
4XL ENGINE PARTS BOOK

Engine Model: PSI 4XL TC, CAC
Engine Family: PSI, On Highway
Engine Spec N.: 4X MASTER BASE
Parts Book Revision: APRIL, 2019

LEGEND

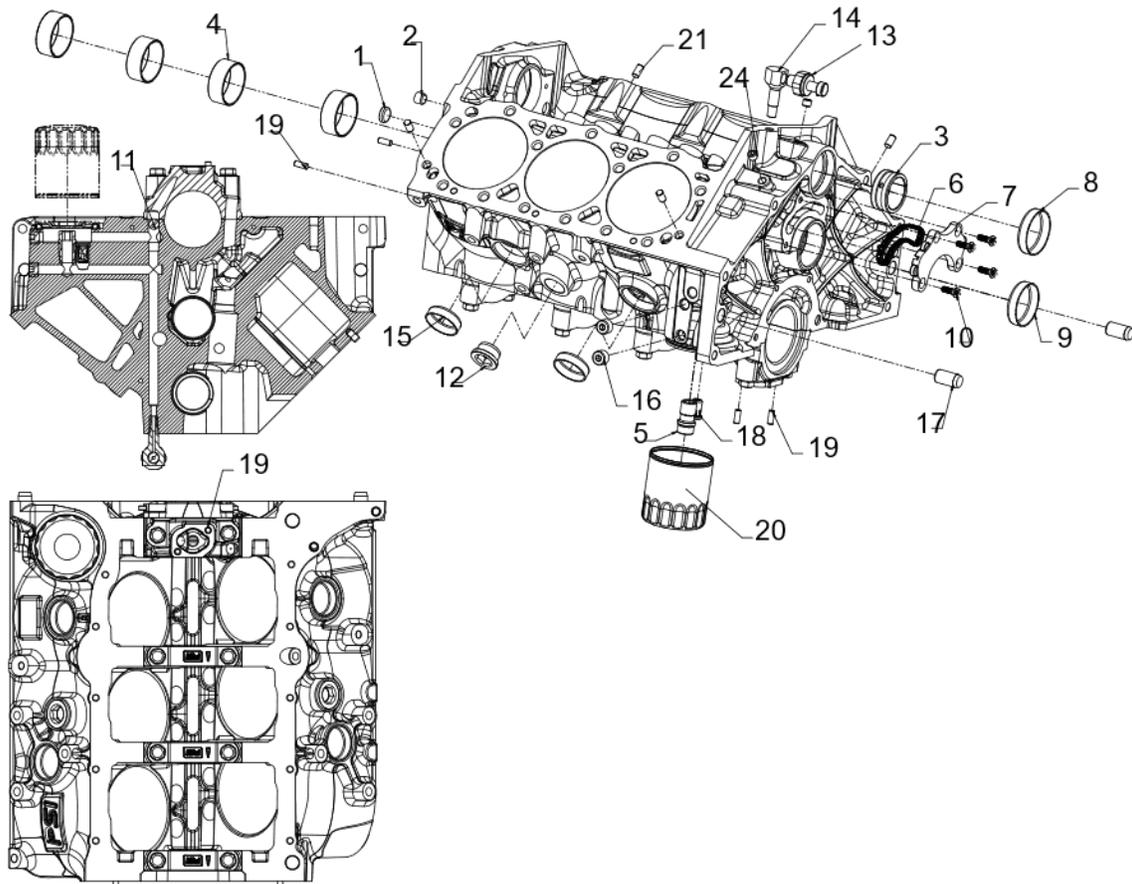
PSI SPEC	REV	CRNK OUTPUT	INTAKE MANIFOLD	FUEL	EXHAUST	TABLE
30000435	17	STANDARD	STANDARD	LP	HEAVY DUTY	A
30000436	19	STANDARD	STANDARD	GAS	HEAVY DUTY	B
30000444	19	STANDARD	STANDARD	LP	LIGHT DUTY	C
30000452	16	STANDARD	MECHANICAL	LP	LIGHT DUTY	D
30000469	15	HIGH THRUST	STANDARD	LP	HEAVY DUTY	E
30000470	14	HIGH THRUST	STANDARD	DUAL	LIGHT DUTY	F



TABLE OF CONTENTS

SECTION	PAGE
CYLINDER BLOCK.....	4-5
CYLINDER HEAD	6
CYLINDER HEAD SUB ASSEMBLY.....	7
VALVE COVER	8
VALVE ACTUATION.....	9
CAMSHAFT.....	10
PISTON AND ROD.....	11
CRANKSHAFT.....	12
CRANKSHAFT BALANCER.....	13
TIMING CHAIN.....	14
BALANCER SHAFT.....	15
FRONT COVER.....	16
INTAKE MANIFOLD.....	17
FUEL RAIL.....	18
OIL PUMP.....	19
OIL PAN.....	20
WATER PUMP.....	21
DISTRIBUTOR.....	22-23
SPARK PLUG.....	24
REVISIONS TO BOOK.....	25-26

CYLINDER BLOCK



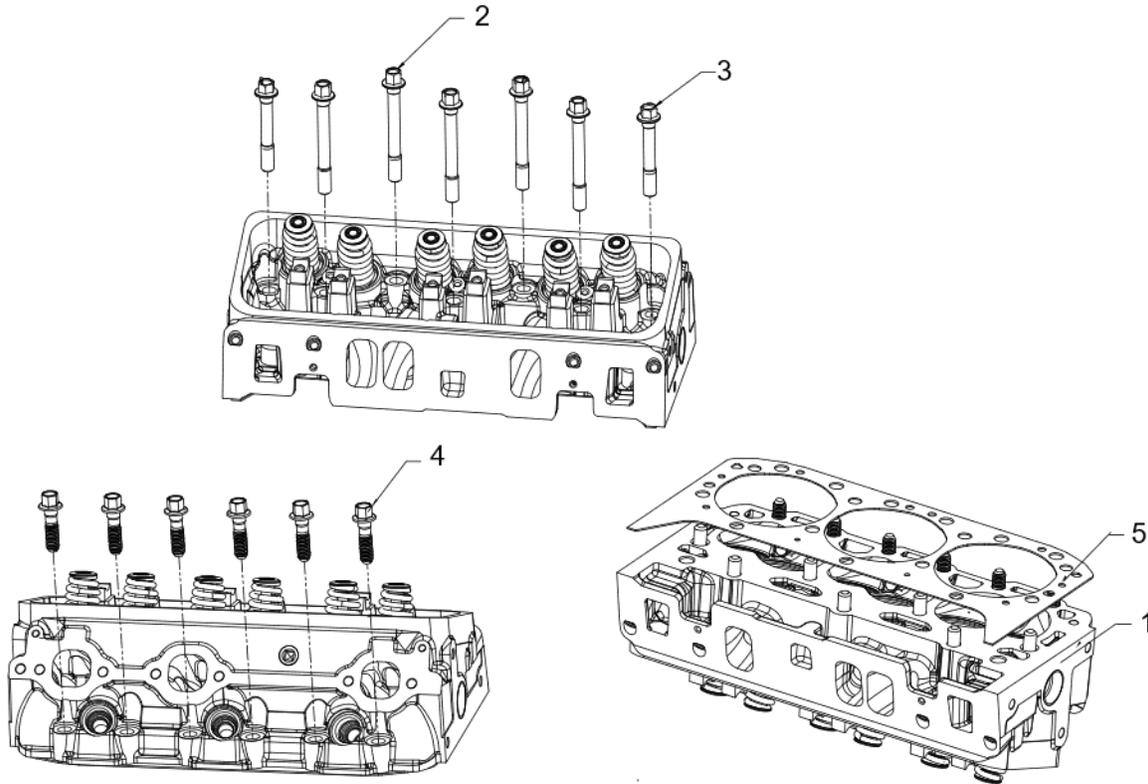
88040001-26
88040005-08
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SPEC N. :
REV. DATE: 31OCT18

CYLINDER BLOCK CONT.

POS.	PART NUMBER	DESCRIPTION	QTY	A	B	C	D	E	F	NOTES
1	80000199	PLUG, CORE	1	X	X	X	X	X	X	
2	80000200	PLUG, CORE	1	X	X	X	X	X	X	
3	80000201	BEARING, BALANCER SHAFT	1	X	X	X	X	X	X	
4	80001457	BEARING, CAM SHAFT	2	X	X	X	X	X	X	
4	80001458	BEARING, CAM SHAFT	2	X	X	X	X	X	X	
5	80000904	ADAPTER, OIL FILTER	1	X	X	X	X	X	X	
6	80001135	SEAL, REAR CROSSOVER	1	X	X	X	X	X	X	
7	80001325	COVER, R/OIL CROSSOVER	1	X	X	X	X	X	X	
8	80000612	PLUG, BALANCE SHAFT	1	X	X	X	X	X	X	
9	80000613	PLUG, CAM REAR	1	X	X	X	X	X	X	
10	80001326	BOLT	4	X	X	X	X	X	X	
11	80000626	BALL, PLUG	1	X	X	X	X	X	X	
12	80000646	PLUG, COOLANT DRAIN	2	X	X	X	X	X	X	
13	33001415	SENDER, O/PRESS	1	X	X	X		X	X	
14	32502815	FITTING, OIL PRESS GAUGE	1	X	X	X		X	X	
15	80001341	PLUG CORE	4	X	X	X	X	X	X	
16	80000007	PLUG OIL GALLEY	2	X	X	X	X	X	X	
17	80000093	PIN, F/W HOUSING	2	X	X	X	X	X	X	
18	80000208	VALVE, OIL FILTER BYPASS	1	X	X	X	X	X	X	
19	80000105	PIN, DOWELL	4	X	X	X	X	X	X	
20	80000206	FILTER, OIL	1	X	X	X	X	X	X	
21	80000660	PIN, CYLINDER HEAD	4	X	X	X				
22	NSS	CRANKCASE	1	X	X	X	X	X	X	
24	80000008	PLUG, OIL GALLEY	2	X	X	X	X	X	X	

CYLINDER HEAD



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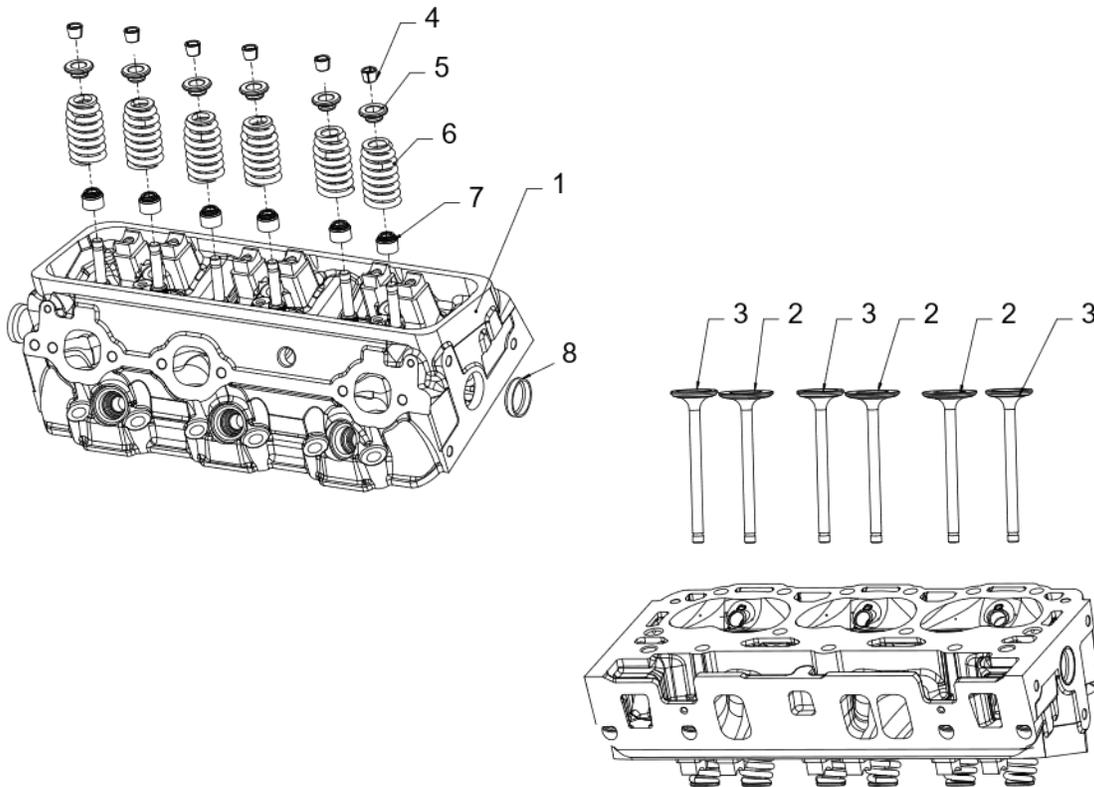
POS.	PART NUMBER	DESCRIPTION	QTY	A	B	C	D	E	F	NOTES
1	80001343	CYLINDER HEAD ASSEMBLY	2	X	X	X	X	X	X	
2	80000256	BOLT, CYLINDER HEAD	10	X	X	X	X	X	X	
3	80000257	BOLT, CYLINDER HEAD	4	X	X	X	X	X	X	
4	80000258	BOLT, CYLINDER HEAD	12	X	X	X	X	X	X	
5	80000769	GASKET, HEAD	2	X	X	X	X	X	X	

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REV. DATE: 31OCT18

Page 6

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CYLINDER HEAD SUB ASSEMBLY (2 PER ENGINE)



80001343-04

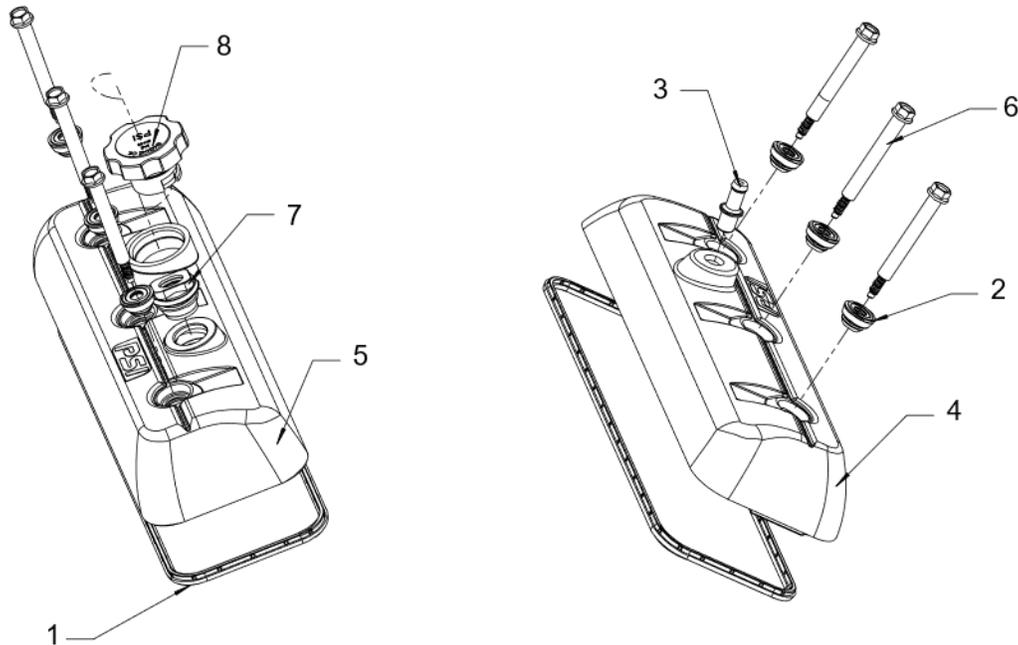
POS.	PART NUMBER	DESCRIPTION	QTY	A	B	C	D	E	F	NOTES
1	80001114	HEAD, CYLINDER (COMPLETE)	1	X	X	X	X	X	X	INCLS ALL PARTS ON THIS PAGE
2	80000261	VALVE, INTAKE	3	X	X	X	X	X	X	
3	80000262	VALVE, EXHAUST	3	X	X	X	X	X	X	
4	80000122	KEY	12	X	X	X	X	X	X	
5	80001025	RETAINER, VALVE SPRING	6	X	X	X	X	X	X	
6	80001492	SPRING, VALVE	6	X	X	X	X	X	X	
7	80000038	SEAL, VALVE STEM	6	X	X	X	X	X	X	
8	80000624	PLUG	2	X	X	X	X	X	X	
9	80000259	PLUG, ENGINE	1	X	X	X	X	X	X	NOT SHOWN

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REV. DATE: 31OCT18

Page 7

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VALVE COVER

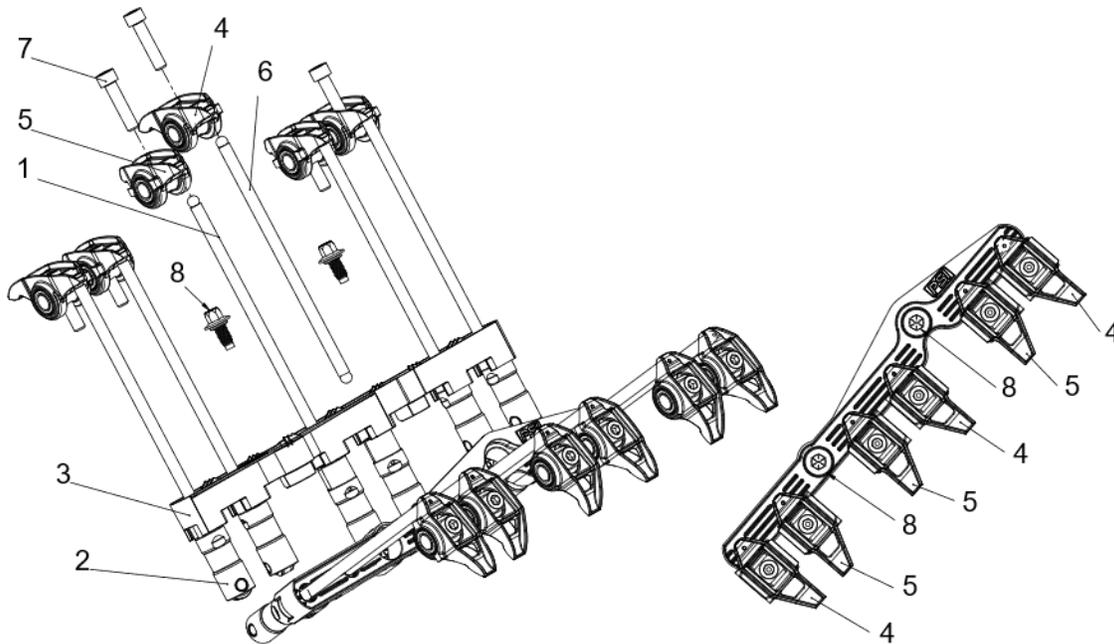


88084005-10

POS.	PART NUMBER	DESCRIPTION	QTY	A	B	C	D	E	F	NOTES
1	80000278	GASKET, ROCKER ARM COVER	2	X	X	X	X	X	X	
2	80000279	GROMMET, RCKR ARM BOLT	6	X	X	X	X	X	X	
3	80000945	PCV	1	X	X	X	X	X	X	
4	80000742	COVER, VALVE	1	X	X	X	X	X	X	
5	80000741	COVER, VALVE-OIL FILL	1	X	X	X	X	X	X	
6	80001142	BOLT, VALVE COVER	6	X	X	X	X	X	X	
7	103598	GROMMET, VLV COVER OUTLET	1	X	X	X	X	X	X	
8	80001384	ASSEMBLY, OIL CAP	1	X	X	X	X	X	X	

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VALVE ACTUATION

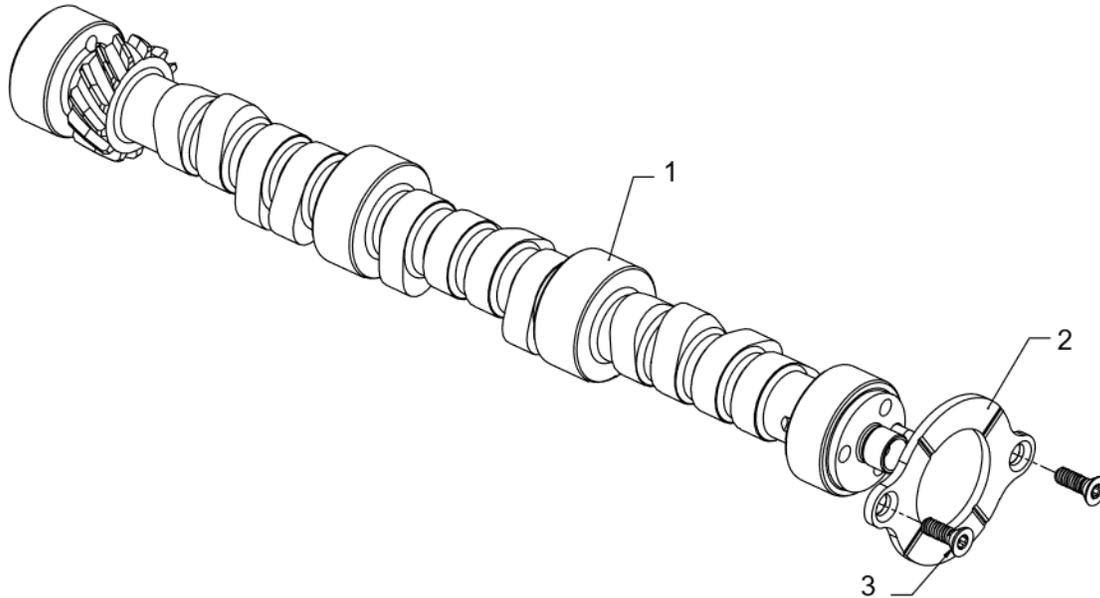


88040002-05
88040004-03
88040010-02

POS.	PART NUMBER	DESCRIPTION	QTY	A	B	C	D	E	F	NOTES
1	80000746	PUSH ROD (INTAKE)	6	X	X	X	X	X	X	
2	80000867	LIFTER	12	X	X		X	X	X	
2	80000271	LIFTER	12			X				
3	80000865	LIFTER, BUCKET	2					X	X	INCL BOLTS
3	80000868	LIFTER, BUCKET	2	X	X	X	X			
4	80000274	ARM, PORT ROCKER ASM	6	X	X	X	X	X	X	
5	80000272	ARM, STRBRD ROCKER ASM	6	X	X	X	X	X	X	
6	80000747	PUSH ROD (EXHAUST)	6	X	X	X	X	X	X	
7	80000058	BOLT, ROCKER VALVE	12	X	X	X	X	X	X	
8	80000610	BOLT, LIFTER BUCKET	4	X	X	X	X			

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CAMSHAFT



88041001-07

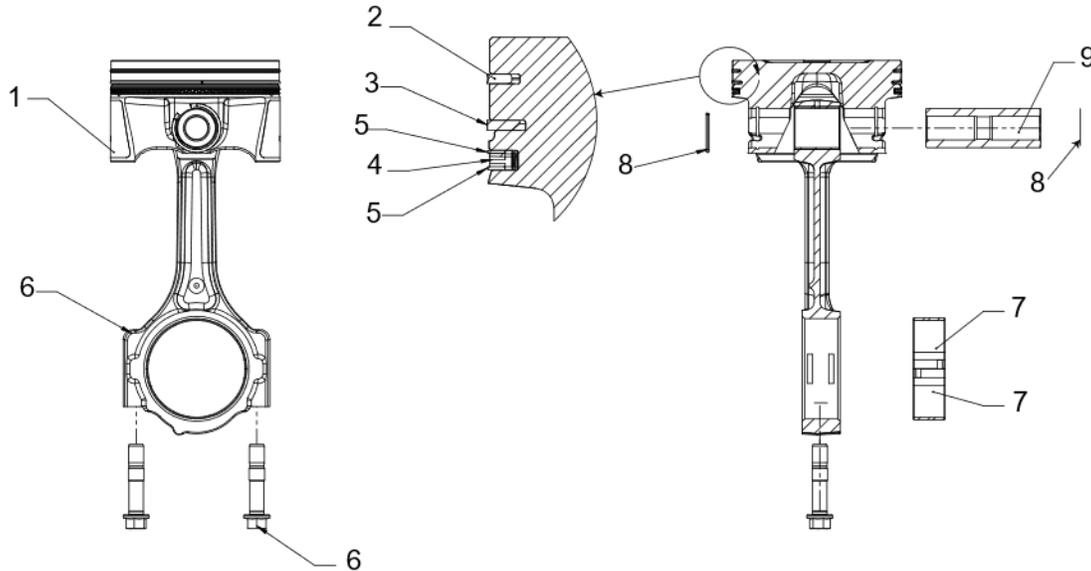
POS.	PART NUMBER	DESCRIPTION	QTY	A	B	C	D	E	F	NOTES
1	80000875	CAMSHAFT	1	X	X		X	X	X	
1	80000225	CAMSHAFT	2			X				
2	80000889	RETAINER, CAMSHAFT	1	X	X	X	X	X	X	
3	80001326	BOLT, CAMSHAFT RETAINER	2	X	X	X	X	X	X	

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Page 10

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PISTON AND ROD

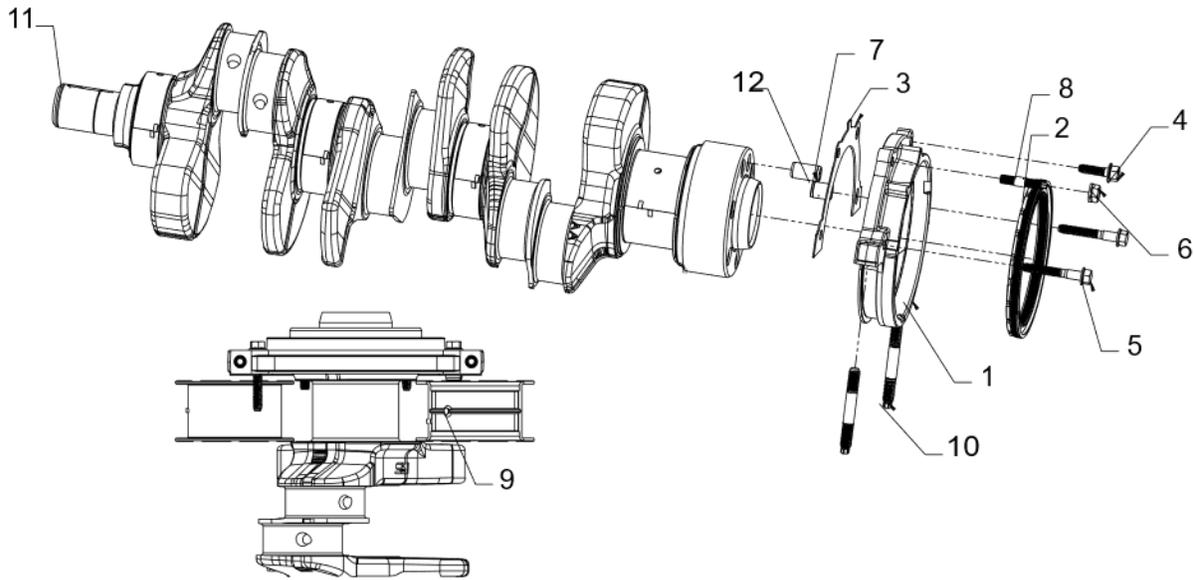


88041501-05
88041508-01

POS.	PART NUMBER	DESCRIPTION	QTY	A	B	C	D	E	F	NOTES
1	80000221	PISTON	6	X	X	X	X	X	X	INCL 8, 9
2	NSS	RING, UPPER	6	X	X	X	X	X	X	RING SET
3	NSS	RING, LOWER	6	X	X	X	X	X	X	RING SET
4	NSS	SPACER, OIL RING	6	X	X	X	X	X	X	RING SET
5	NSS	RING, OIL	12	X	X	X	X	X	X	RING SET
6	80000634	ROD, CONNECTING	6					X	X	
6	80001396	ROD, CONNECTING	6	X	X	X	X			
7	80000224	BEARING SET, CONNECT ROD	1	X	X	X	X	X	X	
8	NSS	CIRCLIP, PISTON	12	X	X	X	X	X	X	INCL PISTON
9	NSS	PIN, PISTON	6	X	X	X	X	X	X	INCL PISTON
10	80000223	RING SET	1	X	X	X	X	X	X	ITEM 2,3,4,5
	* NSS *	NOT SOLD SEPARATELY								

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CRANKSHAFT

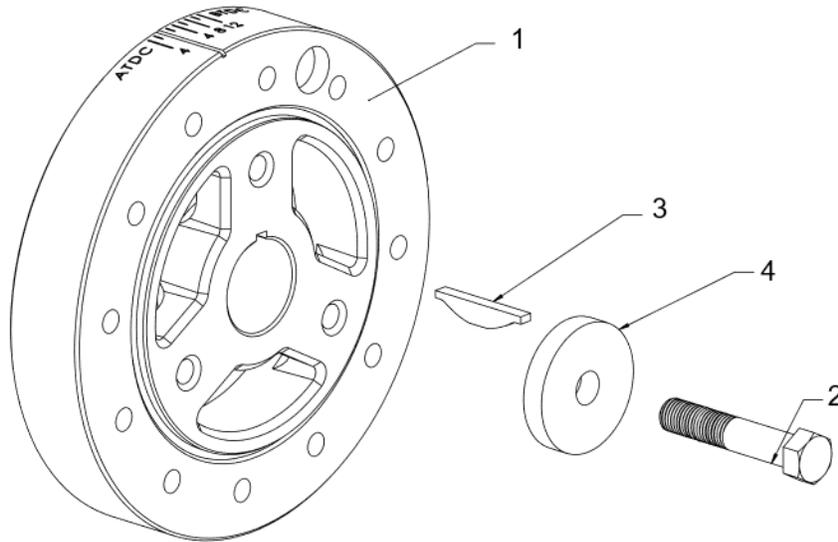


88040501-06
88040504-03

POS.	PART NUMBER	DESCRIPTION	QTY	A	B	C	D	E	F	NOTES
1	80000210	HSG, CRK/SHF RR OIL SEAL	1	X	X	X	X	X	X	
2	100046	SEAL, REAR CRANKSHAFT	1	X	X	X	X	X	X	
3	80000212	GSKT, CRK/SHF RR O/S HSG	1	X	X	X	X	X	X	
4	80000213	BOLT, CRK/SHF RR O/S HSG	1	X	X	X	X	X	X	
5	80000214	BOLT, CRK/SHF RR O/S HSG	2	X	X	X	X	X	X	
6	80000215	NUT, CRK/SHF RR O/S RETAINER	1	X	X	X	X	X	X	
7	80000216	PIN, CRK/SHF RR OIL SEAL	1	X	X	X	X	X	X	
8	80000217	STUD, CRK/SHF RR OIL SEAL	1	X	X	X	X	X	X	
9	80000218	SET, MAIN BEARING	1	X	X	X	X	X	X	
10	80000616	STUD, CRK/SHF RR OIL SEAL	2	X	X	X	X	X	X	
11	80000888	CRANKSHAFT	1	X	X	X	X			
11	88900089	CRANKSHAFT	1					X	X	
12	80000611	PIN, FLWHEEL	1	X	X	X	X	X	X	

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REV. DATE: 31OCT18

CRANKSHAFT BALANCER



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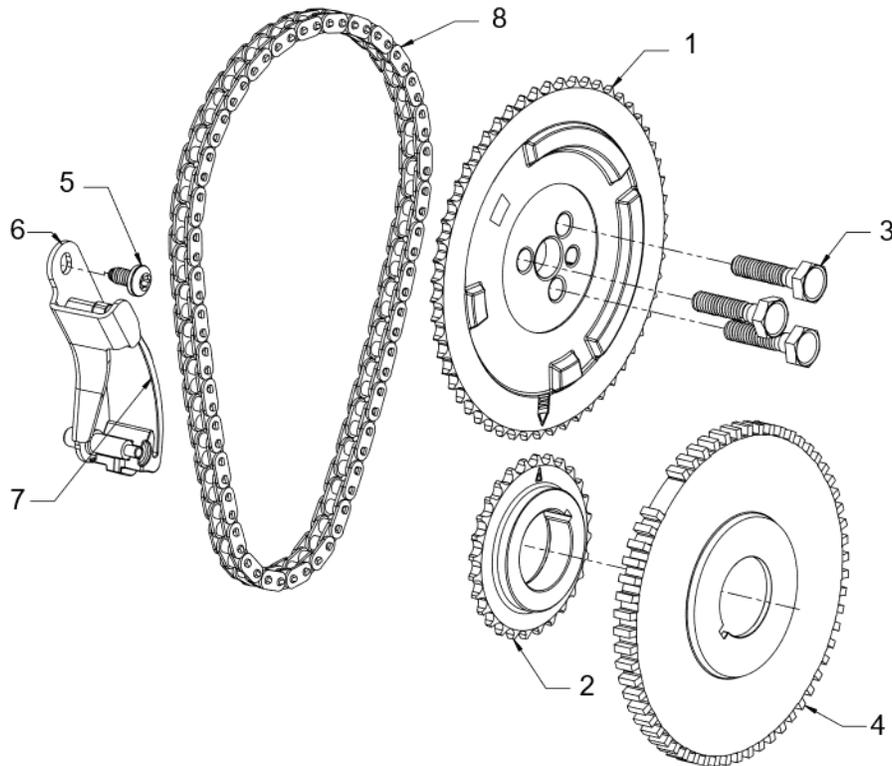
POS.	PART NUMBER	DESCRIPTION	QTY	A	B	C	D	E	F	NOTES
1	80001115	DAMPER, CRANKSHAFT	1	X	X	X	X	X	X	
2	80000644	BOLT, DAMPER	1	X	X	X	X	X	X	
3	80000288	KEY, CRANKSHAFT	1	X	X	X	X	X	X	
4	80000289	WASHER	1	X	X	X	X	X	X	

SPEC N. :
REV. DATE: 31OCT18

Page 13

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TIMING CHAIN



88040502-03

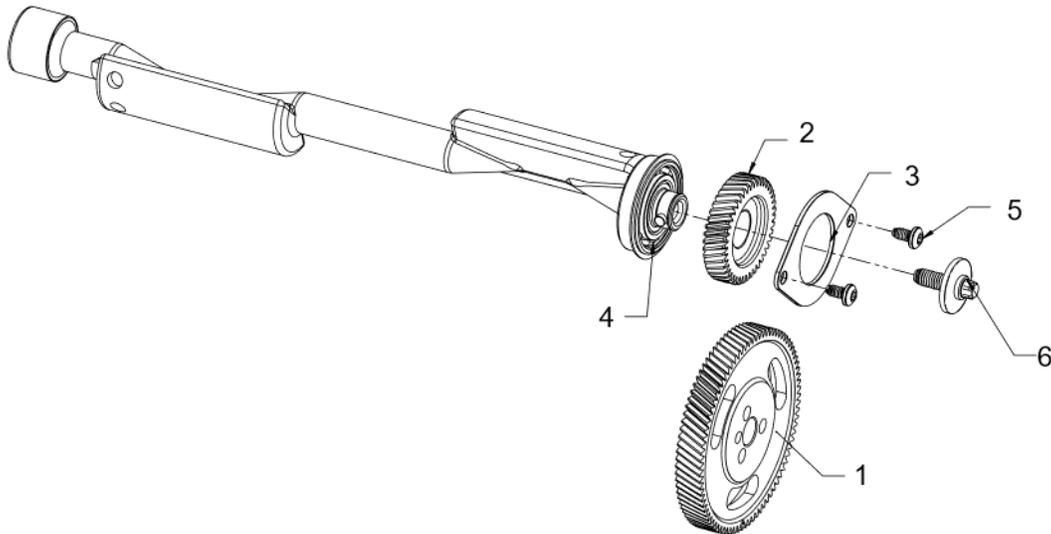
POS.	PART NUMBER	DESCRIPTION	QTY	A	B	C	D	E	F	NOTES
1	80000252	SPROCKET, CAM/CRANK KIT	1	X	X	X	X	X	X	
2	80000253	SPROCK, CRANKSHAFT	1	X	X	X	X	X	X	
3	80000250	BOLT, CAMSHAFT SPROCKET	3	X	X	X	X	X	X	
4	80000324	RING, CRNKSFT POSITIONER	1	X	X	X	X	X	X	
5	80000244	BOLT, BALANCER SHAFT	1	X	X	X	X	X	X	
6	80000630	GUIDE, TIMING CHAIN METAL	1	X	X	X	X	X	X	
7	80000326	GUIDE, TIMING CHAIN	1	X	X	X	X	X	X	
8	80000325	CHAIN, TIMING	1	X	X	X	X	X	X	

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REV. DATE: 31OCT18

Page 14

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BALANCER SHAFT



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88042503-03

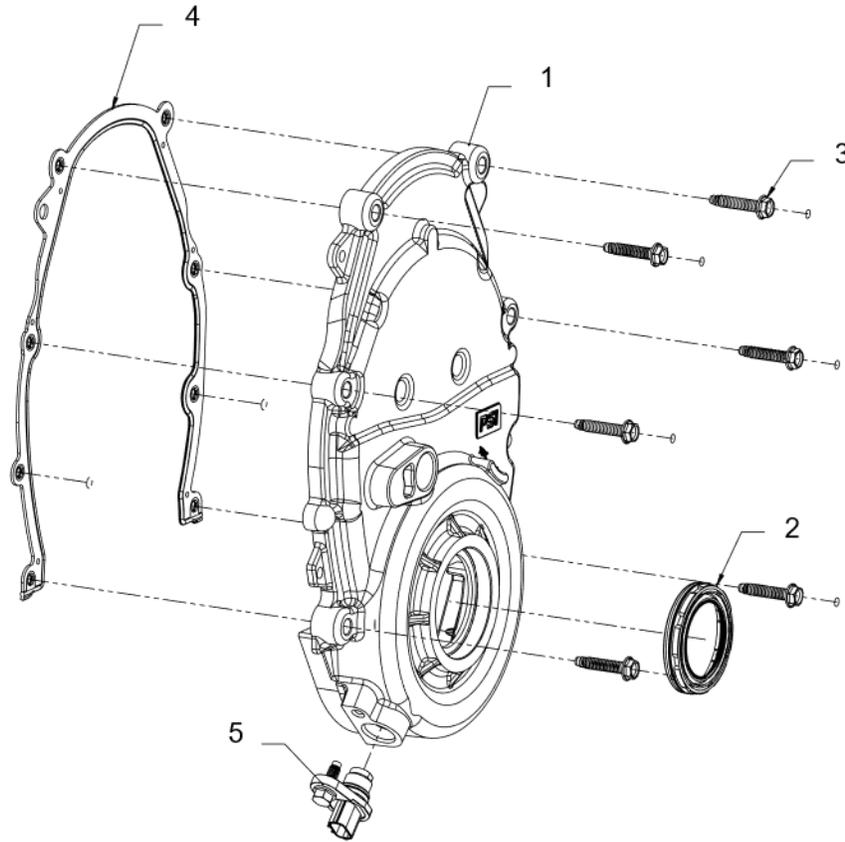
POS.	PART NUMBER	DESCRIPTION	QTY	A	B	C	D	E	F	NOTES
1 & 2	80000241	GEAR, BALANCER SHAFT	1	X	X	X	X	X	X	GEAR SET
3	80001023	RETAINER, BAL/SHAFT	1	X	X	X	X	X	X	
4	80000322	BALANCER SHAFT	1	X	X	X	X	X	X	
5	80000244	BOLT, BALANCER SHAFT	2	X	X	X	X	X	X	
6	80000912	BOLT	1	X	X	X	X	X	X	
7	80000321	BEARING, BALANCER SHAFT	1	X	X	X	X	X	X	NOT SHOWN
8	80000240	PIN, BALANCER SHAFT	1	X	X	X	X	X	X	NOT SHOWN

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REV. DATE: 31OCT18

Page 15

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FRONT COVER

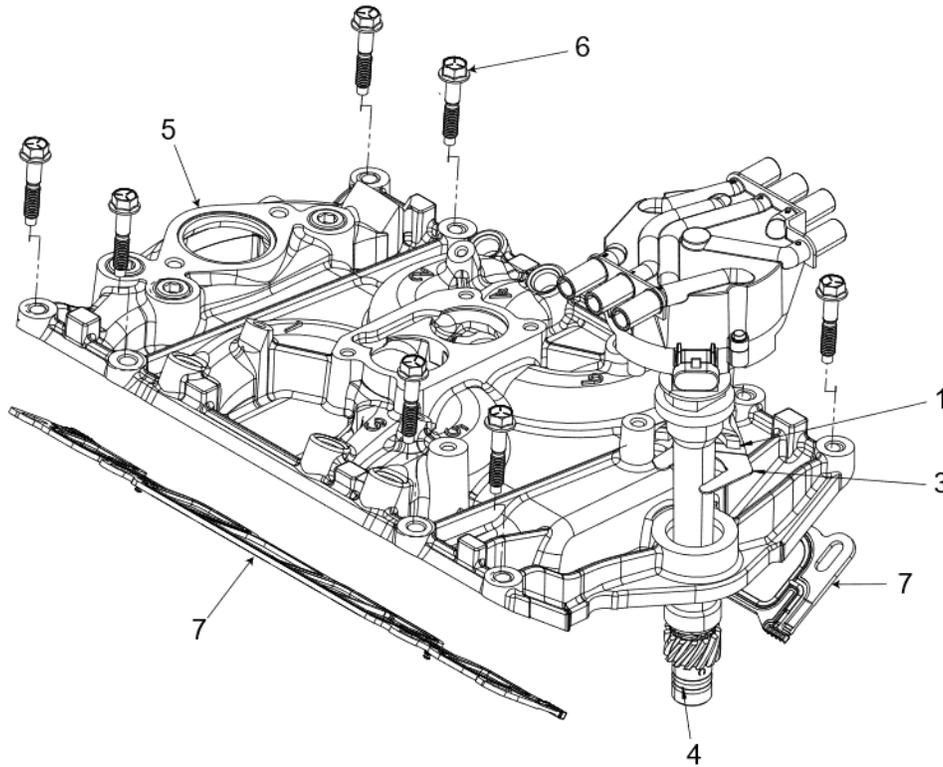


88042502-08

POS.	PART NUMBER	DESCRIPTION	QTY	A	B	C	D	E	F	NOTES
1	80000245	COVER, ENGINE FRONT	1	X	X	X	X	X	X	
2	80000980	SEAL, ENGINE FRONT COVER	1	X	X	X	X	X	X	
3	80000246	BOLT, ENGINE FRONT COVER	6	X	X	X	X	X	X	
4	80000249	GASKET, ENG FRONT COVER	1	X	X	X	X	X	X	
5	33002167	SENSOR, CRANK	1	X	X	X	X	X	X	

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REV. DATE: 31OCT18

INTAKE MANIFOLD

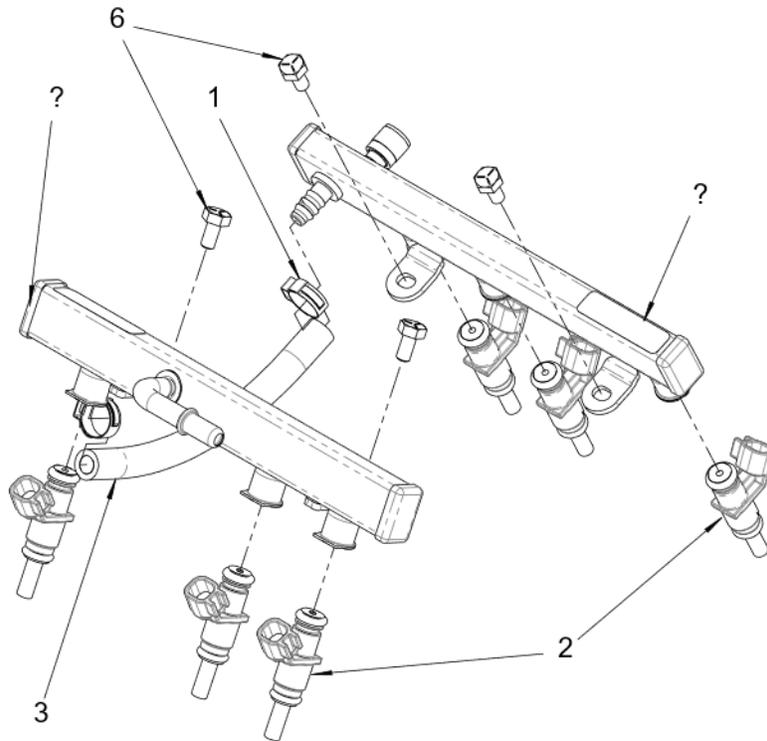


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88046502-06
88046504-04
38040861-02

POS.	PART NUMBER	DESCRIPTION	QTY	A	B	C	D	E	F	NOTES
1	103948	CLAMP, DISTRIBUTOR	1	X	X	X	X	X	X	
2	103941	BOLT	1	X	X	X	X	X	X	NOT SHOWN
3	33000546	YOLK, DIST ALGMT	1	X	X	X	X	X	X	
4	33002218	DISTRIBUTOR	1	X		X		X	X	HVS
4	103934	DISTRIBUTOR	1				X			HEI
4	80001535	DISTRIBUTOR	1		X					HVS VENTED
5	80001387	MANIFOLD, INTAKE	1	X		X	X	X		
5	80001381	MANIFOLD, INTAKE	1		X				X	INJECTOR HOLES
6	80000631	BOLT, INTAKE MANIFOLD	8	X	X	X	X	X	X	
7	80000632	GASKET, INTAKE MANIFOLD	2	X	X	X	X	X	X	
8	33000276	GASKET, DISTRIBUTOR	1	X	X	X	X	X	X	NOT SHOWN

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FUEL RAIL

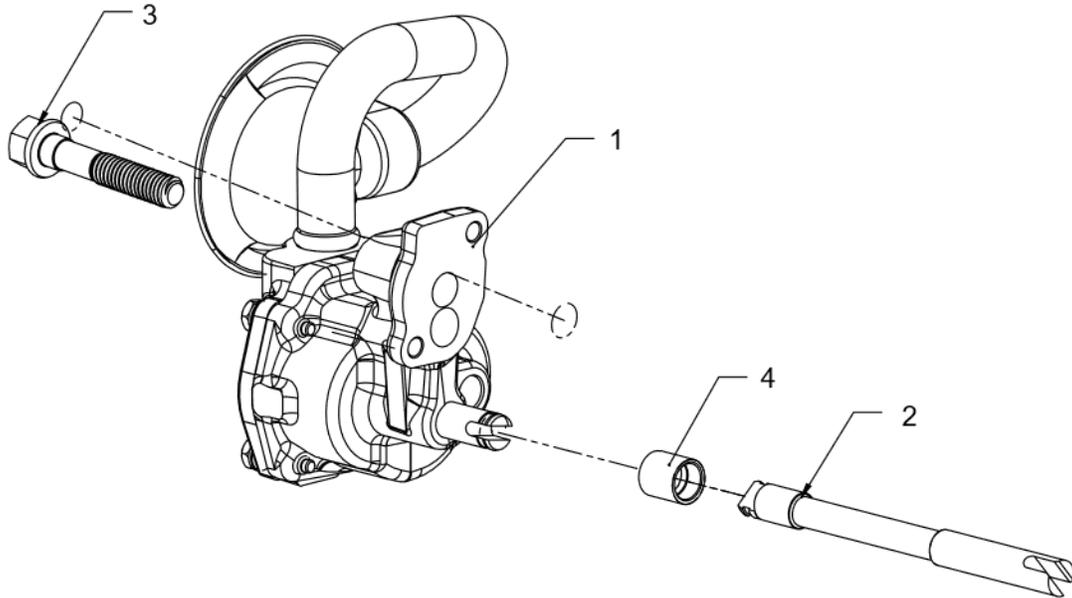


38040580-03

POS.	PART NUMBER	DESCRIPTION	QTY	A	B	C	D	E	F	NOTES
1	32501637	CLAMP, HOSE	2		X				X	
2	32502629	INJECTOR, FUEL	6		X				X	
3	32502765	HOSE, GASOLINE	1		X				X	
4	32502766	RAIL, FUEL RH	1		X				X	
5	32502767	RAIL, FUEL LH	1		X				X	
6	35000126	BOLT	4		X				X	

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OIL PUMP

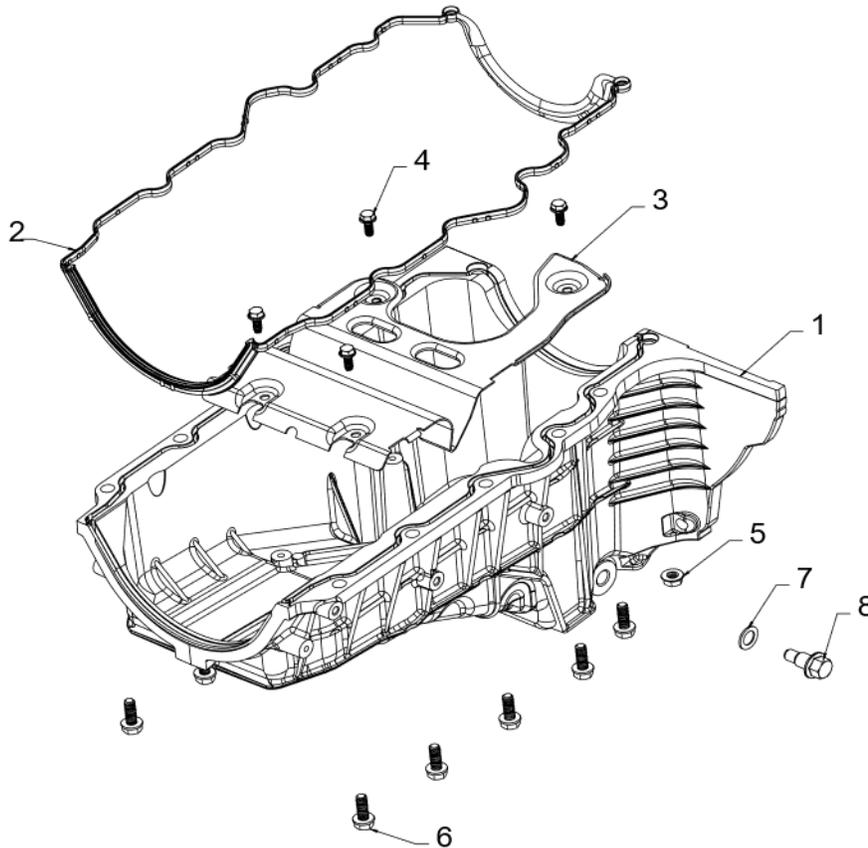


88042001-04
88042002-02

POS.	PART NUMBER	DESCRIPTION	QTY	A	B	C	D	E	F	NOTES
1	80001079	PUMP, OIL	1	X	X	X	X	X	X	
2	80000237	SHAFT, OIL PUMP DRIVE	1	X	X	X	X	X	X	
3	80000239	BOLT, OIL PUMP	1	X	X	X	X	X	X	
4	80000851	RETAINER, OIL O/P SHAFT	1	X	X	X	X	X	X	

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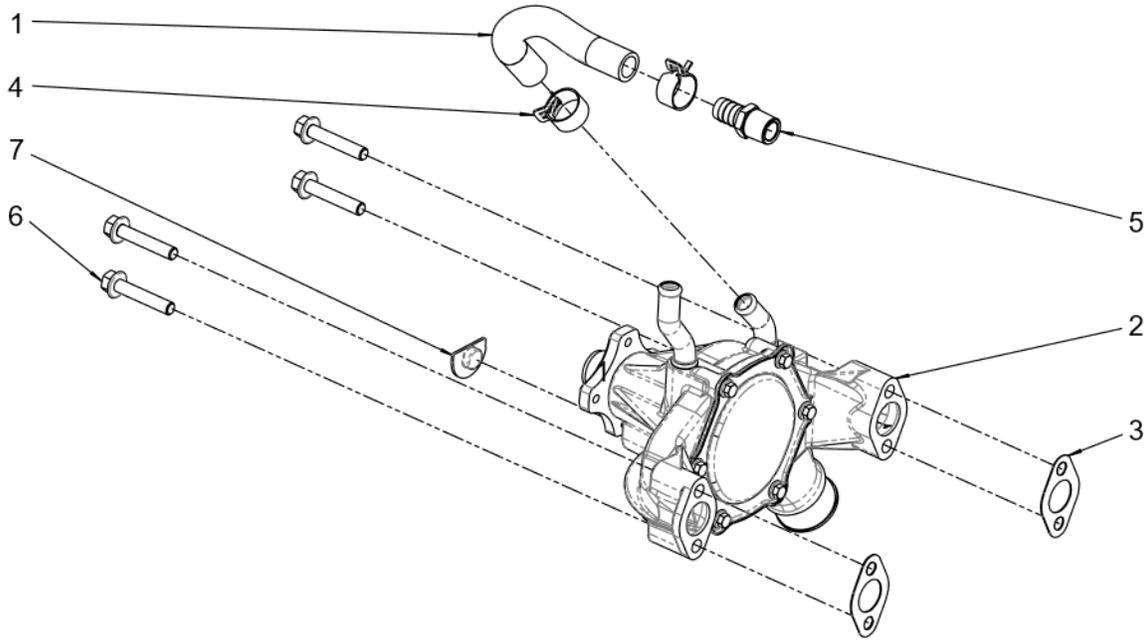
OIL PAN


 88043001-03
 88043002-03

POS.	PART NUMBER	DESCRIPTION	QTY	A	B	C	D	E	F	NOTES
1	80000228	PAN, OIL	1	X	X	X	X	X	X	
2	80000233	GASKET, OIL PAN	1	X	X	X	X	X	X	
3	80000231	BAFFLE, OIL PAN	1	X	X	X	X	X	X	
4	80000232	BOLT, OIL PAN BAFFLE	4	X	X	X	X	X	X	
5	80000234	NUT	2	X	X	X	X	X	X	
6	80000235	BOLT, OIL PUMP	10	X	X	X	X	X	X	
7	80000143	SEAL	1	X	X	X	X	X	X	
8	80000034	OIL DRAIN PLUG	1	X	X		X	X	X	
9	32000453	CAP	1			X				NOT SHOWN
10	32500617-22	HOSE, FUEL	1			X				NOT SHOWN
11	32500733	FITTING	1			X				NOT SHOWN
12	32501134	CLAMP, HOSE	2			X				NOT SHOWN
13	32502567	VALVE, OIL DRAIN	1			X				NOT SHOWN

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 REV. DATE: 31OCT18

WATER PUMP

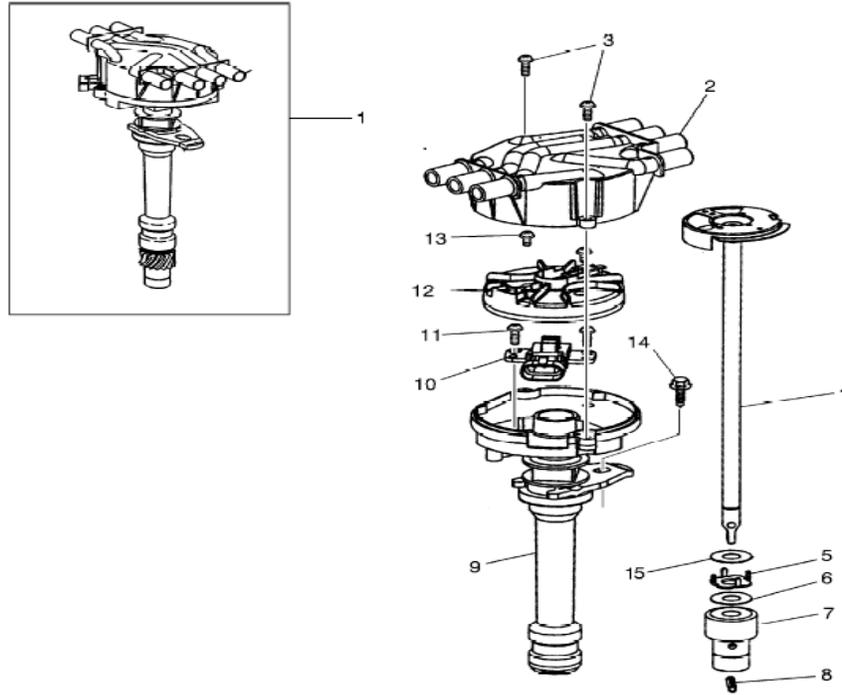


38040665-04
38040728-03

POS.	PART NUMBER	DESCRIPTION	QTY	A	B	C	D	E	F	NOTES
1	32000996	HOSE, W/PUMP	1	X	X	X	X	X	X	
2	32001165	PUMP, WATER	1	X	X	X	X	X	X	
3	32001355	GASKET, WATER PUMP	2	X	X	X	X	X	X	
4	32501361	CLAMP, HOSE	2	X	X	X	X	X	X	
5	32502865	FITTING	1	X	X	X	X	X	X	
6	35000311	BOLT	4	X	X	X	X	X	X	
7	60100042	SEAL	1	X	X	X	X	X	X	

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REV. DATE: 31OCT18

DISTRIBUTOR - HVS



33002218-01
80001535-02

POS.	PART NUMBER	DESCRIPTION	QTY	A	B	C	D	E	F	NOTES
1	33002218	DISTRIBUTOR	1	X		X		X	X	HVS
1	80001535	DISTRIBUTOR	1		X					HVS VENTED
2	103960G	CAP, DISTRIBUTOR	1	X	X	X		X	X	
3	103963	BOLT, D/CAP O/S	2	X	X	X		X	X	
4	NSS	SHAFT		X	X	X		X	X	
5	NSS	WASHER		X	X	X		X	X	
6	NSS	WASHER		X	X	X		X	X	
7	103985	GEAR, DIST SHAFT	1	X	X	X		X	X	
8	103992	PIN	1	X	X	X		X	X	
9	NSS	HOUSING		X	X	X		X	X	
10	104047A	SENSOR, CAMSHAFT	1	X	X	X		X	X	
11	104013	BOLT, DISTR ROT	2	X	X	X		X	X	
12	104000A	ROTOR, DISTRIBUTOR	1	X	X	X		X	X	
13	103967	BOLT, D/CAP STD.	2	X	X	X		X	X	
14	107043	BOLT	2	X	X	X		X	X	
15	33000276	GASKET, DIST	1	X	X	X		X	X	
	NSS=	NOT SOLD SEPERATELY								

SPEC N. :
REV. DATE: 31OCT18

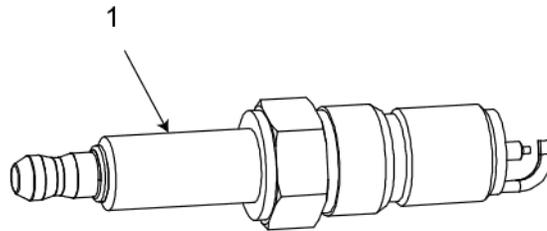
DISTRIBUTOR - HEI

IMAGE NOT AVAILABLE

30600053-01

POS.	PART NUMBER	DESCRIPTION	QTY	A	B	C	D	E	F	NOTES
1	30600053	DISTRIBUTOR	1				X			HEI
2	103959A	CAP, DISTRIBUTOR	1				X			
3	103999A	ROTOR, DISTRIBUTOR	1				X			
4	101486	MODULE, IGNITION	1				X			

SPARK PLUG



POS.	PART NUMBER	DESCRIPTION	QTY	A	B	C	D	E	F	NOTES
1	33000704	PLUG, SPARK	6	X	X	X	X	X	X	

SPEC N. :
REV. DATE: 31OCT18



REVISIONS TO BOOK

DATE	OLD	SECTION	CHANGE
10-31-18	02-13-18	LEGEND	ADD REV COLUMN FOR CURRENT ENGINE REVISION NUMBERS
10-31-18	02-13-18	CYLINDER BLOCK	REVISED ITEM 4 - CAM SHAFT BEARINGS FROM: QTY 1 - 80000201 - BEARING SET TO: QTY 2 - 80001457 - CAM SHAFT BEARING AND QTY 2 - 80001458 - CAM SHAFT BEARING DELETED ITEM 25 - QTY 2 - DOWELL PIN
10-31-18	02-13-18	CYLINDER HEAD	CONSOLIDATED 1ST ITEM 1 - 80001343 - CYL HEAD SUB ASSEMBLY TO ALL SIX ENGINES (A-F) DELETED 2ND ITEM 1 - 88043506 - CYL HEAD SUB ASSEM REVISED ITEM 3 - CYLINDER HEAD BOLT FROM PART NUMBER: 30000257 TO: 80000257
10-31-18	02-13-18	CYLINDER HEAD SUB ASSEMBLY	ADDED SECTION FOR BREAKDOWN OF CYLINDER HEAD SUB ASSEMBLY PARTS
10-31-18	02-13-18	VALVE ACTUATION	CONSOLIDATED 1ST ITEM 1 - 80000746 - PUSH ROD (INTAKE) TO ALL SIX ENGINES DELETED 2ND ITEM 1 - 80000270 - PUSH ROD (INTAKE) CONSOLIDATED 1ST ITEM 6 - 80000747 - PUSH ROD (EXHAUST) TO ALL SIX ENGINES DELETED 2ND ITEM 6 - 80000334 - PUSH ROD (EXHAUST)
10-31-18	02-13-18	CAMSHAFT	CONSOLIDATED 1ST ITEM 3 - QTY 2 - 80001326 - CAM SHAFT RETAINER BOLT TO ALL SIX ENGINES DELETED 2ND ITEM 3 - QTY 4 - 80001326 - CAM SHAFT RETAINER BOLT
10-31-18	02-13-18	PISTON AND ROD	REVISED PART NUMBER FOR ITEMS 2-5 - PISTON RINGS TO NSS. ADDED ITEM 10 - QTY 1 - 80000223 - PISTON RING SET - INCLUDES ITEMS 2-5 REVISED ITEM 6 - 80000634 - CONNECTING ROD TO EXCLUDE FIRST FOUR ENGINES (A-D) ADDED 2ND ITEM 6 - QTY 6 - 80001396 - CONNECTING ROD FOR ENGINES E-F REVISED ITEM 7 - 80000224 - CONNECTING ROD BEARING FROM: QTY 12 TO: QTY 1 - BEARING SET REVISED PART NUMBER FOR ITEMS 8-9 - PISTON PIN AND CLIPS TO NSS - INCLUDED IN ITEM 1- PISTON
10-31-18	02-13-18	CRANKSHAFT	CONSOLIDATED 1ST ITEM 11 - 8000088 - CRANKSHAFT TO INCLUDE FIRST FOUR ENGINES (A-D) DELETED 2ND ITEM 11 - 88900056 - CRANKSHAFT - WAS ENGINE C

SPEC N. :
REV. DATE: 31OCT18

REVISIONS TO BOOK

DATE	OLD	SECTION	CHANGE
10-31-18	02-13-18	CRANKSHAFT BALANCER	CONSOLIDATED 3RD ITEM 1 - 80001115 - CRANKSHAFT DAMPER TO INCLUDE ALL SIX ENGINES (A-F) DELETED 1ST ITEM 1 - 80000287 - CRANKSHAFT DAMPER DELETED 2ND ITEM 1 - 80000873 - CRANKSHAFT DAMPER
10-31-18	02-13-18	INTAKE MANIFOLD - GAS / DUAL FUEL	REVISED SECTION NAME FROM: INTAKE MANIFOLD TO: INTAKE MANIFOLD - GAS / DUAL FUEL REVISED ALL ITEMS TO EXCLUDE ENGINES A, C, D, AND E REVISED 1ST ITEM 10 - 33002218 - DISTRIBUTOR TO EXCLUDE SECOND ENGINE (B) REVISED 2ND ITEM 10 - DISTRIBUTOR FROM PART NUMBER 30600053 TO 80001535 - INCLUDE ENGINE B REVISED 1ST ITEM 12 - INTAKE MANIFOLD FROM PART NUMBER 80000622 TO 80001381 DELETED 2ND ITEM 12 - 80000643 - INTAKE MANIFOLD ADDED ITEM 15 - QTY 6 - 33500808 - INJECTOR PLUG - INCLUDE ENGINE F ADDED IMAGE 88046501 - INCLUDING FUEL RAILS AND INJECTORS
10-31-18	02-13-18	INTAKE MANIFOLD - LP	ADDED SECTION—WITHOUT FUEL RAILS OR INJECTORS INCLUDED ITEMS 6-10 AND 12-14 FROM PREVIOUS INTAKE MANIFOLD SECTION INCLUDED ENGINES A, C, D, AND E REVISED ITEM 7 - 33000276 - DISTRIBUTOR GASKET TO INCLUDE ENGINE D REVISED ITEM 12 - MANIFOLD FROM PART NUMBER: 80000643 TO: 80001387- INCLUDED ENGINES A, C, D, AND E ADDED IMAGE 88046502
10-31-18	02-13-18	OIL PUMP	CONSOLIDATED 1ST ITEM 1 - 80001079 - OIL PUMP TO INCLUDE ALL ENGINES (A-F) DELETED 2ND ITEM 1 - 80000236 - OIL PUMP CONSOLIDATE 1ST ITEM 4 - 80000851 - OIL PUMP SHAFT RETAINER TO INCLUDE ALL ENGINES (A-F) DELETED 2ND ITEM 4 - 80000105 - DOWELL PIN
10-31-18	02-13-18	OIL PAN	DELETED ITEM 14 - 80000143 - OIL PAN SEAL - DUPLICATE TO ITEM 7 REVISED ITEM 8 - 80000034 - OIL DRAIN PLUG TO EXCLUDE ENGINE C (INCLUDES ITEMS 9-13 EXTENDED OIL DRAIN TUBE)
04-10-19	10-31-18	VALVE COVER	REVERSED ITEMS 4 AND 5 - VALVE COVERS WITH AND WITHOUT OIL CAP

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