Chapter 21
BOMB FUZING AND RELEASE - SPECIAL

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LIST OF ILLUSTRATIONS

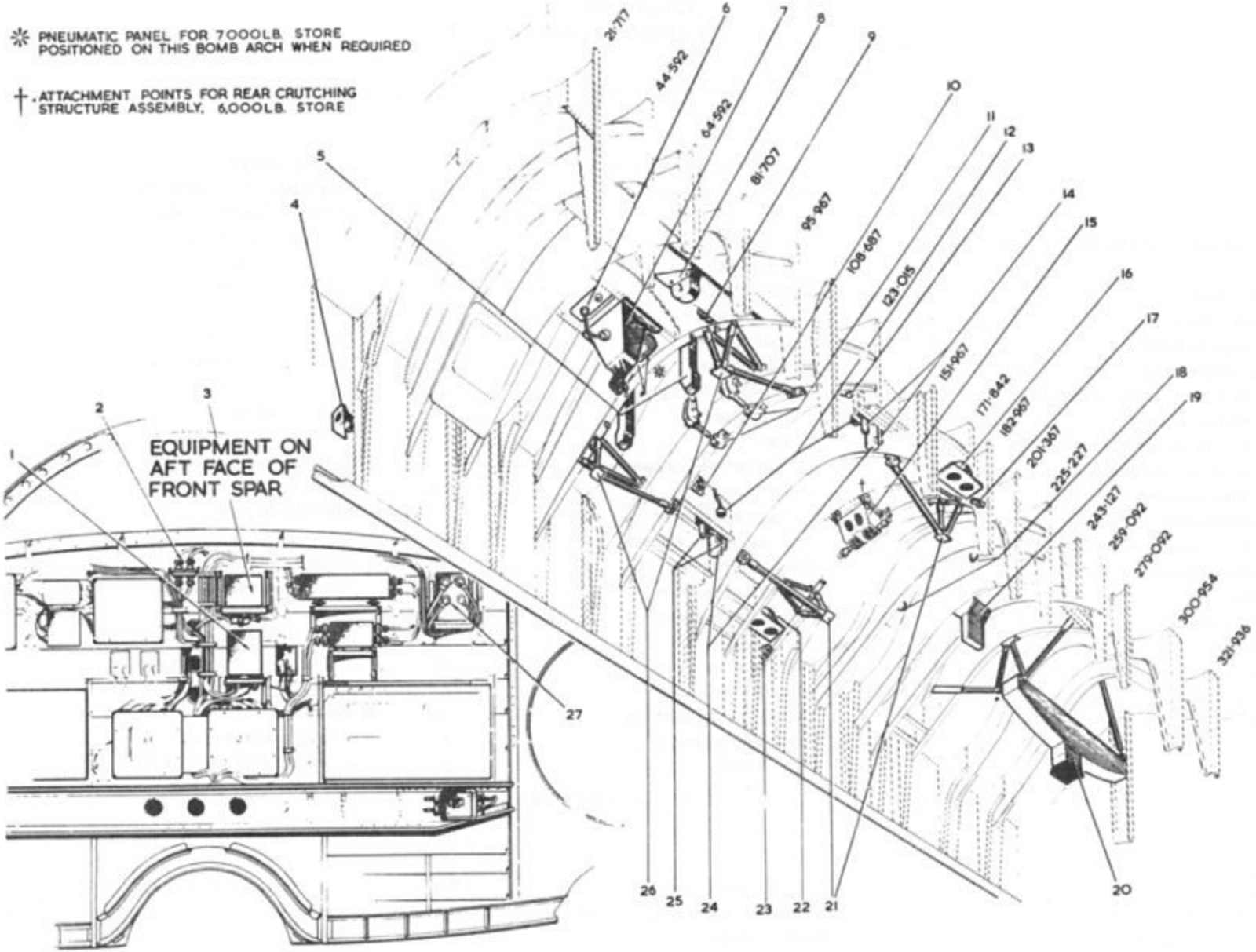


Fig.1. Location of equipment

KEY TO FIG. 1
Location of equipment

10,000 LB. STORE

1 REPLACEMENT CONTROL UNIT
2 PLUG BREAK
6 FUZING UNIT CONNECTION
7 MOUNTING FOR SNATCH AND FUZING UNIT.
8 FORWARD WINCH AND HOUSING
9 FORWARD SNATCH PLUG
12 CARRIER SUPPLY PLUGS
14 BUFFER STOPS, PORT
15 LATCHBOLT ASSEMBLIES (ATTACHMENT POINTS AT THIS POSITION ALSO USED FOR 6,000 LB. STORE AFT CRUTCHING ASSEMBLY)
16 AFT WINCH AND HOUSING, PORT
17 AFT SNATCH PLUG, PORT
19 LANYARD PACK MOUNTING
21 AFT CRUTCHING ASSEMBLIES
22 AFT WINCH AND HOUSING, STARBOARD
23 AFT SNATCH PLUG, STARBOARD
24 SUSPENSION UNITS, PORT AND STARBOARD
25 BUFFER STOPS, STARBOARD
26 FORWARD CRUTCHING ASSEMBLIES

6,000 LB. STORE

10 STOWAGE BRACKET FOR CARRIER SUPPLY SOCKETS
11 FORWARD CRUTCHING ASSEMBLY
14 BUFFER STOPS, PORT
15 ATTACHMENT POINTS FOR AFT CRUTCHING ASSEMBLY
18 ATTACHMENT POINTS FOR AUXILIARY CRUTCH, TYPE C
24 SUSPENSION UNITS, PORT AND STARBOARD
25 BUFFER STOPS, STARBOARD

7,000 LB. STORE

3 PROTECTIVE RELAY UNIT
4 AIRSPEED PRESSURE SWITCH
5 FUZING UNIT MOUNTINGS, PORT AND STARBOARD
10 STOWAGE BRACKET FOR CARRIER SUPPLY SOCKETS
13 SOCKET 598
14 BUFFER STOPS, PORT
20 REAR STEADY ASSEMBLY
21 AFT CRUTCHING ASSEMBLIES
24 SUSPENSION UNITS, PORT AND STBD.
25 BUFFER STOPS, STARBOARD
26 FORWARD CRUTCHING ASSEMBLIES
27 ADDITIONAL UNIT

Introduction

1. This chapter deals with circuits and equipment provided in the aircraft for the carriage and release of the 10,000 lb. 6,000 lb., 7,000 lb., 2,000 lb. and 600/950 lb. stores. Converting the aircraft to these roles is simplified by having an integrated wiring system and a number of replacement control panels which are interconnected by suitably identified plugs and sockets. A number of fixed and removable assemblies are provided to equip the bomb bay for the carriage of the various stores. In the paragraphs that follow, the installation of the various items of equipment will be described, together with certain aspects of electrical circuit operation

1A. The following modifications are included in this chapter:-

1139	1373	1940	1977	2132
▶ 1371	1439	1962	2087	2440 ◀

DESCRIPTION AND OPERATION

10,000 LB. STORE

2. Conversion of the aircraft to the 10,000 lb. M.C. role consists essentially of replacing part of the bomb control panel 9P with an alternative panel; making certain cable changes and unit fitments at the front spar and fitting ancillary equipment to the AV 176 carrier in the bomb bay. The procedure to be followed when performing these operations is outlined in the following paragraphs.

Alternative control panel

3. The alternative control panel 1/V6868 is fitted at the nav. bomber's station, panel 9P, as follows:-

(1) Ensure that all supplies are switched off, then release the two Dzus fasteners securing the lower hinged section of the panel. Lower the panel until the connections on the aft diaphragm of the panel mounting can be reached.

(2) Disconnect the 25-core cable item 2/V6517 at plug 470.

(3) Disconnect the 25-core cable item 3/V6517 at plug 471.

(4) Disconnect the 25-core cable item 4/V6517 at plug 472.

(5) Disconnect cables No.F.346, 3/F646 and F.1093 at the bomb spacing unit.

(6) Disconnect cable No.F344 at the switch selector and indicator.

(7) Release the two Dzus fasteners securing the hinged fuzing portion of the upper part of 9P. Allow the panel to swing down, then disconnect cable item 5/V6517 at plug 473.

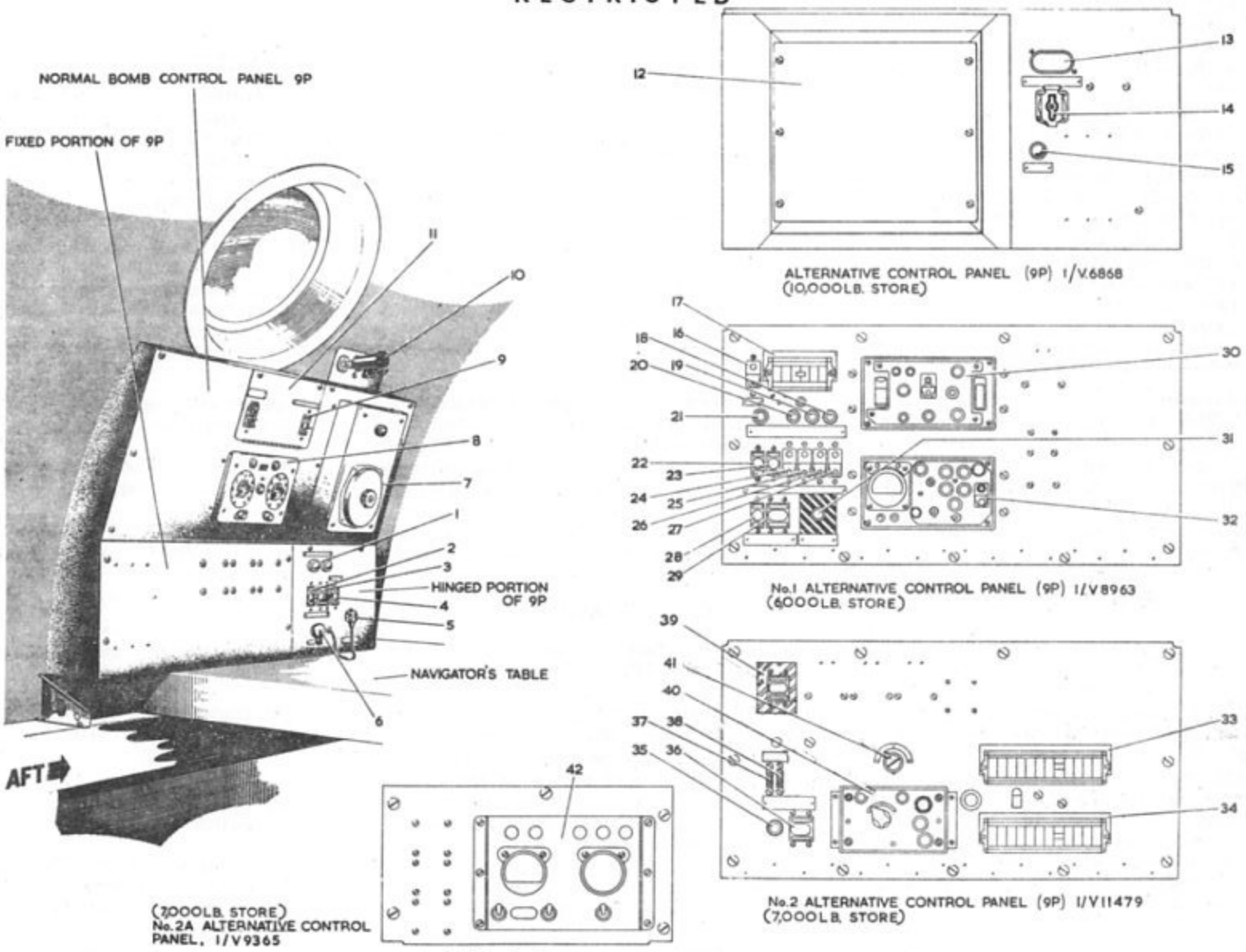


Fig. 2. Alternative control panels

KEY TO FIG.2

Alternative control panels

HINGED PORTION OF 9P

1 N.B.C. ISOLATION INDICATORS
2 BOMB DOORS ISOLATION SWITCH
3 BOMB RELEASE ISOLATION SWITCH
4 CABIN LAMPS SWITCH
5 BOMB RELEASE PUSH-SWITCH
6 N.B.S. SIMULATOR TEST SOCKET

NORMAL BOMBING CONTROL PANEL (9P) V6317

7 BOMB SPACING UNIT, TYPE 11
8 SWITCH SELECTOR AND INDICATOR, TYPE 11
9 EM - NOSE & TAIL FUZING SWITCH
10 PANEL LAMP AND SWITCH
11 LIVE JETTISON SWITCH

ALTERNATIVE CONTROL PANEL (9P) V6868

12 REPLACEMENT BOMB AIMER'S PANEL

13 INDICATOR
14 EMERGENCY UP-DOWN SWITCH
15 DOWN INDICATOR

NO.1 ALTERNATIVE CONTROL PANEL (9P) V8963

16 NO.5 CIRCUIT BREAKER
17 FUSEBOX 1035 TO 1040
18 EJECTORS ARMED INDICATOR
19 SLIP PRESSURE ON INDICATOR
20 BOMB GONE INDICATOR
21 A.C. SUPPLY INDICATOR
22 A.C. SUPPLY MAIN-STANDBY SWITCH
23 D.C. SUPPLY ON-OFF SWITCH
24 NO.1 CIRCUIT BREAKER
25 NO.2 CIRCUIT BREAKER
26 NO.3 CIRCUIT BREAKER
27 NO.4 CIRCUIT BREAKER
28 BOMB SLIP HEATER ON-OFF SWITCH
29 HEAVY STORES AND EJECTOR ON-OFF SWITCH
30 CONTROL UNIT 'A'
31 SLIP LOCKING INDICATOR
32 CONTROL UNIT 'C'

NOTE...
Control unit 'B' is fitted to a mounting tray in place of the fixed portion of 9P when the No.1 alternative panel is installed

NO.2 ALTERNATIVE CONTROL PANEL (9P) V11479

33 FUSEBOX 1011 TO 1022
34 FUSEBOX 1023 TO 1034
35 BOMB RELEASE TEST PUSH-BUTTON
36 BOMB SELECTOR SWITCH
37 NO.1 INDICATOR RELEASE
38 NO.2 INDICATOR RELEASE
39 E.P. POWER SUPPLY EM./OV. SWITCH
40 E.P. FUZING CONTROL UNIT
41 PANEL LIGHTING DIMMER

NO.2A ALTERNATIVE CONTROL PANEL (V9365)

42 E.Y. CONTROL UNIT

(8) Release the ten mushroom-head bolts and two Dzus fasteners which secure the upper portion of the normal bomb panel, 9P.

(9) Lower and remove the upper portion of the panel.

(10) Position the alternative bomb control panel, 1/V6868, on the mounting frame, and secure the panel with the bolts retained in (8).

(11) Connect the 25-core cable item 2/V6889, attached to the control unit on the alternative control panel, to plug 470 on the aft diaphragm.

(12) Connect the 25-core cable item 3/V6889, attached to the control unit on the alternative control panel, to plug No.471 on the aft diaphragm.

(13) Connect the 25-core cable item 4/V6889, attached to the control unit on the alternative control panel, to plug No.472 on the aft diaphragm.

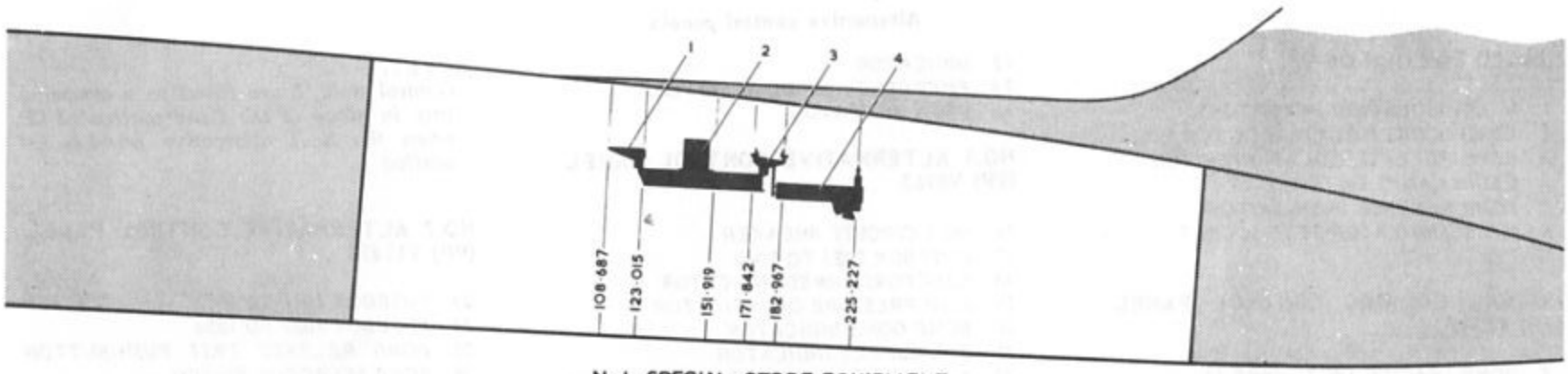
(14) Connect the group of unipren cables item 10/V6889, attached to the control unit on the alternative control panel, to plug 488 on the aft diaphragm.

(15) Stow the four cables No.F.346, F.464, F.344 and F.1093 on the stowages provided at the rear of the control panel.

(16) Replace the lower hinged section of 9P, securing the panel with the Dzus fasteners.

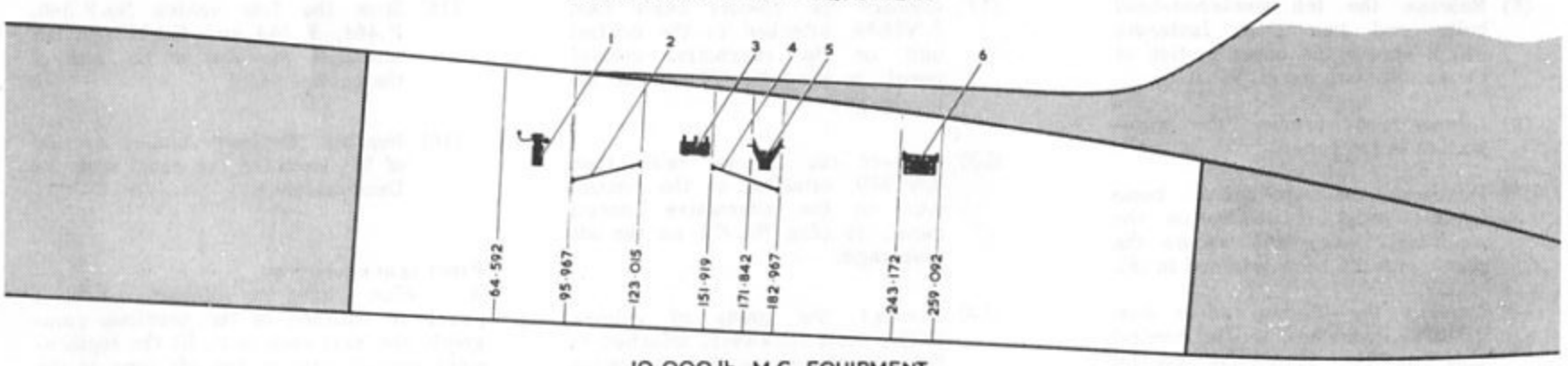
Front spar equipment

4. After fitting the alternative control panel as outlined in the previous paragraph, the next step is to fit the replacement control unit on the aft face of the front spar and make the necessary connector changes. Proceed as follows:-



No.1 SPECIAL STORE EQUIPMENT

No. 2 SPECIAL STORE EQUIPMENT



10,000 lb. M.C. EQUIPMENT

Fig.3 Bomb bay equipment

KEY TO FIG.3

Bomb bay equipment

6,000 LB. STORE EQUIPMENT

1 *FORWARD CRUTCHING STRUCTURE ASSEMBLY*
2 *VULCAN BEAM (A.V.176 CARRIER) AND CARRIER NO.1, MK.2*
3 *REAR CRUTCHING STRUCTURE ASSEMBLY*
4 *CRUTCH AUXILIARY TYPE C*

Note: Items 1, 2 and 3 are separate items of adaptor assembly No.1, Mk.1.

7,000 LB. STORE EQUIPMENT

1 *FUZING UNIT MOUNTINGS*
2 *FORWARD CRUTCHING ASSEMBLIES*
3 *CARRIER A.V.176 WITH OUTRIGGER*
4 *AFT CRUTCHING ASSEMBLIES*
5 *REAR STEADY ASSEMBLY*

10,000 LB. STORE EQUIPMENT

1 *MOUNTING ASSEMBLY FOR SNATCH PLUG AND FUZING*
2 *FORWARD CRUTCHING ASSEMBLIES*
3 *CARRIER A.V.176*
4 *AFT CRUTCHING ASSEMBLIES*
5 *LATCHBOLT ASSEMBLY*
6 *LANYARD ASSEMBLY*

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(1) Locate the bracket for the replacement control unit, fit the control unit, and connect the following cables, stowed in the vicinity of the bracket, to the plugs and sockets on the unit:- F.116, F.1189, F.1190, F.1076, F.1037, F.1038, F.1027, F.1036, F.1030, F.1031, F.1032, F.1055, F.1033, F.1034, 1/F.1035, 2/F.1035.

(2) Locate the bracket carrying the plug and socket break for the bomb fuzing and release cables.

(3) Disconnect cable F.1078 from plug 475.

(4) Connect cable F.1078 to plug 482.

(5) Disconnect cable F.1090 from plug 474.

(6) Connect cable F.1090 to plug 483.

Bomb bay equipment

5. The 10,000 lb. M.C. store is carried by a Type AV 176 bomb carrier, which after pre-loading is hoisted into position at the centre heavy store station. Two suspension units, one port and one starboard hold the carrier locked, while four adjacent buffer stops tension the carrier. The store is crutched on four crutching assemblies as shown in fig.1. Hoisting and loading information for the store and carrier will be found in A.P.2852B, Vol.1.

6. Prior to hoisting the carrier and store into position, certain removable assemblies known as AV 241, must be fitted in the bomb bay. They consist of the following items:-

(1) Mounting assembly for fuzing and snatch plug	A.T.82079
(2) Forward crutching assemblies	A.T.81858 and 59
(3) Aft crutching assemblies	A.T.81855 and 56
Brackets for arms	A.T.63103 and 109
(4) Forward cable retraction winch	5D/1785
Housing for winch	A.T.81913
(5) Aft cable retraction winches (2)	5D/1785
Mounting channels for winches (2)	A.T.62980
(6) Aft latchbolt (2)	5D/1784
Latchbolt bracket	A.T.81914
(7) Lanyard pack assembly	A.T.62992
Lanyard plate	11A/4108
Lanyard pack	120/186
(8) Hoisting and suspension unit (9)	A.T.82092
(9) Buffer stop assemblies (4)	A.T.62778
Special bolts (48)	A.T.38949
Washers (48)	S.P.13
Locking wire	A.T.82058

The method of fitting these assemblies is outlined in the following paragraphs.

Snatch plug and fuzing mounting

7. This assembly, A.T.82079, is installed at the forward end of the bomb bay roof, on the two intercostals between bomb arches 64.592 and 95.967. The intercostals are each fitted with three 2B.A. captive nuts which mate with six holes on the upper flanges of the mounting assembly. When the assembly is installed (fuzing units facing aft) the four-pin Mk.4 socket, on the cable attached to the assembly, should be connected to the plug marked A, installed between the intercostals in the roof of the bomb bay.

Crutching assemblies

8. The four crutching assemblies, each consisting of three bracing arms and a crutching pad, are fitted two port and

two starboard as shown in fig.1. The crutching assemblies are fitted by the bolts provided, to attachment brackets, two of which are provided on each of the following bomb arches; 95.967, 123.015, 151.919 and 182.967. The forward and aft brackets are equipped with two pairs of securing lugs identified A.V.241 and A.V.258. The A.V.258 lugs are for use with other stores described later in this chapter. The 2-lug brackets on bomb arch 123.015 are marked in a similar manner for the same purpose. The brackets on bomb arch 151.919, for the third arm of the aft crutching assembly, are removable items of A.V.241 and must be fitted with the bolts provided. These single-lug brackets are bolted and wire locked at the holes provided on the bomb arch, port and starboard. Three holes are provided, the centre and outboard holes must be used for the A.V.241 crutching arms.

Forward cable retraction assembly

9. The cable retraction winch, 5D/1785, must first be attached to its housing A.T.81913, using the two nut, bolt, and washer assemblies provided. The housing, complete with winch, is then attached to the bomb bay structure occupied by the access panel cover on the port side of the bomb bay, forward of bomb arch 95.967, using the existing bolts in the access panel. The two twelve core cables which form part of the winch should be connected to the two sockets marked A and B, adjacent to the winch attachment bracket.

Aft cable retraction assemblies

10. The aft cable retraction winches, 5D/1785, should first be attached to their mounting channels A.T.62980 using the bolts provided; the complete assemblies are then attached to the stiffener plates at the port and starboard sides of the bomb bay between bomb arches 171.842 and 182.967. The two 12-core cable assemblies forming part of each retraction winch should then be connected to the sockets provided (A and B, port and starboard) just below the winch attachment plates.

Aft latchbolt assemblies

11. The latchbolts, 5D/1784, must first be attached to the mounting bracket assembly, A.T.81914, using the bolts provided. The complete assembly should then be attached to the roof of the bomb bay, between bomb arches 171.842 and 182.967, on the mounting brackets provided. The cocking cables, which form part of the bracket assembly, are then attached one to each latch bolt ring. The other end of the cable is then attached to the holes provided on the cable retraction winch mounting channels.

Lanyard assembly

12. This assembly comprising the lanyard plate 11A/4108 and the lanyard pack, 12U/186, is installed in the bomb bay between arches 243.127 and 259.092, using the attachment assembly A.T.62992. The attachment channels, A.T.39624 and A.T.39625, have slotted holes to allow the lanyard plate to be adjusted for correct alignment.

Hoisting and suspension units

13. These units, one port and one starboard, provide a means of hoisting and positioning the carrier. They are installed at the centre station, just forward of bomb arch 151.919. Attachment holes are provided on the upper intercostals as shown in fig.1.

Buffer stop assemblies

14. These items are required to tension the carrier when it is loaded and locked on the hoisting and suspension units. They must be installed one on each side of the suspension units, picking up on the holes provided on the intercostals. Ensure that the buffer stops are fitted with the flanges on the stops outboard.

15. Descriptive details of the following assemblies will be found in the quoted Section and Chapter of A.P.1664A, Vol.1:-

Cable retraction winches	5D/1785, Sect.2, Chap.19
Latchbolt assemblies	5D/1784, Sect.2, Chap.19
Lanyard pack	12U/186, Sect.2, Chap.20
Lanyard plate	11A/4108, Sect.2, Chap.20

The firing units No.1, Mk.1, 5D/1476, are described in A.P.1664A, Vol.1, Sect.5, Chap.3.

Carrier A.V.176

16. This carrier is designed to carry heavy special stores and is mounted transversely in the bomb bay at the central bomb station, bomb arch 151.919. A description of the carrier will be found in A.P.1664A, Vol.1, Sect.1.

17. When the loaded carrier has been hoisted and locked into position, the two cable assemblies, stowed one port and one starboard on bomb arch 151.919, must be connected to the plugs provided on top of the carrier. A further two Type R sockets on the carrier are provided for testing the jettison release units.

Electrical circuits

18. The normal release and jettison circuits are used for the 10,000 lb. store, except that the circuits are connected via the replacement control unit on the front

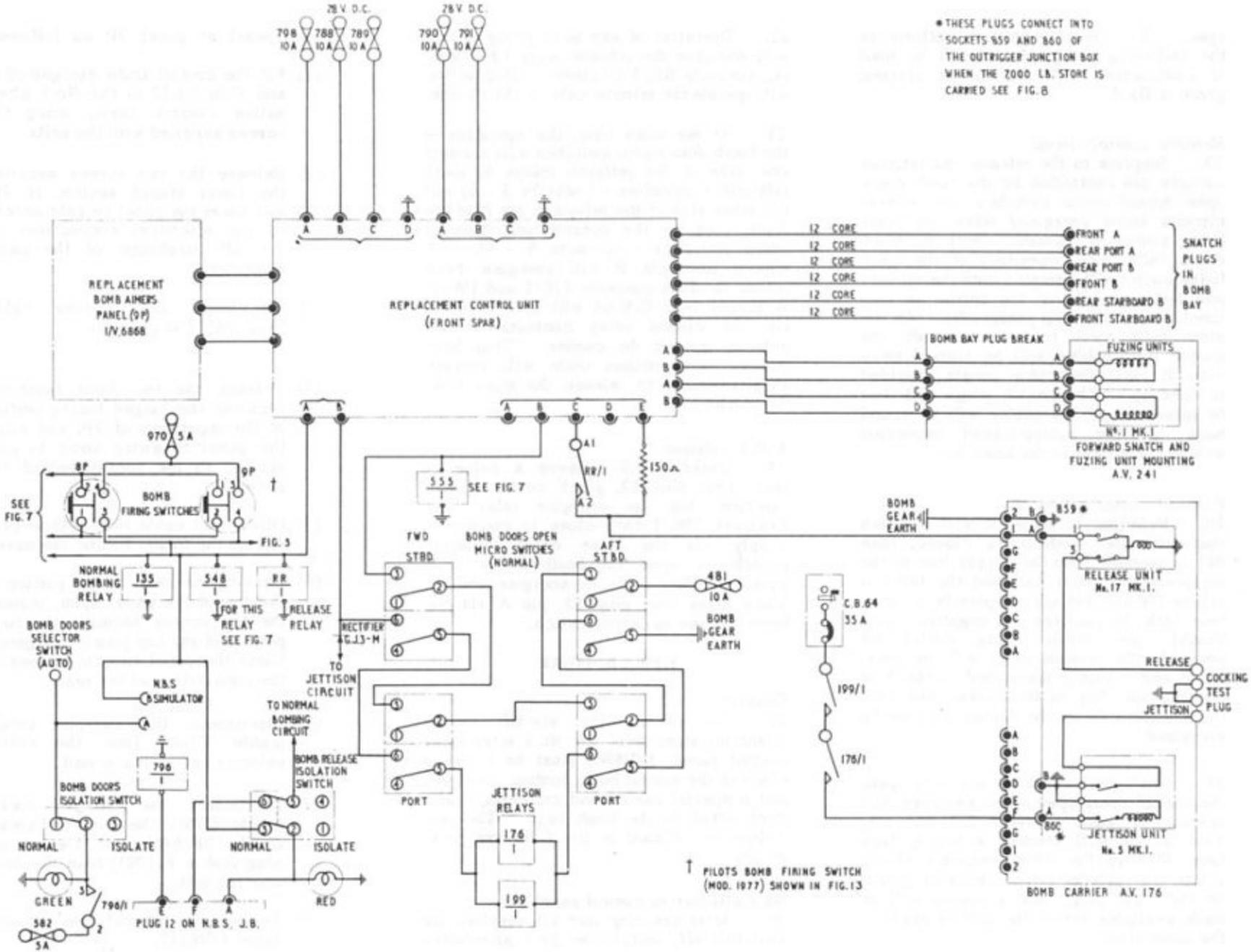


Fig.4 10.000lb store control circuit

(Mod. 2087)

spar. The circuit operation outlined in the following paragraphs should be read in conjunction with the circuit diagram given in fig.4.

Release control circuit

19. Supplies to the release and jettison circuits are controlled by the bomb doors open normal micro switches, the release circuits being energised when any bomb firing switch is pressed. With the bomb doors fully open, operation of the bomb firing switch will energise both the release and jettison units on the carrier as outlined in the following paragraphs. As the store falls away from the aircraft, the snatch plug cables will be carried away with it until the cable length provided is used up. The snatch plugs will then be released, and the cables will be wound back on the spring-loaded retraction winches installed in the bomb bay.

Release circuit operation

20. Referring to fig.4, it will be seen that with the bomb doors closed, fuse 481 is isolated from the supply line to the replacement control unit and the jettison relays 176 and 199 are completely isolated from both the positive and negative lines. Should any bomb firing switch be pressed, the release relay will be energised and a supply connected to pin A of the two-pin plug on the control unit, but the release unit on the carrier will not be energised.

21. When the bomb doors are fully open, the normal doors open micro switches will operate to make contacts 2-3 and 5-6. This action will connect a supply from fuse 481 via the micro switch contacts 2-3 to the replacement control unit (pin B on the 5-pin plug), and a supply will be made available within the unit to pin C of the same plug.

22. Operation of any bomb firing switch will energise the release relay RR, causing contacts RR/1 to close. This action will operate the release unit on the carrier.

23. At the same time, the operation of the bomb door micro switches will connect one side of the jettison relays to earth (aft micro switches - contacts 5 - 6) and the other side of the relays to pin B of the 2-pin plug on the control unit (forward micro switches - contacts 5 - 6). A supply from pin B will energise these relays to close contacts 176/1 and 199/1. A supply from C.B.64 will then be made via the closed relay contacts to the jettison unit on the carrier. Thus both release and jettison units will operate simultaneously to release the store from the carrier.

N.B.S. release

24. Under N.B.S. release a pulse is made from plug 12, pin E on the N.B.S. junction box to energise relay 796. Contacts 796/1 then close to connect a supply via the bomb doors isolation switch to open the bomb doors. A pulse is also made to energise the release relay from plug 12, pin A via the bomb release isolation switch.

6,000 LB. STORE

General

25. To convert the aircraft for the 6,000 lb. store role, the No.1 alternative control panel, 1/V8963 must be fitted in place of the normal bomb control panel 9P, and a special carrier and crutching equipment fitted in the bomb bay. The procedure is outlined in the following paragraphs.

No.1 alternative control panel

26. After ensuring that all supplies are switched off, install the No.1 alternative control panel at panel 9P as follows:-

(1) Fit the control units designated A and C in fig.12 to the No.1 alternative control panel, using the screws supplied with the units.

(2) Release the two screws securing the lower hinged section of 9P, and lower the panel to gain access to the electrical connections on the aft diaphragm of the panel mounting.

(3) Disconnect the 25-core cable No.2/V6517 at plug 470.

(4) Release the two Dzus fasteners securing the hinged fuzing portion of the upper part of 9P, and allow the panel to swing down to gain access to the former behind the panel.

(5) Disconnect cable No.F.343 at plug 473 on the former behind the panel.

(6) Leaving the small hinged portion at the top of the panel open, release the ten screws securing the main portion of the top panel, and gently lower the panel to gain access to the connections at the rear.

(7) Disconnect the two-pin socket (cable F344) from the switch selector and indicator unit.

(8) Disconnect the two-pin socket (cable F346), the three-pin socket (cable 3F/646) and the six-pin plug (cable F.1093) from the bomb spacing unit.

(9) Remove the normal bomb control panel 1/V6317.

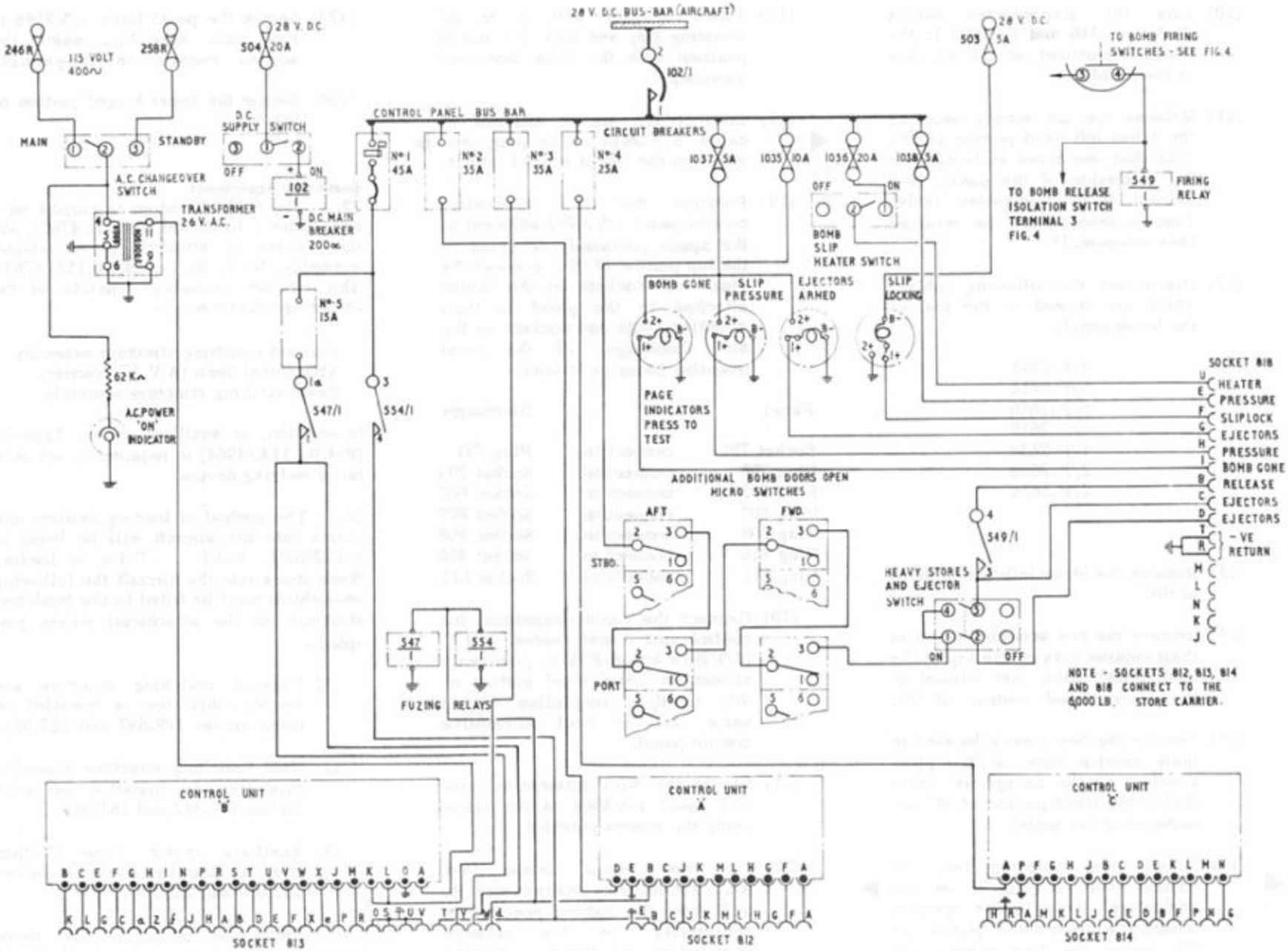


Fig.5 6,000lb store control circuit

◀ *(D.C. SUPPLY SWITCH terminals reversed)* ▶

(10) Stow the disconnected cables (F.344, F.346 and F.1093) in the stowage provided on the aft face of former 246.

(11) Release the six screws securing the lower left hand portion of 9P. Note that one screw is located on the underside of the panel, just forward of the navigators' table. These screws should be retained (see sub-para.23).

(12) Disconnect the following cables, which are stowed on the rear of the lower panel:-

4/F.2616
5/F.2616
6/F.2616
1/F.2618
1/F.2636
2/F.2618
2/F.2636

(13) Remove the lower left-hand portion of 9P.

(14) Remove the two screws located in their captive nuts on the top of the navigators' table, just inboard of the lower fixed portion of 9P.

(15) Remove the two screws located in their captive nuts on the plate attached to the navigators' table (below the fixed portion of 9P and outboard of the table).

(16) Install the mounting tray for control unit B (fig.12) on the navigators' table in the aperture behind the lower fixed portion of 9P, using the four screws and captive nuts provided (sub-para.14 and 15).

(17) Attach control unit B to its mounting tray and lock the unit in position with the slide fasteners provided.

(18) Connect the socket attached to cable 5/F.2616 to the plug provided on the top of control unit B.

(19) Position the No.1 alternative control panel 1/V.8963 adjacent to the space previously occupied by the top portion of 9P; connect the plugs and sockets on the cables attached to the panel to their mounting plugs and sockets on the aft diaphragm of the panel mounting frame as follows:-

Panel		Diaphragm
Socket 791	connect to	Plug 791
Plug 795	connect to	Socket 795
Plug 802	connect to	Socket 802
Plug 807	connect to	Socket 807
Plug 808	connect to	Socket 808
Plug 810	connect to	Socket 810
Plug 811	connect to	Socket 811

(20) Connect the cable assemblies for control unit A and control unit C (4/F2616 and 6/F2616, previously stowed in lower fixed portion of 9P) to their respective control units on the No.1 alternative control panel.

(21) Secure the No,1 alternative control panel 1/V8963 to the frame using the screws provided.

(22) Fit the panel frame (Part No.1/V9538) over control unit B, and stow the cables removed in sub-para.12 on the stowage provided on the frame. (Cables 1/F2618, 1/F2636, 2/F2618 and 2/F2636).

(23) Secure the panel frame 1/V9358 to the main assembly, using the screws removed in sub-para.11.

(24) Secure the lower hinged portion of 9P.

Bomb bay equipment

27. The 6,000 lb. store is carried on a carrier, No.1, Mk.2 (Ref.No.11A/4762), and the carrier is attached to an adapter assembly, No.1, Mk.1 (Ref.No.11A/4763). The adapter assembly consists of the following main items:-

Forward crutching structure assembly
Attachment beam (A V 176 carrier)
Rear crutching structure assembly

In addition, an auxiliary crutch, Type C, (Ref.No.11A/4984) is required to act as a tail steadying device.

28. The method of loading carriers and stores into the aircraft will be found in A.P.2852B, Vol.1. Prior to loading these items into the aircraft the following assemblies must be fitted to the bomb bay structure on the attachment points provided:-

(1) Forward crutching structure assembly - this item is installed on bomb arches 108.687 and 123.015.

(2) Rear crutching structure assembly this item is installed on bomb arches 171.842 and 182.967.

(3) Auxiliary crutch Type C - this item is installed on bomb arches 182.967 and 225.227.

The attachments parts for the above assemblies are shown in fig. 1. It should be noted that the hoisting and suspension units (A.T.8092) and the buffer stop

assemblies (AT62778) which form part of the AV241 ancilliary equipment for the 10,000 lb. store will be required to provide suspension and tensioning for the attachment beam.

29. After the carrier and store have been loaded into the bomb bay, the following connections, stowed on the stowage panel in the bomb bay roof between bomb arches 123.015 and 151.918 starboard, must be connected to their respective plugs at the carrier junction box:-

Socket 812	Cable Ref.2/F2637
Socket 813	Cable Ref.2/F2638
Socket 814	Cable Ref.1/F2639
Socket 818	Cable Ref.1/F2640

Electrical circuits

D.C. supplies

30. The release control circuits are supplied from a busbar on the No.1 alternative control panel, which is in turn supplied with a 28-volt d.c. supply from C.B. No.102 in panel 15P. The circuit breaker is controlled by a switch, labelled D.C. SUPPLY ON-OFF, on the No.1 alternative control panel. The bomb release unit on the carrier is provided with a heater which is controlled by a switch labelled BOMB SLIP HEATER ON-OFF, on the No.1 control panel. Indicators, with press-to-test contacts for the filaments, are provided for slip locking, slip pressure, ejectors armed and bomb gone indication. The release circuits are wired via the additional bomb door micro switches, so that release is not possible until the bomb doors are fully open. Also release is not possible if the ejectors are not armed.

31. Protection for bomb control and fuzing is provided by control units, A, B and C, mounted on the No.1 alternative control panel. D.C. supplies from the bus-bar on the control panel are fed to the control units, each supply being protected by a Type A circuit breaker. The fuzing relays (547 and 554) located in the bomb bay adjacent to the plug stowage, are controlled by control unit A. The contacts of the fuzing relays connect the further D.C. supplies from the control panel bus-bar via two circuit breakers to the carrier. These supplies are arranged so that C.B.1 must be energised before a supply is available from C.B.5.

A.C. supplies

32. Duplicated single-phase a.c. supplies at 115 volts, 400 c/s are obtained from fuses 246R (24P) and 258R (25P). The selection of which supply is to be used is made by a change-over switch on the control panel, labelled A.C. SUPPLY, MAIN-STANDBY. A 100-130 volt neon indicator connected to the output side of the change-over switch provides an indication of supply failure, in which case the alternative supply is selected. The 115-volt supply is reduced to 26 volts by a transformer in the control panel, and is fed to control unit B.

Jettison circuit

33. The jettison circuit for the store, connected via socket 822 on the port side of the bomb bay is deleted by Mod.1373.

Circuit operation

34. The circuit operation contained in the following paragraphs should be read in conjunction with the theoretical diagram, fig.5 and the associated routing chart fig.12.

Manual release

35. Referring to fig.5, it will be seen that the control bus-bar is not 'live' until the D.C. SUPPLY switch has been selected ON. However, as soon as the aircraft 28-volt busbar is 'live' the slip locking pin indication circuit will be energised, and the lamp will light as the store is loaded and the slip locked.

36. When the d.c. supplies switch is selected ON, a supply from fuse 504 will be fed to the coil of CB.102. Energising this coil will close the contacts of the circuit breaker thus connecting a 28-volt d.c. supply to the control panel busbar.

37. Immediately the busbar becomes 'live' a supply is fed from fuse 1038 to the pressure switch circuit on the carrier, and as pressure builds up, the switch will operate to light the slip pressure indicator on the control panel. At the same time a supply from fuse 1037 is fed to the press-to-test contacts of the slip pressure, ejectors armed, and bomb gone indicators. Selecting the BOMB SLIP HEATER SWITCH to ON will connect a supply from fuse 1036 to pin U in socket 818, and thence to the heater on the carrier.

38. When the bomb doors are fully open, the additional bomb door micro switches (wired in series) will operate to make contacts 2-3. This action will connect a supply from fuse 1035 on the control panel, via the micro switch contacts 2-3, to the HEAVY STORES AND EJECTOR switch, thus preparing the ejector and release circuits.

39. When the HEAVY STORES AND EJECTOR switch is switched to ON, contacts 4-5 and 1-2 of the switch will connect the supply from fuse 1035 to the ejectors on the carrier (pins C and D, socket 818). The ejectors are thus armed, and a signal from the arming device will be fed from pin G of socket 818 to light the EJECTORS ARMED indicator on the control panel.

40. Operation of the bomb firing switch will energise relay 549 to close contacts 549/1. This action will connect the release supply from fuse 1035, via the

bomb doors open micro switches, the HEAVY STORES and EJECTOR switch, contacts 549/1 to pin B of socket 818 and then to the release system of the carrier. As the store is released, a supply will be made from pin I of socket 818 to light the BOMB GONE indicator on the control panel. Note that this indicator will remain on until the D.C. SUPPLIES switch is placed to OFF.

N.B.S. release

41. The release of the store can be brought under control of the N.B.S. in the normal manner. A pulse will be made from the N.B.S. junction box to energise relay 796 (fig.4). Contacts 796/1 will then close to connect a supply through the bomb doors isolation switch to open the bomb doors. A second pulse will be made through the bomb release isolation switch to energise relay 549. The release circuit will then operate as when the bomb firing switch is pressed.

Control and fuzing

42. Bomb control and fuzing is determined by settings on the three control units, A, B and C. There are no special safety precautions, but none of the control units can operate unless the D.C. SUPPLY switch is selected to ON, and the individual control unit circuit breakers have been selected ON.

43. When the D.C. SUPPLY switch is selected ON, the main circuit breaker No.102 will connect the control panel bus-bar to the aircraft supply. From the control panel bus-bar, individual supplies will be fed to the three control units via circuit breakers 2, 3 and 4 for units A, B and C respectively. Signals from all three control units are fed direct to the carrier via sockets 812, 813 and 814 for units A, B and C respectively.

44. In addition, control unit A controls the two fuzing relays 547 and 554. When these relays are energised, contacts 547/1 and 554/1 close, to connect supplies to the carrier. Contacts 554/1 connect a supply from C.B. No.1 to pin B on socket 812 and pin T on socket 813; contacts 547/1 connect a supply from C.B. No.1 via C.B. No.5 to pins Y and W on socket 813.

7,000 LB. STORE

General

45. For the carriage and release of the 7,000 lb. store, carrier AV176 with ancillary equipment AV258 is required. The ancillary equipment consists of removable fittings for the installation, and includes a junction box and outrigger which, when fitted, adapt the carrier to AV264 for the 7,000 lb. store. The rest of the equipment is installed at appropriate positions in the bomb bay, and consists of two fuzing unit mountings, four crutching assemblies and a rear steady beam. The control circuit for the store is shown in fig.7, while fig.8 shows the wiring of carrier AV264.

Alternative control panels

46. The remote controls for the store are fitted on two control panels, 1/V11479 and 1/V9365. These panels replace two of the three control panels which form the nav/bomber's panel 9P. Panel 1/V11479, alternative bombing panel No.2, replaces the top portion of 9P, and panel 1/V9365 replaces the bottom forward portion of 9P. This can be seen in fig.2. Note that the bottom aft portion of 9P remains intact. (Mod.1371 changes panel 1/V8964 to 1/V11479).

47. Instructions for replacing the above control panels are as follows:-

(1) Mount the E.Y. control unit on panel 1/V9365 using the six screws supplied with the panel.

(2) Mount the E.P. fuzing control unit on the face of panel 1/V11479 using the four screws, stiff nuts and washers provided.

(3) Ensure that the aircraft electrical supplies are switched off.

(4) At the nav./bomber's panel 9P, release the two captive screws securing the bottom right hand hinged panel and allow the panel to swing down. From behind this panel, disconnect the cable 2/V6517 from plug 470 on the aft diaphragm of the panel frame.

(5) At the top panel release the two Dzus fasteners securing the small hinged panel and let this panel swing down. From behind the panel disconnect cable 5/V6517 from plug 473 on former 246.

(6) Release the ten screws securing the complete top panel and support the panel off the structure. Disconnect the plug from the back of the switch selector and indicator, and the plug and two sockets from the back of the bomb spacing unit. Remove the complete top panel.

(7) Stow cable F1100 in the socket on the forward face of former 246. Stow cables F1102, F1103 and F1093 in the socket and two plugs on the aft side of the former.

(8) Bring panel 1/V11479 up to the position vacated by the top panel. Connect nine of the twelve cables attached to the panel to the nine plugs and sockets on the right hand side of the structure, by identifying the cable connections with the plug and socket numbers on the structure. Pass the remaining three cables from the panel marked PANEL LIGHTS, D.C. POWER 1 and D.C. POWER 2 respectively, over the cross rail forward of the former.

(9) Secure panel 1/V11479 by means of the eleven captive screws.

(10) Secure the bottom right hand hinged panel by means of the two captive screws.

(11) Locate and remove the screw securing the underside of the lower left hand fixed panel. Retain the screw for operation (16).

(12) Release the five captive screws on the face of the panel and support the panel off the structure.

(13) Disconnect the seven cables which are connected to the stowage fitted on the back of the panel. Remove the panel.

(14) Bring panel 1/V9365 up to the position vacated by the lower left hand panel. Connect the two cables marked E.Y. LOAD, the two cables marked PORT E.Y. CONTROL and STARBOARD E.Y. CONTROL respectively, to the appropriate plugs and sockets of the E.Y. control unit on the panel. Now connect to the E.Y. control unit the three cables hanging from the top panel (operation 8).

(15) Connect the three remaining cables, which were previously stowed on the removed panel, to the stowage provided on the back of panel 1/V9365. The two connectors marked TIME DELAY 1 and TIME DELAY 2 may be utilised by future modification action.

(16) Secure panel 1/V9365 by means of the five captive screws on the face of the panel. Secure the bottom flange with the screw retained in operation (11).

A slight difficulty in fitting panel 1/V9365 may be experienced due to the presence of the cable loom which is clipped to the cross member above the aperture. Should this occur, the clip should be released and the loom reshaped to obviate the obstruction. The clip should then be replaced to secure the loom.

Carrier adaptation

48. The basic carrier AV176 contains a release unit No.17 Mk.1, a jettison unit No.5 Mk.1, and two cocking test plugs, Type R, one for jettison and one for release. The electrical supply connections are normally made to two 9-pin plugs on the top of the carrier, one port and one starboard. From these plugs the circuit is taken via two Cannon sockets 860 and 859 on the forward side of the carrier, into which connect the two plugs from the release unit and jettison unit. (The release unit and jettison unit operate simultaneously to release the store).

49. To adapt the carrier for the 7,000 lb. store, the outrigger is fitted on the aft end of the carrier, and the junction box on the forward end. The cable assemblies for the outrigger are then plugged into the junction box. Equipment fitted on the underside of the outrigger to make contact with the store consists of a separation switch and a lanyard attachment. As AV264, the carrier is also fitted with a release unit safety lock, controlled by a Type M.A.L.6 actuator. Aircraft connections to the actuator are fed via plug 598 on the port side of the carrier (see para.69A).

50. The junction box is fitted with multi-pin plugs and sockets numbered to correspond with the various connecting assemblies, five of which connect to the aircraft control circuits. Control of the separation switch circuits is made by four relays inside the box, two Type B and two Type 9B No.1. Note that for the 7,000 lb. store circuit, the two plugs wired to the release unit and jettison solenoid are connected to the appropriate sockets on the junction box instead of sockets 860 and 859 on the carrier. By this action the two 9-pin plugs on the top of the carrier (para.48) are isolated. A full description of the carrier is given in A.P.1664A (2nd Edition), Vol.1, Book 1, Sect.1, Chap.31.

Outrigger equipment

Butt connector housing

51. The outrigger originally carried a butt connector housing which mated with corresponding contacts on the store. This service is no longer required, however, and the butt connector housing is deleted.

Separation switch

52. The separation switch controls the special fuzing circuits to the store, and contains two sets of changeover contacts which are operated by the scissors movement of two levers on the switch assembly. When the store is fitted, the levers are moved upwards and the contacts are changed over to prepare the associated circuits. Two 6-pin plugs connect the separation switch with the junction box, and two four-pin plockets provide contact with the store.

Lanyard attachment
53. The lanyard attachment hangs from the aft end of the outrigger and is secured by a split pin to a bracket.

Adapting the carrier
54. The method of fitting the junction box and outrigger in order to adapt the AV176 carrier for the 7,000 lb. store is as follows:-

(1) Position the junction box A.T.82227 at the four securing holes on the forward end of the carrier A V 176 with the two sockets 860 and 859 facing inboard. Secure the junction box using the four bolts, distance tubes and washers supplied.

(2) Disconnect the cables from sockets 860 and 859 in the carrier and plug them into sockets 860 and 859 on the junction box.

(3) Secure the cable along the forward end of the carrier at the two holes provided using the two clips and screws supplied. Connect the socket at this end of the cable to plug 858 on the junction box.

(4) Position the securing end of the outrigger inside the bracket on the aft end of the carrier. Secure the outrigger at each side of the bracket, using the ten bolts and washers supplied.

(5) Pass the cables from the outrigger through the lightening hole on the forward end of the carrier above the junction box.

(6) Connect the four sockets on these cables to the associated plugs 854, 855, 856 and 857 on the junction box.

Carrier installation
55. The installation of the 7,000 lb. store carrier in the bomb bay is the same as that described for carrier AV176 with the 10,000 lb. store. The carrier is preloaded and hoisted into position at the centre bomb station, and is received and locked by two suspension units, one port and one starboard. Four buffer stops, two adjacent to each suspension unit, tension the carrier, and the store is crutched into four crutching assemblies (fig.1). Detailed information for loading and hoisting carriers will be found in A.P.2852B, Vol.1.

Aircraft connections
56. The control circuits from the aircraft to the carrier are fed by six socket connections. Five of these sockets are normally secured on a stowage bracket above the starboard suspension unit, and one on a stowage above the port suspension unit. On the starboard side the three sockets 817, 818 and 819 are Cannon type, and the other two, 815 and 816, are Mk.4 pattern. The port socket 598, which is the release unit safety lock connection, is a Cannon Type.

57. When the carrier is installed, the five cables on the starboard side are removed from the stowage bracket and connected to the corresponding plugs on the junction box. The port cable is similarly removed and connected to plug 598 on the forward side of the carrier.

Ancillary equipment
58. In addition to carrier A V 176, the removable equipment A V 258 required for this role is as follows:-

Outrigger A.T.82217	) fittings
Junction box A.T.82227	) on
	) carrier A V 176
Crutch assembly, forward port A.T.82165	)
Crutch assembly, forward starboard A.T.82164	)
Crutch assembly, rear port A.T.82163	)
Crutch assembly, rear starboard A.T.82162	) bomb bay
Fuzing unit, mounting, port A.T.63211	) equipment
Fuzing unit, mounting, starboard A.T.63212	)
Rear steady installation, A.T.82223	)

Note that the two suspension units and four buffer stops with securing bolts listed under A V 241 in para.6 will also be required to suspend and tension the carrier. The outrigger and junction box which form part of the A V 258 equipment have already been described; the other fittings are dealt with in the following paragraphs.

Fuzing unit mountings
59. The mountings, A.T.63211 port

and A.T.63212 starboard, each contain two fuzing units, No.3, Mk.1, complete with two fuzing wires Ref.No.12G/1408. The fuzing units are bolted together to the lower part of the mounting and are electrically connected to two twin cables terminating in two Type R plugs at the top of the assembly.

60. The mountings are fitted on bomb arch 95.967 to two brackets, one port and one starboard. Four securing bolts are inserted through the two sides of each mounting and screwed into the appropriate bracket. At each position on the bomb arch, two Type R sockets form the supply connections. The sockets are normally secured on stowages and are connected to the Type R plugs on the mountings when these are fitted.

Crutching assemblies

61. Four crutching assemblies, each consisting of three bracing arms and a crutching pad, are fitted, two port and two starboard as shown in fig.1. The crutching assemblies are secured by bolts to attachment brackets which are fitted two on each bomb arch 95.967 and 123.015 for the forward assemblies, and two on each bomb arch 151.919 and 182.967 for the rear assemblies.

62. The extreme forward and aft brackets (on bomb arch 95.967 and 182.967) are equipped with two pairs of securing lugs identified A V 241 and A V 258, which accomodate the two vertical arms of the 10,000 lb. or the 6,000 lb. store crutching assembly as required. For the third bracing arm of the forward crutching assembly, two 2-lug brackets on bomb arch 123-015 are also identified A V 241 and A V 258. The brackets on bomb arch 151.919 for the third arm of the rear crutching assemblies are removable items of A V 258, and must be fitted when required. These are single-lug brackets which are bolted and wirelocked together at the holes provided on the bomb arch, port and starboard. Three holes are provided at these positions, the centre and outboard ones being used for the brackets of A V 241, and the centre and inboard ones for the brackets of A V 258. Note that the single-lug attachment brackets are fitted as follows.

Attachment bracket A.T.63103 port	A V 241
Attachment bracket A.T.63104 starboard	
Attachment bracket A.T.63135 port	A V 258
Attachment bracket A.T.63136 starboard	

Rear steady

63. This is a steadying beam for the rear end of the store and carries an adjustable pad on the underside. The steady is fitted longitudinally in the bomb bay, one end being supported from bomb arch 279.092, and the other secured to the rear spar.

64. When the steady is installed, the aft end is located in a channel on the rear spar and is secured by two quick release pip pins attached to the beam. Four support arms are attached to the forward end and secured to three brackets on the bomb arch. The centre bracket secures the two inboard arms, and the other two brackets secure the outboard arms. Adjustment is provided on the inboard arms to cater for any slight variance when the beam is fitted.

65. In addition to the above, an adjustable strut is fitted between the rear spar and bomb arch 321.936. The lower end of the strut is secured to a fixed bracket on the spar where the beam attaches, and the top end to a removable bracket on the bomb arch. The removable bracket is part of A V 258 and will only be fitted when required.

Fuzing controls

66. Fuzing controls for the installation consist of a protective relay unit, Ref.No. 5D/1964, and a fuze charging unit, Ref. No.5D/1963. Both units are mounted on the front spar. The relay unit is secured by four bolts to two angle brackets at the top of the spar on the centre line, and is connected by six cable connectors. The additional unit is secured by two knurled nuts on a resilient mounting tray at the top starboard side of the spar, and has four cable connectors.

Bomb bay micro switches

67. Four additional bomb bay OPEN micro switches are fitted to control the release circuit to the store. The micro switches are fed from fuse 1011 and are fitted alongside the normal bomb door OPEN micro switches.

Pneumatic control panel

68. Provision is made in the bomb bay for fitting a pneumatic panel to control the operation of two pusher rams for quick ejection of the store from the bomb bay after release. The panel, which provides two air bottles, a pressure switch and control valve, will only be fitted should it be necessary to include the pusher rams and accessories.

Airspeed pressure switch

69. An airspeed pressure switch, Type TP.5099, is mounted on the starboard side of the bomb bay, just aft of the front spar. The pressure switch is connected to the aircraft pitot-static system and the switch contacts are set to close at a rising airspeed equivalent to 150 knots. When the contacts are closed a supply is fed from fuse 1012 through the switch to the protective relay unit.

Release unit safety lock

69A. To prevent inadvertent operation of the carrier release unit, a safety lock circuit is employed. A safety lock pin on the carrier engages the release unit mechanism, and is operated to lock and unlock the release unit by a twin motor actuator, Type M.A.L.6.

69B. The actuator is controlled by a selector switch, labelled LOCK-UNLOCK on the port console. A guard over the switch is wirelocked so that the switch is held in the lock position. Two indicator lamps, Page Type C-500-B7 (green), and C-500-C7 (amber) are positioned at the lock and unlock positions respectively of the switch.

Electrical circuits

Panel supplies

70. The d.c. supplies for the system are fed from the 12-way fuse blocks, numbered 1011 upwards, mounted on the No.2 alternative bombing panel 1/V11479 on panel 9P. Two additional supplies of 115-volt, 400 c/s, single phase a.c. are fed to the protective relay unit from fuses 246R and 258R in panels 24P and 25P respectively. Note that the d.c. supply from fuse 1024 to the protective relay unit is taken via contacts 6-5 of the port aft nose wheel doors up micro switch and the circuit will not be completed until the aircraft nose wheel doors are locked up.

Circuit operation

71. The following brief outline of the circuit operation assumes that the aircraft is in flight and that the bomb doors are closed. Reference should be made to fig.7.

72. With the nose wheel doors closed, a supply from fuse 1024 will be fed via contacts 6-5 of the port aft nose wheel doors up micro switch to the protective relay unit. The airspeed pressure switch will also be closed to connect a further supply to the protective relay unit from

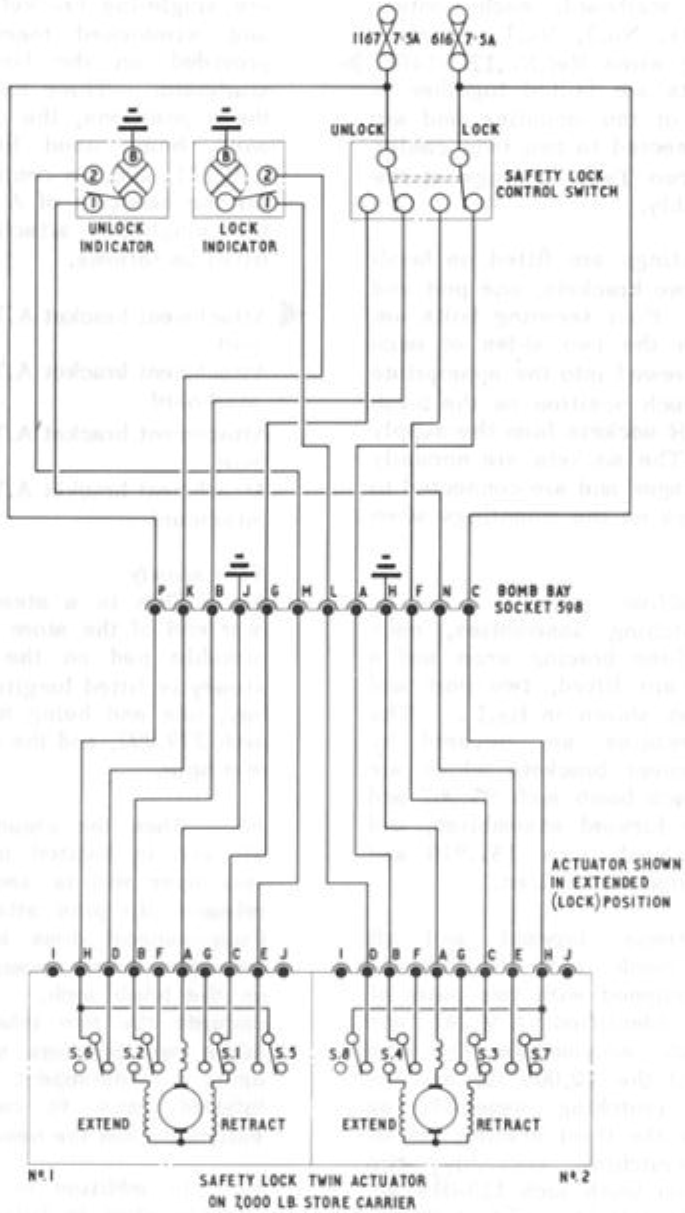


Fig.6 Release unit safety lock

V.2.1B. 1068

fuse 1012. In addition to these controlled supplies, direct d.c. supplies are fed to the relay unit from fuses 1014, 1015 and 1028, together with a.c. supplies from fuses 246R and 258R. Further supplies are fed from the appropriate fuses to the F.Y. control unit and fuzing control unit.

Release unit safety lock

73. Reference to fig.6 will show that with the control switch selected to LOCK and the actuator in the lock (extended) position, a supply from fuse 616 will be fed via pin C of socket 598 and internal indicator switch S8 of No.2 actuator to light the lock indicator. Also a test supply for the lock indicator will be fed from fuse 1167 via pin P of socket 598 and switch S6 of No.1 actuator.

74. When the control switch is selected to UNLOCK, supplies from fuses 1167 and 616 will energise the retract fields of No.1 and 2 actuators respectively. With the actuators now in the unlock (retracted) position, the internal limit switches S1 to S4 will change over to isolate the retract fields and prepare the extend fields. At the same time switches S8 and S6 will open to isolate the lock indicator, while switch S7 will close to light the unlock indicator and switch S5 will close to complete the unlock test supply.

Release circuit

75. When the bomb doors are fully open by normal selection, a supply from fuse 481 through the series contacts 2-3 of the normal bomb doors open micro switches will energise relay 555 (fig.4). Contacts 555/1 will then connect a supply from fuse 1023 to terminal 1 of the bomb selector switch (fig.7). At the same time, the series contacts 2-3 of the additional bomb doors open micro switches will close to connect a supply from fuse 1011 to the protective relay unit and terminal 4 of the bomb selector switch. When the bomb selector switch is placed to ON, the supply will be made across contacts 1-2 of the switch to energise No.2 indicator flag and relay 1 on the carrier (fig.8). The supply will also be made across contacts 4-5 of the switch to energise No.1 indicator flag and relay 2 on the carrier. With the closing of relay contacts 1/1 and 2/1, supplies will be fed to energise carrier relays 3 and 4 to prepare the circuits to the separation switch.

76. When any bomb firing switch is pressed, relays 553 and 552 will be energised from fuses 546 and 1025 respectively to close contacts 553/1 and 552/1 and to fire the release unit and jettison unit simultaneously, thus releasing the store. The two indicator flags will then be de-energised.

77. Should the pneumatic control panel be fitted, the appropriate supplies would be fed to the panel to energise the hymatic valve. The pusher rams would then operate to apply a downward force to the store.

N.B.S. release

78. Release of the store can be brought under control of the N.B.S. in the normal manner. A pulse will be made through the N.B.S. junction box plug 12, pin F, to energise relay 796 (fig.4). Contacts 796/1 will then close to connect a supply from fuse 582 through the bomb doors isolation switch to open the bomb doors. A second pulse will be made from plug 12, pin A of the junction box through the bomb release isolation switch to energise relays 548 and 553 and light the N.B.S. indicator. Contacts 548/1 will close to energise relay 552. The release circuit will then operate as when the bomb firing switch is pressed.

E.P. override switch

79. When this switch is selected, supplies overriding the port aft nose-wheel doors micro switch and the air-speed pressure switch will be made to the protective relay unit from fuses 1012 and 1024.

Jettison circuit

80. With the introduction of Mod.1373 the jettison circuit for the store, connected via socket 822 in the port side of the bomb bay, is deleted.

2,000 LB. STORE

81. The control circuit for the 7,000 lb. store described in the preceding paragraphs may, by disconnection of the EY control unit, be used to control the fuzing and release of a 2,000 lb. store. This store is carried at the centre station on a carrier, Ref.No.11A/4759, which connects to plugs 818, 816 and 815 of the 7,000 lb. store control circuit. The basic circuit operation is unchanged.

600/950 LB. ROLE

General

82. Conversion of the aircraft to the 600/950 lb. role is made by the introduction of Mods.1940, 1962 and 2087. These provide a replacement control panel 10/V13200 for the upper portion of 9P, and make alterations to the aircraft wiring to accommodate the new panel. In addition, the lower fixed portion of 9P is changed from 33/V6317 to 37/V6317 by the replacement of one of the Cannon plug stowages behind the panel from Part No. 2812/10 to Part No. 2812/7 (see fig.9).

83. In this role the store is carried on a carrier 950 lb., No.2 Mk.1, Ref.No. 11A/6802, fitted at the centre station in the bomb bay. Connections to the carrier are made by sockets 813, 814 and 818. The carrier is described in A.P. 1664A, Vol.1, and loading and hoisting details will be found in A.P.2852B, Vol.1.

Fitting control panel 10/V13200

84. The sequence of operations for fitting control panel 10/V13200 to the upper portion of 9P is as follows:-

(1) Mount the fuzing control unit,

V.2.1B. 1053

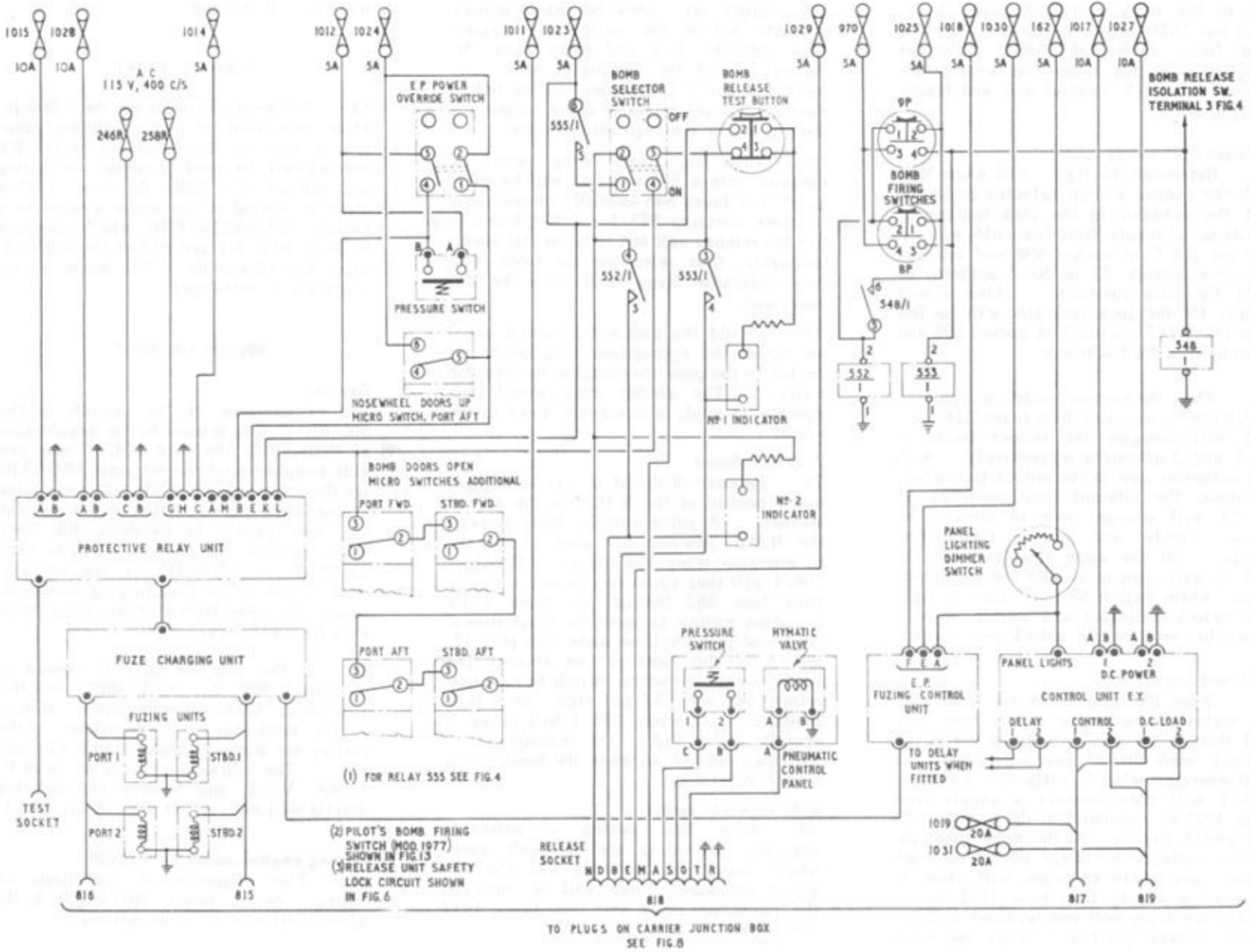


Fig.7 7,000lb store control circuit

(Mod. 2087)

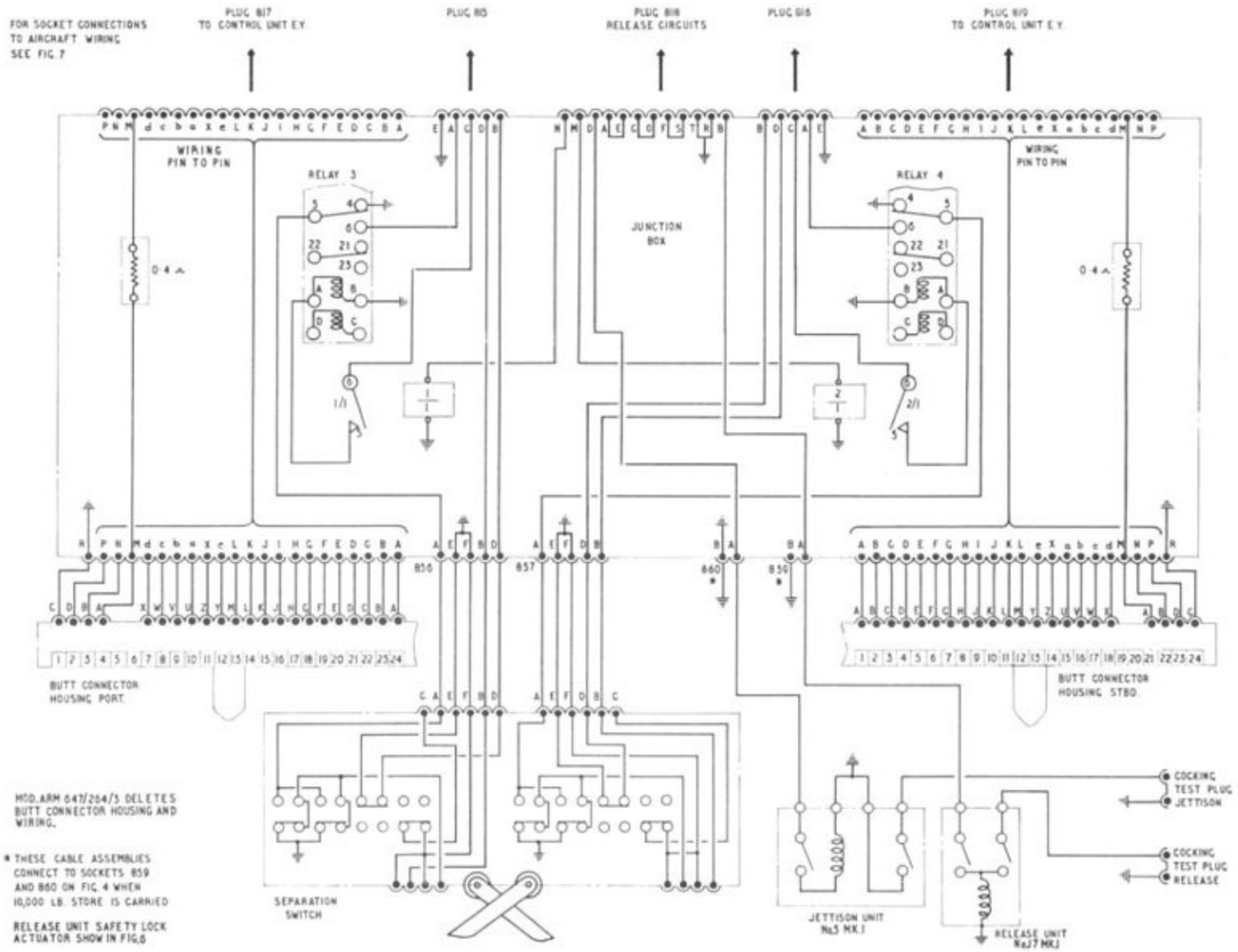


Fig. 8 7,000 lb store carrier circuit

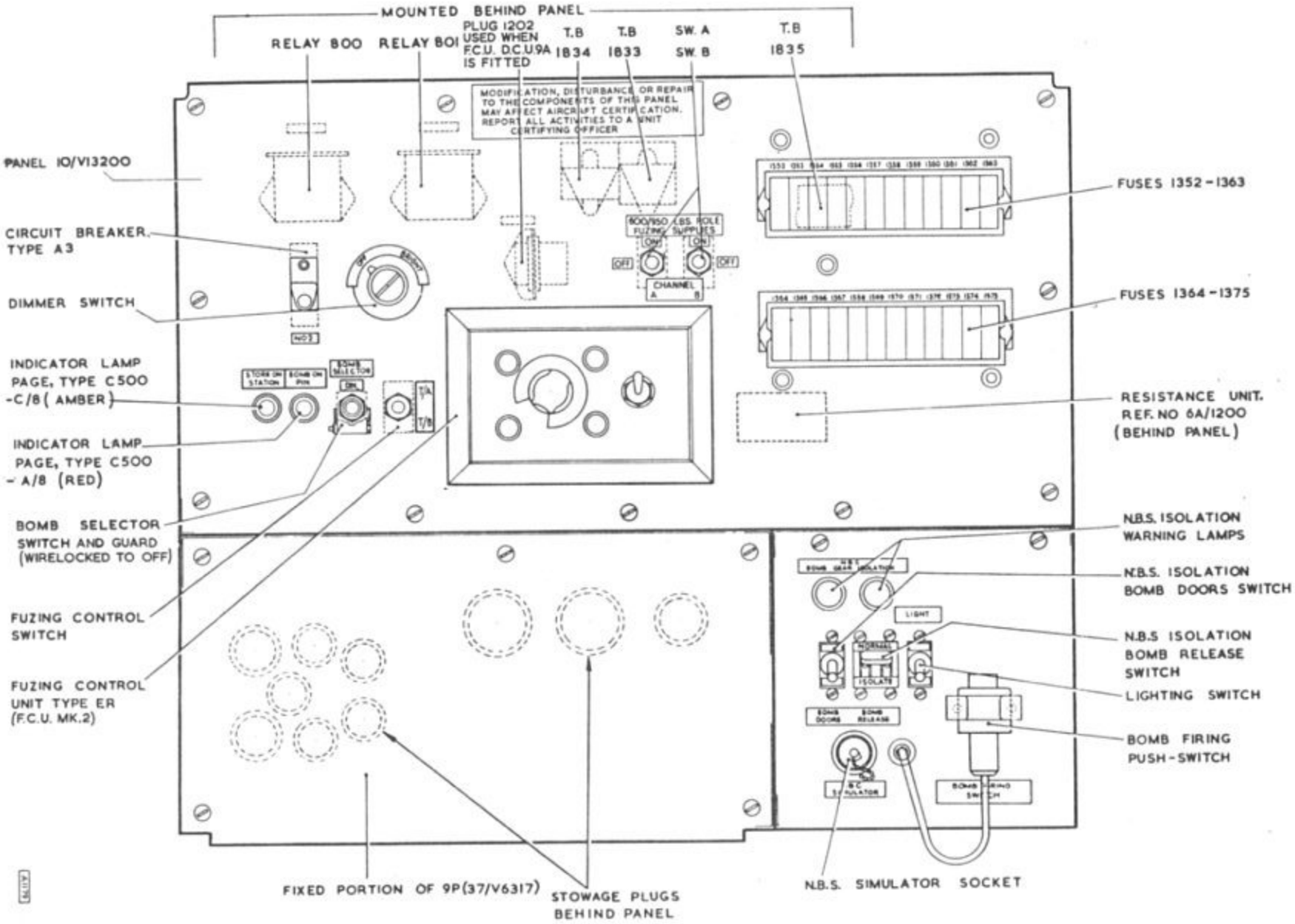


Fig.9 Control panels for 600/950lb role

► *Mod. 2440* ◄

Type ER (F.C.U. Mk.2), in the space provided on panel 10/V13200.

(2) Ensure that the aircraft electrical supplies are switched off.

(3) At the nav./bomber's panel 9P, release the two captive screws securing the bottom right hand hinged panel and allow the panel to swing down. From behind this panel disconnect socket 470 on the aft diaphragm of the panel frame.

(4) At the top panel, release the two Dzus fasteners securing the small hinged panel and allow this panel to swing down. From behind the panel disconnect socket 473 on former 246.

(5) Release the ten captive screws securing the complete top panel and support the panel off the structure. Disconnect the plug from the back of the switch selector and indicator, and the plug and two sockets from the back of the bomb spacing unit. Remove the complete top panel.

(6) Stow the cable disconnected from the switch selector and indicator in the socket on the forward face of former 246. Stow the cables disconnected from the bomb spacing unit in the socket and two plugs on the aft face of the former.

(7) Locate and remove the screw securing the underside of the lower left hand fixed panel. Retain the screw for operation (13).

(8) Release the five captive screws on the face of the panel and support the panel off the structure. From the stowage behind the panel disconnect the two Cannon sockets carrying cables 3/F2616, 6/F2616 and 4/V14173, and cables 2/F2616, 5/F2616 and 8/F2616.

(9) Bring panel 10/V13200 up to the position vacated by the top panel. Connect the four plugs on the cable assemblies attached to the panel to the corresponding sockets on the right hand side of the structure by identifying the cable connections with the socket numbers on the structure.

(10) Connect the small socket carrying cables 3/F2616, 6/F2616 and 4/V14173 to the small plug on the fuzing control unit, Type ER. Connect the large socket carrying cables 2/F2616, 5/F2616 and 8/F2616 to the large plug on the fuzing control unit.

(11) Secure panel 10/V13200 in position by means of the eleven captive screws.

(12) Secure the bottom right hand hinged panel by means of the two captive screws.

(13) Secure the bottom left hand fixed panel by means of the five captive screws and the screw retained in operation (7).

Should fuzing control unit D.C.U. 9A be fitted as an alternative to the Type ER unit (sub para.10), the small socket should be connected to plug 1202 on the bracket behind the panel, and the large socket to the fuzing control unit.

Control panel supplies

85. Reference to fig.13 will show that supplies of 28-volt d.c. for the fuzing and release circuits are fed into the control panel via plugs 807 and 808. The busbars of the distribution fuses on the panel are fed from fuses 1041 and 1042 in 16P (fig.13) via plug 808, pins B and C, and the circuits are earthed via plug 807, pins L and M.

86. Supplies to the bomb selector switch on the panel are connected as follows:-

(1) From fuse 1353 (fig.16) via plug 807, pin F, contacts 2-3 of the additional bomb doors microswitches, when closed (fig.10) and plug 807, pin B to terminal 1 of the selector switch.

(2) From fuse 481 (Chap.19, fig.5) via contacts 2-3 of the bomb doors open microswitches (when closed) and the appropriate terminal block connections, and plug 807, pin G to terminal 4 of the selector switch.

87. The bomb firing relays 800 and 801 are energized when any one of the three bomb firing switches is pressed. The supplies are connected as follows:-

(1) From fuse 1352 (fig.16) via plug 807, pin I and the appropriate terminal block connections (fig.13), contacts 2-1 of the bomb firing switch and plug 807, pin H to the coil of relay 800.

(2) From fuse 970 (Chap.20, fig.5) via the appropriate terminal block connections, contacts 3-4 of the bomb firing switch and plug 807, pin A to the coil of relay 801.

88. The panel lighting supply for the fuzing control unit, which is controlled by the dimmer switch, is fed from fuse 502 (fig.13) via plug 807, pin N.

SERVICING

General

89. The 600/950 lb. role is the only special weapon role in current use and preload checks and functional testing are to be carried out in accordance with the procedures detailed in A.P.101B-1902-5A1 to 5A7.

Special weapon system

90. The following items of equipment, together with the fixed wiring, form the aircraft special weapon system which is subject to the terms of A.P.100B-01 Order 6468.

	Item	Location
	Fuses 616, 970, 973	Panel 3P
	Fuses 502, 582, 1167	Panel 4P
	T.B's 171, 176, 181, 185, 187, 191	Panel 4P
	Relay 796	Panel 4P
	Safety lock switch	Panel 6P
	B.R.S.L. lock lamps	Panel 6P
	B.R.S.L. unlock lamp	Panel 6P
	Plug 596	Panel 6P
*	1st pilot's bomb release push	Throttle box
*	Bomb aimer's bomb release push	Panel 8P
*	T.B.810	Panel 8P
*	2nd pilot's bomb release push	2nd pilot's position
	T.B.1845	2nd pilot's position
	Earthing point	Under floor – 1st pilot's position
	Earthing point	Under floor – 2nd pilot's position
*	Time delay unit	Navigator's centre panel
	Cables 4077/V7909 and 4078/V7909	Navigator's centre panel
	Connectors 597, 789, 790, 801, 806, 809, 107	Rear pressure bulkhead
*	T.B.895	Panel 65P
	T.B.415	Panel 1J
*	T.B's 587, 592	Panel 2J
*	Bomb door microswitches – 4 off	Front spar
*	Bomb door microswitches – 4 off	Rear spar
	Relays 554 and 547	Bomb bay – starboard
	Sockets and cables 813, 814, 818	Bomb bay – starboard
	Cable and socket 598	Bomb bay – port centre
	600/950 lb role panel	Panel 9P
	Fuzing control unit	Role panel
	Nose undercarriage port aft door up microswitch	Nose undercarriage
*	Fuse 481	Panel 16P

Electrical role equipment

91. The following items are classified as special weapon system role equipment under the terms of A.P.100B-01 Order 6468. Servicing of these items is to be recorded on the component log card, F735A.

Item	Publication
600/950 role panel (9P)	A.P.113G-0152-1
Fuzing control units (2 off)	A.P.113G-0101-125F
Time delay unit	A.P.113G-0129-1

NOTES . . .

(1) Items marked by an asterisk are also associated with the conventional armament system.

(2) Panel 9P must bear a notice:-

'MODIFICATION, DISTURBANCE OR REPAIR TO THE COMPONENTS OF THIS PANEL MAY AFFECT AIRCRAFT CERTIFICATION. REPORT ALL ACTIVITIES TO A UNIT CERTIFYING OFFICER' (Mod.2440).

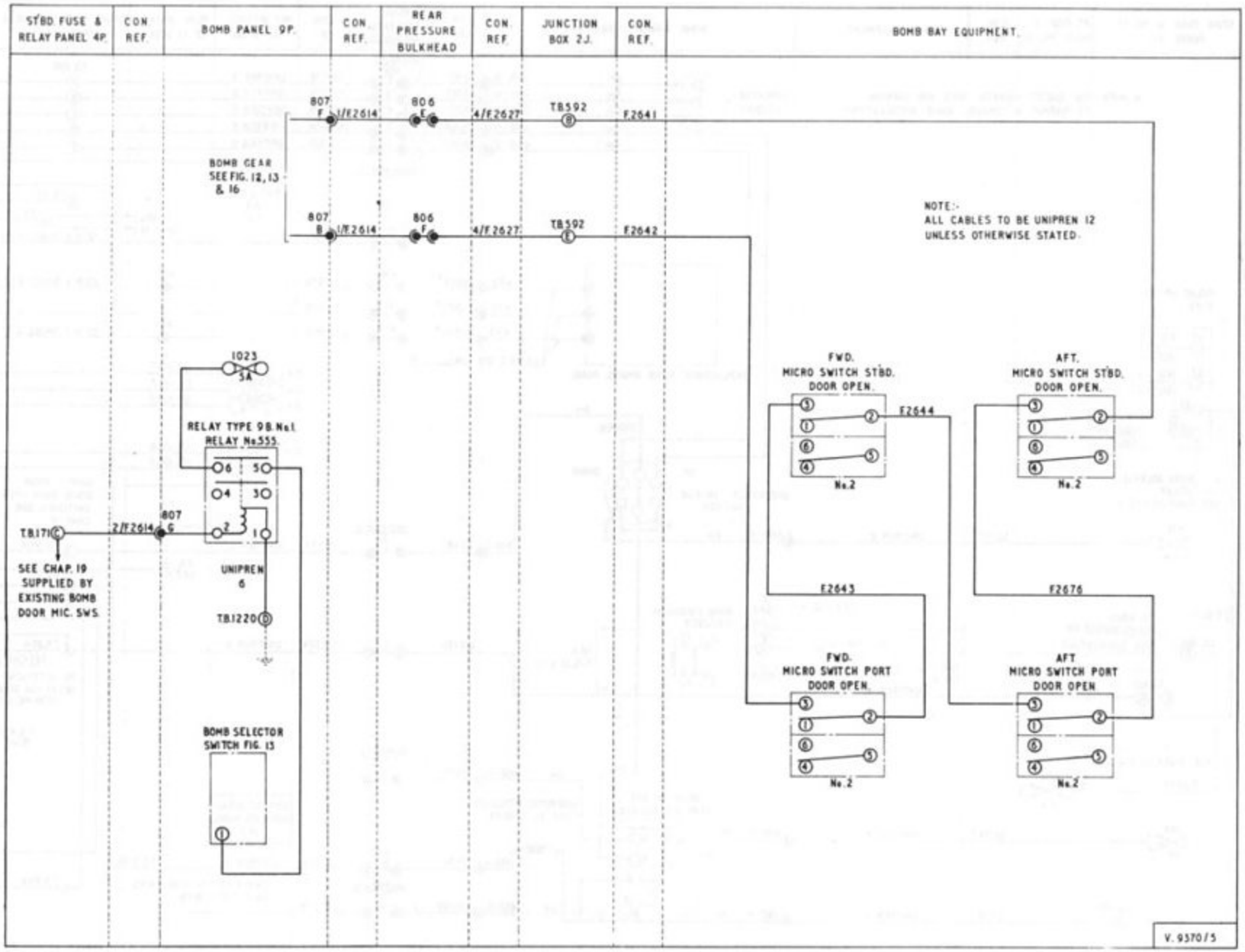


Fig.10 Additional bomb doors micro switches

◀ *(Mod.2082 incorporated)* ▶

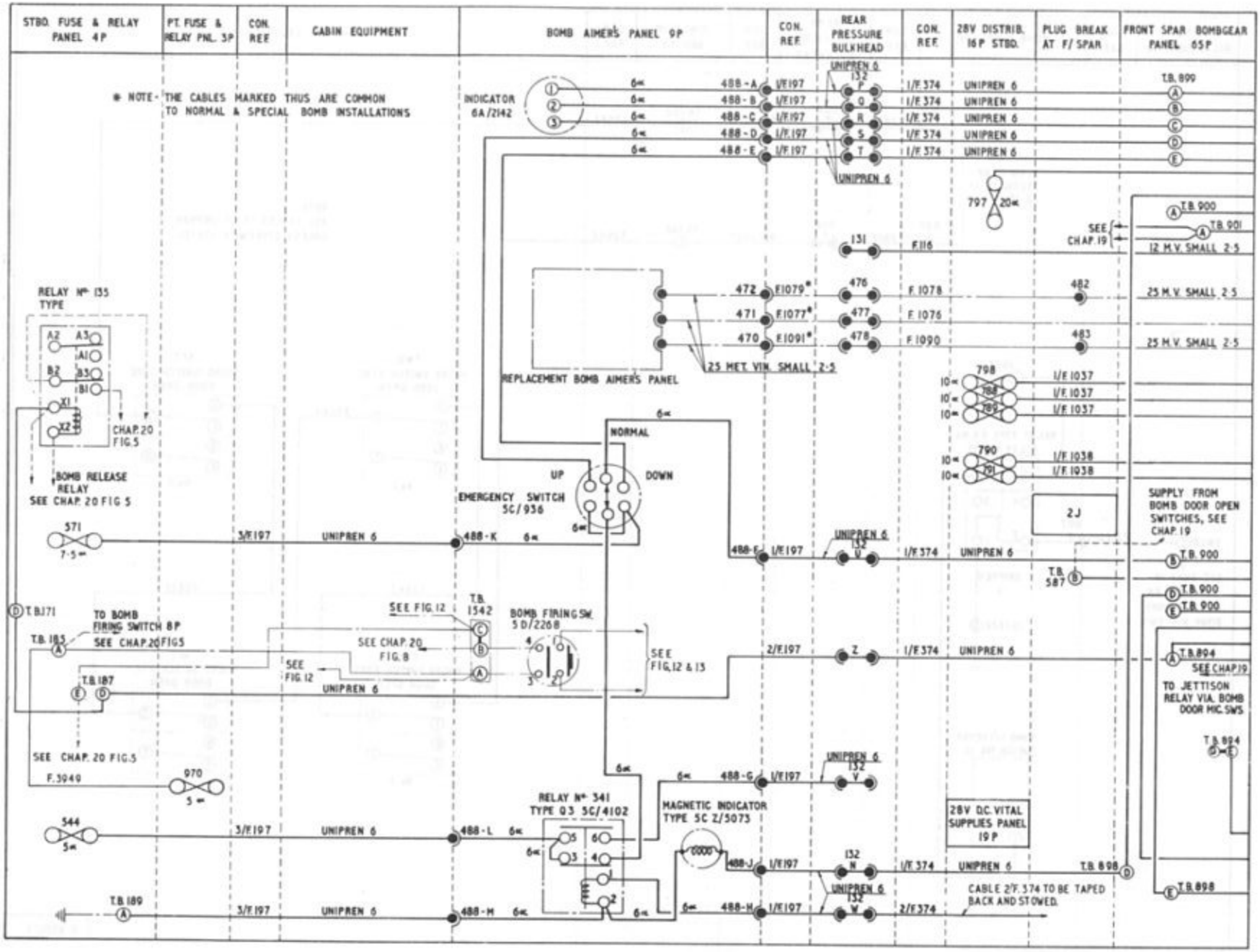


Fig.11(1) 10,000 lb. store fuzing and release

(Mod.2087)

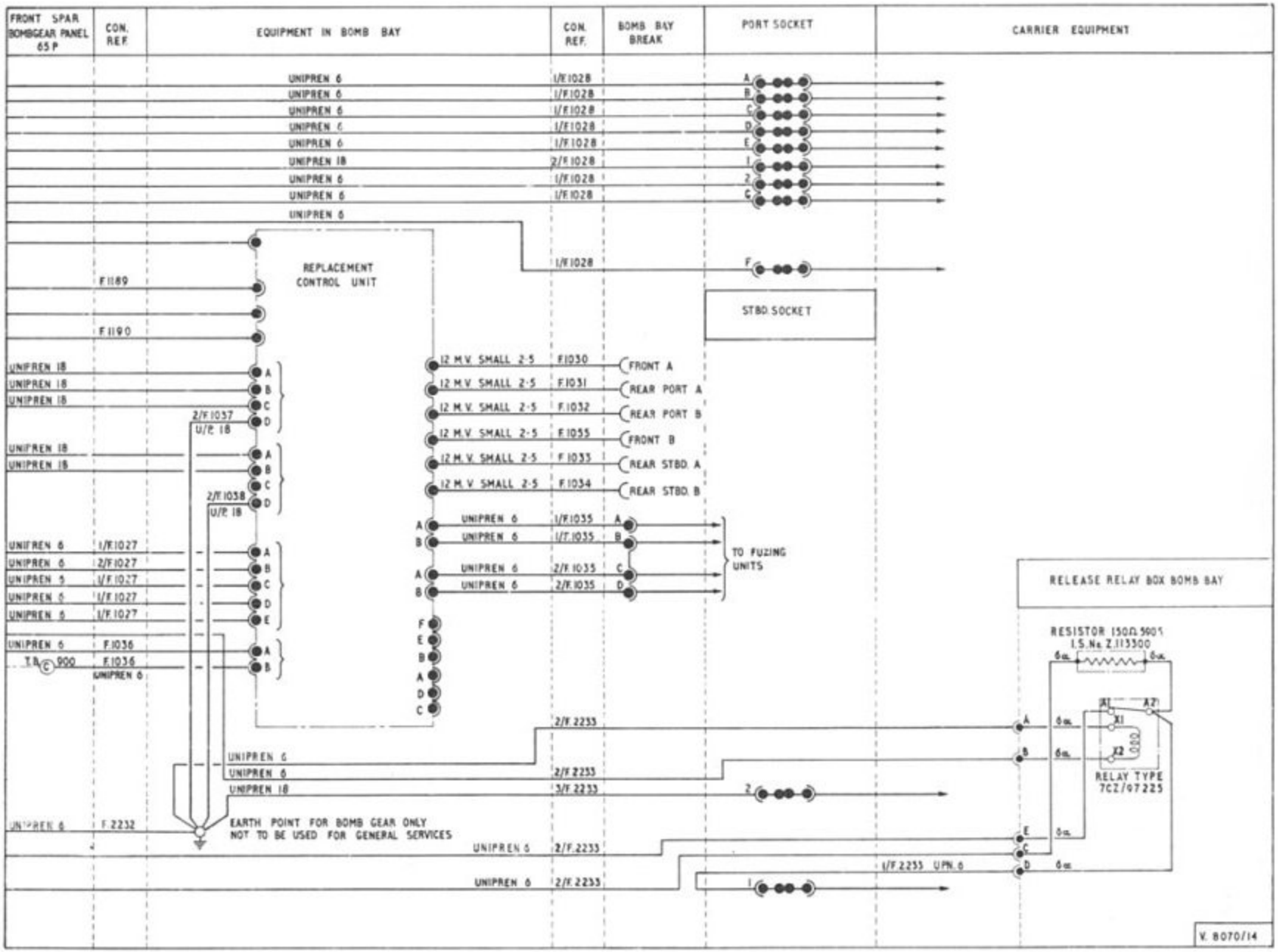


Fig 11 (2) 10,000 lb. store fuzing and release

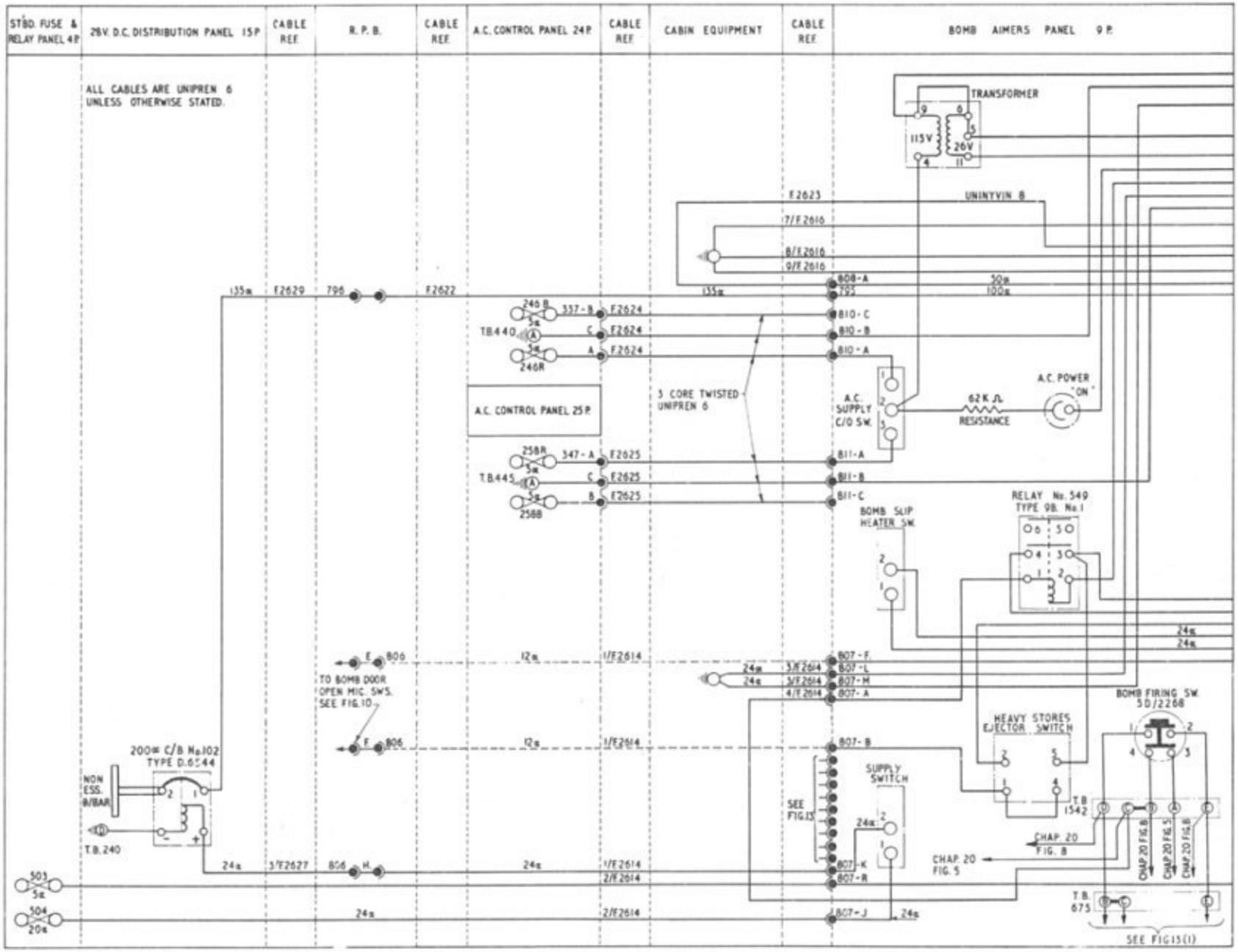


Fig. 12 (1) 6000 lb. store fuzing and release

▶ *Cross reference amended Mod. 2505* ◀

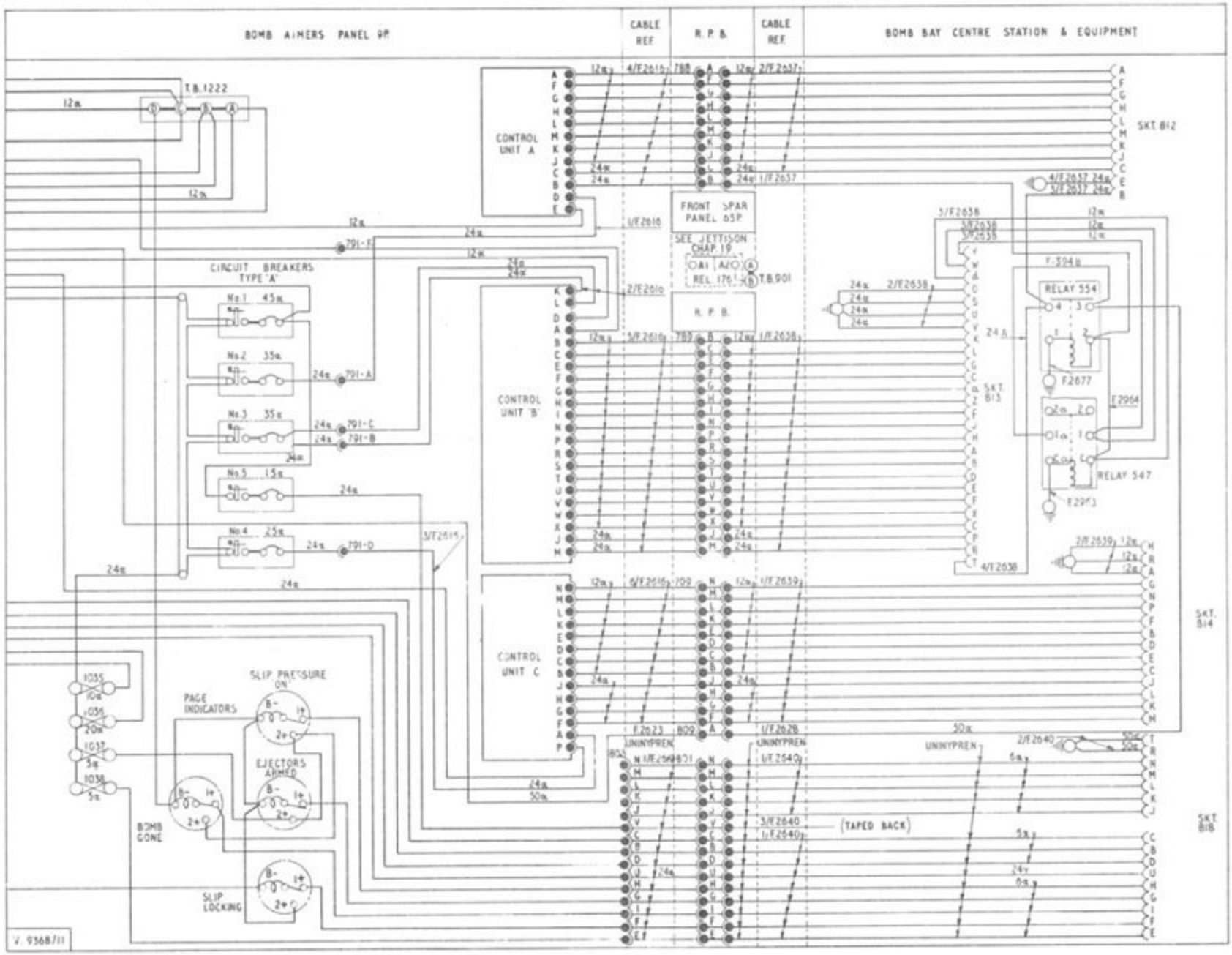


Fig.12 (2) 6,000lb store fuzing and release

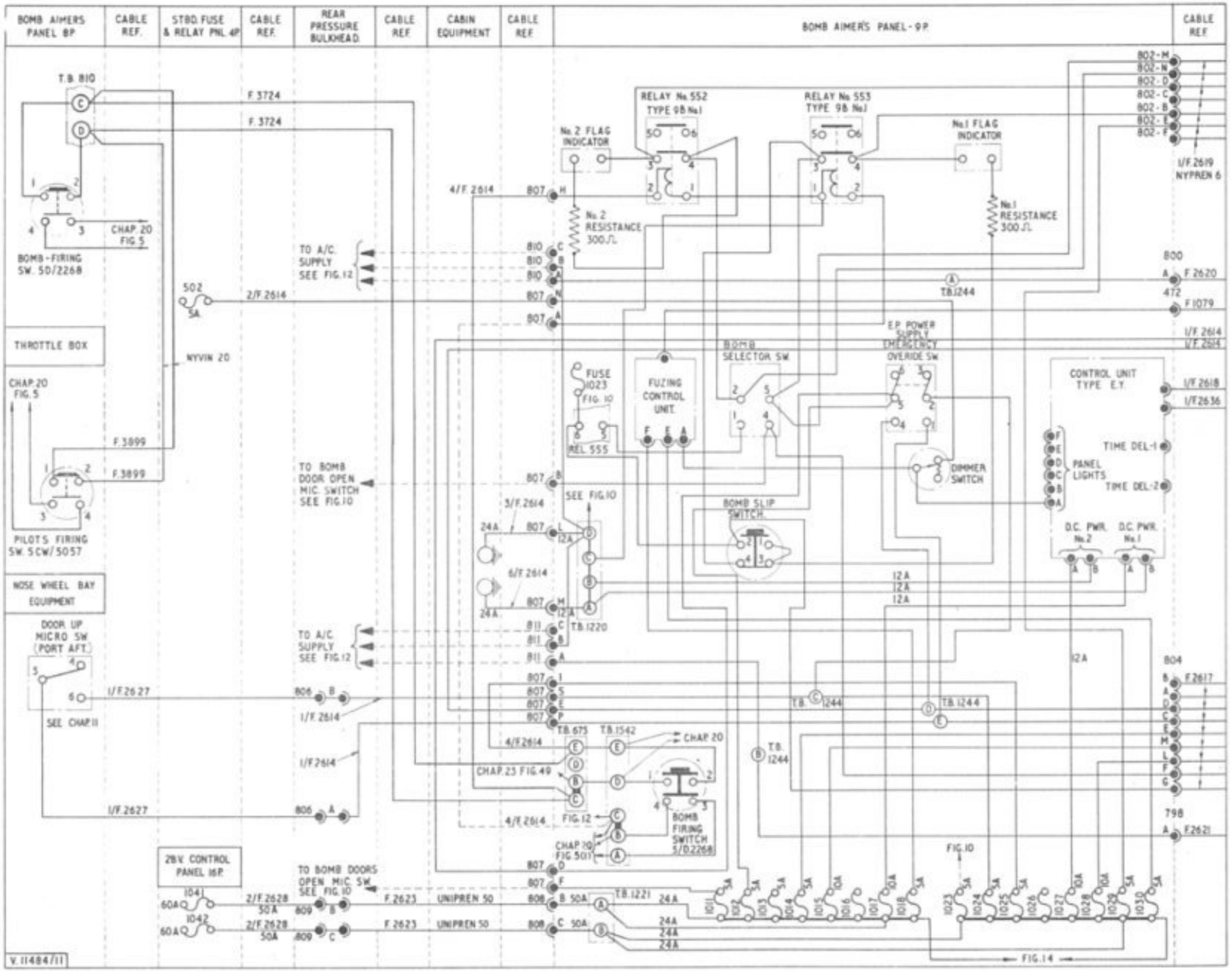


Fig. 13 (1) 7,000 lb. store control circuit

▶ *Mod 2505* ◀

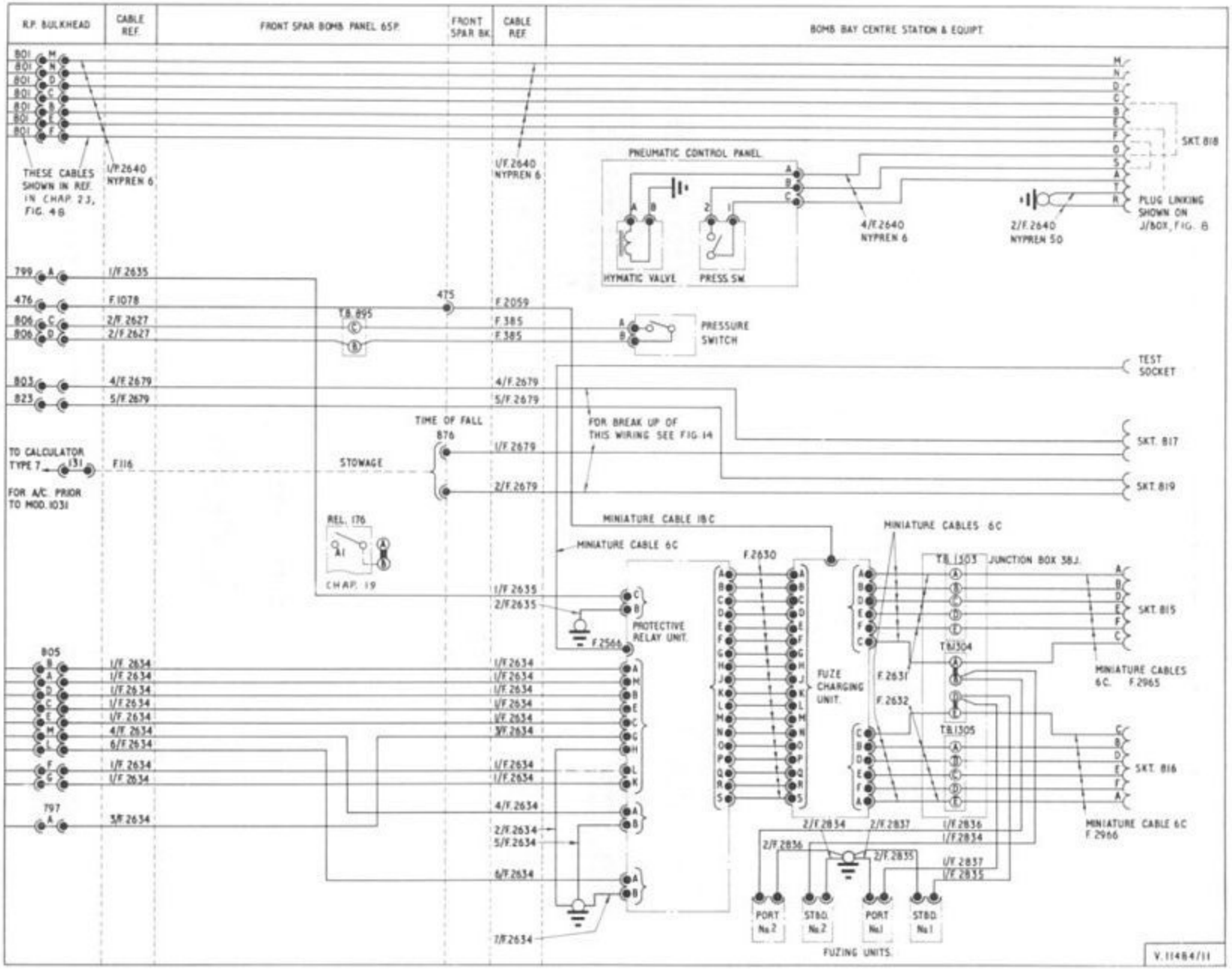
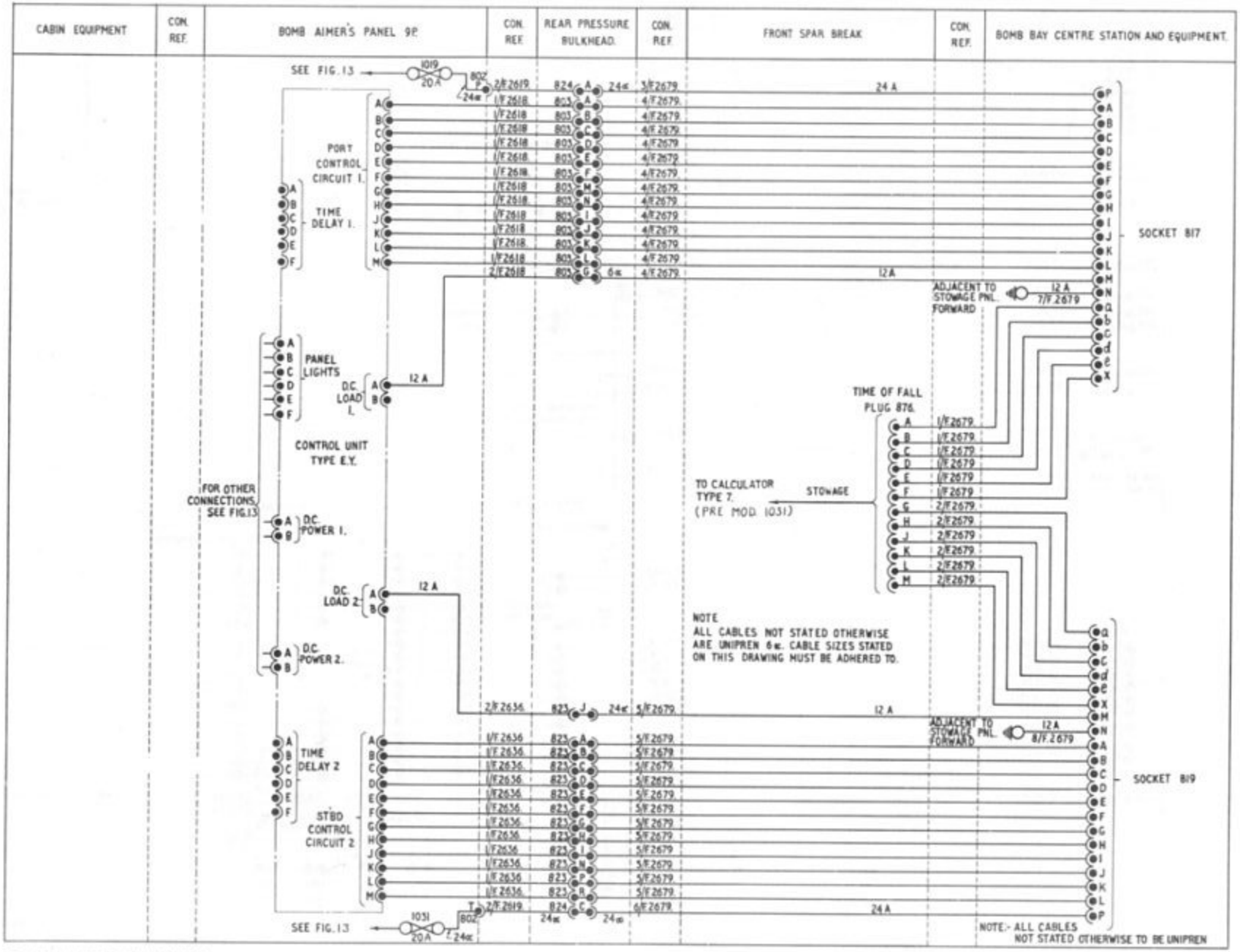


Fig.13 (2) 7000 lb. store control circuit
(◂ Mod 2285 incorporated ▸)



T. 14 T 3 5. 626 10, 71 H.S.A. 1354

Fig. 14. Wiring to Type E.Y. control unit

(*Mod 2285 incorporated*)

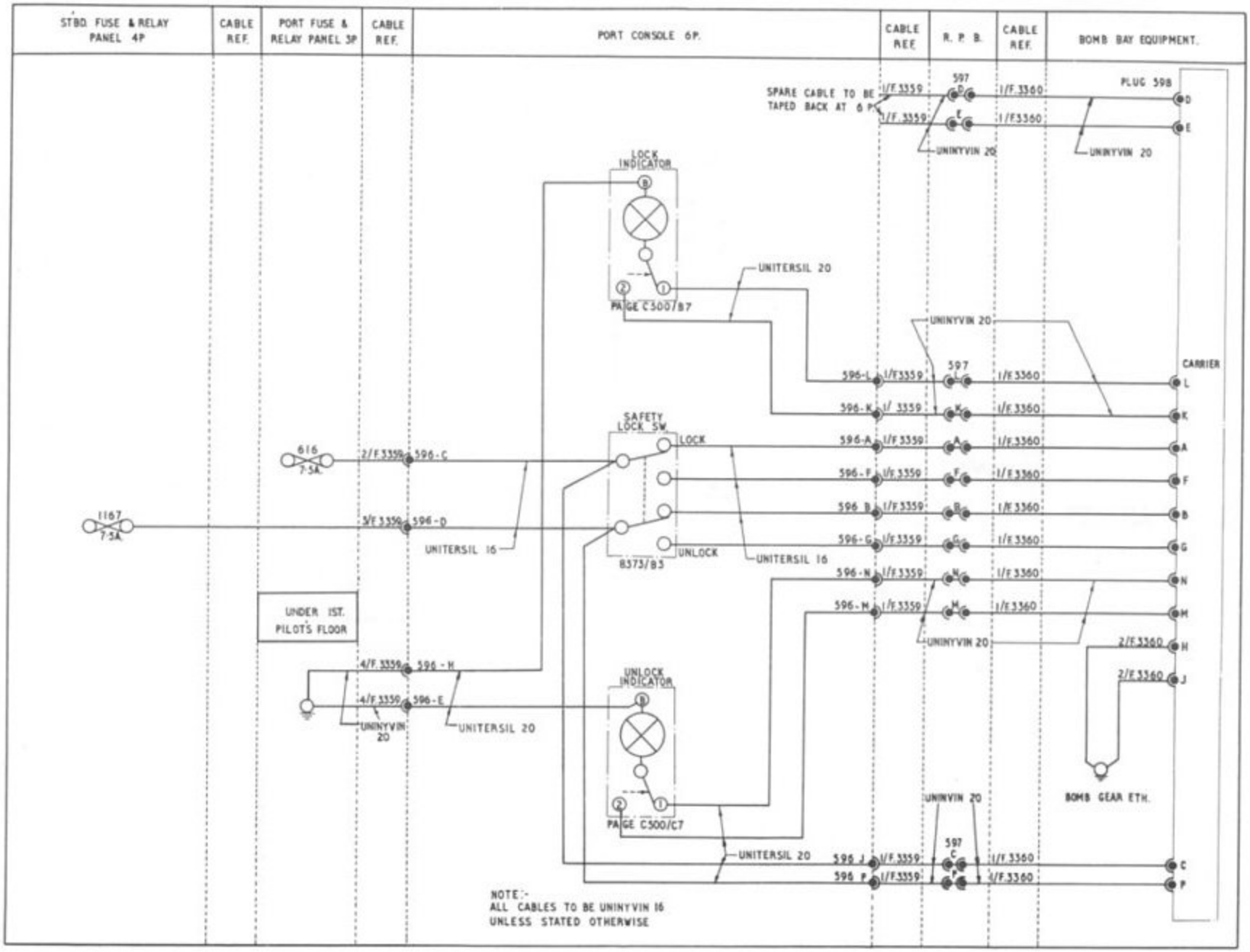


Fig. 15. Release unit safety lock

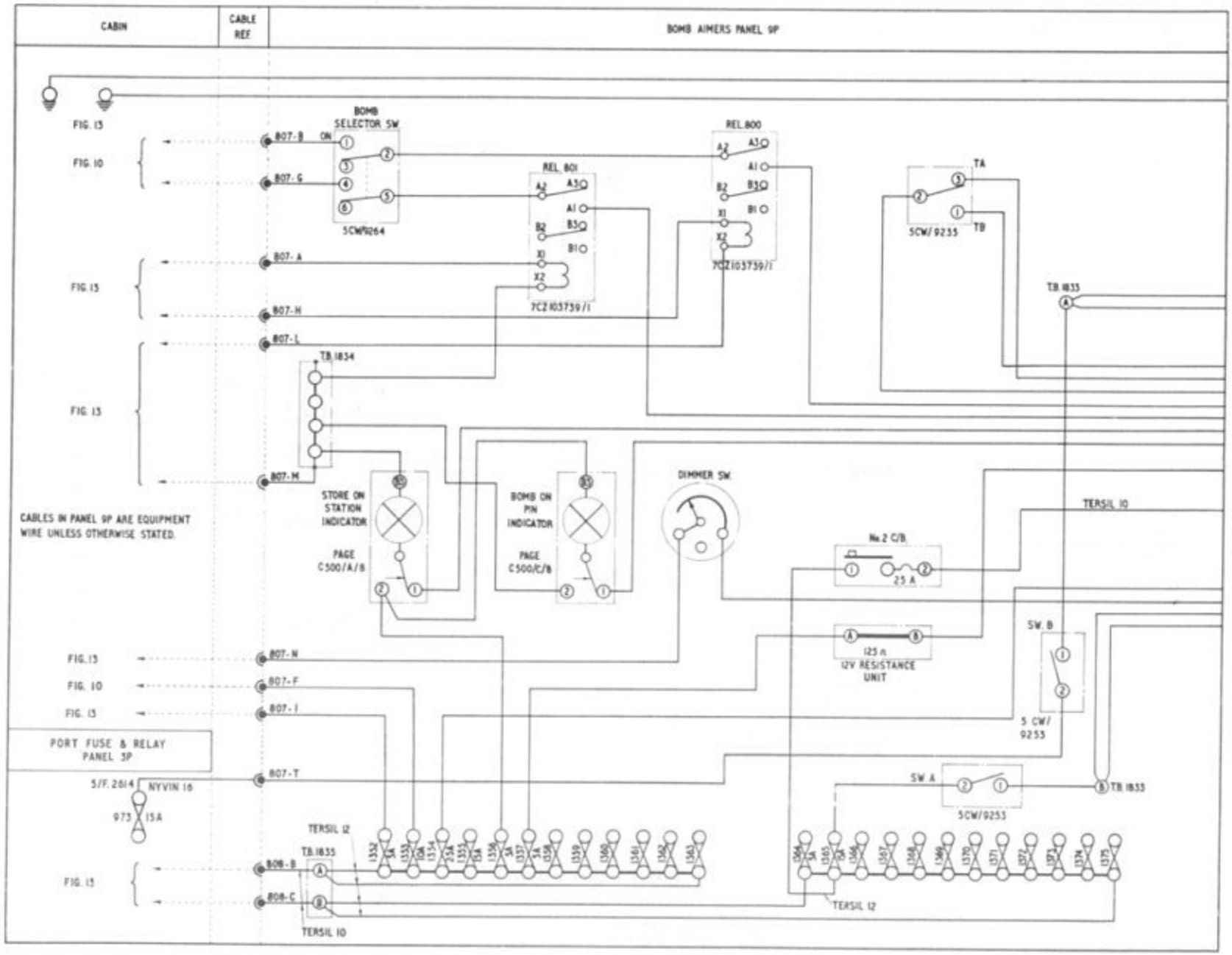


Fig. 16. (1) 600/950lb. role

Mod 2087

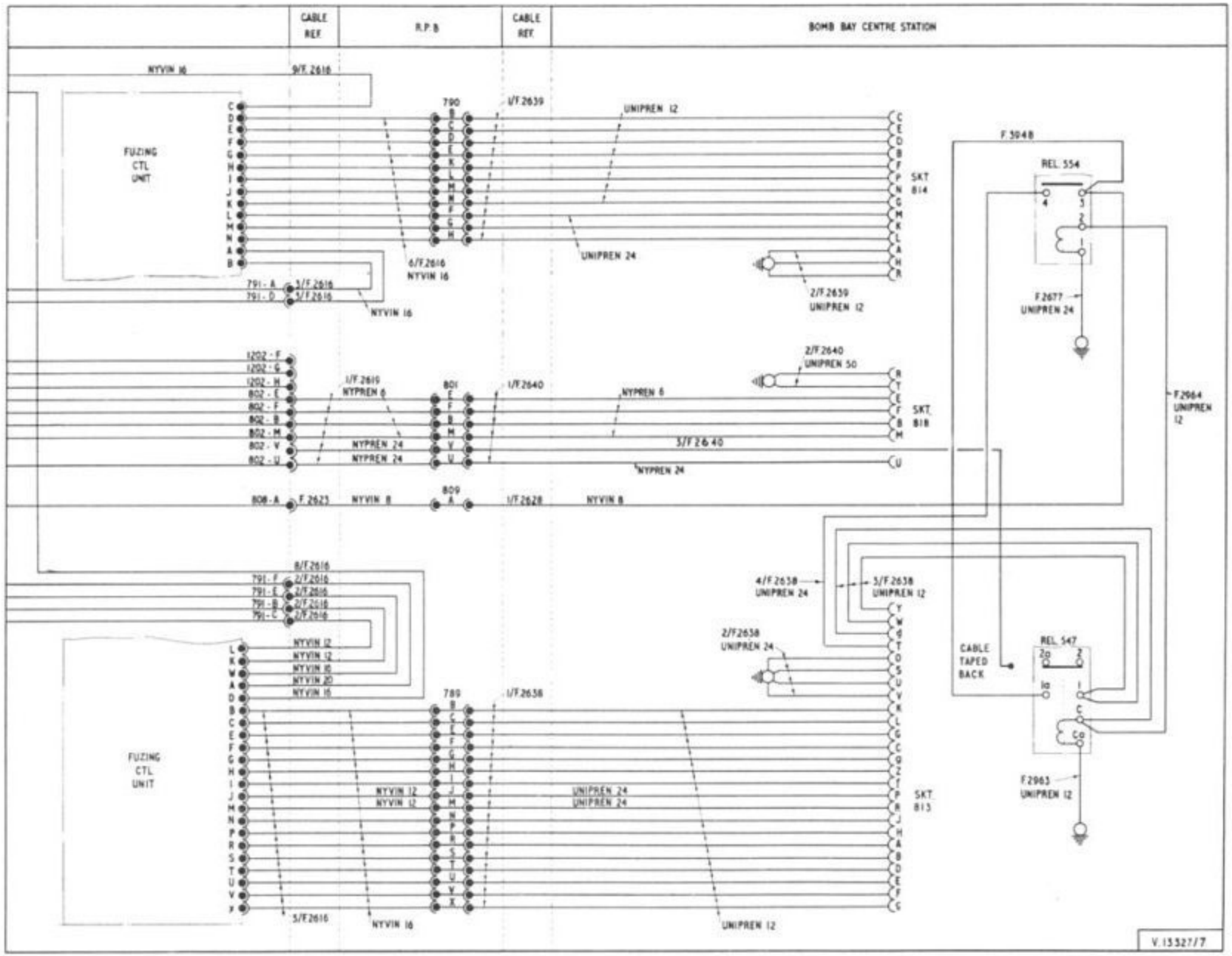


Fig. 16. (2) 600/950lb. role

◀ Mod 2087 ▶

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