1188A TEST SET

DESCRIPTION AND USE

CONTENTS PAGE

1. GENERAL

1.01 This section covers the description and use of the 1188A test set (Fig. 1). The test set is used to test the 188A (Stop Lite) test set.

1.02 Revision arrows are used to emphasize significant changes. This section is reissued to add theory of operation and to make additions to testing procedures.

1.03 ▶The 1188A test set is designed to perform a 30,000 Vdc dielectric strength on the outer housing of the 188A test set and to test the 50V threshold of the set.◀

2. PRECAUTIONS

2.01 Do not bypass safety switches in the test set.

2.02 Do not insert any object other than the 188A test set into the 1188A test set when power is present.

2.03 Take the necessary care to protect the test set from water as it is not waterproof.

2.04 ▶Do not store the 1188A test set overnight in vehicles or in any location where humidity is not controlled.◀

Fig. 1—1188A Test Set

3. DESCRIPTION

3.01 The 1188A test set is portable and operates on 110-120 Vac 60 Hz. The test set is housed in a case designed for transporting or shipping without the use of other containers. The test set weighs approximately 39 pounds and is 18 inches wide by 12 inches high by 18 inches long. The power cord is stored in the cover of the test set. All controls and indicators are located on the front panel (Fig. 2). There are no internal controls or adjustments to be made.

4. THEORY OF OPERATION

4.01 The 1188A test set performs two different tests on the 188A test set; a high voltage test (A), and a circuit test (B).

A. High Voltage Test

4.02 The high voltage test is designed to detect weakness in the insulating ability of the plastic handle of the 188A test set. The test places a high voltage (30,000 Vdc) across the plastic handle while observing the resulting leakage current. If excessive leakage current occurs and a "fail" indication is given, the test is terminated.

4.03 Due to the high voltages involved, safety features are designed into the 1188A test set to insure user protection. The high voltage system can operate only when a 188A test set is in place in the test socket and the test compartment lid is closed.

4.04 The high voltage test sequence is automated. When all interlocks are satisfied, the READY TO TEST indicator lamp is lighted. In this state, when both H.V. TEST buttons are operated, the test sequence begins. The high voltage power supply is activated and the required test voltage is applied to the 188A test set. Failure of the 1188A test set to build the required test voltage within approximately 2 seconds will cause the TEST ERROR indicator to be lighted, and the test will terminate. To insure a proper test as the high voltage builds, the initial surge of charging current also causes the TEST ERROR indicator to be lighted.

4.05 When the required test voltage is reached, the TEST IN PROG indicator is lighted and a timed test interval begins. A proper test requires the application of approximately 30,000 Vdc for at least 10 seconds. The 188A test set is rated for user protection to 20,000 Vac rms.

4.06 The leakage current required to cause the FAIL indicator to light is approximately 15 micro-amperes. Any defects in the 188A test set will produce much higher leakage current usually accompanied by a loud cracking sound as current arcs through the defect. Any moisture or condensation in either the 1188A test set or the 188A test set will allow sufficient leakage current for the test to fail.

4.07 The 188A test set contains a metal tube inside its handle. This tube is a close fit and is connected to the terminal marked GND FOR DC TEST. When the 188A test set is in place in the test compartment of the 1188A test set, the GND FOR DC TEST terminal rests on the high voltage contact of the 1188A test set. The high voltage applied to this terminal is therefore applied to the metal tube inside the handle of the 188A test set. The test socket of the 1188A test set into which the handle of the 188A test set fits is a close fitting metal sleeve which is grounded. Therefore, the high voltage is impressed across the plastic handle with very little air gap. During the test, high voltage is also present across the tip and CHECK CONTACT of the 188A test set.

4.08 Sharp corners tend to give off an electrical discharge when subjected to high voltages. The magnitude of the discharge depends on air conditions such as humidity. If a sharp edge is present on the slotted head screw of the CHECK CONTACT, enough leakage current (electrical discharge) may be present to cause the FAIL indicator to light and the test to fail. This type of failure is usually indicated by a "frying" sound as the discharge builds and failure occurs several seconds into the test. Temporarily covering the CHECK CONTACT screw head with electrical tape will prevent this type of failure and allow the test to proceed.

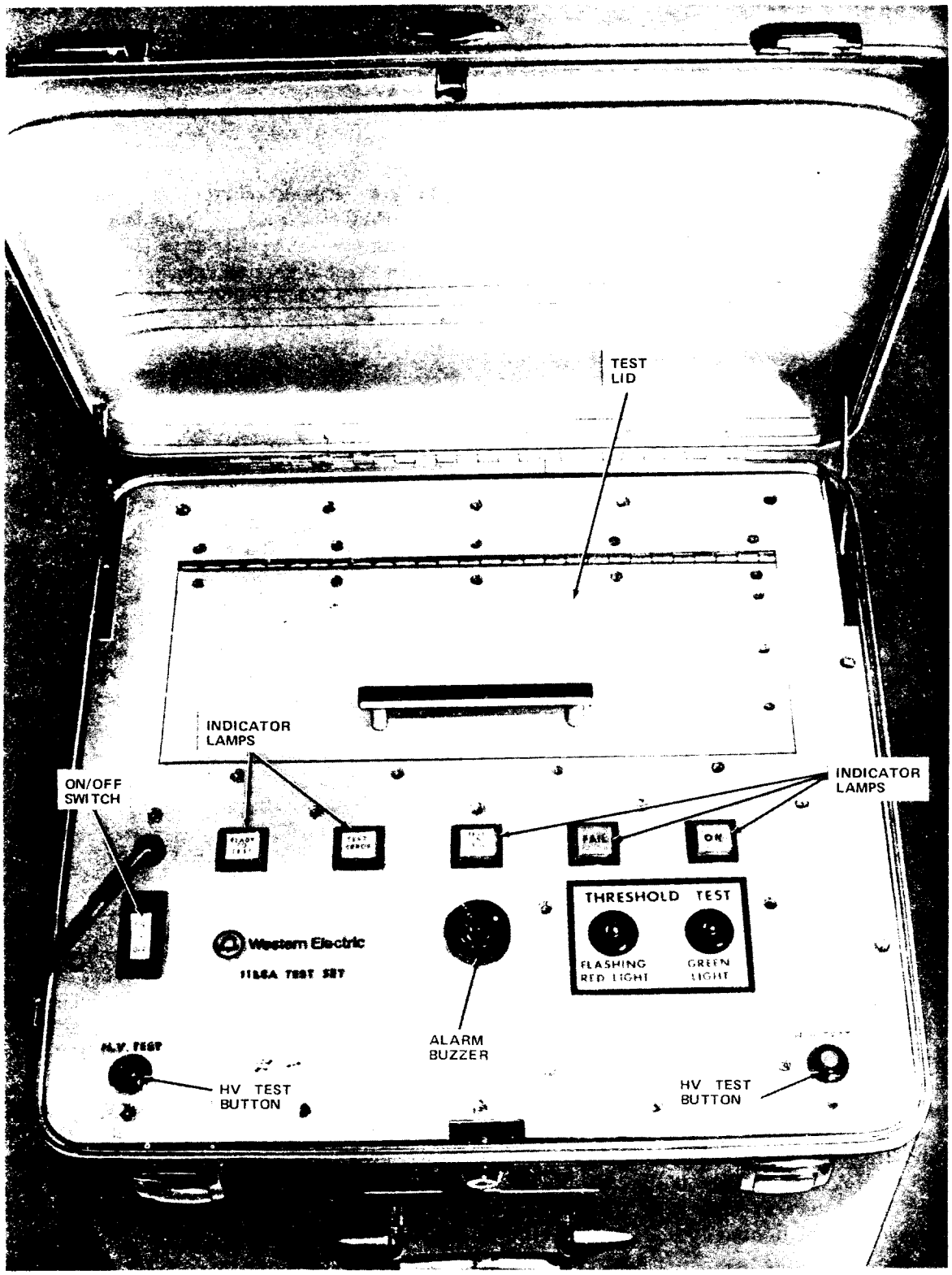

Fig. 2—Front Panel

B. Circuit Test

4.09 The circuit test will verify that the 188A test set will display its red flashing light emitting diode (LED) when exposed to a voltage of approximately 50 Vrms or greater and that its red LED will not flash when exposed to a voltage of approximately 22 Vrms or less. The voltages applied to the touch post located at the THRESHOLD TEST section of the front panel are peak regulated clipped sinusoids. These voltages are almost independent of line voltage fluctuations. Depressing either H.V. TEST button will apply these voltages to the touch posts. These threshold test voltages are current limited to less than 250 micro amperes. Operating the H.V. TEST buttons requires the hand of the operator to be close to or in contact with the grounded front panel. This contact grounds the operator and reduces threshold variations due to the environment.◀

5. USE

5.01 ***Warning: Do not use the 1188A test set in a damp location or outdoors.*** Condensation can form inside the test set under certain conditions. For example, condensation can form when the test set is moved from a cold to a warm environment.

5.02 Procedures for operating the 1188A test set are as follows:

1. Connect the power cord to a 110-120 Vac 60-Hz grounded power source.

2. Push the ON/OFF switch to ON. The red light in the switch must light (failure to light suggests no ac power or a defective test set). The internal fan, used for elimination of condensation, will operate when the ON/OFF switch is in the ON position.

3. Open the test lid and raise the probe socket (Fig. 3).

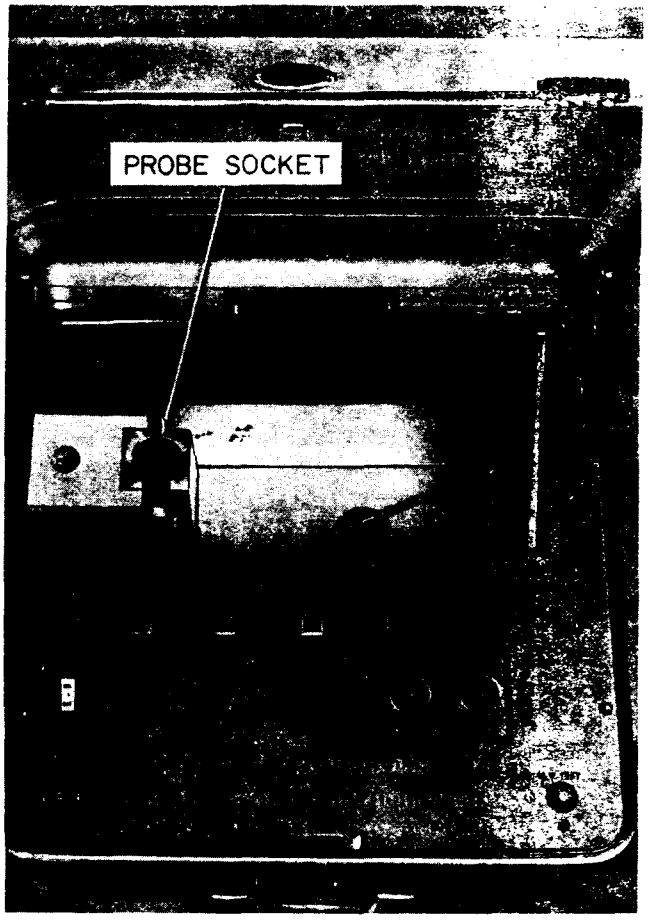

Fig. 3—Probe Socket

4. With the cover and the test lid open, allow the internal fan to run at least 30 minutes before use if the test set has been stored at temperatures below 50 degrees F or if humid conditions exist.

Note: ▶To speed drying, or in particularly damp conditions, it may be necessary to direct a stream of hot air into the test set compartment.◀

5. Insert the 188A test set, handle first, into the probe socket so the entire handle, up to the flash guard, is inside the socket (Fig. 4).

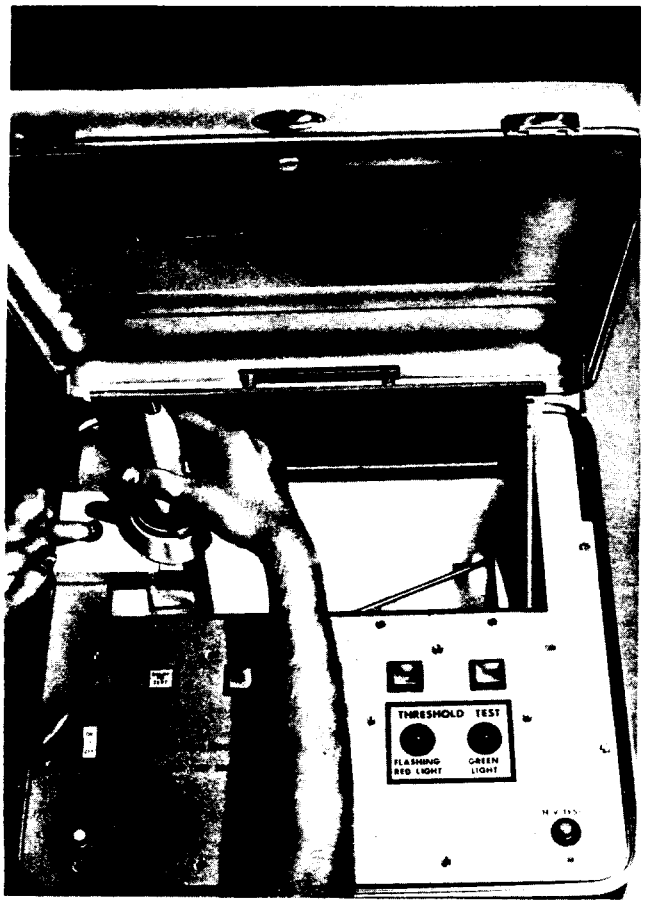

Fig. 4—188A Inserted Into Socket

6. ***Lower the test probe. Do not drop. Do not slam the test lid shut.*** The 1188A test set will not operate unless a 188A test set is inserted into the test probe socket and the test lid is closed (Fig. 5 and 6).

Note: The READY TO TEST indicator lamp must light. (Failure to light suggests that the test lid is not closed or the 188A test set is not in place.)

7. Depress both H.V. TEST buttons at the same time and hold for about 15 seconds. The READY TO TEST indicator lamp will extinguish. After about 2 to 3 seconds, the TEST IN PROG indicator should light. If the TEST IN PROG indicator does not light, the ERROR or the FAIL indicator will light.

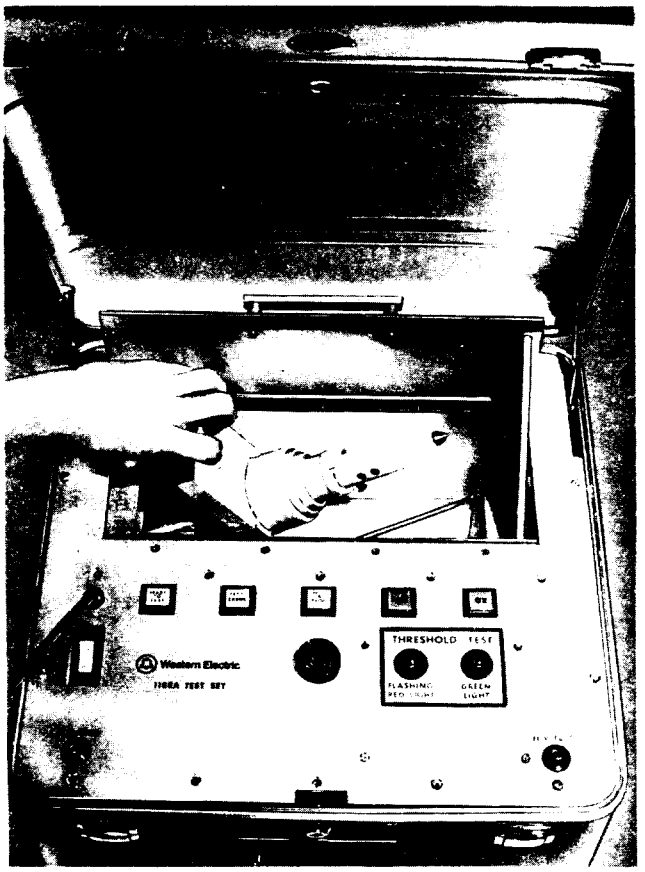

Fig. 5—Lowering 188A Test Set

Note 1: If the FAIL indicator lights, the AUDIBLE ALARM BUZZER will sound. Continue to Step 8.

Note 2: If the TEST ERROR indicator lights, the test is invalid. This indicates early release of the H.V. TEST buttons, poor contact between the 188A test set ground terminal and the HV contact in the 1188A test set, or a malfunction of the 1188A test set. Proceed to Step 13.

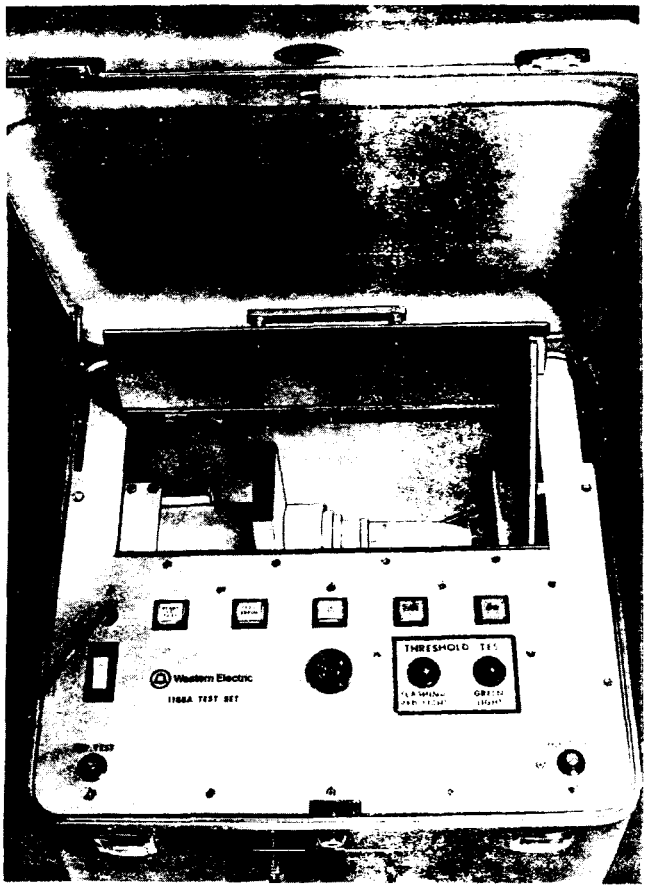

Fig. 6—188A In Test Position

8. If the FAIL indicator lights, release both H.V. TEST buttons, open the test lid, and remove the 188A test set.

9. Inspect the test socket for cleanliness and dryness.

10. Inspect the 188A test set for dryness and obvious defects (such as cracks in the handle).

11. If the test socket appears dry and no obvious defects are seen on the 188A test set, repeat the test (Steps 7 through 10).

12. ▶If the 188A test set fails again, place a piece of electrical tape over the check contact (slotted head screw) on the 188A test set and repeat the test. If the 188A test set continues to fail, ***do not use.***◀

13. Release the H.V. TEST buttons, open the test lid, and remove the 188A test set. Make sure that the ground contact is clean and dry and that the 188A test set is seated correctly in the test probe socket.

14. Repeat the test (Step 13). If the TEST ERROR indicator lights again, ***do not use the 188A test set.***

15. When the TEST IN PROG indicator lights, the test is proceeding. Continue to hold both H.V. TEST buttons depressed for about 15 to 20 seconds until the TEST IN PROG indicator extinguishes and either the OK or FAIL indicator is lighted.

5.03 A threshold test of the 188A test set must be made after the high voltage test. This test checks the internal circuits of the 188A test set. To make the threshold tests, proceed as follows:

1. Depress and hold either H.V. TEST button.

2. Follow the instructions on the handle of 188A test set and touch the post marked GREEN LIGHT (Fig. 7).

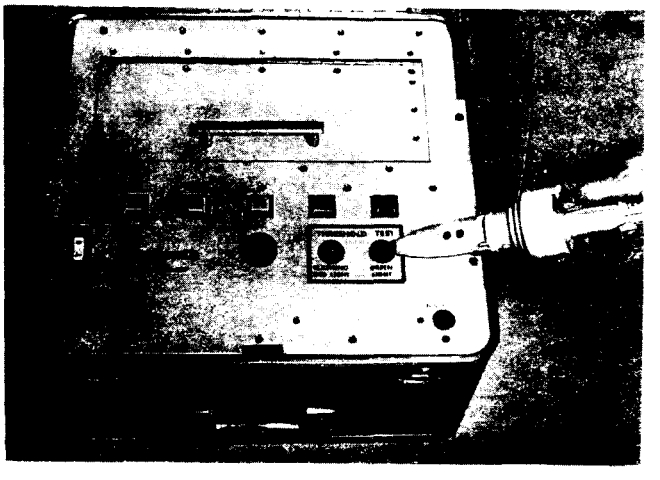

Fig. 7—Touching Post

3. The 188A test set should indicate a safe condition. (An initial static discharge may occur and cause the red LED to flash.) When this occurs, release the 188A trigger switch while keeping the H.V. TEST BUTTON depressed. Depress the trigger switch a second time. If the red LED continues to flash, ***do not use 188A test set.***

4. Depress and hold either H.V. TEST button and touch the post marked FLASHING RED LIGHT. The red LED on the 188A test set should flash indicating that the test set is OK. If the red LED does not flash, do not use the 188A test set.

5.04 ◗After passing both the high voltage and the threshold tests, determine the proper color wire marker, based on the present year (Table A). Apply the wire marker to the left side of the trigger switch gusset on the 188A test set. Write the present date (month/year) on the marker (ie, 7/83). Other than the wire marker on the trigger switch gusset, ***do not attach anything to the test set or alter the test set in any way.***◖

TABLE A

TEST DATE IDENTIFICATION SYSTEM

YEAR ENDS IN	CLOTH-TYPE WIRE MARKER COLOR
0	Light Blue
1	Orange
2	Light Green
3	Tan
4	Gray
5	Light Blue
6	Orange
7	Light Green
8	Tan
9	Gray

6. MAINTENANCE

6.01 No maintenance shall be performed except the replacing of the lamps in the front panel. The 1188A test set should be repaired only by authorized Western Electric service locations. Return for repair in accordance with local procedures.

6.02 To replace lamps, remove the indicator screen by grasping the slots on the opposite sides of the screen and snapping it out of the housing (Fig. 8). Remove the lamp retainer from the indicator screen and press the lamp out of the retainer (Fig. 9). After replacing the lamp, snap the retainer onto the indicator screen. The replacement lamp is a standard 387-type lamp (Comcode 402464739).

Fig. 8—Removing Lamp Indicator

Fig. 9—No. 387 Lamps

6.03 When replacing the indicator screen, insure that it is securely fastened to the lamp socket housing. Remove and replace only one screen at a time. This will eliminate the possibility of transposing a screen in another position on the test set.

7. ORDERING

7.01 ▶Orders for the 1188A test set shall be worded as follows: Set, test, 1188A Comcode 103573291.◀