

KENWOOD

Document Copyrights

Copyright 2006 by Kenwood Corporation. All rights reserved.

No part of this manual may be reproduced, translated, distributed, or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, for any purpose without the prior written permission of Kenwood.

Disclaimer

While every precaution has been taken in the preparation of this manual, Kenwood assumes no responsibility for errors or omissions. Neither is any liability assumed for damages resulting from the use of the information contained herein. Kenwood reserves the right to make changes to any products herein at any time for improvement purposes.

KRK-5/6DH

SERVICE MANUAL

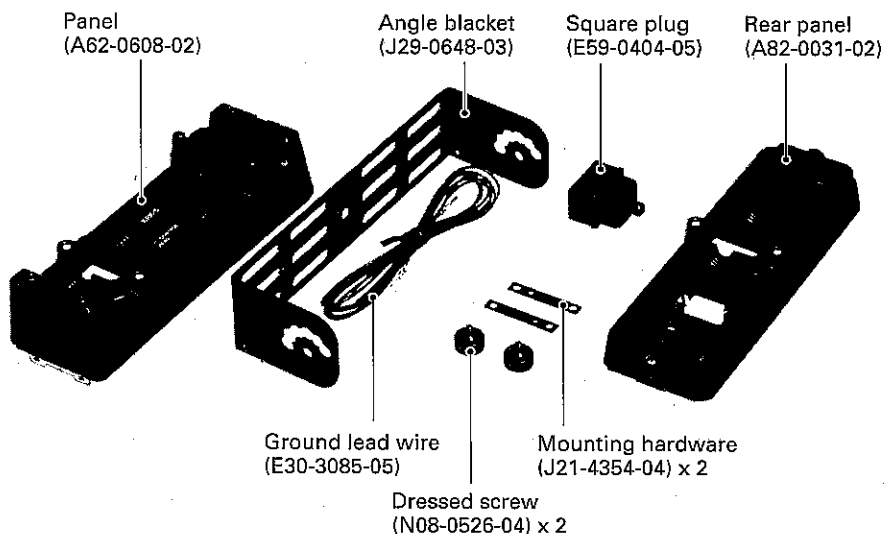
REVISED

KENWOOD

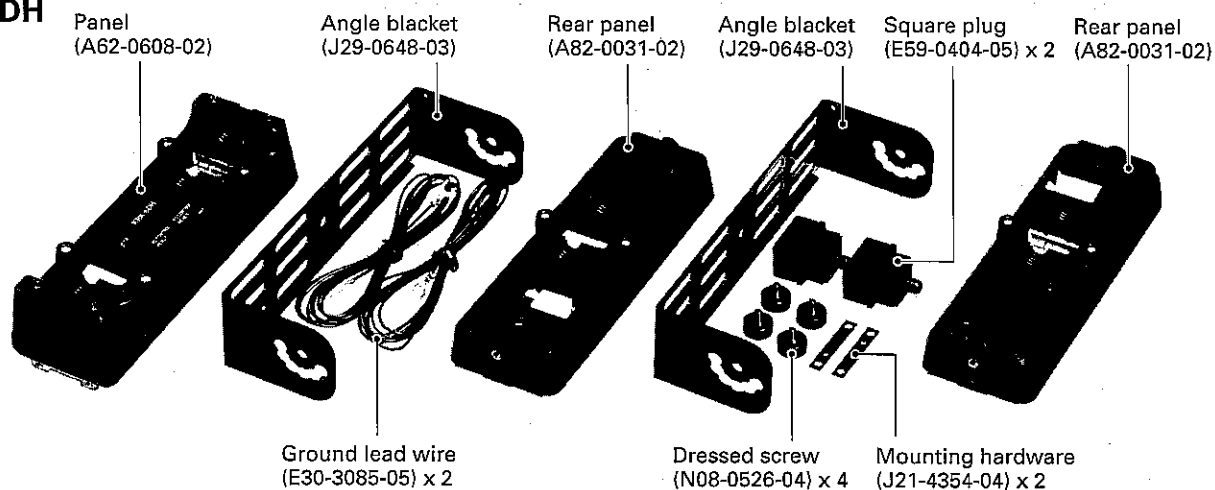
© 2000-9 PRINTED IN JAPAN
B51-8445-20 (N) 200

Due to an erroneous information the install section of service manual KRK-5/6DH (B51-8445-00).
The revised section is on page 2, number 1-2 display assembly (Fig. 2).
This service manual (B51-8445-20) provides revised information for tat section.

KRK-5



KRK-6DH



CONTENTS

INSTALLATION	2	PACKING	10
DISASSEMBLY FOR REPAIR	4	PC BOARD VIEW	
CIRCUIT DESCRIPTION	5	INTERFACE UNIT (X46-3240-XX)	12
DESCRIPTION OF COMPONENTS	5	SCHEMATIC DIAGRAM	13
PARTS LIST	6	TERMINAL FUNCTION	18
EXPLODED VIEW	7	KCT-22 (CONTROL CABLE)	19

KRK-5/6DH

INSTALLATION

1. Installing the Remote Kit (KRK-5)

The KRK-5 remote kit is used to remotely operate a TK-790/890/H series radio (called radio below). The KRK-5 is connected to a KCH-10 or KCH-11 with an optional KCT-22M 8 feet), KCT-22M2 (17 feet), or KCT-22M3 (25 feet) control cable.

1-1. Connection of radio 1 and KRK-5 (Fig. 1)

1. Remove the upper and lower halves of the case of radio 1.
2. Connect W501 of the control unit (X57 B/3) to CN4 of the KRK-5.
3. Install the KRK-5 on radio using the four flat-headed screws (1). Take care not to get W501 between the frames edges.
4. Reassemble the upper and lower halves of the case of radio.

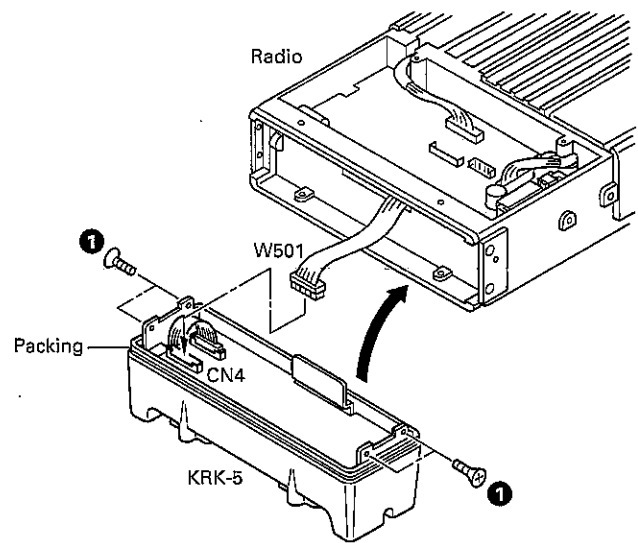


Fig. 1

1-2. Display assembly (Fig. 2)

The following steps apply to both the KCH-10 and the KCH-11.

1. Remove the three screws (1) on the rear panel of the head, then remove the sub panel.
2. Connect connector W102 from the head to CN1 of the display unit (2).
3. KCH-10 : Connect connector W103 from the head to CN3 of the display unit (3).
KCH-11 : Connect connector W103 from the head to CN2 and CN3 of the display unit.
4. Make a slight cut in the end of the rubber cap (4).
5. Slide the lead wire of the connector wiring (5) through the slit in the rubber cap (6).
6. Insert the rubber cap into the hole in the rear panel (7) (Follow the arrow in the diagram.)
7. Attach the connector (8) to the ACC connector (9) on the sub panel as shown by the arrow (10).
8. Install the head sub panel onto the display unit sub panel (11).
- Note :** Insert the head sub panel into the display unit sub panel.
9. Connect the sub panel to the display unit with the four screws (N32-3006-46) (12).
10. Install the head with the three screws that were removed in step 1.
11. Use a wire band to secure the lead wire at the end of the rubber cap (13).

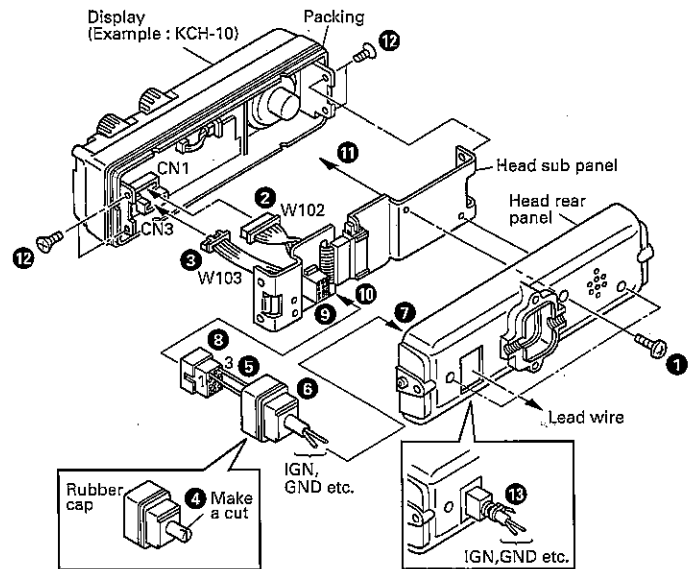


Fig. 2

INSTALLATION

1-3. Control cable (KCT-22) connection (Fig. 3)

1. Connect one connector of the control cable to radio (with KRK-5) and the other to the display. Connect the cable GND terminal with the binding screw (N35-3006-46) (1) supplied with the control cable.
2. Secure the connector of the control cable to the KRK-5 with the two sems (N67-4016-45) (2) according to the installation condition of radio. Secure the control cable on the KRK-5 with the cable fitting (J21-4354-04) and two screws (N09-0335-05) (3) supplied with the KRK-5.
3. Secure the other connector of the control cable to the display unit with two sems (N09-2166-05) (4) in the same way.

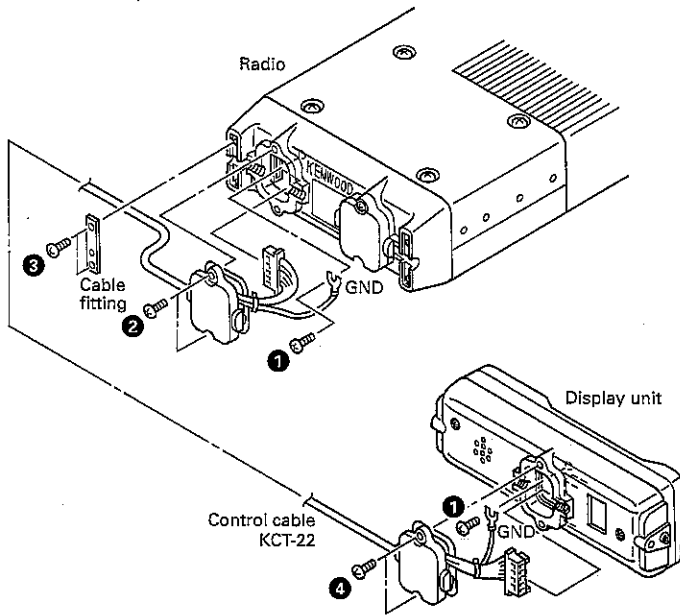


Fig. 3

1-4. Display installation (Fig. 4)

1. Install the display with the supplied angle bracket (J29-0648-03) (1) and two decorative screws (N08-0526-04) (2).

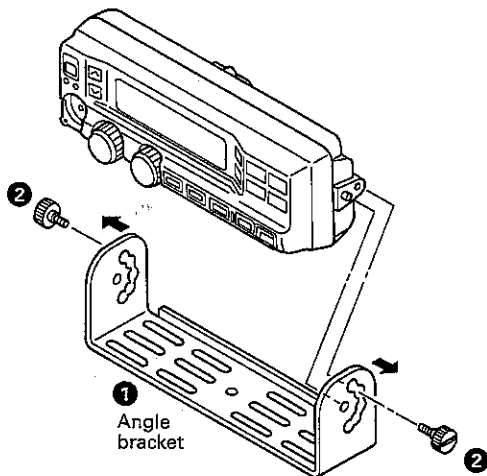


Fig. 4

2. Installing the Dual Control Head Remote Kit (KRK-6DH)

The KRK-6DH remote kit connects two displays (two KCH-10s or KCH-11s) to a TK-790/890/H series radio. The KRK-6DH is connected to the KCH-10s or KCH-11s with two optional control cables. There are three version of the control cable : KCT-22M (8 feet), KCT-22M2 (17 feet), and KCT-22M3 (25 feet).

2-1. Connection of radio and KRK-6DH (Fig. 5)

1. Remove the upper and lower halves of the case of radio.
2. Connect W501 on the control unit (X57 B/3) to CN4 of the KRK-6DH.
Connect the W104 connector from CN5 on the KRK-6DH to CN504 of the radio.
3. Install the KRK-6DH on radio using the four flat head screws (N32-3006-46) (1).
4. Reassemble the upper and lower halves of the case of radio 1.

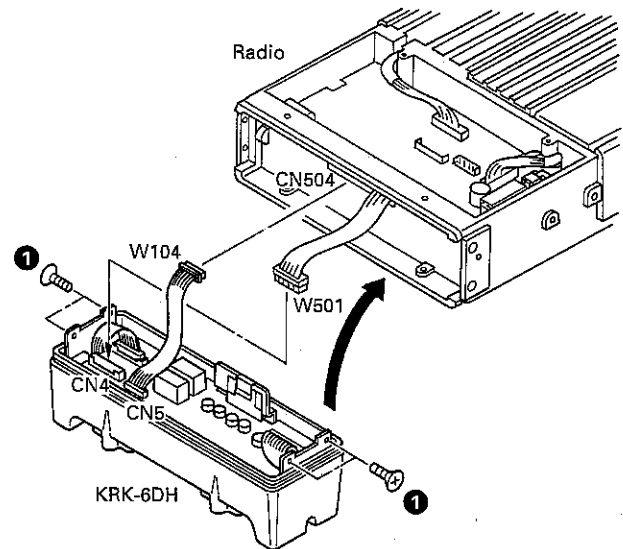


Fig. 5

2-2. Assembly of displays (displays 1 and 2) (Fig. 2)

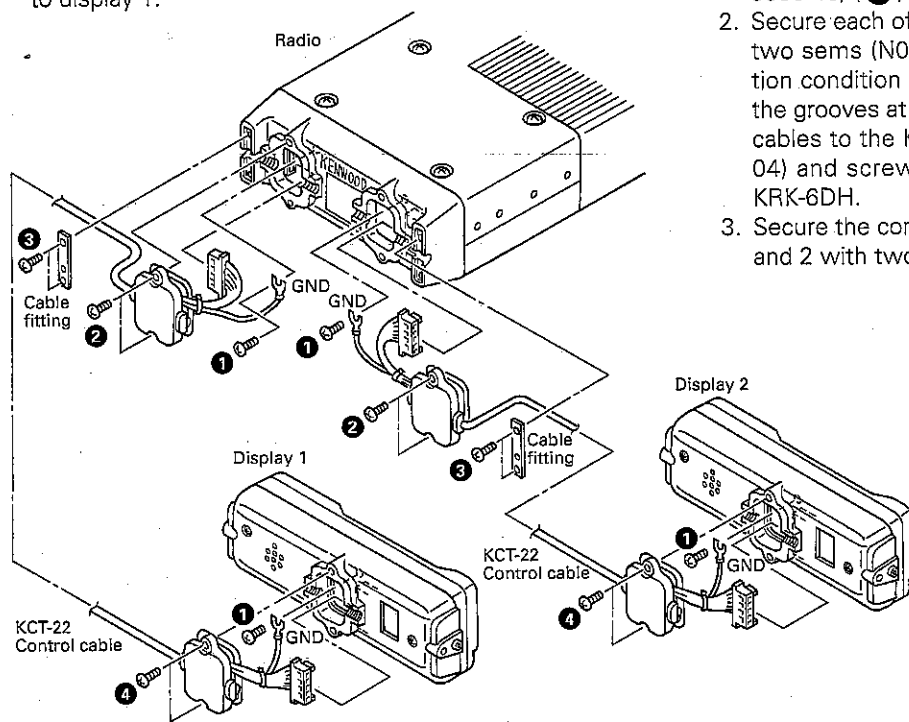
1. Same as the KRK-5 display assembly procedure in Section 1-2. (Assemble the two displays in the same way.) See page 2.

KRK-5/6DH

INSTALLATION / DISASSEMBLY FOR REPAIR

2-3. Control cable (KCT-22) connection (Fig. 6)

1. Use two control cables. Connect one end of one of the control cables to radio (with KRK-6DH) and the other end to display 1.



Connect one connector of the other control cable to radio (with KRK-6DH) and the other to display 2. Connect each cable GND terminal with one of the binding screws (N35-3006-46) (1) supplied with each control cable.

2. Secure each of the two connectors to the KRK-6DH with two sems (N09-2166-05) (2) according to the installation condition of radio. Pass the control cables through the grooves at both ends of the KRK-6DH and secure the cables to the KRK-6DH with the cable fitting (J21-4354-04) and screws (N09-0335-05) (3) supplied with the KRK-6DH.
3. Secure the connectors of the control cables to displays 1 and 2 with two sems (N09-2166-05) (4).

Fig. 6

DISASSEMBLY FOR REPAIR

1. Panel Disassembly Procedure (Fig. 1)

Figure 1 shows the KRK-5 as an example.

1. Remove the four screws holding the interface unit (KRK-5, KRK-6DH : X46-3240) (1).
2. Unplug the connector (KRK-5 : CN1, KRK-6DH : CN1, CN2) from the interface unit.
3. Remove the five screws (2) holding the subpanel.
4. See Figure 1-a for how to install the lead with a connector (3).

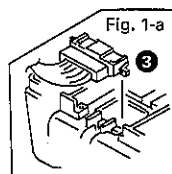
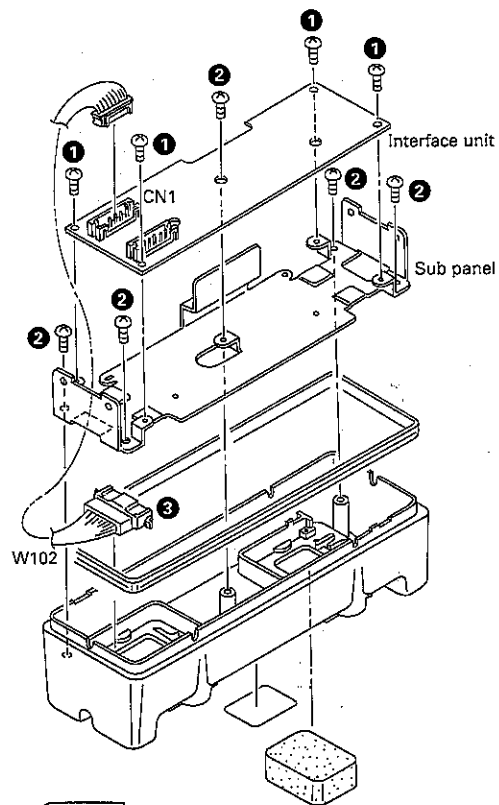


Fig. 1

DISASSEMBLY FOR REPAIR / CIRCUIT DESCRIPTION / DESCRIPTION OF COMPONENTS

2. Head Disassembly (Fig. 2)

1. Remove the three screws (1) holding the subpanel.
2. Unplug the connecting wire (2).

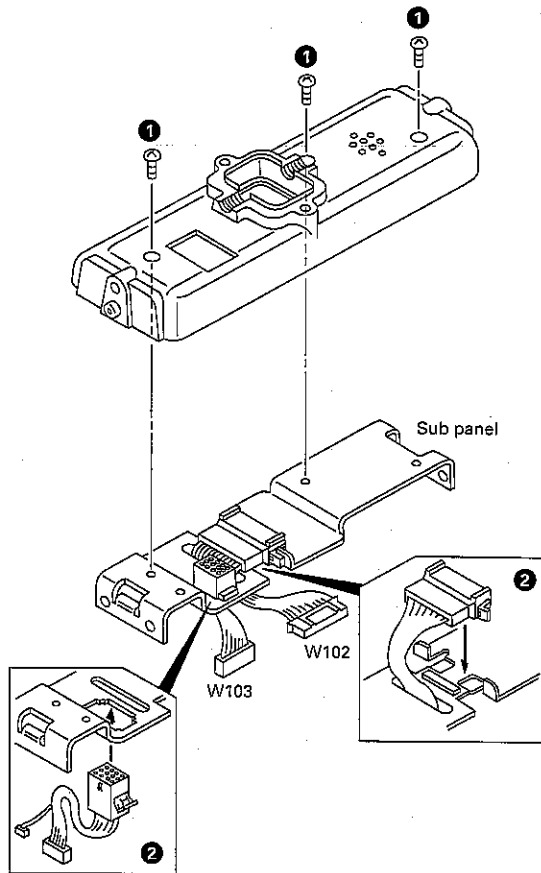


Fig. 2

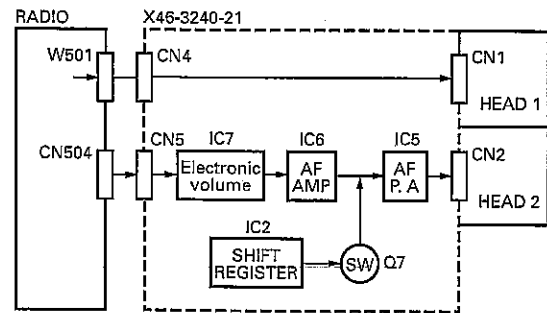


Fig. 1 Receiver block diagram

2. Transmitter circuit (Fig. 2)

When you press the PTT button on head 1 and talk into the microphone, the audio signal goes to the relay of K1 from CN1 pin 2 (MIC), and enters the radio from CN4 pin 2 (MIC). When you press the PTT button on head 2 and talk into the microphone, the audio signal goes to the relay of K2 from CN2 pin 2 (MIC2), and enters the radio from CN4 pin 2. K1 and K2 are controlled by IC2 (BU4094BCF).

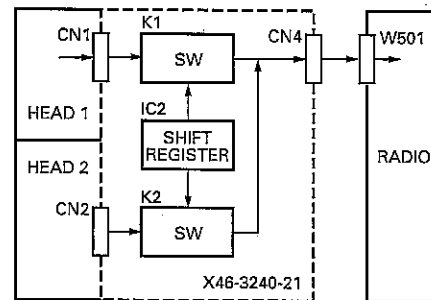


Fig. 2 Transmitter block diagram

CIRCUIT DESCRIPTION

1. Dual-Head Interface Unit : KRK-6DH

1-1. Receiver circuit (Fig. 1)

The audio signal received by the radio passes through CN4 pins 10 and 11 (RS1 and RS2) and CN5 pin 10 (AFO), and goes to the interface unit (X46-3240-21). RS1 and RS2 of CN4 only pass through the interface unit, and are connected directly to CN1 pins 10 and 11 (RS1 and RS2). AFO passes through the electronic volume of IC7 (M62363FP) and the signal goes to AF amp of IC6 (NJM4558M).

The signal entering IC5 (LA4446) is amplified by the AF power amplifier, and supplied from CN2 pin 10 (RS1) to head 2. Q7 (DTC363EK) is controlled by the shift register of IC2 (BU4094BCF) for audio muting.

DESCRIPTION OF COMPONENTS

INTERFACE UNIT (X46-3240-21) : KRK-6DH

Ref. No.	Part No.	Operation/Condition
K1,2	MIC control	K1 and K2 off when Head 1 PTT SW on. K1 and K2 on when Head 2 PTT SW on. K1 and K2 off when Standby.
IC2	Shift register	
IC4	Analog switch	On when use TX audio monitor with talk Interrupt.
IC5,6	AF amplifier	
IC7	Electronic volume	
Q2,6,8	DC switch	
Q7	Muting switch	
D2,3	Surge absorption	
D4	Surge absorption	On when 5V or more, and 0V or less.

KRK-5/6DH

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)

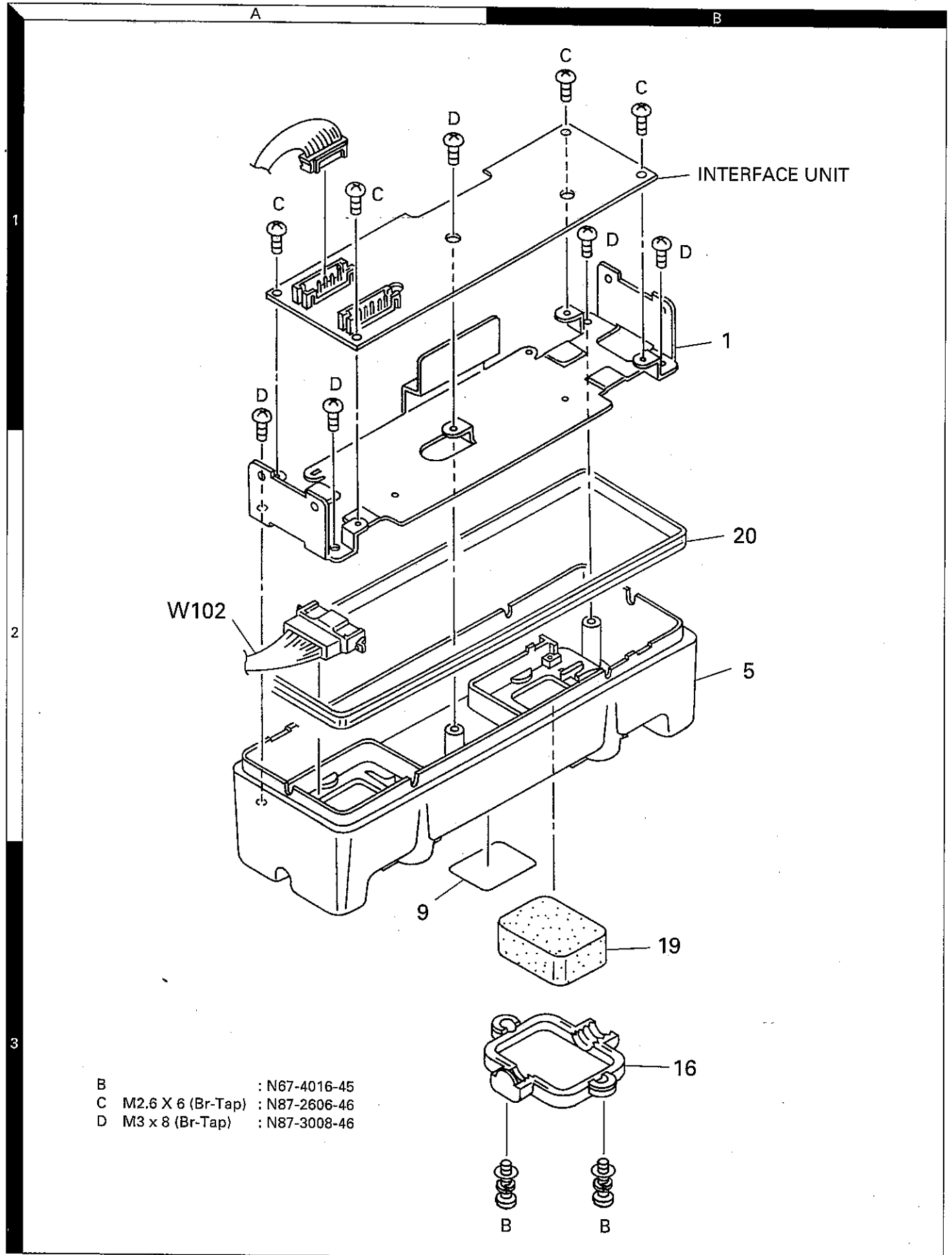
K : USA
 T : England
 X : Australia

P : Canada
 E : Europe
 M : Other Areas

KRK-5/6DH INTERFACE UNIT (X46-3240-XX)

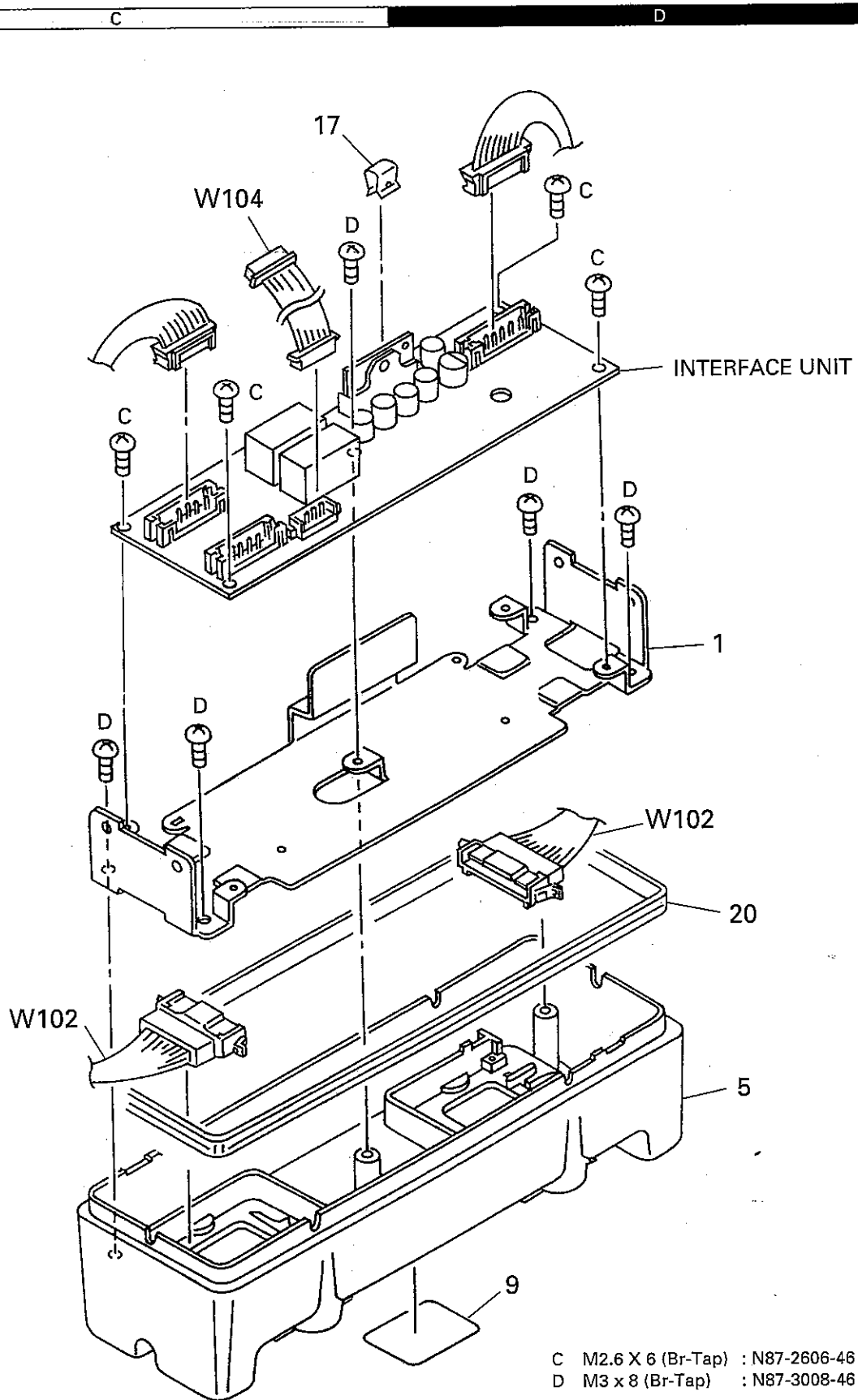
Ref. No.	Address	New parts	Parts No.	Description	Destination	Ref. No.	Address	New parts	Parts No.	Description	Destination
KRK-5/6DH						C28			C92-0040-05	CHIP-ELE 47UF 16WV	6DH
						C29			CK73GB1C104K	CHIP C 0.10UF K	6DH
1	1B,2D	*	A22-2003-03	SUB PANEL		C30			C92-0040-05	CHIP-ELE 47UF 16WV	6DH
2	2F	*	A22-2004-03	SUB PANEL (HEAD)		C31			C92-0658-05	ELECTRO 100UF 16WV	6DH
5	2B,3D	*	A62-0608-02	PANEL		C32			CK73GB1C104K	CHIP C 0.10UF K	6DH
6	1F	*	A82-0031-02	REAR PANEL		C33			CK73GB1H102K	CHIP C 1000PF K	6DH
7	2H,2J	*	B09-0393-04	CAP ACSY		C34,35			CK73GB1C104K	CHIP C 0.10UF K	6DH
8	-		B42-3317-04	LABEL (S/NO)		C36			CK73GB1H102K	CHIP C 1000PF K	6DH
9	3A	*	B42-5820-04	MODEL NAME PLATE	5	C37,38			CK73GB1C104K	CHIP C 0.10UF K	6DH
9	3D	*	B42-5821-04	MODEL NAME PLATE	6DH	C39			CK73GB1H103K	CHIP C 0.010UF K	6DH
10	1H,1J	*	B62-0993-00	INSTRUCTION MANUAL		C40			C92-0040-05	CHIP-ELE 47UF 16WV	6DH
W101	1G,2I		E30-3085-05	GROUND LEAD WIRE ACSY		C41			C92-0567-05	CHIP-TAN 68UF 6.3WV	6DH
W102	2A,3C,2E		E37-0166-05	CONNECTING WIRE (11P)		C42			CC73GCH1H101J	CHIP C 100PF J	6DH
W103	3E	*	E37-0743-05	CONNECTING WIRE (ACC 12P)		CN1			E40-5953-05	PIN CONNECTOR (11P)	
W104	1C	*	E37-0786-05	CONNECTING WIRE (UNIT 10P)	6DH	CN2			E40-5953-05	PIN CONNECTOR (11P)	6DH
15	2H,2J	*	E59-0404-05	SQUARE PLUG ACSY		CN4			E40-5953-05	PIN CONNECTOR (11P)	
16	3B	*	F07-1479-03	COVER		CN5			E40-5951-05	PIN CONNECTOR (10P)	6DH
17	1C		G02-0574-04	FLAT SPRING (AUDIO AMP)	6DH	L1,2			L40-1095-34	SMALL FIXED INDUCTOR (1UH)	6DH
18	2E		G13-0864-04	CUSHION		L10,11			L40-1095-34	SMALL FIXED INDUCTOR (1UH)	5
19	3B	*	G13-1684-04	CUSHION		L12,13			L40-1095-34	SMALL FIXED INDUCTOR (1UH)	6DH
20	2B,2D		G53-0838-03	PACKING (PANEL)	6DH	R7			RK73GB1J153J	CHIP R 15K J 1/16W	6DH
21	2H,2J	*	H10-5620-02	POLYSTYRENE FOAMED FIXTURE		R9			RK73GB1J123J	CHIP R 12K J 1/16W	6DH
22	1H,1I	*	H11-0893-04	POLYSTYRENE PLATE		R11			RK73GB1J224J	CHIP R 220K J 1/16W	6DH
23	2H,2J		H25-0029-04	PROTECTION BAG (60x110)		R13			RK73GB1J101J	CHIP R 100 J 1/16W	6DH
24	1G,2I,2J		H25-0103-04	PROTECTION BAG (125x250)		R14			RK73GB1J4R7J	CHIP R 4.7 J 1/16W	6DH
25	1G,2I		H25-0120-04	PROTECTION BAG (150x150)		R16,22			RK73GB1J103J	CHIP R 10K J 1/16W	6DH
26	3G,3I	*	H52-1256-04	ITEM CARTON BOX		R18			RK73GB1J101J	CHIP R 100 J 1/16W	6DH
27	2H,2J		J21-4354-04	MOUNTING HARDWARE ACSY		R19,20			RK73GB1J332J	CHIP R 3.3K J 1/16W	6DH
28	2H,1I	*	J29-0648-03	ANGLE BRACKET ACSY		R21			RK73GB1J153J	CHIP R 15K J 1/16W	6DH
29	2H,2J		J61-0307-05	WIRE BAND ACSY		R23			R92-1252-05	CHIP R 0 OHM	6DH
30	2H,2J		N08-0526-04	DRESSED SCREW ACSY		R25			RK73GB1J473J	CHIP R 47K J 1/16W	6DH
A	1E,1F		N35-4006-45	BINDING HEAD MACHINE SCREW		R26			R92-1252-05	CHIP R 0 OHM	6DH
B	3B		N67-4016-45	PANHEAD SEMS SCREW W	5	R28			R92-1252-05	CHIP R 0 OHM	6DH
C	1A,1C		N87-2606-46	BRAZIER HEAD TAPTITE SCREW		R31			RK73GB1J102J	CHIP R 1.0K J 1/16W	6DH
D	1A,2C		N87-3008-46	BRAZIER HEAD TAPTITE SCREW		R32			RK73GB1J122J	CHIP R 1.2K J 1/16W	6DH
31	1G		N99-0361-05	SCREW SET ACSY	5	R33			R92-1252-05	CHIP R 0 OHM	
31	2I		N99-0363-05	SCREW SET ACSY	6DH	R35			RK73GB1J102J	CHIP R 1.0K J 1/16W	6DH
						R36			R92-1252-05	CHIP R 0 OHM	
INTERFACE UNIT (X46-3240-XX) -20 : KRK-5 -21 : KRK-6DH						K1,2			S76-0018-05	RELAY (12V)	6DH
C1,2			CK73GB1H102K	CHIP C 1000PF K		D2,3			1S5355	DIODE	6DH
C3			CC73GCH1H101J	CHIP C 100PF J		D4			DA204K	DIODE	6DH
C5-7			CK73GB1H102K	CHIP C 1000PF K		IC2			BU4094BCF	IC (8-STAGE SHIFT/STORE)	6DH
C10			CK73GB1H103K	CHIP C 0.010UF K	6DH	IC4			BU4S66	IC (ANALOG SWITCH)	6DH
C11			CK73GB1H102K	CHIP C 1000PF K	6DH	IC5			LA4446	IC (AF POWER AMP)	6DH
C13			CK73GB1H102K	CHIP C 1000PF K	6DH	IC6			NJM4558M	IC (OP AMP X2)	6DH
C15			CK73GB1H103K	CHIP C 0.010UF K	6DH	IC7			M62363FP	IC (8bit D/A CONVERTER)	6DH
C17-19			CC73GCH1H101J	CHIP C 100PF J	6DH	O2			DTC114EK	TRANSISTOR	6DH
C21			C92-0507-05	CHIP-TAN 4.7UF 6.3WV	6DH	O6			DTC114EK	TRANSISTOR	6DH
C26			C92-0040-05	CHIP-ELE 47UF 16WV	6DH	O7			DTC363EK	TRANSISTOR	6DH
C27			C92-1341-05	ELECTRO 100UF 16WV	6DH	O8			DTC114EK	TRANSISTOR	6DH

EXPLODED VIEW (KRK-5)

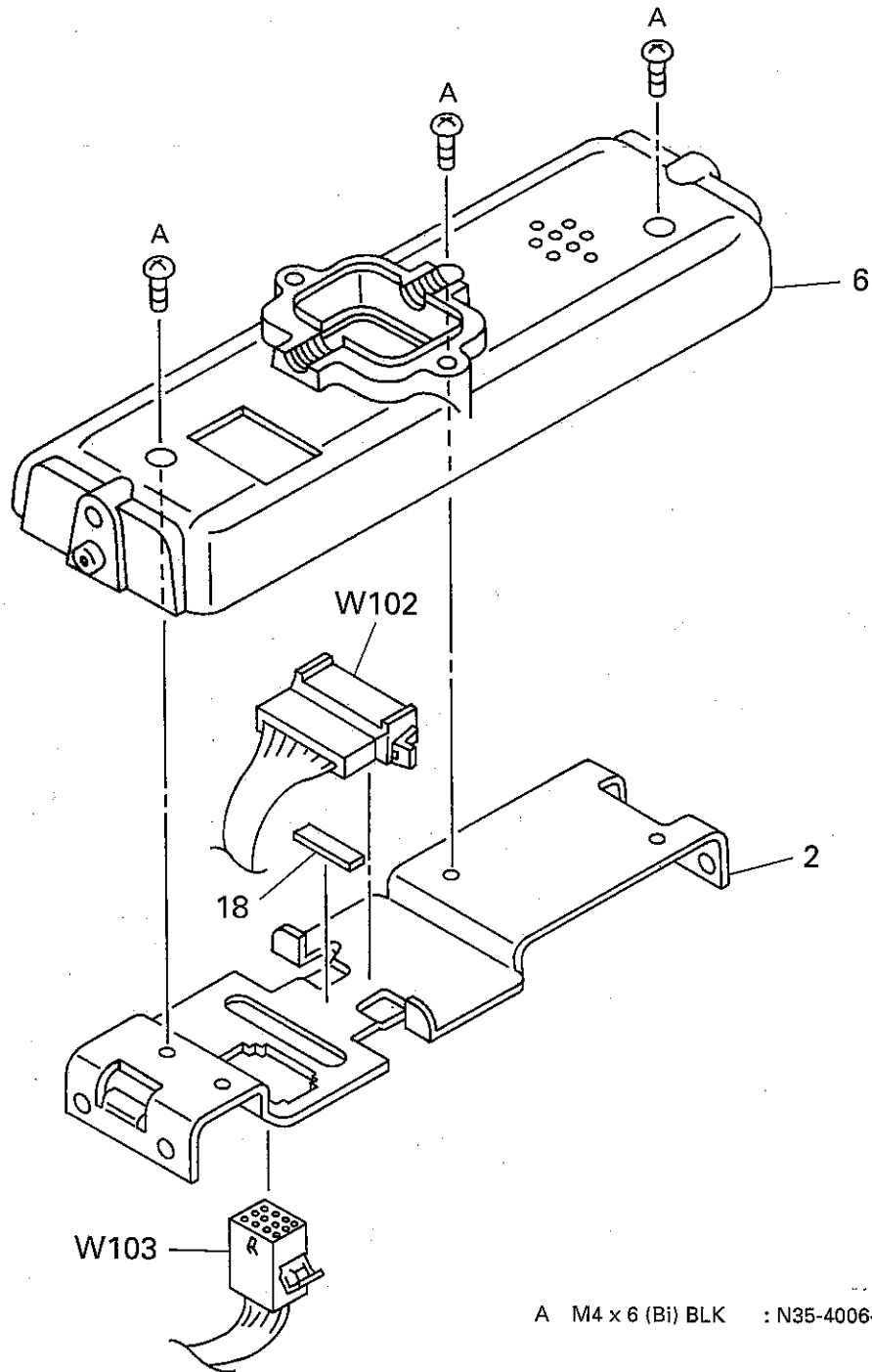


KRK-5/6DH

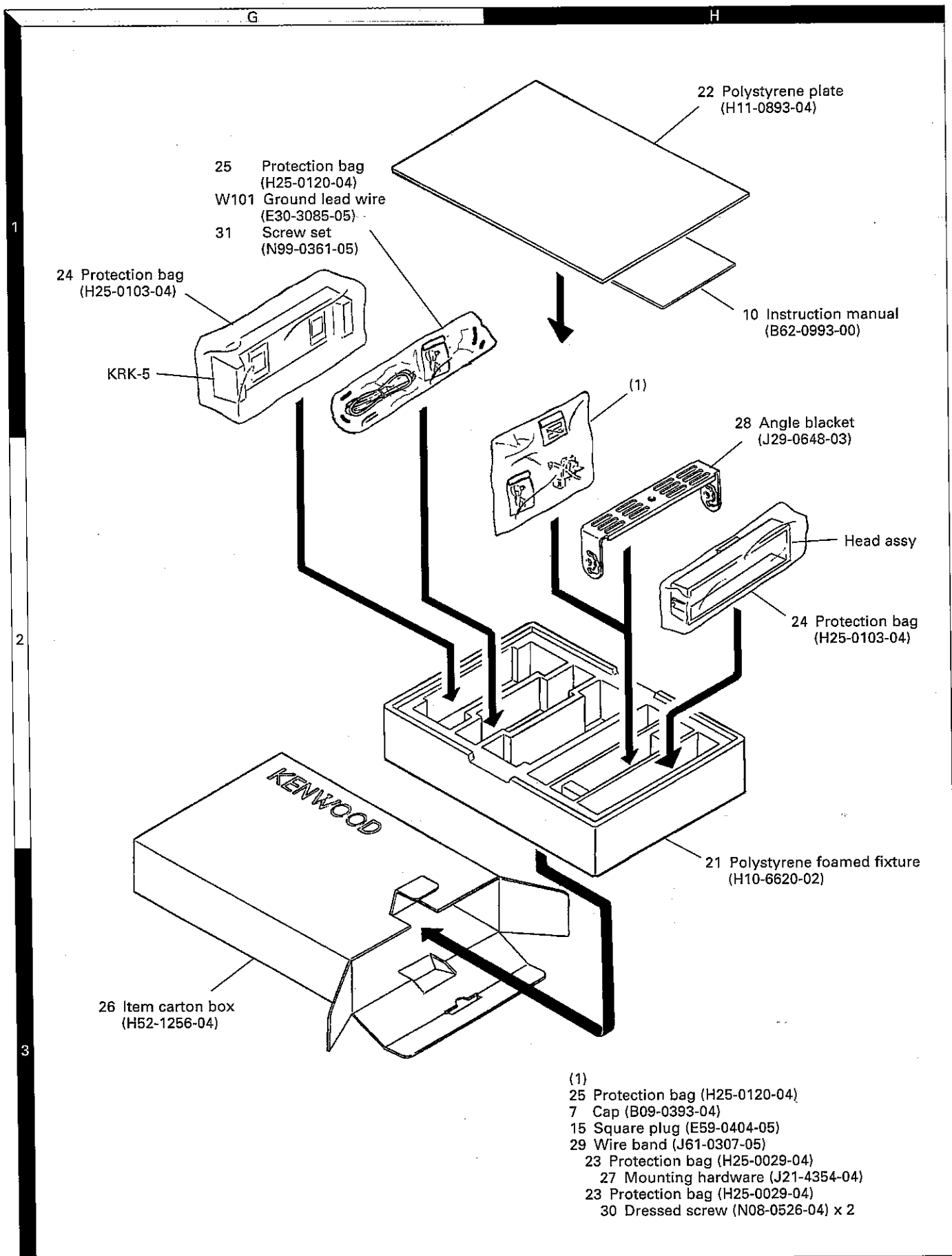
EXPLODED VIEW (KRK-6DH)



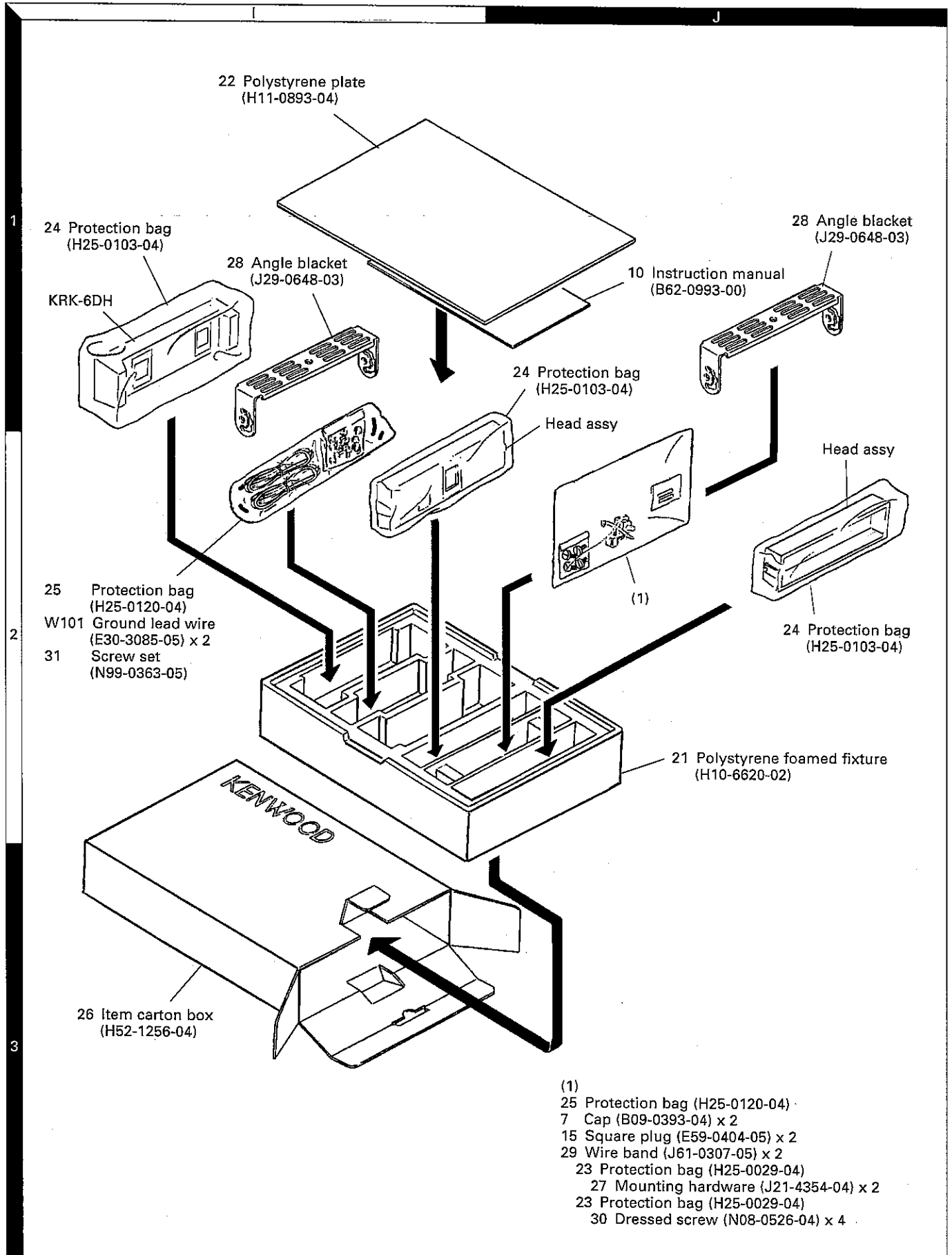
EXPLODED VIEW (HEAD)



PACKING (KRK-5)



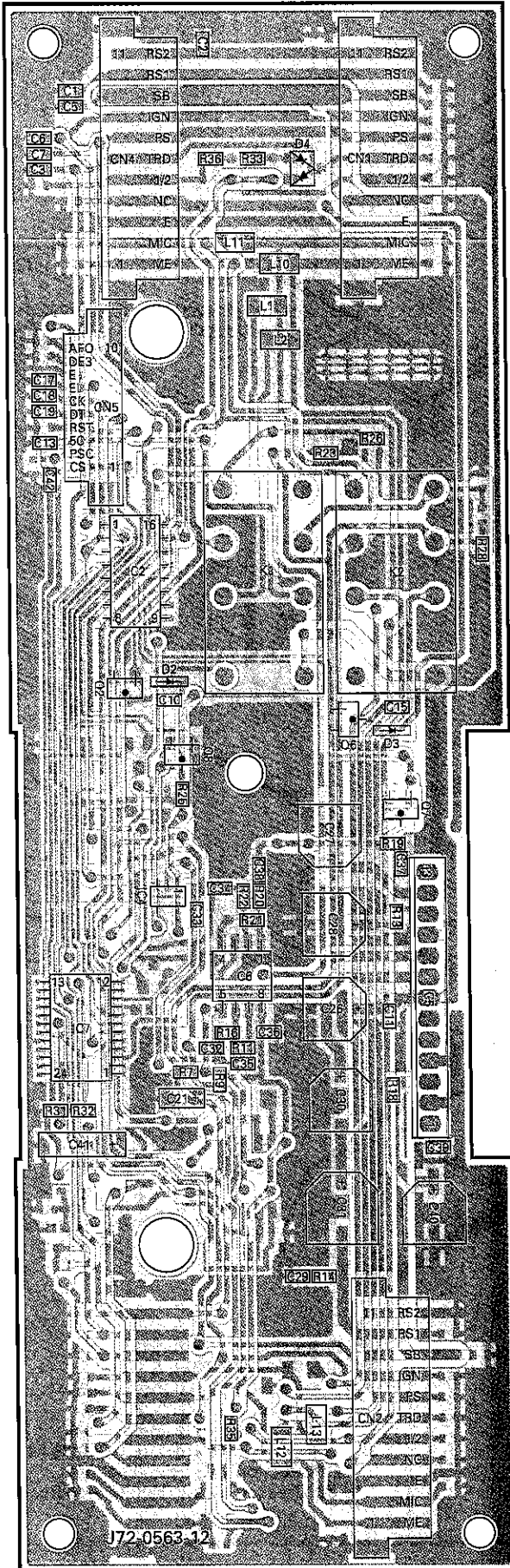
PACKING (KRK-6DH)



KRK-5/6DH PC BOARD VIEW

INTERFACE UNIT (X46-3240-XX) -20 : KRK-5 -21 : KRK-6DH

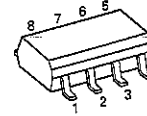
Component side view



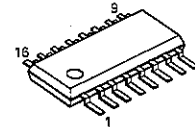
DTC114EK
DTC363EK



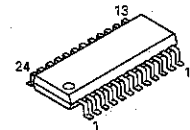
NJM4558M



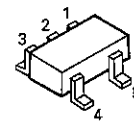
BU4094BCF



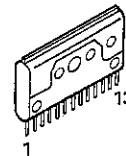
M62363FP



BU4S66

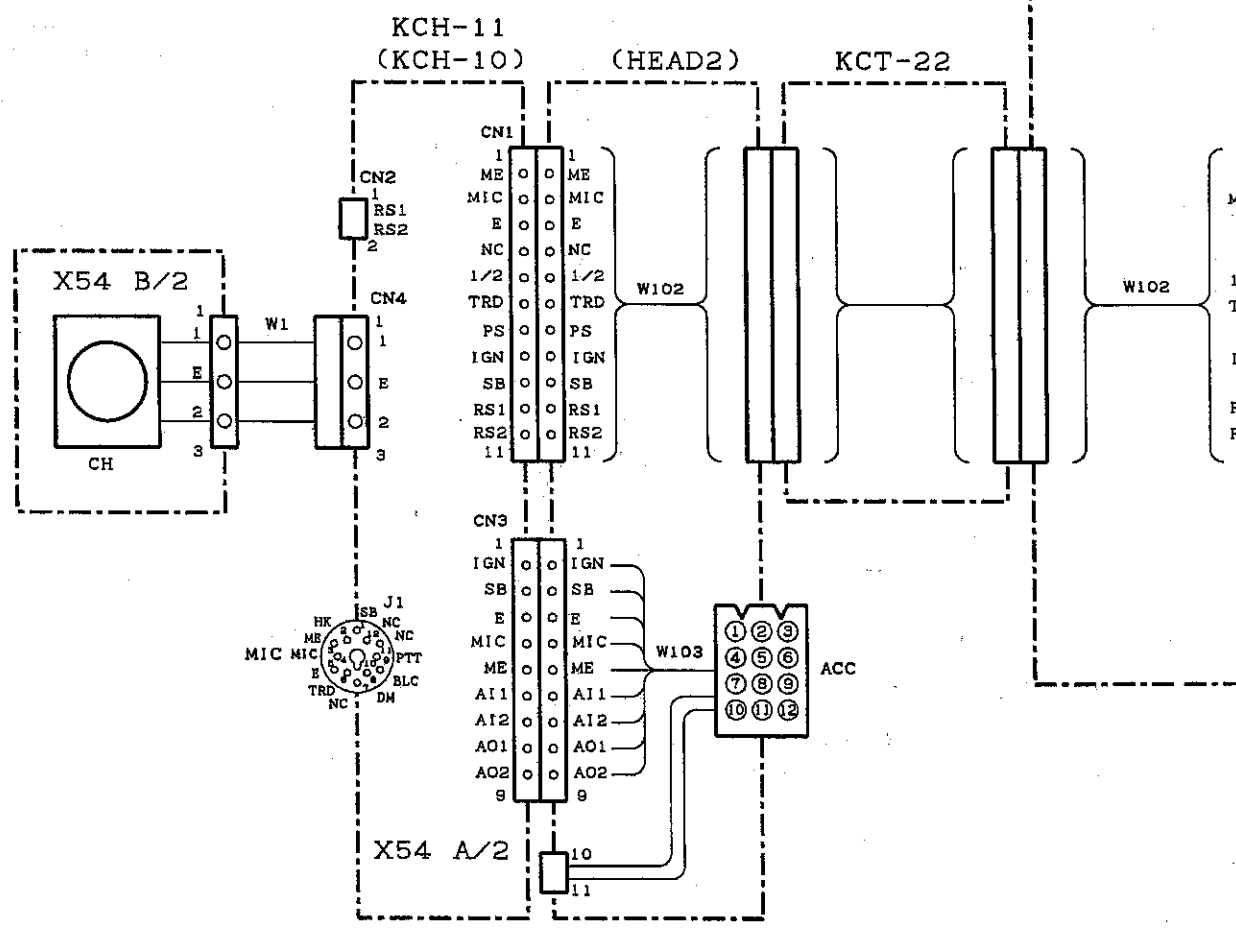
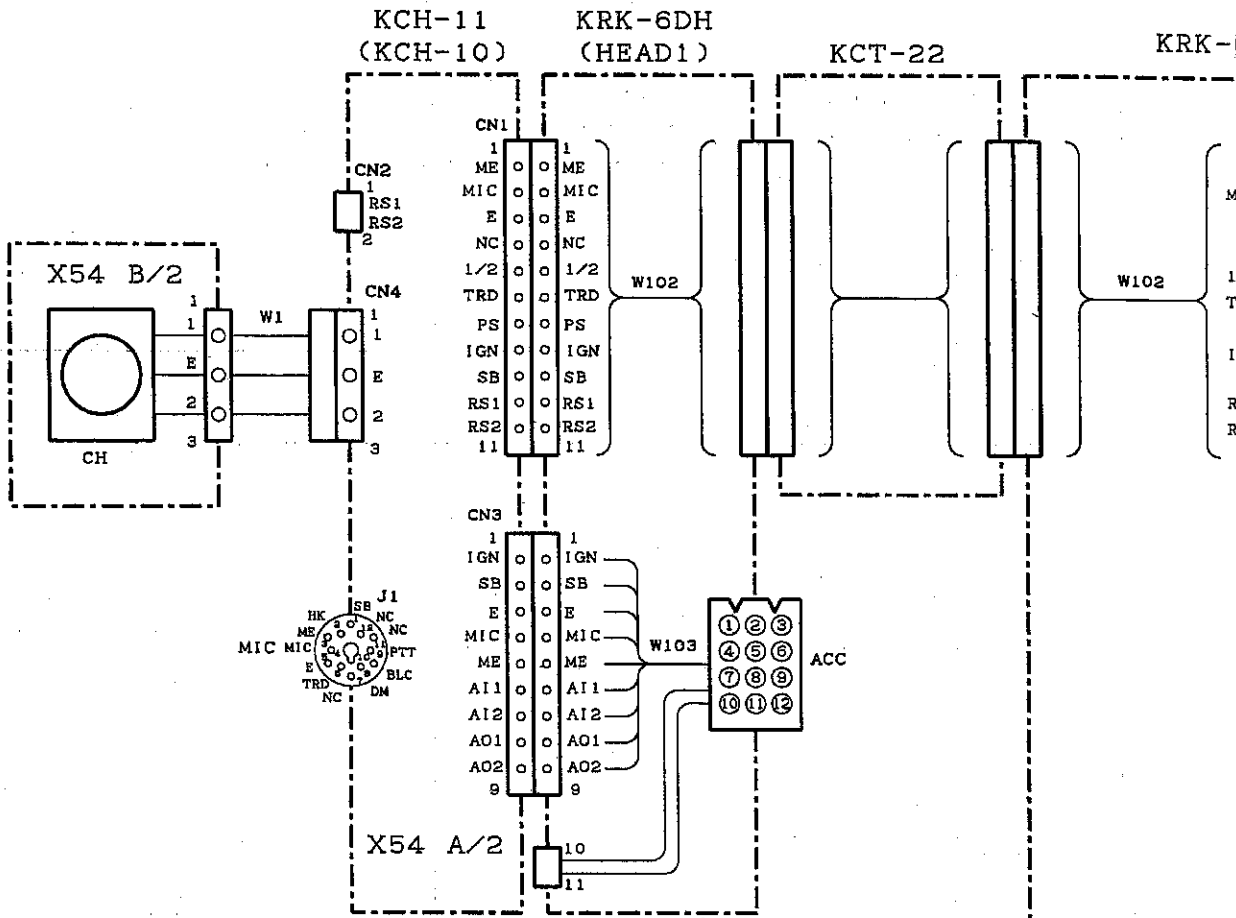


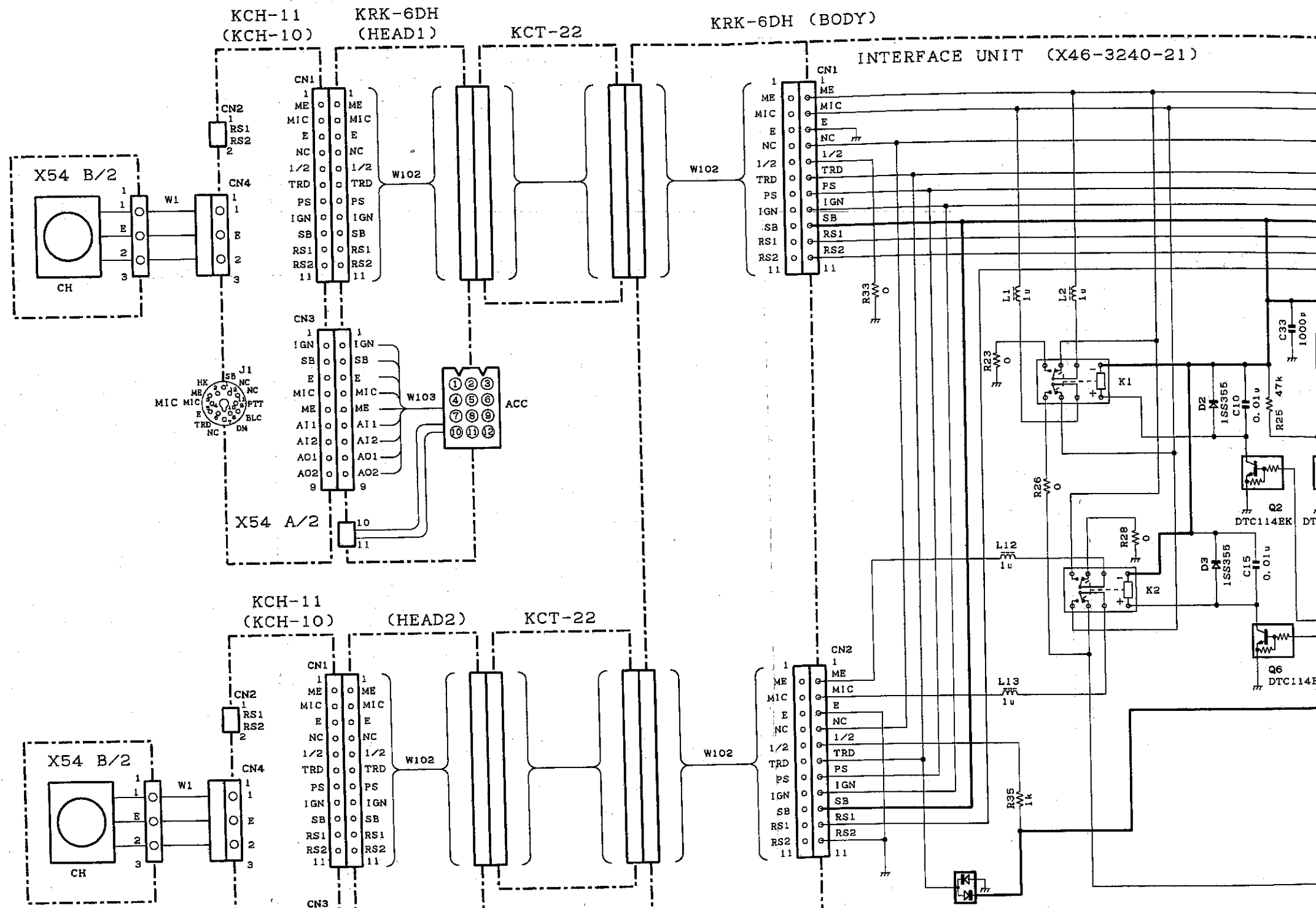
LA4446



□ Component side

■ Foil side





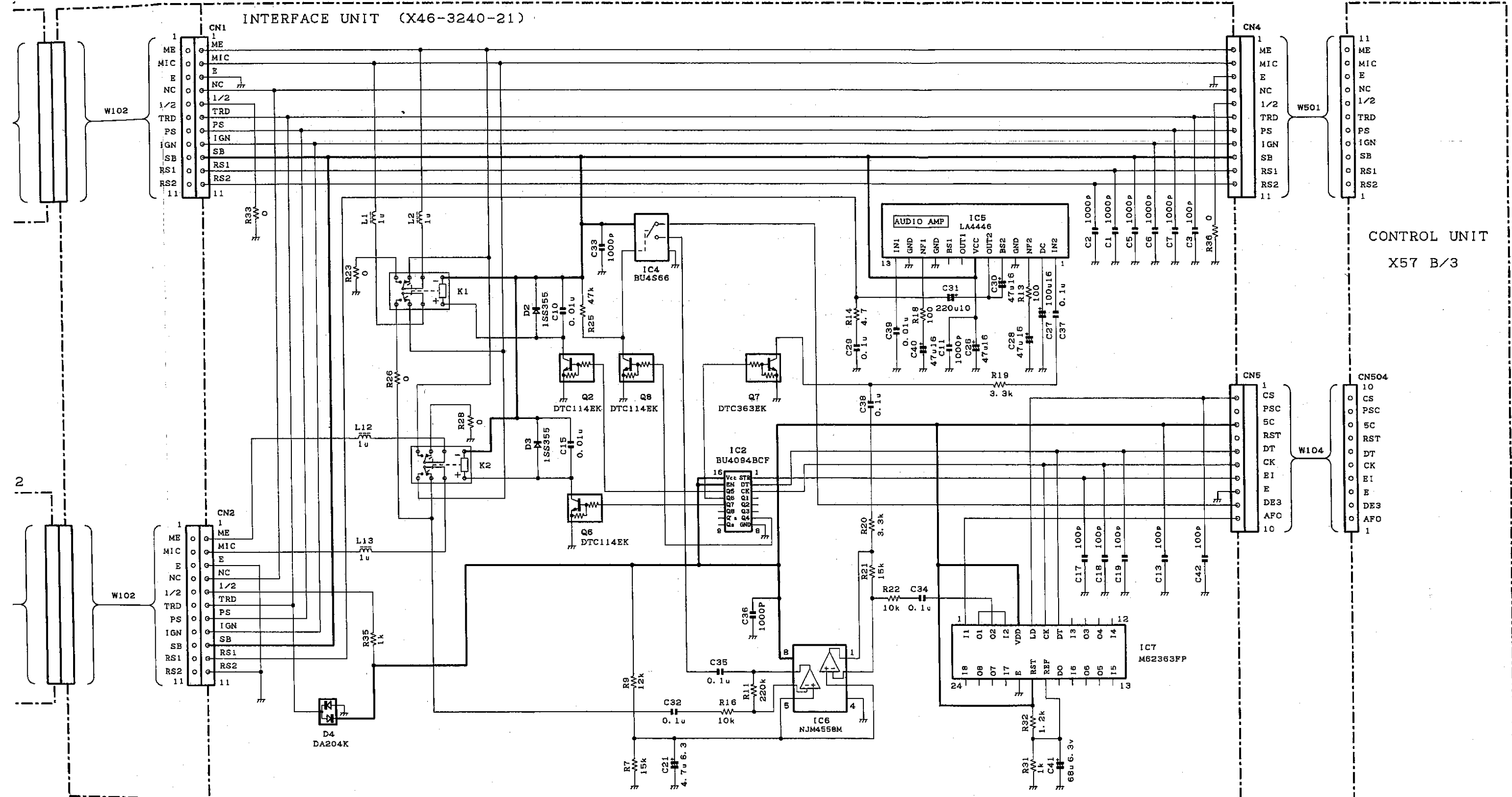
SCHEMATIC DIAGRAM KRK-6DH

KRK-6DH (BODY)

RADIO
TK-790/890/H

INTERFACE UNIT (X46-3240-21)

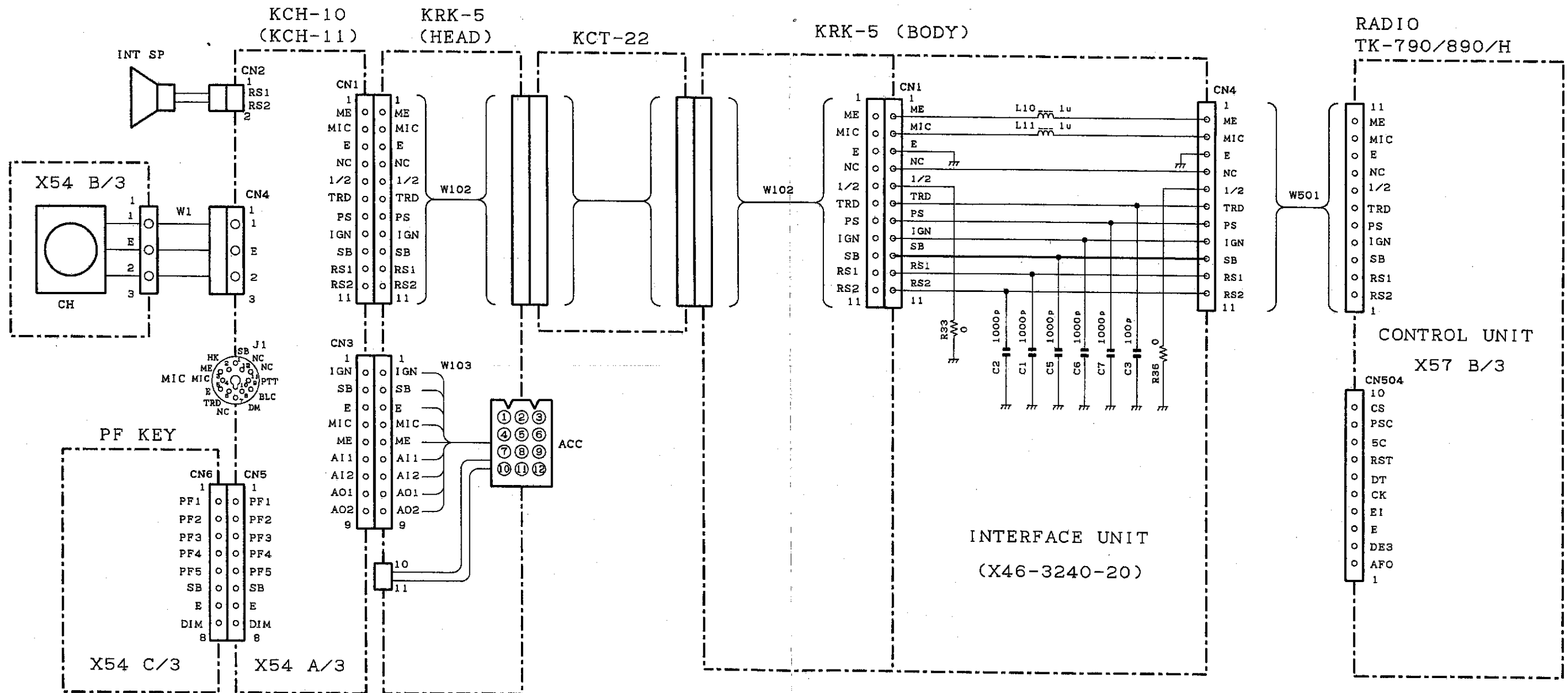
CONTROL UNIT
X57 B/3



- | | | | | |
|----------------|---------------------|-----------------|----------------|----------------|
| D2, 3 : 1SS355 | Q2, 6, 8 : DTC114EK | IC2 : BU4094BCF | IC5 : LA4446 | IC7 : M62363FP |
| D4 : DA204K | Q7 : DTC363EK | IC4 : BU4S66 | IC6 : NJM4558M | |

— : +B line

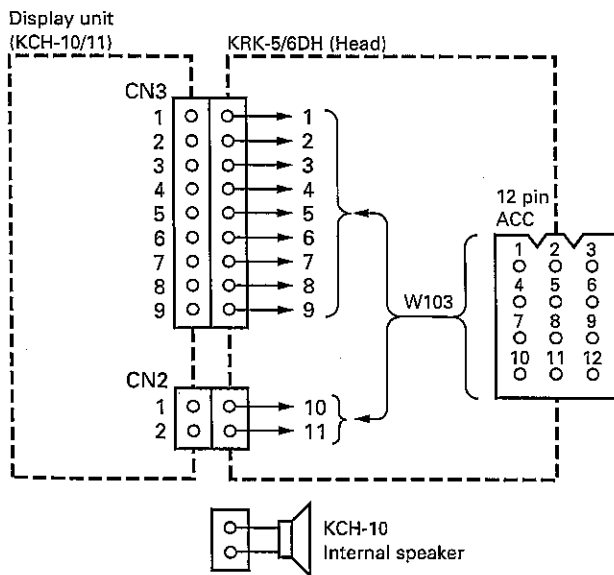
KRK-5 SCHEMATIC DIAGRAM



TERMINAL FUNCTION

CN No.	Pin No.	Pin name	I/O	Function
INTERFACE UNIT (X46-3240-XX)				
-20 : KRK-5 -21 : KRK-6DH				
CN1 To Remote head 1	1	ME	-	MIC earth.
	2	MIC	I	MIC signal input.
	3	E	-	Earth.
	4	NC	-	Not used.
	5	1/2	O	Remote head 1 signal output.
	6	TRD	I/O	RX/TX data input.
	7	PS	I	Power switch control signal input.
	8	IGN	I	Ignition sense input.
	9	SB	O	Power output after power switch (13.4V).
	10	RS1	O	Output for remote speaker.
	11	RS2	O	Output for remote speaker.
CN2 (KRK-6DH only) To Remote head 2	1	ME	-	MIC earth.
	2	MIC	I	MIC signal output.
	3	E	-	Earth.
	4	NC	-	Not used.
	5	1/2	O	Remote head 2 signal output.
	6	TRD	I/O	RX data input/TX data output.
	7	PS	I	Power switch control signal input.
	8	IGN	I	Ignition sense input.
	9	SB	O	Power output after power switch (13.4V).
	10	RS1	O	Output for remote speaker.
	11	RS2	O	Output for remote speaker.
CN4 To Control section	1	ME	-	MIC earth.
	2	MIC	O	MIC signal input.
	3	E	-	Earth.
	4	NC	-	Not used.
	5	1/2	-	Not used.
	6	TRD	I/O	TX data output/RX data input.
	7	PS	O	Power switch control signal output.
	8	IGN	O	Ignition sense output.
	9	SB	I	Power output after power switch.
	10	RS1	I	Input for remote speaker.
	11	RS2	I	input for remote speaker.

CN No.	Pin No.	Pin name	I/O	Function
CN5 (KRK-6DH only) To Control cable	1	CS	I	Chip select input for D/A converter.
	2	PSC	-	Not used.
	3	5C	I	Common 5V input.
	4	RST	-	Not used.
	5	DT	I	Data input.
	6	CK	I	Clock input.
	7	EI	I	Enable input for shift register.
	8	E	-	Earth.
	9	DE3	O	MIC signal output for interrupt.
	10	AFO	I	RX audio signal input for head 2.
W103 (12 pin ACC connector)	1	IGN	I	Ignition sense input.
	2	SB	O	Power output after power switch (13.4V±15%).
	3	E	-	Earth.
	4	MIC	I	MIC signal input.
	5	ME	-	MIC earth.
	6	AI1	I	Auxiliary input 1 (FPU selectable). Open : OFF, "L" : ON, Input : Max. 5V
	7	AI2	I	Auxiliary input 2 (FPU selectable). Open : OFF, "L" : ON, Input : Max. 5V
	8	AO1	O	Auxiliary output 1 (FPU selectable). Zo=1kΩ AUX A,B,C Key on : "L", Key off : HiZ TOR Signalling mismatch : "L" Signalling match : HiZ COR Not busy : "L", Busy : HiZ
	9	AO2	O	Auxiliary output 2 (FPU selectable). Zo=1kΩ AUX A,B,C Key on : "L", Key off : HiZ TOR Signalling mismatch : "L" Signalling match : HiZ COR Not busy : "L", Busy : HiZ
	10	RS1	O	Remote speaker output.
	11	RS2	O	Remote speaker output.
	12	NC	-	Non connection.



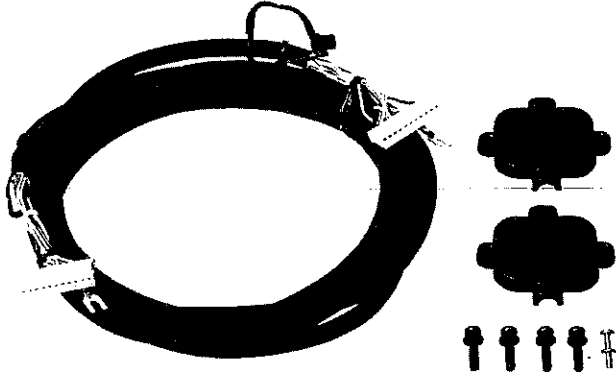
If the KCH-10 is used

If the external speaker is connected to the 12-pin accessory connector, cut the internal speaker wire at the base of the speaker.

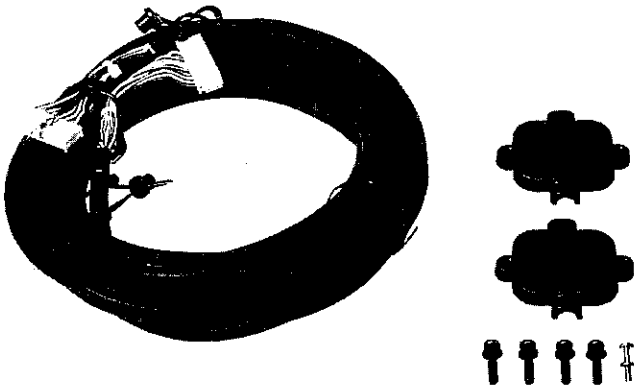
If the internal speaker is used, cut the wire connected to pins 10 and 11 of the 12-pin accessory connector at the base of the connector.

KCT-22 (CONTROL CABLE)

KCT-22M (8 feet)



KCT-22M2 (17 feet)



KCT-22M3 (25 feet)



KENWOOD CORPORATION

14-6, Dogenzaka 1-chome, Shibuya-ku, Tokyo 150-8501, Japan

KENWOOD SERVICE CORPORATION

P.O. BOX 22745, 2201 East Dominguez Street, Long Beach, CA 90801-5745, U.S.A.

KENWOOD ELECTRONICS CANADA INC.

6070 Kestrel Road, Mississauga, Ontario, Canada L5T 1S8

KENWOOD ELECTRONICS DEUTSCHLAND GMBH

Rembrücker Str. 15, 63150 Heusenstamm, Germany

KENWOOD ELECTRONICS BELGIUM N.V.

Mechelsesteenweg 418 B-1930 Zaventem, Belgium

KENWOOD ELECTRONICS FRANCE S.A.

13, Boulevard Ney, 75018 Paris, France

KENWOOD ELECTRONICS U.K. LIMITED

KENWOOD House, Dwight Road, Watford, Herts., WD1 8EB United Kingdom

KENWOOD ELECTRONICS EUROPE B.V.

Amsterdamseweg 37, 1422 AC Uithoorn, The Netherlands

KENWOOD ELECTRONICS ITALIA S.p.A.

Via G. Sirtori, 7/9 20129 Milano, Italy

KENWOOD IBERICA S.A.

Bolivia, 239-08020 Barcelona, Spain

KENWOOD ELECTRONICS AUSTRALIA PTY. LTD.

(A.C.N. 001 499 074)

16 Giffnock Avenue, North Ryde, N.S.W. 2113 Australia

KENWOOD ELECTRONICS (HONG KONG) LTD.

Unit 3712-3724, Level 37, Tower one Metroplaza, 223 Hing Fong Road, Kwai Fong, N.T., Hong Kong

KENWOOD ELECTRONICS TECHNOLOGIES(S) PTE LTD.

Sales Marketing Division

1 Ang Mo Kio Street 63, Singapore 569110