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NATAA/100/Policy

30 Sep 22

The Flag Officer Commanding-in-Chief  
(for Chief of Staff)  
Headquarters, Western Naval Command  
Mumbai 400023

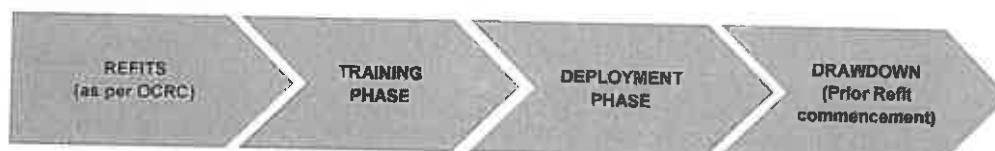
The Commander-in-Chief  
(for Chief of Staff)  
Headquarters, A & N Command  
Port Blair 744102

The Flag Officer Commanding-in-Chief  
(for Chief of Staff)  
Headquarters, Eastern Naval Command  
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The Flag Officer Commanding-in-Chief  
(for Chief of Staff)  
Headquarters, Southern Naval Command  
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**POLICY FOR CONDUCT OF STAFF SEA CHECKS - SHIPS/ SUBMARINES (NR/ MR)**

1. Refer to CNO 04/2019 regarding 'Transition Cycle for Ships from Refit to Operations'.
2. Towards formalising a procedure by which every ship/ submarine achieves full combat readiness after a lay-off on account of refits, a concept of 'Transition Cycle from Refits to Operations' has been introduced vide CNO ibid. The transition cycle focuses efforts of Operational Commanders as well as Acceptance and Work-up organisations on the training and safety inspections of platforms, prior to their deployment for operations. This is expected to enhance both 'Combat Readiness' and 'Safety Standards' onboard ships and submarines. The Maintenance-Training-Operations-Drawdown (MTOD) Cycle of ships and submarines commences on the refit start date and comprises four phases between two refits as given below: -



3. With the institution of **MTOD** cycle, there are certain stages of checks/ audits that a ship/ submarine is subjected to during final phase of the refit, till joining the Fleet/ Operational Commanders as an effective fighting platform. These are as indicated below: -

- (a) Safety Audit (FOLSAT) and Basic Sea Training (BST).
- (b) **SSC Stages 1, 2 and 3.**
- (c) REFCOMP.
- (d) Intermediate Sea Training (IST).
- (e) Combat Readiness (SATCOM) signal by Admin Authority.
- (f) **SSC Stage 4.**
- (g) Operational Sea Training (OST).

#### **Staff Sea Checks (SSC)**

4. The Staff Sea Checks (SSC) are important milestones in the refit cycle of ships and submarines post major refits (NR/ MR). Towards the last phase of major refit, SSC ensures transition of a platform from HATs stage to Preliminary Sea Trials (PST), Full Power Trials (FPT) leading to REFCOMP in a well-defined manner with scrutiny and oversight at all stages. This is achieved by a series of inspections by the Trial Agencies, Refitting Authority and Administrative Authority. It is, therefore, prudent that all equipment and systems of a ship/ submarine are subjected to holistic assessment at various stages of SSC. In addition, Navigation, Communication/ EW, ASW, Aviation, Weapon Systems, Damage Control and water tight integrity, De-watering/ fire-fighting systems integral to the ship's sea and role worthiness are also thoroughly assessed.

5. **Variance in Conduct of SSC Across Commands.** Examination of the current procedure for conduct of **SSC** (Stages 1 – 4) for ships/ submarines across all Commands revealed a wide variance. It has been observed that nomenclature used for the SSCs (WNC, ENC and ANC follow SSC stages of 1, 2, 3 and 4 whereas SNC follows SSC stages A, B, C and D) and authority chairing the SSC Stage 1/ A is also different across all four Commands (Director MTAA in WNC, CRO in ENC, ASY in SNC and CTO (Marine) in ANC). In addition, it was observed that check-off lists are sketchy, the number of equipment/ systems being checked and the extent of trials/ checks at each stage of SSC is also at variance. Based on consolidated inputs from all stakeholders, the policy for implementing uniform SSC for ships and submarines undergoing major refits (NR/ MR) has been formulated and the same is elucidated in the succeeding paragraphs.

6. **Methodology.** The methodology for conduct of SSC for ships and submarines undergoing NR/ MR will be as follows: -

- (a) All four stages of SSC be implemented for ships and submarines as part of end-of-refit activities. The composition of Inspection Teams and various stages of SSC is placed at **Enclosure 1**.
- (b) Check-off list intended to be used as a guideline during SSC Stages 1-4 for ships is placed at **Enclosure 2** and for submarines (EKM & SSK) at **Enclosure 3**. The check-off list for P-75 submarines will be issued separately in due course.
- (c) Administrative Authorities may recommend SSC for a particular ship/ submarine, in case the SR extends by more than half of the stipulated duration.
- (d) SSC are to be undertaken at the refit/ base port of the ship/ submarine as far as possible, unless the refit is offloaded to a shipyard outside the base port.

7. **Staff Sea Checks Stage 1 (by DG NATAA).**

(a) **Aim.** To ensure that trials of all equipment/ systems which are vital and essential to enable the ship/ submarine 'To Float', 'To Move' and 'To Survive' are completed.

(b) **Objectives.** To achieve HATs of Hull, Engineering and Electrical equipment and systems, with special emphasis on the following: -

- (i) Main Propulsion Plant along with IPMS/ IMCS.
- (ii) Steering Gear.
- (iii) PGD (at least 75% DAs/ TAs/ GTGs).
- (iv) HVAC system (atleast 75% AC plants), including Machinery spaces ventilation system.
- (v) HP air system with at least 75% HPACs.
- (vi) Major fire fighting systems in all machinery compartments and galleys.
- (vii) Fire main system with at least 75% fire main pumps.
- (viii) Bilge pumping out system with all pumps and eductors.
- (ix) Lighting in machinery compartments.
- (x) Communication and ND equipment (at least 50%).
- (xi) Ship borne boats/ RHIBs.
- (xii) Basic habitability as deemed essential by the AA.

(c) **Procedure.** SSC 1 will be undertaken by DG NATAA for capital ships/ submarines and by NATAA rep for smaller vessels. The ship/ submarine is to fill up the SSC 1 Check-off list proforma and forward the same to the concerned Administrative Authority (CRO and Cmde(Ops)), Refitting Authority and NATAA prior to the scheduled SSC 1. Adequate notice is to be provided to NATAA for collation of trial reports/ analysis of materiel state of the ship/ submarine. The check-off list may be suitably modified to bring out status of the additional equipment fit of the particular platform. Further, any aspects that are not covered in the check-off list but considered critical by the ship may also be included. The schedule of **SSC 1** is to be finalised based on Staff assessment of the ship's readiness. After thorough analysis of the SSC 1 check-off list forwarded by the ship/ submarine, the Administrative Authority (CRO) is to indicate readiness to NATAA prior to the scheduled date of SSC 1.

(d) The respective trial agencies are to render a comprehensive report to NATAA on completion of trials, indicating issues affecting sea-going capability of the ship/ submarine which need to be liquidated prior first sea sortie. A format for rendering such report by trial teams is placed at **Enclosure 4**. During SSC 1, ship staff is to present the status as per the check-off list, highlighting critical issues, followed by a walk-around. On completion of SSC 1, a signal bringing out the readiness of the ship/ submarine to proceed to sea is to be forwarded to the concerned Administrative Authority by NATAA, which is to be followed by a detailed report. Completion of SSC 1 is a critical milestone before a ship proceeds to sea for the first sortie (BST/ PST).

#### 8. **Staff Sea Checks Stage 2 (by CSO (Tech)).**

(a) **Aim.** To evaluate detailed status of Hull, Engineering, Electrical, Weapons, Logistics (Machinery spares and Naval stores), etc.

(b) **Objectives.** To achieve 100% HATs of all Hull, Engineering, Electrical, ND/ Communication equipment and systems. In addition, following are to be completed: -

- (i) All PSTs, including endurance trials where required, and liquidation of all pending observations of PSTs.
- (ii) SATs of HVAC system including Machinery spaces ventilation system.
- (iii) Liquidation of all pending observations of SSC 1 and fresh defects observed post SSC 1.
- (iv) Major fire fighting systems in magazines, barbettes, helo hangars/ helo deck, paint store, bosun store etc.
- (v) Stabilisers and refrigeration plants, including cold/ cool rooms.

- (vi) Logistics (OBS, Naval Stores etc).
- (vii) Habitability related work.
- (viii) Completion of Weapon related SoW and Harbour checks by NAD/ NAI.
- (ix) Completion of Acoustic Hygiene Audit and liquidation of all observations.

(c) **Procedure.** The trial agencies are to render comprehensive reports to NATAA on the status of pending trials and PSTs as per format placed at **Enclosure 4**. On receipt of reports from trial agencies, NATAA is to render a consolidated report to CSO(Tech) prior conduct of **SSC 2**. On completion of SSC 2 review by CSO(Tech), a signal bringing out the readiness of the ship/ submarine to proceed for Full Power Trials (FPT) and other pending issues is to be forwarded by the Administrative Authority (CRO), followed by a detailed report.

9. **Staff Sea Checks Stage 3 (by ASD/ ASY/ CSY).**

(a) **Aim.** To evaluate detailed status of HATs of Weapon systems and sensors and ship/ submarine preparedness to enter the Operational phase.

(b) **Objectives.** Following are to be completed: -

- (i) HATs of Gunnery, EW, ASW, Aviation, Seaman equipment/ systems.
- (ii) FPT and liquidation of all associated observations.
- (iii) Liquidation of all pending observations of SSC 2 and fresh defects observed post SSC 2.

(c) **Procedure.** A report on the assessment of materiel readiness and sea worthiness of the platform is to be submitted by ASD/ ASY/ CSY, which should also include a certification by the Commanding Officer regarding satisfactory materiel state. The trial agencies are to render comprehensive reports to NATAA on the status of pending trials and FPT as per format placed at **Enclosure 4**. NATAA is to render a consolidated report to ASD/ ASY/ CSY prior conduct of **SSC 3**. On completion of SSC Stage 3 review by ASD/ ASY/ CSY, a signal bringing out the overall readiness of the ship/ submarine is to be forwarded by the Refitting Authority, followed by a detailed report.

10. **Materiel Assessment Report Post REFCOMP.** On successful completion of the refit, NATAA is to render a Materiel Assessment report in the form of a signal within a week of REFCOMP, followed by a detailed 'Materiel Assessment Report' of the ship/ submarine with inputs from CRO, Yard, Trial Units and the concerned MO. The main

objective of this report is to benchmark the overall performance of various equipment and systems on completion of a major refit.

11. **Staff Sea Checks Stage 4 (by COS).**

(a) **Aim.** To evaluate detailed status of SATs of all Weapons systems and ship/ submarine preparedness to undergo OST and be mission deployed.

(b) **Objectives.** To check status of the materiel readiness, sea worthiness, ship's standing orders, general hygiene, ship's husbandry, living conditions onboard and facets requiring special attention by FOST. SSC 4 should be conducted post successful culmination of SATCOM.

(c) **Procedure.** SSC 4 is to be conducted by COS on behalf of the Administrative Authority. It includes a detailed presentation by the Commanding Officer to COS highlighting all facets to 'To Float', 'To Move', 'To Survive' and 'To Fight'. The presentation is to be followed by a walk-around.

12. The various stages of a SSC for ship/ submarine (post NR/ MR) are undertaken to ensure that all equipment/ systems are assessed for their designed performance post completion of major repairs/ overhauls/ replacement. These are also undertaken to enhance both 'Combat Readiness' and 'Safety Standards' onboard ships and submarines in-line with '**SHIPS FIRST**' approach of the Navy. It is, therefore, prudent that Staff Sea Checks are carried out with due diligence to improve the overall materiel state, sea worthiness and combat capability of *IN* ships and submarines.

13. This policy for conduct of Staff Sea Checks will come into force with immediate effect. Feedback wrt the policy letter may be forwarded progressively.

14. This policy letter will be reviewed in 2025.

  
(K Srinivas)  
Rear Admiral  
Director General

**Enclosure:** - As above

**Copy to:** -

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Naval Base  
Karwar 581308

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Maharashtra Naval Area  
Mumbai 400023

The Flag Officer Commanding  
Eastern Fleet  
c/o Fleet Mail Office  
Visakhapatnam 530014

The Admiral Superintendent  
Naval Dockyard  
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Tamil Nadu and Puducherry Naval Area  
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The Admiral Superintendent  
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The Commodore Commanding Submarines  
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The Commodore Superintendent  
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Director / Osi/C – HITUs, MTUs / MCTU, CTT(Pbr), MSETT, GTTTs, DTTTs, CBIU, ETMA/  
ETMUs/ ETT.

Internal: -

NA/ CNS

TA/ COM

SO/ DCNS

SO/ DGNO

ACOM(IT&S)

ACNS(NSM)

ACOM(D&R)

ACNS(SR)

ACNS(S/M)



**Enclosure 1 to NATAA Letter**  
**NATAA/100/Policy dt 30 Sep 22**

**STAFF SEA CHECKS – STAGES AND INSPECTION TEAMS**

<b><u>STAGE</u></b>	<b><u>OCCASION</u></b>	<b><u>COMPOSITION OF INSPECTION TEAM</u></b>
<b>1</b>	On successful culmination of <b>Basin Trials</b> and Prior <b>PST</b>  (Date to be proposed by concerned Admin Authority)	<b>DG NATAA</b> , HQ(CRO, CEO, CLO, CCONO, CLOGO, CNBCDO), Ops Authority (E/ L/ NC/ NBCD), COMCOS (CEO/ CLO/ SNCO), Trial Teams (GTTT, CBIU, MTU/ CTT, DTTT, MSETT, HITU, ETMA/ ETMU/ ETT, WATT), Yard (GM(R), AGM(PR), AGM(PL)), LWT/ SWT, MS and any other member, if required.
<b>2</b>	Post Successful culmination of all <b>PSTs</b>  (Date to be proposed by concerned Admin Authority)	<b>CSO(Tech)</b> , HQ (CRO, CEO, CLO, CCONO, CLOGO, CNBCDO, SO(G), SO(ASW)), Ops Authority (E /L/ NC/ NBCD), COMCOS (CEO/ CLO/ SNCO), Trial Teams (GTTT, CBIU, MTU/ CTT, DTTT, HITU, ETMA/ ETMU/ ETT, WATT and NEC), Yard (GM(R), AGM(PR), AGM(PL)), LWT/ SWT, MS, RAQAS, NAD, NAI, NATAA rep and any other member, if required.
<b>3</b>	Post Successful culmination of <b>FPT</b> and around <b>REFCOMP</b>  (Date to be proposed by concerned Yard)	<b>ASD/ ASY/ CSY</b> , HQ (CRO, Cmde(Ops), CLOGO, CNBCDO), Ops Authority (E /L/ NC/ NBCD), COMCOS, Yard (GM(R), AGM(PR), AGM(PL)), LWT/ SWT, MS, WATT, NEC, RAQAS, NATAA rep and any other member, if required.
<b>4</b>	After <b>SATCOM</b>  (Date to be proposed by Ops Authority within 45 days of <b>REFCOMP</b> )	<b>COS</b> , NATAA, HQ (CSO(Tech), CSO(Ops), CSO(P&A), ASD/ ASY/ CSY, Ops Authority, COMCOS, MS, LWT/ SWT, WATT, and any other member, if required.
*Representatives from Shipyards to be present in case of offloaded refits		

**Note:** - CO to forward report as per attached SSC stages format to cover all aspects/ limitations of material readiness and deliver a presentation.

**Enclosure 2 to NATAA Letter**  
**NATAA/100/Policy dt 30 Sep 22**

## **STAFF SEA CHECKS – SHIPS**

### **STAFF SEA CHECKS STAGE 1 BY DG NATAA**

**(On successful culmination of Basin Trials and prior to PST)**

<u>Ser</u>	<u>Equipment/ System</u>	<u>Status</u>	<u>Pending Observations</u>
		<u>SAT/ SAT with observations/ UNSAT</u>	
1.	BASIC SEA WORTHINESS INCLUDING HULL AND DECK MACHINERY		
(a)	Completion of APT of all compartments		
(b)	Lighting in compartments/ machinery spaces (including Emergency)		
(c)	Trials of Anchors and Capstans including Mooring Capstans		
(d)	Securing of bilge plates in all machinery compartments		
(e)	Inclining experiment completed (for MR / major retro-fitment affecting distribution of weights)		
(f)	U/W paint scheme followed, as per laid down specifications.		
(g)	Following surveyed and load tested: -		
(i)	Anchor & chain cable		
(ii)	Boat davits, falls, slings and RD gears		
(iii)	Cargo derricks		
(iv)	Jack stay points		
(v)	Winches		
(vi)	Cranes		
(vii)	RAS equipment		
(viii)	Anchor and Mooring Capstan		
(h)	ICCP		
(j)	HATs/ Concurrent Trials of HVAC and AC Plants completed (including Machinery Compartments Ventilation System)		
(k)	Bilge and Ballast System		
(l)	No doublers below line		
(m)	Sea cocks, sea tubes, manhole covers checked		
(n)	Water/ air pressure testing of tanks/ holds		

(p)	Availability of all doors/ hatches/ Port holes, in all Red zones		
(q)	Marking of flooding scale in u/w compartments		
(r)	Temperatures in Radar rooms, Ops room, Bridge, Telephone/ Intercom/ Extension/ Action Intercom, Communication Equipment rooms, etc. are optimum		
(s)	Trials of Ship borne boats/ RHIBs		
(t)	Basic Habitability		
(u)	Lagging (Cold and Hot)		
2.	<b>MAIN PROPULSION PLANT</b>		
(a)	Propulsion Examination Board (PEB) completed		
(b)	Main Propulsion status and limitations, if any		
(c)	Reduction Gear Box status and limitations, if any		
(d)	Shafting status and limitations, if any (including Shaft Locking System and Shaft Braking System)		
(e)	CPP		
(f)	Shaft Grounding System		
(g)	Stern tube cooling water flow rate		
(h)	Status of instrumentation, control systems and safety devices (SDC by trial agency)		
(j)	All observations of trials teams during Basin Trials liquidated		
(k)	Availability of EOT/ POT		
3.	<b>PGD</b>		
(a)	Load Trials (including safety device checks) of all generators by <i>DTTT/ GTTT, ETMA/ ETMU, MTU, CTT</i> , etc. completed		
(b)	Switchboards (MSB and ASBs) and paralleling trials (including safety devices, instrumentation, calibration certificates, etc.) and APMS		
(c)	Availability of Supplies (Including Alternate/ Emergency) to all Consumers		
(d)	Auto Change Over Switches/ ATS (Nav aids, Steering Gear, Main Propulsion, etc.)		
(e)	Battery/ UPS backup for IPMS/ IMCS, DG controls and safety critical systems		
(f)	Emergency Supply Network (including Emergency DAs/ cables/ Switchboards)		
(g)	Protection Devices, Cut-outs, Instrumentation of all Equipment and Systems		

(h)	EMI/ EMC, top deck and below deck visual survey and shielding effectiveness of Cat 'A' compartments		
(i)	Trials of all Motors and Starters including JBs, DBs, etc.		
(k)	Liquidation of observations of trials teams during harbour trials		
(l)	Any other ship specific equipment required for proceeding to sea and their availability/ limitation etc.		
(m)	Various UPS and Battery Banks		
(n)	Convertors & Rectifiers		
(p)	Galley Equipment		
(q)	Window Wipers		
(r)	AELs		
<b>4.</b>	<b>AUXILIARY MACHINERY AND SYSTEMS</b>		
(a)	Availability of Main and Emergency Steering Gear (in all modes) and limitations, if any		
(b)	HP Air Compressors availability and control system trials		
(c)	All Control Air Compressors available and trials		
(d)	ACs availability and control system trials		
(e)	HATs/ Concurrent Trials of HVAC and AC Plants (including Machinery Compartments Ventilation System)		
(f)	Cooling water pumps available and trials completed		
(g)	Fuel Centrifuges, transfer pumps and fuel system including tank level sensors		
(h)	Lub oil Centrifuges, transfer pumps and lub oil system including tank level sensors		
(j)	Fresh water system including Fresh water pumps		
(k)	HP air and LP air systems		
(l)	Comprehensive System trials of Ship's engineering systems completed including relevant Equipment		
(m)	SDCs, Performance, Capacity, Vibration, Attenuation trials, etc. completed on all Auxiliary Equipment		
(n)	All system pipelines are marked with relevant colour coding and direction of flow of the medium		
(p)	Auxiliary Boiler including associated Steam System		

(q)	Hydraulic systems for remote operation of various system valves/ components available		
(r)	Any other ship specific system required for proceeding to sea and its availability/ limitation etc.		
(s)	Bilge pumps & Bilge pumping out system		
(t)	Checks of Sea chests/ strainers		
(u)	Calibration/ Weighing certificates for all cylinders/ valves		
(v)	Status of all Shaft/ Coupling Guards		
(w)	Status of all Eductors		
(x)	Status of all machinery compartment bilge plates		
(y)	Checks of Pipe supports and load hangars		
(z)	Checks of DD pumps		
5.	<b>NAV AIDS, INTERNAL AND EXTERNAL COMMUNICATION SYSTEMS</b>		
(a)	Gyro(s) including Back-up Power supplies		
(b)	Echo Sounder(s)		
(c)	Log(s)		
(d)	Navigation Radars and ECDIS		
(e)	GPS		
(f)	Siren(s)		
(g)	Nav lights and NLCP		
(h)	Battery back-up / UPS		
(j)	Main Broadcast (with battery backup), and Intercom System (especially between bridge, MCR and ASP)		
(k)	Digital/ Telephone Exchange and SRE		
(l)	Sound Power Telephones		
(m)	SAT NAV, MSS and FBB 500		
(n)	Tele-printers		
(p)	Plotting tables		
(q)	Auto Steering System		
(r)	HF/ VHF/ UHF/ TX/ RX (including portable sets)		
(s)	AIS and WSDS		
(t)	GMDSS equipment consisting of EPIRB, SART, SATCOM		

6.	<b>NBCD</b>		
(a)	Trials/ Checks of all Major fire-fighting and damage control systems of Galleys		
(b)	Trials/ Checks of all Major fire-fighting and damage control systems of Machinery Compartments		
(c)	Fire pumps and all hydrants available and trials taken. Fire main System integrity checks completed and proved to 8 bar or 10 bar, as applicable		
(d)	Dewatering/ De-ballasting pumps fitted and tried		
(e)	Automatic Fire Detection System		
(f)	Automatic Flood Warning System		
7.	<b>CREW SAFETY</b>		
(a)	Safety guards on all rotating machinery installed		
(b)	All rod gearings operational and proven		
(c)	Availability of CNAL items as per scale		
(d)	Life buoys		
(e)	Availability of in-date life rafts commensurate with ship's company, Yard and Trials Teams embarking for sea sortie		
(f)	Availability of life jackets to cater for ship's company, Yard and Trials Teams embarking for sea sortie		
(g)	Watch and Station Bill complete		

(Signature of Commanding Officer)

**STAFF SEA CHECKS STAGE 2****INSPECTION BY CSO(T)****(On successful culmination of all PSTs and prior to FPT)**

<b><u>Ser</u></b>	<b><u>Equipment/ System</u></b>	<b><u>Status</u></b>	<b><u>Pending Observations</u></b>
		<b><u>SAT/ SAT with observations/ UNSAT</u></b>	
1.	<b>HULL</b>		
(a)	Pending observations of SSC 1 inspection completed/ liquidated		
(b)	All spares & repair material as per authorised scale available		
(c)	SATs/ Concurrent Trials of HVAC system including machinery compartments ventilation system balancing		
(d)	Safe storing of GRP material ensured		
(e)	Watch and Quarter Bill complete		
(f)	Action pocket books available		
(g)	Documents/ Records as per extant orders being maintained		
(h)	PPM in force & PPM boards placed		
(i)	Gas welding/ cutting set including accessories and consumable materials available		
(k)	Arc welding set including accessories and Consumable materials available		
(l)	Oxygen & Acetylene cylinders available		
(m)	All authorised tools available		
(n)	All vent flaps checked		
(p)	All lagging (cold/ hot) work completed		
(q)	Ship's Hull work shop operational		
(r)	Machinery foundation & preservative paints		
(s)	Super structure weapons supports, platform, expansion joints, bi-metallic joints		
(t)	Masts, funnels, pillars		
(u)	Lifting appliances, davits, derricks & cranes		
(v)	Lifts, gantry, accommodation ladders		
(w)	Pulley blocks, tackles, running & standing rigging		
(x)	Guard rails		
(y)	Deck covering & underlay, PV tiles, Mosaic, etc.		
(z)	Sewage systems/ VTS/ STP and status/ calibration of fixed & portable gas detectors		
(aa)	Drainage systems of ATUs/ HES		

(ab)	Helo Traversing System (HTS)		
(ac)	Helo Hangars		
(ad)	Citadel Test including components facilitating auto mode change over to NBC condition checks		
(ae)	Pre-wetting System		
(af)	Completion of Habitability work package		
<b>2.</b>	<b>ENGINEERING</b>		
(a)	Pending observations of SSC 1 inspection completed/ liquidated		
(b)	Watch & Quarter Bill complete		
(c)	Qualified & certified engineering sailors to keep independent watch available		
(d)	OPDEFs cancelled prior entering refit liquidated		
(e)	As & As complete		
(f)	Nil D448 liabilities pending		
(g)	All BRs/ handbooks held as per authorisation		
(h)	Documents/ records being maintained as per Command General Orders and Ship's Standing Orders		
(j)	PPM routines carried out as per UM2 and upto date		
(k)	All Instrumentation safety devices, cut-outs operational		
(l)	Engineering Workshop machinery operational		
(m)	Bilges cleaned and dry		
(n)	Firemain pressure available at all decks		
(p)	Test equipment, chain pulley blocks etc. available		
(q)	Any pending refit work package		
(r)	List down critical spares required to Complete balance jobs		
(s)	Engineering Department Standing Orders updated		
(t)	Aircraft lifts		
(u)	CBPM methodologies viz. lub oil analysis and vibration measurement to be in place for all applicable machinery		
(v)	Acoustic Hygiene Audit Completed		
<b>3.</b>	<b>ELECTRICAL</b>		
(a)	Pending observations of SSC 1 inspection completed/ liquidated		
(b)	Watch and Quarter bill complete		
(c)	Complement of Electrical sailors complete		
(d)	PPM system followed as per UM2 and upto date		
(e)	Documents/ records as per extant orders being maintained		



(f)	Flight Deck Machinery		
(g)	Radio instruments		
(h)	Authorised CRETE holding		
(j)	SPM readings of all motors		
(k)	Helo starting converters & rectifiers		
(l)	Workshop machinery & tools		
(m)	General Cabling, Cable glands and Electrical Hygiene Checks		
(n)	As & As complete		
(p)	OPDEFs cancelled prior entering refit liquidated		
(q)	Electrical Department Standing Orders updated		
(r)	EMI/ EMC Checks Part A conducted. NO(Str) 05/15 refers. NEC to render report.		
(s)	Comprehensive report on complete PGD network of the ship including Power Quality Audit of DA/ TA/ GTG, APMS, AVR, MSBs, Static and Rotary Convertors, Battery Banks etc. rendered by ETMA/ ETMU/ ETT		
(t)	Removal of old/ unused cables		
<b>4.</b>	<b>AUXILIARY MACHINERY AND SYSTEMS</b>		
(a)	Ref plants including all Cold and Cool Rooms		
(b)	HATs of RO plants/ Distilling plants/ Evaporators		
(c)	HATs of OWS		
(d)	HATs of Stabilisers		
(e)	Cathelco System		
(f)	'Internal Noise Audit' by SS & 'Status Review of Pre-Refit Defects' of acoustic hygiene audit to be completed		
(g)	Status of all Hot Lagging/ Cold Lagging		
<b>5.</b>	<b>NAV AIDS, INTERNAL AND EXTERNAL COMMUNICATION SYSTEMS</b>		
(a)	Rukmani (C/KU Band)		
<b>6.</b>	<b>LOGISTICS</b>		
(a)	All Naval store items as per authorisation available, i.e., ship's warrant of sea stores, initial outfit allowance lists etc.		
(b)	ARS items supplied		
(c)	OBS of all Hull, Engineering, Electrical and NBCD mustered and demands raised for deficient items		
(d)	Sufficient POLs embarked		
(e)	Critical spares list/ material deficiencies required to complete defect rectification/ routines and status of supply with EDS (under ship's charter)		

7.	<b>DAMAGE CONTROL AND FIRE FIGHTING</b>		
(a)	Trials/ Checks of all Major fire-fighting and damage control systems of Magazines, Barbettes, Paint Stores, Bosun Stores, etc.		
(b)	Trials/ Checks of all Major fire-fighting and damage control systems of Helo Hangars/ Helo Deck/ Flight Deck		
(c)	Watch and Station Bill complete		

(Signature of Commanding Officer)

**STAFF SEA CHECKS STAGE 3****(On successful culmination of FPT & HATs of all Weapons and Sensors)****PART A – READINESS TO ENTER OPERATIONAL PHASE BY SHIP STAFF**

<u>Ser</u>	<u>Equipment/ System</u>	<u>Status</u>	<u>Pending Observations</u>
		<u>SAT/ SAT with observations/ UNSAT</u>	
1.	NAVIGATION		
(a)	Basic safe navigation practices checked & certified by FWO		
(b)	Methodology for conning the ship discussed between CO & NO		
(c)	Watch and Quarter Bill complete		
(d)	Complement of RP sailors complete		
(e)	Complete sanction of charts as per CNO 04/85 held		
(f)	All chart corrections, NAVAREA VIII file and log up to date		
(g)	All user controls of Nav/ steering aids		
(h)	Operational from following positions: -		
(i)	Bridge		
(ii)	Bridge wings		
(iii)	ASP		
(iv)	Ops room		
(j)	Status of following to be checked: -		
(i)	Log calibration		
(ii)	MF DF calibration		
(iii)	Compass swing		
(iv)	ND Standing Orders		
(v)	Documents/ records as required per relevant Command General Orders		
(vi)	Binoculars		
(vii)	Temperature readings to determine state of AC in radar room, Ops room, Bridge etc.		
2.	ASW		
(a)	Watch and Quarter Bill complete		
(b)	Complement of ASW sailors complete		
(c)	S/M boarding party muster		
(d)	Demolition party muster		
(e)	Sailors have names, action numbers, blood groups written correctly on Digital Camouflage/ FR Overalls		
(i)	Complete outfits of ammunition		
(ii)	Switch ON/OFF procedure cards		
(iii)	Action pocket books		

(iv)	Gears required for S/M boarding party, SUBMISS/ SUBSUNK, Barracuda, demolition etc.		
(v)	Complete fitment gear & preparation list of helo weapon held onboard		
(vi)	Headsets		
(vii)	BRs as per authorised list		
(f)	Status of following to be checked: -		
(i)	KBT Probes		
(ii)	Stowage place for detonators		
(iii)	Stowage place for scare charges		
(iv)	Scare place of scare charges		
(v)	A/S smoke marker locker		
(vi)	Stowage place for primed hand grenade & its capacity		
(vii)	Magazines, magazine log, magazine key organisation		
(viii)	Temperature readings to determine state of A/C in sonar equipment rooms		
(ix)	ASW Standing Orders		
(x)	Documents/ records as required per relevant Command General Orders		
<b>3.</b>	<b>AVIATION</b>		
(a)	OOW/ Bridge has knowledge of approved flight envelope		
(b)	Watch and Quarter Bill complete		
(c)	Complement of Aviation sailors complete		
(d)	NTI/ STI /LTI/ NAMO folder up to date		
(e)	SINAS up to date		
(f)	Aviation facility log up to date		
(g)	All fire points serviceable		
(h)	All group equipment as per GSE/ MTS serviceable		
(j)	Availability of following: -		
(i)	Serviceable crash and salvage equipment		
(ii)	Complete GSE as per authorised list		
(iii)	APs & BRs as per authorised list		
(iv)	Photographic equipment as per authorised list		
(v)	Lists for all types of aircraft that can operate from the ship		
(vi)	Up to date FACs and weapons reference cards for type of a/c in FLYCO/ Ops room		
(vii)	Action pocket books		
(viii)	AFFF, foam compound for a/c operations		
(ix)	Authorised air stores		
(x)	Flight deck clothing		
(k)	Status of following to be checked: -		
(i)	Certification of aviation fuel & lubricants		
(ii)	Record of aircraft aero engines		
(iii)	Tools		

(iv)	AEES points on board		
(v)	Battery charging facility		
(vi)	SPARE sets		
(vii)	Dark room facility		
(viii)	Deck gear fittings		
(ix)	Line course calculator		
(x)	Anemometer		
(xi)	Current flip for Helo briefing		
(xii)	Tele brief		
(xiii)	Helo state board		
(xiv)	Air Department Standing Orders up to date		
(xv)	Documents/ Records as required per relevant Command General Orders		
(xvi)	Weapon loading trollies and equipment		
(xvii)	Weapon loading points		
(xviii)	Hangar surface points. Hangar spray system, 'fuel danger light' communication in HCP, Hangar operating mechanism/ doors, SOFMA, Manipulator spray system		
(xix)	Fire curtains		
(xx)	Securing gear for aircraft in hangar and flight deck		
(xxi)	Flight deck paint, safety nuts, fire points, pre-wetting points, flight deck marking, flight deck lighting		
(xxii)	Flight deck MT vehicle		
(xxiii)	Serviceable loop, headsets		
(xxiv)	Lashing/ chocks for aircraft		
(xxv)	Fuel hoses		
(xxvi)	Fuelling points		
(xxvii)	ASE (air store)		
(xxviii)	Emergency floating equipment		
(xxix)	Organisation for recovery of ditched Helo		
(xxx)	Aircraft fire-fighting equipment		
(xxxi)	MET instruments		
(xxxii)	Aircraft husbandry		
(xxxiii)	Flight safety		
4.	<b>GUNNERY</b>		
(a)	Watch and Quarter Bill complete		
(b)	Complement of Gunnery sailors complete		
(c)	Landing and boarding party muster		
(d)	Landing and boarding party kitted as per CNO 11/19, BR 1920 chapter 25, 30 and BR 1920A		
(e)	Sailors have their names, action nos and blood group written correctly on digital camouflage / FR overalls.		
(f)	Availability of following: -		
(i)	Switching ON/OFF procedure cards, Sea and action cards, command & control orders cards, misfire drill cards, reactionex chuck of cards		

(ii)	CBs & BRs		
(iii)	Anti-flash gear and helmets		
(iv)	Binoculars		
(v)	Complete outfit of ammunition		
(vi)	Plug board gauges for guns		
(g)	Status of following to be checked: -		
(i)	Series inspection		
(ii)	Action pocket books		
(iii)	Gunnery Department Standing Orders up to date		
(iv)	Documents/ records as required per relevant Command General Orders		
(v)	Magazines, magazine log, magazine key organization		
(vi)	Head sets		
5.	<b>COMMUNICATION &amp; EM</b>		
(a)	Watch and Quarter Bill complete		
(b)	Complement of TAC/ TEL/ SPL Sailors' complete.		
(c)	AIO/ CAIO systems		
(d)	ESM/ ECM systems		
(e)	Availability of following to be checked: -		
(i)	RADHAZ Board		
(ii)	EMCON state board		
(iii)	Equipment state board		
(iv)	Calls sign board		
(v)	Fleet manoeuvring board		
(vi)	Emergency aerials for HF & V/ UHF equipment		
(vii)	Complete set of flags including cable & speed flags		
(viii)	Adequate V/S signalling lanterns/ batteries/ torches		
(ix)	Serviceable binoculars		
(x)	Retrievers on halyards		
(xi)	Switch ON/ OFF procedure cards, Reactionex check off cards		
(f)	Status of following to be checked: -		
(i)	Batteries & battery charger for portable sets.		
(ii)	Tape recorders/ spools/ cassettes		
(iii)	Telephone/ intercom/ extension/ action intercom		
(iv)	Remote control positions for CM/ RT/ RATT operations		
(v)	SHF DF calibration		
(vi)	Emergency generator/ static invertor		
(vii)	Crypto PC		
(viii)	Communication & EM standing orders		
(ix)	CBs/ SOXs		
(x)	Action pocket books		

(xi)	Documents/ records as required per relevant Command General Orders		
(xii)	Temperature readings to determine state of AC in communication equipment rooms		
(xiii)	Sailors have names, action numbers, blood groups written correctly on uniforms		
(xiv)	Headsets		
6.	<b>SEAMANSHIP</b>		
(a)	Watch and Quarter Bill complete		
(b)	Survey/ test of anchor & cables carried out		
(c)	Fuelling hoses pressure tested		
(d)	Serviceable life jackets available for all men plus 10%		
(e)	Serviceable life rafts available		
(f)	Seamen knives available		
(g)	Availability of all gear for following: -		
(i)	Light jackstay		
(ii)	Abeam fuelling		
(iii)	Astern fuelling		
(iv)	Tow forward and tow aft		
(v)	Danbuoy		
(vi)	Crash boats		
(vii)	Accommodation ladders		
(viii)	Large target		
(ix)	Darken ship screen		
(x)	Rig for recovery of men by swimmer		
(h)	Load test for following completed and stamped: -		
(i)	Ammunitioning derrick, associated winch wire, blocks and topping lifts		
(ii)	Jack stay ropes		
(iii)	Wire ropes use for astern fuelling		
(iv)	Picking up ropes		
(v)	Hydrostatic release gears		
(vi)	All associated ships, shackles, blocks, deck eyes, etc. for RAS		
(vii)	Ship's brow		
(j)	Status of following to be checked: -		
(i)	Check off list of all seamanship evolution Documents/ records as required per relevant Command General Orders and EXO standing Orders		
7.	<b>DAMAGE CONTROL &amp; FIRE FIGHTING</b>		
(a)	NBCD status of ship available		
(b)	Watch and Station Bill complete (full ship)		
(c)	NBCD team organised as per current orders		
(d)	BASCCA/ ELSA sets positioned throughout ship		
(e)	Location list of NBCD equipment available		
(f)	Availability of the following: -		
(i)	Various WT&GT condition check off lists		

(ii)	Pre-sheltered check off list		
(iii)	Monitoring check off list		
(iv)	Cleansing station check off list		
(v)	Chemical defence & safety check off list		
(vi)	Incident board		
(vii)	Door and hatch board		
(viii)	Flooding and pumping board		
(ix)	Ventilation and re-circulation board		
(x)	Fuel and water state board		
(xi)	Main system board		
(xii)	NBCD protection officer board		
(xiii)	NBCD stores as per allowance list		
(xiv)	Exercise briefing and debriefing register		
(g)	Status of following to be checked: -		
(i)	NBCD markings on the ship		
(ii)	Portable/ fixed fire-fighting & damage control equipment as per allowance list		
(iii)	AFUs		
(iv)	Communication equipment in NBCD HQs and section bases		
(v)	Communication equipment in NBCD HQs and section bases		
(vi)	NBCD organisation		
(vii)	AELs		
(viii)	Portable emergency battery operated damage control lights		
(ix)	SIRS/ SICADS		
(x)	Portable/ fixed fire-fighting system		
(xi)	NBCD Standing Orders		
(xii)	Key organization		
(xiii)	Documents/ records as per relevant Command General Orders		
(xiv)	Cooks/ Galley safe operating drill & procedure		
(xv)	Laying down of 'NO SMOKING ZONES' and 'SMOKING PERMITTED COMPARTMENTS'		
<b>8.</b>	<b>MEDICAL</b>		
(a)	Watch and Quarter Bill complete		
(b)	Complement of medical sailors complete		
(c)	Authorised medical equipment held onboard		
(d)	All medical/ surgical equipment operational		
(e)	BRs and ME scales pertaining to Medical Department onboard		
(f)	Documents/ records as per existing orders maintained		
(g)	Sanitary round reports being recorded in sanitary diary		
(h)	Meat & milk products being examined		
(i)	Annual medical examination of officers carried out		



(k)	Annual medical examination for sailors carried out		
(l)	Medical examination of food handlers being carried out regularly		
(m)	First aid boxes available		
(n)	Permanent and consumable medical stores as per authorisation available		
(p)	Lectures on following being carried out: -		
(i)	First aid		
(ii)	AIDS		
(iii)	STD		
(iv)	Food poisoning		
(v)	Artificial respiration		
(vi)	Small family norms		
(q)	De-cockroaching/ De-bugging /De-rating carried out		
(r)	Stretcher party nominated		
(s)	Family planning status		
(t)	Blood group status		
(u)	AIDS status		
9.	<b>LOGISTICS (OTHER THAN MACHINERY SPARES AND NAVAL STORES)</b>		
(a)	Check that following are being maintained properly, as required: -		
(i)	Ship's Office		
(ii)	Pay and allowances		
(iii)	Public and Non-Public funds		
(iv)	Service Documents		
(v)	Regulating organisation		
(vi)	Clothing		
(vii)	Mess traps		
(viii)	Victualing		
(ix)	Wardroom		
(x)	Outstanding audit objections		
(b)	Status of following to be checked: -		
(i)	Complement of cooks & steward complete		
(ii)	Galley equipment operational		
(iii)	General body mess meetings being held regularly		
(iv)	Weekly menu being prepared & followed		
(v)	Books/ records as per existing orders being maintained		
(c)	Watch and Quarter Bill complete		
11.	<b>ELECTRICAL</b>		
(a)	Trials/ HATs to be completed for the following Weapon systems: -		
(i)	Warning radars		
(ii)	Gunnery radars		
(iii)	IFF		
(iv)	Missile radars		
(v)	Sonar (Search/ Attack)		
(vi)	Fire control systems		

(vii)	Gun mountings/ Launchers		
(viii)	Torpedo tubes		
(ix)	Hull outfits		
(x)	Removal of old/ unused cables		

**(Signature of Commanding Officer)**

**STAFF SEA CHECKS STAGE 3****(On successful culmination of FPT & HATs of all Weapons and Sensors)****PART B - INSPECTION BY ASD/ ASY/ CSY**

<u>Ser</u>	<u>Equipment/ System</u>	<u>Status</u>	<u>Pending Observations</u>
		<u>SAT/ SAT with observations/ UNSAT</u>	
1.	Following important aspects to be checked: -		
(a)	All observations of SSC 2 liquidated		
(b)	Full Power Trials completed and all observations liquidated		
(c)	HATs of all Weapons and Sensors completed		
(d)	End of Refit Trials of all equipment/ systems and HATs/ SATs of new induction equipment completed		
(e)	All outstanding jobs as per REFCOMP meeting completed		
(f)	Detailed status of following aspects to be checked: -		
(i)	Hull		
(ii)	Engineering		
(iii)	Electrical		
(iv)	Weapons		
(v)	Sensors		
(vi)	Communication equipment		
(vii)	Medical		
(viii)	Logistics		
(ix)	Damage Control and Water tight integrity		
(x)	Fire Fighting Systems		
(xi)	Seaworthiness		

**(Signature of Commanding Officer)**

### **STAFF SEA CHECKS STAGE 4**

#### **INSPECTION BY COS ON BEHALF OF FOC-IN-C**

**(After completion of SATs of all Weapons and Sensors System)**

1. To be conducted after completion of SATCOM
2. Presentation by Commanding Officer
3. Following to be ensured: -

<b><u>Ser</u></b>	<b><u>Equipment/ System</u></b>	<b><u>Status</u></b>	<b><u>Pending Observations</u></b>
		<b><u>SAT/ SAT with observations/ UNSAT</u></b>	
(a)	All observations of REFCOMP completed		
(b)	SATs of all equipment, weapons and sensors completed		
(c)	Status of following to be checked: -		
(i)	Material Status		
(ii)	Sea Worthiness		
(iii)	General Hygiene		
(iv)	Habitability		
(v)	Ship's standing orders		
(vi)	Fire Fighting, Damage Control and Water tight integrity		
(vii)	Ships husbandry		
(viii)	Living conditions on board		
(ix)	Facets requiring special attention of FOST		

**Note:** Inspection by FOC-in-C in case of serious exception statement by COS

**(Signature of Commanding Officer)**

Enclosure 3 to NATAA Letter  
NATAA/100/Policy dt 30 Sep 22

## EKM SUBMARINES

### STAFF SEA CHECKS STAGE 1 BY DG NATAA

*(On successful culmination of Basin Trials and prior to PST) .*

<u>Ser</u>	<u>Equipment/ System</u>	<u>Status</u>	<u>Pending Observations</u>
		<u>SAT/ SAT with observations/ UNSAT</u>	
1.	<b>BASIC SEA WORTHINESS</b>		
(a)	Painting of Hulls and Superstructure		
(b)	Overall 100 mm vacuum test of the submarine carried out along with torpedo tubes and sonar capsule		
(c)	Availability of lights in all compartments		
(d)	Availability of doors and hatches		
(e)	Anchors and capstans available		
(f)	Fitment of deck plates in all compartments		
(g)	Securing of ladders to all compartments		
(h)	Whistle and Siren available		
(i)	Depth Gauge and List/ Trim indicator available		
(k)	Emergency Towing Gear available		
(l)	Surface Inclining Experiment completed		
(m)	System Palladi indications and interlocks of Palladi 21 available		
(n)	Functional checks of system Pirit completed		
(p)	Status of MBTs, external tanks, internal tanks and free flooding area		
(q)	Pressure testing of all fittings and valves		
(r)	Tank Level gauges functional and sounding tapes available		

(s)	Rudder and Planes		
(t)	Watch and Station Bill complete		
(u)	Rescue seat certification undertaken and Hull survey report available		
(v)	Lagging (Hot and Cold)		
<b>2.</b>	<b>ENGINEERING</b>		
(a)	Trials Completed and Limitations (if any)		
(b)	Diesel engine and associated systems including generator bearing lubrications and 8 WMC Coupling (Load and Vibration Trials of DGs completed)		
(c)	High Pressure and Air Compressor and Drier		
(d)	Air Conditioning Plants		
(e)	Package Air Conditioners		
(f)	Split AC Plants		
(g)	Main and Reserve shafting		
(h)	Main ballast pumps and Bilge pumps		
(j)	All Masts		
(k)	Garbage Ejector		
(l)	All motor driven pumps and hand Pumps (Sea water, Fresh water, Hydraulic and Lub oil)		
(m)	Functional checks of 11 WMC		
(n)	Cut outs, Relays, Safety Devices and Instrumentations		
<b>3.</b>	<b>SYSTEM TRIALS COMPLETED AND LIMITATIONS (IF ANY)</b>		
(a)	High Pressure Air System including functional checks of humidity indicator		
(b)	Emergency blowing and LP blowing systems		
(c)	Hydraulic Oil System		
(d)	Lub Oil System		
(e)	Air Induction and Exhaust System		
(f)	Auxiliary Cooling System		
(g)	Main suction line and drainage system		
(h)	Shaft Cooling System		
(j)	Ventilation System		
(k)	Diving and Surfacing System		
(l)	Distilled Water System		
(m)	WC System		

(n)	Chilled Water System		
(p)	Torpedo Hydraulic System		
(q)	Fuel System		
(r)	Depth Measuring System		
4.	<b>CHECK STATUS OF EQUIPMENT/ SYSTEMS</b>		
(a)	IP air Dry and Wet System		
(b)	RO Plant		
(c)	Trim System		
(d)	Torpedo Sprinkling System		
(e)	Drinking, Washing and Sanitary water System		
(f)	Bilge Drying Pumps		
(g)	Centralised Lubrication System		
(h)	Submerged Signal Ejector and system		
(j)	Service Log and Running Log of all machineries		
(k)	SPTA/ Onboard inventory status		
(l)	Instrumentation of all equipment and systems		
(m)	POLs		
(n)	Ventilation System		
5.	<b>ELECTRICAL</b>		
(a)	Trials Completed and Limitations (if any)		
(b)	Main Propulsion System: -		
(i)	Main motor, Eco motor and Reserve motors		
(ii)	Limitation in insulation and safety interlocks		
(iii)	Availability of Grouper Switch and its interlocks		
(b)	Main Batteries: -		
(i)	Overall performance of Main Batteries and associated systems		
(ii)	Battery insulation		
(iii)	Performance of H2 analysers and eliminators		
(iv)	Battery pit level indication		
(v)	Battery pit pumping out arrangement		
(vi)	Shore Charging System		
(vii)	Battery pit vacuum checked correct		
(c)	Auxiliary Supplies/ Equipment: -		
(i)	Availability of AC and DC network		
(ii)	Insulation of networks		

(iii)	Performance of alternators		
(iv)	Availability of Cat1 and Cat2 motors/ starters		
(v)	Main and sub Air conditioning systems		
(vi)	Sound power telephones		
(vii)	AVRs – Main lighting		
(viii)	Navigational Lighting		
(ix)	Bell and buzzer		
(x)	Emergency lighting		
(xi)	Freon fire-fighting system		
(xii)	EMI/ EMC Checks undertaken		
(xiii)	All machinery control panels operational		
(d)	Main Generators: -		
(i)	Generator trials completed		
(ii)	Insulation		
(e)	Sonars		
(i)	Distress sonar		
(ii)	Insulation of all transducers		
(iii)	Availability of Cavitation meter		
(f)	Auto Control Systems: -		
(i)	Diesel Remote Control System available		
(ii)	System Pirit available		
(iii)	CAKT systems available		
(iv)	TAK systems available		
(g)	Navigation Systems: -		
(i)	Main and standby gyros available		
(ii)	Magnetic Compass available		
(iii)	Attack and Search Periscopes available		
(iv)	Log available		
(v)	Echo sounder available		
(vi)	Nav Complex – Appassionata (if fitted) available		
(vii)	Radar available		
(viii)	Functioning plotting table		
(h)	Radio and WT Sets: -		
(i)	Main Transmitters available		
(ii)	Receivers available		
(iii)	Main broadcast/ internal communication		
(iv)	Insulation of Antennae		



(v)	Availability of indicator buoy		
(vi)	Availability of MDA – Trigun and LINK II		
(j)	State of the following to be Checked: -		
(i)	Main Sonar		
(ii)	Mine hunting sonar		
(iii)	Sound velocity recorder		
(iv)	Fire control computer for Torpedo/ Missile, External system interface, Torpedo tube level sensors, Torpedo tube indications and micro switches		
(v)	ESM Porpoise		
(vi)	TWA System		
(vii)	Service Log and Running Log of all machineries		
(viii)	SPTA/ onboard inventory status		
(ix)	Availability Test equipment as per CRETE and date of calibration		
(x)	Instrumentation		
6	<b>MISCELLANEOUS</b>		
(a)	NBCD Salvage and Escape System: -		
(i)	Major fire fighting and damage control systems fitted, limitations/ unavailability of any (VPL and FSS)		
(ii)	Bilge pumps fitted and available and limitations in the system pipelines/ instrumentations		
(iii)	Availability of CNAL items as per scale		
(iv)	Crew readiness for any minor/major incident at sea		
(v)	ELSA/ Oxybok functional		
(vi)	Damage control boxes and its content checked		
(vii)	Portable extinguishers and its charged pressure		
(viii)	Diver's supply and exhaust system		
(ix)	Diver's blowing for MBTs and compartments		
(x)	Indicator buoy operation and release mechanism		
(xi)	Emergency telephones and emergency lights/ lanterns		

(xii)	Conning tower, aft end, fore and end and torpedo tube escape systems		
(xiii)	Compartment pressurization valves and its operation		
(xiv)	Availability of Life Jackets for all crew		
(b)	Habitability: -		
(i)	Availability of Accommodation Spaces		
(ii)	Availability of Galley and galley fire-fighting systems		
(iii)	Availability of Operators Chairs for Watch keepers		
(c)	Colour coding of system pipes with direction marking		

**(Signature of Commanding Officer)**

**STAFF SEA CHECKS STAGE 2****INSPECTION BY CSO(T)****(On successful culmination of all PSTs and prior to FPT)**

<b>Ser</b>	<b>Equipment/ System</b>	<b>Status</b>	
		<b>SAT/ SAT with observations/ UNSAT</b>	<b>Pending Observations</b>
<b>1.</b>	<b>GENERAL</b>		
(a)	All observations of SSC 1 Liquidated		
(b)	Preliminary sea trials completed and no observations on propulsion system and other equipment/systems pending.		
(c)	No defect that is likely to affect operational capabilities and safety of submarine pending		
(d)	No issue affecting "Operational Availability / Performance" of the submarine pending		
(e)	All Naval stores as per authorisation available		
(f)	Life rafts and Indicator Buoy fully operational		
(g)	Major fire-fighting and damage control system available		
(h)	All Salvage and escape systems checked and fully functional		
(i)	Material holdups if any		
(k)	Watch and Station Bill complete		
<b>2.</b>	<b>HULL</b>		
(a)	Habitability work package complete		
(b)	All Hot and cold lagging work, insulation of Cold and Cool Rooms checked		
(c)	Preservative paints in bilges and machinery foundations applied		
(d)	Inspection of casing and fin area		
(e)	Painting of hull and casing completed		
(f)	Clamping of pipe lines inside fin and casing completed		
(g)	Welding with DGs proved		
<b>3.</b>	<b>ENGINEERING</b>		
(a)	Load trials of Diesel Generators complete		
(b)	MTU Trials of auxiliary machines completed		

(c)	All equipment/ system/ items at Para 3 and 4 of SSC 1 Check Off List fully available		
(d)	Trials of all equipment/ systems and HATs/ SATs of new induction equipment completed		
(e)	All instrumentation , safety devices and cut-outs operational		
(f)	Approved As & As completed		
(g)	Documents/ records/ test kits as per extant orders being maintained		
(h)	All BRs/ handbooks as per authorisation held		
(j)	Status of machinery spares as per D787/ Allowance list and POLs		
(k)	Ref plants including Cold and Cool Rooms		
4.	<b>ELECTRICAL</b>		
(a)	Load trials of all Generators completed and observation liquidated		
(b)	All equipment/ systems/ items of SSC 1 check off List to be fully available		
(c)	Trials of all equipment/ systems and HATs/ SATs of new induction equipment completed		
(d)	Trials of all sensors and communication equipment completed		
(e)	All instrumentation, safety devices and cut outs operational		
(f)	Approved As & As completed		
(g)	Documents/ records/ test kits as per extant orders being maintained		
(h)	All BRs/ handbooks as per authorisation held		
(j)	Status of onboard spares as per D787 and allowance list		

(Signature of Commanding Officer)

**STAFF SEA CHECKS STAGE 3****INSPECTION BY ASD/ ASY/ CSY****(On successful culmination of FPT & HATs of all Weapons and Sensors)**

<u>Ser</u>	<u>Equipment/ System</u>	<u>Status</u>	<u>Pending Observations</u>
		<u>SAT/ SAT with observations/ UNSAT</u>	
1.	Following important aspects to be checked: -		
(a)	All observations of SSC 2 liquidated		
(b)	Check Dive and Full Power Trials completed and all observations liquidated		
(c)	HATs of all Weapons and Sensors completed		
(d)	End of Refit Trials of all equipment/ systems and HATs/ SATs of new induction equipment completed		
(e)	All outstanding jobs as per REFCOMP meeting completed		
(f)	Detailed status of following aspects to be checked: -		
(i)	Hull		
(ii)	Engineering		
(iii)	Electrical		
(iv)	Weapons		
(v)	Sensors		
(vi)	Communication equipment		
(vii)	Medical		
(viii)	Logistics		
(ix)	Damage Control and Water tight integrity		
(x)	Fire Fighting Systems		
(xi)	Seaworthiness		

**(Signature of Commanding Officer)**

**STAFF SEA CHECKS STAGE 4****INSPECTION BY COS ON BEHALF OF FOC-IN-C****(After completion of SATs of all Weapons and Sensors System)**

<b><u>Ser</u></b>	<b><u>Equipment/ System</u></b>	<b><u>Status</u></b>	<b><u>Pending Observations</u></b>
		<b><u>SAT/ SAT with observations/ UNSAT</u></b>	
1.	All observations of REFCOMP completed		
2.	SATs of all equipment, weapons and sensors completed		
3.	Status of following to be checked: -		
(a)	Material Status		
(b)	Sea Worthiness		
(c)	General Hygiene		
(d)	Habitability		
(e)	Ship's Standing Orders		
(f)	Fire-fighting, Damage Control and water tight integrity		
(g)	Submarine's husbandry		
(h)	Living conditions onboard		
(j)	Submarine manpower		
(k)	Facets requiring special attention of FOST/ SWT		

**Note:** Inspection by FOC-in-C in case of serious exception statement by COS**(Signature of Commanding Officer)**

## SSK SUBMARINES

### STAFF SEA CHECKS STAGE 1 BY DG NATAA

*(On successful culmination of Basin Trials and prior to PST)*

<u>Ser</u>	<u>Equipment / System</u>	<u>Status</u>	<u>Pending Observations</u>
		<u>SAT/ SAT with observations/ UNSAT</u>	
1.	<b>BASIC SEA WORTHINESS</b>		
(a)	Painting of Hulls and Superstructure		
(b)	Overall vacuum test of the submarine including Rescue Sphere to be carried out to 80 Mbar		
(c)	Availability of lights in all compartments		
(d)	Availability of doors and hatches		
(e)	Anchors and capstans available		
(f)	Fitment of deck plates in all compartments		
(g)	Securing of ladders to all compartments		
(h)	Submarine Siren available		
(i)	Depth Gauges and List/ Trim indicator available.		
(k)	Emergency Towing Gear available		
(l)	Surface Inclining Experiment completed		
(m)	Tank content Gauges functional and Sounding Hoops available		
(n)	Status of MBTs, internal tanks and free flooding area		
(p)	Pressure testing of all fittings and valves		
(q)	Watch and Station Bill complete		
(r)	Lagging (Hot and Cold)		
2.	<b>ENGINEERING</b>		
(a)	Trials Completed and Limitations (if any)		
(b)	Diesel engine DMS Panel and associated Machinery (including		

	load and vibration trials of DGs completed)		
(c)	High Pressure Air Compressor and Drier		
(d)	Air Conditioning Plants		
(e)	Bilge Pump 1 and 2		
(f)	Main Sea water cooling pump		
(g)	Hydraulic pumps 1 to 4		
(h)	Maximator pump		
(j)	Rudder and Planes		
(k)	Shafting		
(l)	Battery cooling pumps		
(m)	All Masts		
(n)	Garbage Ejector		
(p)	All motor driven pumps and hand pumps		
(q)	Cut outs, Relays, Safety Devices and Instrumentation of all equipment		
<b>3.</b>	<b>SYSTEM TRIALS COMPLETED AND LIMITATIONS (IF ANY)</b>		
(a)	Fuel System		
(b)	Lub Oil System		
(c)	Hydraulic Oil System		
(d)	HP Air system (including MBT blowing)		
(e)	Air Induction and Exhaust System		
(f)	Main Sea water cooling system		
(g)	Freeing and Compensating system		
(h)	Fire warning and extinguishing system		
(j)	Ventilation System and ATUs		
(k)	Control air system		
(l)	Chilled Water System		
(m)	Battery Cooling and battery agitation system		
(n)	Diving and Surfacing System		
(p)	Life Raft and Indicator Buoy Ejection system		
(q)	BIBs and Oxygen Dosing system		
(r)	Hydrogen Measuring System		
(s)	Battery – Distillate filling Up pump and system		



(t)	Torpedo Hydraulic system		
(u)	Sanitary System		
(v)	Depth Measuring System		
4.	<b>CHECK STATUS OF EQUIPMENT/ SYSTEMS</b>		
(a)	RO Plant		
(b)	Access Trunk System		
(c)	Drinking & Wash water and Sea Wash water system		
(d)	Trim System		
(e)	Submerged Signal Ejector and system		
(f)	Centralised Lubrication System		
(g)	Instrumentation of all equipment and systems		
(h)	Service Log and Running Log of all machineries		
(j)	SPTA/onboard inventory status		
5.	<b>ELECTRICAL</b>		
(a)	Trials Completed and Limitations (if any) of the following		
(b)	Main Propulsion System: -		
(i)	Main motor Operation, limitations if any (Measure insulation of both armatures and record, check safety interlocks through propulsion control and console and ensure all indications are checked and found SAT)		
(ii)	Availability of all MSB Breakers		
(iii)	Limitation in insulation and safety interlocks		
(iv)	Auto propulsion system available		
(v)	Boat fan and Battery fan fully available		
(vi)	Main Motor exciter unit available		
(vii)	Functionality of Main motor Fans and Fan control unit		
(viii)	Operation of Main Motor in Automatic mode of propulsion		
(ix)	Availability of Pneumatic Turning operation of shaft		
(c)	Main Batteries: -		

(i)	Overall performance of Main Batteries and associated systems		
(ii)	Battery insulation		
(iii)	Shore Charging System		
(iv)	Availability of H2 Analysers and eliminators		
(v)	Battery pit level indication		
(vi)	Battery pit pumping out arrangement		
(vii)	Battery Monitoring system		
(viii)	Battery pit vacuum checked correct		
(d)	Auxiliary Supplies/ Equipment: -		
(i)	Switch board and Distribution Panel available		
(ii)	Availability of Complete AC and DC network		
(iii)	Insulation of networks		
(iv)	Frequency converters (60 Hz and 400 Hz) availability		
(v)	Operation and insulation of all DC and Aux. motors and their starters		
(vi)	Sound power telephones		
(vii)	Lighting and sockets		
(viii)	Bell and buzzer		
(ix)	Emergency lantern and Easy Access lighting		
(x)	Cathelco System		
(xi)	All machinery control panels operational		
(xii)	Availability of Hydrazine emergency blowing system and checks vide STM carried out		
(xiii)	Fire warning and extinguishing system		
(xiv)	Availability of Navigational lights		
(xv)	EMI/EMC Checks undertaken		
(e)	Charging Main Generators: -		
(i)	Trials of Charging Generators completed		
(ii)	Insulation values		
(iii)	Availability of DM system		

(f)	Main/ Auxiliary Switchboard: -		
(i)	Performance of MSB breakers and interlocks		
(ii)	Performance of ASB functions		
(iii)	Functionality of all transformers		
(iv)	Functionality of Rectifiers and Resistor unit		
(v)	Operation of Hydraulic Pump/Bilge PP Controls		
(vi)	Availability of complete AC and DC networks		
(vii)	Insulation of all networks		
(g)	Sensors: -		
(i)	Echo Sounder cum Sound velocity recorder available		
(ii)	Distress pinger available		
(iii)	Sonar Beacon Equipment SBE 1-26/SBE 1-06 available		
(h)	Auto Control Systems: -		
(i)	Steering Control Console including Auto depth keeping and Course Auto Pilot		
(ii)	DM Panel available		
(j)	Navigation Systems: -		
(i)	Main and standby gyros available		
(ii)	DDU available		
(iii)	Status of repeaters at all locations		
(iv)	Attack and Search Periscope available		
(v)	Radar available		
(vi)	Functioning plotting table		
(vii)	Speed measuring system		
(k)	Radio & WT Sets: -		
(i)	Communication Systems (HF/VHF/UHF/GPS/INMARSAT/ IIF) available		
(ii)	Intercom system functional		
(iii)	Insulation of Antennae		
(iv)	Ship's general announcing and broadcast systems		
(v)	Availability of MDA – Trigun and LINK II		

(vi)	Availability of indicator buoy		
(l)	State of the following to be checked: -		
(i)	Check status of Main Sonar and Fire Control System		
(ii)	Check status of Fire Control System		
(j)	Check status of ESMDR 3000: -		
(i)	Check status of VLF TWA and Loop Antenna System		
(ii)	UT 3000/ UT 2000 available		
(iii)	Functioning of Access Trunk lighting system		
(iv)	Galley switch board and control panel		
(v)	Air conditioning plants operation in Manual and Auto Mode		
(vi)	Check status of all systems Backup batteries		
(vii)	Availability Test equipment as per CRETE and date of calibration		
(viii)	Service log and running log of all machineries		
(ix)	SPTA/onboard inventory status		
(x)	Instrumentation		
6.	<b>MISCELLANEOUS</b>		
(a)	NBCD, Salvage and Escape System: -		
(i)	Major fire-fighting and damage control systems fitted, limitations/unavailability of any (Halon Fire-fighting system)		
(ii)	Both Bilge pumps and Main sea water pump available and limitations in the system pipelines/ instrumentations		
(iii)	Availability of CNAL items as per scale		
(iv)	Crew readiness for any minor/ major incident at sea		
(v)	Bulkhead Hydraulics and Bulkhead door operational		
(vi)	ELSA sets functional		

(vii)	Breathing masks/ hoses and breathing nozzles for BIBS usage		
(viii)	Portable extinguishers, fire-fighting nozzles available		
(ix)	Damage control boxes and its content checked		
(x)	Diver's blowing for MBTs and compartments checked		
(xi)	Compartment pressurization checked		
(xii)	Functional checks of life rafts completed and available		
(xiii)	Fire warning and extinguishing system fully functional		
(xiv)	Indicator buoy status including functional checks carried out at shop floor		
(xv)	Rescue Sphere fully available		
(xvi)	Hydrazine emergency blowing system fully available		
(xvii)	Access hatch and Battery Loading Hatch escape systems		
(xviii)	Availability of Life Jackets for all crew		
(xix)	Colour coding of pipes and direction marking		
<b>7.</b>	<b>HABITABILITY</b>		
(i)	Availability of Accommodation Spaces		
(ii)	Availability of Galley and galley fire-fighting systems		
(iii)	Availability of Operator Chairs for Watch keepers		

(Signature of Commanding Officer)

**STAFF SEA CHECKS STAGE 2****INSPECTION BY CSO(T)****(On successful culmination of all PSTs and prior to FPT)**

<b><u>Ser</u></b>	<b><u>Equipment/ System</u></b>	<b><u>Status</u></b>	<b><u>Pending Observations</u></b>
		<b><u>SAT/ SAT with observations/ UNSAT</u></b>	
<b>1.</b>	<b>GENERAL</b>		
(a)	All observations of SSC 1 Liquidated		
(b)	Preliminary sea trials completed and no observations on propulsion system and other equipment/ system pending.		
(c)	No defect that is likely to affect operational capability of submarine pending		
(d)	No issue affecting 'Operational Availability/ Performance' of submarine pending		
(e)	All Naval stores as per authorisation available		
(f)	Rescue Sphere, Life rafts and Indicator Buoy fully operational		
(g)	Major fire fighting and damage control system available		
(h)	All Salvage and escape systems checked and fully functional		
(j)	Material holdups, if any		
(k)	Watch and Station Bill complete		
<b>2.</b>	<b>HULL</b>		
(a)	Habitability work package completed		
(b)	All hot and cold lagging work completed, insulation of Cold and Cool Rooms checked		
(c)	Insulation of sound proof bulkhead door and WT office checked		
(d)	Preservative paints in bilges and machinery foundations applied		
(e)	Inspection of casing and fin area		
(f)	Painting of hull and casing completed		
(g)	Clamping of pipe lines inside fin and casing completed.		
<b>3.</b>	<b>ENGINEERING</b>		
(a)	Load trials of Diesel generators completed		
(b)	MTU trials of auxiliary machineries completed		
(c)	All equipment/ system/ items of Para 4 of SSC 1 Check Off List fully available		

(d)	End of refit trials of all equipment/ systems and HATs/ SATs of new induction equipment completed.		
(e)	All instrumentation, safety devices and cut outs operational		
(f)	As & As completed		
(g)	Documents/records/test kits as per extant orders being maintained. All BRs/ handbooks as per authorization held		
(h)	Status of machinery spares as per D787/ Allowance list and POLs		
(j)	Ref plant including Cold and Cool Rooms		
4.	<b>ELECTRICAL</b>		
(a)	Load trials of all generators completed and observation liquidated		
(b)	All equipment/ system/ items of SSC 1 Check off List fully available		
(c)	End of refit trials of all equipment/ system and HATs/ SATs of new induction equipment completed		
(d)	End of refit trials of all sensors and communication equipment completed		
(e)	All instrumentation, safety devices and cut outs operational		
(f)	A's & A's completed		
(g)	Documents/ records/ test kits as per extant orders being maintained		
(h)	All BRs/ handbooks as per authorisation held		
(j)	Status of machinery spares as per D787/ Allowance list and POLs		

(Signature of Commanding Officer)

**STAFF SEA CHECKS STAGE 3****INSPECTION BY ASD/ ASY/ CSY****(On successful culmination of FPT & HATs of all Weapons and Sensors)**

<b><u>Ser</u></b>	<b><u>Equipment/ System</u></b>	<b><u>Status</u></b>	<b><u>Pending Observations</u></b>
		<b><u>SAT/ SAT with observations/ UNSAT</u></b>	
1.	<b><u>GENERAL</u></b>		
(a)	All observations of SSC 2 Liquidated		
(b)	Check Dive and Full Power Trials completed and all observations Liquidated		
(c)	HATs of all Weapons and Sensors completed		
(d)	End of refit trials of all equipment/ systems and HATs/ SATs of new induction equipment completed		
(e)	All outstanding jobs as per REFCOMP meeting completed		
(f)	Detailed status of following aspects to be checked: -		
(i)	Hull		
(ii)	Engineering		
(iii)	Electrical		
(iv)	Weapons		
(v)	Sensors		
(vi)	Communications		
(vii)	Medical		
(viii)	Logistics		
(ix)	Damage Control and Water tight integrity		
(x)	Fire Fighting Systems		
(xi)	Seaworthiness		

**(Signature of Commanding Officer)**



**STAFF SEA CHECKS STAGE 4****INSPECTION BY COS ON BEHALF OF FOC-IN-C****(After completion of SATs of all Weapons and Sensors System)**

<b><u>Ser</u></b>	<b><u>Equipment/ System</u></b>	<b><u>Status</u></b>	<b><u>Pending Observations</u></b>
		<b><u>SAT/ SAT with observations/ UNSAT</u></b>	
1.	All observations of REFCOMP completed		
2.	SATs of all equipment, weapons and sensors completed		
3.	Status of following to be checked: -		
(a)	Material Status		
(b)	Sea Worthiness		
(c)	General Hygiene		
(d)	Habitability		
(e)	Ship's Standing Orders		
(f)	Fire-fighting, Damage Control and water tight integrity		
(g)	Submarine's husbandry		
(h)	Living conditions onboard		
(i)	Submarine manpower		
(k)	Facets requiring special attention of FOST/ SWT		

**Note:** Inspection by FOC-in-C in case of serious exception statement by COS**(Signature of Commanding Officer)**

**Enclosure 4 to NATAA Letter  
NATAA/100/Policy dt 20 Sep 22**

**SSC - TRIAL STATUS REPORTING FORMAT**

**1. HULL.**

<u>SER</u>	<u>EQUIPMENT / SYSTEM</u>	<u>SUB- COMPONENTS</u>	<u>ROUTINE CARRIED OUT</u>	<u>TRIALS STATUS</u>		<u>PERFORMANCE ACHIEVED</u>  (To be filled up post SSC 3. on successful completion of equipment/ system trials)	<u>COMPARATIVE PERFORMANCE</u> <u>PST Vs PRT</u>  (IMPROVED / SAME / DEGRADED)  (To be filled up post SSC 3. on successful completion of equipment/ system trials)
				<u>SAT/ SAT with observations/ UNSAT</u>	<u>MAJOR OBSERVATIONS</u> (Highlight issues affecting safety / sea going efficiency)		
1.	Ventilation System	HVAC System	NR		(a) Ventilation Trunking fitment pending in Equipment Room No. 3 & 7.  (b) Temperature not achieved in 25/ 98 compartments.	(a) Compartment temperatures observed to be 27°C as against 16 °C as per technical docs.	(a) Improved in all Compartments except Bridge and 06 mess decks.
		Machinery Compartments	NR				

**2. ENGINEERING.**

<u>SER</u>	<u>EQUIPMENT / SYSTEM</u>	<u>SUB- COMPONENTS</u>	<u>ROUTINE CARRIED OUT</u>	<u>TRIALS STATUS</u>		<u>PERFORMANCE ACHIEVED</u>  (To be filled up post SSC 3. on successful completion of equipment/ system trials)	<u>COMPARATIVE PERFORMANCE</u> <u>PST Vs PRT</u>  (IMPROVED / SAME / DEGRADED)  (To be filled up post SSC 3. on successful completion of equipment/ system trials)
				<u>SAT/ SAT with observations/ UNSAT</u>	<u>MAJOR OBSERVATIONS</u> (Highlight issues affecting safety / sea going efficiency)		
1.	Main Propulsion Plant	Gas Turbine 1	GT Replaced		(a) GT 1 observed to be in restricted zone while operating at 1.0N	(a) Performance of entire Propulsion was observed to be satisfactory. The ship achieved 29 knots with 6500T displacement.	(a) IMPROVED performance of MPP.
		Gas Turbine 2	NR				(b) Ship's speed increased to 29 knots as against 26 knots recorded during PRT.

		Gas Turbine 3	NR			wind speed 10 knots and Sea State 2.	(c) GT3 restrictions of exploitation upto 0.8N defect rectified. Available for exploitation upto 1.0N. (d) Old GT 1 replaced with new.
		Gas Turbine 4	NR				
		Gear Box (P)	NR				
		Gear Box (S)	NR				
2	Diesel Alternator	DA No. 1	24K			100 % Load achieved	IMPROVED
		DA No. 2	6K			100 % Load achieved	IMPROVED

### 3. ELECTRICAL

SER	EQUIPMENT / SYSTEM	SUB-COMPONENTS	ROUTINE CARRIED OUT	TRIALS STATUS		PERFORMANCE ACHIEVED	COMPARATIVE PERFORMANCE PST Vs PRT (IMPROVED / SAME / DEGRADED)  (To be filled up post SSC 3, on successful completion of equipment/ system trials)
				SAT/ SAT with observations/ UNSAT	MAJOR OBSERVATIONS (Highlight issues affecting safety / sea going efficiency)		
1.	Switch Boards	Fwd	NR		-	Performance of both switch boards have been found satisfactory.	IMPROVED
		Aft	NR		-		IMPROVED
2.	General Motors	AC Compressor	Motor Replaced		(a) SPM of AC Plant No. 2 observed to be in Yellow zone.	Performance all AC compressor motors found SAT.	IMPROVED
		Fire Pump	NR		-	Performance all motors found SAT.	
		Ref Plant	NR		-	Performance all motors found SAT.	
		RO PLANT	NR	SAT	-	Performance all motors found SAT.	
		STEERING GEAR	NR	SAT	-	Performance all motors found SAT.	

