



MARINE
ILLUSTRATED
PARTS MANUAL
MODEL MP6.0L
MY 2006



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“TYPICAL VIEWS ARE SHOWN”

ENGINE ROTATION

Engine Rotation is identified as “RH” or “LH” with the engine model number. Rotation always is determined from the flywheel end looking toward the front of the engine. In some instances, propeller shaft rotation may be opposite to that of the engine.

When ordering a replacement engine, production block or parts for the engine, be certain to check engine rotation. **DO NOT rely on propeller rotation in order to determine engine rotation.**

LEFT-HAND ROTATION is STANDARD ROTATION.

(Flywheel turns counterclockwise when viewed from flywheel end of the engine.)

RIGHT-HAND ROTATION is OPPOSITE ROTATION.

(Flywheel turns clockwise when viewed from flywheel end of the engine.)

HOW TO READ THIS PARTS BOOK:

ITEM	PART NO.	QTY.	DESCRIPTION	MODEL ID
1	RB001005I	1	Base Engine Assembly, 6.0L	

①
②
③
④
⑤

- ① ITEM NUMBER - This number corresponds with the number in the exploded view on the facing page.
- ② PART NUMBER - This is the designated part number for the particular component or assembly.
- ③ QUANTITY - This refers to the number of pieces used.
- ④ DESCRIPTION - This identifies what the component or assembly is.
- ⑤ MODEL ID - This identifies a component or assembly that is unique to a specific engine model.



Symbols shown throughout parts list are defined here or on the bottom of the individual parts list page.

- AR = As Required
- OPT = Optional
- NSS = Not Serviced Separately
- NA = Not Available
- OS = Oversize
- US = Undersize
- TBD = To Be Determined
- NI = Not Illustrated



REPLACEMENT PARTS:**WARNING:**

Electrical, ignition and fuel system components on PCM Engines are designed and manufactured to comply with U.S. Coast Guard rules and regulations to minimize risks of fire or explosion.

Use of replacement electrical, ignition and fuel system components which do not comply with these rules and regulations could result in a fire or explosion hazard and should be avoided.

MAINTENANCE ITEM PART NUMBERS:

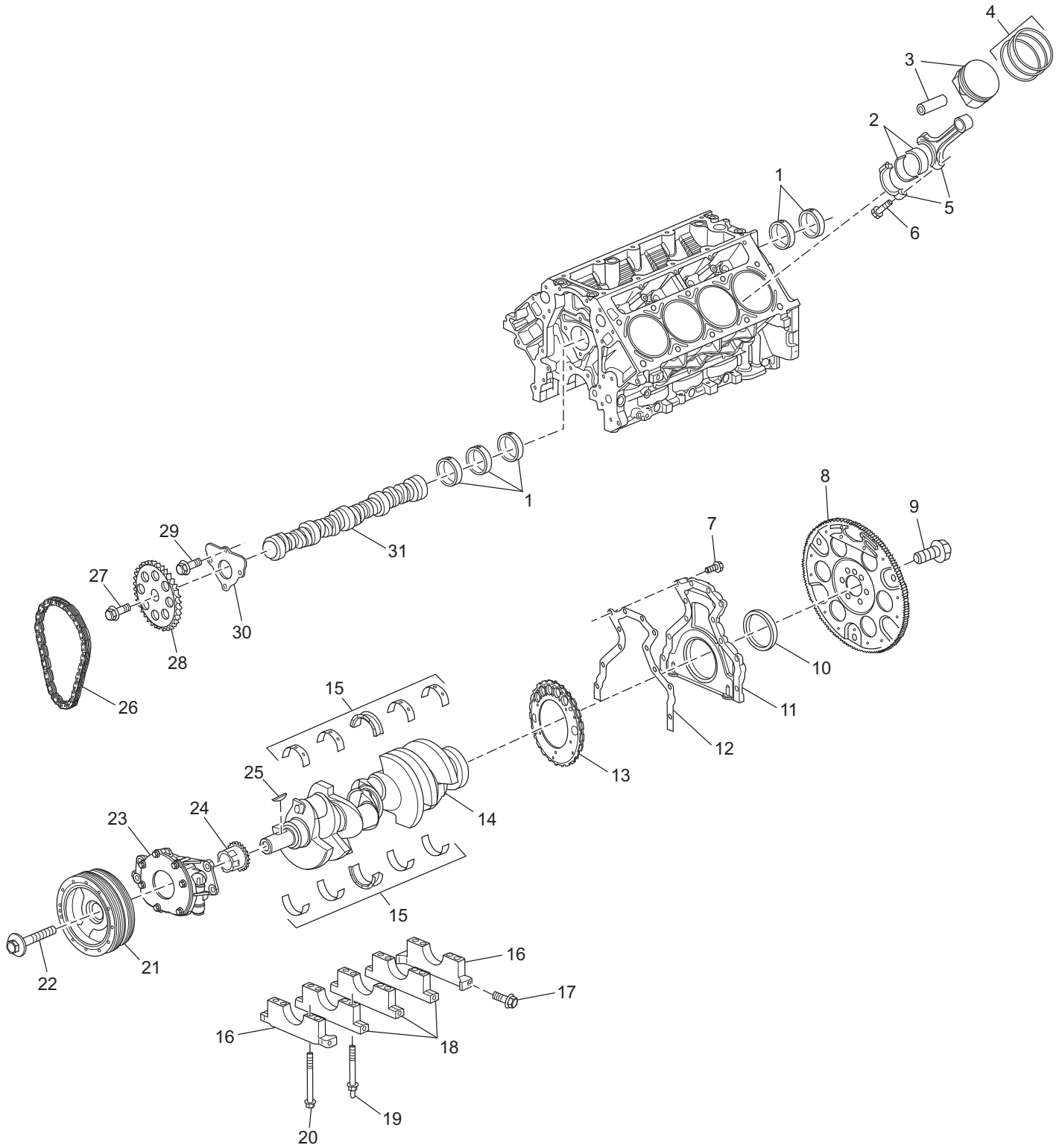
Description	Part Number
Oil Filter	R077001
Kit, Transmission Oil Filter (ZF)	RP077011
Fuel Filter (FCC)	RP080026
Spark Plugs	RP030011
Spark Plug Wire Set	RK120021
Serpentine Drive Belt	R066027
Raw Water Pump Impeller Kit	RP061022
Thermostat	R026002

MARINE TRANSMISSIONS:

PCM Engines are equipped with PCM or Hurth Transmissions, standard or "V"-drive. If transmission parts are required, contact your dealer or closest PCM Parts Distributor for required parts.

Parts manuals and overhaul manuals are available through PCM Distributors.

CYLINDER BLOCK ASSEMBLY - FIGURE 1

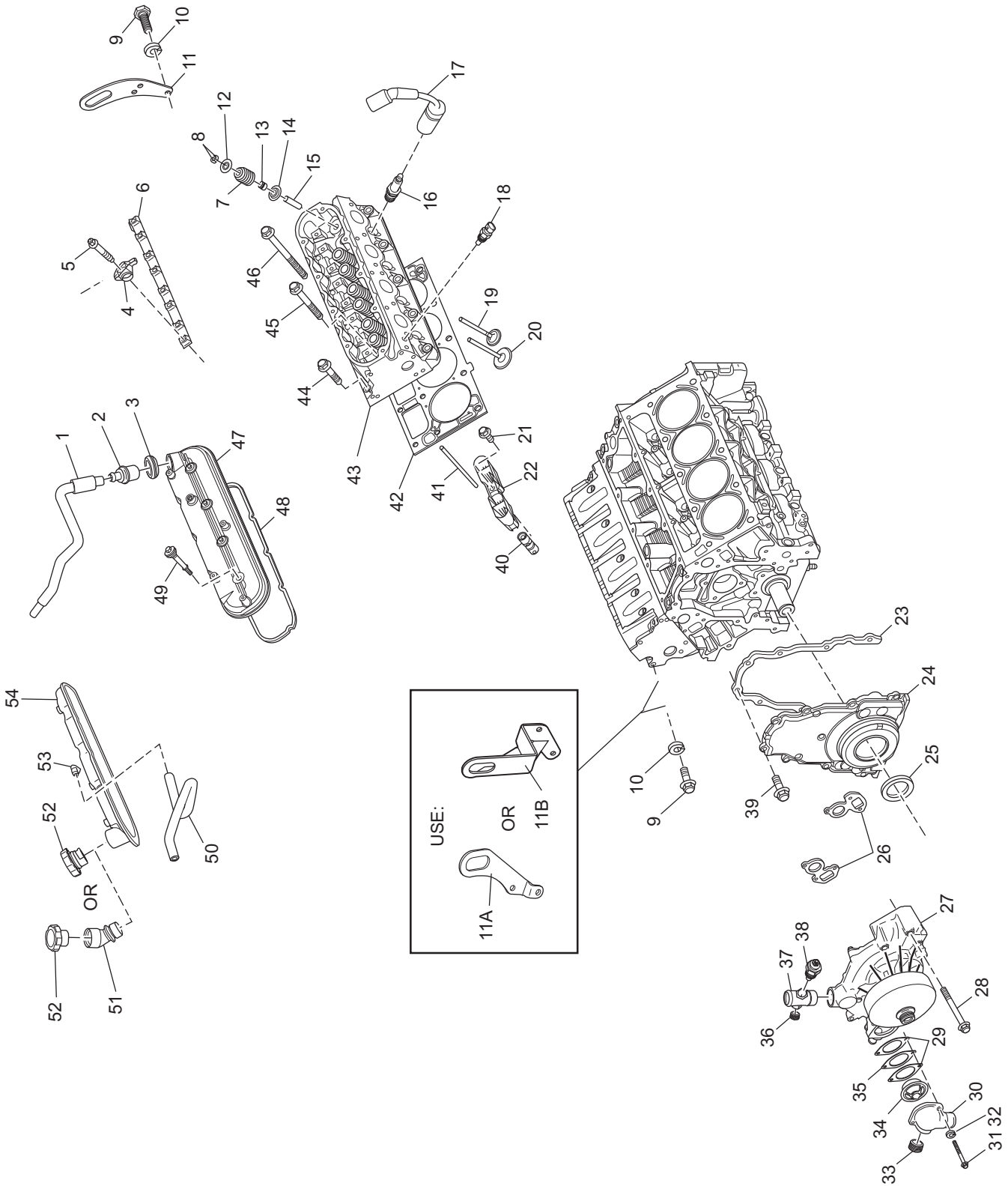


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CYLINDER BLOCK ASSEMBLY - FIGURE 1

ITEM	PART NO.	QTY.	DESCRIPTION	MODEL ID
*	RB001021		Base Engine Assembly	
1	TBD	1	Bearing Set , camshaft	
2	R007029	8	Bearing , for one connecting rod (STD)	
3	RA013018	8	Piston w/Pin , (STD)	
4	TBD	8	Ring Set , piston (STD)	
5	TBD	8	Connecting Rod (STD)	
6	TBD	16	Bolt , connecting rod cap	
7	TBD	12	Bolt , rear engine cover	
8	RA138016	1	Flywheel Assembly	
9	R009205	6	Bolt , flywheel attaching	
10	R047236	1	Seal , crankshaft rear oil	
11	TBD	1	Cover , rear engine	
12	RM0288	1	Gasket , rear engine cover	
13	p/o item #14	1	Reluctor Ring , crankshaft	
14	TBD	1	Crankshaft Assembly	
15	TBD	1	Bearing Set , crankshaft	
16	TBD	2	Cap , crankshaft bearing #1 and #5	
17	TBD	10	Bolt , crankshaft bearing cap side	
18	TBD	3	Cap , crankshaft bearing #2 - #4	
19	TBD		Stud , crankshaft bearing cap attaching	
20	TBD		Bolt , crankshaft bearing cap attaching	
21	R064016	1	Balancer , crankshaft	
22	R009202	1	Bolt , crankshaft balancer	
23	RA070018	1	Oil Pump Assembly	
24	TBD	1	Drive , oil pump	
25	TBD	1	Key , crankshaft	
26	TBD	1	Chain , timing	
27	TBD	1	Bolt , camshaft sprocket attaching	
28	TBD	1	Sprocket , camshaft	
29	TBD	3	Bolt , camshaft retainer attaching	
30	TBD	1	Retainer , camshaft	
31	TBD	1	Camshaft	

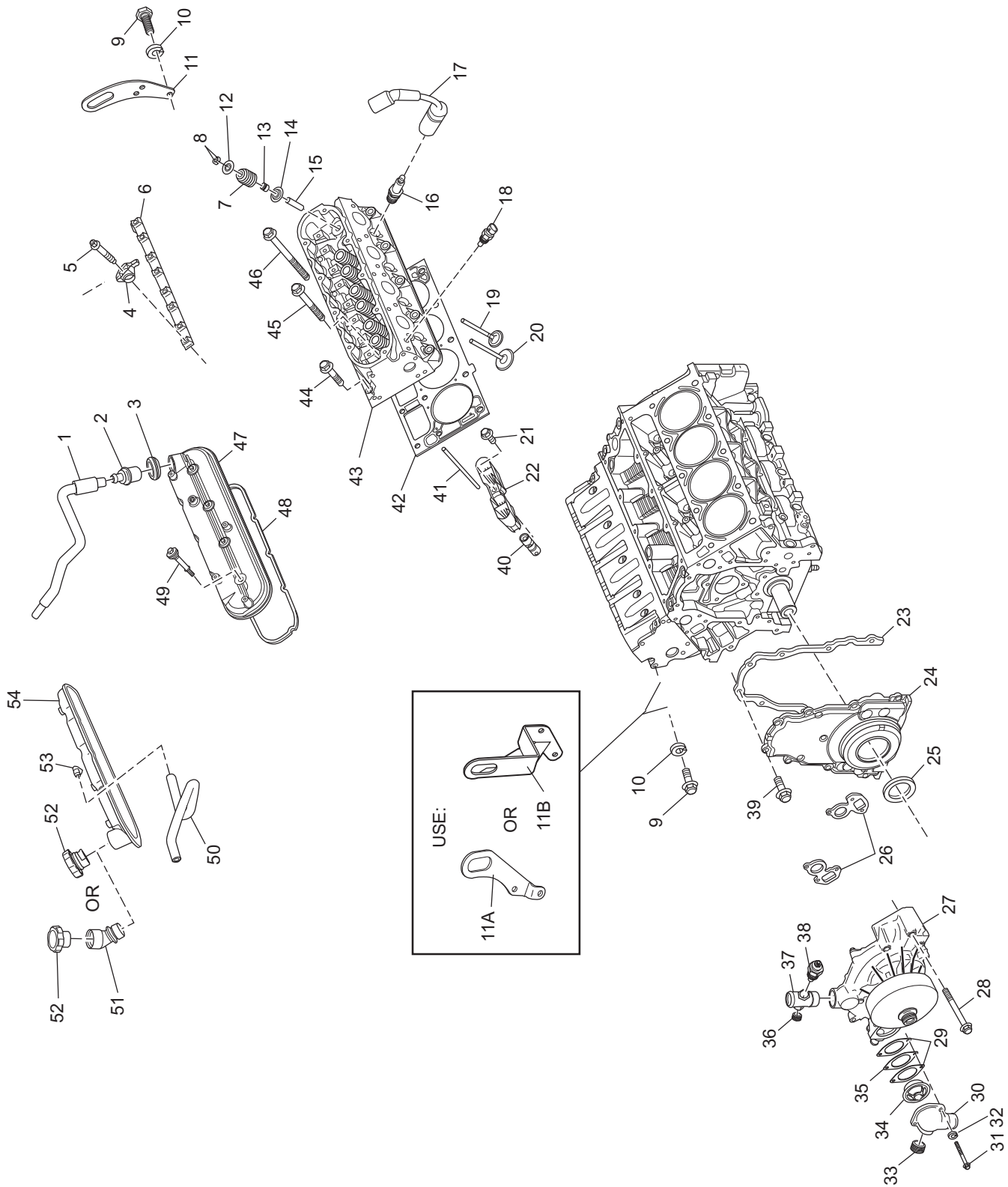
CYLINDER HEAD ASSEMBLY / FRONT COVER - FIGURE 2



CYLINDER HEAD ASSEMBLY / FRONT COVER - FIGURE 2

ITEM	PART NO.	QTY.	DESCRIPTION	MODEL ID
1	R045049	AR	Hose , PCV valve	
2	TBD	1	Valve , positive crankcase ventilation (PCV)	
3	TBD	1	Grommet , PCV valve	
4	TBD	16	Rocker Arm , valve	
5	TBD	16	Bolt , valve rocker arm attaching	
6	TBD	2	Guide , valve rocker arm	
7	TBD	16	Valve Spring Assembly	
8	TBD	32	Retainer , valve stem	
9	98443025	4	Bolt , lifting eye attaching	
10	93940000	4	Lockwasher , lifting eye attaching bolt	
11	R042012	1	Lifting Eye , rear, all	
11A	R042014	1	Lifting Eye , front, std. drive (replaces R042012)	
11B	R042016	1	Lifting Eye , front, v-drv (replaces R042012)	
12	TBD	16	Cap , valve spring	
13	TBD	16	Seal , valve stem	
14	TBD	32	Rotator , valve	
15	TBD	16	Guide , valve stem	
16	RP030011	8	Spark Plug	
17	RK12002	1	Spark Plug Wire Set	
18	R020046	1	Engine Coolant Temperature (ECT) Sensor	
19	TBD	8	Valve , exhaust (STD)	
20	TBD	8	Valve , intake (STD)	
21	TBD	8	Bolt , valve lifter retainer attaching	
22	TBD	8	Retainer , valve lifter	
23	RM0280	1	Gasket , front engine cover	
24	TBD	1	Cover , front engine	
25	R047237	1	Seal , front engine cover oil	
26	RM0281	2	Gasket , water circulating pump	
27	RK057033B	1	Water Circulation Pump Assembly	
28	TBD	4	Bolt , water circulating pump attaching	
29	RM0275	2	Gasket , thermostat housing	
30	R025036	1	Housing , thermostat	
31	98223016	2	Bolt , thermostat housing attaching	
32	93920000	2	Lockwasher , thermostat housing attaching	
33	113186	1	Plug , thermostat housing	
34	R026002	1	Thermostat , (160° F)	
35	R109051	1	Plate , thermostat retainer	
36	RS3551	1	Plug , water neck	
37	R024208	1	Water Neck	
38	R020002	1	Sensor , coolant temperature	
39	TBD	8	Bolt , front engine cover attaching	

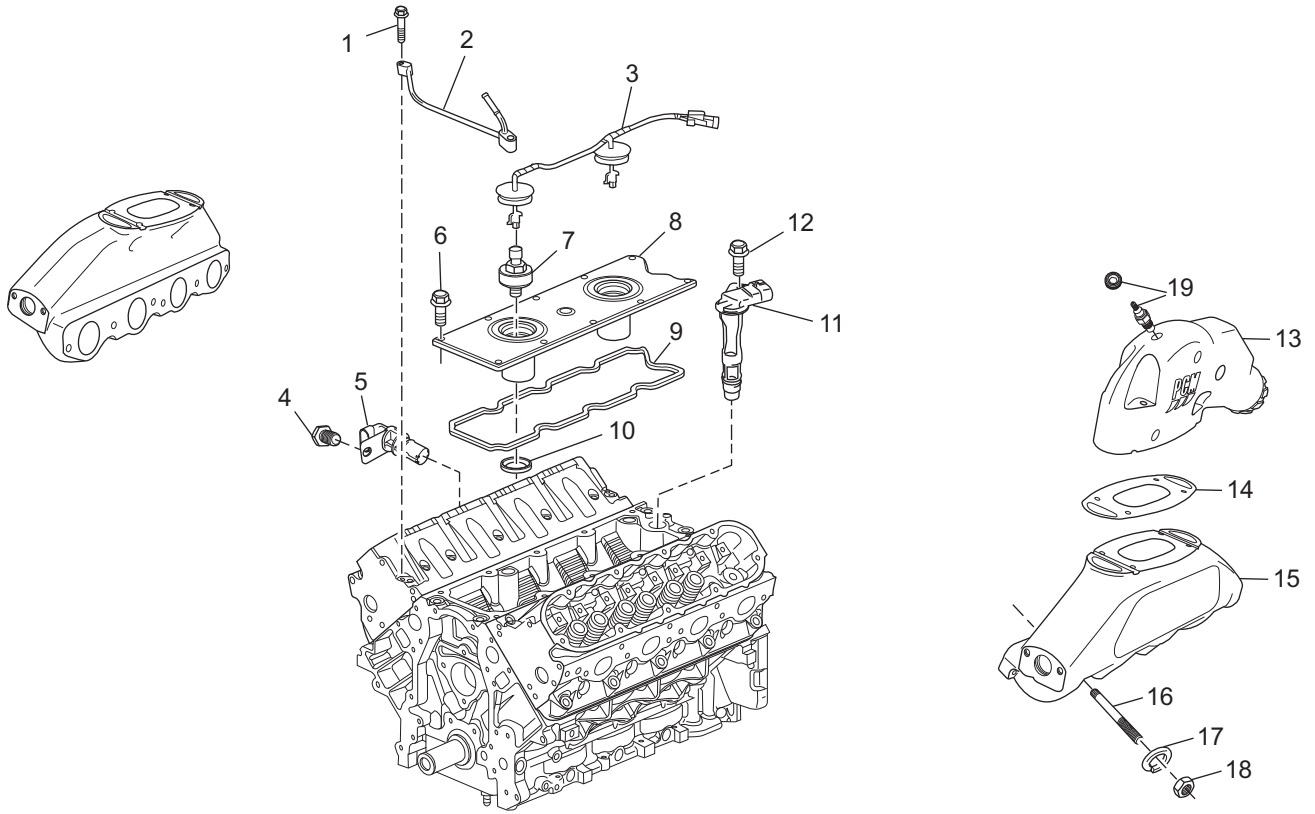
CYLINDER HEAD ASSEMBLY / FRONT COVER - FIGURE 2 (cont'd)



CYLINDER HEAD ASSEMBLY / FRONT COVER - FIGURE 2 (cont'd)

ITEM	PART NO.	QTY.	DESCRIPTION	MODEL ID
40	R040006	16	Lifter , valve	
41	TBD	16	Push Rod	
42	RM0278	2	Gasket , Cylinder Head	
43	R003016	2	Cylinder Head	
44	R009208	4	Bolt , cylinder head (short)	
45	R009209	10	Bolt , cylinder head (medium)	
46	R009207	16	Bolt , cylinder head (long)	
47	RA033016	1	Cover , rocker (LH)	
48	RM0282	2	Gasket , rocker cover	
49	R009210	8	Bolt , rocker cover attaching	
50	R045049	AR	Tube , breather	
51	R034049	1	Tube , oil fill	
52	R034038B	1	Cap , oil fill tube	
53	TBD	1	Fitting , breather tube	
54	RA033017	1	Cover , rocker w/Oil Fill (RH)	

EXHAUST MANIFOLD / KNOCK SENSORS - FIGURE 3

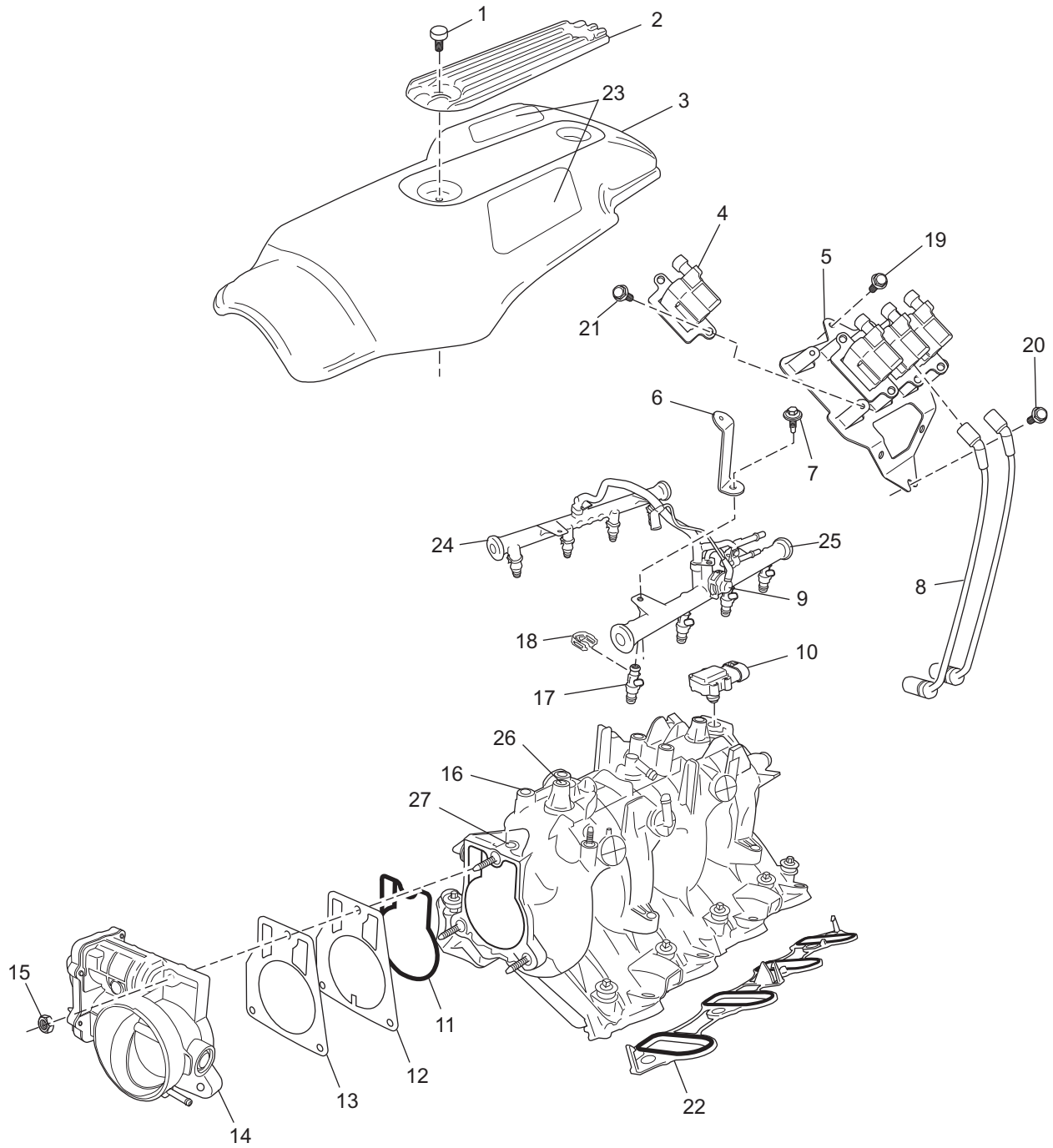


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EXHAUST MANIFOLD / KNOCK SENSORS - FIGURE 3

ITEM	PART NO.	QTY.	DESCRIPTION	MODEL ID
1	TBD	2	Bolt , coolant air bleed pipe attaching	
2	TBD	1	Pipe , coolant air bleed	
3	R121100	1	Harness , knock sensor	
4	TBD	1	Bolt , crankshaft position attaching	
5	R020044	1	Sensor , crankshaft position	
6	TBD	10	Bolt , valley cover attaching	
7	R020043	2	Sensor , knock	
8	RK060081	1	Cover , valley	
9	RM0295	1	Gasket , valley cover	
10	TBD	2	Seal , knock sensor oil	
11	R020045	1	Sensor , camshaft position	
12	TBD	1	Bolt , camshaft position attaching	
13	R029016	2	Elbow , exhaust	
14	RM0274	2	Gasket , exhaust elbow to manifold	
15	R028023	2	Manifold , exhaust	
16	R031035	12	Stud , exhaust manifold attaching	
17	93930000	12	Lockwasher , exhaust manifold stud attaching	
18	97330000	12	Nut , exhaust manifold stud attaching	
19	RS3539	2	Plug , exhaust elbow	
19	R020047	2	Switch , exhaust temperature (optional)	

INTAKE MANIFOLD COMPONENTS - FIGURE 4

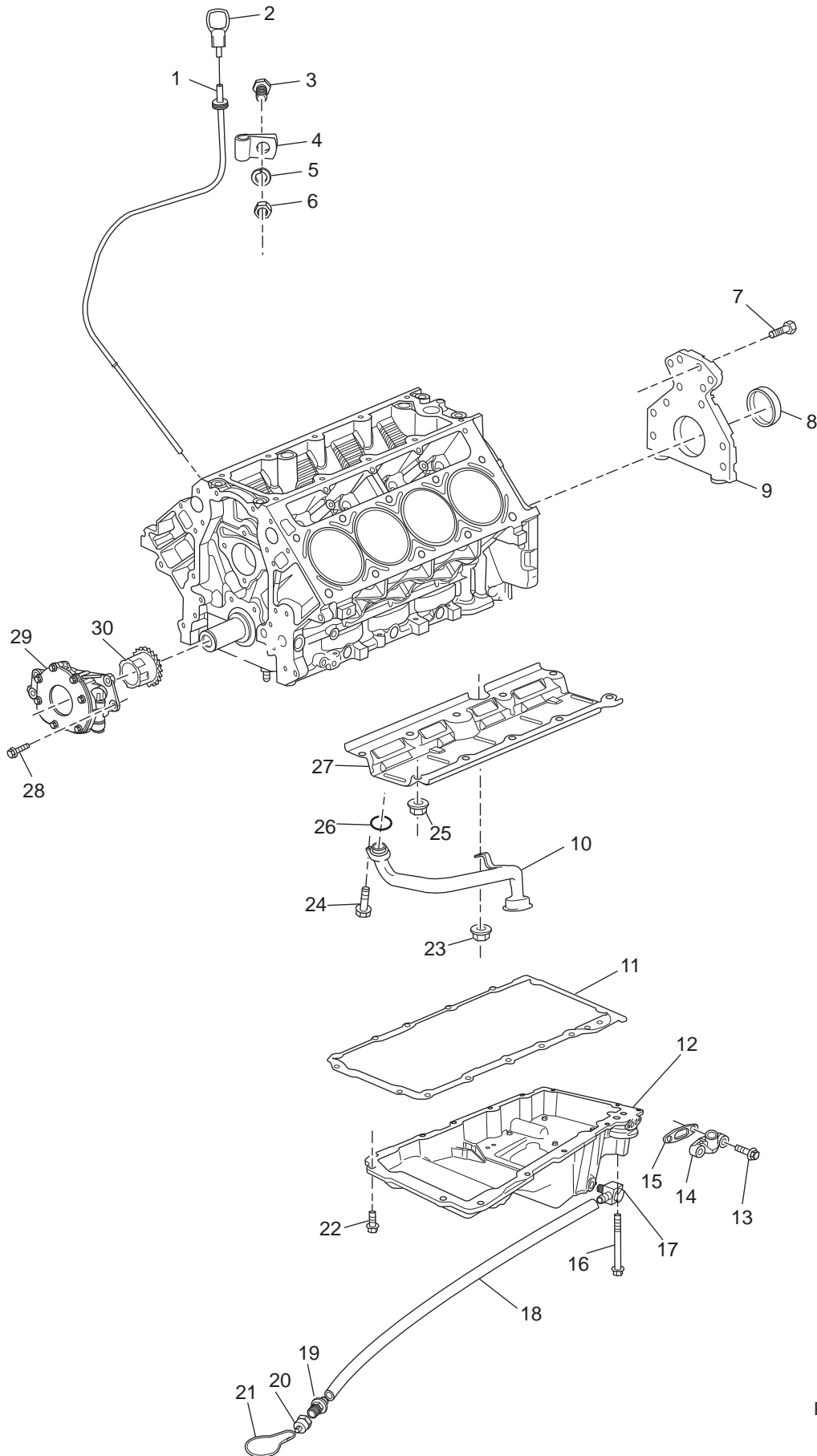


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INTAKE MANIFOLD COMPONENTS - FIGURE 4

ITEM	PART NO.	QTY.	DESCRIPTION	MODEL ID
1	R175055	2	Bolt , engine cover attaching	
2	R060063	1	Insert , engine cover	
3	R060062	1	Cover , engine	
4	R117013	8	Coil , ignition	
5	R090273	2	Bracket , ignition coil mounting	
6	R090268	2	Bracket , support	
7	98222018	4	Bolt , fuel rail attaching	
8	RK120021	1	Spark Plug Wire Set	
9	R088003	1	Regulator , fuel pressure ('03 Only)	
10	R020036	1	Sensor , manifold absolute pressure (MAP)	
11	TBD	1	Seal , throttle body	
12	R062087A	1	Plate , throttle body adapter	
13	RM0251	1	Gasket , throttle body	
14	RA035041	1	Throttle Body Assembly	
15	L00918	3	Nut , throttle body attaching	
16	R002025	1	Intake Manifold	
17	RA087008	8	Fuel Injector Assembly	
NI	RK047253	1	Kit , Fuel Injector O-Ring	
18	R127097	8	Retainer , fuel injector	
19	RS5126	2	Bolt , coil bracket attaching	
20	98223016	2	Bolt , coil bracket attaching	
NI	93920000	2	Lockwasher , coil bracket attaching	
21	91107075	16	Bolt , ignition coil attaching	
22	RM0277	1	Gasket Set , intake manifold	
23	R143154A	2	Decal , engine cover	
24	R086003	1	Fuel Rail , 6.0L, (right)	
25	R086004	1	Fuel Rail , 6.0L, w/regulator pocket (left)	
25	R086004A	1	Fuel Rail , 6.0L, w/o regulator pocket (left)	
26	RA085103	1	Fuel Rail , 6.0L, crossover	
27	R036007	8	Insert , threaded, intake	
28	RS3550	1	Plug , pipe, 1/4" NPT	

OIL PAN and OIL PUMP ASSEMBLY - FIGURE 5

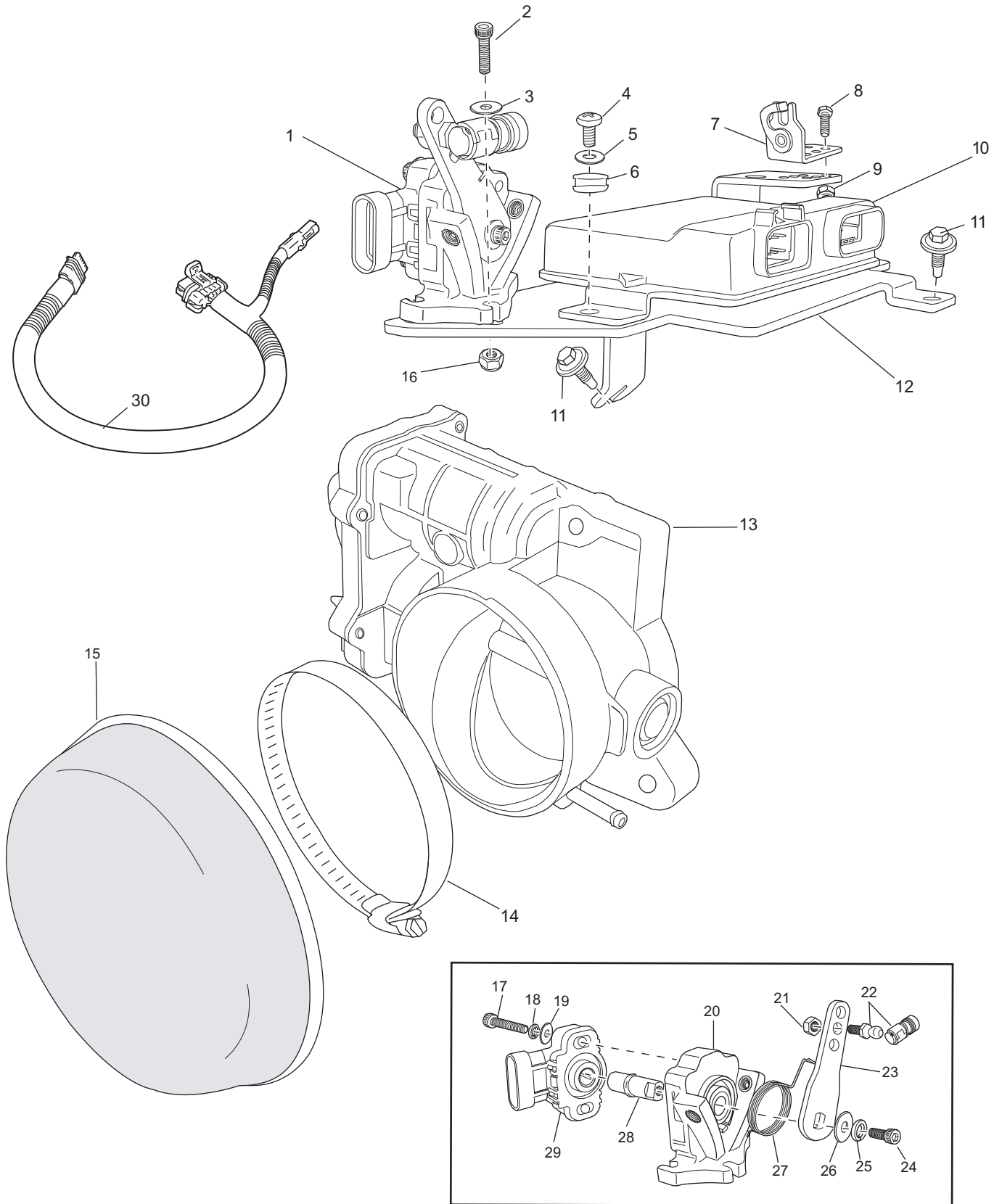


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OIL PAN and OIL PUMP ASSEMBLY - FIGURE 5

ITEM	PART NO.	QTY.	DESCRIPTION	MODEL ID
1	R041079	1	Tube , oil dipstick	
2	R041080	AR	Dipstick , oil level (0 to 4 degree)	
2	R041081	AR	Dipstick , oil level (12 degree)	
3	RS0302	1	Bolt , oil dipstick tube attaching	
4	R127015	1	Clamp , oil dipstick tube attaching	
5	RS2180	1	Lockwasher , oil dipstick tube attaching	
6	RS1028	1	Nut , oil dipstick tube attaching	
7	TBD	1	Bolt , engine rear cover attaching	
8	R047236	1	Seal , engine rear cover oil	
9	TBD	1	Cover , engine rear	
10	R074030	1	Tube , oil pickup	
11	RM0279	1	Gasket , oil pan	
12	R005025	1	Oil Pan	
13	TBD	2	Bolt , oil sending unit adapter attaching	
14	R079071	1	Adapter , oil sending unit	
15	RM0284	1	Gasket , oil sending unit adapter	
16	TBD	2	Bolt , oil pan attaching (long)	
17	R024213	1	Fitting , oil drain	
18	R045049	AR	Hose , oil drain	
19	R024061	1	Fitting , oil drain	
20	R024066A	1	Cap , oil drain	
21	R190123	1	Hook , oil drain hose	
22	TBD	12	Bolt , oil pan attaching (short)	
23	TBD	1	Nut , oil pickup tube attaching	
24	TBD	1	Bolt , oil pickup tube attaching	
25	TBD	10	Nut , windage tray attaching	
26	TBD	1	O-ring , oil pickup tube	
27	R012027	1	Tray , windage	
28	TBD	4	Bolt , oil pump attaching	
29	RA070018	1	Oil Pump Assembly	
30	TBD	1	Drive , oil pump	

THROTTLE BODY and RELATED COMPONENTS - FIGURE 6

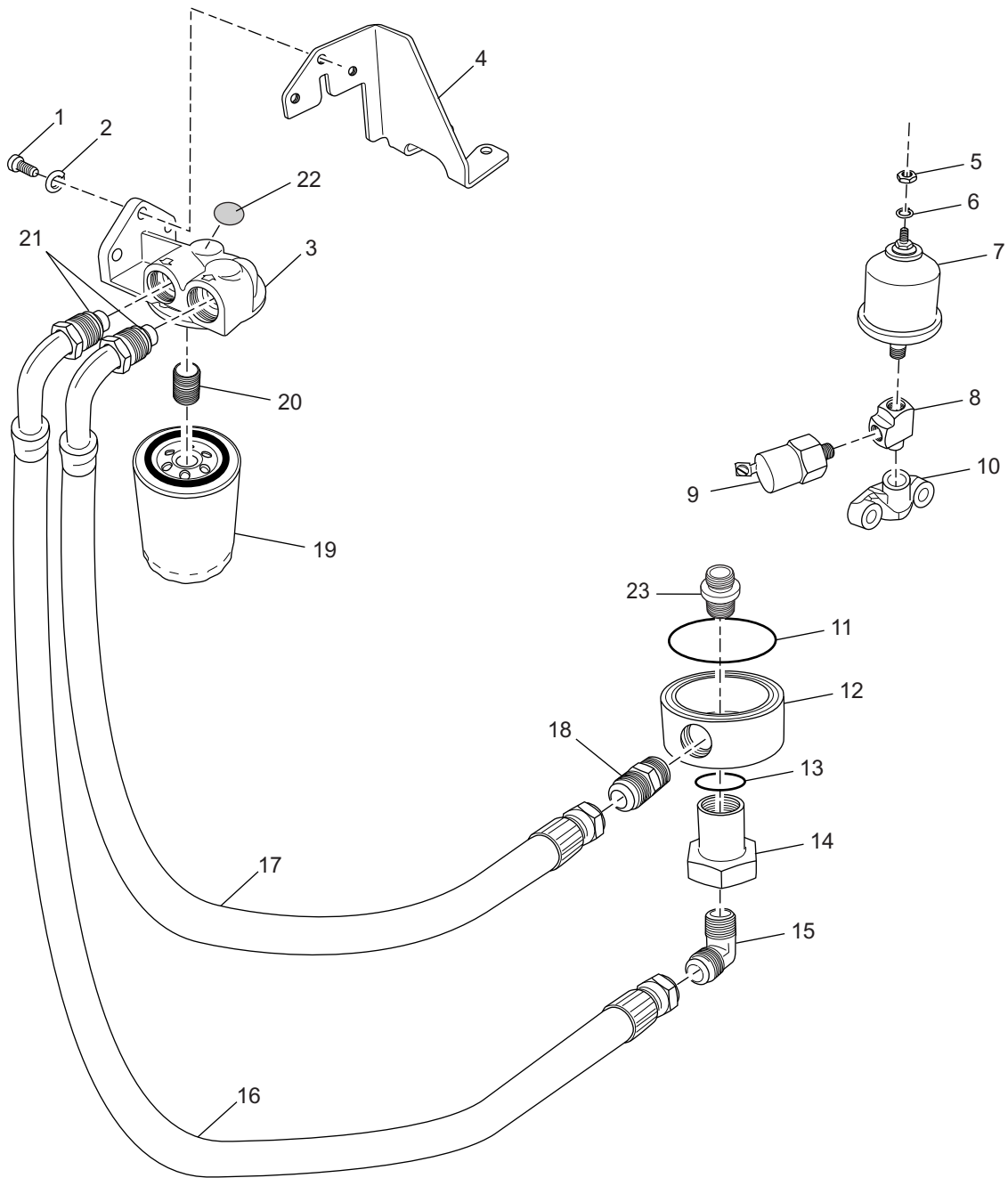


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THROTTLE BODY and RELATED COMPONENTS - FIGURE 6

ITEM	PART NO.	QTY.	DESCRIPTION	MODEL ID
1	RA119004	1	Throttle Control Position (TCP) Sensor Assembly	
2	91864075	3	Bolt , TCP Sensor attaching	
3	92004000	3	Washer , flat, TCP Sensor attaching	
4	91087050	2	Screw , self-tapping, TAC Module attaching	
5	R096142	2	Washer , flat, TAC Module attaching	
6	R094042	2	Grommet , TAC Module attaching	
7	R090086	1	Cable Clip , throttle	
8	RS5122	2	Bolt , cable clip attaching	
9	RS2050	2	Nut , cable clip attaching	
10	R116020	1	Throttle Actuator Control (TAC) Module Assembly	
11	98222018	2	Bolt , TAC module bracket attaching	
12	R090321	1	Bracket , TAC Module	
13	RA035041	1	Throttle Body Assembly	
14	RS3857	1	Clamp , flame arrestor	
15	R145026A	1	Arrestor , flame	
16	RS2052	3	Nut , TCP Sensor attaching	
17	91064100	2	Bolt , TCP Sensor attaching	
18	93040000	2	Lock Washer , TCP Sensor attaching	
19	92004000	2	Flat Washer , TCP Sensor attaching	
20	R109053	1	Plate Assembly , TCP Sensor	
21	RS1568	1	Nut , ball joint attaching	
22	R178003	1	Ball Joint Assembly	
23	R081009	1	Arm , TCP Sensor	
24	91874050	1	Bolt , TCP Sensor arm attaching	
25	94854500	1	Lock Washer , TCP Sensor arm attaching	
26	94804000	1	Flat Washer , TCP Sensor arm attaching	
27	R046051	1	Spring , TCP Sensor	
28	R058070	1	Shaft , TCP Sensor	
29	R119004	1	TCP Sensor	
30	R121086	1	Harness , TCP Sensor to TAC Module	

REMOTE OIL FILTER COMPONENTS (STANDARD DRIVE) - FIGURE 7

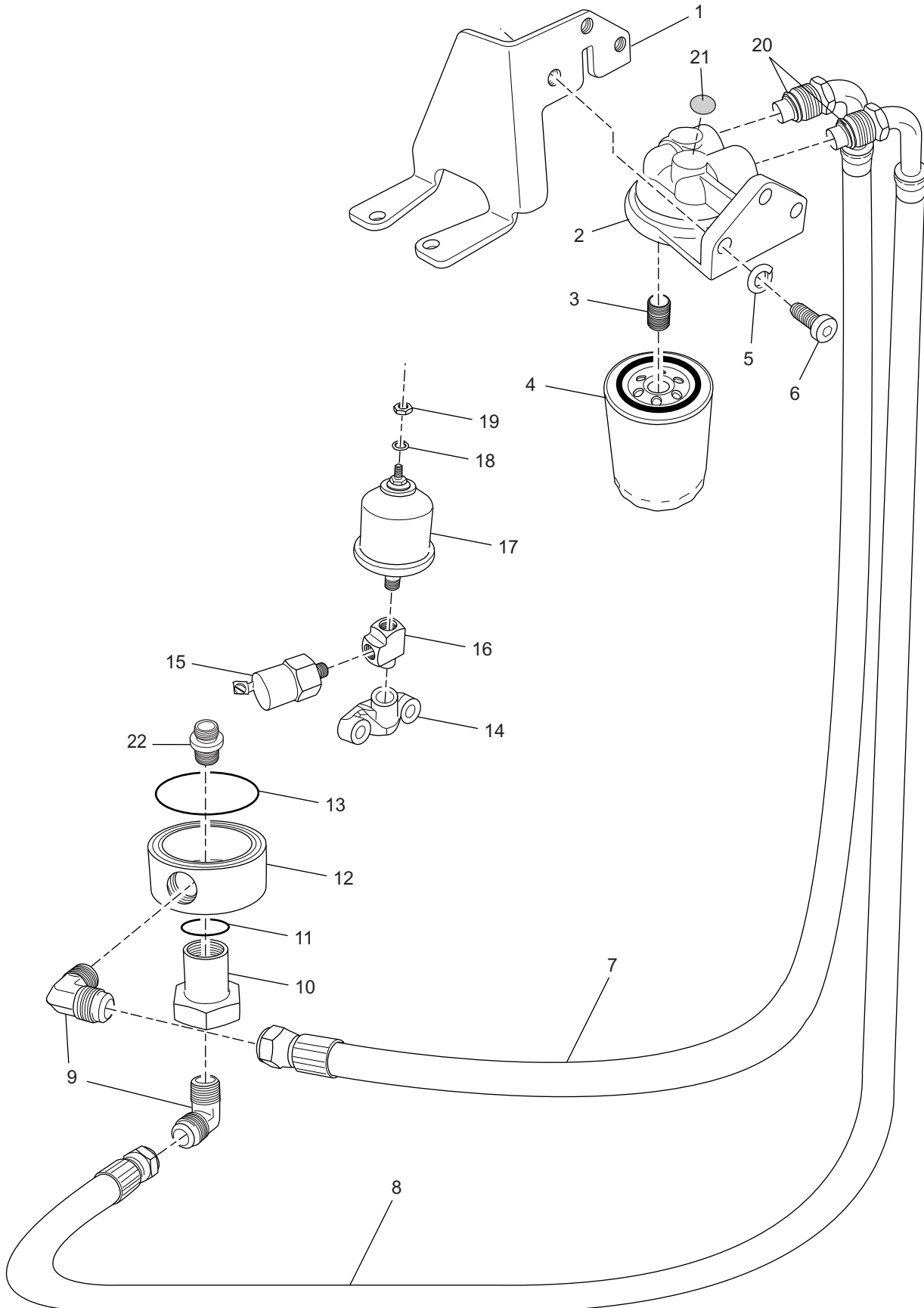


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REMOTE OIL FILTER COMPONENTS (STANDARD DRIVE) - FIGURE 7

ITEM	PART NO.	QTY.	DESCRIPTION	MODEL ID
1	99333020	3	Bolt , oil filter header mounting	
2	RS2179	3	Lockwasher , oil filter header mounting	
3	R079066	1	Oil Filter Header	
4	R090275	1	Bracket , oil filter header mounting	
5	RS1540	1	Nut , sender terminal	
6	RS2197	1	Lockwasher , sender terminal	
7	R020001	1	Sender , oil pressure	
8	R024145	1	Tee , sender attaching	
9	R020015A	1	Switch , oil pressure	
10	R079071	1	Adapter , oil sending unit	
11	R047240	1	O-ring , oil bypass adapter	
12	R079067	1	Adapter , oil bypass	
13	R047202	1	O-ring , oil bypass adapter attaching fitting	
14	R079068	1	Nut , oil bypass adapter attaching	
15	R024184	1	Fitting , 90 degree	
16	RA045120D	1	Hose Assembly , filter header to bypass adapter	
17	RA045120A	1	Hose Assembly , bypass adapter to filter header	
18	R024148	1	Fitting , straight	
19	R077001	1	Filter , oil	
20	R024203	1	Nipple , header filter adapter	
21	R047245	2	O-Ring , oil line	
22	R143175	1	Decal , "CAUTION HOT"	
23	R079074	1	Adapter , engine to oil bypass	

REMOTE OIL FILTER COMPONENTS ("V" - DRIVE) - FIGURE 8

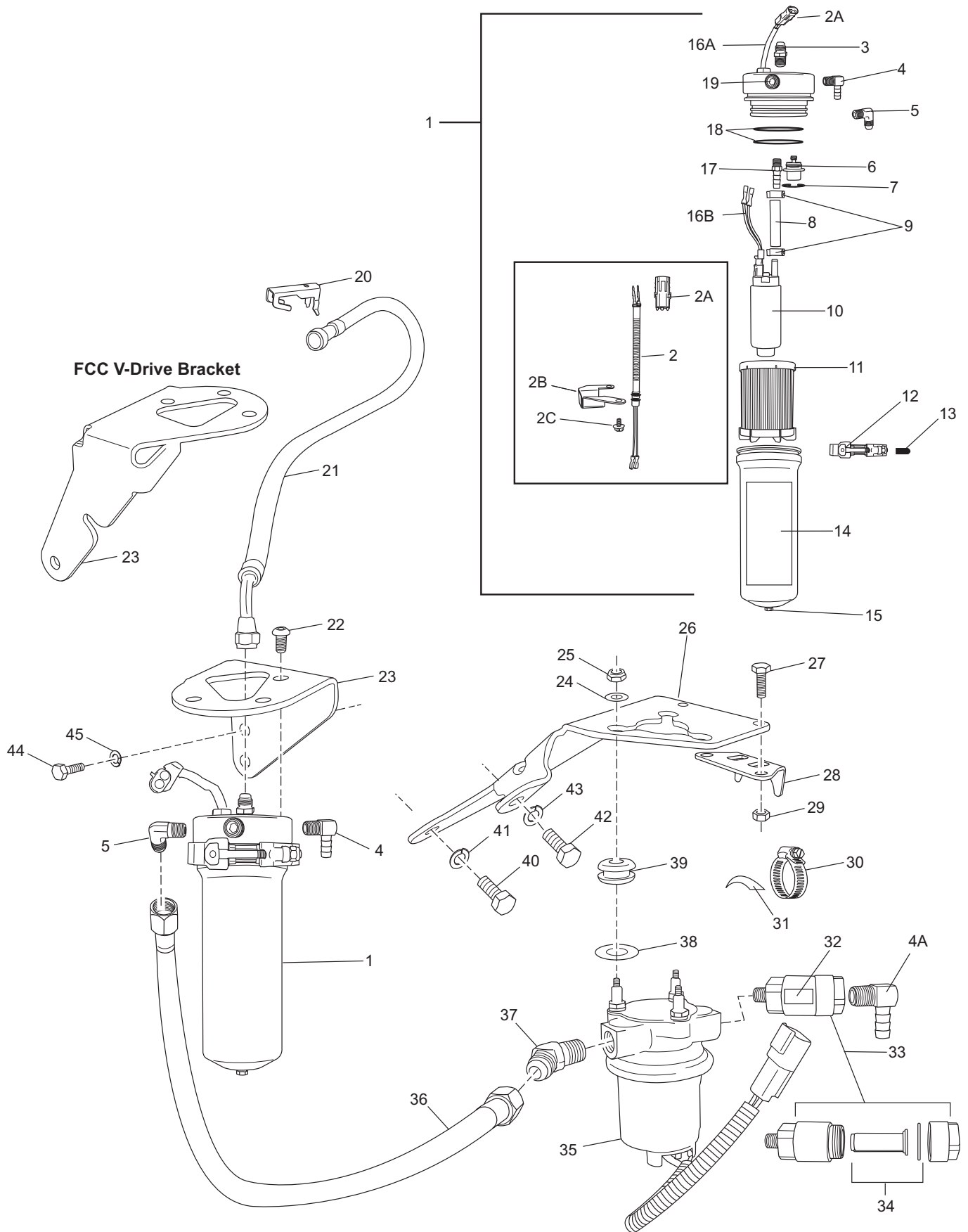


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REMOTE OIL FILTER COMPONENTS ("V" - DRIVE) - FIGURE 8

ITEM	PART NO.	QTY.	DESCRIPTION	MODEL ID
1	R090275	1	Bracket , oil filter header mounting	
2	R079066	1	Oil Filter Header	
3	R024203	1	Nipple , header filter adapter	
4	R077001	1	Filter , oil	
5	RS2179	3	Lockwasher , oil filter header mounting	
6	99333020	3	Bolt , oil filter header mounting	
7	RA045120	1	Hose Assembly , bypass adapter to filter header	
8	RA045120	1	Hose Assembly , filter header to bypass adapter	
9	R024184	2	Fitting , 90 degree	
10	R079068	1	Fitting , oil bypass adapter attaching	
11	R047202	1	O-ring , oil bypass adapter attaching fitting	
12	R079067	1	Adapter , oil bypass	
13	R047240	1	O-ring , oil bypass adapter	
14	R079071	1	Adapter , oil sending unit	
15	R020015A	1	Switch , oil pressure	
16	R024145	1	Tee , sender attaching	
17	R020001	1	Sender , oil pressure	
18	RS2197	1	Lockwasher , sender terminal	
19	RS1540	1	Nut , sender terminal	
20	R047245	2	O-Ring , oil line	
21	R143175	1	Decal , "CAUTION HOT"	
22	R079074	1	Adapter , engine to oil bypass	

FUEL CONTROL CELL (FCC) COMPONENTS - FIGURE 9

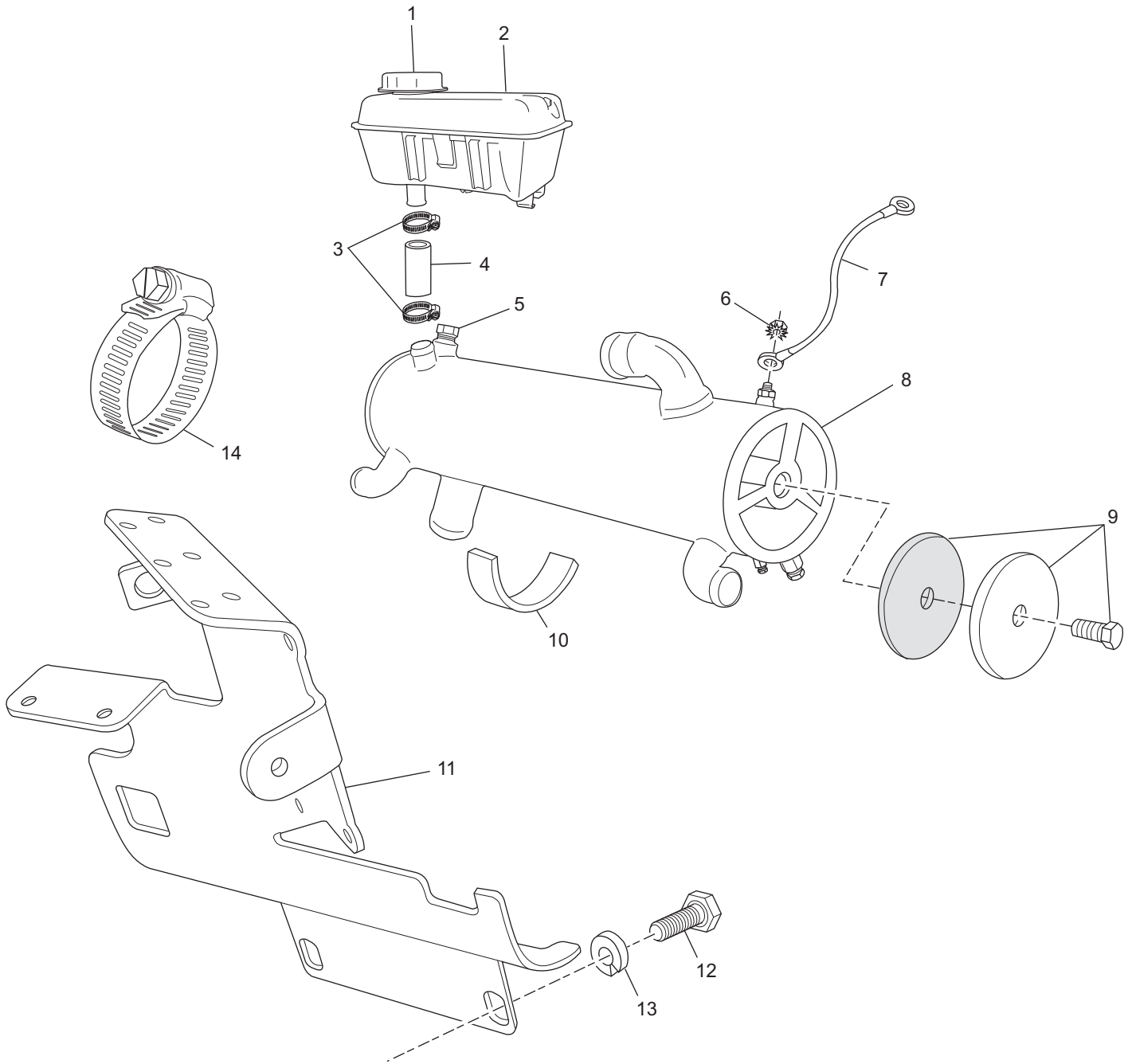


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FUEL CONTROL CELL (FCC) COMPONENTS - FIGURE 9

ITEM	PART NO.	QTY.	DESCRIPTION	MODEL ID
1	RA080030A	1	Fuel Control Cell Assembly	
2	R121085A	1	Harness , 1-piece, FCC pass through (1-piece harness does not retro fit for 2-piece harness)	
2A	7172040	1	Connector , W/P 2-way Female	
2B	R012030	1	Baffle , FCC used w/1-piece harness	
2C	91620025	2	Screw , self tapping, baffle/1-piece harness retaining	
3	R024175	1	Fitting , 1/4 NPT X SAE	
4	R024225	1	Fitting , 1/4 NPT to Hose (return to tank)	
4A	R024226	1	Fitting , 3/8 NPT to Hose (to tank)	
5	R024163	1	Fitting , 1/4 NPT X SAE (from LPFP)	
6	R088004	1	Regulator , fuel pressure (FCC System Only)	
7	R048070	1	Retainer , fuel pressure regulator	
8	R045098B	1	Hose , 5/16id X 1/2od X 2 1/2	
9	R127087	2	Clamp , Oetiker, 5/8	
10	RA080027	1	Pump , high pressure fuel	
11	R080026	1	Filter , fuel (FCC)	
NI	RP080026	1	Kit , FCC filter and O-rings	
12	R171010	1	Clamp , FCC	
13	R128002	1	Cover , T-bolt end	
14	R143112A	1	Decal , FCC	
15	RS3554	1	Plug , pipe, hex head, 1/8	
16A	RA121060	1	Harness , FCC Feed through	
16B	RA121061A	1	Harness , FCC internal	
17	R024219	1	Fitting , 1/8 NPT X 5/16 Barb	
18	R047241	1	O-Ring , FCC sealing	
19	RS3550	1	Plug , pipe, hex socket, 1/4	
20	R127100	1	Retainer , fuel line	
21	RA085090C	1	Hose Assembly , FCC to fuel rail (inlet)	
21	RA085090B	1	Hose Assembly , FCC to fuel rail (inlet), V-DRIVE	
22	90384075	3	Bolt , FCC attaching	
23	R090276	1	Bracket , FCC mounting	
23	R090277	1	Bracket , FCC mounting, V-DRIVE	
24	R096142	3	Washer , flat, mounting, upper	
25	RS1521L	3	Locking Nut , low-pressure fuel pump	
26	R090286	1	Bracket , low-pressure fuel pump mounting	
27	RS0251	2	Bolt , pre-filter bracket attaching	
28	R090272	1	Bracket , pre-filter mounting	
29	RS1078	2	Nut , w/lockwasher, pre-filter bracket attaching	
30	RS3858	1	Clamp , pre-filter 1 1/4"	
31	R094040	1	Isolator , rubber, w/ adhesive	
32	R143174	1	Decal , pre-filter	
33	RA077014	1	Fuel Pre-filter Assembly, 150 micron	
34	RP077014	1	Kit , fuel filter and seal	
35	RA080018	1	Fuel Pump , low-pressure	
36	RA085071	1	Hose Assembly , low-pressure pump to FCC	
37	R024197	1	Fitting , 45 degree	
37	R024163	1	Fitting , 90 degree, V-DRIVE	
38	R096141	3	Washer , fuel pump mounting, lower	
39	R094035A	3	Grommet , isolator	
40	98443025	1	Bolt , LPFP bracket attaching, block	
41	93940000	1	Lockwasher , LPFP bracket attaching, block	
42	98443030	1	Bolt , LPFP bracket attaching, mount	
43	93940000	1	Lockwasher , LPFP bracket attaching, mount	
44	98443025	2	Bolt , FCC mounting bracket	
45	93940000	2	Lockwasher , FCC mounting bracket	
NI	R143114	1	Decal , Warning, fuel leaks	

HEAT EXCHANGER and COMPONENTS - FIGURE 10

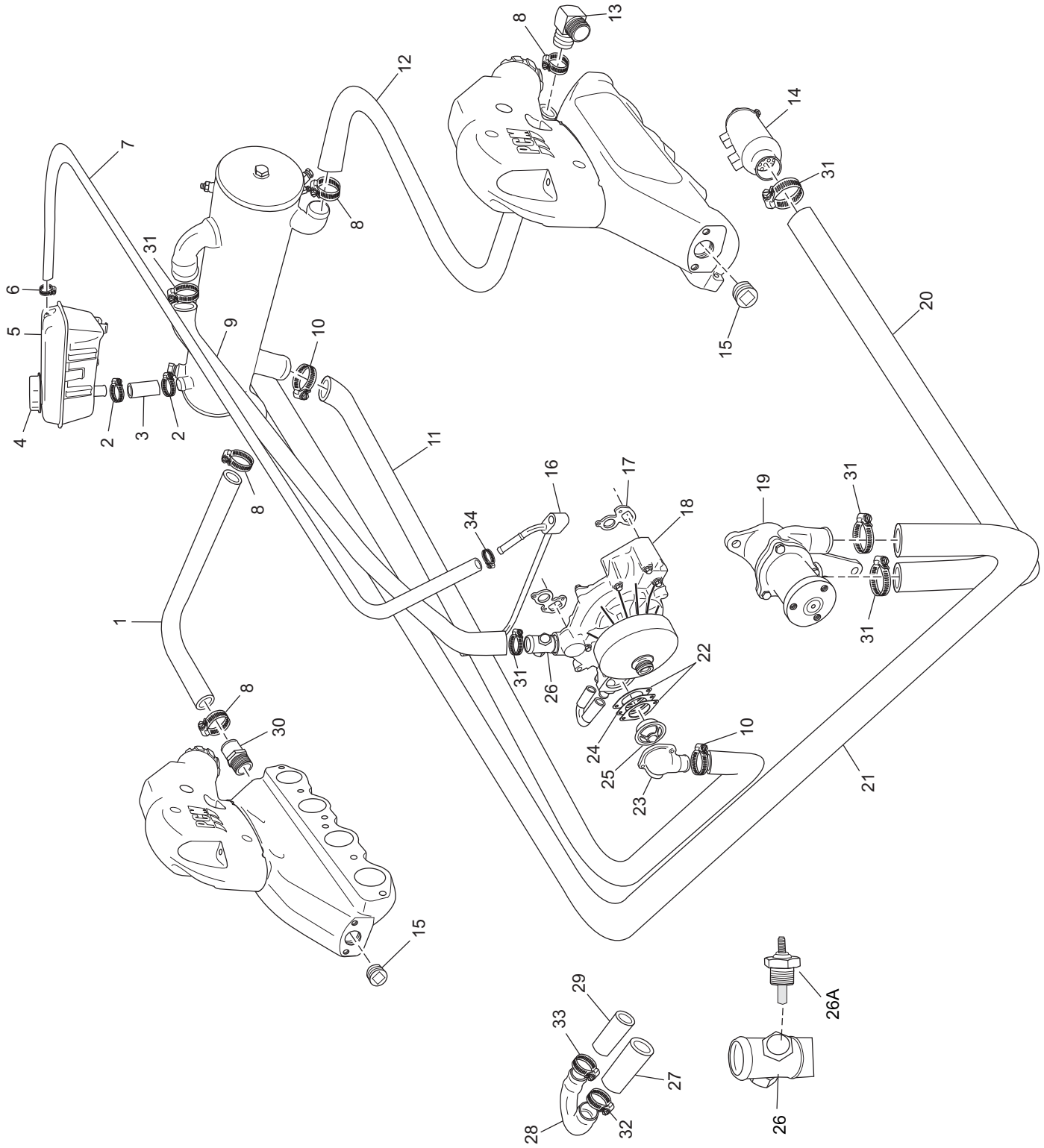


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12-9-02

HEAT EXCHANGER and COMPONENTS - FIGURE 10

ITEM	PART NO.	QTY.	DESCRIPTION	MODEL ID
1	R034045	1	Cap , degas bottle	
2	R146001	1	Bottle , degas	
NI	R143152	1	Decal , 6.0L specification	
NI	R143153	1	Decal , coolant fill	
3	RS3872	2	Clamp , hose	
4	R045153	1	Hose , degas bottle to heat exchanger	
5	R168008	AR	Anode , sacrificial zinc	
6	RS1078	1	Nut , ground wire stud	
7	R101013	1	Wire , grounding	
8	RA147047	1	Heat Exchanger Assembly	
9	R034009	AR	End Cap , exchanger	
10	R094040	2	Isolator , rubber	
11	R090279	1	Bracket , heat exchanger	
12	RS0304	2	Bolt , heat exchanger bracket attaching	
13	RS2380	2	Lockwasher , mounting bolt	
14	RS3857	2	Clamp , exchanger mounting	
NI	R143155	1	Decal , Protective Anode	
NI	R143156	1	Decal , Raw Water Drain	
NI	R143157	1	Decal , Fresh Water Drain	
NI	R143162A-06	1	Decal , 6.0 Emission MY '06	
NI	R143158	1	Decal , "Ultra Low Emission"	

FRESH WATER COOLING SYSTEM COMPONENTS - FIGURE 11

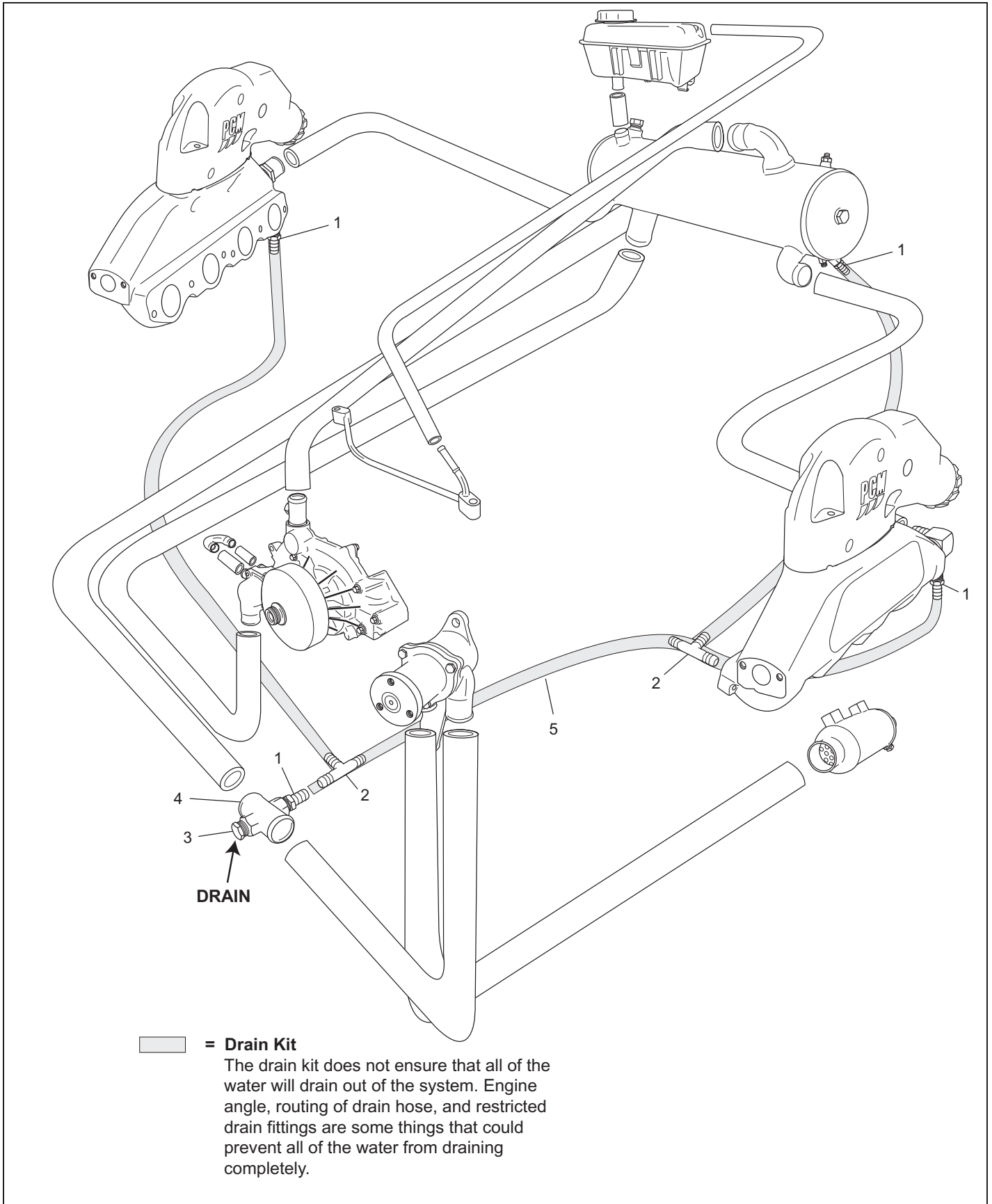


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8-29-03

FRESH WATER COOLING SYSTEM COMPONENTS - FIGURE 11

ITEM	PART NO.	QTY.	DESCRIPTION	MODEL ID
1	R045151	1	Hose , exchanger to exhaust manifold (Starboard STD)	
2	RS3872	2	Clamp , hose	
3	R045153	1	Hose , degas bottle to heat exchanger	
4	R034045	1	Cap , degas bottle	
5	R146001	1	Bottle , degas	
6	R127087	1	Clamp , hose (5/8" - degas bottle)	
7	R045132	1	Hose , coolant air bleed to bottle	
8	RS3851	4	Clamp , hose (1")	
9	R045149	1	Hose , circ. pump to heat exchanger	
10	RS3868	2	Clamp , hose (1 1/2")	
11	R045148	1	Hose , exchanger to thermostat housing	
12	R045150	1	Hose , exchanger to exhaust manifold (Port STD)	
13	R024006A	1	Fitting , 90 degree	
14	R147014	1	Cooler , transmission oil	
15	113186	2	Plug , manifold	
16	TBD	1	Tube , coolant air bleed	
17	RM0281	2	Gasket , water pump to engine block	
18	RK057033B	1	Water Pump Assembly	
19	RA057032	1	Raw Water Pump	
20	18401	1	Hose , oil cooler to raw water pump (cut-to-fit)	
21	R045147	1	Hose , raw water pump to exchanger	
22	RM0275	2	Gasket , thermostat housing	
23	R025036	1	Thermostat Housing	
24	R109051	1	Plate , thermostat retainer	
25	R026002	1	Thermostat , (160 degree)	
26	R024208	1	Water Neck	
26A	R020002	1	Sender , temperature	
26A	R020050	1	Sender , temperature (VDO, 250 DEG)	18-600-01
27	R045153	1	Hose , coolant bypass fitting (3/4" bulk)	
28	R024210	1	Bypass , coolant	
29	R045086	1	Hose , coolant bypass fitting (5/8" bulk)	
30	R024073	1	Fitting , manifold straight	
31	RS3858	6	Clamp , hose (1 1/4")	
32	R127087G	2	Clamp , hose (1 1/16" oetiker)	
33	R127087F	2	Clamp , hose (1" oetiker)	
34	R127084	1	Clamp , hose (vent tube)	

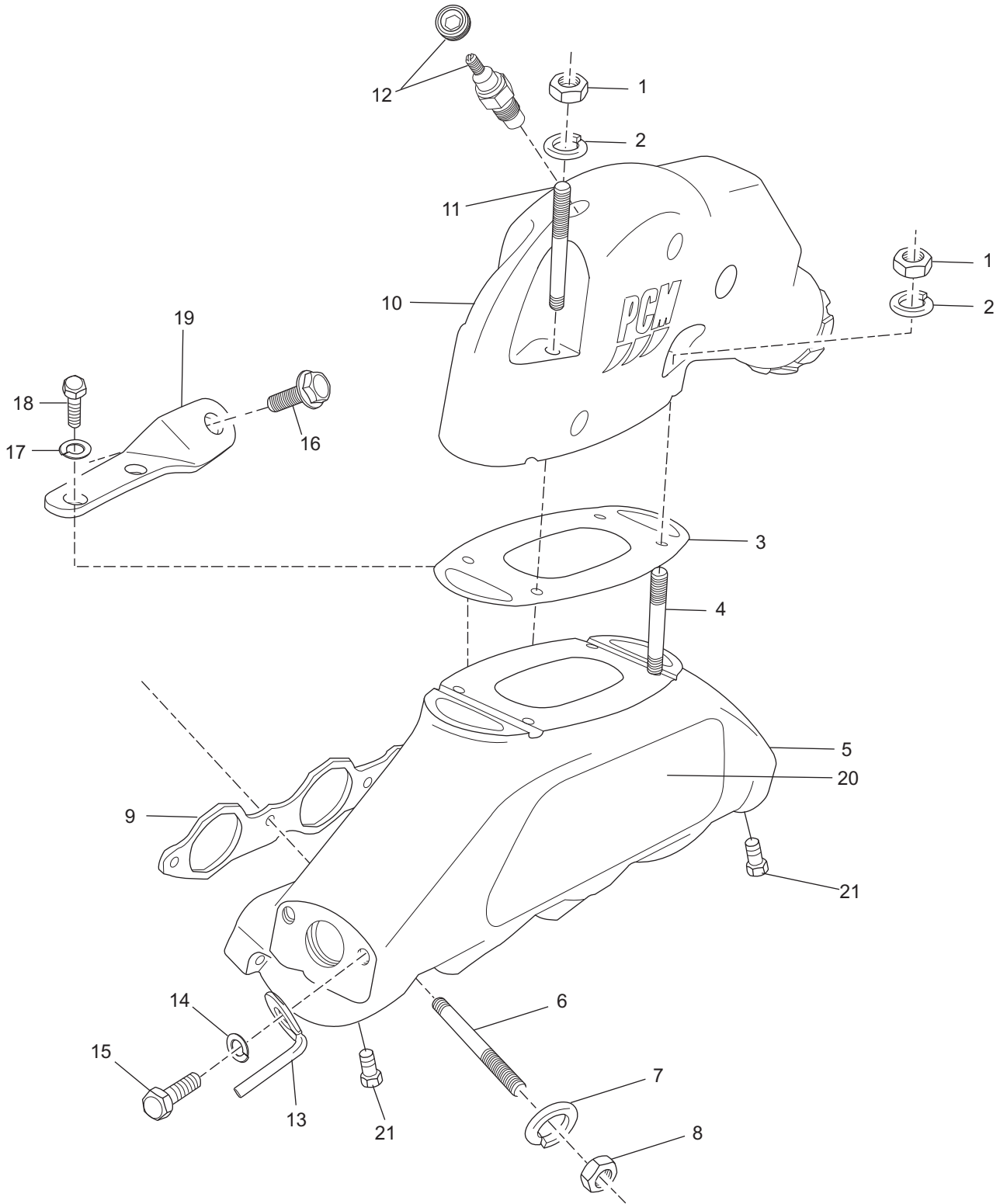
OPTIONAL DRAIN KIT COMPONENTS - FIGURE 12



OPTIONAL DRAIN KIT COMPONENTS - FIGURE 12

ITEM	PART NO.	QTY.	DESCRIPTION	MODEL ID
1	R024218	4	Fitting , straight	
2	R024215	2	Tee , hose	
3	RS3557	1	Plug , drain	
4	R024216	1	Fitting , 4-way RW drain	
5	R045175	AR	Hose , RW drain	
NS	R127087G	10	Clamp , hose (1 1/16" oetiker)	
NS	R127087F	2	Clamp , hose (1" oetiker)	

EXHAUST MANIFOLD and COMPONENTS - FIGURE 13

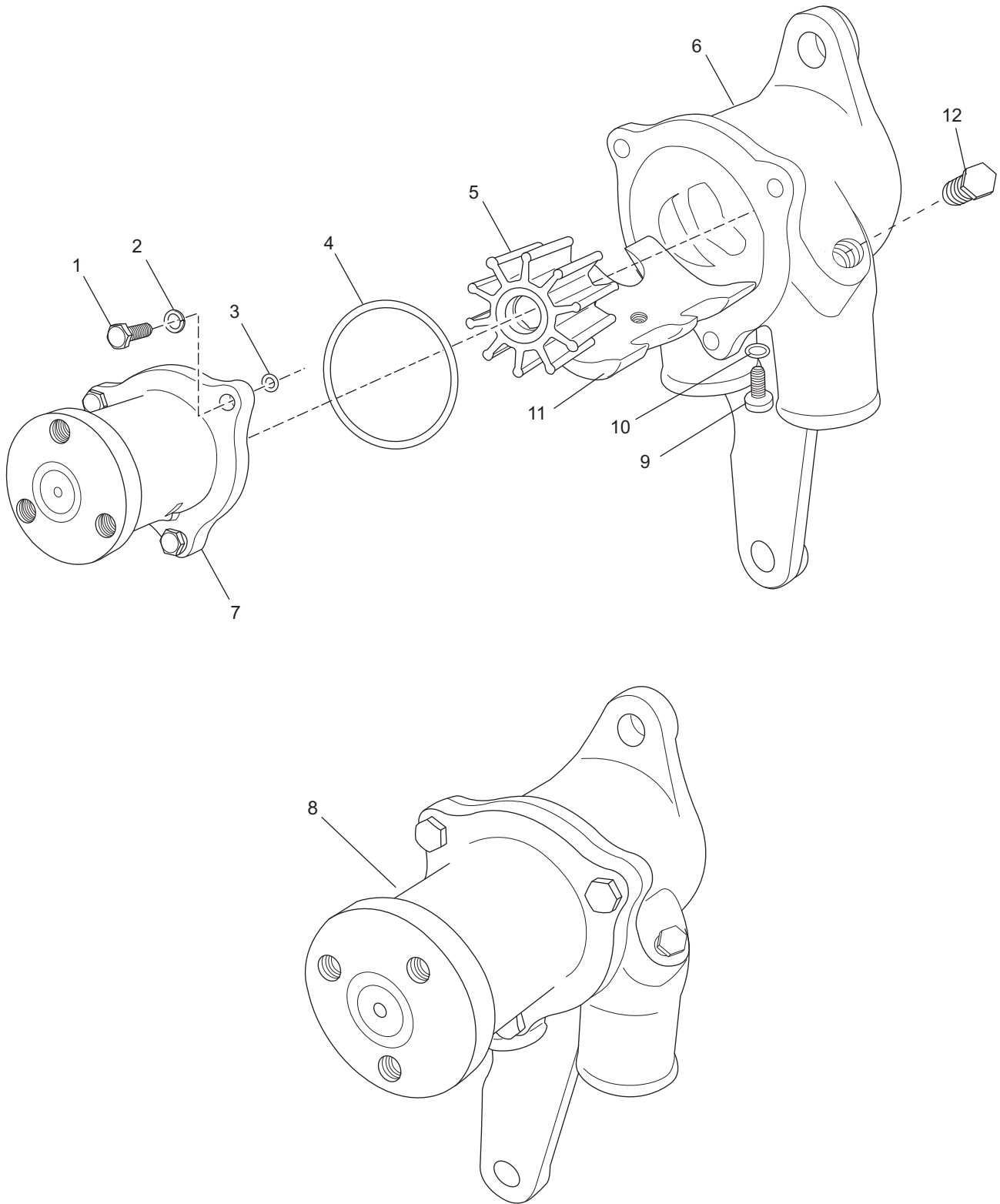


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12-8-03

EXHAUST MANIFOLD and COMPONENTS - FIGURE 13

ITEM	PART NO.	QTY.	DESCRIPTION	MODEL ID
1	95310000	8	Nut , exhaust elbow attaching	
2	93300000	8	Lockwasher , exhaust elbow attaching	
3	RM0274	2	Gasket , manifold to exhaust elbow	
4	R031036	4	Stud , exhaust elbow attaching (short)	
4	R031039	AR	Stud , exhaust elbow attaching w/4" riser (short)	
5	R028023	2	Exhaust Manifold Assembly	
6	R031035	12	Stud , manifold to cylinder head attaching	
7	RS2179	12	Lockwasher , manifold to cylinder head attaching	
8	RS7026	12	Nut , manifold to cylinder head attaching	
9	RM0276	2	Gasket , manifold to cylinder head	
10	R029016	2	Exhaust Elbow Assembly	
11	R031037	4	Stud , exhaust elbow attaching (long)	
11	R031040	AR	Stud , exhaust elbow attaching w/4" riser (long)	
12	RS3539	2	Plug , exhaust elbow	
12	R020047	2	Switch , exhaust temperature (optional)	
13	R096144	2	Retainer , spark plug wire clip	
14	922200020	2	Washer , retainer attaching	
15	RS0280	2	Bolt , retainer attaching	
16	98222018	2	Bolt , bracket attaching	
17	93920000	4	Lockwasher , bracket attaching	
18	90165063	4	Bolt , bracket attaching	
19	R090305	2	Bracket , manifold support	
20	R143002F	2	Decal , exhaust manifold, 6.0L	
21	RS3557	4	Plug , Hex Head, Brass 3/8" NPT ('04 and newer)	
21	RS3552	4	Plug , Hex Head, Brass 1/4" NPT ('03)	
			*NOTE: See Fresh Water Cooling section for parts used on Fresh Water Cooled engines.	

RAW WATER COOLING PUMP - FIGURE 14

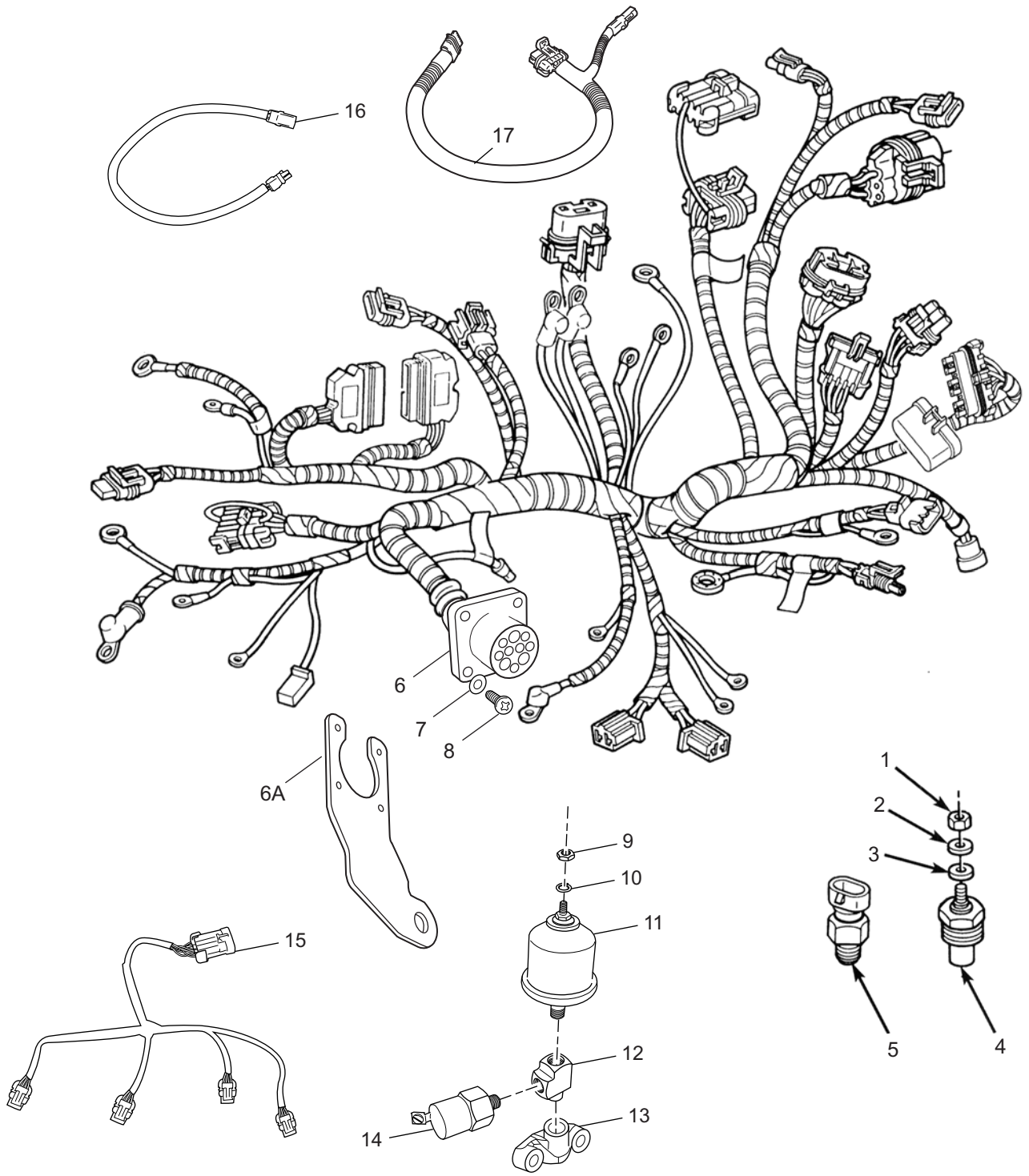


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RAW WATER COOLING PUMP - FIGURE 14

ITEM	PART NO.	QTY.	DESCRIPTION	MODEL ID
1	TBD	3	Bolt , bearing housing attaching	
2	TBD	3	Lockwasher , bearing housing attaching bolt	
3	R047243	3	O-ring , bearing housing attaching bolt	
4	R047242	1	O-ring , bearing housing attaching	
5	RP061022	1	Impeller Kit (includes O-rings and impeller)	
6	R057032	1	Housing , raw water pump	
7	RA134071	1	Bearing Housing Assembly	
8	RA057032	1	Raw Water Pump Assembly	
9	TBD	1	Bolt , raw water pump cam	
10	TBD	1	Lockwasher , raw water pump cam	
11	R161018	1	Cam , raw water pump	
12	RS3554	1	Plug , brass 1/8 NPT	

WIRING HARNESS ASSEMBLIES and SENDERS - FIGURE 15

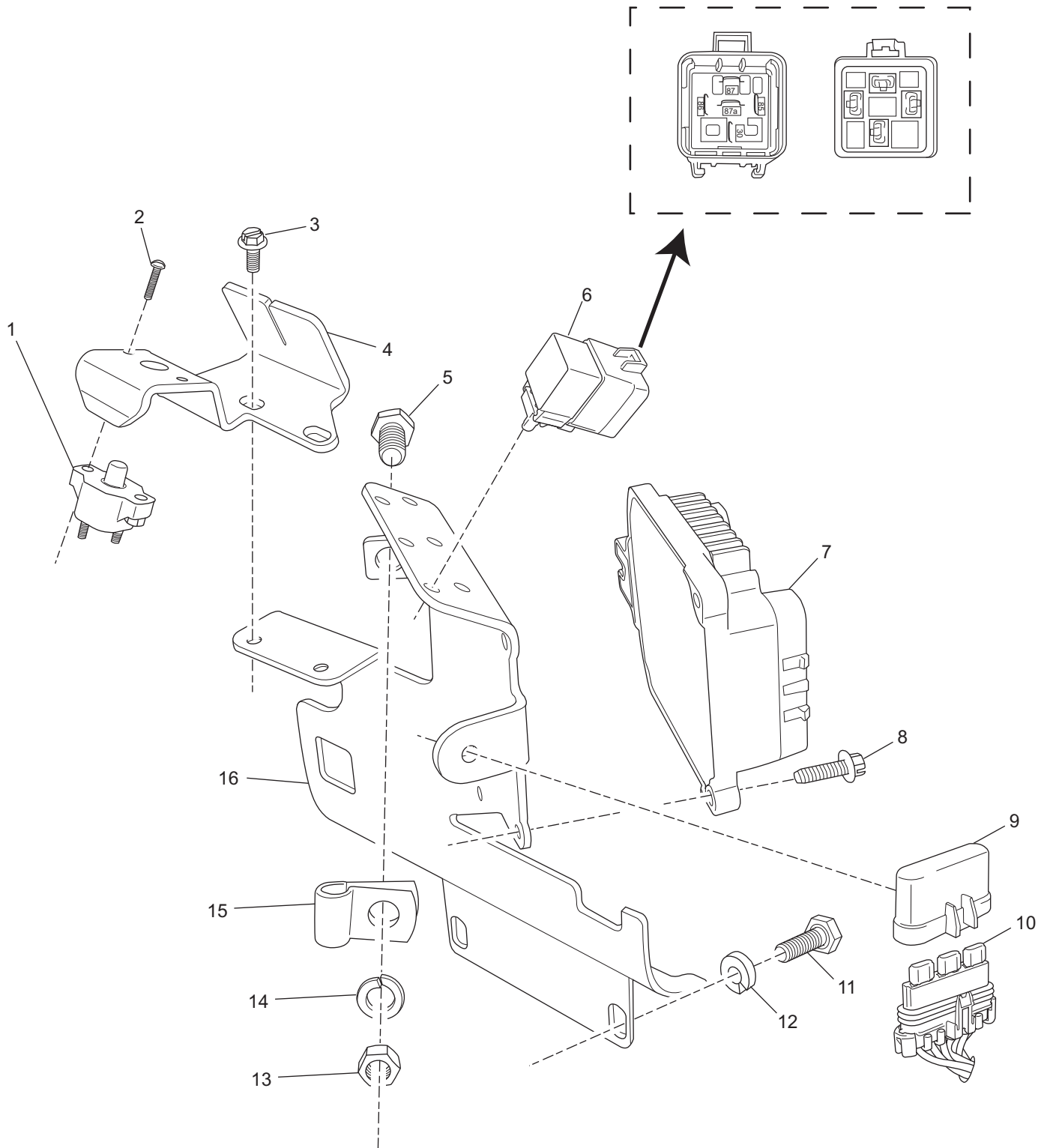


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WIRING HARNESS ASSEMBLIES and SENDERS - FIGURE 15

ITEM	PART NO.	QTY.	DESCRIPTION	MODEL ID
1	RS1540	1	Nut , sender terminal	18-600-01
2	RS2197	1	Lockwasher , sender terminal	
3	RS2746	1	Washer , sender terminal	
4	R020002	1	Sender , temperature	
4	R020050	1	Sender , temperature (VDO, 250 DEG)	
5	R020046	1	Sensor , engine coolant temperature (ECT)	
6	RA121076D	1	Engine Wiring Harness Assembly ('06)	
6A	R090282A	1	Bracket , 10-Pin	
7	R096142	4	Washer , main harness attaching	
8	RS5115	4	Screw , main harness attaching	
9	RS1540	1	Nut , sender terminal	
10	RS2197	1	Lockwasher , sender terminal	
11	R020001	1	Sender , oil pressure	
12	R024145	1	Tee , sender attaching	
13	R079071	1	Adapter , oil sending unit	
14	R020015A	1	Switch , oil pressure	
15	R121101	2	Harness , ignition coil	
16	R121078	AR	Harness , FCC ("V" - Drive)	
17	R121086	1	Harness , TCP Sensor to TAC Module	

ECM and RELAYS - FIGURE 16

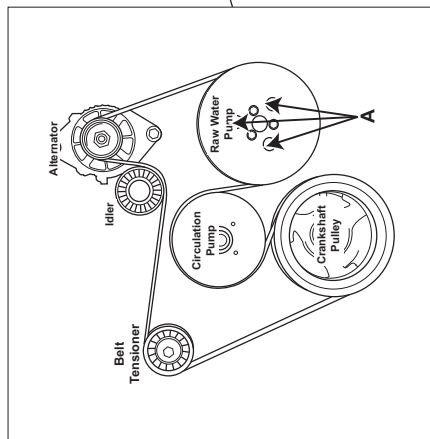
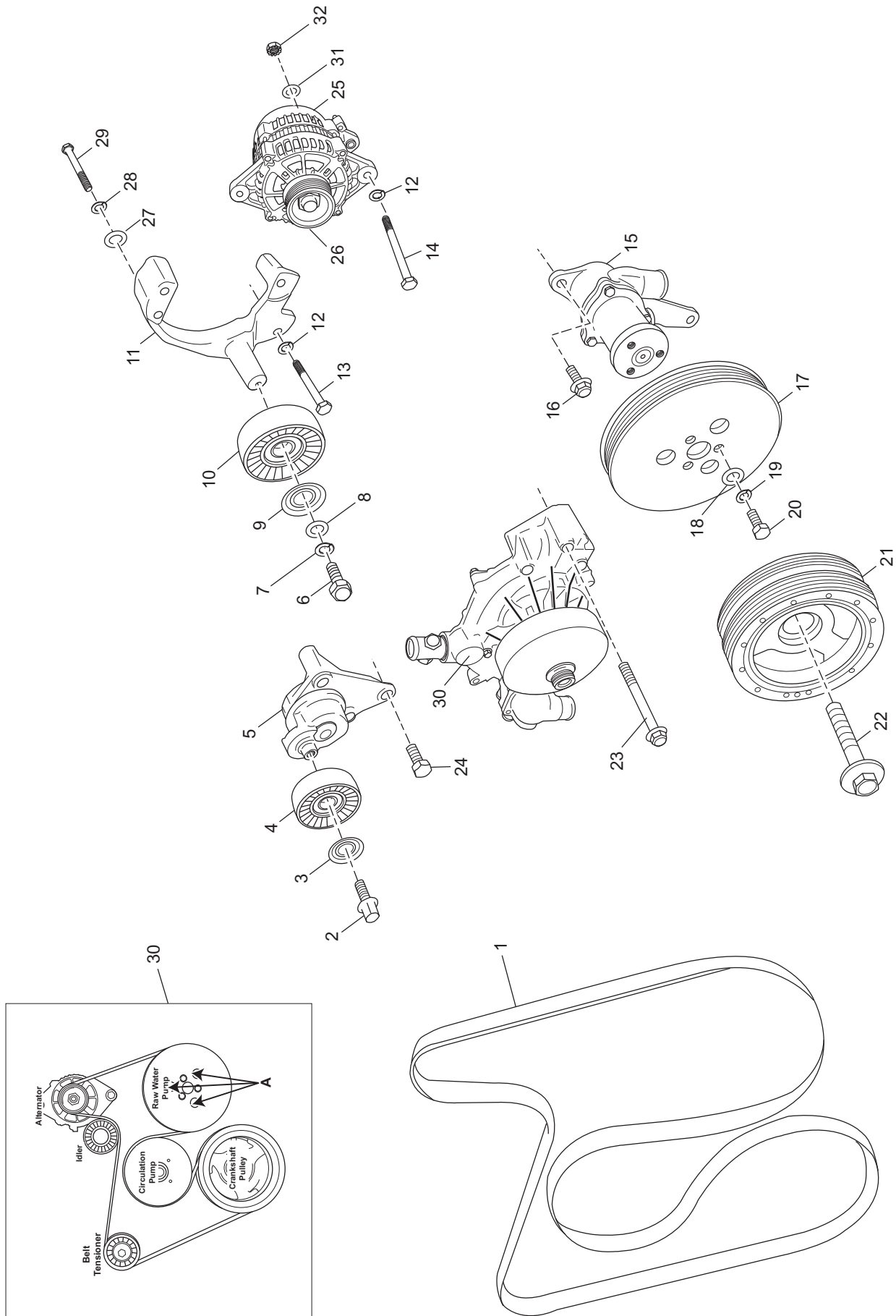


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2-2-06

ECM and RELAYS - FIGURE 16

ITEM	PART NO.	QTY.	DESCRIPTION	MODEL ID
1	R153006C	1	Circuit Breaker Assembly (60 amp)	
2	RS5084	2	Bolt , circuit breaker mounting	
3	91107075	2	Bolt , circuit breaker bracket attaching	
4	R090274	1	Bracket , circuit breaker mounting	
NI	23655	1	Decal , main circuit breaker	
5	RS0302	1	Bolt , oil dipstick tube attaching	
6	R130011A	3	Relay , fuel pump, ignition, starter	
7	R116021	1	Engine Control Module ('06) cksum - 31323 (7A5B)	
8	91107075	3	Bolt , ECM attaching	
9	R126014	1	Cover , fuse holder	
10	R153017B	3	Fuses , 20 amp	
11	RS0304	2	Bolt , bracket attaching	
12	RS2180	2	Lockwasher , bracket attaching bolt	
13	RS1028	1	Nut , oil dipstick tube attaching	
14	RS2180	1	Lockwasher , oil dipstick tube attaching	
15	R127015	1	Clamp , oil dipstick tube attaching	
16	R090279	1	Bracket , ECM/relay mounting	

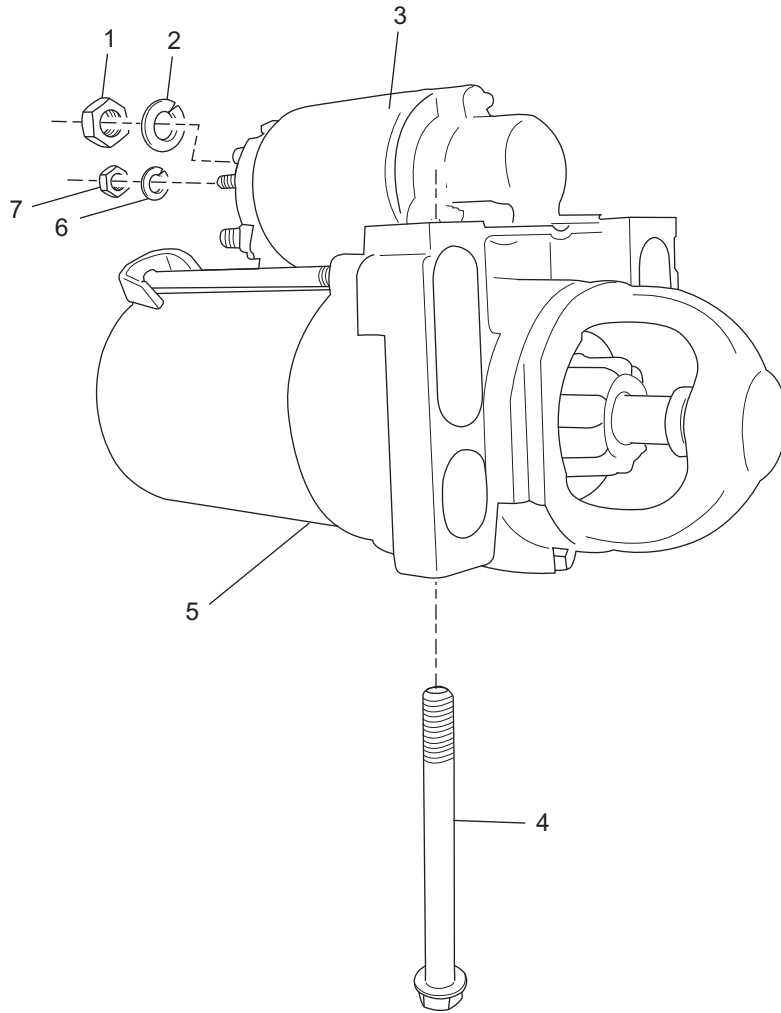
ACCESSORY DRIVE SYSTEM COMPONENTS - FIGURE 17



ACCESSORY DRIVE SYSTEM COMPONENTS - FIGURE 17

ITEM	PART NO.	QTY.	DESCRIPTION	MODEL ID
1	R066027	1	Belt , serpentine drive	
2	p/o item #5	1	Bolt , tensioner pulley attaching	
3	p/o item #5	1	Washer , tensioner pulley attaching bolt	
4	p/o item #5	1	Pulley , tensioner	
5	RA068002	1	Tensioner , belt	
6	98333025	1	Bolt , idler pulley attaching	
7	RS2179	1	Lockwasher , idler pulley attaching bolt	
8	92940000	1	Washer , idler pulley attaching bolt (small)	
9	R096145	1	Washer , formed, idler pulley attaching bolt (large)	
10	R065040	1	Pulley , idler	
11	R090269	1	Bracket , idler pulley mounting / alternator	
12	93940000	2	Lockwasher , idler pulley bracket attaching bolt	
13	98443110	1	Bolt , idler pulley bracket attaching	
14	98446070	1	Bolt , alternator mounting, lower	
15	RA057032	1	Raw Water Pump Assembly	
16	98442030	2	Bolt , raw water pump mounting	
17	R065050	1	Pulley , raw water pump	
18	92934000	3	Flat Washer , raw water pump pulley attaching	
19	93934000	3	Lockwasher , raw water pump pulley attaching bolt	
20	99335016	3	Bolt , raw water pump pulley attaching	
21	R064016	1	Balancer , crankshaft	
22	TBD	1	Bolt , crankshaft balancer	
23	TBD	4	Bolt , water circulation pump attaching	
24	TBD	3	Bolt , belt tensioner mounting	
25	RA097007C	1	Alternator Assembly, 70 Amp	
25	RA097009	1	Alternator Assembly, 100 Amp	
NI	RF097009C	AR	Retro Fit Kit, 100 Amp Alternator	
NI	R121081	AR	Harness , Jumper, Adapt 70A harness to 100A alternator	
26	R065055	1	Pulley , alternator (70 amp)	
27	92200000	1	Flatwasher , alternator mounting	
28	RS2179	1	Lockwasher , alternator mounting	
29	98339070	1	Bolt , alternator mounting, upper	
30	R143147	1	Decal , belt routing	
31	92920000	2	Flatwasher , alternator wire attaching (70A)	
32	97220060	2	Nut , alternator wire attaching (70 A)	
32	97330060	1	Nut , KEPS, Alternator Positive Post, 100A	

STARTER ASSEMBLY COMPONENTS - FIGURE 18



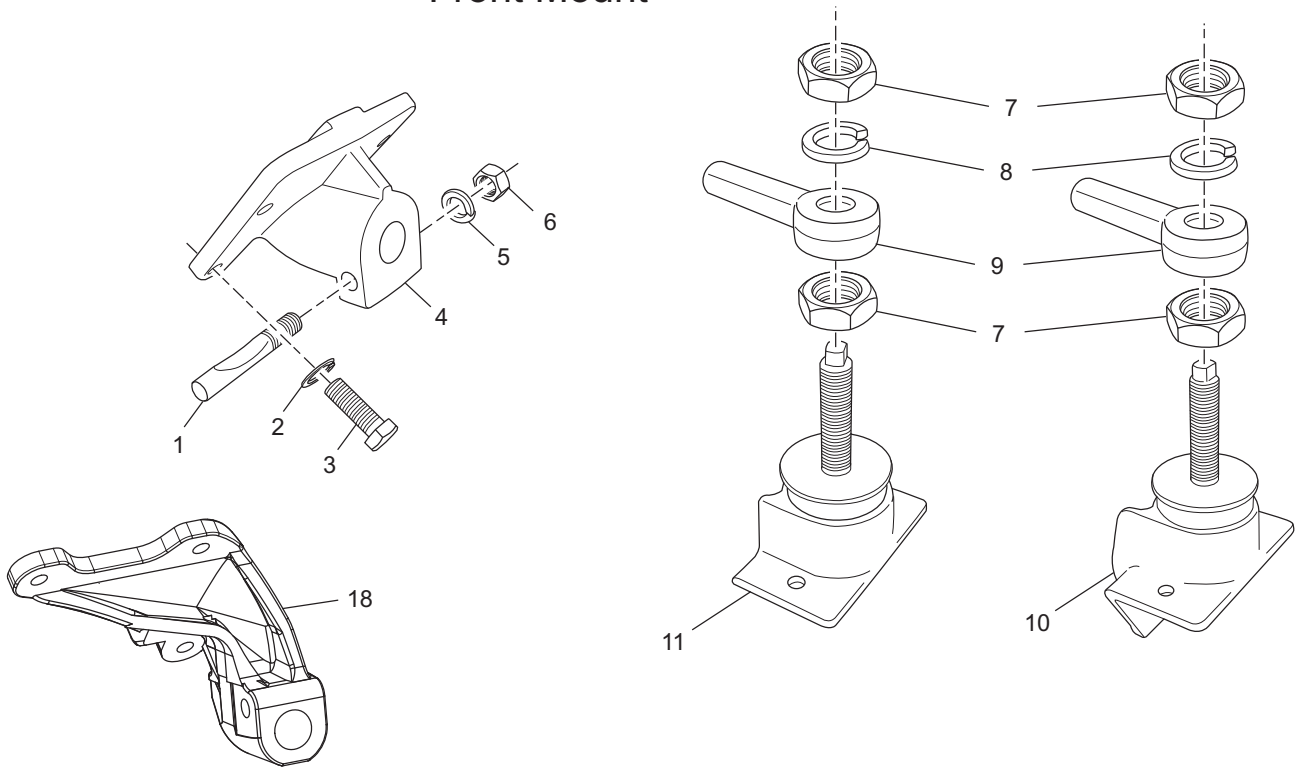
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STARTER ASSEMBLY COMPONENTS - FIGURE 18

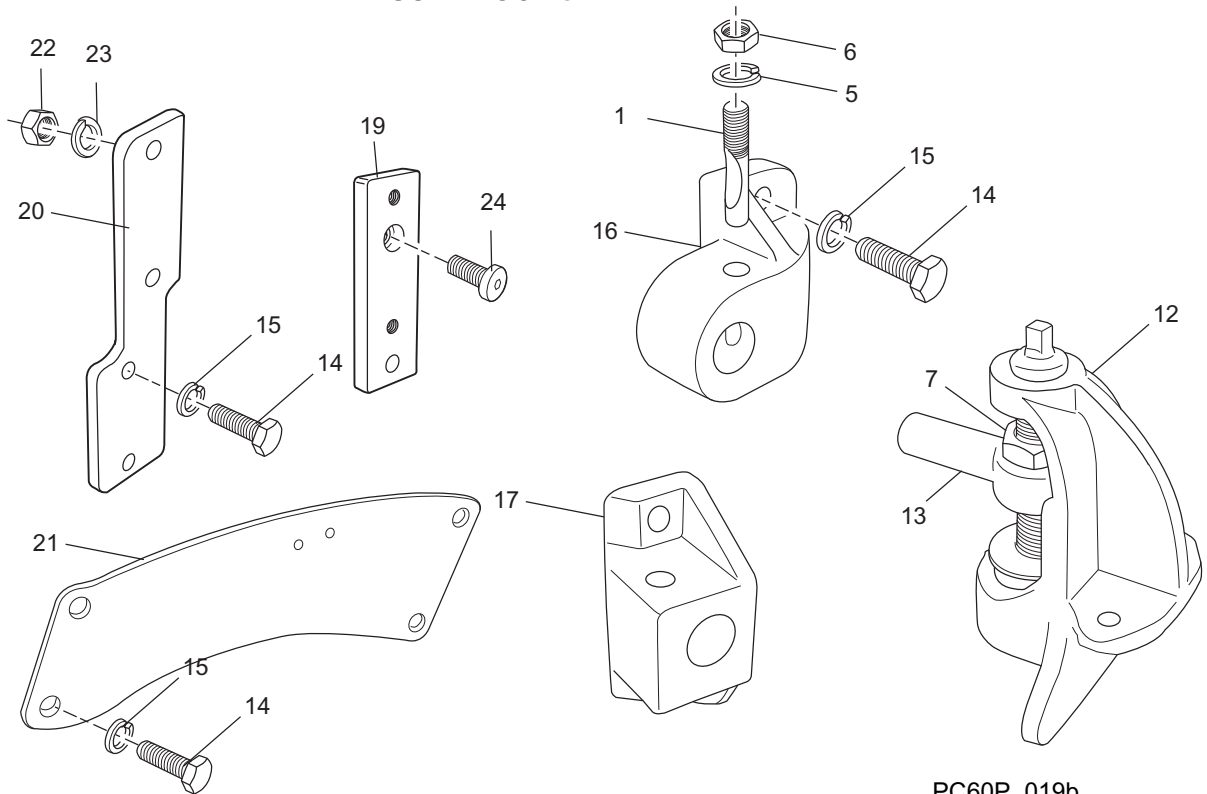
ITEM	PART NO.	QTY.	DESCRIPTION	MODEL ID
1	RS7019	1	Nut , solenoid terminal	1
2	RS2200	1	Lockwasher , solenoid terminal	1
3	RU0050A	1	Solenoid , starter	1
4	R009203	2	Bolt , starter mounting	2
5	RA122019	1	Starter Motor Assembly	1
6	93003000	2	Lockwasher , solenoid terminal	2
7	RS7036	2	Nut , solenoid terminal	2

ENGINE and TRANSMISSION MOUNTS - FIGURE 19

Engine Mount Group
Front Mount



Engine Mount Group
Rear Mount

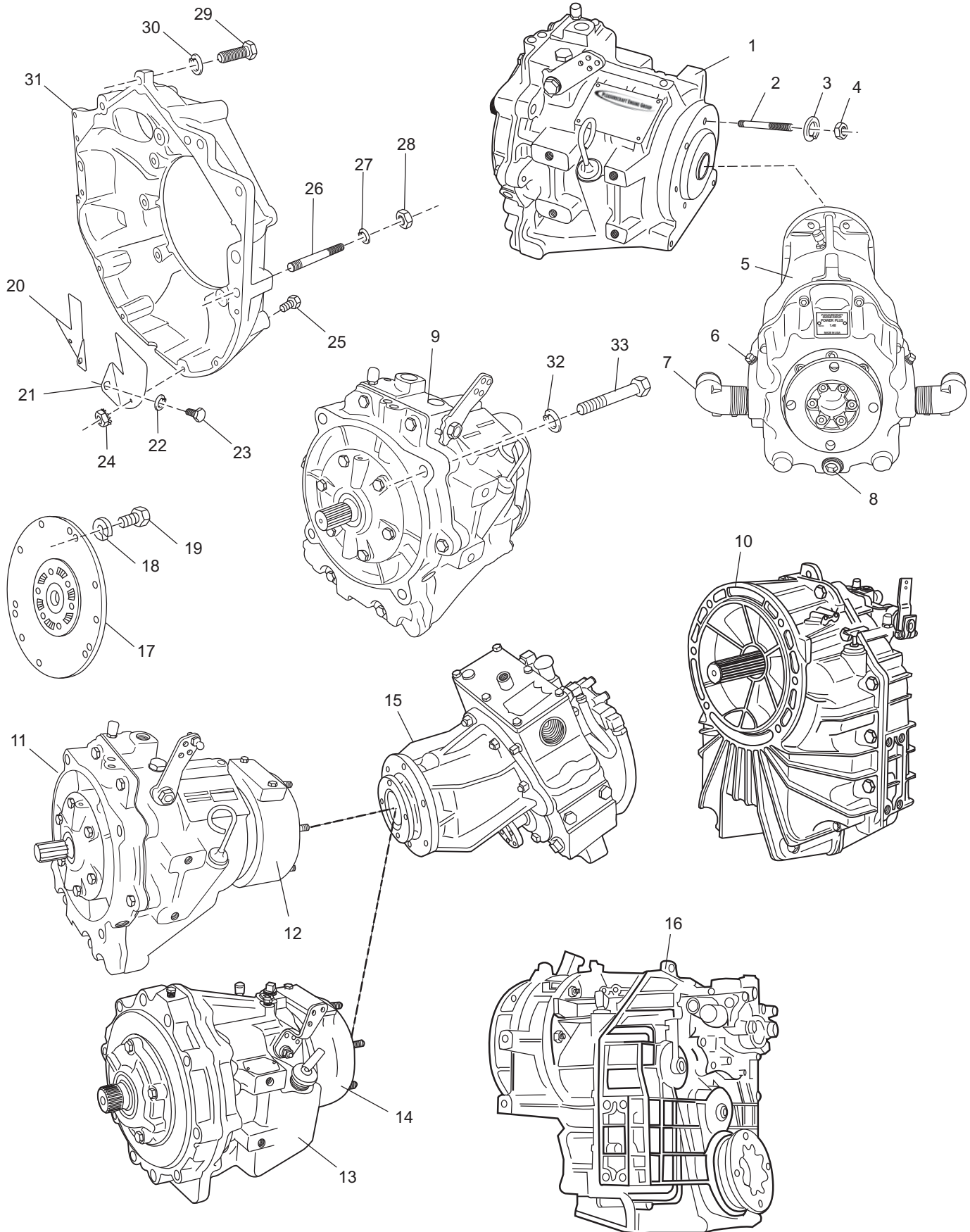


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9-2-03

ENGINE and TRANSMISSION MOUNTS - FIGURE 19

ITEM	PART NO.	QTY.	DESCRIPTION	MODEL ID
1	R095020	2	Bolt , trunnion clamp	
2	93940000	8	Lockwasher , engine mount attaching bolt	
3	98443030	8	Bolt , engine mount attaching	
4	R090242	2	Mount , engine front	
5	RS2181	2	Lockwasher , trunnion clamp bolt	
6	RS1529	2	Nut , trunnion clamp bolt	
7	RS1075	4	Nut , adjustment and lock	
8	RS2186	2	Lockwasher , adjusting nut	
9	R091001	2	Trunnion , long	
9	R091007	2	Trunnion , short	
10	RC091001	1	Trunnion Assembly	
11	RA092016	1	Trunnion Assembly	
12	RA092011	2	Trunnion Assembly , tall (1.23:1 STD / V-drive) Used with item #17 - R090145 mount	
12	RA092011A	2	Trunnion Assembly , tall (1.23:1 STD / V-drive) Used with item #16 - R090205 mount	
12	RA091003	2	Trunnion Assembly , short (1.0:1 STD) Used with item #17 - R090145 mount	
12	RA091006	2	Trunnion Assembly , short (1.0:1 STD) Used with item #16 - R090205 mount	
13	R091003	2	Trunnion , 2.5" (use with R090145)	
13	R091006	2	Trunnion , 2.125" (use with R090205)	
14	RS0329	4	Bolt , rear mount attaching (R090205)	
14	RS0328	4	Bolt , rear mount attaching (R090145)	
14	RS0327	4	Bolt , rear mount attaching (R109054, R090318-lower)	
14	RS0330	4	Bolt , rear mount attaching (R090318, upper)	
15	RS2181	4	Lockwasher , rear mount attaching bolt	
16	R090205	1	Mount , rear	
17	R090145	1	Mount , rear	
NI	R090343	1	Mount , rear, port	15-600V-02
NI	R090344	1	Mount , rear, starboard	15-600V-02
NI	97905	2	Mount , engine support (dual rear)	03-600V-01, 03-600V-02
18	R090293	1	Mount , engine front (port) 1.23:1	
18	R090294	1	Mount , engine front (starboard) 1.23:1	
18	R090302	1	Mount , engine front (port) 1.0:1	
18	R090303	1	Mount , engine front (starboard) 1.0:1	
NI	93940000	6	Lockwasher , engine mount attaching bolt (item #18)	
NI	98443030	4	Bolt , engine mount attaching, upper (item #18)	
NI	98449055	2	Bolt , engine mount attaching, lower (item #18)	
19	R169062	AR	Shim , Mount, rear	03-600-01
NI	R169063	AR	Spacer , Mount, rear, 2"	04-600V-03
20	R090318	2	Mount , PCM V-DRV (use with RA092016, item 11)	
21	R109054	2	Plate , brace, PCM V-DRV used when there is no mount	15-600V-02
22	RS1029	4	Nut , rear mount attaching (R090318)	
23	RS2181	4	Lockwasher , rear mount attaching (R090318)	
24	90465100	2	Bolt , shim mount attaching (R169062)	

BELL HOUSING ASSEMBLY - FIGURE 20

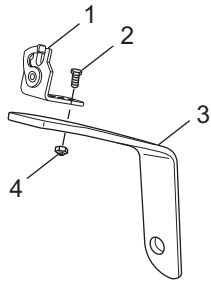


BELL HOUSING ASSEMBLY - FIGURE 20

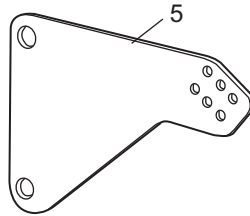
ITEM	PART NO.	QTY.	DESCRIPTION	MODEL ID
1	RA157015	AR	Transmission Assembly , IRM40S, PCM to PCM V-DRV	
2	R031035	8	Stud , PCM V-DRV to transmission attaching	
3	RS2179	8	Lockwasher , PCM V-DRV to transmission attaching	
4	RS7026	8	Nut , PCM V-DRV to transmission attaching	
5	RA156011B	AR	PCM Power-Plus V-Drive Assembly , 1.48:1	
NI	R190250	AR	Gear Lube , synthetic SAE 50, PCM V-DRV (1 qt.)	
6	TBD	2	Plug , brass, oil fill/drain, PCM V-DRV	
7	97854	2	Fitting , brass elbow 90°, PCM V-DRV	
8	RS3633	1	Plug , brass, raw water drain, 1/2" square socket	
9	RA157017	AR	Transmission Assembly , IRM40A, 1.23:1 PCM	
10	RA156009	AR	Transmission Assembly , 630V, HURTH, 1.29:1	03-600V-01
10	RA156009A	AR	Transmission Assembly , 630V, HURTH, 1.5:1	03-600V-02, 04-600V-01
11	RA157016	AR	Transmission Assembly , IRM40I, 1.0:1 PCM	
12	R079056	AR	Adapter , V-Drive, PCM to Walter	
13	RA157001	AR	Transmission Assembly , 1.0:1 Warner (71C)	
13	RA157003	AR	Transmission Assembly , 1.0:1 Warner (72C)	
13	RA157001A	AR	Transmission Assembly , (71C w/v-drive adapter))	
14	R079072	AR	Adapter , V-Drive, Warner to Walter	
15	RA156004	AR	V-Drive Assembly , Walters, 1.46:1	
16	RA156010	AR	Transmission Assembly , 90VTS, ZF 2-speed	04-600V-02
NI	RK104013	AR	Connector Kit , ZF 2-speed	
17	98511	1	Plate , damper (Warner Transmissions, 6.0/8.1L)	
17	R140016	1	Plate , damper (PCM Transmissions)	
17	R140018	1	Plate , damper (Hurth Transmission/2-speed)	
18	93940000	4	Lockwasher , damper plate attaching bolt	
19	98446030	4	Bolt , damper plate attaching	
20	R019011A	1	Cover , dust, (stbd) (use w/top mount starter)	
20	R019011	1	Cover , dust (stbd) (use w/bottom mount starter)	
21	R019012	1	Cover , dust (port)	
22	93920000	2	Lockwasher , dust cover attaching	
23	RS6503	2	Bolt , dust cover attaching	
24	RS1078	2	Nut , dust cover attaching	
25	RS0256	2	Bolt , dust cover attaching	
26	R031034	2	Stud , bellhousing attaching	
27	93940000	2	Lockwasher , bellhousing attaching	
28	97440000	2	Nut , bellhousing attaching	
29	98443050	3	Bolt , bellhousing attaching	
30	93940000	3	Lockwasher , bellhousing attaching	
31	R142014	1	Bellhousing , top or bottom mount starter	
31	R142006B	1	Bellhousing , bottom mount starter, only	
NI	R019010	1	Cover , dust, top mount starter (used w/R019008A)	
NI	RS0327	2	Bolt , dust cover attaching	
NI	RS2181	2	Lockwasher , dust cover attaching	
			** PCM **	
32	RS2180	4	Lockwasher , transmission attaching bolt	
33	RS0329	4	Bolt , transmission attaching	
			**Velvet Drive **	
NI	96541	2	Stud , transmission mounting (4")	
NI	RS2181	6	Lockwasher , transmission mounting	
NI	RS1029	2	Nut , transmission mounting stud	
NI	RS0337	4	Bolt , transmission mounting	
			Hurth Gears	
NI	R031018	2	Stud , transmission mounting (1 5/8")	
NI	RS2181	6	Lockwasher , transmission mounting	
NI	RS1029	2	Nut , transmission mounting stud	
NI	RS0329	4	Bolt , transmission mounting	

TRANSMISSION AND RELATED COMPONENTS (STANDARD DRIVE) - FIGURE 21

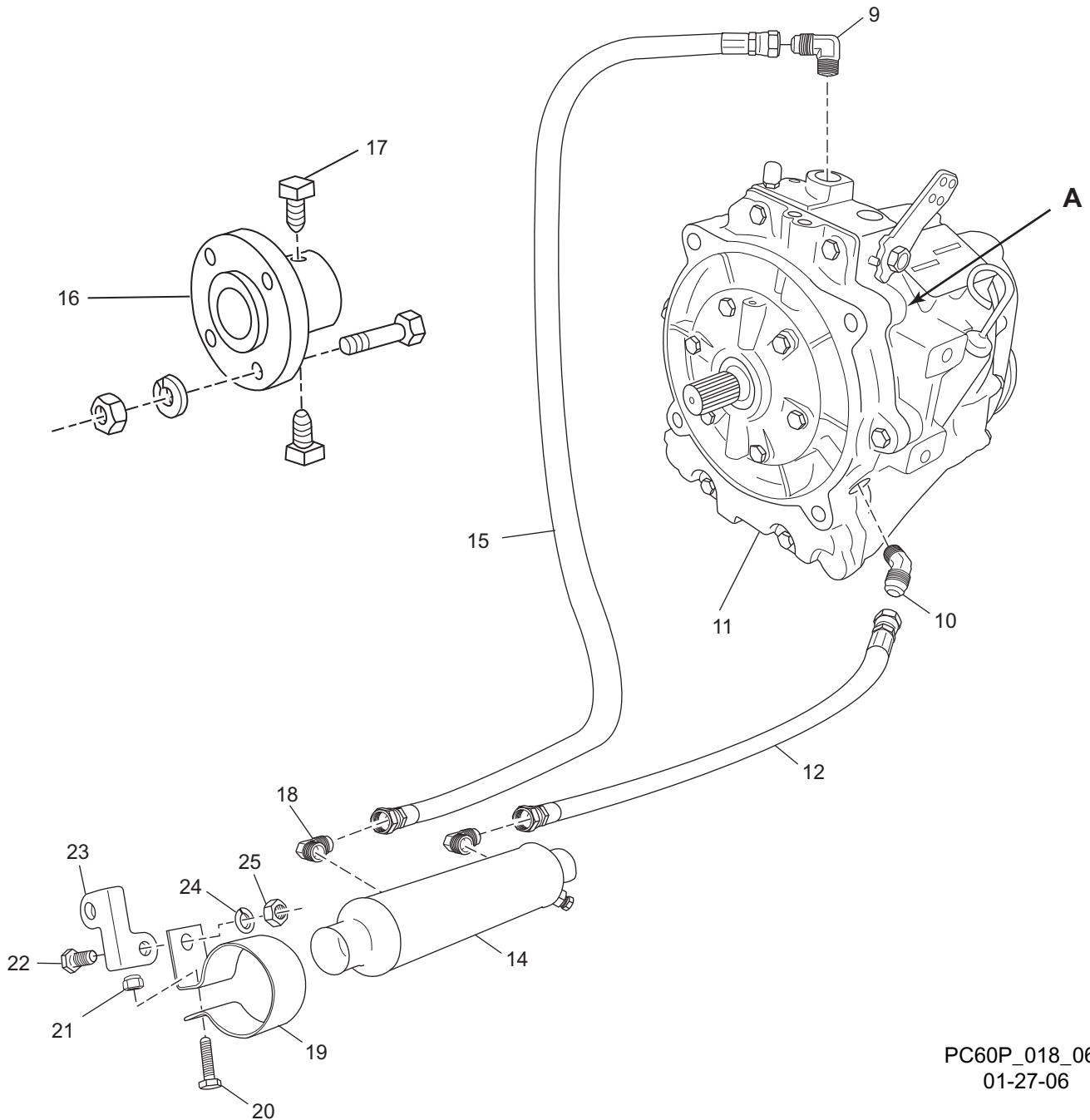
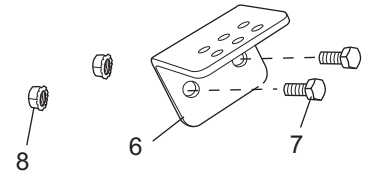
**A - FRONT MOUNT
SHIFT BRACKET**



**PCM V-DRV SHIFT
BRACKET**



15-600V-02

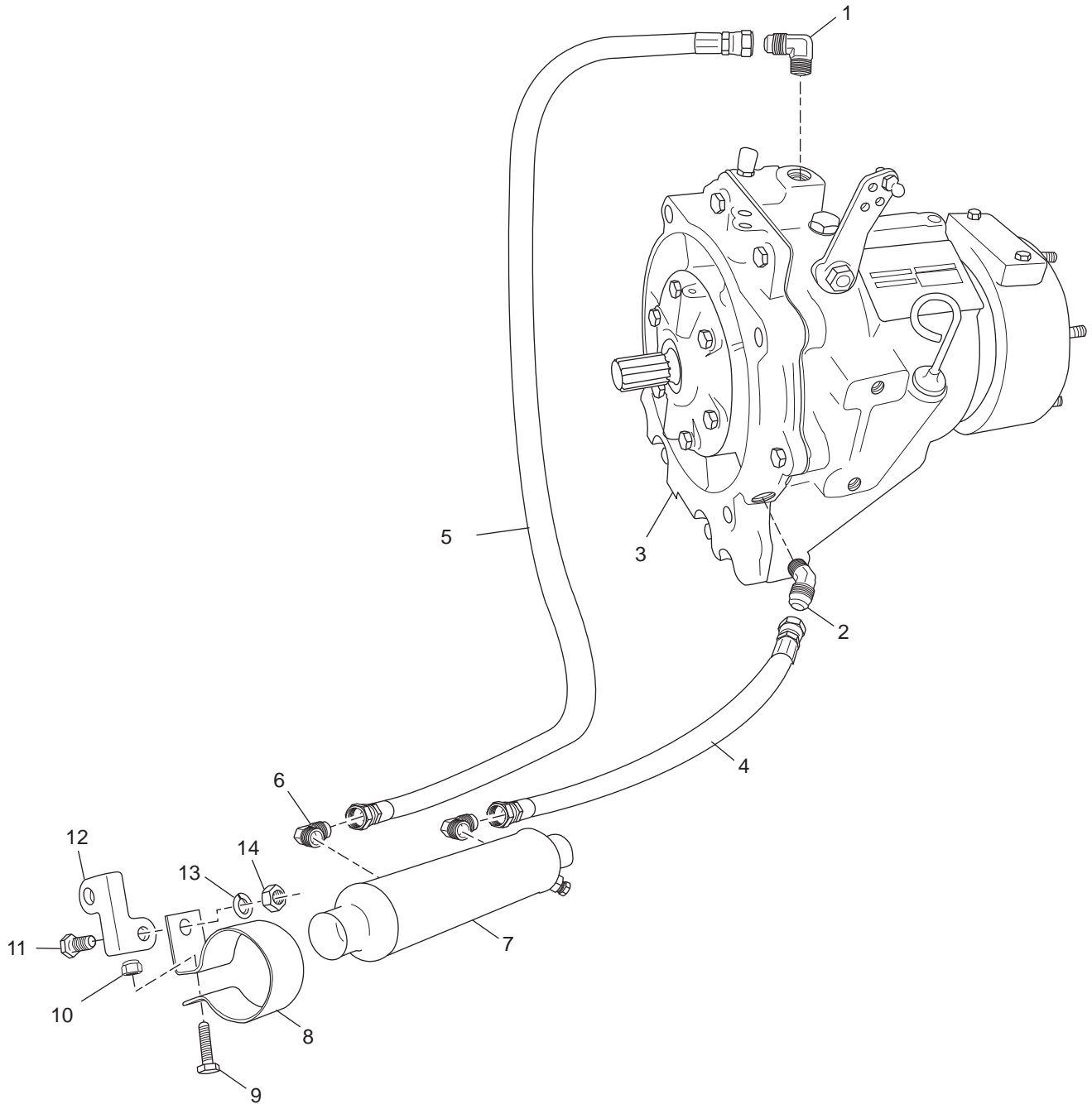


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01-27-06

TRANSMISSION AND RELATED COMPONENTS (STANDARD DRIVE) - FIGURE 21

ITEM	PART NO.	QTY.	DESCRIPTION	MODEL ID
1	R090086	1	Cable Clip , single cable	15-600V-02
2	RS5122	2	Bolt , cable clip attaching	
3	R090143A	1	Bracket , shift	
4	RS2055	2	Nut , cable clip attaching bolt	
5	R090319	1	Bracket , shift (PCM V-DRV)	
6	R090348	1	Bracket , shift (PCM V-DRV, attaches to R109054)	
7	RS5124	2	Bolt , bracket attaching	
8	RS1078	2	Nut , KEPS, bracket attaching bolt	
9	R024010	1	Fitting , 90 degree	
10	R024053	1	Fitting , 45 degree	
11	RA157017	1	Transmission , 1.23:1	
11	RA157016	AR	Transmission , 1.0:1	
12	RA045007M	1	Hose Assembly , cooler to transmission	
13	R024010	2	Fitting , 90 degree	
14	R147014	1	Transmission Cooler Assembly	
15	RA045007T	1	Hose Assembly , transmission to cooler	
16	R148010	OPT	Coupler , prop shaft (4" X 1" shaft)	
16	R148011	OPT	Coupler , prop shaft (4" X 1 1/8" shaft)	
17	2000090	2	Screw , set - coupler	
18	R024010	2	Fitting , 90 degree	
19	R090010	1	Clamp , cooler assembly mounting	
20	RS0256	1	Bolt , cooler attaching	
21	RS1078	1	Nut , cooler attaching	
22	RS0302	1	Bolt , cooler clamp attaching	
23	R090013A	1	Bracket , cooler mounting	
24	RS2180	1	Lockwasher , cooler clamp attaching bolt	
25	RS1028	1	Nut , oil cooler clamp attaching bolt	

TRANSMISSION AND RELATED COMPONENTS (1.0:1 "V" - DRIVE) - FIGURE 22



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TRANSMISSION AND RELATED COMPONENTS (1.0:1 "V" - DRIVE) - FIGURE 22

ITEM	PART NO.	QTY.	DESCRIPTION	MODEL ID
1	R024010	1	Fitting , 90 degree	
2	R024010	1	Fitting , 90 degree	
3	RA157016	1	Transmission , 1.0:1, (w/R079056 Adapter)	
4	RA045007M	1	Hose Assembly , cooler to transmission	
5	RA045007T	1	Hose Assembly , transmission to cooler	
6	R024010	2	Fitting , 90 degree	
7	R147014	1	Cooler Assembly , transmission	
8	R090010	1	Clamp , cooler assembly mounting	
9	RS0254	1	Bolt , cooler attaching	
10	RS1078	1	Nut , cooler attaching	
11	RS0302	1	Bolt , cooler clamp attaching	
12	R090013A	1	Bracket , cooler mounting	
13	RS2180	1	Lockwasher , cooler clamp attaching bolt	
14	RS1028	1	Nut , oil cooler clamp attaching bolt	