

User's Guide

December 2005

LDK 5201

Local Control Panel LCP100

Declaration of Conformity

We, Grass Valley Nederland B.V., Kapittelweg 10, 4827 HG Breda, The Netherlands, declare under our sole responsibility that this product is in compliance with the following standards:

- EN60065 : Safety
- EN55103-1 : EMC (Emission)
- EN55103-2 : EMC (Immunity)

following the provisions of:

- a. the Safety Directives 73/23/EEC and 93/68/EEC
- b. the EMC Directives 89/336/EEC and 93/68/EEC

FCC Class A Statement

This product generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with the instructions, may cause interference to radio communications.

It has been tested and found to comply with the limits for a class A digital device pursuant to part 15 of the FCC rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment.

Operation of this product in a residential area is likely to cause interference in which case the user at his own expense will be required to take whatever measures may be required to correct the interference.

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LCP 100

Local Control Panel

User's Guide

The LCP100 Local Control Panel (LDK 5201) is a remote control unit for use with Grass Valley LDK series cameras. It provides access to camera functions and allows control of various video functions including painting controls. The LCP 100 can be used to control a camera up to 50 metres away.

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About This Manual

Purpose of this manual

The purpose of this manual is to present a detailed description of how to operate the Local Control Panel. The provision of correct information is the first step in ensuring the operational integrity of the Local Control Panel.

This manual is an integral part of the service policy. It ensures that you will be able to install and setup your Local Control Panel to meet the requirements of your environment. The manual provides first line service information so that suitably qualified service personnel can detect and repair faults, normally by module replacement.

Because of the complexity of some of the components, second line service can only be carried out at the specially equipped service centres and information concerning second line maintenance is not supplied in this manual.

Intended audience

The manual is intended as a guide to those with a working knowledge of camera systems and installation techniques. The first line detection and repair of faults requires a general knowledge of test and measurement techniques. The guide is so designed that it can be used as an introduction to those who are new to the Local Control Panel, as a simple procedural guide to those who wish to setup and start shooting immediately, and as a reference work to be consulted as required during the long life of the Local Control Panel.

Service policy

The LCP 100 is a sophisticated Local Control Panel containing state-of-the-art electronic components which are designed to provide long-life operation without the need for maintenance. With this in mind, the service policy of Grass Valley endeavours to ensure that help will be quickly on hand in the unlikely event of anything going wrong. The guiding principles of the Grass Valley first line maintenance philosophy are speed and cost effectiveness. First line maintenance is dedicated to keeping your local control panel operational, despite a fault, by module replacement and the replacement of minor mechanical parts by the user.

CAUTION

Without additional protection the LCP 100 is protected according to safety specification EN60529 up to level IPX3 (spraying water). Exposure to splashing or jetting water can result in harmful effects.

Package contents

The following items are included in the standard LCP 100 box:

- LCP 100 Local Control Panel (LDK 5201)
- Standard LCP connection cable (2 m.)
- User's Guide (this document)

Optional accessories

- Cable splitter, 2 m. (3922 496 22001)
- AV/Control cable, 2 m. (3922 496 22011)
- AV/Control cable, 10 m. (3922 496 22021)
- AV/Control cable, 25 m. (3922 496 22031)

Packing/Unpacking

Inspect the shipping container for evidence of damage immediately after receipt. If the shipping container or cushioning material is damaged, it should be kept until the contents of the shipment have been checked for completeness and the units have been checked mechanically and electrically.

The contents of the shipment should be checked against the packing list. If the contents are incomplete, if there is mechanical damage or defect, or if the units do not perform correctly when unpacked, notify your Grass Valley sales or service centre within eight days. If the shipping container shows signs of damage or stress, notify the carrier as well.

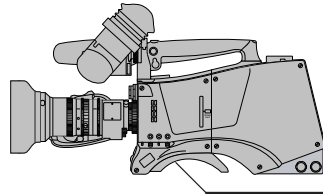
If a unit is being returned to Grass Valley for servicing, try to use the containers and materials of the original packaging. Attach a tag indicating the type of service required, return address, model number, full serial number and the return number which will be supplied by your Grass Valley service centre.

If the original packing can no longer be used, the following general instructions should be used for repacking with commercially available materials:

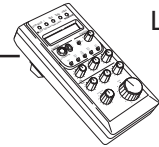
- a. Wrap unit in heavy paper or plastic.
- b. Use strong shipping container.
- c. Use a layer of shock-absorbing material around all sides of the unit to provide firm cushioning and prevent movement inside container.
- d. Seal shipping container securely.
- e. Mark shipping container FRAGILE to ensure careful handling.

Configurations

Cameras with Triax/Fiber adapters

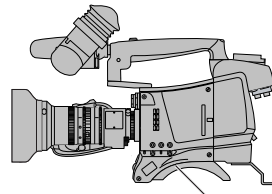


LCP conn. cable (2 m.)

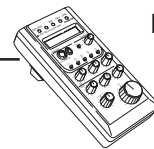


LCP 100

Cameras with ENG/Multicore adapters (incl. Viper)

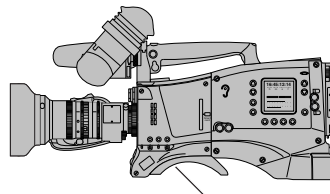


LCP conn. cable (2 m.)

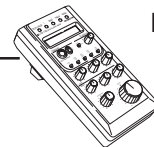


LCP 100

Camcorders (DVCPRO and DVCPRO50)



LCP conn. cable (2 m.)



LCP 100

**Extension
Cables**

HRS12MN

HRS12FV

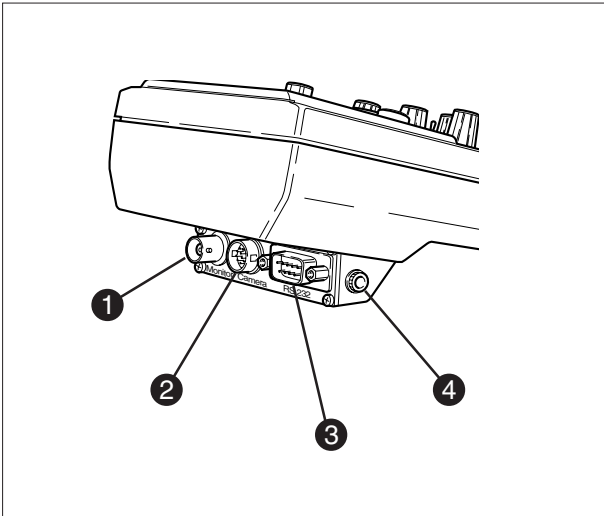
AV/Control cable
Data, audio and video signals
(10 metres)

HRS12MN

HRS12FV

AV/Control cable
Data, audio and video signals
(25 metres)

Installation



LCP 100 connectors

1 Monitor output connector

This BNC connector provides an 1 Vpp CVBS analogue output signal. This signal is only present if an AV/control cable or a cable splitter is used and the connector is terminated correctly with 75 Ohms.

2 Camera control connector

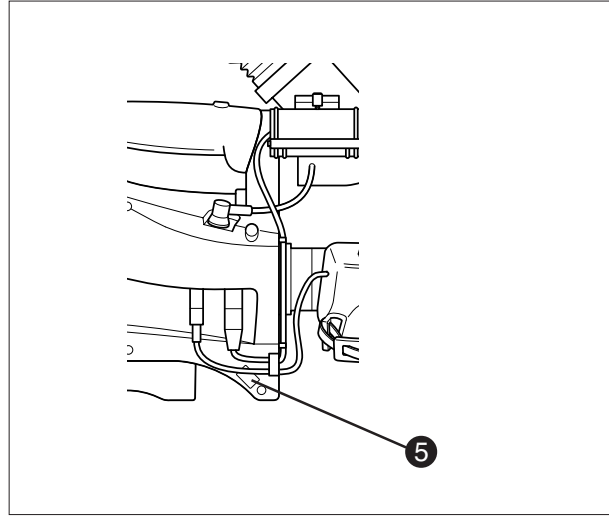
This connector is used for a RS-232 data link between the camera and the LCP 100 and an audio and video input if an AV/control cable or a cable splitter is used.

3 RS-232 connector

This connector is used for downloading software from a PC. See section 'Downloading procedure'.

4 Earphone output

This 3.5 mm mini-jack connector carries the audio monitoring signal during recording and playback. This signal is only present if an AV/control cable or a cable splitter is used.



Standard connection

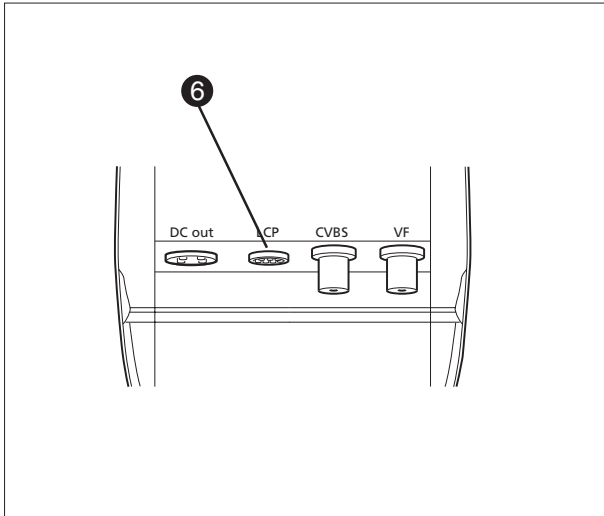
To use the LCP 100 to control the camera in the standard configuration proceed as follows:

- a. Switch off the power to the camera.
- b. Use the standard cable to connect the RS-232 connector (5) of the camera to the Camera AV/control connector (2) of the LCP 100.

The LCP 100 can be used to control the camera when the power to the camera is switched on again.

Extension Cables

Extension Cables are available in 10 and 25 metre versions. Combinations of cables can be used to extend the control distance up to 50 metres. Standard cable, Cable splitter and AV/Control cable can all be extended in this way.

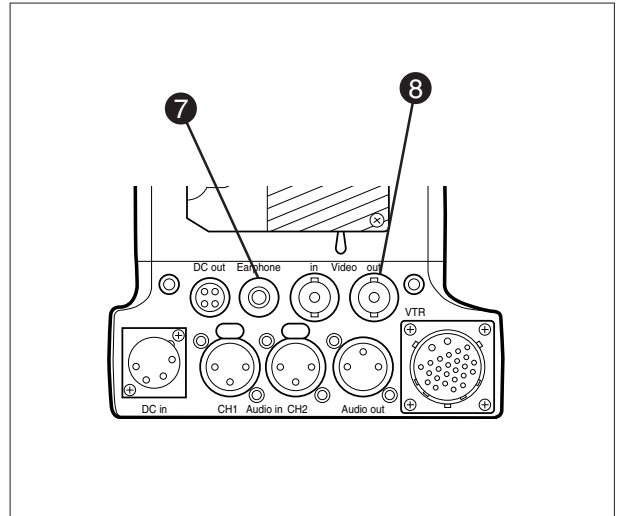


ENG adapter connection

When the camera is equipped with an ENG adapter you can connect the LCP 100 directly to the ENG adapter. Use the *optionally* available AV/Control Cable to connect the LCP as follows:

- a. Switch off the power to the camera.
- b. Use the AV/Control Cable to connect the LCP connector **(6)** of the adapter to the Camera AV/control connector **(2)** of the LCP 100.

The LCP 100 can be used to control the camera when the power to the camera is switched on again.



Camcorder connection

If audio and video monitoring is required as well as control, use the *optionally* available cable splitter connection. To connect the cable splitter proceed as follows:

- a. Switch off the power to the camera.
- b. Connect the RS-232 connector of the cable splitter to the RS-232 socket **(5)** of the camera.
- c. Connect the BNC connector of the cable splitter to the Video output connector **(8)** of the camera.
- d. Plug the 3.5 mm mini-jack of the cable splitter into the Earphone connector **(7)** of the camera.
- b. Connect the 12-pole female connector of the cable splitter to the Camera AV/control connector **(2)** of the LCP 100.

The LCP 100 can be used to control the camera when the power to the camera is switched on again.

The Monitor output **(1)** of the LCP 100 now provides a CVBS video signal for use with a monitor with an CVBS input. The 3.5 mm mini-jack output **(4)** provides the monitoring audio signal.

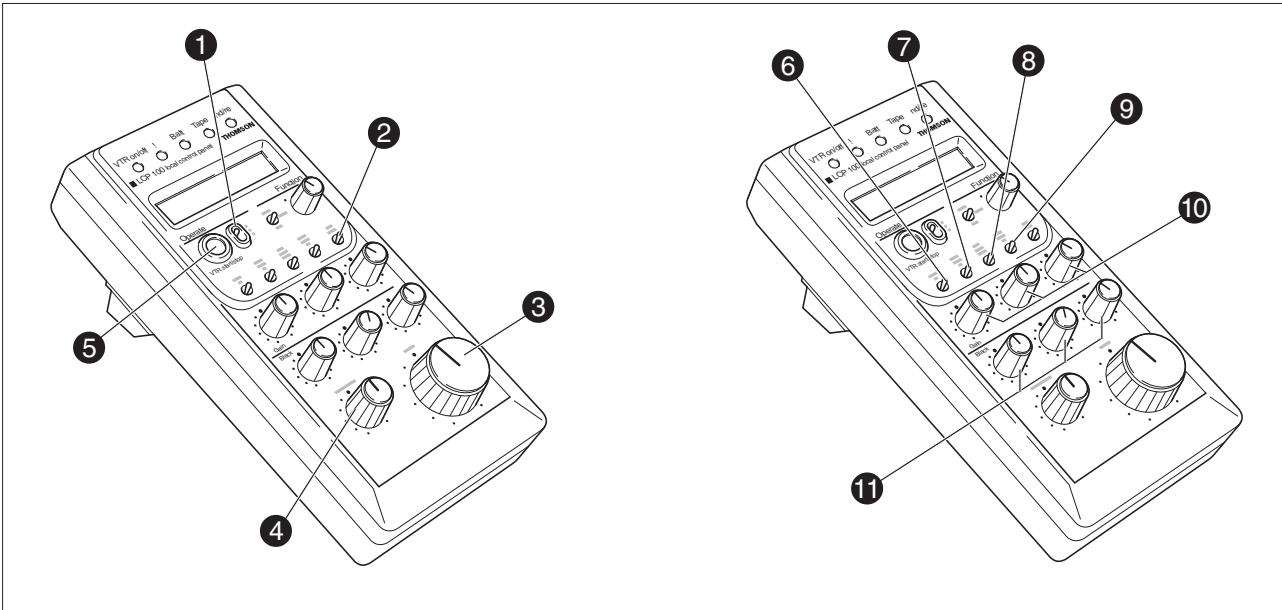
Note

Audio and video monitoring is only available with the DCR series camcorders.

Note

If the camera can supply a serial digital video signal it is not possible to have both the digital signal and the CVBS signal available at the same time. To make the CVBS signal available select the setting **analogue** for this signal in the Output item of the Camera / LCD / Miscellaneous menu.

Operation



Video functions

See the Video section of your camera's user's guide to find more information about the Video functions mentioned below.

① Operate selection

This selection switch is used to limit the operation of the LCP. It can be set to Full, Part, or Bars operation.

When Full Operation is selected all controls on the LCP 100 are available.

When Part operation is selected only the following control are operational:

- Auto Iris switch (2)
- Iris rotary control (3)
- Master black rotary control (4)

When Bars operation is selected the colour bar test signal is turned on and an audio test tone is generated (if this has been selected in the LCD Audio menu of the camera). When Bars are selected only the VTR Start/Stop control (5) is operational.

② Auto Iris switch

This switch is used to switch on the automatic Iris control.

③ Iris rotary control

This rotary control varies the iris opening (aperture) when the Auto Iris switch (2) has been set to manual. The knob controls the full range for all lens types. The LCD shows the F-stop number of the Iris **Fxx.x**. When the automatic Iris control function is on an **A** is displayed on the LCD **AFxx.x**.

Note:

For remote control of the iris the Iris control selection switch on the camera lens must be set to **Auto**.

④ Master Black control

This rotary control varies the Master Black level. The LCD shows the Master Black level as **M.BLK xx**.

⑤ VTR start/stop button

This momentary button controls the VTR. The button, when pressed initially, starts the recording of the VTR. When the button is pressed again, it stops the recording of the VTR.

⑥ Gain selection switch

This up/down scroll selection switch controls the camera's Gain selection.

7 Colour temperature selector

This up/down scroll selection switch allows a choice between preset and stored colour temperatures and an automatic continuous white (AWC) position.

8 Auto White Balance switch

This switch is used to run the automatic white balance process on the camera.

1. Use the colour temperature switch (7) to select one of the colour temp. memory positions.
2. Press and hold up the Auto White Balance switch to start the procedure. The LCD shows the message **A.W.B. WINDOW**
Two small white boxes appear in the viewfinder.
3. Point the camera so that the reference white surface is between the two small white boxes.
4. Release the Auto White Balance switch.
The LCD shows the message **A.W.B. Running**
5. Keep the white boxes pointed at the reference white surface until the LCD shows the message **A.W.B. SUCCESS** or **A.W.B. FAILED**

To interrupt the automatic white balance process toggle the AWB switch and push it upwards. The LCD shows the message **A.W.B. DONE**

If the procedure fails check that a memory position is selected, ensure the reference surface is white and start the procedure again.

9 Black Stretch switch

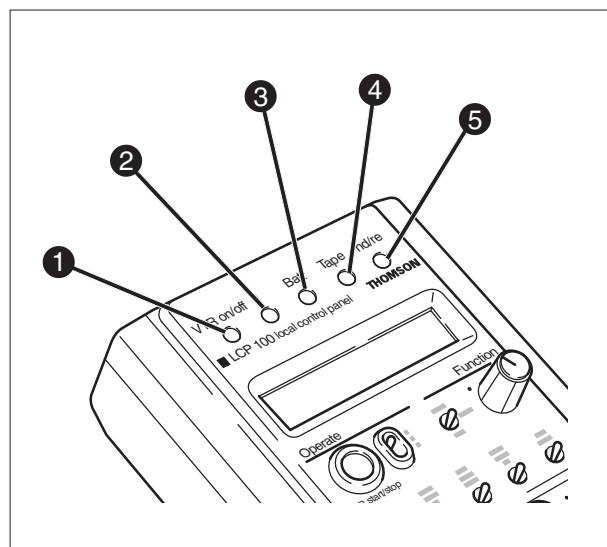
This switch when set to the on position starts the black stretch function. This function gives more detail in the dark areas of the picture.

10 White Painting

These three rotary controls vary the Red, Green and Blue gains. The values of the Red, Green and Blue gain levels are shown on the LCD (**R xx G xx B xx**).

11 Black Painting

These three rotary controls vary the Red, Green and Blue black gains. The values of the Red, Green and Blue black gain levels are shown on the LCD (**R-xx G-xx B-xx**).



LED indicators

1 VTR on/off indication

This red LED lights when the VTR is recording or an ON AIR signal is supplied. It flashes while the VTR is preparing to record.

2 Non Standard indication

The non standard video setting indicator (!) lights when the camera has non standard settings.

3 Battery indication

In case of VTR operation this light flashes when battery voltage is low. It lights continuously when battery voltage is less than 11V.

4 Tape indication

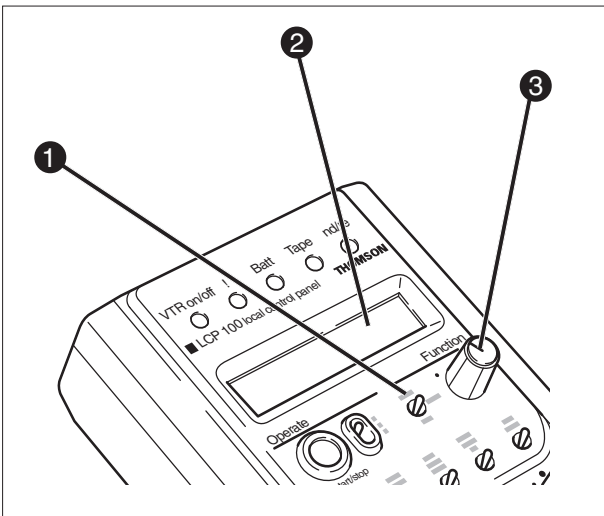
In case of VTR operation this light flashes when there is about 5 minutes or less of tape left. It lights continuously when the tape is at an end.

In other cases this light indicates ISO status of the camera.

5 ND/RE

Lights when an ND optical filter or the range extender is selected.

Using the Menu System

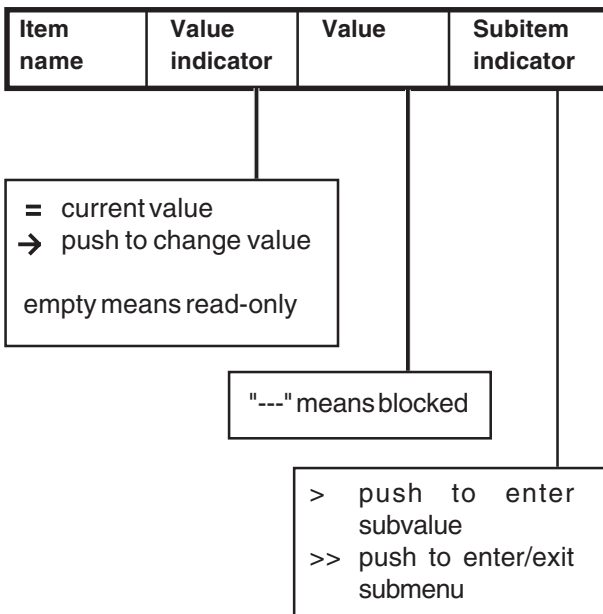


Entering the menu

Press the Function Switch **(1)** to toggle up or down through the LCP 100 menu items. Use the Rotary/ Push button **(3)** to move through the available items. Push down on the Rotary/ Push button to change the selected (sub)value or enter a submenu .

After 5 seconds of non-activity in the menu, the LCD display **(2)** shows the White balance and Iris values.

Typical LCD message:



Menu Text	Values
FILTER	CLEAR,ND1/4, ND1/16, ND1/64
FILTER2	CLEAR,STAR 4P, STAR 6P, SFT FCS
CONTOUR	OFF, ON, VAR>
> CONTOUR	0..99 (CONTOUR = VAR)
COL.FLTR	---, 0..99
RECALL	SCAM1,SCAM2,SCAM3,SCAM4,STANDARD
STORE	SCAM1,SCAM2,SCAM3,SCAM4
EXP.TIME	1/200,1/500,1/1000,50Hz,60Hz,NOM,VAR>,VAR2>,CRT
> EXP.TIME	xx.yHz (VAR)
> EXP.TIME	xxx.y°(VAR)
> EXP.TIME	xxx.ymS (VAR2) (only valid for LDK7500)
KNEE	OFF,VAR>,AUTO
KNEE SL	--- (KNEE <> VAR),0..99 (KNEE = VAR)
KNEE PNT	--- (KNEE <> VAR),0..99 (KNEE = VAR)
VF MENU	---,OFF,ON,MENU>>
>> CONTRAST	0..99
>> ANALOG	ABS,REL
>> SETUP	EXIT>>
DIAGN	
>> LCP.12nc	xxxx
>> LVP.Ver	x.yy
>> CAM.TYPE	LDK100 .. LDK7500
>> CAM.Stat	xxxx
>> OPT Type	xx
>> OPT.ID	LDK100,LDK6000,?nnn
>> OUTPUT	RGB,YRCB,FLMSTRM,HDSTRM (only valid for LDK7500)
>> DIAGN	EXIT>>

Shortcuts

- Press the Function Switch **(1)** to the PREV position and push the Rotary/ Push button **(3)** to go directly to the top menu (**FILTER**)
- Press the Function Switch **(1)** to the NEXT position and push the Rotary/ Push button **(3)** to go enter the first submenu (**VF MENU**)

Downloading procedure

Standard method (MS-DOS/Win95)

Download software to the LCP 100 with the MS-DOS application DL.EXE Version 1.6 as follows:

- Switch off the power to the camera.
- Attach the LCP 100 to the camera as in normal operation using the camera control connector.
- Connect the RS-232 connector from the LCP 100 with a null modem cable to an RS-232 connector of a PC.
- Run the MS-DOS download program DL.EXE using the proper command line parameters. For example: **DL 150 <filename> 1 19200 -f** for COM1 used at 19200 baud.
- Switch on the power to the camera.
- When the download is finished, switch off the power to the camera.
- Remove the download cable between the LCP 100 and the PC.

The LCP 100 is now ready for operation.

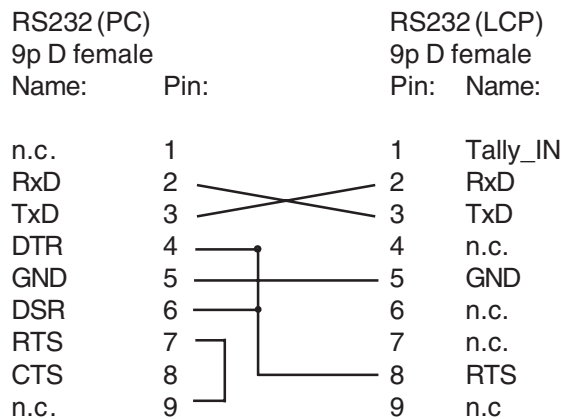
LdkScripter method

Use the LdkScripter with the right script file (for example "392240733901_165_001_S21.TSC") and proceed as follows:

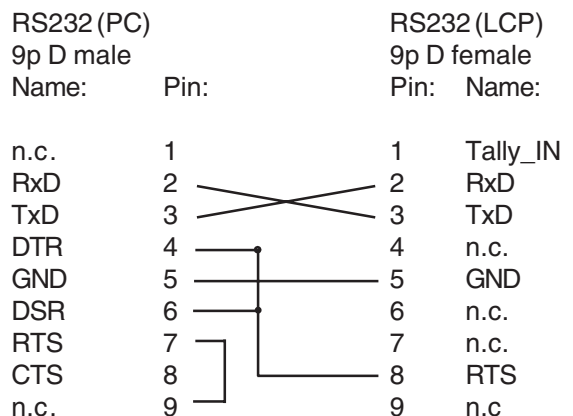
- Switch off the power to the camera.
- Attach the LCP 100 to the camera as in normal operation using the camera control connector.
- Connect the RS-232 connector from the LCP 100 with a special download cable or a null modem cable and an adapter to an RS-232 connector of a PC. See below for the wiring of the download cable and adapter.
- Open the LdkScripter configuration file ("Config_IO.tsc") and set the baudrate to **19K2** or **9600**.
- Switch on the power to the camera.
- When the download is finished, switch off the power to the camera.
- Remove the download cable between the LCP 100 and the PC.

The LCP 100 is now ready for operation.

Download cable for LCP 100:

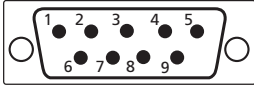


Adaptor for use with a std. null modem cable:



Connectors and Cables

RS-232 connector



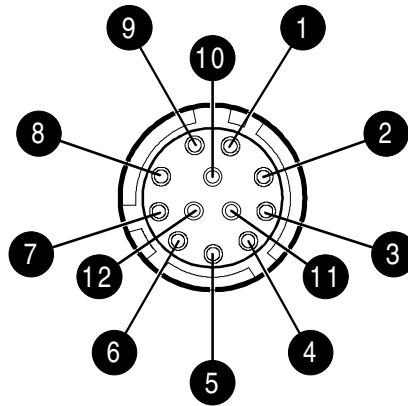
9-pin male; panel view

- | | |
|----------------|---------|
| 1. Tally input | 6. n.c. |
| 2. RX | 7. n.c. |
| 3. TX | 8. CTS |
| 4. n.c. | 9. n.c. |
| 5. GND | |

Note:

A connection between the tally input (pin 1) and the Ground pin (pin 5) light the tally indicator on the LCP 100.

Camera control connector



Hirose 12-pin male; panel view

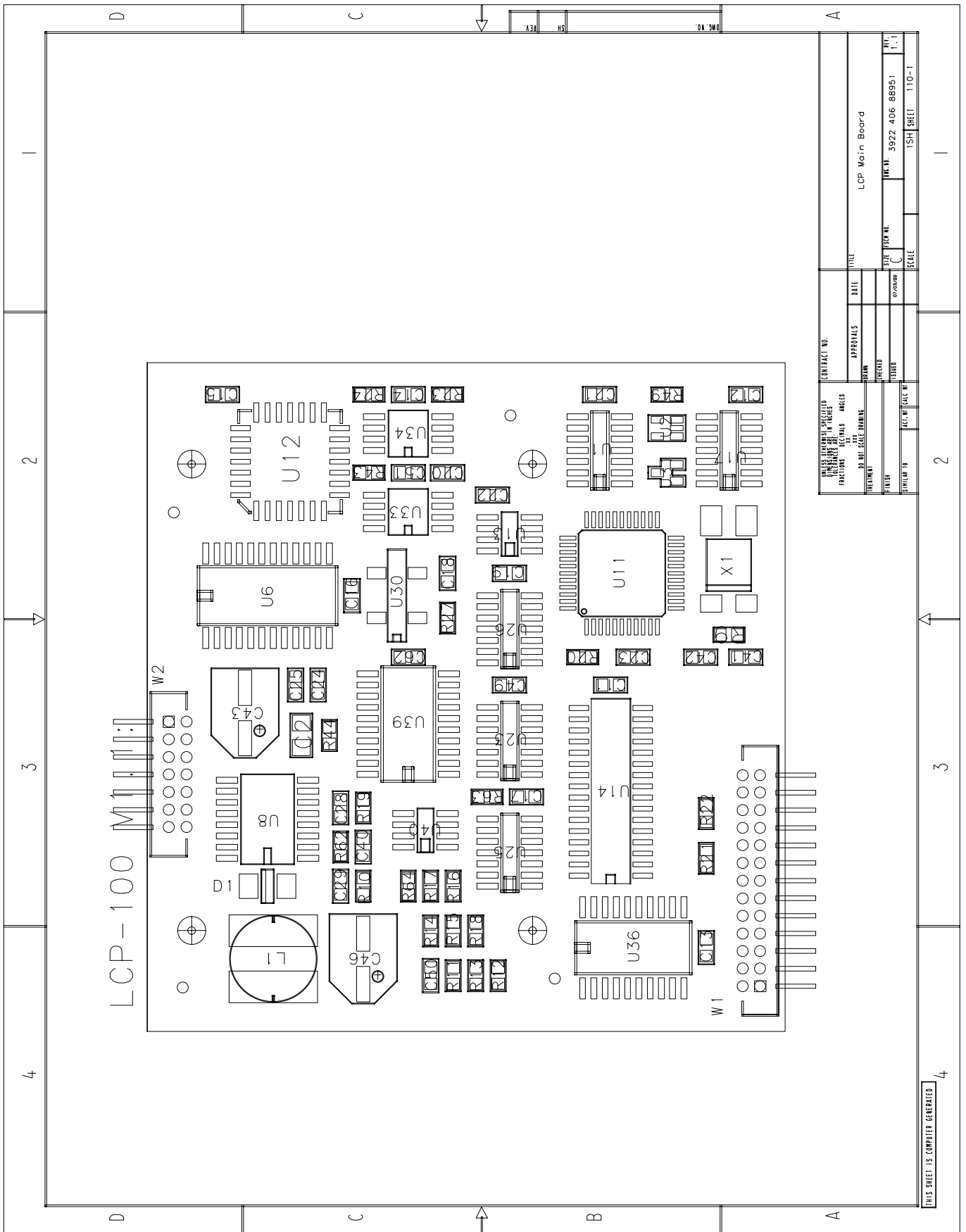
- | | |
|-----------------|--------------------------|
| 1. Video | 7. audio (left channel) |
| 2. RS-232 TX | 8. audioground |
| 3. RS-232 RX | 9. +12V |
| 4. video return | 10.audio (right channel) |
| 5. ground | 11.n.c. |
| 6. RTS | 12.n.c. |

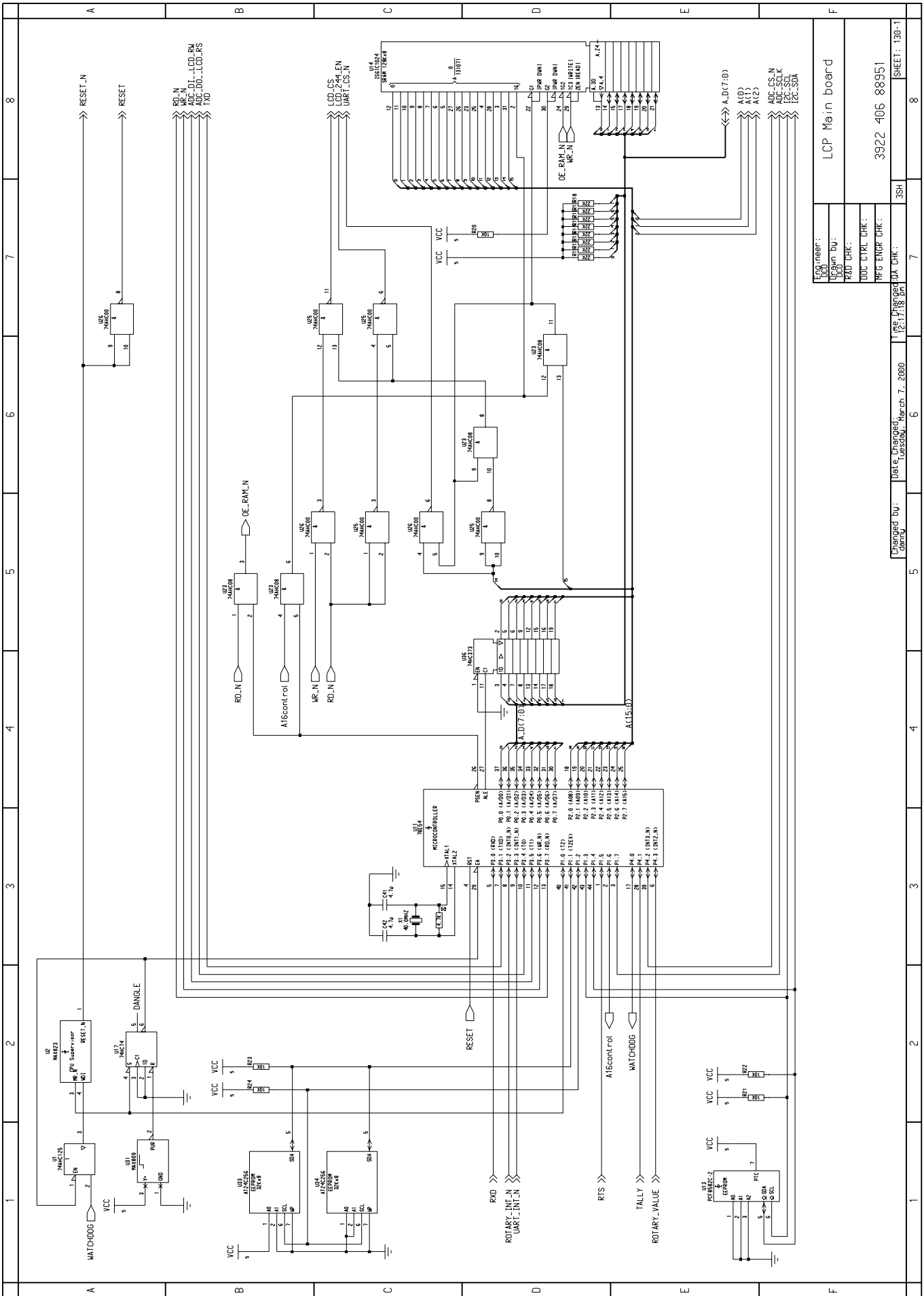
Section 2

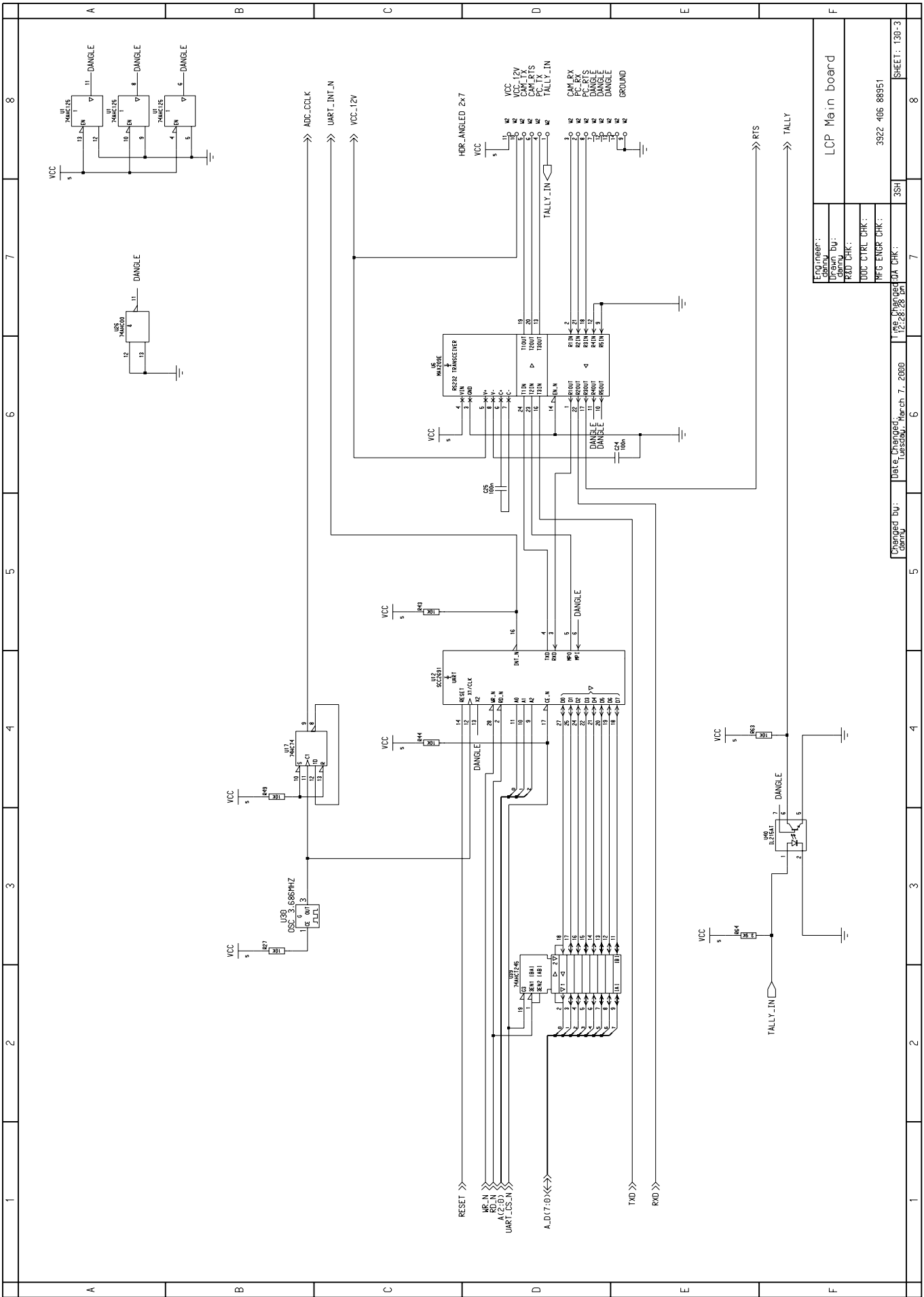
Electrical Drawings

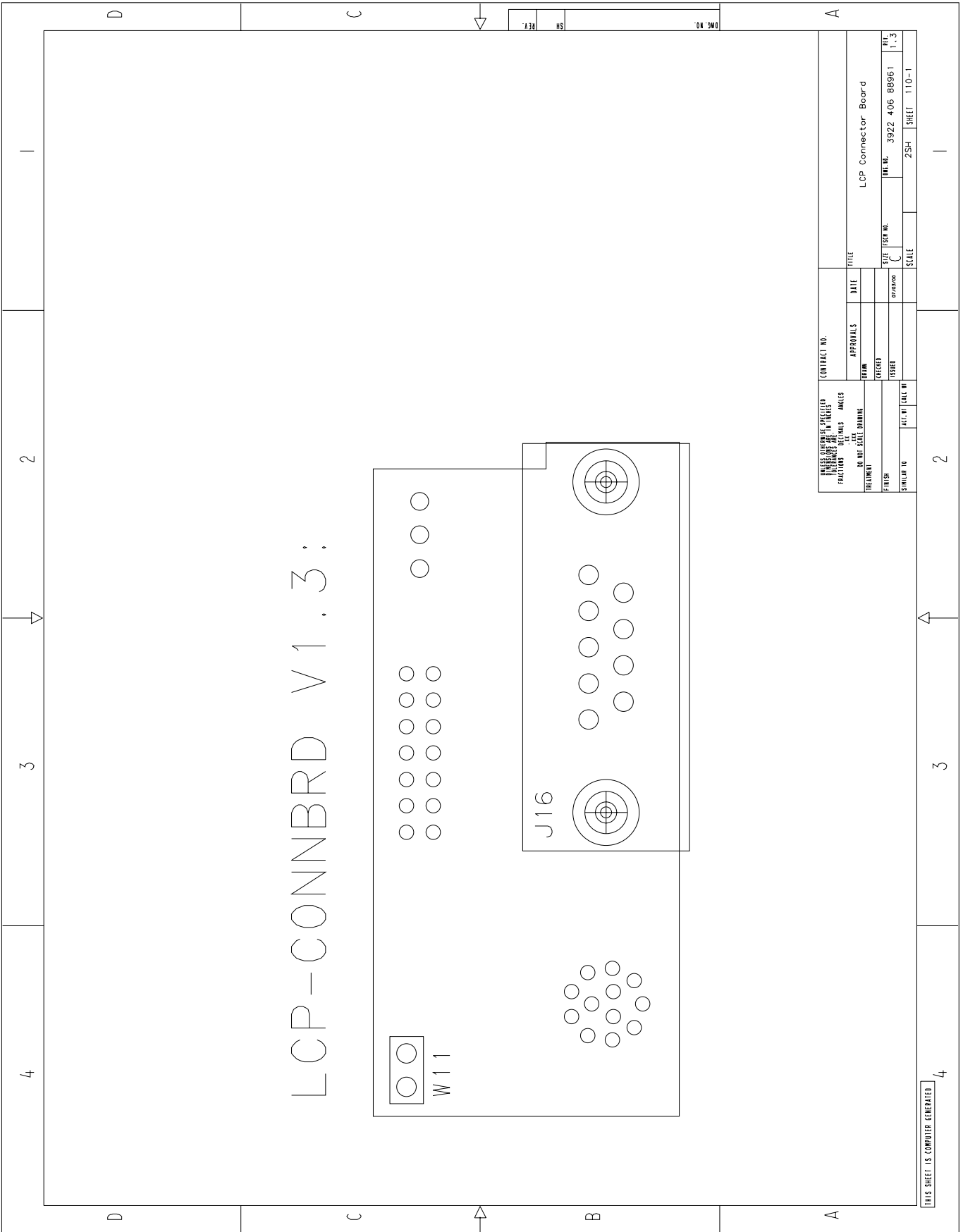
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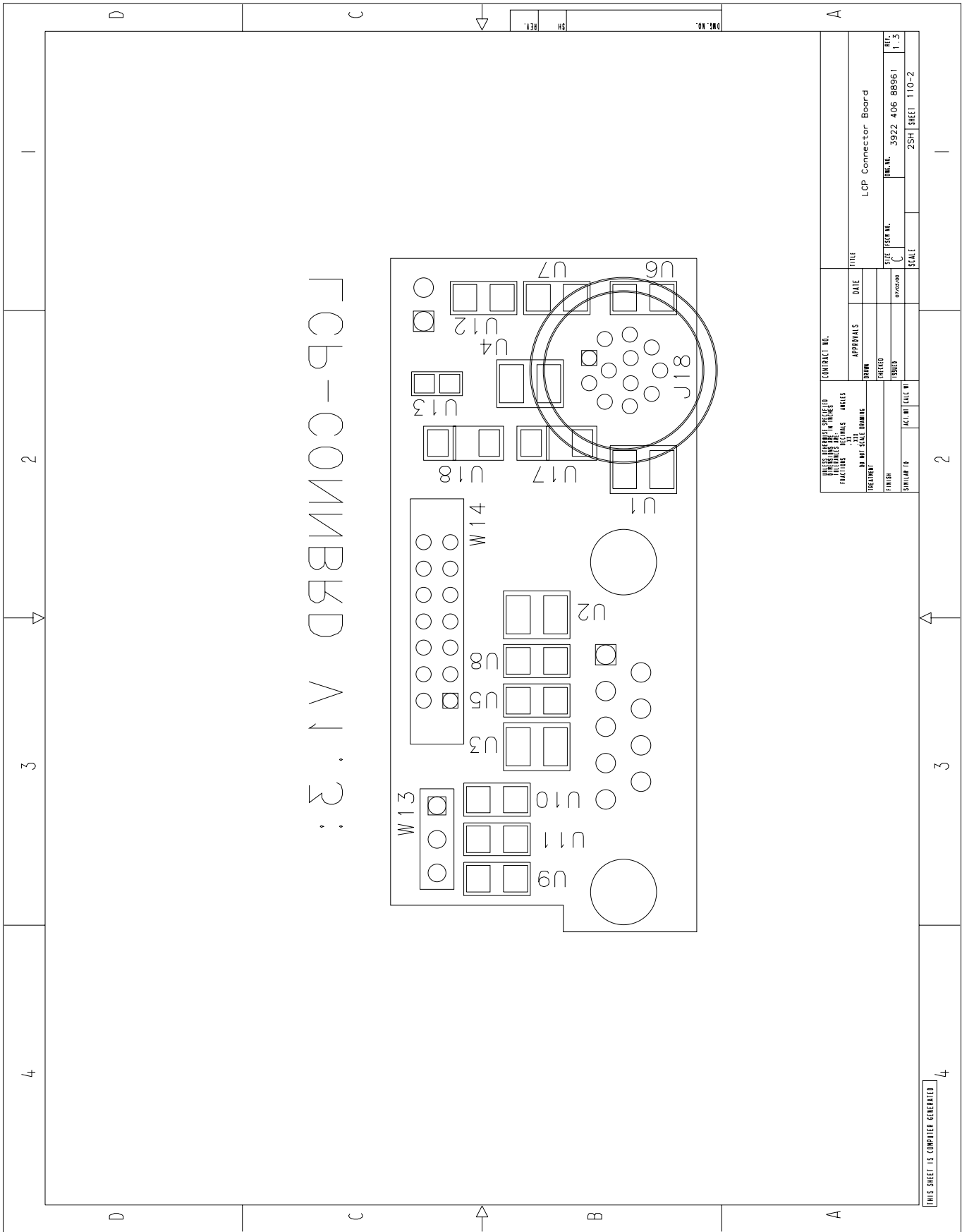






UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES		TITLE	
FRACTIONS	DECIMALS	DATE	LCP Connector Board
PLACEMENT	DO NOT SCALE DIMENSIONS	DESIGNED	
FINISH		ISSUED	
SIMILAR TO	DATE OF CALL UP	SCALE	
			2 SH
			SHEET 1110-1
			REV. 1.3
			HW. NO. 3922 406 88961

THIS SHEET IS COMPUTER GENERATED



THIS SHEET IS COMPUTER GENERATED

Section 3
Mechanical Exploded Views

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Section 4

Partslists

SERVICE PARTS LIST		
<i>Item</i>	<i>Description</i>	<i>Code Number</i>
000	USER'S GUIDE LDK5201/00	s 3922 496 48551
00101	LOCAL CONTROL PANEL LDK100 SERI	s 8926 520 10001
00102W	LOCAL CONTROL PANEL LDK100 SERI	s 8926 520 10001
00201	LCP CONTROL BOARD	s 3922 406 88941
00202	LCP MAIN BOARD	s 3922 406 88951
00203	LCP CONNECTOR BOARD	s 3922 406 88961

products market with "s" are available as spare part,
other parts are printed for information only.

USER'S GUIDE LDK5201/00	ORDERING CODE: 3922 496 48551	STATUS:
	REF NR: 3922 496 48551	DATE: 2000-04-14
		SHEET: 1 OF 1

SERVICE PARTS LIST		
Item	Description	Code Number
1	LCP-BOX	s 3922 405 00871
2	LCP-COVER	
3	LCP TEXTPLATE	
4	LCP FOOT	
5	LCP FOOTPLATE	
6	LCP LCD WINDOW	
7	LCP SPACER	
8	LCP INSULATING BUSH	
9	LCP SEALING RING	
10	LCP SEALING RING	
11	LENS	s 5322 381 10789
12	LCP KNOB	s 3922 407 32681
13	KNOB GY 6 DIA 11 AS 4	s 2922 501 08156
14	COVER RED DIA 11 I.L	s 2922 501 08164
15	COVER GREEN DIA 11 I.L	s 2922 501 08165
16	COVER BLUE DIA 11 I.L	s 2922 501 08166
17	KNOB GY 6 DIA 11 D AS 6	s 2922 501 08184
18	COVER GY 6 DIA 11	s 2922 501 08168
19	KNOB GY 6 DIA 15 AS 6	s 5322 414 40064
20	COVER GY 6 DIA 15 I.L	s 2922 501 08182
21	COVER GY 6 DIA 29 I.L	s 2922 501 08181
22	BNC PLUG 50 OHM	s 5322 267 14027
23	D-CONNECTOR 9-P MALE	s 5322 265 51087
24	PC MOUNT RECEPTACLE	s 5322 265 10375
25	LCP DISTANCE PLATE	
26	EARPHONE ASSEMBLY	s 2422 026 04631
27	LCP CABLE 2M PS 232-12P	s 3922 407 32751
28	HEXAGON LOCK SCREW	s 5322 502 14503
29	PAN TAP SCR F ST T8 2,9X16	s 5322 502 14045
30	PAN TAP SCR F ST T8 2,9X9,5	s 2522 202 07014
31	PACKING FOR LCP 100	
32	DIST PIECE BR NI M3X10	s 2522 627 10005
33	NUT	s 4822 505 10918
34	WASH PF-CP SH 2,2X5	s 5322 532 54492
35	USER'S GUIDE LDK5201/00	s 3922 496 48551
50	TYPEPLATE THOMSON CE	
80	LCP-WIRING ASSY 26P	s 3922 407 32761
81	LCP WIRING ASSY 14P	s 3922 407 33751
82	LCP EARPHONE ASSEMBLY	s 3922 407 33761
90	SYSTEM SOFTWARE LCP	
98	VTR START/STOP KNOB BLCK	s 2422 135 03972
99	PROTECTING FOIL 65X10	
100	TOOL FOR 11MM KNOB	s 3922 496 48561
101	TOOL FOR 15MM KNOB	s 3922 496 48571
701T	PAN SCR STL ST M2X4	s 5322 502 14492
703T	PAN SCR STL ST M2X8	s 5322 502 21322
709	SPR WASH STL ST 2,1X4.4	s 5322 530 84092
733T	PAN SCR STL ST M3X6	s 5322 502 14403
736T	PAN SCR STL ST M3X12	s 5322 502 21213
928	LOCTITE 403 CYANO ACR GLUE 045	
U1	LCP CONTROL BOARD	s 3922 406 88941
U2	LCP MAIN BOARD	s 3922 406 88951
U3	LCP CONNECTOR BOARD	s 3922 406 88961

products marked with "s" are available as spare part,
other parts are printed for information only.

LOCAL CONTROL PANEL LDK100 SERIES	ORDERING CODE: 8926 520 10001	STATUS:
	REF NR: 8926 520 10001	DATE: 2001-12-05
		SHEET: 1 OF 1

alt. code: LDK5201/00

SERVICE PARTS LIST					
Item	Description	Code Number	Item	Description	Code Number
C1	CAPACITOR 10UF/16V ECEV 1CA 100S	s 3922 450 05451	R1	POTENTIOMETER P11V2	s 3922 450 16781
C2	CAPACITOR 1UF B37873K105M62 SIE	s 3922 450 05491	R2	POTENTIOMETER P11V2	s 3922 450 16781
C3	CAPACITOR 100NF	s 4822 126 13196	R3	POTENTIOMETER P11TQ 10K	s 3922 450 16771
C4	CAPACITOR 100NF	s 4822 126 13196	R4	POTENTIOMETER P11TQ 10K	s 3922 450 16771
C5	CAPACITOR 100NF	s 4822 126 13196	R5	POTENTIOMETER P11TQ 10K	s 3922 450 16771
C6	CAPACITOR 100NF	s 4822 126 13196	R6	POTENTIOMETER P11TQ 10K	s 3922 450 16771
C7	CAPACITOR 100NF	s 4822 126 13196	R7	POTENTIOMETER P11TQ 10K	s 3922 450 16771
C8	CAPACITOR 10NF	s 5322 122 34098	R8	POTENTIOMETER P11TQ 10K	s 3922 450 16771
C9	CAPACITOR 10UF/16V ECEV 1CA 100S	s 3922 450 05451	R10	RESISTOR 10K	s 2322 730 61103
C10	CAPACITOR 100NF	s 4822 126 13196	R11	RESISTOR 10K	s 2322 730 61103
C11	CAPACITOR 100NF	s 4822 126 13196	R12	RESISTOR 10K	s 2322 730 61103
C12	CAPACITOR 100NF	s 4822 126 13196	R13	RESISTOR 10K	s 2322 730 61103
C13	CAPACITOR 100NF	s 4822 126 13196	R14	RES.CHIP 150E R0805	
C14	CAPACITOR 100NF	s 4822 126 13196	R15	RES.CHIP 150E R0805	
C15	CAPACITOR 10UF/16V ECEV 1CA 100S	s 3922 450 05451	R16	RES.CHIP 150E R0805	
C16	CAPACITOR 100NF	s 4822 126 13196	R17	RES.CHIP 150E R0805	
C17	CAPACITOR 10UF/16V B45196E3106M	s 3922 450 05441	R18	RES.CHIP 150E R0805	
C18	CAPACITOR 100NF	s 4822 126 13196	R19	RESISTOR 10K	s 2322 730 61103
C19	CAPACITOR 1UF B37873K105M62 SIE	s 3922 450 05491	R20	RES. CHIP 15K R0805	
C20	CAPACITOR 1UF B37873K105M62 SIE	s 3922 450 05491	R21	RESISTOR 10K	s 2322 730 61103
C21	CAPACITOR 100NF	s 4822 126 13196	R22	RES. CHIP 330E R0805	
C22	CAPACITOR 100NF	s 4822 126 13196	R23	RES. CHIP 15K R0805	
C23	CAPACITOR 1UF B37873K105M62 SIE	s 3922 450 05491	R24	RESISTOR 4K7	s 2322 730 61472
C24	CAPACITOR 10NF	s 5322 122 34098	R25	RES. CHIP 3K3 R0805	
C25	CAPACITOR 1UF B37873K105M62 SIE	s 3922 450 05491	R26	RESISTOR 10K	s 2322 730 61103
C26	CAPACITOR 10NF	s 5322 122 34098	R27	RES. CHIP 330E R0805	
C27	CAPACITOR 10NF	s 5322 122 34098	R28	RES.CHIP 1E0 0805	
C28	CAPACITOR 1UF B37873K105M62 SIE	s 3922 450 05491	R29	RESISTOR 10K	s 2322 730 61103
C29	CAPACITOR 1UF B37873K105M62 SIE	s 3922 450 05491	R30	RESISTOR 10K	s 2322 730 61103
C30	CAPACITOR 10NF	s 5322 122 34098	R31	RESISTOR 10K	s 2322 730 61103
C31	CAPACITOR 1UF B37873K105M62 SIE	s 3922 450 05491	R32	RESISTOR 10K	s 2322 730 61103
C32	CAPACITOR 10NF	s 5322 122 34098	R33	RESISTOR 10K	s 2322 730 61103
C33	CAPACITOR 10NF	s 5322 122 34098	R34	RESISTOR 10K	s 2322 730 61103
C34	CAPACITOR 1UF B37873K105M62 SIE	s 3922 450 05491	R35	RESISTOR 10K	s 2322 730 61103
C35	CAPACITOR 1UF B37873K105M62 SIE	s 3922 450 05491	R36	RESISTOR 10K	s 2322 730 61103
C36	CAPACITOR 10NF	s 5322 122 34098	R37	RESISTOR 10K	s 2322 730 61103
C37	CAPACITOR 1UF B37873K105M62 SIE	s 3922 450 05491	R38	RESISTOR 10K	s 2322 730 61103
C38	CAPACITOR 100NF	s 4822 126 13196	R39	RESISTOR 10K	s 2322 730 61103
C39	CAPACITOR 10UF/16V B45196E3106M	s 3922 450 05441	R40	RESISTOR 10K	s 2322 730 61103
C40	CAPACITOR 10NF	s 5322 122 34098	R41	RESISTOR 10K	s 2322 730 61103
C41	CAPACITOR 1UF B37873K105M62 SIE	s 3922 450 05491	R42	RESISTOR 10K	s 2322 730 61103
DS1	LED RED, LS-S260-DO		R43	RESISTOR 10K	s 2322 730 61103
DS2	LED RED, LS-S260-DO		R44	RESISTOR 10K	s 2322 730 61103
DS5	LED RED D3-FCD 2MCD-10MA		R45	RESISTOR 10K	s 2322 730 61103
DS8	LED YLW D3-FCD 2MCD-10MA		SW1	SWITCH ET05MD1CBE	s 3922 450 16571
DS9	LED YLW D3-FCD 2MCD-10MA		SW2	SWITCH ET05MD1CBE	s 3922 450 16571
DS10	LED YLW D3-FCD 2MCD-10MA		SW3	SWITCH ET05MD1CBE	s 3922 450 16571
DS11	LED YLW D3-FCD 2MCD-10MA		SW4	SWITCH ET03MD1CBE	s 3922 450 16561
Q1	TRANSISTOR PMPT2222A		SW6	SWITCH ET08MD1CBE	s 3922 450 16581
Q2	TRANSISTOR PMPT2222A		SW7	SWITCH ET01MD1CBE	s 3922 450 16551
Q3	TRANSISTOR PMPT2222A		SW8	SWITCH ET01MD1CBE	s 3922 450 16551
Q4	TRANSISTOR PMPT2222A		SW9	POTENTIOMETER_ALP_SWITCH	s 3922 450 16531
Q5	TRANSISTOR PMPT2222A		SW10	SWITCH EP11SD1CBE	s 3922 450 16541
Q6	TRANSISTOR PMPT2222A		U1	IC PCF8574T PHI	s 3922 450 06491
Q7	TRANSISTOR PMPT2222A		U2	IC PCF8574T PHI	s 3922 450 06491

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LCP CONTROL BOARD	ORDERING CODE: 3922 406 88941	STATUS:
	REF NR: 3922 406 88941	DATE: 2000-01-18
		SHEET: 1 OF 2

SERVICE PARTS LIST		
Item	Description	Code Number
U3	IC PCF8574T PHI	s 3922 450 06491
U4	IC 74HC244D PHI YES	s 3922 450 06041
U5	LCD LMK83R018A4, NAN	s 3922 450 16621
U6	IC MAX504ESD	
U7	RESISTOR 10K	s 2322 730 61103
U8	IC 74HC32D PHI	s 3922 450 06051
U9	IC 74HC74D PHI	s 3922 450 06101
U10	IC 74HC574D PHI	s 3922 450 06091
U11	IC ADC1038CIWM, NSC	
U12	IC MAX1044ESA	
U13	RESISTOR 10K	s 2322 730 61103
U14	RESISTOR 10K	s 2322 730 61103
U41	SWITCH ET05MD1CBE	s 3922 450 16571
W1	RESERVED: NOT MOUNTED	
W2	CONNECTOR 2 X 13_HM_2 MM	

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LCP CONTROL BOARD	ORDERING CODE: 3922 406 88941	STATUS:
	REF NR: 3922 406 88941	DATE: 2000-01-18
		SHEET: 2 OF 2

SERVICE PARTS LIST						
Item	Description	Code Number		Item	Description	Code Number
C2	CAPACITOR 1UF B37873K105M62 SIE	s 3922 450 05491		U8	IC MAX758AEWE	
C11	CAPACITOR 100NF	s 4822 126 13196		U11	IC W78E54F-40 WBD	s 3922 450 06761
C12	CAPACITOR 100NF	s 4822 126 13196		U12	IC SCC2691AE1A28	
C13	CAPACITOR 100NF	s 4822 126 13196		U13	IC PCF8582C-2T PHI	s 3922 450 06501
C14	CAPACITOR 100NF	s 4822 126 13196		U14	IC IS61C1024-15JI, ISS	
C15	CAPACITOR 100NF	s 4822 126 13196		U17	IC 74HC74D PHI	s 3922 450 06101
C16	CAPACITOR 100NF	s 4822 126 13196		U23	IC SN74AHC08D TI	s 3922 450 06561
C17	CAPACITOR 100NF	s 4822 126 13196		U25	IC 74HC00D PHI	s 3922 450 05981
C18	CAPACITOR 100NF	s 4822 126 13196		U26	IC 74HC00D PHI	s 3922 450 05981
C19	CAPACITOR 100NF	s 4822 126 13196		U30	CRISTAL 3.6864MHZ	
C20	CAPACITOR 100NF	s 4822 126 13196		U31	IC MAX809MEUR-T	
C21	CAPACITOR 100NF	s 4822 126 13196		U33	IC AT24C256W-10SC, ATM	
C22	CAPACITOR 100NF	s 4822 126 13196		U34	IC AT24C256W-10SC, ATM	
C23	CAPACITOR 100NF	s 4822 126 13196		U36	IC 74HC373D PHI YES	s 3922 450 06061
C24	CAPACITOR 100NF	s 4822 126 13196		U39	IC SN74AHCT245DW	
C25	CAPACITOR 100NF	s 4822 126 13196		U40	IC IL215AT, SIE	
C28	CAPACITOR 100NF	s 4822 126 13196		W1	CONNECTOR 2 X 13_HMA_2 MM	
C29	CAPACITOR 10NF	s 5322 122 34098		W2	CONNECTOR 2 X 7_HMA_2 MM	
C40	CERCAP 330PF C805			X1	CRYSTAL 40.0MHZ	
C41	CERCAP 4P7 NPO 63V 0805 PM5					
C42	CERCAP 4P7 NPO 63V 0805 PM5					
C43	ELCO SANYO SMD 47uF/25V					
C46	100uF/6V, ECEV QJA 101SP, PAN					
C49	CAPACITOR 100NF	s 4822 126 13196				
C50	CAPACITOR 100NF	s 4822 126 13196				
C51	CAPACITOR 100NF	s 4822 126 13196				
C62	CAPACITOR 100NF	s 4822 126 13196				
D1	DIODE 10BQ040					
L1	INDUCTOR SDR1006-330K					
R9	RESISTOR 4K7	s 2322 730 61472				
R10	RESISTOR 47K	s 2322 730 61473				
R11	RESISTOR 22K	s 2322 730 61223				
R12	RESISTOR 22K	s 2322 730 61223				
R13	RESISTOR 22K	s 2322 730 61223				
R14	RESISTOR 22K	s 2322 730 61223				
R15	RESISTOR 22K	s 2322 730 61223				
R16	RESISTOR 22K	s 2322 730 61223				
R17	RESISTOR 22K	s 2322 730 61223				
R18	RESISTOR 22K	s 2322 730 61223				
R19	RES. CHIP 15K R0805					
R20	RESISTOR 10K	s 2322 730 61103				
R21	RESISTOR 10K	s 2322 730 61103				
R22	RESISTOR 10K	s 2322 730 61103				
R23	RESISTOR 10K	s 2322 730 61103				
R24	RESISTOR 10K	s 2322 730 61103				
R27	RESISTOR 10K	s 2322 730 61103				
R43	RESISTOR 10K	s 2322 730 61103				
R44	RESISTOR 10K	s 2322 730 61103				
R49	RESISTOR 10K	s 2322 730 61103				
R62	RES. CHIP 510K R0805					
R63	RESISTOR 10K	s 2322 730 61103				
R64	RESISTOR 3K9	s 2322 730 61392				
U1	IC SN74AHC125D					
U2	IC MAX823MEUK					
U6	IC MAX209EWG					

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LCP MAIN BOARD	ORDERING CODE: 3922 406 88951	STATUS:
	REF NR: 3922 406 88951	DATE: 2000-01-18
		SHEET: 1 OF 1

SERVICE PARTS LIST		
<i>Item</i>	<i>Description</i>	<i>Code Number</i>
J16	CONNECTOR AMP_HD20_9P_DM	
J18	CONNECTOR PHL_HR10_12	
U1	CERCAP 22nF, 1210X7R223K500, NIC	
U2	CERCAP 22nF, 1210X7R223K500, NIC	
U3	CERCAP 22nF, 1210X7R223K500, NIC	
U4	CERCAP 22nF, 1210X7R223K500, NIC	
U5	CERCAP 1nF, 1206X7R102K500, NIC	
U6	CERCAP 1nF, 1206X7R102K500, NIC	
U7	CERCAP 1nF, 1206X7R102K500, NIC	
U8	CERCAP 1nF, 1206X7R102K500, NIC	
U9	CERCAP 1nF, 1206X7R102K500, NIC	
U10	CERCAP 1nF, 1206X7R102K500, NIC	
U11	CERCAP 1nF, 1206X7R102K500, NIC	
U12	CERCAP 1nF, 1206X7R102K500, NIC	
U13	RESERVED: NOT MOUNTED	
U17	DIODE PRLL4001	
U18	DIODE PRLL4001	
W11	RESERVED: NOT MOUNTED	
W13	CONN_HDR_1x3	
W14	CONNECTOR 2 X 7_HM_2 MM	

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LCP CONNECTOR BOARD	ORDERING CODE: 3922 406 88961	STATUS:
	REF NR: 3922 406 88961	DATE: 2000-01-18
		SHEET: 1 OF 1