

**DATA SET 108-TYPE
PRIVATE LINE SYSTEM STATION APPLICATION
MAINTENANCE**

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1. GENERAL

1.01 This section describes the maintenance procedures to be followed for station installations of Data Sets 108A- and 108C-type. Information on maintenance of Data Set 108B-type can be found in the section entitled Data Set 108B, Maintenance (312-800-300).

1.02 This section should be used as a guideline in conjunction with the individual station practices (591-023-ZZ1 and 591-023-ZZ2) to locate troubles at Data Set 108A- and 108C-type stations.

1.03 No routine maintenance is required for the data sets or data auxiliary sets. Data sets suspected of being in trouble should be tested as described in the sections entitled Data Set 108-Type Single Private Line Station Using Data Auxiliary Set 820D-Type Test Procedures (591-023-501) and Data Set 108-Type Multiple Private Line Station Using Data Auxiliary Set 820E-Type Test Procedures (591-023-502).

1.04 Data sets or data auxiliary sets (DASs) not meeting test requirements should be replaced to restore customer's service as quickly as possible.



To prevent damage to the data set and interface card and to prevent personal injury, remove power to the units before connecting or disconnecting

them from their frames. Verify that proper options have been installed on the replacing data set and interface cards before replacing them into their frames.

1.05 Verify that the customer's service is satisfactory before leaving his premises.

1.06 Exercise care in handling and transporting data sets and interface cards. If possible, use original cartons to store, transport, or ship them. If maintenance spares are stocked, verify that they are checked and available for immediate installation.

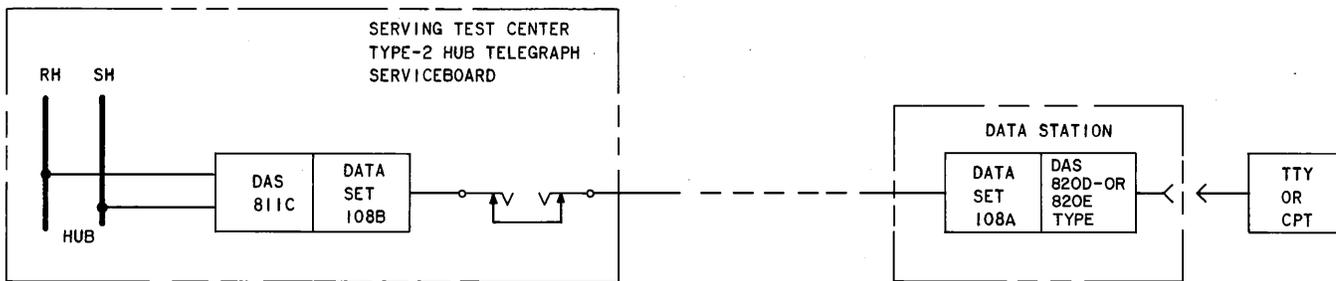
2. MAINTENANCE PROCEDURES

2.01 Examples of typical private line testing arrangements are shown in Fig. 1.

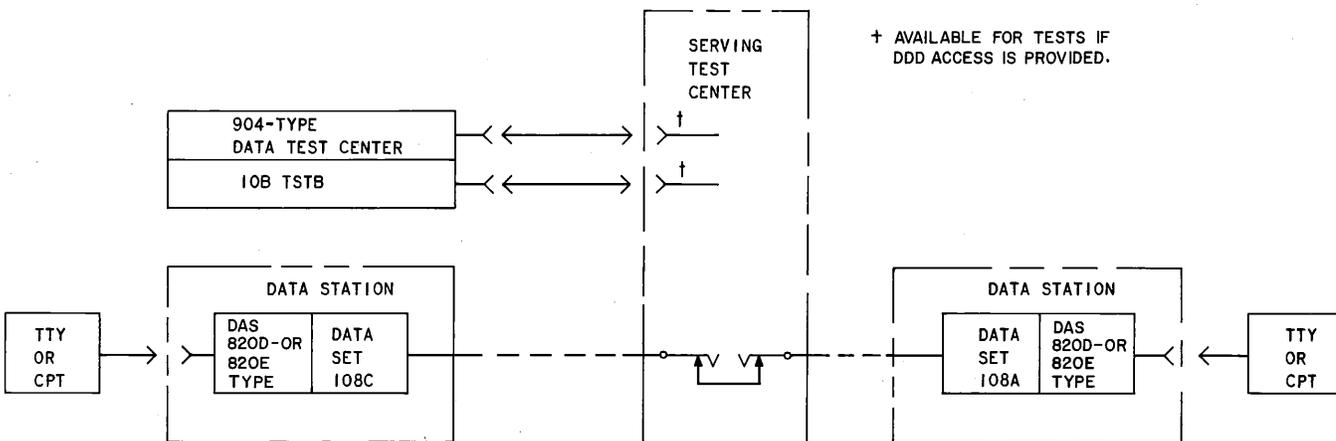
2.02 Maintenance of Data Sets 108A- and 108C-type should be in accordance with the flow charts (Fig. 2 and 3). The flow charts are recommended for an organized trouble investigation of a customer's trouble report.

2.03 Maintenance activity of a station-to-hub circuit is under control of the Telegraph Serviceboard. Maintenance activity of a station-to-station circuit that does not pass through a serving test center (STC) is normally under control of the main data station.

2.04 The maintenance philosophy for station-to-station circuits without an STC is based on the data circuit not being option-wired for Carrier Squelch on Carrier Fail. In the event that the distant station is option-wired for Carrier Squelch on Carrier Fail, it may be necessary to dispatch a telephone employee to the distant station and remove the option prior to performing the maintenance procedure unless the trouble is obviously at the other station.



(A) HUB-TO-STATION



(B) STATION-TO-STATION

Fig. 1—Data Set 108-Type, Typical Testing Arrangement

2.05 Prior to dispatching a telephone employee, it is assumed that the station(s) has been tested and that the trouble has been sectionalized to a particular station. Refer to the section entitled General Maintenance Procedures For Stations Using Data Sets 108A- and 108C-Type (312-011-301).

DATA STATION INVESTIGATION PROCEDURE

2.06 It is recognized that some station-to-station circuits are installed without testing facilities in the circuit. For this reason, Fig. 2 has been developed to isolate the malfunctioning station without any assistance from the STC or data test center. Once the malfunctioning station has been isolated, the trouble may be isolated to a major component of the station by using Fig. 3. If the trouble has been isolated to a station by the testing

facilities, the telephone employee should omit Fig. 2 and isolate the trouble using Fig. 3.



The numbers in brackets [] refer to the numbered blocks in the flow charts.

2.07 When the flow chart indicates that a test should be performed (eg, check CF lead condition), the procedure is covered in the individual station test practices (591-023-501 and 591-023-502).

2.08 The following procedure refers to Fig. 2. When dispatched to the station [1], a check of the Data Carrier Dectector (CF) lead condition [2] should be performed to determine that the far-end data set transmitter and the near-end data

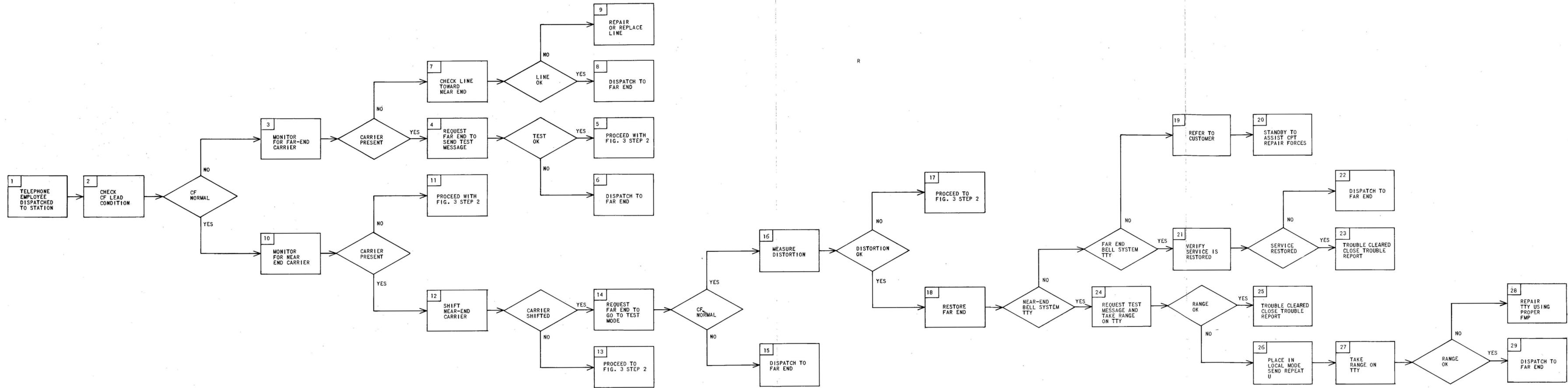


Fig. 2—Data Station Investigation Procedure

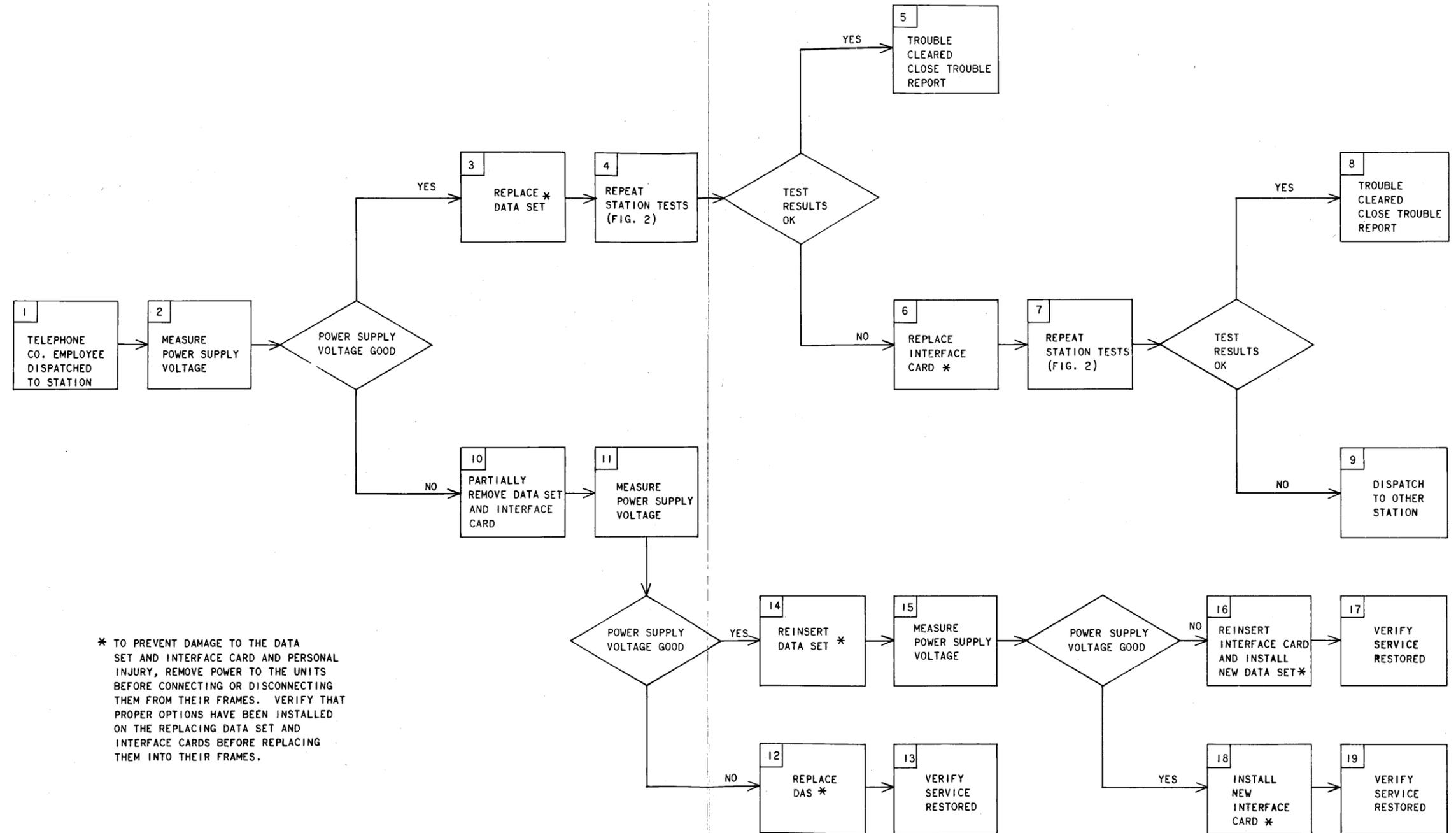


Fig. 3—Data Set Isolation Procedure

set receiver are functioning properly. Should the CF condition be normal, proceed to [10]. In the event that the CF condition is not normal, monitor for the far-end carrier [3]. If the far-end carrier is present, request that the far end send a test message [4] while monitoring the far-end carrier. If the carrier shifts due to the test message [5], the near-end data set receiver is in trouble and should be cleared by using Fig. 3, starting with Step 2. In the event that the carrier is not shifted by the test message, the far-end data set transmitter is in trouble and a telephone employee should be dispatched to the far end [6].

2.09 In the event that the carrier from the far end is not present, the telephone line facilities should be checked [7]. Should the line facilities test satisfactorily, the far-end data set transmitter is in trouble, and a telephone employee should be dispatched to the far end [8]. If the line facilities fail the test, the line should be repaired or replaced in order to restore service as quickly as possible [9].

2.10 Should the check of the CF lead indicate normal [2], monitor for the near-end carrier [10] to verify that the near-end data transmitter is functioning properly. In the event that carrier is not present from the near end [11], the transmitter or interface card is in trouble and should be cleared by using Fig. 3, starting with Step 2.

2.11 If the near-end carrier is present, shift the near-end carrier [12]. In the event that the near-end carrier is not shifted [13], the trouble is in the data set transmitter or interface card and should be cleared by using Fig. 3, starting with Step 2. Should the near-end carrier shift, call the far-end station and request that the data set be conditioned for test mode [14]. Conditioning of the far-end data set for test mode will cause the Carrier Squelch on Carrier Fail option to be enabled at the far end. If the check of the CF condition is not normal, the far-end data set receiver is in trouble, and a telephone employee should be dispatched to the far end [15]. In the event that the CF condition is normal, a distortion measurement should be made [16].

2.12 If the distortion measurement fails the test requirements [17], the near-end data set should be checked using Fig. 3, starting with Step 2. Should the distortion measurement pass the test

requirements, request the far end to restore the data set from the test mode [18].

2.13 Determine whether the near-end station terminal is a Bell System teletypewriter. If the near-end terminal is a teletypewriter, proceed to [24]. In the event that the near-end terminal is not a teletypewriter, determine whether the far-end terminal is a Bell System teletypewriter. If the far-end terminal is not a teletypewriter, the data link has been tested and found to meet test requirements [16]; therefore, the customer should be notified of the test results [19]. If possible, stand by to assist the customer-provided terminal maintenance force [20].

2.14 Should the far-end terminal be a Bell System teletypewriter, request the far-end customer to check for service restoral [21]. If the service is not restored, a telephone employee should be dispatched to the far-end station to check the far-end teletypewriter [22]. In the event that the service is restored, the trouble report may be closed [23].

2.15 In the event that the near-end terminal is a teletypewriter (see 2.14), request the far end to send a test message and take a range on the incoming test message [24]. If the range meets the test requirements, the trouble report should be closed [25]. If the teletypewriter fails to pass the range test requirements, the teletypewriter should be placed in the local mode and repetitive character U sent by the keyboard [26]. While sending the U, take the range of the teletypewriter [27].

2.16 Should the teletypewriter fail to pass the range test requirements, the teletypewriter should be repaired using the Field Maintenance Policy (FMP) covering the model teletypewriter at the station [28]. If the range meets the test requirements, a telephone employee should be dispatched to the far end to check the data station [29].

DATA SET ISOLATION PROCEDURE

2.17 The following procedure (Fig. 3) is a continuation of the data station investigation procedures (Fig. 2) and is also used when remote tests indicate that the data set has failed the test requirements.

SECTION 591-023-300

2.18 When dispatched to the data station [1], measure the power supply voltage of the data set in trouble [2]. If the power supply voltage meets test requirements, the data set should be replaced [3]. If the power supply voltage fails the test requirements, proceed to [10].

2.19 When the data set is replaced, the station tests (ie, remote test or Fig. 2) should be repeated [4]. In the event that the repeated tests meet the requirements, the trouble has been cleared and the trouble report should be closed as a defective data set [5]. If the repeated tests fail the test, the interface card should be replaced [6] and the station tests repeated [7].

2.20 If the repeated tests meet the test requirements, the trouble has been cleared and the trouble report should be closed as a defective interface card [8]. In the event that the repeated tests fail to meet the test requirements, a telephone employee should be dispatched to the far-end station to check the station [9].

2.21 In the event that the power supply voltage measurement [2] failed the test requirements, partially remove both the data set and interface card from the data auxiliary set [10], and measure the power supply voltage [11]. Should the power supply voltage fail to meet test requirements, there

is a malfunction of the data auxiliary set and the data auxiliary set should be replaced [12].



For multiple data set installations, consideration should be given to the replacing of the data auxiliary set during the customer's off hours. This is due to the necessity of obtaining a release for the other two data circuits that are associated with Data Auxiliary Set 820E-type.

2.22 When the data auxiliary set has been replaced, verify that the customer's service has been restored [13].

2.23 If the power supply voltage met test requirements when measured in [11], reinsert the data set into its connector [14], and measure the power supply voltage again [15]. Should the power supply voltage fail the test requirements, the data set caused the trouble report. Reinsert interface card into its connector, and replace the data set [16]. When the data set has been replaced, verify that the customer's service has been restored [17].

2.24 In the event that the power supply voltage met test requirements when measured in [15], the interface card caused the trouble report. Replace interface card [18], and verify that the customer's service has been restored [19].