

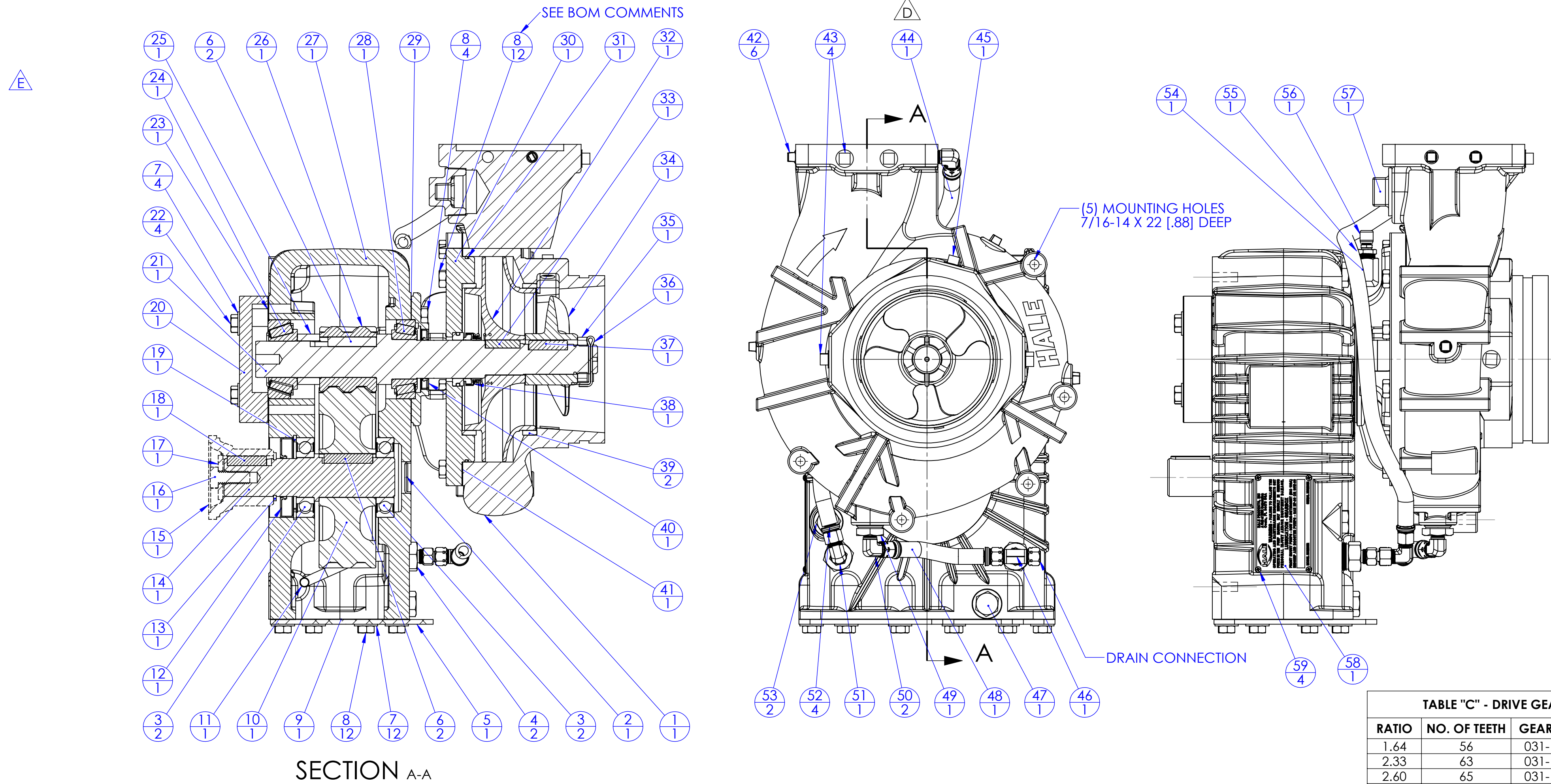
	1	2	3	4	5	6
	TABLE "A" - BOM TABLE					
	ITEM	PART	DESCRIPTION	QTY.	BRONZE P/N	COMMENTS
A	1	001-0601-00-0	MG VOLUTE	1	001-0601-03-0	
	2	217-3360-00-0	EXPANSION PLUG	1		
	3	250-0208-20-0	BEARING, 208	2		
	4	082-0557-02-0	ADAPTER, 3/4 NPT X 3/8 COMPRESSION	2		
	5	044-1940-00-0	COVER, B SERIES GEARBOX	1		
	6	017-0300-00-0	SSA-95XD KEY	2		
B	7	097-1070-00-0	WASHER, 7/16 ZINC PLT STEEL FLAT	16		
	8	018-1812-25-0	SCREW, 7/16-14 X 1.25, GR8	28	018-1812-05-0	(12) BRONZE SCREWS APPLY TO PUMP HEAD ONLY
	9	046-1780-00-0	GASKET, B GEARBOX COVER	1		
	10	DRIVE GEAR	DRIVE GEAR	1		SEE TABLE "C"
	11	007-3710-00-0	COOLING TUBE	1		
	12	296-2650-00-0	OIL SEAL	1		
C	13	077-1500-05-0	RETAINING RING	1		
	14	037-2520-00-0	INPUT SHAFT	1		
	15	115-1510-00-0	HG COMPANION FLANGE	1		ORDER SEPERATELY
	16	018-2012-25-0	SCRW, 1/2-13x1.25, GR8, ZINC PL	1		ORDER SEPERATELY
	17	097-0890-02-0	WASHER	1		ORDER SEPERATELY
	18	017-0300-02-0	KEY	1		
D	19	077-3150-00-0	RETAINING RING	1		
	20	008-0911-00-0	BEARING COVER	1		
	21	037-2391-05-0	PUMP SHAFT, B SERIES GEARBOX W/INDUCER	1		USE 037-2391-01-0 FOR 3.74 RATIO
	22	018-1820-25-0	SCREW, 7/16-14 X 2.00, GR8 ZINC PL	4		
	23	046-6760-00-0	SHIM SET- 4D6G	1		
	24	250-8290-00-0	TAPERED ROLLER BEARING	1		
E	25	159-1880-02-0	SPACER, 4DK/B PUMP SHAFT	1		
	26	PINION GEAR	PINION GEAR	1		SEE TABLE "D"
	27	004-0641-00-0	HOUSING, B GEARBOX	1		
	28	250-8280-00-0	TAPERED ROLLER BEARING	1		
	29	046-5340-01-0	4D6G PUMP HEAD GASKET	1		
	30	002-0213-02-0	PUMP HEAD	1	002-0213-04-0	
F	31	040-1700-00-0	O-RING	1		
	32	016-0761-00-0	IMPELLER	1		
	33	017-0581-00-0	KEY	1		
	34	016-1080-00-0	INDUCER	1		
	35	110-7040-00-0	ZS-274 NUT-IMPELLER	1		
	36	064-5070-01-0	PIN-5/32X2L SST COTTER	1		
G	37	017-0110-00-0	IMPELLER KEY	1		
	38	296-5023-00-0	MECHANICAL SEAL	1		
	39	321-0361-00-0	CLEARANCE RING	2		
	40	296-2850-00-0	OIL SEAL B GEARBOX PUMP SHAFT	1		
	41	046-0440-00-0	GASKET HP-W323	1		
	42	217-0201-00-0	1/4 NPT SQUARE HEAD STEEL PLUG	6	217-0201-01-0	
H	43	217-0301-00-0	PLUG-3/8 NPT SQUARE HEAD	4	217-0301-01-0	029-0110-00-0 ANODE (OPTIONAL) CUT TO FIT
	44	340-0490-00-0	HOSE	1		REPLACEMENT P/N: 340-1560-00-0
	45	217-0301-00-0	PLUG-3/8 NPT SQUARE HEAD	1	217-0301-01-0	
	46	082-3071-02-0	TEE, 3/8 CPRSN UNION	1		
	47	217-3470-00-0	MAGNETIC PLUG, 3/4-16 O-RING	1		
	48	340-0490-00-0	HOSE	1		CUT TO FIT REPLACEMENT P/N: 340-1560-00-0
I	49	082-0513-02-0	BUSHING, HEX, 3/4 X 1/4 NPT	1		
	50	082-0203-02-0	ELBOW 1/4 NPT x 3/8 COMPRESSION - 90°	2		
	51	082-0318-02-0	ELBOW, 3/8 COMP X 3/8 COMP, 90 DEG	1		
	52	082-3028-00-0	FITTING 3/8 HOSE BARB x 3/8 TUBE	4		
	53	217-3480-00-0	PLUG, 3/4-16 O-RING	2		
	54	082-3020-08-0	ELBOW, 3/4-16 O-RING x 3/8 FNPT	1		
J	55	082-0305-00-0	BUSHING, 3/8 x 1/8 NPT MI (STEEL)	1		
	56	044-0260-00-0	VENT, AIR 1/8 MPT	1		
	57	217-0801-00-0	PLUG, 1-1/2 NPT M.I.	1	217-0801-01-0	
	58	101-0082-00-0	SERIAL NUMBER PLATE	1		
	59	018-5002-00-0	#4-40 x 1/4LG SCREW	4		

NOTES:

1. CAUTION: ALL FASTENERS ON THIS UNIT HAVE BEEN SELECTED PER THEIR APPLICATION. HALE PRODUCTS DOES NOT RECOMMEND REPLACING FASTENERS WITH ANYTHING OTHER THAN HALE PART NUMBERS PROVIDED. REPLACING WITH A WEAKER ALTERNATIVE POSES A SAFETY RISK.
2. ALL FASTENERS SHALL BE INSTALLED WITH A THREAD LOCKING ANAEROBIC ADHESIVE/SEALANT: LOCKTITE #243 HIGH TEMPERATURE THREADLOCKER OR EQUIVALENT.
3. MECHANICAL SEALS ARE TO BE INSTALLED USING PAC-EASE RUBBER LUBRICANT EMULSION OR EQUIVALENT, A SOFT, CLEAN PUSHER TUBE, AND A SEAL RAMP.
4. BASED ON GEARBOX ORIENTATION, MOUNT DRAIN PLUG IN LOWEST OF FOUR 3/4-16 PORTS. INSTALL BREATHER VENT IN HIGHEST PORT. INSTALL PLUGS IN REMAINING TWO PORTS.
5. SET BEARING ENDPLAY ON PUMP SHAFT TO .003 - .005 INCH USING SHIMS FROM 046-6760-00-0 SHIM SET.
6. INSTALL BEARING COVER AND PUMP HEAD SO THAT OILING SLOT IS FACING UP BASED ON THE SPECIFIED ORIENTATION.
7. FOR MOUNTING DIMENSIONS AND SUCTION/DISCHARGE OPTIONS, SEE LATEST REVISION OF PL1116.

HALE TYPE MBP SILENCER SERIES PUMP ASSEMBLY

PROJECTION:



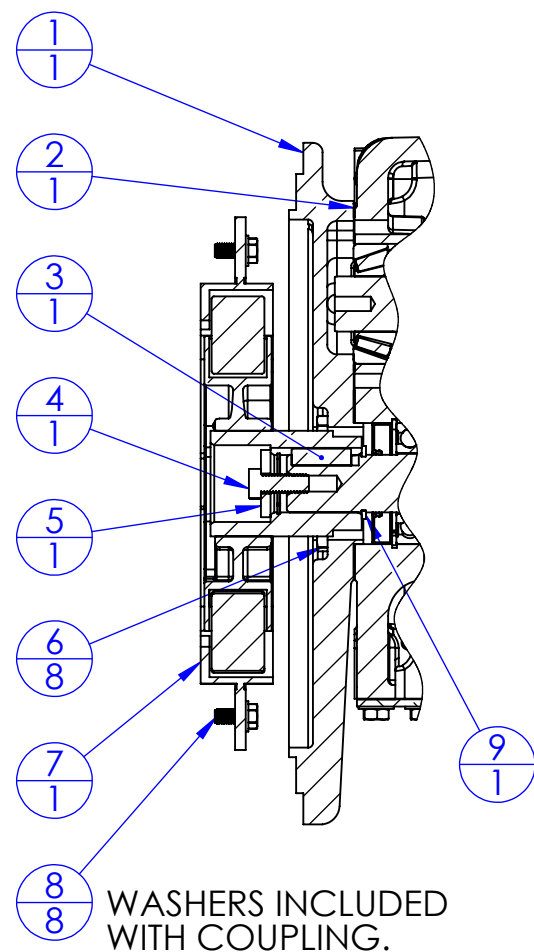
SECTION A-A

RATIO	NO. OF TEETH	GEAR PART NO.
1.64	56	031-1510-00-0
2.33	63	031-1950-00-0
2.60	65	031-1480-00-0
2.91	67	031-1470-00-0
3.74	71	031-1460-00-0

RATIO	NO. OF TEETH	GEAR PART NO.
1.64	34	031-1930-00-0
2.33	27	031-1910-00-0
2.60	25	031-1900-00-0
2.91	23	031-1890-00-0
3.74	19	031-1880-00-0

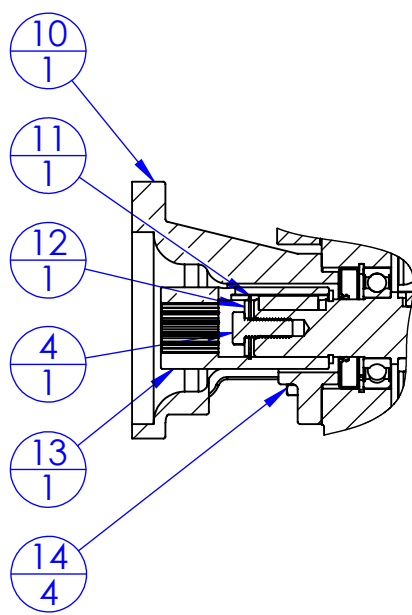
TABLE "E" - TORQUE TABLE				
SCREW SIZE	GRADE 5		GRADE 8	
	LB-FT	N-m	LB-FT	N-m
1/4-20	8	11	12	16
5/16-18	17	22	25	33
3/8-16	30	41	45	61
7/16-14	50	67	70	94
1/2-20	90	122	120	162
3/4-10	260	352	380	514

TABLE "B" - BOM TABLE				
	ITEM	PART	DESCRIPTION	QTY.
J	1	007-3720-00-0	BELT/HOUSING ADAPTER	1
	2	046-1810-00-0	SHIM SET, BELL HOUSING ADAPTER	1
	3	017-0300-03-0	KEY	1
	4	018-2012-25-0	SCRW, 1/2-13x1.25, GR8, ZINC PL	1
K	5	097-0890-01-0	WASHER	1
	6	018-1820-25-0	SCREW, 7/16-14 X 2.00, GR8 ZINC PL	8
	7	005-1280-00-0	#10 ELASTOMERIC COUPLING	1
		008-1290-00-0	#11.5 ELASTOMERIC COUPLING	1
	8	018-1607-25-0	CSW HH 3/8-16x0.88 GR8	8
	9	077-1500-05-0	RETAINING RING	1
	10	007-1931-00-0	HYDRAULIC ADAPTER	1
	11	077-1500-00-0	RETAINING RING	1
	12	097-2600-00-0	WASHER	1
	13	088-0561-00-0	COUPLING	1
L	14	018-1814-25-0	SCREW, 7/16-14 X 1-1/2, GR 8	4
	15	008-0070-00-0	SPEEDOMETER DUST CAP	1
	16	048-0090-00-0	TACH PANEL ADAPTER	1
	17	013-0010-00-0	TACH/FLEX SHAFT	1
	18	007-0940-00-0	RATIO ADAPTER	1
	19	007-0040-00-0	ZSF-425 SPEEDCOUNTER ADAPTER	1
	20	064-1236-00-0	SPRING PIN 3/8 X 2-1/4 LG	1
	21	008-0941-00-0	BEARING COVER	1

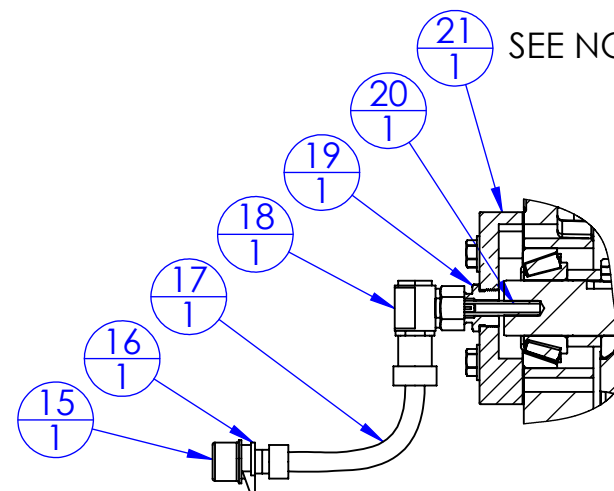


RETAINING RING USED WITH #4
BELLHOUSING ONLY. DO NOT
USE WITH #3 BELLHOUSING.

MBPM ENGINE DRIVE
REFER TO TABLE "B" FOR PART DETAIL



**MBPH HYDRAULIC DRIVE:
SAE "C" 2 OR 4 BOLT ADAPTER
WITH 14T SPLINE DRIVE**
REFER TO TABLE "B" FOR PART DETAIL



OPTIONAL TACHOMETER DRIVE
REFER TO TABLE "B" FOR PART DETAIL

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE FOR MILLIMETERS
[INCHES ARE FOR REFERENCE, ONLY]
TOLERANCE FOR MILLIMETER DIMENSIONS:
X: ±1
X.X: ±0.5
X.XX: ±0.25
X.XXX: ±0.125
ANGLES: ±0.25°
SURFACE TEXTURE IN µm Ra
REMOVE ALL SHARP EDGES, 0.25MAX

	FSG OF  IDEX CORPORATION
	MATERIAL
	MADE FROM
	FINISH
	PROJECT

TITLE

HALE TYPE MBP SILENT SERIES PUMP

DRAWN	JRP	SIZE D	DRAWING NUMBER PL1026	REV
APPROVED	MAL			D
DATE	26MAR2009	SCALE 1:3		SHEET 1 OF 1

M	REVISIONS						
	ECN	REV.	ZONE	CHANGED FROM	BY	DATE	APVD
	CFL3270	C	--	REDRAWN IN SOLIDWORKS; REDRAWN ON FSG BORDER; ADDED INDUCER TO ALL RATINGS	JRH	24JUL2014	JRP
	CFL3330	D	C12	MOVED COOLING HOSE	JRH	25NOV2014	AJG
	3421	E	--	ADDED 3.74 RATIO TO DRAWING	JSJ	08AUG2015	AJG

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
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