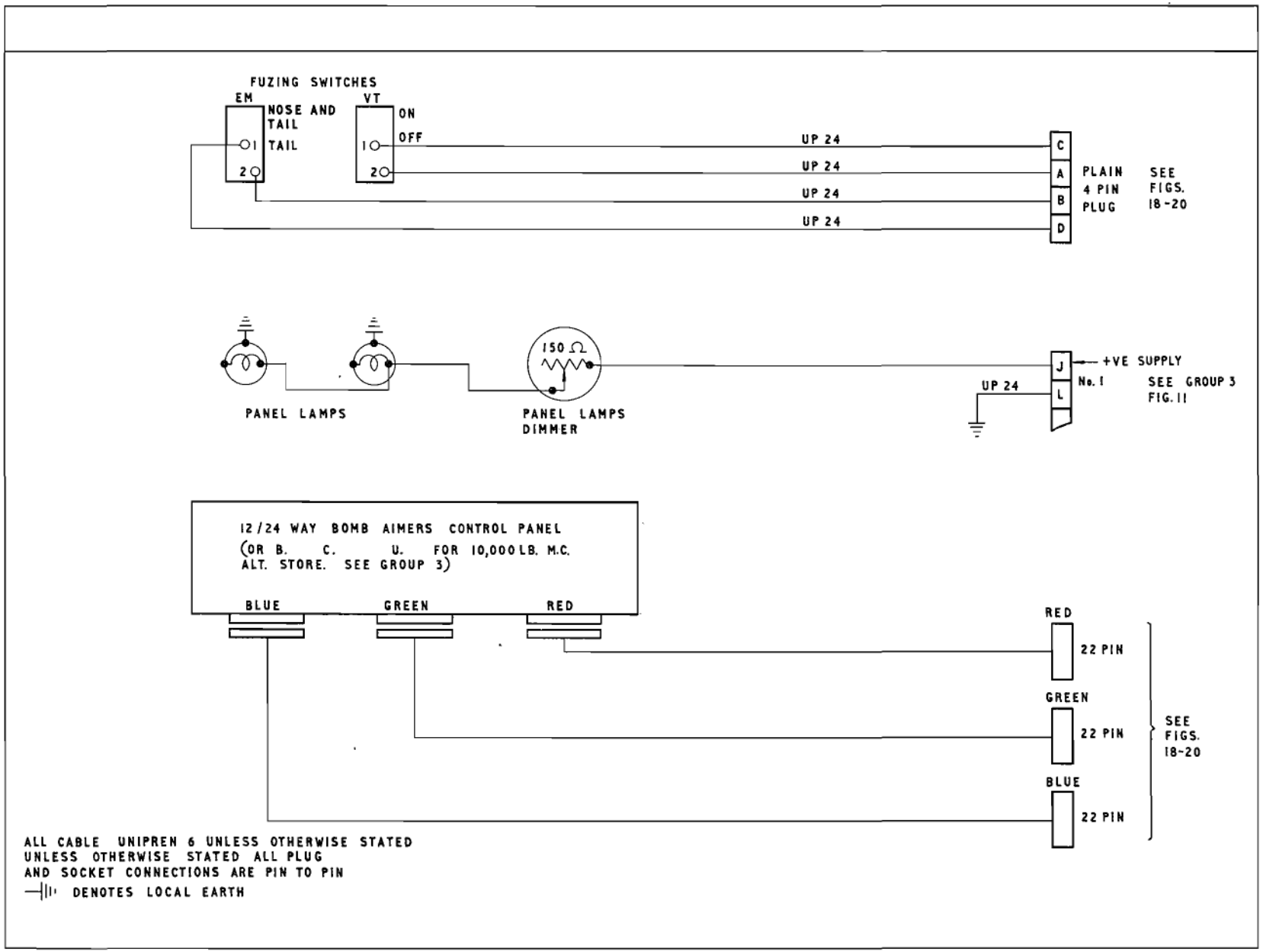


Fig. 21 Control panel No. 3 (Mod. 2611)
RESTRICTED

70679 SHT. 227-B

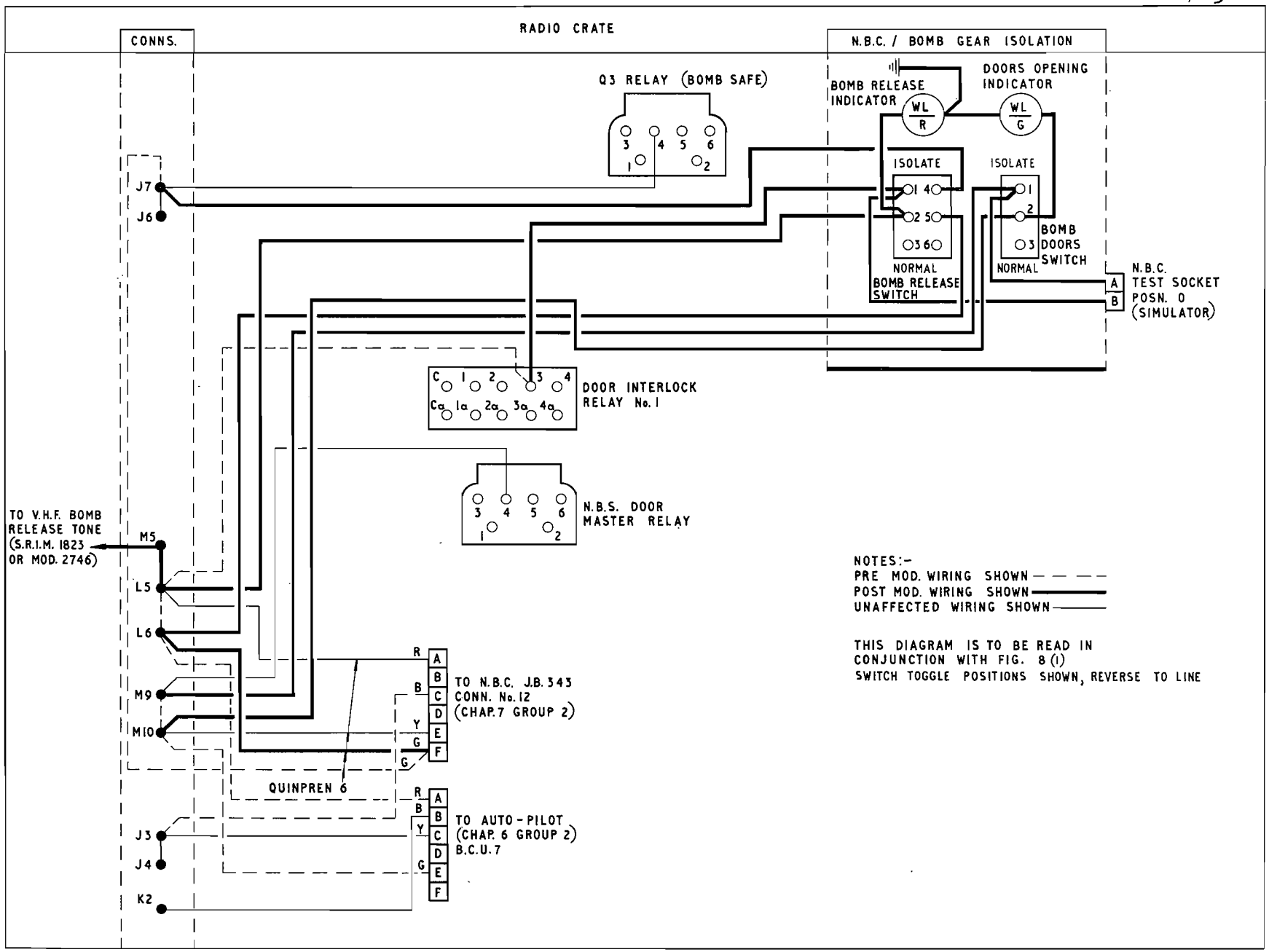


Fig. 22 N.B.C./Bomb gear interconnections (Mod. 2456 and 2778)

RESTRICTED

EXTRACT FROM 70636 SHT. 105 FOR ISSUE V, Z & AA
EXTRACT FROM 75836 SHT. 105 FOR ISSUE J

LIST OF APPENDICES

Appendix 1

N.B.C./BOMB GEAR ISOLATION PANEL (post Mod. 3031)

General

1. Post Mod. 3031, the N.B.C./bomb gear isolation panel (*Group* 1, *para.* 14) is located at the 2nd navigator's position on the radio crate, as shown in Group 6. The Schematic and Routeing diagrams in Group 1 are unaffected by this alteration.

Appendix 2

NORMAL BOMB CONTROL (post Mod. 3174)

General

1. Under Mod. 3174 the No. 3 control panel introduced by Mod. 2611, is replaced by a 3A control panel. The main difference between the two panels is that the 3A panel has a link between pins N and W of No. 1 plug; this is to ensure that the release circuits cannot be energized until the panel is fitted and connected.

Circuit operation

2. The bomb release circuits described in group 1 are unaffected by this panel change. The No. 3A control panel wiring is shown in fig. 1 of this appendix and the panel is illustrated in group 6.

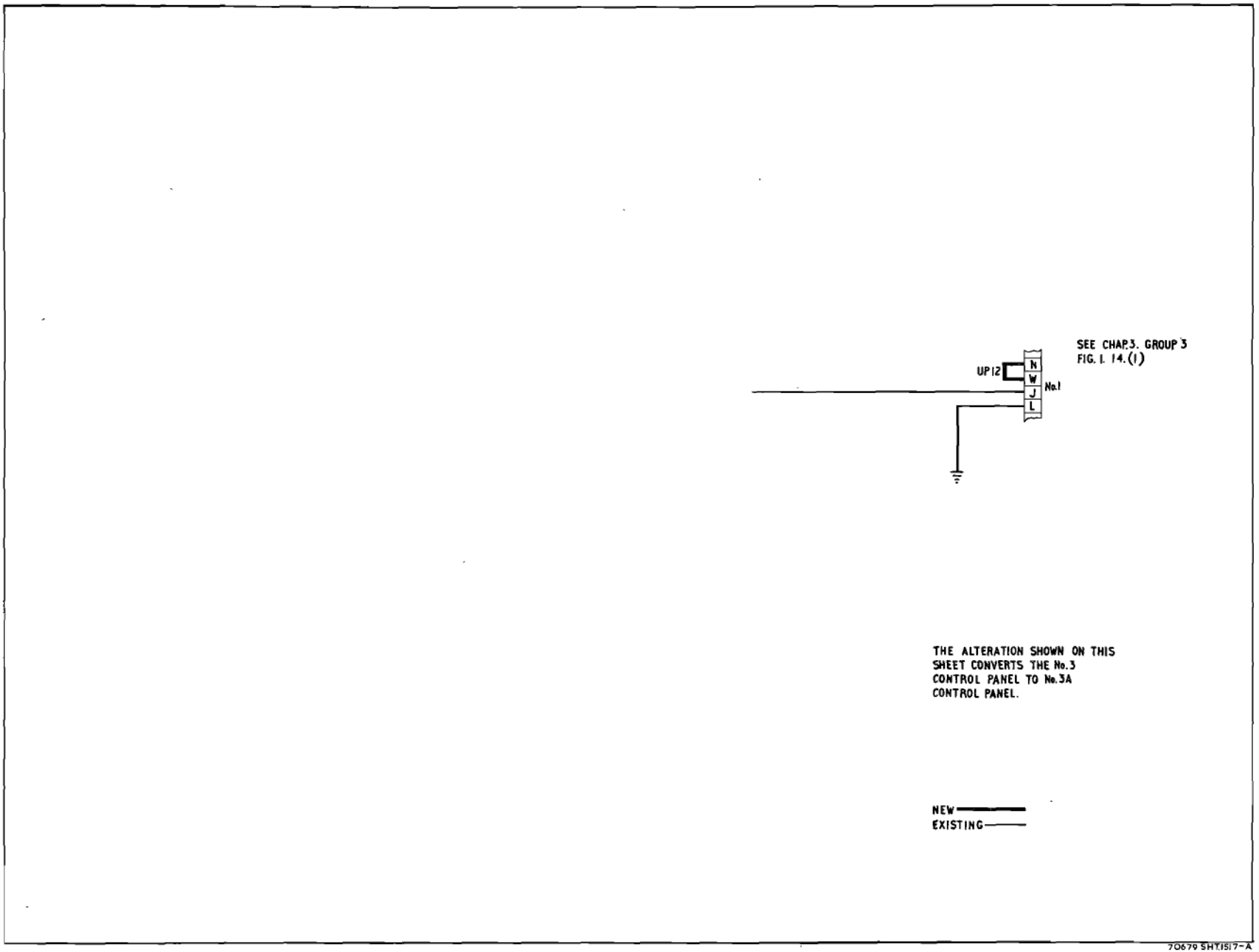


Fig. 1. Alteration to Fig. 21 (post Mod. 3174)

Appendix 3

NORMAL BOMB CONTROL (post Mod. 3171)

LIST OF ILLUSTRATIONS

Bomb release supplies

1. Post Mod. 3171, the bomb release positive supplies are routed through the No. 3A control panel as indicated in fig. 1 of this appendix. This is to ensure that release circuits are not energised until the panel is fitted and connected, the operation of the remainder of the release circuit is unaffected.

Bomb gear/N.B.S. interconnections

2. The N.B.S. relay and N.B.S. door master relay are connected as indicated in figs. 1 and 2 of this appendix, this alteration affects the operation of the bomb doors in the auto condition and is fully described in Vol. 1, Book 3, Sect. 5, Chap. 7, Group 2, App. 3 of this publication. The remainder of the normal bomb control is unaffected.

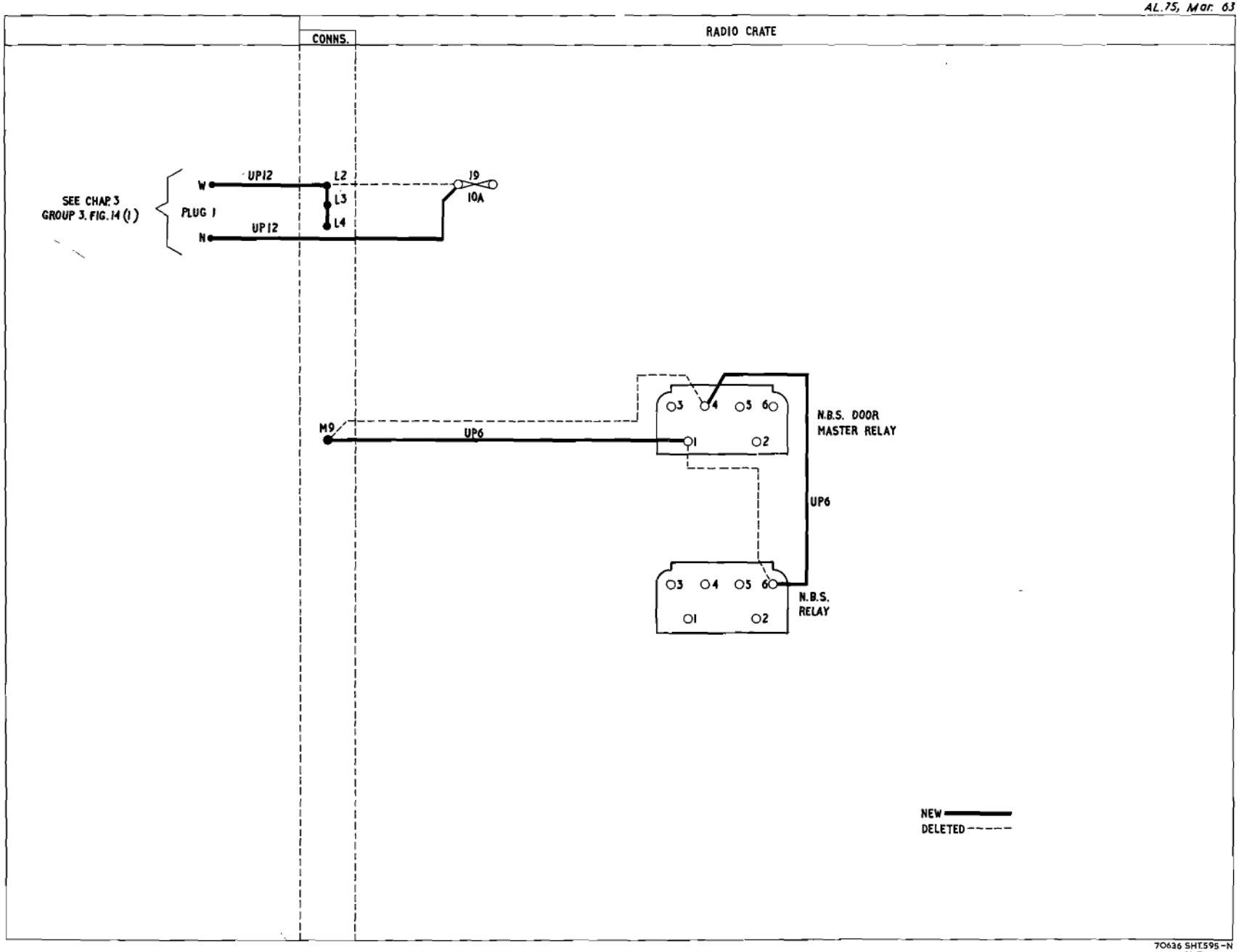


Fig.1 Alterations to Figs.18(1), 19(1), 20(1) and 22 (post Mod.3171)

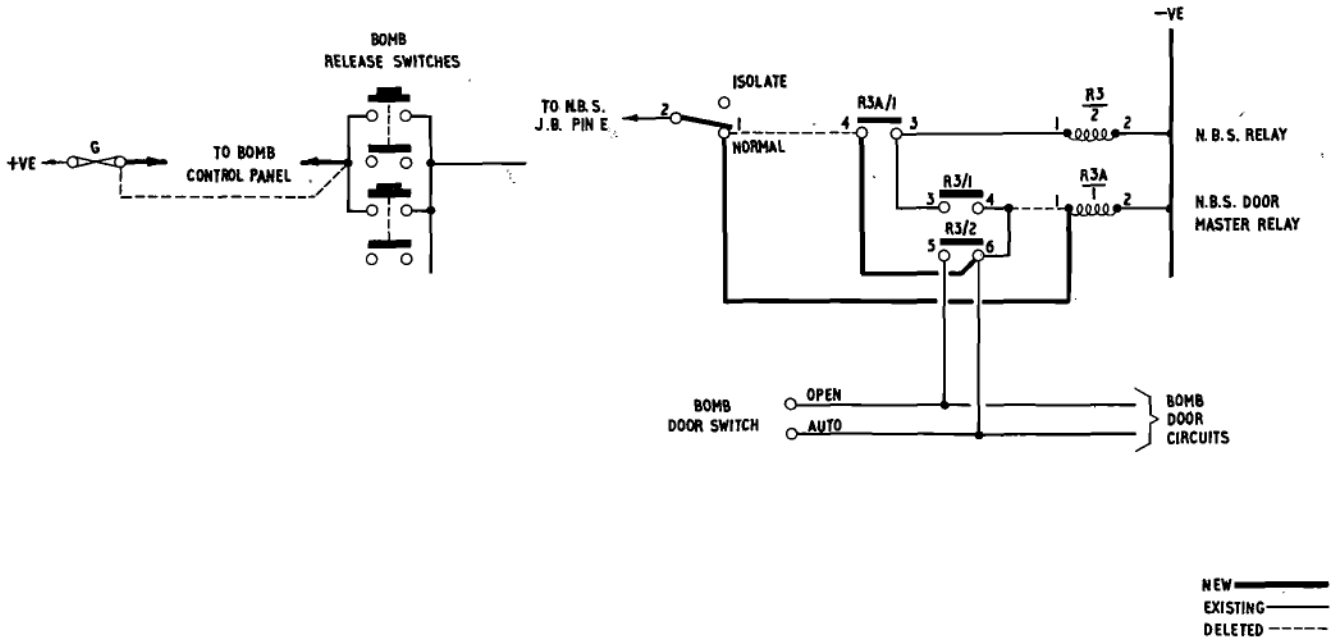


Fig.2 Alterations to Figs.1 and 2A (post Mod.3171)

RESTRICTED

Appendix 4

NORMAL BOMB CONTROL (post Mod. 2848 part A)

General

1. Mod. 2848 part A introduces a Dowty type bomb push switch at the visual bomb aimers and 2nd Navs. positions in lieu of the A.M. type. The wiring details are shown in fig. 1 of this appendix.

Circuit operation

2. The circuit operation of the normal bomb release is not affected by this modification.

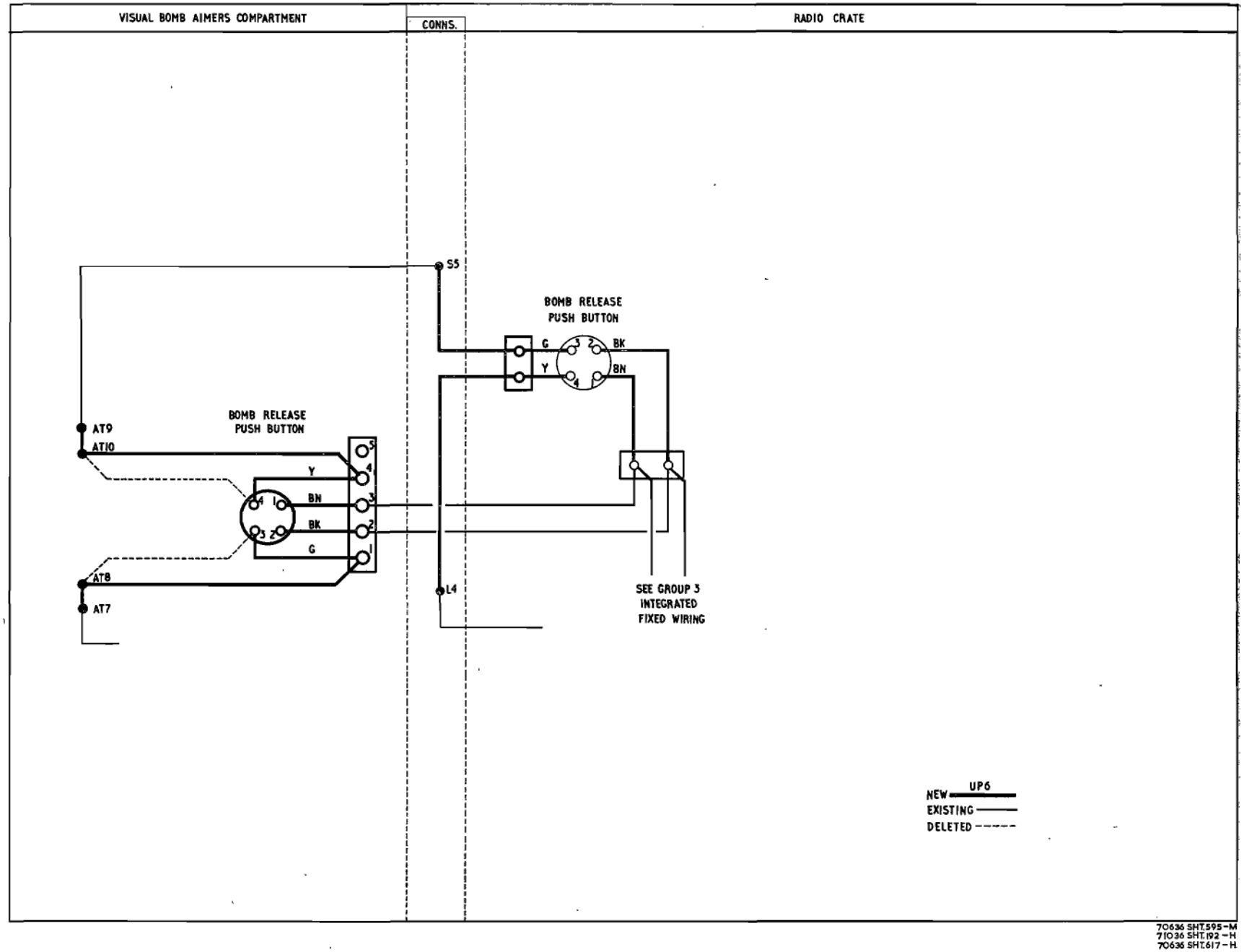


Fig. 1. Alterations to Figs. 18 (1), 19 (1) and 20 (1) (post Mod. 2848 part A)

Appendix 5

NORMAL BOMB CONTROL (post Mod. 2385)

General

1. Post Mod. 2385 the connection from terminal 5 of the N.B.S. relay to terminal L10 at panel G is transferred to terminal N2 in panel G. Terminals L9 and L10 are deleted. Fig. 1 of this appendix shows the alterations to the circuit.

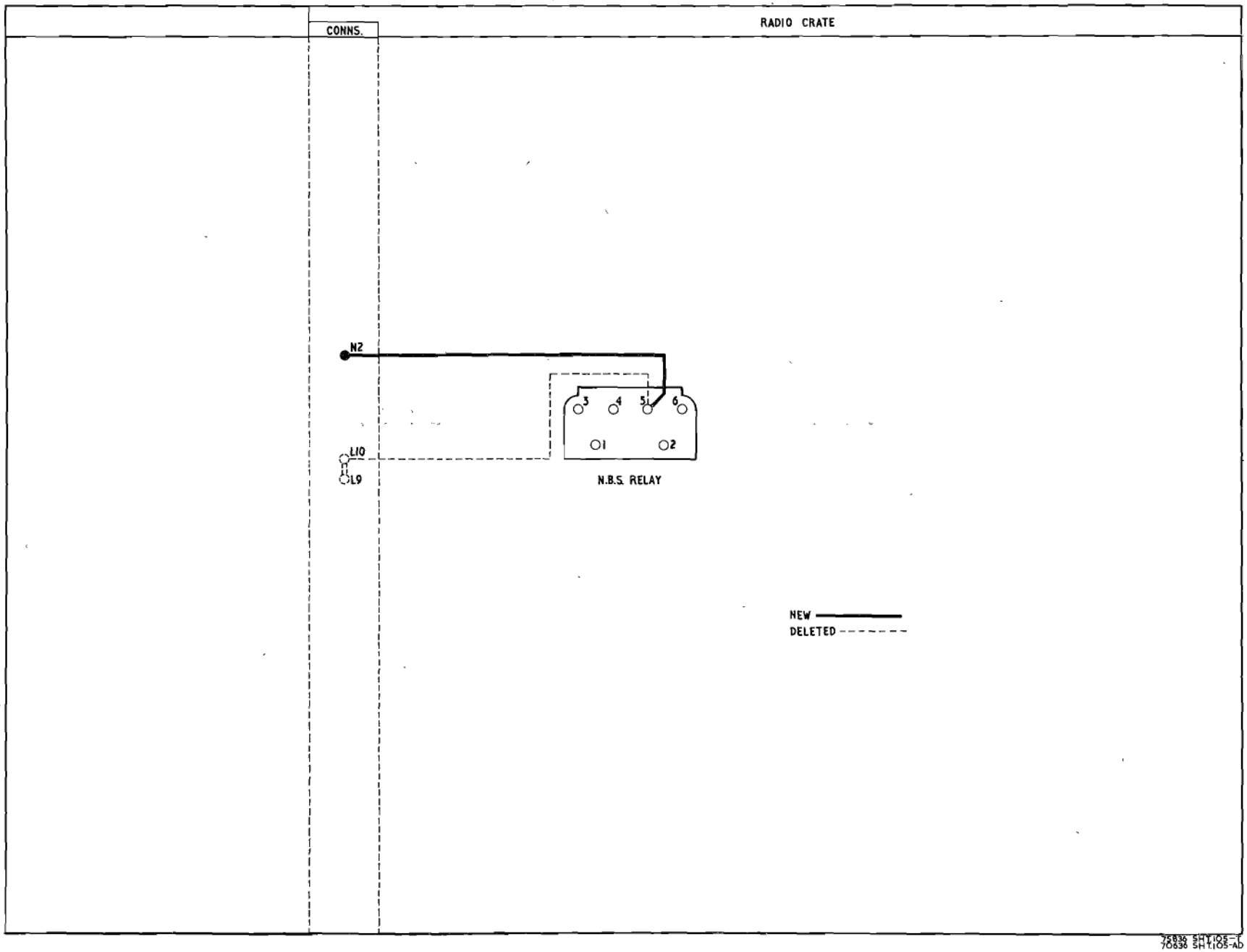


Fig. 1. Alteration to Fig. 8 (1) (post Mod. 2385)