# NKG-94

## PRINTER

# INSTRUCTION MANUAL

JRC Japan Radio Co., Ltd.

# PREFACE

Thank you for purchasing the NKG-94 JRC Printer.
The JRC Printer can receive and prints out data from a GPS navigator.

- Before using the printer, carefully read this INSTRUCTION MANUAL so as to fully understand the proper usage and handling.

- If you are uncertain about any operations of the printer or encounter any problems during operation, refer to this manual. You will find solutions to common problems and useful hints and suggestions.

# Before Operation

## Alert Symbols

A number of alert symbols are used in this manual and labeled on the product itself to ensure safe and proper usage, and to prevent possible injury to you or others and to avoid possible property damage during operation or maintenance. Some of these alert symbols and their meanings are shown below. Please understand them before reading this manual:

| | |
|---|---|
| ⚠ **WARNING** | Indicates a situation that could result in death or serious personal injury if ignored or if the product is mishandled. |
| ⚠ **CAUTION** | Indicates a situation that could result in personal injury and/or property damage if ignored or if the product is mishandled. |

## Examples of alert symbols

The triangular symbol (△) means “caution” (danger and/or other warning). The specific type of hazard (not specified in this example) is depicted in the warning box.℉

⃠This symbol signifies an action that is prohibited. The specific type of prohibited action (in this example, disassembly) is depicted in or near the symbol.

●This symbol signifies a required action. The specific type of required action (in this example, removing the power plug from the outlet) is depicted in the symbol.

## Operating Precautions

# ⚠ WARNING

Do not disassemble or customize this equipment.
Fire, electrical shock, and/or malfunction can be caused.

Do not get this equipment wet or spill any liquids on or near this equipment.
Electrical shock, and/or malfunction can be caused.

Do not use voltage other than that specified.
Fire, electrical shock, and/or malfunction can be caused.

Do not open the equipment to inspect or repair internal circuits.
Inspection or repairs by anyone other than a specialized technician may result in fire, electrical shock, or malfunction. If internal inspection or repair is necessary, contact our service center or agents.

## Operating Precautions

# ⚠ CAUTION

Do not use this equipment anyplace other than specified clause 8.2.
It may cause injury, failure or malfunction.

Do not install the equipment in a place near water, oil, or the medicine, etc. which might splash.
It may cause injury, failure or malfunction.

Do not use this equipment anyplace other than specified clause 8.2.
It may cause injury, failure or malfunction.

Do not install the equipment in a place of terrific vibration or shock condition.
It may cause injury, failure or malfunction if it falls.

Do not place heavy objects on the printer.
It may cause injury, failure or malfunction.

Do not install this equipment other than our service center or agents.
It may cause failure or malfunction.

Avoid exposure to direct sunlight, heat, extremely high or low temperature, corrosive gas, moisture, dust or terrific vibration. It may cause fire, malfunction, and/or deterioration of print-out quality.

Always use the JRC- designated printer paper (7ZPJD0384). The use of any other paper may cause printer trouble and/or deterioration of print-out quality.

Do not wire the cable bended with acute angle, twist ,stress, etc.
It may cause fire, injury or electrical shock with the cable crack or the cable sheath inside damage.

The thermal head of the printer may be very hot after printing. Do not touch the thermal head of the printer. Make sure the thermal head is cool before replacing the paper or so.

When cleaning, do not use benzene, alcohol, thinner, or other volatile solvents. The coated surface may deteriorate or be damaged. Wipe the surface lightly with a soft cloth.

Use only MF51NR 250V 3.15 fuses. The use of other fuse may cause fire and/or damage.

# ⚠ CAUTION

Do not place heavy objects on the printer. Failure to observe this warning may result in the unit becoming unbalanced and thus causing injury if it falls.

Do not put a heavy thing on the power and data cables. Fire, electrical shock, and failure may be caused.

Do not get inside of this printer wet.
It may cause failure, malfunction, and/or deterioration of print-out quality.

If an unusual smell, smoke, or other abnormality is detected, immediately turn off the power to the printer and then turn off the power on the power distribution panel of the vessel. After confirming that the unusual smell, smoke, or other abnormality has cleared up, consult your dealer or nearest JRC service/sales representative for repair. Using the receiver in such situation may cause fire and/or electrical shock.

Be careful not to cut your hand with the paper cutter of the printer, and then replace the printer paper. Injury may be cause.

The power switch on the power distribution panel is turned off, when removing the maintenance cover. Failure to observe this warning may cause electrical shock and/or malfunction.

When installing, fix the bracket steadily on a hard wood-board with the JRC-designated screws. If not, it may fall and result in personal injury and/or damage or of the printer or other things.

When installing on the overhead or wall, it secure tolerable intensity of the weight, the force of maintaining check and replacing the printer paper. If not, it may fall and result in personal injury and/or damage or of the printer or other things.

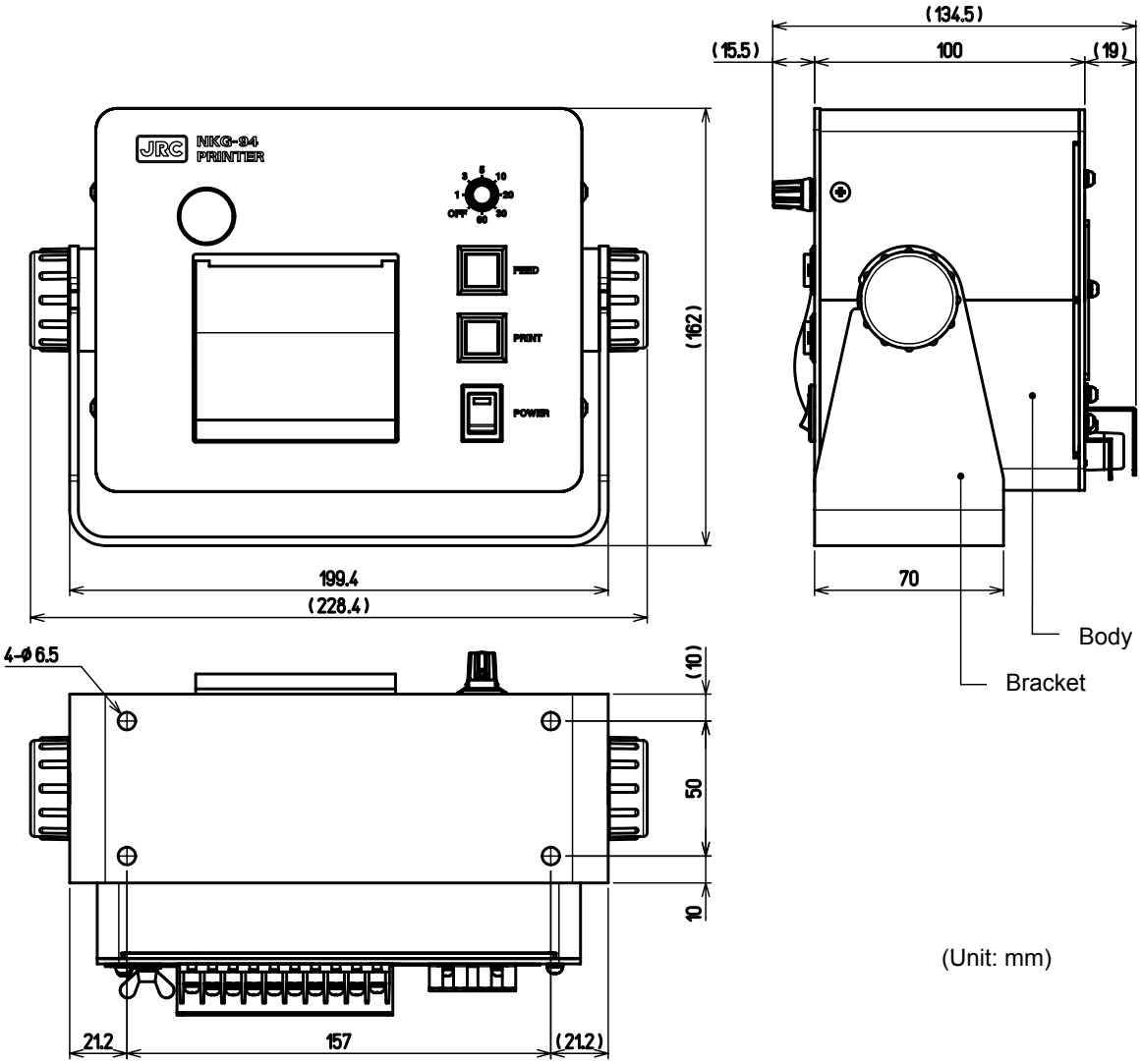
The power switch on the power distribution panel is turned off during replacing a fuse. When replacing a fuse, use extreme caution not to bring it into contact with adjacent ones. Short-circuiting due to making contact may cause power and/or circuit board damage.

The power switch on the power distribution panel is turned off, when removing the front panel. Failure to observe this warning may cause electrical shock and/or malfunction.

The power switch on the power distribution panel is turned off, when replacing the printer unit. Failure to observe this warning may cause electrical shock and/or malfunction.

# EQUIPMENT APPEARANCE

**●NKG-94 Printer**




(Unit: mm)

# Contents

# 1.Equipment Overview

## 1.1 Functions

This equipment (NKG-94) is intended to receive navigation data such as the location, time, speed and course sent from a GPS navigator. It also receives water temperature, depth and tidal current data, and can print it.

## 1.2 Features

● Printing of GPS/navigation/external equipment data (water temperature, depth and tidal current).

● Printing automatically the above data at the specified print time intervals.

● Printing out Japanese/English availably.

● Wide range voltage supply input DC12-24V.

## 1.3 Configuration

**[Standard Configuration]**

**NKG-94**

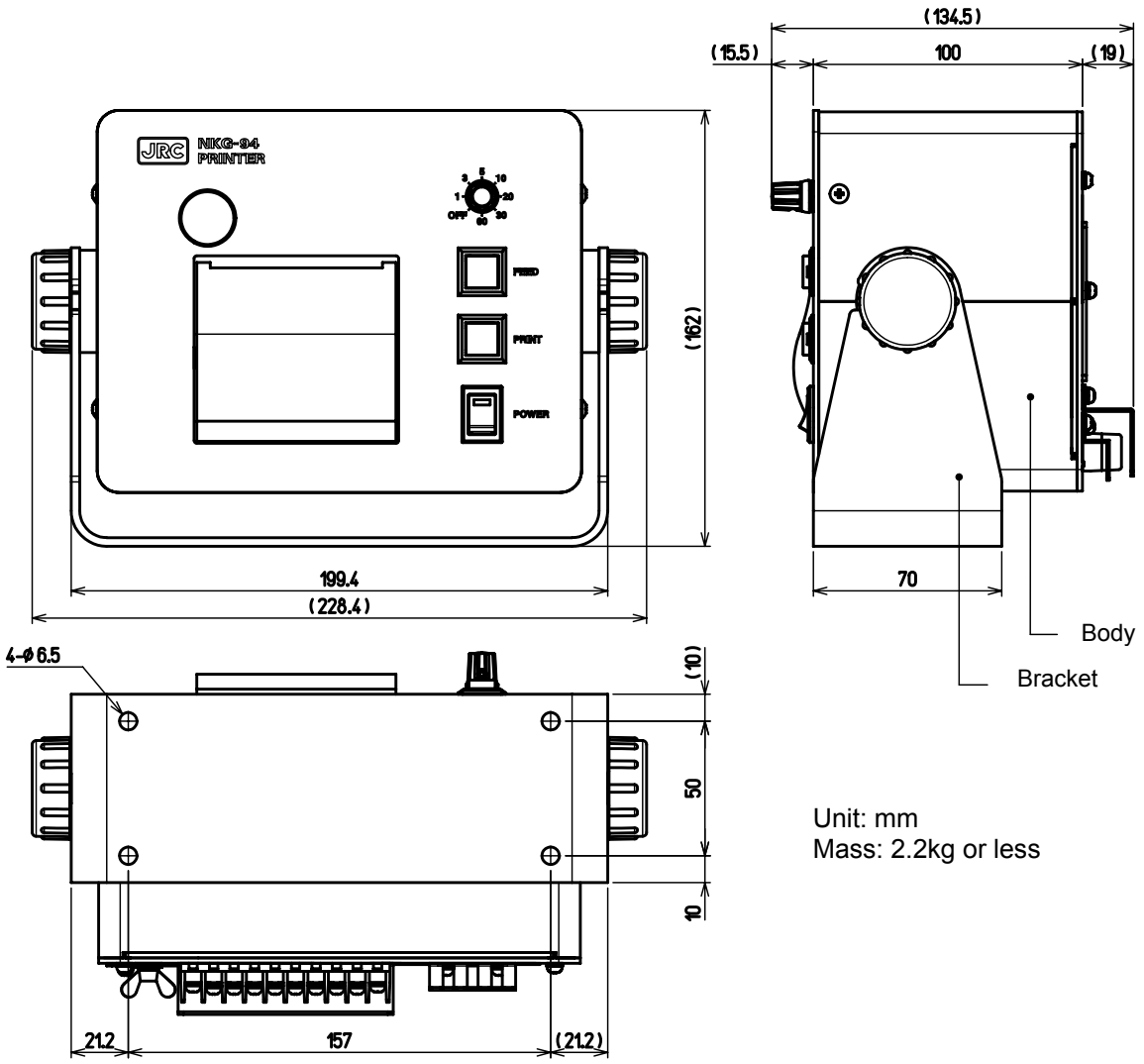
| No. | Name | Model | Code | Q'ty | Remark |
|---|---|---|---|---|---|
| 1 | Printer | NKG-94 | NKG-94 | 1 | |
| 2 | Installation screw | MPTG31659 | MPTG31659 | 4 | Tapping screw: 4pieces |
| 3 | Fuse | MF51NR 250V 3.15 | 5ZFGD00201 | 2 | |
| 4 | Printer paper | 7ZPJD0384 | 7ZPJD0384 | 1 | |
| 5 | Instruction manual | 7ZPNA4222 | 7ZPNA4222 | 1 | |

**[Option]**

| No. | Name | Model | Code | Q'ty | Remark |
|---|---|---|---|---|---|
| 1 | Power unit (Rectifier of AC power source) | NBD-577C | NBD-577C | 1 | |
| 2 | Flush mounting kit | MPBC45945 | MPBC45945 | 1 | Hexagon head bolt: 2pieces, Flat head screw: 2pieces, Tapping screw: 4pieces |

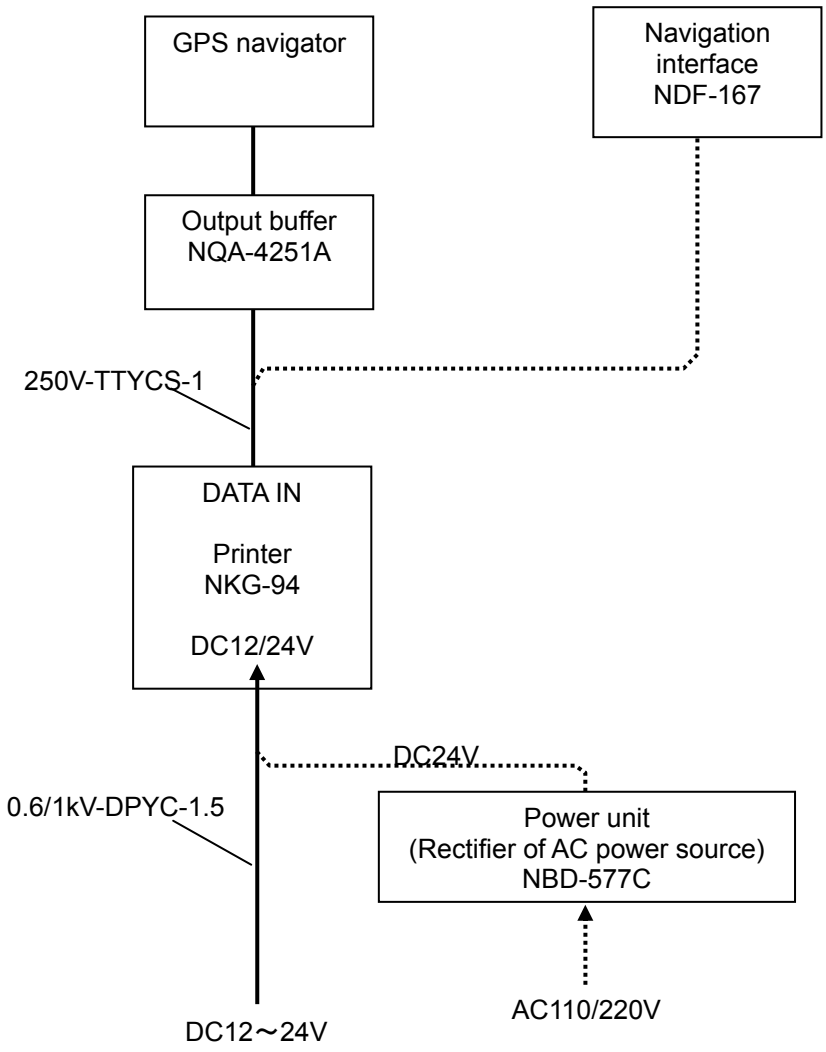
# 1.4 Structure

- **NKG-94 Printer**



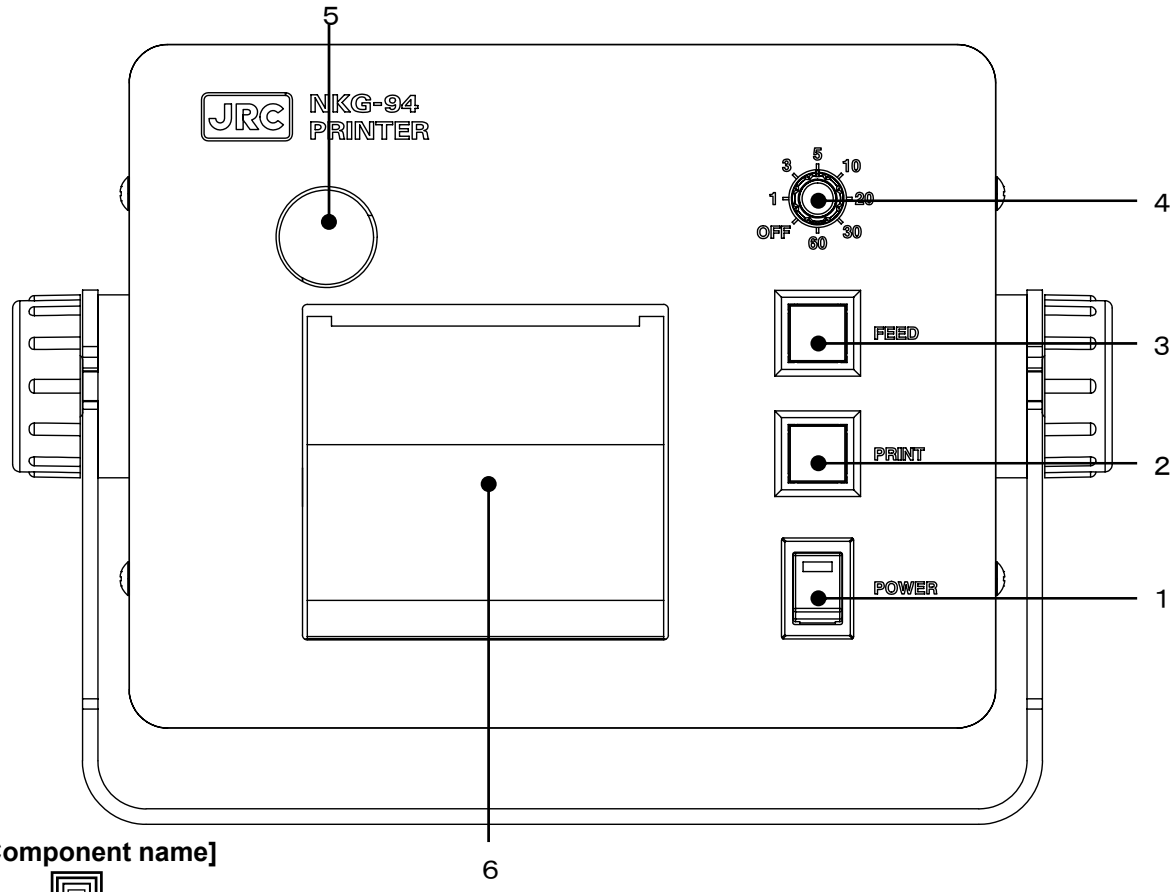

Unit: mm
Mass: 2.2kg or less

## 1.5 Schematic Diagram



# 2. Names and Functions of Components

## 2.1 Front Panel




**[Component name]**

1.  POWER KEY

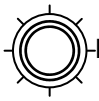
   Pressing the upper side of the POWER KEY (POWER switch) activates the green power lamp in the key on this switch to indicate that the power has been turned on.

2.  PRINT KEY

   Pressing the PRINT KEY (PRINT switch) prints the navigation data.

3.  FEED KEY

   Pressing this switch feeds printer paper from the printer.

4.  PRINT TIME INTERVAL SETTING switch

   This switch set sprint time interval to print.

5.  PAPER COVER OPEN button

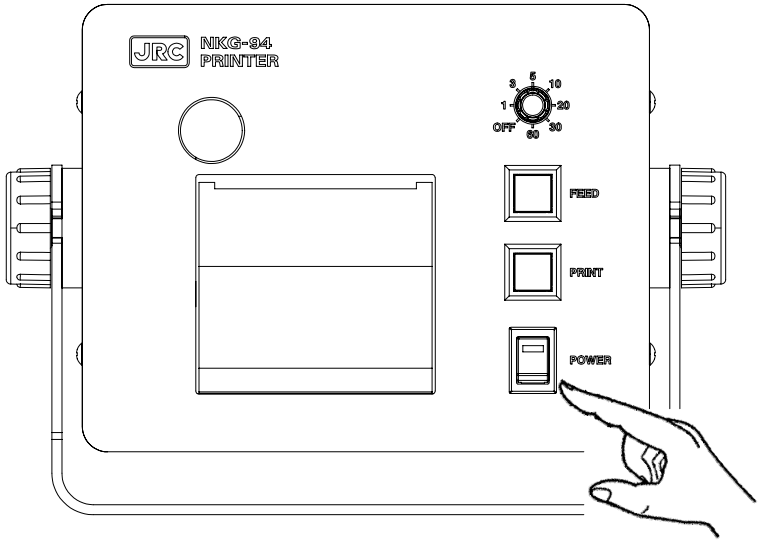
   When replacing the printer paper, pressing this button opens the paper cover.

6. PAPER COVER
   This cover holds the printer paper in its holder.

# 3. Printer Operations

## 3.1 Turning Power On

**[Operation]**




1. Press the upper side of the POWER KEY.

   The green power lamp turns on.

**[Note]**
When not receiving data, a green power lamp blinks.

## 3.2 Turning Power Off

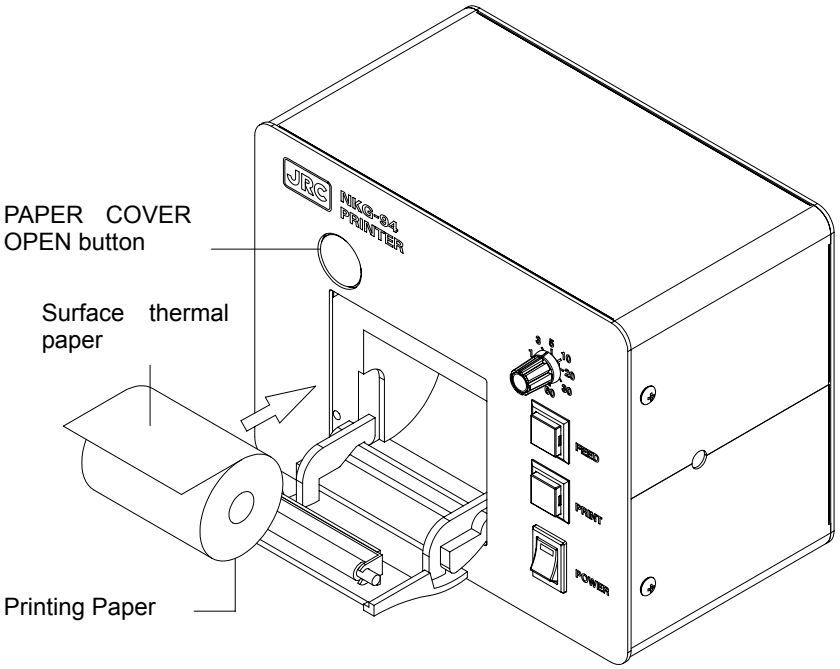
**[Operation]**
1. Press the lower side of the POWER KEY.

   The green power lamp turns off.

## 3.3 Loading Printer Paper

| ⚠ CAUTION |
| --- |
| Be careful not to cut your hand with the paper cutter of the printer, and then replace the printer paper. It may cause the injury. |

**[Operation]**




1. Press the PAPER COVER OPEN button to open the PAPER COVER.
2. Turn the surface on the thermal paper (the smooth surface) of the printing paper toward the head side. And then insert the printing paper into the paper holder of the main body.
3. Confirm that the leading edge of the paper comes out from the printer. And then close the paper cover with pushing the both ends of the upper cover.

**[Note]**

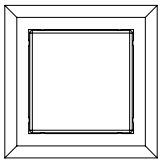
If red lines appear at the edges of the paper, it informs to replace to a new roll (the red lines indicate there is 50cm or less remaining).

## 3.4 Feeding the Printer Paper

**[Operation]**

1. Press the FEED KEY.

   Pressing this switch feeds printer paper from the printer.

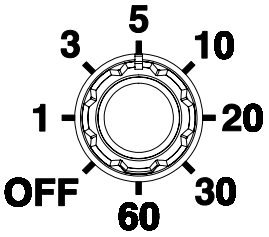



## 3.5 Printing

-The printing data is 3 kinds of data which are GPS/navigation/external equipment data. Needed data can be selected with a dip switch. (Refer to item 5.5 Function Setting.)
- The equipment has 2 kinds of data printing method.
  (1) The equipment can print periodically the above data with presetting an appropriate print time interval. Also the equipment can be set no print.
  (2) The equipment can print at arbitrary time by pressing the PRINT KEY.

### 3.5.1 Printing periodically

- The equipment can print data periodically with preset print time interval.
- The print time interval is OFF, 1 min, 3 min, 5 min, 10 min, 20 min, 30 min or 60 min.
- When the preset print time interval is “OFF”, printing is not activated periodically.
- The each preset print time interval is based on 0 minutes each hour. For example, in case the preset print time interval is set 5 min at 10:04, the equipment prints data in at 10:05, at 10:10, at 10:15, -----.




**[Operation]**

1. Turn the PRINT TIME INTERVAL SETTING switch to select an appropriate print time interval.

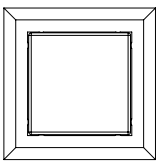
### 3.5.2 Printing at arbitrary time

- The equipment can print at arbitrary time.
- Even if the preset print time interval is set (including OFF), printing can be carry out at an arbitrary time.

**[Operation]**

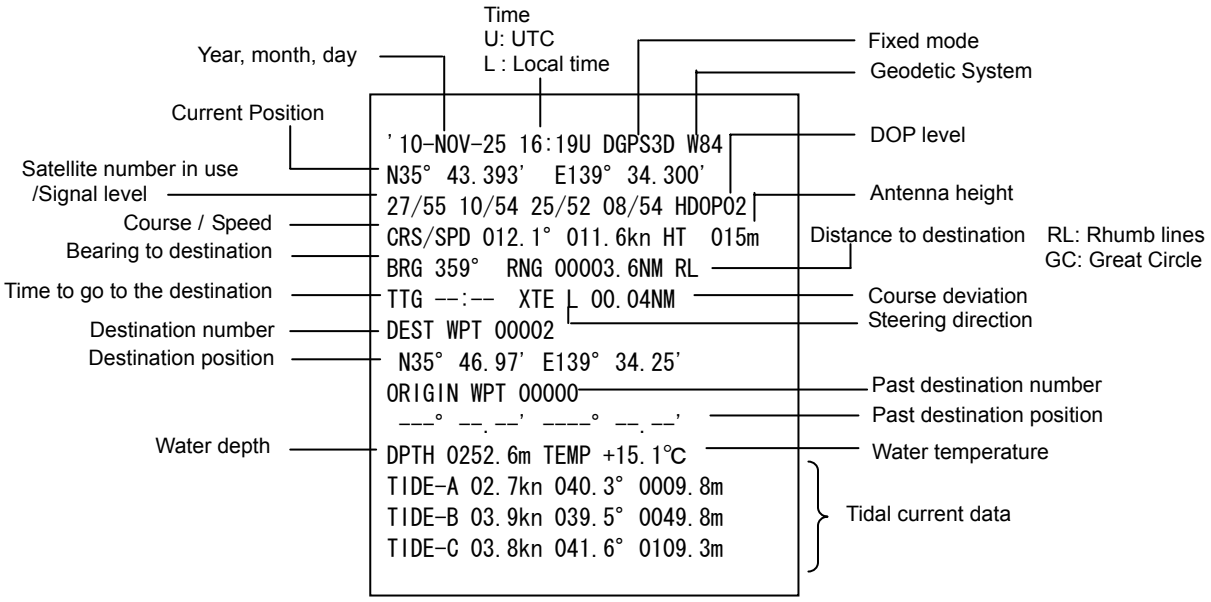
1. Press the PRINT KEY.

   Pressing the PRINT KEY allows you to print data at the time pressed the KEY.



## 3.5.3 Printing example

A printing example shows at received all data of a NMEA0183.




## 3.5.4 Printing items and data in use

The following table shows that this equipment can print items used data. At printing, data needed for the printing has to be supplied to the printer.

| No. | Item | JRC | NDF-167 | NMEA0183 |
|---|---|---|---|---|
| 1 | GPS data | | | |
| 1.1 | Year, month, day | O | O | ZDA RMC |
| 1.2 | Time | O | O | ZDA RMC GGA GLL |
| 1.3 | UTC/Local time | O | none | ZDA |
| 1.4 | Fixed mode | O | none | GGA RMC GLL VTG |
| 1.5 | Geodetic system | none | none | DTM |
| 1.6 | Current position | O | O | GGA RMC GLL |
| 1.7 | Satellite number in use/Signal level | O | none | GSA&GSV |
| 1.8 | DOP level | O | none | GGA GSA |
| 1.9 | Course | O | O | RMC VTG |
| 1.10 | Speed | O | O | RMC VTG |
| 1.11 | Antenna height | O | none | GGA |
| 2 | Navigation data | | | |
| 2.1 | Bearing to destination from current position | O<br>O | none<br>none | BWR BWC RMB APB<br>BWR BWC RMB |
| 2.2 | Distance to destination | O | none | none |
| 2.3 | Time to go to the destination | O | none | RMB APB XTE |
| 2.4 | Course deviation | O | none | RMB |
| 2.5 | Past destination number | O | none | RMB BWR BWC |
| 2.6 | Destination number | O | none | none |
| 2.7 | Past destination position | O | none | RMB BWR BWC |
| 2.8 | Destination position | O | none | RMB APB XTE |
| 2.9 | Steering direction | O | none | |
| 3 | External equipment data | | | |
| 3.1 | Water depth | none | O | DBT DPT |
| 3.2 | Water temperature | none | O | MTW |
| 3.3 | Tidal current | none | O | CUR |

NMEA0183 is high priority as more left side.

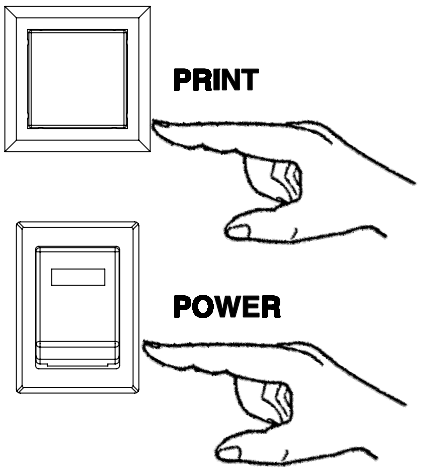
## 3.6 Printing Test

- This equipment can perform the printing test.
- The printing test confirms its software version number, dip switch setting condition, alphabet, numeric.

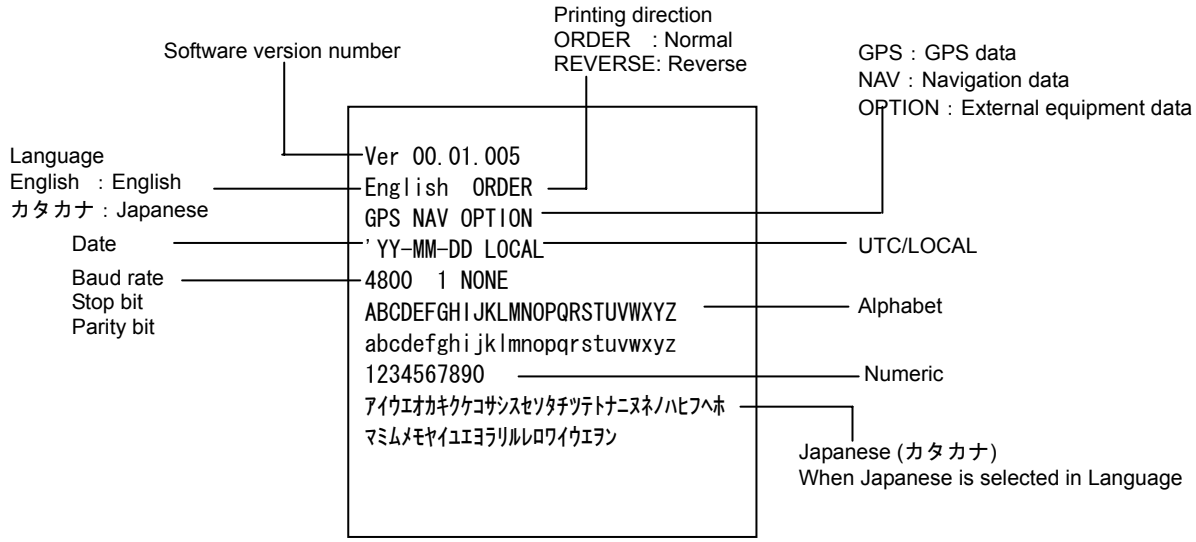
**[Operation]**

1. Press and hold the PRINT KEY and press the POWER KEY.

   Printing test results are printed.
   (Refer to the following printing test example.)




Printing test example



# 4. Maintenance and Inspection

Longevity for Equipment is greatly influenced by the suitability of maintenance.
Therefore the following check items need to constantly maintain the best performance.

## ⚠ WARNING

Do not open the equipment to inspect or repair internal circuits.
Inspection or repairs by anyone other than a specialized technician may result in fire, electrical shock, or malfunction. If internal inspection or repair is necessary, contact our service center or agents.

## ⚠ CAUTION

Use only MF51NR 250V 3.15 fuses. The use of other fuse may cause fire and/or damage.

Always use the JRC- designated printer paper (7ZPJD0384). The use of any other paper may cause printer trouble and/or deterioration of print-out quality.

When cleaning, do not use benzene, alcohol, thinner, or other volatile solvents. The coated surface may deteriorate or be damaged. Wipe the surface lightly with a soft cloth.

Do not get inside of this printer wet.
It may cause failure, malfunction, and/or deterioration of print-out quality.

## 4.1 General Maintenance and Check Items

- Maintain power-supply within the specified voltage (DC10.8-31.2V) constantly.
- At replacing the fuses, carry out its replacement according to “4.2 Fuse Replacement”.
- Carry out the normal maintenance shown the following table.

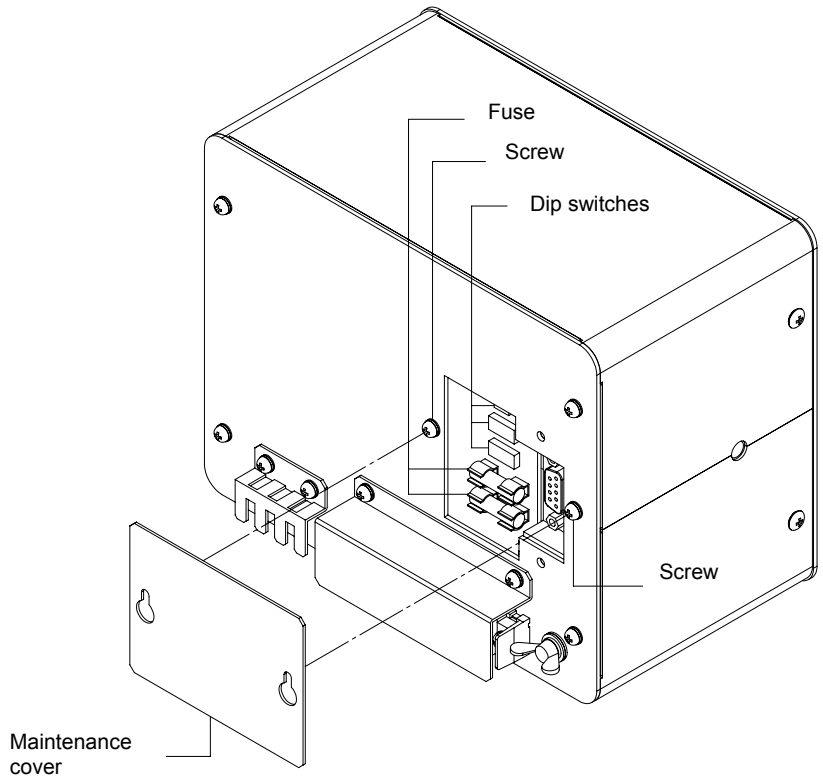
| No. | Item | Maintenance and Check |
|---|---|---|
| 1 | Cleaning | Wipe the equipment with a dry soft cloth. Or wipe the equipment with a cloth soaked neutral detergent, and then dry it well with a dry soft cloth. |
| 2 | Remaining Check of Printing Paper | - Open the PAPER COVER, and then check remaining of the printing paper.<br>- When remaining of the printing paper becomes 50cm of less, red lines appear at the edges of the paper. So replace to a new roll of the printing paper. |

## 4.2 Fuse Replacement

### 4.2.1 Removing maintenance cover (for preparation work)

# ⚠ CAUTION

The power switch on the power distribution panel is turned off, when removing the maintenance cover. Failure to observe this warning may cause electrical shock and/or malfunction.




The procedure for removing the maintenance case is as follows:

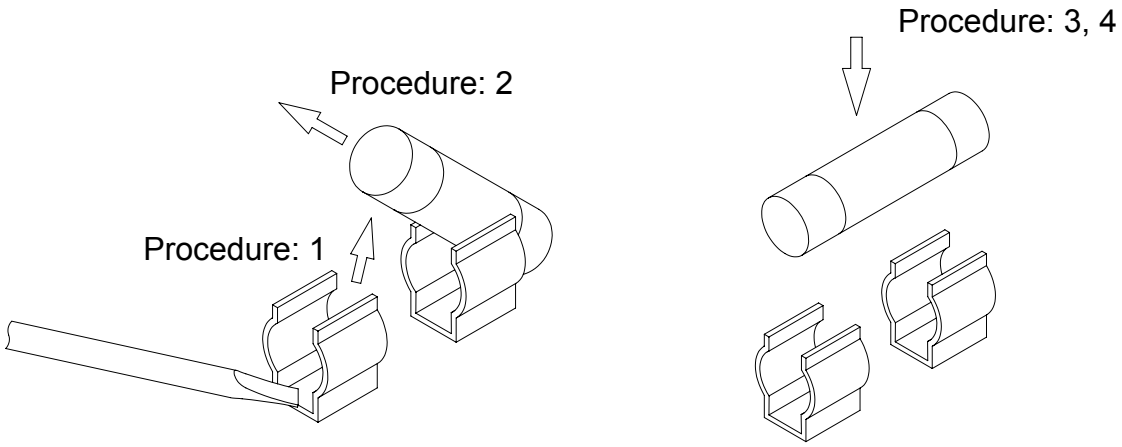
1. Press the lower side of the POWER KEY (to turn off the equipment).
2. Cut off power to the printer by turning off the power switch on the power distribution panel.
3. Loosen the 2 screws, and then remove the rear cover.

## 4.2.2 Replacing fuses

| ⚠ CAUTION |
|---|
| The power switch on the power distribution panel must be turned off during replacing a fuse. When replacing a fuse, use extreme caution not to bring it into contact with adjacent ones. Short-circuiting due to making contact may cause power and/or circuit board damage. |
| Use only MF51NR 250V 3.15 fuses. The use of other fuse may cause fire and/or damage. |

The replacement procedure is as follows:

1. Lift one end of the blown fuse using a tool such as a thin tip screwdriver.
2. Remove the fuse.
3. Place a new fuse in the fuse holder.
4. Push the new fuse into position.



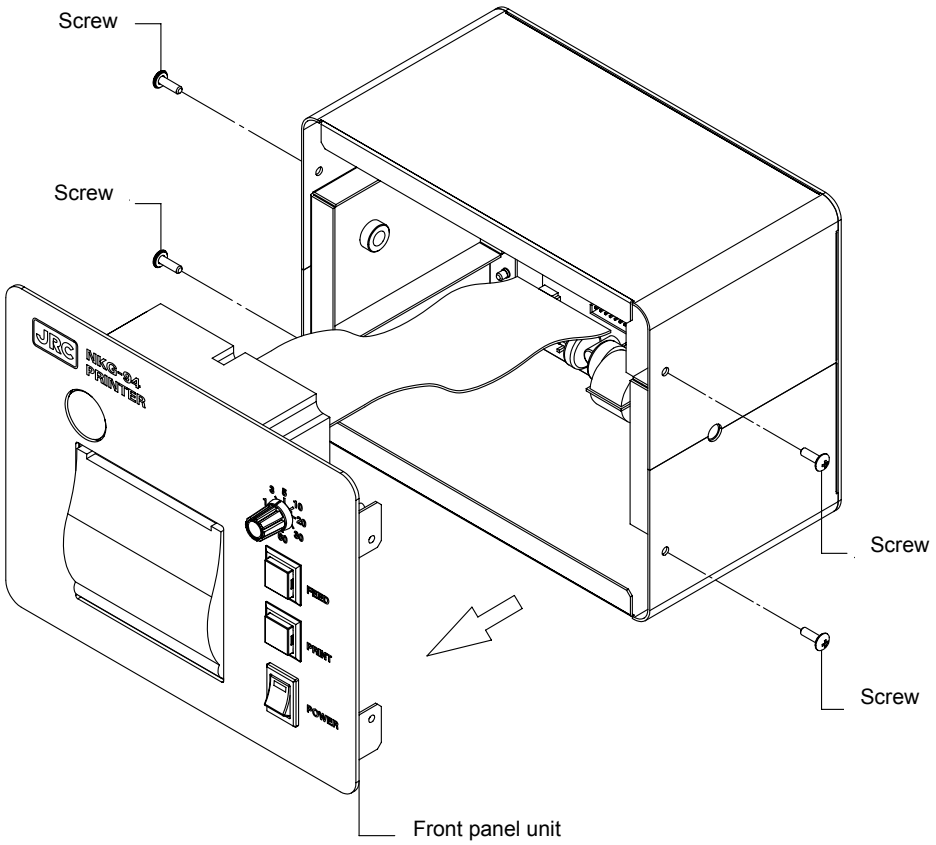
## 4.3 Printer Unit Replacing Procedure

When some dead pixel(s) or the printer unit breaks down, the unit has to be replaced to the new unit according to the following procedure. Therefore request to our service center or agents to carry out this replacement work.

### 4.3.1 Removing front panel unit (for preparation work)

**⚠ CAUTION**

The power switch on the power distribution panel is turned off, when removing the front panel. Failure to observe this warning may cause electrical shock and/or malfunction.



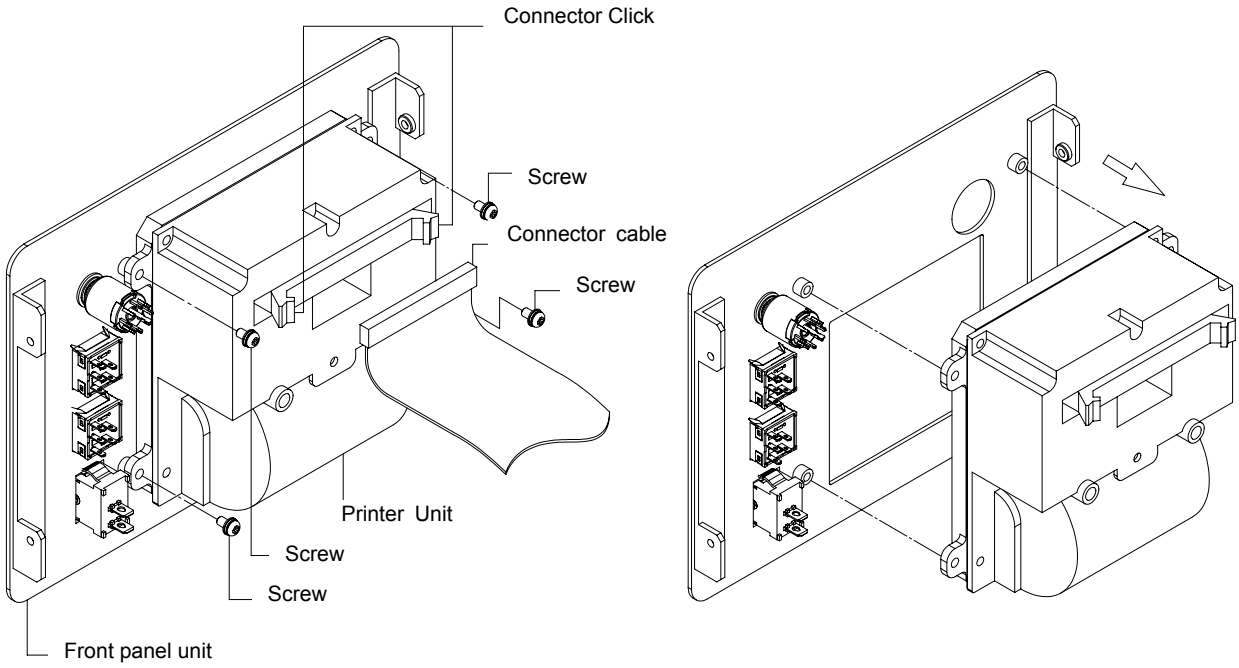

The procedure for removing the front panel unit is as follows:

1. Press the lower side of the POWER KEY (to turn off the equipment).
2. Cut off power to the printer by turning off the power switch on the power distribution panel.
3. Remove the 4 screws, and then remove the front panel unit.

## 4.3.2 Replacing printer unit

# ⚠ CAUTION

The power switch on the power distribution panel is turned off, when replacing the printer unit. Failure to observe this warning may cause electrical shock and/or malfunction.




The replacement procedure is as follows:

1. Push and expand the connector click.
2. Remove the connector cable fitted closely with the connector click.
3. Remove the 4 screws.
4. Remove the printer unit from the front panel unit, and then replace the new printer unit.
5. Reassemble the printer unit according to reversely the above procedure as the setp3 to the step1. (Tightening torque at the 4 screws: 25N-cm)

## 4.4 Maintenance Parts

-The maintenance par list is showed the following table:

| Part name | Model number | JRC part code |
|---|---|---|
| Printer unit | H-7HPJD0001 | 7HPJD0001 |
| Printing paper | H-7ZPJD0384 | 7ZPJD0384 |
| Fuse | MF51NR 250V 3.15 | 5ZFGD00201 |

## 4.5 Trouble Shooting

**⚠ WARNING**

Do not open the equipment to inspect or repair internal circuits.
Inspection or repairs by anyone other than a specialized technician may result in fire, electrical shock, or malfunction. If internal inspection or repair is necessary, contact our service center or agents.

As for reference, the following trouble shooting table shows to find out some malfunction point:

| Symptom of malfunction | Cause of infer/ malfunction | Countermeasure |
|---|---|---|
| Even if pressing the POWER KEY, the equipment is not turned power on. | Power is not supplied from the power distribution panel in the ship. | Check whether the wiring from the power distribution panel is normal or not. |
| | Power is not supplied from the power unit (option). | Check whether the wiring from the power unit or not. |
| | A fuse in the equipment is blown-out. | Check whether the wiring is normal or not, and then replace the blown-out fuses in the equipment. |
| | The fuse in the power unit (option) is blown-out. | Checked whether the wiring is normal or not, and then replace the blown-out fuses in the power unit. |
| | The POWER KEY switch is malfunctioned. | Request to our service center or agent to repair it. |
| The equipment does not print at its periodical time. | The power is not turned on. | Turn on the power. |
| | The print time interval is incorrectly set. | Set correctly the print time interval. The each preset print time interval is based on 0 minutes per hour. Refer to “3.5 Printing” as detail operation. |
| | The printing paper is not loaded. | Load the printing paper. |
| | The PRINT TIME INTERVAL SETTING switch is malfunctioned. | Request to our service center or agent to repair it. |
| | The paper cover is opening condition. | Close completely the paper cover. |
| Even if pressing the PRINT KEY, the equipment does not print data. | The power is not turned on. | Turn on the power. |
| | The printing paper is not loaded. | Load the printing paper. |
| | The PRINT KEY switch is malfunctioned. | Request to our service center or agent to repair it. |
| | The paper cover is opening condition. | Close completely the paper cover. |
| The equipment does not print some item(s) in data. | The needed printing data cannot be received. | Input (supply) the needed printing data. |
| The equipment has some dead pixel(s). | The printer unit is malfunctioned. | Request to our service center or agent to repair it. |
| Even if pressing the FEED KEY, the equipment dopes not feed the printing paper. | The power is not turned on. | Turn on the power. |
| | The printing paper is not loaded. | Load the printing paper. |
| | The FEED KEY switch is malfunctioned. | Request to our service center or agent to repair it. |
| | The paper cover is opening condition. | Close completely the paper cover. |
| The green lamp on the POWER KEY blinks. | The equipment cannot receive data. | Check whether the wiring is normal or not, and then receive data. |
| | | Check to meet its baud rate. |

# 5. Installation

## 5.1 Installation Procedure

### 5.1.1 Desk mounting type installation procedure

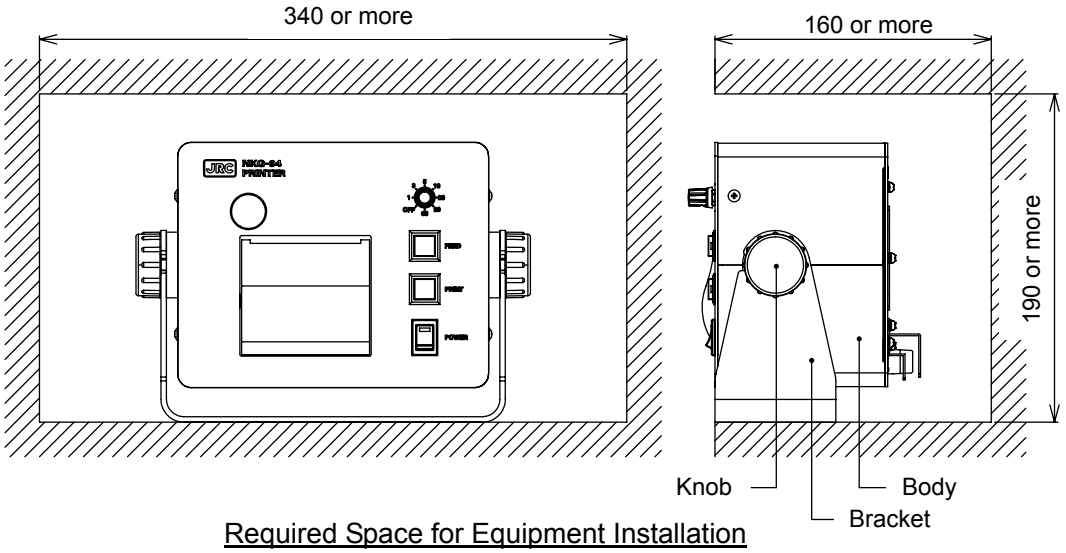
**⚠ CAUTION**

When installing, fix the bracket steadily on a hard wood-board with the JRC-designated screws. If not, it may fall and result in personal injury and/or damage or of the printer or other things.

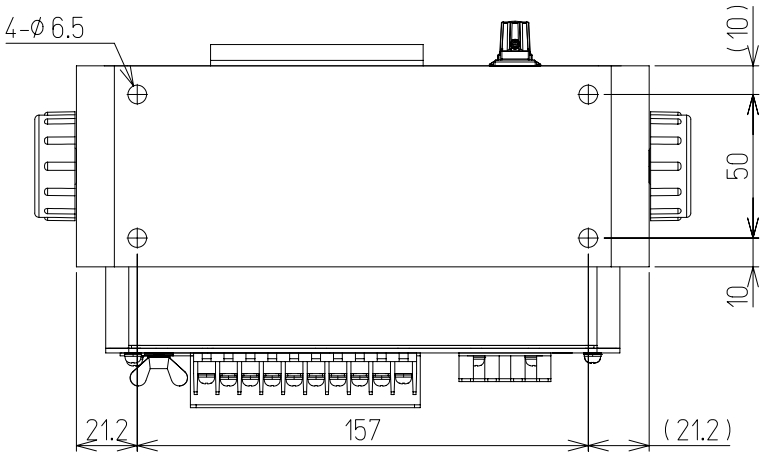
When installing on the overhead or wall, it secure tolerable intensity of the weight, the force of maintaining check and replacing the printer paper. If not, it may fall and result in personal injury and/or damage or of the printer or other things.

The following is the procedures for installing the equipment:

1. Loosen the knobs of the equipment, and then remove the body from the bracket.
2. Screw down the bracket at the desired location with attached the 4 installation screws （MPTG31659）.
3. Remount the body onto the bracket, and then tighten the knobs to lock the body in place.




Required Space for Equipment Installation




Unit: mm

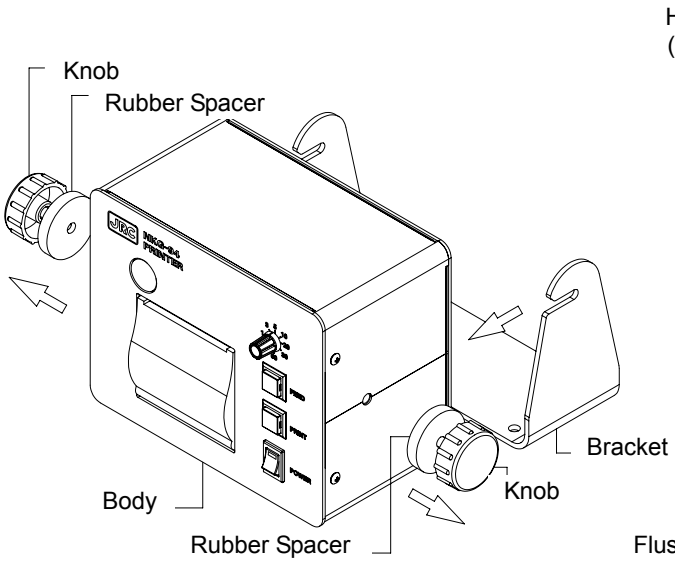
Bracket (Bottom Face)

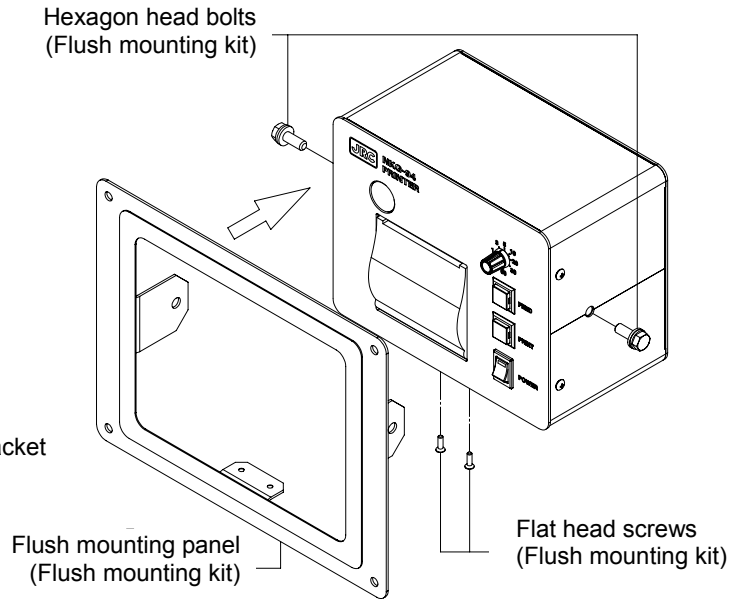
## 5.1.2 Flush mounting type installation procedure

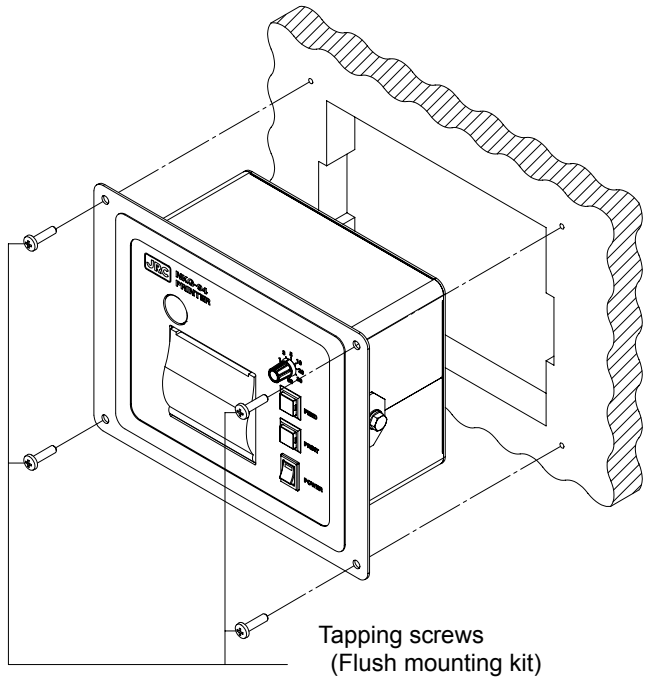
When installing the flush mounting type, the flush mounting kit (MPBC45945) of the options is required.

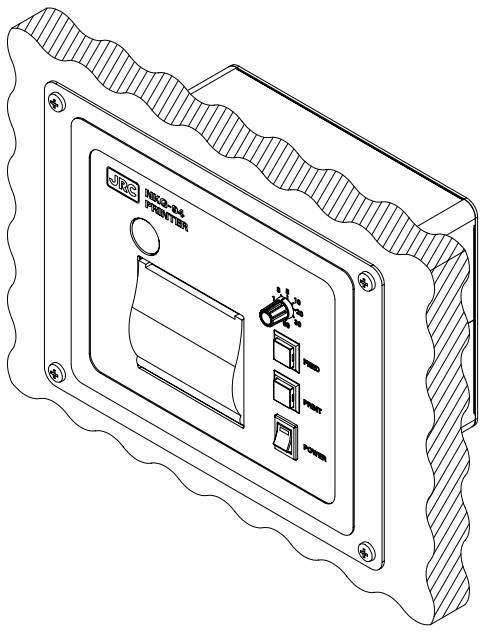
The following is the procedures for installing the equipment:

1. Loosen the knobs of the equipment, and then remove the body (including the knobs and the rubber spacer) from the bracket.
2. Remove the knobs and the rubber spacers from the body.
3. Set the flush mounting panel on the body, and then screw down their sides with the hexagon head bolts and screw down their bottom with the flat fillister head screws.
4. Insert the equipment setting the mounting panel into the installed place, and then screw down it with the tapping screws.

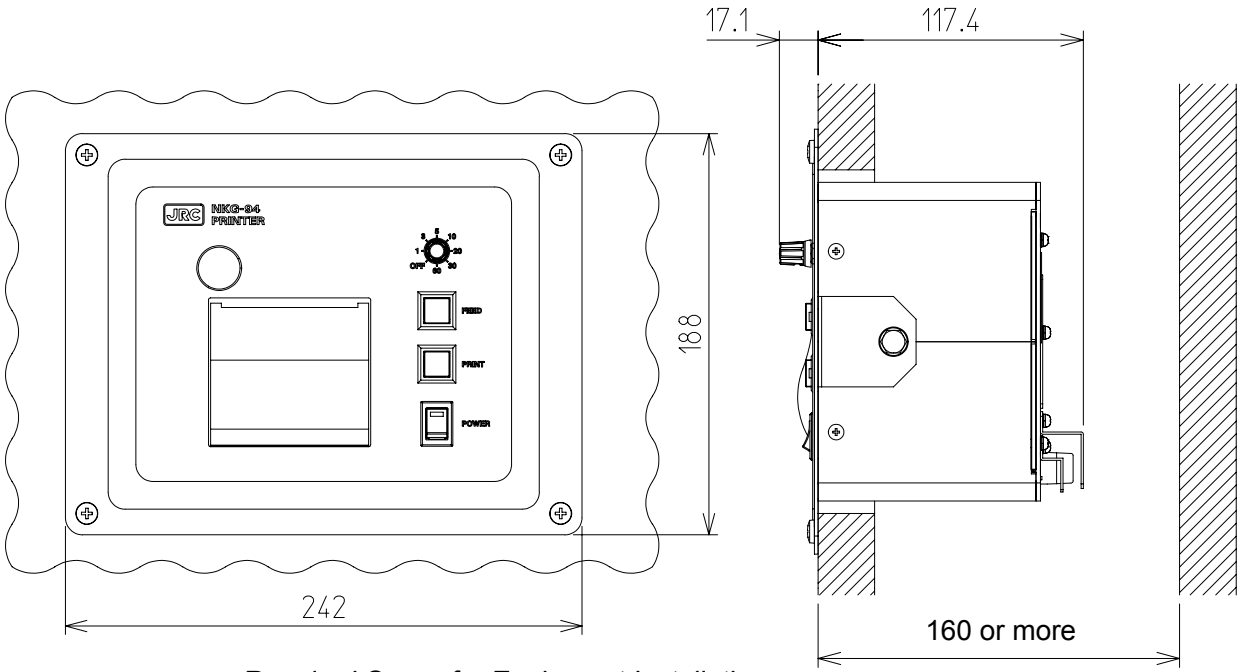


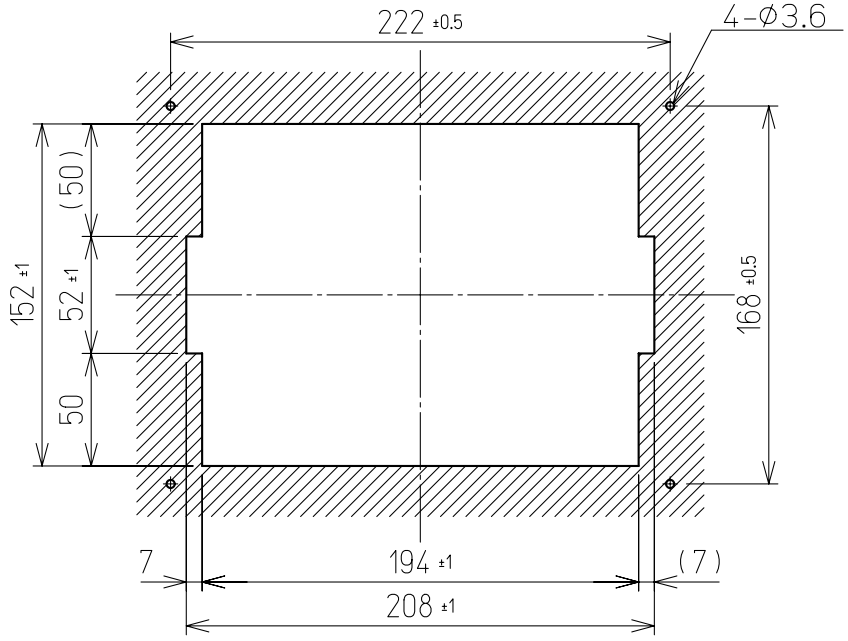



Mounting Condition Drawing



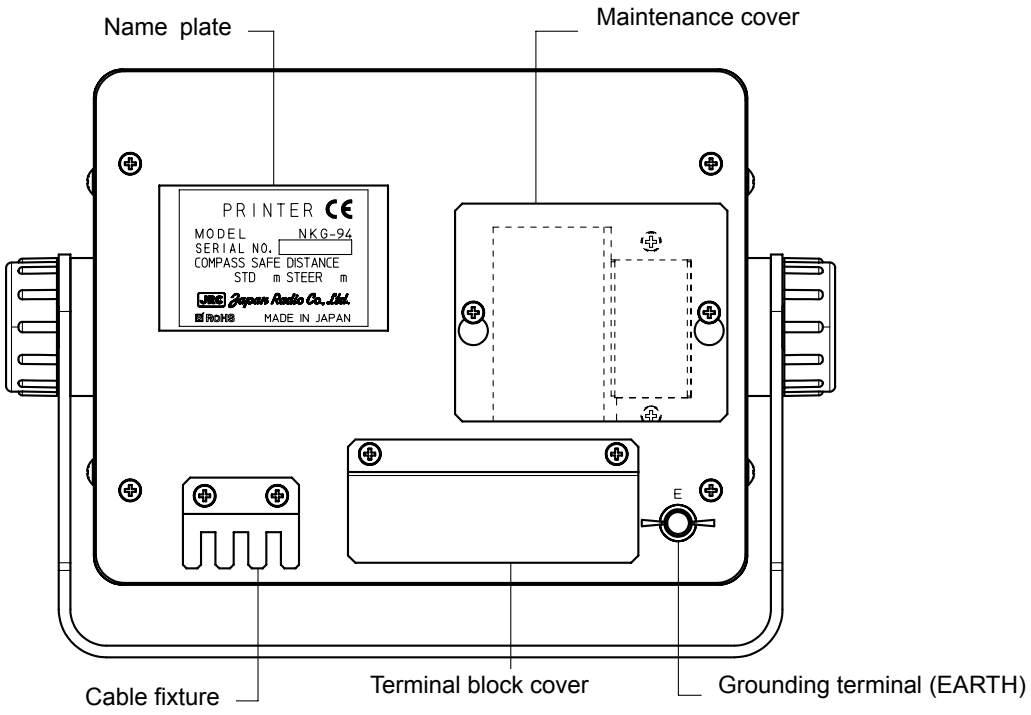

Required Space for Equipment Installation

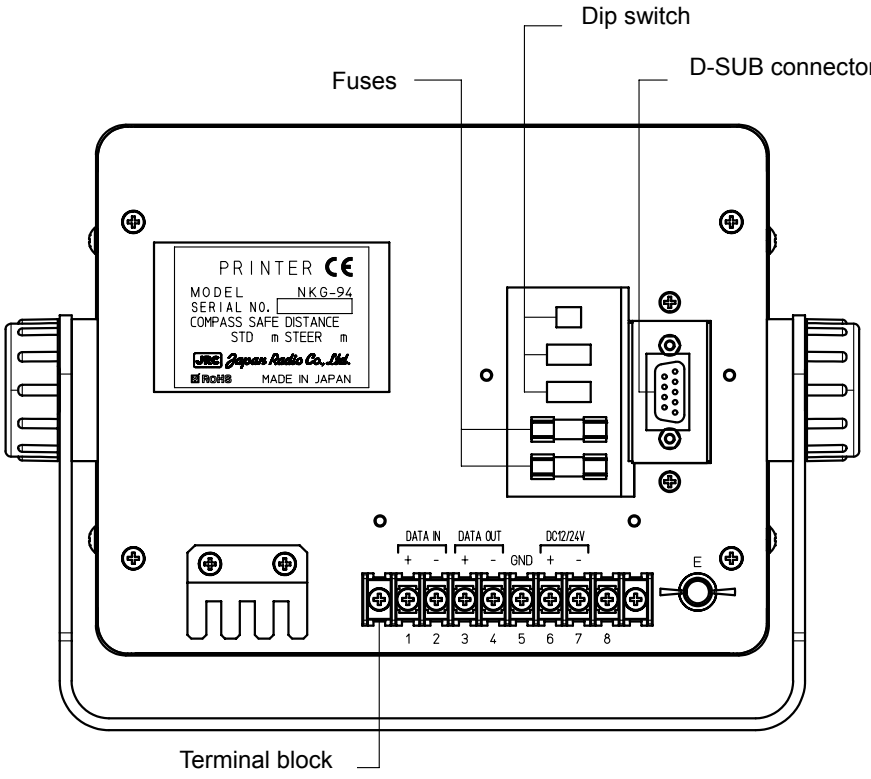



Size Cut Form for Equipment Installation

Unit: mm

## 5.2 Rear Panel

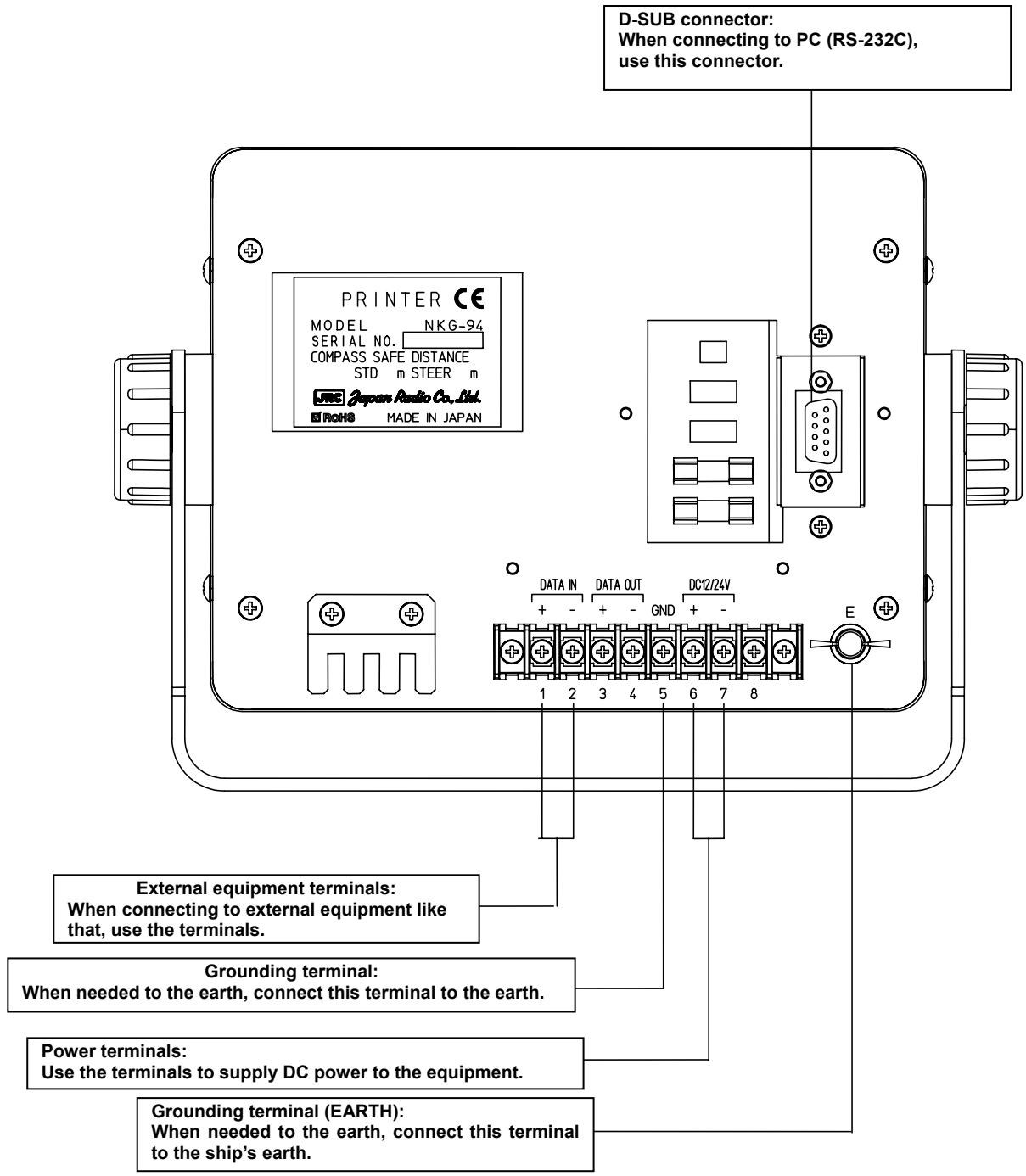


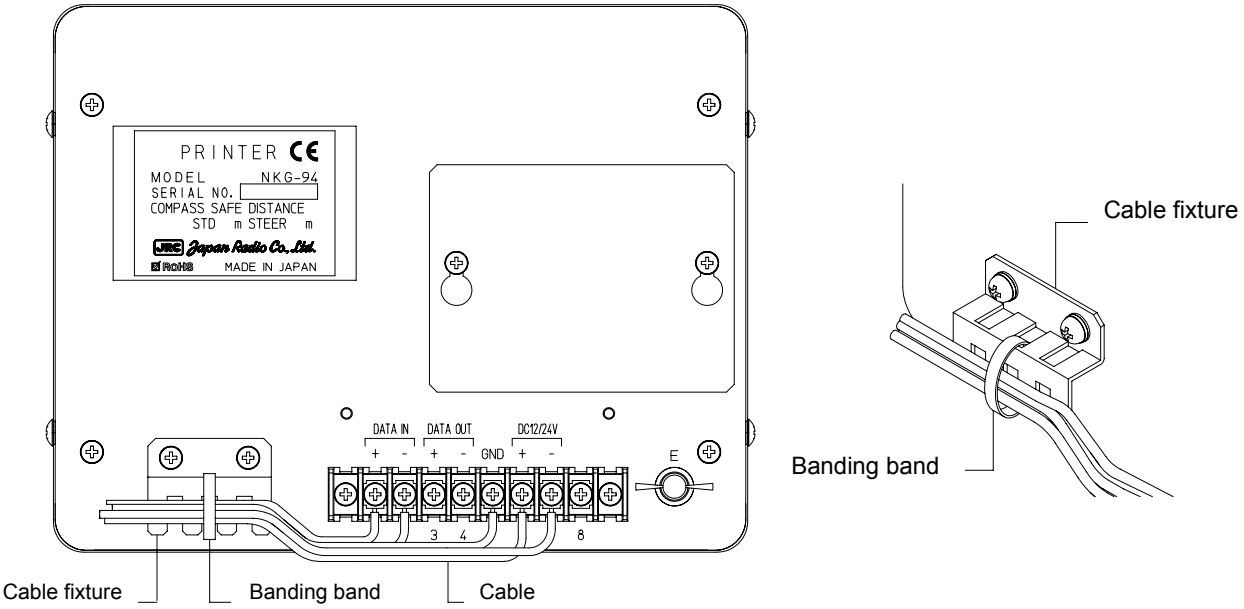

Rear Panel Drawing at Removing Maintenance Cover and Terminal Block Cover

## 5.3 Cable Connection

Connectors on rear panel of body



## 5.4 Cable Handling




Bounded Cable Example

1. Lead the cables connected on the terminals on the terminal block toward the cable fixture.
2. Put the cables on the top of the cable fixture.
3. Fix the cables on the top of the cable fixture with the banding band.

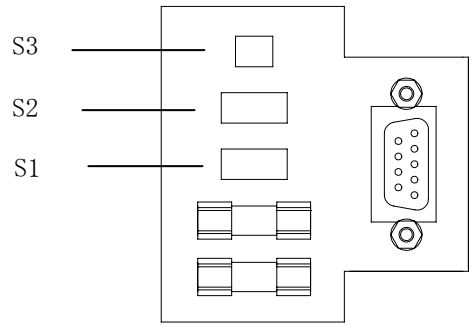
- The above drawing shows that the banding band is applied to the vertical direction example.
- When the vertical direction banding is inconvenient on its installing condition, change the banding band direction to the horizontal.

## 5.5 Function Setting

- The functions and communication protocol of the equipment are set by the dip switches.
- The dip switches (S1, S2) are set to meet its using condition.
- The dip switches have been set the positions shown the boldface in the following table at shipping the factory.
- The dip switch (S3) for our service engineers must not change the positions.
  The normal positions of S3 are all OFF.

**[Setting Method]**

1. Loosen the 2 screws at the maintenance cover on the rear panel, and then remove the cover.
2. Set the dip switches according to the following table.
3. Fit the maintenance cover on the rear panel, and then screw down the cover with the 2 screws.



Dip Switch Location

(1) Function Switch: S1
Table5-1: Function switch: S1

| No. | Function | ON | OFF | Remarks |
|---|---|---|---|---|
| 1 | Printing language | Japanese | **English** | Japanese is katakana (Japanese syllabary characters) |
| 2 | Printing direction | ORDER (normal) | **REVERSE (Reverse)** | Set to OFF for “REVERSE” at this equipment. |
| 3 | Printing GPS data | **Print** | No print | When GPS data is not required, set to OFF for “No print” |
| 4 | Printing navigation data | **Print** | No print | When navigation data is not required, set to OFF for “No print” |
| 5 | Printing external equipment data | **Print** | No print | When external equipment data is not required, set to OFF for “No print” |
| 6 | Priority of UTC/Local | Prioritized Local | **UTC** | Even if setting ON for “Prioritized Local”, UTC is printed at no time-zone difference data. |
| 7 | Date display | Refer to table 5-2. | | |
| 8 | | | | |

Table 5-2: Date display

| Date display | bit7 | bit8 |
|---|---|---|
| 'YY-MM-DD | ON | ON |
| | OFF | ON |
| MM DD,'YY | ON | OFF |
| DD MM,'YY | **OFF** | **OFF** |

(2) Communication Function Switch: S2
S2 sets to communication protocol for printing data.

Table 5-3: Communication function switch: S2

| No. | Function | ON | OFF | Remarks |
|---|---|---|---|---|
| 1 | Bit rate | Refer to table5-4 | | |
| 2 | | | | |
| 3 | Stop bit | 2bit | **1bit** | NMEA : 1bit JRC,NDF-167 : 2bit |
| 4 | Parity bit | Refer to table 5-5 | | |
| 5 | | | | |
| 6 | Spare | | **OFF** | |
| 7 | Reservation | | **OFF** | |
| 8 | Reservation | | **OFF** | |

Table 5-4: Bit rate

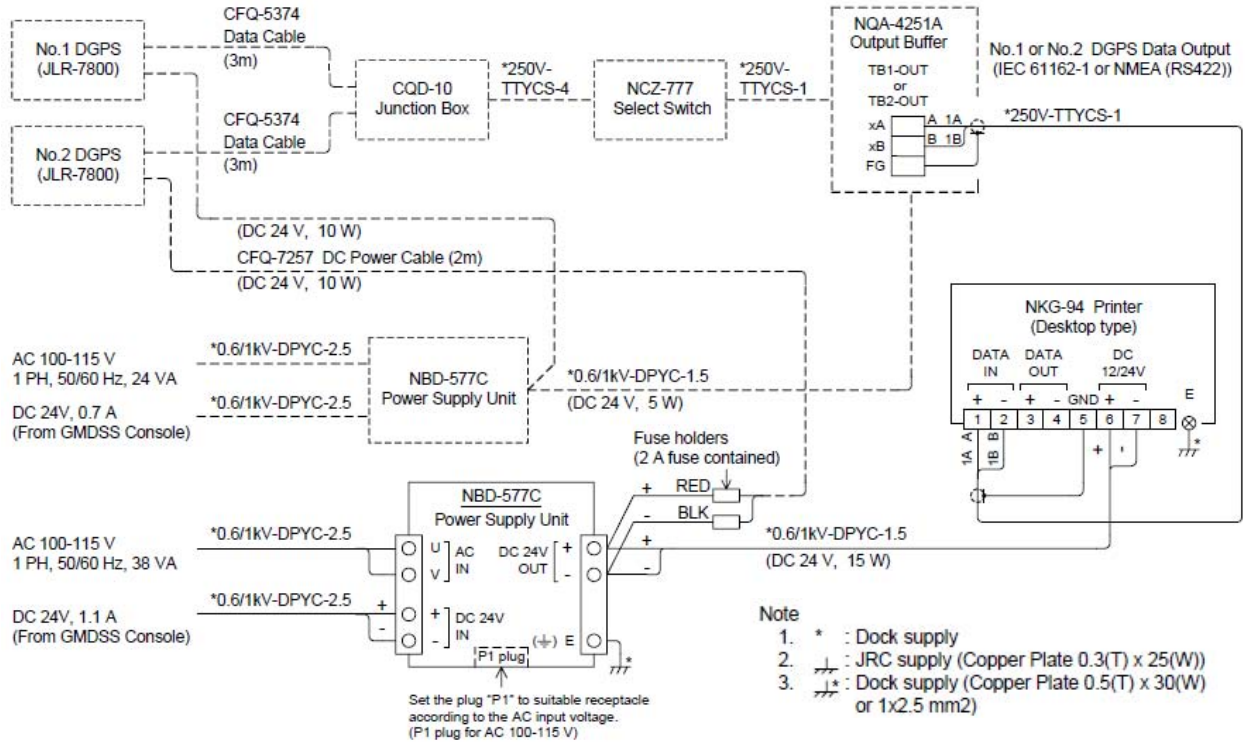
| Bit rate [bps] | bit1 | bit2 | Remarks |
|---|---|---|---|
| 1200 | OFF | OFF | JRC,NDF-167 |
| 4800 | **ON** | **OFF** | NMEA |
| 38400 | OFF | ON | |
| | ON | ON | |

Table 5-5: Parity bit

| Parity bit [bps] | bit4 | bit5 | Remarks |
|---|---|---|---|
| None | **OFF** | **OFF** | NMEA,JRC,NDF-167 |
| Even | ON | OFF | |
| Odd | OFF | ON | |
| | ON | ON | |

## 5.6 System Configuration

The following shows a typical system configuration:



# 6. After-Sales Service

## 6.1 Warranty

• Although warranty is our regulations with customers, the normal warranty is 1 (one) year from the purchased day.

## 6.2 Stock Periods of Maintenance Parts

• After discontinued the equipment production, the maintenance parts (required to maintain the equipment performance) is 10 (ten) years.

## 6.3 When Requesting Repair

If you suspect that a problem has occurred, take the following diagnostic after checking according to "4.5 Trouble Shooting"
If the above checks uncover any abnormalities, stop operations of the equipment immediately and then contact our dealer, service representative or JRC sales.

· Repairs within the warranty period When some malfunction occurs at normal operation according to the explanation and direction of the instruction manual, repairs within the warranty period will be performed free of charge at a place appointed by JRC, our dealer or service representative. If the malfunction occurs due to improper usage, fault, or any external abnormal condition such as fire, pollution, abnormal voltage, natural disaster (ex. thunder storms, earthquake) etc., repairs of the equipment will be charged.
· After the expiry of the warranty period If the corresponding function can be restored by repair, out-of-warranty repairs will be performed at your request. Please note that this repair is not free of charge. In this case, the malfunctioned equipment has to send to our company or has to be repaired on boarding your vessel at a place appointed by our dealer/service representative. When repairing impassably onboard, the malfunctioned equipment could be repaired in our factory.
· Information for service When requesting repair, give our dealer, service representative or JRC sales the following information for the service:
  - Product name, model number, date of manufacture, and serial number
  - Its detail malfunction conditions
  - Name, address, and phone number of your company or institution, and your name

## 6.4 Optional Maintenance Checks

Over a period of time, the performance of various components will deteriorate. The actual rate of deterioration will vary according to the operating conditions and environment. It is therefore recommended for your equipment to undergo optional maintenance and servicing in addition to your own checks. Please contact our dealer or JRC sales or service representative for optional services. A Fee is charged for these services.

If you have any questions about after-sale services, please contact your our dealer or JRC sales or service representative.

"JRC Sales/Service Representative": See the List of JRC Product Dealers and JRC Sales/Service Representatives at the end of this manual.

# 7. Disposal

## 7.1 Disposal of This Equipment

- If this equipment is to be disposed of, process it in accordance with the legal regulations and the rules of the local government having jurisdiction.

# 8. Specifications

## 8.1 General Specification

- Printing type : Thermo-sensitive line dot
- Total characters / line : 32
- Printing paper : 7ZPJD0384, 58mm x 50mm across x 25m
- Out-of paper detection : Appeared the red lines at the edges of the paper
  (The red lines indicate there is 50cm or less remaining)
- Input data format : NMEA0183、JRC、NDF-167 data
- Printing data : GPS data, navigation data, external equipment data
- Dip switch setting : S1 Printing language, Printing direction, Printing data (GPS/ Navigation / external equipment data), Date (year, month, day), Local time
  S2 Communication protocol
- Input power Voltage : DC12V - 24V
- Power consumption : 30W or less
- Dimensions : 200mm width x 160mm height x 120mm depth
- Mass : 2.2 kg or less

## 8.2 Environmental Specification

- Operation temperature : -15 to +55°C
- Storage temperature : -25 to +70°C
- Relative humidity : 93% at 40°C Not to condense dew.
- Vibration : In accordance with IEC60945 ed.4
- EMC : In accordance with IEC60945 ed.4

## 8.3 External Interface

**Serial communication**

| Interface name | Spec. | Input/ Output | Format | Remarks |
|---|---|---|---|---|
| 422 in+/- | RS-422 | Input | NMEA0183,JRC,NDF-167 data | |
| 232C RX/TX | RS-232C | Input, Output | Program data | Up dated by PC |

**(1) NMEA**

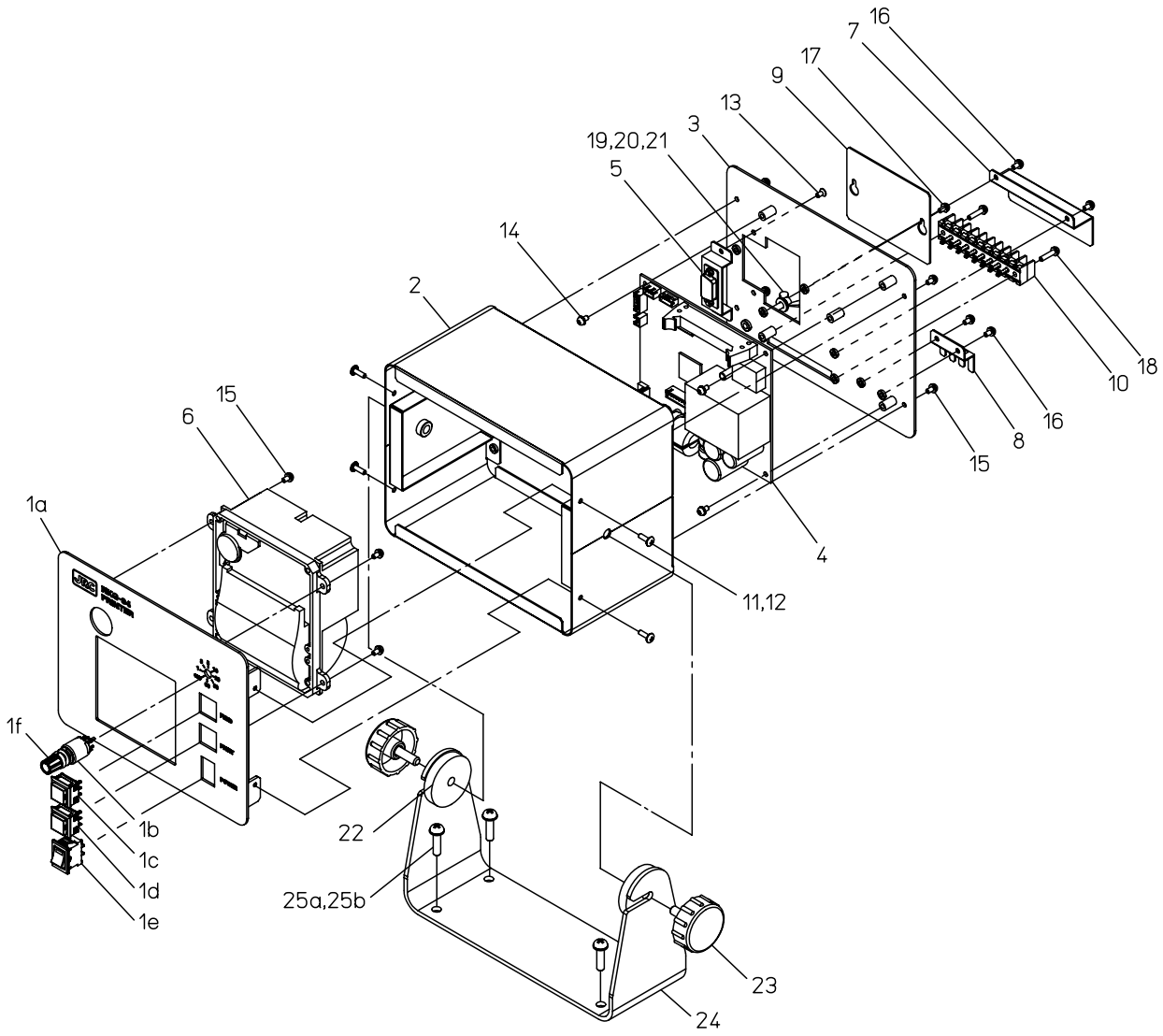
- Specification : NMEA0183
- Version number : Ver1.5/2.1/2.3
- Bit rate : 4800bps
- Data bit : 8bits
- Parity : None
- Start bit : 1bit
- Stop bit : 1bit
- Input sentence : GGA,RMC,GLL,VTG,DTM,ZDA,GSA,GSV, DBT,DPT,MTW,CUR,APB,BWC,BWR,RMB,XTE

**(2) JRC Interface NDF F-167 data**

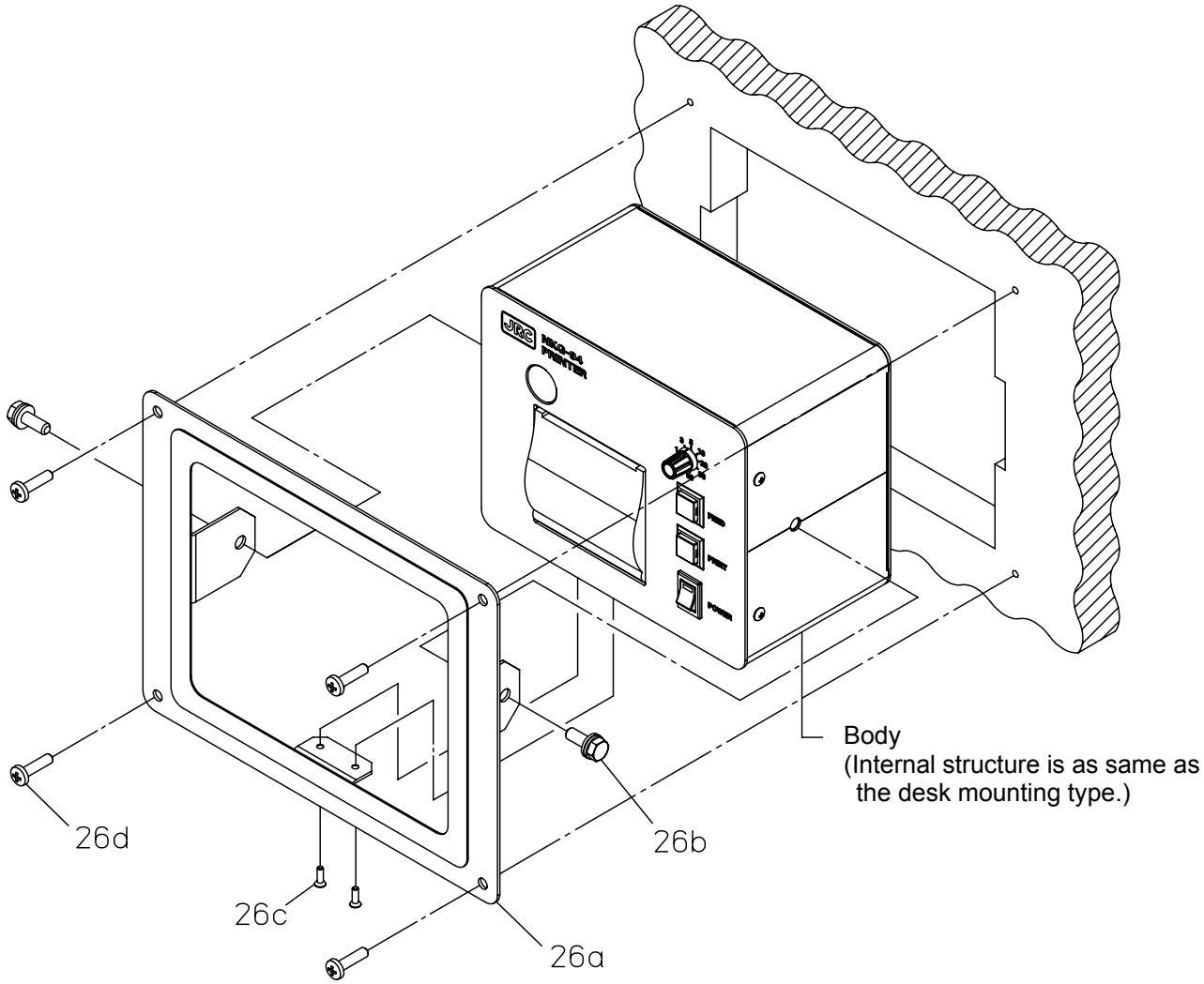
- Specification : By JRC
- Bit rate : 1200bps
- Data bit : 8bits
- Parity : None
- Start bit : 1bit
- Stop bit : 2bits

# 8.4 Mechanical Specifications

## 8.4.1 Mechanical details of desk mounting type



## 8.4.2 Mechanical details of flush mounting type



## 8.4.3 Mechanical parts list

| No. | Part name | Q'ty | Remarks |
|---|---|---|---|
| 1 | Front panel Unit | 1 | |
| 1a | Front panel | 1 | |
| 1b | Print time interval setting switch | 1 | |
| 1c | Feed key switch | 1 | |
| 1d | Print key switch | 1 | |
| 1e | Power key switch | 1 | |
| 1f | Switch knob | 1 | |
| 2 | Cabinet | 1 | |
| 3 | Rear panel | 1 | |
| 4 | PCB unit | 1 | |
| 5 | D-SUB fixture | 1 | |
| 6 | Printer unit | 1 | Maintenance part |
| 7 | Terminal block cover | 1 | |
| 8 | Cable fixture | 1 | |
| 9 | Maintenance cover | 1 | |
| 10 | Terminal block | 1 | |
| 11 | truss head screw (M3x6) | 4 | |
| 12 | CA washer (M3) | 4 | |
| 13 | Flat head screw (M2.6x6) | 2 | |
| 14 | C sems Screw (M3x6) | 5 | |
| 15 | B sems Screw (M3x8) | 8 | |
| 16 | C sems Screw (M3x8) | 4 | |
| 17 | B sems Screw (M3x10) | 2 | |
| 18 | C sems Screw (M3x14) | 2 | |
| 19 | Wing head bolt (M4x12) | 1 | |
| 20 | Spring washer (M4) | 1 | |
| 21 | Washer (M4) | 2 | |
| 22 | Rubber spacer | 2 | |
| 23 | Knob | 2 | |
| 24 | Bracket | 1 | |
| 25 | Installation screw | 1 | Attached part |
| 25a | Tapping screw (5x20) | 4 | |
| 25b | Washer (M5) | 4 | |
| 26 | Flush mounting kit | 1 | Option |
| 26a | Flush mounting panel | 1 | |
| 26b | Hexagon head bolt (M6x14) | 2 | |
| 26c | Flat head screw (M3x6) | 2 | |
| 26d | Tapping screw (5x20) | 4 | |

アスベストは使用しておりません
Not use the asbestos

CODE No.7ZPNA4222

*For further information,contact:*

JRC *Since 1915* *Japan Radio Co., Ltd.*


URL http://www.jrc.co.jp

Marine Service Department
Telephone : +81-3-3492-1305
Facsimile : +81-3-3779-1420
e-mail : tmsc@jrc.co.jp

AMSTERDAM Branch
Telephone : +31-20-658-0750
Facsimile : +31-20-658-0755
e-mail : service@jrceurope.com

SEATTLE Branch
Telephone : +1-206-654-5644
Facsimile : +1-206-654-7030
e-mail : marineservice@jrcamerica.com



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