

SCALE 1 : 15

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	254550	FR. HOUSING INLINE MACHINING & ASS'Y	1
2	254713	HOLLOW SHAFT ASSEMBLY	1
3	254593	HIGH SPEED SHAFT ASSEMBLY	1
4	254714	PLANET CARRIER BEARINGS AND PLANET ASS'Y	1
5	254549	INTERMEDIATE SHAFT ASSEMBLY	1
6	90490	SOC HD CAPSCREW, M16 x 45 GR 8.8	8
7	254718	FRONT BEARING RETAINER ASSY	1
8	254782	PILOT TUBE ASSEMBLY	1
9	251557	LUBRICATION BLOCK	2
10	98225	HEX HD CAPSCREW, M8x20, DRILLED HD, GRADE 5	4
11	97064	SNAP RING FH-195	1
12	90296	SOC HD CAPSCREW, M16 x 60 GR 10.9	12
13	251332	PLATE, BAFFLE	1
14	90651	WASHER, FLAT, PLAIN, STEEL, M16	12
15	254784	CARRIER ADAPTOR SUB ASS'Y	1
16	254922	SUMP DRAIN / WEIR LUBE SYST	1
17	254921	GEARBOX ASSEMBLY - LUBE SYST	1
18	90667	1/2 NPTF Pipe Size	1
19	95236	FITTING, STRAIGHT CONNECTOR, PARKER 8-F50X-S	2
20	95237	FITTING, SWIVEL NUT TEE, PARKER #8-R6X-S	1
21	251870	ASSEMBLY, LUBRICATION FITTING	1
22	95235	FITTING, BRANCH TEE, PARKER 8-S50X-S	1
23	255221	ASSEMBLY, OIL SUPPLY TUBE	1
24	255222	ASSEMBLY, OIL SUPPLY TUBE	1
25	255223	ASSEMBLY, OIL SUPPLY TUBE	1
26	90964	SNAP RING, INTERNAL (SMALLEY DNH-180)	2

NOTES:

- USE LOCTITE 577 THREAD SEALANT ON ALL THREADS PER MFG. INSTRUCTIONS
- LUBRICATION SYSTEM TO BE FLUSHED CLEAN PRIOR TO ASSEMBLY
- LUBRICATION SYSTEM TO BE PRESSURE TESTED WITH GEARBOX OIL TO 5 BAR FOR 10 MINUTES. ZERO DECAY.
- USE SUITABLE GREASE COMPATIBLE OIL AS INSTRUCTED
- INSTRUMENTATION TO BE COMPLETED PRIOR TO ASSEMBLY PER LAYOUT DRAWINGS 1551-LY-311, 1551-LY-321, 1551-LY-401, 1551-LY-601, AND 1551-LY-711.
- INSTRUMENTATION TO BE COMPLETED AFTER FINAL ASSEMBLY PER LAYOUT DRAWINGS 1551-LY-501, 1551-LY-502, 1551-LY-503, 1551-LY-701, 1551-LY-702, 1551-LY-703, AND 1551-LY-704.
- SEE 1551-XL-001 FOR INSTRUMENTATION BILL OF MATERIALS. SEE 1551-XL-002 FOR INSTRUMENTATION SIGNAL LIST.

MAKE FROM MODEL: 1509-AS-007-C

REV	CHANGED FROM	BY	DATE	APRD
A	PRE-RELEASE	CPS	2/14/13	
B	RELEASE FOR PRODUCTION	CPS	5/10/13	
C	REPAIR DANGLING DIMENSION LEADERS	JMG	10/18/13	
D	CHANGES PER MANUFACTURER REVIEW AND INSTRUMENTATION	CPG	3/20/14	
E	CHANGES PER MFG REVIEW	CPG	3/22/16	

REPORT ERRORS & CHANGES REMOVE ALL BURRS AND SHARP EDGES DIMENSIONS ARE IN MILLIMETERS. UNSPECIFIED TOLERANCES:

DECIMALS: FINISH: ANGLES:

X. ±1.0 6.3 $\mu\text{m Ra}$ $\leq \pm 0.5^\circ$

.X ±0.5

.XX ±0.25

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DRAWN CPS DATE: 2/14/13

CHECKED THIRD ANGLE PRJ

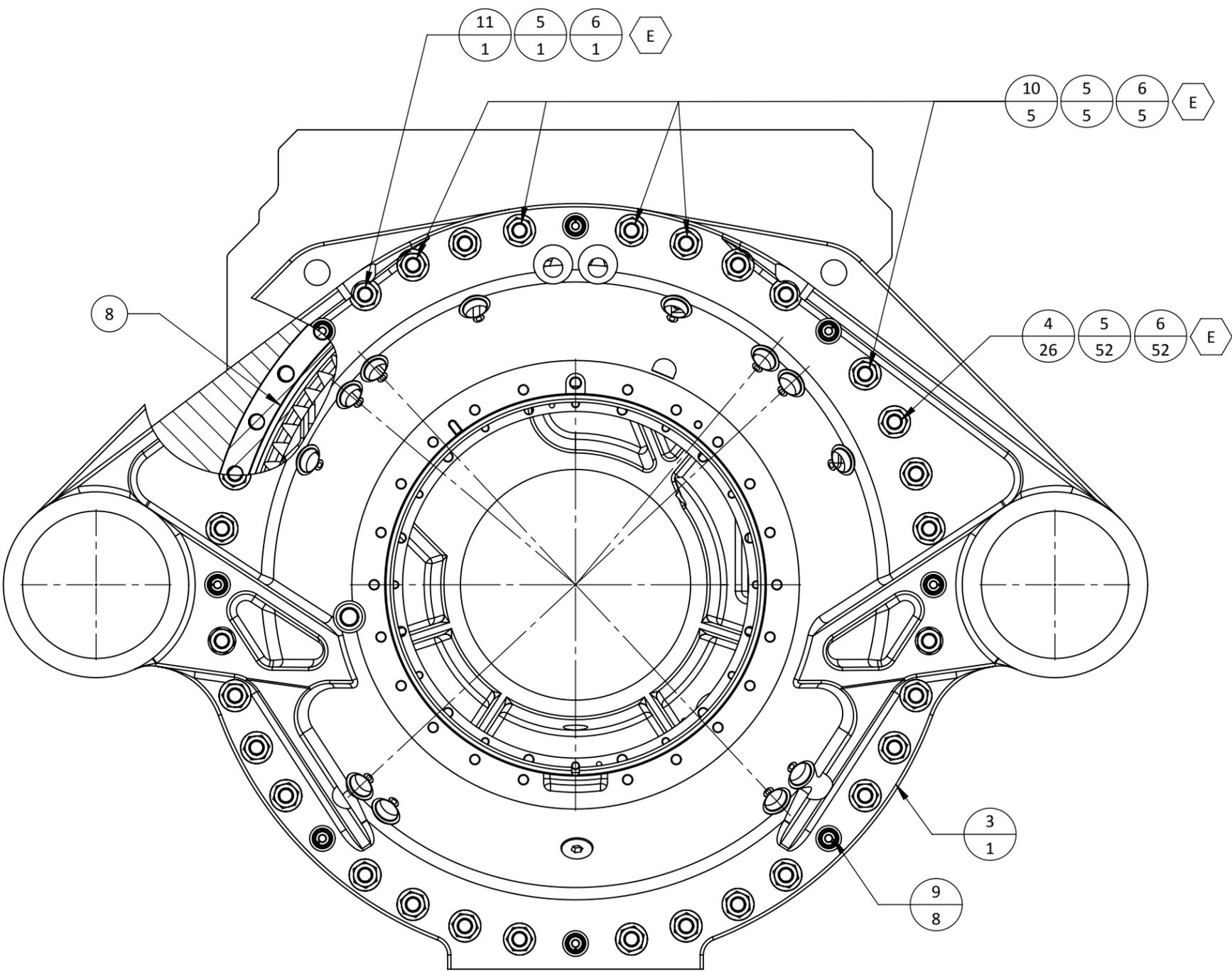
National Renewable Energy Laboratory

TITLE: **GEARBOX ASSEMBLY**

SIZE **B** DWG. NO. **254719** REV **E**

SCALE: 1:10 WEIGHT: 5153.56 kgs SHEET 1 OF 5

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
3	254506	GEAR HOUSING ASS'Y	1
4	90939	STUD, THREADED, M24 x 500	26
5	97157	WASHER, SPECIAL M24	58
6	90800	NUT, M24, FULL HEAVY DUTY	58
8	93239	O-RING, 8mm x 1060 DIA	2
9	254552	DOWEL, SPECIAL, STEPPED AND NECKED	8
10	90940	STUD, THREADED, M24 x 450	5
11	90938	STUD, THREADED, M24 x 130mm	1
12	95425	SAE 12 - STR THRD PLUG w/ O-RING	1

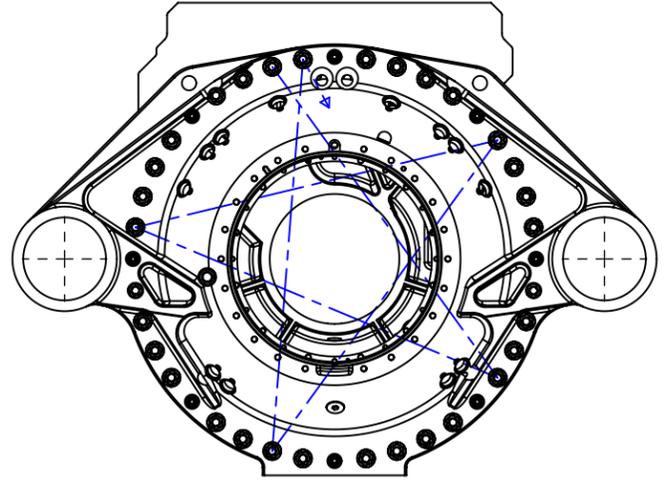


TORQUE CHART (LUBED)

E M24: USE STUD TENSIONER ON EXTENDED END OF STUD. SET FORCE TO 256 kN.

FRONT FASTENER NOTES:

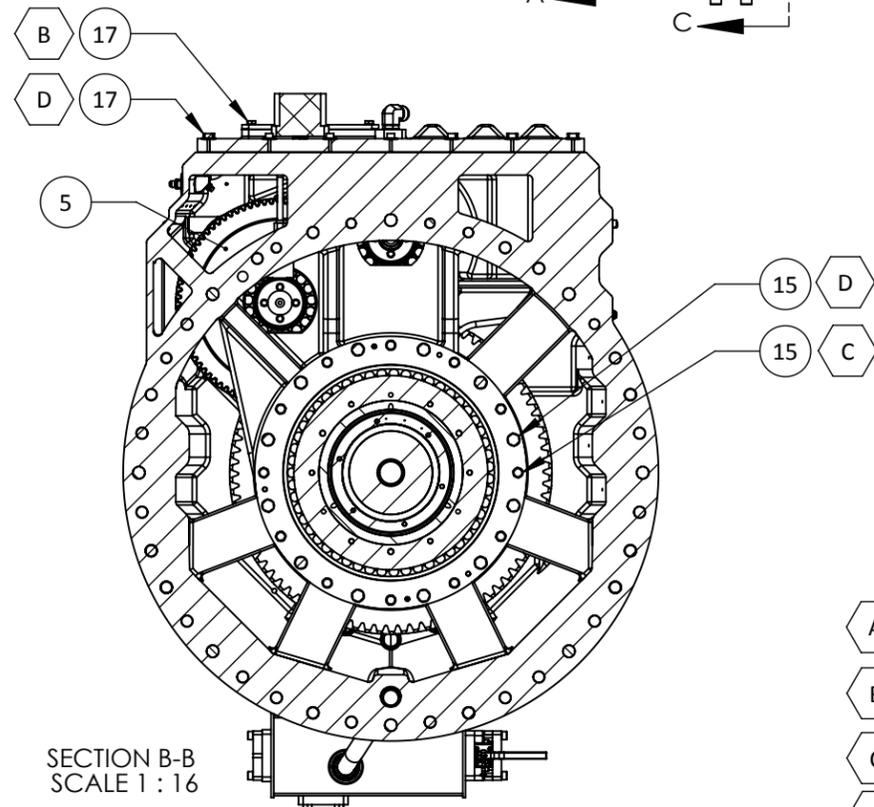
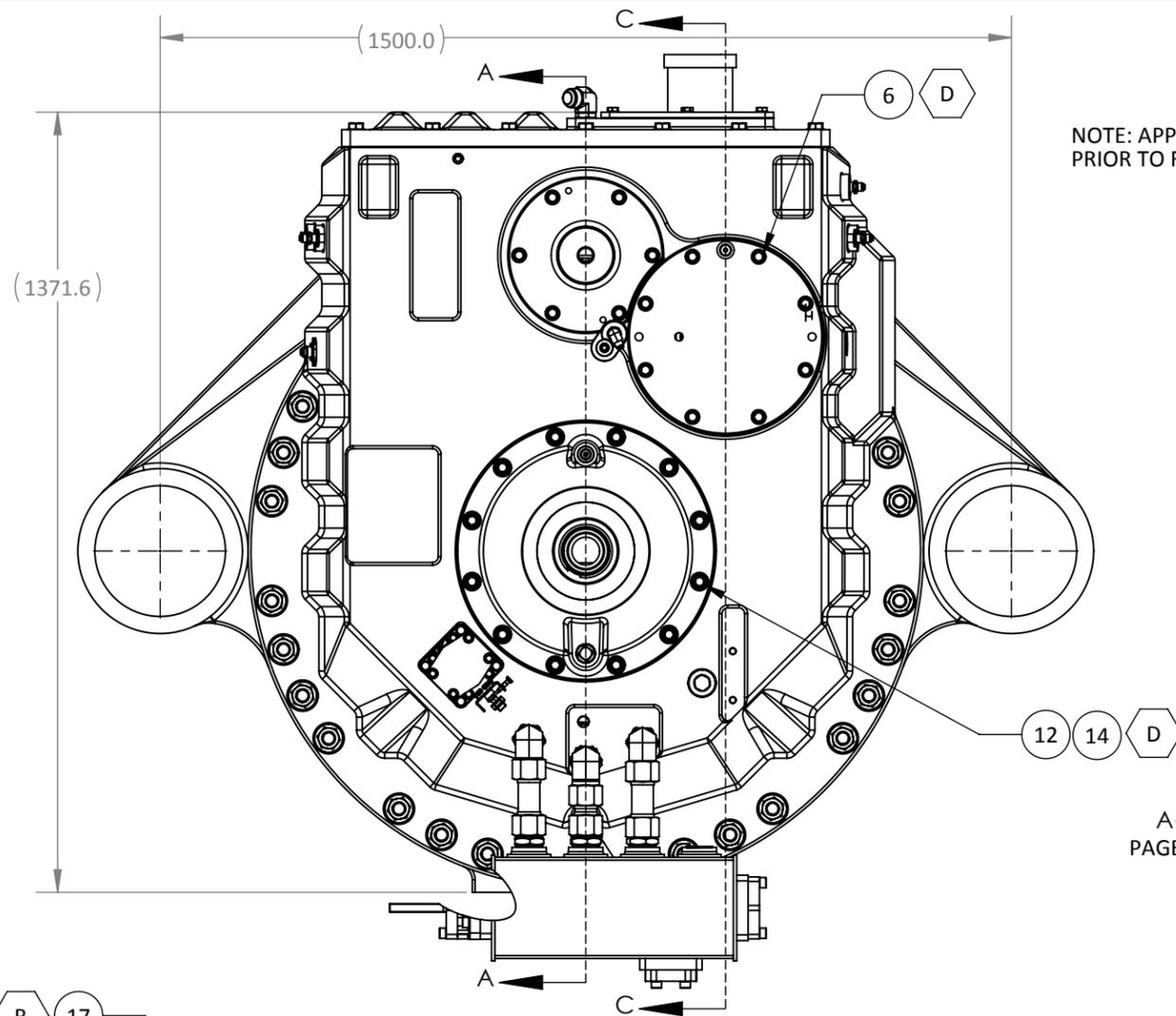
1. USE A HYDRAULIC STUD TENSIONER PER MANUFACTURER INSTRUCTIONS.
2. SEQUENCE TO TIGHTENING NUTS IS FIRST TIGHTEN TO 128 kN IN A PATTERN ILLUSTRATED BELOW, WITH IRRELEVANT STARTING POINT. THEN TIGHTEN TO FINAL TORQUE REPEATING SAME PROCESS.



BOLT TIGHTENING PATTERN
SCALE 1 : 20

REFER TO INSTRUMENTATION DRAWINGS FOR COMPLETE INSTALLATION DETAILS FOR PROXIMITY SENSORS INSTALLED IN THE TORQUE ARM HOUSING.

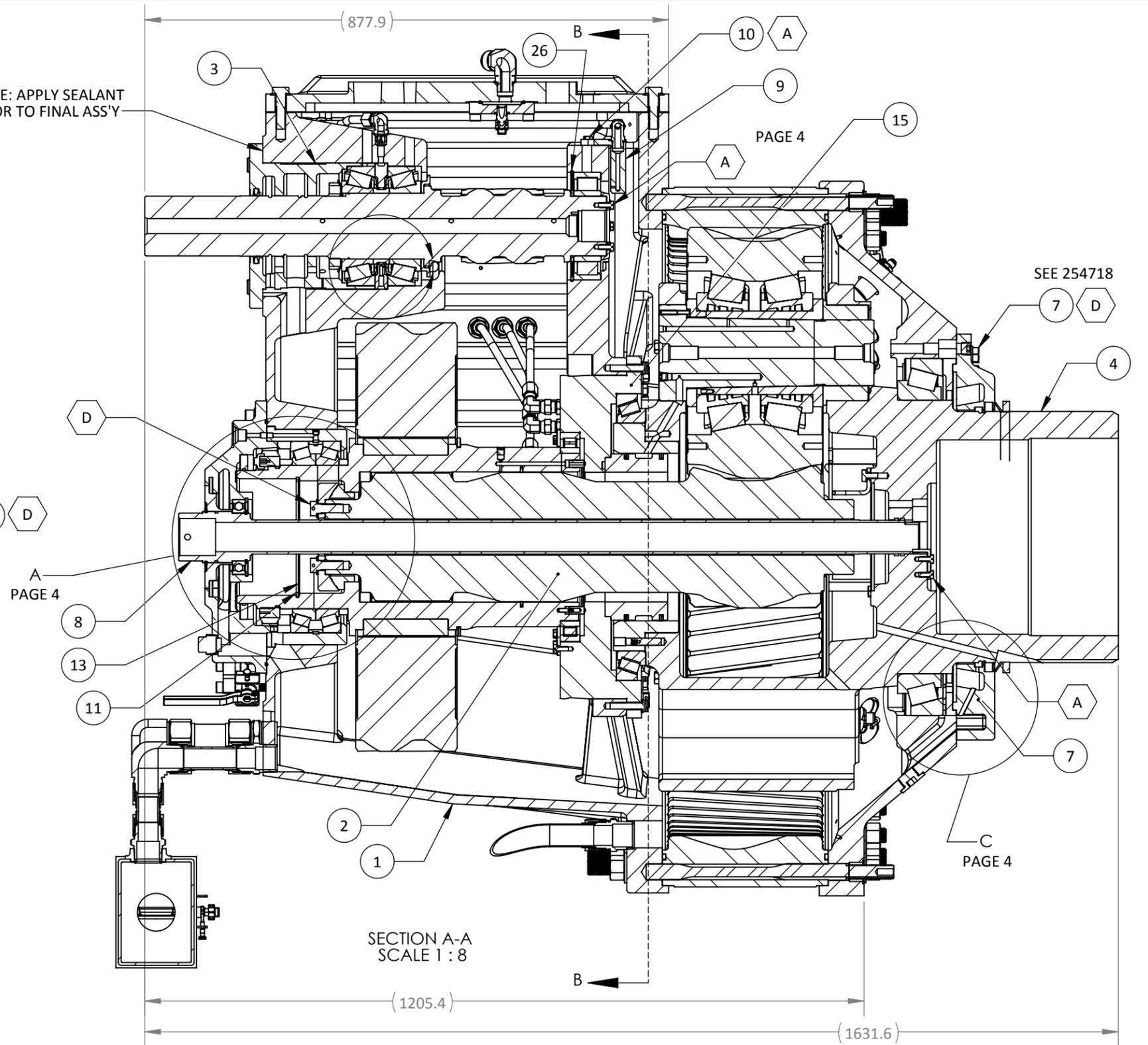
REPORT ERRORS & CHANGES REMOVE ALL BURRS AND SHARP EDGES DIMENSIONS ARE IN MILLIMETERS. UNSPECIFIED TOLERANCES: DECIMALS: FINISH: ANGLES:		National Renewable Energy Laboratory TITLE: GEARBOX ASSEMBLY	
X. ±1.0 .X ±0.5 .XX ±0.25	6.3 $\sqrt{\mu\text{m Ra}}$		
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DRAWN CPS CHECKED	DATE: 2/14/13 THIRD ANGLE PRJ	SCALE: 1:8 WEIGHT: 2063.30 kgs	REV E SHEET 2 OF 5



TORQUE CHART (LUBED)

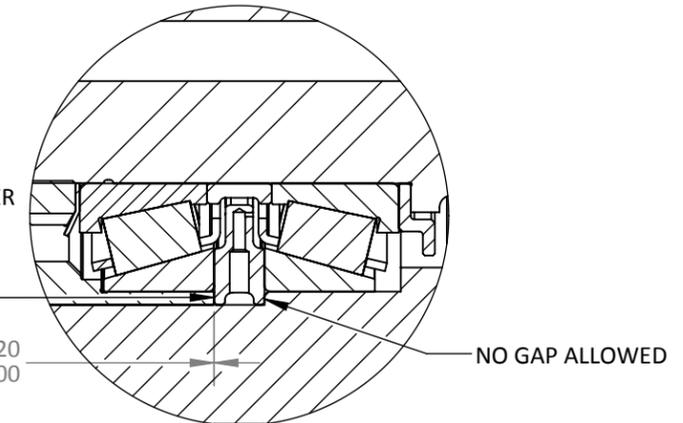
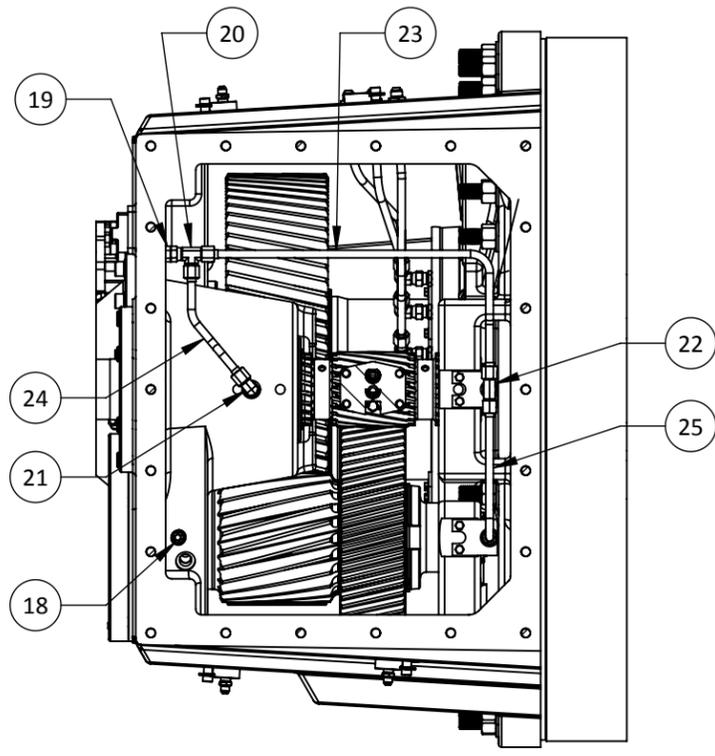
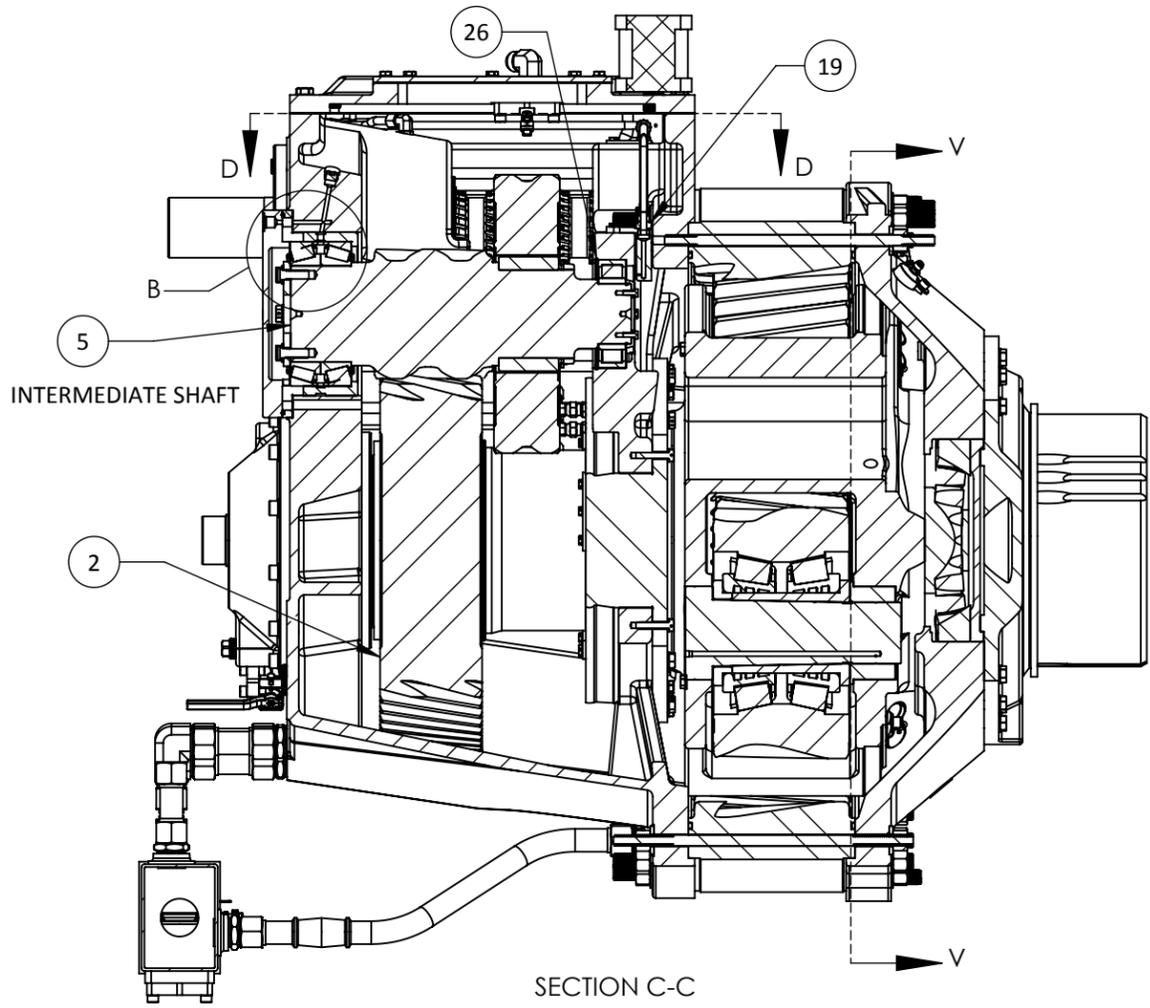
- A M8: 27.3 Nm
- B M10: 54 Nm
- C M12: 94 Nm
- D M16: 233 Nm

NOTE: APPLY SEALANT
PRIOR TO FINAL ASS'Y

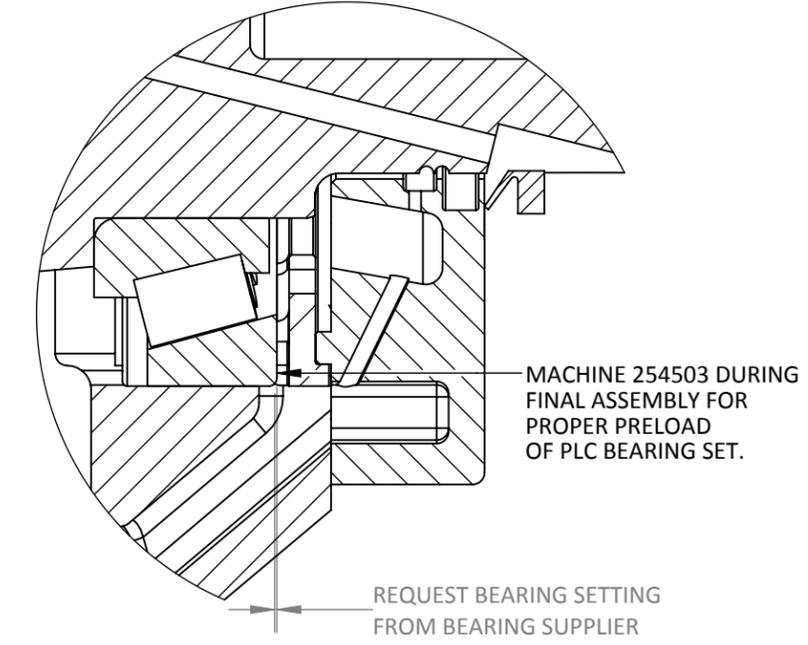


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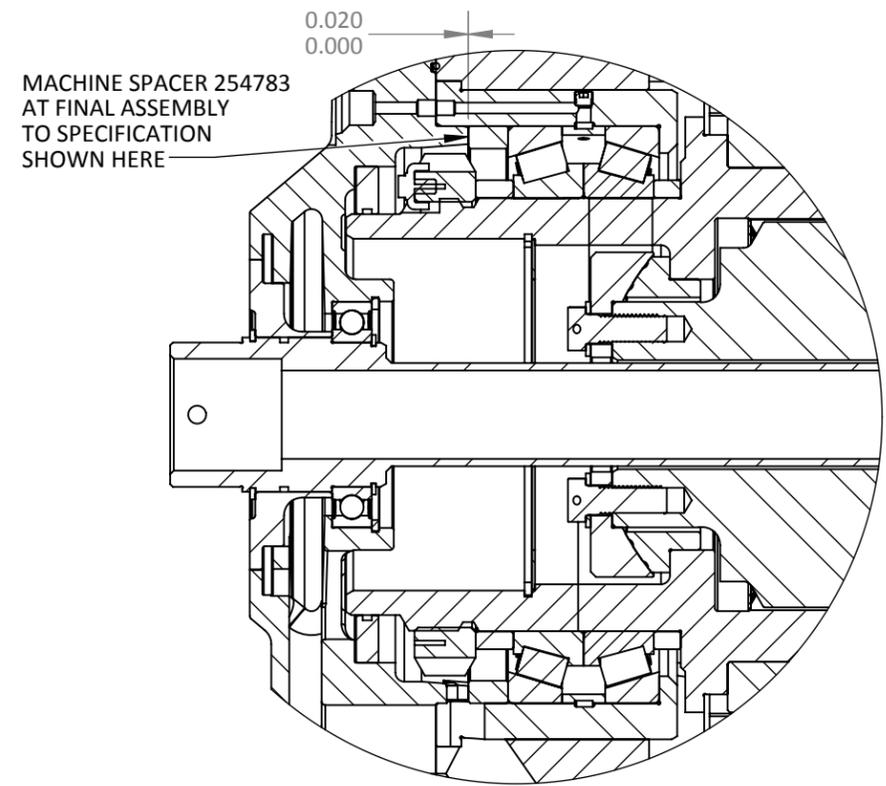
National Renewable Energy Laboratory		
TITLE: GEARBOX ASSEMBLY		
SIZE B	DWG. NO. 254719	REV E
SCALE: 1:12	WEIGHT: 5153.56 kgs	SHEET 3 OF 5



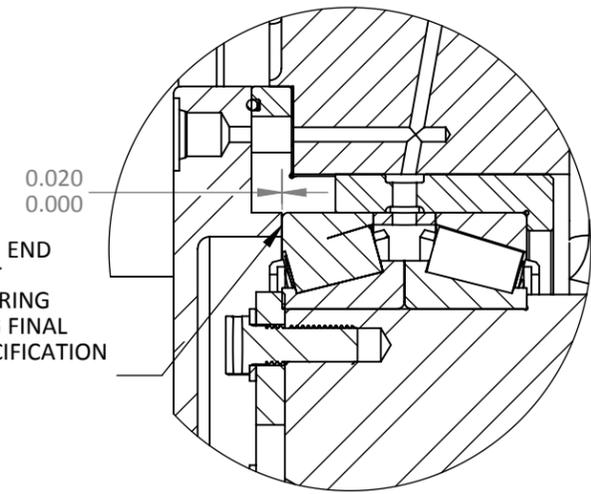
DETAIL D
SCALE 1 : 3
HS SHAFT BEARING ASSEMBLY



DETAIL C
SCALE 1 : 3
FRONT HOUSING ASSEMBLY DETAIL



HOLLOW SHAFT BEARING ASSEMBLY
DETAIL A
SCALE 1 : 4



DETAIL B
SCALE 1 : 3
INTERMEDIATE SHAFT BEARING ASSEMBLY

SECTION D-D
SCALE 1 : 12

SECTION C-C

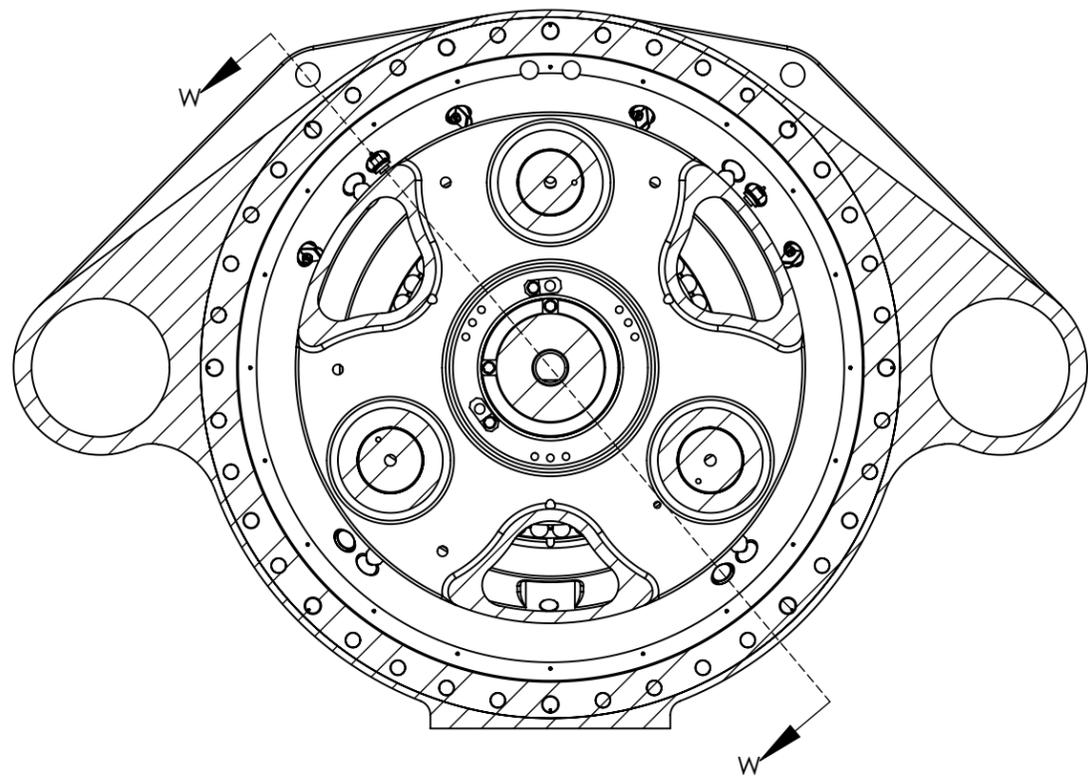
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UNSPECIFIED TOLERANCES:

DECIMALS:	FINISH:	ANGLES:
X. ±1.0	6.3 $\sqrt{\mu\text{m Ra}}$	≤ ± 0.5°
.X ±0.5		
.XX ±0.25		

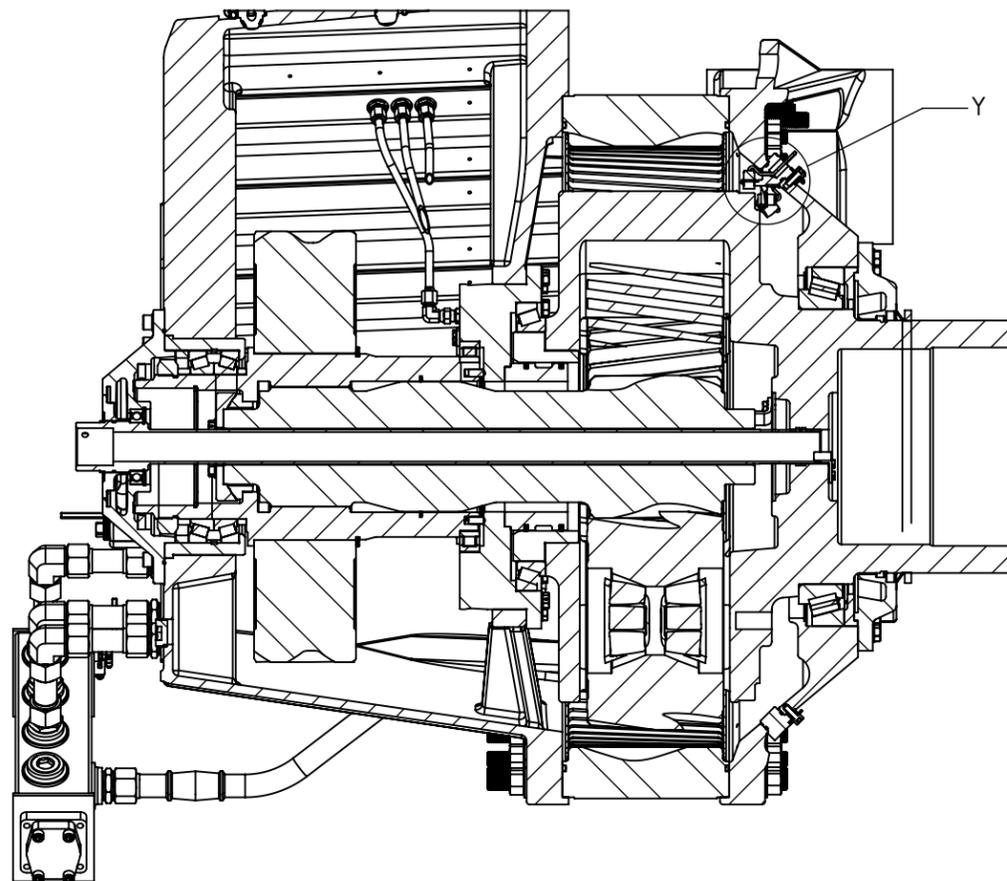
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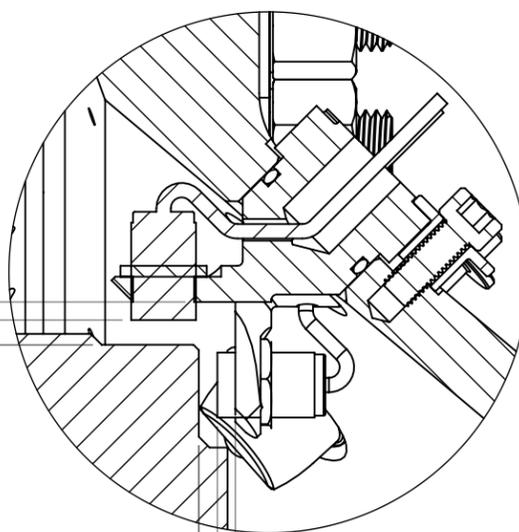
National Renewable Energy Laboratory		
TITLE: GEARBOX ASSEMBLY		
SIZE B	DWG. NO. 254719	REV E
SCALE: 1:10	WEIGHT: 5153.56 kgs	SHEET 4 OF 5



SECTION V-V
SCALE 1 : 12



SECTION W-W
SCALE 1 : 12



TARGET 3.0MM GAP (11.9)

THE SENSORS HAVE AN OPERATING RANGE OF 1 MM MINIMUM GAP TO 5 MM MAXIMUM GAP.

SEE DRAWING 251726 FOR SUB-ASSEMBLY OF SENSOR HOLDER W/ SENSOR

(10.2)
TARGET 3.0MM GAP

DETAIL Y
SCALE 1 : 2

REPORT ERRORS & CHANGES
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X. ±1.0 6.3 $\mu\text{m Ra}$ $\leq \pm 0.5^\circ$
.X ±0.5
.XX ±0.25

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National Renewable Energy Laboratory

TITLE:
GEARBOX ASSEMBLY

SIZE **B** DWG. NO. **254719**

REV **E**

SCALE: 1:10 WEIGHT: 5153.56 kgs

SHEET 5 OF 5