Unicont SPb Ltd

LCD Display
MV-1901F

(Repair kit for replacing CRT in Furuno radar FR-2115/2125)

Installation Manual

(0F-1-15082013)

St. Petersburg
2013

Table of Contents

1. General Information

The MV-1901F LCD display is an (unoriginal) repair kit intended to replace CRT in Furuno radar FR-2115/2125 (at malfunction or deterioration of the image quality of the latter).

2. Delivery Set

1. MV-1901F LCD display 1 pc.
2. Set of mounting brackets (of 4 pieces) 1 pc.
3. Switching card (with buttons and bracket) 1 pc.
4. Power cable 1 pc.
5. Installation Manual 1 pc.

3. Specifications

Parameter	MV-1901
Display diagonal:	19”
Supply voltage:	88...264 V AC
Power consumption:	80 W
Visible screen area (mm):	377 × 302
Viewing angle:	170°
Contrast:	700 : 1
Brightness:	1230 cd/m^2
Response time:	5 ms
Resolution:	1280 × 1024
Pixel pitch:	0.294 mm
Vertical frequency:	56–75 Hz
Horizontal frequency:	30–81 kHz
Device overall dimensions (mm):	380 × 476 × 92
Mass, at most:	9.65 kg
Protection class:	IP 22
Operating temperature:	from -25 °C to +55 °C

4. Installing and connecting the device

The product MV-1901F is intended to replace regular CRT radar FR-2115/2125 (Furuno) and adapted constructively and electrically for installation into radar FR-2115/2125 (Furuno) (hereinafter, rack, radar rack).

4.1 *Dismantling regular CRT display*

For installation of LCD display MV-1901F in rack, the CRT should be preliminary dismantled:

1. Disconnect radar rack from the power supply.
2. Remove protective guards of radar rack.
3. Locate the sweep unit (bottom right) and disconnect it from the following cables (also see Figure 1):
   - power supply cable (connector J576) from radar power supply unit;
   - potentiometer cable of brightness control (dimmer) (connector J579);
   - RGB (VGA) signal cable (connector D-sub);

IMPORTANT! Disconnected cables should be marked and saved in this state for subsequent use.

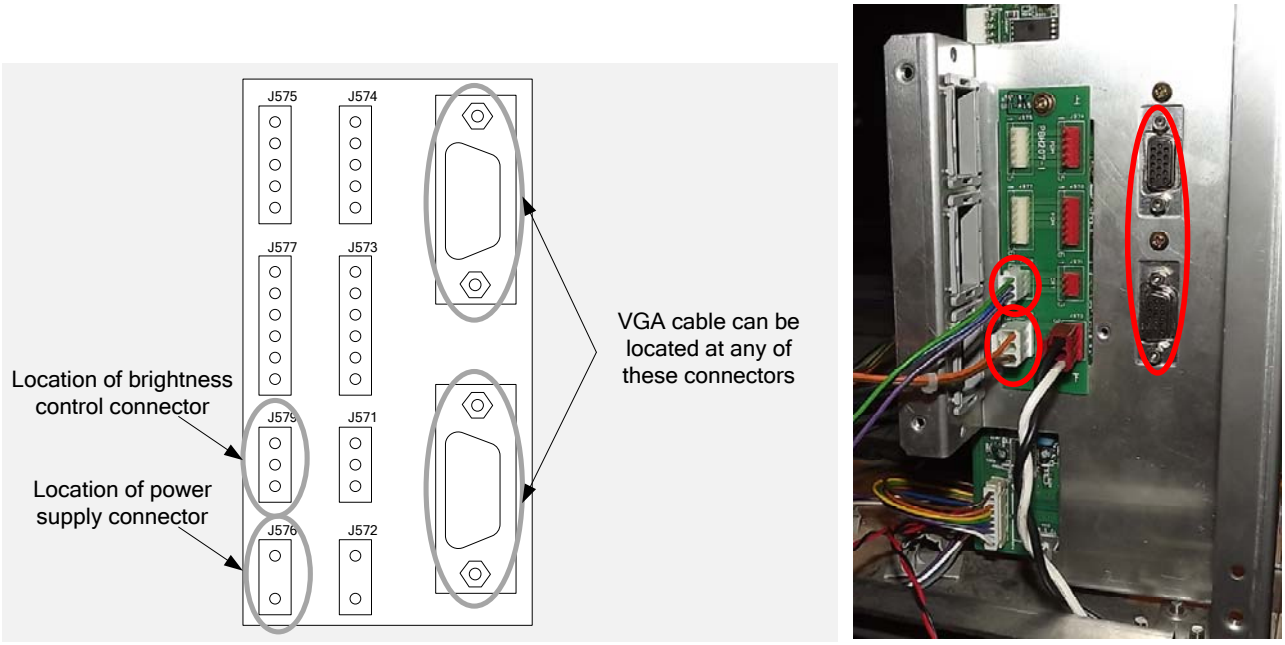

Figure 1. Location of sweep unit connectors (on the left), general view of sweep unit with connected cables (on the right).

- disconnect the rest of the cables from the sweep unit;
- remove the sweep unit and other devices that provided CRT functioning from the rack (see Figure 2).

Figure 2. General view of rack with removed sweep unit and other devices

4. Remove cables and cards from CRT.

5. Remove mounting bolts located at 4 corners of the frame from the CRT display protective frame (see Figure 3).

Figure 3. Mounting bolts of protective frame

6. Remove the frame from the radar rack (see Figure 4).

Figure 4. CRT frame view (removed from radar rack)

7. Remove CRT from radar rack (Figure 5).

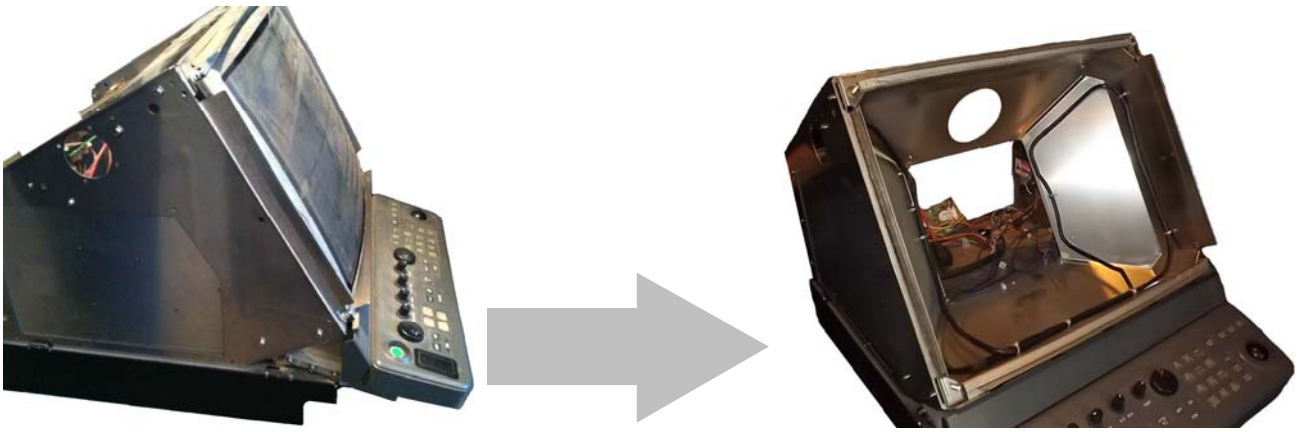

Figure 5. Dismantling CRT from radar rack

4.2 *Installing LCD display into CRT frame*

The MV-1901F display comes partially prepared for installation into frame and looks as follows (see Figure 6):

Figure 6. Appearance of MV-1901F display

Preparation of LCD display for installation into CRT frame:

1. Remove the device and all components from the package.

2. Using special bolts supplied complete with the display, fix mounting brackets on the frame corners of LCD display (see Figure 7, Figure 8).

Figure 7. Locations of mounting brackets and appearance of mounting bracket

Figure 8. Appearance of LCD-display with mounting brackets

Installing LCD display into CRT frame

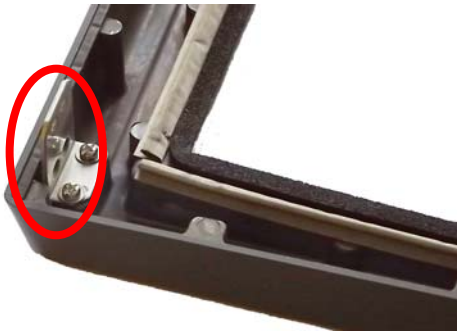

Figure 9. Mounting points of the frame mounting brackets

3. Disconnect mounting brackets of CRT frame (4 pcs) from the frame chassis (see Figure 9).

4. Insert (lay) the LCD display into the frame observing orientation of the sides (the display top side and frame top side should coincide, and display connectors should be faced to the bottom side of the frame).

Figure 10. The order of arranging brackets in the frame

5. Fix LCD display in CRT frame so that mounting brackets of LCD display are located above the CRT mounting brackets (Figure 10).

6. Loosen the brackets screws, turn over the frame, centering the LCD display in CRT frame, fix tight the cap screws.

IMPORTANT! LCD display should be fixed to the brackets with regular bolts of CRT frame.

LCD display is ready to be installed into the radar rack (Figure 11).

Figure 11. Appearance of LCD display prepared for installation and inserted into the frame

5. Installing and connecting the display

The display is installed and connected in the following sequence:

1. Insert the frame with LCD display into rack radar in place of CRT dismantled (Figure 12).

Figure 12. Mounting display into radar rack

IMPORTANT! If necessary, shorten (cut away) fastening bolts of CRT fixing it to radar rack.

IMPORTANT! Do not tighten the frame bolts up to the end of connecting cables to the display.

2. Fix the bracket with switching card on the inner part of the left-hand side of radar rack (Figure 13).

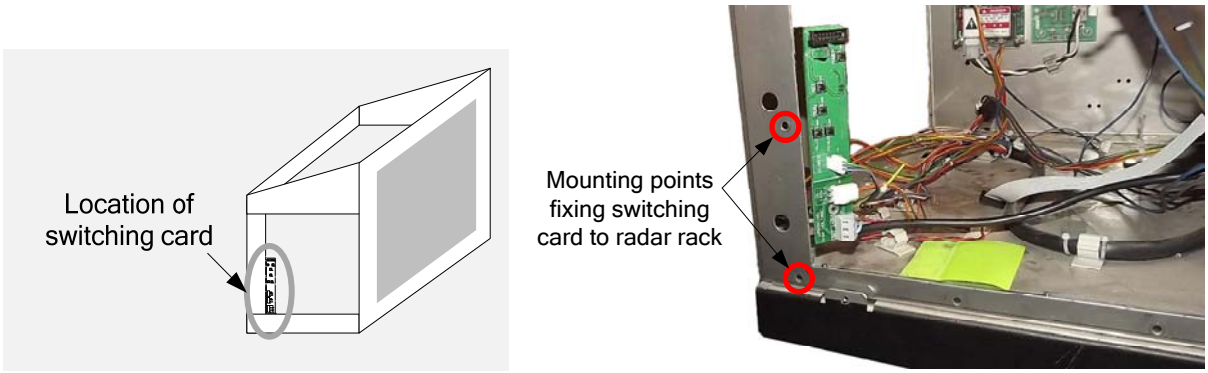

Figure 13. The location of switching card (on the left), general view of switching card in radar rack (on the right)

Connecting LCD display

LCD display is connected in the following sequence (also see Table 1, Figure 16):

3. Insert control cable (14-conductor ribbon cable) coming out from the hole (on the back side) of LCD-display housing into J1 connector of the switching card (Fifure 14, Figure 15).

Figure 14. Location of connectors and control cable in LCD display

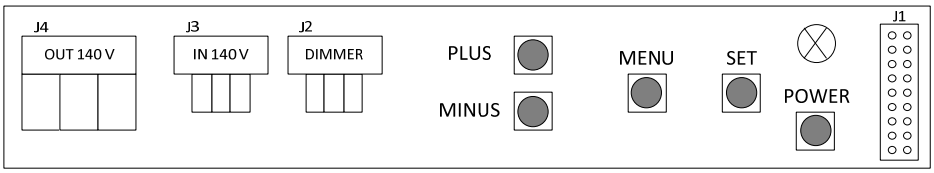

Figure 15. Switching card

4. Connect the other end of the power cable connected to J4 connector of the switching card to the power supply connector of LCD display (Figure 14).

5. Connect cables disconnected from the sweep unit (marked previously) to the corresponding connectors of the display and switching card:

- connect RGB cable (removed from D-sub connector) to the display VGA connector (Figure 14);
- connect power supply cable (removed from J576 connector) to J3 connector (IN 140 (V) of the switching card (Figure 15);
- connect dimmer control cable (removed from J579 connector to J2 connector (dimmer) of the switching card (Figure 15).

6. On termination of device connection, apply power to it and turn on the installation.

- Adjust radar brightness control to maximum.
- Check the image quality reproduced by the display.
- In case of incorrect image, enter LCD display menu (see section 6) and use Auto adjust menu function (automatic control), then go to menu item adjusting image vertical and horizontal displacement, and adjust the position of the image displayed.

7. Using mounting bolts, fix the protective frame with display in radar bracket (see Figure 3).

Table 1. Table of cable connections

	Switching card (connector No)	**Cables removed (dismantled) from the sweep unit**	**LCD display**
Power supply	J4	-	"Power" connector
	J3	Cable removed from J576 connector	-
Dimming	J2	Cable removed from J579 connector	-
Control signals	J1	-	14-conductor ribbon cable
Video signal	-	Cable removed from RGB connector	VGA connector

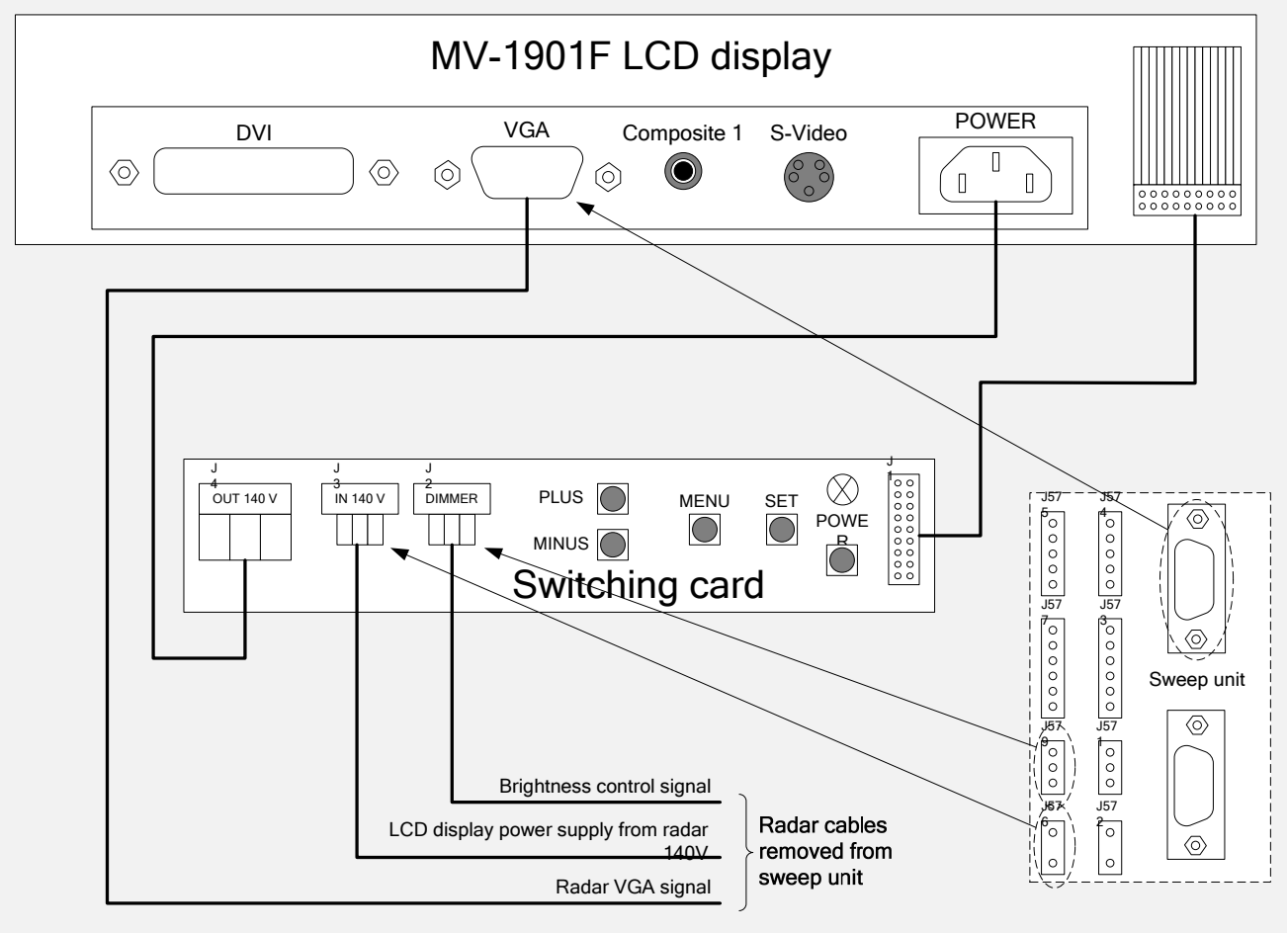

Figure 16. Switching scheme

6. Controls

Controls (of LCD display access menu) are located on the switching card (see Figure 17):

1. "POWER" button – switching on/off display power (briefly pressing toggles display sources of video signal connected to different display ports).
2. "MENU" button – enter (exit) menu of display settings. This button allows you to exit from the selected settings without saving the changed value.
3. "SET" button – confirms the selected values.
4. "PLUS" and "MINUS" buttons – selecting menu items/change values of parameters. In the menu these buttons allow you to scroll thorough the items (setting). When changing, settings allow you to increase/decrease the value.
5. Backlight is adjusted by panel controls.
6. LED indicating power supply and device operation. When the device power turned on and receiving video signal from the current video input, this LED lights green. When the power is turned off or there is no video input on the current input, the LED goes out.

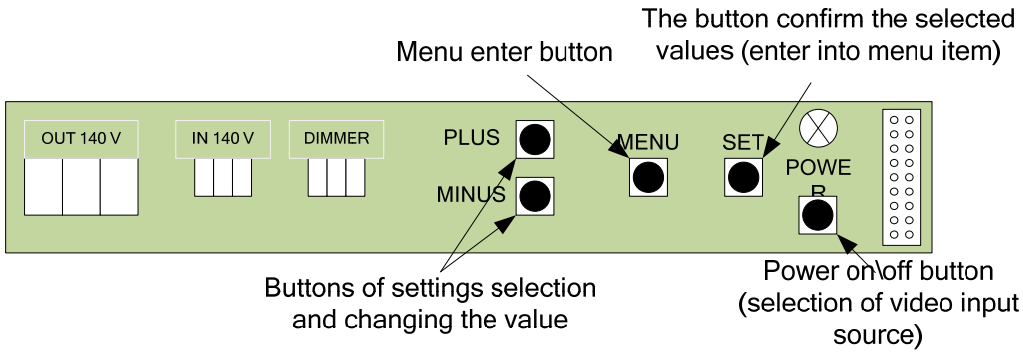

Figure 17. Controls

IMPORTANT! Changing brightness of power LED takes place synchronously with the change of backlight brightness. If the brightness is set to the minimum value (backlight off), the LED also goes out.

7. Transportation and Storage

The divice shall be stored in heated space at air temperature of +5 ºC to +35 ºC (maximum values of -55 ºC to +70 ºC), at relative humidity of air not exceeding 95 % at temperature of +25 °C and content of dust, oil, moisture and aggressive admixtures in the air not exceeding the norms envisaged by GOST 12.1.005-88 for the working zone of production areas.

The device shall be transported in transport container of the manufacturer in closed transport.

Means of transport:

- automobile and railway closed transport (covered wagons, universal containers)
- by air (in pressurized and heated bays of airplane)
- by sea (in dry service spaces).

The device shall be transported in accordance with the transport regulations in force for the particular transport.

During handling operations and transportations strictly observe the requirements of handling marks on boxes and do not allow bumps and impacts which can affect preservation and serviceability of the device.

Packed devices shall be reliably secured in vehicles.

After storage in stores or transportation at temperature below +10 ºC the devices shall be unpacked only in heated spaces after keeping them unpacked in under normal climatic conditions for12 hours.

8. Recycling

Do not recycle the packing of a new product, its parts with defects identified during its operation as well as the overage product as common household waste since they contain materials and raw materials suitable for their recovery.

Decommissioned and unused components should be delivered to a specialized waste collection center licensed by local authorities. You can also send the overage equipment to the manufacturer for its further recycling.

Proper recycling of the product components will prevent potential negative consequences for human health and the environment, as well as provide recovery of the product component materials while substantially saving on energy and resources.

The product does not endanger human life and health or the environment during and after its service life.

This product should be recycled following the requirements applicable to electronic equipment.

Products marked with a crossed-out recycle bin should be recycled apart from common household waste.

9. Warranty

The manufacturer guarantees the unit MV-1901F complies with this manual provided that the operation, transportation and storage conditions are adhered to during the warranty period.

The unit's warranty period expires 24 months from the date of its shipping from the manufacturer's storehouse.

Within the warranty period, the owner is entitled for a free repair, or a replacement of a separate part, provided that the malfunction occurred through the manufacturer's fault.

Warranty repair is provided if the unit is submitted with the manufacturer's label and a legible serial number available on it, as well as this operating manual.

The manufacturer is not responsible and cannot guarantee the unit's operation:

1. After the warranty period is over;
2. In case of the failure to observe the unit's operation, transportation, storage and installation rules and conditions;
3. If the unit is in an unmarketable condition, or has a damaged body, and other causes beyond the manufacturer's control;
4. If self-made electrical devices were used.
5. If there was an attempt to repair the unit by a person who is not an authorized representative of the manufacturer.

If the owner loses this operating manual or the manufacturer's label with a serial number, the manufacturer shall not provide their copies, and the owner shall be divested of the right for a free repair during the warranty period.

Upon the warranty expiry, the manufacturer shall facilitate the repair of the unit at the owner's expense.

Note: in case of warranty repair, the unit's disassembling from the installation site and its delivery to the manufacturer's service center are done at the owner's expense.

Visit the manufacturer's website www.unicont.spb.ru (section "support/warranty") to find:

- forms to fill in claims,
- full warranty description;
- full description of the warranty service rendering procedure.

The manufacturer service center's address and contact details:
Unicont SPb, Ltd.
Bld. 26E Kibalchich Str., Saint Petersburg, 192174, Russia
tel.: + 7 (812) 622 23 10, +7 (812) 622 23 11
fax: +7 (812) 362 76 36
e-mail: service@unicont.spb.ru

10. DATE OF PACKING

LCD Display (name of article) MV-1901F (designation) № (serial number)

Packed *Unicont SPb Ltd, Russia.* (Manufacturer)

according to the requirements of the current technical documentation.

post signature clarification of signature

year, month, day

11. ACCEPTANCE DETAILS

LCD Display (name of article) MV-1901F (designation) № (serial number)

was manufactured and accepted in accordance with the regulatory requirements of the state standards and applicable technical documentation, and is suitable for operation.

Quality control representative

Stamp here signature clarification of signature

year, month, day

12. DATE OF COMMISSIONING

LCD Display (name of article) MV-1901F (designation) № (serial number)

The unit has been put into operation.

Date of installation: _____

Place of installation: _____

Person in charge of installation: _____