INTERCOM (XLR 5P, Female)
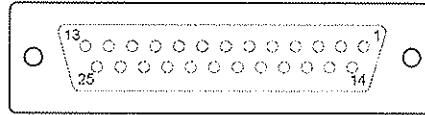
- EXT VIEW -
(0 dBu = 0.775 Vrms)

No.	Signal	Specifications
1	INTERCOM MIC IN (Y)	−20 dBu (CARBON UNBALANCE) −40 dBu (ECM, UNBALANCE) −60 dBu (DYNAMIC, BALANCE/UNBALANCE)
2	INTERCOM MIC IN (X)	
3	GND	GND for INTERCOM
4	INTERCOM L OUT	8 dBu (VR Max, 250 Ω Load)
5	INTERCOM R OUT	8 dBu (VR Max, 250 Ω Load)

(Handwritten note box):
RTS /Clearcom   SONY
PIN 1 ⟷ PIN 3 + PIN 16
PIN 2 ⟷ PIN 1
PIN 3 ⟷ PIN 14

LAN (8P, RJ-45, 10Base-T/100Base-TX)

8   1
- EXT VIEW -
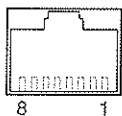
No.	Signal	Specifications
1	TX (+)	Transmitted Data (+)
2	TX (−)	Transmitted Data (−)
3	RX (+)	Received Data (+)
4	NC	No connection
5	NC	No connection
6	RX (−)	Received Data (−)
7	NC	No connection
8	NC	No connection

INTERCOM/TALLY/PGM (D-sub 25P, Female)

(Handwritten note): RTS CH1 PIN2

- EXT VIEW -
(0 dBu = 0.775 Vrms)

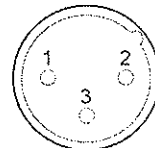| No.	Signal	Specifications
1	ENG (R) (X) OUT	ENG SYSTEM RECEIVE 0 dBu BALANCED
2	ENG (R) (Y) OUT	
3	ENG (G)	GND for ENG
4	ENG (T) (X) IN	ENG SYSTEM TALK 0 dBu BALANCED
5	ENG (T) (Y) IN	
6	PGM1 (X) IN	−20 dBu/0 dBu/+ 4 dBu (Selectable with CCU Menu)
7	PGM1 (Y) IN	
8	PGM1 (G) IN	
9	GND	GND for AUX
10	AUX3	
11	R TALLY (X) IN	ON:24 Vdc, TTL (H), SHORT OFF:0 Vdc, TTL (L), OPEN
12	R TALLY (Y) IN	
13	GND	CHASSIS GND
14	PROD (R) (X) OUT	PROD SYSTEM RECEIVE 0 dBu BALANCED
15	PROD (R) (Y) OUT	
16	PROD (G)	GND for PROD
17	PROD (T) (X) IN	PROD SYSTEM TALK 0 dBu BALANCED
18	PROD (T) (Y) IN	
19	PGM2 (X) IN	−20 dBu/0 dBu/+ 4 dBu (Selectable with CCU Menu)
20	PGM2 (Y) IN	
21	PGM2 (G) IN	
22	EML* PIX/WF OUTPUT	Active:GND THROUGH (OFF):OPEN
23	EML Enable	Enable:GND Normal (Disable) :OPEN
24	G TALLY (X) IN	ON:24 Vdc, TTL (H), SHORT OFF:0 Vdc, TTL (L), OPEN
25	G TALLY (Y) IN	

*: Easy Monitor Link function

(Handwritten notes): RTS CH2 PIN3   RTS COM PIN1

MIC OUT 1, 2 (XLR 3P, Male)

- EXT VIEW -
(0 dBu = 0.775 Vrms)

No.	Signal	Specifications
1	MIC OUT (G)	0 dBu/− 20 dBu (Selectable with CCU Menu)
2	MIC OUT (X)	
3	MIC OUT (Y)	

MIC REMOTE (D-sub 15P, Female)

- EXT VIEW -

No.	Signal	Specifications
1	+ 5.5 V OUT	Max. 250 mA
2	TALLY GND	GND for TALLY
3	G TALLY OUT	ON (GND) : Max. 30 mA IN
4	R TALLY OUT	ON (GND) : Max. 30 mA IN
5	CAM MIC AMP GAIN CTRL2 IN	
6	CAM MIC AMP GAIN CTRL1 IN	
7	CAM MIC AMP GAIN CTRL0 IN	

CTRL 0	CTRL 1	CTRL 2	CAM MIC AMP GAIN
H	H	H	60 dB
L	H	H	50 dB
H	L	H	40 dB
L	L	H	30 dB
H	H	L	20 dB

No.	Signal	Specifications
8	MIC1 GAIN CTRL ON/OFF IN	

8pin	15pin	MIC GAIN CTRL
L	L	MIC 1 and 2 ON
L	H	MIC 1 ON
H	L	MIC 2 ON
H	H	INTERNAL set

No.	Signal	Specifications
9	GND	GND for +5.5 V
10	TALLY OUT	R/G TALLY OUT ON (GND) : Max. 30 mA IN
11	PREVIEW OUT	ON (GND) : OPEN COLLECTOR
12	ASPECT REMOTE ON/OFF IN	L : REMOTE
13	ASPECT CTRL1 IN	
14	ASPECT CTRL2 IN	

CTRL1	CTRL2	ASPECT
L	H	SQ (16:9)
H	H	EC (4:3)
L	L	INTERNAL set
H	L	LB

No.	Signal	Specifications
15	MIC2 GAIN CTRL ON/OFF IN	

8pin	15pin	MIC GAIN CTRL
L	L	MIC 1 and 2 ON
L	H	MIC 1 ON
H	L	MIC 2 ON
H	H	INTERNAL set

REMOTE (8P, Female)
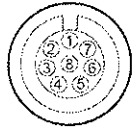
- EXT VIEW -

No.	Signal	Specifications
1	TX (+)	SERIAL DATA OUT
2	TX (−)	
3	RX (+)	SERIAL DATA IN
4	RX (−)	
5	TX GND	GND for TX
6	POWER (+) OUT	RCP POWER, +30 V
7	POWER (−) OUT	GND for POWER
8	VIDEO (X)	75 Ω, 1.0 V p-p
	CHASSIS GND	CHASSIS GND

TRUNK (D-sub 9P, Female, RS-422A)

- EXT VIEW -

No.	Signal	Specifications
1	GND	
2	RX (−)	TRUNK Data in
3	TX (+)	TRUNK Data out
4	GND	
5	GND	
6	GND	
7	RX (+)	TRUNK Data in
8	TX (−)	TRUNK Data out
9	GND	

WF MODE (4P, Female)
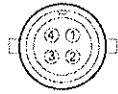
- EXT VIEW -

No.	Signal	Specifications
1	SEQ CTRL OUT (G)	OPEN COLLECTOR
2	SEQ CTRL OUT (X)	+(PNP)/−(NPN) (Selectable with S2801/ DPR-300board)
3	STAIR CASE OUT (X)	*1
4	STAIR CASE OUT (G)	GND for STAIR CASE

*1 : Stair Case signal

WF REMOTE (D-sub 15P, Female)
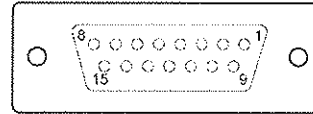
- EXT VIEW -

No.	Signal	Specifications
1	NC	No connection
2	NC	No connection
3	NC	No connection
4	NC	No connection
5	RECALL2 (G)	LOW ACTIVE
6	RECALL3 (B)	
7	RECALL1 (R)	
8	RECALL4 (SEQ)	
9	GND	
10	NC	No connection
11	NC	No connection
12	RECALL5 (ENC)	LOW ACTIVE
13	RECALL6 (R+B)	
14	RECALL7 (R+G)	
15	RECALL8 (G+B)	

1-1-2. Wiring Diagrams for Cables

CCA-5 Cable (for REMOTE connector)

— 8P CONNECTOR (MALE) —
(WIRING SIDE)
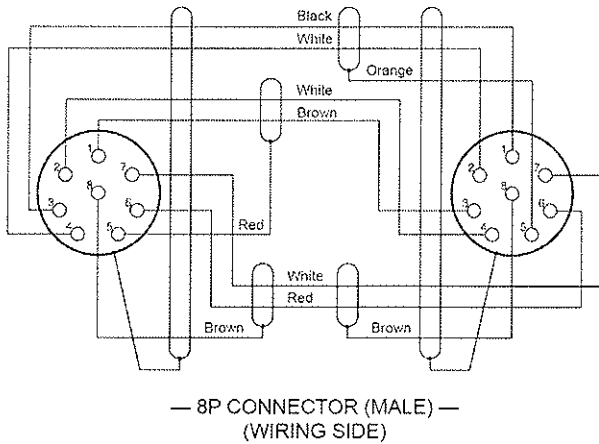
INTERCOM MIC Cable

(1) Balance (BALANCE in MIC TYPE menu)
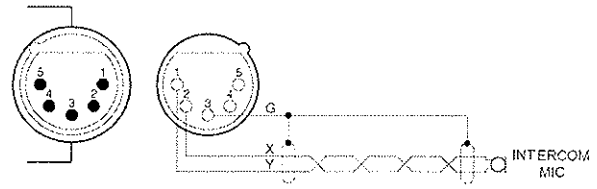
(2) Unbalance (UNBALANCE in MIC TYPE menu)

1-1-3. Connection Connectors/Cables

Connection made with the connector panels during installation or service, should be made with the connectors/complete cable assemblies specified in the following list, or equivalent parts.

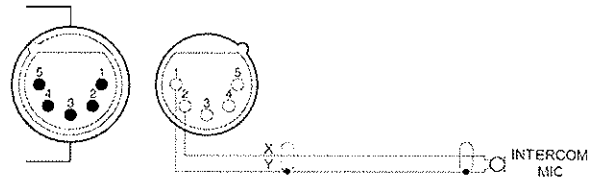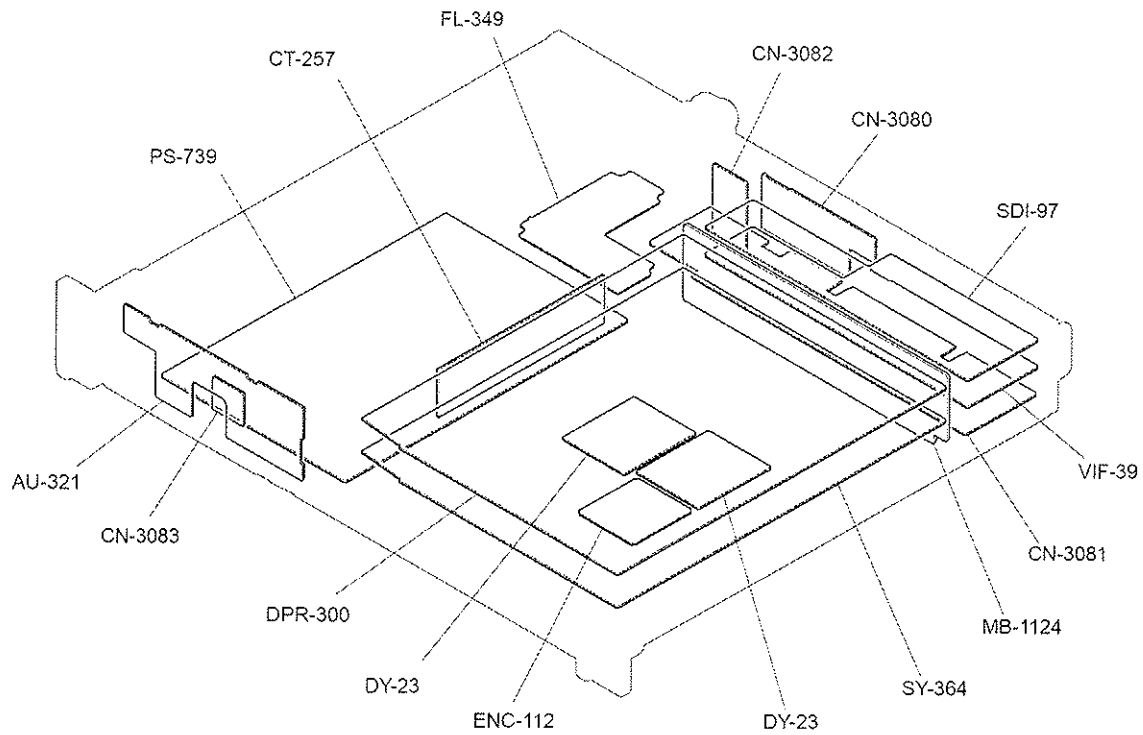| Connector Name	Connector/Cable
CAMERA (TRIAX)	• KINGS TRIAX (UC) connector • Tajimi Electronics TRIAX (J) connector • FISCHER TRIAX (CE) connector
PROMPTER REFERENCE, SYNC VBS OUTPUT 1, 2 PIX, WF Pr/R/R-Y, Y/G/Y, Pb/B/B-Y RETURN INPUT VBS 1/3, 2/4 (BNC)	1-564-742-11 PLUG, BNC or B-B Cable assembly (1.5 m, optional)
SDI OUTPUT 1 to 4 RETURN INPUT SDI 1/3, 2/4 (BNC)	1-569-370-12 PLUG, BNC or 5C-FB coaxial cable (Fujikura products recommended)
MIC OUT 1, 2 (3P, Male)	1-508-083-00 XLR 3P Female or CANNON XLR-3-11C equivalent
WF REMOTE (D-sub 15P, Female) MIC REMOTE (D-sub 15P, Female)	1-506-582-11 D-sub 15P, Male or JAE DA-15PF-N equivalent (Available shell: JAE DA-C1-J10-R equivalent)
INTERCOM/TALLY/PGM (D-sub 25P, Female)	1-766-367-11 D-sub 25P, Male JAE DB-25PF-N equivalent (Available shell: JAE DB-C2-J9-R equivalent)
WF MODE (4P, Female)	1-560-155-00 PLUG, 4P Male (accessory)
REMOTE (8P, Female)	1-766-848-11 PLUG, 8P Male or CCA CABLE ASSY (optional) CCA-5-10 (10 m), CCA-5-3 (3 m)
INTERCOM (5P, Female)	1-508-370-11 XLR 5P, Male or CANNON XLR-5-12C equivalent
TRUNK (D-sub 9P, Female)	1-568-182-11 D-sub 9P, Male or JAE DE-9PF-N equivalent (Available shell: JAE DE-C1-J6-R equivalent)
LAN (8P, RJ-45)	LAN cable (commercially available, shield type, category 5 or higher)

1-2. Location of Printed Circuit Boards
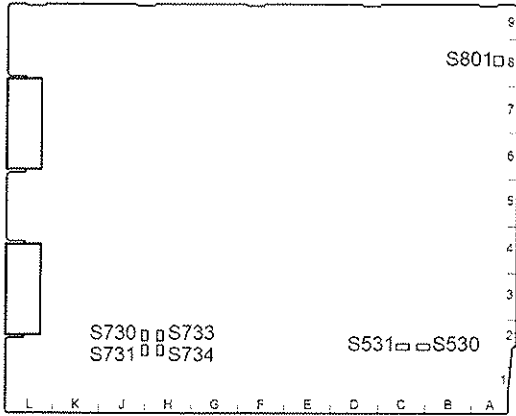

FL-349
CT-257
CN-3082
CN-3080
PS-739
SDI-97
AU-321
CN-3083
VIF-39
DPR-300
CN-3081
MB-1124
DY-23
SY-364
ENC-112
DY-23

1-3. Outside Dimensions

424

66

395

482

Unit: mm
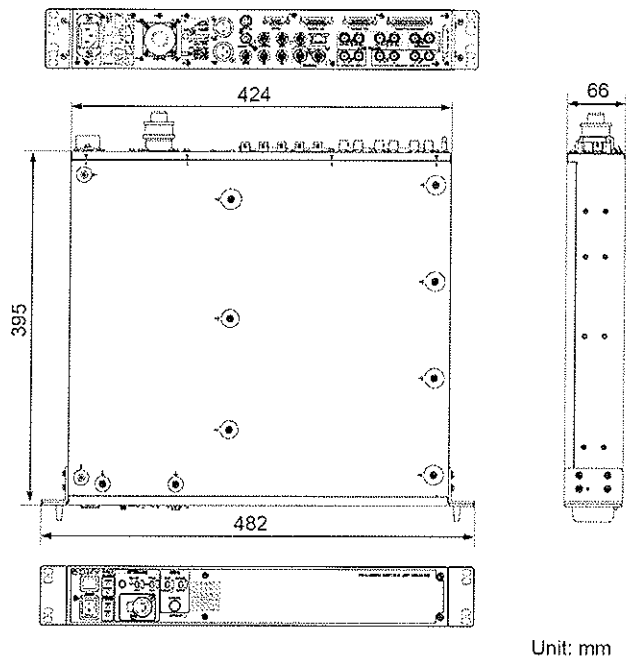
SY-364 Board

SY-364 Board (SIDE A)

Ref.No.	Name	Bit	Description	Factory setting
S530	PROD SEL	—	Select an intercom system for the producer line. 4W: 4-wire system RTS (CC): RTS or Clear-Com is selectable with the CCU menu.	4W
S531	ENG SEL	—	Select an intercom system for the engineer line. 4W: 4-wire system RTS (CC): RTS or Clear-Com is selectable with the CCU menu.	4W
S730	R-TALLY (POWER/CONTACT)	—	Set these switches in accordance with the specifications for the R TALLY signal that is input to the INTERCOM/TALLY/PGM connector on the rear panel. For relationship of the signal and switch settings, refer to the table below.	CONTACT
S733	R-TALLY (POWER/TTL)	—		TTL
S731	G-TALLY (POWER/CONTACT)	—	Set these switches in accordance with the specifications for the G TALLY signal that is input to the INTERCOM/TALLY/PGM connector on the rear panel. For relationship of the signal and switch settings, refer to the table below.	CONTACT
S734	G-TALLY (POWER/ TTL)	—		TTL
S801	PROTECT	1	Used to protect data write to IC801.	ON
	VerUp	2	Used to enable software upgrade using a memory stick.	OFF
	NORMAL/DEBUG	3	Not used	OFF
	NORMAL/DEBUG	4	Not used	OFF

Tally System Settings

Ref.No.	Red tally		Green tally	
	S730 (POWER/ CONTACT)	S733 (POWER/TTL)	S731 (POWER/ CONTACT)	S734 (POWER/TTL)
Contact supply	CONTACT	—	CONTACT	—
24 V supply	POWER	POWER	POWER	POWER
5 V supply	POWER	TTL	POWER	TTL

1-7. Potentiometer Functions

DPR-300 Board
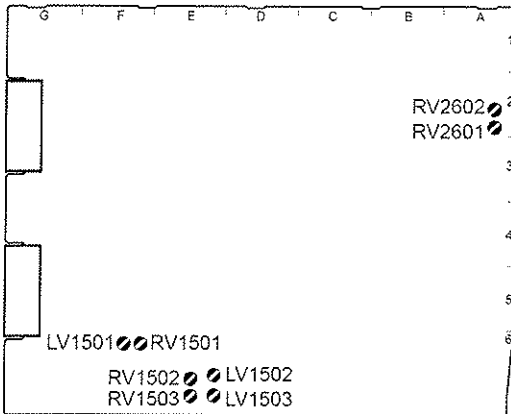
DPR-300 Board (SIDE A)

Ref.No.	Name	Description
RV1501	DEV ADJ	Adjusts modulation degree of standby INCOM (CCU to CAM) FM-modulated wave output.
RV1502	ST INCOM LEV ADJ	Adjusts waveform level of standby INCOM (CAM to CCU) demodulation output.
RV1503	TONE ADJ.	Adjusts free-running oscillation frequency of the TONE signal detection circuit.
RV2601	DC (Position)	Adjusts lateral display position of tri-waveform display on the waveform monitor.
RV2602	LEVEL (Interval)	Adjusts display position interval of tri-waveform display on the waveform monitor.
LV1501	1.0M FREQ ADJ	Adjusts modulation frequency of standby INCOM (CCU to CAM) FM-modulated wave.
LV1502	TUNE 1	Adjusts operating point of the standby INCOM (CAM to CCU) demodulation circuit.
LV1503	TUNE 2	Adjusts output distortion of the standby INCOM (CAM to CCU) demodulation circuit.

SY-364 Board
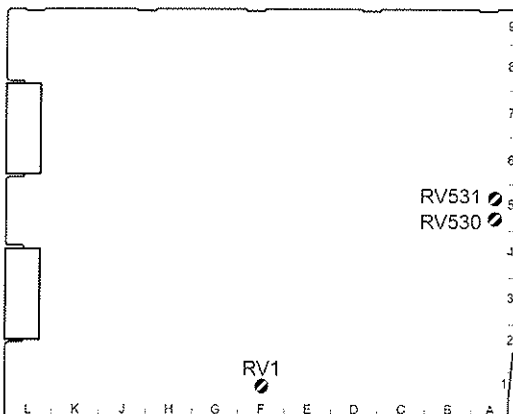
SY-364 Board (SIDE A)

Ref.No.	Name	Description
RV1	27M FREQ	Adjusts free-running oscillation frequency of 27M-VCO (X1) for readjustment required when it is replaced.
RV530	PROD RTS CANCEL	Adjusts sidetone cancellation amount of the producer line when RTS or Clear-Com is connected.
RV531	ENG RTS CANCEL	Adjusts sidetone cancellation amount of the engineer line when RTS or Clear-Com is connected.

3-2. Audio System

3-2-1. Intercom System Setting

Two independent intercom lines (producer line and engineer line) are selectable and available in this unit. This unit supports 4-wire, RTS, and Clear-Com (CC) intercom systems. Make settings of the internal switches and menus according to the system to be used.

Selecting Intercom System

Select an intercom system (4W, RTS, or CC) for each of the engineer line and producer line according to the system to be used.

| Note |

When switches S530 and S531 are set to RTS (CC), be sure to connect the unit to the RTS or Clear-Com system. Failure to do so will cause the output to oscillate and adversely affect the surrounding circuit.

Selecting Producer Line
1. Set S530 (PROD SEL) on the SY-364 board according to the system.
   4-wire: 4W (factory setting)
   RTS/Clear-Com: RTS (CC)
2. When RTS (CC) is selected, select RTS or Clear-Com with C06:SYSTEM INTERFACE of the CCU menu.

Selecting Engineer Line
1. Set S531 (ENG SEL) on the SY-364 board according to the system.
   4-wire: 4W (factory setting)
   RTS/Clear-Com: RTS (CC)
2. When RTS (CC) is selected, select RTS or Clear-Com with C06:SYSTEM INTERFACE of the CCU menu.
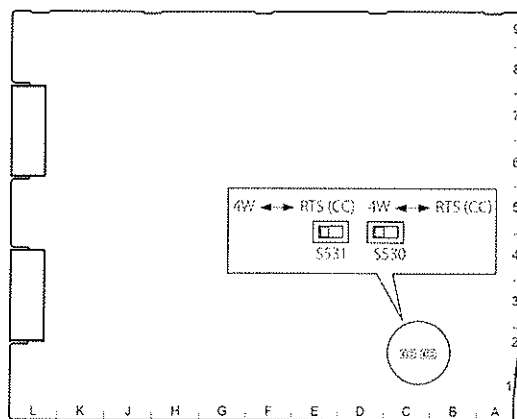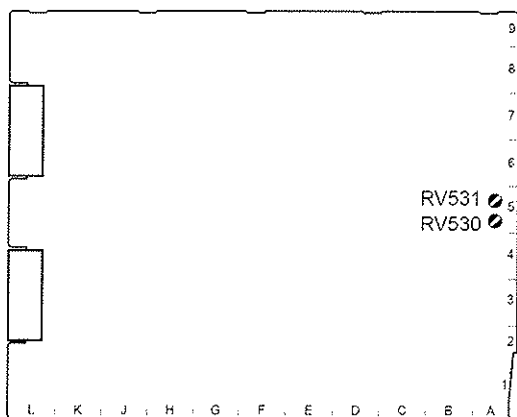

SY-364 BOARD (SIDE A)

Adjusting RTS Cancellation (RTS/Clear-Com)

When the RTS or Clear-Com system is used, adjust the sidetone cancellation amount using the following procedure.

1. Set the C07:SIDE TONE value of the CCU menu to 0.
2. Set the INCOM switch on the front panel to PROD.
3. While speaking to the headset microphone, adjust potentiometer RV530 (PROD RTS CANCEL) on the SY-364 board so that the voice heard from the headset becomes minimum.
4. Set the INCOM switch on the front panel to ENG.
5. While speaking to the headset microphone, adjust potentiometer RV531 (ENG RTS CANCEL) on the SY-364 board so that the voice heard from the headset becomes minimum.
6. Re-set the C07:SIDE TONE value of the CCU menu to the previous value or a desired value.

SY-364 BOARD (SIDE A)

Setting PGM Audio Signal Input Level

Set the PGM audio signals (PGM1 and PGM2) with C06:PGM1, 2 LEVEL according to each signal level.
−20 dBu, 0 dBu, or +4 dBu (factory setting: 0 dBu)

Setting Headset Microphone

1. Set C07:INCOM MIC of the CCU menu according to the microphone type of the headset to be connected to the front INTERCOM connector.
   Carbon microphone: CARBON (−20 dBu, power supplied)
   Condenser microphone: ECM (−40 dBu, power supplied)
   Dynamic microphone: DYNAMIC (−60 dB, no power supplied) (factory setting)
2. Set C07:MIC TYPE of the CCU menu according to the microphone of the headset to be connected to the front INTERCOM connector.
   BALANCE: Balanced microphone
   UNBALANCE: Unbalanced microphone (factory setting)

Adjusting Sidetone Volume (4-Wire)

Adjust the sidetone volume of the headset connected to the front INTERCOM connector with C07:SIDE TONE of the CCU menu according to the headset to be used. Too high volume of the sidetone may cause howling.

Selecting PGM Audio Signal

Select the PGM audio signal of the headset connected to the front INTERCOM connector to a desired level with C07: PGM SEL of the CCU menu.

To select PGM1:   PGM1 (factory setting)
To select PGM2:   PGM 2
To select PGM1 and PGM2 mixed: PGM1+PGM2

Headset output selection

		C07:PGM MIX (CCU menu)		
		INCOM + PGM	OFF	L-INCOM/R-PGM
MIC/PGM switch	ON	Intercom + PGM	Intercom	Left: Intercom Right: PGM
	OFF	Intercom + PGM	Intercom	Left: Intercom Right: PGM
	PGM		PGM	Left: Intercom Right: PGM

Adjusting PGM Audio Signal Mixing Volume

Adjust the PGM audio signal mixing volume of the headset connected to the front INTERCOM connector to a desired level with C07:PGM1 LVL, PGM2 LVL of the CCU menu.

Selecting Intercom Line to Be Connected to the INTERCOM Connector
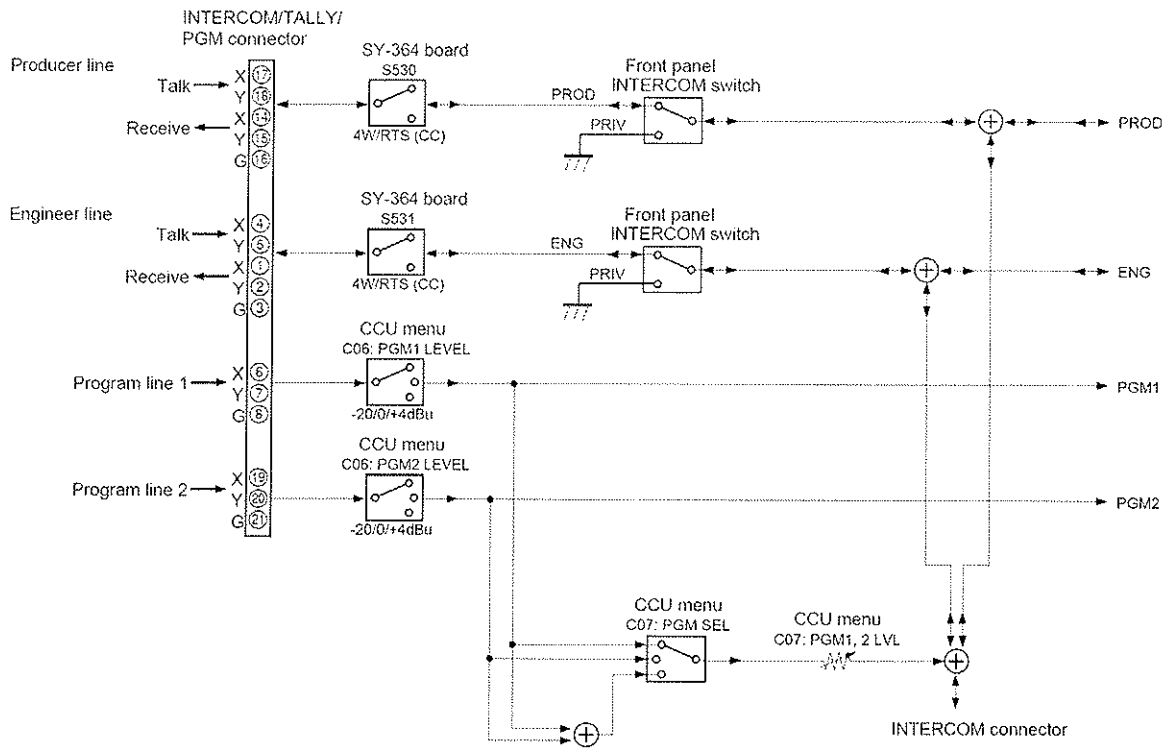
Select the intercom line to be connected to the front INTERCOM connector as follows with the INTER-COM switch.

Producer line: PROD
Engineer line: ENG
Communication only between CCU and camera: PRIV

Intercom Signal Flow

3-2-2. Microphone Setting

This unit can receive two independent microphone lines (MIC1 and MIC2) from the camera and output them.

Remote Controlling Microphone Input Amplifier Gain

Remote Control Using the CCU Menu
When the MIC REMOTE connector on the rear panel is open or pins 8 and 15 of the MIC REMOTE connector are at a high level, set the gain with C05:CAM MIC GAIN of the CCU menu.
20 dB, 30 dB, 40 dB, 50 dB, or 60 dB (factory setting: 60 dB)

Remote Control from the MIC REMOTE Connector
The microphone input amplifier gain control is enabled or disabled by pins 8 and 15 of the MIC REMOTE connector on the rear panel. The microphone input amplifier gain can be set by pins 5 to 7 of the MIC REMOTE connector.

| Pin | | Connector | |
8	15	MIC IN CH-1	MIC IN CH-2
L	L	ON	ON
L	H	ON	OFF
H	L	OFF	ON
H	H	Set with C05:CAM MIC GAIN	

| Pin | | | Gain |
7	6	5	
H	H	H	60 dB
L	H	H	50 dB
H	L	H	40 dB
L	L	H	30 dB
H	H	L	20 dB

H: +5V or open
L: GND
Input resistance: 100 kΩ (+5 V pull-up)

Adjusting MIC Phase

Adjust the microphone signal phase with C05:MIC OUT DELAY of the CCU menu according to the system to be used.
0 to 3328 FS (factory setting: 0 FS)


Setting MIC Output Level

Set the MIC outputs (MIC1 and MIC2) with C05:MIC1, 2 LEVEL according to each signal level.
−20 dB, or 0 dB (factory setting: 0 dB)

3-3. System Settings

3-3-1. Tally System Setting

This unit supports red tally and green tally systems, and also supports contact supply and power voltage supply (24 V/TTL). Set the switches on the SY-364 board according to the tally system to be used.
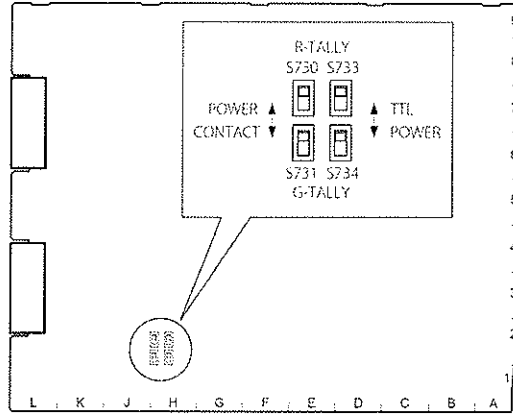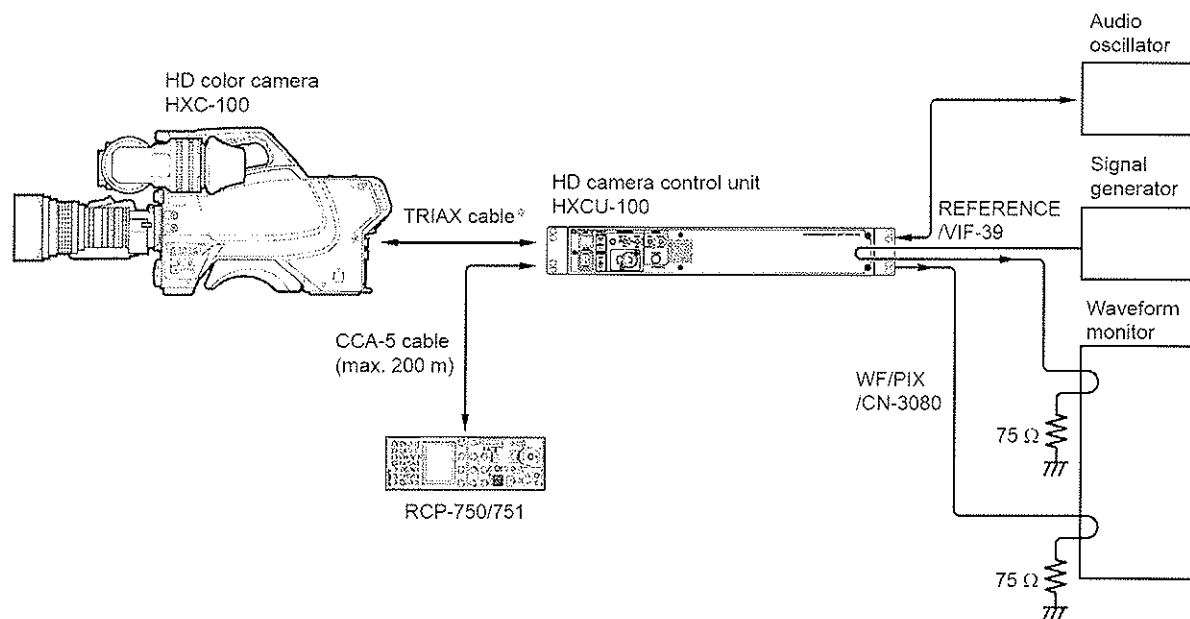

SY-364 BOARD (SIDE A)

Switch	Red tally		Green tally	
	S730	S733	S731	S734
Contact supply (factory setting)	CONTACT	—	CONTACT	—
24 V supply	POWER	POWER	POWER	POWER
5 V supply	POWER	TTL	POWER	TTL

3-3-2. Camera Number Setting

Set the camera number with N03:CCU NO of the NETWORK SETTINGS menu.

6-1-3. Connection of Equipment

✳: Transmittable cable attenuation: 3.8 to 45.6 dB (100 MHz)
[Note]
When Fujikura φ8.5 mm cable is used → 50 to 600 m

6-1-4. Initial Settings

Make the following settings before starting adjustments.
After each adjustment is completed, be sure to restore the previous settings.

* CCU menu
  C07: INCOM MIC   → CARBON
* Front panel
  INTERCOM switch   → PROD
* SY-364 board
  S530   → RTS (CC)
  S531   → RTS (CC)

Except for these settings, do not change the switch settings made when the unit was shipped. (Refer to Section 1-5.)

6-2. Audio System Adjustment

6-2-1. RTS Intercom Adjustment Check

Precautions

- This adjustment is described on condition that the audio oscillator output impedance is 600 Ω.
- Potentiometers RV530 and RV531 on the SY-364 board have been adjusted according to the customer's system. Check this adjustment only when the system intercom output is repaired.


Preparation

- Extend the SY-364 board using an extended board.
- SY-364 board setting
  - S530 → RTS (CC)
  - S531 → RTS (CC)
- CCU menu setting
  - C06: ENGINEER → RTS
  - PRODUCER → RTS
  - C07: INCOM MIC → CARBON
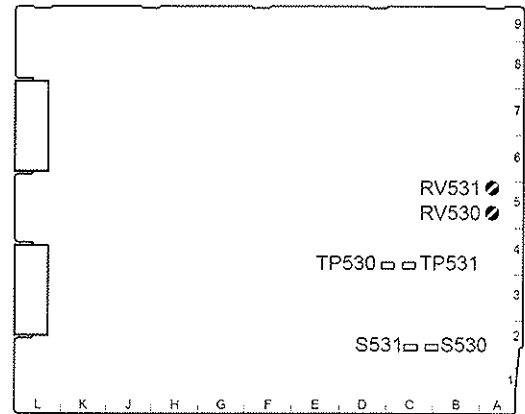
SY-364 BOARD (SIDE A)
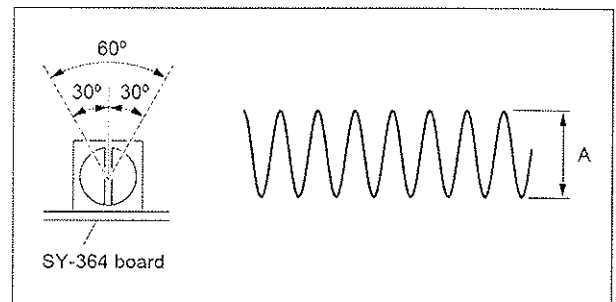

Check (PROD CANCEL)

1. Set the INTERCOM switch on the front panel to PROD.
2. Connect a 200-ohm resistor between pin e11 (CN1 side) and pin C10 of the extended board.
3. Input a sine wave (1 kHz, 220 mV p-p (−20 dBu)) to pin 2 (X), pin 1 (Y), and pin 3 (G) of the INTERCOM connector from the audio oscillator.
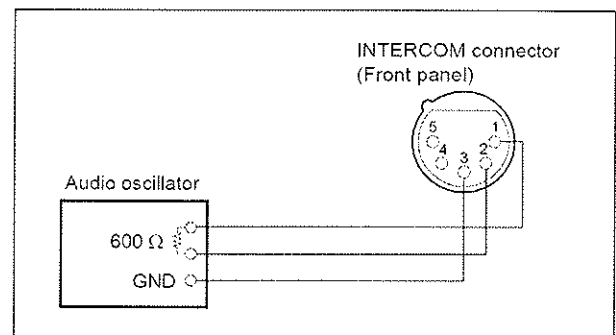
4. PROD CANCEL check
   - Equipment: Oscilloscope
   - Test Point: TP531 (C-4) /SY364 board
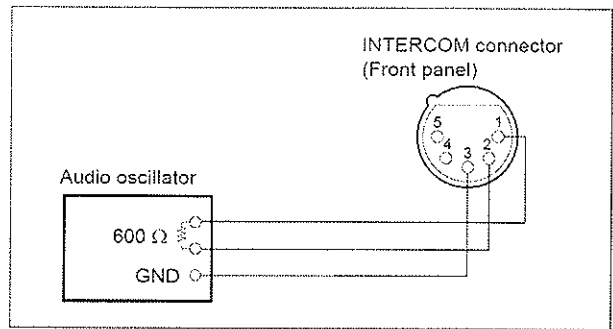   - Adjusting Point: ⊘RV530 (PROD RTS CANSEL)/ SY-364 board
   - Specification:
     There must be a point where "A" becomes the minimum within the range (60 degrees) shown in the figure.

Check (ENG CANCEL)

1. Set the INTERCOM switch on the front panel to ENG.
2. Connect a 200-ohm resistor between pin e10 (CN1 side) and pin C10 of the extended board.
3. Input a sine wave (1 kHz, 220 mV p-p (−20 dBu)) to pin 2 (X), pin 1 (Y), and pin 3 (G) of the INTERCOM connector from the audio oscillator.
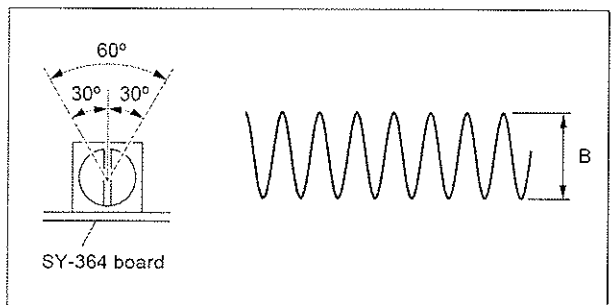

4. ENG CANCEL check
   Equipment: Oscilloscope
   Test Point: TP530 (C-4)/SY364 board
   Adjusting Point: ❷RV531 (ENG RTS CANSEL)/ SY-364 board
   Specification:
   There must be a point where "B" becomes the minimum within the range (60 degrees) shown in the figure.

Setting after Adjustment

After this adjustment is completed, set the switch and CCU menu to the previous state.