subject: PBX Systems - 770A Crossbar PBX

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American Telephone &
Telegraph Company
195 Broadway
New York, N. Y. 10007
Phone (212) 393-9800

to: Chief Engineers (copies included for General Plant Managers and sent to General Traffic Managers, and General Sales Managers)

from: Engineering Director - Customer Telephone Systems

synopsis: Describes a new low-cost Crossbar PBX which will be available in June - 1971 to provide Series 100, 200 and 300 PBX service plus many Hotel/Motel features up to 400 lines.

* * *

A need has existed for a low cost dial PBX system to provide PBX service in the 40-400 line range. As a result, a new crossbar PBX, coded 770A PBX, will be available in late 2Q71, in limited quantities to provide Series 100, 200 and 300 PBX service as well as Hotel/Motel features utilizing standard Bell System consoles. TOUCH-TONE® Calling will also be available on an optional basis. This PBX will provide low cost service at a performance level comparable to various non-Bell PBX's now in use.

The 770A PBX is mounted in cabinets which also contain the power supply; it uses crossbar switches, wire spring relays, plug-ended line and trunk circuits; and lends itself to efficient, low-cost installations requiring a minimum of space on customer premises. A heavy traffic 400 line Series 300 system can be housed in 4 cabinets, 6 feet - 9 inches high, requiring about 40 square feet of equipment floor space. However, care must be exercised where this PBX is installed since the cabinet load is approximately 180 pounds per square foot, which is heavier than our existing PBX systems.

The equipment cabinets are of sheet metal fabrication and contain up to three swing out equipment frames. The equipment frames are connected to each other and to the stations and trunks on a plug-in basis. It will be capable of growing in 40 line plug-in unit increments and in single plug-in trunks up to 400 lines and 100 trunks.

Detailed pricing is currently under way and will be forwarded to you later in an Engineering Letter. The engineering price estimate for a Series 300 light traffic 770A PBX is shown in the attached Figure 5. Series 100 and 200 systems will be proportionately lower priced. A complete set of price curves will be included in the Engineering Letter.

Preliminary information in the attached notes is being provided at this time in order that you may plan now where this PBX system can be used. Should you have further questions regarding this PBX, please call John Goberis on 303 427-5222.

At Mr. F.A. Robinson's request, copies of this letter are being sent to General Sales Managers.

Mr. R.T. Dugan will be writing to the Companies to discuss the marketing and rate aspects of the 770A PBX.

This letter is also being sent by Mr. C.R. Williamson to a special mailing list.

W. Ellaway

Engineering Director

JG:EC

Attachment

Attachment

General Description

The 770A PBX is a new crossbar PBX system mounted in cabinets, and designed to provide Series 100, 200 and 300 service up to 400 lines, as well as optional features and Hotel/Motel features as shown in figures 1 and 2.

System Description

This PBX will employ crossbar switch and relay logic techniques, principally using wire spring relays. Figure 3 shows the basic organization of the system. The system can grow in lines from 40 to 400 in 40-line plug-in unit increments, and up to about 100 trunks (Central Office, intercom, tie, etc.) in single plug-in trunk units.

Traffic Considerations

The 770A PBX switching network is growable by virtue of its plug-in crossbar switch design, and may be engineered to provide a wide range of traffic capacities. At its full 400 line size, the 770A may be engineered to provide a maximum traffic capacity of 5.5 CCS/line. Lower traffic capacities may be engineered over the full line range. Heavier traffic usage (above 5.5 CCS/line) will limit the number of working lines to a level below 400 due to network limitations. The engineering price estimate in Figure 5 is for a Series 300 system, engineered to light traffic levels as noted.

Attendant Facilities

This PBX will utilize standard Bell System consoles for attendant positions. As many as three attendant positions may be provided on a switched loop basis, with a maximum of ten switched loops shared by all three positions. A direct termination console will be utilized for single attendant installations.

Equipment

The 770A PBX will use existing standard crossbar switches, and wire spring relays. The equipment cabinets are of sheet metal fabrication and each contains up to 3 swing-out equipment frames. These frames are locked against each other when the cabinet is closed, but swing out from a common pivot point to the front of the cabinet so as to give easy access to the front and rear of each frame and to the inside of the cabinet. The frames will be shipped separately and installed in the cabinet at the customer's location. The frames and cabinets are connected to each other and to the stations and trunks on a plug-in basis. The equipment units that mount on the equipment frames, such as the marker, trunks, registers, etc. are also plug-ended and will be factory mounted. A heavy traffic 400 line Series 300 PBX will require four 6' - 9" high cabinets requiring about 40 square feet of equipment space. The dimensions of each cabinet are 2'2" D x 4'7" W x 6'9" H.

A typical floor plan is shown on figure 4. However, care must be exercised where this PBX is installed since the maximum floor loading is about 180 pounds per square foot, which is greater than our existing PBX's.

Power

The 770A PBX will utilize a batteryless power plant operating on 110/220 volt, 60-Hertz ac commercial power to produce -48 and +48V dc as well as 10-volt ac required for console DSS operation. Each cabinet contains its own power supply.

Ordering Information

This system will be custom ordered initially using a manual questionnaire similar to the one employed for the 757A PBX, but on a more simplified basis.

One area that will require close scrutiny is the switching network configuration since it is designed for a wide variation in traffic carrying capacity. By utilizing plug-in units it is readily expandable both in line and trunk capacity and traffic carrying capacity. Therefore, to gain the greatest economies of this system, the switching network should be closely traffic engineered to meet the customer's immediate or short term needs, and plug-in units should be specified accordingly.

Installation and Maintenance

Installation effort on the customer's premises, is expected to be minimal, since the equipment frames and equipment units are plug-ended and will be tested individually at the factory prior to shipment. BSP installation and test specifications will be task oriented, i.e., a step-by-step procedure, which should greatly assist installation.

It is expected that present crossbar PBX maintenance techniques can be utilized for this system; thus, no special test equipment will be developed.

Engineering Information

An Engineering Letter will be prepared. In the meantime should you have any questions regarding features or recommended uses for this system, please call John Goberis on 303 427-5222.

Figure 1

770A PBX

Series 100 Package

Station to Station Calling
Attendant Position (Console)
Direct Outward Dialing
Station Hunting
Restriction from Outgoing Calls
Night Service
Power Failure Transfer
Call Transfer - Attendant

Series 200 Package

(Includes Series 100 Plus)
Attendant CAMP-ON
Indication of CAMP-ON
Attendant Controlled Conference
Attendant DSS with Busy Lamp Field (200 Line)

Series 300 Package

(Includes Series 200 Plus)
Call Transfer - Individual
Consultation Hold
Add-on
Trunk Answer from any Station

Figure 2

770A PBX

Optional Features

TOUCH-TONE® Calling
Tie trunks
Toll Denial
Lockout
Secrecy

Hotel/Motel Features

Single digit access; Room Service, Valet, etc.

3 & 4 Digit Dialing - With provision to associate Room Nos. with Station Nos.

Message Registers - One per Room

Message Waiting

Room to Room Dialing Restriction; Attendant Controlled

Direct Single Digit Access; Station to Toll Operator, on a permissive basis

Features Not Initially Provided

Access to - Code Calling
- Paging
- Recorded Telephone Dictation

Centrex
CCSA
Conference Calling
Cord Switchboard) Hotel/ Motel
Message Registers - with Surcharge Capability)
Semi-Automatic Room Wakeup)
Room Status Feature)

770A PBX

FIG. 3

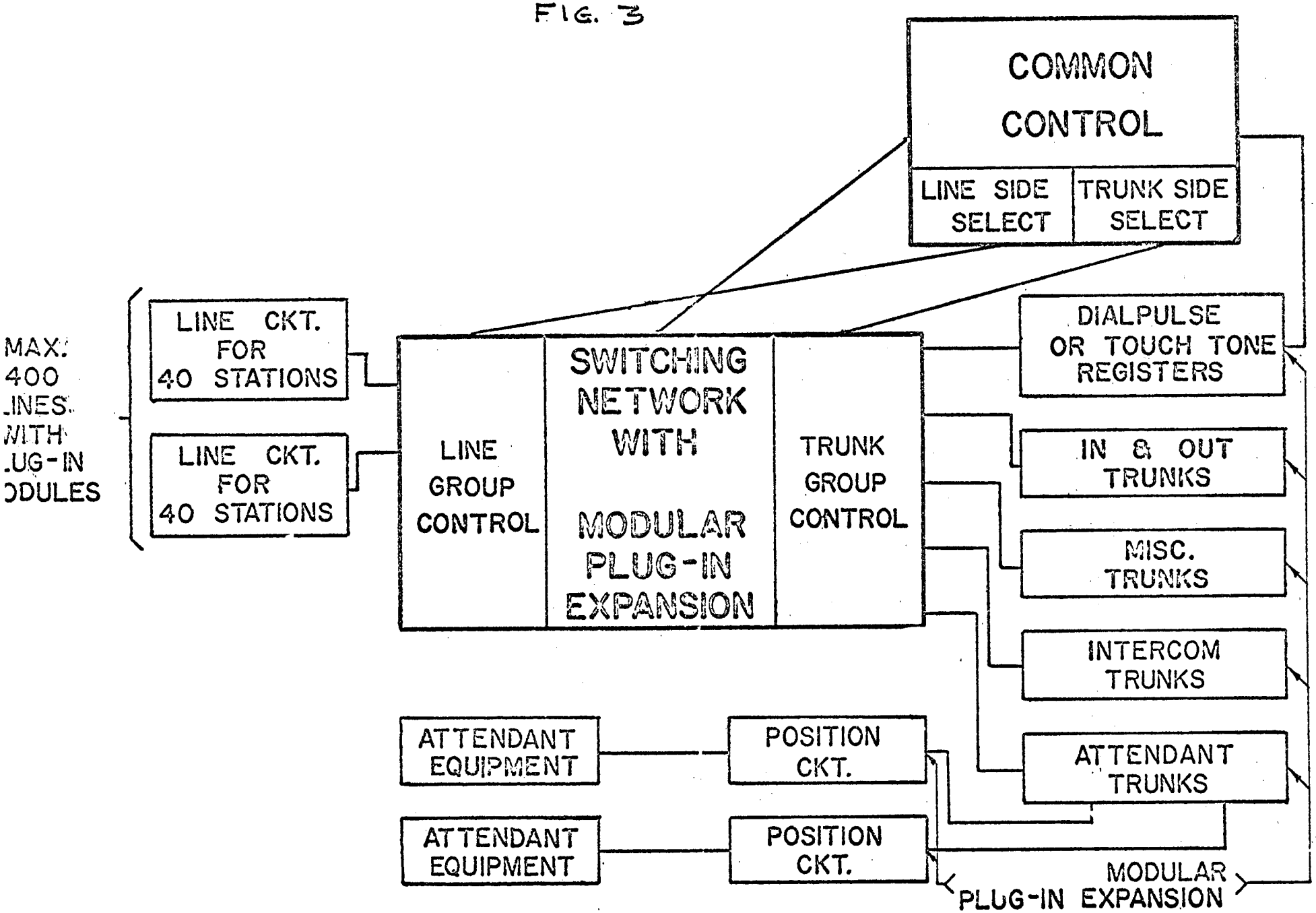
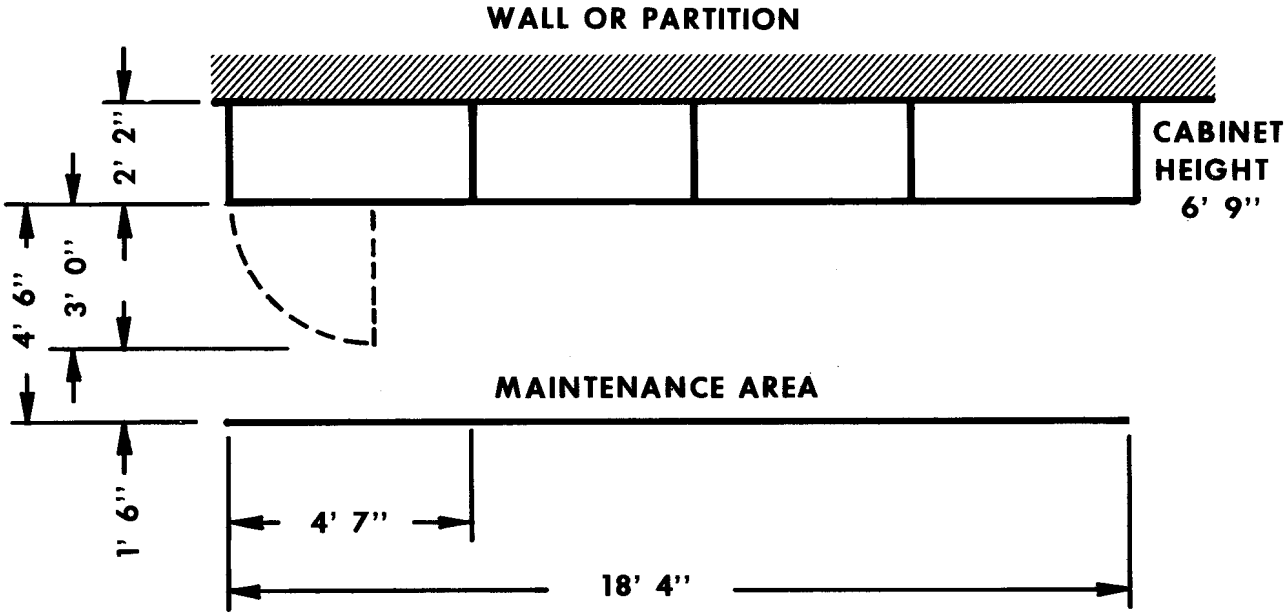


Fig. 4

TYPICAL FLOOR PLAN - 770A PBX



770A PBX
ENGINEERING DESIGN PRICE ESTIMATE
LIGHT TRAFFIC-300 SERIES-ROTARY DIAL
(INSTALLED)

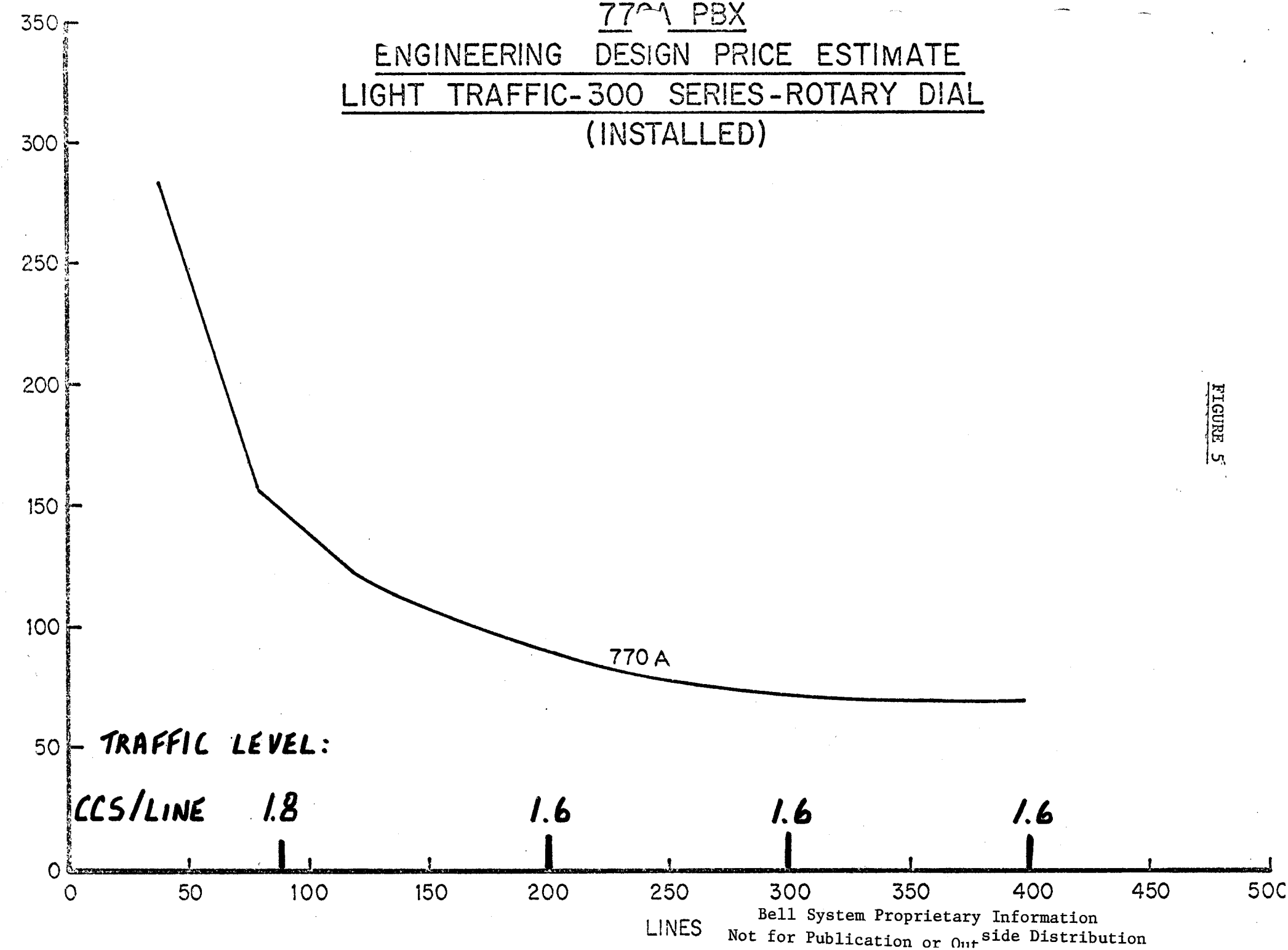


FIGURE 5