

NOTES:

1. VERIFY ALL EQUIPMENT WITH MANUFACTURERS CERTIFIED DRAWINGS. ARRANGEMENT BASED ON EQUIPMENT SHOWN. UPDATE TO SUIT SELECTED EQUIPMENT.
2. PROVIDE AND INSTALL ALL EQUIPMENT, SHAFTS, COUPLINGS, ETC. IN ACCORDANCE WITH MANUFACTURER AND CLASS REQUIREMENTS, TO THE SATISFACTION OF THE MANUFACTURER AND ATTENDING SURVEYOR.
3. INSTALL ALL MACHINERY AND EQUIPMENT WITH ADEQUATE ACCESS FOR SERVICE AND MAINTENANCE. PROVIDE SUFFICIENT ALLOWANCE FOR COMPONENT WITHDRAWAL, INCLUDING APPROPRIATE LIFTING GEAR.
4. PROVIDE GUARDS IN WAY OF HOT OR ROTATING MACHINERY TO PROTECT PERSONNEL FROM INJURY.
5. PROVIDE SHAFT KEYWAYS TO HAVE AMPLE CORNER FILLETS AND GRADUAL RISE AT THE ENDS.
6. PROVIDE SAE STANDARD TAPER, KEYWAY, SMALL END, COTTER PIN AND NUTS FOR PROPELLER CONNECTION.
7. VERIFY HUB WITH PROPELLER MANUFACTURER.
8. SHAFT MATERIAL:

MINIMUM ULTIMATE TENSILE STRENGTH = 600MPA

PROVIDE CLASSIFICATION SOCIETY APPROVED MATERIALS FOR ALL SHAFTING
9. PROVIDE SHAFT LINERS IN WAY OF ALL JOURNAL BEARINGS AND SHAFT SEALS.

NOTES:

1. VÉRIFIER L'ÉQUIPEMENT D'APRÈS LES PLANS CERTIFIÉS DES FABRICANTS. L'AMÉNAGEMENT EST BASÉ SUR L'ÉQUIPEMENT INDIQUÉ. MODIFIER LE PLAN SELON L'ÉQUIPEMENT SÉLECTIONNÉ.
2. FOURNIR ET INSTALLER L'ÉQUIPEMENT (ARBRES, COUPLAGE, ETC.) CONFORMÉMENT AUX EXIGENCES DU FABRICANT ET AUX NORMES DE CLASSIFICATION. INSTALLER L'ÉQUIPEMENT À LA SATISFACTION DU FABRICANT ET DE L'INSPECTEUR PRÉSENT.
3. INSTALLER LA MACHINERIE ET LES PIÈCES D'ÉQUIPEMENT DE FAÇON À PERMETTRE LEUR ACCÈS ET ENTRETIEN, AINSI QUE LE MONTAGE ET DÉMONTAGE DE LEUR COMPOSANTS.
4. INSTALLER DES RAMBARDES AUTOUR DE LA MACHINERIE EN ROTATION ET À TEMPÉRATURE ÉLEVÉE AFIN D'ÉVITER DE BLESSER LE PERSONNEL.
5. ARRONDIR DE FAÇON PRONONCÉE LE REBORD DES RAINURES DE CLAVETTE DES ARBRES ET INTRODUIRE UNE PENTE GRADUÉE AU BOUT DE L'OUVERTURE.
6. FOURNIR LES DÉFILÉS, LES RAINURES DE CLAVETTE, LES PETITS BOUTS, LES GOUPILLES FENDUES, ET LES ÉCROUS POUR LES CONNECTIONS DE L'HÉLICE D'APRÈS LES NORMES SAE.
7. VÉRIFIER LES DÉTAILS DU MOYEU AVEC LE FABRICANT DE L'HÉLICE.
8. MATÉRIAU DE L'ARBRE:

RÉSISTANCE MÉCANIQUE MINIMUM À LA TRACTION= 600MPA

LE MATÉRIEL DE CONSTRUCTION DE L'ARBRE DOIT ÊTRE APPROUVÉ D'APRÈS LES NORMES DE CLASSIFICATION DU NAVIRE.
9. FOURNIR DES CHEMISES D'ARBRE À LA HAUTEUR DE TOUT LES PALIERS LISSES ET DE LES BOÎTES D'ÉTANCHÉITÉ.

DYNAMIC ANALYSES
(SEE ALSO VESSEL SPECIFICATION, 501.2):

- TORSIONAL VIBRATION ANALYSIS (TVA):
- CONDUCT TVA FOR ENTIRE PROPULSION SYSTEM INCLUDING ALL DRIVEN COMPONENTS IN ACCORDANCE WITH CLASS REQUIREMENTS.
 - PROVIDE RESULTS OF TVA TO ALL DRIVEN EQUIPMENT MANUFACTURERS AND OBTAIN THEIR APPROVAL.

- SOLID BODY DYNAMIC ANALYSIS:
- CONDUCT SOLID BODY DYNAMIC ANALYSIS FOR RESILIENTLY MOUNTED EQUIPMENT.

- LATERAL (WHIRLING) VIBRATION ANALYSIS:
- CONFIRM BEARING LOCATIONS AND SHAFT DIAMETER BY LATERAL (WHIRLING) VIBRATION ANALYSIS.
 - BEARING LOCATIONS SHOWN ARE PRELIMINARY ONLY.

ANALYSES DYNAMIQUE
(CONSULTER ÉGALEMENT LA SECTION 501.2 DES SPÉCIFICATIONS DU NAVIRE):

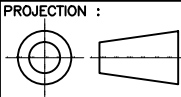
- ANALYSE DE VIBRATION DE TORSION (AVT):
- EFFECTUER UNE AVT POUR LE SYSTÈME DE PROPULSION ENTIER, INCLUANT LES COMPOSANTS MENÉS, CONFORMÉMENT AUX NORMES DE CLASSIFICATION.
 - SOUMETTRE LES RÉSULTATS DE L'AVT AUX FABRICANTS DES COMPOSANTS MENÉS AFIN D'OBTENIR LEURS APPROBATIONS.

- ANALYSE DYNAMIQUE DES CORPS SOLIDES:
- EFFECTUER UNE ANALYSE DYNAMIQUE DES CORPS SOLIDES POUR L'ÉQUIPEMENT À SUPPORT ÉLASTIQUE.

- ANALYSE DE VIBRATION LATÉRALE:
- CONFIRMER L'EMPLACEMENT DES PALIERS ET LE DIAMÈTRE DE L'ARBRE D'APRÈS UNE ANALYSE DE VIBRATION LATÉRALE.
 - L'EMPLACEMENT DES PALIERS INDIQUÉE DANS LE PLAN EST PRÉLIMINAIRE ET DOIT ÊTRE VÉRIFIÉE.

CE PLAN EST BASÉ SUR LE PLAN NO. 209-028. IL A ÉTÉ DÉVELOPPÉ UNIQUEMENT PAR MERIDIEN MARITIME À DES FINS DE PRODUCTION AVEC LA PERMISSION ÉCRITE DE ROBERT ALLAN LTÉE. ROBERT ALLAN LTÉE N'ASSUME AUCUNE RESPONSABILITÉ QUELLE QU'ELLE SOIT POUR CE PLAN MODIFIÉ. LA PROPRIÉTÉ INTELLECTUELLE DU PLAN CI-DÉCRIT APPARTIENT UNIQUEMENT À ROBERT ALLAN LTÉE ET AU CANADA. IL EST DÉFENDU DE REPRODUIRE LES PLANS ET LES DEVIS, CI-INCLUS, EN ENTIER OU EN PARTIE, OU DE LES PARTAGER AVEC UN TIERS SANS LA PERMISSION ÉCRITE DES PROPRIÉTAIRES.

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8	AS CONSTRUCTED	MM	MAY 2012
7	ROPE GUARD	MM	APRIL 2012
6	APPROVED FOR CONSTRUCTION	MM	JUL 2010
5	CALCULS SPECIFICATION	MM	
REV.	REVISIONS	BY	DATE
		Garde côtière canadienne Canadian Coast Guard	
NAVIRE 25M VESSEL COQUE # / HULL # 008		PROJECT TITLE : Navire semi-hauturier de recherche halieutique Near Shore Fisheries Research Vessels	
PROJECT # : MR09-1113	DRAWING FILE : ISV25-52500RMM8.DWG	DATE : 02/11/11	
DRAWN BY :	DRAWING # : 52500	REV : 	SHEET : 1 OF 7

CALCULATIONS

REF: BUREAU VERITAS RULES AND REGULATIONS FOR THE CLASSIFICATION OF SHIPS, APRIL 2007					
PART D, CHAPTER 21, SEC 3, ARTICLE 7					
7.1 SHAFTING					
	$d = K \times \sqrt[3]{(F/N)}$				
where:	K =	MATERIAL COEFFICIENT	=	91	AUSTENITIC S.S. (AQUAMET 22)
			=	126	CARBON STEEL
			=	88	MARTENSITIC S.S. (AQUAMET 17)
	F =	BRAKE POWER	=	357	kW
	N =	SHAFT RPM	=	356.4	RPM
	GB =	GEAR BOX RATIO	=	5.05	:1
	N _e =	ENGINE RPM	=	1800	RPM
	d =	REQUIRED SCREW SHAFT DIAMETER	=	91.1	mm (AQUAMET 22)
	d =	REQUIRED THRUST SHAFT DIAMETER	=	126.1	mm (CARBON STEEL)
		REQUIRED THRUST SHAFT DIAMETER	=	88.0	mm (AQUAMET 17)
		THRUST SHAFT DIAMETER CHOSEN	=	101.6	mm (AQUAMET 17)
LLOYD'S REGISTER OF SHIPPING RULES FOR THE CLASSIFICATION OF SHIPS, JULY 2009, PART 8 CHAP 2 SEC 5					
5.3.1 MAIN ENGINE SHAFTING AND PROPELLERS					
		SCREWSHAFT, INCREASE DIAMETER BY:		5.0	%
	d =	REQUIRED SHAFT DIAMETER FOR ICE CLASS 1E	=	95.6	mm (AQUAMET 22)
		SCREW SHAFT DIAMETER CHOSEN:	=	101.6	mm (AQUAMET 22)

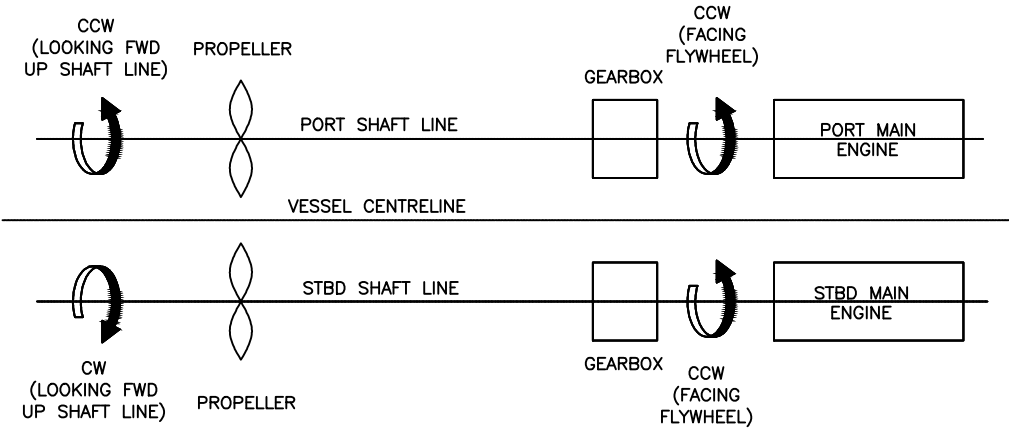
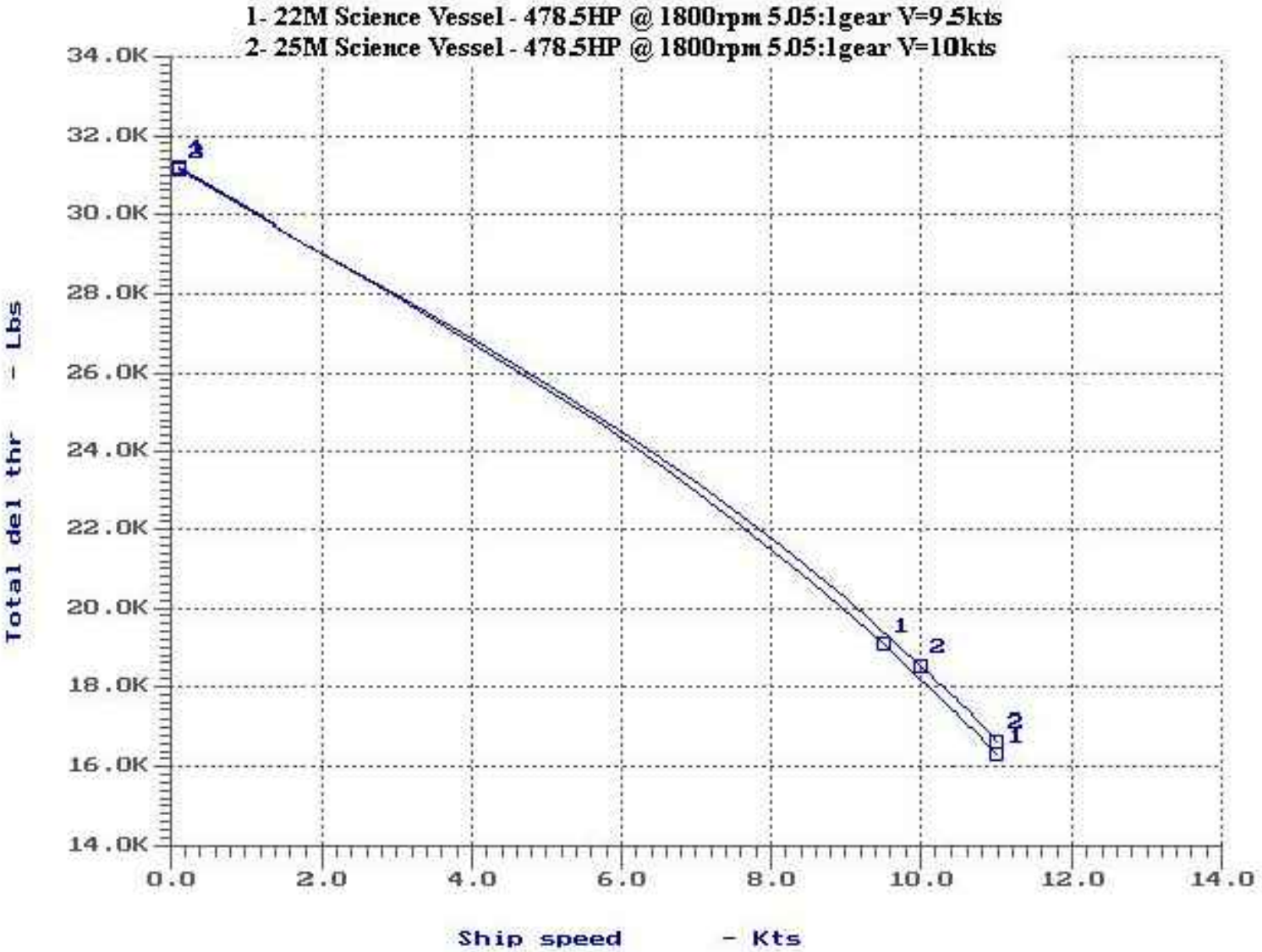


DIAGRAM OF SHAFT LINES IN PLAN VIEW
SHOWING SHAFT ROTATIONS



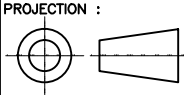
TWIN PROPELLER WITHIN NOZZLE THRUST CURVE



COMPANY :
**MÉRIDIEN MARITIME
RÉPARATION**

TITLE :
SHAFTING ARRANGEMENT
25M

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PROJECTION :



Garde côtière canadienne
Canadian Coast Guard

NAVIRE 25M VESSEL
COQUE # / HULL #
008

PROJECT TITLE :
Navire semi-hauturier de recherche halieutique
Near Shore Fisheries Research Vessels

PROJECT # :
MR09-1113

DRAWING FILE :
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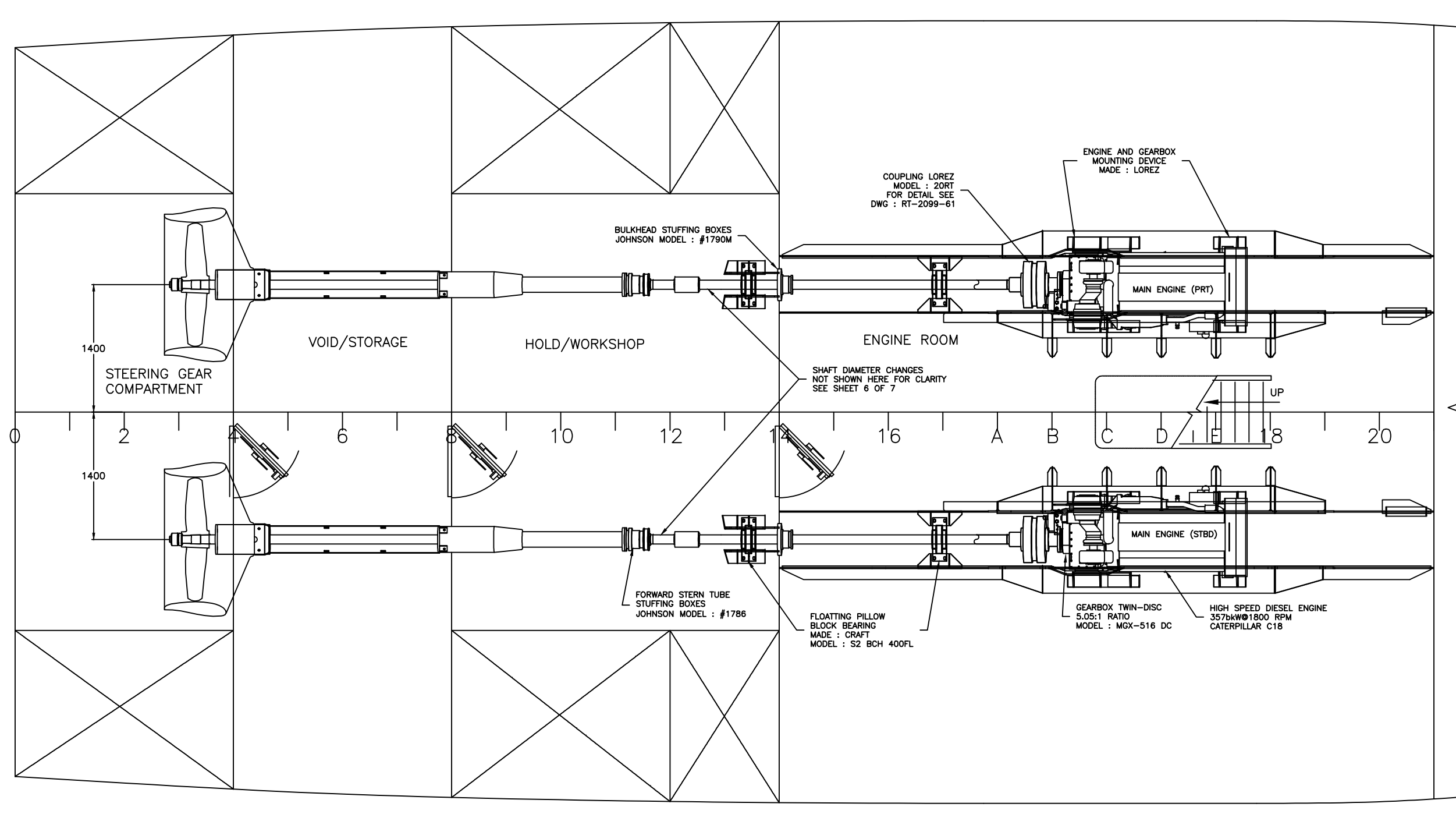
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HOLD PLAN



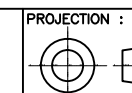
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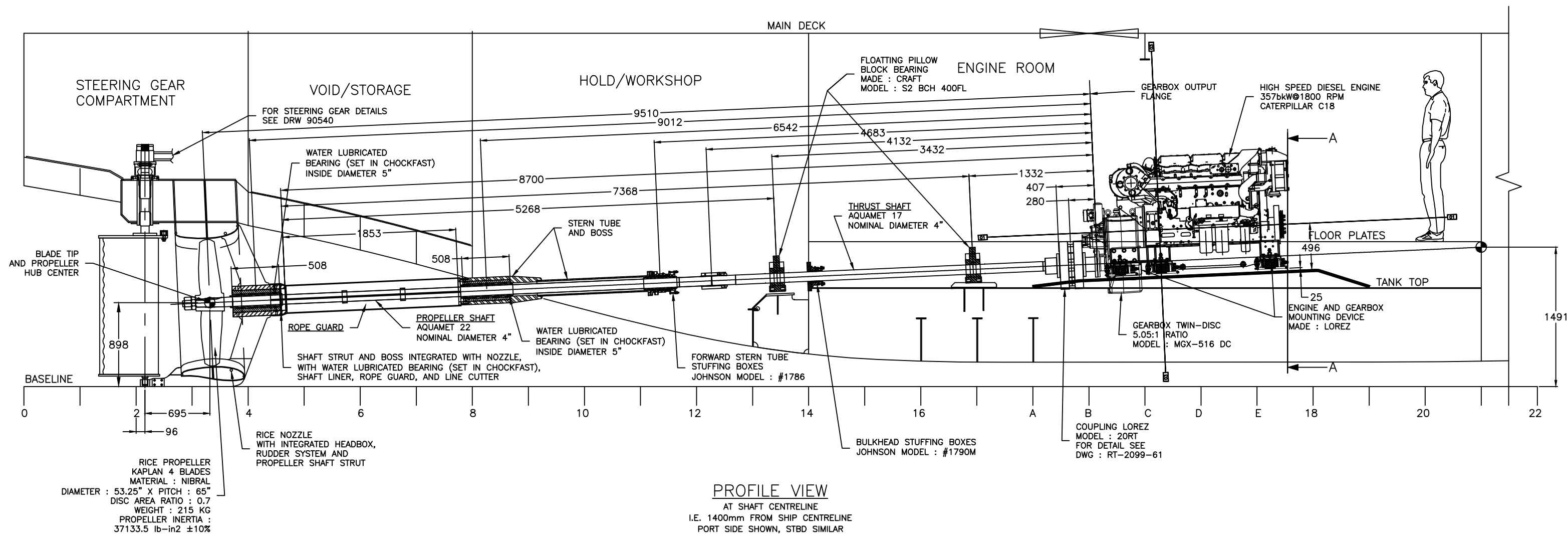
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TITLE :
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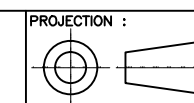
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COMPANY :
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RÉPARATION

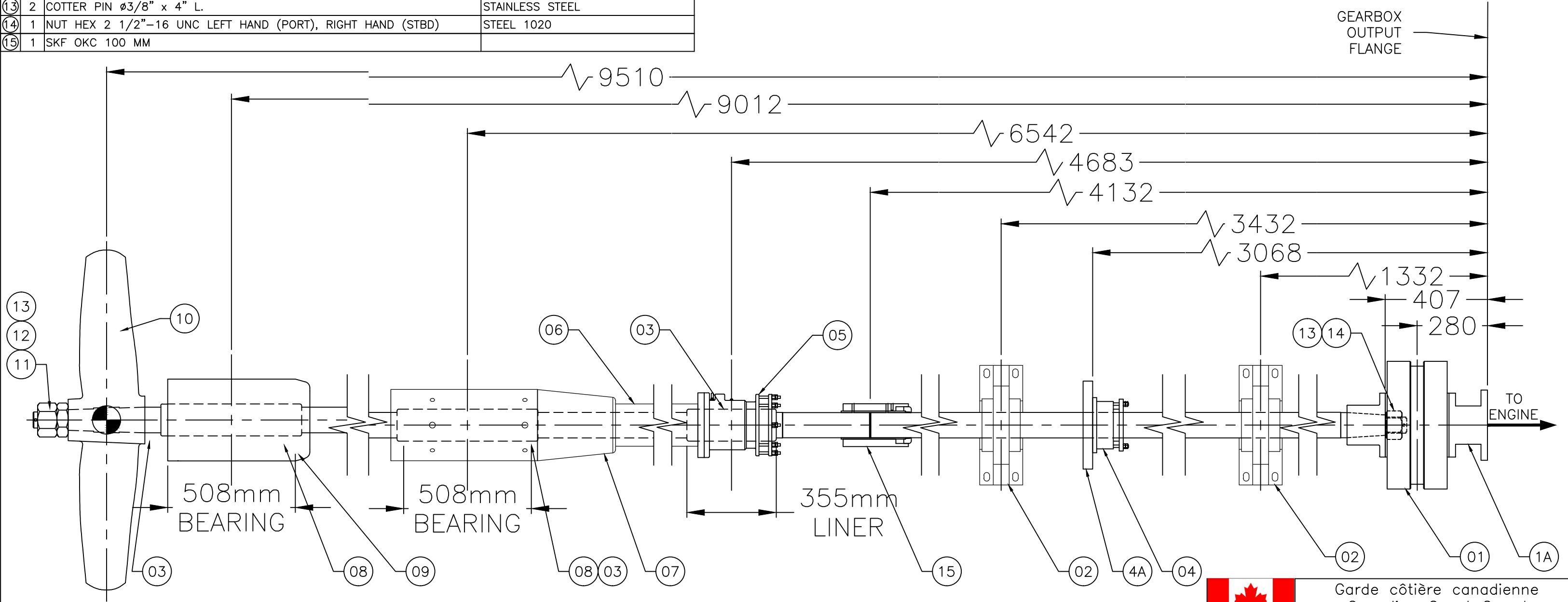
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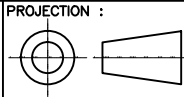
PROJECTION :

BILL OF MATERIAL			
ITEM	QTY	DESCRIPTION	MATERIAL
(1A)	1	RT SPOOL SPACER	DUCTILE IRON
(01)	1	20 RT COUPLING ASSEMBLY	DUCTILE IRON
(02)	2	FLOTTING PILLOW BLOCK CRAFTBEARING S2 BCH 100MM	
(03)	3	SHAFT LINER	COPPER #C90500,GUN METAL SAE62
(04)	1	BULKHEAD STUFFING BOXES JOHNSON BY DURAMAX # 1790M	BRONZE
(4A)	1	BHD STEEL INSERT	STEEL
(05)	1	FORWARD STERN TUBE STUFFING BOXES JOHNSON BY DURAMAX, #1786	BRONZE
(06)	1	STERN TUBE PIPE	TUBING ø6" SCH 80
(07)	1	BOSS	STEEL
(08)	2	WATER LUBRICATED BEARING	
(09)	1	STRUT TUBE	
(10)	1	RICE PROPELLER KAPLAN 4 BLADES	NIBRAL
(11)	1	HEX JAM NUT 3"-4 UNC RIGHT HAND (PORT), LEFT HAND (STBD)	MANGANESE-BRONZE
(12)	1	HEX NUT 3"-4 UNC RIGHT HAND (PORT), LEFT HAND (STBD)	MANGANESE-BRONZE
(13)	2	COTTER PIN ø3/8" x 4" L.	STAINLESS STEEL
(14)	1	NUT HEX 2 1/2"-16 UNC LEFT HAND (PORT), RIGHT HAND (STBD)	STEEL 1020
(15)	1	SKF OKC 100 MM	



COMPANY :	MÉRIDIEN MARITIME RÉPARATION	TITLE :	SHAFTING ARRANGEMENT 25M
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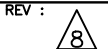
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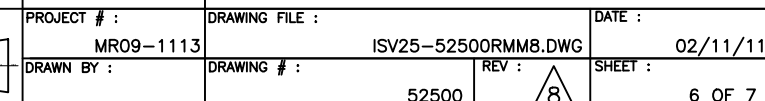
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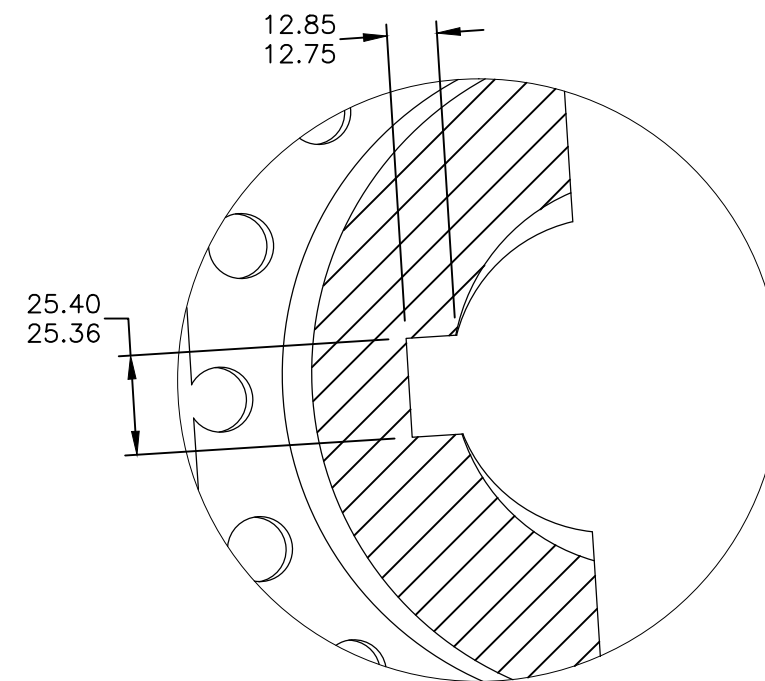
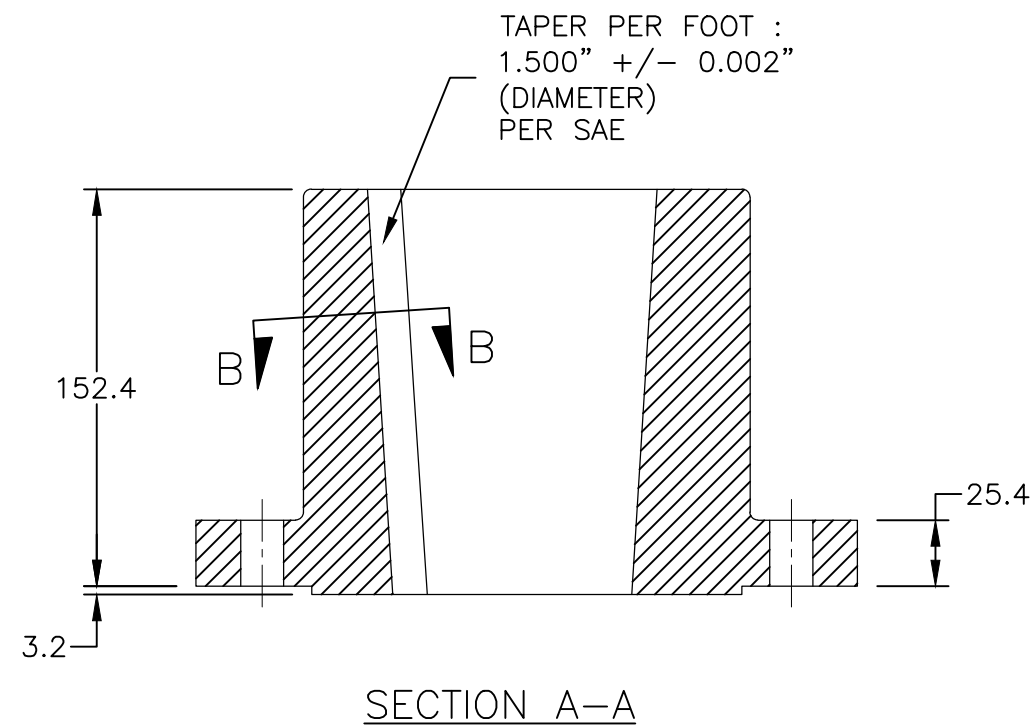
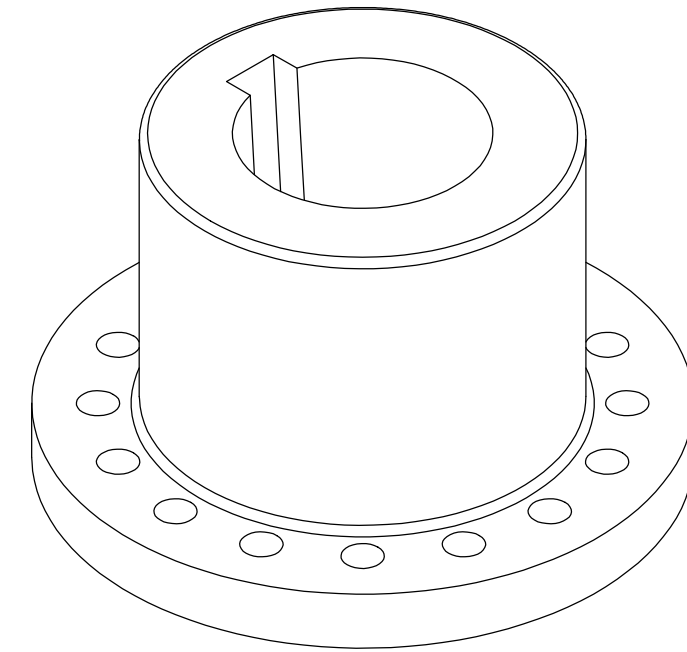
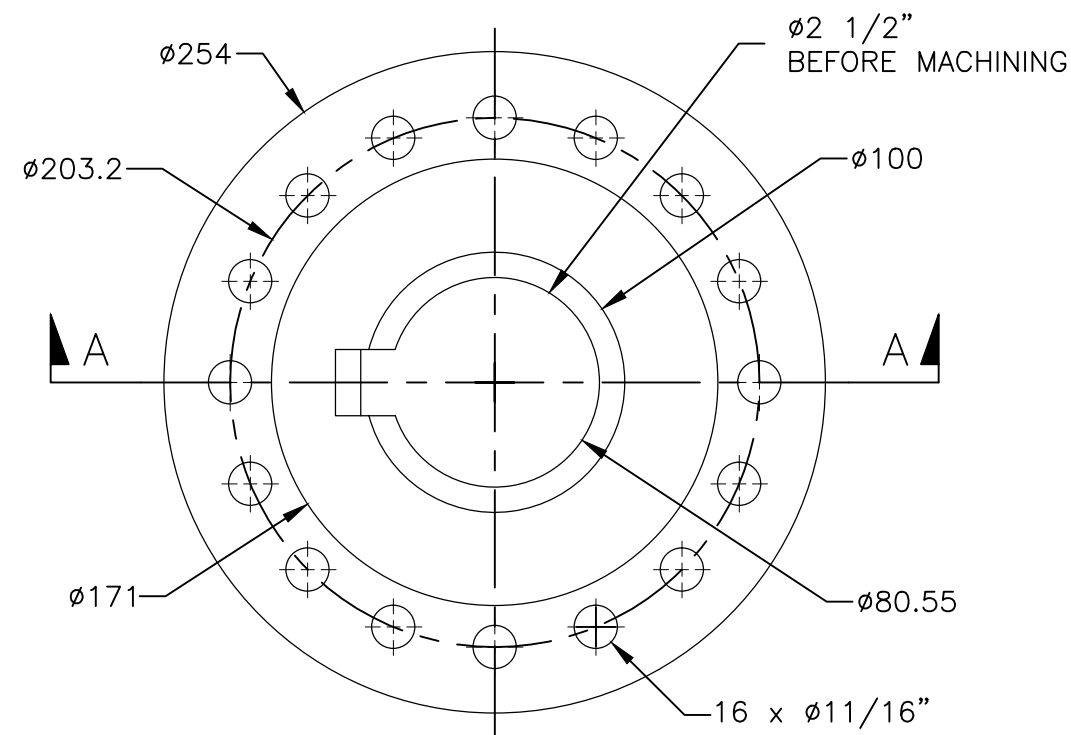
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Scale 1:2

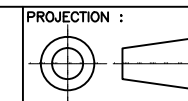
- NOTES :
- 1-SHAFT HUB BY LO-REZ, PART # RT-2099-61A MATERIAL : DUCTILE IRON HOLE DIAMETER : 2 1/2"
 - 2-TAPER & KEY AS PER SAE



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