FOSTEX®

Model 4011

MODEL 4010 SUBSYSTEM

Owner's Manual

```
┌─────────────────────────────────────────────────────────┐
│  ⚡        ┌──────────────────────┐         ⚠          │
│ /⚡\       │      CAUTION         │        /!\         │
│           │ RISK OF ELECTRIC SHOCK│                    │
│           │     DO NOT OPEN       │                    │
│           └──────────────────────┘                     │
│  ┌───────────────────────────────────────────────────┐ │
│  │                                                   │ │
│  │  CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK,   │ │
│  │                                                   │ │
│  │       DO NOT REMOVE COVER(OR BACK).               │ │
│  │                                                   │ │
│  │       NO USER-SERVICEABLE PARTS INSIDE.           │ │
│  │                                                   │ │
│  │   REFER SERVICING TO QUALIFIED SERVICE PERSONNEL. │ │
│  │                                                   │ │
│  └───────────────────────────────────────────────────┘ │
└─────────────────────────────────────────────────────────┘
```
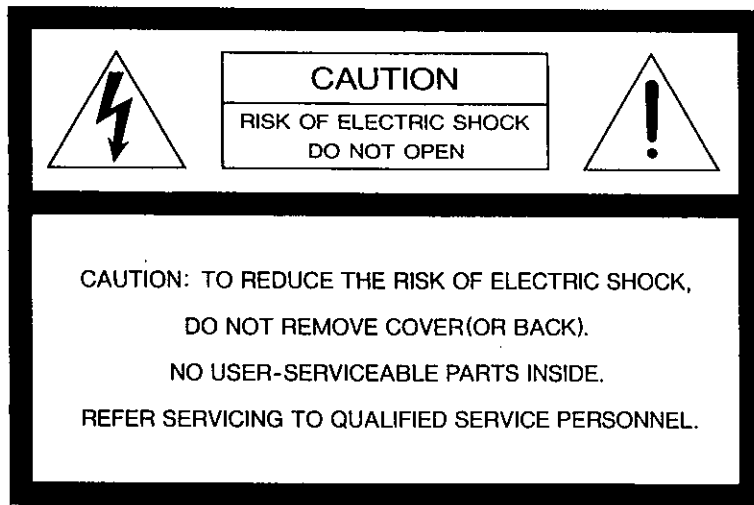
The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

"WARNING"

"TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE."

SAFETY INSTRUCTIONS ·

1. Read Instructions — All the safety and operating instructions should be read before the appliance is operated.
2. Retain Instructions — The safety and operating instructions should be retained for future reference.
3. Heed Warnings — All warnings on the appliance and in the operating instructions should be adhered to.
4. Follow Instructions — All operating and use instructions should be followed.
5. Water and Moisture — The appliance should not be used near water — for example, near a bathtub, washbowl, kitchen sink, laundry tub, in a wet basement, or near a swimming pool, and the like.
6. Carts and Stands — The appliance should be used only with a cart or stand that is recommended by the manufacturer.
7. Wall or Ceiling Mounting—The appliance should be mounted to a wall or ceiling only as recommended by the manufacturer.
8. Ventilation — The appliance should be situated so that its location or position does not interfere with its proper ventilation. For example, the appliance should not be situated on a bed, sofa, rug, or similar surface that may block the ventilation openings; or, placed in a built-in installation, such as a bookcase or cabinet that may impede the flow of air through the ventilation openings.
9. Heat — The appliance should be situated away from heat sources such as radiators, heat registers, stoves, or other appliances (including amplifiers) that produce heat.
10. Power Sources — The appliance should be connected to a power supply only of the type described in the operating instructions or as marked on the appliance.
11. Grounding or Polarization — The precautions that should be taken so that the grounding or polarization means of an appliance is not defeated.

12. Power Cord Protection — Power supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the appliance.
13. Cleaning — The appliance should be cleaned only as recommended by the manufacturer.
14. Nonuse Periods — The power cord of the appliance should be unplugged from the outlet when left unused for a long period of time.
15. Object and Liquid Entry — Care should be taken so that objects do not fall and liquids are not spilled into the enclosure through openings.
16. Damage Requiring Service — The appliance should be serviced by qualified service personnel when:
    A. The power supply cord or the plug has been damaged; or
    B. Objects have fallen, or liquid has been spilled into the appliance; or
    C. The appliance has been exposed to rain; or
    D. The appliance does not appear to operate normally or exhibits a marked change in performance; or
    E. The appliance has been dropped, or the enclosure damaged.
17. Servicing — The user should not attempt to service the appliance beyond that described in the operating instructions. All other servicing should be referred to qualified service personnel.

1. INTRODUCTION

We wish to thank you for purchasing the Model 4011 (Model 4010 sub-system). Model 4011 is a sub-system for the Model 4010 Time Code Generator/Reader possessing three separate functions - character inserter, VITC reader, VITC generator - which conform to the SMPTE/EBU/FILM spec time codes.

As the Model 4011 has been developed strictly as the sub-system for the Model 4010, it can perform in full only when connected to the Model 4010 (The character inserter and VITC generator can perform only when connected to the Model 4010. Therefore, it will not operate when connected to a time code generator/reader other than the Model 4010. The Model 4011 "VITC reader" section only can operate singly without connecting to the Model 4010.)

We recommend you thoroughly read this Owners Manual before operating the Model 4011 to obtain full performance throughout the years.
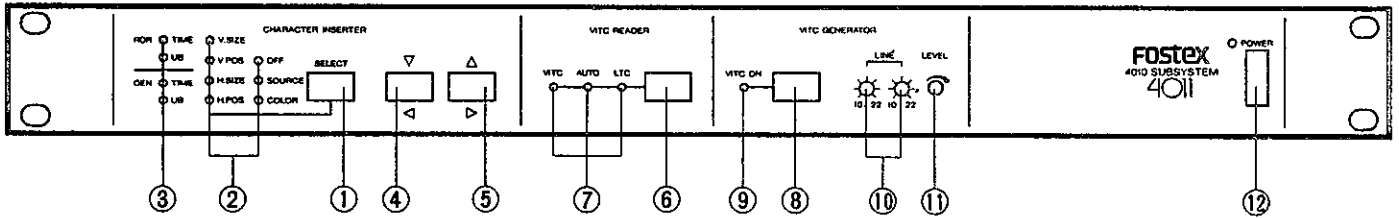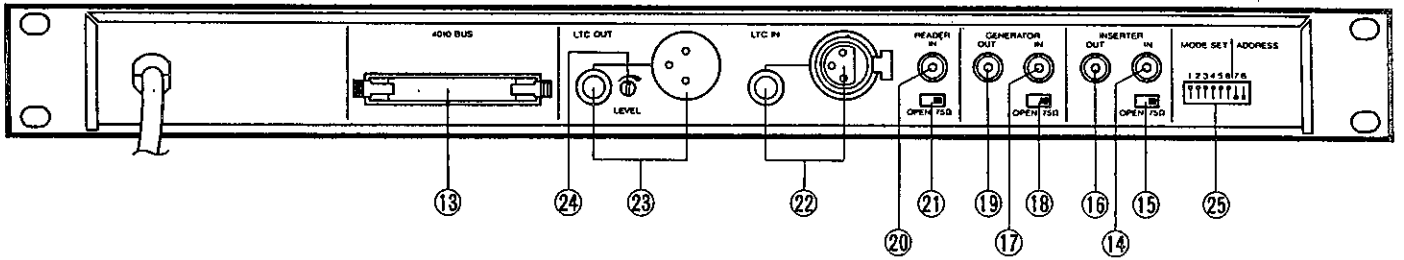
TABLE OF CONTENTS

2. NAME OF THE CONTROLS AND SWITCHES
   [ ] indicates panel lettering.

FRONT PANEL

(1) Character inserter select switch [SELECT]

(2) Character inserter select indicator
    [OFF/SOURCE/COLOR/V.SIZE/V.POS/H.SIZE/H.POS]

(3) Insert source select indicator [RDR TIME/UB, GEN TIME/UB]

(4) Insert parameter select switch [∇ ◁]

(5) Insert parameter select switch [Δ ▷]

(6) VITC reader select switch

(7) VITC reader select indicator [VITC/AUTO/LTC]

(8) VITC generator select switch

(9) VITC indicator [VITC ON]

(10) LINE selector switch [LINE]

(11) VITC level trimmer [LEVEL]

(12) Power switch [POWER]

REAR PANEL

(13) 4010 buss connector [4010 BUS]

(14) Character inserter input jack [INSERTER IN]

(15) Character inserter input impedance selecter switch [OPEN 75Ω]

(16) Character inserter output jack [INSERTER OUT]

(17) Generator input jack [GENERATOR IN]

(18) Generator input impedance selector switch [OPEN 75Ω]

(19) Generator output jack [GENERATOR OUT]

(20) Reader input jack [READER IN]

(21) Reader input impedance selector switch [OPEN 75Ω]

(22) LTC input jack [LTC IN]

(23) LTC output jack [LTC OUT]

(24) LTC output level trimmer [LEVEL]

(25) Mode set/address switch [MODE SET/ADDRESS]

3. FRONT PANEL CONTROLS AND FUNCTIONS

Character inserter section

• Time code of the 4010 reader or generator is inserted in the picture.

• TIME or UB (User Bit), or both, can be inserted in the picture.

• Numbers and alphabets A ∿ F (characters) inserted in the picture can be changed separately as follows:

   (1) Width of the characters.
   (2) Height of the characters.
   (3) Horizontal location of the characters.
   (4) Vertical location of the characters.
   (5) Selection of color (white or black) for the characters.
   (6) Selecting whether a background window for good contrast is to be put on the characters.

1. Character inserter select switch [SELECT]
   The mode is selected by this switch.
   Each time the switch is pressed, LED (2) will be lit in sequence, one by one, to allow checking the selected mode.
   The mode function parameter for the LED (2) that is lit, can be set by the two switches, the Insert Parameter Select Switches (4) and (5). [Refer to "4/5 Insert Parameter Select Switch" for details.]

2. Character inserter select indicator
   [OFF/SOURCE/COLOR/V.SIZE/V.POS/H.SIZE/H.POS]

   These LED's are lit in the following sequence by the Character Inserter Select Switch (1).

   [OFF] Character Insert will be OFF when this LED is lit. It will be ON if the LED other than OFF is lit.
   [SOURCE] The content to be inserted in the picture can be selected when this LED is lit. The presently selected source is indicated by LED (3).
   [COLOR] Color (white or black) of the characters to be inserted in the picture and use of the window (the function of adding background patterns on the characters for good contrast) can be selected.
   [V.SIZE] Height of the characters to be inserted in the picture can be set when this LED is lit.
   [V.POS] Characters to be inserted in the picture can be moved up or down and set when this LED is lit.
   [H.SIZE] Width of the characters to be inserted in the picture can be set when this LED is lit.
   [H.POS] Characters to be inserted in the picture can be moved left or right and set when this LED is lit.

   Selecting and setting of each source is done by the "4/5 insert parameter select switch."

3. Insert source select indicator [RDR TIME/UB, GEN TIME/UB]
   These indicate the selected condition of the source (read or generate time/user bit) to be inserted in the picture. When the source LED (2) is lit, these LED (3) will be lit sequentially from top to bottom or from bottom to top (top to bottom by the Insert Parameter Select Switch (4) and bottom to top by the Insert Parameter Select Switch (5) when the 4/5 switch is pressed.

4/5. Insert parameter select switch [∇ : Δ]
   This is the switch for selecting or setting the source to be inserted in the picture.

   When the inserter LED (2) is indicating [SOURCE] by the character inserter select switch (1), the LED (3) will move up or down sequentially to change the inserter source each time this switch is pressed.

   (∇ Order of change each time switch is pressed : Δ Order in reverse)

   1•RDR TIME → 2•RDR TIME&UB → 3•RDR TIME → 4•GEN TIME → 5•GEN TIME&UB → 6•GEN TIME

   When the inserter LED (2) is selected at [COLOR] by the character inserter select switch (1), the color and window combination inserted in the picture will change as follows each time this switch is pressed.

   (∇ Order of change each time switch is pressed : Δ Order in reverse)

Order	1 →	2 →	3 →	4
Number, etc.	White	Black	White	Black
Window	Black	None	None	White

   When there is no window, the outline of the character will be in the opposite color.

   When the inserter LED (2) is selected at [V.SIZE] by the character inserter select switch (1), height of the characters inserted in the picture can be changed by this switch.
   As the overall size of the character is changed, the width will also change slightly. Therefore, it is recommended to set the height by [V.SIZE] first, after which the width and left or right position, respectively, are determined by [H.SIZE] and [H.POS].
   Height of the character is changed by pressing the Δ switch. Each time this switch is pressed the height will increase by one step. In contrast to this, each time the ∇ switch is pressed the height will decrease by one step.

   When the inserter LED (2) is selected at [V.POS] by the character inserter select switch (1), position of the character inserted in the picture can be moved up or down.
   It will move upward by one step each time the Δ switch is pressed, and move downward each time the ∇ switch is pressed.

When the inserter LED (2) is selected at [H.SIZE] by the character in-
serter select switch (1), width of the character inserted in the picture
can be changed by this switch.
As position of the characters inserted in the picture will slightly
shift sideways in step with making changes in their width, set the left
or right position by [H.POS] after setting by [H.SIZE].
Width of the characters will increase by one step each time the Δ ▷
switch is pressed. In contrast to this, the width will decrease by one
step each time the ∇ ◁ switch is pressed.

When the inserter LED (2) is selected at [H.POS] by the character inser-
ter select switch (1), position of the character inserted in the picture
·can be moved to the left or right.
The character will move one step to the right each time the Δ ▷ switch
is pressed, and move one step to the left each time the ∇ ◁ switch is
pressed.

VITC READER SECTION

• VITC mixed with the video signal and applied to the reader input is
converted to LTC and output from the LTC output jack.

6. VITC reader select switch
   LTC to be output is selected by pressing this switch. The selected
   signal is indicated by each LED of the VITC reader select indicators
   (7).

7. VITC reader select indicators [VITC/AUTO/LTC]
   Each time the VITC reader select switch (6) is pressed, the LED is lit
   in sequence to indicate the selected mode.

   [VITC] VITC converted to LTC is output.
   [AUTO] When the VTR tape speed drops below a certain level (Details in
          (25) Mode Set [1.2]), VITC converted to LTC is output.
          When the VTR tape speed rises higher than a certain level, the
          signal input to LTC IN is directly output.
   [LTC] The signal input to LTC IN is directly output.

VITC GENERATOR SECTION

8. VITC generator select switch
   When this is switched ON, VITC with the same content as the LTC output
   from the generator section of the 4010 that is interconnected, is mixed
   with the video signal.

9. VITC indicator [VITC ON]
   This is lit when the VITC generator select switch is ON.

10. LINE select switch [LINE]
    This is the switch for setting at which line of the video signal should
    VITC be mixed, and two locations can be set. At shipping the 4011 from
    the plant, it is set at 12 and 14.

11. VITC level trimmer [LEVEL]

   This is the trimmer for setting the VITC level when it is mixed with the video signal. At shipping the 4011 from the plant, it is set so that the level will be 0.56V above the pedestal level.

12. Power switch [POWER]

   The power supply ON/OFF switch.

   When power is switched on again for the second time, the various select positions on the front panel will be as shown below:

   • Character inserter section: SOURCE and RDR TIME
   • VITC reader section: AUTO
   • VITC generator section: OFF

NOTE: Power to the 4010 (Time Code Generator/Reader) and 4011 must always be switched off when interconnecting these equipments.

4. REAR PANEL CONNECTORS AND FUNCTIONS

CONNECTOR FOR THE 4010 [4010 BUS]

13. 4010 buss connector [4010 BUS]
    This is the connector for connecting the 4011 to the 4010 (Time Code
    Generator/Reader) and be sure to use the cable included with the 4011.
    The other end of this cable is connected to the 4010 rear panel
    ACCESSORY 2 receptacle. Always be sure power to both equipment is OFF.
    When this cable is not connected, among the functions of the 4011, the
    character inserter and VITC generator will not operate.

CHARACTER INSERTER SECTION [INSERTER]

14. Character inserter input jack [INSERTER IN]
    A composite video signal is input here.

15. Character inserter input impedance selector switch [OPEN ← → 75Ω]
    ON/OFF switch for the video signal termination.

16. Character inserter output jack [INSERTER OUT]
    Output jack of the composite video signal in which the characters are
    super-imposed.

VITC GENERATOR SECTION

17. Generator input jack [GENERATOR]
    The composite video signal is input here.

18. Generator input impedance selector switch [OPEN ← → 75Ω]
    Same as above 15.

19. Generator output jack [GENERATOR OUT]
    The composite video signal mixed with VITC is output here.

VITC READER SECTION [LTC/READER]

20. Reader input jack [READER IN]
    The composite video signal mixed with VITC is input here.

21. Reader input impedance selector switch [OPEN ← → 75Ω]
    Same as above 15.

22. LTC input jack [LTC IN]
    LTC is input here.
    Two types of input connectors are provided – the balanced type (XLR
    Cannon type) and the unbalanced type (RCA pin type) but only one of
    these two types should be used at the same time. Please be aware that if
    both should be mistakenly connected at the same time, LTC will not be
    input.

23. LTC output jack [LTC OUT]
    LTC is output here.
    Balanced and unbalanced type connectors are provided same as for the input. LTC is output at both connectors.

24. LTC output level trimmer [LEVEL]
    The trimmer for setting the LTC output level.

MODE SET SECTION [MODE SET/ADDRESS]

25. Mode set [1•2]
    When the front panel VITC reader section is set to the AUTO mode, the position can be set at which the LTC and VITC are to be automatically switched when the speed becomes equal to that of the VTR. Combinations of switches 1 and 2 are used for setting. The switch combination and setting position against the VTR normal speed are as follows:

X Normal Speed	1/8		1/4		1/3		3/4	
	1	2	1	2	1	2	1	2
Set position of the switch	▼	▼	▲	▼	▼	▲	▲	▲

25. Mode set [3]
    This is for setting·the LTC format to be output, after converting from VITC.
    Switch 3 is used for setting. The set position are as follows:

Format	A	B
Set position of the switch	3 ▲	3 ▼

* When speed of the VTR which is outputting VITC, is off standard, LTC which is output will be as shown at right.
(In either the A or B setting, the LTC bit rate will be in sync with the video frame.)

Format mode A: The LTC content always represents the VITC at that instant. In other words, when the tape speed is high, frame address of adjacent frames is not continuous. In the opposite case, when tape speed is slow, the same address will be output repeatedly.

Format mode B: As the Model 4030 (Synchronizer) reads only the time code continuously increasing one frame at a time, LTC matching this is output.
In other words, regardless to the VTR speed or tape travel direction, a continuously increasing LTC is always output for a period of five frames to create the condition whereby the Model 4030 can read the time code.

25. Mode set [4]

This is for setting the character inserter operation.
When the frame address read from the 4010 (time code generator/reader) is not advancing one at a time with each frame of the video signal input to the Model 4011 character inserter input jack (14)[INSERTER IN], or in other words, when it is faster or slower than normal PLAY, this switch selects whether the characters will be or not be super-imposed.

Setting	A	B
Set position of the switch	4 ⊡	4 ⊡

A: Will not super-impose.

B: Will super-impose.

NOTE: Mode setting[5 ∿ 8]are auxiliaries for future system expansion. These are not used at present but 7 and 8 must always be set as shown below.
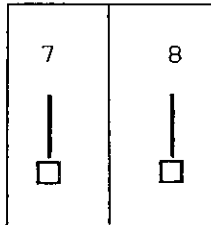
5. SPECIFICATIONS

• Video input (Character inserter, VITC generator/reader)
: 1 V p-p 75Ω or 10KΩ (by the switch)

• Video output (Character inserter, VITC generator)
: 1 V into 75Ω (when input is 1 V p-p)

• LTC input   : XLR connector, balanced, 200kΩ, Max. 15.0 V p-p
                   : RCA connector, unbalanced, 20KΩ, Max. 15.0 V p-p
                          (One of either must be selected)

• LTC output   : XLR connector, balanced, Max. 7.0 V p-p (at 600Ω load)
                   : RCA connector, unbalanced, Max. 3.0 V p-p (at 10KΩ load)
                   (Output level adjusted by rear panel LTC output level trimmer)

• 4010 BUS   : 30 pin flat cable connector

• Power   : 100 V AC, 50/60 Hz, 20 W

• Physical dimensions
                   : 482(W) x 48(H) x 250(D) mm

• Weight   : 3.8 Kg.

FOSTEX