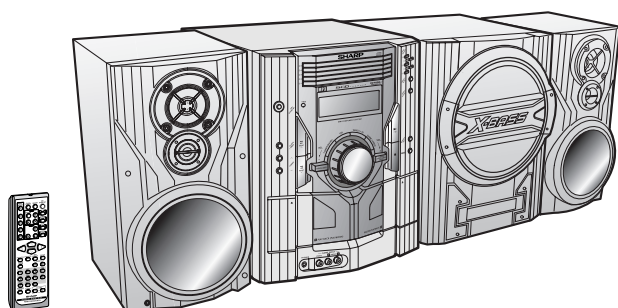


SHARP SERVICE MANUAL

No. XXXXXXXXXXXXX



MINI COMPONENT SYSTEM

MODEL CD-SW200E

CD-SW200E Mini Component System consisting of CD-SW200E (main unit) CP-S200H (front speaker) and CP-SW200E (subwoofer).



• In the interests of user-safety the set should be restored to its original condition and only parts identical to those specified be used.

• Note for users in U.K.

Recording and playback of any material may require consent which SHARP is unable to give. Please refer particularly to the provisions of Copyright Act 1956, the Dramatic and Musical Performers Protection Act 1956, the Performers Protection Acts 1963 and 1972 and to any subsequent statutory enactments and orders.

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Parts Guide

Parts marked with "▲" are important for maintaining the safety of the set. Be sure to replace these parts with specified ones for maintaining the safety and performance of the set.

SAFETY PRECAUTION FOR SERVICE MANUAL

Precaution to be taken when replacing and servicing the Laser Pickup.

The AEL (Accessible Emission Level) of Laser Power Output for this model is specified to be lower than Class 1 Requirements. However, the following precautions must be observed during servicing to protect your eyes against exposure to the Laser beam.

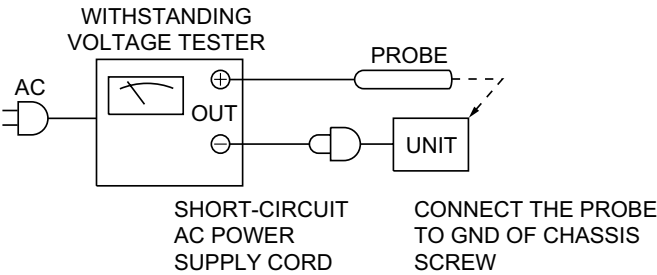
- (1) When the cabinet has been removed, the power is turned on without a compact disc, and the Pickup is on a position outer than the lead-in position, the Laser will light for several seconds to detect a disc. Do not look into the Pickup Lens.
- (2) The Laser Power Output of the Pickup inside the unit and replacement service parts have already been adjusted prior to shipping.
- (3) No adjustment to the Laser Power should be attempted when replacing or servicing the Pickup.
- (4) Under no circumstances look directly into the Pickup Lens at any time.
- (5) CAUTION - Use of controls or adjustments, or performance of procedures other than those specified herein may result in hazardous radiation exposure.

IMPORTANT SERVICE NOTES (FOR U.K. ONLY)

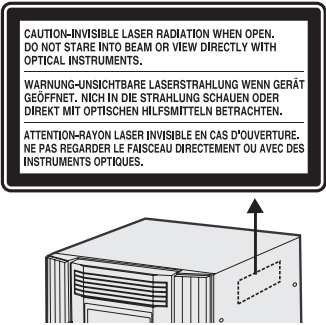
Before returning the unit to the customer after completion of a repair or adjustment it is necessary for the following withstand voltage test to be applied to ensure the unit is safe for the customer to use.

Setting of Withstanding Voltage Tester and set.

Set name	set value
Withstanding Voltage Tester	
Test voltage	4,240 VPEAK 3,000 VRMS
Set time	6 secs
Set current (Cutoff current)	4 mA
Unit	
Judgment	
OK: The "GOOD" lamp lights.	
NG: The "NG" lamp lights and the buzzer sounds.	



Laser Diode Properties
Material: GaAlAs
Wavelength: 795 nm
Emission Duration: continuous
Laser Output: max. 0.6 mW



1. Employing lead-free solder

"Main/Display/Tuner/Power/Game Input/CD Servo PWB/LED" of this model employs lead-free solder. The LF symbol indicates lead-free solder, and is attached on the PWB and service manuals. The alphabetical character following LF shows the type of lead-free solder.

Example:

LFa
Sn-Ag-Cu Indicates lead-free solder of tin, silver and copper.

2. Using lead-free wire solder

When fixing the PWB soldered with the lead-free solder, apply lead-free wire solder. Repairing with conventional lead wire solder may cause damage or accident due to cracks.

As the melting point of lead-free solder (Sn-Ag-Cu) is higher than the lead wire solder by 40 °C, we recommend you to use a dedicated soldering bit, if you are not familiar with how to obtain lead-free wire solder or soldering bit, contact our service station or service branch in your area.

3. Soldering

As the melting point of lead-free solder (Sn-Ag-Cu) is about 220 °C which is higher than the conventional lead solder by 40 °C, and as it has poor solder wettability, you may be apt to keep the soldering bit in contact with the PWB for extended period of time. However, Since the land may be peeled off or the maximum heat-resistance temperature of parts may be exceeded, remove the bit from the PWB as soon as you confirm the steady soldering condition.

Lead-free solder contains more tin, and the end of the soldering bit may be easily corrected. Make sure to turn on and off the power of the bit as required.

If a different type of solder stays on the tip of the soldering bit, it is alloyed with lead-free solder. Clean the bit after every use of it.

When the tip of the soldering bit is blackened during use, file it with steel wool or fine sandpaper.

Be careful when replacing parts with polarity indication on the PWB silk.

Lead-free wire solder for servicing

Ref No.	Parts No.	Description
PWB-A	92LPWB6383MANS	Main/Display
PWB-B	92LPWB6383PWRS	Power/Game Input
PWB-C	92LPWB6230CDUS	CD Servo
PWB-D	92LPWB6291TUNS	Tuner
PWB-E	92LPWB6230LEDS	LED

CHAPTER 1. GENERAL DESCRIPTION

[1] Specifications

FOR A COMPLETE DESCRIPTION OF THE OPERATION OF THIS UNIT, PLEASE REFER TO THE OPERATION MANUAL.

CD-SW200E

■ General

Power source	AC 230 - 240 V, 50 Hz
Power consumption	200 W
Dimensions	Width: 260 mm (10-1/4") Height: 330 mm (13") Depth: 326 mm (12-7/8")
Weight	10.4 kg (22.9 lbs.)

■ Amplifier

Output power	Front Speaker: RMS: 200 W (100 W + 100 W) (10% T.H.D) RMS: 156 W (78 W + 78 W) (0.9% T.H.D) Subwoofer: RMS: 200 W (10% T.H.D) RMS: 166 W (0.9% T.H.D)
Output terminals	Front Speakers: 6 ohms Subwoofer: 12 ohms Headphones: 16 - 50 ohms (recommended: 32 ohms) Video output: 1Vp-p
Input terminals	Game/ Auxiliary (audio signal): 500 mV/ 47 k ohms Game/Video: 1Vp-p

■ CD player

Type	5-disc multi-play compact disc player
Signal readout	Non-contact, 3-beam semiconductor laser pickup
D/A converter	1-bit D/A converter
Frequency response	20 - 20,000 Hz
Dynamic range	90 dB (1 kHz)

■ Tuner

Frequency range	FM: 87.5 - 108.0 MHz AM: 522 - 1,620 kHz
------------------------	---

■ Cassette deck

Frequency response	50 - 14,000 Hz (normal tape)
Signal/noise ratio	55 dB (TAPE 1, playback) 50 dB (TAPE 2, recording/playback)
Wow and flutter	0.3 % (WRMS)

CP-S200H

Type	3-way type speaker system Super tweeter 5 cm (2") tweeter 13 cm (5-1/8") woofer
Maximum input power	200 W
Rated input power	100 W
Impedance	6 ohms
Dimensions	Width: 180 mm (7-1/16") Height: 330 mm (13") Depth: 212 mm (8-6/16")
Weight	3.0 kg (6.6 lbs.) /each

CP-SW200E

Type	Full Range 20 cm (8") subwoofer
Maximum input power	400 W
Rated input power	200 W
Impedance	12 ohms
Dimensions	Width: 250 mm (9-13/16") Height: 330 mm (13") Depth: 294 mm (11-9/16")
Weight	5.9 kg (13 lbs.)

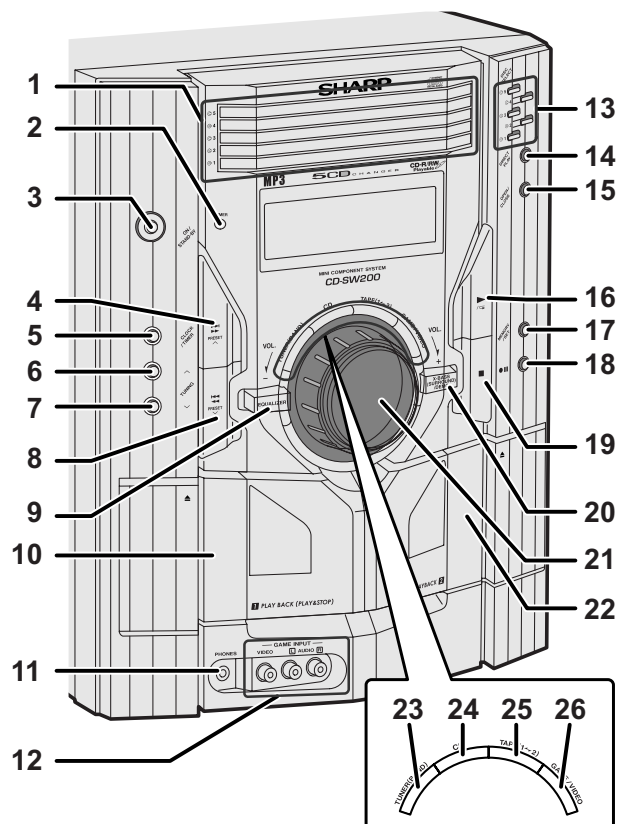
Specifications for this model are subject to change without prior notice.

[2] Names of parts

CD-SW200E

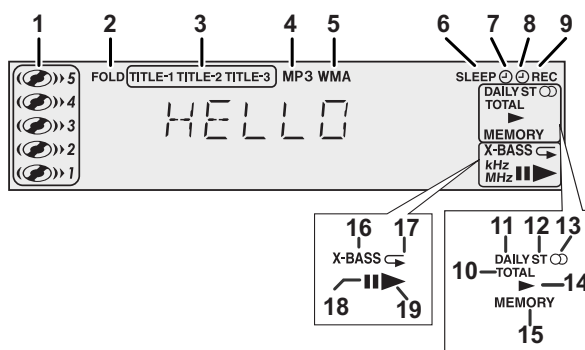
■ Front panel

1. Disc Trays
2. Timer Indicator
3. On/Stand-by Button
4. Disc Track Up or Fast Forward, Tape 2 Fast Forward, Tuner Preset Up, Time Up Button
5. Clock/Timer Button
6. Tuning Up Button
7. Tuning Down Button
8. Disc Track Down or Fast Reverse, Tape 2 Rewind, Tuner Preset Down, Time Down Button
9. Equalizer Mode Select Button
10. Tape 1 Cassette Compartment
11. Headphone Socket
12. Game/Video Input Socket
13. Disc Number Select Buttons
14. Disc Direct Play Button
15. Disc Tray Open/Close Button
16. Disc Play or Repeat, Tape Play Button
17. Memory/Set Button
18. Tape 2 Record Pause Button
19. Disc or Tape Stop Button
20. Extra Bass (Surround)/Demo Mode Button
21. Volume Control
22. Tape 2 Cassette Compartment
23. Tuner (Band) Button
24. CD Button
25. Tape (1 ~ 2) Button
26. Game/Video Button



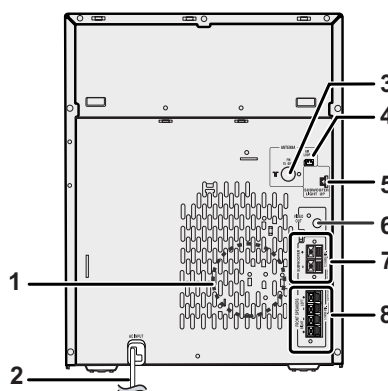
■ Display

1. Disc Number Indicators
2. MP3/WMA Folder Indicator
3. MP3/WMA Title Indicators
4. MP3 Indicator
5. WMA Indicator
6. Sleep Indicator
7. Timer Play Indicator
8. Timer Recording Indicator
9. Tape 2 Record Indicator
10. MP3/WMA Total Indicator
11. Daily Timer Indicator
12. FM Stereo Mode Indicator
13. FM Stereo Receiving Indicator
14. Tape Play Indicator
15. Memory Indicator
16. Extra Bass Indicator
17. Disc Repeat Play Indicator
18. Disc Pause Indicator
19. Disc Play Indicator



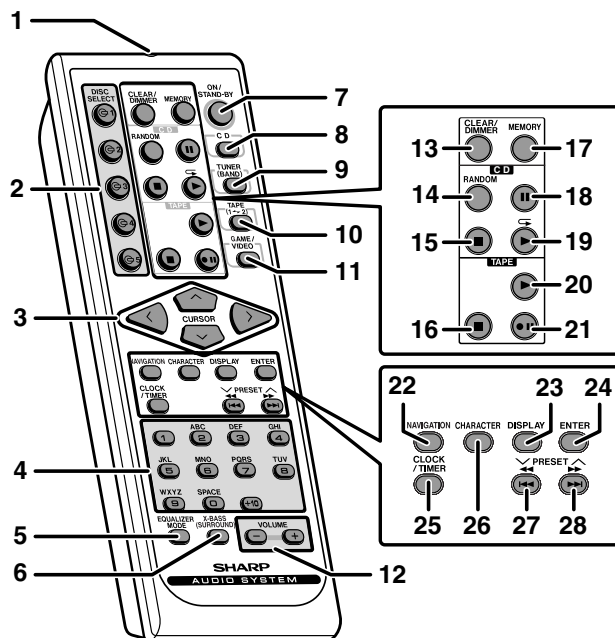
■ Rear panel

1. Cooling Fan
2. AC Power Lead
3. FM 75 Ohms Aerial Terminal
4. AM Loop Aerial Socket
5. Subwoofer Light-up Socket
6. Video Output Socket
7. Subwoofer Terminals
8. Front Speaker Terminals

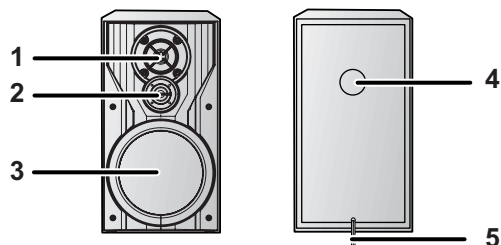


CD-SW200E**Remote control**

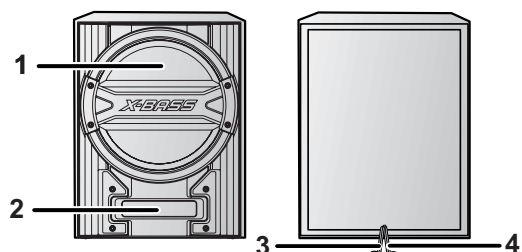
1. Remote Control Transmitter
2. Disc Number Select Buttons
3. Cursor Buttons
4. Character Input/Disc Direct Search Buttons
5. Equalizer Mode Select Button
6. Extra Bass (Surround) Button
7. On/Stand-by Button
8. CD Button
9. Tuner (Band) Button
10. Tape (1 ~ 2) Button
11. Game/Video Button
12. Volume Up and Down Buttons
13. Disc Clear/Dimmer Button
14. Disc Random Button
15. Disc Stop Button
16. Tape Stop Button
17. Memory Button
18. Disc Pause Button
19. Disc Play or Repeat Button
20. Tape Play Button
21. Tape 2 Record Pause Button
22. MP3/WMA Navigation Mode Select Button
23. MP3/WMA Display Button
24. Enter Button
25. Clock/Timer Button
26. Character Button
27. Disc Track Down or Fast Reverse, Tape 2 Rewind, Tuner Preset Down, Time Down Button
28. Disc Track Up or Fast Forward, Tape 2 Fast Forward, Tuner Preset Up, Time Up Button

**CP-S200H**

1. Tweeter
2. Super Tweeter
3. Woofer
4. Bass Reflex Duct
5. Speaker Wire

**CP-SW200E**

1. Subwoofer
2. Bass Reflex Duct
3. Subwoofer Light-Up Wire
4. Speaker Wire



CHAPTER 2. ADJUSTMENTS

[1] Mechanism section

- Driving Force Check

Torque Meter	Specified Value
Play: TW-2111	Tape 1: Over 80 g Tape 2: Over 80 g

- Torque Check

Torque Meter	Specified Value	
	Tape 1	Tape 2
Play: TW-2111	30 to 80 g.cm	30 to 80 g.cm
Fast forward: TW-2231	—	70 to 180 g.cm
	—	70 to 180 g.cm

- Tape Speed

	Test Tape	Adjusting Point	Specified Value	Instrument Connection
Normal speed	MTT-111	Variable Resistor in motor.	$3,000 \pm 30$ Hz Speaker	Speaker Terminal (Load resistance: 6 ohms)

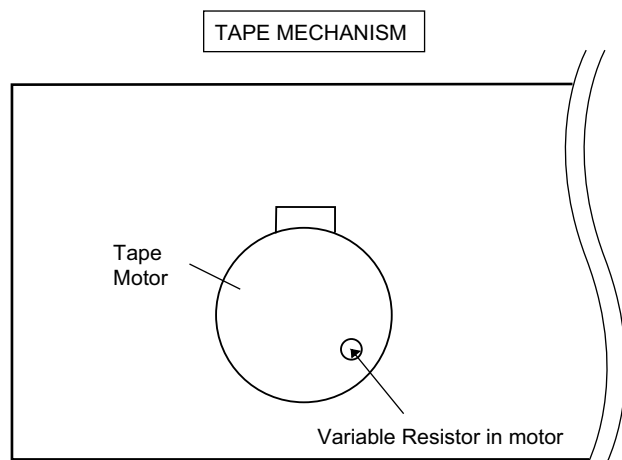


Figure 1

[2] Tuner section

fL: Low-range frequency

fH: High-range frequency

- AM IF/RF

Signal generator: 400 Hz, 30%, AM modulated

Test Stage	Frequency	Frequency Display	Setting/ Adjusting Parts	Instrument Connection
AM IF	450 kHz	1,620 kHz	T351	*1
AM Band Coverage	—	522 kHz	(fL): T306 1.1 ± 0.1 V	*2
AM Tracking	990 kHz	990 kHz	(fL): T303	*1

*1. Input: Antenna Output: TP302

*2. Input: Antenna Output: TP301

- FM IF

Notes:

- Description of the "FM IF Adjustment" is not carried on this Manual. It is because the IF coil in the FM front end section has been best adjusted in the factory so that its further adjustment is not needed at the field. When replacing the FM front end assembly, no adjustment is needed either.
- The parts in the FM front end section are prepared in a complete unit, so you can't obtain each part individually.

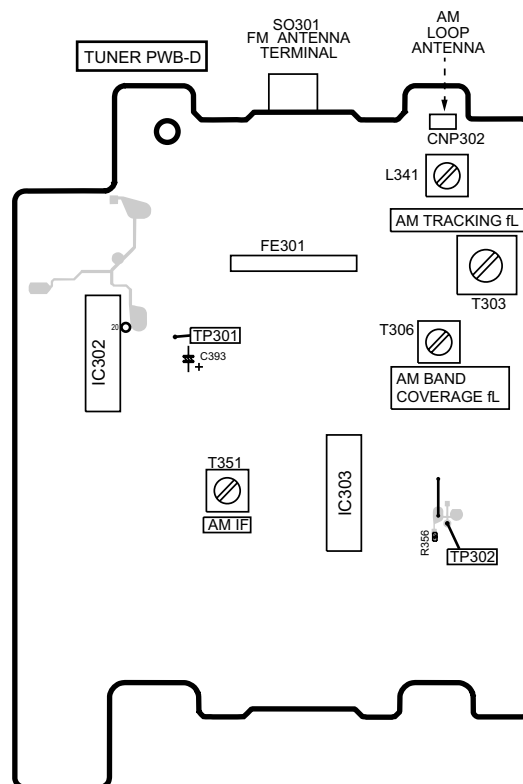
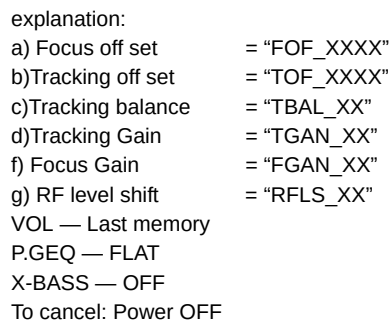
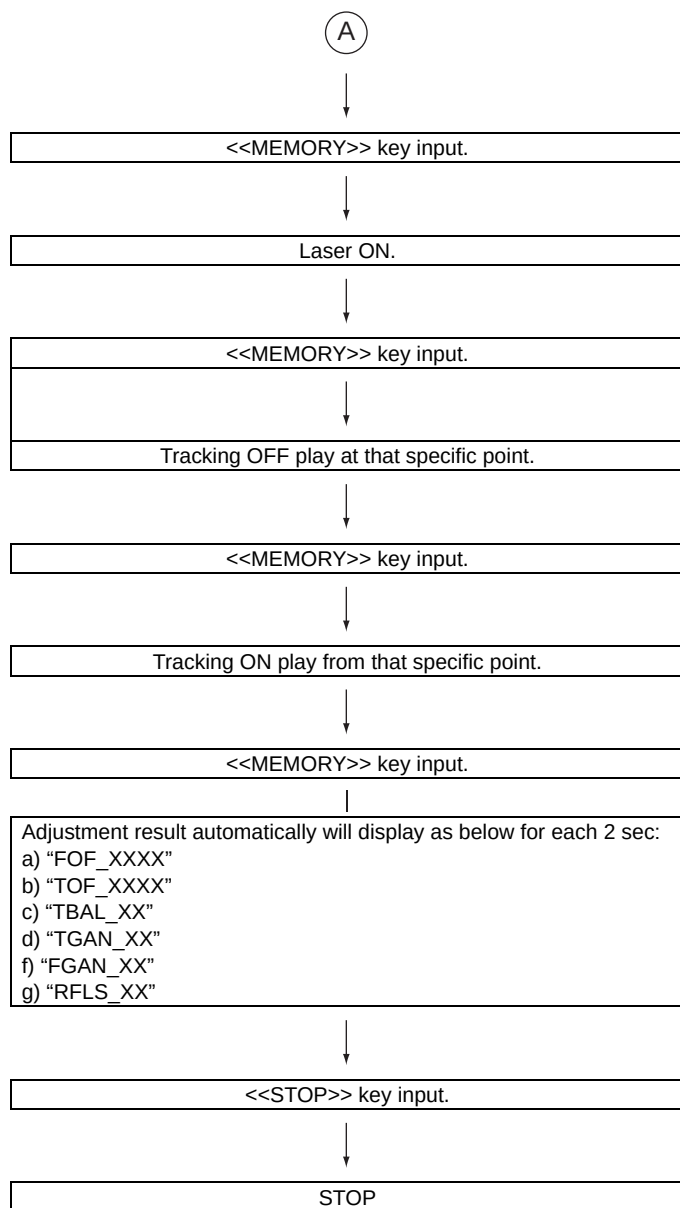


Figure 2 Adjustment Points

During stand-by mode, press ON/STAND-BY button while pressing down the button and X-BASS/DEMO button. then, press the CD button to enter the test mode.





Sliding the PICKUP with << ▷▷ >>, << ◁◁ >> button must only be in STOP mode.

explanation:

- | | |
|---------------------|--------------|
| a) Focus off set | = "FOF_XXXX" |
| b) Tracking off set | = "TOF_XXXX" |
| c) Tracking balance | = "TBAL_XX" |
| d) Tracking Gain | = "TGAN_XX" |
| f) Focus Gain | = "FGAN_XX" |
| g) RF level shift | = "RFLS_XX" |

VOL — Last memory

P.GEQ — FLAT

X-BASS — OFF

To cancel: Power OFF

[4] CD SECTION

• Adjustment

Since this CD system incorporates the following automatic adjustment functions, readjustment is not needed when replacing the pickup. Therefore, different PWBs and pickups can be combined freely.

Each time a disc is changed, these adjustments are performed automatically. Therefore, playback of each disc can be performed under optimum conditions.

Items adjusted automatically

- 1) Offset adjustment (The offset voltage between the head amplifier output and the VREF reference voltage is compensated inside the IC.)
 - * Focus offset adjustment
 - * Tracking offset adjustment
- 2) Tracking balance adjustment
- 3) Gain adjustment (The gain is compensated inside the IC so that the loop gain at the gain crossover frequency will be 0 dB.)
 - * Focus gain adjustment
 - * Tracking gain adjustment

[5] CD section

CD Error code description

Error	Explanation
01	When Pickup set inner position, inner switch cannot detect 'ON' level for 10 secs.
10*	CAM error. Can't detect CAM switch when CAM is moving.
11*	When it detect cam operation error during initialize process.
20*	TRAY error. Can't detect TRAY switch when TRAY is moving.
21*	When it detect TRAY operation error during initialize process.
31	When it change to CD function, DSP cannot read initial data.

* 'CHECKING'

If Error is detected, 'CHECKING' will be displayed instead of 'ER-CD**'. 'ER-CD**' display will only be displayed when error had been detected for the 5th times.

[6] Standard Specification of Stereo System Error Message Display Contents

Error Contents	Display	Notes
CD	Pickup Mechanism Error.	'ER-CD01'
	CD Changer Mechanism Error.	'ER-CD**' (*)
	CD DSP Communication Error.	'ER-CD31'
	Focus Not Match/IL Time Over.	'NO DISC'
TUNER	PLL Unlock.	FM 87.5 MHz PLL Unlock.

(*) CHECKING:

If CD changer mechanism error is detected, 'CHECKING' will be display instead of 'ER-CD**'. 'ER-CD**' display will only be display when error had been detected for the 5 th times.

Speaker abnormal detection and +B PROTECTION display

In case speaker abnormal detection or +B PROTECTION had occurred, the unit will automatically enter to stand-by mode and Timer indicator will Flashing as below.

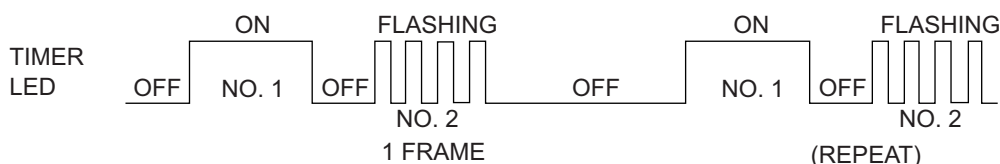
+B PROTECTION is condition when irregular process occur on power supply line.

BEFORE TRANSPORTING THE UNIT

The following process need to be taken after set tapering/parts replacement.

1. Press the ON/STAND-BY button to enter stand-by mode.
2. While pressing down the ■ button and the X-BASS/DEMO button, press the ON/STAND-BY button. The Micro Computer version number will be displayed as "CN*****".
3. Press OPEN/CLOSE button until "WAIT"→"FINISHED" appears.
4. Unplug the AC cord and the unit is ready for transporting.

Example: In case of speaker abnormal

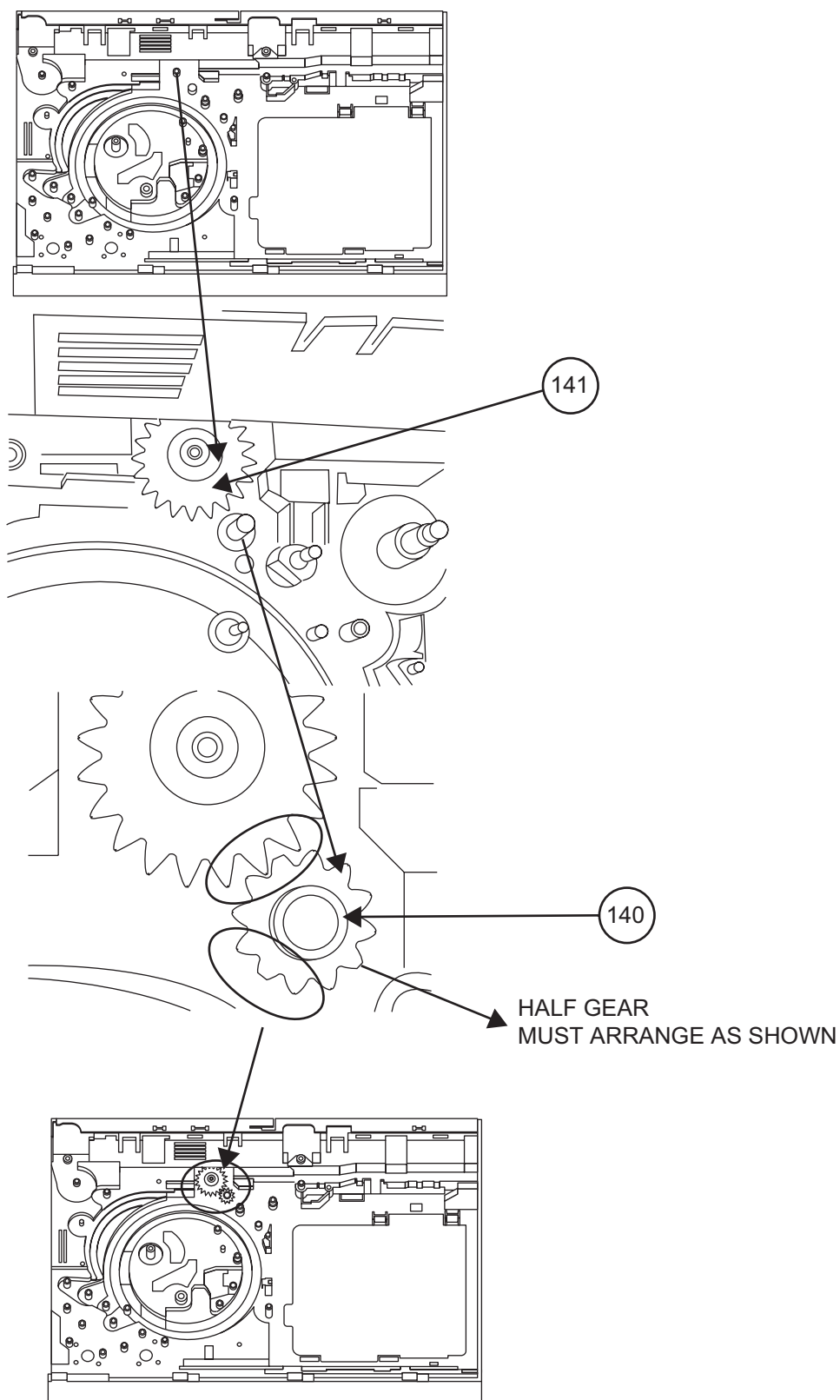


NO. 1 : +B PROTECTION
NO. 2 : Speaker abnormal

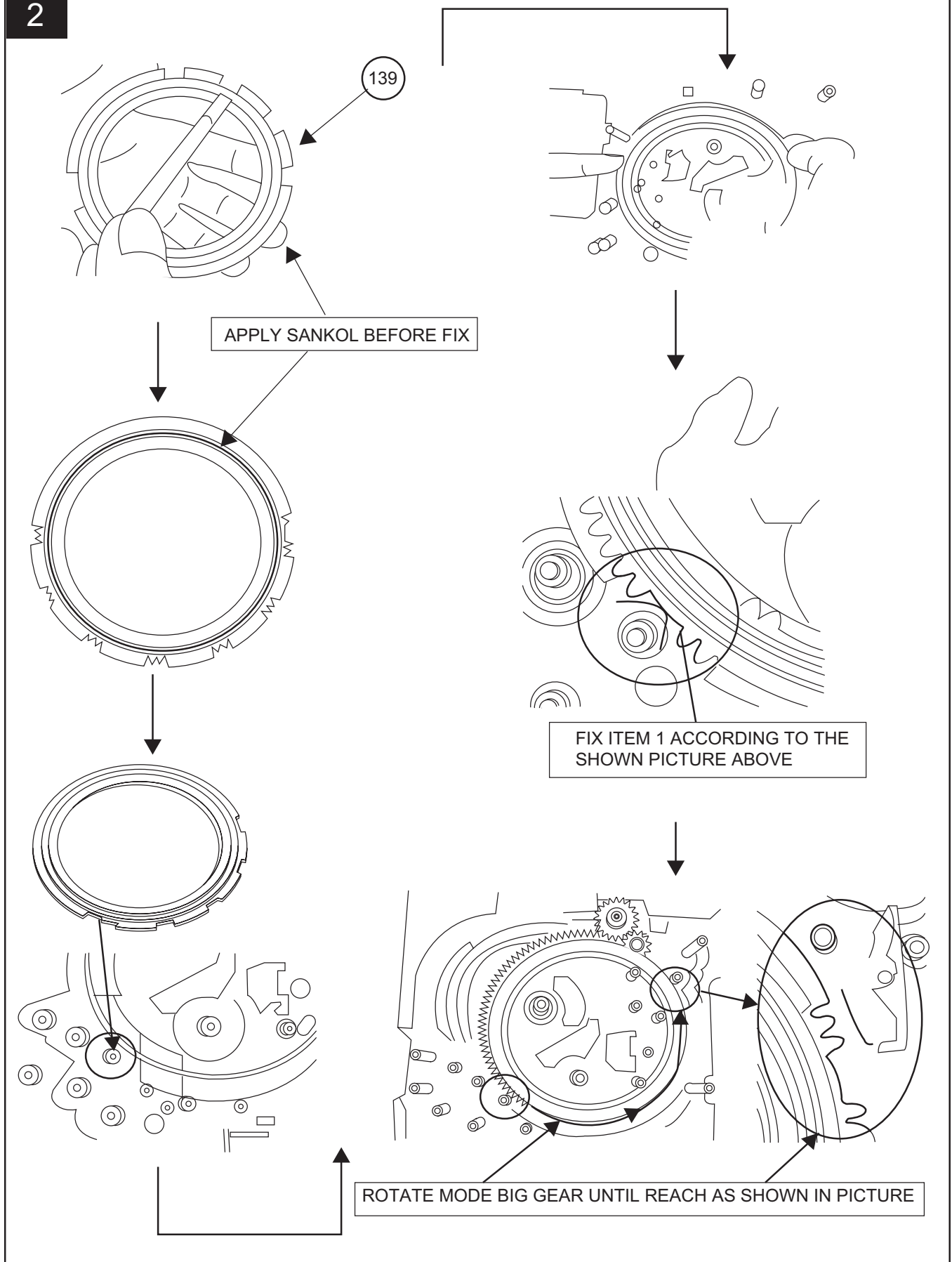
[7] CD Changer mechanism section

- A number in the drawing sheet is the number of the parts guide (CHANGER MECHANISM PARTS).

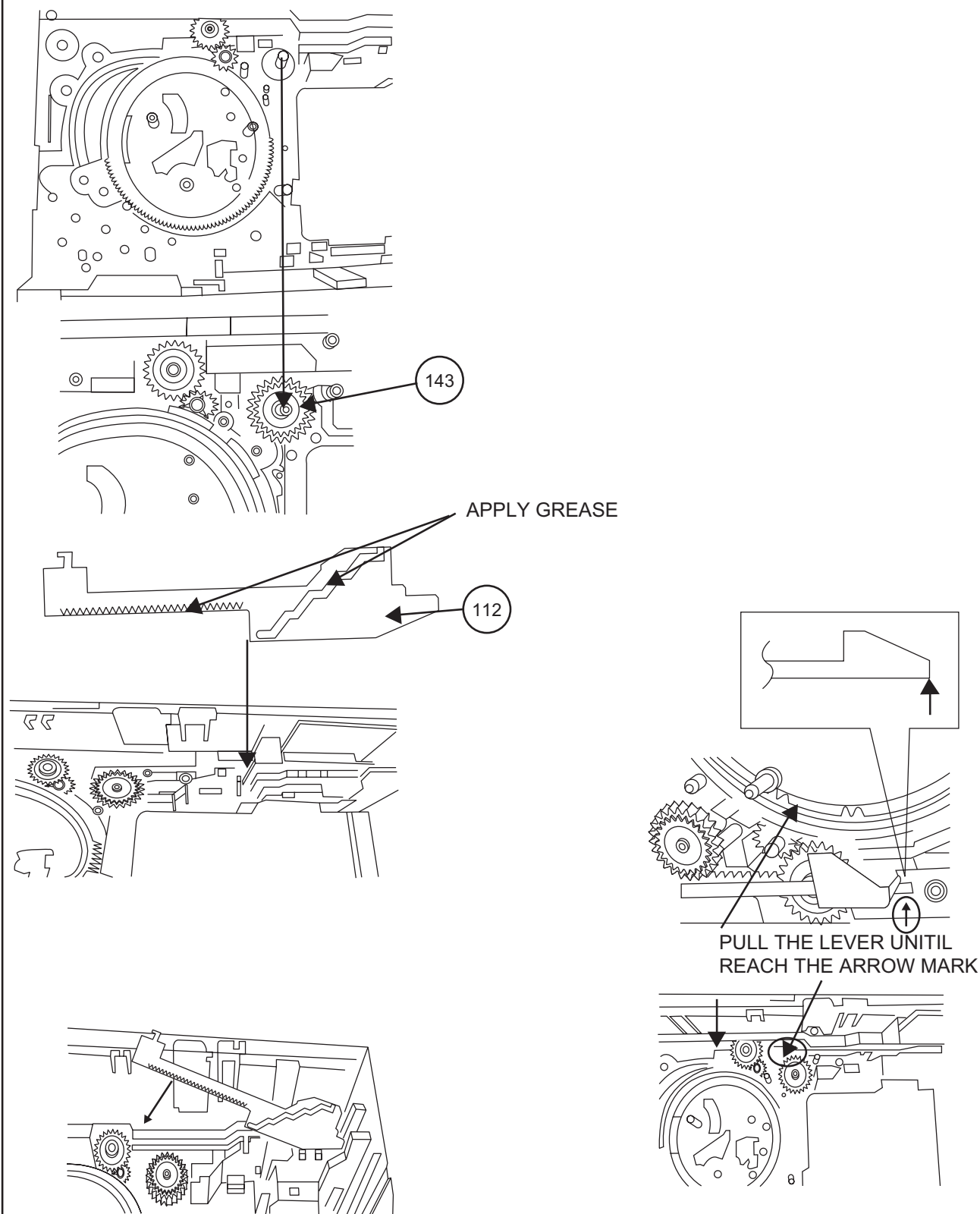
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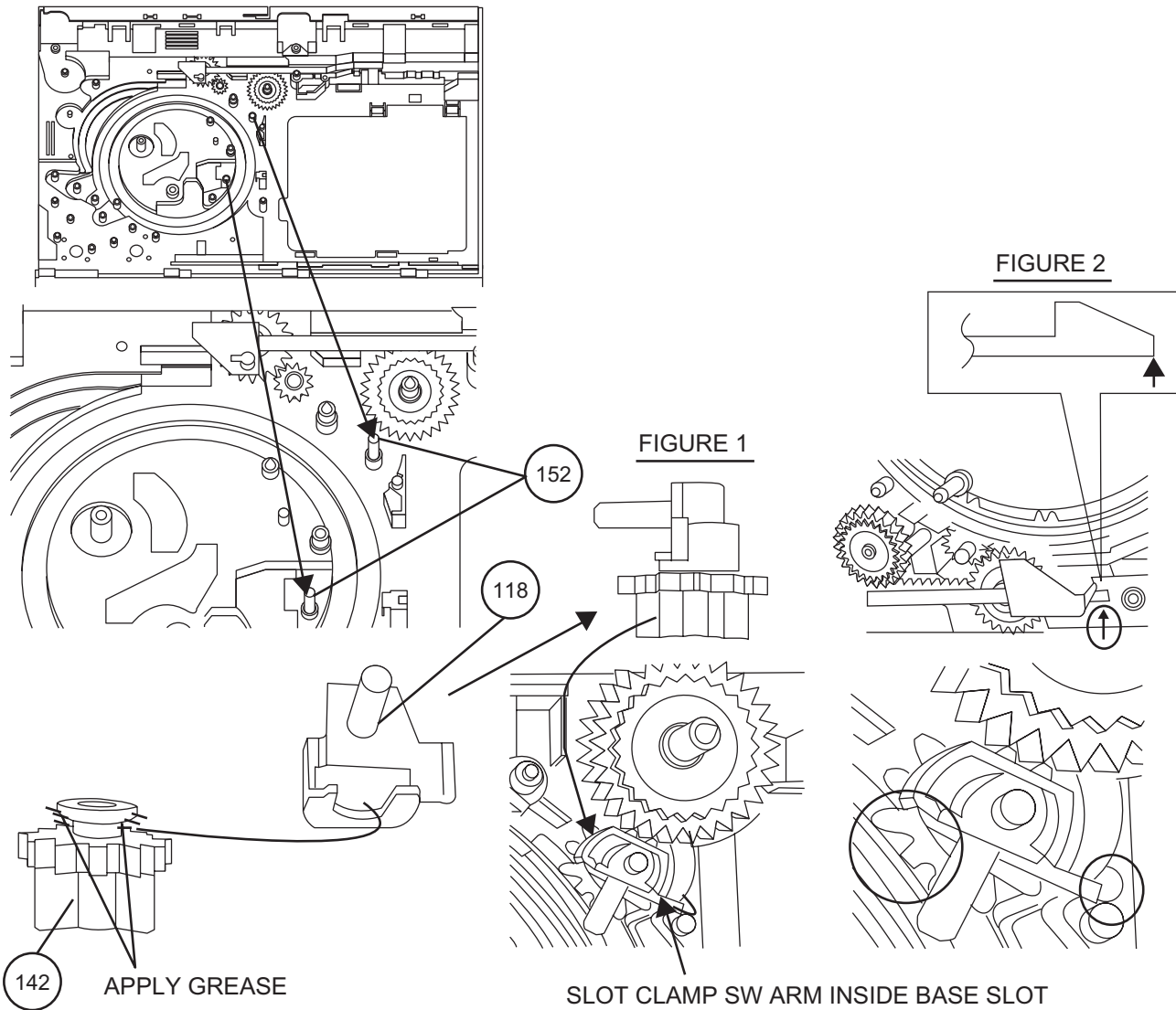


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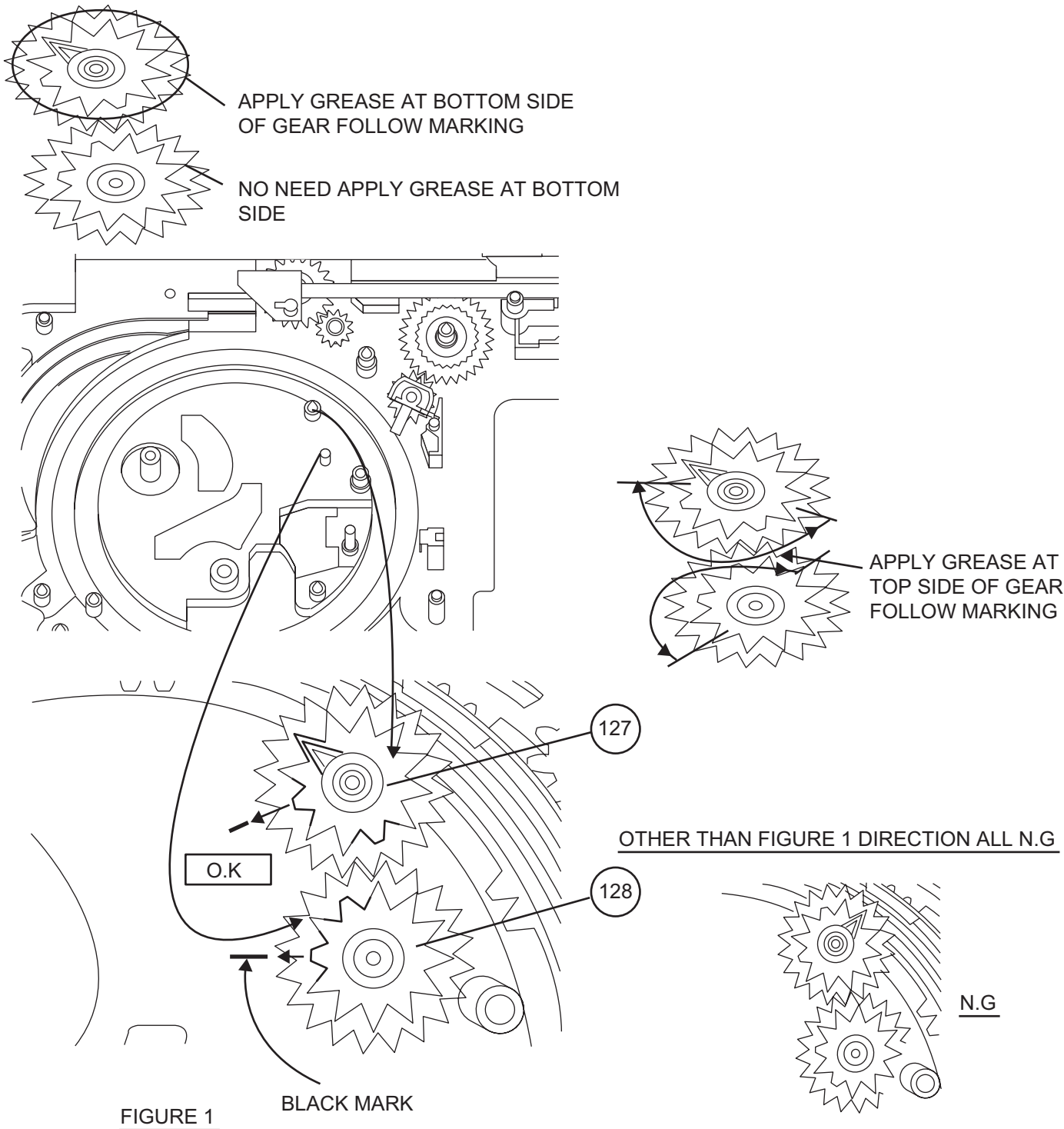


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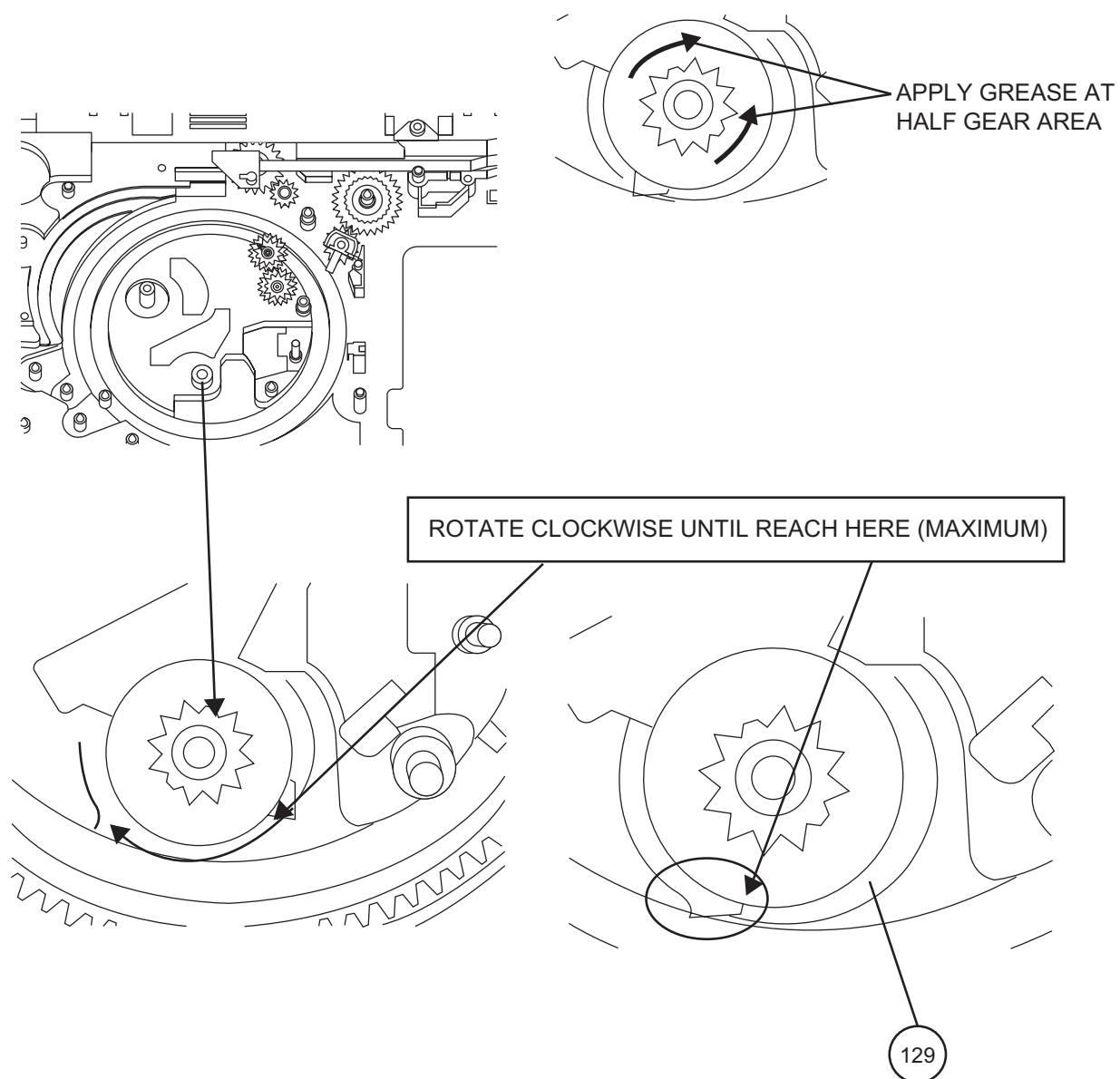




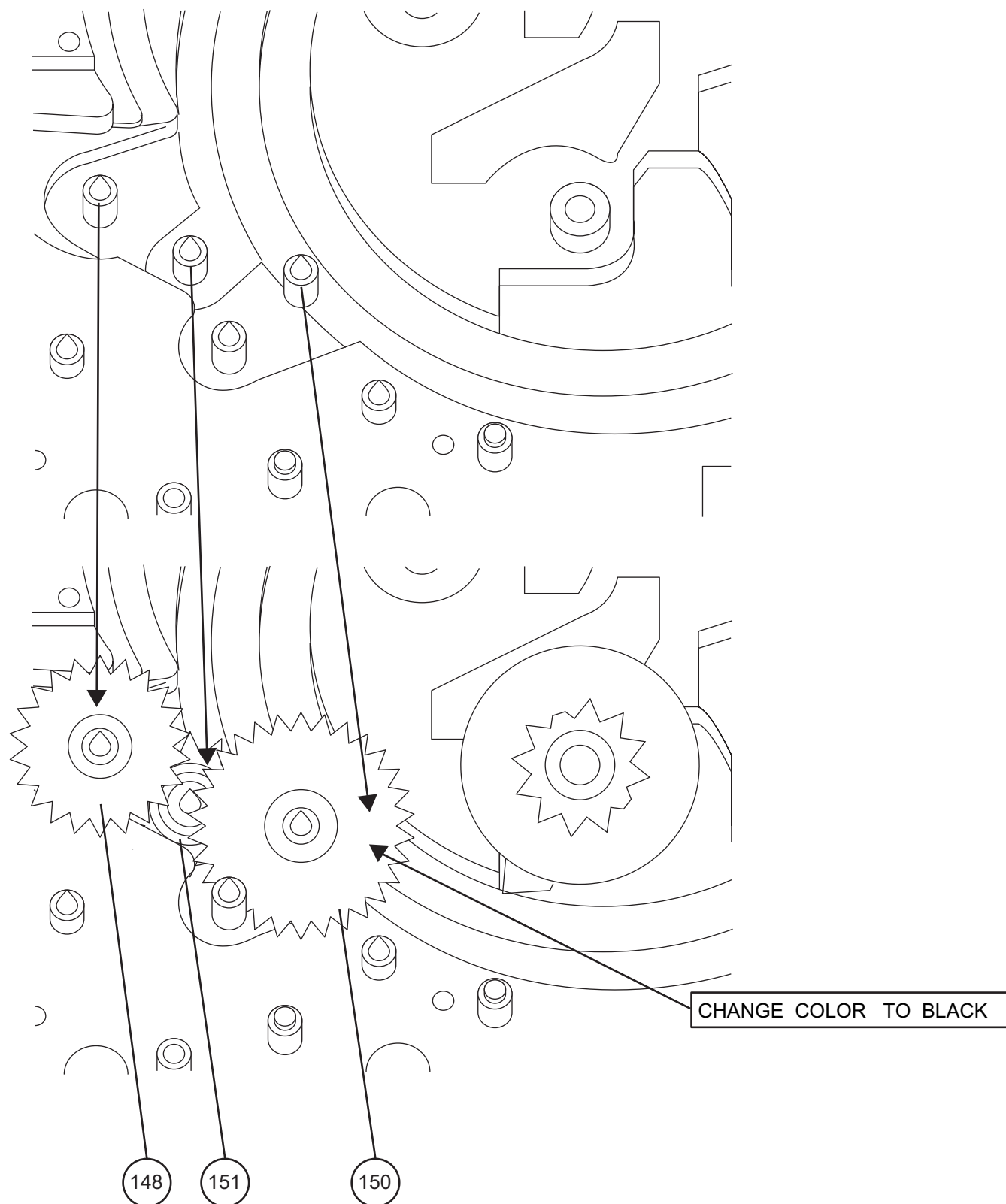
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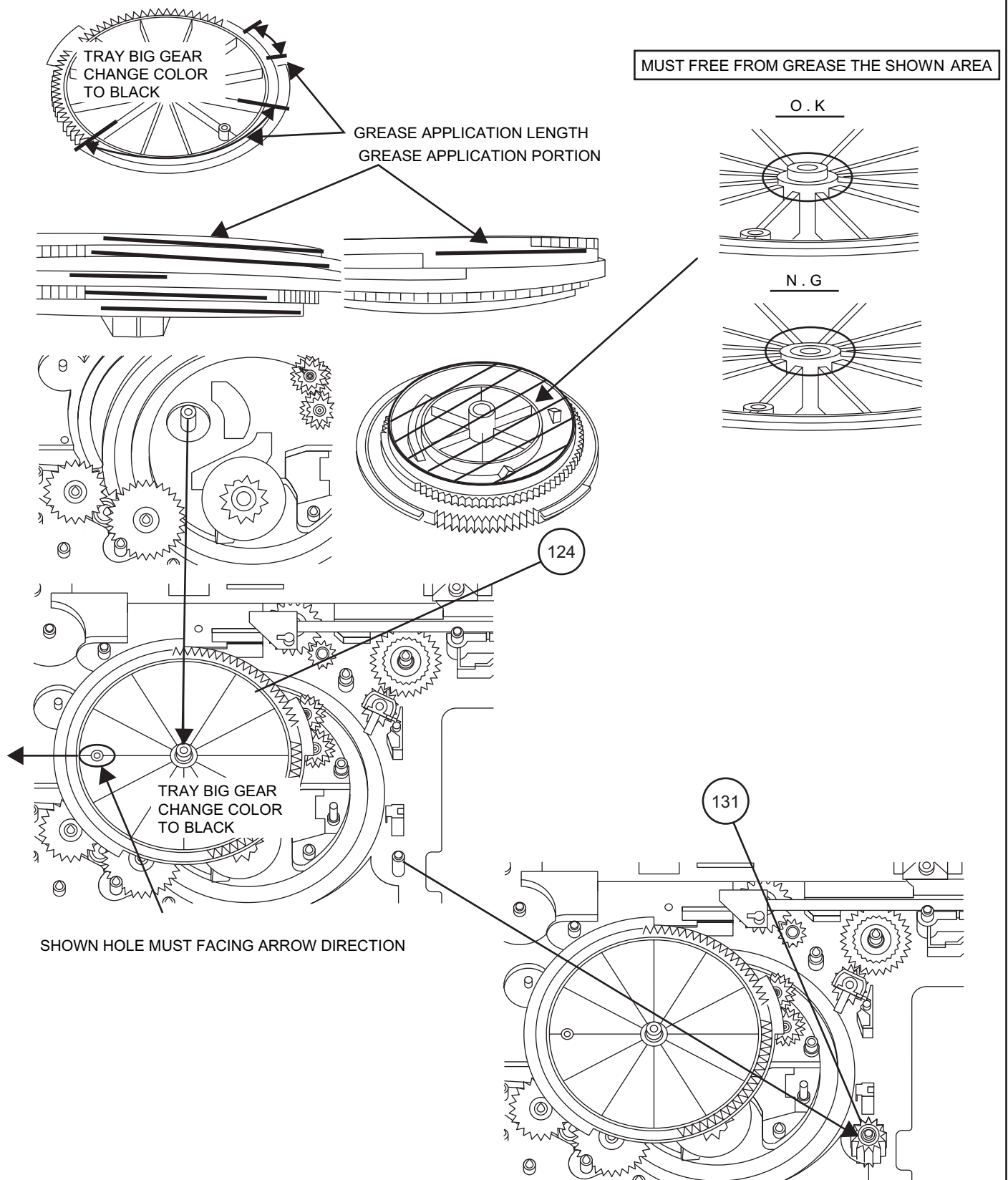


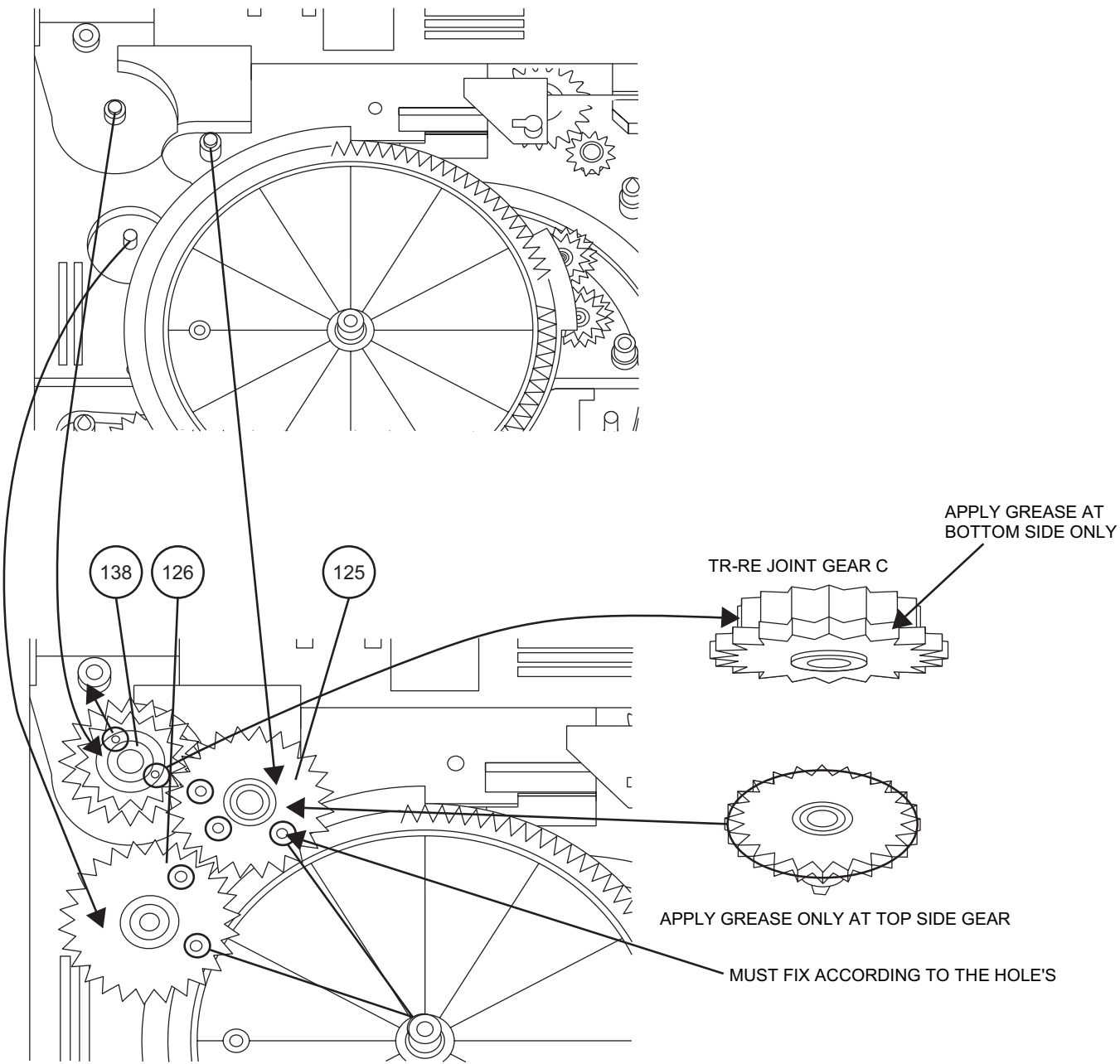
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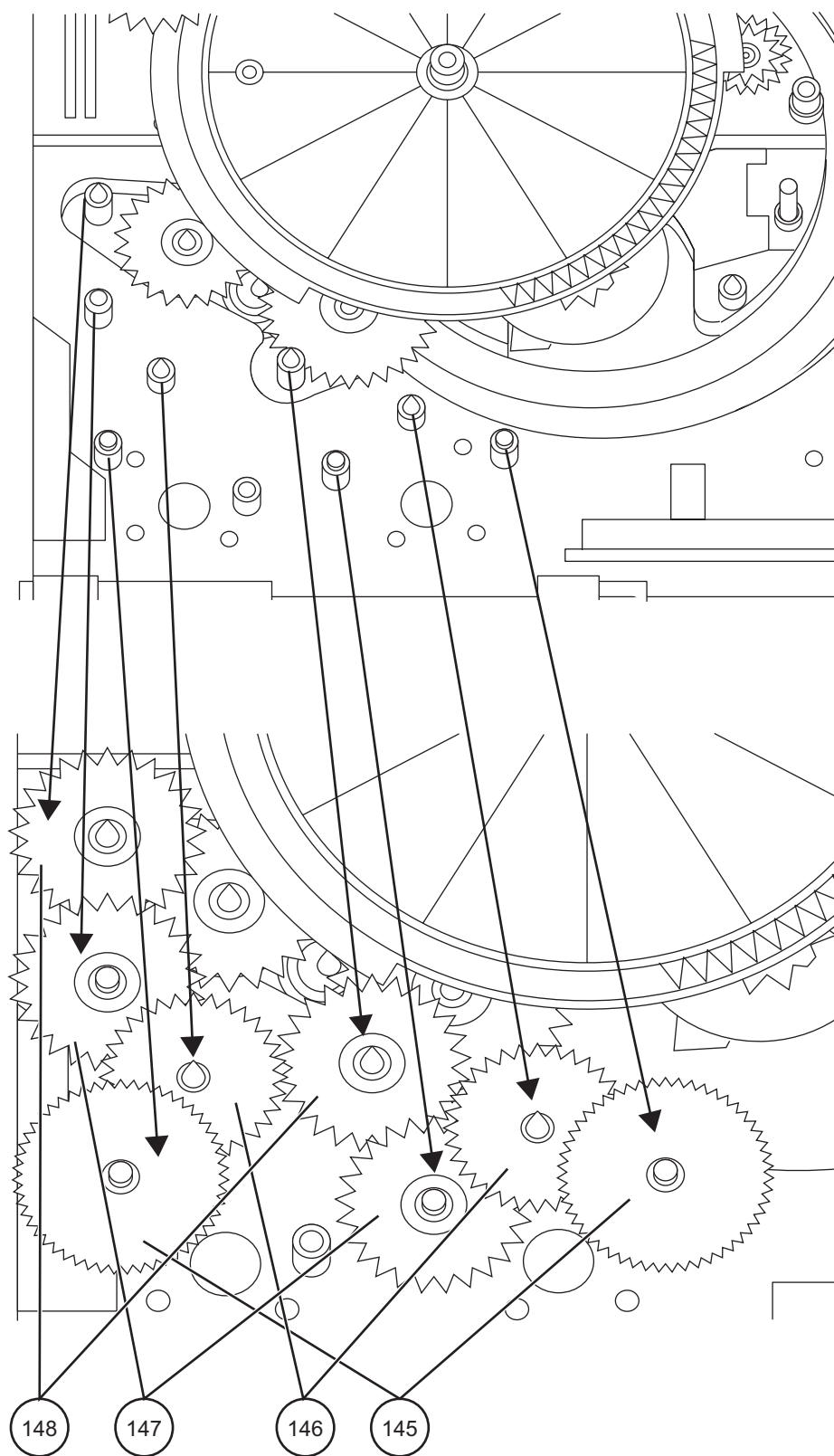


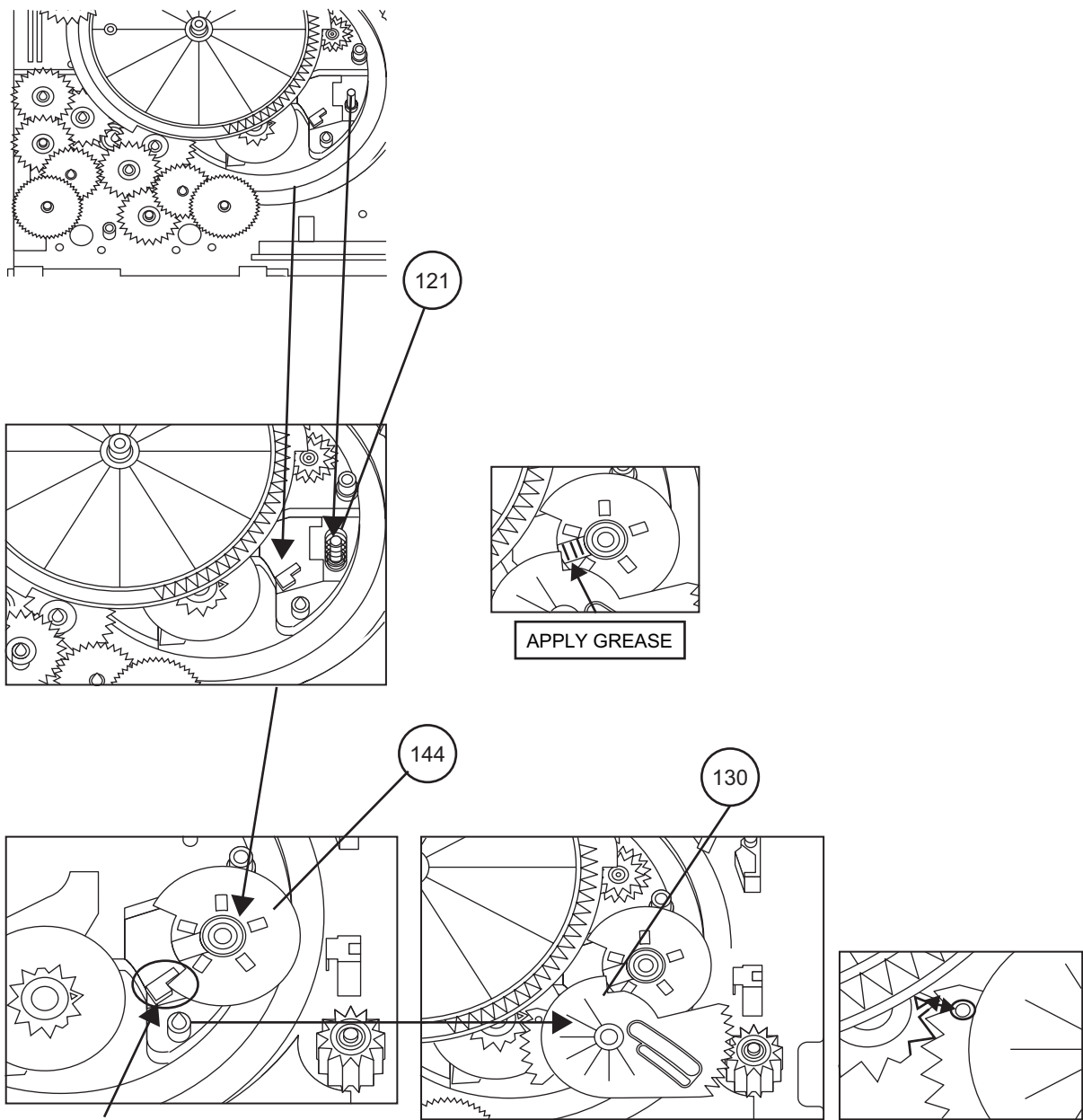
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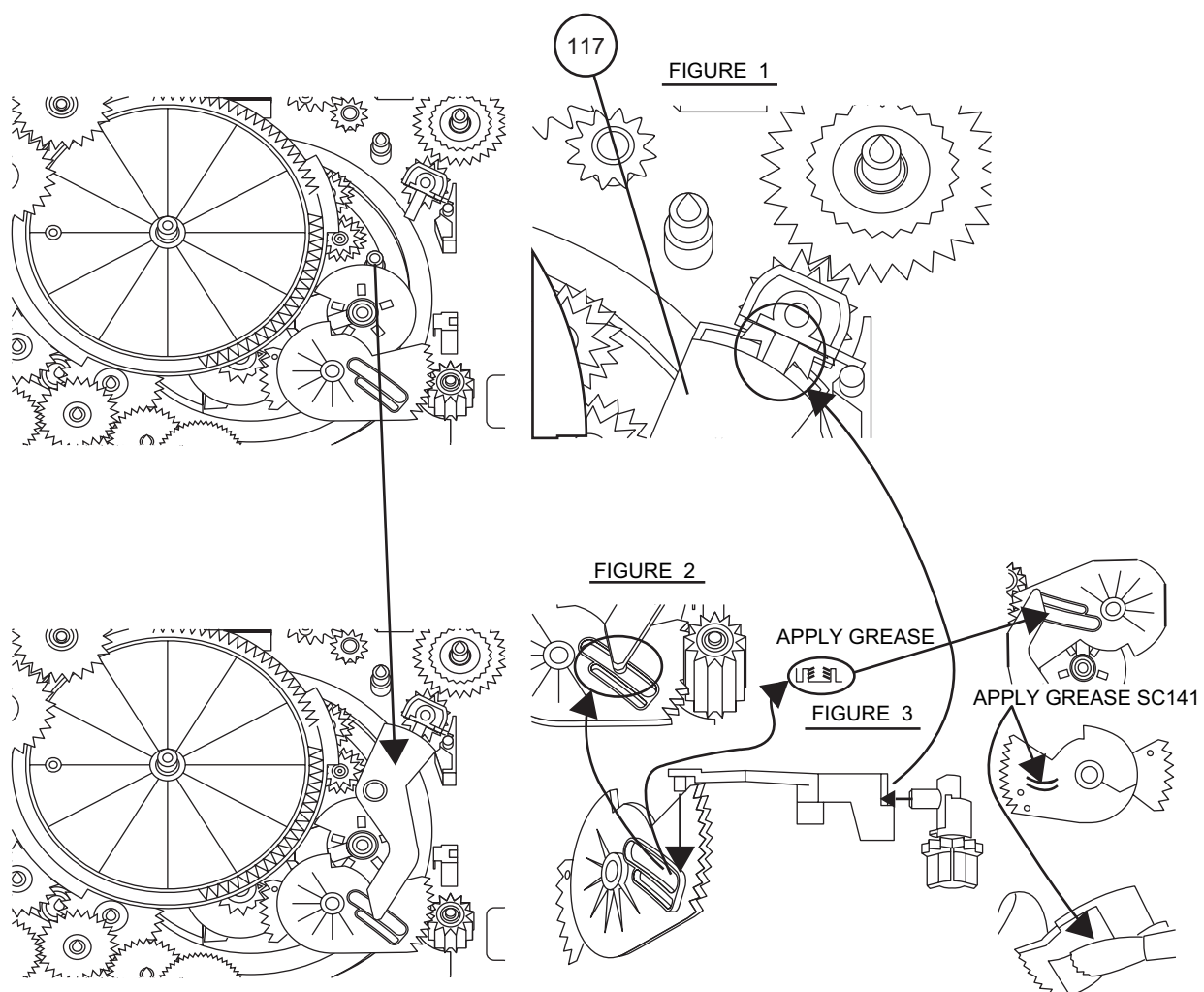


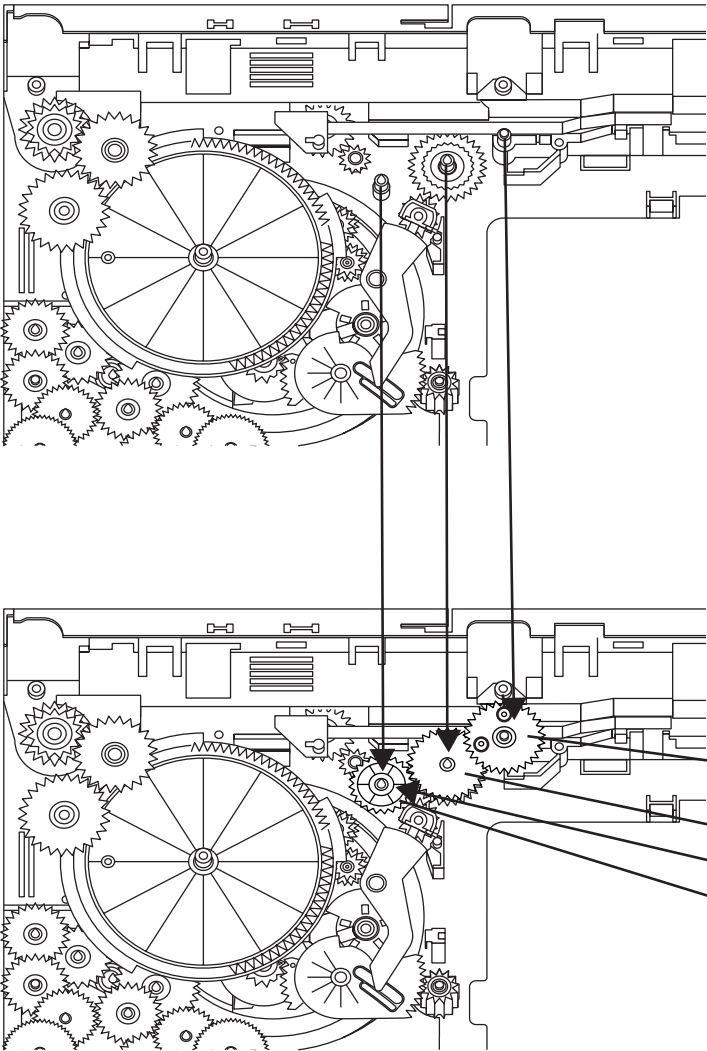






WHEN FIXING ITEM 2 MUST FOLLOW AS SHOWN



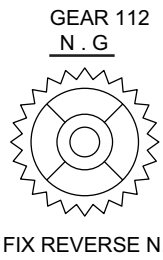
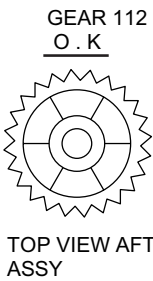


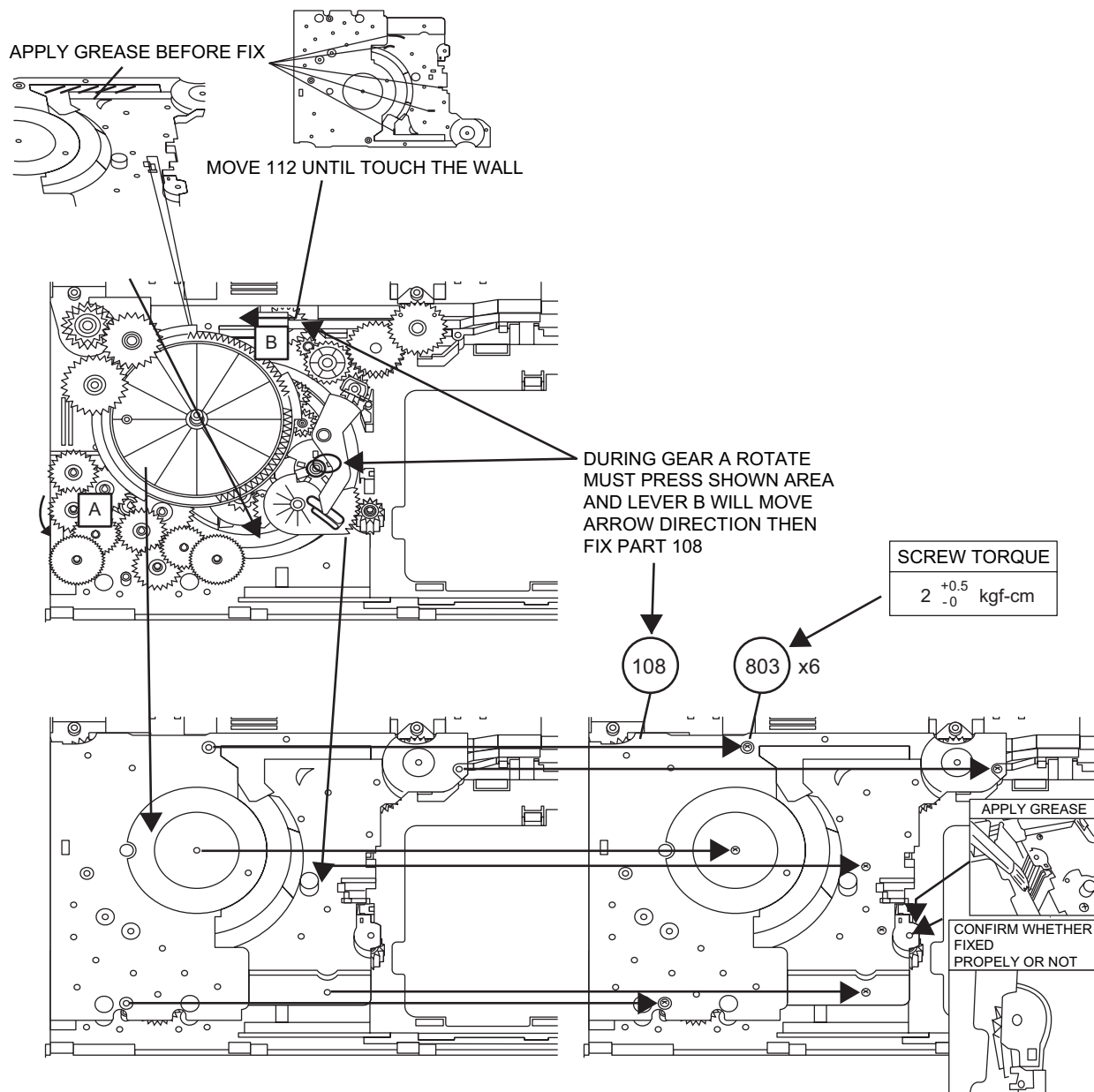
ITEM 2 , 3 MUST APPLY GREASE ON TOP SIDE GEAR ONLY

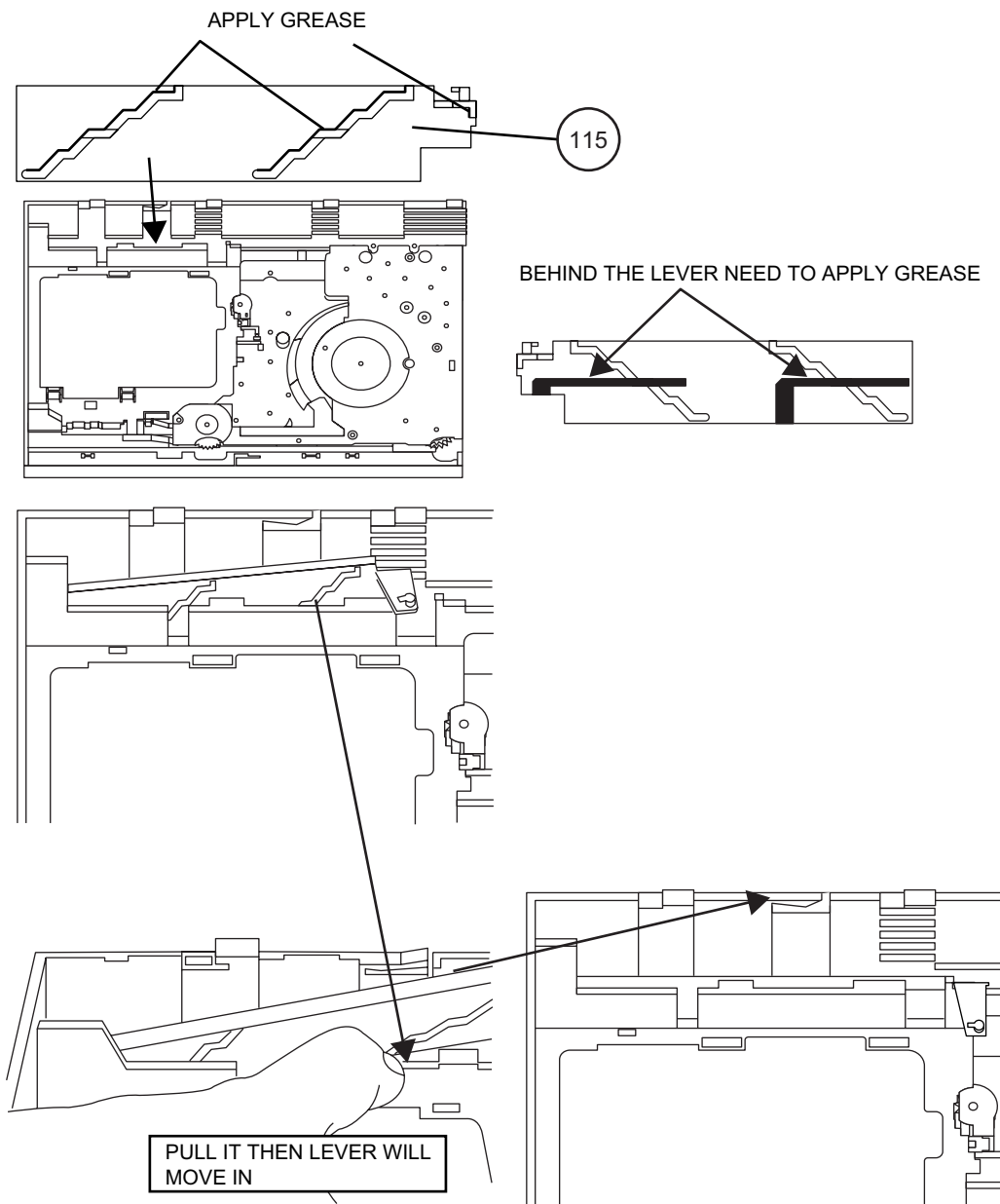
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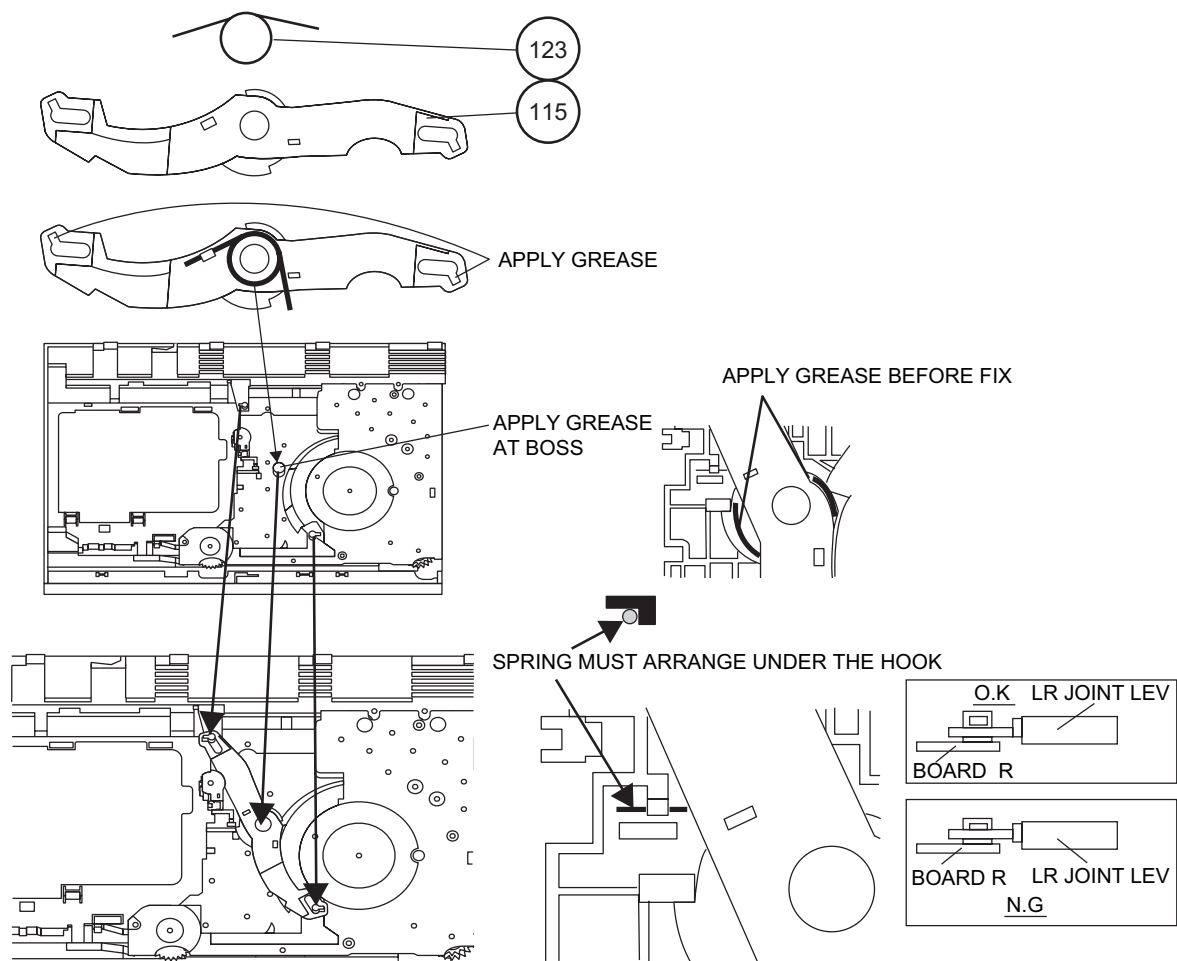
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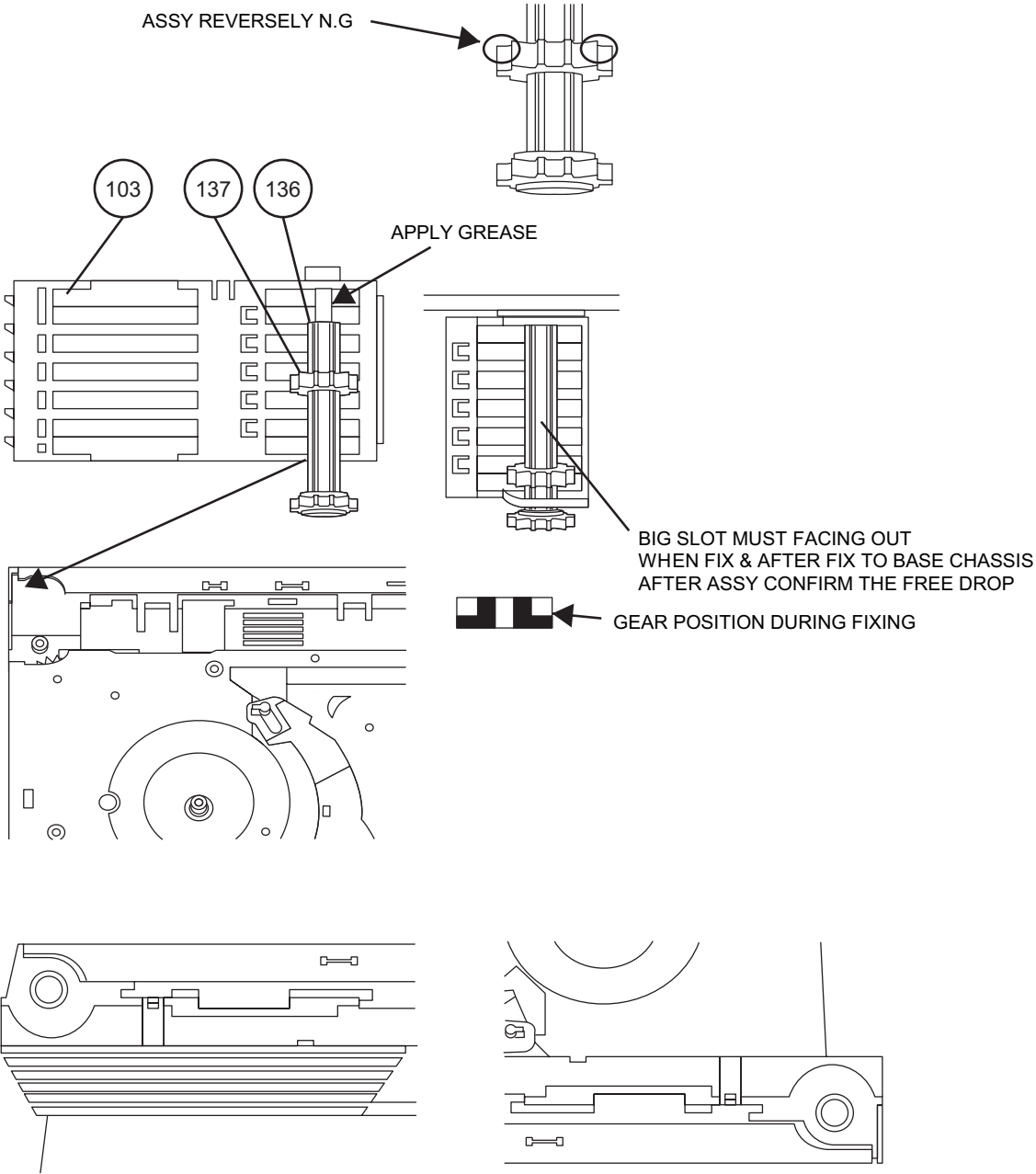
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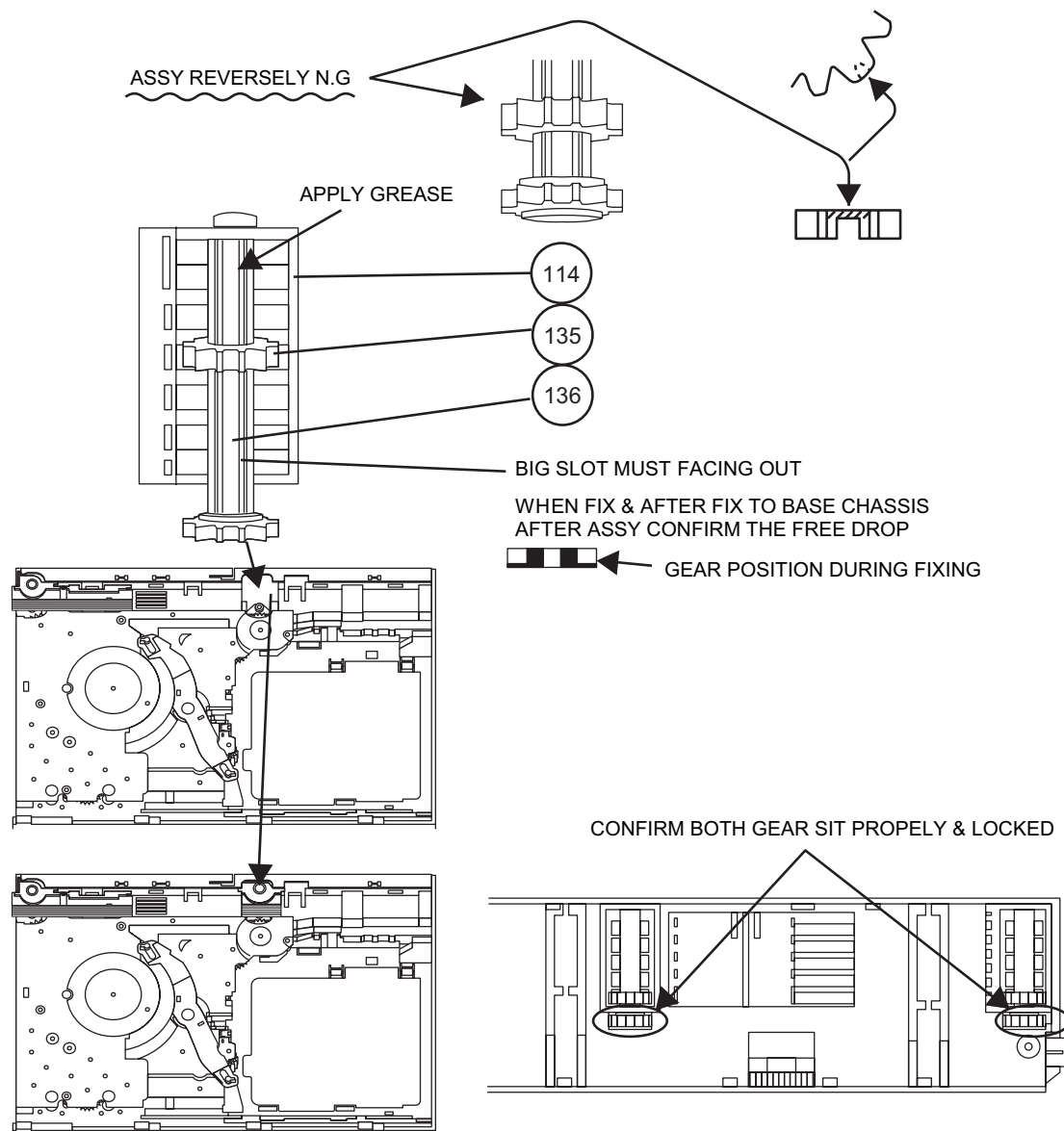


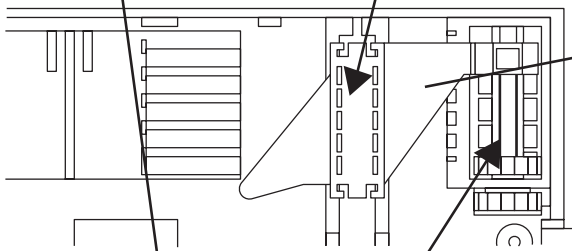
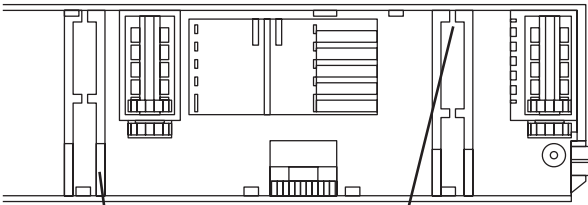








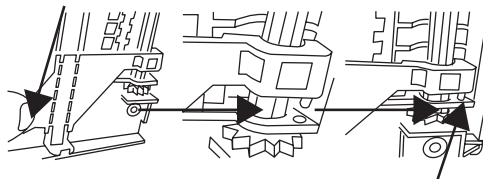




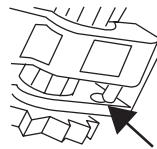
BIGGER SLOT FACING OUT

AFTER FIX OUTER UP/DOWN LEVER HOLD SHOWN PORTION AND
MOVE UP/DOWN THEN CONFIRM LEVER GO INSIDE THE HOLE OR NOT

120



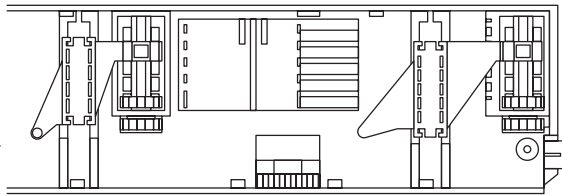
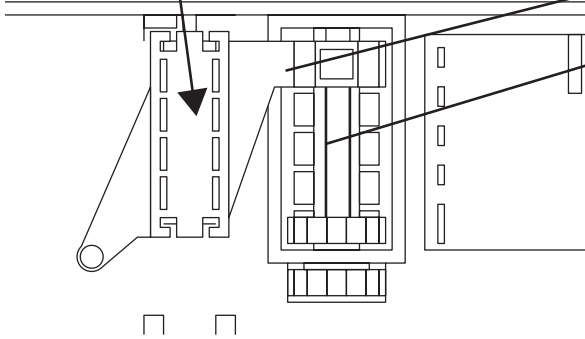
IF GO INSIDE HOLE
IS O.K

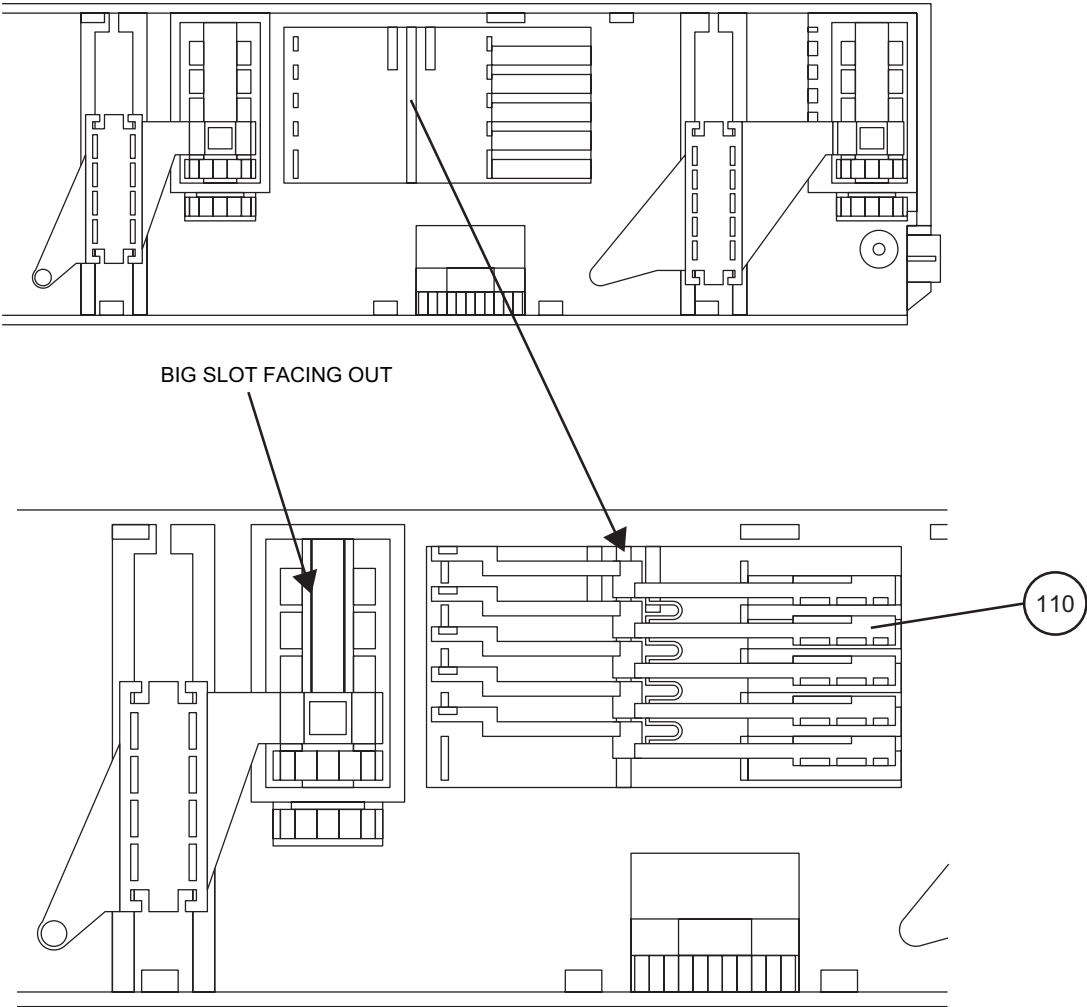


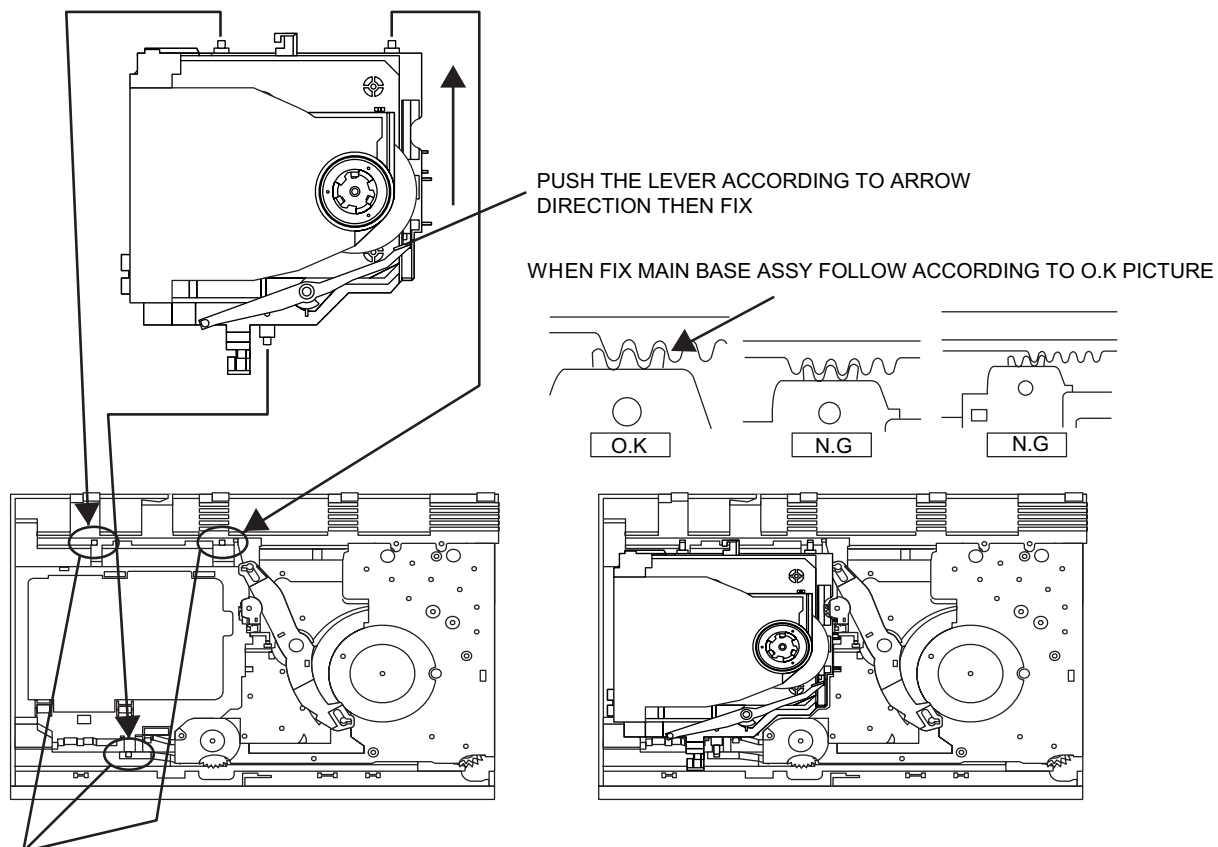
IF NO GO INSIDE HOLE IS N.G

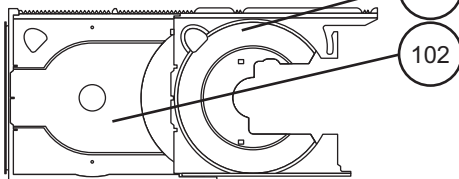
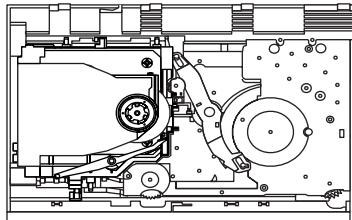
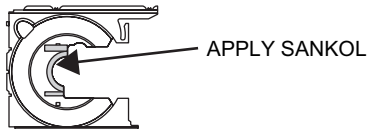
119

BIGGER SLOT FACING OUT



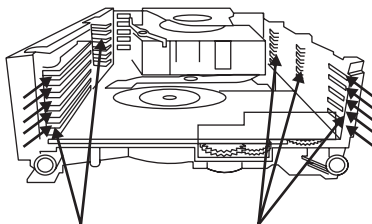
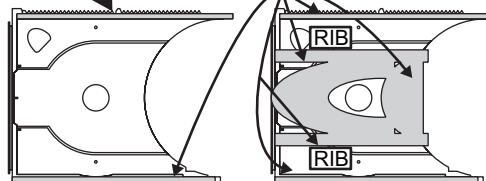




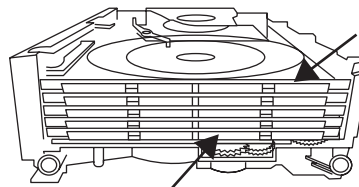


APPLY SANKOL ON TOP

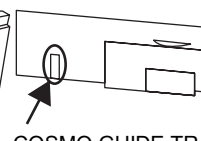
APPLY SANKOL INSIDE THE SLOT
& OTHER SHOWN PORTION



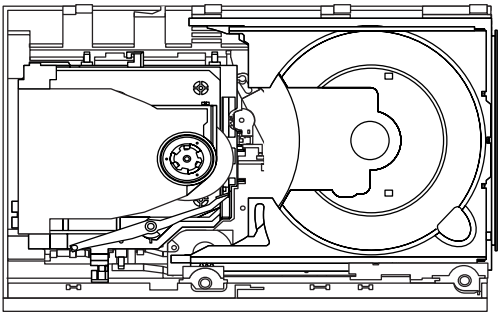
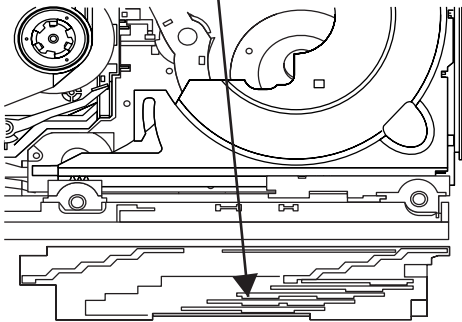
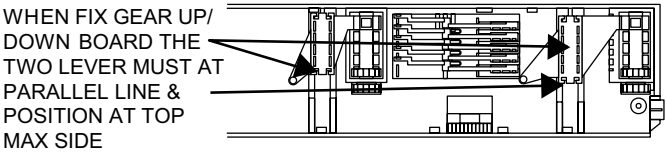
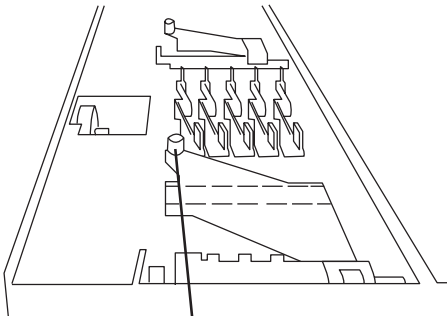
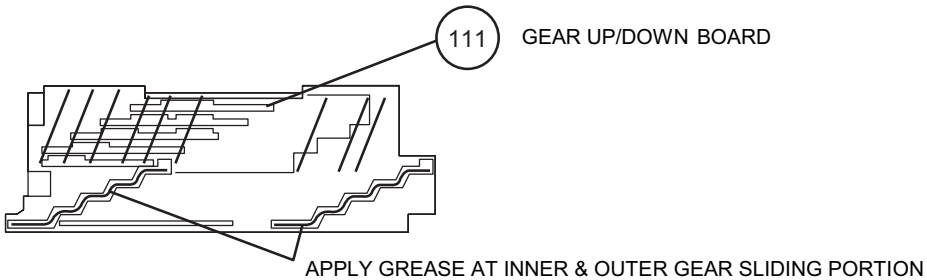
APPLY SANKOL AT TRAY SLIDING PORTION



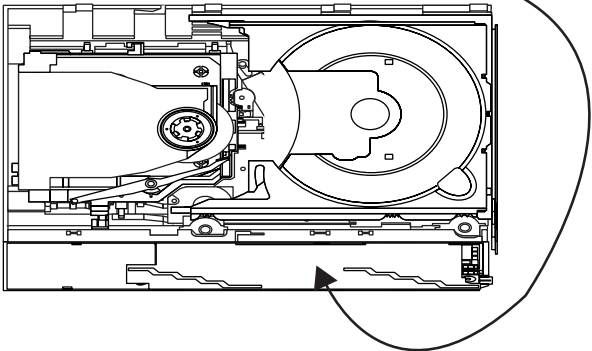
FIX TRAY NO 1 FIRST THAN
FOLLOW OTHER

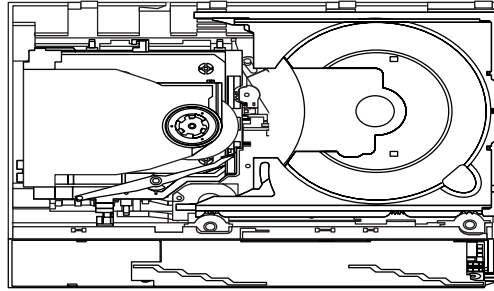


COSMO GUIDE TRAY HAVE
MARKING AS SHOWN

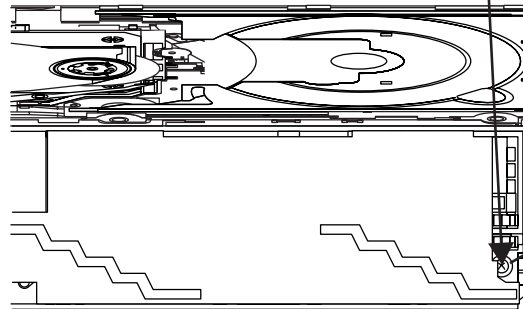
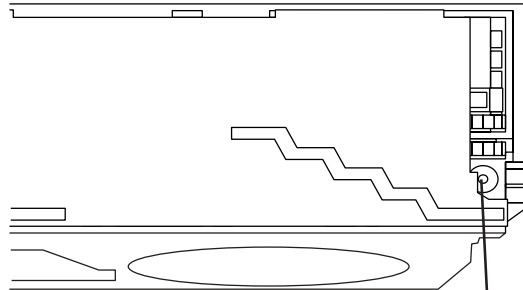


AFTER ASSY GEAR UP/DOWN BOARD

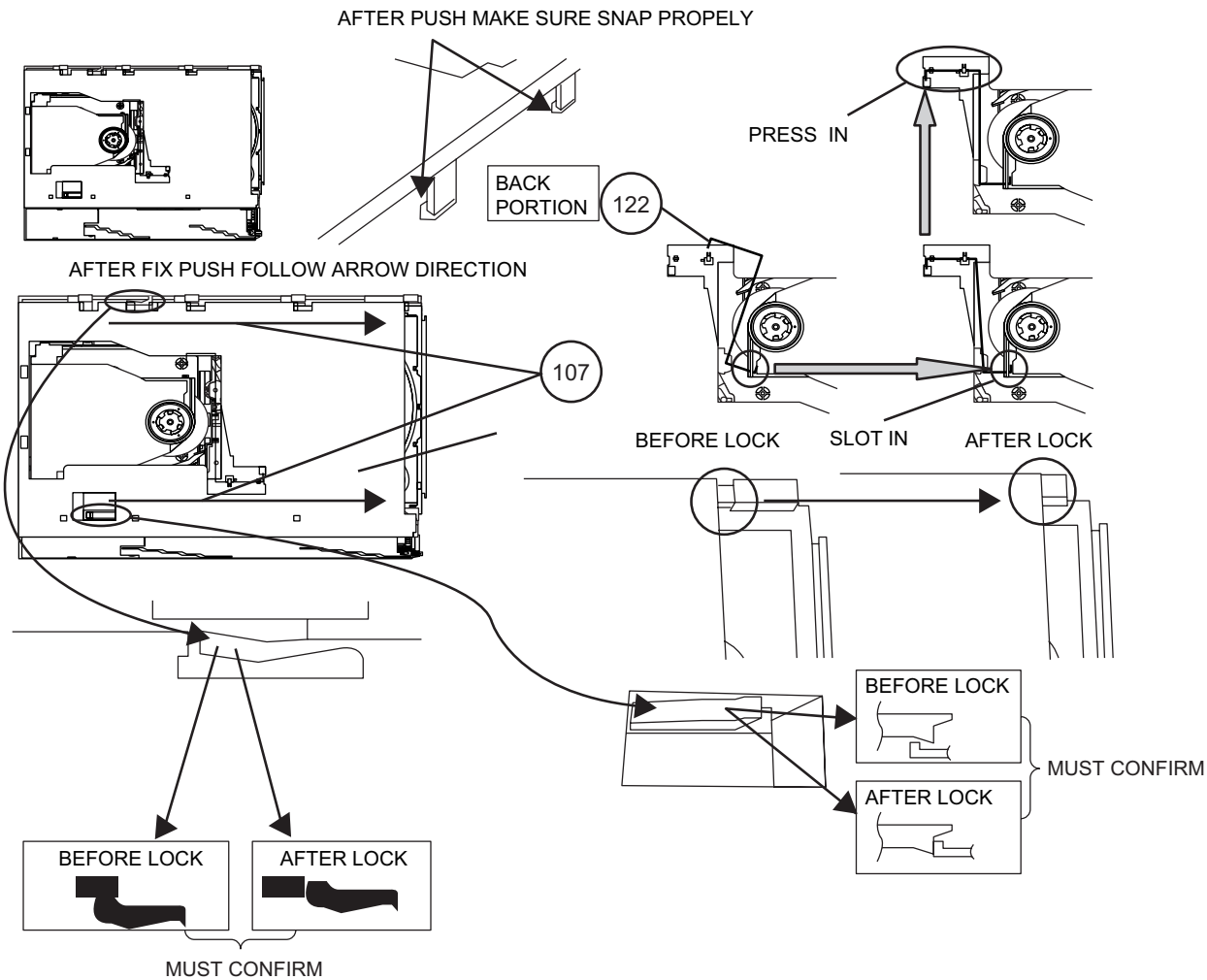
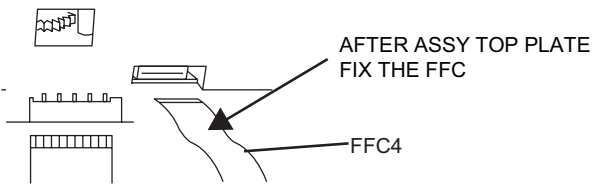


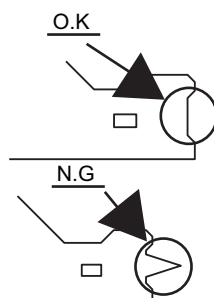
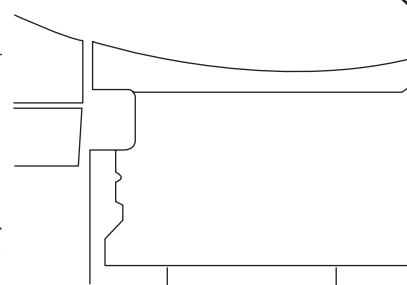
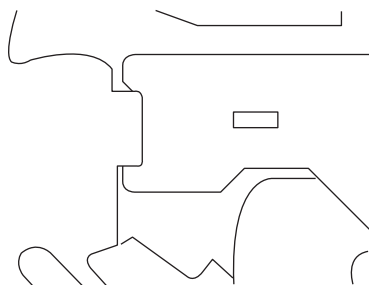
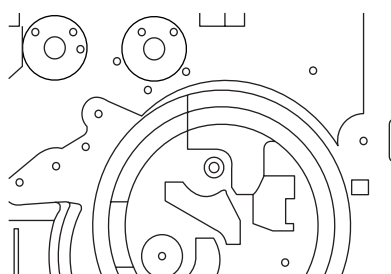
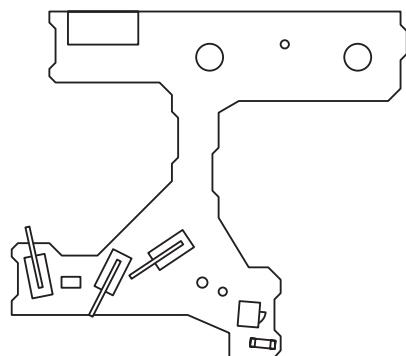


SCREW TORQUE	
3	$\begin{matrix} +0.5 \\ -0 \end{matrix}$ kgf-cm

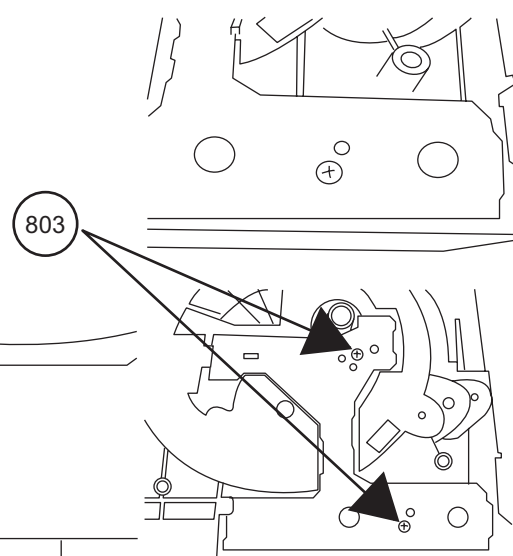


804

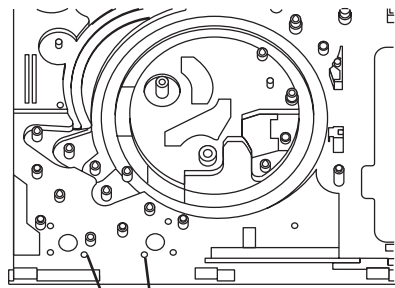


**CAUTION**

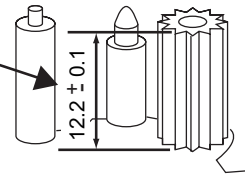
1. MAKE SURE NO PWB CHIP INSIDE SET .(BEFORE
FIX MAKE SURE PWB NO DUST , GREASE & ETC)



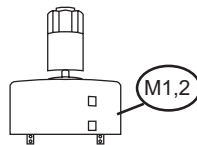




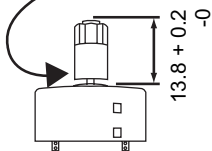
REFERENCE ONLY
MOTOR GEAR HEIGHT FROM
MAIN BASE 12.2 ± 0.1



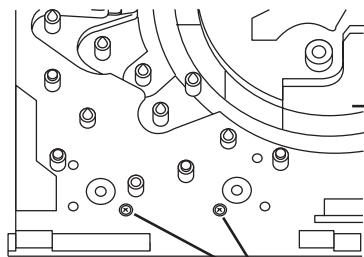
MOTOR SCREWING HOLE



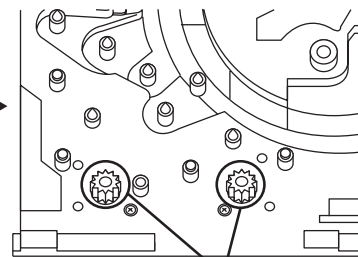
MUST HAVE GAP



SCREW TORQUE		
1.5	+ 0.5	-0



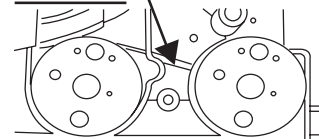
801

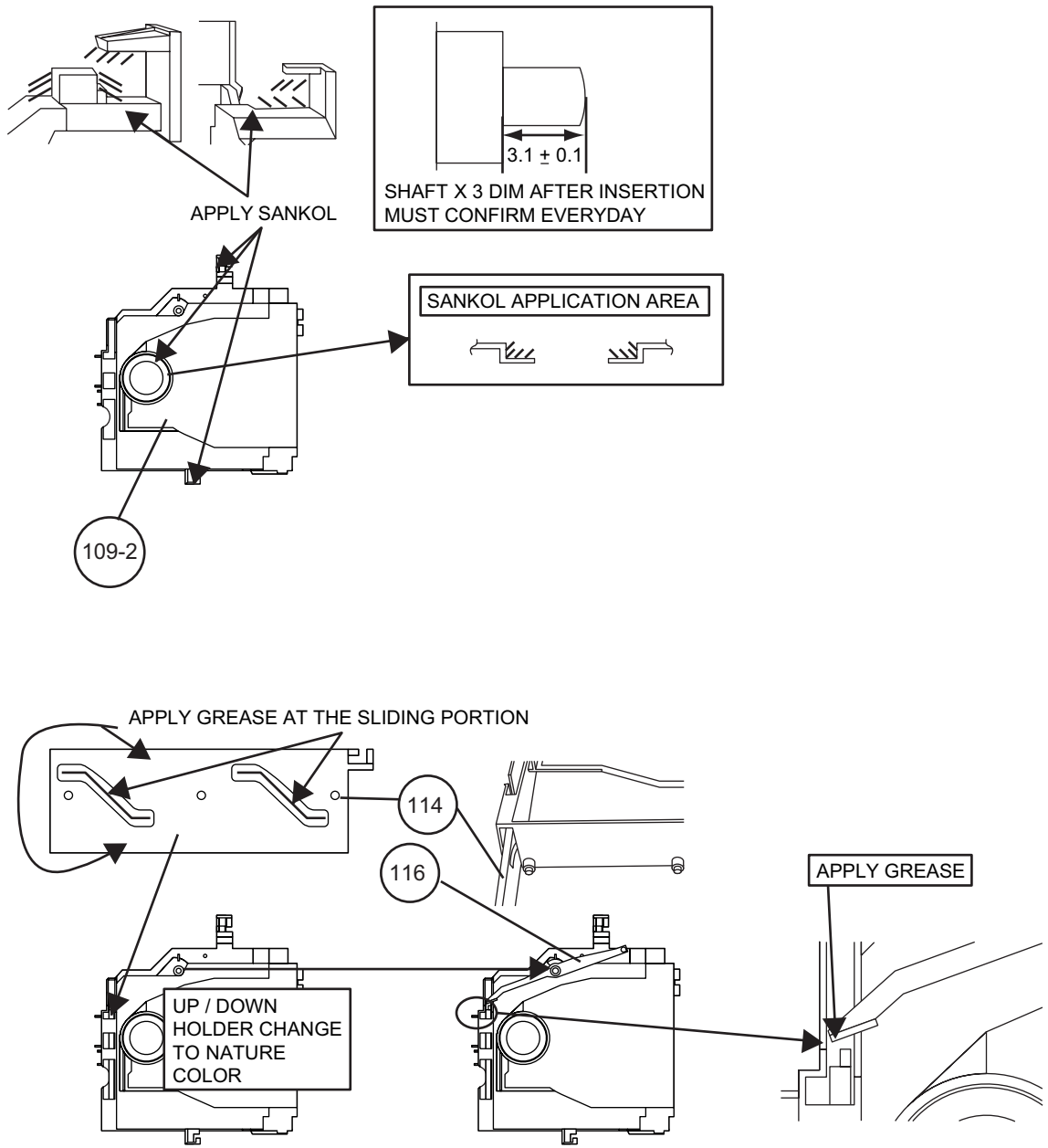


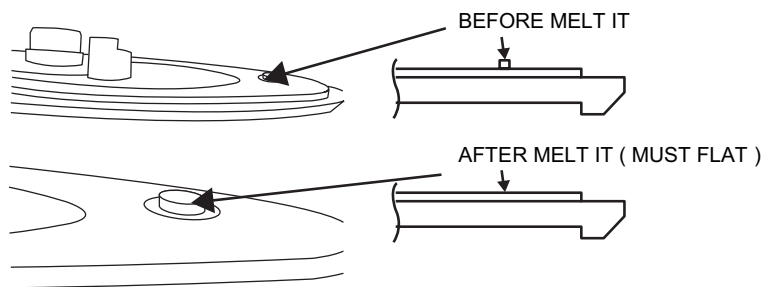
APPLY GREASE

AFTER SCREW MOTOR, CONFIRM THE
ARRANGEMENT AS IN FIGURE 2

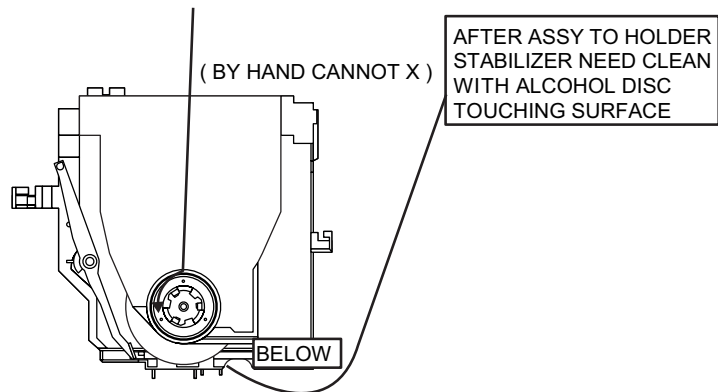
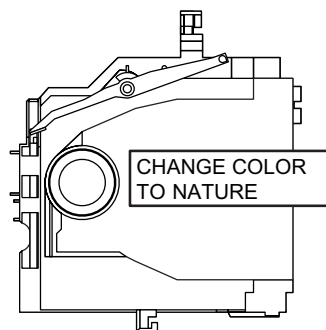
FIGURE 2

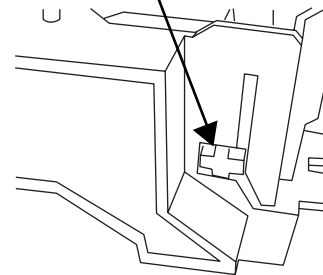
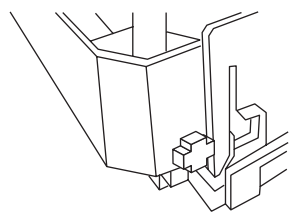
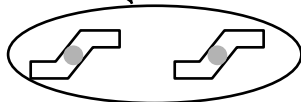






WHEN FITTING STABILIZER PLATE TO STABILIZER,
ROTATE STABILIZER ANTI CLOCKWISE BY JIG



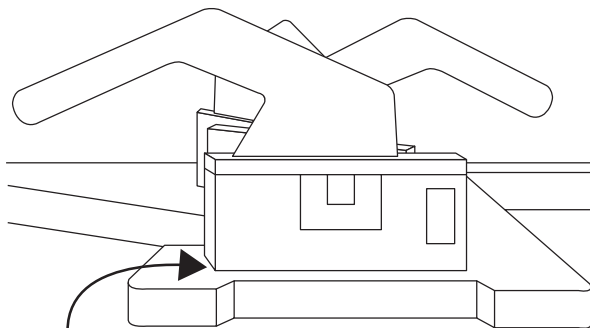


GAP
N.G

O.K

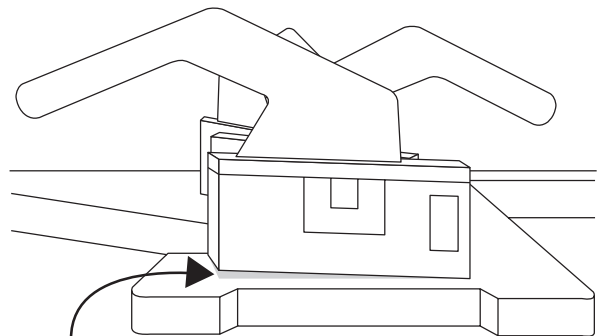
N.G

32



NO GAP

O.K



HAVE GAP

N.G

CHAPTER 3. MECHANISM BLOCKS

[1] Caution on disassembly

Caution on Disassembly

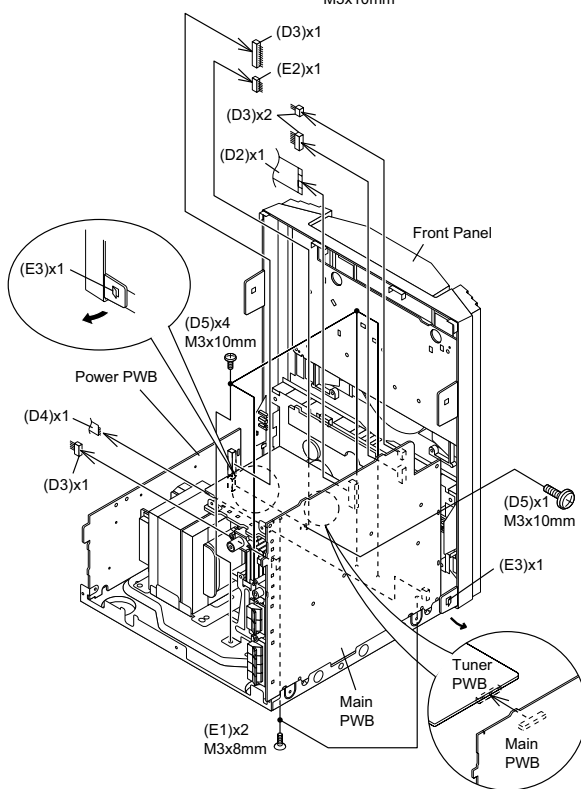
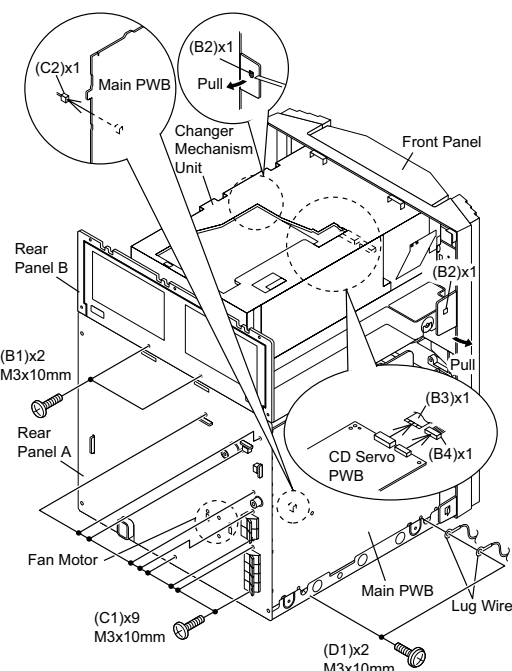
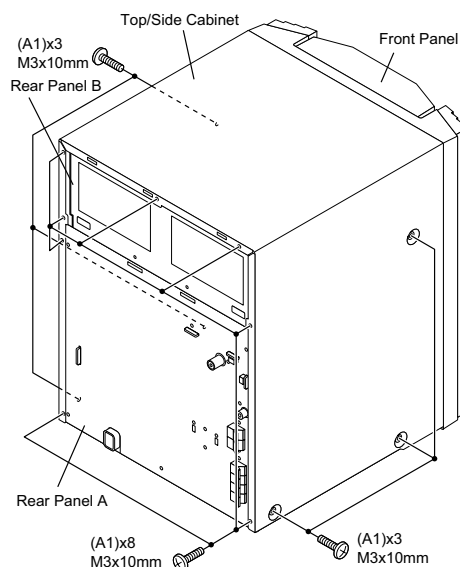
Follow the below-mentioned notes when disassembling the unit and reassembling it, to keep it safe and ensure excellent performance:

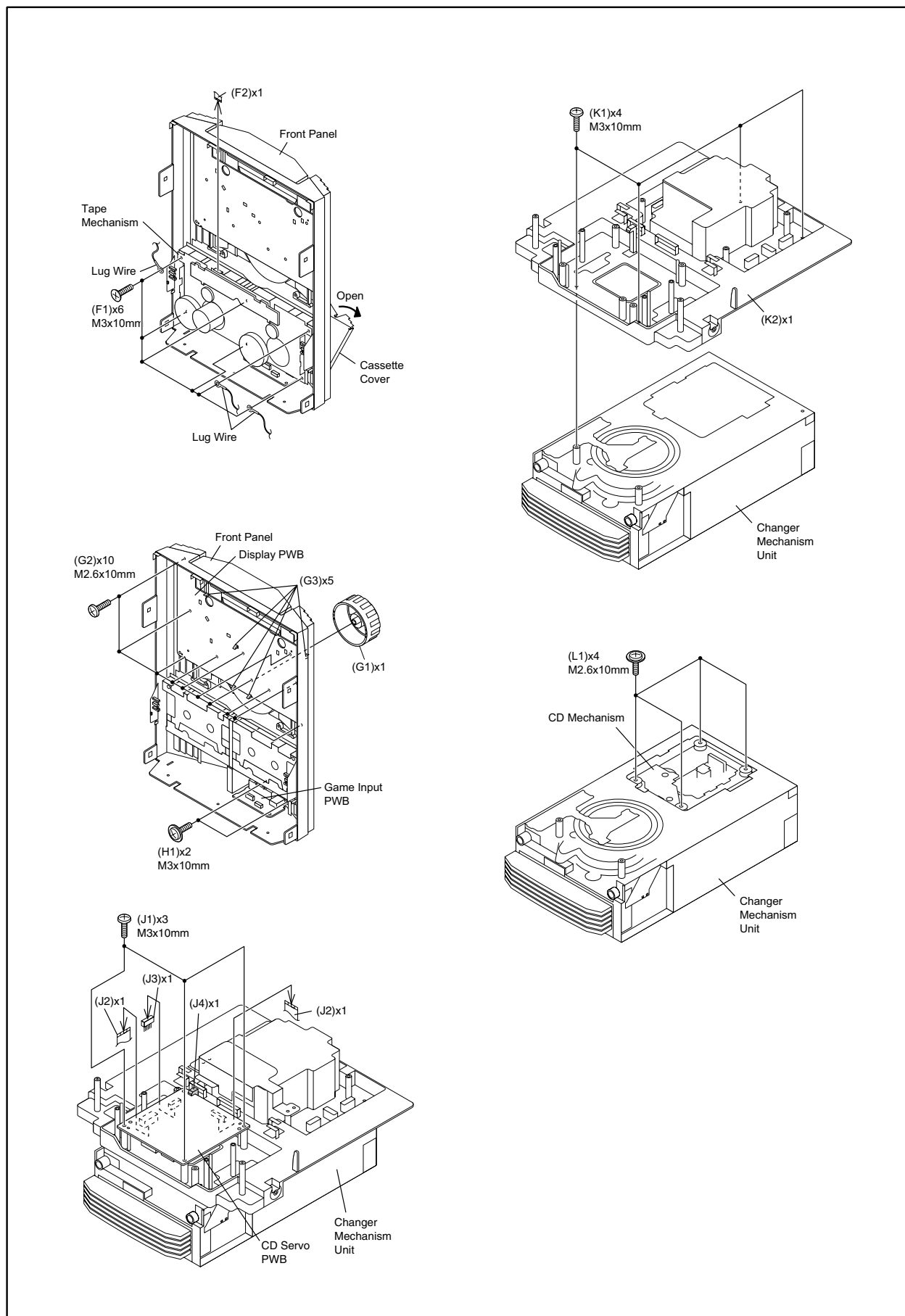
1. Take cassette tape and compact disc out of the unit.
2. Be sure to remove the power supply plug from the wall outlet before starting to disassemble the unit.
3. Take off nylon bands or wire holders where they need to be removed when disassembling the unit. After servicing the unit, be sure to rearrange the leads where they were before disassembling.

CD-SW200E		
STEP	REMOVAL	PROCEDURE
1	Top/Side Cabinet	1. Screw (A1) x14
2	Changer Unit/ Rear Panel B	1. Screw (B1) x2 2. Hook (B2) x2 3. Flat Cable (B3) x1 4. Socket (B4) x1
3	Rear Panel A with Fan motor	1. Screw (C1) x9 2. Socket (C2) x1
4	Main/Tuner PWB	1. Screw (D1) x2 2. Flat Cable (D2) x1 3. Socket (D3) x4 4. Flat Wire (D4) x1 5. Screw (D5) x5
5	Front Panel	1. Screw (E1) x2 2. Socket (E2) x1 3. Hook (E3) x2
6	Tape Mechanism	1. Open the cassette Cover 2. Screw (F1) x6 3. Flat Cable (F2) x1
7	Display PWB	1. Knob (G1) x1 2. Screw (G2) x10 3. Hook (G3) x5
8	Game Input PWB	1. Screw (H1) x2
9	CD Servo PWB	1. Screw (J1) x3 2. Flat Cable (J2) x2 3. Socket (J3) x1 4. Hook (J4) x1
10	Changer Mechanism Unit	1. Screw (K1) x4 2. Changer Chassis (K2) x1
11	CD Mechanism	1. Screw (L1) x4

Note 1:

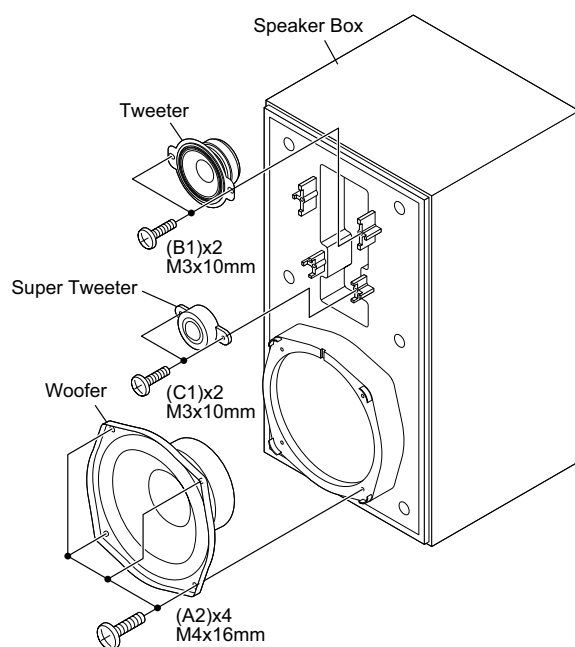
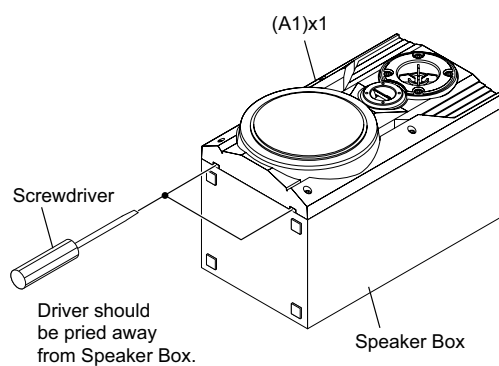
After removing the connector for the optical pickup from the connector, wrap the conductive aluminium foil around the front end of the connector so as to protect the optical pickup from electrostatic damage.



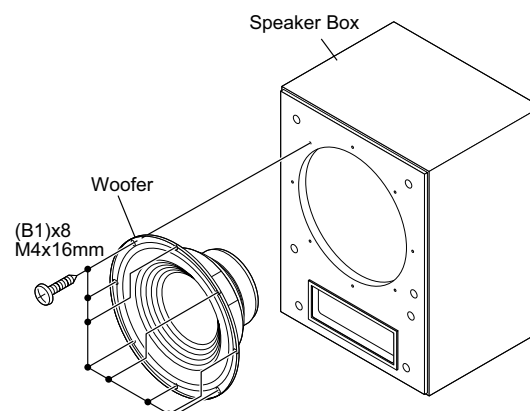
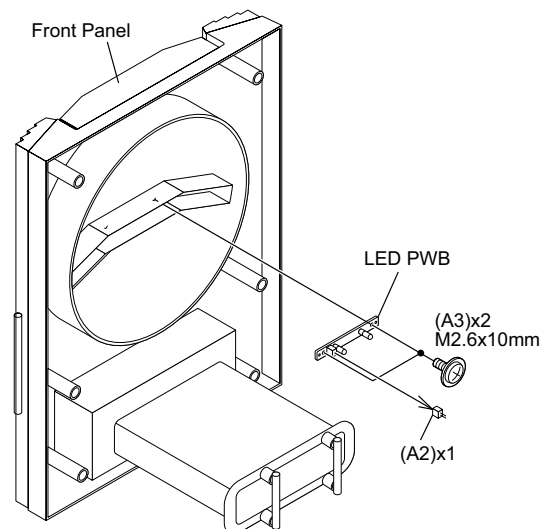
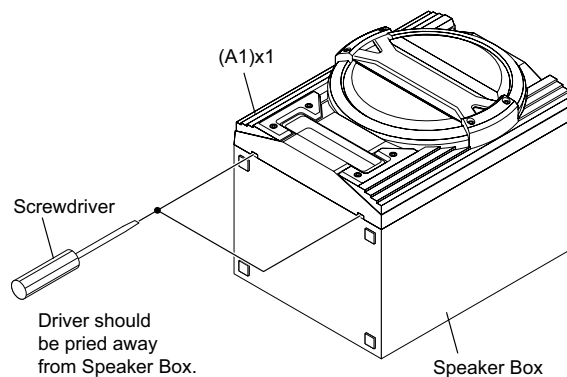


CP-S200H

STEP	REMOVAL	PROCEDURE
1	Woofer	1. Front Panel (A1) x1 2. Screw (A2) x4
2	Tweeter	1. Screw (B1) x2
3	Super Tweeter	1. Screw (C1) x2

**CP-SW200E**

STEP	REMOVAL	PROCEDURE
1	LED PWB	1. Front Panel (A1) x1 2. Socket (A2) x1 3. Screw (A3) x2
2	Woofer	1. Screw (B1) x8



[2] Removing and reinstalling the main parts

1. TAPE MECHANISM SECTION

Perform steps 1 to 5 and 6 of the disassembly method to remove the tape mechanism. (See page 3-1, 3-2)

1.1. How to remove the record/playback and erase heads (TAPE 2) (See Fig. 1)

1. When you remove the screws (A1) x 2 pcs., the recording/playback head and three-dimensional head of the erasing head can be removed.

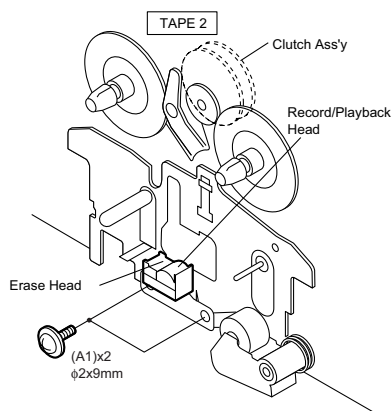


Figure 1

1.2. How to remove the playback head (TAPE 1) (See Fig. 2)

1. When you remove the screws (B1) x 2 pcs., the playback head can be removed.

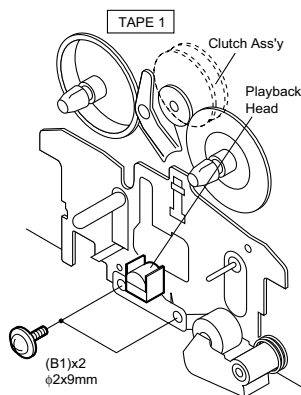


Figure 2

1.3. How to remove the pinch roller (TAPE 1/2) (See Fig. 3)

1. Carefully bend the pinch roller pawl in the direction of the arrow <A>, and remove the pinch roller (C1) x 1 pc., in the direction of the arrow .

Note:

When installing the pinch roller, pay attention to the spring mounting position.

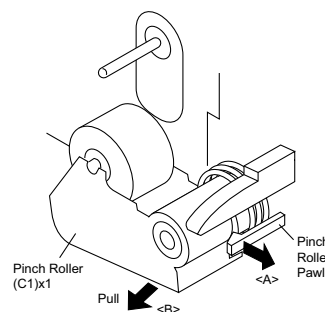


Figure 3

1.4. How to remove the belt (TAPE 2) (See Fig. 4)

1. Remove the main belt (D1) x 1 pc., from the motor side.
2. Remove the FF/REW belt (D2) x 1 pc.

1.5. How to remove the belt (TAPE 1) (See Fig. 4)

1. Remove the main belt (E1) x 1 pc., from the motor side.
2. Remove the FF/REW belt (E2) x 1 pc.

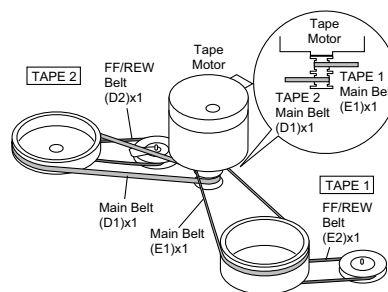


Figure 4

1.6. How to remove the motor (See Fig. 5)

1. Remove the screws (F1) x 2 pcs., to remove the motor.

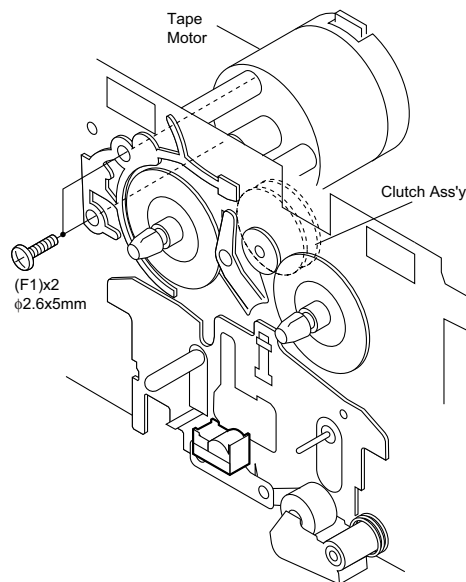


Figure 5

2. CD MECHANISM SECTION

Perform steps 1, 2, 9, 10 and 11 of the disassembly method to remove the CD mechanism. (See page 3-1, 3-2)

2.1. Remove the pickup. (See Fig. 1)

1. Remove the stop washer (A1) x 1 pc., to remove the gear (A2) x 1 pc.
2. Remove the screws (A3) x 2 pcs., to remove the shaft (A4) x 1 pc.
3. Remove the pickup.

Note

After removing the connector for the optical pickup from the connector wrap the conductive aluminium foil around the front end of connector so as to protect the optical pickup from electrostatic damage.

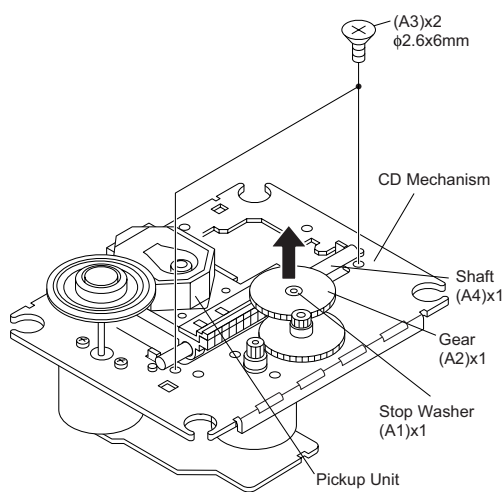


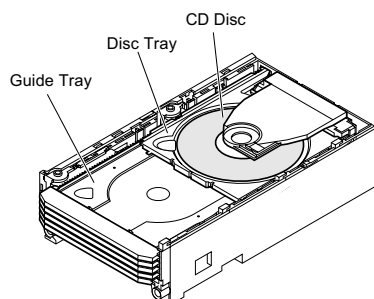
Figure 1

3. CHANGER MECHANISM SECTION

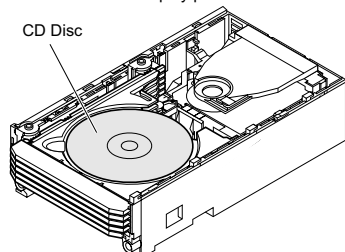
Perform steps 1, 2, 9 and 10 of the disassembly method to remove the CD changer mechanism.

3.1. How to remove CD Disc (See Fig. 2~5)

1. When CD is at play position (Figure 2), rotate reduction gear C clock-wise as shown in Figure 3 until disc tray is at stock position, then rotate further to eject the disc tray so that CD can be removed from the tray.



CD At play position.



CD At stock position.

Figure 2

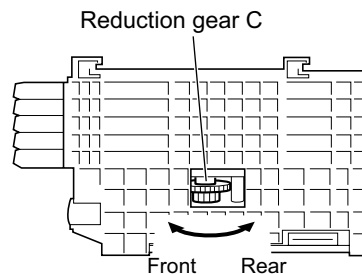


Figure 3

2. In another case, if CD mechanism is at tray No.1 play position and to remove CD located in tray No.3, the procedure is as follows:

If the gear up down board is located at tray No.1 position, then rotate gear clock-wise until it at stock position. Rotate reduction gear D clockwise (Figure 4) to move the CD mechanism to tray No.3 position. This is confirmed by checking the gear up down board position by the marking as indicated on the main chassis as shown in Figure 5.

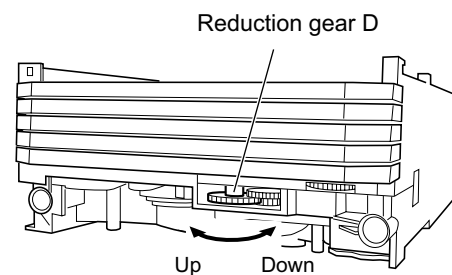


Figure 4

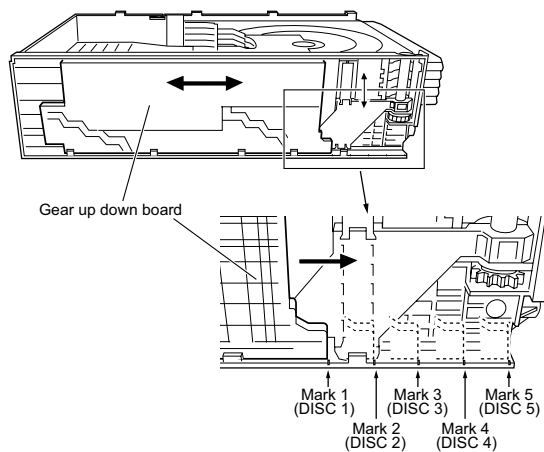


Figure 5

3.2. How to Remove the tray motor/main cam motor/5-Changer Motor PWB (See Fig. 6)

1. Remove the screws (A1) x 2 pcs., to remove tray motor/main cam motor/5-Changer Motor PWB.

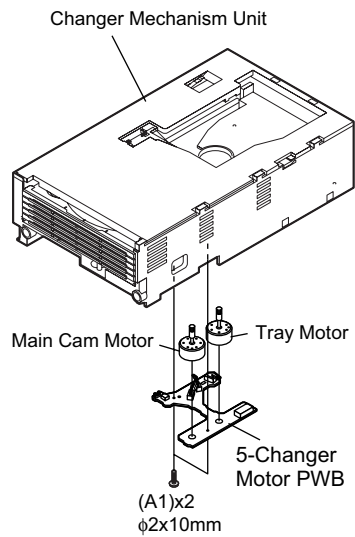


Figure 6

NOTE: There are 2 more screws tighten the motors at the bottom of main chassis. Before performing procedure 1 above, disc stop spring, top plate gear up down board and trays must be removed, then only the 2 screws can be untighten.

CHAPTER 4. DIAGRAMS

[1] Block diagrams

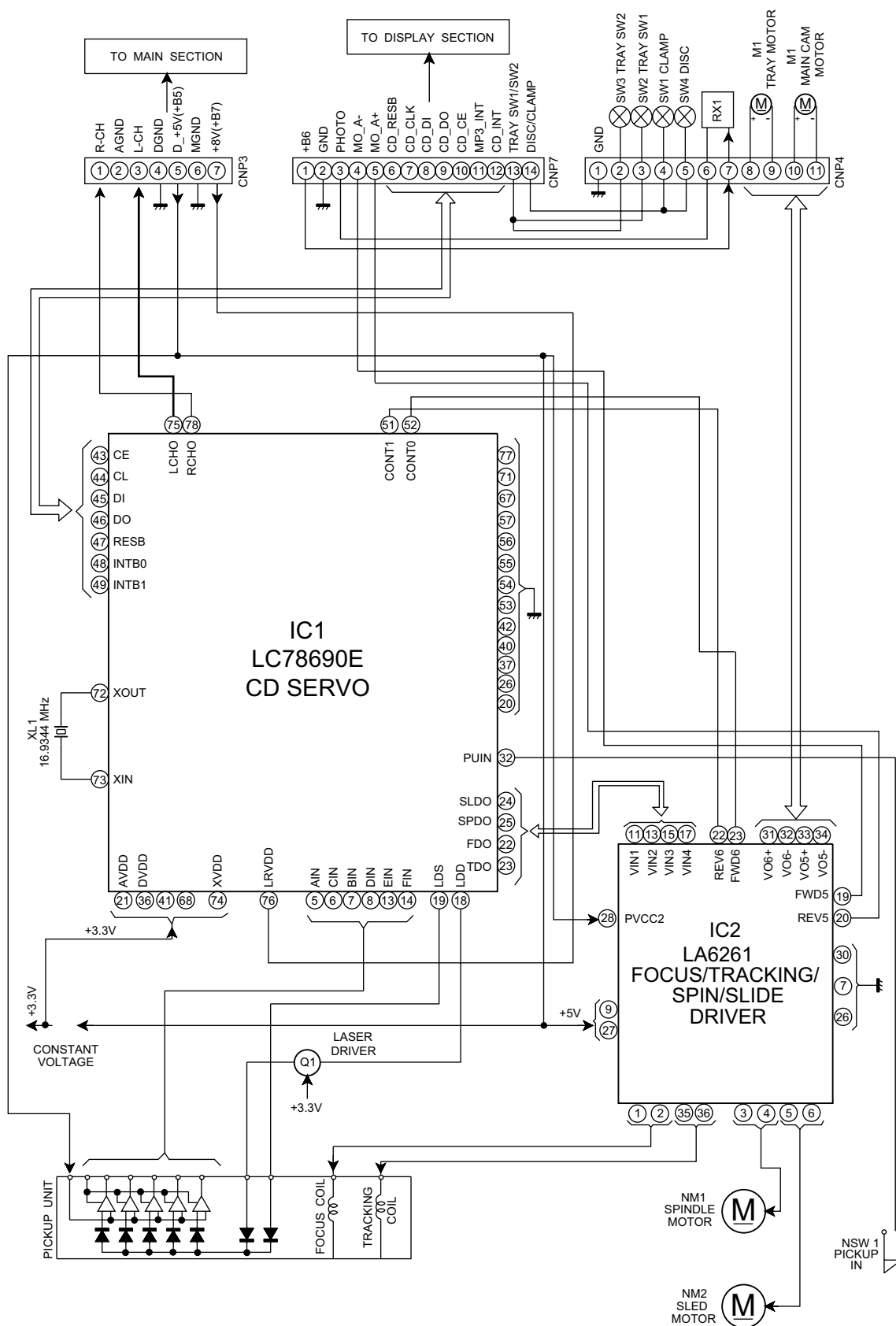


Figure 4-1 BLOCK DIAGRAM (1/3)

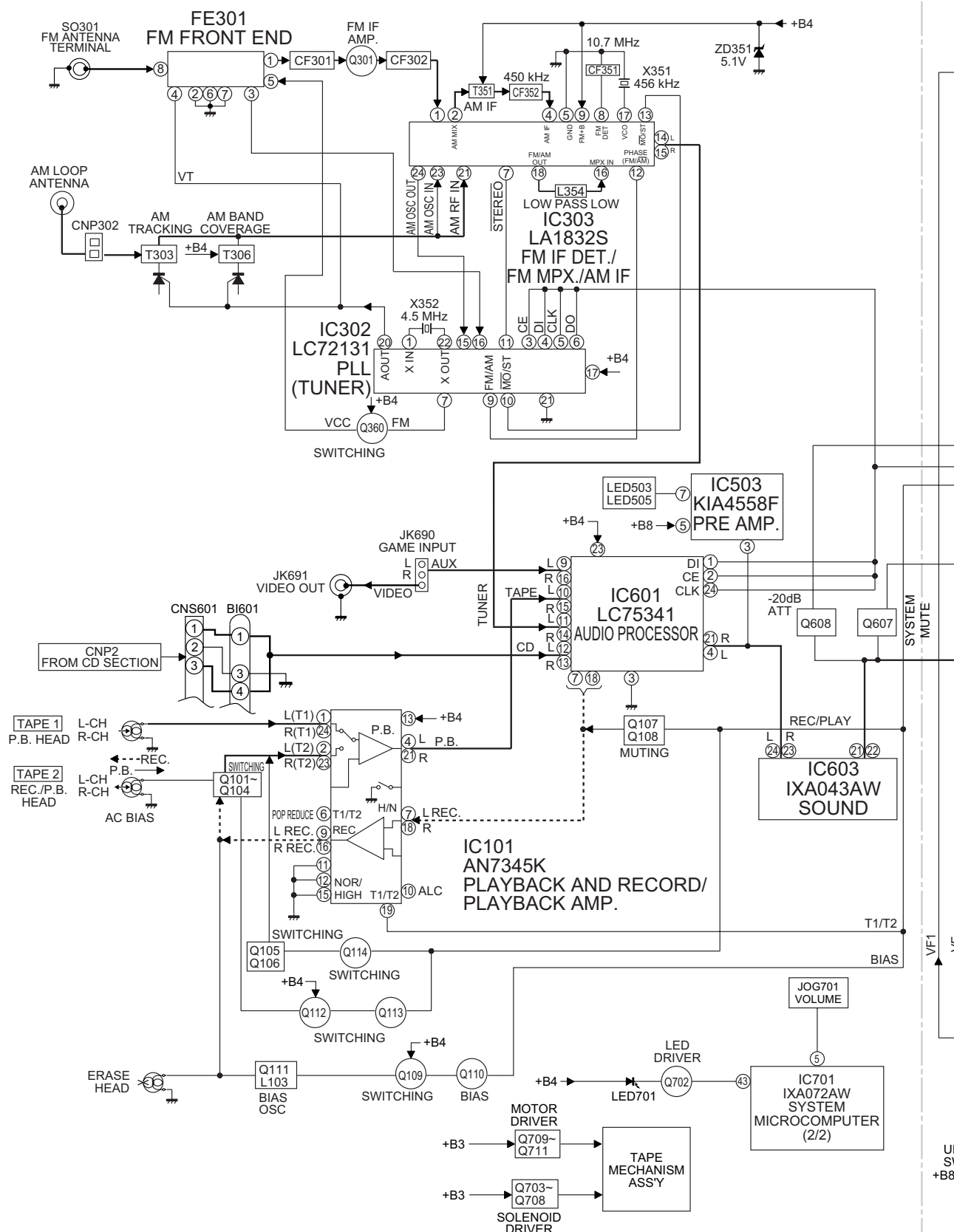


Figure 4-2 BLOCK DIAGRAM (2/3)

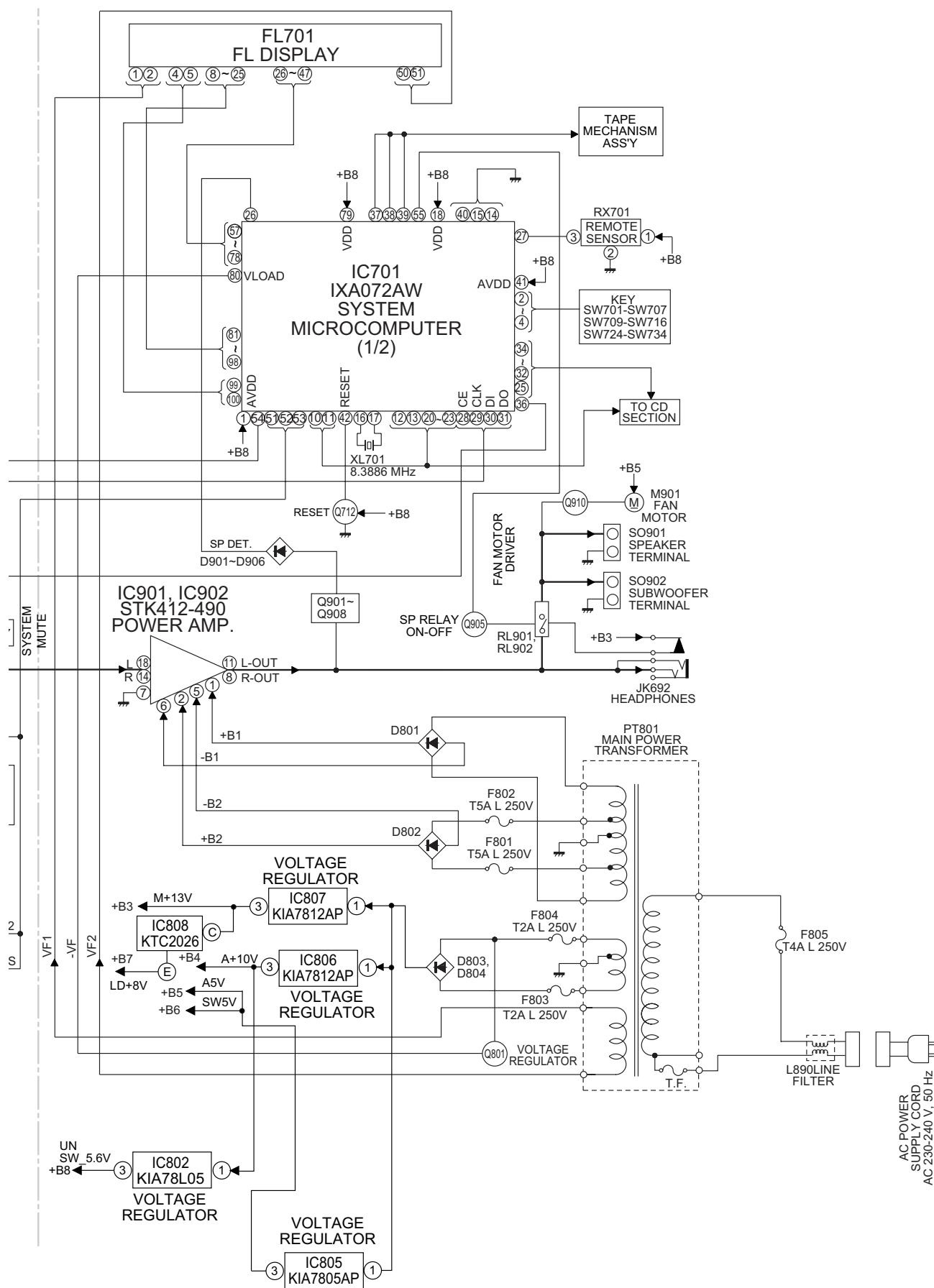


Figure 4-3 BLOCK DIAGRAM (3/3)

CHAPTER 5. CIRCUIT DESCRIPTION

[1] Notes on schematic diagram

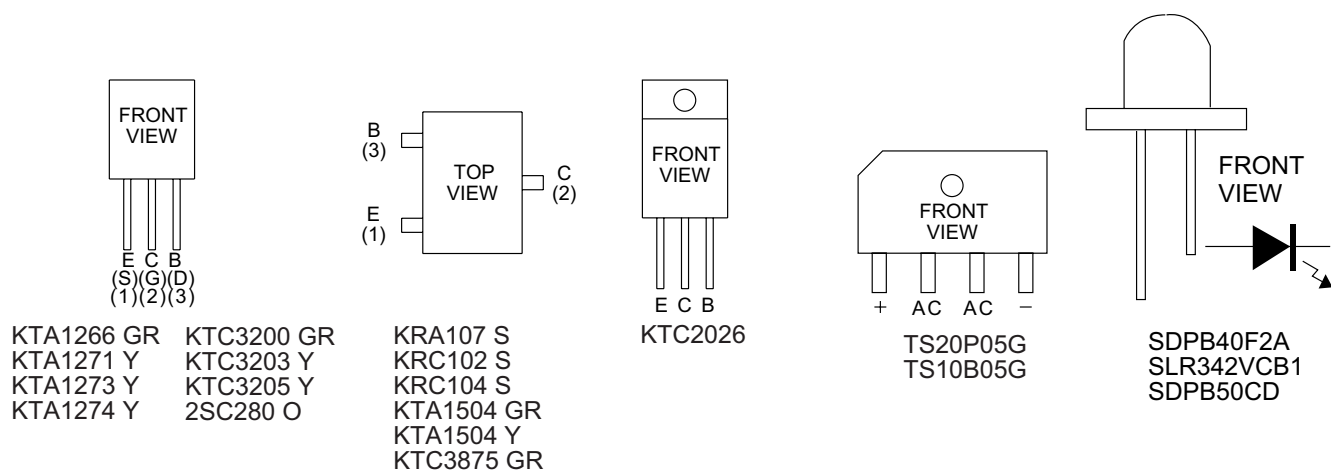
- Resistor:
To differentiate the units of resistors, such symbol as K and M are used: the symbol K means 1000 ohm and the symbol M means 1000 kohm and the resistor without any symbol is ohm-type resistor. Besides, the one with "Fusible" is a fuse type.
- Capacitor:
To indicate the unit of capacitor, a symbol P is used: this symbol P means pico-farad and the unit of the capacitor without such a symbol is microfarad. As to electrolytic capacitor, the expression "capacitance/withstand voltage" is used.
(CH), (TH), (RH), (UJ): Temperature compensation
(ML): Mylar type
(P.P.): Polypropylene type
- Schematic diagram and Wiring Side of P.W.Board for this model are subject to change for improvement without prior notice.

REF. NO	DESCRIPTION	POSITION
JOG701	VOLUME	ON—OFF
NSW1	PICKUP IN	ON—OFF
SW1	CLAMP	ON—OFF
SW2	TRAY SW1	ON—OFF
SW3	TRAY SW2	ON—OFF
SW4	DISC	ON—OFF
SW701	POWER ON/STAND-BY	ON—OFF
SW702	CLOCK/TIMER	ON—OFF
SW703	TUNING UP	ON—OFF
SW704	TUNING DOWN	ON—OFF
SW705	FAST REWIND/PRESET DOWN	ON—OFF
SW706	EQUALIZER	ON—OFF
SW707	FAST FORWARD/PRESET UP	ON—OFF
SW712	TUNER (BAND)	ON—OFF

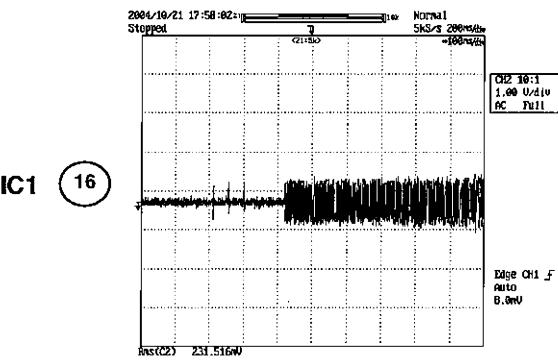
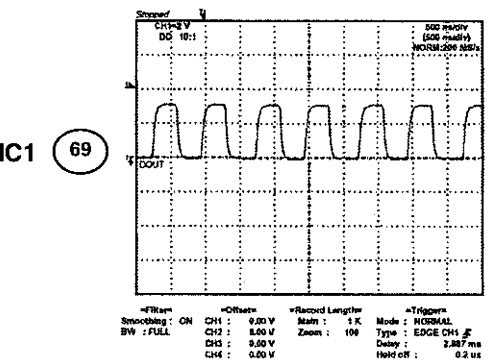
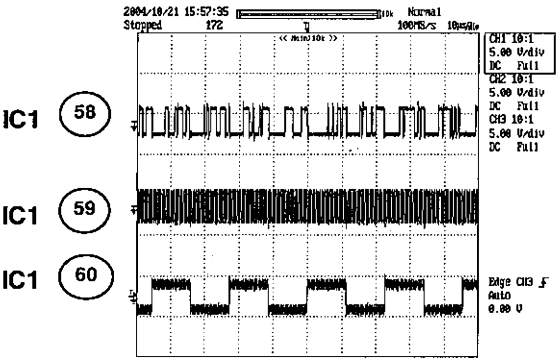
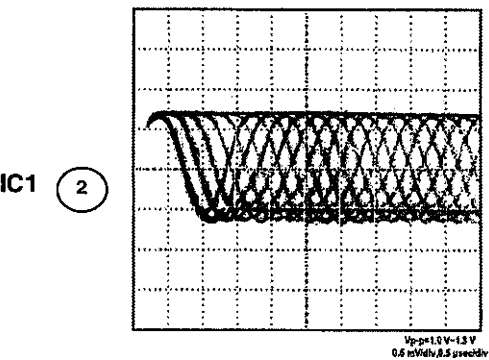
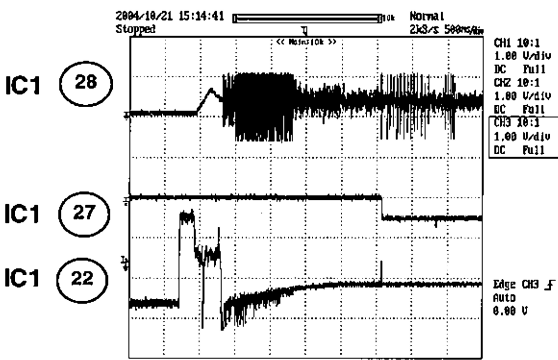
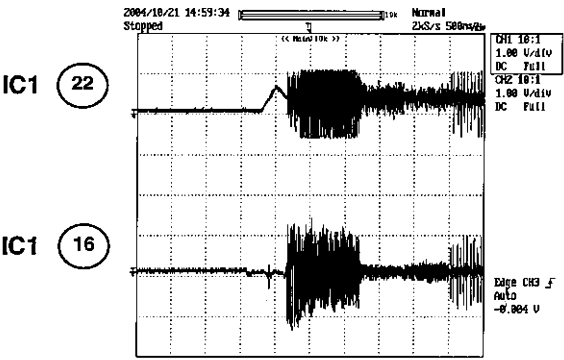
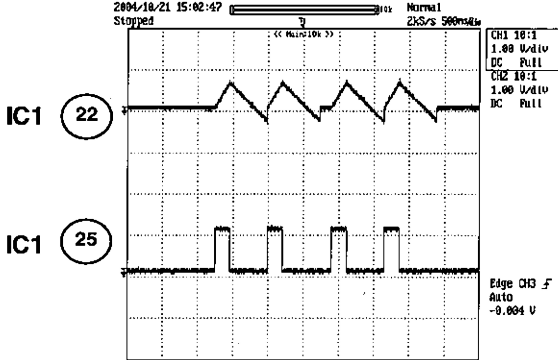
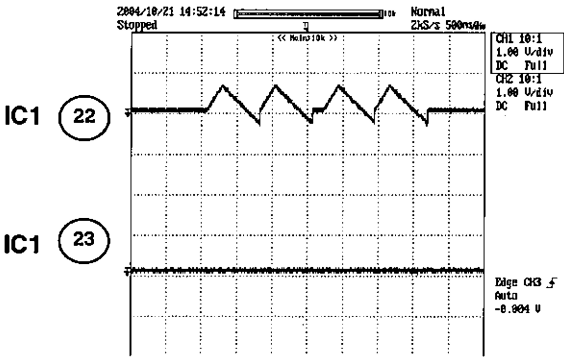
- The indicated voltage in each section is the one measured by Digital Multimeter between such a section and the chassis with no signal given.
 1. In the tuner section, indicates AM indicates FM stereo
 2. In the main section, a tape is being played back.
 3. In the deck section, a tape is being played back.
() indicates the record state.
 4. In the power section, a tape is being played back.
 5. In the CD section, the CD is stopped.
- Parts marked with "△" () are important for maintaining the safety of the set. Be sure to replace these parts with specified ones for maintaining the safety and performance of the set.

REF. NO	DESCRIPTION	POSITION
SW713	CD	ON—OFF
SW714	TAPE	ON—OFF
SW715	GAME/VIDEO	ON—OFF
SW716	X-BASS/DEMO	ON—OFF
SW724	PLAY	ON—OFF
SW725	STOP	ON—OFF
SW726	REC./PAUSE	ON—OFF
SW727	MEMORY/SET	ON—OFF
SW728	OPEN/CLOSE	ON—OFF
SW729	DIRECT PLAY	ON—OFF
SW730	DISC2	ON—OFF
SW731	DISC4	ON—OFF
SW732	DISC5	ON—OFF
SW733	DISC3	ON—OFF
SW734	DISC1	ON—OFF

[2] Types of transistor and LED



[3] Waveforms of CD circuit



[4] Voltage

IC901	
	VOLTAGE
1	51.12 V
2	20.47 V
3	6.20 V
4	6.04 V
5	20.47 V
6	51.09 V
7	0.00 V
8	0.00 V
9	0.00 V
10	0.00 V
11	0.00 V
12	49.67 V
13	49.81 V
14	0.14 V
15	0.15 V
16	48.45 V
17	0.15 V
18	0.15 V

IC902	
PIN	VOLTAGE
1	51.12 V
2	20.47 V
3	6.25 V
4	6.04 V
5	20.47 V
6	51.10 V
7	0.00 V
8	0.00 V
9	0.00 V
10	0.13 V
11	0.13 V
12	49.61 V
13	49.86 V
14	0.15 V
15	0.15 V
16	48.48 V
17	0.00 V
18	0.00 V

IC903	
PIN	VOLTAGE
1	4.97 V
2	4.97 V
3	4.97 V
4	0.00 V
5	0.00 V
6	4.97 V
7	4.97 V
8	5.00 V
9	4.97 V
10	4.97 V
11	4.97 V
12	0.00 V
13	9.90 V
14	4.97 V
15	4.96 V
16	0.00 V
17	0.00 V
18	4.96 V
19	4.97 V
20	4.97 V
21	4.97 V
22	4.97 V
23	4.95 V
24	0.00 V

IC101	
PIN	VOLTAGE
1	0.00 V
2	0.00 V
3	0.56 V
4	1.94 V
5	0.00 V
6	1.32 V
7	0.00 V
8	0.59 V
9	3.36 V
10	3.34 V
11	0.00 V
12	0.00 V
13	6.84 V
14	4.11 V
15	0.00 V
16	3.35 V
17	0.58 V
18	0.00 V
19	1.68 V
20	0.00 V
21	1.94 V
22	0.56 V
23	0.00 V
24	0.00 V

IC301	
PIN	VOLTAGE
1	0.91 V
2	1.62 V
3	5.22 V
4	1.59 V
5	0.00 V
6	5.24 V
7	4.50 V
8	5.20 V
9	5.24 V

IC302	
PIN	VOLTAGE
1	2.64 V
2	0.00 V
3	0.00 V
4	0.00 V
5	0.00 V
6	4.95 V
7	9.88 V
8	4.67 V
9	0.00 V
10	0.00 V
11	5.10 V
12	0.00 V
13	5.10 V
14	0.00 V
15	0.00 V
16	2.59 V
17	5.12 V
18	0.00 V
19	0.00 V
20	9.89 V
21	0.00 V
22	2.58 V

IC601	
PIN	VOLTAGE
1	0.00 V
2	0.00 V
3	0.00 V
4	4.96 V
5	4.93 V
6	4.94 V
7	4.94 V
8	4.94 V
9	4.94 V
10	4.94 V
11	4.94 V
12	4.93 V
13	4.94 V
14	4.94 V
15	4.94 V
16	4.94 V
17	4.92 V
18	4.94 V
19	4.94 V
20	4.94 V
21	4.96 V
22	4.96 V
23	9.91 V
24	0.00 V

IC303	
PIN	VOLTAGE
1	2.07 V
2	5.03 V
3	2.07 V
4	0.00 V
5	5.11 V
6	5.11 V
7	4.06 V
8	5.03 V
9	0.00 V
10	3.89 V
11	3.89 V
12	3.89 V
13	2.17 V
14	1.22 V
15	1.18 V
16	2.05 V
17	0.00 V
18	2.43 V
19	0.00 V
20	0.17 V
21	2.30 V
22	2.29 V
23	5.03 V
24	3.56 V

1C701			
PIN	VOLTAGE	PIN	VOLTAGE
1	4.94 V	51	0.00 V
2	4.94 V	52	4.40 V
3	4.92 V	53	4.38 V
4	4.92 V	54	0.00 V
5	1.32 V	55	4.39 V
6	4.92 V	56	4.43 V
7	4.92 V	57	-29.05 V
8	0.267 V	58	-26.42 V
9	4.87 V	59	-18.41 V
10	4.87 V	60	-29.08 V
11	4.87 V	61	-29.08 V
12	0.00 V	62	0.00 V
13	0.00 V	63	-29.08 V
14	0.00 V	64	-0.92 V
15	0.00 V	65	-0.96 V
16	0.00 V	66	-11.10 V
17	0.00 V	67	0.00 V
18	0.00 V	68	-23.60 V
19	0.00 V	69	-29.00 V
20	0.00 V	70	-23.60 V
21	0.00 V	71	0.00 V
22	4.52 V	72	0.00 V
23	4.41 V	73	-23.60 V
24	4.54 V	74	-26.20 V
25	0.00 V	75	-23.60 V
26	0.00 V	76	0.00 V
27	1.87 V	77	-26.40 V
28	4.05 V	78	0.00 V
29	4.07 V	79	-23.60 V
30	0.00 V	80	0.00 V
31	4.66 V	81	-23.61 V
32	0.23 V	82	-20.84 V
33	4.95 V	83	-10.43 V
34	4.95 V	84	-23.50 V
35	0.00 V	85	-26.40 V
36	0.00 V	86	-28.93 V
37	13.15 V	87	-26.40 V
38	13.15 V	88	-21.10 V
39	13.15 V	89	-25.12 V
40	0.00 V	90	-24.99 V
41	-23.6 V	91	-23.01 V
42	4.72 V	92	-25.00 V
43	4.41 V	93	-24.98 V
44	4.54 V	94	-25.00 V
45	0.00 V	95	-24.85 V
46	0.014 V	96	-24.92 V
47	5.110 V	97	-24.89 V
48	0.00 V	98	-24.82 V
49	4.630 V	99	-24.87 V
50	4.570 V	100	-24.63 V

IC805	
PIN	VOLTAGE
1	17.22 V
2	0.00 V
3	4.87 V

IC806	
PIN	VOLTAGE
1	16.67 V
2	0.00 V
3	9.91 V

IC807	
PIN	VOLTAGE
1	17.21 V
2	1.32 V
3	13.24 V

IC808	
PIN	VOLTAGE
1	8.25 V
2	13.27 V
3	7.76 V

IC1							
1	1.56 V	21	3.20 V	41	3.21 V	61	3.10 V
2	1.69 V	22	1.62 V	42	0.00 V	62	1.53 V
3	1.67 V	23	1.61 V	43	0.00 V	63	0.00 V
4	1.52 V	24	1.61 V	44	2.97 V	64	0.00 V
5	1.62 V	25	1.62 V	45	2.94 V	65	0.00 V
6	1.62 V	26	0.00 V	46	0.93 V	66	1.83 V
7	1.62 V	27	0.00 V	47	3.21 V	67	0.00 V
8	1.62 V	28	2.88 V	48	3.22 V	68	3.22 V
9	1.61 V	29	0.98 V	49	3.22 V	69	0.00 V
10	1.61 V	30	3.12 V	50	3.21 V	70	0.00 V
11	1.61 V	31	0.00 V	51	3.21 V	71	0.00 V
12	0.00 V	32	3.23 V	52	3.21 V	72	1.28 V
13	1.61 V	33	0.00 V	53	0.00 V	73	1.41 V
14	1.61 V	34	0.00 V	54	0.00 V	74	3.08 V
15	1.61 V	35	3.22 V	55	0.00 V	75	1.58 V
16	1.61 V	36	3.22 V	56	0.00 V	76	3.17 V
17	1.61 V	37	0.00 V	57	0.00 V	77	0.00 V
18	3.20 V	38	1.83 V	58	0.00 V	78	1.58 V
19	0.00 V	39	3.17 V	59	0.00 V	79	3.20 V
20	0.00 V	40	0.00 V	60	3.12 V	80	1.56 V

IC2			
1	2.04 V	24	2.84 V
2	2.03 V	25	1.61 V
3	2.04 V	26	0.00 V
4	2.03 V	27	4.77 V
5	2.03 V	28	7.69 V
6	2.04 V	29	4.74 V
7	0.00 V	30	0.00 V
8	4.15 V	31	0.00 V
9	4.80 V	32	0.00 V
10	3.23 V	33	0.00 V
11	1.61 V	34	0.00 V
12	1.61 V	35	2.03 V
13	1.61 V	36	2.03 V
14	1.61 V		
15	1.61 V		
16	1.61 V		
17	1.61 V		
18	1.61 V		
19	4.30 V		
20	4.30 V		
21	3.07 V		
22	3.17 V		
23	3.17 V		

CHAPTER 6. CIRCUIT SCHEMATICS AND PARTS LAYOUT

[1] Schematic diagram

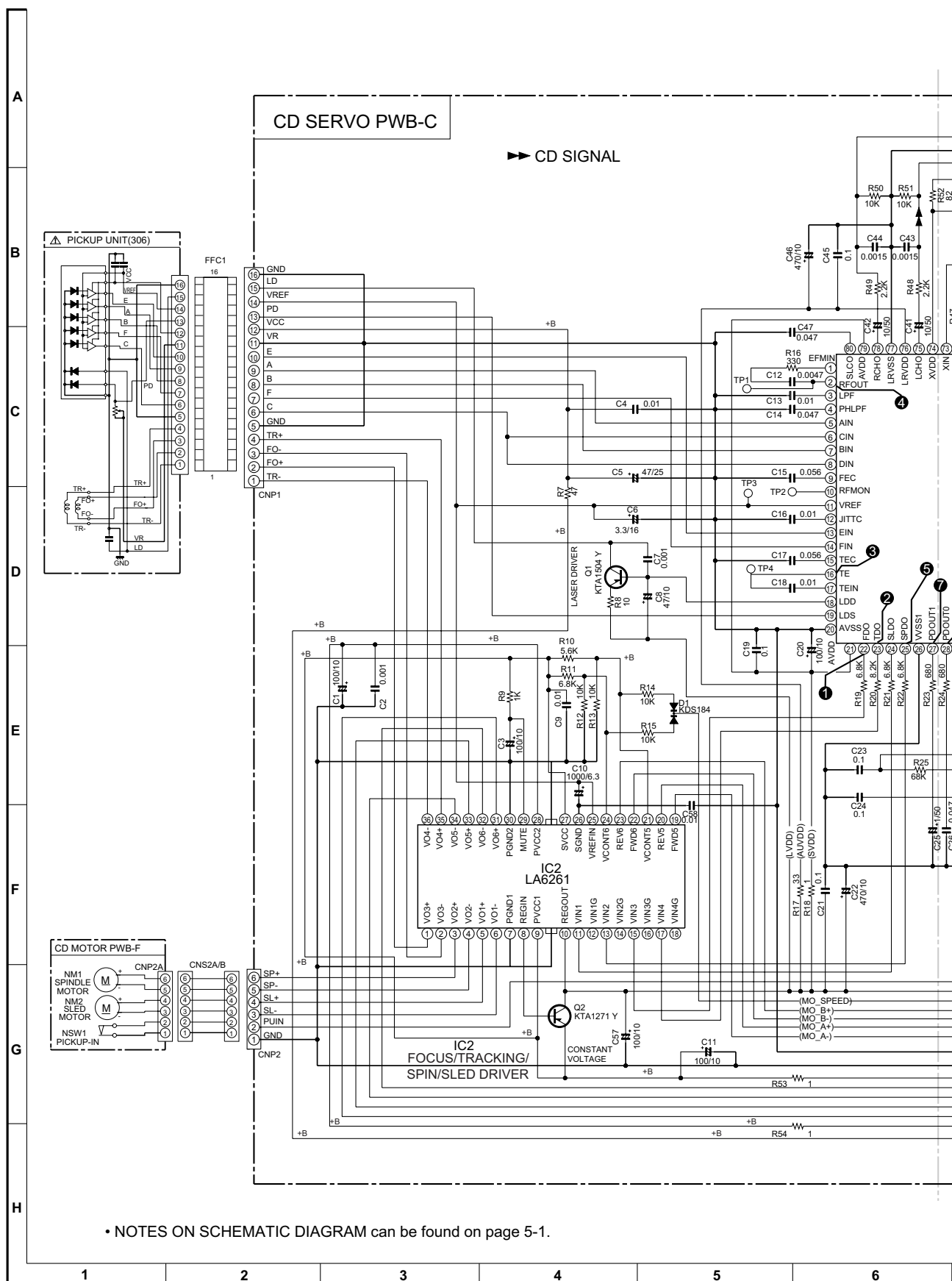
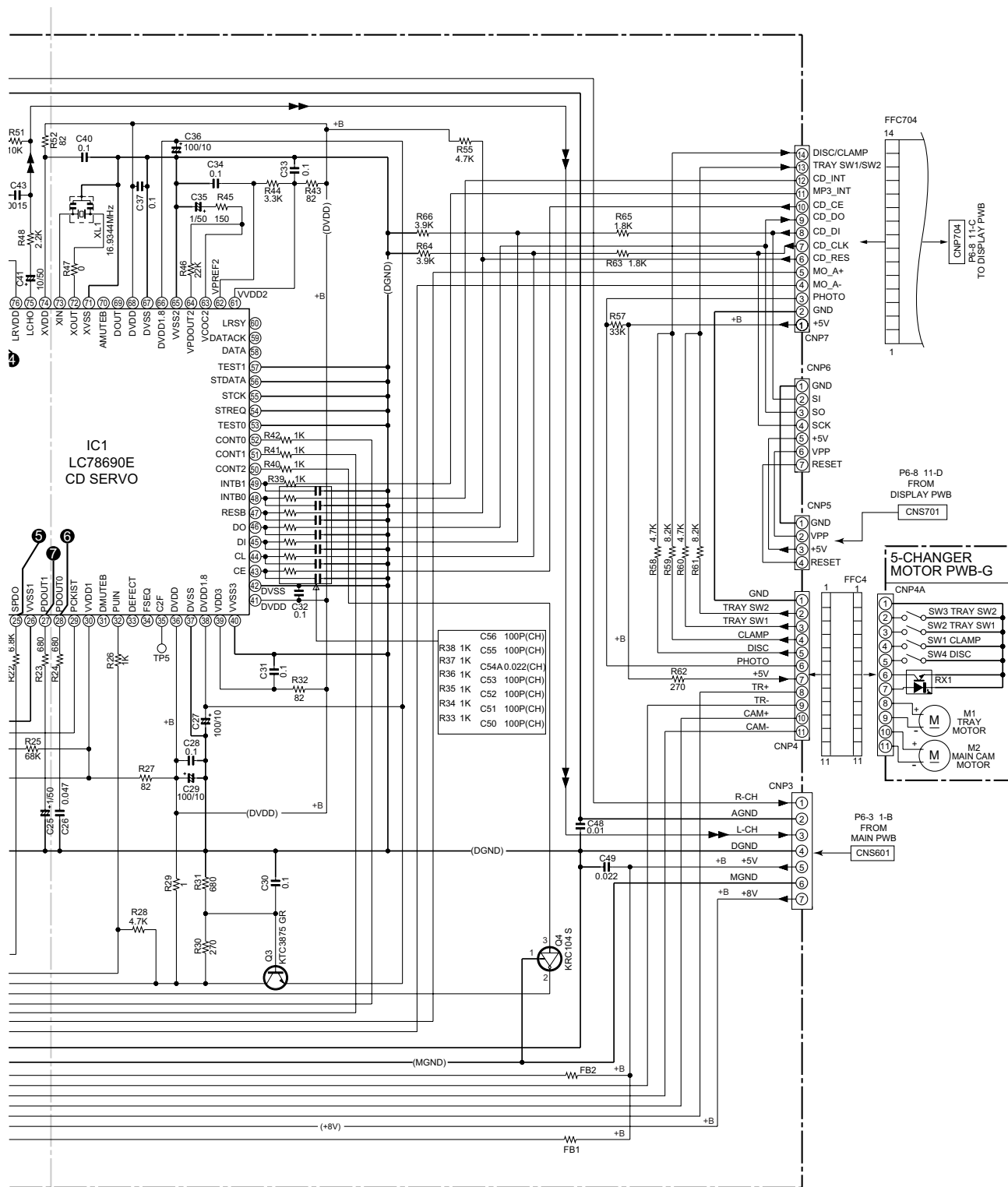


Figure 6-1 SCHEMATIC DIAGRAM (1/10)



• The number ① to ⑦ are waveform number shown in page 5-2.

7	8	9	10	11	12
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Figure 6-2 SCHEMATIC DIAGRAM (2/10)

6-3

6 - 4

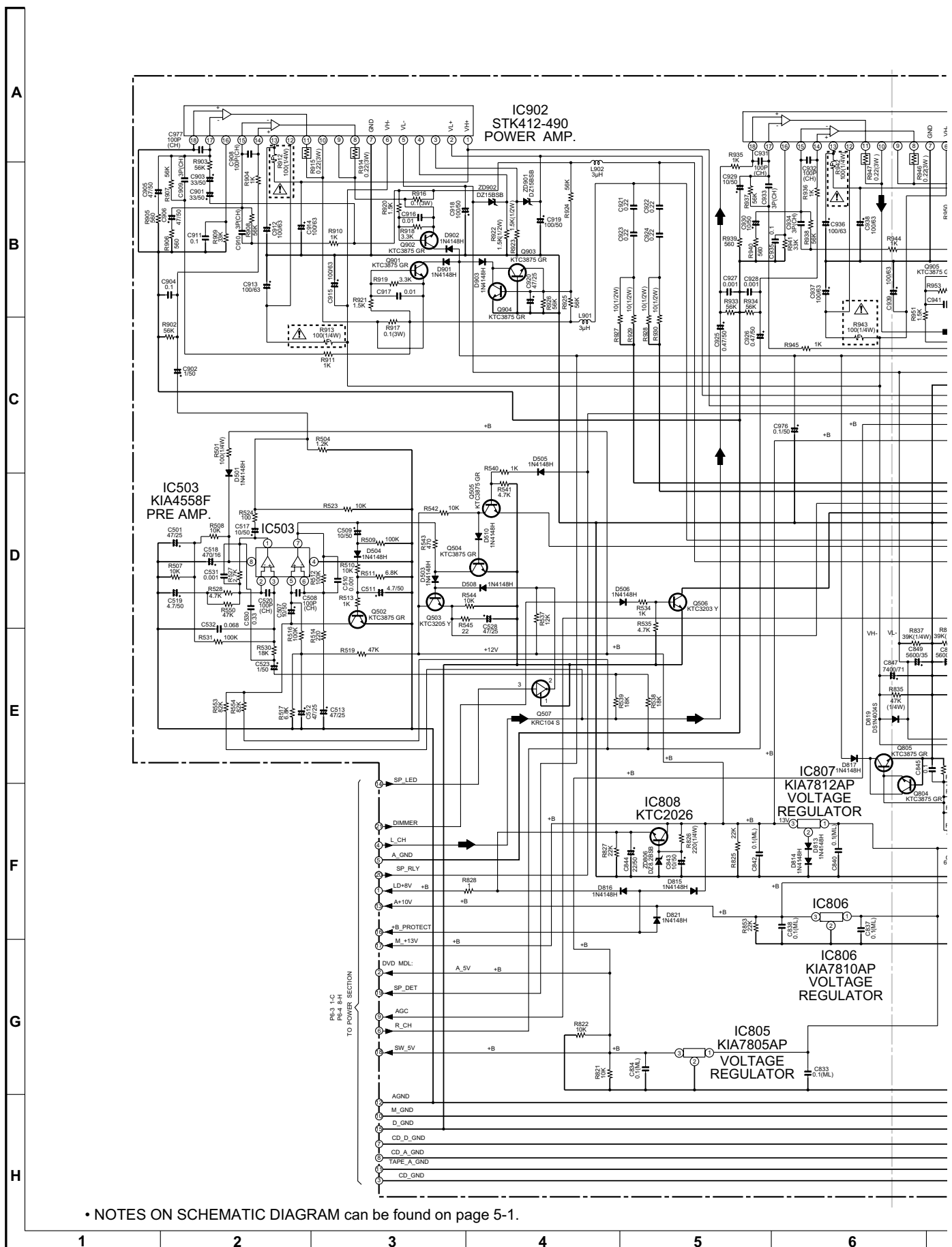


Figure 6-5 SCHEMATIC DIAGRAM (5/10)