AIPHONE

0485 Ⓑ

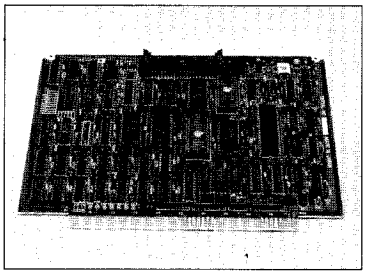
# RCX CASCADE OPTION

**MODELS: XCS-45M** *(for a main CEU)*

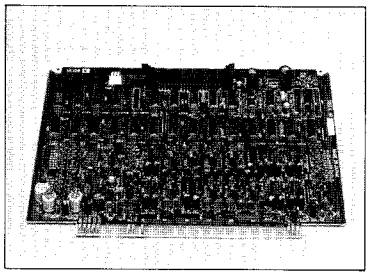
**XCS-45S** *(for branch CEUs)*

XCS-45M & XCS-45S add cascade connection capability to Aiphone RCX Intercom System, allowing connection of up to four CEUs: RCX-88 and/or RCX-128 for a maximum 480-station system.

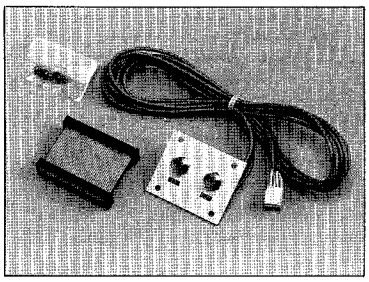
## — INSTRUCTIONS —



XC-104M CARD
XC-104S CARD



XC-105M CARD
XC-105S CARD

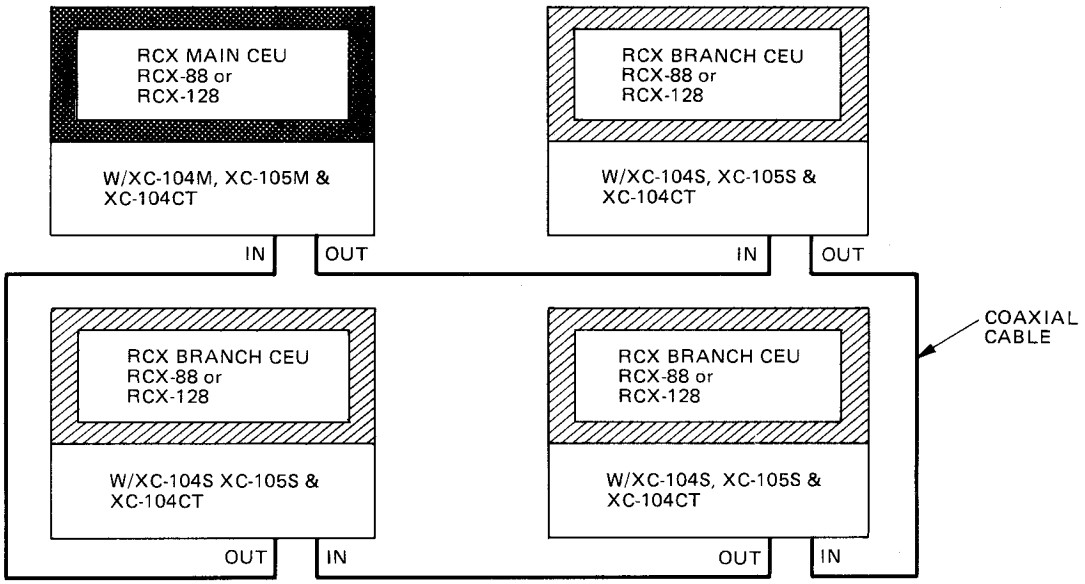


XC-104CT

NOTE: XCS-45M is a set consisting of XC-104M, XC-105M and XC-104CT. XCS-45S is a set consisting of XC-104S, XC-105S and XC-104CT.
The photo shows each XC-104M and XC-105M, whose parts layout is slightly different from XC-104S and XC-105S's.

## PRE-INSTALLATION INFORMATION

* Cascade means to connect from two to a maximum of four RCX CEUs, allowing calling and communication between stations within different systems.
* To add cascade connection capability to an RCX Intercom System, two optional cards are required for each CEU, i.e. XC-104M & XC-105M for first CEU and XC-104S & XC-105S for second to fourth CEU. XC-104CT connecting board is also required for each CEU. Refer to the illustration below.
* RCX-88 & RCX-128 CEUs are designed for cascade connection (RCX-48 CEU can not be used).
* RCX-88 can have maximum 88 stations (station No. 100 to No. 187), but RCX-128 can have maximum 120 stations (station No. 100 to 219), when cascade connection is made. The last subscriber card XC-092 in RCX-128, which corresponds to stations No. 220 to No. 227, must be removed from CEU.



## SPECIFICATIONS

* Power consumption: XCS-45M: 15W (XC-104M: 8W; XC-105M: 7W)
  XCS-45S: 15W (XC-104S: 8W; XC-105S: 7W)
* Inter-CEU trunkage capacity: 4 channels per CEU.
* Inter-CEU network: PCM time sharing multi-network.
* Number of CEU connectable in cascade: Maximum four CEUs.
* Wiring distance between CEUs: See chart below;

| COAXIAL CABLE | MAXIMUM ATTENUATION AT 4MHZ. | MAXIMUM DISTANCE BETWEEN CEUS | | | When wiring connected to IN terminal exceeds the below, set SWITCH 1 on XC-105 to position 3; |
|---|---|---|---|---|---|
| | | 4 CEUS | 3 CEUS | 2 CEUS | |
| 3C-2V | 25 dB/km | 350 m | 550 m | 700 m | 350 m |
| 5C-2V | 16 | 550 m | 850 m | 1,100 m | 550 m |
| 7C-2V | 12 | 750 m | 1,200 m | 1,500 m | 750 m |
| 10C-2V | 10 | 900 m | 1,400 m | 1,800 m | 900 m |
| 5C-4E | 10 | 900 m | 1,400 m | 1,800 m | 900 m |
| 7C-4E | 7 | 1,200 m | 2,000 m | 2,500 m | 1,200 m |
| 10C-4E | 5 | 1,600 m | 2,600 m | 3,300 m | 1,600 m |
| RG-59/U | 31 | 1,000' (300 m) | 1,700' (500 m) | 2,000' (600 m) | 1,000' (300 m) |
| RG-11/U | 13 | 2,500' (750 m) | 4,000' (1,200 m) | 5,000' (1,500 m) | 2,500' (750 m) |
| RG-15/U | 7.5 | 4,000' (1,200 m) | 6,600' (2,000 m) | 8,200' (2,500 m) | 4,000' (1,200 m) |

Notes: Coaxial cable must meet the following requirements;
* Impedance: 75 ohm.
* In case of using any other coaxial cable not specified above, select the most suitable cable for your application, referring to the attenuation value at 4MHz.

* Number of station installable: Up to 120 stations in each RCX-128 (one XC-092 subscriber card must be removed).
  Up to 88 stations in each RCX-88.

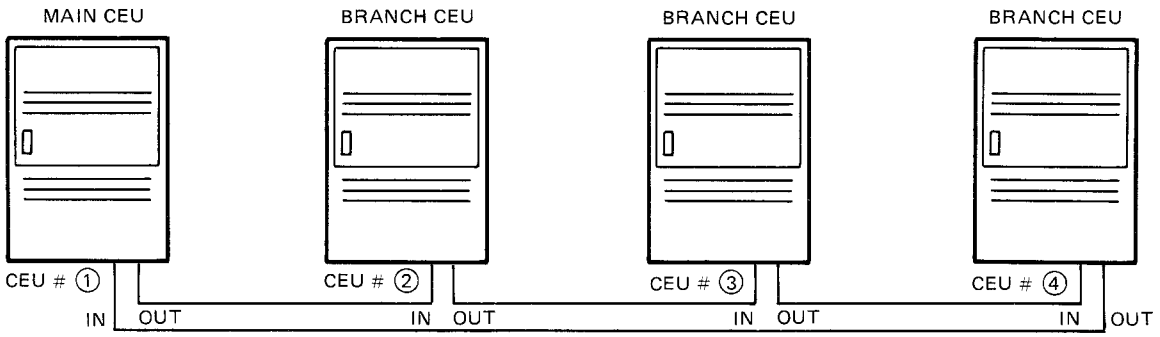
## INSTALLATION

DO NOT ATTEMPT TO INSTALL YOUR RCX CASCADE OPTION UNTIL YOU HAVE READ AND THOROUGHLY UNDERSTAND THE INSTALLATION PROCEDURE. AIPHONE'S WARRANTY IS VOID IF THE SYSTEM IS INSTALLED IN A MANNER OTHER THAN DESCRIBED IN THIS MANUAL.

**STEP 1** Assigning a main CEU;

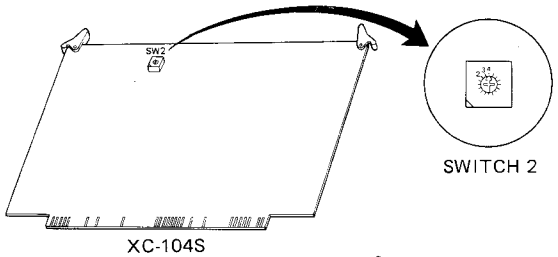
Before connecting up to four RCX CEUs in cascade, assign one CEU for the main CEU and the other CEU(s) for branch CEU(s).

In the main CEU, XC-104M, XC-105M & XC-104CT must be installed. In the other branch CEUs, XC-104S, XC-105S & XC-104CT are installed.




**STEP 2** Setting a number for branch CEUs;

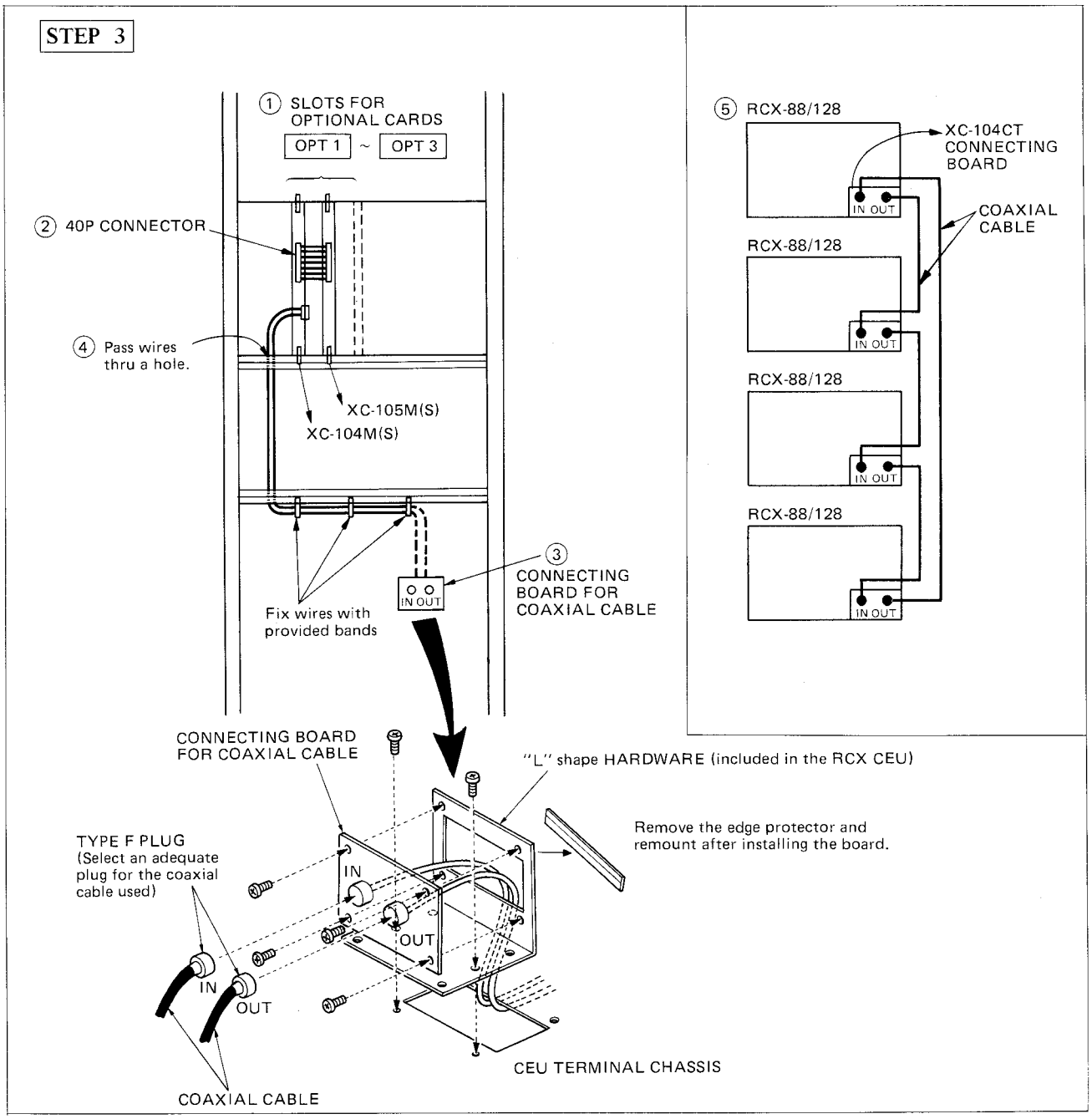
Using a small standard screwdriver, set a code switch to each 2, 3 and 4 at the SWITCH 2 on each XC-104S card, as shown below.



**STEP 3** Mounting and wiring;

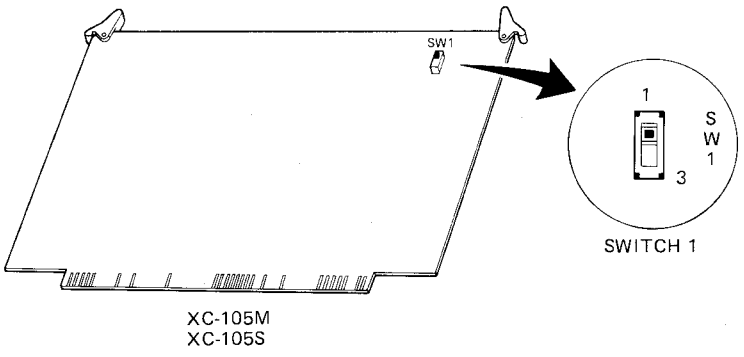
Be sure to turn the power switch off before you open the unit or make wiring connections.

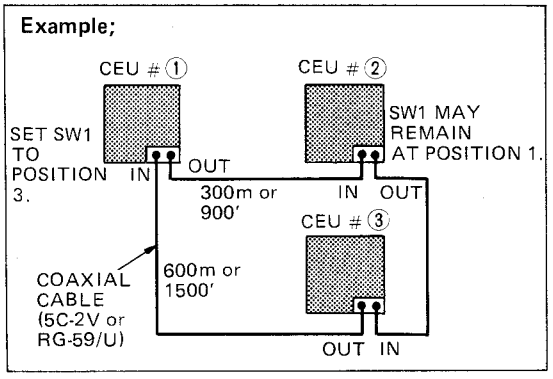
1. Insert the XC-104M and XC-105M (or XC-104S and XC-105S) into slots for optional cards, side by side.
2. Attach 40P connector cable between the XC-104M/XC-105M (or XC-104S/XC-105S) cards.
3. Remove "L" shape hardware from CEU terminal section, and attach the connecting board for coaxial cable (included in XC-104CT) to the L hardware. Reattach the L hardware to the chassis.
4. Install wires from the connecting board and attach connector to a receptacle on the XC-105.
5. Attach Type F plug to connector, either IN or OUT on the connecting board. As shown, run coaxial cable from OUT of first CEU to IN of second CEU and proceed until last coaxial cable returns to IN of first CEU, thus completing looped wiring. Coaxial cable may be connected from one CEU to another, regardless of cascade CEU number.



**STEP 4** Setting on adjuster switch on XC-105;

When wiring distance between CEUs exceeds 550m with 5C-2V and 350m with 3C-2V (1,000' with RG-59/U as specified in Page 2), set SWITCH 1 for position 3 on XC-105M and XC-105S cards on the CEU with coaxial cable connected to IN (CEU #(1) in the Example). As to other types of coaxial cable, refer to the table of wiring distance between CEUs in SPECIFICATIONS Page 2.




**STEP 5** Powering the equipment;

After all the connections are completed, turn on power switch of all CEUs. If main CEU is not powered, any cascade function will not work. Before operating any cascade function, wait approximately 20 seconds after all CEUs are powered.

## OPERATIONS

* Communication functions between CEUs are;

1. Station call,
2. All page (with call back),
3. All call (with call back),
4. Privacy,
5. Temporary privacy release,
6. Duplex/simplex communication.

### ① Cascade station call (RA-A & RA-B);

Dial the cascade CEU No. ( [1] ~ [4] ), [►] then the desired station number.

When you hear single call tone ( ▬ ) ➡ Just speak handsfree.

When you hear long high intermittent tone ( ▬ ▬ ), called station is in Privacy mode. ➡ You may wait for station to release from Privacy mode, as call tone will signal at the station in Privacy mode for approximately 4 seconds.

When you hear long intermittent tone ( ▬▬ ), the talk channels are fully occupied or called station is busy. ➡ Press [•] button to disconnect and call later.

Short and higher intermittent tone ( ▬ ▬ ▬ ▬ ) means called station is set for Absence Memory. ➡ Press [•] button to disconnect and call later.

## TROUBLE SHOOTING GUIDE

If the cascade connection capability does not function, while all standard RCX functions are operative, follow the steps listed below;

1 Turn OFF the power switch on the CEU and remove the cover.

2. Make sure the XC-104M/S & XC-105M/S cards are plugged into right slots side by side, which are marked [OPT 1] ~ [OPT 3] for RCX-88 & RCX-128.
Also, check if the XC-104M/S & XC-105M/S cards are locked firmly into card connector.

3 Make sure the connector from XC-104CT connecting board is properly and firmly plugged into the receptacle on the XC-104M/S card. Also, check if 40P connector cable is plugged into receptacle on each card.

4 A power switch and a safety switch are located on the left center side of the CEU. Turn on the power switch, depress the safety switch and see if red LED on the XC-104M/S card is lit approximately 5 seconds after the safety switch is pressed.

* When the LED ILLUMINATES ➡ CEU contains old version of CPU IC chip.
Contact your local Aiphone distributor for the replacement of CPU.

* When the LED does not illuminate, follow the steps listed below;

5 Check if red LED on the intercom goes off right after a number button ( [1] ~ [4] ) and [►] are dialed.
If the red LED goes off immediately (within 1 second), proceed with the steps 1 to 4 from the beginning. Or the XC-104/XC-105 Cards may be defective. Contact your local Aiphone distributor.
If the red LED goes off approximately after 4 seconds, follow the steps from 6 to 12.

6 Check if the main CEU is powered.
When the main CEU is not powered, inter-branch CEU cascade function would not work.

7 Check if right cards are used for each main and branch CEUs.
For a main CEU, XC-104M & XC-105M must be used.
For a branch CEU(s), XC-104S & XC-105S must be used.

8 Check if a code switch is set properly at the [SWITCH 2] on each XC-104S card (Refer to step 2 of INSTALLATION).

9 Check if coaxial cable looped wiring is completed between all CEUs.
When any of coaxial cable is not connected, any cascade function would not work.

10 Check if coaxial cable wiring is completed within the specified distance, according to the number of CEUs and type of coaxial cable used.

11 Check if [SWITCH 1] on the XC-105M/S is set properly according to the wiring distance between CEUs. (Refer to step 4 of INSTALLATION).

12 Check if all branch CEUs are powered.
If a branch CEU is not powered and/or when total looped wiring distance exceeds 550m with 5C-2V or 350m with 3C-2V (1,000′ with RG-59/U as specified in Page 2), cascade function would not work.

### WARRANTY

Aiphone warrants its products to be free from defects of material and workmanship under normal use and service for a period of one year after delivery to the ultimate user and will repair free of charge or replace at no charge, should it become defective upon which examination shall disclose to be defective and under warranty. Aiphone reserves unto itself the sole right to make the final decision whether there is a defect in materials and/or workmanship; and whether or not the product is within the warranty.
This warranty shall not apply to any Aiphone product which has been subject to misuse, neglect, accident, or to use in violation of instructions furnished, nor extended to units which have been repaired or altered outside of the factory.
This warranty does not cover batteries or damage caused by batteries used in connection with the product.
This warranty covers bench repairs only, and any repairs must be made at the shop or place designated in writing by Aiphone. Aiphone will not be responsible for any costs incurred involving on site service calls.

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XCS-45-I-0485 Ⓑ



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