INTRODUCTION

1. GENERAL

1.01 The purpose of this manual is to familiarize coin personnel with the many intricate phases of coin service. This includes an overview of the total coin operation with emphasis on:

1. Station equipment
2. Central office testing and circuit design requirements
3. Trouble analysis of station, loop and central office equipment
4. Cord board, TSPS, and ACTS operation
5. Loop plant
6. Coin improvement items including dial-tone-first (DTF).

1.02 Charge-a-Call service is distinct from coin service in that no coin handling components are needed at the station and no coin supervision functions are required from the serving central office. This manual is intended to cover only coin telephone service; for information on identification, installation, and maintenance of Coinless Telephone Sets used for Charge-a-Call service, refer to Section 506-500-100.

1.03 To understand and effectively clear troubles on coin service, a basic knowledge of the above items is necessary.

1.04 Coin service today, consists of Dial-Tone-First (DTF), Coin-First (CF) and Postpay type service. All utilize the single slot coin station and all place different demands upon central office and test desk equipment.

> ***Note 1:*** This manual is not intended to replace any BSP, Booklet, or Manual, but is provided to supplement information already available to the craftsperson.

> ***Note 2:*** Information in this manual pertains to 1A/2A, 1C/2C, 1D/2D, 1E-type, 10A, and 20A (see Table A) sets only and does not include the old multislot sets.

1.05 Prior to the development of the single slot coin telephone and introduction of DTF service, coin operation was relatively simple. The coin station (multislot) placed very few demands upon the central office and test desk equipment. If the central office equipment could furnish a threshold capable of collecting or refunding a coin deposit, test for the presence of a coin, provide a minimum amount of talking battery and ring the station ringer, the station performed quite effectively.

1.06 Social changes, during the 1960s made the multislot coin station a prime target for: vandalism, strong arm robbery, fraud, and theft of service. This brought about the introduction of the more rugged single slot coin station and a new environment for coin service.

1.07 Presently there are four types of single slot coin stations all having an identical outside appearance:

> "A" Series—designed for all coin first areas for use in coin-first operation
>
> "C" Series—a convertible set that can be used in either a dial-tone-first mode or a coin-first mode
>
> "D" Series—for use in dial-tone-first mode only
>
> "E" Series—for postpay operation only.

1.08 Components for the single slot coin stations although appearing the same and physically fitting the same mountings are not always compatible. Station component compatibility charts will be found in Chapter 1, Part 5.

1.09 The operational description of the single slot coin station is explained in Chapter 1. The operational description must be understood by the central office and test desk force maintaining coin service. The station totalizer of a station located for test purposes in the central office or at the testboard as outlined in Chapter 1 affords a natural trouble indicator and trouble analyzer for loop plant, station and central office trouble conditions. The master test frame, maintenance control center, district junctor test frame, J test boxes, and coin supervisory test sets are good test facilities but lack the trouble detecting features that the coin station totalizer provides. A D-type station cannot be used as a trouble analysis tool and thus should not be used as a test station in the central office or testboard location.

2. GENERAL SYSTEM CONSIDERATIONS FOR DTF CONVERSION

STATION COMPATIBILITY

2.01 The operational description for the "A" series coin station is similar to that of the "C" series station wired in the coin-first mode (Chapter 1, Part 1). The difference being—the "A" series coin station requires that talking battery always be negative to the ring side of the line with ground on the tip side. The "A" series station therefore, will not operate with office or loop condition when reversals are present. In central offices providing both DTF and CF type service it becomes necessary to modify the "A" series stations to "C" series.

2.02 With closing of cord boards and implementation of TSPS, personnel involved in coin service must be aware of the polarity sensitivity of the "A" series coin station.

EXAMPLES:

1. The trunks to cordboards, TSPS, and ACTS provide +48-volt talking battery towards the customer on the ring side of the line when serving DTF service. This is deposit recognization for less than initial rate.

2. In step-by-step offices polarity reversals may be experienced due to malfunction of switching operations or local calls completed to a coin station.

2.03 The following items are of a general nature and pertain to all switching systems. It should be noted that they are not listed in any particular order relating to their importance or urgency but are considerations in converting an existing central office (CO) to dial-tone-first (DTF) coin operation.

2.04 ***Cutover Coordination.***

(a) Conversion of offices to DTF operation requires coordination of the central office and station changes if coin telephone service is to be maintained during cutover. Cutover to DTF coin operation can cause customer confusion. This confusion is compounded when temporary incompatibilities are introduced between the central office and coin telephones by the cutover procedures used. The central office serving arrangements permit side-by-side operation of coin-first and dial-tone-first stations without line segregation during and following cutover. However, full cutover of all coin telephones to DTF operation in a local central office will allow the customer to more rapidly learn the new method of operation without need to identify the type of station (coin-first or dial-tone-first) which he is trying to use.

2.05 ***Cutover Procedures.***

(a) The following DTF cutover procedures are recommended. Also refer to the DTF factors for the CO section of this manual and to GL 78-08-161 and IL 79-04-074 for alternate procedures when D-type stations/D-180707 kits are employed and for update information on DTF circuit options.

(1) ***Modify:*** Test desk, test cabinets, test sets.

(2) ***Modify:*** CO equipment with the exception of +48-volt options.

(3) ***Modify or change:*** Stations to "C" series.

(4) ***Modify:*** Toll equipment with the exception of +48-volt options.

(5) Prepare announcement circuits and announcements.

(6) Implement +48-volt options.

(7) Test all circuits using a "C" series coin station wired in the DTF mode.

(8) ***Convert:*** Line equipment to loop start. Verify loop limiting options on line relays in electromechanical office.

(9) ***Convert:*** Stations to the DTF mode.

(10) ***Change:*** Dial instruction cards.

(11) Make final test of station in DTF mode.

(12) Make final test of all associated CO, Toll, and Test Desk equipment.

(13) Make final check of announcements.

2.06 ***Deposit Required Announcement:*** The standard announcement (Section 780-200-020) that is recommended for use when the required initial rate coin deposit has not been detected is as follows: "The call you have made requires a 10-cent (initial rate) deposit. Please hang up momentarily, listen for dial tone, deposit 10-cent (initial rate) and dial your call again, this is a recording." In addition, when all announcement trunks are busy during heavy traffic conditions, calls should be routed to recorder tone. Routing to another recording can only confuse the customer.

2.07 ***Coin Present Tests:*** Local coin overtime and stuck coin tests (to determine successful coin collect or coin return actions) must be made using positive (+48 volt) battery. Coin deposits of less than the initial rate will not be detected by a negative battery test (-48 volts), since the unoperated initial rate contact (T1) at the station will prevent coin ground detection.

2.08 ***Subscriber Line Multiplex (SLM) Operation:*** If an SLM or subscriber carrier system is to be used, ensure that it will accommodate coin service and specifically, DTF service. For General Trade SLM Units, refer to Product Evaluation Reports; for SLC-40, refer to GL 78-06-047 and Section 363-201-100.

2.09 ***Talking Battery Polarity on Operator Trunks:*** A +48-volt battery is necessary at the DTF wired coin telephone when an operator is monitoring coin deposits. Unless the trunk provides this polarity the operator will be unable to monitor initial deposits which are less than the local call initial rate (5 cents in 10-cent areas, 5 cents and 10 cents in 15-cent areas and 5 cents, 10 cents, and 15 cents in 20-cent areas).

2.10 ***Toll Grade Battery:*** The coin service improvement program which initiated dial-tone-first service included option changes in central office circuitry to eliminate ***toll grade battery***. The low impedance presented by this supply can result in currents at the coin station (on short loops) in excess of 200 ma which limits the design options for new station circuitry. All circuits which supply toll grade battery toward the station must therefore be modified per the appropriate drawing issue which eliminates the toll grade battery supply.

2.11 ***Coin Station Test Line:*** A Coin Station Test Line Circuit SD-1C297-01 is available to assist the coin station repairperson in testing the capabilities of the coin telephone without the need for a test deskperson. This circuit, which was introduced in 1971 was covered by EL 1388 (GL 71-07-150) and further discussed in GL 78-04-099 and IL 79-10-273, can test either CF or DTF wired coin stations in all types of central offices, except No. 3 ESS and remote switching system (RSS) at this time. When changing from CF to DTF operation there is an option change which must be made in the test circuit [remove option "S" (step-by-step office only) on SD-1C297-01].

2.12 ***Coin Instruction Cards:*** The recommended format for coin instruction cards is covered in GL 73-11-069. This letter covers the recommended format for 20-cent initial deposit rates at coin-first or dial-tone-first telephones and is adaptable to other rate situations. The more standard the instruction cards are made the more easily the customer can identify the services the coin telephone provides.

2.13 ***DTF Call Completion:*** Implementation of dial-tone-first coin operation provides the coin telephone customer with the ability to reach the operator, directory assistance operator, or emergency center (911) without the need for an initial coin deposit. This gives the customer the capability of making information or special toll calls (collect, credit card, or third number billed) even without coins.

2.14 ***Permanent Signals.***

(a) The introduction of DTF can result in a higher instance of permanent signals. A receiver off-hook will result in a permanent signal.

(b) With coin-first operation a coin deposit in addition to a receiver off-hook is required to get a call into the permanent signal condition.

TABLE A

CODE SIGNIFICANCE

CODE	HOUSING	MODE OF OPERATION	DIAL
1A1	Box Type	Coin-First Only	Rotary
1A2			TOUCH-TONE
2A1	Panel Type		Rotary
2A2			TOUCH-TONE
1C1	Box Type	Coin-First or Dial-Tone-First	Rotary
1C2			TOUCH-TONE
2C1	Panel Type		Rotary
2C2			TOUCH-TONE
1D1	Box Type	Dial-Tone-First Only	Rotary
1D2			TOUCH-TONE
2D1	Panel Type		Rotary
2D2			TOUCH-TONE
1E1	Box Type	Postpay	Rotary
1E3			None (Manual)
10A	Box Type	Charge-a-Call	TOUCH-TONE
20A	Panel Type	Charge-a-Call	TOUCH-TONE