


Crusader[®]



MARINE

ILLUSTRATED

PARTS MANUAL

MODEL MP6.0L

2004-2005 MY

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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 NUMBER	DESCRIPTION	QUANTITY
1	RB0010021	Base Engine Assembly, 6.0L	1

①

②

③

④

- 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 DESCRIPTION - This identifies what the component or assembly is.
- ④ QUANTITY - This refers to the number of pieces used.

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 Crusader 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	22679
Kit, Transmission Oil Filter (ZF)	RP077011
Fuel Filter (FCC)	RP080026
Spark Plugs	RP030011
Spark Plug Wire Set	RK120021A
Serpentine Drive Belt	R066027
Raw Water Pump Impeller Kit	RP061022
Thermostat (170°)	R026007
On-Board Spare Parts Kit (w/ FCC Fuel System)	RK173092
On-Board Spare Parts Kit (w/ FCC Fuel System)	RK173092-05
On-Board Spare Parts Kit (w/ Returnless Fuel System)	RK173092A-05

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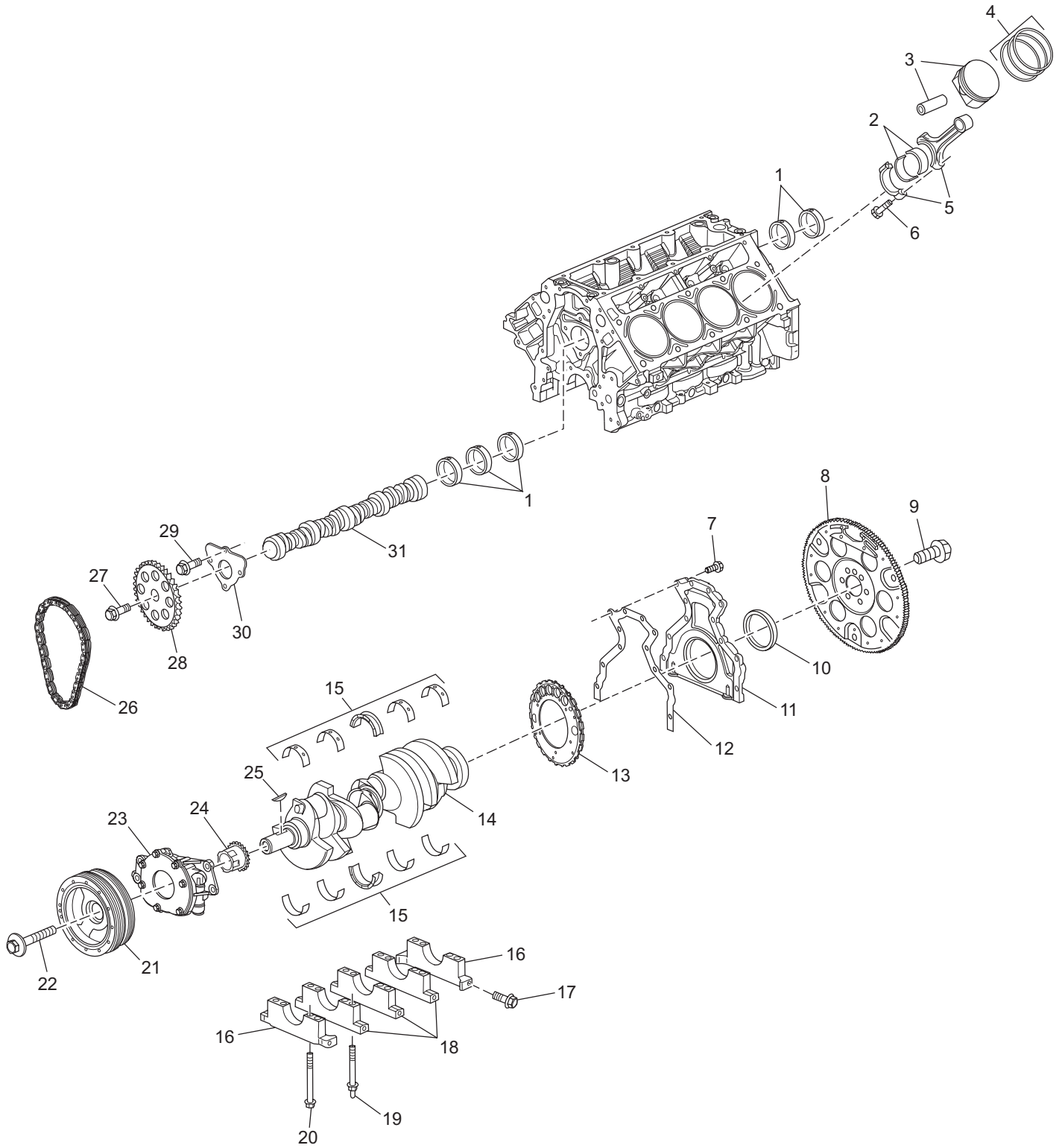
CHANGE NOTICE:

Change Pages	Date Updated
15	04/07
9, 25, 40-41, 55	05/07

MARINE TRANSMISSIONS:

Crusader Engines are equipped with Velvet Drive or Hurth Transmissions, standard or "V"-drive. If transmission parts are required, contact your dealer or closest Crusader Parts Distributor for required parts. Parts manuals and overhaul manuals are available through Crusader Distributors.

CYLINDER BLOCK ASSEMBLY - FIGURE 1

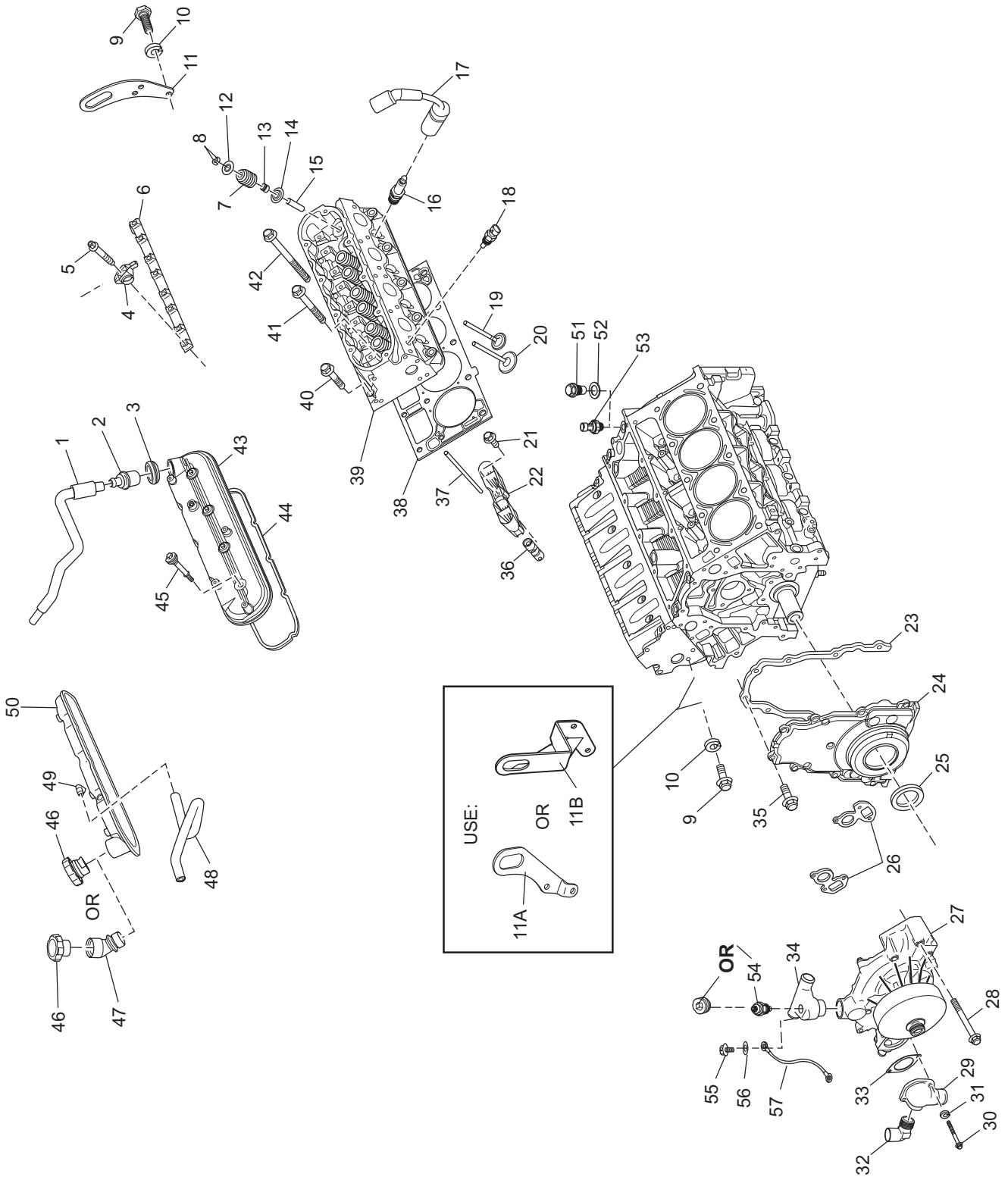


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CYLINDER BLOCK ASSEMBLY - FIGURE 1

ITEM	PART NUMBER	DESCRIPTION	QUANTITY
*	RB001021	Base Engine Assembly	
1	TBD	Bearing Set , camshaft	1
2	TBD	Bearing Set , connecting rod (STD)	8
3	TBD	Piston , (STD)	8
4	TBD	Ring Set , piston (STD)	8
5	TBD	Connecting Rod (STD)	8
6	TBD	Bolt , connecting rod cap	16
7	TBD	Bolt , rear engine cover	12
8	RA138017	Flywheel Assembly	1
9	R009205	Bolt , flywheel attaching	6
10	R047236	Seal , crankshaft rear oil	1
11	TBD	Cover , rear engine	1
12	TBD	Gasket , rear engine cover	1
13	part of item #14	Reluctor Ring , crankshaft	1
14	TBD	Crankshaft Assembly	1
15	TBD	Bearing Set , crankshaft	1
16	TBD	Cap , crankshaft bearing #1 and #5	2
17	TBD	Bolt , crankshaft bearing cap side	10
18	TBD	Cap , crankshaft bearing #2 - #4	3
19	TBD	Stud , crankshaft bearing cap attaching	
20	TBD	Bolt , crankshaft bearing cap attaching	
21	R064016	Balancer , crankshaft	1
22	TBD	Bolt , crankshaft balancer	1
23	TBD	Oil Pump Assembly	1
24	TBD	Drive , oil pump	1
25	TBD	Woodruf Key , crankshaft	1
26	TBD	Chain , timing	1
27	TBD	Bolt , camshaft sprocket attaching	1
28	TBD	Sprocket , camshaft	1
29	TBD	Bolt , camshaft retainer attaching	3
30	TBD	Retainer , camshaft	1
31	TBD	Camshaft	1

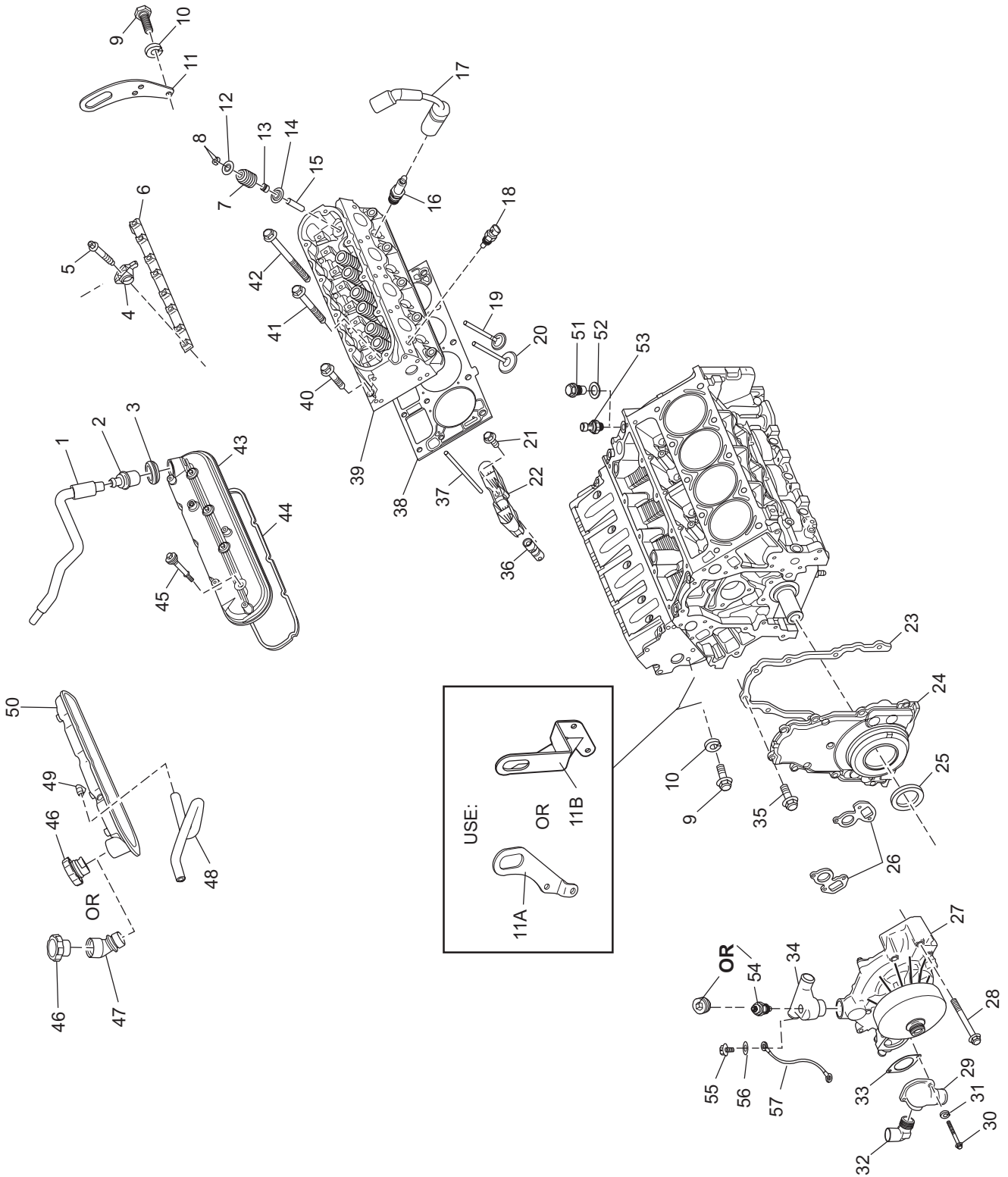
CYLINDER HEAD ASSEMBLY / FRONT COVER - FIGURE 2



CYLINDER HEAD ASSEMBLY / FRONT COVER - FIGURE 2

ITEM	PART NUMBER	DESCRIPTION	QUANTITY
1	TBD	Hose , PCV valve	1
2	TBD	Valve , positive crankcase ventilation (PCV)	1
3	TBD	Grommet , PCV valve	1
4	TBD	Rocker Arm , valve	16
5	TBD	Bolt , valve rocker arm attaching	16
6	TBD	Guide , valve rocker arm	2
7	TBD	Valve Spring Assembly	16
8	TBD	Retainer , valve stem	32
9	98443025	Bolt , lifting eye attaching	4
10	93940000	Lockwasher , lifting eye attaching bolt	4
11	R042012	Lifting Eye , rear, all	1
11A	R042014	Lifting Eye , front, std. drive (replaces R042012)	1
11B	R042016	Lifting Eye , front, v-driv (replaces R042012)	1
12	TBD	Cap , valve spring	16
13	TBD	Seal , valve stem	16
14	TBD	Rotator , valve	32
15	TBD	Guide , valve stem	16
16	RP030011	Spark Plug	8
17	RK120021A	Spark Plug Wire Set	1
18	R020046	Engine Coolant Temperature (ECT) Sensor	1
19	TBD	Valve , exhaust (STD)	8
20	TBD	Valve , intake (STD)	8
21	TBD	Bolt , valve lifter retainer attaching	8
22	TBD	Retainer , valve lifter	8
23	RM0280	Gasket , front engine cover	1
24	TBD	Cover , front engine	1
25	R047237	Seal , front engine cover oil	1
26	RM0281	Gasket , water circulating pump	2
27	RK057033C	Water Circulation Pump Assembly	1
28	TBD	Bolt , water circulating pump attaching	6
29	R025036	Housing , thermostat	1
30	98223016	Bolt , thermostat housing attaching	2
31	93920000	Washer , thermostat housing attaching	2
32	727003	Fitting , 90 degree	1
33	RM0275	Gasket , thermostat housing	2
34	R025035A	Waterneck , tee, F/W outlet	1
35	TBD	Bolt , front engine cover attaching	8

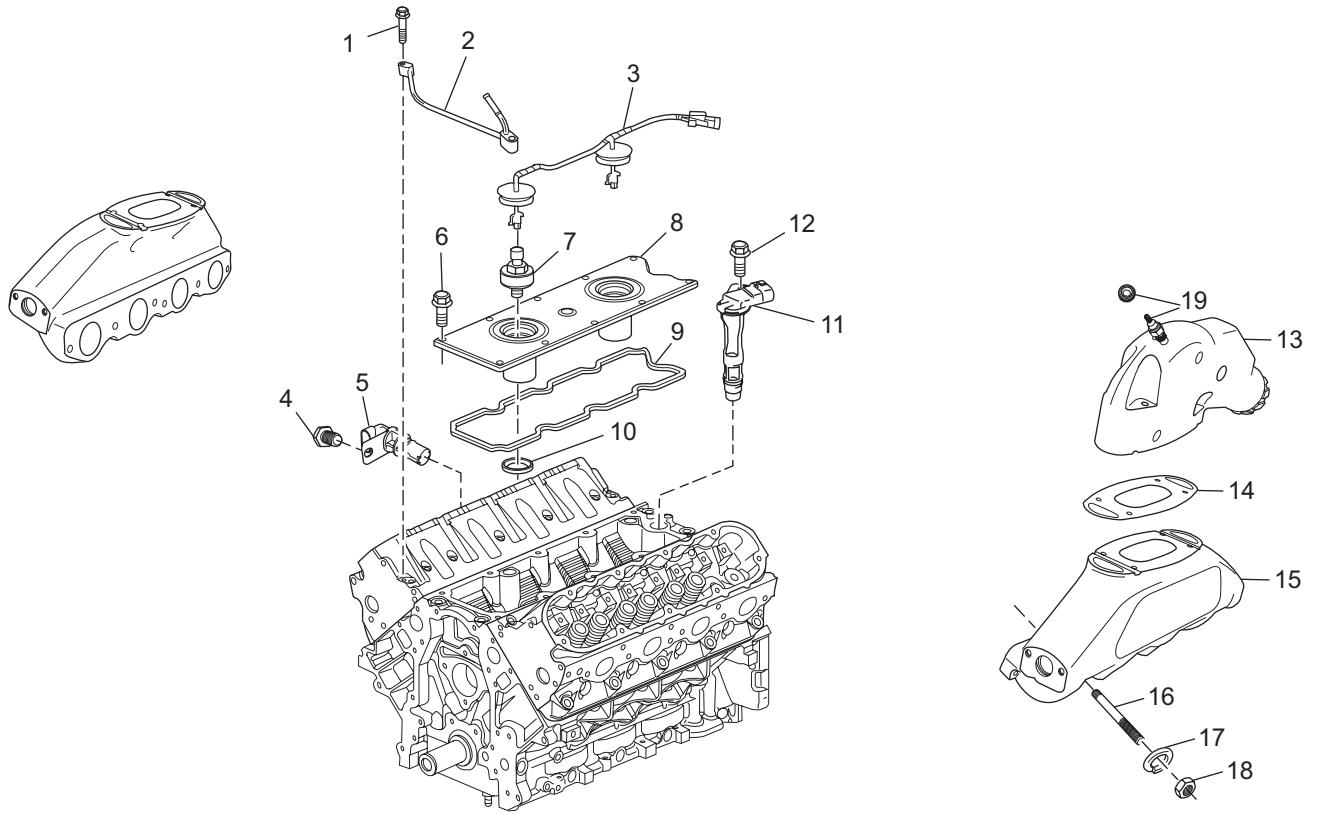
CYLINDER HEAD ASSEMBLY / FRONT COVER - FIGURE 2 (cont'd)



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

ITEM	PART NUMBER	DESCRIPTION	QUANTITY
NI	20244	Cup , plug, SSTL, 1 1/4" ('03), circ. pump	1
NI	R069071	Cup , plug, SSTL, 29 MM ('04), circ pump	1
36	R040006	Lifter , valve	16
37	TBD	Push Rod	16
38	RM0278	Gasket , Cylinder Head (LH)	1
NI	RM0278	Gasket , Cylinder Head (RH)	1
39	R003016	Cylinder Head	2
40	R009208	Bolt , cylinder head (short)	4
41	R009209	Bolt , cylinder head (medium)	10
42	R009207	Bolt , cylinder head (long)	16
43	RA033016	Cover , rocker (LH)	1
44	RM0282	Gasket , rocker cover	2
45	R009210	Bolt , rocker cover attaching	8
46	R034038B	Cap , oil fill tube	1
47	R034049	Tube , oil fill	1
48	TBD	Tube , breather	1
49	TBD	Fitting , breather tube	1
50	RA033017	Cover , rocker w/Oil Fill (RH)	1
51	R069072	Bolt , oil galley	1
52	p/o item #51	Seal , oil galley bolt	1
53	R020048	Sensor , oil pressure	1
54	R020002	Sensor , temperature	1
54	RS3551	Plug , water neck tee	1
55	RS5117	Screw , self tapping	1
56	92100000	Washer , flat	1
57	R101013A	Wire , grounding	1

EXHAUST MANIFOLD / KNOCK SENSORS - FIGURE 3

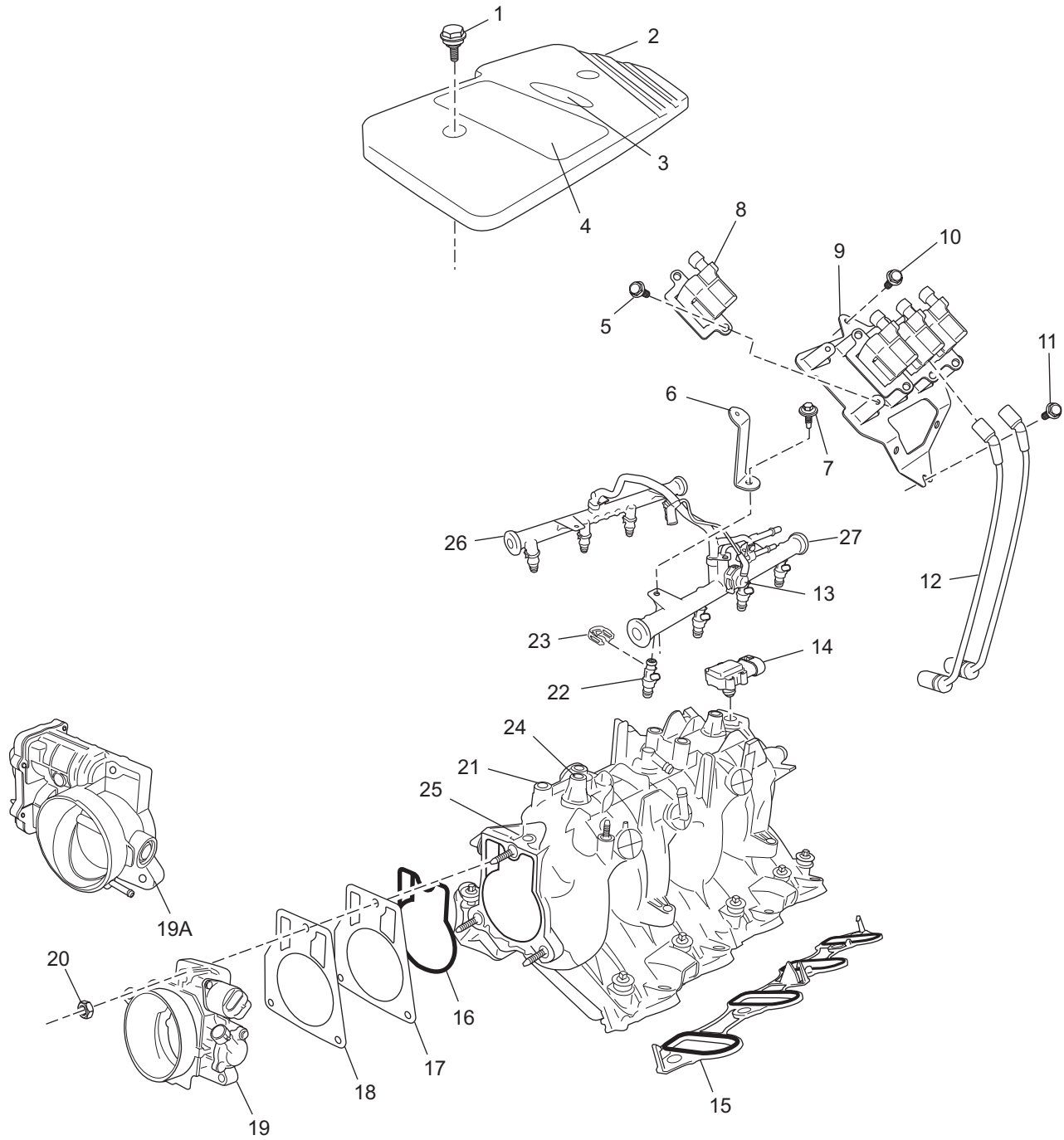


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EXHAUST MANIFOLD / KNOCK SENSORS - FIGURE 3

ITEM	PART NUMBER	DESCRIPTION	QUANTITY
1	TBD	Bolt , coolant air bleed pipe attaching	2
2	TBD	Pipe , coolant air bleed	1
3	R121100	Harness , knock sensor	1
4	TBD	Bolt , crankshaft position attaching	1
5	R020044	Sensor , crankshaft position	1
6	TBD	Bolt , valley cover attaching	10
7	R020043	Sensor , knock	2
8	TBD	Cover , valley	1
9	TBD	Gasket , valley cover	1
10	TBD	Seal , knock sensor oil	2
11	R020045	Sensor , camshaft position	1
12	TBD	Bolt , camshaft position attaching	1
13	R029016	Elbow , exhaust	2
14	RM0274	Gasket , exhaust elbow to manifold	2
15	R028024	Manifold , exhaust	2
16	R031035	Stud , exhaust manifold attaching	12
17	93930000	Lockwasher , exhaust manifold stud attaching	12
18	97330000	Nut , exhaust manifold stud attaching	12
19	R020047	Switch , exhaust temperature	2
19	RS3539	Plug , exhaust elbow (OEM specific)	2

INTAKE MANIFOLD COMPONENTS - FIGURE 4

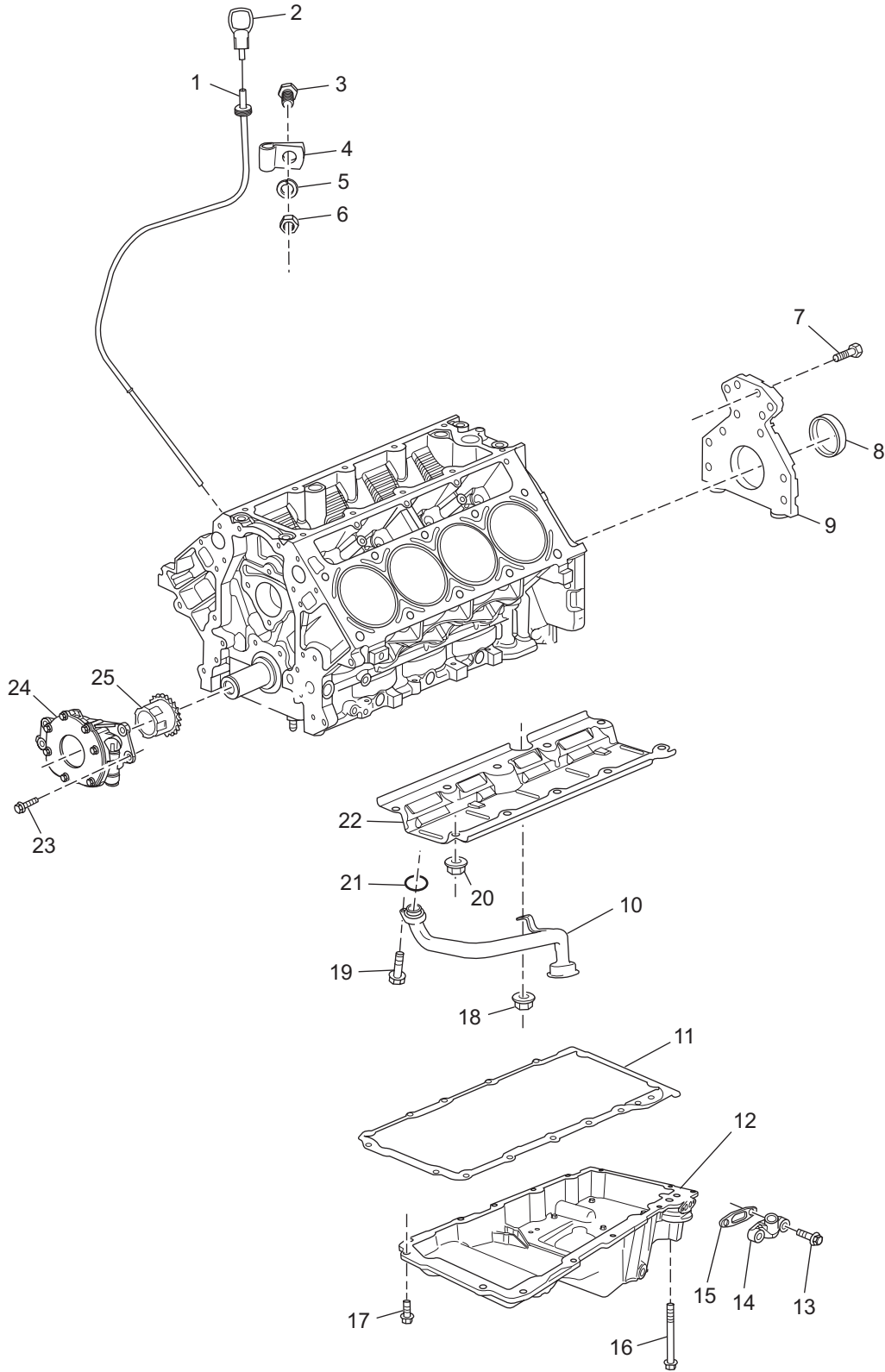


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INTAKE MANIFOLD COMPONENTS - FIGURE 4

ITEM	PART NUMBER	DESCRIPTION	QUANTITY
1	R009204	Knob , cover retention	2
2	R060064	Cover , engine	1
3	R143164	Decal , cover, oval, "6.0L MPI"	1
4	R143130	Decal , cover, "Capatain's Choice"	1
5	91107075	Screw , ignition coil attaching	16
6	R090268	Bracket , coil support	2
7	TBD	Bolt , fuel rail attaching	4
8	R117013	Coil , ignition	8
9	R090273	Bracket , ignition coil mounting	2
10	RS5126	Bolt , coil bracket attaching, top	2
11	98223016	Bolt , coil bracket attaching, bottom	2
NI	93920000	Lockwasher , coil bracket attaching, bottom	2
12	RK120021A	Spark Plug Wire Set	1
13	R088003	Regulator , fuel pressure (returnless type fuel system Only)	1
14	R020036	Sensor , manifold absolute pressure (MAP)	1
15	RM0277	Intake Manifold Gasket Set	1
16	TBD	Seal , throttle body	1
17	R062087	Plate , throttle body adapter	1
18	RM0251	Gasket , throttle body	1
19	RA035036B	Throttle Body Assembly	1
20	L00918	Nut , throttle body attaching	3
21	R002025	Intake Manifold	1
22	RA087008	Fuel Injector Assembly	8
23	R127097	Retainer , fuel injector to rail	8
24	R036007	Insert , threaded, intake	8
25	RS3550	Plug , pipe, 1/4" NPT	1
26	R086003	Fuel Rail , 6.0L, (right)	1
27	R086004	Fuel Rail , 6.0L, w/regulator pocket (left)	1
27	R086004A	Fuel Rail , 6.0L, w/o regulator pocket (left)	1

OIL PAN and OIL PUMP ASSEMBLY - FIGURE 5

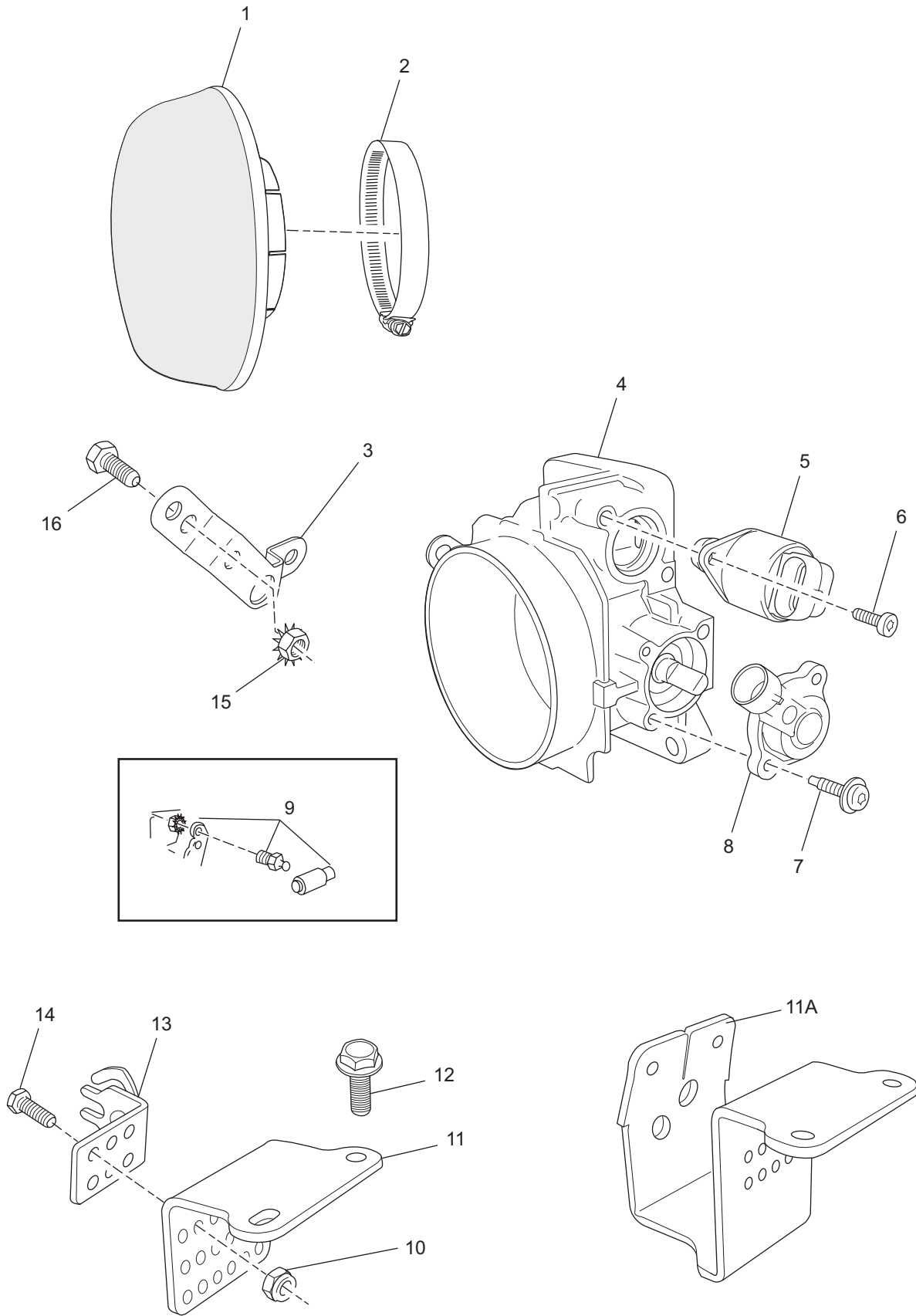


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OIL PAN and OIL PUMP ASSEMBLY - FIGURE 5

ITEM	PART NUMBER	DESCRIPTION	QUANTITY
1	R041079	Tube , oil dipstick	1
2	R041080	Dipstick , oil level (0 to 4 degree)	AR
2	R041081	Dipstick , oil level (12 degree)	AR
3	RS0302	Bolt , oil dipstick tube attaching	1
4	R127015	Clamp , oil dipstick tube attaching	1
5	RS2180	Lockwasher , oil dipstick tube attaching	1
6	RS1028	Nut , oil dipstick tube attaching	1
7	TBD	Bolt , engine rear cover attaching	1
8	R047236	Seal , engine rear cover oil	1
9	TBD	Cover , engine rear	1
10	R074030	Tube , oil pickup	1
11	RM0279	Gasket , oil pan	1
12	R005025	Oil Pan	1
13	98222030	Bolt , oil sending unit adapter attaching	2
14	R079071	Adapter , oil sending unit	1
14	TBD	Cover , oil galley	1
15	RM0284	Gasket , oil sending unit adapter	1
16	TBD	Bolt , oil pan attaching (long)	2
17	TBD	Bolt , oil pan attaching (short)	12
18	TBD	Nut , oil pickup tube attaching	1
19	TBD	Bolt , oil pickup tube attaching	1
20	TBD	Nut , windage tray attaching	10
21	TBD	O-ring , oil pickup tube	1
22	R012027	Tray , windage	1
23	TBD	Bolt , oil pump attaching	4
24	RA070018	Oil Pump Assembly	1
25	TBD	Drive , oil pump	1

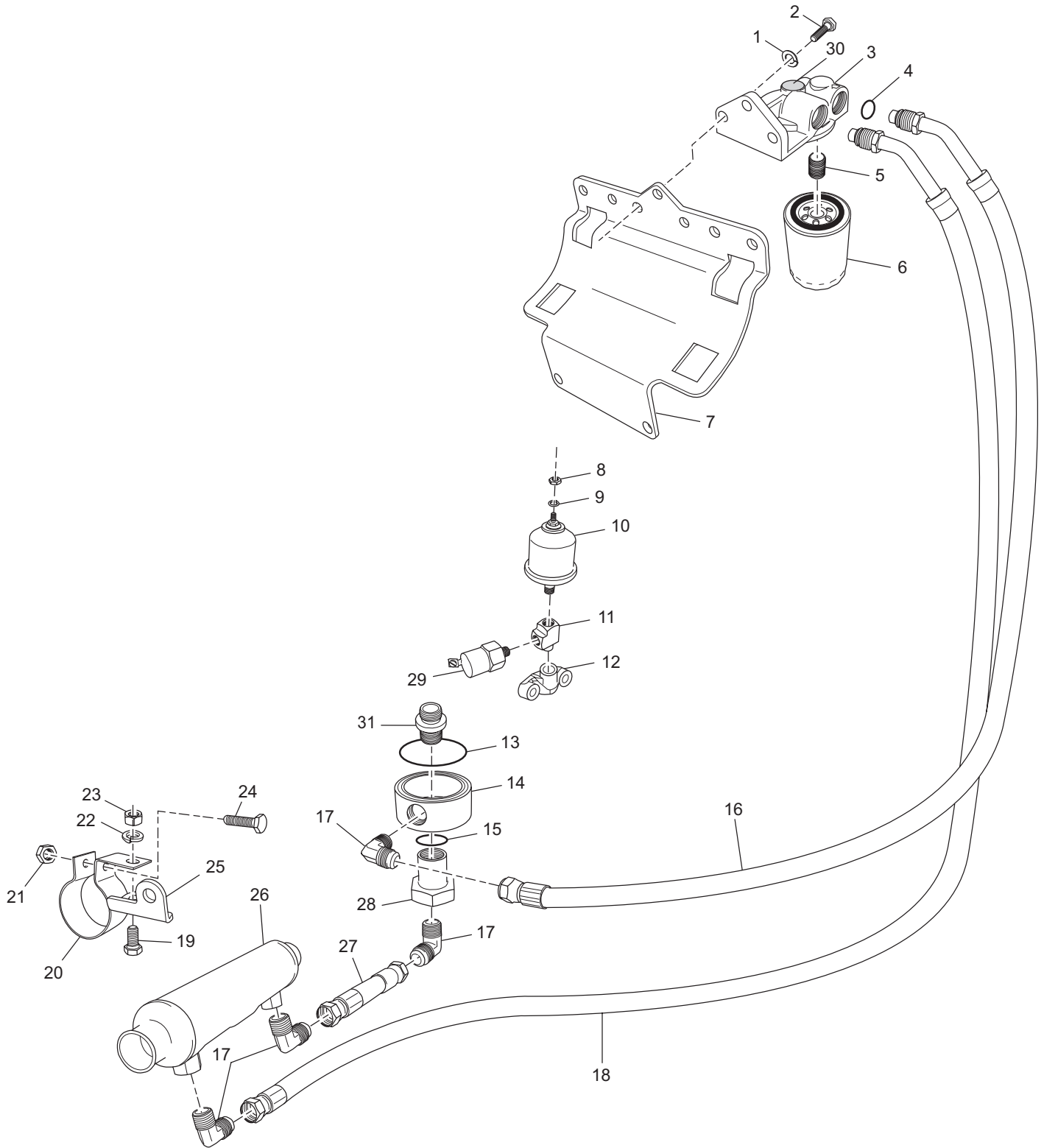
THROTTLE BODY and RELATED COMPONENTS - FIGURE 6



THROTTLE BODY and RELATED COMPONENTS - FIGURE 6

ITEM	PART NUMBER	DESCRIPTION	QUANTITY
1	R145026	Arrestor , flame	1
2	RS3857	Clamp , flame arrestor	1
3	R081008	Throttle Arm , throttle body	1
4	RA035036B	Throttle Body Assembly	1
5	R084003	Valve , idle air control	1
6	TBD	Screw , IAC valve attaching	2
7	TBD	Screw , TP sensor attaching	2
8	R020041	Sensor , throttle position	1
9	R178003	Ball Joint Assembly , cable attaching	1
10	RS2055	Locking Nut , cable clip mounting bolt	2
11	R090267	Throttle Bracket , intake	1
11A	R090267A	Throttle/Degas Bottle Bracket , optional	1
12	98222018	Bolt , throttle cable bracket attaching	2
13	R090086	Cable Clip , throttle attaching	1
14	RS5122	Bolt , cable clip mounting	2
15	RS1078	Nut , throttle arm attaching	2
16	RS0251	Bolt , throttle arm attaching	2

REMOTE OIL FILTER COMPONENTS - FIGURE 7

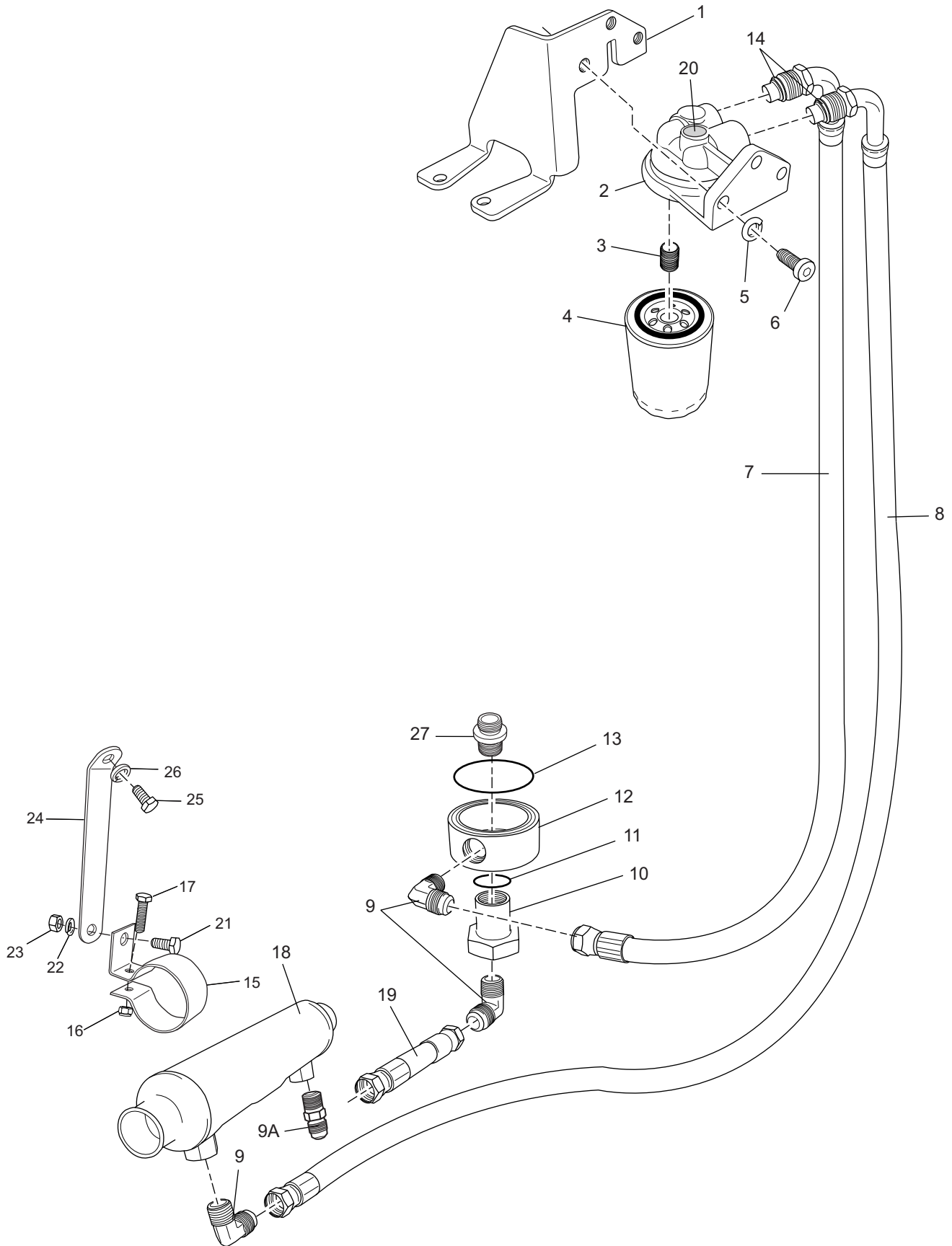


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REMOTE OIL FILTER COMPONENTS - FIGURE 7

ITEM	PART NUMBER	DESCRIPTION	QUANTITY
1	93930000	Lockwasher , oil filter header mounting	3
2	99333020	Bolt , oil filter header mounting	3
3	R079066	Oil Filter Header	1
4	R047245	O-Ring , oil line	2
5	R024203	Nipple , header filter adapter	1
6	22679	Filter , oil	1
7	R090258	Bracket , heat exchanger	1
8	95011000	Nut , sender terminal	1
9	95300300	Lockwasher , sender terminal	1
10	R020001	Sender , oil pressure	1
11	R024145	Tee , sender attaching	1
12	R079071	Adapter , oil sending unit	1
13	R047240	O-ring , oil bypass adapter	1
14	R079067	Adapter , oil bypass	1
15	R047202	O-ring , oil bypass adapter attaching fitting	1
16	RA045155	Hose , oil, adapter to remote oil filter	1
17	R024184	Fitting , 90 degree	4
18	RA045155A	Hose , oil, oil cooler to remote oil filter	1
19	RS0302	Bolt , oil cooler strap attaching	1
20	R090010	Strap , oil cooler	1
21	RS2058	Nut , oil cooler strap	1
22	RS2180	Washer , lock, oil cooler strap attaching	1
23	95300000	Nut , oil cooler strap attaching	1
24	RS0256	Bolt , oil cooler strap	1
25	R090013A	Bracket , oil cooler	1
26	R147049	Cooler , oil	1
27	RA045103D	Hose , oil, oil cooler to adapter	1
28	R079068	Nut , oil bypass adapter attaching	1
29	R020015A	Switch , oil pressure	1
30	R143175	Decal , "Caution Hot"	1
31	R079074	Adapter , engine to oil bypass	1

OPTIONAL REMOTE OIL FILTER COMPONENTS - FIGURE 8

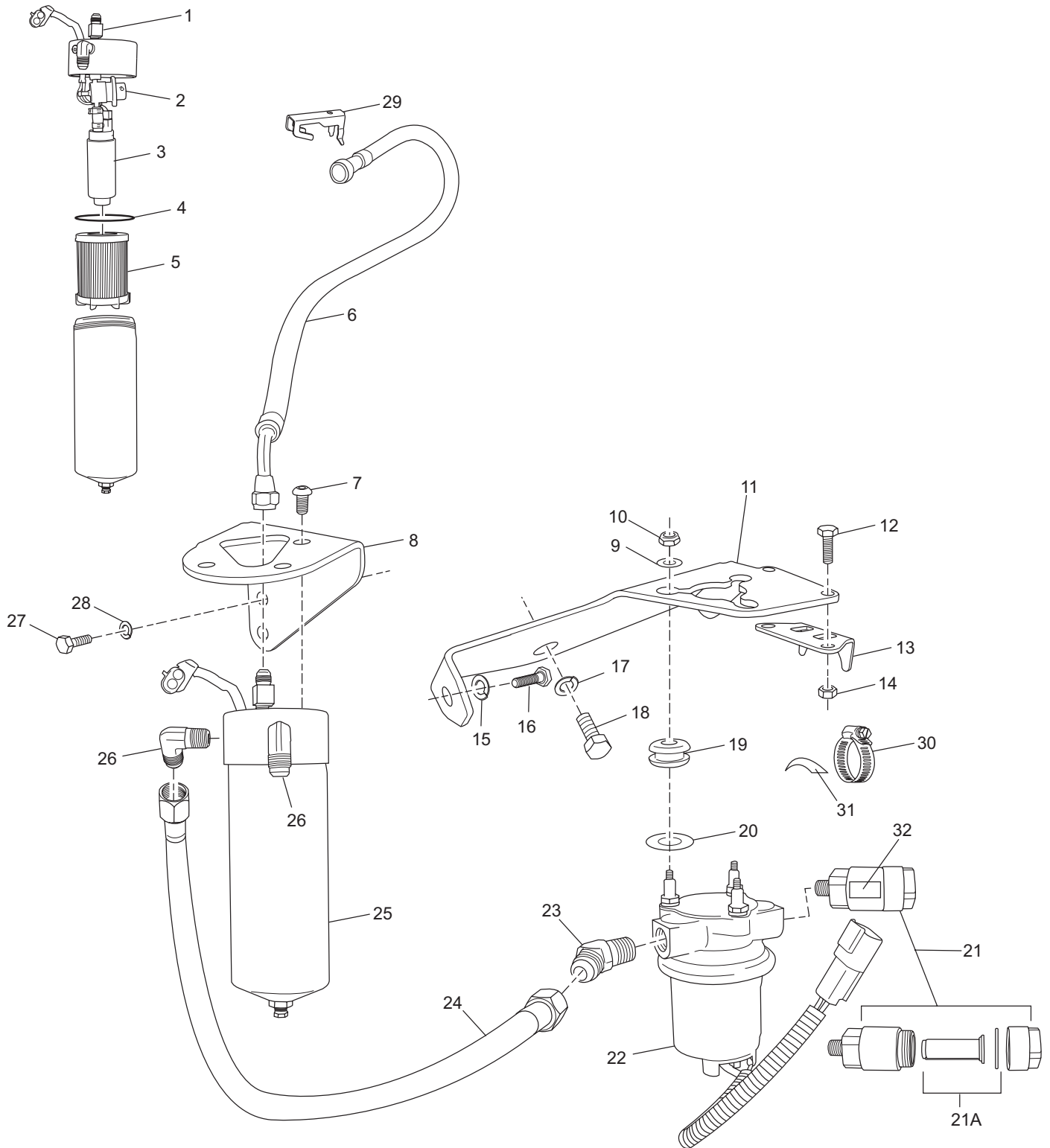


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OPTIONAL - REMOTE OIL FILTER COMPONENTS - FIGURE 8

ITEM	PART NUMBER	DESCRIPTION	QUANTITY
1	R090275	Bracket , oil filter header mounting	1
2	R079066	Oil Filter Header	1
3	R024203	Nipple , header filter adapter	1
4	22679	Filter , oil	1
5	93930000	Lockwasher , oil filter header mounting	3
6	99333020	Bolt , oil filter header mounting	3
7	RA045120B	Hose Assembly , bypass adapter to filter header	1
8	RA045120D	Hose Assembly , filter header to bypass adapter	1
9	R024184	Fitting , 90 degree	3
9A	R024183	Fitting , oil cooler	3
10	R079068	Fitting , oil bypass adapter attaching	1
11	R047202	O-ring , oil bypass adapter attaching fitting	1
12	R079067	Adapter , oil bypass	1
13	R047240	O-ring , oil bypass adapter	1
14	R047245	O-Ring , oil line	2
15	R090010	Strap , oil cooler	1
16	RS2058	Nut , oil cooler strap	1
17	RS0256	Bolt , oil cooler strap	1
18	R147049	Cooler , oil	1
19	RA045121A	Hose , oil, oil cooler to adapter	1
20	R143175	Decal , "Caution Hot"	1
21	90318275	Bolt , oil cooler clamp to bracket attaching	1
22	9330000	Lockwasher , oil cooler clamp to brkt attaching	1
23	95310300	Nut , oil cooler clamp to bracket attaching	1
24	R090233A	Bracket , oil cooler attaching	1
25	98443025	Bolt , bracket attaching	1
26	93940000	Lockwasher , bracket attaching	1
27	R079074	Adapter , engine to oil bypass	1

FUEL CONTROL CELL (FCC) COMPONENTS - FIGURE 9

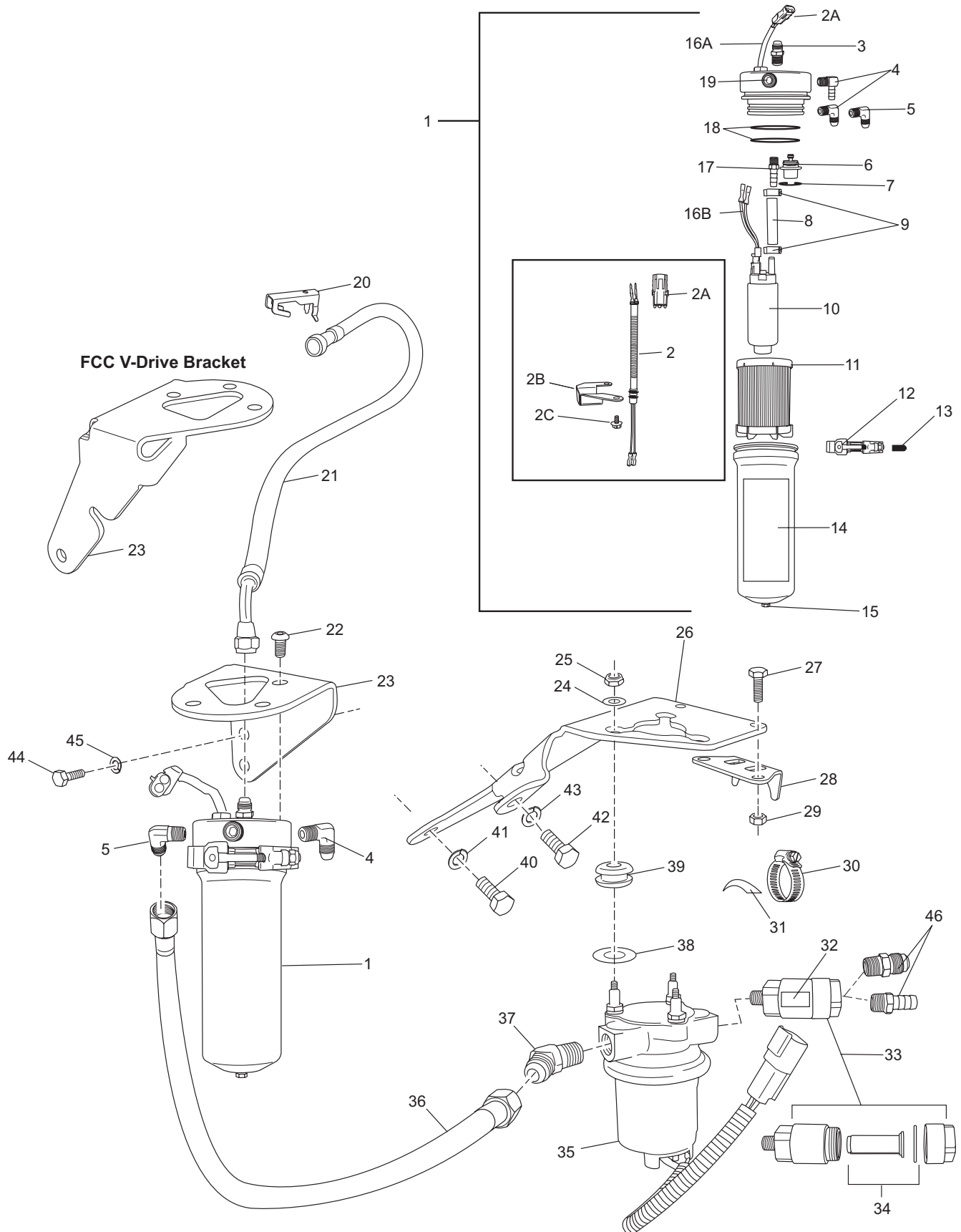


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FUEL CONTROL CELL (FCC) COMPONENTS - FIGURE 9

ITEM	PART NUMBER	DESCRIPTION	QUANTITY
1	R024214	Fitting , fuel line	1
2	R088004	Regulator , fuel pressure (FCC System Only)	1
3	RA080027	Pump , high pressure fuel	1
4	R047214	O-ring , FCC sealing (p/o item #5)	1
5	RP080026	Filter , FCC fuel	1
6	RA085090C	Hose Assembly , FCC to fuel rail (inlet)	1
6	RA085090B	Hose Assembly , FCC to fuel rail (inlet), V-DRIVE	1
7	90384075	Bolt , FCC attaching	3
8	R090276	Bracket , FCC mounting	1
8	R090277	Bracket , FCC mounting, V-DRIVE	1
9	R096142	Washer , flat, mounting, upper	3
10	RS1521L	Locking Nut , low-pressure fuel pump	3
11	R090286	Bracket , low-pressure fuel pump mounting	1
12	RS0251	Bolt , pre-filter bracket attaching	2
13	R090272	Bracket , pre-filter mounting	1
NI	RS3858	Clamp , pre-filter 1 ¼"	1
NI	R094040	Isolator , rubber, w/ adhesive	1
14	RS1078	Nut , w/lockwasher, pre-filter bracket attaching	2
15	93930000	Lockwasher , LPFP bracket attaching, mount	1
16	99333020	Bolt , LPFP bracket attaching, mount	1
17	93940000	Lockwasher , LPFP bracket attaching, block	1
18	98443025	Bolt , LPFP bracket attaching, block	1
19	R094035A	Grommet , isolator	3
20	R096141	Washer , fuel pump mounting, lower	3
21	RA077014	Pre-filter , fuel	1
21A	RP077014	Kit , fuel filter and seal	1
22	RA080018	Fuel Pump , low-pressure	1
23	R024197	Fitting , 45 degree	1
23	R024163	Fitting , 90 degree, V-DRIVE	1
24	RA085071	Hose Assembly , low-pressure pump to FCC	1
24	RA085071B	Hose Assembly , low-pressure pump to FCC, V-DRIVE	1
25	RA080030	Fuel Control Cell Assembly	1
NI	R143112	Decal , FCC operating instructions	1
NI	R143114	Decal , Warning, fuel leaks	1
26	R024163	Fitting , 90 degree	2
27	98443025	Bolt , FCC mounting bracket	2
28	93940000	Lockwasher , FCC mounting bracket	2
29	R127100	Retainer , fuel line	1
30	RS3858	Clamp , pre-filter 1 ¼"	1
31	R094040	Isolator , rubber, w/ adhesive	1
32	R143174	Decal , pre-filter	1

2005 - FUEL CONTROL CELL (FCC) COMPONENTS - FIGURE 10

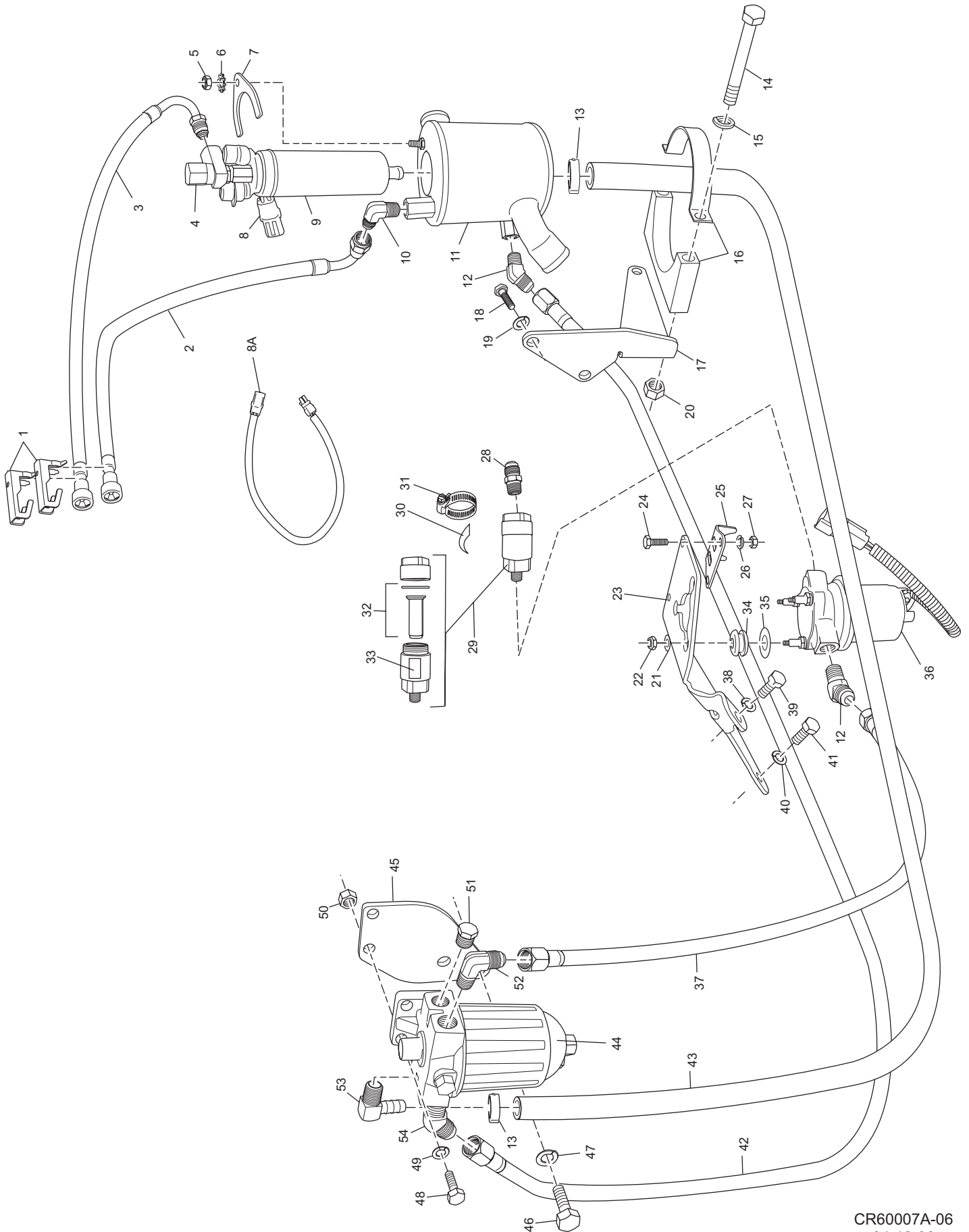


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2005 - FUEL CONTROL CELL (FCC) COMPONENTS - FIGURE 10

ITEM	PART NUMBER	DESCRIPTION	QUANTITY
1	RA080030A	Fuel Control Cell Assembly	1
2	R121085A	Harness , 1-piece, FCC pass through (1-piece harness does not retro fit for 2-piece harness)	1
2A	7172040	Connector , W/P 2-way Female	1
2B	R012030	Baffle , FCC used w/1-piece harness	1
2C	91620025	Screw , self tapping, baffle/1-piece harness retaining	2
3	R024175	Fitting , 1/4 NPT X SAE	1
4	R024089	Fitting , 1/4 NPT to Hose (return to tank)	1
4	R024076	Fitting , 1/4 NPT to SAE (return to tank)	1
5	R024163	Fitting , 1/4 NPT X SAE (from LPFP)	1
6	R088004	Regulator , fuel pressure (FCC System Only)	1
7	R048070	Retainer , fuel pressure regulator	1
8	R045098B	Hose , 5/16id X 1/2od X 2 1/2	1
9	R127087	Clamp , Oetiker, 5/8	2
10	RA080027	Pump , high pressure fuel	1
11	R080026	Filter , fuel (FCC)	1
NI	RP080026	Kit , FCC filter and O-rings	1
12	R171010	Clamp , FCC	1
13	R128002	Cover , T-bolt end	1
14	R143112A	Decal , FCC	1
15	RS3554	Plug , pipe, hex head, 1/8	1
16A	RA121060	Harness , FCC Feed through	1
16B	RA121061A	Harness , FCC internal	1
17	R024219	Fitting , 1/8 NPT X 5/16 Barb	1
18	R047241	O-Ring , FCC sealing	1
19	RS3550	Plug , pipe, hex socket, 1/4	1
20	R127100	Retainer , fuel line	1
21	RA085090C	Hose Assembly , FCC to fuel rail (inlet)	1
21	RA085090B	Hose Assembly , FCC to fuel rail (inlet), V-DRIVE	1
22	90384075	Bolt , FCC attaching	3
23	R090276	Bracket , FCC mounting	1
23	R090277	Bracket , FCC mounting, V-DRIVE	1
24	R096142	Washer , flat, mounting, upper	3
25	RS1521L	Locking Nut , low-pressure fuel pump	3
26	R090286	Bracket , low-pressure fuel pump mounting	1
27	RS0251	Bolt , pre-filter bracket attaching	2
28	R090272	Bracket , pre-filter mounting	1
29	RS1078	Nut , w/lockwasher, pre-filter bracket attaching	2
30	RS3858	Clamp , pre-filter 1 1/4"	1
31	R094040	Isolator , rubber, w/ adhesive	1
32	R143174	Decal , pre-filter	1
33	RA077014	Fuel Pre-filter Assembly, 150 micron	1
34	RP077014	Kit , fuel filter and seal	1
35	RA080018	Fuel Pump , low-pressure	1
36	RA085071	Hose Assembly , low-pressure pump to FCC	1
37	R024197	Fitting , 45 degree	1
37	R024163	Fitting , 90 degree, V-DRIVE	1
38	R096141	Washer , fuel pump mounting, lower	3
39	R094035A	Grommet , isolator	3
40	98443025	Bolt , LPFP bracket attaching, block	1
41	93940000	Lockwasher , LPFP bracket attaching, block	1
42	98443030	Bolt , LPFP bracket attaching, mount	1
43	93940000	Lockwasher , LPFP bracket attaching, mount	1
44	98443025	Bolt , FCC mounting bracket	2
45	93940000	Lockwasher , FCC mounting bracket	2
46	30603	Fitting , fuel inlet, pre-filter, 3/8 NPT X 1/2 SAE	1
46	R024218	Fitting , fuel inlet, pre-filter, 3/8 NPT X 1/2 hose barb	1
NI	R143114	Decal , Warning, fuel leaks	1

RETURNLESS FUEL SYSTEM COMPONENTS - FIGURE 11

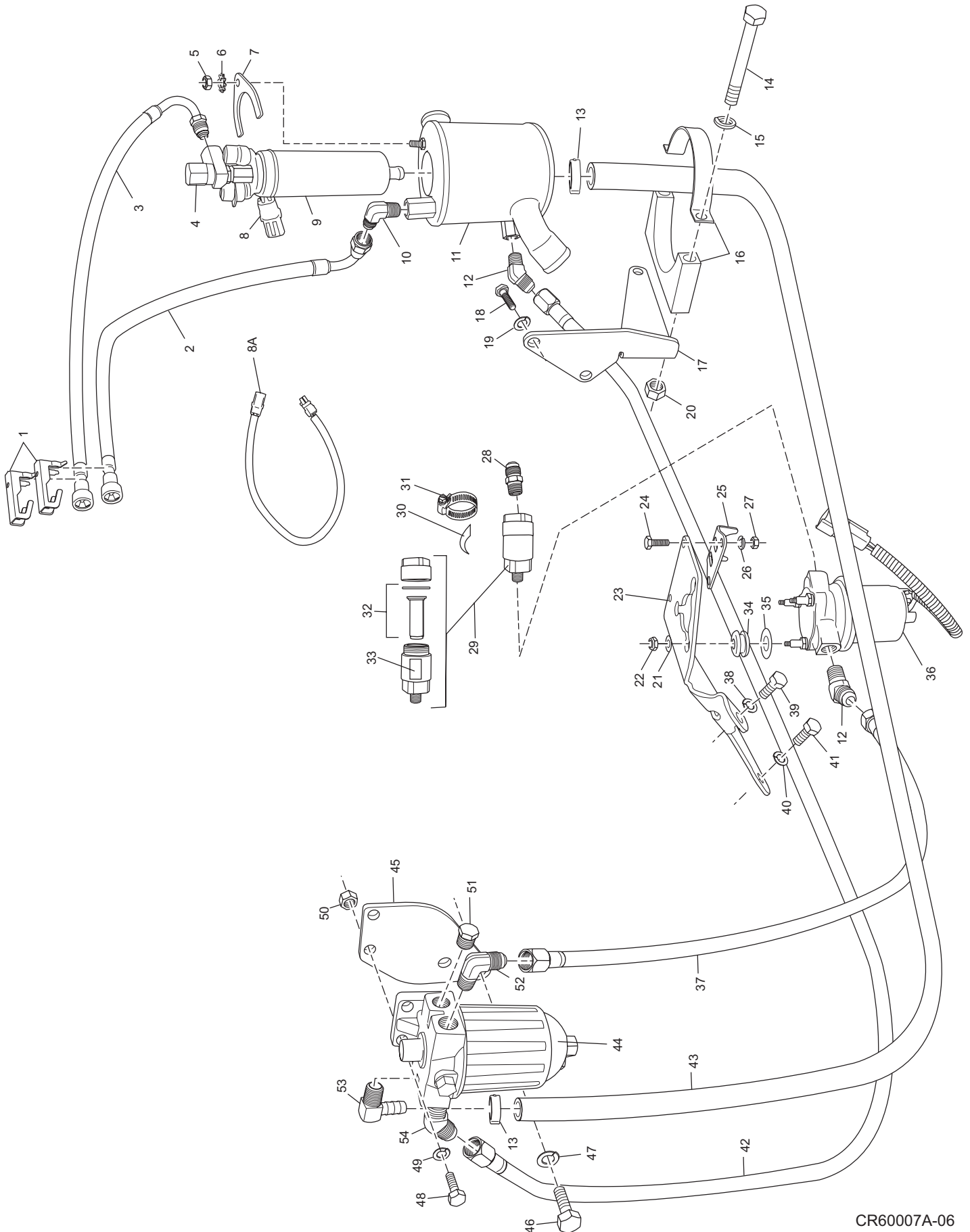


CR60007A-06
04-12-06

RETURNLESS FUEL SYSTEM COMPONENTS - FIGURE 11

ITEM	PART NUMBER	DESCRIPTION	QUANTITY
1	R127100	Locking Clip , fuel line	2
2	RA085091B	Fuel Line Assembly , fuel rail to fuel cooler	1
3	RA085099	Fuel Line Assembly , fuel pump to fuel rail	1
4	98442	Nut , fitting to fuel pump	1
NI	23516	O-ring , fuel fitting sealing	1
NI	98440	Fitting , fuel line to fuel pump	1
NI	23515	O-ring , fuel fitting sealing	1
5	RS1078	Nut , w/lockwasher, fuel pump retainer attaching (RS1078 replaces items 5 and 6)	1
6	NSS	Starwasher , retaining nut	1
7	98642	Retainer , fuel pump	1
8	49038	Harness , fuel pump	1
8A	R121078	Harness , extension, fuel pump	AR
9	47039	Electric Fuel Pump Assembly	1
10	R024204	Fitting , 90 degree	3
11	RA147051	Fuel Cooler Assembly	1
NI	23649	Decal , fuel Warning	1
12	R024197	Fitting , 45 degree (use (1), V-DRIVE)	2
12	R024163	Fitting , 90 degree, LPFP to filter, v-drive	1
13	R127087E	Clamp , Oetiker 7/8"	2
14	90318325	Bolt , fuel cooler attaching	2
15	RS2180	Lockwasher , fuel cooler attaching	2
16	23554	Retainer , fuel cooler attaching	1
17	R090297	Bracket , fuel cooler mounting	1
17	R090290	Bracket , fuel cooler mounting, V-DRIVE	1
18	98443025	Bolt , fuel cooler bracket attaching	2
19	93940000	Lockwasher , fuel cooler bracket attaching	2
20	95310300	Nut , nylock, fuel cooler attaching	2
21	R096142	Washer , flat, mounting, upper	3
22	RS1521L	Locking Nut , low-pressure fuel pump	3
23	R090286	Bracket , low-pressure fuel pump mounting	1
24	RS0251	Bolt , pre-filter bracket attaching	2
25	R090272	Bracket , pre-filter mounting	1
26	93940000	Lockwasher , pre-filter bracket attaching	2
27	RS1078	Nut , pre-filter bracket attaching	2
28	30603	Fitting , fuel inlet, pre-filter	1
29	R077012	Pre-filter , fuel	1

RETURNLESS FUEL SYSTEM COMPONENTS - FIGURE 11 (cont'd)

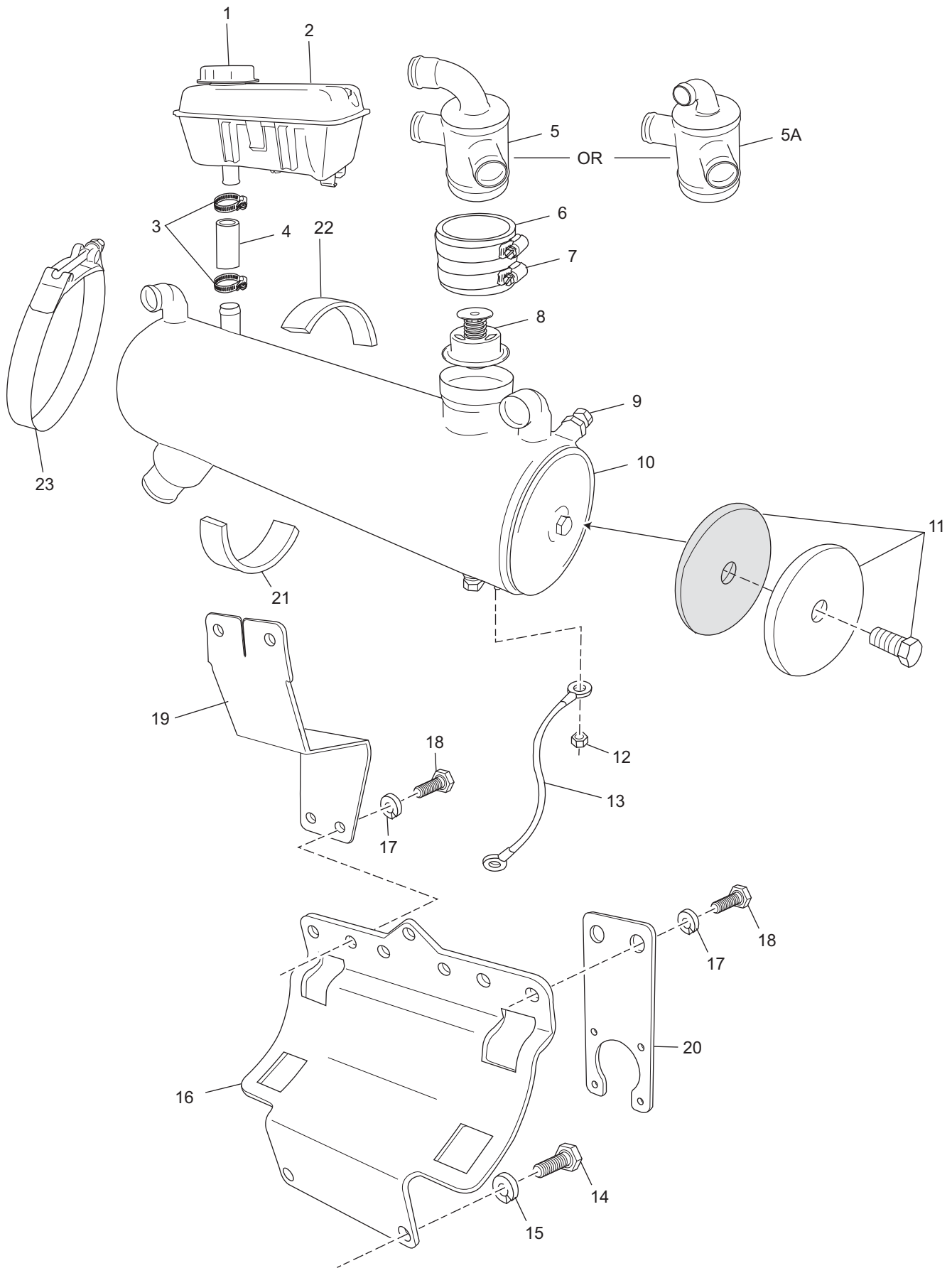


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04-12-06

RETURNLESS FUEL SYSTEM COMPONENTS - FIGURE 11(cont'd)

ITEM	PART NUMBER	DESCRIPTION	QUANTITY
30	R094040	Isolator , rubber, pre-filter	1
31	RS3858	Clamp , pre-filter	1
32	RP077014	Kit , fuel filter and seal	1
33	R143174	Decal , pre-filter	1
34	R094035A	Grommet , isolator	3
35	R096141	Washer , fuel pump mounting, lower	3
36	RA080018	Fuel Pump , low-pressure	1
37	RA085071	Fuel Line Assembly , L.P. pump to racor filter	1
38	93940000	Lockwasher , LPFP bracket attaching, mount	1
39	98443030	Bolt , LPFP bracket attaching, mount	1
40	93940000	Lockwasher , LPFP bracket attaching, block	1
41	98443025	Bolt , LPFP pump bracket attaching, block	1
42	RA085071B	Fuel Line Assembly , racor filter to cooler	1
42	RA085071	Fuel Line Assembly , racor filter to cooler (V-DRIVE)	1
43	98431	Hose , fuel line, racor filter to H.P. pump	AR
44	47046	Fuel Filter , racor water separating	1
NI	47047	Element , racor fuel filter (not shown)	1
45	R090297	Bracket , racor filter mounting	1
46	98443025	Bolt , racor filter bracket attaching	2
47	93940000	Lockwasher , racor filter bracket attaching	2
48	90205125	Bolt , racor filter mounting	2
48	92200000	Washer , racor filter mounting	2
50	RS2060	Nut , nylock, racor filter mounting	2
51	RS3552	Fitting , plug 1/4" NPT	1
52	R024163	Fitting , 90 degree, fuel in, Racor	1
53	R024207	Fitting , 90 degree, 1/2" barb, fuel out, Racor	1
54	R024197	Fitting , 45 degree, fuel return, Racor	1

HEAT EXCHANGER and COMPONENTS - FIGURE 12

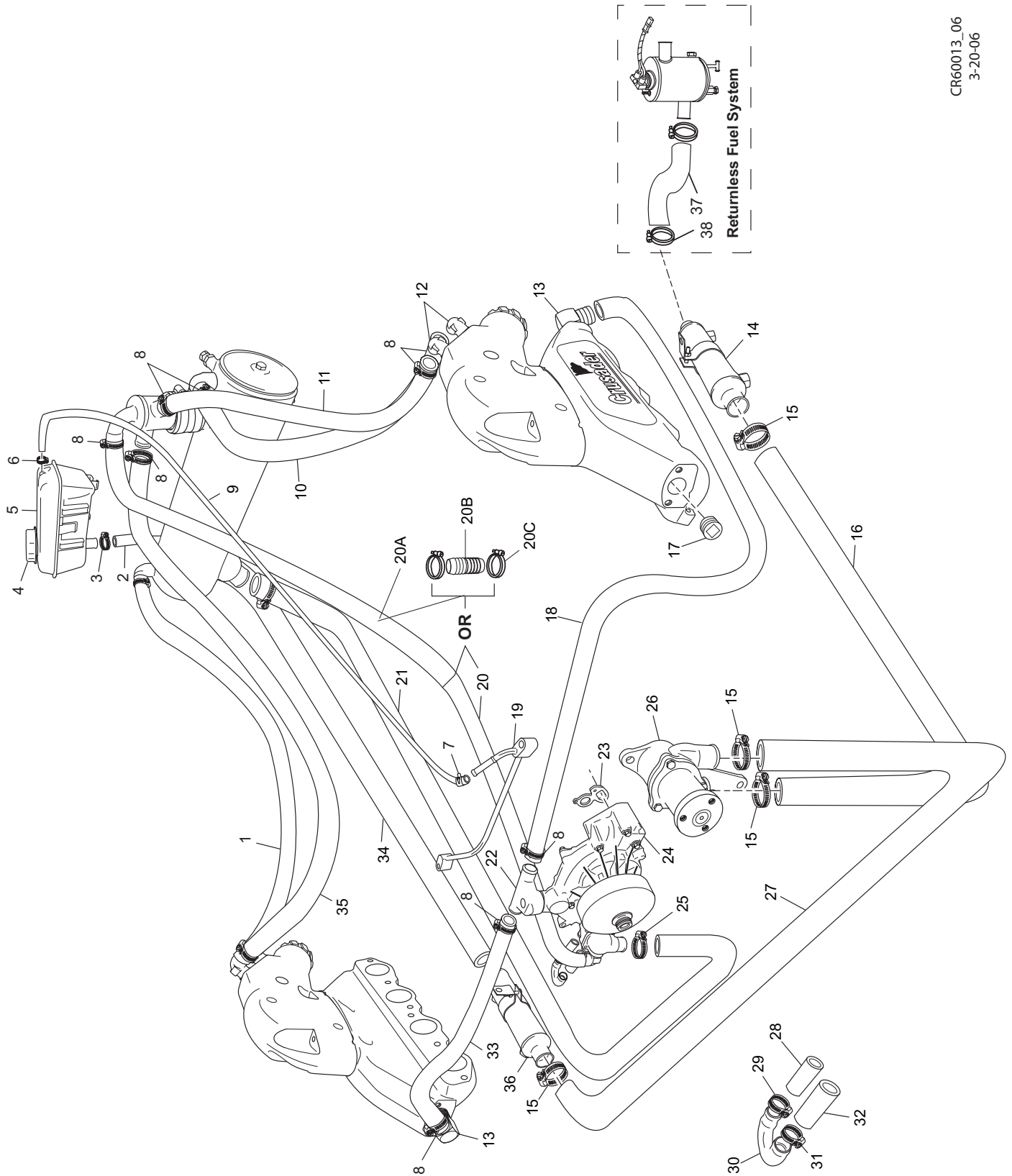


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HEAT EXCHANGER and COMPONENTS - FIGURE 12

ITEM	PART NUMBER	DESCRIPTION	QUANTITY
1	R034045	Cap , degas bottle	1
2	R146001	Bottle , degas	1
NI	R143152	Decal , specification, 6.0L	1
NI	R143153	Decal , coolant fill	1
3	RS3854	Clamp , hose	2
4	R045153	Hose , bulk 3/4" i.d., degas bottle to heat exchanger	AR
4	R045161	Hose , degas bottle to heat exchanger (vdrv)	AR
5	R025038	Housing , tstat, heat exchanger	1
5A	R025038A	Housing , tstat, heat exchanger (Optional)	1
6	98204	Hose , tstat housing	1
7	RS3860	Clamp , tstat housing	2
8	R026007	Thermostat , 170° F	1
9	R168005	Anode , sacrificial zinc	AR
10	RA147048	Heat Exchanger Assembly	1
11	23540	End Cap Kit , exchanger	AR
12	RS1078	Nut , ground wire stud	1
13	R101013	Wire , grounding	1
14	RS0304	Bolt , heat exchanger bracket attaching	2
15	RS2180	Lockwasher , h.e. bracket attaching	2
16	R090258	Bracket , heat exchanger	1
17	RS2179	Lockwasher , degas bottle brkt. attaching	4
18	RS0280	Bolt , degas bottle bracket attaching	4
19	R090311	Bracket , degas bottle	1
19	R090306	Bracket , degas bottle w/ 4" spacer	AR
20	R090291	Bracket , 10-pin connector	1
21	R094040	Isolator , rubber, adhesive, bottom	1
NI	R094041	Isolator , rubber, top	2
22	R171009	Clamp , exchanger mounting	2
NI	23627	Decal , Protective Anode	1
NI	R143162-04	Decal , 6.0 Emission (C.A.R.B.) (MY '04)	1
NI	R143162A	Decal , 6.0 Emission (C.A.R.B.) (MY '05)	1
NI	R143158	Decal , "Ultra Low Emission"	1
NI	R143156	Decal , Raw Water Drain	1
NI	R143157	Decal , Fresh Water Drain	1

FRESH WATER COOLING SYSTEM COMPONENTS - FIGURE 13

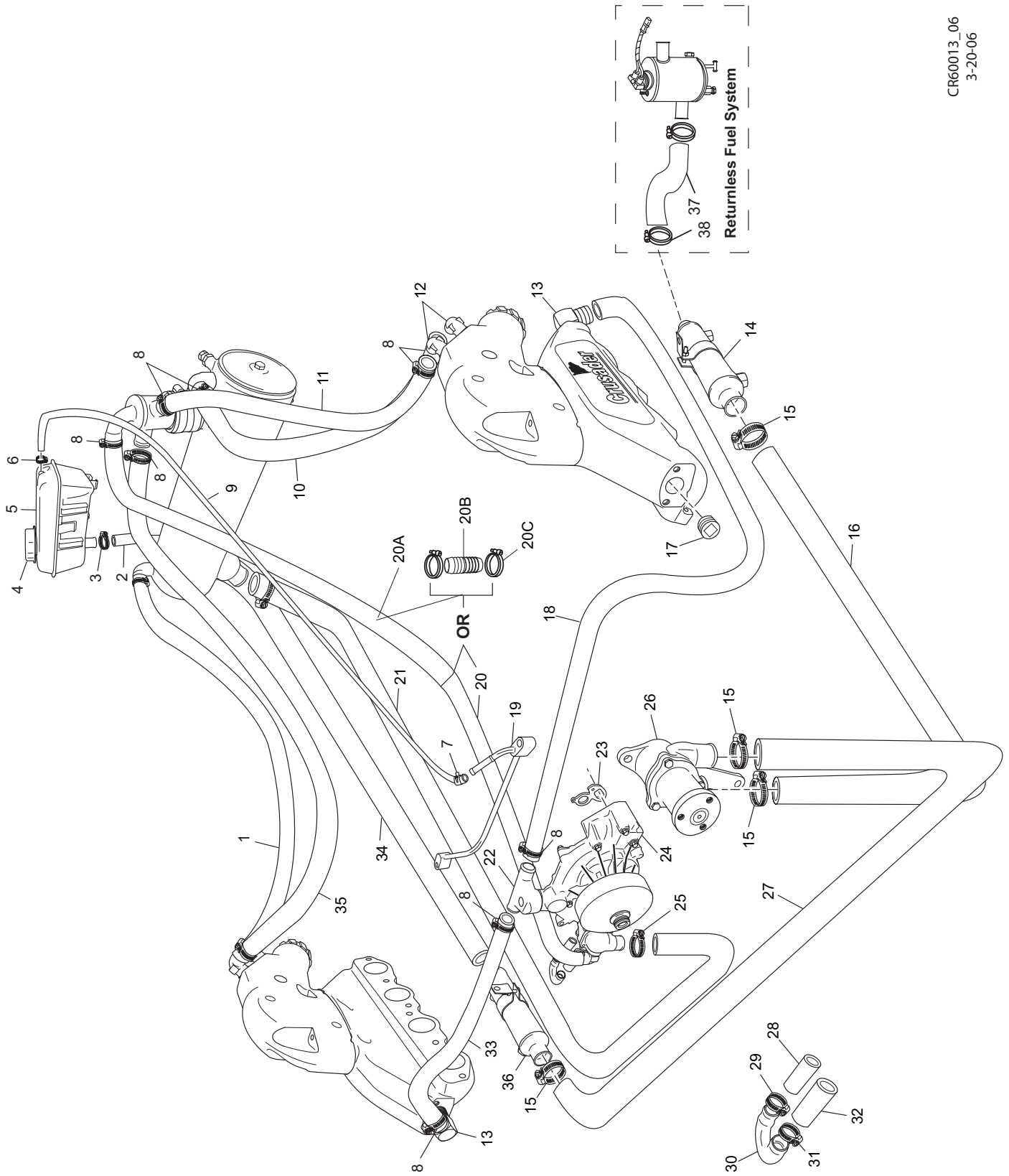


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3-20-06

FRESH WATER COOLING SYSTEM COMPONENTS - FIGURE 13

ITEM	PART NUMBER	DESCRIPTION	QUANTITY
1	R045107	Hose , bulk 1" i.d., exchanger to exhaust manifold (Starboard STD)	AR
1	R045107	Hose , bulk 1" i.d., exchanger to exhaust manifold (Starboard STD) (w/ 4" spacers)	AR
1	R045158	Hose , exchanger to exhaust manifold (Starboard V-DRIVE)	1
1	R045107	Hose , bulk 1" i.d., exchanger to exhaust manifold (Starboard V-DRIVE) (w/ 4" spacers)	AR
2	R045153	Hose , bulk 3/4" i.d., degas bottle to heat exchanger	AR
2	R045161	Hose , degas bottle to heat exchanger (V-DRIVE)	1
3	RS3854	Clamp , hose, 3/4"	2
4	R034045	Cap , degas bottle	1
5	R146001	Bottle , degas	1
6	R127087	Clamp , hose (Oetiker)	1
7	RS3870	Clamp , hose, vent (1/4")	1
8	RS3851	Clamp , hose (1")	14
9	R045132	Hose , bulk 1/4" i.d., vent to degas bottle	AR
10	R045107	Hose , bulk 1" i.d., exchanger to exhaust manifold (Port STD)	AR
10	R045107	Hose , bulk 1" i.d., exchanger to exhaust manifold (Port STD) (w/ 4" spacers)	AR
10	R045158	Hose , exchanger to exhaust manifold (Port V-DRIVE)	1
10	R045107	Hose , bulk 1" i.d., exchanger to exhaust manifold (Port V-DRIVE) (w/ 4" spacers)	AR
11	R045107	Hose , bulk 1" i.d., F/W, elbow to tstat (Port STD)	AR
11	R045107	Hose , bulk 1" i.d., F/W, elbow to tstat (Port STD) (w/ 4" spacers)	AR
11	R045158	Hose , F/W, elbow to tstat, port 1" (Port V-DRIVE)	1
11	R045107	Hose , bulk 1" i.d., F/W, elbow to tstat, (Port V-DRIVE) (w/ 4" spacers)	AR
12	727003	Fitting , 90 degree, bronze	4
13	R024006A	Fitting , 90 degree, bronze	2
14	R147049	Cooler , oil	1
15	RS3858	Clamp , hose (1 1/4")	6
16	R045152B	Hose , R/W, oil cooler to r/w pump (cut-to-fit)	1
16	R045173	Hose , R/W, oil cooler to r/w pump (OEM specific, v-drv)	1
17	113186	Plug , manifold	2
18	R045156A	Hose , F/W inlet to exhaust manifold, (Port), 1" formed	1
19	TBD	Tube , coolant air bleed	1

FRESH WATER COOLING SYSTEM COMPONENTS - FIGURE 13 (cont'd)

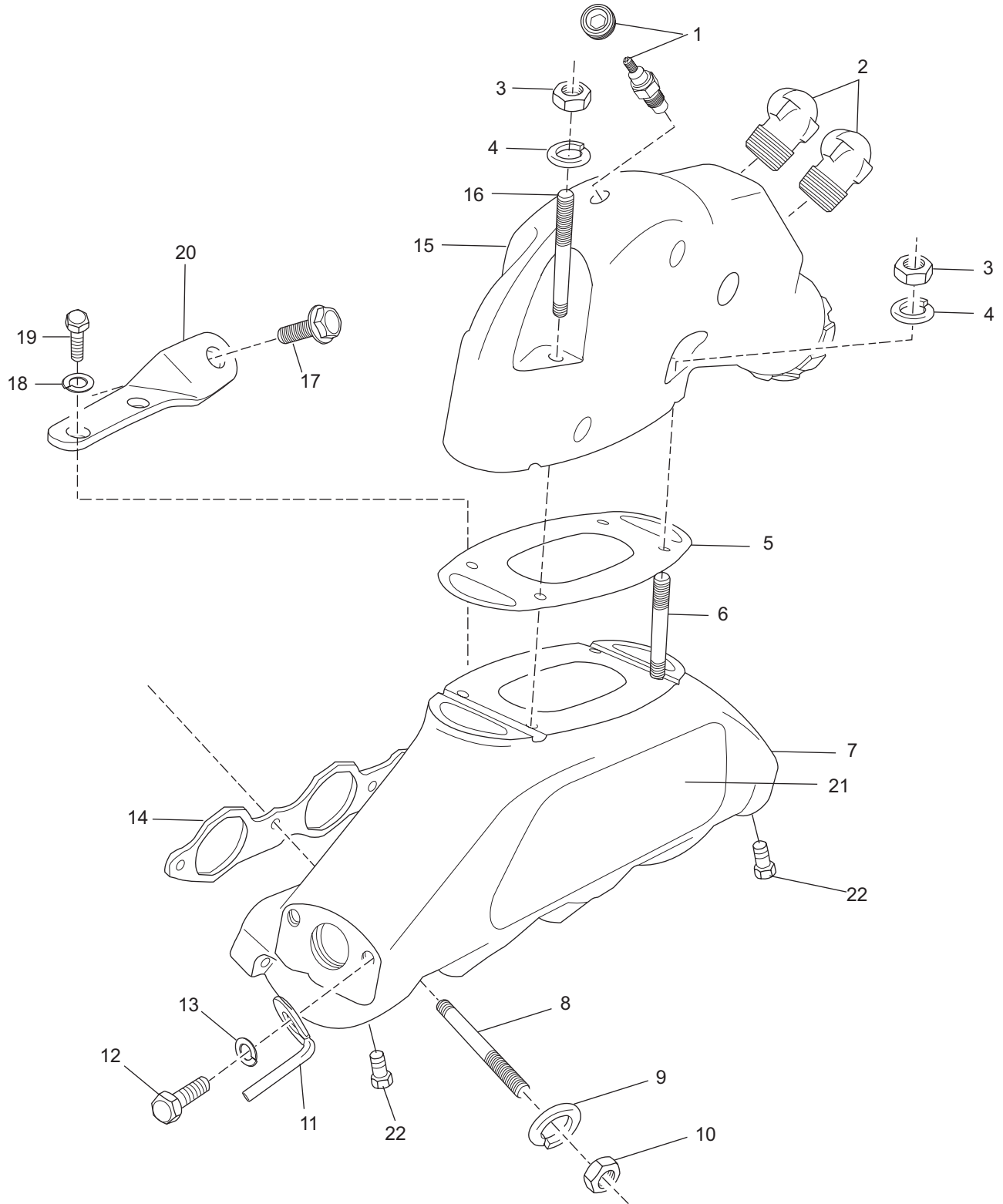


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3-20-06

FRESH WATER COOLING SYSTEM COMPONENTS - FIGURE 13 (cont'd)

ITEM	PART NUMBER	DESCRIPTION	QUANTITY
20	R045107	Hose , bulk 1" i.d., bypass, tstat to circulating pump	AR
20A	R045157A	Hose , bulk 1" i.d., bypass, tstat to circulating pump (OEM specific, v-drv)	1
20B	R024229	Fitting , union, 1" hose, couple R045157A to R045107 (OEM specific, v-drv)	1
20C	RS3851	Clamp , hose (1") (OEM specific, v-drv)	2
21	R045148	Hose , circulating pump to heat exchanger	1
22	R025035A	Waterneck , tee, F/W outlet	1
23	RM0281	Gasket , water pump to engine block	2
24	RK057033C	Water Pump Assembly	1
25	RS3868	Clamp , hose (1 1/2")	2
26	RA057032	Raw Water Pump	1
27	R045147	Hose , R/W pump to transmission cooler 1 1/4" formed (cut-to-fit)	1
27	R045172	Hose , R/W pump to transmission cooler 1 1/4" formed (OEM specific, v-drv)	1
28	R045086	Hose , bulk 5/8" i.d., U-tube, bypass	AR
29	R127087F	Clamp , U-tube, 5/8" hose (1" Oetiker)	2
30	R024210	U-tube , heater bypass	1
31	R127087G	Clamp , U-tube, 3/4" hose (1 1/16" Oetiker)	2
32	R045153	Hose , bulk 3/4" i.d., U-tube, bypass	AR
33	R045136B	Hose , F/W inlet to exhaust manifold (STBD) 1"	1
34	R045147	Hose , R/W,transmission cooler to H.E. 1 1/4" formed (cut-to-fit)	1
34	R045144A	Hose , R/W,transmission cooler to H.E. 1 1/4" formed (OEM specific, v-drv)	1
35	R045107	Hose , bulk 1" i.d., F/W, elbow to tstat, (Stbd Standard)	AR
35	R045107	Hose , bulk 1" i.d., F/W, elbow to tstat, (Stbd Standard) (w/ 4" spacer)	AR
35	R045157	Hose , F/W, elbow to tstat, (Stbd V-DRIVE)	1
35	R045107	Hose , bulk 1" i.d., F/W, elbow to tstat, (Stbd V-DRIVE) (w/ 4" spacer)	AR
36	R147006	Cooler , transmission oil	1
37	R045122	Hose , fuel cooler to oil cooler (returnless fuel system)	1
38	RS3858	Clamp , hose (1 1/4") (returnless fuel system)	2

EXHAUST MANIFOLD and COMPONENTS - FIGURE 14

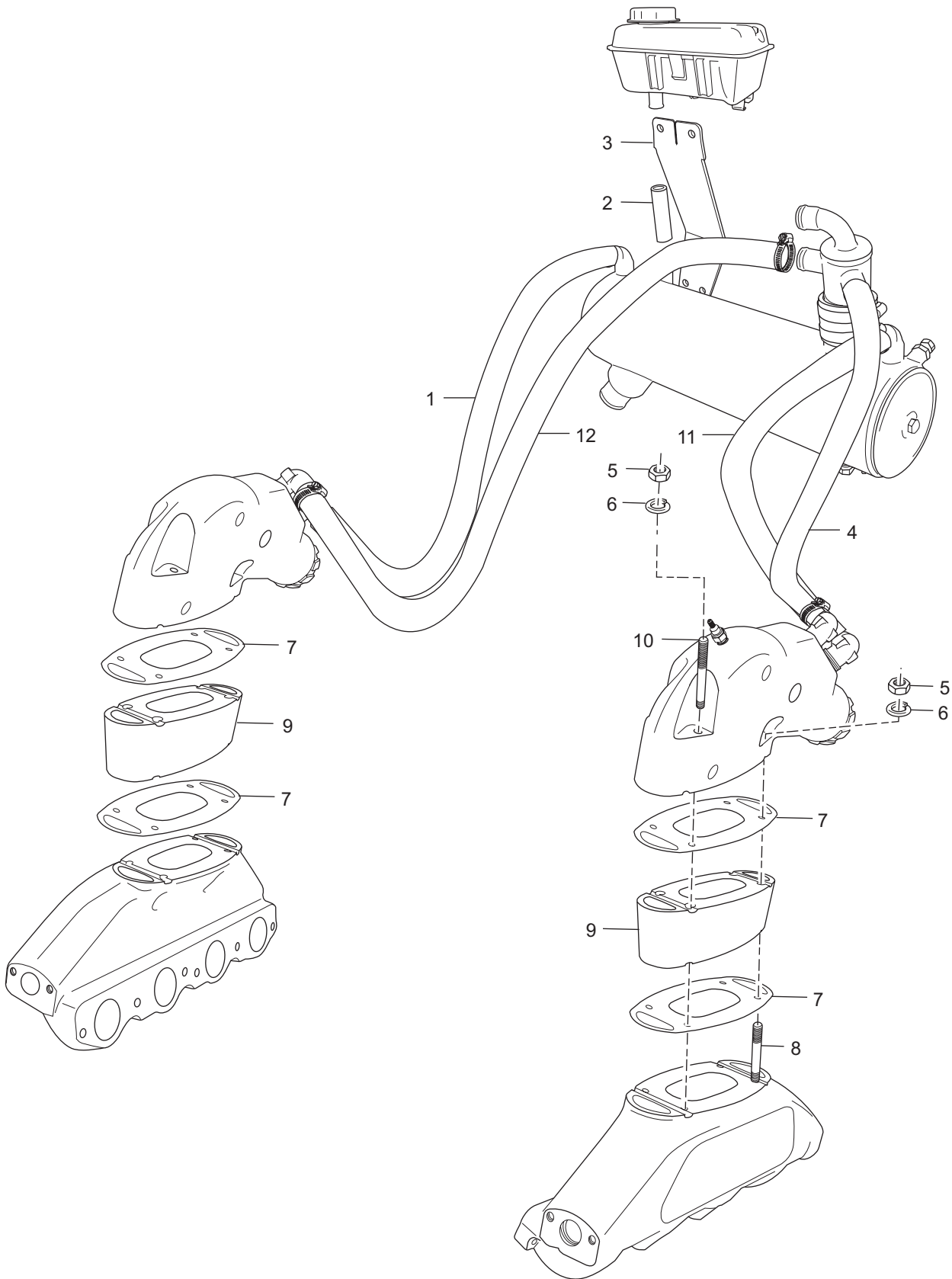


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12-9-03

EXHAUST MANIFOLD and COMPONENTS - FIGURE 14

ITEM	PART NUMBER	DESCRIPTION	QUANTITY
1	R020047	Switch , exhaust temperature	2
1	RS3539	Plug , Hex Socket, Brass 1/8" NPT	2
2	727003	Fitting , 90 degree, bronze	4
3	95310000	Nut , exhaust elbow attaching	8
4	93300000	Lockwasher , exhaust elbow attaching	8
5	RM0274	Gasket , manifold to exhaust elbow	2
6	R031036	Stud , exhaust elbow attaching (short)	4
6	R031039	Stud , exhaust elbow attaching w/4" riser (short)	AR
7	R028024	Exhaust Manifold Assembly	2
8	R031035	Stud , manifold to cylinder head attaching	12
9	93930000	Lockwasher , manifold to cylinder head attaching	12
10	97330000	Nut , manifold to cylinder head attaching	12
11	R096144	Retainer , spark plug wire clip	2
12	RS0280	Bolt , retainer attaching	2
13	RS2179	Lockwasher , retainer attaching	2
14	RM0276	Gasket , manifold to cylinder head	2
15	R029016A	Exhaust Elbow Assembly	2
16	R031037	Stud , exhaust elbow attaching (long)	4
16	R031040	Stud , exhaust elbow attaching w/4" riser (long)	AR
17	98222018	Bolt , bracket attaching	2
18	93920000	Lockwasher , bracket attaching	4
19	90165063	Bolt , bracket attaching	4
20	R090305	Bracket , manifold support	2
NI	922200020	Washer , retainer attaching	2
NI	R127090	Clip , spark plug wires	2
NI	RS3557	Fitting , plug, manifold drain	2
21	R143002G	Decal , Exhaust Manifold	2
22	RS3557	Plug , Hex Head, Brass 3/8" NPT	4
<p>*NOTE: See Fresh Water Cooling section for parts used on Fresh Water Cooled engines.</p>			

EXHAUST MANIFOLD 4" SPACER KIT COMPONENTS - FIGURE 15

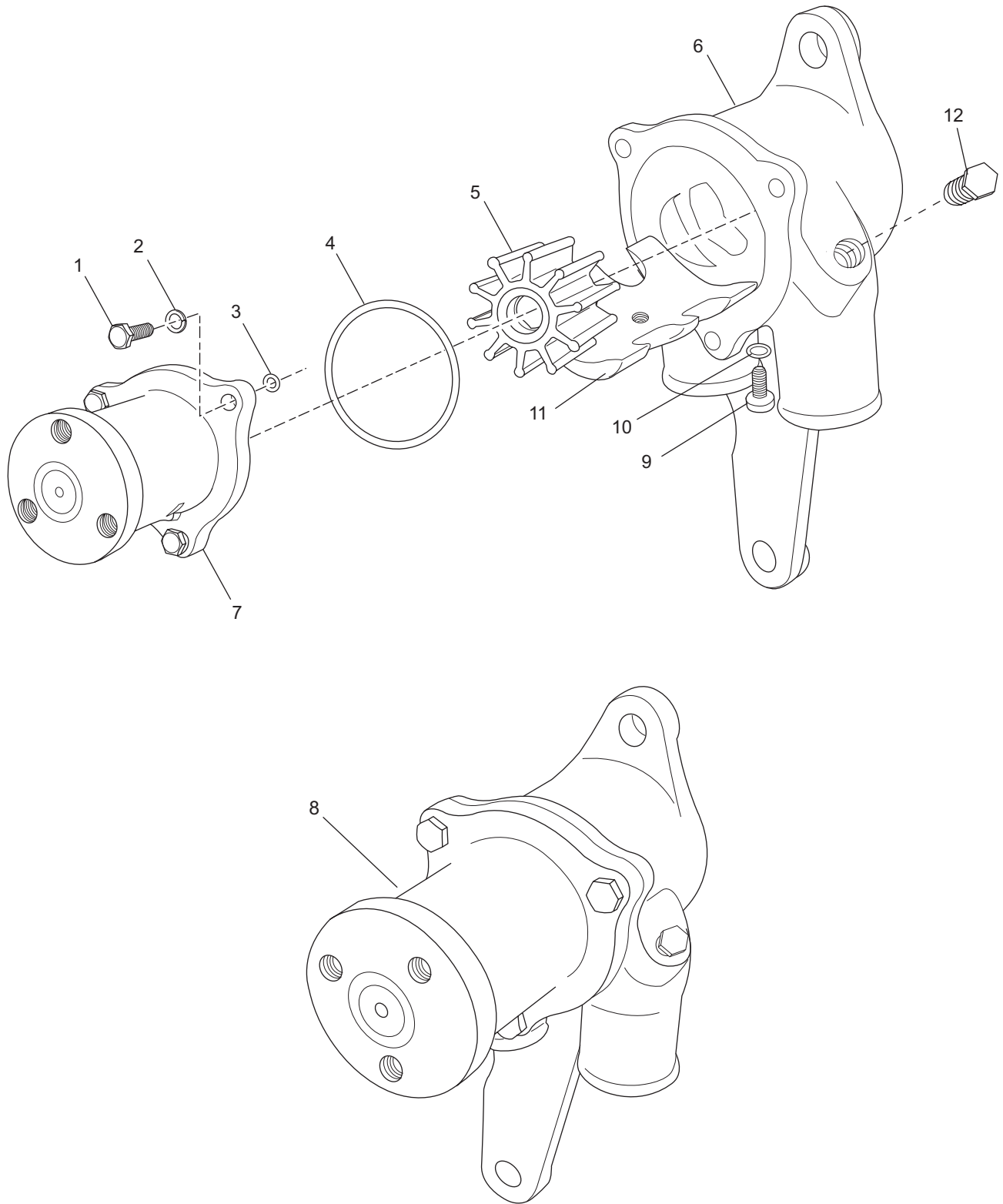


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12-10-03

EXHAUST MANIFOLD 4" SPACER KIT COMPONENTS - FIGURE 15

ITEM	PART NUMBER	DESCRIPTION	QUANTITY
1	R045107	Hose , bulk 1" i.d., heat exchanger to elbow (Starboard STD)	AR
1	R045107	Hose , bulk 1" i.d., heat exchanger to elbow (Stbd V-DRIVE)	AR
2	R045153	Hose , bulk 3/4" i.d., 6" length (w/ 4" spacers)	AR
3	R090306	Bracket , degas bottle (w/ 4" spacers)	1
4	R045107	Hose , bulk 1" i.d., elbow to heat exchanger (Port STD)	AR
4	R045107	Hose , bulk 1" i.d., elbow to heat exchanger (Port V-DRIVE)	AR
5	95310000	Nut , exhaust elbow attaching	8
6	93300000	Lockwasher , exhaust elbow attaching	8
7	RM0274	Gasket , manifold/spacer and spacer/elbow	4
8	R031039	Stud , exhaust elbow attaching w/4" riser (short)	4
9	R062086	Spacer , 4"	2
10	R031040	Stud , exhaust elbow attaching w/4" riser (long)	4
11	R045107	Hose , bulk 1" i.d., heat exchanger to elbow (Port STD)	AR
11	R045107	Hose , bulk 1" i.d., heat exchanger to elbow (Port V-DRIVE)	AR
12	R045107	Hose , bulk 1" i.d., elbow to heat exchanger (Starboard STD)	AR
12	R045107	Hose , bulk 1" i.d., elbow to heat exchanger (Stbd V-DRIVE)	AR
NI	RK062086	Kit , riser	AR

RAW WATER COOLING PUMP - FIGURE 16

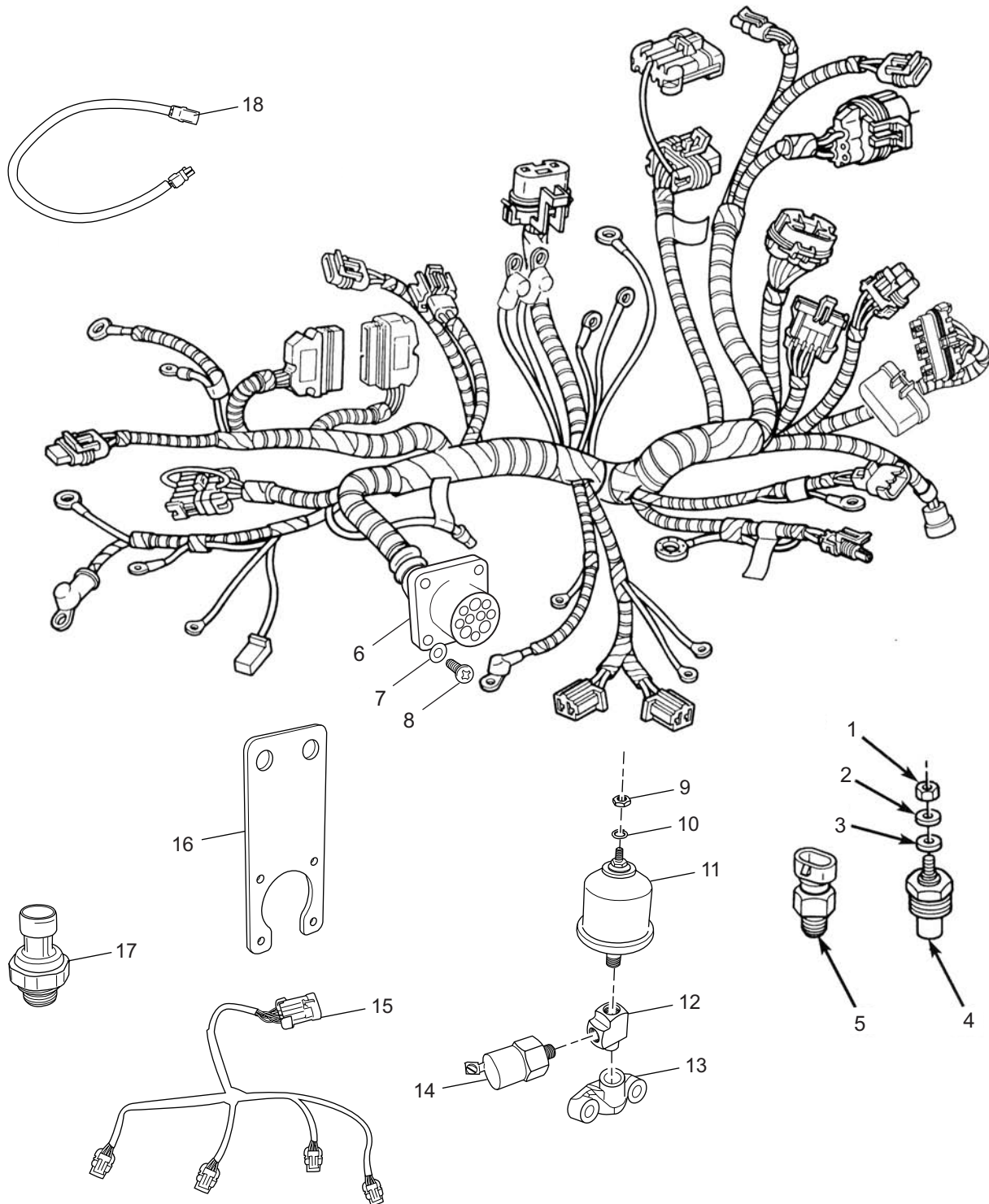


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05-23-07

RAW WATER COOLING PUMP - FIGURE 16

ITEM	PART NUMBER	DESCRIPTION	QUANTITY
1	TBD	Bolt , bearing housing attaching	3
2	TBD	Lockwasher , bearing housing attaching bolt	3
3	R047243	O-ring , bearing housing attaching bolt	3
4	R047242	O-ring , bearing housing attaching	1
5	RP061022	Impeller Kit (includes O-rings and impeller)	1
6	R057032	Housing , raw water pump	1
7	RA134071	Bearing Housing Assembly	1
8	RA057032	Raw Water Pump Assembly	1
9	TBD	Bolt , raw water pump cam	1
10	TBD	Lockwasher , raw water pump cam	1
11	R161018	Cam , raw water pump	1
12	RS3554	Plug , brass 1/8 NPT	1

WIRING HARNESS ASSEMBLIES and SENDERS - FIGURE 17

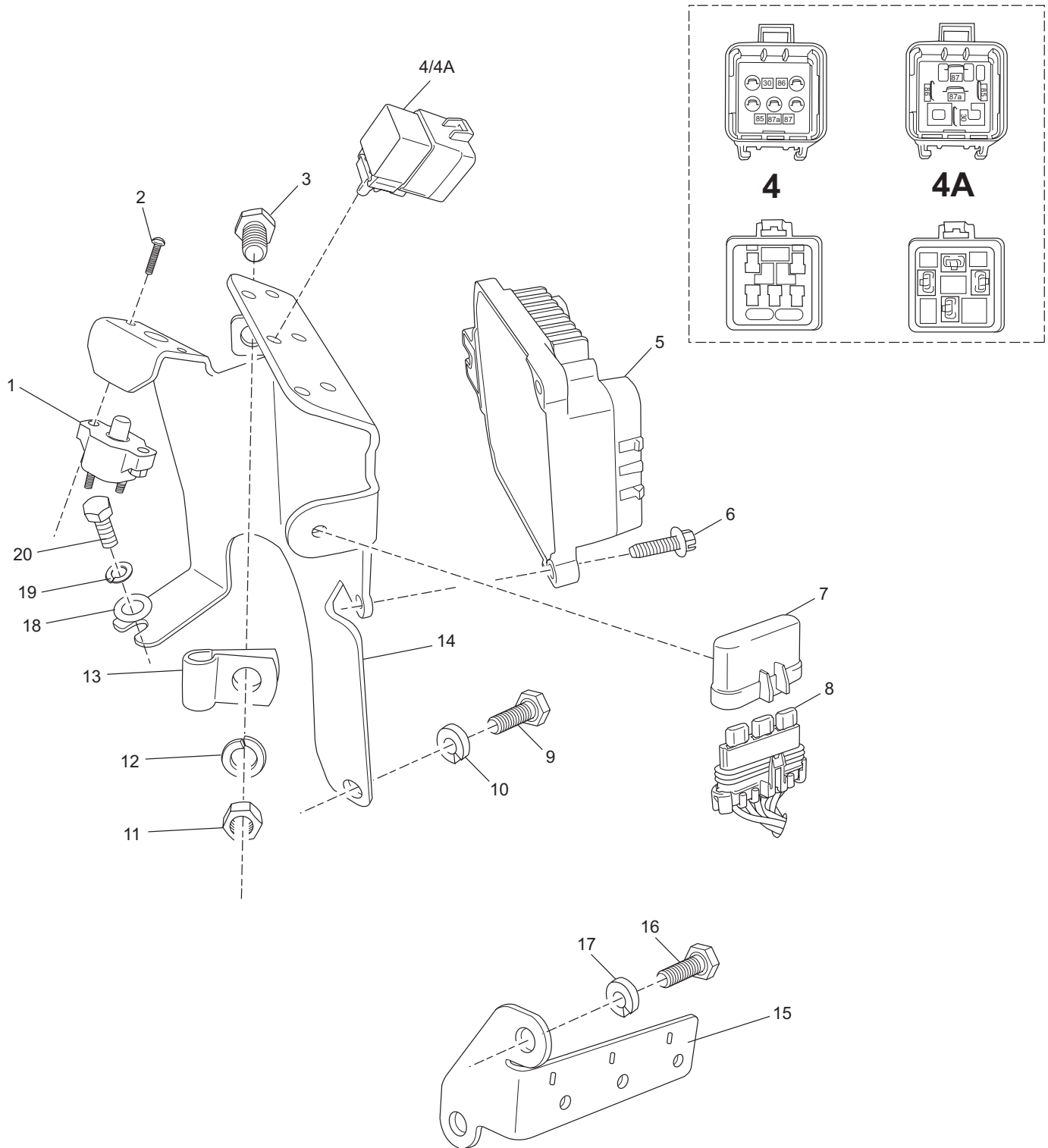


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10-11-04

WIRING HARNESS ASSEMBLIES and SENDERS - FIGURE 17

ITEM	PART NUMBER	DESCRIPTION	QUANTITY
1	RS1540	Nut , sender terminal	1
2	RS2197	Lockwasher , sender terminal	1
3	RS2746	Washer , sender terminal	1
4	R020002	Sender , temperature	1
5	R020046	Sensor , engine coolant temperature (ECT)	1
6	RA121076B	Engine Wiring Harness Assembly w/10-Pin boat harness connector	1
6	RA121083	Engine Wiring Harness Assembly w/16-Pin boat harness connector	1
7	R096142	Washer , main harness attaching	4
8	RS5115	Screw , main harness attaching	4
9	RS1540	Nut , sender terminal	1
10	RS2197	Lockwasher , sender terminal	1
11	R020001	Sender , oil pressure	1
12	R024145	Tee , sender attaching	1
13	R079071	Adapter , oil sending unit	1
14	R020015A	Switch , oil pressure	1
15	R121101	Harness , ignition coil	2
16	R090291	Bracket , 10-pin mounting	1
17	R020048	Sensor , oil pressure (used w/RA121083)	1
18	R121078	Harness , extension, fuel pump (V-Drive)	
18	RA121062D	Harness , extension, fuel pump to engine harness (used w/RA121083)	
NI	RS0280	Bolt , 10-pin brkt attaching	2
NI	RS2179	Lockwasher , 10-pin brkt attaching	2

ECM and RELAYS - FIGURE 18

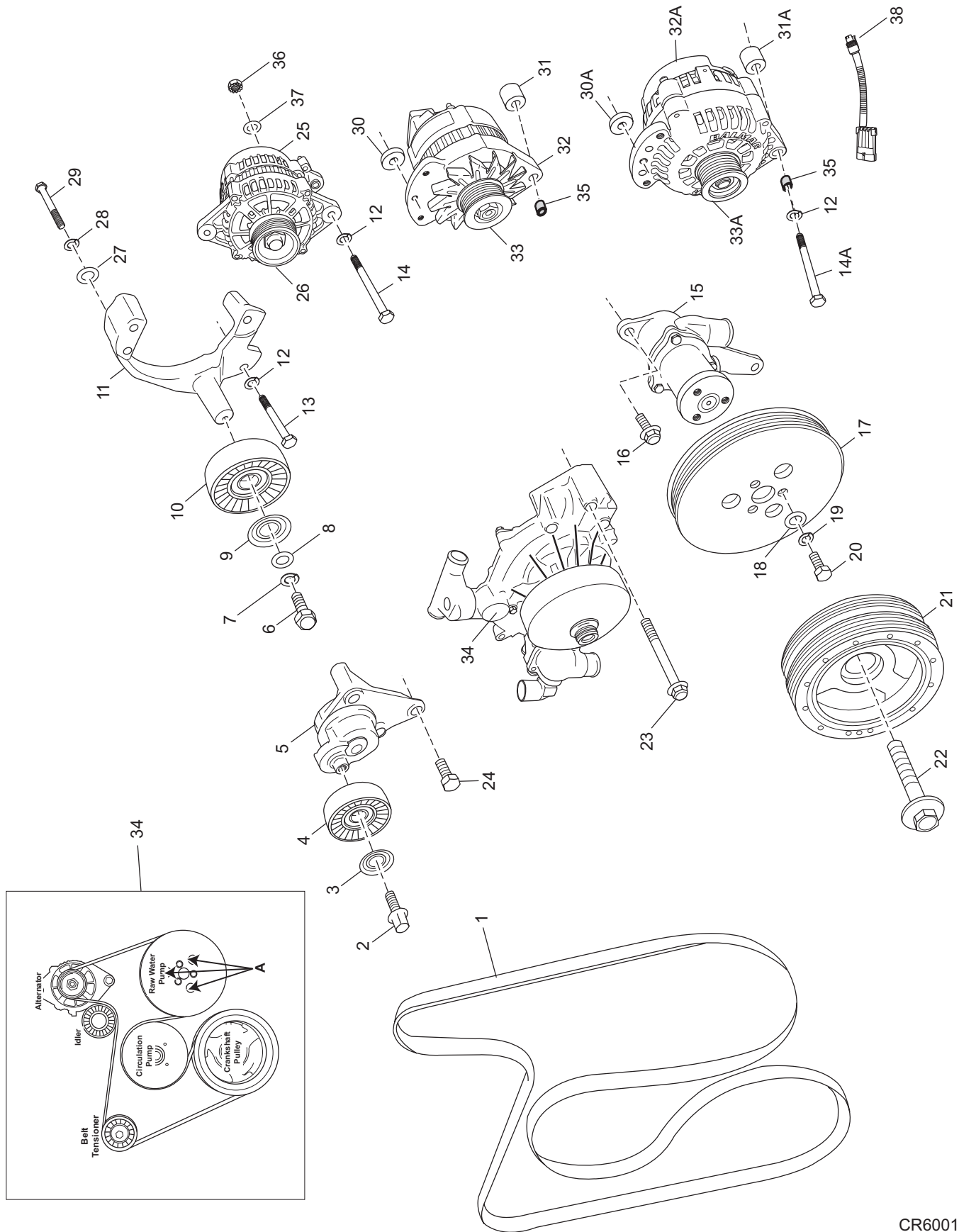


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10-12-04

ECM and RELAYS - FIGURE 18

ITEM	PART NUMBER	DESCRIPTION	QUANTITY
1	R153006C	Circuit Breaker Assembly (60 amp)	1
NI	23655	Decal , Main Circuit Breaker	1
NI	R143176	Decal , Fuse Block (replaces #23655)	1
NI	R143177	Decal , Main Circuit Breaker (replaces #23655)	1
2	RS5084	Bolt , circuit breaker mounting	2
3	RS0302	Bolt , oil dipstick tube attaching	1
4	R130012	Relay , fuel pump, ignition, starter	3
4	R130011A	Relay , fuel pump, ignition, starter (SN <u>640394</u> and higher)	3
5	R116021K cksum - 30461(76FD)	Engine Control Module (thru '05) w/10-Pin boat harness connector	1
5	R116021O cksum - 31323 (7A5B)	Engine Control Module ('05 MY) w/16-Pin boat harness connector	1
6	91107075	Bolt , ECM attaching	3
7	R126014	Cover , fuse holder	1
8	R153017B	Fuses , 20 amp	3
9	RS0302	Bolt , bracket attaching	1
10	RS2180	Lockwasher , bracket attaching bolt	1
11	RS1028	Nut , oil dipstick tube attaching	1
12	RS2180	Lockwasher , oil dipstick tube attaching	1
13	R127015	Clamp , oil dipstick tube attaching	1
14	R090283	Bracket , ECM/relay mounting	1
15	R090315	Bracket , relay mounting (use w/RA121083)	1
16	98443025	Bolt , relay bracket mounting (use w/RA121083)	2
17	93940000	Lockwasher , relay bracket mounting (use w/RA121083)	2
18	92200000	Washer , bracket attaching bolt	1
19	RS2179	Lockwasher , bracket attaching bolt	1
20	98333025	Bolt , bracket attaching	1

ACCESSORY DRIVE SYSTEM COMPONENTS - FIGURE 19



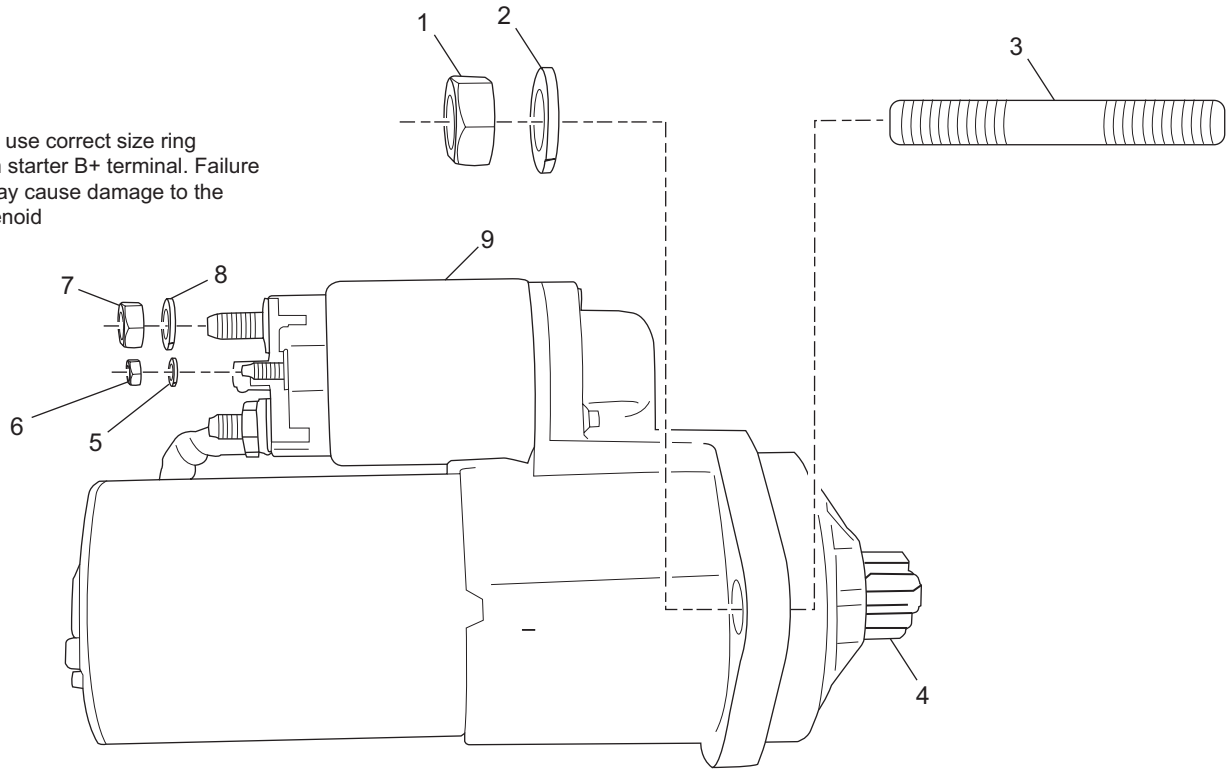
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10-12-04

ACCESSORY DRIVE SYSTEM COMPONENTS - FIGURE 19

ITEM	PART NUMBER	DESCRIPTION	QUANTITY
1	R066027	Belt , serpentine drive	1
2	part of item #5	Bolt , tensioner pulley attaching	1
3	part of item #5	Washer , tensioner pulley attaching bolt	1
4	part of item #5	Pulley , tensioner	1
5	RA068002	Tensioner , belt	1
6	RS6531	Bolt , idler pulley attaching	1
7	RS2179	Lockwasher , idler pulley attaching bolt	1
8	92940000	Washer , idler pulley attaching bolt (small)	1
9	R096145	Washer , idler pulley attaching bolt (large)	1
10	R065040	Pulley , idler	1
11	R090269	Bracket , idler pulley mounting / alternator	1
12	93940000	Lockwasher , idler pulley bracket attaching bolt	2
13	98446070	Bolt , alternator/pulley bracket attaching, lower	1
14	98443110	Bolt , alternator/bracket attaching, upper	1
14A	98443120	Bolt , alternator/bracket attaching, upper	1
15	RA057032	Raw Water Pump Assembly	1
16	98442030	Bolt , raw water pump mounting	2
17	R065050	Pulley , raw water pump	1
18	92934000	Washer , raw water pump pulley attaching	3
19	93934000	Lockwasher , raw water pump pulley attaching bolt	3
20	99335016	Bolt , raw water pump pulley attaching	3
21	R064016	Balancer , crankshaft	1
22	TBD	Bolt , crankshaft balancer	1
23	TBD	Bolt , water circulation pump attaching	6
24	TBD	Bolt , belt tensioner mounting	3
25	RA097007C	Alternator Assembly (Delco 70 amp)	1
26	R065055	Pulley , alternator (70 amp)	1
27	92930000	Flatwasher , alternator mounting	1
28	93930000	Lockwasher , alternator mounting	1
29	98339070	Bolt , alternator mounting	1
30	R062081	Spacer , upper	1
30A	R062082	Spacer , upper	1
31	R062084	Spacer , lower	1
31A	98183	Spacer , lower	1
32	RA097008A	Alternator Assembly (Balmar, 100 amp) (external fan, external regulator)	1
32A	RA097010A	Alternator Assembly (Balmar, 100 amp) (internal fan, internal regulator) (MY '05)	1
33	R065042A	Pulley , alternator (100 amp)	1
33A	TBD	Pulley , alternator (100 amp)	1
34	R143147	Decal , belt routing	1
35	R176023	Bushing , 100 Amp Alternator	1
36	97220060	Nut , KEPS 70A Alternator - BAT Terminal	1
37	92920000	Flat Washer , 70A Alternator - BAT Terminal	1
38	R121081	Harness , adapter 70A harness to 100A Alternator	AR
NI	TBD	Wire , Ground, alternator	1
NI	TBD	Wire , Charge, alternator	1
NI	R153018A	Wire , Fused, starter to circuit breaker	1

STARTER ASSEMBLY COMPONENTS - FIGURE 20

Note: Must use correct size ring terminal on starter B+ terminal. Failure to do so may cause damage to the starter solenoid

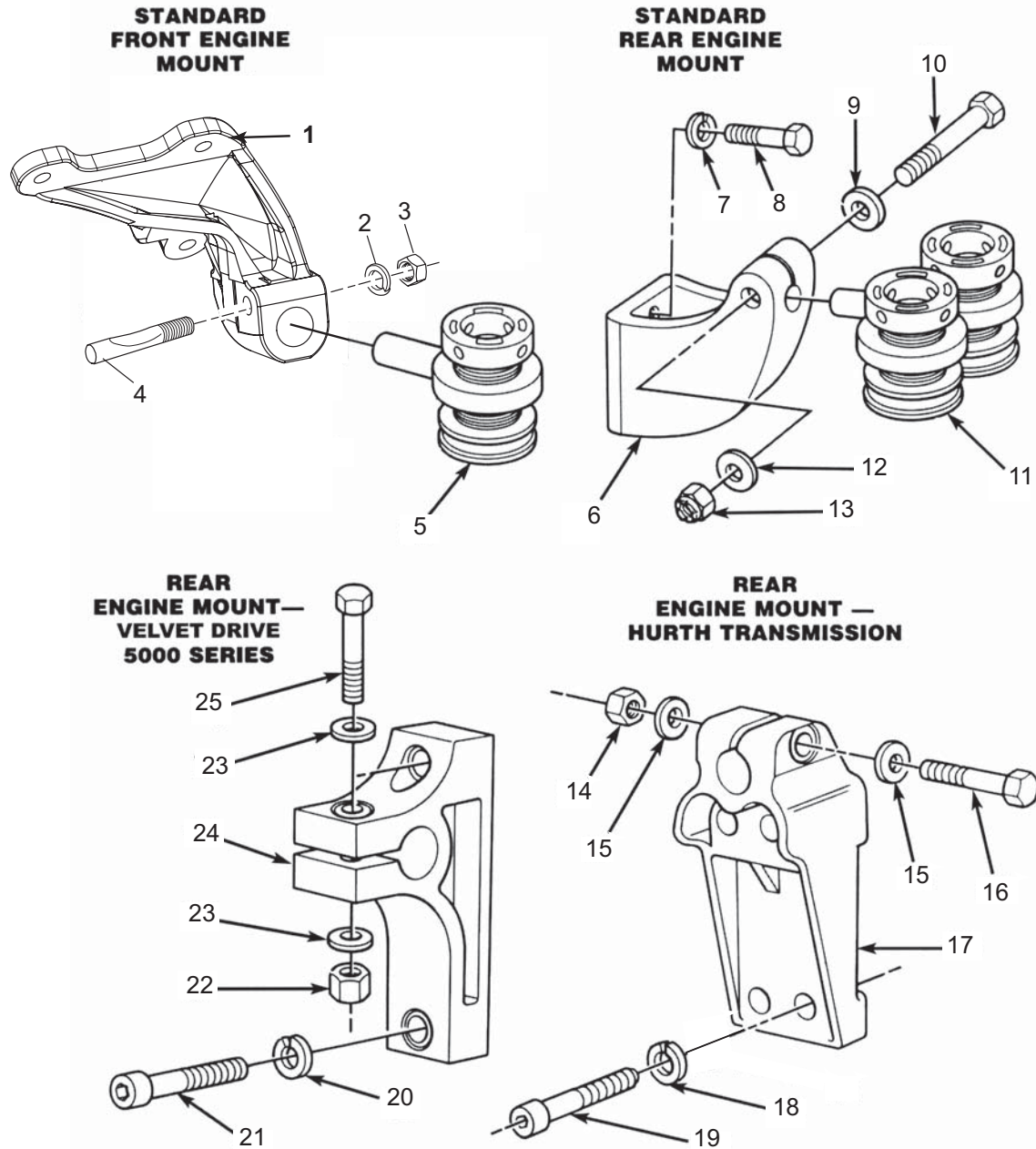


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STARTER ASSEMBLY COMPONENTS - FIGURE 20

ITEM	PART NUMBER	DESCRIPTION	QUANTITY
1	RS1029	Nut , starter attaching	2
2	RS2181	Lockwasher , starter attaching	2
3	R031018	Stud , starter attaching	2
4	RA122009	Starter Motor Assembly	1
5	93003000	Lockwasher , solenoid terminal	2
6	RS7036	Nut , solenoid terminal	2
7	RS7018	Nut , solenoid terminal	1
8	RS7080	Lockwasher , solenoid terminal	1
9	RU0050B	Solenoid , starter	1
NI	23631	Decal , Prop Rotation, Hurth	1

ENGINE and TRANSMISSION MOUNTS - FIGURE 21

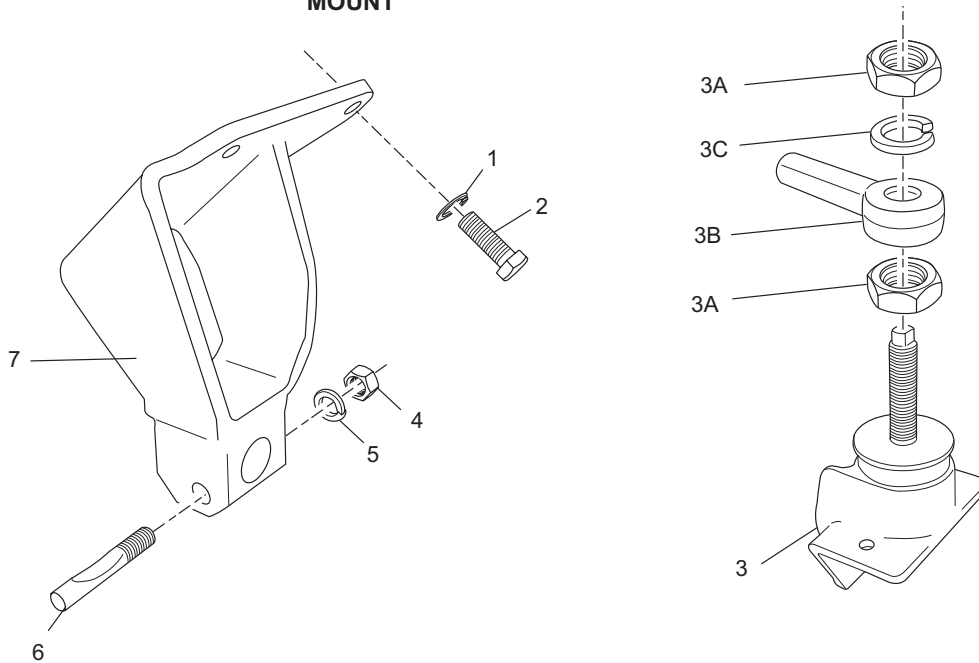


ENGINE and TRANSMISSION MOUNTS - FIGURE 21

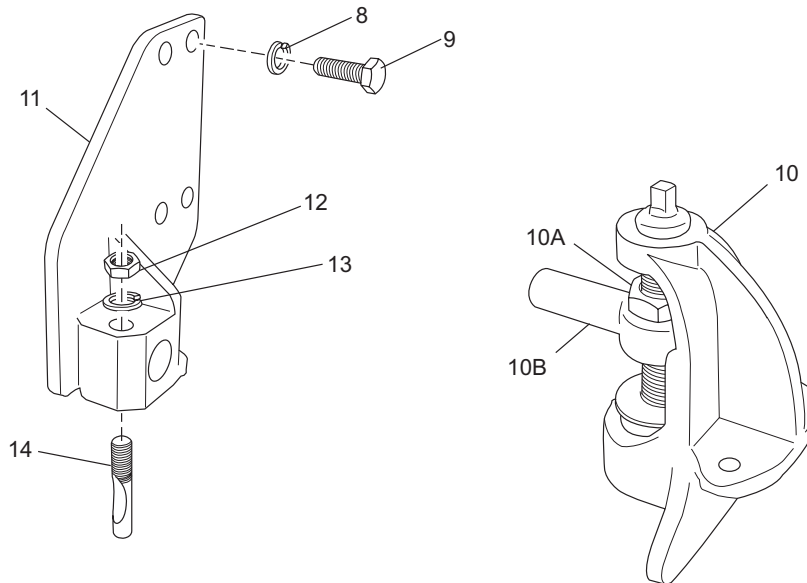
ITEM	PART NUMBER	DESCRIPTION	QUANTITY
1	R090284	Bracket , engine mounting (front) (Left)	1
1	R090285	Bracket , engine mounting (front) (Right)	1
NI	93940000	Lockwasher , engine mount attaching bolt	6
NI	98443030	Bolt , engine mount attaching, upper	4
NI	98449055	Bolt , engine mount attaching, lower	2
2	RS2181	Washer , trunnion bolt	2
3	RS1529	Nut , trunnion bolt - locking	2
4	R095020	Bolt , trunnion shaft	2
5	97926	Mount , engine support (single front)	2
6	97917	Bracket , engine mounting (Rear)	2
7	RS2181	Lockwasher , bracket mounting bolt	4
8	RS0328	Bolt , bracket to transmission (1 1/4")	4
9	92300000	Washer , trunnion bolt	2
10	90318325	Bolt , trunnion shaft (3 1/4")	2
11	97905	Mount , engine support (dual rear)	2
12	92300000	Washer , trunnion bolt	2
13	95310300	Nut , trunnion bolt - locking	2
14	95310300	Nut , trunnion bolt - locking	2
15	92300000	Washer , trunnion bolt	4
16	90318325	Bolt , trunnion shaft (3 1/4")	2
17	R090174A	Bracket , engine mounting (rear)	2
18	RS7071	Lockwasher (12 mm)	8
19	RS6331	Bolt , bracket to transmission (12 mm x 35 mm)	4
19	RS6336	Bolt , bracket to transmission (12 mm x 60 mm)	4
20	RS7071	Lockwasher (12 mm)	4
21	RS6336	Bolt , bracket to transmission (12 mm x 60 mm)	4
22	95310300	Nut , trunnion bolt - locking	2
23	92300000	Washer , trunnion bolt	4
24	98224	Bracket , transmission mounting (Starboard)	1
24	98225	Bracket , transmission mounting (Port)	1
25	90318325	Bolt , trunnion shaft (3 1/4")	2

OPTIONAL ENGINE and TRANSMISSION MOUNTS - FIGURE 22

**OPTIONAL
FRONT
ENGINE
MOUNT**



**OPTIONAL
REAR
ENGINE
MOUNT - HURTH
TRANSMISSION**

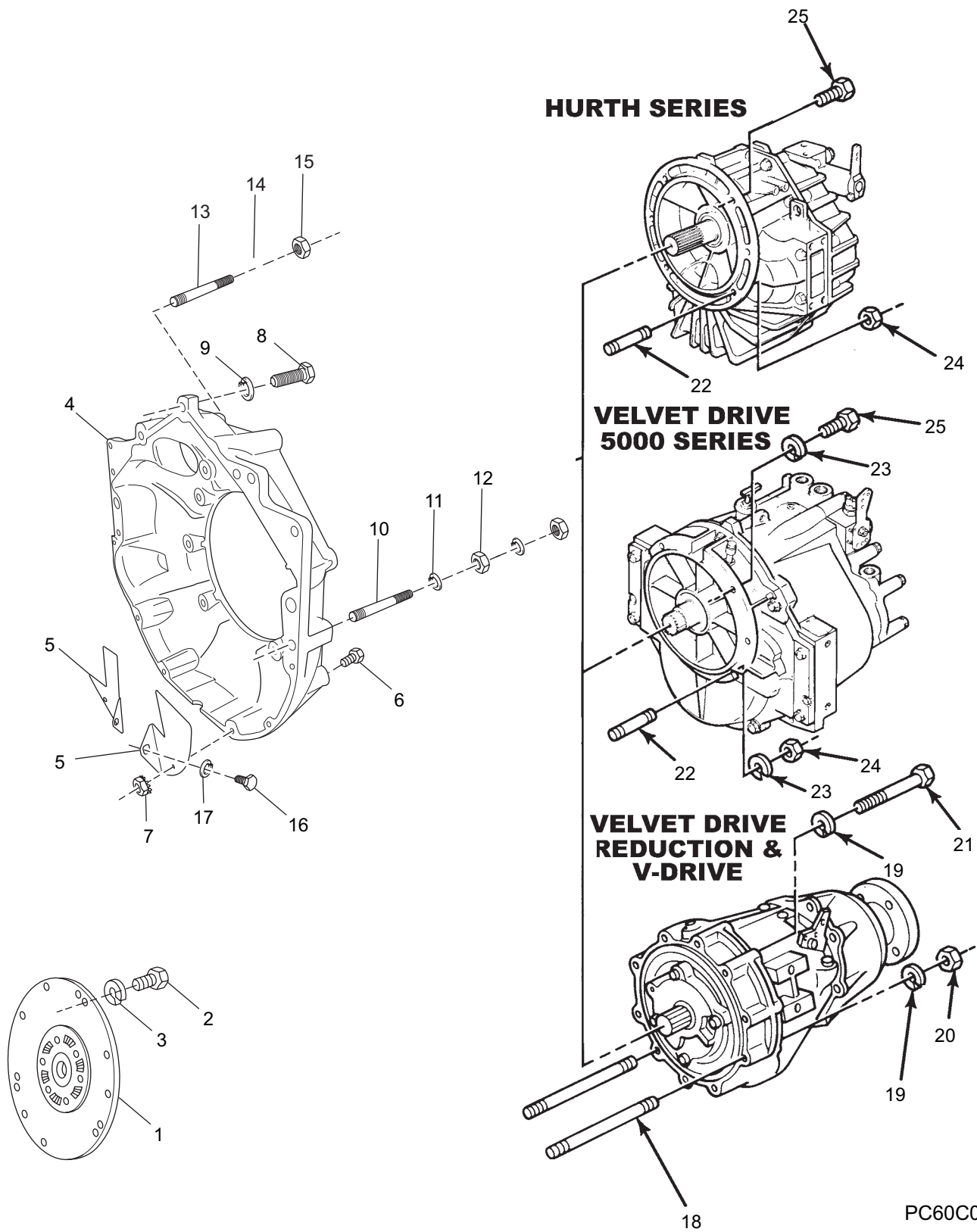


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OPTIONAL ENGINE and TRANSMISSION MOUNTS - FIGURE 22

ITEM	PART NUMBER	DESCRIPTION	QUANTITY
1	93940000	Lockwasher , engine mount attaching bolt	6
2	98443030	Bolt , engine mount attaching, upper	6
3	RC091001	Trunnion Assembly	2
3A	RS1075	Nut , adjustment and lock	4
3B	R091001	Trunnion, long	2
3C	RS2186	Lockwasher , adjusting nut	2
4	RS1529	Nut , trunnion bolt - locking	2
5	RS2181	Washer , trunnion bolt	2
6	R095020	Bolt , trunnion shaft	2
7	R090284A	Bracket , engine mounting (front) (Left)	1
7	R090285A	Bracket , engine mounting (front) (Right)	1
8	RS7071	Lockwasher (12 mm)	8
9	RS6331	Bolt , bracket to transmission (12 mm x 35 mm)	8
10	RA092011	Trunnion Assembly , tall	2
10A	R091003	Trunnion , 2.5"	2
10B	RS1075	Nut , adjustment and lock	2
11	R090312	Bracket , engine mounting (Port - Hurth)	1
11	R090313	Bracket , engine mounting (Strb - Hurth)	1
12	RS1529	Nut , trunnion bolt - locking	2
13	RS2181	Washer , trunnion bolt	2
14	R095020	Bolt , trunnion shaft	2

BELL HOUSING ASSEMBLY - FIGURE 23

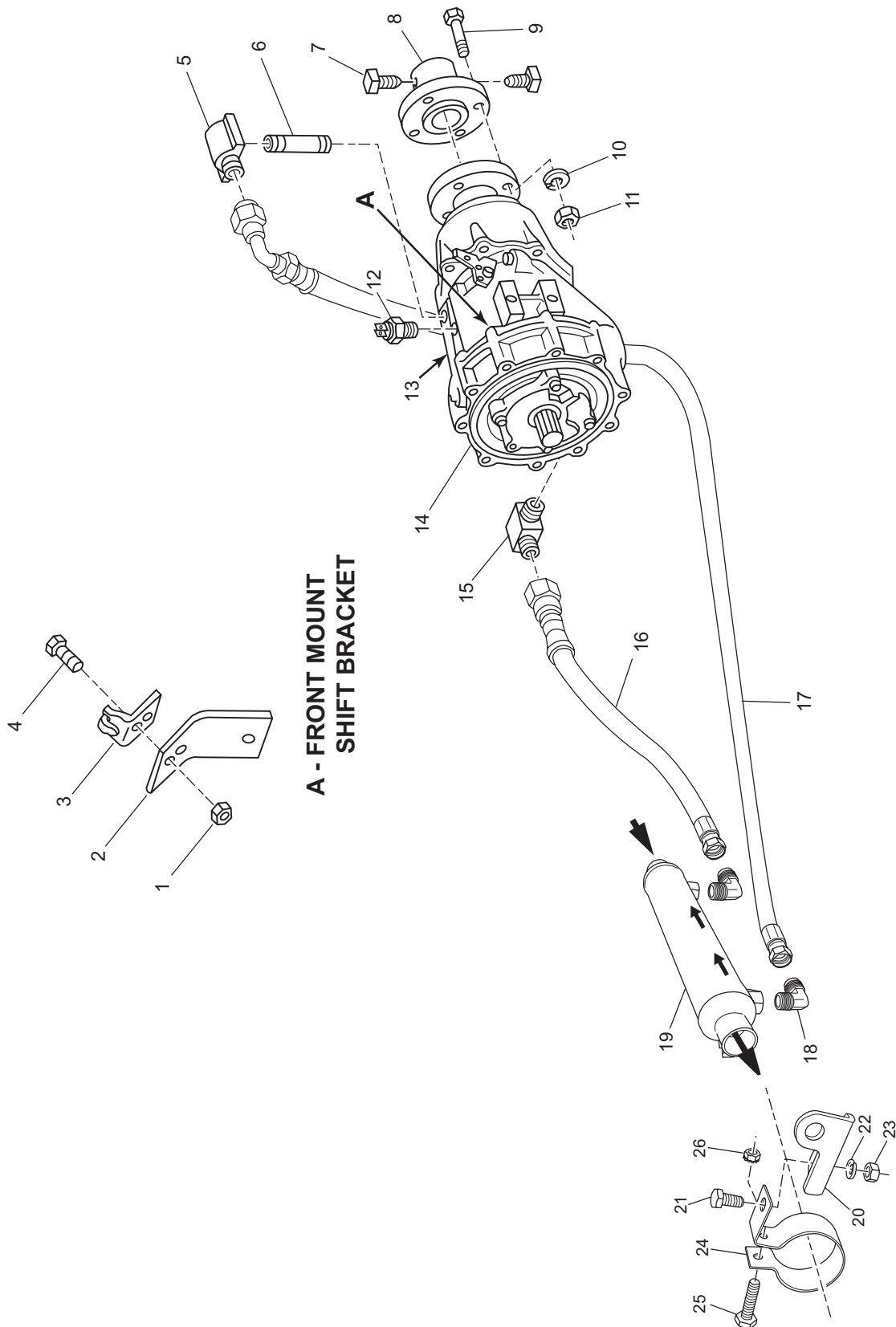


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BELL HOUSING ASSEMBLY - FIGURE 23

ITEM	PART NUMBER	DESCRIPTION	QUANTITY
1	R140018	Drive Damper Assembly , (Hurth)	1
1	98511	Drive Damper Assembly , (Standard Velvet Drive)	1
2	98446030	Bolt , damper to flywheel (1")	6
3	93940000	Lockwasher , damper bolt	6
4	R142014A	Bellhousing , flywheel	1
5	R019011	Cover , bellhousing, (stbd) (use w/bottom mount starter)	1
5	R019011A	Cover , bellhousing, (stbd) (use w/top mount starter)	1
5	R019012	Cover , bellhousing, (port)	1
NI	R019010	Cover , top mount starter (used w/R019011)	1
NI	RS0327	Bolt , dust cover attaching	2
NI	RS2181	Lockwasher , dust cover attaching	2
6	RS0256	Bolt , cover to bellhousing (1")	5
6	90105125	Bolt , cover to bellhousing (1 1/4")	1
7	RS1078	Nut , cover bolt	6
8	98443050	Bolt , bellhousing to block	2
8	99443030	Bolt , SHCS (behind starter)	1
9	93940000	Lockwasher , bellhousing bolt	2
10	R031034	Stud , bellhousing mounting	2
11	93940000	Lockwasher , mounting stud	4
12	97440000	Nut , mounting stud	4
13	R031018	Stud , starter mounting (1 3/4")	2
14	RS2181	Lockwasher , starter mounting stud	2
15	RS1029	Nut , starter mounting stud	2
16	RS6503	Bolt , dust cover attaching	2
17	93920000	Lockwasher , dust cover attaching	2
Velvet Drive Reduction & "V"-Drive			
18	96541	Stud , transmission mounting (4")	2
19	RS2181	Lockwasher , transmission mounting	6
20	RS1029	Nut , transmission mounting stud	2
21	RS0337	Bolt , transmission mounting	4
Velvet Drive 5000 & Hurth Gears			
22	R031018	Stud , transmission mounting (1 5/8")	2
23	RS2180	Lockwasher , transmission mounting	6
24	RS1029	Nut , transmission mounting stud	2
25	RS0329	Bolt , transmission mounting	4

TRANSMISSION AND RELATED COMPONENTS (VELVET DRIVE IN-LINE) - FIGURE 24

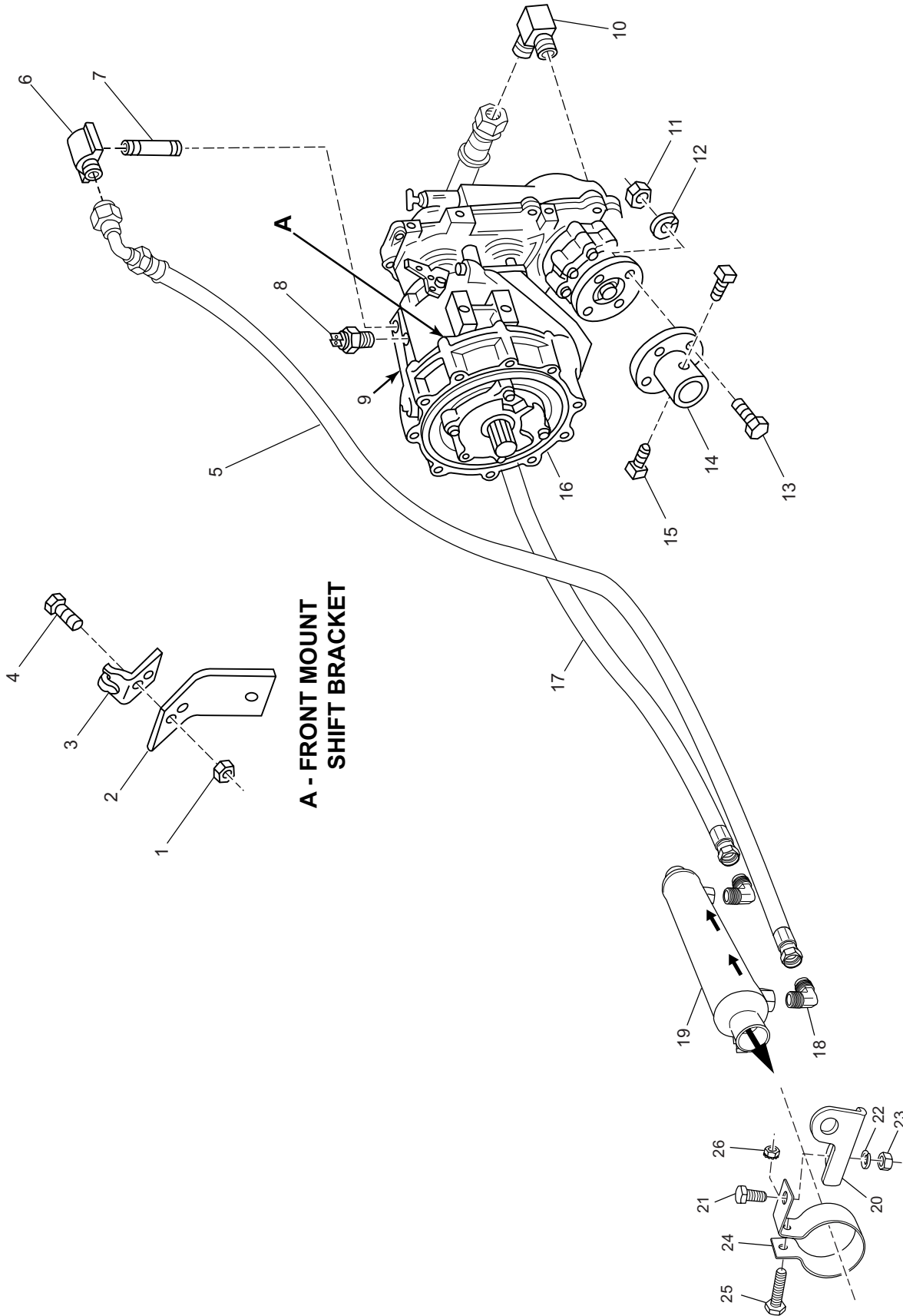


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TRANSMISSION AND RELATED COMPONENTS (VELVET DRIVE IN-LINE) - FIGURE 24

ITEM	PART NUMBER	DESCRIPTION	QUANTITY
1	RS2055	Nut , attaching bolt	2
2	96341	Shift Bracket (front mount)	1
3	R090086	Cable Clip , single cable	1
N.I.	22232	Cable Clip , dual cable clip (not shown)	OPT
4	RS5122	Bolt , clip attaching (1/2")	2
5	R024008	Elbow , hose - transmission (90 degree)	1
6	RS4674	Nipple , pipe (3")	1
7	2000090	Screw , set - coupler	2
8	R148001	Coupler , prop shaft (1" shaft)	OPT
8	R148002	Coupler , prop shaft (1 1/8" shaft)	OPT
8	R148003	Coupler , prop shaft (1 1/4" shaft)	OPT
8	R148004	Coupler , prop shaft (1 3/8" shaft)	OPT
8	R148005	Coupler , prop shaft (1 1/2" shaft)	OPT
8	R148007	Coupler , prop shaft (1 3/4" shaft)	OPT
8	R148008	Coupler , prop shaft (2" shaft)	OPT
9	22136	Bolt , coupling (1 1/2")	4
10	RS2181	Lockwasher , coupling bolt	4
11	RS1529	Nut , coupling bolt	4
12	R020037	Sender , temperature alarm	1
13	R153002	Switch Kit , neutral start (not shown)	1
13A	25542	Switch & O-Ring Assembly (not shown)	1
14	RA157003	Transmission (1:1 Direct Drive)	1
14	RA157004	Transmission (1.52:1 Reduction)	1
14	RA157004A	Transmission (1.88:1 Reduction)	1
14	RA157004D	Transmission (2.57:1 Reduction)	1
14	RA157004E	Transmission (2.91:1 Reduction)	1
15	R024010	Elbow , hose - transmission (90 degree)	1
16	RA045007P	Hose Assembly , cooler to transmission	1
17	RA045007T	Hose Assembly , transmission to cooler	1
18	R024010	Fitting , 90 degree	2
19	R147006	Cooler Assembly , transmission oil	1
20	R090013A	Bracket , cooler attaching	1
21	RS0302	Bolt , cooler bracket attaching	1
22	RS2180	Lockwasher , cooler bracket mounting	1
23	RS2058	Nut , cooler bracket attaching	1
24	R090010	Bracket , transmission cooler mounting	1
25	RS0256	Bolt , cooler bracket attaching	1
26	RS1028	Nut , cooler bracket attaching	1

TRANSMISSION AND RELATED COMPONENTS (VELVET DRIVE "V"-DRIVE) - FIGURE 25

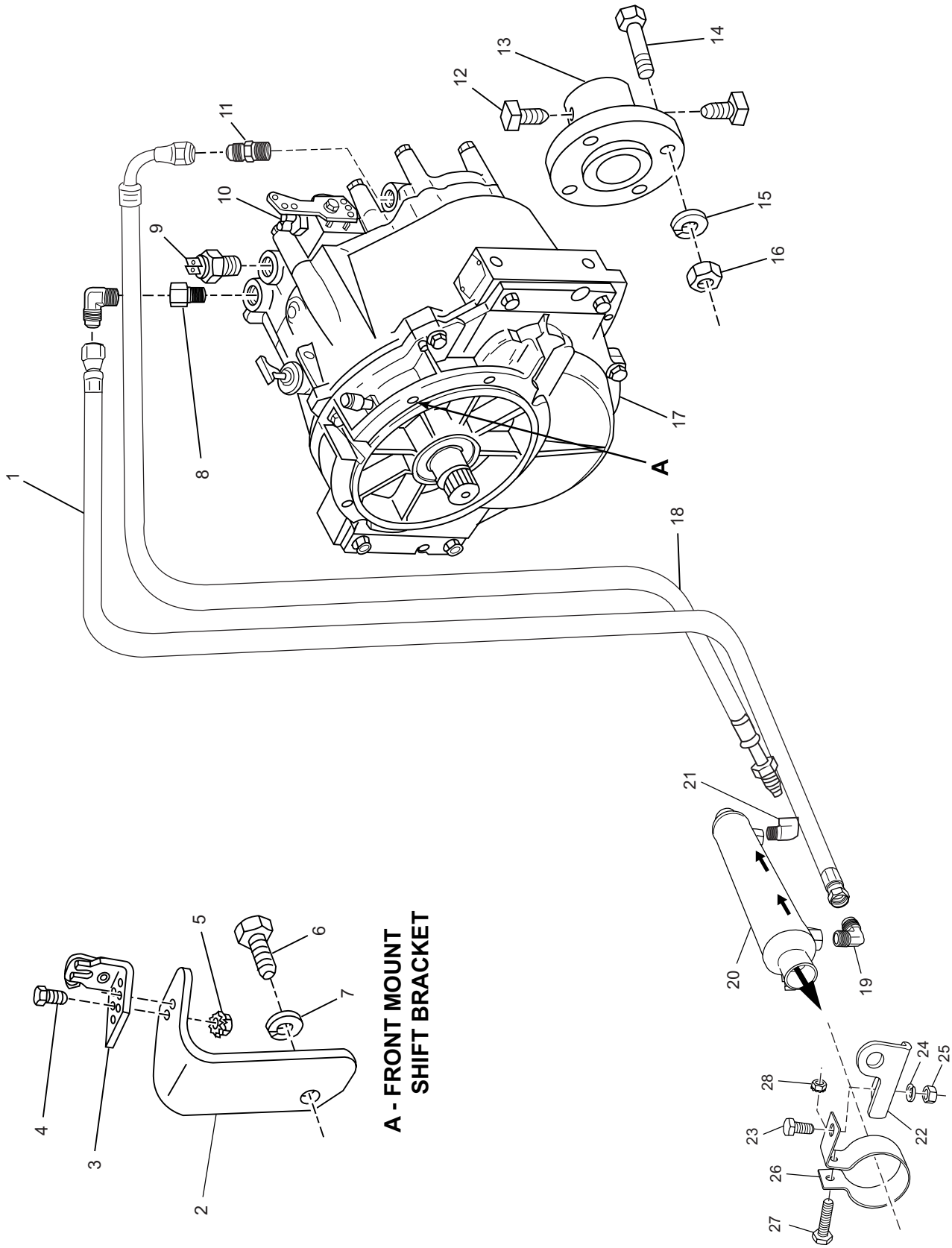


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TRANSMISSION AND RELATED COMPONENTS (VELVET DRIVE "V"-DRIVE) - FIGURE 25

ITEM	PART NUMBER	DESCRIPTION	QUANTITY
1	RS2055	Nut , attaching bolt	2
2	96341	Shift Bracket (front mount)	1
3	R090086	Cable Clip , single cable	1
3	22232	Cable Clip , dual cable clip (not shown)	OPT
4	RS5122	Bolt , clip attaching (1/2")	2
5	RA045007T	Hose Assembly , transmission to cooler	1
6	R024008	Elbow , hose - transmission (90 degree)	1
7	RS4674	Nipple , pipe (3")	1
8	R020037	Sender , temperature alarm	1
9	R153002	Switch Kit , neutral start (not shown)	1
N.I.	25542	Switch & O-Ring Assembly (not shown)	1
10	R024010	Elbow , hose - transmission (90 degree)	1
11	RS1529	Nut , coupling bolt	4
12	RS2181	Lockwasher , coupling bolt	4
13	22136	Bolt , coupling (1 1/2")	4
14	R148001	Coupler , prop shaft (1" shaft)	OPT
14	R148002	Coupler , prop shaft (1 1/8" shaft)	OPT
14	R148003	Coupler , prop shaft (1 1/4" shaft)	OPT
14	R148004	Coupler , prop shaft (1 3/8" shaft)	OPT
14	R148005	Coupler , prop shaft (1 1/2" shaft)	OPT
14	R148007	Coupler , prop shaft (1 3/4" shaft)	OPT
14	R148008	Coupler , prop shaft (2" shaft)	OPT
15	2000090	Screw , set - coupler	2
16	RA156002B	Transmission (1.51:1 Reduction)	1
16	RA156002D	Transmission (1.99:1 Reduction)	1
16	RA156002E	Transmission (2.49:1 Reduction)	1
17	RA045007P	Hose Assembly , cooler to transmission	1
18	R024010	Fitting , 90 degree	2
19	R147006	Cooler Assembly , transmission oil	1
20	R090013A	Bracket , cooler attaching	1
21	RS0302	Bolt , cooler bracket attaching	1
22	RS2180	Lockwasher , cooler bracket mounting	1
23	RS2058	Nut , cooler bracket attaching	1
24	R090010	Bracket , transmission cooler mounting	1
25	RS0256	Bolt , cooler bracket attaching	1
26	RS1028	Nut , cooler bracket attaching	1

TRANSMISSION AND RELATED COMPONENTS (VELVET DRIVE 5000) - FIGURE 26



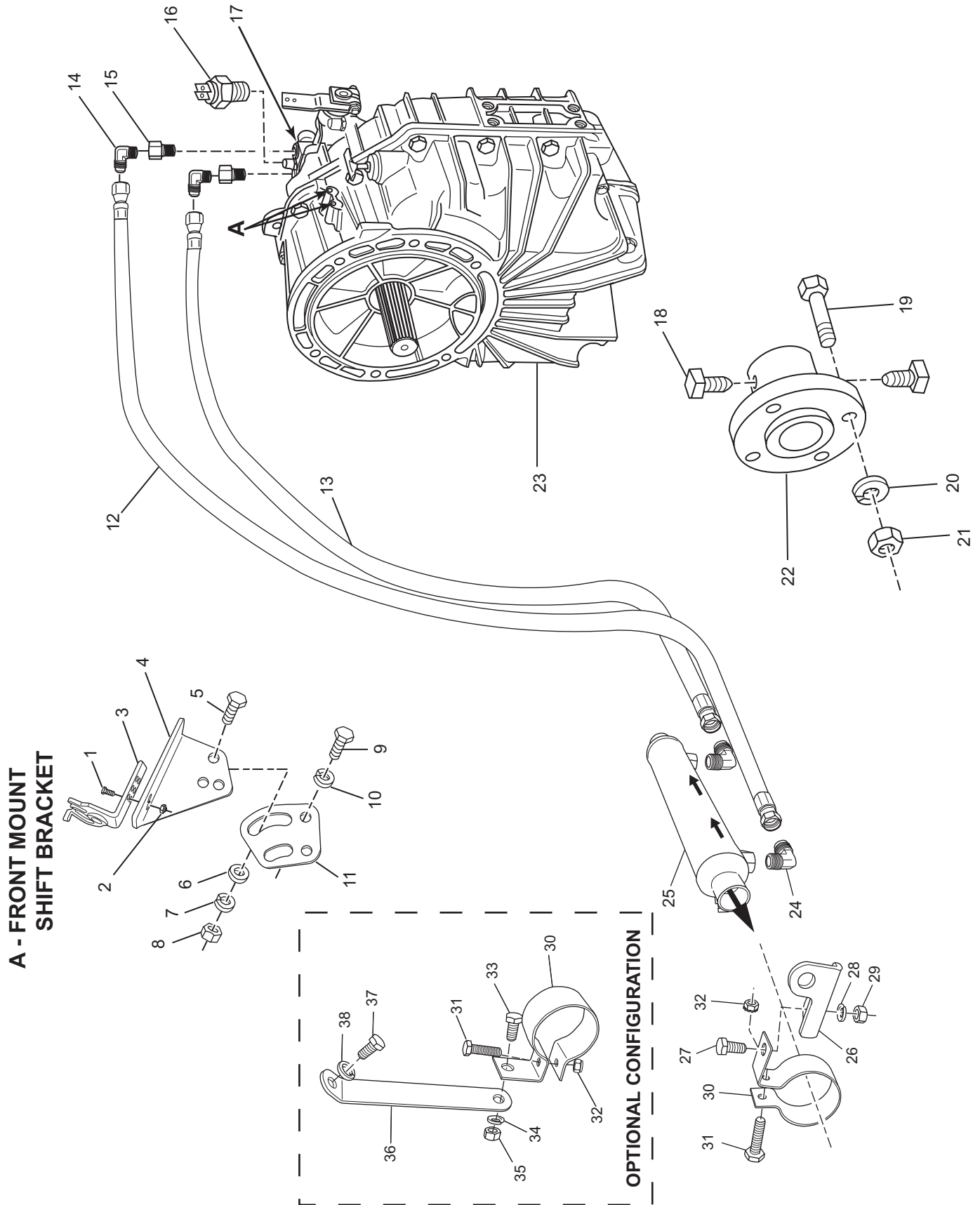
**A - FRONT MOUNT
SHIFT BRACKET**

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TRANSMISSION AND RELATED COMPONENTS (VELVET DRIVE 5000) - FIGURE 26

ITEM	PART NUMBER	DESCRIPTION	QUANTITY
1	RA045007T	Hose Assembly , transmission to cooler	1
2	98227	Shift Bracket , (front entry)	1
3	R090086	Cable Clip , single cable	1
3	22232	Cable Clip , dual cable clip (not shown)	OPT
4	RS5122	Bolt , clip attaching (1/2")	2
5	RS2055	Nut , attaching bolt	2
6	RS0329	Bolt , shift bracket attaching	2
7	RS2180	Washer , shift bracket attaching bolt	2
8	R024196	Fitting , adapter	1
9	R020037	Sender , temperature alarm	1
10	25542	Switch & O-Ring Assembly (not shown)	1
11	30603	Fitting , adapter	1
12	2000090	Screw , set - coupler	2
13	R148001	Coupler , prop shaft (1" shaft)	OPT
13	R148002	Coupler , prop shaft (1 1/8" shaft)	OPT
13	R148003	Coupler , prop shaft (1 1/4" shaft)	OPT
13	R148004	Coupler , prop shaft (1 3/8" shaft)	OPT
13	R148005	Coupler , prop shaft (1 1/2" shaft)	OPT
13	R148007	Coupler , prop shaft (1 3/4" shaft)	OPT
13	R148008	Coupler , prop shaft (2" shaft)	OPT
14	22136	Bolt , coupling (1 1/2")	4
15	RS2181	Lockwasher , coupling bolt	4
16	RS1529	Nut , coupling bolt	4
17	RA157020B	Transmission (1.50:1 Reduction) Down Angle	1
17	RA157020C	Transmission (2:1 Reduction) Down Angle	1
17	RA157020D	Transmission (2.45:1 Reduction) Down Angle	1
17	RA157020E	Transmission (2.80:1 Reduction) Down Angle	1
17	RA156008	Transmission (1.25:1 Reduction) V-Drive	1
17	RA156008A	Transmission (1.50:1 Reduction) V-Drive	1
17	RA156008B	Transmission (2:1 Reduction) V-Drive	1
17	RA156008C	Transmission (2.50:1 Reduction) V-Drive	1
18	18203	Hose Assembly , cooler to transmission	1
19	R024010	Fitting , 90 degree	2
20	R147006	Cooler Assembly , transmission oil	1
21	137425	Fitting , 90 degree	1
22	R090013A	Bracket , cooler attaching	1
23	RS0302	Bolt , cooler bracket attaching	1
24	RS2180	Lockwasher , cooler bracket mounting	1
25	RS2058	Nut , cooler bracket attaching	1
26	R090010	Bracket , transmission cooler mounting	1
27	RS0256	Bolt , cooler bracket attaching	1
28	RS1028	Nut , cooler bracket attaching	1

TRANSMISSION AND RELATED COMPONENTS (HURTH GEAR) - FIGURE 27



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TRANSMISSION AND RELATED COMPONENTS (HURTH GEAR) - FIGURE 27

ITEM	PART NUMBER	DESCRIPTION	QUANTITY
1	RS5122	Bolt , cable clip attaching	2
2	RS2055	Nut , cable clip attaching bolt	2
3	R090086	Cable Clip , single cable	1
3	22232	Cable Clip , dual cable clip (not shown)	OPT
4	R090202	Shift Bracket , cable clip attaching	1
5	RS0282	Bolt , shift bracket attaching	2
6	RS2674	Washer , shift bracket attaching bolt	2
7	RS2179	Lockwasher , attaching bolt	2
8	RS1027	Nut , shift bracket attaching bolt	2
9	RS6531	Bolt , shift bracket attaching	2
10	93930000	Lockwasher , shift bracket attaching bolt	2
11	R090235	Bracket , shift	1
12	RA045007H	Hose Assembly , transmission to cooler	1
13	RA045007T	Hose Assembly , cooler to transmission	1
14	R024010	Fitting , 90 degree	2
15	R024196	Fitting , adapter	2
16	R020037	Sender , temperature alarm	1
17	25542	Switch & O-Ring Assembly (not shown)	1
18	2000090	Screw , set - coupler	2
19	90418138	Bolt , coupling (1 3/8")	4
20	RS2181	Lockwasher , coupling bolt	4
21	RS1529	Nut , coupling bolt	4
22	R148001	Coupler , prop shaft (1" shaft)	OPT
22	R148002	Coupler , prop shaft (1 1/8" shaft)	OPT
22	R148003	Coupler , prop shaft (1 1/4" shaft)	OPT
22	R148004	Coupler , prop shaft (1 3/8" shaft)	OPT
22	R148005	Coupler , prop shaft (1 1/2" shaft)	OPT
22	R148007	Coupler , prop shaft (1 3/4" shaft)	OPT
22	R148008	Coupler , prop shaft (2" shaft)	OPT
23	RA157022	Transmission 630A (1.22:1 Reduction)	1
23	RA157022A	Transmission 630A (1.55:1 Reduction)	1
23	RA157022B	Transmission 630A (2.00:1 Reduction)	1
23	RA157022C	Transmission 630A (2.50:1 Reduction)	1
23	RA157022D	Transmission 630A (2.70:1 Reduction)	1
23	RA157023F	Transmission 800A (2.85:1 Reduction)	1
23	RA156009	Transmission 630V (1.29:1 Reduction)	1
23	RA156009A	Transmission 630V (1.50:1 Reduction)	1
23	RA156009B	Transmission 630V (2.00:1 Reduction)	1
23	RA156009C	Transmission 630V (2.50:1 Reduction)	1
24	R024010	Fitting , 90 degree	2
25	R147006	Cooler Assembly , transmission oil	1
26	R090013A	Bracket , cooler attaching	1
27	RS0302	Bolt , cooler bracket attaching	1
28	RS2180	Lockwasher , cooler bracket mounting	1
29	RS2058	Nut , cooler bracket attaching	1
30	R090010	Bracket , transmission cooler mounting	1
31	RS0256	Bolt , cooler bracket attaching	1
32	RS1028	Nut , cooler bracket attaching	1
33	90318275	Bolt , oil cooler clamp to bracket attaching (OEM specific)	1
34	9330000	Lockwasher , oil cooler clamp to brkt attaching (OEM specific)	1
35	95310300	Nut , oil cooler clamp to bracket attaching (OEM specific)	1
36	R090233A	Bracket , oil cooler attaching (OEM specific)	1
37	98443025	Bolt , bracket attaching (OEM specific)	1
38	93940000	Lockwasher , bracket attaching (OEM specific)	1