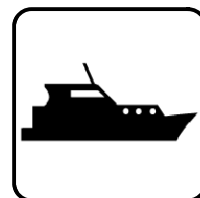


Service Parts

Marine Generator Sets



Models:

6EKOD/5EFKOD
9EKOZD/7EFKOZD
11EKOZD/9EFKOZD

KOHLER
Power Systems

ISO 9001
KOHLER
POWER SYSTEMS
NATIONALLY REGISTERED

TP-6775 6/13a

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Introduction

This manual lists service replacement parts for 5-11 kW diesel-powered generator sets.

Information in this publication represents data available at the time of print. Kohler Co. 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 generator set specs and groups.

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

Kit Sections. List modules and accessories and their parts.

Appendices. Include Abbreviations, Common Hardware Application Guidelines, General Torque Specifications, Common Hardware Identification, and Common Hardware List.

x:in:004:002

Numbering System Significance

This manual uses the following numbering systems:

Specification Number. The product identification number located on the generator set nameplate. Spec numbers break down into groups.

Group Number. A unique number representing a parts group needed to assemble a generator set function. For example, Group 101 is the Air Intake group.

Variation or Module Number. A group might have several variations. Each variation performs the same function with different parts lists. For example, a 50 Hz generator alternator and 60 Hz generator alternator both perform the same function, however, 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.

x:in:004:003

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.

x:in:004:004a

How to Find Part Numbers

Use the following steps to locate a service replacement part.

1. Locate the generator set nameplate to **identify the generator set spec number**.
2. Locate a second generator set nameplate listing accessories to **identify installed modules**. On some models the accessory nameplate is mounted inside the generator junction box.
3. **Turn to the Specification Number Index**. The first column lists the generator set spec numbers. The headings identify the groups of parts that make up the generator set.
4. **Identify the group** most likely to include the service part number.
5. **Find the group variation number** at the intersection of the spec number row and the group column. Note the variation number.
6. **Page forward to locate the group** identified in step 4 or find the appropriate page in the Table of Contents.
7. **Find the part on the illustration** and note the item number of the part or **find the part description in the parts list**.
8. Select **the part number that corresponds to your group variation**. The first column lists the illustration item number. Find the variation identified in the Specification Number Index or the module number found on the generator set nameplate 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.

x:in:004:005

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 or, if contacting the factory, use the Common Hardware List in the appendix to identify the common hardware part number and specifications. See Common Hardware Application Guidelines in the appendix for mating hardware instructions.

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. Use the Common Hardware List in the appendix to identify the common hardware hardness.

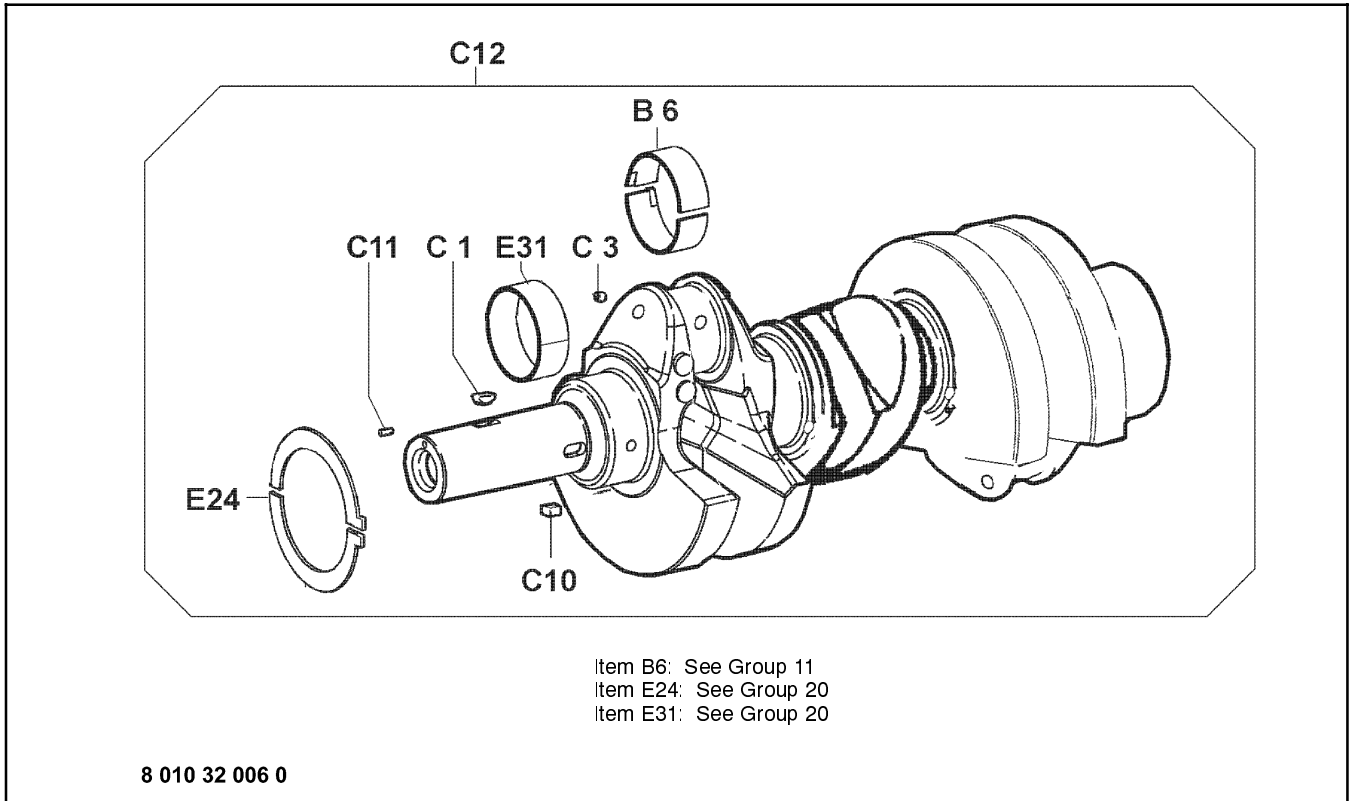
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Specification Number Index

Group Description	Variation			
	Specification Number			
	6EKOD/ 5EFKOD	9EKOZD/ 7EFKOZD	11EKOZD/ 9EFKOZD	
	GM77898-GA1 GM77898-GA5	GM77898-GA2 GM77898-GA6	GM77898-GA3 GM77898-GA7	GM77898-GA4 GM77898-GA8
Group 10: Crankshaft	006	006	008	008
Group 11: Connecting Rod And Piston Set	059	059	054	054
Group 12: Flywheel With Crown Gear	108	108	108	108
Group 14: Drive Pulley And Belt For Alternator	115	115	115	115
Group 20: Crankcase	058	058	059	059
Group 21: Cylinder Head And Precombustion Chamber	088	088	089	089
Group 22: Rocker Arms Cover And Oil Filler	088	088	089	089
Group 23: Crankshaft Flange (Flywheel Side)	003	003	003	003
Group 30: Fuel System - Injection Pump And Hoses	024	024	025	025
Group 35: Camshaft - Push Rod	074	074	075	075
Group 36: Rocker Arm And Valves	004	004	010	010
Group 38: Timing Pulley - Belt - Jockey Pulley	002	002	002	002
Group 40: Oil Pump	004	004	005	005
Group 41: Oil Pan	082	082	083	083
Group 42: Oil Filtering	049	049	050	050
Group 43: Oil Dipstick	090	090	090	090
Group 45: Breather System	002	002	002	002
Group 47: Plug For Oil Cooler Fitting	015	015	015	015
Group 50: Speed Governor - Injection Pump Drive Rod	119	119	117	117
Group 51: Accelerator Control - Extra Fuel Device	196	196	196	196
Group 52: Control Stop 12V Electrovalve	023	023	023	023
Group 61: Fuel Filter	128	128	128	128
Group 62: Cover For Fuel Feed Pump Fitting	001	001	001	001
Group 64: Fuel Hoses	157a	157a	157b	157b
Group 68: Water Hoses	073	073	072	072
Group 73: Water Cooler	127	127	126	126
Group 74: Thermostat Assy. - Thermal Exp. Valve	073	073	073	073
Group 75: Water Inlet Flange	004	004	004	004
Group 77: Water Pump	001	001	002	002
Group 79: Plug On Head For Heating Cab Fitting	004	004	004	004
Group 80: Inlet Manifold	126	126	118	118
Group 82: Inlet Flange	017	017	017	017
Group 87: Exhaust Manifold	065	065	065	065
Group 100: Cover For External Voltage Alternator Fitting	001	001	001	001
Group 101: Starter Motor 12V - 2.5KW	056	056	056	056
Group 102: Fitting For Pressure Oil Switch	001	001	001	001
Group 106: Pre-Heating Glow Plug And Control Box	040	040	041	041
Group 140: Camshaft Flange On 3rd PTO	004	004	004	004
Group 160: Flanging Plate	089	089	089	089
Group 171: Pulley Guard	011	011	011	011
Gasket Set	1003	1003	1404	1404
Group 101: Air Intake	GM77379-GR1	GM77379-GR1	GM77379-GR1	GM77379-GR1
Group 103: Fuel System	GM74543-GR1	GM74543-GR1	GM74543-GR2	GM74543-GR2
Group 104: Cooling System	GM75706-GR1	GM75706-GR1	GM75706-GR2	GM75706-GR2
Group 105: Engine	GM77080-GR1	GM77080-GR1	GM77080-GR2	GM77080-GR2
Group 107: Nameplate and Decals	GM77911-GR1	GM77911-GR1	GM77911-GR1	GM77911-GR2
Group 109: Skid and Mounting	GM75627-GR1	GM75627-GR2	GM75627-GR3	GM75627-GR3
Group 201: Alternator and Mounting	GM73473-GR1	GM73474-GR1	GM73474-GR2	GM73474-GR3
Group 301: Controller and Mounting	GM76137-GR1	GM76137-GR1	GM76137-GR1	GM76137-GR1
Group 701: Literature	701-197-3	701-197-4	701-197-5	701-197-6

Group 10: Crankshaft

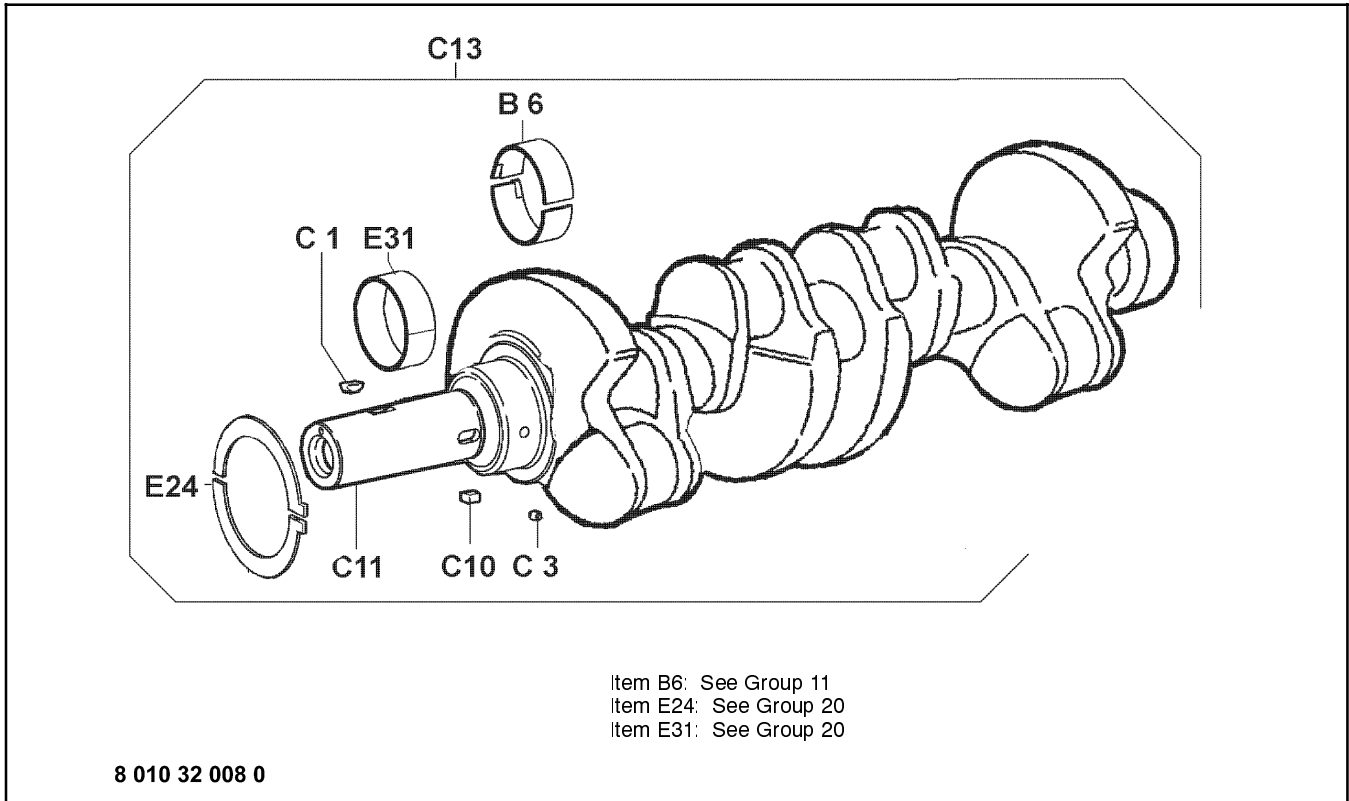
Variation 006



Item	Part No.	Description	Qty.
C1	ED0022801190-S	Key	1
C3	ED0090801320-S	Plug, Diam. 6	3
C10	ED0022801490-S	Key (8mm)	1
C11	ED0084300040-S	Tapper Pin	1
C12	ED0010511050-S	Crankshaft Assy	1

Group 10: Crankshaft

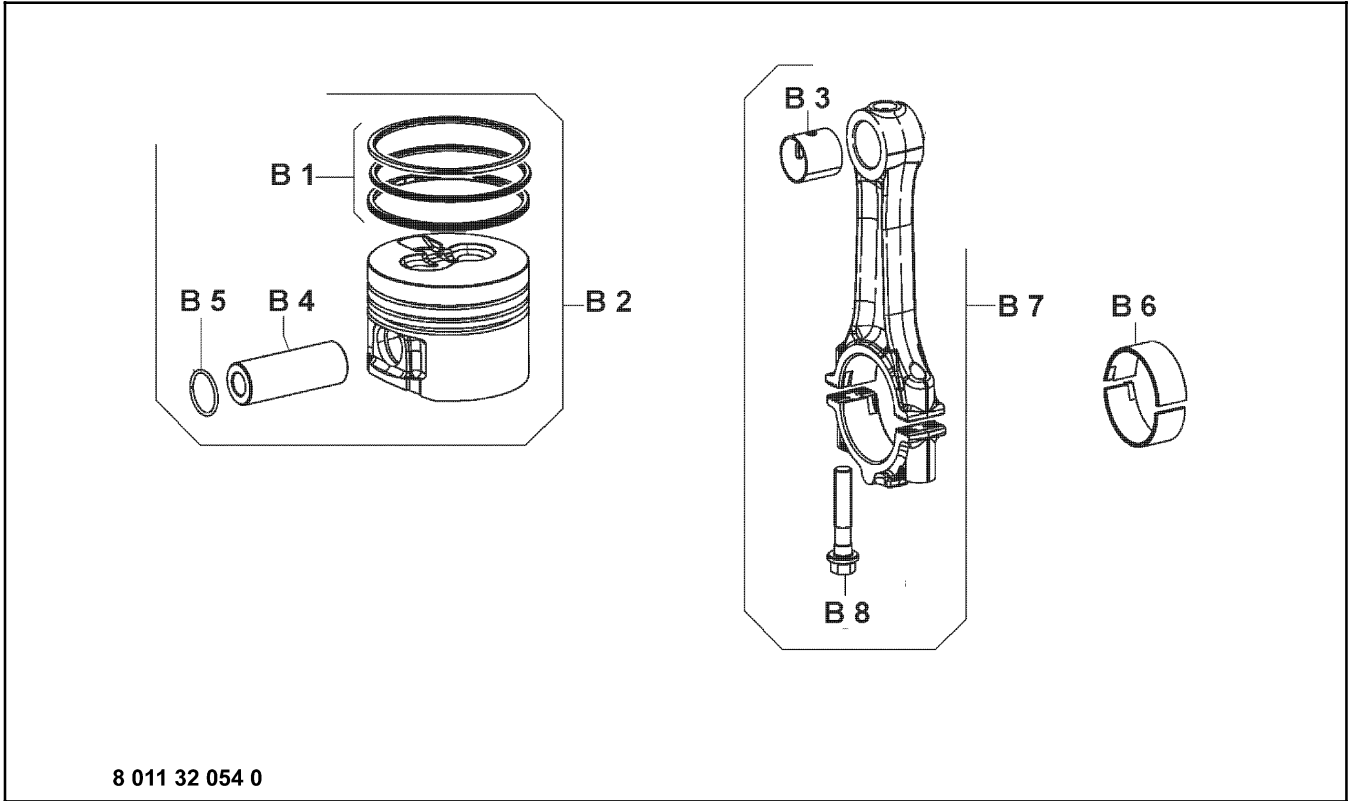
Variation 008



Item	Part No.	Description	Qty.
C1	ED0022801190-S	Key	1
C3	ED0090801320-S	Plug, Diam. 6	4
C10	ED0022801500-S	Key (12 mm)	1
C11	ED0084300040-S	Tapper Pin	1
C13	ED0010509610-S	Crankshaft Assy	1

Group 11: Connecting Rod And Piston Set

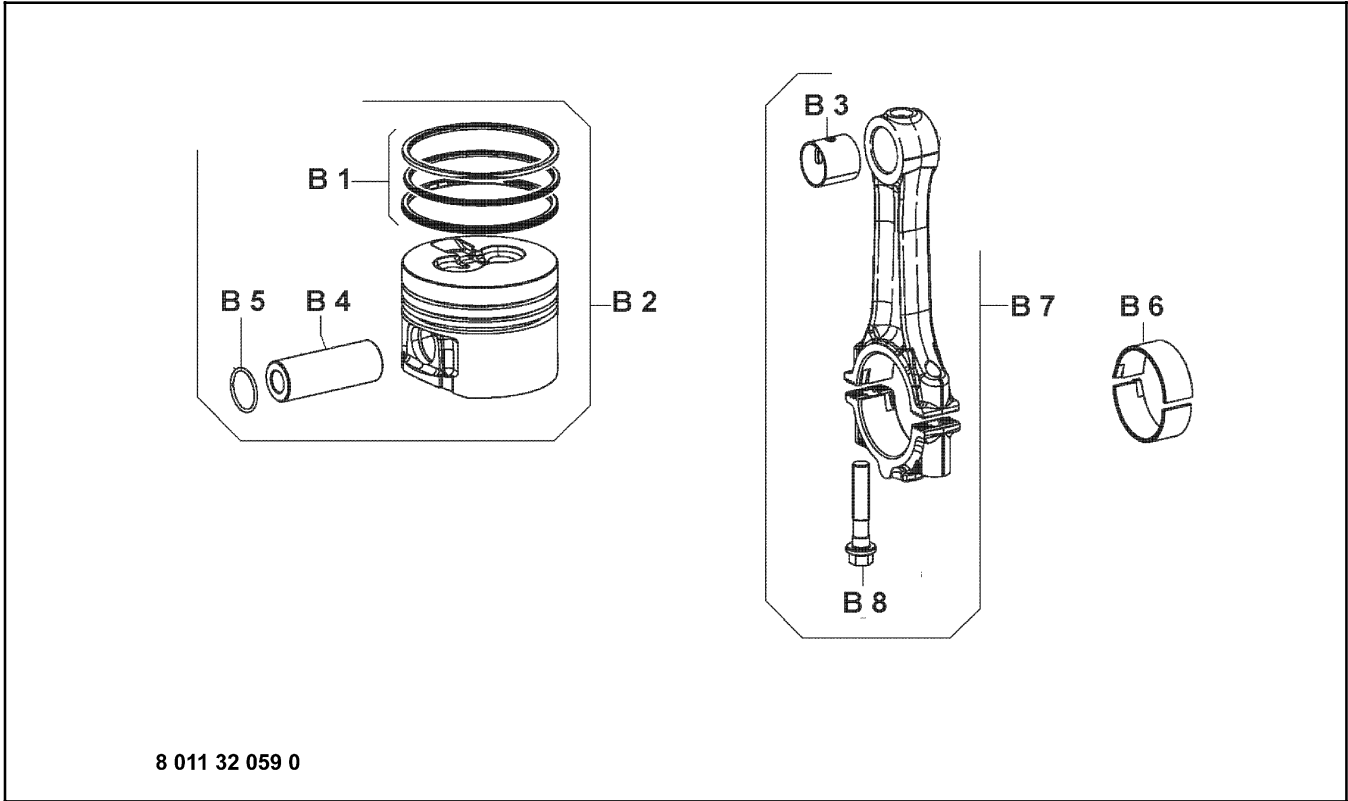
Variation 054



Item	Part No.	Description	Qty.
B1	ED0082112480-S	Ring Set, Std.	4
B2	ED0065025570-S	Piston Set, Std.	4
B3	ED0016300380-S	Small End Bushing	4
B4	ED0084800810-S	Piston Pin (Diam.20)	4
B5	ED0012610990-S	Circlip	8
B6	ED0016401160-S	Big End Bushing Std.	4
B6	ED0016401170-S	Big End Bushing, -0.25	4
B6	ED0016401180-S	Big End Bushing, -0.50	4
B7	ED0015262260-S	Connecting Rod	4
B8	ED0017701010-S	Bolt, M8 x 1 x 42	8

Group 11: Connecting Rod And Piston Set

Variation 059

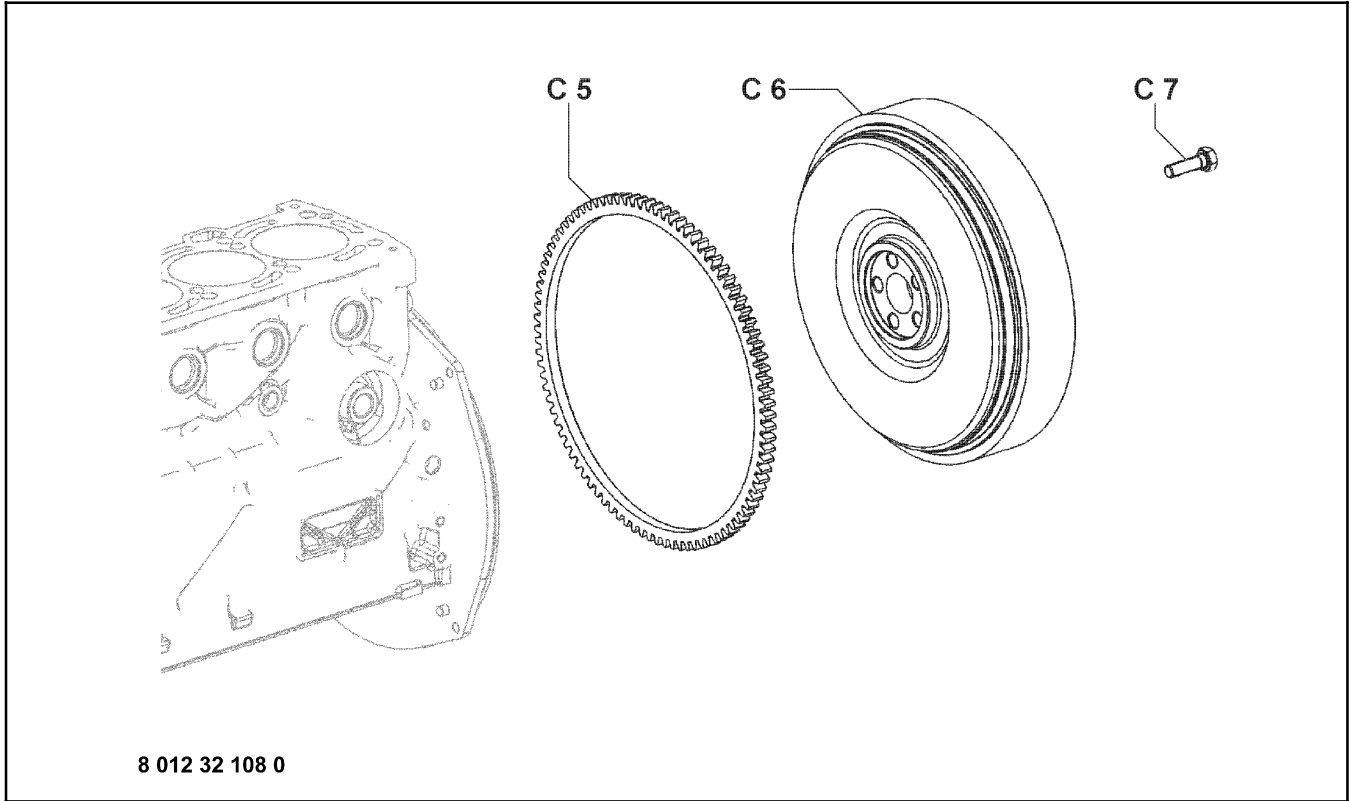


8 011 32 059 0

Item	Part No.	Description	Qty.
B1	ED0082112480-S	Ring Set, Std.	3
B2	ED0065025570-S	Piston Set, Std.	3
B3	ED0016300380-S	Small End Bushing	3
B4	ED0084800810-S	Piston Pin (Diam.20)	3
B5	ED0012610990-S	Circlip	6
B6	ED0016401160-S	Big End Bushing Std.	3
B6	ED0016401170-S	Big End Bushing, -0.25	3
B6	ED0016401180-S	Big End Bushing, -0.50	3
B7	ED0015262260-S	Connecting Rod	3
B8	ED0017701010-S	Bolt, M8 x 1 x 42	6

Group 12: Flywheel With Crown Gear

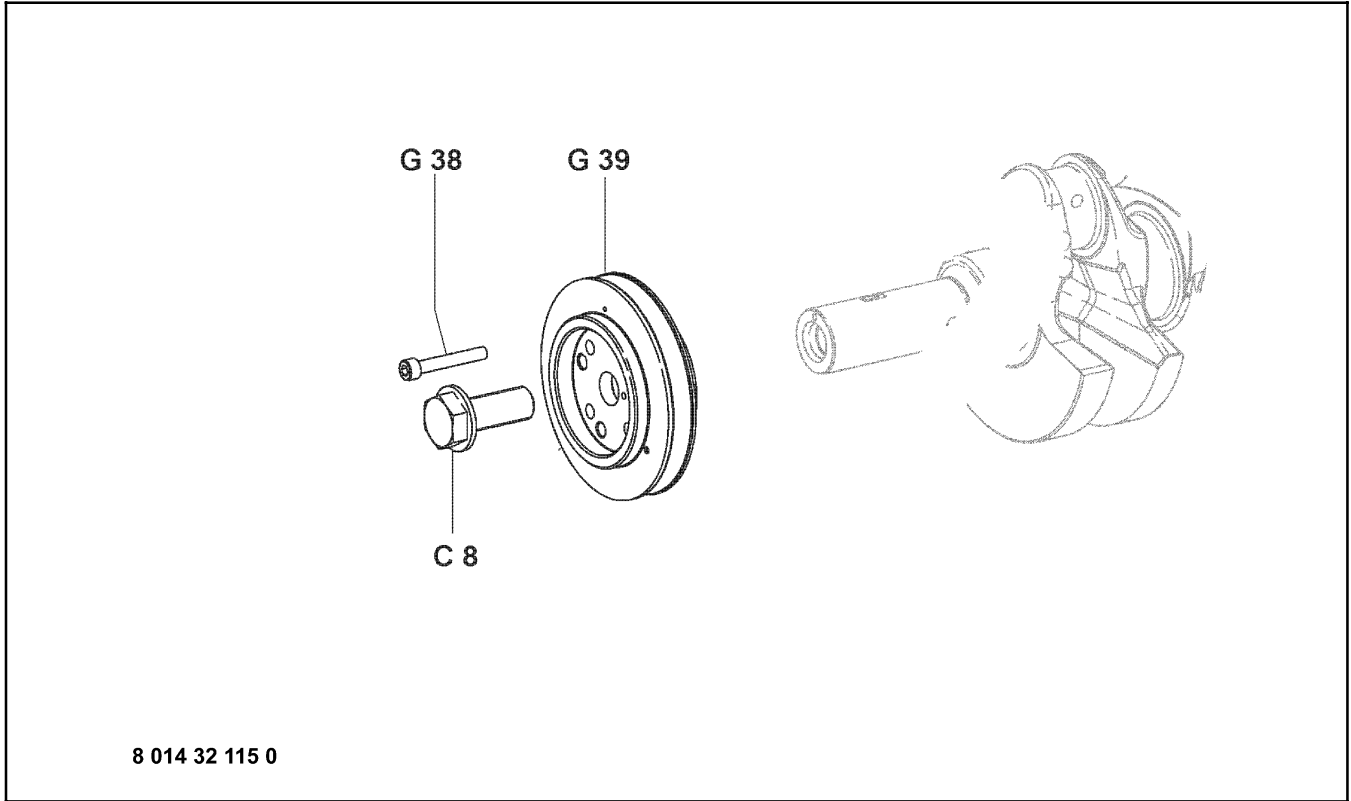
Variation 108



Item	Part No.	Description	Qty.
C5	ED0028162410-S	Crown Gear (Z = 92)	1
C6	ED0098816570-S	Flywheel With Crown (Z = 92)	1
C7	ED0017801050-S	Bolt, M10 x 35	5

Group 14: Drive Pulley And Belt For Alternator

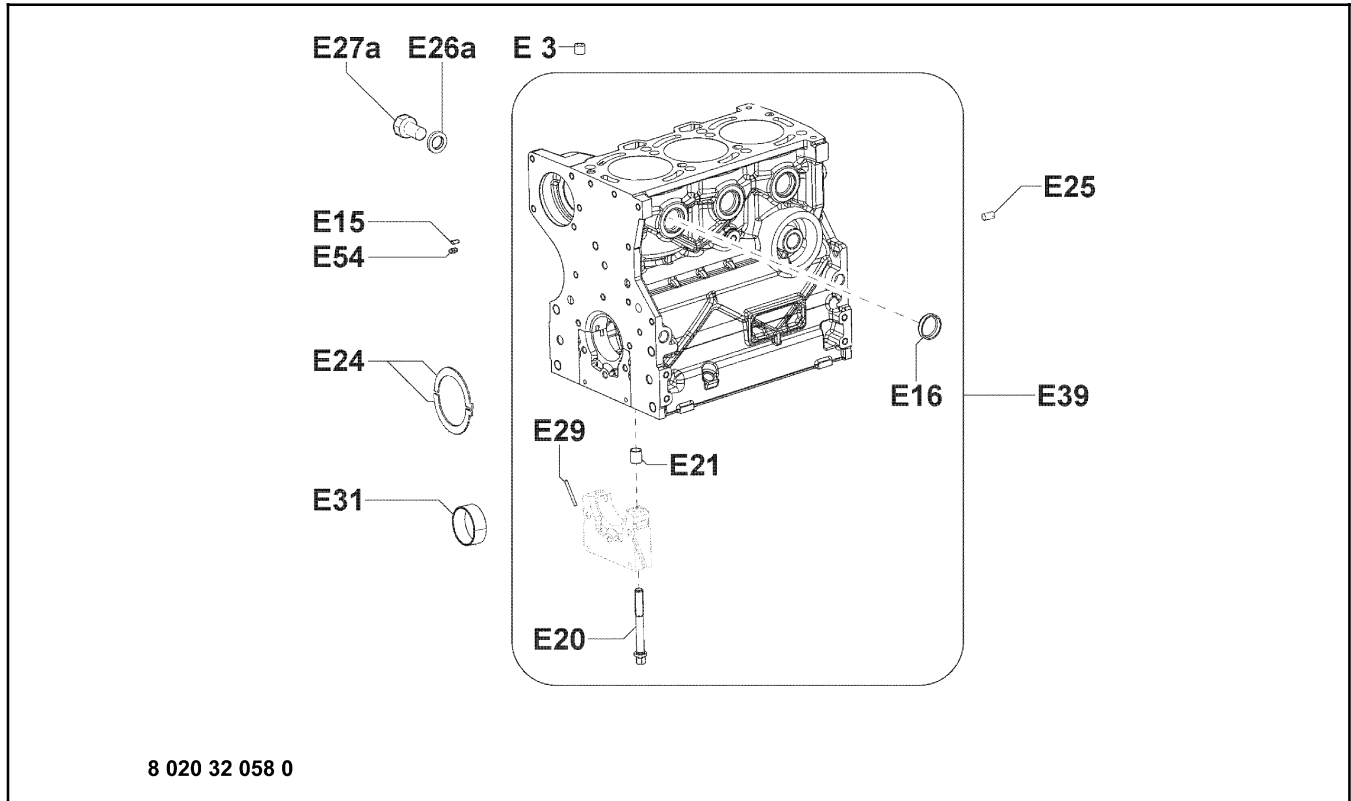
Variation 115



Item	Part No.	Description	Qty.
C 8	ED0098653190-S	Screw, M16 x 1.5 Left Rotation	1
G 38	ED0097320160-S	Screw, M6 x 40	4
G 39	ED0070511590-S	Pulley, 1 Groove	1

Group 20: Crankcase

Variation 058

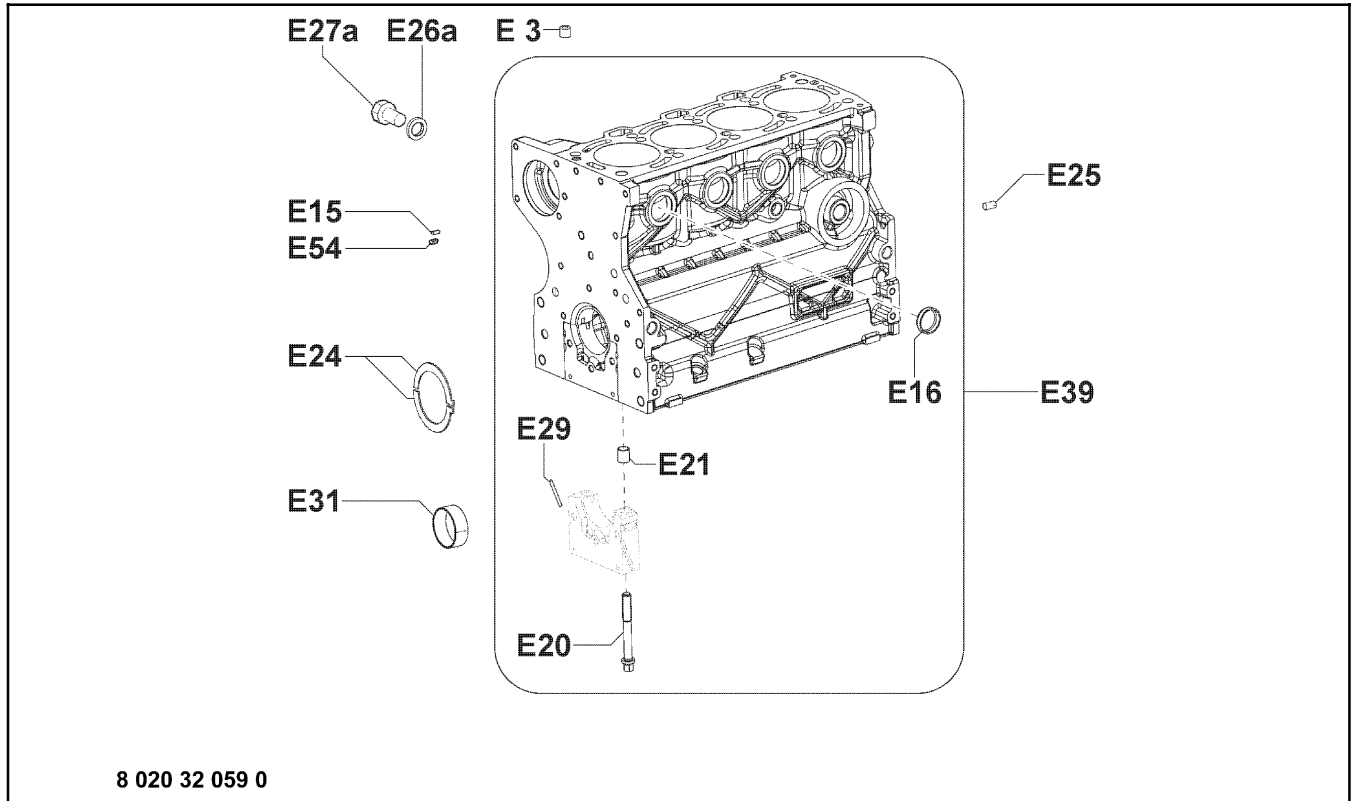


8 020 32 058 0

Item	Part No.	Description	Qty.
E3	ED0019701400-S	Sleeve	2
E15	ED0090802400-S	Plug, D.12	1
E16	ED0089900220-S	Plug, Diam. 30	4
E20	ED0098201200-S	Screw	8
E21	ED0019701400-S	Sleeve	2
E24	ED0012571580-S	Thrust Washer, Std	2
E24	ED0012571590-S	Thrust Washer, +0.10	2
E24	ED0012571600-S	Thrust Washer, +0.20	2
E25	ED0084001080-S	Lockpin, 10 x 20	2
E26a	ED0046700590-S	Copper Gasket, D.10	1
E27a	ED0089650480-S	Plug, M10	1
E29	ED0044000540-S	Gasket	4
E31	ED0016111930-S	Bearing, Std.	4
E31	ED0016111940-S	Bearing, -0.25	4
E31	ED0016111950-S	Bearing, -0.50	4
E39	ED0015112700-S	Crankcase Assy.	1
E54	ED0084301050-S	Taper Pin, 8 x 16	1

Group 20: Crankcase

Variation 059

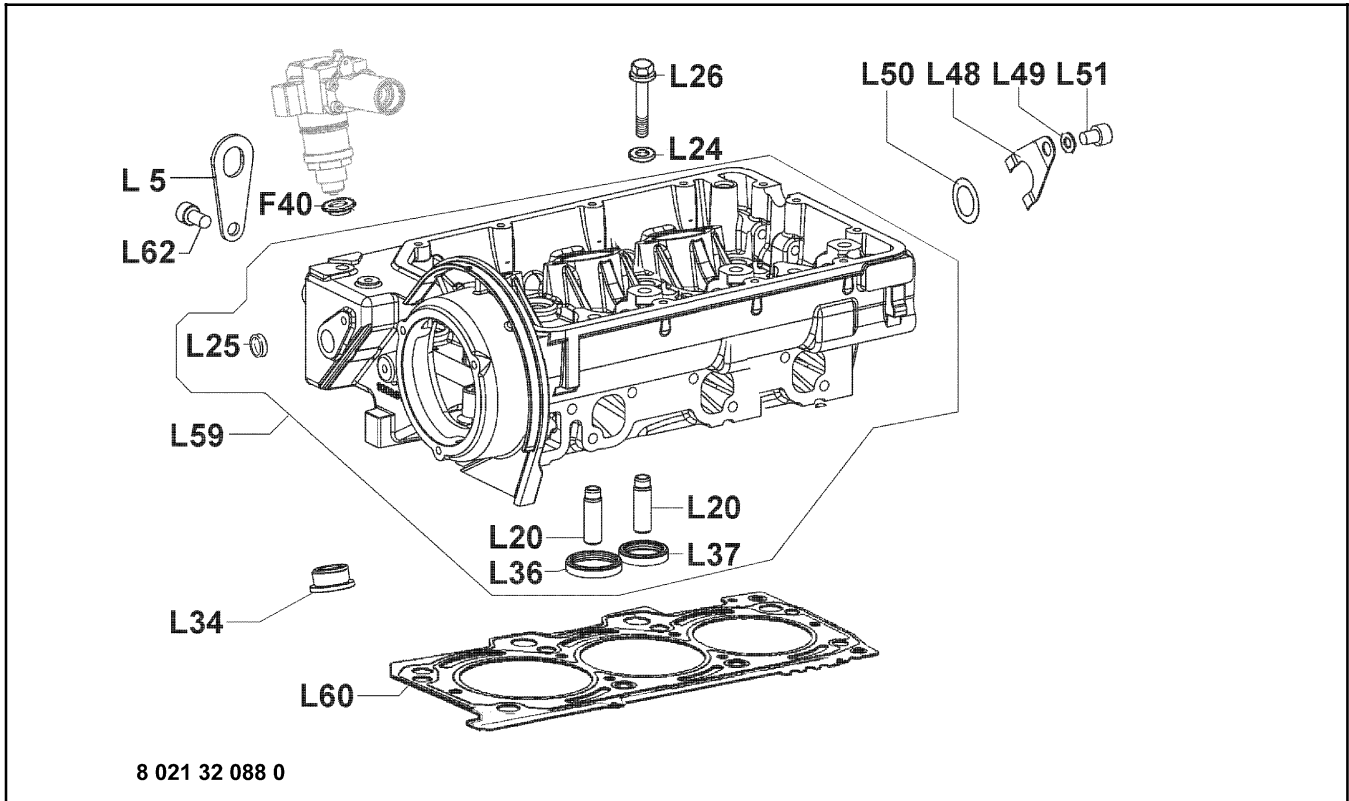


8 020 32 059 0

Item	Part No.	Description	Qty.
E3	ED0019701400-S	Sleeve	2
E15	ED0090802400-S	Plug, D.12	1
E16	ED0089900220-S	Plug, Diam. 30	6
E20	ED0098201200-S	Screw	10
E21	ED0019701400-S	Sleeve	2
E24	ED0012571580-S	Thrust Washer, Std	2
E24	ED0012571590-S	Thrust Washer, +0.10	2
E24	ED0012571600-S	Thrust Washer, +0.20	2
E25	ED0084001080-S	Lockpin, 10 x 20	2
E26a	ED0046700590-S	Copper Gasket, D.10	1
E27a	ED0089650480-S	Plug, M10	1
E29	ED0044000540-S	Gasket	4
E31	ED0016111930-S	Bearing, Std.	5
E31	ED0016111940-S	Bearing, -0.25	5
E31	ED0016111950-S	Bearing, -0.50	5
E39	ED0015112690-S	Crankcase Assy.	1
E54	ED0084301050-S	Taper Pin, 8 x 16	1

Group 21: Cylinder Head And Precombustion Chamber

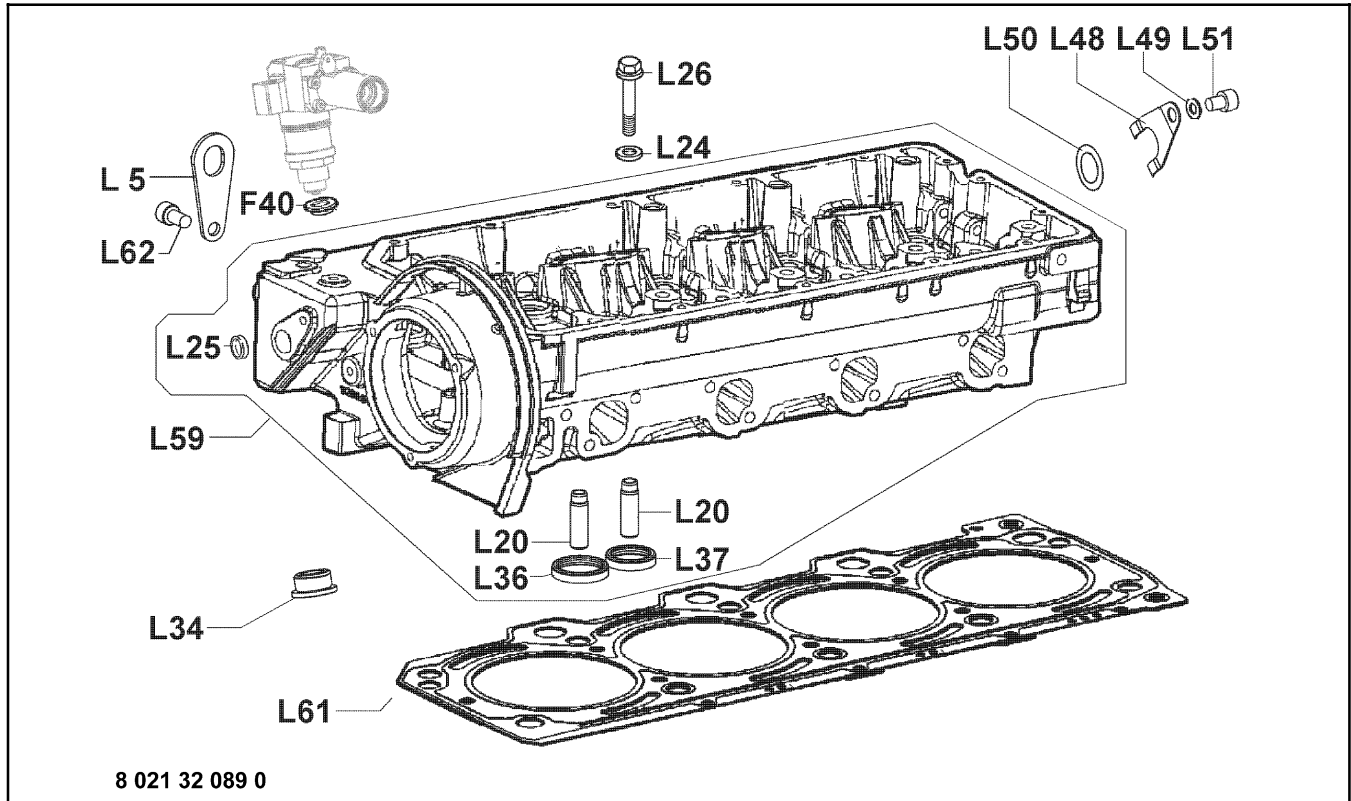
Variation 088



Item	Part No.	Description	Qty.
F40	ED0059890130-S	Spark Arrestor	3
L5	ED0085451900-S	Lifting Brace	2
L20	ED0048452000-S	Valve Guide, Std.	6
L20	ED0048452200-S	Valve Guide, +0.50	6
L24	ED0076251300-S	Washer, Diam. 10.2	8
L25	ED0089900470-S	Plug, Diam.18	2
L26	ED0098202220-S	Screw	8
L34	ED0067251210-S	Precombustion Chamber	3
L36	ED0080001970-S	Inlet Valve Seat	3
L37	ED0080002110-S	Exhaust Valve Seat	3
L48	ED0055700190-S	Retainer	1
L49	ED0076250100-S	Washer, Diam. 8	1
L50	ED0012000810-S	O-Ring	1
L51	ED0017701270-S	Bolt, M8 x 14	1
L59	ED0092011380-S	Cylinder Head	1
L60	ED0047309910-S	Head Gasket, 0.63 (0.63 mm piston clearance)	1
L60	ED0047309920-S	Head Gasket, 0.73 (0.73 mm piston clearance)	1
L60	ED0047309930-S	Head Gasket, 0.83 (0.83 mm piston clearance)	1
L62	ED0017700020-S	Bolt, M8 x 1.25 x 16	1

Group 21: Cylinder Head And Precombustion Chamber

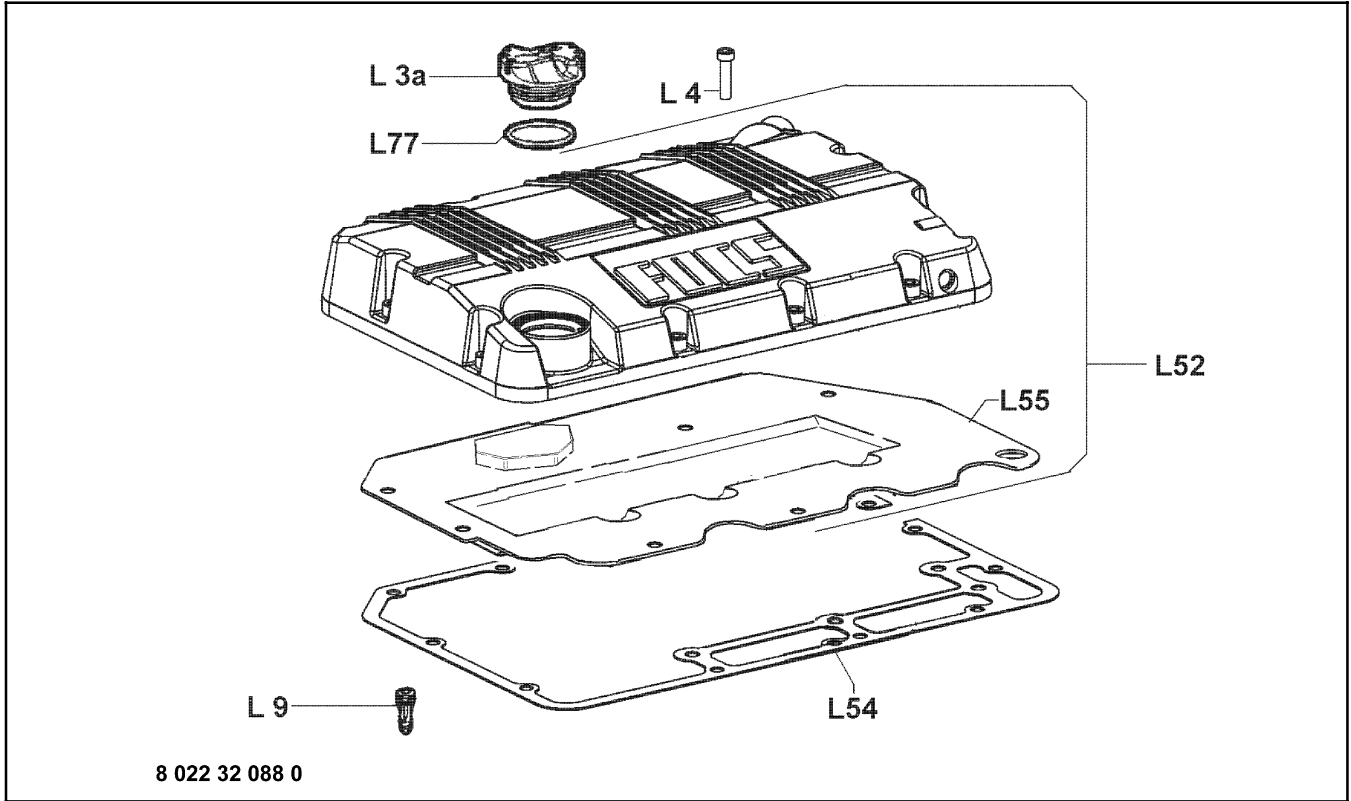
Variation 089



Item	Part No.	Description	Qty.
F40	ED0059890130-S	Spark Arrestor	4
L5	ED0085451900-S	Lifting Brace	2
L20	ED0048452000-S	Valve Guide, Std.	8
L20	ED0048452200-S	Valve Guide, +0.50	8
L24	ED0076251300-S	Washer, Diam. 10.2	10
L25	ED0089900470-S	Plug, Diam.18	6
L26	ED0098202220-S	Screw	10
L34	ED0067251210-S	Precombustion Chamber	4
L36	ED0080001970-S	Inlet Valve Seat	4
L37	ED0080002110-S	Exhaust Valve Seat	4
L48	ED0055700190-S	Retainer	1
L49	ED0076250100-S	Washer, Diam. 8	1
L50	ED0012000810-S	O-Ring	1
L51	ED0017701270-S	Bolt, M8 x 14	1
L59	ED0092012160-S	Cylinder Head	1
L61	ED0047309940-S	Head Gasket, 0.63 (0.63 mm piston clearance)	1
L61	ED0047309950-S	Head Gasket, 0.73 (0.73 mm piston clearance)	1
L61	ED0047309960-S	Head Gasket, 0.83 (0.83 mm piston clearance)	1
L62	ED0017700020-S	Bolt, M8 x 1.25 x 16	1

Group 22: Rocker Arms Cover And Oil Filler

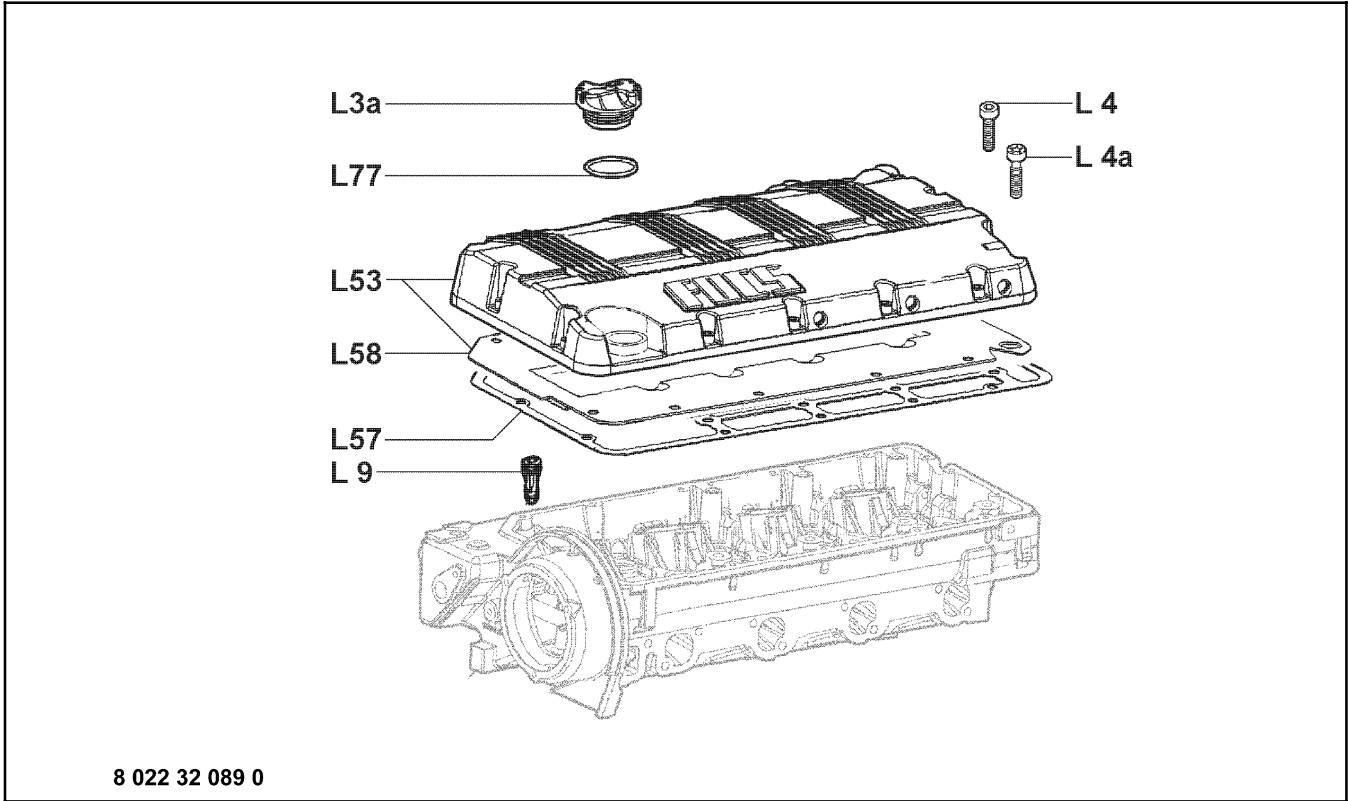
Variation 088



Item	Part No.	Description	Qty.
L3a	ED0090321290-S	Filler Oil Cap	1
L4	ED0097304160-S	Screw, M6 x 20	10
L4a	ED0097660010-S	Screw, Torx M6 x 20	2
L9	ED0053651220-S	Connection	1
L52	ED0021257260-S	Rocker Arm Cover	1
L54	ED0044001020-S	Gasket	1
L55	ED0050662220-S	Separator	1
L77	ED0012000820-S	O-Ring 3106	1

Group 22: Rocker Arms Cover And Oil Filler

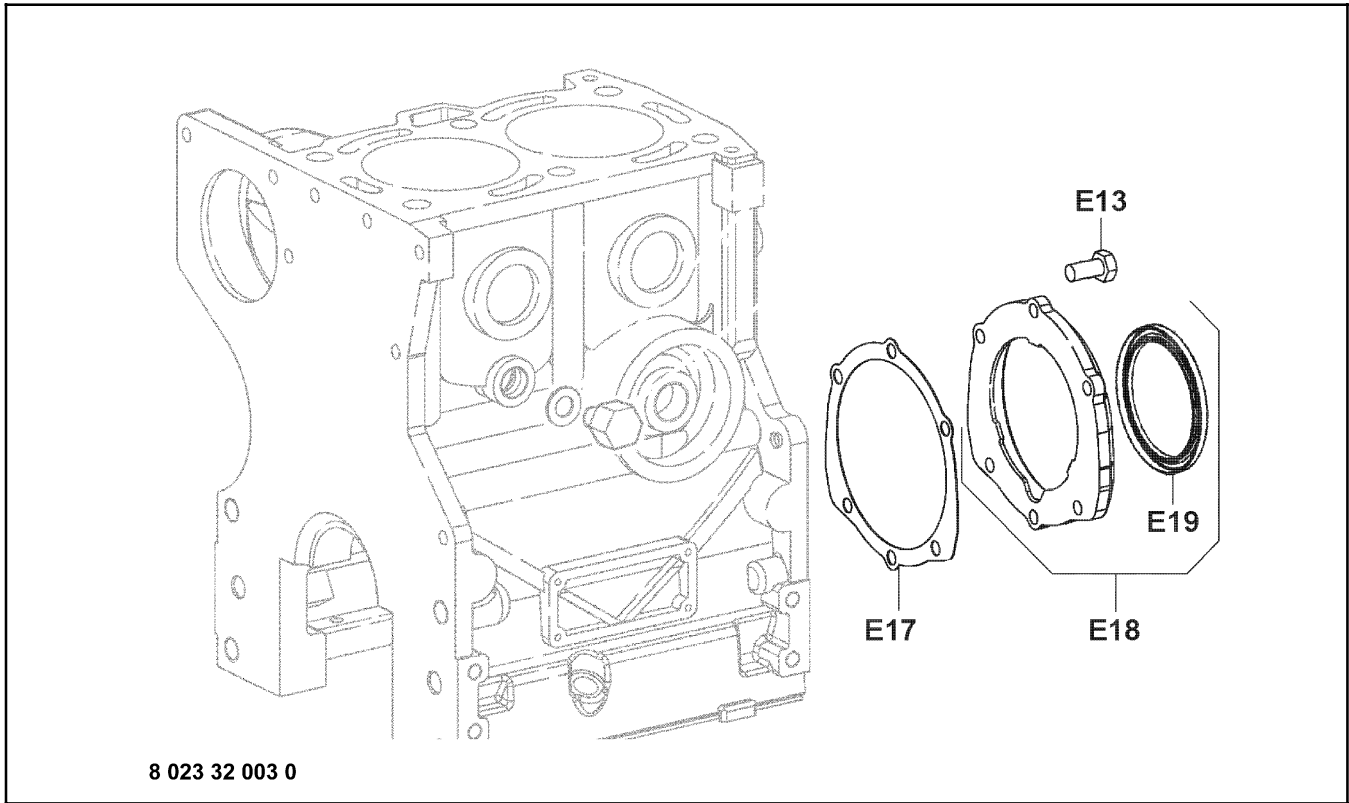
Variation 089



Item	Part No.	Description	Qty.
L3a	ED0090321290-S	Filler Oil Cap	1
L4	ED0097304160-S	Screw, M6 x 20	12
L4a	ED0097660010-S	Screw, Torx M6 x 20	2
L9	ED0053651220-S	Connection	1
L53	ED0021257480-S	Rocker Arm Cover	1
L57	ED0044001010-S	Gasket	1
L58	ED0050662650-S	Separator	1
L77	ED0012000820-S	O-Ring 3106	1

Group 23: Crankshaft Flange (Flywheel Side)

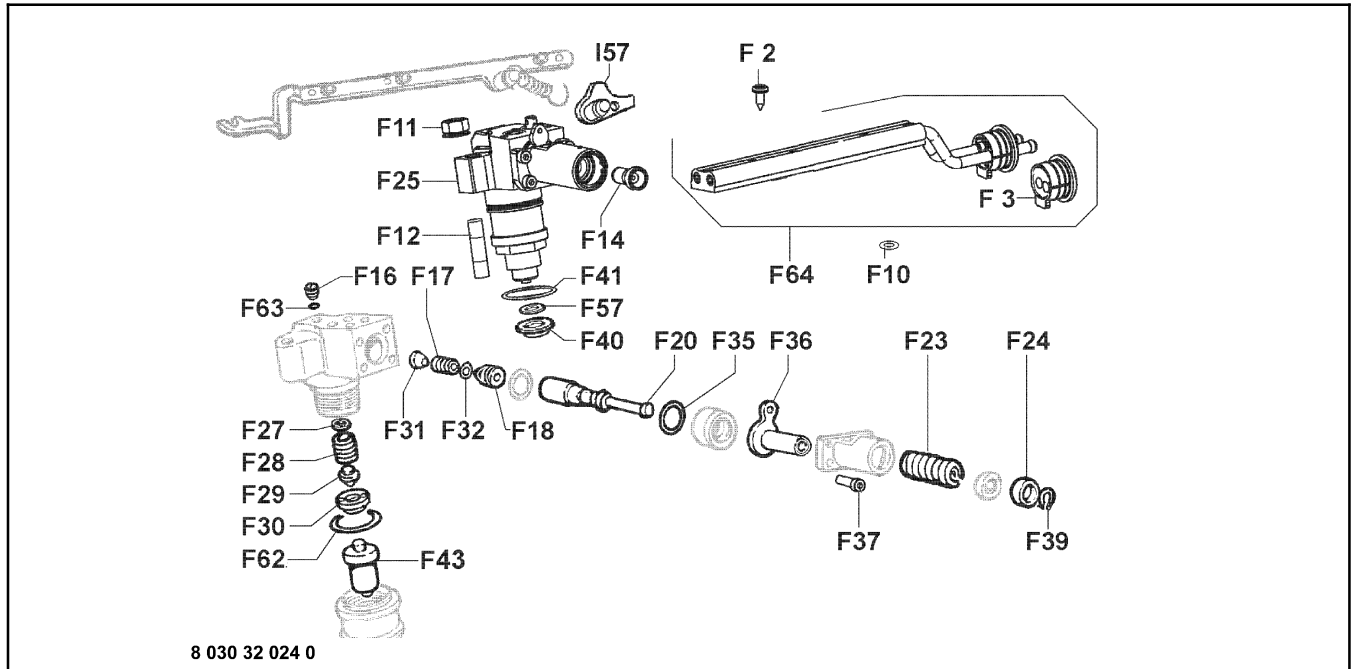
Variation 003



Item	Part No.	Description	Qty.
E13	ED0097300100-S	Screw, M6 x 16	6
E17	ED0045011560-S	Gasket	1
E18	ED0037900780-S	Engine Flange Assy	1
E19	ED0012133470-S	Seal Ring, 70 x 88 x 8	1

Group 30: Fuel System - Injection Pump And Hoses

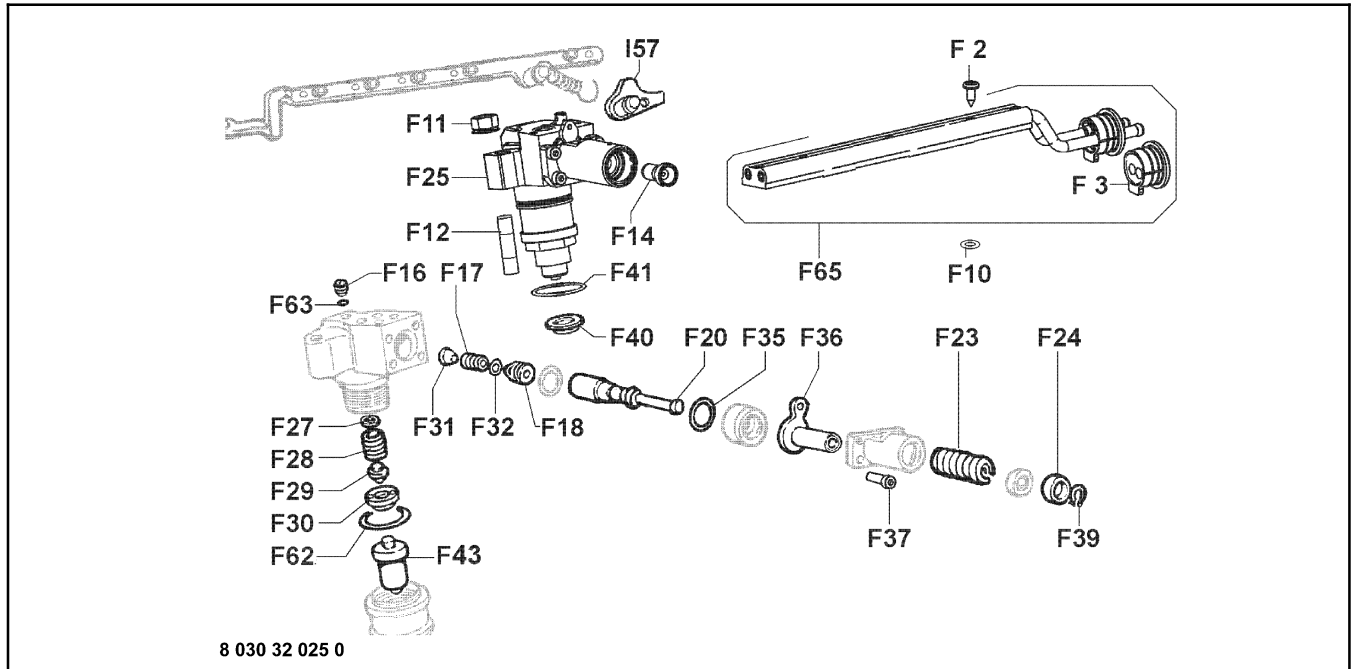
Variation 024



Item	Part No.	Description	Qty.
F2	ED0097303130-S	Screw	3
F3	ED0047500140-S	Delivery Pipe Seal	1
F10	ED0012002860-S	Seal Ring, 9.25 x 1.78	6
F11	ED0032401640-S	Nut, M8	6
F12	ED0067801350-S	Stud	6
F14	-	Tappet (See Group 35)	-
F16	ED0096800410-S	Bleeding Valve	3
F17	ED0058012740-S	Delivery Valve Spring	3
F18	ED0096721070-S	Delivery Valve	3
F20	-	Injection Plunger (See item F25)	-
F23	ED0057551130-S	Tappet Spring	3
F24	-	Push Rod (See item F25)	-
F25	ED0065902900-S	Injection Pump Assy.	3
F27	ED0083351420-S	Shim, 2.00	3
F27	ED0083351430-S	Shim, 1.90	3
F27	ED0083351440-S	Shim, 1.80	3
F27	ED0083351450-S	Shim, 1.70	3
F27	ED0083351460-S	Shim, 1.60	3
F27	ED0083351470-S	Shim, 1.50	3
F27	ED0083351480-S	Shim, 1.40	3
F27	ED0083351490-S	Shim, 1.30	3
F27	ED0083351500-S	Shim, 1.20	3
F27	ED0083351510-S	Shim, 1.10	3
F27	ED0083351520-S	Shim, 1.00	3
F28	-	Pressure Spring (See item F25)	-
F29	ED0014200480-S	Drive Rod	3
F30	ED0035272200-S	Spacer	3
F31	-	Filler (See item F25)	-
F32	ED0047600150-S	Valve Gasket	3
F35	ED0012002770-S	Seal Ring, 20.35 x 1.78	3
F36	ED0053750170-S	Governor Sleeve	3
F37	ED0097302060-S	Screw, TCEI M4 x 12	12
F39	ED0012410090-S	Circlip, Diam. 19	3
F40	-	Spark Arrestor (See Group 21)	-
F41	ED0012002130-S	O-Ring, 26.70 x 1.78	3
F43	ED0065314360-S	Nozzle	3
F62	ED0012002870-S	O-Ring, 25.12 x 1.78	3
F63	ED0047600380-S	Gasket	3
F64	ED0093759950-S	Delivery Pipe	1
I57	ED0063703310-S	Locking Plate	1

Group 30: Fuel System - Injection Pump And Hoses

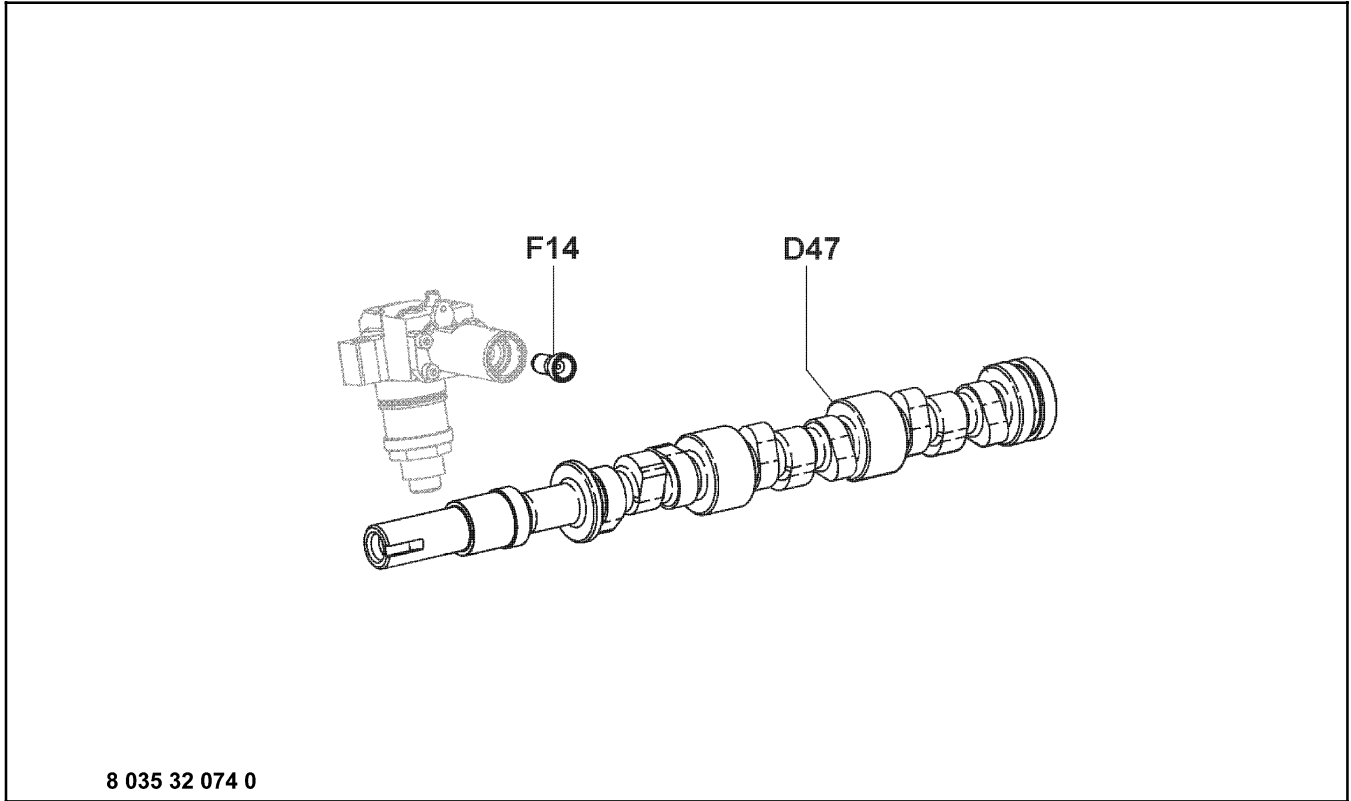
Variation 025



Item	Part No.	Description	Qty.
F2	ED0097303130-S	Screw	4
F3	ED0047500140-S	Delivery Pipe Seal	1
F10	ED0012002860-S	Seal Ring, 9.25 x 1.78	8
F11	ED0032401640-S	Nut, M8	8
F12	ED0067801350-S	Stud	8
F14	-	Tappet (See Group 35)	-
F16	ED0096800410-S	Bleeding Valve	4
F17	ED0058012740-S	Delivery Valve Spring	4
F18	ED0096721070-S	Delivery Valve	4
F20	-	Injection Plunger (See Item F25)	-
F23	ED0057551130-S	Tappet Spring	4
F24	-	Push Rod (See Item F25)	-
F25	ED0065902900-S	Injection Pump Assy.	4
F27	ED0083351420-S	Shim, 2.00	4
F27	ED0083351430-S	Shim, 1.90	4
F27	ED0083351440-S	Shim, 1.80	4
F27	ED0083351450-S	Shim, 1.70	4
F27	ED0083351460-S	Shim, 1.60	4
F27	ED0083351470-S	Shim, 1.50	4
F27	ED0083351480-S	Shim, 1.40	4
F27	ED0083351490-S	Shim, 1.30	4
F27	ED0083351500-S	Shim, 1.20	4
F27	ED0083351510-S	Shim, 1.10	4
F27	ED0083351520-S	Shim, 1.00	4
F28	-	Pressure Spring (See Item F25)	-
F29	ED0014200480-S	Drive Rod	4
F30	ED0035272200-S	Spacer	4
F31	-	Filler (See Item F25)	-
F32	ED0047600150-S	Valve Gasket	4
F35	ED0012002770-S	Seal Ring, 20.35 x 1.78	4
F36	ED0053750170-S	Governor Sleeve	4
F37	ED0097302060-S	Screw, TCEI M4 x 12	16
F39	ED0012410090-S	Circlip, Diam. 19	4
F40	-	Spark Arrestor (See Group 21)	-
F41	ED0012002130-S	O-Ring, 26.70 x 1.78	4
F43	ED0065314360-S	Nozzle	4
F62	ED0012002870-S	O-Ring, 25.12 x 1.78	4
F63	ED0047600380-S	Gasket	4
F65	ED0093759880-S	Delivery Pipe	1
I57	ED0063703310-S	Locking Plate	1

Group 35: Camshaft - Push Rod

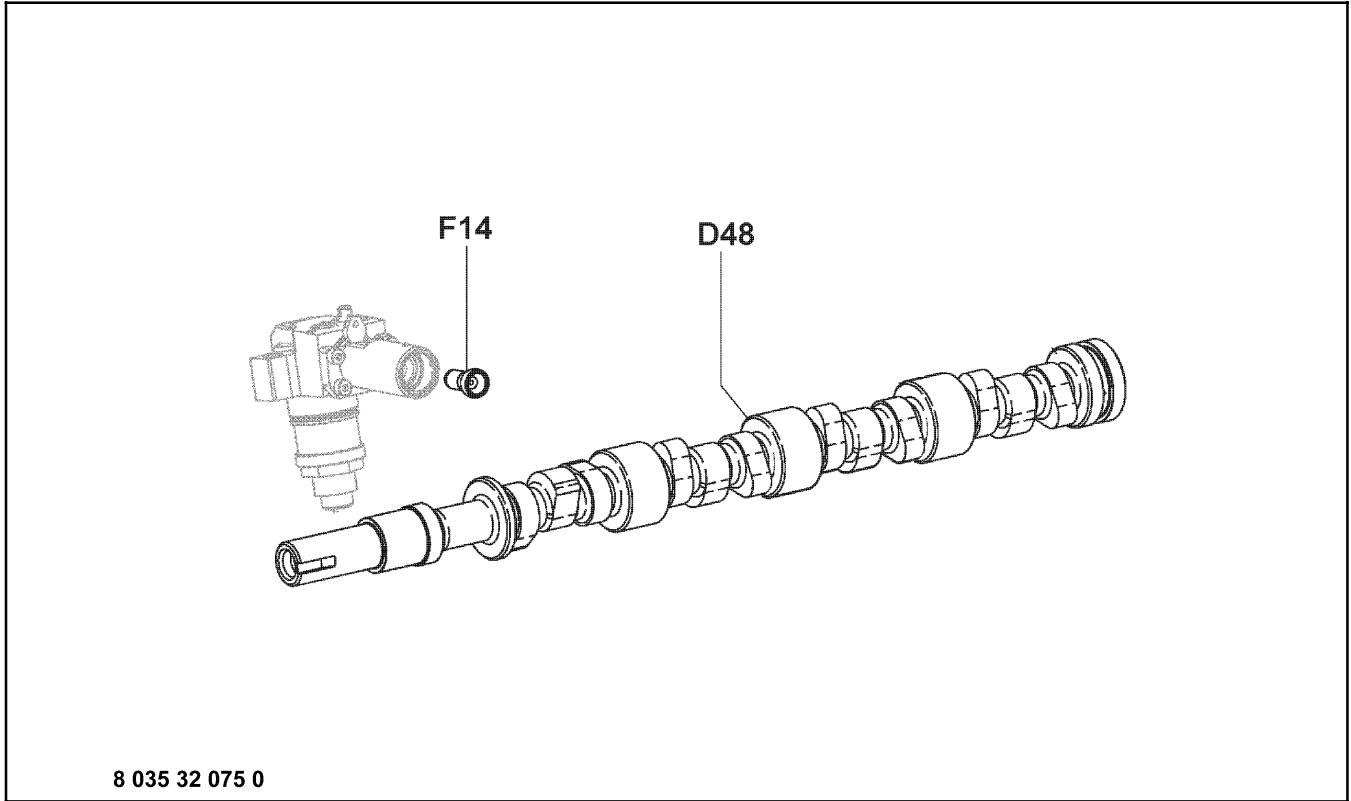
Variation 074



Item	Part No.	Description	Qty.
D47	ED0010116320-S	Camshaft	1
F14	ED0014101120-S	Tappet	3

Group 35: Camshaft - Push Rod

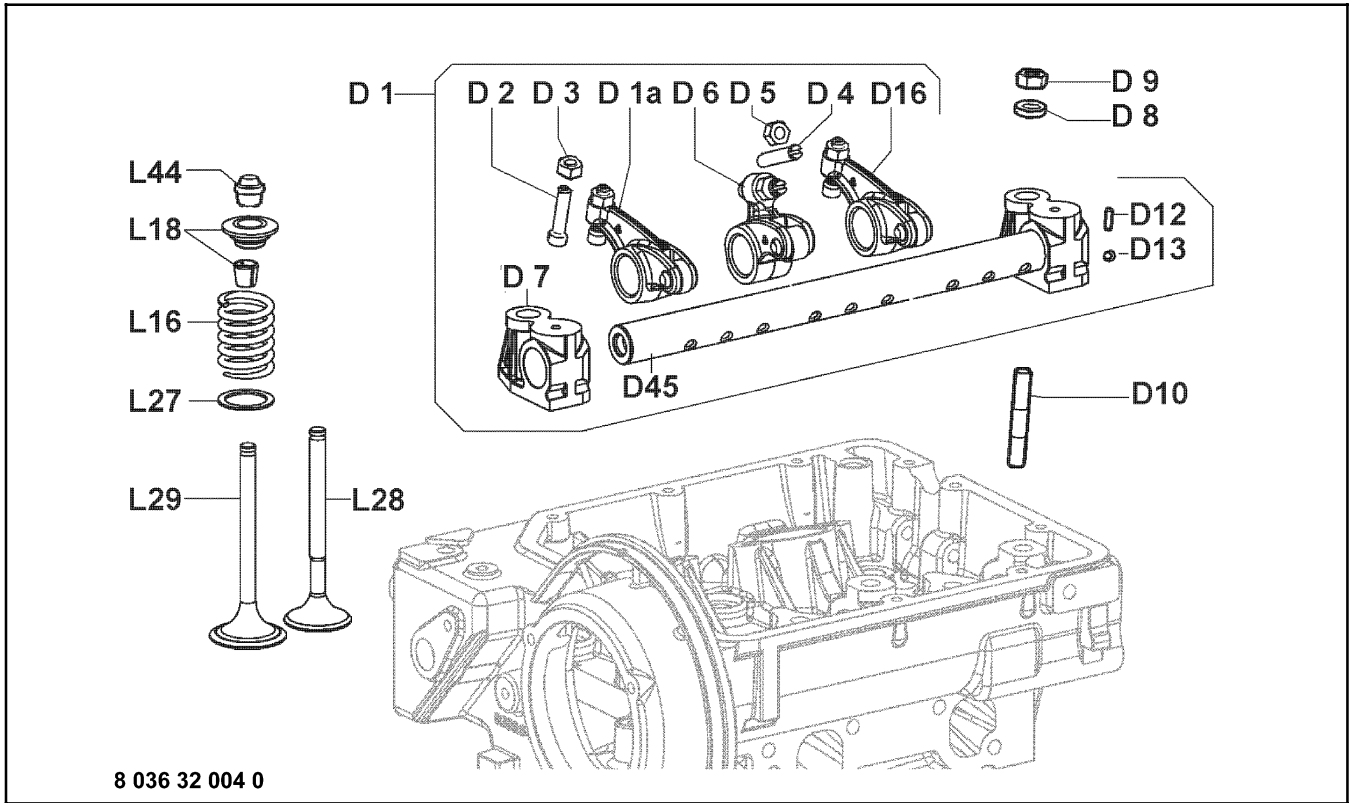
Variation 075



Item	Part No.	Description	Qty.
D48	ED0010116340-S	Camshaft	1
F14	ED0014101120-S	Tappet	4

Group 36: Rocker Arm And Valves

Variation 004

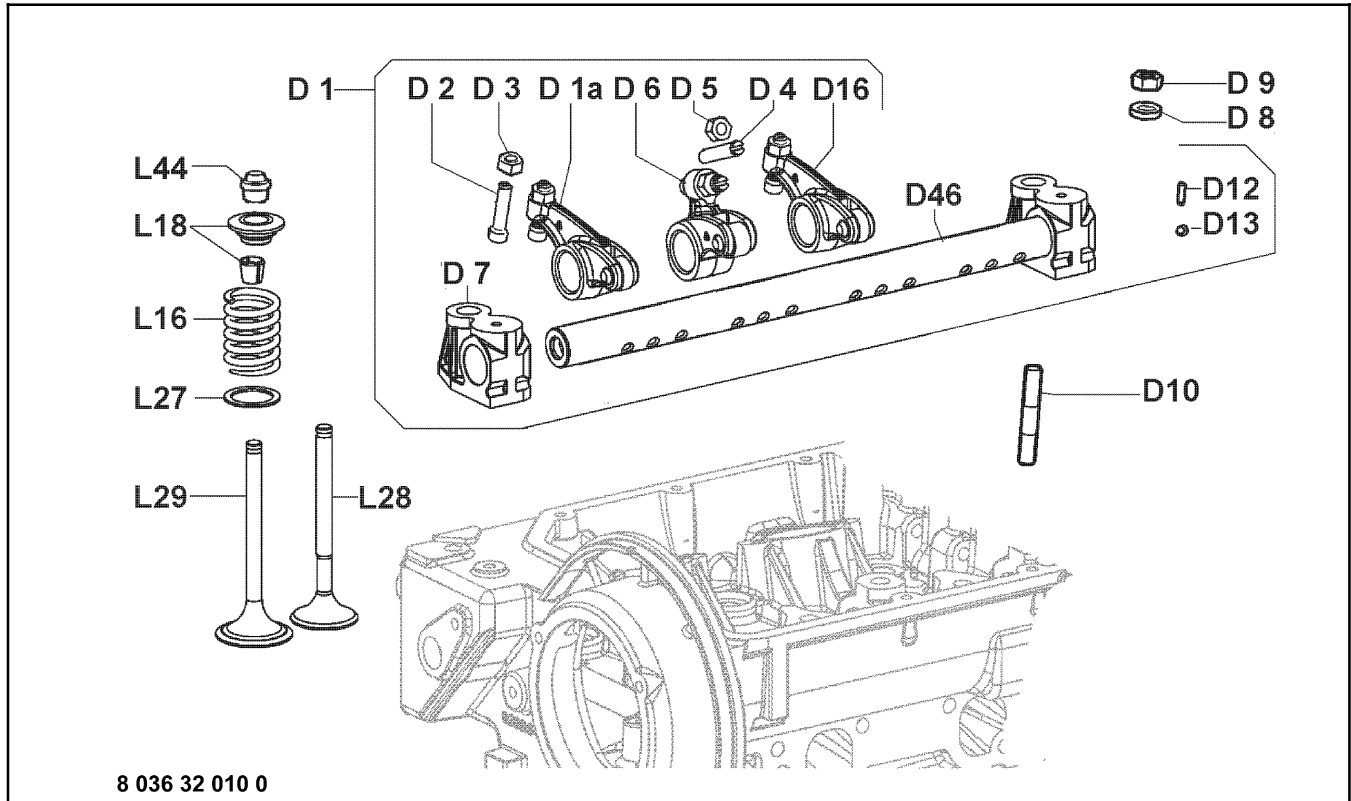


8 036 32 004 0

Item	Part No.	Description	Qty.
D1	ED0060451110-S	Rocker Arm Assy.	1
D1a	ED0015411930-S	Rocker Arm (Inlet/Exhaust)	3
D2	ED0098500880-S	Adj. Screw	6
D3	ED0032400080-S	Nut, M6	6
D4	ED0098501100-S	Adj. Screw	3
D5	ED0032401510-S	Nut	3
D6	ED0015412200-S	Injection Pump Rocker Arm	3
D7	ED0086151050-S	Rocker Arm Shaft Support	3
D8	ED0076251300-S	Washer, Diam. 10.2	4
D9	ED0032400330-S	Nut, M10	4
D10	ED0068000880-S	Stud, M10 x 45	4
D12	ED0084300610-S	Lockpin, 4 x 14	1
D13	ED0090001480-S	Plug, Diam. 11	2
D16	ED0015411930-S	Rocker Arm (Inlet/Exhaust)	3
D45	ED0060450870-S	Rocker Arm Shaft	1
L16	ED0057551370-S	Valve Spring	6
L18	ED0064100170-S	Retainer With Half-Collets	6
L27	ED0076251850-S	Washer	6
L28	ED0096851500-S	Exhaust Valve	3
L29	ED0096521570-S	Intake Valve	3
L44	ED0045350150-S	Valve Retainer	6

Group 36: Rocker Arm And Valves

Variation 010

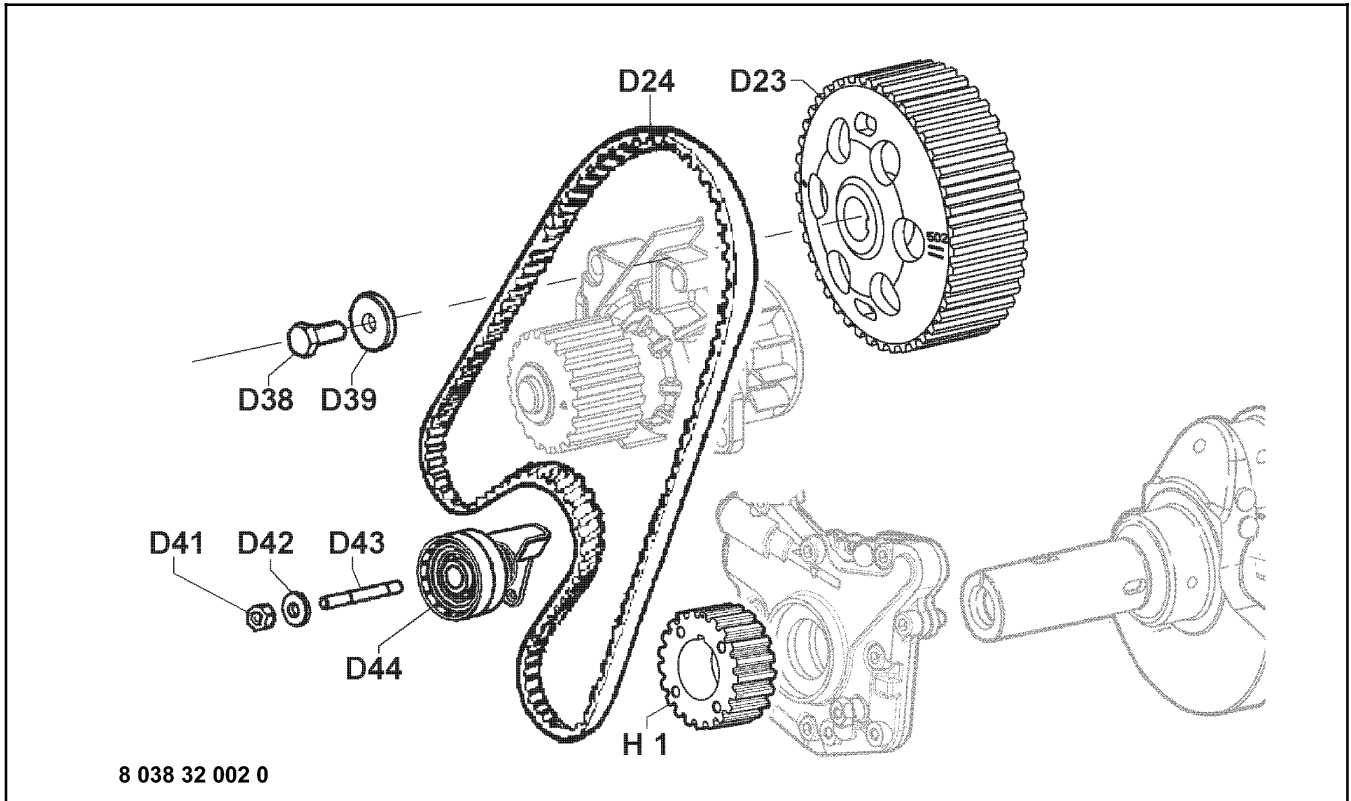


8 036 32 010 0

Item	Part No.	Description	Qty.
D1	ED0060451120-S	Rocker Arm Assy.	1
D1a	ED0015411930-S	Rocker Arm (Inlet/Exhaust)	4
D2	ED0098500880-S	Adj. Screw	8
D3	ED0032400080-S	Nut, M6	8
D4	ED0098501100-S	Adj. Screw	4
D5	ED0032401510-S	Nut	4
D6	ED0015412200-S	Injection Pump Rocker Arm	4
D7	ED0086151050-S	Rocker Arm Shaft Support	5
D8	ED0076251300-S	Washer, Diam. 10.2	5
D9	ED0032400330-S	Nut, M10	5
D10	ED0068000880-S	Stud, M10 x 45	5
D12	ED0084300610-S	Lockpin, 4 x 14	1
D13	ED0090001480-S	Plug, Diam. 11	2
D16	ED0015411930-S	Rocker Arm (Inlet/Exhaust)	4
D46	ED0060450830-S	Rocker Arm Shaft	1
L16	ED0057551370-S	Valve Spring	8
L18	ED0064100170-S	Retainer With Half-Collets	8
L27	ED0076251850-S	Washer	8
L28	ED0096851500-S	Exhaust Valve	4
L29	ED0096521570-S	Intake Valve	4
L44	ED0045350150-S	Valve Retainer	8

Group 38: Timing Pulley - Belt - Jockey Pulley

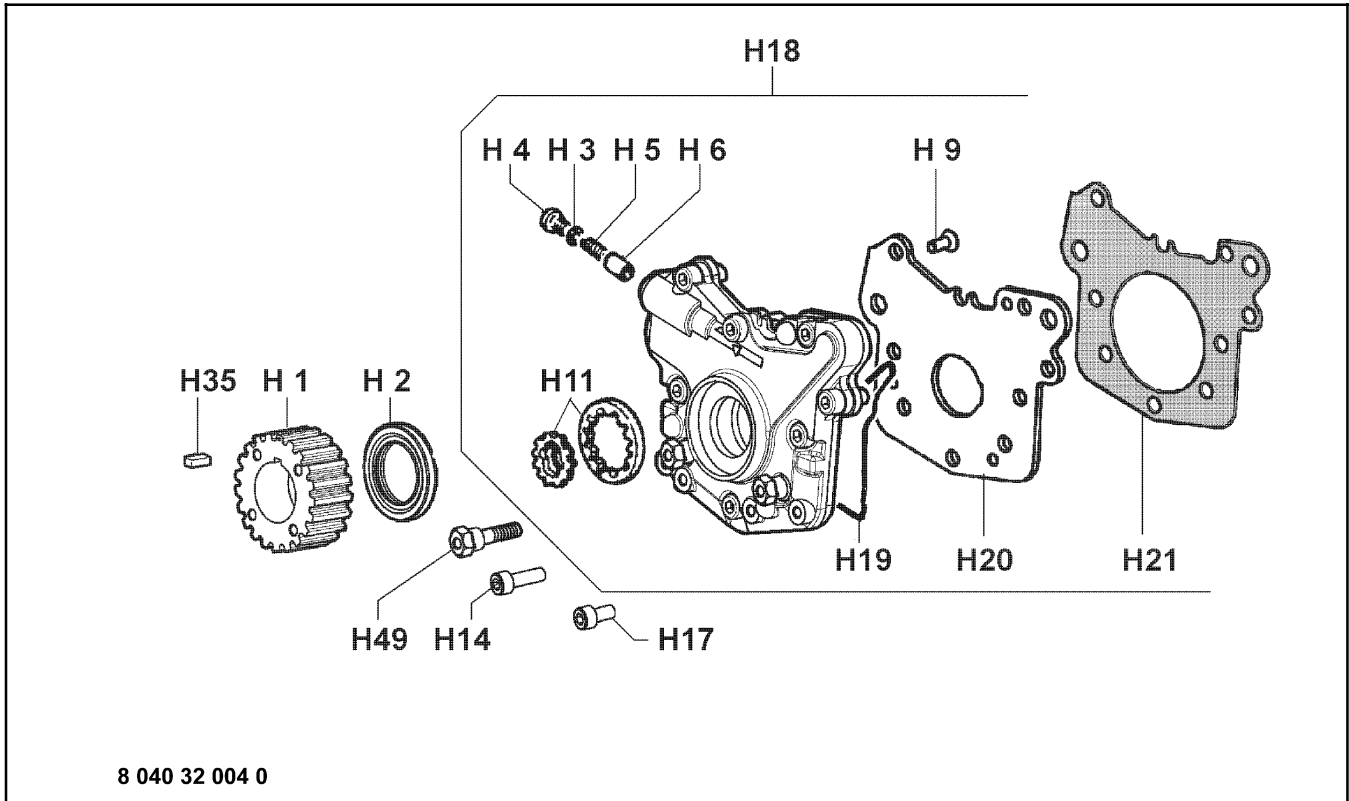
Variation 002



Item	Part No.	Description	Qty.
D23	ED0070900120-S	Gear Pulley	1
D24	ED0024403380-S	Timing Belt Z=113	1
D38	ED0098201420-S	Screw	1
D39	ED0076250450-S	Washer, D.11	1
D41	ED0032400330-S	Nut, M10	1
D42	ED0074950100-S	Washer	1
D43	ED0068000900-S	Stud	1
D44	ED0041100090-S	Jockey Pulley	1
H1	ED0069752920-S	Driving Pulley	1

Group 40: Oil Pump

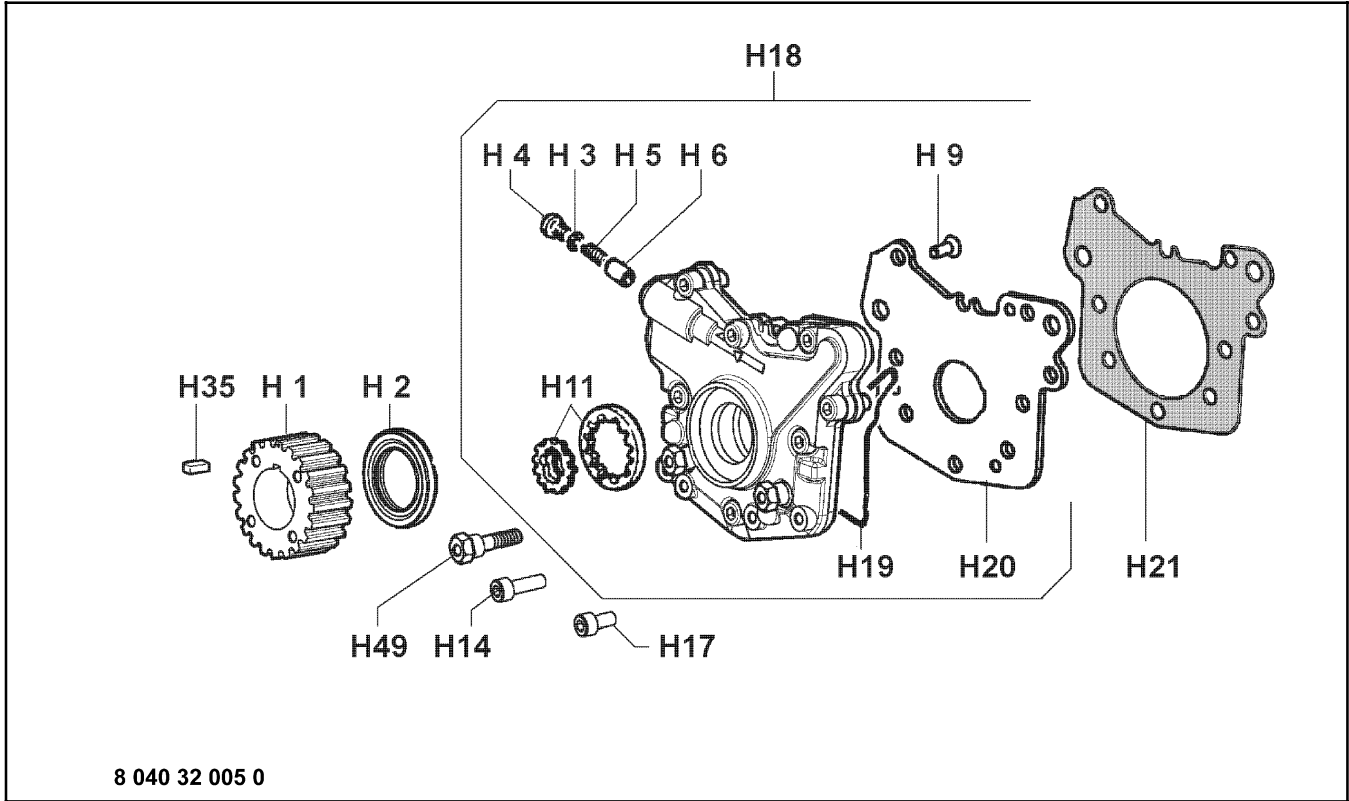
Variation 004



Item	Part No.	Description	Qty.
H1	-	Driving Pulley (See Group 38)	-
H2	ED0012133430-S	Seal Ring, 32 x 50 x 6	1
H3	ED0046700600-S	Copper Gasket, Diam.12	1
H4	ED0090150050-S	Plug	1
H5	ED0056250080-S	Pressure Valve Spring	1
H6	ED0064950450-S	Drive Rod	1
H9	ED0098000610-S	Screw, M6 x 16	3
H11	ED0077501050-S	Oil Pump Rotors	1
H14	ED0017700070-S	Bolt, M8 x 1.25 x 30	1
H17	ED0097320740-S	Screw, M8 x 20	6
H18	ED0066050960-S	Oil Pump	1
H19	ED0012002920-S	O-Ring	1
H20	-	See Item H18	-
H21	ED0045802160-S	Gasket	1
H35	-	Key (See Group 10)	-
H49	ED0098651740-S	Screw	2

Group 40: Oil Pump

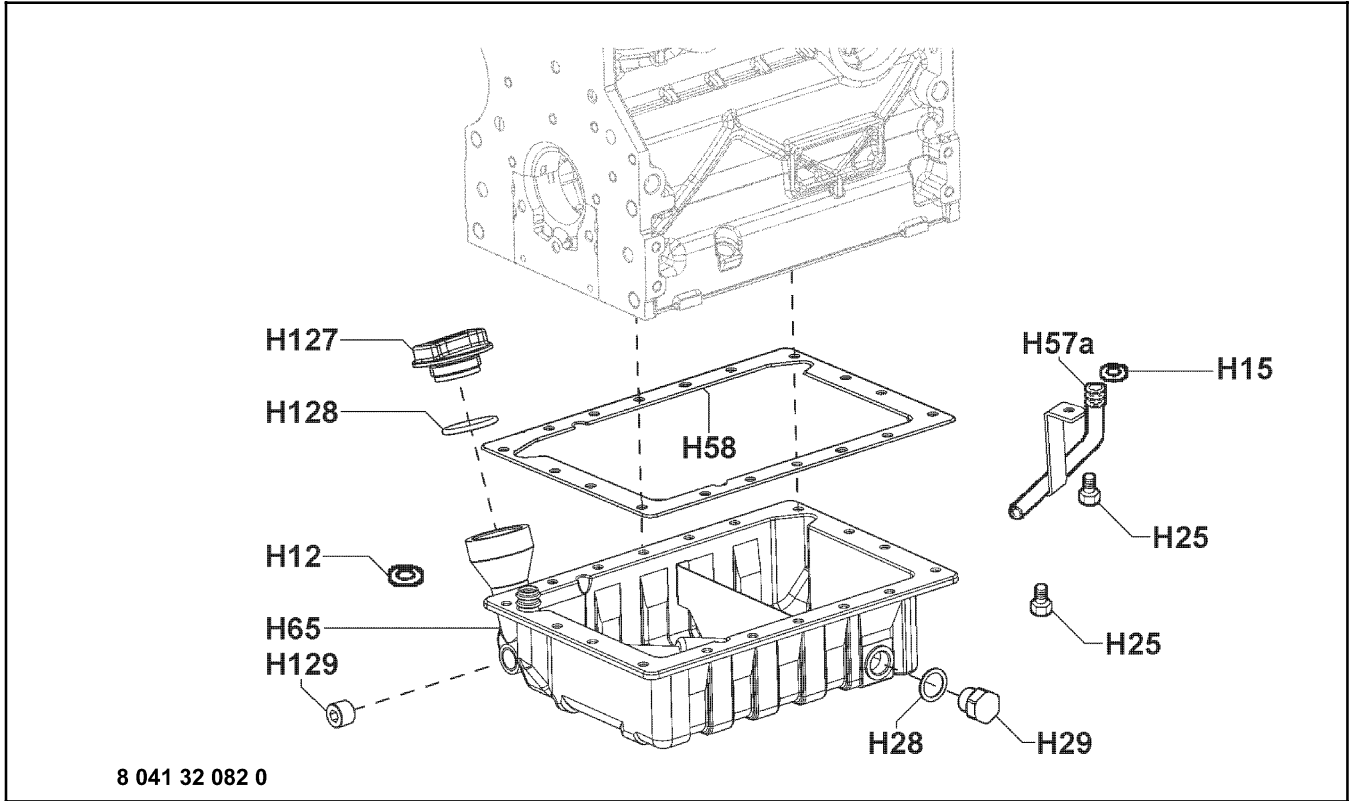
Variation 005



Item	Part No.	Description	Qty.
H1	-	Driving Pulley (See Group 38)	-
H2	ED0012133430-S	Seal Ring, 32 x 50 x 6	1
H3	ED0046700600-S	Copper Gasket, Diam.12	1
H4	ED0090150050-S	Plug	1
H5	ED0056250080-S	Pressure Valve Spring	1
H6	ED0064950450-S	Drive Rod	1
H9	ED0098000610-S	Screw, M6 x 16	3
H11	ED0077501080-S	Oil Pump Rotors	1
H14	ED0017700070-S	Bolt, M8 x 1.25 x 30	1
H17	ED0097320740-S	Screw, M8 x 20	6
H18	ED0066050990-S	Oil Pump Assy.	1
H19	ED0012002920-S	O-Ring	1
H20	-	See Item H18	-
H21	ED0045802160-S	Gasket	1
H35	-	Key (See Group 10)	-
H49	ED0098651740-S	Screw	2

Group 41: Oil Pan

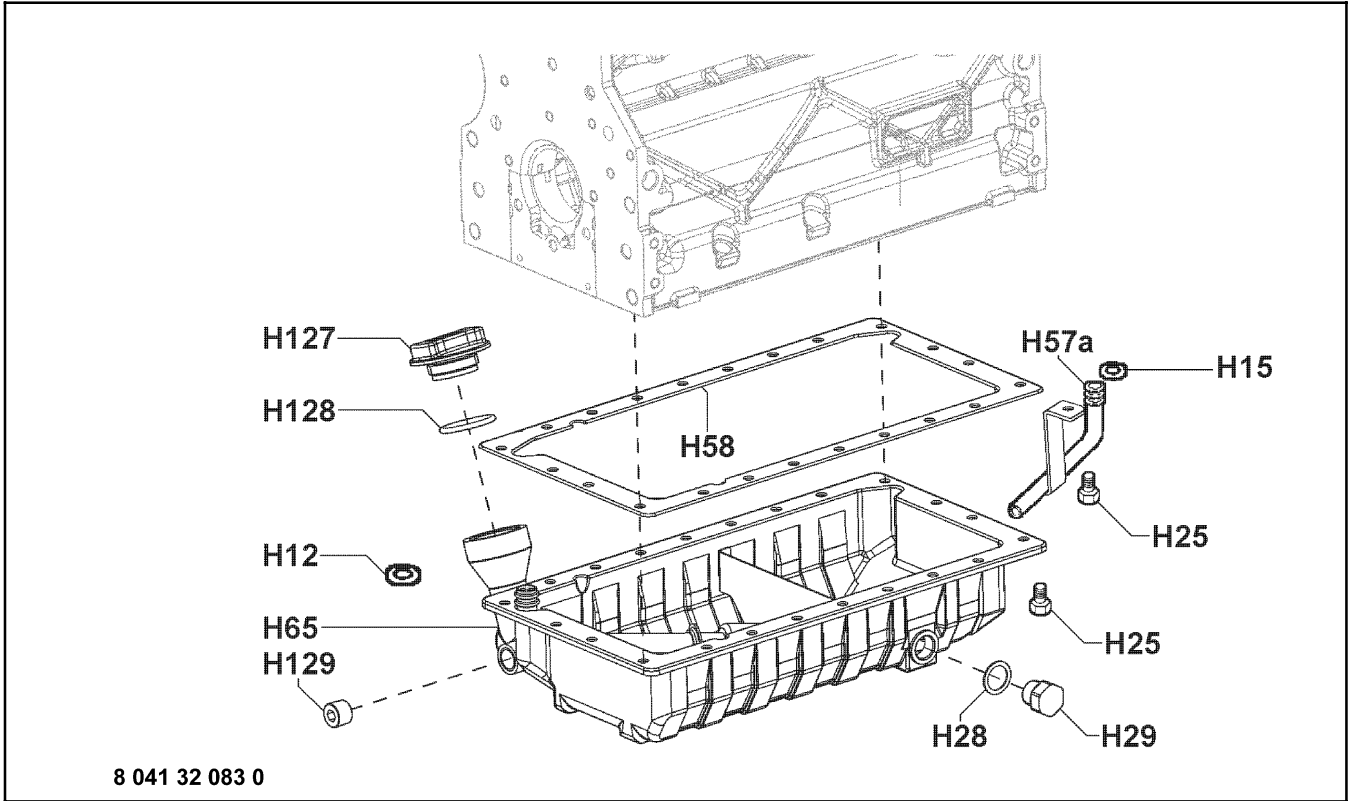
Variation 082



Item	Part No.	Description	Qty.
H12	ED0012000300-S	Rubber Oil Seal	1
H15	ED0012002740-S	Oil Seal, Diam. 8.00	1
H25	ED0017601300-S	Bolt, M6 x 12	19
H28	ED0012002670-S	O-Ring	1
H29	ED0090400170-S	Plug	1
H57a	ED0094852720-S	Discharging Oil Pipe	1
H58	ED0047755600-S	Gasket	1
H65	ED0066458560-S	Oil Pan	1
H127	ED0090321240-S	Oil Charging Plug	1
H128	ED0012000150-S	O-Ring	1
H129	ED0089800310-S	Conical Plug, 3/8"	1

Group 41: Oil Pan

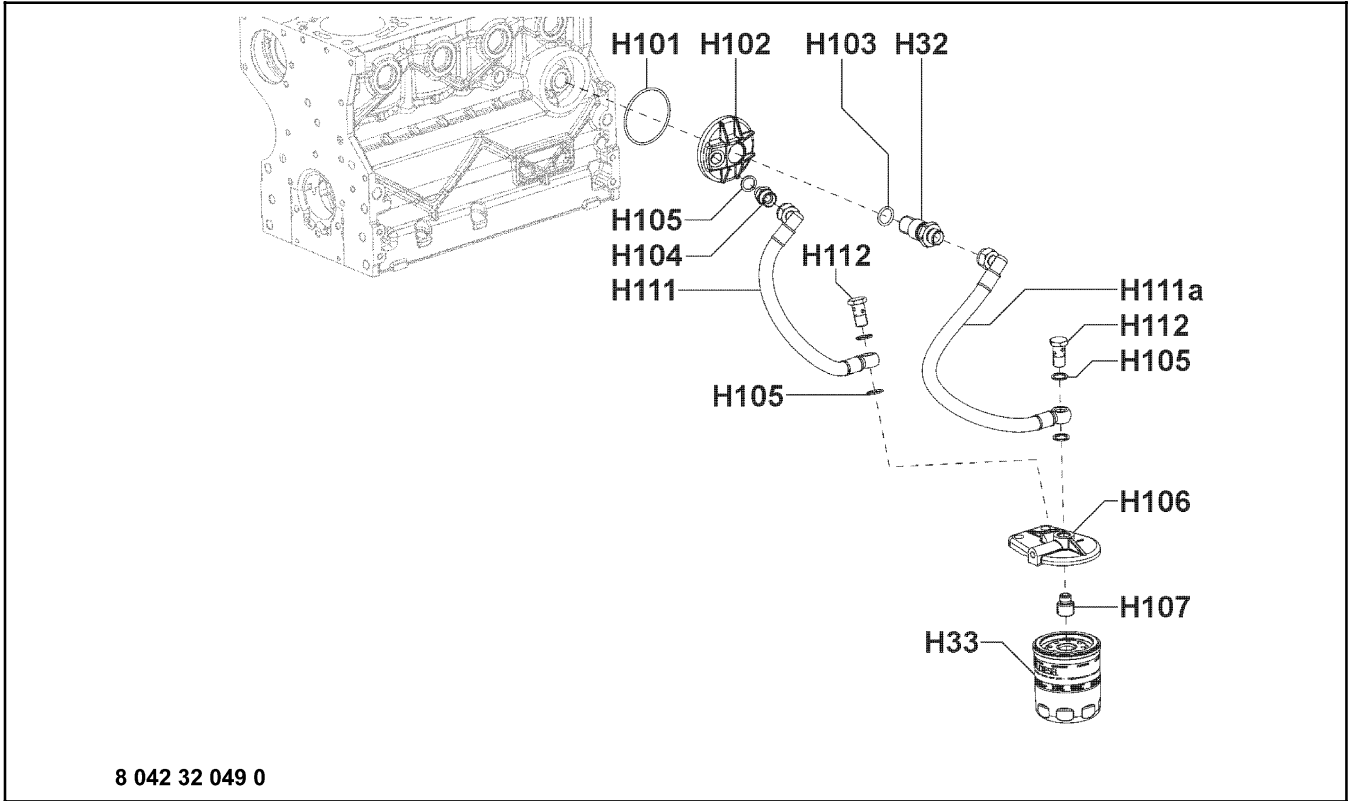
Variation 083



Item	Part No.	Description	Qty.
H12	ED0012000300-S	Rubber Oil Seal	1
H15	ED0012002740-S	Oil Seal, Diam. 8.00	1
H25	ED0017601300-S	Bolt, M6 x 12	23
H28	ED0012002670-S	O-Ring	1
H29	ED0090400170-S	Plug	1
H57a	ED0094852700-S	Discharging Oil Pipe	1
H58	ED0047755610-S	Gasket	1
H65	ED0066458570-S	Oil Pan	1
H127	ED0090321240-S	Oil Charging Plug	1
H128	ED0012000150-S	O-Ring	1
H129	ED0089800310-S	Conical Plug, 3/8"	1

Group 42: Oil Filtering

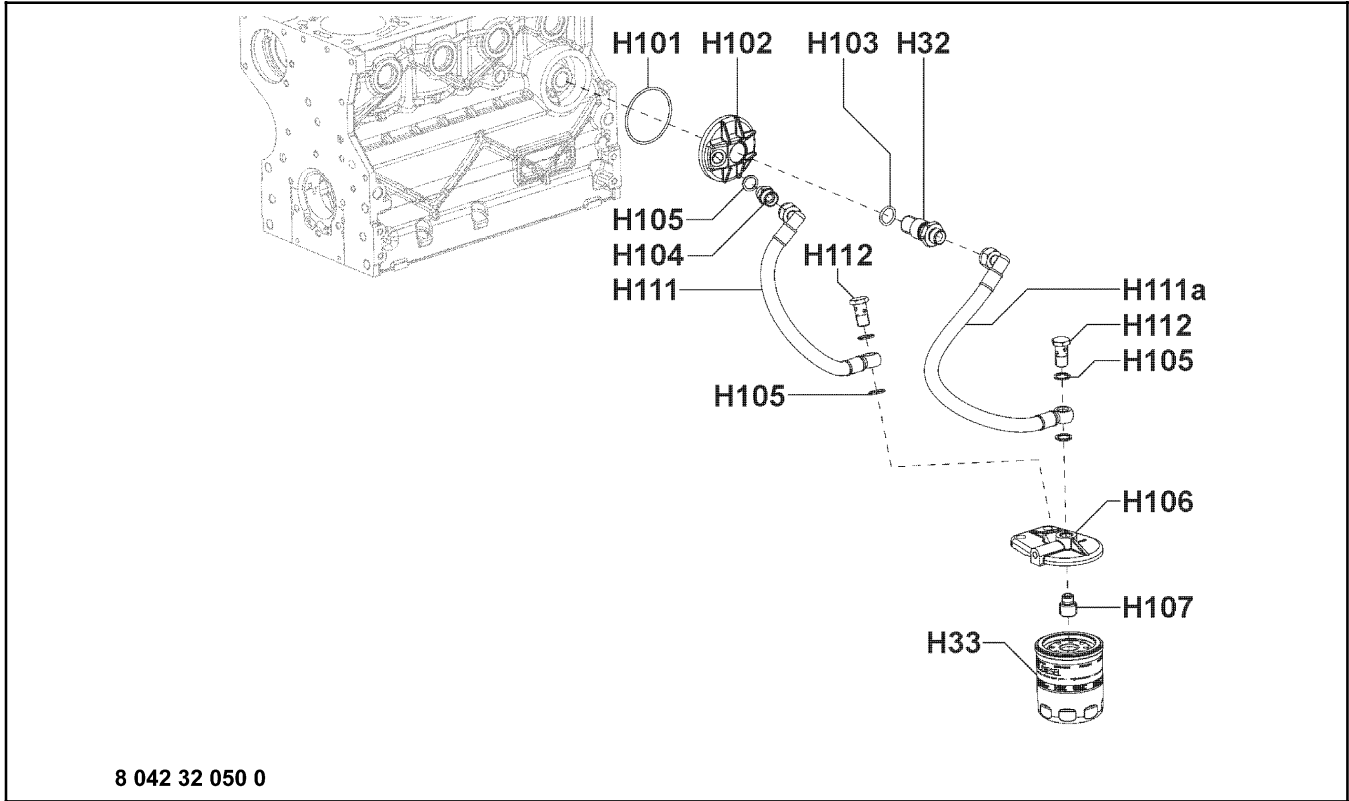
Variation 049



Item	Part No.	Description	Qty.
H32	ED0072650360-S	Union	1
H33	ED0021752850-S	Oil Filter Cartridge	1
H101	ED0012020360-S	O-Ring	1
H102	ED0038551350-S	Oil Flange	1
H103	ED0012000420-S	Rubber Oil Seal	1
H104	ED0059530480-S	Nipple	2
H105	ED0046700610-S	Copper Gasket, D. 14	5
H106	ED0048963200-S	Oil Flange	1
H107	ED0073302780-S	Head Filter Oil Conn.	1
H111	ED0094853850-S	Oil Hose (1070mm)	1
H111a	ED0094853850-S	Oil Hose (1070mm)	1
H112	ED0019011550-S	Union Bolt, M14	2

Group 42: Oil Filtering

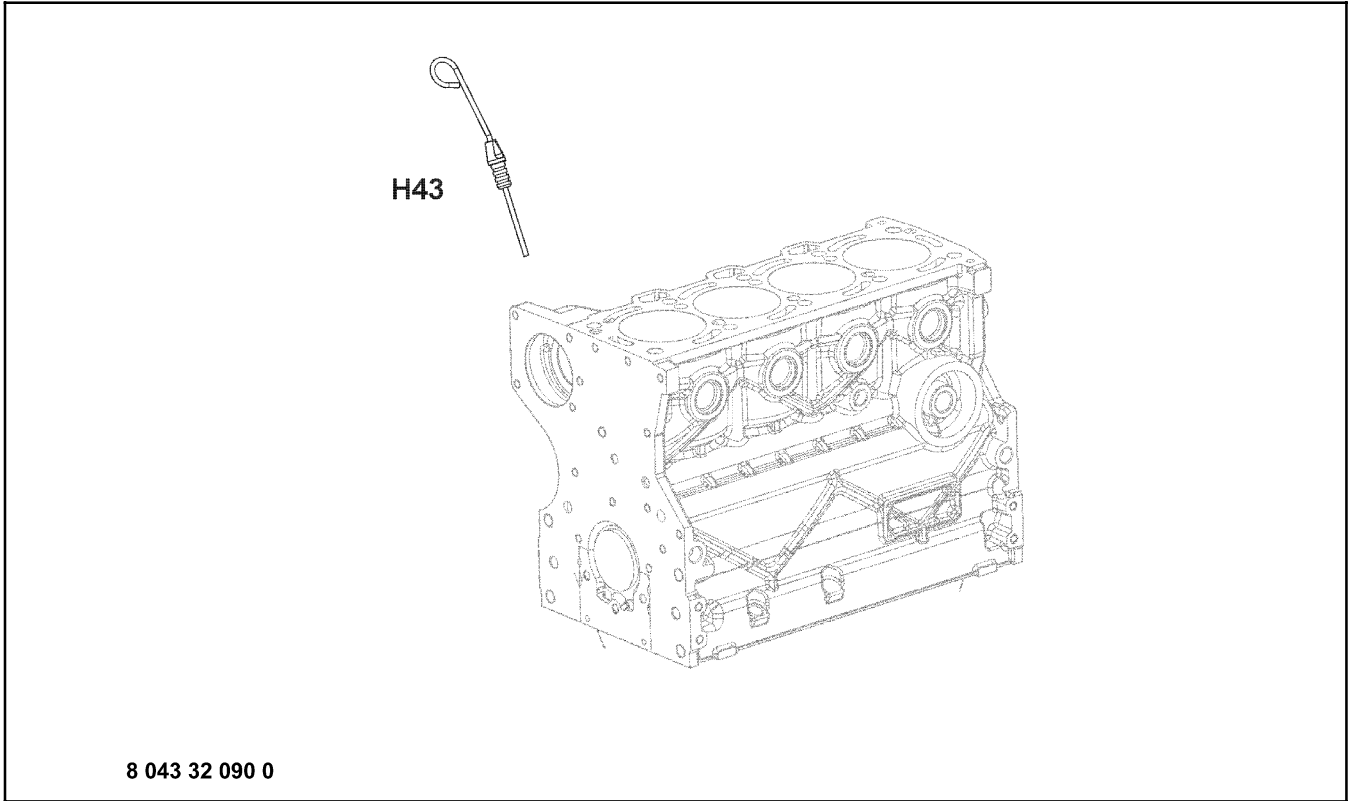
Variation 050



Item	Part No.	Description	Qty.
H32	ED0072650360-S	Union	1
H33	ED0021752850-S	Oil Filter Cartridge	1
H101	ED0012020360-S	O-Ring	1
H102	ED0038551350-S	Oil Flange	1
H103	ED0012000420-S	Rubber Oil Seal	1
H104	ED0059530480-S	Nipple	2
H105	ED0046700610-S	Copper Gasket, D. 14	5
H106	ED0048963200-S	Oil Flange	1
H107	ED0073302780-S	Head Filter Oil Conn.	1
H111	ED0094853840-S	Oil Hose (1220mm)	1
H111a	ED0094853840-S	Oil Hose (1220mm)	1
H112	ED0019011550-S	Union Bolt, M14	2

Group 43: Oil Dipstick

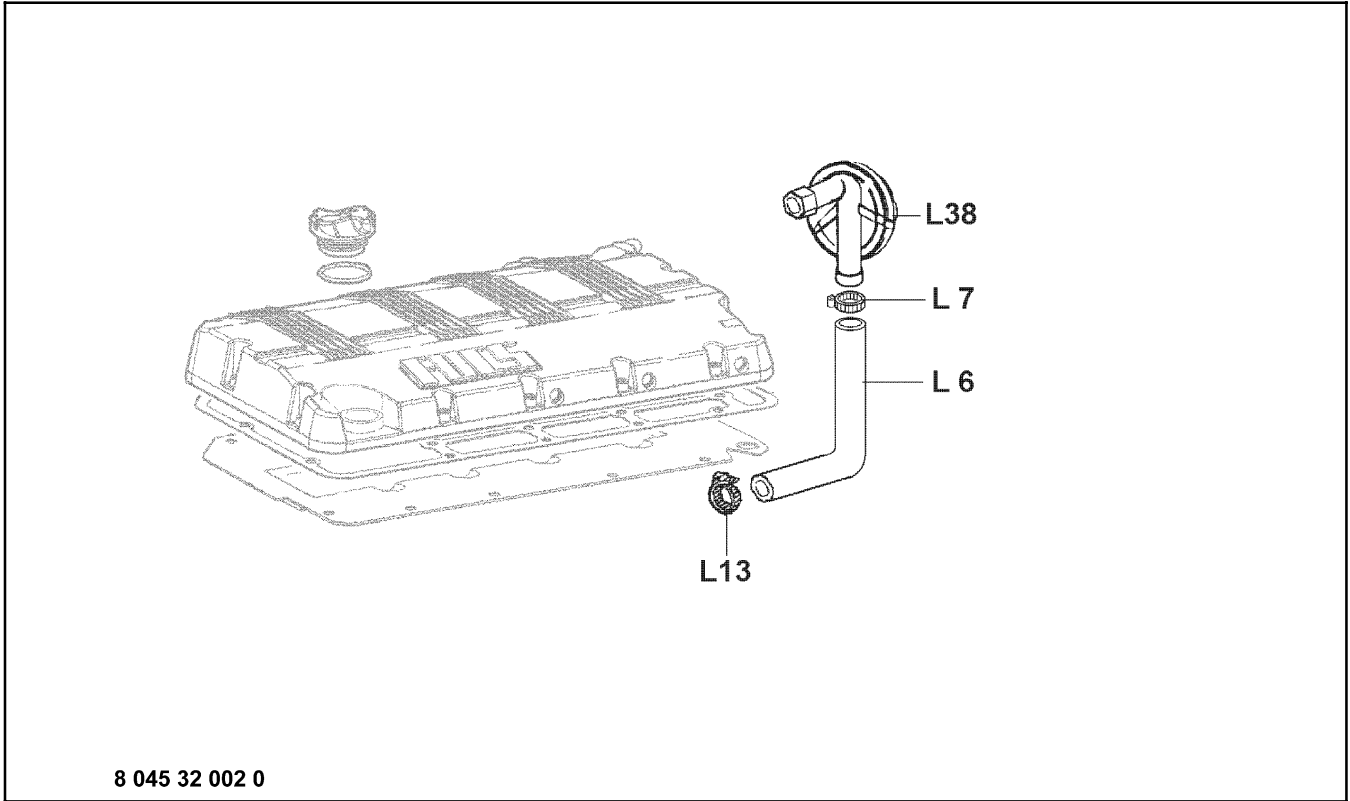
Variation 090



Item	Part No.	Description	Qty.
H43	ED0014005490-S	Oil Dipstick	1

Group 45: Breather System

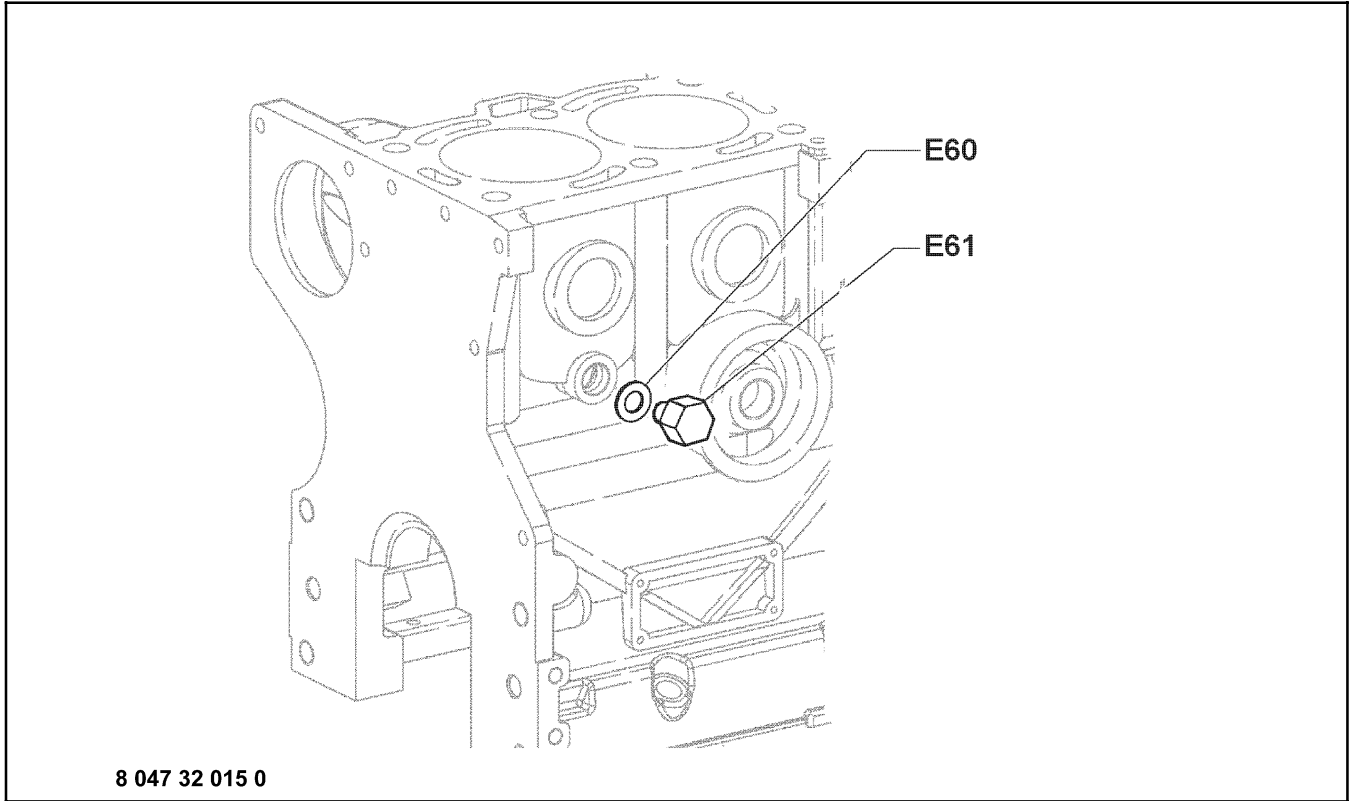
Variation 002



Item	Part No.	Description	Qty.
L6	ED0094000980-S	Drain Pipe	1
L7	ED0036301470-S	Clamp, Diam.12-22	1
L13	ED0036301470-S	Clamp, Diam.12-22	1
L38	ED0096800340-S	Suction Valve	1

Group 47: Plug For Oil Cooler Fitting

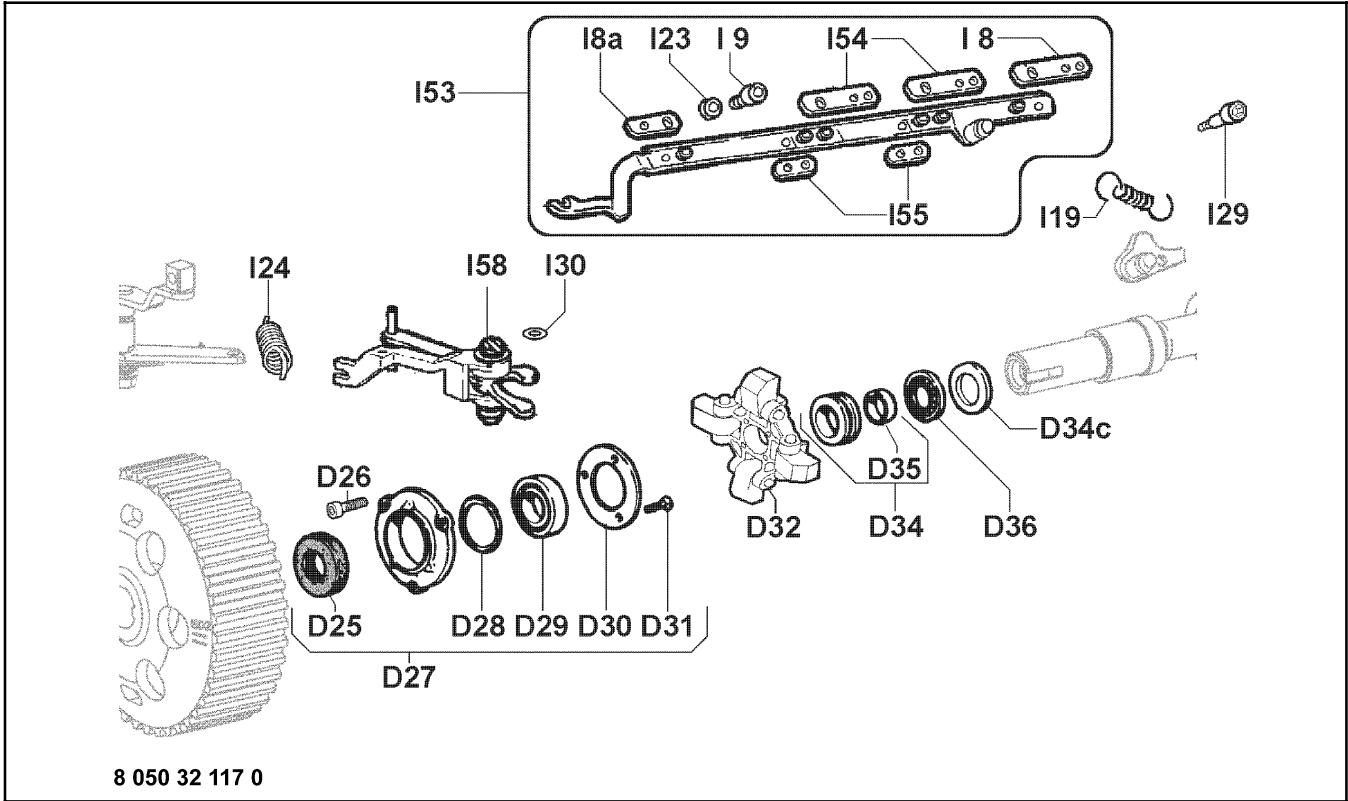
Variation 015



Item	Part No.	Description	Qty.
E60	ED0046700190-S	Copper Gasket, D.16	1
E61	ED0090400310-S	Plug, M16 x 15	1

Group 50: Speed Governor - Injection Pump Drive Rod

Variation 117

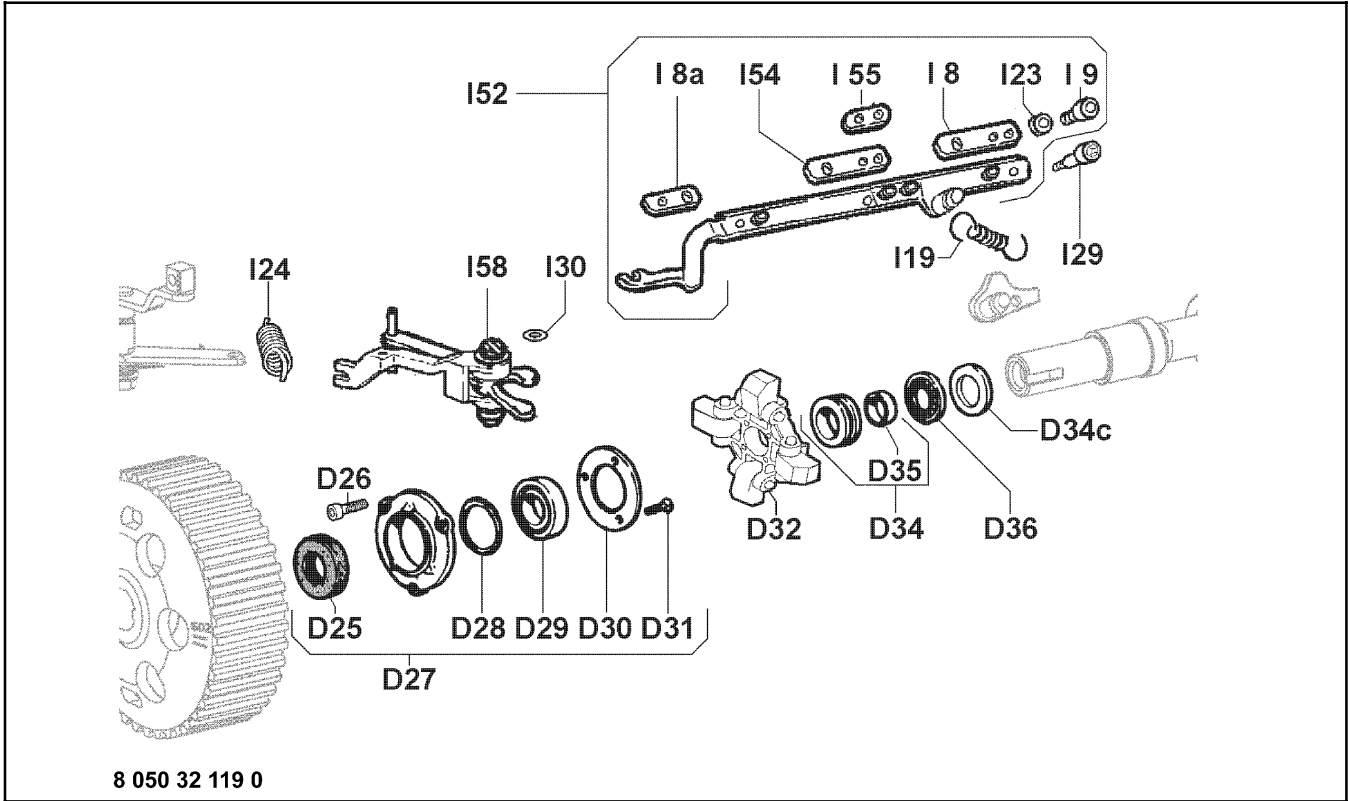


8 050 32 117 0

Item	Part No.	Description	Qty.
D25	ED0012133030-S	Seal Ring, 35 x 52 x 7	1
D26	ED0097300100-S	Screw, M6 x 16	3
D27	ED0026902940-S	Governor Cover	1
D28	ED0012020370-S	Rubber Oil Seal	1
D29	ED0030010660-S	Ball Bearing	1
D30	ED0062751660-S	Plate	1
D31	ED0098000610-S	Screw, M6 x 16	3
D32	ED0088050480-S	Weight Support	1
D34	ED0054012500-S	Contro Sleeve	1
D34c	ED0073520630-S	Thrust Washer	1
D35	ED0015850850-S	Sleeve	1
D36	ED0031101650-S	Thrust Roller	1
I8	ED0063200730-S	Plate	1
I8a	-	See Item I53	-
I9	ED0097320960-S	Screw, M3 x 6	6
I19	ED0056552570-S	Extra-Fuel Spring	1
I23	ED0076260370-S	Washer	2
I24	ED0056554070-S	Governor Spring	1
I29	ED0098652020-S	Screw, M3 x 10	4
I30	ED0012000370-S	Rubber Oil Seal	1
I53	ED0013801020-S	Injection Pump Rack	1
I54	ED0063200730-S	Plate	2
I55	-	See Item I53	-
I58	ED0048963300-S	Governor Assy.	1

Group 50: Speed Governor - Injection Pump Drive Rod

Variation 119

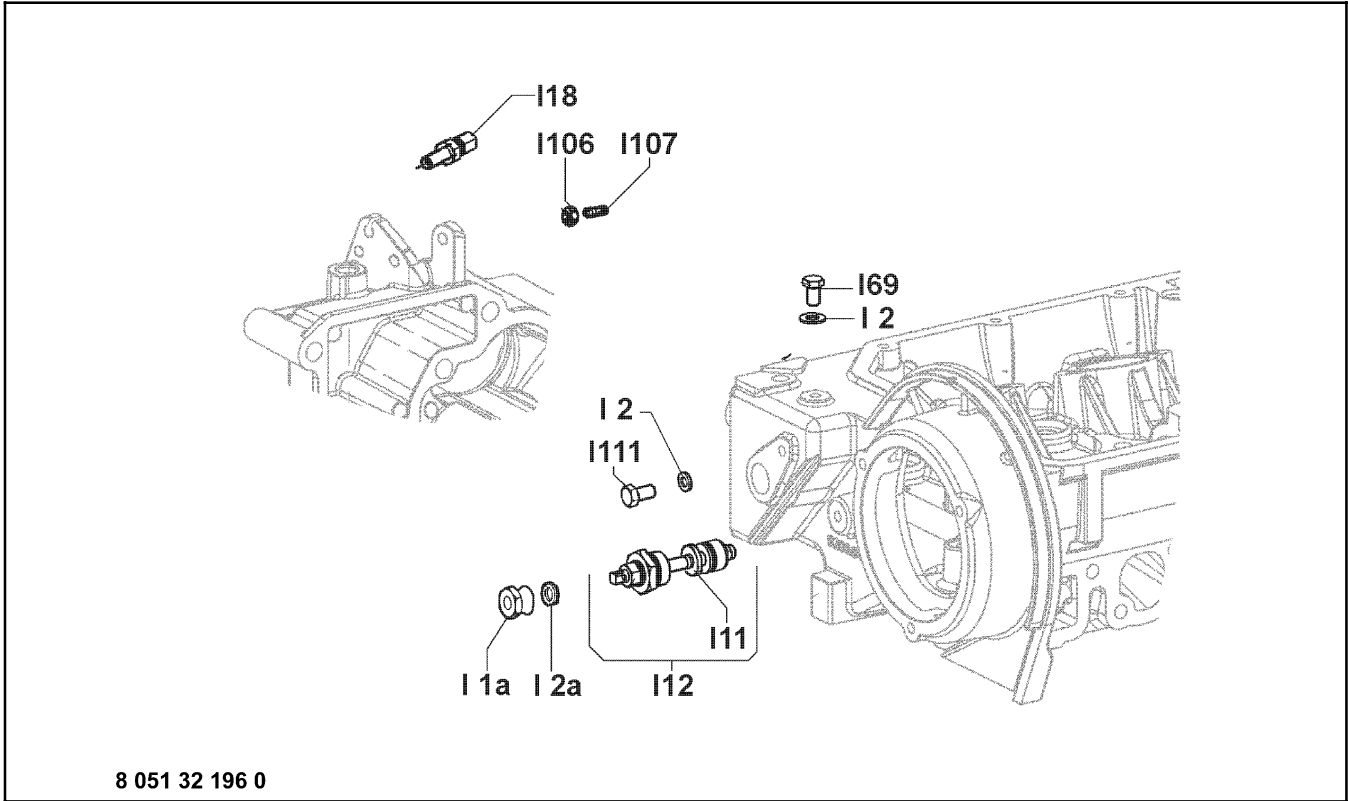


8 050 32 119 0

Item	Part No.	Description	Qty.
D25	ED0012133030-S	Seal Ring, 35 x 52 x 7	1
D26	ED0097300100-S	Screw, M6 x 16	3
D27	ED0026902940-S	Governor Cover	1
D28	ED0012020370-S	Rubber Oil Seal	1
D29	ED0030010660-S	Ball Bearing	1
D30	ED0062751660-S	Plate	1
D31	ED0098000610-S	Screw, M6 x 16	3
D32	ED0088050480-S	Weight Support	1
D34	ED0054012500-S	Contro Sleeve	1
D34c	ED0073520630-S	Thrust Washer	1
D35	ED0015850850-S	Sleeve	1
D36	ED0031101650-S	Thrust Roller	1
I 8	ED0063200730-S	Plate	1
I 8a	-	See Item I52	-
I 9	ED0097320960-S	Screw, M3 x 6	4
I 19	ED0056552570-S	Extra-Fuel Spring	1
I 23	ED0076260370-S	Washer	2
I 24	ED0056554070-S	Governor Spring	1
I 29	ED0098652020-S	Screw, M3 x 10	3
I 30	ED0012000370-S	Rubber Oil Seal	1
I 52	ED0013801040-S	Injection Pump Rack	1
I 54	ED0063200730-S	Plate	1
I 55	-	See Item I52	-
I 58	ED0048963300-S	Governor Assy.	1

Group 51: Accelerator Control - Extra Fuel Device

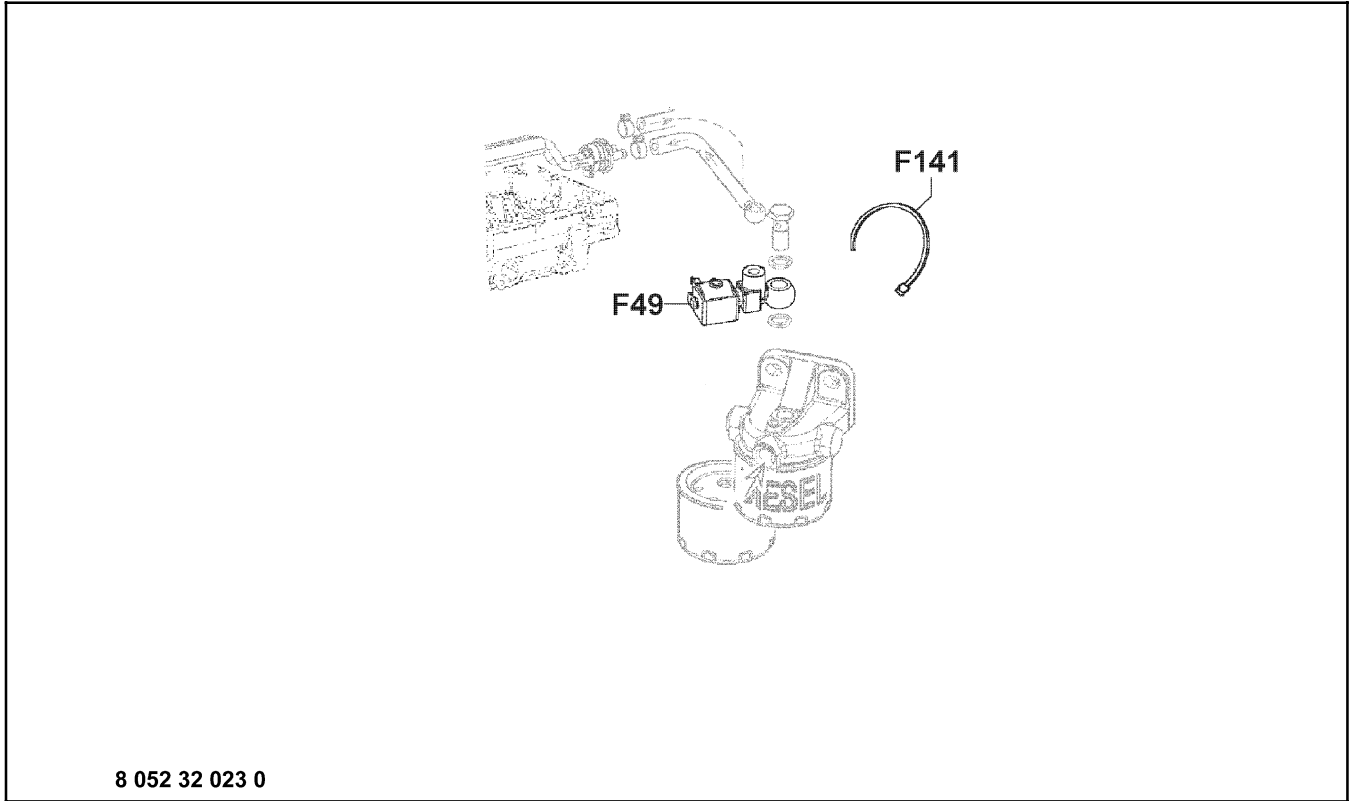
Variation 196



Item	Part No.	Description	Qty.
I1a	ED0033002730-S	Nut	1
I2	ED0046700620-S	Copper Gasket, D. 6.2 x 10 x 1.5	2
I2a	ED0076701290-S	Washer	1
I11	ED0044800460-S	Gasket, 16 x 20	1
I12	ED0085760860-S	Extra Fuel Device	1
I18	ED0091801910-S	Wire End	1
I69	ED0017600010-S	Bolt, M6 x 1 x 10	1
I106	ED0033002370-S	Nut (EPA Type)	1
I107	ED0097651220-S	Screw, M6 x 30	1
I111	ED0017600010-S	Bolt, M6 x 1 x 10	1

Group 52: Control Stop 12V Electrovalve

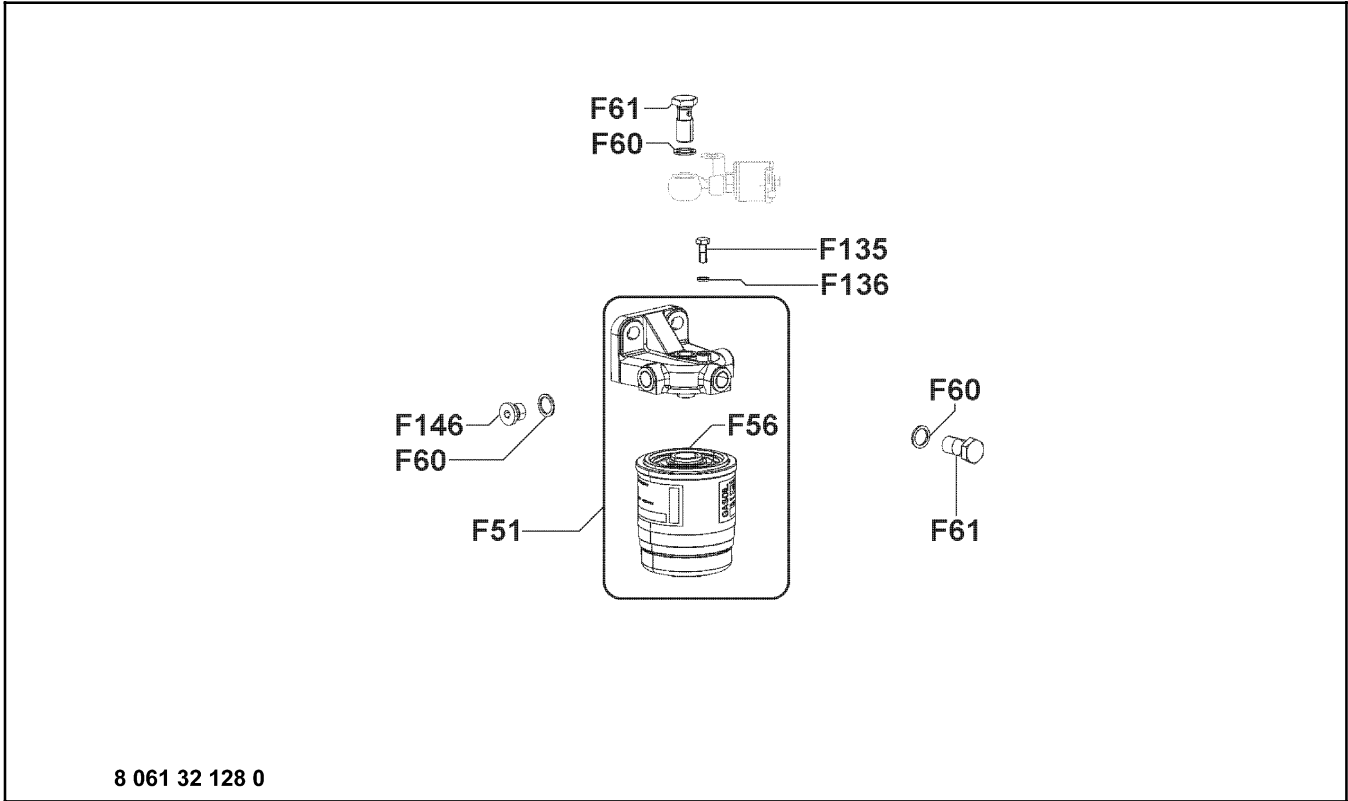
Variation 023



Item	Part No.	Description	Qty.
F49	ED0035872090-S	12V Electro-Valve	1
F141	ED0024710060-S	Collar	1

Group 61: Fuel Filter

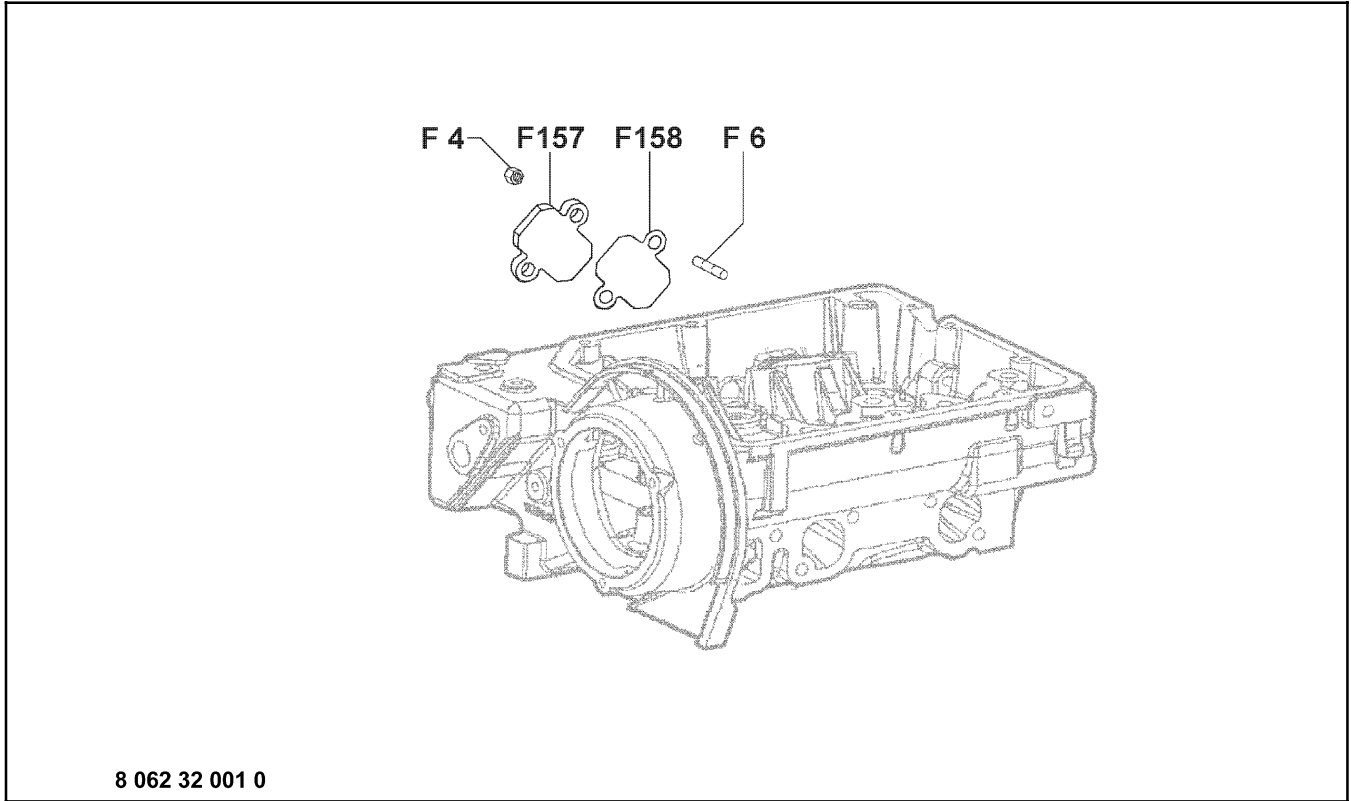
Variation 128



Item	Part No.	Description	Qty.
F51	ED0037302020-S	Fuel Filter	1
F56	ED0021752880-S	Fuel Filter Cartridge	1
F60	ED0046700610-S	Copper Gasket, D. 14	5
F61	ED0019010320-S	Union Bolt, M14	2
F135	ED0090800370-S	Union Bolt, M6	1
F136	ED0046700620-S	Copper Gasket, D 6	2
F146	ED0090400120-S	Plug, M14	1

Group 62: Cover For Fuel Feed Pump Fitting

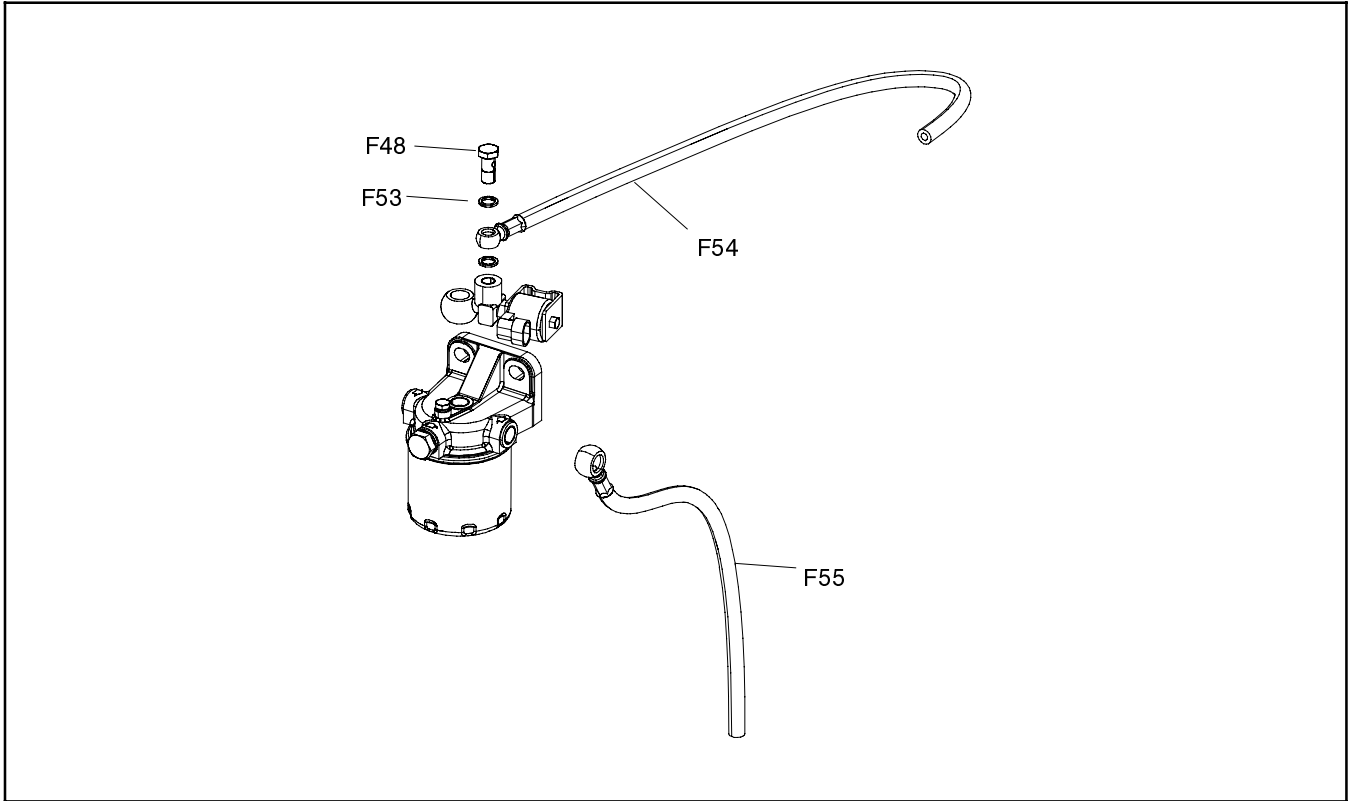
Variation 001



Item	Part No.	Description	Qty.
F 4	ED0032401640-S	Nut, M8	2
F 6	ED0067800080-S	Stud, M8 x 20	2
F 157	ED0038000370-S	Flange	1
F 158	ED0044000750-S	Gasket	1

Group 64: Fuel Hoses

Variation 157



Variation 157a

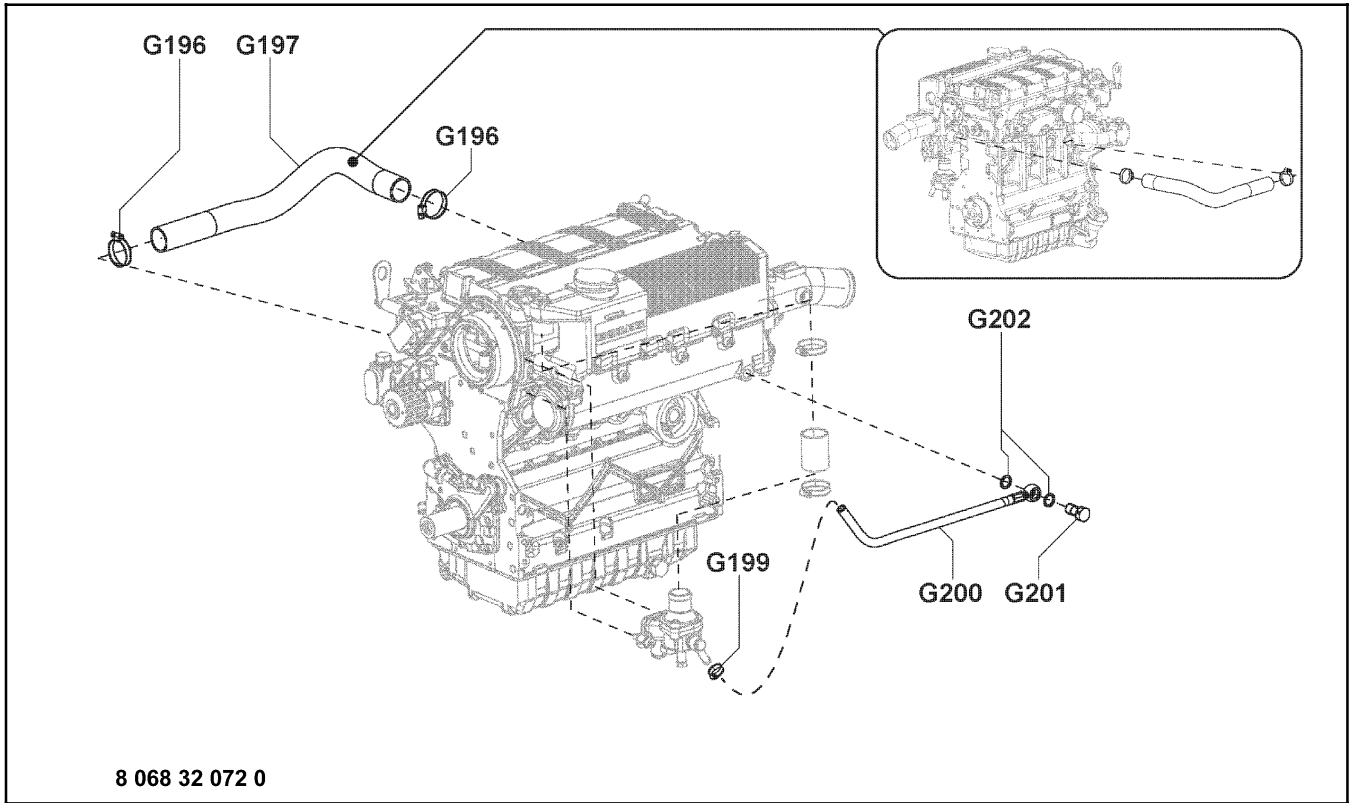
Item	Part No.	Description	Qty.
F48	ED0019011930-S	Union, M10	1
F53	ED0046700590-S	Copper Gasket, D.10	2
F54	ED0093763980-S	Delivery Pipe, 545mm	1
F55	ED0093763970-S	Fuel Pipe 440mm	1
F134a	ED0036302170-S	Clamp, D.11-13 (not shown)	1

Variation 157b

Item	Part No.	Description	Qty.
F48	ED0019011930-S	Union, M10	1
F53	ED0046700590-S	Copper Gasket, D.10	2
F54	ED0093763990-S	Delivery Pipe, 670mm	1
F55	ED0093763970-S	Fuel Pipe 440mm	1
F134a	ED0036302170-S	Clamp, D.11-13 (not shown)	1

Group 68: Water Hoses

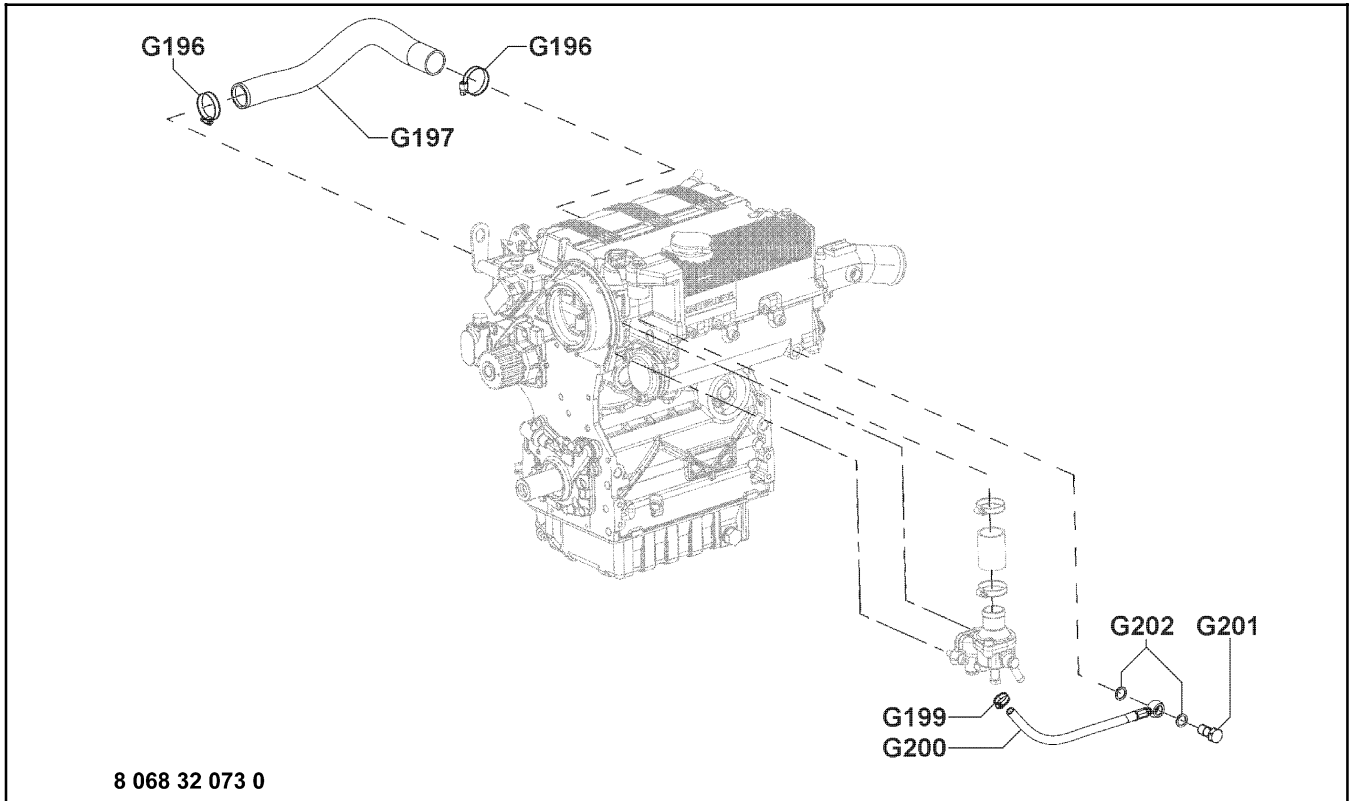
Variation 072



Item	Part No.	Description	Qty.
G196	ED0036301280-S	Clamp	2
G197	ED0093400210-S	Tube	1
G199	ED0036301290-S	Clamp	1
G200	ED0093051010-S	Recycling Tube	1
G201	ED0019011870-S	Union, M14	1
G202	ED0046700610-S	Copper Gasket, D. 14	2

Group 68: Water Hoses

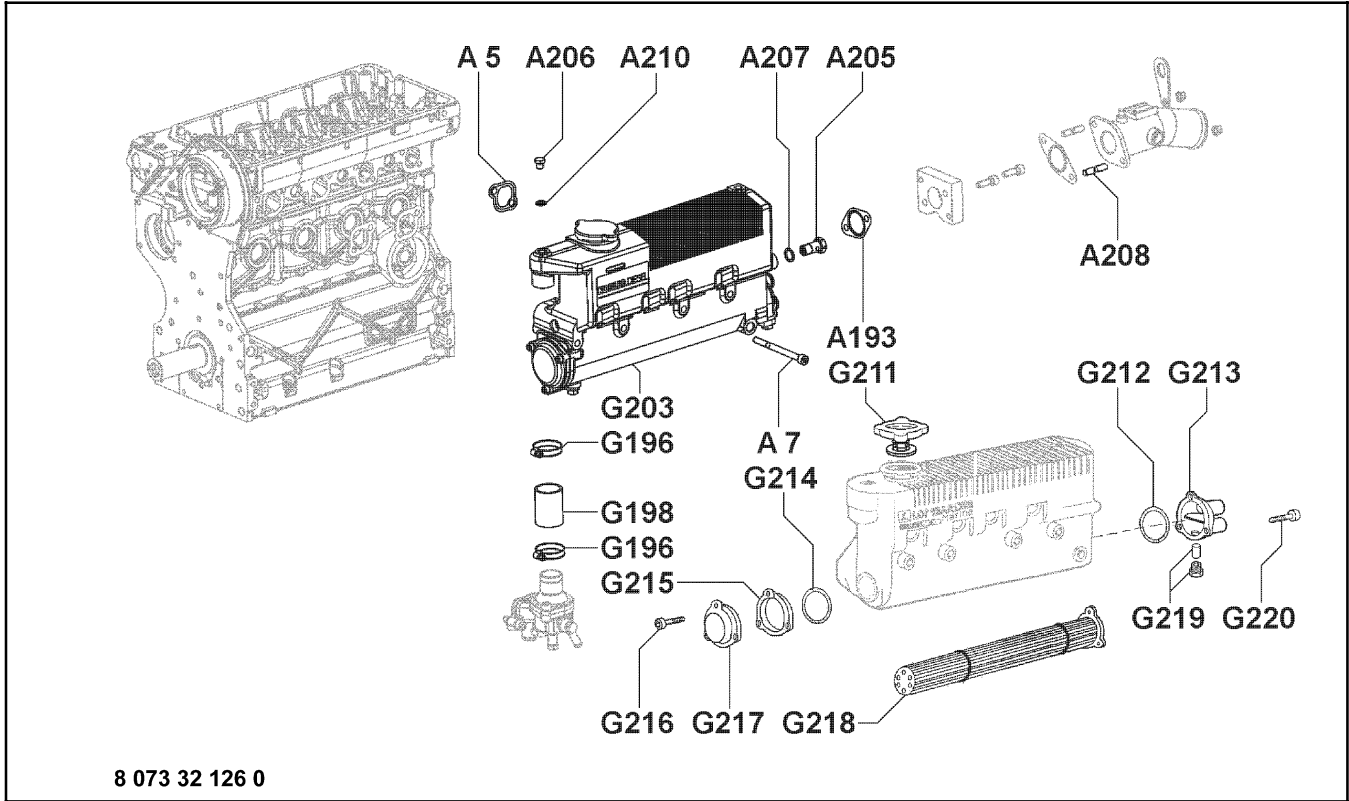
Variation 073



Item	Part No.	Description	Qty.
G196	ED0036301280-S	Clamp	2
G197	ED0093400170-S	Tube	1
G199	ED0036301290-S	Clamp	1
G200	ED0093051000-S	Recycling Tube	1
G201	ED0019011190-S	Union, M14	1
G202	ED0046700610-S	Copper Gasket, D. 14	2

Group 73: Water Cooler

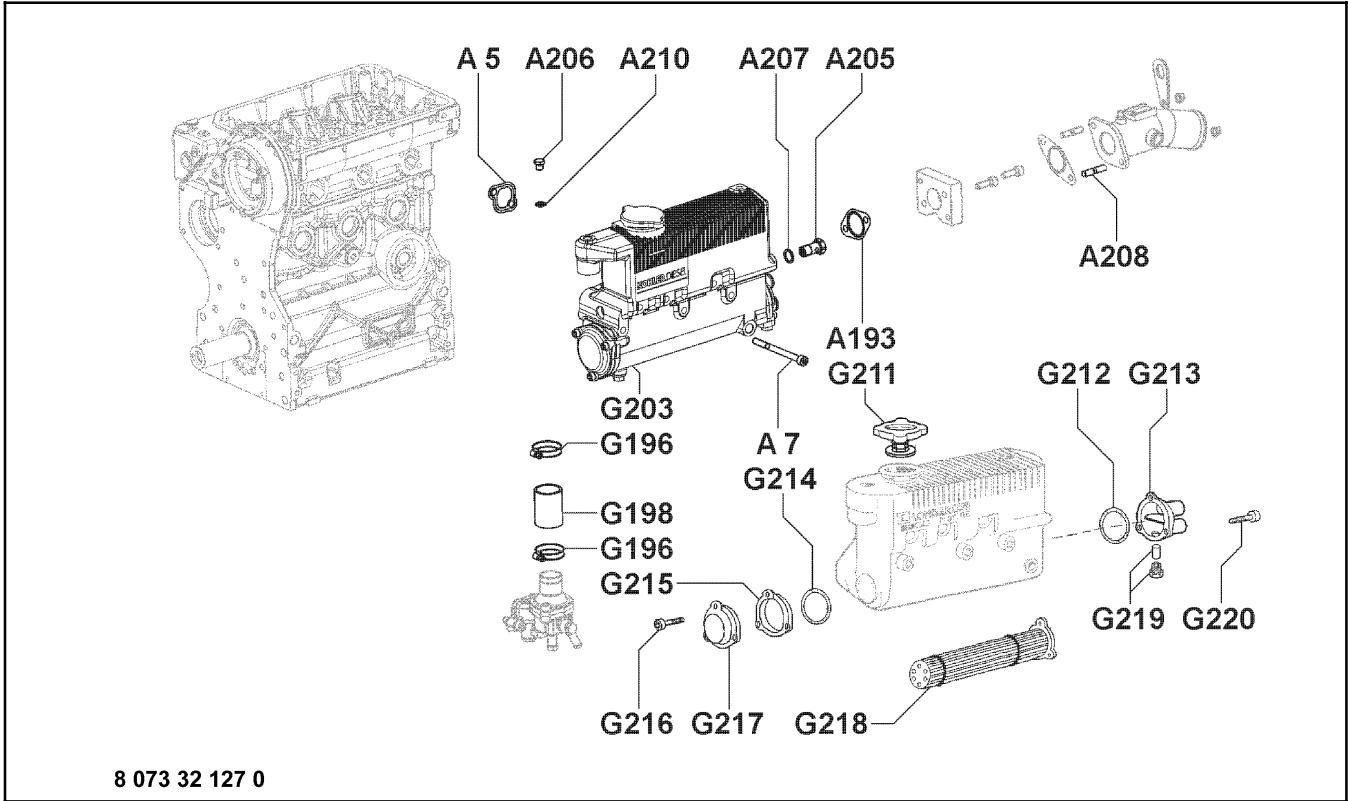
Variation 126



Item	Part No.	Description	Qty.
A5	ED0044200700-S	Gasket	4
A7	ED0097302210-S	Screw, M8 x 100	8
A193	ED0045001020-S	Gasket	1
A205	ED0090400370-S	Plug, M14	1
A206	ED0090802200-S	Plug, 1/8"	2
A207	ED0046700610-S	Copper Gasket, D. 14	1
A208	ED0067801420-S	Stud, M8 x 20	2
A210	ED0046700590-S	Copper Gasket, D.10	2
G196	ED0036301280-S	Clamp	2
G198	ED0096020720-S	Tube	1
G203	ED0073504050-S	Radiator Assy.	1
G211	ED0090001840-S	Radiator Cap	1
G212	ED0012002650-S	O-Ring	1
G213	ED0026550300-S	Front Cover	1
G214	ED0012002650-S	O-Ring	1
G215	ED0035275700-S	Spacer	1
G216	ED0097302110-S	Screw, M6 x 16	3
G217	ED0027504600-S	Rear Cover	1
G218	ED0093400350-S	Tube Nest	1
G219	ED0090802150-S	Plug (Zinc Anode)	1
G220	ED0097302110-S	Screw, M6 x 16	3

Group 73: Water Cooler

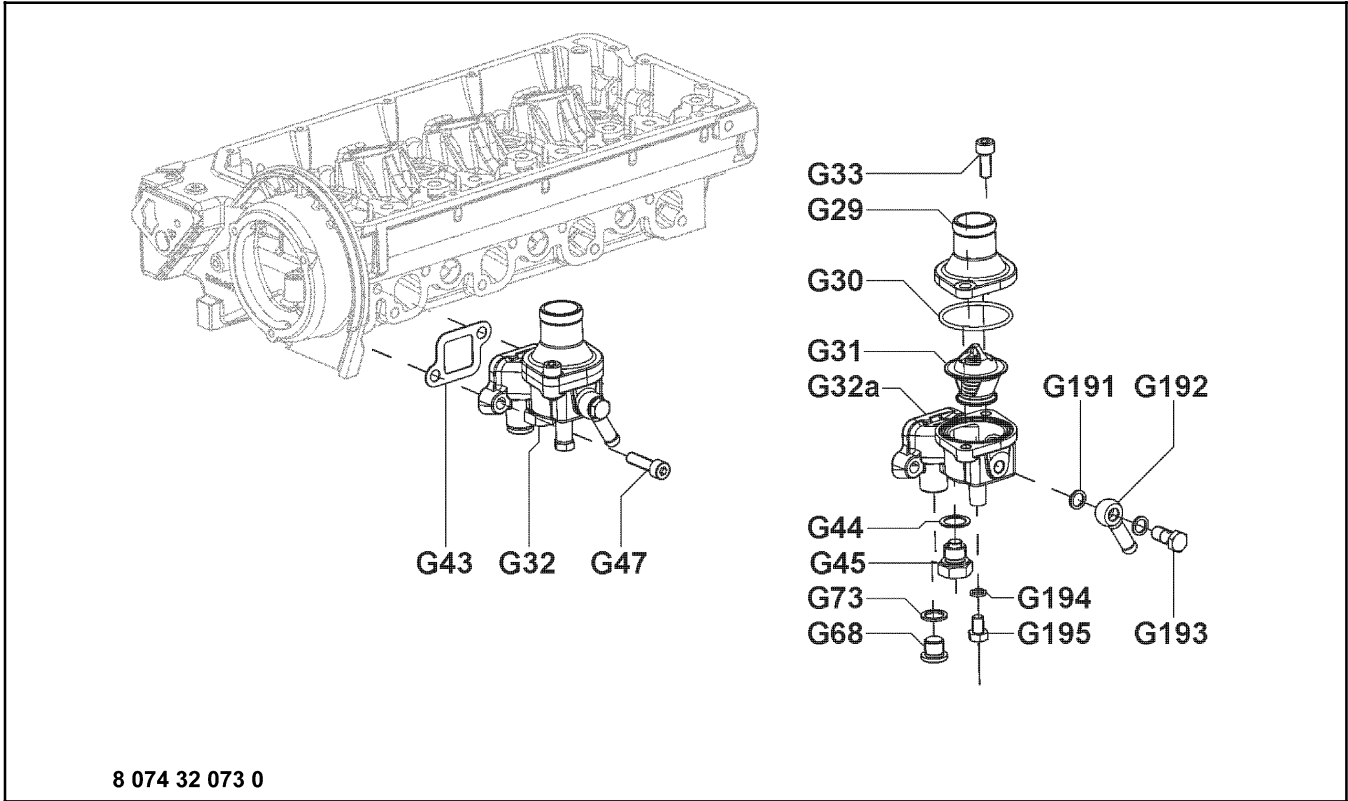
Variation 127



Item	Part No.	Description	Qty.
A5	ED0044200700-S	Gasket	4
A7	ED0097302210-S	Screw, M8 x 100	8
A193	ED0045001020-S	Gasket	1
A205	ED0090400370-S	Plug, M14	1
A206	ED0090802200-S	Plug, 1/8"	2
A207	ED0046700610-S	Copper Gasket, D. 14	1
A208	ED0067801420-S	Stud, M8 x 20	2
A210	ED0046700590-S	Copper Gasket, D.10	2
G196	ED0036301280-S	Clamp	2
G198	ED0096020720-S	Tube	1
G203	ED0073504070-S	Radiator Assy.	1
G211	ED0090001840-S	Radiator Cap	1
G212	ED0012002650-S	O-Ring	1
G213	ED0026550300-S	Front Cover	1
G214	ED0012002650-S	O-Ring	1
G215	ED0035275700-S	Spacer	1
G216	ED0097302110-S	Screw, M6 x 16	3
G217	ED0027504600-S	Rear Cover	1
G218	ED0093400340-S	Tube Nest	1
G219	ED0090802150-S	Plug (Zinc Anode)	1
G220	ED0097302110-S	Screw, M6 x 16	3

Group 74: Thermostat Assy. - Thermal Exp. Valve

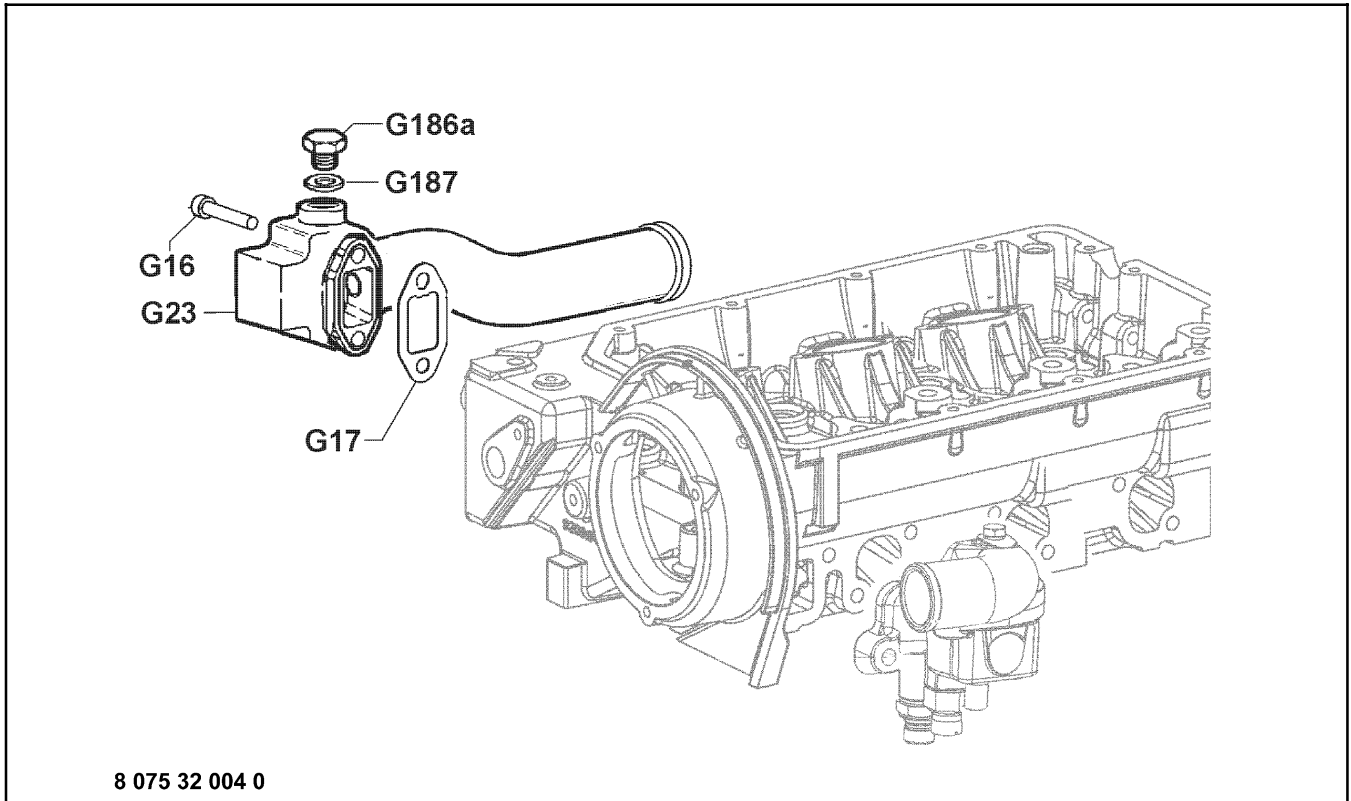
Variation 073



Item	Part No.	Description	Qty.
G29	ED0027502790-S	Thermostat Cover	1
G30	ED0012000910-S	O-Ring	1
G31	ED0091951240-S	Thermostat	1
G32	ED0048967270-S	Thermostat Assy.	1
G32a	ED0028712840-S	Thermostat	1
G33	ED0097320740-S	Screw, M8 x 20	2
G43	ED0044600370-S	Gasket	1
G44	ED0046700190-S	Copper Gasket, D.16	1
G45	ED0025012370-S	Stud, M16	1
G47	ED0097320640-S	Screw, M8 x 30	2
G68	ED0090400120-S	Plug, M14	1
G73	ED0046700610-S	Copper Gasket, D. 14	1
G191	ED0046700590-S	Copper Gasket, D.10	2
G192	ED0072702380-S	Union, D.10	1
G193	ED0019011930-S	Union Screw, M10	1
G194	ED0046700580-S	Copper Gasket, D.8	1
G195	ED0017700010-S	Screw, M8 x 12	1

Group 75: Water Inlet Flange

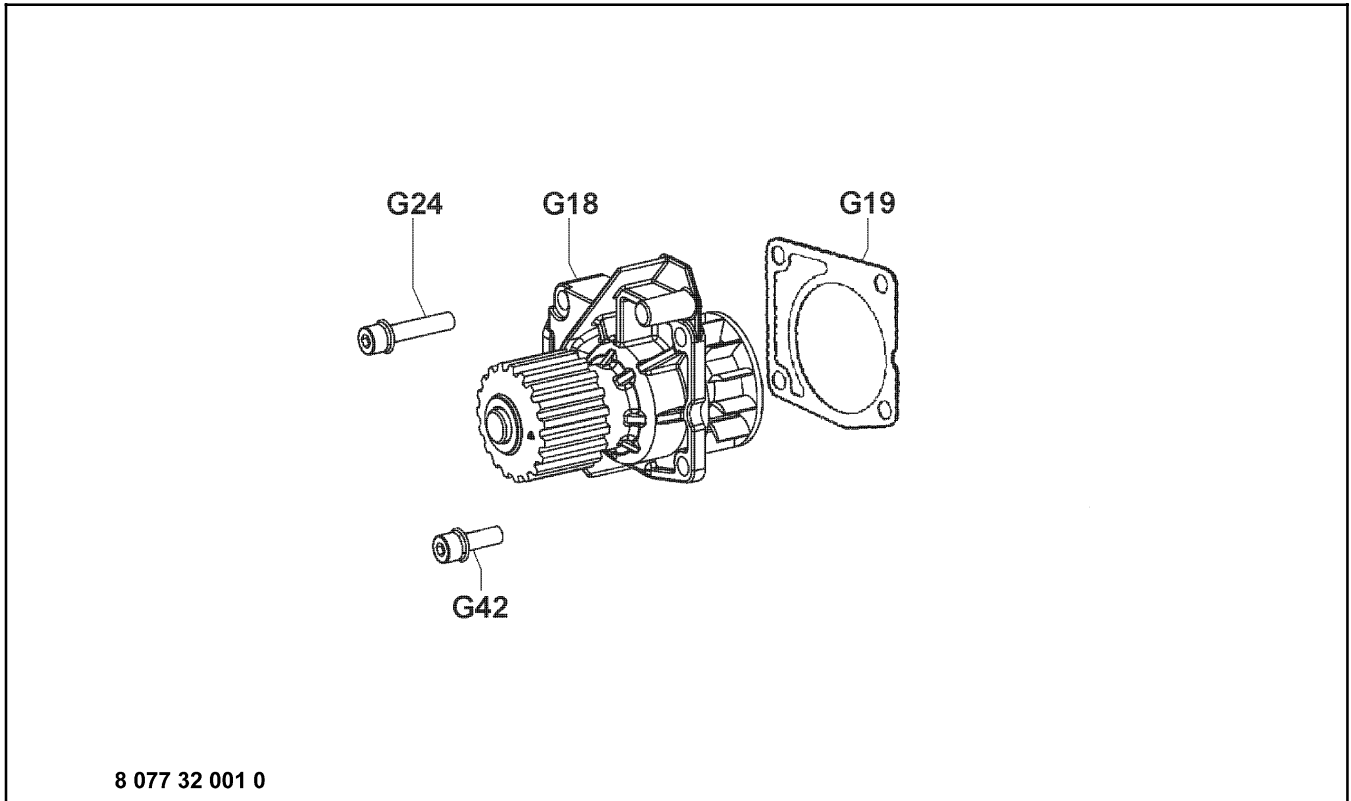
Variation 004



Item	Part No.	Description	Qty.
G16	ED0097300180-S	Screw, M6 x 45	2
G17	ED0045011580-S	Gasket	1
G23	ED0073302860-S	Flange	1
G186a	ED0089650050-S	Plug, M14	1
G187	ED0046700610-S	Copper Gasket, D. 14	1

Group 77: Water Pump

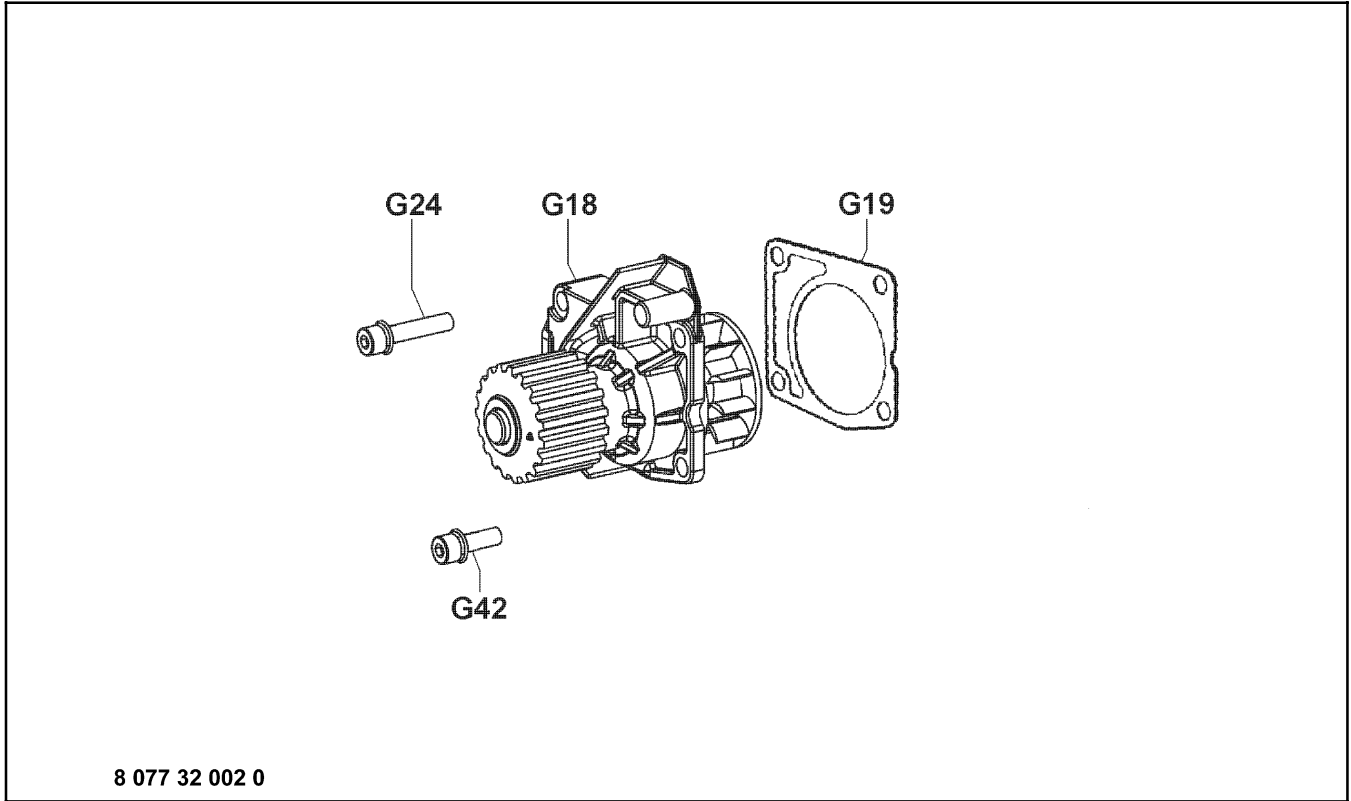
Variation 001



Item	Part No.	Description	Qty.
G18	ED0065844380-S	Water Pump Assy.	1
G19	ED0045802150-S	Pump Body Gasket	1
G24	ED0017701780-S	Screw, M8 x 1.25 x 35	2
G42	ED0017701600-S	Screw, M8 x 1.25 x 16	2

Group 77: Water Pump

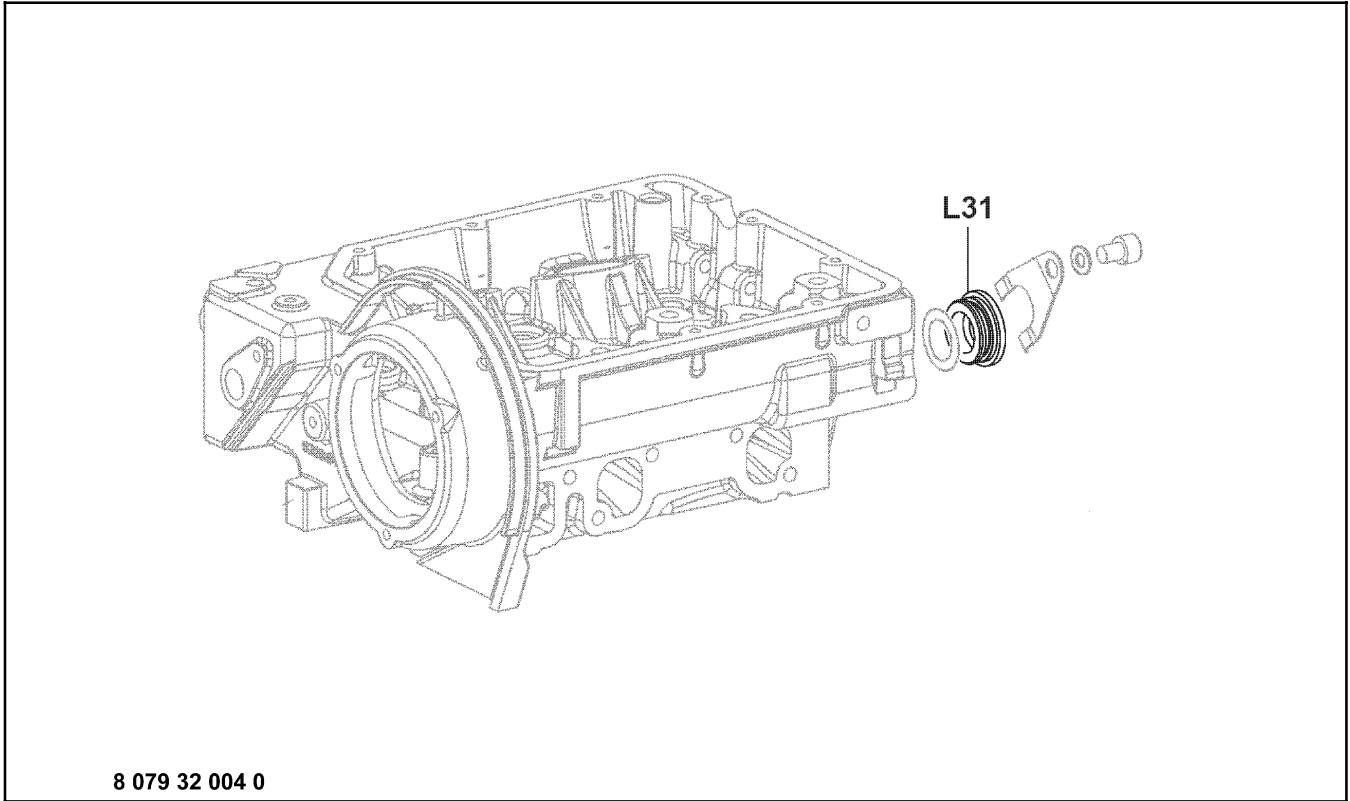
Variation 002



Item	Part No.	Description	Qty.
G18	ED0065844390-S	Water Pump Assy.	1
G19	ED0045802150-S	Pump Body Gasket	1
G24	ED0017701780-S	Screw, M8 x 1.25 x 35	2
G42	ED0017701600-S	Screw, M8 x 1.25 x 16	2

Group 79: Plug On Head For Heating Cab Fitting

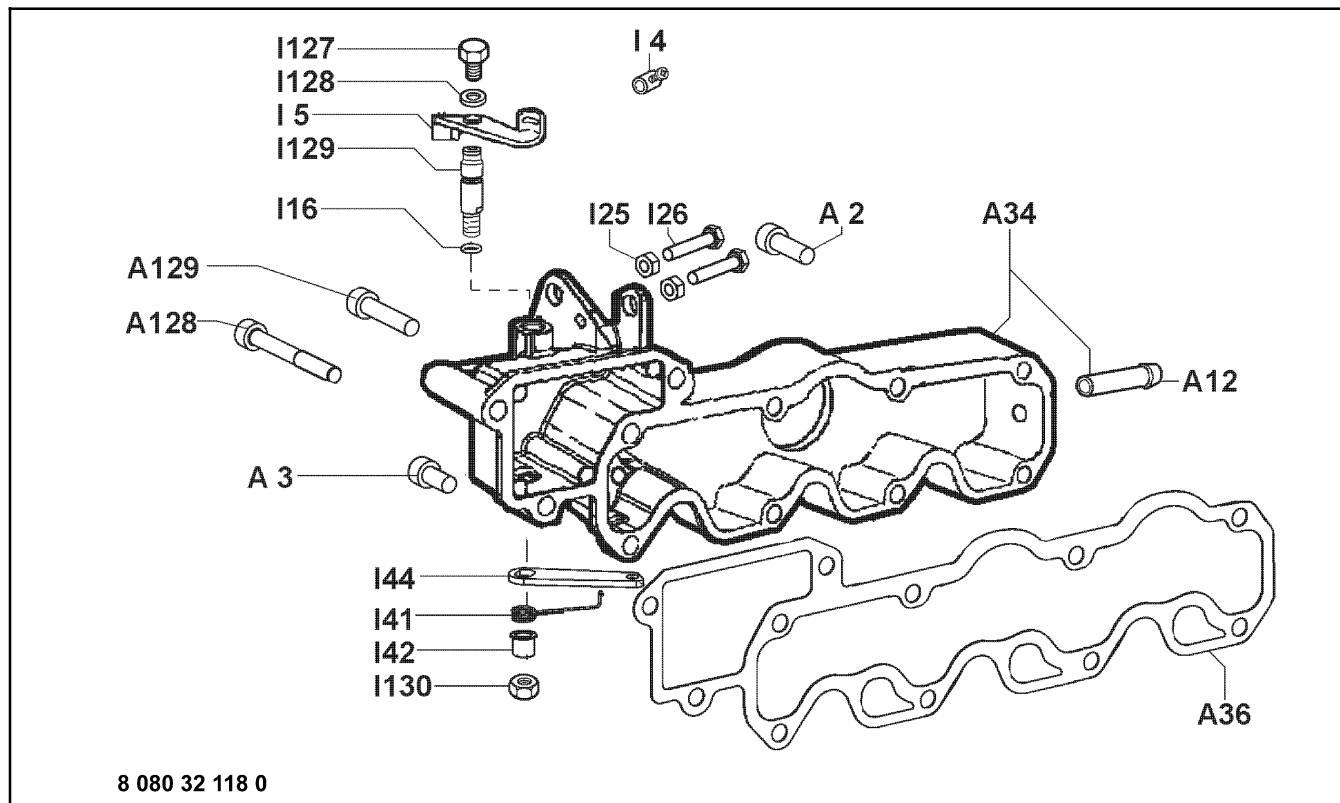
Variation 004



Item	Part No.	Description	Qty.
L31	ED0090650070-S	Plug	1

Group 80: Inlet Manifold

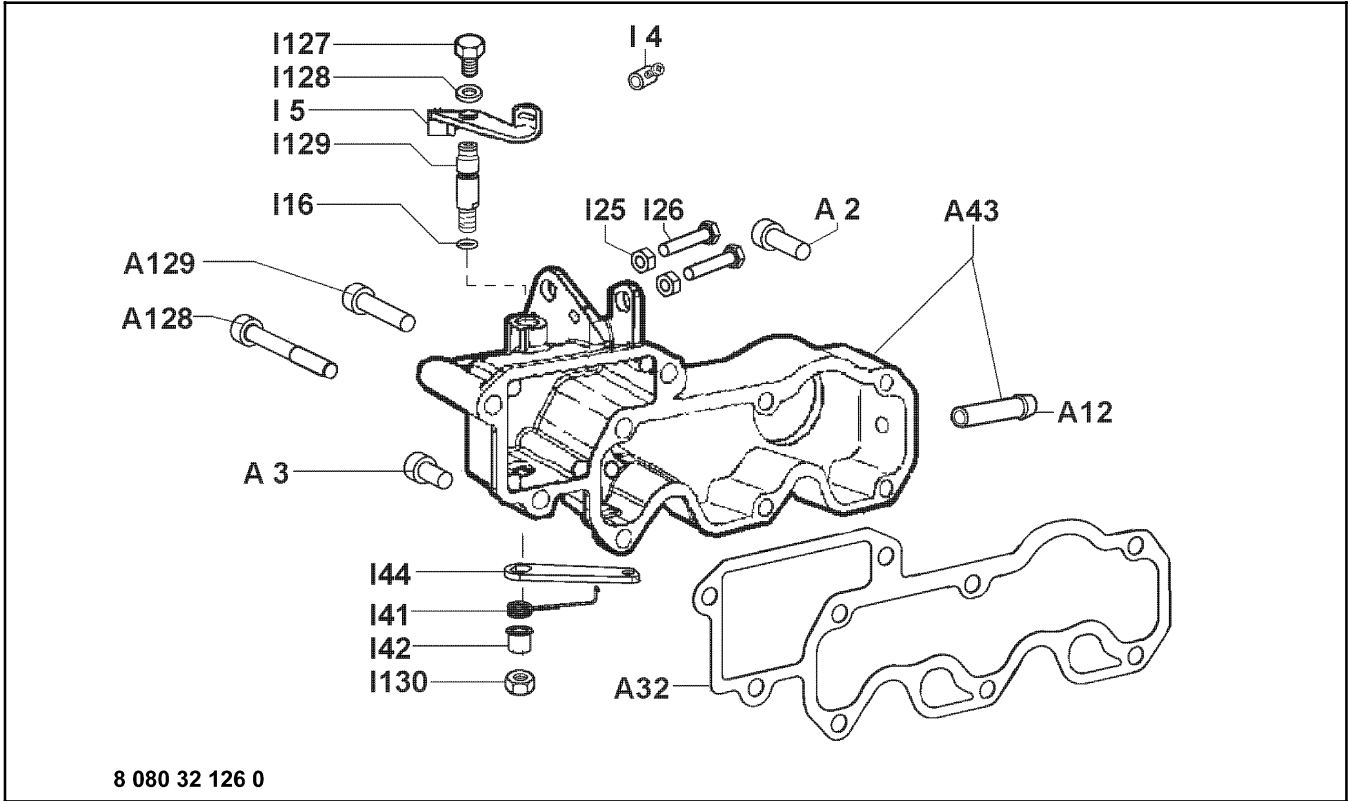
Variation 118



Item	Part No.	Description	Qty.
A2	ED0097300320-S	Screw, M8 x 45	5
A3	ED0097320640-S	Screw, M8 x 30	4
A12	ED0095991570-S	Pipe	1
A34	ED0024864930-S	Inlet Manifold	1
A36	ED0044200820-S	Intake Manifold Gasket	1
A128	ED0097300350-S	Screw, M8 x 65	1
A129	ED0097300310-S	Screw, M8 x 40	1
I4	ED0058301190-S	Nut	1
I5	ED0052013390-S	External Lever	1
I16	ED0012000520-S	O-Ring	1
I25	ED0032400080-S	Nut, M6	2
I26	ED0017600290-S	Adjusting Bolt, M6 x 30	2
I41	ED0056600650-S	Recovery Spring	1
I42	ED0019570140-S	Sleeve	1
I44	ED0052006740-S	Internal Lever	1
I127	ED0017550010-S	Screw, M5 x 8	1
I128	ED0076252850-S	Washer Diam. 5.3	1
I129	ED0061405500-S	Lever Shaft	1
I130	ED0032030500-S	Selflock Nut, M6	1

Group 80: Inlet Manifold

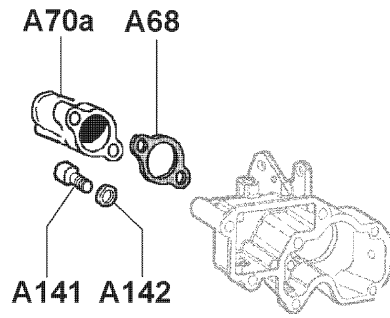
Variation 126



Item	Part No.	Description	Qty.
A2	ED0097300320-S	Screw, M8 x 45	4
A3	ED0097320640-S	Screw, M8 x 30	3
A12	ED0095991570-S	Pipe	1
A32	ED0044200810-S	Intake Manifold Gasket	1
A43	ED0024862660-S	Inlet Manifold	1
A128	ED0097300350-S	Screw, M8 x 65	1
A129	ED0097320630-S	Screw, M8 x 35	1
I4	ED0058301190-S	Nut	1
I5	ED0052013390-S	External Lever	1
I16	ED0012000520-S	O-Ring	1
I25	ED0032400080-S	Nut, M6	2
I26	ED0017600290-S	Adjusting Bolt, M6 x 30	2
I41	ED0056600650-S	Recovery Spring	1
I42	ED0019570140-S	Sleeve	1
I44	ED0052006740-S	Internal Lever	1
I127	ED0017550010-S	Screw, M5 x 8	1
I128	ED0076252850-S	Washer, Diam. 5.3	1
I129	ED0061405500-S	Lever Shaft	1
I130	ED0032030500-S	Selflock Nut, M6	1

Group 82: Inlet Flange

Variation 017



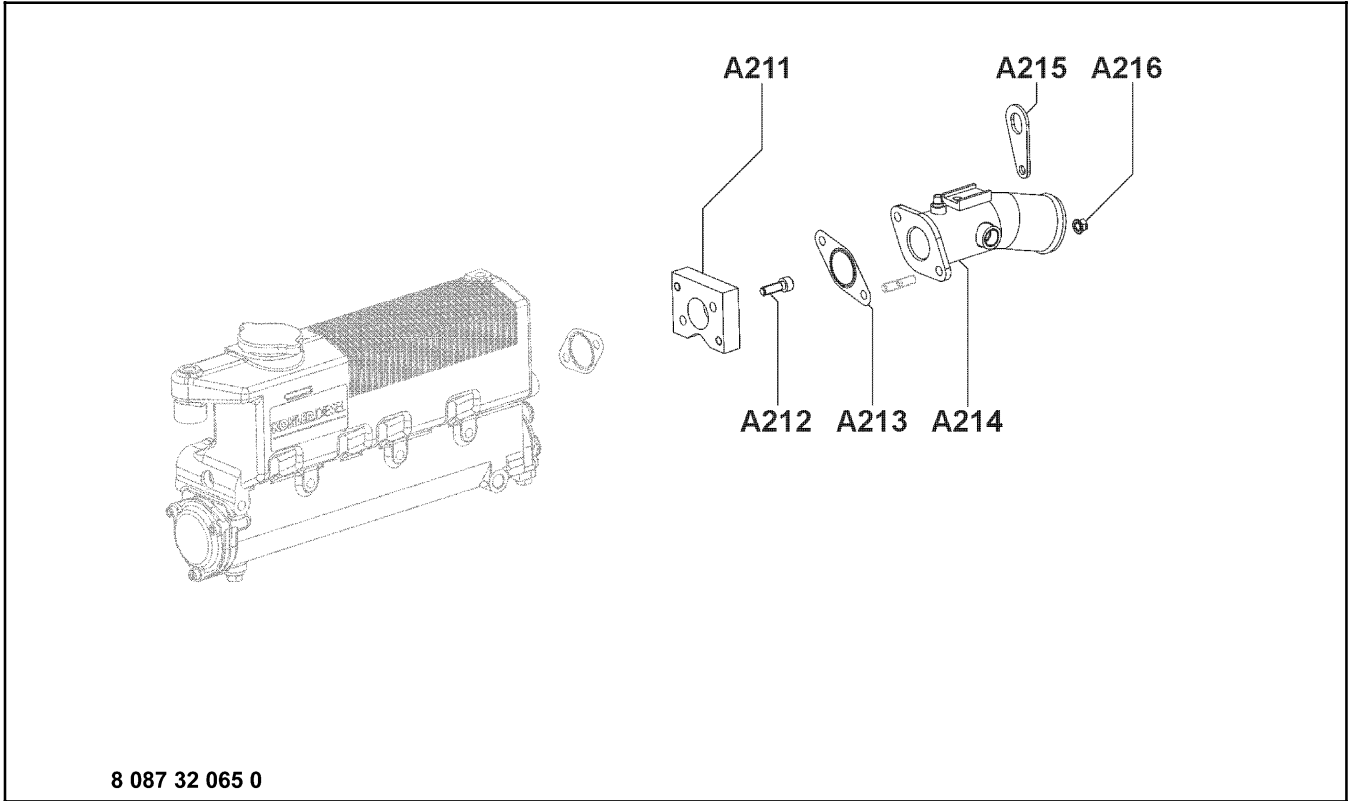
See Group 105 for view of mounting bracket

8 082 32 017 0

Item	Part No.	Description	Qty.
A68	ED0045010810-S	Gasket	2
A70a	ED0038660830-S	Inlet Flange	1
A141	ED0017700050-S	Screw, M8 x 22	2
A142	ED0075550290-S	Washer, Diam. 8	2

Group 87: Exhaust Manifold

Variation 065

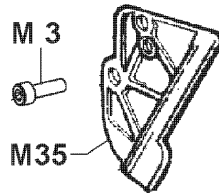


8 087 32 065 0

Item	Part No.	Description	Qty.
A211	ED0038151300-S	Adaptor Flange	1
A212	ED0097302130-S	Screw, M8 x 25	2
A213	ED0045011680-S	Gasket	1
A214	ED0095431840-S	Exhaust Tube	1
A215	ED0085451900-S	Engine Lifting Bracket	1
A216	ED0032401650-S	Nut, M8	2

Group 100: Cover For External Voltage Alternator Fitting

Variation 001

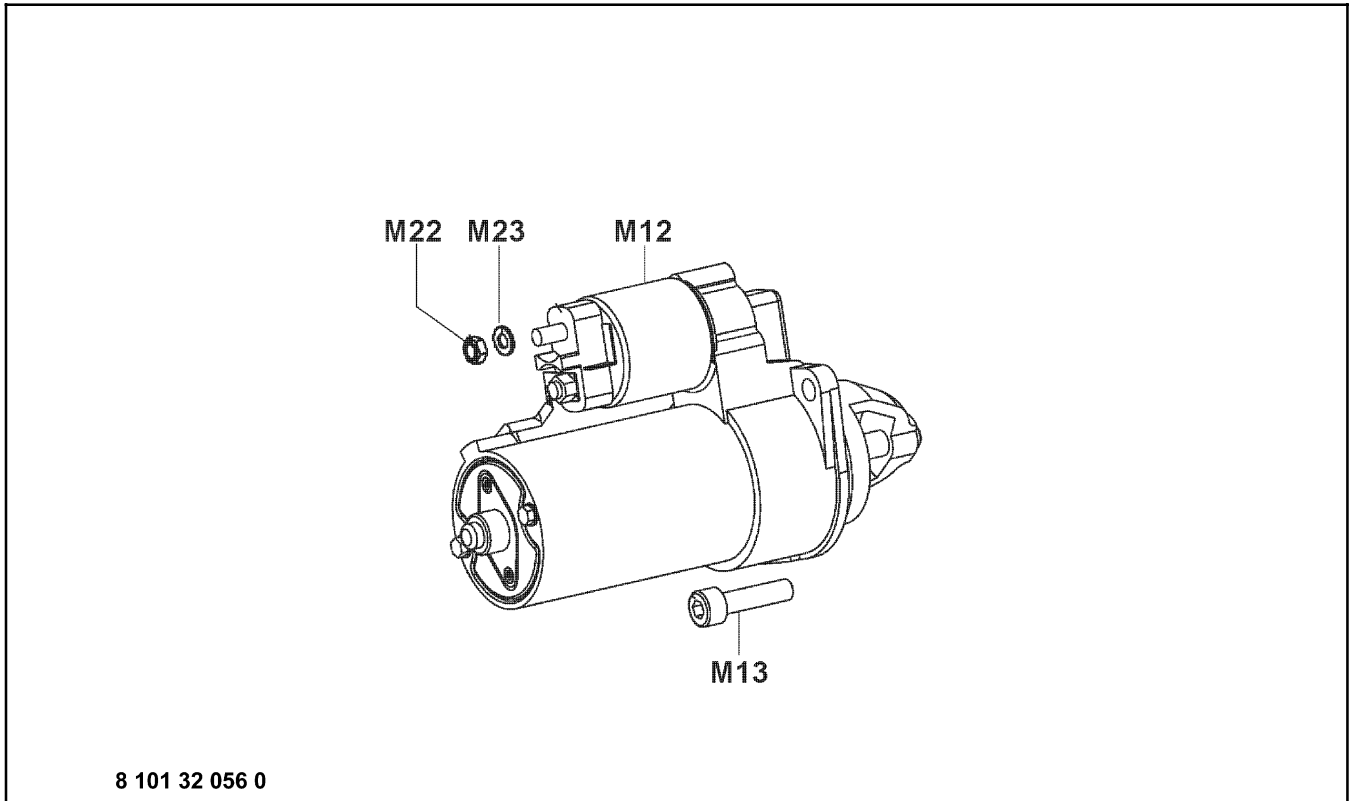


8 100 32 001 0

Item	Part No.	Description	Qty.
M3	ED0097320640-S	Screw, M8 x 30	2
M35	ED0038000350-S	Flange	1

Group 101: Starter Motor 12V - 2.5KW

Variation 056

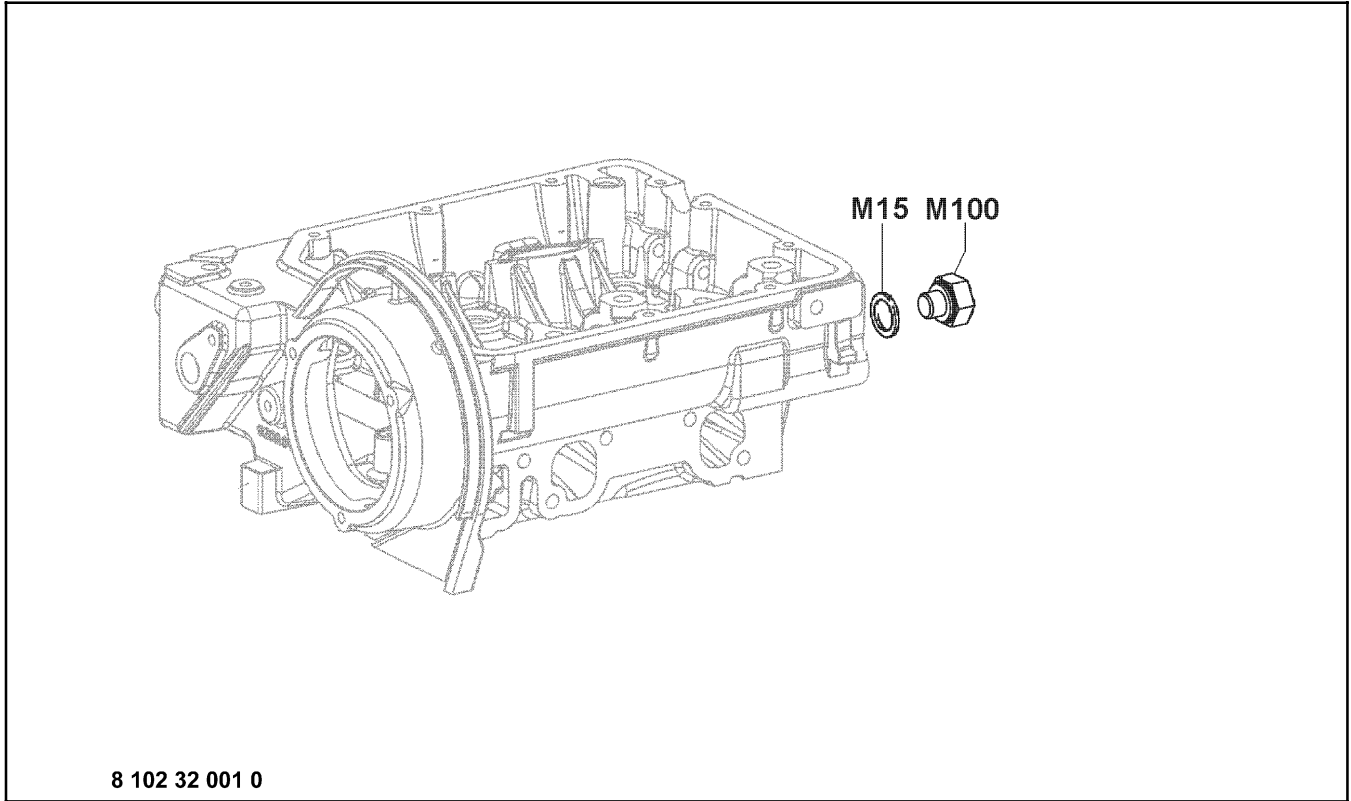


Item	Part No.	Description	Qty.
M12	ED0058402610-S*	Starting Motor 12V 2.5KW	1
M13	ED0017900300-S	Screw, M12 x 25	2
M22	ED0032400200-S	Nut, M8	1
M23	ED0075650070-S	Washer, Diam. 8	1

* See Accessories section for Ignition Protected Starter part number.

Group 102: Fitting For Pressure Oil Switch

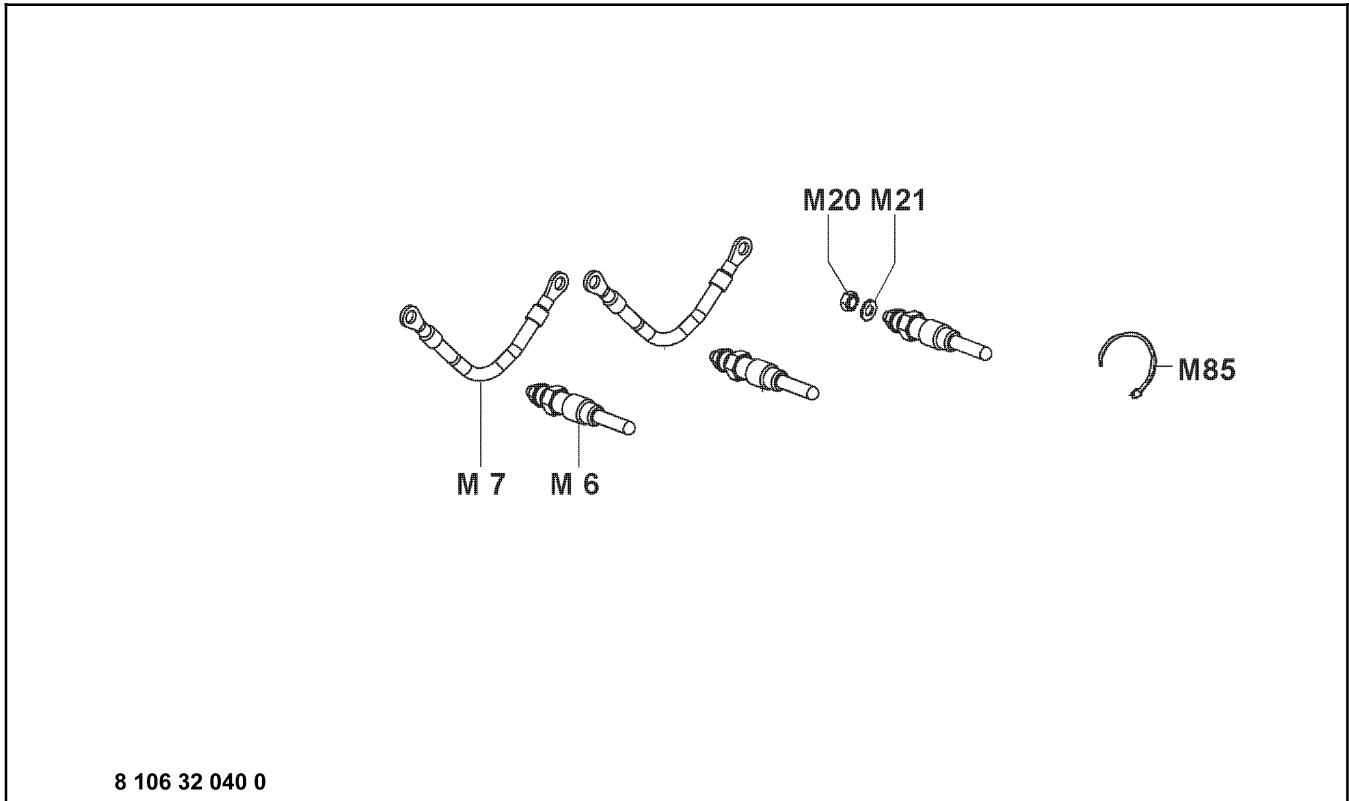
Variation 001



Item	Part No.	Description	Qty.
M15	ED0046700600-S	Copper Gasket, Diam.12	1
M100	ED0089650030-S	Plug, M12	1

Group 106: Pre-Heating Glow Plug And Control Box

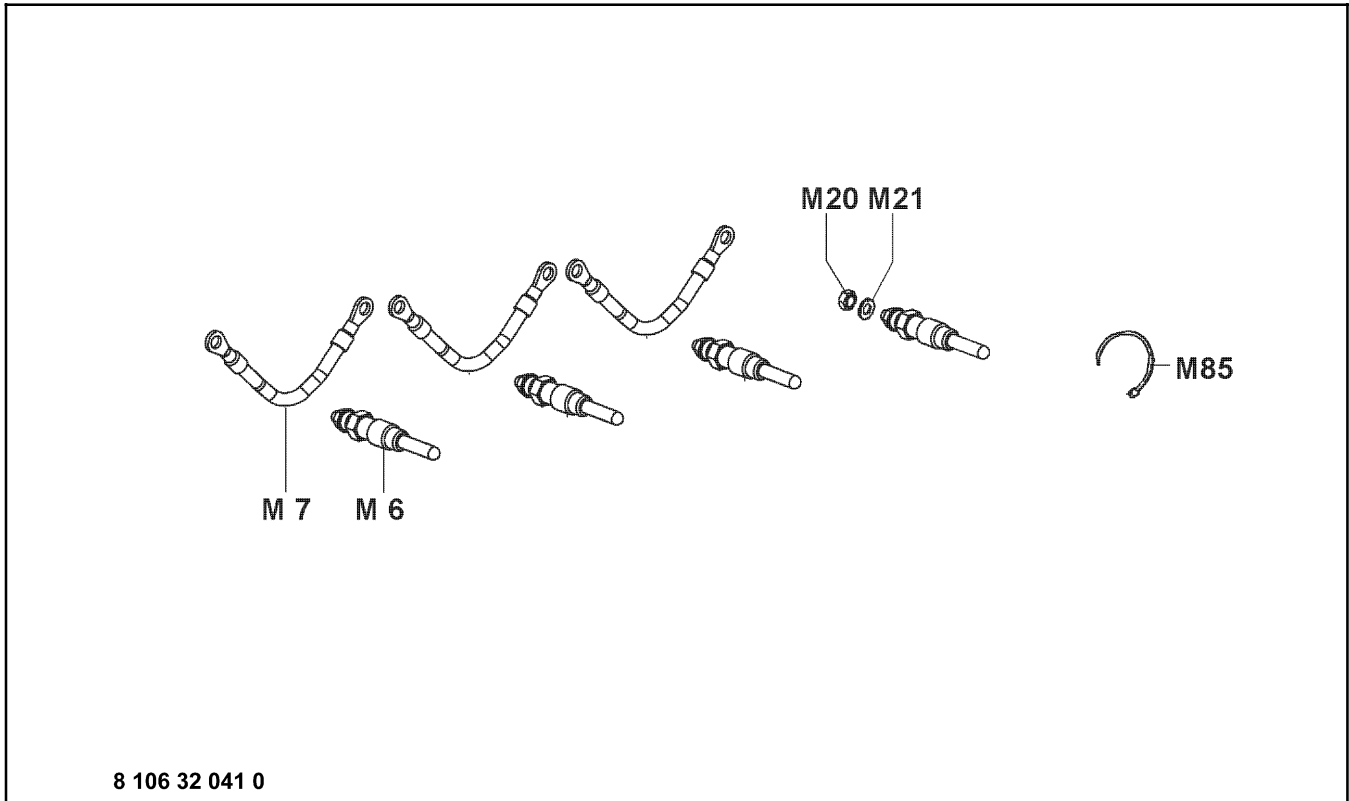
Variation 040



Item	Part No.	Description	Qty.
M6	ED0021001180-S	Preheating Glow Plug 12 V	3
M7	ED0021855480-S	Glow Plug Wire	2
M20	ED0032400050-S	Nut, M5	3
M21	ED0076260660-S	Washer	3
M85	ED0024710190-S	Collar 175mm	1

Group 106: Pre-Heating Glow Plug And Control Box

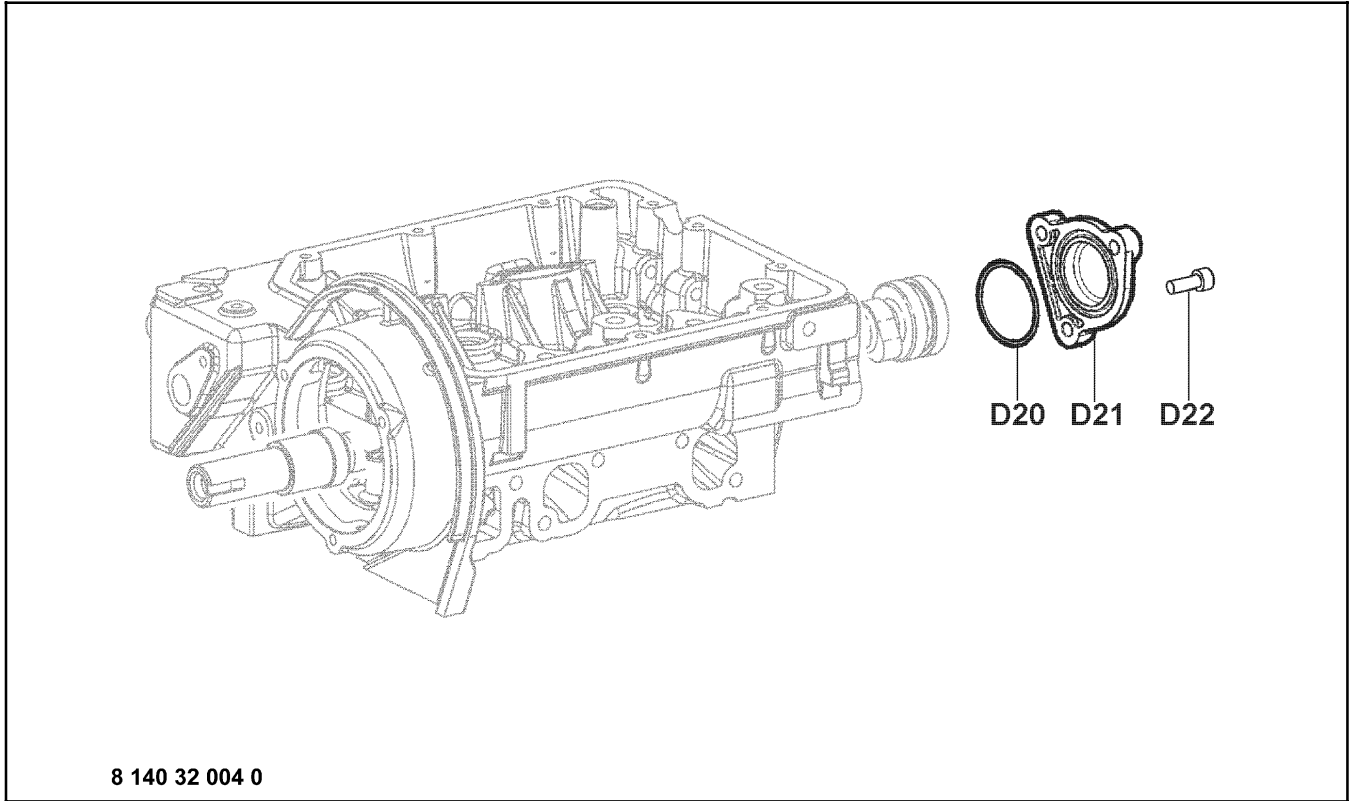
Variation 041



Item	Part No.	Description	Qty.
M6	ED0021001180-S	Preheating Glow Plug 12 V	4
M7	ED0021855480-S	Glow Plug Wire	3
M20	ED0032400050-S	Nut, M5	4
M21	ED0076260660-S	Washer	4
M85	ED0024710190-S	Collar 175mm	1

Group 140: Camshaft Flange On 3rd PTO

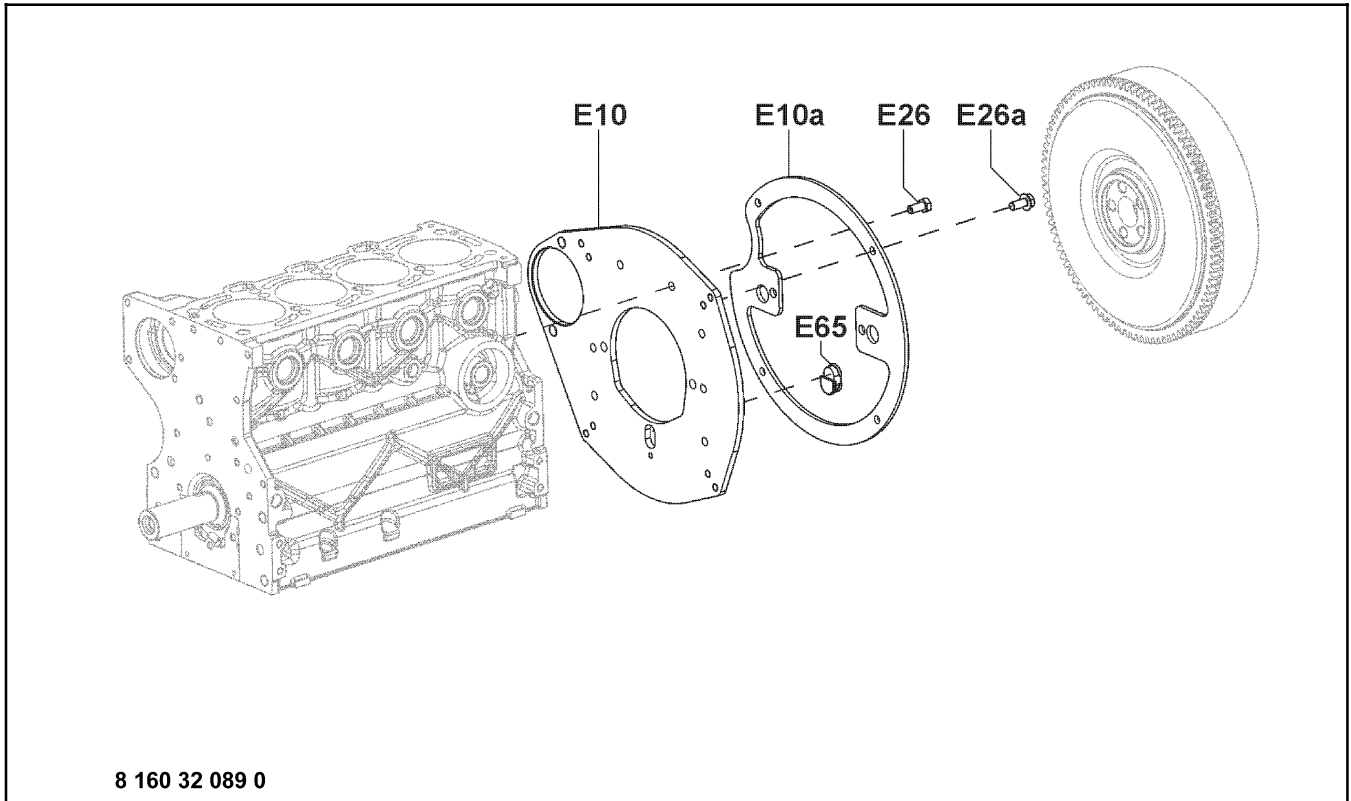
Variation 004



Item	Part No.	Description	Qty.
D20	ED0012002330-S	O-Ring, 40.95 x 2.62	1
D21	ED0038000260-S	Flange	1
D22	ED0097304160-S	Screw, M6 x 20	3

Group 160: Flanging Plate

Variation 089

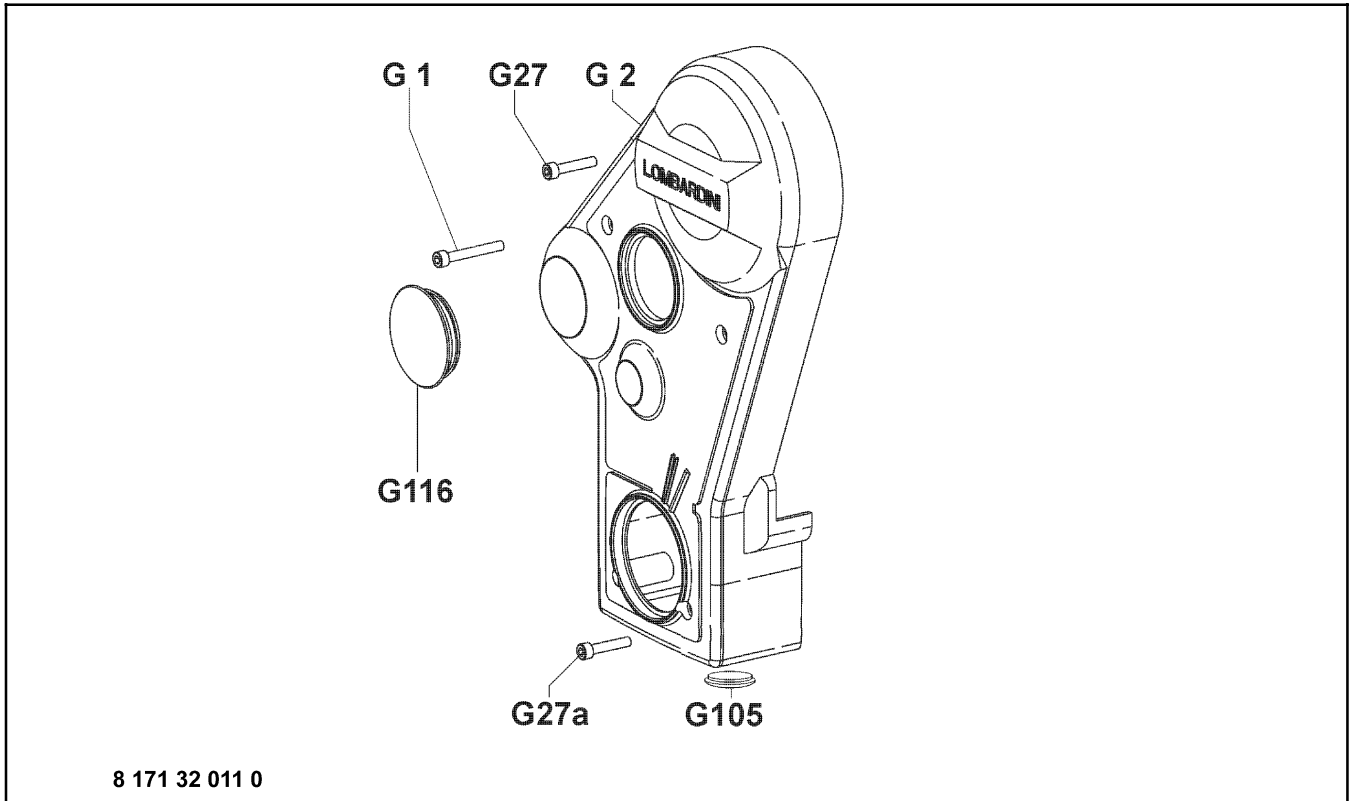


8 160 32 089 0

Item	Part No.	Description	Qty.
E10	ED0063707340-S	Flanging Plate (Thickness 7 mm)	1
E10a	ED0063707350-S	Centering Plate	1
E26	ED0017700560-S	Bolt, M8 x 18	7
E26a	ED0017701110-S	Bolt, M8 x 18	4

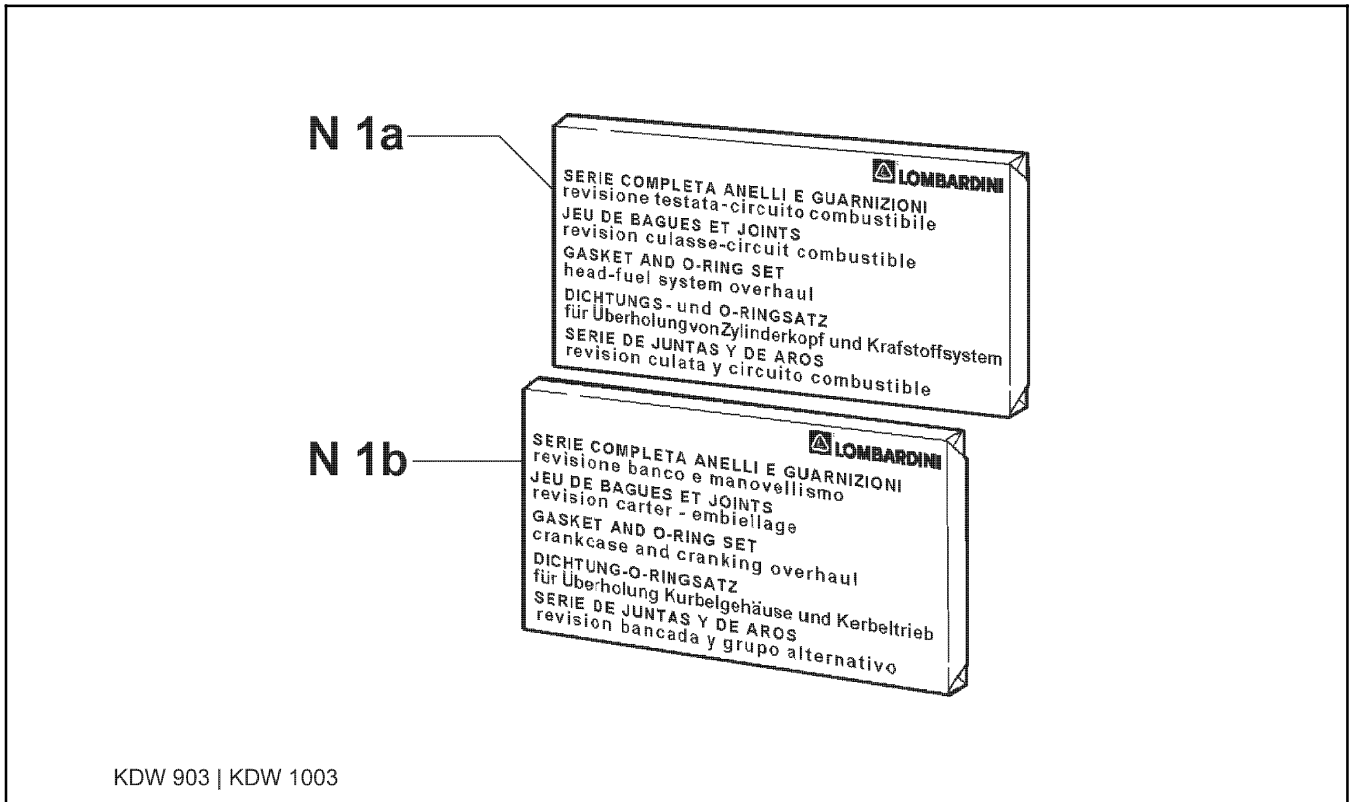
Group 171: Pulley Guard

Variation 011



Item	Part No.	Description	Qty.
G1	ED0097302310-S	Screw, M6 x 30	1
G2	ED0069277070-S	Belt Guard	1
G27	ED0097302790-S	Screw, M6 x 40	2
G27a	ED0097302790-S	Screw, M6 x 40	2
G105	ED0090000780-S	Plug	1
G116	ED0090001340-S	Cap, Diam. 60	1

Gasket Set



Variation 1003

Item	Part No.	Description	Qty.
N1a	ED0082051080-S	Head/Fuel System Gasket Set	1
N1b	ED0082051090-S	Crankcase Gasket Set	1

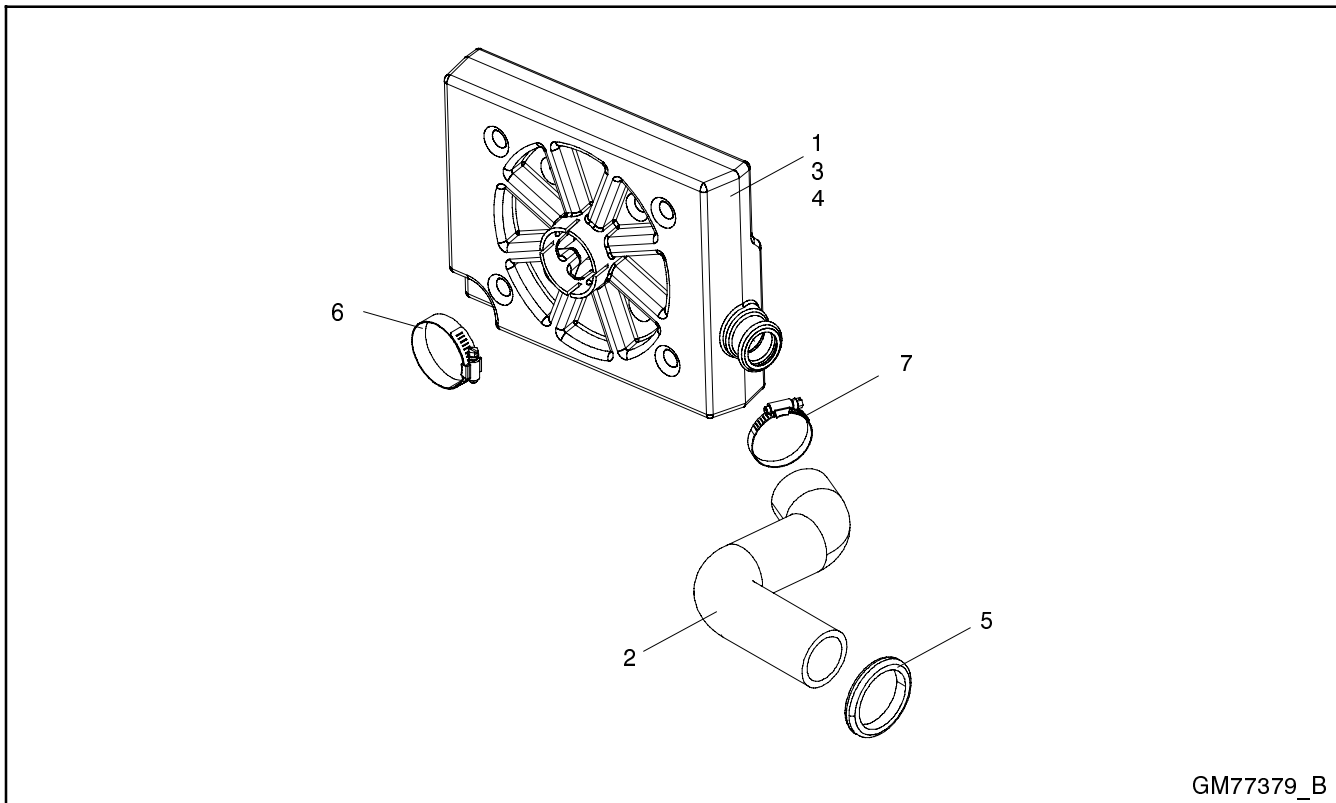
Variation 1404

Item	Part No.	Description	Qty.
N1a	ED0082051100-S	Head/Fuel System Gasket Set	1
N1b	ED0082051110-S	Crankcase Gasket Set	1

order the head gasket separately

Group 101: Air Intake

Variation GM77379-GR1

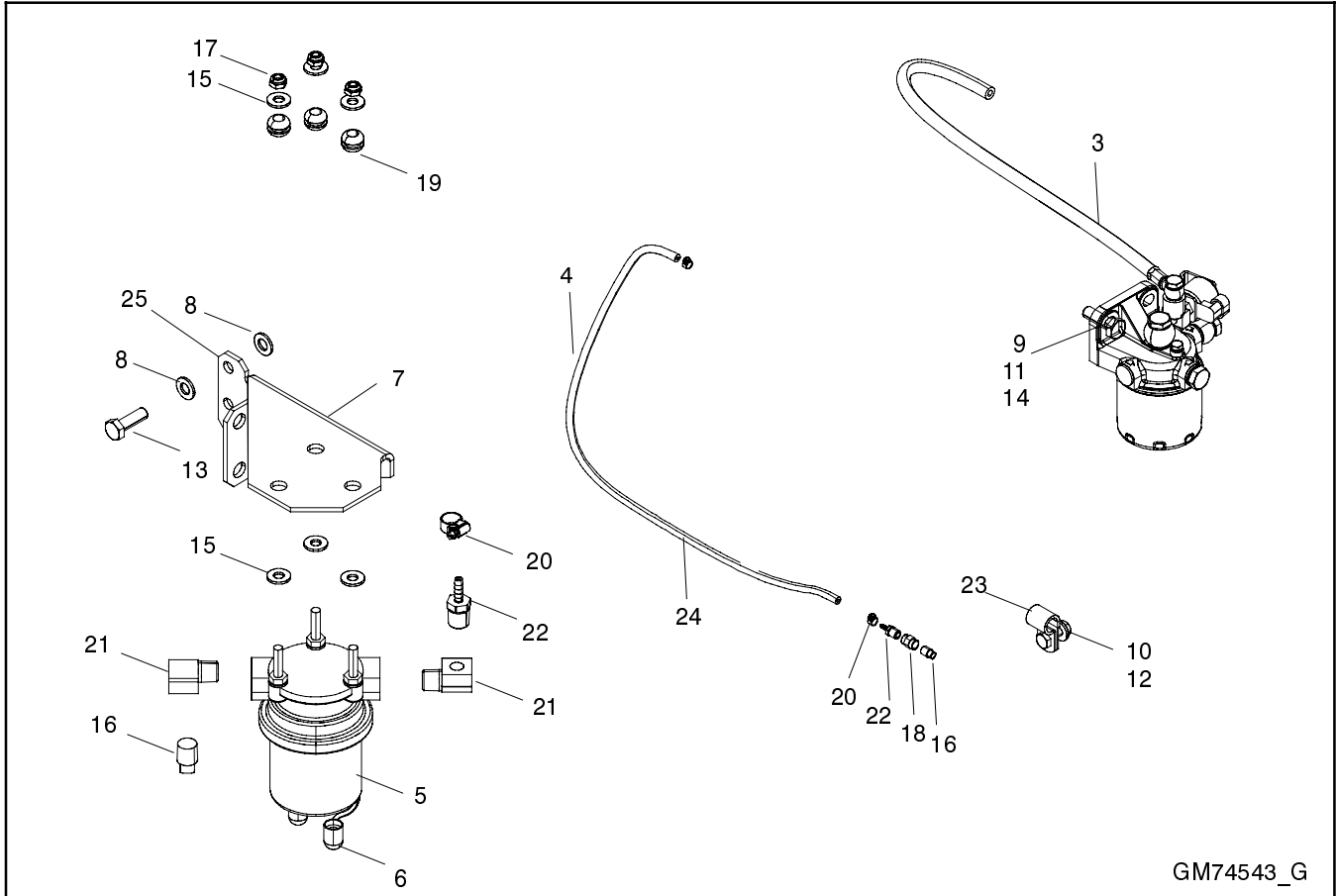


GM77379_B

Item	Part No.	Description	Qty.
1	GM74557	Resonator, Intake	1
2	GM77378	Hose, Molded Air Intake	1
3	M125A-06-80	Washer, Plain	2
4	M933-06016-60	Screw, hex cap, M6x16mm	2
5	X-284-26	Grommet, Round	1
6	X-426-16	Clamp, Hose, 1.81/2.75 In.	1
7	X-426-19	Clamp, Hose, 1.00/2.00 In.	1

Group 103: Fuel System

Variation GM74543-GR1, GR2



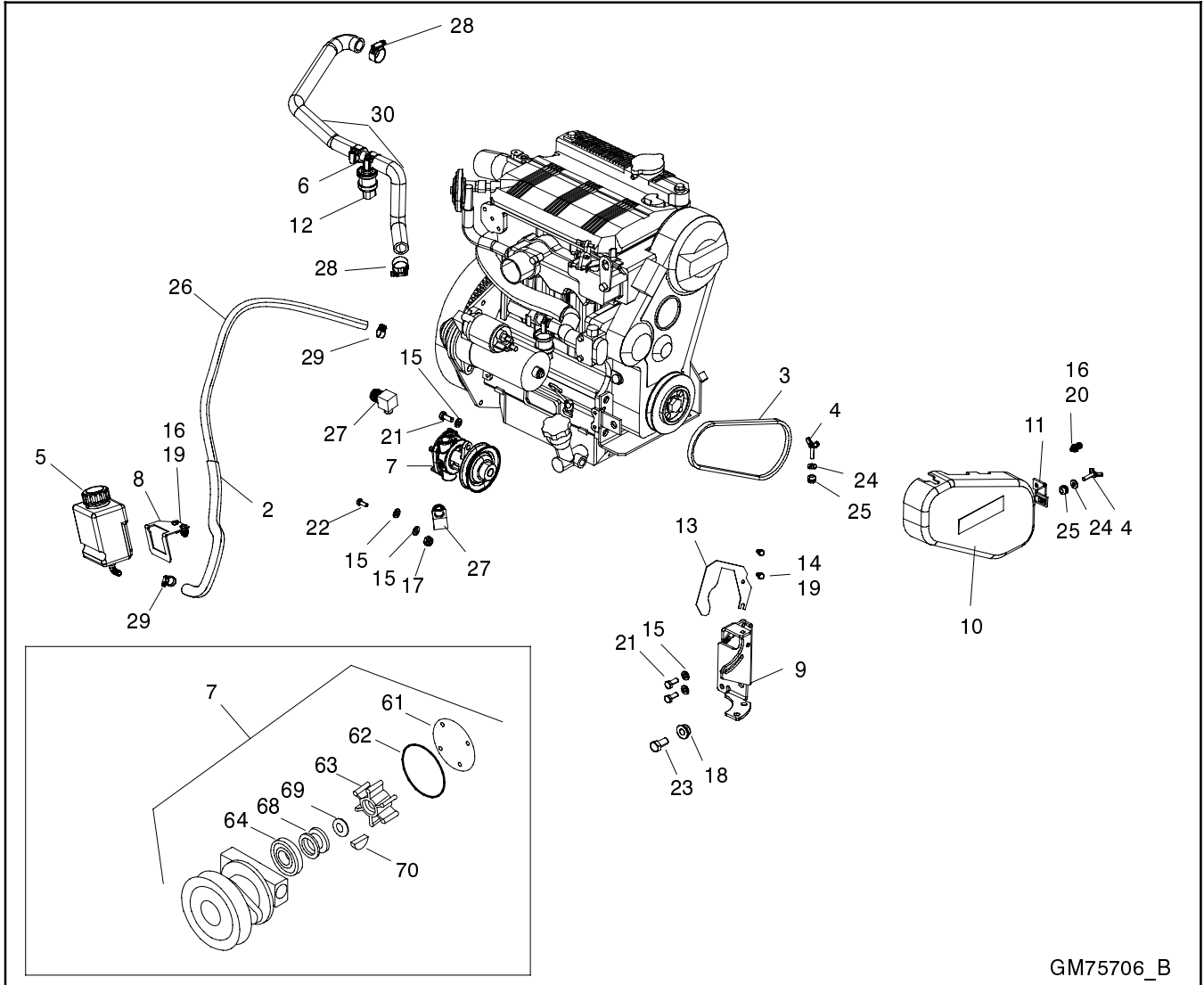
GM74543_G

Item	Part No.	Description	Qty.
3	X-6003-36	Conduit, convoluted	1
4	X-6003-52	Conduit, convoluted	1
5	229051	Pump, Fuel	1
6	229168	Lead Assembly	1
7	GM85932	Bracket, Fuel Pump	1
8	M125A-08-80	Washer, Plain, 8.4 ID x 16.0 OD	6
9	M125A-10-80	Washer, Plain, 10.5 ID x 20.0 OD	2
10	M6923-06-80	Nut, Hex 6mm	1
11	M6923-10-80	Nut, Hex 10mm	2
12	M933-06020-60	Screw, Hex Cap	1
13	M933-08020-60	Screw, Hex Cap	2
14	M933-10035-60	Screw, Hex Cap	2
15	X-25-40	Washer, Plain, .281 ID x .625 in. OD	6
16	X-75-2	Plug, Pipe (1/4" NPTF)	2
17	X-101-25	Nut, Hex Elastic Stop, M6-1	3
18	X-216-29	Coupling, Pipe	1
19	X-284-39	Grommet, Round	3
20	X-426-9	Clamp, Hose, .25/.70 in.	3
21	X-555-1	Elbow, Street (90 Deg x 1/4" NPTF)	2
22	X-582-41	Fitting, Hose Connector	2
23	X-672-7	Clamp, insulated, .44 in.	1
24	See Chart	Line, Flex Fuel	1
25	GM85933	Bracket, Fuel Pump	1

Variation No.	Item 24, Fuel Line
GM74543-GR1	X-6251-34
GM74543-GR2	X-6251-35

Group 104: Cooling System

Variation GM75706-GR1, GR2



GM75706_B

Group 104: Cooling System

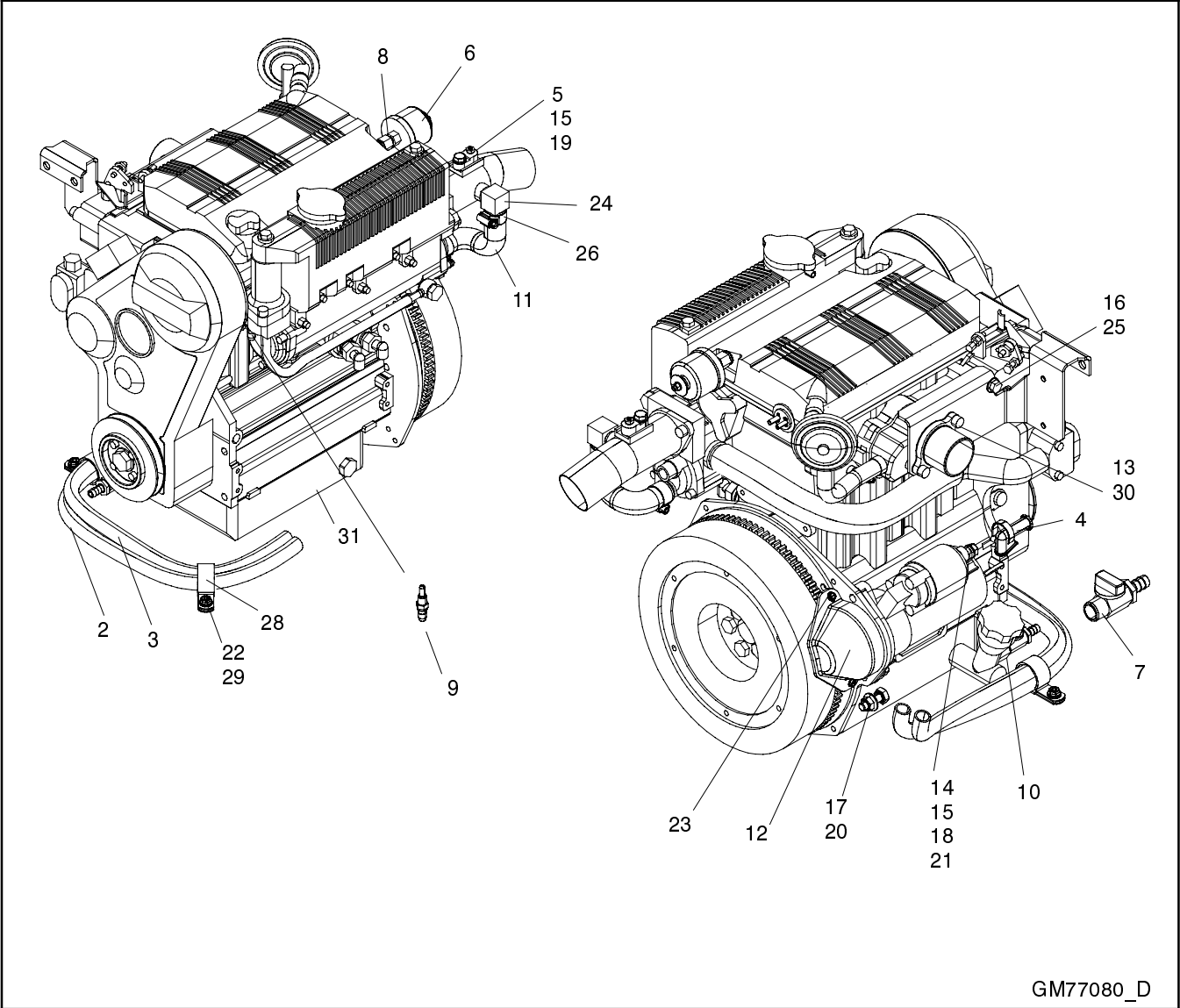
Variation GM75706-GR1, GR2

Item	Part No.	Description	Qty.
2	X-6003-6	Conduit, Convoluted	1
3	229125	Belt, V (27 in.) (B)	1
4	229330	Screw, Wing	2
5	359037	Bottle, Overflow	1
6	GM41987	Tube, Seawater	1
7	GM46936	Pump, Sea Water	1
8	GM69828	Bracket, Water Bottle	1
9	GM74529	Bracket, Seawater Pump	1
10	GM75641	Guard, Belt	1
11	GM75676	Bracket, Belt Guard	1
12	GM77653	Switch, Pressure	1
13	GM82746	Guard, Belt	1
14	M125A-06-80	Washer, Plain	2
15	M125A-08-80	Washer, Plain, 8.4 ID x 16.0 OD	5
16	M6923-06-80	Nut, Hex 6mm	3
17	M6923-08-80	Nut, Hex 8mm	1
18	M6923-12-80	Nut, Hex	1
19	M933-06016-60	Screw, Hex Cap, M6x16mm	4
20	M933-06020-60	Screw, Hex Cap	1
21	M933-08020-60	Screw, Hex Cap	3
22	M933-08025-60	Screw, Hex Cap	1
23	M933-12025-60	Screw, H.C.	1
24	X-25-40	Washer, Plain, .281 ID x .625 in. OD	2
25	X-284-39	Grommet, Round	2
26	X-386-36	Coolant Overflow Hose	1
27	X-391-23	Connector, 90 Deg. (3/4" ID Hose)	2
28	X-426-12	Clamp, Hose, .69/1.25 in.	4
29	X-426-9	Clamp, Hose, .25/.70 in.	2
30	See Chart	Hose, Molded Seawater	1
61	344306	Plate, Cover	1
62	344584	Gasket	1
63	229826	Kit, Impeller (Includes Gasket)	1
64	344043	Bearing, Ball	1
68	GM16865	Seal	1
69	GM22995	Seat, Ceramic	1
70	GM17702	Key	1

Variation No.	Item 30, Seawater Hose
GM75706-GR1	GM75707
GM75706-GR2	GM75708

Group 105: Engine

Variation GM77080-GR1, GR2



Group 105: Engine

Variation GM77080-GR1, GR2

Item	Part No.	Description	Qty.
2	X-6003-14	Conduit, Convoluted	1
3	X-6003-14	Conduit, Convoluted	1
4	238915	Boot	1
5	249872	Switch, High Temperature Shutoff	1
6	343473	Sender, Oil Pressure	1
7	359653	Valve, Oil Drain (3/8-18 NPT)	1
8	365220	Adapter, Bushing	1
9	GM28823	Sensor, Temperature	1
10	GM66090	Bushing, Adapter	1
11	GM74501	Hose, Molded Seawater	1
12	GM74526	Guard, Starter	1
13	GM81954	Bracket, Fuel Filter Mounting	1
14	M125A-04-80	Washer, Plain	1
15	M125A-08-80	Washer, Plain, 8.4 ID x 16.0 OD	4
16	M6921-08060-60	Screw, Hex Flange	1
17	M6923-10-80	Nut, Hex 10mm	2
18	M7985A-04006-20	Screw, Pan Head	1
19	M933-08016-60	Screw, Hex Cap	1
20	M933-10030-60	Screw, Hex Cap	2
21	M934-08-60	Nut, Hex	1
22	X-25-40	Washer, plain, .281 ID x .625 in.OD	2
23	X-67-113	Screw, Hex Washer, Thread-Forming	2
24	X-391-23	Connector, 90 Deg. (3/4" ID Hose)	1
25	X-400-191	Spacer, .384 ID x .5 OD x .25 in.	2
26	X-426-12	Clamp, Hose, .69/1.25 in.	2
28	X-672-20	Clamp, Insulated, .75 in.	2
29	X-6210-2	Nut, flange spiralock, 1/4-20	2
30	M933-08020-60	Screw, Hex Cap	2
31	See Chart	Engine Assembly	1

Variation No.	Item 31, Engine Assembly
GM77080-GR1	GM74469
GM77080-GR2	GM74470

Group 107: Nameplate and Decals

Variation GM77911-GR1

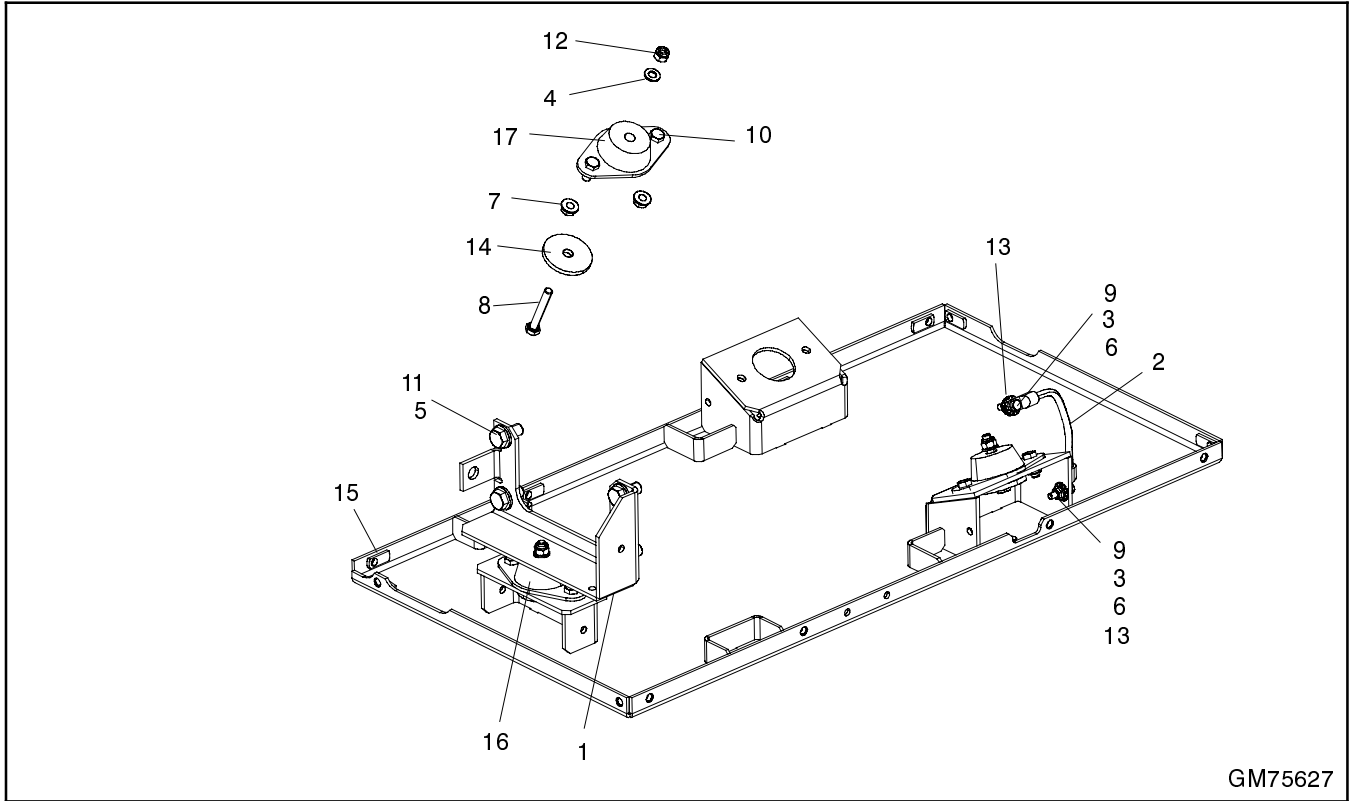
Item	Part No.	Description	Qty.
1	224233	Decal, 1-800 Number	1
2	226917	Decal, Negative Battery Conn.	1
3	238162	Decal, Pos. Battery Connection	1
4	249808	Decal, Warning Rotating Parts	1
5	249809	Decal, Caution Hot Engine	1
6	249810	Decal, Warning Hot Coolant	1
7	294520	Decal, Danger, High Voltage	1
8	344295	Decal, Equipment Grd	1
9	344486	Decal, CE	1
10	GM62794	Decal, Drain	1
11	GM35838	Decal, 4 Wire Reconnection	1
12	GM77652	Decal, Fuse Panel	1

Variation GM77911-GR2

Item	Part No.	Description	Qty.
1	224233	Decal, 1-800 Number	1
2	226917	Decal, Negative Battery Conn.	1
3	238162	Decal, Pos. Battery Connection	1
4	249808	Decal, Warning Rotating Parts	1
5	249809	Decal, Caution Hot Engine	1
6	249810	Decal, Warning Hot Coolant	1
7	294520	Decal, Danger, High Voltage	1
8	344295	Decal, Equipment Grd	1
9	344486	Decal, CE	1
10	GM62794	Decal, Drain	1
11	229883	Decal, 12 Wire Reconnection	1
12	GM77652	Decal, Fuse Panel	1

Group 109: Skid and Mounting

Variation GM75627-GR1, GR2, GR3



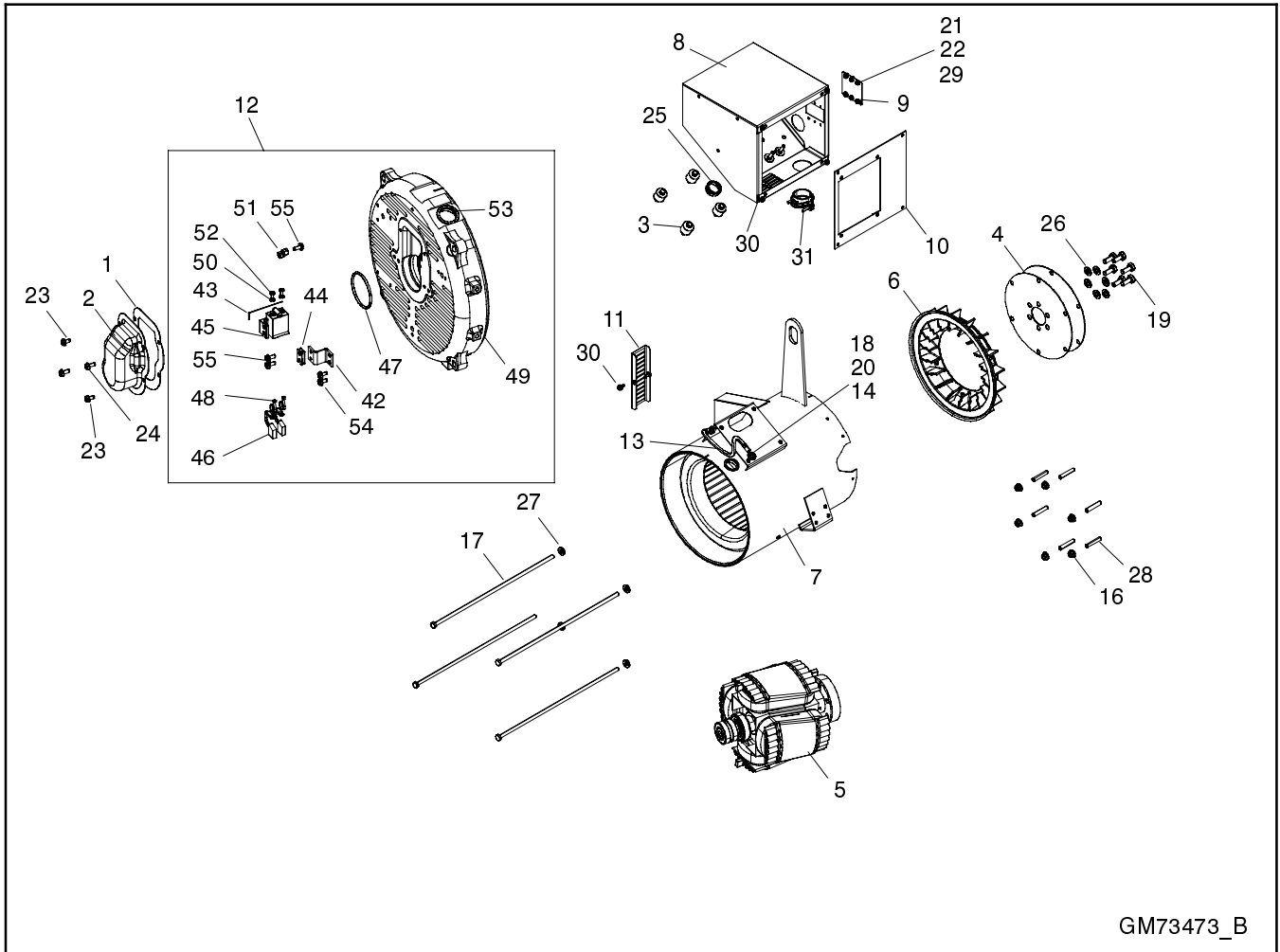
GM75627

Item	Part No.	Description	Qty.
1	GM74528	Support, Engine	1
2	LK-0606-1515	Lead	1
3	M125A-06-80	Washer, Plain	2
4	M125A-08-80	Washer, Plain, 8.4 ID x 16.0 OD	3
5	M125A-12-80	Washer, Plain	4
6	M6923-06-80	Nut, Hex 6mm	2
7	M6923-08-80	Nut, Hex 8mm	6
8	M931-08055-60	Screw, Hex Cap	3
9	M933-06025-60	Screw, Hex Cap	2
10	M933-08020-60	Screw, Hex Cap	6
11	M933-12025-60	Screw, H.C.	4
12	M982-08-80	Nut, Hex Elastic Stop, 8MM	3
13	X-22-12	Washer, Lock, .262 ID x .743 In. OD	4
14	X-25-96	Washer, Plain, .406 ID x 2 in. OD	3
15	See Chart	Tray, Drip	1
16	See Chart	Vibromount	1
17	See Chart	Vibromount	2

Module No.	Item 15, Tray	Item 16, Vibromount	Item 17, Vibromount
GM75627-GR1	GM74111	229127	229127
GM75627-GR2	GM77515	229127	225125
GM75627-GR3	GM74112	229127	225125

Group 201: Generator and Mounting

Variation GM73473-GR1



GM73473_B

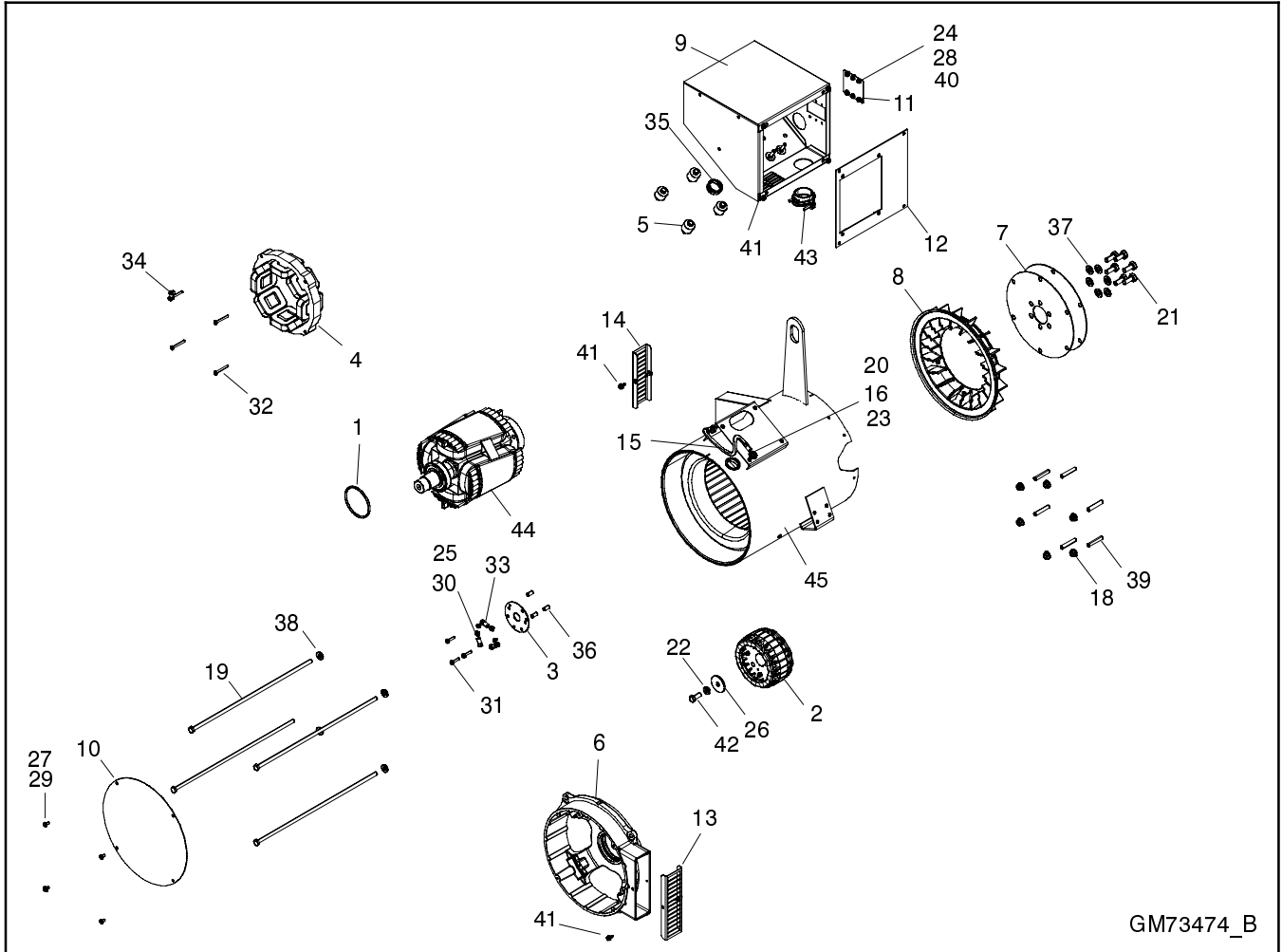
Group 201: Generator and Mounting

Variation GM73473-GR1

Item	Part No.	Description	Qty.
1	278427	Gasket, Cover	1
2	GM29354	Cover, Brush Holder	1
3	GM38784-2	Vibromount, Controller	4
4	GM71812	Disc, Drive	2
5	GM71834	Rotor Assembly	1
6	GM71976	Fan, Alternator	1
7	GM73374	Stator Assembly	1
8	GM73477	Box, Junction	1
9	GM74612	Plate, Cover	1
10	GM76166	Panel, Junction Box Controller	1
11	GM77897	Guard, Alternator Air Outlet	1
12	GM78224	Bracket, Assembly End	1
13	LK-0611-1515	Lead	1
14	M125A-06-80	Washer, Plain	5
16	M6923-08-80	Nut, Hex 8mm	6
17	M931-08300-60	Screw, Hex Cap (Metric)	4
18	M933-06010-60	Screw, Hex Cap	5
19	M933-10025-82	Screw, Hex Cap	6
20	X-22-12	Washer, Lock, .262 ID x .743 In. OD	6
21	X-22-6	Washer, Lock, .146 ID x .285 In. OD	6
22	X-49-2	Screw, Machine	6
23	X-67-133	Screw, Hex Washer, Thread-Forming	2
24	X-67-64	Screw, Self-Tapping	2
25	X-634-27	Bushing	1
26	X-801-3	Washer, Hardened, .406 ID x .812 In. OD	6
27	X-801-4	Washer, Hardened, .406 ID x .812 In. OD	4
28	X-6054-17	Stud (Metric)	6
29	X-6210-3	Nut, Flange Whiz, 6-32	6
30	X-6216-1	Screw, Phillips Hex Crimptite	6
31	X-6266-1	Connector, Cable	1
42	229335	Bracket, Brush Holder	1
43	238247	Retainer, Wire	1
44	238248	Shim, Brush Holder	2
45	239247	Holder, Brush	1
46	239282	Brush	2
47	256466	O-Ring (2.050" ID)	1
48	GM60538	Spring	2
49	GM79114	Bracket, End	1
50	X-22-6	Washer, Lock, .146 ID x .285 In. OD	2
51	X-468-3	Cable Tie, Nylon	1
52	X-49-1	Screw, Machine	2
53	X-634-27	Bushing	1
54	X-67-113	Screw, Hex Washer, Thread-Forming	2
55	X-67-64	Screw, Self-Tapping	3

Group 201: Generator and Mounting

Variation GM73474-GR1, GR2, GR3



GM73474_B

Group 201: Generator and Mounting

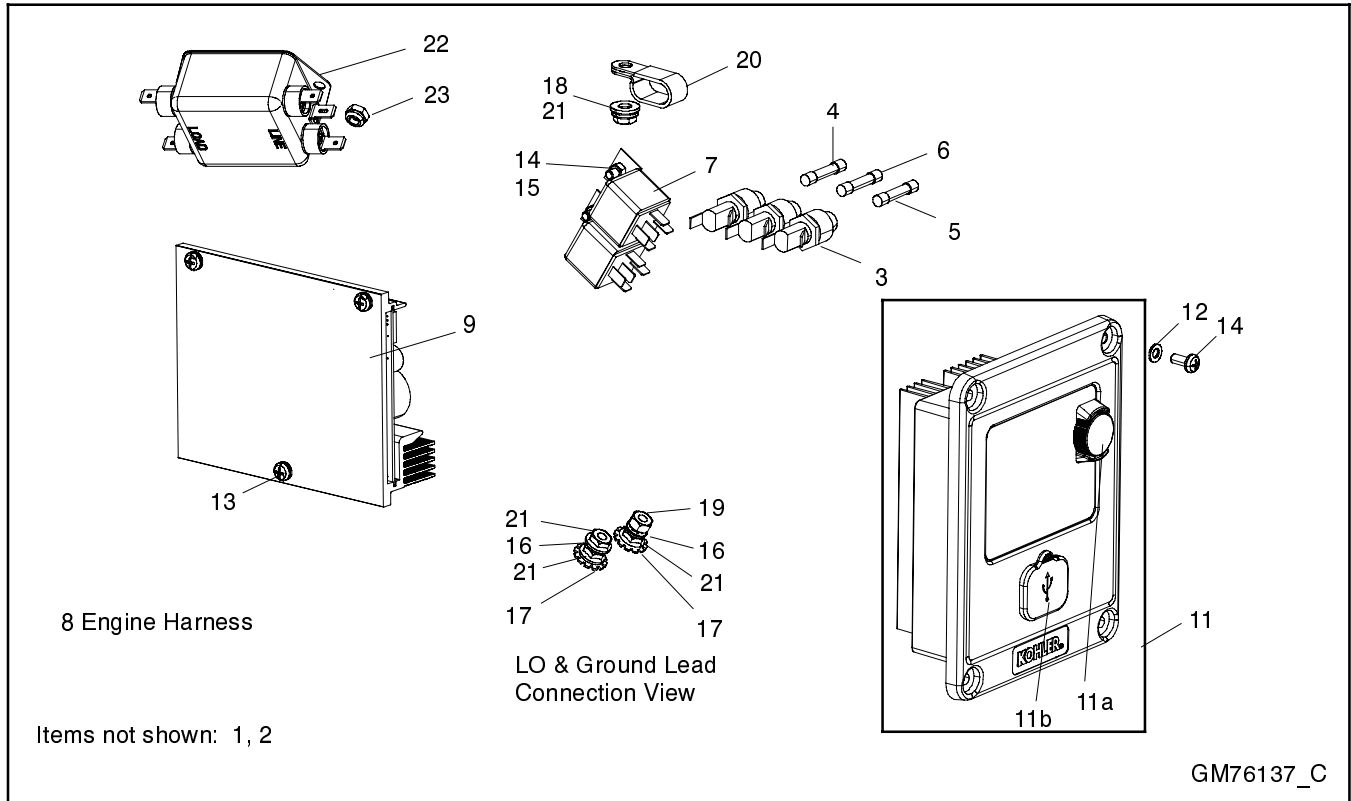
Variation GM73474-GR1, GR2, GR3

Item	Part No.	Description	Qty.
1	229110	O-Ring (2.859" ID)	1
2	GC344567	Exciter Armature	1
3	A-229152	PCB Assembly	1
4	GC30341	Field Assembly, Exciter	1
5	GM38784-2	Vibromount, Controller	4
6	GM71791	Bracket, End	1
7	GM71812	Disc, Drive	2
8	GM71976	Fan, Alternator	1
9	GM73477	Box, Junction	1
10	GM74038	Panel, End Bracket	1
11	GM74612	Plate, Cover	1
12	GM76166	Panel, Junction Box Controller	1
13	GM76195	Guard, End Bracket Air Inlet	1
14	GM77897	Guard, Alternator Air Outlet	1
15	LK-0611-1515	Lead	1
16	M125A-06-80	Washer, Plain	5
18	M6923-08-80	Nut, Hex 8mm	6
19	M931-08385-60	Screw, Hex Cap (Metric)	4
20	M933-06010-60	Screw, Hex Cap	5
21	M933-10025-82	Screw, Hex Cap	6
22	X-22-1	Washer, Lock	1
23	X-22-12	Washer, Lock, .262 ID x .743 In. OD	6
24	X-22-6	Washer, Lock, .146 ID x .285 In. OD	6
25	X-22-7	Washer, lock, .172 ID x .333 In. OD	5
26	X-25-129	Washer, Plain, .384 ID x 1.628 In. OD	1
27	X-25-36	Washer, Plain, .219 ID x .5 In. OD	4
28	X-49-2	Screw, Machine	6
29	X-50-13	Screw, Machine	4
30	X-51-8	Screw, Machine	5
31	X-67-135	Screw, Hex Washer, Thread-Forming	3
32	X-97-15	Screw, Hex Head Machine	4
33	X-283-3	Terminal, Ring, Male, 16-14 AWG	3
34	X-468-3	Cable Tie, Nylon	1
35	X-634-27	Bushing	1
36	X-712-17	Spacer, .312 OD, .56 In.	3
37	X-801-3	Washer, Hardened, .406 ID x .812 In. OD	6
38	X-801-4	Washer, Hardened, .328 ID x .719 In. OD	4
39	X-6054-17	Stud (Metric)	6
40	X-6210-3	Nut, Flange Whiz, 6-32	6
41	X-6216-1	Screw, Phillips Hex Crimptite	8
42	X-6238-3	Bolt, Hex Cap	1
43	X-6266-1	Connector, Cable	1
44	See Chart	Rotor Assembly	1
45	See Chart	Stator Assembly	1

Module No.	Item 44, Rotor Assembly	Item 45, Stator Assembly
GM73474-GR1	GM72453	GM73375
GM73474-GR2	GM72454	GM73376
GM73474-GR3	GM72454	GM74037

Group 301: Controller

Variation GM76137-GR1



Item	Part No.	Description	Qty.
1	201620-152	Tab ID "Grd" (not shown)	1
2	201621-84	Marker, Lead (not shown)	1
3	238426	Fuse Holder, .25 X 1.25 in.	3
4	239298	Fuse, 5A, 250V, .25 X 1.25, Fast Acting	1
5	358337	Fuse, 10 A, 250 V	1
6	GM39266	Fuse, 20A 250V Fast Acting	1
7	GM49746	Relay, 12 VDC	2
8	GM77306	Harness, Engine 6-11 kW Marine	1
9	GM77373	Assembly, Battery Charger	1
11	GM82832	Controller, ADC I/d	1
11a	GM58147	Knob, Adjustment	1
11b	GM58145	Plug, USB	1
12	M125A-05-80	Washer, Plain	4
13	M7500D-05010-85	Screw, Metric Thread Forming	3
14	M7985A-05016-20	Screw, Pan Head Mach.	6
15	M934-05-50	Nut, Hex 5mm	2
16	X-22-11	Washer, Lock, .262 ID X .469 OD	2
17	X-22-12	Washer, Lock, .262 ID x .743 In. OD	2
18	X-25-40	Washer, Plain, .281 ID x .625 In. OD	1
19	X-81-8	Nut, Hex, 1/4-20	1
20	X-672-10	Clamp, Insulated, .5 In.	1
21	X-6210-2	Nut, Flange Spirallock, 1/4-20	4
22	GM84713	Filter, RFI Power Line	1
23	M934-04-50	Nut, Hex 4mm	2

Group 701: Literature

Variation 701-197-3, 701-197-4, 701-197-5, 701-197-6

Item	Part No.	Description	Qty.
1	TP-5620	Safety Precautions, Marine	1
2	TP-6691	Warranty, Marine (32 kW & Below)	1
3	TP-6772	O/M 5-11 kW Lombardini Diesel Marine	1
4	TP-6773	I/M 5-11 kW Lombardini Diesel Marine	1
5	TP-6774	S/M 5-11 kW Lombardini Diesel Marine	1
6	TP-6775	P/M 5-11 kW Lombardini Diesel Marine	1
7	TP-6776	S/M Lombardini Workshop Manual FOCS Engine Series	1
8	TP-6701	O/M SiteTech Software	1

Paint and Miscellaneous Parts

Item	Part Number	Description
1	GM48126	White paint, spray can (Matterhorn White)

Accessories

Qty.	Description	Part No.
Circuit Breaker Kits		
LCB, 25A, 2P, 250V		
1	Breaker, Circuit	GM77889-KA(KP)1 X-506-40
1	Plate, Cover	229183
LCB, 42A, 2P, 250V		
1	Breaker, Circuit	GM77889-KA(KP)2 X-506-43
1	Plate, Cover	229183
LCB, 50A, 2P, 250V		
1	Breaker, Circuit	GM77889-KA(KP)3 X-506-38
1	Plate, Cover	229183
LCB, 50A, 1P, 250V		
1	Breaker, Circuit	GM77889-KA(KP)4 X-506-78
1	Plate, Cover	229183
LCB, 27A, 1P, 250V		
1	Breaker, Circuit	GM77889-KA(KP)5 X-506-58
1	Plate, Cover	229183
LCB, 85A, 1P, 250V		
1	Breaker, Circuit	GM77889-KA(KP)6 X-506-70
1	Plate, Cover	229183
LCB, 35A, 1P, 250V		
1	Breaker, Circuit	GM77889-KA(KP)7 X-506-46
1	Plate, Cover	229183
LCB, 30A, 1P, 250V		
1	Breaker, Circuit	GM77889-KA(KP)8 X-506-49
1	Plate, Cover	229183
LCB, 100A, 1P, 250V		
1	Breaker, Circuit	GM77889-KA(KP)9 X-506-80
1	Plate, Cover	229183
LCB, 40A, 1P, 250V		
1	Breaker, Circuit	GM77889-KA(KP)10 X-506-50
1	Plate, Cover	229183
LCB, 22A, 2P, 250V		
1	Breaker, Circuit	GM77889-KA(KP)11 X-506-57
1	Plate, Cover	229183
LCB, 35A, 2P, 250V		
1	Breaker, Circuit	GM77889-KA(KP)12 X-506-42
1	Plate, Cover	229183
LCB, 18A, 3P, 480V		
1	Breaker, Circuit	GM77889-KA(KP)13 X-506-63
LCB, 35A, 3P, 480V		
1	Breaker, Circuit	GM77889-KA(KP)14 X-506-67
LCB, 40A, 3P, 480V		
1	Breaker, Circuit	GM77889-KA(KP)15 X-506-81
LCB, 23A, 3P, 480V		
1	Breaker, Circuit	GM77889-KA(KP)16 X-506-64
LCB, 20A, 3P, 480V		
1	Breaker, Circuit	GM77889-KA(KP)17 X-506-10

Qty.	Description	Part No.
LCB, 25A, 2P, 250V		
1	Breaker, Circuit	GM77889-KA(KP)18 X-506-40
1	Plate, Cover	229183
1	Terminal, Jumper	249956
LCB, 42A, 2P, 250V		
1	Breaker, Circuit	GM77889-KA(KP)19 X-506-43
1	Plate, Cover	229183
1	Terminal, Jumper	249956
LCB, 50A, 2P, 250V		
1	Breaker, Circuit	GM77889-KA(KP)20 X-506-38
1	Plate, Cover	229183
1	Terminal, Jumper	249956
Electrical System Kits		
Harness, 12 In. Pigtail		
1	Harness, pigtail	GM32332-KP1 GM32324
Harness, 15 Ft., Remote Panel		
1	Harness, extension	GM32333-KP1 GM30248
Harness, 25 Ft., Remote Panel		
1	Harness, extension	GM32333-KP2 GM32323
Harness, 30 Ft., Remote Panel		
1	Harness, extension	GM32333-KP3 GM45889
Harness, 100 Ft., Remote Panel		
1	Harness, extension	GM32333-KP4 GM47391
Harness, Y Connection		
1	Harness, Y remote gauge	GM32333-KP5 GM49054
Harness, Y Connection		
1	Harness, Y remote gauge	GM32333-KP6 GM62759
Remote Digital Gauge		
1	Decal, warning	GM32337-KP1 249494
1	Gauge, digital	GM30565
1	Harness, remote	GM32325
1	Installation Instructions	
1	ADC 2100 Controller Replacement	TT-1364
1	Installation Instructions, Remote Digital Gauge	TT-1379
Remote Digital Gauge, 2" Smartcraft		
1	Decal, warning	GM85174-KP1 249494
1	Harness, Remote Digital CAN Gauge	GM50821
2	Bubble Wrap, 5/16"	GM65800
1	Gauge, Digital CAN 2 Inch	GM85173
1	2" Dgtl Gauge Kit, 6EKOD, 911EKOZD, MarTT-1592	

Accessories

Qty.	Description	Part No.
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Remote Start Panel, 12V		GM32335-KP1
1	TT Rmt Start Panel	TT-1378
1	Decal, warning	249494
1	Panel assy, control 12V (includes the following)	GM33848-1
1	Meter, run time, 10000 hour	238736
1	Panel, control	GM33847
1	Switch, rocker, 12V	GM33849
1	Harness, wiring panel assy, control	GM33851
2	Screw, pan head M3 x 12	M7985A-03012-20
2	Nut, hex, 3 mm	M934-03-50
2	Washer, lock.146 ID x .285 in. OD	X-22-6

Ship to Shore Switch, 3 Wire		PAA-246617
1	Switch, transfer, 3 pole	A-246617
1	Instructions, installation	TT-535

Isolated Standoff		GM38314-KA1
2	Nut, hex, 6 mm	M934-06-60
2	Stud (Metric)	X-6054-23
1	Isulator, Standoff	X-6128-35

Isolated Ground, 12V		GM78414-KA(KP)1
1	Relay, 12VDC	233442
1	Switch, High Temp. Cut-Out	GM29289
1	Relay, 12 VDC	GM49746
1	Bus, Isolated Ground	GM31868
1	Bracket, Bus Support	GM78415
1	Sender, Pressure, 0-150psi, 1/8-27	GM70917-1
1	Harness, Engine 6-11KW Marine	GM79007
1	Spacer,.406 ID x .625 OD x .297 in.	X-400-75
1	Cable, Battery (Black)	X-545-178
1	Cable, Battery	X-545-228
2	Stud (Metric)	X-6054-23
5	Isulator, Standoff	X-6128-35
1	Installation Instructions	TT-1581

Isolated Ground, 12V		GM78414-KA(KP)3
1	Relay, 12VDC	233442
1	Switch, High Temp. Cut-Out	GM29289
1	Bus, Isolated Ground	GM31868
1	Relay, 12 VDC	GM49746
1	Bracket, Bus Support	GM78415
1	Sender, Pressure, 0-150psi, 1/8-27	GM70917-1
1	Harness, Engine 6-11KW Marine	GM79007
1	Spacer,.406 ID x .625 OD x .297 in.	X-400-75
1	Cable, Battery (Black)	X-545-178
1	Cable, Battery	X-545-228
1	Cable, Battery	X-545-233
2	Stud (Metric)	X-6054-23
5	Isulator, Standoff	X-6128-35
1	Installation Instructions	TT-1581

Qty.	Description	Part No.
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Sound Shield Kits

Sound Shield		GM77876-KA(KP)1
2	Grommet, round	243488
1	Hose (2.0 in. ID x 5 in.)	GM32052
1	Tube, exhaust (8.0 in.)	GM46007
4	Corner, sound shield	GM74137
2	Rail, sound shield (17.4 in.)	GM74140
4	Rail, sound shield (18.0 in.)	GM74141
2	Rail, sound shield (27.3 in.)	GM74142
1	Panel, sound shield (RH)(18.3 x 10.1 in.)	GM74437
1	Door, sound shield (RH)(18.3 x 17.8 in.)	GM74439
1	Door, sound shield (front) (18.3 x 14.1 in.)	GM74444
1	Door, sound shield (LH) (18.3 x 28.2 in.)	GM74446
1	Door, sound shield (rear) (18.3 x 18.3 in.)	GM74454
1	Roof, sound shield (18.3 x 28.2 in.)	GM74456
4	Bracket, sound shield corner (1 x 1.6 in.)	GM74790
1	Insulation, acoustic foam (2 x 5.8 in.)	GM74924-21
1	Insulation, acoustic foam (4.8 x 6.3 in.)	GM74924-23
1	Insulation, acoustic foam (2.7 x 6.3 in.)	GM74924-24
1	Plate, end bracket (8.5 in.)	GM76135
1	Bracket, sound shield mounting (side) (2.3 x 30.7 in.)	GM77145
1	Bracket, sound shield mounting (rear) (2.3 x 16.8 in.)	GM77147
26	Bracket, sound shield rail (1 x 1.7 in.)	GM77148
9	Bracket, sound shield panel mounting (1.1 x 1.8 in.)	GM77222
1	Hose, molded seawater inlet (9 in.)	GM77366
1	Panel, terminal block (18.3 x 4 in.)	GM77369
1	Baffle, junction box air intake (rear) (5.7 x 6.25 in.)	GM77386
1	Hose, molded air intake (11.6 in.)	GM77879
1	Bulkhead, sound shield (front) (2.3 x 19 in.)	GM77883
1	Bracket, sound shield RH door mtg. (2.3 x 29.7 in.)	GM79138
1	Extension harness	GM80502
1	Bracket, terminal block panel mounting	GM82181
1	Lead, ground	LK-0611-1515
2	Nut, wing (1/4-20)	X-276-9
2	Clamp, hose (0.69/1.25 in.)	X-426-12
4	Clamp, hose (1.81/2.75 in.)	X-426-16
3	Clamp, hose (0.25/0.70 in.)	X-426-9
1	Cable, battery (positive, red)	X-545-137
1	Cable, battery (negative, black)	X-545-190
1	Conduit, convoluted (13 in.)	X-6003-13
1	Conduit, convoluted (19 in.)	X-6003-37
1	Conduit, convoluted (16 in.)	X-6003-5
5	Screw, Phillips hex crimp tip	X-6216-1
1	Line, flex fuel (14.5 in.)	X-6251-33
1	Connector, hose	X-652-3
2	Screw, self tapping (10-32)	X-67-64
1	Installation Instructions	TT-1571

Accessories, continued

Qty.	Description	Part No.
Sound Shield GM77877-KA(KP)1		
2	Grommet, round	243488
1	Hose (2.0 in. ID x 7.5 in.)	GM32053
1	Tube, exhaust (8.0 in.)	GM46007
4	Corner, sound shield	GM74137
2	Rail, sound shield (17.4 in.)	GM74140
4	Rail, sound shield (18.0 in.)	GM74141
2	Rail, sound shield (30.7 in.)	GM74143
1	Door, sound shield (RH) (18.3 x 21.2 in.)	GM74440
1	Door, sound shield (front) (18.3 x 14.1 in.)	GM74444
1	Door, sound shield (LH) (18.3 x 31.6 in.)	GM74447
1	Door, sound shield (rear) (18.3 x 18.3 in.)	GM74451
1	Roof, sound shield (18.3 x 31.6 in.)	GM74457
1	Panel, sound shield (RH) (18.3 x 10.1 in.)	GM74464
4	Bracket, sound shield corner (1 x 1.6 in.)	GM74790
1	Insulation, acoustic foam (10.75 in. diameter)	GM74924-20
1	Insulation, acoustic foam (2 x 5.8 in.)	GM74924-21
1	Insulation, acoustic foam (4.8 x 6.3 in.)	GM74924-23
1	Insulation, acoustic foam (2.7 x 6.3 in.)	GM74924-24
1	Bracket, sound shield mounting (rear) (2.3 x 16.8 in.)	GM77147
26	Bracket, sound shield rail (1 x 1.7 in.)	GM77148
1	Bracket, sound shield mounting (side) (2.3 x 34 in.)	GM77194
9	Bracket, sound shield panel mounting (1.1 x 1.8 in.)	GM77222
1	Hose, molded seawater inlet (9 in.)	GM77366
1	Panel, terminal block (18.3 x 4 in.)	GM77369
1	Baffle, junction box air intake (rear) (5.7 x 6.25 in.)	GM77386
1	Panel, end bracket (10.75 in. diameter)	GM77823
1	Panel, end bracket foam (9.25 in. ID x 10.75 in. OD)	GM77824
1	Hose, molded air intake (11.6 in.)	GM77879
1	Bulkhead, sound shield (front) (2.3 x 19 in.)	GM77883
1	Bracket, sound shield RH door mtg. (2.3 x 33.1 in.)	GM79139
1	Extension harness	GM80502
1	Bracket, terminal block panel mounting	GM82181
1	Lead, ground	LK-0611-1515
2	Nut, wing (1/4-20)	X-276-9
2	Clamp, hose (0.69/1.25 in.)	X-426-12
4	Clamp, hose (1.81/2.75 in.)	X-426-16
3	Clamp, hose (0.25/0.70 in.)	X-426-9
1	Cable, battery (positive, red)	X-545-137
1	Cable, battery (negative, black)	X-545-190
1	Conduit, convoluted (13 in.)	X-6003-13
1	Conduit, convoluted (19 in.)	X-6003-37
1	Conduit, convoluted (16 in.)	X-6003-5
5	Screw, Phillips hex crimp-tite	X-6216-1
1	Connector, hose	X-652-3
1	Line, flex fuel (14.5 in.)	X-6251-33
1	Installation Instructions	TT-1572

Qty.	Description	Part No.
Sound Shield GM77877-KA(KP)2		
2	Grommet, round	243488
1	Hose (2.0 in. ID x 7.5 in.)	GM32053
1	Tube, exhaust (8.0 in.)	GM46007
4	Corner, sound shield	GM74137
2	Rail, sound shield (17.4 in.)	GM74140
4	Rail, sound shield (18.0 in.)	GM74141
2	Rail, sound shield (34.4 in.)	GM74144
1	Door, sound shield (RH) (18.3 x 24.9 in.)	GM74441
1	Door, sound shield (front) (18.3 x 14.1 in.)	GM74444
1	Door, sound shield (LH) (18.3 x 35.3 in.)	GM74448
1	Door, sound shield (rear) (18.3 x 18.3 in.)	GM74451
1	Roof, sound shield (18.3 x 35.3 in.)	GM74458
1	Panel, sound shield (RH) (18.3 x 10.1 in.)	GM74464
4	Bracket, sound shield corner (1 x 1.6 in.)	GM74790
1	Insulation, acoustic foam (10.75 in. diameter)	GM74924-20
1	Insulation, acoustic foam (2 x 5.8 in.)	GM74924-21
1	Insulation, acoustic foam (4.8 x 6.3 in.)	GM74924-23
1	Insulation, acoustic foam (2.7 x 6.3 in.)	GM74924-24
1	Bracket, sound shield mounting (rear) (2.3 x 16.8 in.)	GM77147
26	Bracket, sound shield rail (1 x 1.7 in.)	GM77148
1	Bracket, sound shield mounting (side) (2.3 x 37.8 in.)	GM77195
9	Bracket, sound shield panel mounting (1.1 x 1.8 in.)	GM77222
1	Hose, molded seawater inlet (9 in.)	GM77366
1	Panel, terminal block (18.3 x 4 in.)	GM77369
1	Baffle, junction box air intake (rear) (5.7 x 6.25 in.)	GM77386
1	Panel, end bracket (10.75 in. diameter)	GM77823
1	Panel, end bracket foam (9.25 in. ID x 10.75 in. OD)	GM77824
1	Hose, molded air intake (11.6 in.)	GM77879
1	Bulkhead, sound shield (front) (2.3 x 19 in.)	GM77883
1	Bracket, sound shield RH door mtg. (2.3 x 36.8 in.)	GM79140
1	Extension harness	GM80502
1	Bracket, terminal block panel mounting	GM82181
1	Lead, ground	LK-0611-1515
2	Nut, wing (1/4-20)	X-276-9
2	Clamp, hose (0.69/1.25 in.)	X-426-12
4	Clamp, hose (1.81/2.75 in.)	X-426-16
3	Clamp, hose (0.25/0.70 in.)	X-426-9
1	Cable, battery (positive, red)	X-545-137
1	Cable, battery (negative, black)	X-545-190
1	Conduit, convoluted (13 in.)	X-6003-13
1	Conduit, convoluted (19 in.)	X-6003-37
1	Conduit, convoluted (16 in.)	X-6003-5
1	Connector, hose	X-652-3
5	Screw, Phillips hex crimp-tite	X-6216-1
1	Line, flex fuel (18 in.)	X-6251-32
1	Installation Instructions	TT-1573

Accessories, continued

Qty.	Description	Part No.
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Qty.	Description	Part No.
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Miscellaneous Kits

Ignition Protected Starter **GM84901-KA1**

1 Starter, Ignition Protected GM84900

Keel Cooling Conversion **GM78587-KA(KP)1**

1 Flange, Exhaust Outlet GM78586
 1 Gasket, Thermostat Housing GM78775
 2 Cap, Rubber GM79490
 1 Guard, Pulley GM82971

Keel Cooling Conversion **GM78587-KA(KP)2**

1 Flange, Exhaust Outlet GM78586
 1 Gasket, Thermostat Housing GM78775
 2 Cap, Rubber GM79490
 1 Guard, Pulley GM82971

Fuel/Water Separator **GM31994-KP1**

1 TT Fuel/Water Separator TT-1375
 1 Assembly, Fuel/Water Separator Filter GM41013
 1 Element, Filter GM41014

Stainless Steel Drip Tray **GM78322-KA(KP)1**

1 Tray, Stainless Steel Drip GM78323

Stainless Steel Drip Tray **GM78322-KA(KP)2**

1 Tray, Stainless Steel Drip GM78324

Stainless Steel Drip Tray **GM78322-KA(KP)3**

1 Tray, Stainless Steel Drip GM78325

Siphon Break (for Non-Sound Shielded Units)

PA-229928

1 Clamp, hose, 0.25/0.70 in. X-426-9
 1 Installation Instructions TT-1268
 1 Tubing, clear flexible plastic GM34883
 1 Valve assy., siphon break (includes the following) GM32985
 1 Valve, duct 328666
 1 Cap, siphon valve GM32984
 1 Loop, siphon valve vent GM32988

Siphon Break Hose Connection **GM78347-KA(KP)1**

2 Connector, hose 344934
 2 Grommet, round X-284-42
 2 Clamp, hose, .69/1.25 in. X-426-12
 1 Clamp, hose, .25/.70 in. X-426-9
 1 Hose X-691-16
 1 Hose X-691-25
 1 Tubing, clear flexible plastic GM34883
 1 Valve, siphon break (includes the following) GM32985
 1 Valve, duct 328666
 1 Cap, siphon valve GM32984
 1 Loop, siphon valve vent GM32988
 1 Installation Instructions TT-1579

Notes

Appendix A Abbreviations

The following list contains abbreviations that may appear in this publication.

A, amp	ampere	cfm	cubic feet per minute	ext.	external
ABDC	after bottom dead center	CG	center of gravity	F	Fahrenheit, female
AC	alternating current	CID	cubic inch displacement	fglass.	fiberglass
A/D	analog to digital	CL	centerline	FHM	flat head machine (screw)
ADC	analog to digital converter	cm	centimeter	fl. oz.	fluid ounce
adj.	adjust, adjustment	CMOS	complementary metal oxide substrate (semiconductor)	flex.	flexible
ADV	advertising dimensional drawing	cogen.	cogeneration	freq.	frequency
AHWT	anticipatory high water temperature	com	communications (port)	FS	full scale
AISI	American Iron and Steel Institute	coml	commercial	ft.	foot, feet
ALOP	anticipatory low oil pressure	Coml/Rec	Commercial/Recreational	ft. lb.	foot pounds (torque)
alt.	alternator	conn.	connection	ft./min.	feet per minute
Al	aluminum	cont.	continued	g	gram
ANSI	American National Standards Institute (formerly American Standards Association, ASA)	CPVC	chlorinated polyvinyl chloride	ga.	gauge (meters, wire size)
AO	anticipatory only	crit.	critical	gal.	gallon
API	American Petroleum Institute	CRT	cathode ray tube	gen.	generator
approx.	approximate, approximately	CSA	Canadian Standards Association	genset	generator set
AR	as required, as requested	CT	current transformer	GFI	ground fault interrupter
AS	as supplied, as stated, as suggested	Cu	copper	GND, ⊕	ground
ASE	American Society of Engineers	cu. in.	cubic inch	gov.	governor
ASME	American Society of Mechanical Engineers	cw.	clockwise	gph	gallons per hour
assy.	assembly	CWC	city water-cooled	gpm	gallons per minute
ASTM	American Society for Testing Materials	cyl.	cylinder	gr.	grade, gross
ATDC	after top dead center	D/A	digital to analog	GRD	equipment ground
ATS	automatic transfer switch	DAC	digital to analog converter	gr. wt.	gross weight
auto.	automatic	dB	decibel	H x W x D	height by width by depth
aux.	auxiliary	dBA	decibel (A weighted)	HC	hex cap
A/V	audiovisual	DC	direct current	HCHT	high cylinder head temperature
AVR	automatic voltage regulator	DCR	direct current resistance	HD	heavy duty
AWG	American Wire Gauge	deg., °	degree	HET	high exhaust temperature, high engine temperature
AWM	appliance wiring material	dept.	department	hex	hexagon
bat.	battery	dia.	diameter	Hg	mercury (element)
BBDC	before bottom dead center	DI/EO	dual inlet/end outlet	HH	hex head
BC	battery charger, battery charging	DIN	Deutsches Institut für Normung e. V. (also Deutsche Industrie Normenausschuss)	HHC	hex head cap
BCA	battery charging alternator	DIP	dual inline package	HP	horsepower
BCI	Battery Council International	DPDT	double-pole, double-throw	hr.	hour
BDC	before dead center	DPST	double-pole, single-throw	HS	heat shrink
BHP	brake horsepower	DS	disconnect switch	hsg.	housing
blk.	black (paint color), block (engine)	DVR	digital voltage regulator	HVAC	heating, ventilation, and air conditioning
blk. htr.	block heater	E, emer.	emergency (power source)	HWT	high water temperature
BMEP	brake mean effective pressure	EDI	electronic data interchange	Hz	hertz (cycles per second)
bps	bits per second	EFR	emergency frequency relay	IC	integrated circuit
br.	brass	e.g.	for example (<i>exempli gratia</i>)	ID	inside diameter, identification
BTDC	before top dead center	EG	electronic governor	IEC	International Electrotechnical Commission
Btu	British thermal unit	EGSA	Electrical Generating Systems Association	IEEE	Institute of Electrical and Electronics Engineers
Btu/min.	British thermal units per minute	EIA	Electronic Industries Association	IMS	improved motor starting
C	Celsius, centigrade	EI/EO	end inlet/end outlet	in.	inch
cal.	calorie	EMI	electromagnetic interference	in. H ₂ O	inches of water
CARB	California Air Resources Board	emiss.	emission	in. Hg	inches of mercury
CB	circuit breaker	eng.	engine	in. lb.	inch pounds
cc	cubic centimeter	EPA	Environmental Protection Agency	Inc.	incorporated
CCA	cold cranking amps	EPS	emergency power system	ind.	industrial
ccw.	counterclockwise	ER	emergency relay	int.	internal
CEC	Canadian Electrical Code	ES	engineering special, engineered special	int./ext.	internal/external
cert.	certificate, certification, certified	ESD	electrostatic discharge	I/O	input/output
cfh	cubic feet per hour	est.	estimated	IP	iron pipe
		E-Stop	emergency stop	ISO	International Organization for Standardization
		etc.	et cetera (and so forth)	J	joule
		exh.	exhaust	JIS	Japanese Industry Standard
				k	kilo (1000)
				K	kelvin

kA	kiloampere	MTBO	mean time between overhauls	rly.	relay
KB	kilobyte (2 ¹⁰ bytes)	mtg.	mounting	rms	root mean square
kg	kilogram	MW	megawatt	rnd.	round
kg/cm ²	kilograms per square centimeter	mW	milliwatt	ROM	read only memory
kgm	kilogram-meter	μF	microfarad	rot.	rotate, rotating
kg/m ³	kilograms per cubic meter	N, norm.	normal (power source)	rpm	revolutions per minute
kHz	kilohertz	NA	not available, not applicable	RS	right side
kJ	kilojoule	nat. gas	natural gas	RTV	room temperature vulcanization
km	kilometer	NBS	National Bureau of Standards	SAE	Society of Automotive Engineers
kOhm, kΩ	kilo-ohm	NC	normally closed	scfm	standard cubic feet per minute
kPa	kilopascal	NEC	National Electrical Code	SCR	silicon controlled rectifier
kph	kilometers per hour	NEMA	National Electrical Manufacturers Association	s, sec.	second
kV	kilovolt	NFPA	National Fire Protection Association	SI	<i>Systeme international d'unites</i> , International System of Units
kVA	kilovolt ampere	Nm	newton meter	SI/EO	side in/end out
kVAR	kilovolt ampere reactive	NO	normally open	sil.	silencer
kW	kilowatt	no., nos.	number, numbers	SN	serial number
kWh	kilowatt-hour	NPS	National Pipe, Straight	SPDT	single-pole, double-throw
kWm	kilowatt mechanical	NPSC	National Pipe, Straight-coupling	SPST	single-pole, single-throw
L	liter	NPT	National Standard taper pipe thread per general use	spec, specs	specification(s)
LAN	local area network	NPTF	National Pipe, Taper-Fine	sq.	square
L x W x H	length by width by height	NR	not required, normal relay	sq. cm	square centimeter
lb.	pound, pounds	ns	nanosecond	sq. in.	square inch
lbm/ft ³	pounds mass per cubic feet	OC	overcrank	SS	stainless steel
LCB	line circuit breaker	OD	outside diameter	std.	standard
LCD	liquid crystal display	OEM	original equipment manufacturer	stl.	steel
ld. shd.	load shed	OF	overfrequency	tach.	tachometer
LED	light emitting diode	opt.	option, optional	TD	time delay
Lph	liters per hour	OS	oversize, overspeed	TDC	top dead center
Lpm	liters per minute	OSHA	Occupational Safety and Health Administration	TDEC	time delay engine cooldown
LOP	low oil pressure	OV	overvoltage	TDEN	time delay emergency to normal
LP	liquefied petroleum	oz.	ounce	TDES	time delay engine start
LPG	liquefied petroleum gas	p., pp.	page, pages	TDNE	time delay normal to emergency
LS	left side	PC	personal computer	TDOE	time delay off to emergency
L _{wa}	sound power level, A weighted	PCB	printed circuit board	TDON	time delay off to normal
LWL	low water level	pF	picofarad	temp.	temperature
LWT	low water temperature	PF	power factor	term.	terminal
m	meter, milli (1/1000)	ph., ∅	phase	TIF	telephone influence factor
M	mega (10 ⁶ when used with SI units), male	PHC	Phillips head crimplite (screw)	TIR	total indicator reading
m ³	cubic meter	PHH	Phillips hex head (screw)	tol.	tolerance
m ³ /min.	cubic meters per minute	PHM	pan head machine (screw)	turbo.	turbocharger
mA	milliampere	PLC	programmable logic control	typ.	typical (same in multiple locations)
man.	manual	PMG	permanent-magnet generator	UF	underfrequency
max.	maximum	pot	potentiometer, potential	UHF	ultrahigh frequency
MB	megabyte (2 ²⁰ bytes)	ppm	parts per million	UL	Underwriter's Laboratories, Inc.
MCM	one thousand circular mils	PROM	programmable read-only memory	UNC	unified coarse thread (was NC)
MCCB	molded-case circuit breaker	psi	pounds per square inch	UNF	unified fine thread (was NF)
meggar	megohmmeter	pt.	pint	univ.	universal
MHz	megahertz	PTC	positive temperature coefficient	US	undersize, underspeed
mi.	mile	PTO	power takeoff	UV	ultraviolet, undervoltage
mil	one one-thousandth of an inch	PVC	polyvinyl chloride	V	volt
min.	minimum, minute	qt.	quart, quarts	VAC	volts alternating current
misc.	miscellaneous	qty.	quantity	VAR	voltampere reactive
MJ	megajoule	R	replacement (emergency) power source	VDC	volts direct current
mJ	millijoule	rad.	radiator, radius	VFD	vacuum fluorescent display
mm	millimeter	RAM	random access memory	VGA	video graphics adapter
mOhm, mΩ	milliohm	RDO	relay driver output	VHF	very high frequency
MOhm, MΩ	megohm	ref.	reference	W	watt
MOV	metal oxide varistor	rem.	remote	WCR	withstand and closing rating
MPa	megapascal	Res/Coml	Residential/Commercial	w/	with
mpg	miles per gallon	RFI	radio frequency interference	w/o	without
mpg	miles per gallon	RH	round head	wt.	weight
mph	miles per hour	RHM	round head machine (screw)	xfrm	transformer
MS	military standard				
m/sec.	meters per second				
MTBF	mean time between failure				

Appendix B Common Hardware Application Guidelines

Use the information below and on the following pages to identify proper fastening techniques when no specific reference for reassembly is made.

Bolt/Screw Length: When bolt/screw length is not given, use Figure 1 as a guide. As a general rule, a minimum length of one thread beyond the nut and a maximum length of 1/2 the bolt/screw diameter beyond the nut is the preferred method.

Washers and Nuts: Use split lock washers as a bolt locking device where specified. Use SAE flat washers with whiz nuts, spirallock nuts, or standard nuts and preloading (torque) of the bolt in all other applications.

See Appendix C, General Torque Specifications, and other torque specifications in the service literature.

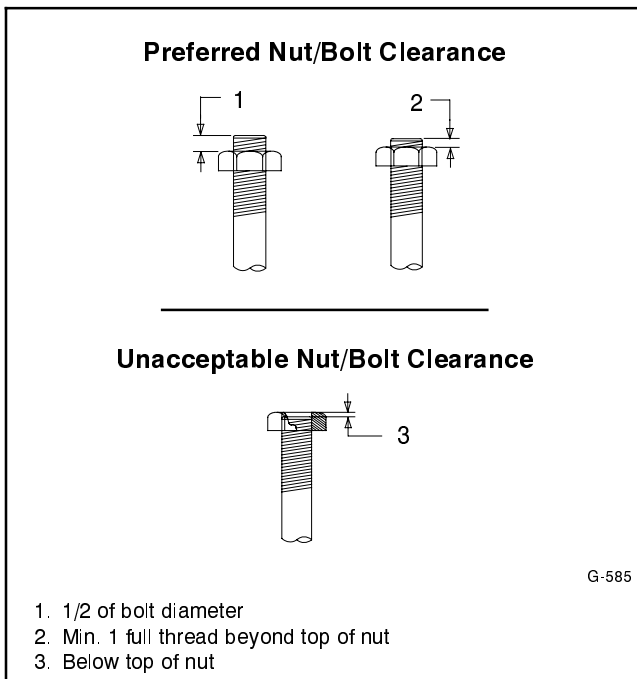


Figure 1 Acceptable Bolt Lengths

1. 1/2 of bolt diameter
2. Min. 1 full thread beyond top of nut
3. Below top of nut

Steps for common hardware application:

1. Determine entry hole type: round or slotted.
2. Determine exit hole type: fixed female thread (weld nut), round, or slotted.

For round and slotted exit holes, determine if hardware is greater than 1/2 inch in diameter, or 1/2 inch in diameter or less. Hardware that is *greater than 1/2 inch* in diameter takes a standard nut and SAE washer. Hardware *1/2 inch or less* in diameter can take a properly torqued whiz nut or spirallock nut. See Figure 2.

3. Follow these SAE washer rules after determining exit hole type:
 - a. Always use a washer between hardware and a slot.
 - b. Always use a washer under a nut (see 2 above for exception).
 - c. Use a washer under a bolt when the female thread is fixed (weld nut).
4. Refer to Figure 2, which depicts the preceding hardware configuration possibilities.

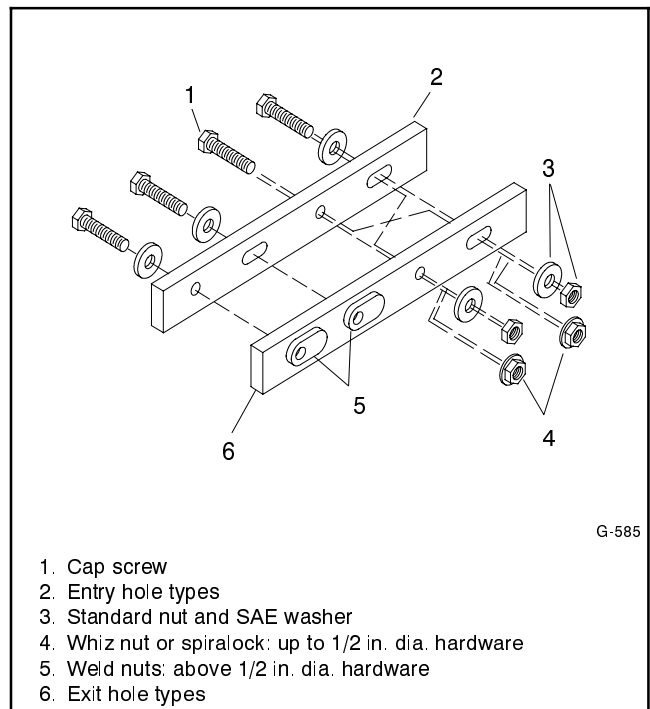


Figure 2 Acceptable Hardware Combinations

1. Cap screw
2. Entry hole types
3. Standard nut and SAE washer
4. Whiz nut or spirallock: up to 1/2 in. dia. hardware
5. Weld nuts: above 1/2 in. dia. hardware
6. Exit hole types

Appendix C General Torque Specifications















American Standard Fasteners Torque Specifications					
Size	Torque Measurement	Assembled into Cast Iron or Steel			Assembled into Aluminum Grade 2 or 5
		Grade 2	Grade 5	Grade 8	
8-32	Nm (in. lb.)	1.8 (16)	2.3 (20)	—	See Note 3
10-24	Nm (in. lb.)	2.9 (26)	3.6 (32)	—	
10-32	Nm (in. lb.)	2.9 (26)	3.6 (32)	—	
1/4-20	Nm (in. lb.)	6.8 (60)	10.8 (96)	14.9 (132)	
1/4-28	Nm (in. lb.)	8.1 (72)	12.2 (108)	16.3 (144)	
5/16-18	Nm (in. lb.)	13.6 (120)	21.7 (192)	29.8 (264)	
5/16-24	Nm (in. lb.)	14.9 (132)	23.1 (204)	32.5 (288)	
3/8-16	Nm (ft. lb.)	24.0 (18)	38.0 (28)	53.0 (39)	
3/8-24	Nm (ft. lb.)	27.0 (20)	42.0 (31)	60.0 (44)	
7/16-14	Nm (ft. lb.)	39.0 (29)	60.0 (44)	85.0 (63)	
7/16-20	Nm (ft. lb.)	43.0 (32)	68.0 (50)	95.0 (70)	
1/2-13	Nm (ft. lb.)	60.0 (44)	92.0 (68)	130.0 (96)	
1/2-20	Nm (ft. lb.)	66.0 (49)	103.0 (76)	146.0 (108)	
9/16-12	Nm (ft. lb.)	81.0 (60)	133.0 (98)	187.0 (138)	
9/16-18	Nm (ft. lb.)	91.0 (67)	148.0 (109)	209.0 (154)	
5/8-11	Nm (ft. lb.)	113.0 (83)	183.0 (135)	259.0 (191)	
5/8-18	Nm (ft. lb.)	128.0 (94)	208.0 (153)	293.0 (216)	
3/4-10	Nm (ft. lb.)	199.0 (147)	325.0 (240)	458.0 (338)	
3/4-16	Nm (ft. lb.)	222.0 (164)	363.0 (268)	513.0 (378)	
1-8	Nm (ft. lb.)	259.0 (191)	721.0 (532)	1109.0 (818)	
1-12	Nm (ft. lb.)	283.0 (209)	789.0 (582)	1214.0 (895)	












Metric Fasteners Torque Specifications, Measured in Nm (ft. lb.)				
Size (mm)	Assembled into Cast Iron or Steel			Assembled into Aluminum Grade 5.8 or 8.8
	Grade 5.8	Grade 8.8	Grade 10.9	
M6 x 1.00	6.2 (4.6)	9.5 (7)	13.6 (10)	See Note 3
M8 x 1.25	15.0 (11)	23.0 (17)	33.0 (24)	
M8 x 1.00	16.0 (11)	24.0 (18)	34.0 (25)	
M10 x 1.50	30.0 (22)	45.0 (34)	65.0 (48)	
M10 x 1.25	31.0 (23)	47.0 (35)	68.0 (50)	
M12 x 1.75	53.0 (39)	80.0 (59)	115.0 (85)	
M12 x 1.50	56.0 (41)	85.0 (63)	122.0 (90)	
M14 x 2.00	83.0 (61)	126.0 (93)	180.0 (133)	
M14 x 1.50	87.0 (64)	133.0 (98)	190.0 (140)	
M16 x 2.00	127.0 (94)	194.0 (143)	278.0 (205)	
M16 x 1.50	132.0 (97)	201.0 (148)	287.0 (212)	
M18 x 2.50	179.0 (132)	273.0 (201)	390.0 (288)	
M18 x 1.50	189.0 (140)	289.0 (213)	413.0 (305)	

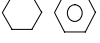




Notes:

1. Do not use these values when the torque values are specified on the assembly drawing.
2. These values are based on new plates threads. Increase values by 15% if non-plated threads are used.
3. Hardware threaded into aluminum must have two diameters of thread engagement or may require 30% or more reduction in the torque.
4. Torques are calculated as equivalent stress loading to American hardware and approximately a preload of 90% of yield strength and friction coefficient of 0.125.

Appendix D 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	

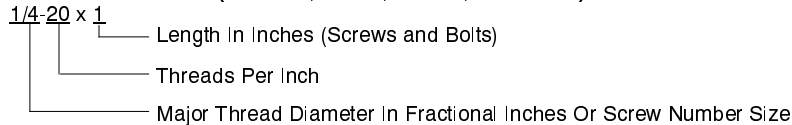
Hardness Grades	
American Standard	
Grade 2	
Grade 5	
Grade 8	
Grade 8/9 (Hex Socket Head)	
Metric	
Number stamped on hardware; 5.8 shown	

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

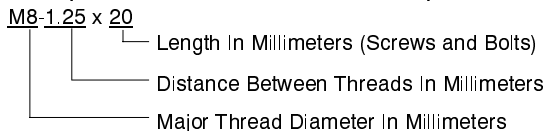
Phillips® screw is a registered trademark of Phillips Screw Company.

Sample Dimensions

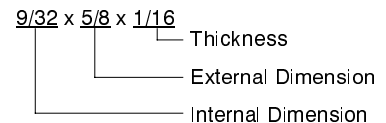
American Standard (Screws, Bolts, Studs, and Nuts)



Metric (Screws, Bolts, Studs, and Nuts)



Plain Washers



Lock Washers



Appendix E Common Hardware List

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

American Standard

Part No. Dimensions Hex Head Bolts (Grade 5)

X-465-17	1/4-20 x .38
X-465-6	1/4-20 x .50
X-465-2	1/4-20 x .62
X-465-16	1/4-20 x .75
X-465-18	1/4-20 x .88
X-465-7	1/4-20 x 1.00
X-465-8	1/4-20 x 1.25
X-465-9	1/4-20 x 1.50
X-465-10	1/4-20 x 1.75
X-465-11	1/4-20 x 2.00
X-465-12	1/4-20 x 2.25
X-465-14	1/4-20 x 2.75
X-465-21	1/4-20 x 5.00
X-465-25	1/4-28 x .38
X-465-20	1/4-28 x 1.00
X-125-33	5/16-18 x .50
X-125-23	5/16-18 x .62
X-125-3	5/16-18 x .75
X-125-31	5/16-18 x .88
X-125-5	5/16-18 x 1.00
X-125-24	5/16-18 x 1.25
X-125-34	5/16-18 x 1.50
X-125-25	5/16-18 x 1.75
X-125-26	5/16-18 x 2.00
230578	5/16-18 x 2.25
X-125-29	5/16-18 x 2.50
X-125-27	5/16-18 x 2.75
X-125-28	5/16-18 x 3.00
X-125-22	5/16-18 x 4.50
X-125-32	5/16-18 x 5.00
X-125-35	5/16-18 x 5.50
X-125-36	5/16-18 x 6.00
X-125-40	5/16-18 x 6.50
X-125-43	5/16-24 x 1.75
X-125-44	5/16-24 x 2.50
X-125-30	5/16-24 x .75
X-125-39	5/16-24 x 2.00
X-125-38	5/16-24 x 2.75
X-6238-2	3/8-16 x .62
X-6238-10	3/8-16 x .75
X-6238-3	3/8-16 x .88
X-6238-11	3/8-16 x 1.00
X-6238-4	3/8-16 x 1.25
X-6238-5	3/8-16 x 1.50
X-6238-1	3/8-16 x 1.75
X-6238-6	3/8-16 x 2.00
X-6238-17	3/8-16 x 2.25
X-6238-7	3/8-16 x 2.50
X-6238-8	3/8-16 x 2.75
X-6238-9	3/8-16 x 3.00
X-6238-19	3/8-16 x 3.25
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

Part No. Dimensions Hex Head Bolts, cont.

X-6238-14	3/8-24 x .75
X-6238-16	3/8-24 x 1.25
X-6238-21	3/8-24 x 4.00
X-6238-22	3/8-24 x 4.50
X-6024-5	7/16-14 x .75
X-6024-2	7/16-14 x 1.00
X-6024-8	7/16-14 x 1.25
X-6024-3	7/16-14 x 1.50
X-6024-4	7/16-14 x 2.00
X-6024-11	7/16-14 x 2.75
X-6024-12	7/16-14 x 6.50
X-129-15	1/2-13 x .75
X-129-17	1/2-13 x 1.00
X-129-18	1/2-13 x 1.25
X-129-19	1/2-13 x 1.50
X-129-20	1/2-13 x 1.75
X-129-21	1/2-13 x 2.00
X-129-22	1/2-13 x 2.25
X-129-23	1/2-13 x 2.50
X-129-24	1/2-13 x 2.75
X-129-25	1/2-13 x 3.00
X-129-27	1/2-13 x 3.50
X-129-29	1/2-13 x 4.00
X-129-30	1/2-13 x 4.50
X-463-9	1/2-13 x 5.50
X-129-44	1/2-13 x 6.00
X-129-51	1/2-20 x .75
X-129-45	1/2-20 x 1.25
X-129-52	1/2-20 x 1.50
X-6021-3	5/8-11 x 1.00
X-6021-4	5/8-11 x 1.25
X-6021-2	5/8-11 x 1.50
X-6021-1	5/8-11 x 1.75
273049	5/8-11 x 2.00
X-6021-5	5/8-11 x 2.25
X-6021-6	5/8-11 x 2.50
X-6021-7	5/8-11 x 2.75
X-6021-12	5/8-11 x 3.75
X-6021-11	5/8-11 x 4.50
X-6021-10	5/8-11 x 6.00
X-6021-9	5/8-18 x 2.50
X-6239-1	3/4-10 x 1.00
X-6239-8	3/4-10 x 1.25
X-6239-2	3/4-10 x 1.50
X-6239-3	3/4-10 x 2.00
X-6239-4	3/4-10 x 2.50
X-6239-5	3/4-10 x 3.00
X-6239-6	3/4-10 x 3.50
X-792-1	1-8 x 2.25
X-792-5	1-8 x 3.00
X-792-8	1-8 x 5.00

Part No. Dimensions Type

Hex Nuts

X-6009-1	1-8	Standard
X-6210-3	6-32	Whiz
X-6210-4	8-32	Whiz
X-6210-5	10-24	Whiz
X-6210-1	10-32	Whiz
X-6210-2	1/4-20	Spiralock
X-6210-6	1/4-28	Spiralock
X-6210-7	5/16-18	Spiralock
X-6210-8	5/16-24	Spiralock
X-6210-9	3/8-16	Spiralock
X-6210-10	3/8-24	Spiralock
X-6210-11	7/16-14	Spiralock
X-6210-12	1/2-13	Spiralock
X-6210-15	7/16-20	Spiralock
X-6210-14	1/2-20	Spiralock
X-85-3	5/8-11	Standard
X-88-12	3/4-10	Standard
X-89-2	1/2-20	Standard

Washers

Part No.	ID	OD	Thick.	Bolt/ Screw
X-25-46	.125	.250	.022	#4
X-25-9	.156	.375	.049	#6
X-25-48	.188	.438	.049	#8
X-25-36	.219	.500	.049	#10
X-25-40	.281	.625	.065	1/4
X-25-85	.344	.687	.065	5/16
X-25-37	.406	.812	.065	3/8
X-25-34	.469	.922	.065	7/16
X-25-26	.531	1.062	.095	1/2
X-25-15	.656	1.312	.095	5/8
X-25-29	.812	1.469	.134	3/4
X-25-127	1.062	2.000	.134	1

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.

Notes

TP-6775 6/13a

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