

FURUNO

OPERATOR'S MANUAL

TWO-WAY VHF RADIOTELEPHONE

MODEL

FM-8

(IMO new performance standard)

This manual includes how to use the primary battery for emergency,
and also how to fix the shoulder strap to Safety link.



FURUNO ELECTRIC CO., LTD.

NISHINOMIYA, JAPAN



SAFETY INSTRUCTIONS

"**DANGER**", "**WARNING**" and "**CAUTION**" notices appear throughout this manual. It is the responsibility of the operator of the equipment to read, understand and follow these notices. If you have any questions regarding these safety instructions, please contact a FURUNO agent or dealer.

The level of risk appearing in the notices is defined as follows:



DANGER

This notice indicates a potentially hazardous situation which, if not avoided, will result in death or serious injury.



WARNING

This notice indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.



CAUTION

This notice indicates a potentially hazardous situation which, if not avoided, could result in minor or moderate injury, or property damage.



WARNING



Do not open the equipment.

Hazardous voltage which can cause electrical shock, burn or serious injury exists inside the equipment. Only qualified personnel should work inside the equipment.

Do not disassemble or modify the equipment.

Fire, electrical shock or serious injury can result.

Turn off the power immediately if water leaks into the equipment or the equipment is emitting smoke or fire.

Continued use of the equipment can cause fibre or electrical shock.

Any repair work must be done by a licensed radio technician.

Improper repair work can cause electrical shock or fire.

Carry emergency battery pack (yellow color, seal attached) on board lifeboat for use in emergency.



CAUTION

The life of the battery pack is about 300 cycles of charge and discharge. A sure indication of an expired battery pack is necessary, please return expired batteries to a FURUNO authorized agent or dealer.

The shelf life of the emergency battery (yellow) is five years.

New Ni-cd batteries which have been stored for a long time without being charged cannot deliver full performance on first charge. (This is characteristic of the Ni-cd battery.) Full performance can be restored by subjecting the battery to three to four cycles of charging and discharging.

Charging a partially discharged battery greatly shortens its usage time. To get full performance from the battery, allow it to fully discharge before recharging it.

Before Operating this Unit...

Be sure to read all the operating information which follows.

In case of distress

In case of distress, 1) Replace rechargeable battery with emergency battery (yellow) and 2) Call channel 16 (distress) immediately.

Handling

The FM-8 is built for toughness: It is waterproof to 1 m for 5 minutes and able to withstand a drop of 1 meter onto a wooden deck without damage. However, careful handling will provide years of trouble-free performance. We recommended use of the shoulder strap whenever possible.

Keep the battery fully charged

Keep the battery pack fully charged to ensure the radio will work when needed. In addition, spare battery packs also should always be fully charged.

Regularly test the radio

Transmit the radio at least monthly to check it for proper operation.

Unnecessary transmission

Do not hold the PTT switch when not actually desiring to communicate and keep transmissions as short as possible.

Personal safety

DO NOT hold the radio with the antenna close to, or touching exposed parts of the body, especially the face and eyes, while transmitting.

Table of Contents

Introduction	2
Functions of the FM-8	3
Parts of the FM-8	4
Battery Pack Fitting or Replacement	6
Accessories	7
Shoulder strap	7
Belt clip	7
External speaker/MIC	8
Earphone	8
Basic Operation	9
Radio on/off	9
Receiving	9
Transmitting	9
Recharging Batteries	10
Maintenance	12
Routine checks	12
Cleaning	12
Troubleshooting	13
About Battery Chargers BC-501 and BC-503	14
Replacement of fuse	14
Attaching lithium dry cell packs holders	14
Specifications	15
GENERAL	15
TRANSMITTER	15
RECEIVER	16
EQUIPMENT LIST	17
 <u>Outline Drawings</u>	
Main Unit	D-1
Quick Unit	D-2
Quick Charger (three radios)	D-3
Speaker/Microphone	D-4
Earphone	D-5
 BLOCK DIAGRAM	 S-1

Introduction

The FM-8 designed to meet the requirement of IMO Resolution A.809 (19), is a high quality fully PLL synthesized two-way hand-held marine band VHF radiotelephone.

The FM-8 consists of the main unit (radio) and a rechargeable battery pack, which fits neatly into the bottom of the main unit. The main unit is constructed of heavy-duty resin mold and is waterproof at 1 m for 5 minutes. The extensive use of hybrid ICs ensures high standard electrical characteristics.

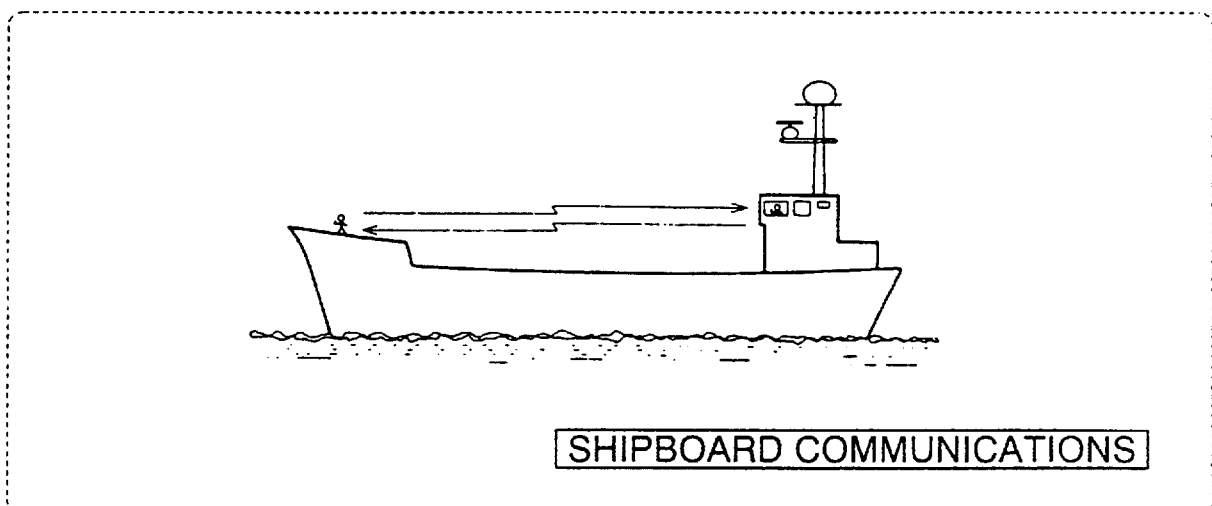
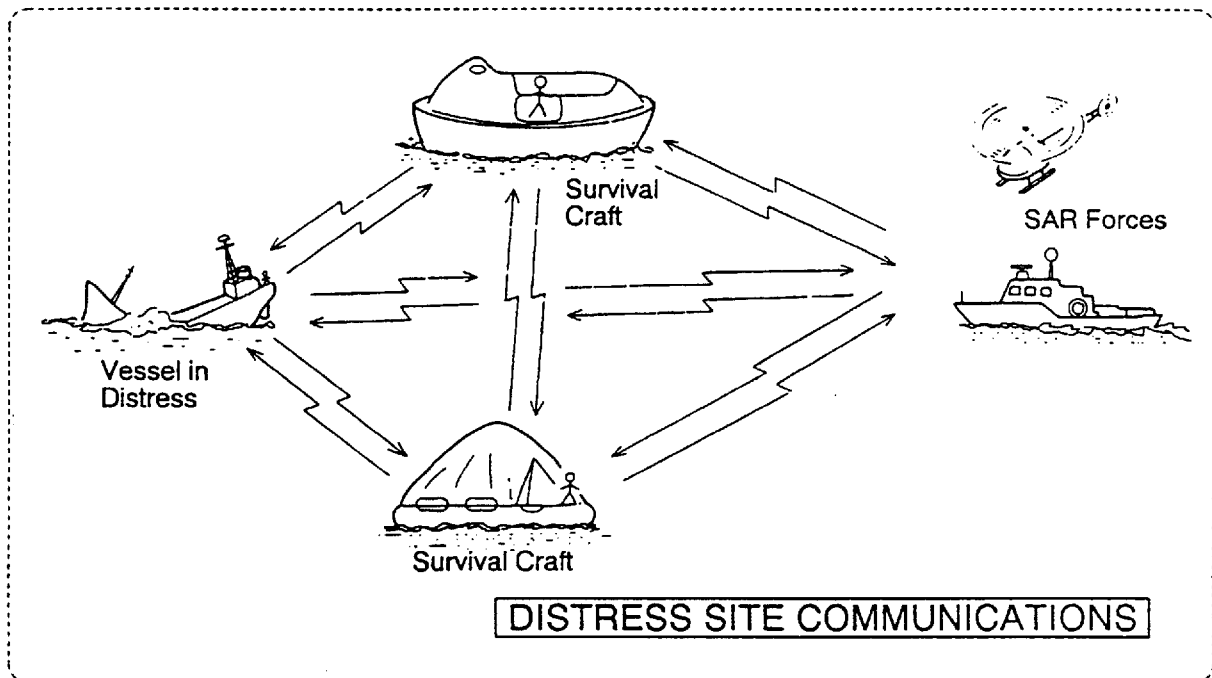
The FM-8 holds up to 14 channels – 8 standard (including distress channel 16) and 6 optional (these should be programmed at the factory). All controls are on the top of the main unit. Battery warning, transmission lamp and channel selection lamp also provided. A handy belt clip attaches to belt for easy carrying.

The main features of the FM-8 are

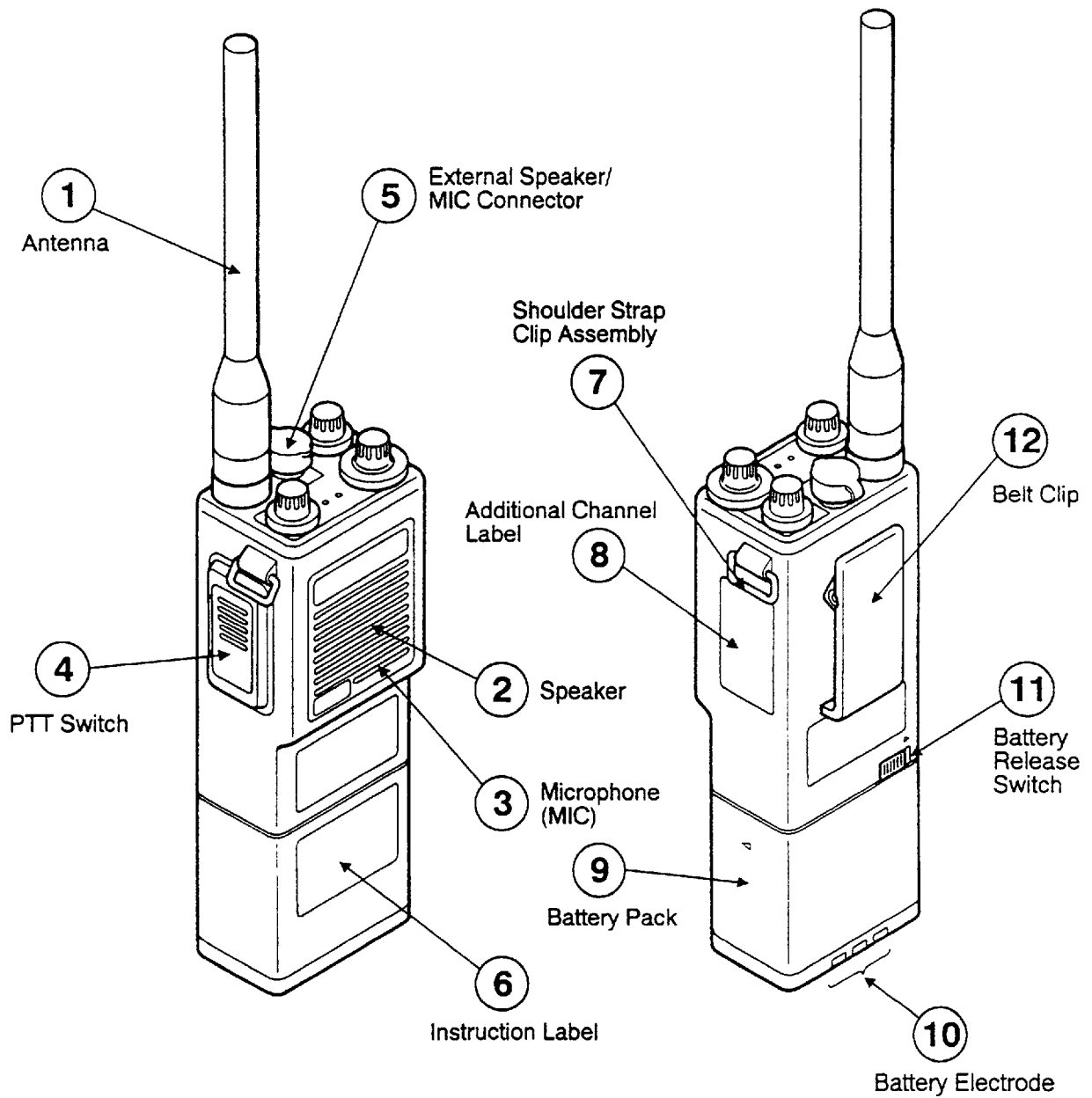
- Easy to operate
- Rugged heavy-duty resin mold construction
- Waterproof construction
- Holds up to 14 channels – 8 standard and 6 optional
- Light-weight and small – fits neatly in your hand
- Rechargeable snap-on battery pack
- Built-in belt clip
- Providing an emergency battery pack

Functions of the FM-8

The FM-8 provides short range voice distress communications in the GMDSS, in full compliance with the conditions of SOLAS 1988. In addition to its fundamental function, the FM-8 is also suitable for shipboard communications.



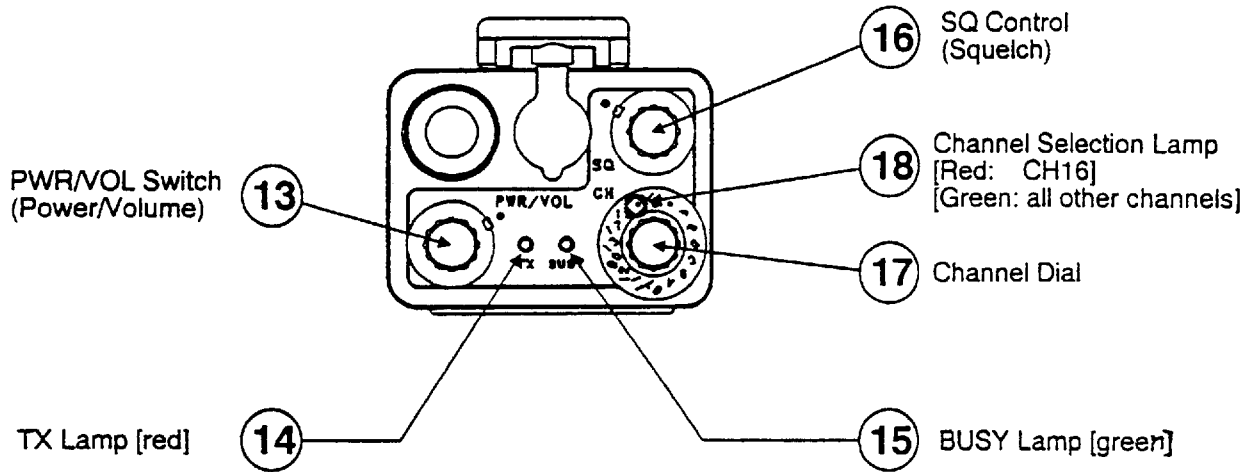
Parts of the FM-8



■ **Note:** *The emergency battery pack does not have charging electrodes; it cannot be charged.*

Emergency Battery Pack (yellow color)

An emergency battery pack (with internal lithium dry cell, seal attached) which provides eight hours of use is supplied standard.



Parts of the FM-8

No.	Part	Function
1	Antenna	Flexible helical whip antenna for transmission and reception. Note that replacement of the antenna must be done by a FURUNO authorized agent or dealer.
2	Speaker	Monitors receive signal. Volume can be adjusted by the VOLUME control. The speaker is turned off when the optional speaker/MIC is connected.
3	Microphone	Press and hold the PTT switch and speak into the microphone to communicate. The microphone is turned off when the optional speaker/MIC is connected.
4	PTT Switch	Press-To-Talk switch. Press to talk; release to listen (through speaker).
5	External Speaker/MIC Connector	Connects optional speaker/MIC.
6	Instruction Label	Provides brief instruction to the operation of this radio.
7	Shoulder Strap Clip Assembly	Clip for the shoulder strap (supplied).
8	Additional Channels Label	Shows additionally programmed channels.
9	Battery Pack	Supplies electrical power to the radio. There are two types of battery packs: normal use (Ni-cd rechargeable battery, gray color) and emergency use (yellow). The normal use battery pack provides eight hours of use when fully charged. For how to attach the normal use battery pack see page 6, and for how to charge it see page 10.
10	Battery Electrode	Electrodes for charging battery pack.
11	Battery Release Switch	Releases battery pack from main unit.
12	Belt Clip	Attaches to belt.
13	PWR/VOL Switch	Turns on and off the radio and adjusts speaker volume.
14	TX Lamp	Lights (in red) when the PTT switch is pressed to transmit.
15	BUSY Lamp	Lights (in green) when squelch is open. In addition, it monitors battery voltage; blinks when voltage is low.
16	SQ Control	Silences the radio when there is no signal. Adjust it so noise just fades away.
17	Channel Dial	Selects channel.
18	Channel Selection Lamp	Lights to show channel selection. Red: CH16 Green: All other channels

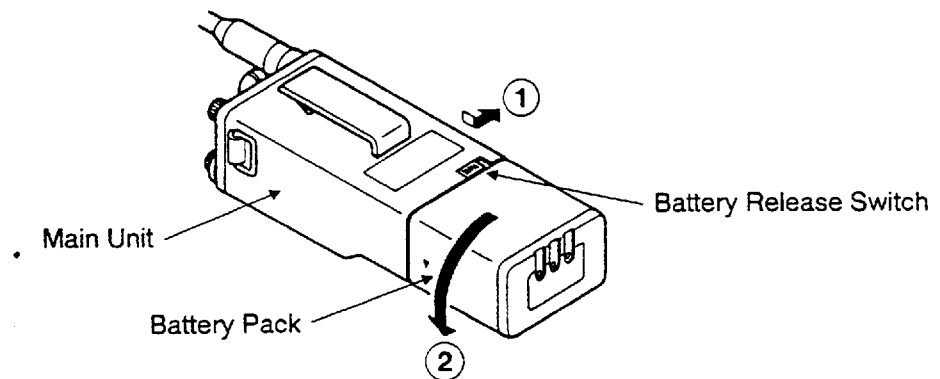
Battery Pack Fitting or Replacement

CAUTION

Do not remove the seal from the emergency battery pack except in an emergency.

Once the seal is removed the lithium dry cell inside the battery pack must be replaced. Do not reattach the seal after using the battery.

1. Make sure the radio is off.
2. Hold the radio upside down in your left hand.
3. Push and hold the battery release switch with your left thumb.
4. With your right hand, turn the battery pack counterclockwise 90 degrees to release it from the radio.

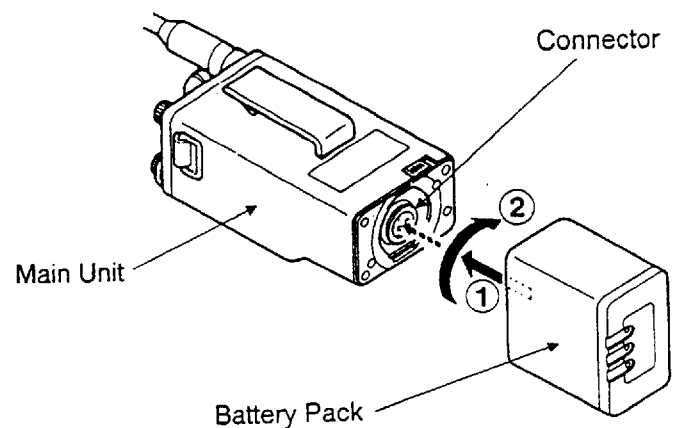


5. To fit the battery pack, hold the radio upside down in your left hand. With your right hand, mate the battery pack with the radio and turn the battery pack clockwise until you hear a click.

CAUTION

Inspect the connector on the radio for foreign material before attaching a battery pack.

Foreign material on the connector not only blocks flow of electricity to the radio but also may prevent tight connection between the radio and the battery, which may allow water to leak inside the radio and damage circuits.

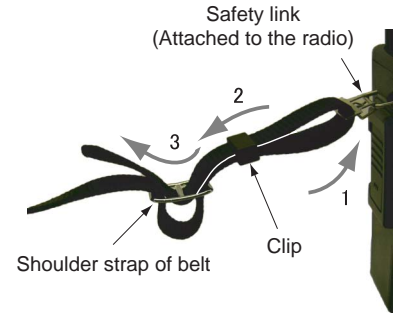


Accessories

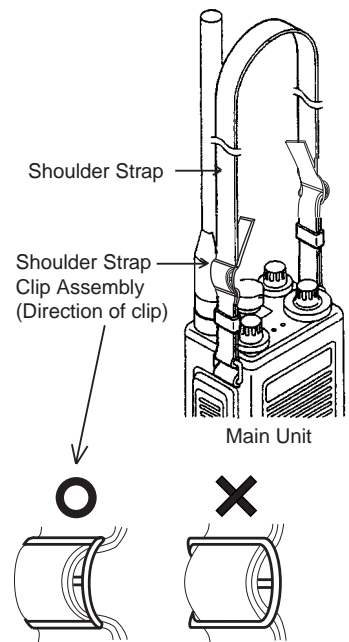
Shoulder strap

The shoulder strap (supplied) may be attached to the radio for convenient carrying on the shoulder. When you get off a vessel, put the shoulder belt around your neck so as not to drop the radio. Attach the strap as shown in the figure below.

1. Attach the shoulder strap into the Safety link* attached to the radio.
2. Insert the shoulder strap into the shoulder strap clip assembly.
3. Adjust the clip assembly to tighten the shoulder strap.
4. Attach the other end of the strap into the ring on the radio similarly. (No safety link is on the other end.)



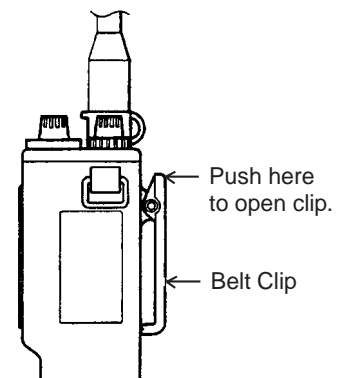
*Safety link: Instrument to prevent the strap from being caught on an object. About 35 to 45 kgf force is necessary to release the Safety link from the strap. The Safety link facility is mandatory on all IMO vessels for safety purpose from July 1, 2005. The Safety link does not come off if the radio is dropped.



NOTE: Do not swing the radio by the strap.

Belt clip

The belt clip may be attached to your belt.



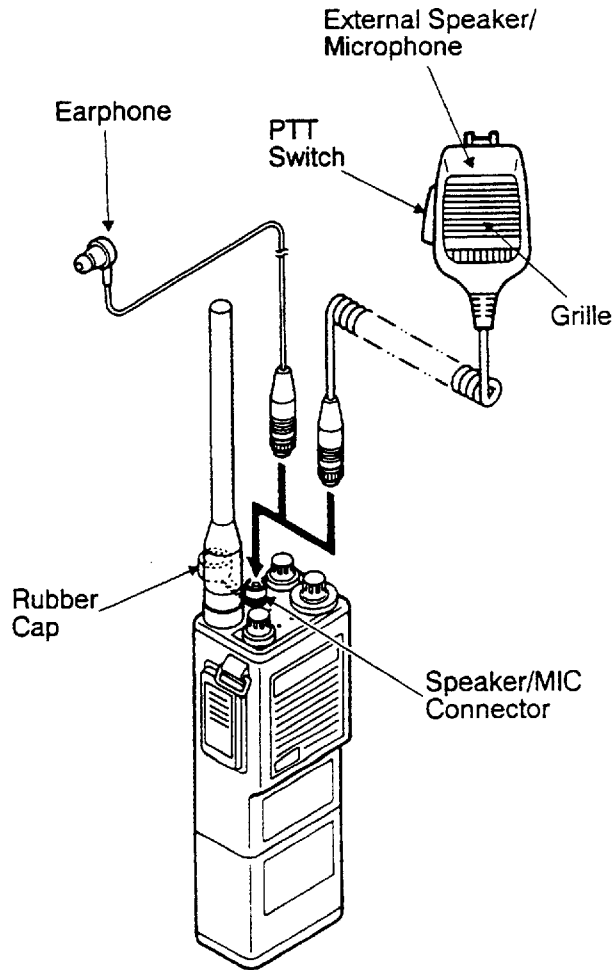
**External speaker/
MIC**

The speaker/MIC connector on the top panel is for connection of the external speaker/MIC or earphone (both optional supply). The speaker/MIC has a built-in PTT switch and speaker so you can operate the radio without holding the transceiver.

Earphone

The earphone provides private listening.

- **NOTE 1:** *When the speaker/MIC is used, the speaker, microphone and PTT switch are disabled, and when the earphone is used the speaker is disabled.*
- **NOTE 2:** *Cover the connector with the rubber cap when not in use to protect it from dust and water splash.*



Basic Operation

Select the battery pack to use: gray battery pack for normal use; yellow battery pack for emergency. See page 6 for how to attach battery pack.

Radio on/off

1. Turn the radio on by rotating the power/volume control clockwise until you hear a click.
2. Turn the radio off by rotating the power/volume control counterclockwise until you hear a click.

Receiving

1. Turn the radio on and turn the channel dial to desired position.
2. Adjust the squelch control so noise just fades out.
3. Listen until you hear a transmission, then adjust the volume control for a comfortable listening level.
4. You are now ready to receive calls on your frequency.

Transmitting

1. Adjust the radio as in "Receiving."
2. Monitor channel for activity to make sure it is clear before transmitting. (The BUSY lamp lights when a frequency is occupied.)
3. Hold the radio in a vertical position with the microphone five to eight cm from your mouth.
4. When the channel is clear, press and hold down the PTT switch on the side of the radio and speak slowly and clearly into the microphone area. When you have finished talking, release the PTT switch to listen (receive). Keep your transmission as short as possible to conserve battery power and not to over-occupy the channel.

CAUTION

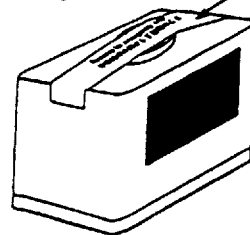
Conduct distress communications over CH16 unless otherwise directed. Keep communications as short as possible so as not to interfere with the communications of other.

Turn off the radio when it is not in use.

Leaving it on may discharge the battery, resulting in reduced performance.

REMARKS ON USE OF RADIO IN AN EMERGENCY

- 1) Remove radio from battery charger and sling strap over shoulder.
- 2) Replace rechargeable battery with emergency battery (yellow); remove seal from emergency battery and attach battery to radio.



- 3) Carry the rechargeable battery with you for use as a spare.

Recharging Batteries



CAUTION

Use only the battery charger supplied to charge the rechargeable battery pack.

Use other chargers may cause fire or damage the equipment.

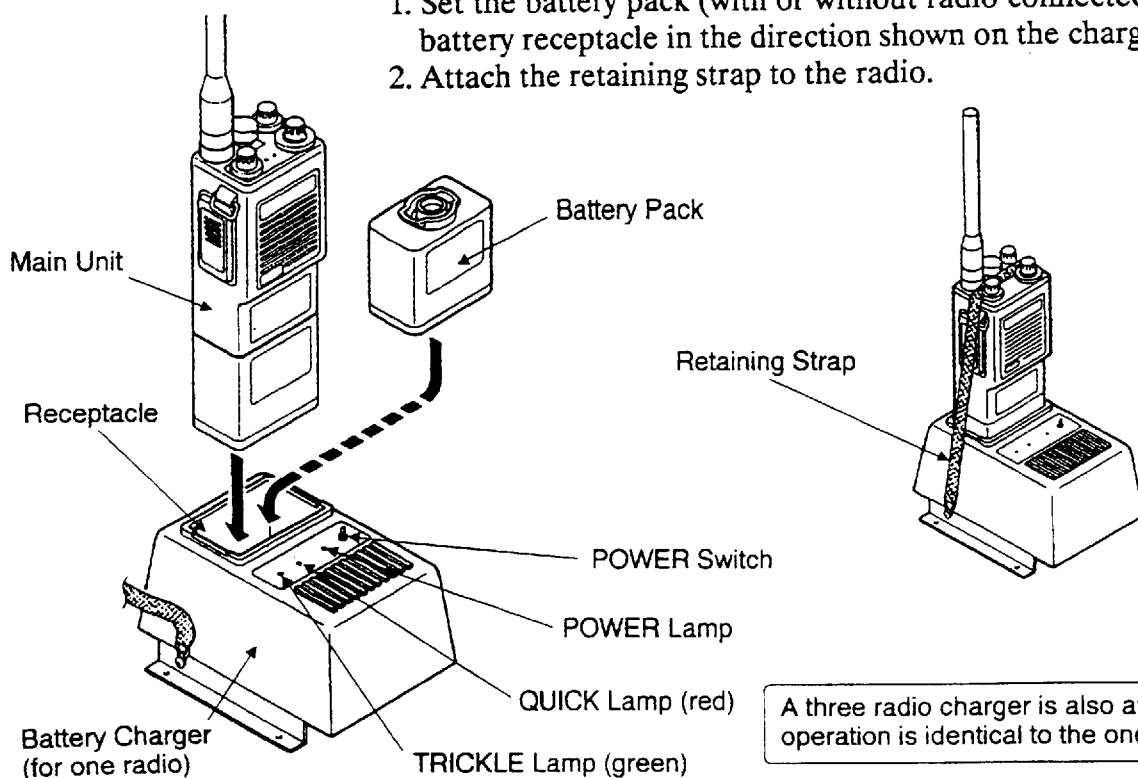
The FM-8 is powered by a FURUNO rechargeable Ni-Cd battery (7.2 Vdc). The battery should always be fully charged before use to ensure optimum capacity and performance. The battery was designed to be charged only in a FURUNO battery charger, model BC-501 (one radio) or BC-503 (three radios). Charging in non-FURUNO equipment may lead to battery damage and void the battery warranty.

Charging temperature of the battery should be about 20°C. Charging a cold battery may result in leakage of electrolyte, leading to failure of the battery. And charging a hot battery results in reduced discharge capacity, affecting performance of the radio.

Follow the procedure below to charge a battery in the Battery Charger BC-501 or BC-503.


- **NOTE:** Before charging the battery, be sure the voltage setting on the charger is correct. Improper voltage setting will damage the radio and void the radio warranty.


1. Set the battery pack (with or without radio connected) into the battery receptacle in the direction shown on the charger.
2. Attach the retaining strap to the radio.



A three radio charger is also available; operation is identical to the one radio charger.

3. Turn on the charger. (The QUICK lamp lights.)
4. Charging takes about 60–90 minutes; the TRICKLE lamp lights when charging is completed.
5. When charging is completed, remove the radio from the charger and turn off the charger.

 CAUTION
If the QUICK or TRICKLE lamp does not light, the charging contacts on the bottom of the battery pack may not be in contact with the charger, or foreign material may be sticking to the battery electrodes on the battery pack. Check battery pack and charger and then restart charging.
Shock or ambient temperature outside 10-30 degrees Celsius may change charge status from "quick" to "trickle". If this occurs, check temperature and mounting area, then restart charging.
DO NOT transmit while charging.
The life of the battery pack is about 300 cycles of charge and discharge. A sure indication of an expired battery pack is necessary, please return expired batteries to a FURUNO authorized agent or dealer.
If the radio is not used regularly, charge the battery pack once every three months to prevent battery discharge.
Uncharged batteries stored for a long period may require several chargings to deliver fully performance.

 CAUTION
The shelf life of the emergency battery (yellow) is five years.
Secure the radio to the battery charger with the strap when charging the rechargeable battery. Vibration and shock can disconnect charging electrodes on the battery from the charger, which may result in incomplete charging.
New Ni-cd batteries which have been stored for a long time without being charged cannot deliver full performance on first charge. (This is a characteristic of the Ni-cd battery.). Full performance can be restored by subjecting the battery to three to four cycles of charging and discharging.
Charging a partially discharged battery greatly shortens its usage time. To get full performance from the battery, allow it to fully discharge before recharging it.

Maintenance

This radio is designed and manufactured to deliver many years of trouble-free performance. However, no machine can perform its intended function unless properly maintained.

Routine checks Regularly check the radio for proper operation to ensure it will work if an emergency arises.

Step	Check	Action
1	Antenna	<ul style="list-style-type: none"> ● Check for damage. ● Check for proper connection.
2	Main unit	<ul style="list-style-type: none"> ● Check belt clip for rust and damage.
3	Shoulder strap	<ul style="list-style-type: none"> ● Check shoulder strap clip assembly for tightness. ● Check shoulder strap for damage and proper connection.
4	Battery pack	<ul style="list-style-type: none"> ● Check for damage. ● Check for proper mating with radio. ● Check for foreign material on electrodes. ● Turn on the power and confirm that the channel selection lamp lights. If the BUSY lamp blinks, recharge the battery. ● Confirm that the seal on the emergency battery (yellow) is attached.
5	PWR/VOL switch & Channel Selection lamp	<ul style="list-style-type: none"> ● Confirm that the power can be turned on and off. ● When on, confirm; <ol style="list-style-type: none"> a) channel selection lamp lights b) speaker volume changes with adjustment of PWR/VOL switch, and c) switch is not loose and operates smoothly.
6	SQ control & BUSY lamp	<ul style="list-style-type: none"> ● Turn control fully counterclockwise and confirm that noise increases. ● Turn control fully clockwise and confirm that noise is eliminated and the BUSY lamp lights. ● Confirm that control operates smoothly.
7	PTT switch/TX lamp	<ul style="list-style-type: none"> ● Press the switch and confirm that the TX lamp lights. Release switch and confirm that TX lamp extinguishes.
8	Receiver	<ul style="list-style-type: none"> ● Confirm that you can receive.

Cleaning

The external surfaces of the radio may be cleaned when necessary. The only cleaning agent recommended for these surfaces is a mild detergent in water. Apply the solution sparingly with a stiff, non-metallic brush to work all loose dirt away from the radio. A soft, absorbent lintless cloth or tissue should then be used to dry the radio. Be sure no water remains entrapped in crevices or connectors.

Troubleshooting

If something should go wrong with your unit report the problem to your dealer or authorized maintenance personnel. Proper repair and maintenance will ensure proper operation and long life of this radio.

Below are common operating problems and the means to rectify them.

IF...	BUT...	THEN...	REMEDY
the battery charger is turned on	the POWER lamp does not light	<ul style="list-style-type: none"> power plug may be loose. check fuse on charger. 	<ul style="list-style-type: none"> Reinsert plug Replace if blown.
	the QUICK lamp on the charger does not light during charging	<ul style="list-style-type: none"> check battery for proper connection. check battery electrode for foreign material. ambient temperature not within recommended range. 	<ul style="list-style-type: none"> Reinsert battery. Remove foreign material. Ambient temperature should be 10°C – 30°C.
	the TRICKLE lamp on the charger does not light	<ul style="list-style-type: none"> battery has expired. battery has discharged due to long storage. ambient temperature not within recommended range. 	<ul style="list-style-type: none"> Replace battery. Recharge battery several times. Ambient temperature should be 10°C – 30°C.
PWR/VOL switch is turned on	the channel selection lamp does not light	<ul style="list-style-type: none"> battery voltage may be too low. battery pack may be disconnected. 	<ul style="list-style-type: none"> Charge battery. Reconnect battery pack.
	BUSY lamp blinks	<ul style="list-style-type: none"> battery voltage may be too low. 	<ul style="list-style-type: none"> Charge battery.
SQUELCH control is fully CCW, PWR/VOL is in center position	BUSY lamp lights but no sound from speaker	<ul style="list-style-type: none"> earphone may be connected. suspect faulty circuit (speaker, internal connector, RX AF amp). 	<ul style="list-style-type: none"> Disconnect earphone. Request service.
	BUSY lamp does not light	<ul style="list-style-type: none"> suspect faulty circuit (SQ vol., IF amp). 	<ul style="list-style-type: none"> Request service.
PTT switch is pressed	TX lamp does not light	<ul style="list-style-type: none"> external speaker/MIC is connected. suspect faulty PTT switch. 	<ul style="list-style-type: none"> Press PTT switch of external speaker/MIC. Request service.
turn on the radio	TX lamp lights, no transmission	<ul style="list-style-type: none"> you may have selected an invalid channel. suspect faulty circuit (RCVR Board). 	<ul style="list-style-type: none"> Select valid channel. Request service.
you cannot receive or transmit		<ul style="list-style-type: none"> you may have selected wrong channel number. 	<ul style="list-style-type: none"> Select same channel as communicating station.

About Battery Chargers BC-501 and BC-503

Two battery chargers are available: BC-501, one radio charger, and BC-503, three radio charger.

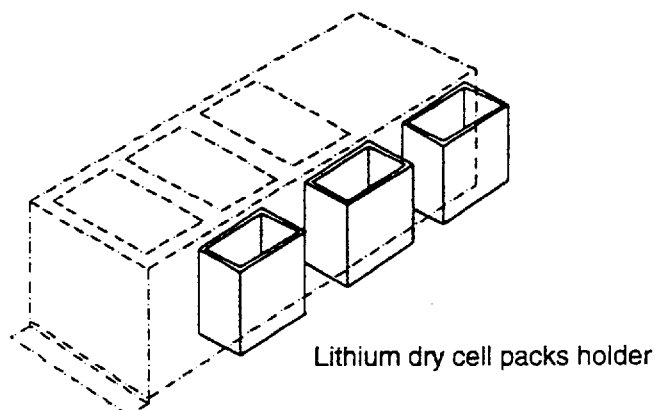
Replacement of fuse

A fuse on either charger protects it from input overvoltage or internal fault. If the fuse blows, find the cause before replacing it. The recommended fuse rating is 1 A. Overfusing may permanently damage the charger and void the charger warranty. If it blows again after replacement, request service.

1. Unscrew the fuse cover and remove the fuse.
2. Insert a new fuse.
3. Replace the fuse cover.

Attaching lithium dry cell packs holders

Double sided-tape is attached to the lithium battery pack holders. Peel of tape cover on each holder and attach holders to side of charger.



Specifications

GENERAL

- | | |
|---|---|
| 1. Class of Emission | F3E (phase modulation) |
| 2. Number of Channels | 14 channels—8 standard, 6 optional (these should be programmed at the factory.) |
| 3. Channel Frequencies | CH16 (156.800 MHz)
CH15 (156.750 MHz)
CH17 (156.850 MHz)
CH13 (156.650MHz)
CH6 (156.300MHz)
CH12 (156.600MHz)
CH11 (156.550MHz)
CH67 (156.375MHz) |
| 4. Communication System | Simplex, press-to-talk |
| 5. Warm-up Period | Within 5 sec. |
| 6. Antenna | Helical whip, impedance 50 ohms |
| 7. Change of Channel | Within 5 sec., by rotary switch |
| 8. Compass Safe Distance | Standard compass: 0.4 m
Steering compass: 0.3 m |
| 9. Environmental Condition | Temperature: -20°C to +55°C (operation)
Humidity: 93% at +40°C |
| 10. Impact | No damage when unit is dropped onto hardwood plate from height of 1 m. |
| 11. Watertightness | 5 min. at 1 m depth |
| 12. Battery | Ni-Cd battery pack, 7.2 VDC 1200 mAh
Current drain St-by: 30 mA approx.
Transmit: 400 mA approx.
Lithium dry cell pack, 9 VDC 1300 mAH (Shelf life of 5 years) |
| 13. Operating Hours | 8 hours (duty cycle TX:RX:ST-BY = 1:1:8) |
| 14. Power Supply & Power Consumption of Charger | 100/220 VAC, 1 ϕ , 50/60 Hz
1 radio: 20 VA
3 radios: 60 VA |
| 15. Housing Color | Munsell N3.0 (not selectable) |
| 16. Safety link intensity | 35 - 45kgf |

TRANSMITTER

- | | |
|------------------------|---------------------|
| 1. RF Output Power | 0.8 W (-20%, +50%) |
| 2. Type of Oscillation | Frequency synthesis |
| 3. Frequency Tolerance | Within 10 ppm |

- | | |
|---------------------------|---|
| 4. AF Modulation Response | 6 dB/oct pre-emphasis for modulation frequencies of 300 – 3000 Hz |
| 5. Frequency Deviation | -5 kHz maximum |
| 6. Occupied Bandwidth | Less than 16 kHz |
| 7. Microphone Input | -45 dBm \pm 3 dB/600 ohms |

RECEIVER

- | | |
|---------------------------|---|
| 1. Receiving System | Double superheterodyne |
| 2. Intermediate Frequency | 1st IF: 21.4 MHz
2nd IF: 455 kHz |
| 3. Local OSC Frequency | 1st: (receiving frequency -21.4) MHz
2nd: 20.945 MHz |
| 4. Sensitivity | 2 μ V (SINAD = 20 dB) |
| 5. Selectivity | -6 dB: more than 12 kHz, -70 dB: within 25 kHz |
| 6. Spurious Response | 70 dB |
| 7. Signal Suppression | More than 10 mV (unwanted signal of 25 kHz apart) |
| 8. Intermodulation | More than 1.78 mV |
| 9. Distortion & Noise | More than 20 dB (10 μ V input, 1 kHz, 70% modulation) |
| 10. AF Output Power | 0.2 W (8 ohm) |

EQUIPMENT LIST

Standard

No.	Name	Type	Code No.	Qty	Remarks
1	Main Unit	FM-8		1	w/battery pack and antenna
2	Lithium Dry Cell	BP-1208	000-138-834	1	Yellow
3	Shoulder Belt (Strap)	FB-8	000-125-038	1	
4	Operator's Manual			1	
5	Test Sheet			1	

Option

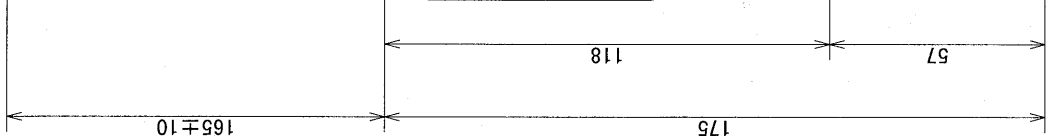
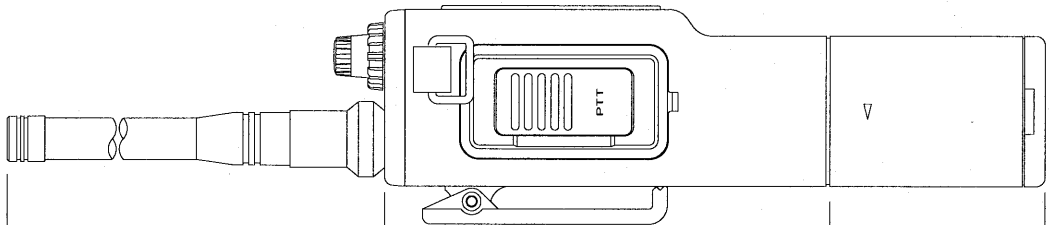
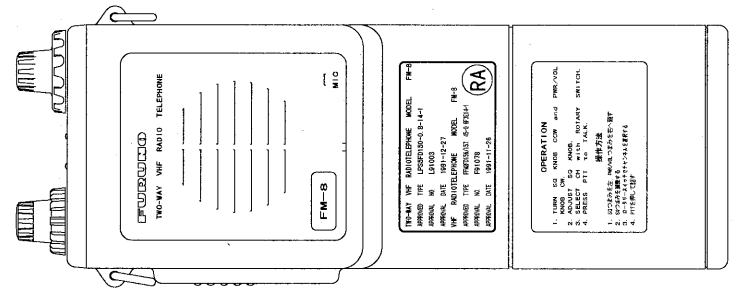
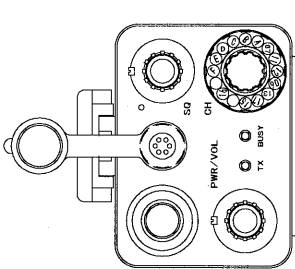
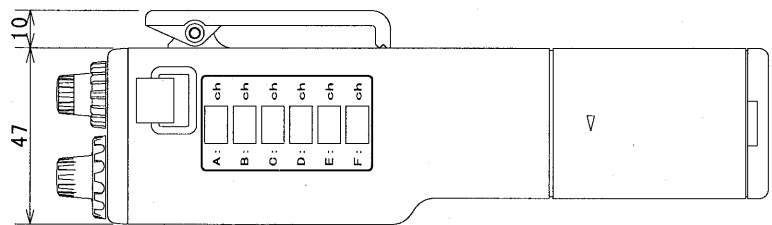
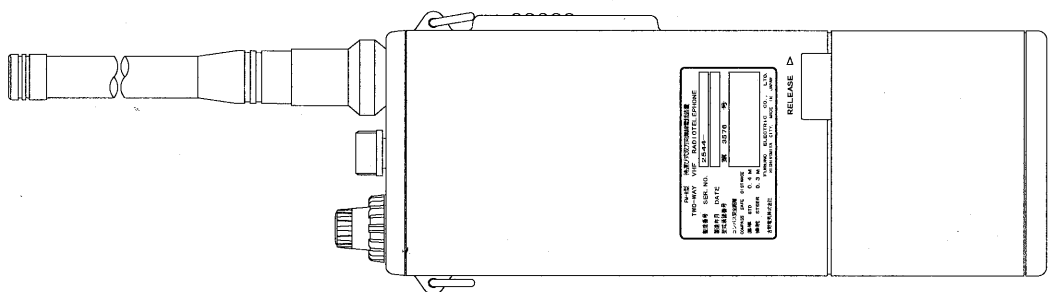
No.	Name	Type		Code No.	Remarks
1	1-radio Quick Charger	BC-501	AC100V	000-054-045	
			AC220V	000-054-046	
2	3-radio Quick Charger	BC-503	AC100V	000-054-043	
			AC220V	000-054-044	
3	Bulkhead Mounting Bracket	OP05-52		000-860-340	for mounting Quick Charger BC-503
4	Battery Pack	BP-1207		000-125-036	Ni-Cd Battery
		BP-1208		000-138-834	Lithium Dry Cell
5	External Speaker/Microphone	FHM-8		000-125-099	
6	Earphone	FE-8		000-125-098	
7	Hard Case	FHC-8		000-125-101	

4

3

2

1



A

B

C

DRAWN	Nov. 12 '98	T. Yamasaki	TITLE	FM-8
CHECKED	Nov. 12 '98	K. Kasumaki	名称	双方向 V H F 無線電話装置
APPROVED	Nov 12 '98	K. Kasumaki	外寸図	
SCALE	1/2	MASS 0.65 kg	NAME	TWO-WAY VHF RADIO TELEPHONE
DWG. No.	CS536-602-E		OUTLINE DRAWING	
	05-054-2600-60			

表 1 TABLE 1

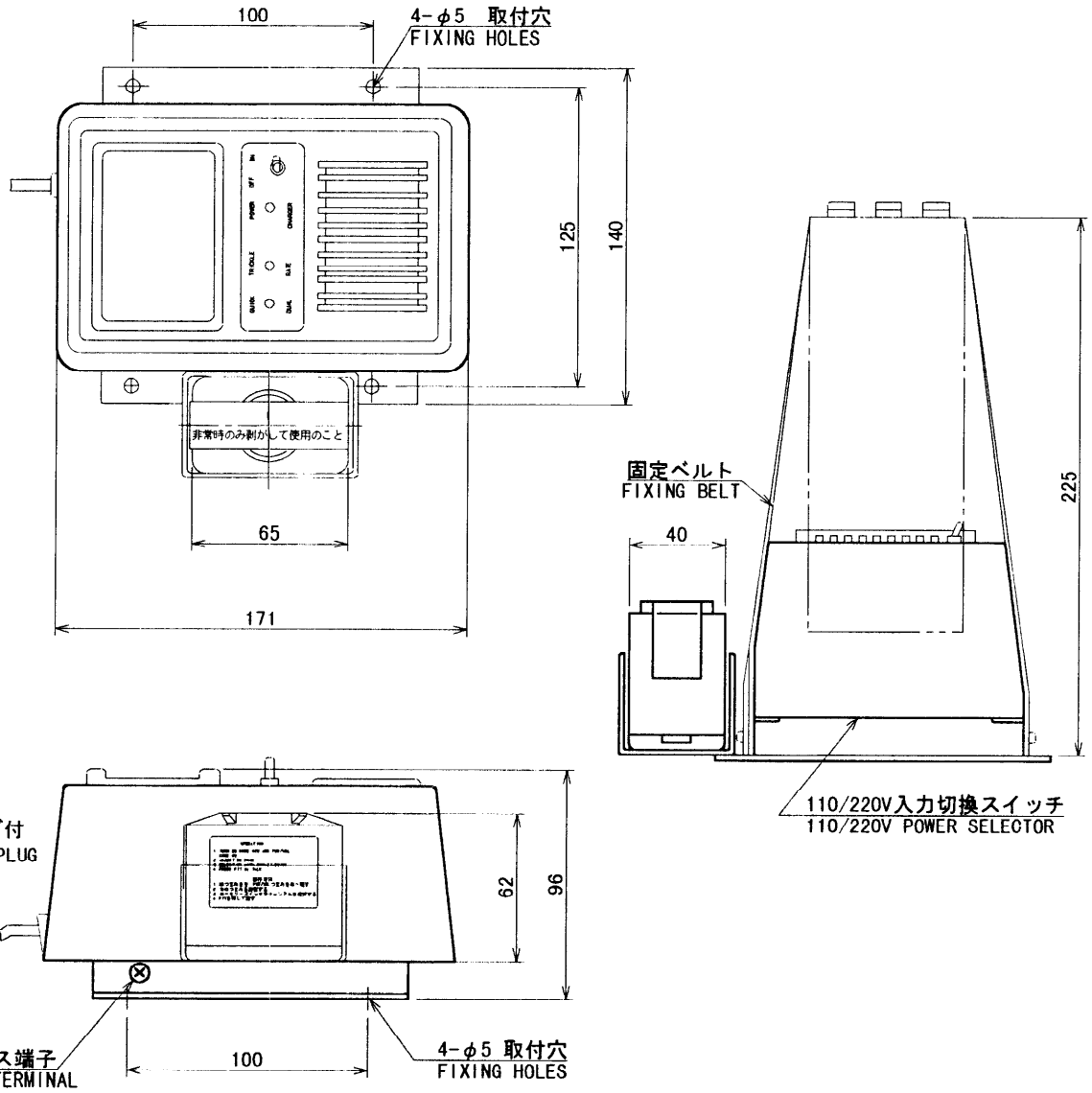
寸法区分 (mm) DIMENSION	公差 (mm) TOLERANCE
0 < L ≤ 50	±1.5
50 < L ≤ 100	±2.5
100 < L ≤ 500	±3

A

B

C

D



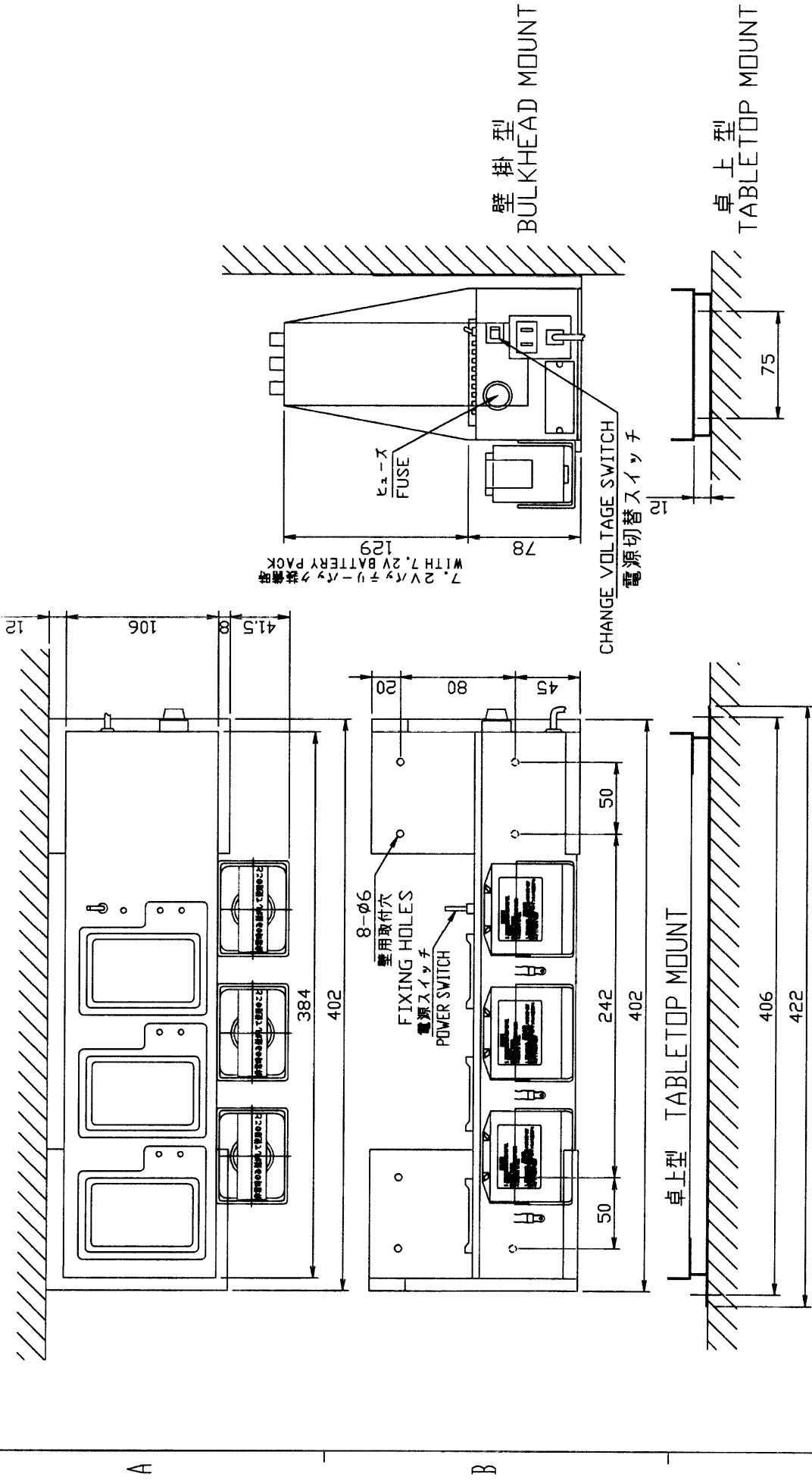
注記

1) 指定なき寸法公差は表 1 による。

NOTE

1. TABLE 1 INDICATES TOLERANCE OF DIMENSIONS.

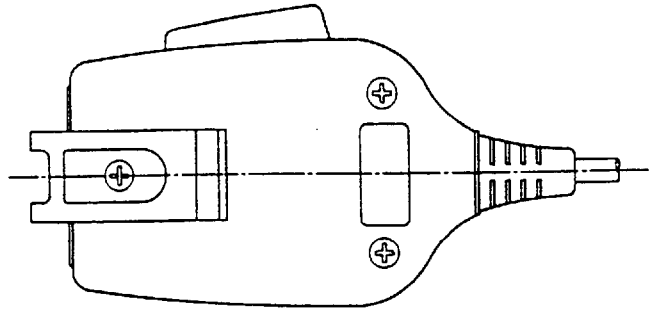
DRAWN <i>July 5 '00 T. YAMASAKI</i>		TITLE BC-501
CHECKED <i>July 6 '00 Y. Kusun</i>		名称 急速充電器
APPROVED <i>July 6 '00 Y. Kusun</i>		外寸図
SCALE 1/3 MASS ±10% 1.4 kg		NAME QUICK CHARGER
DWG. No. C5459-001- C		OUTLINE DRAWING



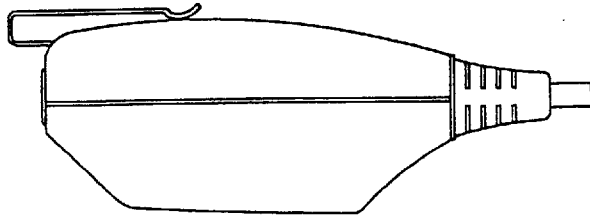
DRAWN	Dec. 7 '01	T. YAMASAKI
CHECKED	Dec. 10 '01	Y. K.
APPROVED	Dec. 10 '01	K.
SCALE	1/4	MASS 3.2 ±10% kg
DWG. NO.	C5459-G01-E	

TITLE	BC-503
名称	3連急速充電器
外寸図	
NAME	QUICK CHARGER FOR THREE RADIOS
OUTLINE DRAWING	

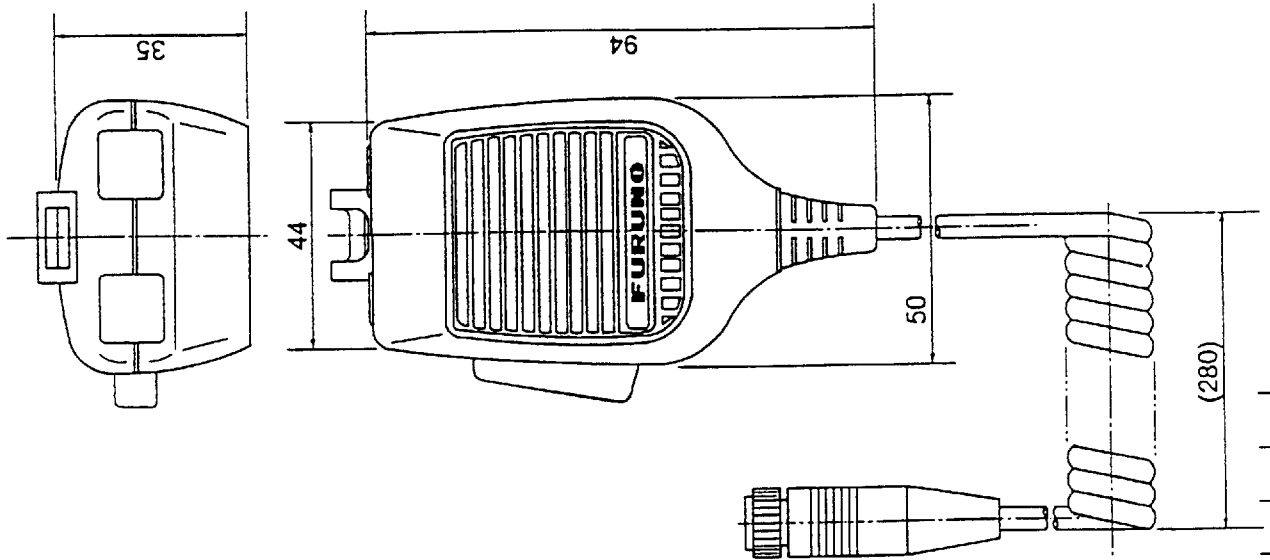
A



B

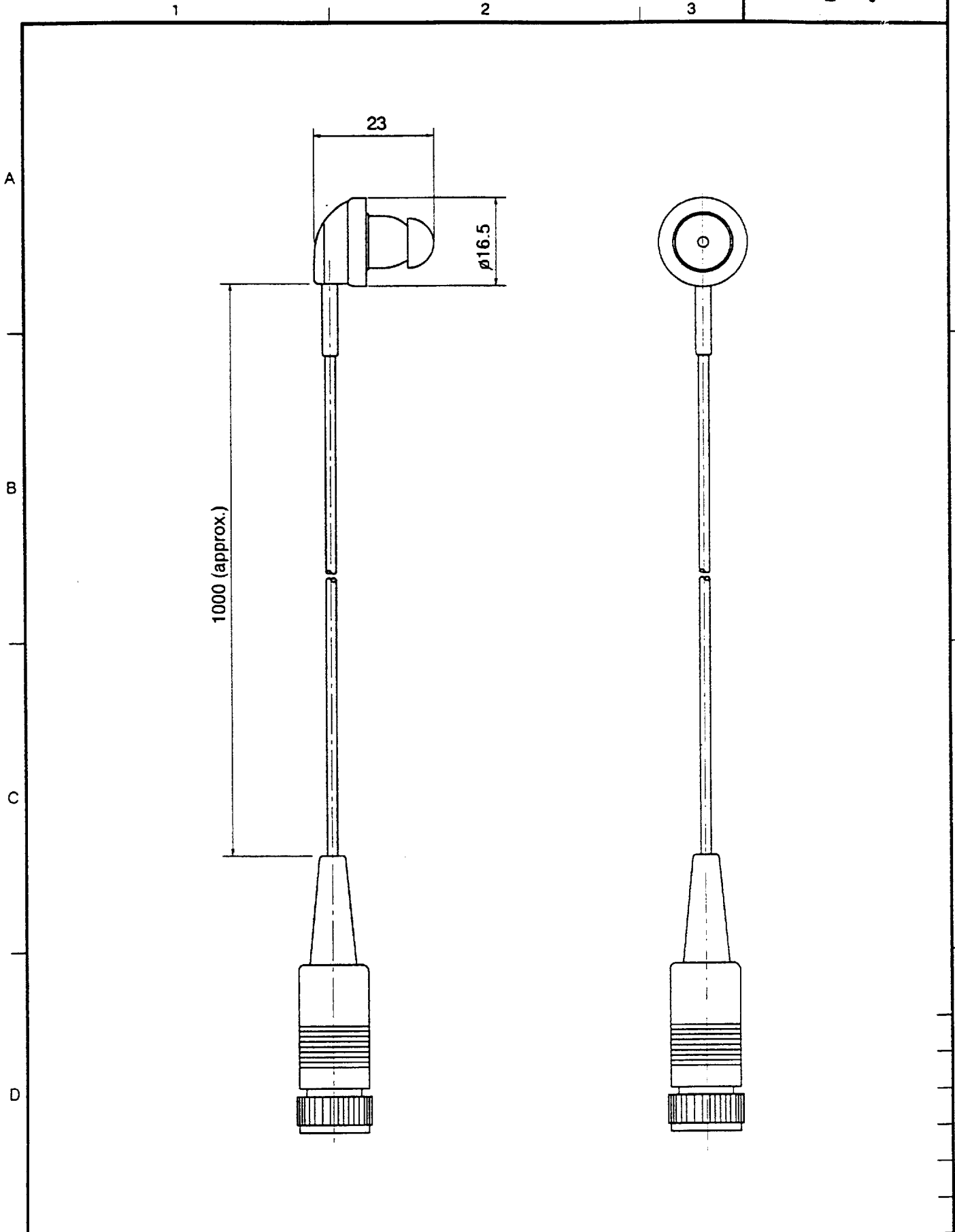


C

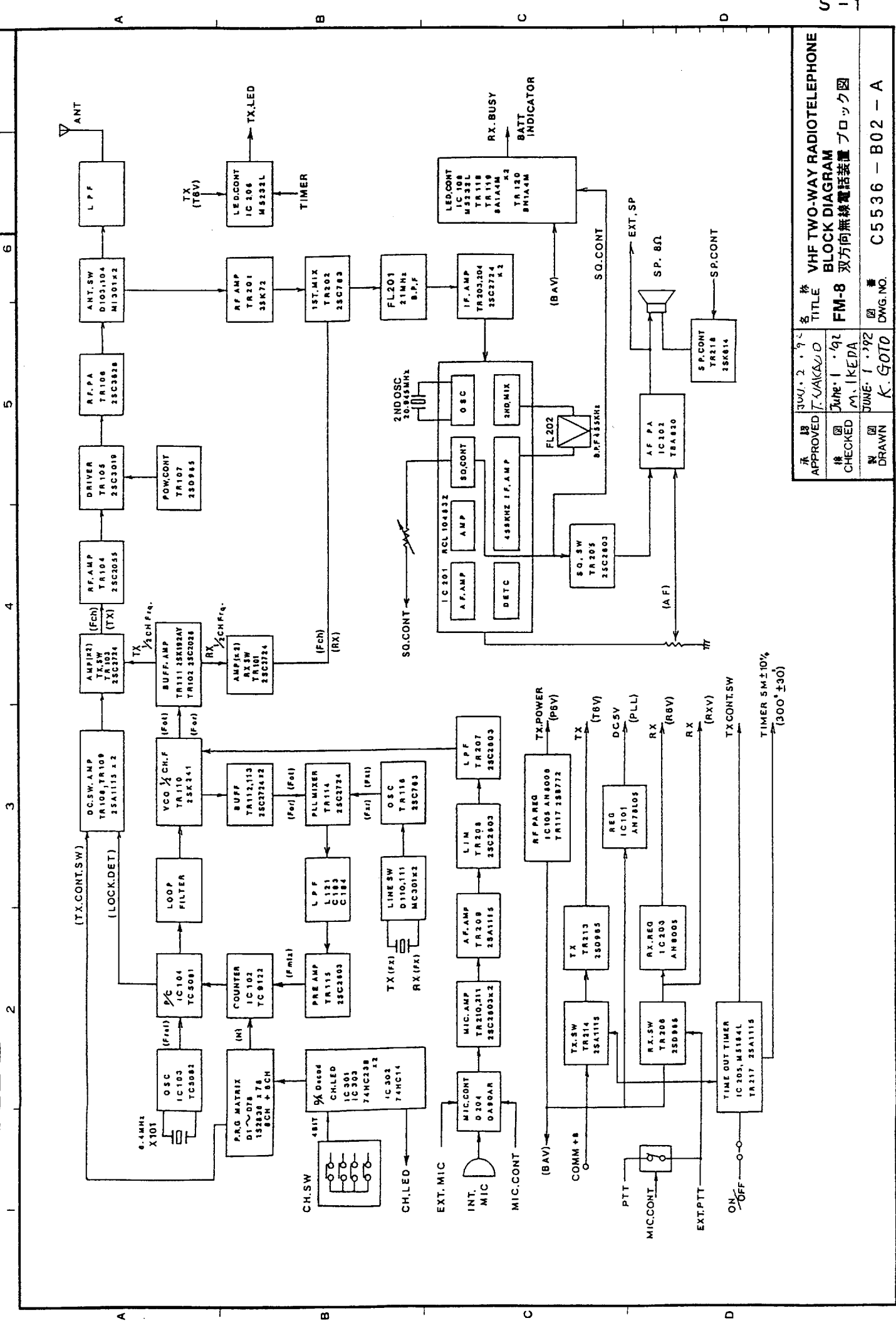


D

承認 APPROVED	AEB-10'92 T. NAKAJO	三角法 THIRD ANGLE PROJECTION		名称 TITLE FHM-8 スピーカマイク SPEAKER-MIC
検図 CHECKED	Feb. 10. '92 M. IKEDA	尺度 SCALE	✕	
製図 DRAWN	Feb. 7. '92 K. GOTO	重量 WEIGHT	0.15 kg	図番 DWG. NO. C5015-G06-A



承認 APPROVED	FEB. 10. '92 T. NAKAJO	三角法 THIRD ANGLE PROJECTION		名称 TITLE	FE-8 イヤホン EARPHONE
検図 CHECKED	FEB. 10. '92 M. IKEDA	尺度 SCALE	1 / 1		
製図 DRAWN	Feb. 7. '92 K. GOTO	重量 WEIGHT	kg	図番 DWG. NO.	C5077-G01-A



承認 APPROVED	300.2.192 T. CAIKAWA	名称 TITLE	VHF TWO-WAY RADIOTELEPHONE
検図 CHECKED	JUNE. 1. '92 M. IKEDA	図名 BLOCK DIAGRAM	FM-8
製図 DRAWN	JUNE. 1. '92 K. GOTO	装置 BLOCK	双方向無線電話装置
		番 DWG. NO.	C5536 - B02 - A



(Elemental Chlorine Free)

The paper used in this manual
is elemental chlorine free.

© **FURUNO ELECTRIC CO., LTD.**

9-52 Ashihara-cho,
Nishinomiya 662-8580, JAPAN

Telephone : 0798-65-2111

Fax : 0798-65-4200

FURUNO Authorized Distributor/Dealer

All rights reserved.

Printed in Japan

FIRST EDITION : FEB. 1992

P1 : OCT. 14, 2005

Pub. No. OME-55361

(AKMU) FM-8



* 0 0 0 8 0 2 9 8 2 0 1 *



* O M E 5 5 3 6 1 P 1 0 *