Service Manual

Radio Cassette

RX-CW30L

(Black)

Portable Stereo Component System

This is the Service Manual for the following areas.

[Z] ··· For all European areas except United Kingdom and F.R. Germany.

[E] ··· For United Kingdom.

[G] ··· For F.R. Germany.

RX-CW30 MECHANISM SERIES

■ SPECIFICATIONS

General:

Power Requirement:	AC; 220V, 50Hz (For [Z][G]) 240V 50Hz (For [E] only) Battery; 12V (Eight "D" Size Flashlight Batteries) (Panasonic UM-1 or equivalent)
Power Consumption:	33W (AC only)
Power Output:	20W (10W×2)....MPO 15W (7.5W×2)...RMS max.
Speaker:	Woofer; 12cm PM Dynamic Speaker (2.7Ω) Tweeter; (2×4)cm Ceramic Speaker (1.4kΩ)
Input:	MIX MIC; sensitivity 5.6mV applicable microphone impedance 200~600Ω: M3 (φ3.5) Line in/CD; sensitivity 316mV/47kΩ over
Output:	Ext SP; 2.7~8Ω Headphones; 32Ω, M3 (φ3.5)
Dimensions:	[581(W)×187(H)×169(D)]mm Main unit; [322(W)×187(H)×169(D)]mm Speaker box; [134(W)×187(H)×147(D)]mm
Weight:	4.4kg without batteries

Radio Section:

Radio Frequency Range:	FM; 87.5~108MHz LW; 150~285kHz (200~1053m) MW; 520~1610kHz (577~186m) SW; 5.9~18MHz (50.8~16.7m)
Intermediate Frequency:	FM; 10.7MHz AM (LW/MW/SW); 455kHz [Z][G] (470kHz [E])
Sensitivity:	FM; 2μV/50mW output (−3dB Limit sens) LW; 79μV/m/50mW output MW; 79μV/m/50mW output SW; 5.6μV/50mW output

Tape Deck Section:	**Tape 1 (Record and Playback)**
Frequency Response:	50~12,000Hz (with normal tape)
Recording System:	AC bias, AC erase
Tape Speed:	4.8cm/s
Track System:	4-track 2-channel stereo recording and playback

Tape Deck Section:	**Tape 2 (Playback only)**
Frequency Response:	70~14,000Hz (with normal tape)
Tape Speed:	4.8cm/s
Track System:	4-track 2 channel stereo playback

Design and specifications are subject to change without notice.

Panasonic

Matsushita Electric Trading Co., Ltd.
P.O. Box 288, Central Osaka Japan

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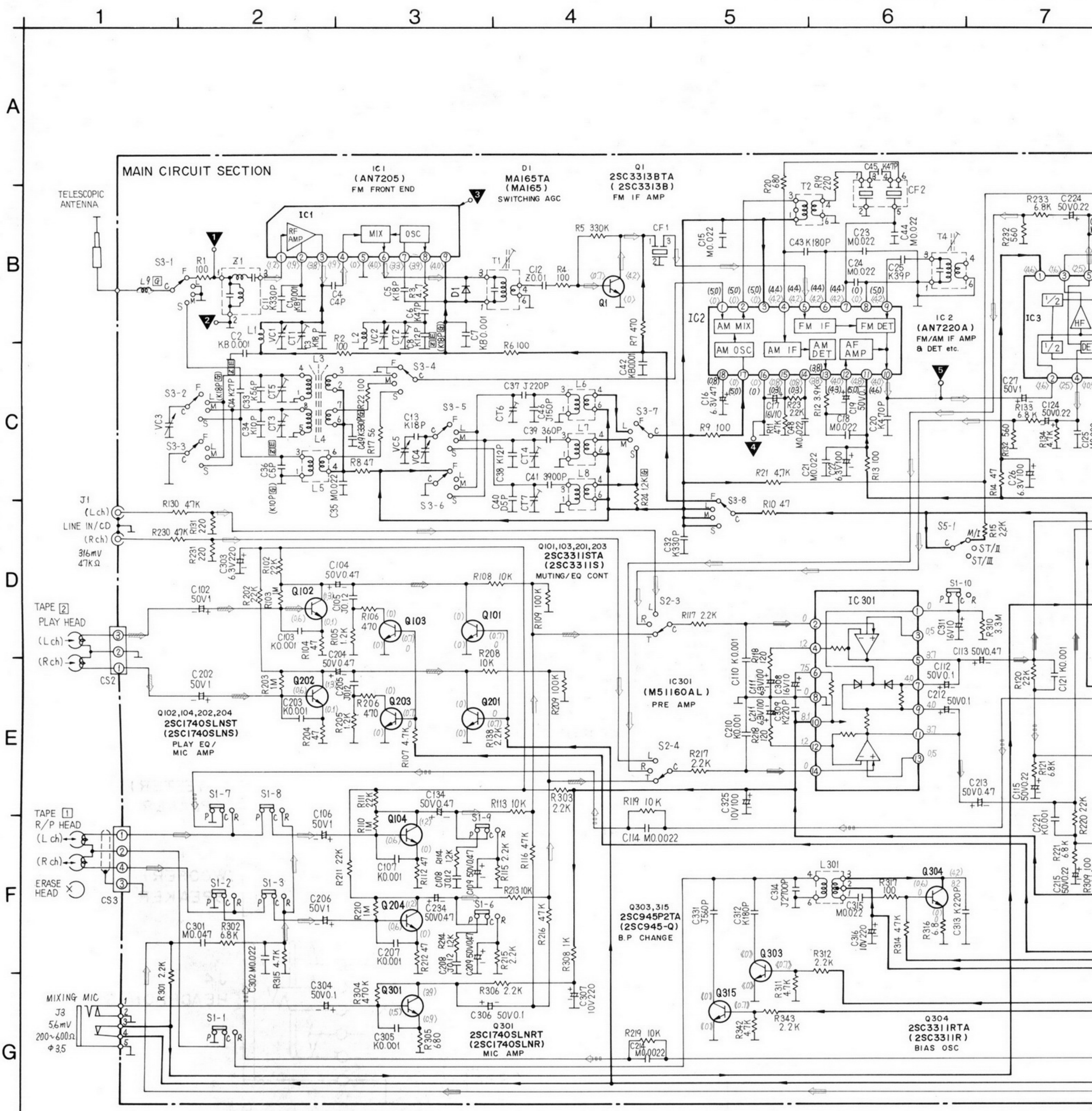
SCHEMATIC DIAGR



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CHEMATIC DIAGRAM

Radio (FM) Signal Line
Tape 1 (PLAYBACK) Signal Line
Tape 2 (PLAYBACK) Signal Line
Input (LINE IN/MIC) Signal Line
Tape (RECORD) Signal Line
Main (Radio/Tape) Signal Line
+Ⓑ Volta

6 7 8 9 10 11 12

EQUALIZER CIRCUIT SECTION

IC 3 (RVIBAI332L) FM MPX

IC 2 (AN7220A) FM/AM IF AMP & DET etc.

Q108,208 2SC3311STA (2SC3311S) EQ AMP

Q106,206 2SD1450TTA (2SD1450T) MIC MUTING

Q105,205 2SC3311RTA (2SC3311R) REC AMP

Q304 2SC3311RTA (2SC3311R) BIAS OSC

Q307 (2SC1846R) REGULATOR

Q310,311 2SC3311RTA (2SC3311R) MOTOR CONT/ HIGH SPEED CONT.

Q309 2SA1309RTA (2SA1309) MOTOR CONT

IC303 (LA4108R) POWER AMP

D306~309 RVDISR35TR (RVDISR35) RECT

D310,311 (LN022283PH) FM ST/ BATT IND

HIGH SPEED MODE SETTING PIN

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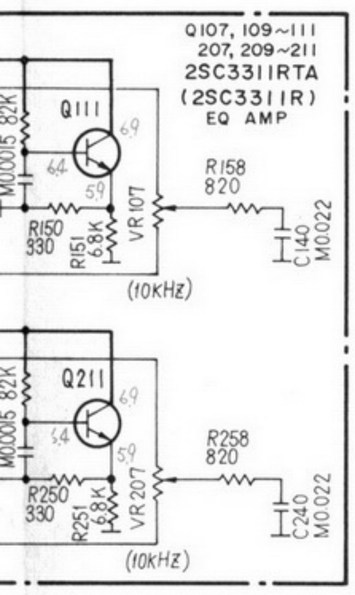
ge Line



S

[L ch]
PM DYNAMIC SPEAKER (WOOFER)
12cm (5") 2.7Ω

CERAMIC SPEAKER (TWEETER)
2cm (3/4") 1.4KΩ

[R ch]
CERAMIC SPEAKER (TWEETER)
2cm (3/4") 1.4KΩ

PM DYNAMIC SPEAKER (WOOFER)
12cm (5") 2.7Ω

)

D311

NOTES:

1. S1-1~S1-10: REC/PLAY select switch in "PLAY" position. (P ... PLAY, R ... REC)
2. S2-1~S2-4: Function select switch in "TAPE/OFF" position. (T ... TAPE/OFF, R ... RADIO, L ... LINE IN)
3. S3-1~S3-8: Band select switch in "FM" position. (F ... FM, L ... LW, M ... MW, S ... SW)
4. S4-1, S4-2: Editing speed select switch in "OFF" position. (O ... OFF, N ... NORMAL, H ... HIGH)
5. S5-1, S5-2: FM mode/beat proof select switch in "MONO/I" position. (M/I ... MONO/I, ST/II ... STEREO/II, ST/III ... STEREO/III)
6. S6: AC/DC IN select switch in "AC IN" position. (AC ... AC IN, DC ... DC IN)
7. S7: Motor ON/OFF switch in "OFF" position. [Tape 1]
8. S8-1, S8-2: Equalizer mode select switch in "G. EQ" position. (G. ... G. EQ, F ... F.D. EQ)
9. S10: Motor ON/OFF switch in "OFF" position. [Tape 2]
10. S11: Play switch in "OFF" position. [Tape 2]
11. VR1: VCO oscillator frequency adjustment.
12. VR102, 202: Volume control.
13. VR103~107, 203~207: Equalizer control (100Hz/330Hz/1kHz/3.3kHz/10kHz).
14. VR301: Balance control.
15. VR305: Tape speed adjustment.
16. The mark (▼) shows test point e.g. ▼1 = test point 1.
17. Important safety notice
    The shaded area on this schematic diagram incorporates special features important for protection from fire and electrical shock hazards.
    When servicing it is essential that only manufacturer's specified parts be used for the critical components in the shaded areas of the schematic.
18. DC voltage measurement are taken with electronics voltmeter from negative terminal of battery.
    No mark ... Playback position, < > ... FM position,
    ( ) ... AM position, ( ) ... Recording position,
    ⋖ ⋗ ... BP (II) position, (( )) ... BP (III), position
    [ ] ... Normal speed Editing mode.
    [[ ]] ... High speed Editing mode.
19. Battery current: No signal 79mA
    Maximum output:
    Radio 1400mA
    Tape/Playback 1350mA
    Tape/Recording ..... 160mA (VR min, LINE IN)
    Normal Speed Editing 1370mA
20. Described in schematic diagram are two types of numbers; the supply parts number and production parts number for transistors and diodes. One type number is used for supply parts number and production parts number which they are identical.
    e.g. Q1
    2SC2412NRTB, LNSTB ◀— Production parts number
    [2SC2412] ◀— Supply parts number
21. The supply parts number is described alone in the replacement parts list.

- **This schematic diagram may be modified at any time with the development of new technology.**

REPLACEMENT PARTS LIST

Important safety notice
Components identified by ⚠ mark have special characteristics important for safety.
When replacing any of these components, use only manufacturer's specified parts.

Notes: [Z] ..... For all European areas except [E][G]. [E] ..... For United Kingdom. [G] ..... For F.R. Germany.

Ref. No.	Part No.	Part Name & Description
INTEGRATED CIRCUITS		
IC 1	**AN7205**	IC (FM FRONT END)
IC 2	**AN7220A**	IC (FM/AM IF AMP&DET etc.)
IC 3	**RViBA1332L**	IC (FM MPX)
IC 301	**M51160AL**	IC (PRE AMP)
IC 303	**LA4108R**	IC (POWER AMP)
TRANSISTORS		
Q 1	**2SC3313B**	Transistor (FM IF AMP)
Q 101, 103, 108, 201, 203, 208	**2SC3311S**	Transistor (Muting, EQ CONT, EQ AMP)
Q 102, 104, 202, 204	**2SC1740SLNS**	Transistor (PLAY EQ/MIC AMP)
Q 105, 107, 109, 110, 111, 205, 207, 209, 210, 211, 304, 310, 311	**2SC3311R**	Transistor (REC AMP, G. EQ AMP, BIAS OSC etc.)
Q 106, 206	**2SD1450T**	Transistor (Muting)
Q 301	**2SC1740SLNR**	Transistor (MIC AMP)
Q 303, 315	**2SC945-Q**	Transistor (B.P CHANGE)
Q 307	**2SC1846R**	Transistor (REGULATOR)
Q 309	**2SA1309R**	Transistor (Motor Speed Control)
DIODES & RECTIFIER		
D 1	**MA165**	Diode (SWITCHING)
D 301	**RVDMTZ5R1C**	Diode (STABI)
D 302	**RVDMTZ9R1B**	Diode (REGULATOR)
D 306, 307, 308, 309	**RVD1SR35**	Diode (RECT)
D 310	**LN022283PH**	LED (FM ST/BATT)
COILS		
L 2 [Z][E]	**RLD4Y44**	Coil, FM OSC
L 2 [G]	**RL04N198**	Coil, FM OSC
L 3, 4	**RLF6W9**	Coil, AM ANT
L 5	**RLA3B41**	Coil, SW ANT
L 6	**RL01B12**	Coil, LW OSC
L 7	**RL02B108**	Coil, MW OSC
L 8	**RL03B87**	Coil, SW OSC
L 9 [G]	**RLQY30S1**	Coil, Choke
L 101, 201	**RLQZB822K**	Coil, Choke
L 301 [Z][E]	**RL09B17**	Coil, Bias OSC
L 302, 303 [G]	**RLQZB470K**	Coil, Choke ⚠
TRANSFORMERS		
T 1, 4	**RLi4B153**	IFT, FM
T 2	**RLi2B153**	IFT, AM
T 301 [Z][G]	**RLT5L4G3A**	Power Transformer ⚠
T 301 [E]	**RLT5L4A3A**	Power Transformer ⚠

Ref. No.	Part No.	Part Name & Description
VARIABLE CAPACITORS		
VC 1, 2, 3, 4 (CT 1, 2, 3, 4)	**RCV4RC2V2K**	Variable Capacitor with Trimmer
VC 5	**RCVMFTPC7B**	Variable Capacitor (7pF)
TRIMMER CONDENSERS		
CT 5	**RCVPL30A**	Variable Capacitor (30pF)
CT 6	**RCVPL20A**	Variable Capacitor (20pF)
CT 7	**RCVPL10A**	Variable Capacitor (10pF)
VARIABLE RESISTORS		
VR 1	**QVNB3A00B10**	Variable Resistor (VCO Adj.)
VR 102, 202	**EWCUHAF10A54**	Variable Resistor (Volume)
VR 103, 104, 105, 106, 107, 203, 204, 205, 206, 207	**EWASA2C95G5**	Variable Resistor (EQ VR)
VR 301	**EWH8MAF10G15**	Variable Resistor (Balance)
VR 305	**RVNCC14B1**	Variable Resistor (Tape Speed Adj.)
CERAMIC FILTERS		
CF 1	**RVF107WMZ**	Ceramic Filter, FM
CF 2 [Z][G]	**RVFSFZ455B**	Ceramic Filter, AM
CF 2 [E]	**QCRZZ470A7W**	Ceramic Filter, AM
FILTER		
Z 1	**RXABPMB6A**	Component Combinations
FUSES		
F 1	**XBA2C016TB0**	Fuse (160mA) ⚠
F 2	**XBA2C16TB0U**	Fuse (1.6A) ⚠
SWITCHES		
S 1	**RSH2J04W**	Push Switch (REC/PLAY Changing)
S 2	**RSS3D16Z**	Slide Switch (Function)
S 3	**RSS4H03Z**	Slide Switch (Band)
S 4, 5	**RSS3B26Z**	Slide Switch (Editing, FM Mode/B.P)
S 7, 10	**RFA49Z**	Leaf Switch (Motor)
S 8	**ESB6488**	Push Switch (EQ Mode)
S 11	**RFA42Z**	Leaf Switch (PLAY)
JACKS		
J 1, 2	**RJF1081Y**	Jack, Line In
J 3	**RJJ1D25Z**	Jack, Mixing MIC
J 4	**RJJ1D29Z**	Jack, Headphones
J 5 (S6) [Z][G]	**RJJA6Z**	Jack, AC In ⚠
J 5 (S6) [E]	**RJJA7Z**	Jack, AC In ⚠

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