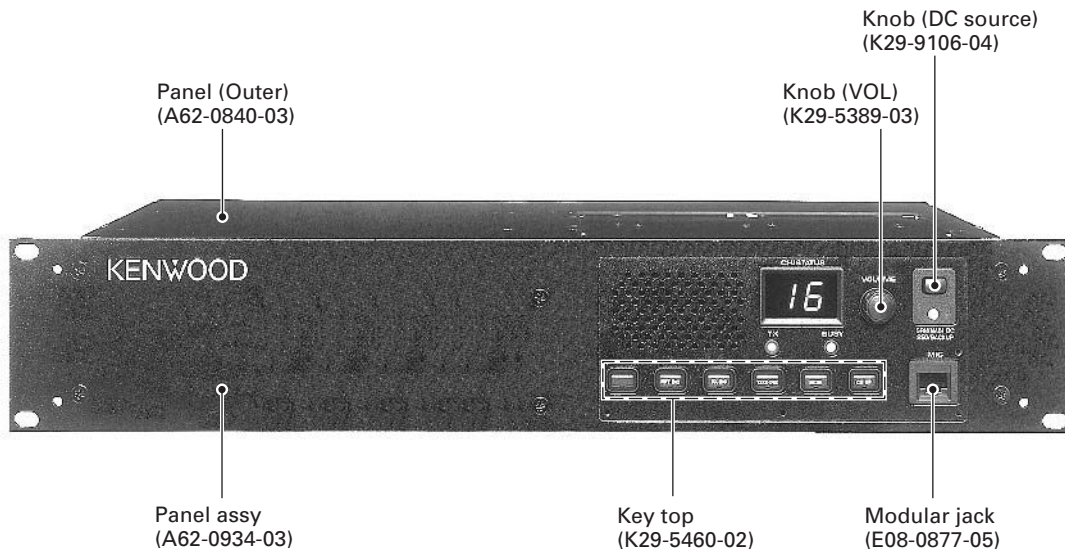


This supplement to the Service Manual is available for products with serial number 50500011 or later.
This Service Manual contains a parts list, schematic diagrams and PC boards of a new final unit for the TKR-850.
Since the adjustment procedure is the same as before, refer to the Service Manual (K,E : B51-8557-10 , C : B51-8568-10) for the TKR-850 for items not provided in this Service Manual.



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TKR-850

PARTS LIST

* New Parts. Δ indicates safety critical components.

Parts without **Parts No.** are not supplied.

Les articles non mentionnés dans le **Parts No.** ne sont pas fournis.

Teile ohne **Parts No.** werden nicht geliefert.

L : Scandinavia

Y : PX (Far East, Hawaii)

Y : AAFES (Europe)

C : China

K : USA

T : England

X : Australia

P : Canada

E : Europe

M : Other Areas

TKR-850 (Y54-319X-XX)

FINAL UNIT (X45-3740-10)

Ref. No.	Address	New parts	Parts No.	Description	Desti-nation
TKR-850					
-			G02-0894-04	EARTH SPRING (FINAL FET)	
-		*	J21-8467-04	HARDWARE FIXTURE (DRIVE FET)	
FINAL UNIT (X45-3740-10)					
C1			CK73GB1H471K	CHIP C 470PF K	
C3			C90-2146-05	ELECTRO 100UF 25WV	
C6,7			CK73GB1H471K	CHIP C 470PF K	
C8			CC73GCH1H080D	CHIP C 8.0PF D	
C10			CK73GB1H471K	CHIP C 470PF K	
C12-15			CK73GB1H471K	CHIP C 470PF K	
C17			CC73GCH1H050C	CHIP C 5.0PF C	
C18,19			CK73GB1H471K	CHIP C 470PF K	
C20			CK73FB1H471K	CHIP C 470PF K	
C21			CC73FCH1H120J	CHIP C 12PF J	
C22			CC73FCH1H060D	CHIP C 6.0PF D	
C23			CK73FB1H471K	CHIP C 470PF K	
C24			C90-4016-05	ELECTRO 47UF 25WV	
C26			CC73GCH1H471J	CHIP C 470PF J	
C27			CK73GB1H471K	CHIP C 470PF K	
C28			CK73FB1E104K	CHIP C 0.10UF K	
C29			CK73GB1H471K	CHIP C 470PF K	
C30			CK73FB1E104K	CHIP C 0.10UF K	
C31			C93-0599-05	CHIP C 470PF K	
C32			C93-0558-05	CHIP C 8.0PF 500WV	
C33,34			C93-0566-05	CHIP C 33PF 500WV	
C35			C93-0599-05	CHIP C 470PF 500WV	
C36			CK73FB1E104K	CHIP C 0.10UF K	
C38			CK73GB1H471K	CHIP C 470PF K	
C40			C93-0669-05	CHIP C 30PF 500WV	
C41			C93-0599-05	CHIP C 470PF 500WV	
C43			CM73F2H180J	CHIP C 18PF J	
C44			C93-0556-05	CHIP C 6.0PF 500WV	
C46			C93-0599-05	CHIP C 470PF 500WV	
C48			CK73GB1H471K	CHIP C 470PF K	
C49			CC73GCH1H101J	CHIP C 100PF J	
C50			CK73FB1E104K	CHIP C 0.10UF K	
C51			C90-2143-05	ELECTRO 47UF 25WV	
C52			CC73GCH1H101J	CHIP C 100PF J	
C53			CK73FB1E104K	CHIP C 0.10UF K	
C54			C90-2146-05	ELECTRO 100UF 25WV	
C55			C93-0599-05	CHIP C 470PF 500WV	
C59			CM73F2H100D	CHIP C 10PF D	
C61			CM73F2H471J	CHIP C 470PF J	
C69			CC73GCH1H101J	CHIP C 100PF J	
C70			CK73FB1E104K	CHIP C 0.10UF K	
C71,72			CK73GB1H471K	CHIP C 470PF K	
C75			CK73GB1H471K	CHIP C 470PF K	
C77			CC73GCH1H101J	CHIP C 100PF J	
C78			CK73GB1H471K	CHIP C 470PF K	
C79			CK73FB1E104K	CHIP C 0.10UF K	
C80			C92-0777-05	ELECTRO 1000UF 25WV	
C81			CM73F2H471J	CHIP C 470PF J	

Ref. No.	Address	New parts	Parts No.	Description	Desti-nation
C83			C93-0556-05	CHIP C 6.0PF 500WV	
C86			C93-0560-05	CHIP C 10PF 500WV	
C89			C93-0555-05	CHIP C 5.0PF 500WV	
C91-98			CK73GB1H471K	CHIP C 470PF K	
C99			CK73FB1E104K	CHIP C 0.10UF K	
C100-102			CK73GB1H471K	CHIP C 470PF K	
C103			C92-0628-05	CHIP-TAN 10UF 10WV	
C104			CC73GCH1H101J	CHIP C 100PF J	
C105			CK73GB1H471K	CHIP C 470PF K	
C106			CK73FB1E104K	CHIP C 0.10UF K	
C107			CC73GCH1H101J	CHIP C 100PF J	
C108			CK73FB1E104K	CHIP C 0.10UF K	
C109			CC73GCH1H101J	CHIP C 100PF J	
C112			CK73GB1H471K	CHIP C 470PF K	
C113			CK73FB1E104K	CHIP C 0.10UF K	
C114			CK73GB1H471K	CHIP C 470PF K	
C115			CK73FB1E104K	CHIP C 0.10UF K	
C116			CK73GB1H471K	CHIP C 470PF K	
C117			CK73FB1E104K	CHIP C 0.10UF K	
C118			C93-0555-05	CHIP C 5.0PF 500WV	
C119			CK73GB1H471K	CHIP C 470PF K	
C120			CK73FB1H223K	CHIP C 0.022UF K	
C121,122			CM73F2H150J	CHIP C 15PF J	
C123,124			CM73F2H220J	CHIP C 22PF J	
C160			CM73F2H471J	CHIP C 470PF J	
CN1			E04-0154-05	PIN SOCKET	
CN3			E40-5632-05	PIN ASSY	
CN4			E40-3246-05	PIN ASSY	
CN5			E40-5703-05	PIN ASSY	
CN6-8			E23-0462-05	TERMINAL	
F1			F53-0190-05	FUSE	
CN51,52			J13-0071-05	FUSE HOLDER	
L1			L40-1075-92	SMALL FIXED INDUCTOR (10NH)	
L2			L40-1075-34	SMALL FIXED INDUCTOR (10NH)	
L3			L40-1875-92	SMALL FIXED INDUCTOR (18NH)	
L5			L41-6865-20	SMALL FIXED INDUCTOR	
L6,7			L34-4517-05	AIR-CORE COIL	
L8			L40-3975-34	SMALL FIXED INDUCTOR (39NH)	
L9			L34-4517-05	AIR-CORE COIL	
L11			L34-4517-05	AIR-CORE COIL	
L12			L34-4523-05	AIR-CORE COIL	
L14			L40-1575-34	SMALL FIXED INDUCTOR (15NH)	
L15			L40-1075-34	SMALL FIXED INDUCTOR (10NH)	
R1			RK73GB1J103J	CHIP R 10K J 1/16W	
R2			RK73GB1J222J	CHIP R 2.2K J 1/16W	
R3			RK73GB1J470J	CHIP R 47 J 1/16W	
R4			RK73GB1J220J	CHIP R 22 J 1/16W	
R6			RK73GB1J470J	CHIP R 47 J 1/16W	
R7			RK73GB1J682J	CHIP R 6.8K J 1/16W	
R8			RK73FB2A100J	CHIP R 10 J 1/10W	
R9			RK73FB2A220J	CHIP R 22 J 1/10W	
R11			RK73GB1J104J	CHIP R 100K J 1/16W	
R12			RK73GB1J183J	CHIP R 18K J 1/16W	

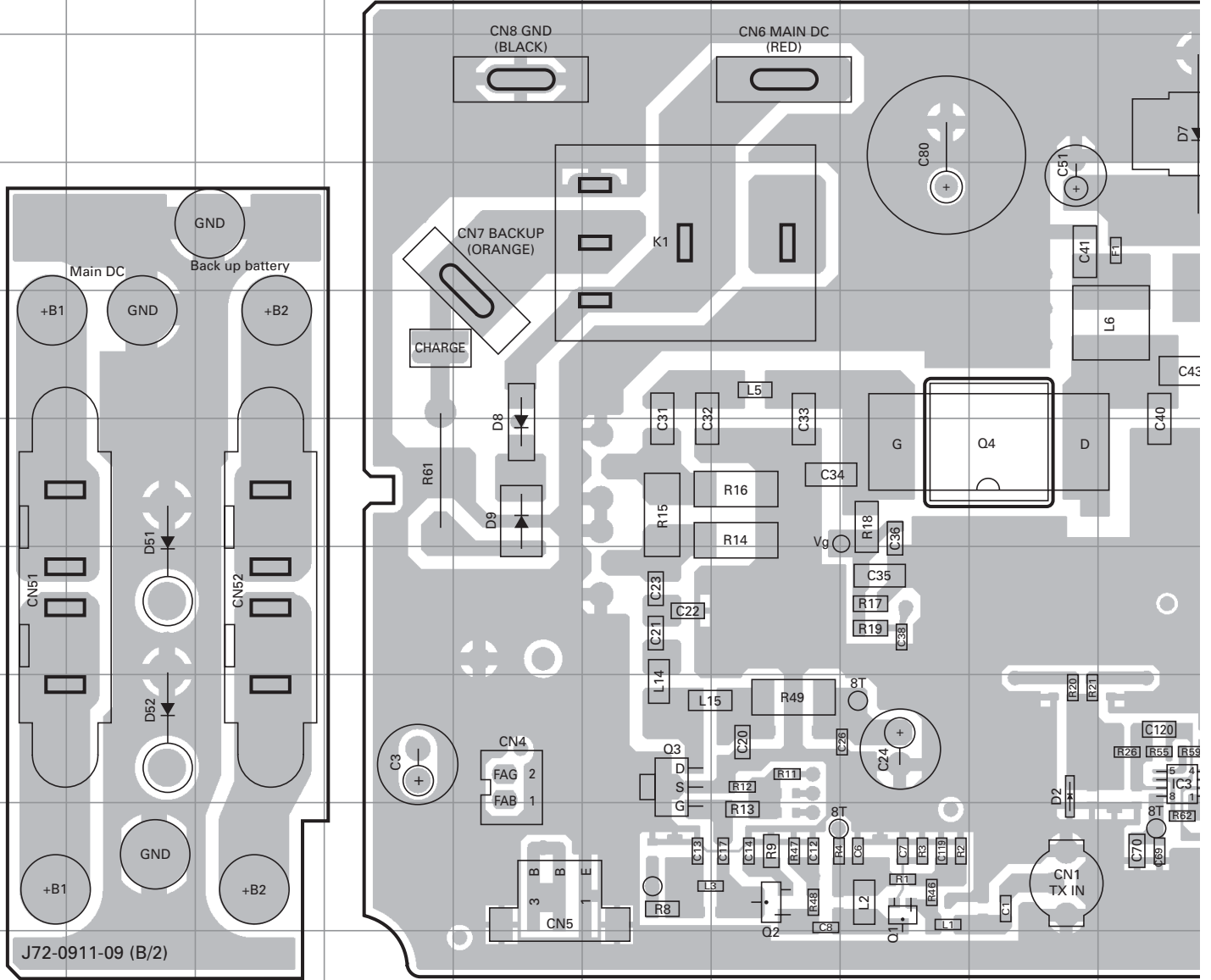
PARTS LIST

FINAL UNIT (X45-3740-10)

Ref. No.	Address	New parts	Parts No.	Description	Destination	Ref. No.	Address	New parts	Parts No.	Description	Destination
R13			RK73FB2A470J	CHIP R 47 J 1/10W		Q8			2SC4116(Y)	TRANSISTOR	
R14			R92-2571-05	CHIP R 270 J 1/2W		Q9			DTD123EK	DIGITAL TRANSISTOR	
R15			R92-1259-05	CHIP R 18 J 1/2W		TH1			PTH9M04BE471TS	THERMISTOR	
R16			R92-2571-05	CHIP R 270 J 1/2W							
R17			RK73FB2A154J	CHIP R 150K J 1/10W							
R18			RK73EB2B101J	CHIP R 100 J 1/8W							
R19			RK73FB2A104J	CHIP R 100K J 1/10W							
R20,21			R92-1252-05	CHIP R 0 OHM J 1/16W							
R22			R92-1215-05	CHIP R 470 J 1/2W							
R23,24			RK73FB2A104J	CHIP R 100K J 1/10W							
R26			RK73GB1J101J	CHIP R 100 J 1/16W							
R31			RK73GB1J224J	CHIP R 220K J 1/16W							
R33			R92-0670-05	CHIP R 0 OHM							
R34			R92-1252-05	CHIP R 0 OHM J 1/16W							
R35			RK73GB1J104J	CHIP R 100K J 1/16W							
R36			R92-1252-05	CHIP R 0 OHM J 1/16W							
R37			R92-0670-05	CHIP R 0 OHM							
R38			RK73GB1J473J	CHIP R 47K J 1/16W							
R40			RK73FB2A101J	CHIP R 100 J 1/10W							
R41			R92-1252-05	CHIP R 0 OHM J 1/16W							
R43			RK73FB2A101J	CHIP R 100 J 1/10W							
R44			R92-0670-05	CHIP R 0 OHM							
R45			RK73GB1J102J	CHIP R 1.0K J 1/16W							
R46			RK73GB1J471J	CHIP R 470 J 1/16W							
R47			RK73GB1J222J	CHIP R 2.2K J 1/16W							
R48			RK73GB1J471J	CHIP R 470 J 1/16W							
R49			R92-1217-05	CHIP R 0 OHM							
R50			R92-1317-05	CHIP R 18 J 1W							
R51			RK73GB1J104J	CHIP R 100K J 1/16W							
R52			RK73GB1J393J	CHIP R 39K J 1/16W							
R53			RK73GB1J154J	CHIP R 150K J 1/16W							
R54			RK73GB1J102J	CHIP R 1.0K J 1/16W							
R55			RK73GB1J474J	CHIP R 470K J 1/16W							
R56			RK73GB1J473J	CHIP R 47K J 1/16W							
R57			RK73GB1J471J	CHIP R 470 J 1/16W							
R58			RK73GB1J222J	CHIP R 2.2K J 1/16W							
R59			RK73GB1J471J	CHIP R 470 J 1/16W							
R60			RK73GB1J104J	CHIP R 100K J 1/16W							
R61			R92-2687-05	RESISTOR 5.6 J 5W							
R62			RK73GB1J102J	CHIP R 1.0K J 1/16W							
R63			RK73GB1J222J	CHIP R 2.2K J 1/16W							
R72			RK73GB1J184J	CHIP R 180K J 1/16W							
VR1			R12-6429-05	TRIMMING POT. (100K)							
K1			S76-0426-05	RELAY							
D2			02DZ6.2(Y)	ZENER DIODE							
D4,5			HSM88AS	DIODE							
D7			ZSA5A27	ZENER DIODE							
D8			RB051L-40	DIODE							
D9			MINISMDC050-02	VARISTOR							
D10			1SS355	DIODE							
D51,52			DSA3A1	DIODE							
IC1			TK11050M	ANALOG IC							
IC2			NJM78L05UA	BI-POLAR IC							
IC3			TA75W01FU	MOS IC							
Q1			2SC5110(O)	TRANSISTOR							
Q2			2SC3356(R24)	TRANSISTOR							
Q3			2SK2596	FET							
Q4			PD55008S	DRIVE FET							
Q5			RD60HUF1-01	FINAL FET							

TKR-850 PC BOARD

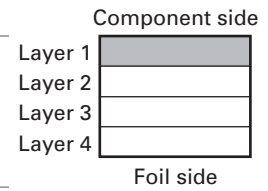
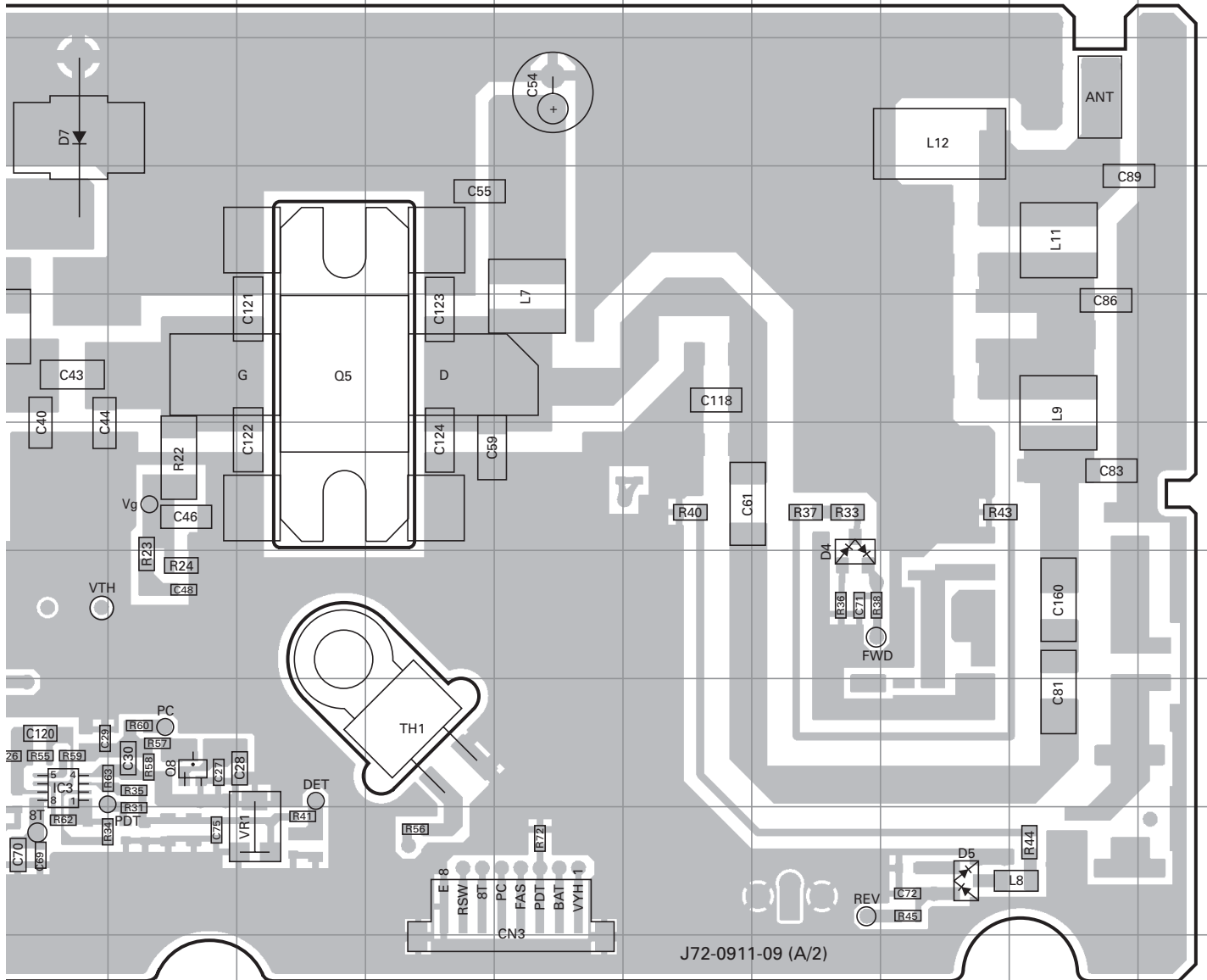
FINAL UNIT (X45-3740-10) Component side view (J72-0911-09)



Ref. No.	Address	Ref. No.	Address	Ref. No.	Address	Ref. No.	Address
IC3	8J	Q4	6I	D4	7P	D9	6E
Q1	9H	Q5	5L	D5	9Q	D51	7B
Q2	9G	Q8	8K	D7	3J	D52	8B
Q3	8F	D2	8I	D8	6E		

PC BOARD TKR-850

FINAL UNIT (X45-3740-10) Component side view (J72-0911-09)

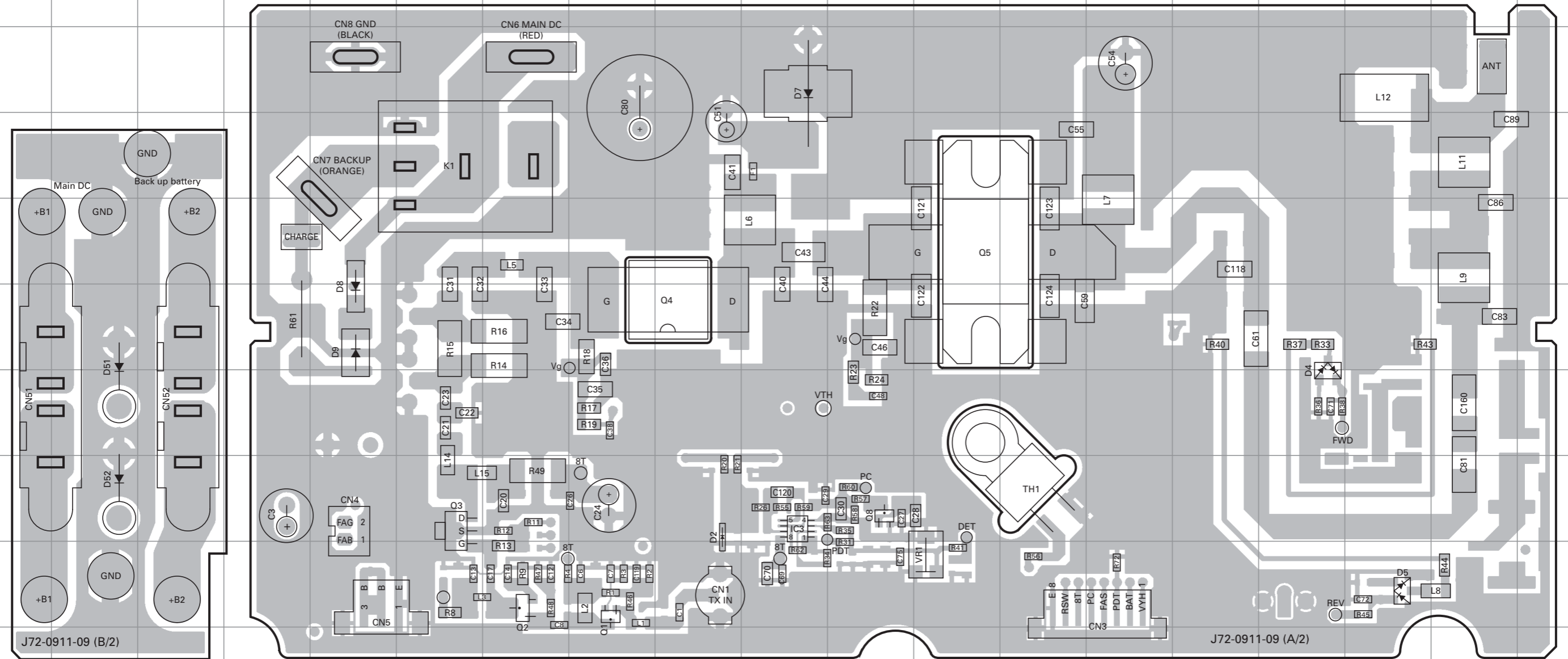


TKR-850 PC BOARD

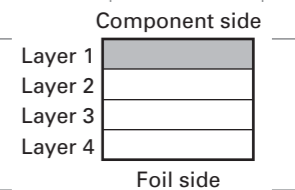
PC BOARD TKR-850

FINAL UNIT (X45-3740-10) Component side view (J72-0911-09)

FINAL UNIT (X45-3740-10) Component side view (J72-0911-09)

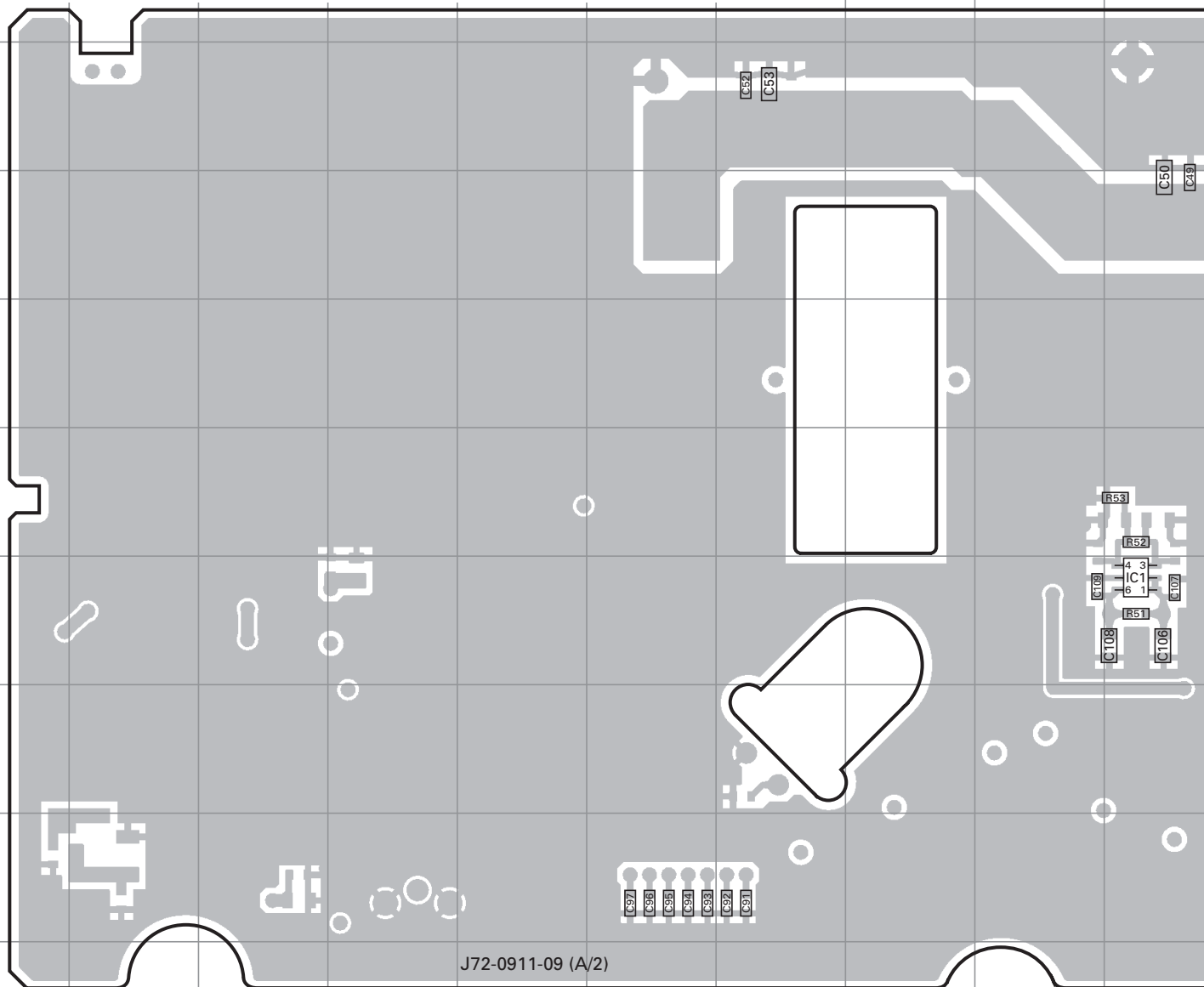


Ref. No.	Address	Ref. No.	Address	Ref. No.	Address	Ref. No.	Address
IC3	8J	Q4	6I	D4	7P	D9	6E
Q1	9H	Q5	5L	D5	9Q	D51	7B
Q2	9G	Q8	8K	D7	3J	D52	8B
Q3	8F	D2	8I	D8	6E		



TKR-850 PC BOARD

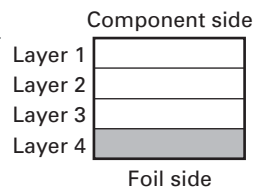
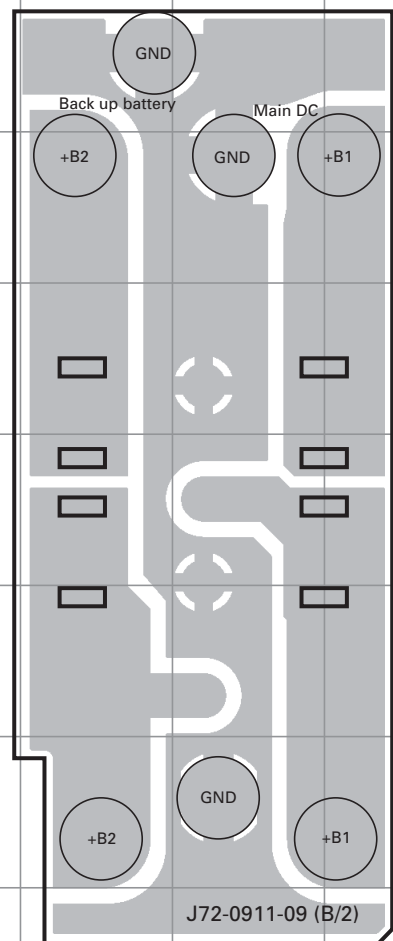
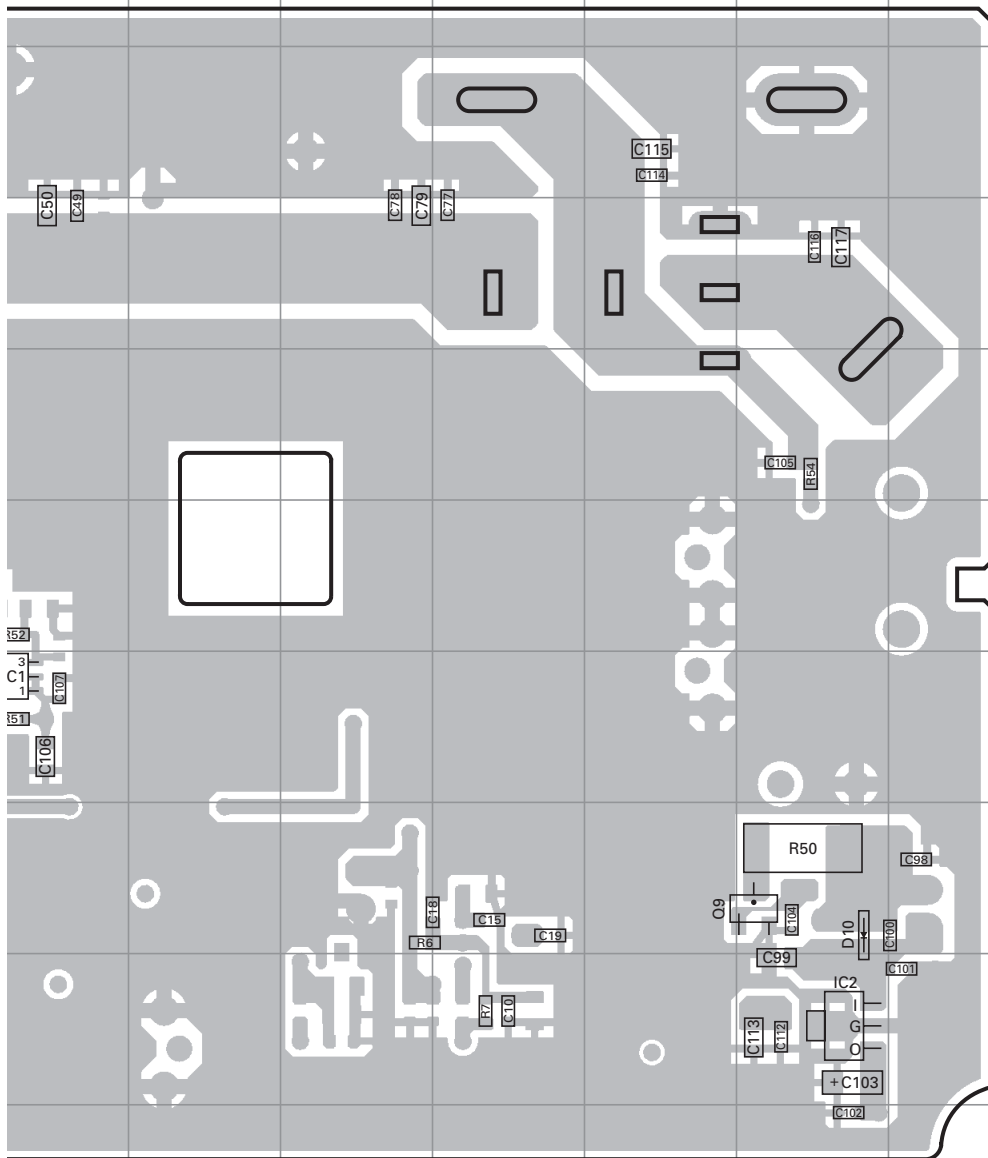
FINAL UNIT (X45-3740-10) Foil side view (J72-0911-09)



Ref. No.	Address
IC1	7J
IC2	9O
Q9	8O
D10	8O

PC BOARD TKR-850

FINAL UNIT (X45-3740-10) Foil side view (J72-0911-09)

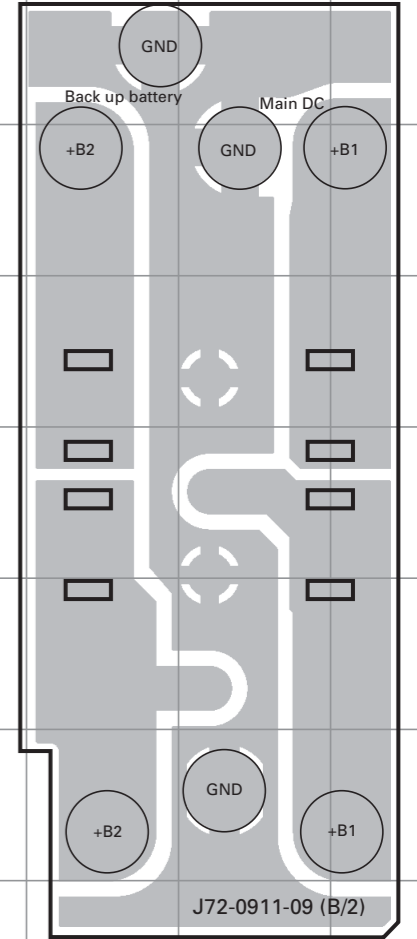
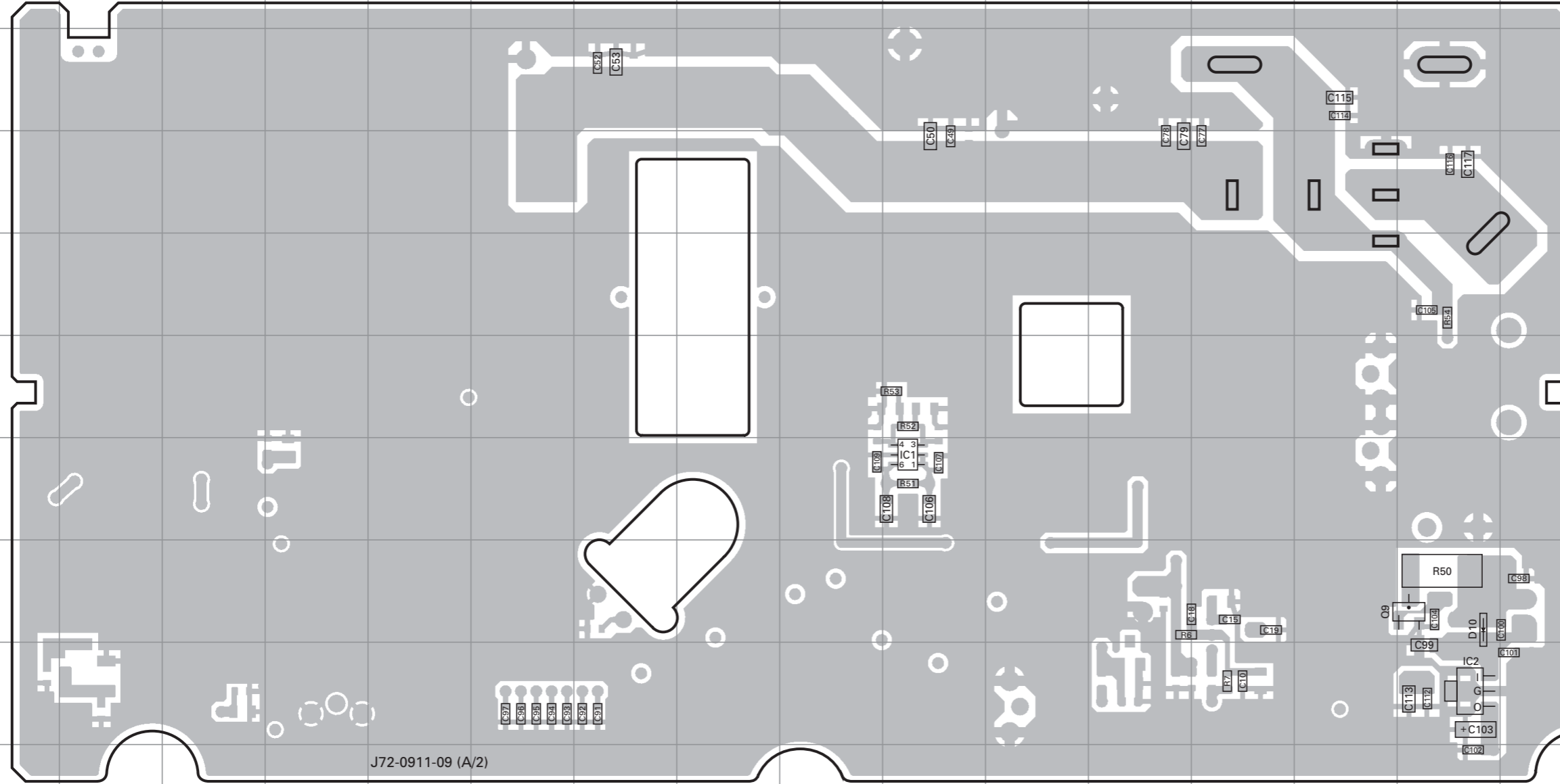


TKR-850 PC BOARD

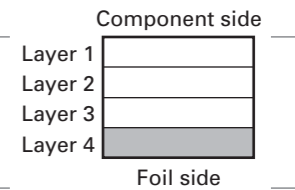
PC BOARD TKR-850

FINAL UNIT (X45-3740-10) Foil side view (J72-0911-09)

FINAL UNIT (X45-3740-10) Foil side view (J72-0911-09)

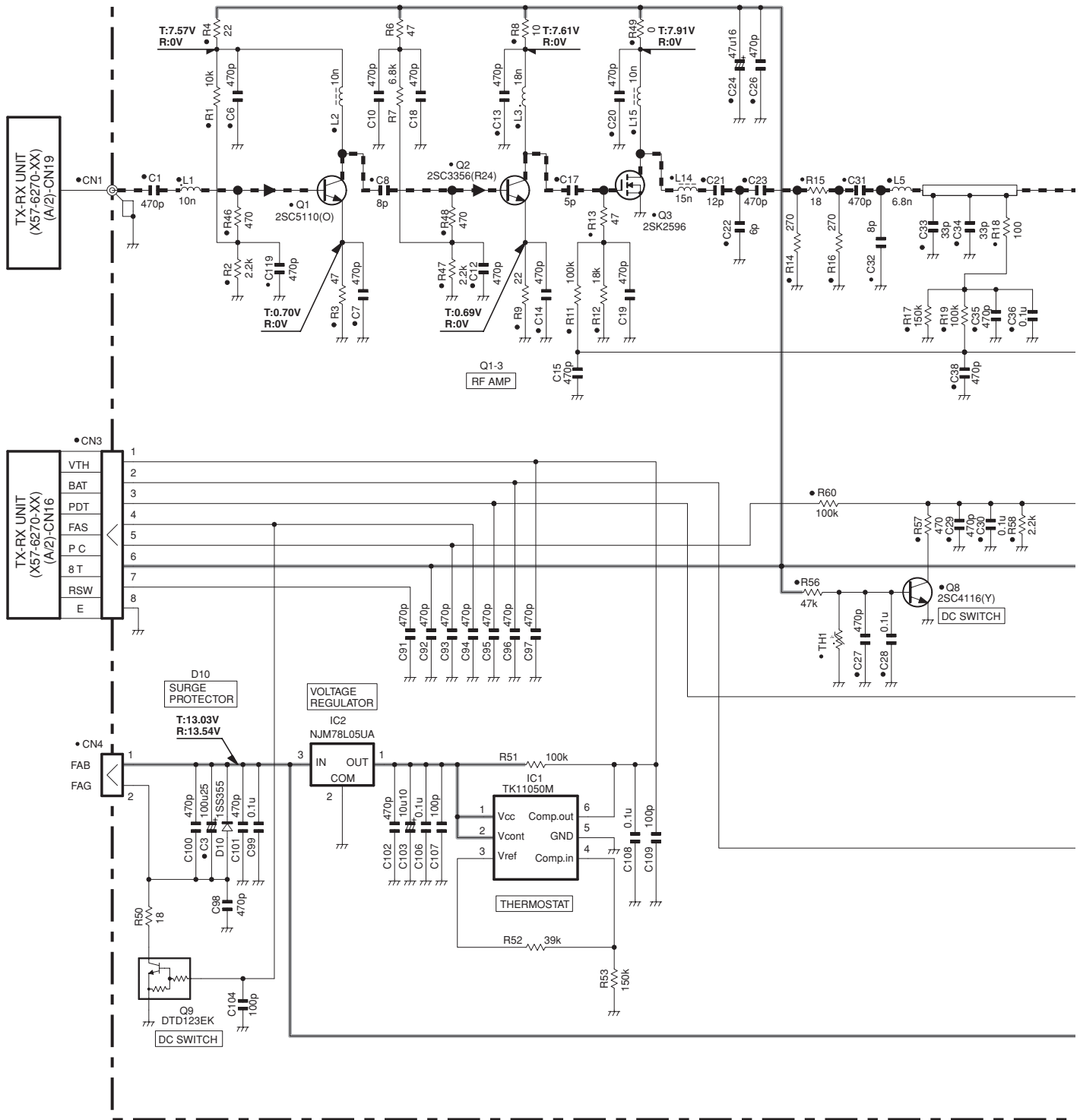


Ref. No.	Address
IC1	7J
IC2	9O
Q9	8O
D10	8O

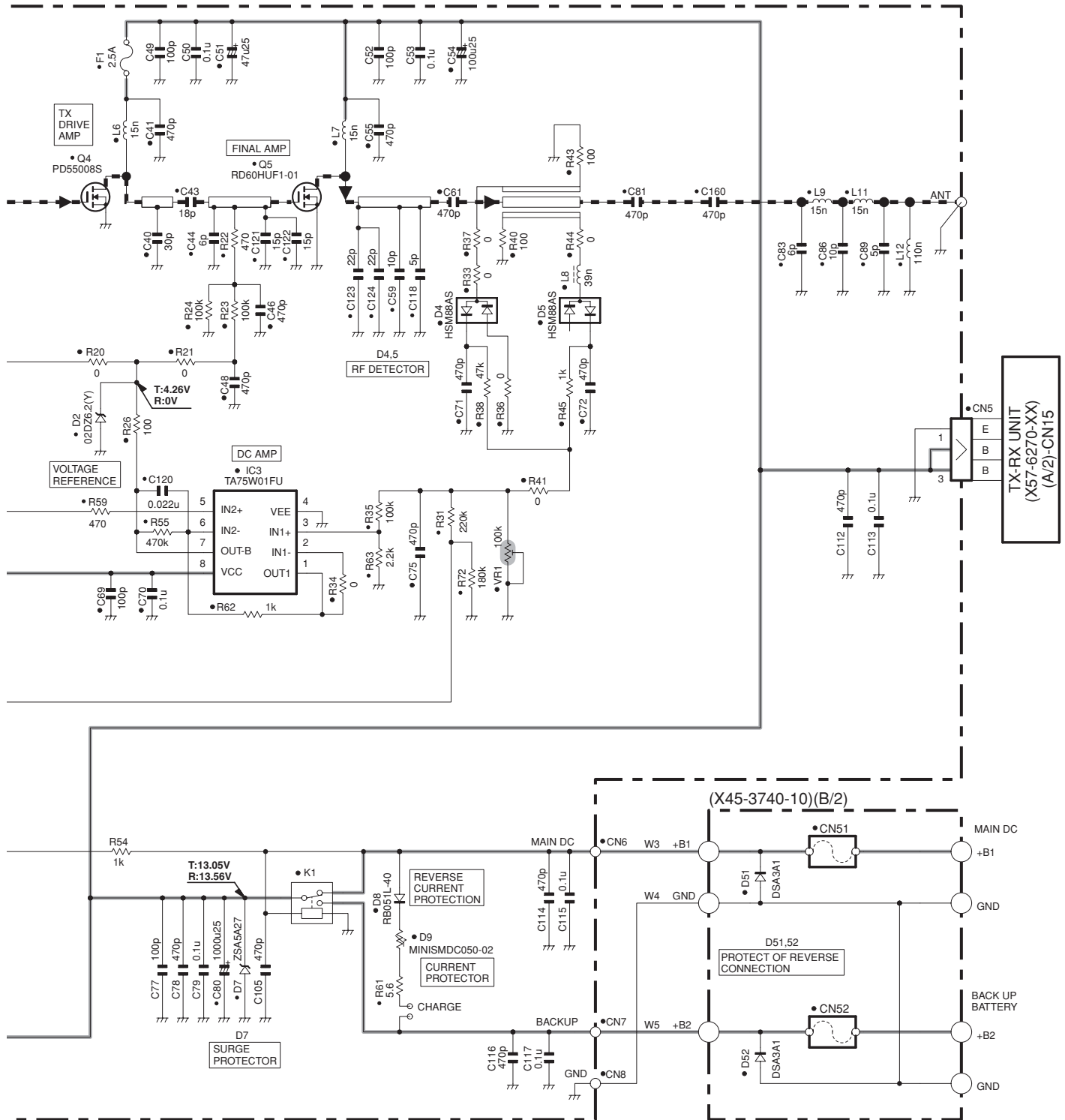


TKR-850 SCHEMATIC DIAGRAM

FINAL UNIT
(X45-3740-10)(A/2)

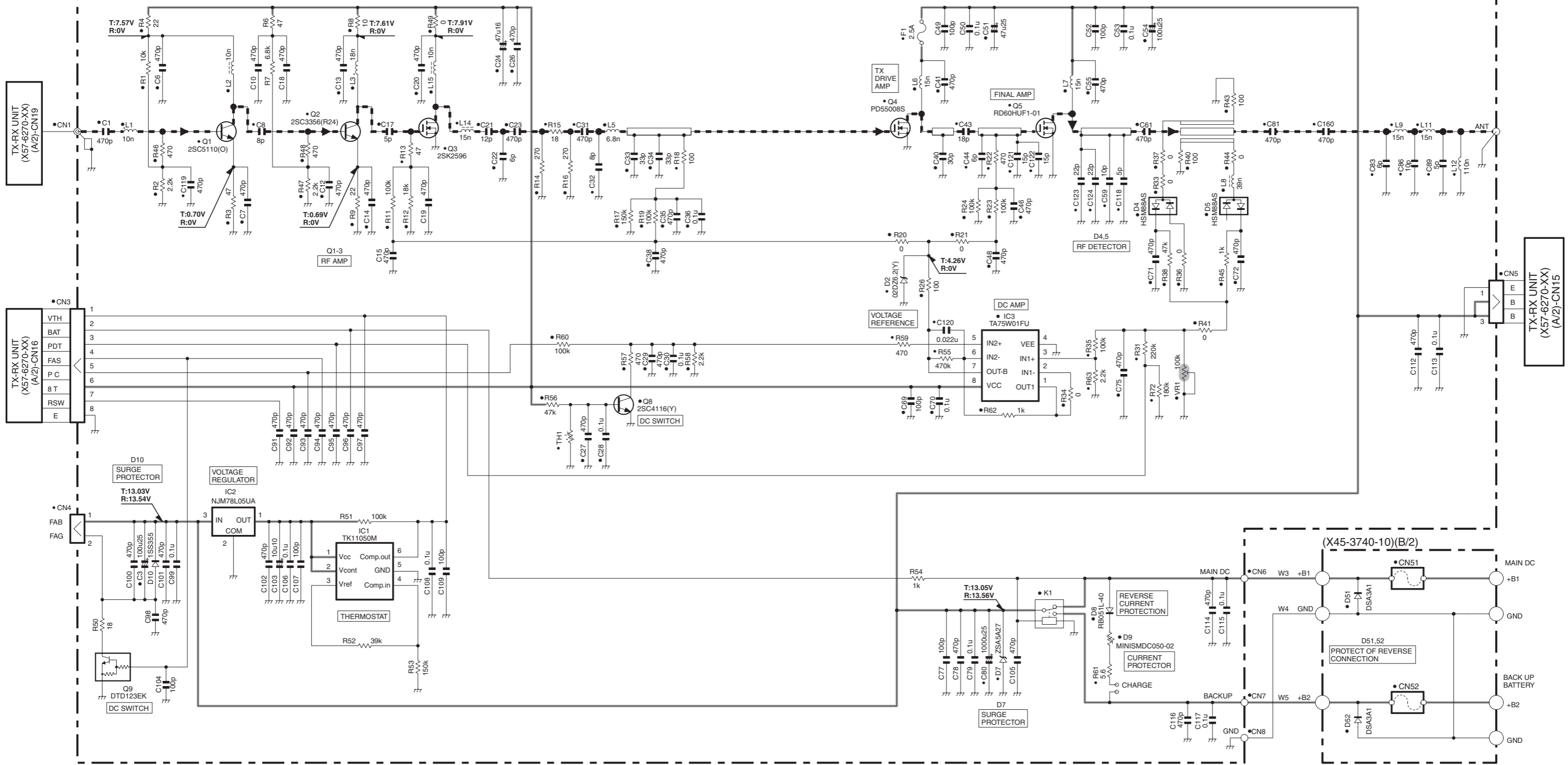


SCHEMATIC DIAGRAM TKR-850

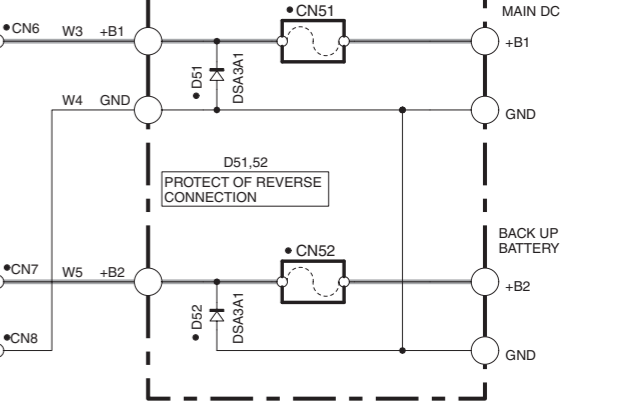


Note : The components marked with a dot (•) are parts of layer 1.

FINAL UNIT
(X45-3740-10)(A/2)

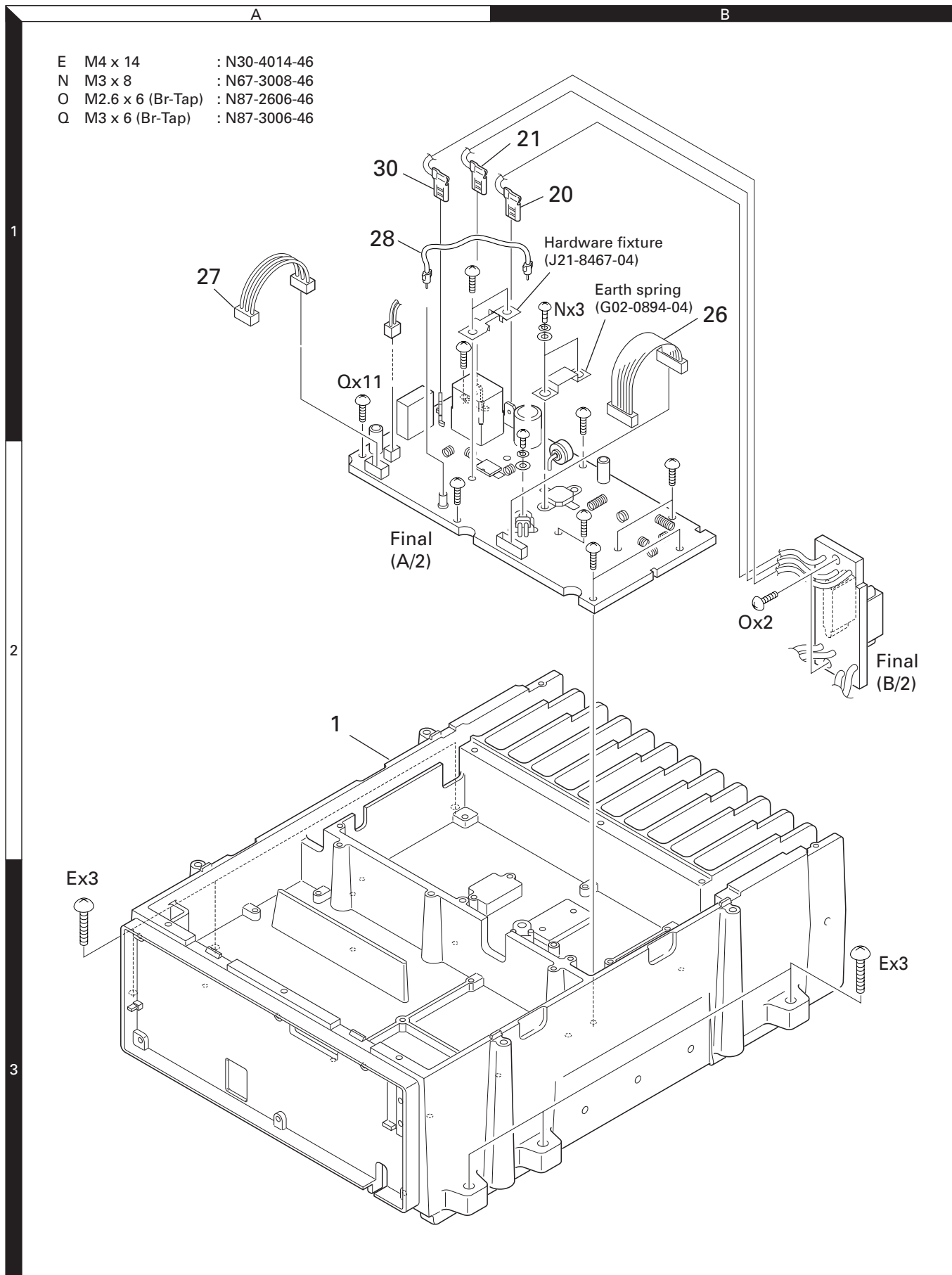


(X45-3740-10)(B/2)



EXPLODED VIEW

E	M4 x 14	:	N30-4014-46
N	M3 x 8	:	N67-3008-46
O	M2.6 x 6 (Br-Tap)	:	N87-2606-46
Q	M3 x 6 (Br-Tap)	:	N87-3006-46



SPECIFICATIONS (K,C TYPE)

GENERAL

Frequency Range	450 to 480MHz
Number of Channels	16 channel
Channel Spacing	Wide : 25kHz Narrow : 12.5kHz (PLL channel stepping 5kHz/6.25kHz)
Operating Voltage	13.6V DC±15%
Current Drain	
Standby	0.8A
Standby w/power save	0.3A (Operating mode DC-IN : Backup, FAN : Temp, SAVE : ON, DISP : OFF)
Receive	1.2A
Transmit/Receive	Less than 13A
Duty Cycle	
Receive	100%
Transmit	100% (100% @25W)
Frequency Stability	Less than ±0.00015% -30°C to +60°C (-22°F to +140°F)
Antenna Impedance	50Ω
Operating Temperature Range	-30°C to +60°C (-22°F to +140°F)
Dimensions	483 (19) W x 88 (3-1/2) H x 340 (13-1/3) D mm (inch)
Weight	9.7kg (21.4 lbs.)

RECEIVER (Measured by TIA/EIA-603)

Sensitivity	
12dB SINAD	0.35μV
20dB Quieting	0.45μV
Selectivity	Wide : 83dB (±25kHz) Narrow : 75dB (12.5kHz)
Intermodulation	Wide : 78dB (±25kHz/±50kHz) Narrow : 75dB (±12.5kHz/±25kHz)
Hum and Noise	Wide : 50dB Narrow : 45dB
Spurious & Image Rejection	90dB
Audio Output (Ext. Speaker)	4W at 4Ω less than 5% distortion
Audio Distortion (Ext. Speaker)	Less than 2.5% at 1000Hz
Band Spread	5MHz

TRANSMITTER (Measured by TIA/EIA-603)

RF Power Output	40W adjustable to 25W (100% duty @25W)
Type of Emission	K : Wide : 16K0F3E Narrow : 11K0F3E C : Wide : 16K0F3E Narrow : 8K50F3E
Spurious Response	Harmonics : 80dB Others : 75dB
FM Hum and Noise	Wide : 50dB Narrow : 45dB
Audio Distortion	Less than 3% at 1000Hz
Microphone Impedance	600Ω
Band Spread	30MHz

TKR-850

SPECIFICATIONS (E TYPE)

GENERAL

Frequency Range	440 to 470MHz
Number of Channels	16 channel
Channel Spacing	Wide : 25kHz Narrow : 12.5kHz (PLL channel stepping 5kHz/6.25kHz)
Operating Voltage	13.2V DC
Current Drain	
Standby	0.8A
Standby w/power save	0.3A (Operating mode DC-IN : Backup, FAN : Temp, SAVE : ON, DISP : OFF)
Receive	1.2A
Transmit/Receive	Less than 13A
Duty Cycle	Receive : 100% Transmit : 100% (100% @25W)
Frequency Stability	Less than $\pm 0.00015\%$ -30°C to $+60^{\circ}\text{C}$
Antenna Impedance	50 Ω
Operating Temperature Range	-30°C to $+60^{\circ}\text{C}$
Dimensions	483 W x 88 H x 340 D mm
Weight	9.7kg

RECEIVER (Measured by EN 300 086)

Sensitivity	0.45 μV
Adjucent Channel Selectivity	83dB ($\pm 25\text{kHz}$) 75dB ($\pm 12.5\text{kHz}$)
Intermodulation	72dB
Spurious & Image Rejection	90dB
Audio Output (Ext. Speaker)	4W at 4 Ω less than 5% distortion
Audio Distortion (Ext. Speaker)	Less than 2.5% at 1000Hz
Band Spread	5MHz

TRANSMITTER (Measured by EN 300 086)

RF Power Output	40W adjustable to 25W (100% duty @25W)
Modulation Limiting	$\pm 5\text{kHz}$ at $\pm 25\text{kHz}$ $\pm 2.5\text{kHz}$ at $\pm 12.5\text{kHz}$
Spurious Emission	$-36\text{dBm} \leq 1\text{GHz}$ $-30\text{dBm} > 1\text{GHz}$
FM Noise (EIA)	25kHz : 50dB 12.5kHz : 45dB
Modulation Distortion	Less than 3% at 1000Hz
Microphone Impedance	600 Ω
Band Spread	30MHz

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