Group 5—ARMAMENT INSTRUMENTS

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Warning . . .

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 are to be made with the electrical power switched on, the greatest care must be exercised.

DESCRIPTION AND OPERATION

Introduction

1. This group contains brief descriptive notes on the armament instrument installation. For detailed information on the items of equipment used in the installation reference should be made to the relevant Air Publications.

2. Information on the layout and interpretation of the schematic wiring diagrams can be obtained from the General Information group contained in Book 2 immediately after Section 5 marker card. Also to be found in the General Information group are all the general modifications applicable to all types of Valiant aircraft.

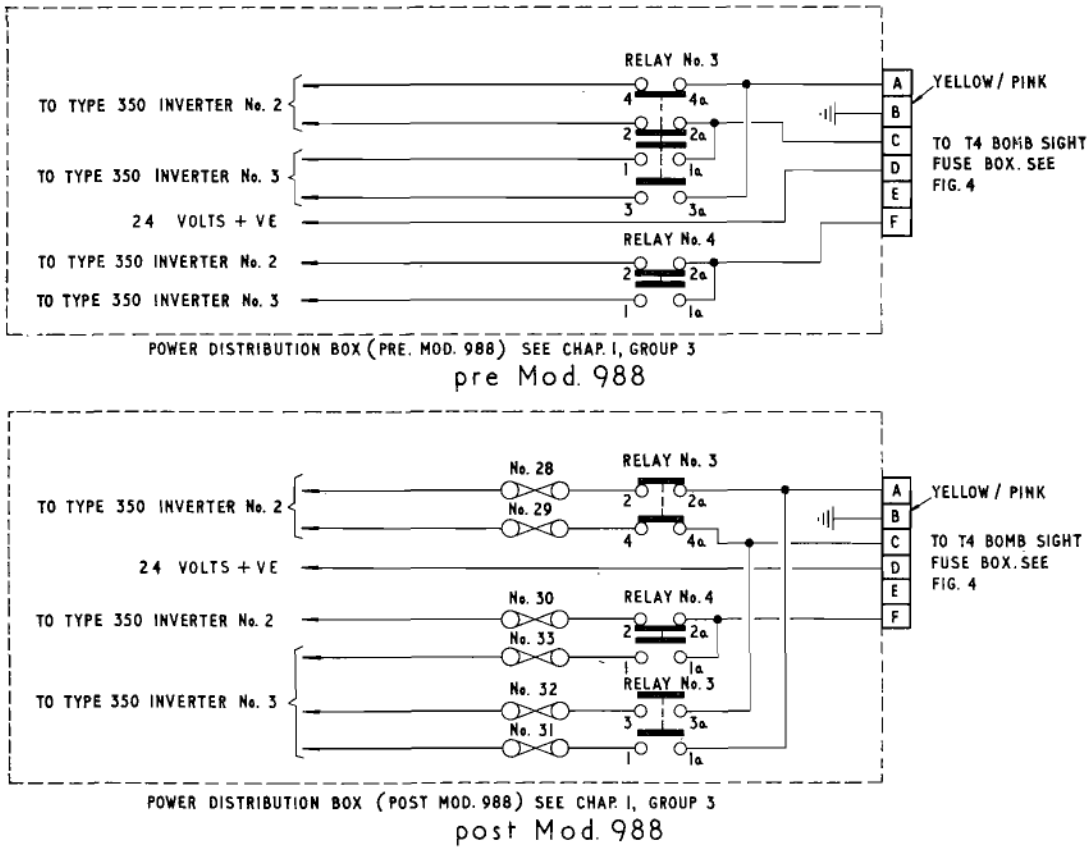

Fig. 1. T4 bomb sight power supplies

T4 BOMB SIGHT (Mod. 1648)

3. The main units of the bomb sight installation are mounted at the bomb aimer's visual position. The computor is mounted under the pilot's floor on the port side of the aircraft.

4. Drift and ground speed signals are transmitted from the ARI.5851 to the ARI.5851 indicator, Type 101. The signals are then fed to the computor via the bomb sight junction box.

5. A 28-volt d.c. supply, from terminal 1 of the bomb door control switch, is fed into the bomb sight control unit via a suppressor when the bomb doors are selected OPEN.

6. The 115-volt, 400 c.p.s., 3-phase, a.c. supply to the equipment is obtained from the No. 2 radar inverter, Type 350, via the power distribution box, on the radio crate, and the bomb sight fuse box (*see Note at end of para.* 12). No. 3 radar inverter can be used as a stand-by in case of failure of No. 2 inverter (*Book* 2, *Sect.* 5, *Chap.* 1, *Group* 3).

7. The 115-volt, 1600 c.p.s. single-phase a.c. supply to the equipment is also obtained from No. 2 radar inverter via the power distribution box, on the radio crate, and the bomb sight fuse box.

8. The d.c. supply to the equipment is obtained, via the fuse box, from the 28-volt bus-bar in the power distribution box, on the radio crate, and is fed through a suppressor to the computor.

Note . . .

Mod. 2435 *introduces a drift smoothing cut-out switch Ref. No.* 5CW/5835 *or* 5CW/4323 *mounted on the starboard side of the bomb aimer's compartment.*

Table 1

List of equipment

Instrument	No. off	Type, Mk. or Ref. No.	Location
T4 Bomb sight (post Mod. 1648)			
Sighting head	1	9/4566	Bomb aimer's compartment
Amplifier	1	9/4579	Under pilot's floor
Computor	1	9/4567	Port side under pilot's floor
Sighting head lamp control	1	9/5478	Bomb aimer's compartment
Amplifier mounting	1	9/4581	Under pilot's floor
Gyro control	1	9/4554 (pre-Mod. 2931) 9/4816 (post Mod. 2931)	Port side under pilot's floor
Suppressor	2	5C/2866	Port side bomb aimer's compartment
Junction box	1	—	Forward bomb aimer's compartment
Indicator electrical	1	Type 101 100/16095	Navigator's crate (Part of A.R.I.5851 or A.R.I.5871, Sect. 6, Chap. 2, Group 1)
Air speed corrector cam	1	9/4596	On 14 computor
Fuse box	1	Vickers 70636-Sht. 437	Rear pressure bulkhead

SERVICING

Introduction

9. This group contains brief servicing notes on the armament instrument installations. For information on the servicing of the items of equipment used in the installations reference should be made to the relevant Air Publications.

10. Detailed descriptions of all the general tests to be applied to all aircraft electrical circuits can be found in the General Information group contained in Book 2 immediately after Section 5 marker card.

T4 BOMB SIGHT

11. *Bomb sight installation*

(1) Connect the pressure gauge into the supply line using the adaptor.

(2) Turn the air ON/OFF valve to ON.

(3) Regulate the air pressure so that the gauge reads 40 lbs. per sq. in.

Computor

(1) Remove the front and rear covers.

(2) With the gyro at rest, carefully displace the blade to one of its limits.

Bomb sight gyros, computor and sighting head

(1) Check that the gyro rotors are at rest.

(2) Check that the bomb doors are OPEN.

(3) Check that the bomb door TRIP switch is selected to NORMAL.

(4) Select No. 2 inverter switch to ON.

To check that the gyros are running, observe that the gyro blade and reflector glass oscillate slightly.

(5) Select the bomb door TRIP switch to TRIP and check that the computor gyro blade commences to erect towards the vertical.

(6) Select the bomb door TRIP switch to NORMAL. Check that the bomb doors open red lamp, on the bomb sight control panel, comes on and that the computor gyro blade ceases to erect towards the vertical.

(7) Select the bomb door TRIP switch to TRIP. Check that the bomb doors open red lamp, on the bomb sight control panel, goes out and that the computor gyro blade erects towards the vertical.

(8) Press the fast erection switch and check that the gyro blade and graticule erect quickly. Also check that the fast erection green lamp comes on.

Note . . .

(1) *The fast erection switch is not to be operated within* 15 *seconds of switching on the gyro and is to be released immediately the gyros erect.*

(2) *The fast erection switch is not to be operated for a period exceeding* 40 *seconds.*

(9) Check that the datum line on the glide blade is vertical.

(10) Check that the sighting head reflector glass is approximately horizontal.

Bomb sight installation

(1) Select the computor switches to ON and SERVOS ON. Check that the amplifier green lamp comes on within 60 secs. ± 30 secs. of switching on.

Note . . .

Items 2 *and* 3 *below are applicable only when a manual drift setting knob is FITTED.*

(2) Set the computor drift scale to ZERO degrees.

(3) Allow the computor mechanism to settle.

Note . . .

Items 4 *and* 5 *below are applicable only when a manual drift setting knob is NOT FITTED.*

(4) In conjunction with a radar mechanic obtain the drift input of ZERO degrees.

(5) Allow the computor mechanism to settle and check that the computor drift scale indicates ZERO.

(6) Select the SERVO switch to OFF.

(7) Centralize the appropriate lost motion device and connect the drift flexible drive to the required computor connection.

(8) Set the sighting drift pointer to ZERO.

(9) Connect the drift flexible drive to the sighting head.

(10) Centralize the sighting angle lost motion device and connect the sighting angle flexible drive to the computor.

(11) Note the reading on the computor sighting angle scale and set this reading on the sighting head scale.

(12) Connect the sighting head flexible drive to the sighting head.

12. In conjunction with a radar mechanic carry out a functional check as follows:—

(1) Select the SERVO switch to SERVOS ON.

(2) Press DRIFT SMOOTHING switch and keep depressed.

(3) Vary the drift input to the computor checking that the computor drift scale agrees with the drift setting on the ARI.5851, Type 101 indicator and that the sighting head moves over the drift scale proportionately.

Note . . .

It will be necessary to operate the drift search key if the computor drift scale is more than 15 *degrees out of synchronization.*

(4) Vary the drift input to the computor, release the DRIFT SMOOTHING switch and check that the follow-up rate decreases.

(5) Obtain ZERO drift input. Check that the computor and sighting head drift scales indicate ZERO.

(6) Vary ground speed input to the computor. Check that the computor ground speed scale agrees with the ground speed settings on the ARI.5851, Type 101 indicator and that the sighting angle changes are fed into the sighting head.

Note . . .

It will be necessary to operate the ground speed search key if the ground speed scale is more than 225 *knots out of synchronization.*

(7) Check drift and ground speed search keys by operation for correct sense and functioning.

(8) Check that the sighting angle scale and drift pointer of the sighting head do not hunt.

(9) Select No. 2 inverter switch to OFF.

(10) Select the computor switches to OFF and SERVOS OFF.

(11) Turn the air ON/OFF valve to OFF.

(12) Check that the computor height datum is at NORMAL and the manual height setting scale is at ZERO revs.

(13) Refit the computor covers.

(14) Select the sighting head control panel switch to OFF.

(15) Select the bomb door TRIP switch to TRIP.

(16) Remove the pressure gauge and adaptor and reconnect the pressure supply line.

Note . . .

Post Mod. 2931 *the Gyro Control Panel* (9/4816) *is fitted in lieu of Panel* (9/4554). *This panel incorporates a phase failure warning lamp which will indicate immediately a failure of any phase of the three-phase supply to the Gyros. Under these conditions, the equipment should be switched off to prevent damage to the Gyros due to single-phase running or attempted single-phase starting until an alternative supply is switched in* (*see para.* 6).

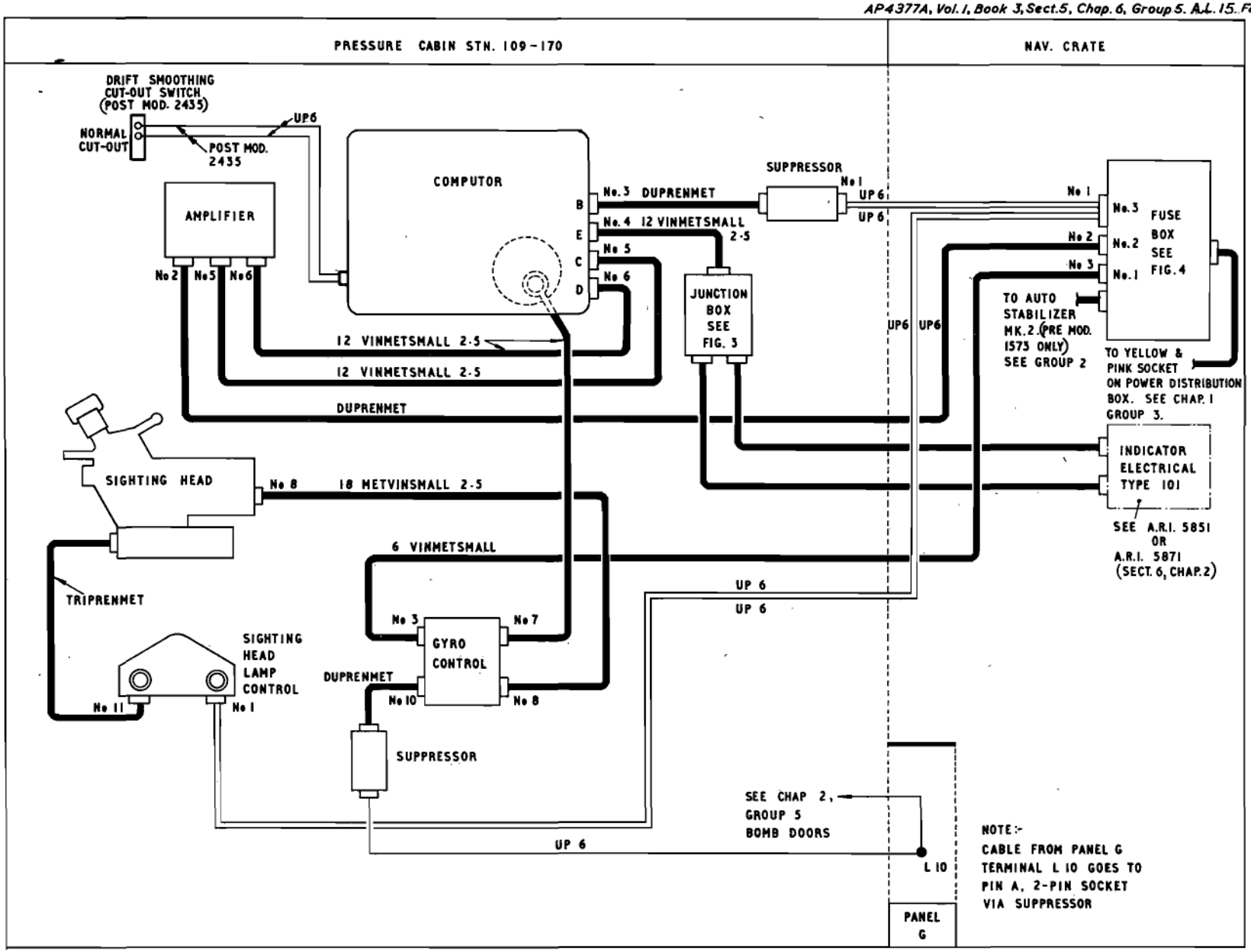

Fig. 2 T4 bomb sight

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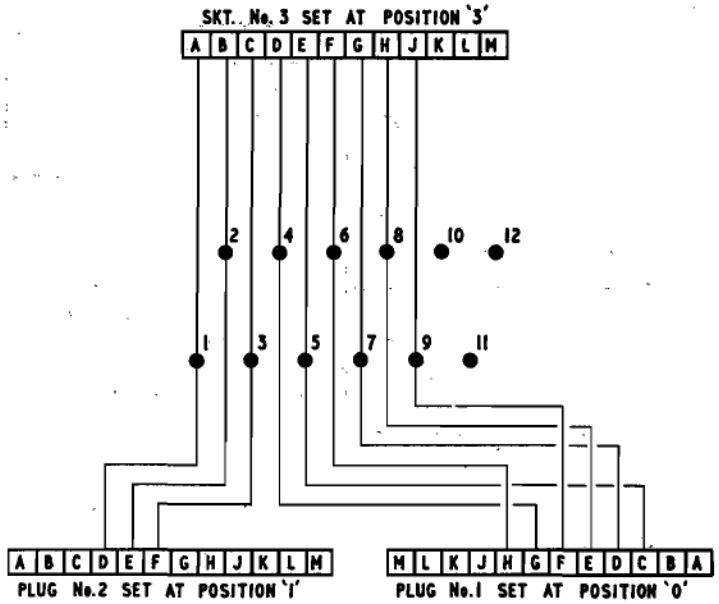
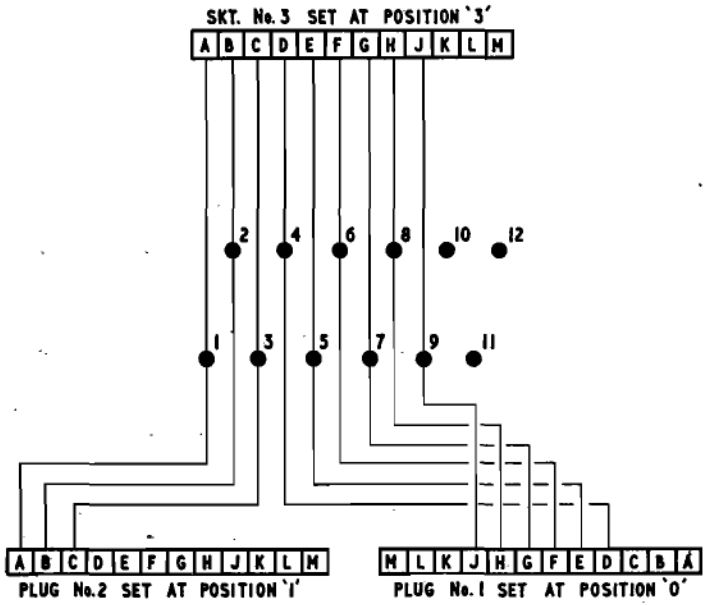


post Mod. 1648, pre Mod. 2412



post Mod. 2412

WIRING TO BE 19/·006 TIN COPPER, GLASS P.V.C. COVERED.

Fig. 3 T4 bomb sight junction box.

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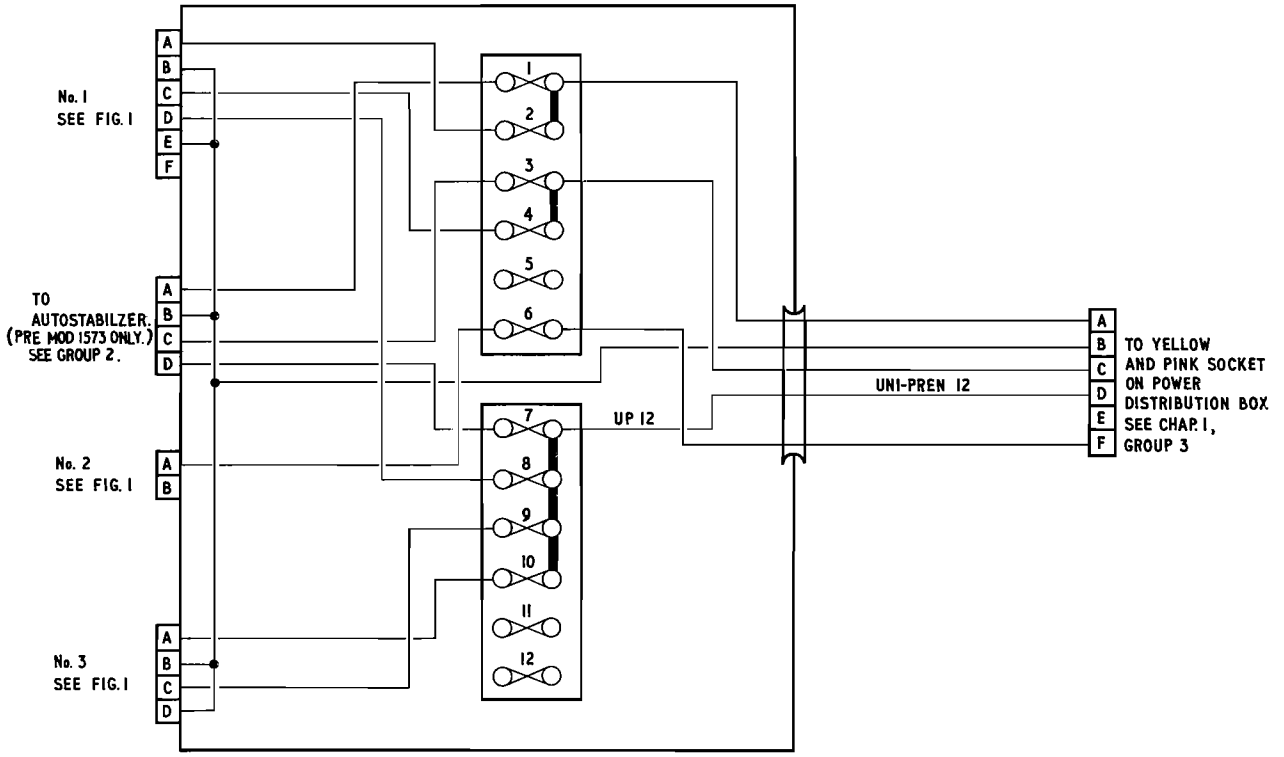

WIRING TO BE UNI-PREN 6 UNLESS OTHERWISE STATED.
EARTH CONNECTIONS TO BE COMMONED ON THE STUD INSIDE FUSE BOX.
TO BE WIRED IN CONJUNCTION WITH A.C. AND D.C. TRANSFERS IN THE BOX.

Fig. 4. T4 bomb sight fuse box

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