

Service Parts

Engine

Engine Models:

John Deere

6090HF484

6090HF485

6090HFG86

Generator Models:

230-275REOZJD

230-275REOZJE

300REOZJ

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Introduction

This manual lists service replacement parts for John Deere engine models 6090HF484/485 and 6090HFG86.

At the time of print this manual applied to the engine models listed in the Model Index. On occasion this manual may apply to engines not listed in the Model Index.

Information in this publication represents data available at the time of print. The generator set manufacturer reserves the right to change this publication and the products represented without notice and without any obligation or liability whatsoever.

This manual includes the following main sections:

Table of Contents. Lists the sections of the manual.

Introduction (and other information sections). Contains introductory material about part numbers, illustrations, and hardware.

Index. Lists the engine models and groups.

Group Parts Lists. List the part numbers of parts in the groups.

Numbering System Significance

This manual uses the following numbering systems:

Engine Model. The product identification number located on the engine nameplate. Engines break down into groups.

Group Number. A unique number representing a parts group needed to assemble an engine function. For example, Group 1 is the Air Intake group.

Variation Number. A group might have several variations. Each variation performs the same function with different parts lists. For example, a 12-volt alternator and 24-volt alternator both perform the same function, but, with different parts. Each difference requires a group variation or module number.

Part Number. The part number identifies an individual assembly, subassembly, component, or accessory kit.

Illustrations

Illustrations (or exploded-view drawings) best representing the widest range of variations accompany most groups in this manual. Illustrations do not depict all details and may not show all parts. Do not use illustrations for assembly or disassembly.

How to Find Part Numbers

Use the following steps to locate a service replacement part.

1. Locate the engine nameplate to **identify the engine model number**.
2. **Turn to the Model Index.** The first column lists the engine model numbers. The headings identify the groups of parts that make up the engine.
3. **Identify the group** most likely to include the service part number.
4. **Find the group variation number** at the intersection of the model row and the group column. Note the variation number.
5. **Page forward to locate the group** identified in step 3 or find the appropriate page in the Table of Contents.
6. **Find the part on the illustration** and note the item number of the part or **find the part description in the parts list**.
7. Select **the part number that corresponds to your group variation**. The first column lists the illustration item number. Find the variation identified in the Model Index in the appropriate column on the right side of the parts list table. Find the quantity used at the intersection of the item number row and the variation column. A blank space at the intersection means the variation/module does not use that part number.

Hardware References

Many common hardware items do not appear in parts manuals or will appear as common hardware entries. A common hardware entry lists the size of the hardware. For example, an item that appears as "Hardware, 3/8-16" in the text means that the piece is 3/8-16 size. Obtain common hardware locally.

Some hardware items require a specific size or some other characteristic. In that case, use the part number listed in the text.

When replacing hardware, do not substitute inferior grade hardware. Replacement hardware grade should be equal to or better than the grade of the manufacturer's original hardware.

Specification Number Index

Group Title	<i>Air Intake</i>	<i>Water Pump</i>	<i>Water Pump Inlet</i>	<i>Thermostat</i>	<i>Fan Belt</i>	<i>Fan Drive</i>	<i>Vent Tube</i>	<i>Camshaft</i>	<i>Valve Train</i>	<i>Rocker Arm Cover</i>	<i>Fuel Injection System</i>	<i>Fuel Filter</i>	<i>Crankshaft</i>	<i>Crankshaft Pulley</i>
Group No.	1	2	4	5	6	7	10	11	12	13	14	18	19	20
Variation Number														

Spec No.														
230 kW (6090HF485)														
GM46340-GA1	1701	2001	5701	3908	2437	234A	2901	4601	4901	1101	1601	3511	4701	1319
230 kW (6090HF484)														
GM46340-GA5	1707	2001	5708	3913	2437	234A	2901	4601	4901	1101	1601	3511	4701	1319
GM66100-GA1	1707	2001	5708	3913	2437	234A	2901	4601	4901	1101	1601	3511	4701	1319
GM66100-GA4	1707	2001	5708	3913	2437	234A	2901	4601	4901	1101	1601	3511	4701	1319
250 kW (6090HF485)														
GM46340-GA2	1701	2001	5701	3908	2437	234A	2901	4601	4901	1101	1601	3511	4701	1319
250 kW (6090HF484)														
GM46340-GA6	1707	2001	5708	3913	2437	234A	2901	4601	4901	1101	1601	3511	4701	1319
GM66100-GA2	1707	2001	5708	3913	2437	234A	2901	4601	4901	1101	1601	3511	4701	1319
GM66100-GA5	1707	2001	5708	3913	2437	234A	2901	4601	4901	1101	1601	3511	4701	1319
275 kW (6090HF485)														
GM46340-GA3	1701	2001	5701	3908	2437	234A	2901	4601	4901	1101	1601	3511	4701	1319
275 kW (6090HF484)														
GM46340-GA7	1707	2001	5708	3913	2437	234A	2901	4601	4901	1101	1601	3511	4701	1319
GM66100-GA3	1707	2001	5708	3913	2437	234A	2901	4601	4901	1101	1601	3511	4701	1319
GM66100-GA6	1707	2001	5708	3913	2437	234A	2901	4601	4901	1101	1601	3511	4701	1319
300 kW (6090HFG86)														
GM66100-GA7	1707	2001	5708	3913	2437	234A	2901B	4609	4901B	1101B	1601B	3511	4705	1354

Specification Number Index

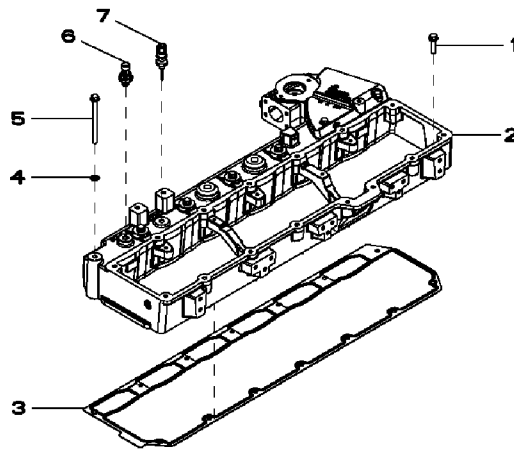
Group Title	Piston & Connecting Rod	Flywheel	Flywheel Housing	Cylinder Head	Exhaust Manifold	Exhaust Elbow	Dipstick	Oil Pan	Oil Cooler	Oil Pump	Cylinder Block	Timing Gear Cover	Turbocharger & Oil Lines
Group No.	21	22	23	24	25	26	28	29	30	31	32	34	35
Variation Number													
Spec. No.													
230 kW (6090HF485)													
GM46340-GA1	4801	1506	1426	5101	2805	6402	4003	1916	5921	5001	4601	7701	6519
230 kW (6090HF484)													
GM46340-GA5	4801	1506	1426	5101	2811	6402	4003	1916	5925	5001	4601	7701	6535
GM66100-GA1	4801	1506	1426	5101	2811	6402	4003	1916	5925	5001	4601	7701	6535
GM66100-GA4	4801	1506	1426	5101	2811	6402	4003	1916	5925	5001	4601	7701	6535
250 kW (6090HF485)													
GM46340-GA2	4801	1506	1426	5101	2805	6402	4003	1916	5921	5001	4601	7701	6519
250 kW (6090HF484)													
GM46340-GA6	4801	1506	1426	5101	2811	6402	4003	1916	5925	5001	4601	7701	6535
GM66100-GA2	4801	1506	1426	5101	2811	6402	4003	1916	5925	5001	4601	7701	6535
GM66100-GA5	4801	1506	1426	5101	2811	6402	4003	1916	5925	5001	4601	7701	6535
275 kW (6090HF485)													
GM46340-GA3	4801	1506	1426	5101	2805	6402	4003	1916	5921	5001	4601	7701	6519
275 kW (6090HF484)													
GM46340-GA7	4801	1506	1426	5101	2811	6402	4003	1916	5925	5001	4601	7701	6535
GM66100-GA3	4801	1506	1426	5101	2811	6402	4003	1916	5925	5001	4601	7701	6535
GM66100-GA6	4801	1506	1426	5101	2811	6402	4003	1916	5925	5001	4601	7701	6535
300 kW (6090HFG86)													
GM66100-GA7	4804	1550	1435	5101B	2811B	6402	4003	1916B	5925	5003	4609	7706	6535

Specification Number Index

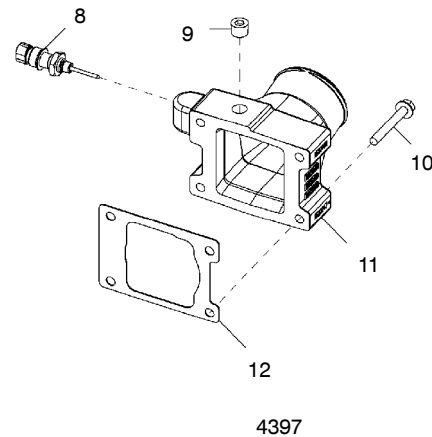
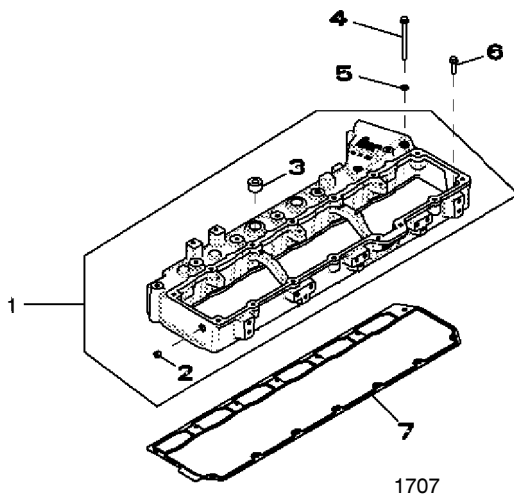
Group Title											
	Starter Motor	Alternator	Alternator Brackets	Cylinder Head Gasket Set	Overhaul Gasket Set	Wiring Harness	Turbo Air Inlet	Engine Gas Recirculation	Lift Straps		
Group No.	36	37	38	40	41	43	45	47	50		
	Variation Number										
Spec No.											
230 kW (6090HF485)											
GM46340-GA1	3005	3119	6202	9902	9902	8401	5405	8902			
230 kW (6090HF484)											
GM46340-GA5	3005	3118	6217	9902	9902	8414	-	-			
GM66100-GA1	3005	3118	6217	9902	9902	8414	-	-			
GM66100-GA4	3005	3118	6217	9902	9902	8498	-	-			
250 kW (6090HF485)											
GM46340-GA2	3005	3119	6202	9902	9902	8401	5405	8902			
250 kW (6090HF484)											
GM46340-GA6	3005	3118	6217	9902	9902	8414	-	-			
GM66100-GA2	3005	3118	6217	9902	9902	8414	-	-			
GM66100-GA5	3005	3118	6217	9902	9902	8498	-	-			
275 kW (6090HF485)											
GM46340-GA3	3005	3118	6202	9902	9902	8401	5405	8902			
275 kW (6090HF484)											
GM46340-GA7	3005	3118	6217	9902	9902	8414	-	-			
GM66100-GA3	3005	3118	6217	9902	9902	8414	-	-			
GM66100-GA6	3005	3118	6217	9902	9902	8498	-	-			
300 kW (6090HFG86)											
GM66100-GA7	3005	3118	6217			8498	-	8997	9804		

Notes

Group 1: Air Intake



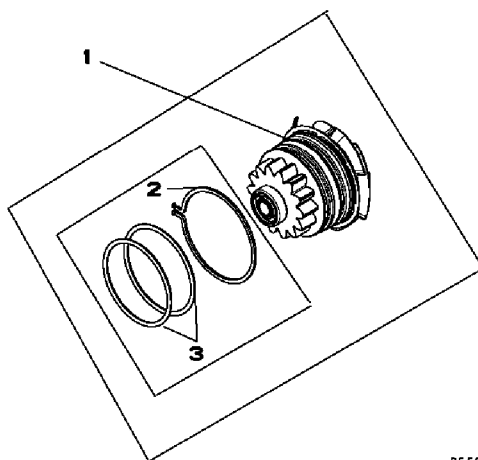
Item	Part Number	Description	Qty.
			Variation 1701
1	#	Screw, M8 x 35	7
2	GM50218	Intake manifold	1
3	GM50142	Gasket	1
4	GM50168	Washer, sealing	7
5	#	Screw, M8 x 110	7
6	GM49999	Sensor, manifold air press	1
7	GM50003	Sensor, temperature	1



Item	Part Number	Description	Qty.	
			Variation 1707	Variation 4397
1	GM67302	Intake manifold	1	
2	#	Plug	1	
3	#	Plug	2	
4	#	Screw, M8 x 110	7	
5	GM50168	Washer, sealing	7	
6	GM67288	Screw	7	
7	GM50142	Gasket	1	
8	GM50003	Sensor, temperature		1
9	#	Pipe plug		1
10	#	Screw, M8 x 60		4
11	GM79826	Air intake		1
12	GM79827	Gasket		1

Common hardware; procure locally.

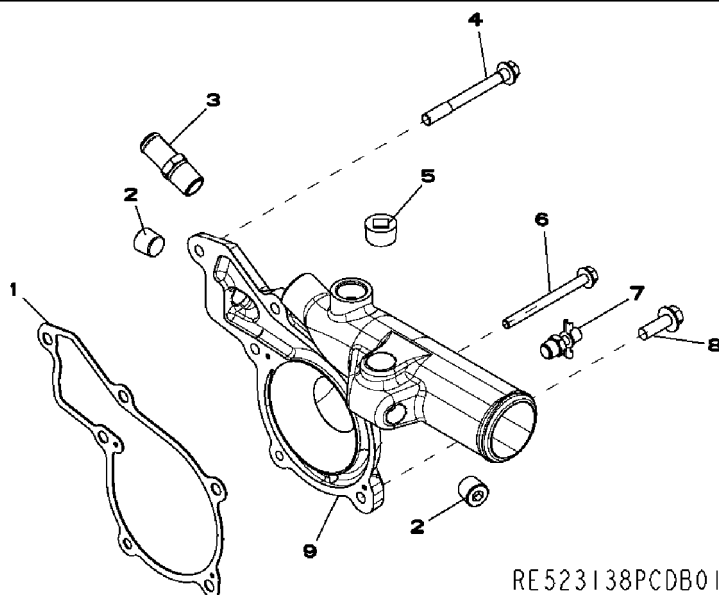
Group 2: Water Pump



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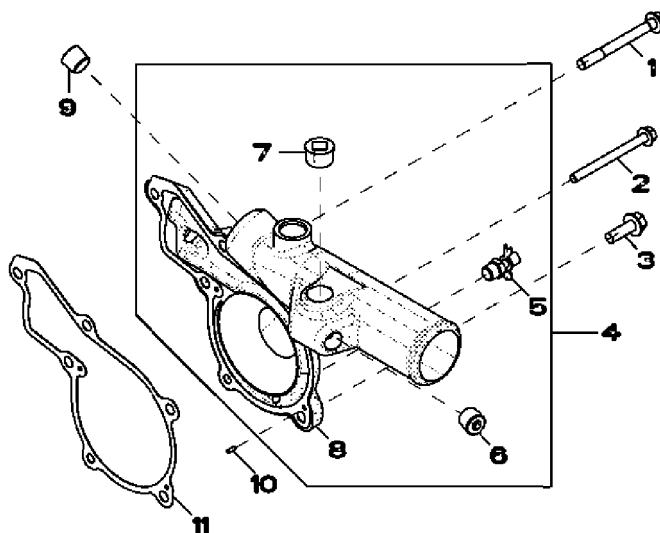
Item	Part Number	Description	Qty.
			Variation 2001
1	GM50245	Kit, water pump	1
2	GM50172	Snap ring	1
3	GM50205	O-ring Kit	1

Group 4: Water Pump Inlet



Item	Part Number	Description	Qty.
			Variation 5701
1	352737	Gasket	1
2	GM18862	Pipe plug, 1/2 in.	2
3	223461	Fitting, hose	1
4	#	Screw	3
5	GM50197	Hose	1

Item	Part Number	Description	Qty.
			Variation 5701
6	#	Screw	1
7	223435	Drain valve	1
8	#	Screw, M10 x 30	1
9	GM50233	Connection, water pump	1

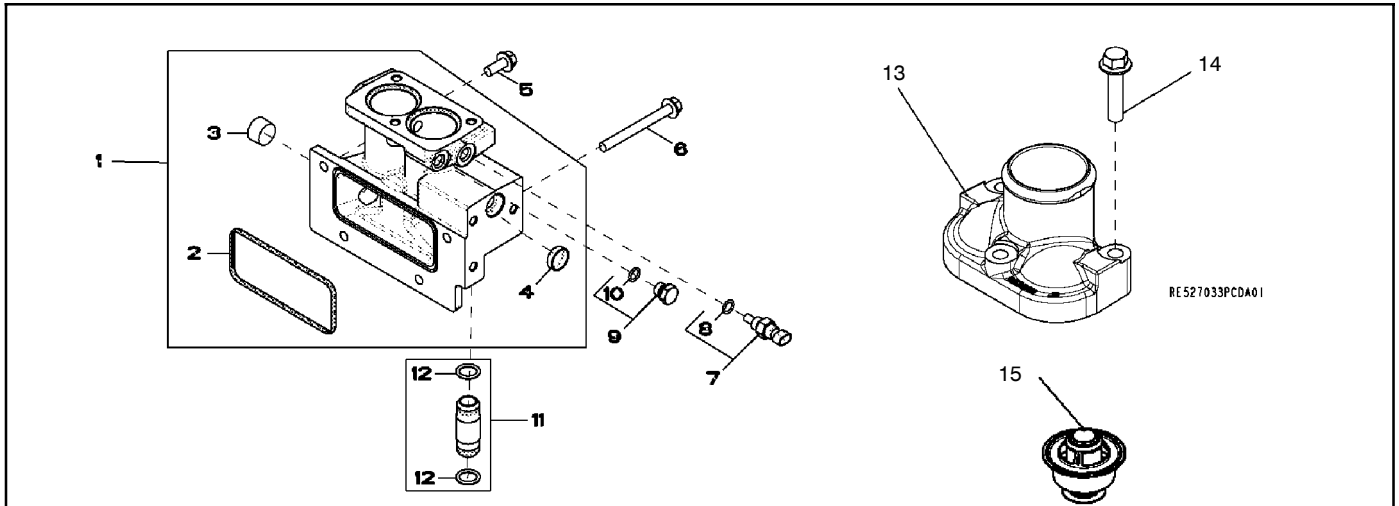


Item	Part Number	Description	Qty.
			Variation 5708
1	GM67274	Screw	3
2	GM67275	Screw	1
3	#	Screw, M10 x 30	2
4	GM50233	Connection, water pump	1
5	223435	Drain valve	1

Item	Part Number	Description	Qty.
			Variation 5708
6	GM18862	Pipe plug	2
7	GM53024	Pipe plug	1
8	GM67276	Cover	1
9	GM18862	Pipe plug	1
10	352726	Dowel pin	2
11	352737	Gasket	1

Common hardware; procure locally.

Group 5: Thermostat

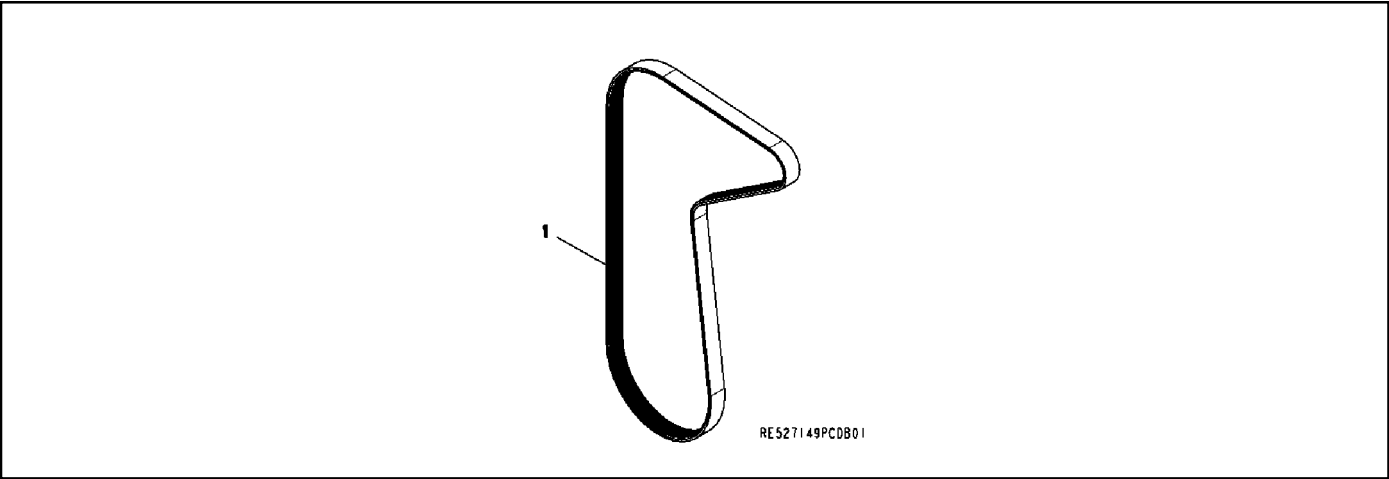


Item	Part Number	Description	Qty.	
			Variation	
			3908	3913
1	GM50244	Housing	1	1
2	GM50134	Gasket	1	1
3	GM53024	Pipe plug	1	1
4	223409	Plug	1	1
5	#	Screw, M10 x 25	3	3
6	#	Screw, M10 x 100	1	1
7	GM18785	Sensor, coolant temp.	1	
7	GM50195	Sensor, coolant temp.	1	1
8	GM21508	O-ring	1	1
8	GM50114	O-ring	1	

Item	Part Number	Description	Qty.	
			Variation	
			3908	3913
9	360013	Fitting plug		1
10	GM21508	O-ring		1
11	GM50203	Tube	1	1
12	GM50131	O-ring	1	2
13	GM50185	Housing	1	1
14	#	Screw, M10 x 45	3	3
15	GM50047	Thermostat	2	
15	GM49907	Seal	2	
15	GM67301	Thermostat		2
	GM90289			

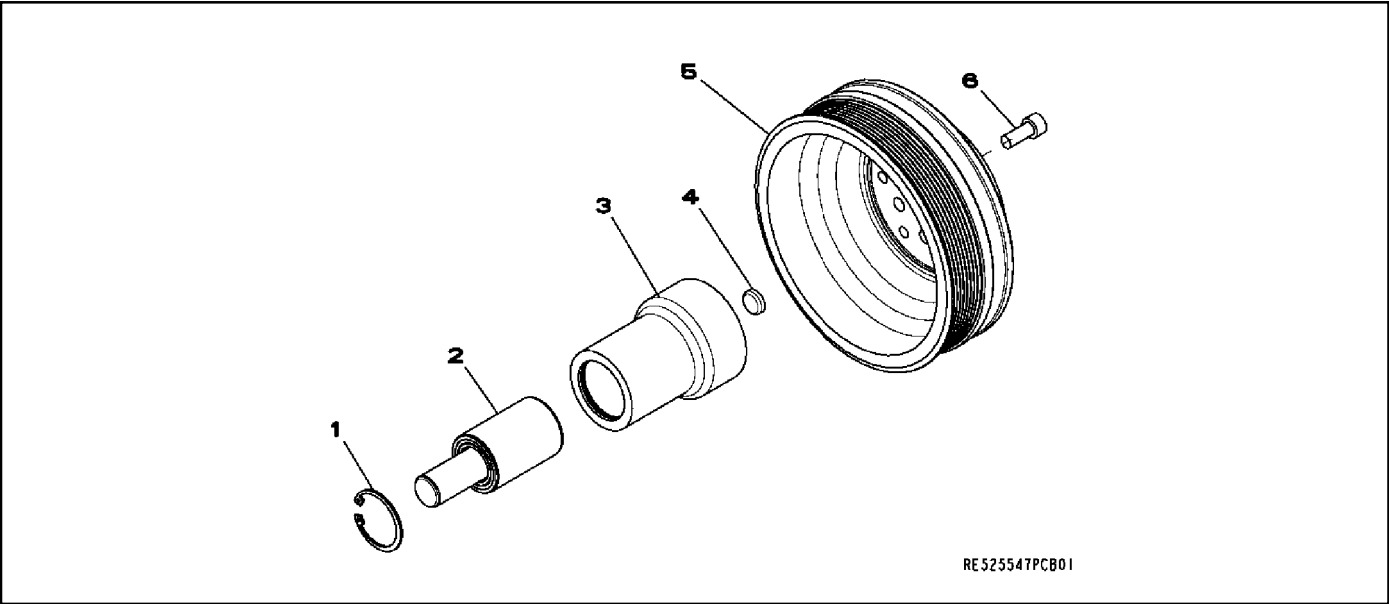
Common hardware; procure locally.

Group 6: Fan Belt



Item	Part Number	Description	Qty.
			Variation 2437
1	352793	V-belt	1

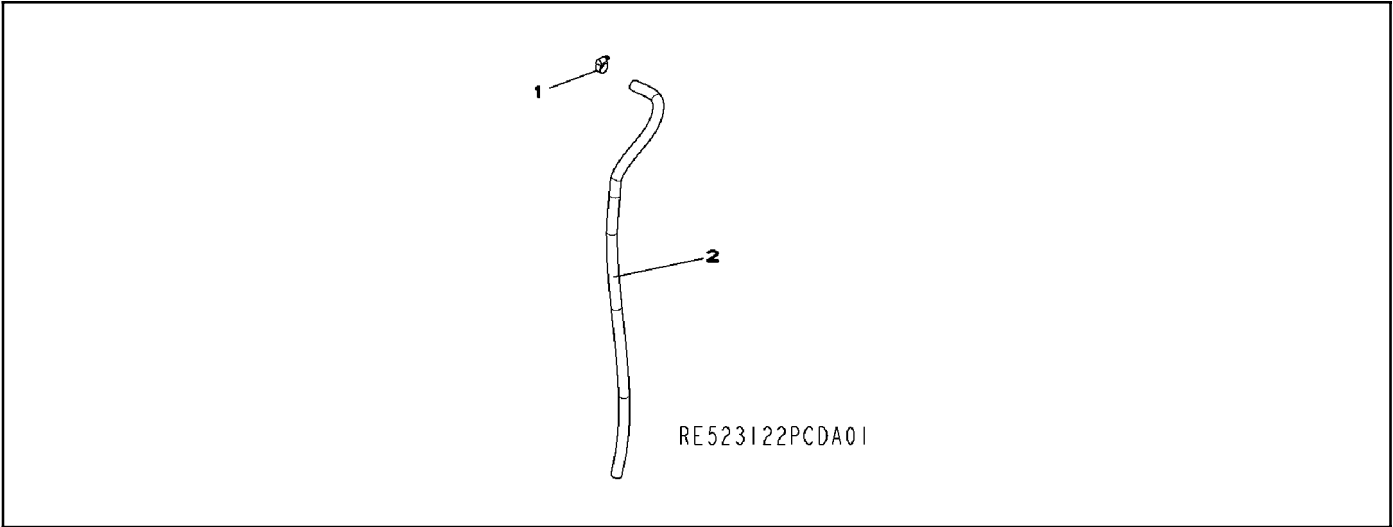
Group 7: Fan Drive



Item	Part Number	Description	Qty.
			Variation 234A
1	GM50110	Snap ring	1
2	352708	Bearing	1
3	GM50189	Hub	1
4	#	Plug	1
5	GM50188	Pulley	1
6	#	Screw	6

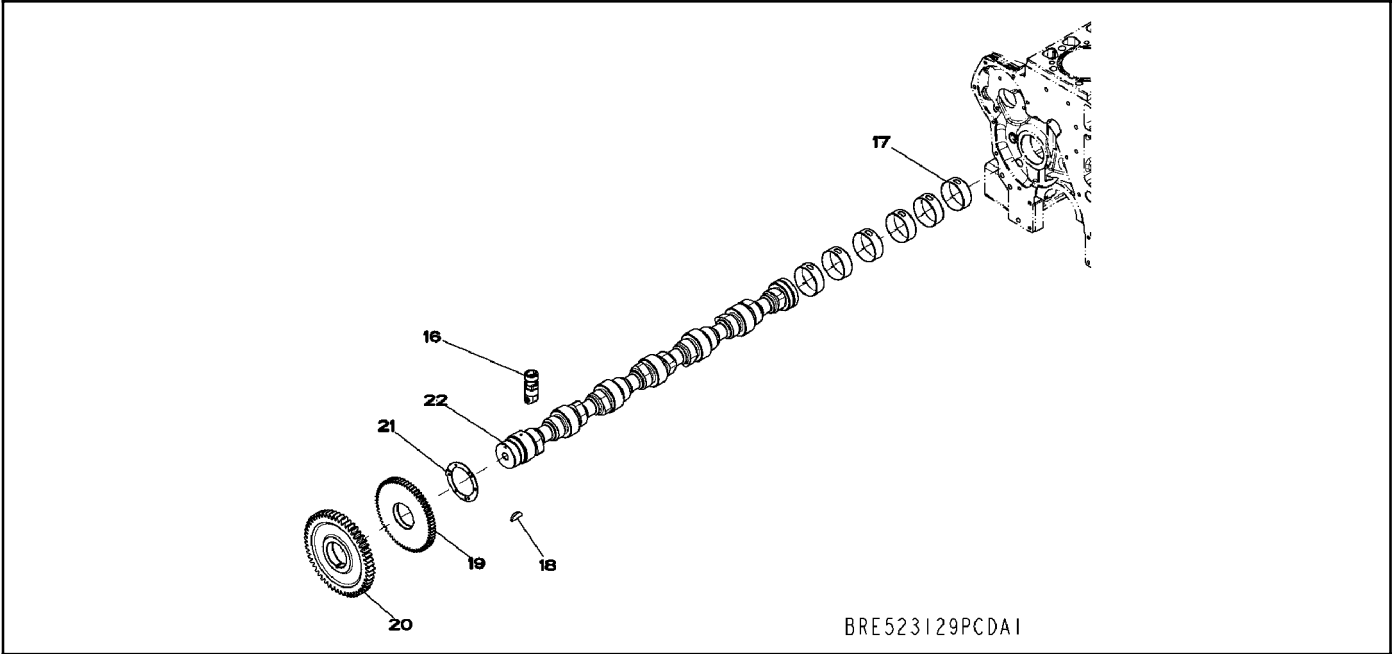
Common hardware; procure locally.

Group 10: Vent Tube



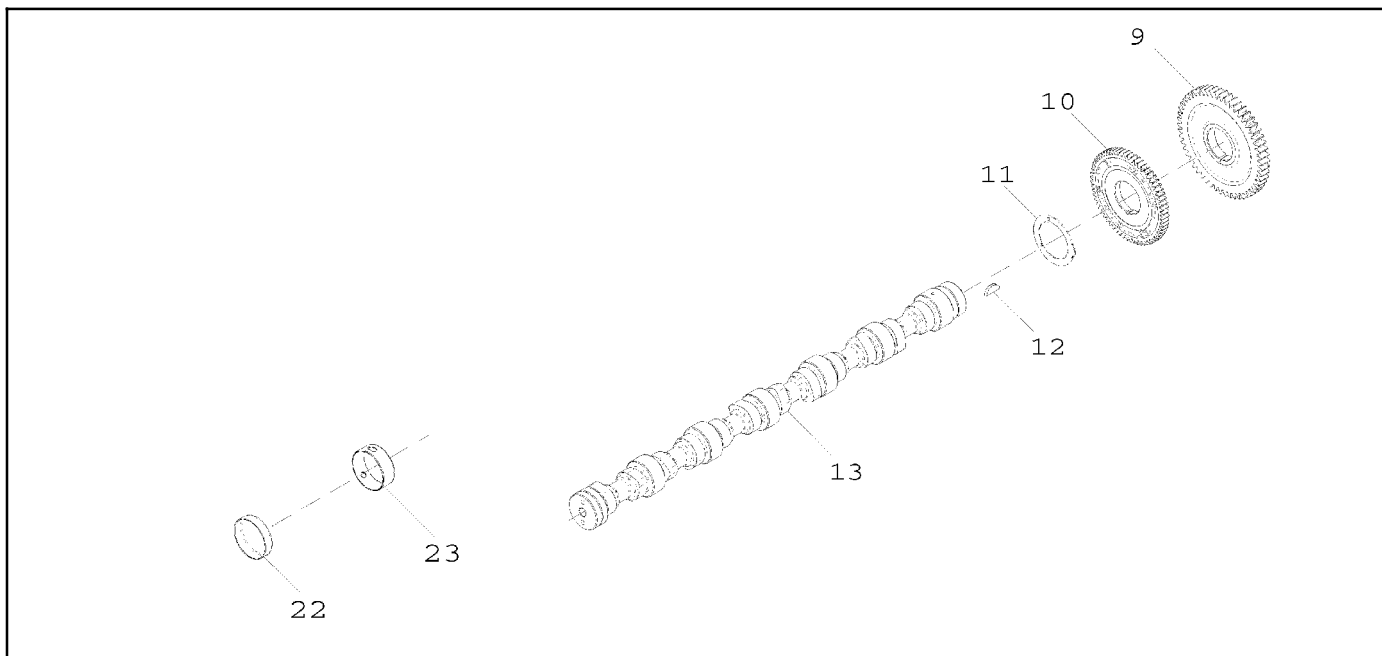
Item	Part Number	Description	Qty.	
			Variation	
			2901	2901B
1	336705	Clamp, hose	1	
1	GM79815	Clamp		1
2	GM50118	Tube	1	
2	GM79814	Hose		1

Group 11: Camshaft



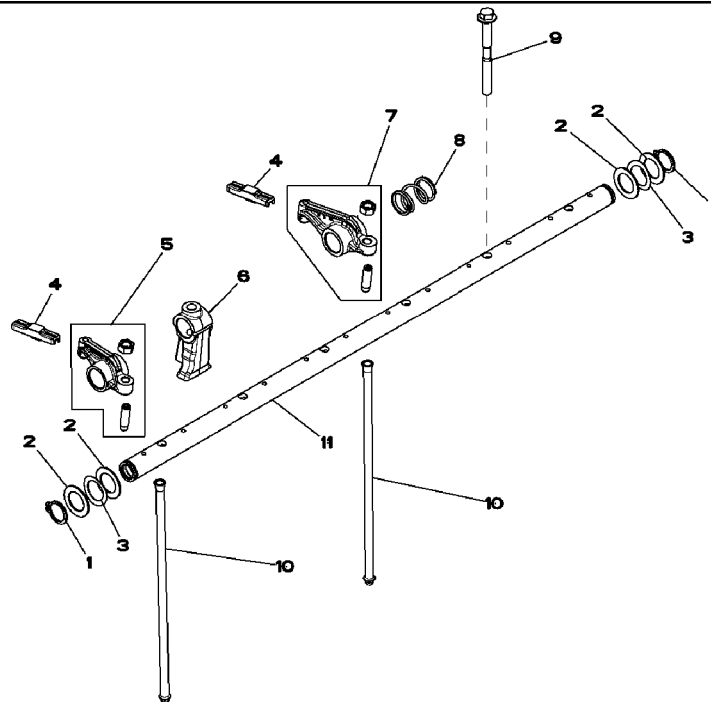
Item	Part Number	Description	Qty.	
			Variation	
			4601	
16	GM50214	Cam follower roller		12
17	223889	Bushing		6
18	352700	Shaft key		1
19	GM50141	Gear		1
20	GM50138	Gear		1
21	GM50132	Washer		1
22	GM50167	Camshaft		1

Group 11: Camshaft, continued



Item	Part Number	Description	Qty.
			Variation 4609
9	GM79820	Gear	1
10	GM50141	Gear	1
11	GM50132	Washer	1
12	352700	Shaft Key	1
13	GM79821	Camshaft	1
22	223866	Plug	1
23	GM79823	Bushing	6

Group 12: Valve Train

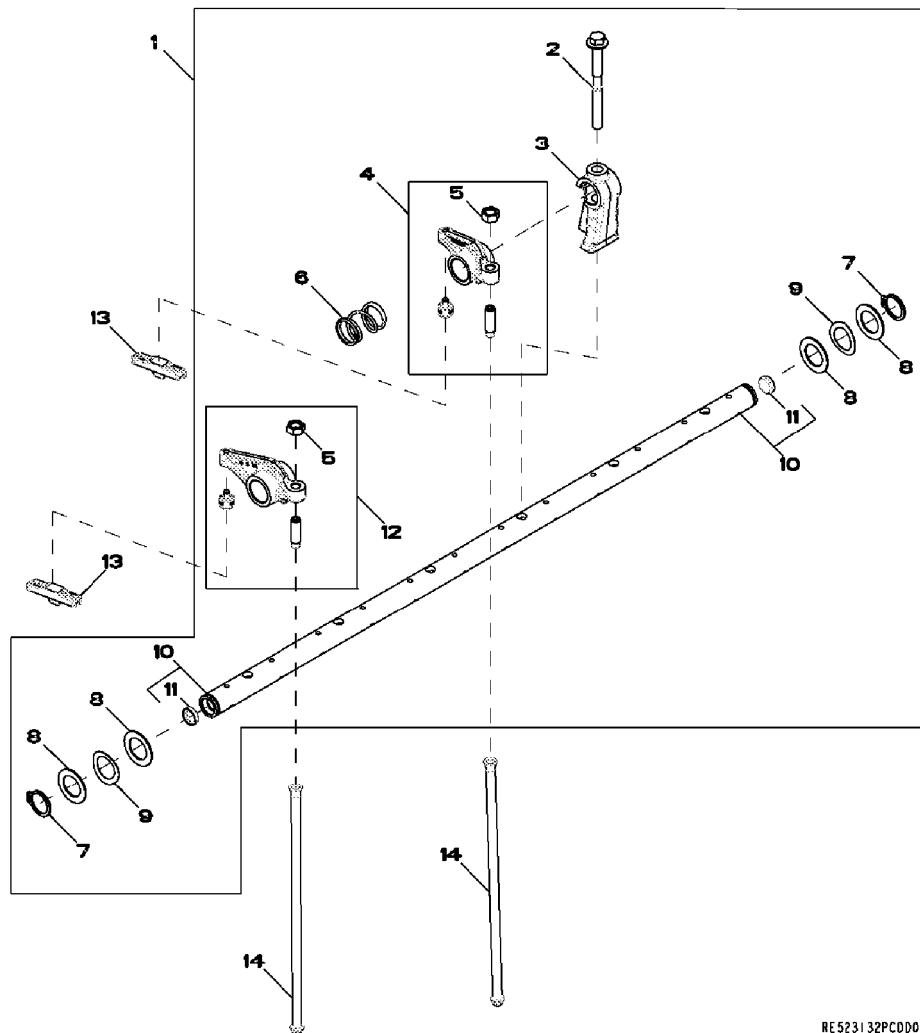


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Item	Part Number	Description	Qty.
			Variation 4901
1	GM50111	Snap ring	2
2	GM50182	Washer	4
3	GM50123	Washer	2
4	GM50154	Guide	12
5	GM50212	Rocker arm	6
6	GM50137	Pedestal	6

Item	Part Number	Description	Qty.
			Variation 4901
7	GM50211	Rocker arm	6
8	GM50136	Spring	5
9	#	Cap screw	6
10	223877	Push rod	12
11	GM50213	Rocker arm shaft	1

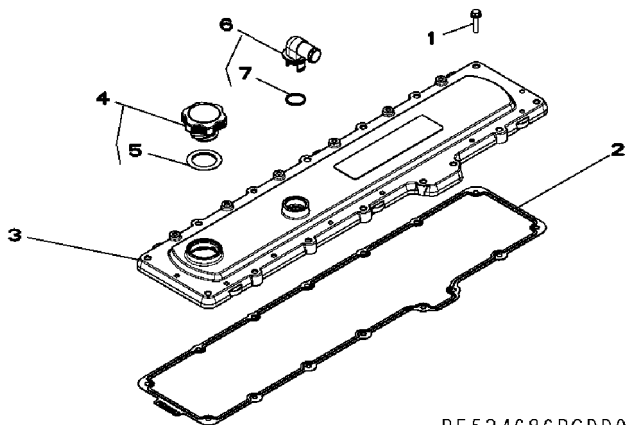
Group 12: Valve Train, continued



RE523132PCDD02

Item	Part Number	Description	Qty.
			Variation 4901B
1	GM79835	Rocker Arm	1
2	GM79836	Cap Screw	6
3	GM79837	Pedestal	6
4	GM79838	Rocker Arm	6
5	GM79839	Nut	1
6	GM50136	Spring	5
7	GM50111	Snap Ring	2
8	GM50182	Washer	4
9	GM50123	Washer	2
10	GM79840	Rocker Arm Shaft	1
11	GM79841	Plug	2
12	GM79842	Rocker Arm	6
13	GM79843	Guide	12
14	223877	Push Rod	12

Group 13: Rocker Arm Cover



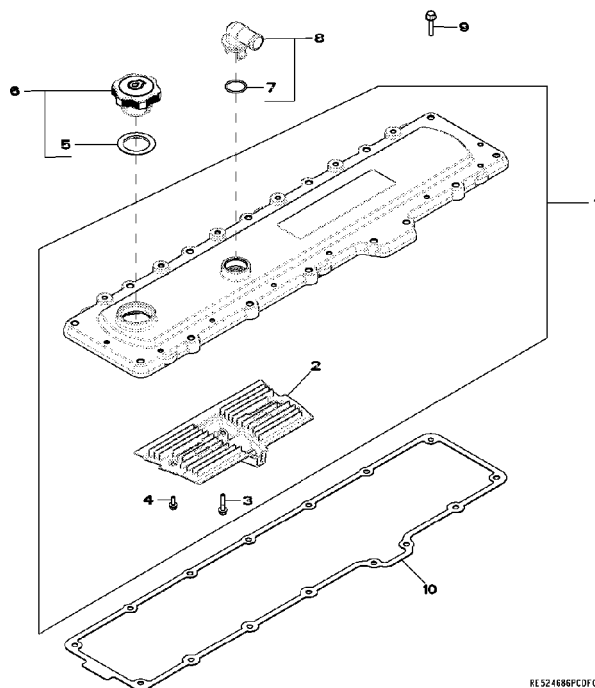
RE524686PCDD01

Item	Part Number	Description	Qty.
			Variation 1101
1	#	Screw, M8 x 35	15
2	GM50143	Gasket	1
3	GM50287	Cover	1
4	GM50275	Filler cap	1

Item	Part Number	Description	Qty.
			Variation 1101
5	GM50190	O-ring	1
6	GM50285	Fitting, elbow	1
7	360170	O-ring	1

Common hardware; procure locally.

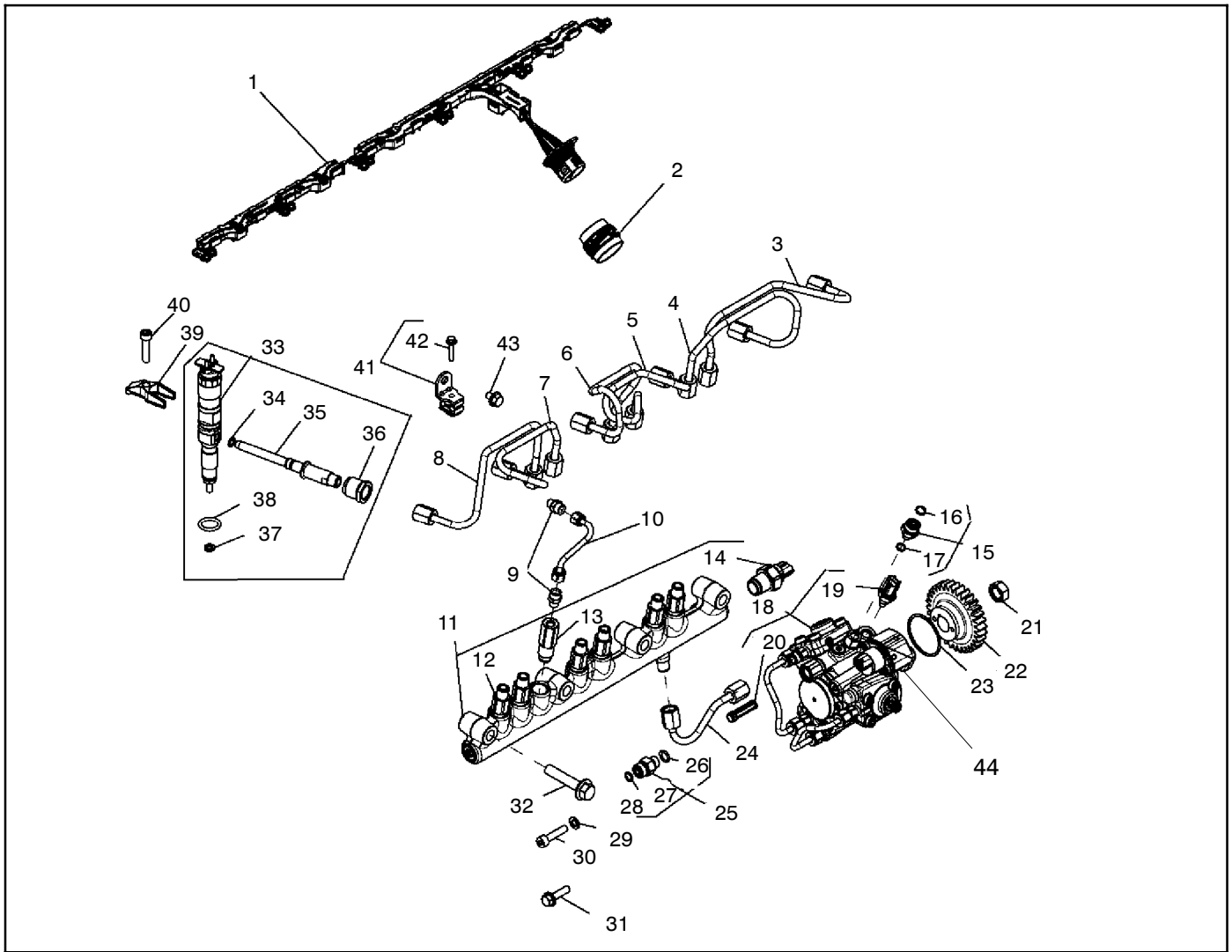
Group 13: Rocker Arm Cover, continued



RE 524686PCDF 02

Item	Part Number	Description	Qty. Variation 1101B
1	GM79794	Cover	1
2	GM79795	Breather	1
3	#	Screw, M6 x 30	1
4	#	Screw, M6 x 16	2
5	GM50190	O-Ring	1
6	GM50275	Filler Cap	1
7	360170	O-Ring	1
8	GM50285	Elbow Fitting	1
9	#	Screw, M8 x 35	15
10	GM79796	Gasket	1

Group 14: Fuel Injection System

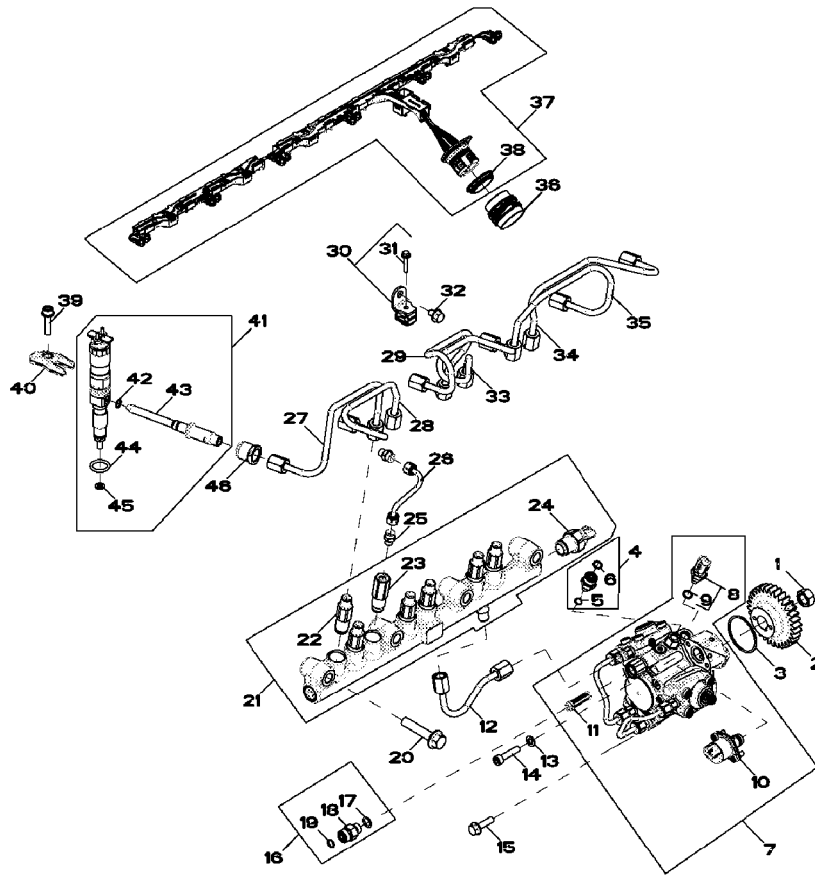


Item	Part Number	Description	Qty. Variation 1601
1	GM50229	Wiring harness	1
2	GM50170	Connector	1
3	GM50256	Fuel line	1
4	GM50257	Fuel line	1
5	GM50258	Fuel line	1
6	GM50259	Fuel line	1
7	GM50260	Fuel line	1
8	GM50261	Fuel line	1
9	GM50202	Fitting, adapter	2
10	GM50216	Line	1
11	GM50224	Fuel line	1
12	GM46637	Restrictor	6
13	GM50252	Pressure relief valve	1
14	GM50243	Sensor	1
15	GM50250	Fitting, adapter	1
16	360555	O-ring	1
17	GM32896	O-ring, 8.100 x 1.600 mm	1
18	GM50210	Fuel pump	1
19	GM46641	Sensor, fuel temperature	1
20	GM50251	Kit	1
21	224161	Nut	1
22	GM50140	Gear	1
23	GM50177	O-ring	1

Item	Part Number	Description	Qty. Variation 1601
24	GM50215	Fuel line	1
25	GM50116	Fitting, adapter	1
26	GM21508	O-ring	1
27	GM50106	Fitting, adapter	1
28	360555	O-ring	1
29	#	Washer, 8.400 x 15 x 1.600 mm	1
30	#	Screw, M8 x 35	1
31	#	Screw, M8 x 30	2
32	#	Screw	4
33	GM50279	Kit, nozzle	1
34	360165	O-ring	6
35	GM50225	Fitting	6
36	GM50153	Tube nut	6
37	GM50119	Washer	6
38	GM46635	O-ring	6
39	GM49839	Clamp	6
40	GM46623	Cap screw	6
41	GM50262	Clamp	3
42	GM50274	Screw with washer	1
43	GM50033	Cap screw	3
44	GM77150	Control Valve	1

Common hardware; procure locally.

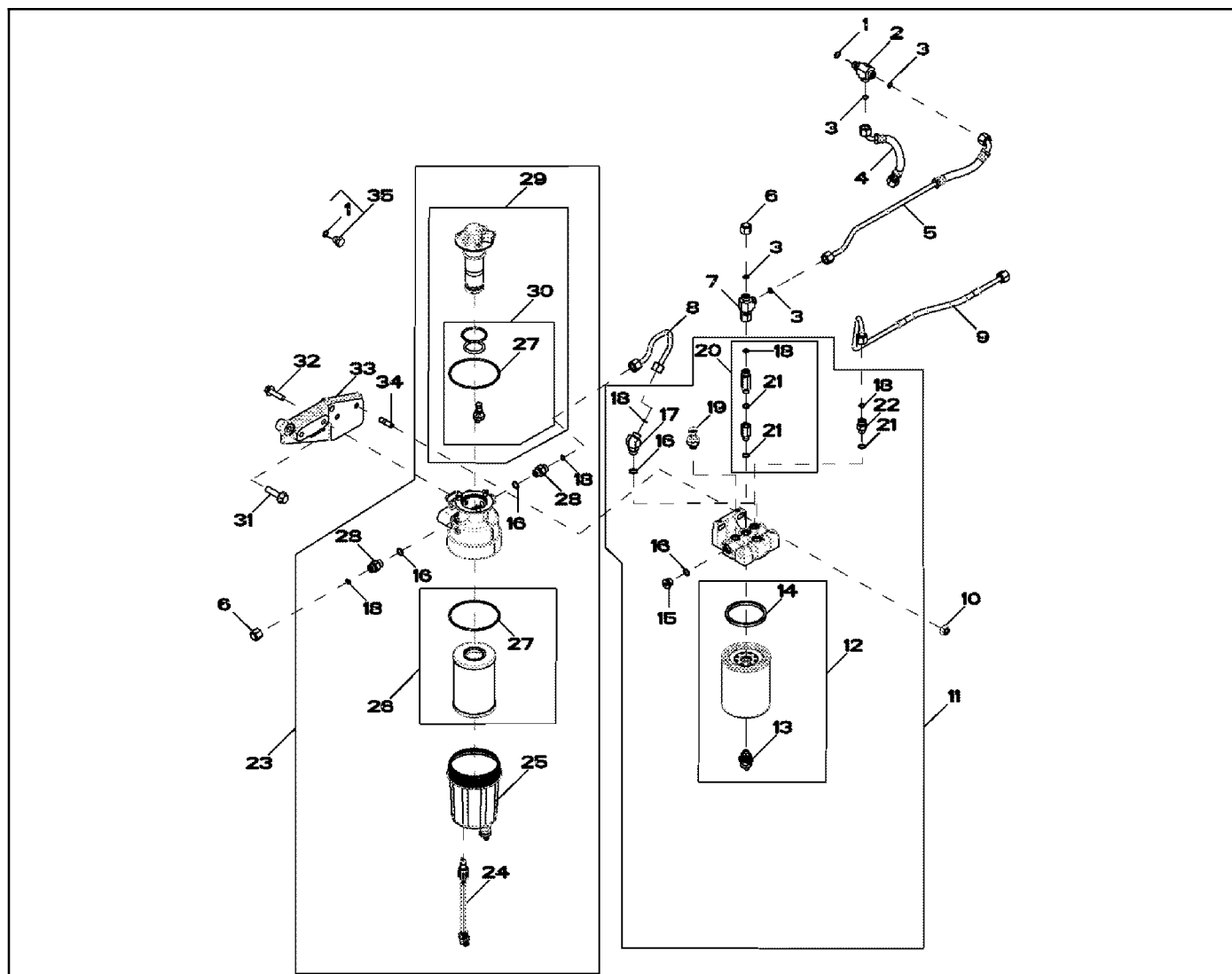
Group 14: Fuel Injection System, continued



RES23113PCDK03

Item	Part Number	Description	Qty.	Item	Part Number	Description	Qty.
			Variation 1601B				Variation 1601B
1	224161	Nut	1	24	GM50243	Sensor	1
2	GM50140	Gear	1	25	GM50202	Adapter Fitting	2
3	GM50177	O-Ring	1	26	GM50216	Line	1
4	GM50250	Adapter Fitting	1	27	GM50261	Fuel Line	1
5	GM32896	O-Ring	1	28	GM50260	Fuel Line	1
6	360555	O-Ring	1	29	GM50259	Fuel Line	1
7	GM79804	Fuel Injection Pump	1	30	GM50262	Clamp	3
8	GM46641	Fuel Temperature Sensor	1	31	GM50274	Screw With Washer	1
9	GM79805	O-Ring	1	32	GM50033	Cap Screw	3
10	GM77150	Control Valve	1	33	GM50258	Fuel Line	1
11	GM50251	Kit	1	34	GM50256	Fuel Line	1
12	GM50215	Fuel Line	1	35	GM50257	Fuel Line	1
13	#	Washer, 8.400 X 15 X 1.600	1	36	GM50170	Connector	1
14	GM46623	Cap Screw	1	37	GM79806	Wiring Harness	1
15	#	Screw, M8 X 30	2	38	GM79807	Sealing Ring	1
16	GM52807	Fitting	1	39	GM50059	Screw With Washer	6
17	GM50114	O-Ring	1	40	GM79808	Clamp	6
18	GM50106	Adapter Fitting	1	41	GM50279	Injection Nozzle	6
19	360165	O-Ring	1	42	360165	O-Ring	1
20	#	Screw, M12 X 60	4	43	GM50225	Fitting	1
21	GM50224	Rail	1	44	GM46635	O-Ring	1
22	GM46637	Restrictor	6	45	GM50119	Washer	1
23	GM50252	Pressure Relief Valve	1	46	GM50153	Tube Nut	1

Group 18: Fuel Filter

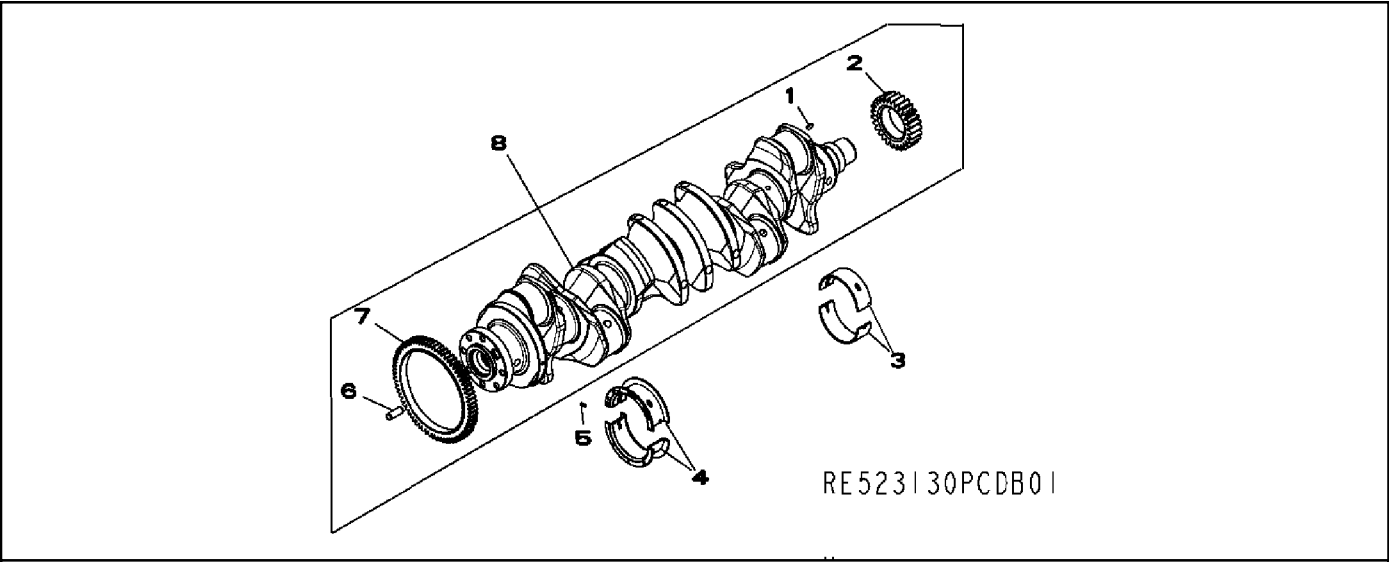


Item	Part Number	Description	Qty. Var. 3511
1	GM21508	O-ring	1
2	GM50108	Fitting, tee	1
3	360555	O-ring	4
4	GM50255	Fuel line	1
5	GM50996	Fuel line	1
6	#	Fitting	3
7	GM50109	Fitting, tee	1
8	GM50234	Fuel line	1
9	GM50217	Fuel line	1
10	#	Flange nut, M10	2
11	GM50281	Filter	1
12	-	Filter element (order kit GM50263)	
12	GM50263	Kit, Fuel Filter (includes 2 micron filter and 10 micron filter & items 13, 14, 27)	
13	GM50242	Drain valve	1
14	GM18730	Packing	1
15	GM50292	Fitting plug	1
16	GM50115	O-ring	4
17	360556	Fitting, elbow, 45 deg.	1

Item	Part Number	Description	Qty. Var. 3511
18	360165	O-ring	5
19	GM50230	Sensor	1
20	GM50280	Bleed valve	1
21	GM50114	O-ring	3
22	GM50106	Fitting, adapter	1
23	GM50236	Filter, fuel pump and filter assy	1
24	GM50198	Sensor, moisture	1
25	GM50997	Bowl	1
26	-	Filter element (order kit GM50263)	
26	GM50263	Kit, Fuel Filter (includes 2 micron filter and 10 micron filter & items 13, 14, 27)	
27	GM50193	O-ring	1
28	GM50107	Fitting, adapter	2
29	GM50241	Fuel pump, 24 V	1
30	GM77149	Seal kit	1
31	#	Screw, M12 x 45	2
32	#	Screw, M10 x 40	2
33	GM50160	Bracket	1
34	GM50113	Stud	2
35	360013	Fitting plug	1

Common hardware; procure locally.

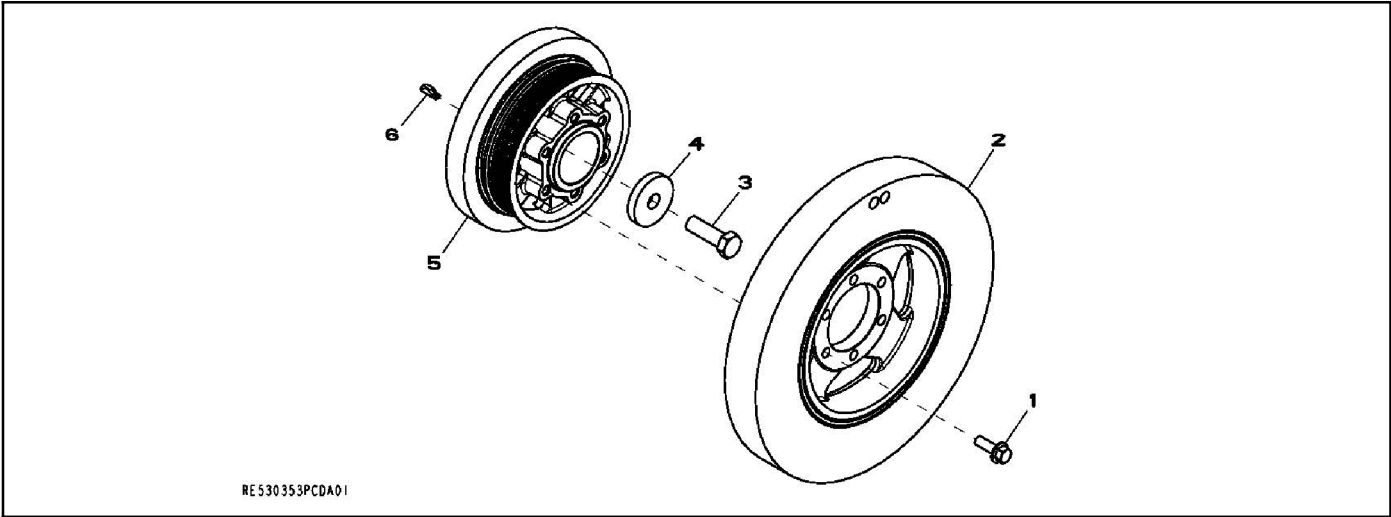
Group 19: Crankshaft



Item	Part Number	Description	Qty.	
			Variation	
			4701	4705
1	352746	Key	1	1
2	352715	Gear	1	1
3	GM50283	Bearing	1 6	1 6
4	GM50284	Bearing, thrust	1	1
5	#	Dowel pin, 4 x 14 mm	1	
5	GM79830	Dowel pin, 4 x 12 mm		1
6	223754	Dowel pin	6	
6	GM79829	Dowel pin		1
8	GM50290	Crankshaft	1	
8	GM79825	Crankshaft		1
	GM79828	Plug (not shown)		6

Common hardware; procure locally.

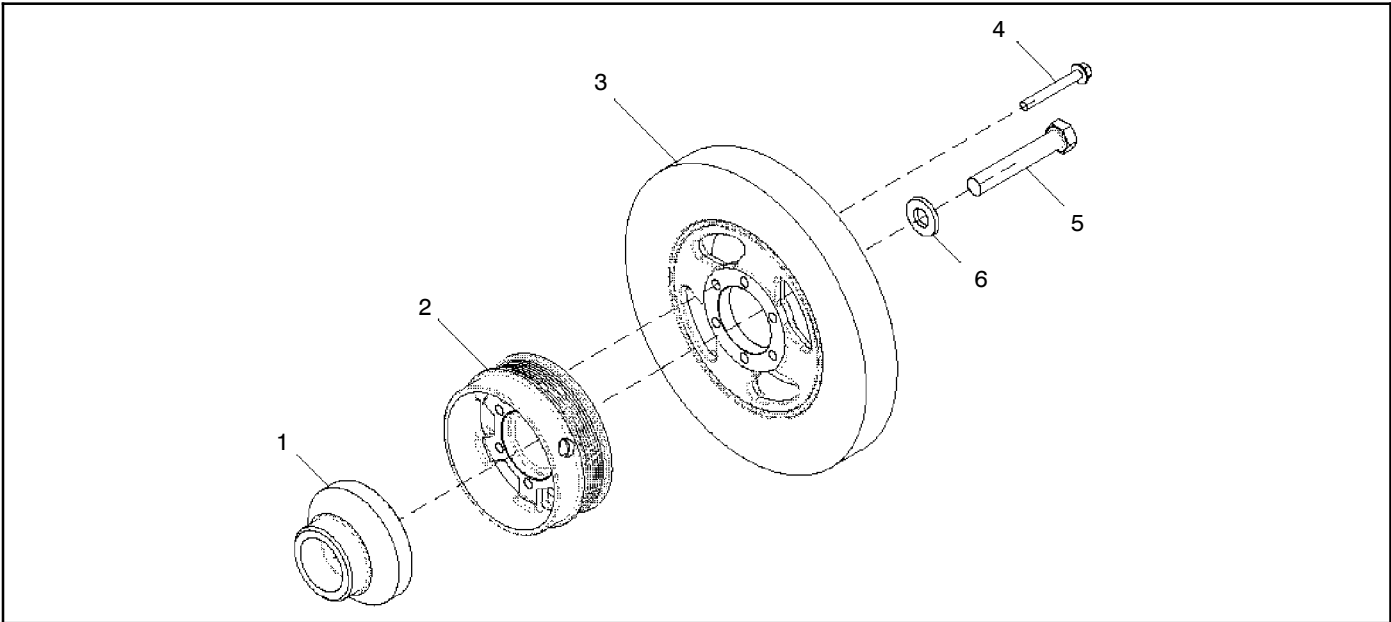
Group 20: Crankshaft Pulley



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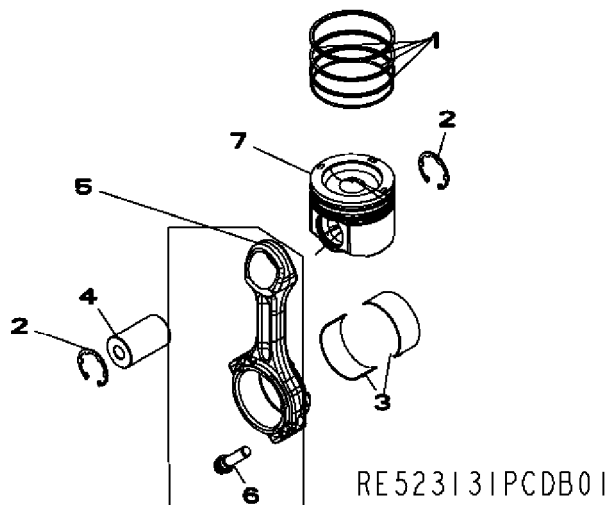
Item	Part Number	Description	Qty.
			Variation 1319
1	#	Cap screw, M10 x 30	6
2	GM50231	Torsional damper	1
3	#	Cap screw, M16 x 50	1
4	GM18712	Washer	1
5	GM50286	Torsional damper	1
6	GM50194	Key	1

Common hardware; procure locally.



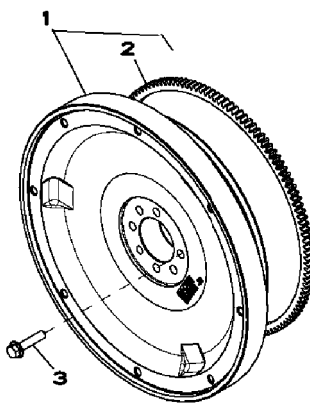
Item	Part Number	Description	Qty.
			Variation 1354
1	GM79797	Hub	1
2	GM79798	Pulley	1
3	GM50231	Torsional Damper	1
4	#	Screw, M10 X 80	6
5	#	Screw, M20 X 120	1
6	#	Washer, 21.400 X 42 X 5 MM	1

Group 21: Piston & Connecting Rod



Item	Part Number	Description	Qty.	
			Variation	
			4801	4804
1	GM50240	Piston ring kit	6	
1	GM79831	Piston ring kit		6
2	GM50159	Snap ring	12	12
3	GM50282	Bearing	6	
3	GM79834	Bearing		6
4	GM50135	Piston pin	6	6
5	GM50208	Connecting rod	6	
5	GM79833	Connecting rod		6
5	223853	Bushing, Connecting rod		1
6	GM18728	Screw	2	2
7	GM50289	Kit, cylinder liner/piston w/rings	1 6	
7	GM79832	Kit, cylinder liner/piston w/rings		1 6

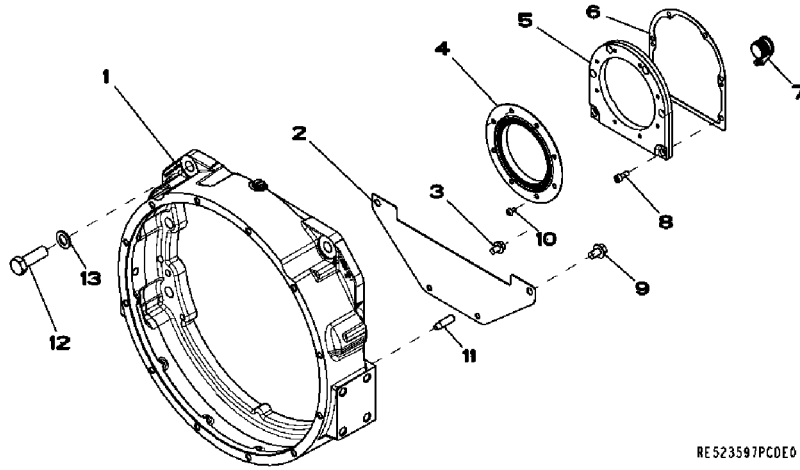
Group 22: Flywheel



Item	Part Number	Description	Qty.	
			Variation	
			1506	1550
1	223708	Flywheel	1	
2	GM79802	Flywheel		1
2	223750	Gear	1	1
3	#	Cap screw	6	
3	GM79803	Screw		10

Common hardware; procure locally.

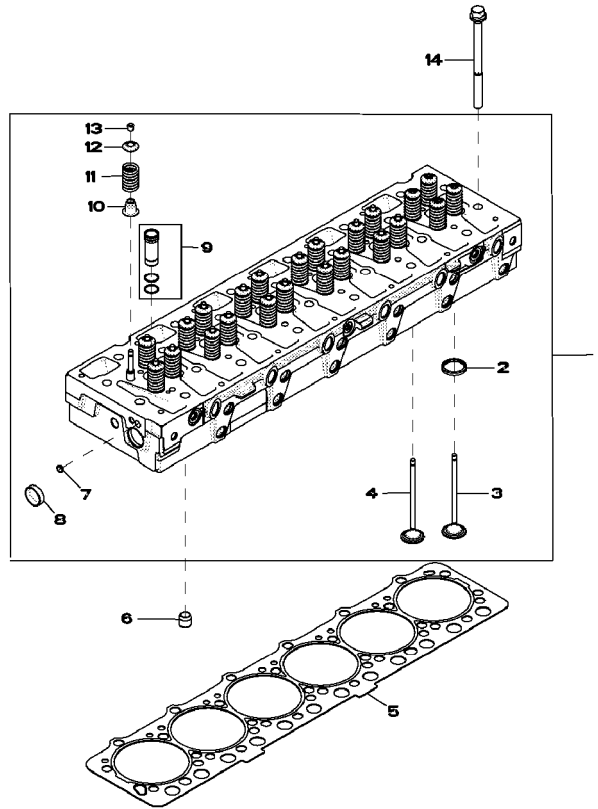
Group 23: Flywheel Housing



Item	Part Number	Description	Qty.		
			1401	Variation 1426	1435
1	GM50161	Housing	1		
1	GM77152	Housing		1	1
2	GM50158	Cover	1	1	1
3	#	Screw, M10 x 16	2	2	2
4	GM50222	Seal	1	1	
4	GM79799	Seal			1
5	GM50147	Housing	1	1	
5	GM79801	Housing			1
5	223731	Dowel pin (not shown)			2
6	GM50192	Gasket	1	1	
6	GM79800	Gasket			1
7	GM18691	Plug			1
8	#	Screw, M8 x 20	6	6	
8	#	Screw, M8 x 30			6
9	#	Screw, M12 x 20	2	2	2
10	#	Screw, M6 x 12	8		
10	GM77151	Screw		8	
11	352707	Dowel pin	2	2	2
12	#	Cap screw, M20 x 60	6	6	6
13	#	Washer	6	6	6

Common hardware; procure locally.

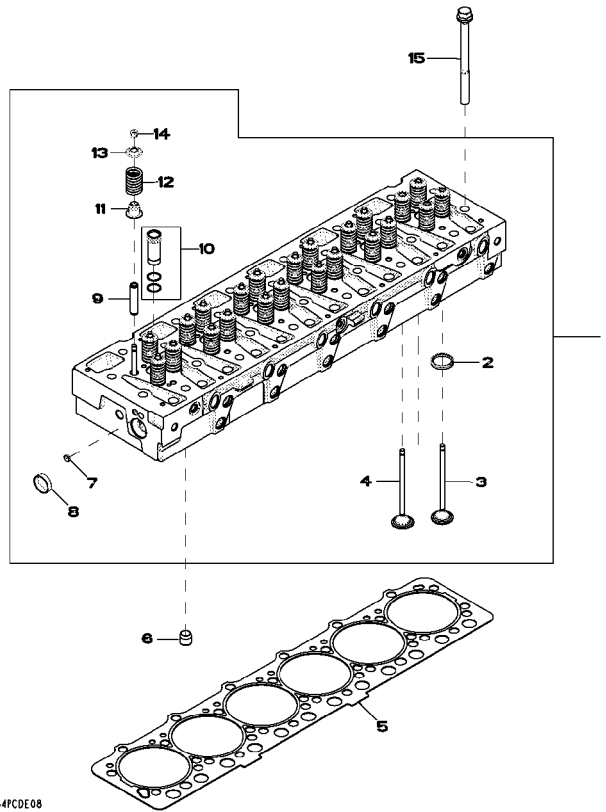
Group 24: Cylinder Head



Item	Part Number	Description	Qty. Variation 5101
1	GM67294	Cylinder head	1
2	GM67280	Valve seat insert	24
3	GM50163	Exhaust valve	12
4	GM50162	Intake valve	12
5	GM50133	Gasket, cylinder head	1
6	223755	Bushing	2
7	GM67271	Plug	3
8	GM13519	Plug GM67303	1
9	GM46683	Sleeve	6
10	GM67291	Seal	24
11	GM50127	Spring	24
12	GM50139	Retainer	24
13	GM50173	Retainer	48
14	GM67273	Screw	26

Common hardware; procure locally.

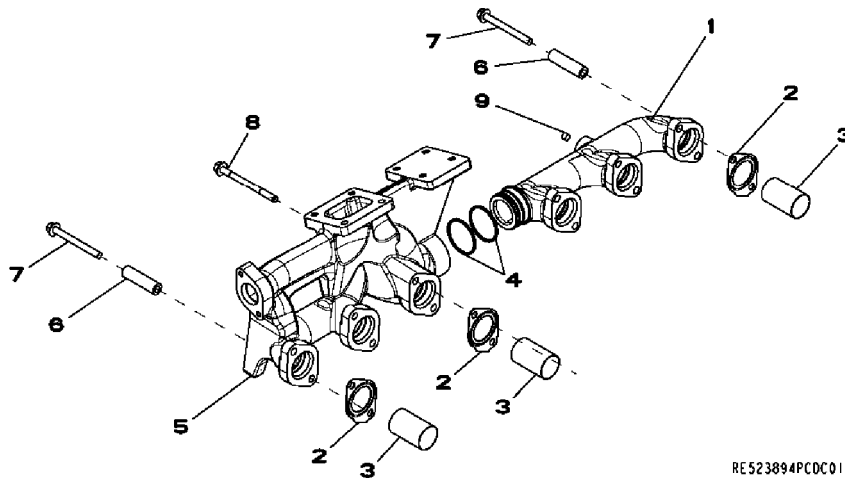
Group 24: Cylinder Head



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Item	Part Number	Description	Qty.
			Variation 5101B
1	GM67294	Cylinder Head	1
2	GM79846	Valve Seat Insert	24
3	GM50163	Exhaust Valve	12
4	GM50162	Intake Valve	12
5	GM79847	Engine Cylinder Head Gasket	1
6	223755	Bushing	2
7	GM67271	Plug	3
8	GM67303	Plug	1
9	GM79848	Guide	24
10	GM46683	Sleeve	6
11	GM67291	Seal	24
12	GM50127	Spring	24
13	GM50139	Retainer	24
14	GM50173	Retainer	48
15	GM67273	Screw	26

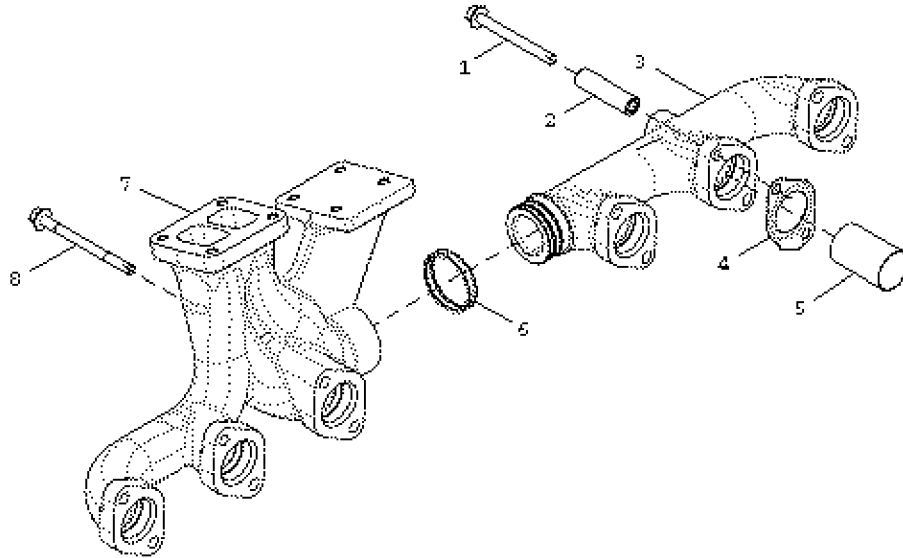
Group 25: Exhaust Manifold



Item	Part Number	Description	Qty.	
			Variation	
			2805	2811
1	GM50152	Exhaust manifold	1	1
2	GM50156	Gasket	6	6
3	GM50191	Sleeve	6	6
4	GM50120	Ring	2	2
5	GM50165	Exhaust manifold	1	
5	GM67287	Exhaust manifold		1
6	GM49881	Spacer	11	11
7	#	Screw, M10 x 100	11	11
8	#	Cap screw	1	1
9	GM18873	Pipe plug	1	

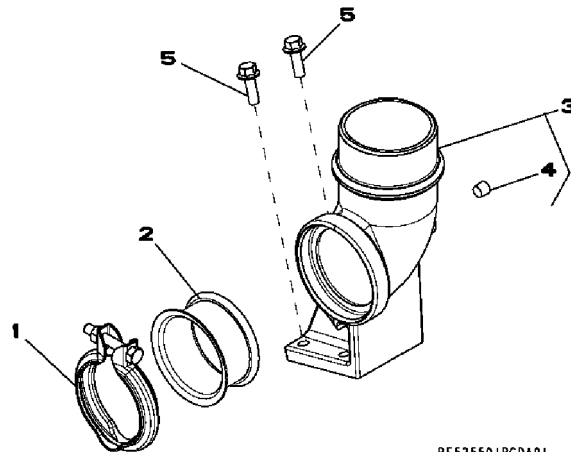
Common hardware; procure locally.

Group 25: Exhaust Manifold



Item	Part Number	Description	Qty.
			Variation 2811B
1	GM79811	Screw	11
2	GM49881	Spacer	11
3	GM50152	Exhaust Manifold	1
4	GM50156	Gasket	6
5	GM50191	Sleeve	6
6	GM79812	Sealing Ring	4
7	GM67287	Exhaust Manifold	1
8	GM79813	Cap Screw	1

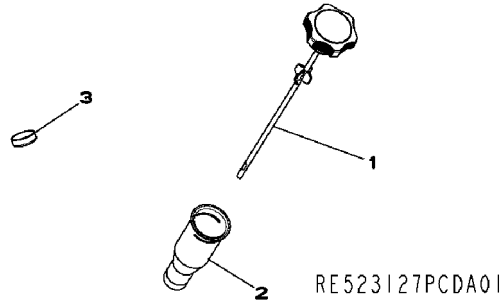
Group 26: Exhaust Elbow



Item	Part Number	Description	Qty.
			Variation 6402
1	GM50117	Clamp	1
2	223891	Adapter	1
3	GM50273	Fitting, elbow	1
4	#	Pipe plug	1
5	#	Screw, M10 x 30	4

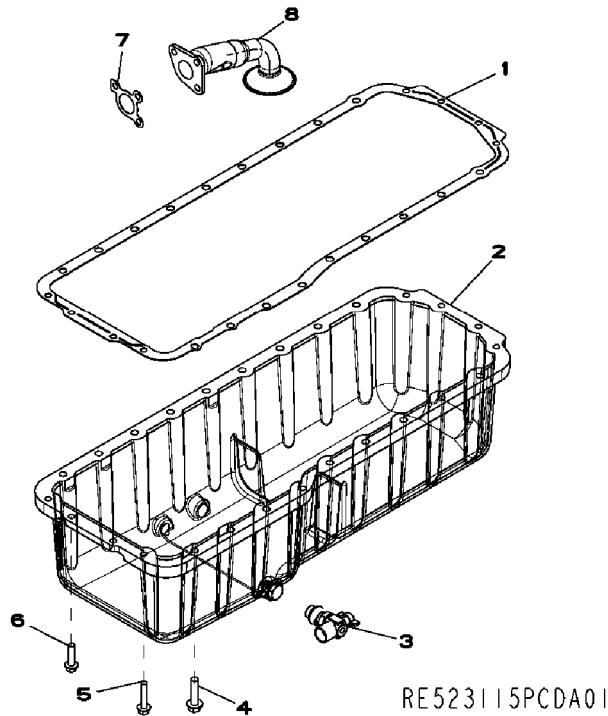
Common hardware; procure locally.

Group 28: Dipstick



Item	Part Number	Description	Qty.
			Variation 4003
1	GM50196	Dipstick	1
2	GM50126	Dipstick tube	1
3	GM18877	Cap, oil fill hole	1

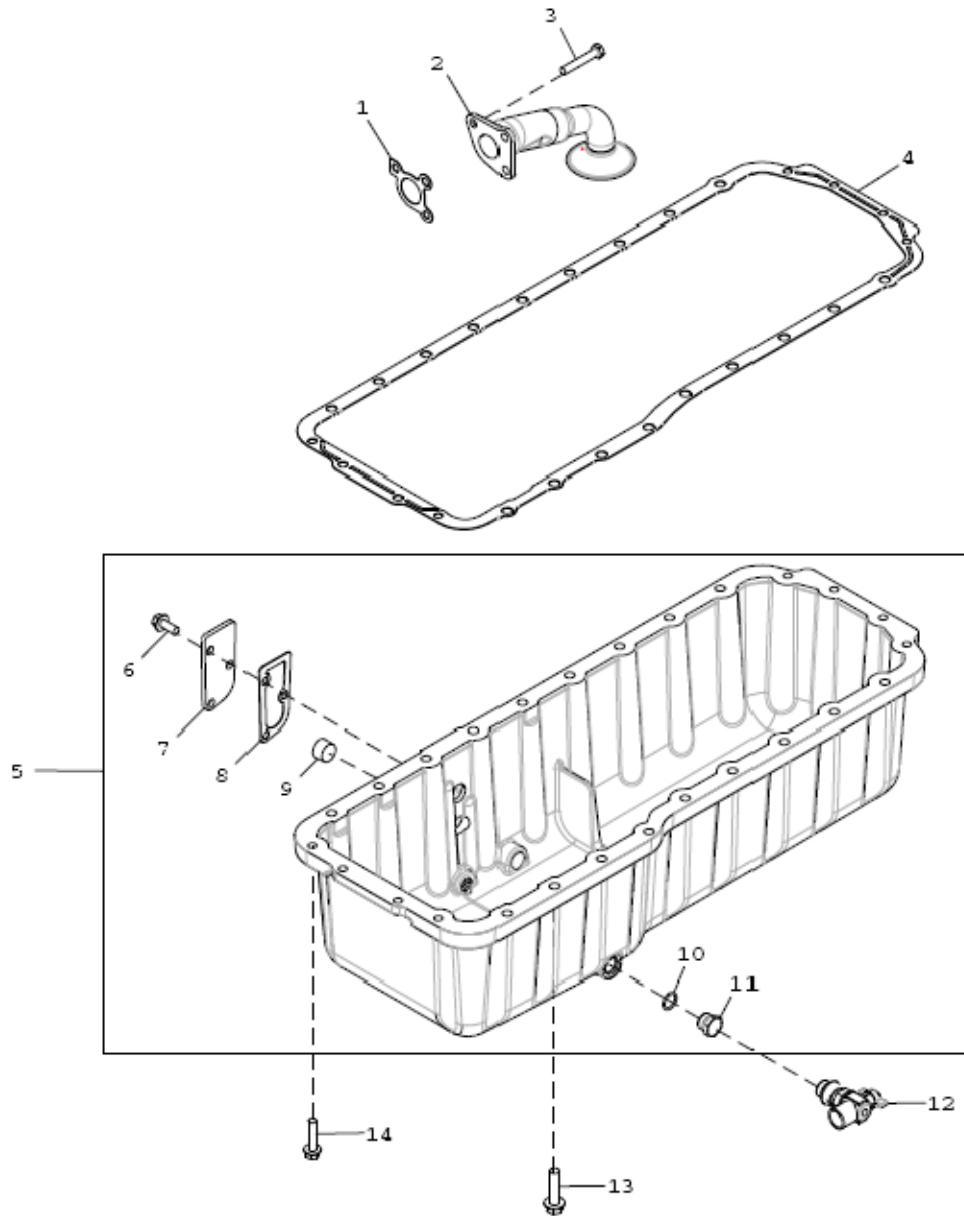
Group 29: Oil Pan



Item	Part Number	Description	Qty.
			Variation 1916
1	GM50221	Gasket	1
2	GM50246	Oil pan	1
3	GM50204	Drain valve	1
4	#	Screw, M12 x 50	18
5	#	Screw, M10 x 45	8
6	-	Not used	
7	352709	Gasket	1
8	GM50220	Oil pump intake	1
9	#	Cap screw, M10 x 60 (oil pump intake, not shown)	3

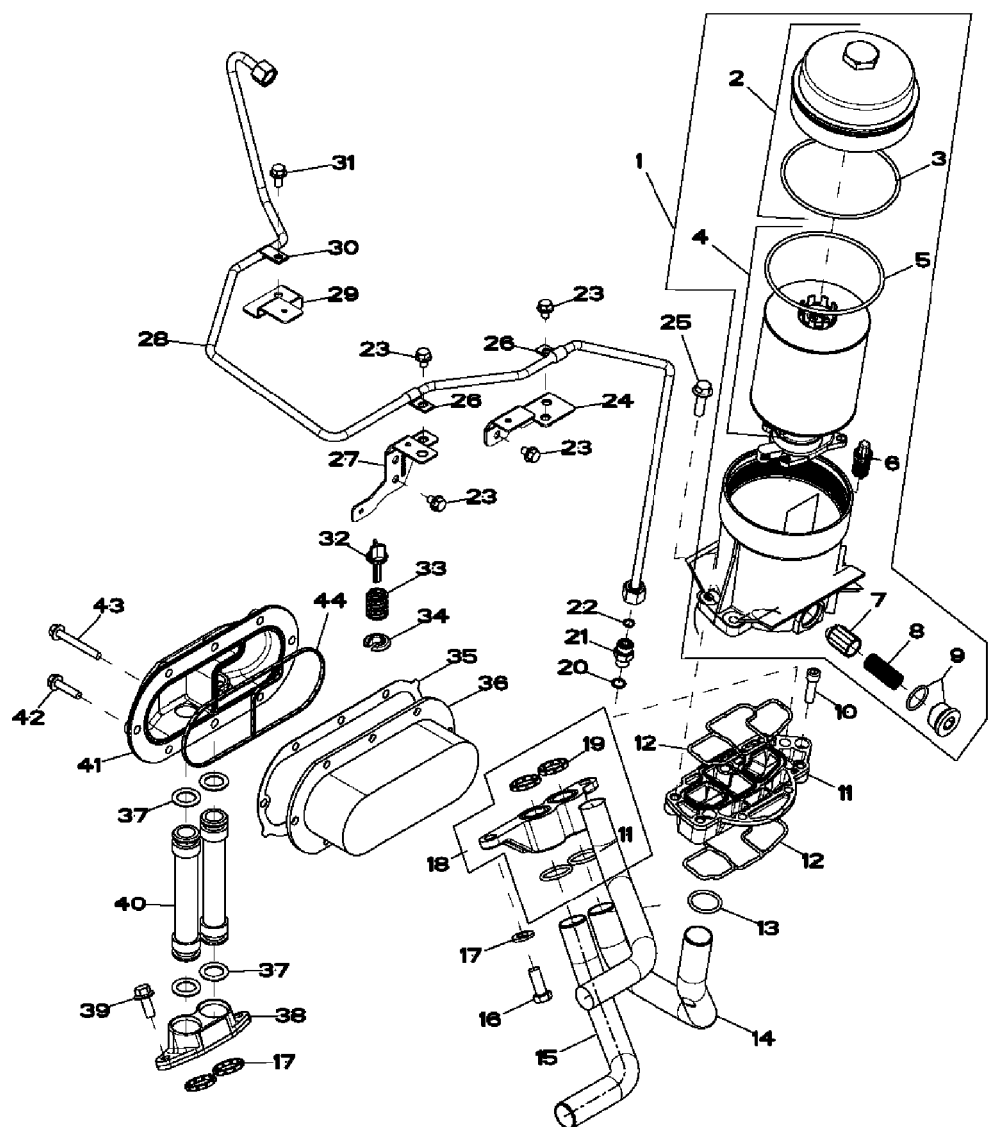
Common hardware; procure locally.

Group 29: Oil Pan



Item	Part Number	Description	Qty.
			Variation 1916B
1	352709	Gasket	1
2	GM50220	Oil Pump Intake	1
3	#	Cap Screw, M10 X 60	3
4	GM50221	Gasket	1
5	GM79809	Oil Pan	1
6	#	Screw, M10 X 25	3
7	GM79810	Cover	1
8	352875	Gasket	1
9	GM53024	Pipe Plug	1
10	223466	O-Ring	2
11	223458	Drain Plug	2
12	GM50204	Drain Valve	1
13	#	Screw, M12 X 50	18
14	GM75821	Screw, M10 X 45	8

Group 30: Oil Cooler



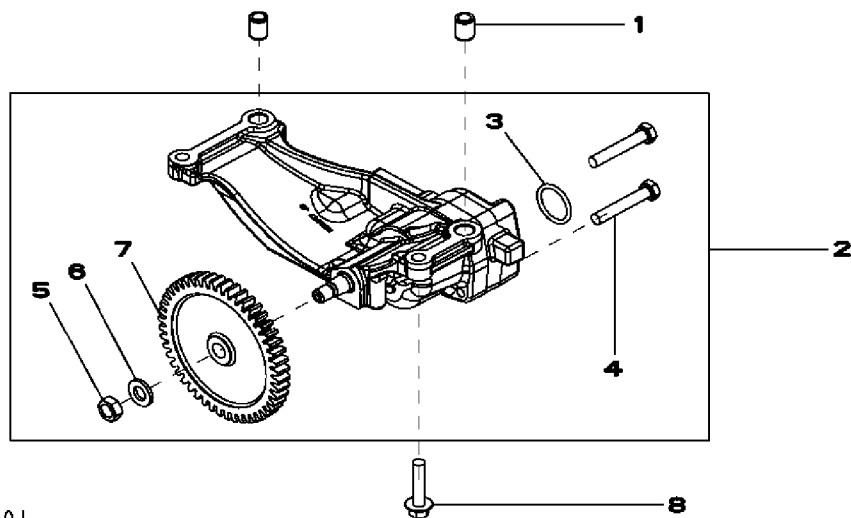
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Group 30: Oil Cooler

Item	Part Number	Description	Qty.	
			Variation	
			5921	5925
1	GM50200	Filter	1	1
2	GM52862	Cap	1	1
3	GM67282	O-ring	1	1
4	GM48731	Filter element	1	1
5	GM67282	O-ring	1	1
6	GM67292	Drain plug	1	1
7	GM52863	Pressure relief valve	1	1
8	GM52864	Compression spring	1	1
9	GM52865	Fitting plug	1	1
10	GM67279	Cap screw	3	3
11	GM50219	Fitting, adapter (includes items 12, 20, 21, 22)	1	1
12	GM50207	Seal kit	1	1
13	223850	O-ring	3	3
14	GM50146	Oil tube	1	1
15	352732	Oil tube	1	
15	GM67285	Oil tube		1
16	#	Cap screw, M12 x 30	2	2
17	#	Washer, 13 x 25 x 3 mm	2	2
18	GM50247	Fitting, adapter	1	1
19	GM50129	Seal	4	4
20	223742	O-ring	1	1
21	GM67272	Adapter fitting	1	1
22	360555	O-ring	1	1
23	GM50033	Cap screw	6	6
24	GM50267	Bracket	1	1
25	#	Screw, M10 x 35	4	4
26	GM50293	Clamp	2	
26	GM32961	Clamp		2
27	GM67293	Bracket	1	1
28	GM50238	Oil line	1	
28	GM67298	Oil line		1
29	GM50181	Bracket	1	
30	336549	Clamp	1	
31	#	Screw, M8 x 16	1	
32	352722	Valve	1	1
33	352811	Spring, bypass	1	1
34	GM50130	Retainer	1	1
35	GM50249	Gasket	1	1
36	223680	Oil cooler	1	1
37	GM50149	Packing	4	4
38	GM50145	Fitting, adapter	1	1
39	#	Screw, M10 x 25	2	2
40	GM50206	Oil tube	2	2
41	GM50128	Cover	1	1
42	#	Screw, M8 x 35	7	7
43	#	Screw, M8 x 65	1	1
44	GM11835	Seal	1	1
	GM88067			

Common hardware; procure locally.

Group 31: Oil Pump

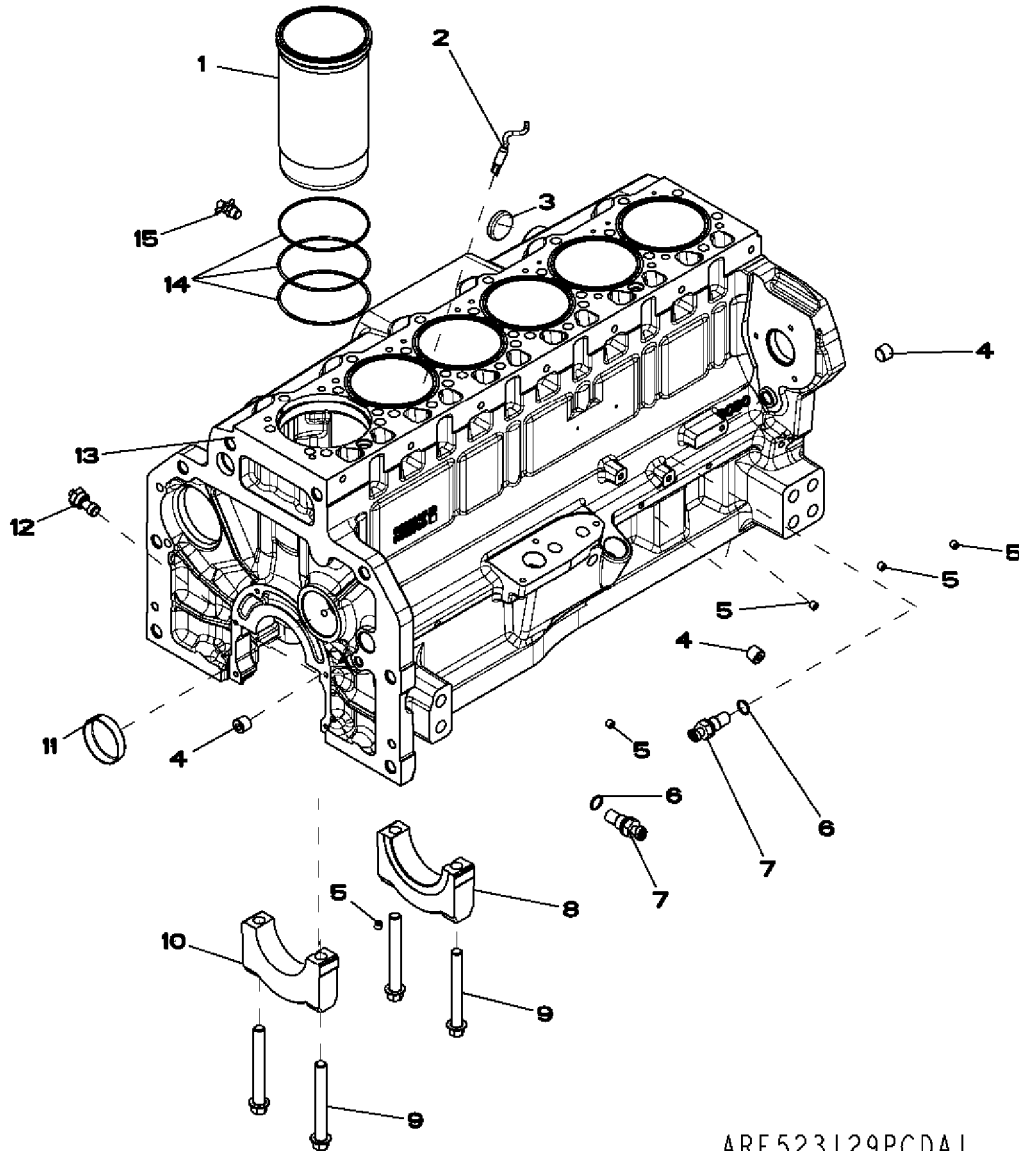


RE523133PCDB01

Item	Part Number	Description	Qty.	
			Variation	
			5001	5003
1	GM18727	Bushing	2	2
2	GM50209	Oil pump	1	
2	GM79844	Oil pump		1
3	223850	O-ring	1	1
4	#	Cap screw, M10 x 60	2	2
4	#	Cap screw, M10 x 30		1
5	GM50125	Gear	1	
5	GM79845	Gear		1
6	223982	Washer	1	1
7	#	Nut	1	1
8	#	Screw, M10 x 45	4	4

Common hardware; procure locally.

Group 32: Cylinder Block

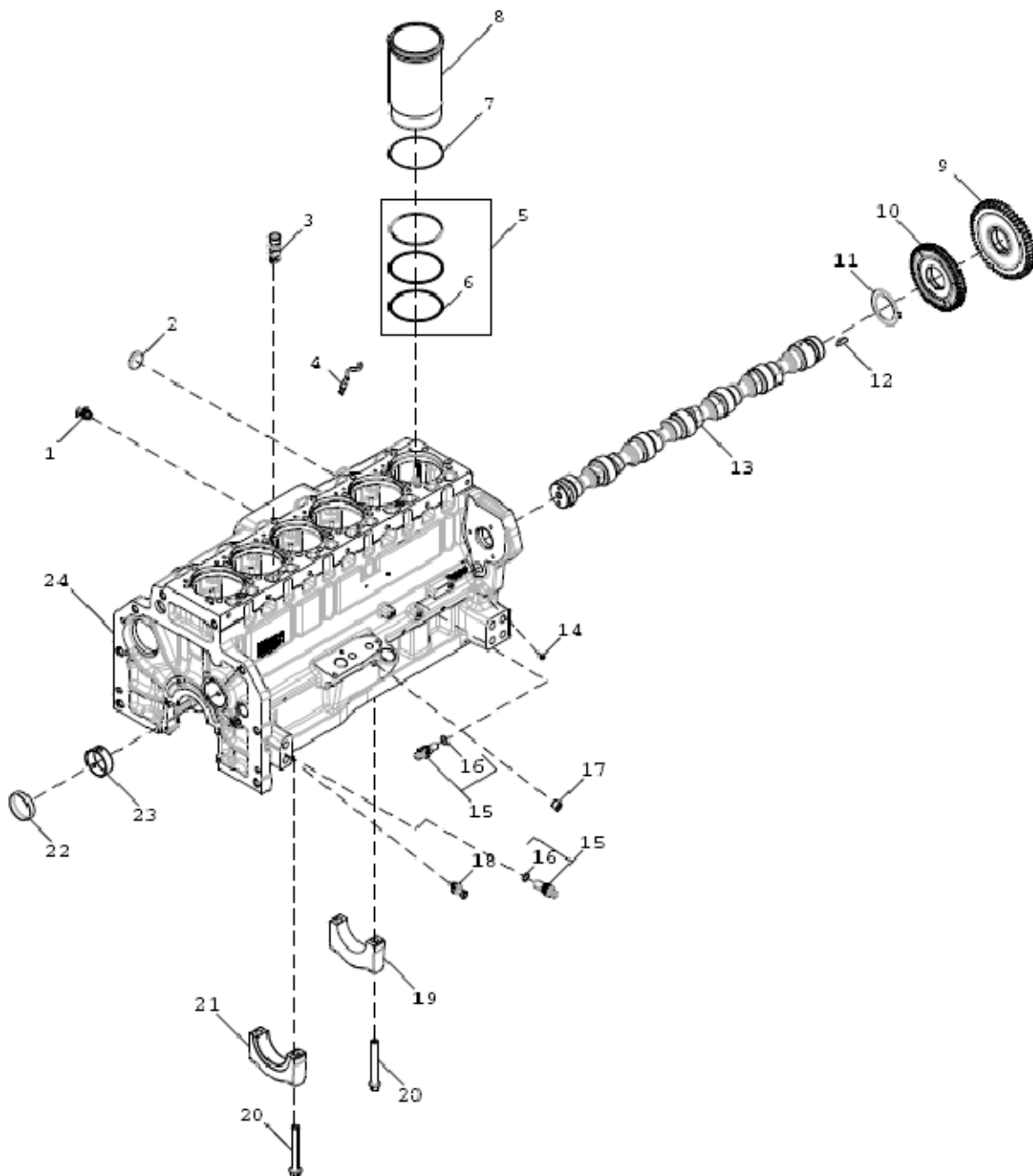


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Item	Part Number	Description	Qty.
			Variation 4601
1	—	Piston liner kit (see Group 21)	1
2	GM50232	Orifice	6
3	224157	Cap	1
4	GM18862	Pipe plug, 1/2 in.	3
5	GM18873	Pipe plug	5
6	360180	O-ring, 17.3 x 2.2 mm	1
7	GM49939	Sensor, engine speed	2
8	352813	Bearing cap, thrust	1
9	#	Cap screw	14
10	352748	Bearing cap	6
11	223866	Cap	1
12	GM32919	Sensor, pressure	1
13	-	Cylinder block (order short block assy GM67295)	1
14	223716	Kit	6
15	223435	Drain valve	1

Common hardware; procure locally.

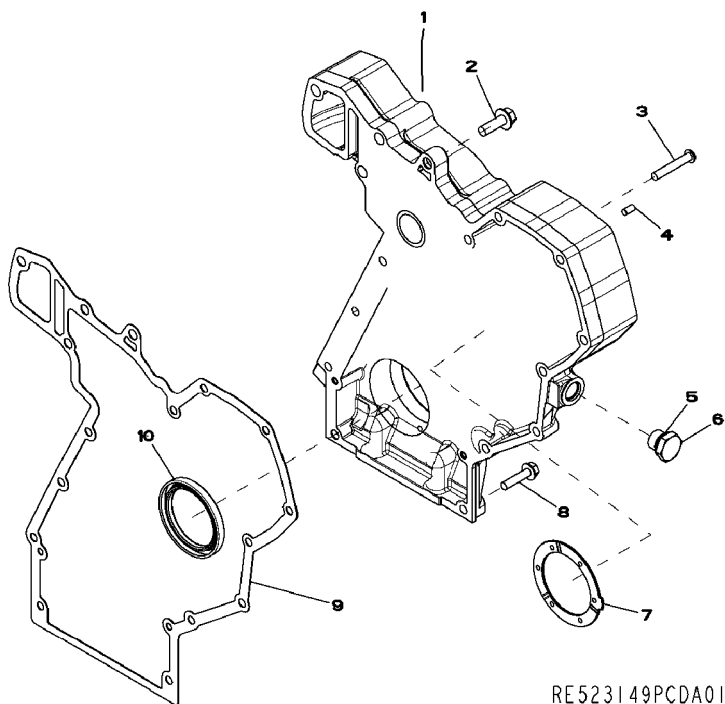
Group 32: Cylinder Block, continued



Item	Part Number	Description	Qty.
			Variation 4609
1	223435	Drain Valve	1
2	224157	Plug	1
3	GM79816	Cam Follower Roller	12
4	GM50232	Orifice	6
5	223716	O-Ring Kit	6
6	GM79817	O-Ring	6
7	GM79818	Shim	6
8	GM79819	Cylinder Liner	6
9	-	Gear (See Group 11)	1
10	-	Gear (See Group 11)	1
11	-	Washer (See Group 11)	1
12	-	Shaft Key (See Group 11)	1

Item	Part Number	Description	Qty.
			Variation 4609
13	-	Camshaft (See Group 11)	1
14	GM18873	Pipe Plug	5
15	GM49939	Sensor	2
16	360180	O-Ring	1
17	GM18862	Pipe Plug	3
18	GM32919	Sensor	1
19	352748	Bearing Cap	6
20	GM79822	Cap Screw	14
21	352813	Bearing Cap	1
22	-	Plug (See Group 11)	1
23	-	Bushing (See Group 11)	6
24	GM79824	Cylinder Block	1

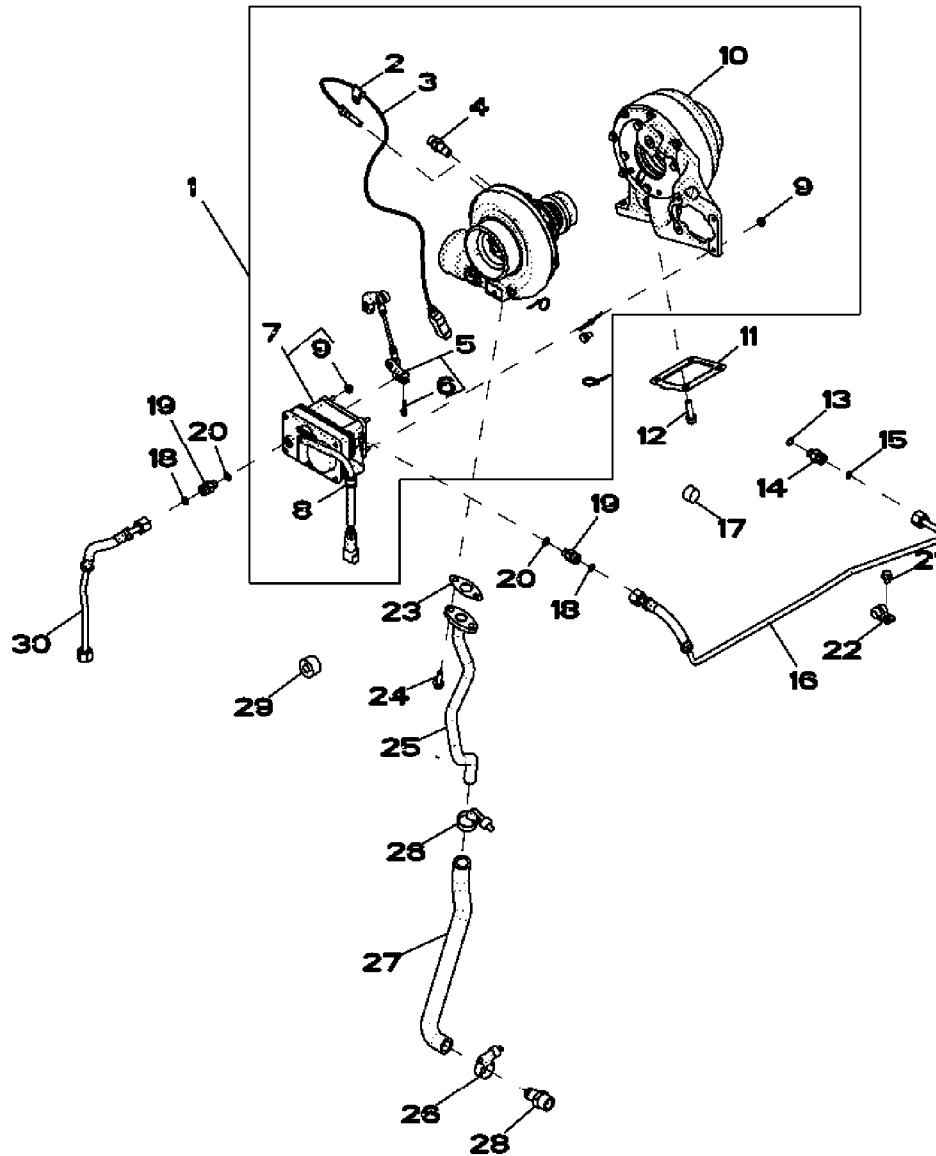
Group 34: Timing Gear Cover



Item	Part Number	Description	Qty.	
			Variation	
			7701	7706
1	GM50144	Cover	1	
1	GM79850	Cover		1
3	#	Screw, M8 x 50	1	1
2	#	Screw, M10 x 30	1	1
4	223731	Dowel pin	2	1
5	360180	O-ring, 17.3 x 2.2 mm	1	1
6	360078	Plug, drain	1	1
7	GM50132	Washer	1	1
8	#	Screw, M8 x 35	3	3
9	352738	Gasket	1	1
10	223677	Seal	1	
10	GM79849	Seal		1
11	352812	Filter (not shown)		1
11	#	Pipe Plug, 3/8" (not shown)		1

Common hardware; procure locally.

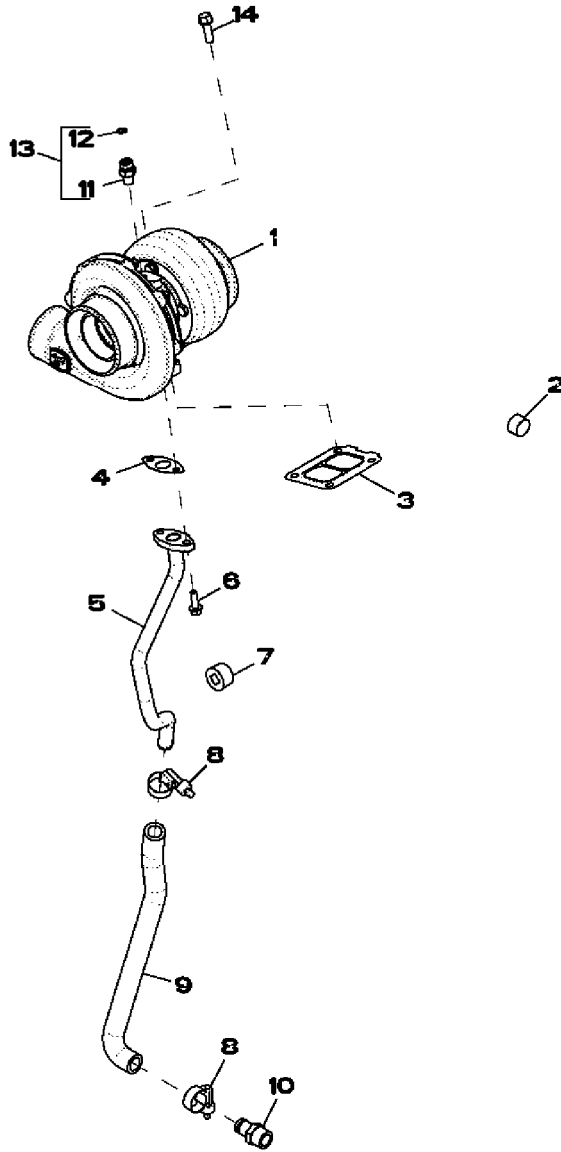
Group 35: Turbocharger and Oil Lines



Item	Part Number	Description	Qty.
			Variation 6519
1	GM50264	Turbocharger	1
2	GM67284	Clamp	1
3	GM50015	Sensor	1
4	GM50027	Fitting	1
5	GM50022	Linkage	1
6	GM50062	Screw with washer	2
7	GM50014	Actuator	1
8	GM50184	Clamp	1
9	GM49824	Nut	4
10	-	Housing (order item 1)	1
11	352809	Gasket	1
12	GM67277	Cap screw	4
13	GM21508	O-ring	1
14	GM50106	Fitting, adapter	1
15	360555	O-ring	1

Item	Part Number	Description	Qty.
			Variation 6519
16	GM50239	Line	1
17	#	Pipe plug	1
18	360555	O-ring	1
19	GM49819	Fitting, adapter	1
20	360178	O-ring	1
21	GM50033	Cap screw	1
22	GM50293	Clamp	1
23	GM49894	Gasket	1
24	GM49825	Screw	2
25	GM50237	Oil line	1
26	GM67286	Hose clamp	2
27	GM50166	Hose	1
28	GM50253	Fitting	1
29	#	Pipe plug	1
30	GM67289	Line	1

Group 35: Turbocharger and Oil Lines

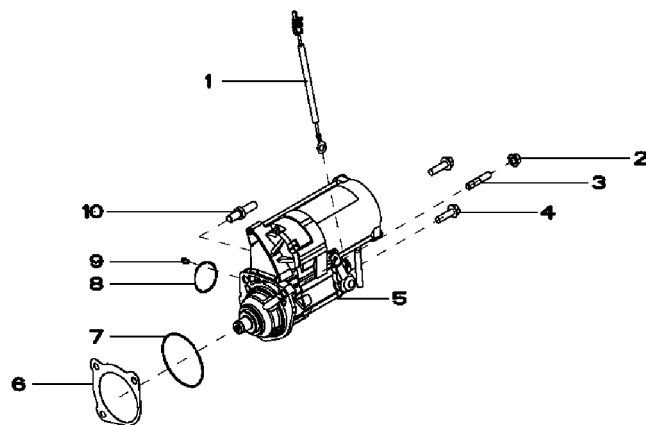


Item	Part Number	Description	Qty.
			Variation 6535
1	GM67296	Turbocharger	1
2	GM53024	Plug, pipe	1
3	223483	Gasket	1
4	GM49894	Gasket	1
5	GM67299	Oil line	1
6	GM49825	Screw	2
7	#	Pipe plug	1

Item	Part Number	Description	Qty.
			Variation 6535
8	GM67286	Clamp, hose	2
9	GM50166	Hose	1
10	GM50253	Fitting	1
11	360006	Adapter	1
13	GM67297	Fitting	1
14	GM67277	Cap screw	4

Common hardware; procure locally.

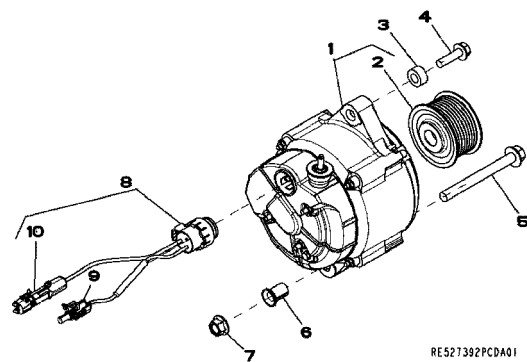
Group 36: Starter Motor



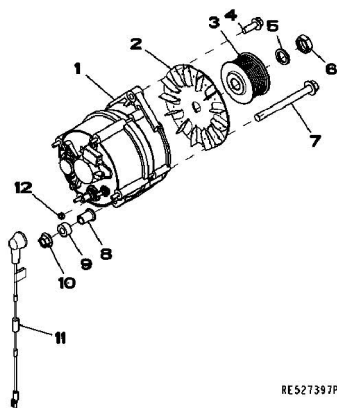
Item	Part Number	Description	Qty.
			Variation 3005
1	GM50199	Wiring lead	1
2	#	Flange nut, M10	1
3	GM50112	Stud	1
4	#	Screw, M10 x 35	2
5	GM50201	Starter motor	1
6	223791	Gasket	1
7	GM17463	Seal	1
8	GM17464	O-ring	1
9	GM18874	Screw with washer	1
10	#	Not used	1
-	GM17547	Clutch (not shown)	1
-	GM17546	Switch (not shown)	1

Common hardware; procure locally.

Group 37: Alternator



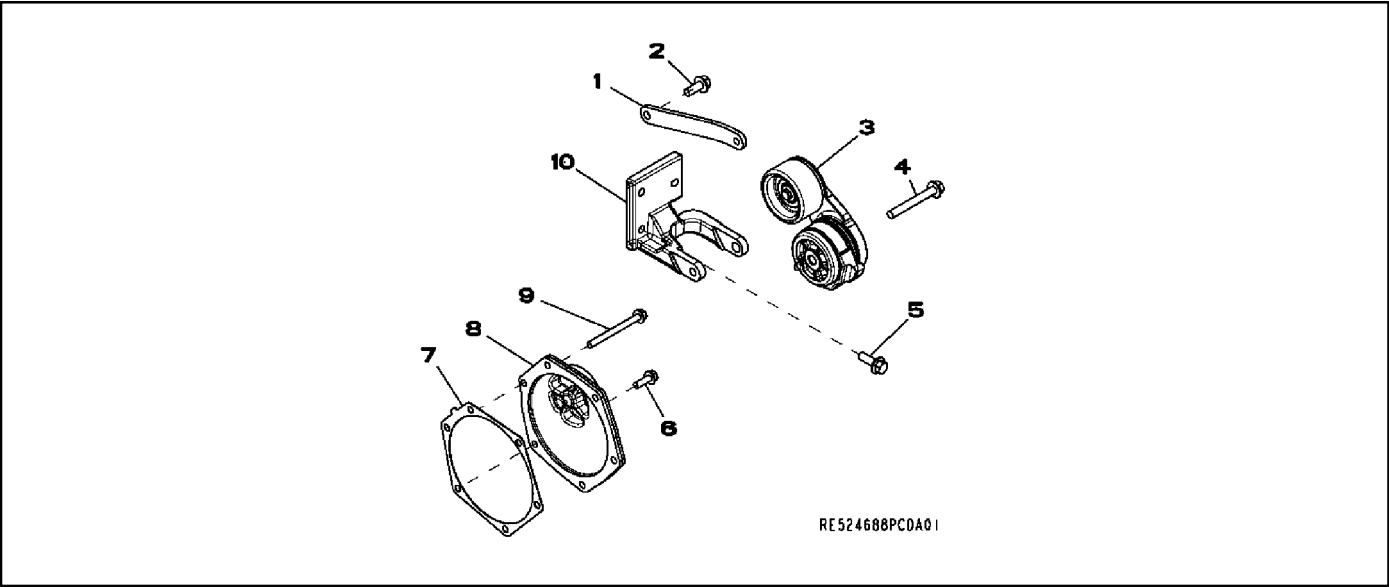
Item	Part Number	Description	Qty.
			Variation 3118
1	GM18868	Alternator	1
2	GM18677	Pulley	1
3	GM30364	Spacer	1
4	#	Screw, M8 x 30	1
5	GM70547	Screw, M10 x 100	1
6	360076	Bushing	1
7	GM30375	Flange nut	1
8	GM18840	Wiring Harness	1
9	GM32805	Connector	2
10	GM32804	Connector	1



Item	Part Number	Description	Qty.
			Variation 3119
1	GM50998	Alternator	1
2	360588	Fan	1
3	352792	Pulley	1
4	#	Screw	1
5	224331	Washer	1
6	#	Nut	1
7	#	Screw, M10 x 100	1
8	360076	Bushing	1
9	GM30364	Spacer	1
10	#	Flange nut, M10	1
11	GM32923	Harness, wiring	1
12	#	Lock nut, M5	2

Common hardware; procure locally.

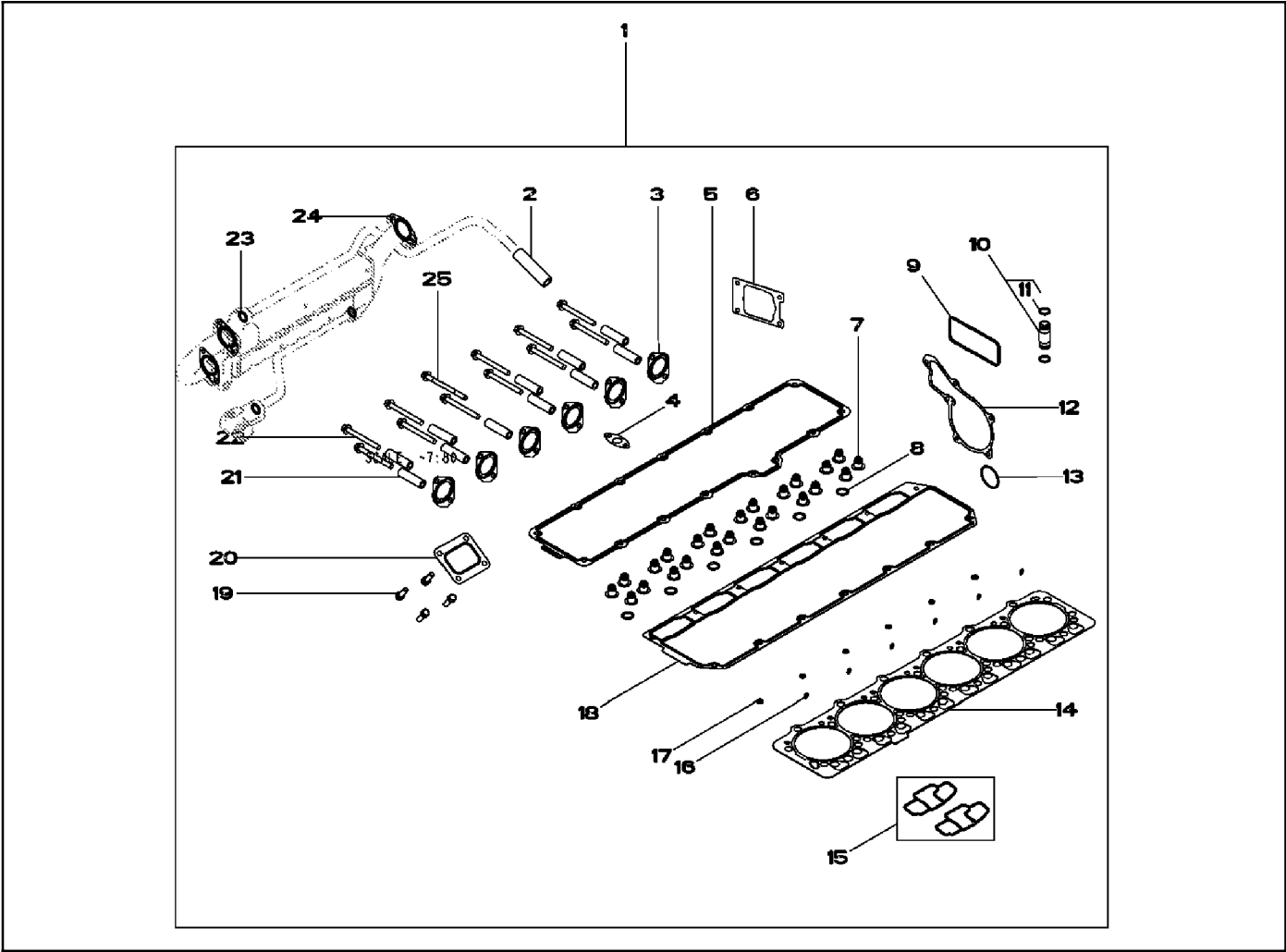
Group 38: Alternator Brackets



Item	Part Number	Description	Qty.	
			Variation	
			6202	6217
1	GM50175	Strap	1	1
2	#	Screw, M10 x 25	1	1
3	GM49938	Tightener	1	1
4	#	Screw, M10 x 80	1	1
5	#	Screw, M10 x 30	3	3
6	#	Screw, M8 x 25	1	1
7	223774	Gasket	1	1
8	GM50164	Cover	1	1
9	#	Screw, M8 x 90	5	5
10	GM50174	Bracket	1	1

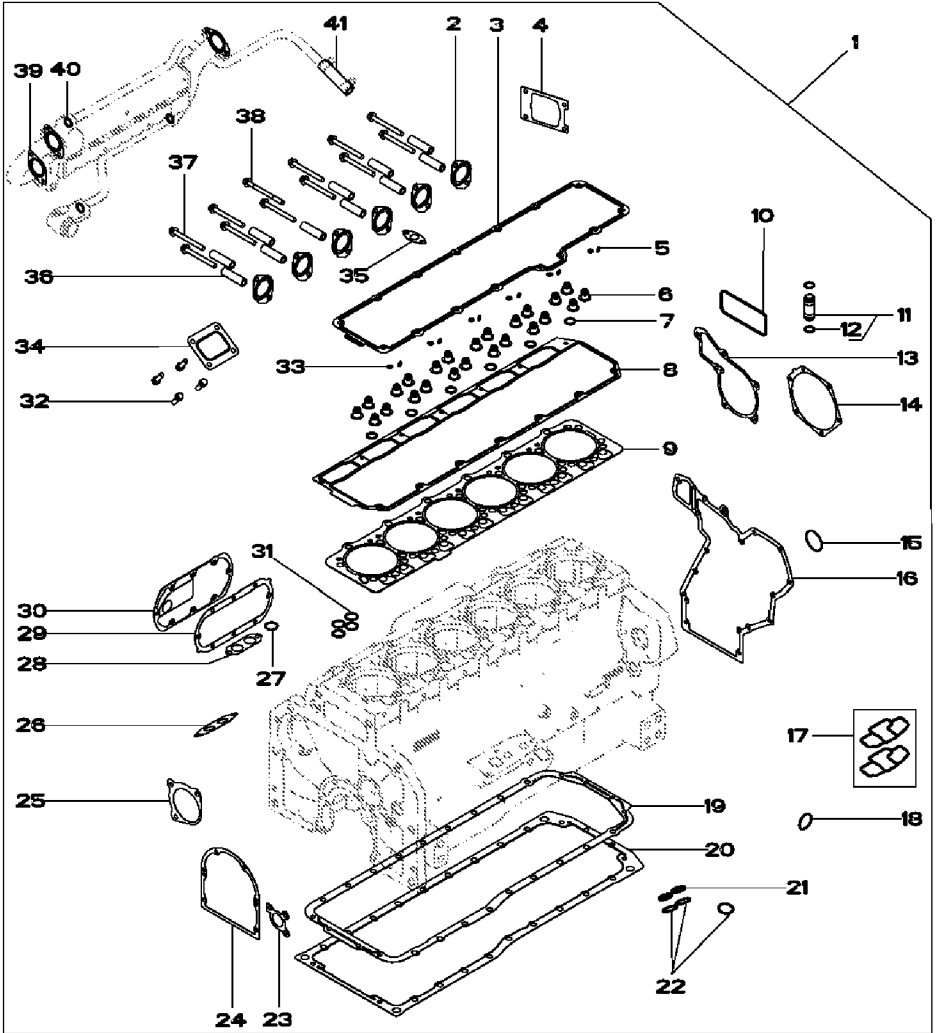
Common hardware; procure locally.

Group 40: Cylinder Head Gasket Set



Item	Part Number	Description	Qty.
			Variation 9902
1	GM50278	Gasket kit (includes items 2-25)	1

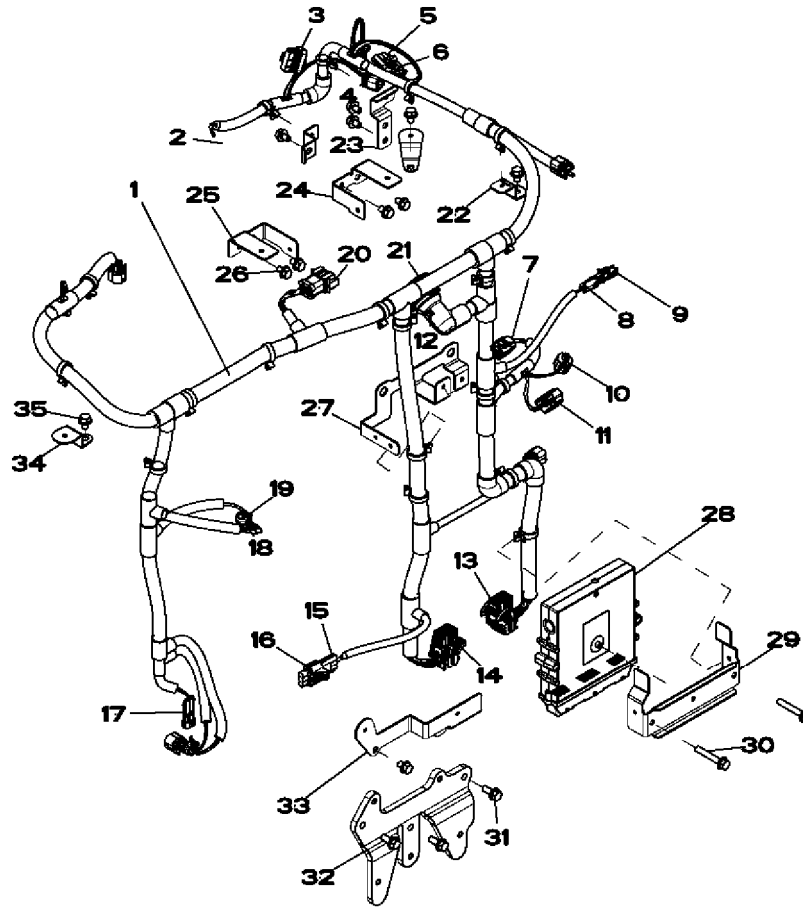
Group 41: Overhaul Gasket Set



RE528400PCDC02

Item	Part Number	Description	Qty.
			Variation 9902
1	GM50277	Gasket kit (includes items 2-41)	1

Group 43: Wiring Harness

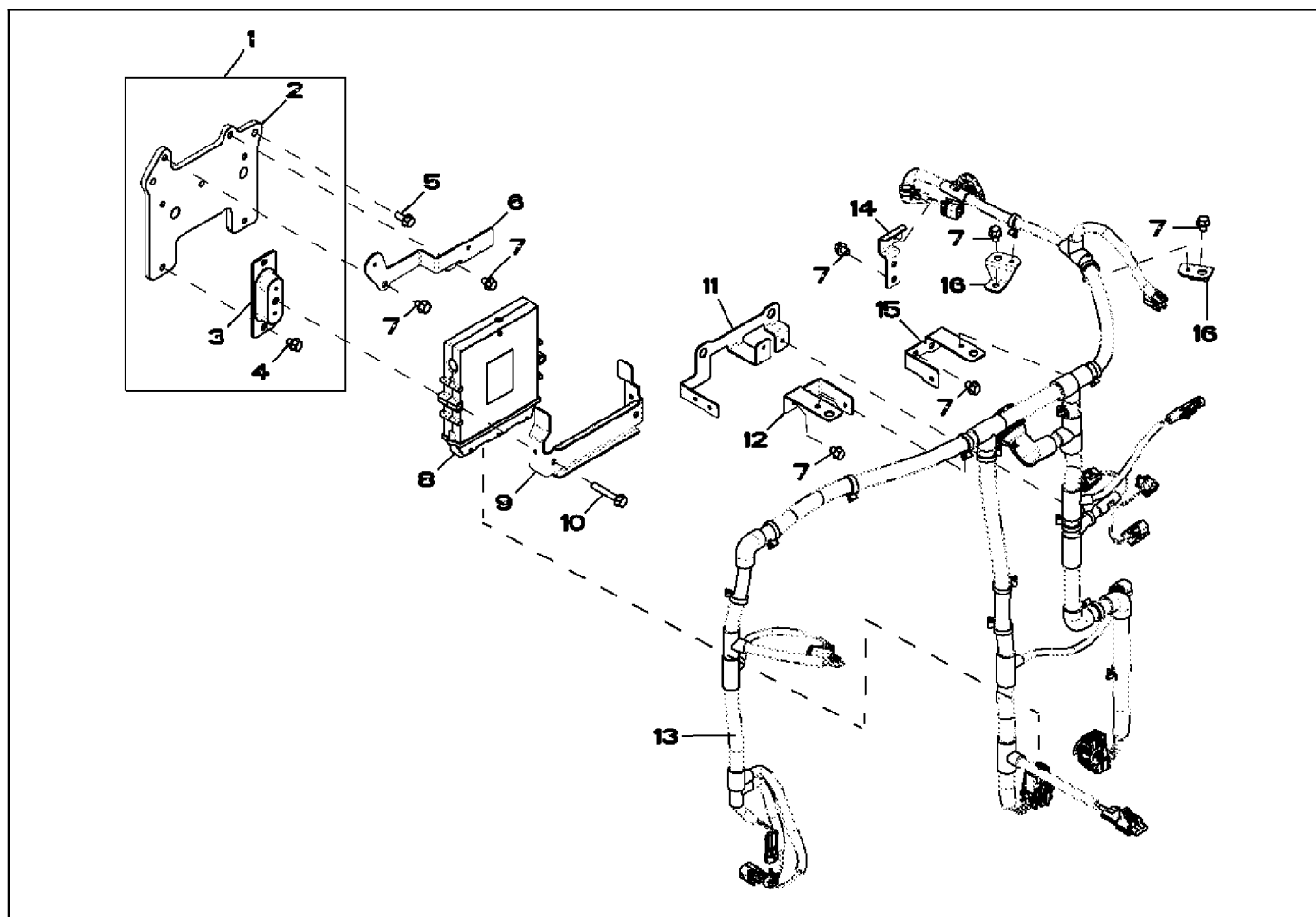


Item	Part Number	Description	Qty.
			Variation 8401
1	GM50223	Wiring harness	1
2	#	Connector	6
3	#	Connector	1
4	#	Connector	5
5	#	Connector	1
6	#	Terminal, connector	3
7	#	Terminal, connector	1
8	GM32804	Connector	1
9	GM32805	Connector	1
10	#	Connector	1
11	#	Terminal, connector	1
12	GM50171	Connector	1
13	#	Connector	1
14	#	Connector	1
15	GM32770	Connector	1
16	#	Connector	2
17	#	Connector	1
18	#	Connector	1

Item	Part Number	Description	Qty.
			Variation 8401
19	#	Connector	4
20	#	Connector	1
21	GM50169	Connector	1
22	GM50186	Bracket	2
23	GM50180	Bracket	1
24	GM50179	Bracket	1
25	GM50178	Bracket	1
26	GM50033	Cap screw	12
27	GM50187	Bracket	1
28	GM49989	Engine controller	1
29	GM50265	Strap	1
30	#	Screw	2
31	#	Screw	3
32	GM50150	Bracket	1
33	GM50183	Bracket	3
34	GM50176	Bracket	2
35	GM50033	Cap screw	1

Common hardware; procure locally.

Group 43: Wiring Harness, continued

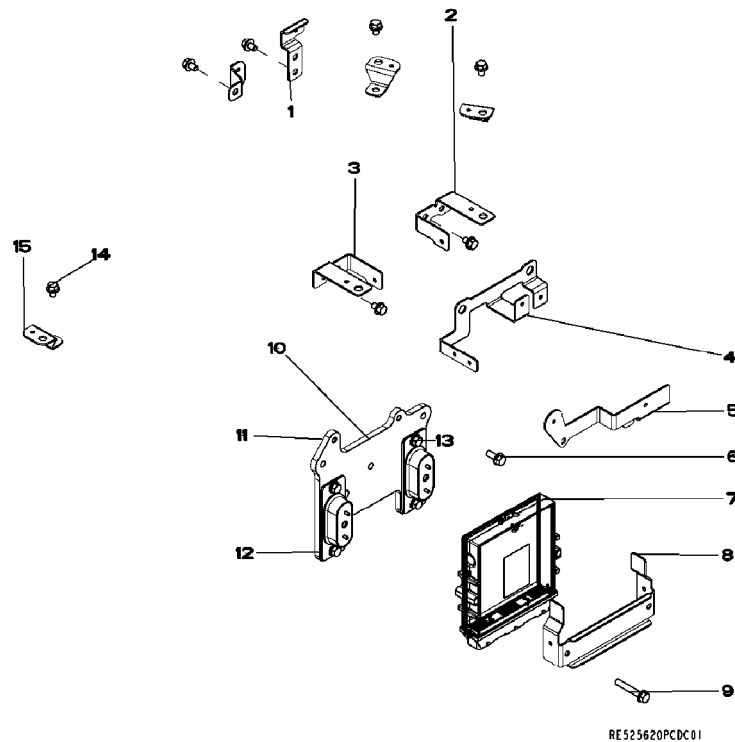


Item	Part Number	Description	Qty.
			Variation 8414
1	GM67290	Bracket	1
2	GM67281	Bracket	1
3	GM50053	Isolator	2
4	GM50033	Cap screw	4
5	#	Screw, M8 x 20	3
6	GM50183	Bracket	1
7	GM50033	Cap screw	10
8	GM49989	Engine controller	1

Item	Part Number	Description	Qty.
			Variation 8414
9	GM50265	Strap	1
10	#	Screw, M8 x 50	2
11	GM50187	Bracket	1
12	GM67283	Bracket	1
13	GM67300	Wiring harness	1
14	GM50180	Bracket	1
15	GM50179	Bracket	1
16	GM50186	Bracket	2

Common hardware; procure locally.

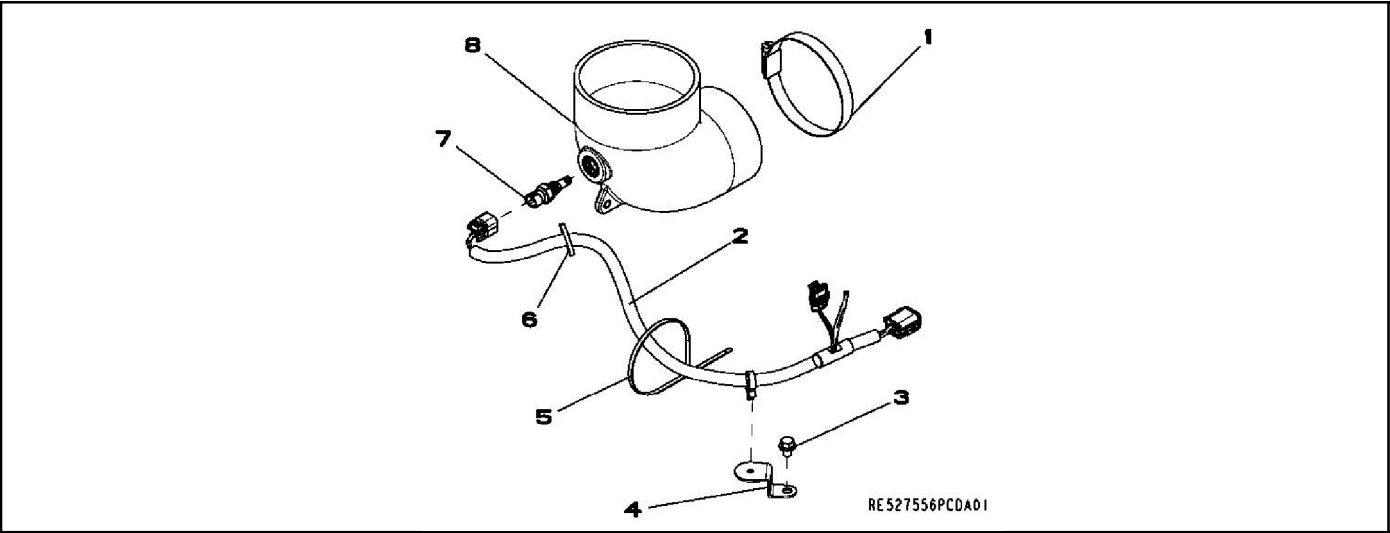
Group 43: Wiring Harness, continued



Item	Part Number	Description	Qty.
			Variation 8498
1	GM50180	Bracket	1
2	GM50179	Bracket	1
3	GM67283	Bracket	1
4	GM50187	Bracket	1
5	GM50183	Bracket	1
6	#	Screw, M8 x 20	3
7	GM49989	Engine Controller	1

Item	Part Number	Description	Qty.
			Variation 8498
8	GM67278	Strap	
9	#	Screw, M8 x 50	2
10	GM67290	Bracket	1
11	X	Bracket (order item 10)	1
12	GM50053	Isolator	2
13	GM50033	Cap Screw	4
14	GM50033	Cap Screw	10
15	GM50186	Bracket	4

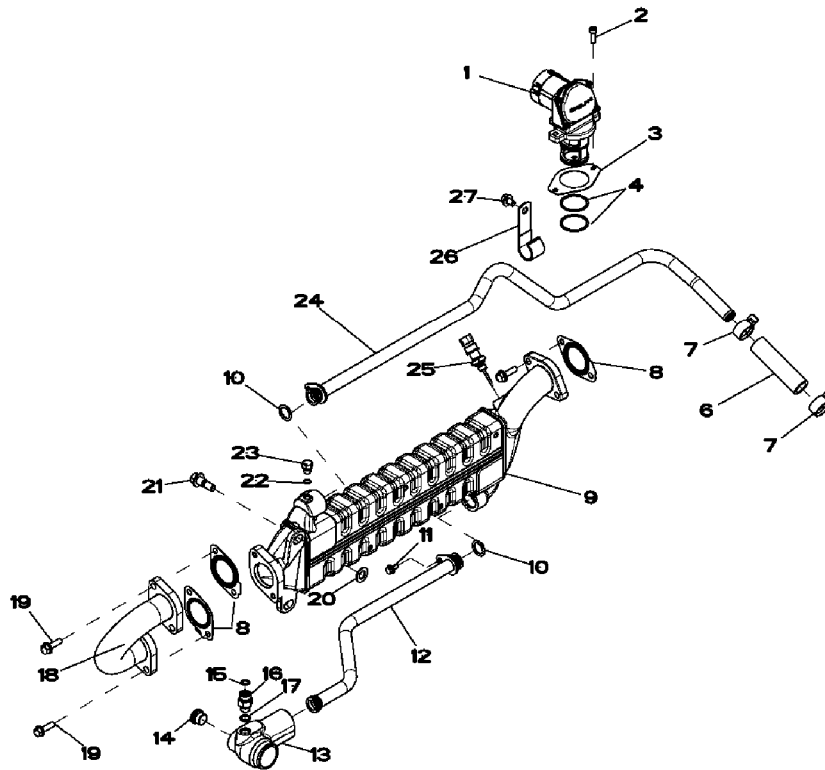
Group 45: Turbo Air Inlet



Item	Part Number	Description	Qty. Variation 5405
1	GM50083	Clamp, hose	1
2	GM50272	Wiring harness	1
3	GM50033	Cap screw	1
4	GM50176	Bracket	1
5	#	Tie band	1
6		Block clamp	1
7	GM50034	Thermocouple, air temperature	1
8	GM50040	Hose	1

Common hardware; procure locally.

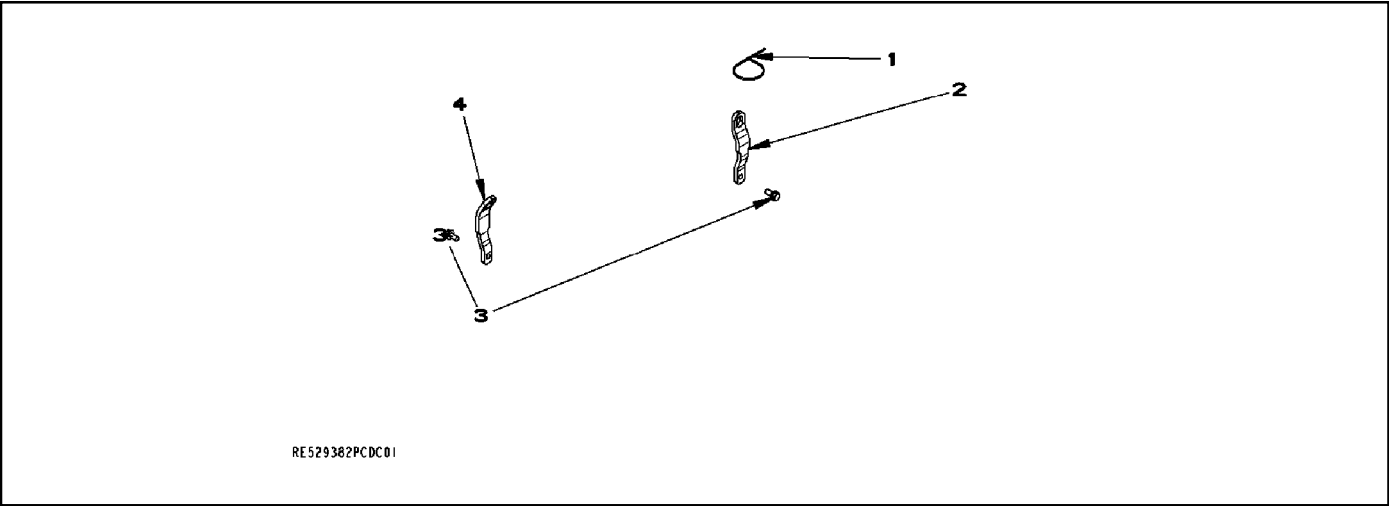
Group 47: Engine Gas Recirculation



Item	Part Number	Description	Qty.	
			Variation	
			8902	8997
1	GM50276	Exhaust gas recycling valve	1	
2	#	Screw, M6 x 20	2	
3	GM49849	Gasket	1	
4	GM49878	O-ring	2	
6	GM50155	Radiator hose	1	
7	GM50122	Hose clamp	2	
8	GM50148	Gasket	3	
9	GM50226	Oil cooler	1	
10	GM50131	O-ring	1	
11	#	Screw, M6 x 12	2	
12	GM50269	Line	1	
13	GM50268	Manifold, coolant	1	
14	#	Pipe plug	2	
15	360555	O-ring	1	
16	GM50106	Fitting, adapter	1	
18	GM50235	Tube	1	
19	#	Cap screw	6	
20	#	Washer, 13 x 24 x 1.200 mm	2	
21	GM50157	Bolt	2	
24	GM50228	Tube	1	
25	GM50004	Sensor, temperature, exhaust gas recirculation	1	
26	GM50124	Clip	1	
27	GM50033	Cap screw	1	
28	224157	Plug (not shown)		1

Common hardware; procure locally.

Group 48: Lifting Straps



Item	Part Number	Description	Qty.
			Variation 9804
1	#	Tie Band	1
2	GM79851	Strap	1
3	#	Screw, M14 X 30	2
4	GM79852	Strap	1

Notes

Appendix A Common Hardware Identification

Screw/Bolts/Studs	
Head Styles	
Hex Head or Machine Head	
Hex Head or Machine Head with Washer	
Flat Head (FHM)	
Round Head (RHM)	
Pan Head	
Hex Socket Head Cap or Allen™ Head Cap	
Hex Socket Head or Allen™ Head Shoulder Bolt	
Sheet Metal Screw	
Stud	
Drive Styles	
Hex	
Hex and Slotted	
Phillips®	
Slotted	
Hex Socket	

Nuts	
Nut Styles	
Hex Head	
Lock or Elastic	
Square	
Cap or Acorn	
Wing	
Washers	
Washer Styles	
Plain	
Split Lock or Spring	
Spring or Wave	
External Tooth Lock	
Internal Tooth Lock	
Internal-External Tooth Lock	

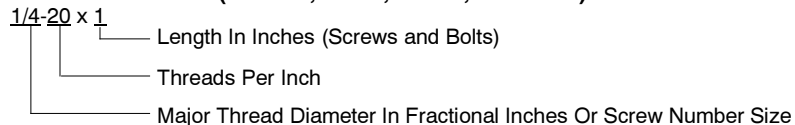
Hardness Grades	
American Standard	
Grade 2	
Grade 5	
Grade 8	
Grade 8/9 (Hex Socket Head)	
Metric	
Number stamped on hardware; 5.8 shown	

Allen™ head screw is a trademark of Holo-Krome Co.

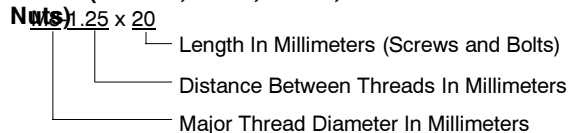
Phillips® screw is a registered trademark of Phillips Screw Company.

Sample Dimensions

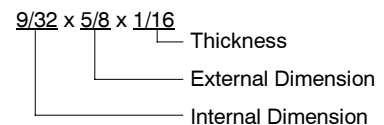
American Standard (Screws, Bolts, Studs, and Nuts)



Metric (Screws, Bolts, Studs, and Nuts)



Plain Washers



Lock Washers



Appendix B Common Hardware List

The Common Hardware List lists part numbers and dimensions for common hardware items.

American Standard

Part No.	Dimensions	Part No.	Dimensions	Part No.	Dimensions	Type
Hex Head Bolts (Grade 5)		Hex Head Bolts, cont.		Hex Nuts		
X-465-17	1/4-20 x .38	X-6238-14	3/8-24 x .75	X-6009-1	1-8	Standard
X-465-6	1/4-20 x .50	X-6238-16	3/8-24 x 1.25	X-6210-3	6-32	Whiz
X-465-2	1/4-20 x .62	X-6238-21	3/8-24 x 4.00	X-6210-4	8-32	Whiz
X-465-16	1/4-20 x .75	X-6238-22	3/8-24 x 4.50	X-6210-5	10-24	Whiz
X-465-18	1/4-20 x .88	X-6024-5	7/16-14 x .75	X-6210-1	10-32	Whiz
X-465-7	1/4-20 x 1.00	X-6024-2	7/16-14 x 1.00	X-6210-2	1/4-20	Spiralock
X-465-8	1/4-20 x 1.25	X-6024-8	7/16-14 x 1.25	X-6210-6	1/4-28	Spiralock
X-465-9	1/4-20 x 1.50	X-6024-3	7/16-14 x 1.50	X-6210-7	5/16-18	Spiralock
X-465-10	1/4-20 x 1.75	X-6024-4	7/16-14 x 2.00	X-6210-8	5/16-24	Spiralock
X-465-11	1/4-20 x 2.00	X-6024-11	7/16-14 x 2.75	X-6210-9	3/8-16	Spiralock
X-465-12	1/4-20 x 2.25	X-6024-12	7/16-14 x 6.50	X-6210-10	3/8-24	Spiralock
X-465-14	1/4-20 x 2.75	X-129-15	1/2-13 x .75	X-6210-11	7/16-14	Spiralock
X-465-21	1/4-20 x 5.00	X-129-17	1/2-13 x 1.00	X-6210-12	1/2-13	Spiralock
X-465-25	1/4-28 x .38	X-129-18	1/2-13 x 1.25	X-6210-15	7/16-20	Spiralock
X-465-20	1/4-28 x 1.00	X-129-19	1/2-13 x 1.50	X-6210-14	1/2-20	Spiralock
X-125-33	5/16-18 x .50	X-129-20	1/2-13 x 1.75	X-85-3	5/8-11	Standard
X-125-23	5/16-18 x .62	X-129-21	1/2-13 x 2.00	X-88-12	3/4-10	Standard
X-125-3	5/16-18 x .75	X-129-22	1/2-13 x 2.25	X-89-2	1/2-20	Standard
X-125-31	5/16-18 x .88	X-129-23	1/2-13 x 2.50			
X-125-5	5/16-18 x 1.00	X-129-24	1/2-13 x 2.75			
X-125-24	5/16-18 x 1.25	X-129-25	1/2-13 x 3.00			
X-125-34	5/16-18 x 1.50	X-129-27	1/2-13 x 3.50			
X-125-25	5/16-18 x 1.75	X-129-29	1/2-13 x 4.00			
X-125-26	5/16-18 x 2.00	X-129-30	1/2-13 x 4.50			
230578	5/16-18 x 2.25	X-463-9	1/2-13 x 5.50			
X-125-29	5/16-18 x 2.50	X-129-44	1/2-13 x 6.00			
X-125-27	5/16-18 x 2.75	X-129-51	1/2-20 x .75			
X-125-28	5/16-18 x 3.00	X-129-45	1/2-20 x 1.25			
X-125-22	5/16-18 x 4.50	X-129-52	1/2-20 x 1.50			
X-125-32	5/16-18 x 5.00	X-6021-3	5/8-11 x 1.00			
X-125-35	5/16-18 x 5.50	X-6021-4	5/8-11 x 1.25			
X-125-36	5/16-18 x 6.00	X-6021-2	5/8-11 x 1.50			
X-125-40	5/16-18 x 6.50	X-6021-1	5/8-11 x 1.75			
X-125-43	5/16-24 x 1.75	273049	5/8-11 x 2.00			
X-125-44	5/16-24 x 2.50	X-6021-5	5/8-11 x 2.25			
X-125-30	5/16-24 x .75	X-6021-6	5/8-11 x 2.50			
X-125-39	5/16-24 x 2.00	X-6021-7	5/8-11 x 2.75			
X-125-38	5/16-24 x 2.75	X-6021-12	5/8-11 x 3.75			
X-6238-2	3/8-16 x .62	X-6021-11	5/8-11 x 4.50			
X-6238-10	3/8-16 x .75	X-6021-10	5/8-11 x 6.00			
X-6238-3	3/8-16 x .88	X-6021-9	5/8-18 x 2.50			
X-6238-11	3/8-16 x 1.00	X-6239-1	3/4-10 x 1.00			
X-6238-4	3/8-16 x 1.25	X-6239-8	3/4-10 x 1.25			
X-6238-5	3/8-16 x 1.50	X-6239-2	3/4-10 x 1.50			
X-6238-1	3/8-16 x 1.75	X-6239-3	3/4-10 x 2.00			
X-6238-6	3/8-16 x 2.00	X-6239-4	3/4-10 x 2.50			
X-6238-17	3/8-16 x 2.25	X-6239-5	3/4-10 x 3.00			
X-6238-7	3/8-16 x 2.50	X-6239-6	3/4-10 x 3.50			
X-6238-8	3/8-16 x 2.75	X-792-1	1-8 x 2.25			
X-6238-9	3/8-16 x 3.00	X-792-5	1-8 x 3.00			
X-6238-19	3/8-16 x 3.25	X-792-8	1-8 x 5.00			
X-6238-12	3/8-16 x 3.50					
X-6238-20	3/8-16 x 3.75					
X-6238-13	3/8-16 x 4.50					
X-6238-18	3/8-16 x 5.50					
X-6238-25	3/8-16 x 6.50					

Metric

Hex head bolts are hardness grade 8.8 unless noted.

Part No. Dimensions Hex Head Bolts (Partial Thread)

M931-05055-60	M5-0.80 x 55
M931-06040-60	M6-1.00 x 40
M931-06055-60	M6-1.00 x 55
M931-06060-60	M6-1.00 x 60
M931-06060-SS	M6-1.00 x 60
M931-06070-60	M6-1.00 x 70
M931-06070-SS	M6-1.00 x 70
M931-06075-60	M6-1.00 x 75
M931-06090-60	M6-1.00 x 90
M931-06145-60	M6-1.00 x 145
M931-06150-60	M6-1.00 x 150

M931-08035-60	M8-1.25 x 35
M931-08040-60	M8-1.25 x 40
M931-08045-60	M8-1.25 x 45
M931-08050-60	M8-1.25 x 50
M931-08055-60	M8-1.25 x 55
M931-08055-82	M8-1.25 x 55*
M931-08060-60	M8-1.25 x 60
M931-08070-60	M8-1.25 x 70
M931-08070-82	M8-1.25 x 70*
M931-08075-60	M8-1.25 x 75
M931-08080-60	M8-1.25 x 80
M931-08090-60	M8-1.25 x 90
M931-08095-60	M8-1.25 x 95
M931-08100-60	M8-1.25 x 100
M931-08110-60	M8-1.25 x 110
M931-08120-60	M8-1.25 x 120
M931-08130-60	M8-1.25 x 130
M931-08140-60	M8-1.25 x 140
M931-08150-60	M8-1.25 x 150
M931-08200-60	M8-1.25 x 200

M931-10040-82	M10-1.25 x 40*
M931-10040-60	M10-1.50 x 40
M931-10045-60	M10-1.50 x 45
M931-10050-60	M10-1.50 x 50
M931-10050-82	M10-1.25 x 50*
M931-10055-60	M10-1.50 x 55
M931-10060-60	M10-1.50 x 60
M931-10065-60	M10-1.50 x 65
M931-10070-60	M10-1.50 x 70
M931-10080-60	M10-1.50 x 80
M931-10080-82	M10-1.25 x 80*
M931-10090-60	M10-1.50 x 90
M931-10090-82	M10-1.50 x 90*
M931-10100-60	M10-1.50 x 100
M931-10110-60	M10-1.50 x 110
M931-10120-60	M10-1.50 x 120
M931-10130-60	M10-1.50 x 130
M931-10140-60	M10-1.50 x 140
M931-10180-60	M10-1.50 x 180
M931-10235-60	M10-1.50 x 235
M931-10260-60	M10-1.50 x 260
M960-10330-60	M10-1.25 x 330

M931-12045-60	M12-1.75 x 45
M960-12050-60	M12-1.25 x 50
M960-12050-82	M12-1.25 x 50*
M931-12050-60	M12-1.75 x 50
M931-12050-82	M12-1.75 x 50*
M931-12055-60	M12-1.75 x 55
M931-12060-60	M12-1.75 x 60
M931-12060-82	M12-1.75 x 60*
M931-12065-60	M12-1.75 x 65
M931-12075-60	M12-1.75 x 75
M931-12080-60	M12-1.75 x 80
M931-12090-60	M12-1.75 x 90
M931-12100-60	M12-1.75 x 100
M931-12110-60	M12-1.75 x 110

Part No. Dimensions Hex Head Bolts (Partial Thread), continued

M960-16090-60	M16-1.50 x 90
M931-16090-60	M16-2.00 x 90
M931-16100-60	M16-2.00 x 100
M931-16100-82	M16-2.00 x 100*
M931-16120-60	M16-2.00 x 120
M931-16150-60	M16-2.00 x 150

M931-20065-60	M20-2.50 x 65
M931-20090-60	M20-2.50 x 90
M931-20100-60	M20-2.50 x 100
M931-20120-60	M20-2.50 x 120
M931-20140-60	M20-2.50 x 140
M931-20160-60	M20-2.50 x 160

M931-22090-60	M22-2.50 x 90
M931-22120-60	M22-2.50 x 120
M931-22160-60	M22-2.50 x 160

M931-24090-60	M24-3.00 x 90
M931-24120-60	M24-3.00 x 120
M931-24160-60	M24-3.00 x 160
M931-24200-60	M24-3.00 x 200

Hex Head Bolts (Full Thread)

M933-04006-60	M4-0.70 x 6
M933-05030-60	M5-0.80 x 30
M933-05035-60	M5-0.80 x 35
M933-05050-60	M5-0.80 x 50

M933-06010-60	M6-1.00 x 10
M933-06012-60	M6-1.00 x 12
M933-06014-60	M6-1.00 x 14
M933-06016-60	M6-1.00 x 16
M933-06020-60	M6-1.00 x 20
M933-06025-60	M6-1.00 x 25
M933-06030-60	M6-1.00 x 30
M933-06040-60	M6-1.00 x 40
M933-06050-60	M6-1.00 x 50

M933-07025-60	M7-1.00 x 25
---------------	--------------

M933-08010-60	M8-1.25 x 10
M933-08012-60	M8-1.25 x 12
M933-08016-60	M8-1.25 x 16
M933-08020-60	M8-1.25 x 20
M933-08025-60	M8-1.25 x 25
M933-08030-60	M8-1.25 x 30
M933-08030-82	M8-1.25 x 30*

M933-10012-60	M10-1.50 x 12
M961-10020-60	M10-1.25 x 20
M933-10020-60	M10-1.50 x 20
M933-10025-60	M10-1.50 x 25
M961-10025-60	M10-1.25 x 25
M933-10025-82	M10-1.50 x 25*
M961-10030-60	M10-1.25 x 30
M933-10030-60	M10-1.50 x 30
M933-10030-82	M10-1.50 x 30*
M961-10035-60	M10-1.25 x 35
M933-10035-60	M10-1.50 x 35
M933-10035-82	M10-1.50 x 35*
M961-10040-60	M10-1.25 x 40

Part No. Dimensions Hex Head Bolts (Full Thread), continued

M933-12016-60	M12-1.75 x 16
M933-12020-60	M12-1.75 x 20
M961-12020-60F	M12-1.50 x 20
M933-12025-60	M12-1.75 x 25
M933-12025-82	M12-1.75 x 25*
M961-12030-60	M12-1.25 x 30
M933-12030-82	M12-1.75 x 30*
M961-12030-82F	M12-1.50 x 30*
M933-12030-60	M12-1.75 x 30
M933-12035-60	M12-1.75 x 35
M961-12040-82	M12-1.25 x 40*
M933-12040-60	M12-1.75 x 40
M933-12040-82	M12-1.75 x 40*

M961-14025-60	M14-1.50 x 25
M933-14025-60	M14-2.00 x 25
M961-14050-82	M14-1.50 x 50*

M961-16025-60	M16-1.50 x 25
M933-16025-60	M16-2.00 x 25
M961-16030-82	M16-1.50 x 30*
M933-16030-82	M16-2.00 x 30*
M933-16035-60	M16-2.00 x 35
M961-16040-60	M16-1.50 x 40
M933-16040-60	M16-2.00 x 40
M961-16045-82	M16-1.50 x 45*
M933-16045-82	M16-2.00 x 45*
M933-16050-60	M16-2.00 x 50
M933-16050-82	M16-2.00 x 50*
M933-16060-60	M16-2.00 x 60
M933-16070-60	M16-2.00 x 70

M933-18035-60	M18-2.50 x 35
M933-18050-60	M18-2.50 x 50
M933-18060-60	M18-2.50 x 60

M933-20050-60	M20-2.50 x 50
M933-20055-60	M20-2.50 x 55

M933-24060-60	M24-3.00 x 60
M933-24065-60	M24-3.00 x 65
M933-24070-60	M24-3.00 x 70

Pan Head Machine Screws

M7985A-03010-20	M3-0.50 x 10
M7985A-03012-20	M3-0.50 x 12

M7985A-04010-20	M4-0.70 x 10
M7985A-04016-20	M4-0.70 x 16
M7985A-04020-20	M4-0.70 x 20
M7985A-04050-20	M4-0.70 x 50
M7985A-04100-20	M4-0.70 x 100

M7985A-05010-20	M5-0.80 x 10
M7985A-05012-20	M5-0.80 x 12
M7985A-05016-20	M5-0.80 x 16
M7985A-05020-20	M5-0.80 x 20
M7985A-05025-20	M5-0.80 x 25
M7985A-05030-20	M5-0.80 x 30
M7985A-05080-20	M5-0.80 x 80
M7985A-05100-20	M5-0.80 x 100

M7985A-06100-20	M6-1.00 x 100
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Flat Head Machine Screws

M965A-04012-SS	M4-0.70 x 12
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M965A-05012-SS	M5-0.80 x 12
M965A-05016-20	M5-0.80 x 16
M965A-06012-20	M6-1.00 x 12

* This metric hex bolt's hardness is grade 10.9.

Metric, continued

Part No.	Dimensions	Type
Hex Nuts		
M934-03-50	M3-0.50	Standard
M934-04-50	M4-0.70	Standard
M934-04-B	M4-0.70	Brass
M934-05-50	M5-0.80	Standard
M934-06-60	M6-1.00	Standard
M934-06-64	M6-1.00	Std. (green)
M6923-06-80	M6-1.00	Spiralock
M982-06-80	M6-1.00	Elastic Stop
M934-08-60	M8-1.25	Standard
M6923-08-80	M8-1.25	Spiralock
M982-08-80	M8-1.25	Elastic Stop
M934-10-60	M10-1.50	Standard
M934-10-60F	M10-1.25	Standard
M6923-10-80	M10-1.50	Spiralock
M6923-10-62	M10-1.50	Spiralock†
M982-10-80	M10-1.50	Elastic Stop
M934-12-60	M12-1.75	Standard
M934-12-60F	M12-1.25	Standard
M6923-12-80	M12-1.75	Spiralock
M982-12-80	M12-1.75	Elastic Stop
M982-14-60	M14-2.00	Elastic Stop
M6923-16-80	M16-2.00	Spiralock
M982-16-80	M16-2.00	Elastic Stop
M934-18-80	M18-2.5	Standard
M982-18-60	M18-2.50	Elastic Stop
M934-20-80	M20-2.50	Standard
M982-20-80	M20-2.50	Elastic Stop
M934-22-60	M22-2.50	Standard
M934-24-80	M24-3.00	Standard
M982-24-60	M24-3.00	Elastic Stop
M934-30-80	M30-3.50	Standard

Washers

Part No.	ID	OD	Thick.	Bolt/ Screw
M125A-03-80	3.2	7.0	0.5	M3
M125A-04-80	4.3	9.0	0.8	M4
M125A-05-80	5.3	10.0	1.0	M5
M125A-06-80	6.4	12.0	1.6	M6
M125A-08-80	8.4	16.0	1.6	M8
M125A-10-80	10.5	20.0	2.0	M10
M125A-12-80	13.0	24.0	2.5	M12
M125A-14-80	15.0	28.0	2.5	M14
M125A-16-80	17.0	30.0	3.0	M16
M125A-18-80	19.0	34.0	3.0	M18
M125A-20-80	21.0	37.0	3.0	M20
M125A-24-80	25.0	44.0	4.0	M24

† This metric hex nut's hardness is grade 8.

