

BILL OF MATERIAL			
ITEM	PART NO.	DESCRIPTION	QTY
1	251240	GEAR, ANNULUS	1
2	251241	GEAR, HIGH SPEED	1
3	251243	PINION, INTERMEDIATE	1
4	251244	PINION, HIGH SPEED	1
5	251246	GEAR, SUN	1
6	251249	HOLLOW SHAFT	1
7	251328	RING, CARRIER ADAPTER	1
8	251329	RING, SPACER	1
9	251330	LOWER SPHERICAL THRUST RING	1
10	251331	UPPER, SPHERICAL THRUST RING	1
11	251332	PLATE, BAFFLE	1
12	251333	SEAL, END COVER	1
13	251334	SEAL, SHAFT	1
14	251335	PLATE, O-RING SEAL	1
15	251336	SPACER, BEARING LOWER	1
16	251337	SPACER, BEARING UPPER	1
17	251339	COVER, END (MACHINING)	1
18	251340	GASKET, END COVER	1
19	251341	GEAR, FIRST INTERMEDIATE	1
20	251342	HOUSING, REWORK	1
21	251343	RING, OIL SUPPLY	1
22	251347	COVER, SEAL	1
23	251348	BEARING BUSHING, 272-240	1
24	251349	BEARING SPACER, INNER	1
25	251350	BEARING SPACER, UPPER	1
26	251400	CONDUIT ASSEMBLY (MACHINED)	1
27	251401	COVER, SHAFT END	1
28	251402	REWORK, FRONT TORQUE HOUSING	1
29	251403	SPACER, BEARING	1
30	251404	KEEPER	1
31	251405	GASKET, BEARING COVER	2
32	251551	GASKET, SEAL COVER	1
33	251554	COVER, GEARBOX	1
34	251555	GASKET, GEARBOX HOUSING COVER	1
35	251556	PLATE, BEARING BAFFLE	1
37	251559	SHIELD, BEARING OIL	1
38	251560	GASKET, INSPECTION COVER	1
39	251561	COVER, INSPECTION	1
40	251569	ASSEMBLY, CARRIER	1

45	251726	SENSOR HOLDER W/SENSOR	8
46	90098	FLAT WASHER, M10	8
47	90105	CAPSCREW, HEX HEAD, M16 X 2 X 45 LG, DRADE 8.8	4
48	90128	CAPSCREW, HEX HEAD, M10 X 30 LG. GR. 8.8	8
49	90130	CAPSCREW, HEX HEAD, M16X2 X 60 LG GRADE 8.8	22
50	90239	CAPSCREW, SOKET HEAD, M12 X 30 GR 8.8	4
51	90293	CAPSCREW, SOCKET HEAD, BLACK GR 8.8 M16 X 55	20
52	90401	HHCS BLACK GR 8.8 M10 X 25	8
53	90422	FLAT WASHER, HEAVY DUTY M16	38
54	90490	CAPSCREW, SOCKET HEAD, BLACK GR 8.8 M16 X 45	6
55	90664	PULL DOWEL PIN, M6 X 25 LG.	3
56	90665	CAPSCREW, SOCKET HEAD M16 X 100 GR 8.8	12
57	90666	1/4-18 NPT HEX SOCKET PLUG	3
58	90667	1/2-14_NPT HEX SOCKET PLUG	2
59	90668	SPRING, COMPRESSION	6
60	90681	CAPSCREW, SOCKET HEAD, M24X3 X 80, GR. 12.9	50
61	90687	CAPSCREW, SOCKET HEAD, BLACK GR 8.8 M16 X 45	4
62	90743	SPACER	8
63	90744	FLAT WASHER, HEAVY DUTY M10	8
64	92008	LOCK NUT, KM 22	1
65	92009	LOCKWASHER, MB 22	1
66	92048	LOCKNUT, BEARING RETAINER (SKF HM-3048)	1
67	92049	LOCKING CLIP, BEARING LOCK NUT	1
68	92125	BEARING, CYLINDRICAL ROLLER (SL181856E)	1
69	92126	BEARING, CYLINDRICAL ROLLER (NU 2220 ECM)	2
70	92127	BEARING, BALL	1
71	92128	BEARING SET, TAPER ROLLER (SKF 32032X)	2
72	92129	BEARING, TAPER ROLLER (32222 J2)	2
73	92134	BEARING, TAPPER ROLLER (32948)	2
74	93111	O-RING, PARKER (2-235)	1
75	97068	SNAP RING, EXTERNAL (FS-100)	1
79	96531	KEY, RECTANGULAR 50X28X160 BOTH ENDS ROUND	2
80	97060	RING, INTERNAL RETAINER, FH-125	1
81	97064	SNAP RING. INTERNAL (FH-195)	1
82	97065	SPIRAL RETAINING RING, EXTERNAL (DNS-310)	1
83	97066	SNAP RING, EXTERNAL (FS-085)	1
84	90659	SPRING, COMPRESSION	12
85	97069	SNAP RING, EXTERNAL (FS-080)	1
86	93126	O-RING, PARKER (2-269)	1
87	251867	PAN, LUBRICATION DRIP	1
88	90174	CAPSCREW, FLANGE HEX HEAD, M10 X 25, Gr8.8, ZINC	4
89	97045	SNAP RING, EXTERNAL (FS-170)	1
90	251513	O-RING, ID=1059.0 X W=8.00	2
91	90845	ROLL PIN, 10 DIA. X 18 LG. (MSC #01049691)	2

TORQUE TABLE				
REF	SIZE	GRADE	TORQUE Nm	METHOD
1	M24	12.9	1220	TORQUE WRENCH
2	M16	8.8	215	TORQUE WRENCH
3	M12	8.8	89	TORQUE WRENCH
4	M10	8.8	51	TORQUE WRENCH

- NOTES:
- REFER TO THE FOLLOWING SUB-ASSEMBLY DRAWINGS FOR MORE DETAILED INFORMATION ABOUT THE CARRIER ASSEMBLY (251569), SENSOR HOLDER W/SENSOR (251726), MOUNTING OF THE SENSOR HOLDERS (251732), MOUNTING OF THE SENSORS FOR THE SUN GEAR CARRIER GEARS (251568).
 - BEARING PRELOAD: BEARING SPACERS 251336, 251349, AND 251403 HAVE 1.00 mm MACHINE STOCK LEFT ON ONE SIDE OF THE SPACERS FOR SETTING THE BEARING PRELOAD. GRIND THE FACE OF THE SPACER AT ASSEMBLY TO ACHIEVE THE BEARING PRELOAD REQUIREMENTS. SEE PROCEDURE NOTES.
 - SEE ASSEMBLY DRAWING 251857 FOR ALL LUBRICATION SYSTEM COMPONENTS.

PRELOAD PROCEDURE NOTES:

HOLLOW SHAFT:

INSTALL BEARING CONE (ITEM 73) ON SHAFT. INSTALL BEARING CUPS (ITEM 73) IN SLEEVE (ITEM 8) AND FIT SECOND EARING CONE (ITEM 73) ON SHAFT WITH SPACER (ITEM 15). CHECK END PLAY. BE SURE TO SEAT BEARINGS BY A MINIMUM OF 8 REVOLUTIONS IN BOTH AXIL POSITIONS. GRIND SPACER (ITEM 15) TO OBTAIN .076 - .127 END PLAY.

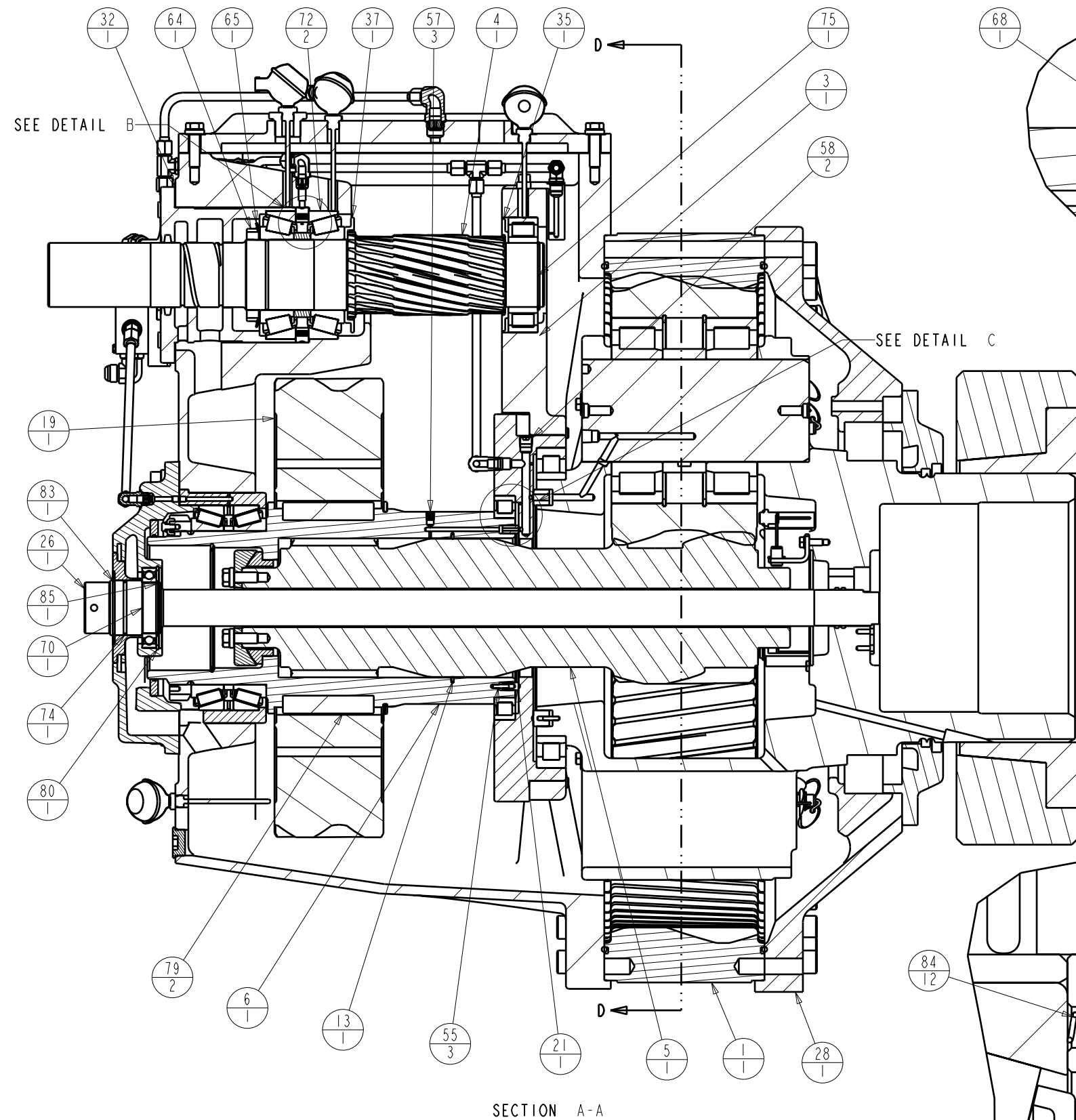
INTERMEDIATE SHAFT:

INSTALL BOTH BEARING CONES (ITEM 73) ON SHAFT. INSTALL ONE BEARING CUP INTO CARRIER (ITEM 23), ADD SPACER (ITEM 29) AND OUTER BEARING CUP (ITEM 73). RETAIN CUP AND MEASURE END PLAY. BE SURE TO SEAT BEARINGS BY A MINIMUM OF 8 REVOLUTIONS IN BOTH AXIL POSITIONS. GRIND SPACER (ITEM 29) TO OBTAIN .08 - .075 END FLOAT.

HIGH SPEED SHAFT:

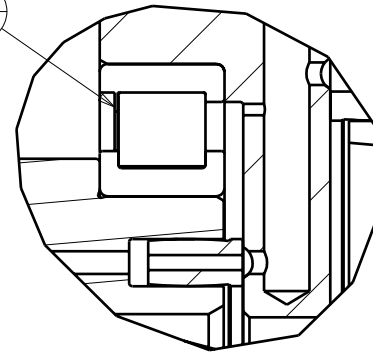
INSTALL FLINGER (ITEM 37) AND BEARING CONE (ITEM 72) ON PINION (ITEM 4). INSTALL FLINGER (ITEM 35) AND INNER RACE OF CYLINDRICAL ROLLER BEARING (ITEM 69) ON THE OTHER END. INSTALL SPACER (ITEM 24) ON SHAFT. INSTALL SPACER (ITEM 25) WITH OUT SPRINGS(ITEM 84), INSTALL BEARING (ITEM 72), RETAIN WITH NUT (ITEM 32) SNUG (NOT TIGHT). MEASURE BEQARING PACKAGE END PLAY. GRIND SPACER (ITEM 24) TO OBTAIN .110/.150 END PLAY. WHEN INSTALLING IN UNIT, CHECK GAP ON SLEEVE (ITEM 22) TO HOUSING, ADJUST SHIMS (ITEM 32) TO CREATE .07/.12 END PLAY IN SLEEVE TO BEARING PACKAGE.

REV	CHANGED FROM	BY	DATE	APVD	REPORT ERRORS & CHANGES REMOVE ALL SHARP EDGES DIMENSIONS ARE IN MM UNSPECIFIED TOLERANCES: DECIMALS: FINISH: ANGLES:					Powertrain Engineers Inc W293 N3819 Round Hill Circle Pewaukee Wi., 53072			
F	ADDED ITEMS 88 THRU 102, UPDATED ASSEMBLY WITH NEW COMPONENTS	PEI	8/05/08							TITLE			
G	REMOVED B.O.M. ITEMS PERTAINING TO THE LUBRICATION SYSTEM, ADDED NOTES 2 AND 3	PEI	8/15/08							ASSEMBLY, GEAR BOX REWORK			
H	ADDED VIEW SHOWING CORRECT ORIENTATION OF UP-WIND HOLLOW SHAFT BEARING, ADDED BEARING PRE-LOAD PROCEDURES ADDED ITEMS 89, 90, AND 91, SNAP RING AND O-RINGS, ADDED SHEET 6	PEI	10/16/08							SIZE B	FIRST USED ON	DWG NO. 251248	REV H
					COPYRIGHT © NOT TO BE REPRODUCED OR USED TO MAKE OTHER DRAWINGS OR MACHINERY.								
					DRAWN CHECKED	PEI	DATE 3/17/08			SCALE: 0.125	WEIGHT: Kgs	SHEET 1 OF 6	

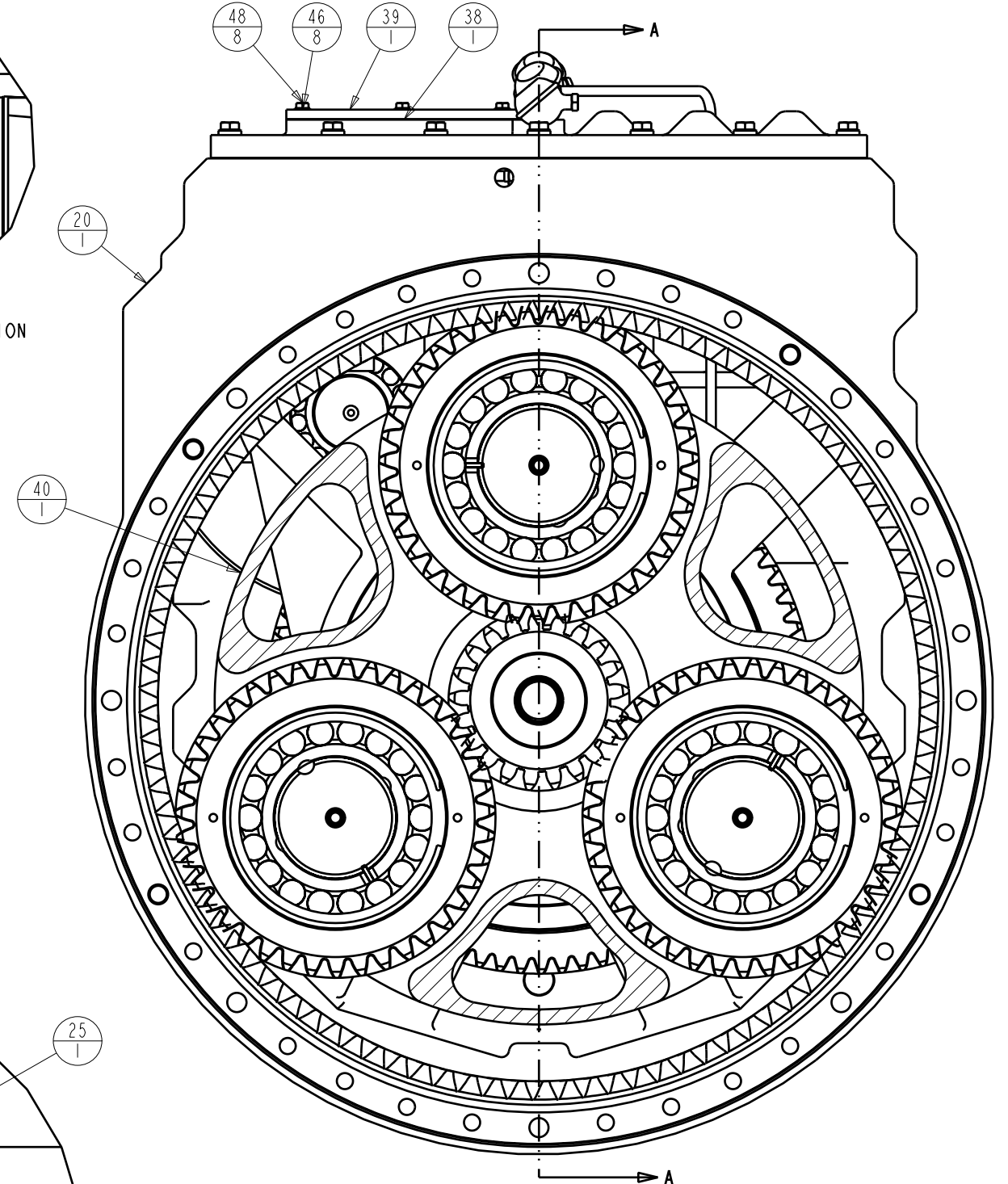


SECTION A-A

DETAIL B
SCALE 1.000

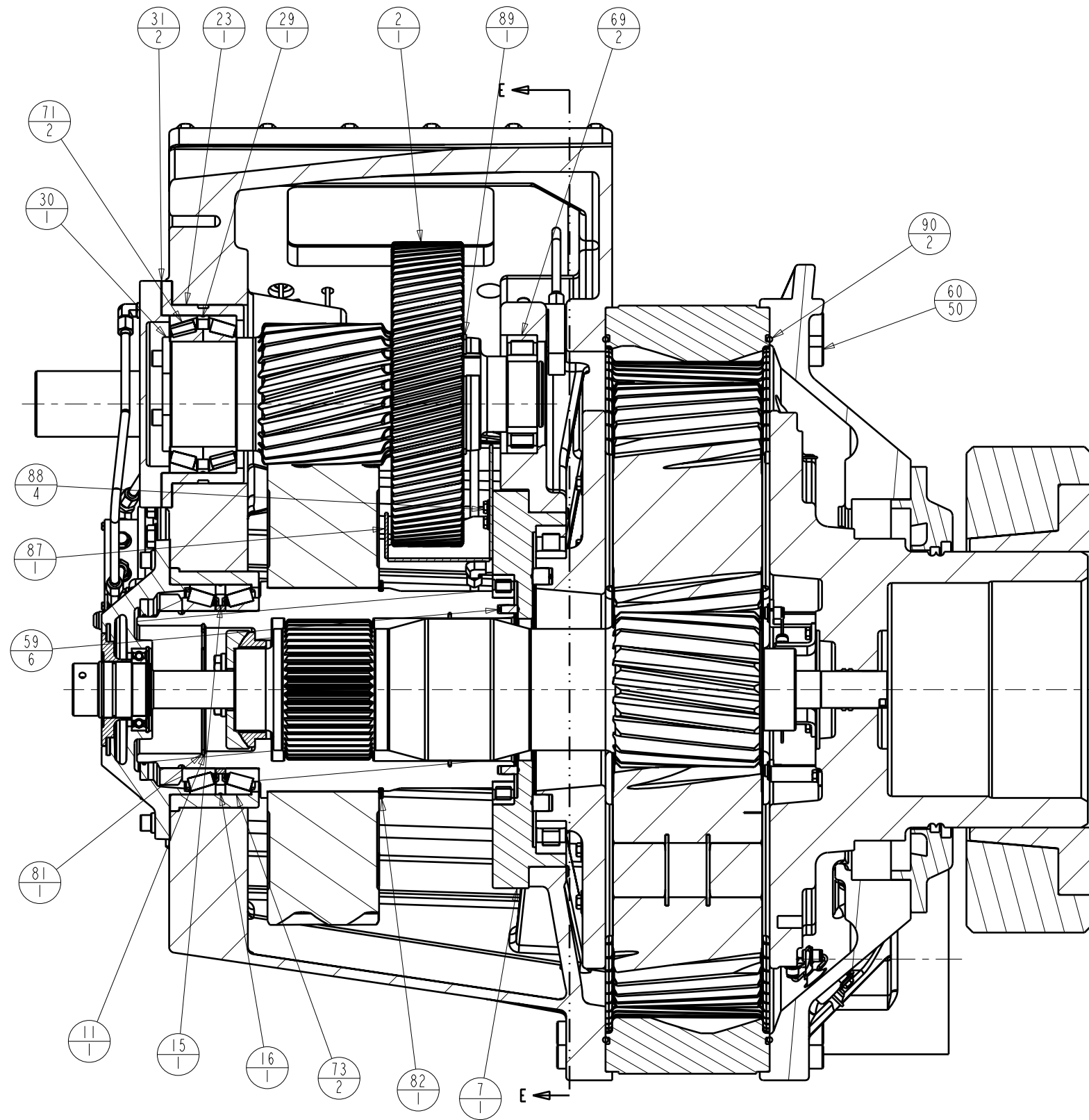


DETAIL C
CORRECT ORIENTATION
OF BEARING
SCALE 0.500

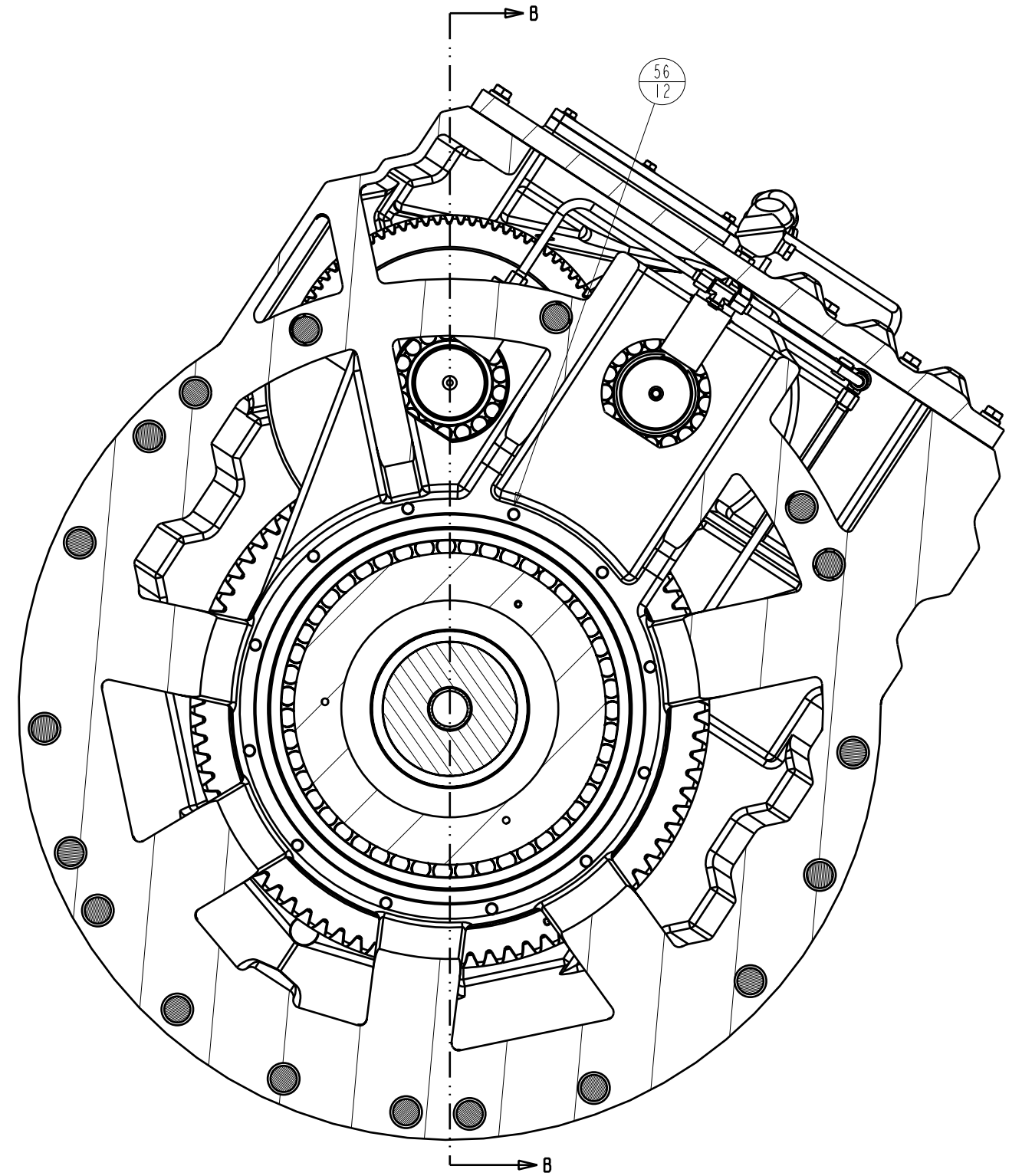


SECTION D-D

REPORT ERRORS & CHANGES REMOVE ALL SHARP EDGES DIMENSIONS ARE IN MM. UNSPECIFIED TOLERANCES: DECIMALS: FINISH: ANGLES:			Powertrain Engineers Inc W293 N3819 Round Hill Circle Pewaukee Wi, 53072			
X, ±0 .X ±0.1 .XX ±0.01	Ra 6.3 µm	< ±0.5	TITLE ASSEMBLY, GEAR BOX REWORK			
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DRAWN CHECKED	PEI	DATE 3/17/08	SCALE: 0.125	WEIGHT: kgs	SHEET 2 OF 6	

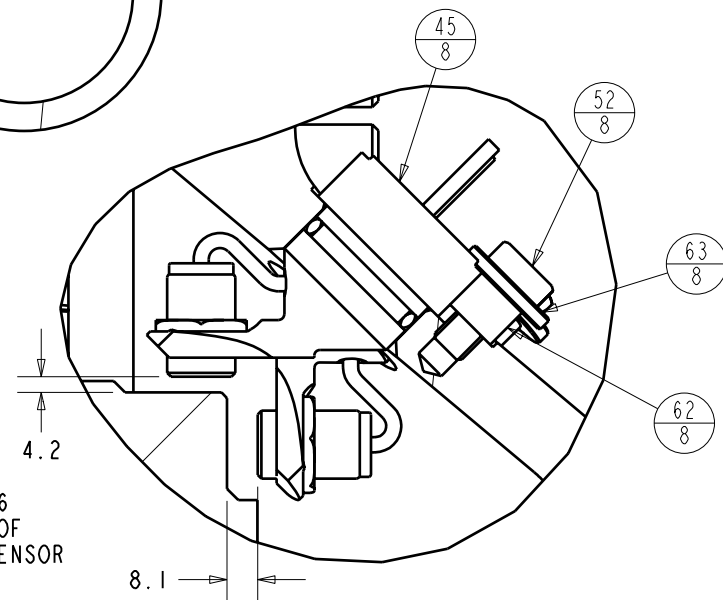
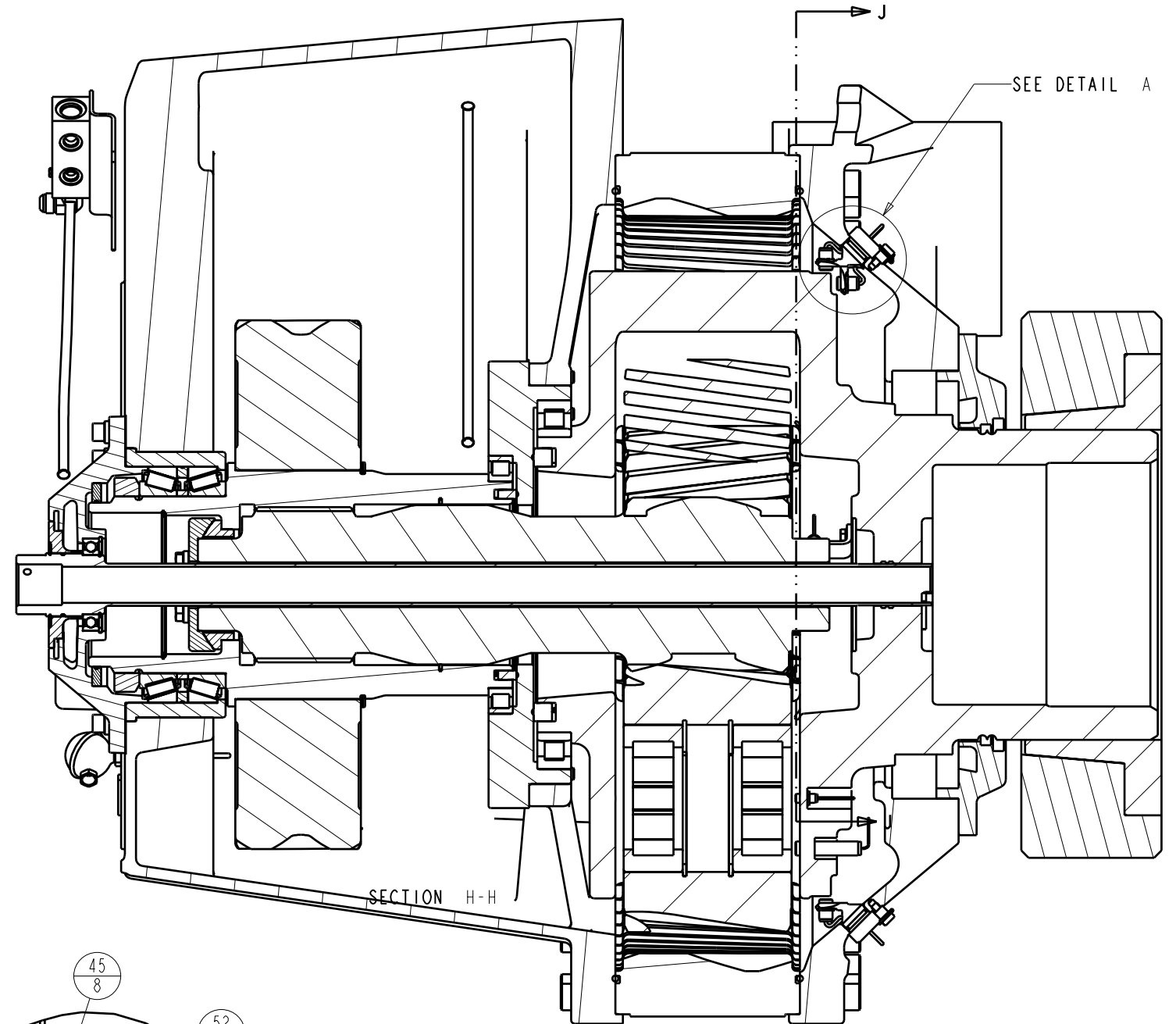
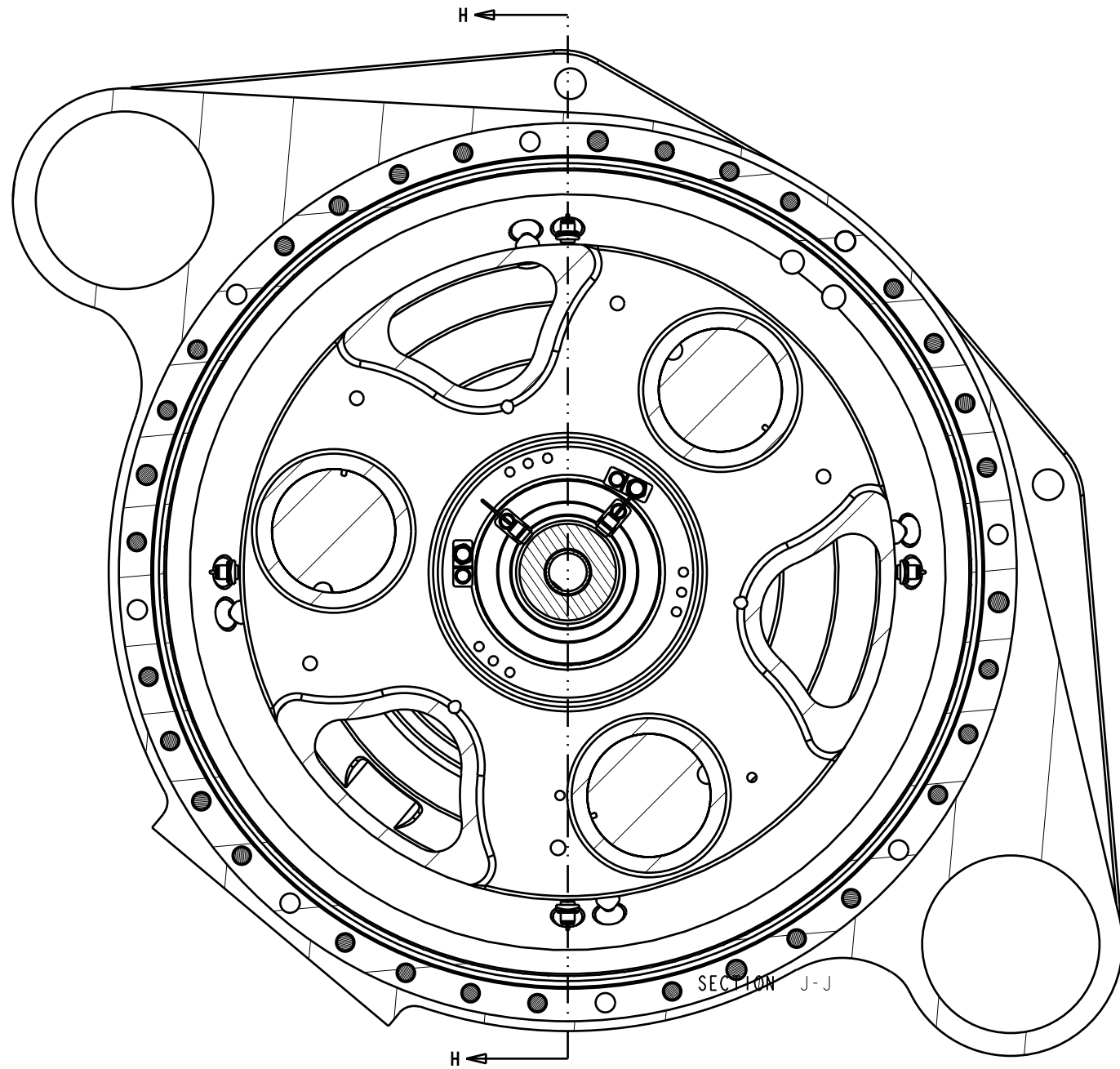


SECTION B-B



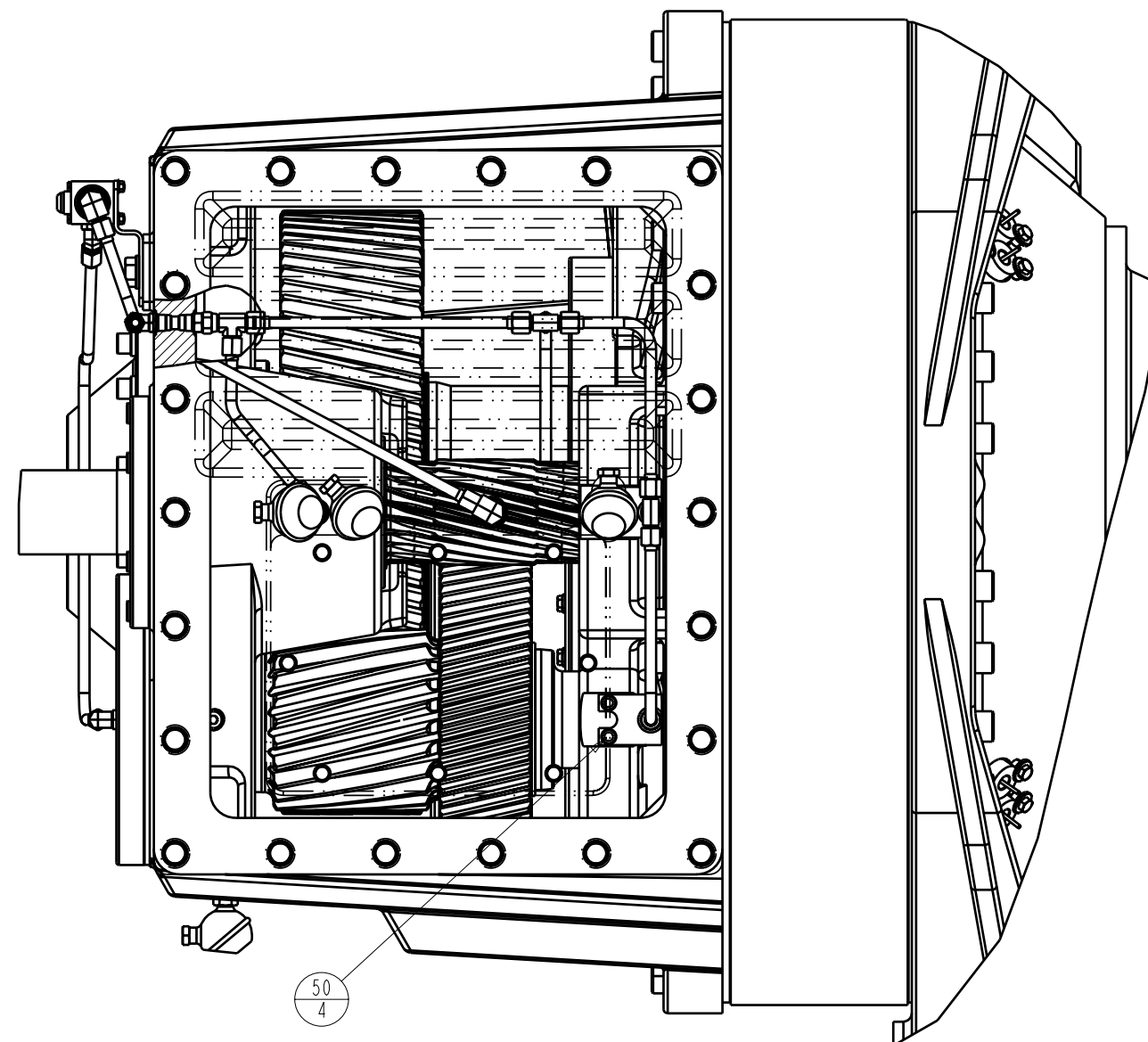
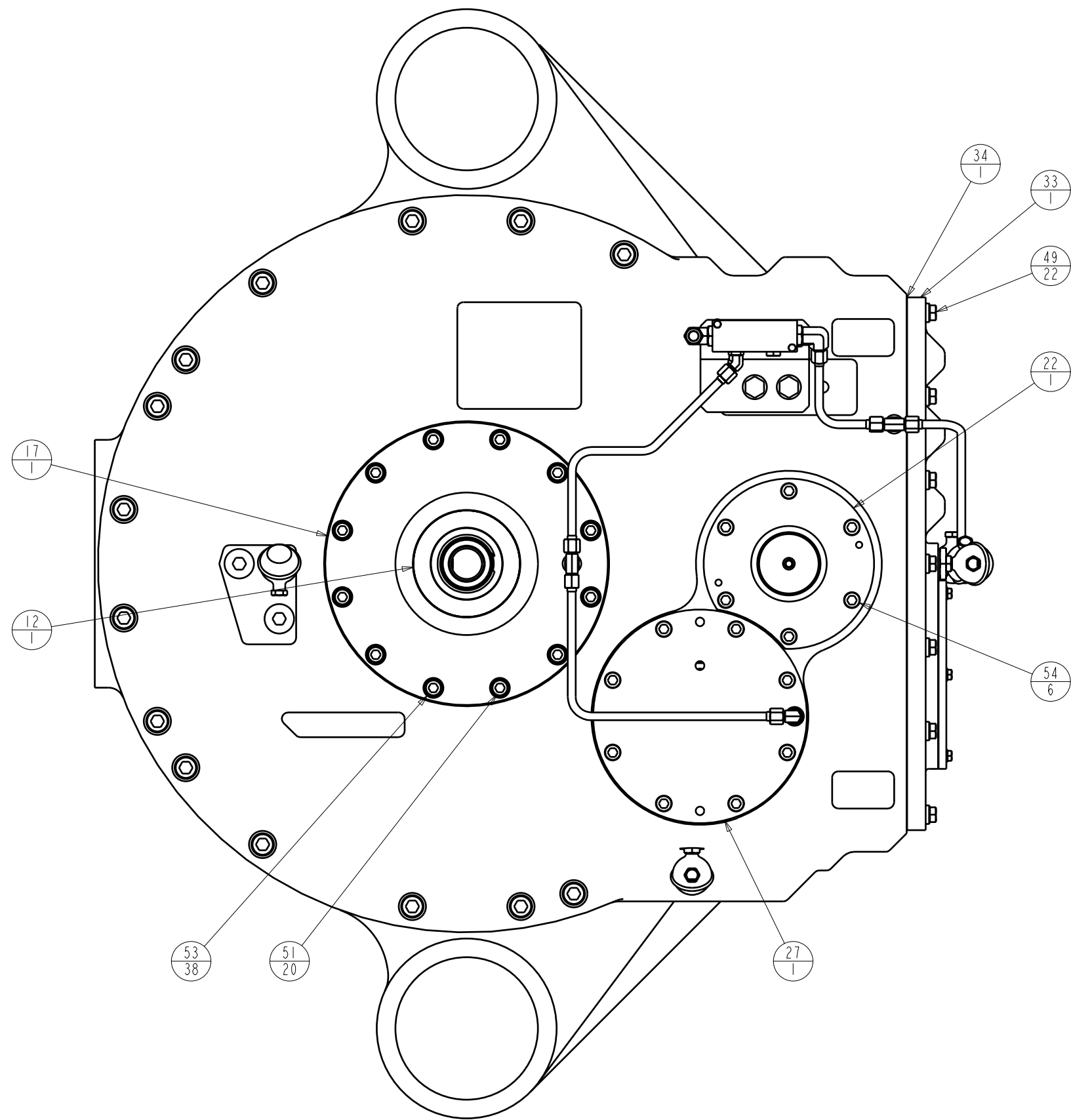
SECTION E-E

REPORT ERRORS & CHANGES REMOVE ALL SHARP EDGES DIMENSIONS ARE IN MM. UNSPECIFIED TOLERANCES: DECIMALS: FINISH: ANGLES:			Powertrain Engineers Inc W293 N3819 Round Hill Circle Pewaukee Wi, 53072			
X, ±0 .X ±0.1 .XX ±0.01	Ra 6,3 µm	< ±0.5	TITLE ASSEMBLY, GEAR BOX REWORK			
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DRAWN PE1	CHECKED	DATE 3/17/08	SCALE: 0.125	WEIGHT: kgs	SHEET 3 OF 6	



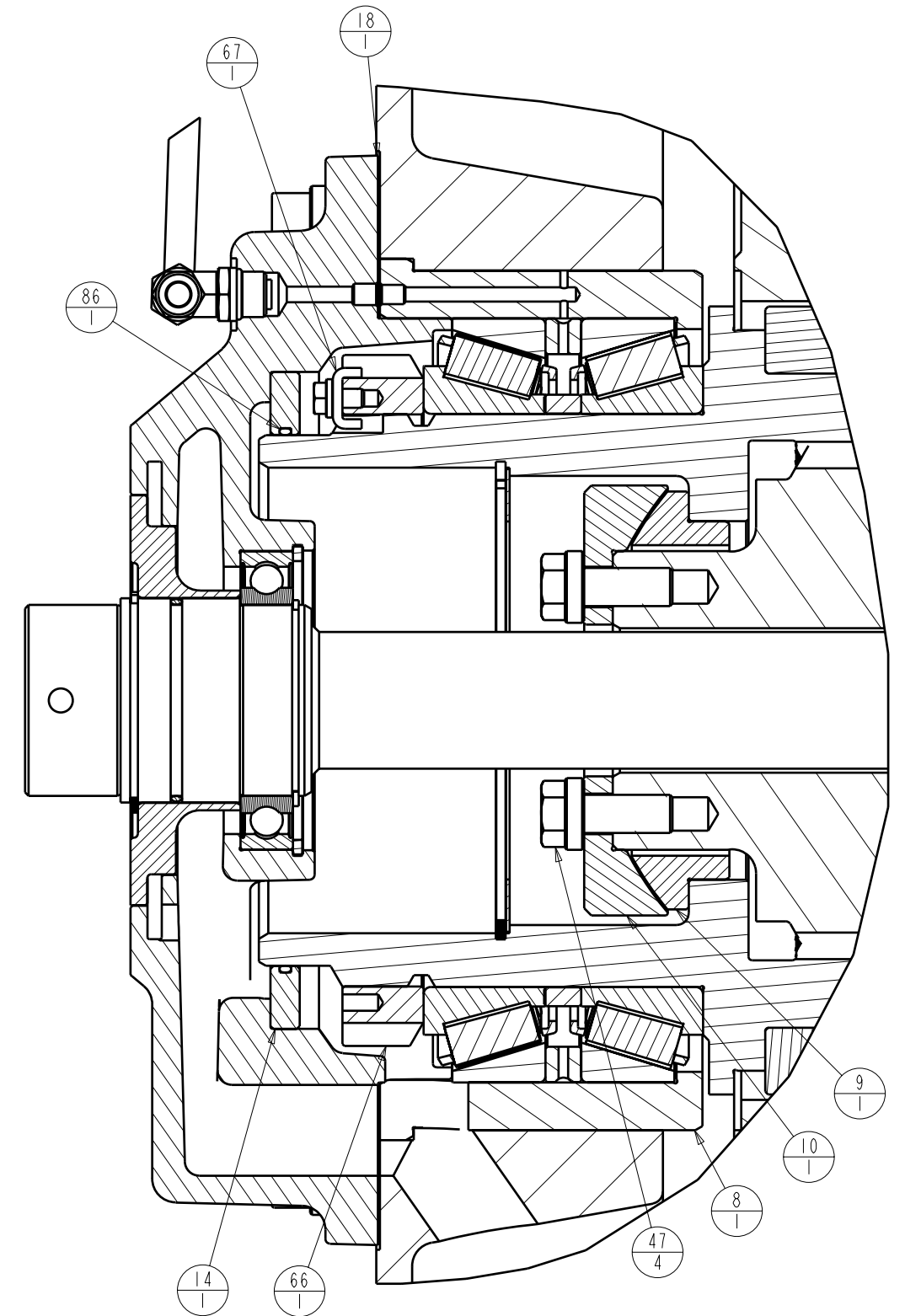
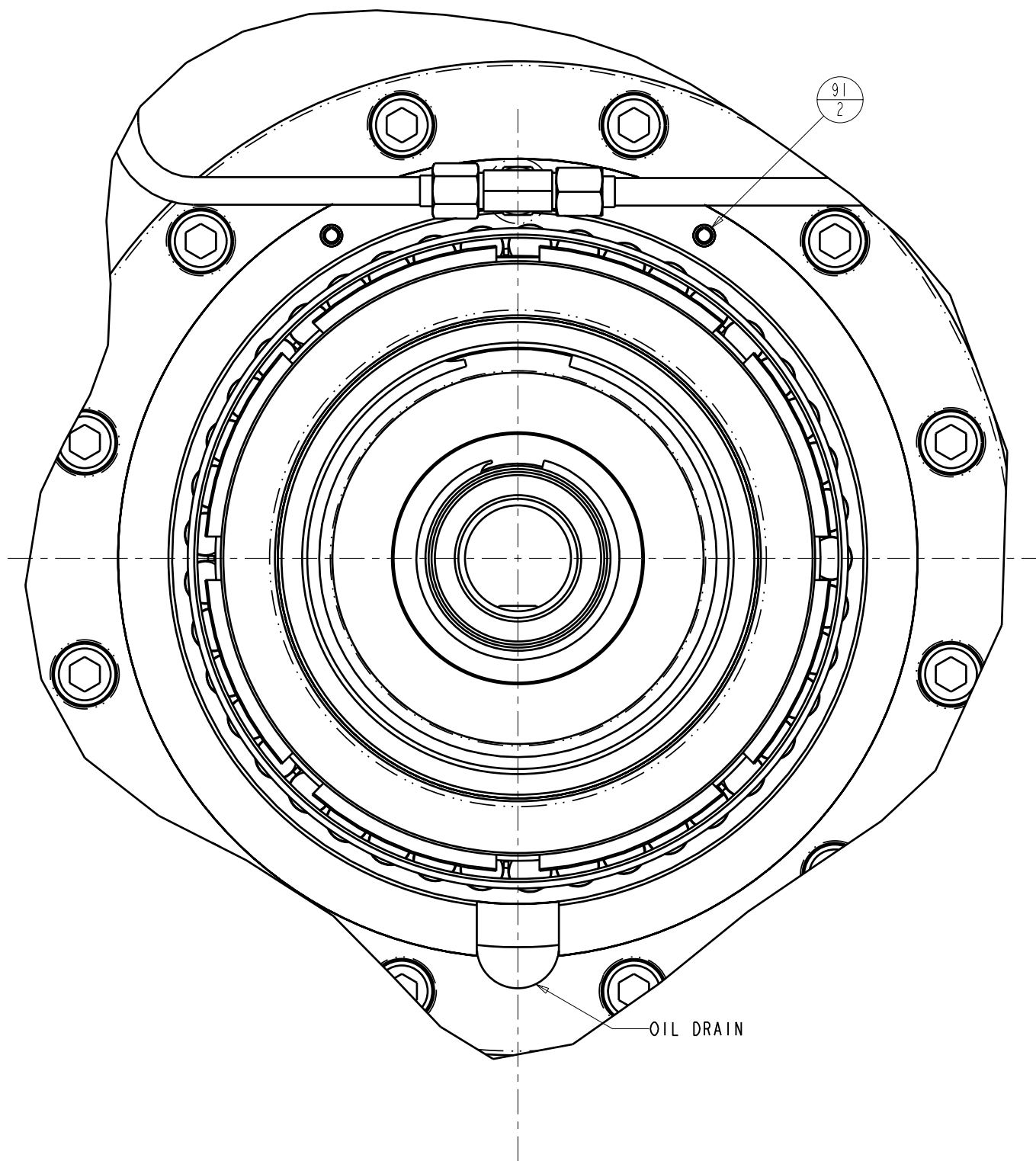
SEE DRAWING 251726
FOR SUB-ASSEMBLY OF
SENSOR HOLDER W/SENSOR
DETAIL A
SCALE 0.500

REPORT ERRORS & CHANGES REMOVE ALL SHARP EDGES DIMENSIONS ARE IN MM. UNSPECIFIED TOLERANCES: DECIMALS: FINISH: ANGLES:			Powertrain Engineers Inc W293 N3819 Round Hill Circle Pewaukee Wi, 53072			
X, ±0 .X ±0.1 .XX ±0.01			TITLE ASSEMBLY, GEAR BOX REWORK			
Ra 6,3 µm < ±0.5			SIZE B	FIRST USED ON	DWG NO. 251248	REV H
DRAWN CHECKED	PEI DATE	SCALE: 0.125 WEIGHT: kgs	SHEET 4 OF 6			



SECTION M-M

REPORT ERRORS & CHANGES REMOVE ALL SHARP EDGES DIMENSIONS ARE IN MM. UNSPECIFIED TOLERANCES: DECIMALS: FINISH: ANGLES:			Powertrain Engineers Inc W293 N3819 Round Hill Circle Pewaukee Wi, 53072			
X, ±0 .X ±0.1 .XX ±0.01 Ra 6,3 µm < ±0.5			TITLE ASSEMBLY, GEAR BOX REWORK			
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DRAWN CHECKED	PE1	DATE 3/17/08	SCALE: 0.125	WEIGHT: kgs	SHEET 5 OF 6	



REPORT ERRORS & CHANGES REMOVE ALL SHARP EDGES DIMENSIONS ARE IN MM. UNSPECIFIED TOLERANCES: DECIMALS: FINISH: ANGLES:			Powertrain Engineers Inc W293 N3819 Round Hill Circle Pewaukee Wi, 53072			
X, ±0 .X ±0.1 .XX ±0.01	Ra 6,3 µm	< ±0.5	TITLE ASSEMBLY, GEAR BOX REWORK			
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DRAWN CHECKED	PE1	DATE 10/23/08	SCALE: 0.125	WEIGHT: kgs	SHEET 6 OF 6	