

**TENDER No. UCSSL/CC/SB/T/172-174 & 183-190/119/2025**  
**Dt:01.12.2025**

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**TENDER FOR LASER ALIGNMENT OF SHAFT UY.172 TO**  
**UY.174 AND UY.183 TO UY.190**

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**UDUPI COCHIN SHIPYARD LIMITED**  
**MALPE, UDUPI 576108**



Udupi Cochin Shipyard Limited  
Tender For Laser alignment of shaft UY.172-174 & UY.183-190  
UCSL/CC/SB/T/172-174 & 183-190/119/2025 DT:01<sup>st</sup> December 2025

## **TENDER NOTICE**

Tender No. & date	UCSL/CC/SB/T/172-174 & 183-190/119/2025 Dt:01.12.2025
Name of work	LASER ALIGNMENT OF SHAFT UY.172-174 AND UY.183-190
Last date & time of receipt of tender	15 <sup>th</sup> December 2025 (MONDAY) 16:00hrs
Date & time of opening of Technical Bid (Part-I)	15 <sup>th</sup> December 2025 (MONDAY) 16:00hrs

1. Password protected quotations in the prescribed form is invited from bidders for the work specified above, subject to the terms and conditions as mentioned in the annexure to the tender enquiry so as to reach the undersigned by email mentioned on or before the date and time as stipulated.

2. **The following shall be submitted along with the quote: -**

### **PART- I: TECHNICAL BID**

- a. **Tender document duly signed on all pages** - Including Terms & conditions and Scope of work placed at Annexure I respectively
- b. **The Techno commercial Check List** at Annexure IV to be filled up completely and duly signed.
- c. Duly filled form at Annexure – II Annexure- III
- d. **Unpriced Price bid** (Price bid without price and marked as "QUOTED") to be submitted along with Part-I.

### **PART-II: PRICE BID**

- a. The price bids shall be prepared based on the price bid format at Annexure V.

3. **Mode of Submission of Quote:**

- i. Bid shall be submitted as **Password Protected Zip File** in two parts.  
Part I: Technical Bid – with all enclosures and annexures as mentioned in Para 2 above  
Part II: Price Bid.
- ii. The files are to be forwarded as **Two (2) separate password protected Zip files** to [contractcell@udupicsl.com](mailto:contractcell@udupicsl.com)
- iii. **Part I and Part II are to be protected with separate and distinctly different passwords.**

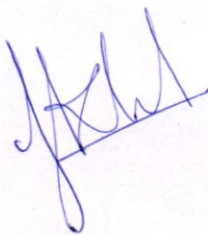






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- iv. The Bids will be opened on online mode during which the bidder will be advised to share the password through SMS with which the technical bid will be opened.
- v. The price bids will be opened after technical evaluation and **only the technically qualified bidders will be invited for opening of price bids** which shall also be conducted on online mode as above.
- vi. However, subject to travel restrictions, the bidders can also attend the bid opening physically at Udupi Cochin Shipyard Limited, Baputhotta Ware house complex Office.
- vii. The contractors can also submit the quotations in sealed covers (Two-Bid) – as separate sealed covers for Technical Bid and Price bid, both enclosed in a common sealed cover to reach the below mentioned address before the stipulated time.
4. The bidders shall ensure the receipt of bids at [contractcell@udupicsl.com](mailto:contractcell@udupicsl.com) An acknowledgement mail shall be sent to the bidders on receipt of bids. UCSL takes no responsibility for delay, loss or non-receipt of tenders by mail by the stipulated time.
5. The tender should be addressed to the **Assistant General Manager (Contract Cell), Udupi Cochin Shipyard Limited, Malpe Harbor Complex, Malpe, Udupi 576 108, Karnataka, India.**
6. No deviations on the tender conditions will be accepted, and bids with deviations will be considered technically disqualified. The acceptance of a tender or part thereof will rest with the Assistant General Manager (Contract Cell), Udupi Cochin Shipyard Limited, tender and reserves the authority to reject the tender received without assigning any reason.
7. Contact Person: Contact Person: Mr. Jerry Joseph Ph. No: +91 8129049592  
Mr. Mohammed Fahiz MT Ph. No: +91 8202912103

for 

Assistant General Manager (Contract Cell)

अखिल आर पी  
AKHIL R P  
प्रबंधक MANAGER  
उडुपि कोचिन शिपयार्ड लिमिटेड  
UDUPI COCHIN SHIPYARD LIMITED  
माल्पे, कर्नाटक/MALPE, KARNATAKA-576 108







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## **TERMS AND CONDITIONS**

### **1. DESCRIPTION OF WORK**

- 1.1. This enquiry pertains to the awarding of contract for "Laser Alignment of Shaft" for UY.172-174 & UY.183-190 Vessels.
- 1.2. The tender includes the laser shaft alignment work for total 11 number of vessels UY172-174 & UY.183-190 satisfactorily complete the work in accordance with UCSL, Classification Society and Owner's requirements.
- 1.3. **You are requested to obtain clarifications, if any, and carefully study the documents and the scope of services, before submitting your offer.**
- 1.4. The Agencies are advised to familiarize themselves with the site conditions before quoting.

### **2. ELIGIBILITY CRITERIA**

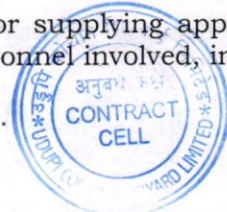
- 2.1. The firm should have prior experience in the laser shaft alignment. The firm has to submit the documents which validate the laser shaft alignment experience.
- 2.2. Relevant supporting documents shall be submitted by the contractors for validating the requirements as per (2.1) along with the tender documents.
- 2.3. Bidder shall not be under a declaration of ineligibility issued by Govt. of India/ State govt./ Public Sector Undertakings etc. The bidder shall not have been debarred / black listed by UCSL or by any of the Public Sector Undertaking or Government department etc.
- 2.4. Partially quoted bid will not be considered for further processing.

### **3. METHOD OF AWARDING CONTRACT**

- 3.1. Contract will be concluded with the Bidder qualifying to techno-Commercial conditions and emerging as L1.
- 3.2. Yard intends to award the total scope of work for 11 tugs (UY-172 to UY-174 and UY-183 to UY-190). Out of these, one tug is confirmed, while the award of the subsequent tugs will be subject to the performance of the contractor on the preceding tugs.
- 3.3. UCSL reserves the right to cancel the tender if required.

### **4. SCOPE OF WORK:**

- 4.1. Perform precision laser alignment of the shaft connecting the Z-drive to the main engine on vessels UY.172 to UY.174 and UY.183 to UY.190 using certified laser-based equipment
- 4.2. Alignment results shall be presented to the Class/Owner Surveyor in accordance with UCSL specifications and approved engineering drawings.
- 4.3. The contractor shall arrange and provide all necessary tools, equipment, and lifting tackles required to complete the alignment work.
- 4.4. The contractor is responsible for supplying appropriate Personal Protective Equipment (PPE) and safety gear for all personnel involved, including workmen and supervisors.







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- 4.5. All alignment equipment shall be under the contractor's scope and control throughout the operation.
- 4.6. Valid calibration certificates for all equipment used must be submitted by the contractor prior to commencement of work.
- 4.7. Refer Drawing 222-032A UY171-174 52500R1 Shafting Arrangement (Annexure VI)

## 5. SCOPE OF WORK OF UCSL

- 5.1. Providing the required test protocol.
- 5.2. Final Class survey of the testing process.
- 5.3. Electricity and lighting shall be provided.
- 5.4. Required space for storage of materials inside the Yard, as necessary for the work.

## 6. TENTATIVE SCHEDULE

- 6.1. The contractor shall follow the UCSL schedule requirements strictly. The detail schedule awarding the job.

VESSEL	TENTATIVE START DATE
UY.172	Third week of December 2025
UY.173	February 2026
UY.174	April 2026
UY.183	August 2026
UY.184	November 2026
UY.185	February 2027
UY.186	April 2027
UY.187	August 2027
UY.188	November 2027
UY.189	February 2028
UY.190	April 2025

VESSEL	DAYS
UY.172	1 Day
UY.173	1 Day
UY.174	1 Day
UY.183	1 Day
UY.184	1 Day
UY.185	1 Day
UY.186	1 Day
UY.187	1 Day
UY.188	1 Day
UY.189	1 Day
UY.190	1 Day

- 6.2. Exact date will be intimated in one week advance.

## 7. VALIDITY

- 7.1. The offer shall be valid for a period of 36 months and no escalation in rate shall be allowed by UCSL on whatsoever reason.

## 8. RATE

- 8.1. Rates are to be quoted in the Price Bid Format at Annexure V attached herewith.

## 9. PAYMENT TERMS

- 9.1. Payment shall be made on the actual quantity of work done, and payment will be released within 30 days from the date of submission of the bill with and work completion certificate from the executing UCSL officer.
- 9.2. Invoice shall be submitted with necessary Work completion certificate duly certified by UCSL representative.







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- 9.3. Payment will be made by RTGS/NEFT to the account of Agency. The name of the bank, branch, A/C No., IFSC code & other particulars shall be furnished by the Agency in the proforma of UCSL.

## **10. TAXES & DUTIES**

- 10.1. GST shall be applicable extra on the prescribed work from 01.07.2017 onwards. You are requested to furnish the following details in the invoice/Bill.
- Applicable rate of GST/SAC Code
  - Firms GST Reg. NO.
  - Service accounting code (SAC) as prescribed by statutory authorities.
  - GST Reg. No. of Udupi Cochin Shipyard Limited (**29AAACT1281B1ZO**).

## **11. LIQUIDATED DAMAGES**

- 11.1. The progress of work will be monitored against the mutually agreed detailed schedule. Liquidated damages for delays in execution of the work beyond the scheduled date of completion, for any reason other than force majeure conditions, will be recovered at the rate of half percent of the value of the contract per week or part thereof, subject to a maximum of ten (10) percent of the value of the contract.
- 11.2. For better clarity, order values mentioned in LD clause are values excluding duties and taxes (Basic value). Liquidated damages, if any, shall be decided and settled only after the completion of the entire project but prior to the release of Final stage Payment.
- 11.3. If, for any reasons, supplier has a justification towards delay in supply / work execution and would intend to consider applicability/ non applicability of LD, the same shall be intimated to UCSL by way of a letter, failing which it will be deemed that delay is attributable to the supplier.
- 11.4. Delay in supply/Interruption of the work for reasons not attributable to supplier shall entitle extension of the order execution period for proportionate period without any additional cost to UCSL.

## **12. POWER OF ATTORNEY**

- 12.1. The tenderer(s) shall have to sign in each page of the tender documents with official stamp as a token of his acceptance of the conditions stated therein.
- 12.2. The person signing the tender form on behalf of another or on behalf of a firm, shall enclose to the tender, a Power of Attorney or the said deed duly executed in his favour or the partnership deed giving him such power showing that, he has the authority to bind such other persons or the firm, as the case may be, in all matters pertaining to the contracts. If the Person so signing the tender, fails to enclose the said Power of Attorney, his tender shall be liable for being summarily rejected. The Power of Attorney shall be signed by all partners in the case of partnership concern, by the Proprietor in the case of a proprietary concern, and by the person who by his signature can bind the company in the case of a Limited Company.

## **13. TERMINATION & LIMITATION OF LIABILITY**

- 13.1. This contract may be terminated upon the occurrence of any of the following events
- 13.2. By agreement in writing of the parties hereto;







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- 13.3. By the non-defaulting party, upon default by the other party, of any clause of this contract, if not remedied within fifteen (15) days, or such longer time as may be agreed upon by the parties, after receipt of notice thereof in writing from the non-defaulting party;
- 13.4. By the other party, upon either party;
- i. Making the assignment for the benefit of creditors, being adjudged a bankrupt or becoming insolvent; or
  - ii. Having a reasonable petition filed seeking its' dissolution or liquidation, not stayed or dismissed within sixty (60) days; or
  - iii. Ceasing to do business for any reason.
- 13.5. For fraud and corruption or other unacceptable practices.
- 13.6. Upon expiry or termination of this Contract, neither party shall be discharged from any antecedent obligations or liabilities to the other party under this Contract unless otherwise agreed in writing.
- 13.7. UCSL may by notice in writing to Agency to terminate the order after issuing due notice i.e., 30 days' notice period. UCSL shall be entitled to compensation for loss limited to the order value.
- 13.8. Liability maximum that can be claimed by the Agency shall be limited to what is due to be and has been paid by UCSL for work done as per the payment milestones and limited to work order value.

#### **14. ARBITRATION & JURISDICTION**

- 14.1. Any disputes arising during the period of the contract shall, in the first instance be settled by mutual discussions and negotiations. The results of such resolution of dispute shall be incorporated as an amendment to the contract, failing which supplier shall approach the UCSL Grievance Redressal Committee as per relevant clause of the Contract.
- 14.2. If any dispute, disagreement or question arising out of or relating to or in consequence of the contract, or to its fulfillment, or the validity of enforcement thereof, cannot be settled mutually or the settlement of which is not herein specifically provided for, then the dispute shall within thirty days from the date either party informs the other in writing that such disputes, disagreement exists, be referred to arbitration. The arbitrators shall be appointed and the arbitration proceedings shall be conducted in accordance with and subject to the Arbitration and Conciliation Act, 1996 (No. 26 of 1996) as amended from time to time and the decision of the Arbitrators shall be final and binding on the parties hereto. The arbitration will be done by a Board comprising one arbitrator nominated by each party, and a mutually agreed Umpire. Each party shall bear its own cost of preparing and presenting its case. The cost of arbitration shall be shared equally by the parties unless the award provides otherwise. Performance under this Contract shall however, continue during arbitration proceedings and no payment due or payable by the parties hereto shall be withheld unless any such payment is or forms a part of the subject matter of arbitration proceedings.
- 14.3. Seat & Venue of Arbitration: The seat & venue of arbitration shall be at Bangalore.
- 14.4. Language of Arbitration: The Language of arbitration shall be English.







**Udupi Cochin Shipyard Limited**  
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14.5. Governing Law: The contract shall be governed by Indian Law

14.6. In case of disputes, the same will be subjected to the jurisdiction of courts at Bangalore, Karnataka.

**15. SUB CONTRACTING AND ASSIGNMENT**

15.1. Contractor shall not assign or transfer the Purchase Order/ Work Order or any share or interest therein in any manner or degree to any third party without the prior written consent of UCSL.

15.2. Contractor shall not contract with any subcontractor and/or vendor without the prior written consent of UCSL. Such consent shall not relieve the Contractor from any of his responsibilities and liabilities under the Purchase Order/ Work Order. In addition, Contractor shall ensure that the terms and conditions of any such contract shall comply with and correspond to the terms and conditions of the Purchase Order/ Work Order.

**16. SECRECY & RESTRICTION ON INFORMATION TO MEDIA**

16.1. The information contained in the enquiry as such shall NOT be communicated to any third party without prior approval of UCSL.

16.2. Information in respect of contracts/orders shall NOT be released to the national or international media or anyone not directly involved in its execution without the written approval of UCSL.

**17. CANCELLATION OF ORDER AND RISK CONTRACTING**

17.1. In the event the Agency fails to complete the work promptly and satisfactorily as per the terms of the order, and if any work is delayed beyond thirty (30) days from the agreed schedule, UCSL, without prejudice, reserves the right to cancel the order and get the work done at Agency's cost and the expenditure so incurred including any damage or loss will be recovered from him and the Security Deposit furnished by him is liable to be forfeited either in whole or in part.

17.2. UCSL also reserves to right to impose penalties ranging from Rs. 100 to Rs.500 to the employees of agencies and will be deducted from the bills, for any habitual offence on the cleanliness of uniforms, lack of obedience, not attending the tasks etc., and will be to the discretion of the Officer in charge for the work.

**18. FORCE MAJEURE**

18.1. Should failure in performance of any part of this contract arise from war, insurrection, restraint imposed by Government act or legislation of other statutory authority, from explosion, riot, legal lock-out, flood, fire, act of God or any inevitable or unforeseen event beyond human control which will be construed as a reasonable ground for extension of time, UCSL may allow such additional time as is mutually agreed to be justified by the circumstances of the case.







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## **19. SAFETY OF PERSONNEL AND FIRST AID**

- 19.1. The contractor shall be entirely responsible for the safety of all the personnel employed by him on the work. In this regard, he may adopt all the required safety measures and strictly comply with the safety regulations in force. A copy of UCSL's "Safety Rules for Contractors (Revised)" is available with HSE department for reference.
- 19.2. The Agency may arrange to suitably insure all his workmen/ other personnel in this regard. UCSL will not be responsible for any injury or illness to the Agency's workmen/other personnel during execution of the works due to whatsoever reasons.
- 19.3. In this regard, the Contractor will have to fully indemnify UCSL against any claims made by his workmen/other personnel
- 19.4. The Agency shall provide and maintain so as to be readily accessible during all working hours, a first aid box with prescribed contents at every place where he employs contract labor for executing the works.

## **20. OVERWRITING & CORRECTIONS**

- 20.1. Tenders shall be free from overwriting or erasures. Corrections and additions, if any, shall be duly attested and a separate list of such corrections shall be attached with the offer.

## **21. OTHER TERMS & CONDITIONS**

- 21.1. Quality of services shall conform to the specification/ standards laid down by UCSL.
- 21.2. UCSL reserves the right to accept / reject any offer.
- 21.3. **UCSL reserves the right to award the work to more than one contractor or to take over partially or fully the work depending upon the schedule requirements.**
- 21.4. During the evaluation of tender, officer-in-charge may seek clarifications from the bidders. Clarification if any shall be given in writing/e-mail. Officer-in-charge's decision will be final and binding on the bidder.
- 21.5. Compliance of all statutory safety requirements and other safety rules stipulated by UCSL and other applicable statutory bodies shall be the responsibility of the Agency while working at UCSL premises. The Agency should ensure that their workmen and staff are adequately covered under Insurance.
- 21.6. Damages caused to the Shipyard properties/tools/accessories should be rectified by the Agency at his cost or proportional recoveries will be made from the Agency while passing their bills for payment.
- 21.7. The service provider shall indemnify UCSL or its officers against any claims arising out of accidents or injuries to workmen or other persons or damage to other property which may arise during the execution of the contract or from breach of any Law or Regulation prior to delivery and acceptance of the items at UCSL.
- 21.8. The service provider shall also be governed by the General Conditions of Contract of UCSL, General Safety Rules and other relevant labour laws.







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21.9. The upper age limit of all workers and supervisors employed by the Agency and those Agency who do or supervise the job themselves shall be as per the prevailing rules of UCSL and shall comply to the requirements of this tender.





**POWER OF ATTORNEY**

*(On Applicant's letter head)*

(Date and Reference)

To  
The Assistant General Manager (Contract Cell)  
Udupi Cochin Shipyard Limited  
Fishing Harbour complex, Malpe,  
Udupi - 576 108.

**Subject: Power of Attorney**

Mr. / Mrs. / Ms..... (Name of the  
Person(s)), domiciled at .....  
(Address), acting as..... (Designation and name of the  
company), and whose signature is attested below, is hereby appointed as the Authorized  
Representative and authorized on behalf of .....  
(Name of the company) to provide information and respond to enquiries etc. as may be required  
by the Employer for the project of .....  
(Project title) and is hereby further authorized to sign and file relevant documents in respect of  
the above.

(Attested signature of Mr. ....)

For.....  
(Name & designation)

(Company Seal)  
documents in respect of the above.





**UNCONDITIONAL ACCEPTANCE LETTER**

(Unconditional acceptance to be given by in letter head)

**ACCEPTANCE OF TENDER CONDITIONS**

1. Tender document no. UCSSL/CC/SB/T/172-174 & 183-190/119/2025 dated 01<sup>st</sup> December 2025 Tender for Laser Alignment of Shaft UY.172-174 & UY.183-190 has been received by me/us and I/We hereby unconditionally accept the tender conditions of tender documents in its entirety for the above work.
2. It is further noted that it is not permissible to put any remarks/conditions in the tender enclosed in "Part-2 (price bid)". I/We agree that the tender shall be rejected and ACCEPTING AUTHORITY.

Yours faithfully,

(Signature of the tenderer) with rubber stamp

Date: .....







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**ANNEXURE-IV**  
**TECHNO COMMERCIAL CHECK LIST (To be submitted by the bidder)**

(Bidders may confirm acceptance of the Tender Conditions/deviations if any to be specified)

SL No.	Tender Enquiry Requirements	Confirmation from bidder (Strike off whichever is not applicable)	Specific comments /Remarks
1	Terms & Condition & Scope of work (Annexure-I)	Agreed as per tender /Do not agree	
2	Schedule	Agreed as per tender/Do not agree	
3	Unconditional Acceptance	Agreed as per tender/Do not agree	
4	Offer Validity	06 Months - Agreed as per tender/Do not agree	
5	Taxes & Duties	Specified/included in Price	
6	Payment terms - confirm		
a	As per Clause 09 of Annexure - I	Agreed as per tender/Do not agree	
7	Price shall remain firm and fixed and No Escalation in prices after awarding of contract	Agreed as per tender/Do not agree	
08	Force Majeure	Agreed as per tender/Do not agree	
09	Liquidated damages and cancellation of contract	Agreed as per tender/Do not agree	
10	Arbitration & Jurisdiction clauses	Agreed as per tender/Do not agree	
11	Confirm all other terms and conditions of our enquiry are acceptable.	Confirmed/Not confirmed	
12	Deviations from Tender conditions	No Deviations	

Signature:

Address of the Contractor:

Seal:







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## **TENDER FOR LASER ALIGNMENT OF SHAFT UY.172-174 & UY.183-190**

### **PRICE BID FORMAT**

Sl. No	Description of Work	UOM	QTY	Rate	Total Amount
1	Laser Shaft Alignment for UY172-174	Shipset	03		
2	Laser Shaft Alignment for UY183-190	Shipset	08		
3	<b>Total Amount</b>				
4	<b>GST/IGST..... %</b>				
5	<b>Grand Total Amount</b>				

Signature:

Address of the contractor:

Seal:

- 1.1. Prices are to be quoted in the Pricing Format. The quotations to be submitted in the company letter head and forwarded to [contractcell@udupicsl.com](mailto:contractcell@udupicsl.com)
- 1.2. Quotations shall be submitted as Password Protected File. The bidders are advised to share the password through only SMS while opening the quotations.
- 1.3. L1 will be determined based on the total amount at Sl. No.:05.





Annexure- VI

- NOTES:
- REFER TO THE ROBERT ALLAN LTD. DRAWING AND CONTRACT SPECIFICATION PACKAGE IN ITS ENTIRETY. PARTICULAR ATTENTION SHOULD BE PAID TO THE FOLLOWING:
    - 10130 TANK PLAN
    - 30000 GENERAL ARRANGEMENT
    - 50000 MACHINERY ARRANGEMENT
    - 76000 EXHAUST ARRANGEMENT
  - VERIFY ALL EQUIPMENT WITH MANUFACTURERS CERTIFIED DRAWINGS.
  - PROVIDE AND INSTALL ALL EQUIPMENT, SHAFTS, COUPLINGS, ETC. IN ACCORDANCE WITH MANUFACTURER AND CLASS REQUIREMENTS, TO THE SATISFACTION OF THE MANUFACTURER AND ATTENDING SURVEYOR.
  - INSTALL ALL MACHINERY AND EQUIPMENT WITH ADEQUATE ACCESS FOR SERVICE AND MAINTENANCE. PROVIDE SUFFICIENT ALLOWANCE FOR COMPONENT WITHDRAWAL, INCLUDING APPROPRIATE LIFTING GEAR.
  - PROVIDE Z–DRIVE WITH CLOSING PLATE TO MATCH VESSEL HULL.
  - PROVIDE GUARDS IN WAY OF HOT OR ROTATING MACHINERY TO PROTECT PERSONNEL FROM INJURY.
  - ORIENT CARDAN SHAFT SPLINE TO PREVENT GREASE LEAKING OUT OF SPLINED CONNECTION.
  - PROVIDE CLASSIFICATION SOCIETY APPROVED MATERIALS FOR ALL SHAFTING.
  - PROVIDE SHAFT LINERS IN WAY OF ALL BEARINGS AND SHAFT SEALS.
  - PROVIDE BEARING FOUNDATIONS ARE DESIGNED FOR A MINIMUM NOMINAL STIFFNESS OF 250 KN/mm IN LATERAL AND VERTICAL DIRECTIONS. WITH VIBRATION VELOCITIES OF BEARING SUPPORTS LESS THAN 10 mm/s. OR PER SUPPLIER REQUIREMENTS.

DYNAMIC ANALYSES

- TORSIONAL VIBRATION ANALYSIS (TVA):
- CONDUCT TVA FOR ENTIRE PROPULSION SYSTEM INCLUDING ALL DRIVEN COMPONENTS IN ACCORDANCE WITH CLASS REQUIREMENTS OR IN ACCORDANCE WITH ENGINE MANUFACTURER’S STANDARD, WHERE VESSEL NOT CLASSED.
  - PROVIDE RESULTS OF TVA TO ALL DRIVEN EQUIPMENT MANUFACTURERS AND OBTAIN THEIR APPROVAL.
- WHIRLING VIBRATION ANALYSIS:
- CONFIRM BEARING LOCATIONS AND SHAFT DIAMETER BY WHIRLING ANALYSIS.
  - BEARING LOCATIONS SHOWN ARE PRELIMINARY ONLY.

REFERENCES:

- NIIGATA SHAFTING EQUIPMENT DRAWING 75B01859B
- NIIGATA ENGINE FTONT PTO DEVICE DRAWING C85B09929A0
- FFS PUMP/COUPLING DRAWING A104218E1



**ROBERT ALLAN**  
Naval Architects & Marine Engineers

Designed in Vancouver, Canada  
www.ral.ca

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CLIENT LOGO

UY171-172-174

UNCONTROLLED VERSION

DESIGN

Ramparts 3300 Tug

70T BP Variant

CLIENT

UDUPI COCHIN SHIPYARD LTD

TITLE

SHAFTING ARRANGEMENT

DRAWN BY EMJ	ENGINEER EMJ	PLOT SIZE ANSI B	SHEET 1 OF 4
PROJECT 222-032A	DRAWING 52500		REV. 1

1	FOR APPROVAL	NOV. 10/24					
–	CLIENT REVISIONS	MMM. DD/YY					
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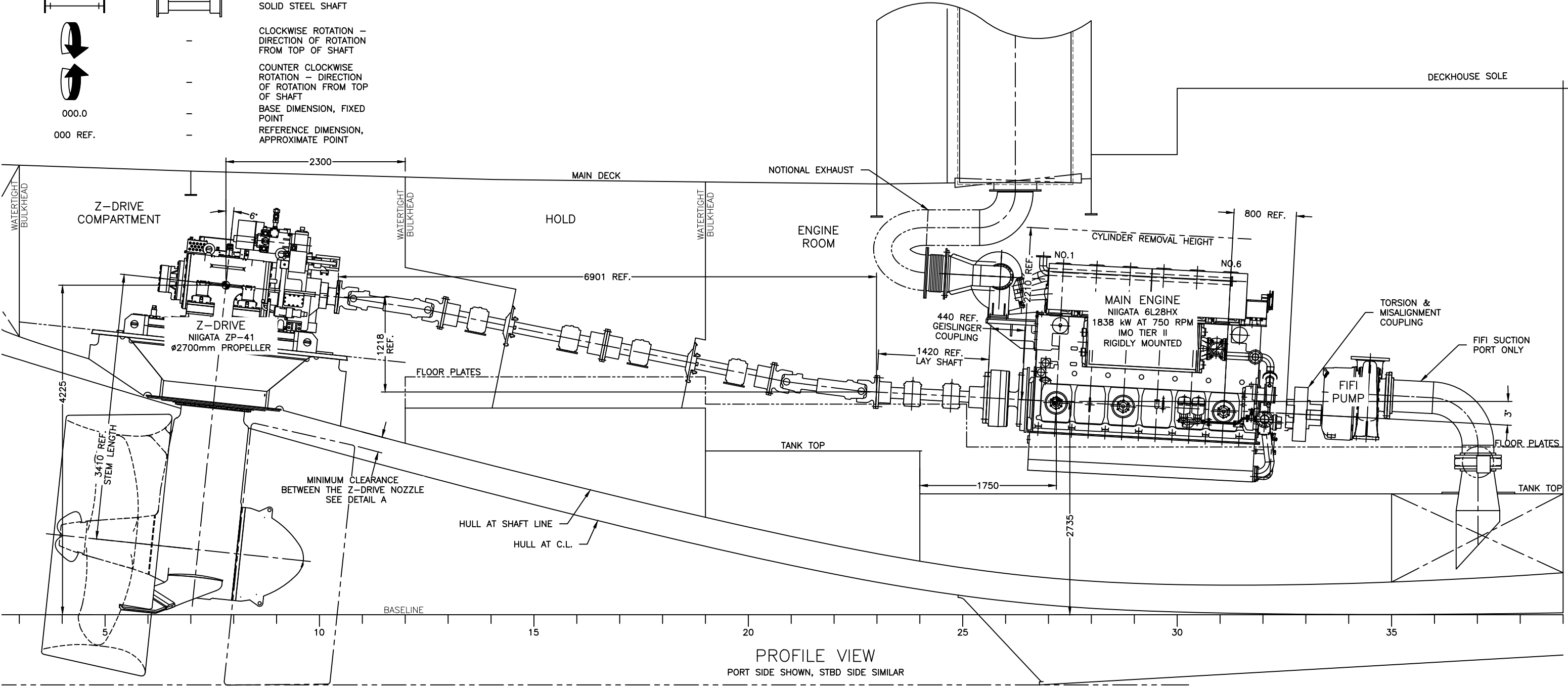
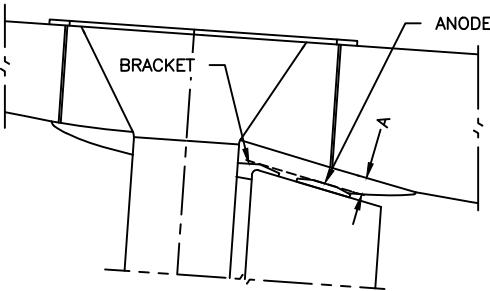


LEGEND

RAL SYMBOL	NIIGATA SYMBOL	DESCRIPTION
	-	DATUM
		SHAFT BEARING
		SHAFT BULKHEAD SEAL
		CARDAN SHAFT
		SOLID STEEL SHAFT
	-	CLOCKWISE ROTATION - DIRECTION OF ROTATION FROM TOP OF SHAFT
	-	COUNTER CLOCKWISE ROTATION - DIRECTION OF ROTATION FROM TOP OF SHAFT
000.0	-	BASE DIMENSION, FIXED POINT
000 REF.	-	REFERENCE DIMENSION, APPROXIMATE POINT

DETAIL A  
FAIRING PLATE CLEARANCE

MINIMUM CLEARANCE OF 'A' BETWEEN THE Z-DRIVE  
NOZZLE INCLUDING APPENDAGES AND THE OUTSIDE  
SURFACE OF THE HULL SHELL OVER 360 DEGREES  
OF AZIMUTH. 100mm RECOMMENDED AND NO LESS  
THAN MIN. SPECIFIED BY Z-DRIVE SUPPLIER



CLIENT LOGO

UNCONTROLLED VERSION

TITLE

SHAFTING ARRANGEMENT

SCALE

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PLOT SIZE  
ANSI B

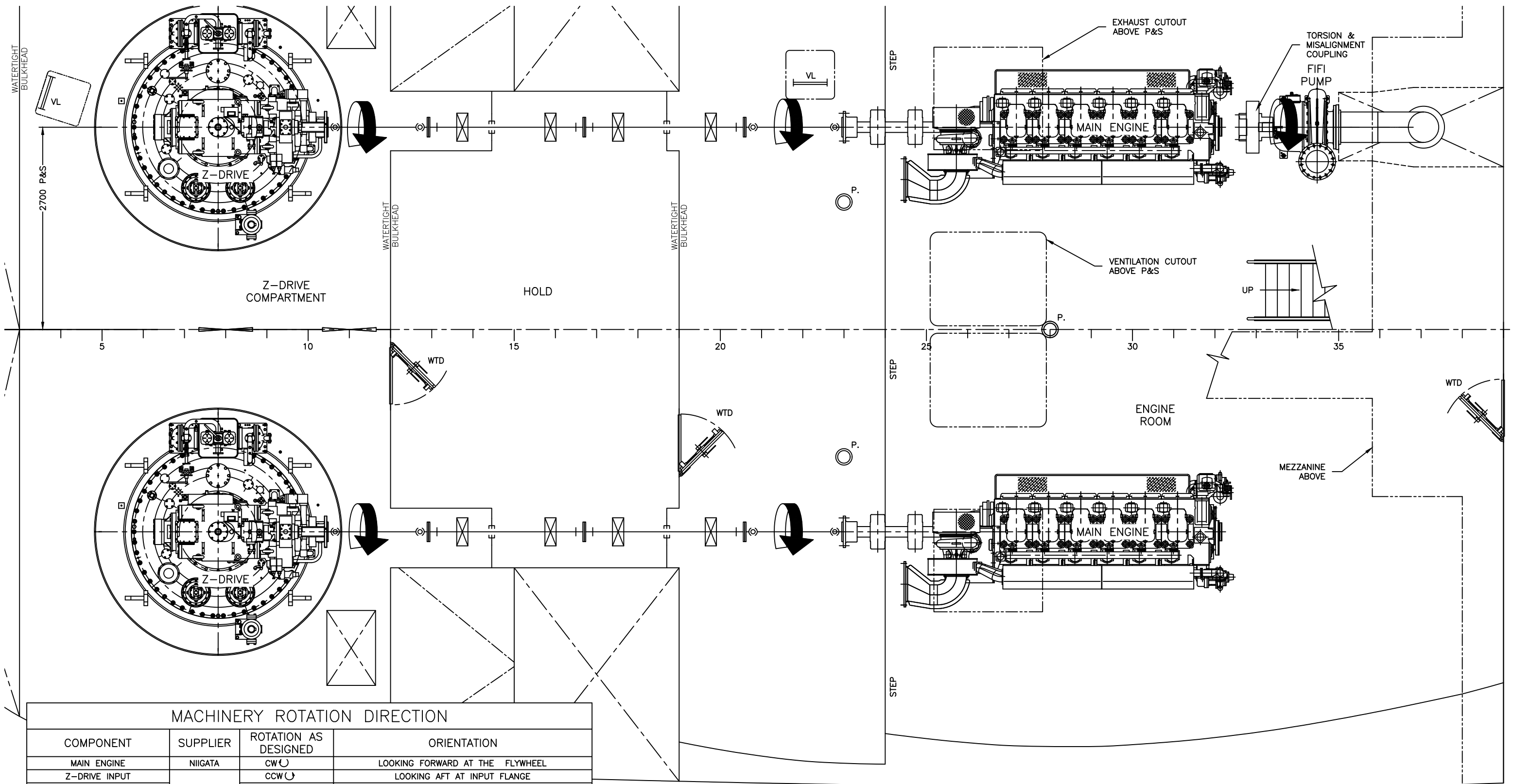
SHEET  
2 OF 4

PROJECT  
222-032A

DRAWING  
52500

REV.  
1



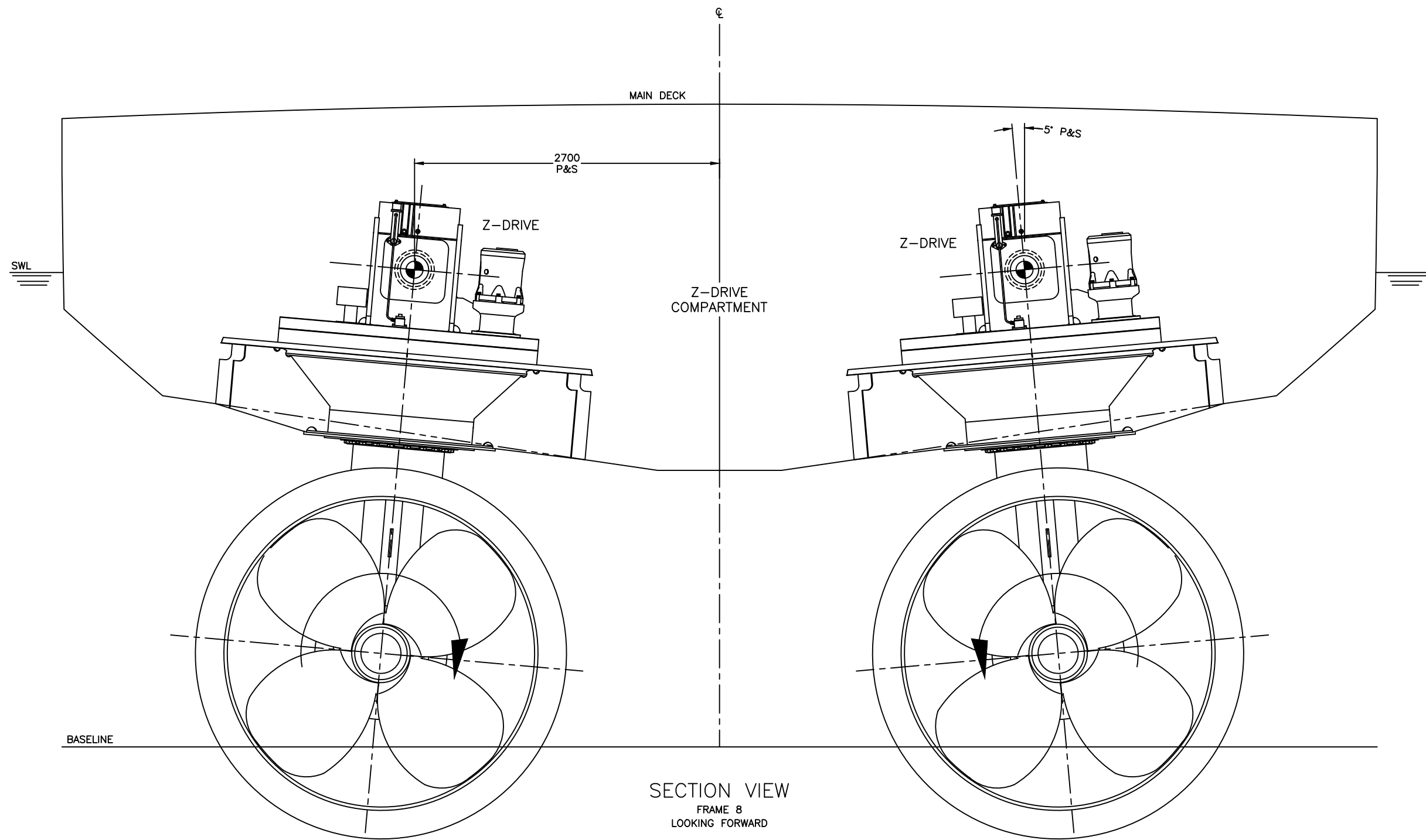


PLAN VIEW

MACHINERY ROTATION DIRECTION			
COMPONENT	SUPPLIER	ROTATION AS DESIGNED	ORIENTATION
MAIN ENGINE	NIIGATA	CW ↻	LOOKING FORWARD AT THE FLYWHEEL
Z-DRIVE INPUT	NIIGATA	CCW ↻	LOOKING AFT AT INPUT FLANGE
PROPELLER – PORT		CW ↻	LOOKING FORWARD AT THE PROPELLER
PROPELLER – STBD		CCW ↻	
FIRE PUMP INPUT	FFS	CW ↻	LOOKING FORWARD AT INPUT FLANGE

NOTES:  
– SHIPYARD TO ENSURE ALL EQUIPMENT WILL BE SUPPLIED WITH ROTATION DIRECTION IN ACCORDANCE WITH THIS TABLE AND DIAGRAM  
– 'CW' CLOCKWISE, 'CCW' COUNTER CLOCKWISE





CLIENT LOGO

UNCONTROLLED VERSION

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SHAFTING ARRANGEMENT

SCALE

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PLOT SIZE  
ANSI B

SHEET  
4 OF 4

PROJECT  
222-032A

DRAWING  
52500

REV.  
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