

CHAPTER 4

DETONATORS, ELECTRIC, No. D.39, DEMOLITION, Mk. I and III

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ARMAMENT

CHAPTER 4

DETONATORS, ELECTRIC, No. D.39, DEMOLITION, Mk. I and III

Introduction

1. These detonators are used for the demolition of special apparatus in aircraft.
2. Before being installed in aircraft, No. D.39 detonators must be tested for continuity of circuit and for insulation, to verify their serviceability. The tests must be repeated once a week with the detonators removed from the aircraft, and also prior to replacement of a detonator in an aircraft after removal for any other purpose.
3. The circuit continuity test and the initial insulation test are to be made with a Tester, fuze (Stores Ref. 5G/1142) and the final insulation test with a Tester, insulation resistance, Type A (Stores Ref. 5G/1621).
4. In the R.A.F., the circuit continuity and insulation tests are to be done by armament personnel, and the safety precautions laid down in the Explosives Regulations, A.P.1245, Chap. 3, are to be strictly observed.
5. In the F.A.A., the circuit continuity and insulation tests are to be made by electrical personnel, as laid down in B.R.153 (Demolition Drill Book), Chap. 5, para. 1.
6. The precautions detailed for detonators generally in A.P.1661C, Vol. I, Sect. 3, Chap. 1, are to be observed in handling these electric detonators.

DETONATOR, ELECTRIC, No. D.39, DEMOLITION, Mk. I

7. Attention is directed to para. 1 to 6.

General description, fig. 1

8. This is a multiple detonator consisting of three No. 33 Mk. I electric detonators, see Sect. 3, Chap. 2, mounted side by side in a steel container welded to a base plate, and connected in parallel to two contact pins. A 2-way socket for connection with the contact pins is provided in the aircraft wiring.
9. The container is provided with three tubular housings for the No. 33 electric detonators, and the contact pins are carried by a small panel of insulating material which is riveted to panel brackets. The panel brackets are secured to upturned flanges on one end of the base plate by bolts which also secure in position a flanged cover plate having a central hole through which the connecting socket is inserted.
10. The flexible leads from the three No. 33 detonators are connected to the respective contact pins by terminal washers which are held in position by plain washers and securing nuts on the screwed shanks of the contact pins.
11. The three No. 33 electric detonators are retained in the tubular housings in the container by shellac adhesive.
12. The following identification markings are stamped on the cover plate:—
 - (i) The number and mark of the detonator.
 - (ii) The manufacturer's initials or recognized trade mark.
 - (iii) The date of manufacture, month and year.

Functioning

13. When a sufficiently large current is passed through the resistance bridge in any one of the three No. 33, Mk. I detonators it becomes incandescent and ignites the surrounding ignition composition; the heat produced by the burning of the ignition composition ignites the priming composition, and the priming composition, in turn, detonates the C.E. in the end of the tube.

Testing the detonator

14. Reference should be made to para. 2 to 6 prior to making the circuit continuity and insulation tests.

Circuit continuity test

15. The procedure for testing the detonator for continuity of circuit is as follows:—
 - (i) Examine the insulation on the leads of each No. 33 detonator and repair any defects with insulating tape, taking care not to handle the leads roughly as this may disconnect them from the pole pieces, see Sect. 3, Chap. 2, or cause other damage.
 - (ii) Connect flexible conducting wires, of sufficient length to comply with the safety precautions, by a connecting socket or suitable clips at one end to the contact pins of the detonator and at the other end to the terminals of the fuze tester.

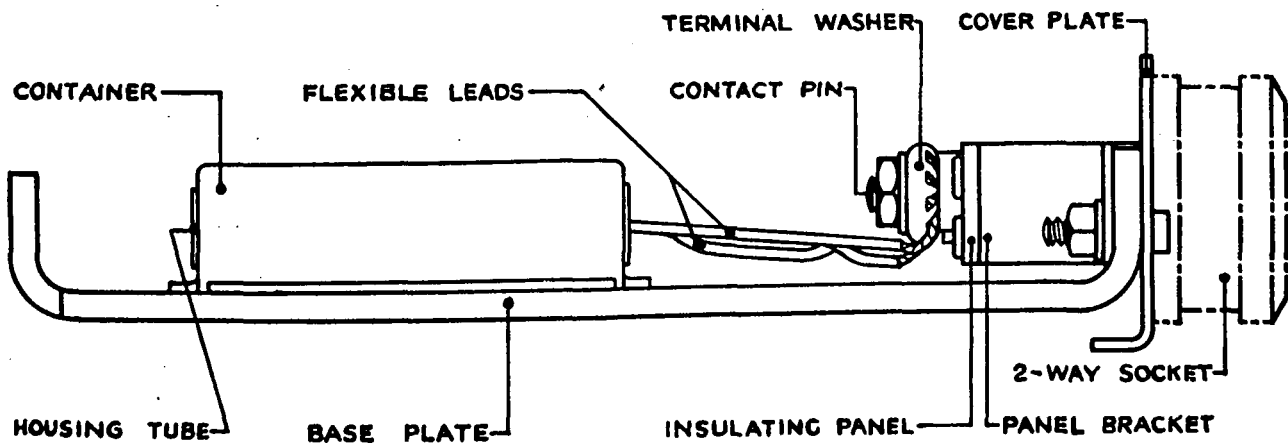
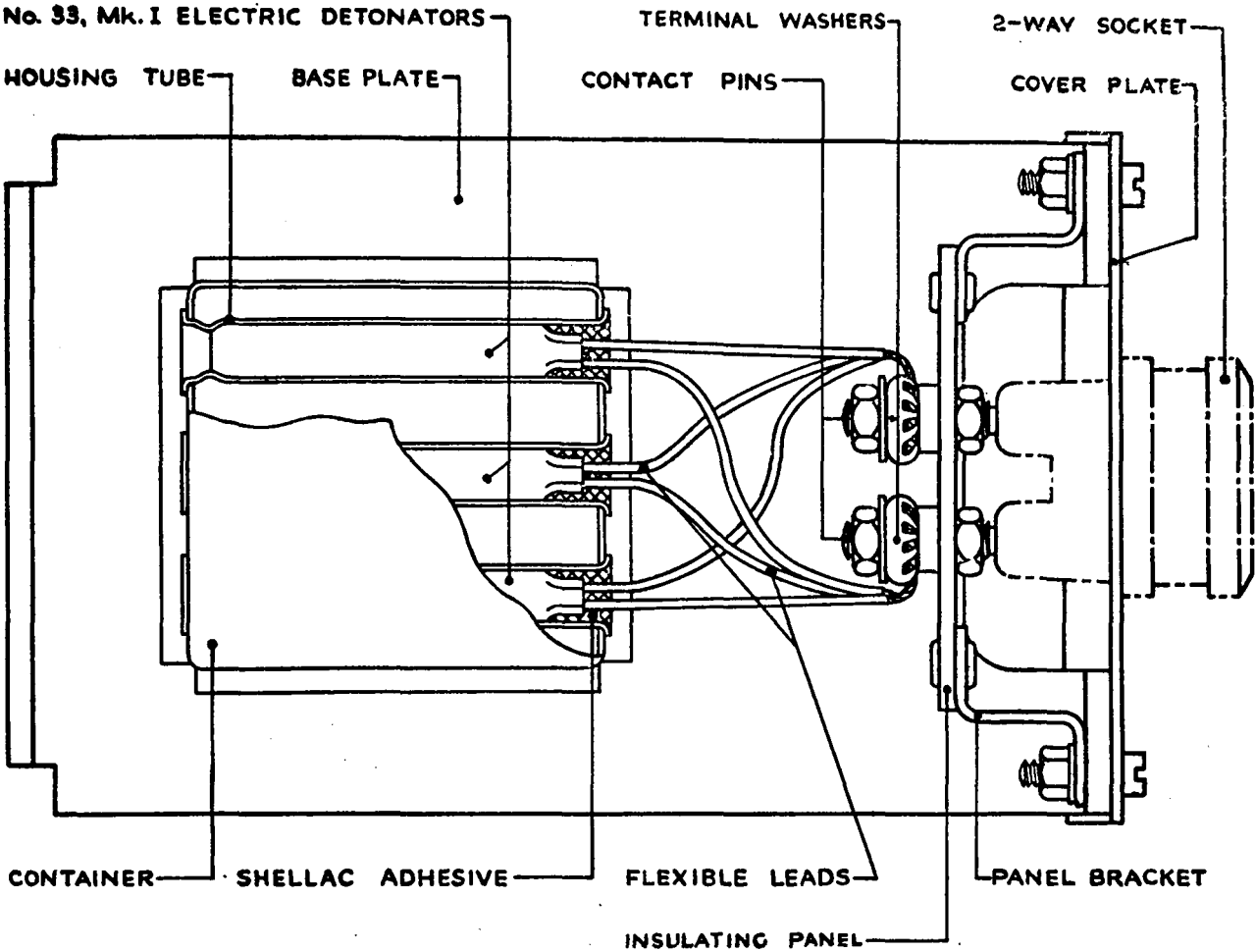


Fig. 1.—Detonator, electric, No. D.39, demolition, Mk. I

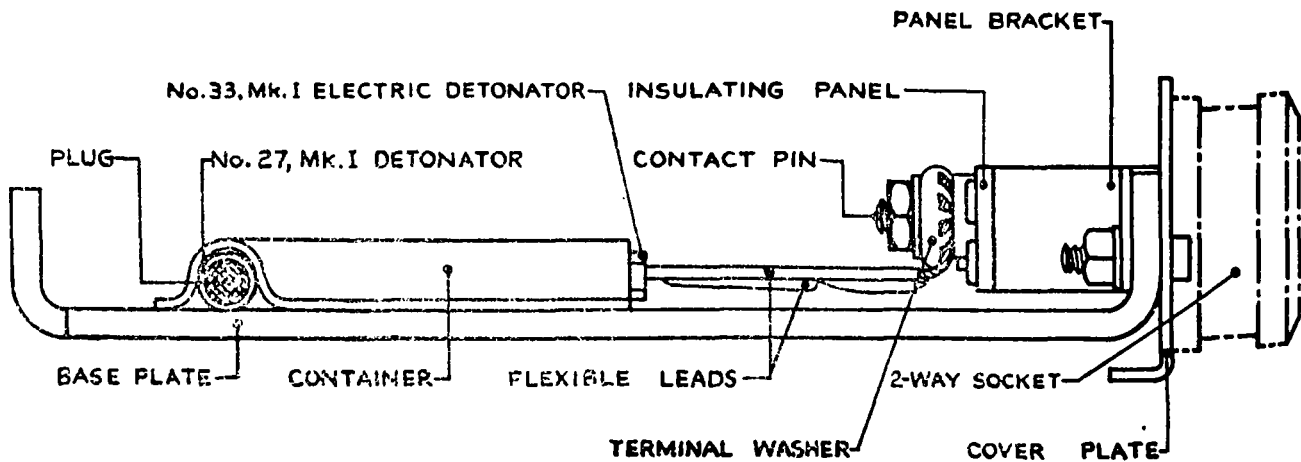
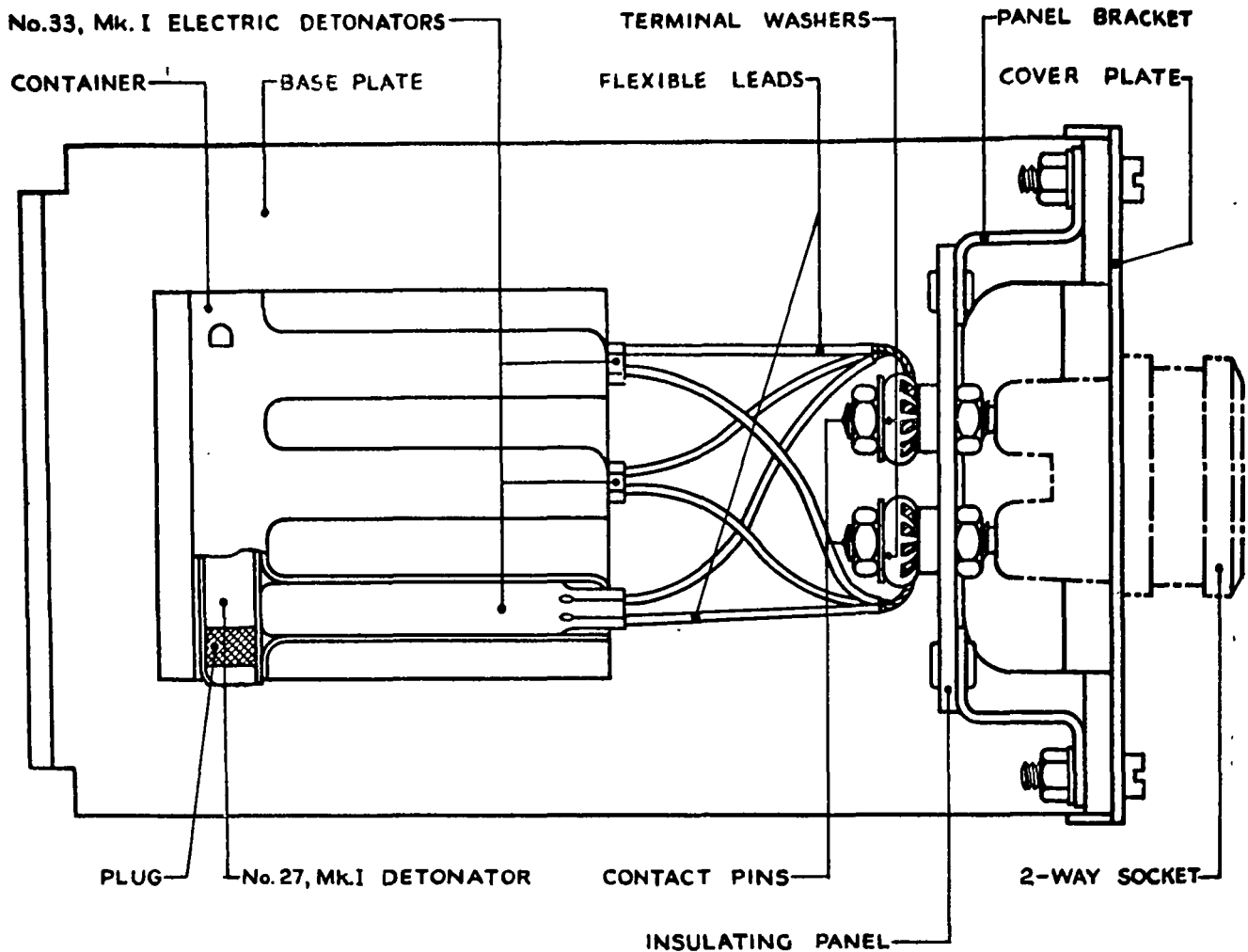


Fig. 2.—Detonator, electric, No. D.39, demolition, Mk. III

- (iii) With the detonator positioned in a safe place, and the fuze tester at a sufficient safety distance, move the lever of the fuze tester up and down. If the circuit through at least one of the No. 33 Mk. I detonators is complete, it will pass the small current generated by the magneto and this will be indicated by deflection of the galvanometer needle on the tester. If the galvanometer needle is not deflected, the detonator must not be used but must be treated as unserviceable and be destroyed as soon as possible as described in A.P.1245, Chap. 3, Sect. XIX.

Insulation tests

16. The circuit test, described in para. 15, must be followed by insulation tests to determine whether or not the insulation of the detonator is satisfactory, the procedure being as follows:—

- (i) Using the fuze tester, test the insulation of the detonator between the contact pins and the container which houses the three No. 33 Mk. I electric detonators. If a short-circuit is indicated, by the deflection of the galvanometer needle on the tester, the detonator must be treated as unserviceable and be disposed of as soon as possible as described in A.P.1245, Chap. 3, Sect. XIX.
- (ii) If no circuit is indicated in the insulation test with the fuze tester, the test must be repeated, using Tester, insulation resistance, Type A (Stores Ref. 5G/1621). If a resistance reading of less than 20 megohms is obtained, the detonator must be treated as unserviceable and be disposed of as described in A.P.1245, Chap. 3, Sect. XIX; if a higher reading is obtained, the insulation is satisfactory and the detonator is serviceable.

Supply

17. Detonators, electric, No. D.39, demolition, Mk. I (Stores Ref. 12D/242) are supplied in lots of 24, packed six detonators in each of four cases, tinned-plate (Stores Ref. 12D/308), which are contained in Box, B.329, Mk. I (Stores Ref. 12D/307).

Storage

18. Electric detonators are classified, for storage purposes, in Group X.

DETONATOR, ELECTRIC, No. D.39, DEMOLITION, Mk. III

19. Attention is directed to para. 1 to 6.

General description, fig. 2

20. This detonator is generally similar to the corresponding Mk. I detonator, described in para. 8 to 12, except that it has an additional detonator component, namely a No. 27 Mk. I detonator, see Sect. 3, Chap. 3, which is located in the container across one end of the three No. 33 Mk. I electric detonators. This additional detonator is not electrically fired; it functions by sympathetic detonation, to increase the effect, when the No. 33 detonators are fired electrically. The container is modified to take the additional component, the housing tubes being dispensed with and the plate from which the container is made being corrugated to afford three longitudinal housings for the No. 33 electric detonators and a transverse housing for the No. 27 detonator.

21. The tube of the No. 27 detonator is closed by a plug secured by adhesive and the four detonator components are retained in their housings in the container by crimping the edges of the container at the open ends of the housings.

22. The circuit and insulation tests described in para. 14 to 16 apply to the Mk. III No. 39 electric detonator as well as to the corresponding Mk. I detonator.

Supply

23. Detonators, electric, No. D.39, demolition, Mk. III (Stores Ref. 12D/441) are supplied in lots of 24, packed six detonators in each of four cases, tinned-plate (Stores Ref. 12D/308) which are contained in Box, N.329, Mk. I (Stores Ref. 12D/307).

Storage

24. The No. D.39 Mk. III detonator is classified, for storage purposes, in Group X.