

EMERGENCY SOURCE OF ELECTRICAL POWER



PSC FOCUS - WK 13

PSC FOCUS (CARGO SHIPS)

EMERGENCY SOURCE OF ELECTRICAL POWER

During Port State Control inspections, emergency source of electrical power arrangements are closely examined to verify the vessel's ability to maintain essential safety functions during a blackout or emergency situation. Inspectors frequently identify deficiencies related to poor maintenance, inadequate testing, fuel system leakage, defective starting arrangements, and improperly maintained emergency switchboards or battery rooms.

The emergency power system must be capable of supplying critical services such as emergency lighting, communication systems, navigation equipment, fire detection systems, steering gear, and emergency fire pumps within the required time frame. Failure of these systems can significantly affect vessel safety and may lead to detention.

1. EMERGENCY GENERATOR ROOM – PSC OBSERVATIONS

During inspection, the emergency generator room was found not maintained in a satisfactory condition. In several cases, access doors were defective, spaces were used for storage of spare parts or equipment, and housekeeping standards were poor with traces of oil, fuel, or water observed on deck plating.

Emergency operating instructions were either missing or not clearly displayed. Ventilation arrangements, lighting, and communication systems were not fully operational or adequately maintained. Fire extinguishing arrangements were also found overdue for servicing or not readily available for immediate use.

Common PSC Deficiencies

- Emergency generator room used for storage purposes
- Oil/fuel leakage inside compartment
- Poor cleanliness and housekeeping
- Defective lighting or ventilation
- Missing emergency operating instructions
- Communication equipment not operational
- Fire extinguishers not properly maintained



2. FUEL SYSTEM & FUEL LINE DEFICIENCIES

The emergency generator fuel system was inspected and deficiencies were identified relating to inadequate fuel quantity, leaking pipelines, temporary clamps fitted on fuel lines, and defective quick-closing arrangements.

Sight glasses used for fuel level indication were found without proper self-closing devices, while some fuel tank manholes showed evidence of leakage. Flexible hoses were also observed in deteriorated condition or unsuitable for marine service.

Common PSC Deficiencies

- Insufficient fuel quantity for emergency operation
- Leakage from fuel pipes or fittings
- Temporary repairs/clamps fitted on pipelines
- Defective quick-closing valves
- Fuel tank leakage around manhole covers
- Damaged or non-approved flexible hoses



3. EMERGENCY SWITCHBOARD DEFICIENCIES

PSC inspections identified emergency switchboards in unsatisfactory condition due to poor maintenance, missing labels, defective instrumentation, and inadequate insulation arrangements.

Switchboard lighting arrangements were occasionally inoperative, and insulating mats were missing in front of live electrical panels, presenting a potential safety hazard during emergency operation.

Common PSC Deficiencies

- Poorly maintained emergency switchboard
- Missing circuit identification labels
- Defective gauges or switches
- Missing insulating mat
- Inoperative switchboard lighting
- Signs of overheating or poor maintenance



4. DIESEL ENGINE & STARTING ARRANGEMENTS

Emergency generator diesel engines were frequently found with oil, fuel, or cooling water leakage. Exhaust piping insulation was damaged in some cases, exposing hot surfaces and creating fire hazards.

Starting arrangements were also examined carefully. Deficiencies included poorly secured batteries, defective battery chargers, inadequate maintenance records, air starting system leakage, and malfunctioning secondary starting arrangements.

Common PSC Deficiencies

- Oil/fuel/water leakage from engine
- Damaged exhaust insulation or hot spots
- Defective battery charging arrangements
- Poorly maintained starting batteries
- Air starting system leakage
- Emergency starting arrangements not operational

5. BATTERY ROOM DEFICIENCIES

Battery compartments were inspected for ventilation, cleanliness, securing arrangements, and electrical safety. Several deficiencies were noted where batteries were improperly secured, ventilation was inadequate, warning signs were missing, or electrical fittings were not explosion-proof.

Loose battery cables and poorly maintained charging systems were also identified during inspection.

Common PSC Deficiencies

- Inadequate ventilation inside battery room
- Batteries not properly secured
- Missing warning signs
- Loose or damaged battery cables
- Defective charging equipment
- Non-explosion-proof electrical fittings



6. TESTING & OPERATIONAL READINESS

Routine inspection and testing records were reviewed during PSC inspection. In several cases, records were incomplete or unavailable. Functional tests revealed failures in automatic starting and automatic connection to the emergency switchboard within the required time.

Some emergency generators failed to supply essential emergency services during prolonged running tests, indicating inadequate maintenance and testing procedures onboard.

Common PSC Deficiencies

- Incomplete maintenance and testing records
- Failure of automatic generator starting
- Delayed connection to emergency switchboard
- Emergency loads not supplied correctly
- Unsatisfactory prolonged running test
- Ship staff unfamiliar with testing procedures

KEY PSC FOCUS AREAS

PSC inspectors typically verify:

- Automatic starting capability of emergency generator
- Availability of sufficient fuel supply
- Condition of switchboard and electrical systems
- Proper maintenance of batteries and charging systems
- Readiness of emergency lighting and communication systems
- Routine testing and maintenance records
- Crew familiarity with emergency procedures

CONCLUSION

Emergency source of electrical power remains one of the critical areas assessed during Port State Control inspections due to its direct impact on vessel safety during blackout conditions. Deficiencies associated with poor maintenance, ineffective testing, and defective starting arrangements continue to be among the most frequently observed PSC findings onboard cargo ships.

Ship operators and crew should ensure that emergency power systems are maintained in operational readiness at all times, with regular testing, proper housekeeping, and complete maintenance records available for inspection.

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