

CHANNEL LABELLING APARATUS FOR A TELEVISION RECEIVER

This invention concerns television receivers having a 5 channel labelling function.

Background of the Invention

Many modern television receivers include a channel labelling feature in which a user is asked to enter a suitable label for each channel. This may be done by selecting individual letters 10 from a running display of letters, or by entering letters from an alphabetical keyboard on a remote control unit. Such a channel labelling feature is known from, for example, RCA CTC-140 chassis type television receivers manufactured by Thomson Consumer Electronics Incorporated, Indianapolis, Indiana, U.S.A.

15 Unfortunately, this process can take an inordinate amount of time and patience on the user's part given that modern cable television services may deliver as many as 125 channels.

Summary of the Invention

20 It is herein recognized that it is desirable that a television receiver provide preprogrammed labels for many widely available television networks. The user has only to select the proper channel and then select a corresponding preprogrammed label from a list in order to associate the channel 25 and label. In one embodiment the preprogrammed label is a graphically-formed logo or service mark of the television network.

Brief Description of the Drawing

30 FIGURE 1 is a block diagram of a portion of a television receiver suitable for implementing the invention.

FIGURES 2a - 2c are illustrations of screen displays produced in accordance with the invention.

FIGURES 3a and 3b are illustrations of channel labels 35 displayed on screen.

This Sheet Has Been Replaced



REPLACED SHEETS		SG
☒	Description : paged ...1... to paged ...5...	
☒	Claim(s) : paged ...1... to paged ...1...	
☒	Drawing(s) : paged ...1/5... to paged ...2/5...	
☒	Abstract : paged ...1/4... to paged ...1...	
DATE OF RECEIPT		

Detailed Description of the Drawing

Referring to FIGURE 1, a television receiver includes an RF input terminal 100 which receives radio frequency (RF) signals and applies them to a tuner assembly 102. Tuner assembly 102 selects and amplifies a particular RF signal under control of a tuner controller 104 which provides a tuning voltage via a wire 103, and bandswitching signals via signal lines represented by the broad double-ended arrow 103', to tuner assembly 102.

Tuner assembly 102 converts the received RF signal to an intermediate frequency (IF) signal and provides an IF output signal to video (VIF) and sound (SIF) amplifier and detector unit 130. VIF/SIF amplifier and detector unit 130 amplifies the IF signal applied to its input terminal and detects the video and audio information contained therein. The detected video information is applied as one input of a video processor unit 155. The other input of video processor unit 155 is connected to an on-screen display and graphics processor circuit 140. The detected audio signal is applied to an audio processor 135 for processing and amplification before being applied to a speaker assembly 136.

Tuner controller 104 generates the tuning voltage and bandswitching signals in response to control signals applied from a system control microcomputer (μ C) 110. The terms "microcomputer", controller, and "microprocessor", as used herein, are equivalent. Microcomputer 110 receives user-initiated commands from an infrared (IR) receiver 122 and from a "local" keyboard 120 mounted on the television receiver itself. IR receiver 122 receives IR transmissions from remote control transmitter 125. Microcomputer 110 includes a central processing unit (CPU) 112, a program memory (ROM) 114, and stores channel-related data in a random-access memory (RAM) 116. RAM 116 may be either internal to, or external to, microprocessor 110, and may be of either the volatile or non-volatile type. The term "RAM" is also intended to include

This Sheet Has Been Replaced



electrically-erasable programmable read only memory (EEPROM) 117. One skilled in the art will recognize that if volatile memory is utilized, that it may be desirable to use a suitable form of standby power to preserve its contents when the receiver is turned off.

Microcomputer 110 operates from a source of standby power 145, and controls a source of operating power 150 via a control line 151 for selectively applying power to the remainder of the television receiver. Microcomputer 110 also includes a timer 118. Microcomputer (or controller) 110 generates a control signal for causing tuner control unit 104 to control tuner 102 to select a particular RF signal, in response to user-entered control signals from local keyboard 120 or from infrared (IR) receiver 122.

Tuner 102 produces a signal at an intermediate frequency (IF) and applies it to a processing unit 130 comprising a video IF (VIF) amplifying stage; an AFT circuit, a video detector, and a sound IF (SIF) amplifying stage. Processing unit 130 produces a first baseband composite video signal (TV), and a sound carrier signal. The sound carrier signal is applied to an audio signal processor unit 135 which includes an audio detector and may include a stereo decoder. Audio signal processor unit 135 produces a first baseband audio signal and applies it to a speaker unit 136. Second baseband composite video signals and second baseband audio signals may be respectively applied to VIDEO IN and AUDIO IN terminals from an external source.

The first and second baseband video signals (TV) are coupled to a video processor unit 155 (having a selection circuit not shown) Under control of controller 110, an on-screen display (OSD) processor 140 generates character signals and graphics signals, and applies them to a second input of video signal processor 155, for inclusion in the processed video signal.

Electrically-erasable programmable read only memory (EEPROM) 117 is coupled to controller 110, and serves as a non-volatile



storage element for storing autoprogramming channel data, and user-entered channel data.

The processed video signal at the output of video
5 signal processor unit 155, is applied to a Kine Driver Amplifier
156 for amplification and then applied to the guns of a color
picture tube assembly 158 for display. The processed video signal
at the output of video signal processor unit 155, is also applied to
a Sync Separator unit 160 for separation of horizontal and vertical
10 drive signals which are in turn applied to a deflection unit 170.
The output signals from deflection unit 170 are applied to
deflection coils of picture tube assembly 158 for controlling the
deflection of its electron beam. The television receiver described
thus far with the exception of OSD and GRAPHICS PROCESSOR 140
15 is known, for example, from the RCA CTC-140 chassis color
television manufactured by Thomson Consumer Electronics, Inc.,
Indianapolis, Indiana, U.S.A.

The invention will now be described with reference to
the remainder of FIGURE 1, the menu displays of FIGURES 2a - 2c,
20 and the screen displays of FIGURES 3a and 3b.

FIGURE 2a shows a menu screen called up by a user
wanting to enter a label for channel 11. To modify the label, the
user highlights the LABEL line by using the + and - keys of remote
control unit 125 to move up and down through the menu and by
25 selecting the label line by pressing its SELECT key. Then user
then presses the + and - keys to step through a preprogrammed
list of labels. FIGURE 2b shows the preprogrammed label NBC. If
the user desires to enter the preprogrammed label NBC, he simply
presses the SELECT key of remote control unit 125. If, on the
30 other hand, the user cannot find an appropriate preprogrammed
label, then he steps through the list until he finds the label YOU
ENTER. Upon selecting the YOU ENTER label, the user may enter
his own label by pressing the +, -, and SELECT keys of remote
control unit 125 until he has spelled the desired label. To further
35 illustrate this point, FIGURE 2c shows a user-entered label



USER'S LABEL, and FIGURE 3b shows the user-entered label displayed on the screen 310b of a television receiver 310a.

OSD and GRAPHICS PROCESSOR unit 140 of FIGURE 1, 5 includes the capability of producing high resolution graphics for display on the screen of picture tube assembly 158, under control of controller 110. Controller 110 communicates with OSD and GRAPHICS PROCESSOR unit 140 via a digital control bus 131. One of the capabilities of OSD and GRAPHICS PROCESSOR unit 140 is 10 the ability to generate graphics logos or service marks of various sizes on the screen. FIGURE 3a shows a television receiver 300a, having a screen 310a showing a video image with the log for the NBC television network displayed in the upper right corner. This logo is stored in ROM and generated by OSD and GRAPHICS 15 PROCESSOR unit 140. The procedure for associating a graphics logo with a television channel is the same as that given above for selecting a text label. That is, the user steps through a list of preprogrammed text labels until he finds the proper one, for example NBC. Upon selecting NBC, controller 110 causes OSD and 20 GRAPHICS PROCESSOR unit 140 to substitute a preprogrammed graphics logo, if one exists in memory, for the corresponding text label.

A constructed and tested version of the invention includes 108 preformed labels and memory space for 19 user- 25 entered labels.

This Sheet Has Been Replaced





CLAIMS:

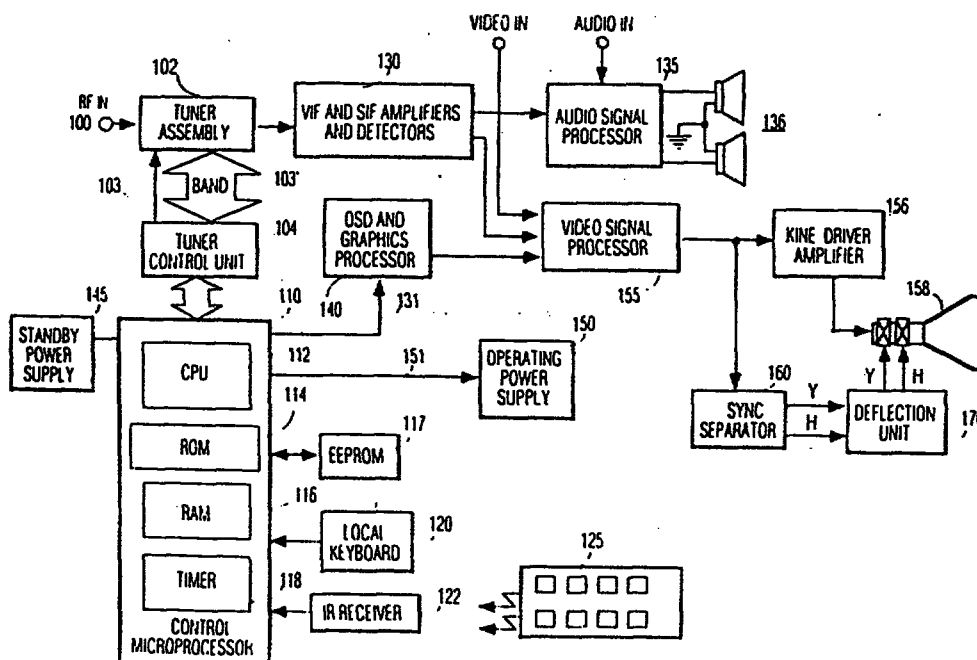
1. A television receiver, comprising:
means (120,125) for entering data in response to
5 operation by a user;
memory means (116,117) for storing data
corresponding to preformed labels;
control means (110) coupled to said memory means
(116,117) for reading said data from said memory means
10 (116,117); and
on-screen display and graphics generator means (140)
coupled to said control means (110) for producing text character
and graphic signals for display, said text character and graphics
signals corresponding to said stored data;
15 wherein
said control means (110), associates said stored data
labels with ones of television channels in response to data input
by a user.
- 20 2. The apparatus of Claim 1 wherein said preformed
label is a network logo or service mark..
3. The apparatus of claim 1 wherein said preformed
label comprises text characters.
- 25 4. The apparatus of Claim 1 wherein data relating to a
label is entered by a user.



INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification 5 : H04N 5/445	A1	(11) International Publication Number: WO 93/12611 (43) International Publication Date: 24 June 1993 (24.06.93)
(21) International Application Number: PCT/US92/10006 (22) International Filing Date: 25 November 1992 (25.11.92) (30) Priority data: 807,469 16 December 1991 (16.12.91) US (71) Applicant: THOMSON CONSUMER ELECTRONICS, INC. [US/US]; 600 North Sherman Drive, Indianapolis, IN 46201 (US). (72) Inventors: CHANEY, John, William ; 8107 Shoreridge Terrace, Indianapolis, IN 46236 (US). HAILEY, James, Edwin ; 7239 Creekside Lane, Indianapolis, IN 46250 (US).		(74) Agents: TRIPOLI, Joseph, S. et al.; GE and RCA Licensing Management Operation, Inc., CN 5312, Princeton, NJ 08540 (US). (81) Designated States: AU, BR, CA, CS, FI, HU, JP, KR, RU, European patent (AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE). Published <i>With international search report.</i>

This Sheet Has Been Replaced

**(54) Title:** CHANNEL LABELLING APARATUS FOR A TELEVISION RECEIVER**(57) Abstract**

It is herein recognized that it is desirable that a television receiver provides preprogrammed labels for many widely-used television networks. The user has only to select the proper channel and then select a corresponding preprogrammed label from a list in order to associate the channel and label. In one embodiment the preprogrammed label is a graphically-formed logo or service mark of the television network.

1/5

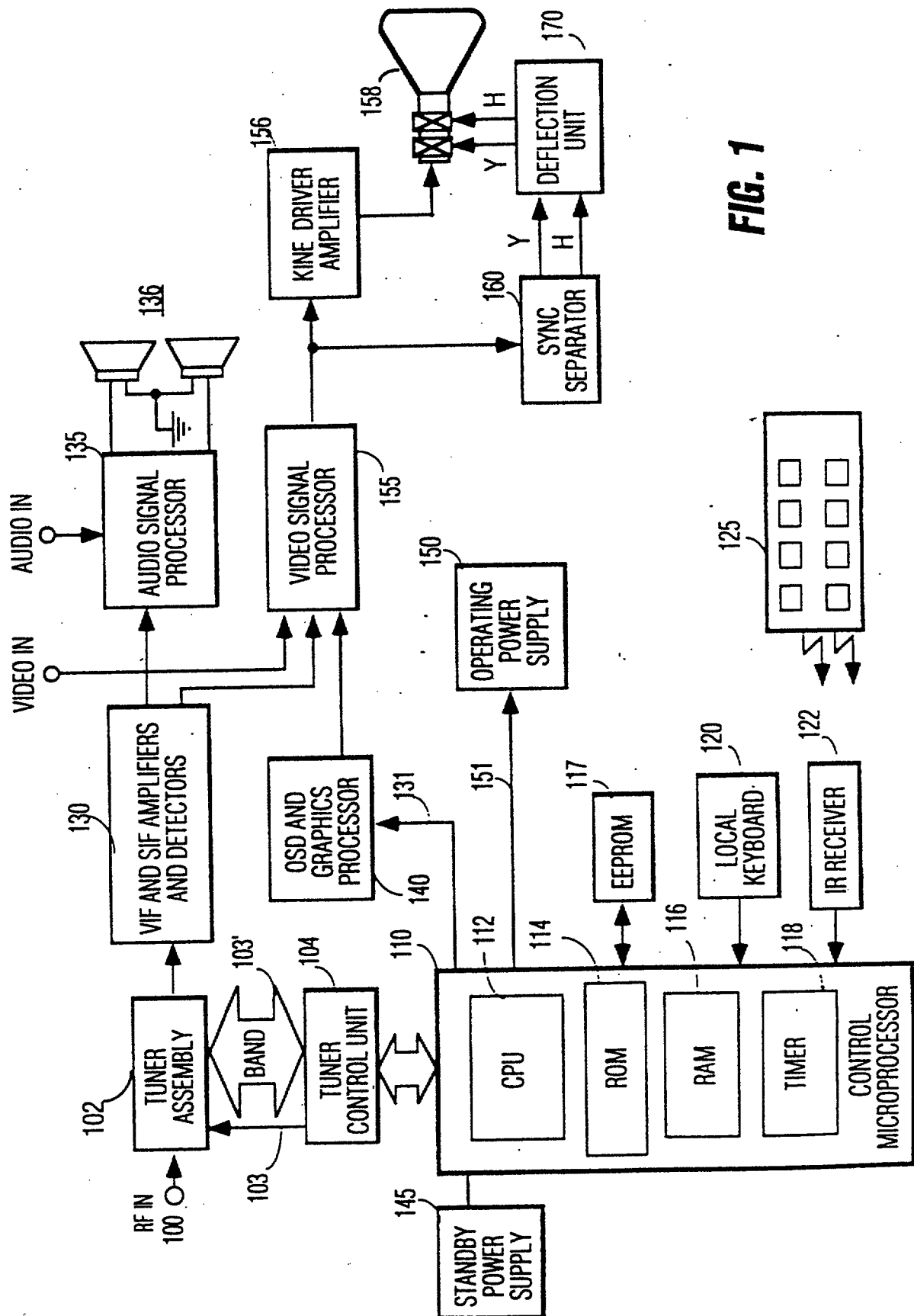
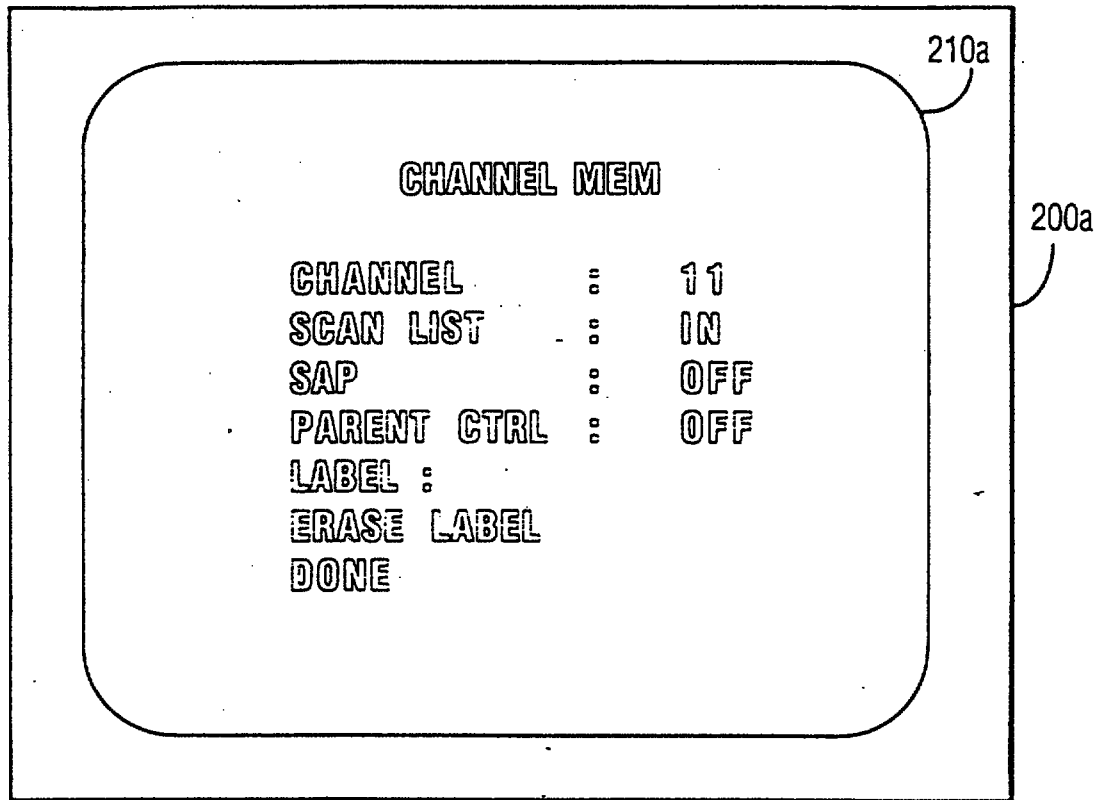
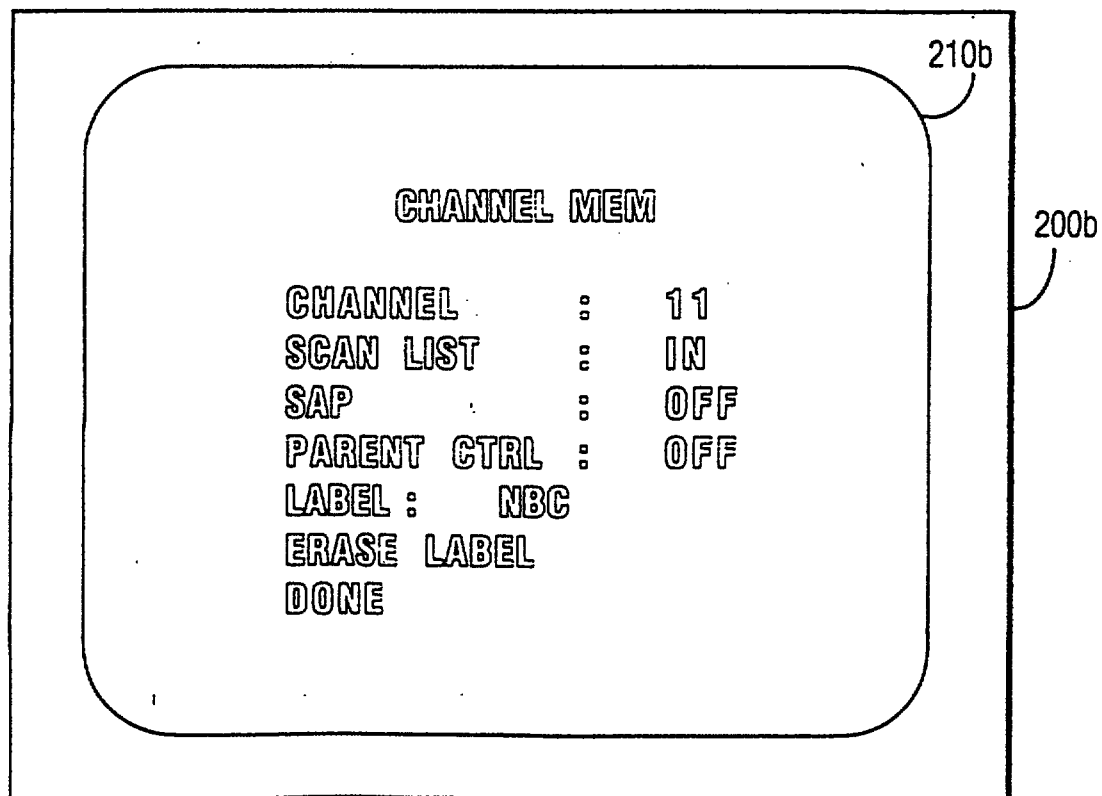


FIG. 1





2/5

FIG. 2a**FIG. 2b**



3/5

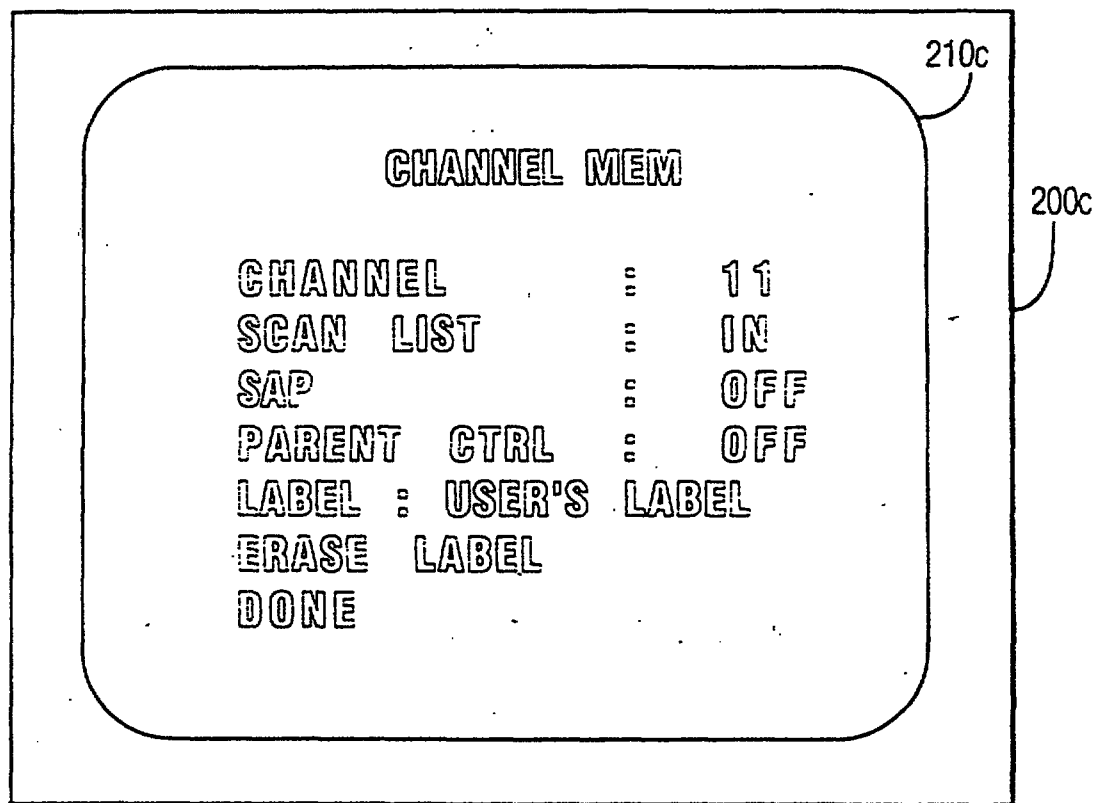
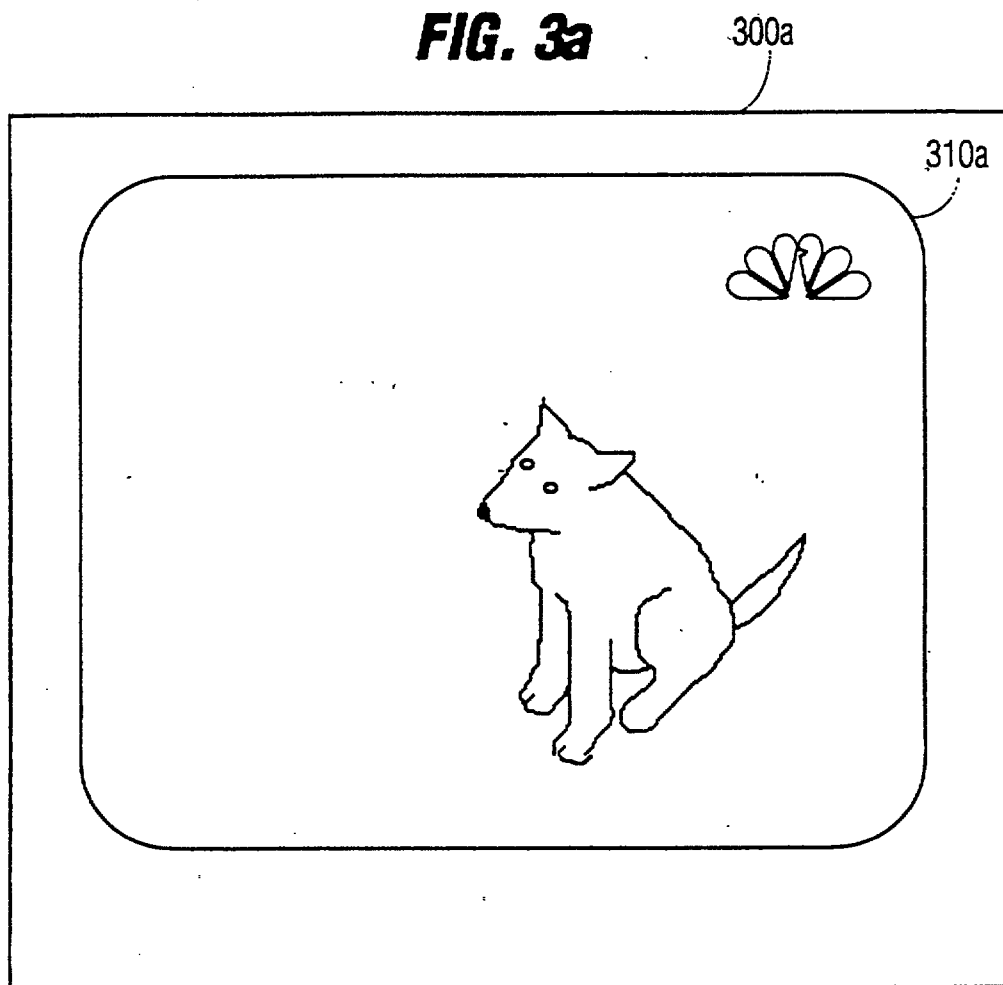
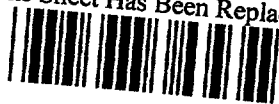
FIG. 2c



FIG. 3a

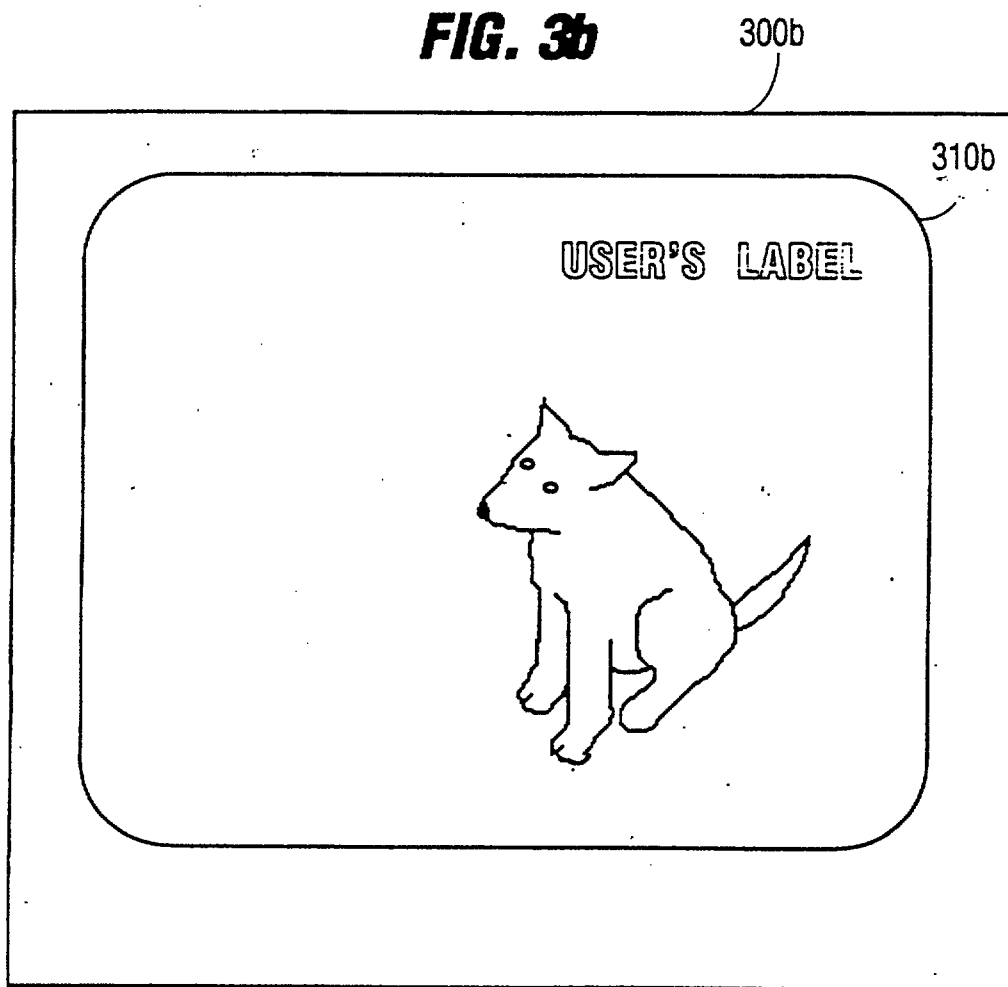


This Sheet Has Been Replaced



5/5

FIG. 3b



CHANNEL LABELLING APARATUS FOR A TELEVISION RECEIVER

This invention concerns television receivers having a
5 channel labelling function.

Background of the Invention

Many modern television receivers include a channel
labelling feature in which a user is asked to enter a suitable label
for each channel. This may be done by selecting individual letters
10 from a running display of letters, or by entering letters from an
alphabetical keyboard on a remote control unit. Such a channel
labelling feature is known from, for example, RCA CTC-140
chassis type television receivers manufactured by Thomson
Consumer Electronics Incorporated, Indianapolis, Indiana, U.S.A.

15 Unfortunately, this process can take an inordinate
amount of time and patience on the user's part given that modern
cable television services may deliver as many as 125 channels.

Summary of the Invention

20 It is herein recognized that it is desirable that a
television receiver provide preprogrammed labels for many
widely available television networks. The user has only to select
the proper channel and then select a corresponding
preprogrammed label from a list in order to associate the channel
25 and label. In one embodiment the preprogrammed label is a
graphically-formed logo or service mark of the television
network.

Brief Description of the Drawing

30 FIGURE 1 is a block diagram of a portion of a
television receiver suitable for implementing the invention.

FIGURES 2a - 2c are illustrations of screen displays
produced in accordance with the invention.

FIGURES 3a and 3b are illustrations of channel labels
35 displayed on screen.

This is the replacement sheet

Date: 31 JUL 1996

REPLACEMENT SHEET	
✓ Description	: paged 1 to paged 5
✓ Claim(s)	: paged 6 to paged 7
✓ Drawing(s)	: paged 15 to paged 55
✓ Abstract	: paged 7 to paged 10
DATE OF RECEIPT 31/7/96	

Detailed Description of the Drawing

Referring to FIGURE 1, a television receiver includes an RF input terminal 100 which receives radio frequency (RF) signals and applies them to a tuner assembly 102. Tuner assembly 102 selects and amplifies a particular RF signal under control of a tuner controller 104 which provides a tuning voltage via a wire 103, and bandswitching signals via signal lines represented by the broad double-ended arrow 103', to tuner assembly 102.

Tuner assembly 102 converts the received RF signal to an intermediate frequency (IF) signal and provides an IF output signal to video (VIF) and sound (SIF) amplifier and detector unit 130. VIF/SIF amplifier and detector unit 130 amplifies the IF signal applied to its input terminal and detects the video and audio information contained therein. The detected video information is applied as one input of a video processor unit 155. The other input of video processor unit 155 is connected to an on-screen display and graphics processor circuit 140. The detected audio signal is applied to an audio processor 135 for processing and amplification before being applied to a speaker assembly 136.

Tuner controller 104 generates the tuning voltage and bandswitching signals in response to control signals applied from a system control microcomputer (μ C) 110. The terms "microcomputer", controller, and "microprocessor", as used herein, are equivalent. Microcomputer 110 receives user-initiated commands from an infrared (IR) receiver 122 and from a "local" keyboard 120 mounted on the television receiver itself. IR receiver 122 receives IR transmissions from remote control transmitter 125. Microcomputer 110 includes a central processing unit (CPU) 112, a program memory (ROM) 114, and stores channel-related data in a random-access memory (RAM) 116. RAM 116 may be either internal to, or external to, microprocessor 110, and may be of either the volatile or non-volatile type. The term "RAM" is also intended to include

This is the replacement sheet

Date: 31 JUL 1996

electrically-erasable programmable read only memory (EEPROM) 117. One skilled in the art will recognize that if volatile memory is utilized, that it may be desirable to use a suitable form of standby power to preserve its contents when the receiver is turned off.

Microcomputer 110 operates from a source of standby power 145, and controls a source of operating power 150 via a control line 151 for selectively applying power to the remainder of the television receiver. Microcomputer 110 also includes a timer 118. Microcomputer (or controller) 110 generates a control signal for causing tuner control unit 104 to control tuner 102 to select a particular RF signal, in response to user-entered control signals from local keyboard 120 or from infrared (IR) receiver 122.

Tuner 102 produces a signal at an intermediate frequency (IF) and applies it to a processing unit 130 comprising a video IF (VIF) amplifying stage; an AFT circuit, a video detector, and a sound IF (SIF) amplifying stage. Processing unit 130 produces a first baseband composite video signal (TV), and a sound carrier signal. The sound carrier signal is applied to an audio signal processor unit 135 which includes an audio detector and may include a stereo decoder. Audio signal processor unit 135 produces a first baseband audio signal and applies it to a speaker unit 136. Second baseband composite video signals and second baseband audio signals may be respectively applied to VIDEO IN and AUDIO IN terminals from an external source.

The first and second baseband video signals (TV) are coupled to a video processor unit 155 (having a selection circuit not shown) Under control of controller 110, an on-screen display (OSD) processor 140 generates character signals and graphics signals, and applies them to a second input of video signal processor 155, for inclusion in the processed video signal.

Electrically-erasable programmable read only memory (EEPROM) 117 is coupled to controller 110, and serves as a non-volatile

storage element for storing autoprogramming channel data, and user-entered channel data.

The processed video signal at the output of video signal processor unit 155, is applied to a Kine Driver Amplifier 156 for amplification and then applied to the guns of a color picture tube assembly 158 for display. The processed video signal at the output of video signal processor unit 155, is also applied to a Sync Separator unit 160 for separation of horizontal and vertical drive signals which are in turn applied to a deflection unit 170. The output signals from deflection unit 170 are applied to deflection coils of picture tube assembly 158 for controlling the deflection of its electron beam. The television receiver described thus far with the exception of OSD and GRAPHICS PROCESSOR 140 is known, for example, from the RCA CTC-140 chassis color television manufactured by Thomson Consumer Electronics, Inc., Indianapolis, Indiana, U.S.A.

The invention will now be described with reference to the remainder of FIGURE 1, the menu displays of FIGURES 2a - 2c, and the screen displays of FIGURES 3a and 3b.

FIGURE 2a shows a menu screen called up by a user wanting to enter a label for channel 11. To modify the label, the user highlights the LABEL line by using the + and - keys of remote control unit 125 to move up and down through the menu and by selecting the label line by pressing its SELECT key. Then user then presses the + and - keys to step through a preprogrammed list of labels. FIGURE 2b shows the preprogrammed label NBC. If the user desires to enter the preprogrammed label NBC, he simply presses the SELECT key of remote control unit 125. If, on the other hand, the user cannot find an appropriate preprogrammed label, then he steps through the list until he finds the label YOU ENTER. Upon selecting the YOU ENTER label, the user may enter his own label by pressing the +, -, and SELECT keys of remote control unit 125 until he has spelled the desired label. To further illustrate this point, FIGURE 2c shows a user-entered label

This is the replacement sheet

Date: 31 JUL 1996

USER'S LABEL, and FIGURE 3b shows the user-entered label displayed on the screen 310b of a television receiver 310a.

OSD and GRAPHICS PROCESSOR unit 140 of FIGURE 1, includes the capability of producing high resolution graphics for display on the screen of picture tube assembly 158, under control of controller 110. Controller 110 communicates with OSD and GRAPHICS PROCESSOR unit 140 via a digital control bus 131. One of the capabilities of OSD and GRAPHICS PROCESSOR unit 140 is the ability to generate graphics logos or service marks of various sizes on the screen. FIGURE 3a shows a television receiver 300a, having a screen 310a showing a video image with the log for the NBC television network displayed in the upper right corner. This logo is stored in ROM and generated by OSD and GRAPHICS PROCESSOR unit 140. The procedure for associating a graphics logo with a television channel is the same as that given above for selecting a text label. That is, the user steps through a list of preprogrammed text labels until he finds the proper one, for example NBC. Upon selecting NBC, controller 110 causes OSD and GRAPHICS PROCESSOR unit 140 to substitute a preprogrammed graphics logo, if one exists in memory, for the corresponding text label.

A constructed and tested version of the invention includes 108 preformed labels and memory space for 19 user-entered labels.

This is the replacement sheet

Date: 31 JUL 1996



CLAIMS:

1. A television receiver, comprising:
means (120,125) for entering data in response to
5 operation by a user;
memory means (116,117) for storing data
corresponding to preformed labels;
control means (110) coupled to said memory means
(116,117) for reading said data from said memory means
10 (116,117); and
on-screen display and graphics generator means (140)
coupled to said control means (110) for producing text character
and graphic signals for display, said text character and graphics
signals corresponding to said stored data;
15 wherein
said control means (110), associates said stored data
labels with ones of television channels in response to data input
by a user.
- 20 2. The apparatus of Claim 1 wherein said preformed
label is a network logo or service mark..
3. The apparatus of claim 1 wherein said preformed
label comprises text characters.
25
4. The apparatus of Claim 1 wherein data relating to a
label is entered by a user.

CHANNEL LABELLING APARATUS FOR A TELEVISION RECEIVER

Abstract

It is herein recognized that it is desirable that a television receiver provides preprogrammed labels for many widely-used television networks. The user has only to select the proper channel and then select a corresponding preprogrammed label from a list in order to associate the channel and label. In one embodiment the preprogrammed label is a graphically-formed logo or service mark of the television network.

FIGURE 1

This is the replacement sheet

Date: 31 JUL 1996

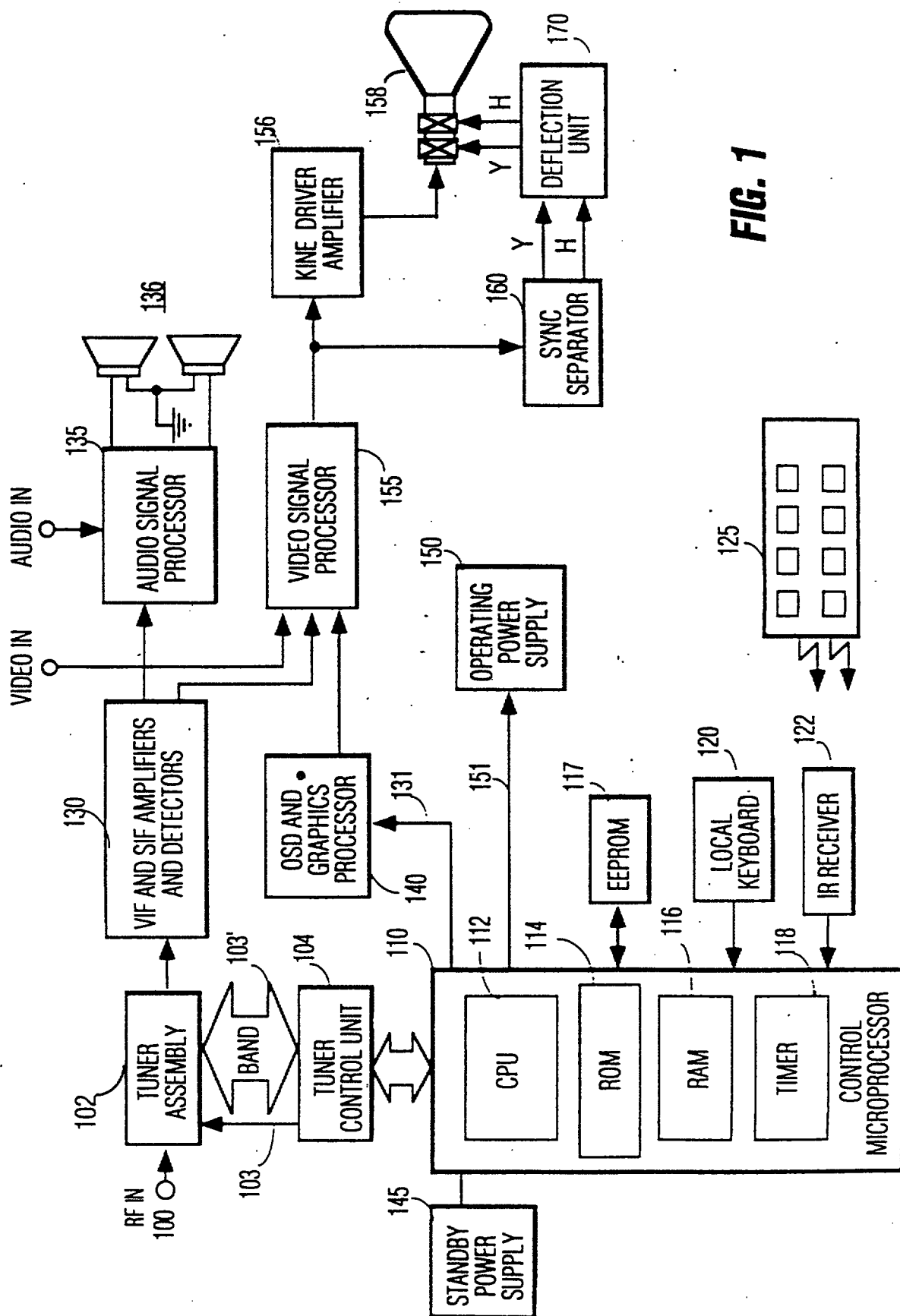


FIG. 1

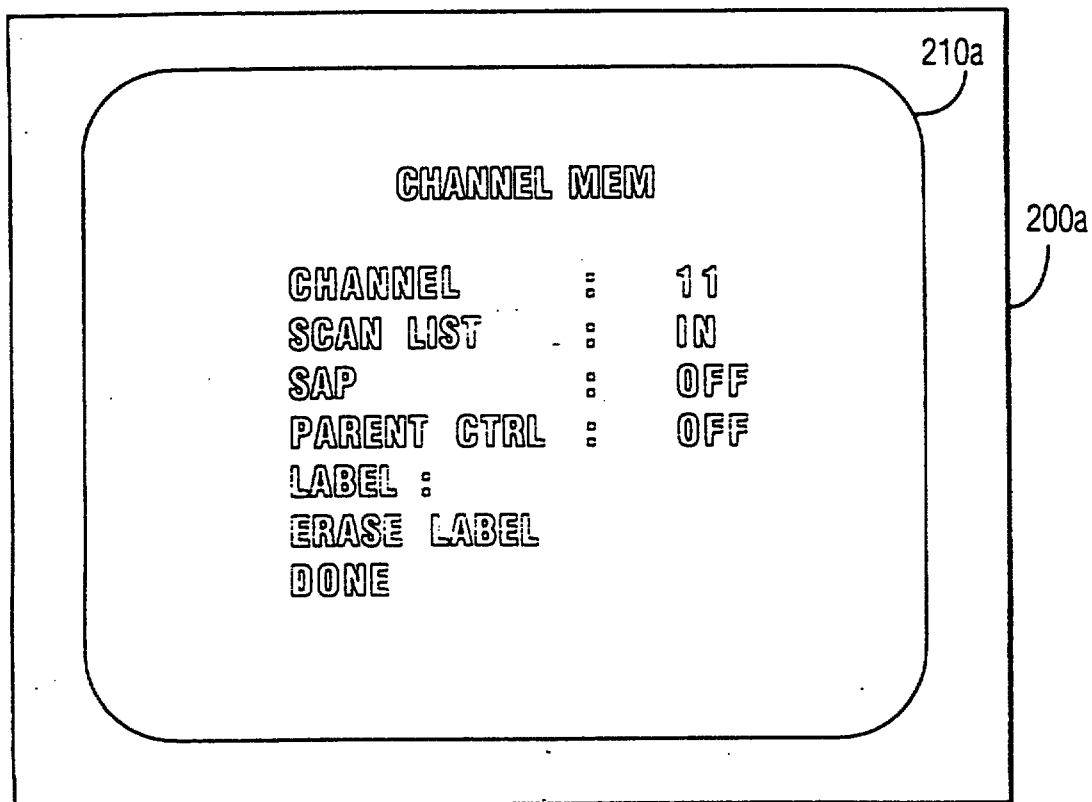
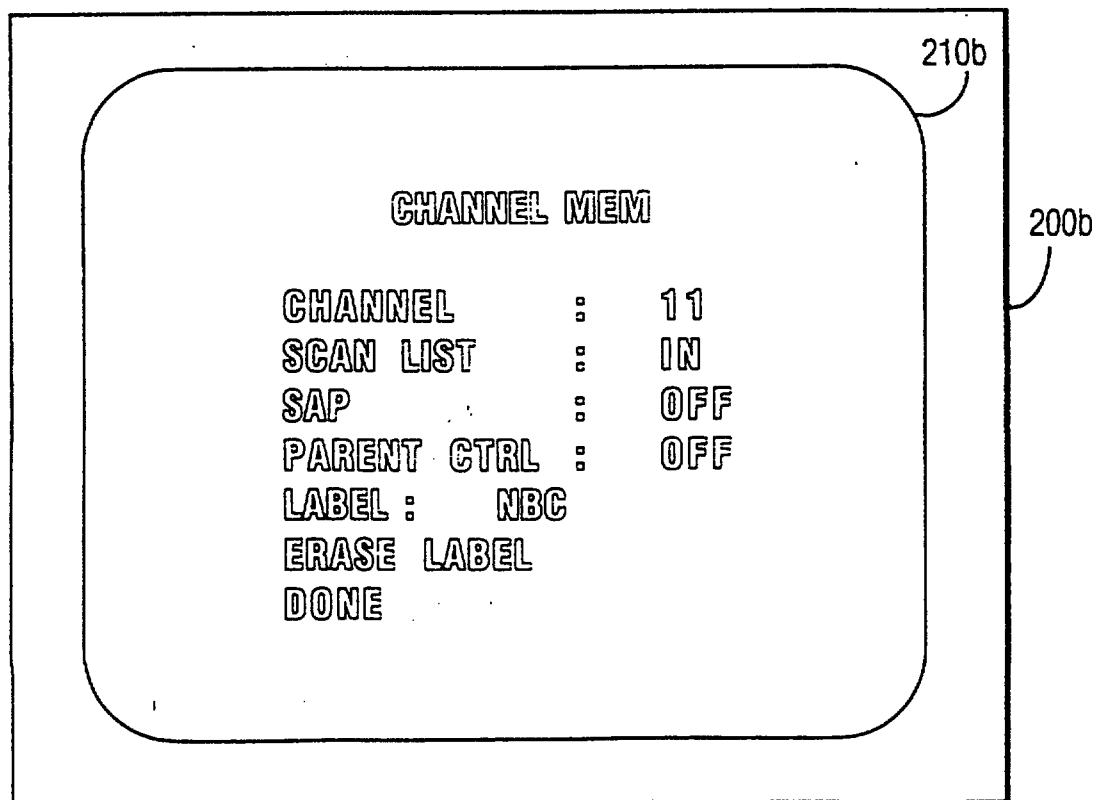
FIG. 2a**FIG. 2b**

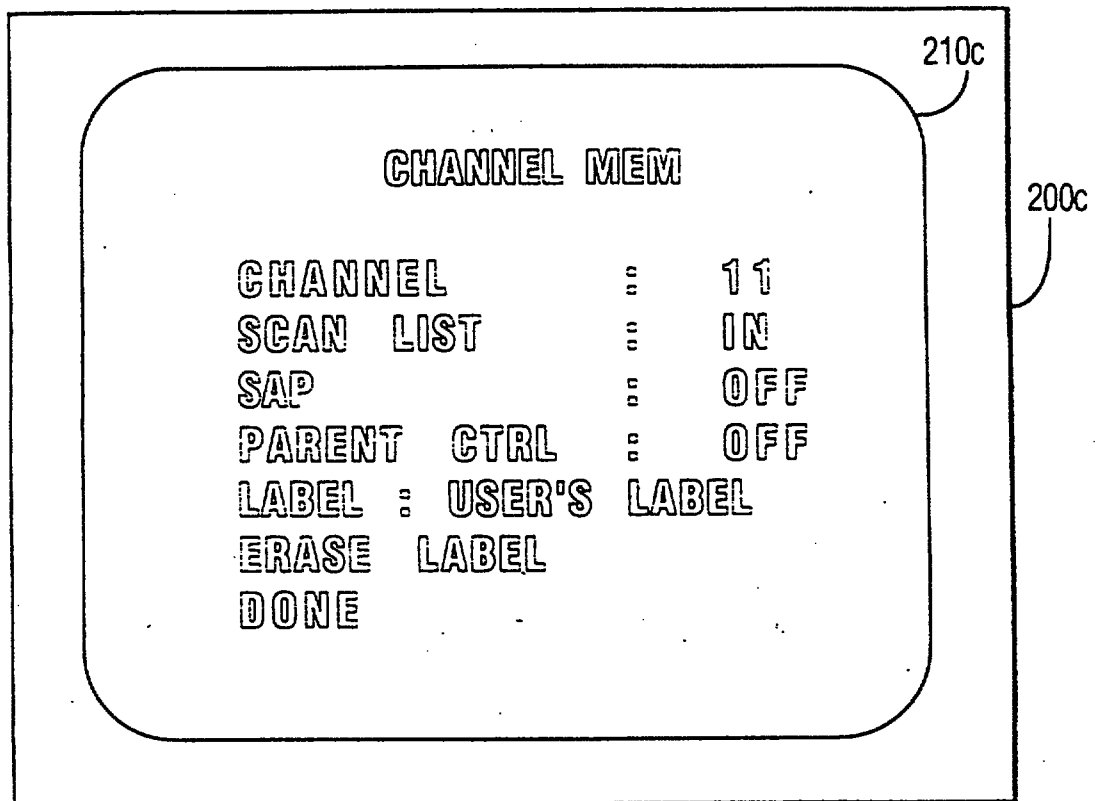
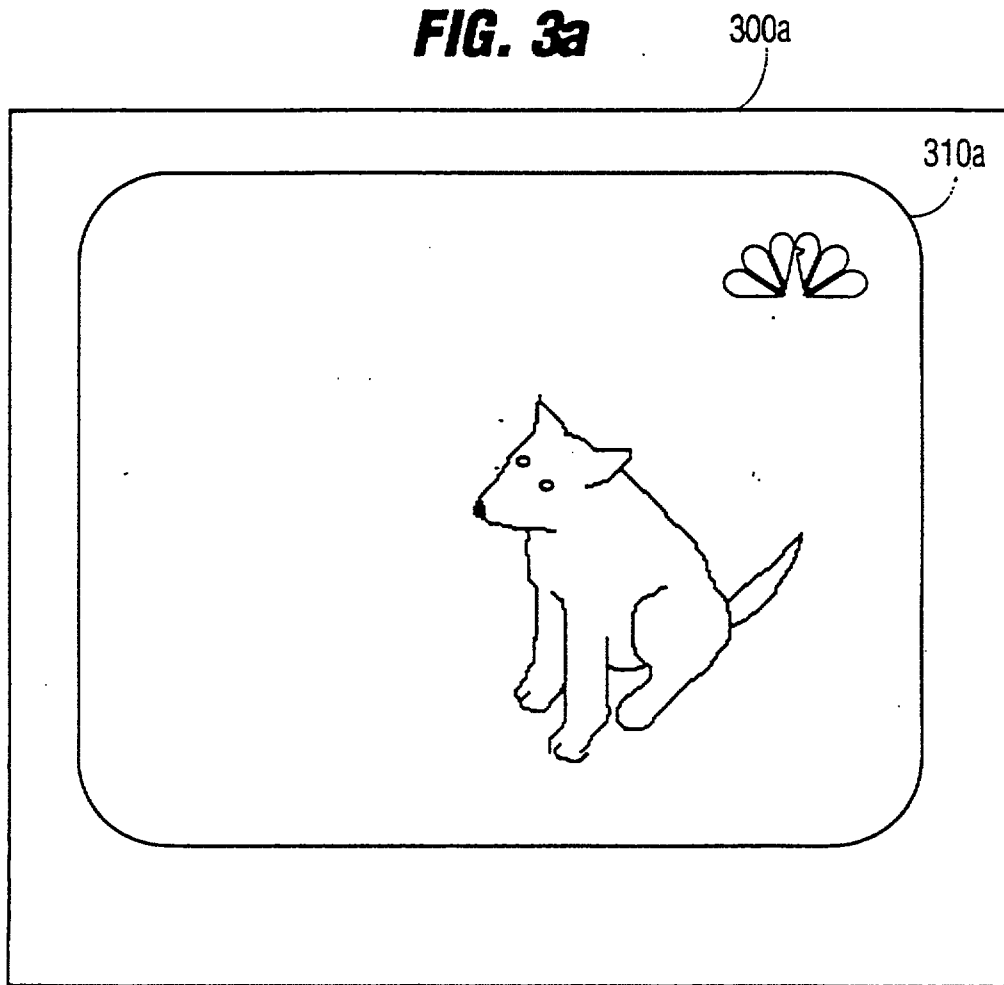
FIG. 2c

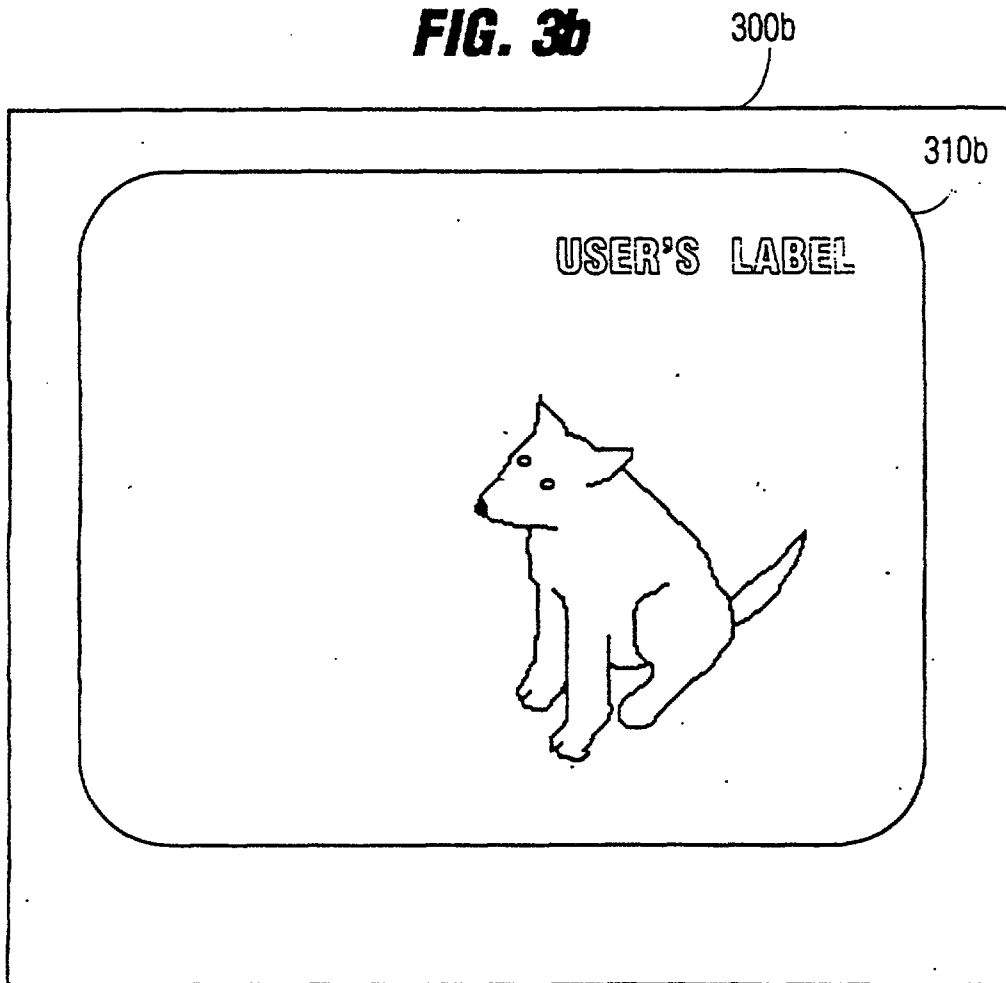
FIG. 3a



This is the replacement sheet

Date: **31 JUL 1996**

FIG. 3b



This is the replacement sheet

Date: 3 1 JUL 1996