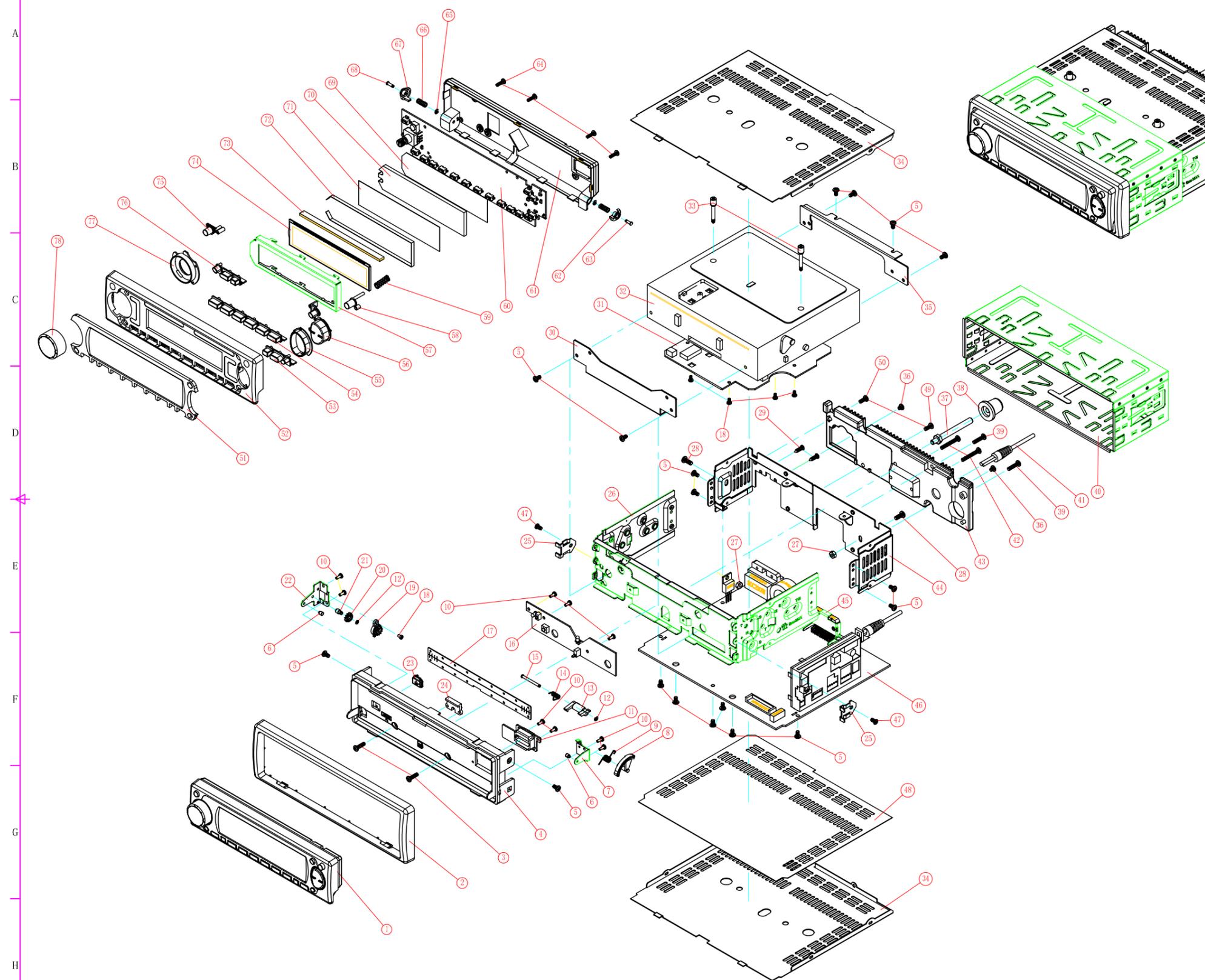


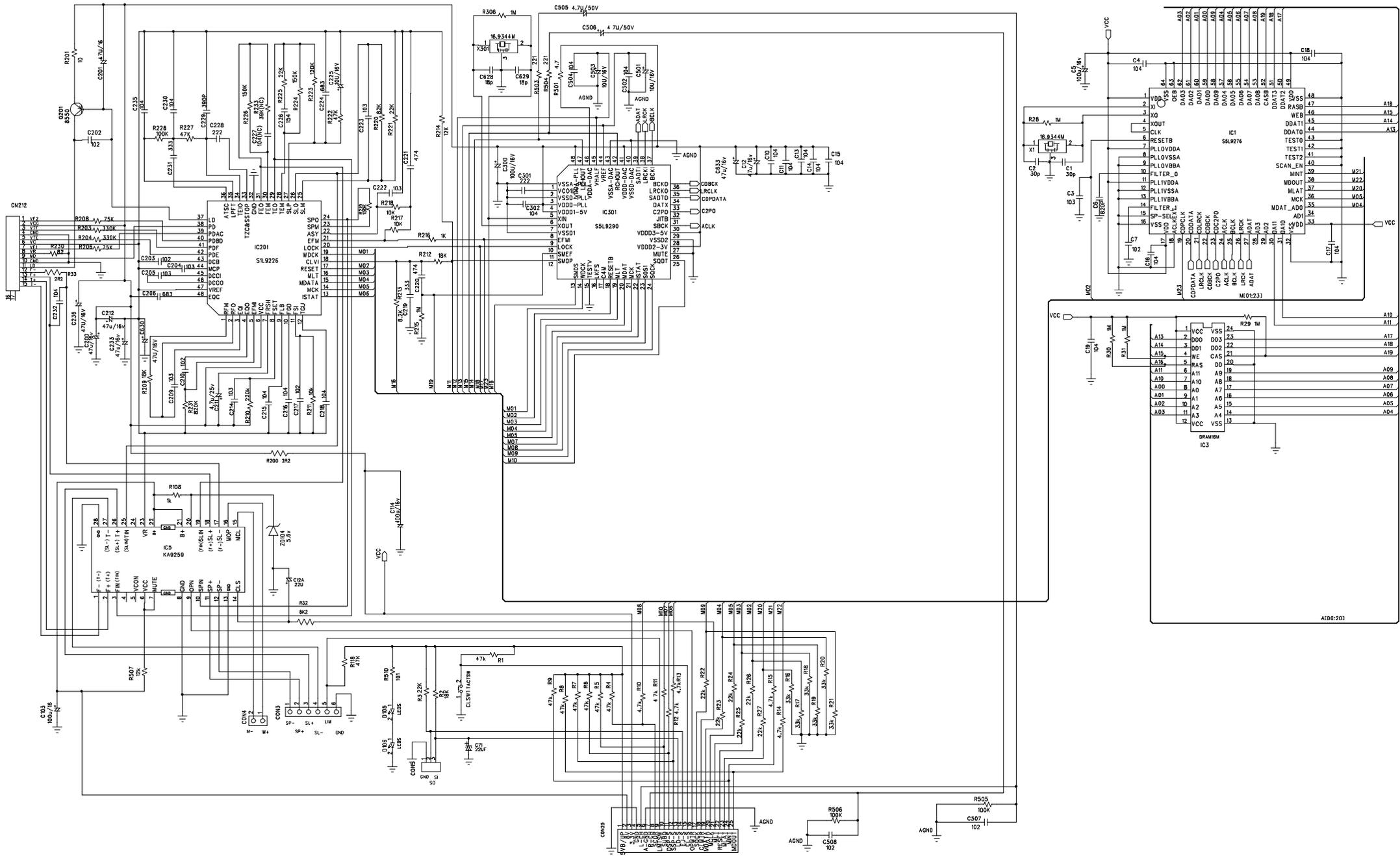
Rev No	Revision note	Date	Signature



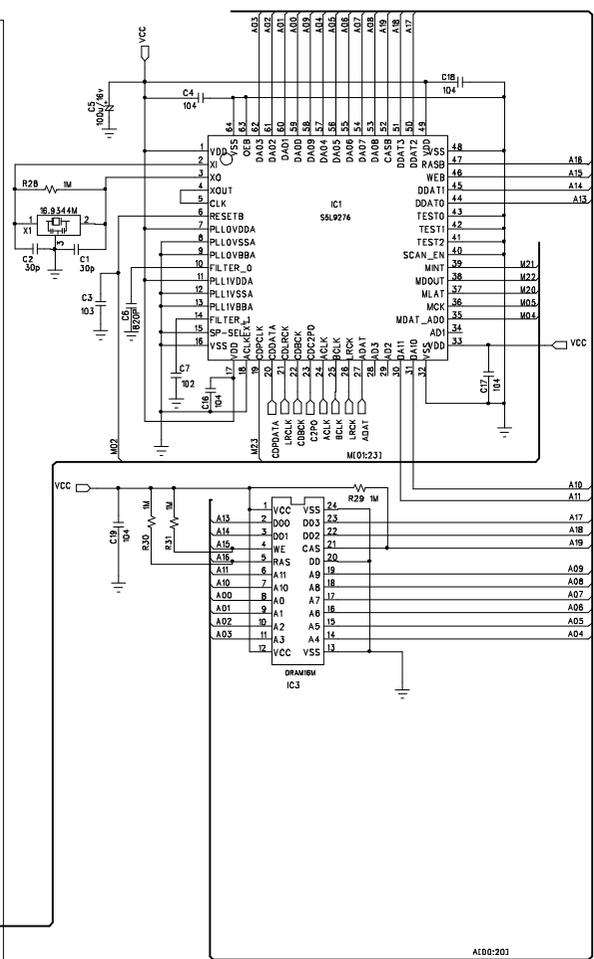
78	13-0629-001-B	Knob volume for cm730	1	
77	13-0929-002-0	Light guide L FOR CM730	1	
76	13-0529-004-A	Knob SRC BLOKD OF CM730	1	
75	13-0529-001-A	Knob pwr symble for cm730	1	
74	13-2400-0006-B	LCD	1	
73	11-3400-0003-0	Zebra	1	
72	13-1728-0002-0	Light-shielding sheet	1	
71	13-1721-0002-1	Filter-sheet	1	
70	13-0918-0004-A	LCD-reflector	1	
69	13-1721-0003-0	Reflector-sheet	1	
68	14-0721-0001-0	Left-slide block shaft	1	
67	13-1121-0002-0	Left-slide	1	
66	14-0221-0004-0	L/R Rotation spring	2	
65	13-2321-0001-0	Washer	2	
64	14-1025-2008-0	Screw PTP M2*8 black	4	
63	14-0721-0005-0	Right slide block shaft	1	
62	13-1121-0003-0	Right slide	1	
61	13-0229-0001-1	Panel-back	1	
60	82-0030-4001-A	FR-FORRY ASS Y	1	
59	14-0221-0001-0	Spring-release	1	
58	13-0529-002-C	Knob OPEN FOR CM730	1	
57	14-0328-0001-0	LCD-cover	1	
56	13-0529-0001-A	Knob skip FOR CM730	1	
55	13-0529-0001-0	Light guide R FOR CM730	1	
54	13-0529-0005-A	Knob number FOR CM730	1	
53	13-0529-0006-A	Knob LO BY ABS ARROW OF CM730	1	
52	13-0129-0001-C	Panel front	1	
51	13-0129-0013-A	LENS OF CM730 ELENBERG BLACK BR	1	
50	14-1174-2610-0	Plating stick, B15 screw M2.0*10	1	
49	14-1174-2607-0	Screw M2.6*7	1	
48	13-1721-0001-0	Isolator-sheet	1	
47	14-1080-2605-0	Screw M2.6*5	2	
46	88-CM702-0000-0	Main board ass y	1	
45	14-0307-0013-1	Bracket-IC7286	1	
44	14-0318-0007-1	Rear U bracket	1	
43	14-0921-0003-0	Heat-sink	1	
42	14-1174-2621-0	Screw M2.6*21	2	
41	11-2501-0002-0	Ant socket W/GND L230mm	1	
40	14-0618-0001-0	Short sheet	1	
39	14-1174-2614-0	Screw BTS M2.6*14 Ni	2	
38	13-1600-0001-0	Rubber	1	
37	14-2000-0001-0	Pole	1	
36	14-1474-2603-0	Screw M2.6*3	2	
35	14-0321-0002-1	Back rear bracket	1	
34	14-0538-0001-1	Topcover	2	
33	14-1200-2619-0	Pivot screw M2.6*19	2	
32	11-3501-0008-0	CD deck CL-C01	1	
31	88-CM220-3000-0	Servo board ass y	1	
30	14-0318-0010-0	Back front bracket	1	
29	14-1151-2608-0	Screw PAM2*8 Ni	2	
28	14-1170-3008-0	Screw M3*8	2	
27	14-2621-0001-0	Mat	2	
26	14-0318-0006-0	Front U bracket	1	
25	14-0318-0009-0	Side stopper	2	
24	13-1021-0001-0	Lens-gate	1	
23	13-0521-0715-0	Knob-ject	1	
22	14-0318-0012-0	Bracket-gear	1	
21	14-0721-0003-1	Rivet gear	1	
20	13-1121-0001-0	Gear	1	
19	13-1106-0004-0	Dumper	1	
18	14-1254-2004-0	Screw Pw M2*4 color Zn	5	
17	13-1821-0001-0	Dustproof PVC plate	1	
16	88-CM310-0167-0	Front-PCB ass y	1	
15	14-0721-0002-0	Shaft-locker	1	
14	14-0221-0003-0	Spring-locker	1	
13	13-0821-0001-0	Locker	1	
12	14-0107-0002-0	Felt	2	
11	88-CM310-0166-0	SR board	1	
10	14-0555-2005-0	Screw M2*5	9	
9	14-0221-0002-0	Spring-ject	1	
8	13-1121-0004-0	Push	1	
7	14-0318-0011-0	Panel-bracket right	1	
6	14-0721-0004-0	Rivet panel	2	
5	14-1174-2605-0	Screw BTS M2.6*5 Ni	18	
4	13-0321-0101-2	Cabinet	1	
3	14-1074-2610-0	ScrewBTS M2.6*10 Black	2	
2	13-0721-0801-0	Bin	1	
1	88-CM730-4001-A	Front-panel ass y CM730	1	

Item	Assembly Part No	Description	Quantity	Remark
Model NO	CM730	Material		Weight QTY.
Released for	DESIGN	Treatment		Unit
Designed by		Part NO	91-CM730-43A	Scale
Checked by				
Approved by				
FORYOU GENERAL ELECTRONICS CO.,LTD		Description	CAR-AUDIO-CM730	Size Sheet 1 of 1



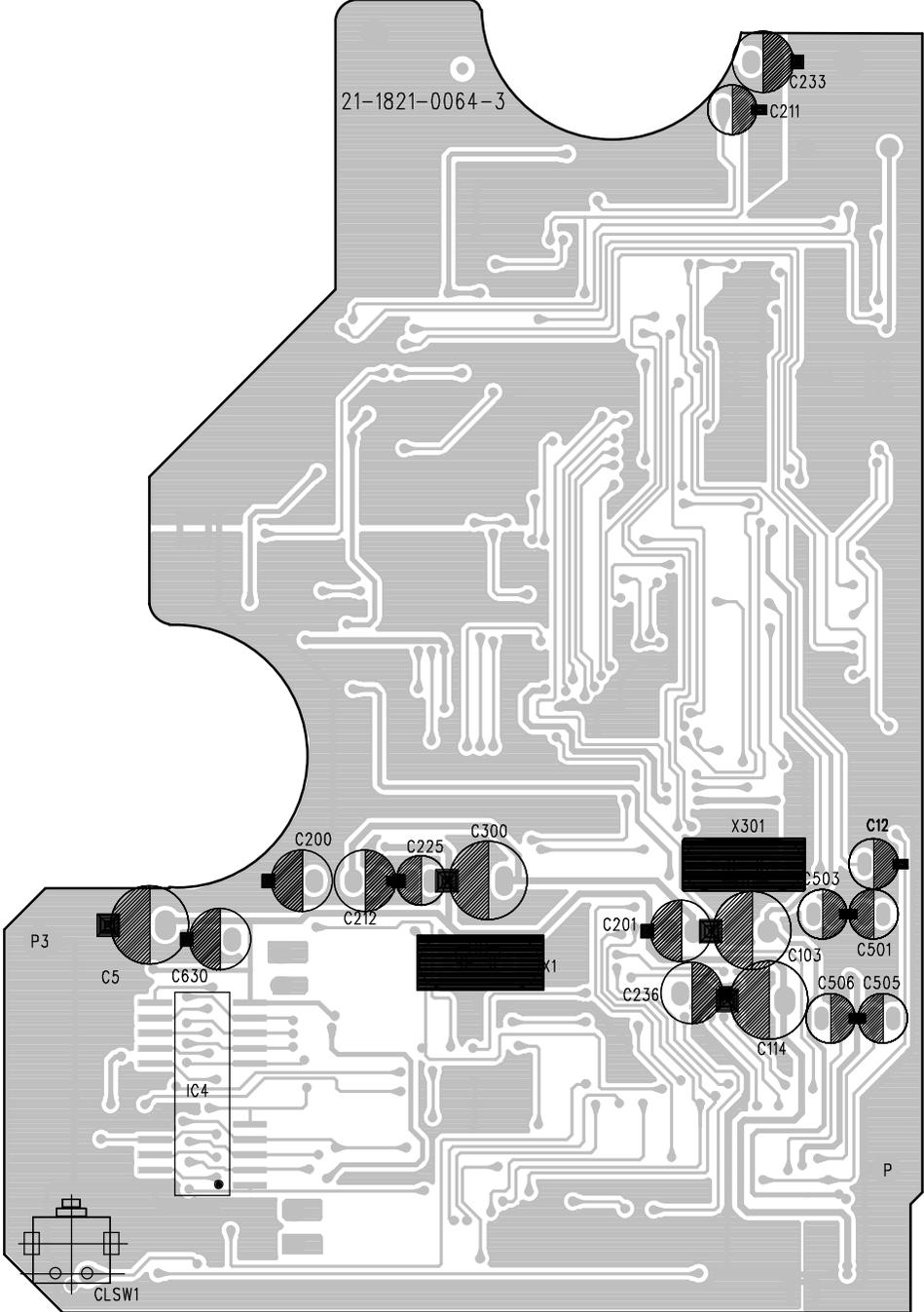


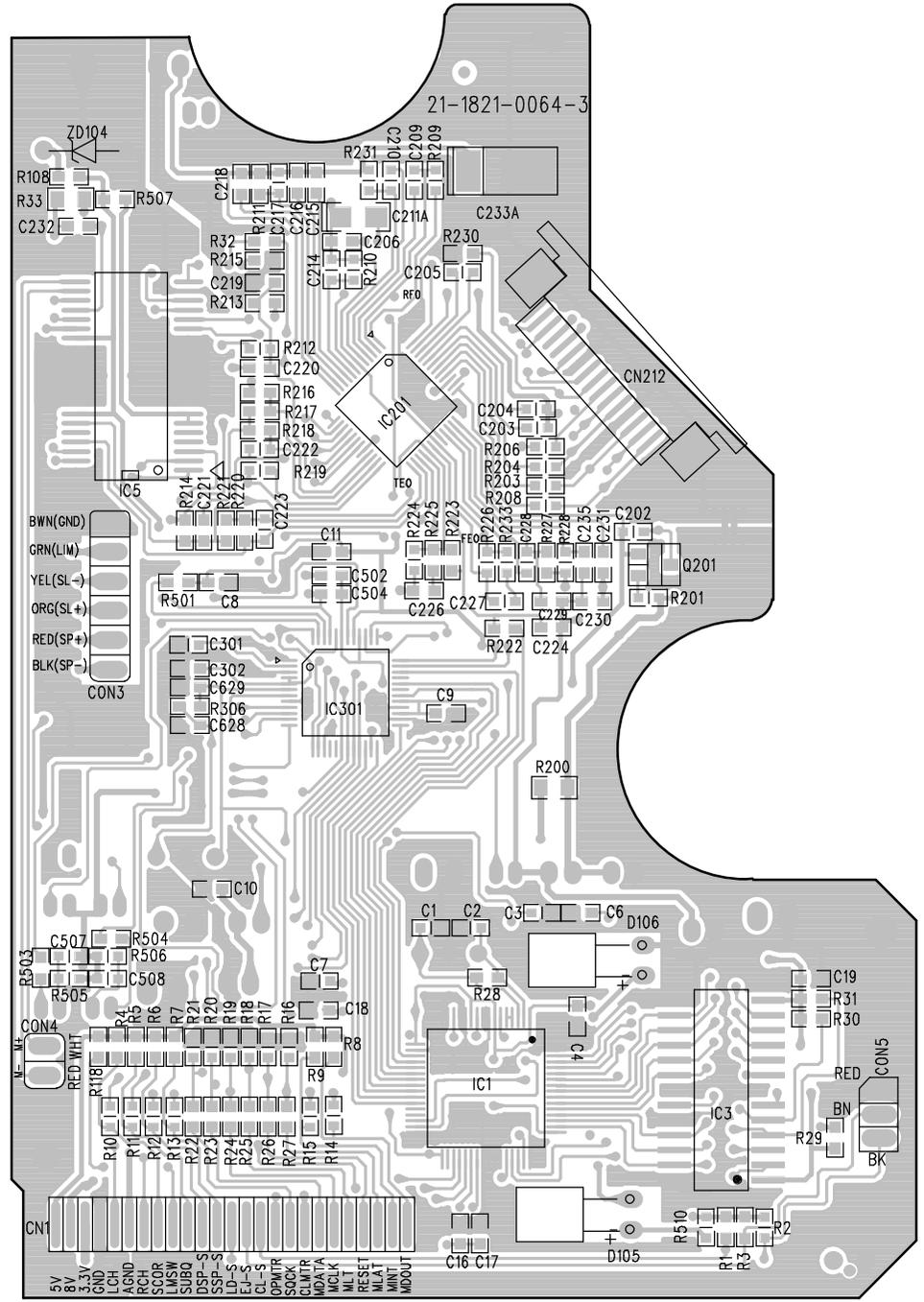
SHINWA CL-C01(OPTIONAL)

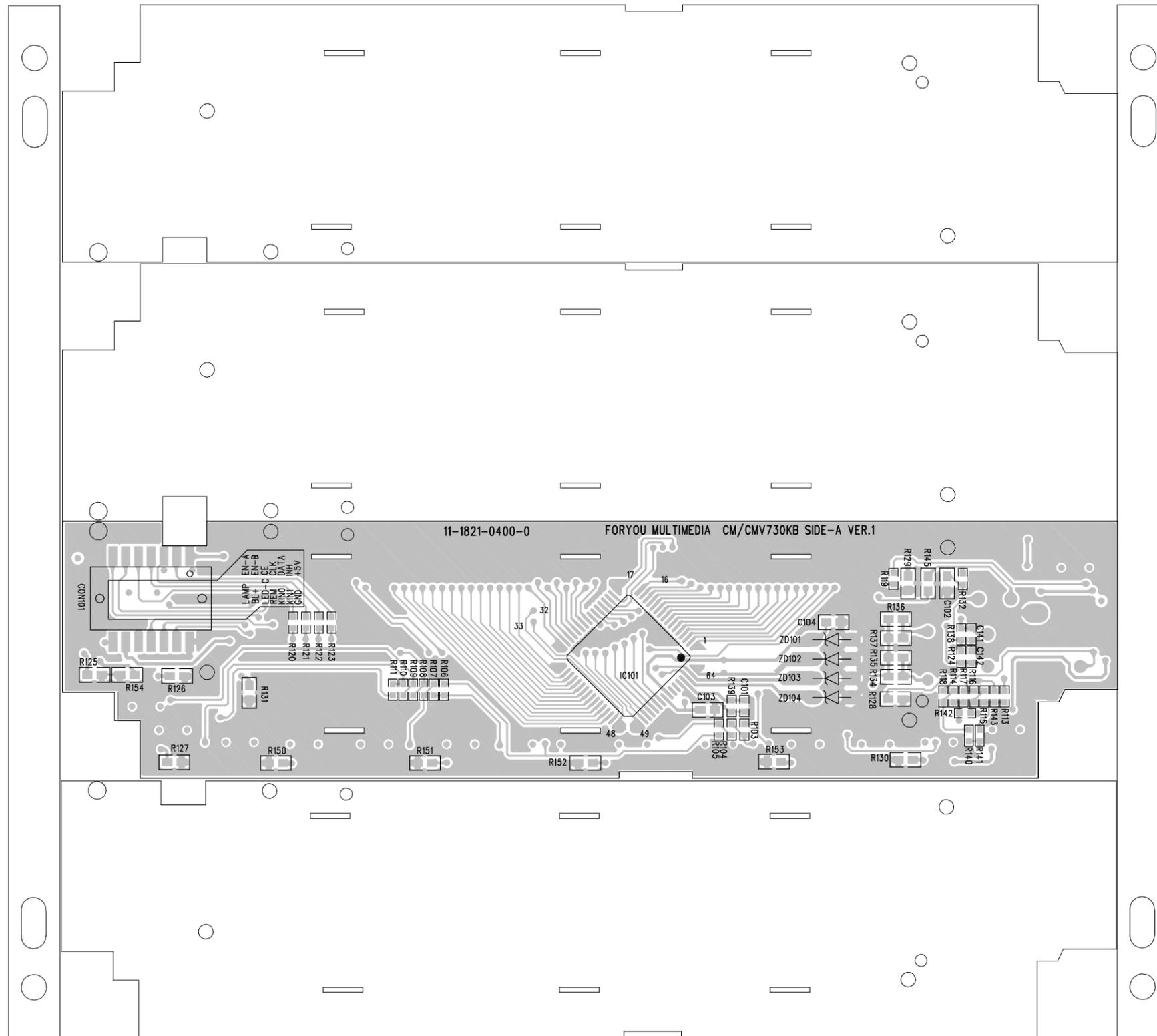


A100:201

21-1821-0064-3







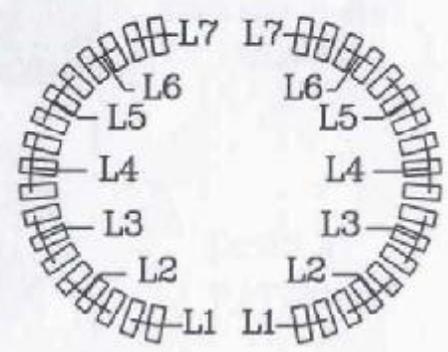
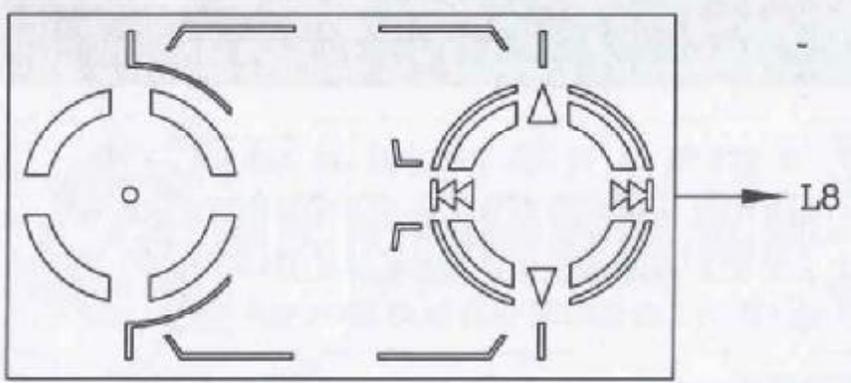
FORYOU MULTIMEDIA ELECTRONICS CO., LTD.			MATERIAL: 1.2MM D/S BOARD		DRAWING BY	XVXIAOBING
FILE NAME	CM/CMV730KB SCREEN		VERSION	VER.1	CHECKED BY	
BLOCK	PAGE		DATE	2004 7/20	APPROVED BY	





PIN	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
COM1	L8	R1	1E	1M	1D	1L	R3	2E	2M	2D	2L	MUTE	3E	3M	3D	3L	VCD	4E	4M	4D	4L	ALL	5E	5M	5D	5L	RPT	6E
COM2	SUB-W	R4	1G	1I	1K	1C	R2	2G	2I	2K	2C	INT	3G	3I	3K	3C	TRACK	4G	4I	4K	4C	RDM	5G	5I	5K	5C	MP3	6G
COM3	ESP	1F	1H	1A	1J	1B	2F	2H	2A	2J	2B	3F	3H	3A	3J	3B	4F	4H	4A	4J	4B	5F	5H	5A	5J	5B	6F	6H

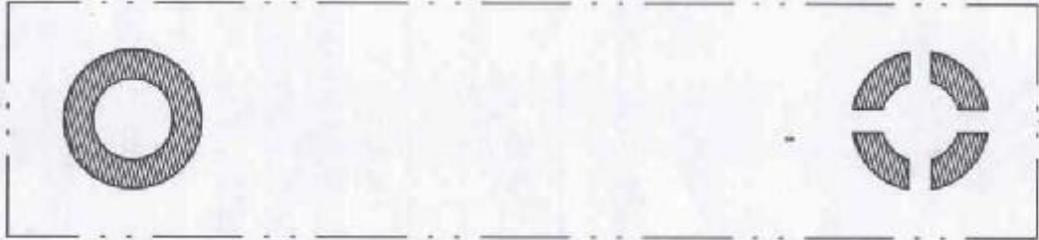
PIN	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55
COM1	6M	6D	6L	FOLDER	7E	7M	7D	7L	FILE	8E	8M	8D	8L	LOUD	PTY	EON	EQ	FLAT	CLAS	9A	9B	L6	L3	COM1	—	—	—
COM2	6I	6K	6C	MUSIC	7G	7I	7K	7C	ALBUM	8G	8I	8K	8C	ARTIST	AF	TA	POP	—	9F	9G	9C	L5	L2	—	COM2	—	—
COM3	6A	6J	6B	7F	7H	7A	7J	7B	8F	8H	8A	8J	8B	ST	P3	TP	T1	ROCK	9E	9D	L7	L4	L1	—	—	COM3	CD



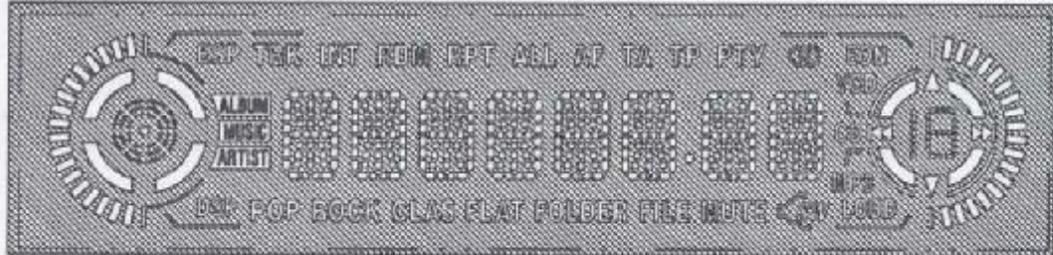
<b>YEEBO LCD LTD.</b>	
TITLE CAR AUDIO	
PRODUCT NO. 80525BMM0	REVISION B0
DESIGNER ZHL	DATE SEP-25,2003
APPROVED BY CANDY	DATE SEP-25,2003
CUSTOMER NO. 105-CM700-02-11-00	DIMENSIONS IN MM INCH
PAGE 3 OF 4	TOLERANCES UNLESS SPECIFIED
	M X ± .15
	N X ± .15
	P X ± .15
	R X ± .15
	S X ± .15
	T X ± .15
	U X ± .15
	V X ± .15
	W X ± .15
	X X ± .15
	Y X ± .15
	Z X ± .15



VA SCREEN 1  
 丝印颜色: 红色  
 外印底玻璃  
 PRINTED ON THE  
 BACK OF REAR GLASS  
 ( PANTONE 173C )



VA SCREEN 2  
 丝印颜色: 蓝色 (LIGHT BLUE)  
 外印底玻璃  
 PRINTED ON THE  
 BACK OF REAR GLASS  
 ( PANTONE 2727C )



VA SCREEN 3  
 丝印颜色: 黑色  
 内印  
 PRINTED INSIDE  
 (BLACK)



VA DISPLAY  
 PATTERN



VA

DISPLAY PATTERN AND SCREEN

<b>YEEBO LCD LTD.</b>	
TITLE CAR AUDIO	
PRODUCT NO. 80525BMMO	REVISION B0
DESIGNER ZHLi	DATE SEP-25,2003
APPROVED BY CANDY	DATE SEP-25,2003
CUSTOMER NO.: 105-CM700-02-11-00	DIMENSIONED IN MM INCH
	TOLERANCES UNLESS SPECIFIED
PAGE 4 OF 4	



# SPECIFICATION FOR CL-C01FY1

(12cm Only)

## 1、Scope of Application

This specification applies to the CD mechanism model CL-C01FY1 (12cm Only) for car. However, when a certain doubt arises with this specification, or an additional specification is needed, the updating of this is determined on mutual discussion.

## 2、Configuration and Dimensions

See the appearance drawing.

## 3、General Specification

### 3-1 Mechanical system

3-1-1 Disc loading: Power loading method

3-1-2 Disc discharge: Soft eject method

3-1-3 Play: Disc-in-play method (in case of applying the SHINWA's standard microcomputer)

3-1-4 Antivibration: Silicon elastomer damper method

3-1-5 Driving source: 3-motor-method

3-1-6 Weight: About 480g

### 3-2 Optical system (pickup) method

3-2-1 Semiconductor laser: Wavelength ranging from 775 to 800nm

3-2-2 Object lens: Aspherical plastics

3-2-3 Focusing: SSD (spot size detection) method

3-2-4 Tracking: 3-beam method

3-2-5 Photo detector: Hologram laser

## 4、Electric Apparatuses

4-1	Optical pickup:	OPTIMA-725 C2	VICTOR	1unit
4-2	Spindle motor	RF-400CA	MABUCHI	1unit
4-3	Feed motor	FF-030PK	MABUCHI	1unit

4-4	Loading motor	FF-050-1D190	FAFA	1unit
4-5	Innermost periphery detecting SW	SPPV11	ALPS	1unit
4-6	Disc detector SW	HCIR400B	HUALIAN	2unit

## 5、Standard Operational Condition

5-1 Operating attitude: Back and forth(  $-10^{\circ} \sim +30^{\circ}$  ), and left and right (  $\pm 5^{\circ}$  )  
(Assurance for operation only)

5-2 Operating temperature:  $-20^{\circ}\text{C} \sim +70^{\circ}\text{C}$

## 6、Disc adopted

Disc that complies with the specification prescribed in IEC60908. (However, 8cm disc cannot be used.)

## 7、Standard Criteria

### 7-1 Ambient condition

Atmospheric temperature: In a range of  $+20^{\circ}\text{C} \pm 3^{\circ}\text{C}$

Humidity: In a range of  $65\% \pm 5\%$

Criterion for place: Quiet room without noise. However, as long as no doubt arises with criterion, the following condition is allowed.

Temperature:  $15^{\circ}\text{C} \sim 30^{\circ}\text{C}$ , humidity:  $45\% \sim 85\%$

7-2 Mechanical control circuit: SHINWA's standard circuit, or the equivalent.

7-3 Rated voltage: DC13.2V

(Supply voltage of SHINWA's standard controller)

## 8、General Performance

8-1 Structure: Prescribed parts shall be assembled and laid out in a prescribed place.

8-2 Appearance: There shall be no functionally defective or inappropriate scratch, rust, dirtiness, and deformation.

### 8-3 Operational performance

8-3-1 Disc loading: When inserting a disc as far as a prescribed position, the disc shall be loaded, and shall be smoothly chucked in the turntable.

8-3-2 Disc discharge: When the discharge button is operated, a loaded disc shall be discharged out as far as prescribed, and be stopped there.

8-3-3 Playing: When a disc is loaded, it shall be smoothly set into the regenerative state.

8-3-4 Tune selective action: When the tune selective button is operated, a designated tune shall be selected, and the disc shall be smoothly set into playing state.

8-3-5 Various actions: Actions other than those described above follow as designated in the user microcomputer specification.

8-3-6 Operating power:

Push back force: 500g max (Pushing CD inwards after reaching Eject position)

Withdrawal force: 300g max (remove CD)

Ejection force: 50g max (movement into ejecting)

How to measure is determined on mutual discussion.

8-3-7 Noise level:

Play: 40dB or less

Search: 60dB or less

Charge/Discharge: 70dB or less

There is no objectionable noise during these operations.

As required, boundary sample shall be prepared on mutual discussion between SHINWA and your company.

Noise level tests shall be carried out in an anechoic room with background noise 20dB(A) or less. Noise shall be measured at a position 10cm distant from the front of the mechanical section. SLOW(A)

8-3-8 Double loading protection: A disc shall be unable to be inserted as long as the preceding disc is on the turntable.

8-3-9 Disc flaw: A visible scratch shall not be produced on a disc after 10,000 times continuous charge and discharge action.

8-3-10 Supply voltage range: The CD mechanism shall be normally operated by SHINWA's standard evaluation circuit which supply voltage is within  $13.2V \pm 20\%$ .

8-4 Electric performance

Electric performance specification and inspection method are as described in the following table:

Item	Specification	Disc/position	Measurement method
RF level (Vp-p)	$0.9 \pm 0.3$	A-BEX TCD-784 Tr1, Tr22	Use SHINWA's circuit and Leader's jitter meter (Model: LJM1851)
JITTER (ns)	$\leq 30$	A-BEX TCD-784 Tr1, Tr22	Use SHINWA's circuit and Leader's jitter meter (Model: LJM1851) 3T SIGMA polarity: ↓

8-5 Special disc performance

Item	Specification	Disc/Position
Surface swaying disc	Free of sound skip and unusual contact sound	A-BEX TCD-732RA TR. 13( $\pm 0.4$ mm)
Eccentric disc	Free of sound skip and unusual contact sound	A-BEX TCD-712R TR. 1, 15( $140 \mu\text{m}$ )

\*Judgement shall be made within 10 seconds after respective track starts up.

#### 8-6 Oscillation resistive performance

No sound skip shall occur under the state of oscillation and condition as follows:

Oscillation frequency=8 to 200Hz

Attitude=horizontal

Test temperature= $20^{\circ}\text{C} \pm 3^{\circ}\text{C}$

Type of disc used=TCD-792A, for both Tr. 1, Tr. 20

Test circuit and test jig=SHINWA's standard tester or the equivalent

Z=1.2G, Disc resonance point shall be 1.0G about 100Hz

However the following is the performance while using an attitude frontside up  $+20^{\circ}$

(Lateral inclination  $\pm 0^{\circ}$ )

Z=1.0G, Disc resonance point shall be 0.8G about 100Hz

### 9、Reliability Test

#### 9-1 Environmental test

9-1-1 High temperature resistive preservation: When a CD mechanism is kept preserved at  $+80^{\circ}\text{C}$  for 100H with power off and then left as it is at room temperature for 2H, the CD mechanism shall be able to maintain practically normal performance.

9-1-2 Low temperature resistive preservation: When a CD mechanism is kept preserved at  $-20^{\circ}\text{C}$  for 100H with power off and then left as it is at room temperature for 2H, the CD mechanism shall be able to maintain practically normal performance.

9-1-3 High-temperature and high-humidity resistive preservation: When a CD mechanism is kept preserved at  $+60^{\circ}\text{C}$  and a relative humidity of 90% for 100H, and then left as it is at room temperature for 24H, the CD mechanism shall be able to maintain practically normal performance.

9-1-4 Thermal shock: When a CD mechanism is kept under  $-30^{\circ}\text{C}$  for 1H, then is left as it is at room temperature for 1M, is again kept under  $+80^{\circ}\text{C}$  for 1H, and this thermal shock is applied 25 times to the CD mechanism, the CD mechanism shall be able to maintain practically normal performance.

9-1-5 High-temperature resistive operating performance: When a CD mechanism is left as it is under  $+70^{\circ}\text{C}$  for 3H and then is executed for playing action under the same environment as before, the CD mechanism shall be normal.

9-1-6 Low-temperature resistive operating performance: When a CD mechanism is left as it is under  $-20^{\circ}\text{C}$  for 3H and then is executed for playing action under the same environment



10-3-3 Frequency characteristic: $0 \pm 2\text{dB}$	$0 \pm 2\text{dB}$	TCD-784	A-BEX
10-3-4 Distortion factor $\leq 0.03\%$	1KHz, 20KHz LPF/400Hz HPF ON	TCD-784	A-BEX
10-3-5 Dynamic range: $>80\text{dB}$	20KHz, LPF/A FIL ON	TCD-784	A-BEX
10-3-6 S/N ratio: $>85\text{ dB}$	20KHz, LPF/A FIL ON	TCD-784	A-BEX
10-3-7 Interchannel separation: $>70\text{ dB}$	20KHz, LPF/400Hz HPF ON	TCD-784	A-BEX
10-3-8 De-emphasis error: $\pm 2\text{dB}$	5KHz/-4.53dB 16KHz/-9.04dB	TCD-784	A-BEX

10-3-9 Damaged disc playing performance:

Should be free of skip under the condition with specified or less value.

*Black dot	1.0mm	Tr. 10	TCD-725B A-BEX
*Scratch	1.0mm	Tr. 5	TCD-721R A-BEX
*Interruption	1.0mm	Tr. 6	TCD-725B A-BEX
*Fingerprint	$\Phi 75\ \mu\text{m}$	Tr. 15	TCD-725B A-BEX

#Judgement shall be made within 10 seconds after respective track starts up.

10-3-10 Electric Current Consumption: The motor current consumption is 350mA or less when disc is loading or ejecting.

10-3-11 Loading Time:  $\leq 8\text{ sec}$

From inserting the disc to the start of 1T.

Using SHINWA's circuit, microcomputer and TCD-784 A-BEX.

10-3-12 Ejecting Time:  $\leq 3\text{ sec}$

From pressing the EJ key to the complete ejecting of the disc.

Using SHINWA's circuit, microcomputer and TCD-784 A-BEX.

11、Reliability Test Standard

The following is the standard after Reliability test and under conditions for Environmental test (Item 9-1-5, 9-1-6).

Test item	Standard
Disc inserting power	$\leq 750\text{g}$
Disc extraction power	$\leq 450\text{g}$
Disc discharge power	$\geq 20\text{g}$
Play noise level	$\leq 50\text{dB}$
Search noise level	$\leq 70\text{dB}$
Charge/Discharge noise level	$\leq 80\text{dB}$
Initialization noise level	$\leq 80\text{dB}$
Oscillation resistive performance	Z=1.0G, (Disc resonance point: 0.5G)
Access time	$\leq 10\text{Sec.}$
Surface swaying disc*	TCD-732RA Tr. 8 ( $\pm 0.3\text{mm}$ )
Eccentric disc*	TCD-711R Tr. 1, 15 ( $70\ \mu\text{m}$ )
Black dot*	0.4mm
Scratch*	0.4mm
Interruption*	0.5mm
RF level	$0.9 \pm 0.5\text{Vp-p}$
Traverse signal level	$0.5 \sim 2.0\text{Vp-p}$

Jitter	≤35ns
Output level	0.8±0.28vrms
Frequency characteristic	±3dB
Distortion factor	<0.05%
Dynamic range	>75dB
S/N ratio	>80dB
Interchannel separation	>65dB
Deemphasis error	±2dB
Loading time	≤15sec
Ejecting time	≤4sec
E-F phase difference	±70deg

## 12、CL-C01 SET Design Caution

Please take care of the following points when you design your finished product.

### 12,1 Mechanical Caution

12.1.1 During playing, the mechanism floating part moves 3mm maximum in a XYZ direction. Please pay attention to when spacing parts around the mechanism floating part.

12.1.2 When designing, please ensure there is no gap with disc entrance height position between the CL-C01 and the finish product.

This will avoid damaging the disc.

This will also avoid increasing disc moving load while inserting and ejecting the disc.

12.1.3 Please make sure the disc guide is positioned not to touch the lever protecting double loading in the finished product design.

12.1.4 Please design the unit to avoid resonance causing vibration etc. when fixing the CL-C01 to the case of the finished product. And also when you install the unit into the car.

This will avoid bad oscillation resistive performance.

12.1.5 Please design the finished product to be dustproof.

This will avoid lower the pick-up sensitivity etc.

### 12,2 Electrical Caution

12.2.1 Please never use electrical parts over the recommended rating etc.

12.2.2 Signal of the optical pick-up is high impedance. So, especially avoid designing the optical pick-up close to the distal signal of the microcomputer, s clock etc.

12.2.3 Please pay attention to the position of FPC connector when designing your servo PCB to avoid FPC to be contorted.

## 13、Handling of the CL-C01 Mechanism

- 13,1 Please don't drop the CL-C01.
- 13,2 After the CL-C01 is unpacked, please don't leave the CL-C01 in dusty surroundings. To avoid static electricity, please keep it in the packaging.
- 13,3 Please make sure to ground the operator's body, workbench, jib and tools, measuring equipment in the Production, Inspection and other departments handling the CL-C01.
- 13,4 Please don't operate the CL-C01 in an attitude over 30° (back and forth, left and right)
- 13,5 Please never touch the pick-up lens.
- 13,6 Please don't pull the leads and the FPCs more than necessary.
- 13,7 Fundamentally, play is not guaranteed with a 8cm disc if an adapter is used. Please avoid using an adapter.
- 13,8 Since the actuator of the OPTIMA-725C2 used a powerful magnet, the pick-up characteristics may be subjected by a magnetic object brought into close proximity. On the bottom of the gap between the actuator cover and the objective lens, an objective lens driving magnet is installed, prevent the gap from catching foreign objects.
- 13,9 When the objective lens is fouled, the characteristics of the OPTIMA-725C2 may be degraded (reduction of light output, for example). In such a case, clean the lens with a lint free cotton stick or the like soaked in the cleaning liquid JCB B-4 NO.2 (manufactured by Nippon Membo) in such a manner that the delicate wires supporting the lens (bobbin) are not disturbed.
  - ◆ Similar instructions and precautions for cleaning the objective lens should be advised to CD player users.
  - ◆ Commercially available lens cleaners are not advisable for this purpose.

Recognition of this specifications:

Please return the recognized specifications within a month from the issued date. It is over a month from the issued date, we will think that specifications is recognized.

Note:

- (1) In case mechanism is evaluated or inspected in use of customer's control circuit and microcomputer, the standard and performance described in this specifications shall be discussed separately to be mutually agreed.
- (2) The parts are subject to change with any improvement within the range of the specifications without prior notice.

[www.mobiteh.com](http://www.mobiteh.com)