



US005189663A

United States Patent [19]

[11] Patent Number: **5,189,663**

Williams

[45] Date of Patent: * **Feb. 23, 1993**

[54] **METHOD OF AND SYSTEM FOR REMOTE TESTING AND REPORTING OF ISDN LINE CONDITIONS**

4,922,482	5/1990	Tanahashi et al.	370/13
4,989,202	1/1991	Soto et al.	370/13
4,998,240	3/1991	Williams	370/110.1

[75] Inventor: **Clifton B. Williams**, Richmond, Va.

Primary Examiner—Benedict V. Safourek

[73] Assignee: **C & P of Virginia**, Richmond, Va.

Assistant Examiner—Min Jung

[*] Notice: The portion of the term of this patent subsequent to Mar. 5, 2008 has been disclaimed.

Attorney, Agent, or Firm—Lowe, Price, LeBlanc & Becker

[21] Appl. No.: **515,007**

[57] ABSTRACT

[22] Filed: **Apr. 26, 1990**

In an integrated services digital network (ISDN), a selected customer ISDN line at a central office is tested by remote control from an ISDN testing facility so that it is unnecessary to dispatch service personnel to the office to carry out the test. At least D-channel data from the ISDN line to be tested is obtained from the standard U-interface bus, accessed at the central office using the line card sparing feature of a standard integrated services line unit (ISLU). The D-channel data is applied to a personal computer at the central office, programmed to carry out protocol analysis and to supply at least one of data indicative of the protocol analysis and raw data used to perform the protocol analysis to a report communication line. Another computer at the ISDN test facility controls the operation of the computer at the central office over a dedicated communication line.

Related U.S. Application Data

[63] Continuation-in-part of Ser. No. 394,090, Aug. 15, 1989, Pat. No. 4,998,240.

[51] Int. Cl.⁵ **H04J 3/14**

[52] U.S. Cl. **370/17; 370/13; 371/20.1**

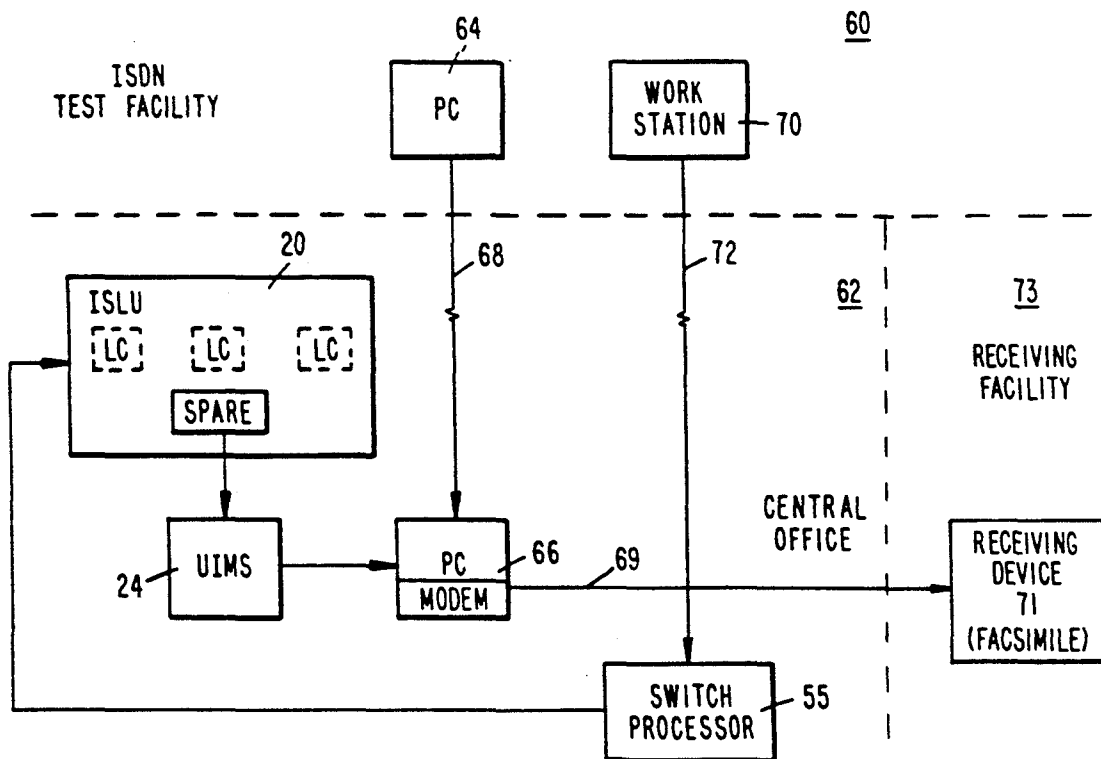
[58] Field of Search **370/13, 110.1, 17; 371/20.1, 20.5, 8.1**

[56] References Cited

U.S. PATENT DOCUMENTS

4,611,320	9/1986	Southard	370/15
4,663,754	5/1987	Senoo	370/13
4,730,313	3/1988	Stephenson et al.	370/94.1

26 Claims, 5 Drawing Sheets



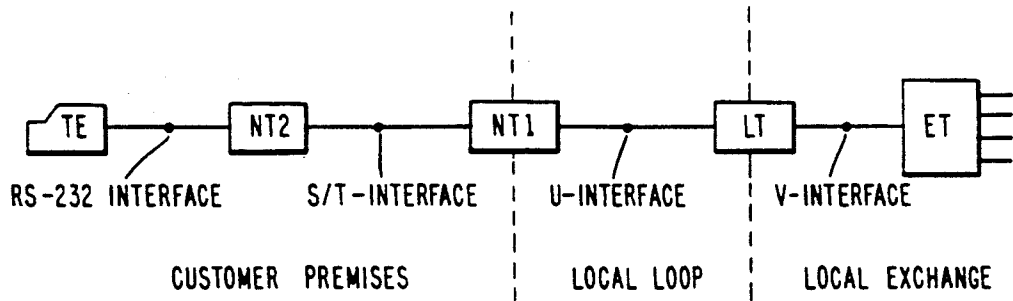


Fig. 1

PRIOR ART

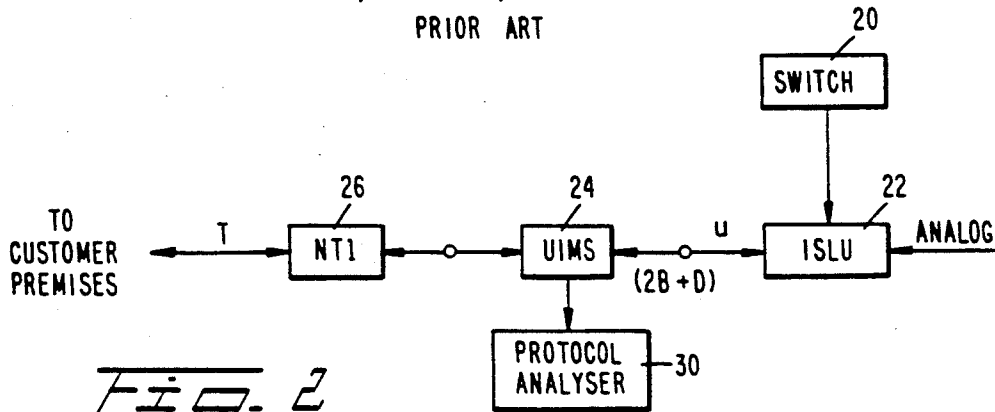


Fig. 2

PRIOR ART

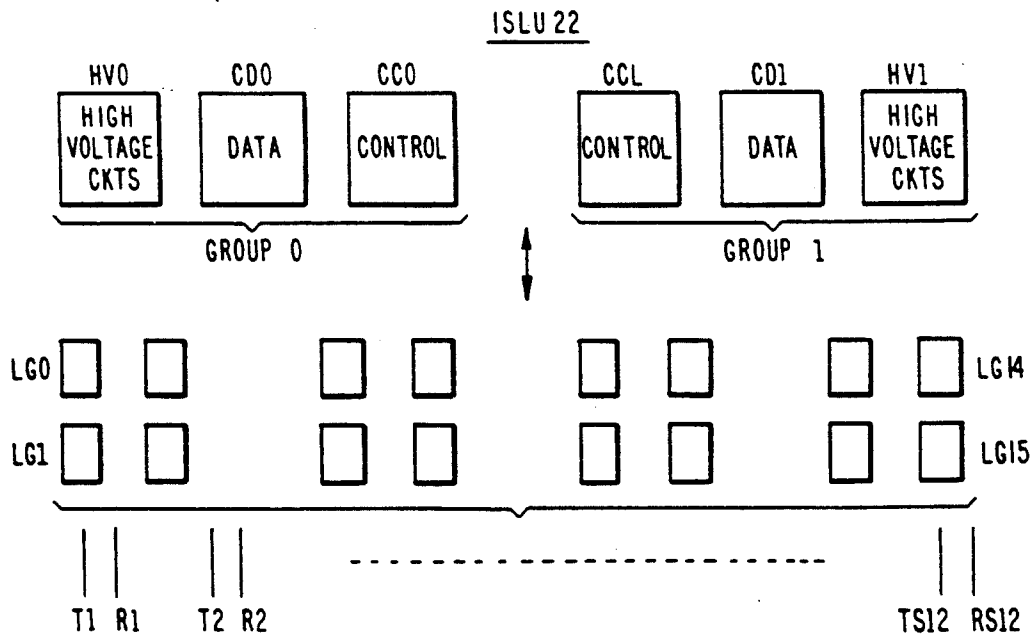


Fig. 3

PRIOR ART

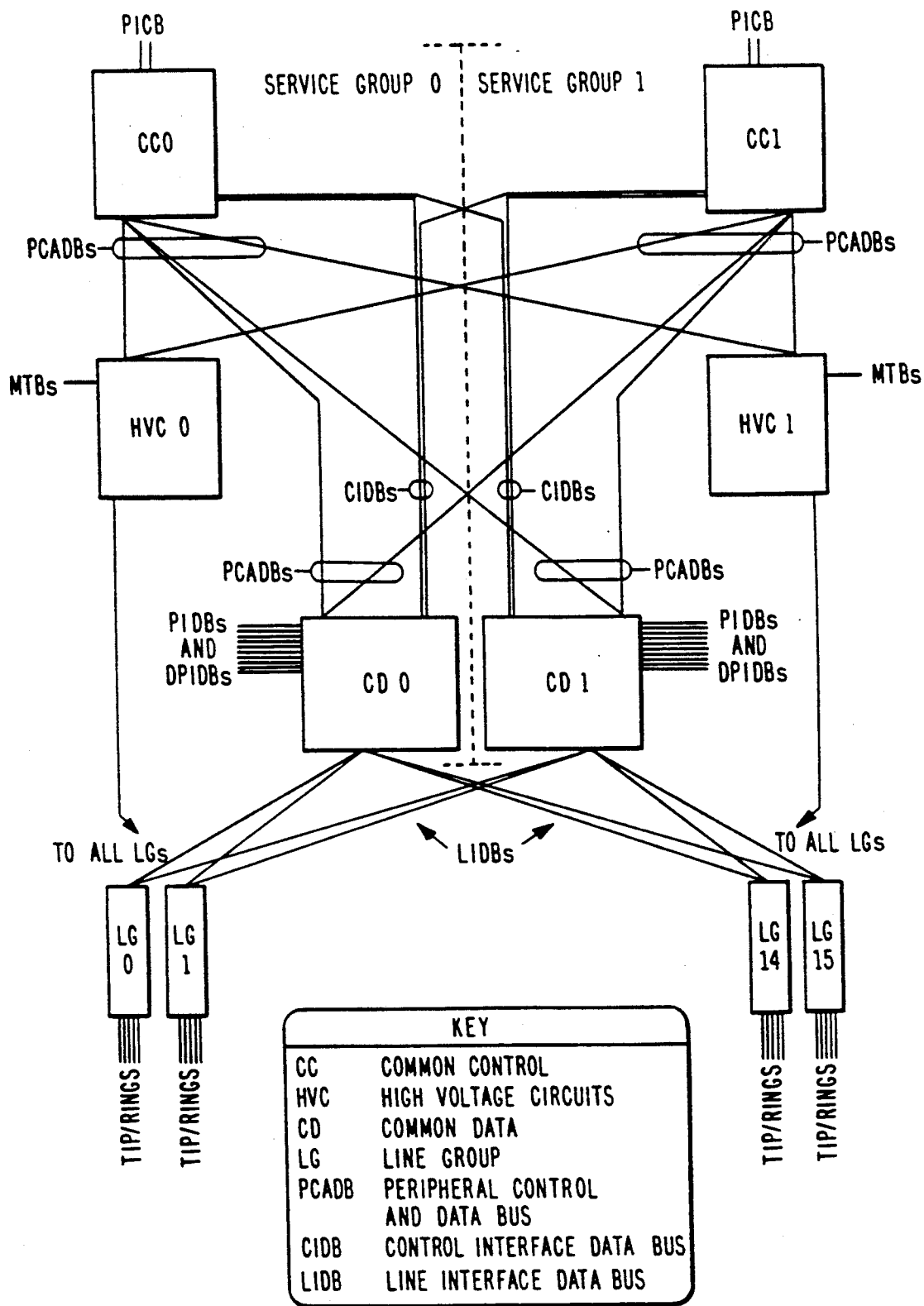


Fig. 4

PRIOR ART

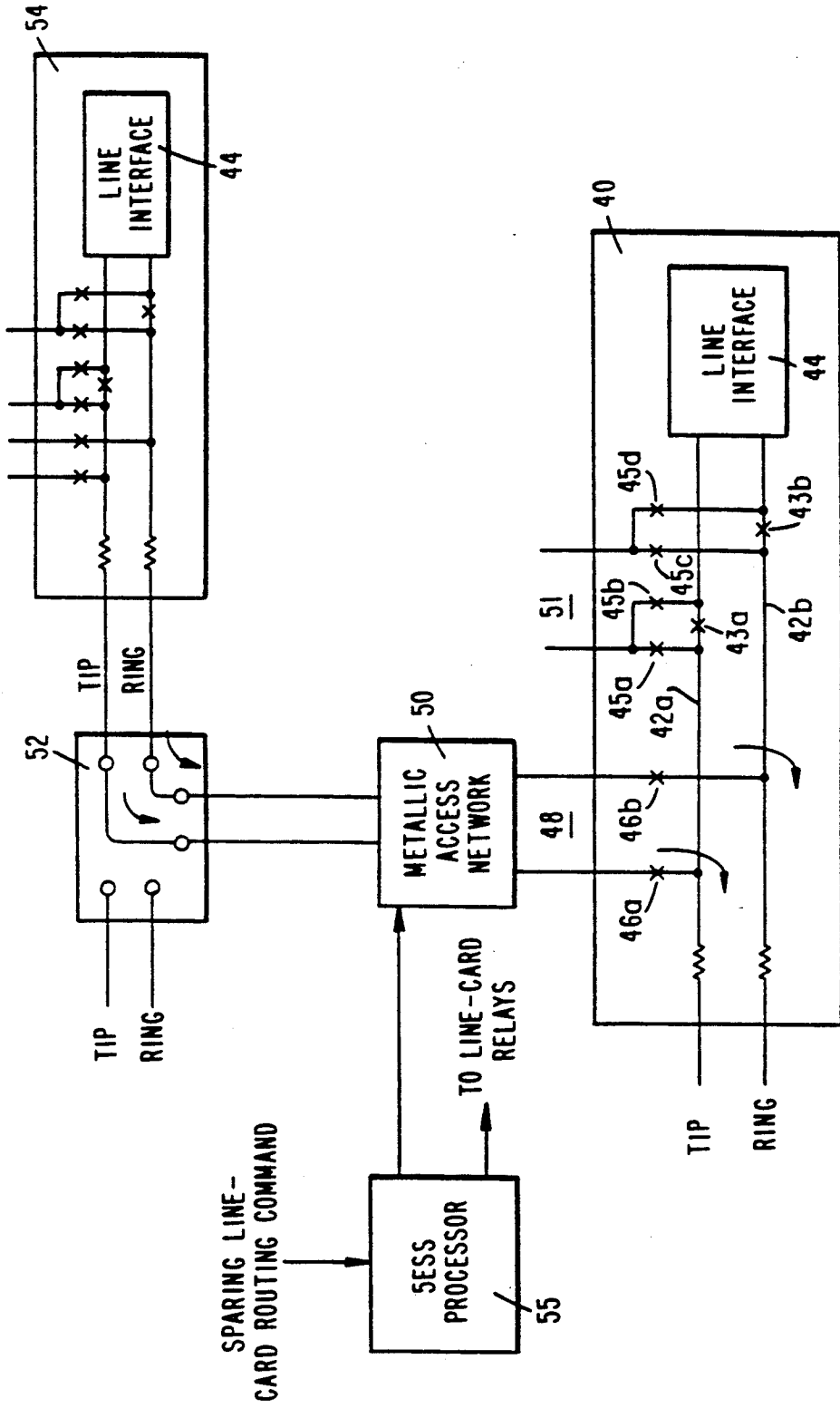


FIG. 5
PRIOR ART

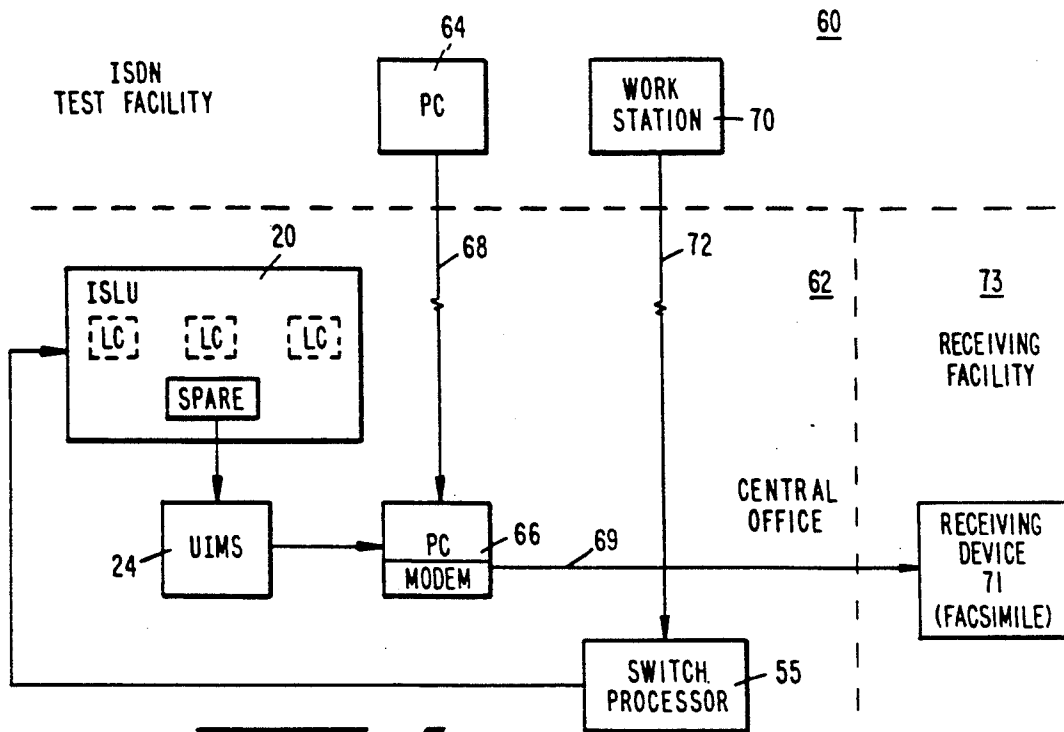


Fig. 6

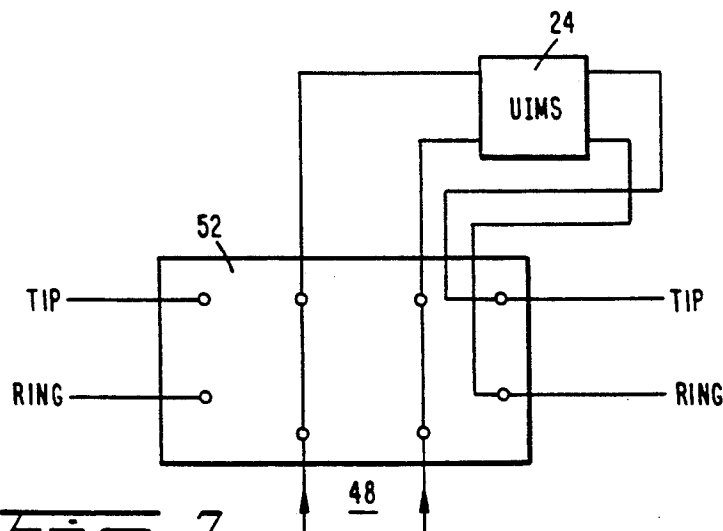


Fig. 7

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