

# Service Manual

Notebook Computer

**CF-28**

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*Supplement-1*

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**TOUGHBOOK**

This is the Service Manual for the following areas.

- M ...for U.S.A. and Canada
- E ...for U.K.
- G ...for Germany
- F ...for France
- S ...for Sweden
- T ...for Italy
- P ...for Spain

**Applied Model :**  
**CF-28MCFAZxx**

**⚠ WARNING**


This service information is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product. Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

**Panasonic<sup>®</sup>**

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# Replacement Parts Comparison Table

**Note : 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.

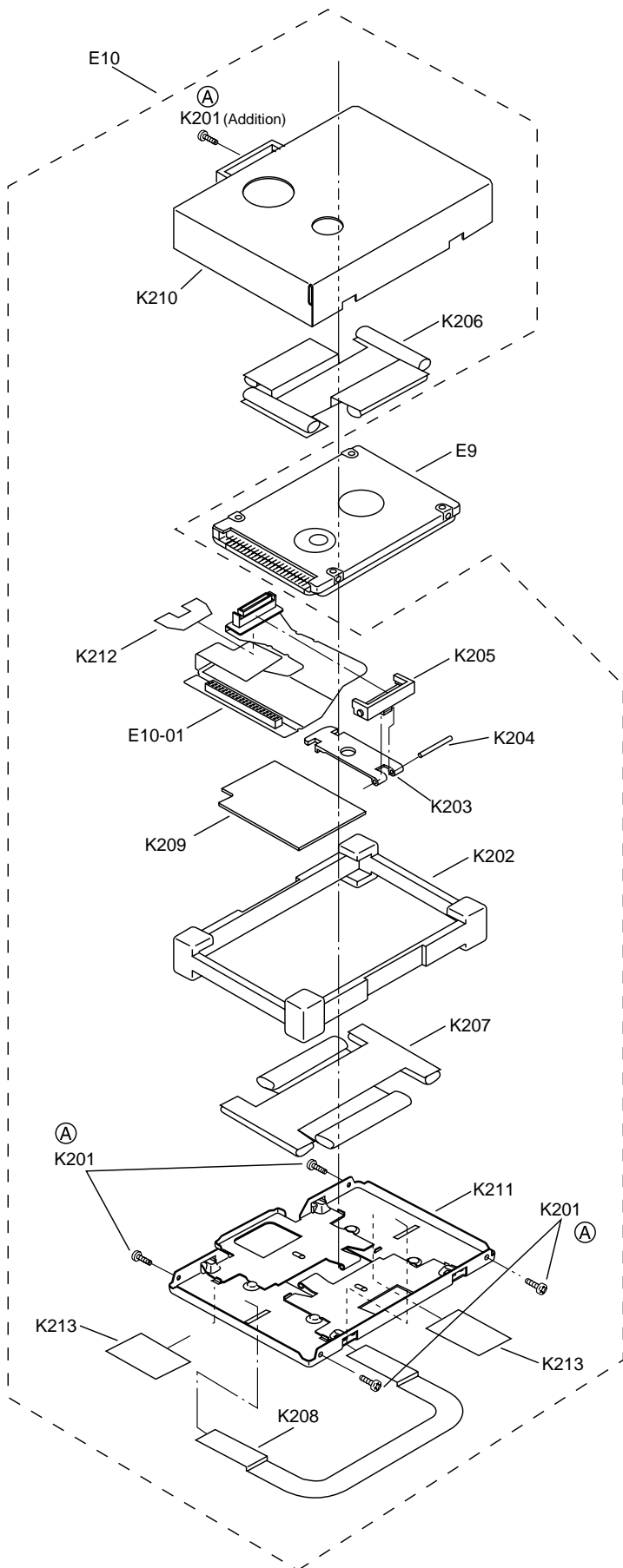
REF. NO and Area	PART NO		DESCRIPTION	Q'TY
	ORIGINAL	NEW		
<b>MAIN BLOCK UNITS</b>				
E11	DFWV80A0281	-	ASS'Y LCD FRONT CABINET / TOUCH SCREEN PANEL	1→0
<b>MECHANICAL</b>				
K201	DFHE5025XA		SCREW	4→5
K400	-	<b>DFWV80A0284</b>	ASS'Y LCD FRONT CABINET	0→1
K35	DFHR4074ZA	-	LOCK LEVER SPACER	1→0
K37	DFHE6013ZA	-	LOCK STOPPER ANGLE SPACER	1→0
K159	-	<b>DFHM0235ZA</b>	LOCK LEVER SPACER	0→1
K75	DFUQ0081ZA	<b>DFUQ0086ZA</b>	SPRING	2
K158	-	<b>DFHE0470ZA</b>	SPACER, TESTER FPC	0→1
K40	DFHR7659ZA	<b>DFHR7938ZA</b>	SHEET, WATERPROOF, MICROPHONE	1
K90	DFKF8134YA-0	<b>DFKF8134XA-0</b>	BOTTOM CABINET	1
K90-01	-	<b>DFBD0146YA-0</b>	LOCK KNOB, MP	0→1
K90-02	-	<b>DFBE0011ZA-0</b>	EJECT TAB, MP	0→1
K90-03	-	<b>DFHM0234ZA</b>	SHEET, MP TAB	0→1
K90-04	-	<b>DFGX0279ZA-0</b>	CORNER GUARD G	0→1
K90-05	-	<b>DFGX0280ZA-0</b>	CORNER GUARD H	0→1
K90-06	-	<b>DXQT2+D25FZM</b>	SCREW	0→4
K90-07	-	<b>DFHR5848YA</b>	MP EJECT	0→1
K90-08	-	<b>DFHR5870ZA</b>	MP EJECT GEAR	0→1
K90-09	-	<b>DFHR3012ZA</b>	SHEET, MP EJECT	0→1
K90-10	-	<b>DFHR7937ZA</b>	MP WATER PROOF SHEET	0→1
K90-11	-	<b>XYN2+F4T</b>	SCREW	0→2
K90-12	-	<b>DFHR7972ZA</b>	SHEET, MP SPRING	0→1
K90-13	-	<b>DFKE0058ZA-0</b>	LID, CONFIG	0→1
K90-14	-	<b>DFKF0217YA-0</b>	BOTTOM CABINET	0→1
K90-15	-	<b>DFMD4030ZB</b>	EJECTOR, MP	0→1
K90-16	-	<b>DFUQ0061ZBT</b>	MP LOCK SPRING	0→1
K90-17	-	<b>DFUW0064YAT</b>	MP EJECT SPRING	0→1
K90-18	-	<b>DXQT2+H3FNLT</b>	SCREW	0→3
K91	DFKM8140YA-0	<b>DFKM8140XA-0</b>	TOP CABINET	1
K91-01	-	<b>DFBH1080YAT</b>	HINGE	0→6
K91-02	-	<b>DFGL0095ZA-0</b>	IRDA PANEL	0→1
K91-03	-	<b>DFGX0273ZA-0</b>	CORNER GUARD A	0→1
K91-04	-	<b>DFGX0274ZA-0</b>	CORNER GUARD B	0→1
K91-05	-	<b>DFGX0275ZA-0</b>	CORNER GUARD C	0→1
K91-06	-	<b>DFGX0276ZA-0</b>	CORNER GUARD D	0→1
K91-07	-	<b>DXQT2+D25NMT</b>	SCREW	0→6
K91-08	-	<b>DXQT2+D25FZM</b>	SCREW	0→12
K91-09	-	<b>DFHG1130ZAT</b>	CUSHION	0→1
K91-10	-	<b>DFHG1417XA</b>	PACKING, MEDIA POCKET	0→1
K91-11	-	<b>DFHG1418YA</b>	PACKING, CARD SLOT	0→1
K91-12	-	<b>DFHR5855ZA-0</b>	LATCH, CARD SLOT LID	0→1
K91-13	-	<b>DFHR5856ZA-0</b>	LATCH, MEDIA POCKET LID	0→1
K91-14	-	<b>DFHR5857ZA-0</b>	LATCH, I/O LID	0→1
K91-15	-	<b>DFHR7922YA</b>	CUSHION	0→1
K91-16	-	<b>DFHR7923YA</b>	CUSHION	0→1
K91-17	-	<b>DFKE0439ZAT0</b>	SLIDE DOOR	0→1
K91-18	-	<b>DFKE0577ZA-0</b>	COMM PACK HOUSING R	0→1
K91-19	-	<b>DFKE0580ZA-0</b>	LID, I/O	0→1

REF. NO and Area	PART NO		DESCRIPTION	Q'TY
	ORIGINAL	NEW		
K91-20	-	DFKE0581ZA-0	LID, MEDIA POCKET	0→1
K91-21	-	DFKE0582ZA-0	LID, CARD SLOT	0→1
K91-22	-	DFKE0583ZA-0	COMM PACK HOUSING L	0→1
K91-23	-	DFKM0378YA-0	TOP CABINET	0→1
K91-24	-	DFMD2109ZBT	BACK ANGLE(CN)	0→1
K91-25	-	DFMD7751YA	PLATE, MEDIA POCKET	0→1
K91-26	-	DFMD7752ZA	PLATE, CARD SLOT	0→1
K91-27	-	DFUQ0082ZA	SPRING	0→2
K91-28	-	DFUQ0084YA	SPRING	0→1
K91-29	-	DXSB2+5FZMT	SCREW	0→6
K2	DFBE0010ZA-0	DFBE0010YA-0	RING, POWER SW	1
K6	DFGX0289ZA-0	DFGX0289YA-0	COVER, PALM TOP, MID	1
K16	DFHG1407ZA	DFHG1407YA	PACKING, WATERPROOF, RJ11	1
K22	DFHG1464ZA	DFHG1481ZA	PACKING, WATERPROOF, LCD CABLE	2→1
K32	DFHG815YA	DFHG815XA	PACKING, WATERPROOF, TOUCH PAD	1
K34	DFDG5523ZA	DFDG5523ZB	LOCK LEVER	1
K36	DFHR5853ZA	DFHR5853ZB	LOCK LEVER, HDD LID	1
K39	DFHR5862ZA-0	DFHR5862YA-0	LOCK GUIDE, R, HDD LID	1
K41	DFHR7939ZA	-	SHEET, SPEAKER NET	1→0
K43	DFHR7942YA	DFMX0939ZA	SHEET, RJ11	1
K44	DFHR7971ZA	-	SPACER, BATTERY	1→0
K47	DFKE0586ZA-0	DFKE0586YA-0	LID, HDD&BATTERY	1
K56	DFMD7744ZA	DFMD7744YA	ANGLE, MP FPC	1
K65	DFMX0383WA		SHEET, INSULATING	5→4
K66	 DFMX0772ZA		SHEET, INSULATING	2→1
K81	DFUV0068ZA	DFUV0068ZB	COVER, BOTTOM, PCMCIA	1
K89	DFHG1426YB	DFHG1426YC	DAMPER, LCD BACK	1
K90-19	-	DFHR7941ZA	CUSHION, CONFIG LID	0→1
K91-30	-	DFMX0937ZA	SHEET, WATERPROOF, TOP CABINET	0→5
K91-31	-	DFHR3028ZA	SPACER, PC LID	0→1
K91-32	-	DFHR3029ZA	SPACER, MP LID	0→1
K91-33	-	DFHR3032ZA	BOSS SPACER, MP&PC LID	0→4
K91-34	-	DFHG1490ZA	SPACER, UPPER, PC BAY	0→1
K91-35	-	DFHG1491ZA	SHEET, WATERPROOF, BOTTOM, PC BAY	0→1
K148	DFHR7981ZA	-	MP GUIDE SPACER A	3→0
K149	DFHR7982ZA	-	MP GUIDE SPACER B	2→0
K150	DFMD7778ZA	-	MP GUIDE ANGLE	1→0
K155	DFHR7979ZA	-	HINGE GUARD SHEET(MP)	1→0
K156	DFHR7980ZA	-	HINGE GUARD SHEET(PCMCIA)	1→0
K158	DFHE0470ZA	-	SPACER, TESTER FPC	1→0
K171	-	DFHR3039ZB	SHEET, WATERPROOF, BOTTOM, MP BAY	0→1
K172	-	DFMX0942ZA	SHEET, WATERPROOF, UPPER, MP BAY	0→1
K173	-	DFMX0943ZA	SHEET, WATERPROOF, UPPER, PC BAY	0→1
K174	-	DFHP7107ZA	SHEET, WATERPROOF, LED INDICATORS	0→1
K175	-	DFHR3027ZA	SHEET, WATERPROOF, T/PAD BUTTONS	0→1
K176	-	DFHR7583ZA	SPACER, HOLDER, LED LENS	0→1
K177	-	DFMX0938ZA	SPACER, T/PAD	0→1
K178	-	DFHR3030ZA	SHEET, WATERPROOF, SPEAKER NET	0→1
K179	-	DFHR3034ZA	SHEET, WATERPROOF, BOTTOM CABINET	0→1
K180	-	DFHR3037ZA	SHEET, WATERPROOF, BOTTOM CABINET	0→1
K181	-	DFHG1492ZA	SHEET, WATERPROOF, BOTTOM CABINET	0→1
K182	-	DFHE0241ZA	CUSHION, HDD&BATTERY LID	0→1
K183	-	DFHR3031ZA	SHEET, WATERPROOF, HDD&BATTERY LID	0→1
K184	-	DFHR3036ZA	CUSHION, HDD	0→2
K185	-	DFHR3042ZA	SPACER, HDD&BATTERY LID	0→2

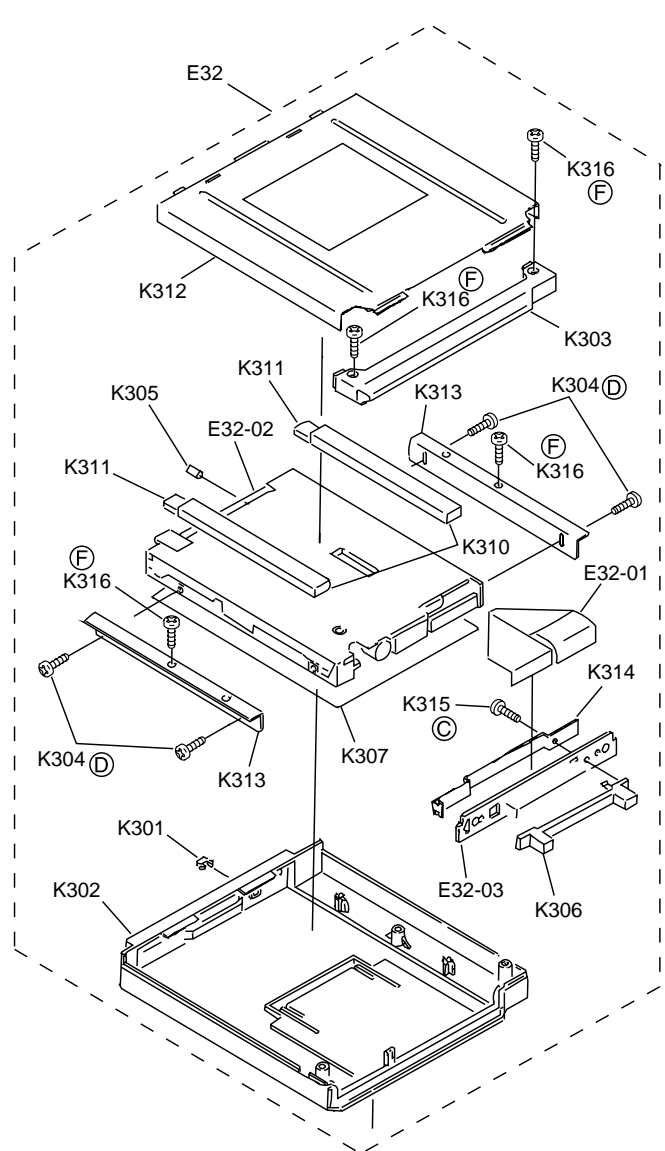
REF. NO and Area	PART NO		DESCRIPTION	Q'TY
	ORIGINAL	NEW		
K186	-	<b>DFHG1493ZA</b>	RUBBER, FOOT	0→2
K187	-	<b>DFHR3033ZA</b>	CUSHION, I/O PCB	0→2
K188	-	<b>DFHR3038ZA</b>	SHEET, WATERPROOF, TOP CABINET	0→1
K189	-	<b>DFMD7784ZA</b>	ANGLE, BATTERY PCB	0→1
K190	-	<b>DFHR3013ZA</b>	SPACER L	0→1
K191	-	<b>DFHR3011ZA</b>	SPACER, LOCK UNIT, BOTTOM CABINET	0→2
K192	-	<b>DFHR3088ZA</b>	SPACER, MP BAY, BOTTOM CABINET	0→1
K193	-	<b>DFMX0947ZA</b>	SPACER, LED LENS	0→1
K194	-	<b>DFHR3089ZA</b>	SPACER, MP BAY, TOP CABINET	0→1
K195	-	<b>DFMX0946ZA</b>	SHEET, PROTECTION	0→1
K196	-	<b>DFMC0692ZA</b>	SHEET, SHIELD, ELECTROMAGNETIC WAVE	0→1
K197	-	<b>DFMX0784ZA</b>	SHEET, INSULATING	0→1
K198	-	<b>DFHR7990ZA</b>	SPACER, MODEM CABLE	0→1
K210	DFMD2133YA	<b>DFMD2133XA</b>	HOLDER, HDD	1
K211	DFMD9071YA	<b>DFMD9071XA</b>	HDD COVER,	1
<b>ELECTRICAL (MAIN PCB)</b>				
C257	DCUC0J106KBY	<b>DCUE1A106ZFL</b>	CAPACITOR	1
JP6	-	<b>ERJ3GEY0R00V</b>	RESISTOR	0→1
R258	ERJ3GEYJ224V	<b>ERJ3GEYJ104V</b>	RESISTOR	1
R484	-	<b>ERJ3GEYJ472V</b>	RESISTOR	0→1

# Exploded Views

## HDD



## FDD

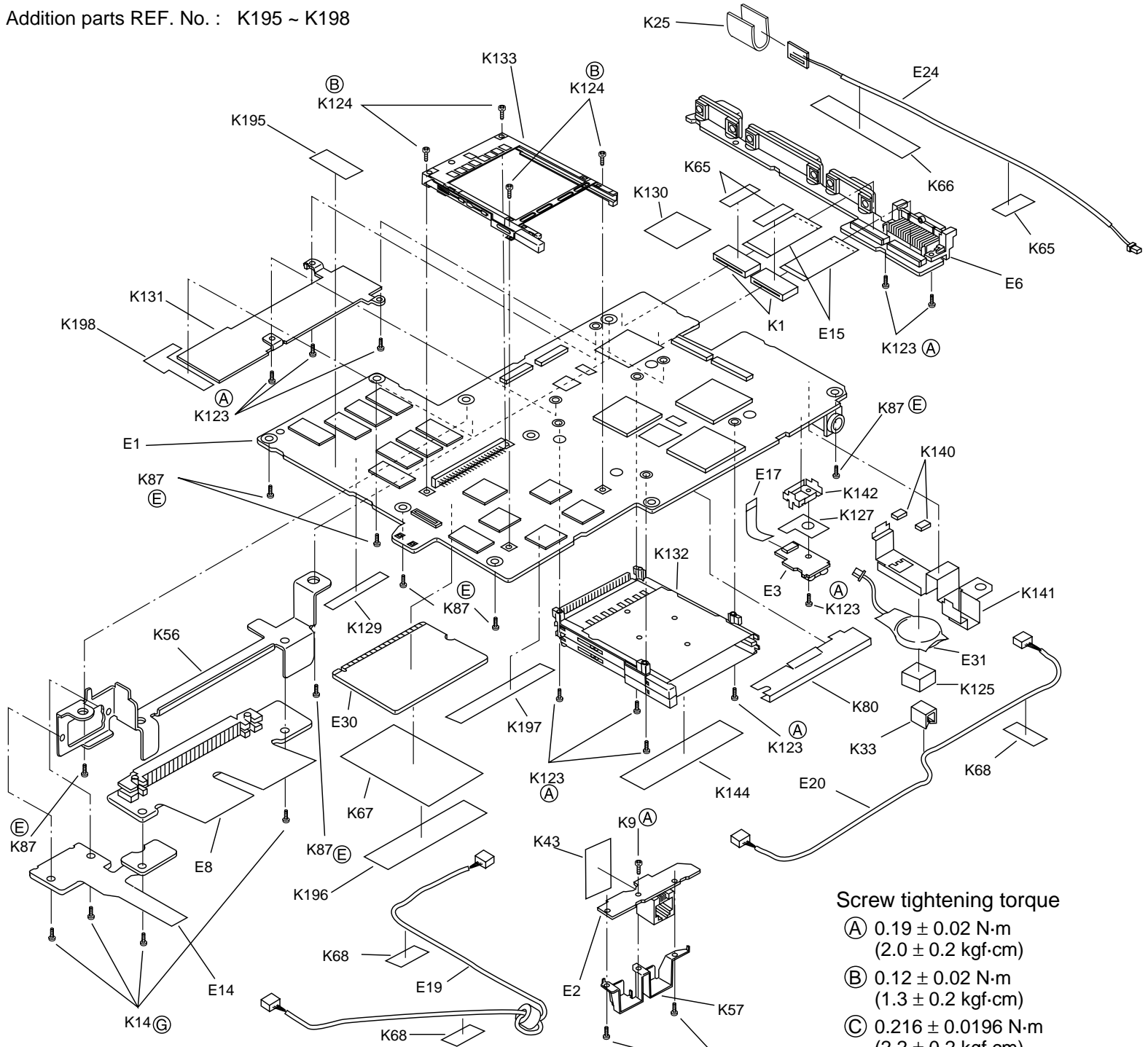


### Screw tightening torque

- Ⓐ 0.19 ± 0.02 N·m  
(2.0 ± 0.2 kgf·cm)
- Ⓑ 0.12 ± 0.02 N·m  
(1.3 ± 0.2 kgf·cm)
- Ⓒ 0.216 ± 0.0196 N·m  
(2.2 ± 0.2 kgf·cm)
- Ⓓ 0.314 ± 0.0196 N·m  
(3.2 ± 0.2 kgf·cm)
- Ⓔ 0.49 ± 0.05 N·m  
(5.0 ± 0.5 kgf·cm)
- Ⓕ 0.441 ± 0.049 N·m  
(4.5 ± 0.5 kgf·cm)
- Ⓖ 0.11 ± 0.02 N·m  
(1.2 ± 0.2 kgf·cm)

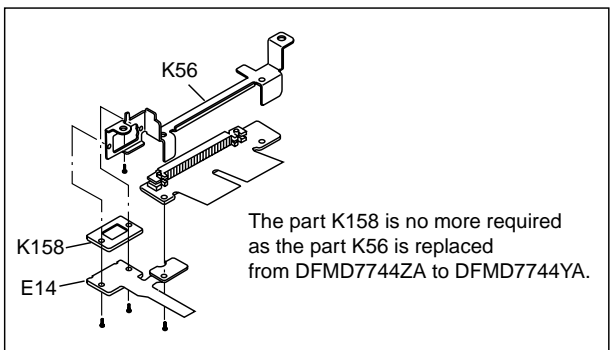
# PCB

Addition parts REF. No. : K195 ~ K198



## Screw tightening torque

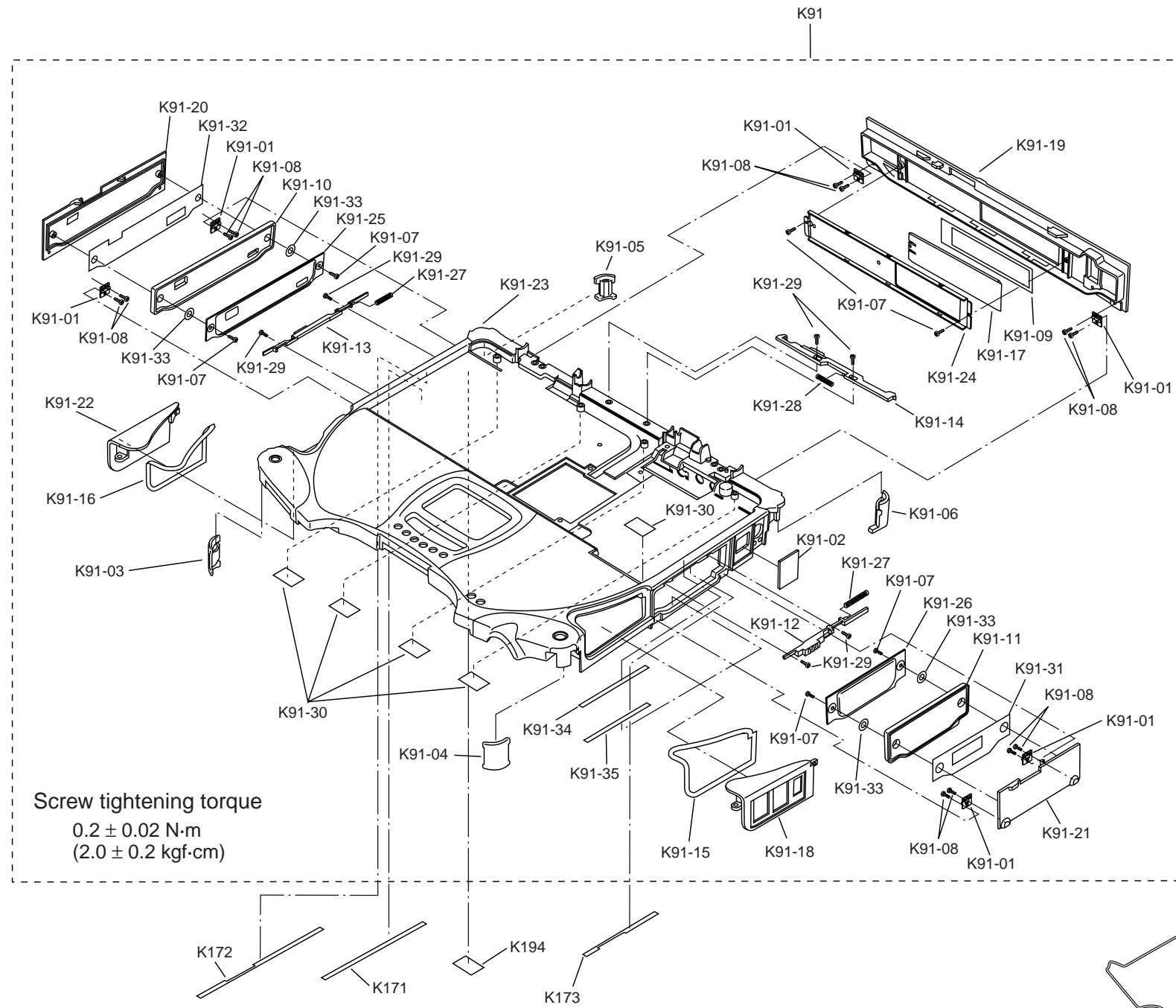
- (A)  $0.19 \pm 0.02$  N·m  
( $2.0 \pm 0.2$  kgf·cm)
- (B)  $0.12 \pm 0.02$  N·m  
( $1.3 \pm 0.2$  kgf·cm)
- (C)  $0.216 \pm 0.0196$  N·m  
( $2.2 \pm 0.2$  kgf·cm)
- (D)  $0.314 \pm 0.0196$  N·m  
( $3.2 \pm 0.2$  kgf·cm)
- (E)  $0.49 \pm 0.05$  N·m  
( $5.0 \pm 0.5$  kgf·cm)
- (F)  $0.441 \pm 0.049$  N·m  
( $4.5 \pm 0.5$  kgf·cm)
- (G)  $0.11 \pm 0.02$  N·m  
( $1.2 \pm 0.2$  kgf·cm)



# TOP CABINET

Deletion parts REF. No. : K65

Addition parts REF. No. : K91-01 ~ K91-35, K171 ~ K177, K187, K188, K193, K194



## Screw tightening torque

- Ⓐ  $0.19 \pm 0.02 \text{ N}\cdot\text{m}$   
 $(2.0 \pm 0.2 \text{ kgf}\cdot\text{cm})$
- Ⓔ  $0.49 \pm 0.05 \text{ N}\cdot\text{m}$   
 $(5.0 \pm 0.5 \text{ kgf}\cdot\text{cm})$
- Ⓝ  $0.16 \pm 0.02 \text{ N}\cdot\text{m}$   
 $(1.7 \pm 0.2 \text{ kgf}\cdot\text{cm})$

