

# Case Report:

## ~S SeaVigour PUBLIC ADDRESS REMOTE UNIT

### Summary

Onboard M/T SEAVIGOUR, the Public Address System MPA-9800S showed persistent power supply and amplifier failures, then power supply alarms and later a non-resettable 'FAIL' lamp (A/G Emergency Power Fail) though all PA functions worked. Comprehensive actions over several years included part replacements, PCB repair, technical guidance from maker, and final replacement of alarm control PCB. The confirmed root cause was a defective alarm control PCB causing erroneous fail indication despite functional system. System functions were restored with all zones operational after new PCB installation, but the fail lamp persisted, as confirmed by both technical support and shipboard tests.

### Case Details

Vessel Name	Occurence	Reported Date	Resolved Date	People Involved
~HSHI(SEAVIGOUR)	Occurrence.OPERATION	2022-04-05	2024-03-26	Spyridon Giannoutsos <a href="mailto:s.giannoutsos@thenamaris.com">s.giannoutsos@thenamaris.com</a> , Ioannis Kladakis <a href="mailto:ikladakis@seaergon.gr">ikladakis@seaergon.gr</a> , Georgios Tsivgoulis <a href="mailto:g.tsivgoulis@thenamaris.com">g.tsivgoulis@thenamaris.com</a> , Chief Engineer SEAVIGOUR <a href="mailto:chief.seavigour@vessels.thenamaris.com">chief.seavigour@vessels.thenamaris.com</a> , "Procurement Dept. - Sea Ergon Marine Ltd" <a href="mailto:purchasing@seaergon.gr">purchasing@seaergon.gr</a> , Elena Manta <a href="mailto:e.manta@thenamaris.com">e.manta@thenamaris.com</a>

### Investigation & Evidence

#### Issue Description

The public address system began exhibiting failures from September 2021, starting with a power supply failure alarm, non-functional speakers in certain zones, and confirmed failure of both (2) PS-901 power supply units and one PA-901 amplifier. Replacements temporarily restored function, but then the system presented persistent and misleading 'FAIL' alarms (notably 'A/G EMCY PWR'). Even after full zone operation was verified, the fail lamp persisted. The technical investigation found that all supply voltages and audio functions were normal, pointing to the control PCB.

#### Actions Taken

#### Actions Taken

##### 1. Initial Troubleshooting (2021)

- Crew confirmed power supply failure and non-operational engine room speakers.

- Swapped and tested both power supply units and amplifiers; both PS-901s and one PA-901 identified as faulty.
- Checked fuses and transformer output (found no voltage on transformer outputs).
- Loaded all essential PA zones onto the remaining working amplifier.

## 2. Technical Support and Maker Consultation

- Sent photos, diagrams, and measurements to maker MRC/Sea Ergon for guidance.
- Maker requested system status photos, specific LED status, fail messages, and further exchanged emails for clarification.
- Multiple circuit and functional verifications conducted as per step-by-step protocols from maker.
- Maker confirmed both PS-901 units were faulty and recommended replacements.

## 3. Component Replacements

- Replaced both PS-901 power supply units and PA-901 amplifier units with new spares in 2022.
- Verified: No.2 power supply and amplifier worked (after replacement), but No.1 amplifier indicated 'FAIL' after ~30 min.
- Swapped No.1 and No.2 amplifiers for isolation; confirmed No.2 exhibited failures in main mode but worked in emergency.
- Further replacements included No.2 amplifier Relay Control PCB (P91019A7) in 2022.

## 4. Additional Diagnostics & Technical Reports

- Control panel and module photos reviewed for indicator patterns (e.g., red 'FAIL', 'EM'CY' lights).
- Checked that alarm generator auto switch-over functioned correctly.
- Measured output voltages at transformer (not 220V as expected); pointed to PCB failure.
- Conducted full functional tests (fire alarm, general alarm, regular and emergency announcements): all zones worked.
- Found a burnt trace on the old control PCB; temporary repair and reinstallation would clear alarm temporarily, but PCB recommended for full replacement.

## 5. Final System Restoration

- In February 2024, a new Alarm Control PCB (AC-901) was ordered and installed.
- After installation, all PA functions and zone tests passed (clear/loud voice in all locations), yet 'FAIL' lamp remained lit indicating a persistent issue in PCB status detection rather than power or sound output.

## 6. Technical Confirmation & Closure

- Maker confirmed that the alarm control PCB was responsible for the misleading fail indications and recommended part replacement as final remedy.
- New PCB delivered and installed as of February 2024.

## List Format and Tables Preserved

- Numbered and bulleted troubleshooting steps and technical checks.
- Multiple emails from ship, superintendent, agent, and maker guiding and responding to actions.

## Key Technical Data and Measurements

### Key Technical Data from Attachments

- **System equipment and labels:**
  - Main units: MPA-9000/9800S; control, alarm generator, and amplifier modules labeled AG-901D, MC-901D, PS-901, AC-901/P91019A7 (Relay Control PCB), and PA-901.
- **System Schematic:**
  - Alarm control unit (AC-901) and two power supply units (PS-901), each with main and emergency power inputs, fuses, EM'CY/main switches, and fail indicators. ([att1](#))

- **Status Display Examples:**

- Display screens repeatedly showed 'FAIL CHECK → A/G EMCY PWR' even when all outputs tested OK ([att5](#), [att6](#), [att15](#), [att29](#)).

- **Visual and Measurement Data:**

- Photo evidence: Status LEDs for main/emergency, indication/device lamp states ([att3](#), [att4](#), [att7-att10](#), [att11-att17](#), [att19-att26](#), [att27](#), [att28](#)).
- Speaker zone and voltage measurement tables indicated voltage present at all selectors, proving amplification was functional ([att2](#)).
- Burnt PCB and red jumper wire shown on old alarm control PCB 'P77051C'/PT7051C, with restored copper by wire repair ([att30](#), [att23](#), [att25](#)).
- New and old PCBs compared: New PCB included improved design and correct relay count ([att25](#), [att26](#)).
- Order paperwork confirms make/model as Marine Radio Co., Ltd. (MRC) MPA-9000S/MPA-9800S; CBs and boards all cross-confirmed ([att32](#)).

- **Screenshots and Control Panel Displays:**

- Typical failure messages:
  - 'MPA-9000 FAIL P/A SYSTEM' ([att19](#), [att27](#))
  - 'FAIL CHECK → A/G EMCY PWR' ([att5](#), [att15](#), [att29](#))
- Output indicator LEDs: "NOISE"/output green lights present, even under 'FAIL' lamp condition, shows functional output in both amplifiers.

- **Photo documentary of repairs:**

- Clear evidence of PCB relay, component changes, proper mounting, and status after each intervention ([att23-att26](#)).

[FIGURE: Multiple images and texts referenced, see details in attachment list above]

## Confirmed Root Cause

The root cause was a defective alarm control PCB (AC-901/P77051C/7051C). This caused persistent and misleading 'FAIL' indications (notably 'A/G EMCY PWR') on the main PA control panel, even after all other major components (power supplies, amplifiers, relay boards) had been replaced or verified functional. The PCB suffered from burnt tracks and faulty logic relays which affected the fail detection circuit, demonstrated by persistent alarms despite operational power supplies, correct voltages, and audible output across all zones. Temporary on-board PCB repairs (jumper wire to replace burnt trace) only provided momentary resolution; ultimate replacement of the alarm control PCB was required to restore normal indication.

## Equipment Addressed

- Maker: Marine Radio Co., Ltd. (MRC)/JMRC/JMC
- Model: MPA-9000S / MPA-9800S (components: AC-901, PS-901, PA-901, AG-901D, MC-901D, P77051C/7051C relay PCB, P91019A7 amplifier relay PCB)

## Outcome

### Final Resolution

The final technical resolution involved the full replacement of the defective alarm control PCB (AC-901) for the MPA-9000S system. On receipt and installation of the new PCB and subsequent functional testing by the crew:

- All main and emergency power supplies were available, with correct voltages.
- All PA functions, including announcements, alarms, and all speaker zones, were confirmed working with clear and loud output.

- The persistent alarm indication ('FAIL', A/G EMCY PWR) was recognized as a false reading due to the prior PCB's internal logic failure.

The system was returned to full operating condition, and the only outstanding issue was the fail lamp, which is now confirmed by the maker and shipboard team to be a false positive and not affecting performance. Crew and management accepted this advisory, with the ship's PA system operating normally in all respects.

## Lessons Learned

- Public address system failures can result from both primary power and amplifier faults, but also and especially from less obvious control/logic PCB issues.
- Persistent or misleading alarm/fail indications must be thoroughly investigated with both functional and electrical tests, not just relying on panel LEDs/displays.
- On-site repairs (e.g., jumper wires for burnt PCB tracks) may provide temporary respite but are not substitutes for proper part replacement.
- Close communication with maker/support and provision of clear visual/technical evidence accelerates troubleshooting and correct parts supply.
- Documenting all measurement data (voltages, speaker results, LED states) is vital for remote fault localization and technical support.
- Redundancy (main and emergency power channels) should always be verified separately.
- Correct part identification and matching the relay PCB version/model is essential for effective long-term repair.

## Recommendations

1. Always perform both operational and electrical verifications (voltages, function tests) before replacing expensive modules.
2. Insist on thorough photo/video documentation of all controls, modules, and PCB sides (especially before/after repairs).
3. If 'FAIL' or warning lamps persist after functional restoration, prioritize checking control/logic PCBs.
4. Maintain up-to-date spares of critical PCBs for alarm and power control—long lead time is common.
5. Engage original maker for technical guidance with all available technical data before and after repairs.
6. Do not accept persistent 'FAIL' alarms without double-checking the output and functions—misleading indications are possible.
7. Track and record every replacement's serial/model number to ensure compatibility across multi-year troubleshooting cases.
8. Include confirmation of final functional tests in reporting—not just clearance of alarms.

## Sources Used

### From Emails:

1. [FW\\_PUBLIC ADDRESS REMOTE UNIT.msg](#)
2. [EXT SEA ERGON SEAVIGOUR PUBLIC ADDRESS SYSTEM MPA-9800S .msg](#)
3. [FW\\_SEAVIGOUR - PUBLIC ADDRESS REMOTE UNIT.msg](#)
4. [from SEAVIGOUR - PUBLIC ADDRESS REMOTE UNIT.msg](#)
5. [RE\\_SEAVIGOUR PUBLIC ADDRESS SYSTEM MPA-9800S power supply failure alarm.msg](#)
6. [20231219 SEAVIGOUR - PA AG POWER CARD P91004D FAIL CHECK A\\_G EMCY PWR - .msg](#)
7. [20240220 SEAVIGOUR\(UN\) - Public Address \(PA\) system UN-23-V037.msg](#)
8. [20240322 SEAVIGOUR PUBLIC ADDRESS SYSTEM MPA-9800S power supply failure .msg](#)
9. [20240326 SEAVIGOUR PUBLIC ADDRESS SYSTEM MPA-9800S power supply failure alarm .msg](#)

### Filenames:

1. [image016.png](#)
2. [ACV measurement.xls](#)
3. [CASE A \(MAIN MODE - ON\) \(1\).JPG](#)
4. [PA SYSTEM.pdf](#)
5. [AG EMCY PWR FAIL.jpg](#)

6. [NO.1 EMCY POWER FAIL.jpg](#)
7. [ALL BREAKERS ON.jpg](#)
8. [MAIN\\_OFF EMCY ON.jpg](#)
9. [MAIN ON - EMCY ON.jpg](#)
10. [FAIL INDICATION.jpg](#)
11. [No1 AG in service.jpg](#)
12. [No.2 AG in service.jpg](#)
13. [PA MAIN PANEL.jpg](#)
14. [alarm generator.jpg](#)
15. [Alarm control unit.jpg](#)
16. [No.1 & No.2 Amplifier Unit.jpg](#)
17. [No.1 & No.2 Power supply unit.jpg](#)
18. [image001.png](#)
19. [top part .JPG](#)
20. [midle.JPG](#)
21. [bottom.JPG](#)
22. [FAIL LAMP LIT.JPG](#)
23. [OLD AND NEW 2.JPG](#)
24. [new PCB.JPG](#)
25. [OLD AND NEW PCB FOR P.A..JPG](#)
26. [OLD PCB FOR P.A..JPG](#)
27. [cid\\_image001.png](#)
28. [cid\\_image002.png](#)
29. [cid\\_image008.jpg](#)
30. [cid\\_image010.png](#)
31. [O.C. SEM-23-7558.pdf](#)
32. [2024POUN\\_0100.pdf](#)

**Main folder:**

- [~S SeaVigour PUBLIC ADDRESS REMOTE UNIT](#)