

## TOA EXES-6000 INTERCOM SYSTEM

Central Processing Unit for
Single Exchange System or Tie-line System

## CP-64

INSTALLATION HAND BOOK


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This manual forms part of the Installation Manual for TOA INTERCOM SYSTEM EXES-6000.
You may add the CP-64 to your TOA INTERCOM SYSTEM EXES6000, according to your specific needs, to obtain various other functions. Correct operation of these additional functions is not performed by simply cannecting the additional equipments/devices. Provision of such additional function requires fhe föllowing:
(1) Connection of the additional equipment, as required.
(2) Selection of functions which satisfy your needs and setting up these functions in the respective equipment.
For (1) Connections of Equipment, etc., refer to " (1) Installation Handbook of Model EX-610/620/630 EXCHANGE" or " (4) Operation Manual of Data Transmitting and Receiving Units", etc.

This "Installation Handbook of CP-64" deals principally with (2) Selection of functions and setting up of respective equipment.
This Handbook also explains the connection method for the EXES6000 Tie-line System using the CP-64 and the TI-62 units.
There are certain minimum installation requirements to be met even through you may not need many additional functions or additonal
equipment, it is still necessary to read '2. Initial CP-64 Set Up (Page 10)". when you may use only some or the additional functions or equipments, it is not necessary to read instructions on unrequired functions. Make sure, however, that careful study of the necessary parts of this booklet should be done before proceeding further .


## - TIE-LINE CONNECTION OF THE EXCHANGES

## 1. Functions of the Central Processing Unit CP-64 and Tie-line Interface Unit TI-62

To make communications between exchanges possible in the EXES6000 system, the CP-64 and the Tie-line Interface Unit TI-62 are required in addition to the exchange EX-630.
The TI-62 is the interface unit for transmitting and receiving audio signals and dial data signals between the exchanges.
After receiving dial signals from the station, the CP-64 transmits the dial data signals to the TI-62 and instructs it to make calls to the other exchange. The CP-64 also receives the dial data signals from the other exchange through the TI-62 and calls the station which is instructed to call by the other exchange.
Overall functions of the system using the Tie-line function are determined by programming made in the CP-64.

2. Number of stations, paging zones and links

| Composition of exchange (s) | Maximum number of links within own exchange | Maximum <br> number of links between tielined exchanges | Number of exchange | Maximum number of stations | Maximum number of paiging zones |
| :---: | :---: | :---: | :---: | :---: | :---: |
| (1) Without tie-lines <br> (EX-1) | 16 |  | 1 | 256 | All call +31 zones |
| (2) 2 exchanges | $16_{* 1}$ | $16{ }_{* 2}$ | 2 | 512 | All call +30 zones <br> (15 zones/ <br> 1 exchange) |
| (3) <br> 3 exchanges | $16_{* 1}$ | 8 between each tielined link *3 | 3 | 768 | All call +45 zones <br> (15zones/ <br> 1 exchange) |

*1 The links within own exchange as well as the tie-line links are used in each tie-line communication.
*2 Each exchange needs one or two Tie-line Interface Unit TI-62
*3 Each exchange needs two Tie-line Interface units TI-62
*4 All call paging is provided to all the paging zones of all the exchanges connected by tie-line.
3. Numbering schedule for stations and paging zones

| Type of exchange | Numbering for stations |  | Numbering for paging zones |  |
| :---: | :---: | :---: | :---: | :---: |
|  | Standard | Without personal number | All call | Zone |
| Single Exchange (EX-1) | 200~455 | $\begin{gathered} 100 \sim 355 \\ * 1 \end{gathered}$ | $\begin{gathered} 0 \\ (00) \end{gathered}$ | $\begin{aligned} & 1 \sim 9 * 2 \\ & (01-31) \end{aligned}$ |
| Exchange "A" (EX-2A/3A) |  |  | 00 | 01~15 |
| Exchange "B" (EX-2B/3B) | 470~725 | $\begin{aligned} & \text { 400~655 } \\ & \text { *1 } \end{aligned}$ |  | 16~30 |
| Exchange "C" (EX-3C) | 740~995 | $\begin{aligned} & 700 \sim 955 \\ & \text { *1 } \end{aligned}$ |  | 31~45 |

*1 The first station number of each exchange can be set as any of the following numbers: 100/200/300/400/500/600/700/800/900
*2 No. 1 through 8 are employed for Combination Paging

## - WIRING FOR TIE-LINE CONNECTION OF THE EXCHANGES

- Each exchange can be connected by means of a cable with a diameter of 0.65 mm ( 25.6 mils.) for a distance of up to $2 k m$ ( 5600 ft ).
- Regarding the tieline links which are not used, turn off the DIP switch of each unused tieline link inside the Tie-line Unit TI-62.
- Connect "T" line (2 wires) of the 4 wires of each link to "R" line (2 wires) of the other exchange
- The 2 wires of the "T" line and "R" line have no polarity. If the BX-620 is used, its terminals No. 1 and 2 are for the "R" line and No. 3 and 4 are for the "T" line.

Exchange "A"


## 1. Wiring for tie-line connection of 2 exchanges



Note 1. Any combination of tie-line links between exchanges "A" and "B" is possible.
Note 2. Mount only one Tie-line Interface unit when the number of tie-line links is within 8.
2. Wiring for tie-line connection of 3 exchanges


Note 1. Judging from the front of the exchange, TI-62 (TI1) (connector J11) is the left-hand unit and TI-62 (TI2) (connector J12) is the right-hand unit.
Note 2. Be sure to connect connector TI1(J11) to TI2(J12) between the exchanges. Connection of TI1 (J11) to $\mathrm{TI} 1(\mathrm{~J} 11)$ or $\mathrm{TI2}(\mathrm{~J} 12)$ to $\mathrm{TI2}(\mathrm{~J} 12)$ will lead to failure of proper operation of the system.

## 3. DIP Switch selection

1. Switching arrangements of DIP switches (E-1, E-2, E-3) in the CP-63 make each exchange to be of "EX-1" or "EX-2A" or "EX-2B" or "EX-3A" or "EX-3B" or "EX3C" type. (See "4. CP-64 Dip Switches for Function Selection" P14)
2. In the event of the tieline link not to be used, turn off its corresponding DIP switch on theTI-62 unit.


$-8-$

## PART 2. OPERATING OF CP UNIT AND NO. 200 PROGRAMMING <br> 1. PRECAUTIONS FOR INSTALLATION OF CP-64

Please read following instructions carefully to ensure proper operation of the CP-64

1. Be careful about damage by static electricity as the CP-64 incorporates CMOS IC's. Do not touch components and connectors.
2. Turn off the $A C$ power switch when you take out or insert the CP-64 unit, or any other unit.
3. Always insert the CP-64 unit into the "CP" slot. Otherwise, there is a danger that the unit will be damaged.
4. Make sure mini-jumper for battery back-up is always placed in ON position each time it is used.
5. Incorrect setting of function select switches may lead to incorrect performance.
6. Even if you do not need programming functions, be sure to carry out initial programming and registration at station No. 200 when you install the new unit. Otherwise, some other functions may not work properly.
7. The Ni-Cd battery GB50-3FA1 is capable of saving important memory registration data even at times of power failure.
To keep the battery fully charged, do not cut the power off for long hours during the first 8 days after new installation. The CP-64 unit is capable of maintaining the programmed data for the period of 4 weeks after fully charged even in the event of long hours of power failure.
(About 4 weeks $\left(25^{\circ} \mathrm{C}\right)$, About 8 days $\left(40^{\circ} \mathrm{C}\right)$ )
8. We suggest you replace the soldered button battery GB50-3FA1 (115-42-031-9) with the new one according to the following list that shows an expected life span of the battery.
Be sure to make the station No. 200 programming after replacement of the battery.

- Expected Life Span of small Ni-Cd Battery

| Ambient temperature <br> of exchange | Ambient temperature <br> of battery | Life span |
| :---: | :---: | :---: |
| $0^{\circ} \mathrm{C}$ | $10^{\circ} \mathrm{C}$ | About 5 years |
| $25^{\circ} \mathrm{C}$ | $35^{\circ} \mathrm{C}$ | About 4 years |
| $40^{\circ} \mathrm{C}$ | $50^{\circ} \mathrm{C}$ | About 2 years |

9. When shipping the CP-64 unit independently, place the minijumper for battery back-up in "OFF" position. Cover the CP back with cardboard, wrap connector section in aluminum foil and put it in a conductive bag.

FUNCTION SELECT SWITCHES



## 3. TROUBLE SHOOTING

## 3-1 Check of ROM \& NMOS-RAM - No calls on the system

1. Set the "LINK SELECT" switches of the HC to $F$ (between $E$ and $O$ ) and switch on the AC power of the exchange.
2. If there is no error, the indication lamps will not light.
3. In the event of a memory error, the lamps may light as shown in the example of Fig. 1.
4. The error indications will remain on until you use Link No. 15 for communications.

## 3-2 Confirming of the CP normal working

If the CP, OC and HC are working normally, the HC's indication lamps of LINE BUSY, LINE ADDRESS and SIGNAL CODE go out
When any of the lamps lies alight, it is possible that any of the CP, OC or HC is faulty.
Check first that the CLOCK lamp of the HC is lighting, then confirm that the CP is working normally by hearing the clicking sound of the PI unit's relay which is produced when the relay is activated through dial operation of the paging If the CP is found working normally, chances are that the HC is faulty, followed by the OC.

## 3-3 Check of CMOS-RAM (Programmed data memory)

You hear calling tone instead of confirmation tone, if there is CMOS memory error at the time of initial programming and registration using station No. 200, or at the time of registration to Single Digit Number or Personal Number or Remote Number

## 3-4 Dial receiving test

1. Instead of the PI-62 unit, use the PIU-52A (a unit used in the EXES-5000 System) to check the dial receiving section of the CP also to check if the signal is correctly transmitted as dialed from the station to be tested
2. If you place all "LINK SELECT" switches $(1 \sim 4)$ of SW-A on the CP-64 in "OFF" position, conversation is impossible but the dial code from each station is indicated on the LED's of the PIU as dialed. Use this to find the cause of any fault of receiving dial information.
3. With use of the PI-62 unit fitted with no LED, you can also check that the CP receives the dial signal by hearing the click sound of the relay produced when it is activated

Fig. 2 DIP switches (SW-A of the CP)



Fig. 1


## 3-5 The order of link usage.

After power is on, links are used in numerical order for each communication. Remember this to help you when problems are found with specific links.

Remarks:

1. Be sure to avoid mistake at the time of DIP switch installation and No. 200 Programming since such mistake may lead to trouble later.
2. Be sure to make "No. 200 Programming" after "Programming Data Table" (attached to this manual) is filled out. Keep the finished "Programming Data Table" (Initial Checking Sheet for the System 133-21-121-8) as a part of complete drawings for each installation.

Fig. 3 Dial code indication

## 3-6 The order of Tie-line link usage

The Tie-line Link Number which is used in calls between exchanges is not directly indicated, but you can possibly get it from the link number which is indicated on the $\mathrm{HC}-64$.

When one Tie-line Link brings up some problems which cause the system not to work properly, try to find which link number is causing the problems from the indication on the HC-64 of the exchange making the call.

As Fig. 1 and Fig. 2 show, in the exchanges which make calls, the DL Link Number corresponds with TI Tie-line Link Number.

In the exchange which is called, the Tie-line Link Number of the Tl Unit is fixed by connection between exchanges.

DL Links are used in numerical order.

1. Tie-line for 2 exchanges


Fig. 1
2. Tie-line for 3 exchanges


Fig. 2

## Reference for Connection Link Number between DL and TI Link

| Exchange which calls |  |  |  | Exchange which is called |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| DL Link No | TI Tie-line Link Number |  |  | TI Tie-line Link Number | DL Link Number |
|  | 2 Tie-lines | 3 Tie-lines |  |  |  |
|  | To TI1, TI2 | To TI1 | ToTI2 |  |  |
| 0 | 0 ) | 0 | 8 | Fixed by Connection Cable between Exchanges | After power switch is on, Links are used in numerical order |
| 1 | 1 | 1 | 9 |  |  |
| 2 | 2 | 2 | 10 |  |  |
| 3 | 3 | 3 | 11 |  |  |
| 4 | 4 | 4 | 12 |  |  |
| 5 | 5 | 5 | 13 |  |  |
| 6 | 6 | 6 | 14 |  |  |
| 7 | 7 | 7 ) | 15 |  |  |
| 8 | 8 | 0 | 8 ) |  |  |
| 9 | 9 | 1 | 9 |  |  |
| 10 | 10 | 2 | 10 |  |  |
| 11 | 11 | 3 | 11 |  |  |
| 12 | 12 | 4 | 12 |  |  |
| 13 | 13 | 5 | 13 |  |  |
| 14 | 14 | 6 | 14 |  |  |
| 15 | 15 | 7 ) | 15 |  |  |

Note.
If the TI Tie-line Link which corresponds with the DL Link No. is already busy, then, the next Tie-line Link is automatically used.

## 4. CP-64 DIP SWITCHES FOR FUNCTION SELECTION



Note: CP DIP SWITCHES FOR FUNCTION SELECTION
*1 Be sure to place the SW-C-1 (Paging) switch in the ON position when paging and its allied functions are used.
*2 To perform the "Highest Executive Priority" function in Tie-line system, place this switch of each exchange in the ON position.
*3 Turn on this switch of each exchange even if not all the exchanges require paging function in Tie-line system. Otherwise, the exchange with this switch off can not perform all-call paging.
*4 Selection of "Large" adds 1 more digit to the number operated. Example: $\bullet(\sqrt{x}) \sqrt{x}$
*5 Standard (SW-E-7 OFF):

| Exchange | A | B | C |
| :--- | :---: | :---: | :---: |
| Hardwired station number | $200 \sim 455$ | $470 \sim 725$ | $740 \sim 995$ |

Programming (SW-E-7 ON):
The first station number of each exchange in order of the exchanges. A, B and C can be set as any of the following numbers:
100/200/300/400/500/600/700/800/900
(Hardwired station number)
For the personal number call, use the station number of 100 s .

## 5. FUNCTION CODE TABLE FOR STATION NO. 200 PROGRAMMING

## A. Clearance at one time

| Function Group | Function | Function Code | Clearance of Function | Function Registration on All Stations | Clearance of Func | n by Function Group |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| S | Numbering schedules of Tie-line system | 40 | (-4) $\square$ Q $\begin{aligned} & \text { Confirmation } \\ & \text { tone }\end{aligned}$ |  |  | (Clears function group S) |
|  | Selection of Calling Tone | 41 | - 4 , 0 [ $\begin{aligned} & \text { Confirmation } \\ & \text { tone }\end{aligned}$ |  |  |  |
|  | Selection of Paging Pre-announcement Tone | 42 | - 4 [ 2 ] $\begin{aligned} & \text { Confirmation } \\ & \text { tone }\end{aligned}$ |  |  |  |
|  | Time-out of Conversation | 45 | $0 \boxed{0}$ (0) 0 Confirmation |  |  |  |
|  | $\begin{aligned} & \text { Time-out of Paging } \\ & \text { Call } \end{aligned}$ | 46 | $\because(4)$ (0) 0 OConfirmation <br> tone |  |  |  |
| A | Executive Priority | 50 |  | $-5 \boxed{\underbrace{\text { PTT (PTT } \cdots \text { (PTT) }}_{10 \text { times }} \begin{array}{l} \text { Confir- } \\ \text { mation } \\ \text { tone } \end{array}}$ |  | (Clears function group A) |
|  | Continuous Calling Tone | 51 |  |  |  |  |
|  | Station Allowed Access to All Call | 52 |  |  |  |  |
|  | Stations Allowed Access to Conference | 53 |  |  |  |  |
|  | $\begin{aligned} & \text { Automatic Access to } \\ & \text { Paging } \end{aligned}$ | 54 |  |  |  |  |
|  | Stations Allowed Access to One Shot Make Output | 56 |  |  |  |  |
|  | $\begin{aligned} & \text { Stations Allowed } \\ & \text { Access to Make/ } \\ & \text { Brake Output } \\ & \hline \end{aligned}$ | 57 |  |  |  |  |
|  | Stations Allowed <br> Access to 8 Selectable/ <br> Decimal Output <br> Sald | 58 |  |  |  |  |
|  | Stations Allowed Access to 4 Decimal Digits Output | 59 |  |  |  |  |
| B | Secretary Transfer | 60 |  |  |  | (Clears function group B) |
|  | Master/Sub | 61 |  |  |  |  |
|  | Group Hunting | 62 |  |  |  |  |
| C | Paging Response, Paging Priority | 70 |  |  | $[\cdot] \underbrace{[7] \sqrt{7} \cdots \sqrt{7}}_{10 \text { times }} \begin{gathered} \text { Confir } \\ \text { matior } \\ \text { tone } \end{gathered}$ | (Clears function group C) |
|  | $\begin{aligned} & \text { Group Blocking of } \\ & \text { Each Group } \end{aligned}$ | 71 |  |  |  |  |
|  | Group of Calling Party Indication | 72 |  |  |  |  |
| D | Combination Paging | 80 |  |  | $[\cdot] \underbrace{8](8) \cdots(8)}_{10 \text { times }} \begin{aligned} & \text { Confir- } \\ & \text { mation } \\ & \text { tone } \end{aligned}$ | (Clears function group D) |
|  | Group Blocking: <br> Allowing Calls <br> Among Groups | 81 |  |  |  |  |
|  | $\begin{array}{\|l} \hline \text { Group Blocking: } \\ \text { Allowing Access } \\ \text { to Paging Zones } \\ \hline \end{array}$ | 82 |  |  |  |  |
| E | Programable Station Numbering | 90 |  |  | $[\cdot \underbrace{(9)[9] \cdots\left[\begin{array}{l} \text { Confir } \end{array}\right.}_{10 \text { times }} \begin{array}{c} \text { mation } \\ \text { tone } \end{array}$ | (Clears function group E) |
| * | Personal Number Single Digit Dialing Remote Response | - |  |  | $\cdot \cdot \underbrace{\square \square \square \square}_{10 \text { times }} \cdots \begin{gathered} \text { Confir } \\ \text { mation } \\ \text { tone } \end{gathered}$ | (Clears functions of Personal No., Single Digit Dialing and Remote Response) |

Note: *Can be registered at each station.

## FUNCTION CODE TABLE FOR STATION NO. 200 PROGRAMMING

B. Programming of System


## FUNCTION CODE TABLE FOR STATION NO. 200 PROGRAMMING

| Function Group | Function | Function Code | 1st Parameter | 2nd Parameter | 3rd Parameter | 4th Parameter | OPERATING FOR PROGRAMMING |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| A | Executive Priority | 50 | Station No. | ON/OFF (1/0) |  |  |  |
|  | Continuous Calling Tone | 51 | Station No. | ON/OFF (1/0) |  |  |  |
|  | Station Allowed Access to All Call | 52 | Station No. | ON/OFF (1/0) |  |  |  |
|  | Stations Allowed Access to Conference | 53 | Station No. | ON/OFF (1/0) |  |  |  |
|  | Automatic Access to Paging | 54 | Station No. | ON/OFF (1/0) |  |  |  |
|  | Stations Allowed <br> Access to One Shot <br> Make Output Sht <br> Satess Alowed | 56 | Station No. | ON/OFF (1/0) |  |  |  |
|  | Stations Allowed <br> Access to Makel <br> Break Output | 57 | Station No. | ON/OFF (1/0) |  |  |  |
|  | Stations Allowed <br> Access <br> to Selectable <br> OOne Shot Make)/ <br> Oecimal Output <br> Des | 58 | Station No. | ON/OFF (1/0) |  |  |  |
|  | Stations Allowed Acessst to 4 Decimit Output | 59 | Station No. | ON/OFF (1/0) |  |  |  |
| B | Secretary Transfer | 60 | Executive Station No. | Secretary Station No. | Clsels) |  |  |
|  | Master/Sub | 61 | Sub Station No. | Master Station No. |  |  |  |
|  | Group Hunting | 62 | Main station No. | Transfered Station No. |  |  |  |
| C | Paging Zone | 70 | Zone No. (01~15) | The First Station No. of the Zone | The Last Station No. of the Zone |  |  |
|  | Group Blocking: Establishment of Each Group | 71 | Group No. (1~8) | The First Station No. of the Group | The Last Station No. of the Group |  |  |
|  | Group of Calling Party Indication | 72 | Group No. (1~8) | The First Station No. of the Group | The Last Station No. of the Group |  |  |
| D | Combination Paging | 80 | Combination <br> Zone No. (90~99) | Zone No. (s) (01 ~ 31) (Plural) |  |  |  |
|  | Group Blocking: <br> Allowing Calls <br> Among Groups | 81 | Calling Group No. (1~8) | Called Group No.(s) <br> (Plural) |  |  |  |
|  | Group Blocking: Allowing Access to Paging Zones | 82 | $\begin{aligned} & \text { Paging Zone No. of } \\ & \text { PagedGroup of } \\ & (00 \sim 15,90 \sim 99) \end{aligned}$ | $\begin{aligned} & \text { Paging Group No.(s) } \\ & \text { (Plural) } \end{aligned}$ |  |  |  |
| E | Programable Station Numbering | 90 | Hardwired Station  <br> No. $\star_{2}$ <br>   | Programmed Sta tion No. *2 |  |  |  |
|  |  |  | The First  <br>   <br> Hardwired  <br> Station No.  <br>   | The Last  <br>   <br> Hardwired  <br> Station No.  <br>   <br>   <br>   <br>   | The First Programmed Station No. | $\begin{aligned} & \text { The Last } \\ & \text { Programmed } \\ & \text { Station No. } \quad{ }^{2} \end{aligned}$ |  |

[^0]
## 6. STATION NO. 200 PROGRAMMING FOR EACH FUNCTION

## 6-1 EXECUTIVE PRIORITY (HIGHEST EXECUTIVE PRIORITY)•(FUNCTION CODE 50)



NOTES

1. To allow all the stations to have this function.

Touch $\bullet \boxed{\square} \frac{\square(P T T)(P T T) \cdots(P T T}{10 \text { times }}$ (Confirmation tone will be heard.)

Be sure to depress the (PTT key steadily.
2. To release at one time the data programmed into all the stations for this function,

Touch

(Confirmation tone will be heard.)
3. Re-start at Step 1 when mis-dialing occurs. (All other registrations remain valid.)
4. CP DIP switch B-3 must be "ON" to employ this function.

* Executive Station: Executive or Highest Executive Station.


## 6-2 CONTINUOUS CALLING TONE (FUNCTION CODE 51)



NOTES

1. To allow all the stations to have this function.
Touch $\because \boxed{5}, \frac{\mathrm{PTT} \mathrm{PTT} \cdots \mathrm{PTT}}{10 \text { times }}$
(Confirmation tone will be heard.)
2. Re-start at Step 1 when mis-dialing occurs. (All other registrations remain valid.)
3. CP DIP switch E-6 must be "ON" to employ this function.

Be sure to depress the PTT key steadily.
2. To release at one time the data programmed into all the stations for this function,

Touch $\square 5 \square \square \square \square \square \square$ (Confirmation tone 10 times will be heard.)

## 6-3 STATIONS ALLOWED ACCESS TO ALL CALL (FUNCTION CODE 52)



NOTES

1. To allow all the stations to have this function.

Touch


Be sure to depress the PTT key steadily.
2. To release at one time the data programmed into all the stations for this function.

Touch
 (Confirmation tone will be heard.)
3. Re-start at Step 1 when mis-dialing occurs. (All other registrations remain valid.)
4. Programming is necessary only if CP DIP switch D-1 is "ON".

## 6-4 STATIONS ALLOWED ACCESS TO CONFERENCE (FUNCTION CODE 53)



NOTES

1. To allow all the stations to have this function.


Be sure to depress the PTT key steadily.
2. To release at one time the data programmed into all the stations for this function.

$$
\text { Touch } \because 5 \underbrace{(0) \cdots \cdot \square}_{10 \text { times }} \text { (Confirmation to }
$$

3. Re-start at Step 1 when mis-dialing occurs. (All other registrations remain valid.)
4. Programming is necessary only if CP DIP switch D-1 is "ON". Switch B-1 must be "ON" to employ this function.

## 6-5 AUTOMATIC ACCESS TO PAGING (FUNCTION CODE 54)



NOTES

1. To allow all the stations to have this function.

Touch
 (Confirmation tone will be heard.)
3. Re-start at Step 1 when mis-dialing occurs (All other registrations remain valid.)
Be sure to depress the PTT key steadily.
2. To release at one time the data programmed into all the stations for this function.
Touch [• 5$], 4 \underbrace{\square}_{10 \text { times }} \square \cdots \cdot \square \begin{aligned} & \text { (Confirmation tone } \\ & \text { will be heard.) }\end{aligned}$

## COMPLEMENTARY NOTES

(1) Automatic Access to Paging

This function facilitates Paging/Paging response from a Substation TL-600S. Just picking up the Handset of Substation automatically activates Paging or Paging Response mode.
(2) Required Programming for Automatic Access to Paging from HandsetSubstation.
2-1) First, connect a Master Station HF-600M or TL-600M in place of a Substation TL-600S
2-2) Program at that station a necessary function for Single Digit Dialing such as Paging, Paging Response, Personal Number Call or etc.
2-3) Then, replace the Master Station with a Substation TL-600S.
2-4) Program "Automatic Access to Paging from Handset Substation (Function Code 54)" at the Station No. 200 according to the programming instructions.
(3) Single Digit Dialing and Automatic Access to Paging By programming "Single Digit Dialing" at any master station, a single touch of the dial activates "Station Call", "Personal Number Call", "Paging" or "Paging Response" mode. But in using a TL-600S and a HF-600S, "Automatic Access to Paging from Handset Substation" function cannot be adopted only by programming "Single Digit Dialing" at the station. It also requires the programming for Function Code 54 at No. 200 Station.
(4) A call to Master Station from Handset or Hands-free/ Handset Substation
"Master/Sub Relationship (Function Code 61)" can be programmed into Handset Substation TL-600S or Hands-free/ Handset Substation HF-600S etc., where you can call the relative Master Station by a single touch of the dial $[\square$, or by picking up the Handset.
In activating a mode with Hands-free/Handset Substation HF-600S by picking up the Handset, "Privacy" switch on the Station is to be "ON" position.

## (5) Call by Dialing © \& Picking up the Handset

| Function | Necessary Programming | Call to Master Station |  | PagingCall, Paging Response or Personal Number Call |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | By dialing $\square$ | By picking up Handset | By dialing $\square$ | By picking up Handset |
|  |  | at <br> HF-620S or HF-600S | at <br> TL-600S or HF-600S <br> (Privacy SW. ON) | at <br> HF-620S or HF-600S | at <br> TL-600S or HF-600S <br> (Privacy SW. ON) |
| Single Digit Dialing | Single Digit <br> Registration at Station | $(O)$ | X | $\bigcirc$ | X |
| Master/sub Relationship *2 | Programming at <br> Station No. 200 <br> (Function Code 61) | $\bigcirc$ | $\bigcirc$ | $x$ | X |
| Automatic Acess to Paging Paging (or Calling) from Handset Substation | 1. Single Digit Registration at Station <br> 2. Programming at Station No. 200 (Function Code 54) | $(\bigcirc)$ | $(O)$ | $\bigcirc$ | $\bigcirc$ |
|  |  |  | Note. $\begin{gathered} O \\ \times \\ (O) \\ * 1 \\ { }^{*} 2 \end{gathered}$ | Possible <br> Impossible <br> Possible but usualy <br> Possible across th <br> Impossible across | Not to be used tie-lined exchange. he tie-lined exchan |



NOTES

1. To allow all the stations to have this function.


Be sure to depress the PTT key steadily.
3. Re-start at Step 1 when mis-dialing occurs. (All other registrations remain valid.)
4. Programming is necessary only if CP DIP switch D-1 is "ON".
2. To release at one time the data programmed into all the stations for this function.

Touch



NOTES

1. To allow all the stations to have this function,

Touch


Be sure to depress the PTT key steadily.
2. To release at one time the data programmed into all the stations for this function,

Touch $\bullet 5 \square \square \square \cdots, 0$ (Confirmation tone will be heard.)
10 times
3. Re-start at Step 1 when mis-dialing occurs. (All other registrations remain valid.)
4. Programming is necessary only if CP DIP switch D-1 is "ON".

## 6-8 STATIONS ALLOWED ACCESS TO 8 SELECTABLE (ONE-SHOT MAKE) OR DECIMAL OUTPUT (FUNCTION CODE 58)



NOTES

1. To allow all the stations to have this function,

(Confirmation tone will be heard.)

Be sure to depress the PTT key steadily.
2. To release at one time the data programmed into all the stations for this function,

Touch $\because(\underline{0} \underbrace{0}_{10 \text { times }} \cdot\left(\begin{array}{l}\text { (Confirmation tone } \\ \text { will be heard.) }\end{array}\right.$ 10 times
3. Re-start at Step 1 when mis-dialing occurs (All other registrations remain valid.)
4. Programming is necessary only if CP DIP switch D-1 is "ON".

## 6-9 STATIONS ALLOWED ACCESS TO 4 DECIMAL DIGITS OUTPUT (FUNCTION CODE 59)



NOTES


Be sure to depress the PTT key steadily.
2. To release at one time the data programmed into all the stations for this function,

Touch

(Confirmation tone will be heard.)
3. Re-start at Step 1 when mis-dialing occurs. (All other registrations remain valid.)
4. Programming is necessary only if CP DIP switch D-1 is "ON".

## 6-10 SECRETARY TRANSFER (FUNCTION CODE 60)



NOTES

1. To release at one time the data programmed into all the stations for this function.

Touch


10 times
2. Re-start at Step 1 when mis-dialing occurs. (All other registrations remain valid.)
3. Switch B-5 must be "ON" to employ this function.
4. Programming of Secretary Transfer can be made in a daisy chain method. For their examples, refer to the following sketch.


## 6-11 MASTER/SUB RELATIONSHIP (FUNCTION CODE 61)



NOTES

1. To release at one time the data programmed into all the stations for this function.

Touch $\bullet 6,10 \square \cdots \cdots, \begin{aligned} & \text { (Confirmation tone } \\ & \text { will be heard.) }\end{aligned}$
10 times
2. Re-start at Step 1 when mis-dialing occurs. (All other registrations remain valid.)

## 6-12 GROUP HUNTING (FUNCTION CODE 62)



NOTES

1. To release at one time the data programmed into all the
2. Switch B-5 must be "ON" to employ this function
stations for this function,
Touch $\square \square \square \square \square \square$ (Confirmation tone 10 times will be heard.)
3. Re-start at Step 1 when mis-dialing occurs. (All other registrations remain valid.)
4. Programming of Group Hunting can be made in a daisy chain method. For their examples, refer to the following sketch.


## 6-13 PAGING ZONE (FUNCTION CODE 70)



NOTES

1. To release at one time the data programmed into all the Zones for this function.

Touch $\square \square \square \square \square \square \square \square \square \square$ (Confirmation tone
2. Re-start at Step 1 when mis-dialing occurs. (All other registrations remain valid.)
3. Switch $\mathrm{C}-1$ must be "ON" to employ this function
4. 2-Digit dialing is necessary even in the case of Zone No. 1 to No. 9 .
Ex. Zone No. 2 $\qquad$ 므 ㄹ
5. In the case "Paging Response Without Zone Number" mode $(\because \square, \square)$ is selected bv the DIP Switch SW-C-7, this registration is essential.
6. In the case "Paging Priority" function is adopted by the DIP Switch SW-C-3, this registration should be made for each Paging Zone of No. 01 to No.31.
7. Zone number series of each exchange in Tie-line system.

Exchange "A" ---- No.01~15
Exchange "B" ---- No. 16~30
Exchange "C" ---- No.31~45

## 6-14 GROUP BLOCKING 1 : ESTABLISHMENT OF EACH GROUP (FUNCTION CODE 71)

GROUP BLOCKING 1


NOTES

1. To release at one time the data programmed into all the groups for this function,

Touch

(Confirmation tone will be heard.)
3. CP DIP switch D-4 must be "ON" to employ this function.
4. Group No.

Single exchange ..... No.1~8
Tie-line exchange ..... No.1~6
2. Re-start at Step 1 when mis-dialing occurs. (All other registrations remain valid.)

## 6-15 CALLING PARTY INDICATION (LAMP TYPE) (FUNCTION CODE 72)

Registration of station number(s) having indication panel.


NOTES

1. To release at one time the data programmed into all the groups for this function,

Touch $\because \square \square \square \square \square \square$ (Confirmation tone 10 times
2. Re-start at Step 1 when mis-dialing occurs
(All other registrations remain valid.)
3. When the Indication Panel belongs to only one (1) station, you should write the station number in both "First Station No." and "Last Station No." columns.

## 6-16 COMBINATION PAGING (FUNCTION CODE 80)



NOTES

1. To release at one time the data programmed into all the Zones for this function,

Touch

2. Re-start at Step 1 when mis-dialing occurs.
(All other registrations remain valid.)
3. CP DIP switch C-1 and C-4 must be "ON" to employ this function.

## 6-17 GROUP BLOCKING 2 : ALLOWING CALLS AMONG GROUPS (FUNCTION CODE 81)

## GROUP BLOCKING 2



1. To release at one time the data programmed into all the groups for this function,

$$
\text { Touch } \because[8] \underbrace{\square(0] \cdots \cdot[\text { 으 }}_{10 \text { times }} \text { (Confirmation tone } \begin{aligned}
& \text { will be heard.) }
\end{aligned}
$$

2. Re-start at Step 1 when mis-dialing occurs (All other registrations remain valid.)
3. Do not register a Group to call itself.
4. CP DIP switch D-4 must be "ON" to employ this function.

## 6-18 GROUP BLOCKING 3 : ALLOWING GROUP ACCESS TO PAGING (FUNCTION CODE 82)

GROUP BLOCKING 3


## 6-19 PROGRAMMABLESTATION NUMBERING (FUNCTION CODE 90)

## A. Programming of Single Station Number



## B. Programming of Serial Station Numbers



NOTES

1. To release all registered Programmed Station No.'s at one time.
Touch
$\bullet 9$ $\qquad$ 10 times -] (Confirmation tone
2. Any one Programmed Station No. cannot be assigned to more than one Hardwired Station.
3. CP DIP switch D-5 must be "ON" to employ this function.

## C. Restriction of programmable station numbering

Each station number can be programmable in the station number series of the exchanges $A, B$ and $C$ that have been determined by the function of the "Selectable First Station Number" (Page 17).

Restriction of station numbers (*1) and (*2)
<Example 1> With personal number(Standard) <Example 2> Without personal number

| Exchange | Hardwired Station No. | Programmed Station No. | Exchange | Hardwired Station No. | Programmed Station No. | Exchange | Hardwired Station No. | Programmed Station No. |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| A | 200~455 | 200~469 | A | 100~355 | 100~399 | A | 200~455 | 200~499 |
| B | 470~725 | 470~739 | B | 400~655 | 400~699 | B | 500~755 | 500~799 |
| C | 740~995 | 740~999 | C | 700~955 | 700~999 | C | 800~999 | 800~999 |

## 7. PROGRAMMING DATA TABLE

## - INITIAL PROGRAMMING

Note. (Mark *)
The first station of each exchange becomes the Programming Station:
Exchange "A" . . . . . . . . . . . . . . . . . . . . . . . . . No. 200 (100)
Exchange "B" . . . . . . . . . . . . . . . . . . . . . . . . . No. 470 (400)
Exchange "C" . . . . . . . . . . . . . . . . . . . . . . . . . . No. 740 (700)
$=$ Initial Programming of the Exchange $=$

1. Place program switch on front panel of the CP "ON" Dial operation from station No. 200 (100). *
2. © Dial tone will be heard (Station No. 200 (100) becomes a programming station)
3. $\cdot \underbrace{4 \pi \sqrt[4]{4} \cdot(4)}_{10 \text { times }}$ Confirmation tone will be heard (Clears function group S)
4. $\cdot \underbrace{5} 5 \cdot \cdot 5$ Confirmation tone will be heard (Clears function group A) 10 times
5. $\bullet \underbrace{66 \cdot 6}_{10 \text { times }}$ Confirmation tone will be heard (Clears function group B)
6. $\quad 7 \quad 7 \cdot 7$ Confirmation tone will be heard (Clears function group C ) 10 times
7.     - $8 \cdot 8$ Confirmation tone will be heard (Clears function group $D$ ) 10 times
8.     - $9 \cdot \cdot 9$ Confirmation tone will be heard (Clears function group E) 10 times
9. © (O) $\cdot(0)$ Confirmation tone will be heard.

10 times (Clears personal numbers, single digit dial numbers and remote numbers)
10. Program necessary functions.
(Refer to separate instructions for each function)
11. Place program switch on front panel of the CP in "OFF" position.
12. [C] (Station No. 200 (100) becomes a normal station.) *

## $=$ Clearance of Each Function at a Time $=$

$-\underset{\text { Function }}{x}$ $\square$

Confirmation tone

## Establishment of Function on All Stations at a Time=




| Function Group | Function | Function code | Registered data |  | Note of Registration | Initial programming |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| S | Numbering schedules of tie-line system | 40 |  | - 00 | Select the head number of stations in each exchange from among the followings:$\begin{aligned} & \underline{100}, \underline{2} 00, \underline{3} 00, \underline{400}, \underline{500}, \underline{600}, \underline{700} \\ & \underline{8} 00 \text { or } \underline{9} 00 \end{aligned}$ | $\mathrm{A} / \mathrm{B} / \mathrm{C}=$ <br> 200/470/740 <br> (SW-E-7 OFF) <br> 200/500/800 <br> (SW-E-7 ON) |
|  |  |  | B | $\ldots 00$ |  |  |
|  |  |  | C | 00 |  |  |
|  | Selection of Calling Tone | 41 |  | - | 0 : Without Calling Tone <br> 1: Single tone ( 0.2 sec .) <br> 2: Calling tone ( 0.3 sec .) | 1: <br> Calling Tone <br> ( 0.3 sec .) |
|  | Selection of Paging Pre-announcement Tone | 42 |  | - | 0: Without Paging <br> Pre-announcement Tone <br> 1 : Paging Pre-announcement Tone (1 sec.) <br> 2: Paging Pre-announcement Tone ( 2 sec .) | 2: <br> Paging <br> Pre-announcement <br> Tone (2 sec.) |
|  | Time-out of conversation | 45 |  | - | 00: Without Time-out function 01 ~ 99: Length limited (min.) | 00 : Without Time-out |
|  | Time-out of Paging call | 46 |  | - | 00: Without Time-out function <br> 01 ~ 99: Length limited (min.) | 00: <br> Without Time-out |

## 8. SETTING OF CHANNEL SELECT SWITCH OF TRANSMITTING UNIT (DT-E11) AND WORD SELECT SWITCH OF RECEIVING UNIT (DR-B61)

## NOTE

1. Connect the DT-E11 and DR-B61 to Exchange correctly. (Refer to operation manuals of DT-E11 and DR-B61).
2. Set the function select switches (DIP SWITCH) on CP-64 correctly and be sure to enter initial programming and function registration at programming station No. 200.
3. Remove the front panel of Data Transmitting Unit (DT-E11) and take out the printed circuit board. Then set the channel select switches located on the printed circuit board, according to the

necessary functions such as IN/OUT Annunciation, Calling Party Indication etc, and replace in the Unit.
(Refer to 12. Explanation of Data Transmitting Unit Output Data, Page 48).
4. The DT-E11 sends out 512 bit data ( 16 bit $\times 32$ words) to control relays on Data Receiving Unit (DR-B61). Therefore set the two word select switches on DR-B61, according to necessary output mode. SW-1 is for Relay No. 1 to No. 16 and SW-2 is for Relay No. 17 to No.32. See Page 51 for details.
(Refer to Explanation of Date Receiving Unit Output Channels.)
5. Connecting Cable YR-802 is used for the Rack mounting system. Connecting Cable YR-806 is used for the Standard Cabinet mounting system with only One (1) DT-E11 unit.

## 9. DIP SWITCH TABLE FOR DATA TRANSMITTING AND RECEIVING UNITS



## 10. SYSTEM DIAGRAM OF DATA TRANSMITTING AND RECEIVING UNITS (Single Exchange)



## Enlarged Block Diagram of Calling Party Indication




## 12．EXPLANATION OF DATA TRANSMITTING UNIT OUTPUT CHANNELS

| CHANNELSELECTION | FUNCTIONS | DESCRIPTION | APPLICATION |
| :---: | :---: | :---: | :---: |
| DT－E11 CH． 1 $\square$ | Make／Break Output （512／100 contacts） | Make／Break contacts can be available at any Master station． | －Door Remote <br> －IN／OUT Annunciation |
| DT－E11 <br> CH． 2 | One－shot Make Output （500／50 contacts） | One－shot make contacts can be available at any Master station． | －ITV camera select <br> －VTR control |
|  | （1） 4 Decimal digits output （9 units） | Indicate by 7 segments LEDs． | －Prescription annunciation |
|  | （2）Decimal Output （9 units） | 10 Selectable Decimal Outputs are available with 7 segments LEDs． | －Room condition indication |
| DT－E11 <br> CH 3 | （3） 8 Selectable Make Output． （9 units） | One contact out of 8 selectable make outputs is obtained．＂Clear＂ope－ ration makes all 8 relays break． | －Destination indication |
|  | （4）Pager Control Output （100 pagers） | Make output（100 contacts）is available for pager control． | －Pager |
|  | （5） 8 Selectable One－shot Make Output（9 unit） | One contact out of 8 selectable make outputs is obtained for about 1 or 2 seconds． | －VTR control |
| $\begin{aligned} & \text { OT-E11 } \\ & \text { CH. } 4 \end{aligned}$ | Decimal Output （99 units） | 10 Selectable Decimal Outputs are available with 7 segments LEDs． | －Room condition indication <br> －Destination indication |
| DTEE11 CH． 5 | 8 selectable make Output （64 units） | One contact out of 8 selectable make outputs is obtained．＂Clear＂ope－ ration makes all 8 relays break． | －Room condition indication <br> －Destination indication |
| DTEE11 CH． 6 | Calling Party Indication Numerical－type（1） | When a station with a Display Board is called，calling party number is indicated until the conversation is | －The number of called stations are No．201～No． 216. |
| DT－E11 CH． 7 $\square$ | Calling Party Indication Numerical－type | over and also when the called station is busy or in privary． | －The number of called stations are No．217～No． 232. |
| DTEE11 <br> CH． 8 | Calling Party Indication （OneStation；One Lamp）（1） |  | －The group number of called station（s）．No．1～2 |
| DTEE11 CH． 9 $\square$ | Calling Party Indication （One Station；One Lamp）（2） | Max． 256 Calling station numbers can be indicated when designated called station with Display Board is called． The numbers of called stations having | －The group number of called station（s）．No．3～4 |
| DTEE11 <br> CH． 10 $\square$范 | Calling Party Indication （One Station；One Lamp）（3） | an indication panel can be program－ med at No． 200 station． | －The group number of called station（s）．No．5～6 |
| $\text { DT-E11 } 11 \text { ETH.S}$ | Calling Party Indication （One Station；One Lamp）（4） |  | －The group number of called station（s）．No．5～6 |
| DTEE1 $\square$ <br> CH． 12 $\square$ | Destination Indication（1） | When a person makes his own Personal Number Programming at the station，the station number at which | －Personal number No．1000～1015 |
| DTEE11 CH． 13 | Destination Indication（2） | the registration was made can be indicated by the lamp． | －Personal number No．1016～1031 |
| DT－E11 <br> CH． 14 $\square$ | In／Out Annunciation（1） | Personal in and out registration can be accomplished at any Master station by using personal numbers | －Personal number No．1000～1503 （504 persons） |
| DT－E11 <br> CH． 15 $\square$ | In／Out Annunciation（2） | Max． 1000 IN／OUT annunciations may be done． | －Personal number No．1504～1999 （496 persons） |

## 13．EXPLANATION OF DATA RECEIVING UNIT OUTPUT DATA

## 13－1 Channel 1 （CH．1）Make／Break Output

|  | （Dial Operation） |  |  |
| :---: | :---: | :---: | :---: |
| Exchange | $\bigcirc$－ 3 （ $\times$ ）区区 | （Relay Make） | xxx： $000 \sim 511$（512 contacts） |
| EXES 6000 | － 3 回（ x 区 区 | （Relay Break） | XX： $00 \sim 99$（100 contacts） |



|  |
| :---: |



Exchange
EXES-6000

ion
$[-3(\boxed{x}) \times$ (Relay Make min. 1 ms max. 2 ms ) $\quad x \times x: 000 \sim 499$ ( 500 contacts) XX: $00 \sim 49$ ( 50 contacts)

Data Receiver

> Relay Output No.


|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 861 | 047 | 046 | 045 | 044 | 043 | 042 | 041 | 040 | 039 | 038 | 037 | 036 | 035 | 1034 | 033 | 3 |  | W0. 2 |  | SW1 |
| NO. 2 | 063 |  | 1061 | 060 | 1059 | 058 |  | 056 | 055 | 054 | 053 | 052 | 051 | 050 | 04. | 04 | 8 | WD. 3 |  |  |




| OR-861 |
| :---: |
|  |  |
|  |  |







 $\qquad$ sw2





|  |
| :---: |








13-7 Channel 7 (CH. 7) Calling Party Indication Numerical Type (2)


|  | Each "Calling Station" or "Waiting Station" is shown by Each Lamp of Indication. |
| :--- | :--- |
| Exchange | Total Number of Station with Indications: 2 Stations/Channel (8 Stations/4Channels) |
| FXFS.6010. | Total Number of Calling Stations: Max. 256 Stations/Each Indication |



Each Relay Output shows "Calling Station No."

13-9 Channel 9 (CH. 9) Calling Party Indication (Lamp Type) (2)

EXES 6000

| Exchange | Each "Calling Station" or "Waiting Station" is shown by Each Lamp of Indication. |
| :---: | :--- |
| Total Number of Station with Indications: 2 Stations/Channel (8 Stations/4 Channels) |  |
| EYES 6000 | Total Number of Calling Stations: Max. 256 Stations/Each Indication |



[^1]| Each "Calling Station" or "Waiting Station" is shown by Each Lamp of Indication. |  |
| :--- | :--- |
| Exchange | Total Number of Station with Indications: 2 Stations/Channel (8 Stations/4 Channels) |
| Total Number of Calling Stations: 256 Stations/Each Indication |  |



Data Receiver Relay Output No.

Station No. with Indication

 sw1 W0. 1 [id
 NO. 2

## WD. 2

$\qquad$ sw 1



 NO. 4










Each Relay Output shows "Calling Station No."

Each "Calling Station" or "Waiting Station" is shown by Each Lamp of Indication. Sations/4 Channels) Total Number of Calling Stations: 256 Stations/Each Indication

## 13-12 Channel 12 (CH. 12) Destination Indication (1)

(Dial Operation)

- Registration of Personal Number [* © 1 즈 $\times x$
- Cancellation of Personal Number $\bullet \bullet 1 \square X x$

Personal Number: Max. 32 persons (No.1000~1031)
Station Number which shows Person's Destination: Max. 32 stations (No.201~232)


OR-B61 $\frac{16}{16} 16$







 EXAMPLE
Indication Panel-lamp on
A person "No.1006" registers his Personal Number at the station "No.216", then the Relay contact "No.216" turns into "Make".
Each Relay Output shows "Station No. of Person's Destination"


Each Relay Output shows
"Station No. of
Person's Destination




SW2




DR-B61 1216








 OR-B61 2166



(Dial Operation\}

- Registration of Personal Number $\cdot[6][1] \sqrt{\square}] \times x$ xx:00~31
Exchange
EXES 6000
- Cancellation of Personal Number $[\cdot[\cdot[1][0][x][x]$

XX:00~31
Personal Number: Max. 32 persons (No.1000~1031)
Station Number which shows Person's Destination: Max. 32 stations (No.201~232)


EXAMPLE
Indication Panel-lamp on
A person "No.1022" registers his Personal Number at the station "No.216", then the Relay contact "No.216" turns into "Make". Each Relay Output shows "Station No. of Person's Destination"


Each Relay Output shows "Station No. of Person's Destination"



CHANNEL SELECT Switch

Each Relay Output shows last 3 digits ( $x x x$ ) of Personal Number



Wo. 2 $\qquad$ sw NO. 2

DR-B61 1070






 DR-B61 16






 DR -B61 1327326


 NO. $12 \frac{375}{3754} 3$









|  | Data Receiv |  |  |  |  |  |  |  |  |  |  |  |  |  | Relay | O | Output No． |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Data Transmitter |  | $1{ }^{1}$ | 15.4 | 13 | 1 | 11.10 | 10 |  | 88 | 7 | 6. | 5 | 4 | 3 | 2 |  |  |  |  |
| 01－E11［大亏 | DR－B61 | 519518 | 518517 | 5165 | 51551 | 51451 | 51315 | 5125 | 51151 | 51050 | 509.50 | 5085 | 507 | 506 | 505 | 504 | WD． 0 | Ee－at．o． | SWI |
| CH 15 ［込 | N0． 1 | 535534 | 534533 |  | 5315 | 53052 | 52952 | 5285 | 52752 | 52652 | 5255 | 5245 | 5235 | 5225 | 521 | 520 | wo． 1 |  | SW2 |
| － |  | 3231 | 3130 | 29 | 28.2 | 27－26 | 16：20 | 2512 | $24^{24}$ | 23 2 | 22.2 | 21 |  |  |  |  |  |  |  |
| CHANNEL SELECT Switch | PR P6 1 | 169 15 | 15．14． |  |  |  | 10.9 |  | ${ }^{8,17}$ | 7746 | 6615 | 5 | 4 | 3． 2 | ${ }^{2}$ |  |  |  |  |
|  | DR－B61 | 551550 | 550 549 | 5485 | 547 54 | 565545 | 54554 | 5445 | 54354 | 54254 | 54154 | 5405 | 5395 | 53815 | 537 | 536 | W0． 2 |  | SW1 |
|  | NO． 2 | 567566 | 566565 | 564 5 | 56356 | 56256 | 56156 | 5605 | 55955 | 55855 | 55755 | 556 | 5555 | 5545 | 553 | 552 | W0． 3 |  | SW2 |
|  |  | 3231 | 31．30 | 29 | 28.2 | 27.26 | 26．25 | 25： 2 | 24.2 | 23.82 | 22.2 | 21 | 20 |  |  |  |  |  |  |
|  |  | $\frac{16.15}{583}$ | 15914． |  |  |  |  |  | ${ }^{8.15}$ | 7746 | 615 | 5 | 4 |  | 2 |  |  |  |  |
|  | DR－861 | 583582 | 582581 | 580 | 57957 | 57857 | 57757 | 5765 | 57557 | 57457 | 57357 | 5725 | 571 | 57056 | 569 | 568 | W0． 4 |  | SW1 |
|  | N0． 3 | 599598 | 598597 | 5965 | 59559 | 594593 | 59359 | 59259 | 59159 | 59058 | 58958 | 5885 | 5875 | 58658 | 585 | 544 | W0． 5 |  | SW2 |
|  |  | 32：31 | 31.30 | ${ }^{29}$ | 28．2 | $27 \times 2$ | 26.2 | 25\％ | 24：2 | 23． 22 | 22．2 | 21 | 20.1 |  |  |  |  |  |  |
|  |  | 45 | 1514 | 13 | 12. | 11.10 | 10.9 | 9 | $8{ }^{817}$ | 7.6 | 6 | 5 |  |  | 2 |  |  |  |  |
|  | DR－861 | 615614 | 614613 | 612 ｜ 6 | 61161 | 610603 | 60960 | 60860 | 60760 | 6066005 | 60560 | 60460 | 603 | 60260 | 601 | 600 | W0． 6 | 此 |  |
|  | No． 4 | 631630 | $630629]$ |  | 62762 | 626162 | 62562 | 6246 | 62362 | 62262 |  |  |  | 6186 | $617]$ | 616 | WD． 7 |  | SW2 |


| DR－B61 | 647 | 646 | 645 | 643 | 64 | 11 | $1{ }^{10}$ | 164 | ${ }^{8} 818$ | 6963 | 788 | 371 63 | 666 63 | 3563 | 3463 | 63632 | WD． 8 | \％ |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| NO． 5 | 663 | 662 | 661 | 660 | 659 | 658 | 657 | 565 | 6655 | 5565 | 5465 | 53652 | 265 | 516 | 5064 | 9648 | WD． 9 | 0 | SW |











Each Relay Output shows last 3 digits（xxx）of Personal Number

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[^0]:    *2 Station No.'s except Programmed Station No.'s are Ha

[^1]:    Note: $-(凸)$ shows the Head of a Slide Switch

