

CHANGES

LABORATORY DESIGN INFORMATION (LDI)

CONTENTS

1. GENERAL
  - 1.1 Scope of Section
2. STATUS OF THE LDI
3. USES FOR THE LDI
4. DOCUMENTS REPLACED BY THE LDI
5. APPARATUS LDI's (NEW)
  - 5.1 Purpose
  - 5.2 Identification
  - 5.3 Rating
6. APPARATUS LDI's (CHANGED)
  - 6.1 Purpose
  - 6.2 Identification
  - 6.3 Change Classifications
  - 6.4 Interchangeability of New and Old Apparatus
  - 6.5 Effect on Associated Circuit Drawings
  - 6.6 Reason for Change
  - 6.7 LDI Reissuance
  - 6.8 LDI Cancellation
7. SYSTEMS CIRCUIT LDI's - NEW OR CHANGED
  - 7.1 Purpose
  - 7.2 Agreement Between Schematic Issue and Related LDI's
  - 7.3 Identification
  - 7.4 Availability of Associated Schematic Drawing
  - 7.5 Markings Used to Denote Changes
8. SYSTEMS CIRCUIT LDI's FOR CUSTOMERS PREMISES CHANGE NOTICES
  - 8.1 Purpose
  - 8.2 "Partial Information: and "Final Information" LDI's for Customers Premises Equipment
9. EQUIPMENT LDI's - NEW OR CHANGED
  - 9.1 Purpose
  - 9.2 Identification
  - 9.3 Cancellation of Equipment LDI's
10. PROGRAM INFORMATION LDI's
  - 10.1 Purpose
  - 10.2 Stored Program Control Systems LDI's
    - 10.21 Identification
    - 10.22 Change Classification, Rating and Equipment Code
    - 10.23 Reason for Change and Description
  - 10.3 General Purpose Computer Programs
    - 10.31 Purpose
    - 10.32 Numbering
11. COMBINED USE OF LDI's
  - 11.1 Circuits and Equipment
  - 11.2 Apparatus Products Having SD Circuit Drawings (Including Circuit Packs and Data Sets)

1. GENERAL

1.1 Scope of Section

1.11 This section describes and explains the Bell Telephone Laboratories (BTL) Design Information (LDI).

2. STATUS OF THE LDI

2.1 The LDI is recognized as official and installing and testing is to be performed based on the requirements set forth in the involved LDI.

3. USES FOR THE LDI

3.1 Information for new or changed equipment is transmitted on LDI forms except for Equipment Drawings in the J-90 or ED-90 series. Information on new apparatus, is also transmitted on LDI's although the LDI may or may not be used to transmit apparatus changes. In addition to the foregoing LDI's are also used to transmit official information in advance of BTL controlled System Circuit Drawings (SD's) and Program Documents such as Program Descriptions (PD's) Program Flow Charts (PF's) and Program Listings (PR's) although these

documents may be reissued without the use of LDI's. LDI's are also used to transmit changes on Program Document Indices (PG's.).

4. DOCUMENTS REPLACED BY THE LDI

4.1 LDI's replace the following documents:

- (a) Advance Design Information (ADI).
- (b) BTL Change Request (CR)
- (c) Engineering Information Release (EIR).
- (d) System Design Change (SDC).
- (e) Laboratories Change Notice (LCN).
- (f) Design Changes (DC).

4.2 If an LDI is provided for the re-issue of any document listed in Paragraph 4.1 the issue number of the LDI will be a continuation of that used on the previous document.

## 5. APPARATUS LDI's (NEW)

### 5.1 Purpose

5.11 Apparatus LDI's (new) are provided to transmit information covering new WE Co. - Coded, "F" and Experimental Apparatus.

### 5.2 Identification

5.21 The identification of an LDI for new apparatus consists of the number and name of the apparatus. The number appears in the CODE OR DOCUMENT IDENTIFICATION space on the LDI form. Such LDI's may contain complete or partial information as indicated in the appropriate check-off box in the APPARATUS NEW-CODE space. Subsequent partial information LDI's containing new and/or changed information bear the same identification as the original LDI and are assigned consecutive issue numbers.

5.22 When an LDI containing complete information has been issued changes on the apparatus will be transmitted by an LDI having the next higher issue number only by WE Co. agreement. Normally an "apparatus change" LDI will be issued.

5.23 The use for which the apparatus was designed appears after the INITIAL USE heading in the APPARATUS - NEW CODE space and when known will include.

5.231 Name and drawing number of equipment, circuit, or apparatus on which used.

5.232 Trial installation in which used.

5.233 Laboratory test use.

5.24 General characteristics and essential features are listed in the REASON FOR CHANGE AND DESCRIPTION space.

### 5.3 Rating

5.31 The rating of Apparatus LDI's (found in the APPARATUS NEW CODE space) is in accordance with the following:

(a) "Proposed A.T. & T. Co. Standard" - Used when it is known that the apparatus will receive an A.T. & T. Co. Standard or Provisional rating.

(b) "Not yet Standardized by A.T. & T. Co." - Used if approval of apparatus developed for Associated Companies has not been received from A.T. & T. prior to LDI issuance.

(c) "Distributor Standard" - Signifies approved for Nonassociated (Non-Bell) usage.

(d) "A&M only" - Signifies approved for additions to or maintenance of existing equipment.

(e) "A.T. & T. Co. Special" - Signifies approved by the A.T. & T. Co. for use under special conditions.

(f) "Component Part" - Used when the apparatus is part of an assembly.

## 6. APPARATUS LDI's (CHANGED)

### 6.1 Purpose

6.11 A change in WE Co. - Coded or F apparatus in which the new and old product are mechanically and electrically interchangeable is documented with a 6 digit LDI. Changes which affect the mechanical and/or electrical interchangeability receive a new code.

### 6.2 Identification

6.21 LDI's for apparatus changes are identified by a six-digit number.

6.22 All known affected apparatus is listed by specific name and code in the PRODUCT AFFECTED space.

6.23 When a change affects a large number of miscellaneous types of apparatus the apparatus may be referred to under PRODUCT AFFECTED and REASON FOR CHANGE AND DESCRIPTION as shown in the following examples.

PRODUCT AFFECTED - All products tested in accordance with Specification X-522.

NOTE: The 45A, 46A, and 58A Drives, 3A Attenuator, F-10800 Electrolysis Switch, and 208B Reproducer and typical products tested in accordance with Specification X-522.

REASON FOR CHANGE AND DESCRIPTION - The above products shall be tested in accordance with Specification X-242, Section Y, instead of Specification X-522.

6.24 When a change affects apparatus that is used in many products the following would be typical of the entry that would appear in the PRODUCT AFFECTED space.

"All products using P-47D123; the Data Auxiliary Sets 801 Type are typical products."

### 6.3 Change Classifications

6.31 The standard letters used to designate the Change Classification of the LDI (see Section 40 for an explanation of the various Classifications) are shown in the APPARATUS CHANGE SPACE.

6.32 A list of "used-on" circuits is provided in the Apparatus Change Space on Class A Changes only.

6.33 When the class of change is B1 and subassemblies are involved, information is provided as to whether or not those already assembled are affected. Reference to subassembly drawings are included as well.

#### 6.4 Interchangeability of New and Old Apparatus

6.41 An indication of the interchangeability of the new and old apparatus is provided in the APPARATUS CHANGE SPACE and reference is also made there to any additions or deletions in the list of Components.

#### 6.5 Effect on Associated Circuit Drawings

6.51 If an associated circuit drawing exists the effect or noneffect of the change on the drawing is indicated in the APPARATUS - GENERAL space.

#### 6.6 Reason for Change

6.61 A complete word description of the change accompanied by sketches when necessary and also a listing of affected drawings is contained in the REASON FOR CHANGE AND DESCRIPTION space.

#### 6.7 LDI Reissuance

6.71 Changes in information contained in an apparatus LDI is authorized by a reissue of the LDI or by a new "Change LDI". If the LDI is reissued a REASON FOR REISSUE heading is added to explain the differences.

#### 6.8 LDI Cancellation

6.81 When a change authorized by a LDI is to be canceled this is done by reissuing the LDI with the next highest number or by issuing a new LDI. When the LDI is reissued for cancellation it bears the notation "THIS LDI IS HEREBY CANCELED" and has a REASON FOR CANCELLATION heading added indicating the reasons for canceling.

### 7. SYSTEMS CIRCUIT LDI's - NEW OR CHANGED

#### 7.1 Purpose

7.11 System Circuit LDI's are used to transmit what will appear on a specific issue of a SD Circuit Schematic Drawing. They are not however replacements for these drawings.

#### 7.2 Agreement Between Schematic Issue and Related LDI's

7.21 A Schematic issue will be in complete agreement with the information provided on related LDI's.

#### 7.3 Identification

7.31 The issue number for initial information LDI's is L1. Subsequent changes in information (before release to WE Co.) are numbered L1A, L1B, etc. When design requirements are to be released to WE Co. as official information, and the circuit has not been officially issued as Issue 1, the L issue (L1, L1A, etc.) of the LDI is lined out and W1 used as the LDI Issue. The LDI issue of subsequent changes (before circuit drawing issue 1) is W1A, W1B, etc. For circuits that have been

officially issued as Issue 1 or higher, the LDI issue number for subsequent changes consists of the latest official issue number (excluding the change classification letter) of the circuit schematic drawing, suffixed by -A for the first change, -B for the second change, etc. Where advance laboratory action is required in connection with W1A, W1B, 1-A, 1-B, etc., changes, the LDI issue number is with "L1 of." After laboratory action has been taken, the "L1 of" is lined out before release to WE Co.

#### 7.4 Availability of Associated Schematic Drawing

7.41 For new circuits the availability date of the official "Issue 1" of a Schematic Drawing is by agreement between the BTL and the WE Co. This date is normally a minimum of two months prior to product ship date.

7.42 After a circuit drawing has been officially issued, the scheduling of availability of subsequent issues is as follows:

(a) For Class A, AC, and AR Changes, the date of availability of the drawing should be scheduled as soon as possible but not more than 10 weeks after release of the first LDI affecting that issue.

(b) For Class B and D Changes, in sufficient time so that orders for the changed product may be accepted by WE Co. not later than 6 months for Class B changes and not later than 12 months for Class D changes, after the date of release of the Information for Engineering Change Notice.

#### 7.5 Markings Used to Denote Changes

7.51 The following types of markings are used to denote changes.

(a) Added wiring is drawn in with dash (broken) lines. Terminal configuration and associated terminal numbering are shown on schematic apparatus figures (App Fig.) for all new components. Components or contacts that are added or relocated are shown in the conventional manner, not with dash lines.

(b) Removed apparatus and wiring is lined out with diagonal lines.

(c) If an extensive portion of a figure is added, solid (unbroken) lines may be used, the new information encircled with a dash line, and the word "ADDED" placed adjacent to the information.

(d) If an LDI sheet other than sheet 1 is reused for another change, additional changes will be identified by placing the LDI issue numbers within triangles which will be drawn adjacent to the new information.

1 - 409 4

## 8. SYSTEMS CIRCUIT LDI's FOR CUSTOMERS PREMISES CHANGE NOTICES

### 8.1 Purpose

8.11 Circuit LDI's are issued for Customers Premises Equipment for any prepackaged PBX or for Switching System equipment, excluding Key System Packages which are in equipment cabinets and shipped as a unit from Western Electric for installation on Customers premises.

8.12 Examples of Equipment in this category are:

756A PBX	No. 1 ESS Centrex Console
757A PBX	Control Cabinet
761A PBX	400 Switching System
701 PK PBX	1A Telephone Answering System
800A PBX	3A Hospital System
608PK (Swbd)	2A Automatic Call Distributing System
No. 101 ESS Switch Units	Concentrator Identifier

### 8.2 "Partial Information" and "Final Information" LDI's for Customers Premises Equipment

8.21 Partial Information and Final Information LDI's have been established in order that the LDI plan may achieve the objective of providing the WE Co. with official Customers Premise Equipment design information at the earliest date and to also assure the availability of appropriate documents (SD and CD information) for shipment with the product.

8.211 "Partial Information" LDI's - Partial information LDI's are issued on "B" and "D" changes where the activity is such that the information for a project is furnished on a piecemeal basis. The "Partial information LDI" does not list the schematic issue but does, however, show the scheduled completion date of the schematic. In some cases "Partial Information LDI's may be issued for Class "A", "AC" and "AR" changes. This occurs when the equipment is in the initial stages of production and it is possible to make all the changes in the shop.

8.212 "Final Information" LDI's - A "Final Information" LDI is the last LDI for a given schematic issue on Class "B" and "D" type changes. This LDI lists all of the outstanding LDI's and their disposition with respect to the Schematic and Circuit Description issue on which they appear. In addition to the foregoing it lists the availability date of the schematic and circuit description. On Class "A," "AR" and "AC" type changes only Final Information LDI's are issued. These LDI's contain complete information for the change on the SD and CD. There is only one LDI per schematic issue and the LDI contains the availability date and issue of the changed Schematic.

## 9. EQUIPMENT LDI's NEW OR CHANGED

### 9.1 Purpose

9.11 Equipment LDI's are used to transmit BTL equipment design information to the WE Co.

9.12 Separate LDI's are provided for each WE Co. "J" or "ED" drawing prepared or reissued. A separate LDI is generally not prepared for equipment associated with circuit information covered by an LDI. Exceptions are also made where the information is included on an LDI covering a "J" code frame or major unit which the equipment is part of.

9.13 LDI's authorizing the preparation of WE Co. drawings to cover J-coded equipment do not include miscellaneous equipment which, although it is associated with the J-code equipment, does not form an inherent part of the J code. Wherever possible, the miscellaneous equipment is assigned a J-code and the preparation of the WE Co. J drawing authorized through a separate LDI. Where the miscellaneous equipment cannot be assigned a J-code, a separate LDI bearing a new ED base number is issued authorizing the WE Co. to cover the miscellaneous equipment on a WE Co. ED drawing. BTL-originated changes on piece-part drawings which will not affect the parent assembly drawings are authorized by an LDI identified by the P prefix and the drawing number of the WE Co. piece-part affected.

### 9.2 Identification

9.21 The identification number assigned to an LDI is the number of the WE Co. drawing involved.

For Example: J12345A, ED-56565.

9.22 Information such as Change Classification (see Section 40 for definition of Change Classifications), rating, associated circuit drawing and "J" spec. affected is shown under the EQUIPMENT HEADING.

9.23 The reason for the design of the equipment or for the change therein is shown in the REASON FOR CHANGE space.

### 9.3 Cancellation of Equipment LDI's

9.31 When an equipment LDI is to be canceled a new issue of that LDI is originated and cancellation information provided in the REASON FOR CHANGE space.

## 10. PROGRAM INFORMATION LDI's

### 10.1 Purpose

10.11 Program Information LDI's are issued to originate or change program information for stored program control systems or general purpose computer programs. In addition to the foregoing they are also used to transmit information for the preparation of general program document indices.

### 10.2 Stored Program Control Systems LDI's

#### 10.21 Identification

10.211 LDI's covering generic program information are identified by the PG- prefixed 5-digit systems base number assigned by BTL to the generic program. Each LDI covers only one specific generic program. When more than one generic program is changed, a separate LDI is issued for each program.

10.212 In general, generic program LDI issue numbers run consecutively from 1 up for each generic program (or W1 for each sent in advance of the official program). On certain projects however, when it becomes necessary to assign letter suffixes to issues covering intermediate minor changes, point issues of the LDI number are used. For example, after the first LDI for a given program issue has been prepared, subsequent LDI's affecting generic program Issue 2 are numbered 2.2, 2.3, etc. LDI's affecting generic program Issue 2A are numbered 2A.1, 2A.2, etc.

#### 10.22 Change Classification, Rating and Equipment Code

10.221 Information pertaining to change classification is shown in the PROGRAM SPACE (see Section 40 for an explanation of classifications). Rating and equipment code information is also shown in this space.

#### 10.23 Reason for Change and Description

10.231 This heading includes the following.

- (a) Broad description of the features of a new generic program, or the reason for reissue of an existing generic program.
- (b) Description of how change affects central offices with different service features.
- (c) Information on parameter data (PDA), translation data (TDA), or similar data, if affected.
- (d) Information on any hardware (SD circuit) changes which must be coordinated with the program change.
- (e) Any special installation procedures required to implement the change.

(f) Information as to whether or not the Compool or Map (PK), or maintenance date (TLM, IM, OM, or raw data PK) is affected.

(g) The scheduled release date of the official issue or reissue of the Program System specification and associated ECN.

### 10.3 General Purpose Computer Program LDI's

#### 10.31 Purpose

10.311 General purpose computer program LDI's are used to transmit advance information on programs or systems of programs.

#### 10.32 Numbering

10.321 LDI's covering general purpose computer program information are identified with a PD prefixed 6-digit number assigned to the program specification, or in the case of a system of programs, the program system specification and are numbered from 1 on up.

### 11. COMBINED USE OF LDI's

#### 11.1 Circuits and Equipment

11.11 Since design information for equipment and associated circuits is transmitted to the same functional WE Co. Systems Standards Engineering organization, equipment and associated circuit information may be combined on the same LDI for new or changed products. In these cases, the LDI is identified by the circuit drawing number.

#### 11.2 Apparatus Products Having SD Circuit Drawings (Including Circuit Packs and Data Sets)

11.21 Circuit information associated with the apparatus products will be included on the LDI for the product.

Manager, Engineering Practices

Reason for Reissue:  
Entire section revised, updated and expanded.