

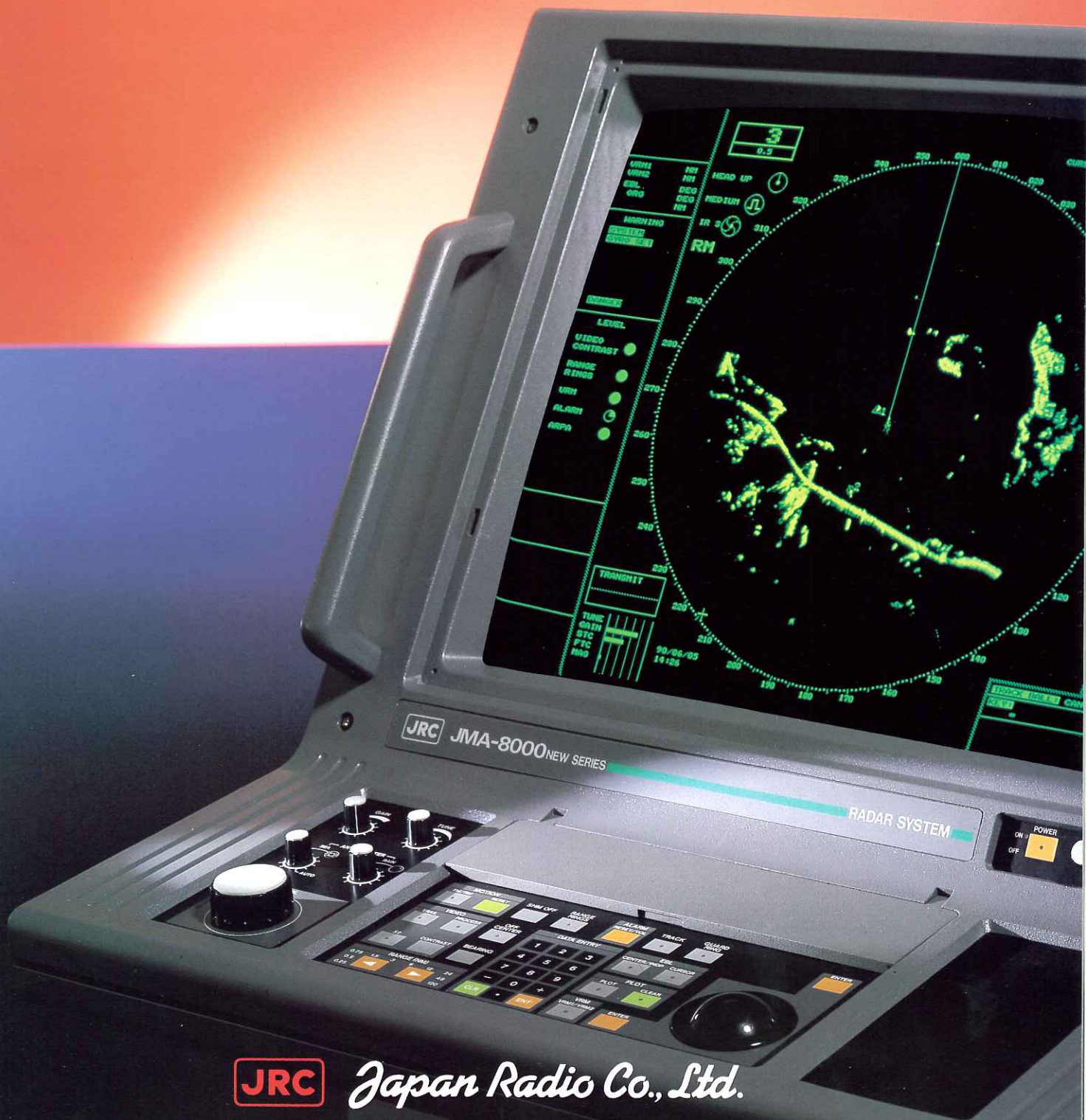
# JRC

# LARGE MARINE RADAR

## JMA-8263/8513

3cm, 7ft/9ft, 25kW/50kW, 28in, 120nm

*The 28-Inch Raster-Scan Display Radar Series*



**JRC**

*Japan Radio Co., Ltd.*



# A New Series, 28-inch Raster-scan Radar with High Performance and Upgraded Functions.

The JMA-8263/JMA-8513 is a 28-inch raster-scan CRT display, three-unit, X-band, 25kW/50kW radar system offering accurate navigational data and displays on short to long ranges. In addition, new features such as latest radar signal processing, ship's trail display and increased navigational data inputs are provided.

Both models are available in the following models:

Model	Remark
JMA-8263-7	X-band 25kW radar with 7-foot scanner
JMA-8263-9	X-band 25kW radar with 9-foot scanner
JMA-8513-7	X-band 50kW radar with 7-foot scanner
JMA-8513-9	X-band 50kW radar with 9-foot scanner

## FEATURES

### ● High-Resolution Raster-Scan CRT Display

The 28-inch high-resolution raster-scan flat CRT screen provides bright easy-to-see displays, ensuring ease and efficiency of ship operation.

### ● Newest Radar Signal Processing

The adoption of a microwave IC (MIC) front-end and the most advanced video signal processing technology permits the radar to clearly detect even weak signals from targets on long ranges.

### ● Ship's Trail Display

A moving target's trail can be displayed on the video screen, its direction and length presenting the target's course and speed. This function is helpful in ship operation and collision avoidance.

### ● Simple Operation

The operation panel is designed for ease of operation by using electronic touchkeys in different colors and a trackball, enabling the operator to take fast actions in case of emergency.

### ● Various Radar Video Modes

Radar video is presented in True/Relative Motion mode and bearing presentation is available in North-Up, Head-Up and Course-Up modes.

### ● Self-Testing Facilities

The operational status of the entire system is steadily monitored by a system monitor to make it to demonstrate 100% of the functions. If a function deteriorates, a visual blinking alarm appears on the CRT screen with an audible alarm. System function tests can easily be made during normal operation.

### ● Useful Navline Display

Navlines can be displayed on the radar video and stored in memory as course or exclusion lines for effective use for coastal navigation. Navlines are useful to monitor own ship's position relative to a planned route on the display.

### ● Speedy Cursor Movement by Trackball

The cursor position can be moved easily with the trackball, ensuring speedy bearing and distance measurements.

### ● Electronic Cursor (EBL)

The Electronic Bearing Line can be presented in the CENTER mode in which it originates from the radar video center (own ship's position) and in the INDEPENDENT mode in which it originates from the cursor mark of the trackball. Used with the VRM (variable range mark), the bearing and distance between two points can be measured easily.

### ● Electronic Parallel Cursors

Electronic parallel lines can be presented on radar video, giving a great convenience to observe the positions of other ships relative to own ship.

### ● Danger Alarms by Guard Rings

Guard ring can be freely set and displayed on the video screen; the variable is presettable by the track ball. Audible and visual alarms are given when a target is on this ring, alerting to a collision risk, stranding, or watchkeeping.

### ● Off-Centering

The radar video can be freely off-centered up to approximately 65% of its radius, presenting more information on own ship's surroundings fore and aft.

### ● X2 Enlargement

The radar video can be enlarged doubly so that very small targets are easier to see.

### ● Digital Display of True Bearing

The built-in NSK (north stabilizing kit) of electronic type, but using no repeater motor, makes the radar compatible with any type of gyro compass by simple switch operation. Own ship's true bearing is digitally displayed on the screen at all times, contributing to efficient ship operation.

### ● Own Ship's Track (Only when navigation unit is used)

Own ship's track can be displayed on the radar video by connecting an optional add-on terminal board.

### ● True Motion Unit

The JMA-8000 new series is provided with a true motion unit, permitting the operator to monitor the true motions of other ships at a glance as if they were moving on the sea.

### ● SHM and Bearing Adjustment from Keyboard

Installation alignments including antenna bearing and ship's heading marker adjustments are available from the keyboard on the display unit.

### ● Options

#### ● Performance Monitor

Radar performance degradation can be monitored on the screen as it is need. (NJU-13 for the JMA-8513 and NJU-14 for the JMA-8263)

#### ● External Signal Interface (MDYW03509)

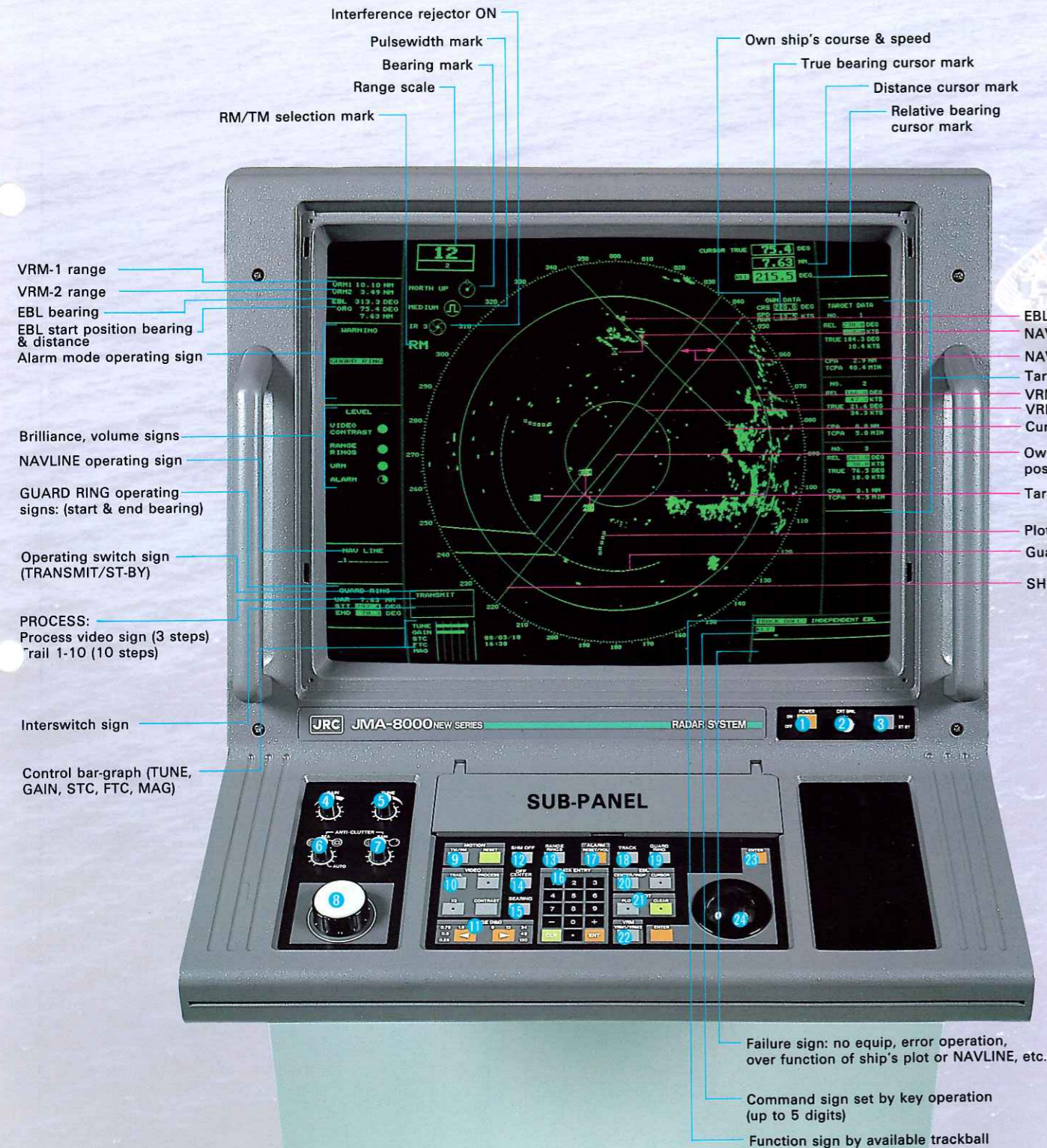
The interface allows the system to connect to navigation equipment (GPS, NS or Loran navigator), a radar adaptor or a radar buoy.

#### ● Inter-Switch

The inter-switch permits two radar systems to switch over between the scanner units and the transmitters/receivers, and the display units.

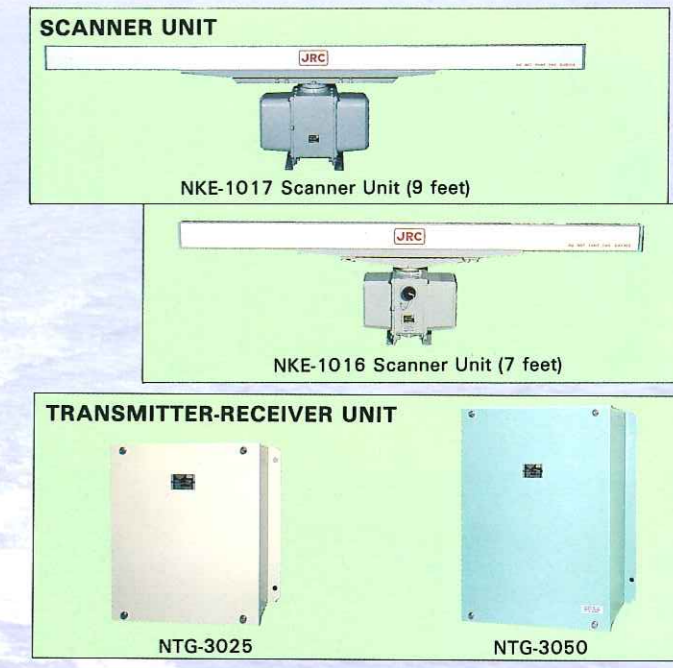


**DISPLAY and CONTROL PANELS**



- 1 **POWER ON:** Power-On switch
- 2 **CRT BRIL:** Adjusts CRT brilliance
- 3 **TX/ST-BY:** Transmission start switch
- 4 **GAIN:** Adjusts receiver sensitivity
- 5 **TUNE:** Adjusts tuning control
- 6 **ANTI CLUTTER SEA:** Sea clutter suppression on short ranges
- 7 **ANTI CLUTTER RAIN:** Rain clutter suppression
- 8 **EBL:** Rotates electronic bearing line
- 9 **MOTION**
  - TM/RM: Switchover of TM and RM modes
  - RESET: Manual reset to TM mode
- 10 **VIDEO**
  - TRAIL: Display of ship trails
  - PROCESS: Display of "processed" video
  - X2: X2 Enlargement
  - CONTRAST: Adjusts video contrast
- 11 **RANGE:** Selects range scale
- 12 **SHM OFF:** Temporary erasure of ship heading marker
- 13 **RANGE RINGS:** Display of fixed range markers
- 14 **OFF CENTER:** Off-centered video in RM mode
- 15 **BEARING:** Selects NORTH-UP/HEAD-UP/COURSE-UP mode
- 16 **DATA ENTRY:** Data entry keys
- 17 **ALARM RESET VOL:** Alarm tone silencer and volume control
- 18 **TRACK:** Display of own ship's track
- 19 **GUARD RING:** Display of alarm zone against other ship's intrusion
- 20 **EBL**
  - CENTER: Displays EBL originating from own ship's position
  - INDP: Displays EBL origination from trackball cursor mark
- 21 **PLOT:** Displays plot mark
- 22 **CLEAR:** Clears plot mark
- 23 **VRM:** Displays VRM No.1 and No.2
- 24 **ENTER:** Entry of data at cursor mark position
- 25 **TRACKBALL:** Moves cursor mark

- SUB-PANELS**
- 26 **BRILLIANCE**
    - VRM BRILLIANCE: Adjusts VRM brilliance
    - RANGE RINGS BRILLIANCE: Adjusts brilliance of fixed range markers
    - PANEL BRILLIANCE: Adjusts brightness for control panel
    - ARPA BRILLIANCE: Adjusts brilliance of ARPA marks (Spare key)
  - 27 **PULSE WIDTH:** Switchover of pulse width
  - 28 **I.R.:** Radar interference rejection
  - 29 **DRIFT:** Compensation for own ship's speed error due to current set and drift
  - 30 **MANUAL SPEED:** Manual entry of own ship's speed from LOG
  - 31 **#:** Spare key
  - 32 **INTER SW:** Interswitches radar installations
  - 33 **BAND:** Spare key
  - 34 **SYSTEM MONITOR**
    - INITIAL: Initializes data entry
    - TEST: Checks operational status of display unit
    - PERF MON: Monitors performance of transmitter/receiver and scanner
  - 35 **NAVI LINE**
    - ON RECALL: Displays and recalls NAVLINE from memory
    - DRAW: Draws navlines
    - CORRECT: Corrects drawn navlines
    - CLEAR: Clears navlines
    - STORE MEM: Stores navlines in memory



**SPECIFICATIONS**

**Scanner Unit**

Model	NKE-1016	NKE-1017
Scanner length	7 feet	9 feet
Polarization	Horizontal	
Beamwidth		
Horizontal	1.0°	0.8°
Vertical	20°	20°
Sidelobes		
Within ±10°	-26 dB	
Outside ±10°	-30 dB	
Rotation speed (60 Hz)	22 rpm	
Winds (relative)	51.5 m/s	
Power supply	100/115/120V or 200/220/230VAC, 50/60Hz, 1φ/3φ approx. 1.3kVA	

**Transmitter/Receiver Unit**

Model	NTG-3025	NTG-3050
Transmit frequency	9410 ±30 MHz	9375 ±30 MHz
Peak Power	25 W	50 kW
Pulsewidth (range)	0.08 μs (0.25-1.5 nm) 0.08, 0.25, 0.75 μs (3 nm) 0.25, 0.75, 1.0 μs (3, 6, 12 nm) 1.0 μs (24, 48, 120 nm)	
Duplexer	Circulator + diode limiter	
Mixer local oscillator	MIC (microwave front end)	
Receiving bandwidth	20/3 MHz	

**Display Unit NCD-3551**

CRT type	28-inch high-resolution, raster-scan, mono-chrome CRT, with effective diameter of 340 mm
Range scale (nm)	0.25   0.5   0.75   1.5   3   6   12   24   48   120
Range rings (nm)	0.05   0.1   0.25   0.25   0.5   1   2   4   8   20
VRM	Two VRMs, 0-120 nm, 4-digit display
Off-centering	Up to 65% of video circle radius (except 120 nm)
Electronic cursor	EBLs (CENTER/INDP/PARALLEL mode)
Radar interference rejector	Provided
Pulsewidth switch	Three steps (3, 6 and 12 nm)
NAVLIN display	Available
Alarm function	Provided
True motion	Provided (up to 24 nm)
Plotting function	Electronic, up to 20 marks
Ship trail display	Available
STC (sea clutter)	Automatic/manual
FTC (rain clutter)	Available
X2 enlarge	Provided
Own Ship's track	Available (with optional interface for external signal)
Other ship's data computation function	Provided

Specifications subject to change without notice.



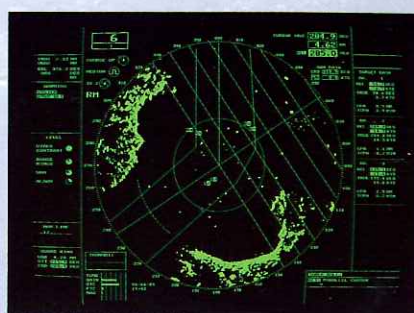
## DISPLAYS (EXAMPLE)



TRAIL



NAVLINE



PARALLEL CURSOR



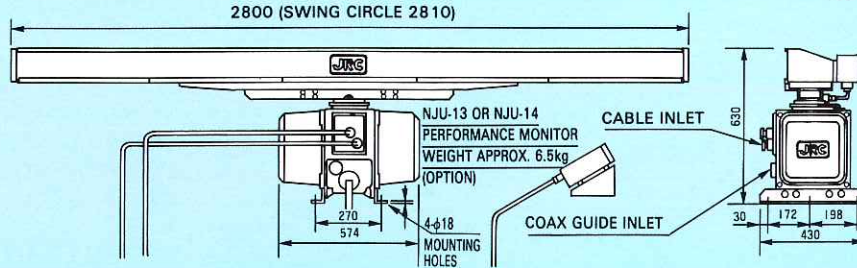


# SYSTEM CONFIGURATION

● JMA-8263-9  
JMA-8513-9

NKE-1017 SCANNER UNIT WEIGHT APPROX. 76kg  
NKE-1017-D DEICING TYPE SCANNER UNIT WEIGHT APPROX. 78kg(OPTION)

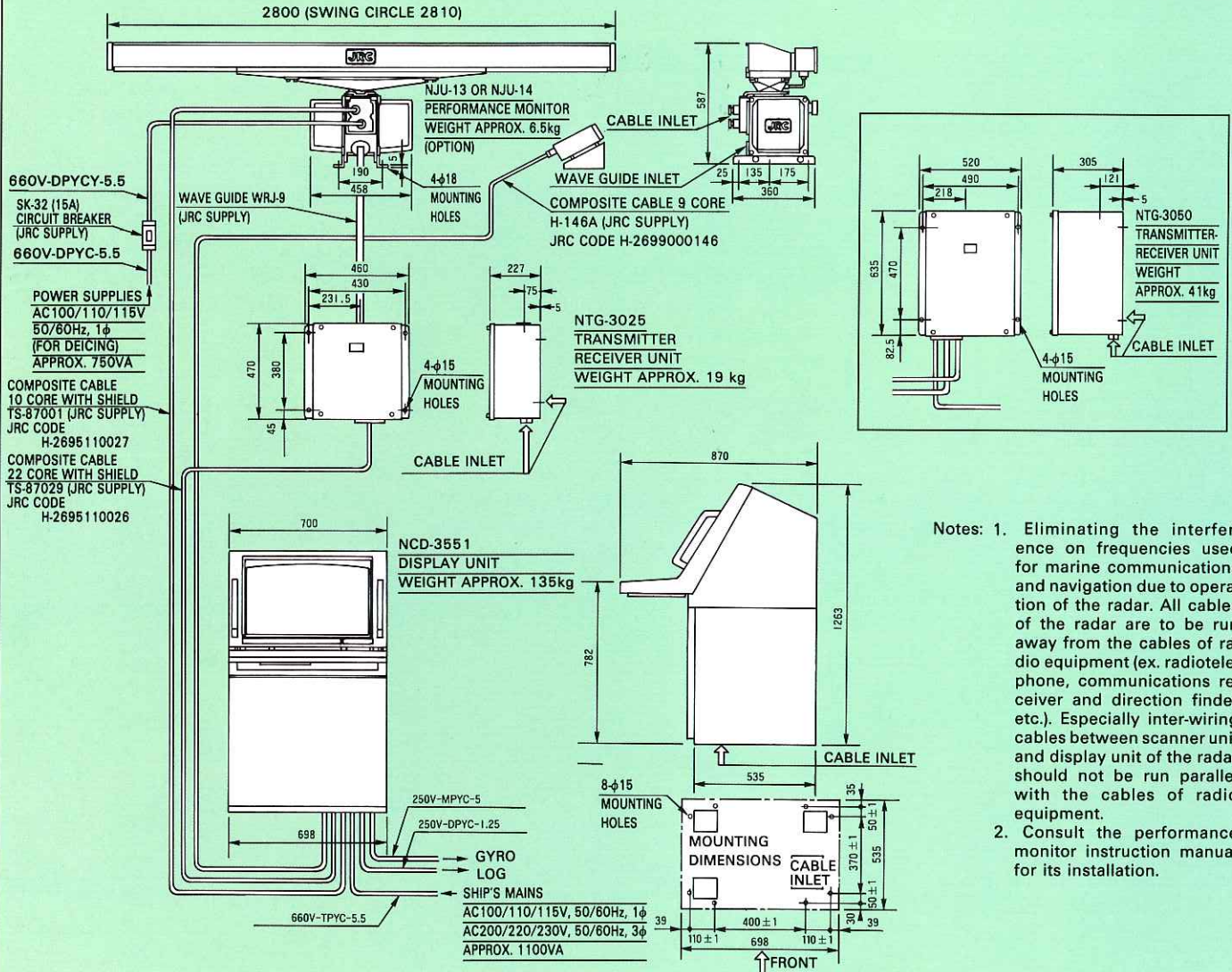
※ NJU-13 : For JMA-8513  
NJU-14 : For JMA-8263



● JMA-8263-7  
JMA-8513-7

NKE-1016 SCANNER UNIT WEIGHT APPROX. 46kg  
NKE-1016-D DEICING TYPE SCANNER UNIT WEIGHT APPROX. 53kg(OPTION)

※ NJU-13 : For JMA-8513  
NJU-14 : For JMA-8263



- Notes: 1. Eliminating the interference on frequencies used for marine communications and navigation due to operation of the radar. All cables of the radar are to be run away from the cables of radio equipment (ex. radiotelephone, communications receiver and direction finder etc.). Especially inter-wiring cables between scanner unit and display unit of the radar should not be run parallel with the cables of radio equipment.
2. Consult the performance monitor instruction manual for its installation.

For further information, contact:

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

Since 1915

Main Office: Akasaka Twin Tower(Main),  
17-22, Akasaka 2-chome,  
Minato-ku, Tokyo 107, JAPAN  
Telephone: Tokyo(03)3584-8789, 8836  
Facsimile: Tokyo (03)3584-8795, 8878  
Telex: 2425420 JRCTOK J  
Cable: JAPANRADIO TOKYO

Overseas Branches: London, New York  
Liaison Offices: Jakarta, Bangkok, Manila, New Delhi,  
Hudson, Rio de Janeiro, Harlow,  
Rotterdam, Las Palmas

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