

RAPID CHARGER

KSC-14

INSTRUCTION MANUAL

KENWOOD

KENWOOD CORPORATION

© PRINTED IN JAPAN B62-0377-28(K, M, P, T, X)
95/12 11 10 9 8 7 6 5 4 3 2 1 94/12 11 10

Thank you for purchasing this Rapid Charger. This product will offer years of reliable service when used to charge the specified battery packs.

One or more of the following statements may be applicable to this equipment.

FCC WARNING:

This equipment generates or uses radio frequency energy. Changes or modifications to this equipment may cause harmful interference unless the modifications are expressly approved in the instruction manual. The user could lose the authority to operate this equipment if an unauthorized change or modification is made.

INFORMATION TO THE DIGITAL DEVICE USER REQUIRED BY THE FCC

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates, uses and can generate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that the interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment to an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer for technical assistance.

BEFORE APPLYING POWER

WARNING

Chargers operate on the following voltages:

- U.S.A./Canada : 120 V AC, 60 Hz only
- U.K. : 230 V AC, 50 Hz only
- Australia : 240 V AC, 50 Hz only
- Other countries : Stated on rating label on charger.

Check the rating label attached to the bottom of the charger for other important specifications.

For United Kingdom

Always remove the mains plug from the wall outlet prior to any maintenance of this equipment.

IMPORTANT:

This plug contains a 3 ampere fuse. Should the fuse need to be replaced, ensure that the replacement fuse has a current rating of 3 amperes. Use only fuses stamped with an ASTA or BSI approval mark on the body of the fuse.

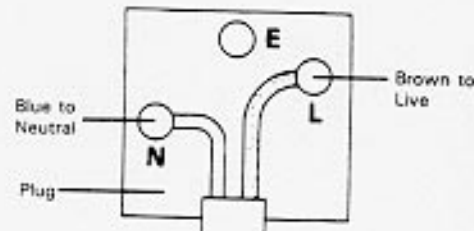
If the moulded plug is incompatible with the outlets in your home, remove the fuse, then cut off and discard the plug. There is danger of severe electrical shock should the cut off plug be inserted into a live outlet. If a new plug is fitted, observe the wiring code as shown below. If in doubt, consult a qualified electrician.

The wires in the mains lead of this product are coloured in accordance with the following code:

Blue : Neutral
Brown : Live

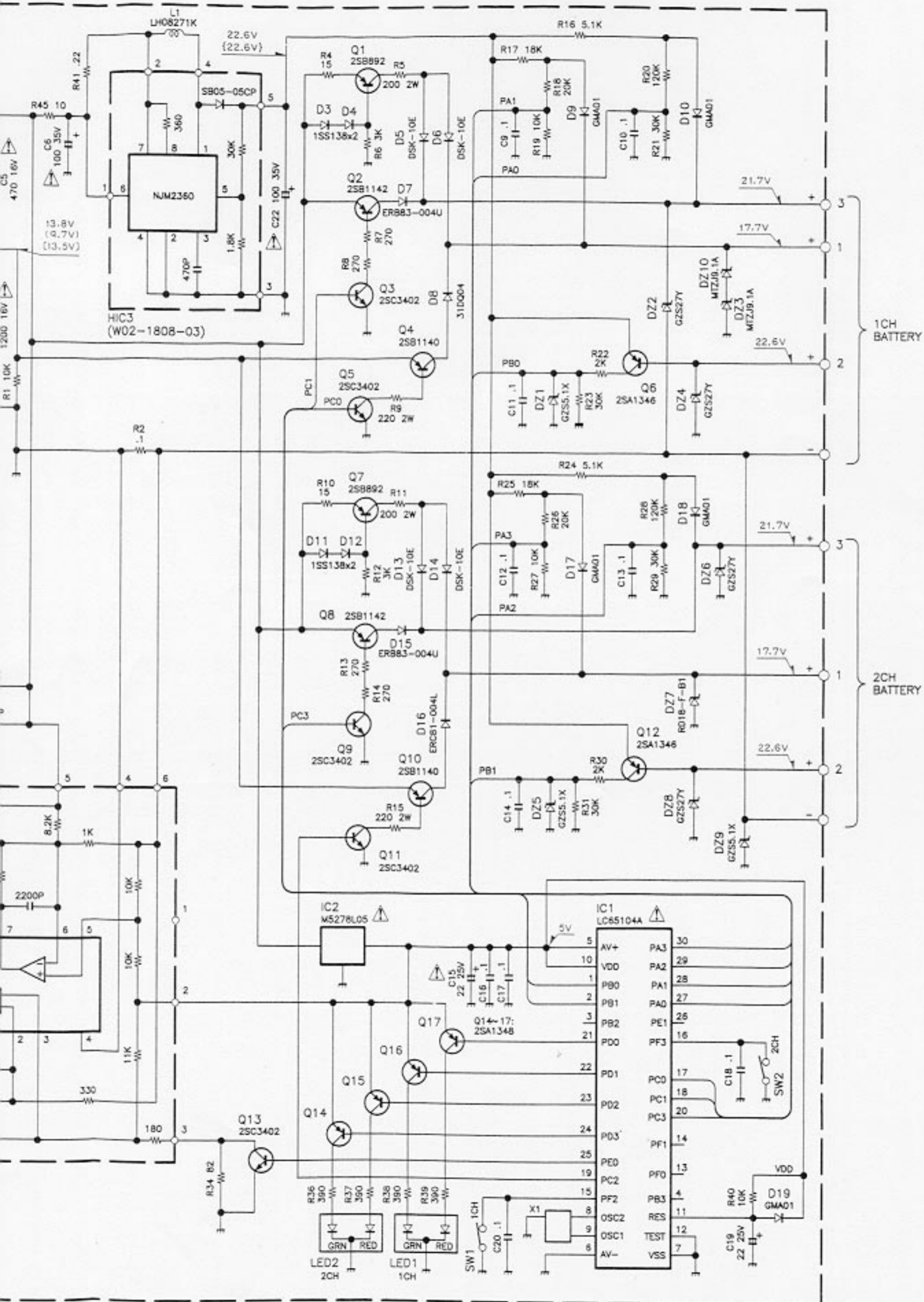
As wire colours in the mains lead of this equipment may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows:

Wire Colour	Plug Terminal Marking
Blue	N or Black
Brown	L or Red

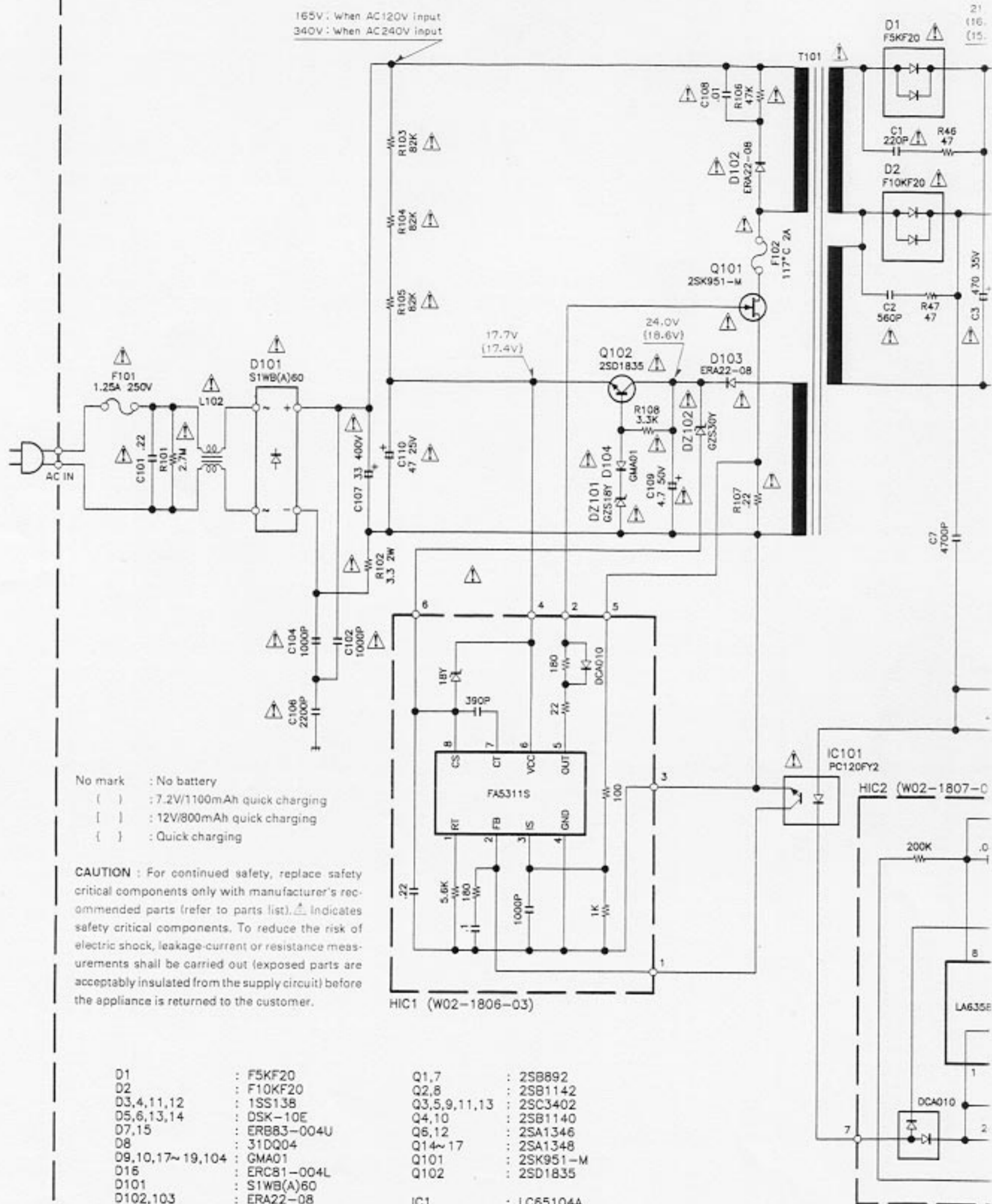


IF IN DOUBT--CONSULT A COMPETENT ELECTRICIAN.

SCHEMATIC DIAGRAM (K,P,M TYPE) KSC-14



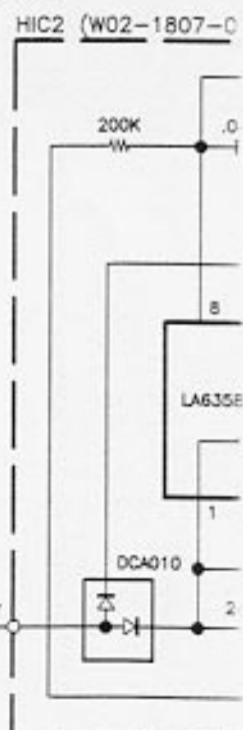
CHARGER CONTROL UNIT (W02-1797-08) : K, P, M TYPE



- No mark : No battery
- () : 7.2V/1100mAh quick charging
- [] : 12V/800mAh quick charging
- { } : Quick charging

CAUTION : For continued safety, replace safety critical components only with manufacturer's recommended parts (refer to parts list). ⚠ Indicates safety critical components. To reduce the risk of electric shock, leakage-current or resistance measurements shall be carried out (exposed parts are acceptably insulated from the supply circuit) before the appliance is returned to the customer.

D1	: F5KF20	Q1,7	: 2S8892
D2	: F10KF20	Q2,8	: 2SB1142
D3,4,11,12	: 1SS138	Q3,5,9,11,13	: 2SC3402
D5,6,13,14	: DSK-10E	Q4,10	: 2SB1140
D7,15	: ERB83-004U	Q6,12	: 2SA1346
D8	: 31DQ04	Q14~17	: 2SA1348
D9,10,17~19,104	: GMA01	Q101	: 2SK951-M
D16	: ERC81-004L	Q102	: 2SD1835
D101	: S1WB(A)60	IC1	: LC65104A
D102,103	: ERA22-08	IC2	: M5278L05
DZ1,5,9	: GZS5.1X	IC101	: PC120FY2
DZ2,4,6,8	: GZS27Y		
DZ3,10	: MTZJ9.1A		
DZ7	: RD18-F-B1		
DZ101	: GZS18Y		
DZ102	: GZS30Y		



SAFETY PRECAUTIONS

Please read all safety instructions before using this Rapid Charger. For best results, be aware of all warnings on the charger, the battery pack and the product using the battery pack. Follow the provided operating instructions, and retain them for future reference.

- 1 Do not expose the charger to rain or moisture to avoid the risk of fire or electric shock.
- 2 Use of an attachment not recommended by or sold by **KENWOOD** can cause fire, electric shock, or injury.
- 3 Always remove the plug from an AC wall outlet by pulling on the plug rather than the cable.
- 4 Position the power cable so it will not be stepped on, tripped over, or otherwise subjected to damage.
- 5 Do not use an extension cable unless absolutely necessary. Improper extension cables can cause fire or electric shock. If an extension cable is required, observe the following points:
 - a) The quantity, size and shape of pins on the extension cable plugs must be the same as on the charger.
 - b) The extension cable must be properly wired and in good electrical condition.
 - c) The wire size must be adequate to carry the current required by this charger.
Extension cables < 100 feet long:
 - Wire size must be 18 AWG or larger.Extension cables between 100 feet and 150 feet long:
 - Wire size must be 16 AWG or larger.
- 6 Do not use the charger if it has a damaged power cable or plug, or the charger has been damaged in any way. Have a qualified technician replace or repair the damaged part.
- 7 Protect the charger from strong impacts; do not use the charger if it has been dropped until it has been inspected by a qualified technician.
- 8 Only a qualified technician should disassemble the charger. Incorrect reassembly can cause fire or electric shock.
- 9 Always remove the AC plug from a wall outlet before attempting to inspect or clean the charger. Removing the battery packs or changing the controls does not remove the AC voltage from the charger.
- 10 Do not use the charger in high-temperature or high-humidity environments, in direct sunlight, or near heaters.
- 11 NEVER use solvents such as benzene or paint thinner for cleaning the charger.
- 12 When an AC plug adapter is required, use only the supplied adapter.
- 13 Since the charger contains a switching power supply, avoid bringing the charger near FM radios or indoor antennas. Doing so may induce noise in FM radios or image distortion on television video. If this occurs, increase the separation between the charger and the equipment experiencing the interference.

APPLICABLE NICKEL-CADMIUM BATTERY PACKS

Charge only the nickel-cadmium rechargeable battery packs listed below. Other types of batteries may burst causing personal injury.

•PB-30	•PB-32	•PB-33	•PB-34
•PB-6	•PB-9	•KNB-5	•KNB-5A
•KNB-9A	•PB-7	•KNB-6	•KNB-6A
•PB-8	•PB-11	•KNB-7	•KNB-7A

UNPACKING

Rapid Charger	1
Spacer (J30-0596-XX)	1
AC plug adapter (E69-0403-XX)	1
(General market only)		
Instruction manual (B62-0377-XX)	1

Oceania only:

If the supply cable of this appliance is damaged, a special cable supplied by your **KENWOOD** dealer, an authorized **KENWOOD** service facility, or the factory must be obtained and fitted.

KENWOOD ELECTRONICS AUSTRALIA PTY.LTD.
(A.C.N. 001 499 074)
P.O. BOX 504, 8 Figtree Drive, Australia Centre,
Homebush N.S.W. 2140 Australia

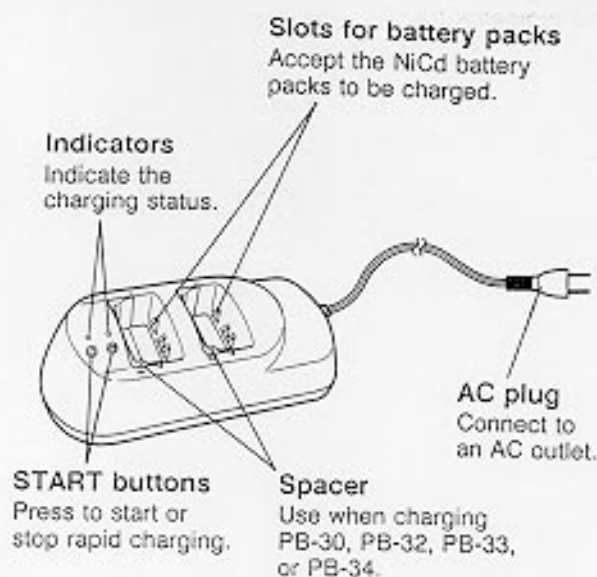
FEATURES

- 1 Fully charging the PB-30 series, PB-6 series, or KNB-5 series NiCd battery packs takes only 60 to 90 minutes.
- 2 Overcharge protection prevents battery pack life reduction as a result of excessive charging:
 - Loading the NiCd battery pack into the charger starts the trickle charge function first. Rapid charging lasts only for the required length of time.
 - On completion of rapid charging, the charger is switched automatically back to trickle charging.
- 3 Capable of charging transceivers equipped with battery packs by simply placing the transceiver into the charging slot.
- 4 Multi-color indicators keep you informed of charging status at all times.

SPECIFICATIONS

Power requirement:	20 W
Dimensions (W x D x H):	90 mm x 202 mm x 62 mm
Weight:	Approx. 520 g

ORIENTATION



Indicator Meanings

Indicator Color	Meaning
Green	<ul style="list-style-type: none">• With no battery pack loaded, indicates the charger is plugged into a live AC outlet.• After rapid charging completes, indicates that trickle charging has started.
Orange	<ul style="list-style-type: none">• Indicates trickle charging has started.
Red	<ul style="list-style-type: none">• Indicates rapid charging has started.
Flashing Orange /Red	<ul style="list-style-type: none">• Indicates the slot is on standby status for rapid charging.
Blinking Orange	<ul style="list-style-type: none">• Indicates a malfunction. Stop charging and investigate.

CHARGING

This charger supports two charging modes. Select the best mode for your application.

Trickle Charging:

This mode requires less than one-tenth of the current used by rapid charging. Trickle charging is a good mode for charging a half-discharged battery pack.

Rapid Charging:

This mode takes only 60 to 90 minutes to charge a fully discharged battery pack to full capacity.

ATTENTION

Always switch OFF transceivers equipped with a NiCd battery pack before inserting the transceiver into the charger.

Trickle Charging Procedure

- 1 Plug the Rapid Charger into an AC outlet.
 - The indicators light green.
- 2 Insert a NiCd battery pack, or transceiver equipped with a NiCd battery pack, into slot 1 or 2.
 - Make sure the metal contacts on the pack mate securely with the charger terminals.
 - The indicator turns orange and trickle charging starts.
 - The required charging time is shown in the table. Charging two NiCd battery packs simultaneously requires approximately the same time.
 - Charging the pack for two or three days using trickle charging will not damage the pack. However, do not charge the pack for five days (120 hours) continuously or you risk reducing the battery pack life as a result of overcharging.
- 3 When charging completes, remove the pack from the charger, or unplug the charger from the AC outlet.
 - When the charger will not be used for a long time, unplug the charger from the AC outlet.

Rapid Charging Procedure

- 1 Plug the Rapid Charger into an AC outlet.
 - The indicators light green.
- 2 Insert a NiCd battery pack, or transceiver equipped with a NiCd battery pack, into slot 1 or 2.
 - Make sure the metal contacts on the pack mate securely with the charger terminals.
 - The indicator turns orange.
- 3 Press the corresponding **START** button (1 or 2) for more than one second to start rapid charging.
 - The indicator turns red. There may be a brief delay between pressing **START** and seeing the indicator change color. This is normal.
 - Pressing the **START** button again cancels rapid charging and returns the charger to trickle charging (the indicator turns orange).
 - The required charging time is shown in the table.
- 4 On completion of rapid charging, the charger is switched automatically back to trickle charging.
 - The indicator turns green.
 - Pressing the **START** button at this time does not start rapid charging.
 - Charging the pack for two or three days will not damage the pack. However, do not charge the pack for five days (120 hours) continuously or you risk reducing the battery pack life as a result of overcharging.
 - When the charger will not be used for a long time, unplug the charger from the AC outlet.

Rapid Charging of Two Battery Packs

Charge two battery packs using the following procedure:

- 1 Insert two battery packs into the Rapid Charger slots.
 - Make sure the metal contacts on the pack mate securely with the charger terminals.
- 2 Press the **START** buttons in sequence according to which slot is to be given priority.
 - The charger starts charging the pack first that is in the slot corresponding to the button that is pressed first. The corresponding indicator turns red. The other slot is placed on standby status, and the corresponding indicator flashes red and orange alternately.
- 3 When charging of the highest priority pack completes, charging of the other pack starts.

Charging Tips

Always switch OFF transceivers equipped with a NiCd battery pack before inserting the transceiver into the charger.

Using the transceiver while its pack is charging will interfere with correct charging.

When charging PB-30, PB-32, PB-33, or PB-34 battery packs, install the slot spacers in the charger.

Do not rapid charge a fully charged NiCd battery pack. Battery pack performance will be adversely affected.

A blinking orange indicator means a pack cannot be charged correctly. This may occur when attempting to charge a new pack that is fully discharged, or when charging a pack that has not been used for an extended period. Remove the pack from the slot, then repeat the charge cycle two or three times.

If charging is repeated after a battery pack has been fully charged, or the battery pack is only slightly discharged, the operating time of the battery pack is shortened. If this problem occurs, fully discharge then recharge the battery pack several times.

If the operating time of a battery pack decreases although the battery pack is fully and correctly charged, this indicates that the battery pack life is over. Replace the battery pack.

The specified battery pack life is 300 charge/discharge cycles; however, overcharging and excessive discharging shortens battery pack life.

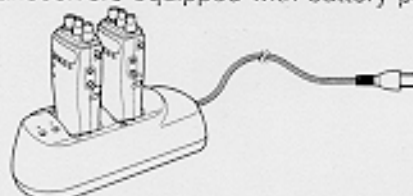
The charging times shown in the table are obtained when a battery pack is discharged to 1 V/cell and is charged under normal temperatures. This charging time varies depending on the degree of discharge and ambient charging temperature.

This charger may be suitable to charge battery packs not listed in the battery pack table due to further technology development. In this case, check your transceiver instruction manual to confirm whether this charger is suitable.

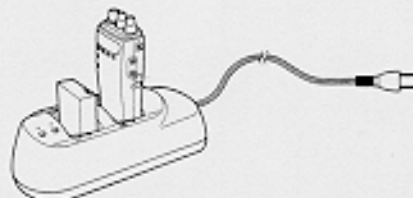
The ambient temperature should be from 5 °C to 40 °C while charging is in progress.

Any two battery packs listed in the table below can be inserted into the charger at the same time.

- 1 Two transceivers equipped with battery packs



- 2 One battery pack and one transceiver with a battery pack



- 3 Two battery packs



Charging Times

Battery Pack	Voltage (volts)	Battery Capacity (mAh)	Charging Time		Slot Spacer
			Rapid (minutes)	Trickle (hours)	
PB-30	4.8	600	60	15	Required
PB-32	6.0	600	60	15	
PB-33	6.0	1200	70	30	
PB-34	9.6	600	60	15	
PB-6/PB-9/KNB-5	7.2	600	60	15	Not Required
KNB-5A	7.2	800	70	20	
PB-7/KNB-6	7.2	1100	70	30	
KNB-6A	7.2	1600	90	45	
PB-8/PB-11/KNB-7	12.0	600	60	20	
KNB-7A	12.0	800	70	30	
KNB-9A	7.2	1100	70	30	